

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BE1YU-01

Power Mirror Control System:

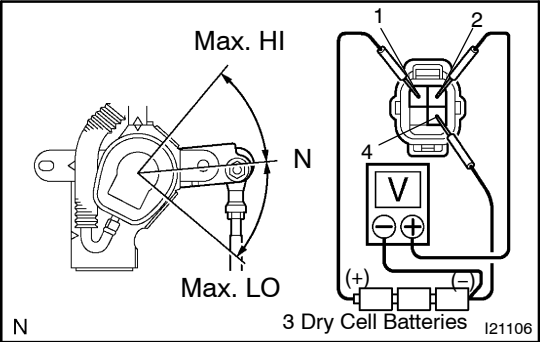
This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
G.C.C. countries only: Mirror retract system does not operate	1. Retract switch 2. Electrical retract motor 3. Wire harness 4. Body ECU No. 1 5. Driver door ECU Passenger door ECU	BE-21 BE-21 – DI-600 DI-628 DI-662

Double Locking System (Europe):

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
All the doors double lock system does not operate.	1. Body ECU No. 1 2. Each door ECU	DI-600 –
Only one side of mirror does not operate.	1. Double lock motor 2. Double lock switch 3. Each door ECU 4. Body ECU No. 1	BE-18 BE-18 – DI-600



HEADLIGHT BEAM LEVEL CONTROL SYSTEM INSPECTION

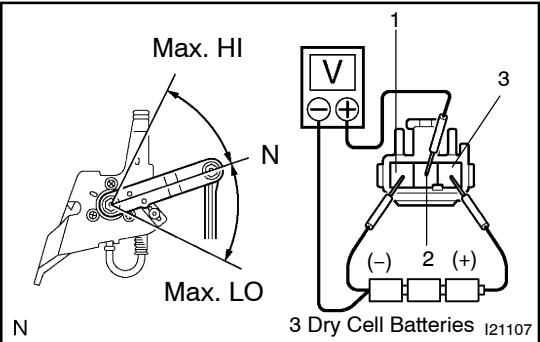
BE123-01

1. INSPECT FRONT HEIGHT CONTROL SENSOR

- (a) Connect 3 dry batteries of 1.5 V in series.
- (b) Connect terminal 1 to the batteries' positive (+) terminal, and terminal 4 to the batteries' negative (-) terminal, then apply voltage about 4.5 V between terminals 1 and 4.
- (c) Measure the voltage between terminals 2 and 4, when the height control sensor link is slowly moved up and down.

Sensor Link Position	Voltage
Max. HI	Approx. 4.05 V
N	Approx. 2.25 V
Min. LO	Approx. 0.45 V

If voltage is not as specified, replace the height control sensor.



2. INSPECT REAR HEIGHT CONTROL SENSOR

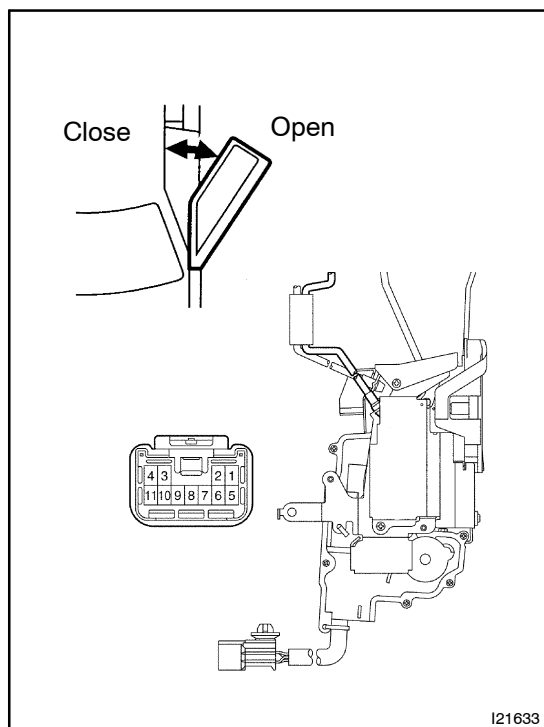
- (a) Connect 3 dry batteries of 1.5 V in series.
- (b) Connect terminal 3 to the batteries' positive (+) terminal, and terminal 1 to the batteries' negative (-) terminal, then apply voltage about 4.5 V between terminals 1 and 3.
- (c) Measure the voltage between terminals 1 and 2, when the height control sensor link is slowly moved up and down.

Sensor Link Position	Voltage
Max. HI	Approx. 4.05 V
N	Approx. 2.25 V
Min. LO	Approx. 0.45 V

If voltage is not as specified, replace the height control sensor.

BE1YV-01

INTERIOR LIGHT SYSTEM INSPECTION



1. w/ Double locking system: INSPECT FRONT DOOR COURTESY SWITCH CONTINUITY

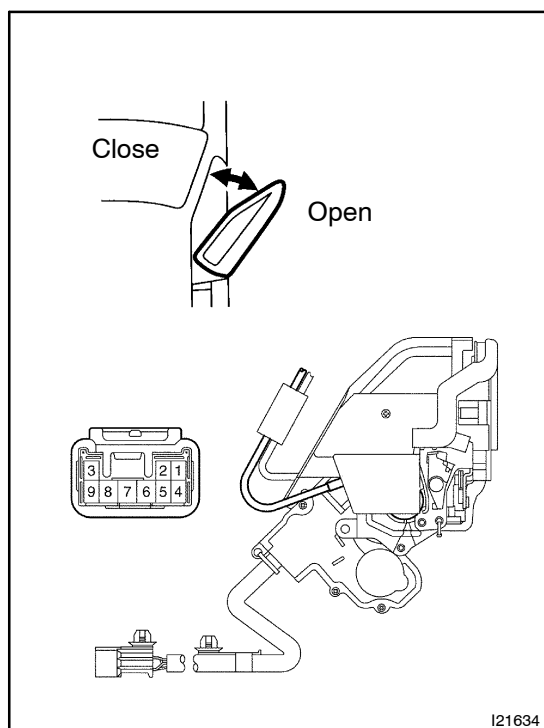
- Connect the connector to the driver door ECU or front passenger door ECU.
- Check that continuity exists between terminals 4 and 11 when door is opened.
- Check that no continuity exists between terminals 4 and 11 when door is closed.

If continuity is not as specified, replace the door lock assembly.

2. w/ Double locking system: INSPECT FRONT DOOR COURTESY SWITCH CIRCUIT

Driver side: (See page DI-646)

Passenger side: (See page DI-680)



3. w/ Double locking system: INSPECT REAR DOOR COURTESY SWITCH CONTINUITY

- Connect the connector to the rear left door ECU or rear right door ECU.
- Check that continuity exists between terminals 1 and 2 when door is opened.
- Check that no continuity exists between terminals 1 and 2 when door is closed.

If continuity is not as specified, replace the door lock assembly.

4. w/ Double locking system: INSPECT REAR DOOR COURTESY SWITCH CIRCUIT

Rear LH side: (See page DI-704)

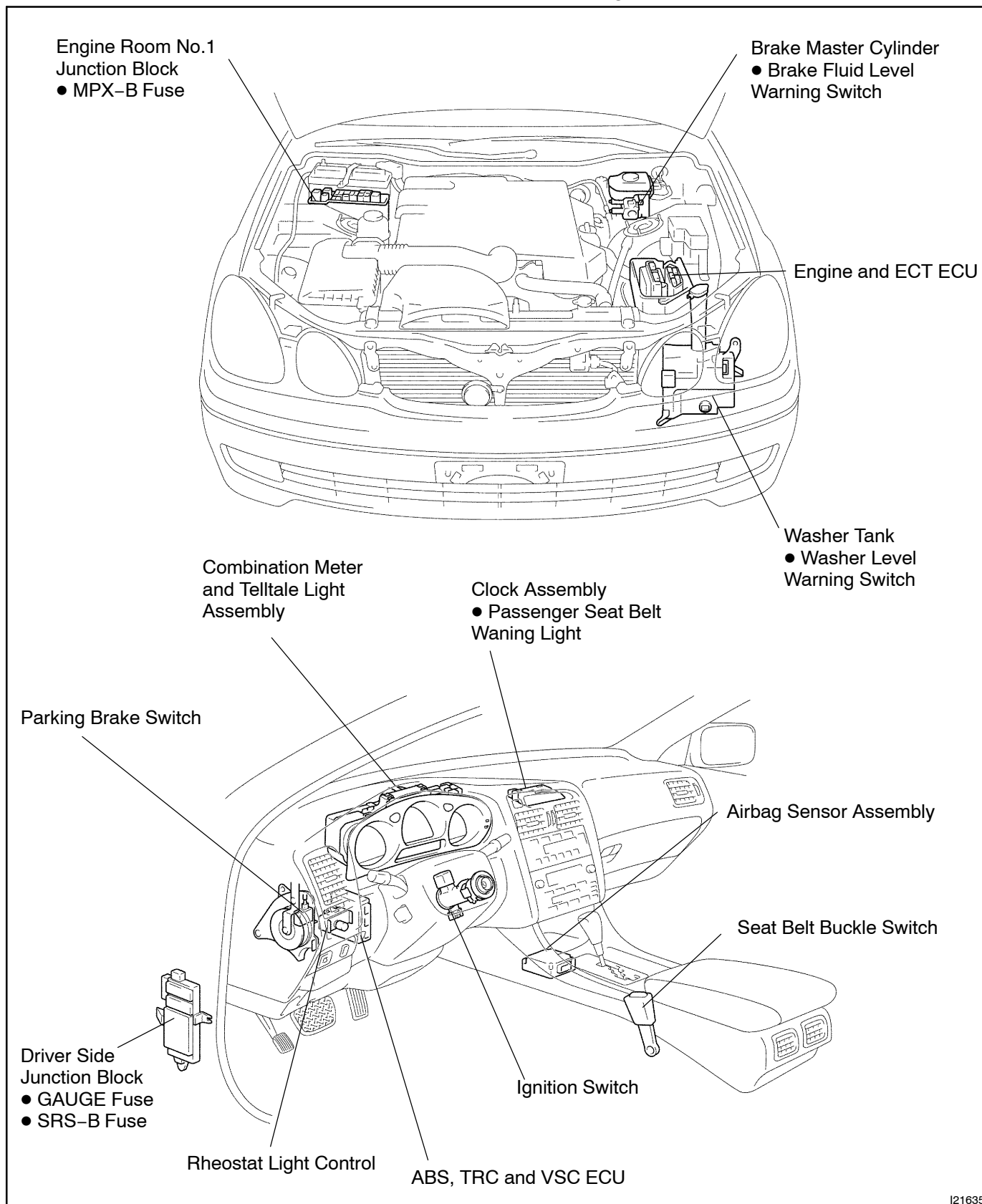
Rear RH side: (See page DI-724)

COMBINATION METER

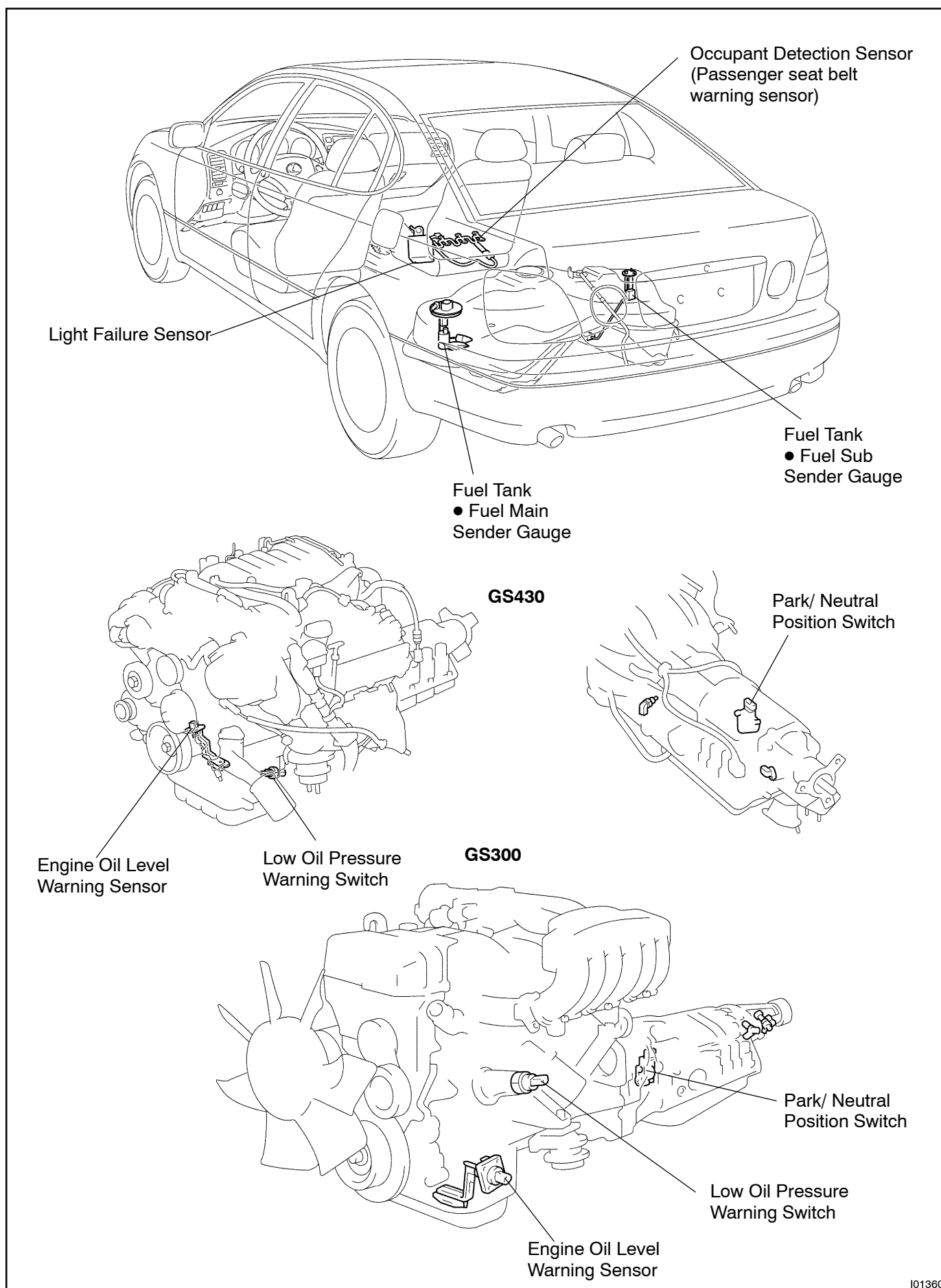
LOCATION

BE0HH-09

- The vehicle shown in this illustration is "GS430".
- All components of "GS300" other than the ones used for engine are same as "GS430".



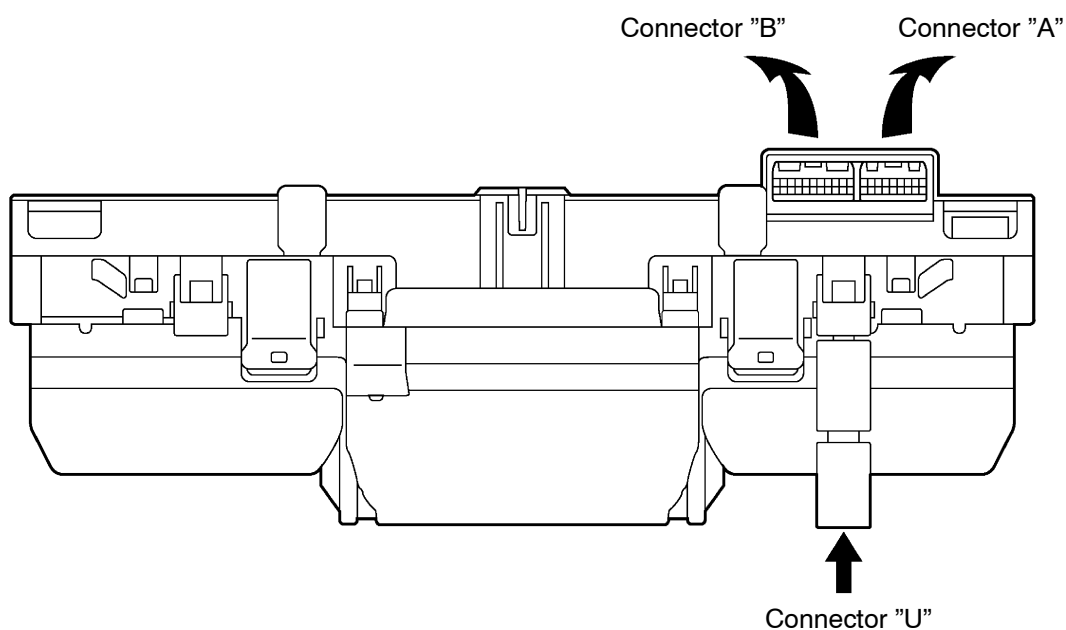
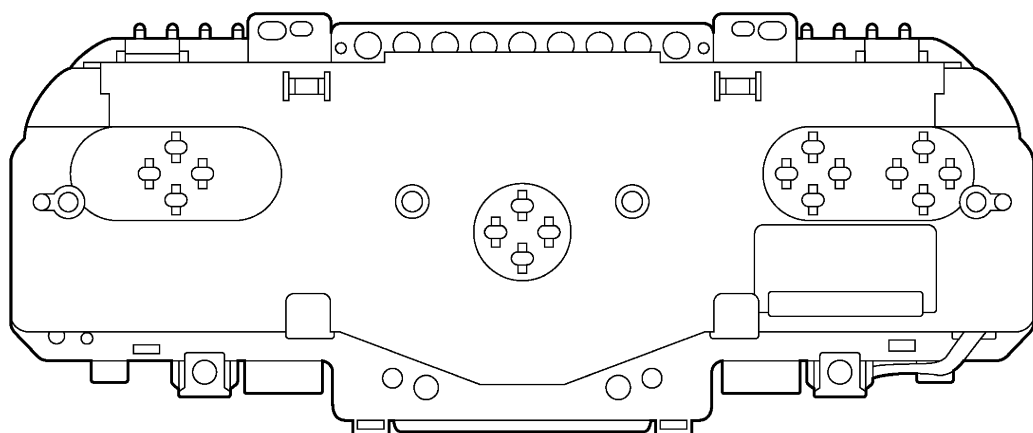
I21635



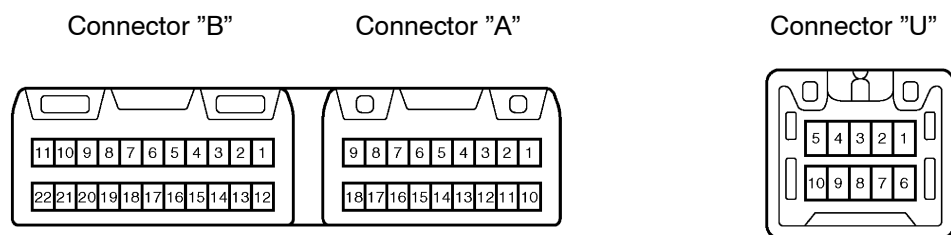
I01360

CIRCUIT

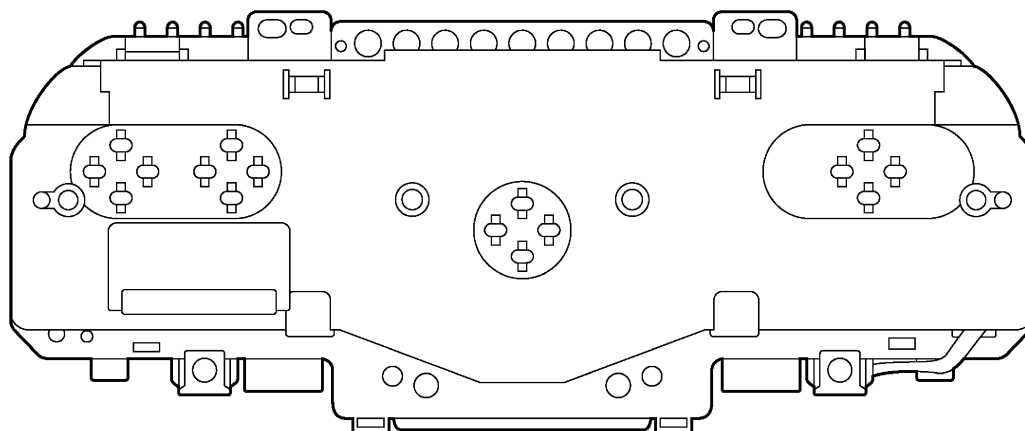
LHD Models



Combination Meter Wiring Circuit Connectors

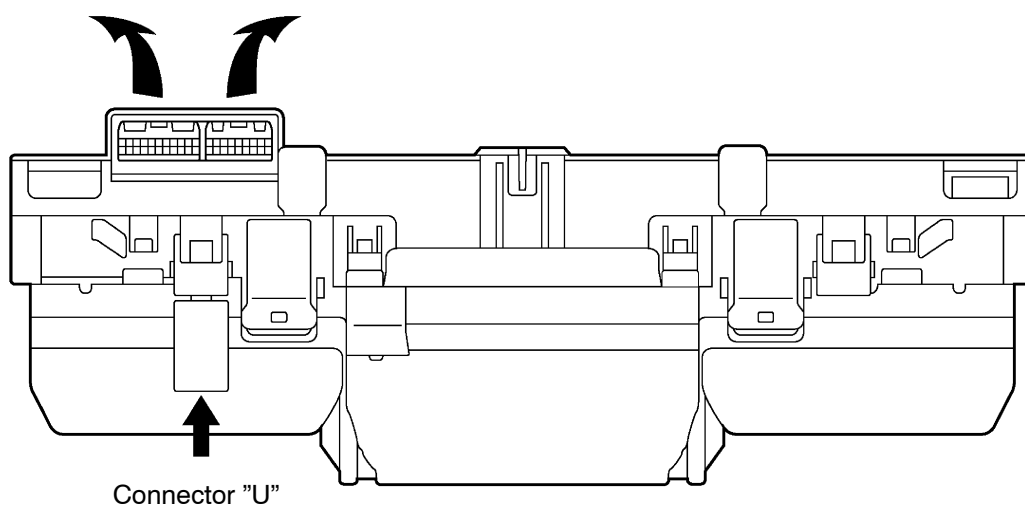


RHD Models



Connector "A"

Connector "B"



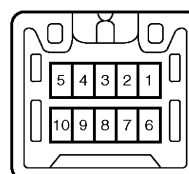
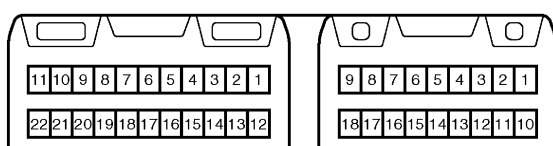
Connector "U"

Combination Meter Wiring Circuit Connectors

Connector "B"

Connector "A"

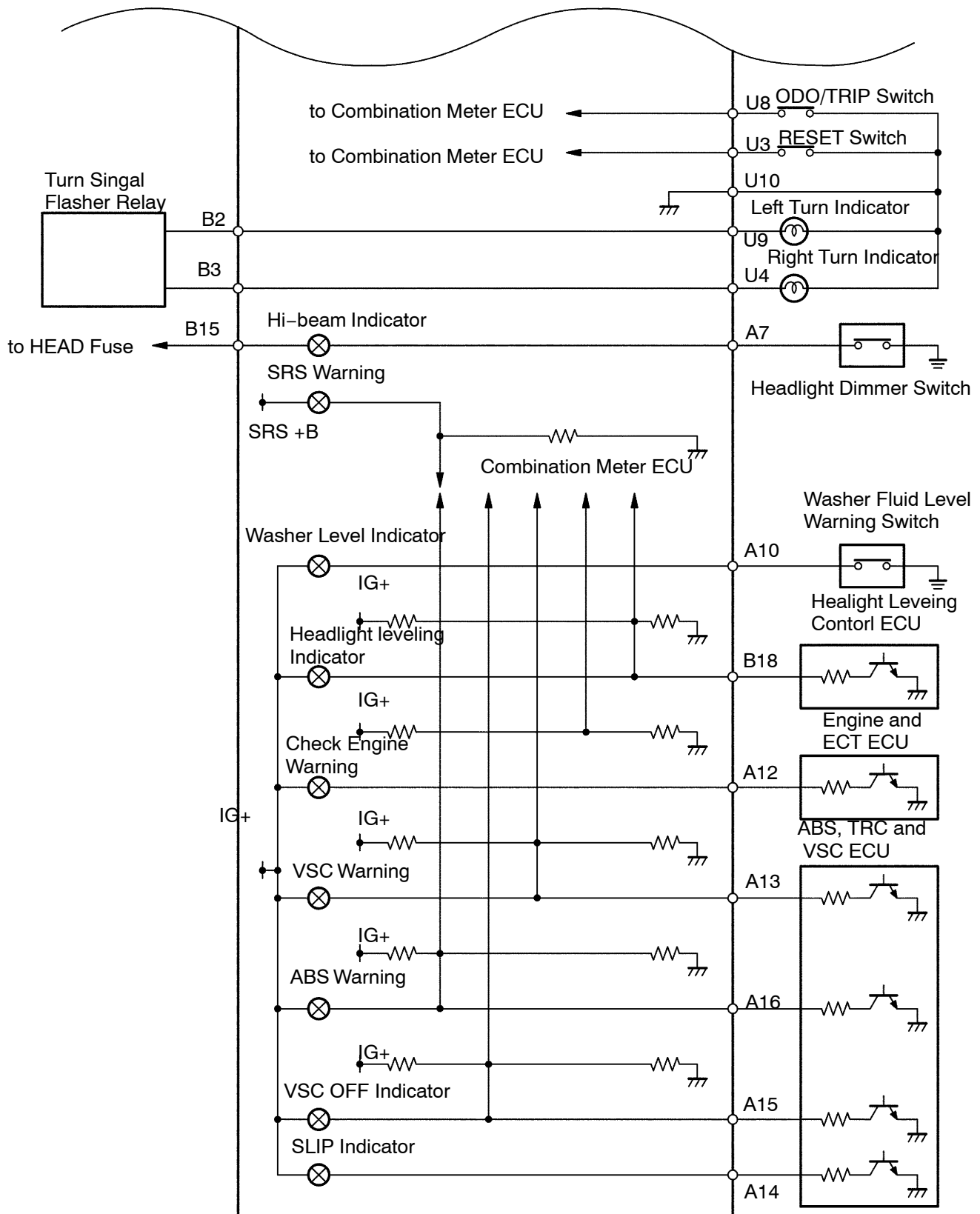
Connector "U"



Engine and ECT
ECU (GS400)
Ignitor (GS300)



• Combination Meter Wiring Circuit - 2

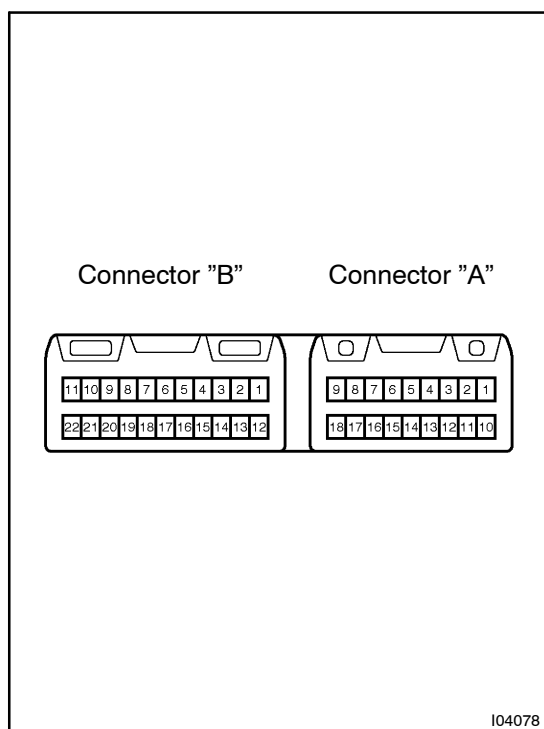


No.		Wiring connector side
A	1	Clock (Passenger seat belt warning light)
	2	Airbag sensor assembly
	3	Fuel main sender gauge
	4	Fuel sub sender gauge
	5	ABS, TRC and VSC ECU (Speed signal)
	6	Speed control unit
	7	Headlight dimmer switch
	8	Ground
	10	Window washer level warning switch
	11	Body control No.2 ECU
	12	Engine and ECT ECU
	13	ABS, TRC and VSC ECU (VSC warning light)
	14	ABS, TRC and VSC ECU (SLIP warning light)
	15	ABS, TRC and VSC ECU (VSC OFF warning light)
	16	ABS, TRC and VSC ECU (ABS warning light)
	17	ABS, TRC and VSC ECU (Brake warning light)
B	1	GAUGE fuse
	2	Turn signal flasher (Left turn side)
	3	Turn signal flasher (Right turn side)
	4	Light control rheostat (+B)
	5	Light control rheostat (Signal)
	6	Light control rheostat (Ground)
	9	Illuminations
	13	MPX+B fuse
	14	DOVE+B fuse
	15	HEAD-RH fuse
	16	Igniter
	18	Headlight beam leveling control ECU
	22	Ground
U	1	Telltale light assembly (IG+)
	3	Telltale light assembly (ODO/TRIP switch)
	4	Telltale light assembly (Right turn signal)
	8	Telltale light assembly (RESET switch)
	9	Telltale light assembly (Left turn signal)
	10	Ground

INSPECTION

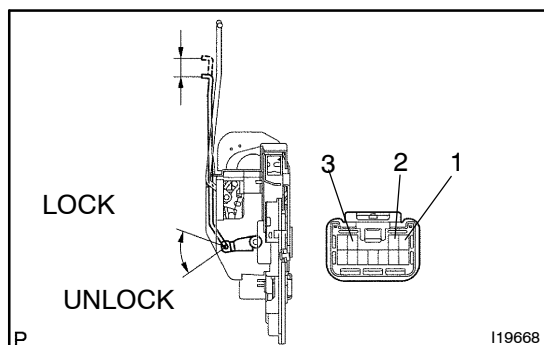
INSPECT COMBINATION METER CIRCUIT

Disconnect connector "A" and "B" from the combination meter and inspect the connectors on the wire harness side as shown in the table.



Tester connection	Condition	Specified condition
A1 – Ground	Ignition switch ON	Battery voltage
A3 – A4	Constant	Continuity
A7 – Ground	Light control switch HEAD and headlight dimmer switch HI	Continuity
A8 – Ground B22 – Ground	Constant	Continuity
A10 – Ground	Window washer level warning switch Float down	Continuity
B1 – Ground	Ignition switch ON	Battery voltage
B4 – B6	Constant	Approx. 10 kΩ
B5 – B6	Turn light control rheostat to bright position.	Approx. 0 kΩ
B5 – B6	Turn light control rheostat to dark position.	Approx. 10 kΩ
B9 – Ground	Light control switch TAIL	Battery voltage
B13 – Ground	Constant	Battery voltage
B14 – Ground	Constant	Battery voltage
B9 – Ground	Light control switch in HEAD	Battery voltage
B15 – Ground	Light control switch in HEAD	Battery voltage

If circuit is not as specified, wiring diagram and inspect the circuits connected to other parts.



POWER DOOR LOCK CONTROL SYSTEM INSPECTION

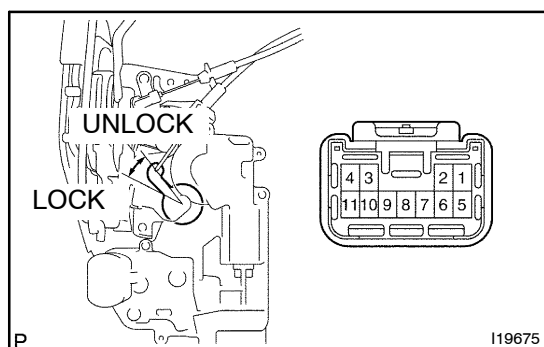
BE124-01

1. w/ Double locking system:
INSPECT FRONT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	1 – 3	Continuity
OFF	–	No continuity
UNLOCK	2 – 3	Continuity

If continuity is not as specified, replace the door lock assembly.

2. w/ Double locking system:
INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CIRCUIT (See page DI-643)



3. w/ Double locking system:
INSPECT FRONT DOOR UNLOCK DETECTION SWITCH CONTINUITY

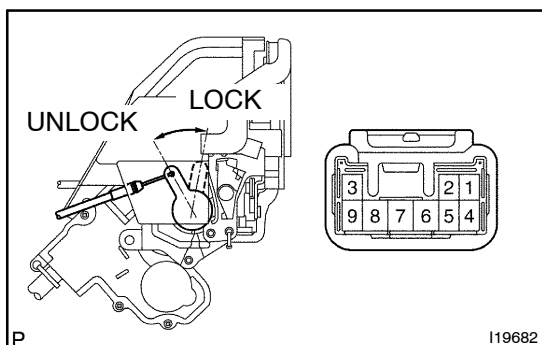
Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	–	No continuity
ON (Door Lock set to UNLOCK)	3 – 8	Continuity

If continuity is not as specified, replace the door lock assembly.

4. w/ Double locking system:
INSPECT FRONT DOOR UNLOCK DETECTION SWITCH CIRCUIT

Driver's side: (See page DI-640)

Passenger's side: (See page DI-674)



**5. w/ Double locking system:
INSPECT REAR DOOR UNLOCK DETECTION
SWITCH CONTINUITY**

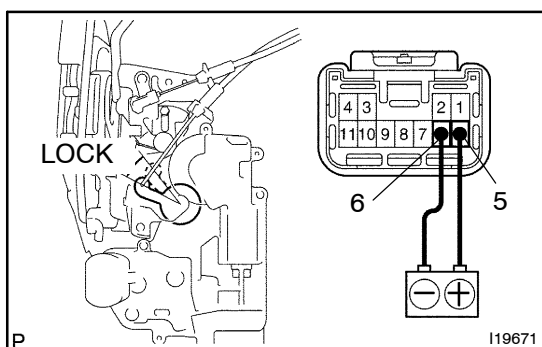
Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	–	No continuity
ON (Door Lock set to UNLOCK)	3 – 7	Continuity

If continuity is not as specified, replace the door lock assembly.

**6. Rear Door:
INSPECT DOOR UNLOCK DETECTION SWITCH CIR-
CUIT**

Rear **Left** side: (See page [DI-702](#))

Rear **Right** side: (See page [DI-722](#))

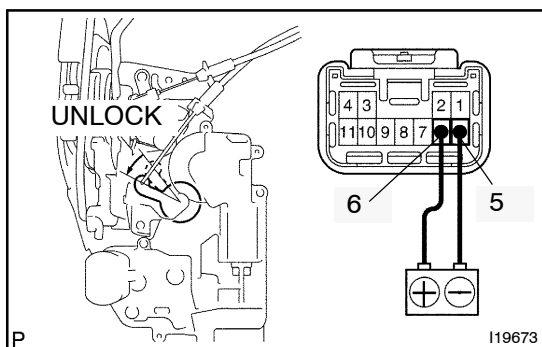


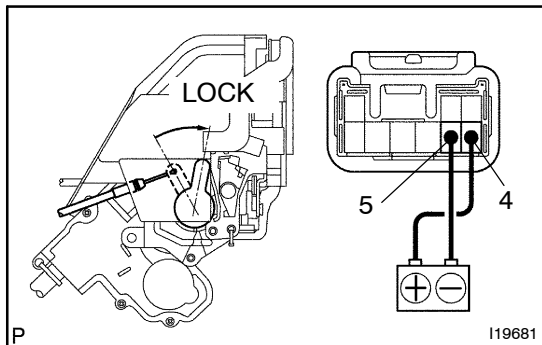
**7. w/ Double locking system:
INSPECT FRONT DOOR LOCK MOTOR OPERATION**

- Connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 6, and check that the door lock link moves to LOCK position.
- Reverse the polarity and check that the door lock link moves to UNLOCK position.

If operation is not as specified, replace the door lock assembly.

**8. w/ Double locking system:
INSPECT FRONT DOOR LOCK MOTOR CIRCUIT**
Driver side: (See page [DI-637](#))
Passenger side: (See page [DI-671](#))





9. w/ Double locking system:

INSPECT REAR DOOR LOCK MOTOR OPERATION

- Connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 5, and check that the door lock link moves to LOCK position.
- Reverse the polarity and check that the door lock link moves to UNLOCK position.

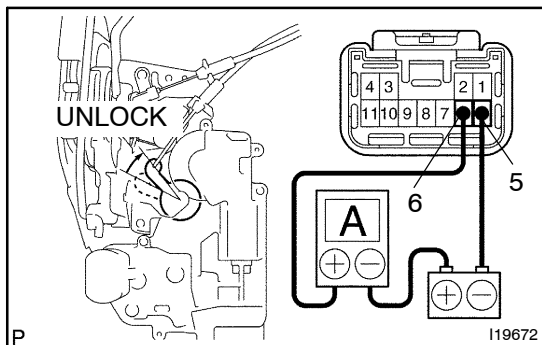
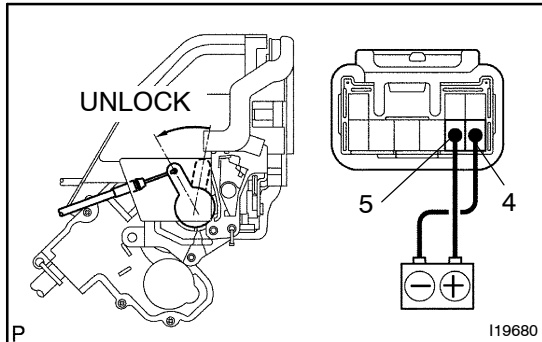
If operation is not as specified, replace the door lock assembly.

10. w/ Double locking system:

INSPECT REAR DOOR LOCK MOTOR CIRCUIT

Rear Left side: (See page DI-700)

Rear Right side: (See page DI-720)



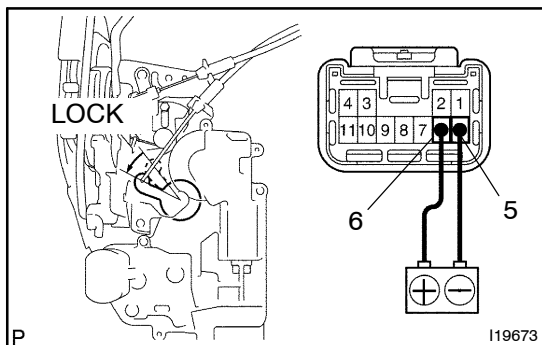
11. w/ Double locking system:

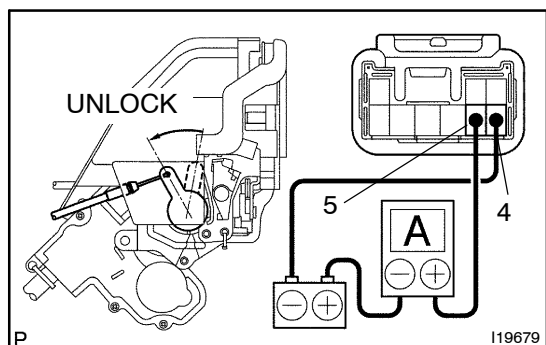
INSPECT FRONT DOOR PTC THERMISTOR OPERATION (Using an ammeter)

- Connect the negative (-) lead from the battery to terminal 5.
- Connect the positive (+) lead from the ammeter to terminal 6 and the negative (-) lead to battery negative (-) terminal, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

- Disconnect the leads from terminals.
- Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 6, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.

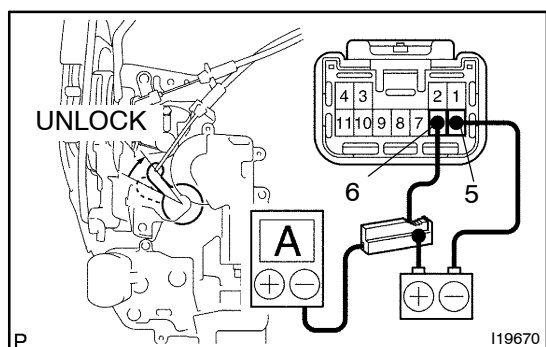
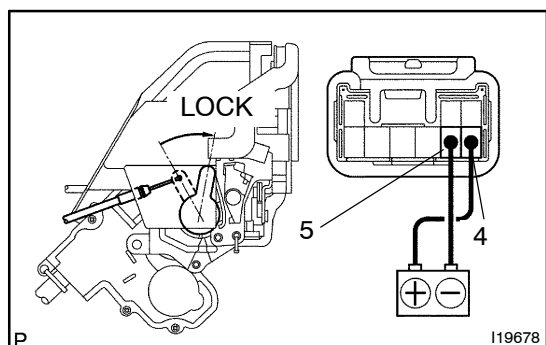




**12. w/ Double locking system:
INSPECT REAR DOOR PTC THERMISTOR OPERATION (Using an ammeter)**

- Connect the negative (-) lead from the battery to terminal 4.
- Connect the positive (+) lead from the ammeter to terminal 5 and the negative (-) lead to battery negative (-) terminal 4, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.
- Disconnect the leads from terminals.
- Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 4. and the negative (-) lead to terminal 5, and check that the door lock moves to the LOCK position.

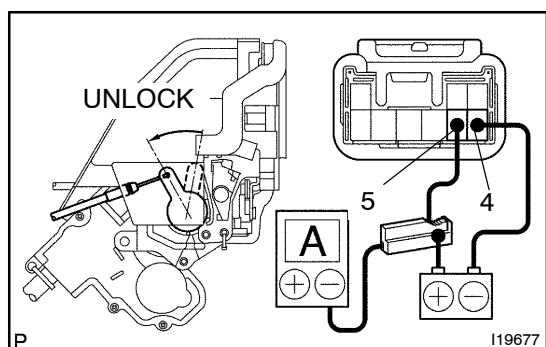
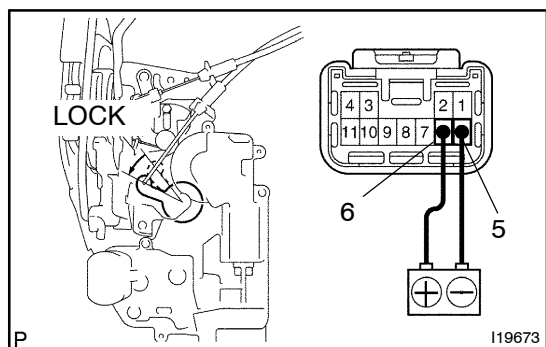
If operation is not as specified, replace the door lock assembly.



**13. w/ Double locking system:
INSPECT FRONT DOOR PTC THERMISTOR OPERATION (Using an ammeter with a current-measuring probe)**

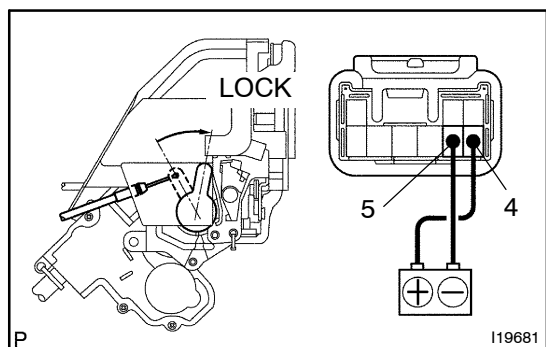
- Connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 5.
- Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.
- Disconnect the leads from terminals.
- Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.



**14. w/ Double locking system:
INSPECT PTC THERMISTOR OPERATION (Using an ammeter with a current-measuring probe)**

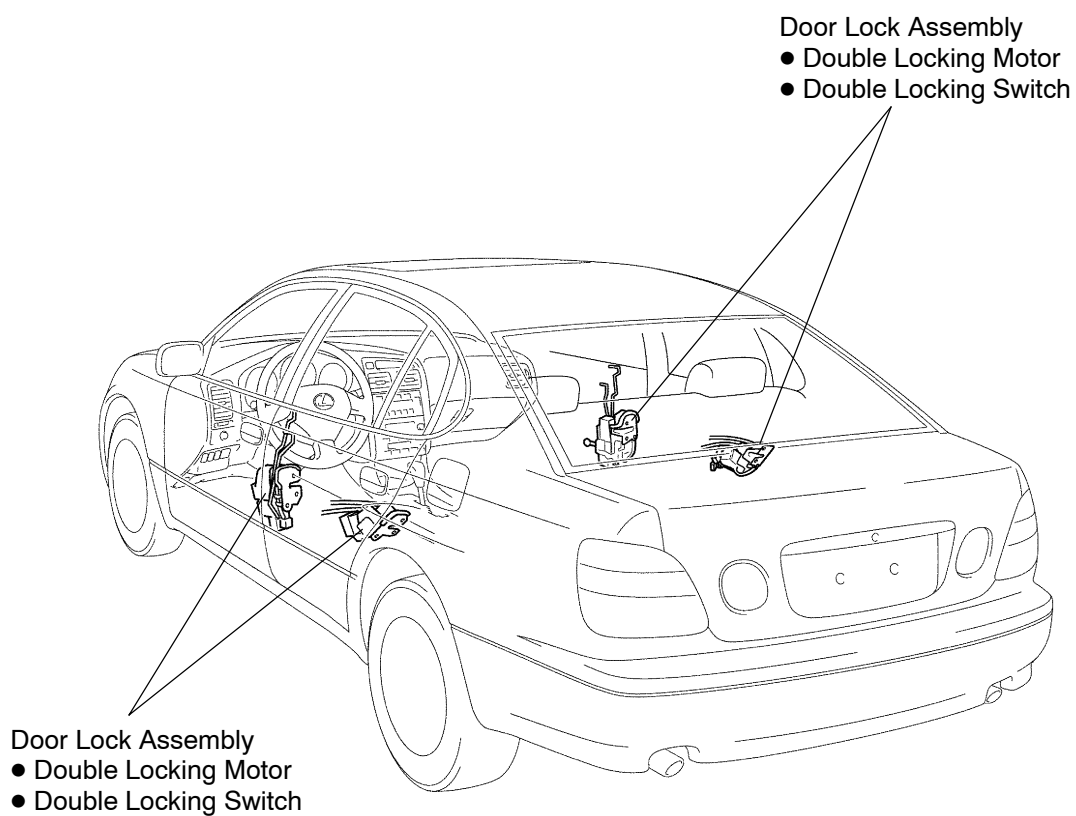
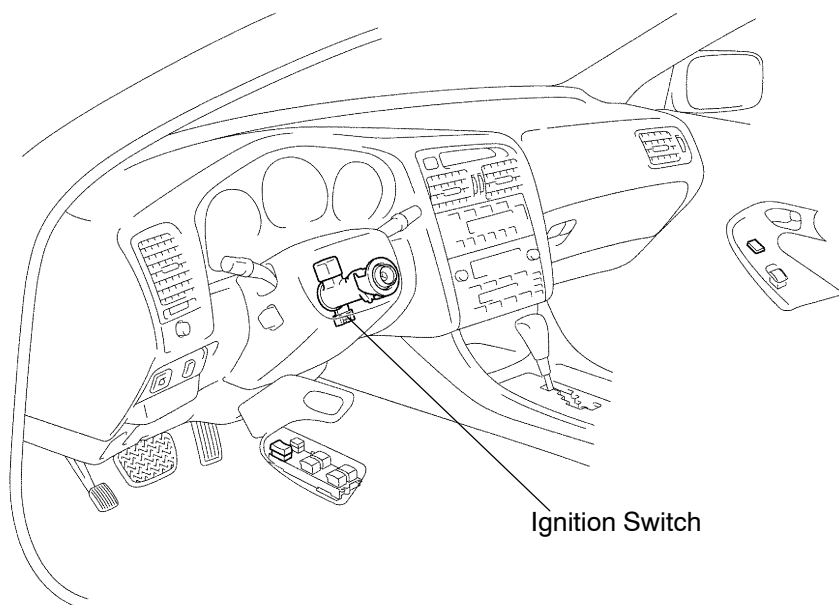
- Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 4.
- Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



- (c) Disconnect the leads from terminals.
 - (d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

DOUBLE LOCKING SYSTEM LOCATION

BE1YW-01



I05311

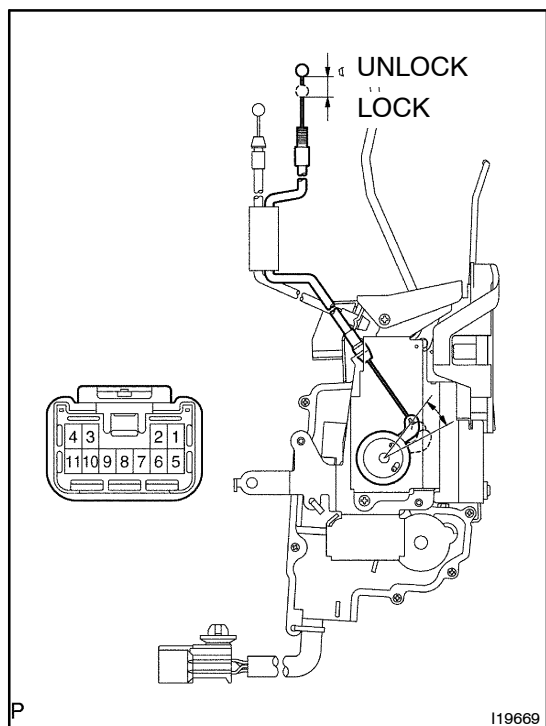
INSPECTION

1. INSPECT DOUBLE LOCKING SYSTEM FUNCTION

HINT:

- In case of doing the following inspection, must open one of the windows of the doors.
 - To set the double lock, turn the ignition switch OFF, pull out the key, open the driver's door and then perform the lock operation on the wireless transmitter. Locking again within 5 sec, after the first locking sets the double lock.
- (a) Check that the double lock is set.
 - (1) With the glass window opened, set the double lock from the outside of a vehicle using a wireless transmitter.
 - (2) Check that the doors won't open from the inside of the vehicle even operating the door lock knob and inside door handle
 - (b) Check that the double lock is released (Case 1).
 - (1) Press the UNLOCK button on the wireless transmitter.
 - (2) Check that the doors will open from the inside of the vehicle by operating the door knob and inside door handle.
 - (c) Check that the double lock is released (Case 2).
 - (1) With the glass window opened, set the double lock from the outside of a vehicle using a wireless transmitter.
 - (2) Under this condition, insert the key into the ignition key cylinder, turn the ignition switch to ON and check that the doors will open.

If you find any abnormal symptom in the check items of (a), (b) and (c), troubleshoot according to the Problem Symptom Table.



2. INSPECT FRONT DOUBLE LOCKING SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Double Locking is released)	–	No continuity
ON (Double Locking is set)	3 – 9	Continuity

If continuity is not as specified, replace the door lock assembly.

3. INSPECT FRONT DOUBLE LOCKING SWITCH CIRCUIT

Driver's side: [\(See page DI-660\)](#)

Passenger's side: [\(See page DI-690\)](#)

4. INSPECT FRONT DOUBLE LOCKING MOTOR OPERATION

- (a) Set the Door Lock to LOCK position by the locking cable.

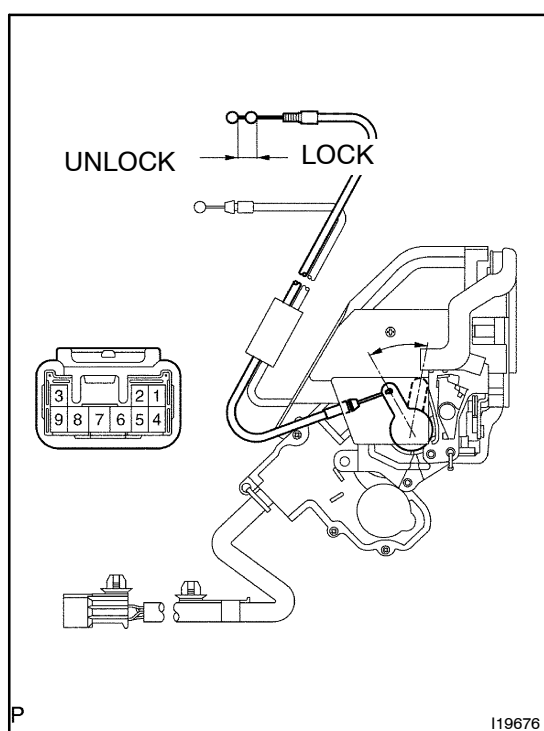
- (b) Connect the positive (+) lead from the battery to terminal 7 and negative (-) lead to terminal 10, and check that the Door Lock will not unlock by pulling the locking cable. (Locking cable must return to LOCK position by the force of spring when pulling the locking cable.)
- (c) Reverse the polarity and check that the Door Lock will unlock by pulling the locking cable.

If operation is not as specified, replace the door lock assembly.

5. INSPECT FRONT DOUBLE LOCKING MOTOR CIRCUIT

Driver side: (See page DI-658)

Passenger side: (See page DI-688)



6. INSPECT REAR DOUBLE LOCKING SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Double Locking is released)	-	No continuity
ON (Double Locking is set)	3 - 8	Continuity

If continuity is not as specified, replace the door lock assembly.

7. INSPECT REAR DOUBLE LOCKING SWITCH CIRCUIT

Rear left side: (See page DI-708)

Rear right side: (See page DI-728)

8. INSPECT REAR DOUBLE LOCK MOTOR OPERATION

- (a) Set the Door Lock to LOCK position by the locking cable.
- (b) Connect the positive (+) lead from the battery to terminal 6 and negative (-) lead to terminal 9, and check that the Door Lock will not unlock by pulling the locking cable. (Locking cable must return to LOCK position by the force of spring when pulling the locking cable.)
- (c) Reverse the polarity and check that the Door Lock will unlock by pulling the locking cable.

If operation is not as specified, replace the door lock assembly.

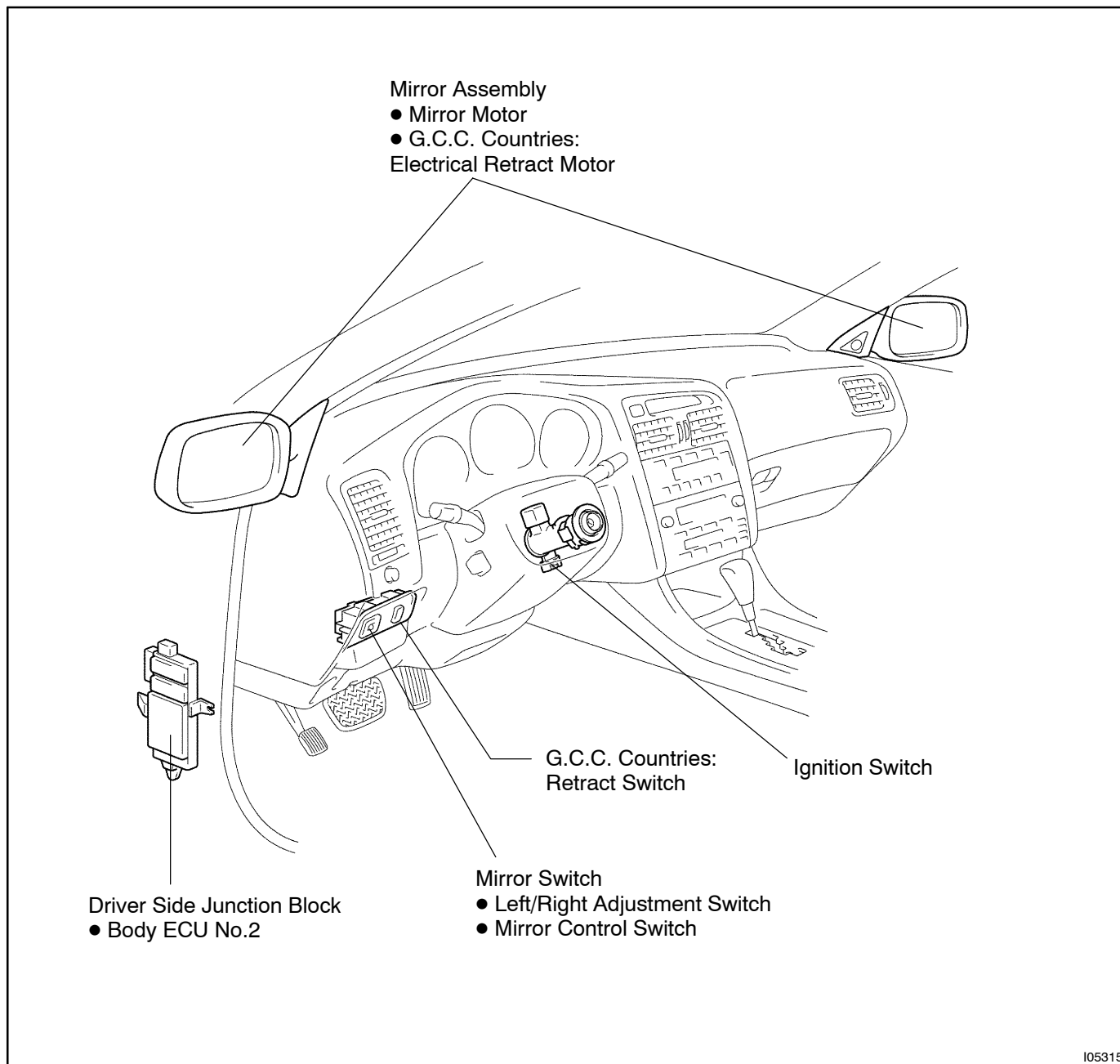
9. INSPECT REAR DOUBLE LOCKING MOTOR CIRCUIT

Rear left side: (See page DI-710)

Rear right side: (See page DI-730)

POWER MIRROR CONTROL SYSTEM LOCATION

BE02J-13



I05315

INSPECTION

1. G.C.C. countries:

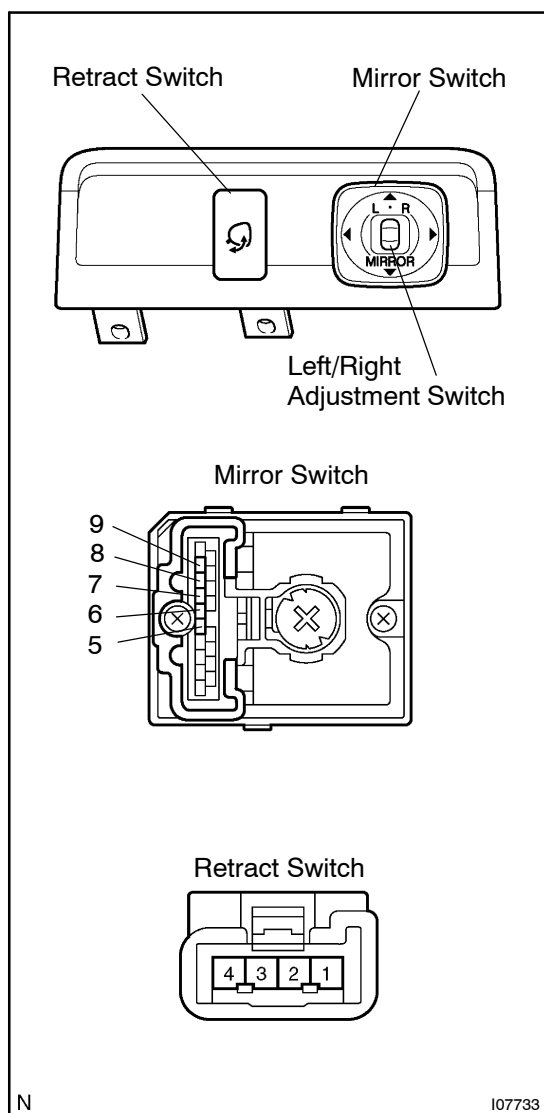
INSPECT RETRACT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	–	No continuity
ON	1 – 2	Continuity

If continuity is not as specified, replace the switch.

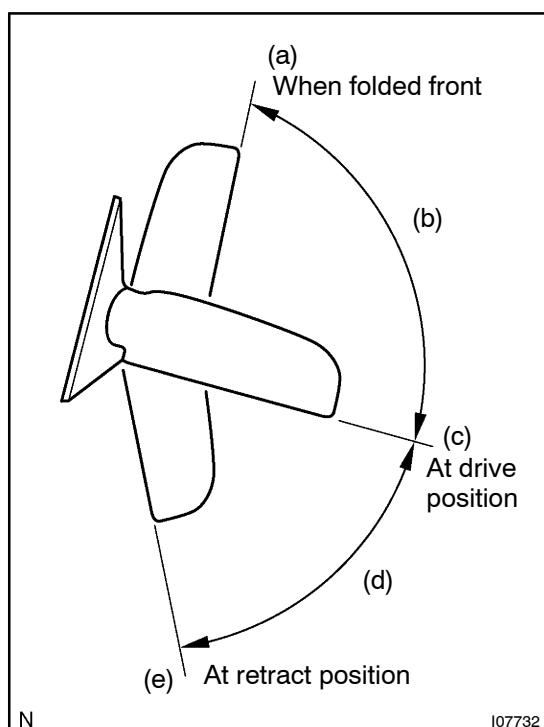
2. G.C.C. countries:

INSPECT MIRROR SWITCH CIRCUIT (See page DI-615)



N

I07733



N

I07732

3. G.C.C. countries:

INSPECT ELECTRICAL RETRACT MOTOR OPERATION

(a) When folded front position:

- (1) Connect the positive (+) lead from the battery to terminal 5 and negative (–) lead to terminal 14, check that the mirror operates at retract position.
- (2) Reverse the polarity, check that the mirror does not operate.

If operation is not as specified, replace the mirror assembly.

(b) Between folded front position and driving position:

- (1) Connect the positive (+) lead from the battery to terminal 5 and negative (–) lead to terminal 14, check that the mirror operates at retract position.
- (2) Reverse the polarity, check that the mirror operate at folded front position.

If operation is not as specified, replace the mirror assembly.

(c) When driving position:

- (1) Connect the positive (+) lead from the battery to terminal 5 and negative (–) lead to terminal 14, check that the mirror operates at retract position.
- (2) Reverse the polarity, check that the mirror does not operate.

If operation is not as specified, replace the mirror assembly.

(d) Between driving position and retract position:

- (1) Connect the positive (+) lead from the battery to terminal 5 and negative (–) lead to terminal 14, check that the mirror operates at retract position.
- (2) Reverse the polarity, check that the mirror operate at return position (Stopping at driving position).

If operation is not as specified, replace the mirror assembly.

(e) When retract position:

- (1) Connect the positive (+) lead from the battery to terminal 5 and negative (–) lead to terminal 14, check that the mirror does not operates.
- (2) Reverse the polarity, check that the mirror operate at return position (Stopping at driving position).

If operation is not as specified, replace the mirror assembly.

AUDIO SYSTEM

DESCRIPTION

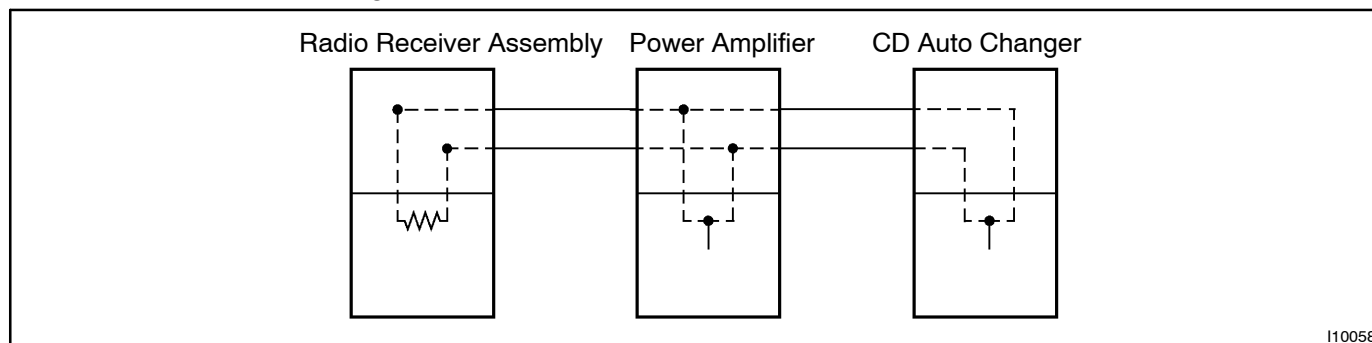
BE120-01

OUTLINE OF AVC-LAN

(a) What is AVC-LAN?

AVC-LAN is the abbreviation, which stands for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The Unified standard covers signals, such as audio signal, visual signal, signal for switch indication and communication signal.



I10058

(b) Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time the level of customers needs to audio system has been upgraded. This lies behind this standardization.

The concrete objectives are explained below.

- (1) When products by different manufactures were combined together, there used to be a case that malfunction occurred such as sound did not come out. This problem has been resolved by standardization of signals.
- (2) Various types of after market products have been able to add or replace freely.
- (3) Because of the above (2), each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products provided inexpensively.
- (4) Conventionally, a new product developed by a manufacture could not be used due to a lack of compatibility with other manufactures products. Because of this new standard, users can enjoy compatible products provided for them timely.

(c) The above descriptions are the objectives to introduce AVC-LAN. By this standardization, development of new products will no longer cause systematic errors. Thus, this is very effective standard for a product in the future.

HINT:

- When +B short or GND short is detected in AVC-LAN circuit, communication stops. Accordingly the audio system does not function normally.
- When audio system is not equipped with a navigation system, audio head unit is the master unit. (When audio system is equipped with a navigation system, radio receiver is the master unit.)
- The car audio system using AVC-LAN circuit has a diagnosis function.
- Each product has its own specified numbers called physical address. Numbers are also allotted to each function in one product, which are called logical address.

TROUBLESHOOTING

1. Europe models:

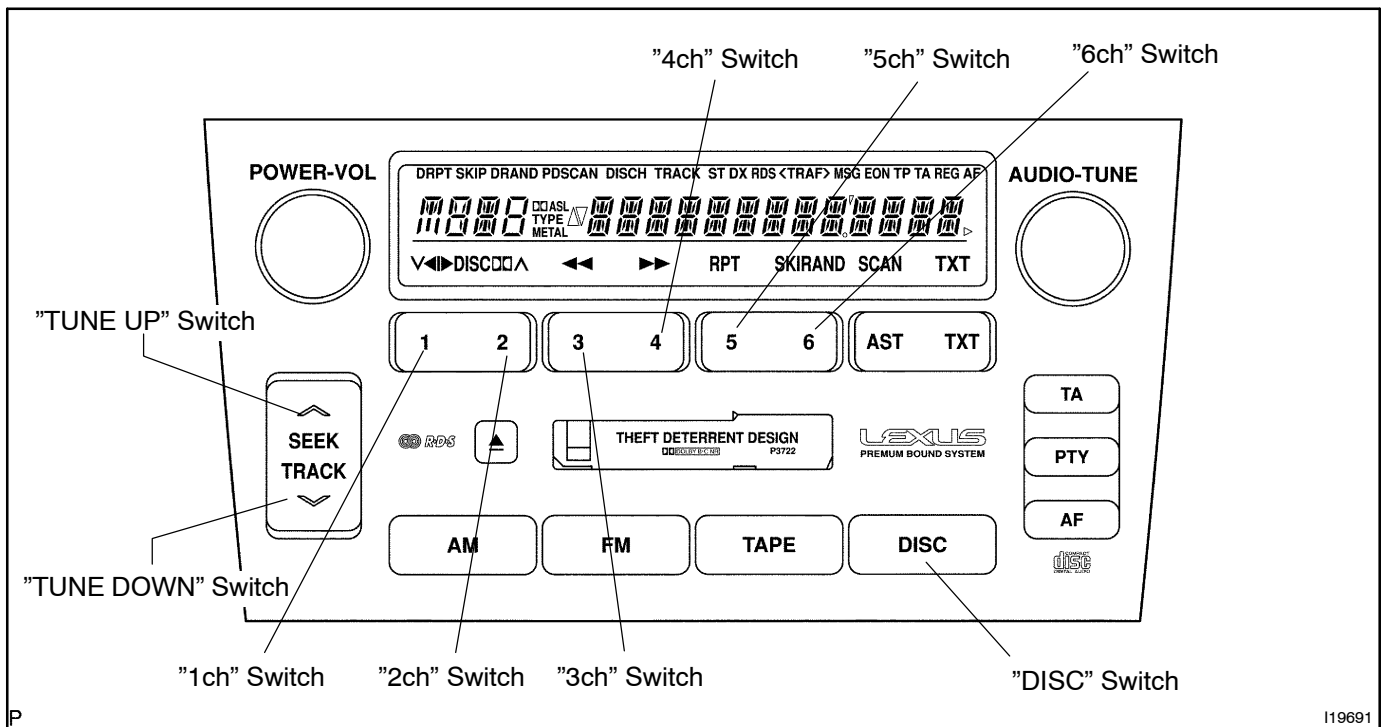
DIAGNOSIS FUNCTION

(a) Diagnosis start-up

For shifting diagnosis mode, turn ignition switch ON and push the "DISC" switch 3 times while pressing "ch1" and "ch6" switches.

HINT:

To exist from the diagnosis mode, push the "DISC" switch for 1.7 sec. or turn ignition switch to ACC or OFF.



(b) Service check mode

- (1) After the diagnosis start-up, the system enters service check mode.
- (2) Error codes over tuner and connected equipment are displayed on the screen of tuner.

Results for each check are displayed as follows:

- **good:**
No DTC is detected for both "System Check Confirmation" and "Diagnosis Memory Response".
- **nCon:**
The Component does not respond to the "Diagnosis On Instruction" command.
Applicable to only the system where connected components are limited to be used.
- **ECHn:**
Application of new version has been confirmed by the "Diagnosis On Check", and there is one or more DTC which indicates "Replacement" in the "System Check Result Response" or "Diagnosis Memory Response".
- **CHEC:**
Application of new version has been confirmed by the "Diagnosis On Check", and there is no DTC which indicates "Replacement" in the "System Check Result Response" or "Diagnosis Memory Response", but one or more DTC which indicated "Check" is identified.

- Old:
Application of old version is confirmed by the "Diagnosis On Check", and DTC is identified in the "System Check Result Response" or "Diagnosis Memory Response".
- nrES:
No response is identified to the "System Check Start Instruction" and "Request for System Check Result" commands.

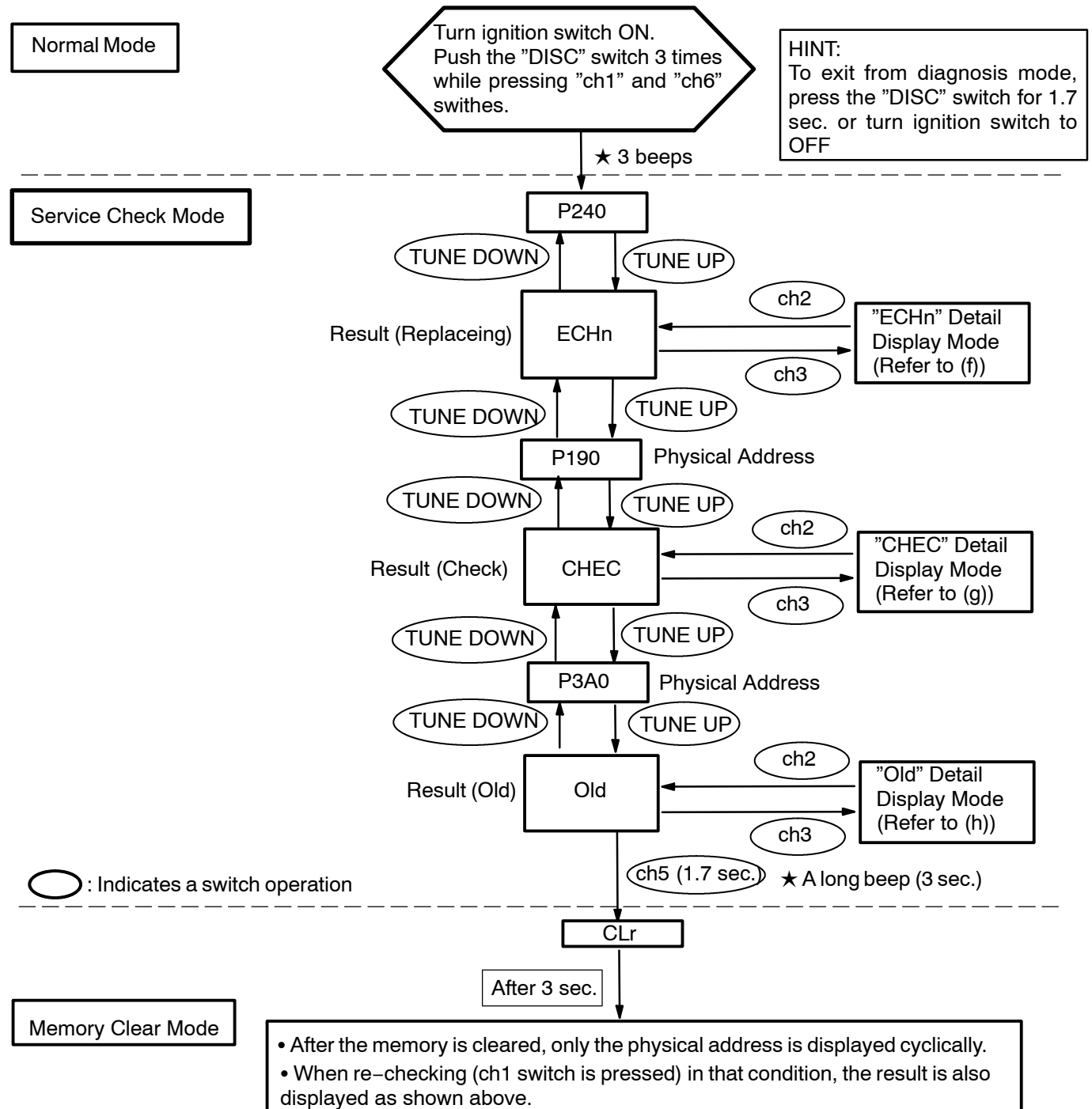
HINT:

- Check the present and past condition of components by performing the System Check and collecting stored DTC memories.
- Check results shall be displayed as one of six following indications: "good", "ECHn", "CHEC", "nCon", "Old" or "nrES".

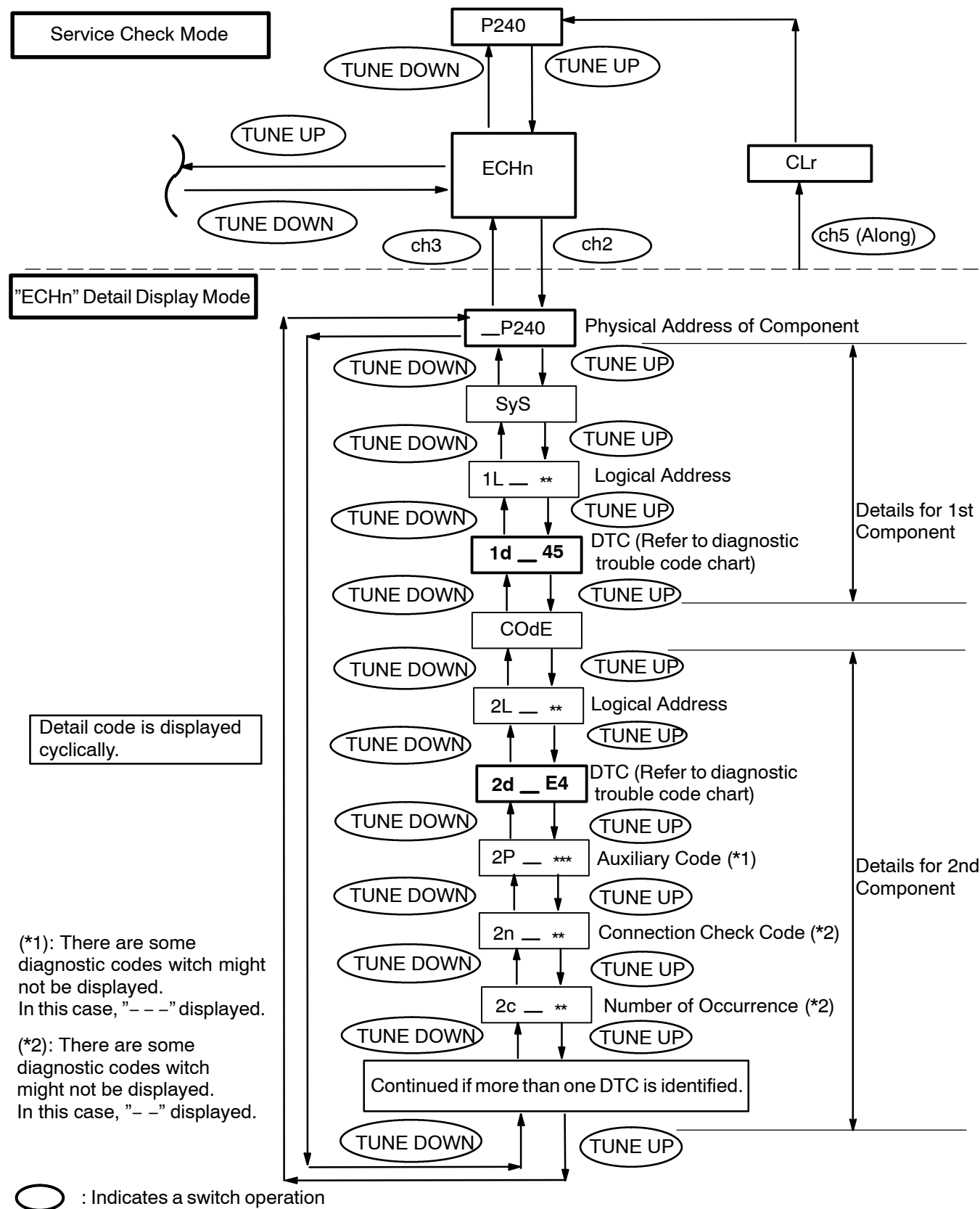
(c) Display Screen for Service Check.

Example:

Connection parts (physical address): Radio receiver (P190), CD Auto Changer (P240), MD chnger (P3A0)



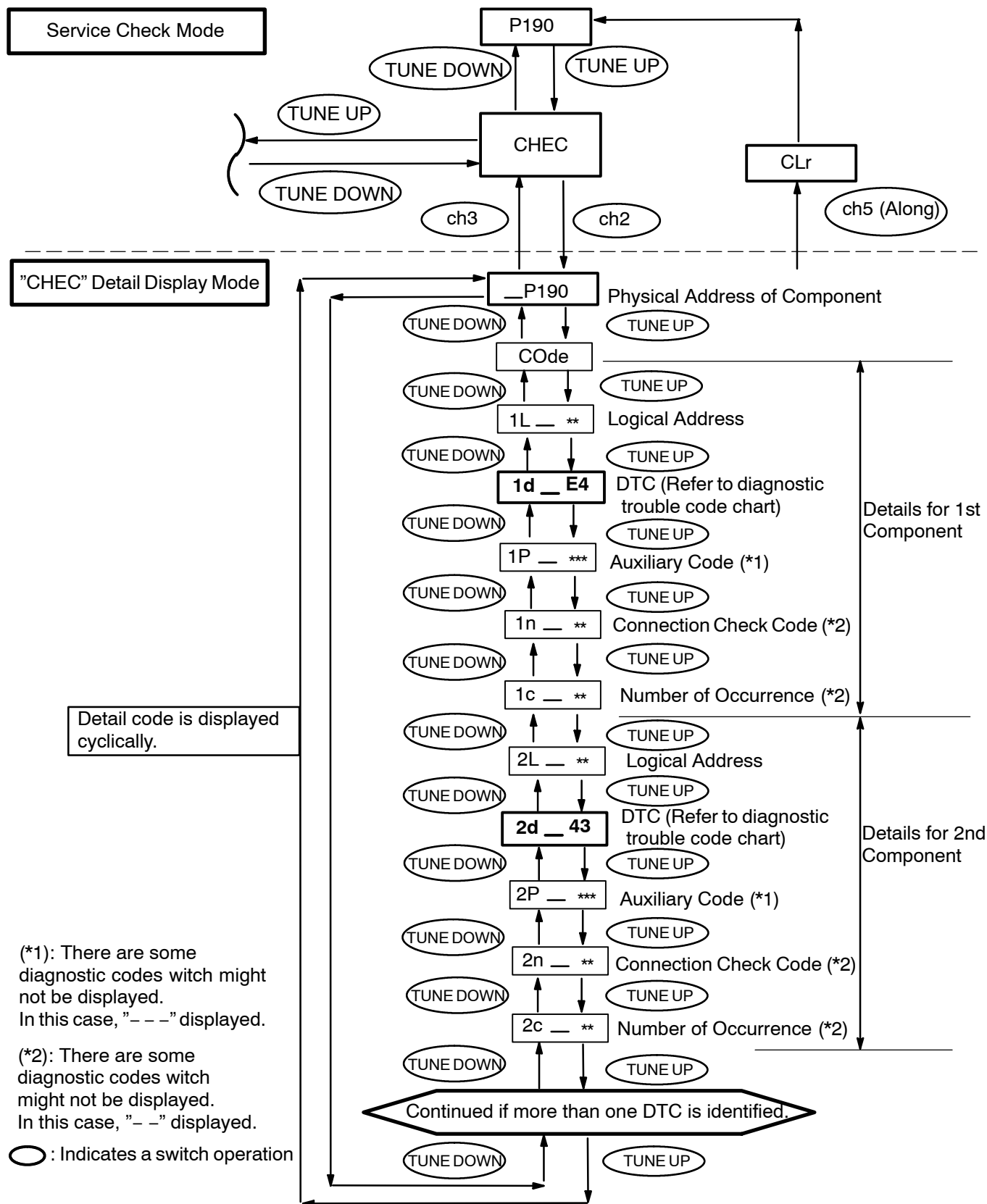
(d) "ECHn" Detail Display Mode Screen



(*1): There are some diagnostic codes which might not be displayed. In this case, "—" displayed.

(*2): There are some diagnostic codes which might not be displayed. In this case, "—" displayed.

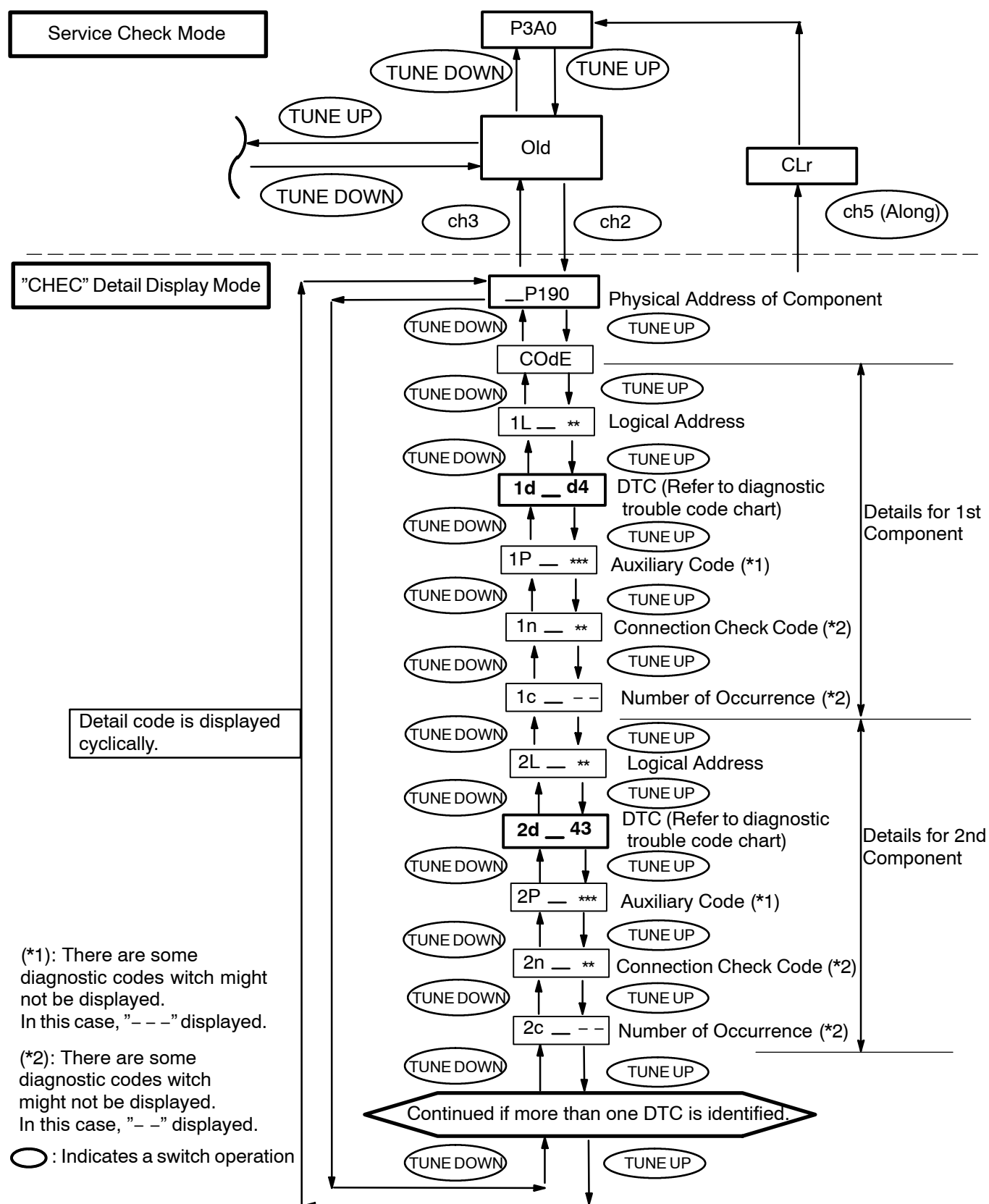
(e) "CHEC" Detail Display Mode Screen



(*1): There are some diagnostic codes which might not be displayed. In this case, "—" displayed.

(*2): There are some diagnostic codes which might not be displayed. In this case, "—" displayed.

(f) "Old" Detail Display Mode Screen



2. Except Europe models: DIAGNOSIS FUNCTION

Error codes over tuner and connected equipment are displayed on the screen of tuner.

(a) Diagnosis start-up

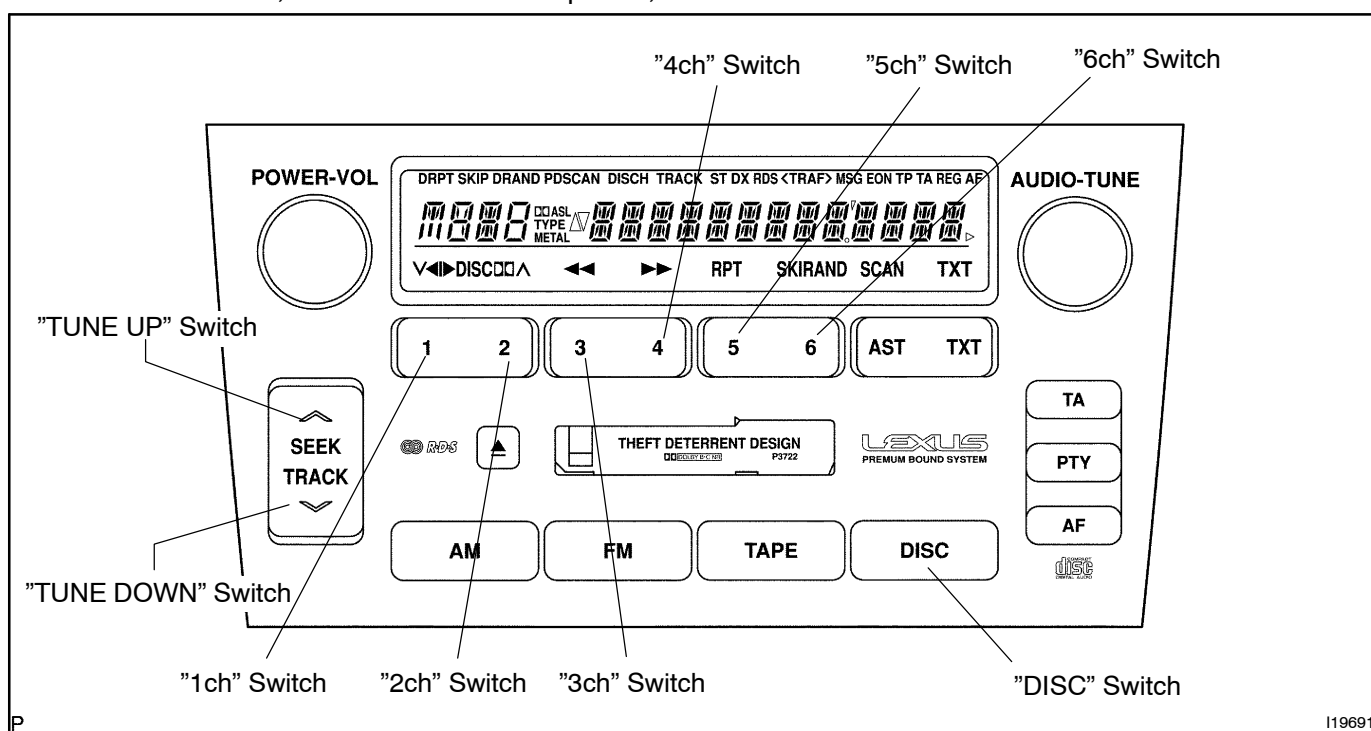
For shifting to diagnosis mode, push "DISC" switch 3 times with pressing "1" and "6" of PRESET switch at the same time while the audio power is OFF and ACC is ON.

To exit from diagnosis mode, press "DISC" switch for 2 seconds or turn the ignition key OFF.

(When "1-190" is displayed, the mode is transferred to LAN check mode.)

(b) LAN check

When starting up the diagnosis mode, the mode turns to LAN check mode, the screen displays the code numbers (physical address) of tuner and connected equipment. Smaller codes are displayed in order, displayed code numbers are switched by operating TUNE "UP" or "DOWN" switch. In LAN check mode, by pressing "5" of PRESET switch for more than 2 secs., diagnosis memory of each equipment can be deleted, when deletion is completed, the mode returns to LAN check mode.



Code No. (physical address) List

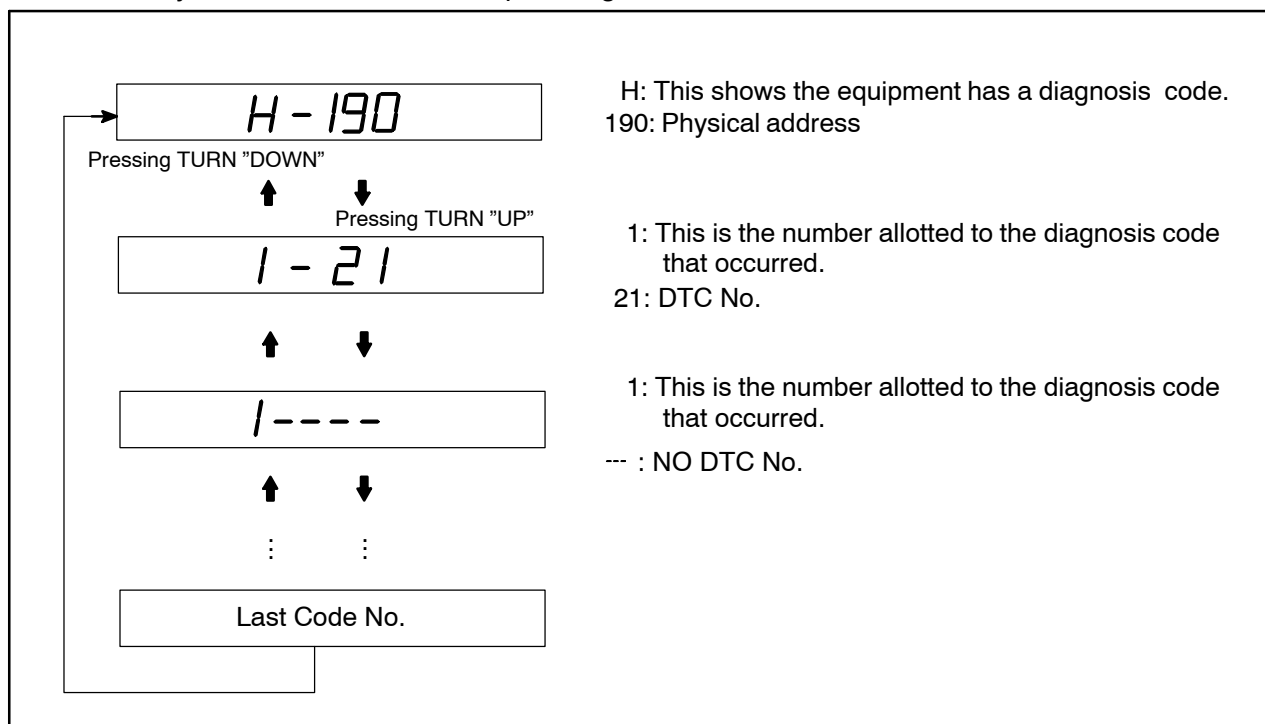
Code No. (physical address)	Equipment name
190	Radio receiver assembly (Audio head unit)
240	CD changer (in Luggage room)
360	CD changer (in center console and glove compartment box)
440	Power amplifier

(c) System check

- When pressing "1" of PRESET switch in LAN check mode, the mode turns to the system check mode, the system performs self diagnosis of connected equipment and displays the results. ("SYS" (showing the system is under detection) is displayed.)
- Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

- It sometimes takes approx. 40 secs. till the system inspection is completed.
- The chart below is an example of when diagnosis code "21" appears on the physical address (190) equipment. (ROM error occurs on the radio receiver.)
- The smaller code numbers (physical address) are displayed in order (code No., diagnosis code, support code of diagnosis code (object equipment)).
- When no error is detected in the system, "00" is displayed.
- When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE "UP" or "DOWN" switches the display.
- In the system check mode, when pressing "6" of PRESET switch the mode returns to LAN check mode.

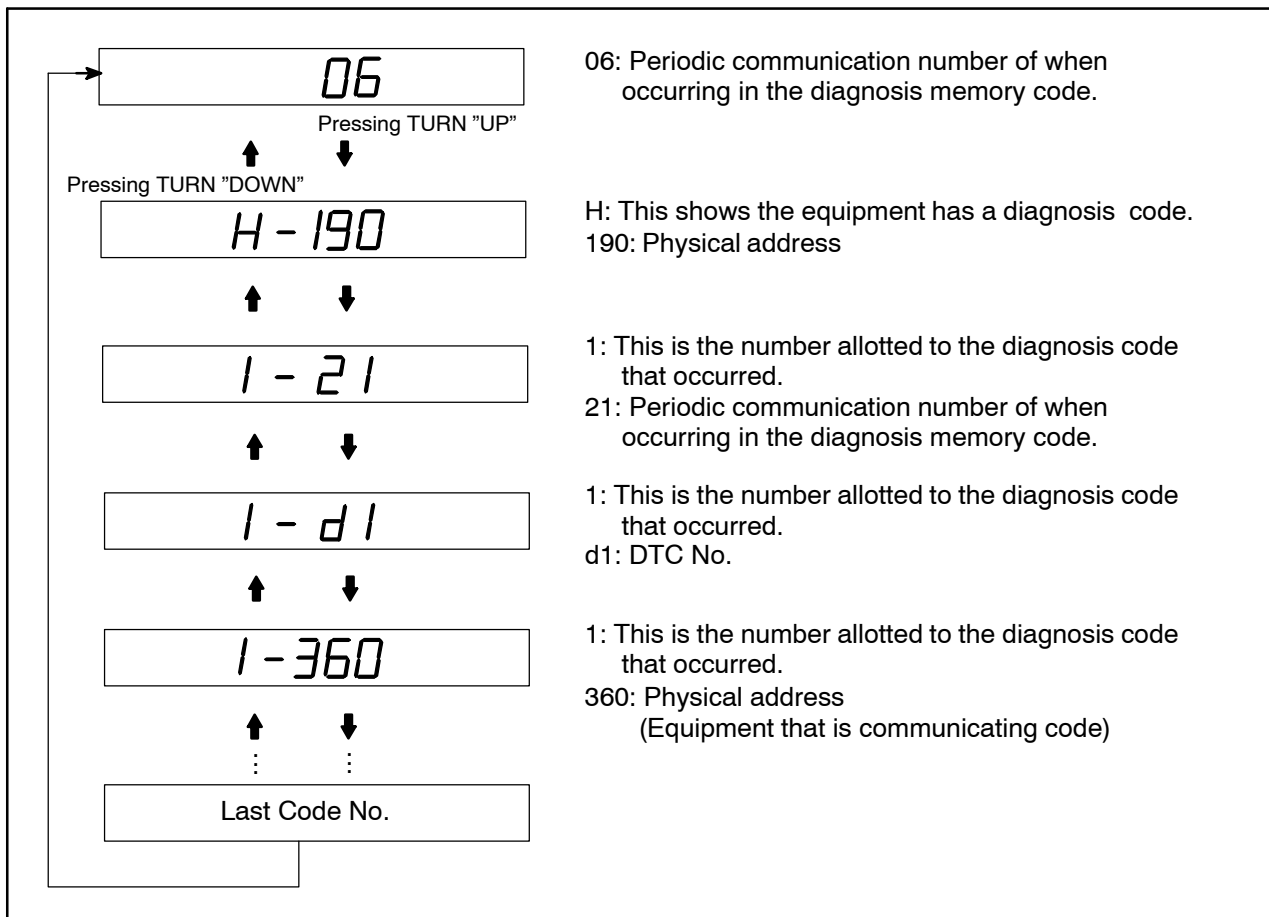


(d) Diagnosis memory

- (1) In LAN check mode, when pressing "2" of PRESET switch the mode turns to the diagnosis memory mode. ("CODE" is displayed.)
The results of self diagnosis performed over tuner and connected equipment are memorized and displayed.
- (2) Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

- The smaller code numbers (physical address) are displayed in order (code No. , periodic communication number when error occurs, diagnosis code, and support code of diagnosis code (object equipment)).
- When no error is detected in the system, "00" is displayed. When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE "UP" or "DOWN" switches the display. Each diagnosis code is same as code in the system check mode.
- When pressing "6" of PRESET switch, the mode returns to LAN check mode.
- The following illustration below is an example of when diagnosis code "D1" appears on the code (190) and (240 or 360) equipment. (Communication error occurs between the radio receiver and CD changer.)



(e) Diagnosis memory clear

- (1) After error is fixed, start up the diagnosis mode.
- (2) Continue pressing preset switch "5" for 2 secs. (CLr is displayed.)
- (3) Press the preset switch "2" and transfer to the diagnosis memory mode and check that the normal code (00) is output.

3. Europe models: DIAGNOSIS CODE LIST

Terms	Meaning
Physical address	Three-digit code (shown in hexadecimal) which is given to each component comprising the AVC-LAN. Corresponding to the function, individual symbols are specified.
Logical address	Two-digit code (shown in hexadecimal) which is given to each function comprising the inner system of the AVC-LAN.

(a) Physical address 190: Radio receiver assembly

HINT:

- *1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
- *2: It is stored when 180 sec. has passed after the power supply connector is pulled out after engine start.
- *3: It may be stored when the engine key is turned 1 min. again after engine start.
- *4: It may be stored when the engine key is turned again after engine start.
- *5: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

(1) Logical address: 01 (Communication control)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
D6 *1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition in ACC or ON. Or, when this code was recorded, multi-display assembly was disconnected.	• Check harness for power supply system of multi-display. • Check harness for communication system of multi-display. • Check harness for power supply system of radio and player. • Check harness for communication system of radio and player.
D8 *2	No Response to Connection Check	Component shown by auxiliary code is or had been disconnected from system after engine is start. D9	• Check harness for power supply system of component shown by auxiliary code. • Check harness for communication system of component shown by auxiliary code.
D9 *1	Last Mode Error	Component operated (sounds and/or images were provided) before engine stop is or has been disconnected with ignition switch in ACC or ON.	• Check harness for power supply system of component shown by auxiliary code. • Check harness for communication system of component shown by auxiliary code.
DA	No Response to ON/OFF Instruction	No response is identified when changing mode (audio and visual mode change). Detected when sound and picture does not change by button operation.	• Check harness for power supply system of component shown by auxiliary code. • Check harness for communication system of component shown by auxiliary code. • If error occurs again, replace component shown by auxiliary code.
DB *1	Mode Status Error	Dual alarm is detected.	• Check harness for power supply of component shown by auxiliary code. • Check harness for communication system of component shown by auxiliary code.
DC *3	Transmission Error	Transmission to component shown by auxiliary code has been failed. (Detecting this DTC does not necessarily mean actual failure.)	If same auxiliary code is recorded in order component, check harness for power supply and communication system of all components shown by code.

DD *4	Master Reset (Momentary Interruption)	After engine is started, multi-display assembly was disconnected from system.	• Check harness for power supply system of multi-display. • Check harness for communication system of multi-display. • Check harness for power supply system of radio and player. • Check harness for communication system of radio and player. • If this error occurs frequently, replace multi-display assembly.
DE *4	Slave Reset (Momentary Interruption)	After engine is started, slave component was disconnected from system.	• Check harness for power supply of component shown by auxiliary code. • Check harness for communication system of component shown by auxiliary code.
DF *5	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply of multi-display assembly. • Check harness for communication system of multi-display assembly. • Check harness for communication system between multi-display assembly and sub-master component.
E0 *1	Registration Completion Instruction Error	"Registration Completion Instruction" command from master cannot be received.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
E1 *1	Audio processor ON error	While source equipment is operating, AMP output is stopped.	• Check harness for power supply of multi-display assembly. • Check harness for communication system of multi-display assembly.
E2	ON/OFF Instruction Parameter Error	Error occurs in ON/OFF controlling command from multi-display assembly.	Replace multi-display assembly.
E3 *1	Registration Request Transmission	Registration Request command is output from slave component. Receiving Connection Check Instruction, Registration Request command is output from sub-master component.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
E4 *1	Multiple Frame Abort	Multiple frame transmission is aborted.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.

(2) Logical address: 61 (Cassette switch)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
40	Mechanical of Media Error	Malfunction due to mechanical failure is identified. Or cassette tape is cut or entangled.	• Inspect cassette tape. • Replace radio and player.

(b) Physical address: 440 Stereo component amplifier

HINT:

- *1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
- *2: It may be stored when the engine key is turned 1 min. again after engine start.
- *3: It may be stored when the engine key is turned again after engine start.
- *4: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address: 01 (Communication control)

BODY ELECTRICAL - AUDIO SYSTEM

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
D6 *1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition in ACC or ON. Or, when this code was recorded, multi-display assembly was disconnected.	• Check harness for power supply of radio and player. • Check harness for communication system of radio and player. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier.
D4	Communication Check Error	Component in which this code is recorded is or was disconnected from system after engine start. Or, when recording this code, multi-display assembly was disconnected.	• Check harness for power supply of radio and player. • Check harness for communication system of radio and player. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier.
DI *2	Transmission Error	Transmission to component shown by auxiliary code has been failed. (Detecting this DTC does not necessarily mean actual failure.)	If same auxiliary code is recorded in order component, check harness for power supply and communication system of all components shown by code.

(c) Physical address: 240 CD Auto Changer

HINT:

- *1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
- *2: It may be stored when the engine key is turned 1 min. again after engine start.
- *3: It may be stored when the engine key is turned again after engine start.
- *4: It may be stored when the engine key is turned again after engine start.
- *5: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

(1) Logical address: 01 (Communication control)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
DI	Transmission Error	Transmission to component shown by auxiliary code has been failed. (This code does not necessarily mean actual failure.)	If same auxiliary code is recorded in other component(s), check harness for power supply and communication system of components shown sub code.
D4 *5	Connection check Error	Component in which this code is recorded is or was disconnected from system after engine start. Or, when recording this code, multi-display assembly was disconnected.	• Check harness for power supply of multi-display. • Check harness for communication system of multi-display. • Check harness for power supply of CD auto changer. • Check harness for communication system of CD auto changer.

(2) Logical address: 63 (CD Auto Changer)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
60	CD Error	Error is detected in CD auto changer.	Replace CD auto changer
61	EJECT Error	Magazine cannot be ejected.	Replace CD auto changer
62	No Disc Readout	Disc cannot be read.	Inspect CD

63	CD Auto Changer Temp. Too High	Readout cannot be done because temperature around player's pick-up (reading part) is too high.	With IG switch OFF, leave vehicle in cool shaded place for a while and re-check. After deleting the DTC memory, if same code detected, replace CD auto changer.
64	CD Changer Excess Current	Excess current is applied CD auto changer.	Replace CD auto changer

(d) Physical address: IC4 Gateway ECU

HINT:

*1: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address: 01 (Communication control)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
D4 *1	Regular Communication Error	Component in which this code is recorded has been disconnected after engine start. Or, when this code was recorded, multi-display was disconnected.	• Check harness for power supply system of multi-display assembly. • Check harness for communication system of multi-display assembly. • Check harness for power supply system of gateway ECU. • Check harness for communication system of gateway ECU.

4. Except Europe models:**DIAGNOSIS CODE LIST**

- If there is "O" in the column of system check, an error can be detected when the mode is switched to the system check mode.
- If there is "O" in the column of diagnosis mode, each unit is monitoring whether or not it has failure. In case of detecting failure, it memorizes DTC.

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts	System Check	Diagnosis memory
Head Unit (190)	50	Cassette error	There is an error in cassette deck.	Radio receiver check.	X	○
	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Radio receiver check. Wire harness and connector check.	○	○
	D2	Periodic communication no response	Error in periodic communication.	• Wire harness and connector	X	○
	FF	Diagnosis no response	Result of diagnosis is not issued from start to finish.	Radio receiver check.	○	X
CD (240) (360)	60	CD error	Error codes other than 61-69 are detected.	CD changer check.	X	○
	61	EJECT error	CD is not ejected.	CD changer check. Magazine check.	X	○
	62	DISC inside out/flaw	CD is inserted inside out or it has a flaw.	CD check.	X	○
	63	Pickup temperature detection	High temperature of CD changer is detected.	CD changer check.	X	○
	64	Excessive current detection	Excessive current to CD changer is detected.		X	○
	67	Tray insertion/discharging error	An error occurs in insertion and discharging operation of CD changer tray.	CD changer check. Magazine check.	X	○
	68	Elevator error	An error occurs in elevator of CD changer elevator.	CD changer check.	X	○
	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.		○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	• Radio receiver check. • Wire harness check.	X	○

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts	System Check	Diagnosis memory
AMP (440)	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Stereo component amplifier check.	○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	• Radio receiver check. • Wire harness check.	X	○

5. PROBLEM SYMPTOMS TABLE

NOTICE:

When replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, etc. of the replacement part (spare part).

HINT:

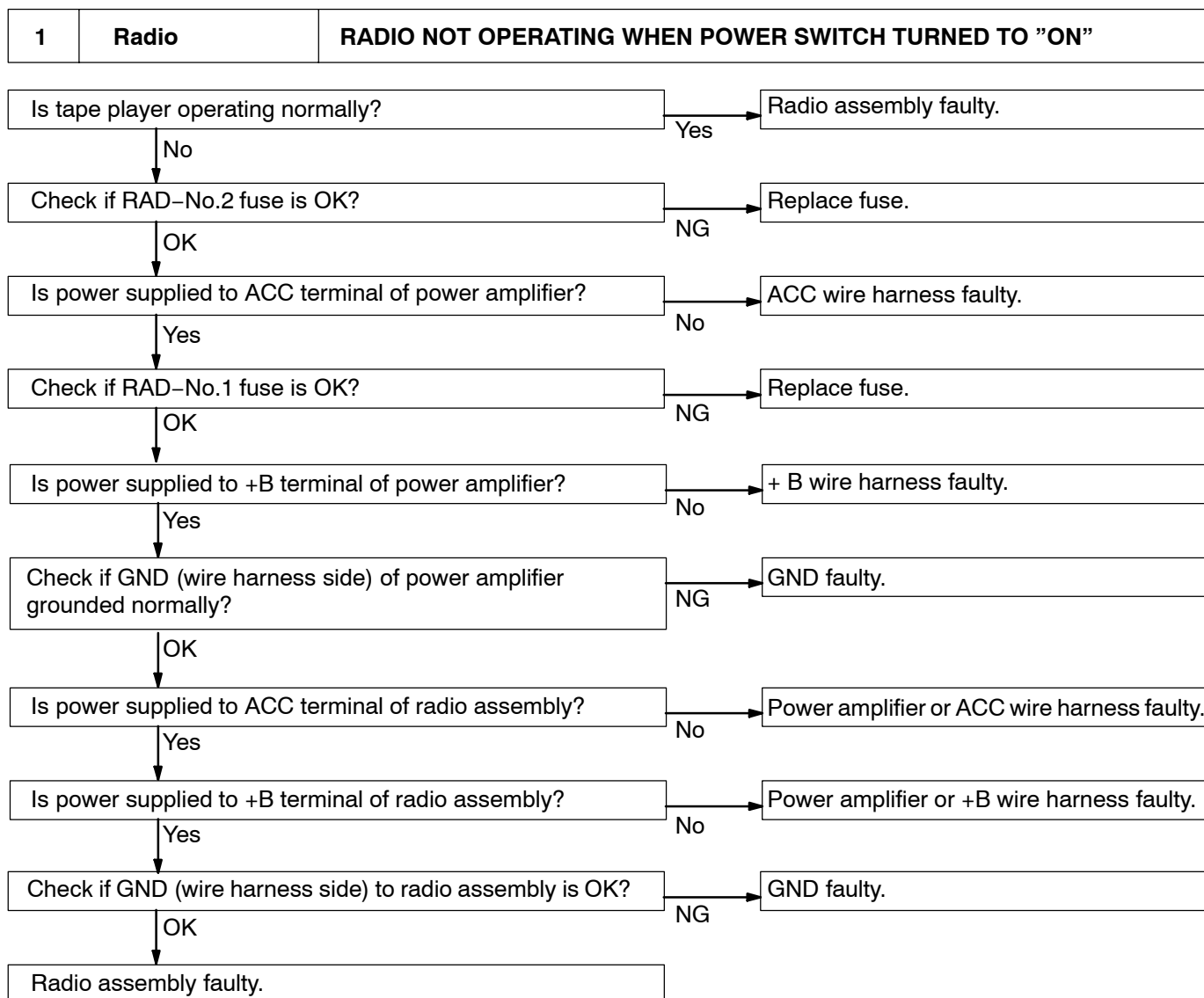
This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

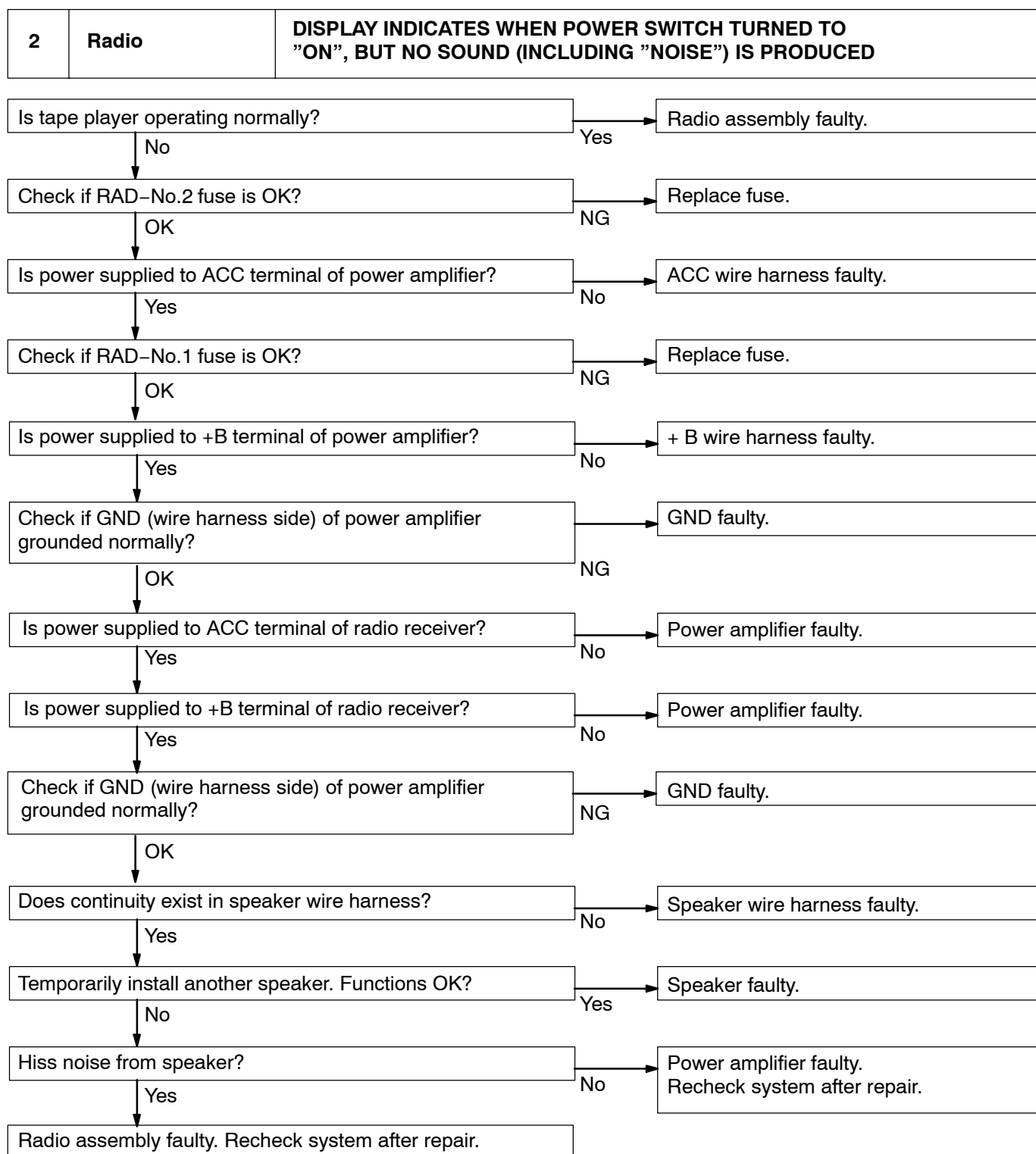
Always inspect the trouble taking the following items into consideration.

- Open or short circuit of the wire harness
- Connector or terminal connection fault

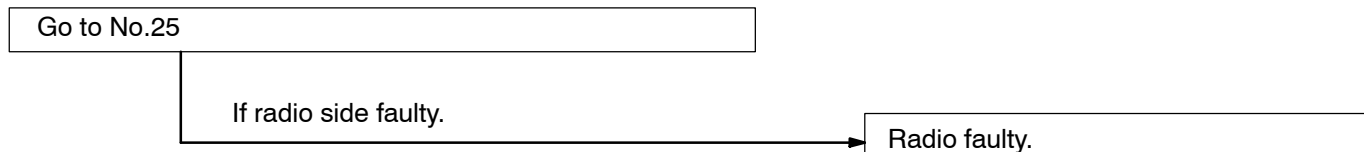
	Problem	Flow chart No.
Radio	Radio not operating when power switch turned to 'ON'.	1
	Display indicates when power switch turned to 'ON', but no sound (including 'noise') is produced.	2
	Noise present, but AM – FM not operating.	3
	Any speaker does not work.	4
	Any AM or FM does not work.	5
	Few preset turning bands.	5
	Reception poor.	6
	Sound quality poor.	7
	Preset memory disappears.	8
Tape Player	Cassette tape cannot be inserted.	9
	Cassette tape inserted, but no power.	10
	Power coming in, but tape player not operating.	11
	Any speaker does not work.	12
	Sound quality poor.	13
	Tape jammed, malfunction with tape speed or auto–reverse.	14
	Cassette tape will not eject.	15
CD Auto Changer	CD magazine cannot be inserted.	16
	CD magazine inserted, but no power.	17
	Power coming in, but CD player not operating.	18
	Sound jumps.	19
	Sound quality poor (Volume faint).	20
	Any speaker does not work.	21
	CD magazine will not be ejected.	22
Power Amplifier	No power coming in.	23
	Power coming in, but power amplifier not operating.	24
	Any speaker does not work.	25
Noise	Noise occurs	26
	Noise produced by vibration or shock while driving.	27
	Noise produced when engine starts.	28

The term "AM" includes LW,MW and SW, and the term "FW" includes UKW.

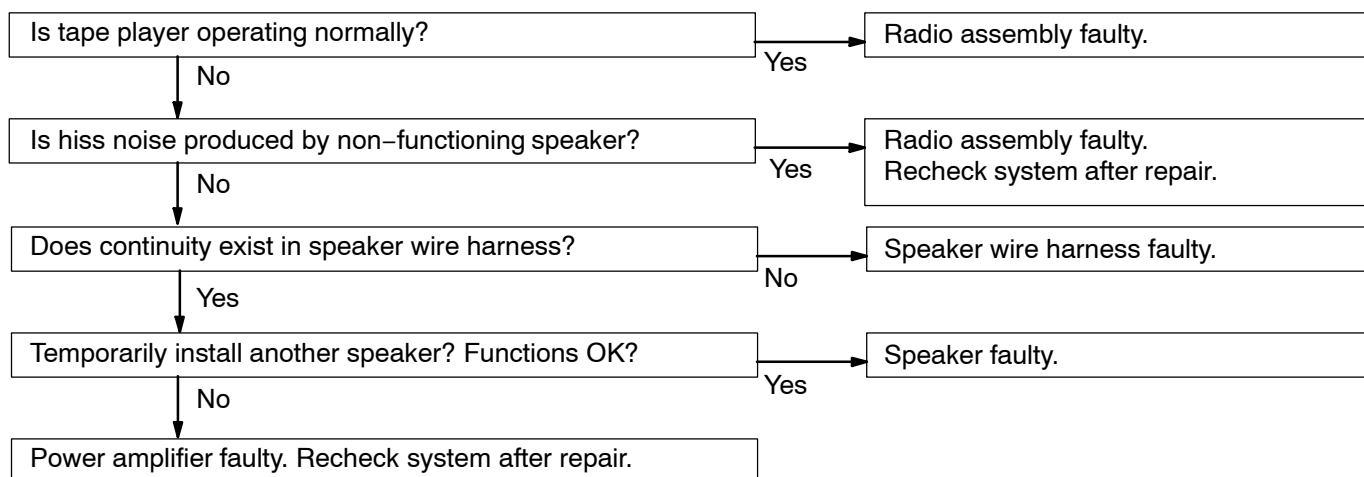


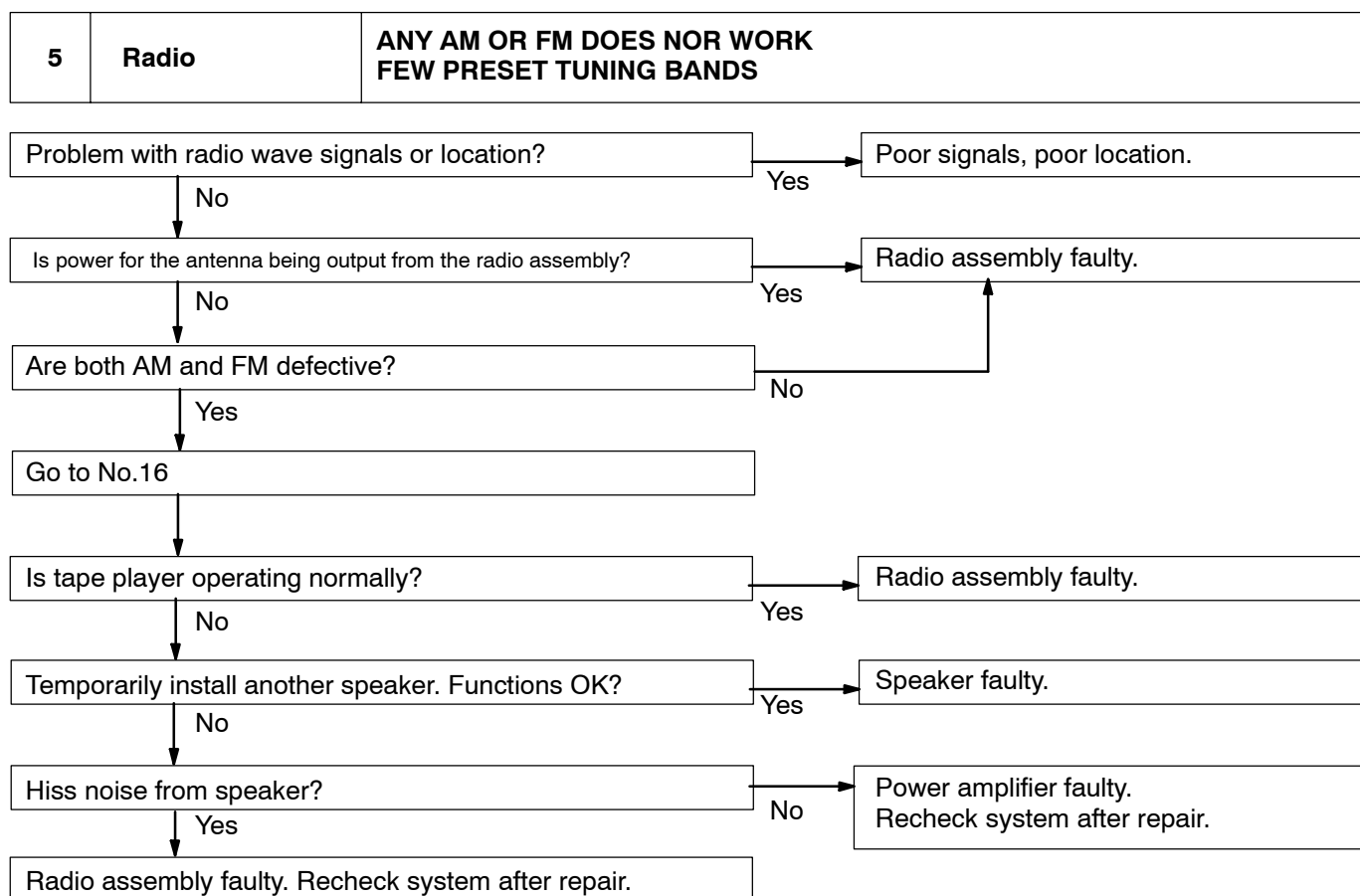


3	Radio	NOISE PRESENT, BUT AM-FM NOT OPERATING
----------	--------------	---

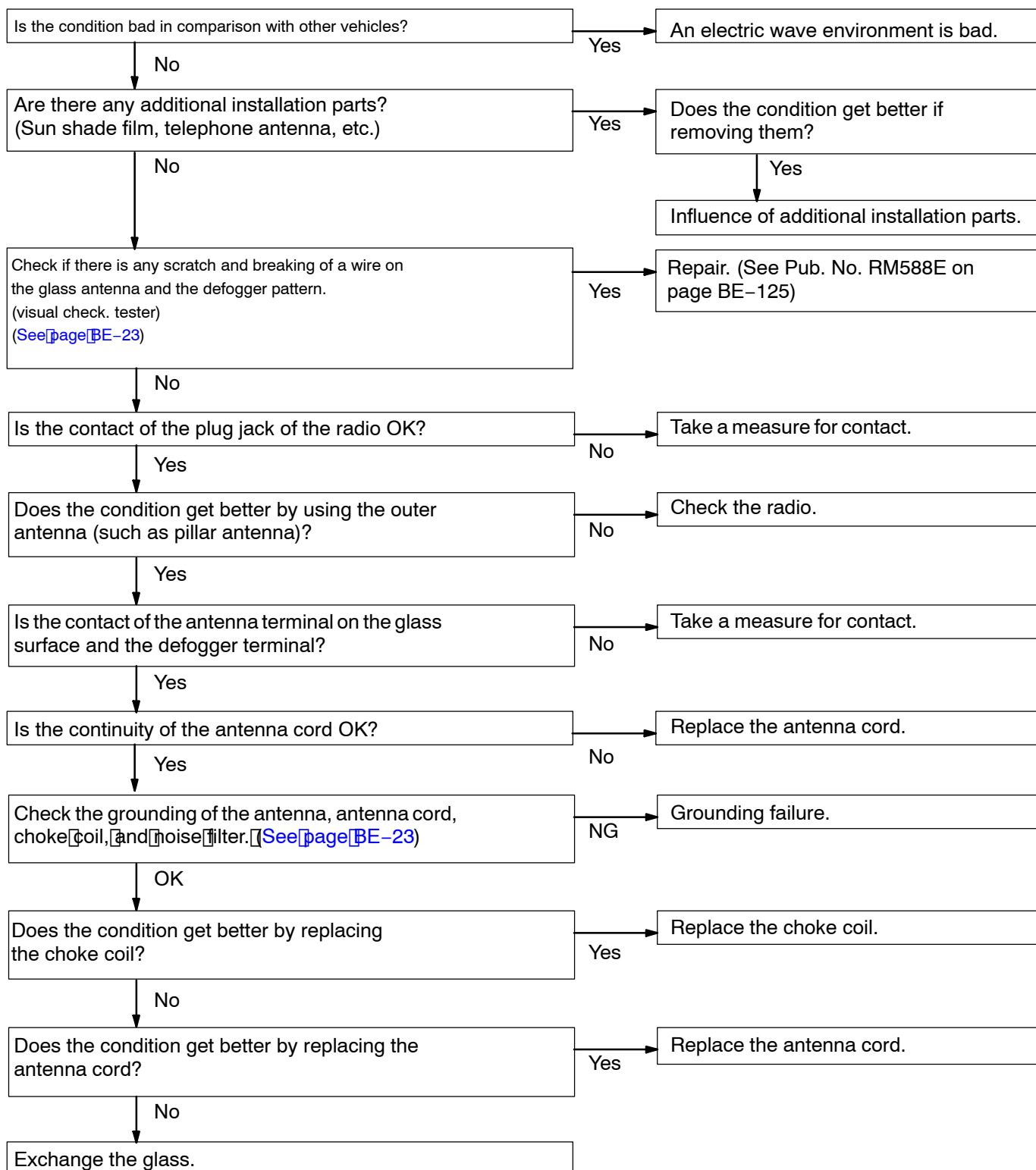


4	Radio	ANY SPEAKER DOSE NOT WORK
----------	--------------	----------------------------------

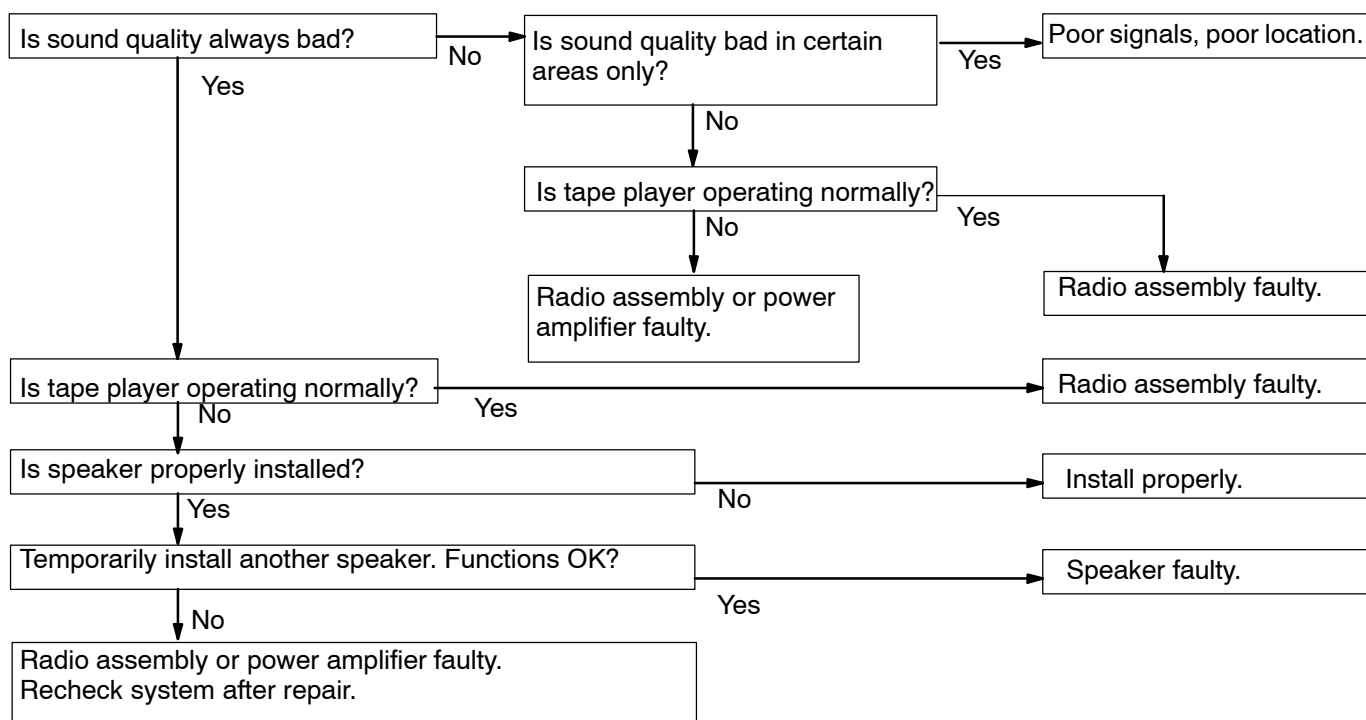




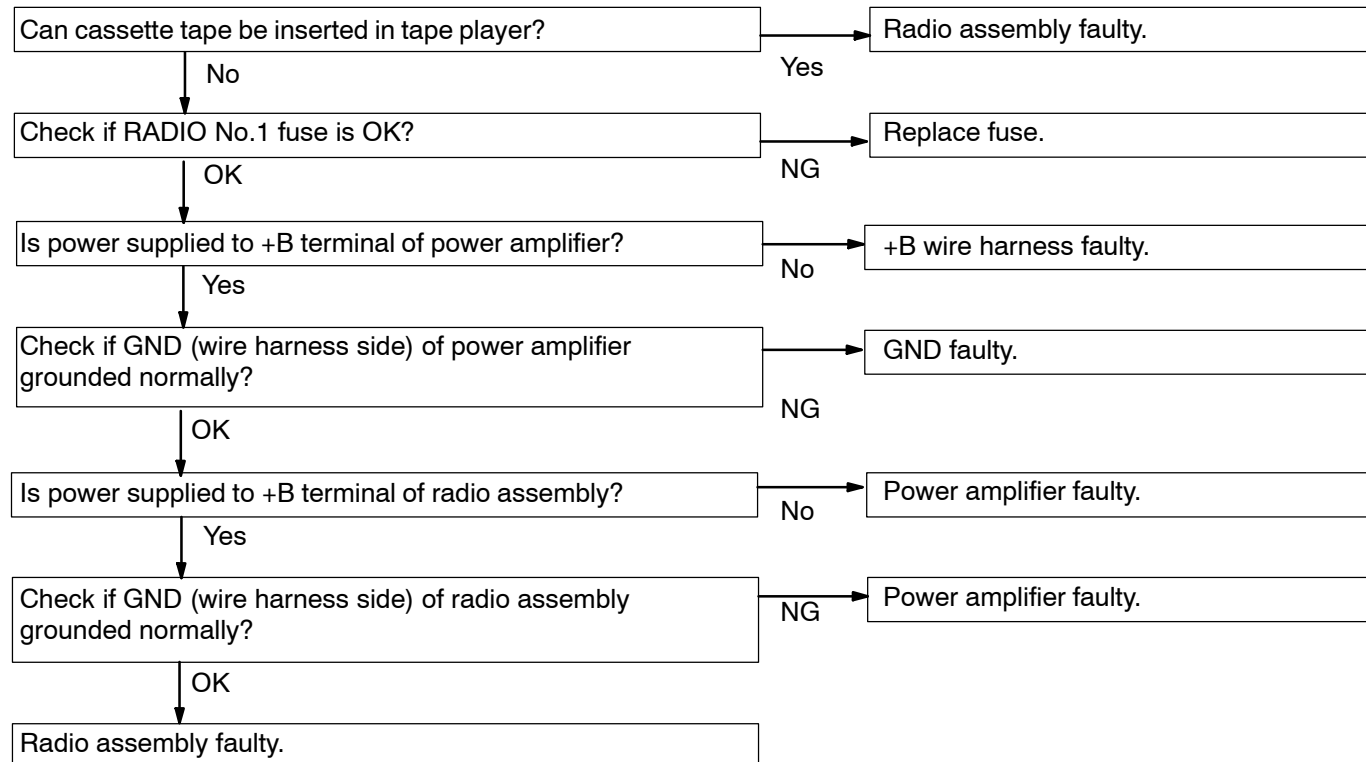
6	Radio	POOR RECEPTION
---	-------	----------------



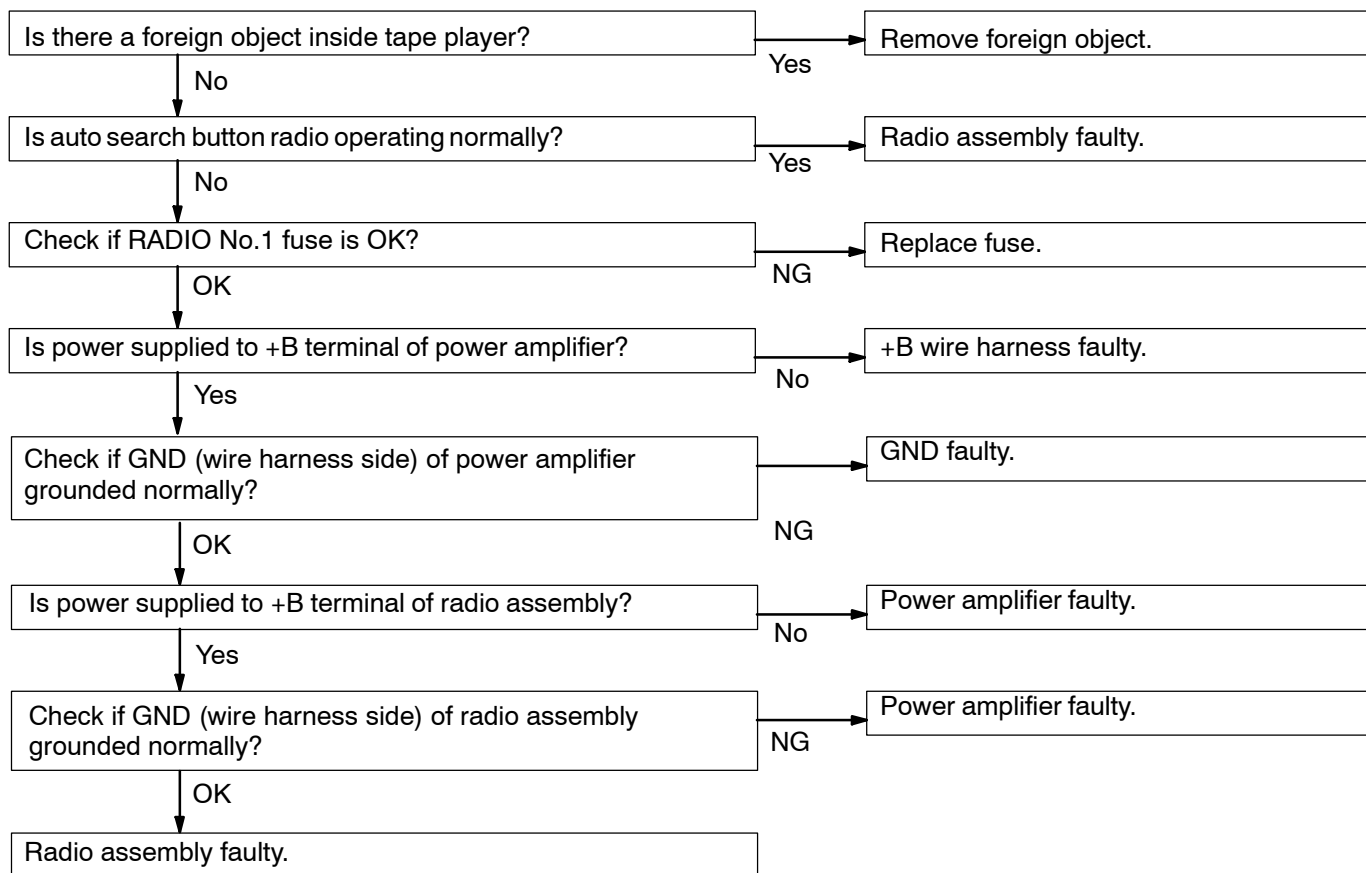
7	Radio	SOUND QUALITY POOR
----------	--------------	---------------------------



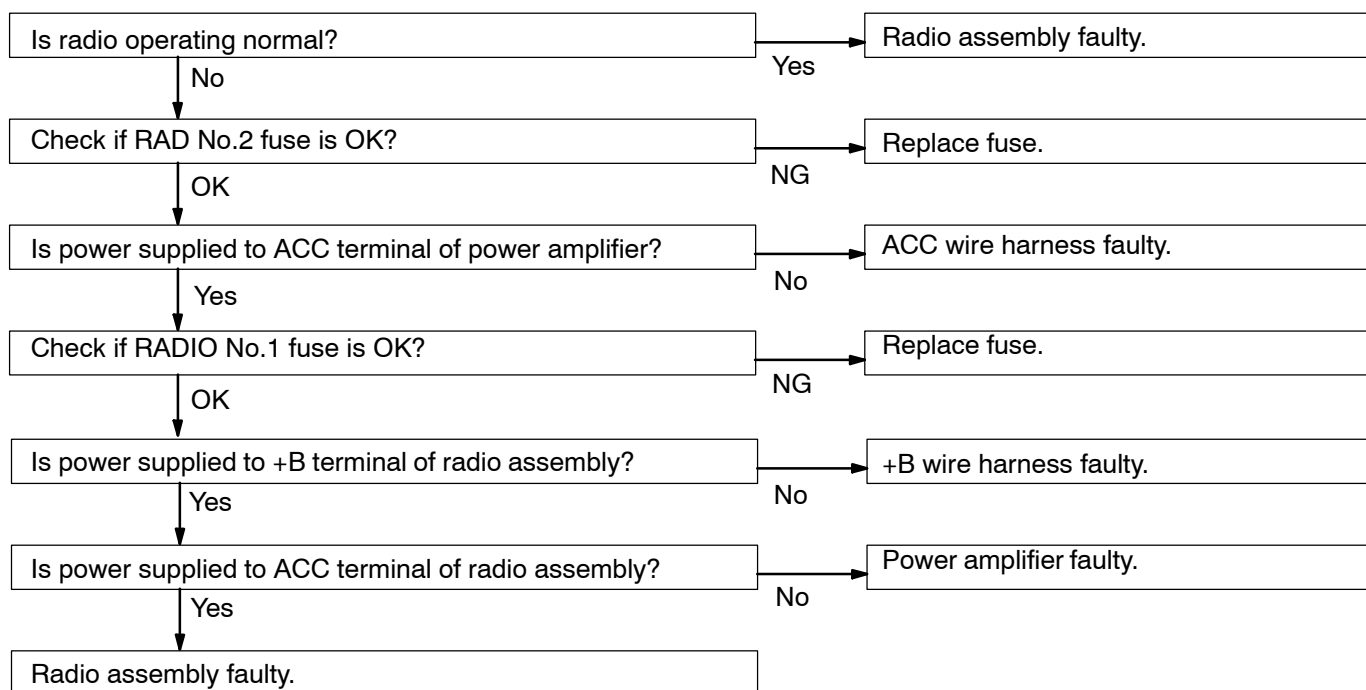
8	Radio	PRESET MEMORY DISAPPEARS
----------	--------------	---------------------------------

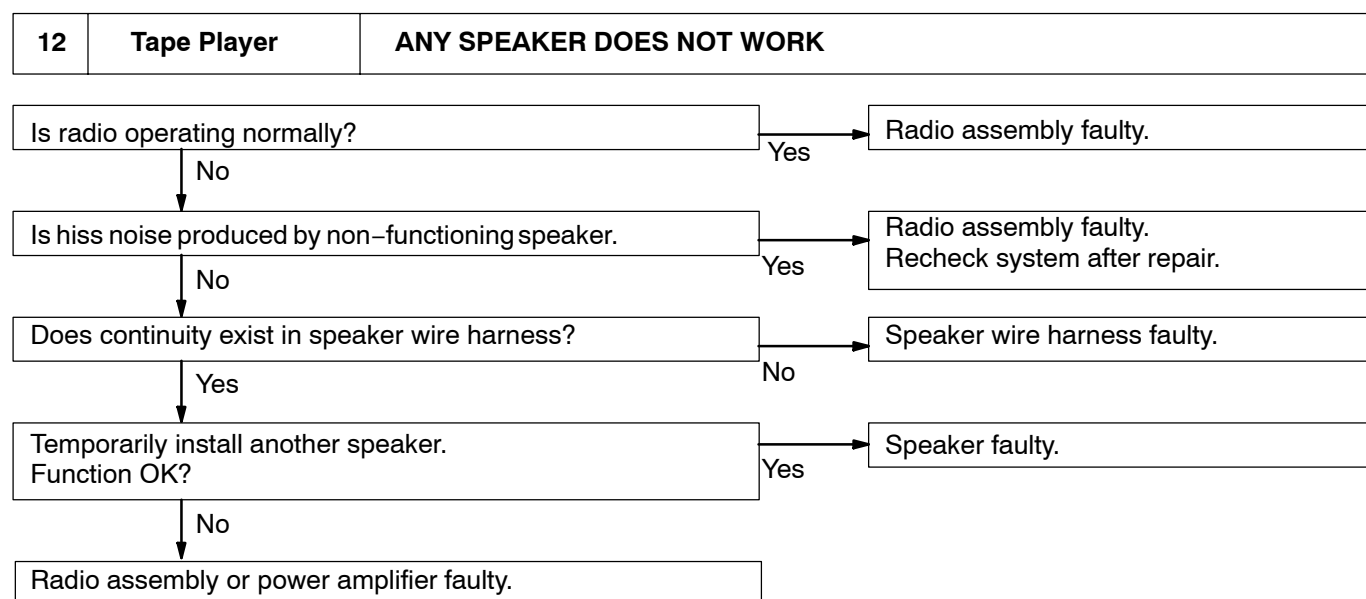
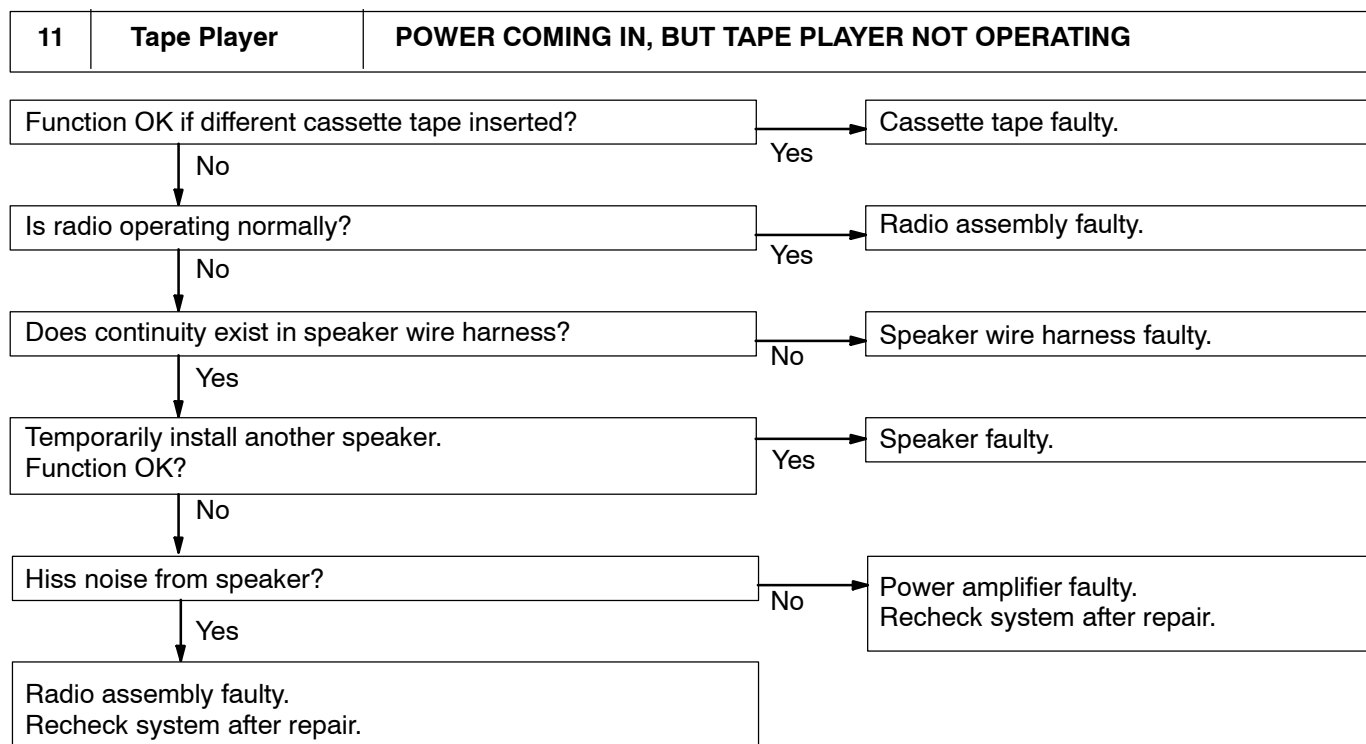


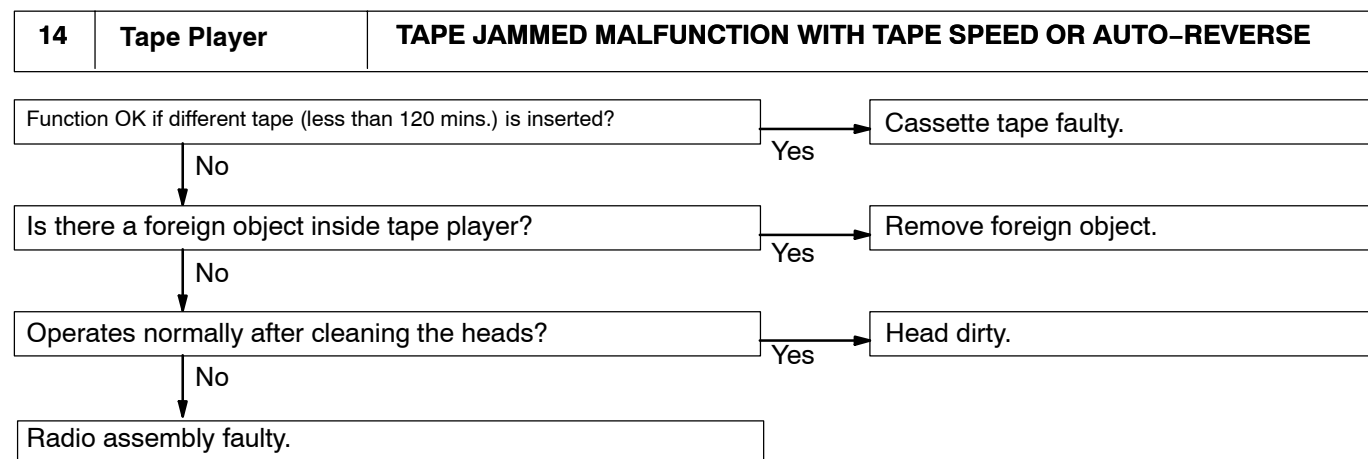
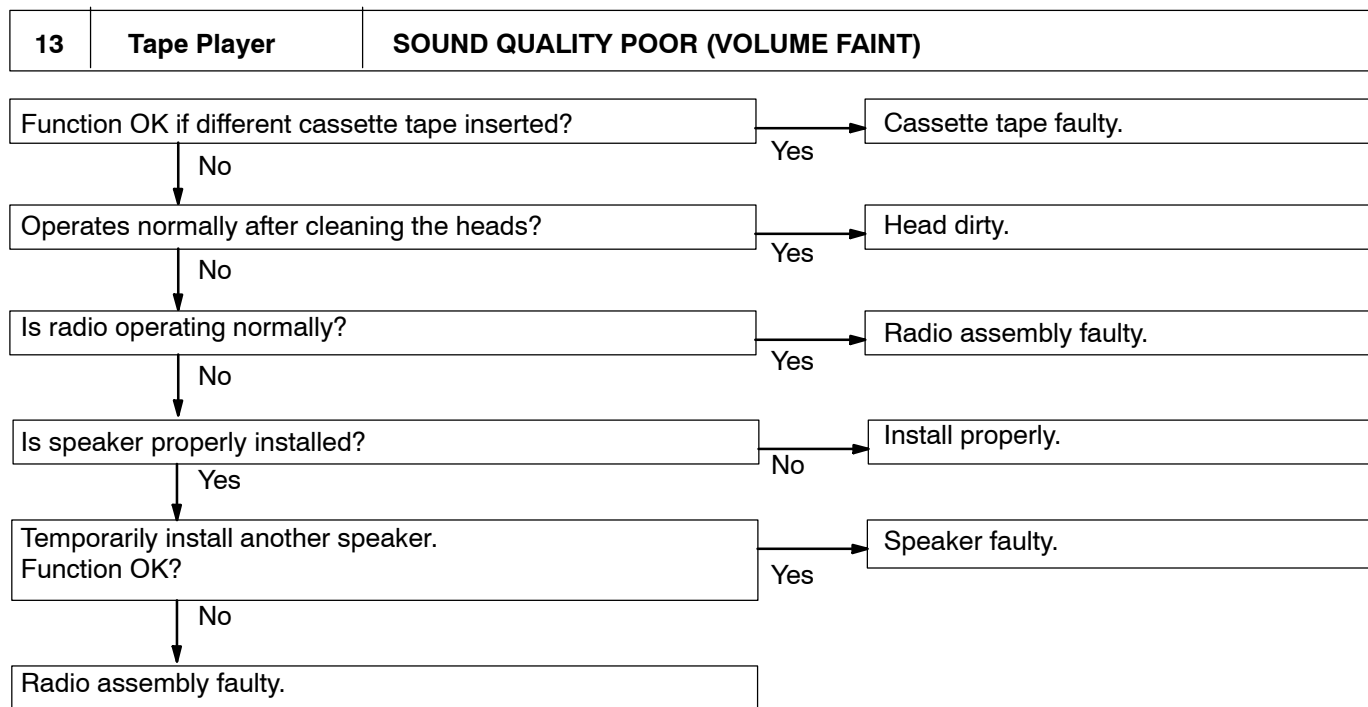
9	Tape Player	CASSETTE TAPE CANNOT BE INSERTED
----------	--------------------	---



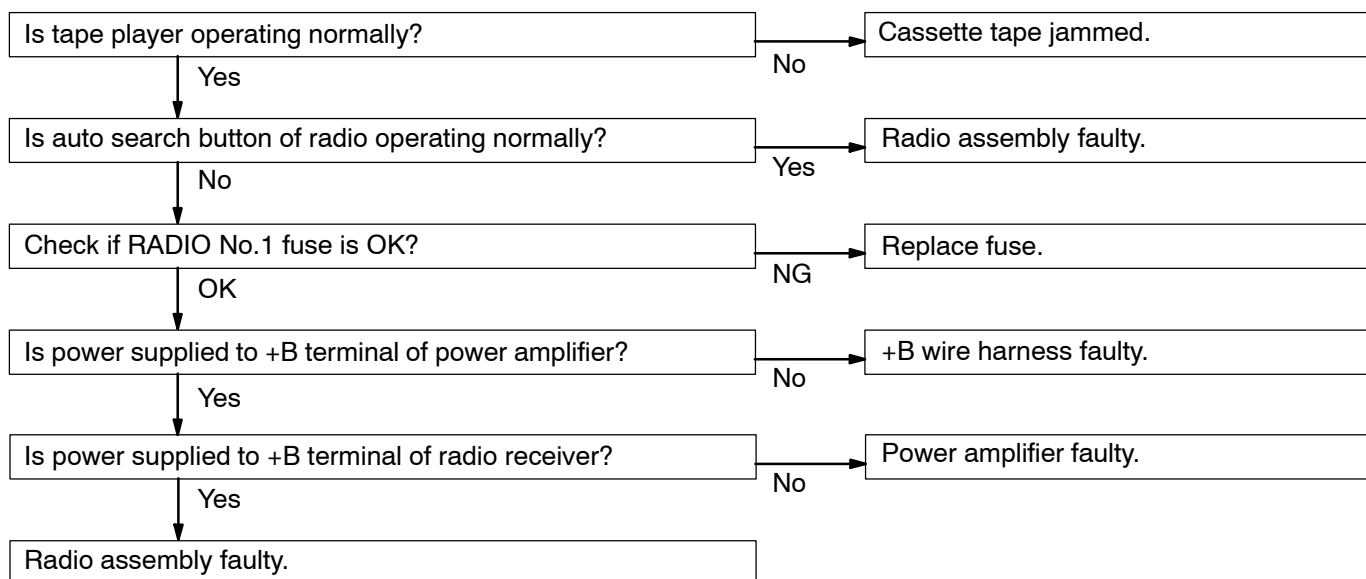
10	Tape Player	CASSETTE TAPE INSERTED, BUT NO POWER
-----------	--------------------	---



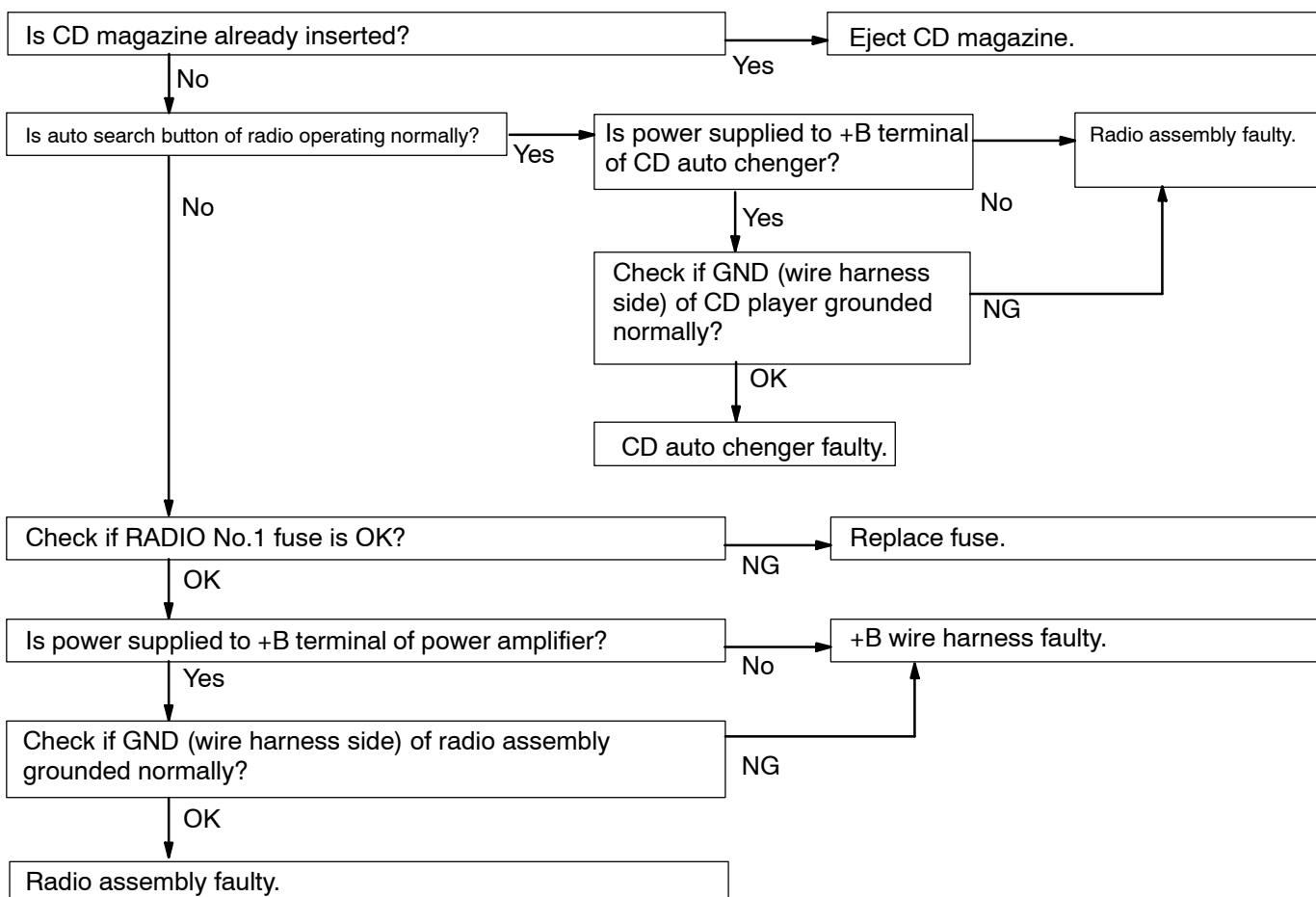




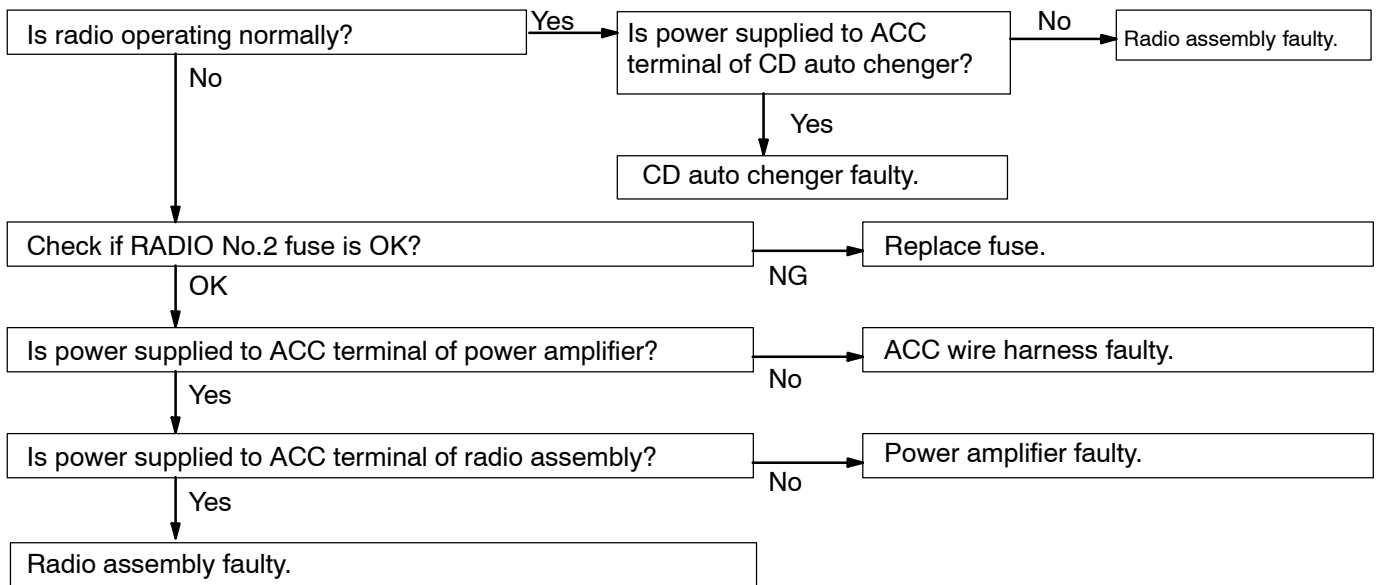
15	Tape Player	CASSETTE TAPE WILL NOT BE EJECTED
-----------	--------------------	--



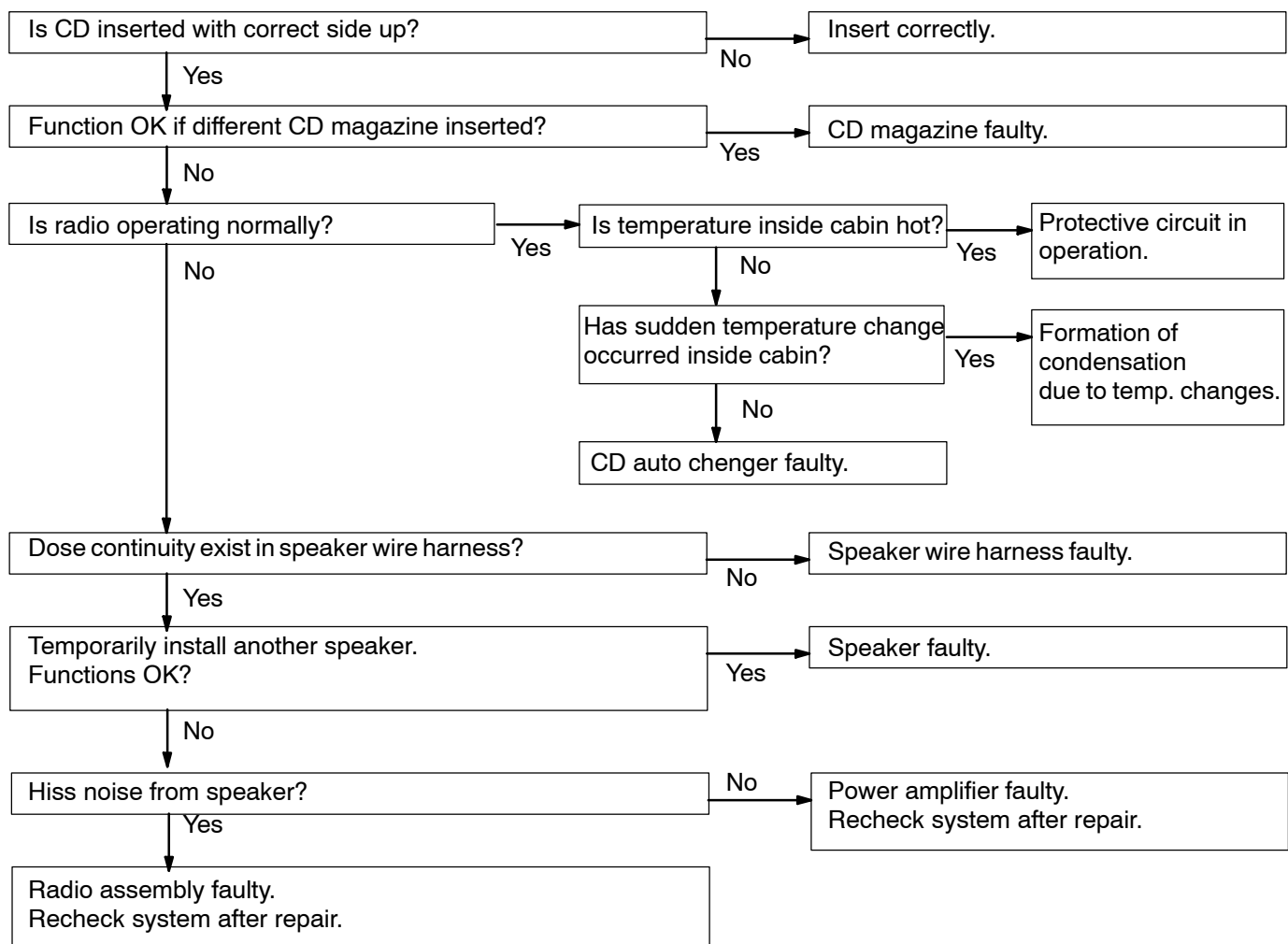
16	CD Auto Chenger	CD MAGAZINE CANNOT BE INSERTED
-----------	------------------------	---------------------------------------



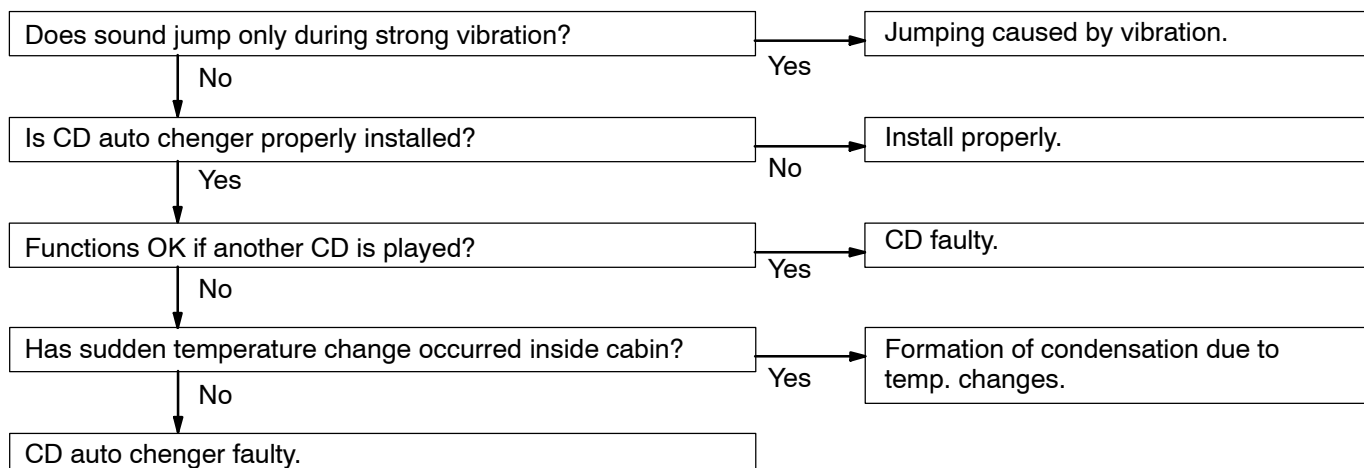
17	CD Auto Chenger	CD MAGAZINE INSERTED, BUT NO POWER
-----------	------------------------	---



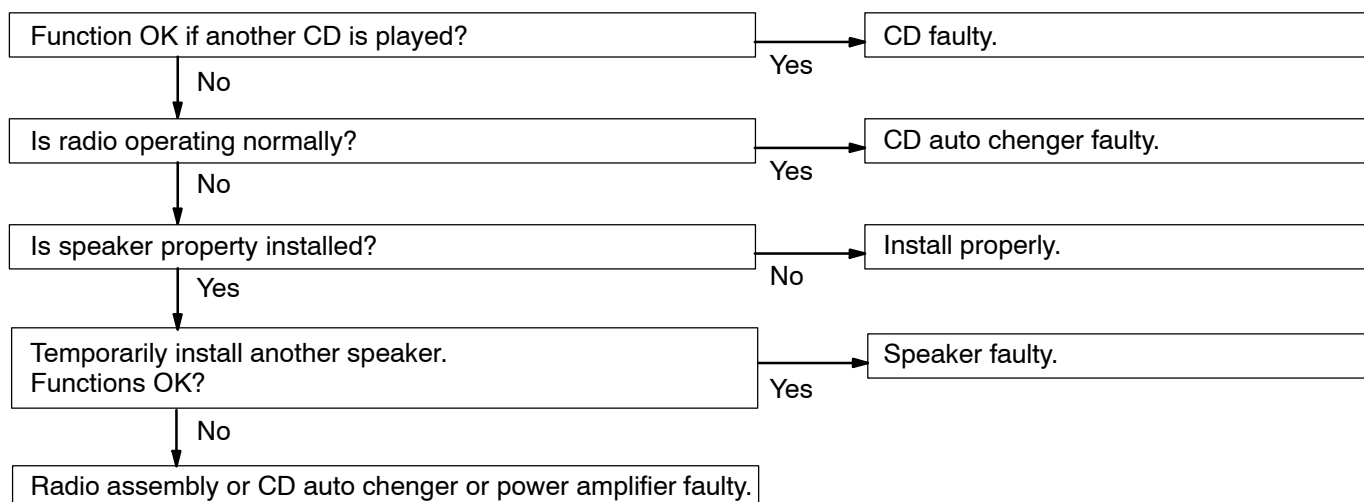
18	CD Auto Chenger	POWER COMING IN, BUT CD AUTO CHENGER NOT OPERATING
-----------	------------------------	---



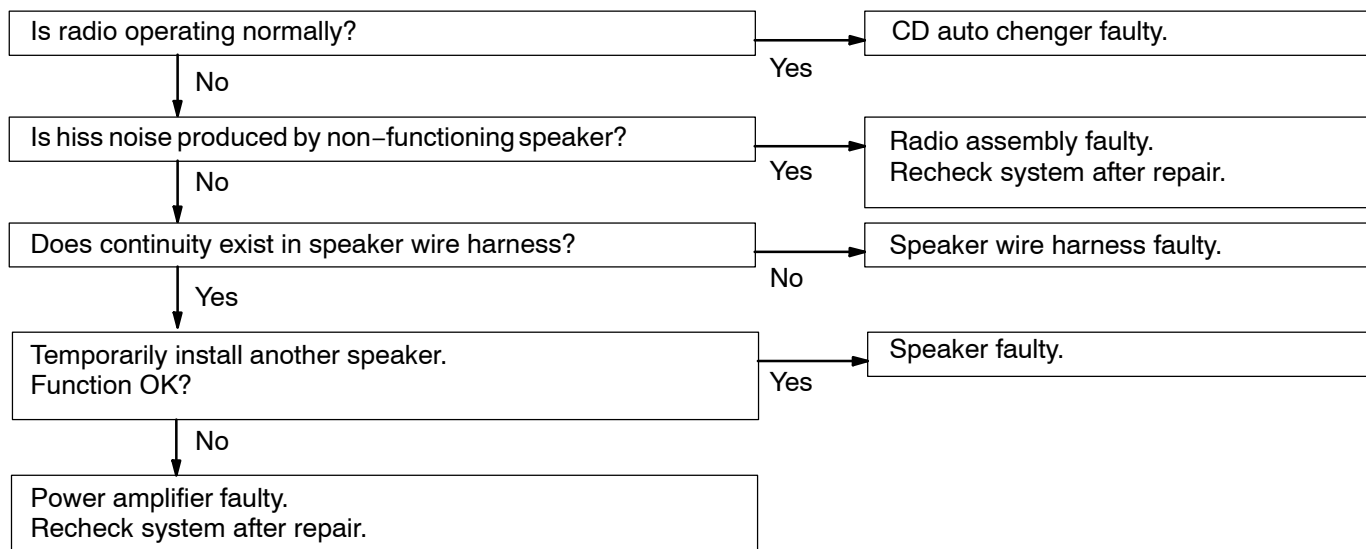
19	CD Auto Chenger	SOUND JUMPS
-----------	------------------------	--------------------



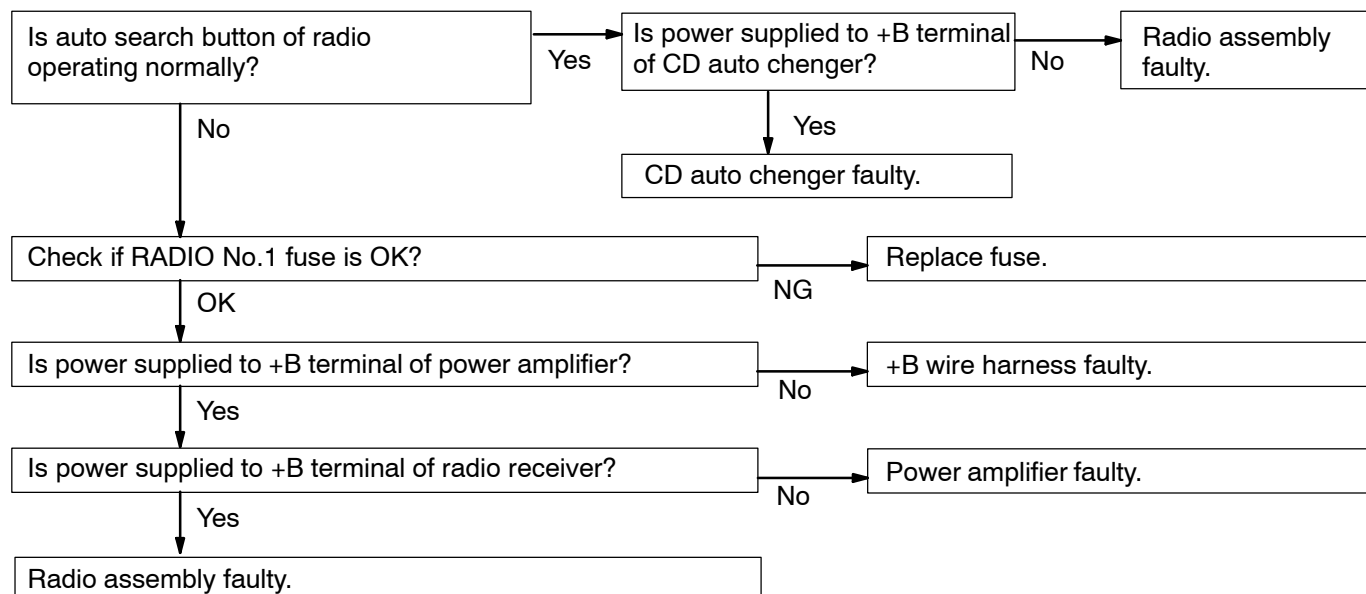
20	CD Auto Chenger	SOUND QUALITY POOR (VOLUME FAINT)
-----------	------------------------	--

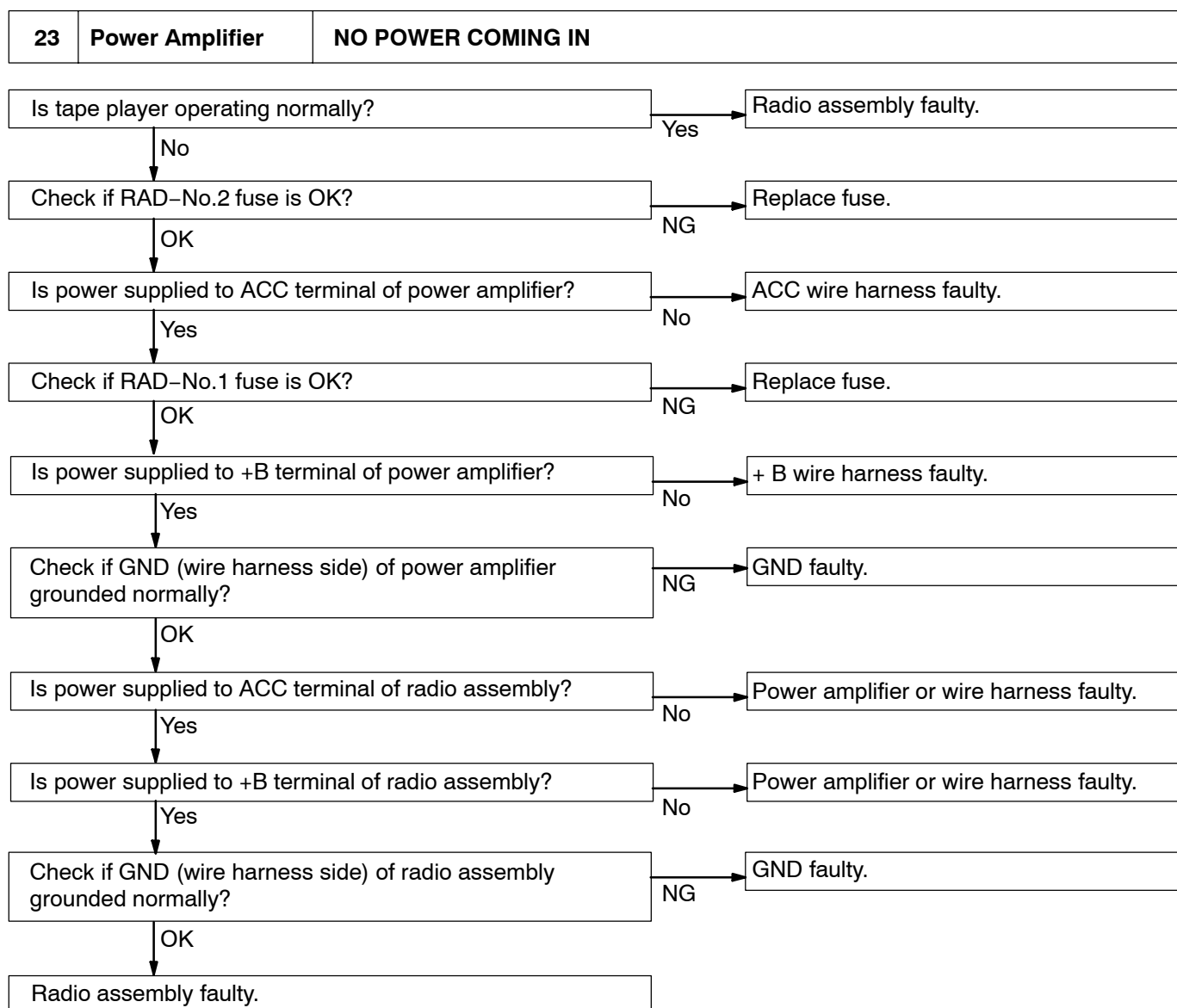


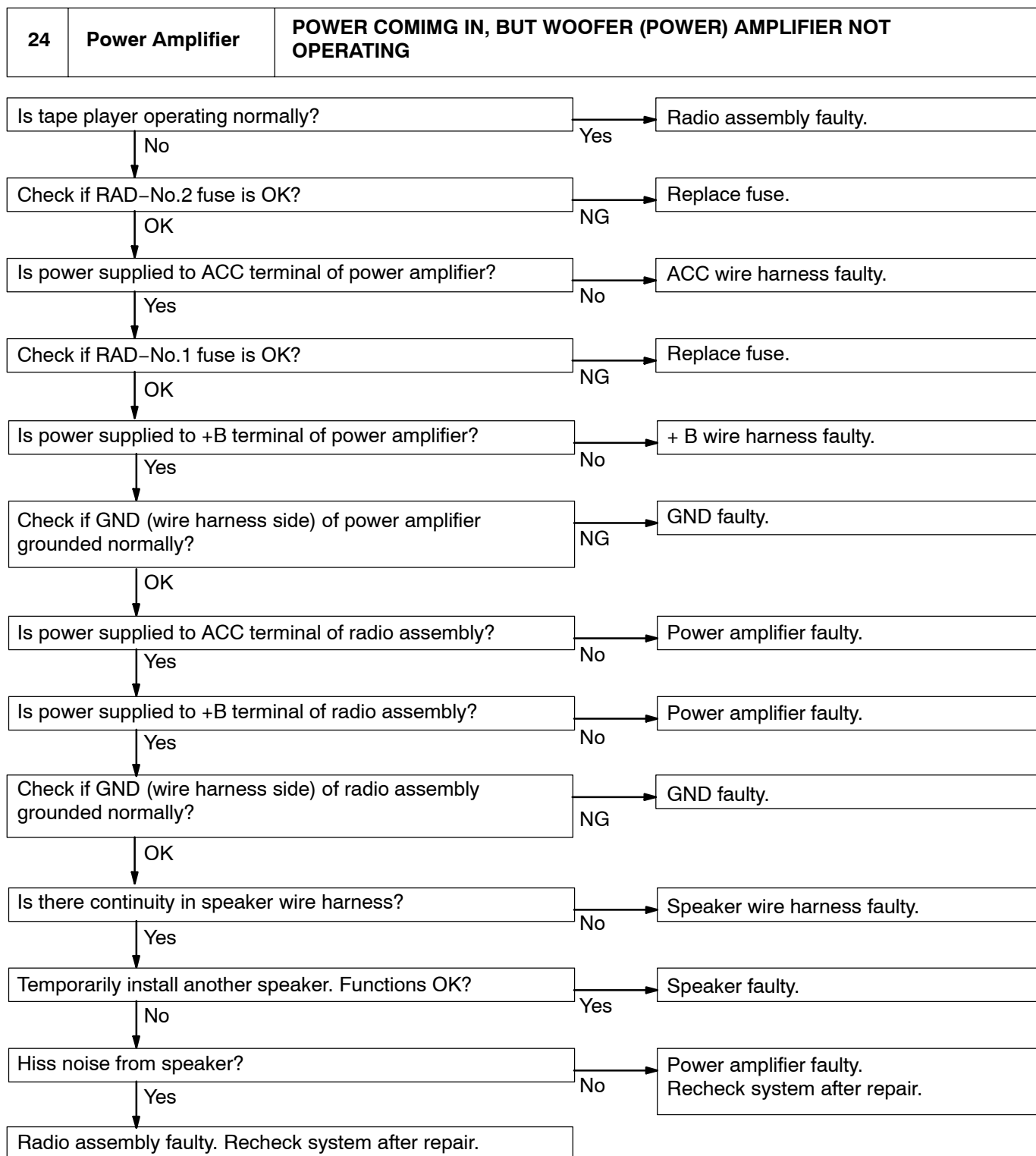
21	CD Auto Chenger	ANY SPEAKER DOES NOT WORK
----	-----------------	---------------------------

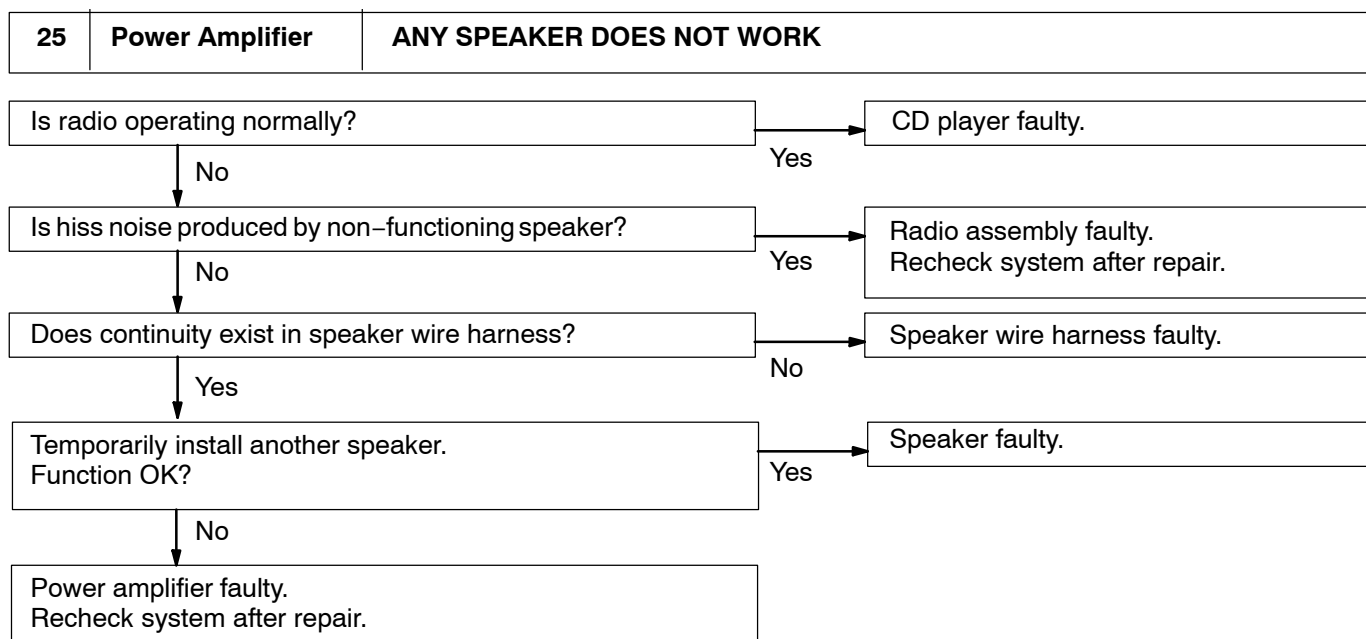


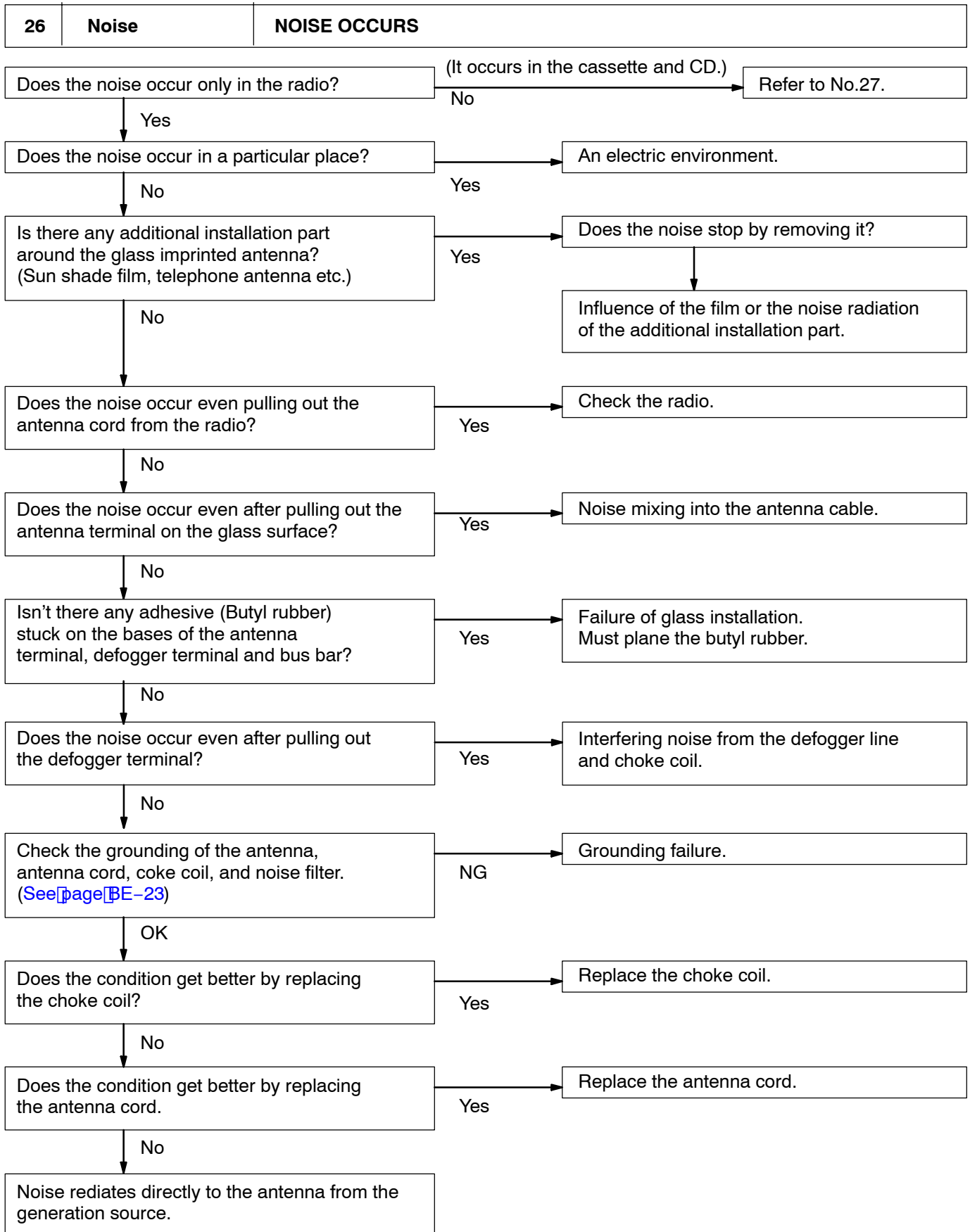
22	CD Auto Chenger	CD MAGAZINE WILL NOT BE EJECTED
----	-----------------	---------------------------------



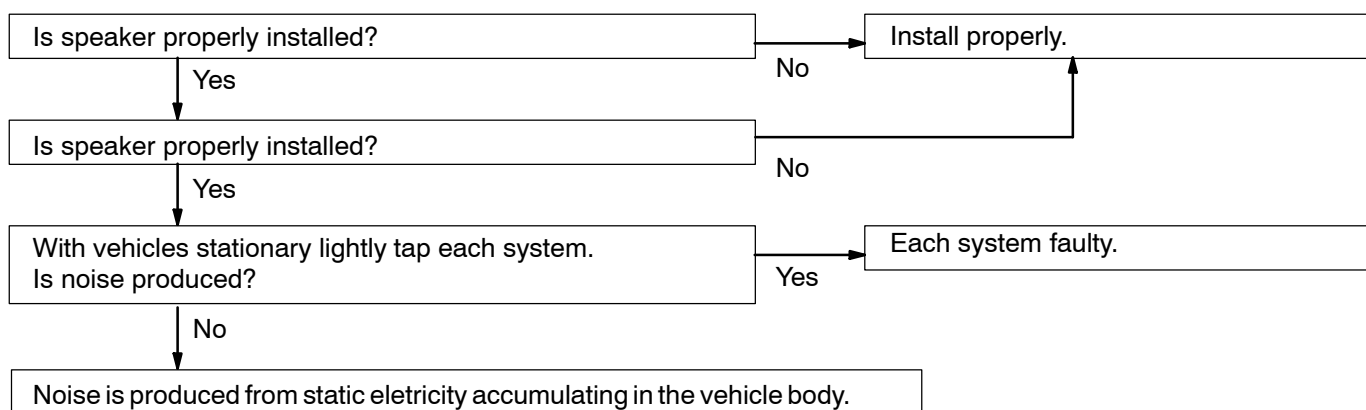




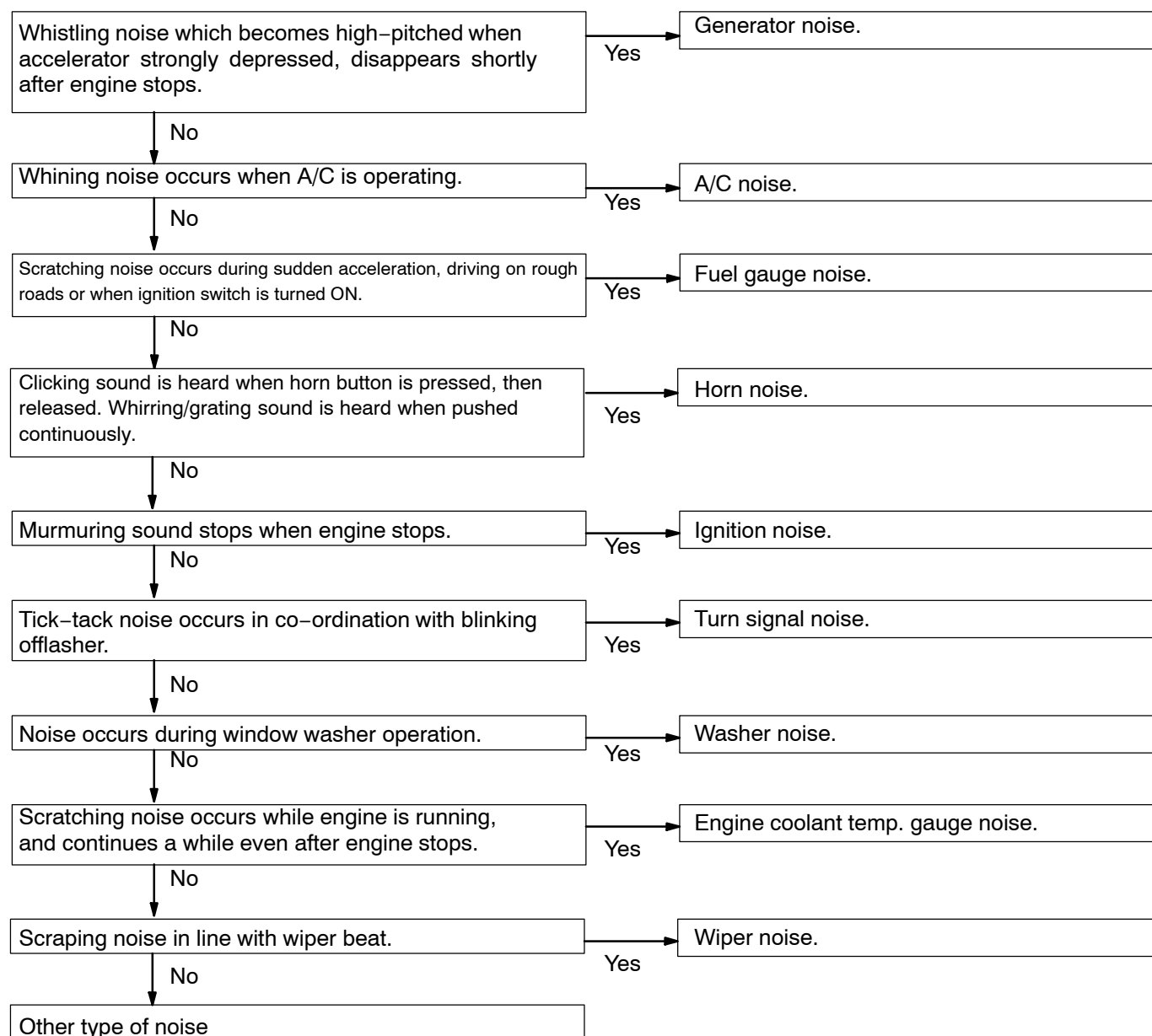




27	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING
-----------	--------------	---



28	Noise	NOISE PRODUCED WHEN ENGINE STARTS
-----------	--------------	--

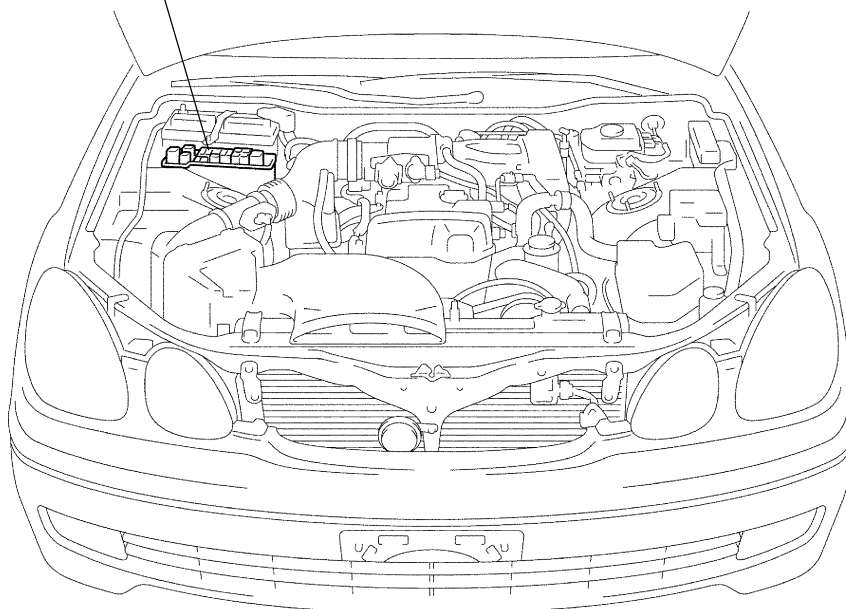


LOCATION

Engine Room No.1 Junction Block

- ECU-B1 Fuse
- RAD NO.1 Fuse

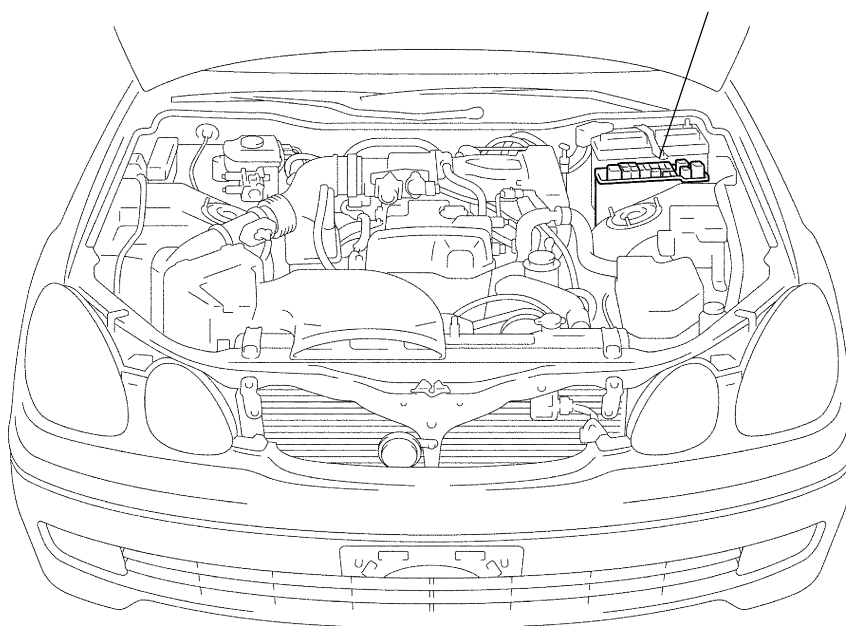
LHD Models

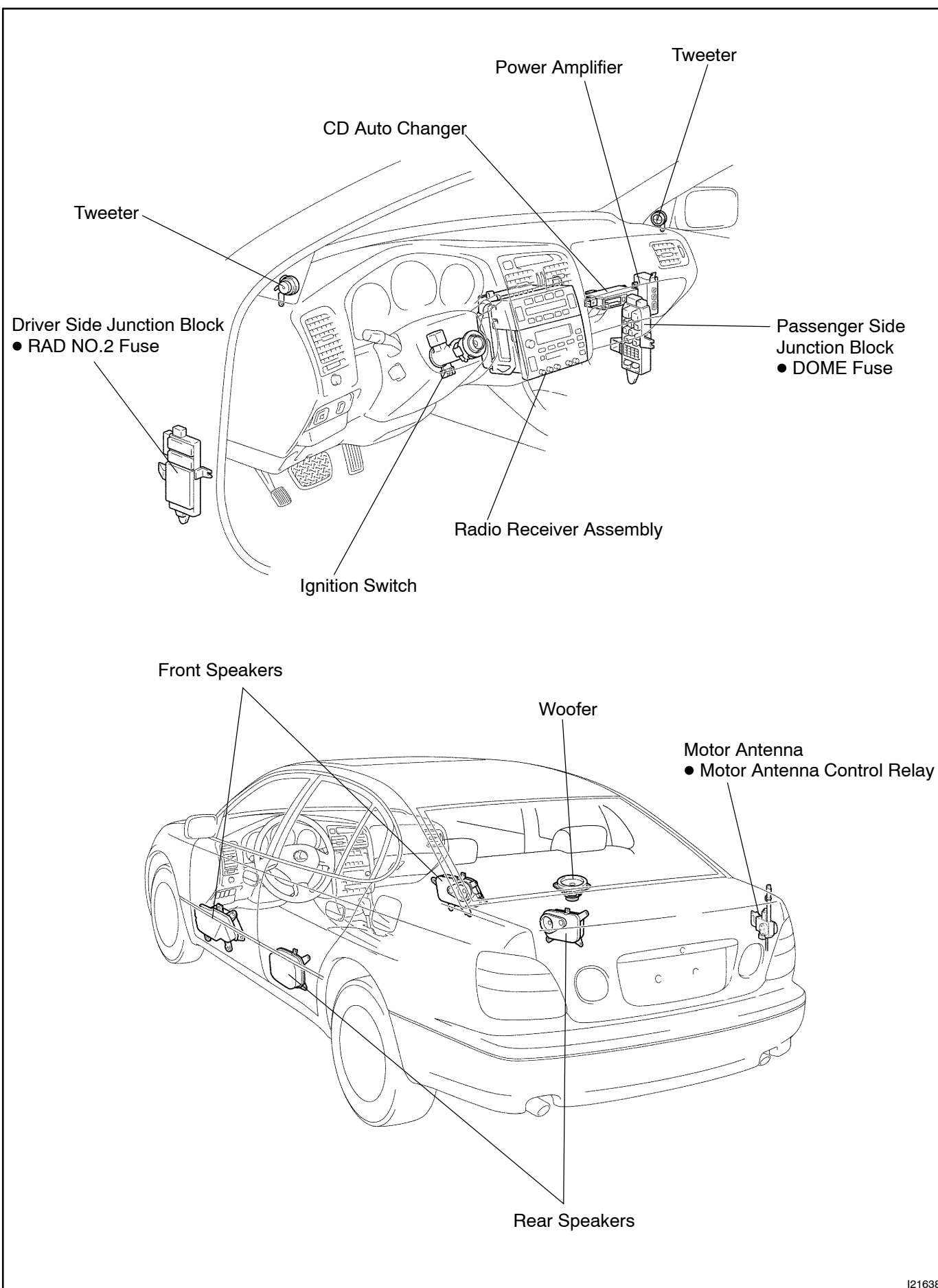


Engine Room No.1 Junction Block

- ECU-B1 Fuse
- RAD NO.1 Fuse

RHD Models





I21638

Wire Harness Side

I04310

INSPECTION**1. INSPECT CD AUTO CHANGER CIRCUIT**

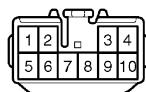
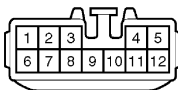
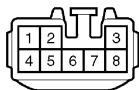
Disconnect connectors from CD auto changer and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
8 – Ground	Constant	Continuity
5 – Ground	Constant	Battery voltage
10 – Ground	Ignition switch LOCK	No voltage
10 – Ground	Ignition switch ACC or ON	Battery voltage

If the circuit is not as specified, inspect the circuits connected to other parts.

HINT:

- Check the wire harness between the radio receiver assembly and the CD auto changer.
- Since the signals to and from the MUTE, R⁻, R⁺, L⁻, L⁺, TX⁻ and TX⁺ terminals are serial signals, they cannot ordinarily be measured with a tester.

Wire Harness Side**Connector "A"****Connector "B"****Connector "C"****Connector "D"**

I04189

2. INSPECT POWER AMPLIFIER CIRCUIT

Disconnect the connector from power amplifier and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
B7 – Ground	Constant	Continuity
C12 – Ground	Ignition switch LOCK and radio switch ON	No voltage
C12 – Ground	Ignition switch ACC or ON and radio switch ON	Battery voltage
B4 – Ground	Constant	Battery voltage

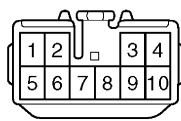
If the circuit is not as specified, inspect the circuits connected to other parts.

Wire Harness Side

Connector "A"



Connector "B"



I04190

3. Except Europe models:**INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT**

Disconnect the connectors from the radio receiver assembly, and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
A2 – Ground	Constant	Continuity
A4 – Ground	Constant	Battery voltage
A1 – Ground	Ignition switch LOCK	No voltage
A1 – Ground	Ignition switch ACC or ON	Battery voltage

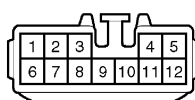
If the circuit is not as specified, inspect the circuits connected to other parts.

HINT:

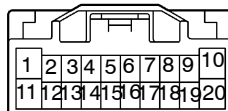
Check the wire harness between radio receiver assembly and the CD auto changer, between radio receiver assembly and power amplifier.

Wire Harness Side

Connector "B"



Connector "A"



I21639

4. Europe models:**INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT**

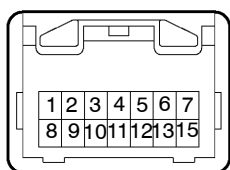
Disconnect the connectors from the radio receiver assembly, and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
A20 – Ground	Constant	Continuity
A2 – Ground	Constant	Battery voltage
A11 – Ground	Ignition switch LOCK	No voltage
A11 – Ground	Ignition switch ACC or ON	Battery voltage

If the circuit is not as specified, inspect the circuits connected to other parts.

HINT:

Check the wire harness between radio receiver assembly and the CD auto changer, between radio receiver assembly and power amplifier.

Wire Harness Side

N

I13684

5. INSPECT GATEWAY ECU CIRCUIT

Disconnect the connectors from the gateway ECU, and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
7 - Ground	Constant	Continuity
14 - Ground	Constant	Continuity
2 - Ground	Ignition switch ON	Battery voltage
8 - Ground	Constant	Battery voltage
9 - Ground	Ignition switch ACC	Battery voltage

If the circuit is not as specified, inspect the circuits connected to other parts.

HINT:

Check the wire harness between radio receiver assembly and the gateway ECU.