# SECTION AV
# AUDIO, VISUAL & NAVIGATION SYSTEM

## CONTENTS


**BASE AUDIO WITHOUT SEPARATE DISPLAY**

**PRECAUTION .....12**

**PRECAUTIONS .....12**
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" .....12
Precautions for Removing Battery Terminal .....12

**PREPARATION .....14**

**PREPARATION .....14**
Commercial Service Tools .....14

**SYSTEM DESCRIPTION .....15**

**COMPONENT PARTS .....15**
Component Parts Location .....15
Audio unit .....15
Speaker .....16
Antenna amp., Radio Antenna, and Antenna Feeder .....17

**SYSTEM .....19**

**AUDIO SYSTEM .....19**
AUDIO SYSTEM : System Description .....19
AUDIO SYSTEM : Circuit Diagram .....20

**DIAGNOSIS SYSTEM (AUDIO UNIT) .....21**
Diagnosis Description .....21

**ECU DIAGNOSIS INFORMATION .....24**

**AUDIO UNIT .....24**
Reference Value .....24

**WIRING DIAGRAM .....26**

**BASE AUDIO WITHOUT SEPARATE DISPLAY .....26**
Wiring Diagram .....26

**BASIC INSPECTION .....34**

**DIAGNOSIS AND REPAIR WORKFLOW .....34**
Work Flow .....34

**DTC/CIRCUIT DIAGNOSIS .....36**

**POWER SUPPLY AND GROUND CIRCUIT .....36**

**AUDIO UNIT .....36**
AUDIO UNIT : Diagnosis Procedure .....36

**SYMPTOM DIAGNOSIS .....37**

**AUDIO SYSTEM .....37**
Symptom Table .....37

**NORMAL OPERATING CONDITION .....38**
Description .....38

**REMOVAL AND INSTALLATION .....39**

**AUDIO UNIT .....39**
Removal and Installation .....39

**FRONT DOOR SPEAKER .....40**
Removal and Installation .....40

**SLIDE DOOR SPEAKER .....41**
Removal and Installation .....41

**ANTENNA AMP. .....42**
Removal and Installation .....42

**ANTENNA FEEDER .....43**
Feeder Layout .....43

**DISPLAY AUDIO**

**PRECAUTION .....44**

**PRECAUTIONS .....44**


cardiagn.com

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... 44
Precautions for Removing Battery Terminal ..... 44
Precaution for Trouble Diagnosis ..... 45
Precaution for Harness Repair ..... 45

**PREPARATION ..... 46**

**PREPARATION ..... 46**
Commercial Service Tools ..... 46

**SYSTEM DESCRIPTION ..... 47**

**COMPONENT PARTS ..... 47**
Component Parts Location ..... 47
Audio Unit ..... 47
Speaker ..... 49
Microphone ..... 49
USB Connector and AUX Jack ..... 50
Steering Switch ..... 50
Antenna amp., Radio Antenna, and Antenna Feeder ..... 50
Satellite Radio Antenna ..... 51
Rear View Camera ..... 53

**SYSTEM ..... 54**

**DISPLAY AUDIO SYSTEM ..... 54**
DISPLAY AUDIO SYSTEM : System Description... 54
DISPLAY AUDIO SYSTEM : Circuit Diagram ..... 60

**DIAGNOSIS SYSTEM (AUDIO UNIT) ..... 61**
Description ..... 61
On Board Diagnosis Function ..... 61

**ECU DIAGNOSIS INFORMATION ..... 67**

**AUDIO UNIT ..... 67**
Reference Value ..... 67

**WIRING DIAGRAM ..... 71**

**DISPLAY AUDIO ..... 71**
Wiring Diagram ..... 71

**BASIC INSPECTION ..... 86**

**DIAGNOSIS AND REPAIR WORKFLOW ..... 86**
Work Flow ..... 86

**DTC/CIRCUIT DIAGNOSIS ..... 88**

**POWER SUPPLY AND GROUND CIRCUIT .... 88**

**AUDIO UNIT ..... 88**
AUDIO UNIT : Diagnosis Procedure ..... 88

**CAMERA IMAGE SIGNAL CIRCUIT ..... 89**
Description ..... 89
Diagnosis Procedure ..... 89

**MICROPHONE SIGNAL CIRCUIT ..... 91**
Description ..... 91
Diagnosis Procedure ..... 91

**STEERING SWITCH SIGNAL A CIRCUIT ..... 93**
Description ..... 93
Diagnosis Procedure ..... 93
Component Inspection ..... 94

**STEERING SWITCH SIGNAL B CIRCUIT ..... 95**
Description ..... 95
Diagnosis Procedure ..... 95
Component Inspection ..... 96

**STEERING SWITCH SIGNAL GND CIRCUIT... 97**
Description ..... 97
Diagnosis Procedure ..... 97
Component Inspection ..... 97

**SYMPTOM DIAGNOSIS ..... 99**

**AUDIO SYSTEM SYMPTOMS ..... 99**
Symptom Table ..... 99

**HANDS-FREE PHONE SYMPTOMS .....101**
Symptom Table ..... 101

**NORMAL OPERATING CONDITION .....103**
Description ..... 103

**REMOVAL AND INSTALLATION .....105**

**AUDIO UNIT .....105**
Removal and Installation ..... 105

**FRONT DOOR WOOFER .....106**
Removal and Installation ..... 106

**FRONT SQUAWKER .....107**
Removal and Installation ..... 107

**SLIDE DOOR SPEAKER .....108**
Removal and Installation ..... 108

**REAR VIEW CAMERA .....109**
Removal and Installation ..... 109
Adjustment ..... 109

**USB CONNECTOR AND AUX JACK .....110**
Removal and Installation ..... 110

**MICROPHONE .....111**
Removal and Installation ..... 111

**SATELLITE RADIO ANTENNA .....112**
Exploded View ..... 112
Removal and Installation ..... 112
Disassembly and Assembly ..... 112

**ANTENNA AMP. .....113**
Removal and Installation ..... 113

**ANTENNA FEEDER .....114**
Feeder Layout ..... 114

cardiagn.com

## BASE AUDIO WITH SEPARATE DISPLAY


**PRECAUTION ..... 115**

**PRECAUTIONS ..... 115**
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... 115
Precautions for Removing Battery Terminal ..... 115
Precaution for Trouble Diagnosis ..... 116
Precaution for Harness Repair ..... 116

**PREPARATION ..... 117**

**PREPARATION ..... 117**
Commercial Service Tools ..... 117

**SYSTEM DESCRIPTION ..... 118**

**COMPONENT PARTS ..... 118**
Component Parts Location ..... 118
AV Control Unit ..... 119
Front Display Unit ..... 121
Rear Display Unit ..... 121
Speaker ..... 121
Multifunction Switch ..... 122
Disk Eject Switch ..... 123
Steering Switch ..... 123
TEL Adapter Unit ..... 123
TEL Antenna ..... 123
Microphone ..... 124
USB Connector ..... 124
Auxiliary Input Jacks ..... 124
Rear View Camera ..... 124
Steering Angle Sensor ..... 125
Antenna amp., Radio Antenna, and Antenna Feeder ..... 125
Satellite Radio Tuner ..... 127
Satellite Radio Antenna ..... 127
Headphone ..... 129
Remote Controller ..... 129

**SYSTEM ..... 130**

**MULTI AV SYSTEM ..... 130**
MULTI AV SYSTEM : System Description ..... 130
MULTI AV SYSTEM : Circuit Diagram ..... 137

**DIAGNOSIS SYSTEM (AV CONTROL UNIT).. 138**
Description ..... 138
On Board Diagnosis Function ..... 138
CONSULT Function ..... 147

**DIAGNOSIS SYSTEM (TEL ADAPTER UNIT). 150**
Description ..... 150
On Board Diagnosis Function ..... 150

**ECU DIAGNOSIS INFORMATION ..... 152**

**AV CONTROL UNIT ..... 152**
Reference Value ..... 152
DTC Index ..... 159

**FRONT DISPLAY UNIT ..... 160**
Reference Value ..... 160

**REAR DISPLAY UNIT ..... 163**
Reference Value ..... 163

**SATELLITE RADIO TUNER ..... 165**
Reference Value ..... 165

**TEL ADAPTER UNIT ..... 167**
Reference Value ..... 167

**WIRING DIAGRAM ..... 169**

**BASE AUDIO WITH SEPARATE DISPLAY ... 169**
Wiring Diagram ..... 169

**BASIC INSPECTION ..... 189**

**DIAGNOSIS AND REPAIR WORKFLOW ..... 189**
Work Flow ..... 189

**ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT) ..... 191**
Description ..... 191
Work Procedure ..... 191

**CONFIGURATION (AV CONTROL UNIT) ..... 192**
Description ..... 192
Work Procedure ..... 192
Configuration List ..... 192

**DTC/CIRCUIT DIAGNOSIS ..... 194**

**U1000 CAN COMM CIRCUIT ..... 194**
Description ..... 194
DTC Logic ..... 194
Diagnosis Procedure ..... 194

**U1010 CONTROL UNIT (CAN) ..... 195**
DTC Logic ..... 195

**U1200 AV CONTROL UNIT ..... 196**
DTC Logic ..... 196

**U1216 AV CONTROL UNIT ..... 197**
DTC Logic ..... 197

**U1232 STEERING ANGLE SENSOR ..... 198**
DTC Logic ..... 198
Diagnosis Procedure ..... 198

**U1243 FRONT DISPLAY UNIT ..... 199**
DTC Logic ..... 199
Diagnosis Procedure ..... 199

**U1255 SATELLITE RADIO TUNER ..... 201**
DTC Logic ..... 201
Diagnosis Procedure ..... 201

**U1300 AV COMM CIRCUIT ..... 203**




cardiagn.com

Description .....203

**U1310 AV CONTROL UNIT ..... 204**
DTC Logic .....204

**POWER SUPPLY AND GROUND CIRCUIT .. 205**

**AV CONTROL UNIT .....205**
AV CONTROL UNIT : Diagnosis Procedure .....205

**FRONT DISPLAY UNIT .....205**
FRONT DISPLAY UNIT : Diagnosis Procedure ...205

**REAR DISPLAY UNIT .....206**
REAR DISPLAY UNIT : Diagnosis Procedure .....207

**SATELLITE RADIO TUNER .....207**
SATELLITE RADIO TUNER : Diagnosis Procedure .....207

**TEL ADAPTER UNIT .....208**
TEL ADAPTER UNIT : Diagnosis Procedure .....208

**RGB (R: RED) SIGNAL CIRCUIT ..... 210**
Description .....210
Diagnosis Procedure .....210

**RGB (G: GREEN) SIGNAL CIRCUIT ..... 211**
Description .....211
Diagnosis Procedure .....211

**RGB (B: BLUE) SIGNAL CIRCUIT ..... 212**
Description .....212
Diagnosis Procedure .....212

**RGB SYNCHRONIZING SIGNAL CIRCUIT ... 213**
Description .....213
Diagnosis Procedure .....213

**RGB AREA (YS) SIGNAL CIRCUIT ..... 214**
Description .....214
Diagnosis Procedure .....214

**HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT ..... 215**
Description .....215
Diagnosis Procedure .....215

**VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT ..... 216**
Description .....216
Diagnosis Procedure .....216

**COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT). 217**
Description .....217
Diagnosis Procedure .....217

**COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT) . 218**
Description .....218
Diagnosis Procedure .....218

**AUX IMAGE SIGNAL CIRCUIT .....219**
Description ..... 219
Diagnosis Procedure ..... 219

**CAMERA IMAGE SIGNAL CIRCUIT .....220**
Description ..... 220
Diagnosis Procedure ..... 220

**DISK EJECT SIGNAL CIRCUIT .....222**
Description ..... 222
Diagnosis Procedure ..... 222

**MICROPHONE SIGNAL CIRCUIT .....223**
Description ..... 223
Diagnosis Procedure ..... 223

**CONTROL SIGNAL CIRCUIT .....225**
Description ..... 225
Diagnosis Procedure ..... 225

**STEERING SWITCH SIGNAL A CIRCUIT .....226**
Description ..... 226
Diagnosis Procedure ..... 226
Component Inspection ..... 226

**STEERING SWITCH SIGNAL B CIRCUIT .....228**
Description ..... 228
Diagnosis Procedure ..... 228
Component Inspection ..... 228

**STEERING SWITCH GROUND CIRCUIT .....230**
Description ..... 230
Diagnosis Procedure ..... 230
Component Inspection ..... 230

**SYMPTOM DIAGNOSIS .....232**

**MULTI AV SYSTEM SYMPTOMS .....232**
Symptom Table ..... 232

**NORMAL OPERATING CONDITION .....238**
Description ..... 238

**REMOVAL AND INSTALLATION .....242**

**AV CONTROL UNIT .....242**
Removal and Installation ..... 242

**FRONT DISPLAY UNIT .....243**
Removal and Installation ..... 243

**REAR DISPLAY UNIT .....244**
Removal and Installation ..... 244

**FRONT DOOR WOOFER .....245**
Removal and Installation ..... 245

**FRONT SQUAWKER .....246**
Removal and Installation ..... 246

**SLIDE DOOR SPEAKER .....247**
Removal and Installation ..... 247

cardiagn.com

**MULTIFUNCTION SWITCH ..... 248**
Removal and Installation ..... 248

**PRESET SWITCH ..... 249**
Removal and Installation ..... 249

**DISK EJECT SWITCH ..... 250**
Removal and Installation ..... 250

**AUXILIARY INPUT JACKS ..... 251**
Removal and Installation ..... 251

**USB CONNECTOR ..... 252**
Removal and Installation ..... 252

**TEL ADAPTER UNIT ..... 253**
Removal and Installation ..... 253

**TEL ANTENNA ..... 254**
Removal and Installation ..... 254

**MICROPHONE ..... 255**
Removal and Installation ..... 255

**SATELLITE RADIO TUNER ..... 256**
Removal and Installation ..... 256

**SATELLITE RADIO ANTENNA ..... 257**
Exploded View ..... 257
Removal and Installation ..... 257
Disassembly and Assembly ..... 257

**ANTENNA AMP. ..... 258**
Removal and Installation ..... 258

**REAR VIEW CAMERA ..... 259**
Removal and Installation ..... 259
Adjustment ..... 259

**STEERING ANGLE SENSOR ..... 260**
Exploded View ..... 260
Removal and Installation ..... 260

**ANTENNA FEEDER ..... 261**
Feeder Layout ..... 261

**BOSE AUDIO WITHOUT NAVIGATION**

**PRECAUTION ..... 262**

**PRECAUTIONS ..... 262**
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... 262
Precautions for Removing Battery Terminal ..... 262
Precaution for Trouble Diagnosis ..... 263
Precaution for Harness Repair ..... 263

**PREPARATION ..... 264**

**PREPARATION ..... 264**
Commercial Service Tools ..... 264

**SYSTEM DESCRIPTION ..... 265**

**COMPONENT PARTS ..... 265**
Component Parts Location ..... 265
AV Control Unit ..... 266
Front Display Unit ..... 268
Rear Display Unit ..... 268
Multifunction Switch ..... 269
Disk Eject Switch ..... 269
Steering Switch ..... 269
BOSE Amp. ..... 270
Speaker ..... 270
TEL Adapter Unit ..... 272
TEL Antenna ..... 272
Microphone ..... 272
USB Connector ..... 272
Auxiliary Input Jacks ..... 273
Rear View Camera ..... 273
Steering Angle Sensor ..... 273
Antenna amp, Radio Antenna, and Antenna Feeder ..... 273
Satellite Radio Tuner ..... 276
Satellite Radio Antenna ..... 276
Headphone ..... 278
Remote Controller ..... 278

**SYSTEM ..... 279**

**MULTI AV SYSTEM ..... 279**
MULTI AV SYSTEM : System Description ..... 279
MULTI AV SYSTEM : Circuit Diagram ..... 286

**DIAGNOSIS SYSTEM (AV CONTROL UNIT) . 287**
Description ..... 287
On Board Diagnosis Function ..... 287
CONSULT Function ..... 296

**DIAGNOSIS SYSTEM (TEL ADAPTER UNIT). 299**
Description ..... 299
On Board Diagnosis Function ..... 299

**ECU DIAGNOSIS INFORMATION ..... 301**

**AV CONTROL UNIT ..... 301**
Reference Value ..... 301
DTC Index ..... 308

**FRONT DISPLAY UNIT ..... 310**
Reference Value ..... 310

**REAR DISPLAY UNIT ..... 313**
Reference Value ..... 313

**BOSE AMP. ..... 315**
Reference Values ..... 315

**SATELLITE RADIO TUNER ..... 318**
Reference Value ..... 318

**TEL ADAPTER UNIT ..... 320**
Reference Value ..... 320

**WIRING DIAGRAM ..... 322**

cardiagn.com

**BOSE AUDIO WITHOUT NAVIGATION ..... 322**
Wiring Diagram .....322

**BASIC INSPECTION .....345**

**DIAGNOSIS AND REPAIR WORKFLOW ..... 345**
Work Flow .....345

**ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT) ..... 347**
Description .....347
Work Procedure .....347

**CONFIGURATION (AV CONTROL UNIT) ..... 348**
Description .....348
Work Procedure .....348
Configuration List .....348

**DTC/CIRCUIT DIAGNOSIS .....350**

**U1000 CAN COMM CIRCUIT ..... 350**
Description .....350
DTC Logic .....350
Diagnosis Procedure .....350

**U1010 CONTROL UNIT (CAN) ..... 351**
DTC Logic .....351

**U1200 AV CONTROL UNIT ..... 352**
DTC Logic .....352

**U1216 AV CONTROL UNIT ..... 353**
DTC Logic .....353

**U1232 STEERING ANGLE SENSOR ..... 354**
DTC Logic .....354
Diagnosis Procedure .....354

**U1243 FRONT DISPLAY UNIT ..... 355**
DTC Logic .....355
Diagnosis Procedure .....355

**U1255 SATELLITE RADIO TUNER ..... 357**
DTC Logic .....357
Diagnosis Procedure .....357

**U1300 AV COMM CIRCUIT ..... 359**
Description .....359

**U1310 AV CONTROL UNIT ..... 360**
DTC Logic .....360

**POWER SUPPLY AND GROUND CIRCUIT .. 361**

**AV CONTROL UNIT .....361**
AV CONTROL UNIT : Diagnosis Procedure .....361

**FRONT DISPLAY UNIT .....361**
FRONT DISPLAY UNIT : Diagnosis Procedure ...361

**REAR DISPLAY UNIT .....362**
REAR DISPLAY UNIT : Diagnosis Procedure .....363

**BOSE AMP. ..... 363**
BOSE AMP. : Diagnosis Procedure ..... 363

**SATELLITE RADIO TUNER ..... 364**
SATELLITE RADIO TUNER : Diagnosis Procedure ..... 364

**TEL ADAPTER UNIT ..... 365**
TEL ADAPTER UNIT : Diagnosis Procedure ..... 365

**RGB (R: RED) SIGNAL CIRCUIT .....366**
Description ..... 366
Diagnosis Procedure ..... 366

**RGB (G: GREEN) SIGNAL CIRCUIT .....367**
Description ..... 367
Diagnosis Procedure ..... 367

**RGB (B: BLUE) SIGNAL CIRCUIT .....368**
Description ..... 368
Diagnosis Procedure ..... 368

**RGB SYNCHRONIZING SIGNAL CIRCUIT ....369**
Description ..... 369
Diagnosis Procedure ..... 369

**RGB AREA (YS) SIGNAL CIRCUIT .....370**
Description ..... 370
Diagnosis Procedure ..... 370

**HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT .....371**
Description ..... 371
Diagnosis Procedure ..... 371

**VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT .....372**
Description ..... 372
Diagnosis Procedure ..... 372

**COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)..373**
Description ..... 373
Diagnosis Procedure ..... 373

**COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT) ..374**
Description ..... 374
Diagnosis Procedure ..... 374

**AUX IMAGE SIGNAL CIRCUIT .....375**
Description ..... 375
Diagnosis Procedure ..... 375

**CAMERA IMAGE SIGNAL CIRCUIT .....376**
Description ..... 376
Diagnosis Procedure ..... 376

**DISK EJECT SIGNAL CIRCUIT .....378**
Description ..... 378
Diagnosis Procedure ..... 378

cardiagn.com

**MICROPHONE SIGNAL CIRCUIT ..... 379**
Description ..... 379
Diagnosis Procedure ..... 379

**CONTROL SIGNAL CIRCUIT ..... 381**
Description ..... 381
Diagnosis Procedure ..... 381

**STEERING SWITCH SIGNAL A CIRCUIT ..... 382**
Description ..... 382
Diagnosis Procedure ..... 382
Component Inspection ..... 382

**STEERING SWITCH SIGNAL B CIRCUIT ..... 384**
Description ..... 384
Diagnosis Procedure ..... 384
Component Inspection ..... 384

**STEERING SWITCH GROUND CIRCUIT ..... 386**
Description ..... 386
Diagnosis Procedure ..... 386
Component Inspection ..... 386

**SYMPTOM DIAGNOSIS ..... 388**

**MULTI AV SYSTEM SYMPTOMS ..... 388**
Symptom Table ..... 388

**NORMAL OPERATING CONDITION ..... 394**
Description ..... 394

**REMOVAL AND INSTALLATION ..... 398**

**AV CONTROL UNIT ..... 398**
Removal and Installation ..... 398

**FRONT DISPLAY UNIT ..... 399**
Removal and Installation ..... 399

**REAR DISPLAY UNIT ..... 400**
Removal and Installation ..... 400

**BOSE AMP. ..... 401**
Removal and Installation ..... 401

**FRONT DOOR WOOFER ..... 402**
Removal and Installation ..... 402

**FRONT SQUAWKER ..... 403**
Removal and Installation ..... 403

**SLIDE DOOR SPEAKER ..... 404**
Removal and Installation ..... 404

**SLIDE DOOR SQUAWKER ..... 405**
Removal and Installation ..... 405

**LUGGAGE SQUAWKER ..... 406**
Removal and Installation ..... 406

**CENTER SQUAWKER ..... 407**
Removal and Installation ..... 407

**WOOFER ..... 408**
Removal and Installation ..... 408

**MULTIFUNCTION SWITCH ..... 409**
Removal and Installation ..... 409

**PRESET SWITCH ..... 410**
Removal and Installation ..... 410

**DISK EJECT SWITCH ..... 411**
Removal and Installation ..... 411

**AUXILIARY INPUT JACKS ..... 412**
Removal and Installation ..... 412

**USB CONNECTOR ..... 413**
Removal and Installation ..... 413

**TEL ADAPTER UNIT ..... 414**
Removal and Installation ..... 414

**TEL ANTENNA ..... 415**
Removal and Installation ..... 415

**MICROPHONE ..... 416**
Removal and Installation ..... 416

**ANTENNA AMP. ..... 417**
Removal and Installation ..... 417

**SATELLITE RADIO TUNER ..... 418**
Removal and Installation ..... 418

**SATELLITE RADIO ANTENNA ..... 419**
Exploded View ..... 419
Removal and Installation ..... 419
Disassembly and Assembly ..... 419

**REAR VIEW CAMERA ..... 420**
Removal and Installation ..... 420
Adjustment ..... 420

**STEERING ANGLE SENSOR ..... 421**
Exploded View ..... 421
Removal and Installation ..... 421

**ANTENNA FEEDER ..... 422**
Feeder Layout ..... 422

## BOSE AUDIO WITH NAVIGATION

**PRECAUTION ..... 423**

**PRECAUTIONS ..... 423**
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... 423
Precautions for Removing Battery Terminal ..... 423
Precaution for Trouble Diagnosis ..... 424
Precaution for Harness Repair ..... 424

**PREPARATION ..... 425**

**PREPARATION ..... 425**

cardiagn.com

Commercial Service Tools ..... 425

**SYSTEM DESCRIPTION ..... 426**

**COMPONENT PARTS ..... 426**
Component Parts Location ..... 426
AV Control Unit ..... 427
Front Display Unit ..... 430
Rear Display Unit ..... 430
Multifunction Switch ..... 431
Disk Eject Switch ..... 431
Steering Switch ..... 431
BOSE Amp. ..... 432
Speaker ..... 432
GPS Antenna ..... 434
Around View Monitor Control Unit ..... 434
Rear Camera ..... 434
Side Camera ..... 435
Front Camera ..... 435
Steering Angle Sensor ..... 435
Microphone ..... 436
USB Connector ..... 436
Auxiliary Input Jacks ..... 436
Antenna Amp., Radio Antenna, and Antenna Feeder ..... 436
Satellite Radio Antenna ..... 437
Headphone ..... 439
Remote Controller ..... 439

**SYSTEM ..... 440**

**MULTI AV SYSTEM ..... 440**
MULTI AV SYSTEM : System Description ..... 440
MULTI AV SYSTEM : Map Data Update ..... 455
MULTI AV SYSTEM : Fail-Safe ..... 455
MULTI AV SYSTEM : Circuit Diagram ..... 457

**DIAGNOSIS SYSTEM (AV CONTROL UNIT) . 459**
Description ..... 459
On Board Diagnosis Function ..... 459
CONSULT Function ..... 469

**DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) ..... 473**
CONSULT Function ..... 473

**ECU DIAGNOSIS INFORMATION ..... 476**

**AV CONTROL UNIT ..... 476**
Reference Value ..... 476
Fail-Safe ..... 481
DTC Index ..... 482

**FRONT DISPLAY UNIT ..... 484**
Reference Value ..... 484

**REAR DISPLAY UNIT ..... 486**
Reference Value ..... 486

**AROUND VIEW MONITOR CONTROL UNIT . 488**
Reference Value ..... 488
DTC Index ..... 491

**BOSE AMP. ..... 492**
Reference Values ..... 492

**WIRING DIAGRAM ..... 495**

**BOSE AUDIO WITH NAVIGATION ..... 495**
Wiring Diagram ..... 495

**BASIC INSPECTION ..... 519**

**DIAGNOSIS AND REPAIR WORK FLOW ..... 519**

**MULTI AV SYSTEM ..... 519**
MULTI AV SYSTEM : Work Flow ..... 519

**AROUND VIEW MONITOR SYSTEM ..... 520**
AROUND VIEW MONITOR SYSTEM : Work Flow ..... 521

**INSPECTION AND ADJUSTMENT ..... 523**

**ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT ..... 523**
ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description ..... 523
ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure ..... 523

**ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT ..... 523**
ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description ..... 523

**CONFIGURATION (AV CONTROL UNIT) ..... 523**
CONFIGURATION (AV CONTROL UNIT) : Description ..... 524
CONFIGURATION (AV CONTROL UNIT) : Work Procedure ..... 524
CONFIGURATION (AV CONTROL UNIT) : Configuration List ..... 524

**CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) ..... 525**
CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure ..... 525

**PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT ..... 526**
PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Description ..... 526
PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure ..... 526

**CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) ..... 526**
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description ..... 526
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure ..... 526

cardiagn.com

**DTC/CIRCUIT DIAGNOSIS ..... 532**

**U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) ..... 532**
DTC Logic ..... 532
Diagnosis Procedure ..... 532

**U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) ..... 533**
DTC Logic ..... 533
Diagnosis Procedure ..... 533

**U0428 STEERING ANGLE SENSOR ..... 534**
DTC Logic ..... 534
Diagnosis Procedure ..... 534

**U1000 CAN COMM CIRCUIT ..... 535**

**AV CONTROL UNIT ..... 535**
AV CONTROL UNIT : Description ..... 535
AV CONTROL UNIT : DTC Logic ..... 535
AV CONTROL UNIT : Diagnosis Procedure ..... 535

**AROUND VIEW MONITOR CONTROL UNIT ..... 535**
AROUND VIEW MONITOR CONTROL UNIT : Description ..... 535
AROUND VIEW MONITOR CONTROL UNIT : DTC Logic ..... 535
AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure ..... 535

**U1010 CONTROL UNIT (CAN) ..... 537**

**AV CONTROL UNIT ..... 537**
AV CONTROL UNIT : DTC Logic ..... 537

**AROUND VIEW MONITOR CONTROL UNIT ..... 537**
AROUND VIEW MONITOR CONTROL UNIT : DTC Logic ..... 537

**U111A REAR CAMERA IMAGE SIGNAL CIRCUIT ..... 538**
DTC Logic ..... 538
Diagnosis Procedure ..... 538

**U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT ..... 540**
DTC Logic ..... 540
Diagnosis Procedure ..... 540

**U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT ..... 542**
DTC Logic ..... 542
Diagnosis Procedure ..... 542

**U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT ..... 544**
DTC Logic ..... 544
Diagnosis Procedure ..... 544

**U1200 AV CONTROL UNIT ..... 546**
DTC Logic ..... 546

**U1201 AV CONTROL UNIT ..... 547**
DTC Logic ..... 547

**U1202 AV CONTROL UNIT ..... 548**
DTC Logic ..... 548

**U1204 AV CONTROL UNIT ..... 549**
Description ..... 549
DTC Logic ..... 549
Diagnosis Procedure ..... 549

**U1205 AV CONTROL UNIT ..... 550**
Description ..... 550
DTC Logic ..... 550
Diagnosis Procedure ..... 550

**U1206 AV CONTROL UNIT ..... 551**
Description ..... 551
DTC Logic ..... 551
Diagnosis Procedure ..... 551

**U1207 AV CONTROL UNIT ..... 552**
Description ..... 552
DTC Logic ..... 552
Diagnosis Procedure ..... 552

**U1216 AV CONTROL UNIT ..... 553**
DTC Logic ..... 553

**U1217 AV CONTROL UNIT ..... 554**
DTC Logic ..... 554

**U1218 AV CONTROL UNIT ..... 555**
DTC Logic ..... 555

**U1219 AV CONTROL UNIT ..... 556**
DTC Logic ..... 556

**U121A AV CONTROL UNIT ..... 557**
DTC Logic ..... 557

**U121B AV CONTROL UNIT ..... 558**
DTC Logic ..... 558

**U121C AV CONTROL UNIT ..... 559**
DTC Logic ..... 559

**U121D AV CONTROL UNIT ..... 560**
DTC Logic ..... 560
Diagnosis Procedure ..... 560

**U121E AV CONTROL UNIT ..... 561**
DTC Logic ..... 561
Diagnosis Procedure ..... 561

**U1225 AV CONTROL UNIT ..... 562**
DTC Logic ..... 562

**U1227 AV CONTROL UNIT ..... 563**
DTC Logic ..... 563
Diagnosis Procedure ..... 563

**U1228 AV CONTROL UNIT ..... 564**



cardiagn.com

DTC Logic .....564

**U1229 AV CONTROL UNIT ..... 565**
DTC Logic .....565

**U122A AV CONTROL UNIT ..... 566**
DTC Logic .....566
Diagnosis Procedure .....566

**U122E AV CONTROL UNIT ..... 567**
DTC Logic .....567

**U1232 STEERING ANGLE SENSOR ..... 568**

**AV CONTROL UNIT .....568**
AV CONTROL UNIT : DTC Logic .....568
AV CONTROL UNIT : Diagnosis Procedure .....568

**AROUND VIEW MONITOR CONTROL UNIT .....568**
AROUND VIEW MONITOR CONTROL UNIT : DTC Logic .....568
AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure .....568

**U1243 FRONT DISPLAY UNIT ..... 569**
DTC Logic .....569
Diagnosis Procedure .....569

**U1244 GPS ANTENNA ..... 571**
DTC Logic .....571
Diagnosis Procedure .....571

**U1258 SATELLITE RADIO ANTENNA ..... 572**
DTC Logic .....572
Diagnosis Procedure .....572

**U1263 USB ..... 573**
DTC Logic .....573
Diagnosis Procedure .....573

**U1264 ANTENNA AMP. ..... 574**
DTC Logic .....574
Diagnosis Procedure .....574

**U1265 BOSE AMP. ..... 575**
DTC Logic .....575
Diagnosis Procedure .....575

**U1300 AV COMM CIRCUIT ..... 576**
Description .....576

**U1304 CAMERA IMAGE CALIBRATION ..... 577**
DTC Logic .....577
Diagnosis Procedure .....577

**U1305 CONFIG UNFINISH ..... 578**
DTC Logic .....578
Diagnosis Procedure .....578

**U1310 AV CONTROL UNIT ..... 579**
DTC Logic .....579

**POWER SUPPLY AND GROUND CIRCUIT .. 580**

**AV CONTROL UNIT ..... 580**
AV CONTROL UNIT : Diagnosis Procedure ..... 580

**FRONT DISPLAY UNIT ..... 580**
FRONT DISPLAY UNIT : Diagnosis Procedure ... 580

**REAR DISPLAY UNIT ..... 581**
REAR DISPLAY UNIT : Diagnosis Procedure ..... 581

**BOSE AMP. ..... 582**
BOSE AMP. : Diagnosis Procedure ..... 582

**AROUND VIEW MONITOR CONTROL UNIT ..... 582**
AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure ..... 583

**COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT).584**
Description ..... 584
Diagnosis Procedure ..... 584

**COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT) ..585**
Description ..... 585
Diagnosis Procedure ..... 585

**RGB DIGITAL IMAGE SIGNAL CIRCUIT .....586**
Description ..... 586
Diagnosis Procedure ..... 586

**AUX IMAGE SIGNAL CIRCUIT .....587**
Description ..... 587
Diagnosis Procedure ..... 587

**CAMERA IMAGE SIGNAL CIRCUIT .....588**
Description ..... 588
Diagnosis Procedure ..... 588

**DISK EJECT SIGNAL CIRCUIT .....589**
Description ..... 589
Diagnosis Procedure ..... 589

**MICROPHONE SIGNAL CIRCUIT .....590**
Description ..... 590
Diagnosis Procedure ..... 590

**STEERING SWITCH SIGNAL A CIRCUIT .....592**
Description ..... 592
Diagnosis Procedure ..... 592
Component Inspection ..... 592

**STEERING SWITCH SIGNAL B CIRCUIT .....594**
Description ..... 594
Diagnosis Procedure ..... 594
Component Inspection ..... 594

**STEERING SWITCH GROUND CIRCUIT .....596**
Description ..... 596
Diagnosis Procedure ..... 596
Component Inspection ..... 596

**SYMPTOM DIAGNOSIS .....598**

cardiagn.com

**MULTI AV SYSTEM SYMPTOMS ..... 598**
Symptom Table ..... 598

**NORMAL OPERATING CONDITION ..... 604**
Description ..... 604

**REMOVAL AND INSTALLATION ..... 610**

**AV CONTROL UNIT ..... 610**
Removal and Installation ..... 610

**FRONT DISPLAY UNIT ..... 611**
Removal and Installation ..... 611

**REAR DISPLAY UNIT ..... 612**
Removal and Installation ..... 612

**BOSE AMP. ..... 613**
Removal and Installation ..... 613

**FRONT DOOR WOOFER ..... 614**
Removal and Installation ..... 614

**FRONT SQUAWKER ..... 615**
Removal and Installation ..... 615

**SLIDE DOOR SPEAKER ..... 616**
Removal and Installation ..... 616

**SLIDE DOOR SQUAWKER ..... 617**
Removal and Installation ..... 617

**LUGGAGE SQUAWKER ..... 618**
Removal and Installation ..... 618

**CENTER SQUAWKER ..... 619**
Removal and Installation ..... 619

**WOOFER ..... 620**
Removal and Installation ..... 620

**MULTIFUNCTION SWITCH ..... 621**
Removal and Installation ..... 621

**PRESET SWITCH ..... 622**
Removal and Installation ..... 622

**DISK EJECT SWITCH ..... 623**
Removal and Installation ..... 623

**AUXILIARY INPUT JACKS ..... 624**
Removal and Installation ..... 624

**USB CONNECTOR ..... 625**
Removal and Installation ..... 625

**MICROPHONE ..... 626**
Removal and Installation ..... 626

**ANTENNA AMP. ..... 627**
Removal and Installation ..... 627

**SATELLITE RADIO ANTENNA ..... 628**
Exploded View ..... 628
Removal and Installation ..... 628
Disassembly and Assembly ..... 628

**GPS ANTENNA ..... 629**
Feeder Layout ..... 629
Removal and Installation ..... 629

**AROUND VIEW MONITOR CONTROL UNIT . 631**
Removal and Installation ..... 631

**FRONT CAMERA ..... 632**
Removal and Installation ..... 632

**REAR CAMERA ..... 633**
Removal and Installation ..... 633

**SIDE CAMERA ..... 634**
Removal and Installation ..... 634

**STEERING ANGLE SENSOR ..... 635**
Exploded View ..... 635
Removal and Installation ..... 635

**ANTENNA FEEDER ..... 636**
Feeder Layout ..... 636



cardiagn.com

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000012407052

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

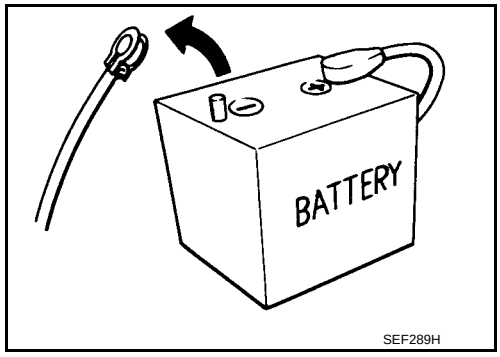
### Precautions for Removing Battery Terminal

INFOID:0000000013034924

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

| | | | |
|---|---|---|---|
| D4D engine | : 20 minutes | YS23DDT | : 4 minutes |
| HRA2DDT | : 12 minutes | YS23DDTT | : 4 minutes |
| K9K engine | : 4 minutes | ZD30DDTi | : 60 seconds |
| M9R engine | : 4 minutes | ZD30DDTT | : 60 seconds |
| R9M engine | : 4 minutes | | |
| V9X engine | : 4 minutes | | |
| YD25DDTi | : 2 minutes | | |




**NOTE:**

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

**NOTE:**

cardiagn.com

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.



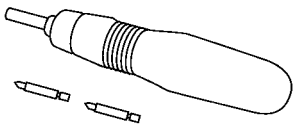
cardiagn.com

# PREPARATION

## PREPARATION

### Commercial Service Tools

INFOID:0000000012407054

| Tool | | Description |
|---|---|---|
| Power tool |  PBIC0191E | Loosening screws |

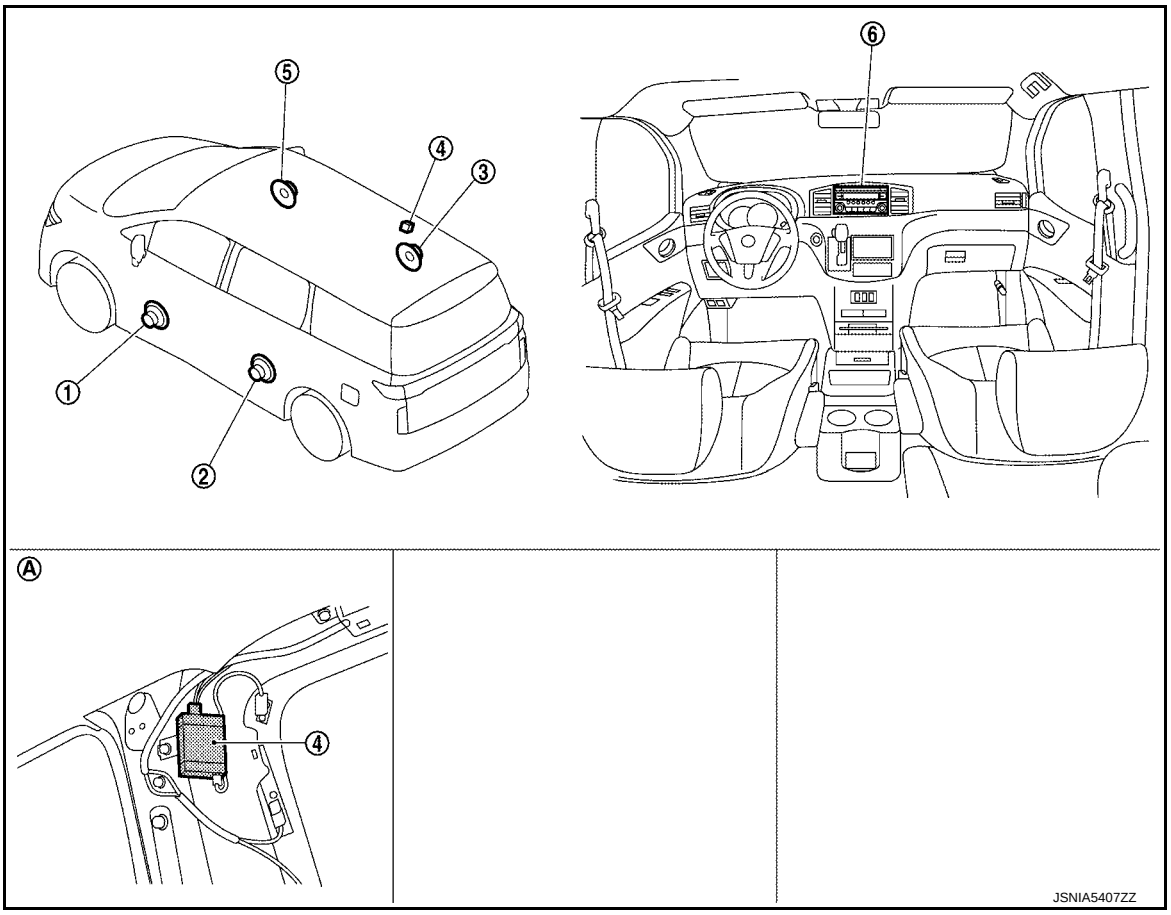
cardiagn.com

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000012407055




A. Rear pillar garnish (RH) is removed.

| No. | Component | Function |
|---|---|---|
| 1, 5. | Front door speaker | Refer to AV-16, "Speaker". |
| 2, 3. | Slide door speaker | |
| 4. | Antenna amp. | Refer to AV-17, "Antenna amp., Radio Antenna, and Antenna Feeder". |
| 6. | Audio unit | Refer to AV-15, "Audio unit". |

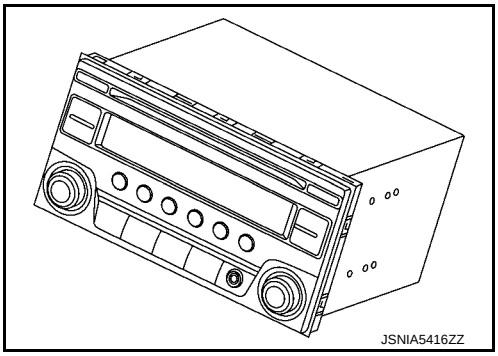
### Audio unit

INFOID:0000000012407056

#### DESCRIPTION

cardiagn.com

- AM/FM electronic tuner radio, CD player, and auxiliary input jack are integrated into the audio unit.
- The audio unit supports CD-R/CD-RW and provides the playback of MP3/WMA music files.




## SPECIFICATION

| | | |
|---|---|---|
| Manufacturer name | | Clarion Co.,Ltd |
| Audio amplifier | | 45 W × 4 |
| AM/FM electric tuner | FM diversity function | With |
| CD drive | CD changer | Without |
| | Used disc | ϕ 12 cm (4.7 in) |
| | CD-R/CD-RW playback function | With* |
| | MP3 / WMA playback function | With |
| Auxiliary input | ϕ 3.5 mm (0.1 in) stereo mini jack | With |
| Steering switch | | Without |

*: If the reflectance of the surface of the media is low, the data may not be read.

## Speaker

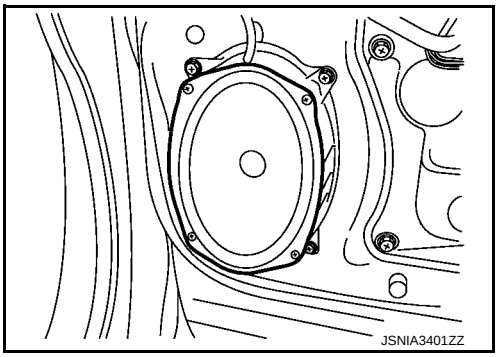
INFOID:0000000012407057

4 speakers system is adopted.

### FRONT DOOR SPEAKER

- ϕ 15.0 × 23.0 cm (6 × 9 in) speaker is installed to the bottom of the front door.
- Sound signal is input from the audio unit to output low range sounds.

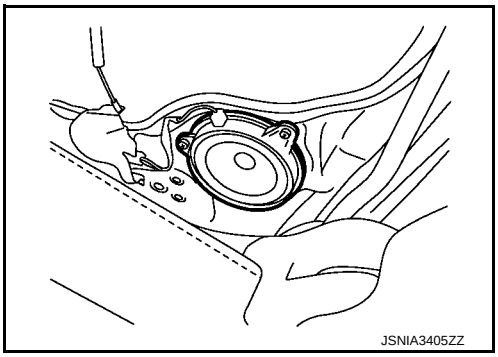
**Rated input : 20 W**
**Maximum input : 40 W**
**Impedance : 2 Ω**




### SLIDE DOOR SPEAKER

- ϕ 16cm (6.5 in) speaker is located at the lower part of the back of the slide door.
- Sound signal is input from the audio unit to output high, mid, and low range sounds.

**Rated input : 20 W**
**Maximum input : 40 W**
**Impedance : 2 Ω**




cardiagn.com

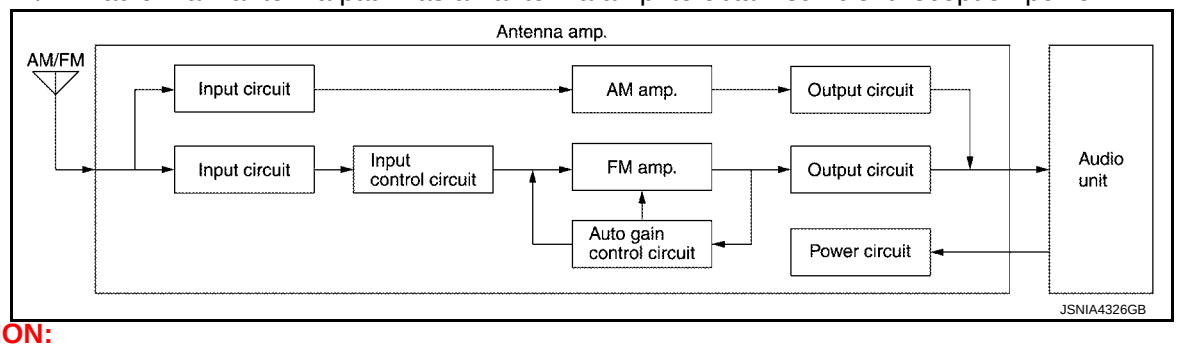
## Antenna amp., Radio Antenna, and Antenna Feeder

INFOID:0000000012407058

### RADIO ANTENNA

- AM/FM radio main antenna is located on the right rear side window glass and FM radio sub antenna on the left rear side window glass.

- The AM/FM radio main antenna path has an antenna amp. to obtain sufficient reception power.



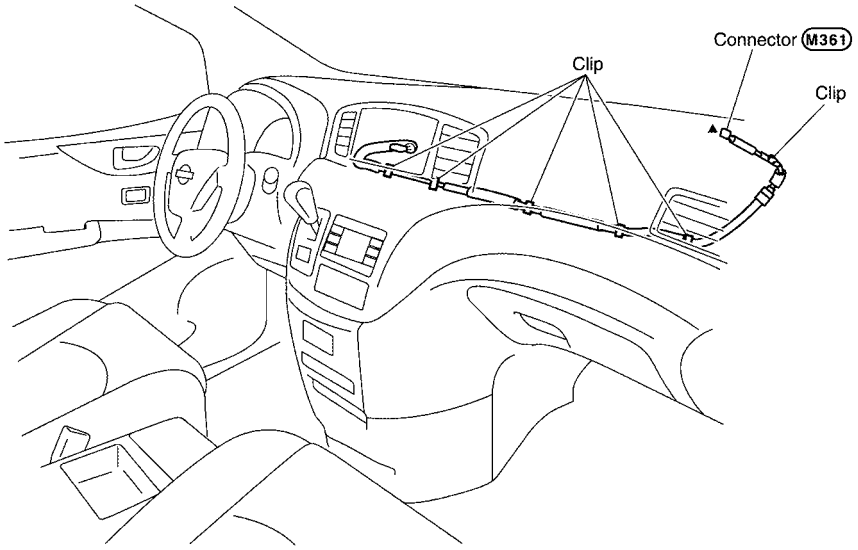

**CAUTION:**

**Affixing any mirror-type window films or metallic items (e.g. commercial antenna) on the rear side window glass causes a reduction in the radio receiver sensitivity.**

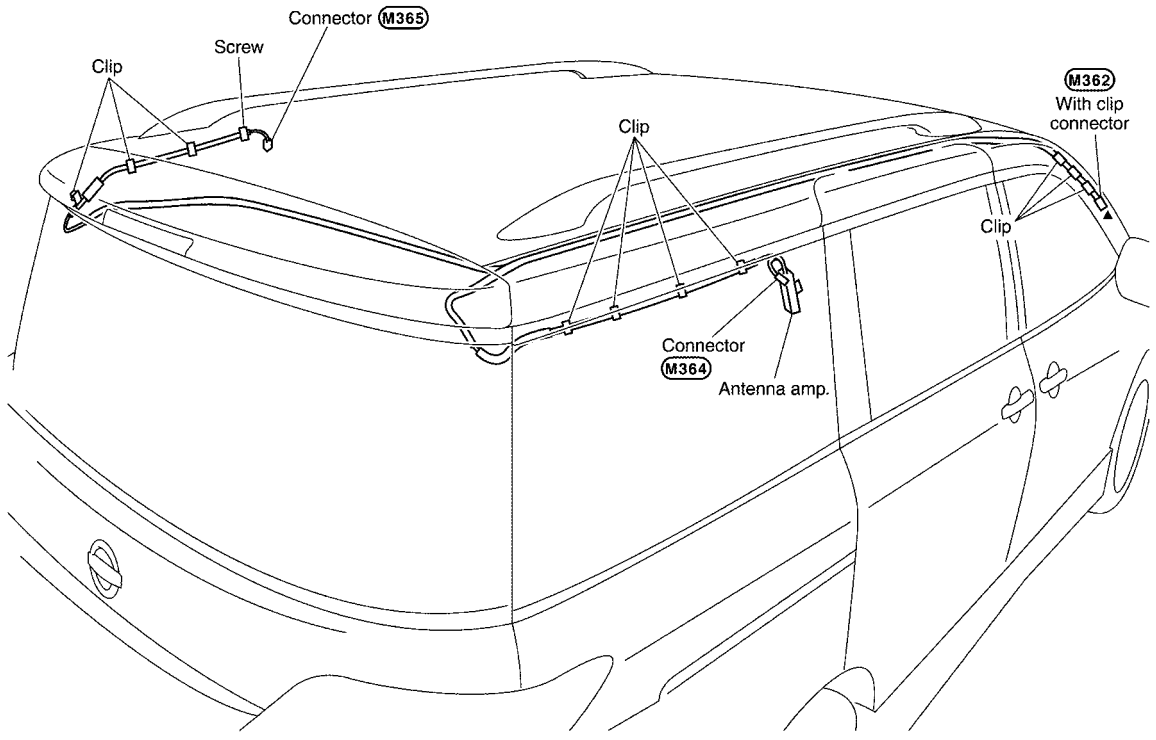
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4220GB

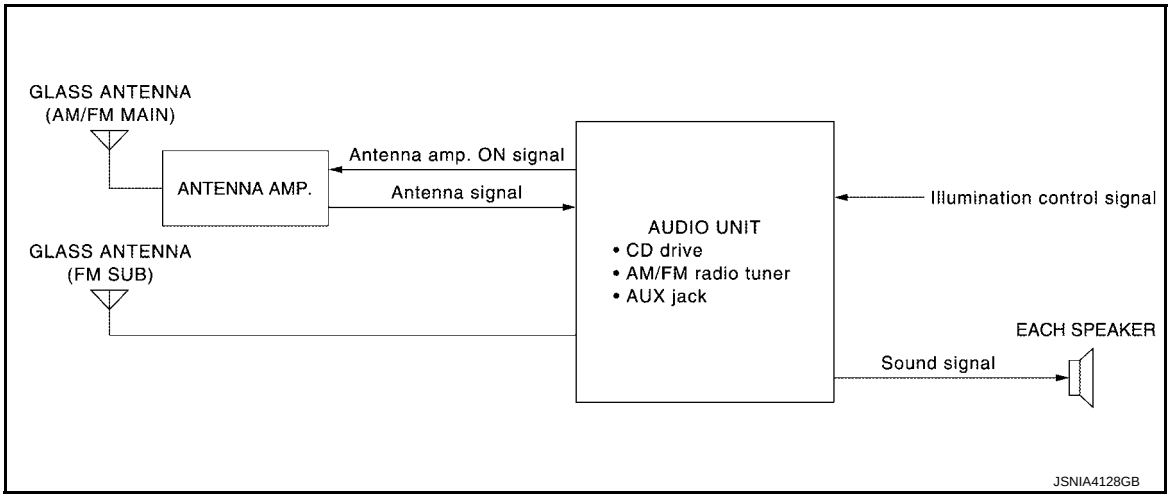
▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

# SYSTEM
## AUDIO SYSTEM
### AUDIO SYSTEM : System Description

INFOID:0000000012407059

#### SYSTEM DIAGRAM




#### DESCRIPTION

The audio system is equipped with following functions.

×: Applicable

| Functions |
|---|
| AM/FM radio |
| CD |
| AUX connection |

#### AUDIO FUNCTION

The MP3/WMA playback function enables music to play for a long time: the user need not change the CD during a long trip. The text display function is also adopted so that the title name and artist name of the ID3 tag/ WMA tag can be displayed.

Operating signal

Audio system operation can be performed with audio fascia switch.

AM/FM Radio Mode

- AM/FM radio tuner is built into audio unit.
- Radio signals are received by radio antenna, next they are amplified by antenna amp., and finally they are input to audio unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the audio unit directly.
- Audio unit outputs the sound signal to each speaker.

CD Mode

- CD function is built into audio unit.
- Audio unit outputs sound signal to each speaker when CD is inserted to audio unit.

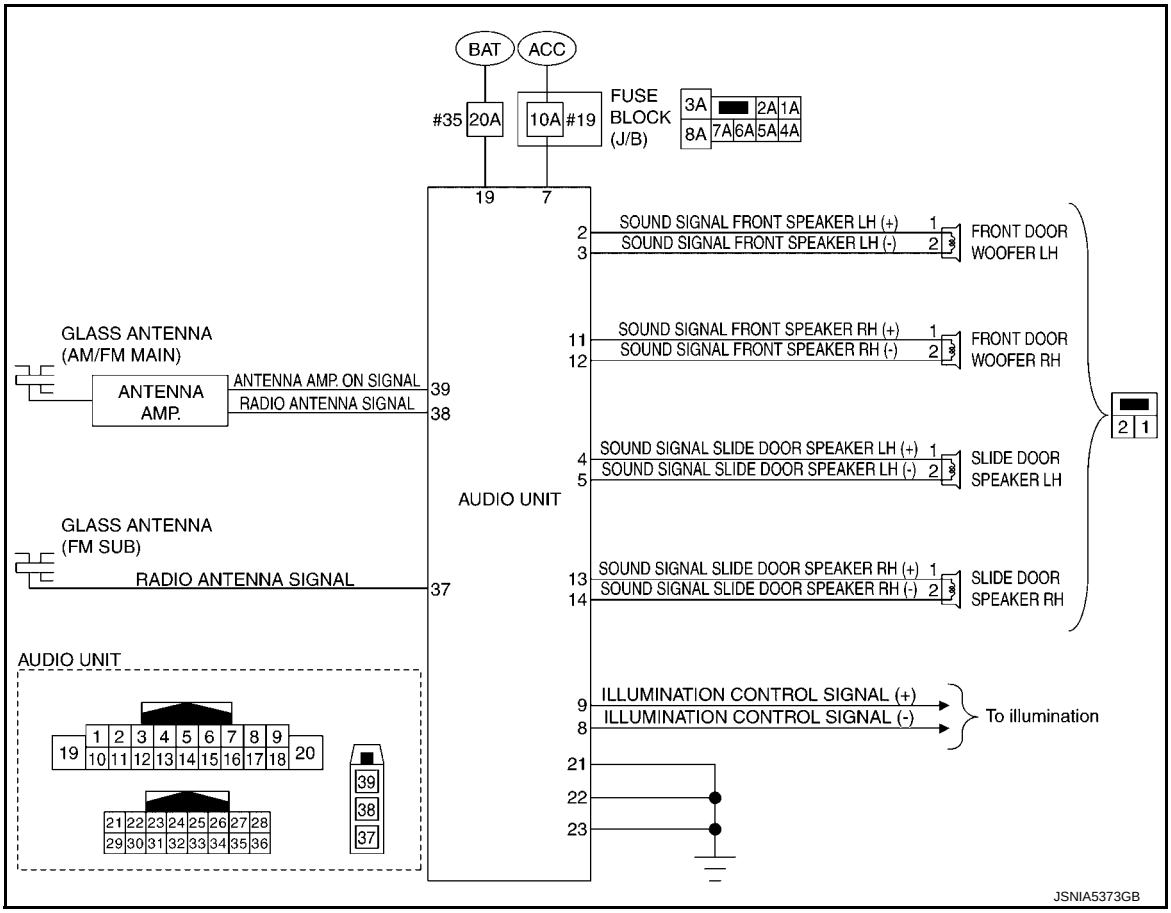
AUX Input Function

- When the external device is connected to the AUX (auxiliary) input jack of the audio unit, the external device inputs a sound signal to the audio unit.
- When AUX mode is selected, audio unit outputs sound signal to each speaker.

cardiagn.com

# AUDIO SYSTEM : Circuit Diagram

INFOID:0000000012407060




cardiagn.com

# DIAGNOSIS SYSTEM (AUDIO UNIT)

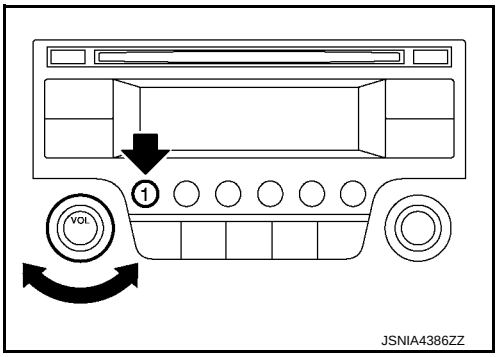
## Diagnosis Description

INFOID:0000000012407061

Self-diagnosis mode can perform the following items.
- Versions and EQ profile display function
- Speaker channel check

### VERSIONS AND EQ PROFILE DISPLAY FUNCTION

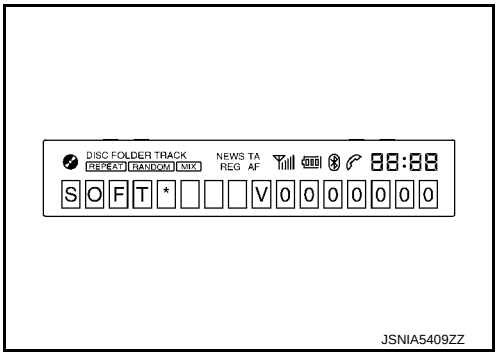
1. Turn ignition switch to the ON position.
2. Turn the audio unit off.
3. While pressing the “1” button, turn the volume control dial clockwise or counterclockwise 30 clicks or more. When the self-diagnosis mode is started, diagnosis default screen is displayed.



JSNIA4386ZZ

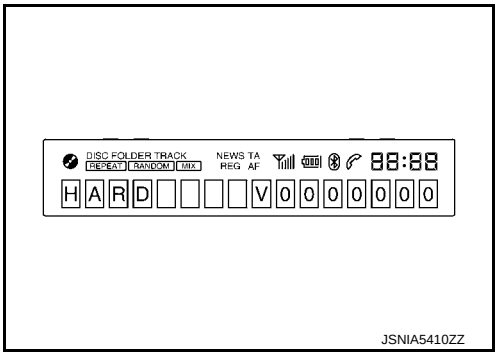
**NOTE:**
Diagnosis default screen = All icons and segments of the audio unit are turned on.

4. Press the “DISP” switch to enter version diagnostics. Audio software version is displayed.



JSNIA5409ZZ

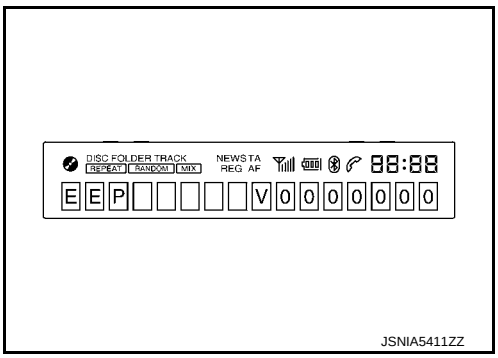
5. Press the “DISP” switch again to display the audio hardware version.



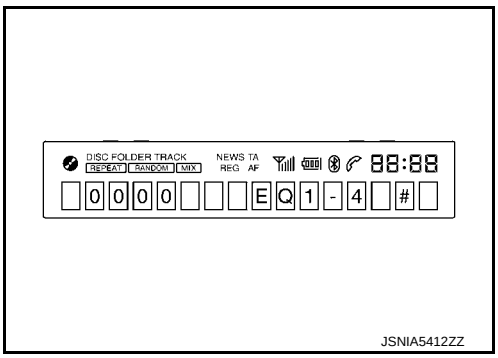
JSNIA5410ZZ

cardiagn.com

6. Press the “DISP” switch again to display the audio EEPROM version.




7. Press the “DISP” switch again to display the status of EQ profile selection signal.
**NOTE:**
When Control Signal Circuit (EQ) has a malfunction, "INVALID EQ" is displayed.

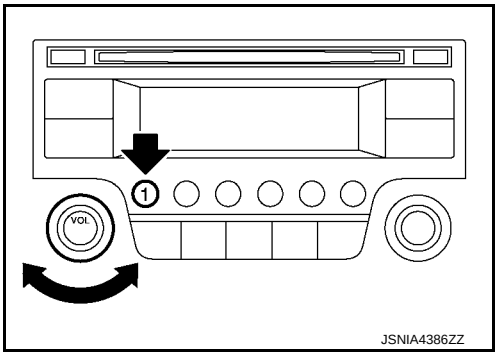



8. Press the “DISP” switch with a long press to back to diagnosis default screen.

Finishing Self-diagnosis Mode
Self-diagnosis mode is canceled when turning ignition switch OFF.

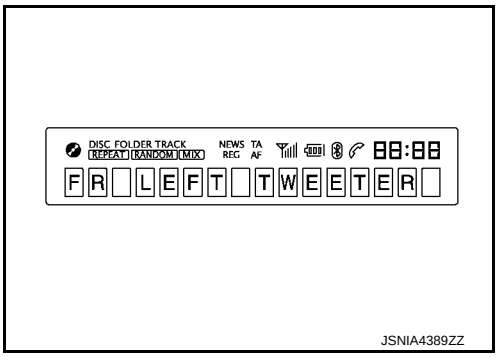
## SPEAKER CHANNEL CHECK FUNCTION

1. Turn ignition switch to the ON position.
2. Turn the audio unit off.
3. While pressing the “1” button, turn the volume control dial clockwise or counterclockwise 30 clicks or more. When the self-diagnosis mode is started, diagnosis default screen is displayed.




**NOTE:**
Diagnosis default screen = All icons and segments of the audio unit are turned on.

4. Press the “RPT/RDM” switch to generate a test tone in a speaker. Press the “RPT/RDM” switch again to generate a test tone in the next speaker.




cardiagn.com

Speaker channel check item

| Mode | Description |
|---|---|
| FR LEFT TWEETER | • Outputs test tone from front door speaker LH.<br>• Test tone frequency is high range. |
| FR RIGHT TWEETER | • Outputs test tone from front door speaker RH.<br>• Test tone frequency is high range. |
| FR RIGHT | • Outputs test tone from front door speaker RH.<br>• Test tone frequency is mid range. |
| RR RIGHT | • Outputs test tone from slide door speaker RH.<br>• Test tone frequency is mid range. |
| RR LEFT | • Outputs test tone from slide door speaker LH.<br>• Test tone frequency is mid range. |
| FR LEFT | • Outputs test tone from front door speaker LH.<br>• Test tone frequency is mid range. |

5. Press the “RPT/RDM” switch with a long press to back to diagnosis default screen.

Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning ignition switch OFF.

cardiagn.com

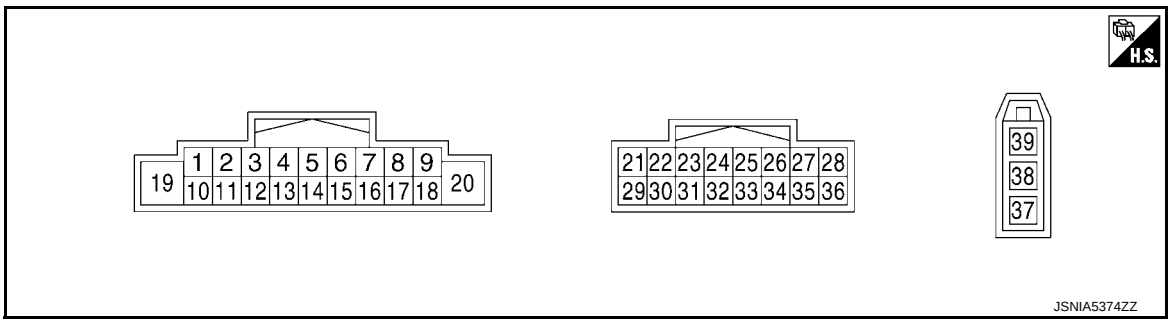
# ECU DIAGNOSIS INFORMATION

## AUDIO UNIT

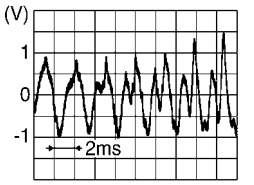
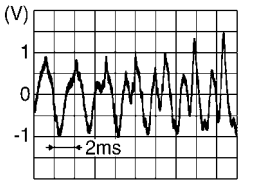
### Reference Value

INFOID:0000000012407062

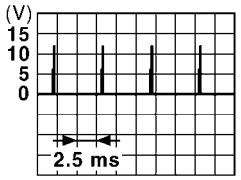
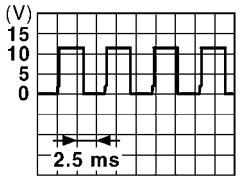
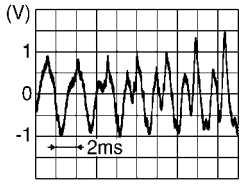
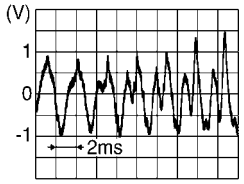
TERMINAL LAYOUT




PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (Y) | 3 (B) | Sound signal front speaker LH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 4 (SB) | 5 (LG) | Sound signal slide door speaker LH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 7 (GR) | Ground | ACC power supply | Input | Ignition switch ACC | — | 10.8 - 15.6 V | Battery voltage |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 9 (P) | 8 (B) | Illumination control signal | Input | Ignition switch ON | • Lighting switch 1ST<br>• When meter illumination is maximum | Waveform of 0 -15.6 V is input according to meter illumination step. |  JPNIA1687GB |
| | | | | | • Lighting switch 1ST<br>• When meter illumination is step 11 | |  JPNIA1686GB |
| | | | | | • Lighting switch 1ST<br>• When meter illumination is minimum | | 0 V |
| 11 (B) | 12 (L) | Sound signal front speaker RH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 13 (P) | 14 (L) | Sound signal slide door speaker RH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 19 (Y) | Ground | Battery power supply | Input | Ignition switch OFF | — | 10.8 - 15.6 V | Battery voltage |
| 21 (B) | Ground | Control signal | — | Ignition switch ON | — | 1 V or less | 0 V |
| 22 (B) | Ground | Control signal | — | Ignition switch ON | — | 1 V or less | 0 V |
| 23 (B) | Ground | Control signal | — | Ignition switch ON | — | 1 V or less | 0 V |
| 37 | — | FM sub | Input | — | — | — | — |
| 38 | — | AM-FM main | Input | — | — | — | — |
| 39 | Ground | Antenna amp. ON signal | Output | Ignition switch ACC | — | 10.8 - 15.6 V | 12.0 V |

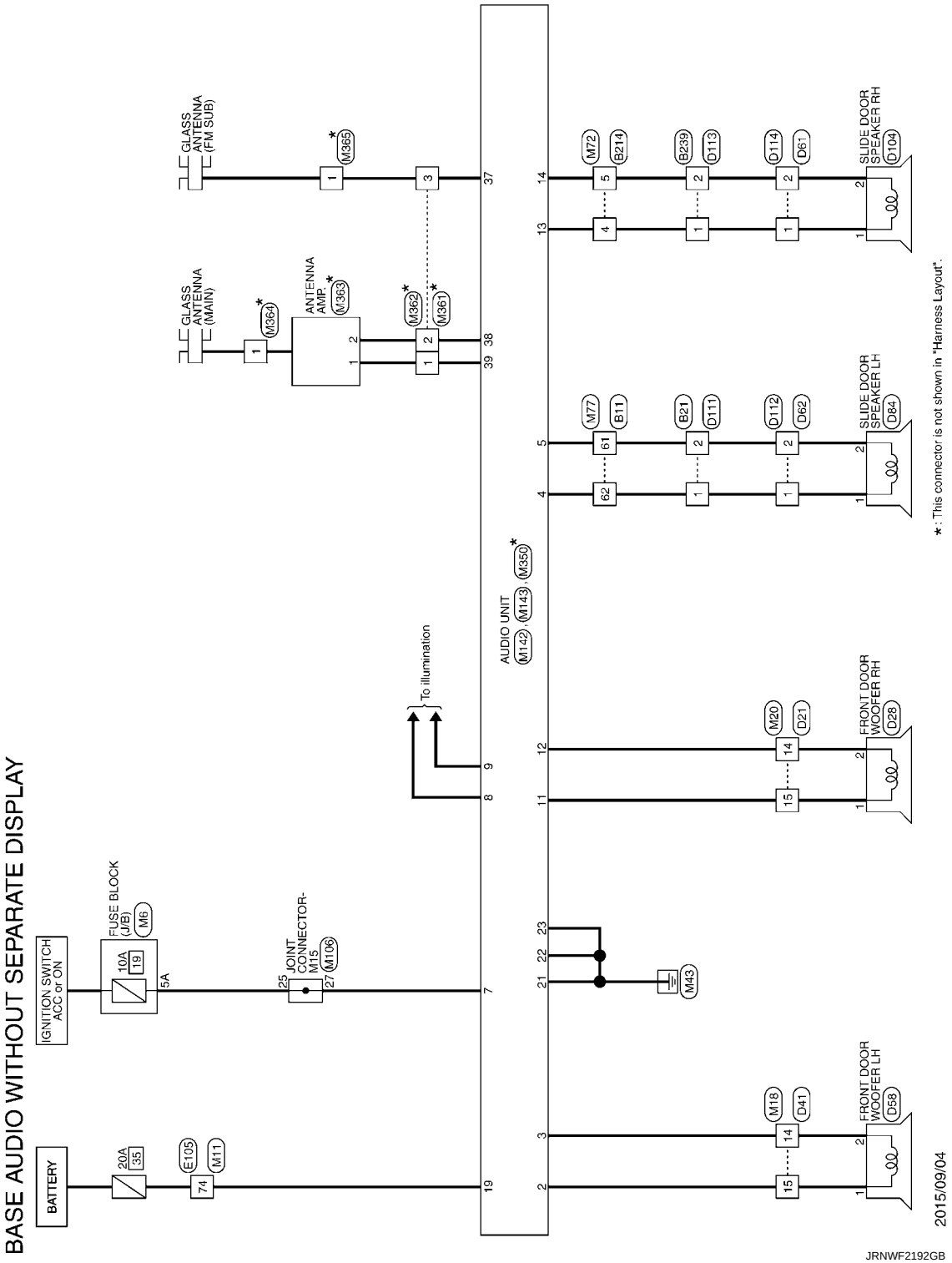
cardiagn.com

# WIRING DIAGRAM

## BASE AUDIO WITHOUT SEPARATE DISPLAY

### Wiring Diagram

INFOID:0000000012407063

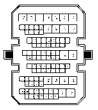



cardiagn.com

BASE AUDIO WITHOUT SEPARATE DISPLAY

| Connector No. | B11 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS19 |

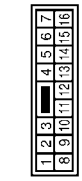
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 10 | GR | - |
| 12 | G | - |
| 13 | P | - |
| 15 | L | - |
| 29 | GR | - |
| 30 | W | - |
| 31 | P | - |
| 37 | SHIELD | - |
| 38 | R | - |
| 39 | B | - |
| 40 | W | - |
| 51 | Y | - |
| 52 | B | - |
| 53 | G | - |
| 54 | P | - |
| 55 | L | - |
| 57 | Y | - |
| 58 | L | - |
| 59 | GR | - |
| 60 | Y | - |
| 61 | Y | - |
| 62 | BR | - |
| 63 | L | - |
| 64 | W | - |
| 65 | R | - |
| 66 | SHIELD | - |
| 67 | B | - |
| 68 | W | - |
| 69 | SHIELD | - |
| 70 | W/R | - |
| 71 | B/R | - |
| 72 | BR | - |
| 74 | L | - |
| 75 | SB | - |
| 77 | V | - |
| 78 | LG | - |
| 79 | GR | - |
| 80 | BR | - |
| 81 | SB | - |
| 82 | V | - |
| 87 | G | - |
| 88 | V | - |
| 89 | G | - |
| 90 | Y | - |
| 91 | LG | - |
| 92 | L | - |

| Connector No. | B21 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16MW-CS |

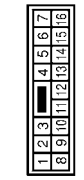
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | BR | - [Without BOSE system] |
| 1 | W | - [With BOSE system] |
| 2 | R | - [With BOSE system] |
| 2 | Y | - [Without BOSE system] |
| 5 | Y | - |
| 6 | BR | - |
| 7 | LG | - |
| 8 | L | - |
| 9 | SB | - |
| 10 | Y | - |
| 11 | G | - |
| 14 | SB | - |
| 15 | V | - |
| 16 | B | - |

| Connector No. | B214 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS12MBR-CS |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SB | - |
| 2 | L | - |
| 4 | BR | - |
| 5 | Y | - |
| 6 | V | - |
| 7 | W | - |
| 8 | R | - |
| 9 | LG | - |
| 10 | Y | - |
| 11 | G | - |
| 12 | SB | - |

| Connector No. | B239 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16MW-CS |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | BR | - [Without BOSE system] |
| 1 | W | - [With BOSE system] |
| 2 | B | - [With BOSE system] |
| 2 | Y | - [Without BOSE system] |
| 5 | Y | - |
| 6 | O | - |
| 7 | SB | - |
| 8 | R | - |
| 9 | G | - |
| 10 | O | - |
| 11 | L | - |
| 14 | P | - |
| 15 | LG | - |
| 16 | GR | - |

| Connector No. | D21 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH40FW-CS15 |

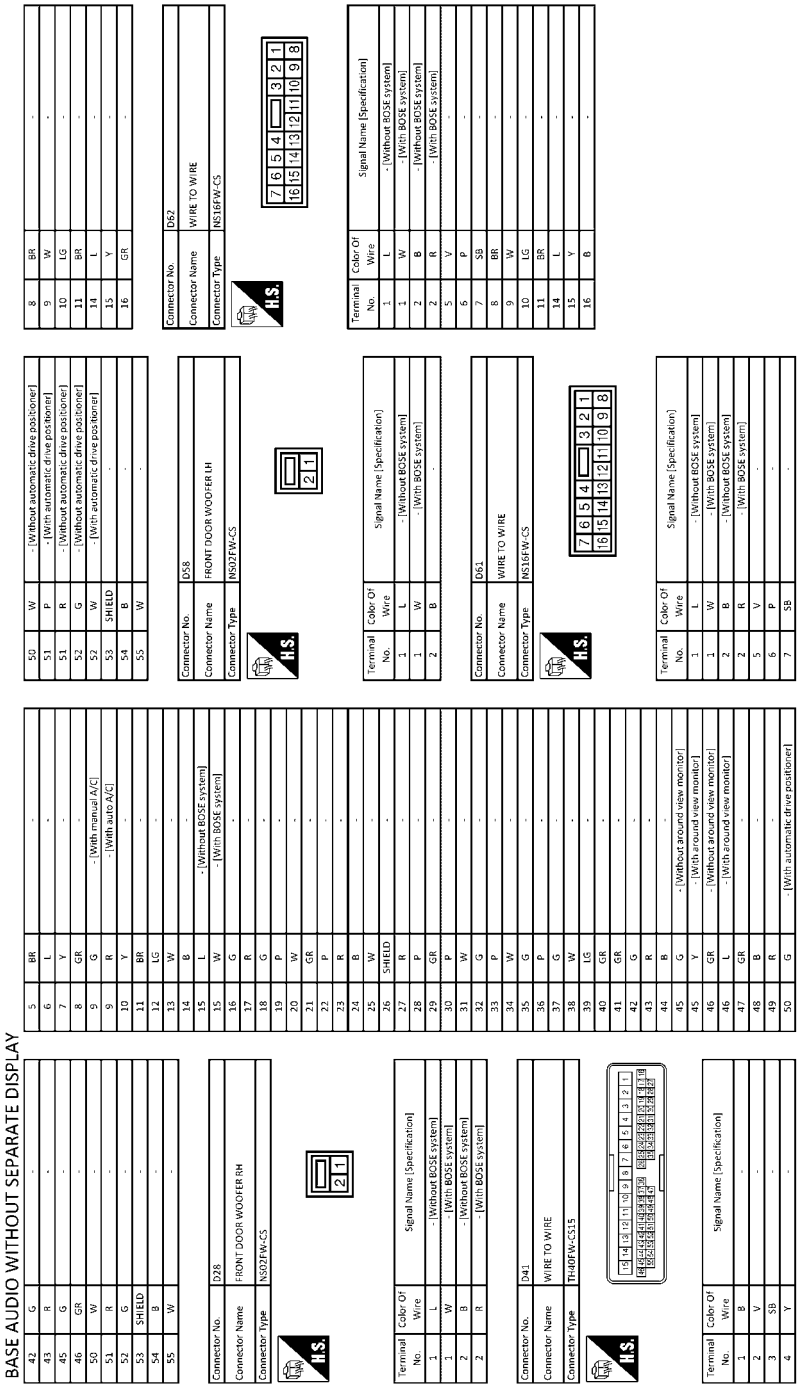
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 7 | B | - |
| 8 | V | - |
| 9 | BR | - [With manual A/C] |
| 9 | W | - [With auto A/C] |
| 10 | LG | - |
| 11 | LG | - |
| 12 | BR | - |
| 14 | B | - [Without BOSE system] |
| 14 | R | - [With BOSE system] |
| 15 | L | - [Without BOSE system] |
| 15 | W | - [With BOSE system] |
| 16 | P | - |
| 17 | GR | - |
| 18 | R | - |
| 19 | W | - |
| 21 | R | - |
| 22 | B | - |
| 23 | W | - |
| 24 | SHIELD | - |
| 25 | Y | - |
| 26 | L | - |
| 36 | P | - |
| 37 | G | - |
| 38 | W | - |
| 39 | LG | - |
| 40 | B | - |
| 41 | GR | - |

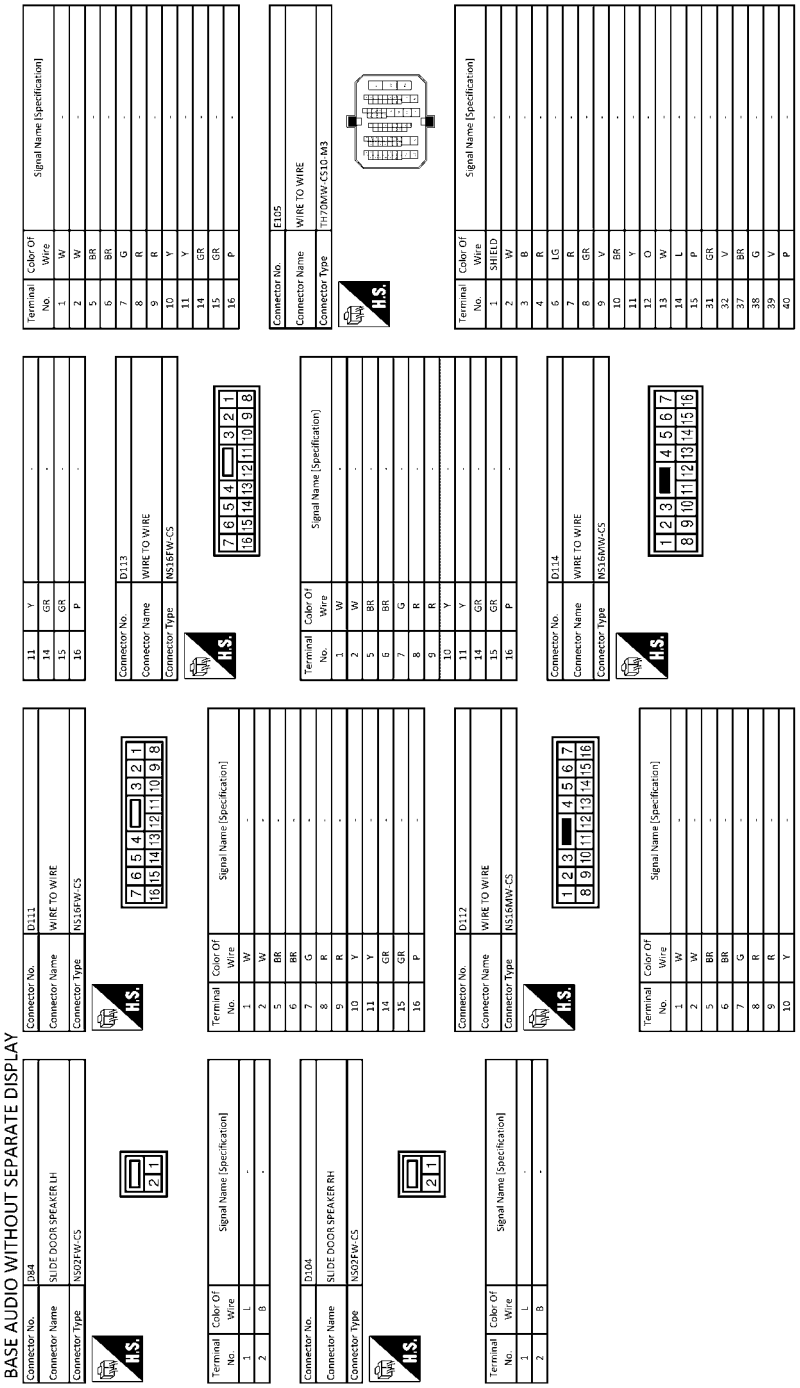
JRNWF2193GB

cardiagn.com



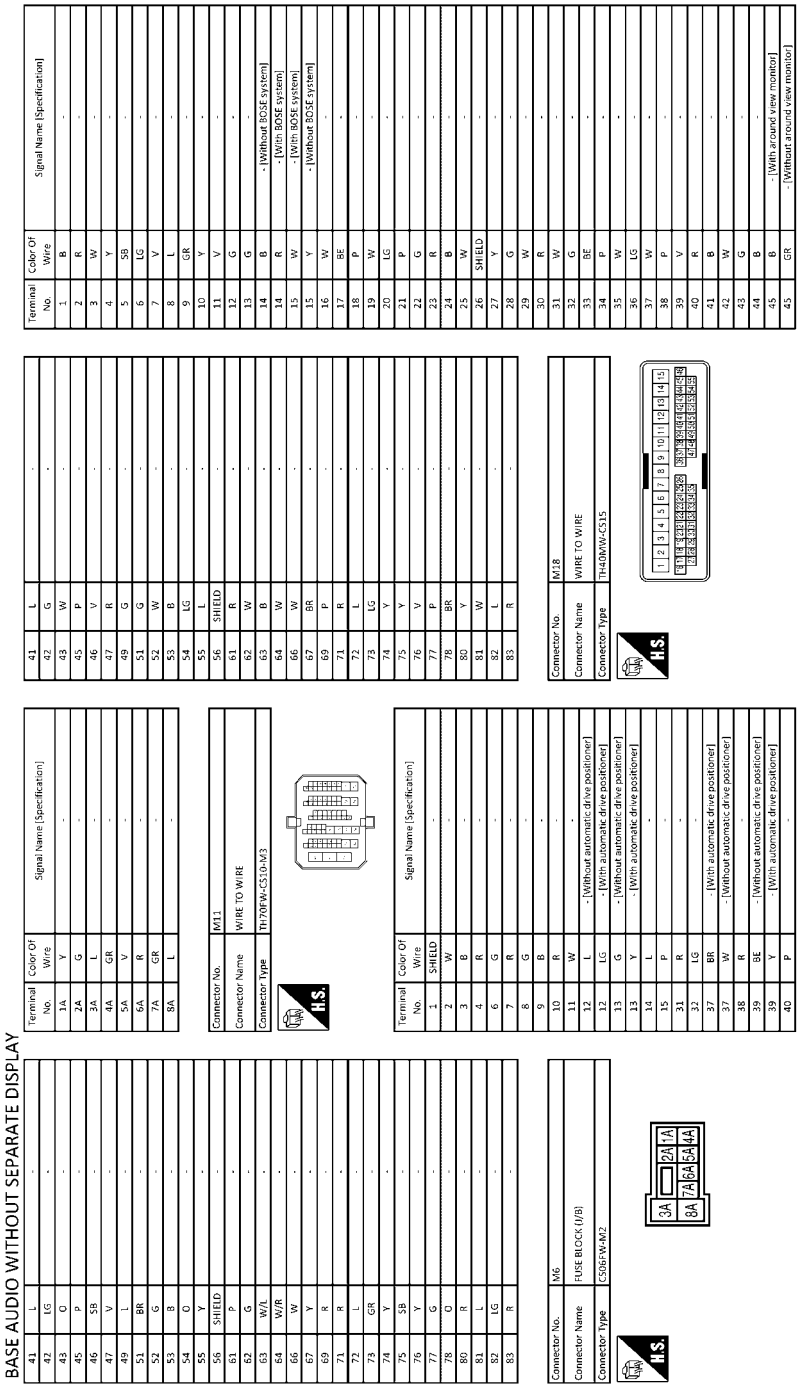

JRNWF2194GB

cardiagn.com




JRNWF2195GB

cardiagn.com




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 41 | L | - |
| 42 | LG | - |
| 43 | O | - |
| 45 | P | - |
| 46 | SB | - |
| 47 | V | - |
| 49 | L | - |
| 51 | BR | - |
| 52 | G | - |
| 53 | B | - |
| 54 | O | - |
| 55 | Y | - |
| 56 | SHIELD | - |
| 61 | P | - |
| 62 | G | - |
| 63 | W/L | - |
| 64 | W/R | - |
| 66 | W | - |
| 67 | Y | - |
| 69 | R | - |
| 71 | R | - |
| 72 | L | - |
| 73 | GR | - |
| 74 | Y | - |
| 75 | SB | - |
| 76 | Y | - |
| 77 | G | - |
| 78 | O | - |
| 80 | R | - |
| 81 | L | - |
| 82 | LG | - |
| 83 | R | - |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1A | Y | - |
| 2A | G | - |
| 3A | L | - |
| 4A | GR | - |
| 5A | V | - |
| 6A | R | - |
| 7A | GR | - |
| 8A | L | - |

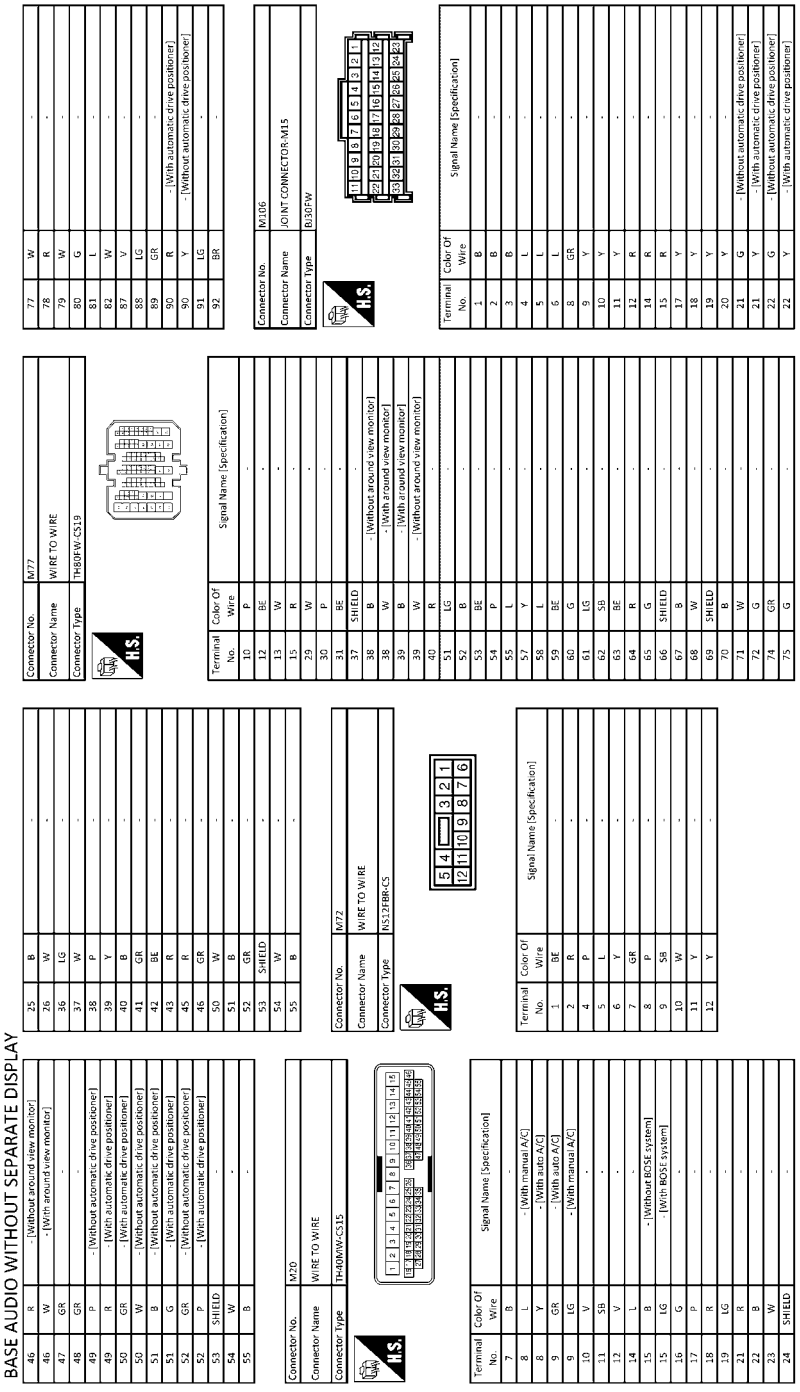
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SHIELD | - |
| 2 | W | - |
| 3 | B | - |
| 4 | R | - |
| 6 | G | - |
| 7 | R | - |
| 8 | G | - |
| 9 | B | - |
| 10 | R | - |
| 11 | W | - |
| 12 | L | - [Without automatic drive positioner] |
| 12 | LG | - [With automatic drive positioner] |
| 13 | G | - [Without automatic drive positioner] |
| 13 | Y | - [With automatic drive positioner] |
| 14 | L | - |
| 15 | P | - |
| 31 | R | - |
| 32 | LG | - |
| 37 | BR | - [With automatic drive positioner] |
| 37 | W | - [Without automatic drive positioner] |
| 38 | R | - |
| 39 | BE | - [Without automatic drive positioner] |
| 39 | Y | - [With automatic drive positioner] |
| 40 | P | - |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 41 | L | - |
| 42 | G | - |
| 43 | W | - |
| 45 | P | - |
| 46 | V | - |
| 47 | R | - |
| 49 | G | - |
| 51 | G | - |
| 52 | W | - |
| 53 | B | - |
| 54 | LG | - |
| 55 | L | - |
| 56 | SHIELD | - |
| 61 | R | - |
| 62 | W | - |
| 63 | B | - |
| 64 | W | - |
| 66 | W | - |
| 67 | BR | - |
| 69 | P | - |
| 71 | R | - |
| 72 | L | - |
| 73 | LG | - |
| 74 | Y | - |
| 75 | Y | - |
| 76 | V | - |
| 77 | P | - |
| 78 | BR | - |
| 80 | Y | - |
| 81 | W | - |
| 82 | L | - |
| 83 | R | - |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | R | - |
| 3 | W | - |
| 4 | Y | - |
| 5 | SB | - |
| 6 | LG | - |
| 7 | V | - |
| 8 | L | - |
| 9 | GR | - |
| 10 | Y | - |
| 11 | V | - |
| 12 | G | - |
| 13 | G | - |
| 14 | B | - [Without BOSE system] |
| 14 | R | - [With BOSE system] |
| 15 | W | - [With BOSE system] |
| 15 | Y | - [Without BOSE system] |
| 16 | W | - |
| 17 | BE | - |
| 18 | P | - |
| 19 | W | - |
| 20 | LG | - |
| 21 | P | - |
| 22 | G | - |
| 23 | R | - |
| 24 | B | - |
| 25 | W | - |
| 26 | SHIELD | - |
| 27 | Y | - |
| 28 | G | - |
| 29 | W | - |
| 30 | R | - |
| 31 | W | - |
| 32 | G | - |
| 33 | BE | - |
| 34 | P | - |
| 35 | W | - |
| 36 | LG | - |
| 37 | W | - |
| 38 | P | - |
| 39 | V | - |
| 40 | R | - |
| 41 | B | - |
| 42 | W | - |
| 43 | G | - |
| 44 | B | - [With around view monitor] |
| 45 | GR | - [Without around view monitor] |

JRNWF2196GB

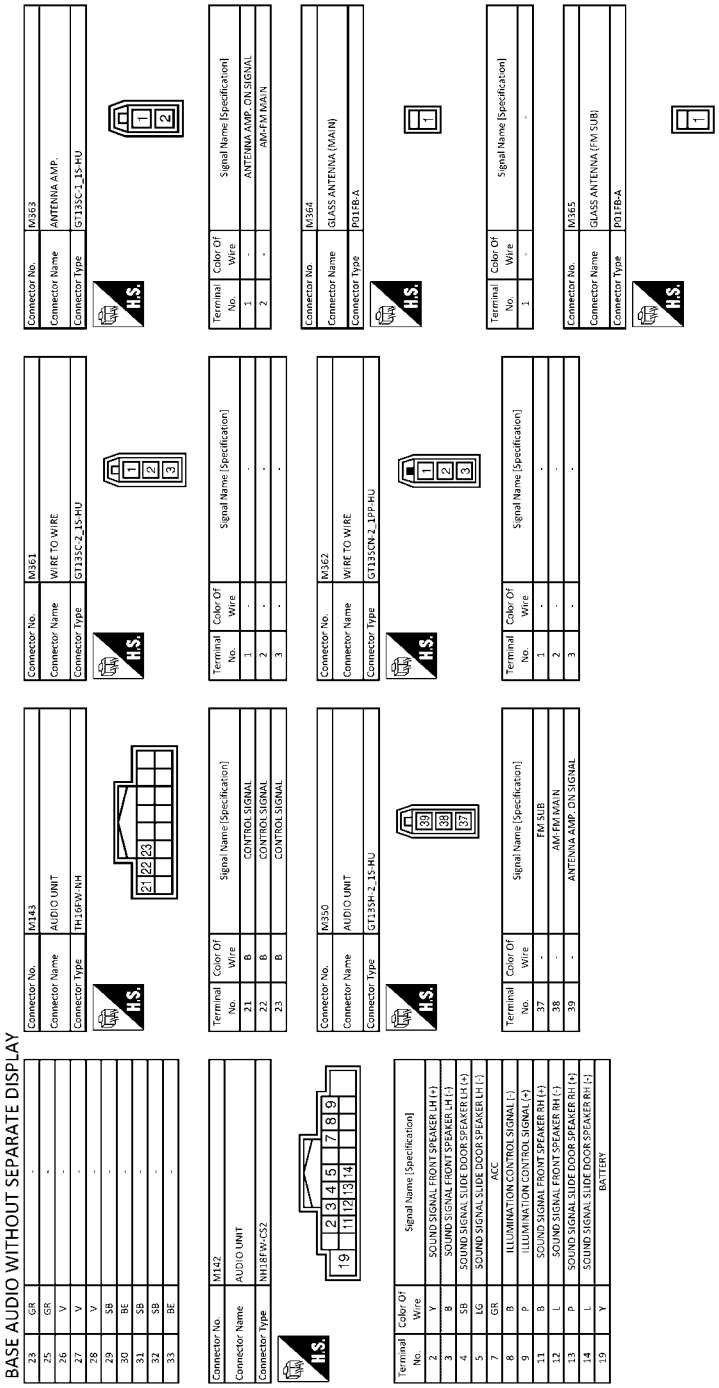
cardiagn.com




JRNWF2197GB

cardiagn.com

BASE AUDIO WITHOUT SEPARATE DISPLAY




JRNWF2198GB

cardiagn.com

BASE AUDIO WITHOUT SEPARATE DISPLAY

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | - |

JRNWF2199GB

cardiagn.com

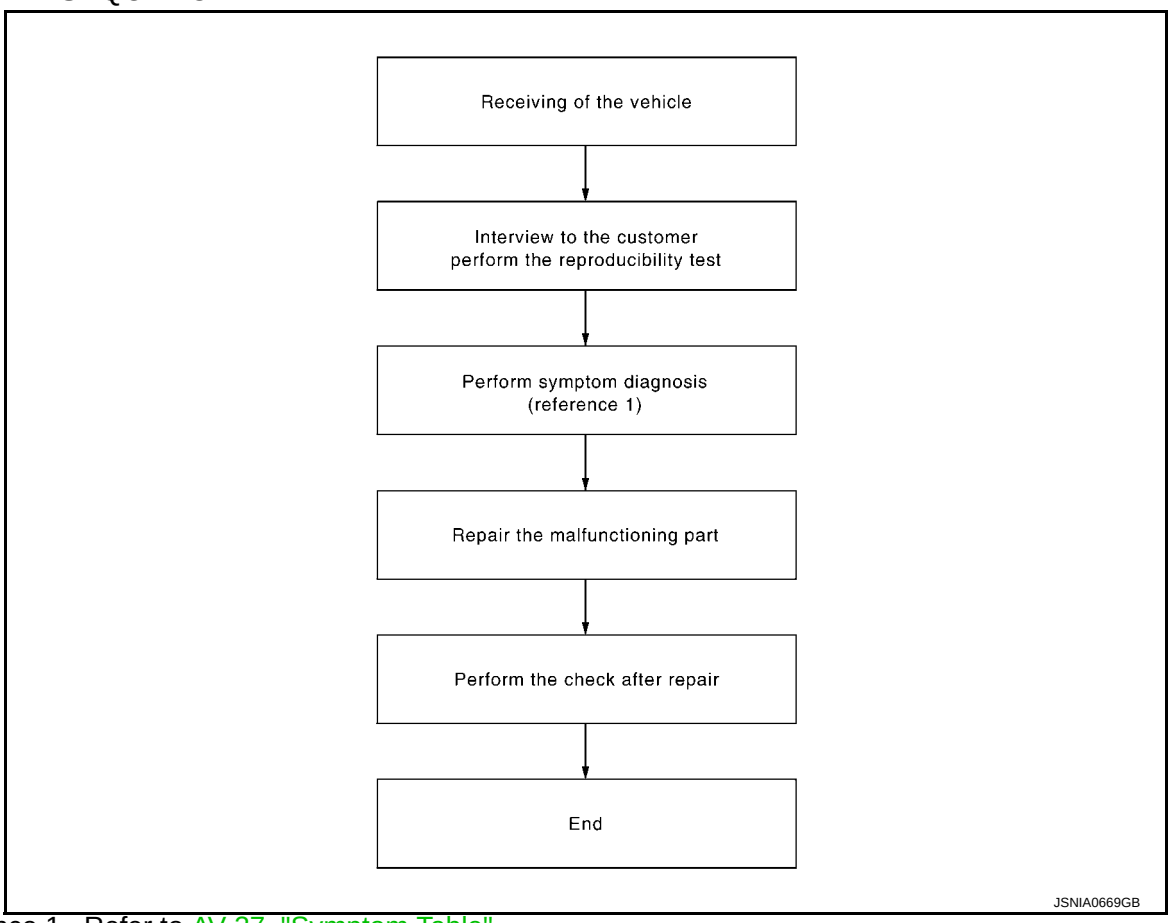
# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:0000000012407064

OVERALL SEQUENCE




Reference 1···Refer to AV-37, "Symptom Table".

DETAILED FLOW

#### 1.CHECK SYMPTOM

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

>> GO TO 2.

#### 2.PERFORM DIAGNOSIS BY SYMPTOM

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-37, "Symptom Table".

>> GO TO 3.

#### 3.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

>> GO TO 4.

#### 4.FINAL CHECK

cardiagn.com

Perform the operation to check that the malfunction symptom is solved or any other symptoms are present.

Is there any symptom?

YES >> GO TO 2.
NO >> INSPECTION END

cardiagn.com

# DTC/CIRCUIT DIAGNOSIS

## POWER SUPPLY AND GROUND CIRCUIT

## AUDIO UNIT

### AUDIO UNIT : Diagnosis Procedure

INFOID:0000000012407065

### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |

Is inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between audio unit harness connectors and ground.

| Signal name | Audio unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M141 | 19 | Ground | OFF | 10.8 - 15.6 V | Battery voltage |
| ACC power supply | | 7 | | ACC | | |

Is inspection result normal?

YES >> INSPECTION END
NO >> Check harness between audio unit and fuse.

cardiagn.com

# SYMPTOM DIAGNOSIS

## AUDIO SYSTEM

### Symptom Table

INFOID:0000000012407066

#### AUDIO SYSTEM

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| Audio unit does not start. | — | Audio unit power supply and ground circuit.<br>Refer to AV-36, "AUDIO UNIT : Diagnosis Procedure". |
| No sound comes out. | No sound from all speakers. | Audio unit power supply and ground circuit.<br>Refer to AV-36, "AUDIO UNIT : Diagnosis Procedure". |
| | Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound. | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between audio unit and speaker.<br>• Malfunction in speaker.<br>• Malfunction in audio unit. |
| Noise is mixed with audio. | Noise comes out from all speakers. | Malfunction in audio unit. |
| | Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.). | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between audio unit and speaker.<br>• Malfunction in speaker.<br>• Poor installation of speaker (e.g. backlash and looseness)<br>• Malfunction in audio unit. |
| | Noise is mixed with radio only (when the car hits a bump or while driving over bad roads). | Poor connector connection of antenna or antenna feeder. |
| Radio is not received or poor reception. | • Other audio sounds are normal.<br>• Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises). | • Antenna amp. ON signal circuit malfunction.<br>• Poor connector connection of antenna or antenna feeder. |

cardiagn.com

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000012407067

### RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check that noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment. Then determine the cause.

**NOTE:**

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check that the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the red book Compact Disc Standard and may not play.

| Symptoms | Cause and counter measure |
|---|---|
| Cannot play | Check that the CD was inserted correctly. |
| | Check that the CD is scratched or dirty. |
| | Check that there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player. |
| | The player will play correctly after it returns to the normal temperature if there is a temperature increase error. |
| | Only the music CD files (CD-DA data) will be played if there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD. |
| | Files with extensions other than ".MP3", ".WMA", ".mp3", or ".wma" cannot be played. |
| | Check that the finalization process, such as session close and disc close, is done for the disc. |
| | Check that the CD is protected by copyright. |
| Poor sound quality | Check that the CD is scratched or dirty. |
| It takes a relatively long time before the music starts playing. | If there are many folder or file levels on the MP3/WMA CD, or if it is a multi session disc, some time may be required before the music starts playing. |
| The songs do not play back in the desired order. | The playback order is the order in which the files were written by the software, so the files might not play in the desired order. |
| Poor reception only from a certain radio broadcast station. | Check incoming radio wave signal strength of applicable broadcast station. |
| Buzz/rattle sound from speaker | The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle. |

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, is not a malfunction.

**NOTE:**

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

cardiagn.com

# REMOVAL AND INSTALLATION

## AUDIO UNIT

### Removal and Installation

INFOID:0000000012407068

#### REMOVAL

1. Remove cluster lid D. Refer to IP-14, "Removal and Installation".
2. Remove audio unit mounting screws.
3. Pull out audio unit, and then disconnect antenna feeder and harness connectors.
4. Remove audio unit and brackets as a single unit.
5. Remove brackets from audio unit.

#### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT DOOR SPEAKER

## Removal and Installation

INFOID:0000000012407069

### REMOVAL

1. Remove front door finisher. Refer to INT-14, "Removal and Installation".
2. Remove front door speaker screws and disconnect front door speaker connector.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SPEAKER

## Removal and Installation

INFOID:0000000012407070

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws and disconnect connector, and remove slide door speaker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# ANTENNA AMP.

## Removal and Installation

INFOID:0000000012407071

### REMOVAL

1. Remove rear pillar garnish RH. Refer to INT-27, "REAR PILLAR GARNISH : Removal and Installation".
2. Remove screw and disconnect connector, and remove antenna amp.

### INSTALLATION

Install in the reverse order of removal.

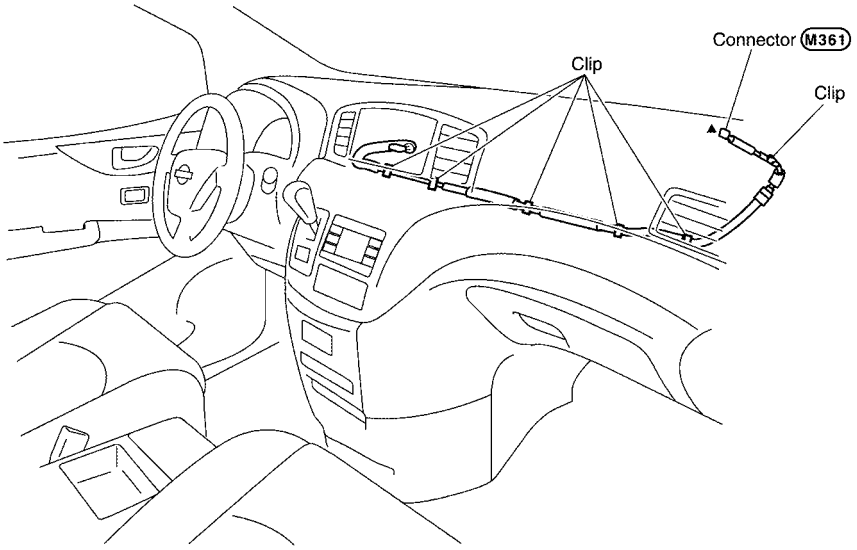
cardiagn.com

# ANTENNA FEEDER

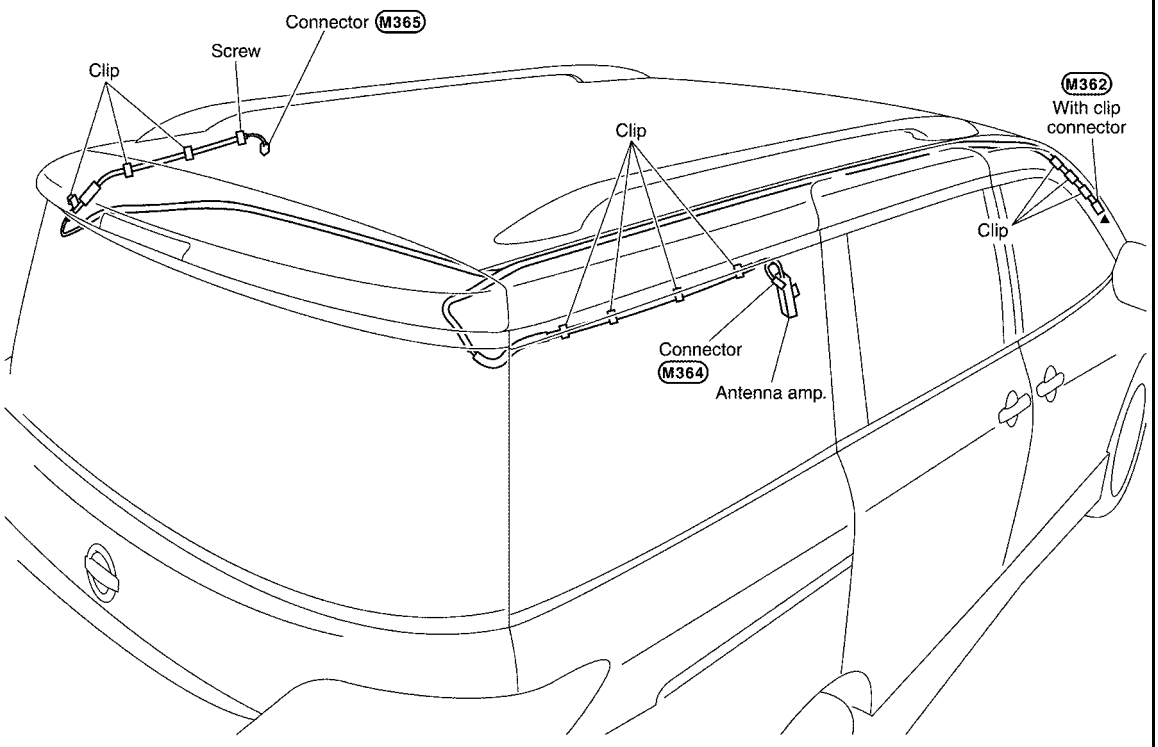
## Feeder Layout

INFOID:0000000012407072

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4220GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000012407073

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

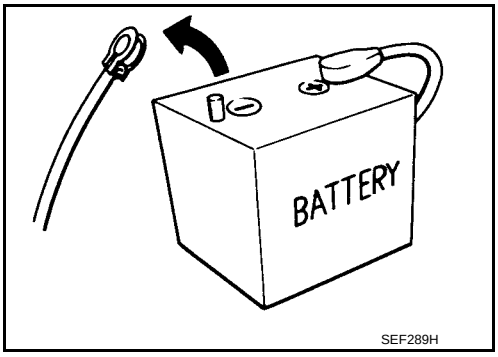
### Precautions for Removing Battery Terminal

INFOID:0000000012936055

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

| | | | |
|---|---|---|---|
| D4D engine | : 20 minutes | YS23DDT | : 4 minutes |
| HRA2DDT | : 12 minutes | YS23DDTT | : 4 minutes |
| K9K engine | : 4 minutes | ZD30DDTi | : 60 seconds |
| M9R engine | : 4 minutes | ZD30DDTT | : 60 seconds |
| R9M engine | : 4 minutes | | |
| V9X engine | : 4 minutes | | |
| YD25DDTi | : 2 minutes | | |



SEF289H

**NOTE:**

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

**NOTE:**

cardiagn.com

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

## Precaution for Trouble Diagnosis

INFOID:0000000012407075

### AV COMMUNICATION SYSTEM

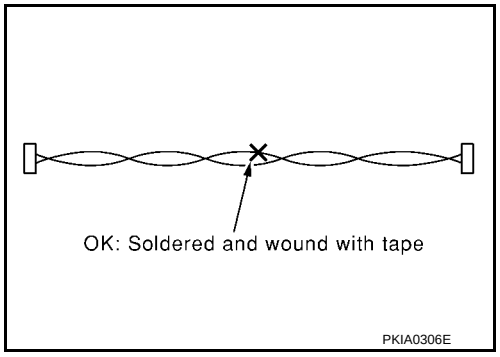
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

## Precaution for Harness Repair

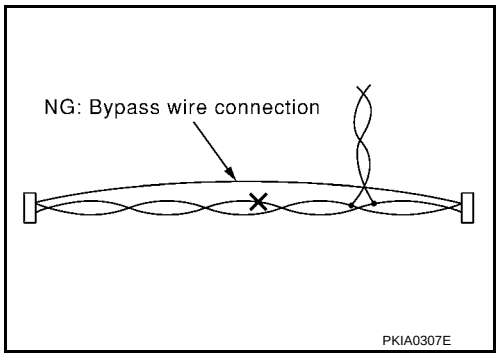
INFOID:0000000012407076

### AV COMMUNICATION SYSTEM

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]




- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



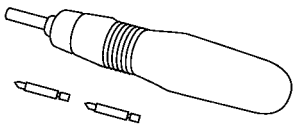

cardiagn.com

# PREPARATION

## PREPARATION

### Commercial Service Tools

INFOID:0000000012407077

| Tool | | Description |
|---|---|---|
| Power tool |  PBIC0191E | Loosening screws |

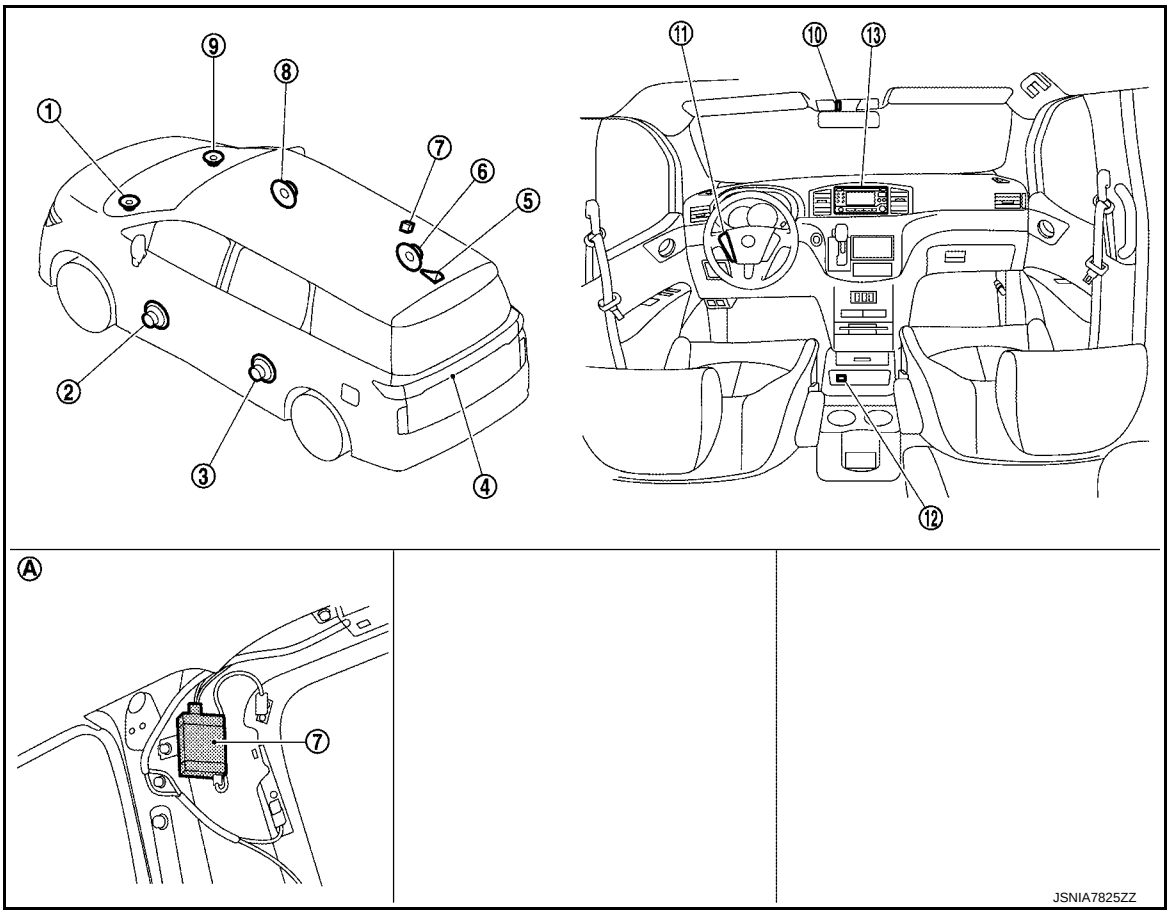
cardiagn.com

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000012407078




A. Rear pillar garnish (RH) is removed. B. Cluster lid C is removed.

| No. | Component | Function |
|---|---|---|
| 1,9. | Front squawker | Refer to AV-49, "Speaker". |
| 2,8. | Front door woofer | |
| 3,6. | Slide door speaker | |
| 4. | Rear view camera | Refer to AV-53, "Rear View Camera". |
| 5. | Satellite radio antenna | Refer to AV-51, "Satellite Radio Antenna". |
| 7. | Antenna amp. | Refer to AV-50, "Antenna amp., Radio Antenna, and Antenna Feeder". |
| 10. | Microphone | Refer to AV-49, "Microphone". |
| 11. | Steering switch | Refer to AV-50, "Steering Switch". |
| 12. | USB connector & AUX jack | Refer to AV-50, "USB Connector and AUX Jack". |
| 13. | Audio unit | Refer to AV-47, "Audio Unit". |

### Audio Unit

INFOID:0000000012407079

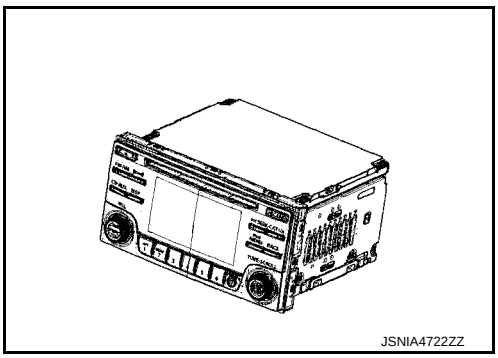
#### Description



cardiagn.com

- AM/FM electronic tuner radio, satellite radio tuner, CD drive, auxiliary input jack, and camera controller are integrated into the audio unit.
- The display can show audio status and rear view monitor images.
- Music files stored in iPod®*/USB memory can be played by using the separate USB connector.
- Audio played back by external audio equipment is outputted from the vehicle speakers via the auxiliary input jack installed to the audio fascia.

*:iPod® is a trademark of Apple inc., registered in the U.S. and other countries.


JSNIA4722ZZ

## Specifications

| | | | |
|---|---|---|---|
| Display | Screen size | | 5 inch (110.88 mm × 62.478 mm) |
| | Number of pixels | | 480 × 234 pixels |
| | Drive type | | TFT active matrix method |
| Audio amplifier | | | 40 W × 4 ch |
| AM/FM electric tuner | FM diversity function | | Within (1 Tuner switching) |
| CD drive | Used disc | | ϕ 12 cm (4.7 in) |
| | Playable disc | CD | CD-ROM (CD-DA) |
| | | | CD-R*1 |
| | | | CD-RW*1 |
| | Playable format | Music | MP3 |
| | | | WMA |
| | Text display function | ID3 / WMA tag | Artist name |
| | | | Song title |
| USB | High communication standard | | USB2.0 |
| | Playable format | | MP3 |
| | | | WMA |
| | iPod Action*2 | | NOTE: Not all applicable |
| Auxiliary input | | | ϕ 3.5 mm (1/8 in) stereo mini jack |
| Camera controller | Guideline display function | | Width/distance display |
| Bluetooth®audio | Compliant communication type | Wireless connection | Bluetooth® communication |
| | Compliant profile | | A2DP 1.2 |
| | | | AVRCP 1.3 |
| Hands-free phone | Compliant communication type | Wireless connection | Bluetooth® communication compliant type |
| | Compliant profile | | HFP 1.0, 1.5 |
| | | | DUN 1.1 |
| | | | OPP 1.1 |
| Other functions | | | Speed sensitive volume function |
| | | | Steering switch compliant |

- *1: If the reflectance of the surface of the media is low, the data may not be read.
- *2: It may not be used if it is not updated to the latest firmware or partial functions may not work if it is used.

cardiagn.com

## Speaker

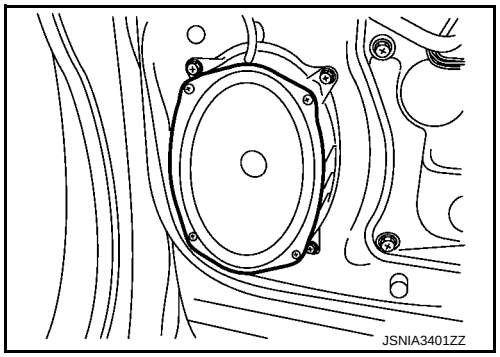
INFOID:0000000012407080

6 speakers system is adopted.

### FRONT DOOR WOOFER

- ϕ 15.0 × 23.0 cm (6 × 9 in) speaker is installed to the bottom of the front door.
- Sound signal is input from the audio unit to output low range sounds.

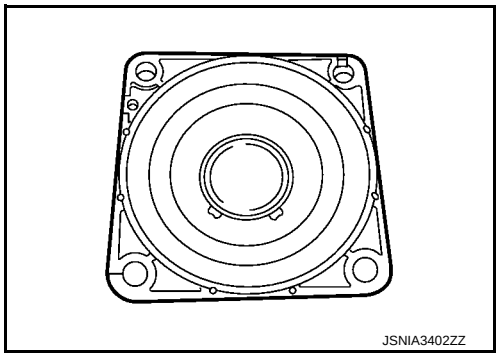
**Rated input : 20 W**
**Maximum input : 40 W**
**Impedance : 2 Ω**


JSNIA3401ZZ

### FRONT SQUAWKER

- ϕ 6.5 cm (2 in) squawker is installed to the side of instrument panel.
- Sound signal is input from the audio unit to output high and mid range sounds.

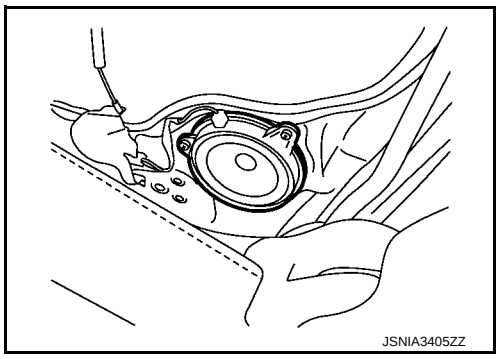
**Rated input : 7 W**
**Maximum input : 40 W**
**Impedance : 4 Ω**


JSNIA3402ZZ

### SLIDE DOOR SPEAKER

- ϕ 16cm (6.5 in) speaker is located at the lower part of the back of the slide door.
- Sound signal is input from the audio unit to output high, mid, and low range sounds.

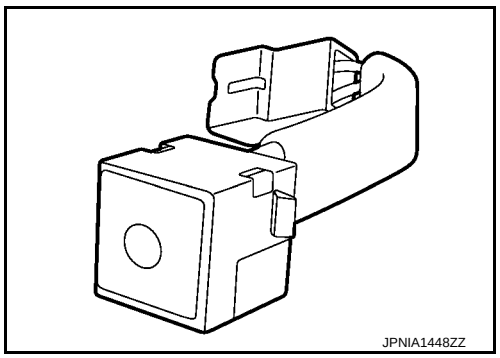
**Rated input : 20 W**
**Maximum input : 40 W**
**Impedance : 2 Ω**


JSNIA3405ZZ

## Microphone

INFOID:0000000012407081

- The voice control/TEL microphone is installed on the left side of the map lamp assembly.
- The power is supplied from the TEL adapter unit to the microphone, transmitting sound signals to the TEL adapter unit at the voice control or during hands-free phone communication.

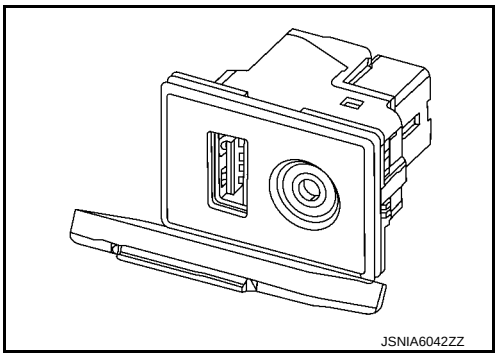

JPNIA1448ZZ

cardiagn.com

## USB Connector and AUX Jack

INFOID:0000000012407082

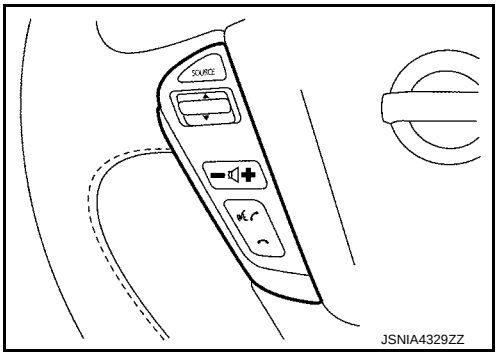
- USB connector and AUX jack is installed to the console box.
- iPod® and USB memory or the external device can be connected to the audio unit.




## Steering Switch

INFOID:0000000012407083

- Operations for audio and hands-free phone, etc. are possible.
- This switch is connected to the TEL adapter unit, and the switch operation signal is transmitted to the TEL adapter unit via voltage multiplex communication.



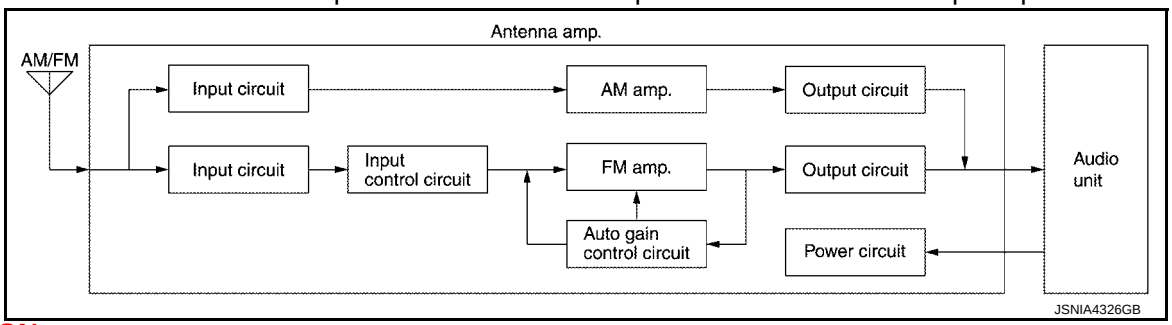

## Antenna amp., Radio Antenna, and Antenna Feeder

INFOID:0000000012407084

### RADIO ANTENNA

- AM/FM radio main antenna is located on the right rear side window glass and FM radio sub antenna on the left rear side window glass.

- The AM/FM radio main antenna path has an antenna amp. to obtain sufficient reception power.



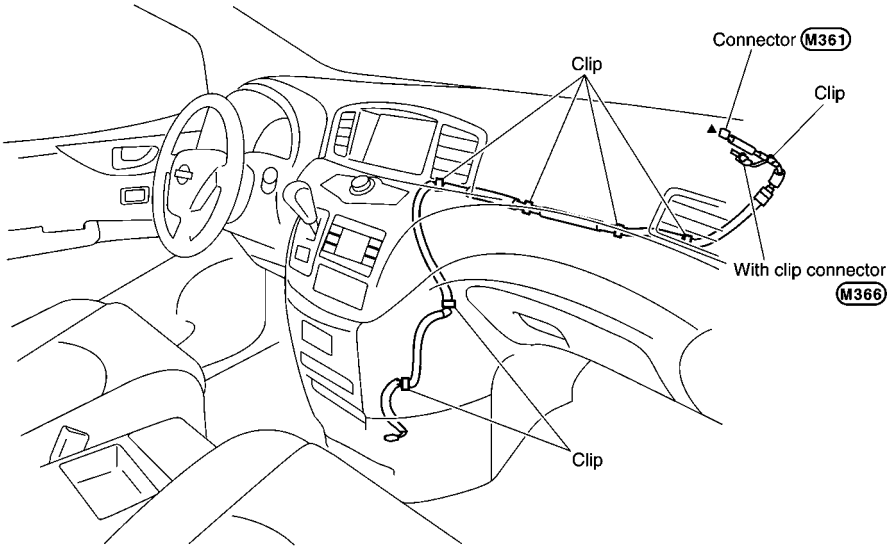

**CAUTION:**

**Affixing any mirror-type window films or metallic items (e.g. commercial antenna) on the rear side window glass causes a reduction in the radio receiver sensitivity.**

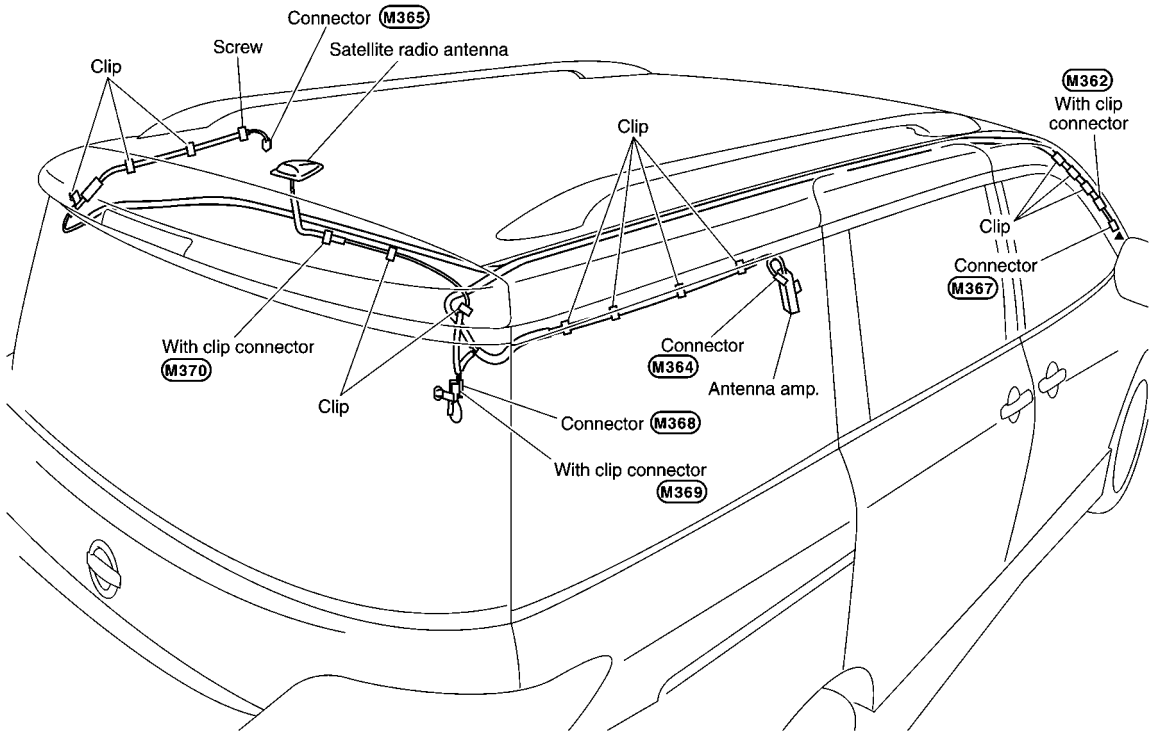
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4724GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

## Satellite Radio Antenna

INFOID:0000000012407085

SATELLITE RADIO ANTENNA

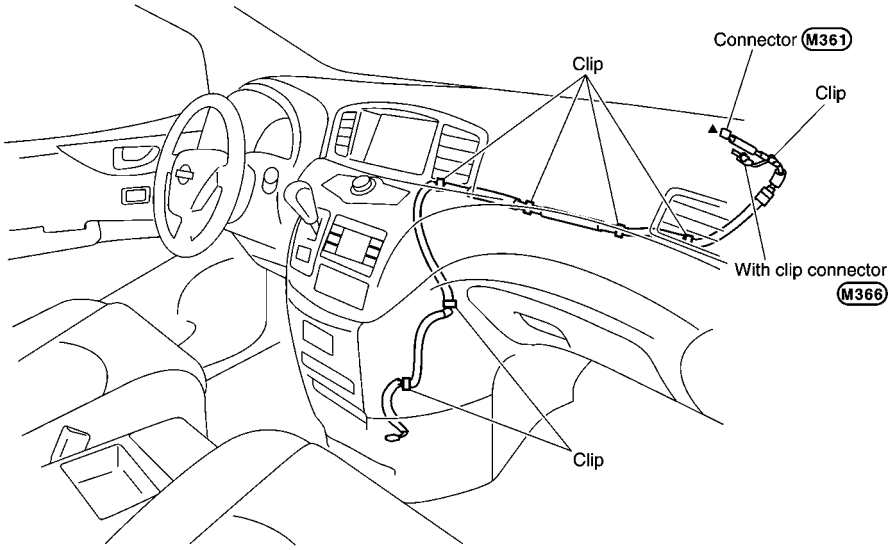
- Satellite radio antenna is installed to the rear center of the roof.
- Receives satellite radio waves and outputs it to audio unit.



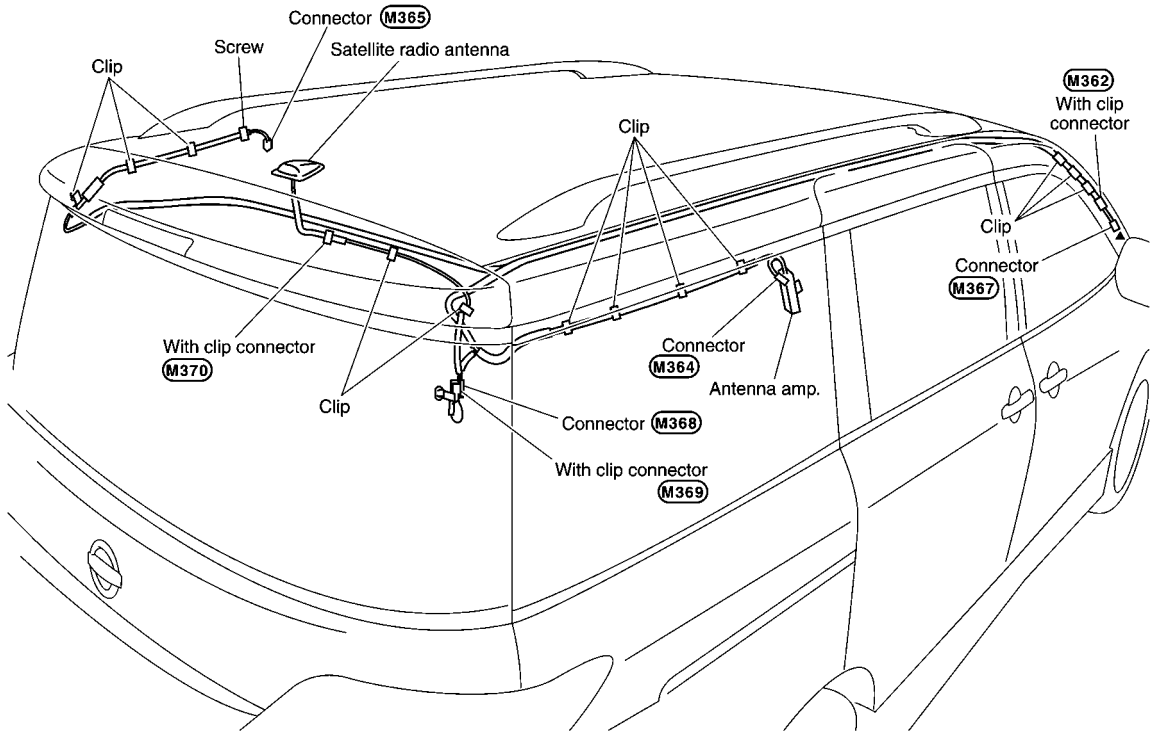
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4724GB

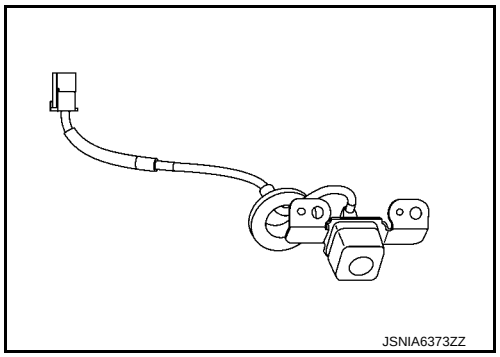
▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

## Rear View Camera

INFOID:0000000012407086

- The rear view camera is installed to the back door finisher.
- Super-small CCD camera (color) using CCD* for the image pickup element is adopted.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.
- Power for the camera is supplied from the audio unit, and the image at the rear of the vehicle is sent to the audio unit.




**NOTE:**
*: Abbreviation of Charge Coupled Device. CCD can turn incident light from the lens into electrons and memorize the image like a photo.

### Specification

| | |
|---|---|
| Manufacturer name | Panasonic corporation |
| Image pickup element | 1/4-inch interline CCD color |
| Effective number of pixels | Approx. 250,000 pixels (510 × 492) |
| Minimum brightness | 2 lx |
| Angle of view | H: 137° V: 92° |
| Image | With mirror processing function |

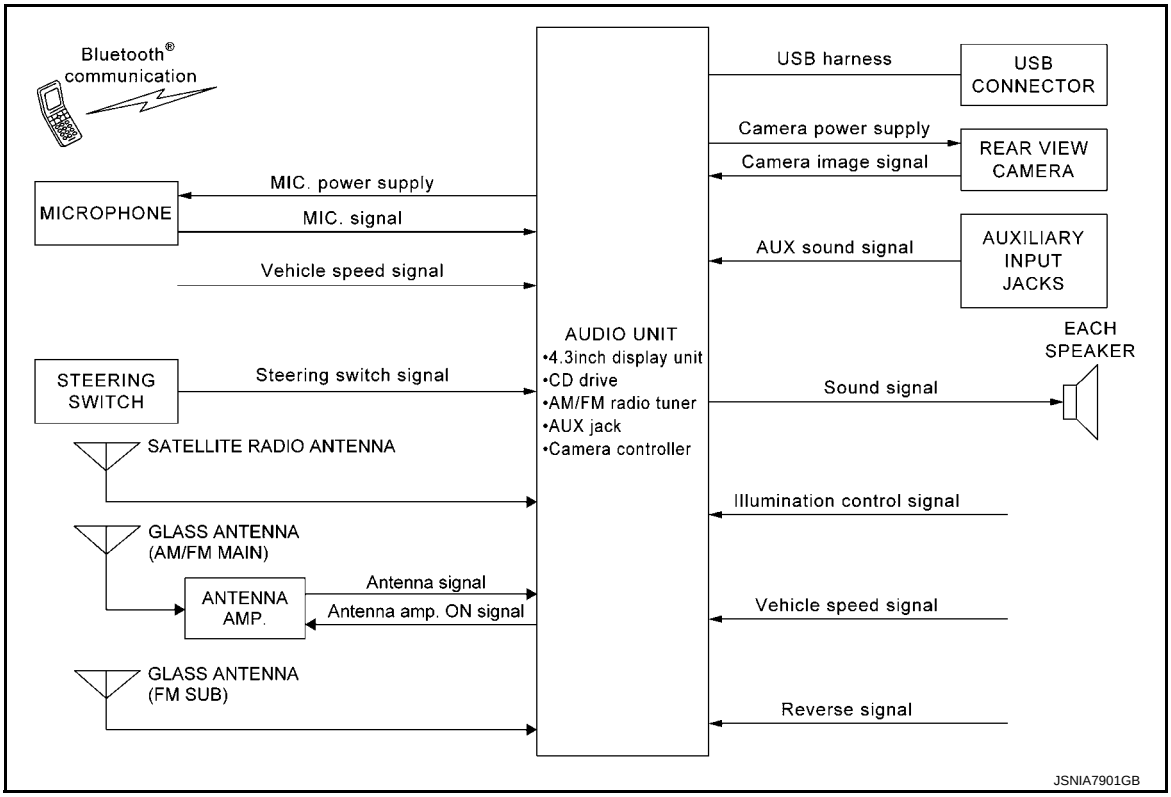


cardiagn.com

# SYSTEM
## DISPLAY AUDIO SYSTEM
### DISPLAY AUDIO SYSTEM : System Description

INFOID:0000000012407087

SYSTEM DIAGRAM




DESCRIPTION

Display audio system is equipped with the following functions (display unit is built in to audio unit).

| FUNCTION NAME |
|---|
| Audio function |
| Hands-free phone function |
| Rear view monitor function |

Operating Signal

Display audio system operation can be performed with audio switch and steering switch.

COMMUNICATION SIGNAL

- Audio unit function by transmitting/receiving data one by one with TEL adapter unit (slave unit) that configures them completely as a master unit by connecting between units that configure display audio system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.

AUDIO FUNCTION

- The audio unit has a 4.3-inch liquid crystal color display.
- The adoption of CD drive, USB connector, and auxiliary input jack (stereo mini jack) enables the playback of various kinds of media.
- The MP3/WMA/AAC playback function enables music to play for a long time: the user need not change the CD during a long trip. The text display function is also adopted so that the title name and artist name of the ID3 tag/WMA/AAC tag can be displayed.

  **NOTE:**
  - MP3 stands for MPEG AUDIO LAYER3. It is the compression standard defined by “MPEG”, a joint activity organization of ISO and IEC (the international standardization groups).

cardiagn.com

- WMA stands for Windows Media® Audio. It is the sound data compression standard formulated by Micros oft Corporation.
- AAC is abbreviation of Advanced Audio Coding. It is the sound data compression method standardized in an animation compression standard (MPEG).

- The audio system is equipped with the following functions.

| FUNCTION |
|---|
| AM/FM radio |
| Satellite radio |
| CD |
| Auxiliary input |
| USB connection |
| Speed sensitive volume |
| Steering switch operation |

AM/FM Radio
- AM/FM radio tuner is built into audio unit.
- AM/FM radio wave is received by radio antenna, next it is amplified by antenna amp., and finally it is input to audio unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the audio unit directly.
- Audio unit outputs the sound signal to each speaker.

Satellite Radio
- Radio signal is received by satellite radio antenna and transmitted to audio unit.
- Audio unit outputs the sound signal to each speaker.

CD
- CD function is built into audio unit.
- Audio unit outputs sound signal to each speaker when CD is inserted to audio unit.
- For further information about CD function specifications, refer to AV-47, "Audio Unit".

Auxiliary input
- Audio played back by external equipment (e.g. iPod® and portable audio) is outputted from the vehicle speakers via the auxiliary input jack installed to the audio fascia.
- In auxiliary input mode, only sound volume and sound quality can be operated with the audio unit.

USB Connection
- iPod® or music files in USB memory can be played.
- iPod® sound signals are transmitted from USB connector to each speaker via audio unit.
- iPod® is recharged when connected to USB connector.
- Compliant USB memory and data recorded are limited.

| | |
|---|---|
| USB memory | USB2.0 |
| File system | FAT16 |
| | FAT32 |

- Only files that meet the following conditions will be played.

| | Music file |
|---|---|
| File format | “MP3”, “WMA” |
| File extension | “.mp3”, “.wma” |
| Maximum file size | 800 MB |

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

**NOTE:**
- The audio unit does not support the display of static images and videos.
- Use the enclosed USB harness when connecting iPod® to USB connector.

cardiagn.com

Speed Sensitive Volume
- Volume level of this system gone up and down automatically in proportion to the vehicle speed.
- The control level can be selected by the customer.

Steering Switch Operation
- The audio unit changes the status of function according to the steering switch operation when receiving a steering switch signal.

## BLUETOOTH® HANDS-FREE PHONE FUNCTION

- When the cellular phone is connected to the audio unit in Bluetooth® communication, hands-free phone communication can be performed.
- Simply operating the steering switch without releasing hands from the steering wheel allows the driver to make a phone call or receive a phone call.
- When a Bluetooth® communication compliant phone is registered to the audio unit, hands-free phone communication can be performed. Five units of Bluetooth® communication devices including audio devices and cellular phones can be registered to the audio unit.
- The content of the memory (telephone book) of the cellular phone can be recorded in the audio unit.

| | |
|---|---|
| Bluetooth® compliant profile | HFP1.5 |
| | Core specification 2.0 + EDR |

Reception Voice Signal
- Hands-free phone reception voice is output from the cellular phone through the audio unit to the front speaker via Bluetooth® communication.
- If the hands-free phone is used while the audio is ON and/or the voice guidance is being output, these sounds are muted and only the reception voice is output.

Speech Sound Signal

Hands-free phone speech sound is transmitted from the microphone via the audio unit and Bluetooth® communication to the cellular phone.

Hands-free Phone Indicator
- When a cell phone that is connected with the audio unit via Bluetooth® communication receives a phone call, the incoming call is displayed on the information display in combination meter.
- When audio unit recognizes an incoming call from a cell phone via Bluetooth® communication, it transmits the meter display signal to combination meter via AV communication.
- When combination meter receives the meter display signal, it displays the incoming call of cell phone on information display.
- When an incoming call is received, the driver can operate the steering switch to answer the phone.
- When steering switch is operated, the combination meter receives the steering switch signal, and then combination meter transmits the steering switch signal to the audio unit via AV communication.
- When audio unit receives the steering switch signal, it activates the hands-free phone.

## REAR VIEW MONITOR FUNCTION

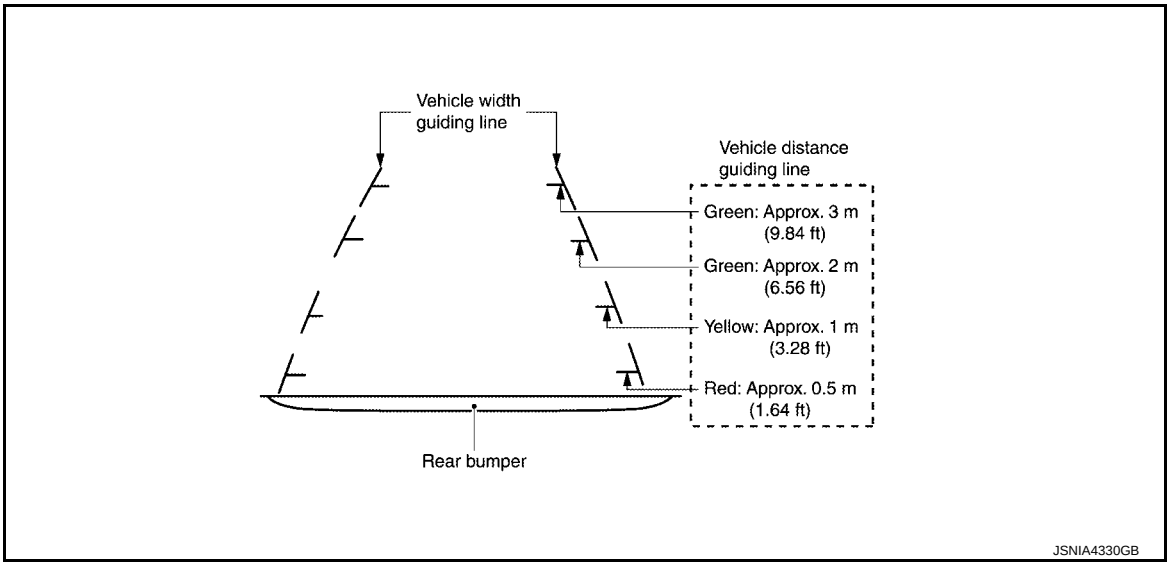
Operation Description
- When the selector lever is shifted to the reverse position, the rear view monitor image is displayed.
- When the selector lever is shifted to any position other than the reverse position, the original image (the image displayed before the rear view monitor image) is displayed.

Camera Image Operation Principle
- The audio unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the audio unit when power is supplied from the audio unit.
- The audio unit combines a warning message and fixed guide lines with an image received from the rear view camera to display a rear view camera image on the screen.

Vehicle Width and Distance Guide Lines Display Function at Rear View Monitor Display

cardiagn.com

- The vehicle width and distance guide lines are displayed at the rear view monitor display to allow the driver to more easily judge distances between the vehicle and objects and help the driver back into a parking space.



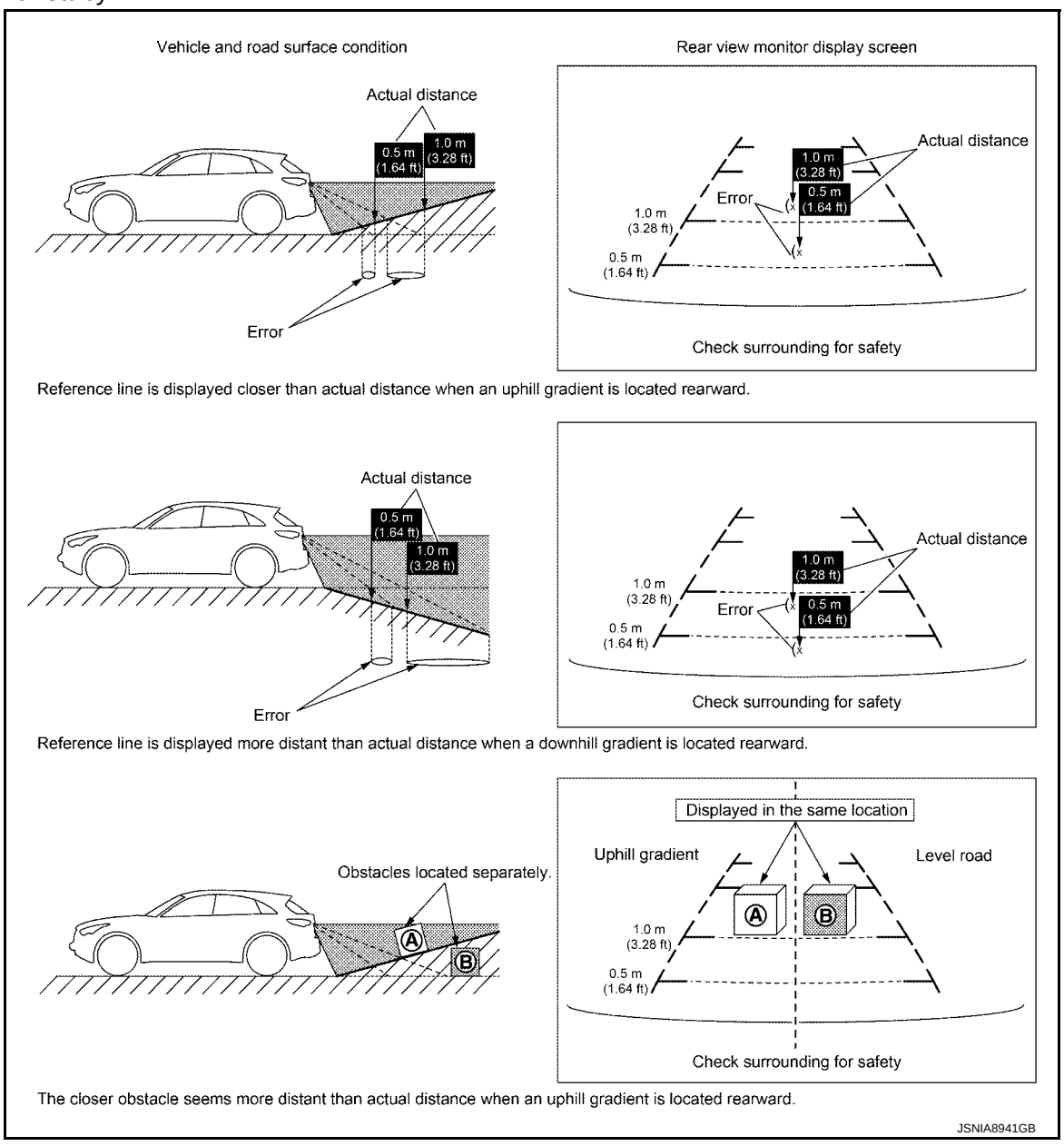

Precautions for Side Distance Guide Lines Display on the Rear View Monitor Display

Side distance guide lines on the display may be different from actual lines depending on vehicle conditions and road conditions.

Precautions for road conditions

cardiagn.com

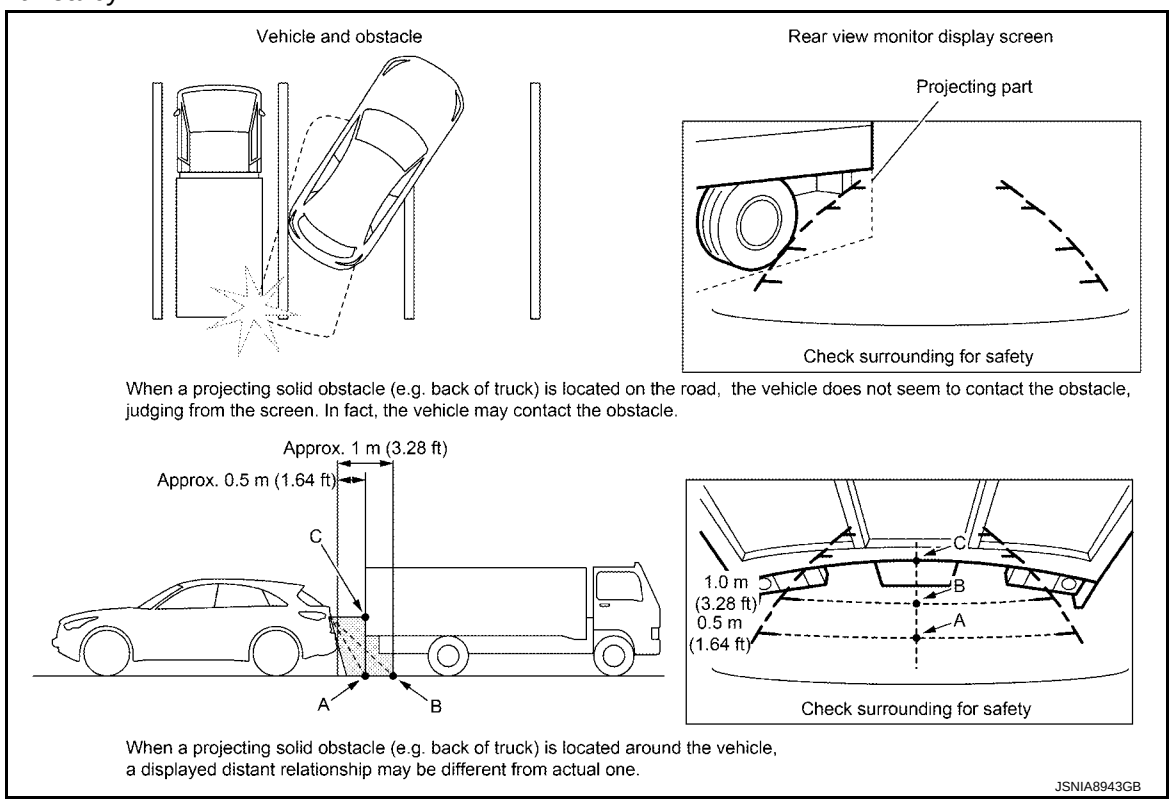
- Since guide lines are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




Precautions for block

cardiagn.com

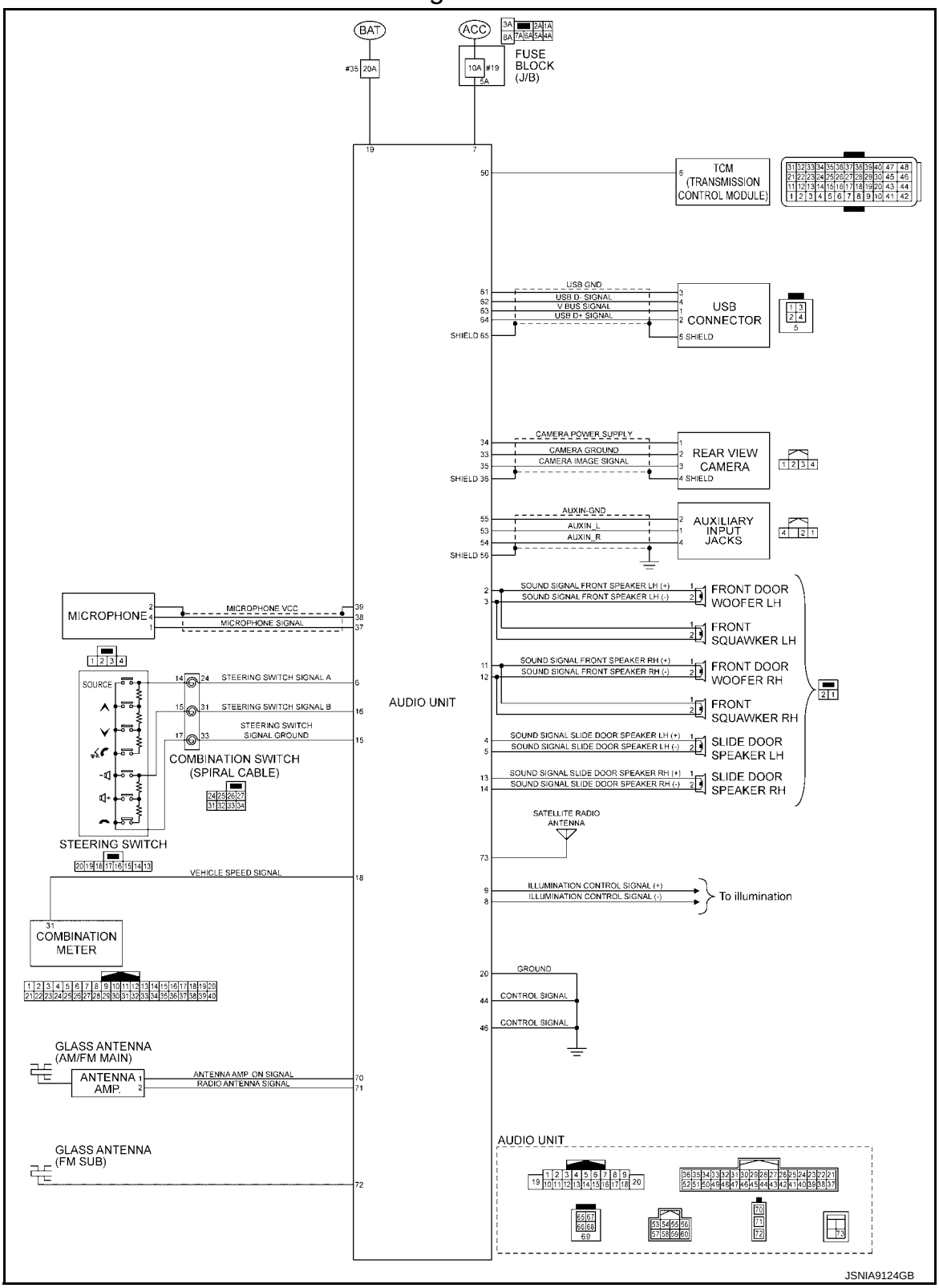
- Since guide lines are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




cardiagn.com

# DISPLAY AUDIO SYSTEM : Circuit Diagram

INFOID:0000000012407088




cardiagn.com

# DIAGNOSIS SYSTEM (AUDIO UNIT)

## Description

INFOID:0000000012407089

The audio unit diagnosis function starts up with audio switch operation and the audio unit performs a diagnosis for each unit in the system during the on board diagnosis.

## On Board Diagnosis Function

INFOID:0000000012407090

### ON BOARD DIAGNOSIS

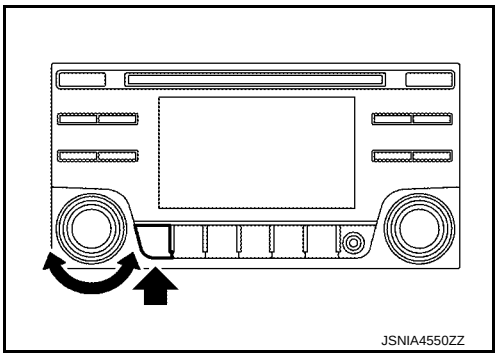
- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the audio unit diagnosis, and it indicates the results to the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

| Mode | | Description |
|---|---|---|
| Self Diagnosis | | Audio unit diagnosis. |
| Confirmation/ Adjustment | Display Diagnosis | The following check functions are available: color tone check by color bar display, light and shade check by gray scale display. |
| | Vehicle Signals | Diagnosis of signals can be performed for vehicle speed, lights, reverse and vehicle recognition. |
| | Speaker Test | The connection of a speaker can be confirmed by test tone. |
| | Error History | The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed. |
| | Camera System | Guiding line position that overlaps rear view camera image can be adjusted. (without around view monitor) |
| | AV COMM Diagnosis | The communication condition of each unit of display audio system can be monitored. |
| | Delete Unit Connection Log | Not used for this vehicle. |
| | Initialize Setting | Initializes the audio unit memory. |

### STARTING PROCEDURE

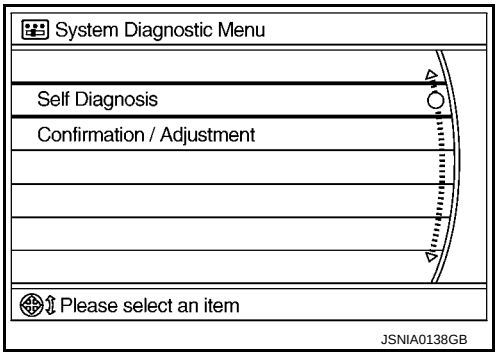
1. Start the engine.
2. Turn the audio system OFF.
3. While pressing the “1” button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)




4. Shifting from current screen to system initial screen is performed by pressing “iPod MENU” button.

cardiagn.com

5. The trouble diagnosis initial screen is displayed, and then the items of “Self Diagnosis” and “Confirmation/Adjustment” can be selected.

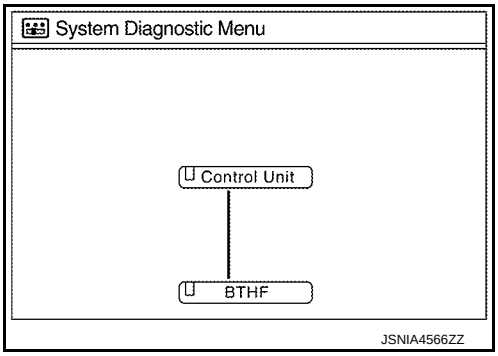



## SELF-DIAGNOSIS MODE

1. Start the self-diagnosis function and select “Self Diagnosis”.

- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

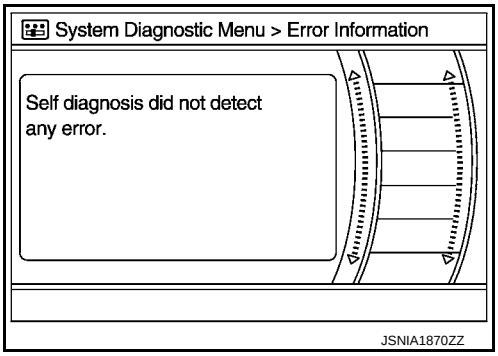



| Diagnosis results | Unit | Connection line |
|---|---|---|
| Normal | Green | Green |
| Connection malfunction | Gray | Yellow |
| Unit malfunction Note | Red | Green |

**NOTE:**
Control unit (audio unit) and is displayed in red.

- Replace audio unit if “Self-Diagnosis did not run because of a control unit malfunction” is indicated. The symptom is audio unit internal error. Refer to AV-105, "Removal and Installation".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.

- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.




Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between audio unit and each unit and the internal operation of the audio unit.
- If there is malfunction to the switch of the audio unit because the start condition of the diagnosis function is switch operation, the on board diagnosis function cannot be started.

## SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

cardiagn.com

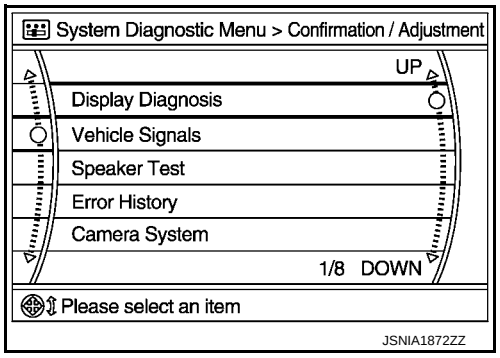
| Screen switch | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit | Malfunction is detected in audio unit power supply and ground circuits. | Check audio unit power supply and ground circuits. When detecting no malfunction in those components, replace audio unit. Refer to AV-105, "Removal and Installation". |

A Connecting Cable Between Units Is Displayed In Yellow.

| Area with yellow connection lines | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit ⇔ Meter | When either one of the following items is detected:<br>• Combination meter power supply and ground circuits are malfunctioning.<br>• AV communication circuits between audio unit and combination meter are malfunctioning. | • Combination meter power supply and ground circuits.<br>• AV communication circuits between audio unit and combination meter. |

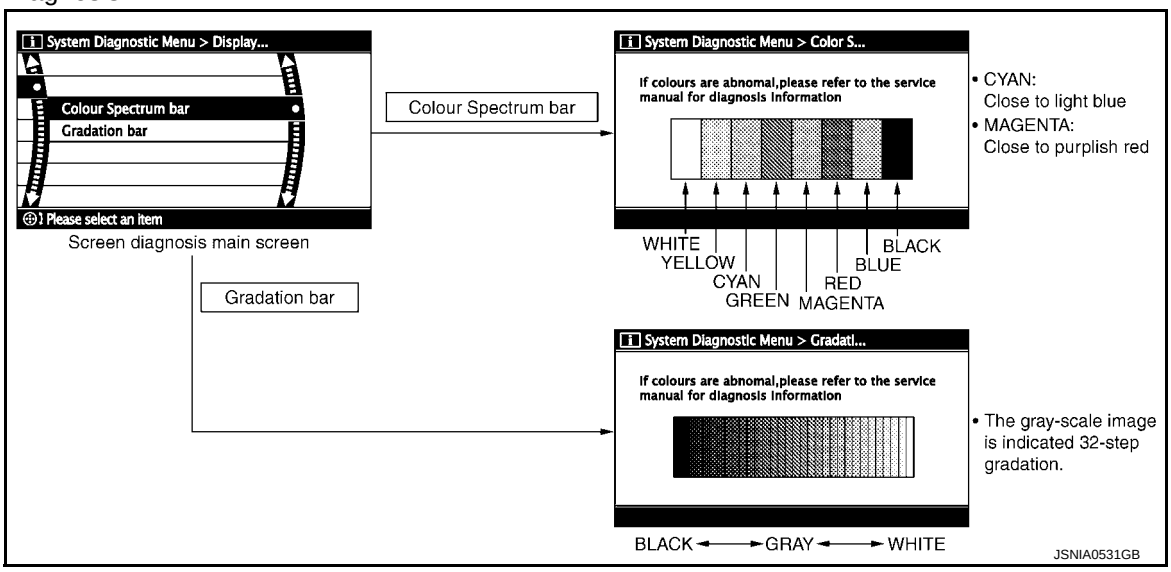
## CONFIRMATION/ADJUSTMENT MODE

1. Start the diagnosis function and select “Confirmation/Adjustment”. The confirmation/adjustment mode indicates where each item can be checked or adjusted.
2. Select each switch on the “Confirmation/Adjustment Mode” screen to display the relevant trouble diagnosis screen. Press the “iPod MENU” switch to return to the initial Confirmation/ Adjustment mode screen.



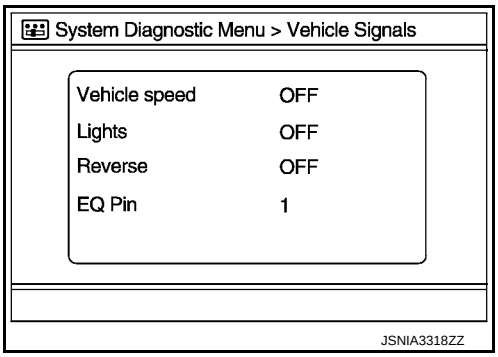

cardiagn.com

Display Diagnosis




Vehicle Signals

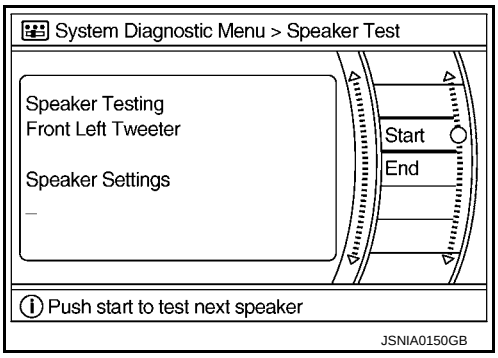
A comparison check can be made of each actual vehicle signal and the signals recognized by the system.




| Diagnosis item | Display | Vehicle status | Remarks |
|---|---|---|---|
| Vehicle speed | ON | Vehicle speed > 0 km/h (0 MPH) | Changes in indication may be delayed. This is normal. |
| | OFF | Vehicle speed = 0 km/h (0 MPH) | |
| Lights | ON | Lighting switch is ON | — |
| | OFF | Lighting switch is OFF | |
| Reverse | ON | Shift position is in “R” | Changes in indication may be delayed. This is normal. |
| | OFF | Shift position is in other than “R” | |
| EQ Pin | 2 | Status of EQ profile selection signal | ”2” is displayed for this vehicle. |

Speaker Test

Select “Speaker Test” to display the Speaker Diagnosis screen. Press “Start” to generate a test tone in a speaker. Press “Start” again to generate a test tone in the next speaker. Press “End” to stop the test tones.




Error History

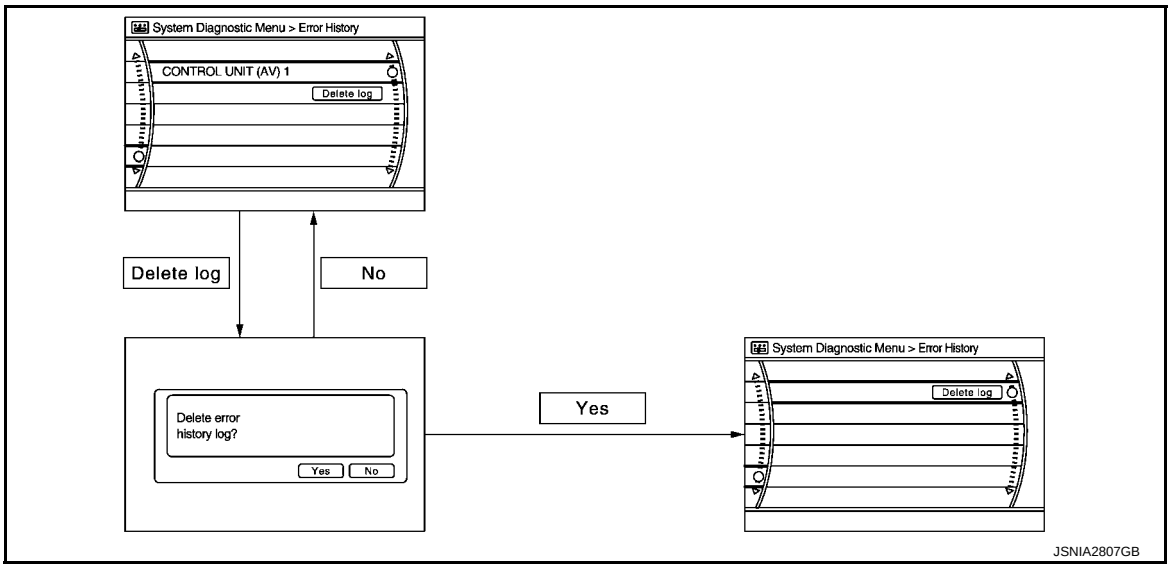
cardiagn.com

The self-diagnosis results are judged depending on whether any error occurs from when “Self-diagnosis” is selected until the self-diagnosis results are displayed.
However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self-diagnosis start. Check the “Error Record” to detect any error that may have occurred before the self-diagnosis start because of this situation.
The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

Count up method A
- The counter is set to 40 if an error occurs. 1 is subtracted from the counter if the condition is normal at a next ignition ON cycle.
- The counter lower limit is 1. The counter can be reset (no error record display) with the “Delete log” switch.

Count up method B
- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. The counter can be reset (no error record display) with the “Delete log” switch.

| Display type of occurrence frequency | Error history display item |
|---|---|
| Count up method A | AV communication line, CONTROL UNIT (AV) |
| Count up method B | CAN Controller Memory Error |




Error item
Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

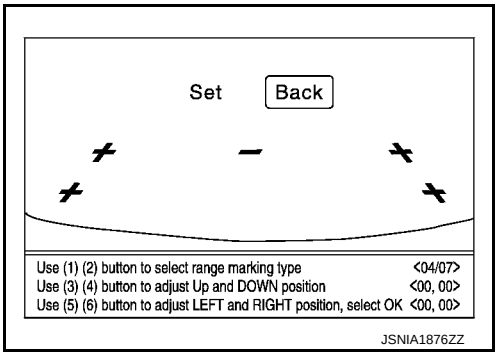
| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CONTROL UNIT (AV) | AV communication circuit initial diagnosis malfunction is detected. | Replace the audio unit.<br>Refer to AV-105, "Removal and Installation". |
| CAN Controller Memory Error | Audio unit malfunction is detected. | |
| • AV COMM CIRCUIT<br>• H/F Unit Connection Error | When either one of the following items is detected:<br>• TEL adapter unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between audio unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>• AV communication circuits between audio unit and TEL adapter unit. |

Camera System



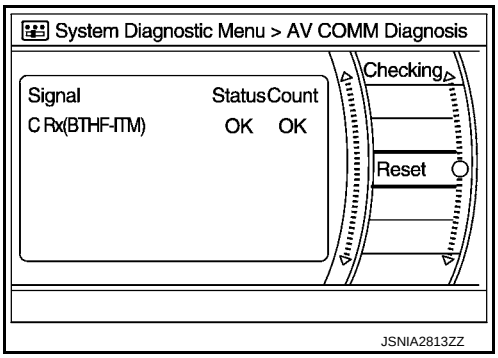
cardiagn.com

Use this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view camera.




AV COMM Diagnosis

- Displays the communication status between audio unit (master unit) and each unit.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.

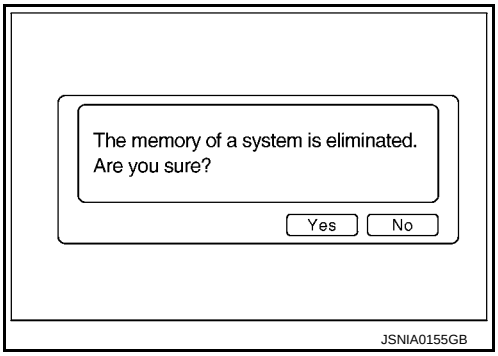



| Items | Status (Current) | Counter (Past) |
|---|---|---|
| C Rx(BTHF-ITM) | OK / ??? | OK / 0 – 39 |

**NOTE:**
“???” indicates UNKWN.

Initialize Settings

Deletes data stored from the audio unit.




cardiagn.com

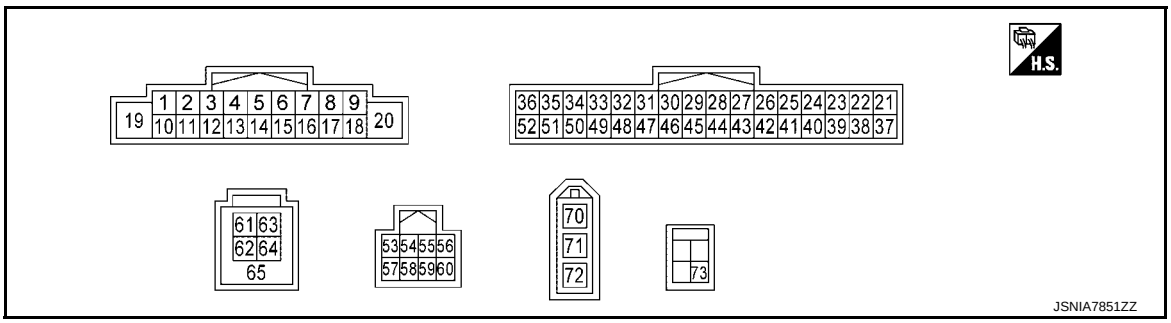
# ECU DIAGNOSIS INFORMATION

## AUDIO UNIT

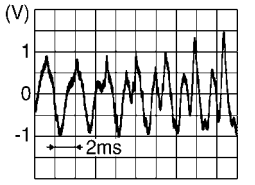
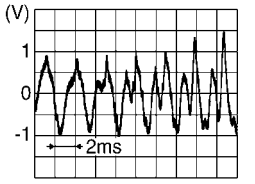
### Reference Value

INFOID:0000000012407091

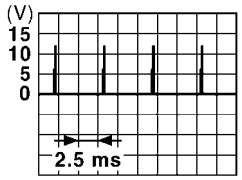
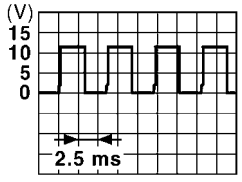
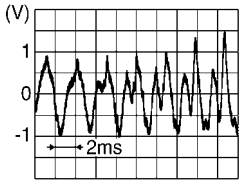
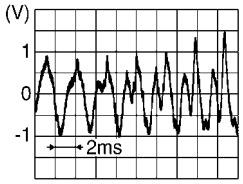
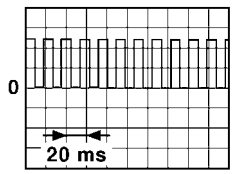
TERMINAL LAYOUT



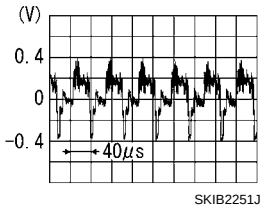
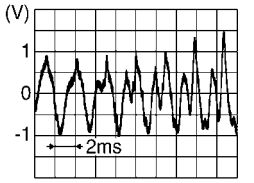

PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (Y) | 3 (B) | Sound signal front speaker LH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 4 (SB) | 5 (LG) | Sound signal slide door speaker LH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 6 (G) | 15 (GR) | Steering switch signal A | Input | Ignition switch ON | Keep pressing SOURCE switch. | 0 - 3.3 V | 0 V |
| | | | | | Keep pressing SEEK UP switch. | | 0.7 V |
| | | | | | Keep pressing SEEK DOWN switch. | | 1.3 V |
| | | | | | Except for above. | | 3.3 V |
| 7 (GR) | 20 (B) | ACC power supply | Input | Ignition switch ACC | — | 9.0 - 16.0 V | Battery voltage |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 9 (P) | 8 (B) | Illumination control signal | Input | Ignition switch ON | • Lighting switch 1ST<br>• When meter illumination is maximum | Waveform of 0 - 15.6 V is input according to meter illumination step. |  <br>JPNIA1687GB |
| | | | | | • Lighting switch 1ST<br>• When meter illumination is step 11 | |  <br>JPNIA1686GB |
| | | | | | • Lighting switch 1ST<br>• When meter illumination is minimum | | 0 V |
| 11 (B) | 12 (L) | Sound signal front speaker RH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |  <br>SKIB3609E |
| 13 (P) | 14 (L) | Sound signal slide door speaker RH | Output | Ignition switch ON | Sound output. | Outputs waveform synchronized with sound. |  <br>SKIB3609E |
| 16 (P) | 15 (GR) | Steering switch signal B | Input | Ignition switch ON | Keep pressing VOL DOWN switch. | 0 - 3.3 V | 0 V |
| | | | | | Keep pressing VOL UP switch. | | 0.7 V |
| | | | | | Except for above. | | 3.3 V |
| 18 (BE) | Ground | Vehicle speed signal (8-pulse) | Input | Ignition switch ON | When vehicle speed is approx. 40 km/h (25 MPH) | Waveform according to vehicle speed is input. | **NOTE:**<br>The maximum voltage varies depending on the specification (destination unit).<br>  <br>JSNIA0012GB |
| 19 (Y) | 20 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 - 16.0 V | Battery voltage |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 34 (R) | 33 (W) | Camera power supply | Output | Ignition switch ON | At camera image is displayed. | 5.9 - 6.5 V | 6.2 V |
| 35 (B) | 33 (W) | Camera image signal | Input | Ignition switch ON | At camera image is displayed. | Waveform according to camera image is input. |   SKIB2251J |
| 36 | — | Shield | — | — | — | — | — |
| 37 (B) | 39 | Microphone signal | Input | Ignition switch ON | Give a voice. | Waveform according to voice is input. |   SKIB3609E |
| 38 (W) | 39 | Microphone VCC | Output | Ignition switch ON | — | 4.18 – 5.3 V | 5.0 V |
| 44 (B) | — | Control signal | Input | Ignition switch ON | — | — | 0 V |
| 46 (B) | — | Control signal | Input | Ignition switch ON | — | — | 0 V |
| 50 (LG) | 20 (B) | Reverse signal | Input | Ignition switch ON | Shift position is in R. | 7.0 - 16.0 V | 12.0 V |
| | | | | | Shift position is in other than R. | — | 0 V |
| 53 (B) | — | AUX sound signal LH | Input | — | — | — | — |
| 54 (R) | — | AUX sound signal RH | Input | — | — | — | — |
| 55 (W) | — | AUXIN ground | — | — | — | — | — |
| 56 | — | Shield | — | — | — | — | — |
| 61 (G) | — | USB ground | — | — | — | — | — |
| 62 (W) | — | USB D− signal | — | — | — | — | — |
| 63 (R) | — | V BUS signal | — | — | — | 4.75 - 5.25 V | — |
| 64 (B) | — | USB D+ signal | — | — | — | — | — |
| 65 | — | Shield | — | — | — | — | — |
| 70 | Ground | Antenna amp. ON signal | Output | Ignition switch ACC | — | 7.0 - 16.0 V | 12.0 V |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 71 | — | AM-FM main | Input | — | — | — | — |
| 72 | — | FM sub | Input | — | — | — | — |
| 73 | — | Satellite radio antenna signal | Input | — | — | — | — |

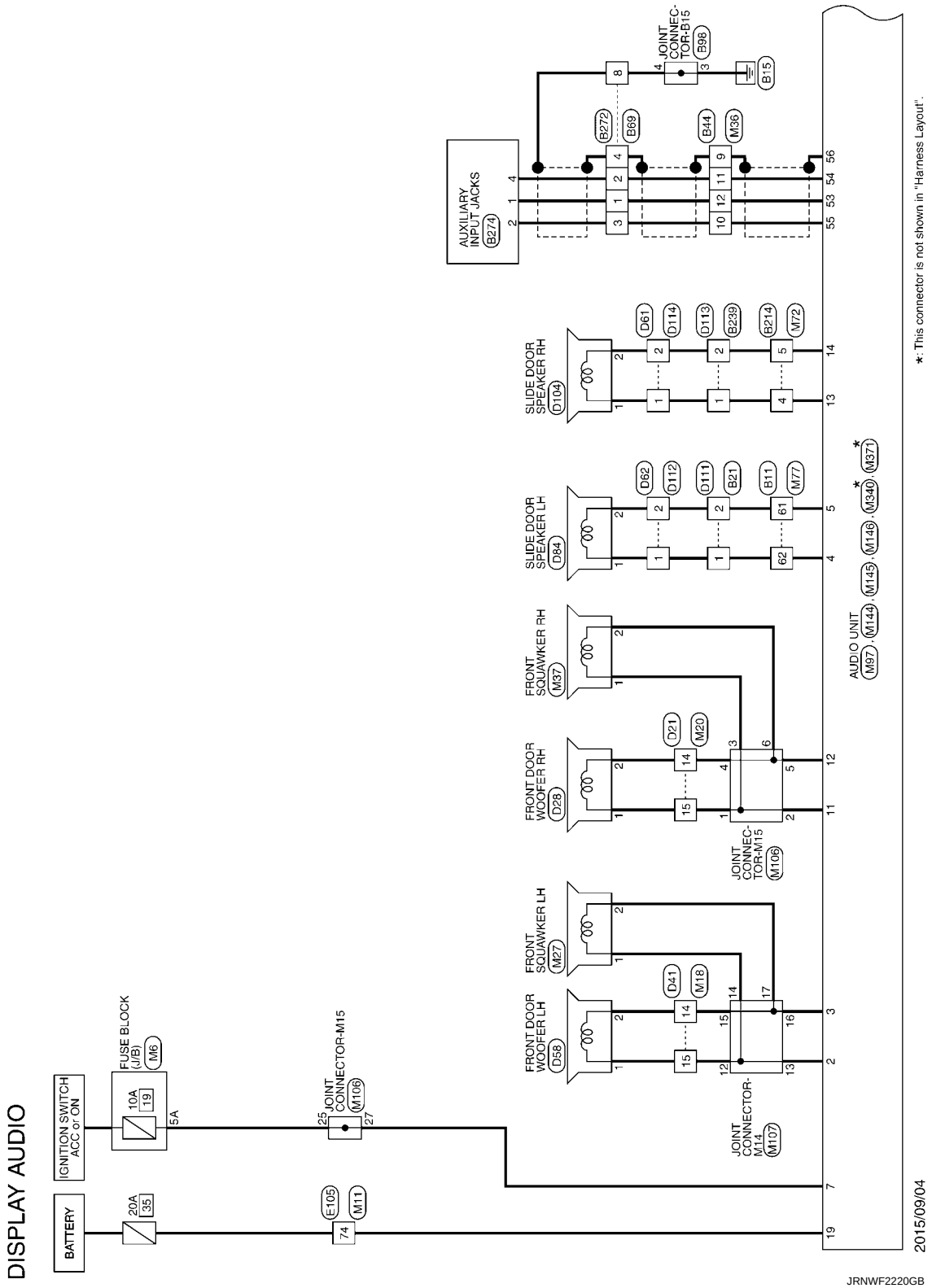
cardiagn.com

# WIRING DIAGRAM

## DISPLAY AUDIO

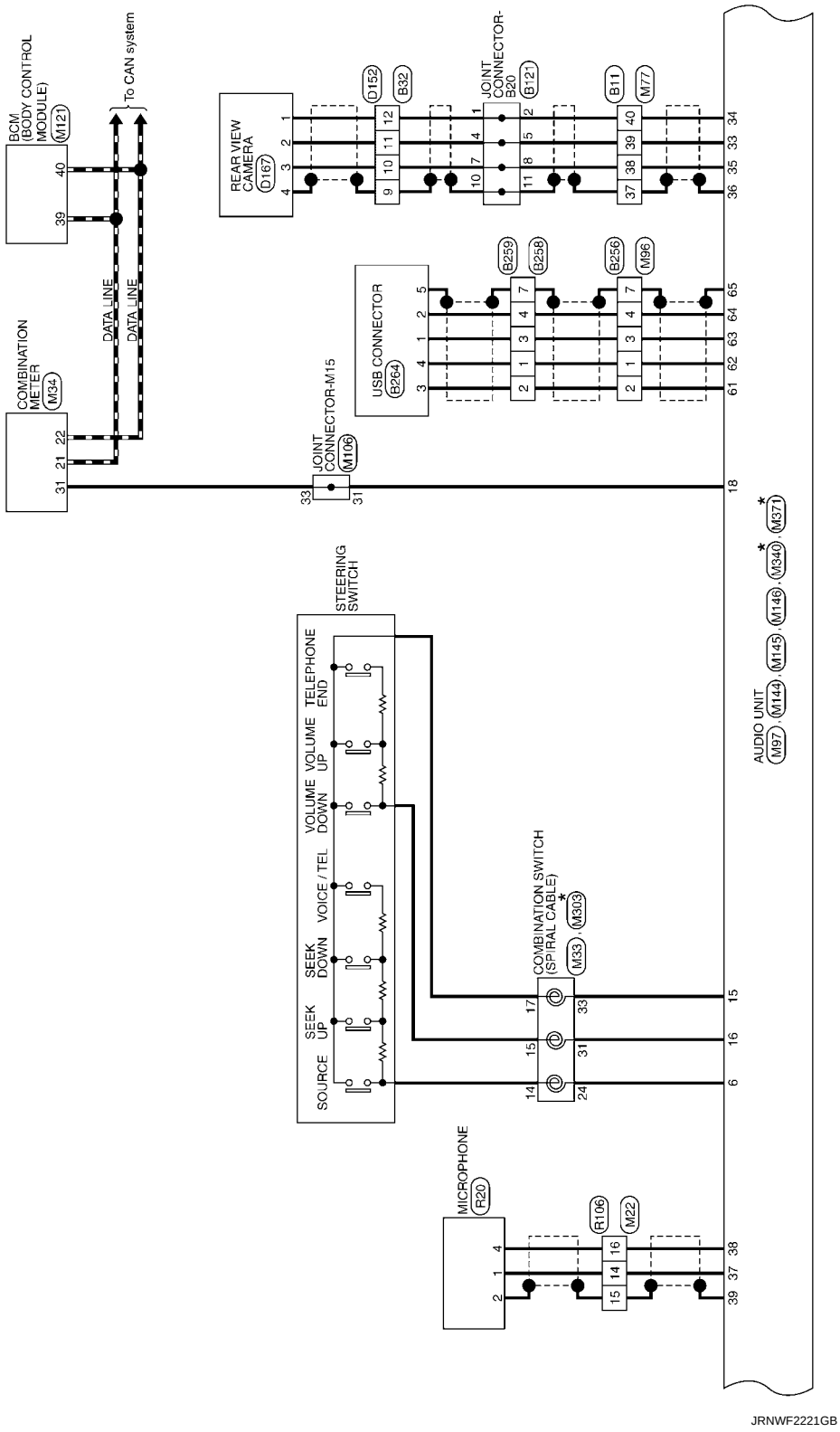
### Wiring Diagram

INFOID:0000000012407092



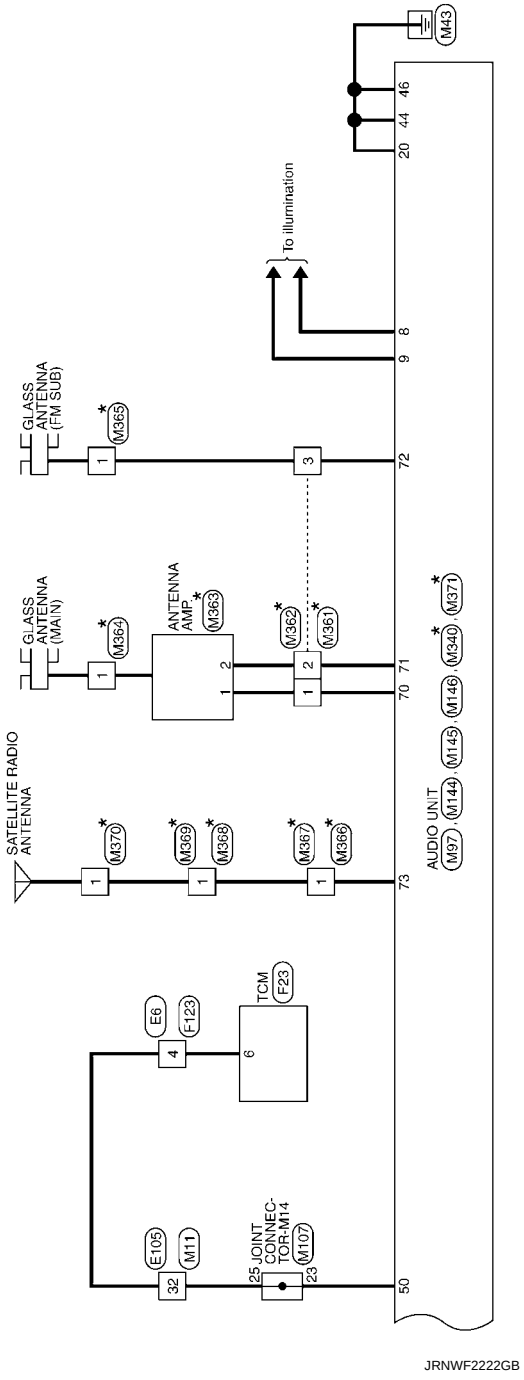

JRNWF2220GB

cardiagn.com



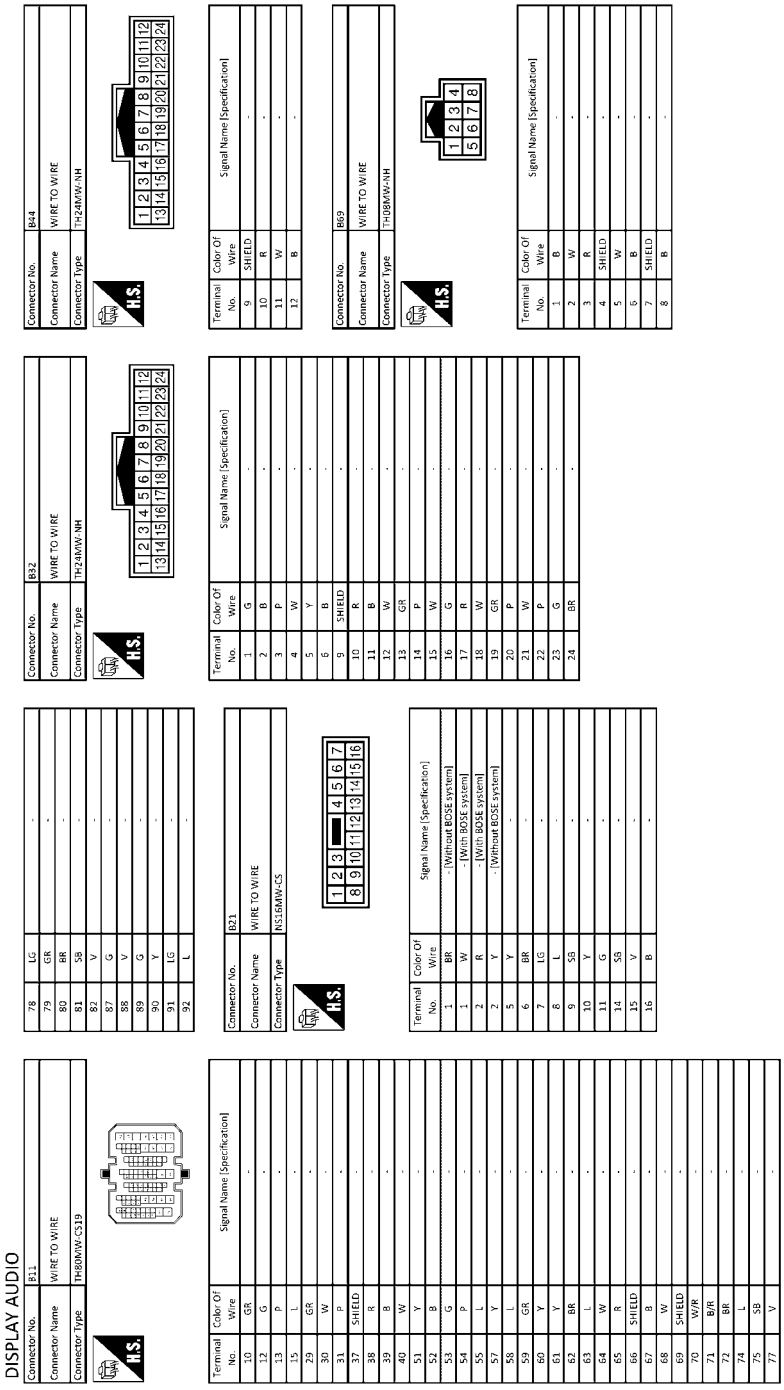

JRNWF2221GB

cardiagn.com



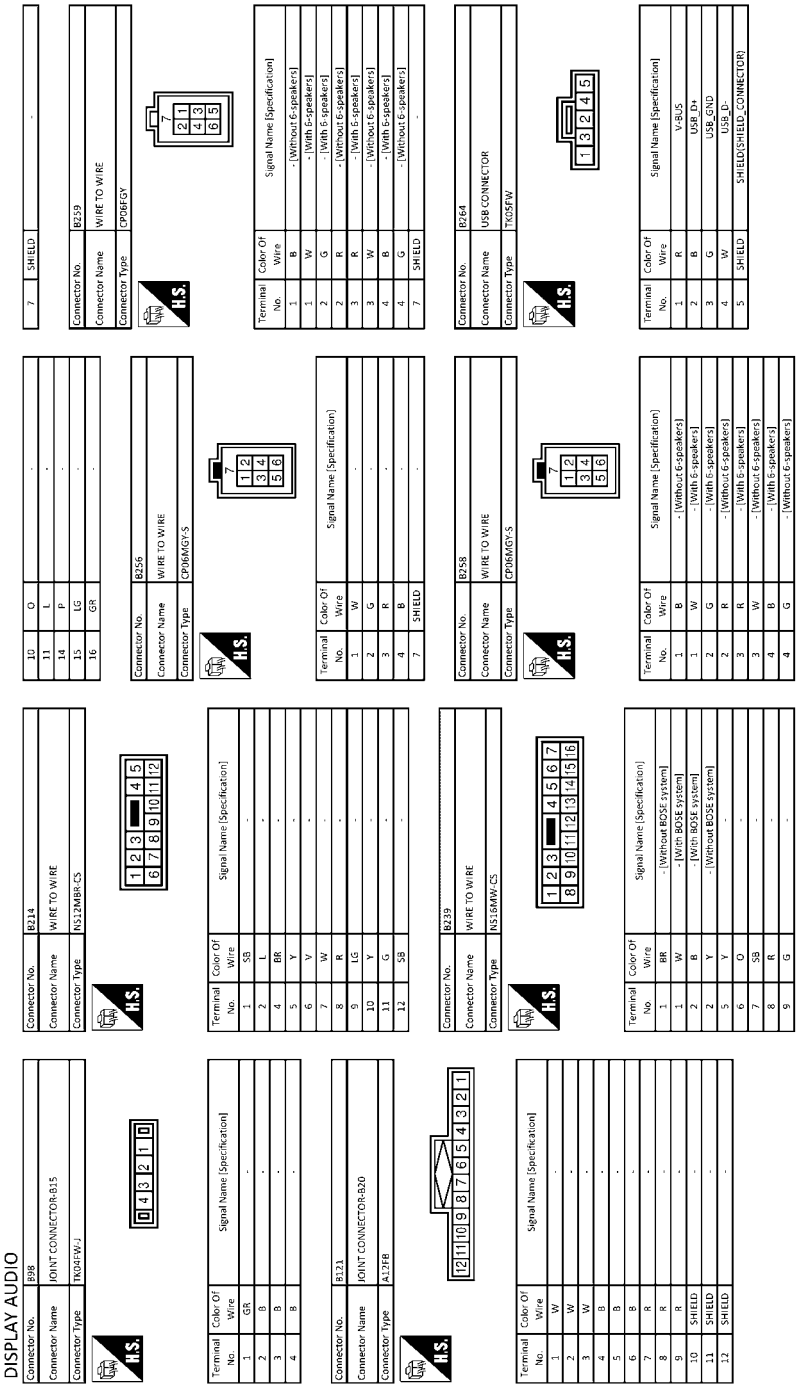

JRNWF2222GB

cardiagn.com



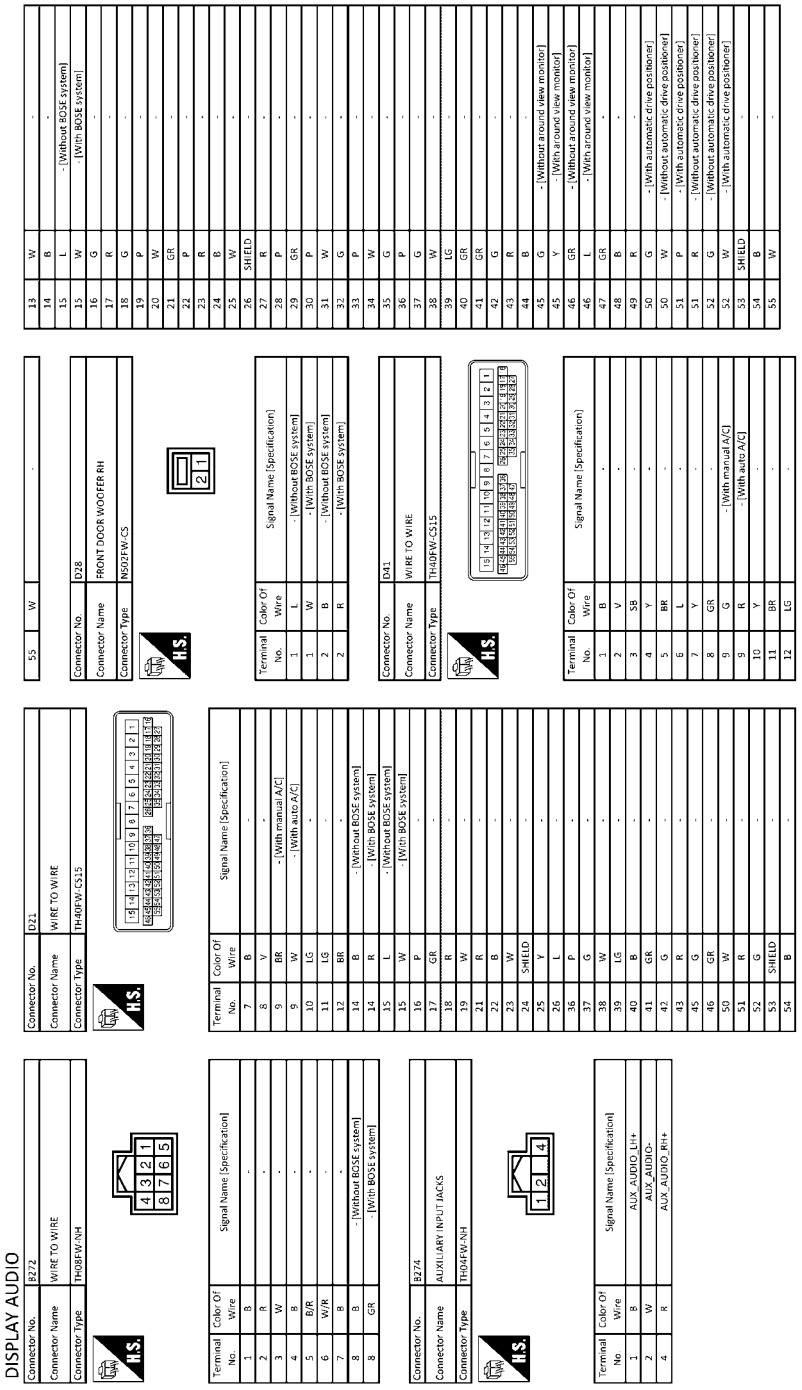

JRNWF2223GB

cardiagn.com



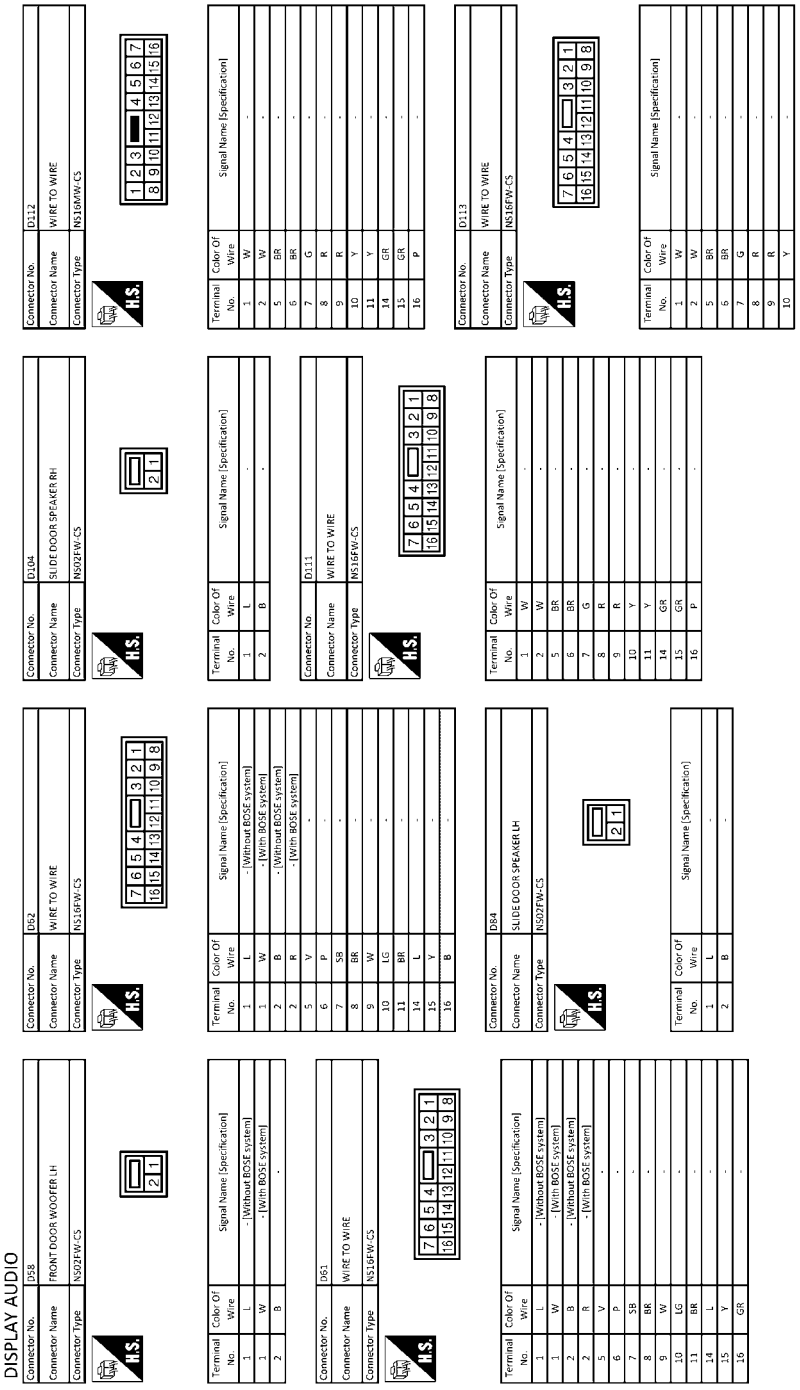

JRNWF2224GB

cardiagn.com



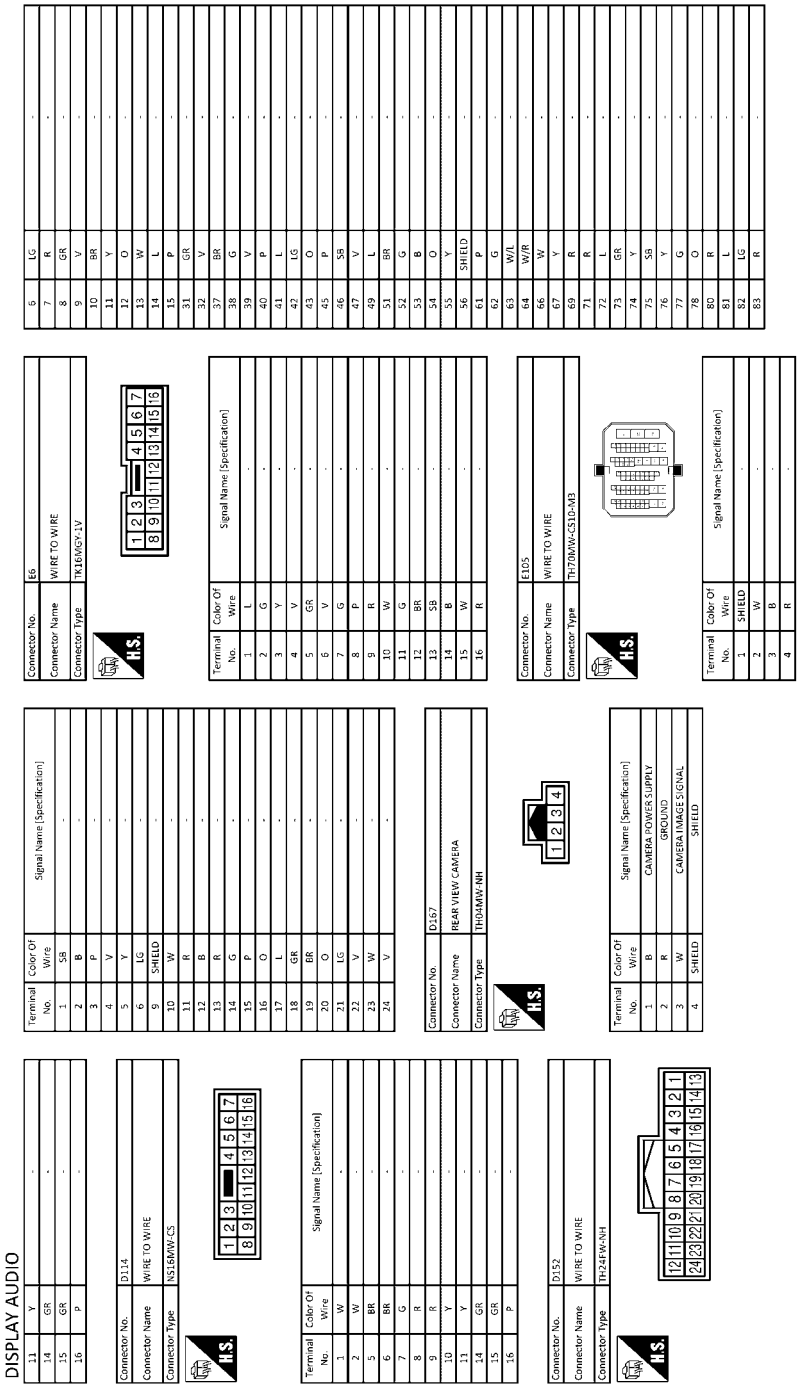

JRNWF2225GB

cardiagn.com



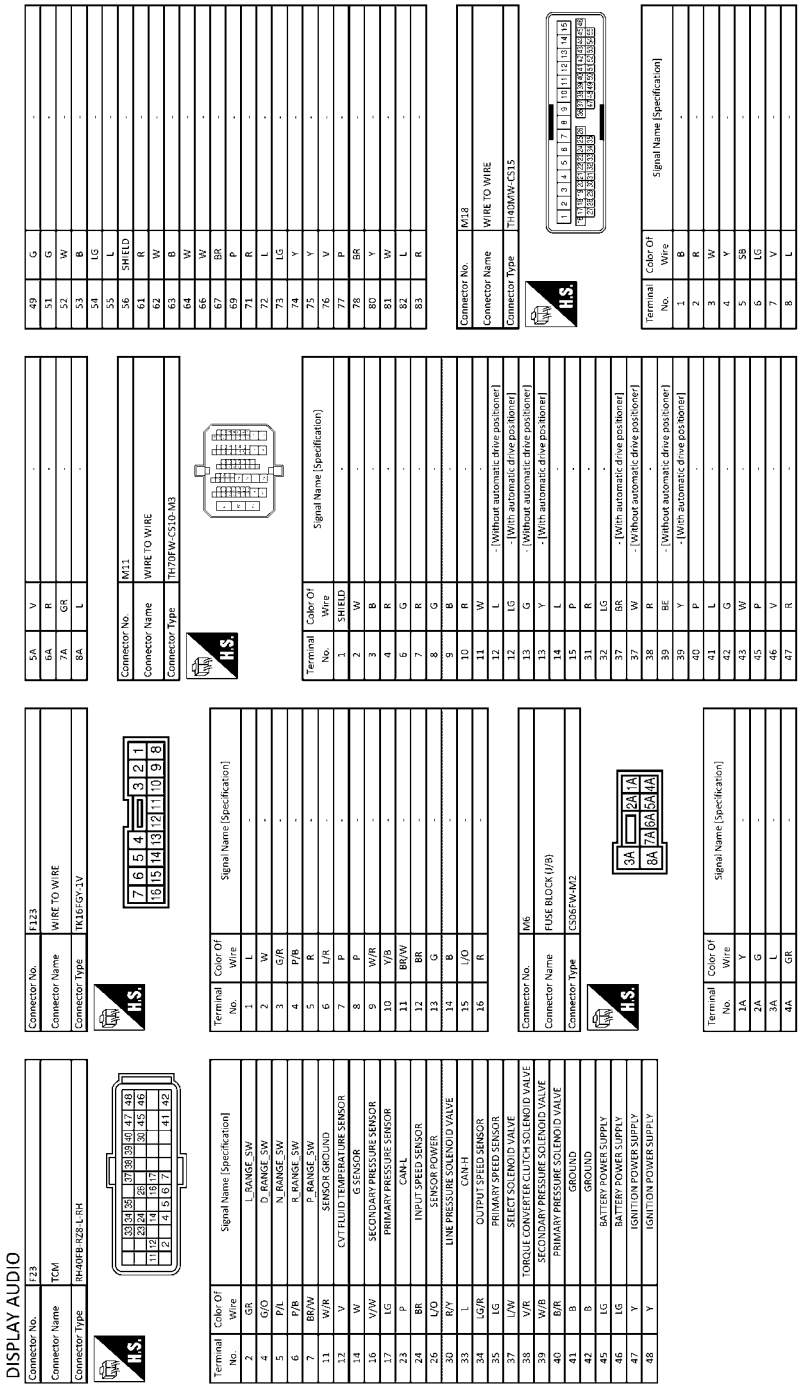

JRNWF2226GB

cardiagn.com



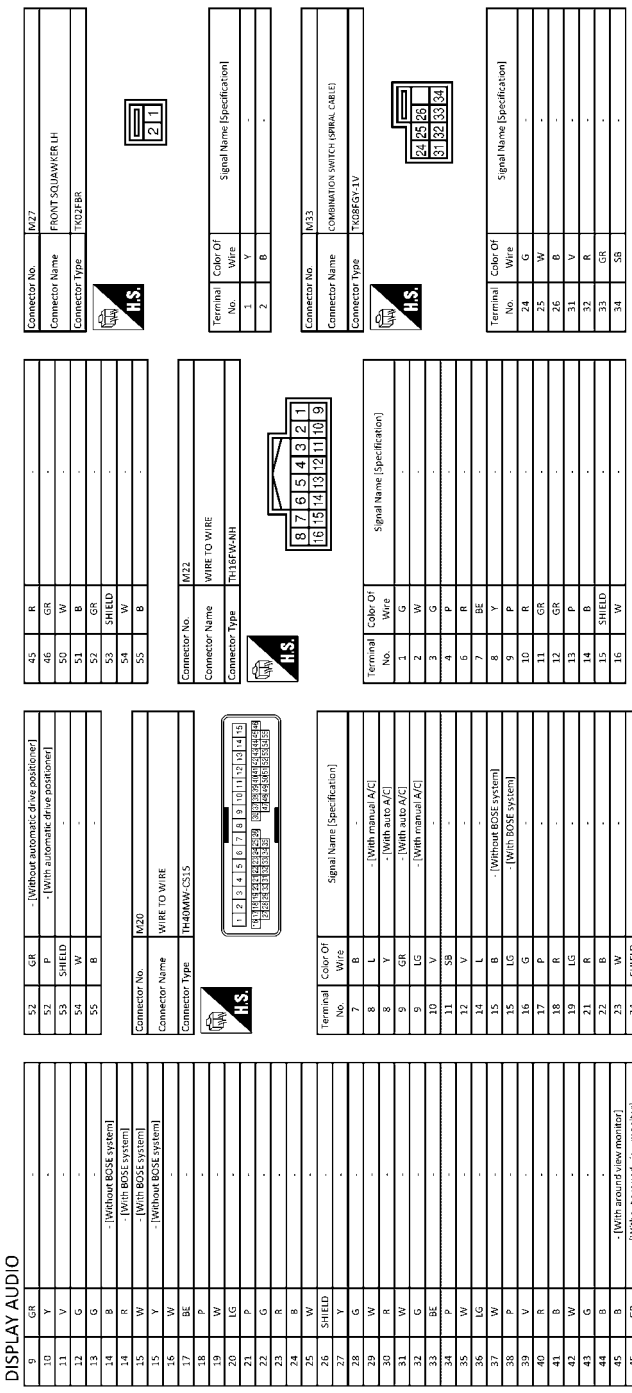

JRNWF2227GB

cardiagn.com



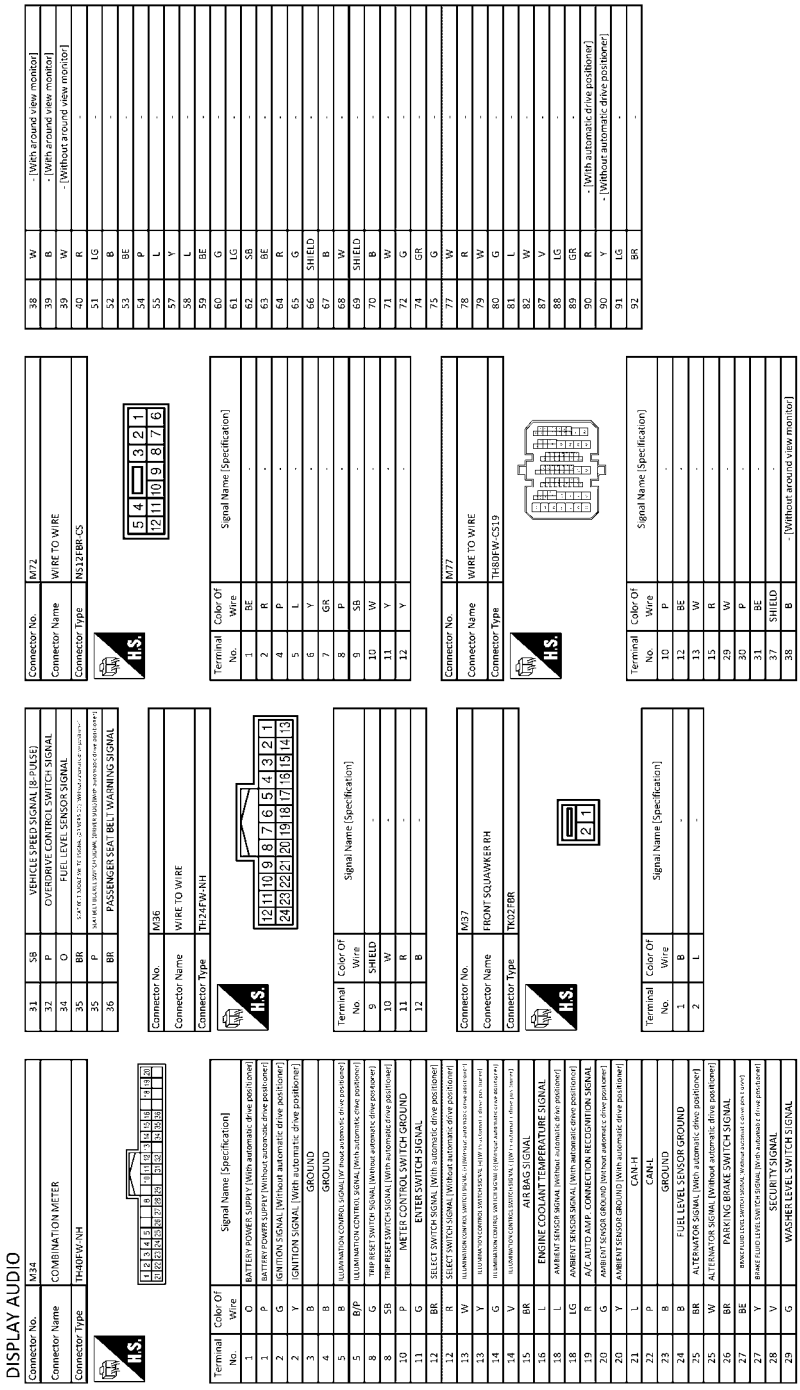

JRNWF2228GB

cardiagn.com




cardiagn.com

JRNWF2229GB




JRNWF2230GB

cardiagn.com

DISPLAY AUDIO

| Connector No. | M96 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | CP06FGY |



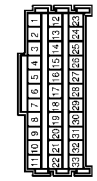
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | G | - |
| 3 | R | - |
| 4 | B | - |
| 7 | SHIELD | - |

| Connector No. | M97 |
|---|---|
| Connector Name | AUDIO UNIT |
| Connector Type | HAA04FL |



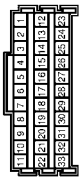
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 61 | G | USB GROUND |
| 62 | W | USB D- SIGNAL |
| 63 | R | V BUS SIGNAL |
| 64 | B | USB D+ SIGNAL |
| 65 | SHIELD | SHIELD |

| Connector No. | M106 |
|---|---|
| Connector Name | JOINT CONNECTOR-M15 |
| Connector Type | BU30FW |



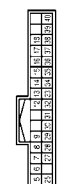
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | B | - |
| 3 | B | - |
| 4 | L | - |
| 5 | L | - |
| 6 | L | - |
| 8 | GR | - |
| 9 | Y | - |
| 10 | Y | - |
| 11 | Y | - |
| 12 | R | - |
| 14 | R | - |
| 15 | R | - |
| 17 | Y | - |
| 18 | Y | - |
| 19 | Y | - |
| 20 | Y | - |
| 21 | G | - [Without automatic drive positioner] |
| 21 | Y | - [With automatic drive positioner] |
| 22 | G | - [Without automatic drive positioner] |
| 22 | Y | - [With automatic drive positioner] |
| 23 | GR | - |
| 25 | GR | - |
| 26 | V | - |
| 27 | V | - |
| 28 | V | - |
| 29 | SB | - |
| 30 | BE | - |
| 31 | SB | - |
| 32 | SB | - |
| 33 | BE | - |

| Connector No. | M107 |
|---|---|
| Connector Name | JOINT CONNECTOR-M14 |
| Connector Type | BU30FW |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | R | - |
| 3 | R | - |
| 4 | R | - |
| 6 | O | - |
| 7 | O | - |
| 8 | O | - |
| 9 | P | - |
| 10 | P | - |
| 11 | O | - |
| 12 | Y | - |
| 13 | Y | - |
| 14 | Y | - |
| 15 | B | - |
| 16 | B | - |
| 17 | B | - |
| 20 | Y | - |
| 21 | G | - [Without automatic drive positioner] |
| 21 | Y | - [With automatic drive positioner] |
| 22 | G | - [Without automatic drive positioner] |
| 22 | Y | - [With automatic drive positioner] |
| 23 | V | - |
| 25 | LG | - |
| 26 | LG | - |
| 27 | V | - |
| 29 | P | - |
| 30 | P | - |
| 31 | P | - |
| 32 | P | - |
| 33 | P | - |

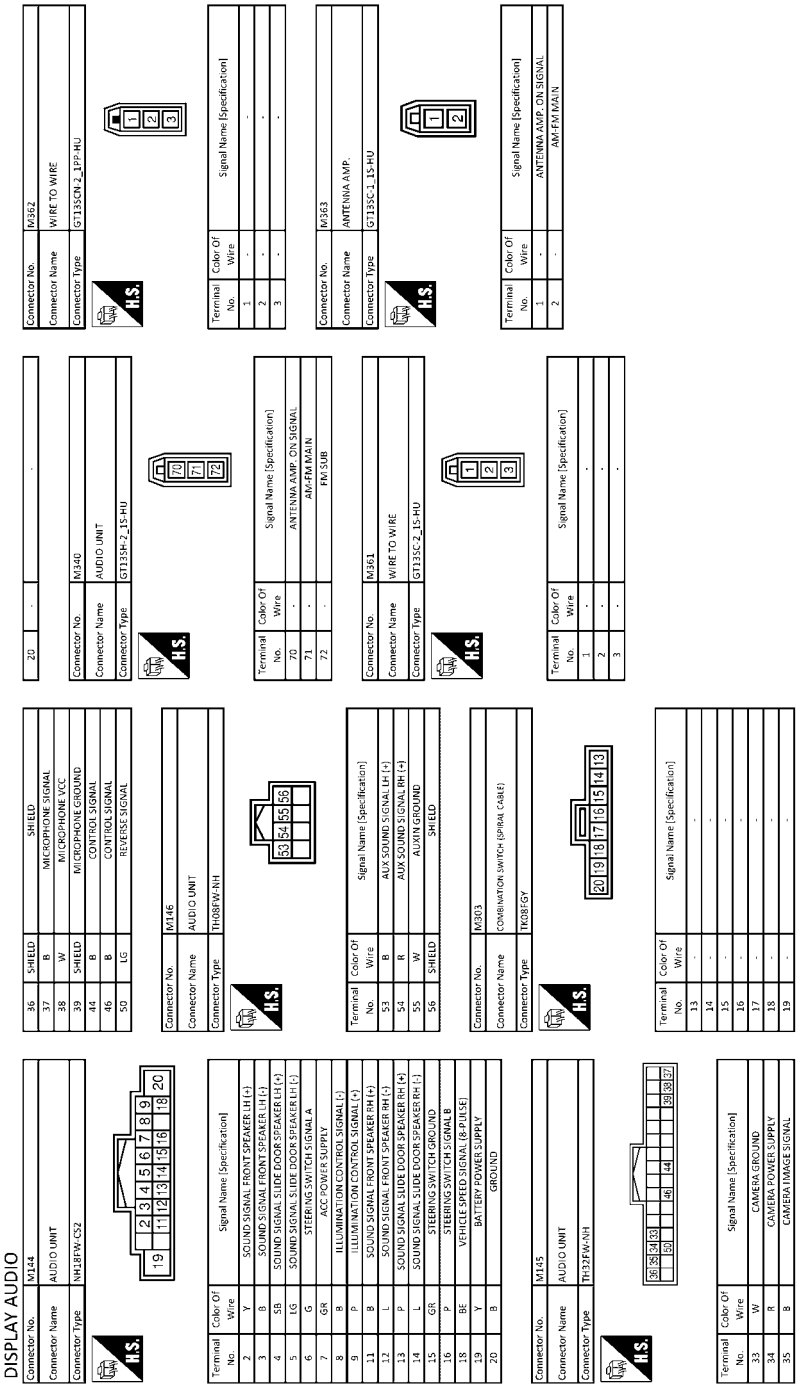
| Connector No. | M121 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FB-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | REAR WINDOW DEF RELAY CONT |
| 2 | R | COMBI SW INPUT 5 |
| 3 | G | COMBI SW INPUT 4 |
| 4 | BE | COMBI SW INPUT 3 |
| 5 | G | COMBI SW INPUT 2 |
| 6 | W | COMBI SW INPUT 1 |
| 7 | W | KEY CYL UNLOCK SW |
| 8 | GR | PW SW COMM [With automatic slide door] |
| 8 | Y | KEY CYL LOCK SW [Without automatic slide door] |
| 9 | GR | STOP LAMP SW 1 |
| 12 | GR | DOOR LK & UNLK SW LOCK |
| 13 | BR | DOOR LK & UNLK SW UNLOCK |
| 14 | L | OPTICAL SENS |
| 15 | W | REAR WINDOW DEF SW |
| 16 | Y | DIMMER |
| 17 | O | SENS PWR SPLY |
| 18 | R | RECEIV/SENS GND |
| 21 | GR | NATS ANT AMP. |
| 23 | W | SECURITY IND CONT |
| 25 | P | NATS ANT AMP. |
| 27 | O | A/C ON |
| 28 | BR | BLOWER FAN ON |
| 29 | P | HAZARD SW |
| 30 | L | RK DOOR OPNR SW |
| 31 | G | DR DOOR UNLK SENS |
| 32 | R | COMBI SW OUTPUT 5 |
| 33 | W | COMBI SW OUTPUT 4 |
| 34 | P | COMBI SW OUTPUT 3 |
| 35 | GR | COMBI SW OUTPUT 2 |
| 36 | R | COMBI SW OUTPUT 1 |
| 37 | G | DETENT SW |
| 38 | BE | RECEIVER COMM |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

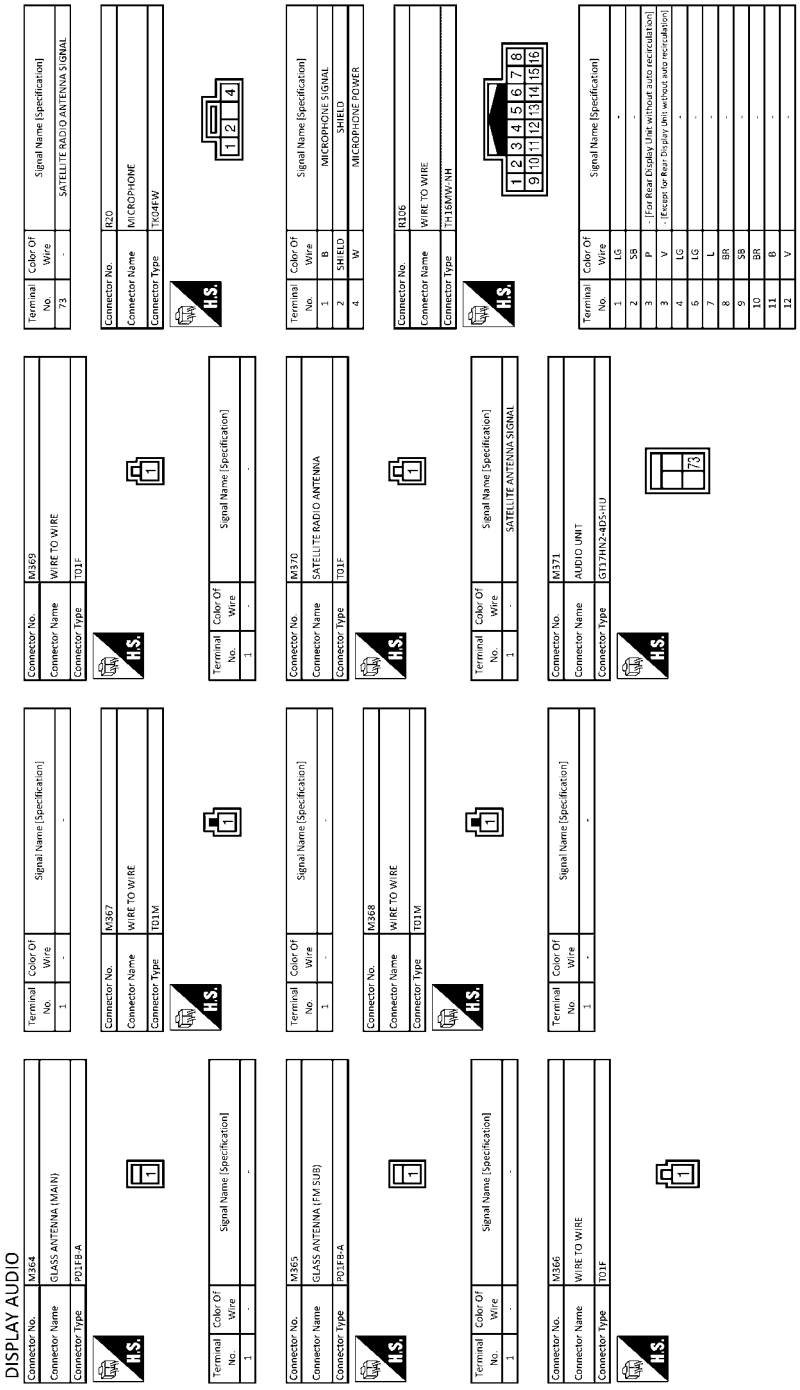
JRNWF2231GB

cardiagn.com



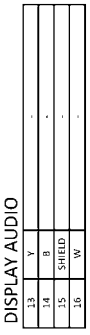

JRNWF2232GB

cardiagn.com




JRNWF2233GB

cardiagn.com




JRNWF2234GB

cardiagn.com

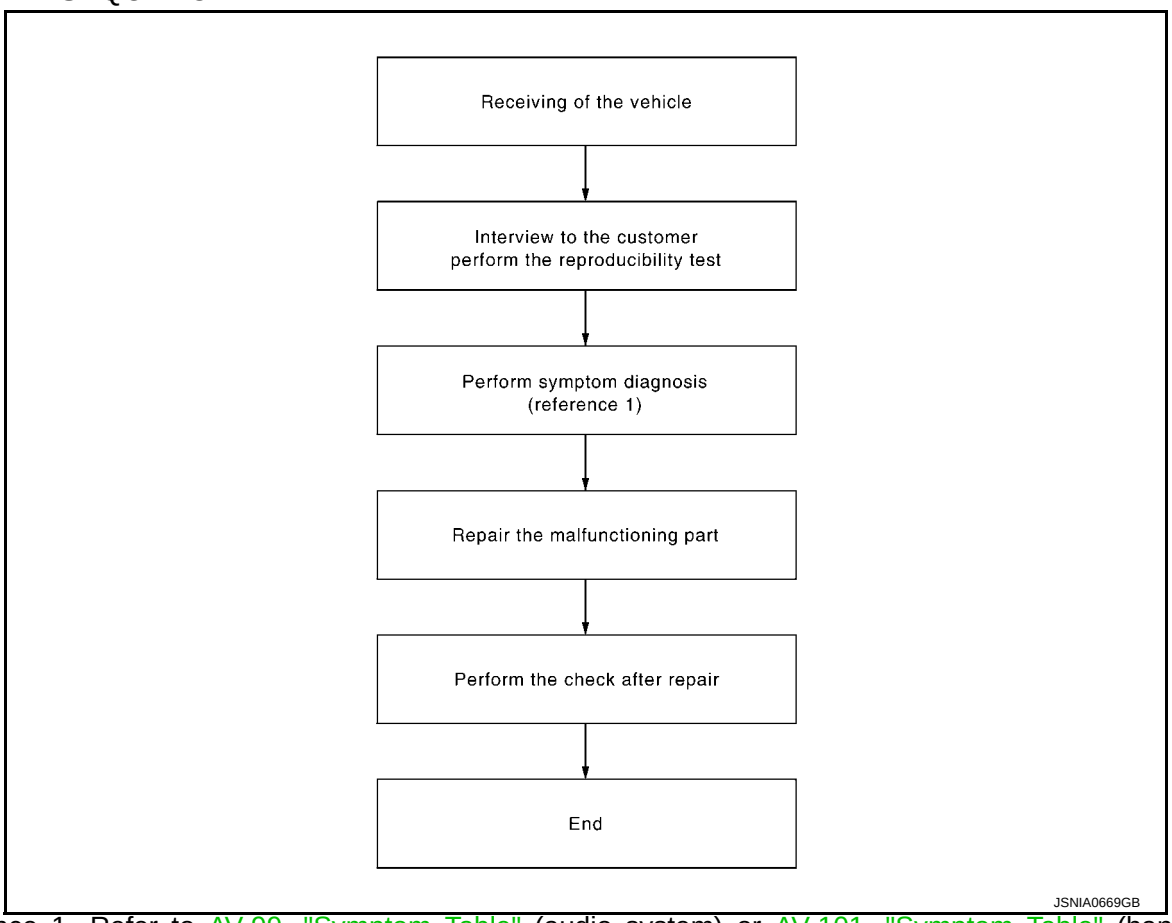
# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:0000000012407093

OVERALL SEQUENCE




Reference 1···Refer to AV-99, "Symptom Table" (audio system) or AV-101, "Symptom Table" (hands-free phone system).

DETAILED FLOW

#### 1.CHECK SYMPTOM

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

>> GO TO 2.

#### 2.PERFORM DIAGNOSIS BY SYMPTOM

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-99, "Symptom Table" (audio system) or AV-101, "Symptom Table" (hands-free phone system).

>> GO TO 3.

#### 3.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

>> GO TO 4.

cardiagn.com

## 4.FINAL CHECK

Perform the operation to check that the malfunction symptom is solved or any other symptoms are present.

Is there any symptom?

YES >> GO TO 2.
NO >> INSPECTION END

cardiagn.com

# DTC/CIRCUIT DIAGNOSIS

## POWER SUPPLY AND GROUND CIRCUIT

## AUDIO UNIT

### AUDIO UNIT : Diagnosis Procedure

INFOID:0000000012407094

### 1.CHECK FUSE

Check that the following fuses of the audio unit are not blown.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |

Is inspection result OK?

YES >> GO TO 2.
NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

### 2.CHECK AUDIO UNIT POWER SUPPLY CIRCUIT

Check voltage between the audio unit and ground.

| Signal name | Audio unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M144 | 19 | Ground | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 7 | | ACC | | |

Is inspection result OK?

YES >> GO TO 3.
NO >> Check harness between audio unit and fuse.

### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connectors.
3. Check continuity between audio unit harness connectors and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M144 | 20 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

cardiagn.com

# CAMERA IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407095

- The audio unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the audio unit when power is supplied from the audio unit.

## Diagnosis Procedure

INFOID:0000000012407096

### 1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and rear view camera connector.
3. Check continuity between audio unit harness connector and rear view camera harness connector.

| Audio unit | | Rear view camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M145 | 34 | D167 | 1 | Existed |

4. Check continuity between audio unit harness connector and ground.

| Audio unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M145 | 34 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE CAMERA POWER SUPPLY

1. Connect audio unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check voltage between audio unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| Audio unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M145 | 34 | M145 | 33 | 5.9 - 6.5 V | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace audio unit. Refer to AV-105, "Removal and Installation".

### 3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and rear view camera connector.
3. Check continuity between audio unit harness connector and rear view camera harness connector.

| Audio unit | | Rear view camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M145 | 35 | D167 | 3 | Existed |

4. Check continuity between audio unit harness connector and ground.

cardiagn.com

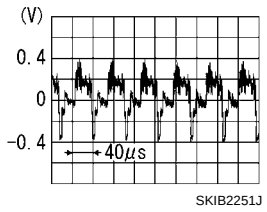
| Audio unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M145 | 35 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK CAMERA IMAGE SIGNAL

1. Connect audio unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check signal between audio unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| Audio unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M145 | 35 | M145 | 33 | When camera image is displayed. | Waveform according to camera image is input. |  |


SKIB2251J

Is inspection result normal?

YES >> Replace audio unit. Refer to AV-105, "Removal and Installation".
NO >> Replace rear view camera. Refer to AV-109, "Removal and Installation".

cardiagn.com

# MICROPHONE SIGNAL CIRCUIT

## Description

INFOID:0000000012407097

Audio unit supplies power to microphone. The microphone transmits the sound voice to the audio unit.

## Diagnosis Procedure

INFOID:0000000012407098

### 1.CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and microphone connector.
3. Check continuity between audio unit harness connector and microphone harness connector.

| Audio unit | | Microphone | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M145 | 37 | R20 | 1 | Existed |
| | 39 | | 2 | |
| | 38 | | 4 | |

4. Check continuity between audio unit harness connector and ground.

| Audio unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M145 | 38 | | Not existed |
| | 37 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE MICROPHONE VCC

1. Connect audio unit connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (−) | | | |
| Audio unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M145 | 38 | M145 | 39 | 4.18 - 5.3 V | 5.0 V |

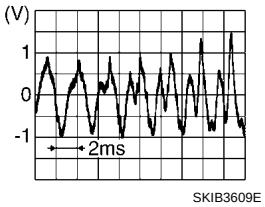
Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace audio unit. Refer to AV-105, "Removal and Installation".

### 3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.
2. Check signal between audio unit harness connector.

cardiagn.com

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| Audio unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M145 | 37 | M145 | 39 | Give a voice. | Waveform according to voice is input. |  SKIB3609E |

Is the inspection result normal?

YES >> Replace audio unit. Refer to AV-105, "Removal and Installation".
NO >> Replace microphone. Refer to AV-111, "Removal and Installation".

cardiagn.com

# STEERING SWITCH SIGNAL A CIRCUIT

## Description

INFOID:0000000012407099

Transmits the steering switch signal to audio unit.

## Diagnosis Procedure

INFOID:0000000012407100

### 1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and spiral cable connector.
3. Check continuity between audio unit harness connector and spiral cable harness connector.

| Audio unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M144 | 6 | M33 | 24 | Existed |

4. Check continuity between audio unit harness connector and ground.

| Audio unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M144 | 6 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AUDIO UNIT VOLTAGE

1. Connect audio unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| Audio unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M144 | 6 | M144 | 15 | 0 - 3.3 V | 3.3 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace audio unit. Refer to AV-105, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-94, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".



cardiagn.com

## Component Inspection

INFOID:0000000012407101

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

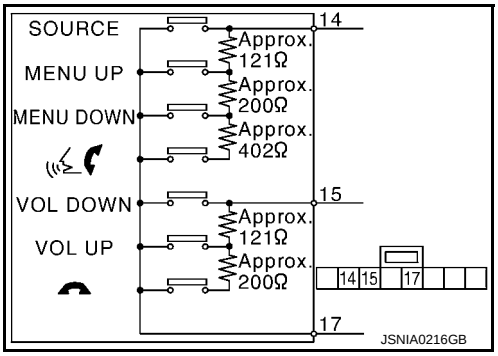
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# STEERING SWITCH SIGNAL B CIRCUIT

## Description

INFOID:0000000012407102

Transmits the steering switch signal to audio unit.

## Diagnosis Procedure

INFOID:0000000012407103

### 1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and spiral cable connector.
3. Check continuity between audio unit harness connector and spiral cable harness connector.

| Audio unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M144 | 16 | M33 | 31 | Existed |

4. Check continuity between audio unit harness connector and ground.

| Audio unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M144 | 16 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK TEL ADAPTER UNIT VOLTAGE

1. Connect audio unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| Audio unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M144 | 16 | M144 | 15 | 0 - 3.3 V | 3.3 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace audio unit. Refer to AV-105, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-96, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".



cardiagn.com

## Component Inspection

INFOID:0000000012407104

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

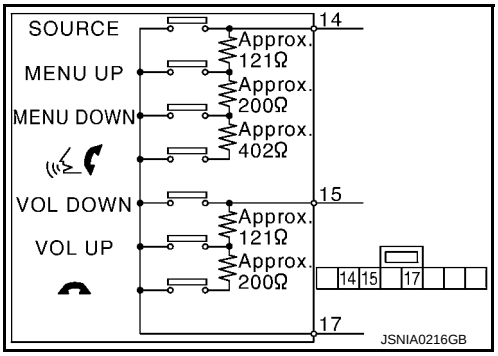
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# STEERING SWITCH SIGNAL GND CIRCUIT

## Description

INFOID:0000000012407105

Transmits the steering switch signal to audio unit.

## Diagnosis Procedure

INFOID:0000000012407106

### 1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and spiral cable connector.
3. Check continuity between audio unit harness connector and spiral cable harness connector.

| Audio unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M144 | 15 | M33 | 33 | Existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK GROUND CIRCUIT

1. Connect audio unit connector.
2. Check continuity between audio unit harness connector and ground.

| Audio unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M144 | 15 | | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace audio unit. Refer to AV-105, "Removal and Installation".

### 4.CHECK STEERING SWITCH

Check steering switch. Refer to AV-97, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407107

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

cardiagn.com

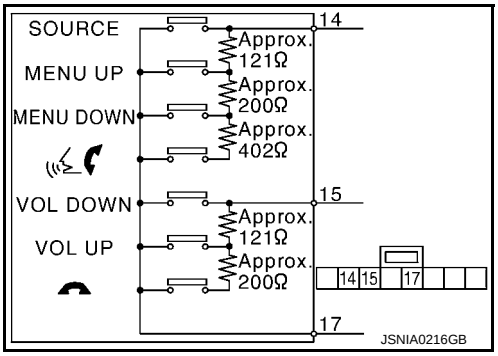
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# SYMPTOM DIAGNOSIS

## AUDIO SYSTEM SYMPTOMS

### Symptom Table

INFOID:0000000012407108

#### AUDIO SYSTEM

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| Audio unit does not start. | — | Audio unit power supply and ground circuit. Refer to AV-88, "AUDIO UNIT : Diagnosis Procedure". |
| Audio sound is not heard or volume is small. | Sound is not heard only from the specific places. | Sound signal circuit of malfunctioning system. |
| No sound comes out or the level of the sound is low. | No sound from all speakers. | Audio unit power supply and ground circuit. Refer to AV-88, "AUDIO UNIT : Diagnosis Procedure". |
| | Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound. | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between audio unit and speaker.<br>• Malfunction in speaker.<br>• Malfunction in audio unit. |
| Noise is mixed with audio. | Noise comes out from all speakers. | Malfunction in audio unit. |
| | Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.). | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between audio unit and speaker.<br>• Malfunction in speaker.<br>• Poor installation of speaker (e.g. backlash and looseness)<br>• Malfunction in audio unit. |
| | Noise is mixed with radio only (when the car hits a bump or while driving over bad roads). | Poor connector connection of antenna or antenna feeder. |
| Radio is not received or poor reception. | • Other audio sounds are normal.<br>• Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises). | • Antenna amp. ON signal circuit malfunction.<br>• Poor connector connection of antenna or antenna feeder. |
| Satellite radio is not received. | It change to satellite radio mode. | • Antenna feeder (satellite radio)<br>• Satellite antenna (antenna base) |
| | It does not change to satellite radio mode. | Audio unit<br>Refer to AV-105, "Removal and Installation". |

#### RELATED TO USB

**NOTE:**

Check that there is no malfunction of USB equipment main body before performing a diagnosis.

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| iPod® or USB memory can not be recognized. | — | • USB harness malfunction.<br>• USB connector malfunction. |

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

#### RELATED TO AUXILIARY INPUT

**NOTE:**

Check that there is no malfunction of AUX equipment main body before performing a diagnosis.

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| No voice sound is heard when AUX mode is selected. | Voice sound is heard when other modes are selected. | • USB and AUX harness.<br>• USB connector and AUX jack. |



cardiagn.com

## RELATED TO CAMERA

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Camera image is not shown. | The guide line display is normal. | Camera image signal circuit.<br>Refer to AV-89, "Diagnosis Procedure". |
| Camera image does not switch. | “Reverse” is not turned ON on “Vehicle Signals” screen of “Confirmation/Adjustment”. | Reverse signal circuit malfunction. |
| | “Reverse” is turned ON on “Vehicle Signals” screen of “Confirmation/Adjustment”. | Replace audio unit. Refer to AV-105, "Removal and Installation". |

## RELATED TO STEERING SWITCH

| Symptoms | Possible malfunction location / Action to take |
|---|---|
| All steering switches are not operated. | Steering switch signal ground circuit. Refer to AV-97, "Diagnosis Procedure". |
| “SOURCE”, “SEEK UP”, “VOL UP”, “SEEK DOWN” and “VOL DOWN” switches are not operated. | Steering switch signal ground circuit. Refer to AV-97, "Diagnosis Procedure". |
| Only specified switch cannot be operated. | Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| “SOURCE”, “SEEK UP”, “SEEK DOWN” and “ ” switches are not operated. | Steering switch signal A circuit. Refer to AV-93, "Diagnosis Procedure". |
| ”VOL UP“, “VOL DOWN” and “ ” switches are not operated. | Steering switch signal B circuit. Refer to AV-95, "Diagnosis Procedure". |

cardiagn.com

# HANDS-FREE PHONE SYMPTOMS

## Symptom Table

INFOID:0000000012407109

### RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
   **NOTE:**
   The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model and service provider.
   **NOTE:**
   It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to “www.nissanusa.com/bluetooth/”.

a. Using the website's search engine, find out if the customer's phone is on the approved list.

b. If the customer's phone is NOT on the approved list:
   Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.

c. If the feature related to the customer's concern shows as “N” (not compatible):
   Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as “Y” (compatible) in the “Basic Features”.

d. If the feature related to the customer's concern shows as “Y” (compatible):
   Perform diagnosis as per the following table.

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Does not recognize cellular phone connection (no connection is displayed on the display at the guide). | Repeat the registration of cellular phone. | Malfunction in audio unit.<br>Replace audio unit. Refer to AV-105, "Removal and Installation". |
| Hands-free phone cannot be established. | • Hands-free phone operation can be made, but the communication cannot be established.<br>• Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation. | |
| The other party's voice cannot be heard by hands-free phone. | Check the “microphone speaker” in Inspection & Adjustment Mode if sound is heard. | |
| Originating sound is not heard by the other party with hands-free phone communication. | Sound operation function is normal. | |
| | Sound operation function does not work. | Microphone signal circuit malfunction.<br>Refer to AV-91, "Diagnosis Procedure". |
| The system cannot be operated. | • The voice recognition can be controlled.<br>• Steering switch's −, +, and switch works, but does not work. | Steering switch malfunction.<br>Replace steering switch. Refer to ST-12, "Removal and Installation". |
| | Steering switch's , −, +, and switches do not work. | Steering switch signal circuit malfunction.<br>Refer to AV-94, "Component Inspection". |
| | All steering switches do not work. | Steering switch ground circuit malfunction.<br>Refer to AV-94, "Component Inspection". |



cardiagn.com

## RELATED TO STEERING SWITCH

| Symptoms | Possible malfunction location / Action to take |
|---|---|
| All steering switches are not operated. | Steering switch signal ground circuit. (steering switch to TEL adapter unit) Refer to AV-97, "Diagnosis Procedure". |
| Only specified switch cannot be operated. | Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| “SOURCE”, “SEEK UP”, “SEEK DOWN” and “ ” switches are not operated. | Steering switch signal A circuit. (steering switch to TEL adapter unit) Refer to AV-93, "Diagnosis Procedure". |
| ”VOL UP“, “VOL DOWN” and “ ” switches are not operated. | Steering switch signal B circuit. (steering switch to TEL adapter unit) Refer to AV-95, "Diagnosis Procedure". |

cardiagn.com

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000012407110

### RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check that noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment. Then determine the cause.

**NOTE:**

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check that the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the red book Compact Disc Standard and may not play.

| Symptoms | Cause and Counter measure |
|---|---|
| Cannot play | Check if the disc or USB device was inserted correctly. |
| | Check that the disc is scratched or dirty. |
| | Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player. |
| | If there is a temperature increase error, the player will play correctly after it returns to the normal temperature. |
| | Files with extensions other than ".MP3 (.mp3)", ".WMA (.wma)", ".AAC (.aac)" or ".M4A (.m4a)" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications. |
| | Check if the disc or the file is generated in an irregular format. This may occur depending on the variation or the setting of compressed audio writing applications or other text editing applications. |
| | Check if the finalization process, such as session close and disc close, is done for the disc. |
| | Check if the disc or USB device is protected by copyright. |
| Poor sound quality | Check if the disc is scratched or dirty. |
| It takes a relatively long time before the music starts playing. | If there are many folder or file levels on the disc or USB device, some time may be required before the music starts playing. |
| Music cuts off or skips | The writing software and hardware combination might not match, or the writing speed, writing depth, writing width, etc., might not match the specifications. Try using the slowest writing speed. |
| Skipping with high bit rate files | Skipping may occur with large quantities of data, such as for high bit rate data. |
| Move immediately to the next song when playing. | If an unsupported compressed audio file has been given a supported extension like ".MP3", or when play is prohibited by copyright protection, the player will skip to the next song. |
| The songs do not play back in the desired order. | The playback order is the order in which the files were written by the writing software, so the files might not play in the desired order. |
| | Random/Shuffle may be active on the audio system or on a USB device. |
| Poor reception only from a certain radio broadcast station. | Check incoming radio wave signal strength of applicable broadcast station. |
| Buzz/rattle sound from speaker | The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle. |

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, is not a malfunction.

**NOTE:**

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

### RELATED TO HANDS-FREE PHONE

cardiagn.com

| Symptom | Cause and Counter measure |
|---|---|
| Does not recognize cellular phone connection (No connection is displayed on the display at the guide). | Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module.<br>Refer to “RELATED TO HANDS-FREE PHONE (Check Compatibility)” in AV-99, "Symptom Table". |
| Cannot use hands-free phone. | Customer will not be able to use a hands-free phone under the following conditions:<br>• The vehicle is outside of the telephone service area.<br>• The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.<br>• The cellular phone is locked to prevent it from being dialed.<br>**NOTE:**<br>While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones. |
| The other party's voice cannot be heard by hands-free phone. | When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call. |
| Poor sound quality. | Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption. |

cardiagn.com

# REMOVAL AND INSTALLATION

## AUDIO UNIT

### Removal and Installation

INFOID:0000000012407111

REMOVAL

1. Remove cluster lid D. Refer to IP-14, "Removal and Installation".
2. Remove audio unit mounting screws.
3. Pull out audio unit, and then disconnect antenna feeder and harness connectors.
4. Remove audio unit and brackets as a single unit.
5. Remove brackets from audio unit.

INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT DOOR WOOFER

## Removal and Installation

INFOID:0000000012407112

### REMOVAL

1. Remove front door finisher. Refer to INT-14, "Removal and Installation".
2. Remove front door woofer screws and disconnect front door woofer connector.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT SQUAWKER

## Removal and Installation

INFOID:0000000012407113

### REMOVAL

1. Remove speaker grille from instrument panel. Refer to IP-14, "Removal and Installation".
2. Remove screws and disconnect connector, and remove the front squawker.

**WARNING:**
**Never damage wind shield glass.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SPEAKER

## Removal and Installation

INFOID:0000000012407114

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws and disconnect connector, and remove slide door speaker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# REAR VIEW CAMERA

## Removal and Installation

INFOID:0000000012407115

### REMOVAL

1. Remove back door finisher. Refer to EXT-47, "Removal and Installation".
2. Remove screws to remove rear view camera from back door finisher.

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**

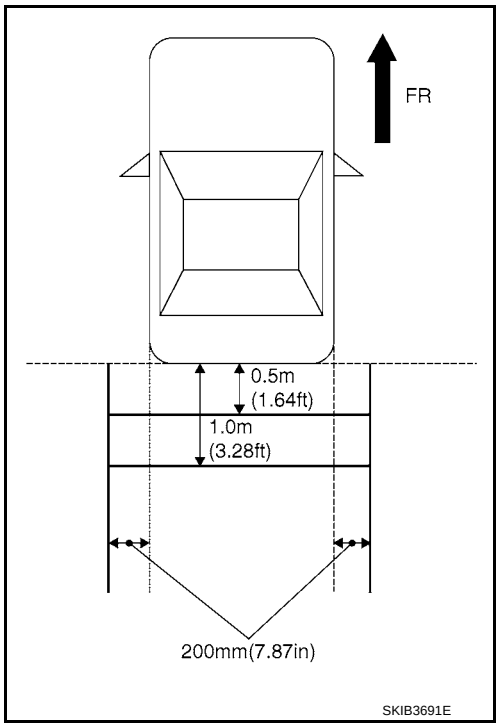
Adjust the guide line position if the guide line position is shifted after installing the rear view camera. Refer to AV-109, "Adjustment".

## Adjustment

INFOID:0000000012407116

Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

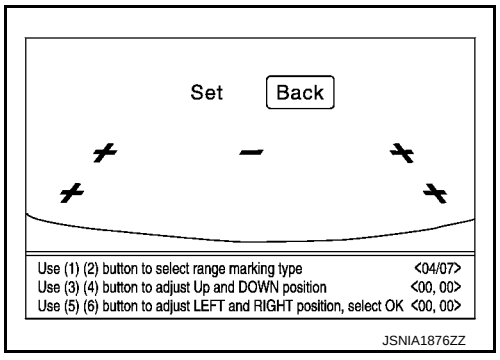
1. Draw lines on rearward area of the vehicle passing through the following points: 200 mm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
2. Set into “Camera system” mode of Confirmation / Adjustment mode.




3. Press “1” or “2” switches, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

**Selected pattern : 7**

4. Make fine adjustment to the correction line of the rear of the vehicle with “3”, “4”, “5” or “6” switches so that its position is aligned with the guiding line. Press “PUSH ENTER” switch and record the adjusted guiding line position to the camera control unit.




**Up/Down adjustment range : (–20) – (20)**

**Left/Right adjustment range : (–20) – (20)**

**CAUTION:**

**Never operate other function such as pressing BACK while writing index data.**

cardiagn.com

# USB CONNECTOR AND AUX JACK

## Removal and Installation

INFOID:0000000012407117

### REMOVAL

1. Remove center console upper finisher. Refer to IP-29, "Disassembly and Assembly".
2. Unhook pawl to remove USB connector from center console upper finisher.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# MICROPHONE

## Removal and Installation

INFOID:0000000012407118

### REMOVAL

1. Remove map lamp assembly. Refer to INL-71, "Removal and Installation".
2. Unhook pawls to remove microphone from map lamp assembly.

**CAUTION:**
**Carefully handle the pawl fixing the microphone to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**
After installing microphone, check that it is securely installed with no backlash.

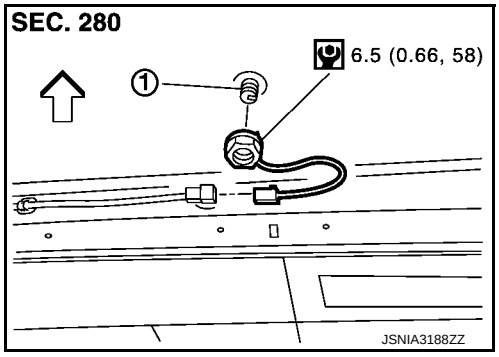
cardiagn.com

# SATELLITE RADIO ANTENNA

## Exploded View

INFOID:0000000012407119

### REMOVAL

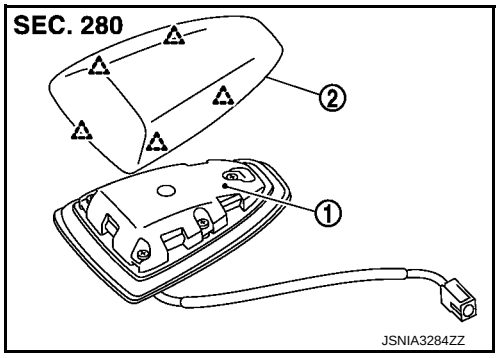



1. Satellite radio antenna

⇦ : Vehicle front

: N·m (kg-m, in-fb)

### DISASSEMBLY




1. Satellite radio antenna
2. Cover

: Pawl

## Removal and Installation

INFOID:0000000012407120

### REMOVAL

1. Remove rear upper ventilator duct 2. Refer to HA-55, "Exploded View".
2. Disconnect antenna feeder connector.
3. Remove nut, and remove satellite radio antenna and the cover from the vehicle as a single unit.

### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

**If the satellite radio antenna mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.**

## Disassembly and Assembly

INFOID:0000000012407121

### DISASSEMBLY

Insert cloth-covered driver into gaps between satellite radio antenna and the cover, and remove the cover from satellite radio antenna.

### ASSEMBLY

Assemble in the reverse order of disassembly.

cardiagn.com

# ANTENNA AMP.

## Removal and Installation

INFOID:0000000012407122

### REMOVAL

1. Remove rear pillar garnish RH. Refer to INT-27, "REAR PILLAR GARNISH : Removal and Installation".
2. Remove screw and disconnect connector, and remove antenna amp.

### INSTALLATION

Install in the reverse order of removal.

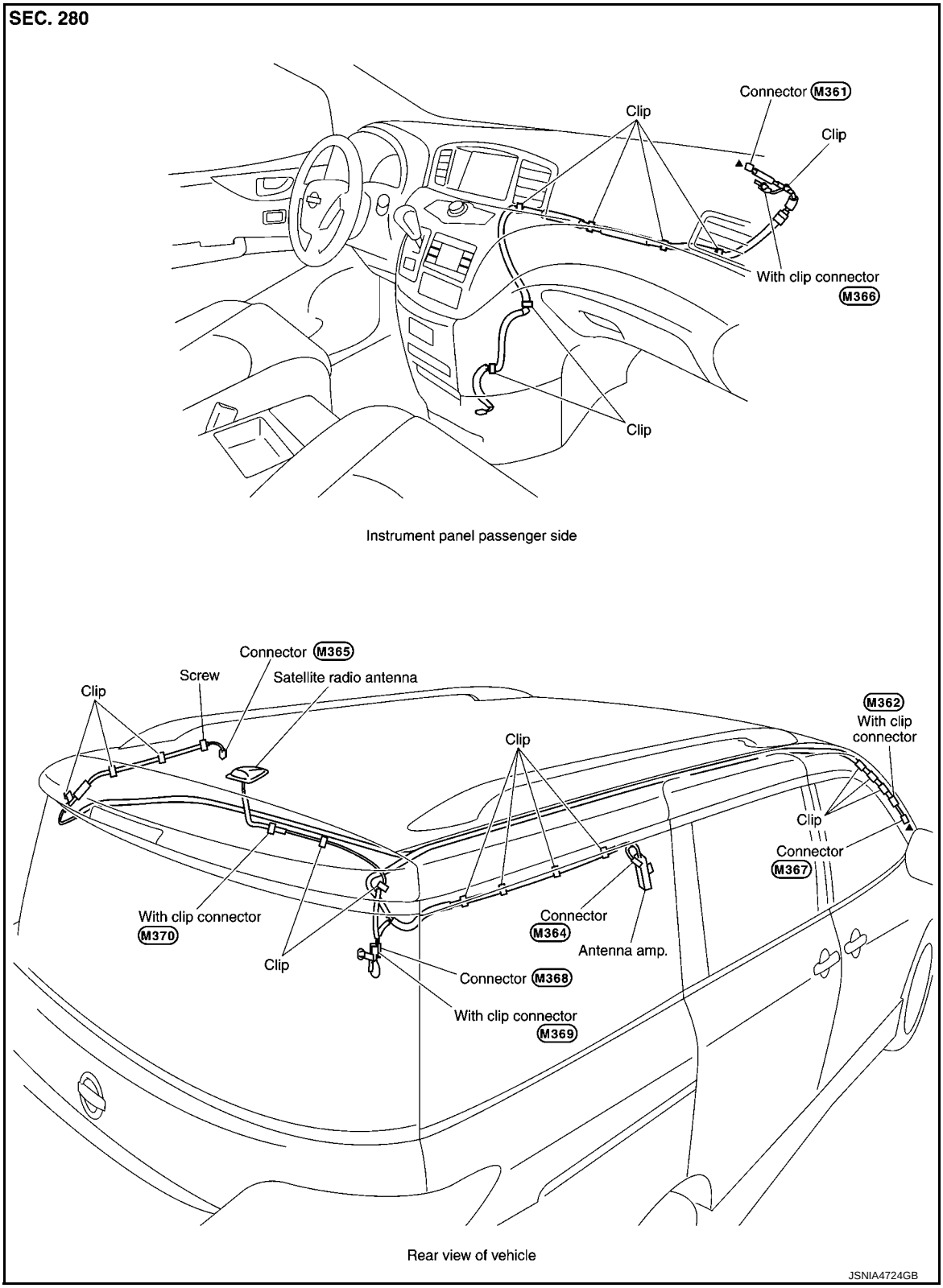
cardiagn.com

# ANTENNA FEEDER

## Feeder Layout

INFOID:0000000012407123

SEC. 280




▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000012407124

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

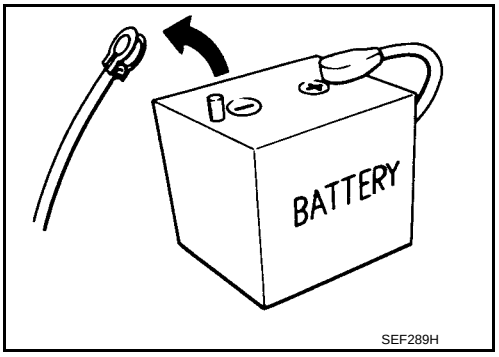
### Precautions for Removing Battery Terminal

INFOID:0000000012936057

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

| | | | |
|---|---|---|---|
| D4D engine | : 20 minutes | YS23DDT | : 4 minutes |
| HRA2DDT | : 12 minutes | YS23DDTT | : 4 minutes |
| K9K engine | : 4 minutes | ZD30DDTi | : 60 seconds |
| M9R engine | : 4 minutes | ZD30DDTT | : 60 seconds |
| R9M engine | : 4 minutes | | |
| V9X engine | : 4 minutes | | |
| YD25DDTi | : 2 minutes | | |




**NOTE:**

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

**NOTE:**



cardiagn.com

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

## Precaution for Trouble Diagnosis

INFOID:0000000012407126

### AV COMMUNICATION SYSTEM

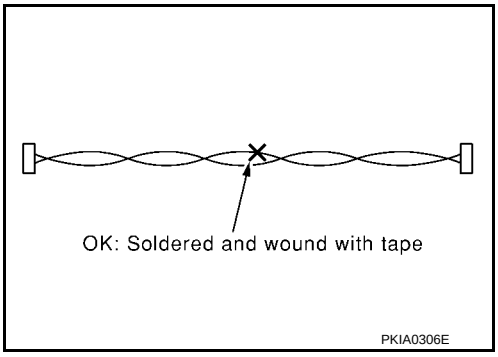
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

## Precaution for Harness Repair

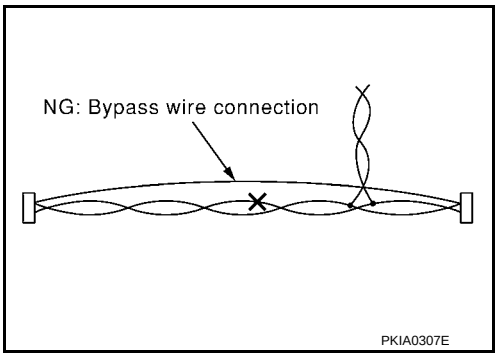
INFOID:0000000012407127

### AV COMMUNICATION SYSTEM

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]




- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



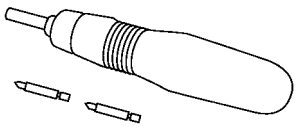

cardiagn.com

# PREPARATION

## PREPARATION

### Commercial Service Tools

INFOID:0000000012407128

| Tool | | Description |
|---|---|---|
| Power tool |  PBIC0191E | Loosening screws |

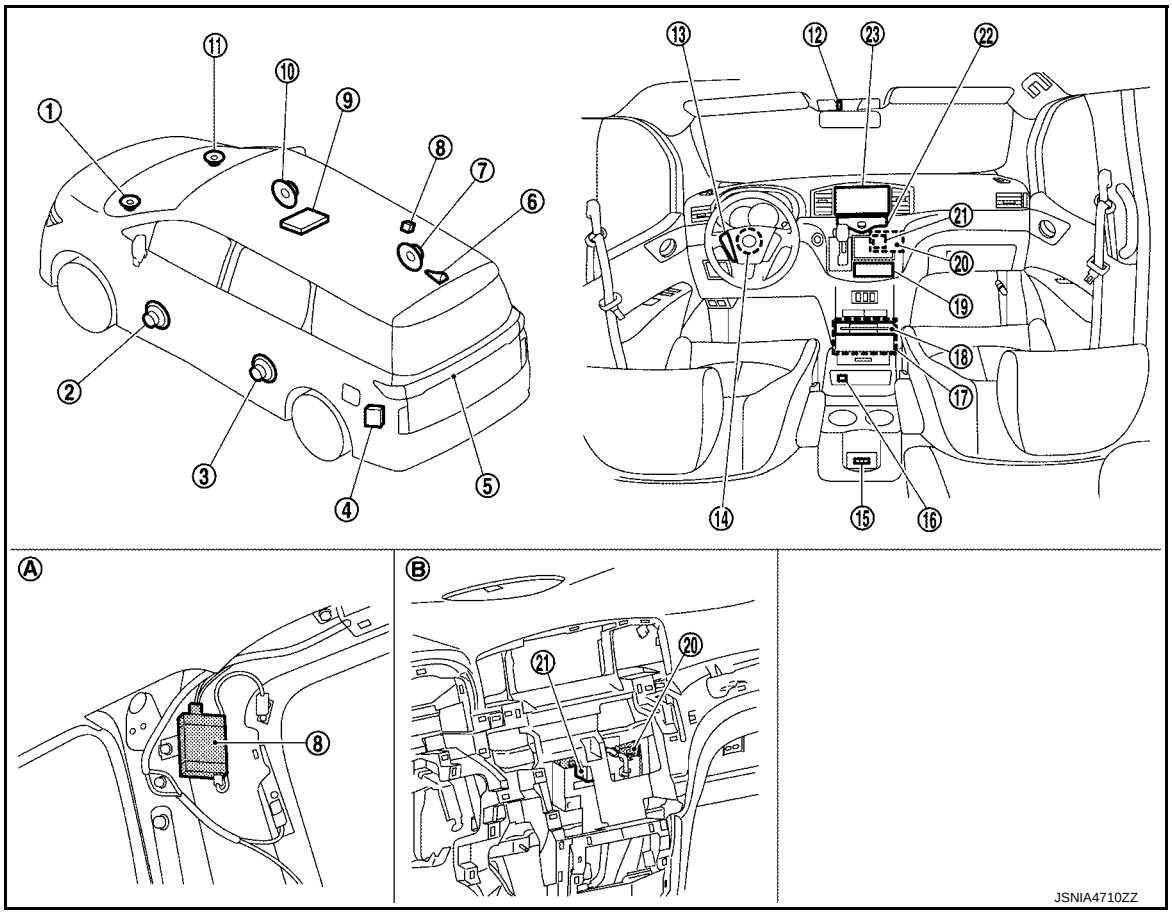
cardiagn.com

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000012407129




A. Rear pillar garnish (RH) is removed. B. Cluster lid C is removed.

| No. | Component | Function |
|---|---|---|
| 1,11. | Front squawker | Refer to AV-121, "Speaker". |
| 2,10. | Front door woofer | |
| 3,7. | Slide door speaker | |
| 4. | Satellite radio tuner | Refer to AV-127, "Satellite Radio Tuner". |
| 5. | Rear view camera | Refer to AV-124, "Rear View Camera". |
| 6. | Satellite radio antenna | Refer to AV-127, "Satellite Radio Antenna". |
| 8. | Antenna amp. | Refer to AV-125, "Antenna amp., Radio Antenna, and Antenna Feeder". |
| 9. | Rear display unit | Refer to AV-121, "Rear Display Unit" |
| 12. | Microphone | Refer to AV-124, "Microphone". |
| 13. | Steering switch | Refer to AV-123, "Steering Switch". |
| 14. | Steering angle sensor | Refer to AV-125, "Steering Angle Sensor". |
| 15. | Auxiliary input jacks | Refer to AV-124, "Auxiliary Input Jacks". |
| 16. | USB connector | Refer to AV-124, "USB Connector". |
| 17. | AV control unit | Refer to AV-119, "AV Control Unit". |
| 18. | Disk eject switch | Refer to AV-123, "Disk Eject Switch". |

cardiagn.com

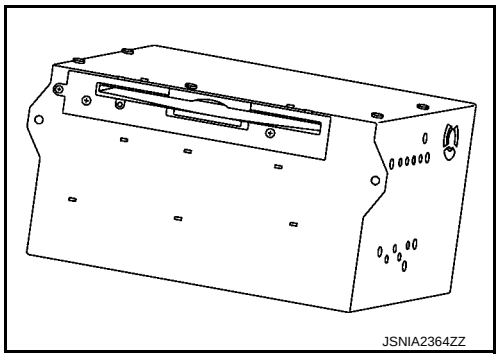
| No. | Component | Function |
|---|---|---|
| 19. | Preset switch | Refer to AV-122, "Multifunction Switch". |
| 20. | TEL adapter unit | Refer to AV-123, "TEL Adapter Unit". |
| 21. | TEL antenna | Refer to AV-123, "TEL Antenna". |
| 22. | Multifunction switch | Refer to AV-122, "Multifunction Switch". |
| 23. | Front display unit | Refer to AV-121, "Front Display Unit". |

## AV Control Unit

INFOID:0000000012407130

### DESCRIPTION

- The AV control unit is equipped with the following parts. It is the master unit integrated with functions and controls the multi-AV system.




| Units equipped |
|---|
| Audio amplifier |
| AM/FM electronic tuner |
| CD/DVD drive |
| USB interface |
| Camera controller |

- Signals necessary for the vehicle information display function are received from ECM and the combination meter via CAN communication.
- Signals necessary for vehicle setting functions are sent and received with BCM via CAN communication.
- It inputs the signal for driving status recognition (vehicle speed signal, reverse signal, and parking brake signal).
- A predictive course line is generated on the camera image from the rear view camera, and it is shown on the front display.
- It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).

**NOTE:**
For details of each functions, refer to AV-130, "MULTI AV SYSTEM : System Description".

Audio Amplifier
- 50 W x 4ch amplifiers are installed.
- Audio sound, TEL voice and guiding voice are output to each speaker.

AM/FM Electronic Tuner
The adoption of the PLL frequency synthesizer system enables the signal outputting with accurate frequencies.

CD/DVD drive
- It is CD-R/CD-RW compliant and enables MP3 and WMA files to play music.
- It displays the artist name, album title or song title recorded to the file by the ID3 tag/WMA tag display function.
- DVD playback function is equipped.

USB Interface
- Music can be played by connecting an iPod® or USB memory.

Camera Controller
- Warning message, width/distance guiding line and predictive course line are generated on the image from the rear view camera.
- The predictive course line is drawn based on the steering signal received from the steering sensor via CAN communication.

### Specification

| | |
|---|---|
| Manufacturer name | Panasonic corporation |
| Audio Amplifier | 50 W × 4 ch |



cardiagn.com

| | | | |
|---|---|---|---|
| CD/DVD drive | Used disc | | ϕ 12 cm (4.7 in) |
| | Playable disc | CD | CD-ROM (CD-DA) |
| | | | CD-R[*1] |
| | | | CD-RW[*1] |
| | | DVD | DVD-ROM |
| | | | DVD-R[*1] |
| | | | DVD-RW[*1] |
| | Playable format | Music | MP3 |
| | | | WMA |
| | | Image | DVD-VIDEO |
| | | | VIDEO-CD |
| | Text display function | ID3 / WMA tag | Artist name |
| | | | Album title |
| | | | Song title |
| USB | High communication standard | | USB1.1 |
| | Playable format | Music | MP3 |
| | | | WMA |
| | Text display function | ID3 / WMA tag | Artist name |
| | | | Album title |
| | | | Song title |
| | iPod®Action[*2] | | iPod Classic® 1st generation |
| | | | iPod Classic® 2nd generation |
| | | | iPod nano® 3rd generation |
| | | | iPod nano® 2nd generation |
| | | | iPod nano® 1st generation |
| | | | iPod® 5th generation |
| | | | iPod touch® 1st generation |
| | | | iPod touch® 2nd generation |
| | | | iPhone 3rd generation |
| Flash memory | Total capacity | | 2 GB |
| Camera controller | Guideline display function | | Width/distance display |
| | | | Predictive course lines display/non-display switch |
| | Steering angle signal input method | | CAN communication |
| Other functions | | | Speed sensitive volume function |
| | | | Steering switch compliant |

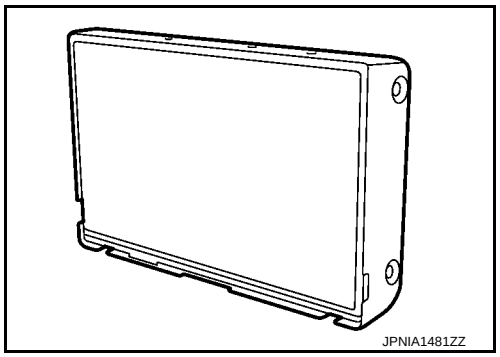
- *1: If the reflectance of the surface of the media is low, the data may not be read.
- *2: It may not be used if it is not updated to the latest firmware or partial functions may not work if it is used.

cardiagn.com

## Front Display Unit

INFOID:0000000012407131

- The front display unit has an 7-inch QVGA liquid-crystal display.
- It receives the power (signal VCC and inverter VCC) from the AV control unit and operates.
- Composite image signals (DVD, USB memory-stored video data, auxiliary input, and camera) are input from AV control unit.
- RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing).
- Synchronizing signal (HP, VP) is output to AV control unit.
- This unit is connected to the AV control unit via serial communication. Images shown on the front display unit are controlled by the AV control unit.




### Specification

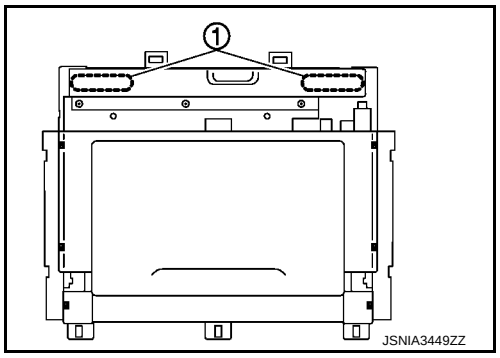
| | |
|---|---|
| Manufacturer name | Panasonic corporation |
| Screen size | 7-inch QVGA<br>[154.08 × 86.58 mm (6.1 × 3.4 in) ] |
| Number of pixels | 480 × 234 pixels |

## Rear Display Unit

INFOID:0000000012407132

- The rear display unit has an 11-inch WVGA* liquid-crystal display and a remote-control automatic folding function.
- Composite image signal [USB (video data), DVD and auxiliary input] and headphone sound signal are input from AV control unit.
- A remote control operation signal is received through the built-in light-receptive spot (1).
- The display brightness is adjusted automatically, according to ambient brightness.

*: WVGA (Wide VGA) is a standard of the resolution of the display. It extended width of VGA.




### Specification

| | |
|---|---|
| Manufacturer name | Clarion Co., Ltd. |
| Screen size | 11-inch WVGA<br>[ 243.6 mm × 137.52mm (9.6 in × 5.4 in) ] |
| Number of pixels | 800 × 480 pixels |

## Speaker

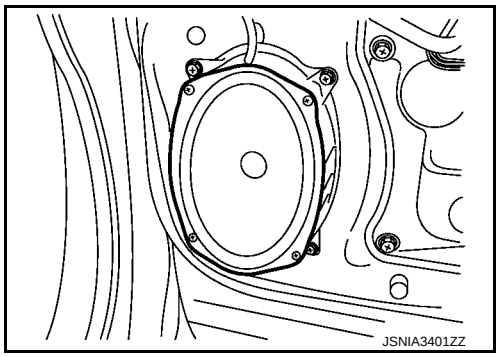
INFOID:0000000012407133

6 speakers system is adopted.

### FRONT DOOR WOOFER

- ϕ 15.0 × 23.0 cm (6 × 9 in) speaker is installed to the bottom of the front door.
- Sound signal is input from the AV control unit to output low range sounds.

**Rated input : 20 W**
**Maximum input : 40 W**
**Impedance : 2 Ω**

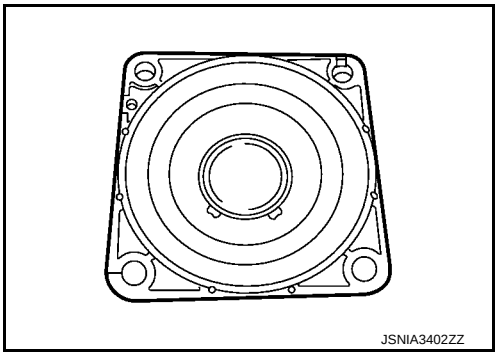



cardiagn.com

FRONT SQUAWKER

- ϕ 6.5 cm (2 in) squawker is installed to the side of instrument panel.
- Sound signal is input from the AV control unit to output high and mid range sounds.

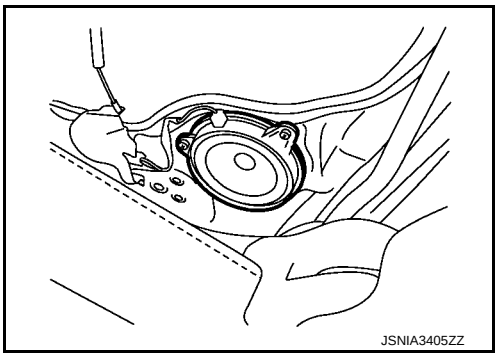
| | |
|---|---|
| **Rated input** | **: 7 W** |
| **Maximum input** | **: 40 W** |
| **Impedance** | **: 4 Ω** |


JSNIA3402ZZ

SLIDE DOOR SPEAKER

- ϕ 16cm (6.5 in) speaker is located at the lower part of the back of the slide door.
- Sound signal is input from the AV control unit to output high, mid, and low range sounds.

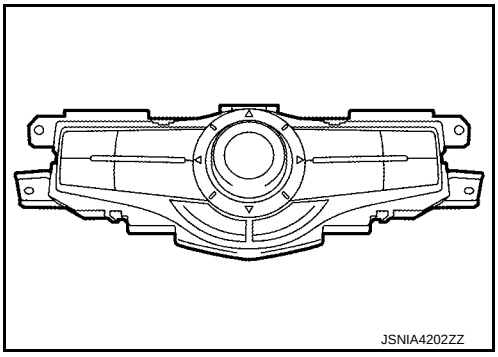
| | |
|---|---|
| **Rated input** | **: 20 W** |
| **Maximum input** | **: 40 W** |
| **Impedance** | **: 2 Ω** |


JSNIA3405ZZ

## Multifunction Switch

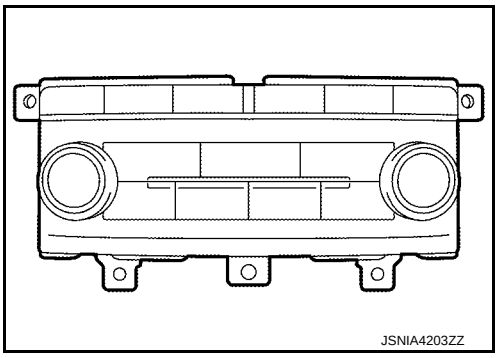
INFOID:0000000012407134

- The multifunction switch is an integrated switch that combines the audio operation and other operations switches. This integrated switch is located in the lower part of the front display unit.
- Connected with preset switch via hardwire and operation signal is transmitted to AV control unit via AV communication.


JSNIA4202ZZ

PRESET SWITCH

- The preset switch is separated from the multifunction switch and capable of audio operation.
- Operation signals of the multifunction switch and the preset switch are transmitted to the AV control unit via AV communication.

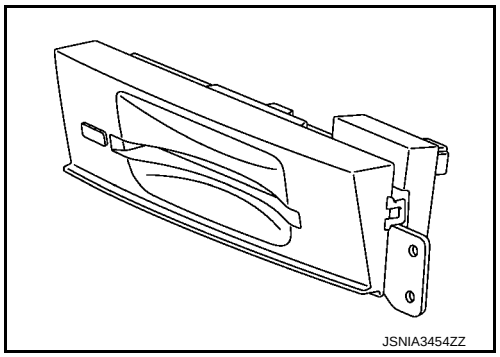

JSNIA4203ZZ

cardiagn.com

## Disk Eject Switch

INFOID:0000000012407135

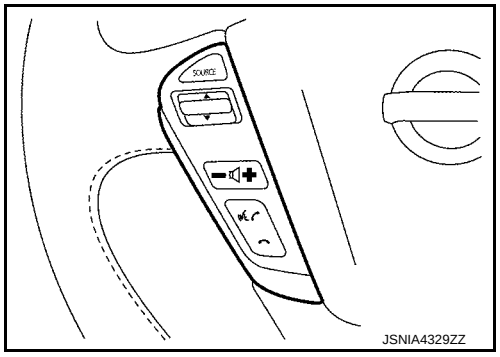
- The disk eject switch is used for removing CD/DVD from the AV control unit.
- When the disk eject switch is pressed, a disk eject signal is transmitted to the AV control unit, and the AV control unit ejects CD/DVD.




## Steering Switch

INFOID:0000000012407136

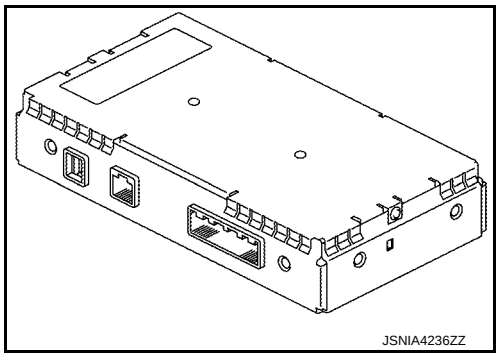
- Operations for audio and hands-free phone, etc. are possible.
- This switch is connected to the AV control unit, and the switch operation signal is transmitted to the AV control unit via voltage multiplex communication.




## TEL Adapter Unit

INFOID:0000000012407137

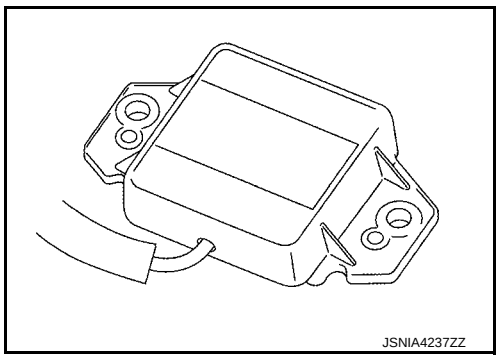
- Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit.
- It is connected with the AV control unit via AV communication and controlled with the AV control unit.




## TEL Antenna

INFOID:0000000012407138

Receives the TEL voice signal from cellular phone and outputs it to the TEL adapter unit.

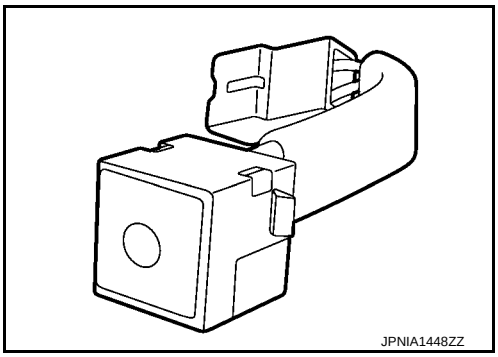



cardiagn.com

## Microphone

INFOID:0000000012407139

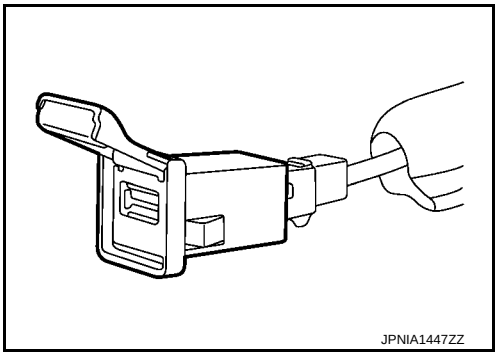
- The voice control/TEL microphone is installed on the left side of the map lamp assembly.
- The power is supplied from the TEL adapter unit to the microphone, transmitting sound signals to the TEL adapter unit at the voice control or during hands-free phone communication.


JPNIA1448ZZ

## USB Connector

INFOID:0000000012407140

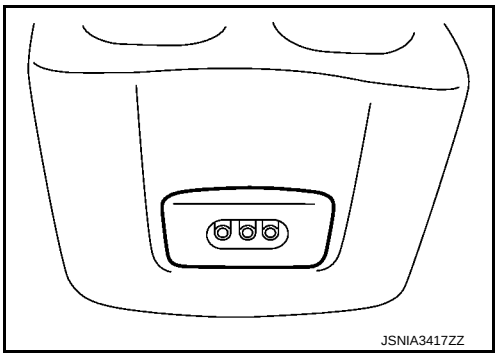
- USB connector is installed to the console box.
- iPod® and USB memory can be connected to the AV control unit.


JPNIA1447ZZ

## Auxiliary Input Jacks

INFOID:0000000012407141

- Installed to the rear of center console.
- Sound signals and image signals from the external equipment are transmitted to the AV control unit.

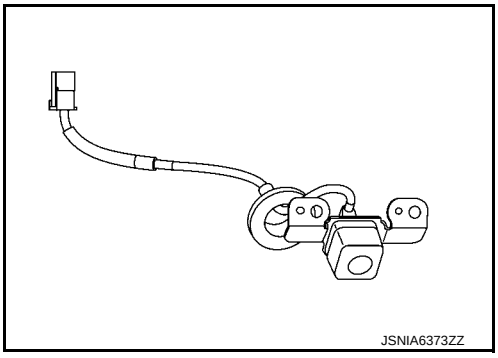

JSNIA3417ZZ

## Rear View Camera

INFOID:0000000012407142

- The rear view camera is installed to the back door finisher.
- Super-small CCD camera (color) using CCD* for the image pickup element is adopted.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.
- Power for the camera is supplied from the AV control unit, and the image at the rear of the vehicle is sent to the AV control unit.

**NOTE:**
*: Abbreviation of Charge Coupled Device. CCD can turn incident light from the lens into electrons and memorize the image like a photo.


JSNIA6373ZZ

### Specification

| | |
|---|---|
| Manufacturer name | Panasonic corporation |
| Image pickup element | 1/4-inch interline CCD color |



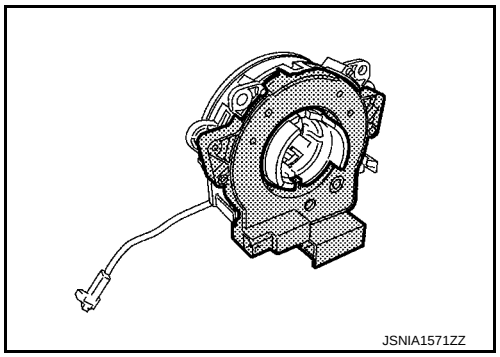
cardiagn.com

| | |
|---|---|
| Effective number of pixels | Approx. 250,000 pixels (510 × 492) |
| Minimum brightness | 2 lx |
| Angle of view | H: 137° V: 92° |
| Image | With mirror processing function |

## Steering Angle Sensor

INFOID:0000000012407143

- Steering sensor is installed to the spiral cable.
- Steering angle sends the steering signal necessary for predictive course line of the rear view monitor function to the AV control unit via CAN communication.



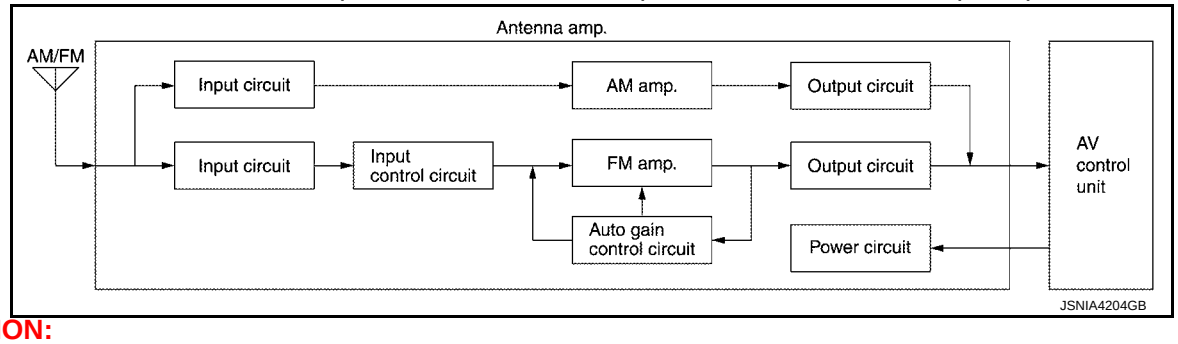

## Antenna amp., Radio Antenna, and Antenna Feeder

INFOID:0000000012407144

RADIO ANTENNA

- AM/FM radio main antenna is located on the right rear side window glass and FM radio sub antenna on the left rear side window glass.

- The AM/FM radio main antenna path has an antenna amp. to obtain sufficient reception power.



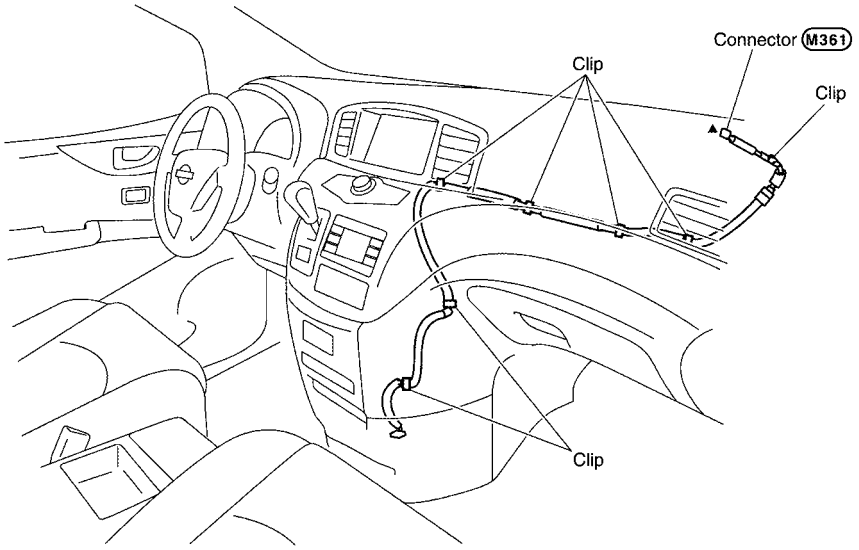

**CAUTION:**

**Affixing any mirror-type window films or metallic items (e.g. commercial antenna) on the rear side window glass causes a reduction in the radio receiver sensitivity.**

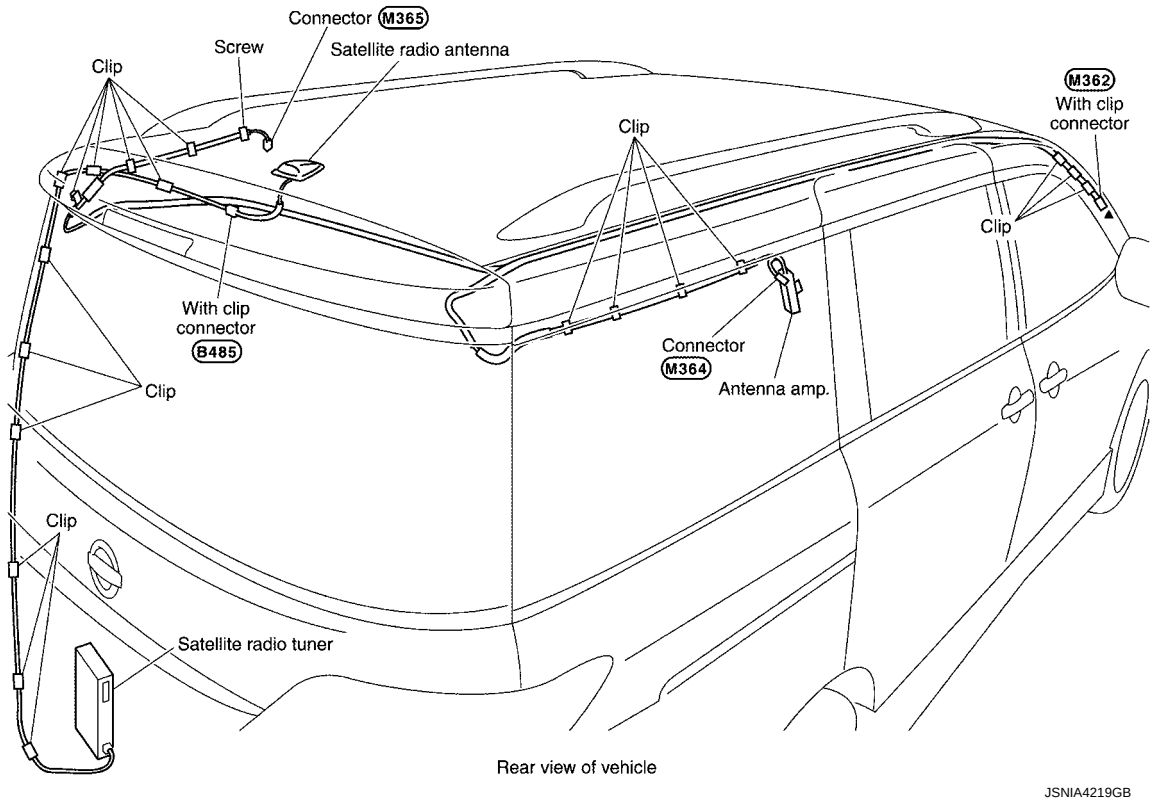
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4219GB

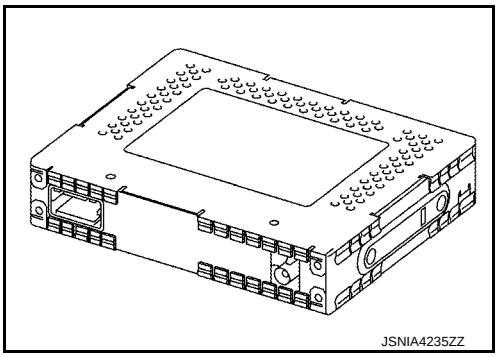
▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

## Satellite Radio Tuner

INFOID:0000000012407145

- Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit.
- It is controlled with the AV control unit and serial communication (communication signal and request signal).




## Satellite Radio Antenna

INFOID:0000000012407146

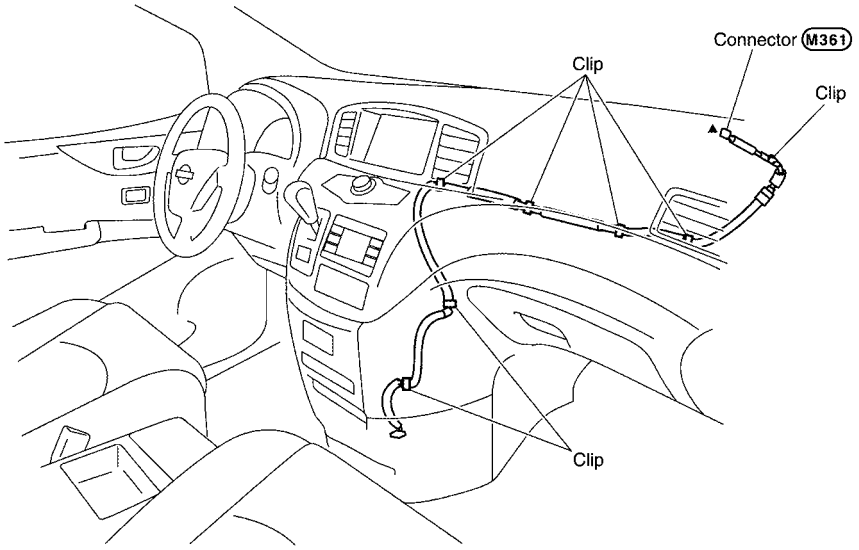
SATELLITE RADIO ANTENNA

- Satellite radio antenna is installed to the rear center of the roof.
- Receives satellite radio waves and outputs it to satellite radio tuner.

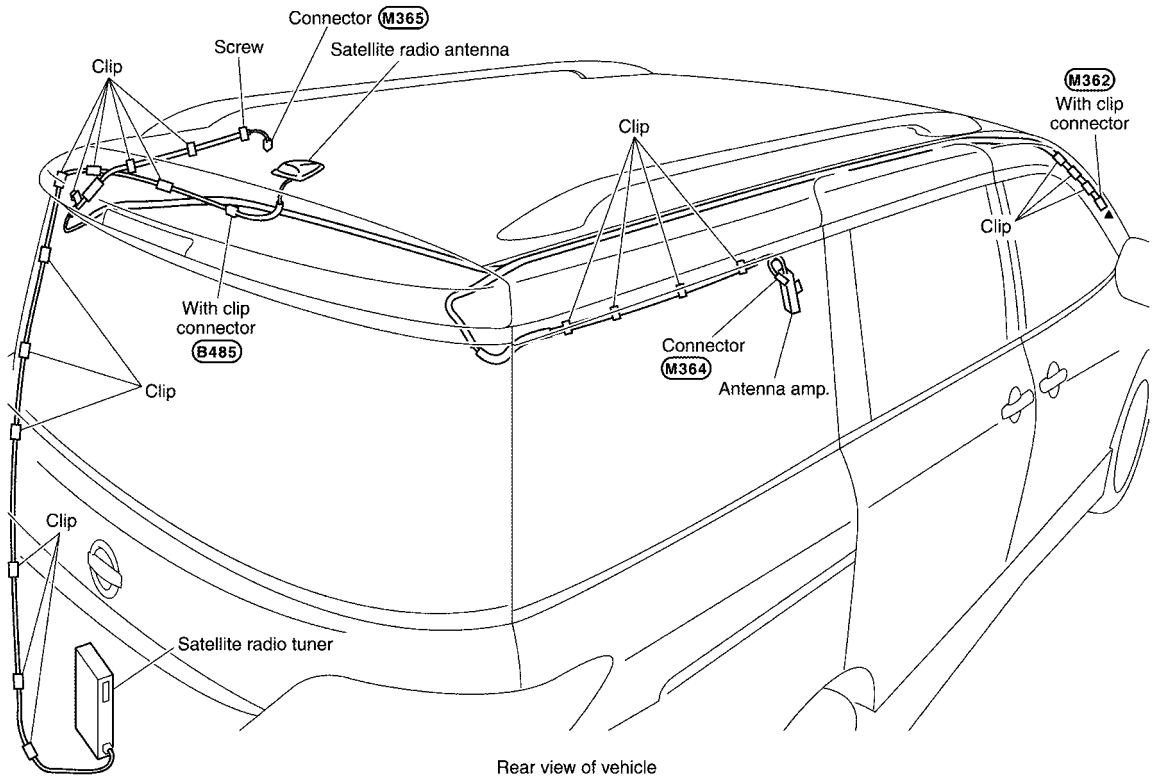
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4219GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

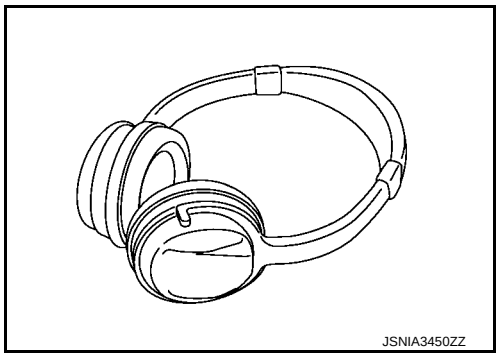
cardiagn.com

## Headphone

INFOID:0000000012407147

- The adoption of the wireless headphone allows the independent audio listening on the rear seat.
- Sound signals are received from the rear display unit via infrared communication.

Battery: AAA battery × 2

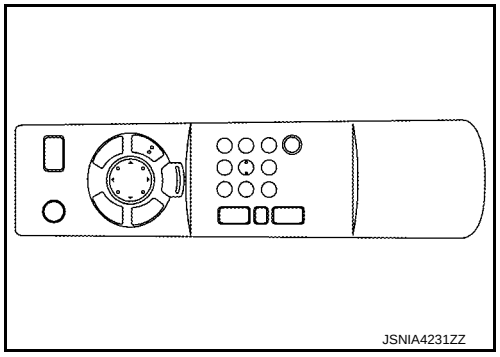



## Remote Controller

INFOID:0000000012407148

- The adoption of the infrared remote controller allows audio operation and other operations on the rear seat.
- The light-receptive spot is included in the rear display unit.

Battery: AA battery × 2

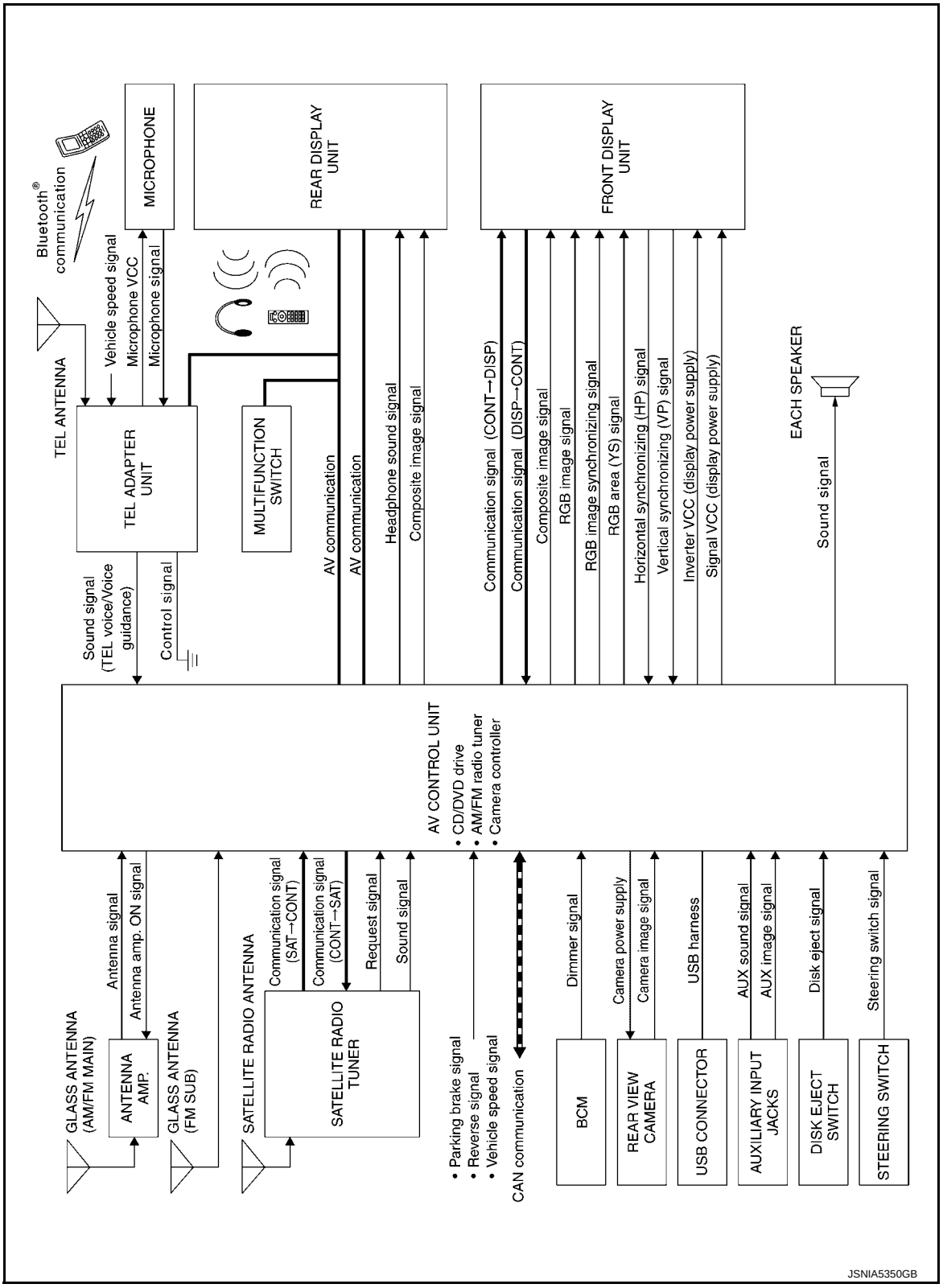



cardiagn.com

# SYSTEM
## MULTI AV SYSTEM
## MULTI AV SYSTEM : System Description

INFOID:0000000012407149

### SYSTEM DIAGRAM




**NOTE:**

cardiagn.com

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

## CAN COMMUNICATION

AV control unit Input Signal

| Transmit unit | Signal name |
|---|---|
| ECM | Engine status signal |
| | Fuel consumption monitor signal |
| Steering angle sensor | Steering angle sensor signal |
| Combination meter | Vehicle speed signal |
| | Distance to empty signal |
| | Fuel level low warning signal |
| BCM | System setting signal |

## DESCRIPTION

Multi AV system means that the following systems are integrated.

| FUNCTION NAME |
|---|
| Audio function |
| DVD playback function |
| Bluetooth® hands-free phone function |
| Mobile entertainment system |
| Auxiliary input function |
| Rear view monitor function |
| Vehicle information function |
| Auto Light adjustment system |

## COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected with front display unit and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display unit.

## CAN COMMUNICATION

- AV control unit is connected by CAN communication, and it receives data signal from ECM and combination meter. It computes and displays fuel economy information value with the obtained information.
- The AV control unit, which has the vehicle setting function, transmits and receives data on vehicle setting condition via CAN communication with the BCM.
- AV control unit receives steering angle signal from steering angle sensor via CAN communication and performs control of predictive course line in rear view monitor image.

## AUDIO FUNCTION

The audio system is equipped with the following functions.

| FUNCTION |
|---|
| AM/FM radio |
| Satellite radio |
| CD |
| USB connection |

Operating Signal



cardiagn.com

Audio system operation can be performed with multifunction switch, preset switch, or steering switch.
- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch.
- The disk eject signal is transmitted to AV control unit by hardwire, when disk eject switch is operated.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.
- Operation status of audio is indicated at front display by RGB image signal, RGB area signal, and RGB image synchronizing signal.

AM/FM Radio Function
- AM/FM radio tuner is built into AV control unit.
- AM/FM radio wave is received by radio antenna, next it is amplified by antenna amp., and finally it is input to AV control unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the AV control unit directly.
- AV control unit outputs audio signal to each speaker.

Satellite Radio Mode
- Satellite radio tuner is controlled by communication signal and request signal with AV control unit.
- Sound signal (satellite radio) is received by satellite radio antenna and transmitted to AV control unit via satellite radio tuner.
- AV control unit outputs audio signal (satellite radio) to each speaker.

CD Mode
- CD function is built into AV control unit.
- AV control unit outputs audio signal to each speaker when CD is inserted to AV control unit.
- For further information about CD function specifications, refer to AV-119, "AV Control Unit".

USB Connection Function
- Connecting iPod® or USB memory allows the driver to play iPod® music files or USB memory-stored music files.
- Sound signals of music files stored in iPod® or USB memory is transmitted from the USB connector to the AV control unit.
- AV control unit outputs sound signal to each speaker.
- iPod® is recharged when connected to USB connector.
- Compliant USB memory and data recorded are limited.

| | |
|---|---|
| USB memory | USB1.1 |
| File system | FAT16 |
| | FAT32 |

- Only files that meet the following conditions will be played.

| | Music file |
|---|---|
| File format | “MP3”, “WMA” |
| File extension | “.mp3”, “.wma” |
| Maximum file size | 2GB |

**NOTE:**
- iPod® is a trademark of Apple inc., registered in the U.S. and other countries.
- Image signals cannot be received from iPod® or USB memory.
- Use the enclosed USB harness when connecting iPod® to USB connector.

## DVD PLAYBACK FUNCTION
- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the front display unit, and DVD sound signals are transmitted to each speaker.
- DVD image signals and sound signals are transmitted to the rear display unit. The rear display unit transmits the sound signals to the headphone via infrared communication.
- For further information about DVD function specifications, refer to AV-119, "AV Control Unit".

## MOBILE ENTERTAINMENT SYSTEM

cardiagn.com

Image and sound (DVD, USB memory-stored video data, and auxiliary input) played by AV control unit can be enjoyed in rear seat using rear display unit and headphone.

Operating Signal
- The mobile entertainment system can be controlled by one of the remote controller.
- It receives the operation signal of the remote controller by the remote control receiver built into rear display unit, and then transmits it to the AV control unit.

Headphone Sound
Headphone sound signals are transmitted to infrared communication between rear display unit and headphone.

Screen rear display
- Image signal output from AV control unit is transmitted to the rear display unit.
- The rear display unit receives the composite image signal (DVD, USB memory-stored video data, and auxiliary input) from the AV control unit.
- The rear display unit switches composite images through the communications with the AV control unit via AV communication.

## BLUETOOTH® HANDS-FREE PHONE FUNCTION
- TEL adapter unit is controlled with AV communication from AV control unit.
- When the cellular phone is connected to the TEL adapter unit via TEL antenna in Bluetooth® communication, hands-free phone communication can be performed.
- Simply operating the steering switch without releasing hands from the steering wheel allows the driver to make a phone call or receive a phone call.
- When a Bluetooth® communication compliant phone is registered to the TEL adapter unit, hands-free phone communication can be performed. Five units of Bluetooth® communication devices can be registered to the TEL adapter unit.
- The content of the memory (telephone book) of the cellular phone can be recorded in the TEL adapter unit.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-150, "On Board Diagnosis Function".

| | |
|---|---|
| Bluetooth® compliant profile | HFP1.5 |
| | Core specification 2.0 + EDR |

When A Call Is Originated
- Spoken voice sound output from the microphone (microphone signal) is input to TEL adapter unit.
- TEL adapter unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal.
- Voice sound is then heard at the other party.

When Receiving A Call
- Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to TEL adapter unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speaker.

## AUXILIARY INPUT FUNCTION
- Image and sound can be output from an external device by connecting a device with front auxiliary input jacks.
- AUX image signals are transmitted to front and rear display unit via AV control unit
- AUX sound signals are transmitted to each unit as follows:
- To each speaker via AV control unit.
- To the rear display unit via AV control unit, and headphone sound signals are transmitted to infrared communication between rear display unit and headphone.

## REAR VIEW MONITOR FUNCTION

Operation Description
- When the selector lever is shifted to the reverse position, the rear view monitor image is displayed.
- When the selector lever is shifted to any position other than the reverse position, the original image (the image displayed before the rear view monitor image) is displayed.

Camera Image Operation Principle
- The AV control unit that receives the reverse signal input supplies power to the rear view camera and gives input of image signal.

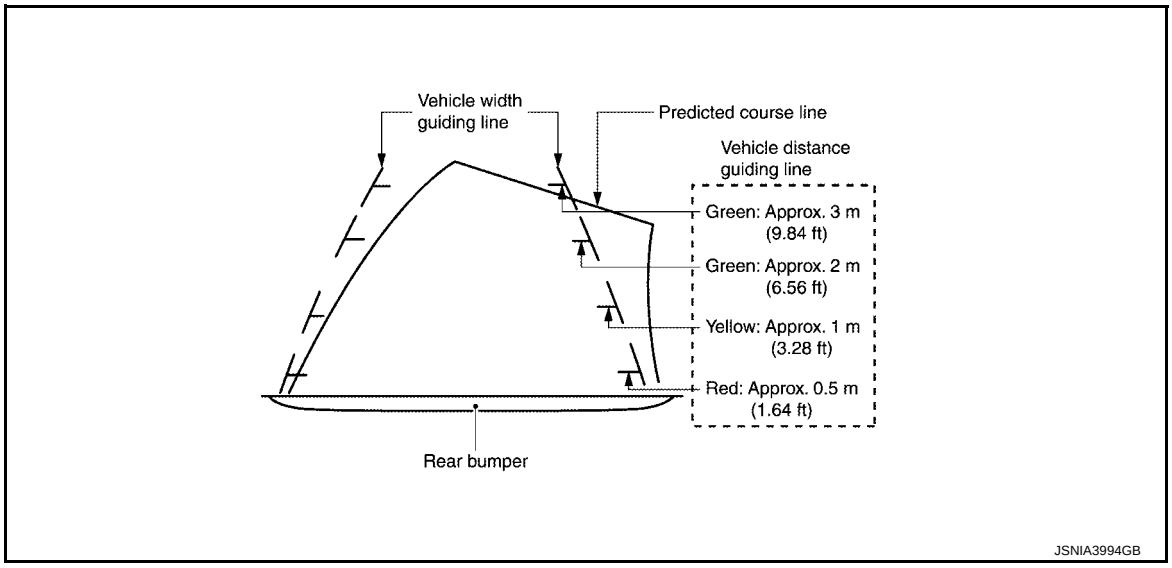


cardiagn.com

- The AV control unit outputs the rear view camera image to the front display when the reverse signal is inputted.
- The AV control unit generates the warning message, side distance guiding lines and the predictive course lines on the image from the rear view camera, and transmits the rear view camera image signal to the front display unit.

Side Distance Guide Lines and Predictive Course Lines Display Function at Rear View Monitor Display

- The side distance guide lines and the predictive course line that indicate the vehicle route according to the steering angle are displayed at the rear view monitor display to allow the driver to more easily judge distances between the vehicle and objects and help the driver back into a parking space.
- The AV control unit receives the steering angle signal from the steering angle sensor via CAN communication and draws a predictive course line according to the steering angle signal.
- When the predictive course line are displayed, the side distance guide lines are displayed translucently.
- The predictive course line are not displayed when the steering is in the neutral position.
- The predictive course line can be displayed/not displayed by selecting “Settings” - “Others” - “Camera” - “Predictive Course Lines”



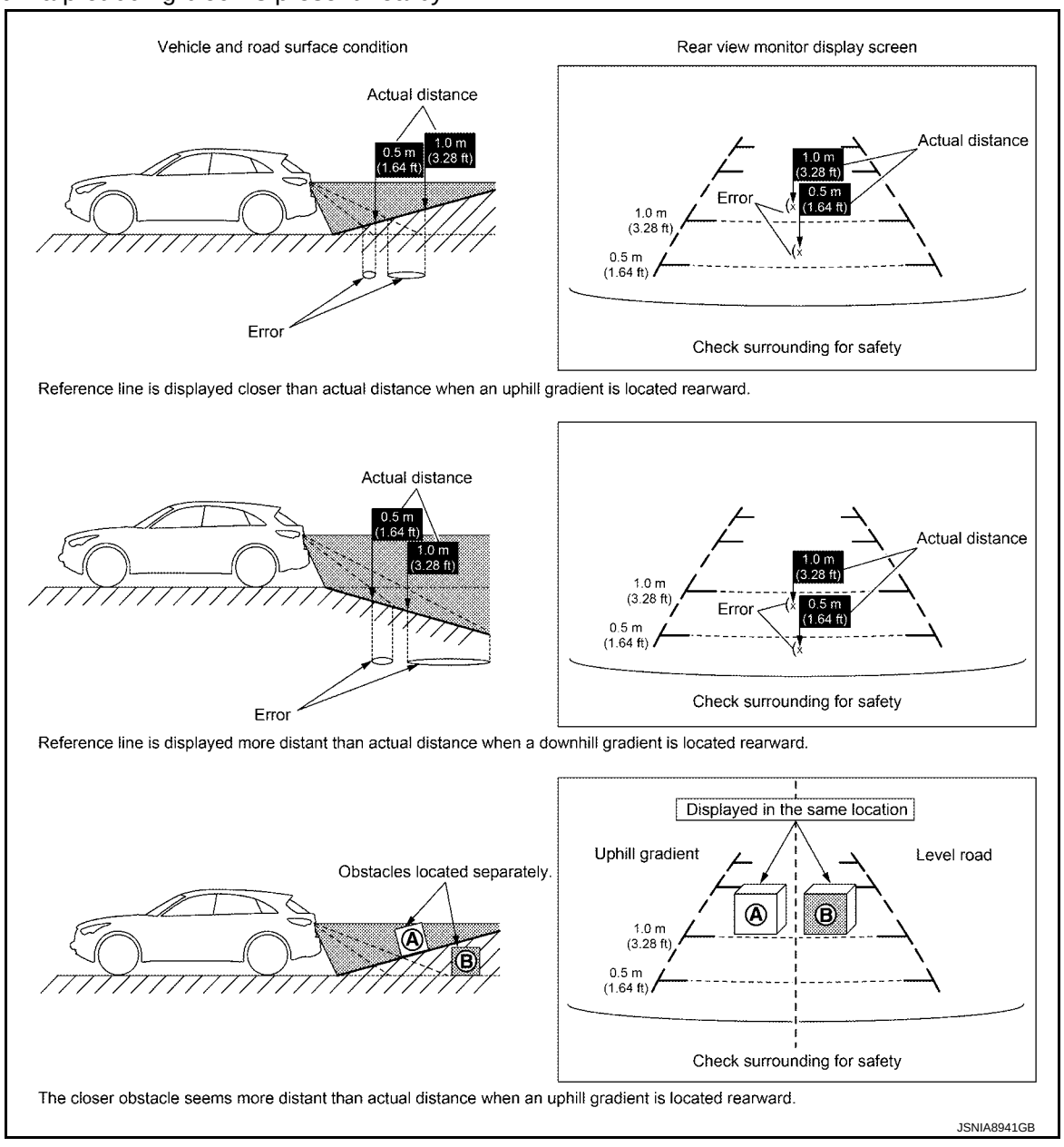

Precautions for Side Distance Guide Lines and predictive course line Display on the Rear View Monitor Display

Side distance guide lines and predictive course line on the display may be different from actual lines depending on vehicle conditions and road conditions.

Precautions for road conditions

cardiagn.com

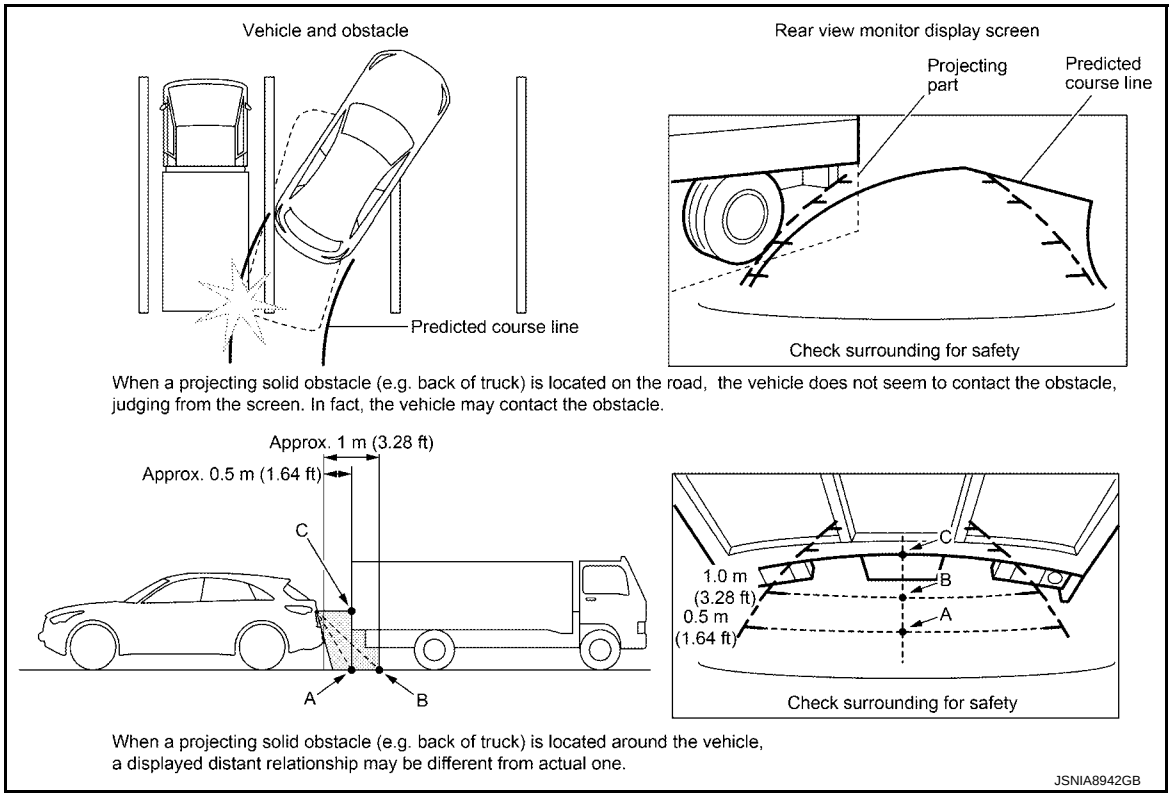
- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




Precautions for block

cardiagn.com

- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




## VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy, maintenance and navigation are displayed.
- AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM and combination meter.

### Vehicle Setting Function

The AV control unit transmits and receives data signals via CAN communication with the BCM, allowing the following vehicle settings.

- To turn on the automatic interior room lamp (ON/OFF) when the door is unlocked
- To adjust the auto light sensitivity (+/–)
- To operate the intermittent wiper linked with the vehicle speed (ON/OFF)
- Vehicle setting initialization

**NOTE:**
The setting items vary depending on the vehicle specification

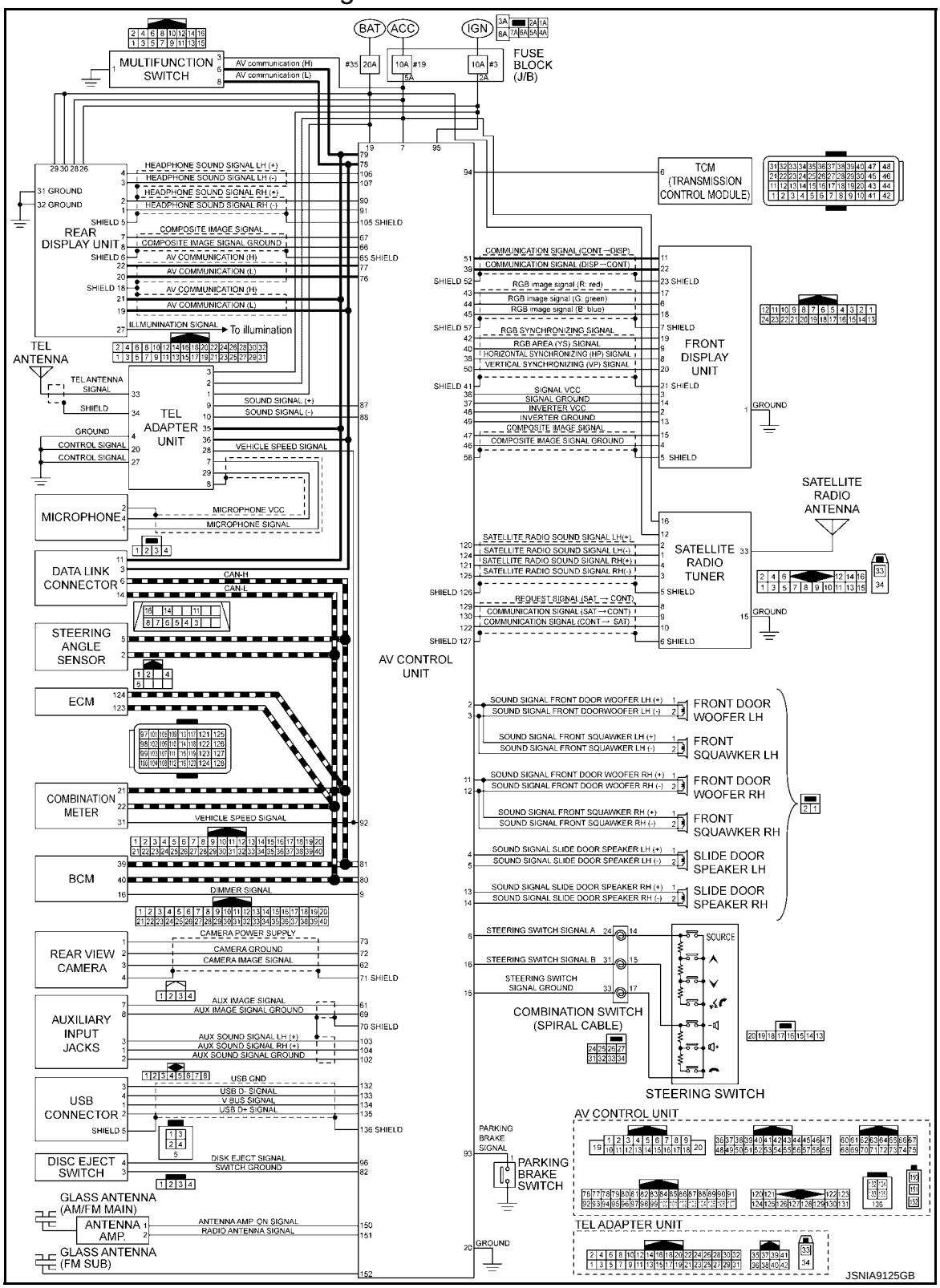
## AUTO LIGHT ADJUSTMENT SYSTEM

When the light switch is in the 1st or 2nd position, the dimming of the display is judged according to a dimming signal transmitted from BCM to the AV control unit. Display illuminance is independent of vehicle exterior illuminance detected by the auto light detecting sensor even when the light switch is in 1st or 2nd position.

cardiagn.com

# MULTI AV SYSTEM : Circuit Diagram

INFOID:0000000012407150




cardiagn.com

# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

## Description

INFOID:0000000012407151

- The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit performs a diagnosis for each unit in the system during the on board diagnosis.
- Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display anything, the multifunction switch does not function, etc.

## On Board Diagnosis Function

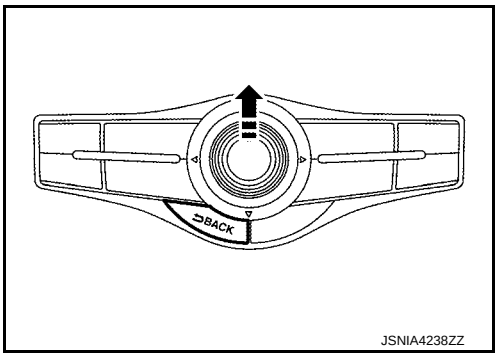
INFOID:0000000012407152

### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the “BACK” switch and the “UP” switch of the 4-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
  **NOTE:**
  The disk eject switch cannot be checked.



JSNIA4238ZZ

Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the AV control unit diagnosis and the connection diagnosis between each of the units that make up the system, and it indicates the results to the front display unit.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

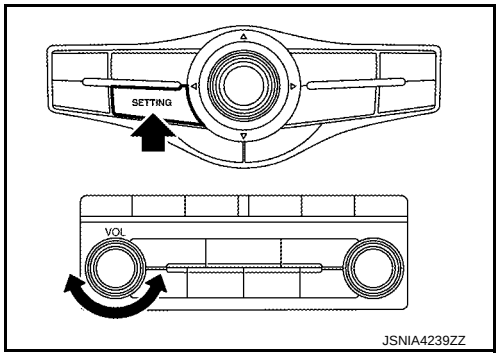
| Mode | Description |
|---|---|
| Self Diagnosis | • AV control unit diagnosis.<br>• Diagnoses the connections across system components, between AV control unit and each unit. |

cardiagn.com

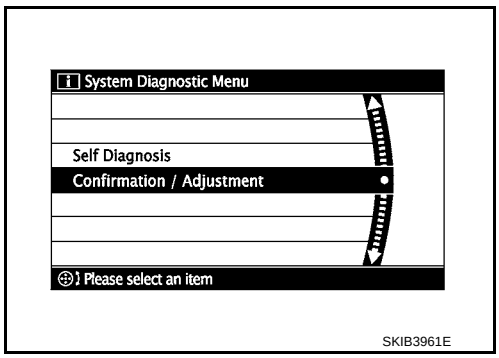
| Mode | | Description |
|---|---|---|
| Confirmation/ Adjustment | Display Diagnosis | The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display. |
| | Vehicle Signals | Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse. |
| | Speaker Test | The connection of a speaker can be confirmed by test tone. |
| | Climate Control | Start auto air conditioner system self-diagnosis. |
| | Error History | The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed. |
| | Camera Cont. | • Guiding line position that overlaps rear view camera image can be adjusted.<br>• Configuration stored in the AV control unit can be checked. |
| | Vehicle CAN Diagnosis | The transmitting/receiving of CAN communication can be monitored. |
| | AV COMM Diagnosis | The communication condition of each unit of Multi AV system can be monitored. |
| | Delete Unit Connection Log | Erase the connection history of unit and error history. |
| | Initialize Settings | Initializes the AV control unit memory. |

## METHOD OF STARTING

1. Start the engine.
2. Turn the audio system OFF.
3. While pressing the “SETTING” button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, the trouble diagnosis initial screen is displayed.)
   • Shifting from current screen to previous screen is performed by pressing “BACK” button.




4. Items of “Self Diagnosis” and “Confirmation/Adjustment” can be selected on the trouble diagnosis initial screen.



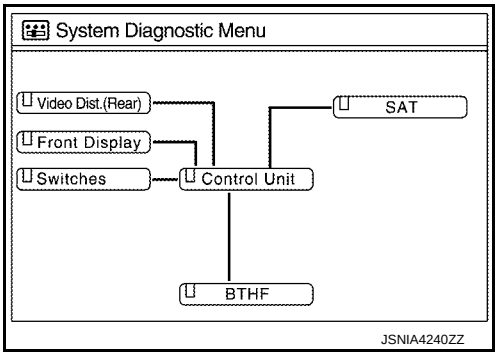

## SELF-DIAGNOSIS MODE

1. Start the self-diagnosis function and select “Self Diagnosis”.

- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

cardiagn.com

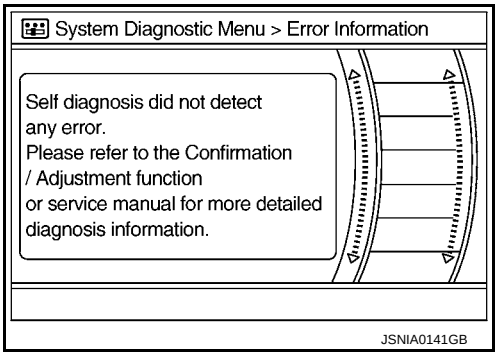
2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.




| Diagnosis results | Unit | Connection line |
|---|---|---|
| Normal | Green | Green |
| Connection malfunction | Gray | Yellow |
| Unit malfunction Note | Red | Green |

**NOTE:**
Control unit (AV control unit) and is displayed in red.

- Replace AV control unit if “Self-Diagnosis did not run because of a control unit malfunction” is indicated. The symptom is AV control unit internal error. Refer to AV-242, "Removal and Installation".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.




Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

## SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

| Screen switch | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit | Malfunction is detected in AV control unit power supply and ground circuits. | Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit.<br>Refer to AV-242, "Removal and Installation" |

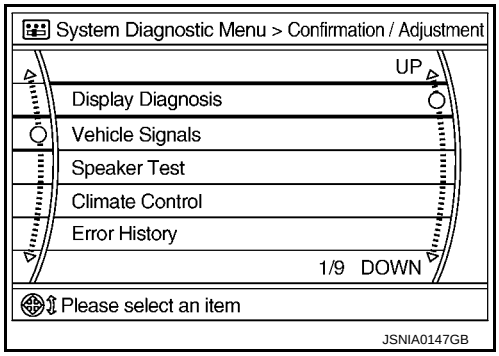
A Connecting Cable Between Units Is Displayed In Yellow.

cardiagn.com

| Area with yellow connection lines | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit ⇔ Front display | Serial communication circuits between AV control unit and front display unit are malfunctioning. | Serial communication circuits between AV control unit and front display unit. |
| Control unit ⇔ SAT | When either one of the following items are detected:<br>• satellite radio tuner power supply and ground circuits are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-207, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |
| Control unit ⇔ BTHF | When either one of the following items are detected:<br>• TEL adapter unit power supply and ground circuit are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>Refer to AV-208, "TEL ADAPTER UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| Control unit ⇔ Video Dist.(Rear) | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-207, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |

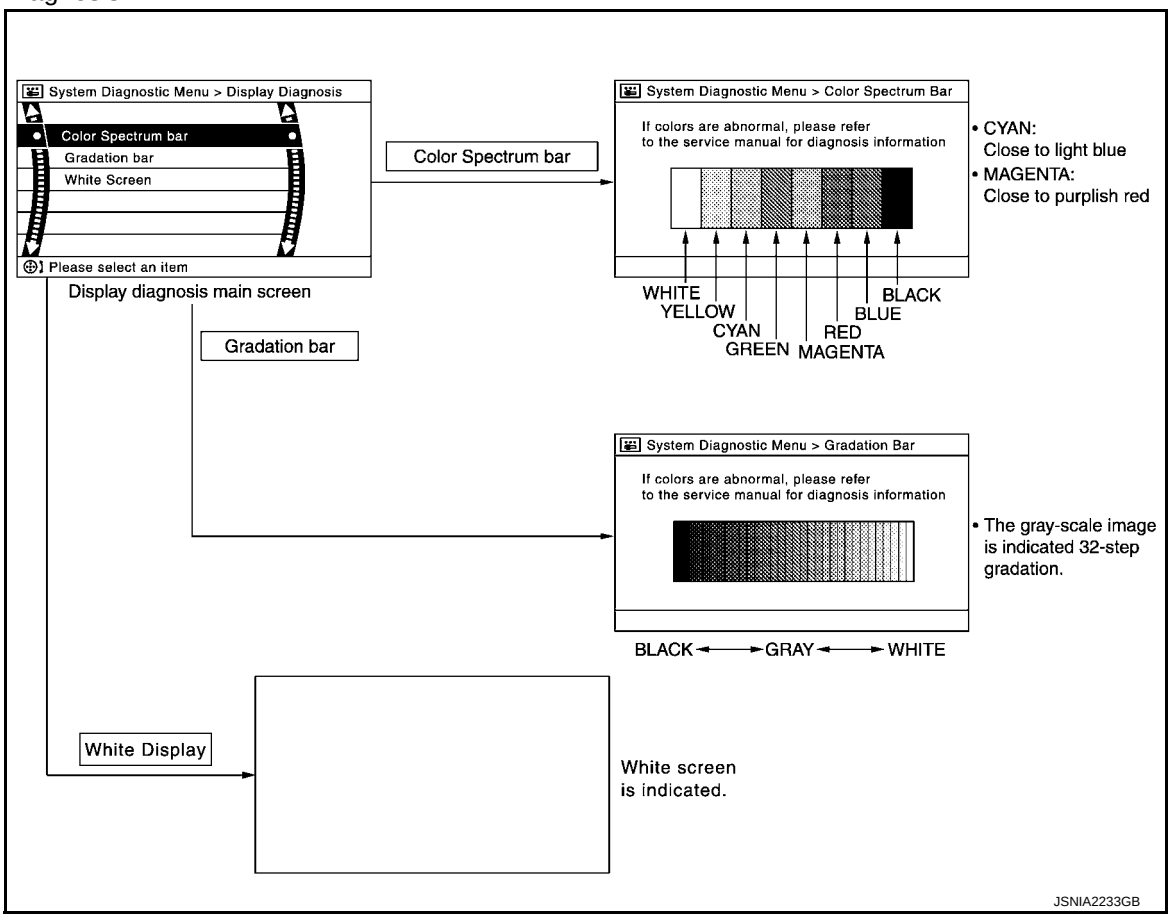
## CONFIRMATION/ADJUSTMENT MODE

1. Start the diagnosis function and select “Confirmation/Adjustment”. The confirmation/adjustment mode indicates where each item can be checked or adjusted.
2. Select each switch on the “Confirmation/Adjustment Mode” screen to display the relevant trouble diagnosis screen. Press the “BACK” switch to return to the initial Confirmation/Adjustment Mode screen.



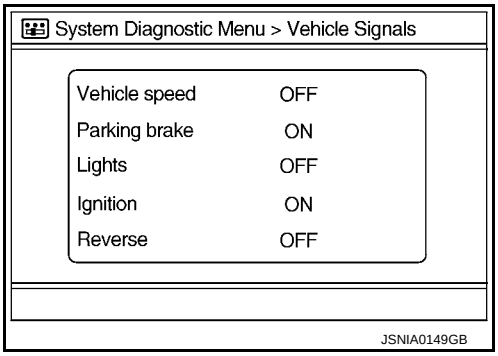

cardiagn.com

Display Diagnosis




Vehicle Signals

A comparison check can be made of each actual vehicle signal and the signals recognized by the system.



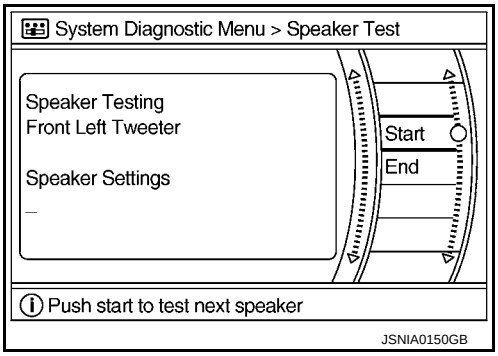

| Diagnosis item | Display | Vehicle status | Remarks |
|---|---|---|---|
| Vehicle speed | ON | Vehicle speed > 0 km/h (0 MPH) | Changes in indication may be delayed. This is normal. |
| | OFF | Vehicle speed = 0 km/h (0 MPH) | |
| Parking brake | ON | Parking brake is applied. | |
| | OFF | Parking brake is released. | |
| Lights | ON | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | — |
| | OFF | Either of the following conditions<br>• Lighting switch is OFF<br>• Expose the auto light optical sensor to light when the lighting switch is 1st or 2nd. | |

cardiagn.com

| Diagnosis item | Display | Vehicle status | Remarks |
|---|---|---|---|
| Ignition | ON | Ignition switch is ON | — |
| | OFF | Ignition switch is in ACC position | |
| Reverse | ON | Selector lever is in “R” position | Changes in indication may be delayed. This is normal. |
| | OFF | Selector lever is in other than “R” position | |

Speaker Test

Select “Speaker Test” to display the Speaker Diagnosis screen. Press “Start” to generate a test tone in a speaker. Press “Start” again to generate a test tone in the next speaker. Press “End” to stop the test tones.




Climate Control

Refer to “HEATER & AIR CONDITIONING CONTROL SYSTEM” for details.

Error History

The self-diagnosis results are judged depending on whether any error occurs from when “Self-diagnosis” is selected until the self-diagnosis results are displayed.

However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self-diagnosis start. Check the “Error Record” to detect any error that may have occurred before the self-diagnosis start because of this situation.

The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

Count up method A

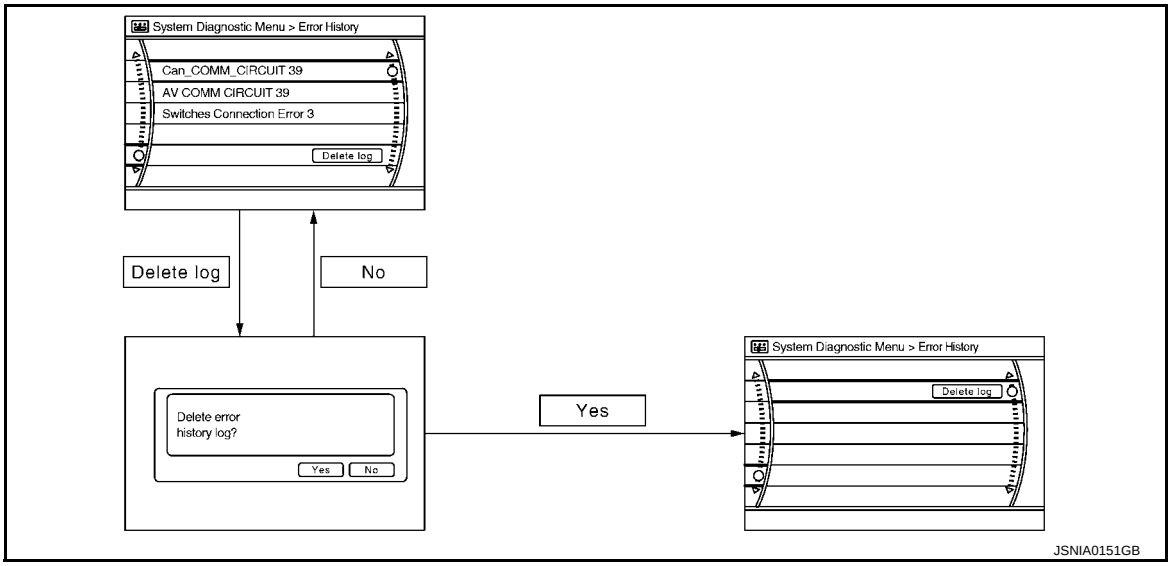
- The counter resets to 0 if an error occurs when ignition switch is turned ON. The counter increases by 1 if the condition is normal at a next ignition ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored.“ The counter can be reset (no error record display) with the “Delete log” switch or CONSULT.

Count up method B

- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. “ The counter can be reset (no error record display) with the “Delete log” switch or CONSULT.

| Display type of occurrence frequency | Error history display item |
|---|---|
| Count up method A | CAN communication line, control unit (CAN), AV communication line, control unit (AV) |
| Count up method B | Other than the above |

cardiagn.com




Error item

Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

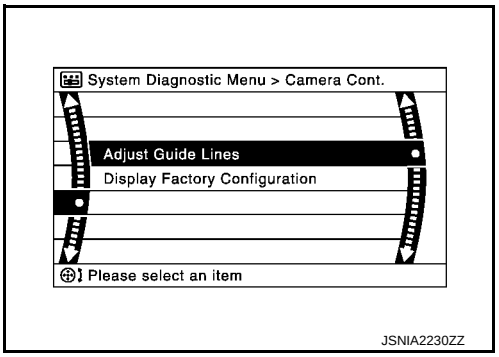
| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CAN COMM CIRCUIT | CAN communication malfunction is detected. | Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results.<br>Refer to AV-147, "CONSULT Function". |
| CONTROL UNIT (CAN) | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-242, "Removal and Installation". |
| CONTROL UNIT (AV) | AV communication circuit initial diagnosis malfunction is detected. | |
| FLASH-ROM Error Of Control Unit | AV control unit malfunction is detected. | |
| CAN Controller Memory Error | | |
| Steer. Angle Sensor Calibration | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust the neutral position of the steering angle sensor.<br>Refer to BRC-50, "Description". |
| Front Display Connection Error | When either one of the following items is detected:<br>• front display unit power supply and ground circuits malfunction is detected.<br>• malfunction is detected in communication circuits between AV control unit and front display unit. | • Front display unit power supply and ground circuits.<br>Refer to AV-205, "FRONT DISPLAY UNIT : Diagnosis Procedure".<br>• Communication circuits between AV control unit and front display unit. |
| XM Connection Error | When either one of the following items are detected:<br>• satellite radio tuner power supply and ground circuits are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-207, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |
| • AV COMM CIRCUIT<br>• Switches Connection Error | When either one of the following items is detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |

cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| • AV COMM CIRCUIT<br>• H/F Unit Connection Error | When either one of the following items are detected:<br>• TEL adapter unit power supply and ground circuit are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>Refer to AV-208, "TEL ADAPTER UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| • AV COMM CIRCUIT<br>• 2nd Display Connection Error | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-207, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |
| • AV COMM CIRCUIT<br>• Switches Connection Error<br>• H/F Unit Connection Error<br>• 2nd Display Connection Error | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

Camera Cont.

The two functions of “Correct Draw Line of Rear view Cam”, “Confirm Configuration” are available.

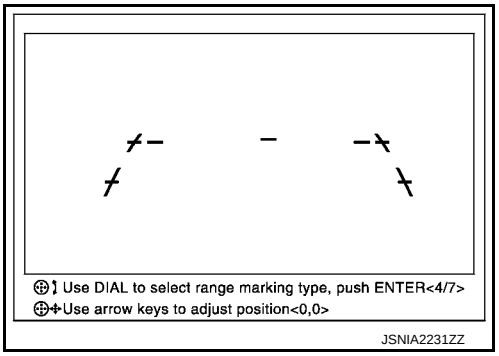



Adjust Offset of Rear view Camera

- Use this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view monitor camera.

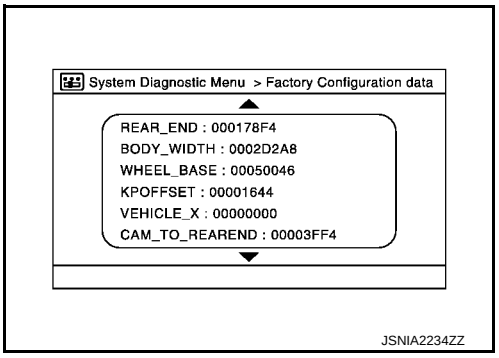
**CAUTION:**

**After the adjustment, never perform other operations for one minute.**




Factory Configuration Confirmation

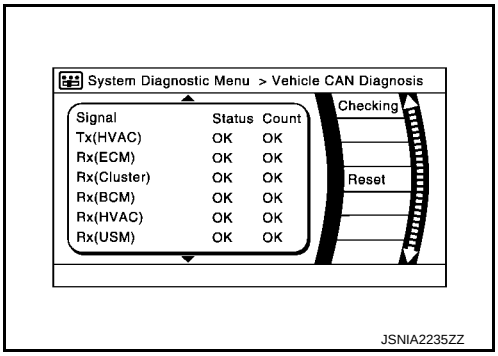
- Configuration stored in the AV control unit can be checked.




cardiagn.com

Vehicle CAN Diagnosis

- CAN communication status and error counter is displayed.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.

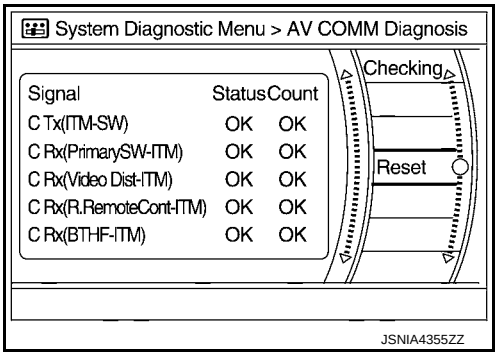



| Items | Display (Current) | Malfunction counter (Past) |
|---|---|---|
| Tx(HVAC) | OK / ??? | OK / 0 – 39 |
| Rx(ECM) | OK / ??? | OK / 0 – 39 |
| Rx(Cluster) | OK / ??? | OK / 0 – 39 |
| Rx(BCM) | OK / ??? | OK / 0 – 39 |
| Rx(HVAC) | OK / ??? | OK / 0 – 39 |
| Rx(USM) | OK / ??? | OK / 0 – 39 |
| Rx(VDC) | OK / ??? | OK / 0 – 39 |
| Rx(STRG) | OK / ??? | OK / 0 – 39 |

**NOTE:**
“???” indicates UNKWN.

AV COMM Diagnosis

- Displays the communication status between AV control unit (master unit) and each unit.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.

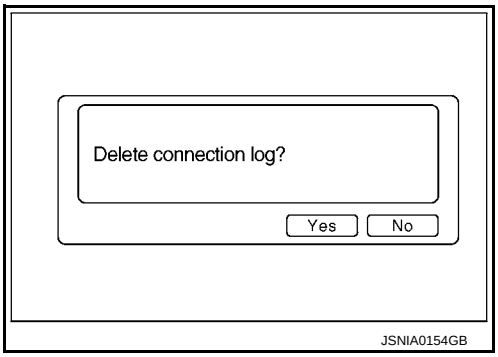



| Items | Status (Current) | Counter (Past) |
|---|---|---|
| C Tx(ITM–PrimarySW) | OK / ??? | OK / 0 – 39 |
| C Rx(PrimarySW–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(Video Dist–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(R.RemoteCont–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(BTHF–ITM) | OK / ??? | OK / 0 – 39 |

**NOTE:**
“???” indicates UNKWN

Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed.)



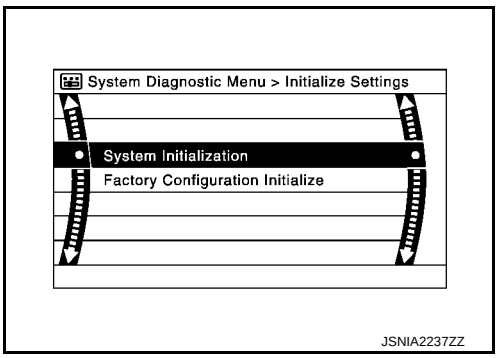

Initialize Settings

cardiagn.com

"User Data Initialization" and "Accessory Number Initialization" are possible.

**CAUTION:**

- **Never perform Accessory Number Initialization except when configuration is unsuccessful.**
- **Accessory Number Initialization requires configuration. For details, refer to AV-192, "Description".**




## CONSULT Function

INFOID:0000000012407153

### APPLICATION ITEMS

CONSULT performs the following functions via the communication with the AV control unit.

| Diagnosis mode | Description |
|---|---|
| Ecu Identification | The part number of AV control unit can be checked. |
| Self Diagnostic Result | Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively. |
| Data Monitor | The diagnosis of vehicle signal that is input to the AV control unit can be performed. |
| Work Support | Steering angle sensor can be adjusted. |
| Configuration | • Read and save the vehicle specification.<br>• Write the vehicle specification when replacing AV control unit. |

AV Communication

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

| | | |
|---|---|---|
| AV communication | AV&NAVI C/U | Displays the communication status from AV control unit to each unit as well as the error counter. |
| | AUDIO | Displays the AV control unit communication status and the error counter. |

### ECU IDENTIFICATION

The part number of AV control unit is displayed.

### SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CAN COMM CIRCUIT [U1000] | CAN communication malfunction is detected. | Refer to AV-194, "Diagnosis Procedure". |
| CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-242, "Removal and Installation". |
| CONTROL UNIT (AV) [U1310] | AV communication circuit initial diagnosis malfunction is detected. | |
| Cont Unit [U1200] | AV control unit malfunction is detected. | |
| CAN CONT [U1216] | | |
| ST ANGLE SEN CALIB [U1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust the neutral position of the steering angle sensor.<br>Refer to AV-198, "Diagnosis Procedure". |



cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| FRONT DISP CONN [U1243] | When either one of the following items is detected:<br>• front display unit power supply and ground circuits malfunction is detected.<br>• communication circuits between AV control unit and front display unit. | • Front display unit power supply and ground circuits.<br>Refer to AV-205, "FRONT DISPLAY UNIT : Diagnosis Procedure".<br>• Communication circuits between AV control unit and front display unit. |
| SAT CONN [U1255] | When either one of the following items are detected:<br>• satellite radio tuner power supply and ground circuits are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-207, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |
| • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | When either one of the following items are detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | When either one of the following items are detected:<br>• rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-207, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |
| • AV COMM CIRCUIT [U1300]<br>• HAND FREE CONN [U1256] | When either one of the following items is detected:<br>• TEL adapter unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>Refer to AV-208, "TEL ADAPTER UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• HAND FREE CONN [U1256] | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

## DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

All Signals

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

| Display Item | Display | Vehicle status | Remarks |
|---|---|---|---|
| VHCL SPD SIG | On | Vehicle speed >0 km/h (0 MPH) | Changes in indication may be delayed. This is normal. |
| | Off | Vehicle speed =0 km/h (0 MPH) | |
| PKB SIG | On | Parking brake is applied. | |
| | Off | Parking brake is released. | |

cardiagn.com

| Display Item | Display | Vehicle status | Remarks |
|---|---|---|---|
| ILLUM SIG | On | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | — |
| | Off | Either of the following conditions<br>• Lighting switch is OFF<br>• Expose the auto light optical sensor to light when the lighting switch is 1st or 2nd. | |
| IGN SIG | On | Ignition switch is ON | |
| | Off | Ignition switch is in ACC position | |
| REV SIG | On | Selector lever is in R position | Changes in indication may be delayed. This is normal. |
| | Off | Selector lever is in any position other than R | |

Selection From Menu

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

| Item to be selected | Description |
|---|---|
| VHCL SPD SIG | The same as when “ALL SIGNALS” is selected. |
| PKB SIG | |
| ILLUM SIG | |
| IGN SIG | |
| REV SIG | |

## WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

**CAUTION:**

**For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.**

| Item | Description |
|---|---|
| ST ANGLE SENSOR ADJUSTMENT | Adjusts the neutral position of the steering angle sensor. |

## CONFIGURATION

Configuration includes functions as follows.

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the AV control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the AV control unit by hand. |

cardiagn.com

# DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

## Description

INFOID:0000000012407154

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

## On Board Diagnosis Function

INFOID:0000000012407155

### HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

### ON BOARD DIAGNOSIS ITEM

The on board diagnosis has 3 modes: the self-diagnosis mode that performs the trouble diagnosis, the speaker adaptation data deleting mode and the hands-free phone system initialization mode.

**CAUTION:**

- **Perform the diagnosis with the vehicle stopped.**
- **Perform STEP2 if necessary.**

| STEP | MODE | Description |
|---|---|---|
| STEP1 | Self-diagnosis | The self-diagnosis mode performs the microphone test and the diagnosis of TEL adapter unit, TEL antenna and steering unit, and then reads out the results with the sound and indicates them on the display. |
| STEP2 | Speaker adaptation data deleting | The speaker adaptation data deleting mode can delete the speaker adaptation data. |
| | Hands-free phone system initialization | Hands-free phone system initialization mode can perform the initialization of hands-free phone system. |

### Self-diagnosis results

Self-diagnosis mode reads out the self-diagnosis results.

**NOTE:**

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time.

Self-diagnosis results

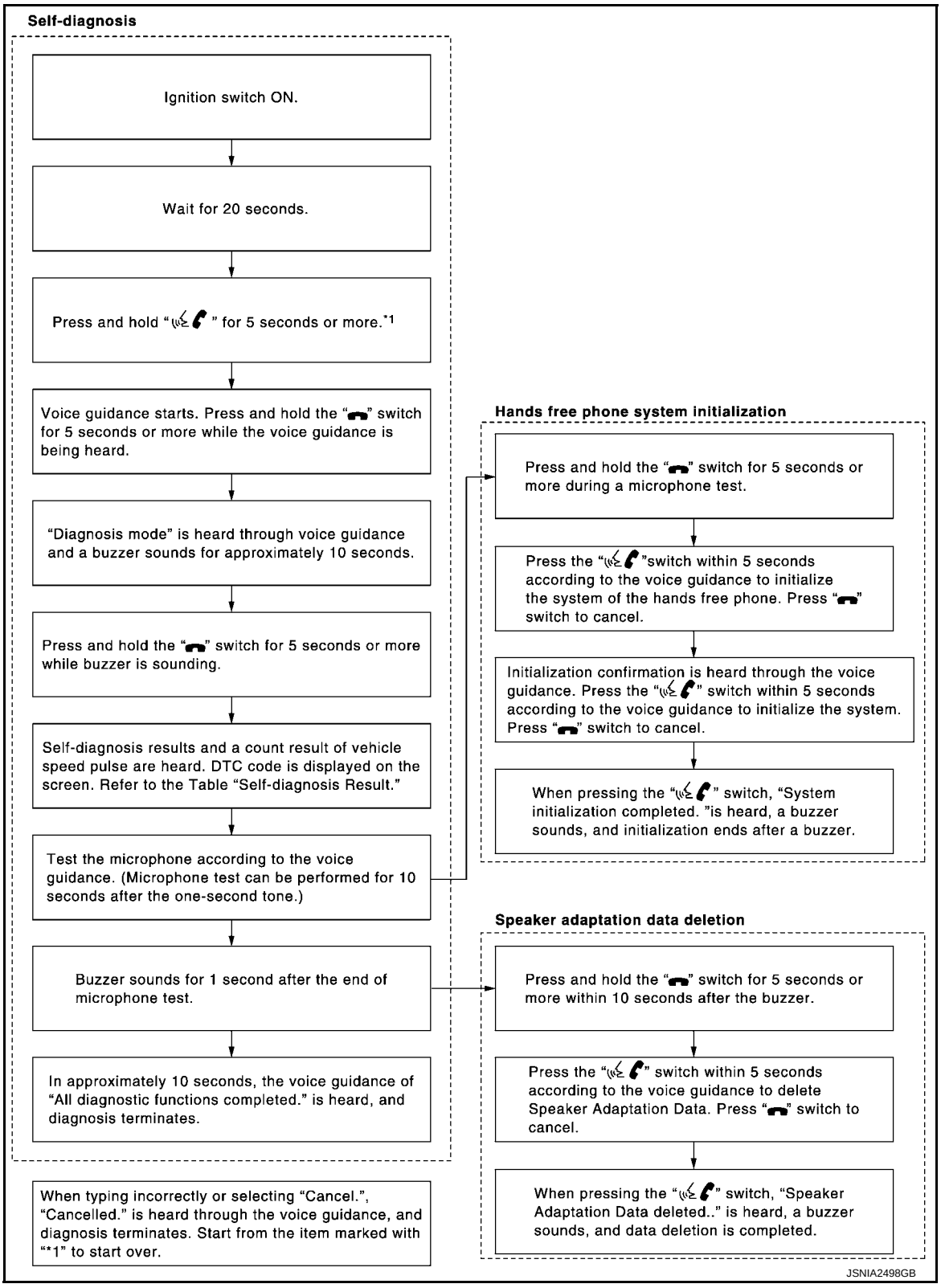
| DTC | DTC name | Possible causes |
|---|---|---|
| DTC 10000 | INTERNAL FAILURE | TEL adapter unit |
| DTC 01000 | ANT. SHORT TO BATT OR OPEN | TEL antenna |
| DTC 00100 | ANT. SHORT TO GROUND | |
| DTC 00010 | STEERING REMOTE BUTTON STUCK A | Steering switch |
| DTC 00001 | STEERING REMOTE BUTTON STUCK B | |
| DTC 00000 | THERE ARE NO FAILURE RECORDS TO REPORT | — |

### The Details of Error Count

The error count guides “0” when the error occurs. The next time it counts up “1” if it is normal with the ignition switch ON. It continues the count up unless the initialization of hands-free phone system is performed.

cardiagn.com

## FLOW CHART OF TROUBLE DIAGNOSIS




cardiagn.com

# ECU DIAGNOSIS INFORMATION

## AV CONTROL UNIT

### Reference Value

INFOID:0000000012407156

VALUES ON THE DIAGNOSIS TOOL

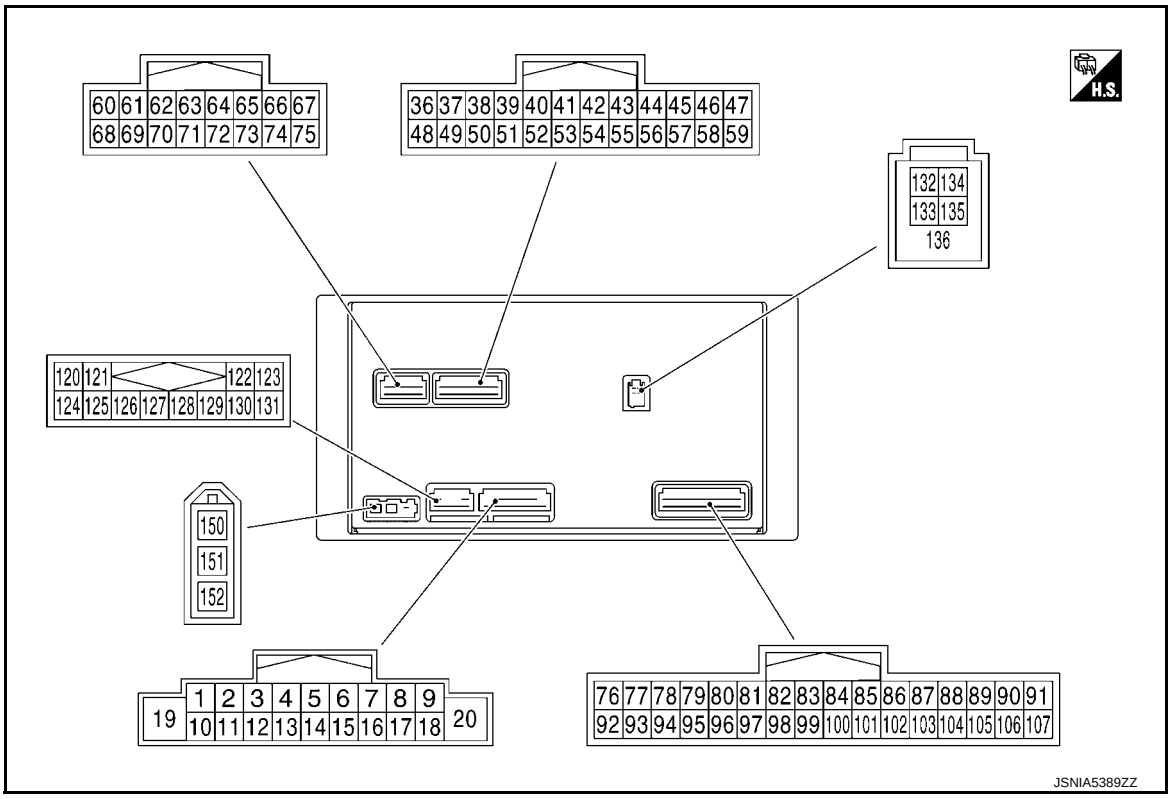
**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

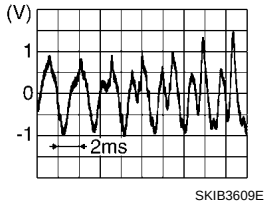
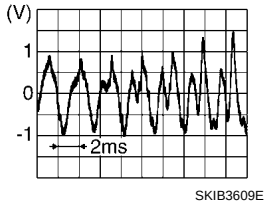
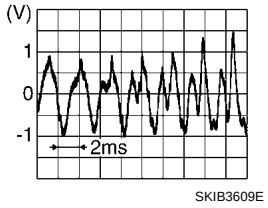
| Monitor Item | Condition | | Value/Status |
|---|---|---|---|
| VHCL SPD SIG | Ignition switch ON | Vehicle speed > 0 km/h (0 MPH) | On |
| | | Vehicle speed = 0 km/h (0 MPH) | Off |
| PKB SIG | Ignition switch ON | Parking brake is applied. | On |
| | | Parking brake is released. | Off |
| ILLUM SIG | Ignition switch ON | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | On |
| | | Expose the auto light optical sensor to light when the lighting switch is OFF, 1st or 2nd. | Off |
| IGN SIG | Ignition switch ON | — | On |
| | Ignition switch ACC | — | Off |
| REV SIG | Ignition switch ON | Selector lever is in the R position | On |
| | | Selector lever is in any position other than R | Off |

TERMINAL LAYOUT

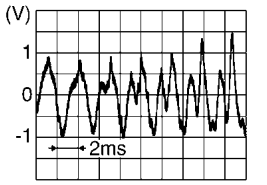
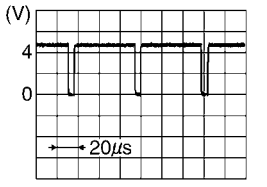
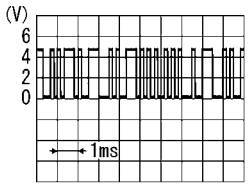
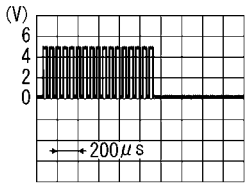



PHYSICAL VALUES

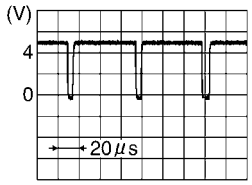
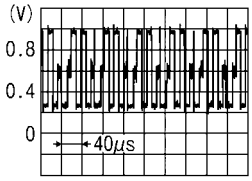
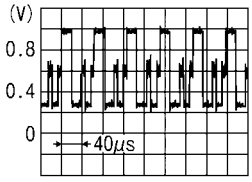
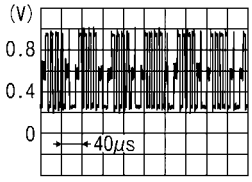
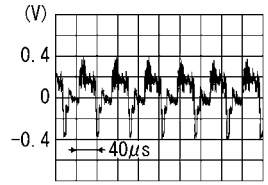
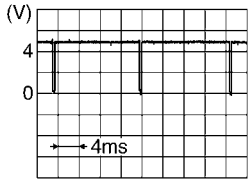
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (LG) | 3 (Y) | Sound signal front speaker LH | Output | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 4 (V) | 5 (L) | Sound signal slide door speaker LH | Output | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 6 (BE) | 15 (W) | Steering switch signal A | Input | Ignition switch ON | Keep pressing SOURCE switch. | 0 - 3.3 V | 0 V |
| | | | | | Keep pressing SEEK UP switch. | | 0.7 V |
| | | | | | Keep pressing SEEK DOWN switch. | | 1.3 V |
| | | | | | Keep pressing switch | | 2.0 V |
| | | | | | Except for above. | | 3.3 V |
| 7 (O) | 20 (B) | ACC power supply | Input | Ignition switch ACC | — | 9.0 - 16.0 V | Battery voltage |
| 9 (BE) | 20 (B) | Dimmer signal | Input | Ignition switch ON | Either of the following conditions<br>• Lighting switch is OFF<br>• Lighting switch is 1st or 2nd, and the area around the vehicle is bright (shine a light on the optical sensor) | 3.0 V or less | 0 V |
| | | | | | Lighting switch is 1st or 2nd, and the area around the vehicle is dark (block the light from the optical sensor) | 7.0 - 16.0 V | 12.0 V |
| 11 (L) | 12 (B) | Sound signal front speaker RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |

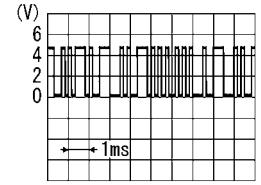
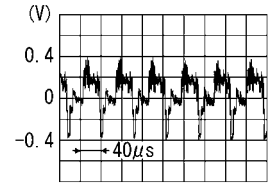
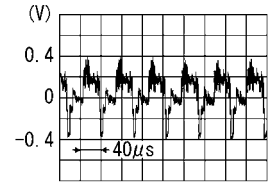
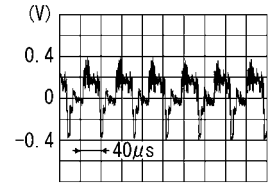
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 13 (BR) | 14 (SB) | Sound signal slide door speaker RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 16 (P) | 15 (W) | Steering switch signal B | Input | Ignition switch ON | Keep pressing VOL DOWN switch. | 0 - 3.3 V | 0 V |
| | | | | | Keep pressing VOL UP switch. | | 0.7 V |
| | | | | | Keep pressing ☎ switch. | | 1.3 V |
| | | | | | Except for above. | | 3.3 V |
| 19 (SB) | 20 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 - 16.0 V | Battery voltage |
| 36 (O) | 37 (SB) | Signal VCC | Output | Ignition switch ACC | — | 8.0 - 9.5 V | 8.8 V |
| 38 (G) | 20 (B) | Horizontal synchronizing (HP) signal | Input | Ignition switch ON | — | Waveform of 1.0 V - 5.5 V is input. |  SKIB3601E |
| 39 (W) | 20 (B) | Communication signal (DISP→CONT) | Input | Ignition switch ON | When adjusting display brightness. | Waveform of 0.5 V or less - 3.5 V or more is input. |  PKIB5039J |
| 40 (B) | 20 (B) | RGB area (YS) signal | Output | Ignition switch ON | At RGB image is displayed. | 5.5 V or less | 5.0 V |
| | | | | | At AUX image is displayed. | Waveform of 0.8 V - 5.5 V is Output. |  PKIB4948J |
| 41 | — | Shield | — | — | — | — | — |

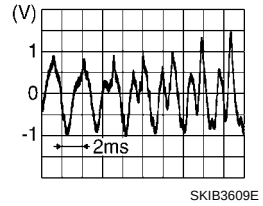
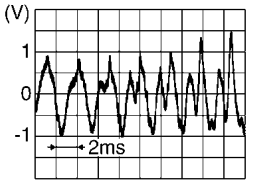
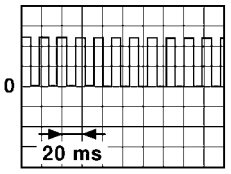
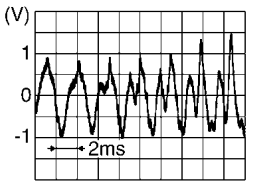
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 42 (W) | 20 (B) | RGB synchronizing signal | Output | Ignition switch ON | — | Waveform of 0.8 V - 5.5 V is Output. |  SKIB3603E |
| 43 (R) | 20 (B) | RGB image signal (R: red) | Output | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1029ZZ |
| 44 (W) | 20 (B) | RGB image signal (G: green) | Output | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1030ZZ |
| 45 (B) | 20 (B) | RGB image signal (B: blue) | Output | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1031ZZ |
| 47 (B) | 46 (W) | Composite image signal (for front display unit) | Output | Ignition switch ON | When DVD or AUX image is displayed on front display unit. | Outputs waveform synchronized with composite image. |  SKIB2251J |
| 48 (BR) | 49 (P) | Inverter VCC | Output | Ignition switch ACC | — | 8.0 - 9.5 V | 8.8 V |
| 50 (R) | 20 (B) | Vertical synchronizing (VP) signal | Input | Ignition switch ON | — | Waveform of 1.0 V - 5.5 V is input. |  SKIB3598E |

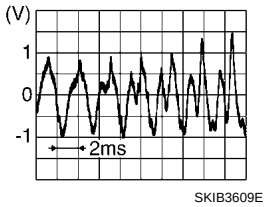
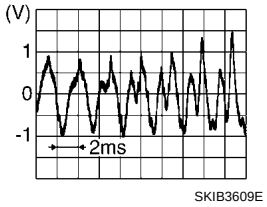
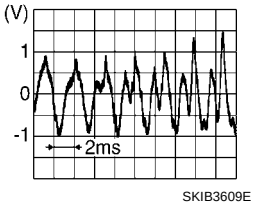
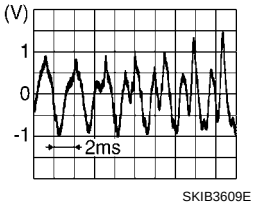
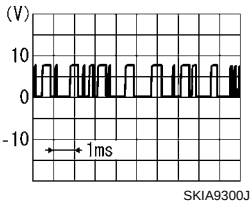
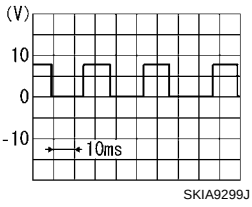
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 51 (B) | 20 (B) | Communication signal (CONT→DISP) | Output | Ignition switch ON | When adjusting display brightness. | Waveform of 0.5 V or less - 3.5 V or more is output. |  PKIB5039J |
| 52 | — | Shield | — | — | — | — | — |
| 57 | — | Shield | — | — | — | — | — |
| 58 | — | Shield | — | — | — | — | — |
| 61 (BR) | 69 (Y) | AUX image signal | Output | Ignition switch ON | When AUX image is displayed on front or rear display unit. | Outputs waveform synchronized with AUX image. |  SKIB2251J |
| 62 (Y) | 20 (B) | Camera image signal | input | Ignition switch ON | When camera image is displayed. | Waveform according to camera image is input. |  SKIB2251J |
| 65 | — | Shield | — | — | — | — | — |
| 67 (W) | 66 (B) | Composite image signal (for rear display unit) | Output | Ignition switch ON | When DVD or AUX image is displayed on rear display unit | Outputs waveform synchronized with composite image. |  SKIB2251J |
| 70 | — | Shield | — | — | — | — | — |
| 71 | — | Shield | — | — | — | — | — |
| 73 (G) | 72 (R) | Camera power supply | Output | Ignition switch ON | When camera image is displayed. | 5.9 - 6.5 V | 6.2 V |
| 76 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 77 (V) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 78 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 79 (SB) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 80 (P) | — | CAN–L | Input/ Output | — | — | — | — |

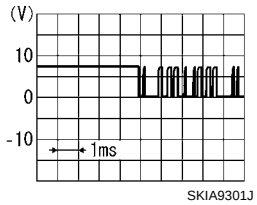
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 81 (L) | — | CAN–H | Input/ Output | — | — | — | — |
| 87 (R) | 88 (W) | Sound signal (TEL voice, voice guidance) | Output | Ignition switch ON | During voice guide output with the switch pressed. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 90 (BR) | 91 (Y) | Headphone sound signal RH | Output | Ignition switch ON | Headphone sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 92 (P) | 20 (B) | Vehicle speed signal (8-pulse) | Input | Ignition switch ON | When vehicle speed is approx. 40 km/h (25 MPH) | Waveform according to vehicle speed is input. | **NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB |
| 93 (R) | 20 (B) | Parking brake signal | Input | Ignition switch ON | Parking brake is applied. | 1.5 V or less | 0 V |
| | | | | | Parking brake is released. | 3.5 V or more | 4.5 V |
| 94 (W) | 20 (B) | Reverse signal | Input | Ignition switch ON | Selector lever is in “R” position. | 7.0 - 16.0 V | 12.0 V |
| | | | | | Selector lever is in other than “R” position. | — | 0 V |
| 95 (G) | 20 (B) | Ignition signal | Input | Ignition switch ON | — | 9.0 - 16.0 V | Battery voltage |
| 96 (W) | 82 (R) | Disk eject signal | Input | Ignition switch ON | Keep pressing disk eject switch. | — | 0 V |
| | | | | | Except for above. | — | 3.3 V |
| 103 (B) | 102 (W) | AUX sound signal LH | Input | Ignition switch ON | When AUX mode is selected on front or rear display unit. | Waveform according to sound is input. |  SKIB3609E |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 104 (R) | 102 (W) | AUX sound signal RH | Input | Ignition switch ON | When AUX mode is selected on front or rear display unit. | Waveform according to sound is input. |   SKIB3609E |
| 105 (GR) | — | Shield | — | — | — | — | — |
| 106 (P) | 107 (L) | Headphone sound signal LH | Output | Ignition switch ON | Headphone sound output. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 120 (R) | 124 (B) | Satellite radio sound signal LH | Input | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 121 (W) | 125 (G) | Satellite radio sound signal RH | Output | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 122 (R/W) | 20 (B) | Communication signal (CONT→SAT) | Output | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.5 - 6.0 V is input. |   SKIA9300J |
| 126 | — | Shield | — | — | — | — | — |
| 127 | — | Shield | — | — | — | — | — |
| 129 (R/L) | 20 (B) | Request signal (SAT→CONT) | Input | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.1 V or less - 7.181 V or more is Input. |   SKIA9299J |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 130 (B) | 20 (B) | Communication signal (SAT→CONT) | Input | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.1 V or less - 7.181 V or more is Input. |  SKIA9301J |
| 132 (G) | — | USB ground | — | — | — | — | — |
| 133 (W) | — | USB D– signal | — | — | — | — | — |
| 134 (R) | — | V BUS signal | — | — | — | 4.75 - 5.25 V | — |
| 135 (B) | — | USB D+ signal | — | — | — | — | — |
| 136 | — | Shield | — | — | — | — | — |
| 150 | 20 (B) | Antenna amp. ON signal | Input | Ignition switch ACC | — | 7.0 - 16.0 V | 12.0 V |
| 151 | — | AM-FM main | Input | — | — | — | — |
| 152 | — | FM sub | Input | — | — | — | — |

## DTC Index

INFOID:0000000012407157

### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

| DTC | Display item | Refer to |
|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | AV-194, "Diagnosis Procedure" |
| U1010 | CONTROL UNIT (CAN) [1010] | AV-195, "DTC Logic" |
| U1200 | Cont Unit [U1200] | AV-196, "DTC Logic" |
| U1216 | CAN CONT [U1216] | AV-197, "DTC Logic" |
| U1232 | ST ANGLE SEN CALIB [1232] | AV-198, "Diagnosis Procedure" |
| U1243 | FRONT DISP CONN [U1243] | AV-199, "Diagnosis Procedure" |
| U1255 | SAT CONN [U1255] | AV-201, "Diagnosis Procedure" |
| U1310 | CONTROL UNIT (AV) [U1310] | AV-204, "DTC Logic" |
| U1300<br>U1240 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | AV-203, "Description" |
| U1300<br>U1246 | • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | |
| U1300<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• HAND FREE CONN [U1256] | |
| U1300<br>U1240<br>U1246<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• HAND FREE CONN [U1256] | |

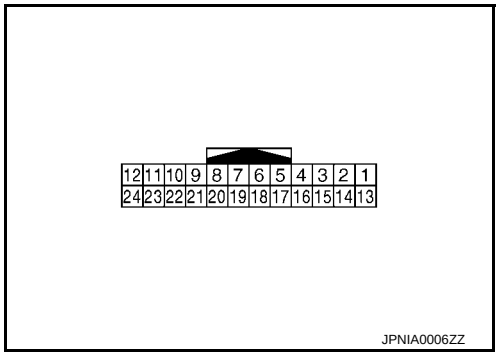
cardiagn.com

# FRONT DISPLAY UNIT

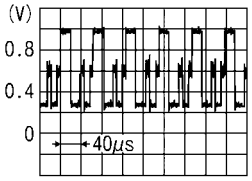
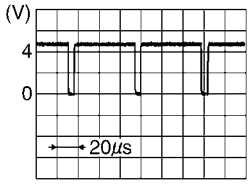
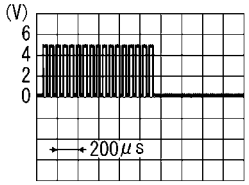
## Reference Value

INFOID:0000000012407158

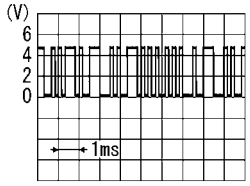
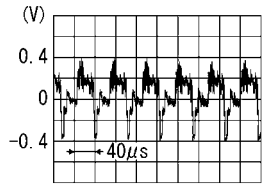
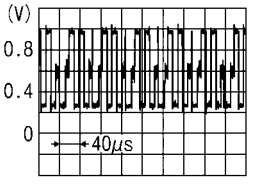
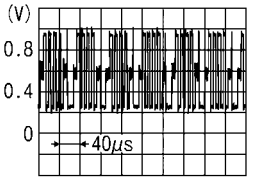
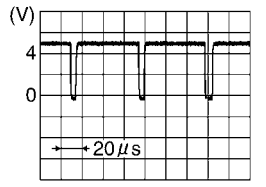
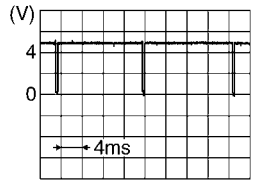
### TERMINAL LAYOUT



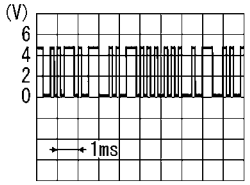

### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (BR) | 13 (P) | Inverter VCC | Input | Ignition switch ACC | — | 8.0 – 9.5 V | 8.8 V |
| 3 (O) | 14 (SB) | Signal VCC | Output | Ignition switch ACC | — | 8.0 – 9.5 V | 8.8 V |
| 5 | — | Shield | — | — | — | — | — |
| 6 (W) | 1 (B) | RGB image signal (G: green) | Input | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |   JSNIA1030ZZ |
| 7 | — | Shield | — | — | — | — | — |
| 8 (G) | 1 (B) | Horizontal synchronizing (HP) signal | Output | Ignition switch ON | — | Waveform of 1.0 V – 5.5 V is output. |   SKIB3601E |
| 9 (B) | 1 (B) | RGB area (YS) signal | Input | Ignition switch ON | At RGB image is displayed. | 5.5 V or less | 5.0 V |
| | | | | | At AUX image is displayed. | Waveform of 0.8 V – 5.5 V is input. |   PKIB4948J |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 11 (B) | 1 (B) | Communication signal (CONT→DISP) | Input | Ignition switch ON | When adjusting display brightness. | Waveform of 0.4 V – 5.3 V is input. |  PKIB5039J |
| 15 (B) | 4 (W) | Composite image signal | Input | Ignition switch ON | When DVD or AUX image is displayed. | Outputs waveform synchronized with composite image. |  SKIB2251J |
| 17 (R) | 1 (B) | RGB image signal (R: red) | Input | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1029ZZ |
| 18 (B) | 1 (B) | RGB image signal (B: blue) | Input | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1031ZZ |
| 19 (W) | 1 (B) | RGB synchronizing signal | Input | Ignition switch ON | — | Waveform of 0.8 V – 5.5 V is input. |  SKIB3603E |
| 20 (R) | 1 (B) | Vertical synchronizing (VP) signal | Output | Ignition switch ON | — | Waveform of 1.0 V – 5.5 V is output. |  SKIB3598E |
| 21 | — | Shield | — | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 22 (W) | 1 (B) | Communication signal (DISP→CONT) | Output | Ignition switch ON | When adjusting display brightness. | Waveform of 0.5 V or less – 3.5 V or more is output. |   PKIB5039J |
| 23 | — | Shield | — | — | — | — | — |

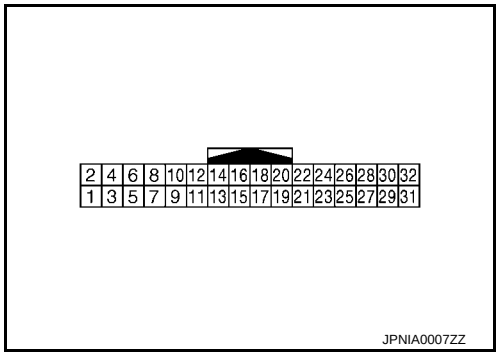
cardiagn.com

# REAR DISPLAY UNIT

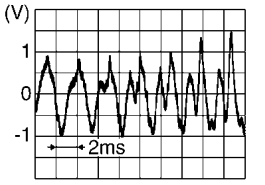
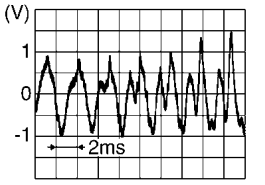
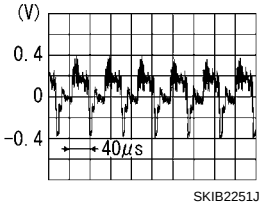
## Reference Value

INFOID:0000000012407159

### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (L/O) | 1 (W/L) | Headphone sound signal RH | Input | Ignition switch ON | Headphone sound output. | Waveform according to headphone sound is input. |   |
| 4 (B) | 3 (W) | Headphone sound signal LH | Input | Ignition switch ON | Headphone sound output. | Waveform according to headphone sound is input. |   |
| 5 | — | Shield | — | — | — | — | — |
| 6 | — | Shield | — | — | — | — | — |
| 7 (B) | 8 (W) | Composite image signal | Input | Ignition switch ON | When DVD, USB or AUX image is displayed. | Waveform according to composite image is input. |   |
| 18 | — | Shield | — | — | — | — | — |
| 19 (W) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 20 (Y) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 21 (B) | — | AV communication signal (H) | Input/ Output | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 22 (BR) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 26 (LG) | 31 (B) 32 (B) | Ignition signal | Input | Ignition switch ON | — | 3.0 V – battery voltage | Battery voltage |
| 27 (SB) | 31 (B) 32 (B) | Illumination signal | Input | Ignition switch ON | Lighting switch is 1st or 2nd. | — | 12.0 V |
| | | | | | Lighting switch is OFF. | — | 0 V |
| 28 (V) | 31 (B) 32 (B) | ACC power supply | Input | Ignition switch ACC | — | 7.6 V – battery voltage | Battery voltage |
| 29 (GR) | 31 (B) 32 (B) | Battery power supply | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |
| 30 (GR) | 31 (B) 32 (B) | Battery power supply | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |

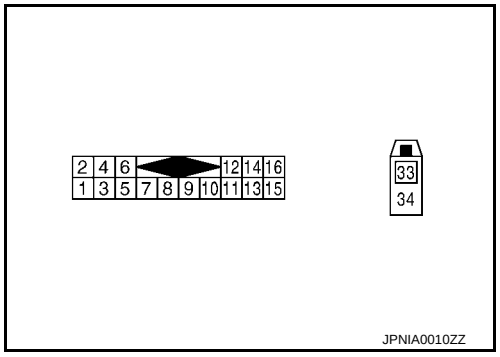
cardiagn.com

# SATELLITE RADIO TUNER

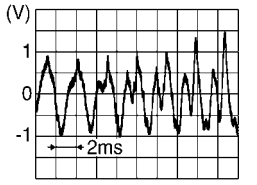
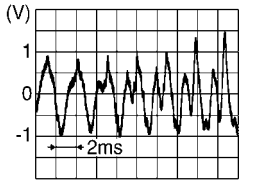
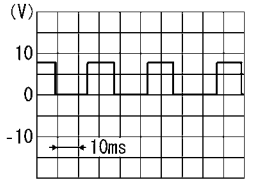
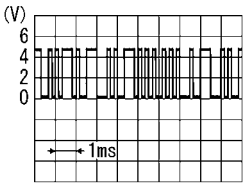
## Reference Value

INFOID:0000000012407160

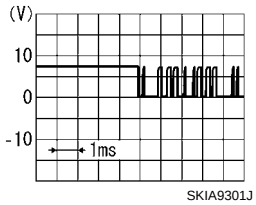
### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (W) | 1 (B) | Satellite radio sound signal LH | Output | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 4 (G) | 3 (R) | Satellite radio sound signal RH | Output | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 5 | — | Shield | — | — | — | — | — |
| 6 | — | Shield | — | — | — | — | — |
| 8 (B) | 15 (B) | Request signal (SAT TO CONT) | Output | Ignition switch ON | When satellite radio mode is selected. | Waveform of 0.5 - 7.0 V is Output. |   SKIA9299J |
| 9 (W) | 15 (B) | Communication signal (SAT TO CONT) | Output | Ignition switch ON | When satellite radio mode is selected. | Waveform of 0.5 - 7.0 V is Output. |   PKIB5039J |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 10 (R) | 15 (B) | Communication signal (CONT TO SAT) | Input | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.5 - 6.0 V is input. |  SKIA9301J |
| 12 (G) | 15 (B) | Battery power supply | Input | Ignition switch OFF | — | 10.8 - 15.6 V | Battery voltage |
| 16 (P) | 15 (B) | ACC power supply | Input | Ignition switch ACC | — | 7.0 - 16.0 V | Battery voltage |
| 33 | — | Satellite radio antenna signal | Input | — | — | — | — |

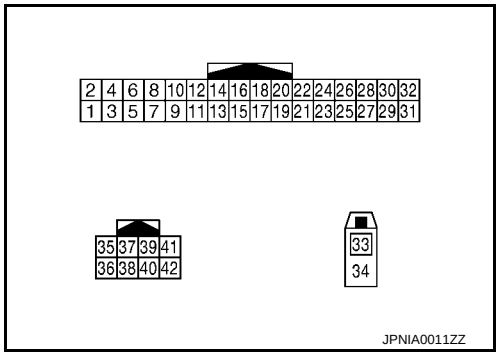
cardiagn.com

# TEL ADAPTER UNIT

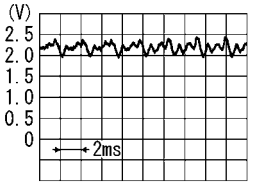
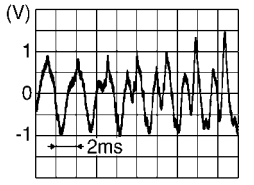
## Reference Value

INFOID:0000000012407161

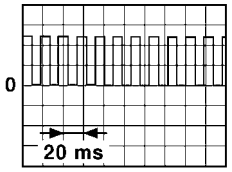
### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 1 (Y) | 4 (GR) | Battery power supply | Input | Ignition switch OFF | — | 9.0 - 16.0 V | Battery voltage |
| 2 (GR) | 4 (GR) | ACC power supply | Input | Ignition switch ACC | — | 7.0 - 16.0 V | Battery voltage |
| 3 (G) | 4 (GR) | Ignition signal | Input | Ignition switch ON | — | 7.0 - 16.0 V | Battery voltage |
| 7 (B) | 8 | Microphone signal | Input | Ignition switch ON | Give a voice. | Waveform according to voice is input. |   PKIB5037J |
| 9 (B) | 10 (W) | Sound signal (TEL voice, voice guidance) | Output | Ignition switch ON | During voice guide output with the switch pressed. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 20 (GR) | 4 (GR) | Control signal | — | Ignition switch ON | — | 3.1 V or less | 0 V |
| 27 (GR) | 4 (GR) | Control signal | — | Ignition switch ON | — | 3.1 V or less | 0 V |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 28 (BE) | 4 (GR) | Vehicle speed signal (8-pulse) | Input | Ignition switch ON | When vehicle speed is approx. 40 km/h (25 MPH) | Waveform according to vehicle speed is input. | **NOTE:** The maximum voltage varies depending on the specification (destination unit).   JSNIA0012GB |
| 29 (W) | 8 | Microphone VCC | Output | Ignition switch ON | — | 4.7 - 5.3 V | 5.0 V |
| 35 (SB) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 36 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 33 | 4 (GR) | TEL antenna signal | Input/ Output | Ignition switch ON | Not connected to TEL antenna connector. | — | 5.0 V |
| 34 | — | Shield | — | — | — | — | — |

cardiagn.com

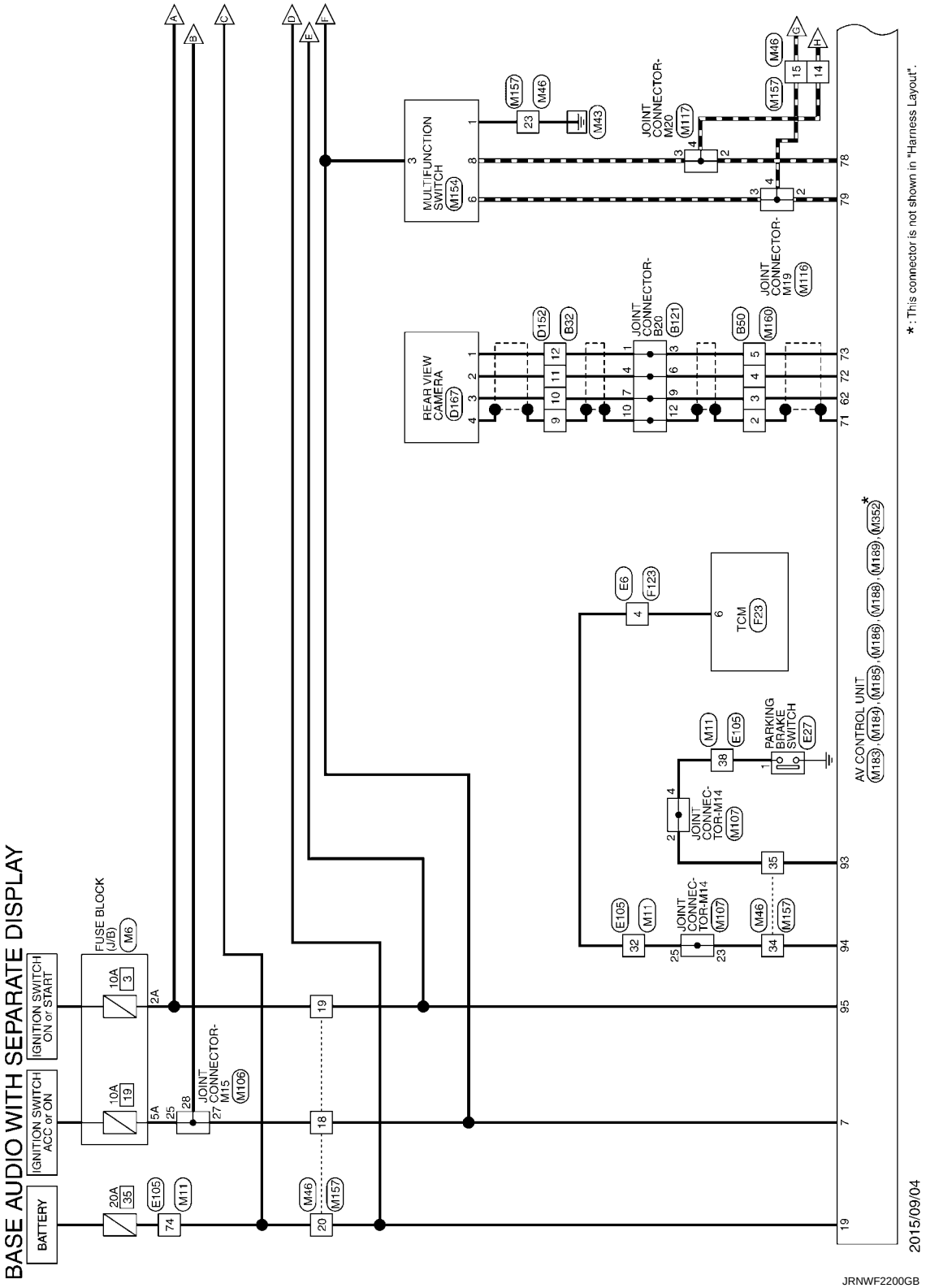
# WIRING DIAGRAM

## BASE AUDIO WITH SEPARATE DISPLAY

### Wiring Diagram

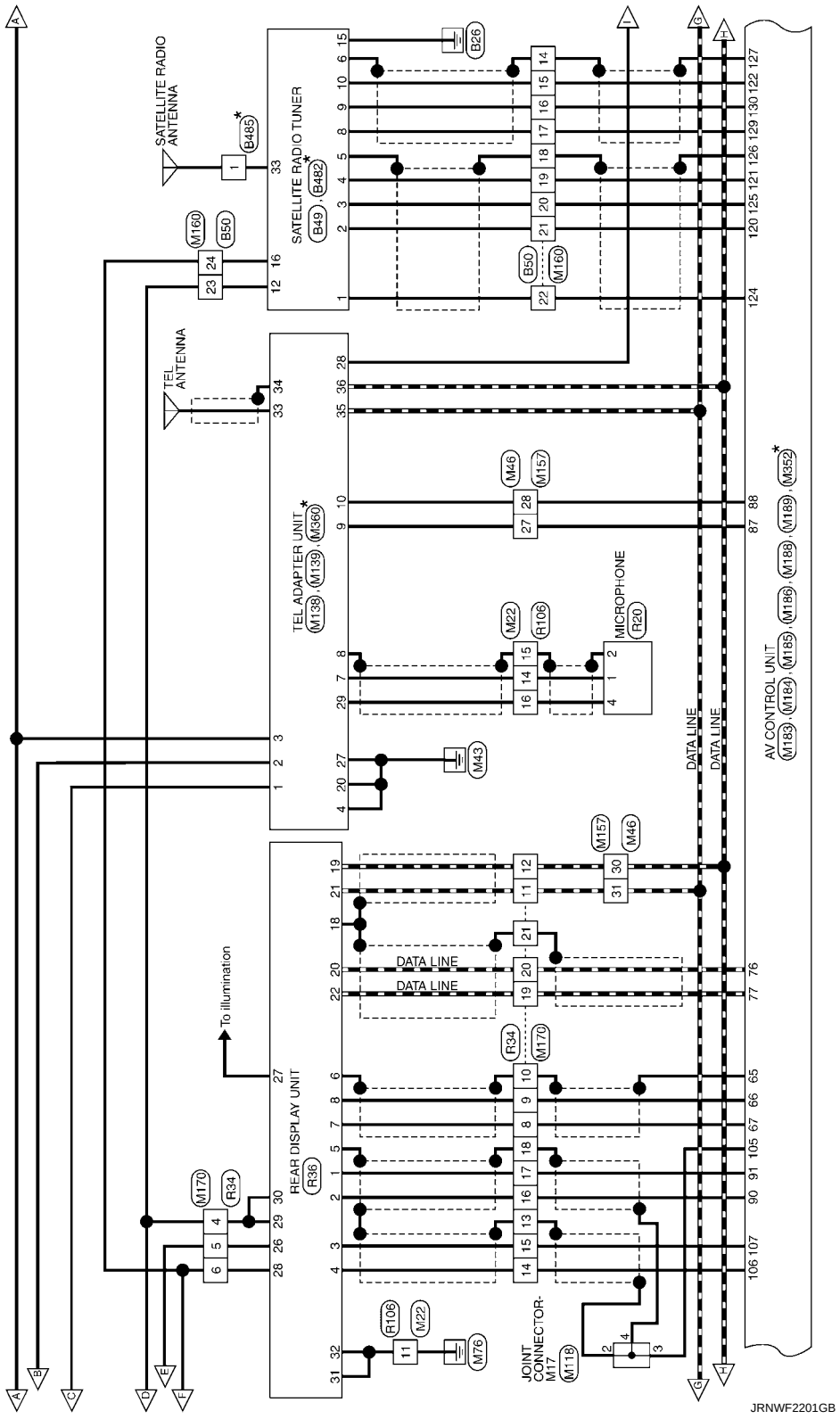
INFOID:0000000012407162

**NOTE:**
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

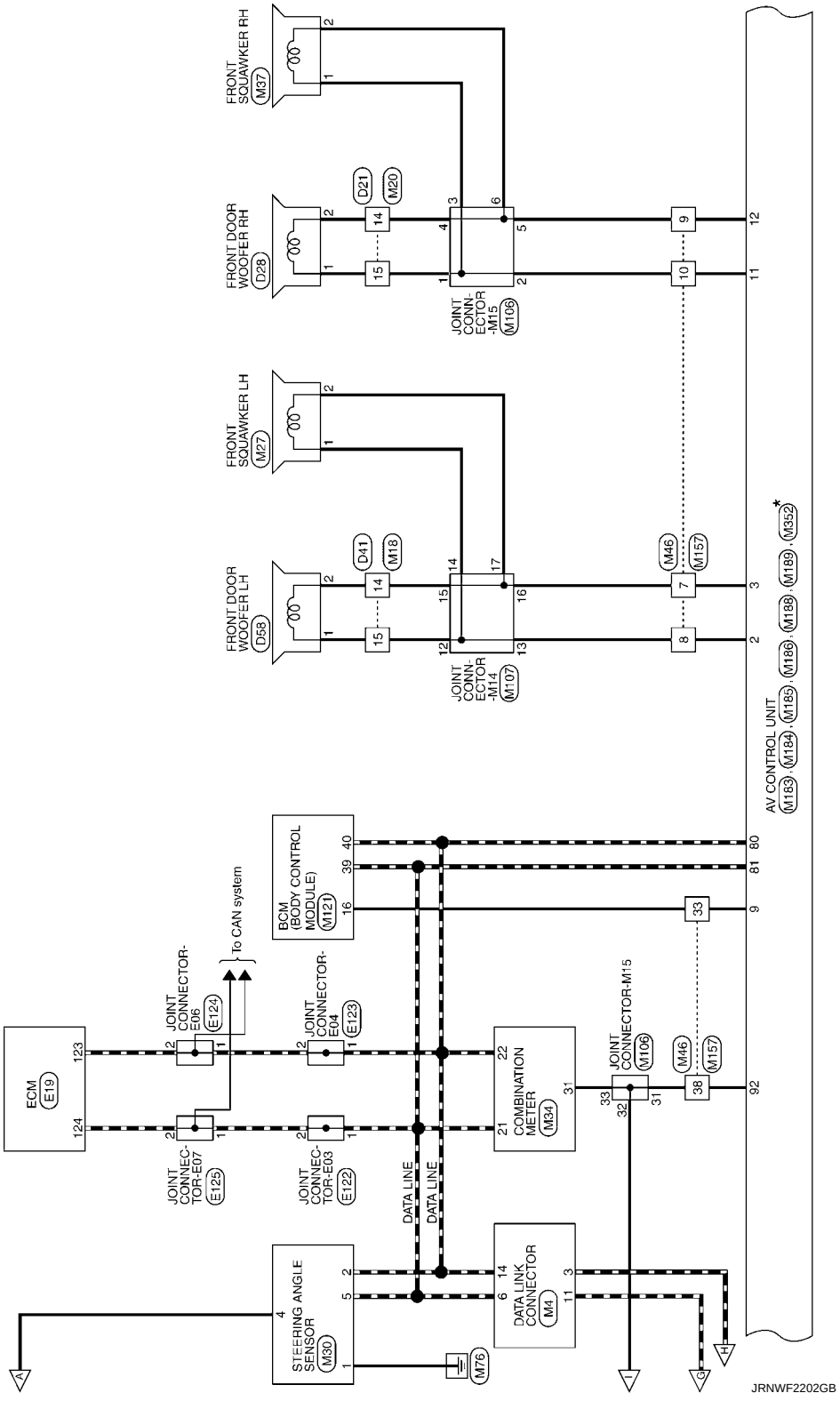




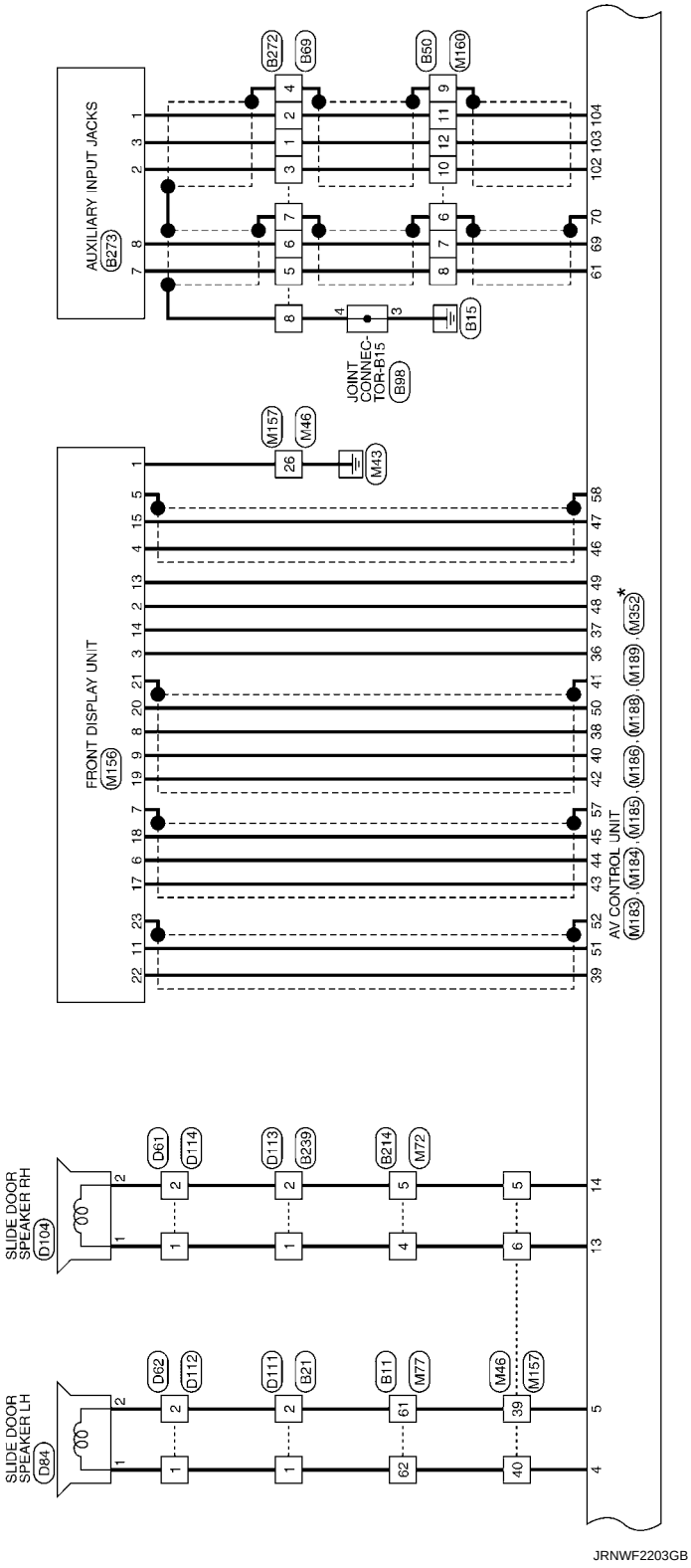

cardiagn.com




cardiagn.com

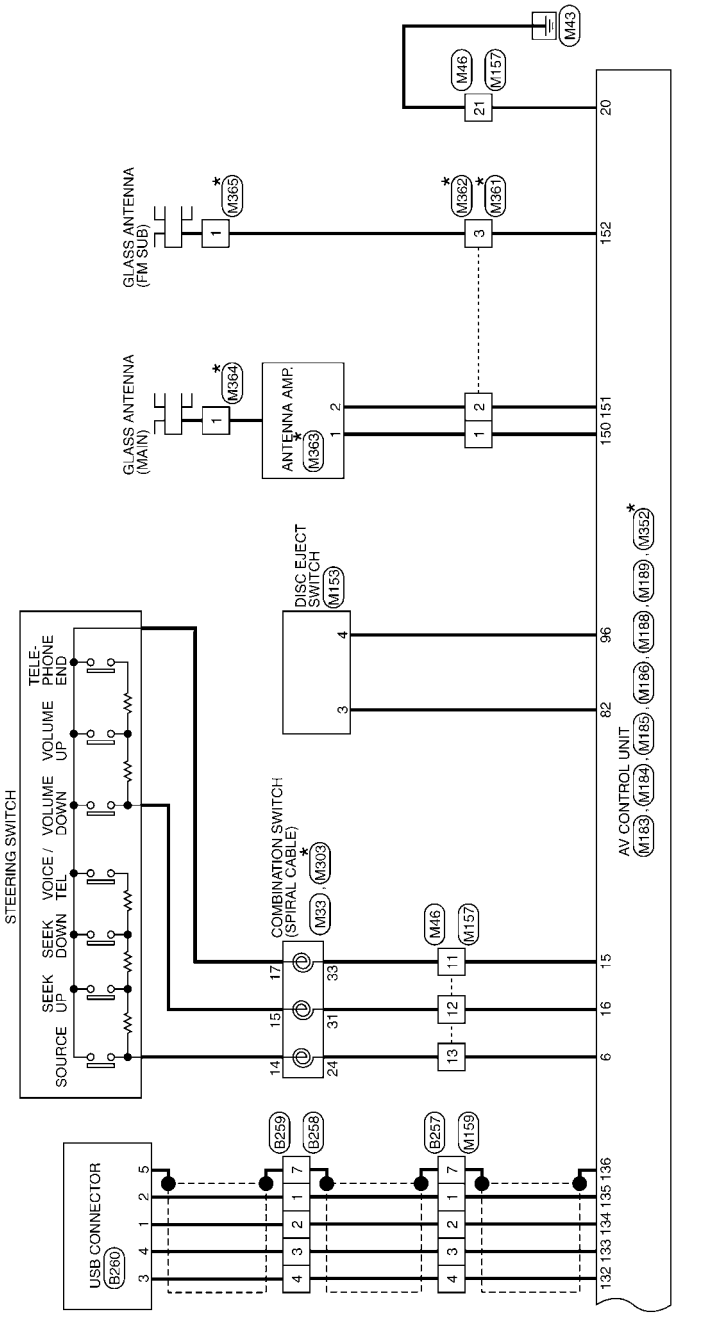



cardiagn.com

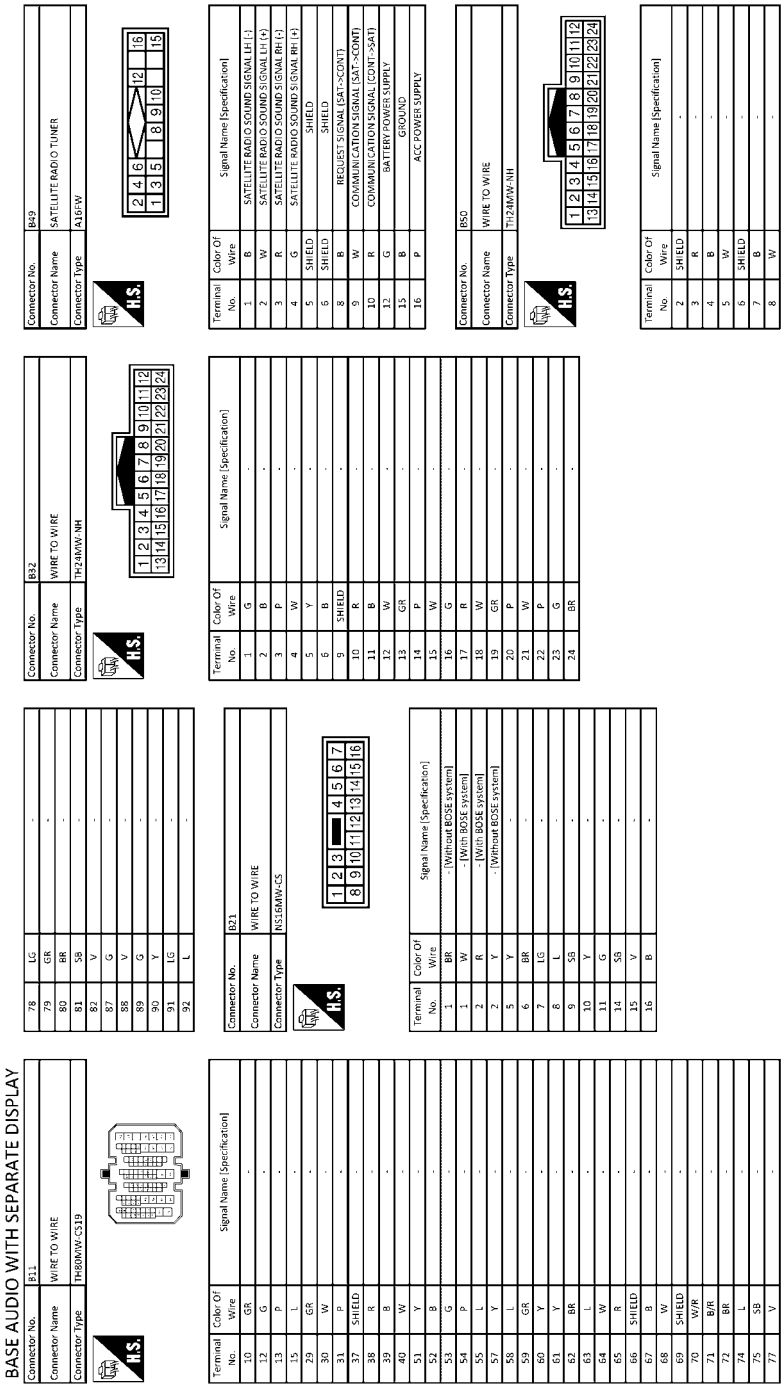



JRNWF2203GB

cardiagn.com

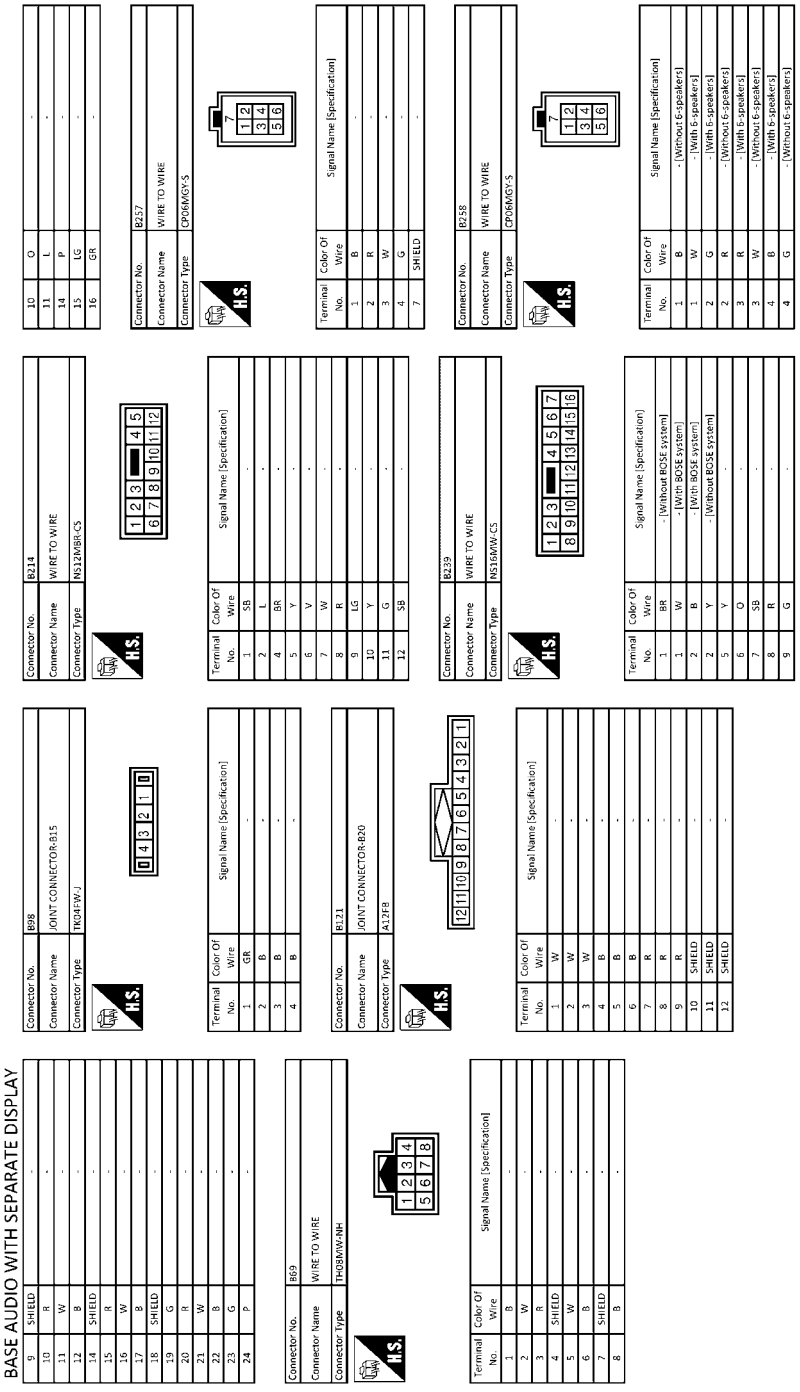



cardiagn.com



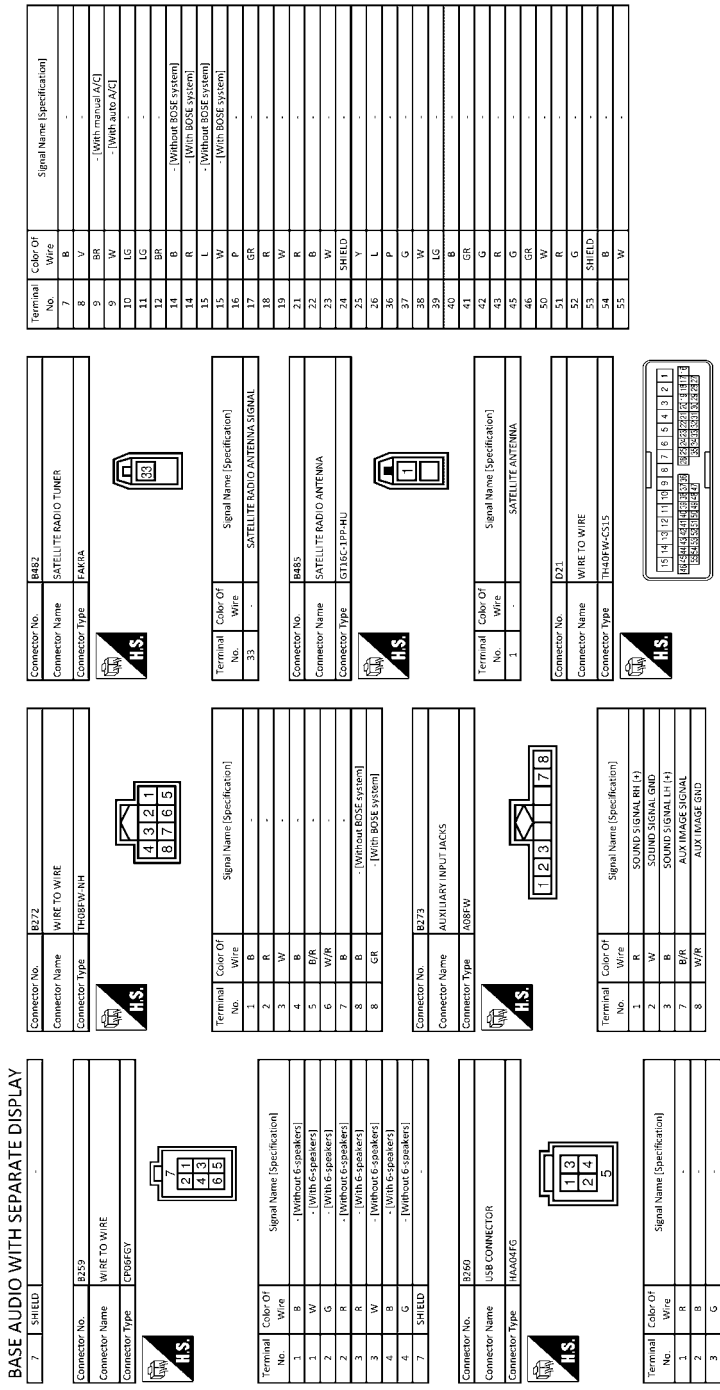

JRNWF2205GB

cardiagn.com



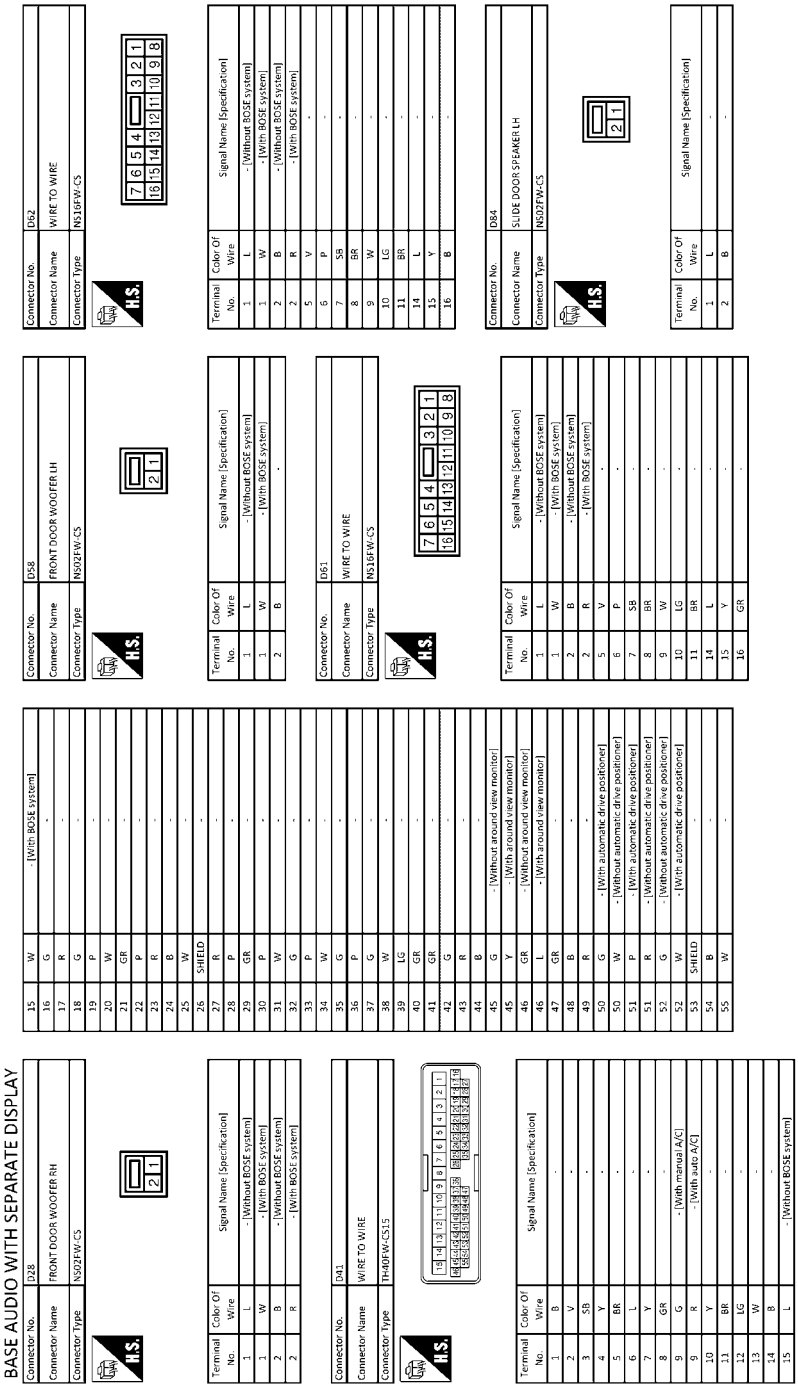

JRNWF2206GB

cardiagn.com



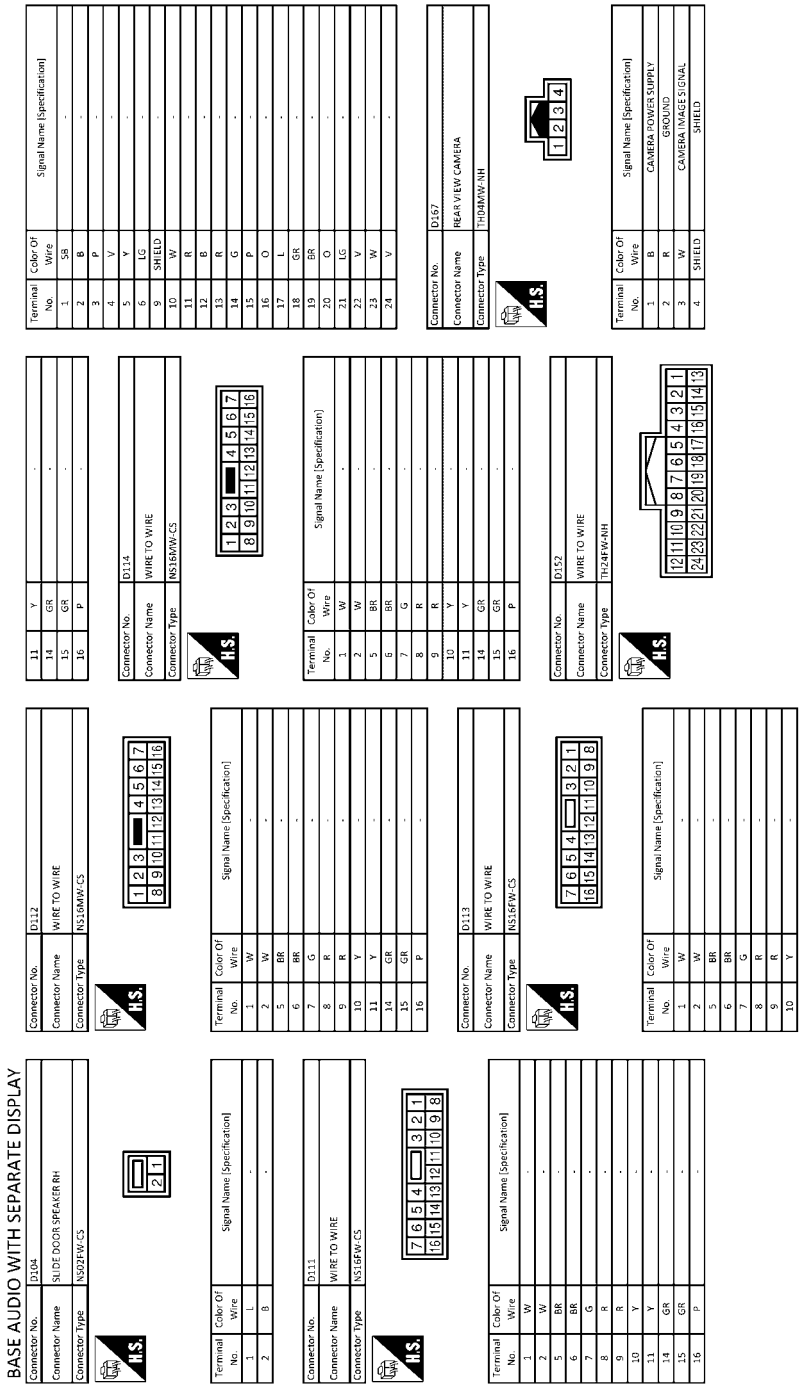

JRNWF2207GB

cardiagn.com



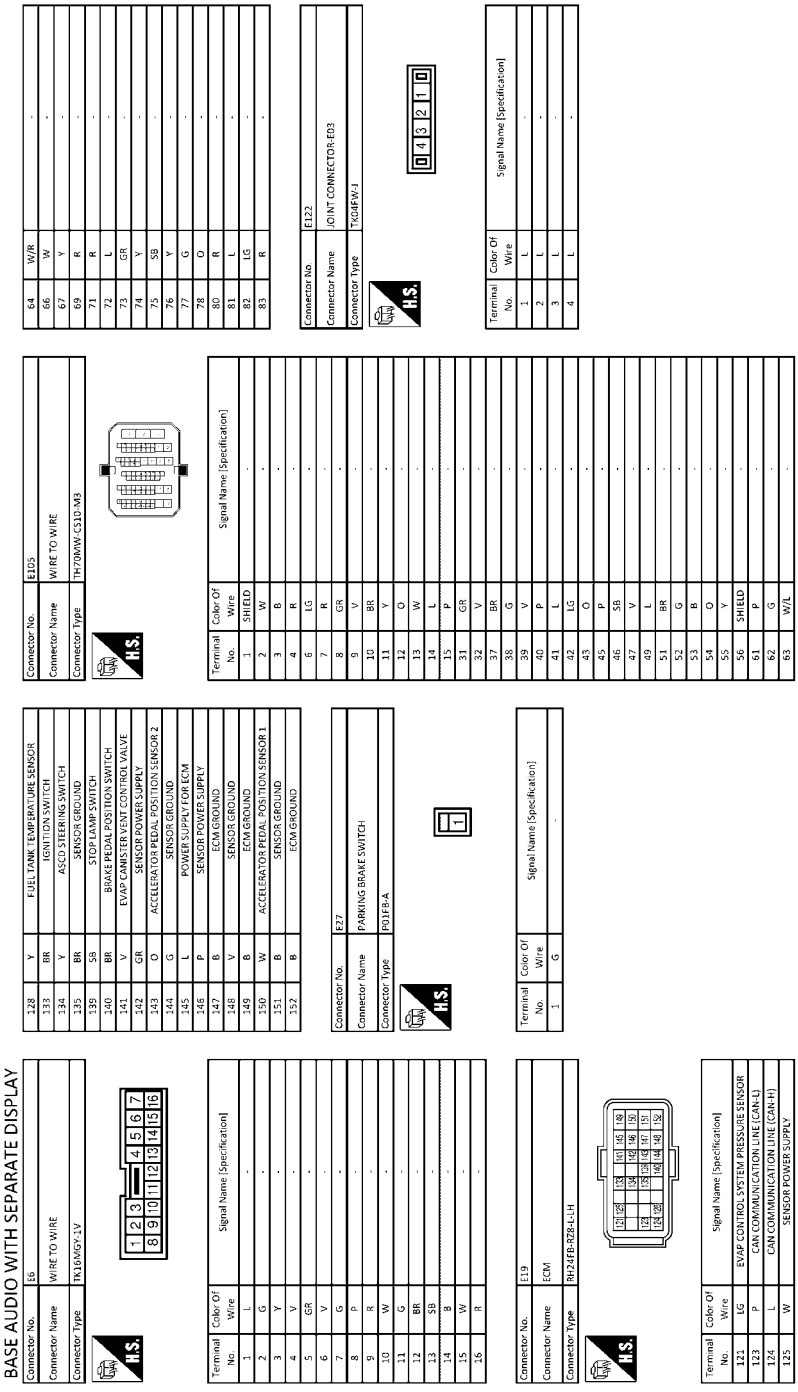

JRNWF2208GB

cardiagn.com



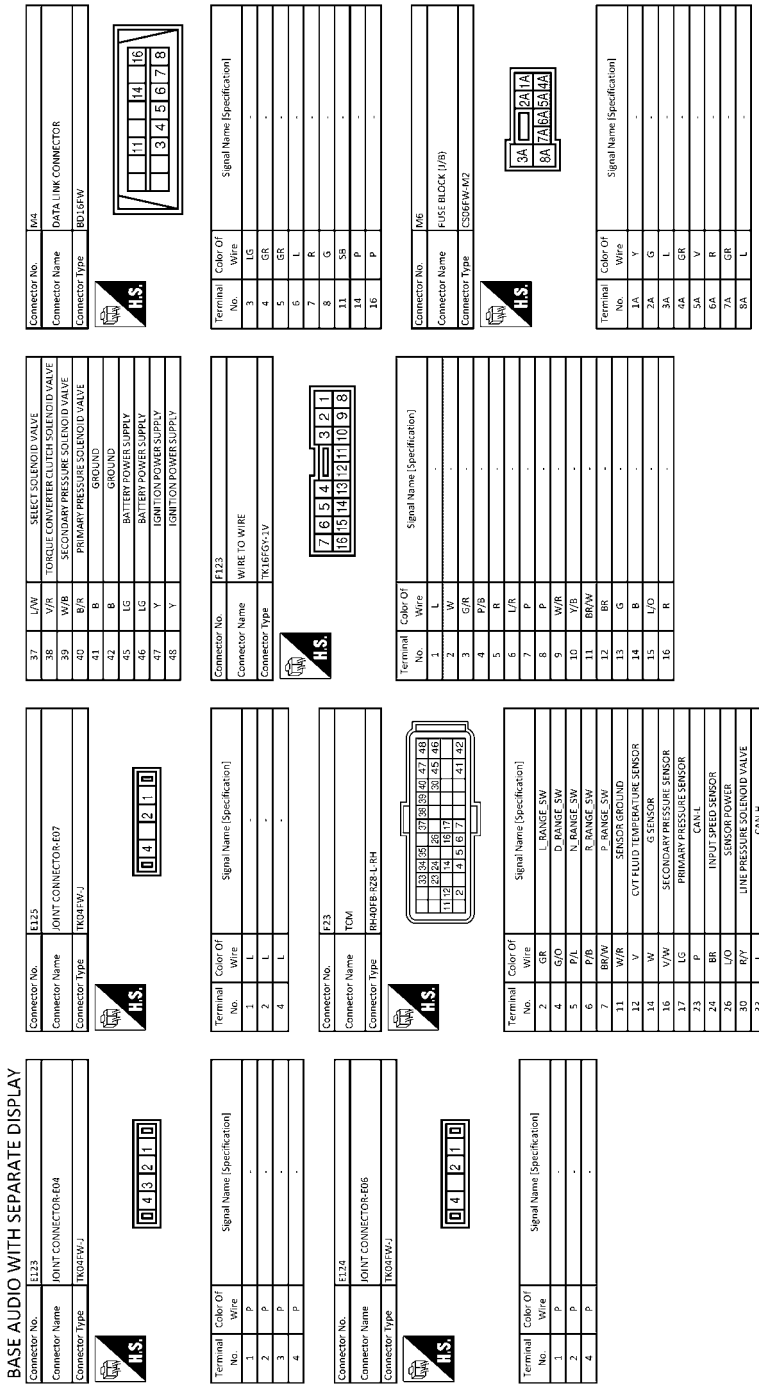

JRNWF2209GB

cardiagn.com




JRNWF2210GB

cardiagn.com




JRNWF2211GB

cardiagn.com

BASE AUDIO WITH SEPARATE DISPLAY

| Connector No. | M11 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH70FW-CS10-M3 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SHIELD | - |
| 2 | W | - |
| 3 | B | - |
| 4 | R | - |
| 6 | G | - |
| 7 | R | - |
| 8 | G | - |
| 9 | B | - |
| 10 | R | - |
| 11 | W | - |
| 12 | L | - [Without automatic drive positioner] |
| 12 | LG | - [With automatic drive positioner] |
| 13 | G | - [Without automatic drive positioner] |
| 13 | Y | - [With automatic drive positioner] |
| 14 | L | - |
| 15 | P | - |
| 31 | R | - |
| 32 | LG | - |
| 37 | BR | - [With automatic drive positioner] |
| 37 | W | - [Without automatic drive positioner] |
| 38 | R | - |
| 39 | BE | - [Without automatic drive positioner] |
| 39 | Y | - [With automatic drive positioner] |
| 40 | P | - |
| 41 | L | - |
| 42 | G | - |
| 43 | W | - |
| 45 | P | - |
| 46 | V | - |
| 47 | R | - |
| 49 | G | - |
| 51 | G | - |
| 52 | W | - |
| 53 | B | - |
| 54 | LG | - |
| 55 | L | - |
| 56 | SHIELD | - |
| 61 | R | - |
| 62 | W | - |
| 63 | B | - |
| 64 | W | - |
| 66 | W | - |
| 67 | BR | - |
| 69 | P | - |
| 71 | R | - |
| 72 | L | - |
| 73 | LG | - |
| 74 | Y | - |
| 75 | V | - |
| 76 | V | - |
| 77 | P | - |
| 78 | BR | - |
| 80 | Y | - |
| 81 | W | - |
| 82 | L | - |
| 83 | R | - |

| Connector No. | M18 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH40MW-CS15 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | R | - |
| 3 | W | - |
| 4 | Y | - |
| 5 | SB | - |
| 6 | LG | - |
| 7 | V | - |
| 8 | L | - |
| 9 | GR | - |
| 10 | Y | - |
| 11 | V | - |
| 12 | G | - |
| 13 | G | - |
| 14 | B | - [Without BOSE system] |
| 14 | R | - [With BOSE system] |
| 15 | W | - |
| 15 | Y | - [Without BOSE system] |
| 16 | W | - |
| 17 | BE | - |
| 18 | P | - |
| 19 | W | - |
| 20 | LG | - |
| 21 | P | - |
| 22 | G | - |
| 23 | R | - |
| 24 | B | - |
| 25 | W | - |
| 26 | SHIELD | - |
| 27 | Y | - |
| 28 | G | - |
| 29 | W | - |
| 30 | R | - |
| 31 | W | - |
| 32 | G | - |
| 33 | BE | - |
| 34 | P | - |
| 35 | W | - |
| 36 | LG | - |
| 37 | W | - |
| 38 | P | - |
| 39 | V | - |
| 40 | R | - |
| 41 | B | - |
| 42 | W | - |
| 43 | G | - |
| 44 | B | - |
| 45 | B | - [With around view monitor] |
| 45 | GR | - [Without around view monitor] |
| 46 | R | - [Without around view monitor] |
| 46 | W | - [With around view monitor] |
| 47 | GR | - |
| 48 | GR | - |
| 49 | P | - [Without automatic drive positioner] |
| 49 | R | - [With automatic drive positioner] |
| 50 | GR | - [With automatic drive positioner] |
| 50 | W | - [Without automatic drive positioner] |
| 51 | B | - [Without automatic drive positioner] |
| 51 | G | - [With automatic drive positioner] |
| 52 | GR | - [Without automatic drive positioner] |
| 52 | P | - [With automatic drive positioner] |
| 53 | SHIELD | - |
| 54 | W | - |
| 55 | B | - |

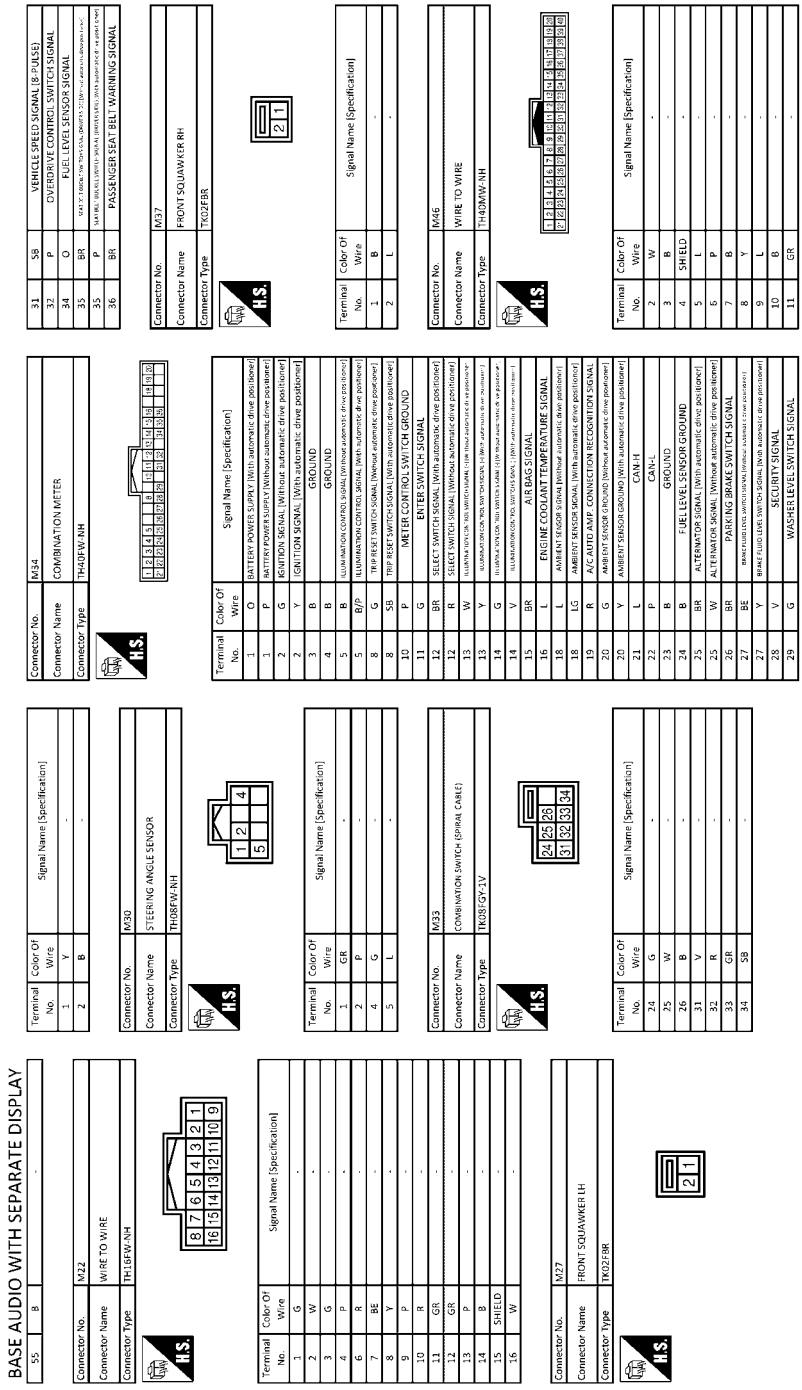
| Connector No. | M20 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH40MW-CS15 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 7 | B | - |
| 8 | L | - [With manual A/C] |
| 8 | Y | - [With auto A/C] |
| 9 | GR | - [With auto A/C] |
| 9 | LG | - [With manual A/C] |
| 10 | V | - |
| 11 | SB | - |
| 12 | V | - |
| 14 | L | - |
| 15 | B | - [Without BOSE system] |
| 15 | LG | - [With BOSE system] |
| 16 | G | - |
| 17 | P | - |
| 18 | R | - |
| 19 | LG | - |
| 21 | R | - |
| 22 | B | - |
| 23 | W | - |
| 24 | SHIELD | - |
| 25 | B | - |
| 26 | W | - |
| 36 | LG | - |
| 37 | W | - |
| 38 | P | - |
| 39 | Y | - |
| 40 | B | - |
| 41 | GR | - |
| 42 | BE | - |
| 43 | R | - |
| 45 | R | - |
| 46 | GR | - |
| 50 | W | - |
| 51 | B | - |
| 52 | GR | - |
| 53 | SHIELD | - |
| 54 | W | - |

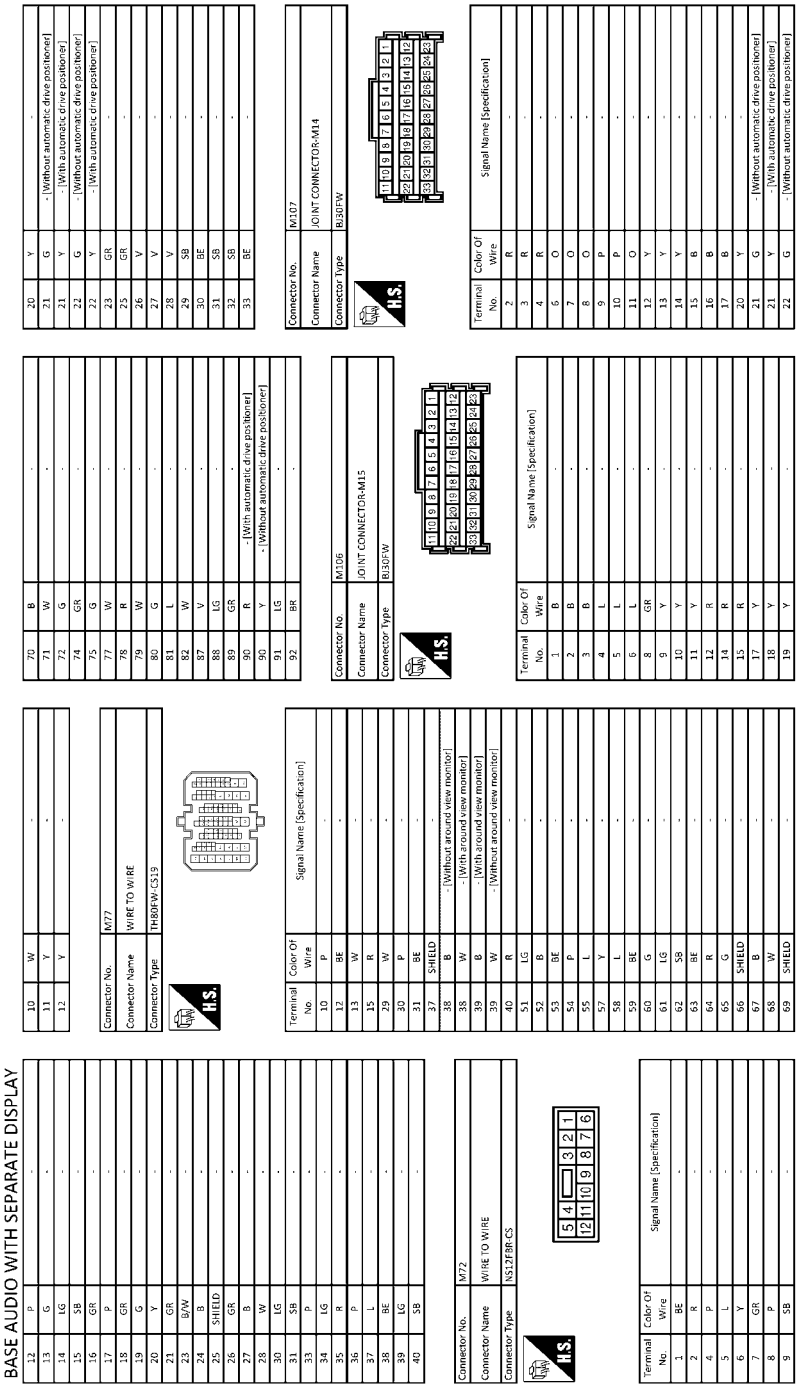
JRNWF2212GB

cardiagn.com



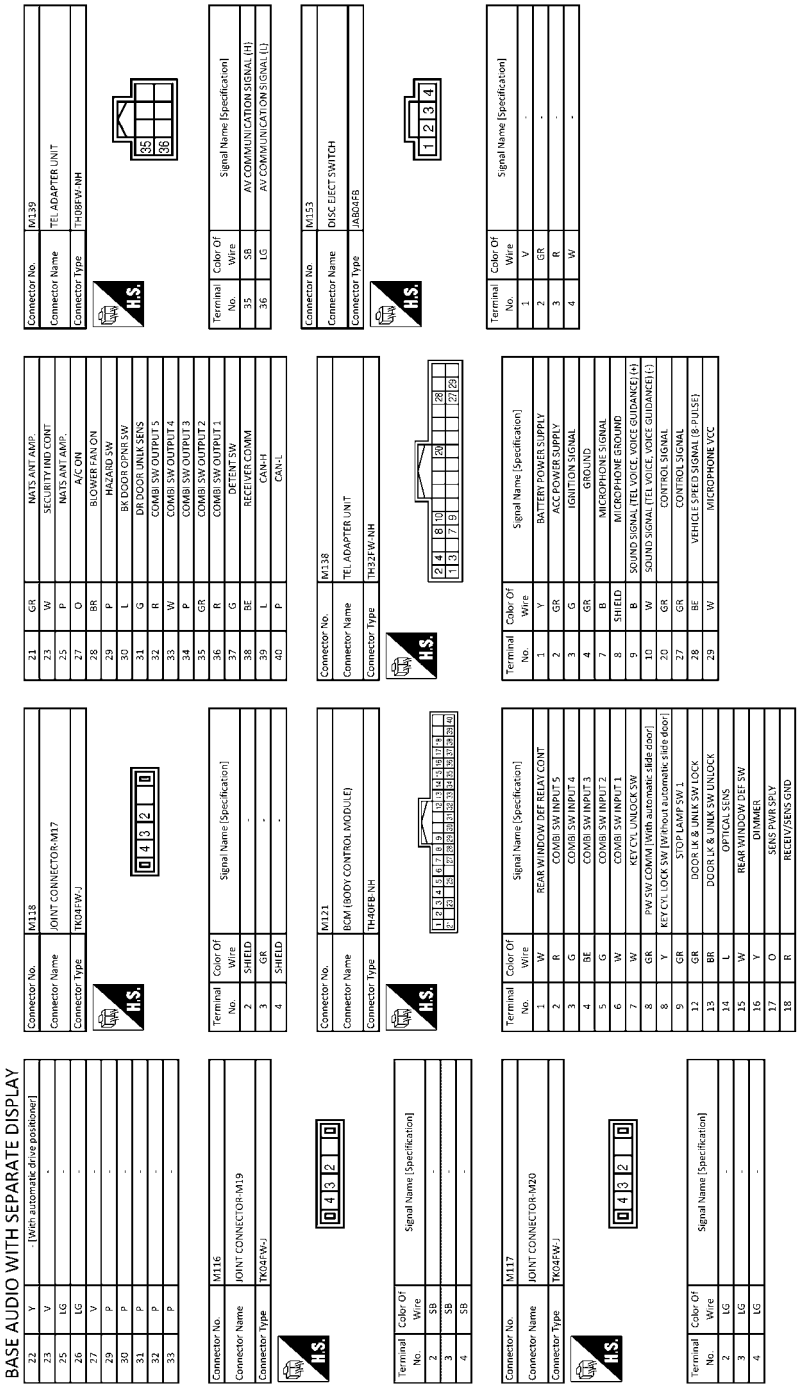

JRNWF2213GB

cardiagn.com



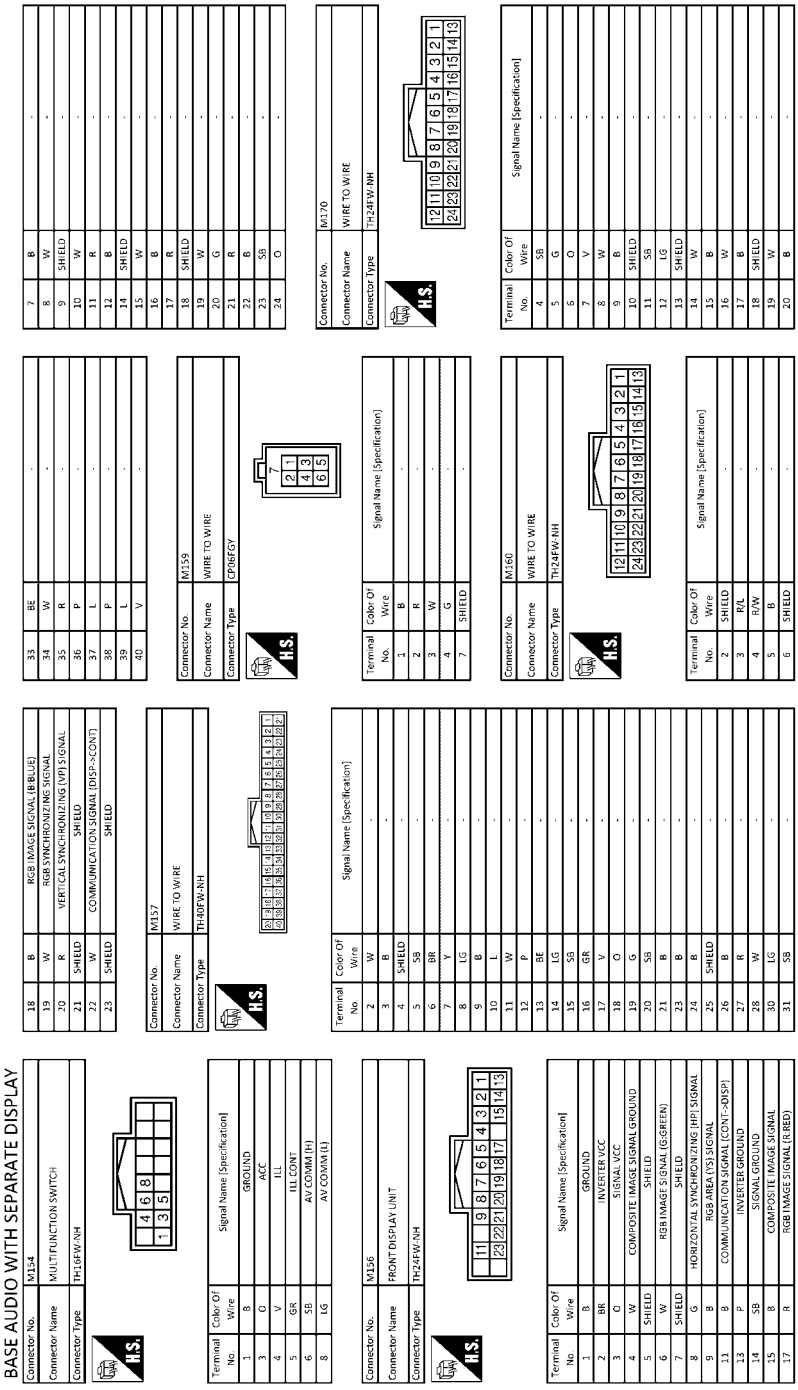

JRNWF2214GB

cardiagn.com



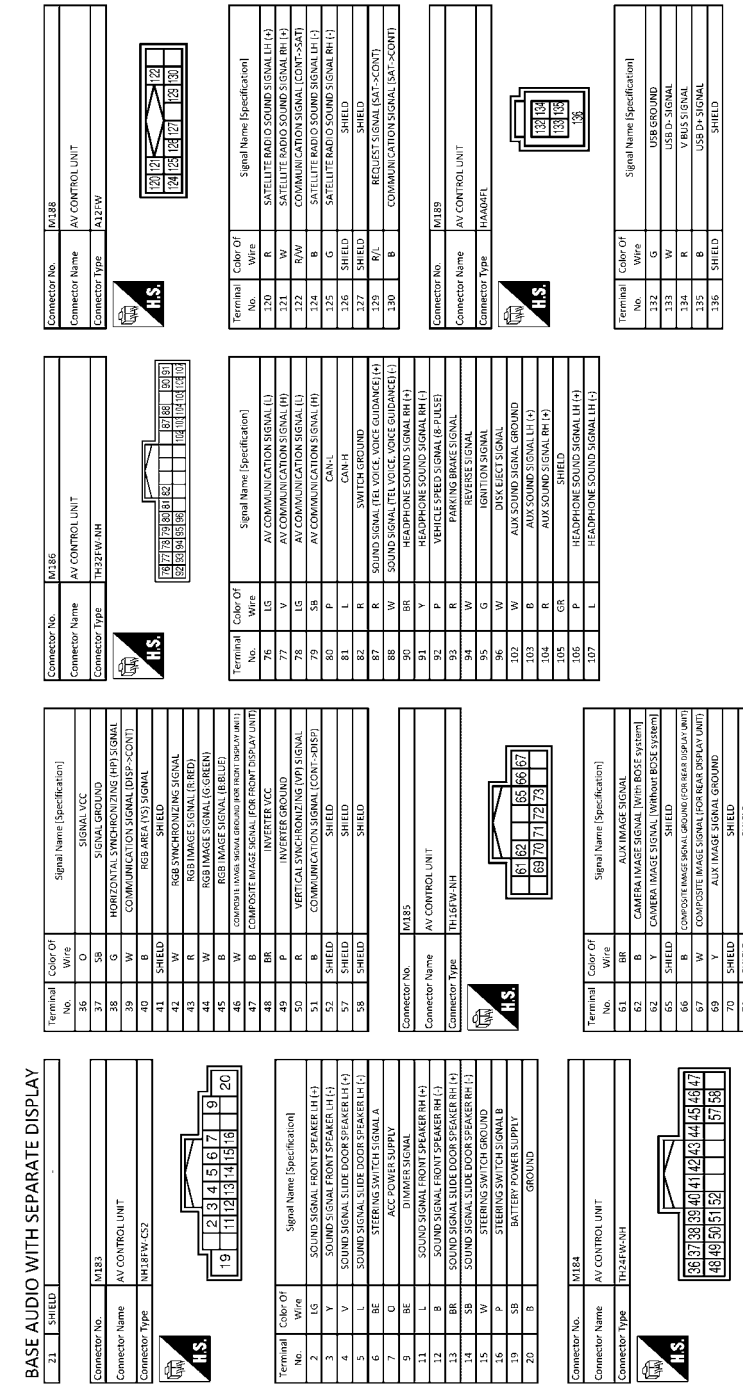

JRNWF2215GB

cardiagn.com



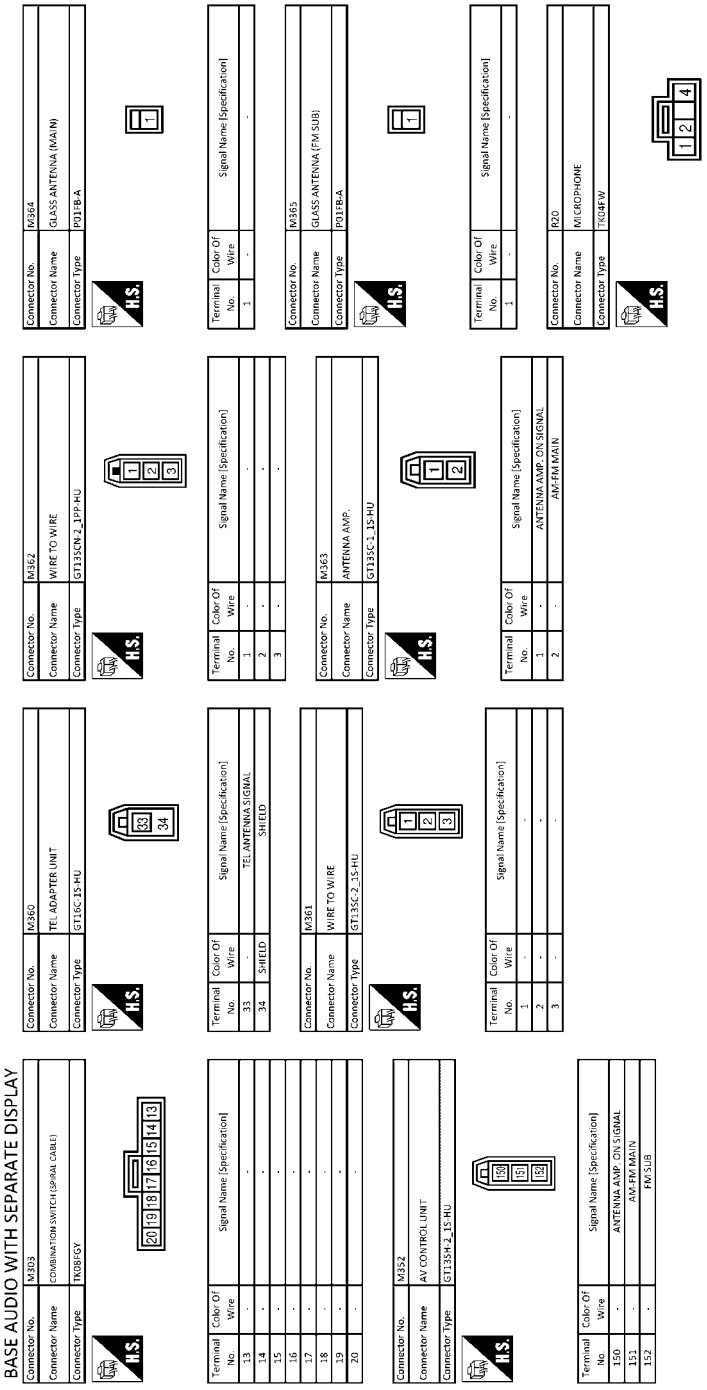

JRNWF2216GB

cardiagn.com



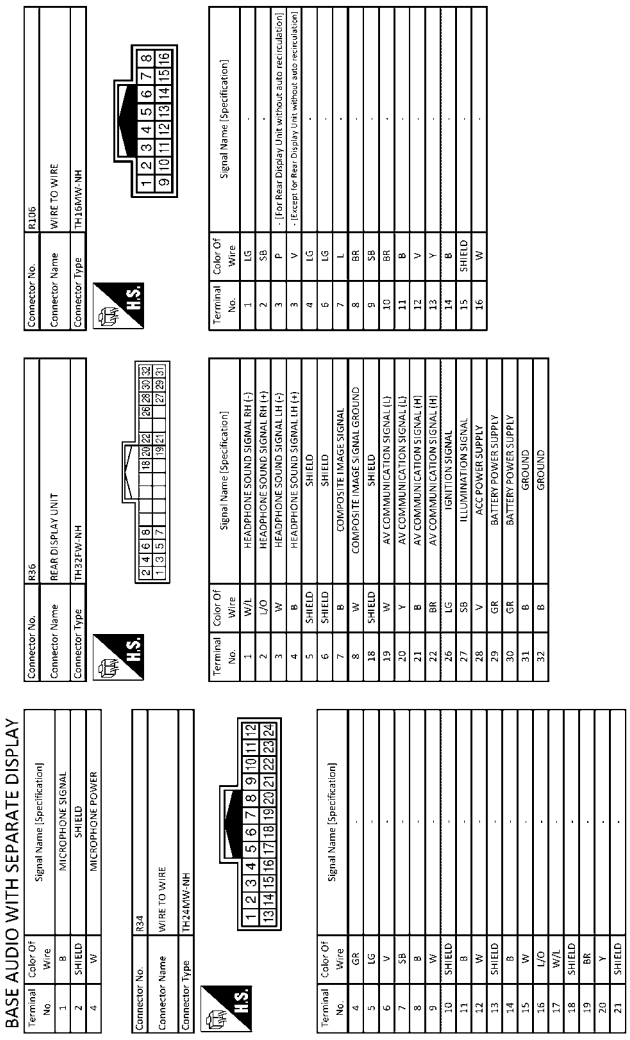

JRNWF2217GB

cardiagn.com




JRNWF2218GB

cardiagn.com




JRNWF2219GB

cardiagn.com

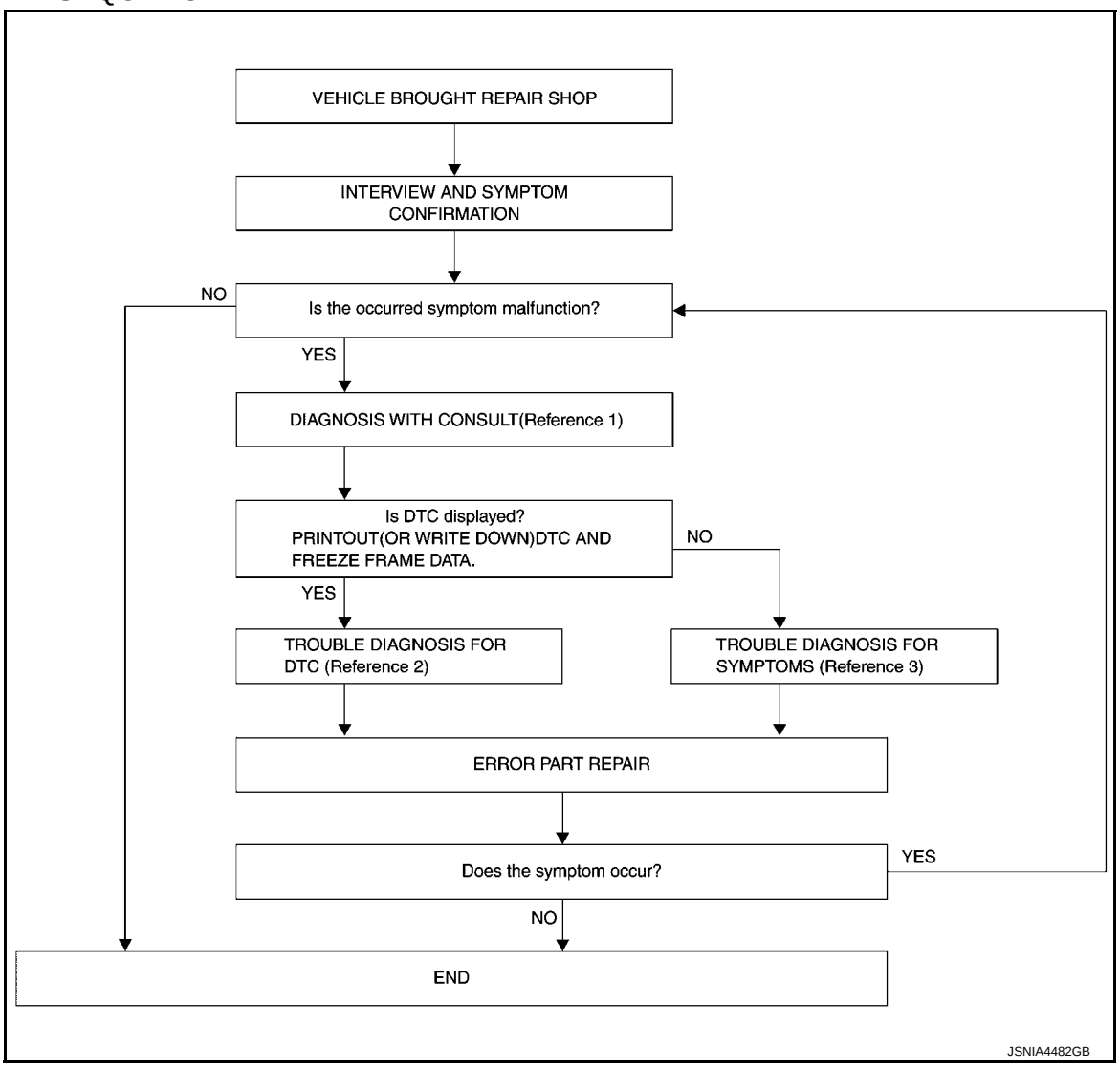
# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:0000000012407163

#### OVERALL SEQUENCE




- Reference 1··· Refer to AV-147, "CONSULT Function".
- Reference 2··· Refer to AV-159, "DTC Index".
- Reference 3··· Refer to AV-232, "Symptom Table".

#### DETAILED FLOW

**1.** INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.
NO >> INSPECTION END

**2.** DIAGNOSIS WITH CONSULT



cardiagn.com

1. Connect CONSULT and perform a self-diagnosis for “MULTI AV”. Refer to AV-147, "CONSULT Function".
   **NOTE:**
   Skip to step 4 of the diagnosis procedure if “MULTI AV” is not displayed.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Is DTC displayed?

YES >> GO TO 3.
NO >> GO TO 4.

## 3. TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-159, "DTC Index".

>> GO TO 5.

## 4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-232, "Symptom Table".

>> GO TO 5.

## 5. ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for “MULTI AV” with CONSULT.
   **NOTE:**
   Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.
3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.
NO >> INSPECTION END

cardiagn.com

# ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

## Description

INFOID:0000000012407164

### BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement. Refer to AV-191, "Work Procedure".

### AFTER REPLACEMENT

**CAUTION:**

**When replacing AV control unit, you must perform “After Replace ECU” or “Manual Configuration” with CONSULT.**

- **Complete the procedure of “After Replace ECU” or “Manual Configuration” in order.**
- **If you set incorrect “After Replace ECU” or “Manual Configuration”, incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**

## Work Procedure

INFOID:0000000012407165

### 1.SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” to save or print current vehicle specification. Refer to AV-192, "Description".

**NOTE:**

If “Before Replace ECU” can not be used, use the “Manual Configuration”.

>> GO TO 2.

### 2.REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-242, "Removal and Installation".

>> GO TO 3.

### 3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “After Replace ECU” or “Manual Configuration” to write vehicle specification. Refer to AV-192, "Work Procedure".

>> GO TO 4.

### 4.OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

cardiagn.com

# CONFIGURATION (AV CONTROL UNIT)

## Description

INFOID:0000000012407166

- Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT. Refer to AV-192, "Work Procedure".
- Configuration has three functions as follows.

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the AV control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the AV control unit by hand. |

## Work Procedure

INFOID:0000000012407167

### 1.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.
To write vehicle specification into the AV control unit by hand>>GO TO 3.

### 2.WRITE STORED DATA

CONSULT Configuration
Select “After Replace ECU” in “Read/Write Configuration.” Write data stored in CONSULT with the “Before Replace ECU” function into the AV control unit.

>> GO TO 4.

### 3.MANUALLY WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Manual Configuration.” Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-192, "Configuration List".
**NOTE:**
If selection items are not displayed on the CONSULT screen, touch “NEXT.”

>> GO TO 4.

### 4.OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

## Configuration List

INFOID:0000000012407168

**CAUTION:**
**Grasp vehicle specifications precisely. The control of ECU may not function normally if the specifications are misread.**
**NOTE:**
- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

cardiagn.com

| MANUAL SETTING ITEM | |
|---|---|
| Items | Setting value |
| STEERING | LHD |
| | RHD |
| SOUND SYSTEM | BASE |
| | BOSE |



cardiagn.com

# DTC/CIRCUIT DIAGNOSIS

## U1000 CAN COMM CIRCUIT

### Description

INFOID:0000000012407169

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

### DTC Logic

INFOID:0000000012407170

#### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction location |
|---|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more. | CAN communication system. |

### Diagnosis Procedure

INFOID:0000000012407171

#### 1. PERFORM SELF-DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result” of “MULTI AV”.

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-41, "Intermittent Incident".

cardiagn.com

# U1010 CONTROL UNIT (CAN)

## DTC Logic

INFOID:0000000012407172

### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction factor |
|---|---|---|---|
| U1010 | CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-242, "Removal and Installation". |



cardiagn.com

# U1200 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407173

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1200 | Cont Unit [U1200] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-242, "Removal and Installation". |

cardiagn.com

# U1216 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407174

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1216 | CAN CONT [U1216] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-242, "Removal and Installation". |



cardiagn.com

# U1232 STEERING ANGLE SENSOR

## DTC Logic

INFOID:0000000012407175

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1232 | ST ANGLE SEN CALIB [1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust neutral position of the steering angle sensor. |

## Diagnosis Procedure

INFOID:0000000012407176

### 1.ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U1232 is detected, adjust the neutral position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-50, "Description".

cardiagn.com

# U1243 FRONT DISPLAY UNIT

## DTC Logic

INFOID:0000000012407177

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1243 | FRONT DISP CONN [U1243] | When either one of the following items are detected:<br>• front display unit power supply and ground circuits are malfunctioning.<br>• serial communication circuits between front display unit and AV control unit are malfunctioning. | • Front display unit power supply and ground circuits.<br>• Serial communication circuits between front display unit and AV control unit. |

## Diagnosis Procedure

INFOID:0000000012407178

### 1.CHECK FRONT DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUITS

Check front display unit power supply and ground circuits. Refer to AV-205, "FRONT DISPLAY UNIT : Diagnosis Procedure".

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2.CHECK CONTINUITY COMMUNICATION CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M156 | 11 | M184 | 51 | Existed |
| | 22 | | 39 | |

4. Check continuity between front display unit harness connector and ground.

| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M156 | 11 | | Not existed |
| | 12 | | |

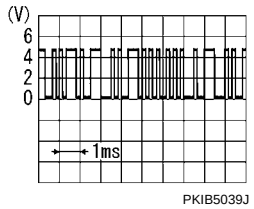
Is inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

### 3.CHECK COMMUNICATION SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

cardiagn.com

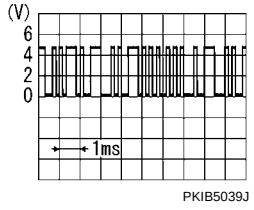
| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 11 | M156 | 1 | When adjusting display brightness. | Waveform of 0.4 V - 5.3 V is input. |  PKIB5039J |

Is inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

## 4. CHECK COMMUNICATION SIGNAL

Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 22 | M156 | 1 | When adjusting display brightness. | Waveform of 0.5 V or less - 3.5 V or more is input. |  PKIB5039J |

Is inspection result normal?

YES >> INSPECTION END
NO >> Replace front display unit. Refer to AV-243, "Removal and Installation".

cardiagn.com

# U1255 SATELLITE RADIO TUNER

## DTC Logic

INFOID:0000000012407179

| DTC | Display contents of CONSULT | DTC Detection Condition | Possible causes |
|---|---|---|---|
| U1255 | SAT CONN [U1255] | When either one of the following items is detected:<br>• satellite radio tuner power supply and ground circuit are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-207, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |

## Diagnosis Procedure

INFOID:0000000012407180

### 1.CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to AV-207, "SATELLITE RADIO TUNER : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2.CHECK CONTINUITY COMMUNICATION CIRCUIT AND REQUEST SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and satellite radio tuner connector.
3. Check continuity between AV control unit harness connector and satellite radio tuner harness connector.

| AV control unit | | Satellite radio tuner | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M188 | 122 | B49 | 10 | Existed |
| | 129 | | 8 | |
| | 130 | | 9 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M188 | 122 | Ground | Not existed |
| | 129 | | |
| | 130 | | |

Is the inspection result normal?

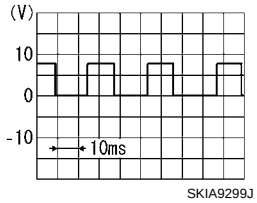
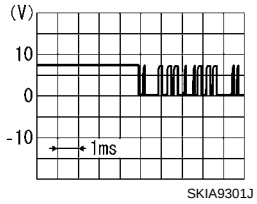
YES >> GO TO 3.
NO >> Repair harness or connector.

### 3.CHECK AV CONTROL UNIT COMMUNICATION SIGNAL

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between AV control unit harness connectors



cardiagn.com

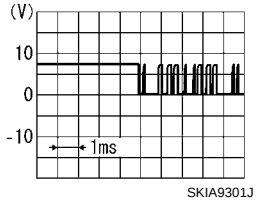
| AV control unit | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M188 | 129 | M183 | 20 | When satellite radio mode is selected. | Waveform of 1.1 V - 7.181 V or more is input. |  SKIA9299J |
| | 130 | | | | |  SKIA9301J |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

## 4. CHECK SATELLITE RADIO TUNER COMMUNICATION SIGNAL

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector.
3. Connect satellite radio tuner.
4. Turn ignition switch ON.
5. Check signal between satellite radio tuner harness connectors.

| Satellite radio tuner | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| B49 | 10 | B49 | 15 | When satellite radio mode is selected. | Waveform of 1.5 V - 6.0 V is input. |  SKIA9301J |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace satellite radio tuner. Refer to AV-256, "Removal and Installation".

cardiagn.com

# U1300 AV COMM CIRCUIT

## Description

INFOID:0000000012407181

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

| DTC | Display contents of CONSULT | DTC Detection Condition | Possible causes |
|---|---|---|---|
| U1300<br>U1240 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | When either one of the following items is detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| U1300<br>U1246 | • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | When either one of the following items are detected:<br>• rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>• AV communication circuits between AV control unit and rear display unit. |
| U1300<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• HAND FREE CONN [U1256] | When either one of the following items is detected:<br>• TEL adapter unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| U1300<br>U1240<br>U1246<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• HAND FREE CONN [U1256] | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

cardiagn.com

# U1310 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407182

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1310 | CONTROL UNIT (AV) [U1310] | An initial diagnosis error is detected in AV communication circuit. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-242, "Removal and Installation". |

cardiagn.com

# POWER SUPPLY AND GROUND CIRCUIT

## AV CONTROL UNIT

### AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407183

#### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

| Signal name | AV control unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M183 | 19 | 20 | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 7 | | ACC | | |
| Ignition signal | M186 | 95 | | ON | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between AV control unit and fuse.

#### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connectors.
3. Check continuity between AV control unit harness connectors and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M183 | 20 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

## FRONT DISPLAY UNIT

### FRONT DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012407184

#### 1.CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

| Signal name | Front display unit | Probe | | Condition | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Inverter VCC | M156 | 2 | 13 | OFF | 8.0 - 9.5 V | 8.8 V |
| Signal VCC | | 3 | 14 | ACC | | |



cardiagn.com

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 2.

## 2.CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

1. Turn ignition switch OFF.
2. Disconnect the harness connector between front display unit and AV control unit.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 2 | M184 | 48 | Existed |
| | 3 | | 36 | |

4. Check continuity between front display unit harness connector and ground.

| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 2 | | Not existed |
| | 3 | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

## 3.CHECK POWER SUPPLY CIRCUIT (AV CONTROL UNIT SIDE)

1. Connect the AV control unit harness connector.
2. Turn ignition switch ACC.
3. Check voltage between AV control unit harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M184 | 48 | M184 | 49 | 8.0 - 9.5 V | 8.8 V |
| | 36 | | 37 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

## 4.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector.
3. Check continuity between front display unit harness connectors and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M156 | 1 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# REAR DISPLAY UNIT

cardiagn.com

## REAR DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012407185

### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between rear display unit harness connector and ground.

| Signal name | Rear display unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | R36 | 29 | 31<br>32 | OFF | 9.0 - 16.0 V | Battery voltage |
| | | 30 | | | | |
| ACC power supply | | 28 | | ACC | 7.6 V - Battery voltage | |
| Ignition signal | | 26 | | ON | 3.0 V - Battery voltage | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between rear display unit and fuse.

### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear display unit connector.
3. Check continuity between rear display unit harness connector and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | R36 | 31 | OFF | Existed |
| | | 32 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

## SATELLITE RADIO TUNER

## SATELLITE RADIO TUNER : Diagnosis Procedure

INFOID:0000000012407186

### 1.CHECK FUSES

Check that the following fuses of the satellite radio tuner are not blown.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |

Is inspection result OK?

YES >> GO TO 2.



cardiagn.com

NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between the satellite radio tuner and ground.

| Signal name | Satellite radio tuner | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | B49 | 12 | 15 | OFF | 10.8 - 15.6 V | Battery voltage |
| ACC power supply | | 16 | | ACC | 7.0 - 16.0 V | |

Is inspection result OK?

YES >> GO TO 3.
NO >> Check harness between satellite radio tuner and fuse.

## 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect satellite radio tuner connector.
3. Check continuity between satellite radio tuner harness connector and ground.

| Signal name | Connector | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | B49 | 15 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# TEL ADAPTER UNIT

## TEL ADAPTER UNIT : Diagnosis Procedure

INFOID:0000000012407187

## 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

| Signal name | TEL adapter unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M138 | 1 | 4 | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 2 | | ACC | 7.0 - 16.0 V | |
| Ignition signal | | 3 | | ON | 7.0 - 16.0 V | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between TEL adapter unit and fuse.

## 3.CHECK GROUND CIRCUIT



cardiagn.com

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector.
3. Check continuity between TEL adapter unit harness connector and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M138 | 4 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

cardiagn.com

# RGB (R: RED) SIGNAL CIRCUIT

## Description

INFOID:0000000012407188

Transmit the image displayed with AV control unit with RGB signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407189

### 1.CHECK CONTINUITY RGB (R: RED) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 17 | M184 | 43 | Existed |

4. Check continuity between front display unit harness connector and ground.

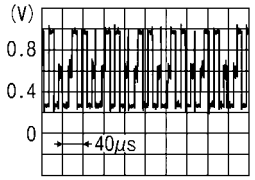
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 17 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB (R: RED) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 17 | M156 | 1 | Start confirmation/ adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen. | Waveform according to RGB image is input. |  |



JSNIA1029ZZ

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-243, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# RGB (G: GREEN) SIGNAL CIRCUIT

## Description

INFOID:0000000012407190

Transmit the image displayed with AV control unit with RGB signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407191

### 1.CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 6 | M184 | 44 | Existed |

4. Check continuity between front display unit harness connector and ground.

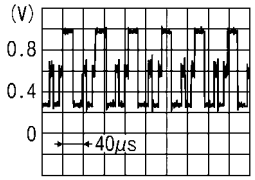
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 6 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB (G: GREEN) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 6 | M156 | 1 | Start confirmation/ adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen. | Waveform according to RGB image is input. |  JSNIA1030ZZ |



Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-243, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# RGB (B: BLUE) SIGNAL CIRCUIT

## Description

INFOID:0000000012407192

Transmit the image displayed with AV control unit with RGB signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407193

### 1.CHECK CONTINUITY RGB (B: BLUE) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 18 | M184 | 45 | Existed |

4. Check continuity between front display unit harness connector and ground.

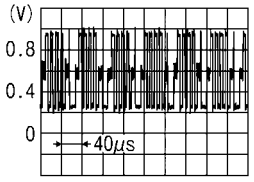
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 18 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB (B: BLUE) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 18 | M156 | 1 | Start confirmation/ adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen. | Waveform according to RGB image is input. |  JSNIA1031ZZ |



Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-243, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# RGB SYNCHRONIZING SIGNAL CIRCUIT

## Description

INFOID:0000000012407194

Transmit the RGB synchronizing signal to the front display unit so as to synchronize the RGB image displayed with AV control unit.

## Diagnosis Procedure

INFOID:0000000012407195

### 1.CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 19 | M184 | 42 | Existed |

4. Check continuity between front display unit harness connector and ground.

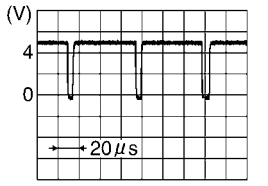
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 19 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB SYNCHRONIZING SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Standard | Reference value |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Front display unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M156 | 19 | M156 | 1 | Waveform of 0.8 V - 5.5 V is input. |  |


SKIB3603E

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-243, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# RGB AREA (YS) SIGNAL CIRCUIT

## Description

INFOID:0000000012407196

Transmits the display area of RGB image displayed by AV control unit with RGB area (YS) signal to front display unit.

## Diagnosis Procedure

INFOID:0000000012407197

### 1.CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 9 | M184 | 40 | Existed |

4. Check continuity between front display unit harness connector and ground.

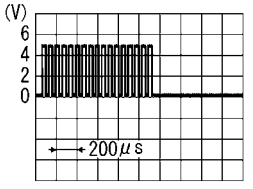
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 9 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB AREA (YS) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 9 | M156 | 1 | At RGB image is displayed | 5.5 V or less | 5.0 V |
| | | | | At AUX image is displayed | Waveform of 0.8 V - 5.5 V is input. |  PKIB4948J |

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-243, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

## Description

INFOID:0000000012407198

In composite image (DVD, auxiliary input, and camera images), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

## Diagnosis Procedure

INFOID:0000000012407199

### 1.CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 8 | M184 | 38 | Existed |

4. Check continuity between front display unit harness connector and ground.

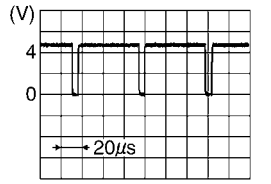
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Standard | Reference value |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Front display unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M156 | 8 | M156 | 1 | Waveform of 1.0 V - 5.5 V is output. |  |



SKIB3601E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-242, "Removal and Installation".
NO >> Replace front display unit. Refer to AV-243, "Removal and Installation".

cardiagn.com

# VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

## Description

INFOID:0000000012407200

In composite image (DVD, auxiliary input, and camera images), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

## Diagnosis Procedure

INFOID:0000000012407201

### 1.CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 20 | M184 | 50 | Existed |

4. Check continuity between front display unit harness connector and ground.

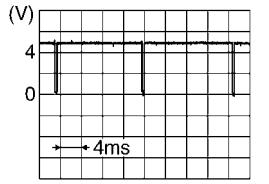
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 20 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Standard | Reference value |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Front display unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M156 | 20 | M156 | 1 | Waveform of 1.0 V - 5.5 V is output. |  |



SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-242, "Removal and Installation".
NO >> Replace front display unit. Refer to AV-243, "Removal and Installation".

cardiagn.com

# COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

## Description

INFOID:0000000012407202

The AV control unit outputs image signal (DVD, auxiliary input, and camera) to the front display unit and rear display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407203

### 1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and front display unit connector.
3. Check continuity between AV control unit harness connector and front display unit harness connector.

| AV control unit | | Front display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M184 | 46 | M156 | 4 | Existed |
| | 47 | | 15 | |

4. Check continuity between AV control unit harness connector and ground.

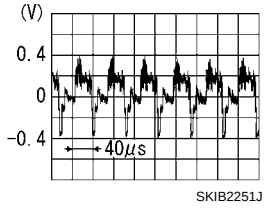
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M184 | 46 | | Not existed |
| | 47 | | |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2. CHECK COMPOSITE IMAGE SIGNAL (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

1. Connect AV control unit connector and front display unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 15 | M156 | 4 | When DVD, AUX or camera image is displayed. | Waveform according to composite image is input. |  |


SKIB2251J

Is inspection result normal?

YES >> Replace front display unit. Refer to AV-243, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".



cardiagn.com

# COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT)

## Description

INFOID:0000000012407204

The AV control unit outputs image signal (DVD, auxiliary input, and camera) to the front display unit and rear display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407205

### 1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear display unit connector.
3. Check continuity between AV control unit harness connector and rear display unit harness connector.

| AV control unit | | Rear display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 67 | R36 | 7 | Existed |
| | 66 | | 8 | |

4. Check continuity between AV control unit harness connector and ground.

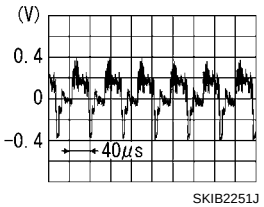
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 67 | | Not existed |
| | 66 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK COMPOSITE IMAGE SIGNAL (AV CONTROL UNIT TO REAR DISPLAY UNIT)

1. Connect AV control unit connector and rear display unit connector.
2. Turn ignition switch ON.
3. Check signal between rear display unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Rear display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| R36 | 7 | R36 | 8 | When DVD or AUX image is displayed. | Waveform according to composite image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace rear display unit. Refer to AV-244, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# AUX IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407206

- Transmits the image signal of AUX (auxiliary input) device from auxiliary input jacks to AV control unit.
- The AV control unit transmits the AUX image signal to the front display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407207

### 1.CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and auxiliary input jacks connector.
3. Check continuity between AV control unit harness connector and auxiliary input jacks harness connector.

| AV control unit | | Auxiliary input jacks | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 61 | B273 | 7 | Existed |
| | 69 | | 8 | |

4. Check continuity between AV control unit harness connector and ground.

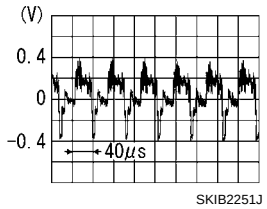
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 61 | | Not existed |
| | 69 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK AUX IMAGE SIGNAL

1. Connect AV control unit connector and auxiliary input jacks connector.
2. Turn ignition switch ON.
3. Check signal between AV control unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| AV control unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M185 | 61 | M185 | 69 | When AUX image is displayed on front or rear display unit. | Waveform according to AUX image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-242, "Removal and Installation".
NO >> Check that there is no malfunction in the external device.

cardiagn.com

# CAMERA IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407208

- AV control unit outputs camera power supply to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The AV control unit that inputs the camera image signal transmits the camera image signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407209

### 1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear view camera connector.
3. Check continuity between AV control unit harness connector and rear view camera harness connector.

| AV control unit | | Rear view camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 73 | D167 | 1 | Existed |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 73 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE CAMERA POWER SUPPLY

1. Connect AV control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check voltage between AV control unit harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M185 | 73 | M185 | 72 | 5.9 - 6.5 V | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

### 3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear view camera connector.
3. Check continuity between AV control unit harness connector and rear view camera harness connector.

| AV control unit | | Rear view camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 62 | D167 | 3 | Existed |

4. Check continuity between AV control unit harness connector and ground.

cardiagn.com

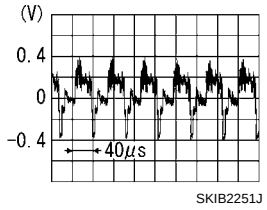
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 62 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK CAMERA IMAGE SIGNAL

1. Connect AV control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check signal between AV control unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| AV control unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M185 | 62 | M183 | 20 | When camera image is displayed. | Waveform according to camera image is input. |  |


SKIB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-242, "Removal and Installation".
NO >> Replace rear view camera. Refer to AV-259, "Removal and Installation".

cardiagn.com

# DISK EJECT SIGNAL CIRCUIT

## Description

INFOID:0000000012407210

The disk eject switch outputs disk eject signal to the AV control unit when the switch of disk eject switch is pressed.

## Diagnosis Procedure

INFOID:0000000012407211

### 1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and disk eject switch connector.
3. Check continuity between AV control unit harness connector and disk eject switch harness connector.

| AV control unit | | Disk eject switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M186 | 96 | M153 | 4 | Existed |
| | 82 | | 3 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M186 | 96 | | Not existed |
| | 82 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2. CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between disk eject switch harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| Disk eject switch | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M153 | 4 | M153 | 3 | — | 3.3 V |

Is the inspection result normal?

YES >> Replace disk eject switch. Refer to AV-250, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

cardiagn.com

# MICROPHONE SIGNAL CIRCUIT

## Description

INFOID:0000000012407212

TEL adapter unit supplies power to microphone. The microphone transmits the sound voice to the TEL adapter unit.

## Diagnosis Procedure

INFOID:0000000012407213

### 1.CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector and microphone connector.
3. Check continuity between TEL adapter unit harness connector and microphone harness connector.

| TEL adapter unit | | Microphone | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M138 | 7 | R20 | 1 | Existed |
| | 8 | | 2 | |
| | 29 | | 4 | |

4. Check continuity between TEL adapter unit harness connector and ground.

| TEL adapter unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M138 | 29 | | Not existed |
| | 7 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE MICROPHONE VCC

1. Connect TEL adapter unit connector.
2. Turn ignition switch ON.
3. Check voltage between TEL adapter unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| TEL adapter unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M138 | 29 | M138 | 8 | 4.7 - 5.3 V | 5.0 V |

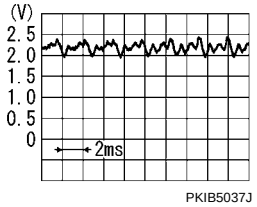
Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace TEL adapter unit. Refer to AV-253, "Removal and Installation".

### 3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.
2. Check signal between TEL adapter unit harness connector.

cardiagn.com

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| TEL adapter unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M138 | 7 | M138 | 8 | Give a voice. | Waveform according to voice is input. |  |


PKIB5037J

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-253, "Removal and Installation".
NO >> Replace microphone. Refer to AV-255, "Removal and Installation".

cardiagn.com

# CONTROL SIGNAL CIRCUIT

## Description

INFOID:0000000012407214

TEL adapter unit identifies the vehicle model according to the control signal and performs the control.

## Diagnosis Procedure

INFOID:0000000012407215

### 1.CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector.
3. Check continuity between TEL adapter unit harness connector and ground.

| TEL adapter unit | | Ground | Standard | Reference value (Approx.) |
|---|---|---|---|---|
| Connector | Terminals | | | |
| M138 | 20 | | 3.1 V or less | 0 V |
| | 27 | | | |

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-253, "Removal and Installation".
NO >> Repair harness or connector.

cardiagn.com

# STEERING SWITCH SIGNAL A CIRCUIT

## Description

INFOID:0000000012407216

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407217

### 1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M183 | 6 | M33 | 24 | Existed |

3. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M183 | 6 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M183 | 6 | M183 | 15 | 0 - 3.3 V | 3.3 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-226, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407218

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.



cardiagn.com

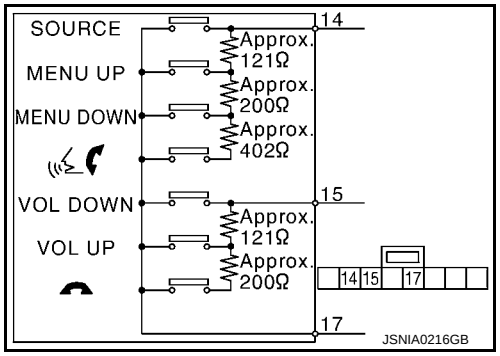
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# STEERING SWITCH SIGNAL B CIRCUIT

## Description

INFOID:0000000012407219

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407220

### 1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M183 | 16 | M33 | 31 | Existed |

3. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M183 | 16 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M183 | 16 | M183 | 15 | 0 - 3.3 V | 3.3 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-228, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407221

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.



cardiagn.com

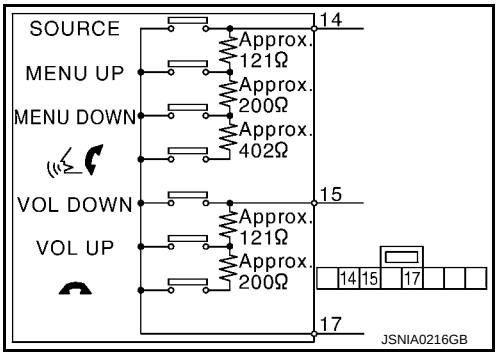
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# STEERING SWITCH GROUND CIRCUIT

## Description

INFOID:0000000012407222

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407223

### 1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M183 | 15 | M33 | 33 | Existed |

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK GROUND CIRCUIT

1. Connect AV control unit connector.
2. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M183 | 15 | | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-242, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-230, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407224

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

cardiagn.com

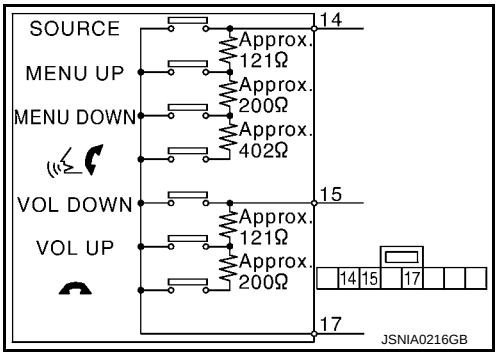
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# SYMPTOM DIAGNOSIS

## MULTI AV SYSTEM SYMPTOMS

### Symptom Table

INFOID:0000000012407225

OPERATION

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Multifunction switch and preset switch operation does not work. | • All switches cannot be operated.<br>• “MULTI AV” is displayed on system selection screen when the CONSULT is started. | • Multifunction switch power supply and ground circuit.<br>• AV communication circuit between AV control unit and multifunction switch.<br>Perform CONSULT self-diagnosis.<br>Refer to AV-147, "CONSULT Function". |
| | • All switches cannot be operated.<br>• “MULTI AV” is not displayed on system selection screen when the CONSULT is initialized. | AV control unit power supply and ground circuit malfunction. Refer to AV-205, "AV CONTROL UNIT : Diagnosis Procedure". |
| | Only specified switch cannot be operated. | Multifunction switch or preset switch malfunction.<br>Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-138, "On Board Diagnosis Function". |
| Fuel economy display is abnormal. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”.<br>Refer to AV-147, "CONSULT Function". | Perform detected DTC diagnosis.<br>Refer to AV-159, "DTC Index". |
| | There is no malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”.<br>Refer to AV-147, "CONSULT Function". | Ignition signal circuit malfunction. (AV control unit) |

RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and checking that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
   **NOTE:**
   The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model, and service provider.
   **NOTE:**
   It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to “www.nissanusa.com/bluetooth/”.

a. Using the website's search engine, find out if the customer's phone is on the approved list.

b. If the customer's phone is NOT on the approved list:

   Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.

c. If the feature related to the customer's concern shows as “N” (not compatible):
   Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as “Y” (compatible) in the “Basic Features” list.

d. If the feature related to the customer's concern shows as “Y” (compatible):
   Perform diagnosis as per the following table.

cardiagn.com

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.) | Repeat the registration of cellular phone. | TEL adapter unit malfunction.<br>Refer to AV-253, "Removal and Installation". |
| Hands-free phone cannot be established. | Both the reception and the speech cannot be performed | • Perform CONSULT self-diagnosis.<br>Refer to AV-147, "CONSULT Function".<br>• No malfunction.<br>TEL adapter unit malfunction.<br>Refer to AV-253, "Removal and Installation".<br>• Malfunction is detected.<br>Perform detected DTC self-diagnosis.<br>Refer to AV-159, "DTC Index". |
| The other party's voice cannot be heard by hands-free phone. | The operation of the " " switch can be performed. | TEL voice signal circuit malfunction between TEL adapter unit and AV control unit. |
| | The operation of the " " switch cannot be performed. | Control signal circuit malfunction.<br>Refer to AV-225, "Diagnosis Procedure". |
| Originating sound is not heard by the other party with hands-free phone communication. | Sound operation function is normal. | TEL adapter unit malfunction.<br>Refer to AV-253, "Removal and Installation". |
| | Sound operation function does not work. | Microphone signal circuit malfunction.<br>Refer to AV-223, "Diagnosis Procedure". |
| The system cannot be operated. | "SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But " " switch is not operated. | Steering switch malfunction.<br>Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| | "SOURCE", "MENU UP", "MENU DOWN" and " " switches are not operated. | Steering switch signal B circuit malfunction.<br>Refer to AV-228, "Diagnosis Procedure". |
| | All steering switches do not work. | Steering switch ground circuit malfunction.<br>Refer to AV-230, "Diagnosis Procedure". |

## RELATED TO REAR VIEW MONITOR

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Camera image is not shown. (Vehicle width and possible route line is displayed.) | DVD image is displayed. | Camera image signal circuit.<br>Refer to AV-220, "Diagnosis Procedure". |
| | DVD image is not displayed. | Composite image signal circuit malfunction between AV control unit and front display unit.<br>Refer to AV-217, "Diagnosis Procedure". |
| Camera image is not shown. (displayed in black and nothing can be displayed) | — | • Horizontal synchronizing (HP) signal circuit.<br>Refer to AV-215, "Diagnosis Procedure".<br>• Vertical synchronizing (VP) signal circuit.<br>Refer to AV-216, "Diagnosis Procedure". |
| Camera image does not switch. | "Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment". | Reverse signal circuit malfunction. |
| | "Reverse" is turned ON on "Vehicle Signals"screen of "Confirmation/Adjustment". | AV control unit malfunction.<br>Replace AV control unit. Refer to AV-242, "Removal and Installation". |

## RELATED TO RGB IMAGE

cardiagn.com

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| RGB image is not shown. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”. Refer to AV-147, "CONSULT Function". | Perform detected DTC diagnosis. Refer to AV-159, "DTC Index". |
| | There is no malfunction in CONSULT “self-diagnosis results” of “MULTI AV”. Refer to AV-147, "CONSULT Function". | Vertical synchronizing (VP) signal circuit. Refer to AV-216, "Diagnosis Procedure". |
| Color of RGB image is not proper. | Light blue (Cyan) tint. | RGB signal (R: red) circuit. Refer to AV-210, "Diagnosis Procedure". |
| | Purple (Magenta) tint. | RGB signal (G: green) circuit. Refer to AV-211, "Diagnosis Procedure". |
| | Screen looks yellowish. | RGB signal (B: blue) circuit. Refer to AV-212, "Diagnosis Procedure". |
| RGB screen is rolling. | — | RGB synchronizing signal circuit. Refer to AV-213, "Diagnosis Procedure". |
| Fuel economy display is malfunctioning. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”. Refer to AV-147, "CONSULT Function". | Perform detected DTC diagnosis. Refer to AV-159, "DTC Index". |
| | There is no malfunction in CONSULT “self-diagnosis results” of “MULTI AV”. Refer to AV-147, "CONSULT Function". | Ignition signal circuit malfunction. (AV control unit) |

## RELATED TO AUDIO

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The disk cannot be removed. | — | Disk eject signal circuit malfunction. Refer to AV-222, "Diagnosis Procedure". |
| No sound comes out or the level of the sound is low. | No sound from all speakers. | Audio unit power supply and ground circuits malfunction. Refer to AV-205, "AV CONTROL UNIT : Diagnosis Procedure". |
| | Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound. | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between AV control unit and speaker.<br>• Malfunction in speaker.<br>• Malfunction in AV control unit. |
| Noise is mixed with audio. | Noise comes out from all speakers. | Malfunction in AV control unit. |
| | Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.). | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between AV control unit and speaker.<br>• Malfunction in speaker.<br>• Poor installation of speaker (e.g. backlash and looseness)<br>• Malfunction in AV control unit. |
| | Noise is mixed with radio only (when the car hits a bump or while driving over bad roads). | Poor connector connection of antenna or antenna feeder. |
| Radio is not received or poor reception. | • Other audio sounds are normal.<br>• Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises). | • Antenna amp. ON signal circuit malfunction.<br>• Poor connector connection of antenna or antenna feeder. |

cardiagn.com

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Satellite radio is not received. | There is malfunction in the CONSULT self-diagnosis result.<br>Refer to AV-147, "CONSULT Function". | • Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-159, "DTC Index"<br>• Poor continuity in antenna feeder.<br>• Poor connector connection of antenna or antenna feeder. |
| | There is no malfunction in the CONSULT self-diagnosis result.<br>Refer to AV-147, "CONSULT Function". | • Poor continuity in antenna feeder.<br>• Poor connector connection of antenna or antenna feeder.<br>• Loose satellite radio antenna mounting nut.<br>Refer to AV-257, "Removal and Installation". |

## RELATED TO USB

**NOTE:**
Check that there is no malfunction of USB equipment main body before performing a diagnosis.

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| iPod® or USB memory can not be recognized. | — | • USB harness malfunction.<br>• USB connector malfunction. |

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

## RELATED TO DVD MODE

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The disk cannot be removed. | — | Disk eject signal circuit malfunction.<br>Refer to AV-222, "Diagnosis Procedure". |
| DVD image is not displayed. | Front display unit and rear display unit are not displayed. | Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-147, "CONSULT Function". |
| | Rear display unit is normal. | Composite image signal circuit between AV control unit and front display unit.<br>Refer to AV-217, "Diagnosis Procedure". |
| | Front display unit is normal. | Composite image signal circuit between AV control unit and rear display unit.<br>Refer to AV-218, "Diagnosis Procedure". |
| DVD sound is not heard. | No sound from all speakers. | AV control unit malfunction.<br>Replace AV control unit. Refer to AV-242, "Removal and Installation". |
| | Sound is heard only from specific places. | Sound signals circuit of suspect system. |

## RELATED TO AUXILIARY INPUT

**NOTE:**
Check that there is no malfunction of AUX equipment main body before performing a diagnosis.

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| No voice sound is heard when AUX mode is selected. | Voice sound is heard when other modes are selected. | AUX sound signal circuit. |
| Image is not displayed when AUX mode is selected. | Front display unit and rear display unit are not displayed. | Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-147, "CONSULT Function". |
| | DVD image is displayed on front display unit and rear display unit. | AUX image signal circuit malfunction.<br>Refer to AV-219, "Diagnosis Procedure". |
| | Rear display unit is normal. | Composite image signal circuit between AV control unit and front display unit.<br>Refer to AV-217, "Diagnosis Procedure". |
| | Front display unit is normal. | Composite image signal circuit between AV control unit and rear display unit.<br>Refer to AV-218, "Diagnosis Procedure". |



cardiagn.com

## RELATED TO HEADPHONE

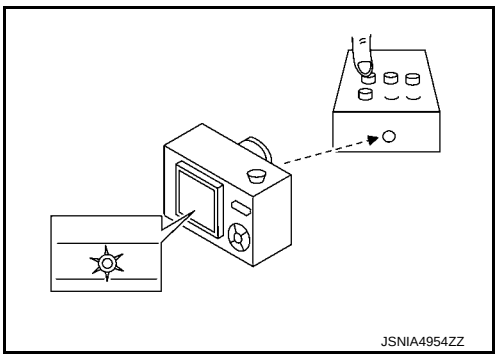
| Symptom | Check Item | | Possible malfunction location / Action to take |
|---|---|---|---|
| Audio cannot be heard from headphone. | Turn ON the rear display. | Audio cannot be heard. | Check power supply of headphone. |
| Headphone cannot be turned ON. | • Battery polarity.<br>• Battery poor contact<br>• Battery replacement | Power is ON. (Power indicator lamp: ON) | This is not a malfunction. |
| | | Power cannot be turned ON. (Power indicator lamp: OFF) | Replace headphone. |

## RELATED TO REAR DISPLAY

Perform the diagnosis of the following items before starting diagnosis by symptom.
- Self-diagnosis: Refer to AV-147, "CONSULT Function".
- Self-diagnosis mode: Refer to AV-138, "On Board Diagnosis Function".
- Power supply system: Refer to AV-207, "REAR DISPLAY UNIT : Diagnosis Procedure".

| Symptom | Check Item | | Possible malfunction location / Action to take |
|---|---|---|---|
| Rear display cannot be opened. | Use the touch button in the front display to open/close the rear display. | Operable. | Operate with the remote to see if rear display opens. |
| | | Inoperative. | Replace rear display. |
| Inoperative with the remote. | All keys inoperative. | • Check by touching and check battery polarity.<br>• Replace battery. | • Check with a remote from the same vehicle family.<br>• Check infrared* of the luminescent part (LED) of the remote. |
| | Some keys inoperative. | • Check with a remote from the same vehicle family.<br>• Check infrared* of the luminescent part (LED) of the remote. | The function corresponding to the remote operation is not included.<br>(This is not a malfunction.) |
| Rear display screen is black. | Play a DVD. | Screen is dark. | Adjust screen for image quality.<br>(This is not a malfunction.) |
| | | Screen is black | Replace rear display. |
| Video shown on rear display screen becomes distorted or rolls up/down. | Adjust the color and image settings using the display screen menu items. | | If the symptom does not change, replace rear display. |
| Rear display screen is blue. | — | | Replace rear display. |

*: To check infrared, check light of the luminescent part (LED) through the lens of digital camera when operating the remote.




## RELATED TO STEERING SWITCH

cardiagn.com

| Symptoms | Probable malfunction location |
|---|---|
| None of the steering switch operations work. | Steering switch ground circuit malfunction.<br>Refer to AV-230, "Diagnosis Procedure". |
| Only specified switch cannot be operated. | Steering switch malfunction.<br>Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| “SOURCE”, “MENU UP”, “MENU DOWN”, “ ” switches are not operated. | Steering switch signal A circuit.<br>Refer to AV-226, "Diagnosis Procedure". |
| ”VOL UP“, “VOL DOWN”, “ ” switches are not operated. | Steering switch signal B circuit.<br>Refer to AV-228, "Diagnosis Procedure". |

cardiagn.com

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000012407226

### BASIC OPERATIONS

| Symptom | Possible cause | Possible solution |
|---|---|---|
| No image is displayed. | The brightness is at the lowest setting. | Adjust the brightness of the display. |
| | The systems in the video mode. | Press “DISC-AUX” to change the mode. |
| | The display is turned off. | Press “☀/◑ OFF” to turn on the display. |
| Screen not clear. | Contrast setting is not appropriate. | Adjust the contrast of the display. |
| The screen is too dim. The movement is slow. | The temperature in the interior of the vehicle is low. | Wait until the interior of the vehicle has warmed up. |
| Some pixels in the display are darker or brighter than others. | This condition is an inherent characteristic of liquid crystal displays. | This is not a malfunction. |
| Some menu items cannot be selected. | Some menu items become unavailable while the vehicle is driven. | Park the vehicle in a safe location, and then operate the multi AV system. |

### RELATED TO VOICE RECOGNITION

Related to Telephone

The system should respond correctly to all voice commands without difficulty. If problems are encountered, try the following solutions.

Where the solutions are listed by number, try each solution in turn, starting with number 1, until the problem is resolved.

| Symptom | Solution |
|---|---|
| System fails to interpret the command correctly. | 1. Ensure that the command is valid. |
| | 2. Ensure that the command is spoken after the tone. |
| | 3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle. |
| | 4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on).<br>**NOTE:**<br>If it is too noisy to use the phone, it is likely that the voice commands will not be recognized. |
| | 5. If more than one command was said at a time, try saying the commands separately. |
| | 6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. Refer to “Speaker adaptation (SA) mode” in “OWNER’S MANUAL”. |
| The system consistently selects the wrong voicetag | 1. Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the “List Names” command. |
| | 2. Replace one of the names being confused with a new name. |

### RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD/cassette, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and then determine the cause.

**NOTE:**

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the “red book” Compact Disc Standard and may not play.

cardiagn.com

| Symptom | Cause and Counter measure |
|---|---|
| Cannot play | Check if the CD was inserted correctly. |
| | Check if the CD is scratched or dirty. |
| | Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player. |
| | If there is a temperature increase error, the player will play correctly after it returns to the normal temperature. |
| | If there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD, only the music CD files (CD-DA data) will be played. |
| | Files with extensions other than ".MP3 (.mp3)" or ".WMA (.wma)" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications. |
| | Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA writing applications or other text editing applications. |
| | Check if the finalization process, such as session close and disc close, is done for the disc. |
| | Check if the CD is protected by copyright. |
| | Disks recorded in live file system format are not supported. (For Microsoft Windows® Vista, check the settings.) |
| Poor sound quality | Check if the CD is scratched or dirty. |
| It takes a relatively long time before the music starts playing. | If there are many folder or file levels on the MP3/WMA CD, or if it is a multisession disc, some time may be required before the music starts playing. |
| Music cuts off or skips | The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed. |
| Skipping with high bit rate files | Skipping may occur with large quantities if data such as for high bit rate data. |
| Move immediately to the next song when playing | When a non-MP3/WMA file has been given an extension of ".MP3 (.mp3)" or ".WMA (.wma)" when play is prohibited by copyright protection, the player will skip to the next song. |
| The songs do not play back in the desired order. | The playback order is the order in which the files were written by the software, so the files might not play in the desired order. |
| Poor reception only from a certain radio broadcast station. | Check incoming radio wave signal strength of applicable broadcast station. |
| Buzz/rattle sound from speaker | The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle. |

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, is not a malfunction.

**NOTE:**

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

## RELATED TO DVD

| Symptom | Possible cause | Possible solution |
|---|---|---|
| Not working as operated | Some operations may be rejected or may not function as intended because of the manufacturer's intent, depending on DVD. | This is not a malfunction. |
| Operation not accepted | If a requested operation is prohibited, then a message is displayed on the screen. (Message display depends on DVD.) | This is not a malfunction. |

cardiagn.com

| Symptom | Possible cause | Possible solution |
|---|---|---|
| DVD can not be played | Check that the DVD is inserted in the right place. | Upturn the DVD (facing the title upward). |
| | Check that there is no condensation inside the player. | Wait until the condensation evaporates (approximately one hour). |
| | DVD menu is displayed. | Select item to touch “ENTER”. |
| | Insertion of a DVD with a different region code. | DVDs with a different region code can not be played. Check DVD. |
| | Some DVD softwares may not be played because not all DVD softwares fully comply in the standard. | This is not a malfunction. |
| Interruption during playback or flicker in the display | Check that the DVD has no scratches and dirt. | Errors may not be corrected depending on the size of scratches. |
| | | Wipe and clean the dirt on the disc. |
| Subtitles not shown | Subtitle setting is OFF. | Set subtitle. |
| | Subtitle is not included in the software. | Check DVD. |
| Not played in set language | If a language is not included in the DVD, then the DVD is played in a recommended language. | Check DVD. |
| Not played with set subtitle | If a set subtitle is not included in the DVD, then the DVD is played with a recommended subtitle. | Check DVD. |
| Angle unchangeable | Plural angles are not recorded in the software. | Check if the DVD is multi–angle capable. |
| Unusual screen display | Display mode to the output aspect ratio for the DVD software is inappropriate. | Switch to the appropriate display mode. |
| Distortion in picture | In the process of fast–forward or fast–reverse. | This is not a malfunction. |
| Low sound quality | Check that the DVD has no scratches and dirt. | Wipe and clean the dirt on the disc. |
| Subtitle and language not selectable (not played with set subtitle or in set language) | The DVD is not multilanguage–capable. | The inclusion of the number of languages depends on DVD. Languages may be selectable on the Menu screen. Check DVD. |
| | The DVD has a priority language or setting. | If the DVD has a priority language or settings, then settings changed with this device are not reflected. |
| Playback time is indicated, but no sound comes out. | Playback of Mix mode Truck 1. (Mix mode: Format including Truck 1 with data other than music and Trucks from Truck 2 with music data.) | Play music data included in trucks from Truck 2. |

## RELATED TO HANDS-FREE PHONE

| Symptom | Cause and Counter measure |
|---|---|
| Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.) | Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to “RELATED TO HANDS-FREE PHONE (Check Compatibility)” of MULTI AV SYSTEM SYMPTOM. |
| Cannot use hands-free phone | Customer will not be able to use a hands-free phone under the following conditions.<br>• The vehicle is outside of the telephone service area.<br>• The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.<br>• The cellular phone is locked to prevent it from being dialed.<br>**NOTE:**<br>While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones. |

cardiagn.com

| Symptom | Cause and Counter measure |
|---|---|
| The other party's voice cannot be heard by hands-free phone. | When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call. |
| Poor sound quality | Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption. |



cardiagn.com

# REMOVAL AND INSTALLATION

## AV CONTROL UNIT

### Removal and Installation

INFOID:0000000012407227

#### REMOVAL

**CAUTION:**

- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-191, "Description".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

**NOTE:**

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

1. Remove disk eject switch. Refer to AV-250, "Removal and Installation".
2. Remove two harness clips mounted to the bracket.
3. Remove four mounting screws and pull the AV control unit together with the brackets.
4. Disconnect connectors to remove AV control unit and bracket from the vehicle as a single unit.
5. Remove bracket screws to remove AV control unit.

#### INSTALLATION

Note the following, and install in the reverse order of removal.

**CAUTION:**

**Be sure to perform “Read/Write Configuration” when replacing AV control unit. For details, refer to AV-191, "Description".**

cardiagn.com

# FRONT DISPLAY UNIT

## Removal and Installation

INFOID:0000000012407228

### REMOVAL

1. Remove cluster lid D. Refer to IP-14, "Removal and Installation".
2. Remove front display unit mounting screws.
3. Disconnect front display unit connectors to remove front display unit.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# REAR DISPLAY UNIT

## Removal and Installation

INFOID:0000000012407229

### REMOVAL

1. Remove roof console. Refer to INT-35, "Removal and Installation".
2. Disconnect rear display unit connector, remove rear display unit mounting bolts and remove the rear display unit.
   **NOTE:**
   To prevent rear display unit from dropping, securely support the rear display unit during the removal/installation.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT DOOR WOOFER

## Removal and Installation

INFOID:0000000012407230

### REMOVAL

1. Remove front door finisher. Refer to INT-14, "Removal and Installation".
2. Remove front door woofer screws and disconnect front door woofer connector.

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# FRONT SQUAWKER

## Removal and Installation

INFOID:0000000012407231

### REMOVAL

1. Remove speaker grille from instrument panel. Refer to IP-14, "Removal and Installation".
2. Remove screws and disconnect connector, and remove the front squawker.

**WARNING:**
**Never damage wind shield glass.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SPEAKER

## Removal and Installation

INFOID:0000000012407232

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws and disconnect connector, and remove slide door speaker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# MULTIFUNCTION SWITCH

## Removal and Installation

INFOID:0000000012407233

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove multifunction switch mounting screws.
3. Remove bracket and disconnect harness connectors connected to preset switch.
4. Unhook pawl to remove multifunction switch from cluster lid C.

**CAUTION:**

**Carefully handle the pawl fixing the multifunction switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# PRESET SWITCH

## Removal and Installation

INFOID:0000000012407234

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove preset switch mounting screws and disconnect preset switch connector.
3. Unhook pawl by using a remover tool to remove preset switch from cluster lid C.

**CAUTION:**

**Carefully handle the pawl fixing the preset switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# DISK EJECT SWITCH

## Removal and Installation

INFOID:0000000012407235

### REMOVAL

1. Remove instrument lower center cover. Refer to IP-14, "Removal and Installation".
2. Remove screws and unhook two pawls of AV control unit to remove disk eject switch.

**CAUTION:**

**Carefully handle the pawl fixing the disk eject switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# AUXILIARY INPUT JACKS

## Removal and Installation

INFOID:0000000012407236

### REMOVAL

1. Remove center console body assembly. Refer to IP-28, "Removal and Installation".
2. Remove screws to remove auxiliary input jacks from center console body assembly.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# USB CONNECTOR

## Removal and Installation

INFOID:0000000012407237

### REMOVAL

1. Remove center console upper finisher. Refer to IP-29, "Disassembly and Assembly".
2. Unhook pawl to remove USB connector from center console upper finisher.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# TEL ADAPTER UNIT

## Removal and Installation

INFOID:0000000012407238

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove TEL adapter unit mounting bracket screws.
3. Disconnect connector to remove TEL adapter unit, TEL antenna, and bracket as a single unit.
4. Remove bracket screws to remove TEL adapter unit from bracket.

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# TEL ANTENNA

## Removal and Installation

INFOID:0000000012407239

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove TEL adapter unit mounting bracket screws.
3. Disconnect connector to remove TEL adapter unit, TEL antenna, and bracket as a single unit.
4. Disconnect connector and remove screws to TEL antenna.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# MICROPHONE

## Removal and Installation

INFOID:0000000012407240

### REMOVAL

1. Remove map lamp assembly. Refer to INL-71, "Removal and Installation".
2. Unhook pawls to remove microphone from map lamp assembly.

**CAUTION:**
**Carefully handle the pawl fixing the microphone to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**
After installing microphone, check that it is securely installed with no backlash.

cardiagn.com

# SATELLITE RADIO TUNER

## Removal and Installation

INFOID:0000000012407241

### REMOVAL

1. Remove luggage side lower finisher. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation".
2. Remove bolts to remove satellite radio tuner with brackets as a single unit from the body.
3. Remove brackets screws to remove satellite radio tuner.

### INSTALLATION

Install in the reverse order of removal.

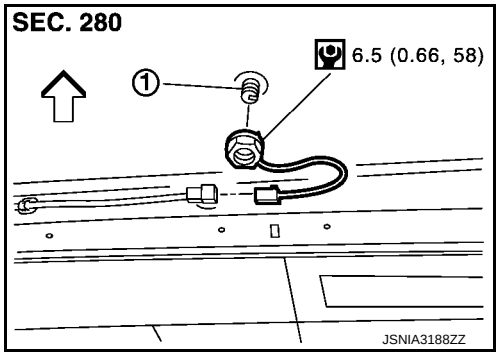
cardiagn.com

# SATELLITE RADIO ANTENNA

## Exploded View

INFOID:0000000012407242

### REMOVAL

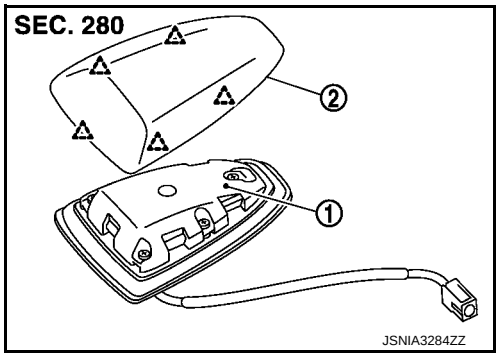



1. Satellite radio antenna

⇦ : Vehicle front

: N·m (kg-m, in-fb)

### DISASSEMBLY




1. Satellite radio antenna
2. Cover

: Pawl

## Removal and Installation

INFOID:0000000012407243

### REMOVAL

1. Remove rear upper ventilator duct 2. Refer to HA-55, "Exploded View".
2. Disconnect antenna feeder connector.
3. Remove nut, and remove satellite radio antenna and the cover from the vehicle as a single unit.

### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

**If the satellite radio antenna mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.**

## Disassembly and Assembly

INFOID:0000000012407244

### DISASSEMBLY

Insert cloth-covered driver into gaps between satellite radio antenna and the cover, and remove the cover from satellite radio antenna.

### ASSEMBLY

Assemble in the reverse order of disassembly.



cardiagn.com

# ANTENNA AMP.

## Removal and Installation

INFOID:0000000012407245

### REMOVAL

1. Remove rear pillar garnish RH. Refer to INT-27, "REAR PILLAR GARNISH : Removal and Installation".
2. Remove screw and disconnect connector, and remove antenna amp.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# REAR VIEW CAMERA

## Removal and Installation

INFOID:0000000012407246

### REMOVAL

1. Remove back door finisher. Refer to EXT-47, "Removal and Installation".
2. Remove screws to remove rear view camera from back door finisher.

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**

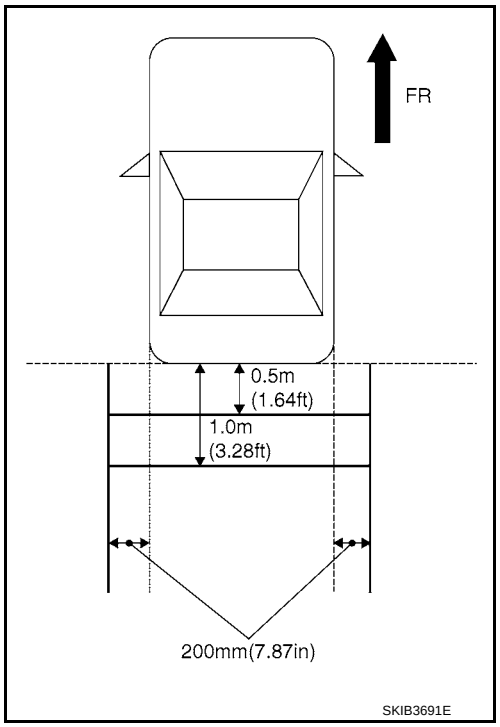
Adjust the guide line position if the guide line position is shifted after installing the rear view camera. Refer to AV-259, "Adjustment".

## Adjustment

INFOID:0000000012407247

Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

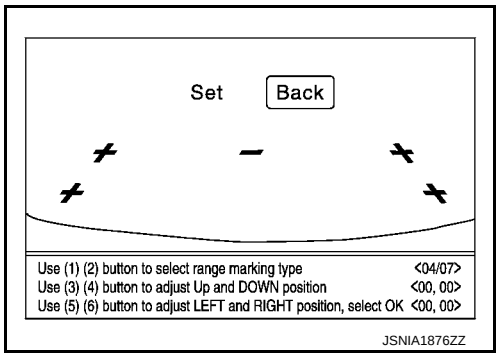
1. Draw lines on rearward area of the vehicle passing through the following points: 200 mm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
2. Set into “Camera system” mode of Confirmation / Adjustment mode.




3. Press “1” or “2” switches, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

**Selected pattern : 7**

4. Make fine adjustment to the correction line of the rear of the vehicle with “3”, “4”, “5” or “6” switches so that its position is aligned with the guiding line. Press “PUSH ENTER” switch and record the adjusted guiding line position to the camera control unit.




**Up/Down adjustment range : (–20) – (20)**

**Left/Right adjustment range : (–20) – (20)**

**CAUTION:**

**Never operate other function such as pressing BACK while writing index data.**

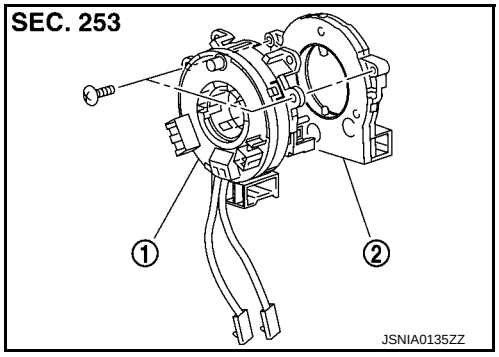
cardiagn.com

# STEERING ANGLE SENSOR

## Exploded View

INFOID:0000000012407248

DISASSEMBLY




1. Spiral cable
2. Steering angle sensor

## Removal and Installation

INFOID:0000000012407249

REMOVAL

1. Remove spiral cable. Refer to SR-16, "Removal and Installation".
2. Remove steering angle sensor from spiral cable.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform steering angle sensor neutral position adjustment. Refer to BRC-50, "Description".

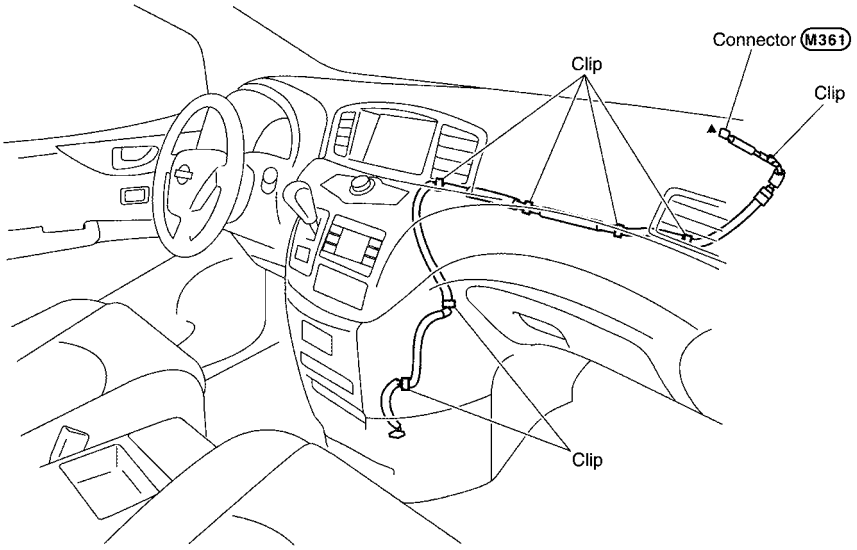
cardiagn.com

# ANTENNA FEEDER

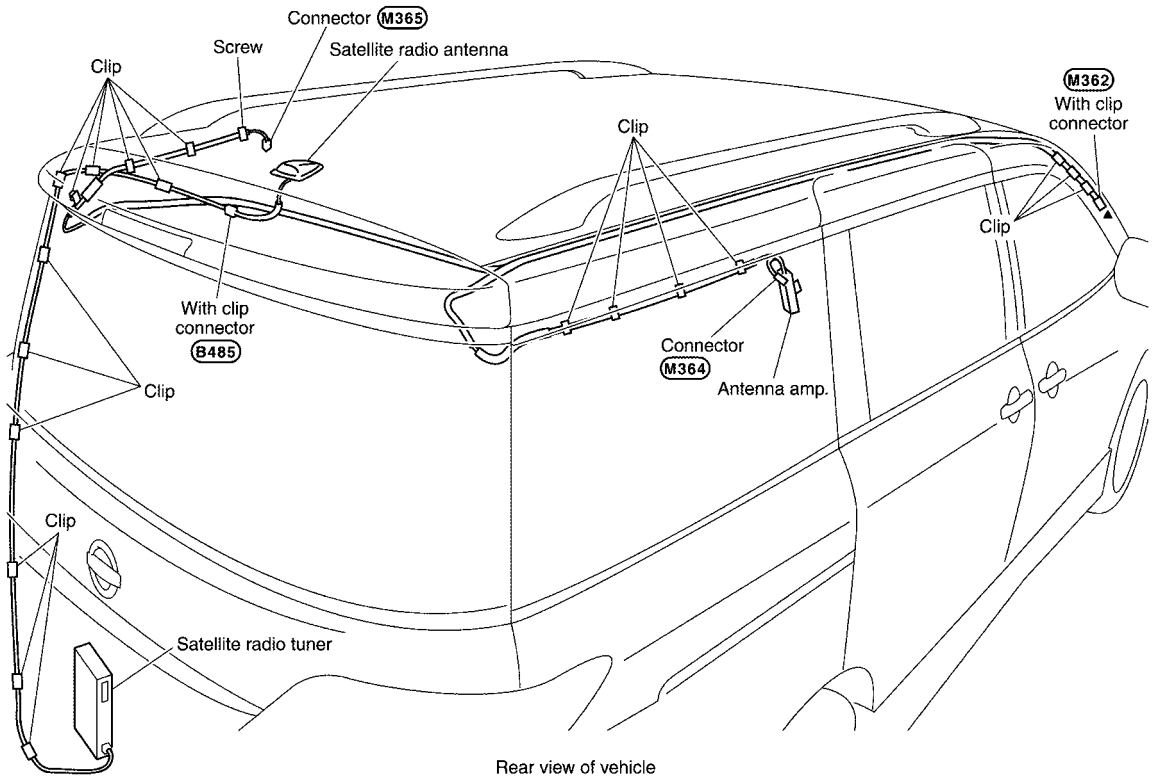
## Feeder Layout

INFOID:0000000012407250

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4219GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000012407251

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

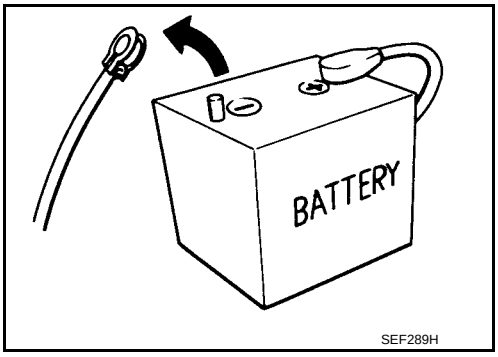
### Precautions for Removing Battery Terminal

INFOID:0000000012936061

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

| | | | |
|---|---|---|---|
| D4D engine | : 20 minutes | YS23DDT | : 4 minutes |
| HRA2DDT | : 12 minutes | YS23DDTT | : 4 minutes |
| K9K engine | : 4 minutes | ZD30DDTi | : 60 seconds |
| M9R engine | : 4 minutes | ZD30DDTT | : 60 seconds |
| R9M engine | : 4 minutes | | |
| V9X engine | : 4 minutes | | |
| YD25DDTi | : 2 minutes | | |




**NOTE:**

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

**NOTE:**

cardiagn.com

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

## Precaution for Trouble Diagnosis

INFOID:0000000012407253

### AV COMMUNICATION SYSTEM

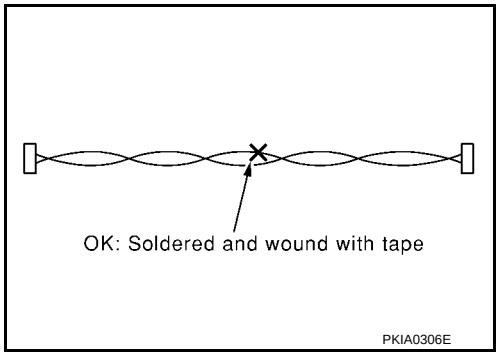
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

## Precaution for Harness Repair

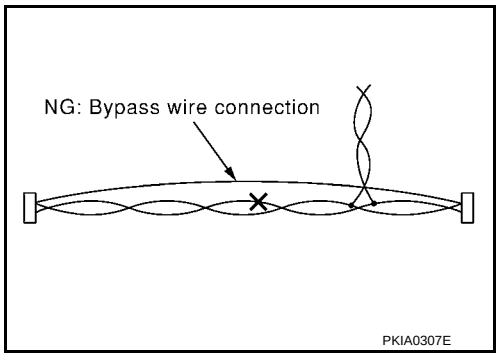
INFOID:0000000012407254

### AV COMMUNICATION SYSTEM

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]




- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



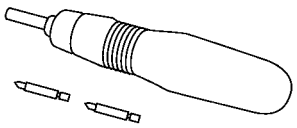

cardiagn.com

# PREPARATION

## PREPARATION

### Commercial Service Tools

INFOID:0000000012407255

| Tool | | Description |
|---|---|---|
| Power tool |  PBIC0191E | Loosening screws |

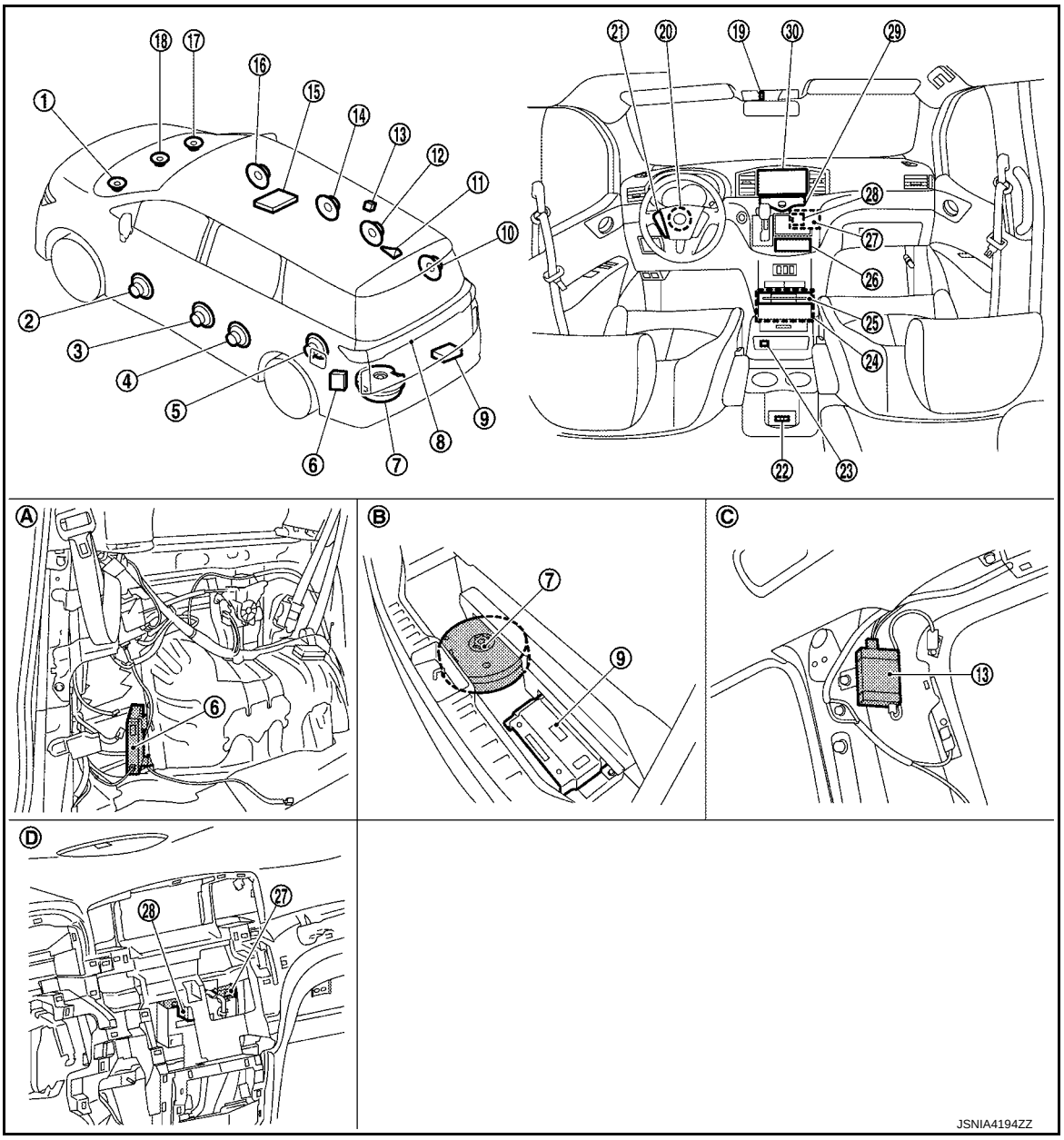
cardiagn.com

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000012407256




A. Luggage side lower finisher is removed.
B. Within luggage floor box
C. Rear pillar garnish (RH) is removed.
D. Cluster lid C is removed.

| No. | Component | Function |
|---|---|---|
| 1,17. | Front squawker | Refer to AV-270, "Speaker". |
| 2,16. | Front door woofer | |
| 3,14. | Slide door squawker | |
| 4,12. | Slide door speaker | |
| 5,10. | Luggage squawker | |



cardiagn.com

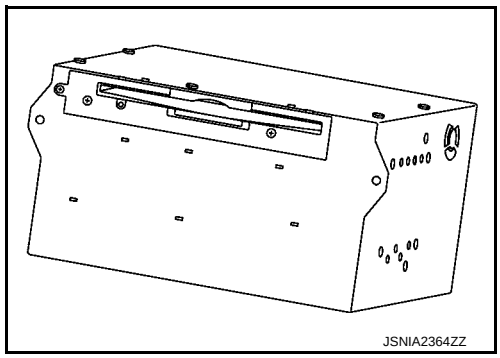
| No. | Component | Function |
|---|---|---|
| 6. | Satellite radio tuner | Refer to AV-276, "Satellite Radio Tuner". |
| 7. | Woofer | Refer to AV-270, "Speaker". |
| 8. | Rear view camera | Refer to AV-273, "Rear View Camera". |
| 9. | BOSE amp. | Refer to AV-270, "BOSE Amp.". |
| 11. | Satellite radio antenna | Refer to AV-276, "Satellite Radio Antenna". |
| 13. | Antenna amp. | Refer to AV-273, "Antenna amp, Radio Antenna, and Antenna Feeder". |
| 15. | Rear display unit | Refer to AV-268, "Rear Display Unit". |
| 18. | Center speaker | Refer to AV-270, "Speaker". |
| 19. | Microphone | Refer to AV-272, "Microphone". |
| 20. | Steering angle sensor | Refer to AV-273, "Steering Angle Sensor". |
| 21. | Steering switch | Refer to AV-269, "Steering Switch". |
| 22. | Auxiliary input jacks | Refer to AV-273, "Auxiliary Input Jacks". |
| 23. | USB connector | Refer to AV-272, "USB Connector". |
| 24. | AV control unit | Refer to AV-266, "AV Control Unit". |
| 25. | Disk eject switch | Refer to AV-269, "Disk Eject Switch". |
| 26. | Preset switch | Refer to AV-269, "Multifunction Switch". |
| 27. | TEL adapter unit | Refer to AV-272, "TEL Adapter Unit". |
| 28. | TEL antenna | Refer to AV-272, "TEL Antenna". |
| 29. | Multifunction switch | Refer to AV-269, "Multifunction Switch". |
| 30. | Front display unit | Refer to AV-268, "Front Display Unit". |

## AV Control Unit

INFOID:0000000012407257

### DESCRIPTION

- The AV control unit is equipped with the following parts. It is the master unit integrated with functions and controls the multi-AV system.


JSNIA2364ZZ

| Units equipped |
|---|
| AM/FM electronic tuner |
| CD/DVD drive |
| USB interface |
| Camera controller |

- Signals necessary for the vehicle information display function are received from ECM and the combination meter via CAN communication.
- Signals necessary for vehicle setting functions are sent and received with BCM via CAN communication.
- It inputs the signal for driving status recognition (vehicle speed signal, reverse signal, and parking brake signal).
- A predictive course line is generated on the camera image from the rear view camera, and it is shown on the front display.
- It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).

**NOTE:**
For details of each functions, refer to AV-279, "MULTI AV SYSTEM : System Description".

AM/FM Electronic Tuner
The adoption of the PLL frequency synthesizer system enables the signal outputting with accurate frequencies.

CD/DVD drive
- It is CD-R/CD-RW compliant and enables MP3 and WMA files to play music.

cardiagn.com

- It displays the artist name, album title or song title recorded to the file by the ID3 tag/WMA tag display function.
- DVD playback function is equipped.

USB Interface

- Music can be played by connecting an iPod® or USB memory.

Camera Controller

- Warning message, width/distance guiding line and predictive course line are generated on the image from the rear view camera.
- The predictive course line is drawn based on the steering signal received from the steering sensor via CAN communication.

## Specification

| | | | |
|---|---|---|---|
| Manufacturer name | | | Panasonic corporation |
| Audio amplifier | | | External amplifier |
| CD/DVD drive | Used disc | | ϕ 12 cm (4.7 in) |
| | Playable disc | CD | CD-ROM (CD-DA) |
| | | | CD-R*1 |
| | | | CD-RW*1 |
| | | DVD | DVD-ROM |
| | | | DVD-R*1 |
| | | | DVD-RW*1 |
| | Playable format | Music | MP3 |
| | | | WMA |
| | | Image | DVD-VIDEO |
| | | | VIDEO-CD |
| | Text display function | ID3 / WMA tag | Artist name |
| | | | Album title |
| | | | Song title |
| USB | High communication standard | | USB1.1 |
| | Playable format | Music | MP3 |
| | | | WMA |
| | Text display function | ID3 / WMA tag | Artist name |
| | | | Album title |
| | | | Song title |
| | iPod®Action*2 | | iPod Classic® 1st generation |
| | | | iPod Classic® 2nd generation |
| | | | iPod nano® 3rd generation |
| | | | iPod nano® 2nd generation |
| | | | iPod nano® 1st generation |
| | | | iPod® 5th generation |
| | | | iPod touch® 1st generation |
| | | | iPod touch® 2nd generation |
| | | | iPhone 3rd generation |
| Flash memory | Total capacity | | 2 GB |

cardiagn.com

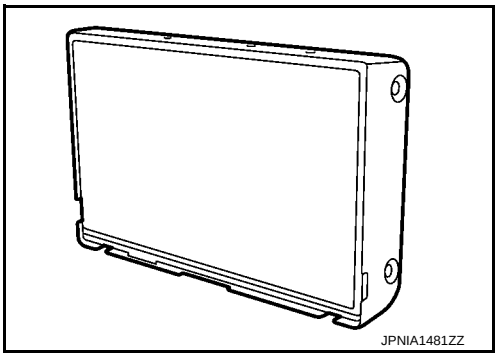
| | | |
|---|---|---|
| Camera controller | Guideline display function | Width/distance display |
| | | Predictive course lines display/non-display switch |
| | Steering angle signal input method | CAN communication |
| Other functions | | Speed sensitive volume function |
| | | Steering switch compliant |

- *1: If the reflectance of the surface of the media is low, the data may not be read.
- *2: It may not be used if it is not updated to the latest firmware or partial functions may not work if it is used.

## Front Display Unit

INFOID:0000000012407258

- The front display unit has an 7-inch QVGA liquid-crystal display.
- It receives the power (signal VCC and inverter VCC) from the AV control unit and operates.
- Composite image signals (DVD, USB memory-stored video data, auxiliary input, and camera) are input from AV control unit.
- RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing).
- Synchronizing signal (HP, VP) is output to AV control unit.
- This unit is connected to the AV control unit via serial communication. Images shown on the front display unit are controlled by the AV control unit.


JPNIA1481ZZ

### Specification

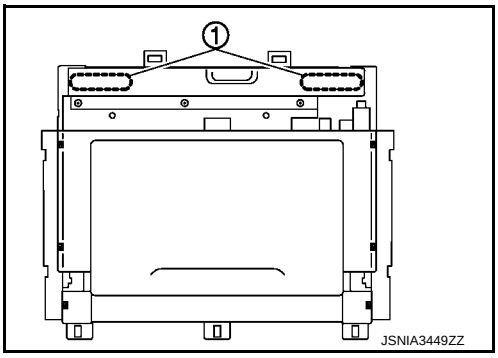
| | |
|---|---|
| Manufacturer name | Panasonic corporation |
| Screen size | 7-inch QVGA<br>[154.08 × 86.58 mm (6.1 × 3.4 in) ] |
| Number of pixels | 480 × 234 pixels |

## Rear Display Unit

INFOID:0000000012407259

- The rear display unit has an 11-inch WVGA* liquid-crystal display and a remote-control automatic folding function.
- Composite image signal [USB (video data), DVD and auxiliary input] and headphone sound signal are input from AV control unit.
- A remote control operation signal is received through the built-in light-receptive spot (1).
- The display brightness is adjusted automatically, according to ambient brightness.

*: WVGA (Wide VGA) is a standard of the resolution of the display. It extended width of VGA.



JSNIA3449ZZ

### Specification

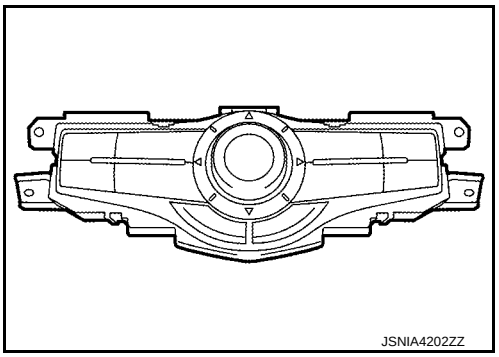
| | |
|---|---|
| Manufacturer name | Clarion Co., Ltd. |
| Screen size | 11-inch WVGA<br>[ 243.6 mm × 137.52mm (9.6 in × 5.4 in) ] |
| Number of pixels | 800 × 480 pixels |

cardiagn.com

## Multifunction Switch

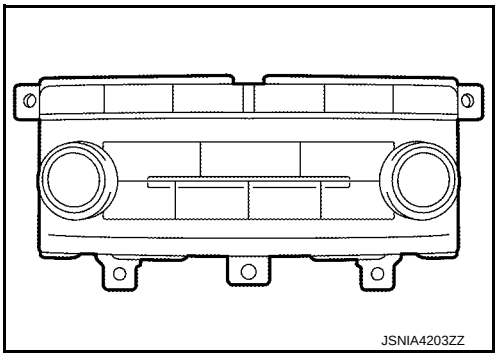
INFOID:0000000012407260

- The multifunction switch is an integrated switch that combines the audio operation and other operations switches. This integrated switch is located in the lower part of the front display unit.
- Connected with preset switch via hardwire and operation signal is transmitted to AV control unit via AV communication.


JSNIA4202ZZ

### PRESET SWITCH

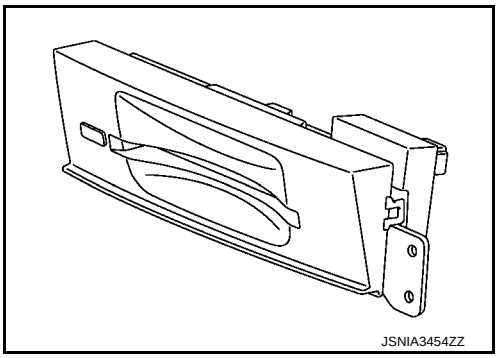
- The preset switch is separated from the multifunction switch and capable of audio operation.
- Operation signals of the multifunction switch and the preset switch are transmitted to the AV control unit via AV communication.


JSNIA4203ZZ

## Disk Eject Switch

INFOID:0000000012407261

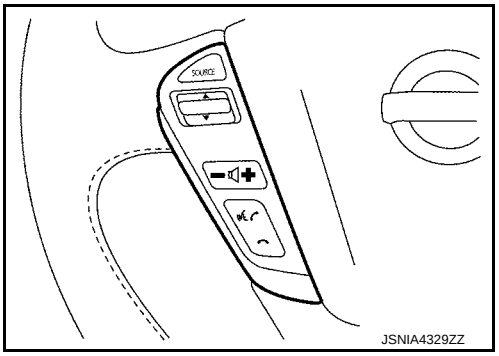
- The disk eject switch is used for removing CD/DVD from the AV control unit.
- When the disk eject switch is pressed, a disk eject signal is transmitted to the AV control unit, and the AV control unit ejects CD/DVD.


JSNIA3454ZZ

## Steering Switch

INFOID:0000000012407262

- Operations for audio and hands-free phone, etc. are possible.
- This switch is connected to the AV control unit, and the switch operation signal is transmitted to the AV control unit via voltage multiplex communication.



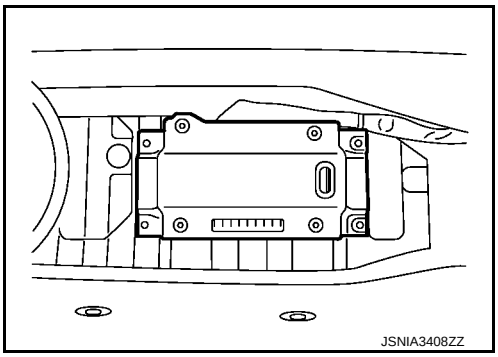
JSNIA4329ZZ

cardiagn.com

## BOSE Amp.

INFOID:0000000012407263

- Installed to the luggage floor box.
- Receives sound signal from AV control unit, and outputs sound signal to each speaker and woofer.


JSNIA3408ZZ

## Speaker

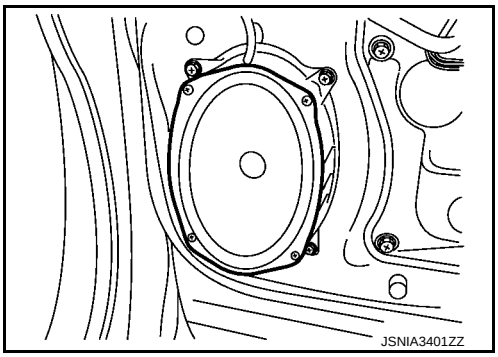
INFOID:0000000012407264

12 speakers system is adopted.

### FRONT DOOR WOOFER

- ϕ 15.0 × 23.0 cm (6 × 9 in) speaker is installed to the bottom of the front door.
- Sound signal is input from the BOSE amp. to output low range sounds.

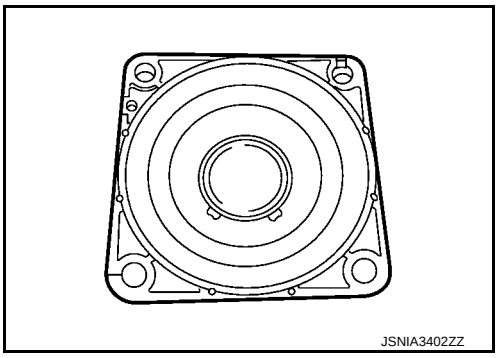
**Rated input : 13.6 W**
**Maximum input : 40.5 W**
**Impedance : 2 Ω**


JSNIA3401ZZ

### FRONT SQUAWKER

- ϕ 6.5 cm (2 in) squawker is installed to the side of instrument panel.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

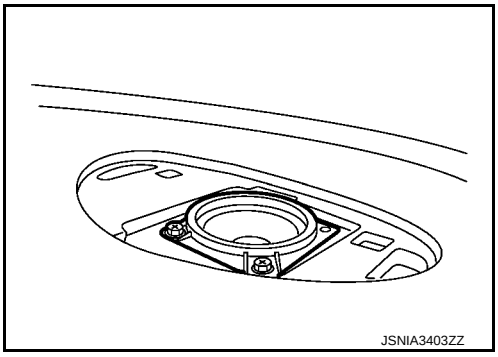
**Rated input : 4.8 W**
**Maximum input : 14 W**
**Impedance : 3.6 Ω**


JSNIA3402ZZ

### CENTER SQUAWKER

- ϕ 8 cm (3 in) squawker is installed to the center of instrument panel.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

**Rated input : 7.6 W**
**Maximum input : 22.5 W**
**Impedance : 3.6 Ω**

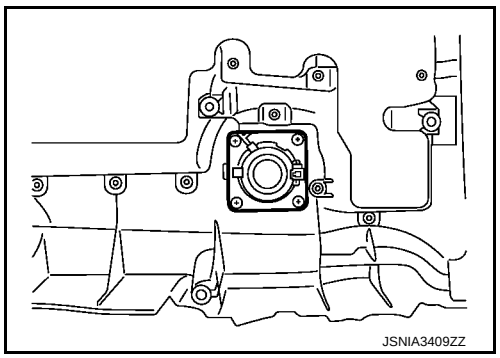

JSNIA3403ZZ

### SLIDE DOOR SQUAWKER

cardiagn.com

- ϕ 8 cm (3 in) squawker is located at the lower part of the front of the slide door.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

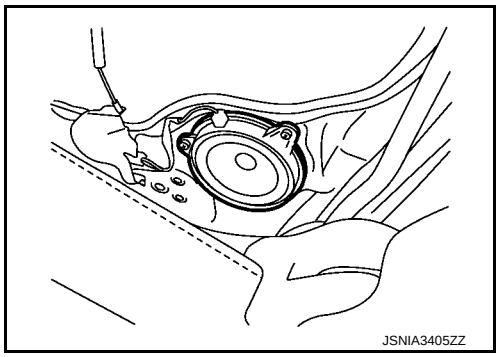
**Rated input : 7.6 W**
**Maximum input : 22.5 W**
**Impedance : 3.6 Ω**




SLIDE DOOR SPEAKER

- ϕ 16 cm speaker is located at the lower part of the back of the slide door.
- Sound signal is input from the BOSE amp. to output high, mid, and low range sounds.

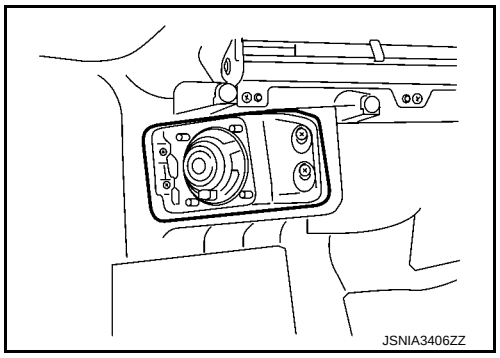
**Rated input : 12.9 W**
**Maximum input : 38.5 W**
**Impedance : 2.1 Ω**




LUGGAGE SQUAWKER

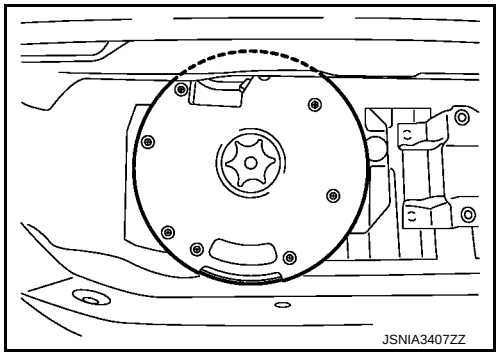
- ϕ 8 cm (3 in) squawker is installed to the side of luggage room.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

**Rated input : 7.6 W**
**Maximum input : 22.5 W**
**Impedance : 3.6 Ω**




WOOFER

- Woofer integral with the enclosure is located in the luggage floor box to improve the sound-field characteristics of the bass range.
- Composed of two woofers and a woofer amp.
- The woofer is activated when receiving a woofer amp. ON signal from the BOSE amp.

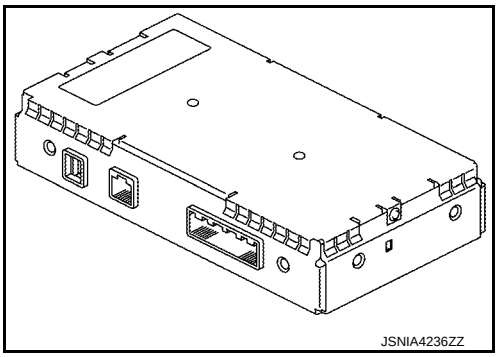



cardiagn.com

## TEL Adapter Unit

INFOID:0000000012407265

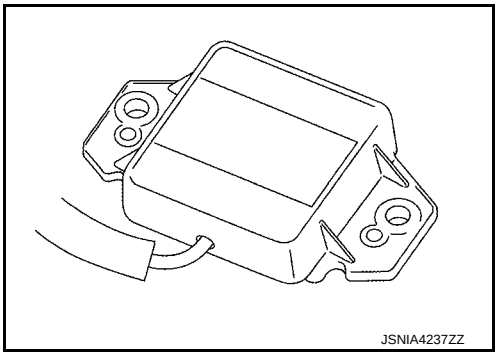
- Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit.
- It is connected with the AV control unit via AV communication and controlled with the AV control unit.


JSNIA4236ZZ

## TEL Antenna

INFOID:0000000012407266

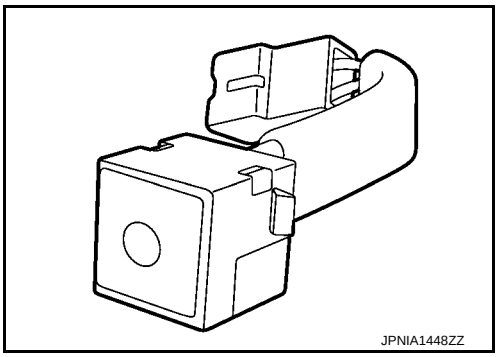
Receives the TEL voice signal from cellular phone and outputs it to the TEL adapter unit.


JSNIA4237ZZ

## Microphone

INFOID:0000000012407267

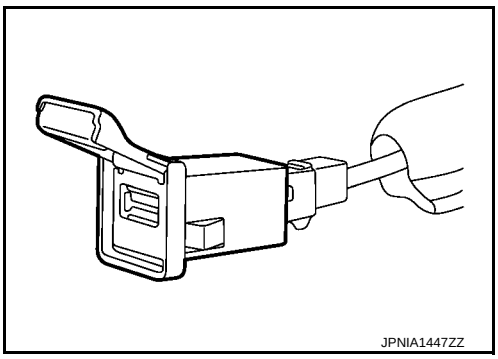
- The voice control/TEL microphone is installed on the left side of the map lamp assembly.
- The power is supplied from the TEL adapter unit to the microphone, transmitting sound signals to the TEL adapter unit at the voice control or during hands-free phone communication.


JPNIA1448ZZ

## USB Connector

INFOID:0000000012407268

- USB connector is installed to the console box.
- iPod® and USB memory can be connected to the AV control unit.

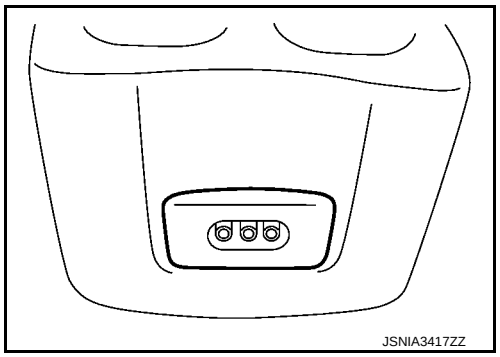

JPNIA1447ZZ

cardiagn.com

## Auxiliary Input Jacks

INFOID:0000000012407269

- Installed to the rear of center console.
- Sound signals and image signals from the external equipment are transmitted to the AV control unit.

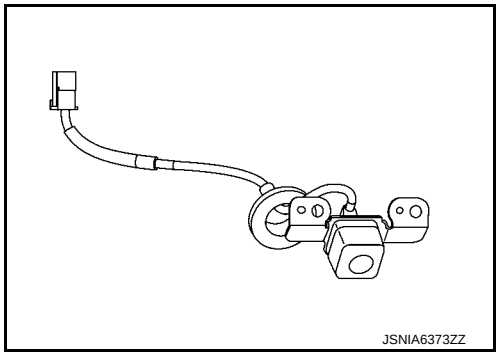

JSNIA3417ZZ

## Rear View Camera

INFOID:0000000012407270

- The rear view camera is installed to the back door finisher.
- Super-small CCD camera (color) using CCD* for the image pickup element is adopted.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.
- Power for the camera is supplied from the AV control unit, and the image at the rear of the vehicle is sent to the AV control unit.

**NOTE:**
*: Abbreviation of Charge Coupled Device. CCD can turn incident light from the lens into electrons and memorize the image like a photo.


JSNIA6373ZZ

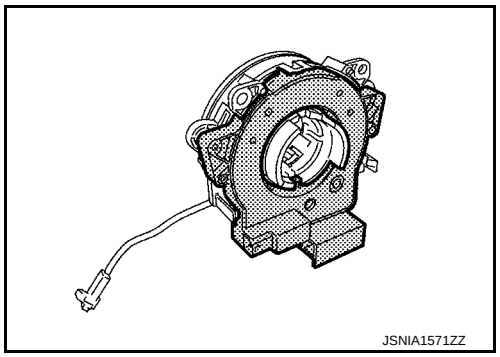
### Specification

| | |
|---|---|
| Manufacturer name | Panasonic corporation |
| Image pickup element | 1/4-inch interline CCD color |
| Effective number of pixels | Approx. 250,000 pixels (510 × 492) |
| Minimum brightness | 2 lx |
| Angle of view | H: 137° V: 92° |
| Image | With mirror processing function |

## Steering Angle Sensor

INFOID:0000000012407271

- Steering sensor is installed to the spiral cable.
- Steering angle sends the steering signal necessary for predictive course line of the rear view monitor function to the AV control unit via CAN communication.


JSNIA1571ZZ

## Antenna amp, Radio Antenna, and Antenna Feeder

INFOID:0000000012407272

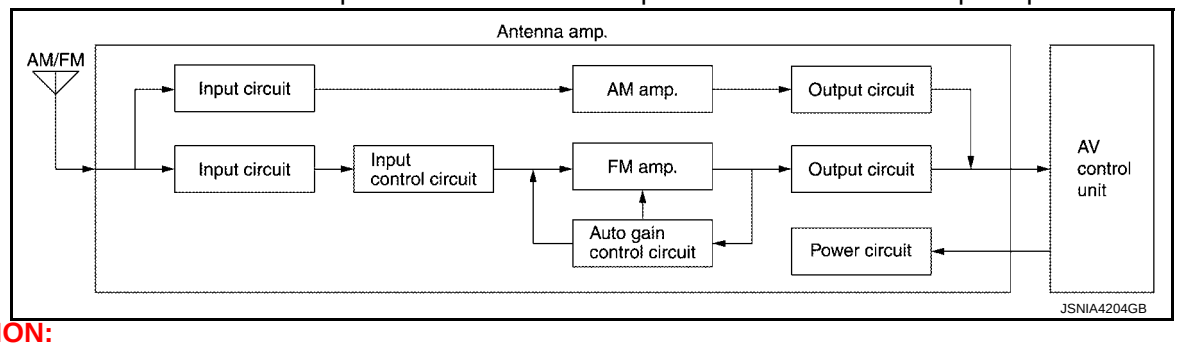
RADIO ANTENNA

- AM/FM radio main antenna is located on the right rear side window glass and FM radio sub antenna on the left rear side window glass.



cardiagn.com

- The AM/FM radio main antenna path has an antenna amp. to obtain sufficient reception power.



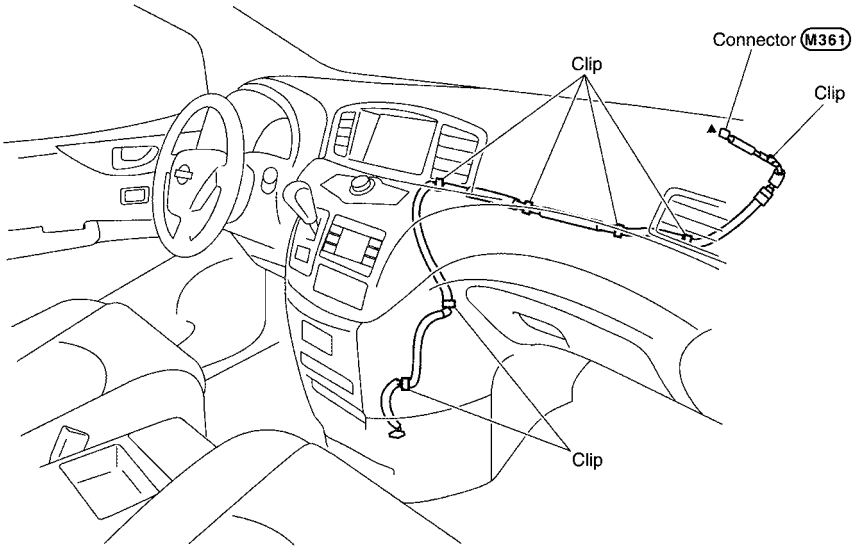

**CAUTION:**

**Affixing any mirror-type window films or metallic items (e.g. commercial antenna) on the rear side window glass causes a reduction in the radio receiver sensitivity.**

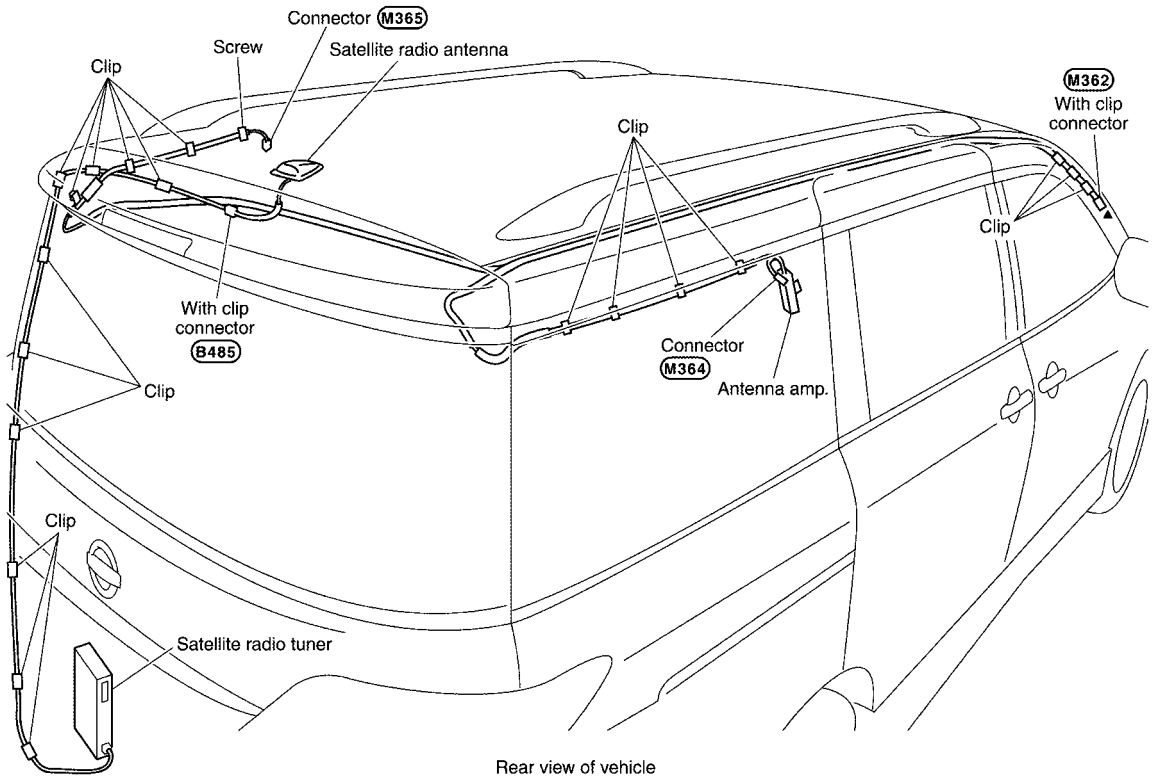
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4219GB

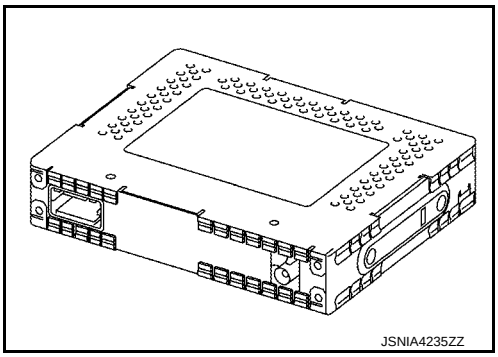
▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

## Satellite Radio Tuner

INFOID:0000000012407273

- Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit.
- It is controlled with the AV control unit and serial communication (communication signal and request signal).




## Satellite Radio Antenna

INFOID:0000000012407274

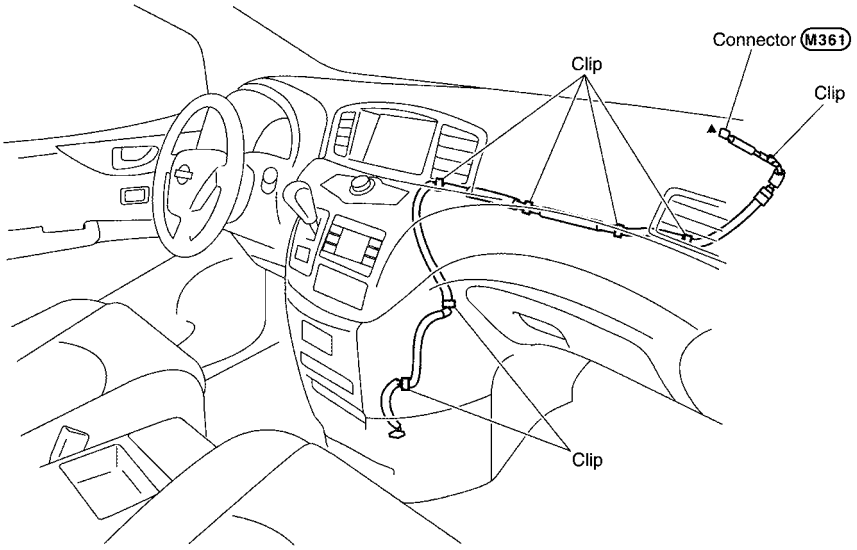
SATELLITE RADIO ANTENNA

- Satellite radio antenna is installed to the rear center of the roof.
- Receives satellite radio waves and outputs it to satellite radio tuner.

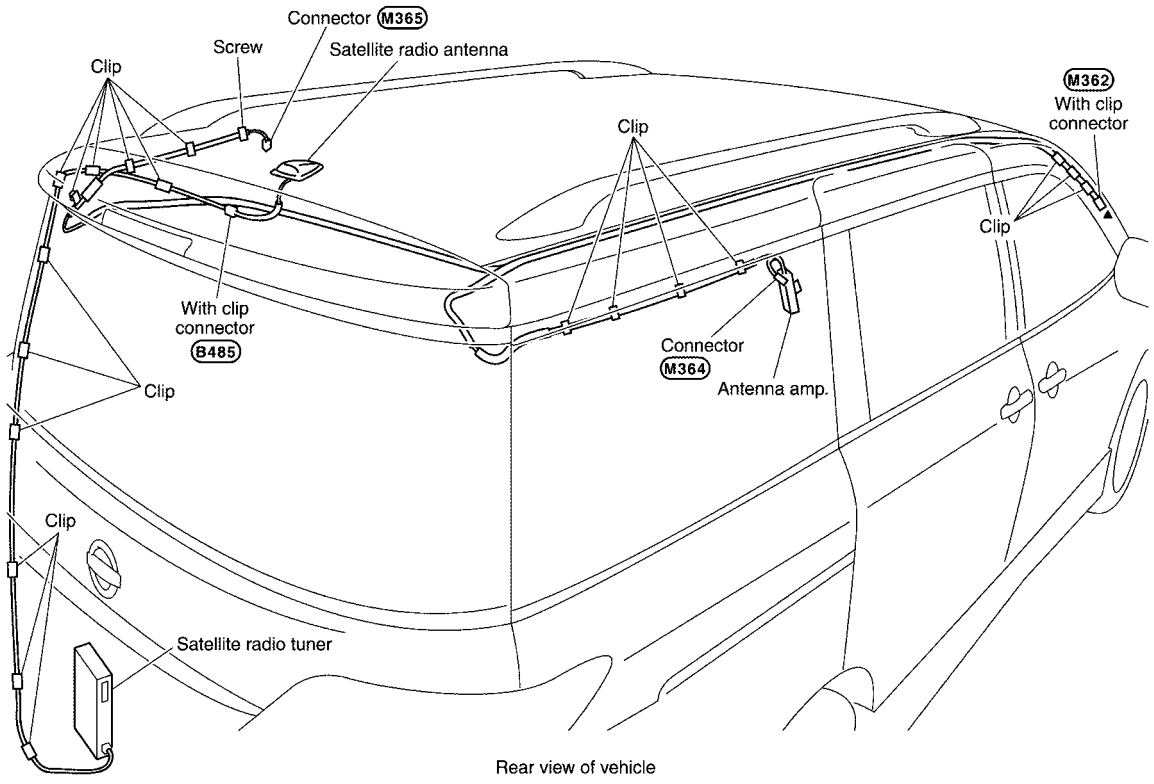
cardiagn.com

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4219GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

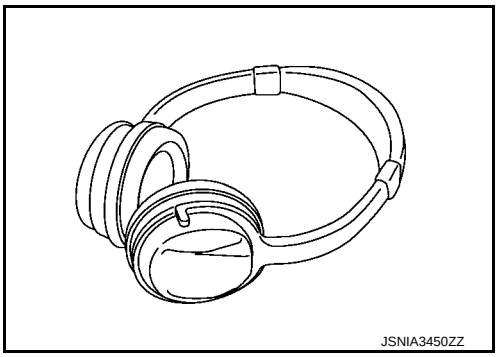
cardiagn.com

## Headphone

INFOID:0000000012407275

- The adoption of the wireless headphone allows the independent audio listening on the rear seat.
- Sound signals are received from the rear display unit via infrared communication.

Battery: AAA battery × 2

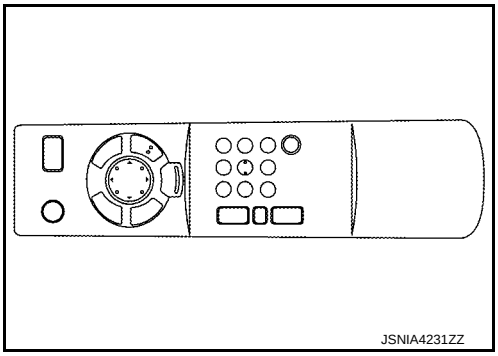



## Remote Controller

INFOID:0000000012407276

- The adoption of the infrared remote controller allows audio operation and other operations on the rear seat.
- The light-receptive spot is included in the rear display unit.

Battery: AA battery × 2

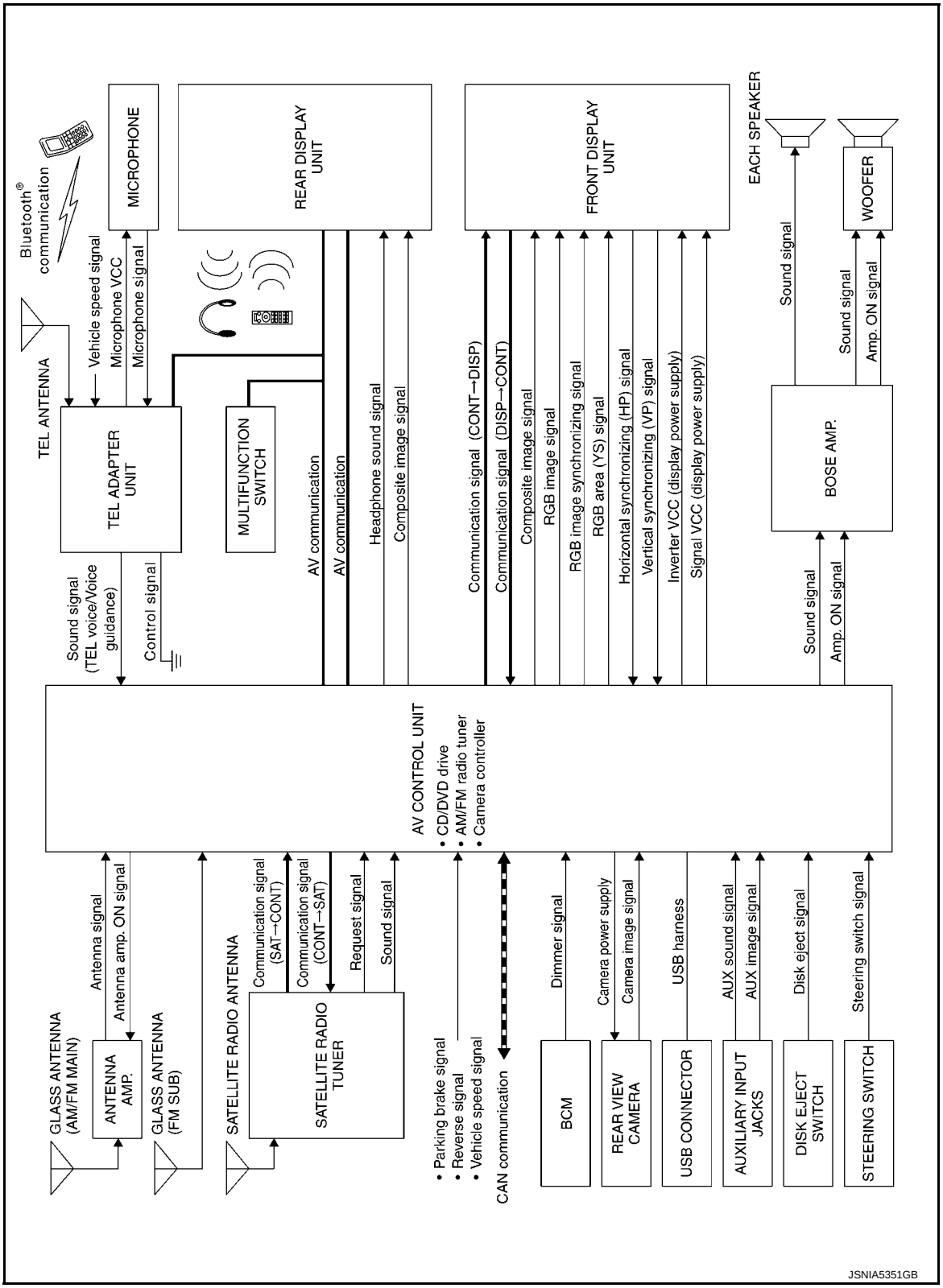



cardiagn.com

# SYSTEM
## MULTI AV SYSTEM
### MULTI AV SYSTEM : System Description

INFOID:0000000012407277

SYSTEM DIAGRAM




**NOTE:**



cardiagn.com

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

## CAN COMMUNICATION

AV control unit Input Signal

| Transmit unit | Signal name |
|---|---|
| ECM | Engine status signal |
| | Fuel consumption monitor signal |
| Steering angle sensor | Steering angle sensor signal |
| Combination meter | Vehicle speed signal |
| | Distance to empty signal |
| | Fuel level low warning signal |
| BCM | System setting signal |

## DESCRIPTION

Multi AV system means that the following systems are integrated.

| FUNCTION NAME |
|---|
| Audio function |
| DVD playback function |
| Bluetooth® hands-free phone function |
| Mobile entertainment system |
| Auxiliary input function |
| Rear view monitor function |
| Vehicle information function |
| Auto Light adjustment system |

## COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected with front display unit and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display unit.
- AV control unit controls satellite radio tuner by serial communication.

## CAN COMMUNICATION

- AV control unit is connected by CAN communication, and it receives data signal from ECM and combination meter. It computes and displays fuel economy information value with the obtained information.
- The AV control unit, which has the vehicle setting function, transmits and receives data on vehicle setting condition via CAN communication with the BCM.
- AV control unit receives steering angle signal from steering angle sensor via CAN communication and performs control of predictive course line in rear view monitor image.

## AUDIO FUNCTION

The audio system is equipped with the following functions.

| FUNCTION |
|---|
| AM/FM radio |
| Satellite radio |
| CD |
| USB connection |

cardiagn.com

Operating Signal

Audio system operation can be performed with multifunction switch, preset switch, or steering switch.

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch.
- The disk eject signal is transmitted to AV control unit by hardwire, when disk eject switch is operated.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.
- Operation status of audio is indicated at front display by RGB image signal, RGB area signal, and RGB image synchronizing signal.

AM/FM Radio Function

- AM/FM radio tuner is built into AV control unit.
- AM/FM radio wave is received by radio antenna, next it is amplified by antenna amp., and finally it is input to AV control unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the AV control unit directly.
- Audio signal is input to BOSE amp. and BOSE amp. outputs to woofer and each speaker.

Satellite Radio Mode

- Satellite radio tuner is controlled by communication signal and request signal with AV control unit.
- Sound signal (satellite radio) is received by satellite radio antenna and transmitted to AV control unit via satellite radio tuner.
- AV control unit outputs audio signal (satellite radio) to BOSE amp. The signal is also outputted from BOSE amp. to woofer and each speaker.

CD Mode

- CD function is built into AV control unit.
- AV control unit outputs audio signal to BOSE amp. The signal is also outputted from BOSE amp. to woofer and each speaker when CD is inserted to AV control unit.
- For further information about CD function specifications, refer to AV-266, "AV Control Unit".

USB Connection Function

- Connecting iPod® or USB memory allows the driver to play iPod® music files or USB memory-stored music files.
- Sound signals of music files stored in iPod® or USB memory is transmitted from the USB connector to the AV control unit.
- AV control unit outputs sound signal to BOSE amp. The signal is also outputted from BOSE amp. to woofer and each speaker.
- iPod® is recharged when connected to USB connector.
- Compliant USB memory and data recorded are limited.

| | |
|---|---|
| USB memory | USB1.1 |
| File system | FAT16 |
| | FAT32 |

- Only files that meet the following conditions will be played.

| | Music file |
|---|---|
| File format | “MP3”, “WMA” |
| File extension | “.mp3”, “.wma” |
| Maximum file size | 2 GB |

**NOTE:**

- iPod® is a trademark of Apple inc., registered in the U.S. and other countries.
- Image signals cannot be received from iPod® or USB memory.
- Use the enclosed USB harness when connecting iPod® to USB connector.

## DVD PLAYBACK FUNCTION

- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the front display unit, and DVD sound signals are transmitted to woofer and each speaker via BOSE amp.

cardiagn.com

- DVD image signals and sound signals are transmitted to the rear display unit. The rear display unit transmits the sound signals to the headphone via infrared communication.
- For further information about DVD function specifications, refer to AV-266, "AV Control Unit".

## MOBILE ENTERTAINMENT SYSTEM

Image and sound (DVD, USB memory-stored video data, and auxiliary input) played by AV control unit can be enjoyed in rear seat using rear display unit and headphone.

### Operating Signal

- The mobile entertainment system can be controlled by one of the remote controller.
- It receives the operation signal of the remote controller by the remote control receiver built into rear display unit, and then transmits it to the AV control unit.

### Headphone Sound

Headphone sound signals are transmitted to infrared communication between rear display unit and headphone.

### Screen rear display

- Image signal output from AV control unit is transmitted to the rear display unit.
- The rear display unit receives the composite image signal (DVD, USB memory-stored video data, and auxiliary input) from the AV control unit.
- The rear display unit switches composite images through the communications with the AV control unit via AV communication.

## BLUETOOTH® HANDS-FREE PHONE FUNCTION

- TEL adapter unit is controlled with AV communication from AV control unit.
- When the cellular phone is connected to the TEL adapter unit via TEL antenna in Bluetooth® communication, hands-free phone communication can be performed.
- Simply operating the steering switch without releasing hands from the steering wheel allows the driver to make a phone call or receive a phone call.
- When a Bluetooth® communication compliant phone is registered to the TEL adapter unit, hands-free phone communication can be performed. Five units of Bluetooth® communication devices can be registered to the TEL adapter unit.
- The content of the memory (telephone book) of the cellular phone can be recorded in the TEL adapter unit.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-299, "On Board Diagnosis Function".

| | |
|---|---|
| Bluetooth® compliant profile | HFP1.5 |
| | Core specification 2.0 + EDR |

### When A Call Is Originated

- Spoken voice sound output from the microphone (microphone signal) is input to TEL adapter unit.
- TEL adapter unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal.
- Voice sound is then heard at the other party.

### When Receiving A Call

- Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to TEL adapter unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speaker via BOSE amp.

## AUXILIARY INPUT FUNCTION

- Image and sound can be output from an external device by connecting a device with front auxiliary input jacks.
- AUX image signals are transmitted to front and rear display unit via AV control unit
- AUX sound signals are transmitted to each unit as follows:
- To each speaker via AV control unit and BOSE amp.
- To the rear display unit via AV control unit, and headphone sound signals are transmitted to infrared communication between rear display unit and headphone.

## REAR VIEW MONITOR FUNCTION

### Operation Description

- When the selector lever is shifted to the reverse position, the rear view monitor image is displayed.

cardiagn.com

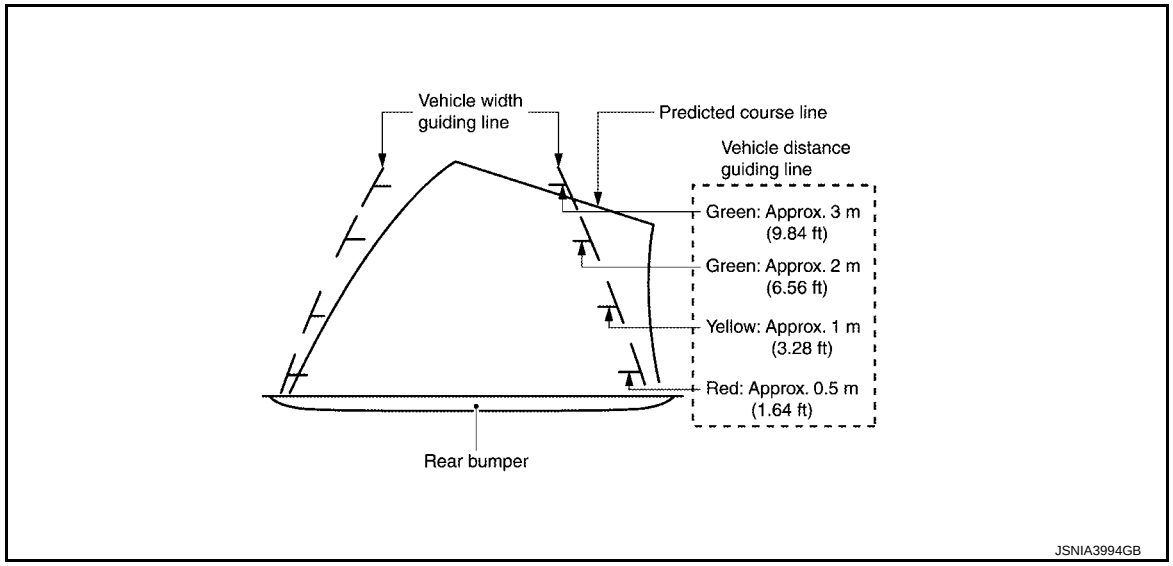
- When the selector lever is shifted to any position other than the reverse position, the original image (the image displayed before the rear view monitor image) is displayed.

Camera Image Operation Principle

- The AV control unit that receives the reverse signal input supplies power to the rear view camera and gives input of image signal.
- The AV control unit outputs the rear view camera image to the front display when the reverse signal is inputted.
- The AV control unit generates the warning message, side distance guiding lines and the predictive course lines on the image from the rear view camera, and transmits the rear view camera image signal to the front display unit.

Side Distance Guide Lines and Predictive Course Lines Display Function at Rear View Monitor Display

- The side distance guide lines and the predictive course line that indicate the vehicle route according to the steering angle are displayed at the rear view monitor display to allow the driver to more easily judge distances between the vehicle and objects and help the driver back into a parking space.
- The AV control unit receives the steering angle signal from the steering angle sensor via CAN communication and draws a predictive course line according to the steering angle signal.
- When the predictive course line are displayed, the side distance guide lines are displayed translucently.
- The predictive course line are not displayed when the steering is in the neutral position.
- The predictive course line can be displayed/not displayed by selecting “Settings” - “Others” - “Camera” - “Predictive Course Lines”



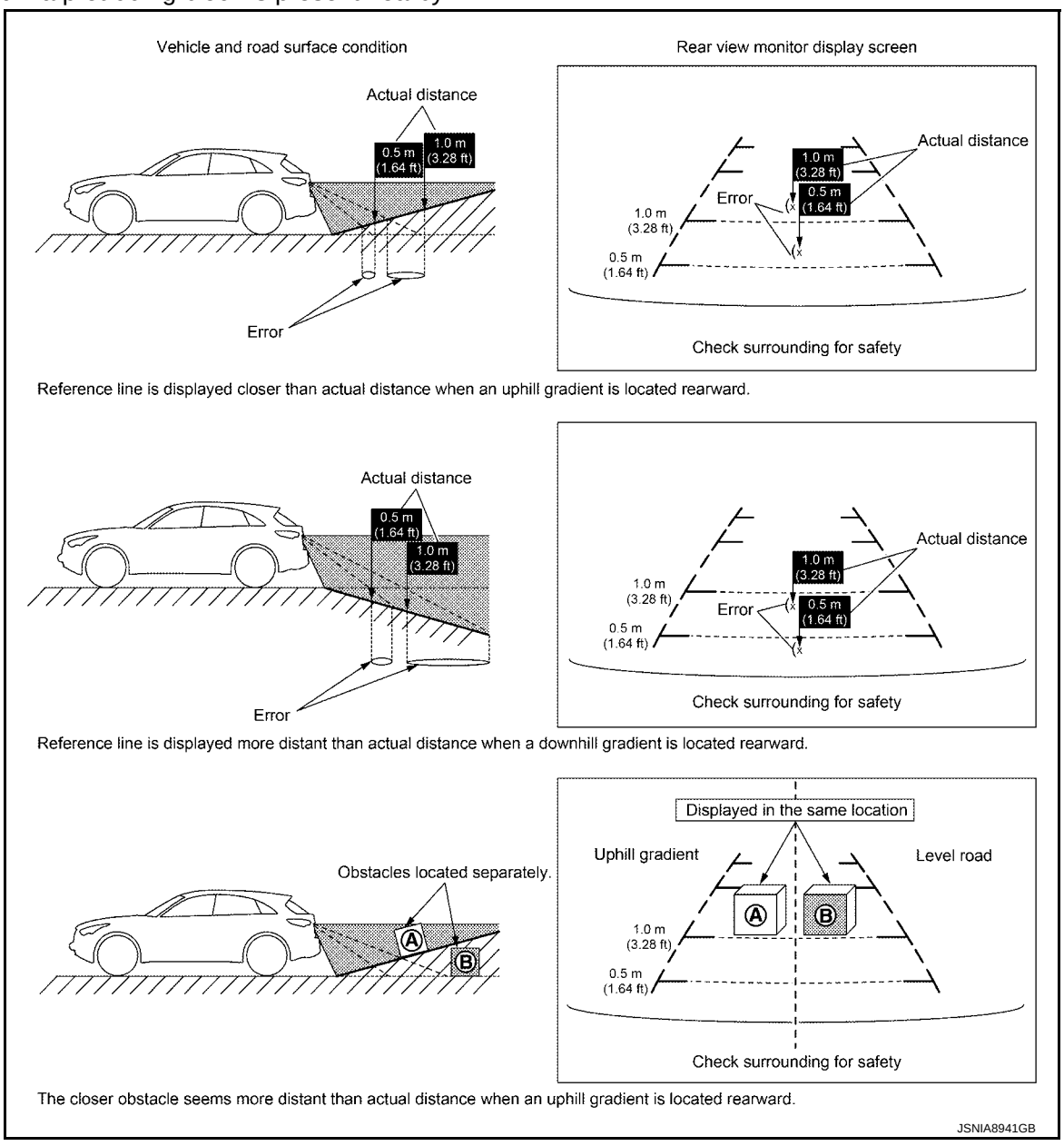

Precautions for Side Distance Guide Lines and predictive course line Display on the Rear View Monitor Display

Side distance guide lines and predictive course line on the display may be different from actual lines depending on vehicle conditions and road conditions.

Precautions for road conditions

cardiagn.com

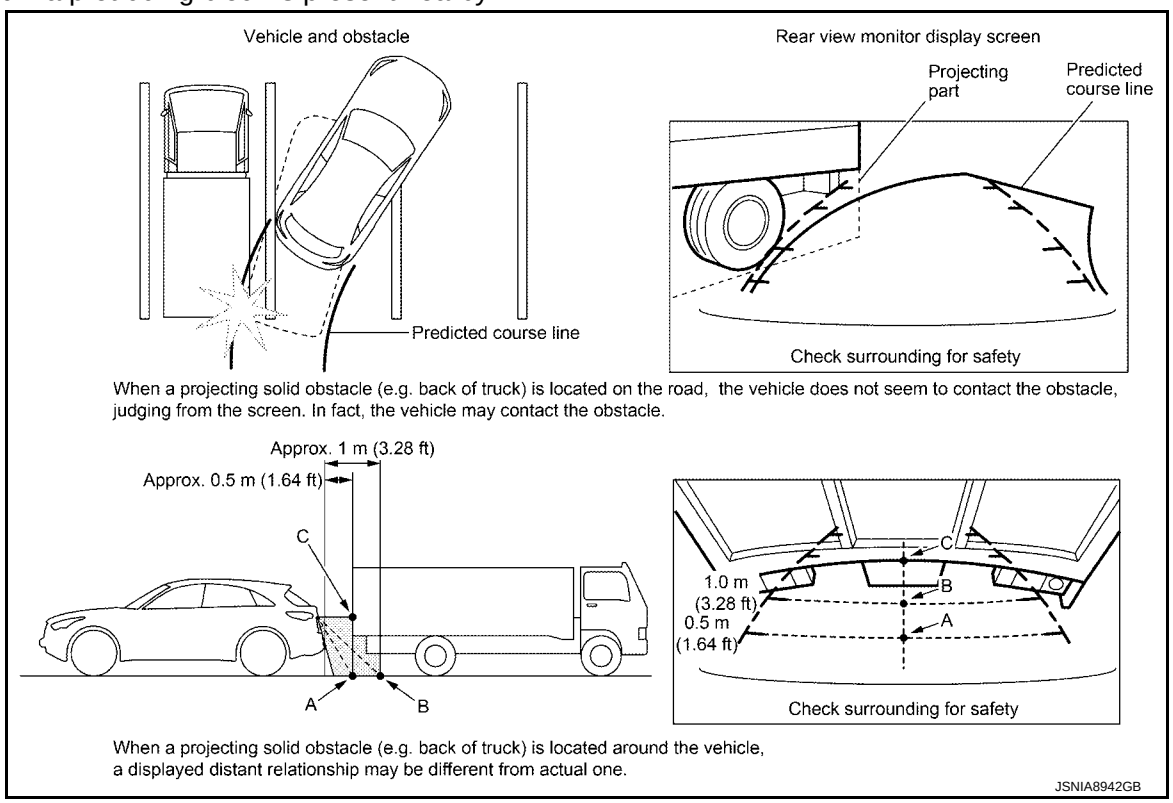
- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




Precautions for block

cardiagn.com

- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




## VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy, maintenance and navigation are displayed.
- AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM and combination meter.

### Vehicle Setting Function

The AV control unit transmits and receives data signals via CAN communication with the BCM, allowing the following vehicle settings.

- To turn on the automatic interior room lamp (ON/OFF) when the door is unlocked
- To adjust the auto light sensitivity (+/–)
- To operate the intermittent wiper linked with the vehicle speed (ON/OFF)
- Vehicle setting initialization

**NOTE:**
The setting items vary depending on the vehicle specification

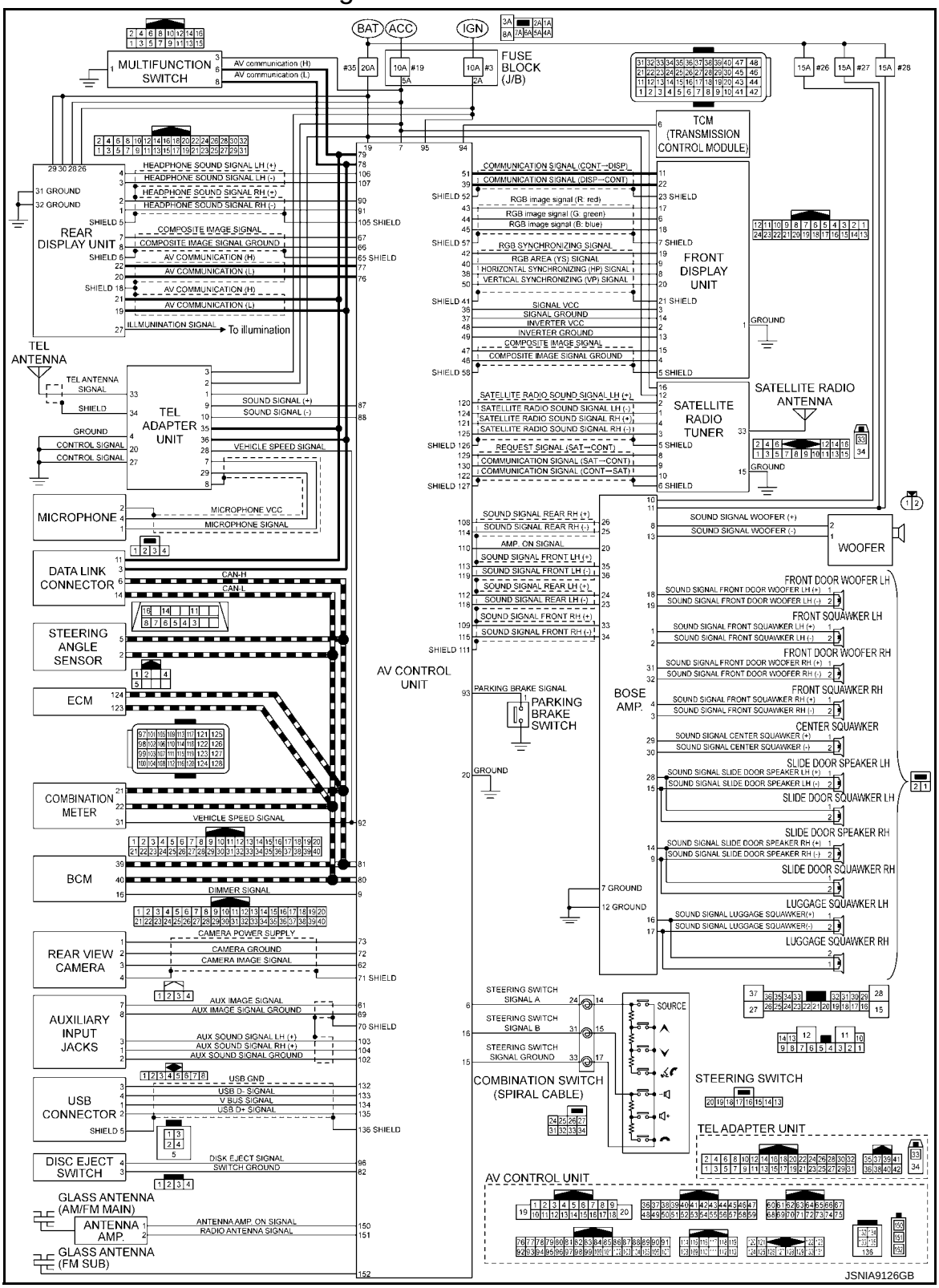
## AUTO LIGHT ADJUSTMENT SYSTEM

When the light switch is in the 1st or 2nd position, the dimming of the display is judged according to a dimming signal transmitted from BCM to the AV control unit. Display illuminance is independent of vehicle exterior illuminance detected by the auto light detecting sensor even when the light switch is in 1st or 2nd position.

cardiagn.com

# MULTI AV SYSTEM : Circuit Diagram

INFOID:0000000012407278




cardiagn.com

# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

## Description

INFOID:0000000012407279

- The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit performs a diagnosis for each unit in the system during the on board diagnosis.
- Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display anything, the multifunction switch does not function, etc.

## On Board Diagnosis Function

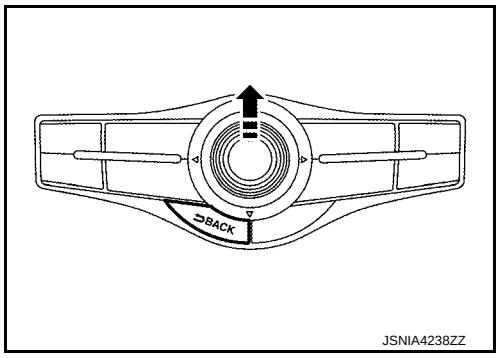
INFOID:0000000012407280

### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the “BACK” switch and the “UP” switch of the 4-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
  **NOTE:**
  The disk eject switch cannot be checked.



JSNIA4238ZZ

Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the AV control unit diagnosis and the connection diagnosis between each of the units that make up the system, and it indicates the results to the front display unit.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

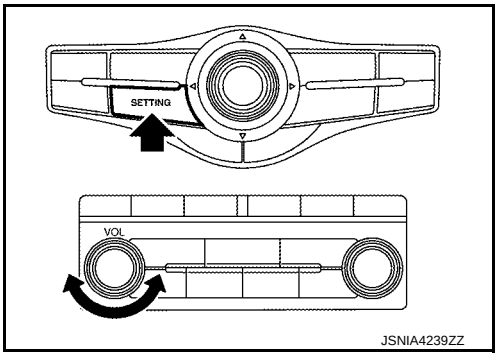
| Mode | Description |
|---|---|
| Self Diagnosis | • AV control unit diagnosis.<br>• Diagnoses the connections across system components, between AV control unit and each unit. |

cardiagn.com

| Mode | | Description |
|---|---|---|
| Confirmation/ Adjustment | Display Diagnosis | The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display. |
| | Vehicle Signals | Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse. |
| | Speaker Test | The connection of a speaker can be confirmed by test tone. |
| | Climate Control | Start auto air conditioner system self-diagnosis. |
| | Error History | The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed. |
| | Camera Cont. | • Guiding line position that overlaps rear view camera image can be adjusted.<br>• Configuration stored in the AV control unit can be checked. |
| | Vehicle CAN Diagnosis | The transmitting/receiving of CAN communication can be monitored. |
| | AV COMM Diagnosis | The communication condition of each unit of Multi AV system can be monitored. |
| | Delete Unit Connection Log | Erase the connection history of unit and error history. |
| | Initialize Settings | Initializes the AV control unit memory. |

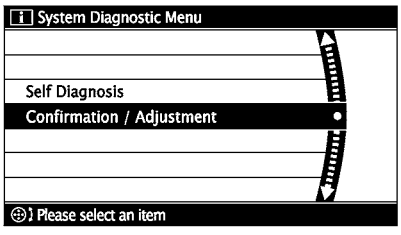
## METHOD OF STARTING

1. Start the engine.
2. Turn the audio system OFF.
3. While pressing the “SETTING” button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, the trouble diagnosis initial screen is displayed.)
   • Shifting from current screen to previous screen is performed by pressing “BACK” button.



JSNIA4239ZZ

4. Items of “Self Diagnosis” and “Confirmation/Adjustment” can be selected on the trouble diagnosis initial screen.



SKIB3961E

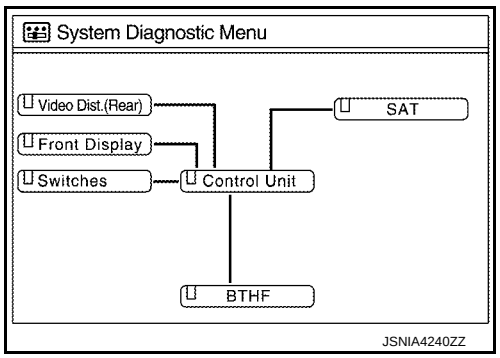
## SELF-DIAGNOSIS MODE

1. Start the self-diagnosis function and select “Self Diagnosis”.

- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

cardiagn.com

2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

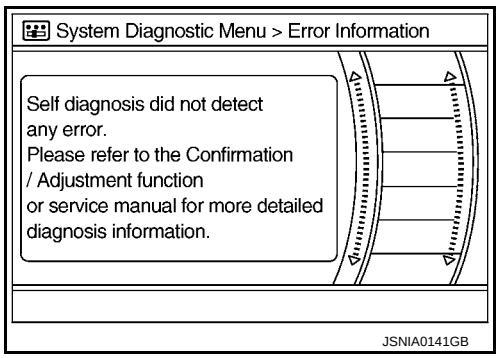



| Diagnosis results | Unit | Connection line |
|---|---|---|
| Normal | Green | Green |
| Connection malfunction | Gray | Yellow |
| Unit malfunction Note | Red | Green |

**NOTE:**
Control unit (AV control unit) and is displayed in red.

- Replace AV control unit if “Self-Diagnosis did not run because of a control unit malfunction” is indicated. The symptom is AV control unit internal error. Refer to AV-398, "Removal and Installation".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.

- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.




Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

## SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

| Screen switch | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit | Malfunction is detected in AV control unit power supply and ground circuits. | Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit.<br>Refer to AV-398, "Removal and Installation". |

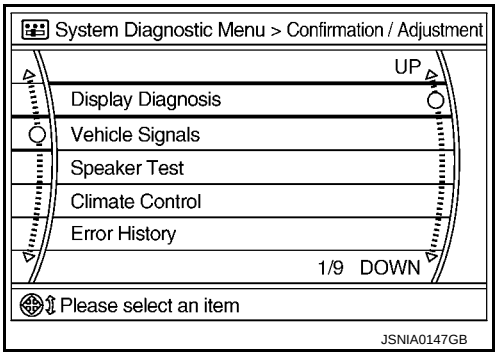
A Connecting Cable Between Units Is Displayed In Yellow.

cardiagn.com

| Area with yellow connection lines | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit ⇔ Front display | Serial communication circuits between AV control unit and front display unit are malfunctioning. | Serial communication circuits between AV control unit and front display unit. |
| Control unit ⇔ SAT | When either one of the following items are detected:<br>• satellite radio tuner power supply and ground circuits are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-364, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |
| Control unit ⇔ BTHF | When either one of the following items are detected:<br>• TEL adapter unit power supply and ground circuit are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>Refer to AV-365, "TEL ADAPTER UNIT : Diagnosis Procedure"<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| Control unit ⇔ Video Dist.(Rear) | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>• AV communication circuits between AV control unit and rear display unit. |

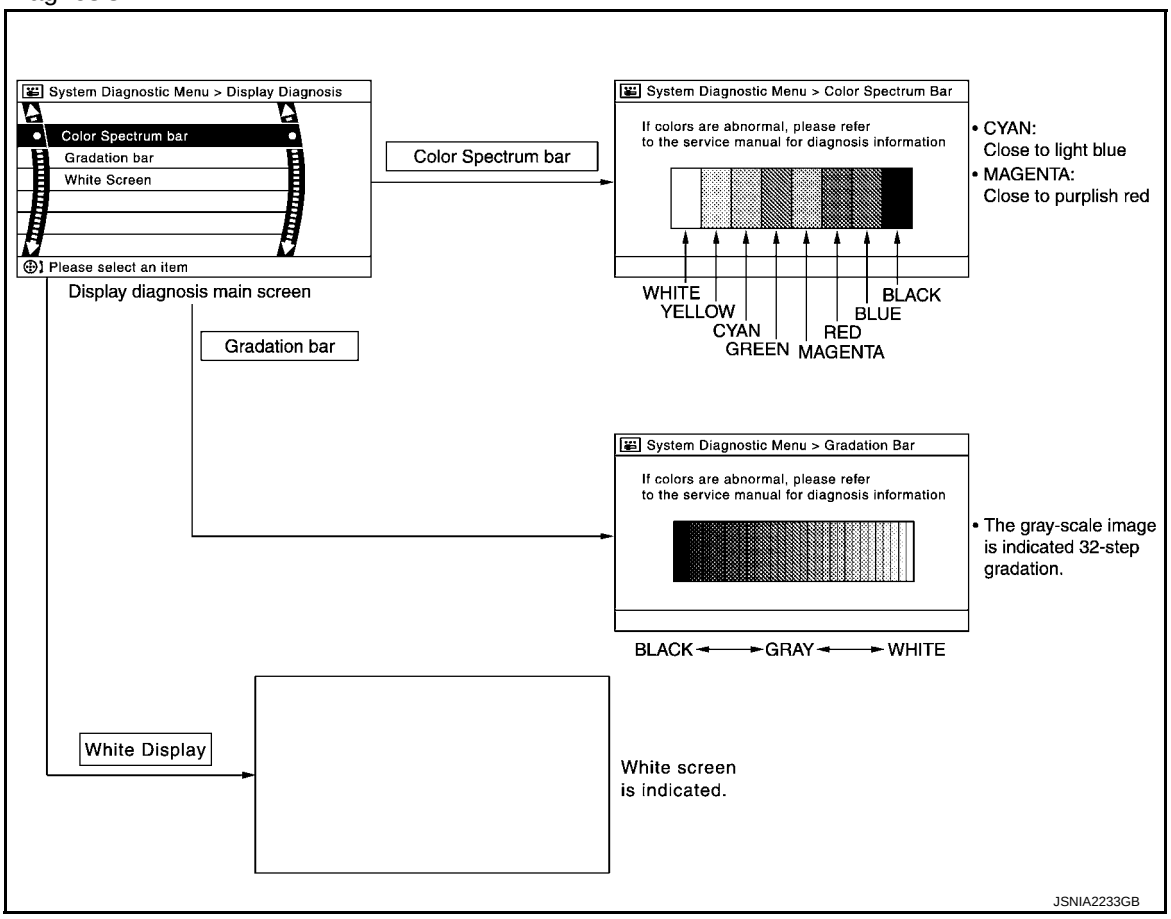
## CONFIRMATION/ADJUSTMENT MODE

1. Start the diagnosis function and select “Confirmation/Adjustment”. The confirmation/adjustment mode indicates where each item can be checked or adjusted.
2. Select each switch on the “Confirmation/Adjustment Mode” screen to display the relevant trouble diagnosis screen. Press the “BACK” switch to return to the initial Confirmation/Adjustment Mode screen.



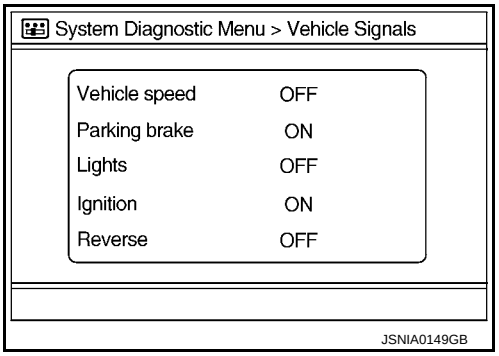

cardiagn.com

Display Diagnosis




Vehicle Signals

A comparison check can be made of each actual vehicle signal and the signals recognized by the system.




| Diagnosis item | Display | Vehicle status | Remarks |
|---|---|---|---|
| Vehicle speed | ON | Vehicle speed > 0 km/h (0 MPH) | Changes in indication may be delayed. This is normal. |
| | OFF | Vehicle speed = 0 km/h (0 MPH) | |
| Parking brake | ON | Parking brake is applied. | |
| | OFF | Parking brake is released. | |
| Lights | ON | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | — |
| | OFF | Either of the following conditions<br>• Lighting switch is OFF<br>• Expose the auto light optical sensor to light when the lighting switch is 1st or 2nd. | |

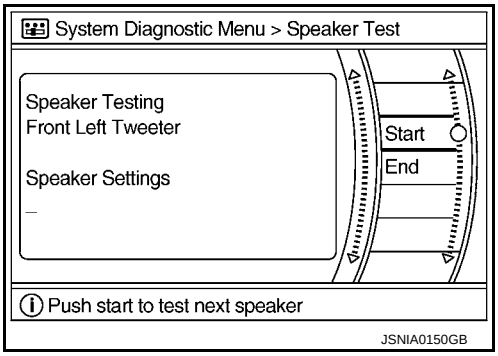


cardiagn.com

| Diagnosis item | Display | Vehicle status | Remarks |
|---|---|---|---|
| Ignition | ON | Ignition switch is ON | — |
| | OFF | Ignition switch is in ACC position | |
| Reverse | ON | Selector lever is in “R” position | Changes in indication may be delayed. This is normal. |
| | OFF | Selector lever is in other than “R” position | |

Speaker Test

Select “Speaker Test” to display the Speaker Diagnosis screen. Press “Start” to generate a test tone in a speaker. Press “Start” again to generate a test tone in the next speaker. Press “End” to stop the test tones.




Climate Control

Refer to “HEATER & AIR CONDITIONING CONTROL SYSTEM” for details.

Error History

The self-diagnosis results are judged depending on whether any error occurs from when “Self-diagnosis” is selected until the self-diagnosis results are displayed.

However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self-diagnosis start. Check the “Error Record” to detect any error that may have occurred before the self-diagnosis start because of this situation.

The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

Count up method A

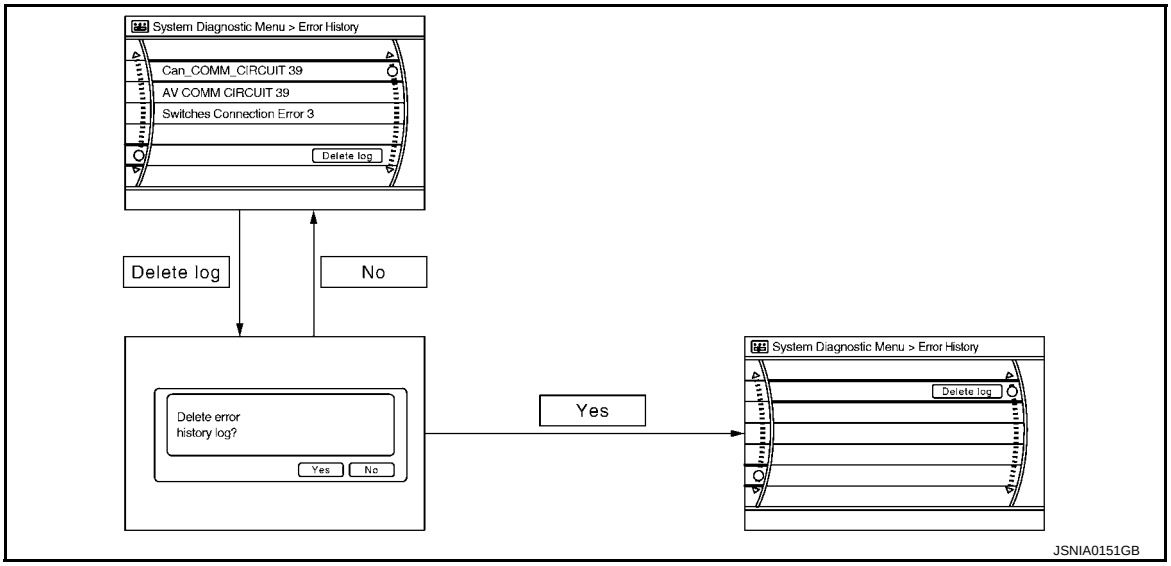
- The counter resets to 0 if an error occurs when ignition switch is turned ON. The counter increases by 1 if the condition is normal at a next ignition ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored.“ The counter can be reset (no error record display) with the “Delete log” switch or CONSULT.

Count up method B

- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. “ The counter can be reset (no error record display) with the “Delete log” switch or CONSULT.

| Display type of occurrence frequency | Error history display item |
|---|---|
| Count up method A | CAN communication line, control unit (CAN), AV communication line, control unit (AV) |
| Count up method B | Other than the above |

cardiagn.com




Error item

Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CAN COMM CIRCUIT | CAN communication malfunction is detected. | Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results.<br>Refer to AV-296, "CONSULT Function". |
| CONTROL UNIT (CAN) | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-398, "Removal and Installation". |
| CONTROL UNIT (AV) | AV communication circuit initial diagnosis malfunction is detected. | |
| FLASH-ROM Error Of Control Unit | AV control unit malfunction is detected. | |
| CAN Controller Memory Error | | |
| Steer. Angle Sensor Calibration | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust the neutral position of the steering angle sensor.<br>Refer to BRC-50, "Description". |
| Front Display Connection Error | When either one of the following items is detected:<br>• front display unit power supply and ground circuits malfunction is detected.<br>• malfunction is detected in communication circuits between AV control unit and front display unit. | • Front display unit power supply and ground circuits.<br>Refer to AV-361, "FRONT DISPLAY UNIT : Diagnosis Procedure".<br>• Communication circuits between AV control unit and front display unit. |
| XM Connection Error | When either one of the following items are detected:<br>• satellite radio tuner power supply and ground circuits are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-364, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |
| • AV COMM CIRCUIT<br>• Switches Connection Error | When either one of the following items is detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |

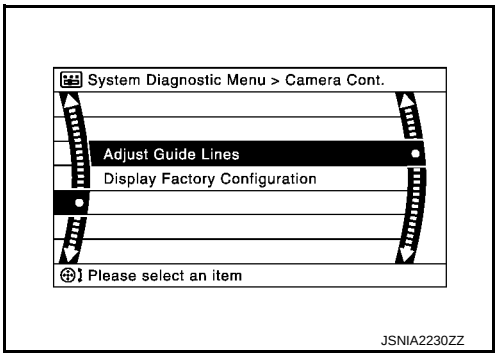


cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| • AV COMM CIRCUIT<br>• H/F Unit Connection Error | When either one of the following items are detected:<br>• TEL adapter unit power supply and ground circuit are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>Refer to AV-365, "TEL ADAPTER UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| • AV COMM CIRCUIT<br>• 2nd Display Connection Error | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-363, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |
| • AV COMM CIRCUIT<br>• Switches Connection Error<br>• H/F Unit Connection Error<br>• 2nd Display Connection Error | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

Camera Cont.

The two functions of “Correct Draw Line of Rear view Cam”, “Confirm Configuration” are available.

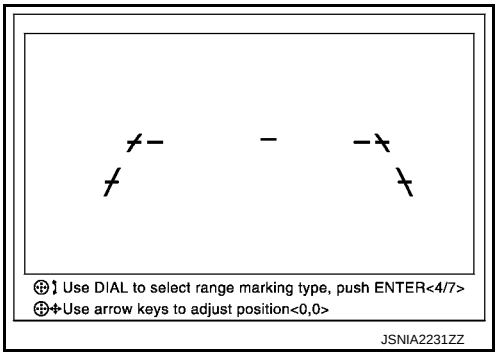



Adjust Offset of Rear view Camera

- Use this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view monitor camera.

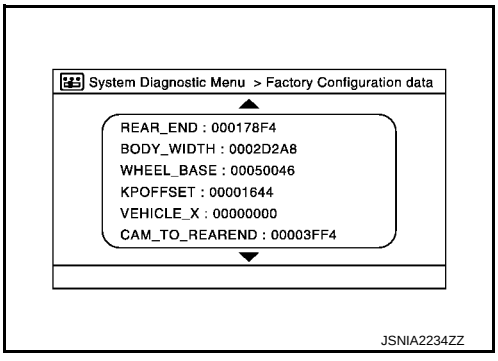
**CAUTION:**

**After the adjustment, never perform other operations for one minute.**




Factory Configuration Confirmation

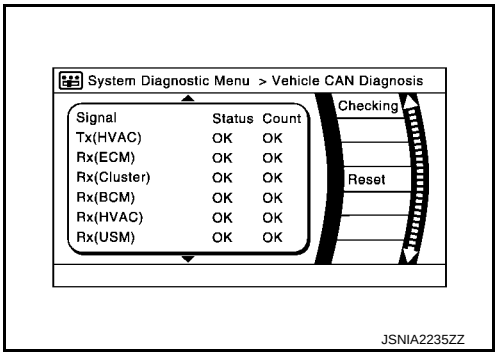
- Configuration stored in the AV control unit can be checked.




cardiagn.com

Vehicle CAN Diagnosis

- CAN communication status and error counter is displayed.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.

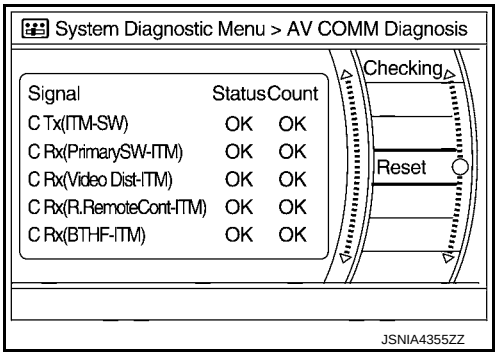



| Items | Display (Current) | Malfunction counter (Past) |
|---|---|---|
| Tx(HVAC) | OK / ??? | OK / 0 – 39 |
| Rx(ECM) | OK / ??? | OK / 0 – 39 |
| Rx(Cluster) | OK / ??? | OK / 0 – 39 |
| Rx(BCM) | OK / ??? | OK / 0 – 39 |
| Rx(HVAC) | OK / ??? | OK / 0 – 39 |
| Rx(USM) | OK / ??? | OK / 0 – 39 |
| Rx(VDC) | OK / ??? | OK / 0 – 39 |
| Rx(STRG) | OK / ??? | OK / 0 – 39 |

**NOTE:**
“???” indicates UNKWN.

AV COMM Diagnosis

- Displays the communication status between AV control unit (master unit) and each unit.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.

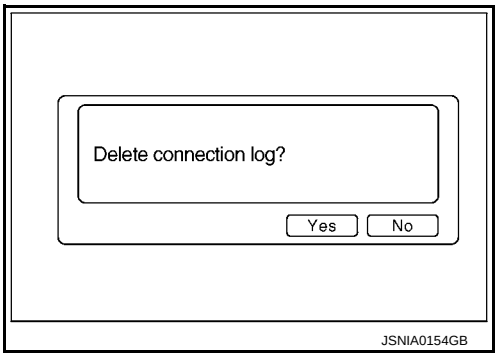



| Items | Status (Current) | Counter (Past) |
|---|---|---|
| C Tx(ITM–PrimarySW) | OK / ??? | OK / 0 – 39 |
| C Rx(PrimarySW–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(Video Dist–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(R.RemoteCont–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(BTHF–ITM) | OK / ??? | OK / 0 – 39 |

**NOTE:**
“???” indicates UNKWN

Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed.)



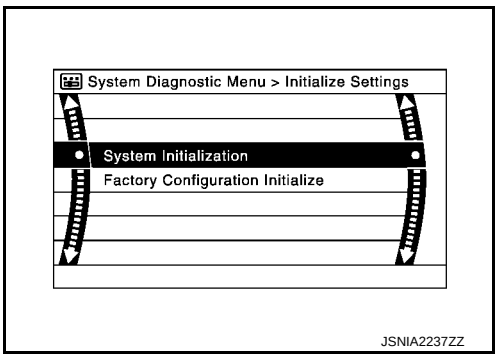

Initialize Settings

cardiagn.com

"User Data Initialization" and "Accessory Number Initialization" are possible.

**CAUTION:**

- **Never perform Accessory Number Initialization except when configuration is unsuccessful.**
- **Accessory Number Initialization requires configuration. For details, refer to AV-348, "Description".**




## CONSULT Function

INFOID:0000000012407281

### APPLICATION ITEMS

CONSULT performs the following functions via the communication with the AV control unit.

| Diagnosis mode | Description |
|---|---|
| Ecu Identification | The part number of AV control unit can be checked. |
| Self Diagnostic Result | Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively. |
| Data Monitor | The diagnosis of vehicle signal that is input to the AV control unit can be performed. |
| Work Support | Steering angle sensor can be adjusted. |
| Configuration | • Read and save the vehicle specification.<br>• Write the vehicle specification when replacing AV control unit. |

AV Communication

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

| | | |
|---|---|---|
| AV communication | AV&NAVI C/U | Displays the communication status from AV control unit to each unit as well as the error counter. |
| | AUDIO | Displays the AV control unit communication status and the error counter. |

### ECU IDENTIFICATION

The part number of AV control unit is displayed.

### SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CAN COMM CIRCUIT [U1000] | CAN communication malfunction is detected. | Refer to AV-350, "Diagnosis Procedure". |
| CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-398, "Removal and Installation". |
| CONTROL UNIT (AV) [U1310] | AV communication circuit initial diagnosis malfunction is detected. | |
| Cont Unit [U1200] | AV control unit malfunction is detected. | |
| CAN CONT [U1216] | | |
| ST ANGLE SEN CALIB [U1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust the neutral position of the steering angle sensor.<br>Refer to AV-354, "Diagnosis Procedure". |

cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| FRONT DISP CONN [U1243] | When either one of the following items is detected:<br>• front display unit power supply and ground circuits malfunction is detected.<br>• communication circuits between AV control unit and front display unit. | • Front display unit power supply and ground circuits.<br>Refer to AV-361, "FRONT DISPLAY UNIT : Diagnosis Procedure".<br>• Communication circuits between AV control unit and front display unit. |
| SAT CONN [U1255] | When either one of the following items is detected:<br>• satellite radio tuner power supply and ground circuit are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-364, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |
| • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | When either one of the following items are detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | When either one of the following items are detected:<br>• rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-363, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |
| • AV COMM CIRCUIT [U1300]<br>• HAND FREE CONN [U1256] | When either one of the following items is detected:<br>• TEL adapter unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>Refer to AV-365, "TEL ADAPTER UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• HAND FREE CONN [U1256] | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

## DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

ALL SIGNALS

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

| Display Item | Display | Vehicle status | Remarks |
|---|---|---|---|
| VHCL SPD SIG | On | Vehicle speed >0 km/h (0 MPH) | Changes in indication may be delayed. This is normal. |
| | Off | Vehicle speed =0 km/h (0 MPH) | |
| PKB SIG | On | Parking brake is applied. | |
| | Off | Parking brake is released. | |



cardiagn.com

| Display Item | Display | Vehicle status | Remarks |
|---|---|---|---|
| ILLUM SIG | On | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | — |
| | Off | Either of the following conditions<br>• Lighting switch is OFF<br>• Expose the auto light optical sensor to light when the lighting switch is 1st or 2nd. | |
| IGN SIG | On | Ignition switch is ON | |
| | Off | Ignition switch is in ACC position | |
| REV SIG | On | Selector lever is in R position | Changes in indication may be delayed. This is normal. |
| | Off | Selector lever is in any position other than R | |

SELECTION FROM MENU

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

| Item to be selected | Description |
|---|---|
| VHCL SPD SIG | The same as when “ALL SIGNALS” is selected. |
| PKB SIG | |
| ILLUM SIG | |
| IGN SIG | |
| REV SIG | |

## WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

**CAUTION:**

**For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.**

| Item | Description |
|---|---|
| ST ANGLE SENSOR ADJUSTMENT | Adjusts the neutral position of the steering angle sensor. |

## CONFIGURATION

Configuration includes functions as follows.

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the AV control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the AV control unit by hand. |

cardiagn.com

# DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

## Description

INFOID:0000000012407282

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

## On Board Diagnosis Function

INFOID:0000000012407283

### HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

### ON BOARD DIAGNOSIS ITEM

The on board diagnosis has 3 modes: the self-diagnosis mode that performs the trouble diagnosis, the speaker adaptation data deleting mode and the hands-free phone system initialization mode.

**CAUTION:**

- **Perform the diagnosis with the vehicle stopped.**
- **Perform STEP2 if necessary.**

| STEP | MODE | Description |
|---|---|---|
| STEP1 | Self-diagnosis | The self-diagnosis mode performs the microphone test and the diagnosis of TEL adapter unit, TEL antenna and steering unit, and then reads out the results with the sound and indicates them on the display. |
| STEP2 | Speaker adaptation data deleting | The speaker adaptation data deleting mode can delete the speaker adaptation data. |
| | Hands-free phone system initialization | Hands-free phone system initialization mode can perform the initialization of hands-free phone system. |

### Self-diagnosis results

Self-diagnosis mode reads out the self-diagnosis results.

**NOTE:**

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time.

Self-diagnosis results

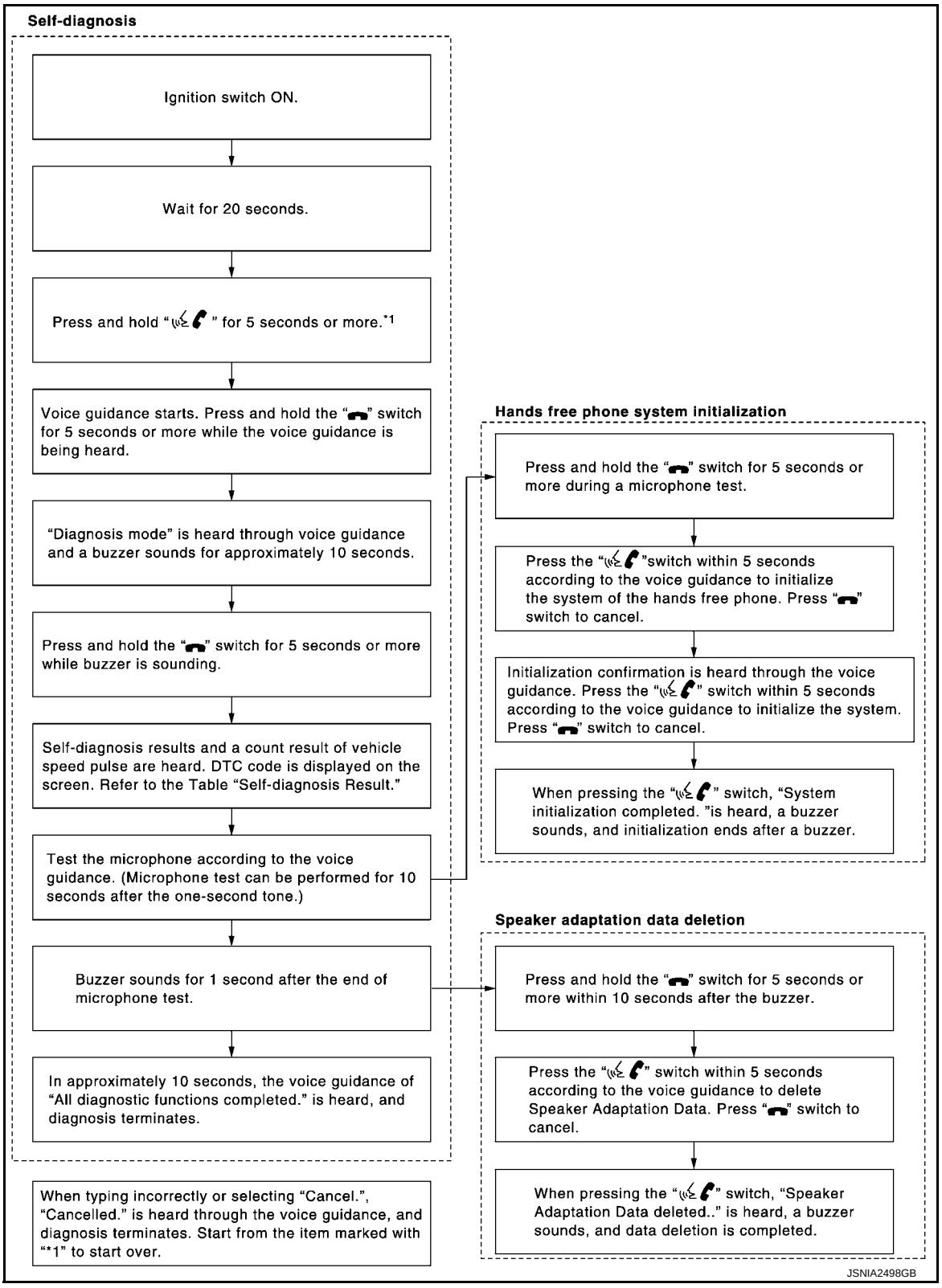
| DTC | DTC name | Possible causes |
|---|---|---|
| DTC 10000 | INTERNAL FAILURE | TEL adapter unit |
| DTC 01000 | ANT. SHORT TO BATT OR OPEN | TEL antenna |
| DTC 00100 | ANT. SHORT TO GROUND | |
| DTC 00010 | STEERING REMOTE BUTTON STUCK A | Steering switch |
| DTC 00001 | STEERING REMOTE BUTTON STUCK B | |
| DTC 00000 | THERE ARE NO FAILURE RECORDS TO REPORT | — |

### The Details of Error Count

The error count guides “0” when the error occurs. The next time it counts up “1” if it is normal with the ignition switch ON. It continues the count up unless the initialization of hands-free phone system is performed.

cardiagn.com

## FLOW CHART OF TROUBLE DIAGNOSIS




cardiagn.com

# ECU DIAGNOSIS INFORMATION

## AV CONTROL UNIT

### Reference Value

INFOID:0000000012407284

VALUES ON THE DIAGNOSIS TOOL

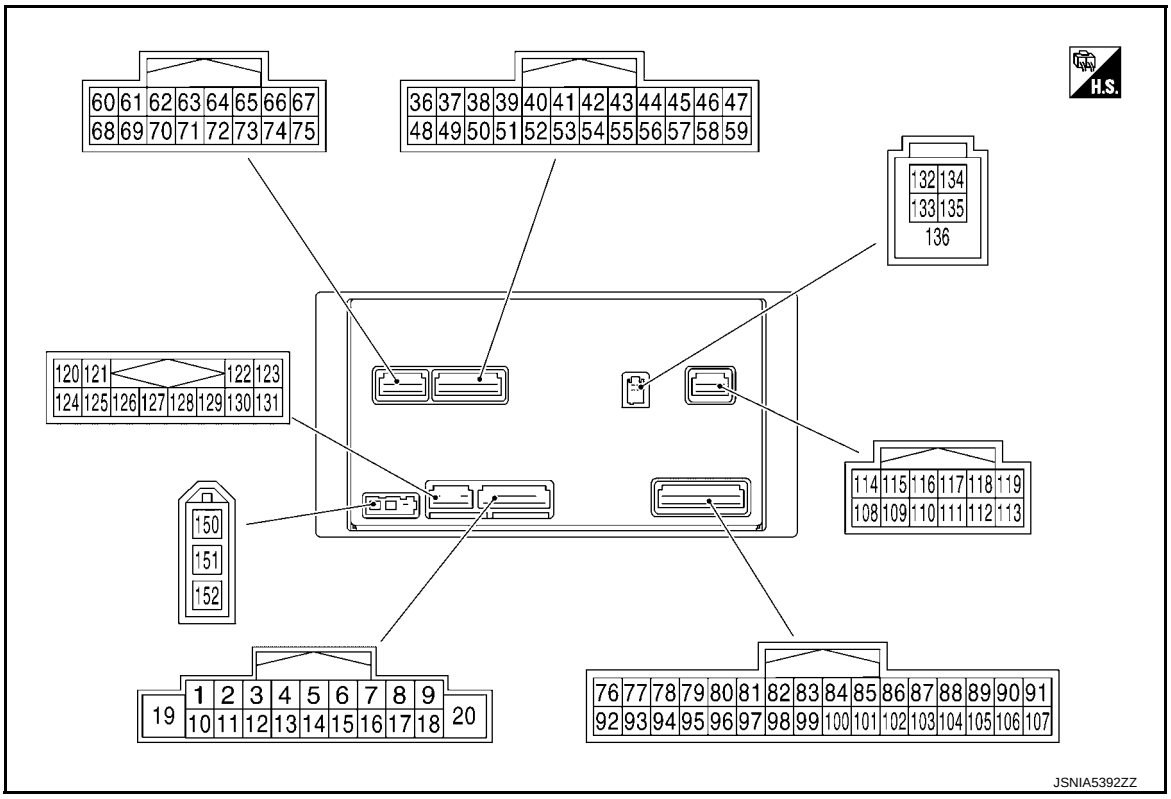
**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

| Monitor Item | Condition | | Value/Status |
|---|---|---|---|
| VHCL SPD SIG | Ignition switch ON | Vehicle speed > 0 km/h (0 MPH) | On |
| | | Vehicle speed = 0 km/h (0 MPH) | Off |
| PKB SIG | Ignition switch ON | Parking brake is applied. | On |
| | | Parking brake is released. | Off |
| ILLUM SIG | Ignition switch ON | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | On |
| | | Expose the auto light optical sensor to light when the lighting switch is OFF, 1st or 2nd. | Off |
| IGN SIG | Ignition switch ON | — | On |
| | Ignition switch ACC | — | Off |
| REV SIG | Ignition switch ON | Selector lever is in the R position | On |
| | | Selector lever is in any position other than R | Off |

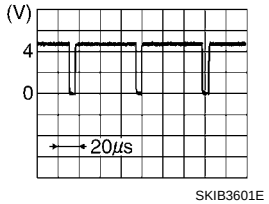
TERMINAL LAYOUT



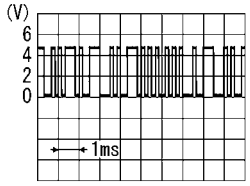
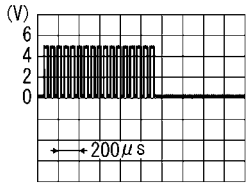
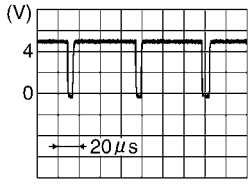
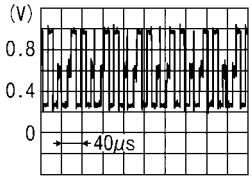
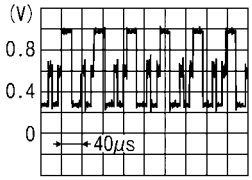
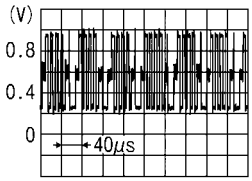

PHYSICAL VALUES



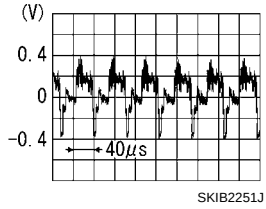
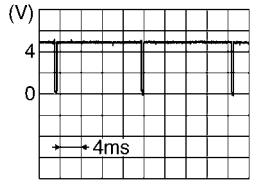
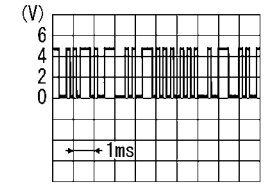
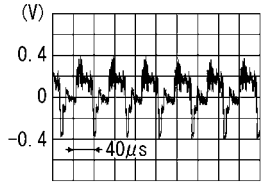
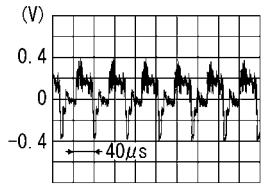
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 6 (BE) | 15 (W) | Steering switch signal A | Input | Ignition switch ON | Keep pressing SOURCE switch. | 0 - 3.3 V | 0 V |
| | | | | | Keep pressing SEEK UP switch. | | 0.7 V |
| | | | | | Keep pressing SEEK DOWN switch. | | 1.3 V |
| | | | | | Keep pressing switch | | 2.0 V |
| | | | | | Except for above. | | 3.3 V |
| 7 (O) | 20 (B) | ACC power supply | Input | Ignition switch ACC | — | 9.0 – 16.0 V | Battery voltage |
| 9 (BE) | 20 (B) | Dimmer signal | Input | Ignition switch ON | Either of the following conditions<br>• Lighting switch is OFF<br>• Lighting switch is 1st or 2nd, and the area around the vehicle is bright (shine a light on the optical sensor) | 3.0 V or less | 0 V |
| | | | | | Lighting switch is 1st or 2nd, and the area around the vehicle is dark (block the light from the optical sensor) | 7.0 – 16.0 V | 12.0 V |
| 16 (P) | 15 (W) | Steering switch signal B | Input | Ignition switch ON | Keep pressing VOL DOWN switch. | 0 – 3.3 V | 0 V |
| | | | | | Keep pressing VOL UP switch. | | 0.7 V |
| | | | | | Keep pressing switch. | | 1.3 V |
| | | | | | Except for above. | | 3.3 V |
| 19 (SB) | 20 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery voltage |
| 36 (O) | 37 (SB) | Signal VCC | Output | Ignition switch ACC | — | 8.0 – 9.5 V | 8.8 V |
| 38 (G) | 20 (B) | Horizontal synchronizing (HP) signal | Input | Ignition switch ON | — | Waveform of 1.0 V – 5.5 V is input. |  SKIB3601E |

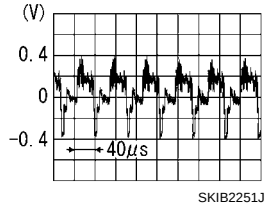
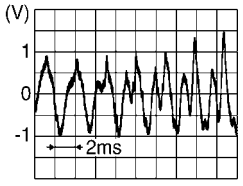
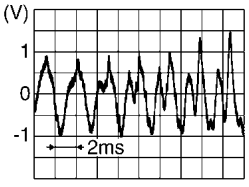
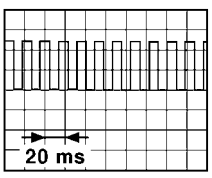
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 39 (W) | 20 (B) | Communication signal (DISP→CONT) | Input | Ignition switch ON | When adjusting display brightness. | Waveform of 0.5 V or less – 3.5 V or more is input. |   PKIB5039J |
| 40 (B) | 20 (B) | RGB area (YS) signal | Output | Ignition switch ON | At RGB image is displayed. | 5.5 V or less | 5.0 V |
| | | | | | At AUX image is displayed. | Waveform of 0.8 V – 5.5 V is Output. |   PKIB4948J |
| 41 | — | Shield | — | — | — | — | — |
| 42 (W) | 20 (B) | RGB synchronizing signal | Output | Ignition switch ON | — | Waveform of 0.8 V – 5.5 V is Output. |   SKIB3603E |
| 43 (R) | 20 (B) | RGB image signal (R: red) | Output | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |   JSNIA1029ZZ |
| 44 (W) | 20 (B) | RGB image signal (G: green) | Output | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |   JSNIA1030ZZ |
| 45 (B) | 20 (B) | RGB image signal (B: blue) | Output | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |   JSNIA1031ZZ |

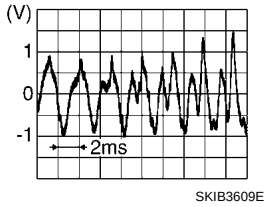
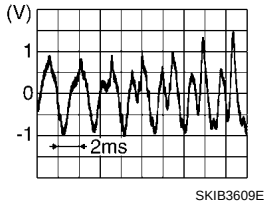
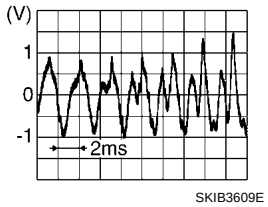
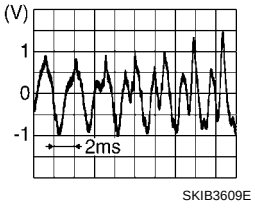
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 47 (B) | 46 (W) | Composite image signal (for front display unit) | Output | Ignition switch ON | When DVD or AUX image is displayed on front display unit. | Outputs waveform synchronized with composite image. |  SKIB2251J |
| 48 (BR) | 49 (P) | Inverter VCC | Output | Ignition switch ACC | — | 8.0 – 9.5 V | 8.8 V |
| 50 (R) | 20 (B) | Vertical synchronizing (VP) signal | Input | Ignition switch ON | — | Waveform of 1.0 V – 5.5 V is Input. |  SKIB3598E |
| 51 (B) | 20 (B) | Communication signal (CONT→DISP) | Output | Ignition switch ON | When adjusting display brightness. | Waveform of 0.4 V – 5.3 V is Output. |  PKIB5039J |
| 52 | — | Shield | — | — | — | — | — |
| 57 | — | Shield | — | — | — | — | — |
| 58 | — | Shield | — | — | — | — | — |
| 61 (BR) | 69 (Y) | AUX image signal | Output | Ignition switch ON | When AUX image is displayed on front or rear display unit. | Outputs waveform synchronized with AUX image. |  SKIB2251J |
| 62 (B) | 20 (B) | Camera image signal | input | Ignition switch ON | When camera image is displayed. | Outputs waveform synchronized with camera image. |  SKIB2251J |
| 65 | — | Shield | — | — | — | — | — |

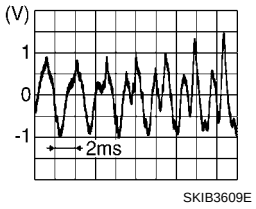
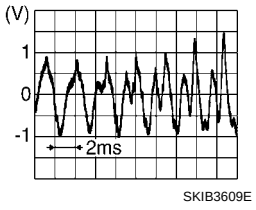
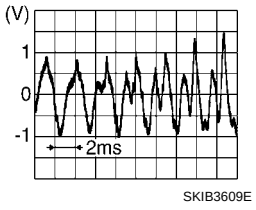
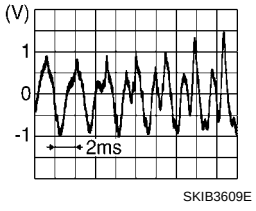
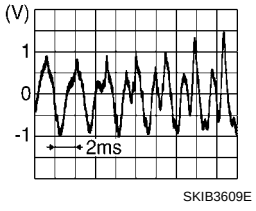
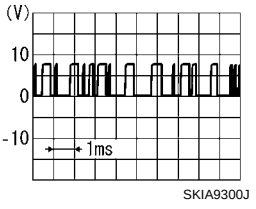
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 67 (W) | 66 (B) | Composite image signal (for rear display unit) | Output | Ignition switch ON | When DVD or AUX image is displayed on rear display unit | Outputs waveform synchronized with composite image. |  SKIB2251J |
| 70 | — | Shield | — | — | — | — | — |
| 71 | — | Shield | — | — | — | — | — |
| 73 (R) | 72 (W) | Camera power supply | Output | Ignition switch ON | When camera image is displayed. | 5.9 – 6.5 V | 6.2 V |
| 76 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 77 (V) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 78 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 79 (SB) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 80 (P) | — | CAN–L | Input/ Output | — | — | — | — |
| 81 (L) | — | CAN–H | Input/ Output | — | — | — | — |
| 87 (R) | 88 (W) | Sound signal (TEL voice, voice guidance) | Output | Ignition switch ON | During voice guide output with the switch pressed. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 90 (BR) | 91 (Y) | Headphone sound signal RH | Output | Ignition switch ON | Headphone sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 92 (P) | 20 (B) | Vehicle speed signal (8-pulse) | Input | Ignition switch ON | When vehicle speed is approx. 40 km/h (25 MPH) | Waveform according to vehicle speed is input. | **NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB |

cardiagn.com

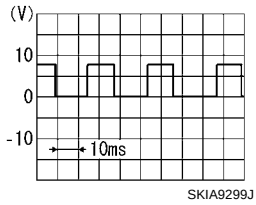
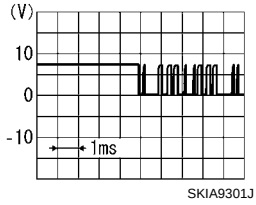
| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 93 (R) | 20 (B) | Parking brake signal | Input | Ignition switch ON | Parking brake is applied. | 1.5 V or less | 0 V |
| | | | | | Parking brake is released. | 3.5 V or more | 4.5 V |
| 94 (W) | 20 (B) | Reverse signal | Input | Ignition switch ON | Selector lever is in “R” position. | 7.0 – 16.0 V | 12.0 V |
| | | | | | Selector lever is in other than “R” position. | — | 0 V |
| 95 (G) | 20 (B) | Ignition signal | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |
| 96 (W) | 82 (R) | Disk eject signal | Input | Ignition switch ON | Keep pressing disk eject switch. | — | 0 V |
| | | | | | Except for above. | — | 3.3 V |
| 103 (B) | 102 (W) | AUX sound signal LH | Input | Ignition switch ON | When AUX mode is selected on front or rear display unit. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 104 (R) | 102 (W) | AUX sound signal RH | Input | Ignition switch ON | When AUX mode is selected on front or rear display unit. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 105 (GR) | — | Shield | — | — | — | — | — |
| 106 (P) | 107 (L) | Headphone sound signal LH | Output | Ignition switch ON | Headphone sound output. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 108 (BR) | 114 (Y) | Sound signal rear RH | Input | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 109 (W) | 115 (B) | Sound signal front RH | Input | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 110 (LG) | 20 (B) | BOSE amp. ON signal | Output | Ignition switch ACC | — | 7.0 – 16.0 V | 12.0 V |
| 111 (GR) | — | Shield | — | — | — | — | — |
| 112 (B) | 118 (W) | Sound signal rear LH | Input | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 113 (R) | 119 (G) | Sound signal front LH | Input | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 120 (R) | 124 (B) | Satellite radio sound signal LH | Input | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 121 (W) | 125 (G) | Satellite radio sound signal RH | Output | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 122 (R/W) | 20 (B) | Communication signal (CONT→SAT) | Output | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.5 - 6.0 V is input. |  SKIA9300J |
| 126 | — | Shield | — | — | — | — | — |



cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 127 | — | Shield | — | — | — | — | — |
| 129 (R/L) | Ground | Request signal (SAT→CONT) | Input | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.1 V or less – 7.181 V or more is Input. |  SKIA9299J |
| 130 (B) | Ground | Communication signal (SAT→CONT) | Input | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.1 V or less – 7.181 V or more is Input. |  SKIA9301J |
| 132 (G) | — | USB ground | — | — | — | — | — |
| 133 (W) | — | USB D– signal | — | — | — | — | — |
| 134 (R) | — | V BUS signal | — | — | — | 4.75 – 5.25 V | — |
| 135 (B) | — | USB D+ signal | — | — | — | — | — |
| 136 | — | Shield | — | — | — | — | — |
| 150 | 20 (B) | Antenna amp. ON signal | Input | Ignition switch ACC | — | 7.0 – 16.0 V | 12.0 V |
| 151 | — | AM-FM main | Input | — | — | — | — |
| 152 | — | FM sub | Input | — | — | — | — |

## DTC Index

INFOID:0000000012407285

### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

| DTC | Display item | Refer to |
|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | AV-350, "Diagnosis Procedure" |
| U1010 | CONTROL UNIT (CAN) [1010] | AV-351, "DTC Logic" |
| U1200 | Cont Unit [U1200] | AV-352, "DTC Logic" |
| U1216 | CAN CONT [U1216] | AV-353, "DTC Logic" |
| U1232 | ST ANGLE SEN CALIB [1232] | AV-354, "Diagnosis Procedure" |
| U1243 | FRONT DISP CONN [U1243] | AV-355, "Diagnosis Procedure" |
| U1255 | SAT CONN [U1255] | AV-357, "Diagnosis Procedure" |
| U1310 | CONTROL UNIT (AV) [U1310] | AV-360, "DTC Logic" |

cardiagn.com

| DTC | Display item | Refer to |
|---|---|---|
| U1300<br>U1240 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | AV-359, "Description" |
| U1300<br>U1246 | • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | |
| U1300<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• HAND FREE CONN [U1256] | |
| U1300<br>U1240<br>U1246<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• HAND FREE CONN [U1256] | |



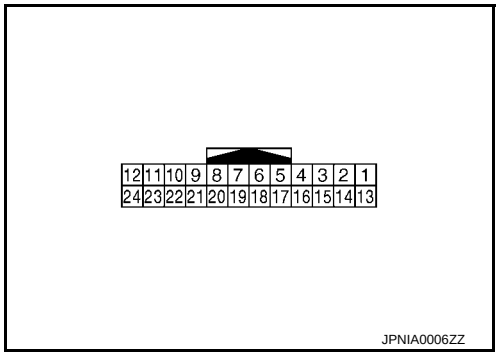
cardiagn.com

# FRONT DISPLAY UNIT

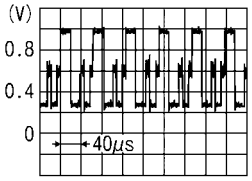
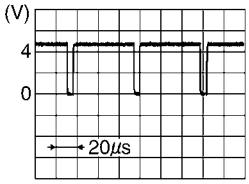
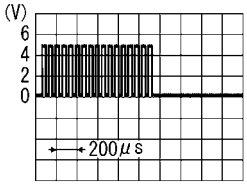
## Reference Value

INFOID:0000000012407286

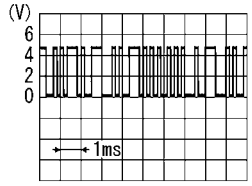
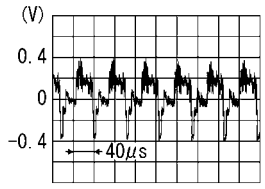
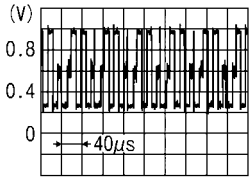
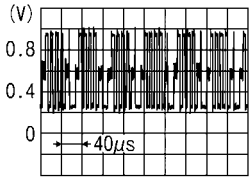
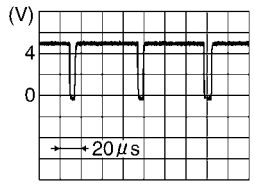
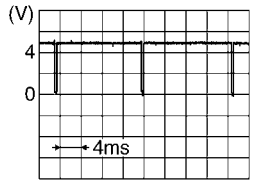
### TERMINAL LAYOUT



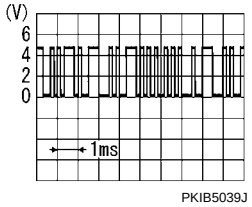

### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (BR) | 13 (P) | Inverter VCC | Input | Ignition switch ACC | — | 8.0 – 9.5 V | 8.8 V |
| 3 (O) | 14 (SB) | Signal VCC | Output | Ignition switch ACC | — | 8.0 – 9.5 V | 8.8 V |
| 5 | — | Shield | — | — | — | — | — |
| 6 (W) | 1 (B) | RGB image signal (G: green) | Input | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1030ZZ |
| 7 | — | Shield | — | — | — | — | — |
| 8 (G) | 1 (B) | Horizontal synchronizing (HP) signal | Output | Ignition switch ON | — | Waveform of 1.0 V – 5.5 V is output. |  SKIB3601E |
| 9 (B) | 1 (B) | RGB area (YS) signal | Input | Ignition switch ON | At RGB image is displayed. | 5.5 V or less | 5.0 V |
| | | | | | At AUX image is displayed. | Waveform of 0.8 V – 5.5 V is input. |  PKIB4948J |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 11 (B) | 1 (B) | Communication signal (CONT→DISP) | Input | Ignition switch ON | When adjusting display brightness. | Waveform of 0.4 V – 5.3 V is input. |  PKIB5039J |
| 15 (B) | 4 (W) | Composite image signal | Input | Ignition switch ON | When DVD or AUX image is displayed. | Outputs waveform synchronized with composite image. |  SKIB2251J |
| 17 (R) | 1 (B) | RGB image signal (R: red) | Input | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1029ZZ |
| 18 (B) | 1 (B) | RGB image signal (B: blue) | Input | Ignition switch ON | Start Confirmation/Adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on Display Diagnosis screen. | Outputs waveform synchronized with RGB image. |  JSNIA1031ZZ |
| 19 (W) | 1 (B) | RGB synchronizing signal | Input | Ignition switch ON | — | Waveform of 0.8 V – 5.5 V is input. |  SKIB3603E |
| 20 (R) | 1 (B) | Vertical synchronizing (VP) signal | Output | Ignition switch ON | — | Waveform of 1.0 V – 5.5 V is output. |  SKIB3598E |
| 21 | — | Shield | — | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 22 (W) | 1 (B) | Communication signal (DISP→CONT) | Output | Ignition switch ON | When adjusting display brightness. | Waveform of 0.5 V or less – 3.5 V or more is output. |  PKIB5039J |
| 23 | — | Shield | — | — | — | — | — |

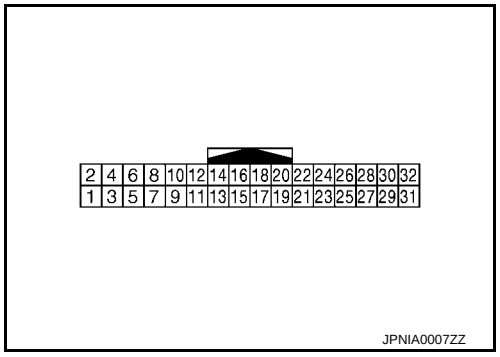
cardiagn.com

# REAR DISPLAY UNIT

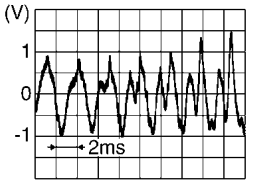
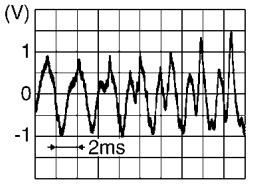
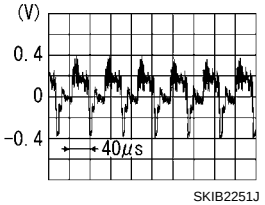
## Reference Value

INFOID:0000000012407287

### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (L/O) | 1 (W/L) | Headphone sound signal RH | Input | Ignition switch ON | Headphone sound output. | Waveform according to headphone sound is input. |   |
| 4 (B) | 3 (W) | Headphone sound signal LH | Input | Ignition switch ON | Headphone sound output. | Waveform according to headphone sound is input. |   |
| 5 | — | Shield | — | — | — | — | — |
| 6 | — | Shield | — | — | — | — | — |
| 7 (B) | 8 (W) | Composite image signal | Input | Ignition switch ON | When DVD, USB or AUX image is displayed. | Waveform according to composite image is input. |   |
| 18 | — | Shield | — | — | — | — | — |
| 19 (W) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 20 (Y) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 21 (B) | — | AV communication signal (H) | Input/ Output | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 22 (BR) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 26 (LG) | 31 (B) 32 (B) | Ignition signal | Input | Ignition switch ON | — | 3.0 V – battery voltage | Battery voltage |
| 27 (SB) | 31 (B) 32 (B) | Illumination signal | Input | Ignition switch ON | Lighting switch is 1st or 2nd. | — | 12.0 V |
| | | | | | Lighting switch is OFF. | — | 0 V |
| 28 (V) | 31 (B) 32 (B) | ACC power supply | Input | Ignition switch ACC | — | 7.6 V – battery voltage | Battery voltage |
| 29 (GR) | 31 (B) 32 (B) | Battery power supply | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |
| 30 (GR) | 31 (B) 32 (B) | Battery power supply | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |

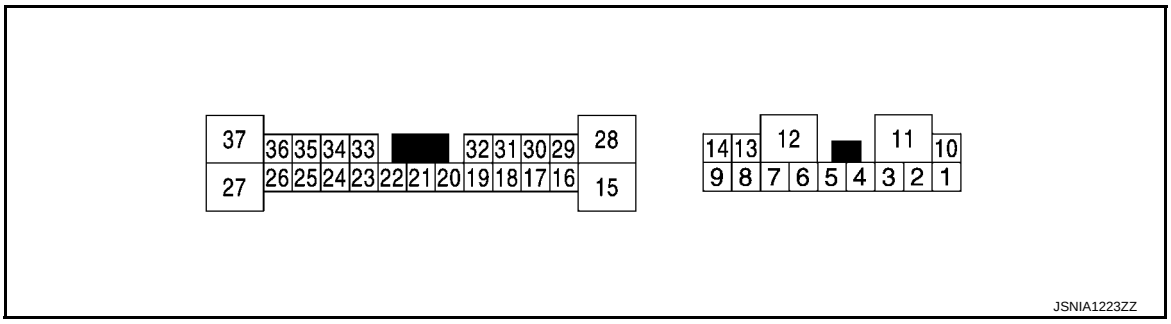
cardiagn.com

# BOSE AMP.

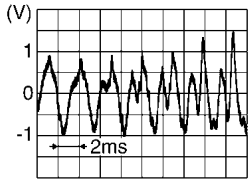
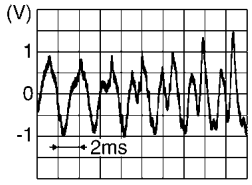
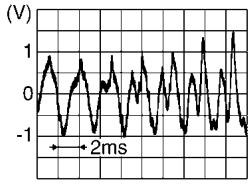
## Reference Values

INFOID:0000000012407288

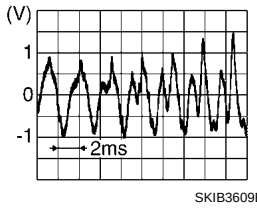
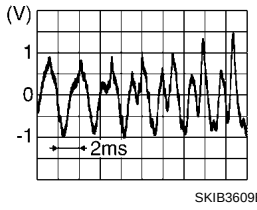
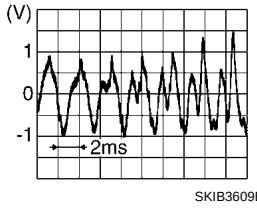
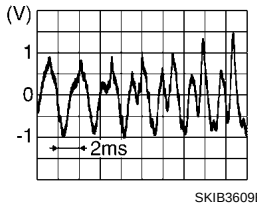
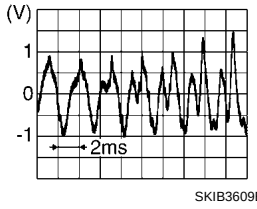
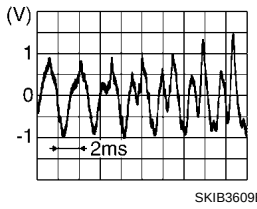
### TERMINAL LAYOUT



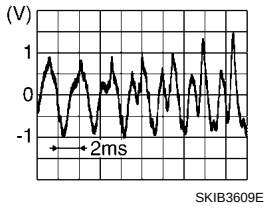
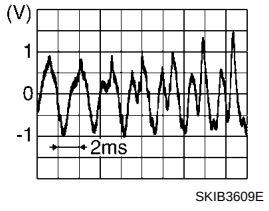
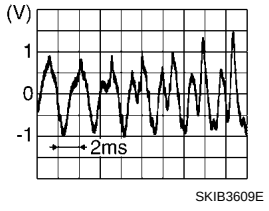
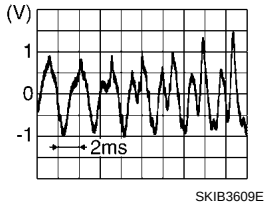

### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 1 (L) | 2 (B) | Sound signal front squawker LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 4 (BR) | 3 (Y) | Sound signal front squawker RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 10 (SB) | 7 (B) 12 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery power supply |
| 11 (G) | 7 (B) 12 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery power supply |
| 13 (R) | 8 (G) | Sound signal woofer | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 14 (W) | 9 (B) | Sound signal slide door speaker RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 16 (W) | 17 (B) | Sound signal luggage squawker | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 18 (W) | 19 (R) | Sound signal front door woofer LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 20 (LG) | 7 (B) 12 (B) | Amp. ON signal | Input | Ignition switch ACC | — | 6.5 V or more | 12.0 V |
| 24 (W) | 23 (B) | Sound signal rear LH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 26 (W) | 25 (B) | Sound signal rear RH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 28 (R) | 15 (W) | Sound signal slide door speaker LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 29 (V) | 30 (L) | Sound signal center squawker | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 31 (W) | 32 (R) | Sound signal front door woofer RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 33 (W) | 34 (B) | Sound signal front RH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 35 (W) | 36 (B) | Sound signal front LH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |

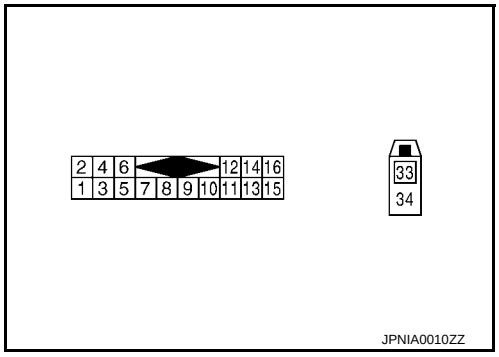
cardiagn.com

# SATELLITE RADIO TUNER

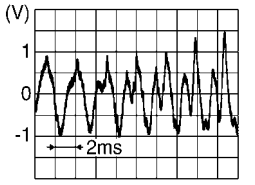
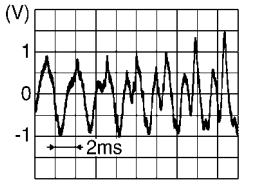
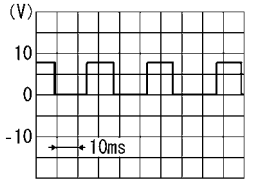
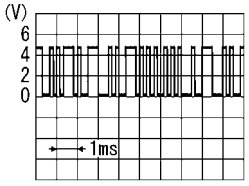
## Reference Value

INFOID:0000000012407289

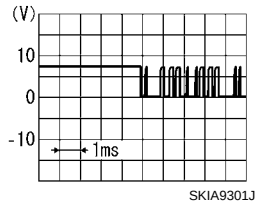
### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (W) | 1 (B) | Satellite radio sound signal LH | Output | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 4 (G) | 3 (R) | Satellite radio sound signal RH | Output | Ignition switch ON | When satellite radio mode is selected. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 5 | — | Shield | — | — | — | — | — |
| 6 | — | Shield | — | — | — | — | — |
| 8 (B) | 15 (B) | Request signal (SAT TO CONT) | Output | Ignition switch ON | When satellite radio mode is selected. | Waveform of 0.5 - 7.0 V is Output. |  SKIA9299J |
| 9 (W) | 15 (B) | Communication signal (SAT TO CONT) | Output | Ignition switch ON | When satellite radio mode is selected. | Waveform of 0.5 - 7.0 V is Output. |  PKIB5039J |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 10 (R) | 15 (B) | Communication signal (CONT TO SAT) | Input | Ignition switch ON | When satellite radio mode is selected. | Waveform of 1.5 - 6.0 V is input. |  SKIA9301J |
| 12 (G) | 15 (B) | Battery power supply | Input | Ignition switch OFF | — | 10.8 - 15.6 V | Battery voltage |
| 16 (P) | 15 (B) | ACC power supply | Input | Ignition switch ACC | — | 7.0 - 16.0 V | Battery voltage |
| 33 | — | Satellite radio antenna signal | Input | — | — | — | — |

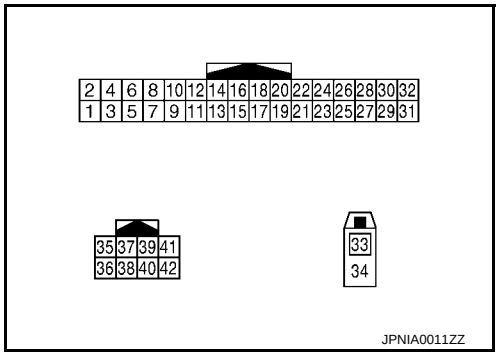
cardiagn.com

# TEL ADAPTER UNIT

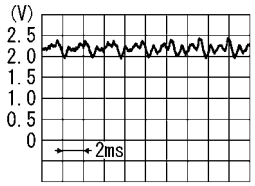
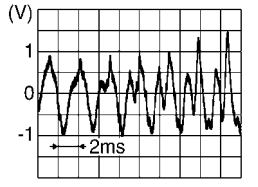
## Reference Value

INFOID:0000000012407290

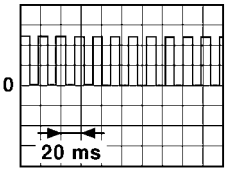
### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 1 (Y) | 4 (GR) | Battery power supply | Input | Ignition switch OFF | — | 9.0 - 16.0 V | Battery voltage |
| 2 (GR) | 4 (GR) | ACC power supply | Input | Ignition switch ACC | — | 7.0 - 16.0 V | Battery voltage |
| 3 (G) | 4 (GR) | Ignition signal | Input | Ignition switch ON | — | 7.0 - 16.0 V | Battery voltage |
| 7 (B) | 8 | Microphone signal | Input | Ignition switch ON | Give a voice. | Waveform according to voice is input. |   PKIB5037J |
| 9 (B) | 10 (W) | Sound signal (TEL voice, voice guidance) | Output | Ignition switch ON | During voice guide output with the switch pressed. | Outputs waveform synchronized with sound. |   SKIB3609E |
| 20 (GR) | 4 (GR) | Control signal | — | Ignition switch ON | — | 3.1 V or less | 0 V |
| 27 (GR) | 4 (GR) | Control signal | — | Ignition switch ON | — | 3.1 V or less | 0 V |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 28 (BE) | 4 (GR) | Vehicle speed signal (8-pulse) | Input | Ignition switch ON | When vehicle speed is approx. 40 km/h (25 MPH) | Waveform according to vehicle speed is input. | **NOTE:** The maximum voltage varies depending on the specification (destination unit).   JSNIA0012GB |
| 29 (W) | 8 | Microphone VCC | Output | Ignition switch ON | — | 4.7 - 5.3 V | 5.0 V |
| 35 (SB) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 36 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 33 | 4 (GR) | TEL antenna signal | Input/ Output | Ignition switch ON | Not connected to TEL antenna connector. | — | 5.0 V |
| 34 | — | Shield | — | — | — | — | — |

cardiagn.com

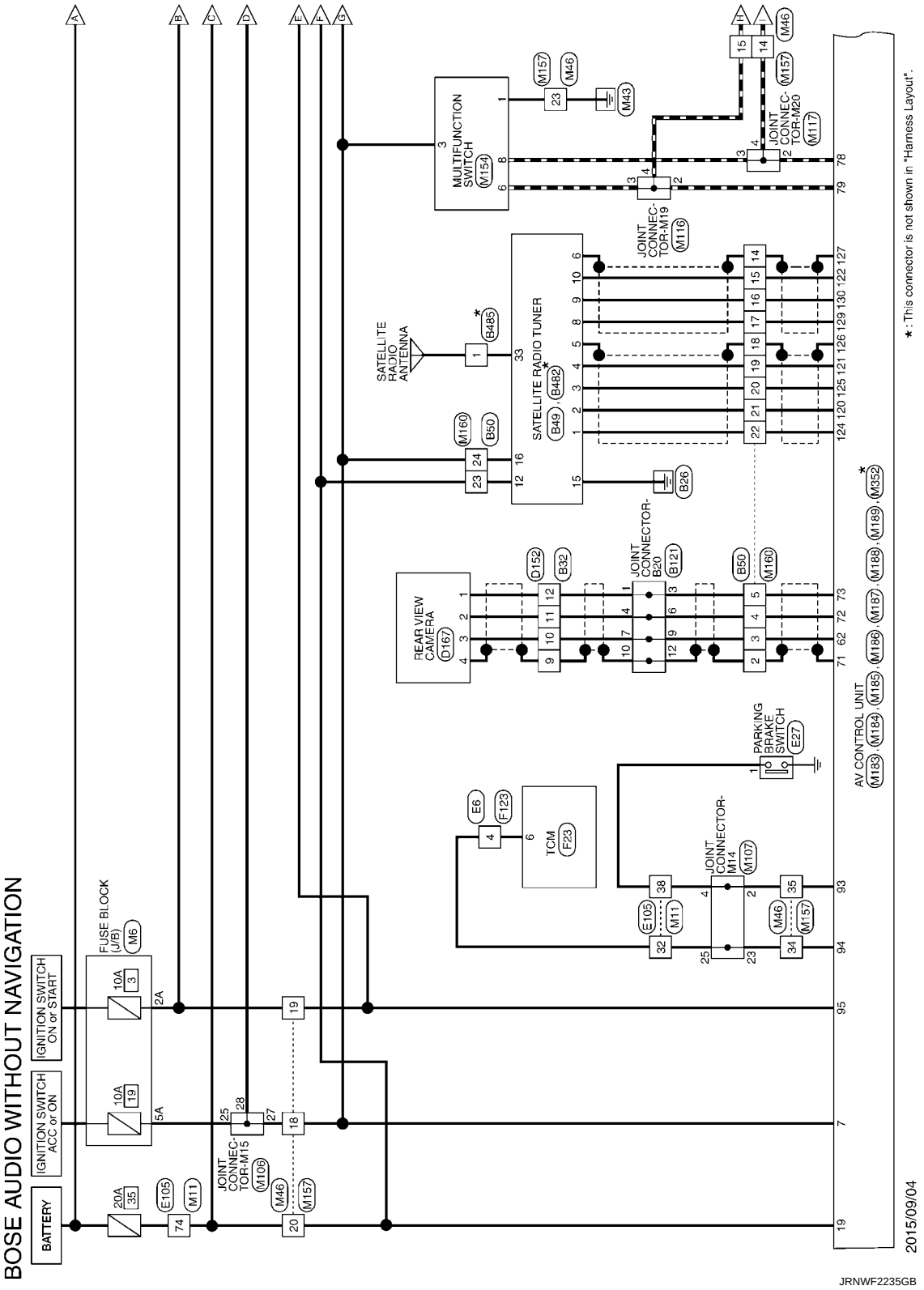
# WIRING DIAGRAM

## BOSE AUDIO WITHOUT NAVIGATION

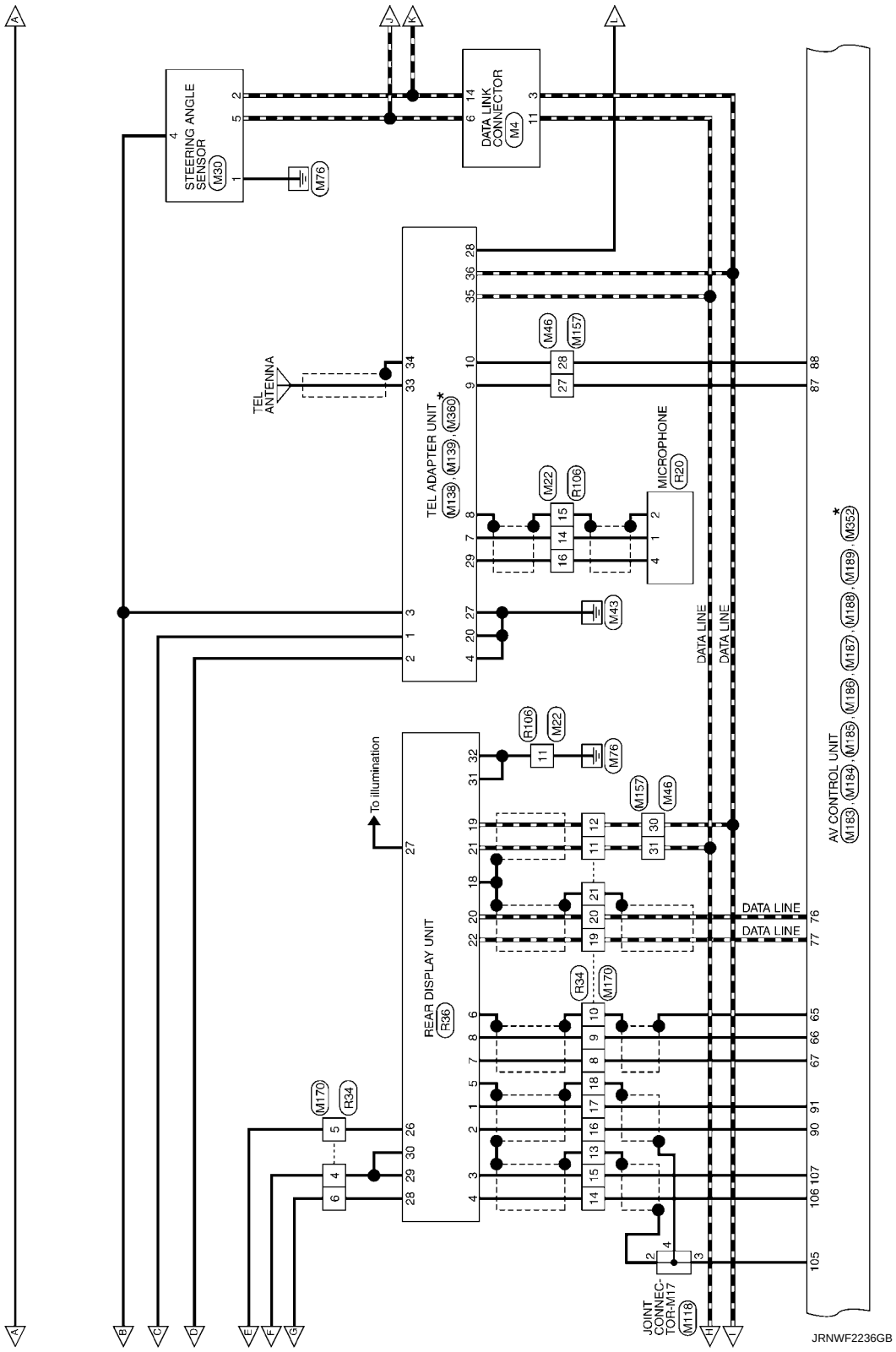
### Wiring Diagram

INFOID:0000000012407291

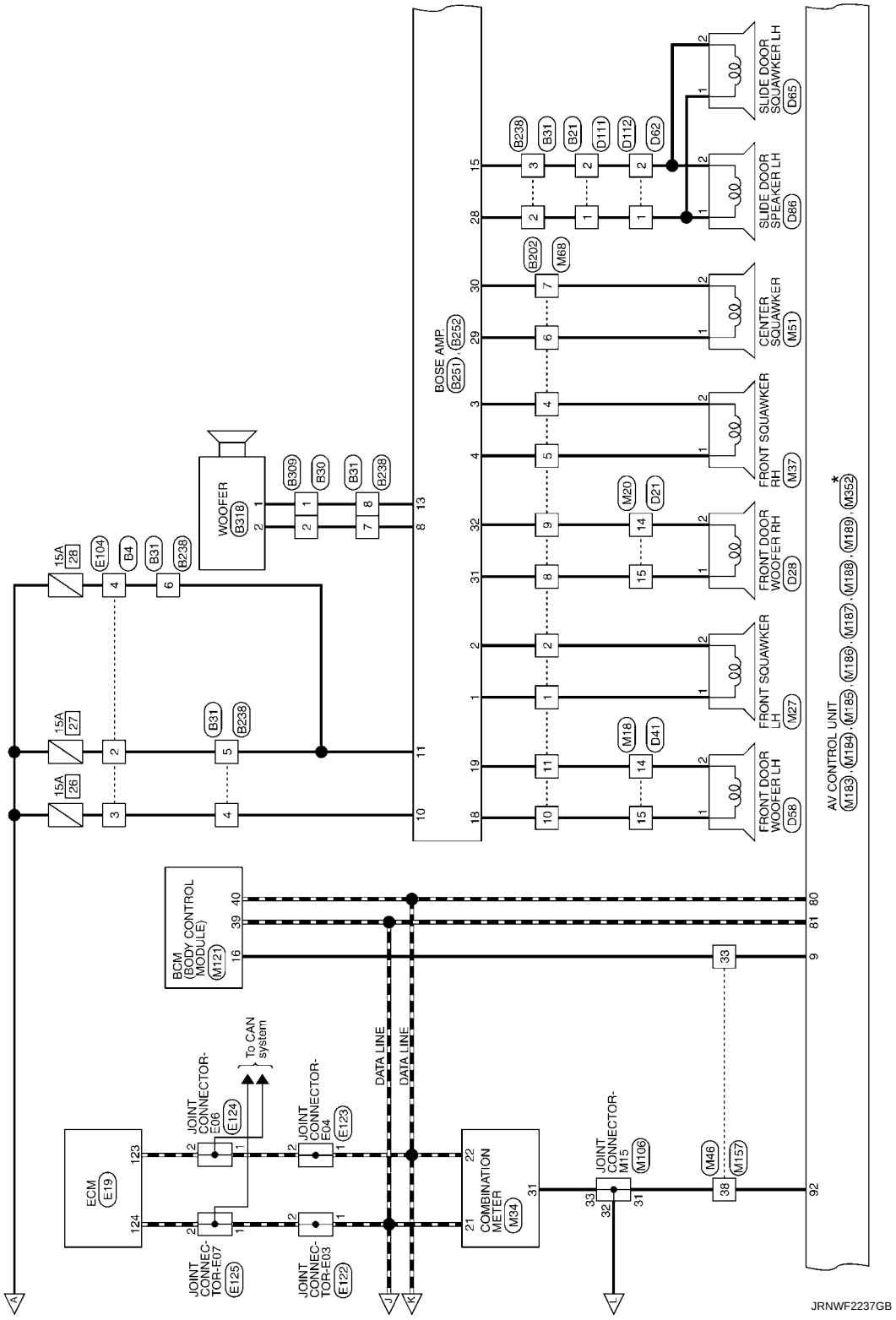
**NOTE:**
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



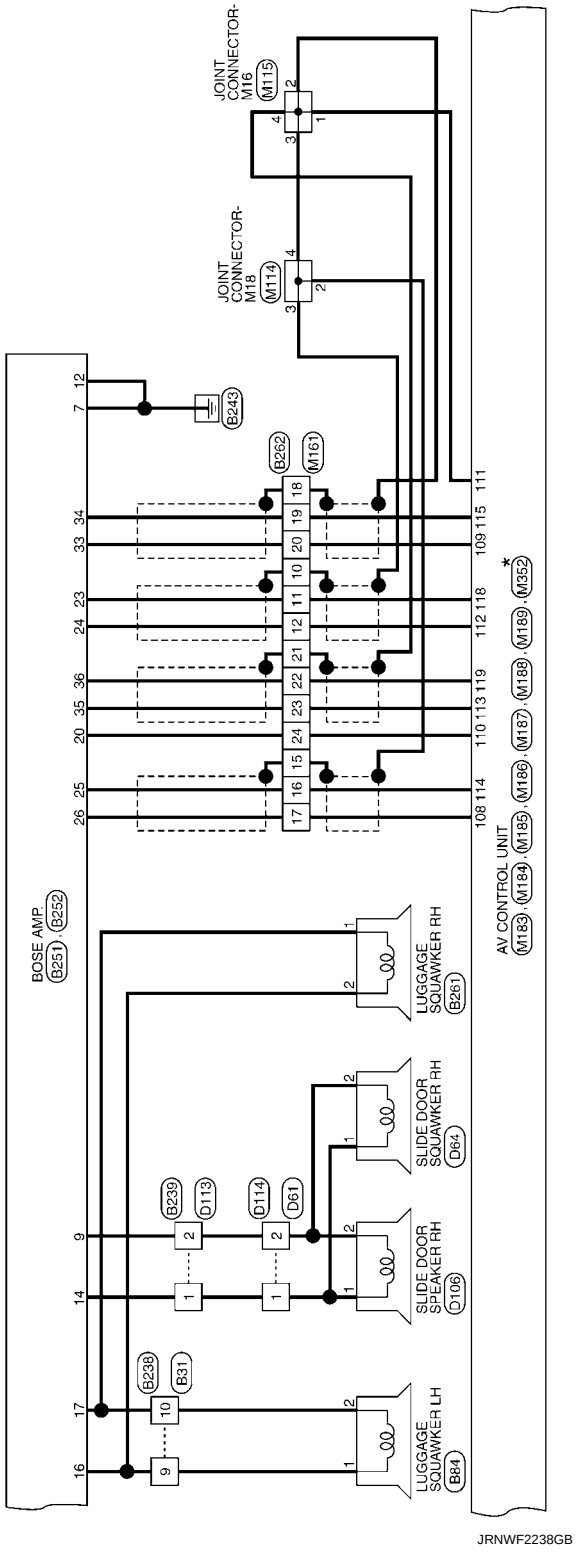

cardiagn.com



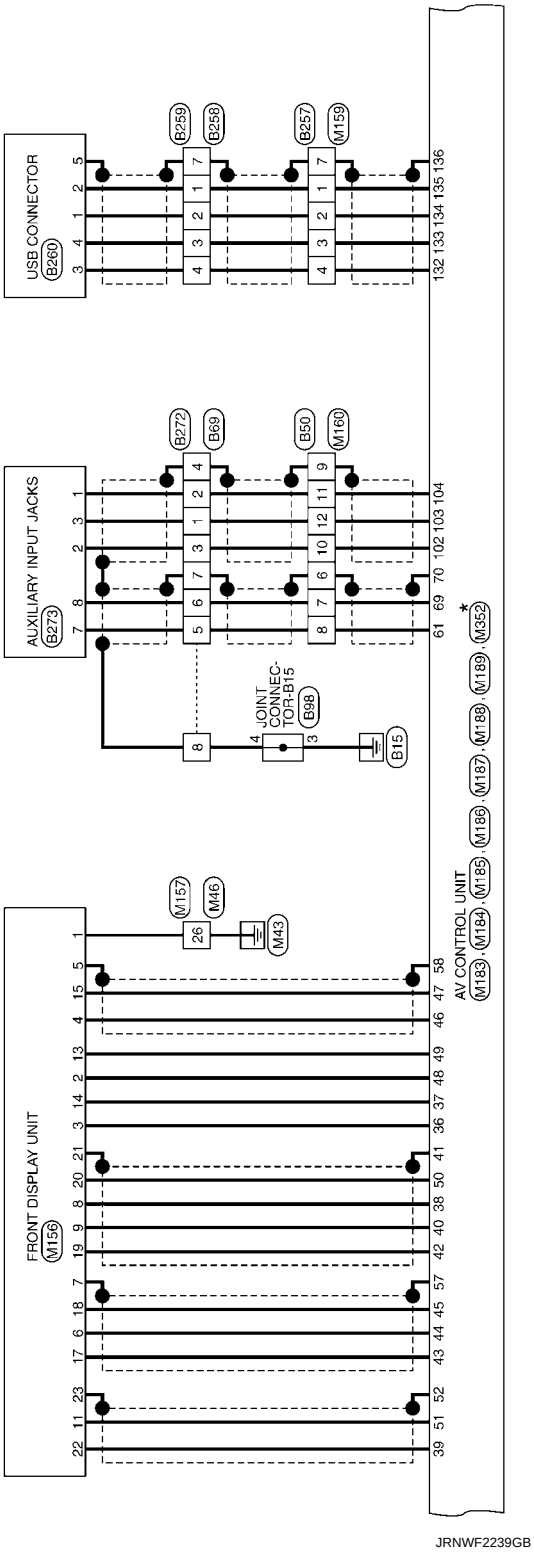

cardiagn.com



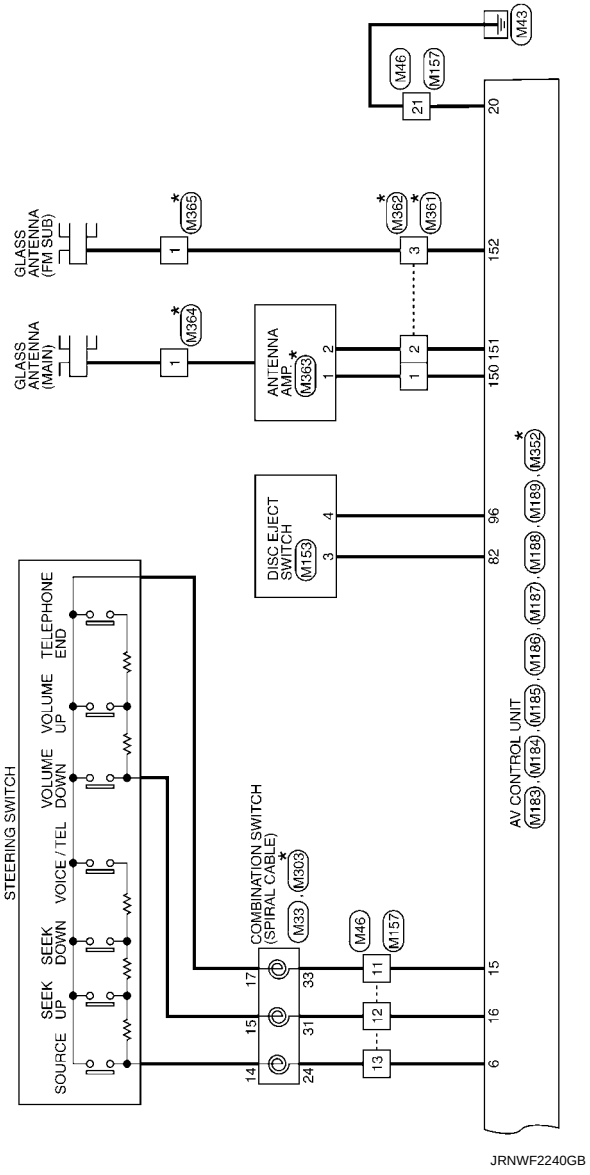

cardiagn.com




cardiagn.com

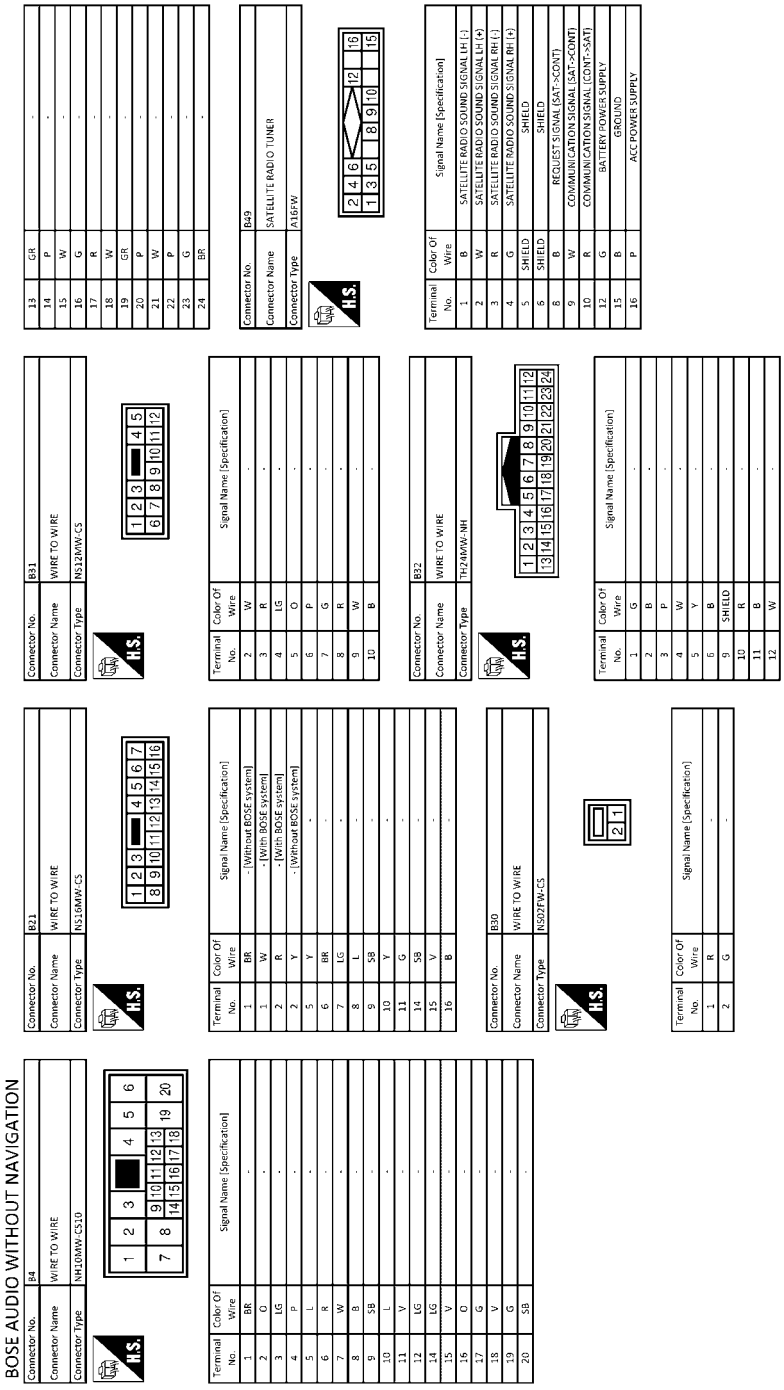



cardiagn.com



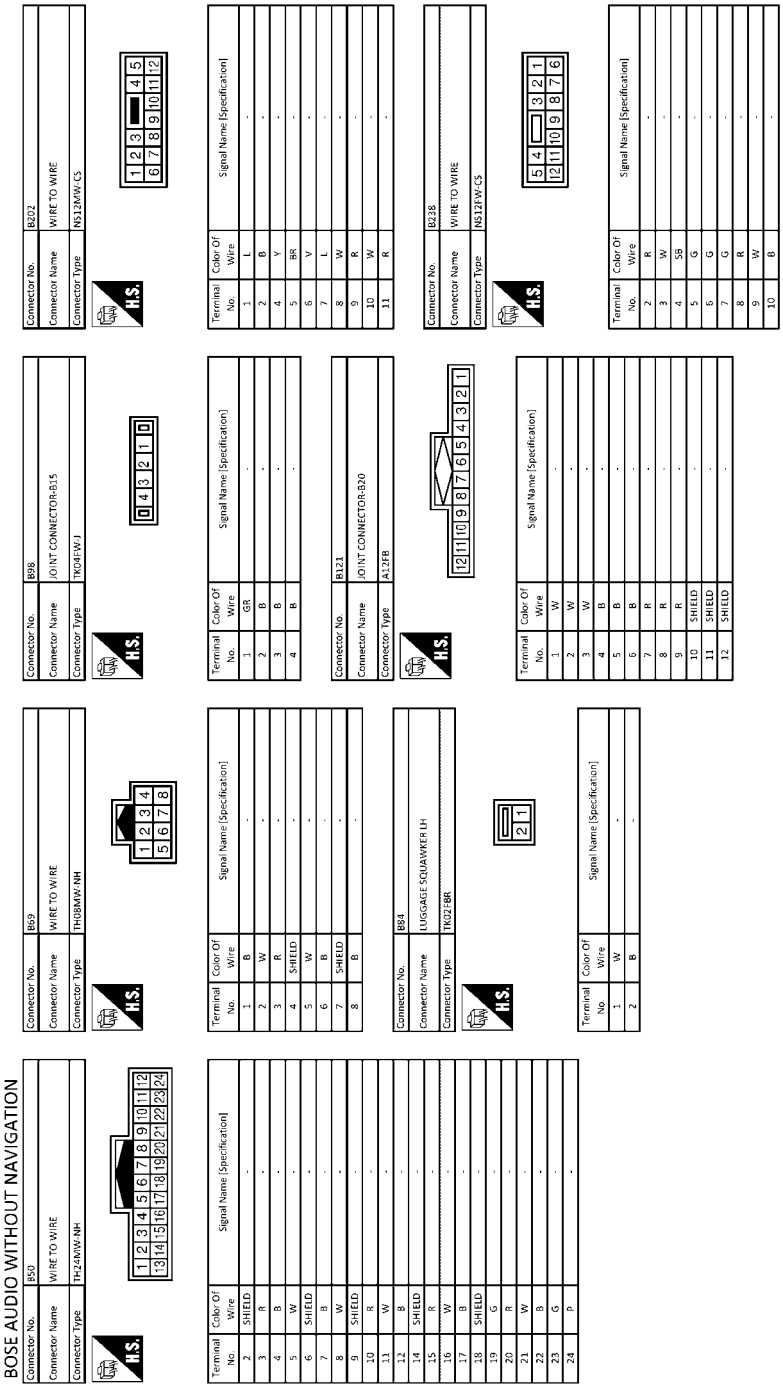

JRNWF2240GB

cardiagn.com



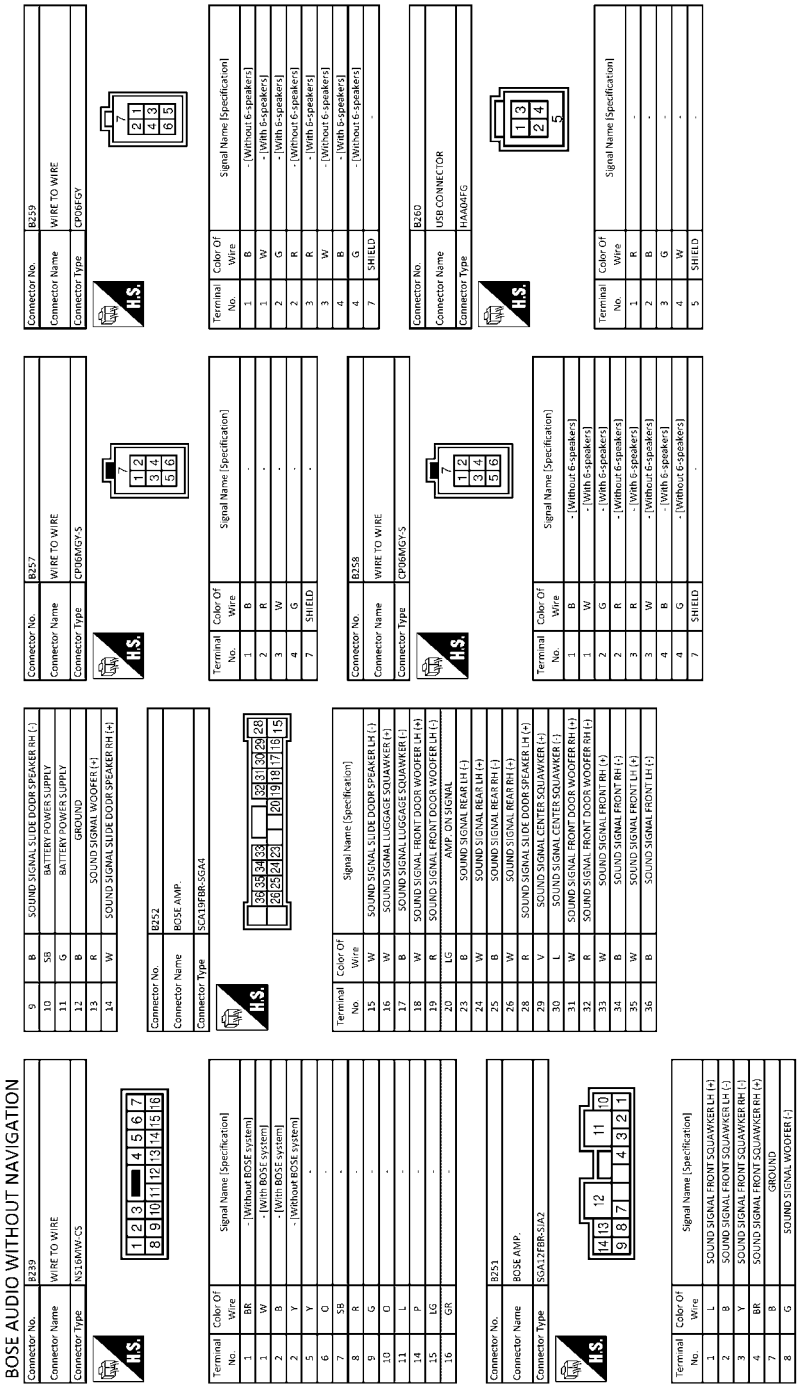

JRNWF2241GB

cardiagn.com



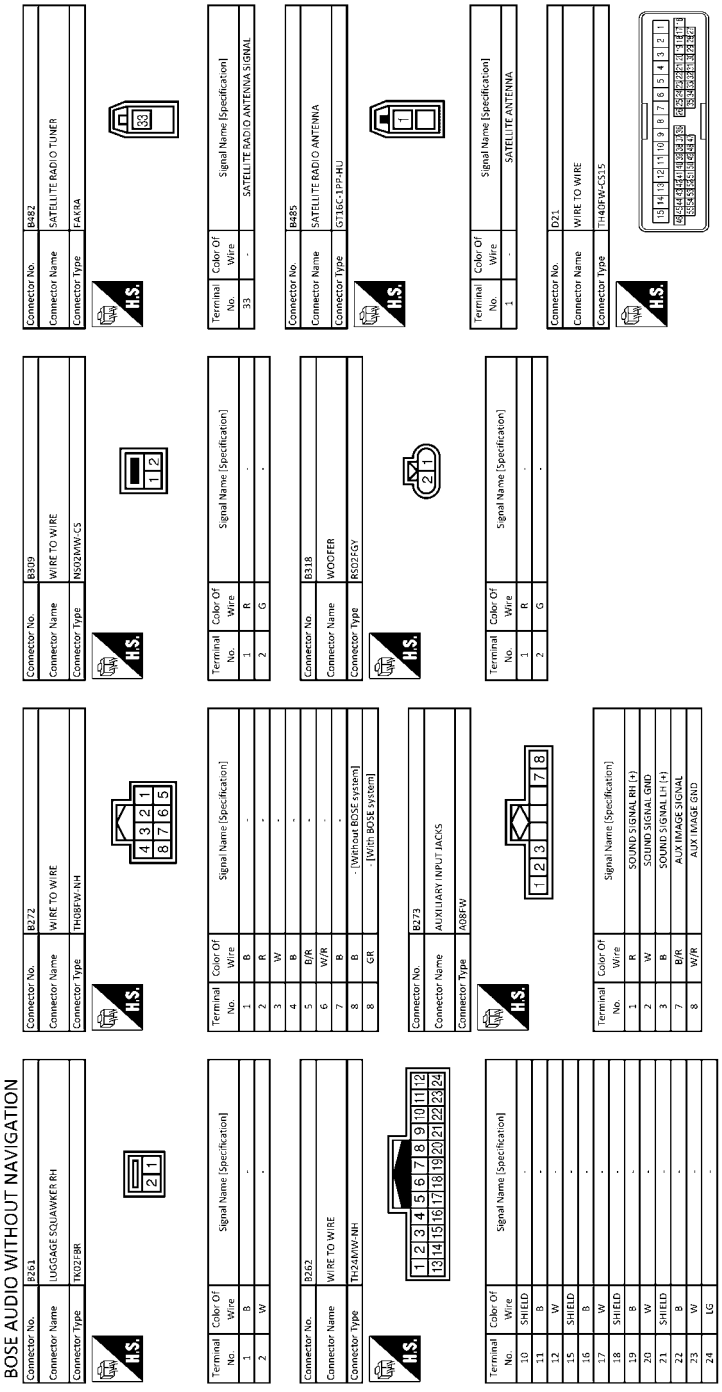

JRNWF2242GB

cardiagn.com




JRNWF2243GB

cardiagn.com




JRNWF2244GB

cardiagn.com

BOSE AUDIO WITHOUT NAVIGATION

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 7 | B | - |
| 8 | V | - |
| 9 | BR | - [With manual A/C] |
| 9 | W | - [With auto A/C] |
| 10 | LG | - |
| 11 | LG | - |
| 12 | BR | - |
| 14 | B | - [Without BOSE system] |
| 14 | R | - [With BOSE system] |
| 15 | L | - [Without BOSE system] |
| 15 | W | - [With BOSE system] |
| 16 | P | - |
| 17 | GR | - |
| 18 | R | - |
| 19 | W | - |
| 21 | R | - |
| 22 | B | - |
| 23 | W | - |
| 24 | SHIELD | - |
| 25 | Y | - |
| 26 | L | - |
| 36 | P | - |
| 37 | G | - |
| 38 | W | - |
| 39 | LG | - |
| 40 | B | - |
| 41 | GR | - |
| 42 | G | - |
| 43 | R | - |
| 45 | G | - |
| 46 | GR | - |
| 50 | W | - |
| 51 | R | - |
| 52 | G | - |
| 53 | SHIELD | - |
| 54 | B | - |
| 55 | W | - |

| Connector No. | D28 |
|---|---|
| Connector Name | FRONT DOOR WOOFER RH |
| Connector Type | NS02FW-CS |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - [Without BOSE system] |
| 1 | W | - [With BOSE system] |
| 2 | B | - [Without BOSE system] |
| 2 | R | - [With BOSE system] |

| Connector No. | D41 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH40FW-CS15 |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | V | - |
| 3 | SB | - |
| 4 | Y | - |
| 5 | BR | - |
| 6 | L | - |
| 7 | Y | - |
| 8 | GR | - |
| 9 | G | - [With manual A/C] |
| 9 | R | - [With auto A/C] |
| 10 | Y | - |
| 11 | BR | - |
| 12 | LG | - |
| 13 | W | - |
| 14 | B | - |
| 15 | L | - [Without BOSE system] |
| 15 | W | - [With BOSE system] |
| 16 | G | - |
| 17 | R | - |
| 18 | G | - |
| 19 | P | - |
| 20 | W | - |
| 21 | GR | - |
| 22 | P | - |
| 23 | R | - |
| 24 | B | - |
| 25 | W | - |
| 26 | SHIELD | - |
| 27 | R | - |
| 28 | P | - |
| 29 | GR | - |
| 30 | P | - |
| 31 | W | - |
| 32 | G | - |
| 33 | P | - |
| 34 | W | - |
| 35 | G | - |
| 36 | P | - |
| 37 | G | - |
| 38 | W | - |
| 39 | LG | - |
| 40 | GR | - |
| 41 | GR | - |
| 42 | G | - |
| 43 | R | - |
| 44 | B | - [Without around view monitor] |
| 45 | G | - [With around view monitor] |
| 45 | Y | - [Without around view monitor] |
| 46 | GR | - [With around view monitor] |
| 46 | L | - |
| 47 | GR | - |
| 48 | B | - |
| 49 | R | - |
| 50 | G | - [With automatic drive positioner] |
| 50 | W | - [Without automatic drive positioner] |
| 51 | P | - [With automatic drive positioner] |
| 51 | R | - [Without automatic drive positioner] |
| 52 | G | - [Without automatic drive positioner] |
| 52 | W | - [With automatic drive positioner] |
| 53 | SHIELD | - |
| 54 | B | - |
| 55 | W | - |

| Connector No. | D58 |
|---|---|
| Connector Name | FRONT DOOR WOOFER LH |
| Connector Type | NS02FW-CS |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - [Without BOSE system] |
| 1 | W | - [With BOSE system] |
| 2 | B | - |

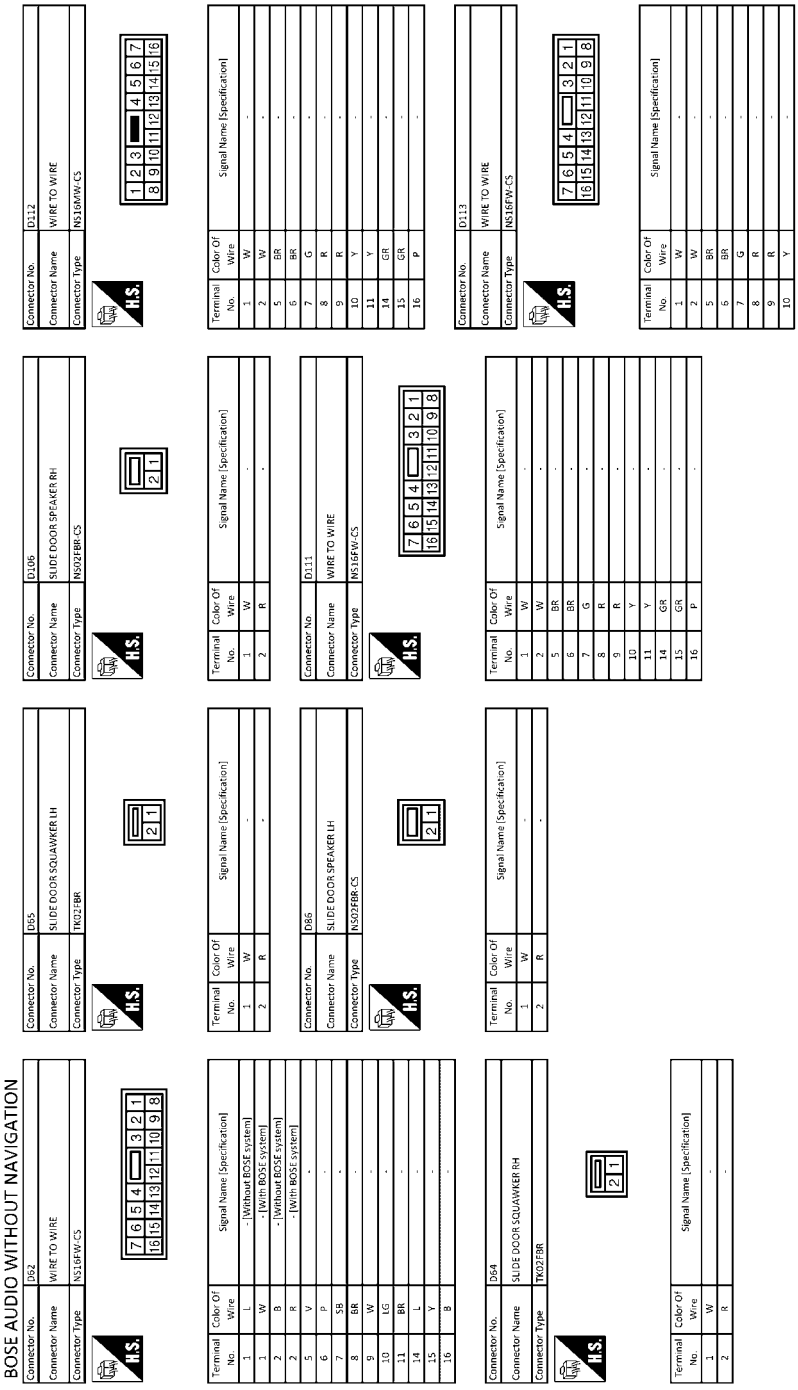
| Connector No. | D51 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16FW-CS |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - [Without BOSE system] |
| 1 | W | - [With BOSE system] |
| 2 | B | - [Without BOSE system] |
| 2 | R | - [With BOSE system] |
| 5 | Y | - |
| 6 | P | - |
| 7 | SB | - |
| 8 | BR | - |
| 9 | W | - |
| 10 | LG | - |
| 11 | BR | - |
| 14 | L | - |
| 15 | Y | - |
| 16 | GR | - |

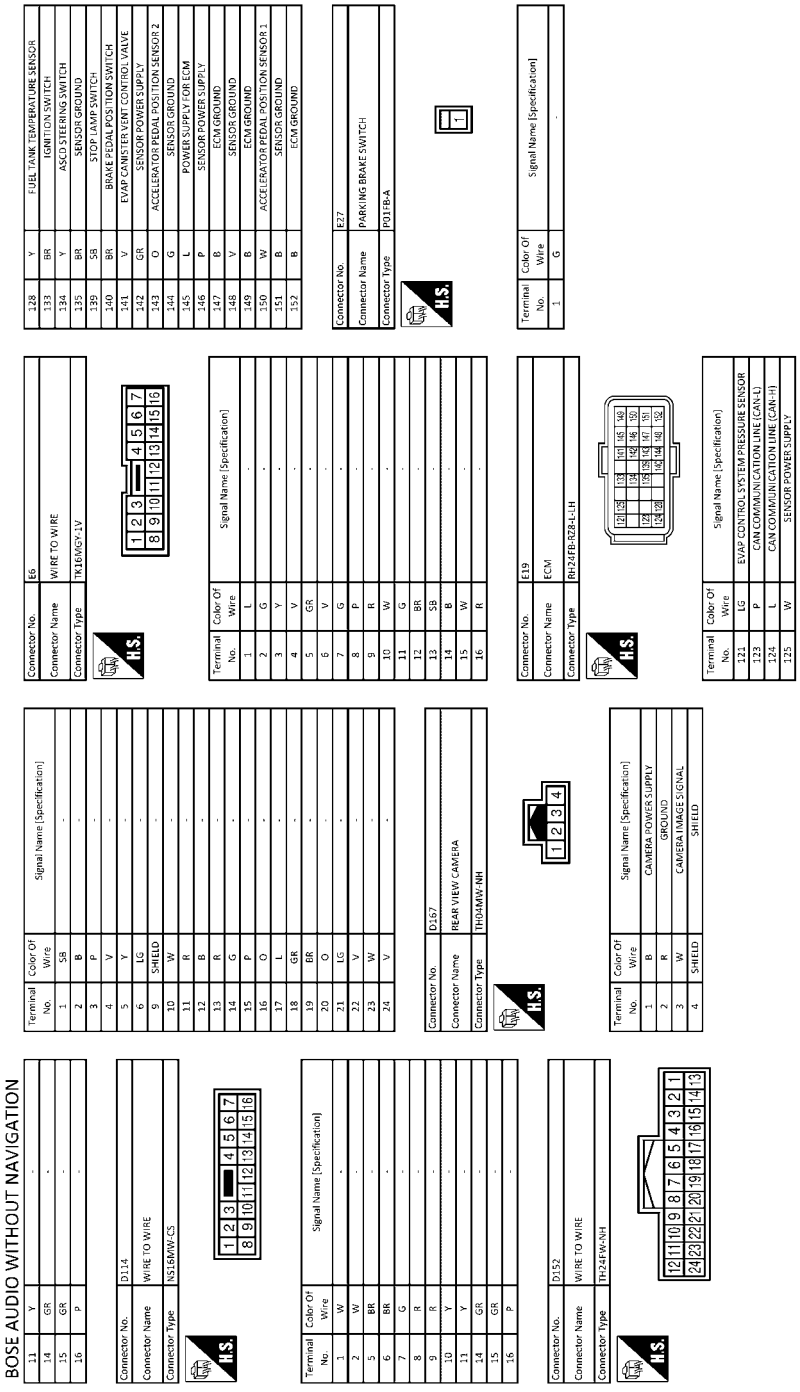
JRNWF2245GB

cardiagn.com



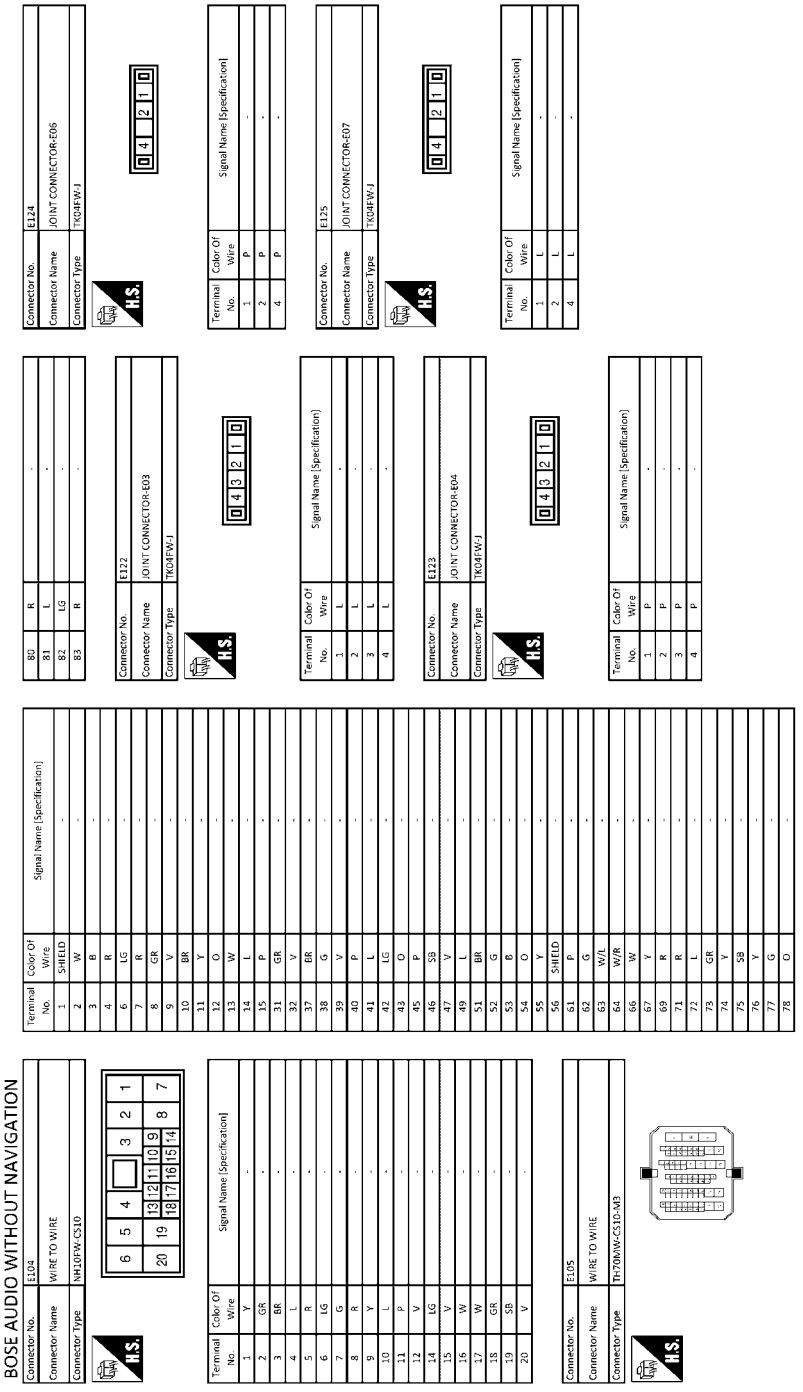

JRNWF2246GB

cardiagn.com



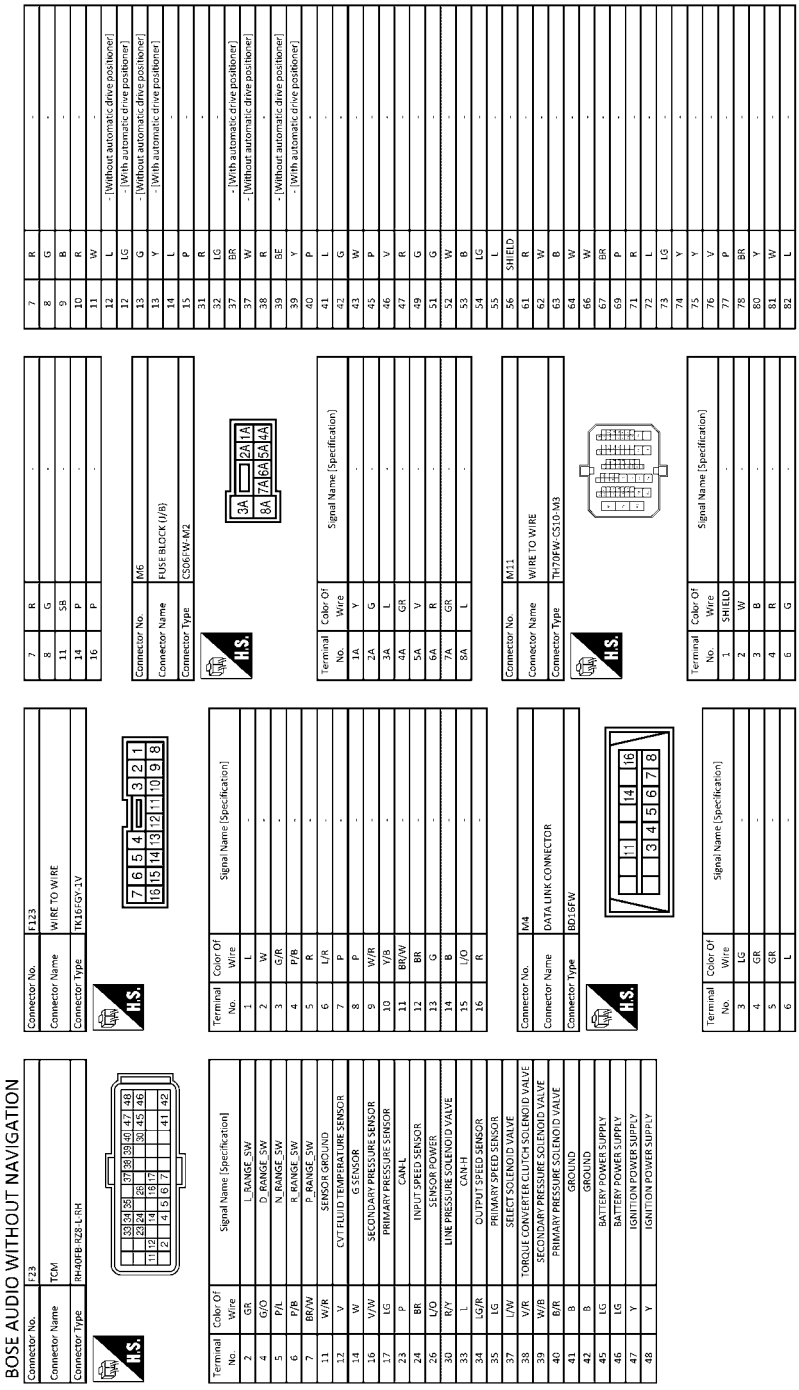

JRNWF2247GB

cardiagn.com



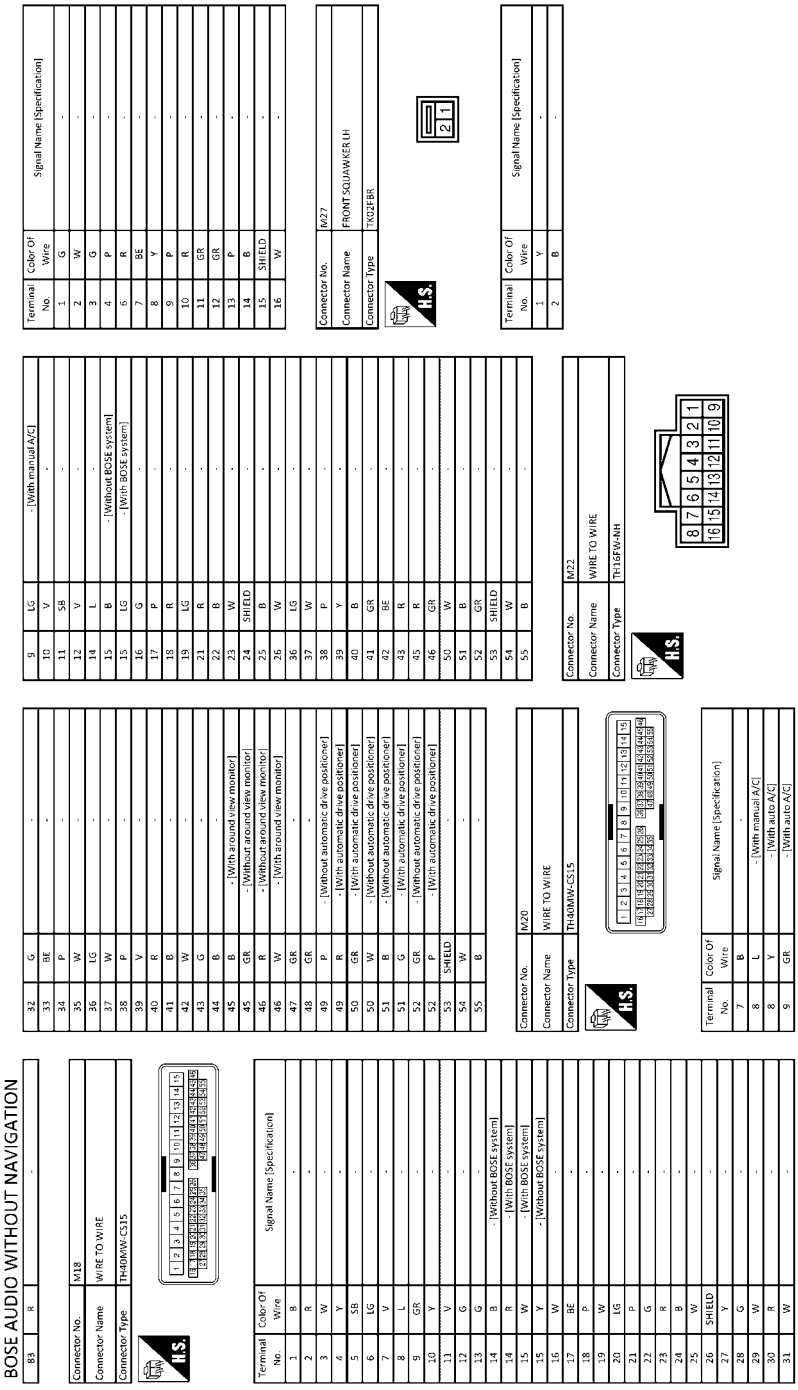

JRNWF2248GB

cardiagn.com



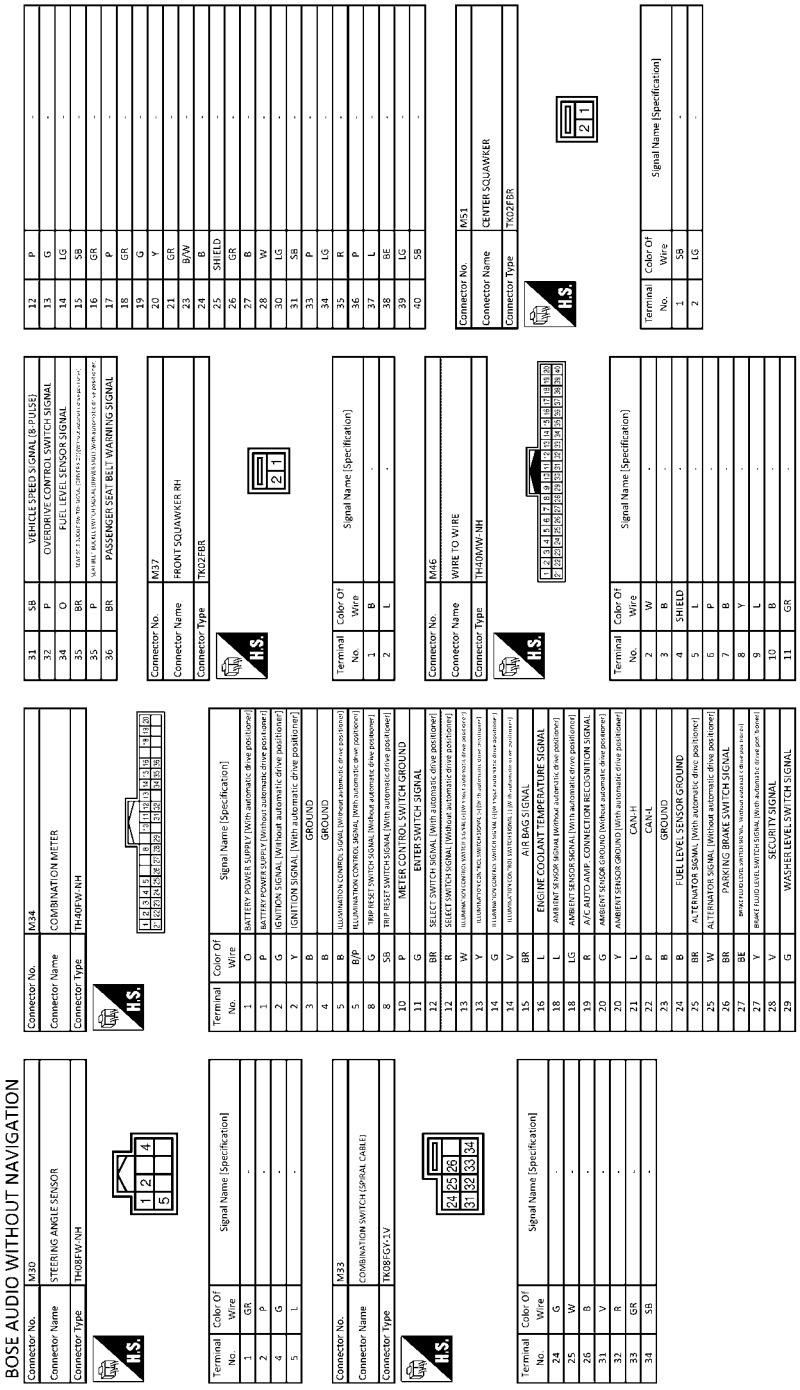

JRNWF2249GB

cardiagn.com



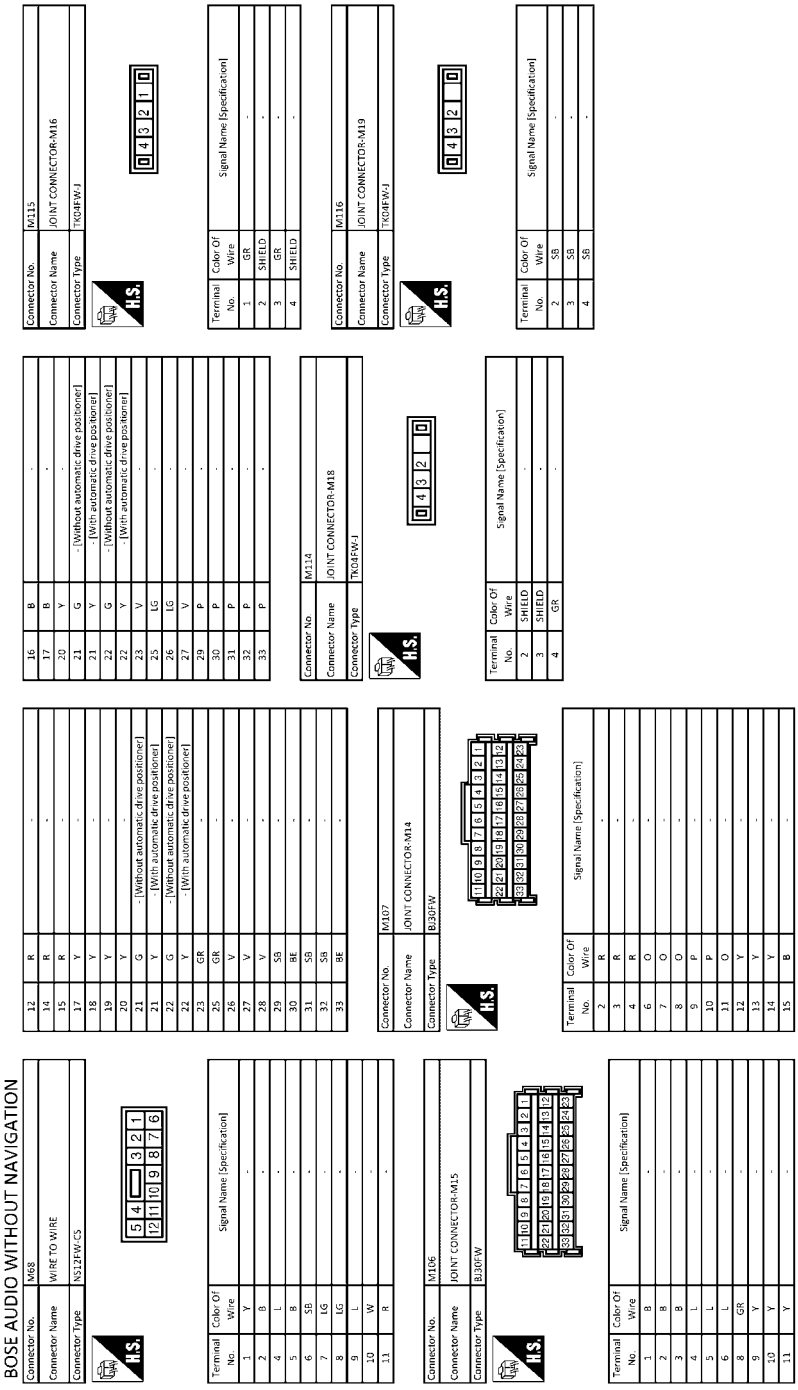

JRNWF2250GB

cardiagn.com




JRNWF2251GB

cardiagn.com

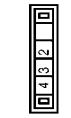



JRNWF2252GB

cardiagn.com

BOSE AUDIO WITHOUT NAVIGATION

| Connector No. | M117 |
|---|---|
| Connector Name | JOINT CONNECTOR-M20 |
| Connector Type | TK04FW-J |



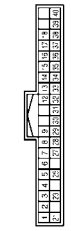
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | LG | - |
| 3 | LG | - |
| 4 | LG | - |

| Connector No. | M118 |
|---|---|
| Connector Name | JOINT CONNECTOR-M17 |
| Connector Type | TK04FW-J |



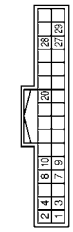
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | SHIELD | - |
| 3 | GR | - |
| 4 | SHIELD | - |

| Connector No. | M121 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FB-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | REAR WINDOW DEF RELAY CONT |
| 2 | R | COMBI SW INPUT 5 |
| 3 | G | COMBI SW INPUT 4 |
| 4 | BE | COMBI SW INPUT 3 |
| 5 | G | COMBI SW INPUT 2 |
| 6 | W | COMBI SW INPUT 1 |
| 7 | W | KEY CYL UNLOCK SW |
| 8 | GR | PW SW COMM [With automatic slide door] |
| 9 | Y | KEY CYL LOCK SW [W/thout automatic slide door] |
| 9 | GR | STOP LAMP SW 1 |
| 12 | GR | DOOR LK & UNLK SW LOCK |
| 13 | BR | DOOR LK & UNLK SW UNLOCK |
| 14 | L | OPTICAL SENS |
| 15 | W | REAR WINDOW DEF SW |
| 16 | Y | DIMMER |
| 17 | O | SENS PWR SPLY |
| 18 | R | RECEIV/SENS GND |
| 21 | GR | NATS ANT AMP. |
| 23 | W | SECURITY IND CONT |
| 25 | P | NATS ANT AMP. |
| 27 | O | A/C ON |
| 28 | BR | BLOWER FAN ON |
| 29 | P | HAZARD SW |
| 30 | L | RK DOOR OPNR SW |
| 31 | G | DR DOOR UNLK SENS |
| 32 | R | COMBI SW OUTPUT 5 |
| 33 | W | COMBI SW OUTPUT 4 |
| 34 | P | COMBI SW OUTPUT 3 |
| 35 | GR | COMBI SW OUTPUT 2 |
| 36 | R | COMBI SW OUTPUT 1 |
| 37 | G | DETENT SW |
| 38 | BE | RECEIVER COMM |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

| Connector No. | M138 |
|---|---|
| Connector Name | TEL ADAPTER UNIT |
| Connector Type | TH32FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | BATTERY POWER SUPPLY |
| 2 | GR | ACC POWER SUPPLY |
| 3 | G | IGNITION SIGNAL |
| 4 | GR | GROUND |
| 7 | B | MICROPHONE SIGNAL |
| 8 | SHIELD | MICROPHONE GROUND |
| 9 | B | SOUND SIGNAL (TEL VOICE, VOICE GUIDANCE) (+) |
| 10 | W | SOUND SIGNAL (TEL VOICE, VOICE GUIDANCE) (-) |
| 20 | GR | CONTROL SIGNAL |
| 27 | GR | CONTROL SIGNAL |
| 28 | BE | VEHICLE SPEED SIGNAL (8-PULSE) |
| 29 | W | MICROPHONE VCC |

| Connector No. | M139 |
|---|---|
| Connector Name | TEL ADAPTER UNIT |
| Connector Type | TH08FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 35 | SB | AV COMMUNICATION SIGNAL (H) |
| 36 | LG | AV COMMUNICATION SIGNAL (L) |

| Connector No. | M153 |
|---|---|
| Connector Name | DISC EJECT SWITCH |
| Connector Type | JAB04FB |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | GR | - |
| 3 | R | - |
| 4 | W | - |

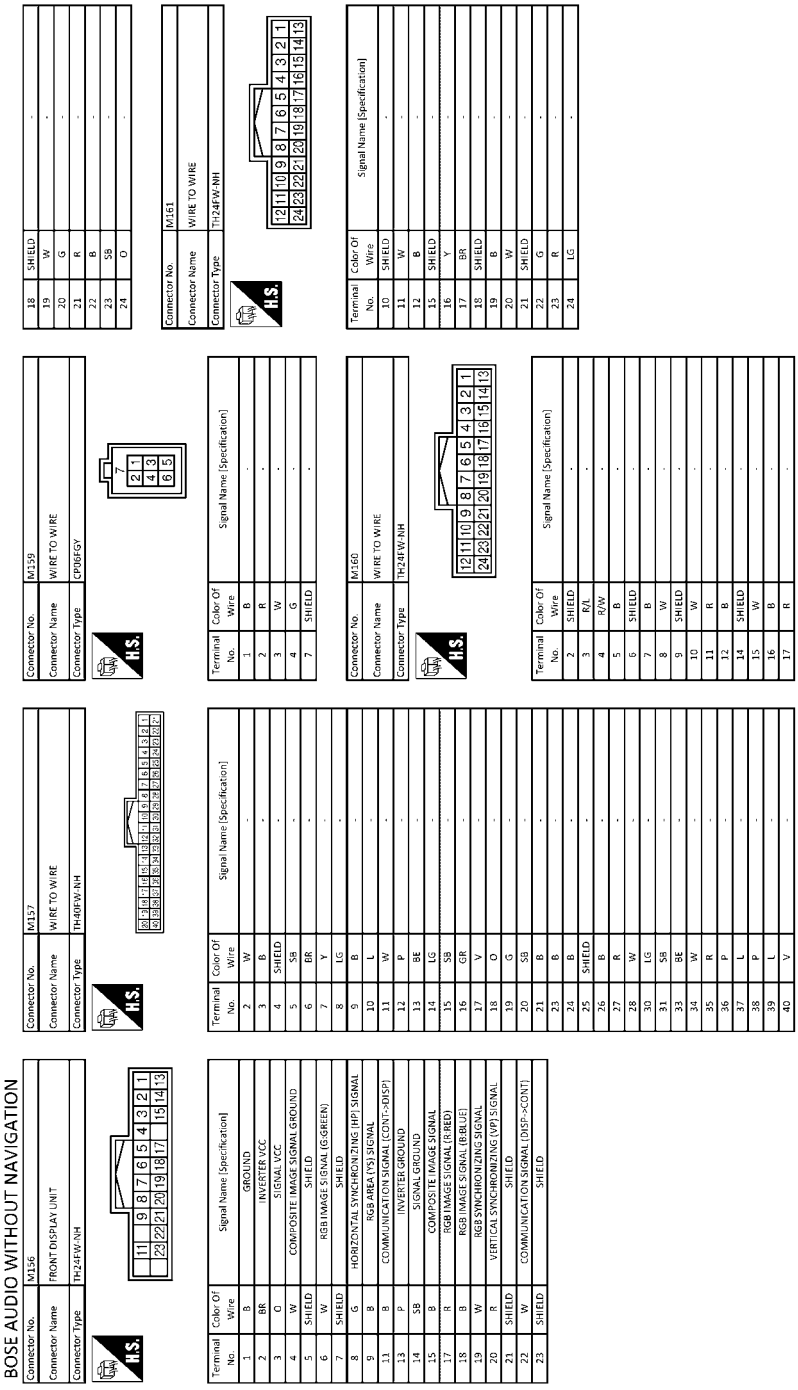
| Connector No. | M154 |
|---|---|
| Connector Name | MULTIFUNCTION SWITCH |
| Connector Type | TH16FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | GROUND |
| 3 | O | ACC |
| 4 | V | - |
| 5 | GR | LIL CONT |
| 6 | SB | AV COMM (H) |
| 8 | LG | AV COMM (L) |

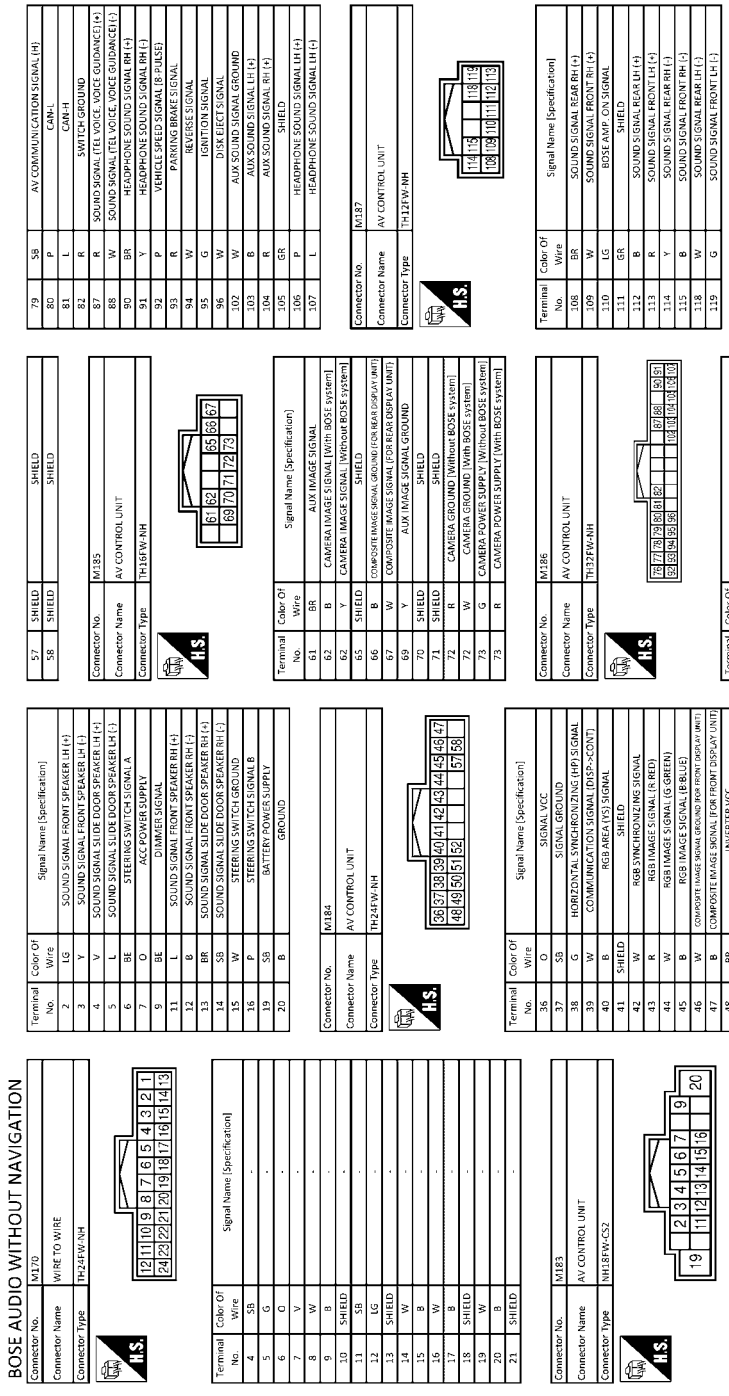
cardiagn.com

JRNWF2253GB




JRNWF2254GB

cardiagn.com




JRNWF2255GB

cardiagn.com

BOSE AUDIO WITHOUT NAVIGATION

| Connector No. | M188 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | A12FW |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 120 | R | SATELLITE RADIO SOUND SIGNAL LH (+) |
| 121 | W | SATELLITE RADIO SOUND SIGNAL RH (+) |
| 122 | R/W | COMMUNICATION SIGNAL (CONT->SAT) |
| 124 | B | SATELLITE RADIO SOUND SIGNAL LH (-) |
| 125 | G | SATELLITE RADIO SOUND SIGNAL RH (-) |
| 126 | SHIELD | SHIELD |
| 127 | SHIELD | SHIELD |
| 129 | R/L | REQUEST SIGNAL (SAT->CONT) |
| 130 | B | COMMUNICATION SIGNAL (SAT->CONT) |

| Connector No. | M189 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | HA40MFL |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 132 | G | USB GROUND |
| 133 | W | USB D- SIGNAL |
| 134 | R | V BUS SIGNAL |
| 135 | B | USB D+ SIGNAL |
| 136 | SHIELD | SHIELD |

| Connector No. | M303 |
|---|---|
| Connector Name | COMBINATION SWITCH (SPIRAL CABLE) |
| Connector Type | TK08FGY |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 13 | - | - |
| 14 | - | - |
| 15 | - | - |
| 16 | - | - |
| 17 | - | - |
| 18 | - | - |
| 19 | + | - |
| 20 | - | - |

| Connector No. | M352 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | GT13SH-2_1S-HU |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 150 | - | ANTENNA AMP. ON SIGNAL |
| 151 | - | AM-FM MAIN |
| 152 | - | FM SUB |

| Connector No. | M360 |
|---|---|
| Connector Name | TEL ADAPTER UNIT |
| Connector Type | GT16C-1S-HU |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 33 | - | TEL ANTENNA SIGNAL |
| 34 | SHIELD | SHIELD |

| Connector No. | M361 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | GT13SC-2_1S-HU |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | - |
| 2 | - | - |
| 3 | - | - |

| Connector No. | M362 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | GT13SCN-2_1PP-HU |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | - |
| 2 | - | - |
| 3 | - | - |

| Connector No. | M363 |
|---|---|
| Connector Name | ANTENNA AMP. |
| Connector Type | GT13SC-2_1S-HU |

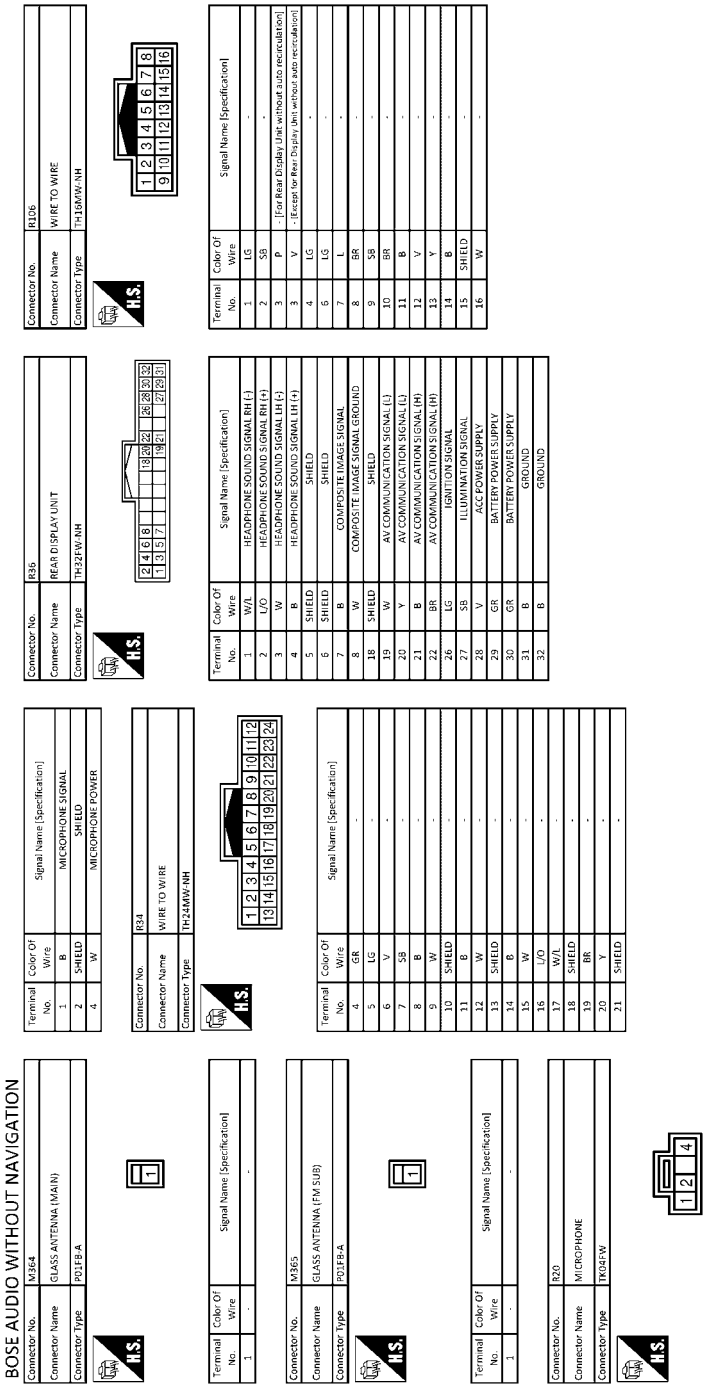
H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | ANTENNA AMP. ON SIGNAL |
| 2 | - | AM-FM MAIN |

JRNWF2256GB

cardiagn.com




JRNWF2257GB

cardiagn.com

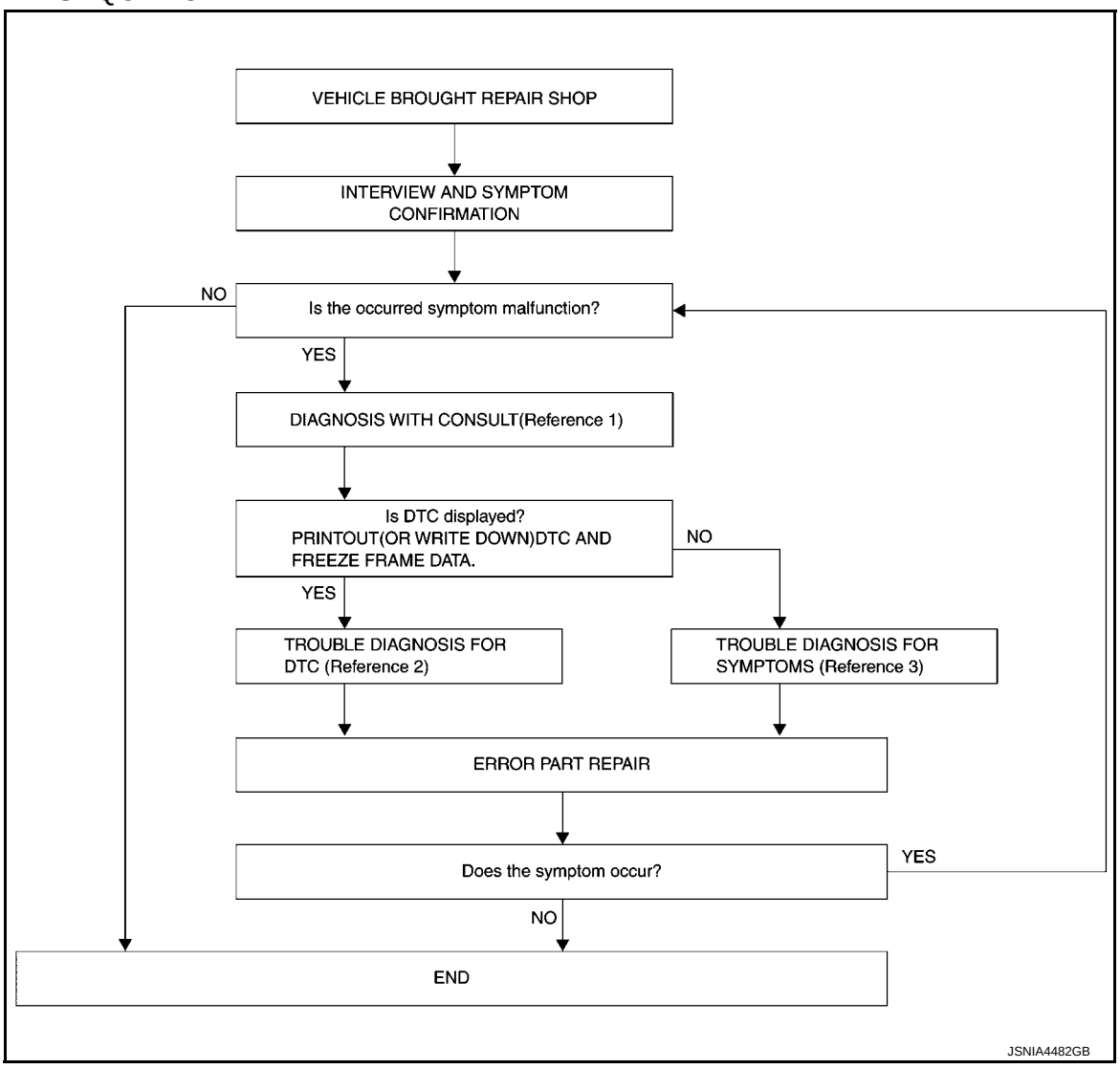
# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:0000000012407292

#### OVERALL SEQUENCE




- Reference 1··· Refer to AV-296, "CONSULT Function".
- Reference 2··· Refer to AV-308, "DTC Index".
- Reference 3··· Refer to AV-388, "Symptom Table".

#### DETAILED FLOW

**1.** INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.
NO >> INSPECTION END

**2.** DIAGNOSIS WITH CONSULT

cardiagn.com

1. Connect CONSULT and perform a self-diagnosis for “MULTI AV”. Refer to AV-296, "CONSULT Function".
   **NOTE:**
   Skip to step 4 of the diagnosis procedure if “MULTI AV” is not displayed.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Is DTC displayed?

YES >> GO TO 3.
NO >> GO TO 4.

## 3. TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-308, "DTC Index".

>> GO TO 5.

## 4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-388, "Symptom Table".

>> GO TO 5.

## 5. ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for “MULTI AV” with CONSULT.
   **NOTE:**
   Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.
3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.
NO >> INSPECTION END

cardiagn.com

# ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

## Description

INFOID:0000000012407293

### BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement. Refer to AV-347, "Work Procedure".

### AFTER REPLACEMENT

**CAUTION:**

**When replacing AV control unit, you must perform “After Replace ECU” or “Manual Configuration” with CONSULT.**

- **Complete the procedure of “After Replace ECU” or “Manual Configuration” in order.**
- **If you set incorrect “After Replace ECU” or “Manual Configuration”, incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**

## Work Procedure

INFOID:0000000012407294

### 1.SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” to save or print current vehicle specification. Refer to AV-348, "Description".

**NOTE:**

If “Before Replace ECU” can not be used, use the “Manual Configuration”.

>> GO TO 2.

### 2.REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-398, "Removal and Installation".

>> GO TO 3.

### 3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “After Replace ECU” or “Manual Configuration” to write vehicle specification. Refer to AV-348, "Work Procedure".

>> GO TO 4.

### 4.OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

cardiagn.com

# CONFIGURATION (AV CONTROL UNIT)

## Description

INFOID:0000000012407295

- Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT. Refer to AV-348, "Work Procedure".
- Configuration has three functions as follows.

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the AV control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the AV control unit by hand. |

## Work Procedure

INFOID:0000000012407296

### 1.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.
To write vehicle specification into the AV control unit by hand>>GO TO 3.

### 2.WRITE STORED DATA

CONSULT Configuration
Select “After Replace ECU” in “Read/Write Configuration.” Write data stored in CONSULT with the “Before Replace ECU” function into the AV control unit.

>> GO TO 4.

### 3.MANUALLY WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Manual Configuration.” Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-348, "Configuration List".
**NOTE:**
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

>> GO TO 4.

### 4.OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

## Configuration List

INFOID:0000000012407297

**CAUTION:**
**Grasp vehicle specifications precisely. The control of ECU may not function normally if the specifications are misread.**
**NOTE:**
- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

cardiagn.com

| MANUAL SETTING ITEM | |
|---|---|
| Items | Setting value |
| STEERING | LHD |
| | RHD |
| SOUND SYSTEM | BASE |
| | BOSE |



cardiagn.com

# DTC/CIRCUIT DIAGNOSIS

## U1000 CAN COMM CIRCUIT

### Description

INFOID:0000000012407298

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

### DTC Logic

INFOID:0000000012407299

#### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction location |
|---|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more. | CAN communication system. |

### Diagnosis Procedure

INFOID:0000000012407300

#### 1. PERFORM SELF-DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result” of “MULTI AV”.

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-41, "Intermittent Incident".

cardiagn.com

# U1010 CONTROL UNIT (CAN)

## DTC Logic

INFOID:0000000012407301

### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction factor |
|---|---|---|---|
| U1010 | CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-398, "Removal and Installation". |

cardiagn.com

# U1200 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407302

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1200 | Cont Unit [U1200] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-398, "Removal and Installation". |

cardiagn.com

# U1216 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407303

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1216 | CAN CONT [U1216] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-398, "Removal and Installation". |



cardiagn.com

# U1232 STEERING ANGLE SENSOR

## DTC Logic

INFOID:0000000012407304

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1232 | ST ANGLE SEN CALIB [1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust neutral position of the steering angle sensor. |

## Diagnosis Procedure

INFOID:0000000012407305

### 1.ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U1232 is detected, adjust the neutral position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-50, "Description".

cardiagn.com

# U1243 FRONT DISPLAY UNIT

## DTC Logic

INFOID:0000000012407306

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1243 | FRONT DISP CONN [U1243] | When either one of the following items are detected:<br>• front display unit power supply and ground circuits are malfunctioning.<br>• serial communication circuits between front display unit and AV control unit are malfunctioning. | • Front display unit power supply and ground circuits.<br>• Serial communication circuits between front display unit and AV control unit. |

## Diagnosis Procedure

INFOID:0000000012407307

### 1.CHECK FRONT DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUITS

Check front display unit power supply and ground circuits. Refer to AV-361, "FRONT DISPLAY UNIT : Diagnosis Procedure".

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2.CHECK CONTINUITY COMMUNICATION CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M156 | 11 | M184 | 51 | Existed |
| | 22 | | 39 | |

4. Check continuity between front display unit harness connector and ground.

| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M156 | 11 | | Not existed |
| | 12 | | |

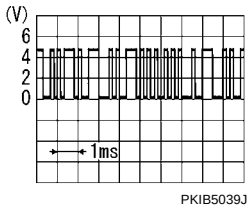
Is inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

### 3.CHECK COMMUNICATION SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

cardiagn.com

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 11 | M156 | 1 | When adjusting display brightness. | Waveform of 0.4 V - 5.3 V is input. |  PKIB5039J |

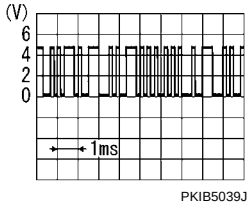


Is inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

## 4. CHECK COMMUNICATION SIGNAL

Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 22 | M156 | 1 | When adjusting display brightness. | Waveform of 0.5 V or less - 3.5 V or more is input. |  PKIB5039J |



Is inspection result normal?

YES >> INSPECTION END
NO >> Replace front display unit. Refer to AV-399, "Removal and Installation".

cardiagn.com

# U1255 SATELLITE RADIO TUNER

## DTC Logic

INFOID:0000000012407308

| DTC | Display contents of CONSULT | DTC Detection Condition | Possible causes |
|---|---|---|---|
| U1255 | SAT CONN [U1255] | When either one of the following items is detected:<br>• satellite radio tuner power supply and ground circuit are malfunctioning.<br>• communication circuits between AV control unit and satellite radio tuner are malfunctioning.<br>• request signal circuit between AV control unit and satellite radio tuner are malfunctioning. | • Satellite radio tuner power supply and ground circuit.<br>Refer to AV-364, "SATELLITE RADIO TUNER : Diagnosis Procedure".<br>• Communication circuit between AV control unit and satellite radio tuner.<br>• Request signal circuit between AV control unit and satellite radio tuner. |

## Diagnosis Procedure

INFOID:0000000012407309

### 1.CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to AV-364, "SATELLITE RADIO TUNER : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2.CHECK CONTINUITY COMMUNICATION CIRCUIT AND REQUEST SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and satellite radio tuner connector.
3. Check continuity between AV control unit harness connector and satellite radio tuner harness connector.

| AV control unit | | Satellite radio tuner | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M188 | 122 | B49 | 10 | Existed |
| | 129 | | 8 | |
| | 130 | | 9 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M188 | 122 | Ground | Not existed |
| | 129 | | |
| | 130 | | |

Is the inspection result normal?

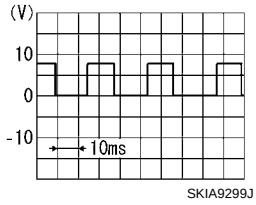
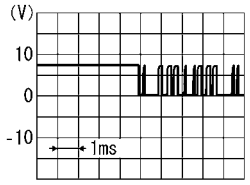
YES >> GO TO 3.
NO >> Repair harness or connector.

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between AV control unit harness connector and ground.



cardiagn.com

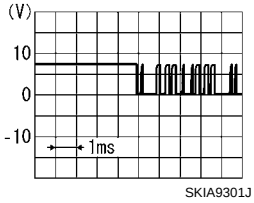
| (+) AV control unit Connector | (+) AV control unit Terminals | (–) | Condition | Standard | Reference value |
|---|---|---|---|---|---|
| M188 | 129 | Ground | When satellite radio mode is selected. | Waveform of 1.1 V - 7.181 V or more is input. |  SKIA9299J |
| | 130 | | | |  SKIA9301J |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

## 4. CHECK SATELLITE RADIO TUNER VOLTAGE

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector.
3. Connect satellite radio tuner.
4. Turn ignition switch ON.
5. Check signal between satellite radio tuner harness connectors.

| Satellite radio tuner (+) Connector | Satellite radio tuner (+) Terminal | Satellite radio tuner (–) Connector | Satellite radio tuner (–) Terminal | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| B49 | 10 | B49 | 15 | When satellite radio mode is selected. | Waveform of 1.5 V - 6.0 V is input. |  SKIA9301J |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace satellite radio tuner. Refer to AV-418, "Removal and Installation".

cardiagn.com

# U1300 AV COMM CIRCUIT

## Description

INFOID:0000000012407310

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

| DTC | Display contents of CONSULT | DTC Detection Condition | Possible causes |
|---|---|---|---|
| U1300<br>U1240 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | When either one of the following items is detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| U1300<br>U1246 | • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | When either one of the following items are detected:<br>• rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>• AV communication circuits between AV control unit and rear display unit. |
| U1300<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• HAND FREE CONN [U1256] | When either one of the following items is detected:<br>• TEL adapter unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. | • TEL adapter unit power supply and ground circuits.<br>• AV communication circuits between AV control unit and TEL adapter unit. |
| U1300<br>U1240<br>U1246<br>U1256 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• HAND FREE CONN [U1256] | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

cardiagn.com

# U1310 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407311

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1310 | CONTROL UNIT (AV) [U1310] | An initial diagnosis error is detected in AV communication circuit. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-398, "Removal and Installation". |

cardiagn.com

# POWER SUPPLY AND GROUND CIRCUIT

## AV CONTROL UNIT

### AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407312

#### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

| Signal name | AV control unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M183 | 19 | 20 | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 7 | | ACC | | |
| Ignition signal | M186 | 95 | | ON | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between AV control unit and fuse.

#### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connectors.
3. Check continuity between AV control unit harness connectors and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M183 | 20 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

## FRONT DISPLAY UNIT

### FRONT DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012407313

#### 1.CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

| Signal name | Front display unit | Probe | | Condition | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Inverter VCC | M156 | 2 | 13 | OFF | 8.0 - 9.5 V | 8.8 V |
| Signal VCC | | 3 | 14 | ACC | | |



cardiagn.com

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 2.

## 2.CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

1. Turn ignition switch OFF.
2. Disconnect the harness connector between front display unit and AV control unit.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 2 | M184 | 48 | Existed |
| | 3 | | 36 | |

4. Check continuity between front display unit harness connector and ground.

| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 2 | | Not existed |
| | 3 | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

## 3.CHECK POWER SUPPLY CIRCUIT (AV CONTROL UNIT SIDE)

1. Connect the AV control unit harness connector.
2. Turn ignition switch ACC.
3. Check voltage between AV control unit harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M184 | 48 | M184 | 49 | 8.0 - 9.5 V | 8.8 V |
| | 36 | | 37 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

## 4.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector.
3. Check continuity between front display unit harness connectors and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M156 | 1 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# REAR DISPLAY UNIT

cardiagn.com

## REAR DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012407314

### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between rear display unit harness connector and ground.

| Signal name | Rear display unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | R36 | 29 | 31<br>32 | OFF | 9.0 - 16.0 V | Battery voltage |
| | | 30 | | | | |
| ACC power supply | | 28 | | ACC | 7.6 V - Battery voltage | |
| Ignition signal | | 26 | | ON | 3.0 V - Battery voltage | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between rear display unit and fuse.

### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear display unit connector.
3. Check continuity between rear display unit harness connector and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | R36 | 31 | OFF | Existed |
| | | 32 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

## BOSE AMP.

## BOSE AMP. : Diagnosis Procedure

INFOID:0000000012407315

### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 26 |
| | 27, 28 |

Is the inspection result normal?

YES >> GO TO 2.



cardiagn.com

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

| Signal name | BOSE amp. | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | B251 | 10 | 7<br>12 | OFF | 9.0 - 16.0 V | Battery voltage |
| | | 11 | | | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between BOSE amp. and fuse.

## 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BOSE amp. connector.
3. Check continuity between BOSE amp. harness connector and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | B251 | 7 | OFF | Existed |
| | | 12 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# SATELLITE RADIO TUNER

## SATELLITE RADIO TUNER : Diagnosis Procedure

INFOID:0000000012407316

## 1.CHECK FUSES

Check that the following fuses of the satellite radio tuner are not blown.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |

Is inspection result OK?

YES >> GO TO 2.
NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between the satellite radio tuner and ground.

| Signal name | Satellite radio tuner | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | B49 | 12 | 15 | OFF | 10.8 - 15.6 V | Battery voltage |
| ACC power supply | | 16 | | ACC | 7.0 - 16.0 V | |

Is inspection result OK?

YES >> GO TO 3.
NO >> Check harness between satellite radio tuner and fuse.

## 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.



cardiagn.com

2. Disconnect satellite radio tuner connector.
3. Check continuity between satellite radio tuner harness connector and ground.

| Signal name | Connector | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | B49 | 15 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# TEL ADAPTER UNIT

## TEL ADAPTER UNIT : Diagnosis Procedure

INFOID:0000000012407317

### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

| Signal name | TEL adapter unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M138 | 1 | 4 | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 2 | | ACC | 7.0 - 16.0 V | |
| Ignition signal | | 3 | | ON | 7.0 - 16.0 V | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between TEL adapter unit and fuse.

### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector.
3. Check continuity between TEL adapter unit harness connector and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M138 | 4 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

cardiagn.com

# RGB (R: RED) SIGNAL CIRCUIT

## Description

INFOID:0000000012407318

Transmit the image displayed with AV control unit with RGB signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407319

### 1.CHECK CONTINUITY RGB (R: RED) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 17 | M184 | 43 | Existed |

4. Check continuity between front display unit harness connector and ground.

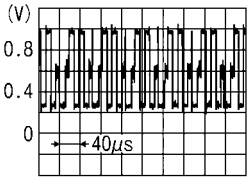
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 17 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB (R: RED) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 17 | M156 | 1 | Start confirmation/ adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen. | Waveform according to RGB image is input. |  |



JSNIA1029ZZ

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-399, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# RGB (G: GREEN) SIGNAL CIRCUIT

## Description

INFOID:0000000012407320

Transmit the image displayed with AV control unit with RGB signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407321

### 1.CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 6 | M184 | 44 | Existed |

4. Check continuity between front display unit harness connector and ground.

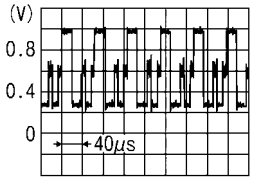
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 6 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB (G: GREEN) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 6 | M156 | 1 | Start confirmation/ adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen. | Waveform according to RGB image is input. |  JSNIA1030ZZ |



Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-399, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# RGB (B: BLUE) SIGNAL CIRCUIT

## Description

INFOID:0000000012407322

Transmit the image displayed with AV control unit with RGB signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407323

### 1.CHECK CONTINUITY RGB (B: BLUE) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 18 | M184 | 45 | Existed |

4. Check continuity between front display unit harness connector and ground.

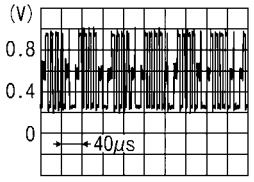
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 18 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB (B: BLUE) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 18 | M156 | 1 | Start confirmation/ adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen. | Waveform according to RGB image is input. |  JSNIA1031ZZ |



Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-399, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# RGB SYNCHRONIZING SIGNAL CIRCUIT

## Description

INFOID:0000000012407324

Transmit the RGB synchronizing signal to the front display unit so as to synchronize the RGB image displayed with AV control unit.

## Diagnosis Procedure

INFOID:0000000012407325

### 1.CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 19 | M184 | 42 | Existed |

4. Check continuity between front display unit harness connector and ground.

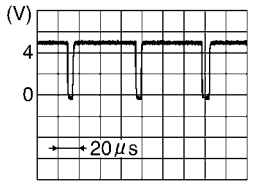
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 19 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB SYNCHRONIZING SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Standard | Reference value |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Front display unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M156 | 19 | M156 | 1 | Waveform of 0.8 V - 5.5 V is input. |  |


SKIB3603E

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-399, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# RGB AREA (YS) SIGNAL CIRCUIT

## Description

INFOID:0000000012407326

Transmits the display area of RGB image displayed by AV control unit with RGB area (YS) signal to front display unit.

## Diagnosis Procedure

INFOID:0000000012407327

### 1.CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 9 | M184 | 40 | Existed |

4. Check continuity between front display unit harness connector and ground.

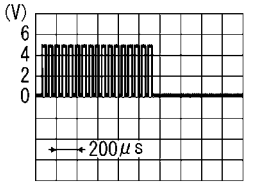
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 9 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB AREA (YS) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (-) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 9 | M156 | 1 | At RGB image is displayed | 5.5 V or less | 5.0 V |
| | | | | At AUX image is displayed | Waveform of 0.8 V - 5.5 V is input. |  PKIB4948J |

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-399, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

## Description

INFOID:0000000012407328

In composite image (DVD, auxiliary input, and camera images), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

## Diagnosis Procedure

INFOID:0000000012407329

### 1.CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 8 | M184 | 38 | Existed |

4. Check continuity between front display unit harness connector and ground.

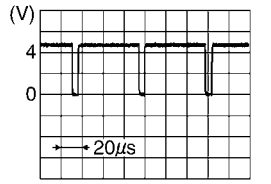
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Standard | Reference value |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Front display unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M156 | 8 | M156 | 1 | Waveform of 1.0 V - 5.5 V is output. |  |



SKIB3601E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-398, "Removal and Installation".
NO >> Replace front display unit. Refer to AV-399, "Removal and Installation".

cardiagn.com

# VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

## Description

INFOID:0000000012407330

In composite image (DVD, auxiliary input, and camera images), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

## Diagnosis Procedure

INFOID:0000000012407331

### 1.CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M156 | 20 | M184 | 50 | Existed |

4. Check continuity between front display unit harness connector and ground.

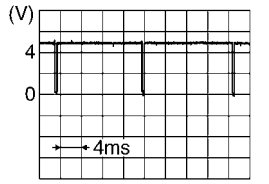
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M156 | 20 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | | Standard | Reference value |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Front display unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M156 | 20 | M156 | 1 | Waveform of 1.0 V - 5.5 V is output. |  |



SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-398, "Removal and Installation".
NO >> Replace front display unit. Refer to AV-399, "Removal and Installation".

cardiagn.com

# COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

## Description

INFOID:0000000012407332

The AV control unit outputs image signal (DVD, auxiliary input, and camera) to the front display unit and rear display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407333

### 1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and front display unit connector.
3. Check continuity between AV control unit harness connector and front display unit harness connector.

| AV control unit | | Front display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M184 | 46 | M156 | 4 | Existed |
| | 47 | | 15 | |

4. Check continuity between AV control unit harness connector and ground.

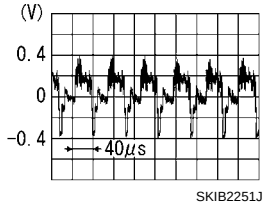
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M184 | 46 | | Not existed |
| | 47 | | |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK COMPOSITE IMAGE SIGNAL (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

1. Connect AV control unit connector and front display unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M156 | 15 | M156 | 4 | When DVD, AUX or camera image is displayed. | Waveform according to composite image is input. |  |


SKIB2251J

Is inspection result normal?

YES >> Replace front display unit. Refer to AV-399, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".



cardiagn.com

# COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT)

## Description

INFOID:0000000012407334

The AV control unit outputs image signal (DVD, auxiliary input, and camera) to the front display unit and rear display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407335

### 1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear display unit connector.
3. Check continuity between AV control unit harness connector and rear display unit harness connector.

| AV control unit | | Rear display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 67 | R36 | 7 | Existed |
| | 66 | | 8 | |

4. Check continuity between AV control unit harness connector and ground.

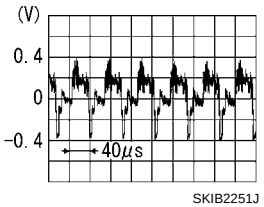
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 67 | | Not existed |
| | 66 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK COMPOSITE IMAGE SIGNAL (AV CONTROL UNIT TO REAR DISPLAY UNIT)

1. Connect AV control unit connector and rear display unit connector.
2. Turn ignition switch ON.
3. Check signal between rear display unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Rear display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| R36 | 7 | R36 | 8 | When DVD or AUX image is displayed. | Waveform according to composite image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace rear display unit. Refer to AV-400, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# AUX IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407336

- Transmits the image signal of AUX (auxiliary input) device from auxiliary input jacks to AV control unit.
- The AV control unit transmits the AUX image signal to the front display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407337

### 1.CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and auxiliary input jacks connector.
3. Check continuity between AV control unit harness connector and auxiliary input jacks harness connector.

| AV control unit | | Auxiliary input jacks | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 61 | B273 | 7 | Existed |
| | 69 | | 8 | |

4. Check continuity between AV control unit harness connector and ground.

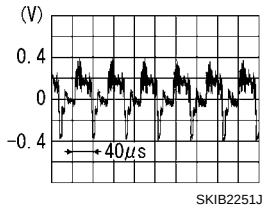
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 61 | | Not existed |
| | 69 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK AUX IMAGE SIGNAL

1. Connect AV control unit connector and auxiliary input jacks connector.
2. Turn ignition switch ON.
3. Check signal between AV control unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| AV control unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M185 | 61 | M185 | 69 | When AUX image is displayed on front or rear display unit. | Waveform according to AUX image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-398, "Removal and Installation".
NO >> Check that there is no malfunction in the external device.



cardiagn.com

# CAMERA IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407338

- AV control unit outputs camera power supply to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The AV control unit that inputs the camera image signal transmits the camera image signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407339

### 1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear view camera connector.
3. Check continuity between AV control unit harness connector and rear view camera harness connector.

| AV control unit | | Rear view camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 73 | D167 | 1 | Existed |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 73 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE CAMERA POWER SUPPLY

1. Connect AV control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check voltage between AV control unit harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M185 | 73 | M185 | 72 | 5.9 - 6.5 V | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

### 3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear view camera connector.
3. Check continuity between AV control unit harness connector and rear view camera harness connector.

| AV control unit | | Rear view camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M185 | 62 | D167 | 3 | Existed |

4. Check continuity between AV control unit harness connector and ground.

cardiagn.com

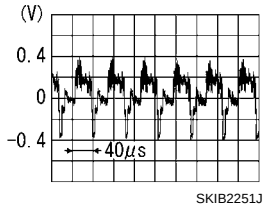
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M185 | 62 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK CAMERA IMAGE SIGNAL

1. Connect AV control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check signal between AV control unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| AV control unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M185 | 62 | M183 | 20 | When camera image is displayed. | Waveform according to camera image is input. |  |


SKIB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-398, "Removal and Installation".
NO >> Replace rear view camera. Refer to AV-420, "Removal and Installation".

cardiagn.com

# DISK EJECT SIGNAL CIRCUIT

## Description

INFOID:0000000012407340

The disk eject switch outputs disk eject signal to the AV control unit when the switch of disk eject switch is pressed.

## Diagnosis Procedure

INFOID:0000000012407341

### 1.CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and disk eject switch connector.
3. Check continuity between AV control unit harness connector and disk eject switch harness connector.

| AV control unit | | Disk eject switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M186 | 96 | M153 | 4 | Existed |
| | 82 | | 3 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M186 | 96 | | Not existed |
| | 82 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between disk eject switch harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| Disk eject switch | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M153 | 4 | M153 | 3 | — | 3.3 V |

Is the inspection result normal?

YES >> Replace disk eject switch. Refer to AV-411, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

cardiagn.com

# MICROPHONE SIGNAL CIRCUIT

## Description

INFOID:0000000012407342

TEL adapter unit supplies power to microphone. The microphone transmits the sound voice to the TEL adapter unit.

## Diagnosis Procedure

INFOID:0000000012407343

### 1.CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector and microphone connector.
3. Check continuity between TEL adapter unit harness connector and microphone harness connector.

| TEL adapter unit | | Microphone | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M138 | 7 | R20 | 1 | Existed |
| | 8 | | 2 | |
| | 29 | | 4 | |

4. Check continuity between TEL adapter unit harness connector and ground.

| TEL adapter unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M138 | 29 | | Not existed |
| | 7 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE MICROPHONE VCC

1. Connect TEL adapter unit connector.
2. Turn ignition switch ON.
3. Check voltage between TEL adapter unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| TEL adapter unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M138 | 29 | M138 | 8 | 4.7 - 5.3 V | 5.0 V |

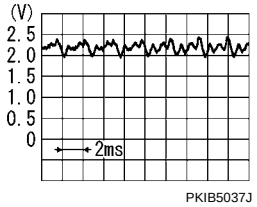
Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace TEL adapter unit. Refer to AV-414, "Removal and Installation".

### 3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.
2. Check signal between TEL adapter unit harness connector.

cardiagn.com

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| TEL adapter unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M138 | 7 | M138 | 8 | Give a voice. | Waveform according to voice is input. |  |


PKIB5037J

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-414, "Removal and Installation".
NO >> Replace microphone. Refer to AV-416, "Removal and Installation".

cardiagn.com

# CONTROL SIGNAL CIRCUIT

## Description

INFOID:0000000012407344

TEL adapter unit identifies the vehicle model according to the control signal and performs the control.

## Diagnosis Procedure

INFOID:0000000012407345

### 1.CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector.
3. Check continuity between TEL adapter unit harness connector and ground.

| TEL adapter unit | | Ground | Standard | Reference value (Approx.) |
|---|---|---|---|---|
| Connector | Terminals | | | |
| M138 | 20 | | 3.1 V or less | 0 V |
| | 27 | | | |

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-414, "Removal and Installation".
NO >> Repair harness or connector.

cardiagn.com

# STEERING SWITCH SIGNAL A CIRCUIT

## Description

INFOID:0000000012407346

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407347

### 1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M183 | 6 | M33 | 24 | Existed |

3. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M183 | 6 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M183 | 6 | M183 | 15 | 0 - 3.3 V | 3.3 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-382, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407348

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.



cardiagn.com

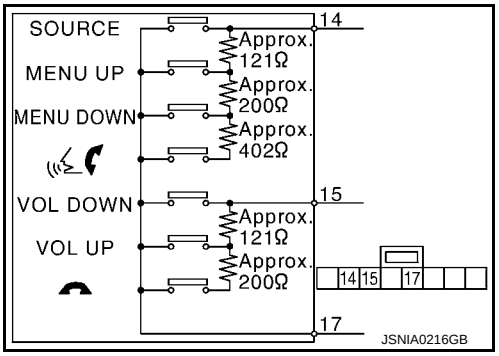
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# STEERING SWITCH SIGNAL B CIRCUIT

## Description

INFOID:0000000012407349

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407350

### 1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M183 | 16 | M33 | 31 | Existed |

3. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M183 | 16 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M183 | 16 | M183 | 15 | 0 - 3.3 V | 3.3 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-384, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407351

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.



cardiagn.com

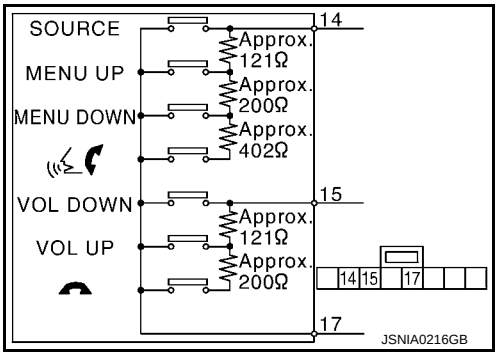
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# STEERING SWITCH GROUND CIRCUIT

## Description

INFOID:0000000012407352

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407353

### 1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M183 | 15 | M33 | 33 | Existed |

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK GROUND CIRCUIT

1. Connect AV control unit connector.
2. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M183 | 15 | | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-398, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-386, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407354

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

cardiagn.com

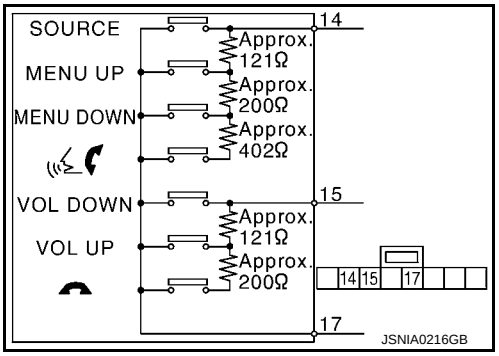
Standard

Between terminals 14 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1 Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1 Ω |




cardiagn.com

# SYMPTOM DIAGNOSIS

## MULTI AV SYSTEM SYMPTOMS

### Symptom Table

INFOID:0000000012407355

OPERATION

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Multifunction switch and preset switch operation does not work. | • All switches cannot be operated.<br>• “MULTI AV” is displayed on system selection screen when the CONSULT is started. | • Multifunction switch power supply and ground circuit.<br>• AV communication circuit between AV control unit and multifunction switch.<br>Perform CONSULT self-diagnosis.<br>Refer to AV-296, "CONSULT Function". |
| | • All switches cannot be operated.<br>• “MULTI AV” is not displayed on system selection screen when the CONSULT is initialized. | AV control unit power supply and ground circuit malfunction. Refer to AV-361, "AV CONTROL UNIT : Diagnosis Procedure". |
| | Only specified switch cannot be operated. | Multifunction switch or preset switch malfunction.<br>Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-287, "On Board Diagnosis Function". |
| Fuel economy display is abnormal. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”.<br>Refer to AV-296, "CONSULT Function". | Perform detected DTC diagnosis.<br>Refer to AV-308, "DTC Index". |
| | There is no malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”.<br>Refer to AV-296, "CONSULT Function". | Ignition signal circuit malfunction. (AV control unit) |

RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and checking that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
   **NOTE:**
   The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model, and service provider.
   **NOTE:**
   It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to “www.nissanusa.com/bluetooth/”.

a. Using the website's search engine, find out if the customer's phone is on the approved list.

b. If the customer's phone is NOT on the approved list:

   Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.

c. If the feature related to the customer's concern shows as “N” (not compatible):
   Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as “Y” (compatible) in the “Basic Features” list.

d. If the feature related to the customer's concern shows as “Y” (compatible):
   Perform diagnosis as per the following table.

cardiagn.com

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.) | Repeat the registration of cellular phone. | TEL adapter unit malfunction.<br>Refer to AV-414, "Removal and Installation". |
| Hands-free phone cannot be established. | Both the reception and the speech cannot be performed | • Perform CONSULT self-diagnosis.<br>Refer to AV-296, "CONSULT Function".<br>• No malfunction.<br>TEL adapter unit malfunction.<br>Refer to AV-414, "Removal and Installation".<br>• Malfunction is detected.<br>Perform detected DTC self-diagnosis.<br>Refer to AV-308, "DTC Index". |
| The other party's voice cannot be heard by hands-free phone. | The operation of the " " switch can be performed. | TEL voice signal circuit malfunction between TEL adapter unit and AV control unit. |
| | The operation of the " " switch cannot be performed. | Control signal circuit malfunction.<br>Refer to AV-381, "Diagnosis Procedure". |
| Originating sound is not heard by the other party with hands-free phone communication. | Sound operation function is normal. | TEL adapter unit malfunction.<br>Refer to AV-414, "Removal and Installation". |
| | Sound operation function does not work. | Microphone signal circuit malfunction.<br>Refer to AV-379, "Diagnosis Procedure". |
| The system cannot be operated. | "SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But " " switch is not operated. | Steering switch malfunction.<br>Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| | "SOURCE", "MENU UP", "MENU DOWN" and " " switches are not operated. | Steering switch signal B circuit malfunction.<br>Refer to AV-384, "Diagnosis Procedure". |
| | All steering switches do not work. | Steering switch ground circuit malfunction.<br>Refer to AV-386, "Diagnosis Procedure". |

## RELATED TO REAR VIEW MONITOR

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Camera image is not shown. (Vehicle width and possible route line is displayed.) | DVD image is displayed. | Camera image signal circuit.<br>Refer to AV-376, "Diagnosis Procedure". |
| | DVD image is not displayed. | Composite image signal circuit malfunction between AV control unit and front display unit.<br>Refer to AV-373, "Diagnosis Procedure". |
| Camera image is not shown. (displayed in black and nothing can be displayed) | — | • Horizontal synchronizing (HP) signal circuit.<br>Refer to AV-371, "Diagnosis Procedure".<br>• Vertical synchronizing (VP) signal circuit.<br>Refer to AV-372, "Diagnosis Procedure". |
| Camera image does not switch. | "Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment". | Reverse signal circuit malfunction. |
| | "Reverse" is turned ON on "Vehicle Signals"screen of "Confirmation/Adjustment". | AV control unit malfunction.<br>Replace AV control unit. Refer to AV-398, "Removal and Installation". |

## RELATED TO RGB IMAGE

cardiagn.com

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| RGB image is not shown. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”. Refer to AV-296, "CONSULT Function". | Perform detected DTC diagnosis. Refer to AV-308, "DTC Index". |
| | There is no malfunction in CONSULT “self-diagnosis results” of “MULTI AV”. Refer to AV-296, "CONSULT Function". | Vertical synchronizing (VP) signal circuit. Refer to AV-372, "Diagnosis Procedure". |
| Color of RGB image is not proper. | Light blue (Cyan) tint. | RGB signal (R: red) circuit. Refer to AV-366, "Diagnosis Procedure". |
| | Purple (Magenta) tint. | RGB signal (G: green) circuit. Refer to AV-367, "Diagnosis Procedure". |
| | Screen looks yellowish. | RGB signal (B: blue) circuit. Refer to AV-368, "Diagnosis Procedure". |
| RGB screen is rolling. | — | RGB synchronizing signal circuit. Refer to AV-369, "Diagnosis Procedure". |
| Fuel economy display is malfunctioning. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”. Refer to AV-296, "CONSULT Function". | Perform detected DTC diagnosis. Refer to AV-308, "DTC Index". |
| | There is no malfunction in CONSULT “self-diagnosis results” of “MULTI AV”. Refer to AV-296, "CONSULT Function". | Ignition signal circuit malfunction. (AV control unit) |

## RELATED TO AUDIO

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The disk cannot be removed. | — | Disk eject signal circuit malfunction. Refer to AV-378, "Diagnosis Procedure". |
| No sound comes out or the level of the sound is low. | No sound from all speakers. | • BOSE amp. ON signal circuit malfunction.<br>• BOSE amp. power supply and ground circuits malfunction. Refer to AV-363, "BOSE AMP. : Diagnosis Procedure". |
| | Sound is not heard from woofer. | Sound signal (woofer) circuit malfunction. |
| | Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound. | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between AV control unit and BOSE amp.<br>• Sound signal circuit malfunction between BOSE amp. and speaker.<br>• Malfunction in speaker.<br>• Malfunction in AV control unit.<br>• Malfunction in BOSE amp. |
| Noise is mixed with audio. | Noise comes out from all speakers. | • Malfunction in AV control unit.<br>• Malfunction in BOSE amp. |
| | Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.). | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between AV control unit and BOSE amp.<br>• Sound signal circuit malfunction between BOSE amp. and speaker.<br>• Malfunction in speaker.<br>• Poor installation of speaker (e.g. backlash and looseness)<br>• Malfunction in AV control unit.<br>• Malfunction in BOSE amp. |
| | Noise is mixed with radio only (when the car hits a bump or while driving over bad roads). | Poor connector connection of antenna or antenna feeder. |

cardiagn.com

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Radio is not received or poor reception. | • Other audio sounds are normal.<br>• Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises). | • Antenna amp. ON signal circuit malfunction.<br>• Poor connector connection of antenna or antenna feeder. |
| Satellite radio is not received. | There is malfunction in the CONSULT self-diagnosis result.<br>Refer to AV-296, "CONSULT Function". | • Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-308, "DTC Index".<br>• Poor continuity in antenna feeder.<br>• Poor connector connection of antenna or antenna feeder. |
| | There is no malfunction in the CONSULT self-diagnosis result.<br>Refer to AV-296, "CONSULT Function". | • Poor continuity in antenna feeder.<br>• Poor connector connection of antenna or antenna feeder.<br>• Loose satellite radio antenna mounting nut. Refer to AV-419, "Exploded View". |

## RELATED TO USB

**NOTE:**
Check that there is no malfunction of USB equipment main body before performing a diagnosis.

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| iPod® or USB memory can not be recognized. | — | • USB harness malfunction.<br>• USB connector malfunction. |

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

## RELATED TO DVD MODE

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The disk cannot be removed. | — | Disk eject signal circuit malfunction.<br>Refer to AV-378, "Diagnosis Procedure". |
| DVD image is not displayed. | Front display unit and rear display unit are not displayed. | Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-296, "CONSULT Function". |
| | Rear display unit is normal. | Composite image signal circuit between AV control unit and front display unit.<br>Refer to AV-373, "Diagnosis Procedure". |
| | Front display unit is normal. | Composite image signal circuit between AV control unit and rear display unit.<br>Refer to AV-374, "Diagnosis Procedure". |
| DVD sound is not heard. | No sound from all speakers. | • Amp. ON signal circuit malfunction.<br>• BOSE amp. power supply and ground circuits malfunction.<br>Refer to AV-363, "BOSE AMP. : Diagnosis Procedure". |
| | Sound is not heard from woofer. | • Woofer power supply and ground circuit malfunction.<br>• Sound signal (woofer) circuit malfunction.<br>• Woofer amp. ON signal circuit malfunction. |
| | Sound is heard only from specific places. | Sound signals circuit of suspect system. |

## RELATED TO AUXILIARY INPUT

**NOTE:**
Check that there is no malfunction of AUX equipment main body before performing a diagnosis.

cardiagn.com

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| No voice sound is heard when AUX mode is selected. | Voice sound is heard when other modes are selected. | AUX sound signal circuit. |
| Image is not displayed when AUX mode is selected. | Front display unit and rear display unit are not displayed. | Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-296, "CONSULT Function". |
| | DVD image is displayed on front display unit and rear display unit. | AUX image signal circuit malfunction. Refer to AV-375, "Diagnosis Procedure". |
| | Rear display unit is normal. | Composite image signal circuit between AV control unit and front display unit. Refer to AV-373, "Diagnosis Procedure". |
| | Front display unit is normal. | Composite image signal circuit between AV control unit and rear display unit. Refer to AV-374, "Diagnosis Procedure". |

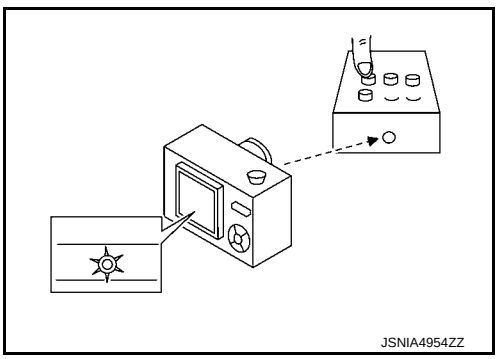
## RELATED TO REAR DISPLAY

Perform the diagnosis of the following items before starting diagnosis by symptom.

- Self-diagnosis: Refer to AV-296, "CONSULT Function".
- Self-diagnosis mode: Refer to AV-287, "On Board Diagnosis Function".
- Power supply system: Refer to AV-363, "REAR DISPLAY UNIT : Diagnosis Procedure".

| Symptom | Check Item | | Possible malfunction location / Action to take |
|---|---|---|---|
| Rear display cannot be opened. | Use the touch button in the front display to open/close the rear display. | Operable. | Operate with the remote to see if rear display opens. |
| | | Inoperative. | Replace rear display. |
| Inoperative with the remote. | All keys inoperative. | • Check by touching and check battery polarity.<br>• Replace battery. | • Check with a remote from the same vehicle family.<br>• Check infrared* of the luminescent part (LED) of the remote. |
| | Some keys inoperative. | • Check with a remote from the same vehicle family.<br>• Check infrared* of the luminescent part (LED) of the remote. | The function corresponding to the remote operation is not included. (This is not a malfunction.) |
| Rear display screen is black. | Play a DVD. | Screen is dark. | Adjust screen for image quality. (This is not a malfunction.) |
| | | Screen is black | Replace rear display. |
| Video shown on rear display screen becomes distorted or rolls up/down. | Adjust the color and image settings using the display screen menu items. | | If the symptom does not change, replace rear display. |
| Rear display screen is blue. | — | | Replace rear display. |

*: To check infrared, check light of the luminescent part (LED) through the lens of digital camera when operating the remote.




## RELATED TO HEADPHONE

cardiagn.com

| Symptom | Check Item | | Possible malfunction location / Action to take |
|---|---|---|---|
| Audio cannot be heard from headphone. | Turn ON the rear display. | Audio cannot be heard. | Check power supply of headphone. |
| Headphone cannot be turned ON. | • Battery polarity.<br>• Battery poor contact<br>• Battery replacement | Power is ON. (Power indicator lamp: ON) | This is not a malfunction. |
| | | Power cannot be turned ON. (Power indicator lamp: OFF) | Replace headphone. |

## RELATED TO STEERING SWITCH

| Symptoms | Probable malfunction location |
|---|---|
| None of the steering switch operations work. | Steering switch ground circuit malfunction.<br>Refer to AV-386, "Diagnosis Procedure". |
| Only specified switch cannot be operated. | Steering switch malfunction.<br>Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| “SOURCE”, “MENU UP”, “MENU DOWN”, “ ” switches are not operated. | Steering switch signal A circuit.<br>Refer to AV-382, "Diagnosis Procedure". |
| ”VOL UP“, “VOL DOWN”, “ ” switches are not operated. | Steering switch signal B circuit.<br>Refer to AV-384, "Diagnosis Procedure". |

cardiagn.com

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000012407356

### BASIC OPERATIONS

| Symptom | Possible cause | Possible solution |
|---|---|---|
| No image is displayed. | The brightness is at the lowest setting. | Adjust the brightness of the display. |
| | The systems in the video mode. | Press “DISC-AUX” to change the mode. |
| | The display is turned off. | Press “☀/◗ OFF” to turn on the display. |
| Screen not clear. | Contrast setting is not appropriate. | Adjust the contrast of the display. |
| The screen is too dim. The movement is slow. | The temperature in the interior of the vehicle is low. | Wait until the interior of the vehicle has warmed up. |
| Some pixels in the display are darker or brighter than others. | This condition is an inherent characteristic of liquid crystal displays. | This is not a malfunction. |
| Some menu items cannot be selected. | Some menu items become unavailable while the vehicle is driven. | Park the vehicle in a safe location, and then operate the multi AV system. |

### RELATED TO VOICE RECOGNITION

Related to Telephone

The system should respond correctly to all voice commands without difficulty. If problems are encountered, try the following solutions.

Where the solutions are listed by number, try each solution in turn, starting with number 1, until the problem is resolved.

| Symptom | Solution |
|---|---|
| System fails to interpret the command correctly. | 1. Ensure that the command is valid. |
| | 2. Ensure that the command is spoken after the tone. |
| | 3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle. |
| | 4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on).<br>**NOTE:**<br>If it is too noisy to use the phone, it is likely that the voice commands will not be recognized. |
| | 5. If more than one command was said at a time, try saying the commands separately. |
| | 6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. Refer to “Speaker adaptation (SA) mode” in “OWNER’S MANUAL”. |
| The system consistently selects the wrong voicetag | 1. Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the “List Names” command. |
| | 2. Replace one of the names being confused with a new name. |

### RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD/cassette, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and then determine the cause.

**NOTE:**

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the “red book” Compact Disc Standard and may not play.

cardiagn.com

| Symptom | Cause and Counter measure |
|---|---|
| Cannot play | Check if the CD was inserted correctly. |
| | Check if the CD is scratched or dirty. |
| | Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player. |
| | If there is a temperature increase error, the player will play correctly after it returns to the normal temperature. |
| | If there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD, only the music CD files (CD-DA data) will be played. |
| | Files with extensions other than ".MP3 (.mp3)" or ".WMA (.wma)" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications. |
| | Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA writing applications or other text editing applications. |
| | Check if the finalization process, such as session close and disc close, is done for the disc. |
| | Check if the CD is protected by copyright. |
| | Disks recorded in live file system format are not supported. (For Microsoft Windows® Vista, check the settings.) |
| Poor sound quality | Check if the CD is scratched or dirty. |
| It takes a relatively long time before the music starts playing. | If there are many folder or file levels on the MP3/WMA CD, or if it is a multisession disc, some time may be required before the music starts playing. |
| Music cuts off or skips | The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed. |
| Skipping with high bit rate files | Skipping may occur with large quantities if data such as for high bit rate data. |
| Move immediately to the next song when playing | When a non-MP3/WMA file has been given an extension of ".MP3 (.mp3)" or ".WMA (.wma)" when play is prohibited by copyright protection, the player will skip to the next song. |
| The songs do not play back in the desired order. | The playback order is the order in which the files were written by the software, so the files might not play in the desired order. |
| Poor reception only from a certain radio broadcast station . | Check incoming radio wave signal strength of applicable broadcast station. |
| Buzz/rattle sound from speaker | The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle. |

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, is not a malfunction.

**NOTE:**

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

## RELATED TO DVD

| Symptom | Possible cause | Possible solution |
|---|---|---|
| Not working as operated | Some operations may be rejected or may not function as intended because of the manufacturer's intent, depending on DVD. | This is not a malfunction. |
| Operation not accepted | If a requested operation is prohibited, then a message is displayed on the screen. (Message display depends on DVD.) | This is not a malfunction. |

cardiagn.com

| Symptom | Possible cause | Possible solution |
|---|---|---|
| DVD can not be played | Check that the DVD is inserted in the right place. | Upturn the DVD (facing the title upward). |
| | Check that there is no condensation inside the player. | Wait until the condensation evaporates (approximately one hour). |
| | DVD menu is displayed. | Select item to touch “ENTER”. |
| | Insertion of a DVD with a different region code. | DVDs with a different region code can not be played. Check DVD. |
| | Some DVD softwares may not be played because not all DVD softwares fully comply in the standard. | This is not a malfunction. |
| Interruption during playback or flicker in the display | Check that the DVD has no scratches and dirt. | Errors may not be corrected depending on the size of scratches. |
| | | Wipe and clean the dirt on the disc. |
| Subtitles not shown | Subtitle setting is OFF. | Set subtitle. |
| | Subtitle is not included in the software. | Check DVD. |
| Not played in set language | If a language is not included in the DVD, then the DVD is played in a recommended language. | Check DVD. |
| Not played with set subtitle | If a set subtitle is not included in the DVD, then the DVD is played with a recommended subtitle. | Check DVD. |
| Angle unchangeable | Plural angles are not recorded in the software. | Check if the DVD is multi–angle capable. |
| Unusual screen display | Display mode to the output aspect ratio for the DVD software is inappropriate. | Switch to the appropriate display mode. |
| Distortion in picture | In the process of fast–forward or fast–reverse. | This is not a malfunction. |
| Low sound quality | Check that the DVD has no scratches and dirt. | Wipe and clean the dirt on the disc. |
| Subtitle and language not selectable (not played with set subtitle or in set language) | The DVD is not multilanguage–capable. | The inclusion of the number of languages depends on DVD. Languages may be selectable on the Menu screen. Check DVD. |
| | The DVD has a priority language or setting. | If the DVD has a priority language or settings, then settings changed with this device are not reflected. |
| Playback time is indicated, but no sound comes out. | Playback of Mix mode Truck 1. (Mix mode: Format including Truck 1 with data other than music and Trucks from Truck 2 with music data.) | Play music data included in trucks from Truck 2. |

## RELATED TO HANDS-FREE PHONE

| Symptom | Cause and Counter measure |
|---|---|
| Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.) | Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to “RELATED TO HANDS-FREE PHONE (Check Compatibility)” of MULTI AV SYSTEM SYMPTOM. |
| Cannot use hands-free phone | Customer will not be able to use a hands-free phone under the following conditions.<br>• The vehicle is outside of the telephone service area.<br>• The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.<br>• The cellular phone is locked to prevent it from being dialed.<br>**NOTE:**<br>While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones. |

cardiagn.com

| Symptom | Cause and Counter measure |
|---|---|
| The other party's voice cannot be heard by hands-free phone. | When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call. |
| Poor sound quality | Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption. |



cardiagn.com

# REMOVAL AND INSTALLATION

## AV CONTROL UNIT

### Removal and Installation

INFOID:0000000012407357

#### REMOVAL

**CAUTION:**

- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-347, "Description".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

**NOTE:**

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

1. Remove disk eject switch. Refer to AV-411, "Removal and Installation".
2. Remove two harness clips mounted to the bracket.
3. Remove four mounting screws and pull the AV control unit together with the brackets.
4. Disconnect connectors to remove AV control unit and bracket from the vehicle as a single unit.
5. Remove bracket screws to remove AV control unit.

#### INSTALLATION

Note the following, and install in the reverse order of removal.

**CAUTION:**

**Be sure to perform “Read/Write Configuration” when replacing AV control unit. For details, refer to AV-347, "Description".**

cardiagn.com

# FRONT DISPLAY UNIT

## Removal and Installation

INFOID:0000000012407358

### REMOVAL

1. Remove cluster lid D. Refer to IP-14, "Removal and Installation".
2. Remove front display unit mounting screws.
3. Disconnect front display unit connectors to remove front display unit.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# REAR DISPLAY UNIT

## Removal and Installation

INFOID:0000000012407359

### REMOVAL

1. Remove roof console. Refer to INT-35, "Removal and Installation".
2. Disconnect rear display unit connector, remove rear display unit mounting bolts and remove the rear display unit.
   **NOTE:**
   To prevent rear display unit from dropping, securely support the rear display unit during the removal/installation.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# BOSE AMP.

## Removal and Installation

INFOID:0000000012407360

### REMOVAL

1. Remove luggage floor box. Refer to INT-45, "LUGGAGE FLOOR BOX : Removal and Installation".
2. Remove BOSE amp. mounting screws.
3. Disconnect connectors to remove BOSE amp.

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# FRONT DOOR WOOFER

## Removal and Installation

INFOID:0000000012407361

### REMOVAL

1. Remove front door finisher. Refer to INT-14, "Removal and Installation".
2. Remove front door woofer screws and disconnect front door woofer connector.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT SQUAWKER

## Removal and Installation

INFOID:0000000012407362

### REMOVAL

1. Remove speaker grille from instrument panel. Refer to IP-14, "Removal and Installation".
2. Remove screws and disconnect connector, and remove the front squawker.

**WARNING:**
**Never damage wind shield glass.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SPEAKER

## Removal and Installation

INFOID:0000000012407363

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws and disconnect connector, and remove slide door speaker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SQUAWKER

## Removal and Installation

INFOID:0000000012407364

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws to remove slide door squawker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# LUGGAGE SQUAWKER

## Removal and Installation

INFOID:0000000012407365

### REMOVAL

1. Remove luggage side lower finisher. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation".
2. Remove screws to remove luggage squawker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# CENTER SQUAWKER

## Removal and Installation

INFOID:0000000012407366

### REMOVAL

1. Remove speaker grille from instrument panel. Refer to IP-14, "Removal and Installation".
2. Remove screws and disconnect connector, and remove the center squawker.

**CAUTION:**
**Never damage wind shield glass.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# WOOFER

## Removal and Installation

INFOID:0000000012407367

### REMOVAL

1. Remove luggage floor box. Refer to INT-45, "LUGGAGE FLOOR BOX : Removal and Installation".
2. Remove woofer clamp and disconnect connector, and remove woofer.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# MULTIFUNCTION SWITCH

## Removal and Installation

INFOID:0000000012407368

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove multifunction switch mounting screws.
3. Remove bracket and disconnect harness connectors connected to preset switch.
4. Unhook pawl to remove multifunction switch from cluster lid C.

**CAUTION:**

**Carefully handle the pawl fixing the multifunction switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# PRESET SWITCH

## Removal and Installation

INFOID:0000000012407369

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove preset switch mounting screws and disconnect preset switch connector.
3. Unhook pawl by using a remover tool to remove preset switch from cluster lid C.

**CAUTION:**
**Carefully handle the pawl fixing the preset switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# DISK EJECT SWITCH

## Removal and Installation

INFOID:0000000012407370

### REMOVAL

1. Remove instrument lower center cover. Refer to IP-14, "Removal and Installation".
2. Remove screws and unhook two pawls of AV control unit to remove disk eject switch.

**CAUTION:**

**Carefully handle the pawl fixing the disk eject switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# AUXILIARY INPUT JACKS

## Removal and Installation

INFOID:0000000012407371

### REMOVAL

1. Remove center console body assembly. Refer to IP-28, "Removal and Installation".
2. Remove screws to remove auxiliary input jacks from center console body assembly.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# USB CONNECTOR

## Removal and Installation

INFOID:0000000012407372

### REMOVAL

1. Remove center console upper finisher. Refer to IP-29, "Disassembly and Assembly".
2. Unhook pawl to remove USB connector from center console upper finisher.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# TEL ADAPTER UNIT

## Removal and Installation

INFOID:0000000012407373

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove TEL adapter unit mounting bracket screws.
3. Disconnect connector to remove TEL adapter unit, TEL antenna, and bracket as a single unit.
4. Remove bracket screws to remove TEL adapter unit from bracket.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# TEL ANTENNA

## Removal and Installation

INFOID:0000000012407374

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove TEL adapter unit mounting bracket screws.
3. Disconnect connector to remove TEL adapter unit, TEL antenna, and bracket as a single unit.
4. Disconnect connector and remove screws to TEL antenna.

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# MICROPHONE

## Removal and Installation

INFOID:0000000012407375

### REMOVAL

1. Remove map lamp assembly. Refer to INL-71, "Removal and Installation".
2. Unhook pawls to remove microphone from map lamp assembly.

**CAUTION:**
**Carefully handle the pawl fixing the microphone to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**
After installing microphone, check that it is securely installed with no backlash.

cardiagn.com

# ANTENNA AMP.

## Removal and Installation

INFOID:0000000012407376

### REMOVAL

1. Remove rear pillar garnish RH. Refer to INT-27, "REAR PILLAR GARNISH : Removal and Installation".
2. Remove screw and disconnect connector, and remove antenna amp.

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# SATELLITE RADIO TUNER

## Removal and Installation

INFOID:0000000012407377

### REMOVAL

1. Remove luggage side lower finisher. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation".
2. Remove bolts to remove satellite radio tuner with brackets as a single unit from the body.
3. Remove brackets screws to remove satellite radio tuner.

### INSTALLATION

Install in the reverse order of removal.

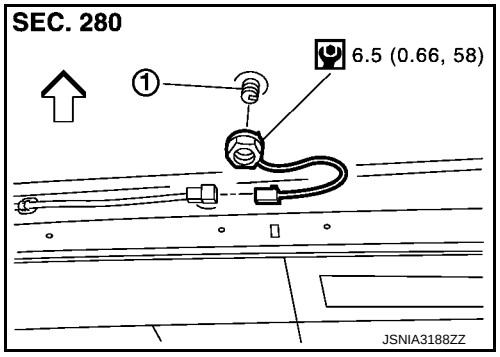
cardiagn.com

# SATELLITE RADIO ANTENNA

## Exploded View

INFOID:0000000012407378

### REMOVAL

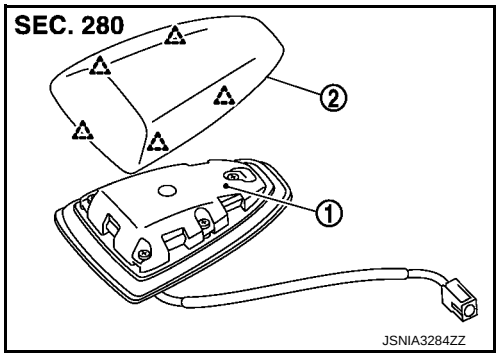



1. Satellite radio antenna

⇦ : Vehicle front

: N·m (kg-m, in-fb)

### DISASSEMBLY




1. Satellite radio antenna
2. Cover

: Pawl

## Removal and Installation

INFOID:0000000012407379

### REMOVAL

1. Remove rear upper ventilator duct 2. Refer to HA-55, "Exploded View".
2. Disconnect antenna feeder connector.
3. Remove nut, and remove satellite radio antenna and the cover from the vehicle as a single unit.

### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

**If the satellite radio antenna mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.**

## Disassembly and Assembly

INFOID:0000000012407380

### DISASSEMBLY

Insert cloth-covered driver into gaps between satellite radio antenna and the cover, and remove the cover from satellite radio antenna.

### ASSEMBLY

Assemble in the reverse order of disassembly.



cardiagn.com

# REAR VIEW CAMERA

## Removal and Installation

INFOID:0000000012407381

### REMOVAL

1. Remove back door finisher. Refer to EXT-47, "Removal and Installation".
2. Remove screws to remove rear view camera from back door finisher.

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**

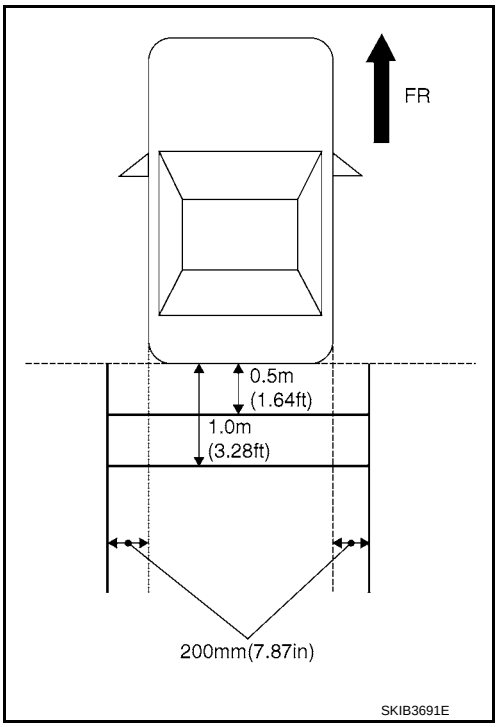
Adjust the guide line position if the guide line position is shifted after installing the rear view camera. Refer to AV-420, "Adjustment".

## Adjustment

INFOID:0000000012407382

Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

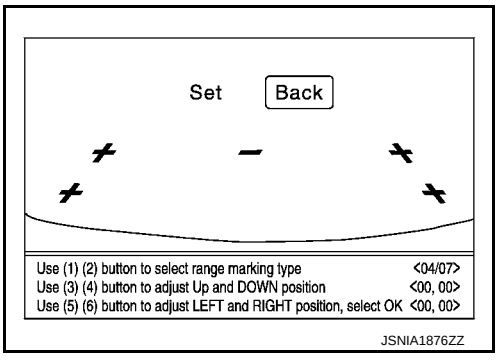
1. Draw lines on rearward area of the vehicle passing through the following points: 200 mm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
2. Set into “Camera system” mode of Confirmation / Adjustment mode.




3. Press “1” or “2” switches, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

**Selected pattern : 7**

4. Make fine adjustment to the correction line of the rear of the vehicle with “3”, “4”, “5” or “6” switches so that its position is aligned with the guiding line. Press “PUSH ENTER” switch and record the adjusted guiding line position to the camera control unit.




**Up/Down adjustment range : (–20) – (20)**

**Left/Right adjustment range : (–20) – (20)**

**CAUTION:**

**Never operate other function such as pressing BACK while writing index data.**

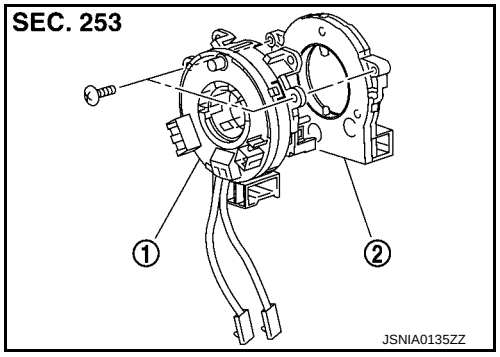
cardiagn.com

# STEERING ANGLE SENSOR

## Exploded View

INFOID:0000000012407383

DISASSEMBLY




1. Spiral cable
2. Steering angle sensor

## Removal and Installation

INFOID:0000000012407384

REMOVAL

1. Remove spiral cable. Refer to SR-16, "Removal and Installation".
2. Remove steering angle sensor from spiral cable.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform steering angle sensor neutral position adjustment. Refer to BRC-50, "Description".

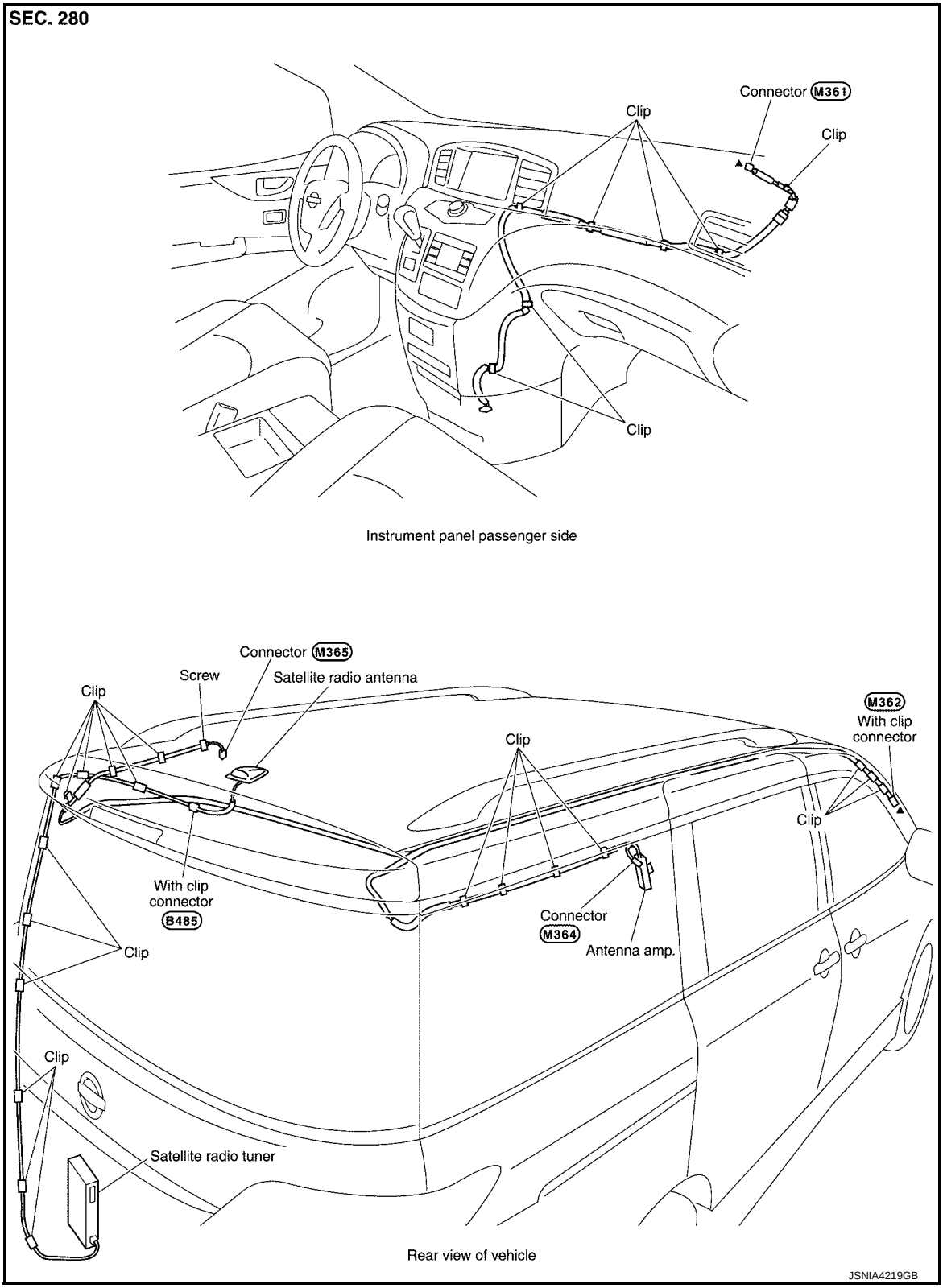
cardiagn.com

# ANTENNA FEEDER

## Feeder Layout

INFOID:0000000012407385

SEC. 280




▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000012407386

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

**Always observe the following items for preventing accidental activation.**

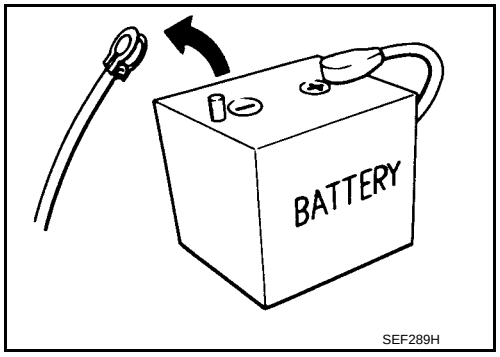
- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

### Precautions for Removing Battery Terminal

INFOID:0000000012936063

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:




| | | | |
|---|---|---|---|
| D4D engine | : 20 minutes | YS23DDT | : 4 minutes |
| HRA2DDT | : 12 minutes | YS23DDTT | : 4 minutes |
| K9K engine | : 4 minutes | ZD30DDTi | : 60 seconds |
| M9R engine | : 4 minutes | ZD30DDTT | : 60 seconds |
| R9M engine | : 4 minutes | | |
| V9X engine | : 4 minutes | | |
| YD25DDTi | : 2 minutes | | |

**NOTE:**

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

**NOTE:**



cardiagn.com

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

## Precaution for Trouble Diagnosis

INFOID:0000000012407388

### AV COMMUNICATION SYSTEM

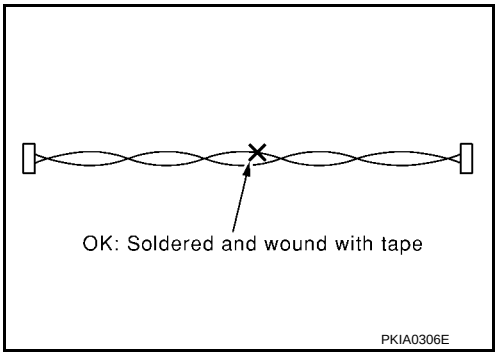
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

## Precaution for Harness Repair

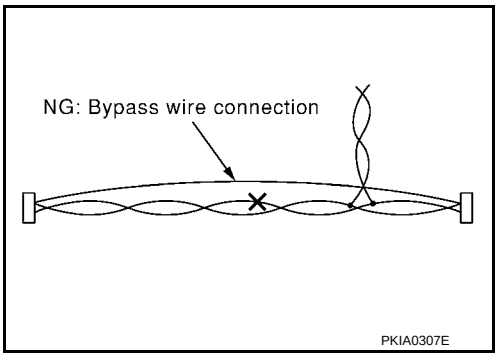
INFOID:0000000012407389

### AV COMMUNICATION SYSTEM

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]




- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



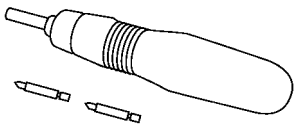

cardiagn.com

# PREPARATION

## PREPARATION

### Commercial Service Tools

INFOID:0000000012407390

| Tool | Description |
|---|---|
| Power tool  PBIC0191E | Loosening screws |

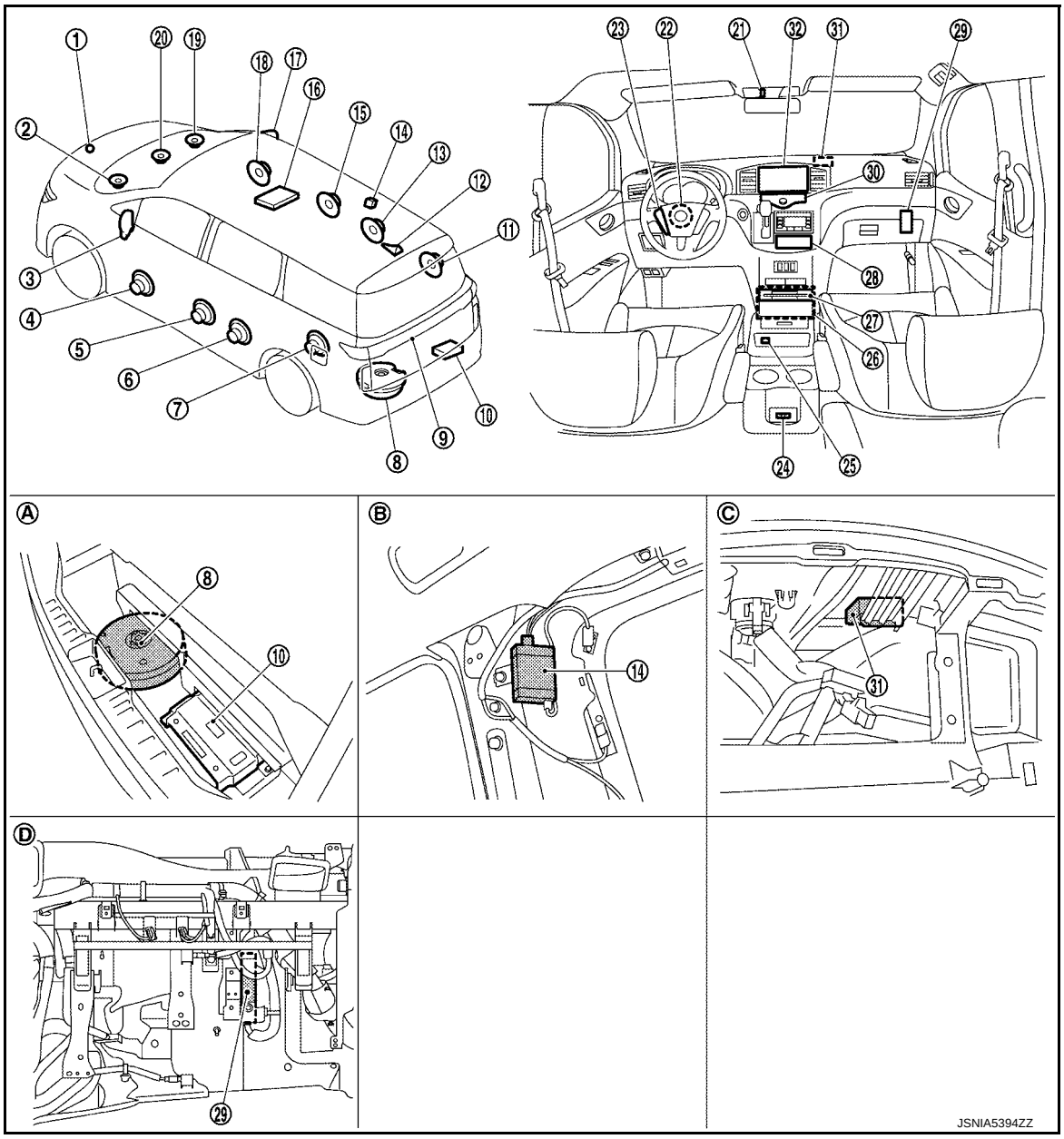
cardiagn.com

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000012407391




A. Within luggage floor box
B. Rear pillar garnish (RH) is removed.
C. Front display unit is removed.
D. Glove box assembly is removed.

| No. | Component | Function |
|---|---|---|
| 1. | Front camera | Refer to AV-435, "Front Camera". |
| 2,19. | Front squawker | Refer to AV-432, "Speaker". |
| 3,17. | Side camera | Refer to AV-435, "Side Camera". |

cardiagn.com

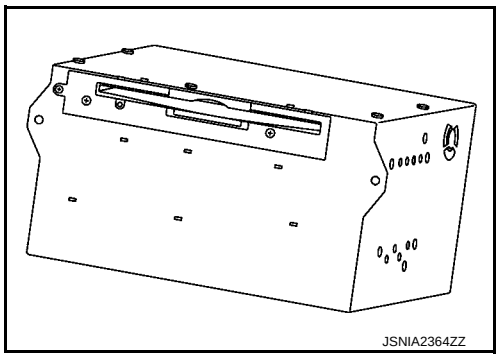
| No. | Component | Function |
|---|---|---|
| 4,18. | Front door woofer | Refer to AV-432, "Speaker". |
| 5,15. | Slide door squawker | |
| 6,13. | Slide door speaker | |
| 7,11. | Luggage squawker | |
| 8. | Woofer | |
| 9. | Rear camera | Refer to AV-434, "Rear Camera". |
| 10. | BOSE amp. | Refer to AV-432, "BOSE Amp.". |
| 12. | Satellite radio antenna | Refer to AV-437, "Satellite Radio Antenna". |
| 14. | Antenna amp. | Refer to AV-436, "Antenna Amp., Radio Antenna, and Antenna Feeder". |
| 16. | Rear display unit | Refer to AV-430, "Rear Display Unit". |
| 20. | Center speaker | Refer to AV-432, "Speaker". |
| 21. | Microphone | Refer to AV-436, "Microphone". |
| 22. | Steering angle sensor | Refer to AV-435, "Steering Angle Sensor". |
| 23. | Steering switch | Refer to AV-431, "Steering Switch". |
| 24. | Auxiliary input jack | Refer to AV-436, "Auxiliary Input Jacks". |
| 25. | USB connector | Refer to AV-436, "USB Connector". |
| 26. | AV control unit | Refer to AV-427, "AV Control Unit". |
| 27. | Disk eject switch | Refer to AV-431, "Disk Eject Switch". |
| 28. | Preset switch | Refer to AV-431, "Multifunction Switch". |
| 29. | Around view monitor control unit | Refer to AV-434, "Around View Monitor Control Unit". |
| 30. | Multifunction switch | Refer to AV-431, "Multifunction Switch". |
| 31. | GPS antenna | Refer to AV-434, "GPS Antenna". |
| 32. | Front display unit | Refer to AV-430, "Front Display Unit". |

## AV Control Unit

INFOID:0000000012407392

### DESCRIPTION

- The AV control unit is equipped with the following parts. It is the master unit integrated with functions and controls the multi-AV system.


JSNIA2364ZZ

| Units equipped |
|---|
| HDD (hard disk drive) |
| AM/FM electronic tuner |
| Satellite radio tuner |
| CD/DVD drive |
| USB interface |
| Bluetooth® module |

- Signals necessary for the vehicle information display function are received from ECM and the combination meter via CAN communication.
- Signals necessary for vehicle setting functions are sent and received with BCM via CAN communication.
- It inputs the signal for driving status recognition (vehicle speed signal, reverse signal, and parking brake signal).
- A possible route line is generated on the camera image from the rear view camera, and it is shown on the display.
- The AV control unit contains an HDD with map data and sensors used for automatic location calculation, i.e. a gyroscope (angular velocity sensor) and a G sensor.

- HDD

- The AV control unit records map data, traffic regulations data, and guidance information.



cardiagn.com

- Gyroscope
• Detects vehicle cornering condition.
- Acceleration sensor
• Detects the inclination angle and height variation of the vehicle.

**NOTE:**
For details of each functions, refer to AV-440, "MULTI AV SYSTEM : System Description".

HDD
The adoption of a fast high-capacity 40 GB HDD improves the navigation performance.

AM/FM Electronic Tuner
The adoption of the PLL frequency synthesizer system enables the signal outputting with accurate frequencies.

Satellite Radio Tuner
• The adoption of the PLL frequency synthesizer system enables the signal outputting with accurate frequencies.
• Receives satellite radio antenna signal and converts it into the sound signal and data signal.
• It outputs sound signal to BOSE amp. and outputs data signal to front display unit.

CD/DVD drive
• It is CD-R/CD-RW compliant and enables MP3, WMA, and AAC files to play music.
• It displays the artist name, album title or song title recorded to the file by the ID3 tag/WMA tag/AAC tag display function.
• DVD playback function is equipped.

USB Interface
• Music can be played by connecting an iPod® or USB memory.

Bluetooth® Module
• Wireless connection to the audio device equipped with Bluetooth® communication can play music.
• Once a Bluetooth® communication compliant phone has been registered in the AV control unit, hands-free phone communication can be carried out without connecting the cellular phone to the TEL harness.
• Five units of Bluetooth® communication devices including audio devices and cellular phones can be registered to the AV control unit.

## Specification

| | | |
|---|---|---|
| Manufacturer name | | Clarion Co., Ltd. |
| HDD | Total capacity | 40 GB |
| | Map data capacity | Approx. 20 GB |
| Audio amplifier | | External amplifier |

cardiagn.com

| | | | |
|---|---|---|---|
| CD/DVD drive | Used disc | | ϕ 12 cm (4.7 in) |
| | Playable disc | CD | CD-ROM (CD-DA) |
| | | | CD-R[*1] |
| | | | CD-RW[*1] |
| | | DVD | DVD-ROM |
| | | | DVD±R[*1] |
| | | | DVD±RW[*1] |
| | | | DVD±R DL[*1] |
| | Playable format | Music | MP3 |
| | | | WMA |
| | | | AAC |
| | | Image | DVD-VIDEO |
| | | | VIDEO-CD |
| | | | DVD-VR |
| | | | MPEG4-ASF |
| | | | DivX® |
| | Text display function | ID3 / WMA / AAC tag | Artist name |
| | | | Album title |
| | | | Song title |
| USB | High communication standard | | USB2.0 |
| | Playable format | Music | MP3 |
| | | | WMA |
| | | | AAC |
| | | Image | MPEG4-ASF |
| | | | DivX® |
| | Image viewer | | JPEG |
| | Text display function | ID3 / WMA / AAC tag | Artist name |
| | | | Album title |
| | | | Song title |
| | iPod®Action[*2] | | iPod Classic® |
| | | | iPod nano® 4th generation |
| | | | iPod nano® 3rd generation |
| | | | iPod nano® 2nd generation |
| | | | iPod nano® 1st generation |
| | | | iPod® 5th generation |
| | | | iPod touch® 1st generation |
| | | | iPod touch® 2nd generation |
| Bluetooth® audio | Compliant communication type | Wireless connection | Bluetooth® communication |
| | Compliant profile | | A2DP 1.2 |
| | | | AVRCP 1.3 |

cardiagn.com

| | | | |
|---|---|---|---|
| Hands-free phone | Compliant communication type | Wireless connection | Bluetooth® communication compliant type |
| | Compliant profile | | HFP 1.0,1.5 |
| | | | DUN 1.1 |
| | | | OPP 1.1 |
| Other functions | | | Speed sensitive volume function |
| | | | Steering switch compliant |
| | | | Voice recognition function |

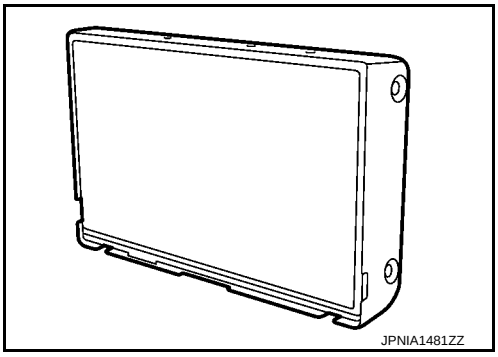
- *1: If the reflectance of the surface of the media is low, the data may not be read.
- *2: It may not be used if it is not updated to the latest firmware or partial functions may not work if it is used.

## Front Display Unit

INFOID:0000000012407393

- The front display unit has a high-resolution 8-inch WVGA* display and a touch panel function.
- RGB digital image signal and composite image signal [USB (video data), DVD and auxiliary input] are input from AV control unit.
- Camera image signal is input from rear view camera.
- This unit is connected to the AV control unit via serial communication. Images shown on the front display unit are controlled by the AV control unit.
- Touch panel operation signal is output to the AV control unit by serial communication.

*: WVGA (Wide VGA) is a standard of the resolution of the display. It extended width of VGA.


JPNIA1481ZZ

### Specification

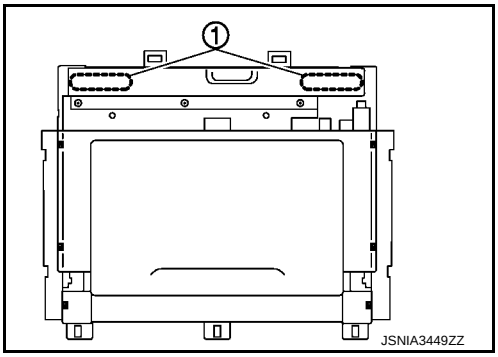
| | |
|---|---|
| Manufacturer name | Johnson controls KK |
| Touch panel detection | 4 wires analogue resistive film type |
| Screen size | 8-inch WVGA<br>[174 mm × 104.4 mm (6.9 in × 4.1 in)] |
| Number of pixels | 800 × 480 pixels |

## Rear Display Unit

INFOID:0000000012407394

- The rear display unit has an 11-inch WVGA* liquid-crystal display and a remote-control automatic folding function.
- Composite image signal [USB (video data), DVD and auxiliary input] and headphone sound signal are input from AV control unit.
- A remote control operation signal is received through the built-in light-receptive spot (1).
- The display brightness is adjusted automatically, according to ambient brightness.

*: WVGA (Wide VGA) is a standard of the resolution of the display. It extended width of VGA.



JSNIA3449ZZ

### Specification

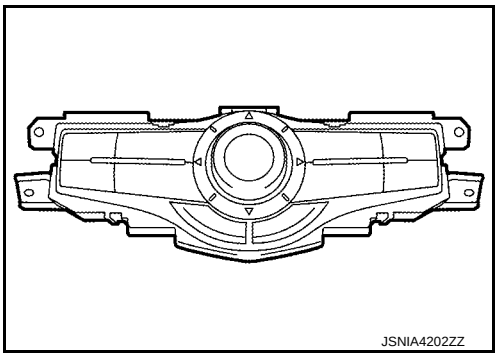
| | |
|---|---|
| Manufacturer name | Clarion Co., Ltd. |
| Screen size | 11-inch WVGA<br>[ 243.6 mm × 137.52mm (9.6 in × 5.4 in) ] |
| Number of pixels | 800 × 480 pixels |

cardiagn.com

## Multifunction Switch

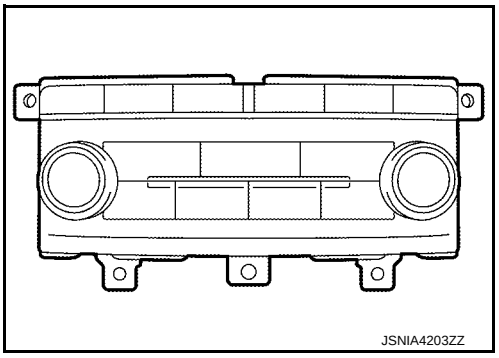
INFOID:0000000012407395

- The multifunction switch is an integrated switch that combines the navigation operation, audio operation, and other operations switches. This integrated switch is located in the lower part of the front display unit to facilitate the use in combination with the touch panel.
- Connected with preset switch via hardwire and operation signal is transmitted to AV control unit via AV communication.


JSNIA4202ZZ

### PRESET SWITCH

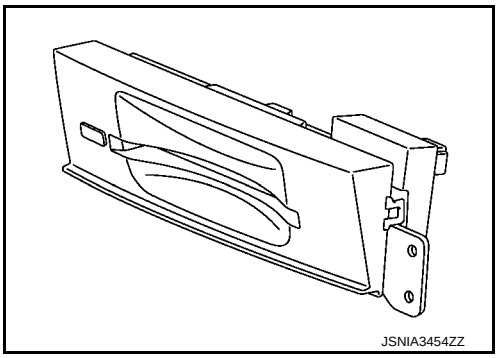
- The preset switch is separated from the multifunction switch and capable of audio operation.
- Operation signals of the multifunction switch and the preset switch are transmitted to the AV control unit via AV communication.


JSNIA4203ZZ

## Disk Eject Switch

INFOID:0000000012407396

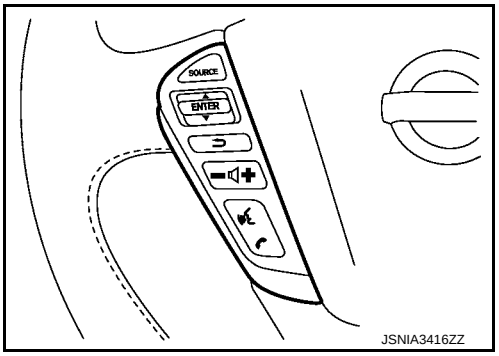
- The disk eject switch is used for removing CD/DVD from the AV control unit.
- When the disk eject switch is pressed, a disk eject signal is transmitted to the AV control unit, and the AV control unit ejects CD/DVD.


JSNIA3454ZZ

## Steering Switch

INFOID:0000000012407397

- Operations for navigation, audio, and hands-free phone, etc. are possible.
- This switch is connected to the AV control unit, and the switch operation signal is transmitted to the AV control unit via voltage multiplex communication.



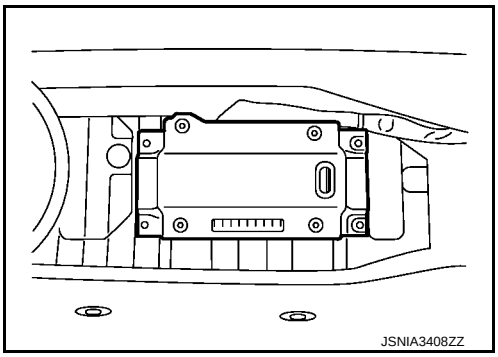
JSNIA3416ZZ

cardiagn.com

## BOSE Amp.

INFOID:0000000012407398

- Installed to the luggage floor box.
- Receives sound signal from AV control unit, and outputs sound signal to each speaker and woofer.


JSNIA3408ZZ

## Speaker

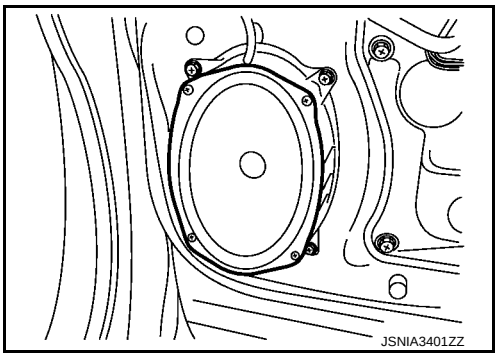
INFOID:0000000012407399

12 speakers system is adopted.

### FRONT DOOR WOOFER

- ϕ 15.0 × 23.0 cm (6 × 9 in) speaker is installed to the bottom of the front door.
- Sound signal is input from the BOSE amp. to output low range sounds.

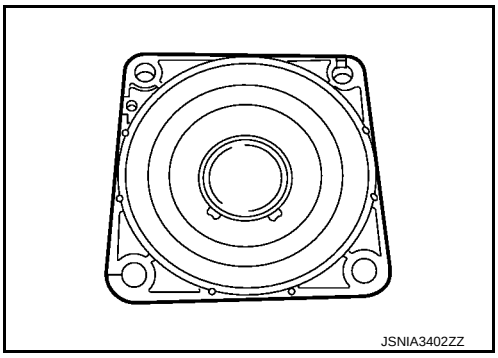
| | |
|---|---|
| **Rated input** | **: 13.6 W** |
| **Maximum input** | **: 40.5 W** |
| **Impedance** | **: 2 Ω** |


JSNIA3401ZZ

### FRONT SQUAWKER

- ϕ 6.5 cm (2 in) squawker is installed to the side of instrument panel.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

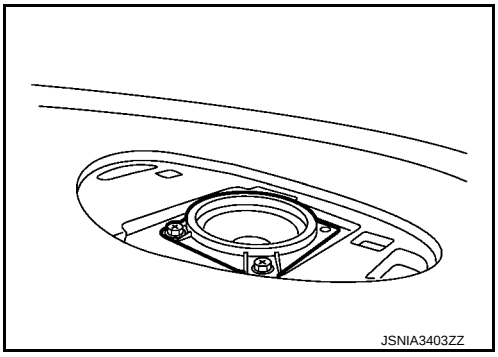
| | |
|---|---|
| **Rated input** | **: 4.8 W** |
| **Maximum input** | **: 14 W** |
| **Impedance** | **: 3.6 Ω** |


JSNIA3402ZZ

### CENTER SQUAWKER

- ϕ 8 cm (3 in) squawker is installed to the center of instrument panel.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

| | |
|---|---|
| **Rated input** | **: 7.6 W** |
| **Maximum input** | **: 22.5 W** |
| **Impedance** | **: 3.6 Ω** |

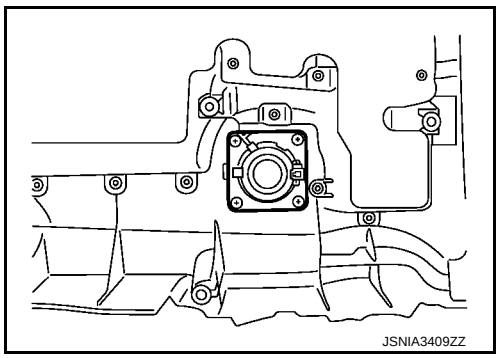

JSNIA3403ZZ

### SLIDE DOOR SQUAWKER

cardiagn.com

- ϕ 8 cm (3 in) squawker is located at the lower part of the front of the slide door.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

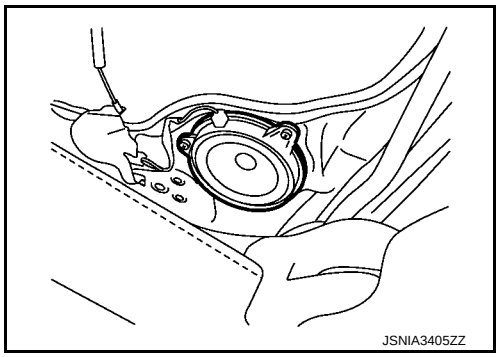
**Rated input : 7.6 W**
**Maximum input : 22.5 W**
**Impedance : 3.6 Ω**




SLIDE DOOR SPEAKER

- ϕ 16 cm speaker is located at the lower part of the back of the slide door.
- Sound signal is input from the BOSE amp. to output high, mid, and low range sounds.

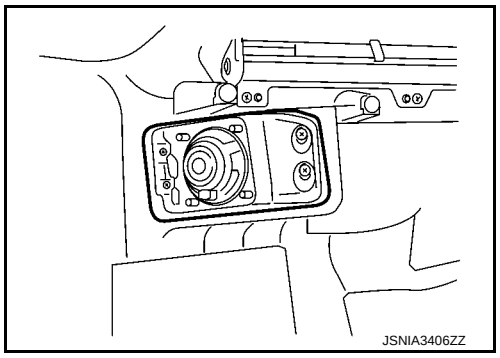
**Rated input : 12.9 W**
**Maximum input : 38.5 W**
**Impedance : 2.1 Ω**




LUGGAGE SQUAWKER

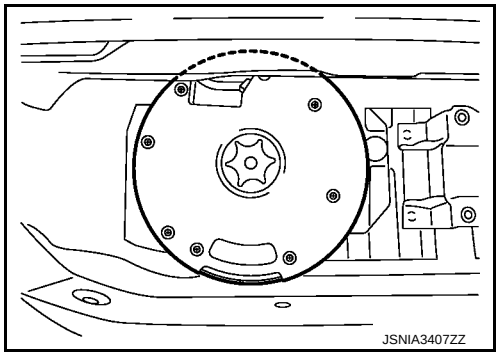
- ϕ 8 cm (3 in) squawker is installed to the side of luggage room.
- Sound signal is input from the BOSE amp. to output high and mid range sounds.

**Rated input : 7.6 W**
**Maximum input : 22.5 W**
**Impedance : 3.6 Ω**




WOOFER

- Woofer integral with the enclosure is located in the luggage floor box to improve the sound-field characteristics of the bass range.
- Composed of two woofers and a woofer amp.



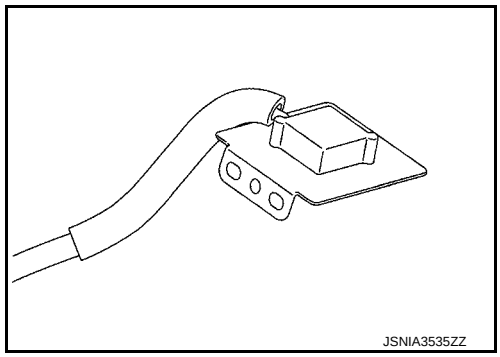

cardiagn.com

## GPS Antenna

INFOID:0000000012407400

- The GPS antenna is installed at the back of the front display unit.
- Power is supplied from the AV control unit.
- This antenna amplifies radio waves received from the GPS satellite and transmits the GPS signal to the AV control unit.

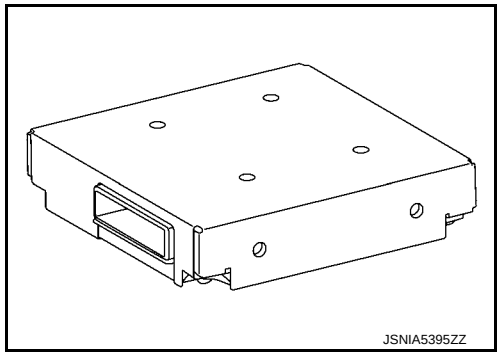
**NOTE:**
An object on the instrument panel may cause the reception sensitivity to be decreased.




## Around View Monitor Control Unit

INFOID:0000000012407401

- The around view monitor control unit is installed at the end of the glove box assembly.
- Necessary signals are transmitted/received to/from control unit via CAN communication.
- Camera image signals received from each camera are converted/synthesized in the around view monitor control unit and transmitted to the front display unit.
- Vehicle width guide lines, predicted course line, vehicle front guiding line and vehicle side line, and vehicle icon are rendered with the around view monitor control unit and combined with camera image.

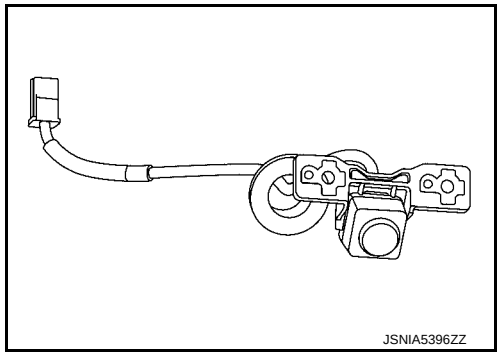



## Rear Camera

INFOID:0000000012407402

- The rear camera is installed to the back door finisher.
- Super-small CMOS camera (color) using CMOS* for the image pickup element is adopted.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.
- Power for the camera is supplied from the around view monitor control unit, and the image at the rear of the vehicle is sent to the around view monitor control unit.

**NOTE:**
*: “CMOS” is abbreviation of Complementary Metal Oxide Semiconductor, and features low power consumption and high speed reading rate of electric charge.




### Specification

| | |
|---|---|
| Manufacturer name | SONY Corp. |
| Image pickup element | 1/4-inch CMOS image sensor |
| Effective number of pixels | Approx. 300,000 pixels (632 × 480) |
| Minimum brightness | 1 lx |
| Angle of view | H: 190.4° V: 141.8° |
| Image | With mirror processing function |

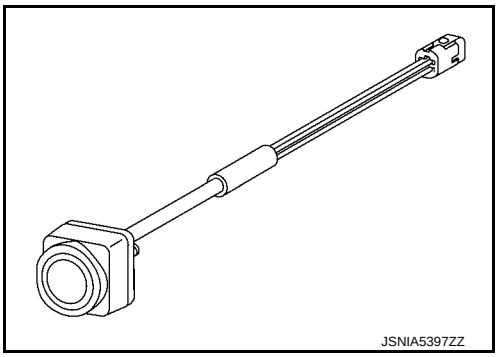
cardiagn.com

## Side Camera

INFOID:0000000012407403

- The side camera is installed to the door mirror.
- Super-small CMOS camera (color) using CMOS* for the image pickup element is adopted.
- Power for the camera is supplied from the around view monitor control unit, and the image at the side of the vehicle is sent to the around view monitor control unit.

**NOTE:**
*: "CMOS" is abbreviation of Complementary Metal Oxide Semiconductor, and features low power consumption and high speed reading rate of electric charge.


JSNIA5397ZZ

### Specification

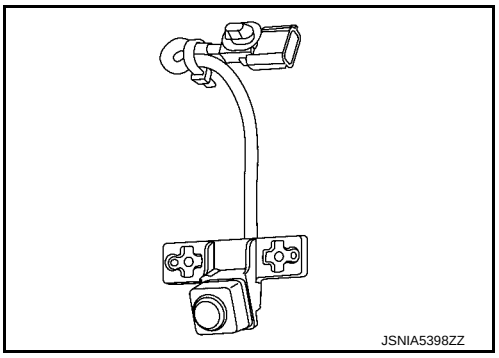
| | |
|---|---|
| Manufacturer name | SONY Corp. |
| Image pickup element | 1/4-inch CMOS image sensor |
| Effective number of pixels | Approx. 300,000 pixels (632 × 480) |
| Minimum brightness | 1 lx |
| Angle of view | H: 190.4° V: 141.8° |

## Front Camera

INFOID:0000000012407404

- The front camera is installed to the front grille.
- Super-small CMOS camera (color) using CMOS* for the image pickup element is adopted.
- Power for the camera is supplied from the around view monitor control unit, and the image at the front of the vehicle is sent to the around view monitor control unit.

**NOTE:**
*: "CMOS" is abbreviation of Complementary Metal Oxide Semiconductor, and features low power consumption and high speed reading rate of electric charge.


JSNIA5398ZZ

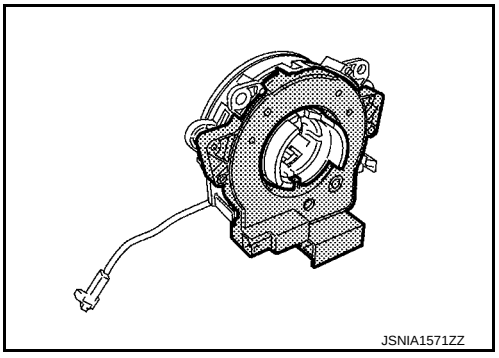
### Specification

| | |
|---|---|
| Manufacturer name | SONY Corp. |
| Image pickup element | 1/4-inch CMOS image sensor |
| Effective number of pixels | Approx. 300,000 pixels (632 × 480) |
| Minimum brightness | 1 lx |
| Angle of view | H: 190.4° V: 141.8° |

## Steering Angle Sensor

INFOID:0000000012407405

- Steering sensor is installed to the spiral cable.
- Steering angle sends the steering signal necessary for predictive course line of the rear view monitor function to the AV control unit via CAN communication.


JSNIA1571ZZ

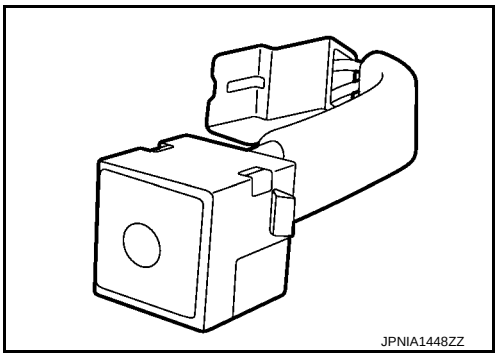


cardiagn.com

## Microphone

INFOID:0000000012407406

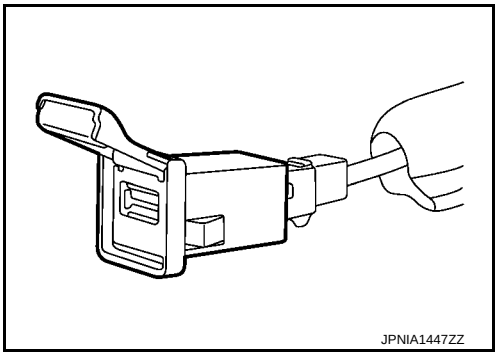
- The voice control/TEL microphone is installed on the left side of the map lamp assembly.
- The power is supplied from the AV control unit to the microphone, transmitting sound signals to the AV control unit at the voice control or during hands-free phone communication.




## USB Connector

INFOID:0000000012407407

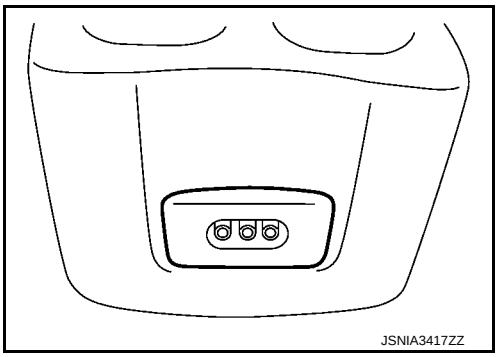
- USB connector is installed to the console box.
- iPod® and USB memory can be connected to the AV control unit.




## Auxiliary Input Jacks

INFOID:0000000012407408

- Installed to the rear of center console.
- Sound signals and image signals from the external equipment are transmitted to the AV control unit.



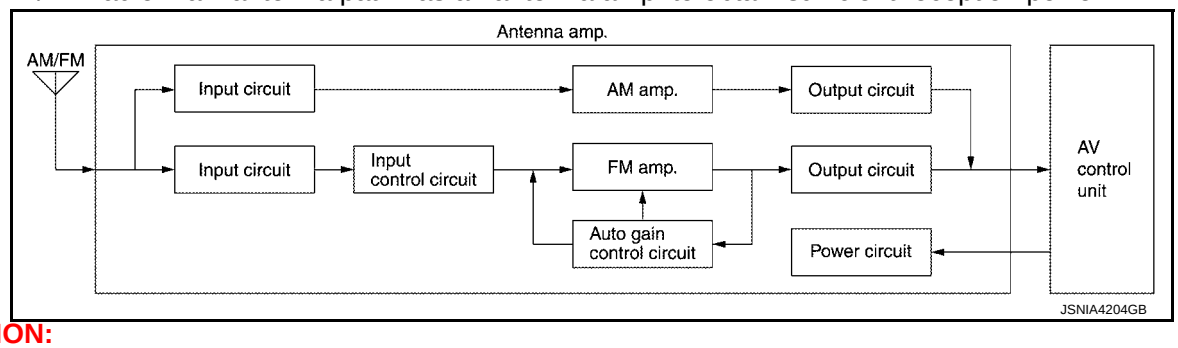

## Antenna Amp., Radio Antenna, and Antenna Feeder

INFOID:0000000012407409

### RADIO ANTENNA

- AM/FM radio main antenna is located on the right rear side window glass and FM radio sub antenna on the left rear side window glass.

- The AM/FM radio main antenna path has an antenna amp. to obtain sufficient reception power.




**CAUTION:**

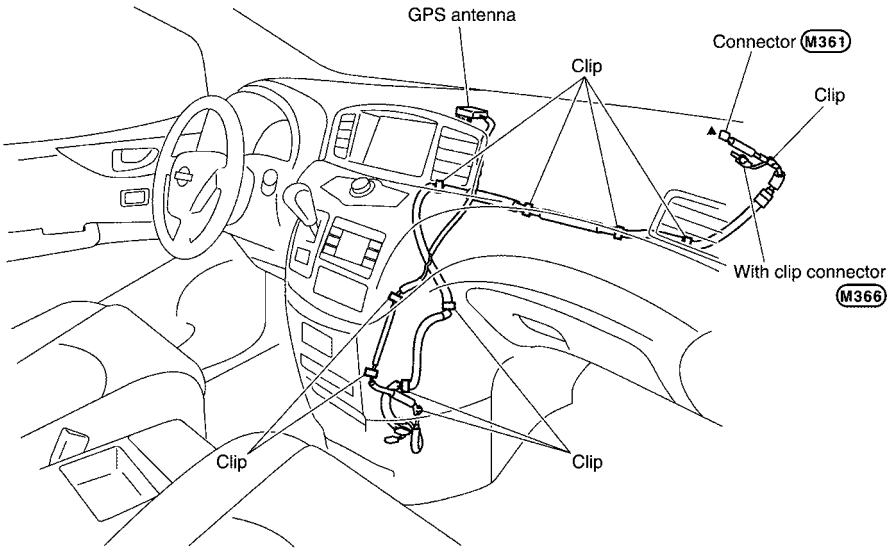


cardiagn.com

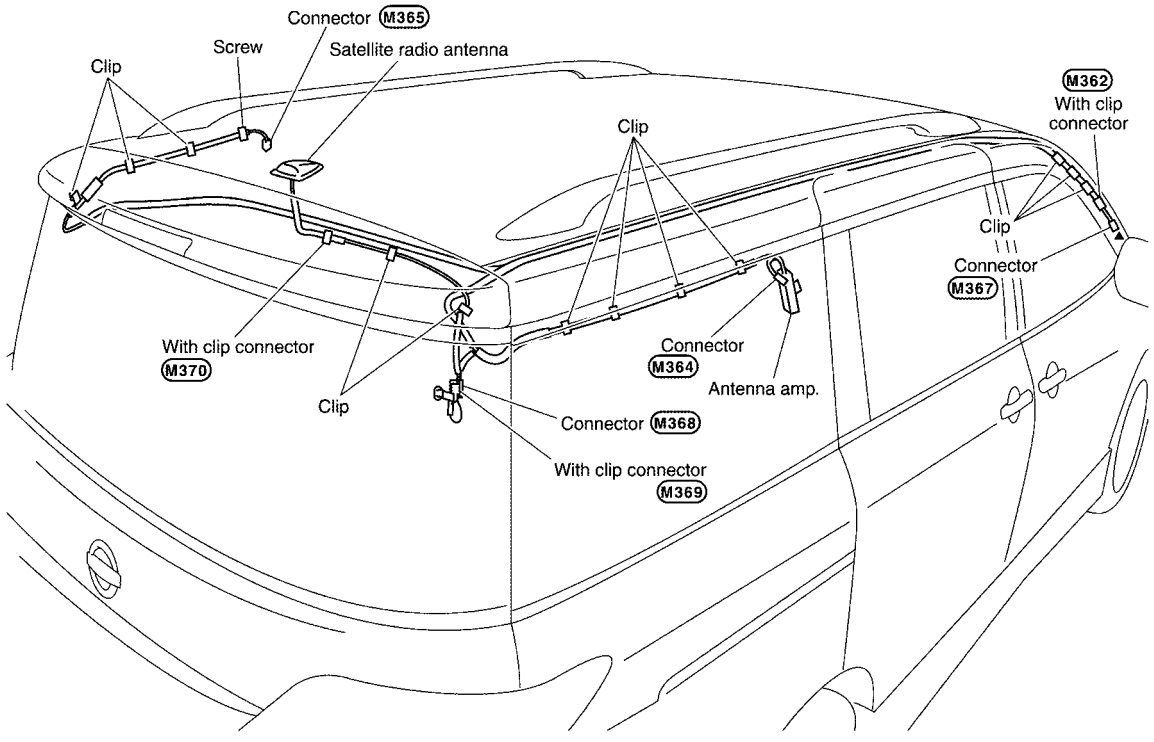
**Affixing any mirror-type window films or metallic items (e.g. commercial antenna) on the rear side window glass causes a reduction in the radio receiver sensitivity.**

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4207GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

## Satellite Radio Antenna

INFOID:0000000012407410

SATELLITE RADIO ANTENNA

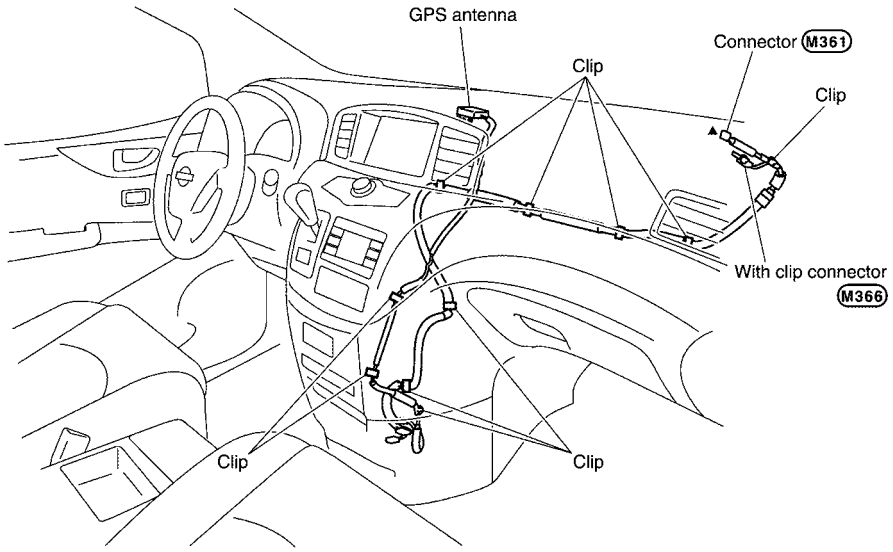


cardiagn.com

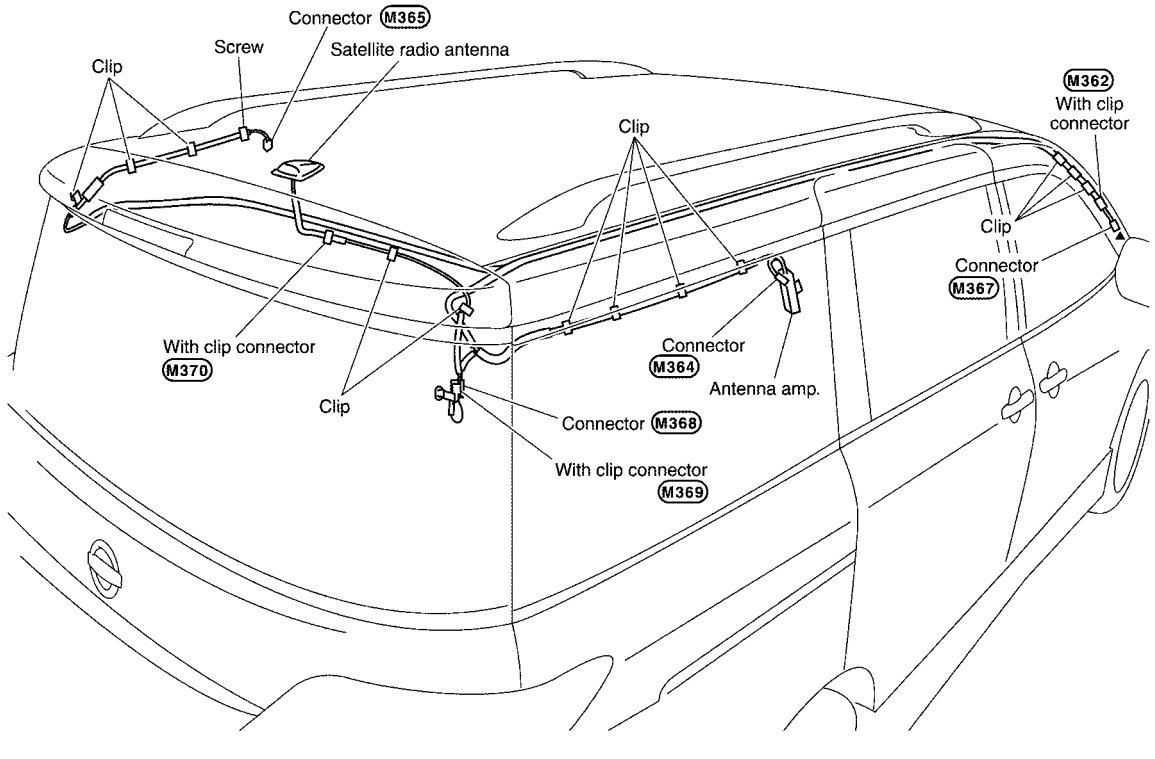
- Satellite radio antenna is installed to the rear center of the roof.
- Receives satellite radio waves and outputs it to AV control unit.

ANTENNA FEEDER LAYOUT

SEC. 280




Instrument panel passenger side




Rear view of vehicle

JSNIA4207GB

▲: Indicates that the part is connected at points with same symbol in actual vehicle.

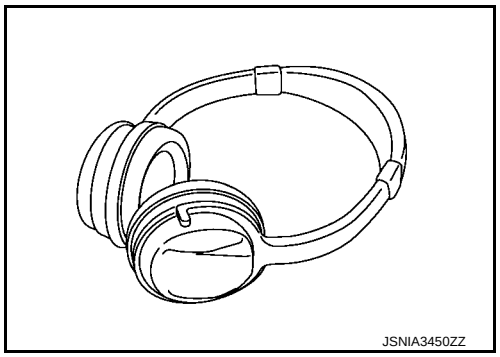
cardiagn.com

## Headphone

INFOID:0000000012407411

- The adoption of the wireless headphone allows the independent audio listening on the rear seat.
- Sound signals are received from the rear display unit via infrared communication.

Battery: AAA battery × 2

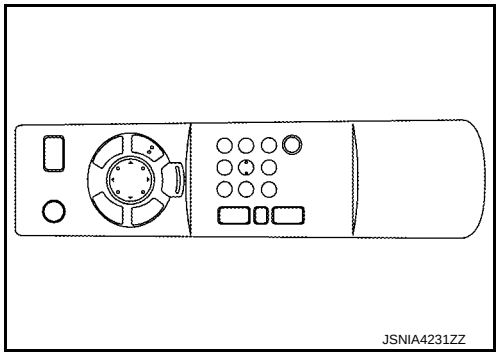



## Remote Controller

INFOID:0000000012407412

- The adoption of the infrared remote controller allows audio operation and other operations on the rear seat.
- The light-receptive spot is included in the rear display unit.

Battery: AA battery × 2

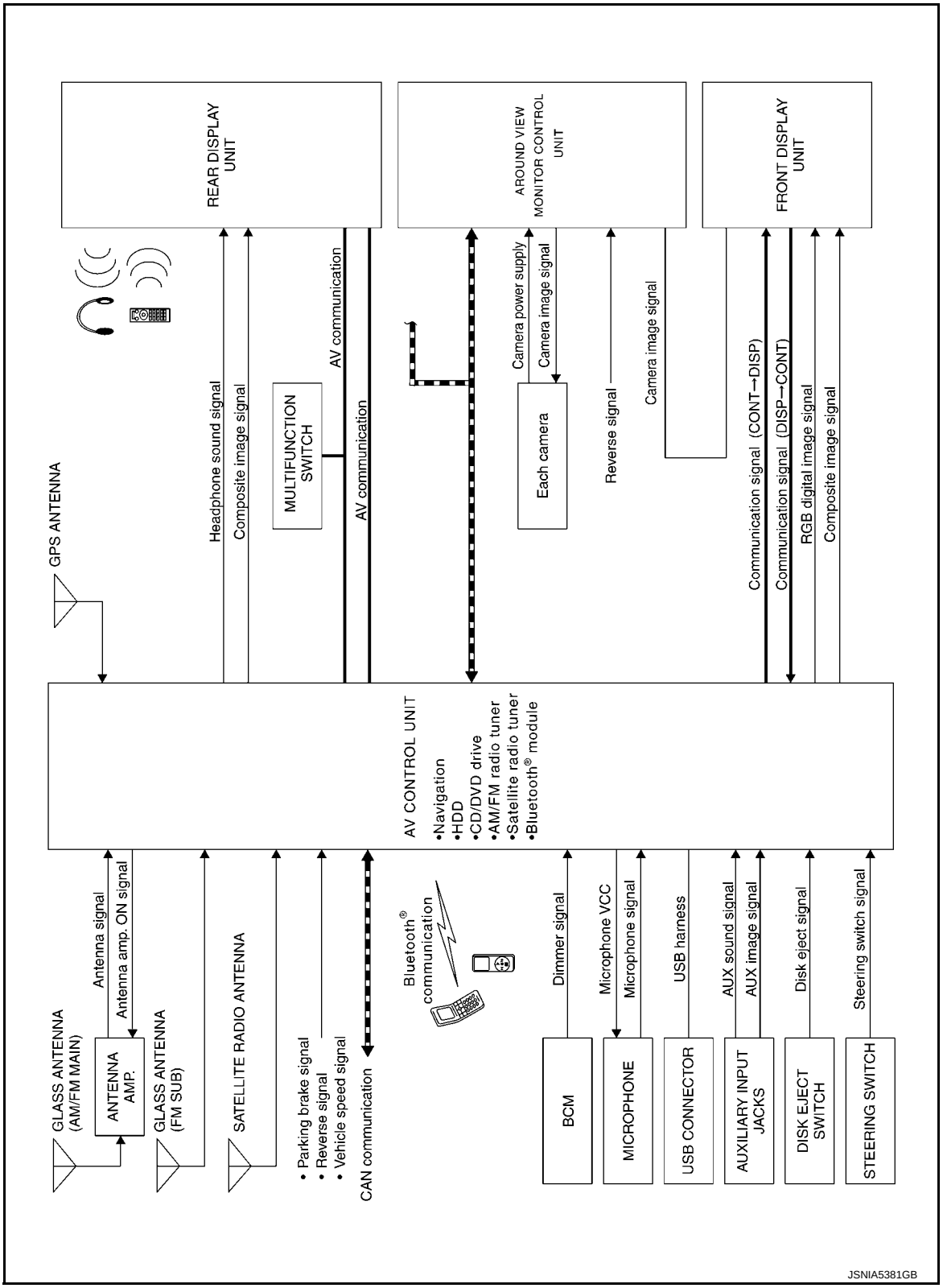



cardiagn.com

# SYSTEM
## MULTI AV SYSTEM
### MULTI AV SYSTEM : System Description

INFOID:0000000012407413

SYSTEM DIAGRAM




**NOTE:**

cardiagn.com

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

AV Control Unit Input Signal (CAN Communication)

| Transmit unit | Signal name |
|---|---|
| ECM | Engine status signal |
| | Fuel consumption monitor signal |
| Steering angle sensor | Steering angle sensor signal |
| Combination meter | Vehicle speed signal |
| | Distance to empty signal |
| | Fuel level low warning signal |
| BCM | System setting signal |
| Around view monitor control unit | View change signal |

Around View Monitor Control Unit Input Signal (CAN Communication)

| Transmit unit | Signal name |
|---|---|
| AV control unit | Camera switch signal |
| | Camera OFF signal |
| Steering angle sensor | Steering angle sensor signal |
| ABS actuator and electric unit (control unit) | Vehicle speed signal |

## DESCRIPTION

Multi AV system means that the following systems are integrated.

| FUNCTION NAME |
|---|
| Navigation system function |
| Audio function |
| DVD play function |
| Mobile entertainment system |
| Bluetooth® hands-free phone function |
| Auxiliary input function |
| USB connection function |
| Voice recognition function |
| Touch panel function |
| Around view monitor function |
| Vehicle information function |
| Auto Light adjustment system |

## COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected with front display unit and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display unit.

## CAN COMMUNICATION

- AV control unit is connected by CAN communication, and it receives data signal from ECM and combination meter. It computes and displays fuel economy information value with the obtained information.
- The AV control unit, which has the vehicle setting function, transmits and receives data on vehicle setting condition via CAN communication with the BCM.



cardiagn.com

- Around view monitor control unit receives steering angle signal from steering angle sensor via CAN communication and performs control of predictive course line in front/rear view monitor image.
- When pressing the CAMERA switch, the AV control unit transmits camera switch signal to the around view monitor control unit via CAN communication.
- When receiving camera switch signal, the around view monitor control unit displays a camera image on the front display if an image other than camera image is displayed. If a camera image is displayed on the front display, the around view monitor control unit displays a camera image by switching to other view.
- When necessary to switch to an image other than camera image, the AV control unit transmits camera OFF signal to the around view monitor control unit via CAN communication.
- When receiving camera OFF signal, the around view monitor control unit brings the image output to the front display into standby mode.
- When necessary to switch to a camera image, the around view monitor control unit transmits view change signal to the AV control unit via CAN communication.
- When receiving view change signal, the AV control unit brings an image output to the front display into standby mode.
- The around view monitor control unit judges the showing/hiding of a camera image according to vehicle speed signal received from the ABS actuator and electric unit (control unit) via CAN communication.

## TYPE OF VOICE SIGNAL

### Reception Voice Signal

- Hands-free phone reception voice is output from the cellular phone through the AV control unit to the front speaker via Bluetooth® communication.
- If the hands-free phone is used while the audio is ON and/or the voice guidance is being output, these sounds are muted and only the reception voice is output.

### Speech Sound Signal

Hands-free phone speech sound is transmitted from the microphone via the AV control unit and Bluetooth® communication to the cellular phone.

### Guide Sound Signal

- Voice signals output during the route guidance of the navigation system are output from the AV control unit to the front speaker.
- If the voice guidance is output with the audio ON, audio output of the front speaker is turned down 10 dB and then voice guidance is output.
- Adjusting the volume while the voice guidance is being output can change the volume of the guidance.

## NAVIGATION SYSTEM FUNCTION

### Description

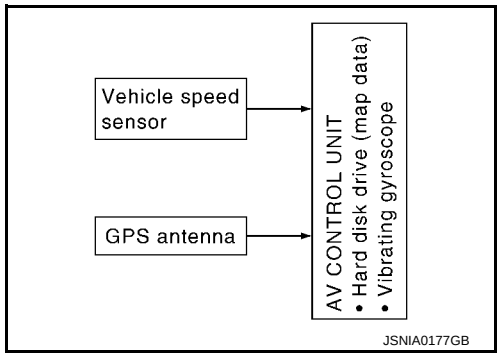
- The AV control unit controls navigation function while GPS tuner has built-in map data, GYRO (angle speed sensor), on the HDD (Hard Disk Drive).
- The AV control unit inputs operation signal with communication signal, through display (touch panel) and multifunction switch and steering switch.
- Guide sound is output to front speaker through BOSE amp. from AV control unit when operating navigation system.
- A vehicle position is calculated with the GYRO (angle speed sensor), vehicle sensor, signal from GPS satellite and map data stored on HDD (Hard Disk Drive), and transmits the map image signal (RGB image, RGB area, RGB image synchronizing) to the display.

### Position Detection Principle

The navigation system periodically calculates the current vehicle position according to the following three types of signals.

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Vehicle turning angle determined by the gyroscope (angular speed sensor)
- The travel direction of the vehicle determined by the GPS antenna (GPS information)

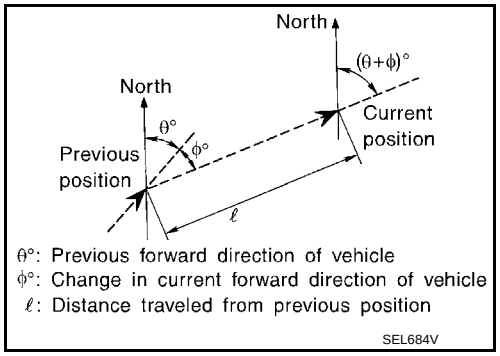
The current position of the vehicle is then identified by comparing the calculated vehicle position with map data, which is stored in the HDD (Hard Disk Drive) (map-matching), and indicated on the screen with a current location mark. More accurate data is used by comparing position detection results from GPS to the map-matching.




cardiagn.com

The current position is calculated by detecting the travel distance from the previous calculation point, and its direction change.

- Travel distance
  The travel distance is generated from the vehicle speed sensor input signal. The automatic distance correction function is adopted for preventing a miss-detection of the travel distance because of tire wear etc.
- Travel direction
  The gyroscope (angular velocity sensor) and GPS antenna (GPS information) generate the change of the travel direction. Both have advantages and disadvantages as per the following descriptions.

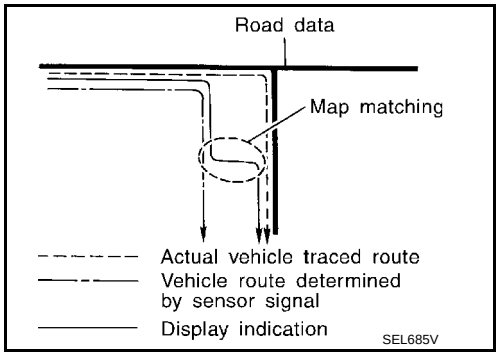



| Type | Advantage | Disadvantage |
|---|---|---|
| Gyroscope (angular velocity sensor) | The turning angle is precisely detected. | Errors are accumulated when driving a long distance without stopping. |
| GPS antenna (GPS information) | The travel direction (North/South/East/West) is detected. | The travel direction is not precisely detected when driving slowly. |

Input signals are prioritized in each situation. However, this order of priority may change in accordance with more detailed travel conditions so that the travel direction is detected more accurately.

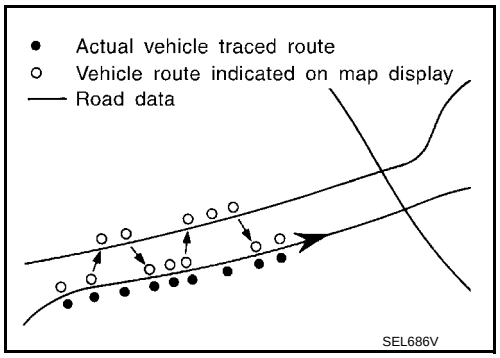
Map-matching

Map-matching repositions the vehicle on the road map when a new location is judged to be more accurate. This is done by comparing the current vehicle position (calculated by the normal position detection method) from the map data stored in the HDD (Hard Disk Drive).



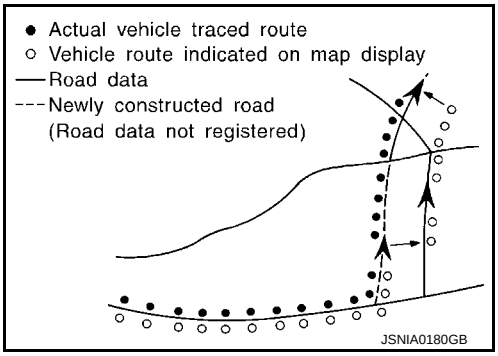

There is a possibility that the vehicle position may not be corrected in the following case, and when vehicle is driven over a certain distance or time in which GPS information is hard to receive. Correct manually the current location mark on the screen.

- In map-matching, several alternative routes are prepared and prioritized in addition to the road judged as currently driving on.
  Therefore, due to errors in the distance and/or direction, an incorrect road may be prioritized, and the current location mark may be repositioned to the incorrect road.
  If two roads are running in parallel, they are of the same priority. Therefore, the current location mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road, etc.



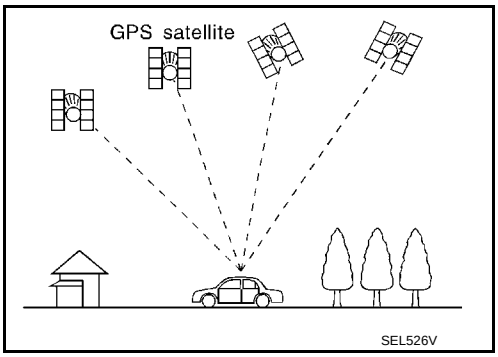

cardiagn.com

- Map-matching does not function correctly when road on which the vehicle is driving is new, etc. and not recorded in the map data. Also, map-matching does not function correctly when road pattern stored in the map data and the actual road pattern are different due to repair, etc.
  Therefore, the map-matching function judges other road as a currently driving road if the road is not in the map, and displays the current location mark on it. Later, the current location mark may be repositioned to the road if the correct road is detected.
- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position and the position on the map.




GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).
The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.




Accuracy of the GPS will deteriorate under the following conditions:
- In two-dimensional positioning, GPS accuracy will deteriorate when altitude of the vehicle position changes.
- The position of GPS satellite affects GPS detection precision. The position detection may not be precisely performed.
- The position detection is not performed if GPS receiver does not receive radio waves from GPS satellites. (Inside a tunnel, parking in a building, under an elevated highway etc.) GPS receiver may not receive radio waves from GPS satellites if any object is placed on the GPS antenna.

**NOTE:**
- The detection result has an error of approximately 10 m (32.81 ft) even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

## AUDIO FUNCTION

Description

- BOSE® sound system (special digital amp. and 12 speakers) is adopted.
- The MP3/WMA/AAC playback function enables music to play for a long time: the user need not change the CD during a long trip. The text display function is also adopted so that the title name and artist name of the ID3 tag/WMA/AAC tag can be displayed.
- The audio system is equipped with the following functions.

| FUNCTION |
|---|
| AM/FM radio |
| Satellite radio |
| CD |
| Bluetooth® audio |
| Speed sensitive volume |

Operating Signal



cardiagn.com

Audio system operation can be performed with multifunction switch, preset switch, steering switch, touch panel function or voice recognition function.

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch.
- The disk eject signal is transmitted to AV control unit by hardwire, when disk eject switch is operated.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.
- Operation status of audio is indicated at front display.

AM/FM Radio Function

- AM/FM radio tuner is built into AV control unit.
- AM/FM radio wave is received by radio antenna, next it is amplified by antenna amp., and finally it is input to AV control unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the AV control unit directly.
- Audio signal is input to BOSE amp. and BOSE amp. outputs to woofer and each speaker.

Satellite Radio Function

- Satellite radio tuner is built into AV control unit.
- Sound signal and data signal (satellite radio) are received by satellite radio antenna. There are input to AV control unit. AV control unit outputs sound signal to woofer and each speaker via BOSE amp. and data signal to front display unit.

CD Function

- CD function is built into AV control unit.
- AV control unit outputs sound signal to BOSE amp., and BOSE amp. outputs to woofer and each speaker when CD is inserted to AV control unit.
- For further information about CD function specifications, refer to AV-427, "AV Control Unit".

Bluetooth® Audio Function

- Bluetooth® audio function is adopted to play music data in the portable audio in wireless communication.
- Five units of Bluetooth® communication devices including audio devices and cellular phones can be registered to the AV control unit.
- When the Bluetooth® audio is connected to the portable audio through Bluetooth®, it can play the music data in the portable audio.
- For further information about Bluetooth® compliant profile, refer to AV-427, "AV Control Unit".

Speed Sensitive Volume Function

- The AV control unit receives the vehicle speed signal from the combination meter via CAN communication and changes the sound volume in conjunction with the vehicle speed.
- The control level can be selected by the customer.

## DVD PLAY FUNCTION

- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the front display unit, and DVD sound signals are transmitted to woofer and each speaker via BOSE amp.
- DVD image signals are transmitted to rear display unit via video distributor, and DVD sound signals are transmitted to rear display unit. The rear display unit transmits the sound signals to the headphone via infrared communication.
- For further information about DVD function specifications, refer to AV-427, "AV Control Unit".

## MOBILE ENTERTAINMENT SYSTEM

Image and sound (DVD, USB memory-stored video data, and auxiliary input) played by AV control unit can be enjoyed in rear seat using rear display unit and headphone.

Operating Signal

- The mobile entertainment system can be controlled by one of the remote controller.
- It receives the operation signal of the remote controller by the remote control receiver built into rear display unit, and then transmits it to the AV control unit.

Headphone Sound

Headphone sound signals are transmitted to infrared communication between rear display unit and headphone.

Screen rear display



cardiagn.com

- Image signal output from AV control unit is transmitted to the rear display unit.
- The rear display unit receives the composite image signal (DVD, USB memory-stored video data, and auxiliary input) from the AV control unit.
- The rear display unit switches composite images through the communications with the AV control unit via AV communication.

## BLUETOOTH® HANDS-FREE PHONE FUNCTION

- When the cellular phone is connected to the AV control unit in Bluetooth® communication, hands-free phone communication can be performed.
- Simply operating the steering switch without releasing hands from the steering wheel allows the driver to make a phone call or receive a phone call.
- When a Bluetooth® communication compliant phone is registered to the AV control unit, hands-free phone communication can be performed. Five units of Bluetooth® communication devices including audio devices and cellular phones can be registered to the AV control unit.
- The content of the memory (telephone book) of the cellular phone can be recorded in the AV control unit.
- For further information about Bluetooth® compliant profile, refer to AV-427, "AV Control Unit".

### When A Call Is Originated

Spoken voice sound output from the microphone (microphone signal) is input to AV control unit. AV control unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal. Voice sound is then heard at the other party.

### When Receiving A Call

Voice sound is input to own cellular phone from the other party. TEL voice signal is output to door speaker, and the signal is input to BOSE amp. via AV control unit by establishing Bluetooth® communication from cellular phone.

## AUXILIARY INPUT FUNCTION

- Image and sound can be output from an external device by connecting a device with front auxiliary input jacks.
- AUX image signals are transmitted to front and rear display unit via AV control unit
- AUX sound signals are transmitted to each unit as follows:
- To each speaker via AV control unit and BOSE amp.
- To the rear display unit via AV control unit, and headphone sound signals are transmitted to infrared communication between rear display unit and headphone.

## USB CONNECTION FUNCTION

- Connecting iPod® or USB memory allows the driver to play iPod® music files or USB memory-stored music files, video data, and image viewer data.
- Sound signals of music files stored in iPod® or USB memory are transmitted from the USB connector to the AV control unit. The AV control unit transmits the sound signals to the BOSE amp. and video distributor.
- Sound signals transmitted from the BOSE amp. to woofer and each speaker, and sound signals transmitted to headphone via rear display unit
- Video signals and image viewer file signals are transmitted from the USB connector to the AV control unit. The data and files are displayed on the front display unit screen.
- Video signals are transmitted from the USB connector to the AV control unit. The data and files are displayed on the rear display unit screen.
- iPod® is recharged when connected to USB connector.
- Compliant USB memory and data recorded are limited.

| | |
|---|---|
| USB memory | USB2.0 |
| File system | FAT16 |
| | FAT32 |

- Only files that meet the following conditions will be played.

| | Music file | Video file | Image viewer file |
|---|---|---|---|
| File format | “MP3”, “WMA”, “AAC”, “M4A” | “DivX”, “MPEG4 (ASF)” | “JPEG” |

cardiagn.com

| | Music file | Video file | Image viewer file |
|---|---|---|---|
| File extension | ".mp3", ".wma", ".aac", ".m4a" | ".divx", ".afs", ".avi" | ".jpg", ".jpeg" |
| Maximum file size | 2 GB | 2 GB | 2 MB |

**NOTE:**

- iPod® is a trademark of Apple inc., registered in the U.S. and other countries.
- Image signals cannot be received from iPod®.
- Use the enclosed USB harness when connecting iPod® to USB connector.
- If a video-sound codec combination is not satisfied, its video file may not be played.
- Signals cannot be transmitted to video distributor under the following conditions:
- Only sound signal or only image viewer data is stored in iPod®
- Only sound signal or only image viewer data is stored in USB memory

## VOICE RECOGNITION FUNCTION

- By speaking a command, operations of navigation and hands-free phone can be performed.
- To perform the voice control, press the switch of the steering switch. The system changes to the speech reception status. When a command is spoken, the speech recognition result is displayed, and the operation is executed.
- The voice control cannot be performed under the conditions listed below.
- When the hand-free phone is used
- When the vehicle is moving backwards

Major Functions

With this function, the list of commands used for telephone, and navigation operation can be checked.

## TOUCH PANEL SYSTEM

Each operation of multi AV system can be performed by directly touching a front display.

## AROUND VIEW MONITOR FUNCTION

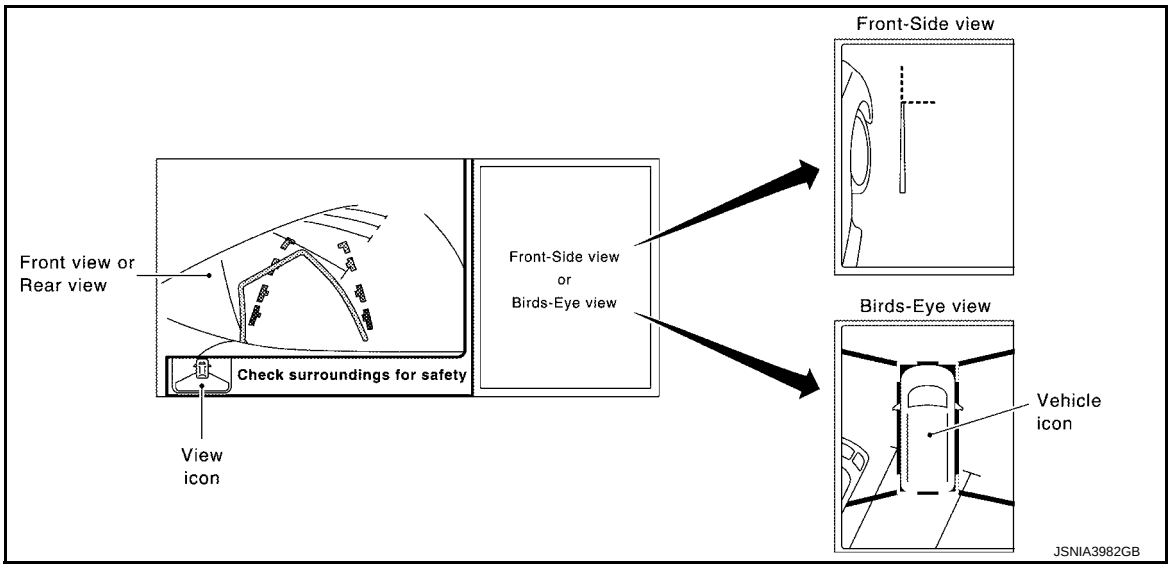
- This system is equipped with wide-angle cameras on the front and rear of the vehicle and on both right and left door mirrors. The images from front view, rear view, front-side view (RH side), and birds-eye view that shows the view from the top of the vehicle are displayed to monitor the vehicle surroundings.
- Around view monitor control unit cuts out and expands the image received from each camera to create each view.
- In front view and rear view, the vehicle width, distance lines and predictive course lines are superimposed and displayed. In front-side view, the vehicle distance guiding line and vehicle width guiding line are displayed.
- The Birds-Eye view converts the images from 4 cameras into the overhead view and displays the status of the vehicle on display. The vehicle icon that are displayed on the Birds-Eye view display are rendered by around view monitor control unit.
- Moving Object Detection (MOD) is adopted that detects moving objects according to camera image and notifies the detection result to the driver.

Around View Monitor Screen

- Around view monitor combines and displays the travel direction view and "Birds-Eye view", "Front-Side view".
- Around view monitor control unit renders the view icon and warning message on display. Language of warning message can be selected by CONSULT.
- Around view monitor control unit renders the view icon and warning message on display.

cardiagn.com

Screen constitution

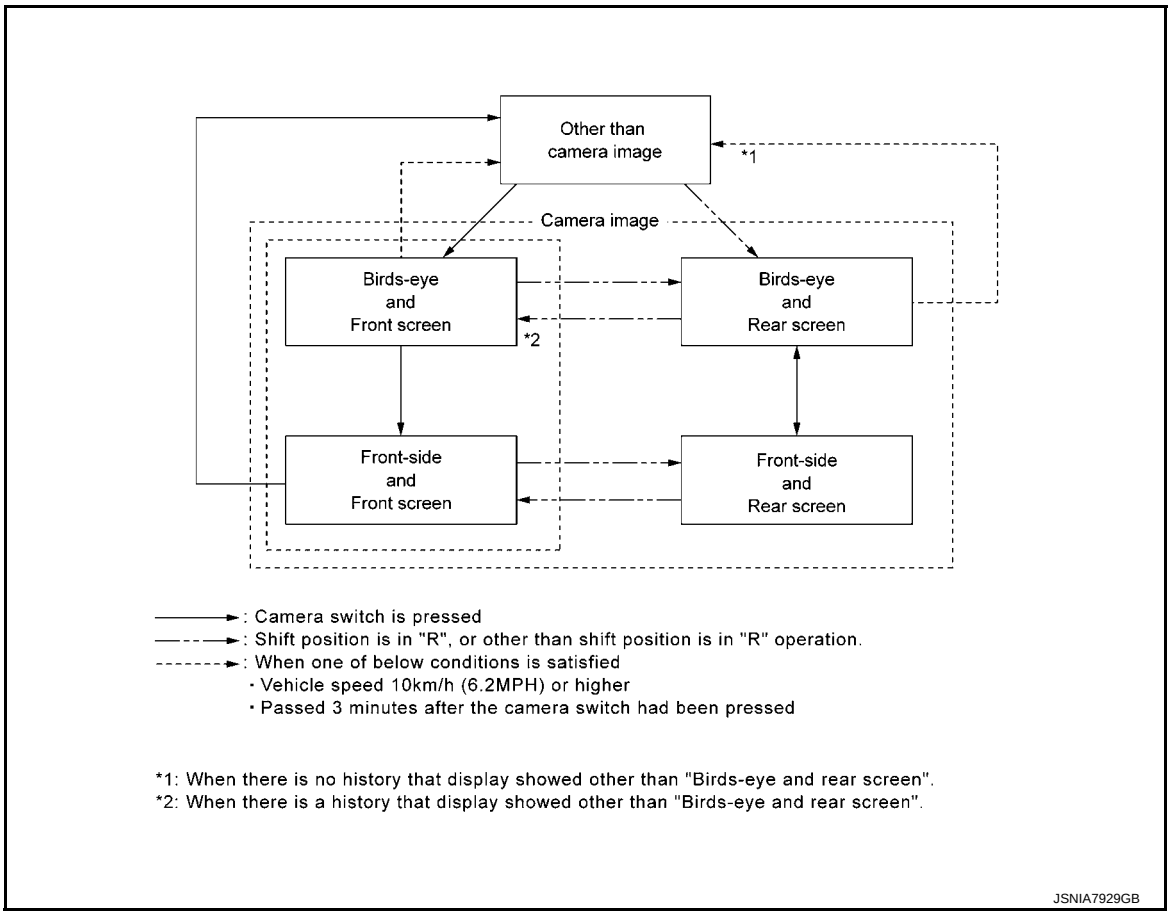



Operation Description

- Around view monitor operates by pressing the “CAMERA” switch or shifting the selector lever to the reverse position.
- When the selector lever is in any position other than the reverse position, the screen is switched to the around view monitor by pressing the “CAMERA” switch.
- The screen is switched to the around view monitor by shifting the selector lever to the reverse position.
- In the around view monitor, Birds-Eye view, Front-side view can be switched by pressing the “CAMERA” switch.
- The around view monitor is cancelled 3 minutes after pressing the “CAMERA” switch, and then the screen returns to the screen before displaying the around view monitor when selector lever is in a position other than the reverse position.
- In the Birds-Eye view, the invisible area is displayed to show the border of 4 camera images. In addition, red fixed lines are displayed in 4 corners of the vehicle icon. After turning the ignition switch ON, the invisible area is highlighted with yellow and red fixed lines are blink only once.

cardiagn.com

Around view monitor screen transition

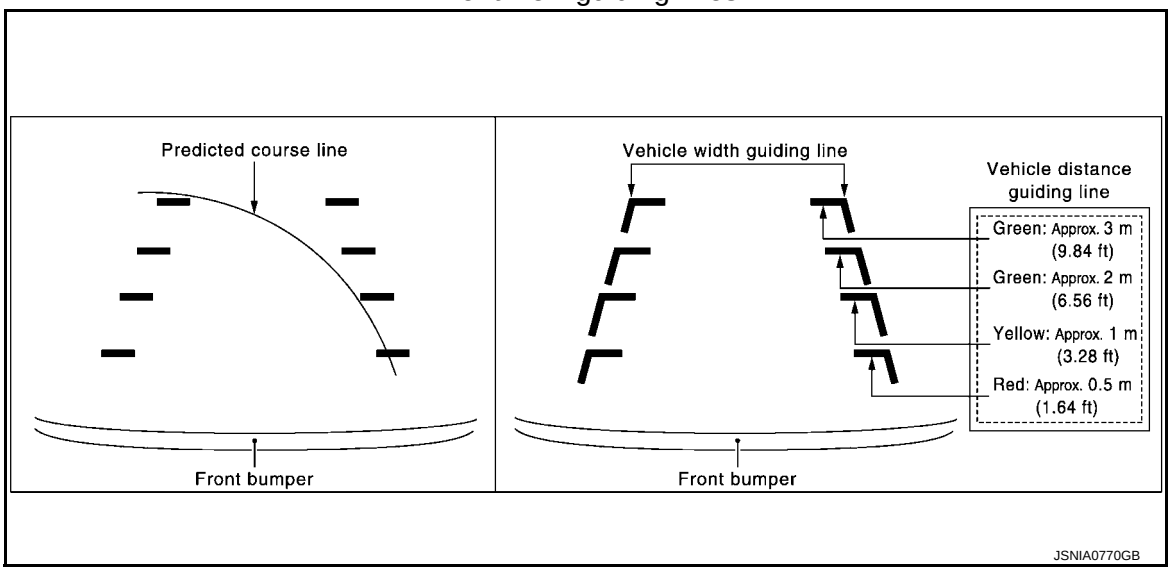



FRONT VIEW

- The front view image is from the front camera.
- When the selector lever is in any position other than the reverse position, the front view is displayed by pressing the “CAMERA” switch. It improves the visibility of obstacles in front of the vehicle and helps driving by the images displayed from Birds-Eye view and Front-Side view.
- Display the vehicle width guiding line and vehicle distance guiding line in front view and display the predictive course line according to the steering angle.
- If the steering angle is within approximately 90 degrees, the predictive course lines on the left/right side are displayed. If the steering angle is exceeding approximately 90 degrees, only the predictive course line on the outside (in the opposite side of steering direction) is displayed.
- Around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed by CONSULT

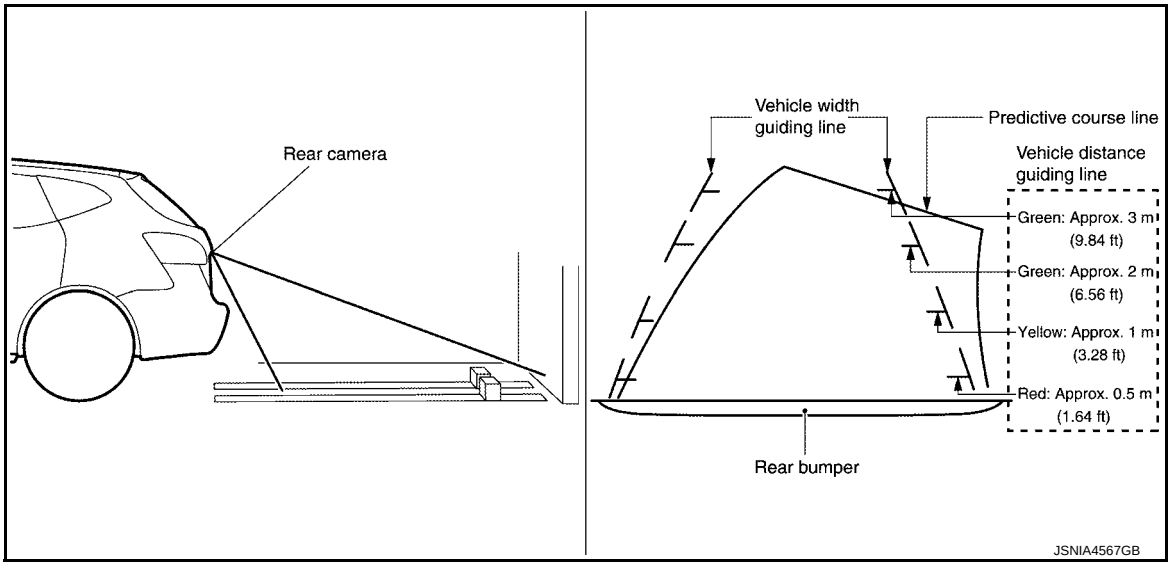
cardiagn.com

Front view guiding lines




REAR VIEW
- The rear view image is from the rear camera.
- When the selector lever is in the reverse position, the rear view is displayed. Backing and parking are improved by the images from Birds-Eye view and Front-Side view.
- Display the vehicle width guiding line and vehicle distance guiding line in Rear view and display the predictive course line according to the steering angle.
- The predictive course line is not displayed at the steering neutral position.
- Around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed by CONSULT

Rear view guiding lines




MOVING OBJECT DETECTION (MOD)
- Moving Object Detection (MOD) is a function that notifies the driver of the presence of moving objects in the area around the vehicle. MOD detects moving objects from camera image, illuminates frame of view in yellow whenever “MOD” icon is displayed in blue, and sounds buzzer in combination meter.
- MOD detects moving objects while camera image is displayed on display.
- Around view monitor control unit performs the following process when moving objects are detected.
- Superimposes yellow frame line on camera image signal and outputs them to display.
- Transmits buzzer output signal to combination meter via CAN communication so that buzzer in combination meter sounds.
- Around view monitor control unit detects moving objects from camera image according to an image recognition method called optical flow.

cardiagn.com

- MOD does not detect a background as a moving object when the vehicle moves (when whole screen moves), but detects a moving object when an actual moving object is displayed on screen.
- MOD can be set to permanent OFF by the following operation.
- Permanent OFF: Settings can be performed on the navigation display.
- Color of “MOD” icon indicates whether or not MOD is operative. “MOD” icon is displayed as shown in the following table. When MOD is operative, “MOD” icon is displayed in blue. When MOD is not operative, “MOD” icon is displayed in gray or orange. MOD icon is not displayed when MOD is off (permanent off).
- MOD illuminates frame of view in yellow and sounds buzzer, when any of the conditions in the following table are satisfied.

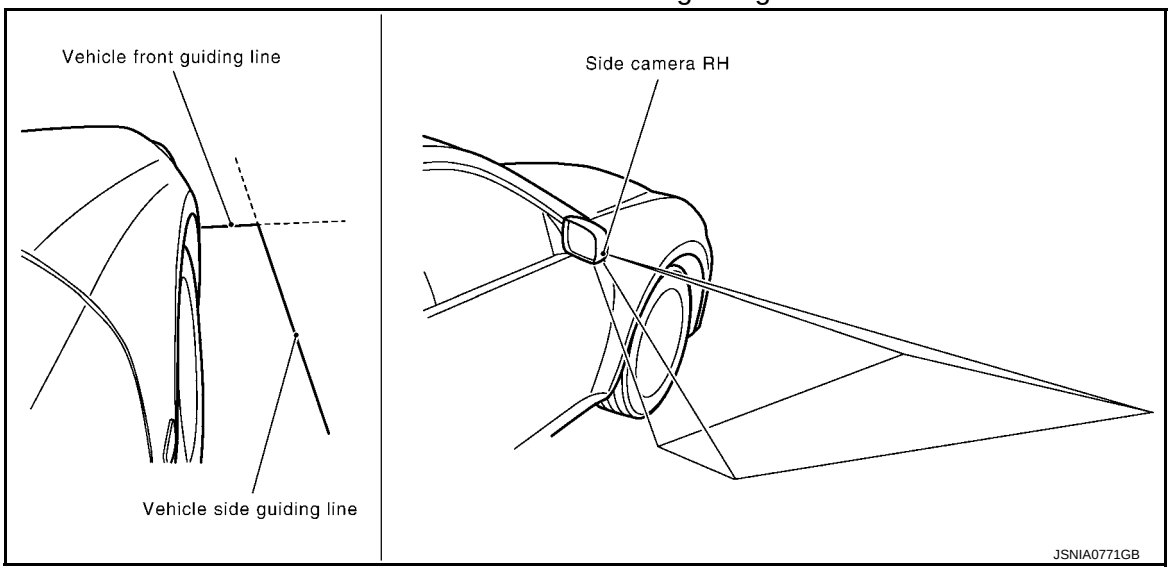
| Operation Condition | | View where MOD is operative |
|---|---|---|
| Shift position | Vehicle speed | |
| P and N position | 0 km/h (0 MPH) | Birds-eye view |
| R position | 0 km/h (0 MPH) or more - less than 8 km/h (5 MPH) | Rear view |
| D position | 0 km/h (0 MPH) or more - less than 8 km/h (5 MPH) | Front view |

- MOD does not operate or stops operation when any of the conditions in the following table are satisfied. “MOD” icon is displayed in gray or orange.

| Operation stop condition | “MOD” icon color | Note |
|---|---|---|
| Front or rear door is open. | Gray | Operation of Birds-eye view stops when door is open. |
| Back door is open. | Gray | Operation of Birds-eye view and rear view stops when back door is open. |
| Rear camera installation angle is incorrect | Gray | Operation of rear view stops when rear view camera installation angle is incorrect. |
| Front camera image is abnormal (Temporary) | Gray | Operation of Birds-eye view and front view stops when front camera image is temporarily abnormal. |
| Side camera image is abnormal (Temporary) | Gray | Operation of Birds-eye view stops when side camera image is temporarily abnormal. |
| Rear camera image is abnormal (Temporary) | Gray | Operation of Birds-eye view and rear view stops when rear camera image is temporarily abnormal. |
| System malfunction | Orange | Refer to AV-491, "DTC Index" |

FRONT-SIDE VIEW
- The front-side view image is from the side camera RH.
- In Front-Side view, display the vehicle distance guiding line and vehicle width guiding line.

Front-side view area and guiding line

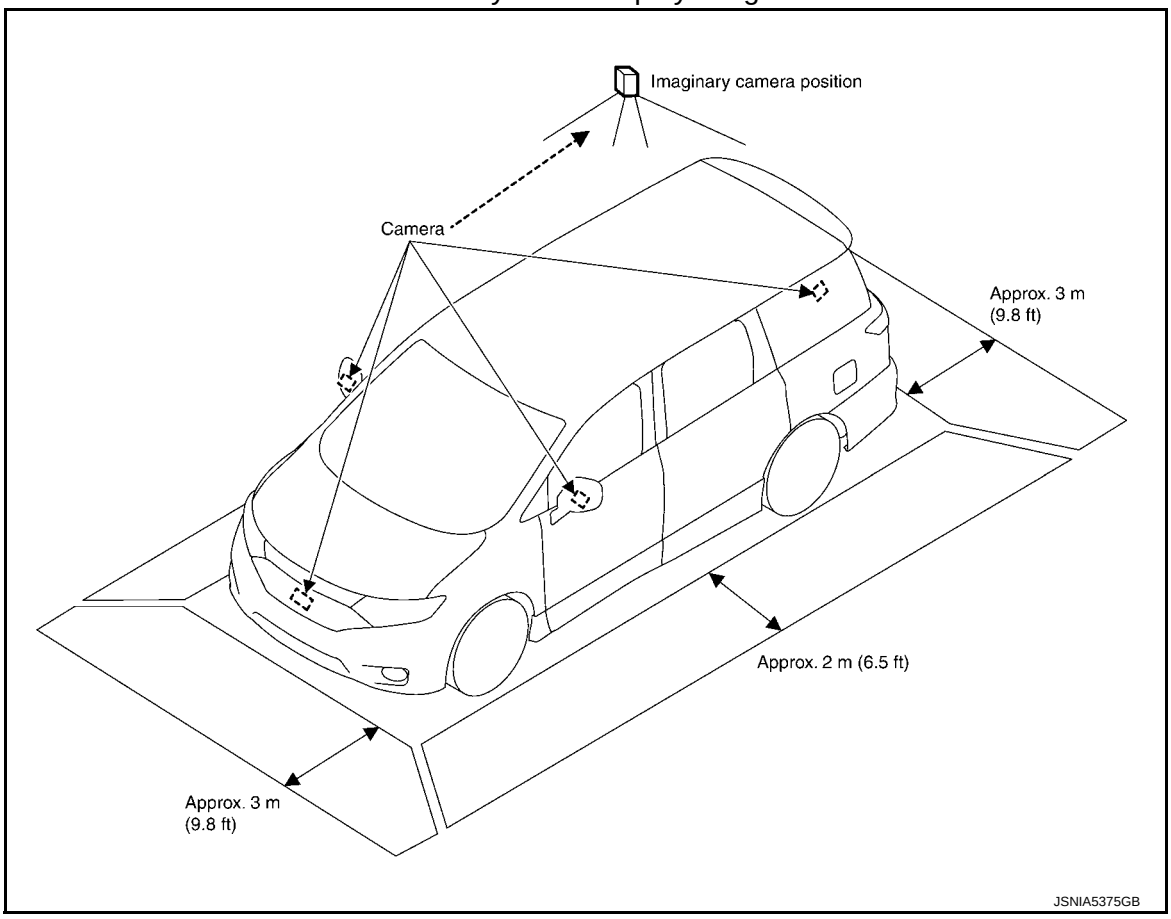



cardiagn.com

BIRDS-EYE VIEW

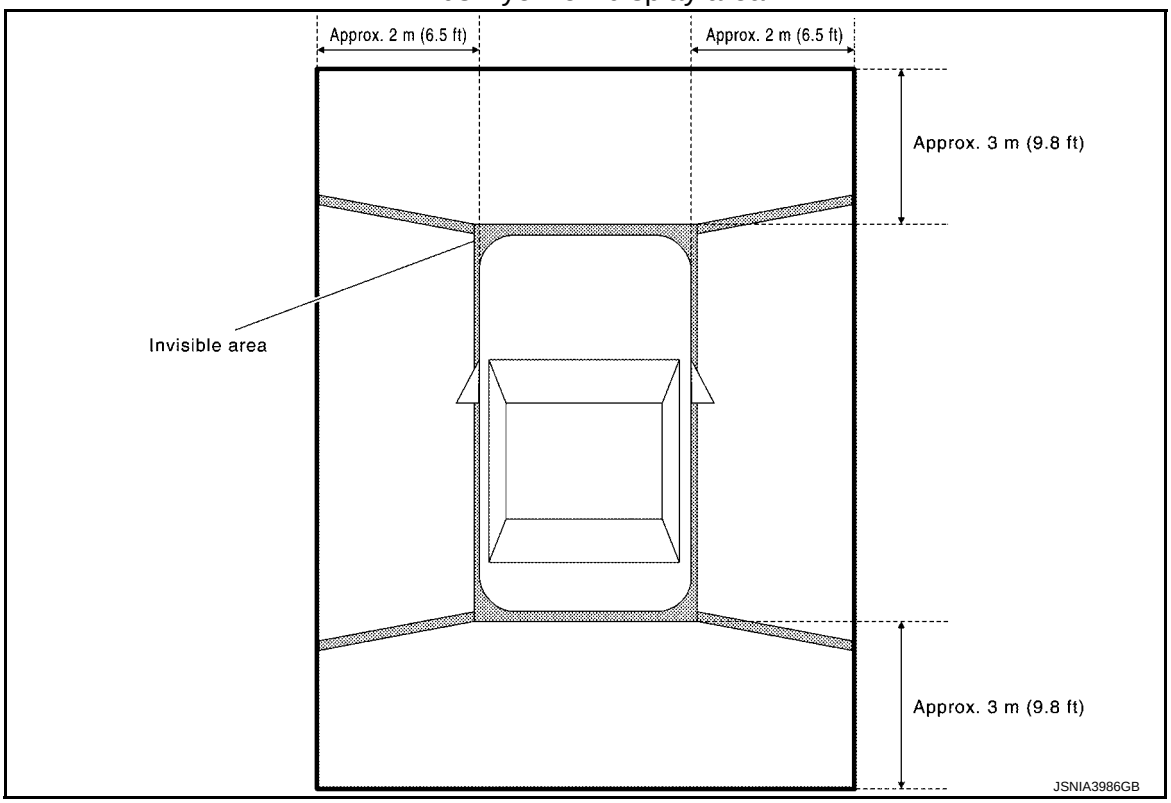
- The image from the 4 cameras is cut out and converted into the overhead view, and the surroundings of the vehicle is displayed in birds-eye view.
- In Birds-Eye view, the invisible area is displayed on the image to specify the boundary of the 4 cameras.

Birds-Eye view display image




cardiagn.com

Birds-Eye view display area




Camera Image Operation Principle

- If the camera image calibration is incomplete, the applicable camera position is indicated as an error on the Birds-Eye view display. (Calibration operation is necessary when replacing each camera or when replacing around view monitor control unit.)
- Around view monitor control unit receives the camera switch signal via CAN communication from AV control unit by pressing the “CAMERA” switch.
- Around view monitor control unit that receives the camera switch signal supplies the power to each camera and inputs the camera image from each camera.
- When the selector lever is in the reverse position, around view monitor control unit receives the reverse signal, supplies the power to each camera, and inputs the camera image from each camera.
- Around view monitor control unit that receives the camera image signal from each camera cuts out the required screen for each view, superimposes the camera image, vehicle icon, guiding lines, and outputs them to the AV control unit.

Precautions for Vehicle Width Guide Line and Predictive Course Line Display on The Rear View Monitor Display

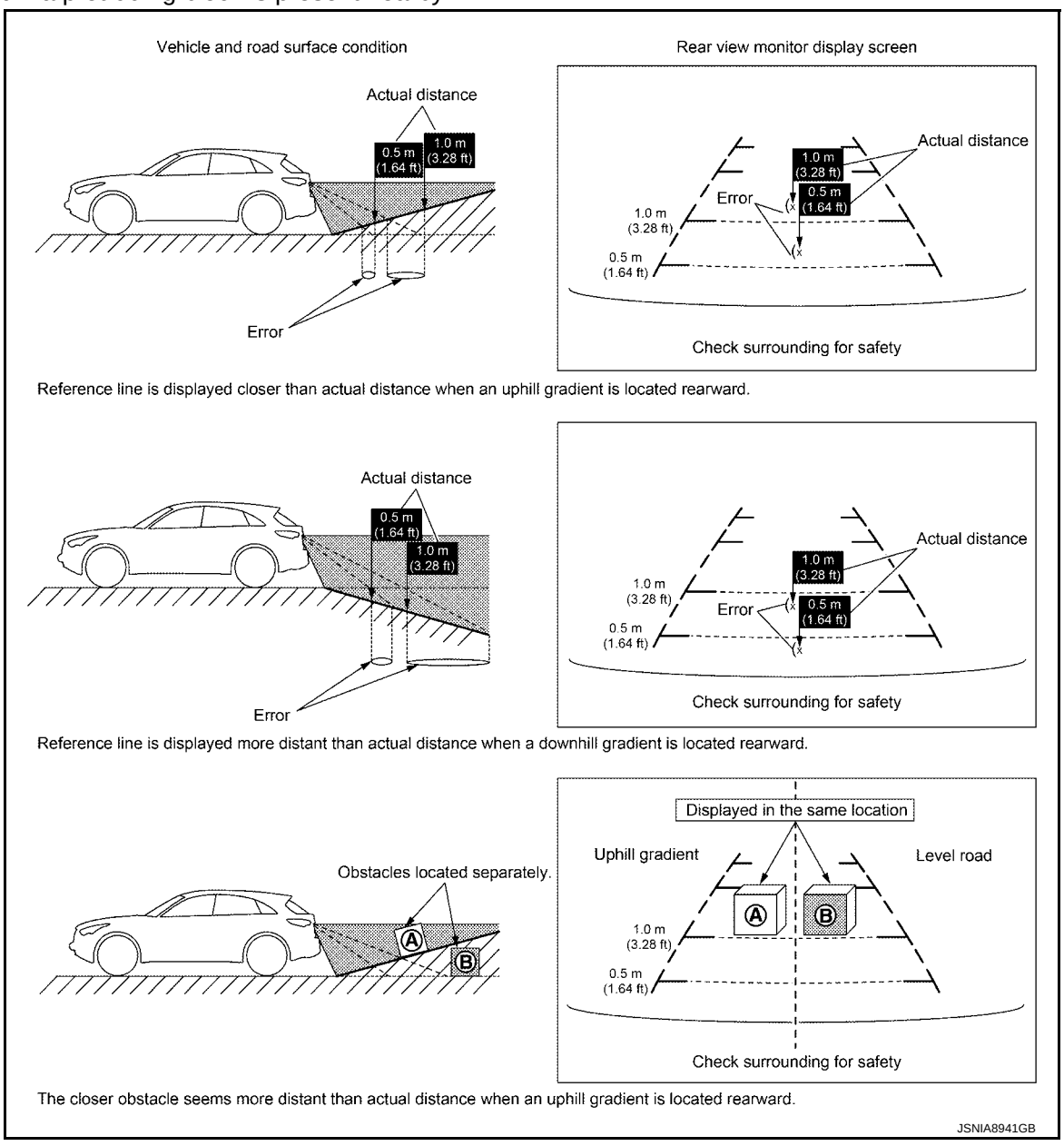
Side distance guide lines and predictive course line on the display may be different from actual lines depending on vehicle conditions and road conditions.

PRECAUTIONS FOR ROAD CONDITIONS



cardiagn.com

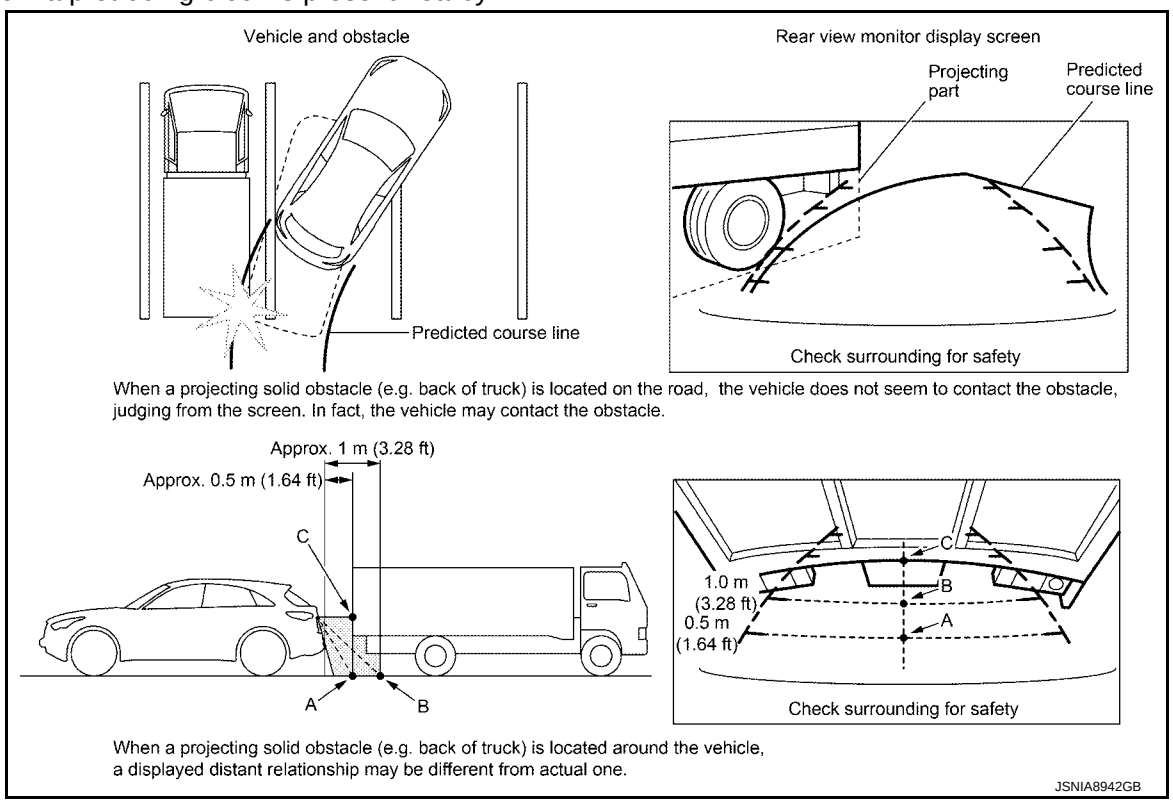
- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




PRECAUTIONS FOR BLOCK

cardiagn.com

- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.




## VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy, maintenance and navigation are displayed.
- AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM and combination meter.

### Vehicle Setting Function

The AV control unit transmits and receives data signals via CAN communication with the BCM, allowing the following vehicle settings.

- To turn on the automatic interior room lamp (ON/OFF) when the door is unlocked
- To adjust the auto light sensitivity (+/−)
- To operate the intermittent wiper linked with the vehicle speed (ON/OFF)
- Vehicle setting initialization

**NOTE:**
The setting items vary depending on the vehicle specification

## AUTO LIGHT ADJUSTMENT SYSTEM

When the light switch is in the 1st or 2nd position, the dimming of the display is judged according to a dimming signal transmitted from BCM to the AV control unit. Display illuminance is independent of vehicle exterior illuminance detected by the auto light detecting sensor even when the light switch is in 1st or 2nd position.

# MULTI AV SYSTEM : Map Data Update

INFOID:0000000012407414

To update map data, use an DVD-ROM including new map data.

# MULTI AV SYSTEM : Fail-Safe

INFOID:0000000012407415

When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

## FAIL-SAFE CONDITIONS

When the ambiance temperature is −20°C (−4°F) or lower, or when it is 70°C (158°F) or higher

### Display

The messages displayed on fail-safe conditions are as shown below:



cardiagn.com

| Fail-safe mode | Display (display of the fail-safe condition) |
|---|---|
| When HDD temperature is low | HDD system is experiencing problems due to extreme low temperature.<br>Normal operation will resume when temperature rises. |
| When HDD temperature is high | HDD system is experiencing problems due to extreme high temperature.<br>Normal operation will resume when temperature drops. |

## DESCRIPTION OF CONTROLS

| Function | | When Fail-safe Function is activated |
|---|---|---|
| Air conditioner | Operation | Only multifunction switch (preset switch) can be operated. |
| | Display | • LED of multifunction switch (preset switch) illuminates.<br>• Aimed temperature, blow angle, and flow rate are displayed in simplified mode. |
| Audio | Operation | Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible. |
| | Display | No display (“Fail-safe mode” is displayed) |
| Camera | Operation | Image tone cannot be controlled. |
| | Display | Cannot be superimposed. (warning display, tone control display) |
| Hands-free phone | Operation | Cannot be operated. |
| Navigation | Operation | Cannot be operated. |
| Self diagnosis | | The display in simplified mode of fail-safe condition |
| CONSULT diagnosis | | Cannot be operated. |

Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.
If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

## RELEASE CONDITIONS OF FAIL-SAFE

Fail-safe is released on following conditions and normal mode is restored.

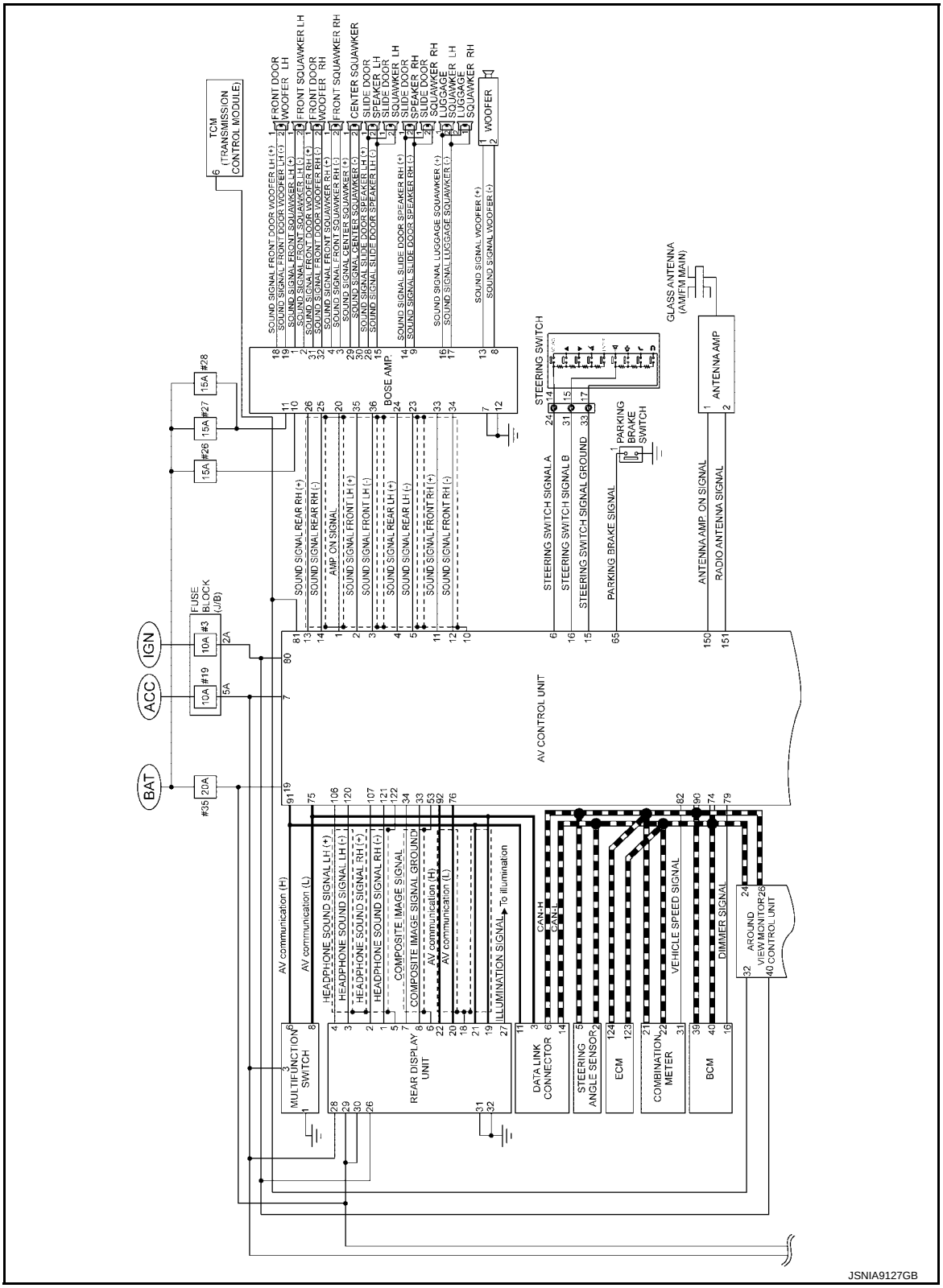
When The Temperature of HDD Is Low or High

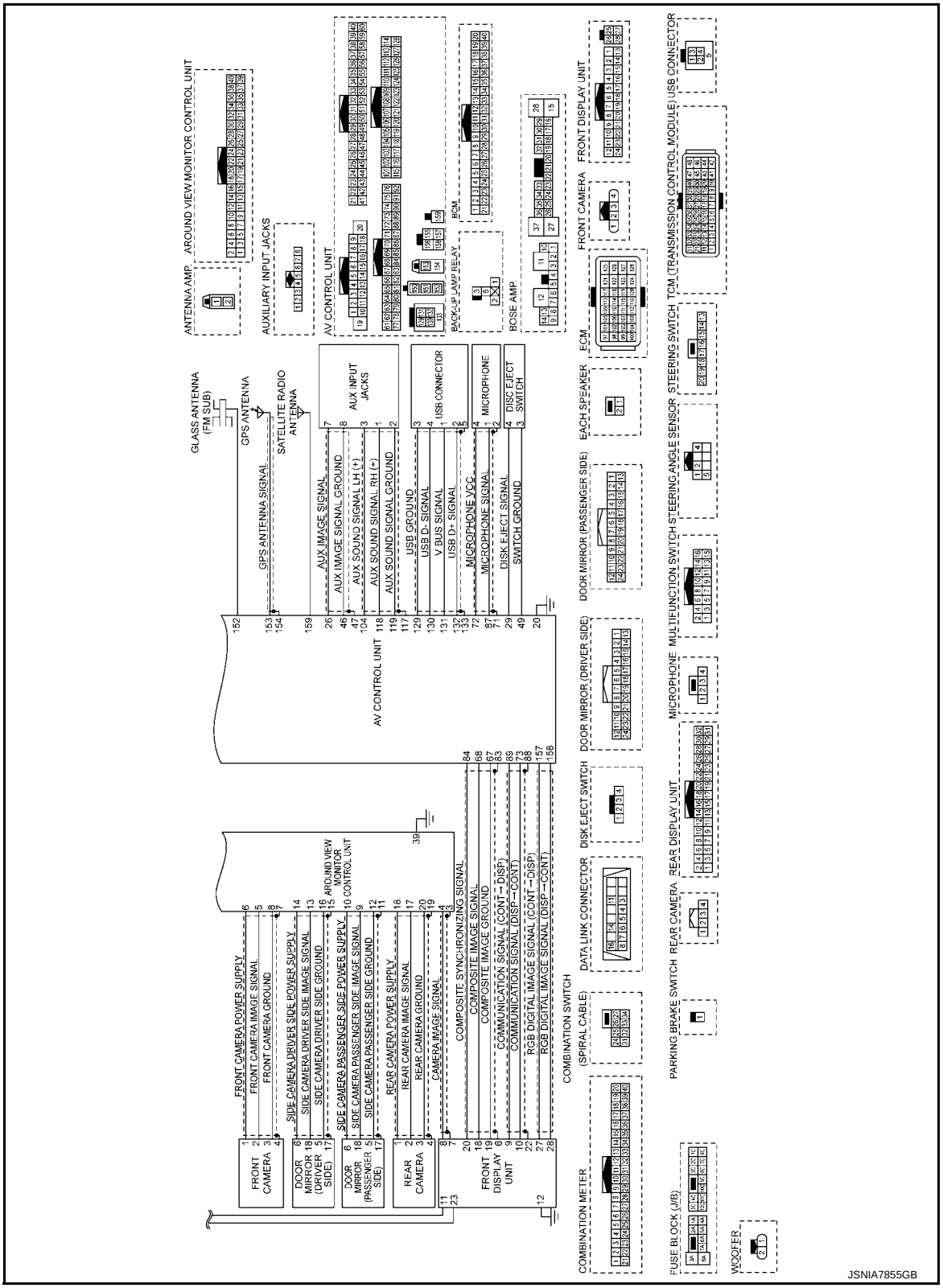
If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

cardiagn.com

# MULTI AV SYSTEM : Circuit Diagram

INFOID:0000000012407416






cardiagn.com

# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

## Description

INFOID:0000000012407417

- The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit performs a diagnosis for each unit in the system during the on board diagnosis.
- Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display anything, the multifunction switch does not function, etc.

## On Board Diagnosis Function

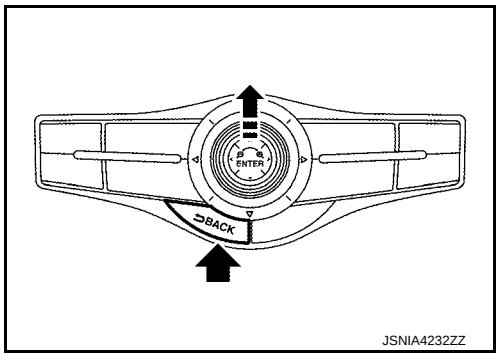
INFOID:0000000012407418

### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the “BACK” switch and the “UP” switch of the 8-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
  **NOTE:**
  The disk eject switch cannot be checked.



JSNIA4232ZZ

Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- The self-diagnosis mode performs diagnoses on the AV control unit, connections between system components as well as connections between AV control unit and GPS antenna. Then it displays the diagnosis results on the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

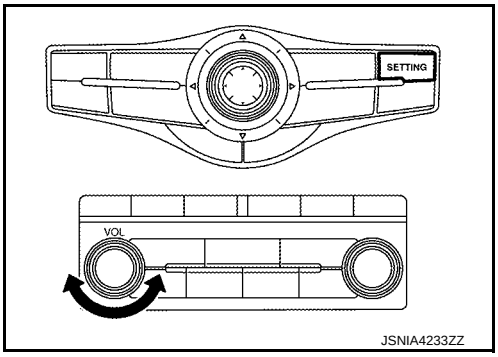
| Mode | Description |
|---|---|
| Self Diagnosis | • AV control unit diagnosis.<br>• Diagnoses the connections across system components, between AV control unit and GPS antenna. |

cardiagn.com

| Mode | | | Description |
|---|---|---|---|
| Confirmation/ Adjustment | Display Diagnosis | | The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display and touch panel calibration response check. |
| | Vehicle Signals | | Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse. |
| | Speaker Test | | The connection of a speaker can be confirmed by test tone. |
| | Navigation | Steering Angle Adjustment | When there is a difference between the actual turning angle and the vehicle mark turning angle, it can be adjusted. |
| | | Speed Calibration | When there is a difference between the current location mark and the actual location, it can be adjusted. |
| | | XM SAT Subscription Status | The XM NavTraffic subscription status can be checked. |
| | Error History | | The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed. |
| | Synchronizer FES Clock | | – |
| | Vehicle CAN Diagnosis | | The transmitting/receiving of CAN communication can be monitored. |
| | AV COMM Diagnosis | | The communication condition of each unit of Multi AV system can be monitored. |
| | Handsfree Phone | | The received volume adjustment of hands-free phone, microphone speaker check, and erase memory can be performed. |
| | XM | XM NaviTrffic | Change Channel<br>• Any necessary channels required to receive traffic information from the satellite radio system can be set.<br>Change Application ID<br>• Any application ID'-s required to receive traffic information from the satellite radio system can be set. |
| | | XM NavWeather | |
| | | XM CGS | |
| | | Diag | |
| | Delete Unit Connection Log | | Erase the connection history of unit and error history. |
| | Initialize Settings | | Initializes the AV control unit memory. |
| | Version Information | | Version information of the AV control unit is displayed. |

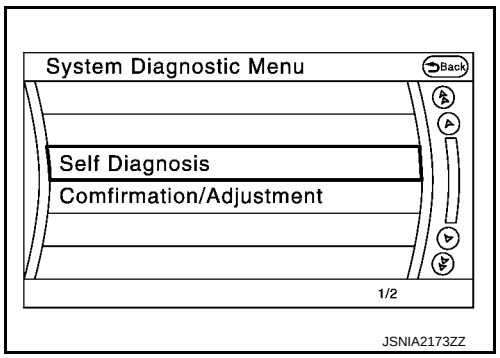
## STARTING PROCEDURE

1. Start the engine.
2. Turn the audio system OFF.
3. While pressing the “SETTING” button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, the trouble diagnosis initial screen is displayed.)
   • Shifting from current screen to previous screen is performed by pressing “BACK” button.




cardiagn.com

4. Items of “Self Diagnosis” and “Confirmation/Adjustment” can be selected on the trouble diagnosis initial screen.



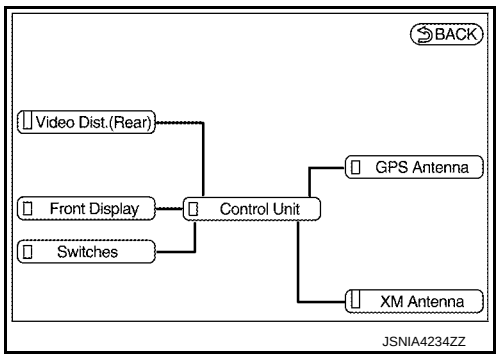

## SELF-DIAGNOSIS MODE

1. Start the self-diagnosis function and select “Self Diagnosis”.

- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

| Diagnosis results | Unit | Connection line |
|---|---|---|
| Normal | Green | Green |
| Connection malfunction | Gray | Yellow |
| Unit malfunction Note | Red | Green |

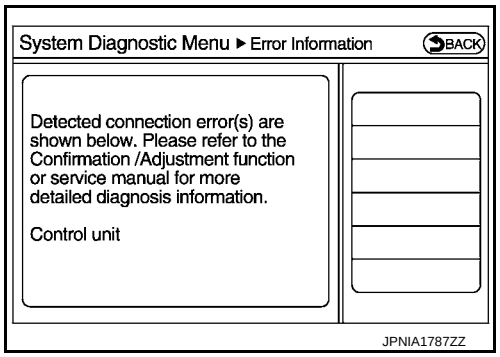



**NOTE:**

Control unit (AV control unit) is displayed in red.

- Replace AV control unit if “Self-Diagnosis did not run because of a control unit malfunction” is indicated. The symptom is AV control unit internal error. Refer to AV-610, "Removal and Installation".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.

- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.




Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

## SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.



cardiagn.com

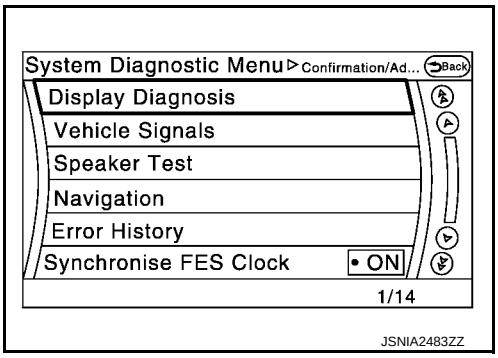
| Screen switch | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control Unit | Malfunction is detected in AV control unit power supply and ground circuits. | Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit.<br>Refer to AV-610, "Removal and Installation". |

A Connecting Cable Between Units Is Displayed In Yellow.

| Area with yellow connection lines | Description | Possible malfunction location / Action to take |
|---|---|---|
| Control unit ⇔ Front Display | Serial communication circuits between AV control unit and front display unit are malfunctioning. | Serial communication circuits between AV control unit and front display unit. |
| Control unit ⇔ GPS Antenna | GPS antenna connection malfunctions detected. | GPS antenna |
| Control unit ⇔ XM Antenna | Satellite radio antenna connection malfunction is detected. | Satellite radio antenna disconnection |
| Control unit ⇔ Video Dist.(Rear) | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-581, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |

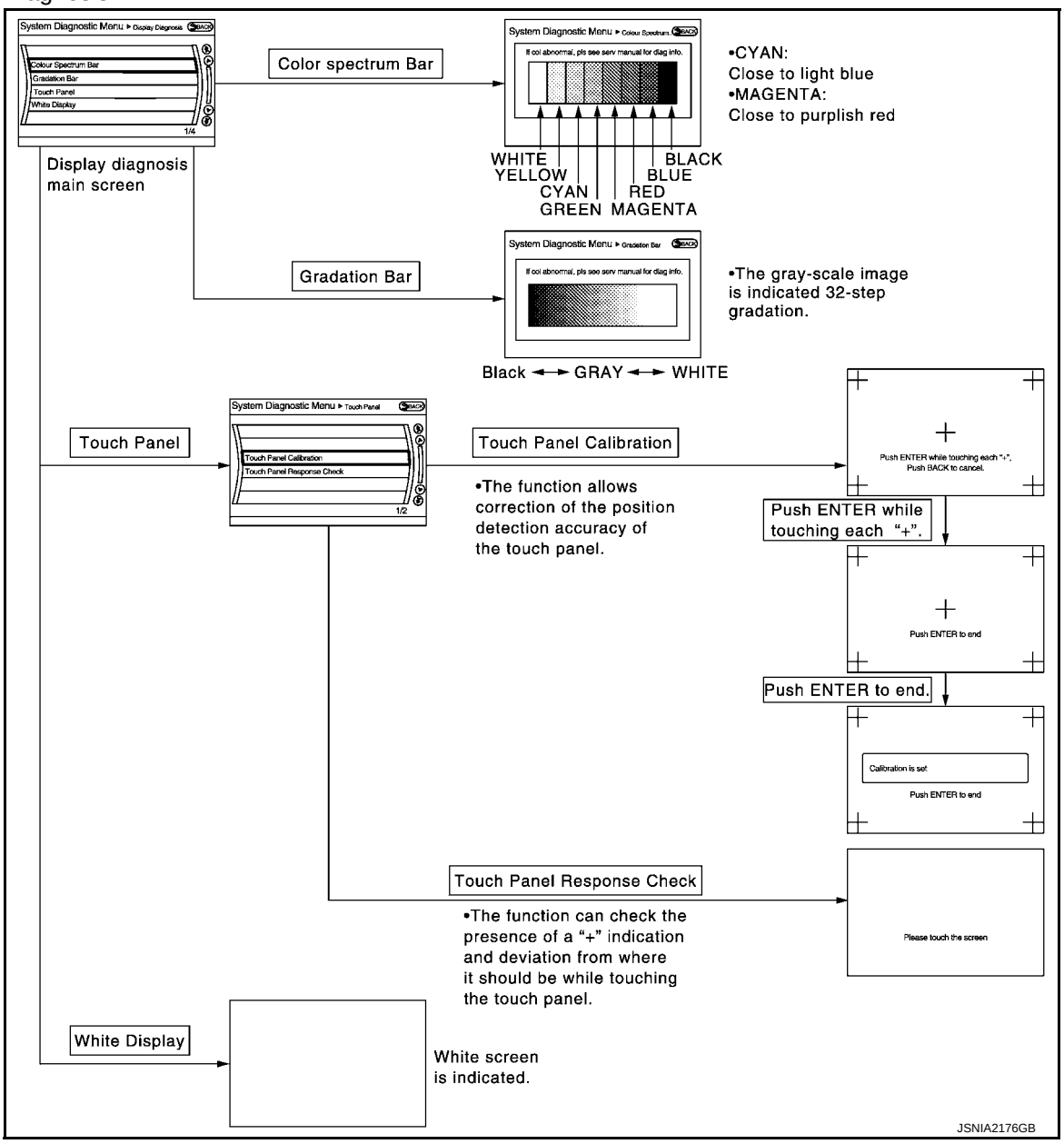
## CONFIRMATION/ADJUSTMENT MODE

1. Start the diagnosis function and select “Confirmation/Adjustment”. The confirmation/adjustment mode indicates where each item can be checked or adjusted.
2. Select each switch on the “Confirmation/Adjustment Mode” screen to display the relevant trouble diagnosis screen. Press the “Back” switch to return to the initial Confirmation/Adjustment Mode screen.



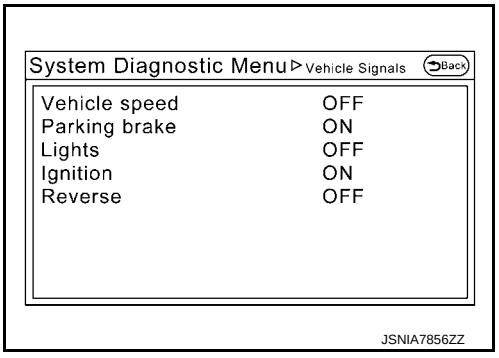

cardiagn.com

Display Diagnosis




Vehicle Signals

A comparison check can be made of each actual vehicle signal and the signals recognized by the system.

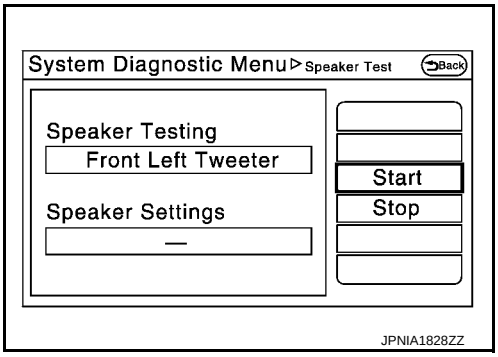



cardiagn.com

| Diagnosis item | Display | Vehicle status | Remarks |
|---|---|---|---|
| Vehicle speed | ON | Vehicle speed >= 8 km/h (5 MPH) | Changes in indication may be delayed. This is normal. |
| | OFF | Vehicle speed < 8 km/h (5 MPH) | |
| Parking brake | ON | Parking brake is applied. | |
| | OFF | Parking brake is released. | |
| Lights | ON | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | — |
| | OFF | Either of the following conditions.<br>• Lighting switch is OFF<br>• Expose the auto light optical sensor to light when the lighting switch is 1st or 2nd. | |
| Ignition | ON | Ignition switch is ON. | — |
| | OFF | Ignition switch is in ACC position. | |
| Reverse | ON | Selector lever is in “R” position. | Changes in indication may be delayed. This is normal. |
| | OFF | Selector lever is in other than “R” position. | |

Speaker Test

Select “SPEAKER DIAGNOSIS” to display the Speaker Diagnosis screen. Press “Start” to generate a test tone in a speaker. Press “Start” to generate a test tone in the next speaker. Press “Stop” to stop the test tones.



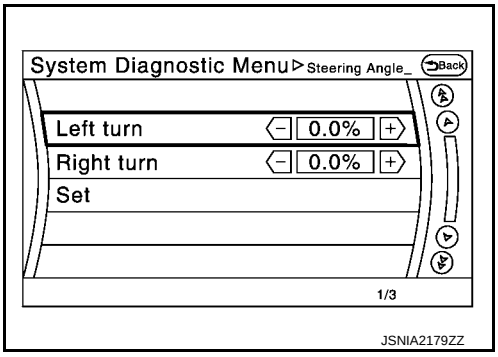

Climate Control

Refer to “HEATER & AIR CONDITIONING CONTROL SYSTEM” for details.

Navigation

STEERING ANGLE ADJUSTMENT

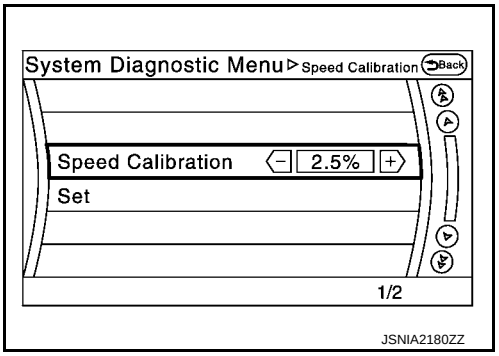
The steering angle output value detected with the gyroscope is adjusted.




SPEED CALIBRATION

cardiagn.com

During normal driving, distance error caused by tire wear and tire pressure change is automatically adjusted for by the automatic distance correction function. This function, on the other hand, is for immediate adjustment, in cases such as driving with tire chain fitted on tires.




Error History

The self-diagnosis results are judged depending on whether any error occurs from when “Self-diagnosis” is selected until the self-diagnosis results are displayed.

However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self-diagnosis start. Check the “Error Record” to detect any error that may have occurred before the self-diagnosis start because of this situation.

The error record displays the time and place of the most recent occurrence of that error. However, take note of the following points.

- If there is a malfunction with the GPS antenna circuit board in the AV control unit, the correct date and time of occurrence may not be able to be displayed.
- Place of the error occurrence is represented by the position of the current location mark at the time an error occurred. If current location mark has deviated from the correct position, then the place of the error occurrence cannot be located correctly.
- The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

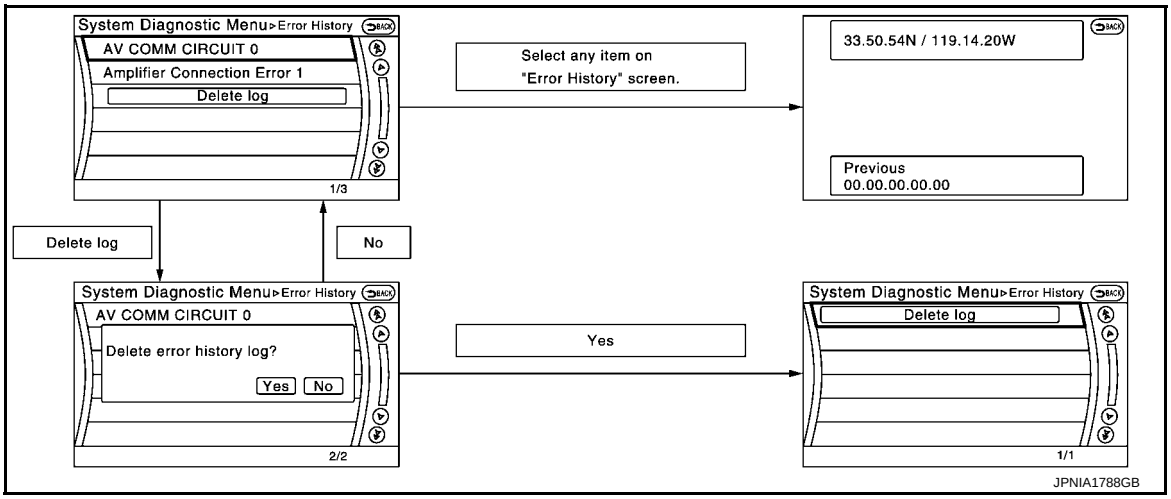
Count up method A

- The counter resets to 0 if an error occurs when ignition switch is turned ON. The counter increases by 1 if the condition is normal at a next ignition ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored.“ The counter can be reset (no error record display) with the “Delete log” switch or CONSULT.

Count up method B

- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. “ The counter can be reset (no error record display) with the “Delete log” switch or CONSULT.

| Display type of occurrence frequency | Error history display item |
|---|---|
| Count up method A | CAN communication line, control unit (CAN), AV communication line, control unit (AV) |
| Count up method B | Other than the above |




Error item



cardiagn.com

Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

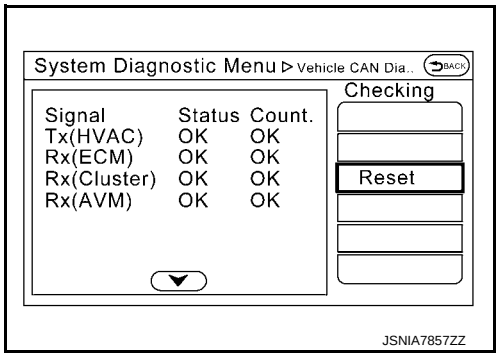
| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CAN COMM CIRCUIT | CAN communication malfunction is detected. | Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results.<br>Refer to AV-469, "CONSULT Function". |
| CONTROL UNIT (CAN) | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| CONTROL UNIT (AV) | AV communication circuit initial diagnosis malfunction is detected. | |
| FLASH-ROM Error Of Control Unit | AV control unit malfunction is detected. | |
| Connection Of Gyro | | |
| Connection of G Sensor | | |
| CAN Controller Memory Error | | |
| Bluetooth Module Connection Error | | |
| Sub CPU Connection Error | | |
| iPod authentification chip error | | |
| Audio connection error | | |
| DSP Connection Error | AV control unit malfunction is detected. | • If a disc can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| DSP Communication Error | | |
| HDD Connection Error | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| HDD Read Error | | |
| HDD Write Error | | |
| HDD Communication Error | | |
| HDD Access Error | | |
| GPS Communication Error | GPS malfunction is detected. | • An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.<br>• Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| GPS ROM Error | | |
| GPS RAM Error | | |
| GPS RTC Error | | |
| Unfinished configuration | The writing of configuration data is incomplete. | Write configuration data with CONSULT. |
| USB Controller Communication Error | USB connection malfunction is detected. | Check that the connection to the USB connector is normal. |
| DVD Mechanism Communication Error | AV control unit malfunction is detected. | • If DVD can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| Steer. Angle Sensor Calibration | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust the neutral position of the steering angle sensor.<br>Refer to BRC-50, "Description". |

cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| Front Display Connection Error | When either one of the following items are detected:<br>• front display unit power supply and ground circuits are malfunctioning.<br>• serial communication circuits between AV control unit and front display unit are malfunctioning. | • Front display unit power supply and ground circuits.<br>Refer to AV-580, "FRONT DISPLAY UNIT : Diagnosis Procedure".<br>• Serial communication circuits between AV control unit and front display unit. |
| AM/FM antenna amplifier short to ground | Radio antenna amp. ON signal circuit malfunction is detected. | Radio antenna amp. ON signal circuit between AV control unit and antenna amp. |
| AM/FM antenna amplifier open | | |
| Ext_Amp_ON output terminal short to ground | BOSE amp. ON signal circuit malfunction is detected. | BOSE amp. ON signal circuit between AV control unit and BOSE amp. |
| Ext_Amp_ON output terminal :open | | |
| GPS Antenna Error | GPS antenna connection malfunction is detected. | Check the connection of the GPS antenna connector. |
| USB electric current Error | Detection of overcurrent in USB connector. | Check USB harness between the AV control unit and USB connector. |
| XM Antenna Connection Error | Satellite radio antenna connection malfunction is detected. | Satellite radio antenna disconnection. |
| • AV COMM CIRCUIT<br>• Switches Connection Error | When either one of the following items are detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch were malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| • AV COMM CIRCUIT<br>• 2nd Display Connection Error | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-581, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |
| • AV COMM CIRCUIT<br>• Switches Connection Error<br>• 2nd Display Connection Error | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

Vehicle CAN Diagnosis

- CAN communication status and error counter is displayed.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.




| Items | Display (Current) | Malfunction counter (Past) |
|---|---|---|
| BUS OFF | OK / ??? | OK / 0 – 39 |
| Tx(HVAC) | OK / ??? | OK / 0 – 39 |
| Rx(ECM) | OK / ??? | OK / 0 – 39 |
| Rx(Cluster) | OK / ??? | OK / 0 – 39 |
| Rx(HVAC) | OK / ??? | OK / 0 – 39 |
| Rx(AVM) | OK / ??? | OK / 0 – 39 |

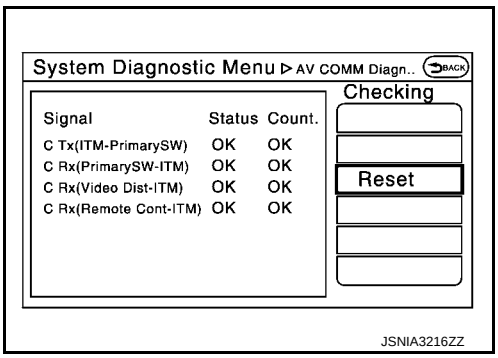
**NOTE:**
“???” indicates UNKWN.

AV COMM Diagnosis



cardiagn.com

- Displays the communication status between AV control unit (master unit) and each unit.
- The error counter displays “OK” if any malfunction was not detected in the past and displays “0” if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if “Reset” is pressed.

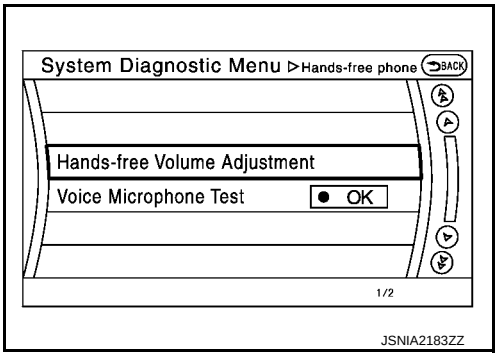



| Items | Status (Current) | Counter (Past) |
|---|---|---|
| C Tx(ITM–PrimarySW) | OK / ??? | OK / 0 – 39 |
| C Rx(PrimarySW–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(Video Dist–ITM) | OK / ??? | OK / 0 – 39 |
| C Rx(Remote Cont–ITM) | OK / ??? | OK / 0 – 39 |

**NOTE:**
“???” indicates UNKWN

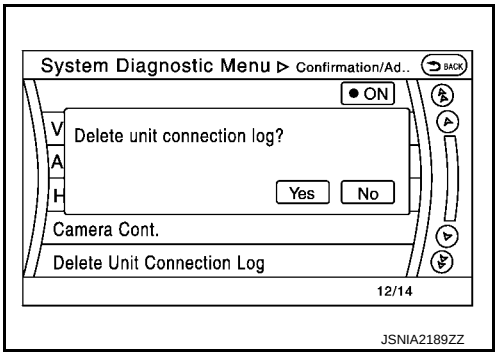
Hands-Free Phone

The hands-free phone reception volume adjustment and microphone and speaker test functions are also available.




Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed.)



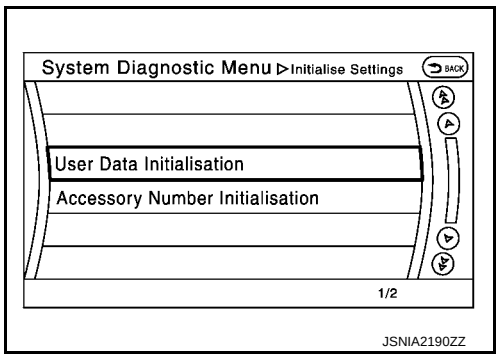

Initialize Settings

cardiagn.com

"User Data Initialization" and "Accessory Number Initialization" are possible.

**CAUTION:**

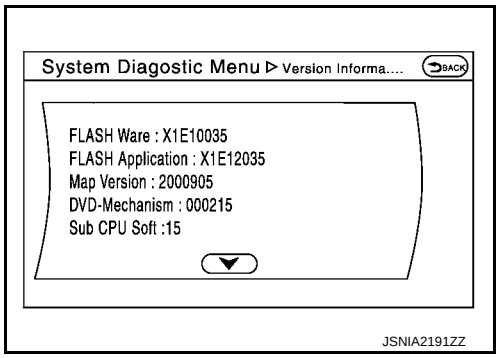
- **Never perform Accessory Number Initialization except when configuration is unsuccessful.**
- **Accessory Number Initialization requires configuration. For details, refer to AV-524, "CONFIGURATION (AV CONTROL UNIT) : Description".**



JSNIA2190ZZ

Version Information

Version information of the AV control unit is displayed.



JSNIA2191ZZ

## CONSULT Function

INFOID:0000000012407419

### CONSULT FUNCTIONS

CONSULT performs the following functions via the communication with the AV control unit.

| Diagnosis mode | Description |
|---|---|
| Ecu Identification | The part number of AV control unit can be checked. |
| Self Diagnostic Result | Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively. |
| Data Monitor | The diagnosis of vehicle signal that is input to the AV control unit can be performed. |
| Work Support | Steering angle sensor can be adjusted. |
| Configuration | • Read and save the vehicle specification.<br>• Write the vehicle specification when replacing AV control unit. |

AV Communication

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

| | | |
|---|---|---|
| AV communication | AV&NAVI C/U | Displays the communication status from AV control unit to each unit as well as the error counter. |
| | AUDIO | Displays the AV control unit communication status and the error counter. |

### ECU IDENTIFICATION

The part number of AV control unit is displayed.

### SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| CAN COMM CIRCUIT [U1000] | CAN communication malfunction is detected. | Refer to AV-535, "AV CONTROL UNIT : Diagnosis Procedure". |
| CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| CONTROL UNIT (AV) [U1310] | AV communication circuit initial diagnosis malfunction is detected. | |
| Cont Unit [U1200] | AV control unit malfunction is detected. | |
| GYRO NO CONN [U1201] | | |
| G-SENSOR NO CONN [U1202] | | |
| CAN CONT [U1216] | | |
| BLUETOOTH MODULE [U1217] | | |
| SUB CPU CONN [U1228] | | |
| iPod CERTIFICATION [U1229] | | |
| Built-in AUDIO CONN [U122E] | | |
| HDD CONN [U1218] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| HDD READ [U1219] | | |
| HDD WRITE [U121A] | | |
| HDD COMM [U121B] | | |
| HDD ACCESS [U121C] | | |
| GPS COMM [U1204] | GPS malfunction is detected. | • An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.<br>• Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| GPS ROM [U1205] | | |
| GPS RAM [U1206] | | |
| GPS RTC [U1207] | | |
| USB CONTROLLER [U1225] | USB connection malfunction is detected. | Check that the connection to the USB connector is normal. |
| DSP CONN [U121D] | AV control unit malfunction is detected. | • If a disc can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| DSP COMM [U121E] | | |
| DVD COMM [U1227] | AV control unit malfunction is detected. | • If DVD can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |
| CONFIG UNFINISH [U122A] | The writing of configuration data is incomplete. | Write configuration data with CONSULT. |
| ST ANGLE SEN CALIB [U1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust the neutral position of the steering angle sensor.<br>Refer to AV-568, "AV CONTROL UNIT : Diagnosis Procedure". |

cardiagn.com

| Error item | Description | Possible malfunction factor/Action to take |
|---|---|---|
| FRONT DISP CONN [U1243] | When either one of the following items are detected:<br>• front display unit power supply and ground circuits are malfunctioning.<br>• serial communication circuits between AV control unit and front display unit are malfunctioning. | • Front display unit power supply and ground circuits.<br>Refer to AV-580, "FRONT DISPLAY UNIT : Diagnosis Procedure".<br>• Serial communication circuits between AV control unit and front display unit. |
| GPS ANTENNA CONN [U1244] | GPS antenna connection malfunction is detected. | Check the connection of the GPS antenna connector. |
| XM ANTENNA CONN [U1258] | Satellite radio antenna connection malfunction is detected. | Satellite radio antenna disconnection. |
| USB OVERCURRENT [U1263] | Detection of overcurrent in USB connecter. | Check USB harness between the AV control unit and USB connector. |
| ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264] | Radio antenna amp. ON signal circuit malfunction is detected. | Radio antenna amp. ON signal circuit between AV control unit and antenna amp. |
| AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265] | BOSE amp. ON signal circuit malfunction is detected. | BOSE amp. ON signal circuit between AV control unit and BOSE amp. |
| • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | When either one of the following items are detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | When either one of the following items are detected:<br>• Rear display unit power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and rear display unit are malfunctioning. | • Rear display unit power supply and ground circuits.<br>Refer to AV-581, "REAR DISPLAY UNIT : Diagnosis Procedure".<br>• AV communication circuits between AV control unit and rear display unit. |
| • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246] | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

## DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

ALL SIGNALS

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

| Display Item | Display | Vehicle status | Remarks |
|---|---|---|---|
| VHCL SPD SIG | On | Vehicle speed >= 8 km/h (5 MPH) | Changes in indication may be delayed. This is normal. |
| | Off | Vehicle speed < 8 km/h (5 MPH) | |
| PKB SIG | On | Parking brake is applied. | |
| | Off | Parking brake is released. | |

cardiagn.com

| Display Item | Display | Vehicle status | Remarks |
|---|---|---|---|
| ILLUM SIG | On | Block the light from the auto light optical sensor when the lighting switch is 1st or 2nd. | — |
| | Off | Either of the following conditions.<br>• Lighting switch is OFF<br>• Expose the auto light optical sensor to light when the lighting switch is 1st or 2nd. | |
| IGN SIG | On | Ignition switch is ON | |
| | Off | Ignition switch is in ACC position | |
| REV SIG | On | Selector lever is in R position | Changes in indication may be delayed. This is normal. |
| | Off | Selector lever is in any position other than R | |
| SIDE VIEW SW | Off | — | This item is displayed, but cannot be monitored. |
| ROOM LAMP | Off | — | This item is displayed, but cannot be monitored. |

SELECTION FROM MENU

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

| Item to be selected | Description |
|---|---|
| VHCL SPD SIG | The same as when “ALL SIGNALS” is selected. |
| PKB SIG | |
| ILLUM SIG | |
| IGN SIG | |
| REV SIG | |
| SIDE VIEW SW | |
| ROOM LAMP | |

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

**CAUTION:**

**For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.**

| Item | Description |
|---|---|
| ST ANGLE SENSOR ADJUSTMENT | Adjusts the neutral position of the steering angle sensor. |

CONFIGURATION

Configuration includes functions as follows.

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the AV control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the AV control unit by hand. |

cardiagn.com

# DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

## CONSULT Function

INFOID:0000000012407420

### APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes shown as follows:

| Test mode | Function |
|---|---|
| Ecu Identification | Around view monitor control unit part number can be read. |
| Self Diagnostic Result | Around view monitor control unit checks the conditions and displays memorized error. |
| Data Monitor | Around view monitor control unit input/output data in real time. |
| Work support | Changes setting of each function. |
| Configuration | • The vehicle specification that is written in around view monitor control unit can be displayed or stored.<br>• The vehicle specification can be written when around view monitor control unit is replaced. |

### ECU IDENTIFICATION

Displays the part number of around view monitor control unit.

### SELF-DIAGNOSTIC RESULTS

For details, refer to AV-491, "DTC Index".

### DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor Item | Display | Description |
|---|---|---|
| ST ANGLE SENSOR SIGNAL | ON/OFF | Input status of steering angle sensor signal is displayed by ON/OFF. |
| REVERSE SIGNAL | ON/OFF | Input status of reverse signal is displayed by ON/OFF in real time. |
| VEHICLE SPEED SIGNAL | ON/OFF | Input status of vehicle speed signal is displayed by ON/OFF. |
| CAMERA SWITCH SIGNAL | ON/OFF | Input status of camera switch signal is displayed by ON/OFF. |
| CAMERA OFF SIGNAL | ON/OFF | Input status of camera OFF signal is displayed by ON/OFF. |
| ST ANGLE SENSOR TYPE | Absolute | Type of steering angle sensor is displayed. (“Absolute” is displayed on this vehicle.) |
| STEERING GEAR RATIO TYPE | Type 0 | Type of steering gear ratio is displayed. (“Type 0” is displayed on this vehicle.) |
| STEERING POSITION | LHD/RHD | Steering position is displayed. |
| REAR CAMERA IMAGE SIGNAL | OK/NG | Input status of rear camera image signal is displayed by OK/NG in real time. |
| F-CAMERA IMAGE SIGNAL | OK/NG | Input status of front camera image signal is displayed by OK/NG in real time. |
| PA-SIDE CAMERA IMAGE SIG | OK/NG | Input status of side camera RH image signal is displayed by OK/NG in real time. |
| DR-SIDE CAMERA IMAGE SIG | OK/NG | Input status of side camera LH image signal is displayed by OK/NG in real time. |

### WORK SUPPORT

| Work support item | Function |
|---|---|
| CALIBRATING CAMERA IMAGE (FRONT CAMERA) | Performs the calibration of front camera. |
| CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA) | Performs the calibration of side camera RH. |
| CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA) | Performs the calibration of side camera LH. |

cardiagn.com

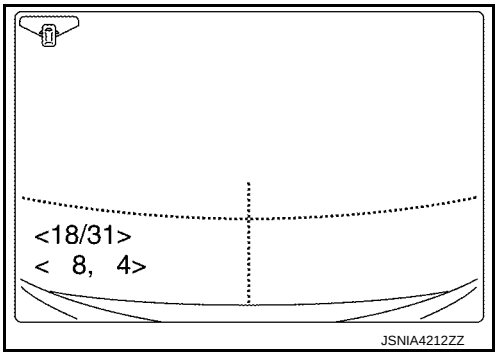
| Work support item | Function |
|---|---|
| CALIBRATING CAMERA IMAGE (REAR CAMERA) | Performs the calibration of rear camera. |
| INITIALIZE CAMERA IMAGE CALIBRATION | The calibration can be initialized to NISSAN factory shipment condition. |
| FINE TUNING OF BIRDS-EYE VIEW | The confirmation and adjustment of the difference between each camera can be performed. |
| SELECT LANGUAGE OF WARNING MESSAGE | Language of warning message shown during camera image display can be selected. |
| PREDICTIVE COURSE LINE DISPLAY | ON/OFF setting of predictive course line can be performed. |
| STEERING ANGLE SENSOR ADJUSTMENT | Steering angle sensor neutral position can be adjusted and registered. |
| NON-VIEWABLE AREA REMINDER | ON/OFF setting of the non-viewable area reminder can be performed. |

Calibrating Camera Image (front camera, pass-side camera, dr-side camera, and rear camera)

Perform the calibration of camera image caused by the incorrect mounting position of each camera, etc. Always perform calibration after performing the following work.

- When each camera or each camera mount (e.g. front grille, door mirror, and others) is removed
- When replacing the around view monitor control unit

Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure" for the calibration procedure.




| | |
|---|---|
| Adjustment range | |
| Rotating direction | : 31 patterns (16 on the center) |
| Upper/lower direction | : (–22) – (+22) |
| Left/right direction | : (–22) – (+22) |

Initialize Camera Image Calibration

The calibration can be initialized to NISSAN factory shipment condition.

Select Language of Warning Message

No need to be selected because it can change the language on setting of Navi by customer.

Predictive Course Line Display

ON/OFF setting of predictive course line can be performed.

Steering Angle Sensor Adjustment

Steering angle sensor neutral position can be adjusted and registered.

**CAUTION:**

**For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.**

Non-Viewable Area Reminder

ON/OFF setting of the non-viewable area reminder can be performed.

## CONFIGURATION

Configuration includes functions as follows.

cardiagn.com

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in around view monitor control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the around view monitor control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the around view monitor control unit by hand. |



cardiagn.com

# ECU DIAGNOSIS INFORMATION

## AV CONTROL UNIT

### Reference Value

INFOID:0000000012407421

VALUES ON THE DIAGNOSIS TOOL

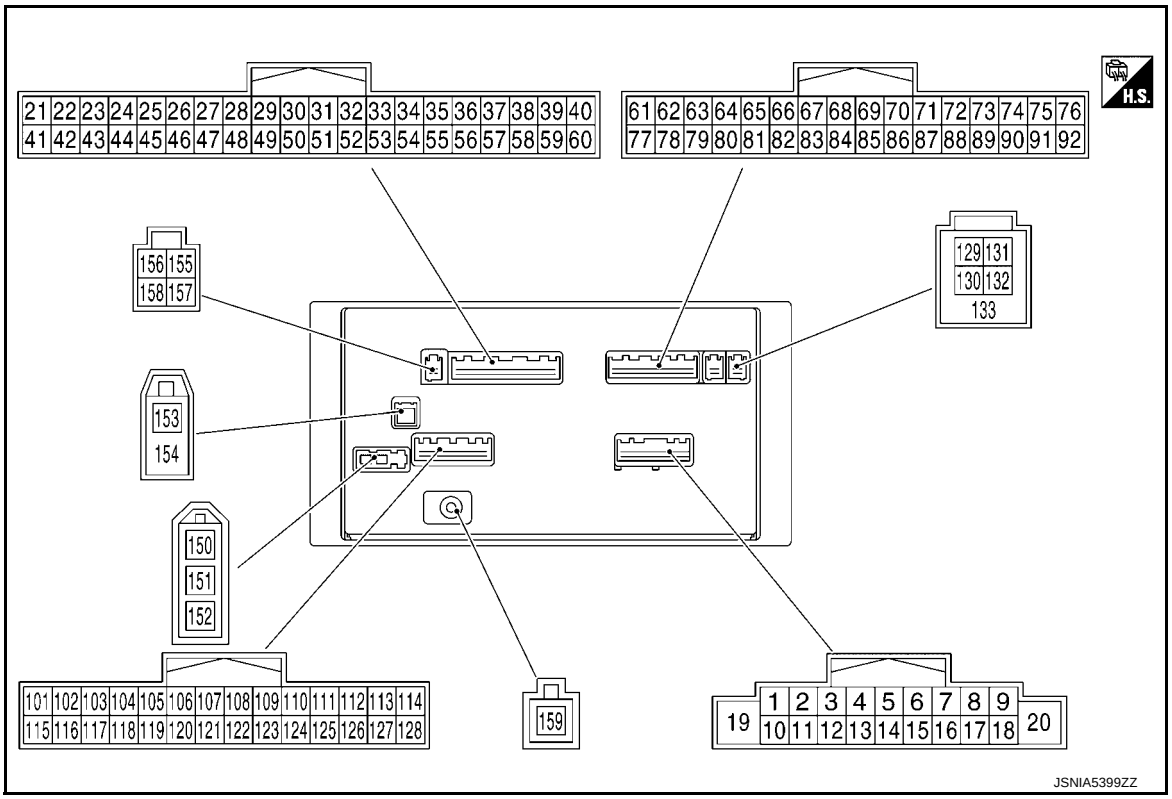
**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

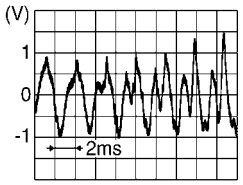
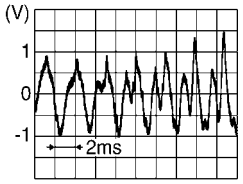
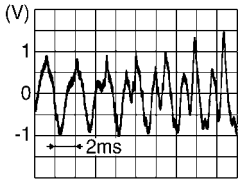
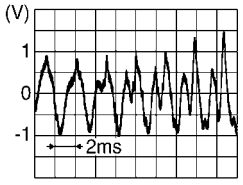
| Monitor Item | Condition | | Value/Status |
|---|---|---|---|
| VHCL SPD SIG | Ignition switch ON | Vehicle speed > 0 km/h (0 MPH) | On |
| | | Vehicle speed = 0 km/h (0 MPH) | Off |
| PKB SIG | Ignition switch ON | Parking brake is applied. | On |
| | | Parking brake is released. | Off |
| ILLUM SIG | Ignition switch ON | Lighting switch is ON | On |
| | | Lighting switch is OFF | Off |
| IGN SIG | Ignition switch ON | — | On |
| | Ignition switch ACC | — | Off |
| REV SIG | Ignition switch ON | Selector lever is in R position | On |
| | | Selector lever is in any position other than R | Off |
| SIDE VIEW SW | Ignition switch ON | This item is displayed, but cannot be monitored. | Off |
| ROOM LAMP | Ignition switch ON | This item is displayed, but cannot be monitored. | Off |

TERMINAL LAYOUT

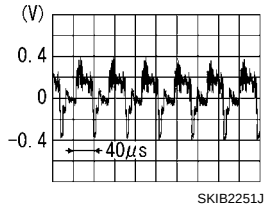
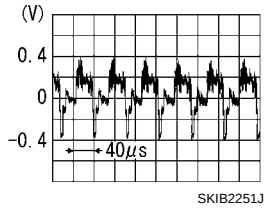
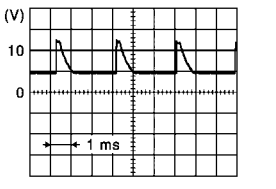
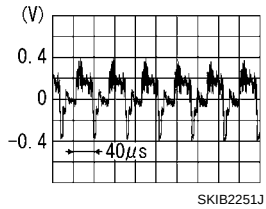



cardiagn.com

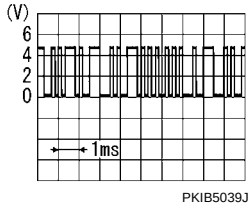
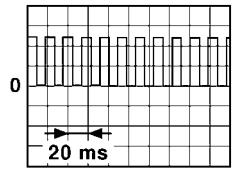
## PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 1 (LG) | 20 (B) | Amp. ON signal | Input | Ignition switch ON | — | 9.0 – 16.0 V | 12.0 V |
| 2 (R) | 3 (G) | Sound signal front LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |
| 4 (B) | 5 (W) | Sound signal rear LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |
| 6 (BE) | 15 (W) | Steering switch signal A | Input | Ignition switch ON | Keep pressing SOURCE switch. | 0 - 5.5 V | 0 V |
| | | | | | Keep pressing MENU UP switch. | | 1.0 V |
| | | | | | Keep pressing MENU DOWN switch. | | 2.0 V |
| | | | | | Keep pressing switch. | | 3.0 V |
| | | | | | Keep pressing ENTER switch. | | 4.0 V |
| | | | | | Except for above. | | 5.0 V |
| 7 (O) | 20 (B) | ACC power supply | Input | Ignition switch ACC | — | 7.0 – 16.0 V | Battery voltage |
| 10 (GR) | — | Shield | — | — | — | — | — |
| 11 (W) | 12 (B) | Sound signal front RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |
| 13 (BR) | 14 (Y) | Sound signal rear RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |

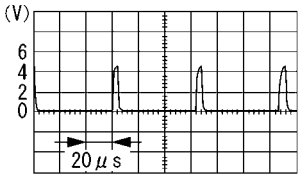
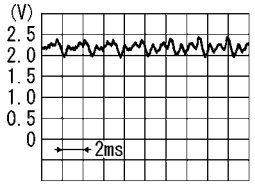
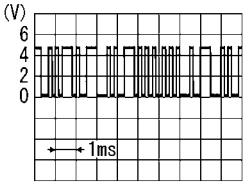
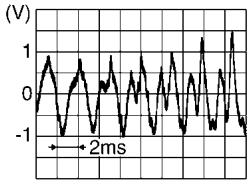
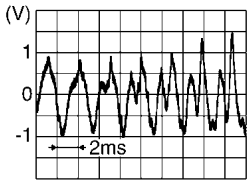
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 16 (P) | 15 (W) | Steering switch signal B | Input | Ignition switch ON | Keep pressing VOL DOWN switch. | 0 – 5.5 V | 0 V |
| | | | | | Keep pressing VOL UP switch. | | 1.0 V |
| | | | | | Keep pressing switch. | | 2.0 V |
| | | | | | Keep pressing switch. | | 3.0 V |
| | | | | | Except for above. | | 5.0 V |
| 19 (SB) | 20 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery voltage |
| 26 (BR) | 46 (Y) | AUX image signal | Input | Ignition switch ON | When AUX image is displayed on front or rear display unit. | Waveform according to AUX image is input. |   SKIB2251J |
| 29 (W) | 49 (R) | Disk eject signal | Input | Ignition switch ON | Keep pressing disk eject switch. | 1.5 V or less | 0 V |
| | | | | | Except for above. | 5.0 V or more | 5.0 V |
| 34 (W) | 33 (B) | Composite image signal (for rear display unit) | Input | Ignition switch ON | When DVD, USB or AUX image is displayed on rear display unit. | Waveform according to composite image is input. |   SKIB2251J |
| 47 | — | Shield | — | — | — | — | — |
| 53 | — | Shield | — | — | — | — | — |
| 65 (R) | 20 (B) | Parking brake signal | Input | Ignition switch ON | Parking brake is applied. | 1.5 V or less | 0 V |
| | | | | | Parking brake is released. | 3.5 V or more |   JSNIA1938ZZ |
| 68 (R) | 67 (W) | Composite image signal (for front display unit) | Output | Ignition switch ON | When DVD, USB or AUX image is displayed on front display unit. | Waveform according to composite image is input. |   SKIB2251J |
| 71 | — | Shield | — | — | — | — | — |

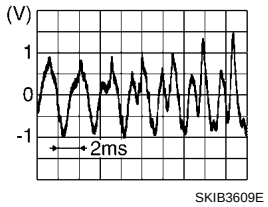
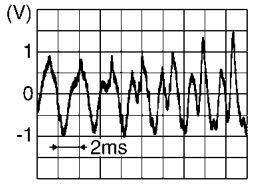
cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 72 (W) | 20 (B) | Microphone VCC | Output | Ignition switch ON | — | 4.18 – 5.3 V | 5.0 V |
| 73 (B) | 20 (B) | Communication signal (CONT→DISP) | Output | Ignition switch ON | — | Waveform of 1.5 V or less – 3.5 V or more is Output. |  PKIB5039J |
| 74 (P) | — | CAN-L | — | — | — | — | — |
| 75 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 76 (LG) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 79 (BE) | 20 (B) | Dimmer signal | Input | Ignition switch ON | Either of the following conditions<br>• Lighting switch is OFF<br>• Lighting switch is 1st or 2nd, and the area around the vehicle is bright (shine a light on the optical sensor) | 3.0 V or less | 0 V |
| | | | | | Lighting switch is 1st or 2nd, and the area around the vehicle is dark (block the light from the optical sensor) | 7.0 – 16.0 V | 12.0 V |
| 80 (G) | 20 (B) | Ignition signal | Input | Ignition switch ON | — | 7.0 – 16.0 V | Battery voltage |
| 81 (W) | 20 (B) | Reverse signal | Input | Ignition switch ON | Selector lever is in “R” position. | 7.0 V or more | 12.0 V |
| | | | | | Selector lever is in other than “R” position. | 3.0 V or less | 0 V |
| 82 (P) | 20 (B) | Vehicle speed signal (8-pulse) | Input | Ignition switch ON | When vehicle speed is approx. 40 km/h (25 MPH) | Waveform according to vehicle speed is input. | **NOTE:**<br>The maximum voltage varies depending on the specification (destination unit).<br>  JSNIA0012GB |
| 83 | — | Shield | — | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 84 (B) | 20 (B) | Composite image synchronizing signal | Output | Ignition switch ON | When DVD, USB or AUX image is displayed on front display unit. | Waveform according to composite image is input. |  SKIA0187E |
| 87 (B) | 71 | Microphone signal | Input | Ignition switch ON | Give a voice | Outputs waveform synchronized with voice is input. |  PKIB5037J |
| 88 | — | Shield | — | — | — | — | — |
| 89 (W) | 20 (B) | Communication signal (DISP→CONT) | Input | Ignition switch ON | When adjusting display brightness. | Waveform of 1.5 V or less – 3.5 V or more is input. |  PKIB5039J |
| 90 (L) | — | CAN-H | — | — | — | — | — |
| 91 (SB) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 92 (V) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 104 (B) | 119 (W) | AUX sound signal LH | Input | Ignition switch ON | When AUX mode is selected on front or rear display unit. | Waveform according to sound is input. |  SKIB3609E |
| 106 (P) | 120 (L) | Headphone sound signal LH | Output | Ignition switch ON | Headphone sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 107 (BR) | 121 (Y) | Headphone sound signal RH | Output | Ignition switch ON | Headphone sound output. | Outputs waveform synchronized with sound. |  SKIB3609E |
| 117 | — | Shield | — | — | — | — | — |
| 118 (R) | 119 (W) | AUX sound signal RH | Input | Ignition switch ON | When AUX mode is selected on front or rear display unit. | Waveform according to sound is input. |  SKIB3609E |
| 122 (GR) | — | Shield | — | — | — | — | — |
| 130 (W) | 129 (G) | USB D– signal | — | — | — | — | — |
| 131 (R) | 129 (G) | V BUS signal | — | — | — | 4.75 – 5.25 V | — |
| 132 (B) | 129 (G) | USB D+ signal | — | — | — | — | — |
| 133 | — | Shield | — | — | — | — | — |
| 150 | 20 (B) | Antenna amp. ON signal | Input | Ignition switch ACC | — | 9.0 – 16.0 V | 12.0 V |
| 151 | — | AM-FM main | Input | — | — | — | — |
| 152 | — | FM sub | Input | — | — | — | — |
| 153 | 20 (B) | GPS antenna signal | Input | Ignition switch ON | Not connected GPS antenna connector. | 4.5 – 5.25 V | 5.0 V |
| 154 | — | Shield | — | — | — | — | — |
| 157 | 20 (B) | RGB digital image signal (–) | Output | Ignition switch ON | Not connected connector. | — | 3.0 V |
| 158 | 20 (B) | RGB digital image signal (+) | Output | Ignition switch ON | Not connected connector. | — | 3.0 V |
| 159 | 20 (B) | Satellite radio antenna signal | — | — | Not connected satellite radio antenna connector. | — | 5.0 V |

## Fail-Safe

INFOID:0000000012407422

When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

### FAIL-SAFE CONDITIONS

When the ambiance temperature is –20°C (–4°F) or lower, or when it is 70°C (158°F) or higher

Display



cardiagn.com

The messages displayed on fail-safe conditions are as shown below:

| Fail-safe mode | Display (display of the fail-safe condition) |
|---|---|
| When HDD temperature is low | HDD system is experiencing problems due to extreme low temperature.<br>Normal operation will resume when temperature rises. |
| When HDD temperature is high | HDD system is experiencing problems due to extreme high temperature.<br>Normal operation will resume when temperature drops. |

## DESCRIPTION OF CONTROLS

| Function | | When Fail-safe Function is activated |
|---|---|---|
| Air conditioner | Operation | Only multifunction switch (preset switch) can be operated. |
| | Display | • LED of multifunction switch (preset switch) illuminates.<br>• Aimed temperature, blow angle, and flow rate are displayed in simplified mode. |
| Audio | Operation | Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible. |
| | Display | No display (“Fail-safe mode” is displayed) |
| Camera | Operation | Image tone cannot be controlled. |
| | Display | Cannot be superimposed. (warning display, tone control display) |
| Hands-free phone | Operation | Cannot be operated. |
| Navigation | Operation | Cannot be operated. |
| Self diagnosis | | The display in simplified mode of fail-safe condition |
| CONSULT diagnosis | | Cannot be operated. |

Ability Operation Mode
There is an ability operation mode for Fail-safes due to low or high ambiance temperature.
If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

## RELEASE CONDITIONS OF FAIL-SAFE
Fail-safe is released on following conditions and normal mode is restored.

When The Temperature of HDD Is Low or High
If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

# DTC Index

INFOID:0000000012407423

## SELF-DIAGNOSIS RESULTS DISPLAY ITEM

| DTC | Display item | Refer to |
|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | AV-535, "AV CONTROL UNIT : Diagnosis Procedure" |
| U1010 | CONTROL UNIT (CAN) [1010] | AV-537, "AV CONTROL UNIT : DTC Logic" |
| U1200 | Cont Unit [U1200] | AV-546, "DTC Logic" |
| U1201 | GYRO NO CONN [U1201] | AV-547, "DTC Logic" |
| U1202 | G-SENSOR NO CONN [U1202] | AV-548, "DTC Logic" |
| U1204 | GPS COMM [U1204] | AV-549, "Diagnosis Procedure" |
| U1205 | GPS ROM [U1205] | AV-550, "Diagnosis Procedure" |
| U1206 | GPS RAM [U1206] | AV-551, "Diagnosis Procedure" |
| U1207 | GPS RTC [U1207] | AV-552, "Diagnosis Procedure" |
| U1216 | CAN CONT [U1216] | AV-553, "DTC Logic" |
| U1217 | BLUETOOTH MODULE [U1217] | AV-554, "DTC Logic" |
| U1218 | HDD CONN [U1218] | AV-555, "DTC Logic" |
| U1219 | HDD READ [U1219] | AV-556, "DTC Logic" |

cardiagn.com

| DTC | Display item | Refer to |
|---|---|---|
| U121A | HDD WRITE [U121A] | AV-557, "DTC Logic" |
| U121B | HDD COMM [U121B] | AV-558, "DTC Logic" |
| U121C | HDD ACCESS [U121C] | AV-559, "DTC Logic" |
| U121D | DSP CONN [U121D] | AV-560, "Diagnosis Procedure" |
| U121E | DSP COMM [U121E] | AV-561, "Diagnosis Procedure" |
| U1225 | USB CONTROLLER [U1225] | AV-562, "DTC Logic" |
| U1227 | DVD COMM [U1227] | AV-563, "Diagnosis Procedure" |
| U1228 | SUB CPU CONN [U1228] | AV-564, "DTC Logic" |
| U1229 | iPod CERTIFICATION [U1229] | AV-565, "DTC Logic" |
| U122A | CONFIG UNFINISH [U122A] | AV-566, "Diagnosis Procedure" |
| U122E | Built-in AUDIO CONN [U122E] | AV-567, "DTC Logic" |
| U1232 | ST ANGLE SEN CALIB [1232] | AV-568, "AV CONTROL UNIT : Diagnosis Procedure" |
| U1243 | FRONT DISP CONN [U1243] | AV-569, "Diagnosis Procedure" |
| U1244 | GPS ANTENNA CONN [U1244] | AV-571, "Diagnosis Procedure" |
| U1258 | XM ANTENNA CONN [U1258] | AV-572, "Diagnosis Procedure" |
| U1263 | USB OVERCURRENT [U1263] | AV-573, "Diagnosis Procedure" |
| U1264 | ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264] | AV-574, "Diagnosis Procedure" |
| U1265 | AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265] | AV-575, "Diagnosis Procedure" |
| U1310 | CONTROL UNIT (AV) [U1310] | AV-579, "DTC Logic" |
| U1300<br>U1240 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | AV-576, "Description" |
| U1300<br>U1246 | • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246] | |
| U1300<br>U1240<br>U1246 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246] | |

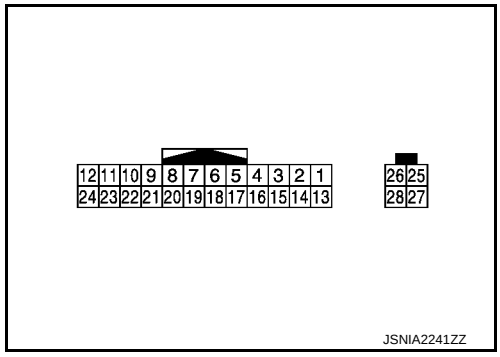
cardiagn.com

# FRONT DISPLAY UNIT

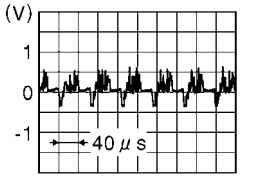
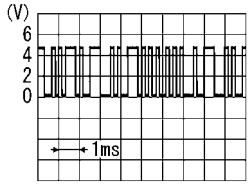
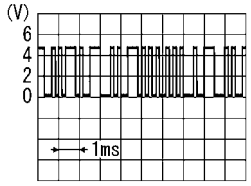
## Reference Value

INFOID:0000000012407424

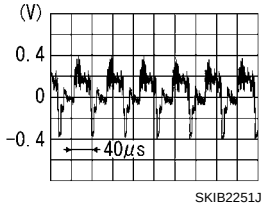
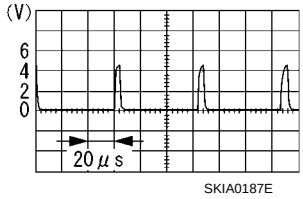
### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 6 | — | Shield | — | — | — | — | — |
| 7 | — | Shield | — | — | — | — | — |
| 8 (Y) | 12 (B) | Camera image signal | Input | Ignition switch ON | When camera image is displayed. | Waveform according to camera image is input. |   JSNIA0834GB |
| 9 (W) | 12 (B) | Communication signal (DISP→CONT) | Output | Ignition switch ON | When adjusting display brightness. | Waveform of 1.5 V or less – 3.5 V or more is output. |   PKIB5039J |
| 10 (B) | 12 (B) | Communication signal (CONT→DISP) | Input | Ignition switch ON | — | Waveform of 1.5 V or less – 3.5 V or more is input. |   PKIB5039J |
| 11 (SB) | 12 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery voltage |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 18 (R) | 19 (W) | Composite image signal | Input | Ignition switch ON | When DVD, USB or AUX image is displayed | Waveform according to composite image is input. |  SKIB2251J |
| 20 (B) | 12 (B) | Composite image synchronizing signal | Input | Ignition switch ON | When DVD, USB or AUX image is displayed | Waveform according to composite image is input. |  SKIA0187E |
| 22 | — | Shield | — | — | — | — | — |
| 23 (O) | 12 (B) | ACC power supply | Input | Ignition switch ACC | — | 6.0 – 16.0 V | Battery voltage |
| 27 | 12 (B) | RGB digital image signal (–) | Input | — | — | — | — |
| 28 | 12 (B) | RGB digital image signal (+) | Input | — | — | — | — |

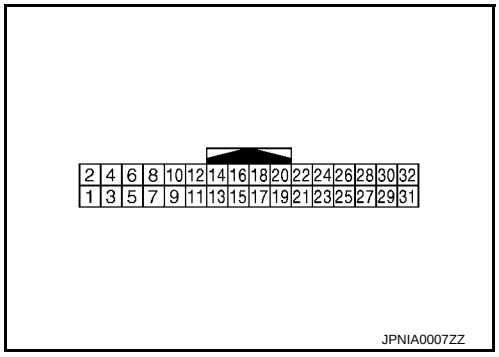
cardiagn.com

# REAR DISPLAY UNIT

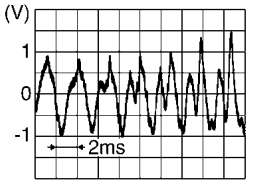
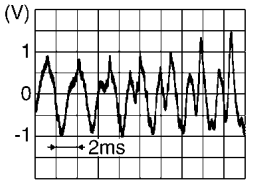
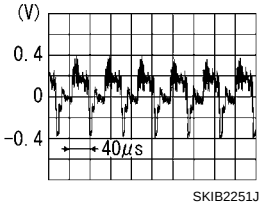
## Reference Value

INFOID:0000000012407425

### TERMINAL LAYOUT




### PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 2 (L/O) | 1 (W/L) | Headphone sound signal RH | Input | Ignition switch ON | Headphone sound output. | Waveform according to headphone sound is input. |   |
| 4 (B) | 3 (W) | Headphone sound signal LH | Input | Ignition switch ON | Headphone sound output. | Waveform according to headphone sound is input. |   |
| 5 | — | Shield | — | — | — | — | — |
| 6 | — | Shield | — | — | — | — | — |
| 7 (B) | 8 (W) | Composite image signal | Input | Ignition switch ON | When DVD, USB or AUX image is displayed. | Waveform according to composite image is input. |   |
| 18 | — | Shield | — | — | — | — | — |
| 19 (W) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 20 (Y) | — | AV communication signal (L) | Input/ Output | — | — | — | — |
| 21 (B) | — | AV communication signal (H) | Input/ Output | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 22 (BR) | — | AV communication signal (H) | Input/ Output | — | — | — | — |
| 26 (LG) | 31 (B) 32 (B) | Ignition signal | Input | Ignition switch ON | — | 3.0 V – battery voltage | Battery voltage |
| 27 (SB) | 31 (B) 32 (B) | Illumination signal | Input | Ignition switch ON | Lighting switch is 1st or 2nd. | — | 12.0 V |
| | | | | | Lighting switch is OFF. | — | 0 V |
| 28 (V) | 31 (B) 32 (B) | ACC power supply | Input | Ignition switch ACC | — | 7.6 V – battery voltage | Battery voltage |
| 29 (GR) | 31 (B) 32 (B) | Battery power supply | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |
| 30 (GR) | 31 (B) 32 (B) | Battery power supply | Input | Ignition switch ON | — | 9.0 – 16.0 V | Battery voltage |

cardiagn.com

# AROUND VIEW MONITOR CONTROL UNIT

## Reference Value

INFOID:0000000012407426

### VALUES ON THE DIAGNOSIS TOOL

**NOTE:**
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

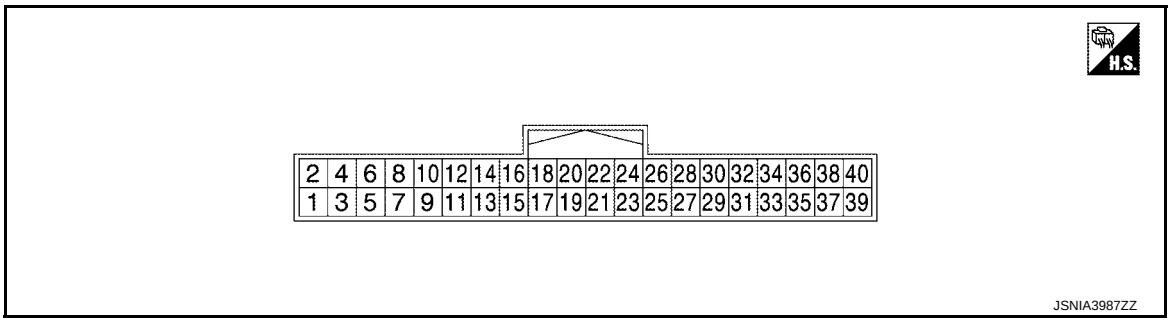
CONSULT MONITOR ITEM

| Monitor Item | Condition | | Value/Status |
|---|---|---|---|
| ST ANGLE SENSOR SIGNAL | Ignition switch ON | Steering angle sensor signal is input condition. | ON |
| | | Except for above | OFF |
| REVERSE SIGNAL | Ignition switch ON | Shift position is in “R” | ON |
| | | Other than shift position is in “R” | OFF |
| VEHICLE SPEED SIGNAL*1 | Ignition switch ON | Vehicle speed signal is input condition. | ON |
| | | Except for above | OFF |
| CAMERA SWITCH SIGNAL*1 | Ignition switch ON | Pressing the “CAMERA” switch | ON |
| | | Except for above | OFF |
| CAMERA OFF SIGNAL | Ignition switch ON | While camera image is not indicated. | ON |
| | | While camera image is indicated. | OFF |
| ST ANGLE SENSOR TYPE*2 | Ignition switch ON | — | Absolute |
| STEERING GEAR RATIO TYPE*3 | Ignition switch ON | — | Type 0 |
| STEERING POSITION | Ignition switch ON | LHD models | LHD |
| | | RHD models | RHD |
| REAR CAMERA IMAGE SIGNAL | Ignition switch ON | Input status of rear camera image signal is normal. | OK |
| | | Input status of rear camera image signal is not normal. | NG |
| F-CAMERA IMAGE SIGNAL | Ignition switch ON | Input status of front camera image signal is normal. | OK |
| | | Input status of front camera image signal is not normal. | NG |
| PA-SIDE CAMERA IMAGE SIG | Ignition switch ON | Input status of side camera RH image signal is normal. | OK |
| | | Input status of side camera RH image signal is not normal. | NG |
| DR-SIDE CAMERA IMAGE SIG | Ignition switch ON | Input status of side camera LH image signal is normal. | OK |
| | | Input status of side camera LH image signal is not normal. | NG |

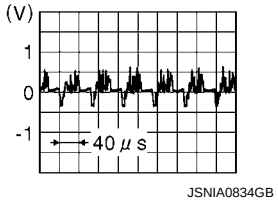
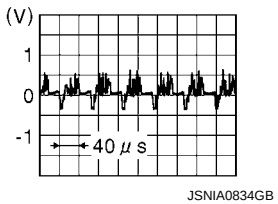
- *1: Once the signal is input, it remains ON indication until CONSULT is finished.
- *2: “Absolute” is always indicated on this vehicle.
- *3: “Type 0” is always indicated on this vehicle.

cardiagn.com

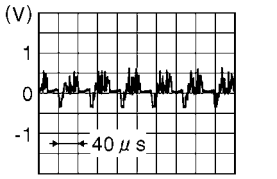
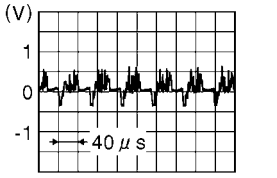
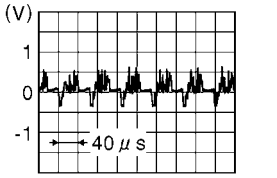
TERMINAL LAYOUT




PHYSICAL VALUES

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 3 | — | Shield | — | — | — | — | — |
| 4 (B) | 3 | Camera image signal | Output | Ignition switch ON | At camera image is displayed. | Waveform according to camera image is input. |   JSNIA0834GB |
| 5 (B) | Ground | Front camera ground | — | Ignition switch ON | — | 0.1 V or less | 0 V |
| 6 (R) | 5 (B) | Front camera power supply | Output | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | 5.9 - 6.5 V | 6.2 V |
| 7 | — | Shield | — | — | — | — | — |
| 8 (W) | 7 | Front camera image signal | Input | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | Waveform according to camera image is input. |   JSNIA0834GB |
| 9 (B) | Ground | Side camera passenger side ground | — | Ignition switch ON | — | 0.1 V or less | 0 V |
| 10 (R) | 9 (B) | Side camera passenger side power supply | Output | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | 5.9 - 6.5 V | 6.2 V |
| 11 | — | Shield | — | — | — | — | — |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 12 (W) | 11 | Side camera passenger side image signal | Input | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | Waveform according to camera image is input. |  JSNIA0834GB |
| 13 (B) | Ground | Side camera driver side ground | — | Ignition switch ON | — | 0.1 V or less | 0 V |
| 14 (R) | 13 (B) | Side camera driver side power supply | Output | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | 5.9 - 6.5 V | 6.2 V |
| 15 | — | Shield | — | — | — | — | — |
| 16 (W) | 15 | Side camera driver side image signal | Input | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | Waveform according to camera image is input. |  JSNIA0834GB |
| 17 (B) | Ground | Rear camera ground | — | Ignition switch ON | — | 0.1 V or less | 0 V |
| 18 (R) | 17 (B) | Rear camera power supply | Output | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | 5.9 - 6.5 V | 6.2 V |
| 19 | — | Shield | — | — | — | — | — |
| 20 (W) | 19 | Rear camera image signal | Input | Ignition switch ON | "CAMERA" switch (around view monitor switch) is ON or shift position is "R". | Waveform according to camera image is input. |  JSNIA0834GB |
| 24 (P) | — | CAN–L | Input/ Output | — | — | — | — |
| 26 (L) | — | CAN–H | Input/ Output | — | — | — | — |
| 32 (LG) | Ground | Reverse signal | Input | Ignition switch ON | Shift position is in "R" | 5.3 V or more | 12.0 V |
| | | | | | Other than shift position is in "R" | 3.0 V or less | 0 V |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 39 (B) | Ground | Ground | — | Ignition switch ON | — | — | 0 V |
| 40 (G) | Ground | Ignition signal | Input | Ignition switch ON | — | 7.7 V or more | Battery voltage |
| | | | | Ignition switch OFF | | 6.3 V or less | 0 V |

## DTC Index

INFOID:0000000012407427

| DTC | CONSULT display | Refer to |
|---|---|---|
| U0122 | VDC P-RUN DIAGNOSIS | AV-534, "Diagnosis Procedure" |
| U0416 | VDC CHECKSUM DIAGNOSIS | AV-535, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" |
| U0428 | ST ANGLE SENSOR CALIBRATION | AV-534, "Diagnosis Procedure" |
| U1000 | CAN COMM CIRCUIT | AV-535, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" |
| U1010 | CONTROL UNIT (CAN) | AV-537, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic" |
| U111A | REAR CAMERA IMAGE SIGNAL | AV-538, "Diagnosis Procedure" |
| U111B | SIDE CAMERA RH IMAGE SIGNAL | AV-540, "Diagnosis Procedure" |
| U111C | FRONT CAMERA IMAGE SIGNAL | AV-542, "Diagnosis Procedure" |
| U111D | SIDE CAMERA LH IMAGE SIGNAL | AV-544, "Diagnosis Procedure" |
| U1232 | ST ANGLE SEN CALIB | AV-568, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" |
| U1304 | CAMERA IMAGE CALIB | AV-577, "Diagnosis Procedure" |
| U1305 | CONFIG UNFINISH | AV-578, "Diagnosis Procedure" |

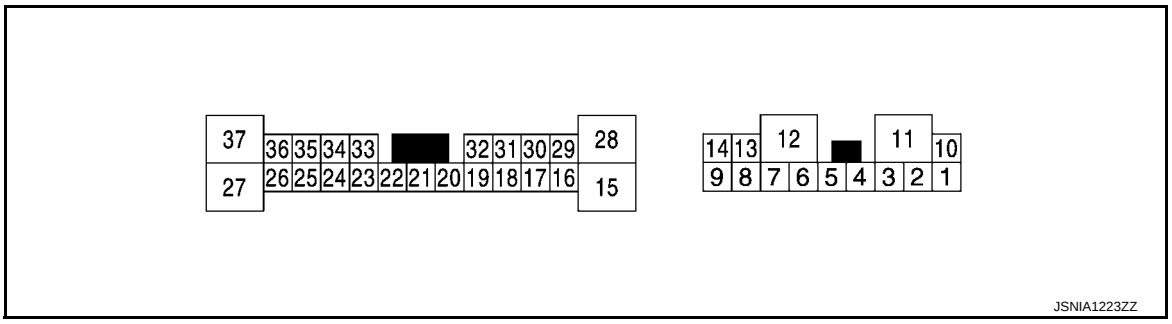
cardiagn.com

# BOSE AMP.

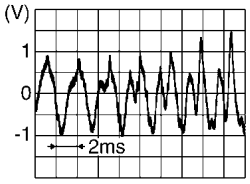
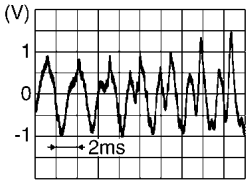
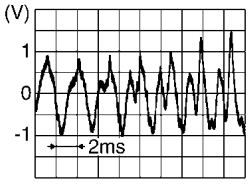
## Reference Values

INFOID:0000000012407428

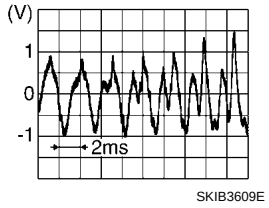
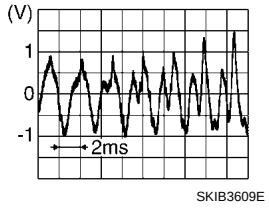
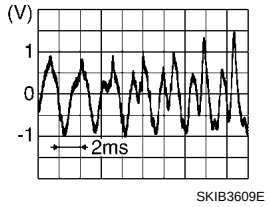
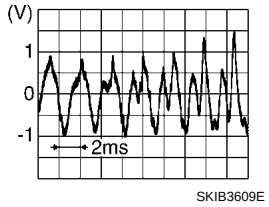
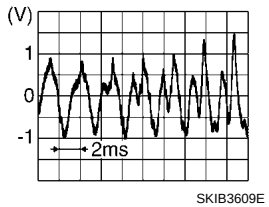
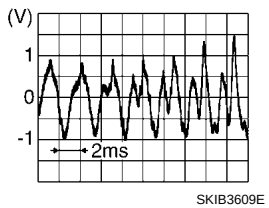
### TERMINAL LAYOUT




### PHYSICAL VALUES

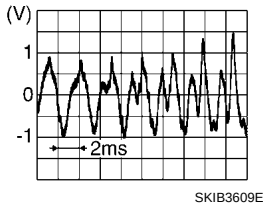
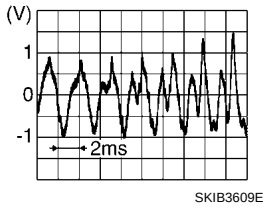
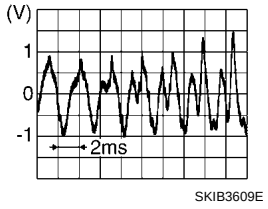
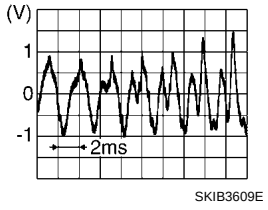
| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 1 (L) | 2 (B) | Sound signal front squawker LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 4 (BR) | 3 (Y) | Sound signal front squawker RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 10 (SB) | 7 (B) 12 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery power supply |
| 11 (G) | 7 (B) 12 (B) | Battery power supply | Input | Ignition switch OFF | — | 9.0 – 16.0 V | Battery power supply |
| 13 (R) | 8 (G) | Sound signal woofer | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |

cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 14 (W) | 9 (B) | Sound signal slide door speaker RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 16 (W) | 17 (B) | Sound signal luggage squawker | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 18 (W) | 19 (R) | Sound signal front door woofer LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |
| 20 (LG) | 7 (B) 12 (B) | Amp. ON signal | Input | Ignition switch ACC | — | 6.5 V or more | 12.0 V |
| 24 (W) | 23 (B) | Sound signal rear LH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 26 (W) | 25 (B) | Sound signal rear RH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |  SKIB3609E |
| 28 (R) | 15 (W) | Sound signal slide door speaker LH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |  SKIB3609E |



cardiagn.com

| Terminal (Wire color) | | Description | | Condition | | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | | |
| 29 (V) | 30 (L) | Sound signal center squawker | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |
| 31 (W) | 32 (R) | Sound signal front door woofer RH | Output | Ignition switch ON | Sound output | Outputs waveform synchronized with sound. |   SKIB3609E |
| 33 (W) | 34 (B) | Sound signal front RH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |   SKIB3609E |
| 35 (W) | 36 (B) | Sound signal front LH | Input | Ignition switch ON | Sound output | Waveform according to sound signal is input. |   SKIB3609E |

cardiagn.com

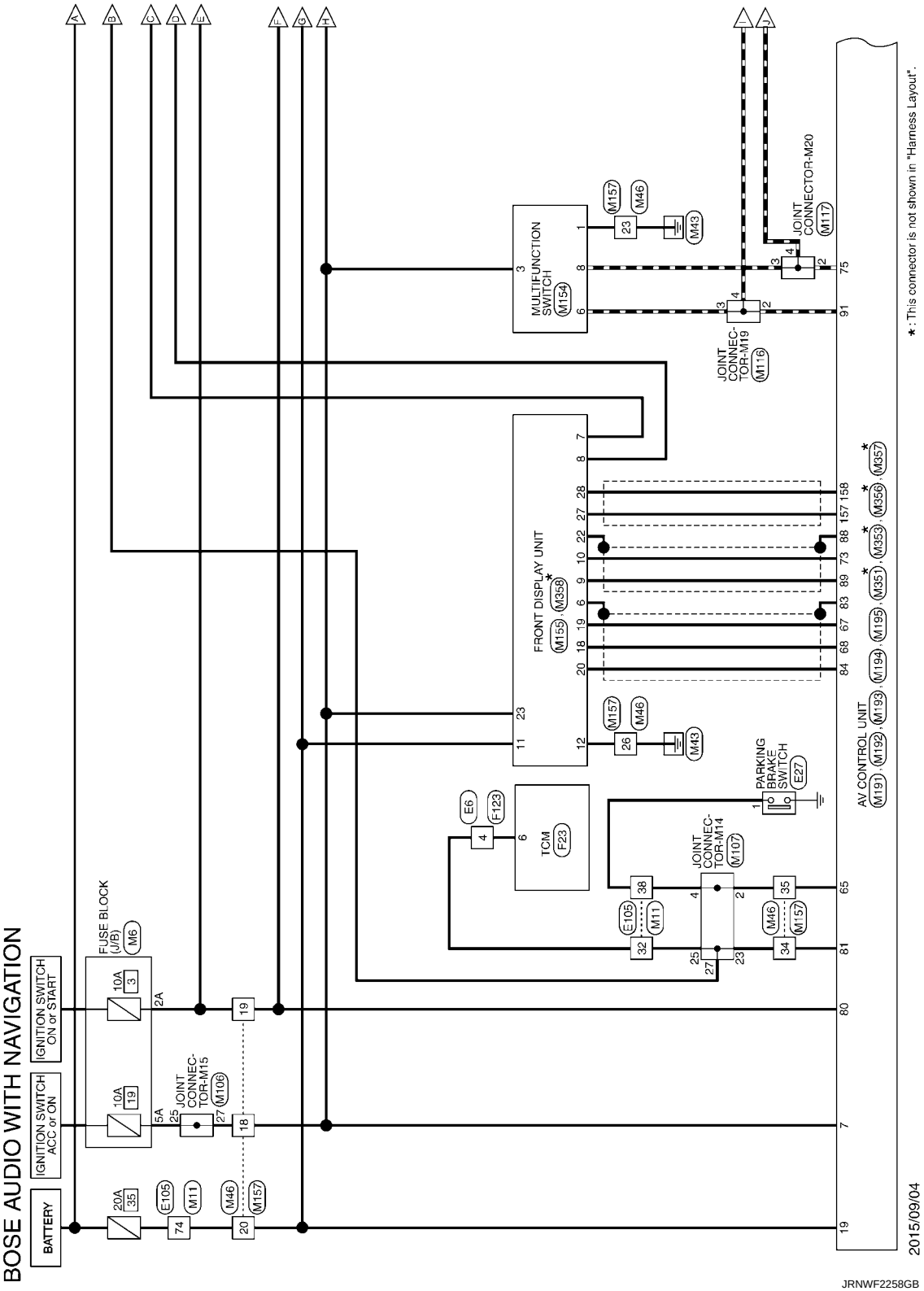
# WIRING DIAGRAM

## BOSE AUDIO WITH NAVIGATION

### Wiring Diagram

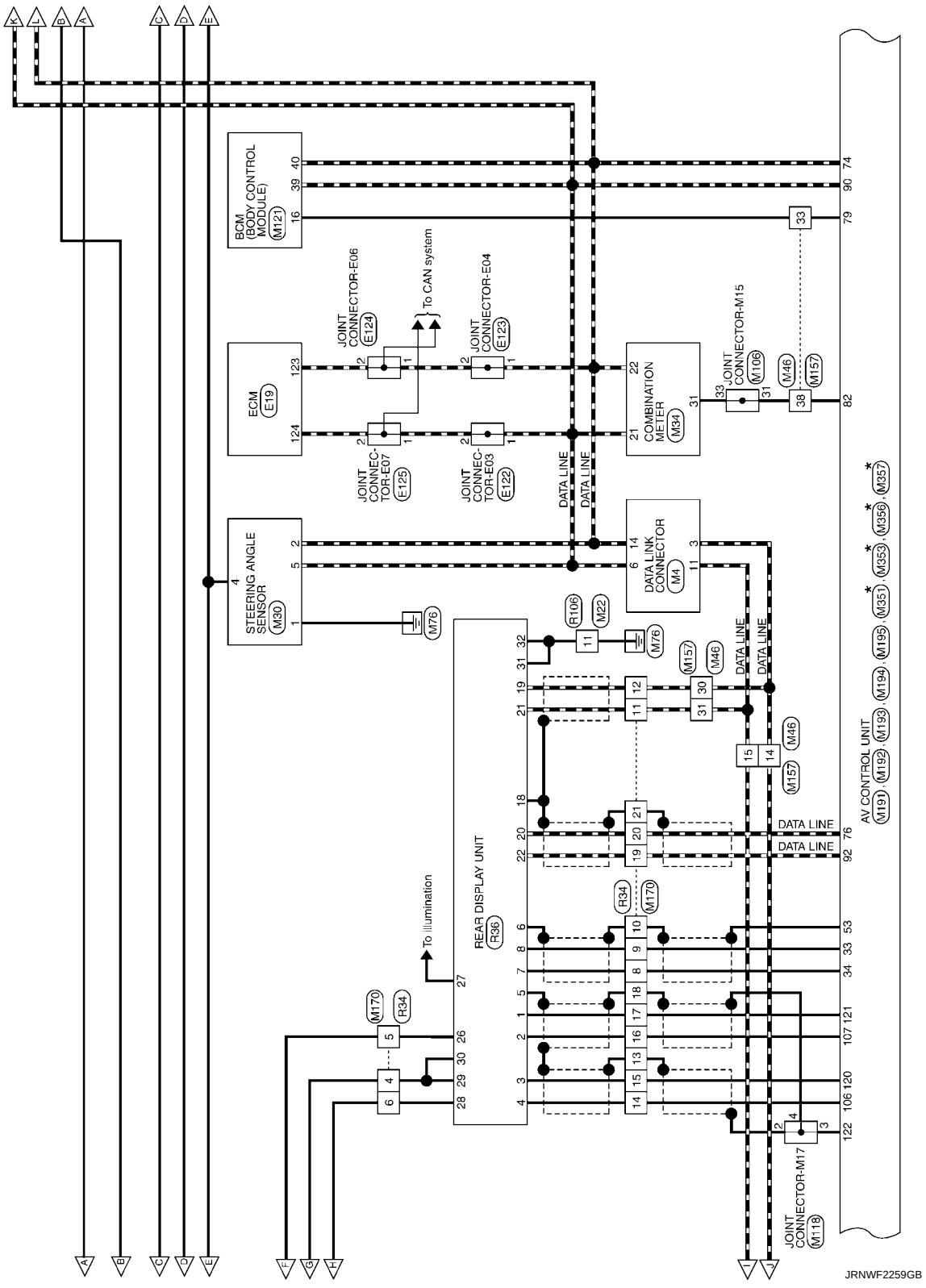
INFOID:0000000012407429

**NOTE:**
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

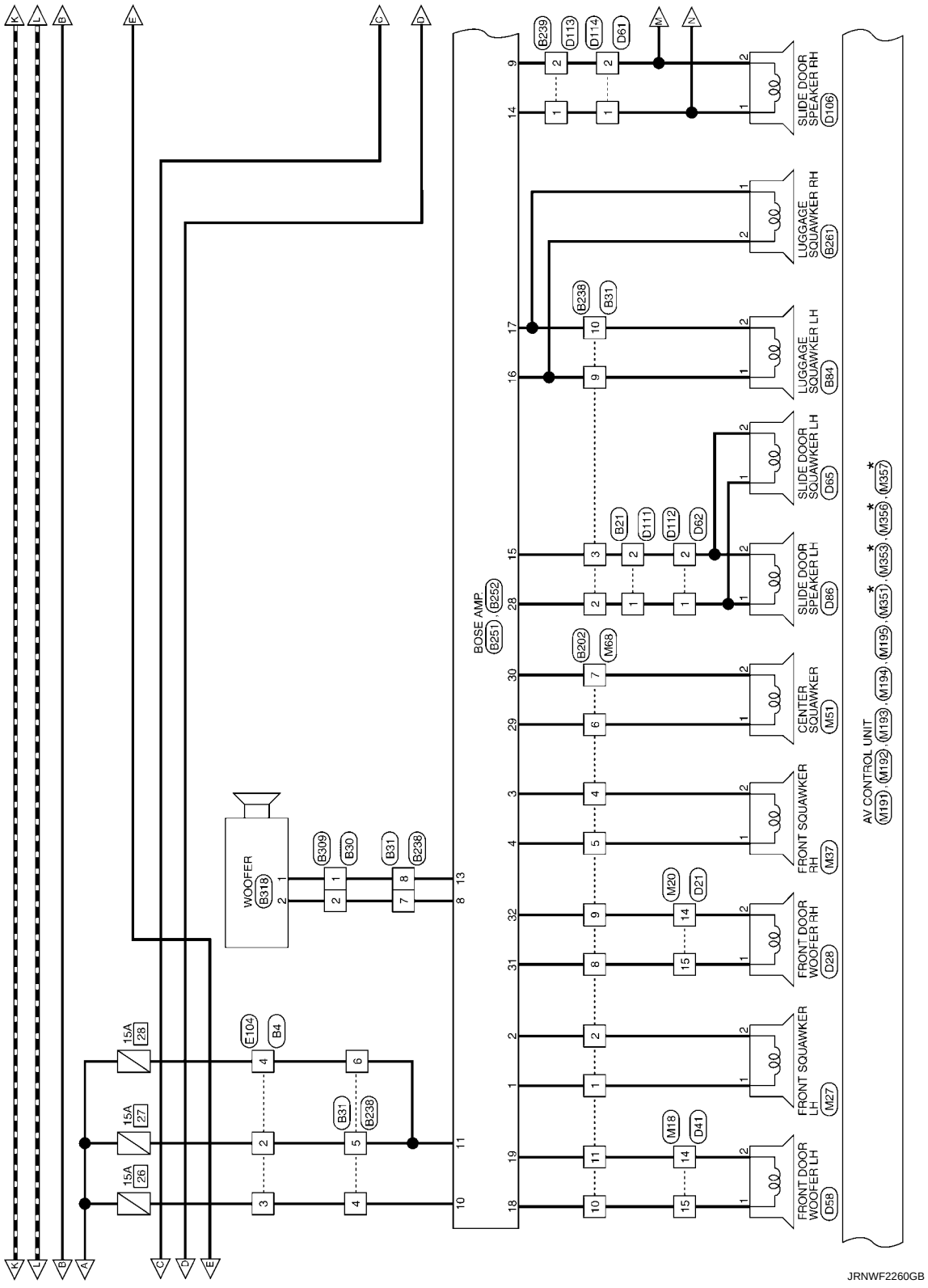




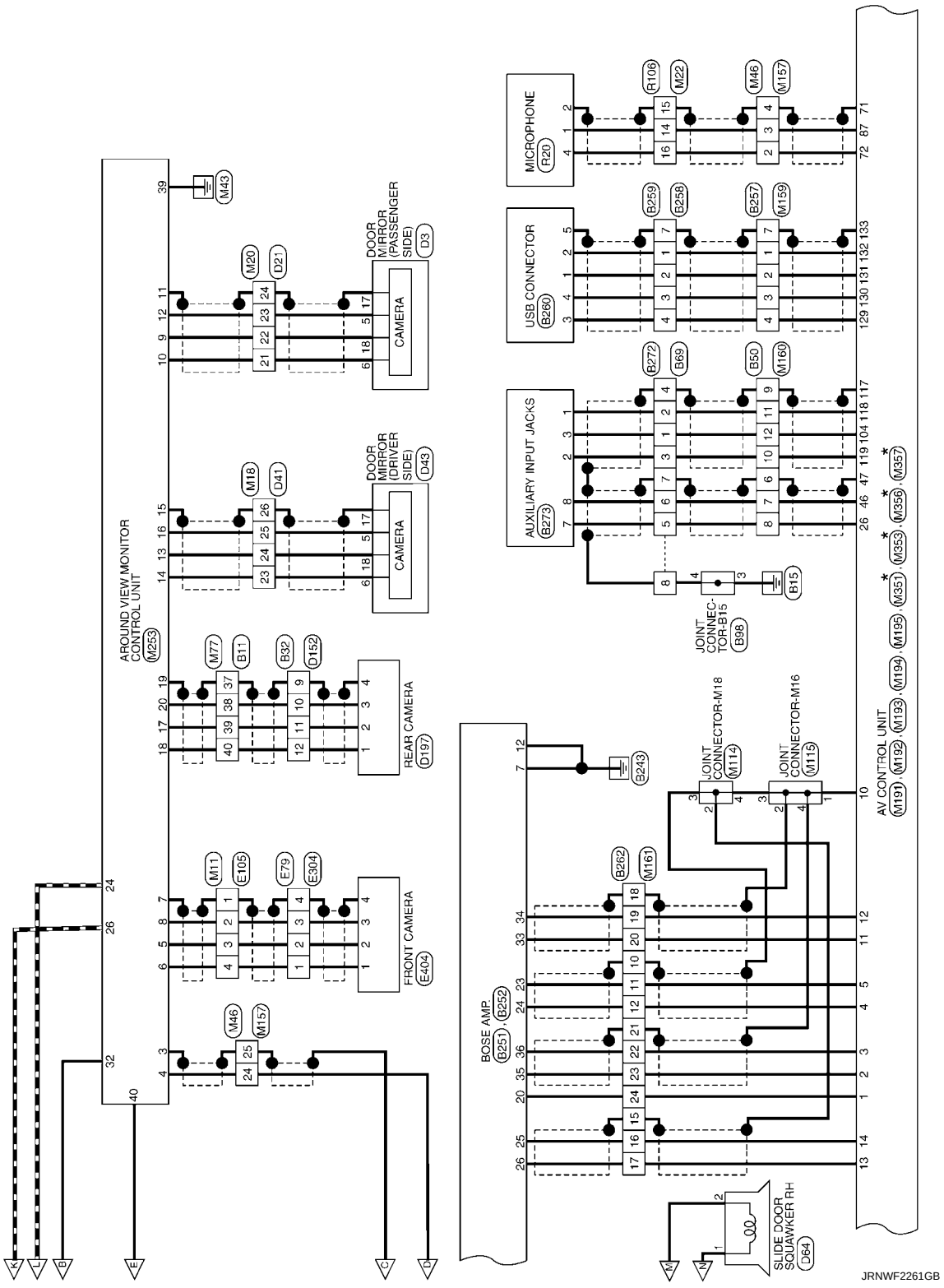

cardiagn.com



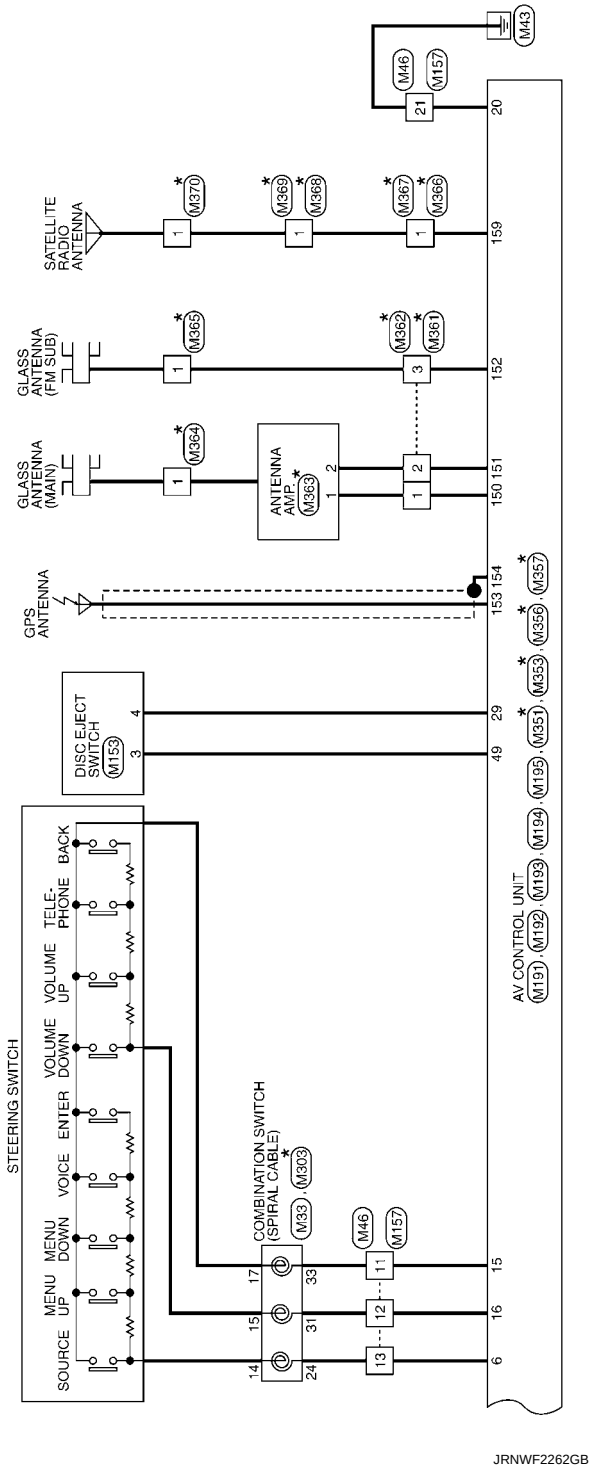

cardiagn.com




cardiagn.com




cardiagn.com



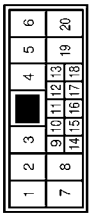

JRNWF2262GB

cardiagn.com

BOSE AUDIO WITH NAVIGATION

| Connector No. | B4 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NH10MW-CS10 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | BR | - |
| 2 | O | - |
| 3 | LG | - |
| 4 | P | - |
| 5 | L | - |
| 6 | R | - |
| 7 | W | - |
| 8 | B | - |
| 9 | SB | - |
| 10 | L | - |
| 11 | V | - |
| 12 | LG | - |
| 14 | LG | - |
| 15 | V | - |
| 16 | O | - |
| 17 | G | - |
| 18 | V | - |
| 19 | G | - |
| 20 | SB | - |

| Connector No. | B11 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS19 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 10 | GR | - |
| 12 | G | - |
| 13 | P | - |
| 15 | L | - |
| 29 | GR | - |
| 30 | W | - |
| 31 | P | - |
| 37 | SHIELD | - |
| 38 | R | - |
| 39 | B | - |
| 40 | W | - |
| 51 | Y | - |
| 52 | B | - |
| 53 | G | - |
| 54 | P | - |
| 55 | L | - |
| 57 | Y | - |
| 58 | L | - |
| 59 | GR | - |
| 60 | Y | - |
| 61 | Y | - |
| 62 | BR | - |
| 63 | L | - |
| 64 | W | - |
| 65 | R | - |
| 66 | SHIELD | - |
| 67 | B | - |
| 68 | W | - |
| 69 | SHIELD | - |
| 70 | W/R | - |
| 71 | B/R | - |
| 72 | BR | - |
| 74 | L | - |
| 75 | SB | - |
| 77 | V | - |

| 78 | LG | - |
|---|---|---|
| 79 | GR | - |
| 80 | BR | - |
| 81 | SB | - |
| 82 | V | - |
| 87 | G | - |
| 88 | V | - |
| 89 | G | - |
| 90 | Y | - |
| 91 | LG | - |
| 92 | L | - |

| Connector No. | B21 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | MS16MW-CS |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | BR | - [Without BOSE system] |
| 1 | W | - [With BOSE system] |
| 2 | R | - [With BOSE system] |
| 2 | Y | - [Without BOSE system] |
| 5 | Y | - |
| 6 | BR | - |
| 7 | LG | - |
| 8 | L | - |
| 9 | SB | - |
| 10 | Y | - |
| 11 | G | - |
| 14 | SB | - |
| 15 | V | - |
| 16 | B | - |

| Connector No. | B30 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS02FW-CS |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | R | - |
| 2 | G | - |

| Connector No. | B31 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS12MW-CS |

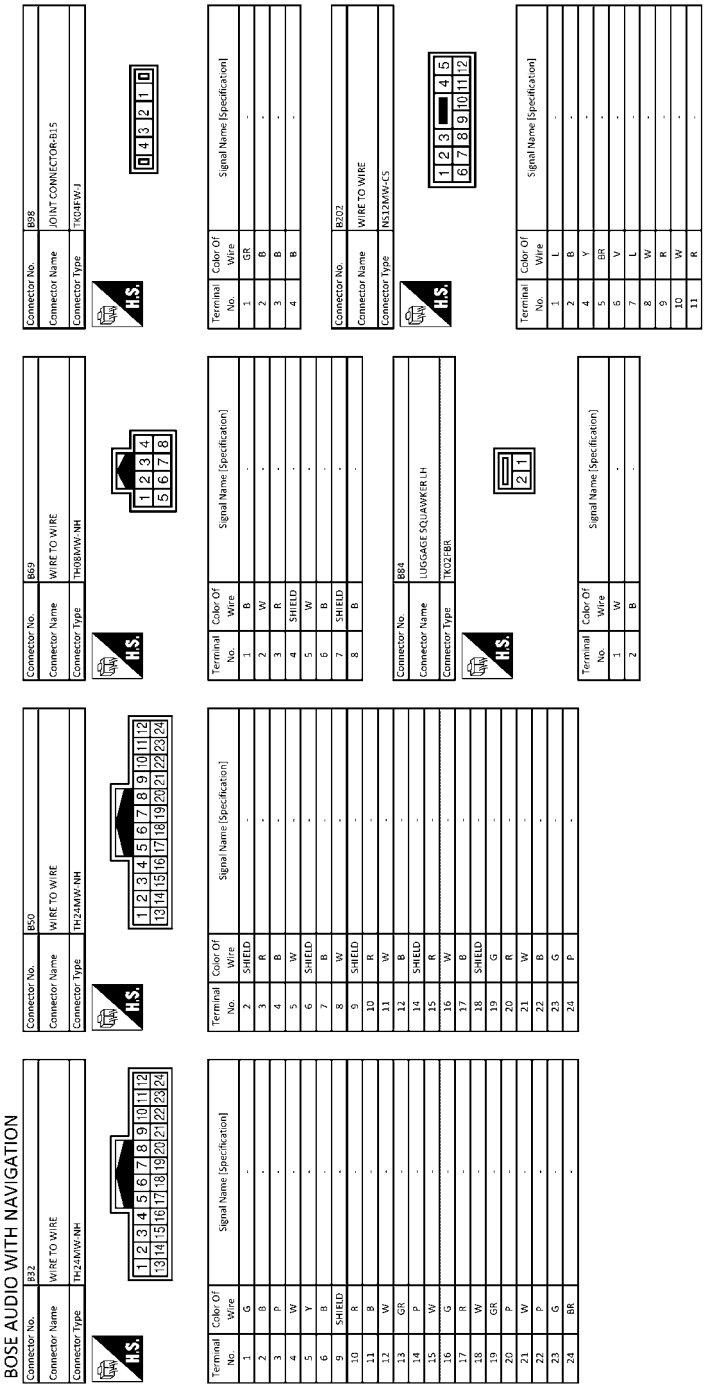
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | W | - |
| 3 | R | - |
| 4 | LG | - |
| 5 | O | - |
| 6 | P | - |
| 7 | G | - |
| 8 | R | - |
| 9 | W | - |
| 10 | B | - |

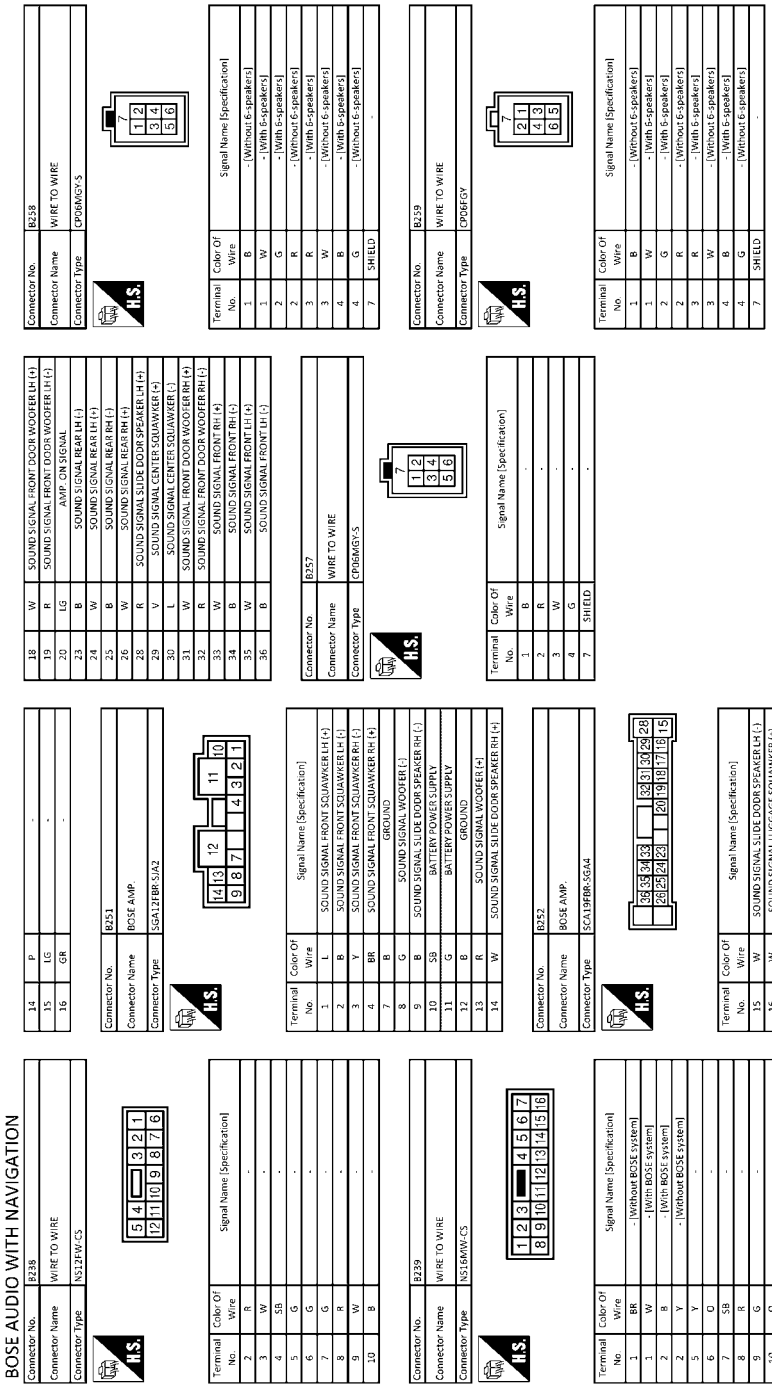
JRNWF2263GB

cardiagn.com



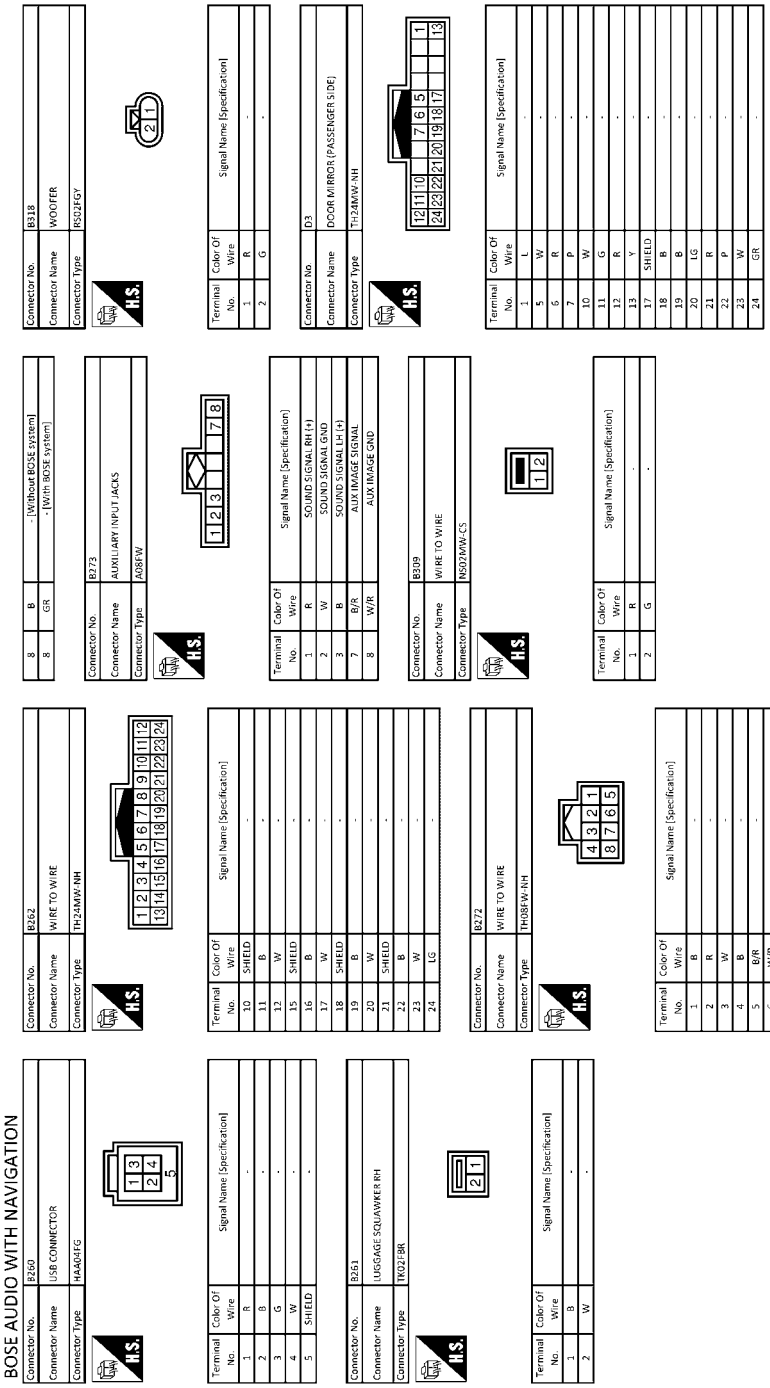

JRNWF2264GB

cardiagn.com



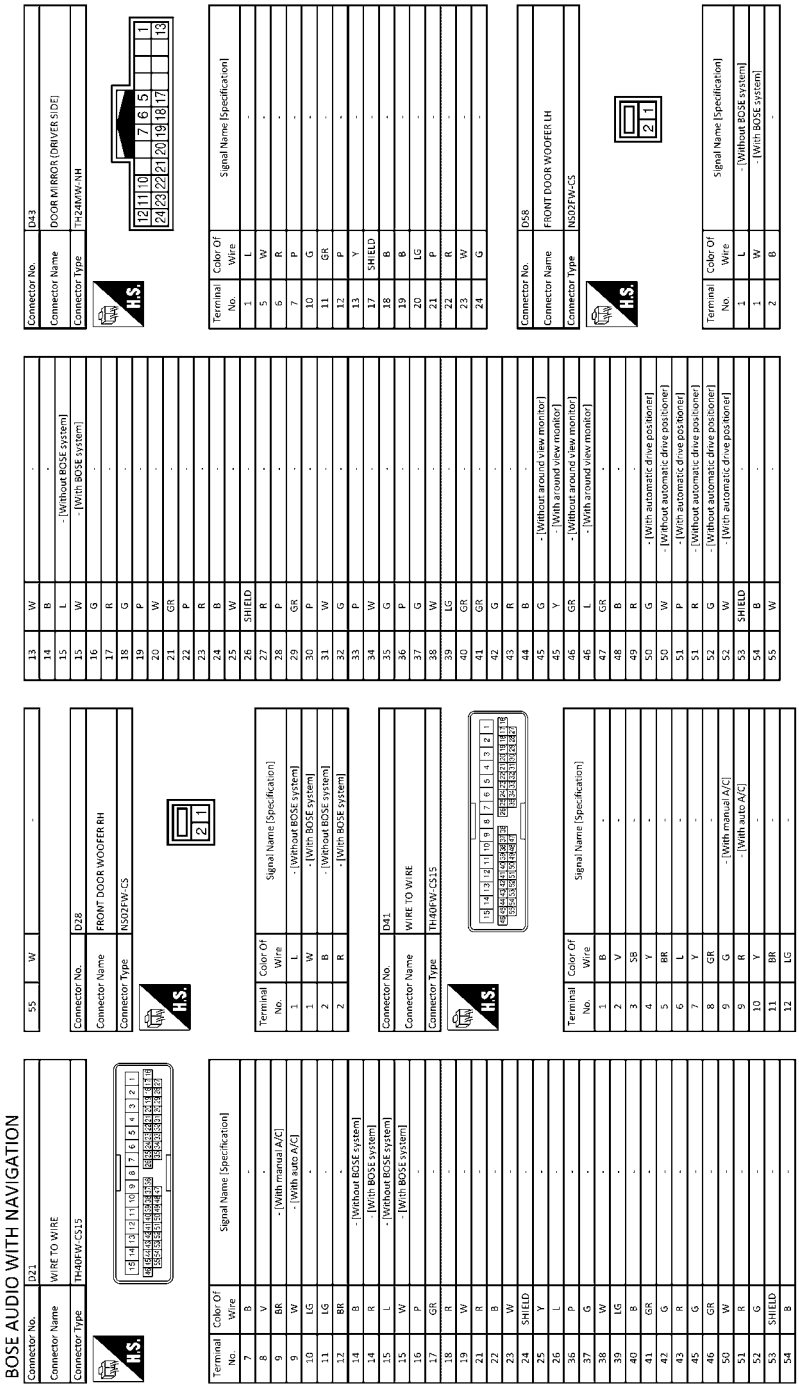

JRNWF2265GB

cardiagn.com



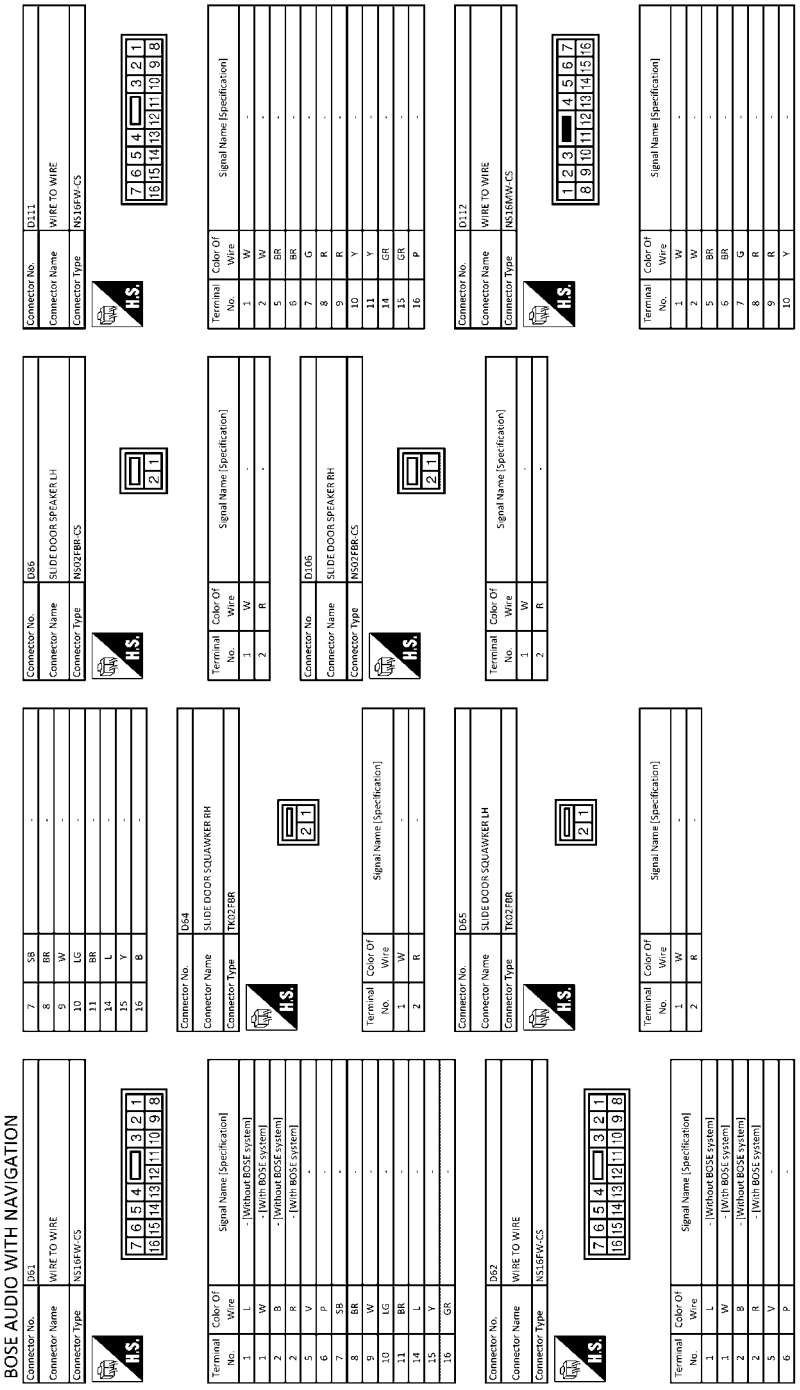

JRNWF2266GB

cardiagn.com



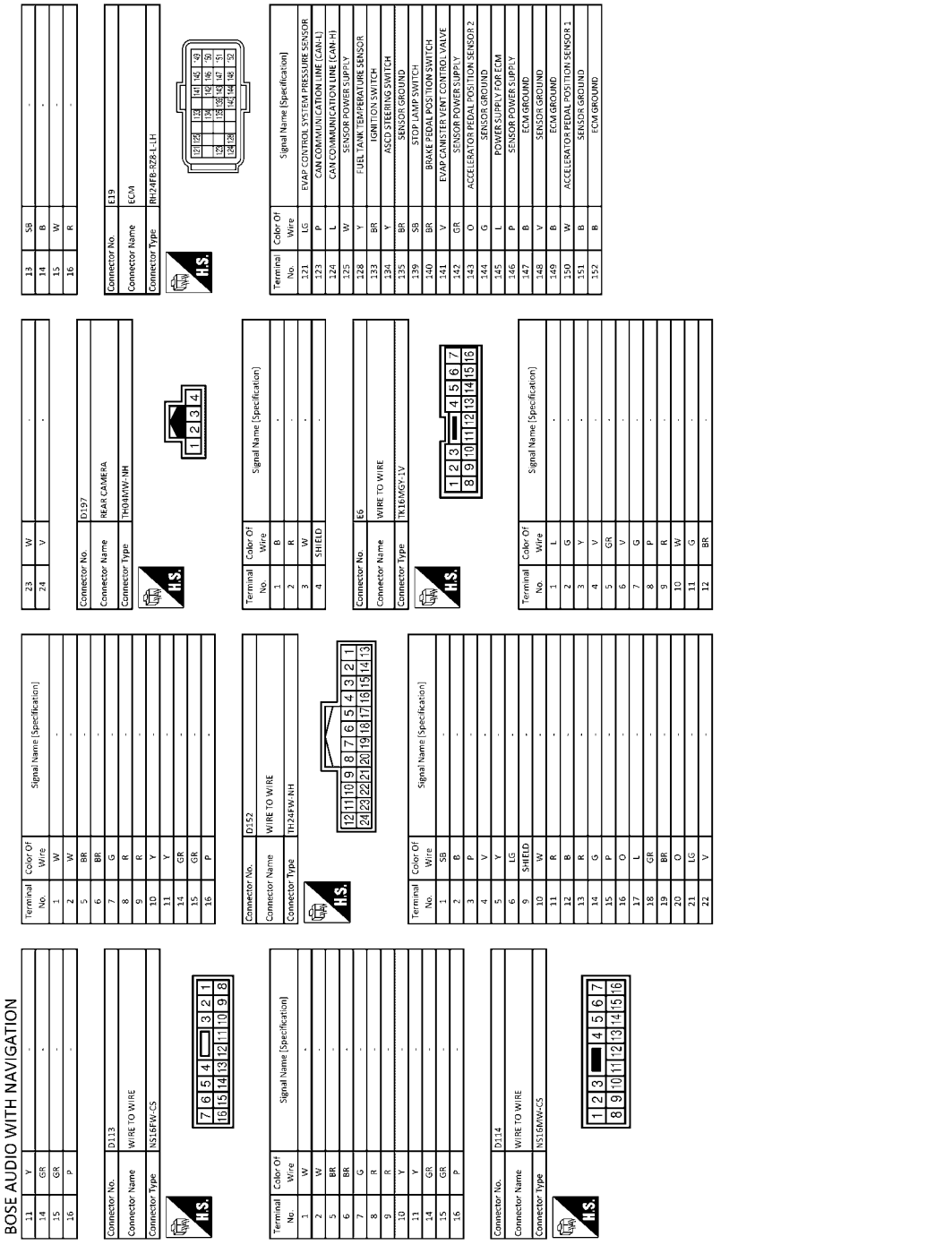

JRNWF2267GB

cardiagn.com



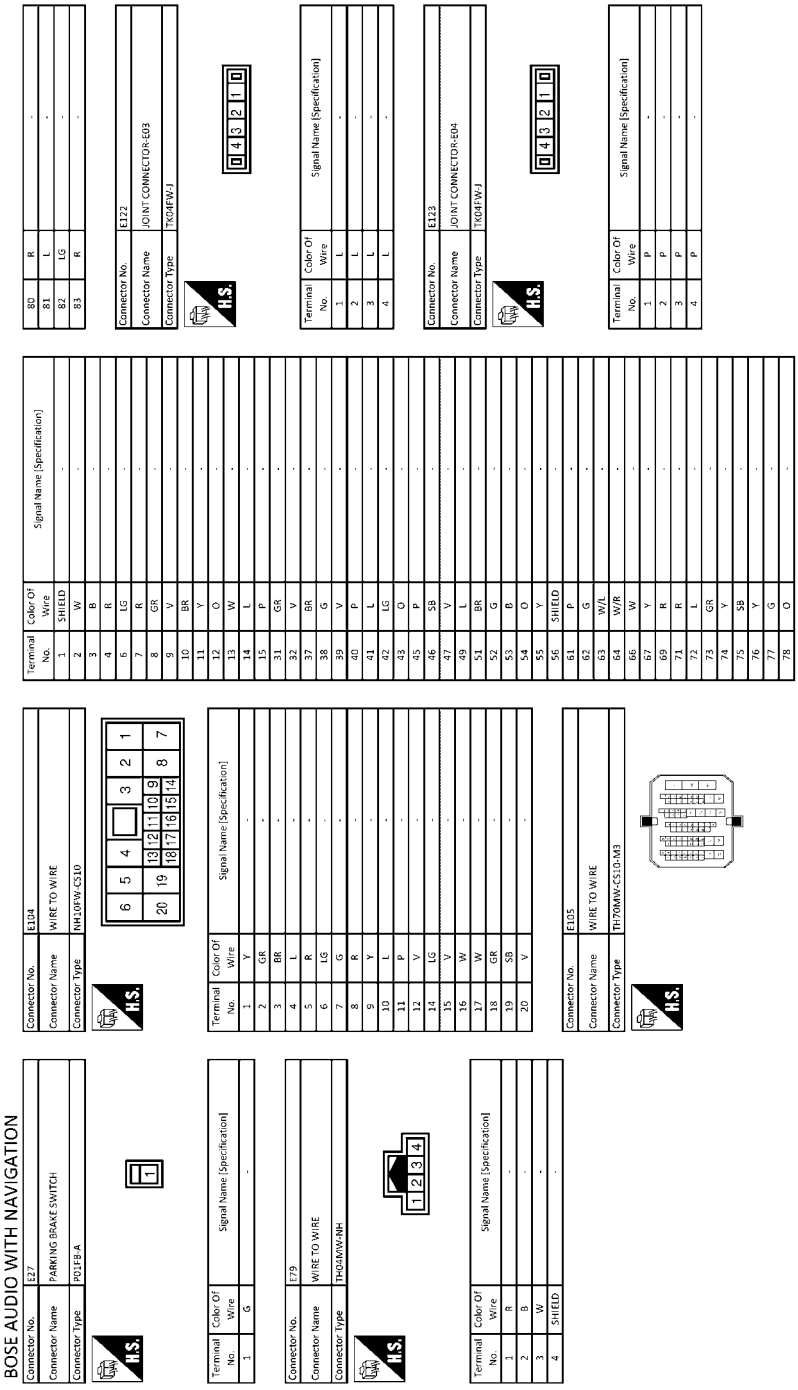

JRNWF2268GB

cardiagn.com



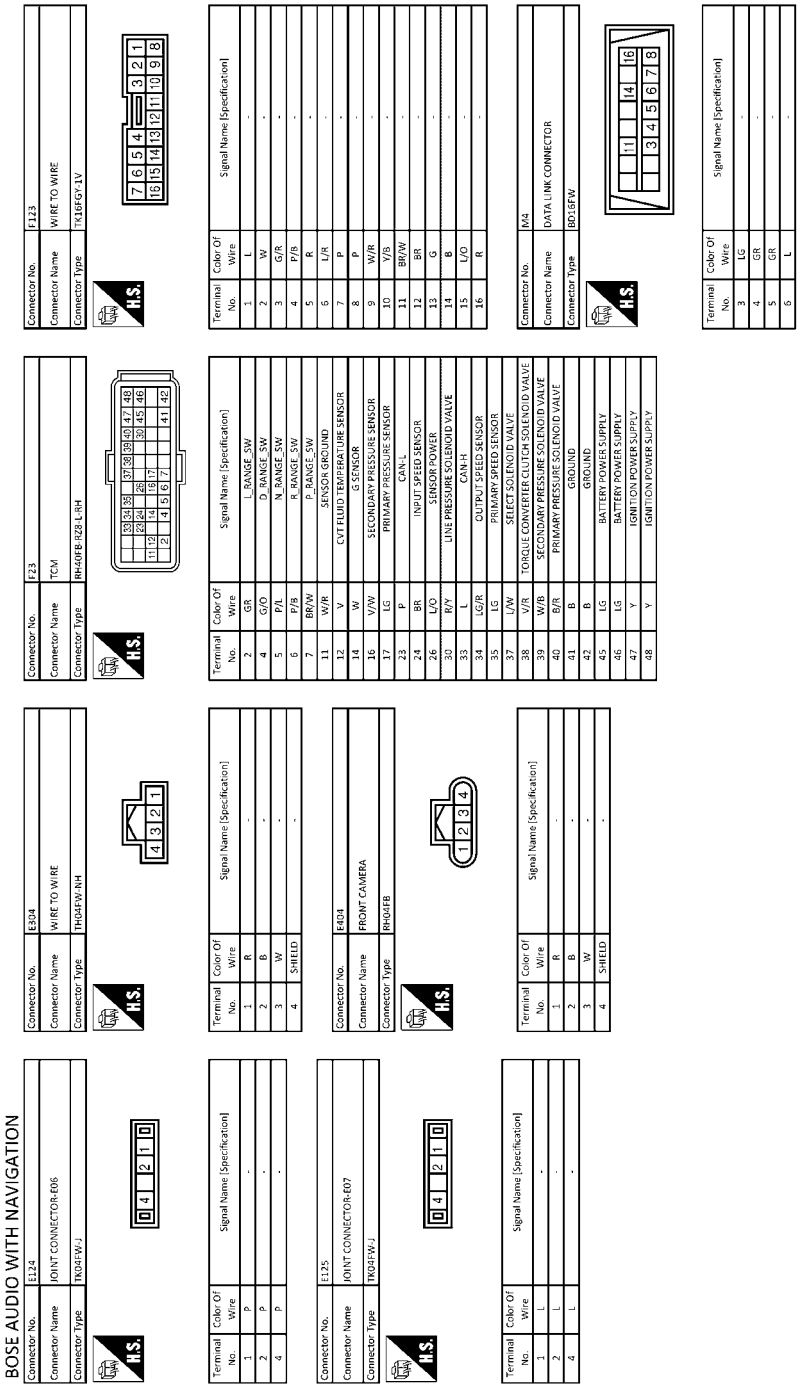

JRNWF2269GB

cardiagn.com



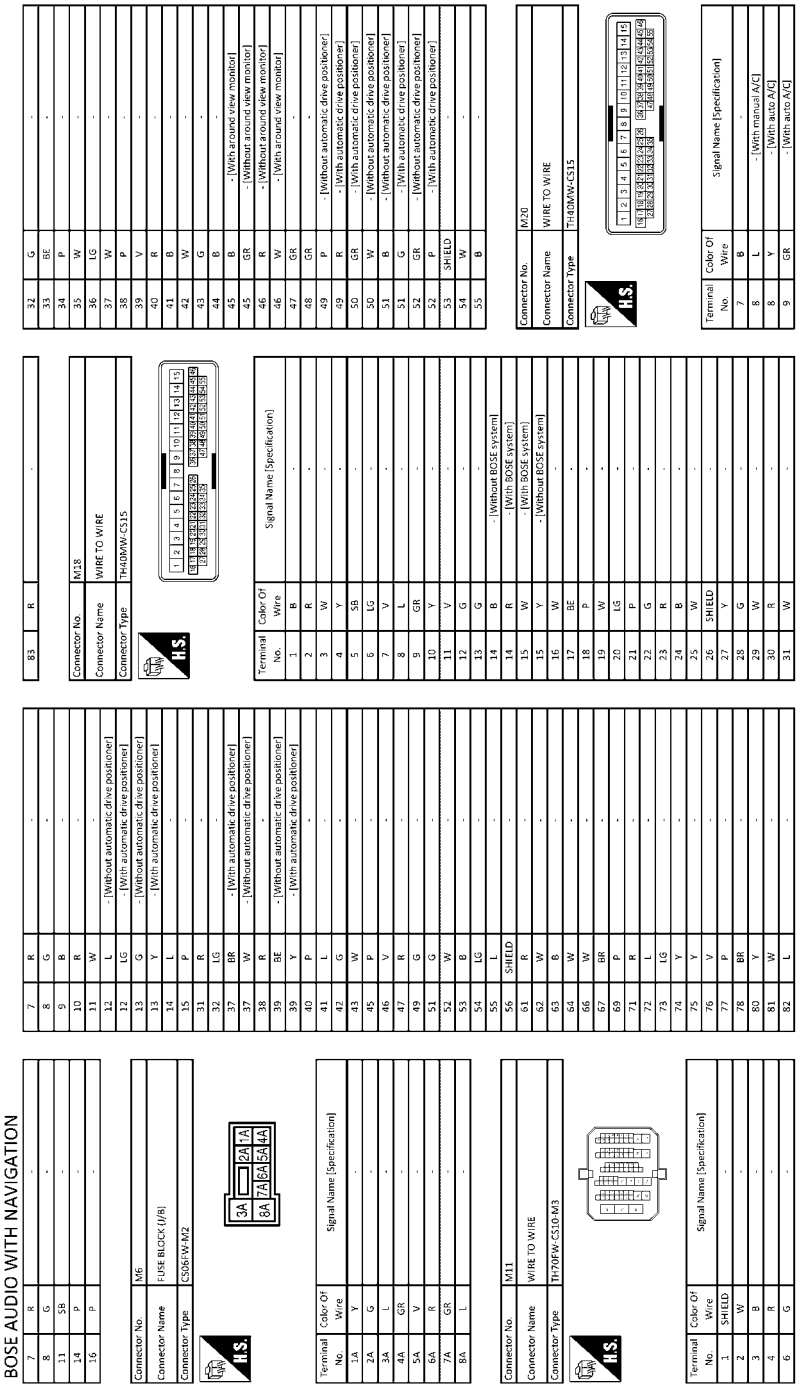

JRNWF2270GB

cardiagn.com




JRNWF2271GB

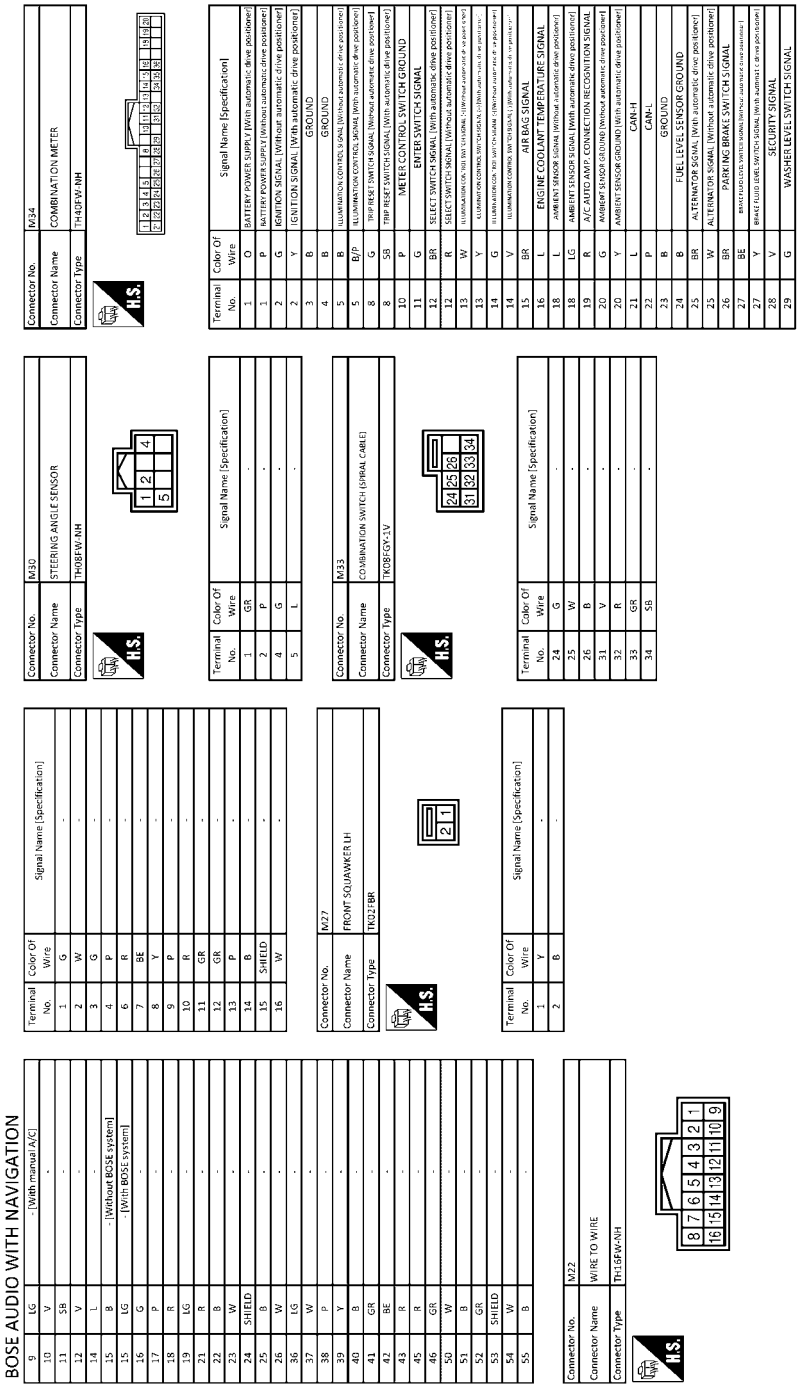
cardiagn.com




JRNWF2272GB

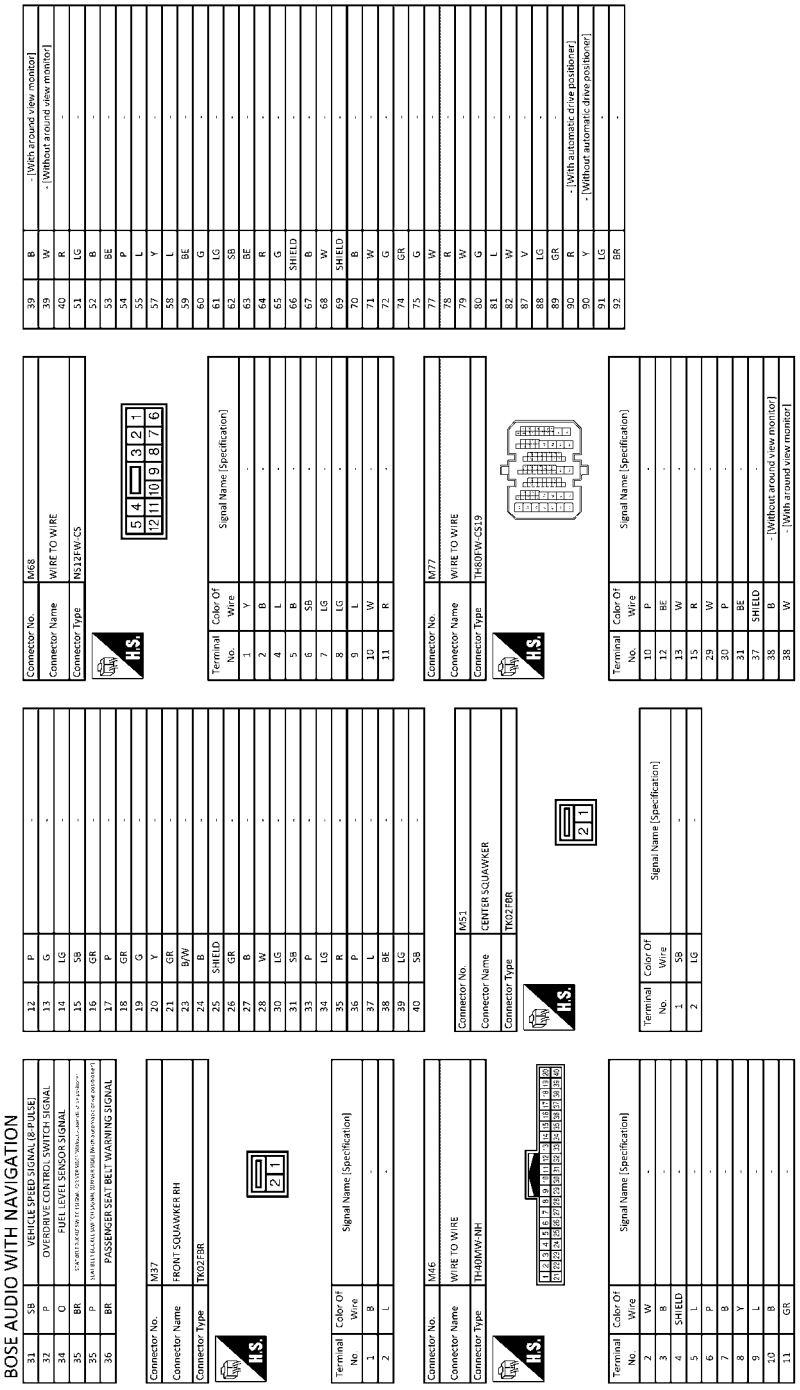


cardiagn.com




JRNWF2273GB

cardiagn.com



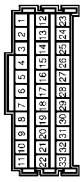

JRNWF2274GB

cardiagn.com

BOSE AUDIO WITH NAVIGATION

| Connector No. | M106 |
|---|---|
| Connector Name | JOINT CONNECTOR-M15 |
| Connector Type | BJ30FW |

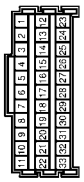
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | B | - |
| 3 | B | - |
| 4 | L | - |
| 5 | L | - |
| 6 | L | - |
| 8 | GR | - |
| 9 | Y | - |
| 10 | Y | - |
| 11 | Y | - |
| 12 | R | - |
| 14 | R | - |
| 15 | R | - |
| 17 | Y | - |
| 18 | Y | - |
| 19 | Y | - |
| 20 | Y | - |
| 21 | G | - [Without automatic drive positioner] |
| 21 | Y | - [With automatic drive positioner] |
| 22 | G | - [Without automatic drive positioner] |
| 22 | Y | - [With automatic drive positioner] |
| 23 | GR | - |
| 25 | GR | - |
| 26 | V | - |
| 27 | V | - |
| 28 | V | - |
| 29 | SB | - |
| 30 | BE | - |
| 31 | SB | - |
| 32 | SB | - |
| 33 | BE | - |

| Connector No. | M107 |
|---|---|
| Connector Name | JOINT CONNECTOR-M14 |
| Connector Type | BJ30FW |

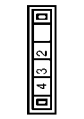
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | R | - |
| 3 | R | - |
| 4 | R | - |
| 6 | O | - |
| 7 | O | - |
| 8 | O | - |
| 9 | P | - |
| 10 | P | - |
| 11 | O | - |
| 12 | Y | - |
| 13 | Y | - |
| 14 | Y | - |
| 15 | B | - |
| 16 | B | - |
| 17 | B | - |
| 20 | Y | - [Without automatic drive positioner] |
| 21 | G | - [With automatic drive positioner] |
| 21 | Y | - [Without automatic drive positioner] |
| 22 | G | - [With automatic drive positioner] |
| 22 | Y | - |
| 23 | V | - |
| 25 | LG | - |
| 26 | LG | - |
| 27 | V | - |
| 29 | P | - |
| 30 | P | - |
| 31 | P | - |
| 32 | P | - |
| 33 | P | - |

| Connector No. | M124 |
|---|---|
| Connector Name | JOINT CONNECTOR-M18 |
| Connector Type | TK04FW-J |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | SHIELD | - |
| 3 | SHIELD | - |
| 4 | GR | - |

| Connector No. | M115 |
|---|---|
| Connector Name | JOINT CONNECTOR-M16 |
| Connector Type | TK04FW-J |

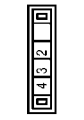
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | GR | - |
| 2 | SHIELD | - |
| 3 | GR | - |
| 4 | SHIELD | - |

| Connector No. | M116 |
|---|---|
| Connector Name | JOINT CONNECTOR-M19 |
| Connector Type | TK04FW-J |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | SB | - |
| 3 | SB | - |
| 4 | SB | - |

| Connector No. | M117 |
|---|---|
| Connector Name | JOINT CONNECTOR-M20 |
| Connector Type | TK04FW-J |

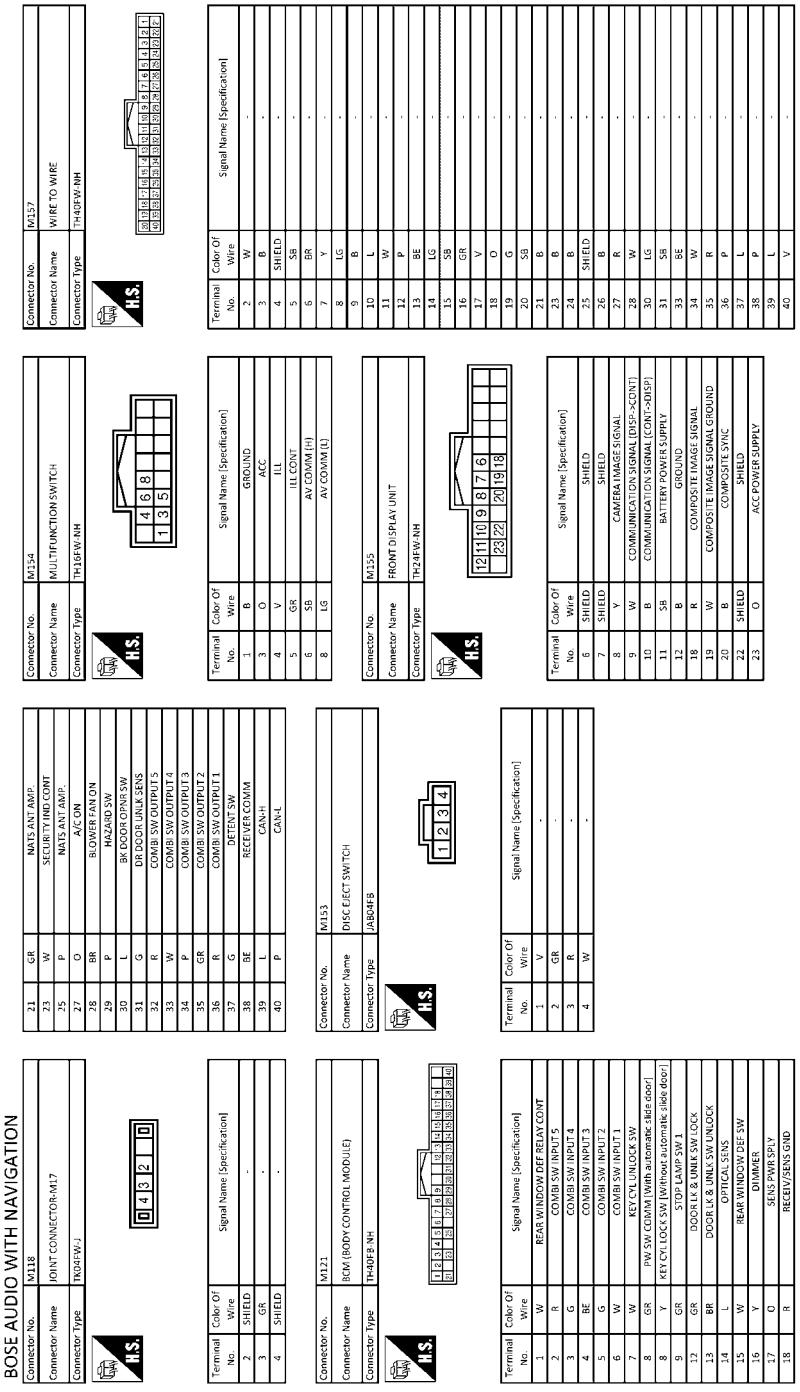
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | LG | - |
| 3 | LG | - |
| 4 | LG | - |

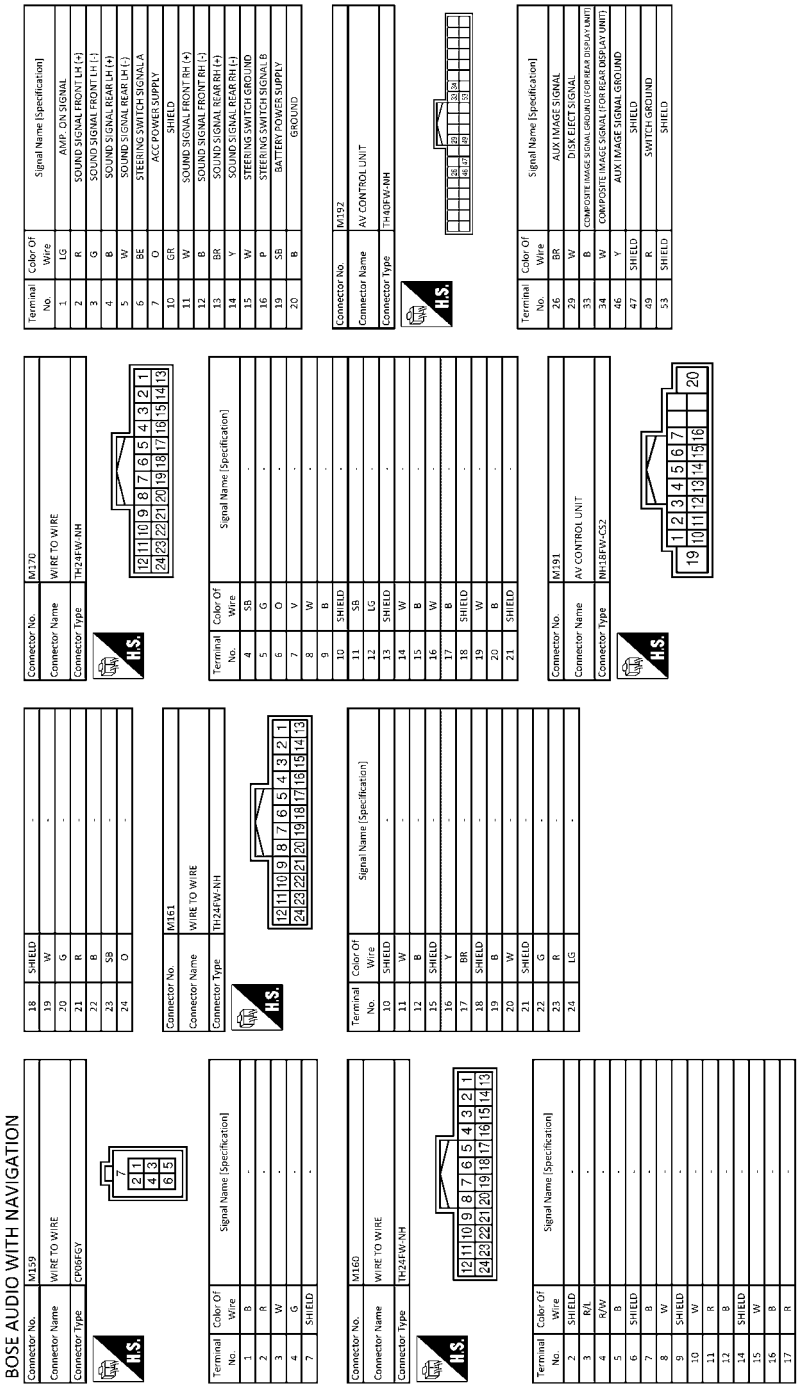
JRNWF2275GB

cardiagn.com




JRNWF2276GB

cardiagn.com




JRNWF2277GB

cardiagn.com

BOSE AUDIO WITH NAVIGATION

| Connector No. | M193 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | TH32FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 65 | R | PARKING BRAKE SIGNAL |
| 67 | W | COMPOSITE IMAGE SIGNAL GROUND FOR FRONT DISPLAY UNIT |
| 68 | R | COMPOSITE IMAGE SIGNAL (FOR FRONT DISPLAY UNIT) |
| 71 | SHIELD | SHIELD |
| 72 | W | MICROPHONE VCC |
| 73 | B | COMMUNICATION SIGNAL [CONT->DISP] |
| 74 | P | CAN-L |
| 75 | LG | AV COMMUNICATION SIGNAL (L) |
| 76 | LG | AV COMMUNICATION SIGNAL (L) |
| 79 | BE | DIMMER SIGNAL |
| 80 | G | IGNITION SIGNAL |
| 81 | W | REVERSE SIGNAL |
| 82 | P | VEHICLE SPEED SIGNAL [8-PULSE] |
| 83 | SHIELD | SHIELD |
| 84 | B | COMPOSITE IMAGE SYNCHRONIZING SIGNAL |
| 87 | B | MICROPHONE SIGNAL |
| 88 | SHIELD | SHIELD |
| 89 | W | COMMUNICATION SIGNAL [DISP->CONT] |
| 90 | L | CAN-H |
| 91 | SB | AV COMMUNICATION SIGNAL (H) |
| 92 | V | AV COMMUNICATION SIGNAL (H) |

| Connector No. | M194 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | TH28FW |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 104 | B | AUX SOUND SIGNAL LH (+) |
| 106 | P | HEADPHONE SOUND SIGNAL LH (+) |
| 107 | BR | HEADPHONE SOUND SIGNAL RH (+) |
| 117 | SHIELD | SHIELD |
| 118 | R | AUX SOUND SIGNAL RH (+) |
| 119 | W | AUX SOUND SIGNAL GROUND |
| 120 | L | HEADPHONE SOUND SIGNAL LH (-) |
| 121 | Y | HEADPHONE SOUND SIGNAL RH (-) |
| 122 | GR | SHIELD |

| Connector No. | M195 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | HA40AFL |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 129 | G | USB GROUND |
| 130 | W | USB D- SIGNAL |
| 131 | R | V BUS SIGNAL |
| 132 | B | USB D+ SIGNAL |
| 133 | SHIELD | SHIELD |

| Connector No. | M253 |
|---|---|
| Connector Name | AROUND VIEW MONITOR CONTROL UNIT |
| Connector Type | TH40FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | SHIELD | SHIELD |
| 4 | B | CAMERA IMAGE SIGNAL |
| 5 | B | FRONT CAMERA GROUND |
| 6 | R | FRONT CAMERA POWER SUPPLY |
| 7 | SHIELD | SHIELD |
| 8 | W | FRONT CAMERA IMAGE SIGNAL |
| 9 | B | SIDE CAMERA PASSENGER SIDE GROUND |
| 10 | R | SIDE CAMERA PASSENGER SIDE POWER SUPPLY |
| 11 | SHIELD | SHIELD |
| 12 | W | SIDE CAMERA PASSENGER SIDE IMAGE SIGNAL |
| 13 | B | SIDE CAMERA DRIVER SIDE GROUND |
| 14 | R | SIDE CAMERA DRIVER SIDE POWER SUPPLY |
| 15 | SHIELD | SHIELD |
| 16 | W | SIDE CAMERA DRIVER SIDE IMAGE SIGNAL |
| 17 | B | REAR CAMERA GROUND |
| 18 | R | REAR CAMERA POWER SUPPLY |
| 19 | SHIELD | SHIELD |
| 20 | W | REAR CAMERA IMAGE SIGNAL |
| 24 | P | CAN-L |
| 26 | L | CAN-H |
| 32 | LG | REVERSE SIGNAL |
| 39 | B | GROUND |
| 40 | G | IGNITION SIGNAL |

| Connector No. | M303 |
|---|---|
| Connector Name | COMBINATION SWITCH (SPIRAL CABLE) |
| Connector Type | TK08FGY |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 13 | - | - |
| 14 | - | - |
| 15 | - | - |
| 16 | - | - |
| 17 | - | - |
| 18 | - | - |
| 19 | - | - |
| 20 | - | - |

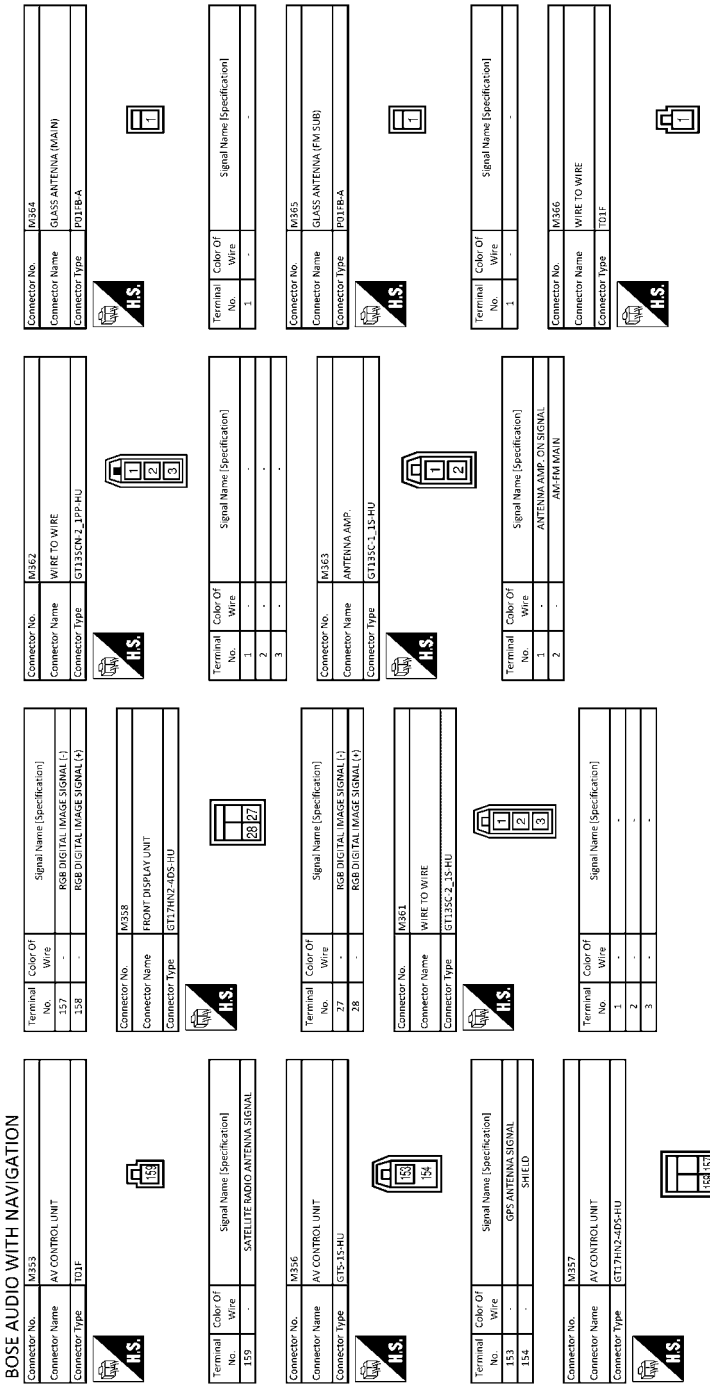
| Connector No. | M351 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | GT13SH-2_15-HU |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 150 | - | ANTENNA AMP. ON SIGNAL |
| 151 | - | AM-FM MAIN |
| 152 | - | FM SUB |

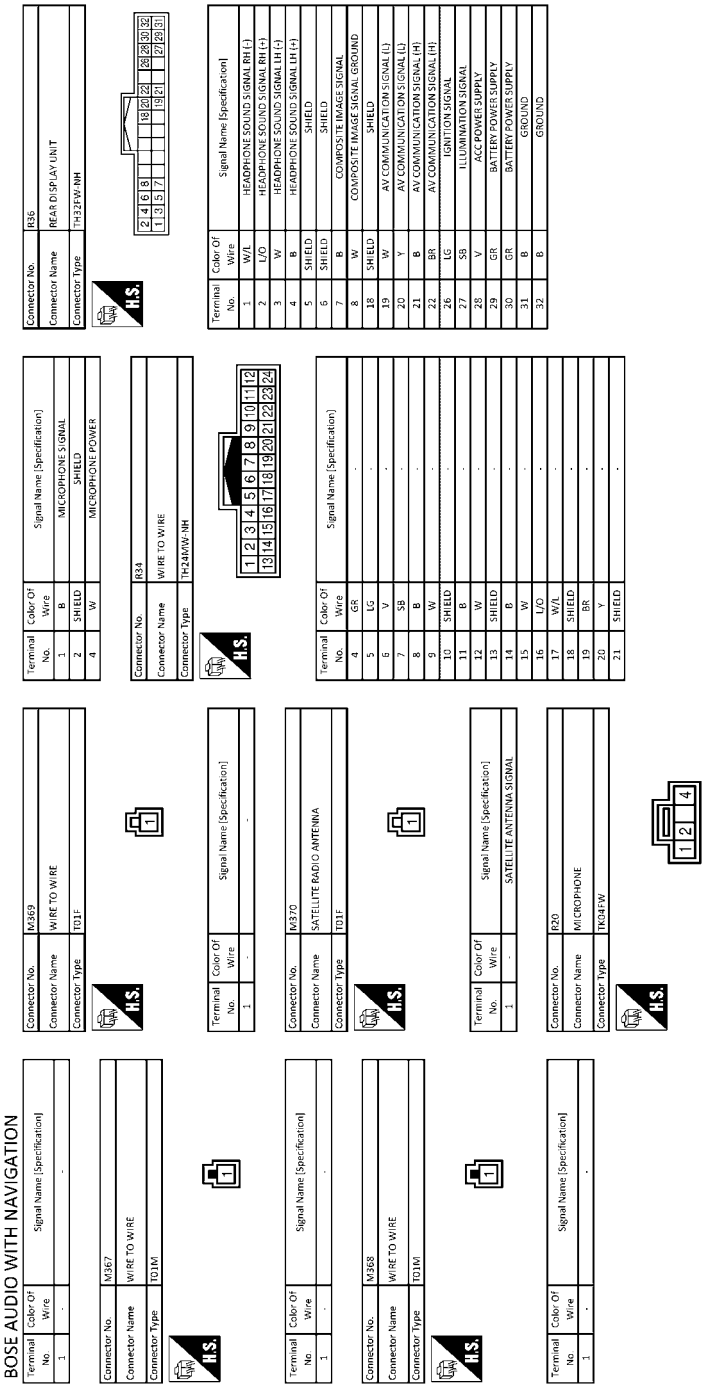
JRNWF2278GB

cardiagn.com




JRNWF2279GB

cardiagn.com

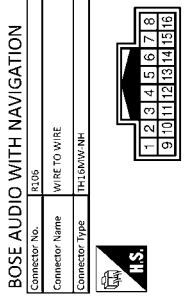



JRNWF2280GB

cardiagn.com

BOSE AUDIO WITH NAVIGATION

| | |
|---|---|
| Connector No. | R106 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH16MW-NH |




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LG | - |
| 2 | SB | - |
| 3 | P | : [For Rear Display Unit without auto recirculation] |
| 3 | V | : [Except for Rear Display Unit without auto recirculation] |
| 4 | LG | - |
| 6 | LG | - |
| 7 | L | - |
| 8 | BR | - |
| 9 | SB | - |
| 10 | BR | - |
| 11 | B | - |
| 12 | V | - |
| 13 | Y | - |
| 14 | B | - |
| 15 | SHIELD | - |
| 16 | W | - |

JRNWF2281GB

cardiagn.com

# BASIC INSPECTION

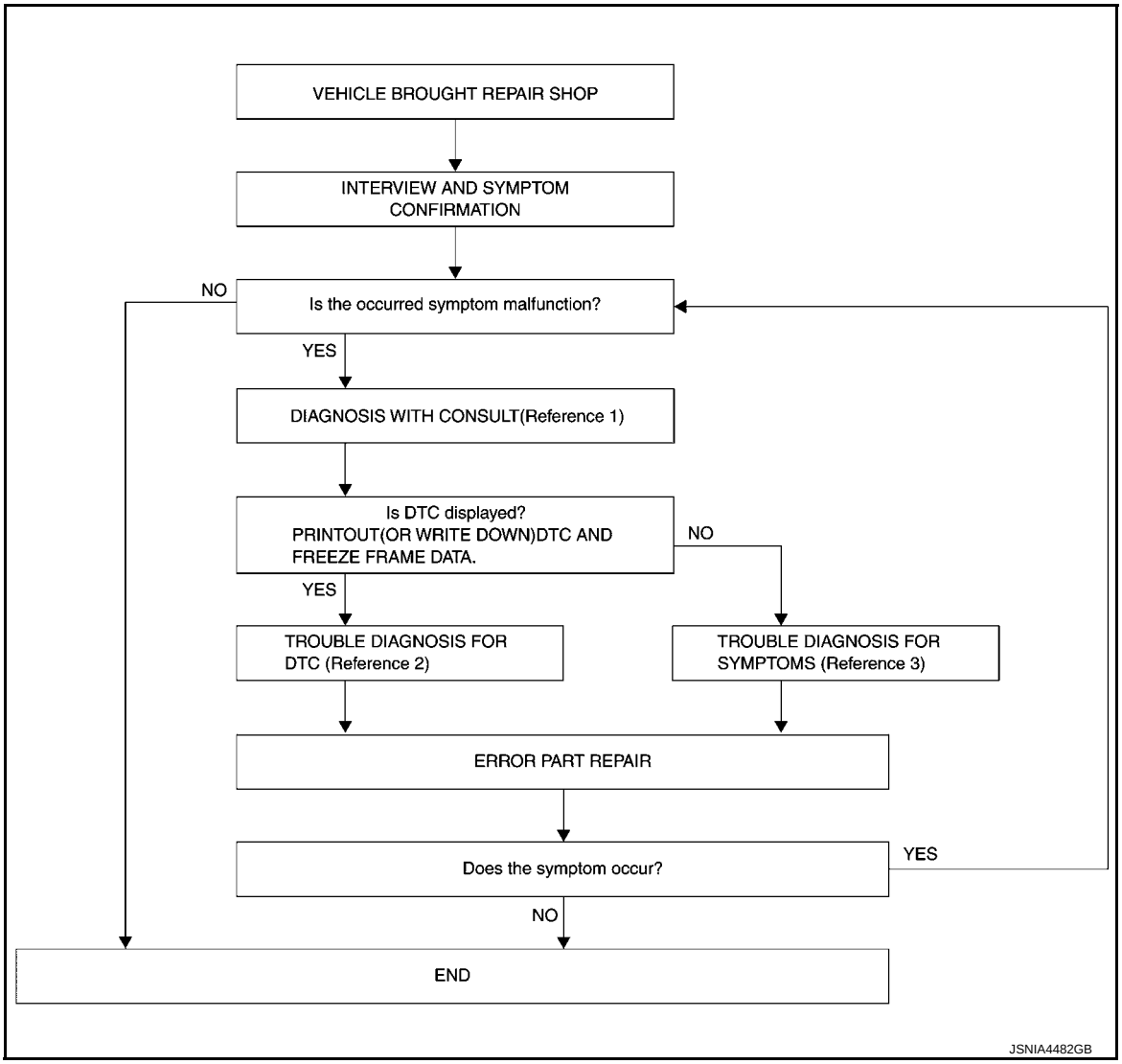
## DIAGNOSIS AND REPAIR WORK FLOW

## MULTI AV SYSTEM

### MULTI AV SYSTEM : Work Flow

INFOID:0000000012407430

OVERALL SEQUENCE




- Reference 1··· Refer to AV-469, "CONSULT Function".
- Reference 2··· Refer to AV-482, "DTC Index".
- Reference 3··· Refer to AV-598, "Symptom Table".

DETAILED FLOW

### 1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.
NO >> INSPECTION END



cardiagn.com

## 2.DIAGNOSIS WITH CONSULT

1. Connect CONSULT and perform a self-diagnosis for “MULTI AV”. Refer to AV-469, "CONSULT Function".
   **NOTE:**
   Skip to step 4 of the diagnosis procedure if “MULTI AV” is not displayed.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Is DTC displayed?

YES >> GO TO 3.
NO >> GO TO 4.

## 3.TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-482, "DTC Index".

>> GO TO 5.

## 4.TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-598, "Symptom Table".

>> GO TO 5.

## 5.ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for “MULTI AV” with CONSULT.
   **NOTE:**
   Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.
3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.
NO >> INSPECTION END

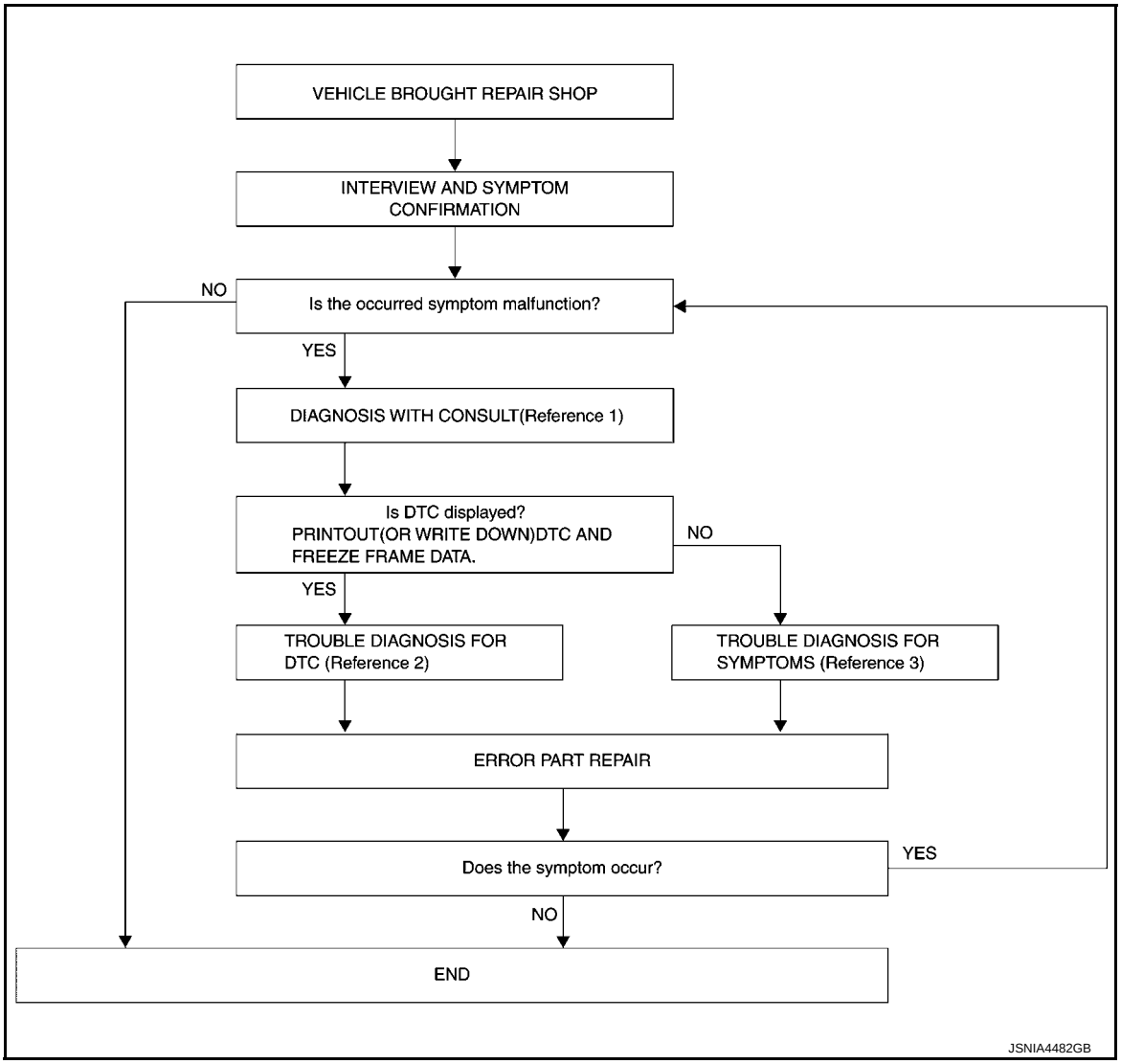
# AROUND VIEW MONITOR SYSTEM

cardiagn.com

# AROUND VIEW MONITOR SYSTEM : Work Flow

INFOID:0000000012407431

## OVERALL SEQUENCE




- Reference 1··· Refer to AV-473, "CONSULT Function".
- Reference 2··· Refer to AV-491, "DTC Index".
- Reference 3··· Refer to AV-598, "Symptom Table".

## DETAILED FLOW

### 1. INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.
NO >> INSPECTION END

### 2. DIAGNOSIS WITH CONSULT

1. Connect CONSULT and perform a self-diagnosis for “AVM”. Refer to AV-473, "CONSULT Function".
   **NOTE:**
   Skip to step 4 of the diagnosis procedure if “AVM” is not displayed.
2. When DTC is detected, follow the instructions below:



cardiagn.com

- Record DTC and Freeze Frame Data.

Is DTC displayed?

YES >> GO TO 3.
NO >> GO TO 4.

## 3. TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-491, "DTC Index".

>> GO TO 5.

## 4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-598, "Symptom Table".

>> GO TO 5.

## 5. ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for “AVM” with CONSULT.
   **NOTE:**
   Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.
3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.
NO >> INSPECTION END

cardiagn.com

# INSPECTION AND ADJUSTMENT

## ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT

### ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description

INFOID:0000000012407432

BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement. Refer to AV-523, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure".

AFTER REPLACEMENT

**CAUTION:**

**When replacing AV control unit, you must perform “After Replace ECU” or “Manual Configuration” with CONSULT.**

- **Complete the procedure of “After Replace ECU” or “Manual Configuration” in order.**
- **If you set incorrect “After Replace ECU” or “Manual Configuration”, incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**

### ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure

INFOID:0000000012407433

1. SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” to save or print current vehicle specification. Refer to AV-524, "CONFIGURATION (AV CONTROL UNIT) : Description".

**NOTE:**

If “Before Replace ECU” can not be used, use the “Manual Configuration”.

>> GO TO 2.

2. REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-610, "Removal and Installation".

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “After Replace ECU” or “Manual Configuration” to write vehicle specification. Refer to AV-524, "CONFIGURATION (AV CONTROL UNIT) : Work Procedure".

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

## ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

### ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:0000000012407434

Perform the calibrating camera image when replacing around view monitor control unit. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

## CONFIGURATION (AV CONTROL UNIT)



cardiagn.com

## CONFIGURATION (AV CONTROL UNIT) : Description

INFOID:0000000012407435

- Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT. Refer to AV-524, "CONFIGURATION (AV CONTROL UNIT) : Work Procedure".
- Configuration has three functions as follows.

| Function | | Description |
|---|---|---|
| Read/Write Configuration | Before Replace ECU | Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT. |
| | After Replace ECU | Allows the writing of the vehicle information stored in CONSULT into the AV control unit. |
| Manual Configuration | | Allows the writing of the vehicle specification into the AV control unit by hand. |

## CONFIGURATION (AV CONTROL UNIT) : Work Procedure

INFOID:0000000012407436

### 1.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.
To write vehicle specification into the AV control unit by hand>>GO TO 3.

### 2.WRITE STORED DATA

CONSULT Configuration
Select “After Replace ECU” in “Read/Write Configuration.” Write data stored in CONSULT with the “Before Replace ECU” function into the AV control unit.

>> GO TO 4.

### 3.MANUALLY WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Manual Configuration.” Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-524, "CONFIGURATION (AV CONTROL UNIT) : Configuration List".
**NOTE:**
If selection items are not displayed on the CONSULT screen, touch “NEXT.”

>> GO TO 4.

### 4.OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

## CONFIGURATION (AV CONTROL UNIT) : Configuration List

INFOID:0000000012407437

**CAUTION:**
**Grasp vehicle specifications precisely. The control of ECU may not function normally if the specifications are misread.**
**NOTE:**
- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

cardiagn.com

| MANUAL SETTING ITEM | |
|---|---|
| Items | Setting value |
| STEERING | LHD |
| | RHD |
| SOUND SYSTEM | BASE |
| | BOSE |

# CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)

## CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure

INFOID:0000000012407438

### 1.SAVING VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Before Replace ECU”, and save the current vehicle specification in CONSULT.
Is the vehicle specification saved normally?

YES >> GO TO 2.
NO >> GO TO 4.

### 2.REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

>> GO TO 3.

### 3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration
Select “Configuration” or “After Replace ECU”, and write the vehicle specification saved in CONSULT to around view monitor control unit.

>> GO TO 6.

### 4.REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

>> GO TO 5.

### 5.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Select “Manual Configuration”, and write the vehicle specification to around view monitor control unit.
**NOTE:**
Around view monitor control unit does not have any setting items. Selection of items on “Manual Configuration” screen is not required.

>> GO TO 6.

### 6.PERFORM SELF-DIAGNOSIS

CONSULT Self Diagnostic Result
Perform self-diagnosis of CONSULT, and check whether or not DTC U1305 is detected.
Is DTC U1305 detected?

YES >> GO TO 5.
NO >> GO TO 7.

### 7.OPERATION CHECK

cardiagn.com

Check that the operation of the around view monitor control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

## PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT

### PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Description

INFOID:0000000012407439

Adjust the center position of the predictive course line of the rear view monitor if it is shifted. Refer to AV-526, "PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure".

### PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure

INFOID:0000000012407440

#### 1. DRIVING

Drive the vehicle straight ahead 100 m (328.1 ft) or more at a speed of 30 km/h (18.6 MPH) or more.

>> END

## CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

### CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description

INFOID:0000000012407441

- Calibration must be performed after removing/replacing the cameras, removing parts (e.g. front grille, door mirror, and others) mounted on the cameras, or replacing the Around view monitor control unit. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure".
- The use of CONSULT is required to perform calibration or writing of calibration results to the Around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The farther the line, the greater the difference is.

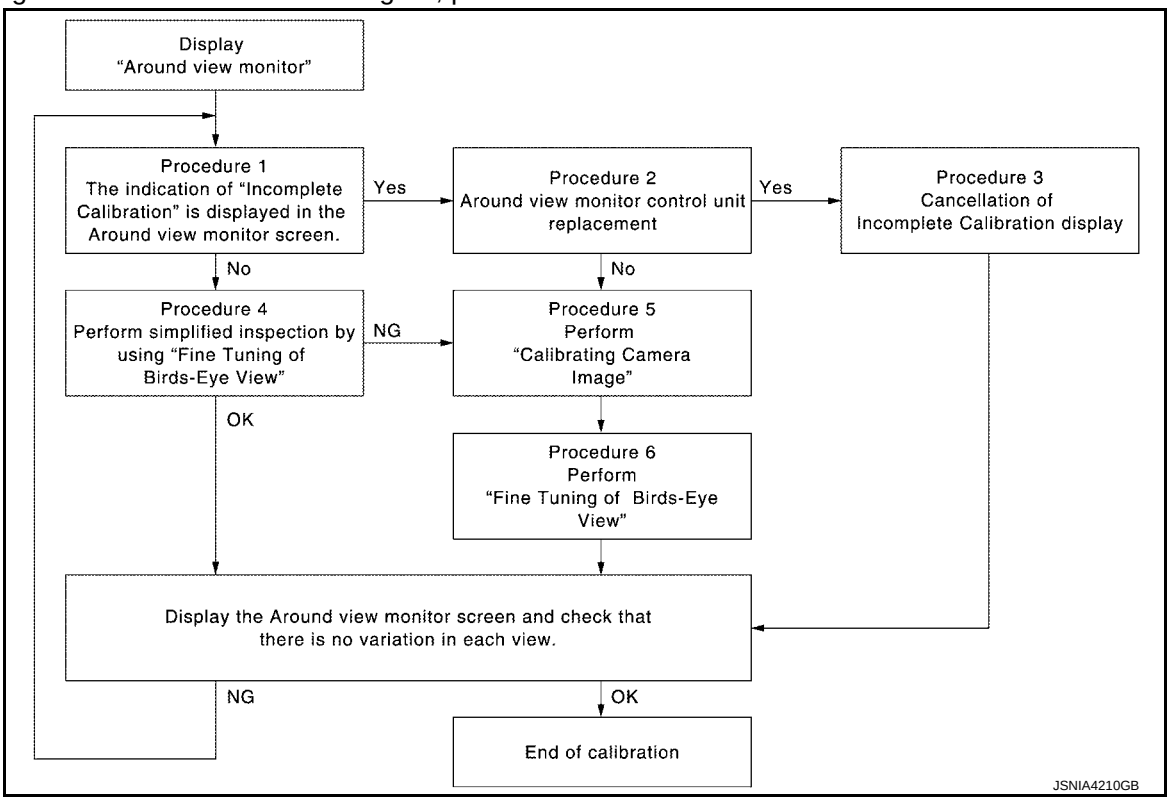
### CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure

INFOID:0000000012407442

CALIBRATION FLOWCHART

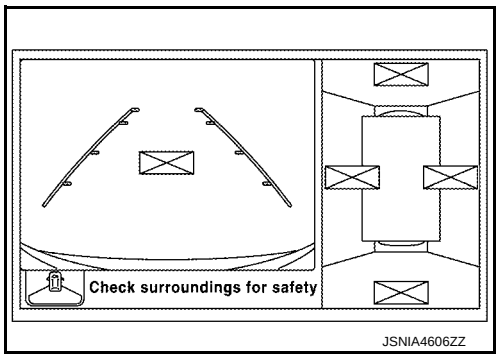
cardiagn.com

Following the flowchart shown in the figure, perform the calibration.




**NOTE:**

View in the incomplete calibration state is indicated by "⊠" on the around view monitor.



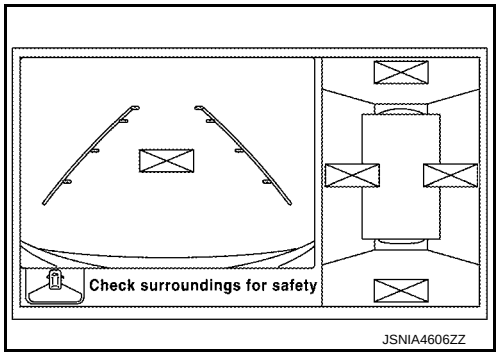

## CALIBRATION PROCEDURE

### 1. AROUND VIEW MONITOR SCREEN CONFIRMATION

Check that there is no indication of "Incomplete calibration".

Is the "Incomplete calibration" display visible?

YES >> GO TO 2.
NO >> GO TO 4.




### 2. CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

Is the around view monitor control unit replaced?

YES >> GO TO 3.
NO >> GO TO 5.

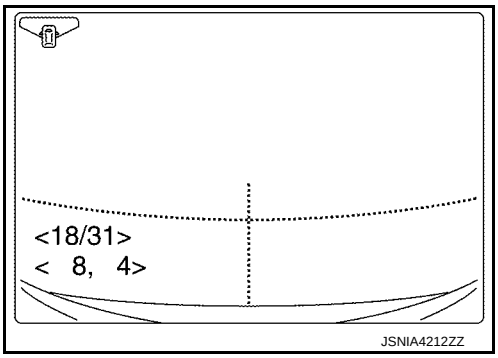


cardiagn.com

## 3. CANCEL THE INDICATION OF INCOMPLETE CALIBRATION (PERFORM THIS ONLY AFTER REPLACING AROUND VIEW MONITOR CONTROL UNIT.)

CONSULT work support

1. On the CONSULT screen, touch “CALIBRATING CAMERA IMAGE (FRONT CAMERA)”, “CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)”, “CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)”, or “CALIBRATING CAMERA IMAGE (REAR CAMERA)” to accept the selection.
   **NOTE:**
   To cancel the indication of Incomplete calibration, select items based on the target camera.
2. On the adjustment screen of each camera, touch “APPLY” button. After this, touch “OK” button.
   **CAUTION:**
   - **Never perform operations other than those mentioned above.**
   - **Never perform “Initialize Camera Image Calibration”.**
3. Display the around view monitor screen to check that there is no errors, such as deviations among the camera images.



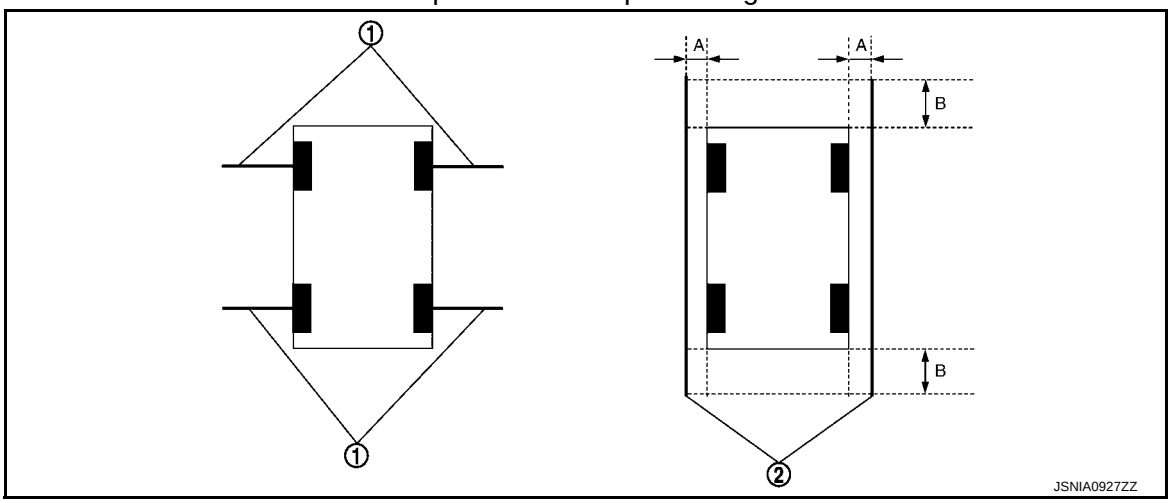

Is there a malfunction?

YES >> Calibration end
NO >> GO TO 1.

## 4. PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY “FINE TUNING OF BIRDS-EYE VIEW”

1. Put target line 1 on the ground beside each axle using packing tape, etc.
2. Put target lines 2 equal to the vehicle total length + approximately 1.0 m (39.3 in) from the vehicle side (right and left) at approximately 30 cm (11.8 in) away from the vehicle (make the line as parallel with the vehicle as possible)

Preparation of simplified target line




1. Target lines 1
2. Target lines 2
A. Approx. 30 cm (11.8 in)
B. Approx. 1.0 m (39.3 in)

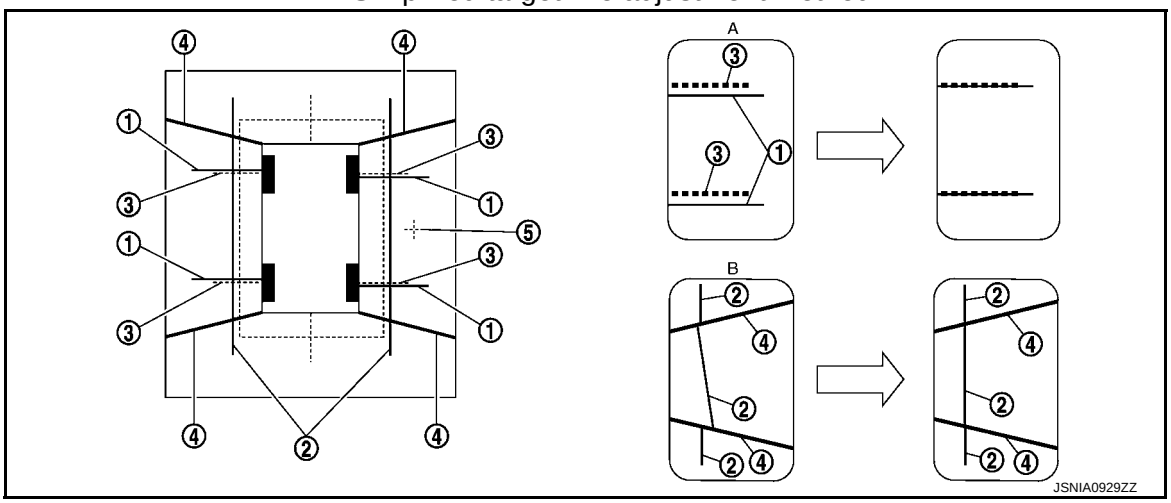
3. CONSULT work support
   Touch “FINE TUNING OF BIRDS-EYE VIEW” on the CONSULT screen.
4. On the CONSULT screen, touch “SELECT” button to select right or left camera and perform camera calibration as instructed below:

- If the marker on the screen deviates from Target line 1, touch “AXIS X” button and “AXIS Y” button to adjust so that the marker is placed on the Target line 1.
- If Target line 2 is misaligned among the cameras, adjust each camera image to bring Target line 2 into a straight line.

**CAUTION:**
**Never adjust the front camera and rear camera. Only adjust the right and left cameras.**

cardiagn.com

Simplified target line adjustment method




| | | | | | |
|---|---|---|---|---|---|
| 1. | Target lines 1 | 2. | Target lines 2 | 3. | Marker for target line 1 |
| 4. | Boundary between cameras | 5. | Crosshairs cursor (mark indicated the selected camera) | | |
| A. | Adjustment method for target lines 1 (right) | B. | Adjustment method for target lines 2 (right) | | |

5. Adjust right and left cameras. Touch "APPLY" on the CONSULT screen to display adjustment results.
6. After adjusting right and left cameras, check that the marker is properly placed on the screen and there is no deviation in Target line 1.
   **NOTE:**
   - It can be initialized to the NISSAN factory default condition with “Initialize Camera Image Calibration”.
   - The adjustment value is cancelled on this mode by performing “Initialize Camera Image Calibration”.

Is the difference corrected?

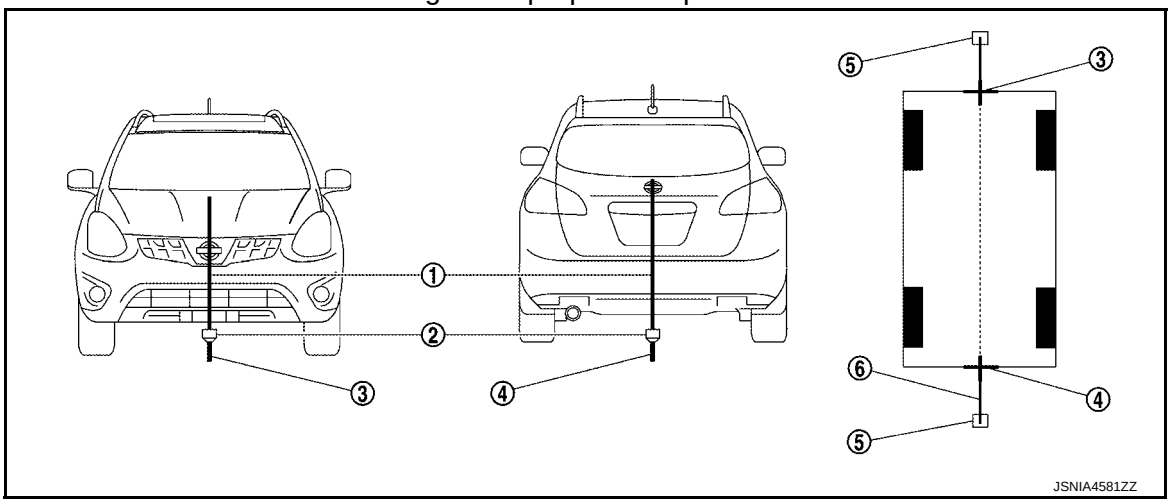
YES >> On the CONSULT screen, touch “OK” button to complete writing to the around view monitor control unit.
NO >> GO TO 5.

## 5. PERFORM “CALIBRATING CAMERA IMAGE”

Preparation of target line

1. Hang a string with a weight as shown in the figure. Put the points FM0, RM0 (mark) on the ground at the center of the vehicle front end and rear end with white packing tape or a pen.
2. Route the vinyl string under the vehicle, and then pull and fix it on the point approximately 1.0 m (39.9 in) to the front and rear of the vehicle through the points FM0 and RM0 using packing tape.

Target line preparation procedure 1

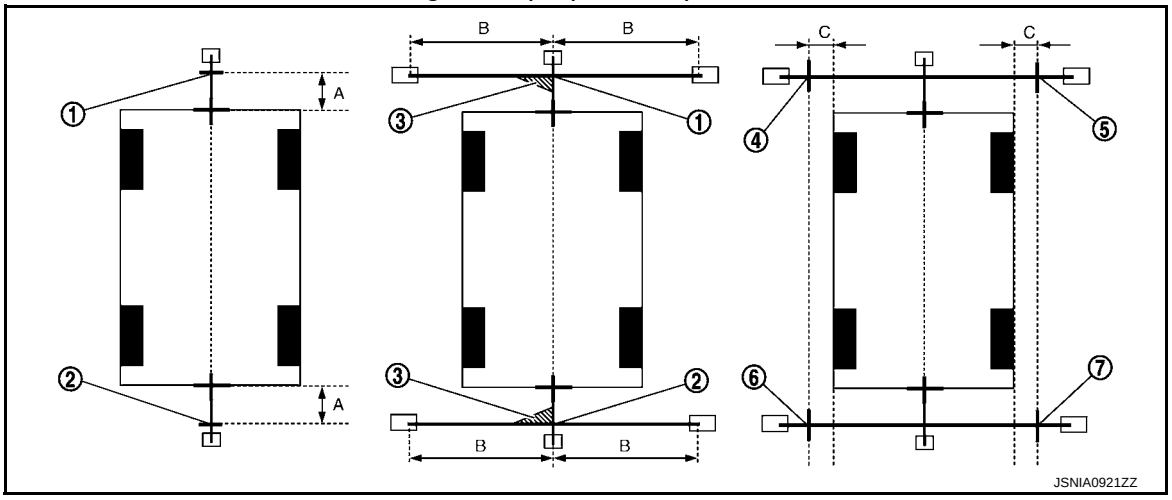



cardiagn.com

1. Thread
2. Weight
3. Point FM0 (mark)
4. Point RM0 (mark)
5. Packing tape (to fix the vinyl string)
6. Vinyl string

3. Put the points FM and RM (mark) 75 cm (29.5 in) from the points FM0 and RM0 individually.
4. Route the vinyl string through the points FM and RM using a triangle scale, and then fix it at approximately 1.5 m (59 in) on both sides with packing tape.
5. Put the points FL, FR, RL, and RR (mark) to both right and left [vehicle width / 2 + 30 cm (11.8 in)] from the points FM and RM.

Target line preparation procedure 2

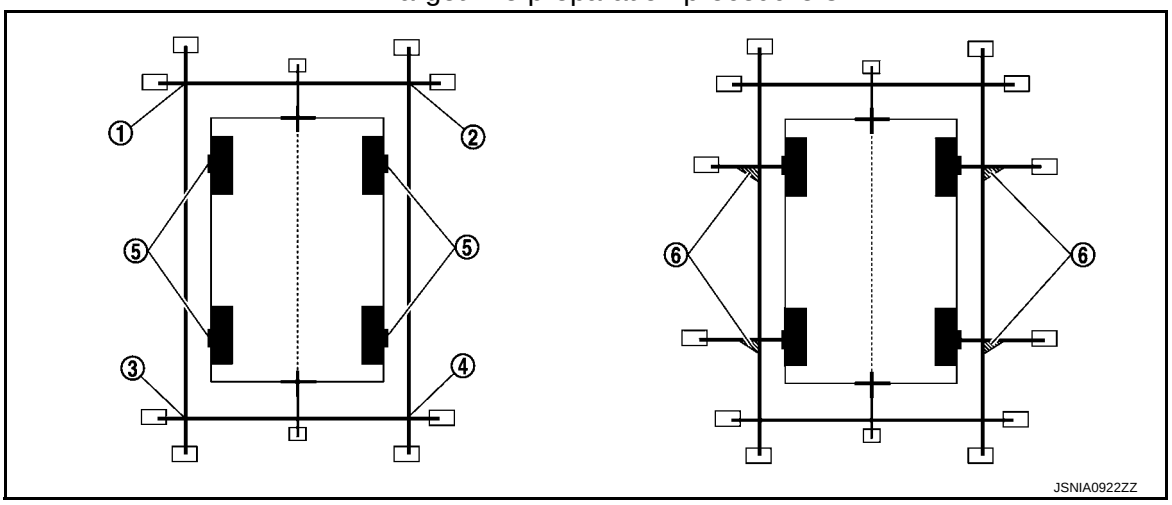



1. Point FM
2. Point RM
3. Triangle scale
4. Point FL (mark)
5. Point FR (mark)
6. Point RL (mark)
7. Point RR (mark)

A. 75 cm (29.5 in)
B. Approx. 1.5 m (59 in)
C. 30 cm (11.8 in) [Vehicle width/ 2 + 30 cm (11.8 in) from the points FM and RM]

6. Draw the lines of the points FL – RL and FR – RR with vinyl string, and fix it with packing tape.
7. Put a mark on the center of each axle, draw vertical lines to the lines of the points FL – RL and FR – RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3



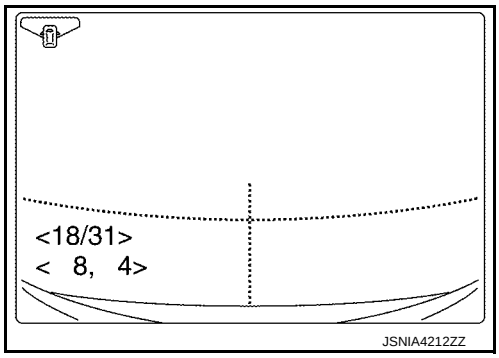

1. Point FL
2. Point FR
3. Point RL
4. Point RR
5. Center position of axle
6. Triangle scale

Perform “Calibrating Camera Image”
CONSULT work support



cardiagn.com

1. On the CONSULT screen, touch “CALIBRATING CAMERA IMAGE (FRONT CAMERA)”, “CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)”, “CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)”, or “CALIBRATING CAMERA IMAGE (REAR CAMERA)” to accept the selection.
**NOTE:**
To cancel the indication of Incomplete calibration, select items based on the target camera.
2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.



JSNIA4212ZZ

| Adjustment range | |
|---|---|
| Rotation direction (Center dial) | : 31 patterns (16 on the center) |
| Upper/lower direction (upper/lower switch) | : –22 – 22 |
| Left/right direction (left/right switch) | : –22 – 22 |

3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.
**CAUTION:**
**Check that “PRCSNG” is displayed. Do never perform other operations while “PRCSNG” is displayed.**
4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.
**CAUTION:**
**Check that “PRCSNG” is displayed. Do never perform other operations while “PRCSNG” is displayed.**

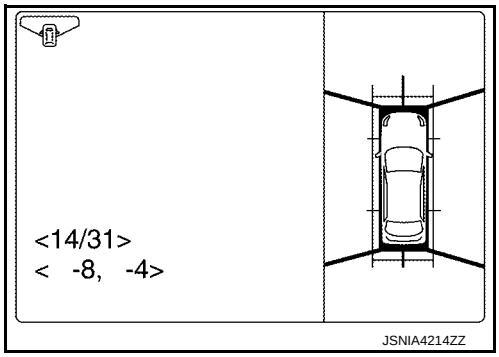
>> GO TO 6.

## 6. PERFORM “FINE TUNING OF BIRDS-EYE VIEW”

This mode is designed to align the boundary between each camera image that could not be aligned in the “Calibrating Camera Image” mode.

CONSULT work support

1. Select “FINE TUNING OF BIRDS-EYE VIEW” by touching CONSULT screen.
2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button”, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.
**NOTE:**
Touch “SELECT” button on the CONSULT screen to select the target camera.



JSNIA4214ZZ

3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.
**CAUTION:**
**Check that “PRCSNG” is displayed. Do never perform other operations while “PRCSNG” is displayed.**
4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.
**CAUTION:**
- **Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.**
- **After pressing the “OK” button, never press buttons other than the “BACK” button.**

**NOTE:**
- It can be initialized to the NISSAN factory default condition with “Initialize Camera Image Calibration”.
- The adjustment value is cancelled in this mode by performing “Initialize Camera Image Calibration”.

>> Calibration end

cardiagn.com

# DTC/CIRCUIT DIAGNOSIS

## U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

### DTC Logic

INFOID:0000000012407443

#### DTC DETECTION LOGIC

| DTC | Trouble diagnosis name | DTC detecting condition | Possible causes |
|---|---|---|---|
| U0122 | VDC P-RUN DIAGNOSIS | If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**
If DTC “U0122” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to AV-535, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0122” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U0122” detected as the current malfunction?

YES >> Refer to AV-532, "Diagnosis Procedure".
NO >> Refer to GI-41, "Intermittent Incident".

### Diagnosis Procedure

INFOID:0000000012407444

##### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0122” in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to AV-491, "DTC Index".
NO >> GO TO 2.

##### 2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-38, "DTC Index".
NO >> Replace the around view monitor control unit. Refer to AV-631, "Removal and Installation".

cardiagn.com

# U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

## DTC Logic

INFOID:0000000012407445

### DTC DETECTION LOGIC

| DTC | Trouble diagnosis name | DTC detecting condition | Possible causes |
|---|---|---|---|
| U0416 | VDC CHECKSUM DIAGNOSIS | If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**
If DTC “U0416” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to AV-535, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0416” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U0416” detected as the current malfunction?

YES >> Refer to AV-533, "Diagnosis Procedure".
NO >> Refer to GI-41, "Intermittent Incident".

## Diagnosis Procedure

INFOID:0000000012407446

#### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0416” in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to AV-491, "DTC Index".
NO >> GO TO 2.

#### 2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-38, "DTC Index".
NO >> Replace the around view monitor control unit. Refer to AV-631, "Removal and Installation".

cardiagn.com

# U0428 STEERING ANGLE SENSOR

## DTC Logic

INFOID:0000000012407447

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U0428 | ST ANGLE SENSOR CALIBRATION [U0428] | The neutral position adjustment of the steering angle sensor is incomplete. | Adjust neutral position of the steering angle sensor. |

## Diagnosis Procedure

INFOID:0000000012407448

### 1.ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U1232 is detected, adjust the neutral position of the steering angle sensor.

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to BRC-50, "Description".

cardiagn.com

# U1000 CAN COMM CIRCUIT

## AV CONTROL UNIT

### AV CONTROL UNIT : Description

INFOID:0000000012407449

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

### AV CONTROL UNIT : DTC Logic

INFOID:0000000012407450

#### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction location |
|---|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more. | CAN communication system. |

### AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407451

#### 1.PERFORM SELF-DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result” of “MULTI AV”.

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-41, "Intermittent Incident".

## AROUND VIEW MONITOR CONTROL UNIT

### AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:0000000012407452

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

### AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000012407453

#### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction location |
|---|---|---|---|
| U1000 | CAN COMM CIRCUIT [U1000] | Around view monitor control unit is not transmitting or receiving CAN communication signal for 2 seconds or more. | CAN communication system. |

### AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407454

#### 1.PERFORM SELF-DIAGNOSTIC

cardiagn.com

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result” of “AVM”.

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-41, "Intermittent Incident".

cardiagn.com

# U1010 CONTROL UNIT (CAN)

## AV CONTROL UNIT

### AV CONTROL UNIT : DTC Logic

INFOID:0000000012407455

#### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction factor |
|---|---|---|---|
| U1010 | CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## AROUND VIEW MONITOR CONTROL UNIT

### AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000012407456

#### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Probable malfunction factor |
|---|---|---|---|
| U1010 | CONTROL UNIT (CAN) [U1010] | CAN initial diagnosis malfunction is detected. | Replace the around view monitor control unit if the malfunction occurs constantly. Refer to AV-631, "Removal and Installation". |

cardiagn.com

# U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

## DTC Logic

INFOID:0000000012407457

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U111A | REAR CAMERA IMAGE SIGNAL | Rear camera image signal circuit is open or shorted. | Check rear camera image signal circuit between rear camera and around view monitor control unit. |

## Diagnosis Procedure

INFOID:0000000012407458

### 1.CHECK CONTINUITY REAR CAMERA POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and rear camera connector.
3. Check continuity between around view monitor control unit harness connector and rear camera harness connector.

| Around view monitor control unit | | Rear camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 18 | D197 | 1 | Existed |
| | 17 | | 2 | |

4. Check continuity between around view monitor control unit harness connector and ground.

| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M253 | 18 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE REAR CAMERA POWER SUPPLY

1. Connect around view monitor control unit connector and rear camera connector.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit harness connector and ground.

| (+) | | (–) | Condition | Voltage (Approx.) |
|---|---|---|---|---|
| Around view monitor control unit | | | | |
| Connector | Terminal | | | |
| M253 | 18 | Ground | “CAMERA” switch is ON or shift position is “R”. | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

### 3.CHECK CONTINUITY REAR CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and rear camera connector.
3. Check continuity between around view monitor control unit harness connector and rear camera harness connector.

cardiagn.com

| Around view monitor control unit | | Rear camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 20 | D197 | 3 | Existed |
| | 19 | | 4 | |

4. Check continuity between around view monitor control unit harness connector and ground.

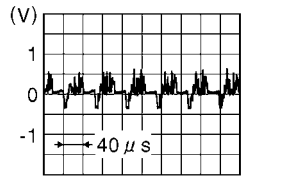
| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M253 | 19, 20 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK REAR CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit connector and rear camera connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector.

| (+) | | (–) | | Condition | Reference value |
|---|---|---|---|---|---|
| Around view monitor control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M253 | 20 | M253 | 19 | “CAMERA” switch is ON or shift position is “R”. |  |


JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".
NO >> Replace rear camera. Refer to AV-633, "Removal and Installation".

cardiagn.com

# U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

## DTC Logic

INFOID:0000000012407459

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U111B | SIDE CAMERA RH IMAGE SIGNAL | Side camera RH image signal circuit is open or shorted. | Check side camera RH image signal circuit between side camera RH and around view monitor control unit. |

## Diagnosis Procedure

INFOID:0000000012407460

### 1.CHECK CONTINUITY SIDE CAMERA RH POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

| Around view monitor control unit | | Door mirror (passenger side) | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 9 | D3 | 18 | Existed |
| | 10 | | 6 | |

4. Check continuity between around view monitor control unit harness connector and ground.

| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M253 | 10 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE SIDE CAMERA RH POWER SUPPLY

1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit harness connector and ground.

| (+) | | (–) | Condition | Voltage (Approx.) |
|---|---|---|---|---|
| Around view monitor control unit | | | | |
| Connector | Terminal | | | |
| M253 | 10 | Ground | “CAMERA” switch is ON or shift position is “R”. | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

### 3.CHECK CONTINUITY SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

cardiagn.com

| Around view monitor control unit | | Door mirror (passenger side) | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 12 | D3 | 5 | Existed |
| | 11 | | 17 | |

4. Check continuity between around view monitor control unit harness connector and ground.

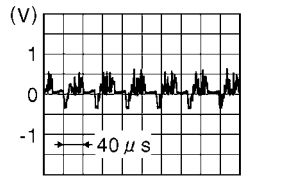
| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M253 | 11, 12 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK SIDE CAMERA RH IMAGE SIGNAL

1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector.

| (+) | | (–) | | Condition | Reference value |
|---|---|---|---|---|---|
| Around view monitor control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M253 | 12 | M253 | 11 | “CAMERA” switch is ON or shift position is “R”. |  JSNIA0834GB |



Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".
NO >> Replace side camera RH. Refer to AV-634, "Removal and Installation".

cardiagn.com

# U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

## DTC Logic

INFOID:0000000012407461

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U111C | FRONT CAMERA IMAGE SIGNAL | Front camera image signal circuit is open or shorted. | Check front camera image signal circuit between front camera and around view monitor control unit. |

## Diagnosis Procedure

INFOID:0000000012407462

### 1.CHECK CONTINUITY FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and front camera connector.
3. Check continuity between around view monitor control unit harness connector and front camera harness connector.

| Around view monitor control unit | | Front camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 6 | E404 | 1 | Existed |
| | 5 | | 2 | |

4. Check continuity between around view monitor control unit harness connector and ground.

| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M253 | 6 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE FRONT CAMERA POWER SUPPLY

1. Connect around view monitor control unit connector and front camera connector.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit harness connector.

| (+) | | (–) | Condition | Voltage (Approx.) |
|---|---|---|---|---|
| Around view monitor control unit | | | | |
| Connector | Terminal | | | |
| M253 | 6 | Ground | “CAMERA” switch is ON or shift position is “R”. | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

### 3.CHECK CONTINUITY FRONT CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and front camera connector.
3. Check continuity between around view monitor control unit harness connector and front camera harness connector.

cardiagn.com

| Around view monitor control unit | | Front camera | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 8 | E404 | 3 | Existed |
| | 7 | | 4 | |

4. Check continuity between around view monitor control unit harness connector and ground.

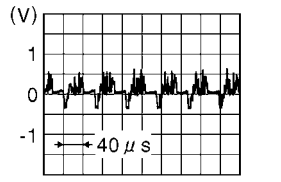
| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M253 | 7, 8 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK FRONT CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit connector and front camera connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector.

| (+) | | (–) | | Condition | Reference value |
|---|---|---|---|---|---|
| Around view monitor control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M253 | 8 | M253 | 7 | “CAMERA” switch is ON or shift position is “R”. |  |


JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".
NO >> Replace front camera. Refer to AV-632, "Removal and Installation".

cardiagn.com

# U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

## DTC Logic

INFOID:0000000012407463

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U111D | SIDE CAMERA LH IMAGE SIGNAL | Side camera LH image signal circuit is open or shorted. | Check side camera LH image signal circuit between side camera LH and around view monitor control unit. |

## Diagnosis Procedure

INFOID:0000000012407464

### 1.CHECK CONTINUITY SIDE CAMERA LH POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

| Around view monitor control unit | | Door mirror (driver side) | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 14 | D43 | 6 | Existed |
| | 13 | | 18 | |

4. Check continuity between around view monitor control unit harness connector and ground.

| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M253 | 14 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE SIDE CAMERA LH POWER SUPPLY

1. Connect around view monitor control unit connector and door mirror (driver side) connector.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit harness connector and ground.

| (+) | | (–) | Condition | Voltage (Approx.) |
|---|---|---|---|---|
| Around view monitor control unit | | | | |
| Connector | Terminal | | | |
| M253 | 14 | Ground | “CAMERA” switch is ON or shift position is “R”. | 6.2 V |

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

### 3.CHECK CONTINUITY SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

cardiagn.com

| Around view monitor control unit | | Door mirror (driver side) | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M253 | 16 | D43 | 5 | Existed |
| | 15 | | 17 | |

4. Check continuity between around view monitor control unit harness connector and ground.

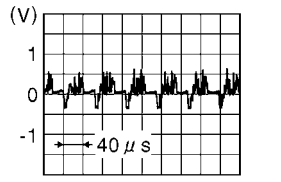
| Around view monitor control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M253 | 15, 16 | | Not existed |

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

## 4. CHECK SIDE CAMERA LH IMAGE SIGNAL

1. Connect around view monitor control unit connector and door mirror (driver side) connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector.

| (+) | | (–) | | Condition | Reference value |
|---|---|---|---|---|---|
| Around view monitor control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M253 | 16 | M253 | 15 | “CAMERA” switch is ON or shift position is “R”. |  JSNIA0834GB |



Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".
NO >> Replace side camera LH. Refer to AV-634, "Removal and Installation".

cardiagn.com

# U1200 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407465

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1200 | Cont Unit [U1200] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U1201 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407466

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1201 | GYRO NO CONN [U1201] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U1202 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407467

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1202 | G-SENSOR NO CONN [U1202] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U1204 AV CONTROL UNIT

## Description

INFOID:0000000012407468

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation".

## DTC Logic

INFOID:0000000012407469

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1204 | GPS CONN [U1204] | GPS malfunction is detected. | • An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407470

### 1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self Diagnostic Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

cardiagn.com

# U1205 AV CONTROL UNIT

## Description

INFOID:0000000012407471

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation".

## DTC Logic

INFOID:0000000012407472

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1205 | GPS ROM [U1205] | GPS malfunction is detected. | • An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407473

### 1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self Diagnostic Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

cardiagn.com

# U1206 AV CONTROL UNIT

## Description

INFOID:0000000012407474

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation".

## DTC Logic

INFOID:0000000012407475

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1206 | GPS RAM [U1206] | GPS malfunction is detected. | • An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407476

### 1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self Diagnostic Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

cardiagn.com

# U1207 AV CONTROL UNIT

## Description

INFOID:0000000012407477

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation".

## DTC Logic

INFOID:0000000012407478

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1207 | GPS RTC [U1207] | GPS malfunction is detected. | • An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407479

### 1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self Diagnostic Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

cardiagn.com

# U1216 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407480

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1216 | CAN CONT [U1216] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U1217 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407481

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1217 | BLUETOOTH MODULE [U1217] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U1218 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407482

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1218 | HDD CONN [U1218] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |



cardiagn.com

# U1219 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407483

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1219 | HDD READ [U1219] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U121A AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407484

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U121A | HDD WRITE [U121A] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |



cardiagn.com

# U121B AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407485

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U121B | HDD COMM [U121B] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U121C AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407486

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U121C | HDD ACCESS [U121C] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |



cardiagn.com

# U121D AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407487

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U121D | DSP CONN [U121D] | AV control unit malfunction is detected. | • If a disc can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407488

### 1.CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U121E AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407489

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U121E | DSP COMM [U121E] | AV control unit malfunction is detected. | • If a disc can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407490

### 1.CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U1225 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407491

### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1225 | USB CONTROLLER [U1225] | USB connection malfunction is detected. | Check that the connection to the USB connector is normal. |

cardiagn.com

# U1227 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407492

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1227 | DVD COMM [U1227] | AV control unit malfunction is detected. | • If DVD can be played, then there is a possibility of the detection of a temporary malfunction.<br>• Replace the AV control unit if the malfunction occurs constantly. Refer to AV-610, "Removal and Installation". |

## Diagnosis Procedure

INFOID:0000000012407493

### 1.CHECK PLAYBACK OF A DISK (DVD)

Can a disc (DVD) be played?

YES >> Malfunction may be detected transitory.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U1228 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407494

### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1228 | SUB CPU CONN [U1228] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |

cardiagn.com

# U1229 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407495

### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1229 | iPod CERTIFICATION [U1229] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |



cardiagn.com

# U122A AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407496

| DTC | Display contents of CONSULT | DTC detection condition | Action to take |
|---|---|---|---|
| U122A | CONFIG UNFINISH [U122A] | The writing of configuration data is incomplete. | Write configuration data with CONSULT. |

## Diagnosis Procedure

INFOID:0000000012407497

### 1.PERFORM THE SELF-DIAGNOSIS

When U122A is detected, write configuration data with CONSULT.

>> Write configuration data with CONSULT. Refer to AV-524, "CONFIGURATION (AV CONTROL UNIT) : Description".

cardiagn.com

# U122E AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407498

### DTC DETECTION LOGIC

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U122E | Built-in AUDIO CONN [U122E] | AV control unit malfunction is detected. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |



cardiagn.com

# U1232 STEERING ANGLE SENSOR

## AV CONTROL UNIT

### AV CONTROL UNIT : DTC Logic

INFOID:0000000012407499

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1232 | ST ANGLE SEN CALIB [1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust neutral position of the steering angle sensor. |

### AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407500

#### 1.ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U1232 is detected, adjust the neutral position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-50, "Description".

## AROUND VIEW MONITOR CONTROL UNIT

### AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000012933001

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1232 | ST ANGLE SEN CALIB [1232] | Neutral position adjustment of the steering angle sensor is incomplete. | Adjust neutral position of the steering angle sensor. |

### AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012933002

#### 1.ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U1232 is detected, adjust the neutral position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-50, "Description".

cardiagn.com

# U1243 FRONT DISPLAY UNIT

## DTC Logic

INFOID:0000000012407502

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1243 | FRONT DISP CONN [U1243] | When either one of the following items are detected:<br>• front display unit power supply and ground circuits are malfunctioning.<br>• serial communication circuits between front display unit and AV control unit are malfunctioning. | • Front display unit power supply and ground circuits.<br>• Serial communication circuits between front display unit and AV control unit. |

## Diagnosis Procedure

INFOID:0000000012407503

### 1.CHECK FRONT DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check front display unit power supply and ground circuit. Refer to AV-580, "AV CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2.CHECK CONTINUITY COMMUNICATION CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and AV control unit connector.
3. Check continuity between front display unit harness connector and AV control unit harness connector.

| Front display unit | | AV control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M155 | 9 | M193 | 89 | Existed |
| | 10 | | 73 | |

4. Check continuity between front display unit harness connector and ground.

| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M155 | 9 | | Not existed |
| | 10 | | |

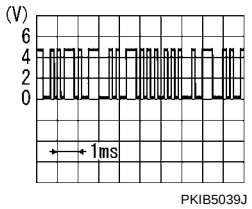
Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

### 3.CHECK COMMUNICATION SIGNAL

1. Connect front display unit connector and AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

cardiagn.com

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M155 | 9 | M155 | 12 | When adjusting display brightness. | Waveform of 1.5 V or less - 3.5 V or more is output. |  PKIB5039J |

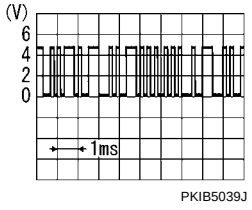


Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

## 4. CHECK COMMUNICATION SIGNAL

Check signal between front display unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M155 | 10 | M155 | 12 | When adjusting display brightness. | Waveform of 1.5 V or less - 3.5 V or more is input. |  PKIB5039J |



Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace front display unit. Refer to AV-611, "Removal and Installation".

cardiagn.com

# U1244 GPS ANTENNA

## DTC Logic

INFOID:0000000012407504

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1244 | GPS ANTENNA CONN [U1244] | GPS antenna connection malfunction is detected. | Check the connection of the GPS antenna connector. |

## Diagnosis Procedure

INFOID:0000000012407505

### 1.GPS ANTENNA CHECK

Visually check GPS antenna and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2.CHECK AV CONTROL UNIT VOLTAGE

1. Disconnect GPS antenna connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit and ground.

| Probe | | Standard | Voltage (Approx.) |
|---|---|---|---|
| (+) | (–) | | |
| AV control unit | | | |
| Terminal | Terminal | | |
| 153 | 20 | 4.5 - 5.25 V | 5.0 V |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U1258 SATELLITE RADIO ANTENNA

## DTC Logic

INFOID:0000000012407506

| DTC | Display contents of CONSULT | DTC Detection Condition | Possible causes |
|---|---|---|---|
| U1258 | XM ANTENNA CONN [U1258] | Satellite radio antenna connection malfunction is detected. | Satellite radio antenna disconnection. |

## Diagnosis Procedure

INFOID:0000000012407507

### 1. SATELLITE RADIO ANTENNA CHECK

Visually check satellite radio antenna and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

### 2. CHECK AV CONTROL UNIT VOLTAGE

1. Disconnect satellite radio antenna connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit and ground.

| Probe | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|
| (+) | (–) | (–) | | |
| AV control unit | | | | |
| Terminal | Terminal | | | |
| 159 | 20 | Ground | – | 5.0 V |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U1263 USB

## DTC Logic

INFOID:0000000012407508

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1263 | USB OVERCURRENT [U1263] | Detection of overcurrent in USB connector. | Check USB harness between the AV control unit and USB connector. |

## Diagnosis Procedure

INFOID:0000000012407509

### 1.CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> Replace USB harness.

cardiagn.com

# U1264 ANTENNA AMP.

## DTC Logic

INFOID:0000000012407510

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1264 | ANTENNA AMP TERMINAL [U1264] | Radio antenna amp. ON circuit is open or shorted. | Check antenna amp. ON signal circuit between the AV control unit and radio antenna amp. |

## Diagnosis Procedure

INFOID:0000000012407511

### 1.CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA AMP.

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and antenna amp. connector.
3. Check continuity between AV control unit harness connector and antenna amp. harness connector.

| AV control unit | | Antenna amp. | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M351 | 150 | M363 | 1 | Existed |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M351 | 150 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE AV CONTROL UNIT

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M351 | 150 | M191 | 20 | 9.0 V - 16.0 V | 12.0 V |

Is the inspection result normal?

YES >> Replace antenna amp. Refer to AV-627, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U1265 BOSE AMP.

## DTC Logic

INFOID:0000000012407512

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1265 | AMP ON TERMINAL [U1265] | BOSE amp. ON signal circuit is open or shorted. | Check BOSE amp. ON signal circuit between the AV control unit and BOSE amp. |

## Diagnosis Procedure

INFOID:0000000012407513

### 1.CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE AMP.

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and BOSE amp. connector.
3. Check continuity between AV control unit harness connector and BOSE amp. harness connector.

| AV control unit | | BOSE amp. | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M191 | 1 | B252 | 20 | Existed |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M191 | 1 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE AV CONTROL UNIT

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M191 | 1 | M191 | 20 | 9.0 V - 16.0 V | 12.0 V |

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-613, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# U1300 AV COMM CIRCUIT

## Description

INFOID:0000000012407514

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1300<br>U1240 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240] | When either one of the following items are detected:<br>• multifunction switch power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and multifunction switch are malfunctioning. | • Multifunction switch power supply and ground circuits.<br>• AV communication circuits between AV control unit and multifunction switch. |
| U1300<br>U1246<br>U1247 | • AV COMM CIRCUIT [U1300]<br>• VIDEO DIST CONN [U1246]<br>• REAR DISP CONN [U1247] | When either one of the following items are detected:<br>• video distributor power supply and ground circuits are malfunctioning.<br>• AV communication circuits between AV control unit and video distributor are malfunctioning. | • Video distributor power supply and ground circuits.<br>• AV communication circuits between AV control unit and video distributor. |
| U1300<br>U1240<br>U1246<br>U1247 | • AV COMM CIRCUIT [U1300]<br>• SWITCH CONN [U1240]<br>• VIDEO DIST CONN [U1246]<br>• REAR DISP CONN [U1247] | AV communication circuits between AV control unit and multifunction switch are malfunctioning. | AV communication circuits between AV control unit and multifunction switch. |

cardiagn.com

# U1304 CAMERA IMAGE CALIBRATION

## DTC Logic

INFOID:0000000012407515

| DTC | Display contents of CONSULT | DTC detection condition | Action to take |
|---|---|---|---|
| U1304 | CAMERA IMAGE CALIB [U1304] | Camera image calibration is incomplete. | Perform calibration of camera image with CONSULT. |

## Diagnosis Procedure

INFOID:0000000012407516

### 1.PERFORM THE SELF-DIAGNOSIS

When U1304 is detected, perform calibration of camera image with CONSULT.

>> Perform calibration of camera image. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

cardiagn.com

# U1305 CONFIG UNFINISH

## DTC Logic

INFOID:0000000012407517

| DTC | Display contents of CONSULT | DTC detection condition | Action to take |
|---|---|---|---|
| U1305 | CONFIG UNFINISH [U1305] | Configuration of around view monitor control unit is incomplete. | Perform configuration of around view monitor control unit with CONSULT. |

## Diagnosis Procedure

INFOID:0000000012407518

### 1.PERFORM THE SELF-DIAGNOSIS

When U1305 is detected, perform configuration of around view monitor control unit with CONSULT.

>> Perform configuration of around view monitor control unit. Refer to AV-525, "CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure".

cardiagn.com

# U1310 AV CONTROL UNIT

## DTC Logic

INFOID:0000000012407519

| DTC | Display contents of CONSULT | DTC detection condition | Possible malfunction factor |
|---|---|---|---|
| U1310 | CONTROL UNIT (AV) [U1310] | An initial diagnosis error is detected in AV communication circuit. | Replace the AV control unit if the malfunction occurs constantly.<br>Refer to AV-610, "Removal and Installation". |

cardiagn.com

# POWER SUPPLY AND GROUND CIRCUIT

## AV CONTROL UNIT

### AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407520

#### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

| Signal name | AV control unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M191 | 19 | 20 | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 7 | | ACC | 7.0 V - 16.0 V | |
| Ignition signal | M193 | 80 | | ON | 7.0 V - 16.0 V | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between AV control unit and fuse.

#### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connectors.
3. Check continuity between AV control unit harness connectors and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M191 | 20 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

## FRONT DISPLAY UNIT

### FRONT DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012407521

#### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

cardiagn.com

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between front display unit harness connector and ground.

| Signal name | Front display unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | M155 | 11 | 12 | OFF | 9.0 - 16.0 V | Battery voltage |
| ACC power supply | | 23 | | ACC | 6.0 - 16.0 V | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between front display unit and fuse.

## 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector.
3. Check continuity between front display unit harness connector and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M155 | 12 | OFF | Existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# REAR DISPLAY UNIT

## REAR DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012407522

## 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 35 |
| Ignition switch ACC or ON | 19 |
| Ignition switch ON or START | 3 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between rear display unit harness connector and ground.

| Signal name | Rear display unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | R36 | 29 | 31<br>32 | OFF | 9.0 - 16.0 V | Battery voltage |
| | | 30 | | | | |
| ACC power supply | | 28 | | ACC | 7.6 V - Battery voltage | |
| Ignition signal | | 26 | | ON | 3.0 V - Battery voltage | |

Is the inspection result normal?

YES >> GO TO 3.



cardiagn.com

NO >> Check harness between rear display unit and fuse.

## 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear display unit connector.
3. Check continuity between rear display unit harness connector and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | R36 | 31 | OFF | Existed |
| | | 32 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# BOSE AMP.

## BOSE AMP. : Diagnosis Procedure

INFOID:0000000012407523

## 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Battery | 26 |
| | 27 |
| | 28 |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

| Signal name | BOSE amp. | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Battery power supply | B251 | 10 | 7, 12 | OFF | 9.0 - 16.0 V | Battery voltage |
| | | 11 | | | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between BOSE amp. and fuse.

## 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BOSE amp. connector.
3. Check continuity between BOSE amp. harness connector and ground.

| Signal name | Connector No. | Terminal No. | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | B251 | 7 | OFF | Existed |
| | | 12 | | |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

# AROUND VIEW MONITOR CONTROL UNIT

cardiagn.com

## AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012407524

### 1.CHECK FUSE

Check for blown fuses.

| Power source | Fuse No. |
|---|---|
| Ignition switch ON or START | 3 |

Is inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2.CHECK POWER SUPPLY CIRCUITS

Check voltage between around view monitor control unit harness connector and ground.

| Signal name | Around view monitor control unit | Probe | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| | | Terminal | | | | |
| | Connector | (+) | (–) | Ignition switch | | |
| Ignition signal | M253 | 40 | 39 | ON | 7.7 V or more | Battery voltage |

Is inspection result normal?

YES >> GO TO 3.
NO >> Check harness between around view monitor control unit and fuse.

### 3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector.
3. Check continuity between around view monitor control unit harness connector and ground.

| Signal name | Connector | Terminal | Ignition switch position | Continuity |
|---|---|---|---|---|
| Ground | M253 | 39 | OFF | Existed |

Is inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

cardiagn.com

# COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

## Description

INFOID:0000000012407525

The AV control unit outputs image signal (DVD, USB memory-stored video data, and auxiliary input) to the front display unit and rear display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407526

### 1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and front display unit connector.
3. Check continuity between AV control unit harness connector and front display unit harness connector.

| AV control unit | | Front display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M193 | 67 | M155 | 19 | Existed |
| | 68 | | 18 | |

4. Check continuity between AV control unit harness connector and ground.

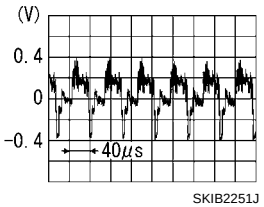
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M193 | 67 | | Not existed |
| | 68 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK COMPOSITE IMAGE SIGNAL (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

1. Connect AV control unit connector and front display unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (+) | | | | |
| Front display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M155 | 18 | M155 | 19 | When DVD, USB or AUX image is displayed. | Waveform according to composite image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-611, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT)

## Description

INFOID:0000000012407527

The AV control unit outputs image signal (DVD, USB memory-stored video data, and auxiliary input) to the front display unit and rear display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407528

### 1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT TO REAR DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and rear display unit connector.
3. Check continuity between AV control unit harness connector and rear display unit harness connector.

| AV control unit | | Rear display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M192 | 34 | R36 | 7 | Existed |
| | 33 | | 8 | |

4. Check continuity between AV control unit harness connector and ground.

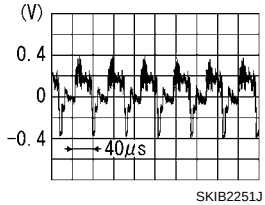
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M192 | 34 | | Not existed |
| | 33 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK COMPOSITE IMAGE SIGNAL (AV CONTROL UNIT TO REAR DISPLAY UNIT)

1. Connect AV control unit and rear display unit connector.
2. Turn ignition switch ON.
3. Check signal between rear display unit harness connector.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| Rear display unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| R36 | 7 | R36 | 8 | When DVD, USB or AUX image is displayed. | Waveform according to composite image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace rear display unit. Refer to AV-612, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".



cardiagn.com

# RGB DIGITAL IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407529

Transmit the image displayed with AV control unit with RGB digital image signal to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407530

### 1.CHECK CONTINUITY RGB DIGITAL IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and front display unit connector.
3. Check continuity between AV control unit harness connector and front display unit harness connector.

| AV control unit | | Front display unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M357 | 157 | M358 | 27 | Existed |
| | 158 | | 28 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M357 | 157 | | Not existed |
| | 158 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK RGB DIGITAL IMAGE SIGNAL

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| Probe | | | Voltage (Approx.) |
|---|---|---|---|
| (+) | | (–) | |
| AV control unit | | | |
| Connector | Terminal | | |
| M357 | 157 | Ground | 3.0 V |
| | 158 | | |

Is the inspection result normal?

YES >> Replace front display unit. Refer to AV-611, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# AUX IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407531

- Transmits the image signal of AUX (auxiliary input) device from auxiliary input jacks to AV control unit.
- The AV control unit transmits the AUX image signal to the front display unit by composite image signal.

## Diagnosis Procedure

INFOID:0000000012407532

### 1.CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and auxiliary input jacks connector.
3. Check continuity between AV control unit harness connector and auxiliary input jacks harness connector.

| AV control unit | | Auxiliary input jacks | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M192 | 26 | B273 | 7 | Existed |
| | 46 | | 8 | |

4. Check continuity between AV control unit harness connector and ground.

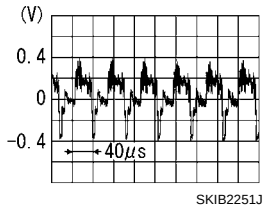
| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M192 | 26 | | Not existed |
| | 46 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK AUX IMAGE SIGNAL

1. Connect AV control unit connector and auxiliary input jacks connector.
2. Turn ignition switch ON.
3. Check signal between AV control unit harness connector and ground.

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| AV control unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M192 | 26 | M192 | 46 | When AUX image is displayed on front or rear display unit. | Waveform according to AUX image is input. |  |


SKIB2251J

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> Check that there is no malfunction in the external device.



cardiagn.com

# CAMERA IMAGE SIGNAL CIRCUIT

## Description

INFOID:0000000012407533

Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the front display unit.

## Diagnosis Procedure

INFOID:0000000012407534

### 1.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front display unit connector and around view monitor control unit connector.
3. Check continuity between front display unit harness connector and around view monitor control unit harness connector.

| Front display unit | | Around view monitor control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M155 | 8 | M253 | 4 | Existed |

4. Check continuity between front display unit harness connector and ground.

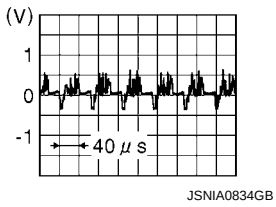
| Front display unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M155 | 8 | | Not existed |

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK CAMERA IMAGE SIGNAL

1. Connect front display unit connector and around view monitor control unit connector.
2. Turn ignition switch ON.
3. Check signal between front display unit harness connector and ground.

| (+) | | (–) | Condition | Standard | Reference value (Approx.) |
|---|---|---|---|---|---|
| Front display unit | | | | | |
| Connector | Terminal | | | | |
| M155 | 8 | Ground | At camera image is displayed. | Waveform according to camera image is input. |  |



JSNIA0834GB

Is inspection result normal?

YES >> Replace front display unit. Refer to AV-611, "Removal and Installation".
NO >> Replace around view monitor control unit. Refer to AV-631, "Removal and Installation".

cardiagn.com

# DISK EJECT SIGNAL CIRCUIT

## Description

INFOID:0000000012407535

The disk eject switch outputs disk eject signal to the AV control unit when the switch of disk eject switch is pressed.

## Diagnosis Procedure

INFOID:0000000012407536

### 1.CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and disk eject switch connector.
3. Check continuity between AV control unit harness connector and disk eject switch harness connector.

| AV control unit | | Disk eject switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M192 | 29 | M153 | 4 | Existed |
| | 49 | | 3 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M192 | 29 | | Not existed |
| | 49 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between disk eject switch harness connector and ground.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| Disk eject switch | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M153 | 4 | M153 | 3 | 5.0 V or more | 5.0 V |

Is the inspection result normal?

YES >> Replace disk eject switch. Refer to AV-623, "Removal and Installation".
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

cardiagn.com

# MICROPHONE SIGNAL CIRCUIT

## Description

INFOID:0000000012407537

Supply power from AV control unit to microphone. The microphone transmits the sound/voice to the AV control unit.

## Diagnosis Procedure

INFOID:0000000012407538

### 1.CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and microphone connector.
3. Check continuity between AV control unit harness connector and microphone harness connector.

| AV control unit | | Microphone | | Continuity |
|---|---|---|---|---|
| Connector | Terminals | Connector | Terminals | |
| M193 | 71 | R20 | 2 | Existed |
| | 72 | | 4 | |
| | 87 | | 1 | |

4. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminals | | |
| M193 | 72 | | Not existed |
| | 87 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK VOLTAGE MICROPHONE VCC

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M193 | 72 | M191 | 20 | 4.18 - 5.3 V | 5.0 V |

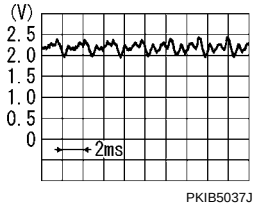
Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

### 3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.
2. Check signal between AV control unit harness connector.

cardiagn.com

| Probe | | | | Condition | Standard | Reference value |
|---|---|---|---|---|---|---|
| (+) | | (–) | | | | |
| AV control unit | | | | | | |
| Connector | Terminal | Connector | Terminal | | | |
| M193 | 87 | M193 | 71 | Give a voice. | Waveform according to voice is input. |  PKIB5037J |



Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-610, "Removal and Installation".
NO >> Replace microphone. Refer to AV-626, "Removal and Installation".

cardiagn.com

# STEERING SWITCH SIGNAL A CIRCUIT

## Description

INFOID:0000000012407539

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407540

### 1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M191 | 6 | M33 | 24 | Existed |

3. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M191 | 6 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M191 | 6 | M191 | 15 | 0 - 5.5 V | 5.0 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-592, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407541

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.



cardiagn.com

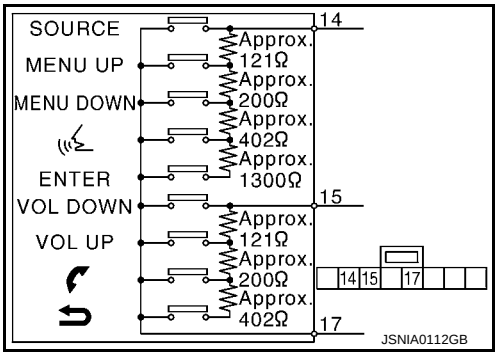
Standard

Between terminals 14 and 17

| | |
|---|---|
| ENTER switch ON | : 1982 – 2063 Ω |
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1Ω |




cardiagn.com

# STEERING SWITCH SIGNAL B CIRCUIT

## Description

INFOID:0000000012407542

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407543

### 1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M191 | 16 | M33 | 31 | Existed |

3. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M191 | 16 | | Not existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector.

| Probe | | | | Standard | Voltage (Approx.) |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| AV control unit | | | | | |
| Connector | Terminal | Connector | Terminal | | |
| M191 | 16 | M191 | 15 | 0 - 5.5 V | 5.0 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-594, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407544

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.



cardiagn.com

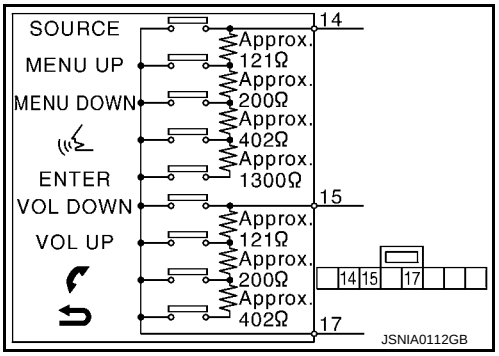
Standard

Between terminals 14 and 17

| | |
|---|---|
| ENTER switch ON | : 1982 – 2063 Ω |
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1Ω |




cardiagn.com

# STEERING SWITCH GROUND CIRCUIT

## Description

INFOID:0000000012407545

Transmits the steering switch signal to AV control unit.

## Diagnosis Procedure

INFOID:0000000012407546

### 1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

1. Disconnect AV control unit connector and spiral cable connector.
2. Check continuity between AV control unit harness connector and spiral cable harness connector.

| AV control unit | | Spiral cable | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M191 | 15 | M33 | 33 | Existed |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

### 2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-16, "Removal and Installation".

### 3.CHECK GROUND CIRCUIT

1. Connect AV control unit connector.
2. Check continuity between AV control unit harness connector and ground.

| AV control unit | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M191 | 15 | | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-610, "Removal and Installation".

### 4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-596, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering wheel. Refer to ST-12, "Removal and Installation".

## Component Inspection

INFOID:0000000012407547

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

cardiagn.com

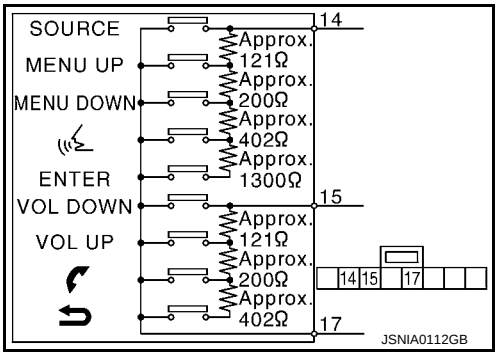
Standard

Between terminals 14 and 17

| | |
|---|---|
| ENTER switch ON | : 1982 – 2063 Ω |
| switch ON | : 708 – 737 Ω |
| MENU DOWN switch ON | : 314 – 327 Ω |
| MENU UP switch ON | : 118 – 123 Ω |
| SOURCE switch ON | : Less than 1Ω |

Between terminals 15 and 17

| | |
|---|---|
| switch ON | : 708 – 737 Ω |
| switch ON | : 314 – 327 Ω |
| VOL UP switch ON | : 118 – 123 Ω |
| VOL DOWN switch ON | : Less than 1Ω |






cardiagn.com

# SYMPTOM DIAGNOSIS

## MULTI AV SYSTEM SYMPTOMS

### Symptom Table

INFOID:0000000012407548

#### RELATED TO NAVIGATION

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Multifunction switch and preset switch operation does not work. | • All switches cannot be operated.<br>• “MULTI AV” is displayed on system selection screen when the CONSULT is started. | • Multifunction switch power supply and ground circuit malfunction.<br>• AV communication circuit between AV control unit and multifunction switch.<br>Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-469, "CONSULT Function". |
| | • All switches cannot be operated.<br>• “MULTI AV” is not displayed on system selection screen when the CONSULT is started. | AV control unit power supply and ground circuit malfunction. Refer to AV-580, "AV CONTROL UNIT : Diagnosis Procedure". |
| | Only specified switch cannot be operated. | Multifunction switch or preset switch malfunction.<br>Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-459, "On Board Diagnosis Function". |
| Fuel economy display is abnormal. | There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”. | Perform detected DTC diagnosis.<br>Refer to AV-482, "DTC Index". |
| | There is no malfunction in the CONSULT “self-diagnosis results” of “MULTI AV”. | Ignition signal circuit malfunction. |
| Guide sound is not heard or too low. | On the setting display select “system sound (guide sound volume, etc.),” and confirm that guide sound is ON. | AV control unit malfunction.<br>Replace AV control unit. Refer to AV-610, "Removal and Installation". |

#### RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and checking that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
   **NOTE:**
   The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model, and service provider.
   **NOTE:**
   It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to “www.nissanusa.com/bluetooth/”.

a. Using the website's search engine, find out if the customer's phone is on the approved list.

b. If the customer's phone is NOT on the approved list:

   Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.

c. If the feature related to the customer's concern shows as “N” (not compatible):
   Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as “Y” (compatible) in the “Basic Features” list.

d. If the feature related to the customer's concern shows as “Y” (compatible):

cardiagn.com

Perform diagnosis as per the following table.

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| Does not recognize cellular phone connection. (no connection is displayed on the display at the guide.) | Repeat the registration of cellular phone. | AV control unit malfunction.<br>Replace AV control unit. Refer to AV-610, "Removal and Installation". |
| Hands-free phone cannot be established. | • Hands-free phone operation can be made, but the communication cannot be established.<br>• Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation. | |
| The other party's voice cannot be heard by hands-free phone. | Check the “microphone speaker” in Inspection & Adjustment Mode if sound is heard. | |
| Originating sound is not heard by the other party with hands-free phone communication. | Sound operation function is normal. | |
| | Sound operation function does not work. | Microphone signal circuit malfunction.<br>Refer to AV-590, "Diagnosis Procedure". |
| The system cannot be operated. | • The voice recognition can be controlled.<br>• Steering switch's ”VOL UP”, “VOL DOWN” and “↩” switch works, but “📞” it does not work. | Steering switch malfunction.<br>Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| | Steering switch's “📞”, ”VOL UP”, “VOL DOWN” and “↩” switches do not work. | Steering switch signal B circuit malfunction.<br>Refer to AV-594, "Diagnosis Procedure". |
| | All steering switches do not work. | Steering switch ground circuit malfunction.<br>Refer to AV-596, "Diagnosis Procedure". |

## RELATED TO CAMERA

| Symptoms | Check items | Probable malfunction location / Action to take |
|---|---|---|
| The screen switches when pressing the “CAMERA” switch or the shift position is in “R”, however, all views are not displayed. | — | Camera image signal circuit.<br>Refer to AV-588, "Diagnosis Procedure". |
| It cannot be switched to rear view monitor even when the shift position is in “R”. | The front view image is normal. | Reverse signal circuit (around view monitor control unit). |

cardiagn.com

| Symptoms | Check items | Probable malfunction location / Action to take |
|---|---|---|
| The predictive course line display in front view and rear view is malfunctioning. | — | Perform “Self Diagnostic Result” of “AVM” with CONSULT. Refer to AV-473, "CONSULT Function". |
| • The front view screen is not displayed.<br>• The front of Birds-Eye view screen is not displayed. | — | |
| • The rear view screen is not displayed.<br>• The rear of Birds-Eye view screen is not displayed. | — | |
| • The front-side screen is not displayed.<br>• The passenger side of Birds-Eye view screen is not displayed. | — | |
| The driver side of Birds-eye view screen is not displayed. | — | |
| When shift position is in other than “R”, the front-side and front screen or the Birds-Eye view and front screen remain displaying even if the vehicle speed increases. | — | |

## RELATED TO VOICE CONTROL

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The voice cannot be controlled even if the voice control screen is displayed. | Voice sounds at “Voice Microphone Test” of Confirmation/Adjustment mode. | AV control unit malfunction. Replace AV control unit. Refer to AV-610, "Removal and Installation". |
| | Voice does not sound at “Voice Microphone Test” of Confirmation/Adjustment mode. | Microphone signal circuit malfunction. Refer to AV-590, "Diagnosis Procedure". |
| The voice cannot be controlled (Voice control screen is not displayed). | • Hands-free phone system can be operated.<br>• Steering switch's “SOURCE”, “MENU UP”, “MENU DOWN” and “ENTER” switch works, but “ ” it does not work. | Steering switch malfunction. Replace steering wheel. Refer to ST-12, "Removal and Installation". |
| | Steering switch's “SOURCE”, “MENU UP”, “MENU DOWN”, “ ” and “ENTER” switches do not work. | Steering switch signal A circuit malfunction. Refer to AV-592, "Diagnosis Procedure". |
| | All steering switches do not work. | Steering switch ground circuit malfunction. Refer to AV-596, "Diagnosis Procedure". |

## RELATED TO RGB IMAGE

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| RGB image is not shown. | — | RGB digital image signal circuit malfunction. Refer to AV-586, "Diagnosis Procedure". |

## RELATED TO AUDIO

cardiagn.com

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The disk cannot be removed. | — | Disk eject signal circuit malfunction.<br>Refer to AV-589, "Diagnosis Procedure". |
| No sound comes out or the level of the sound is low. | No sound from all speakers. | • BOSE amp. ON signal circuit malfunction.<br>• BOSE amp. power supply and ground circuits malfunction.<br>Refer to AV-582, "BOSE AMP. : Diagnosis Procedure". |
| | Sound is not heard from woofer. | Sound signal (woofer) circuit malfunction. |
| | Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound. | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between AV control unit and BOSE amp.<br>• Sound signal circuit malfunction between BOSE amp. and speaker.<br>• Malfunction in speaker.<br>• Malfunction in AV control unit.<br>• Malfunction in BOSE amp. |
| Noise is mixed with audio. | Noise comes out from all speakers. | • Malfunction in AV control unit.<br>• Malfunction in BOSE amp. |
| | Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.). | • Poor connector connection of speaker.<br>• Sound signal circuit malfunction between AV control unit and BOSE amp.<br>• Sound signal circuit malfunction between BOSE amp. and speaker.<br>• Malfunction in speaker.<br>• Poor installation of speaker (e.g. backlash and looseness)<br>• Malfunction in AV control unit.<br>• Malfunction in BOSE amp. |
| | Noise is mixed with radio only (when the car hits a bump or while driving over bad roads). | Poor connector connection of antenna or antenna feeder. |
| Radio is not received or poor reception. | • Other audio sounds are normal.<br>• Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises). | • Antenna amp. ON signal circuit malfunction.<br>• Poor connector connection of antenna or antenna feeder. |
| Satellite radio is not received. | There is malfunction in the CONSULT self-diagnosis result.<br>Refer to AV-469, "CONSULT Function". | • Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-482, "DTC Index".<br>• Poor continuity in antenna feeder.<br>• Poor connector connection of antenna or antenna feeder. |
| | There is no malfunction in the CONSULT self-diagnosis result.<br>Refer to AV-469, "CONSULT Function". | • Poor continuity in antenna feeder.<br>• Poor connector connection of antenna or antenna feeder.<br>• Loose satellite radio antenna mounting nut.<br>Refer to AV-628, "Exploded View". |

## RELATED TO STEERING SWITCH

| Symptoms | Probable malfunction location |
|---|---|
| None of the steering switch operations work. | Steering switch ground circuit malfunction.<br>Refer to AV-596, "Diagnosis Procedure". |
| Only specified switch cannot be operated. | Steering switch malfunction.<br>Replace steering wheel. Refer to ST-12, "Removal and Installation". |

cardiagn.com

| Symptoms | Probable malfunction location |
|---|---|
| Steering switch's “SOURCE”, “MENU UP”, “MENU DOWN”, “ ” and “ENTER” switches do not work. | Steering switch signal A circuit malfunction.<br>Refer to AV-592, "Diagnosis Procedure". |
| Steering switch's “ ”, “VOL UP”, “VOL DOWN” and “ ” switches do not work. | Steering switch signal B circuit malfunction.<br>Refer to AV-594, "Diagnosis Procedure". |

## RELATED TO USB

**NOTE:**

Check that there is no malfunction of USB equipment main body before performing a diagnosis.

| Symptoms | Check items | Possible malfunction location / Action to take |
|---|---|---|
| iPod® or USB memory can not be recognized. | — | • USB harness malfunction.<br>• USB connector malfunction. |

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

## RELATED TO DVD MODE

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| The disk cannot be removed. | — | Disk eject signal circuit malfunction.<br>Refer to AV-589, "Diagnosis Procedure". |
| DVD image is not displayed. | Front display unit and rear display unit are not displayed. | Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-469, "CONSULT Function". |
| | Rear display unit is normal. | Composite image signal circuit between AV control unit and front display unit.<br>Refer to AV-584, "Diagnosis Procedure". |
| | Front display unit is normal. | Composite image signal circuit between AV control unit and rear display unit.<br>Refer to AV-585, "Diagnosis Procedure". |
| DVD sound is not heard. | No sound from all speakers. | • Amp. ON signal circuit malfunction.<br>• BOSE amp. power supply and ground circuits malfunction.<br>Refer to AV-582, "BOSE AMP. : Diagnosis Procedure". |
| | Sound is not heard from woofer. | • Woofer power supply and ground circuit malfunction.<br>• Sound signal (woofer) circuit malfunction.<br>• Woofer amp. ON signal circuit malfunction. |
| | Sound is heard only from specific places. | Sound signals circuit of suspect system. |

## RELATED TO AUXILIARY INPUT

**NOTE:**

Check that there is no malfunction of AUX equipment main body before performing a diagnosis.

| Symptoms | Check items | Probable malfunction location |
|---|---|---|
| No voice sound is heard when AUX mode is selected. | Voice sound is heard when other modes are selected. | AUX sound signal circuit. |
| Image is not displayed when AUX mode is selected. | Front display unit and rear display unit are not displayed. | Perform “Self Diagnostic Result” of “MULTI AV” with CONSULT. Refer to AV-469, "CONSULT Function". |
| | DVD image is displayed on front display unit and rear display unit. | AUX image signal circuit malfunction.<br>Refer to AV-587, "Diagnosis Procedure". |
| | Rear display unit is normal. | Composite image signal circuit between AV control unit and front display unit.<br>Refer to AV-584, "Diagnosis Procedure". |
| | Front display unit is normal. | Composite image signal circuit between AV control unit and rear display unit.<br>Refer to AV-585, "Diagnosis Procedure". |

## RELATED TO HEADPHONE

cardiagn.com

| Symptom | Check Item | | Possible malfunction location / Action to take |
|---|---|---|---|
| Audio cannot be heard from headphone. | Turn ON the rear display. | Audio cannot be heard. | Check power supply of headphone. |
| Headphone cannot be turned ON. | • Battery polarity.<br>• Battery poor contact<br>• Battery replacement | Power is ON. (Power indicator lamp: ON) | This is not a malfunction. |
| | | Power cannot be turned ON. (Power indicator lamp: OFF) | Replace headphone. |

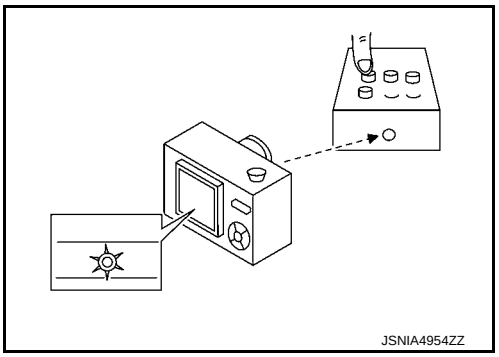
## RELATED TO REAR DISPLAY

Perform the diagnosis of the following items before starting diagnosis by symptom.

- Self-diagnosis: Refer to AV-469, "CONSULT Function".
- Self-diagnosis mode: Refer to AV-459, "On Board Diagnosis Function".
- Power supply system: Refer to AV-581, "REAR DISPLAY UNIT : Diagnosis Procedure".

| Symptom | Check Item | | Possible malfunction location / Action to take |
|---|---|---|---|
| Rear display cannot be opened. | Use the touch button in the front display to open/close the rear display. | Operable. | Operate with the remote to see if rear display opens. |
| | | Inoperative. | Replace rear display. |
| Inoperative with the remote. | All keys inoperative. | • Check by touching and check battery polarity.<br>• Replace battery. | • Check with a remote from the same vehicle family.<br>• Check infrared* of the luminescent part (LED) of the remote. |
| | Some keys inoperative. | • Check with a remote from the same vehicle family.<br>• Check infrared* of the luminescent part (LED) of the remote. | The function corresponding to the remote operation is not included.<br>(This is not a malfunction.) |
| Rear display screen is black. | Play a DVD. | Screen is dark. | Adjust screen for image quality.<br>(This is not a malfunction.) |
| | | Screen is black | Replace rear display. |
| Video shown on rear display screen becomes distorted or rolls up/down. | Adjust the color and image settings using the display screen menu items. | | If the symptom does not change, replace rear display. |
| Rear display screen is blue. | — | | Replace rear display. |

*: To check infrared, check light of the luminescent part (LED) through the lens of digital camera when operating the remote.




cardiagn.com

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000012407549

**NOTE:**
For Navigation system operation information, refer to Navigation system Owner's Manual.

### BASIC OPERATIONS

| Symptom | Possible cause | Possible solution |
|---|---|---|
| No image is displayed. | The brightness is at the lowest setting. | Adjust the brightness of the display. |
| | The systems in the video mode. | Press “DISC-AUX” to change the mode. |
| | The display is turned off. | Press “☀/☽” to turn on the display. |
| | The interior of the vehicle becomes the a little less than 80°C (176°F) or high temperature, and the protection of the display acts, and a display is turned off. | Wait until the interior of the vehicle has cooled down. |
| Screen not clear. | Contrast setting is not appropriate. | Adjust the contrast of the display. |
| No voice guidance is available. Or The volume is too high or too low. | The volume is not set correctly, or it is turned off. | Adjust the volume of voice guidance. |
| | Voice guidance is not provided for certain streets (roads displayed in gray). | This is not a malfunction. |
| No map is displayed on the screen. | A screen other than map screen is displayed. | Press “MAP”. |
| The screen is too dim. The movement is slow. | The temperature in the interior of the vehicle is low. | Wait until the interior of the vehicle has warmed up. |
| Some pixels in the display are darker or brighter than others. | This condition is an inherent characteristic of liquid crystal displays. | This is not a malfunction. |
| Some menu items cannot be selected. | Some menu items become unavailable while the vehicle is driven. | Park the vehicle in a safe location, and then operate the navigation system. |

**NOTE:**
Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

### RELATED TO VOICE RECOGNITION

The system should respond correctly to all voice commands without difficulty. If problems are encountered, follow the solutions given in this guide for the appropriate error. Where the solutions are listed by number, try each solution in turn, starting with number one, until the problem is resolved.

| Symptom | Cause and Counter measure |
|---|---|
| Displays “COMMAND NOT RECOGNIZED” or the system fails to interpret the command correctly. | 1. Ensure that the command format is valid, refer to “Command List” in the Owner’s manual. |
| | 2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level. |
| | 3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on.<br>**NOTE:**<br>If it is too noisy to use the phone, it is likely that voice commands will not be recognized. |
| | 4. If optional words of the command have been omitted, then the command should be tried with these in place. |
| | If there is a mixture of music CD files (CD-DA data) and MP3/WMA/AAC files on a CD, only the music CD files (CD-DA data) will be played. |
| The system consistently selects the wrong voicetag in the phonebook. | 1. Ensure that the voicetag requested matches what was originally stored. Refer to “HANDSFREE PHONE SYSTEM (models with navigation system)” in Owner's manual. |
| | 2. Replace one of the voicetags being confused with a different voicetag. |

### RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.

cardiagn.com

- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and then determine the cause.

**NOTE:**

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA, AAC, M4A) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the “red book” Compact Disc Standard and may not play.

| Symptom | Cause and Counter measure |
|---|---|
| Cannot play | Check if the CD was inserted correctly. |
| | Check if the CD is scratched or dirty. |
| | Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player. |
| | If there is a temperature increase error, the player will play correctly after it returns to the normal temperature. |
| | If there is a mixture of music CD files (CD-DA data) and MP3/WMA/AAC files on a CD, only the music CD files (CD-DA data) will be played. |
| | Files with extensions other than “.MP3 (.mp3)”, “.WMA (.wma)”, “.AAC (.aac)” or “.M4A (.m4a)” cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications. |
| | Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA/AAC/M4A writing applications or other text editing applications. |
| | Check if the finalization process, such as session close and disc close, is done for the disc. |
| | Check if the CD is protected by copyright. |
| | Disks recorded in live file system format are not supported. (For Microsoft Windows® Vista, check the settings.) |
| Poor sound quality. | Check if the CD is scratched or dirty. |
| It takes a relatively long time before the music starts playing. | If there are many folder or file levels on the MP3/WMA/AAC CD, or if it is a multisession disc, some time may be required before the music starts playing. |
| Music cuts off or skips | The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed. |
| Skipping with high bit rate files | Skipping may occur with large quantities if data such as for high bit rate data. |
| Move immediately to the next song when playing | When a non-MP3/WMA/AAC file has been given an extension of “.MP3 (.mp3)”, “.WMA (.wma)”, “.AAC (.aac)” or “.M4A (.m4a)” or when play is prohibited by copyright protection, the player will skip to the next song. |
| The songs do not play back in the desired order. | The playback order is the order in which the files were written by the software, so the files might not play in the desired order. |
| Poor reception only from a certain radio broadcast station. | Check incoming radio wave signal strength of applicable broadcast station. |
| Buzz/rattle sound from speaker | The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle. |

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, is not a malfunction.

**NOTE:**

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

## RELATED TO DVD



cardiagn.com

| Symptom | Possible cause | Possible solution |
|---|---|---|
| Not working as operated | Some operations may be rejected or may not function as intended because of the manufacturer's intent, depending on DVD. | This is not a malfunction. |
| Operation not accepted | If a requested operation is prohibited, then a message is displayed on the screen. (Message display depends on DVD.) | This is not a malfunction. |
| DVD can not be played | Check that the DVD is inserted in the right place. | Upturn the DVD (facing the title upward). |
| | Check that there is no condensation inside the player. | Wait until the condensation evaporates (approximately one hour). |
| | DVD menu is displayed. | Select item to touch “ENTER”. |
| | Insertion of a DVD with a different region code. | DVDs with a different region code can not be played. Check DVD. |
| | Some DVD softwares may not be played because not all DVD softwares fully comply in the standard. | This is not a malfunction. |
| Interruption during playback or flicker in the display | Check that the DVD has no scratches and dirt. | Errors may not be corrected depending on the size of scratches. |
| | | Wipe and clean the dirt on the disc. |
| Subtitles not shown | Subtitle setting is OFF. | Set subtitle. |
| | Subtitle is not included in the software. | Check DVD. |
| Not played in set language | If a language is not included in the DVD, then the DVD is played in a recommended language. | Check DVD. |
| Not played with set subtitle | If a set subtitle is not included in the DVD, then the DVD is played with a recommended subtitle. | Check DVD. |
| Angle unchangeable | Plural angles are not recorded in the software. | Check if the DVD is multi−angle capable. |
| Unusual screen display | Display mode to the output aspect ratio for the DVD software is inappropriate. | Switch to the appropriate display mode. |
| Distortion in picture | In the process of fast−forward or fast−reverse. | This is not a malfunction. |
| Low sound quality | Check that the DVD has no scratches and dirt. | Wipe and clean the dirt on the disc. |
| Subtitle and language not selectable (not played with set subtitle or in set language) | The DVD is not multilanguage−capable. | The inclusion of the number of languages depends on DVD. Languages may be selectable on the Menu screen. Check DVD. |
| | The DVD has a priority language or setting. | If the DVD has a priority language or settings, then settings changed with this device are not reflected. |
| Playback time is indicated, but no sound comes out. | Playback of Mix mode Truck 1. (Mix mode: Format including Truck 1 with data other than music and Trucks from Truck 2 with music data.) | Play music data included in trucks from Truck 2. |

## RELATED TO VEHICLE ICON

| Symptom | Possible cause | Possible solution |
|---|---|---|
| Names of roads differ between Plan View and Birdview®. | This is because the quantity of the displayed information is reduced so that the screen does not become too crowded. There is also a chance that names of the roads may be displayed multiple times, and the names appearing on the screen may be different because of a processing procedure. | This is not a malfunction. |

cardiagn.com

| Symptom | Possible cause | Possible solution |
|---|---|---|
| The vehicle icon is not displayed in the correct position. | The vehicle was transported after the ignition switch was pressed off, for example, by a ferry or car transporter. | Drive the vehicle for a while on a road where GPS signals can be received. |
| | The position and direction of the vehicle icon may be incorrect depending on the driving environments and the levels of positioning accuracy of the navigation system. | This is not a malfunction. Drive the vehicle for a while to automatically correct the position and direction of the vehicle icon. |
| When the vehicle is traveling on a new road, the vehicle icon is located on another road nearby. | Because the new road is not stored in the map data, the system automatically places the vehicle icon on the nearest road available. | Updated road information will be included in the next version of the map data. |
| The screen does not switch to the night screen even after turning on the headlights. | The daytime screen was set the last time the headlights were turned on. | Set the screen to the night screen mode using <Day/Night> when you turn on the headlights. |
| The map does not scroll even when the vehicle is moving. | The current location map screen is not displayed. | Press “MAP”. |
| The vehicle icon is not displayed. | The current location map screen is not displayed. | Press “MAP”. |
| The location of the vehicle icon is misaligned from the actual position. | When using tire chains or replacing the tires, speed calculations based on the speed sensor may be incorrect. | Drive the vehicle for a while [at approximately 30 km/h (19 MPH) for about 30 minutes] to automatically correct the vehicle icon position.<br>If this does not correct the vehicle icon position, contact an INFINITI dealer. |
| | The map data has a mistake or is incomplete (the vehicle icon position is always misaligned in the same area). | Updated road information will be included in the next version of the map data. |

## RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

| Symptom | Possible cause | Possible solution |
|---|---|---|
| Waypoints are not included in the auto reroute calculation. | Waypoints that you have already passed are not included in the auto reroute calculation. | If you want to go to that waypoint again, you need to edit the route. |
| Route information is not displayed. | Route calculation has not yet been performed. | Set the destination and perform route calculation. |
| | You are not driving on the suggested route. | Drive on the suggested route. |
| | Route guidance is set to off. | Turn on route guidance. |
| | Route information is not provided for certain types of roads (roads displayed in gray). | This is not a malfunction. |
| The auto reroute calculation (or detour calculation) suggests the same route as the one previously suggested. | Route calculations took priority conditions into consideration, but the same route was calculated. | This is not a malfunction. |
| A waypoint cannot be added. | Five waypoints are already set on the route, including ones that you have already passed. | A maximum of 5 waypoints can be set on the route. If you want to go to 6 or more waypoints, perform route calculations multiple times as necessary. |
| The suggested route is not displayed. | Roads near the destination cannot be calculated. | Reset the destination to a main or ordinary road, and recalculate the route. |
| | The starting point and destination are too close. | Set a more distant destination. |
| | The starting point and destination are too far away. | Divide your trip by selecting one or two intermediate destinations, and perform route calculations multiple times. |
| | There are time restricted roads (by the day of the week, by time) near the current vehicle location or destination. | Set [Use Time Restricted Roads] to off. |

cardiagn.com

| Symptom | Possible cause | Possible solution |
|---|---|---|
| The part of the route that you have already passed is deleted. | A route is managed by sections between waypoints. If you passed the first waypoint, the section between the starting point and the waypoint is deleted. (It may not be deleted depending on the area.) | This is not a malfunction. |
| An indirect route is suggested. | If there are restrictions (such as one-way streets) on roads close to the starting point or destination, the system may suggest an indirect route. | Adjust the location of the starting of the starting point or destination. |
| | The system may suggest an indirect route because route calculation does not take into consideration some areas such as narrow streets (gray roads.) | Reset the destination to a main or ordinary road, and recalculate the route. |
| The landmark information does not correspond to the actual information. | This may be caused by insufficient or incorrect map data. | Updated information will be included in the next version of the data. |
| The suggested route does not exactly connect to the starting point, waypoints, or destination. | There is no data for route calculation closes to these locations. | Set the starting point, waypoints and destination on a main road, and perform route calculation. |

## RELATED TO VOICE GUIDANCE

| Symptom | Possible cause | Possible solution |
|---|---|---|
| Voice guidance is not available | Voice guidance is only available at certain intersections marked with? In some case, voice guidance is not available even when the vehicle should make a turn. | This is not a malfunction. |
| | The vehicle has deviated from the suggested route. | Go back to the suggested route or request route calculation again |
| | Voice guide is set to off. | Turn on voice guidance. |
| | Route guidance is set to off. | Turn on voice guidance. |
| The guidance contact does not correspond to the actual condition. | The contact of voice guidance may vary, depending on the types of intersections at which turn are made. | Follow all traffic rules and regulations. |

## RELATED TO TRAFFIC INFORMATION

| Symptom | Possible cause | Possible solution |
|---|---|---|
| The traffic information is not displayed | The traffic information is not set to on. | Set the traffic information to on. |
| | You are in an area where traffic information is not available | Scroll to an area where traffic information is available |
| | You have not subscribed to XM NavTraffic or, your subscription to XM NavTraffic has expired. | Check your subscription status of XM NavTraffic. |
| | The map scale is set at a level where the display of icons is impossible. | Check that the map scale is set at a level in which the display of icons is possible. |
| With the automatic detour route search ON, no detour route is set to avoid congested areas. | There is no faster route compared to the current route, based on the road network and traffic information. | The automatic detour search is not intended for avoiding traffic jams. It searches for the fasted rote taking into consideration such things as traffic jams. |
| The route does not avoid road section with traffic information stating it is closed due to road construction. | The navigation system is designed not to avoid this event because the actual period of closure may differ from the declared roadwork period. | Observe the actual road condition and follow the instructions on road for detour when necessary. If the road closure is for certain, use detour function and set the detour distance to avoid the closed road section. |
| Traffic information displayed differs from information from other media (e.g. radio). | Other media may use different information sources. | Observe the actual road conditions and regulations. Always observe safe driving practices and follow all traffic regulations. |

## RELATED TO HANDS-FREE PHONE

cardiagn.com

| Symptom | Cause and Counter measure |
|---|---|
| Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.) | Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to “RELATED TO HANDS-FREE PHONE (Check Compatibility)” of MULTI AV SYSTEM SYMPTOM. |
| Cannot use hands-free phone | Customer will not be able to use a hands-free phone under the following conditions.<br>• The vehicle is outside of the telephone service area.<br>• The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.<br>• The cellular phone is locked to prevent it from being dialed.<br>**NOTE:**<br>While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones. |
| The other party's voice cannot be heard by hands-free phone. | When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call. |
| Poor sound quality | Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption. |

cardiagn.com

# REMOVAL AND INSTALLATION

## AV CONTROL UNIT

### Removal and Installation

INFOID:0000000012407550

REMOVAL

**CAUTION:**

- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-523, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

**NOTE:**

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

1. Remove disk eject switch. Refer to AV-623, "Removal and Installation".
2. Remove two harness clips mounted to the bracket.
3. Remove four mounting screws and pull the AV control unit together with the brackets.
4. Disconnect connectors to remove AV control unit and bracket from the vehicle as a single unit.
5. Remove bracket screws to remove AV control unit.

INSTALLATION

Note the following, and install in the reverse order of removal.

**CAUTION:**

**Be sure to perform “Read/Write Configuration” when replacing AV control unit. For details, refer to AV-523, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description".**

cardiagn.com

# FRONT DISPLAY UNIT

## Removal and Installation

INFOID:0000000012407551

### REMOVAL

1. Remove cluster lid D. Refer to IP-14, "Removal and Installation".
2. Remove front display unit mounting screws.
3. Disconnect front display unit connectors to remove front display unit.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# REAR DISPLAY UNIT

## Removal and Installation

INFOID:0000000012407552

### REMOVAL

1. Remove roof console. Refer to INT-35, "Removal and Installation".
2. Disconnect rear display unit connector, remove rear display unit mounting bolts and remove the rear display unit.
   **NOTE:**
   To prevent rear display unit from dropping, securely support the rear display unit during the removal/installation.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# BOSE AMP.

## Removal and Installation

INFOID:0000000012407553

### REMOVAL

1. Remove luggage floor box. Refer to INT-45, "LUGGAGE FLOOR BOX : Removal and Installation".
2. Remove BOSE amp. mounting screws.
3. Disconnect connectors to remove BOSE amp.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT DOOR WOOFER

## Removal and Installation

INFOID:0000000012407554

### REMOVAL

1. Remove front door finisher. Refer to INT-14, "Removal and Installation".
2. Remove front door woofer screws and disconnect front door woofer connector.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# FRONT SQUAWKER

## Removal and Installation

INFOID:0000000012407555

### REMOVAL

1. Remove speaker grille from instrument panel. Refer to IP-14, "Removal and Installation".
2. Remove screws and disconnect connector, and remove the front squawker.

**WARNING:**
**Never damage wind shield glass.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SPEAKER

## Removal and Installation

INFOID:0000000012407556

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws and disconnect connector, and remove slide door speaker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# SLIDE DOOR SQUAWKER

## Removal and Installation

INFOID:0000000012407557

### REMOVAL

1. Remove slide door finisher. Refer to INT-17, "Removal and Installation".
2. Remove screws to remove slide door squawker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# LUGGAGE SQUAWKER

## Removal and Installation

INFOID:0000000012407558

### REMOVAL

1. Remove luggage side lower finisher. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation".
2. Remove screws to remove luggage squawker.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# CENTER SQUAWKER

## Removal and Installation

INFOID:0000000012407559

### REMOVAL

1. Remove speaker grille from instrument panel. Refer to IP-14, "Removal and Installation".
2. Remove screws and disconnect connector, and remove the center squawker.

**CAUTION:**
**Never damage wind shield glass.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# WOOFER

## Removal and Installation

INFOID:0000000012407560

### REMOVAL

1. Remove luggage floor box. Refer to INT-45, "LUGGAGE FLOOR BOX : Removal and Installation".
2. Remove woofer clamp and disconnect connector, and remove woofer.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# MULTIFUNCTION SWITCH

## Removal and Installation

INFOID:0000000012407561

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove multifunction switch mounting screws.
3. Remove bracket and disconnect harness connectors connected to preset switch.
4. Unhook pawl to remove multifunction switch from cluster lid C.

**CAUTION:**

**Carefully handle the pawl fixing the multifunction switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.



cardiagn.com

# PRESET SWITCH

## Removal and Installation

INFOID:0000000012407562

### REMOVAL

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. Remove preset switch mounting screws and disconnect preset switch connector.
3. Unhook pawl by using a remover tool to remove preset switch from cluster lid C.

**CAUTION:**
**Carefully handle the pawl fixing the preset switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# DISK EJECT SWITCH

## Removal and Installation

INFOID:0000000012407563

### REMOVAL

1. Remove instrument lower center cover. Refer to IP-14, "Removal and Installation".
2. Remove screws and unhook two pawls of AV control unit to remove disk eject switch.

**CAUTION:**

**Carefully handle the pawl fixing the disk eject switch to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# AUXILIARY INPUT JACKS

## Removal and Installation

INFOID:0000000012407564

### REMOVAL

1. Remove center console body assembly. Refer to IP-28, "Removal and Installation".
2. Remove screws to remove auxiliary input jacks from center console body assembly.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# USB CONNECTOR

## Removal and Installation

INFOID:0000000012407565

### REMOVAL

1. Remove center console upper finisher. Refer to IP-29, "Disassembly and Assembly".
2. Unhook pawl to remove USB connector from center console upper finisher.

### INSTALLATION

Install in the reverse order of removal.

cardiagn.com

# MICROPHONE

## Removal and Installation

INFOID:0000000012407566

### REMOVAL

1. Remove map lamp assembly. Refer to INL-71, "Removal and Installation".
2. Unhook pawls to remove microphone from map lamp assembly.

**CAUTION:**
**Carefully handle the pawl fixing the microphone to prevent damage to the pawl.**

### INSTALLATION

Install in the reverse order of removal.

**NOTE:**
After installing microphone, check that it is securely installed with no backlash.

cardiagn.com

# ANTENNA AMP.

## Removal and Installation

INFOID:0000000012407567

### REMOVAL

1. Remove rear pillar garnish RH. Refer to INT-27, "REAR PILLAR GARNISH : Removal and Installation".
2. Remove screw and disconnect connector, and remove antenna amp.

### INSTALLATION

Install in the reverse order of removal.



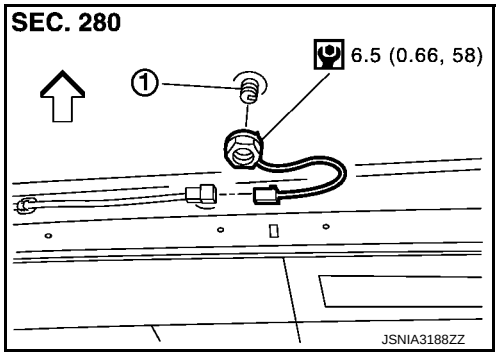
cardiagn.com

# SATELLITE RADIO ANTENNA

## Exploded View

INFOID:0000000012407568

REMOVAL

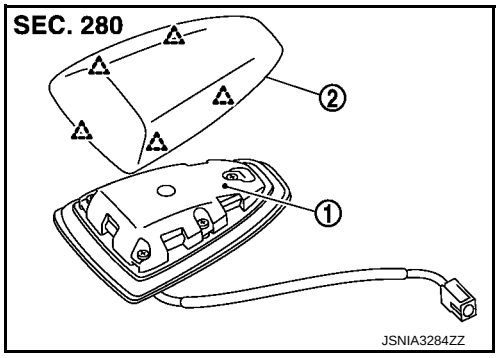



1. Satellite radio antenna

⇦ : Vehicle front

: N·m (kg-m, in-fb)

DISASSEMBLY




1. Satellite radio antenna
2. Cover

: Pawl

## Removal and Installation

INFOID:0000000012407569

REMOVAL

1. Remove rear upper ventilator duct 2. Refer to HA-55, "Exploded View".
2. Disconnect antenna feeder connector.
3. Remove nut, and remove satellite radio antenna and the cover from the vehicle as a single unit.

INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

**If the satellite radio antenna mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.**

## Disassembly and Assembly

INFOID:0000000012407570

DISASSEMBLY

Insert cloth-covered driver into gaps between satellite radio antenna and the cover, and remove the cover from satellite radio antenna.

ASSEMBLY

Assemble in the reverse order of disassembly.

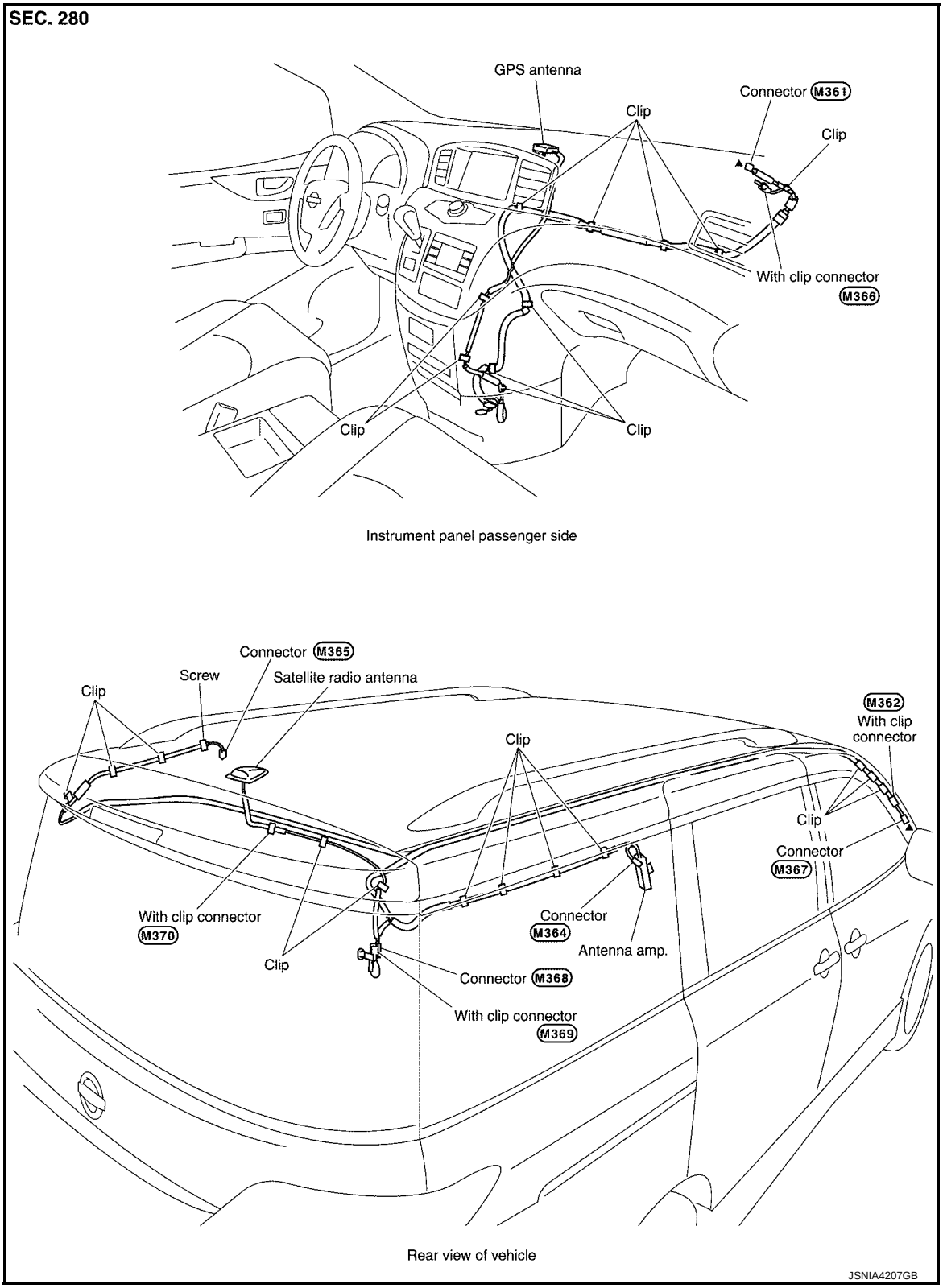


cardiagn.com

# GPS ANTENNA

## Feeder Layout

INFOID:0000000012407571




▲: Indicates that the part is connected at points with same symbol in actual vehicle.

## Removal and Installation

INFOID:0000000012407572

REMOVAL



cardiagn.com

1. Remove AV control unit. Refer to AV-610, "Removal and Installation".
2. Remove front display unit. Refer to AV-611, "Removal and Installation".
3. Remove cup holder assembly. Refer to IP-14, "Removal and Installation".
4. Remove GPS antenna feeder clips.
5. Remove screw to remove GPS antenna.

## INSTALLATION

Install in the reverse order of removal.

cardiagn.com

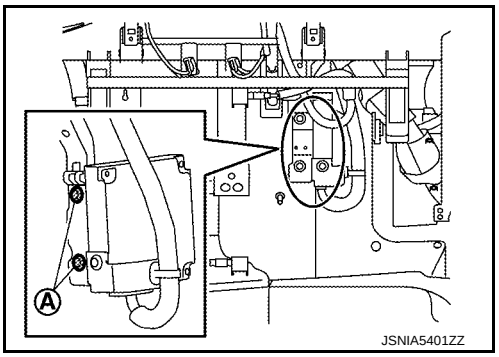
# AROUND VIEW MONITOR CONTROL UNIT

## Removal and Installation

INFOID:0000000012407573

### REMOVAL

1. Remove globe box assembly. Refer to IP-14, "Removal and Installation".
2. Remove harness clip mounted to the bracket.
3. Remove two mounting screws (A) and pull the around view monitor control unit together with the brackets.




4. Disconnect connectors to remove around view monitor control unit and brackets from the vehicle as a single unit.
5. Remove bracket screws to remove around view monitor control unit.

### INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

**CAUTION:**

**Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.**



cardiagn.com

# FRONT CAMERA

## Removal and Installation

INFOID:0000000012407574

### REMOVAL

1. Remove front grille. Refer to EXT-18, "Removal and Installation".
2. Remove front camera mounting screws to remove front camera from front grille.

### INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

**CAUTION:**

**Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.**

cardiagn.com

# REAR CAMERA

## Removal and Installation

INFOID:0000000012407575

### REMOVAL

1. Remove back door finisher. Refer to EXT-47, "Removal and Installation".
2. Remove screws to remove rear camera from back door finisher.

### INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

**CAUTION:**

**Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.**

cardiagn.com

# SIDE CAMERA

## Removal and Installation

INFOID:0000000012407576

### REMOVAL

1. Remove door mirror under cover from door mirror. Refer to MIR-38, "DOOR MIRROR ASSEMBLY : Disassembly and Assembly".
2. Remove screws to remove side camera from door mirror under cover.

### INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-526, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

**CAUTION:**

**Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.**

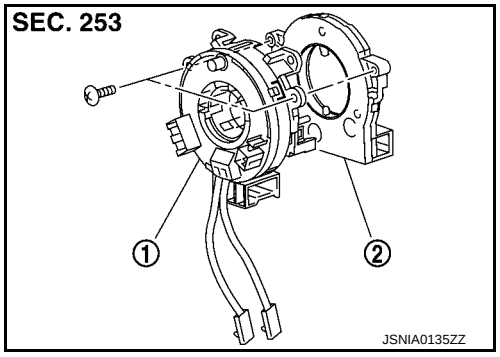
cardiagn.com

# STEERING ANGLE SENSOR

## Exploded View

INFOID:0000000012407577

DISASSEMBLY




1. Spiral cable
2. Steering angle sensor

## Removal and Installation

INFOID:0000000012407578

REMOVAL

1. Remove spiral cable. Refer to SR-16, "Removal and Installation".
2. Remove steering angle sensor from spiral cable.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform steering angle sensor neutral position adjustment. Refer to BRC-50, "Description".

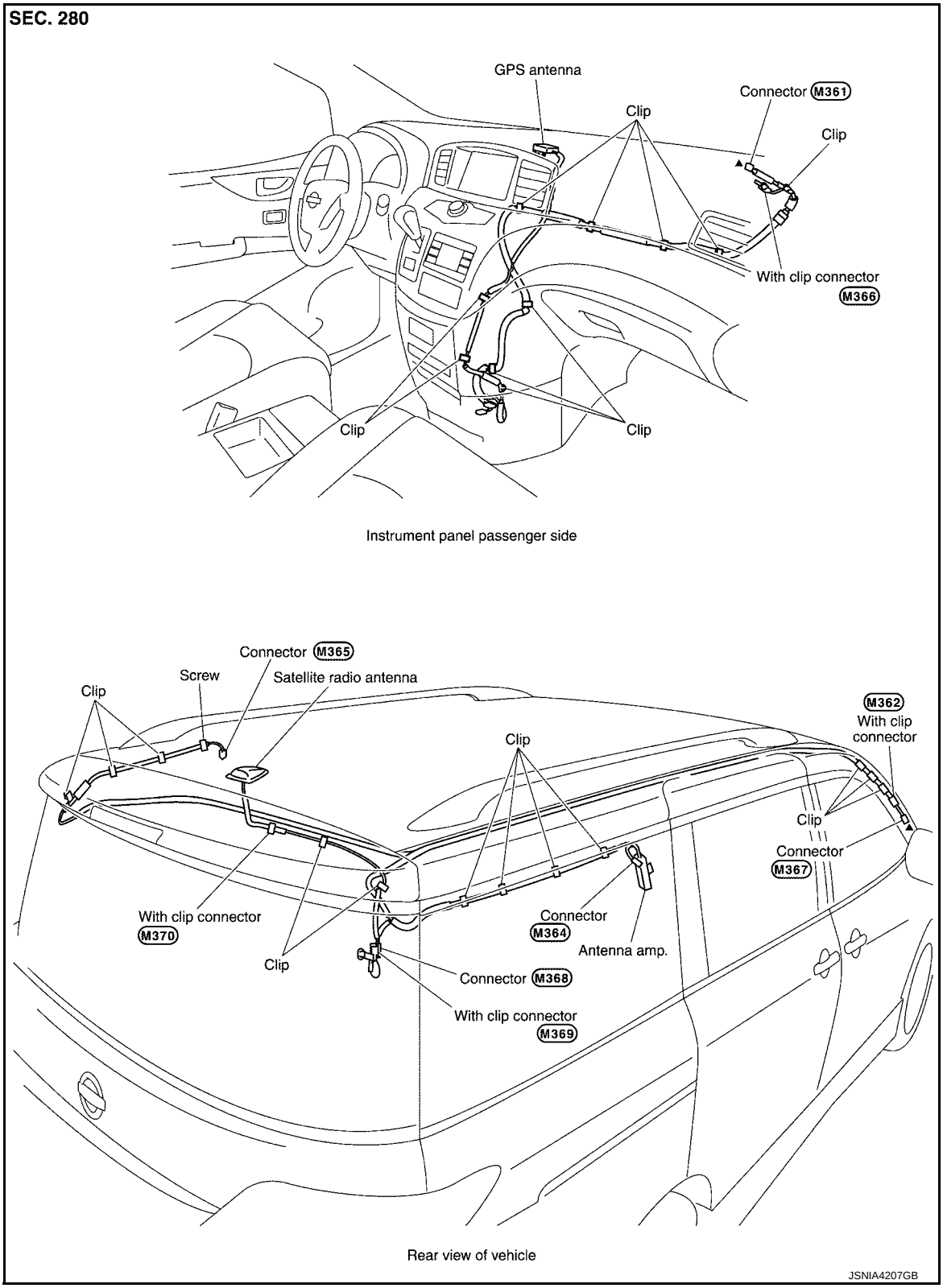
cardiagn.com

# ANTENNA FEEDER

## Feeder Layout

INFOID:0000000012407579

SEC. 280




▲: Indicates that the part is connected at points with same symbol in actual vehicle.

cardiagn.com