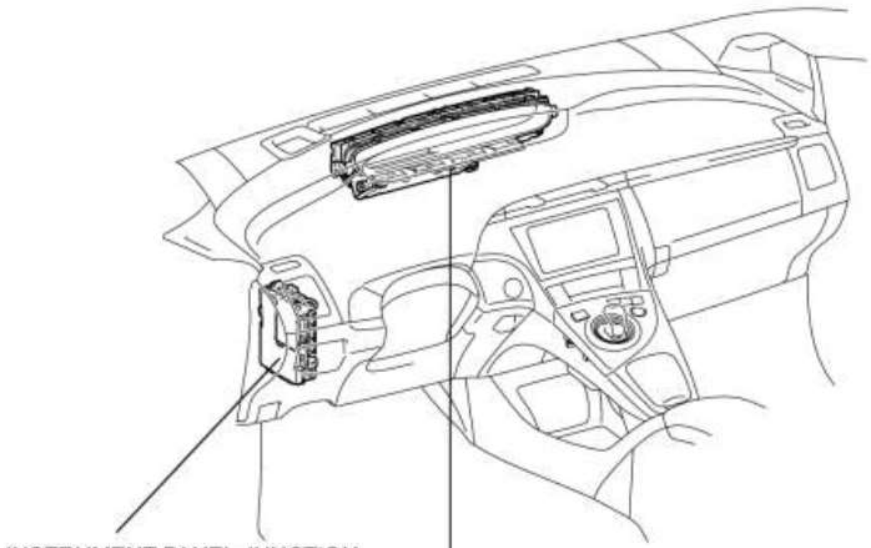
PARTS LOCATION

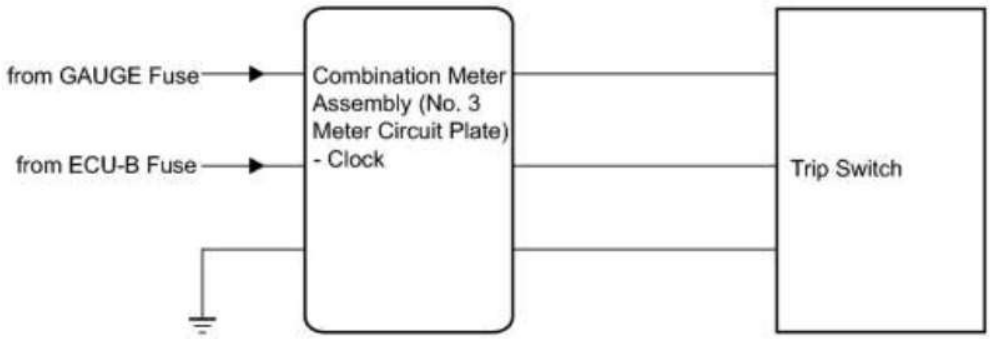
ILLUSTRATION



cardiagn.com

SYSTEM DIAGRAM

1. DIRECT LINE SIGNAL



cardiagn.com

SYSTEM DESCRIPTION

1. COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

Item	Detail
Clock	Time is displayed and can be adjusted by pressing the trip switch.

cardiagn.com

HOW TO PROCEED WITH TROUBLESHOOTING

1.	VEHICLE BROUGHT TO WORKSHOP

NEXT

▼

2.	CUSTOMER PROBLEM ANALYSIS

NEXT

▼

3.	PROBLEM SYMPTOM CONFIRMATION

NEXT

▼

4.	PROBLEM SIMULATION

NEXT

▼

5.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO.

NEXT

▼

6.	CIRCUIT INSPECTION

NEXT

▼

7.	REPAIR OR REPLACE

NEXT

▼

8.	CONFIRMATION TEST

NEXT ▶ **END**

cardiagn.com

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

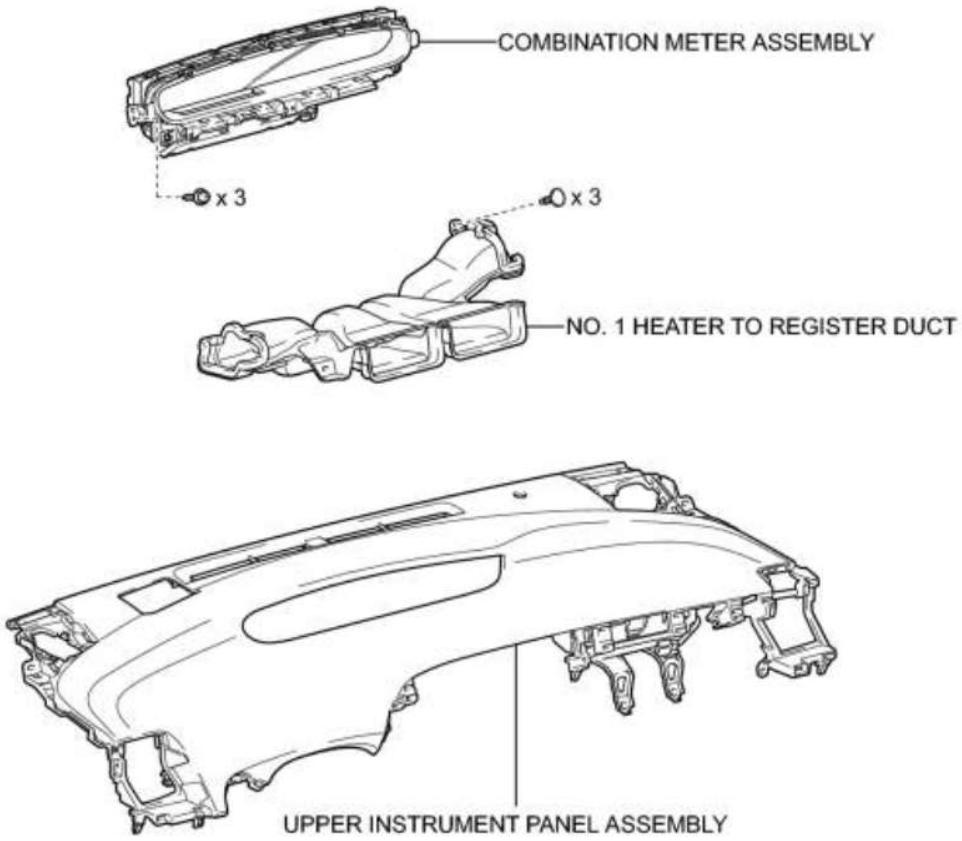
Clock

Symptom	Suspected Area	See page
Clock does not operate at all.	Fuse (ECU-B, GAUGE)	-
	Wire Harness or Connector	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Clock display illumination malfunction	PANEL Fuse	-
	Wire Harness or Connector	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Clock loses or gains time.	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Clock cannot be adjusted.	Trip Switch	INFO
	Wire Harness or Connector	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

cardiagn.com

COMPONENTS

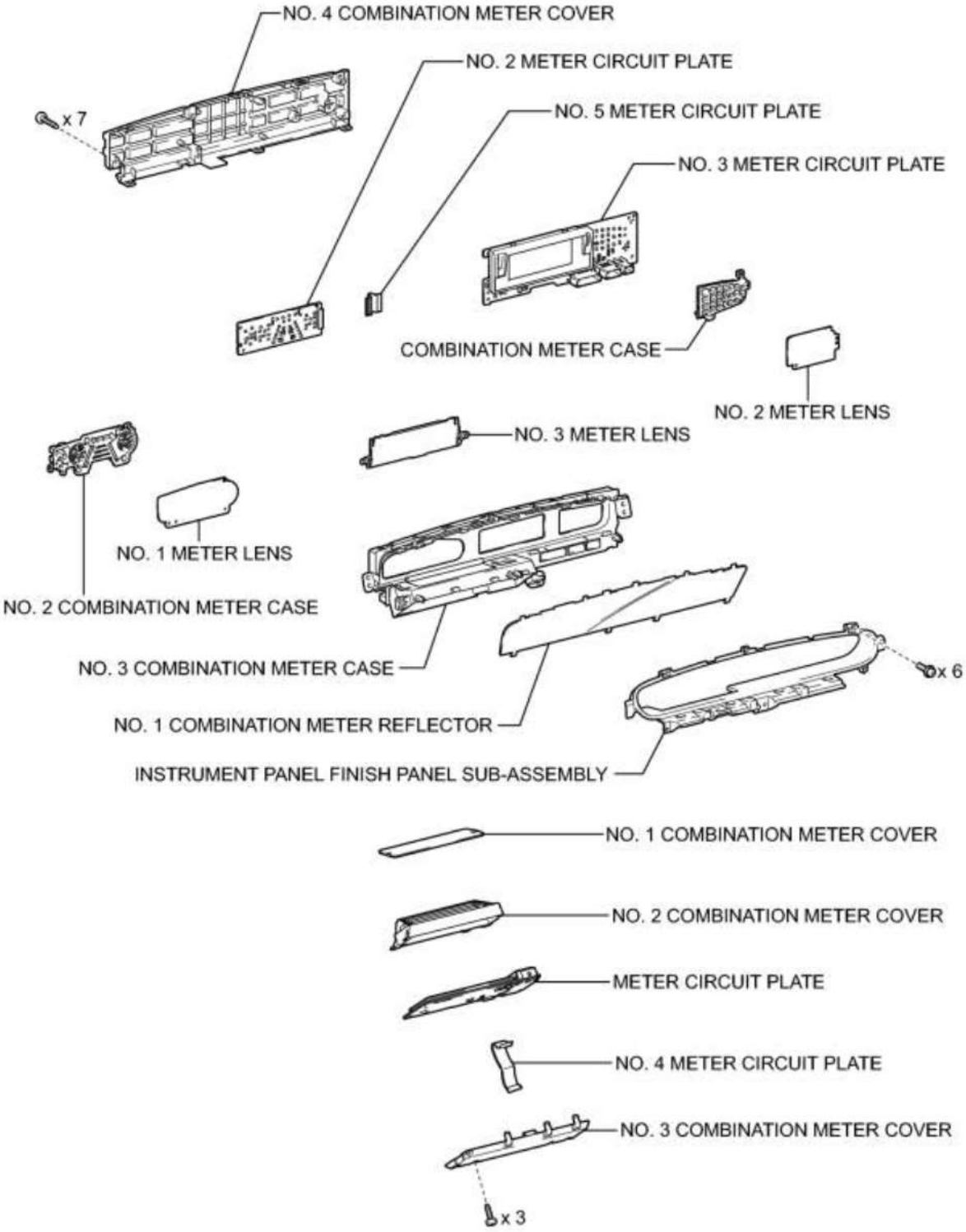
ILLUSTRATION



P

ILLUSTRATION

cardiagn.com



P

cardiagn.com

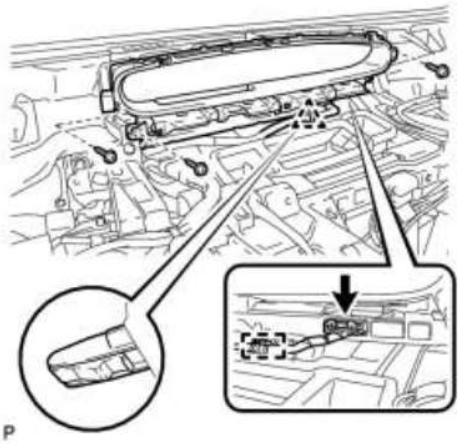
REMOVAL

1. REMOVE UPPER INSTRUMENT PANEL ASSEMBLY

(a) Remove the upper instrument panel assembly INFO.

2. REMOVE NO. 1 HEATER TO REGISTER DUCT INFO

3. REMOVE COMBINATION METER ASSEMBLY



(a) Disconnect the connector.

(b) Disengage the clamp.

(c) Remove the 3 screws.

(d) Disengage the clip and remove the combination meter assembly.

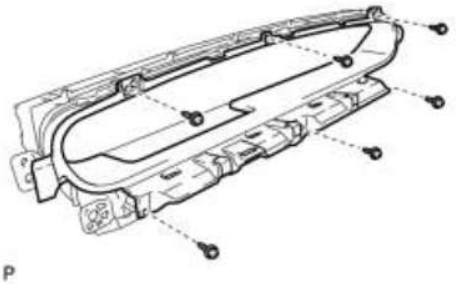
cardiagn.com

DISASSEMBLY

NOTICE:

When disassembling the combination meter assembly, eliminate static electricity by touching the vehicle body to prevent components from being damaged.

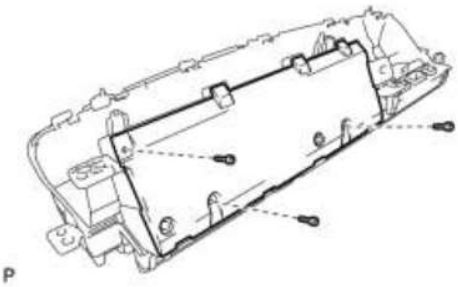
1. REMOVE INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY



P

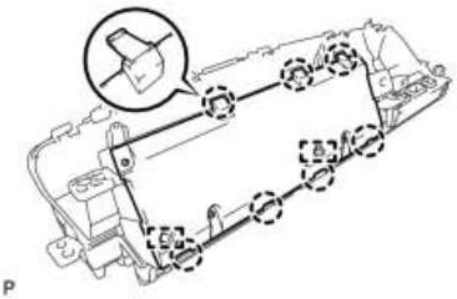
(a) Remove the 6 screws and instrument panel finish panel sub-assembly.

2. REMOVE NO. 3 COMBINATION METER COVER



P

(a) Remove the 3 screws.



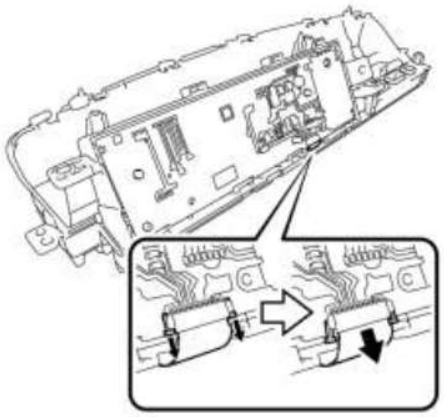
P

(b) Disengage the 7 claws and 2 guides to remove the No. 3 combination meter cover.

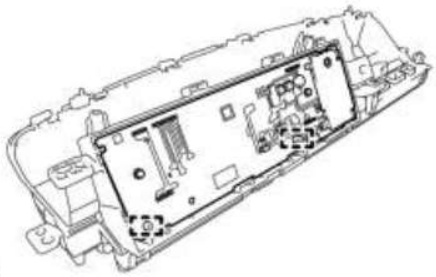
3. REMOVE METER CIRCUIT PLATE

(a) Disconnect the connector as shown in the illustration.

cardiagn.com



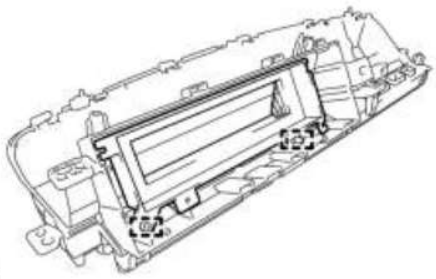
P



P

(b) Disengage the 2 guides to remove the meter circuit plate.

4. REMOVE NO. 2 COMBINATION METER COVER



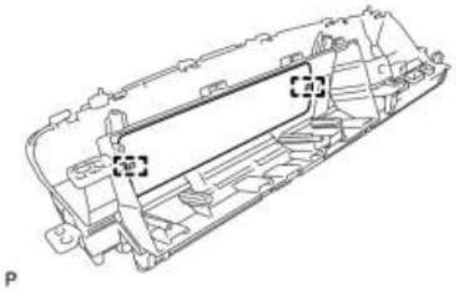
P

(a) Disengage the 2 guides to remove the No. 2 combination meter cover.

5. REMOVE NO. 1 COMBINATION METER COVER

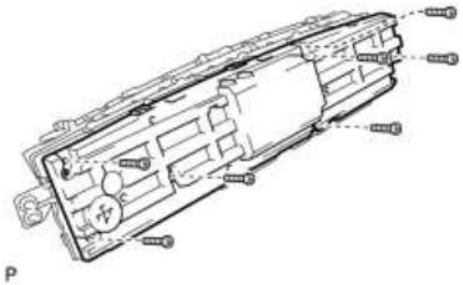
(a) Disengage the 2 guides to remove the No. 1 combination meter cover.

cardiagn.com



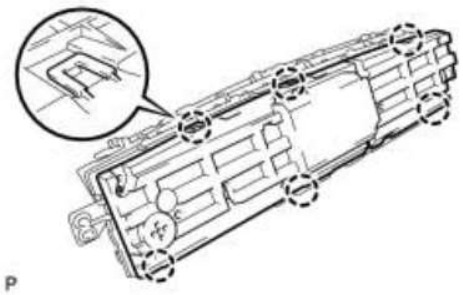
P

6. REMOVE NO. 4 COMBINATION METER COVER



P

(a) Remove the 7 screws.



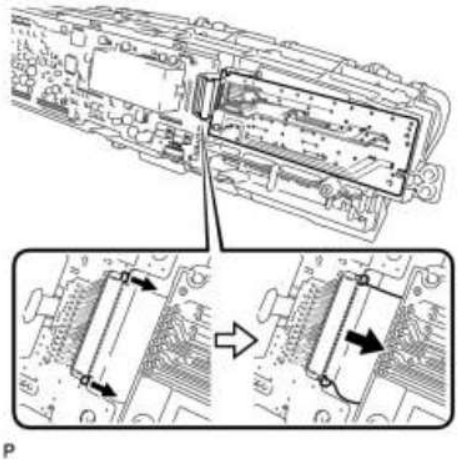
P

(b) Disengage the 6 claws to remove the No. 4 combination meter cover.

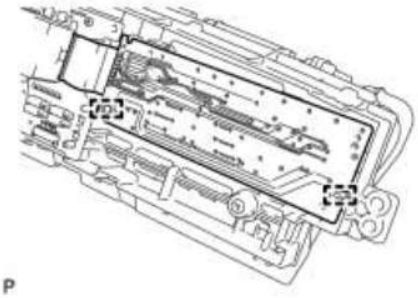
7. REMOVE NO. 2 METER CIRCUIT PLATE

(a) Disconnect the connector as shown in the illustration.

cardiagn.com

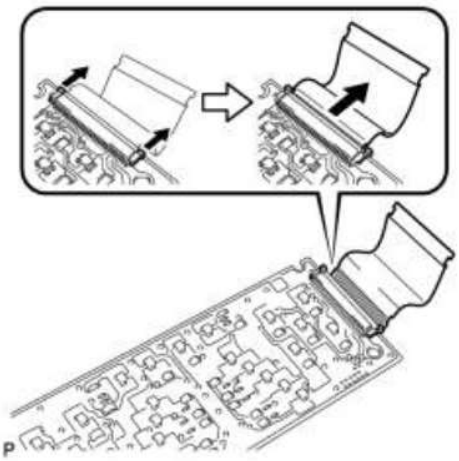


P



P

(b) Disengage the 2 guides to remove the No. 2 meter circuit plate.



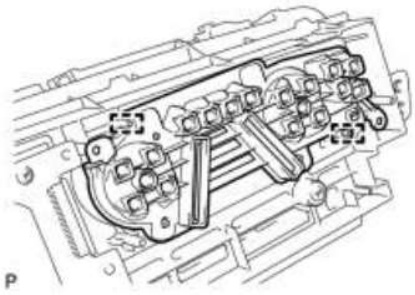
P

(c) Disconnect the connector to remove the No. 5 meter circuit plate from the No. 2 meter circuit plate as shown in the illustration.

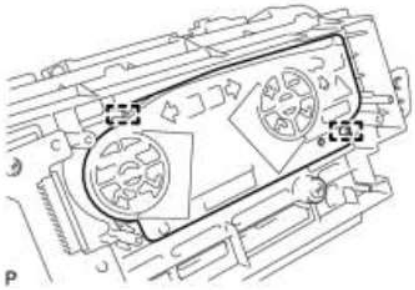
8. REMOVE NO. 2 COMBINATION METER CASE

(a) Disengage the 2 guides to remove the No. 2 combination meter case.

cardiagn.com

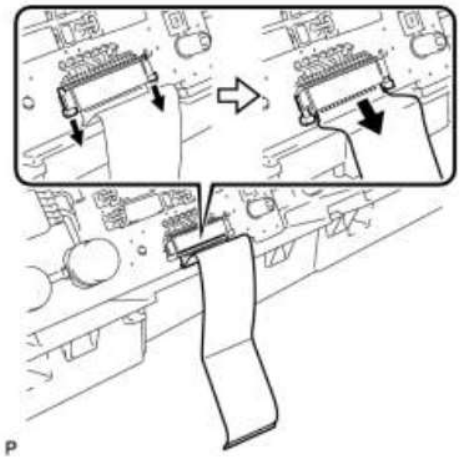


9. REMOVE NO. 1 METER LENS



(a) Disengage the 2 guides to remove the No. 1 meter lens.

10. REMOVE NO. 4 METER CIRCUIT PLATE

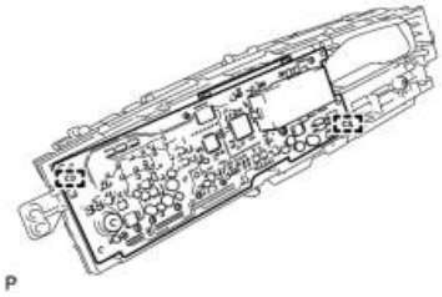


(a) Disconnect the connector to remove the No. 4 meter circuit plate as shown in the illustration.

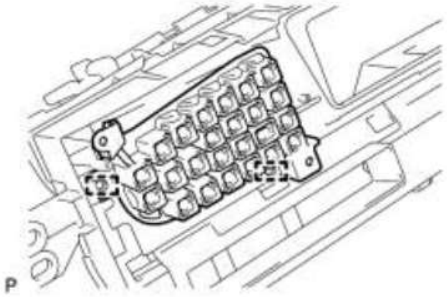
11. REMOVE NO. 3 METER CIRCUIT PLATE

(a) Disengage the 2 guides to remove the No. 3 meter circuit plate.

cardiagn.com

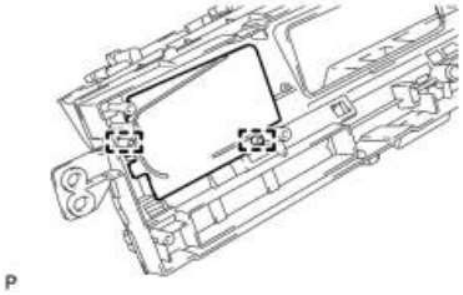


12. REMOVE COMBINATION METER CASE



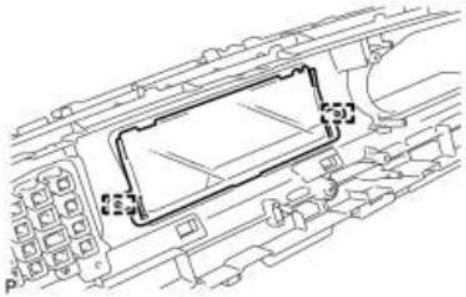
(a) Disengage the 2 guides to remove the combination meter case.

13. REMOVE NO. 2 METER LENS



(a) Disengage the 2 guides to remove the No. 2 meter lens.

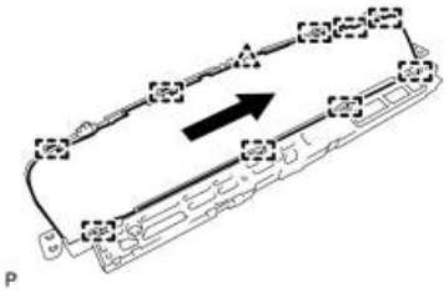
14. REMOVE NO. 3 METER LENS



(a) Disengage the 2 guides to remove the No. 3 meter lens.

cardiagn.com

15. REMOVE NO. 1 COMBINATION METER REFLECTOR



(a) Disengage the clip and 9 guides, and remove the No. 1 combination meter reflector as shown in the illustration.

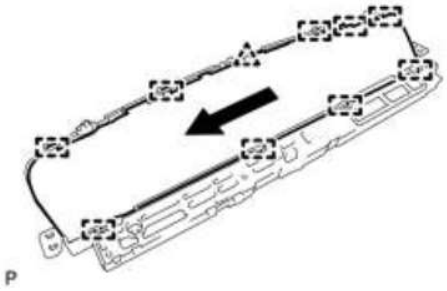
16. REMOVE NO. 3 COMBINATION METER CASE

cardiagn.com

REASSEMBLY

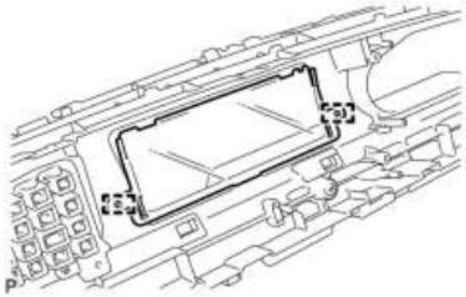
1. INSTALL NO. 3 COMBINATION METER CASE

2. INSTALL NO. 1 COMBINATION METER REFLECTOR



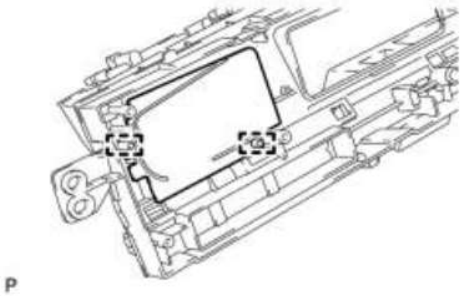
(a) Engage the clip and 9 guides to install the No. 1 combination meter reflector as shown in the illustration.

3. INSTALL NO. 3 METER LENS



(a) Engage the 2 guides to install the No. 3 meter lens.

4. INSTALL NO. 2 METER LENS

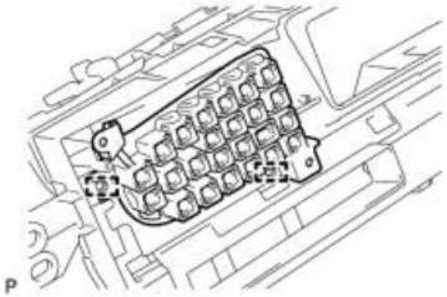


(a) Engage the 2 guides to install the No. 2 meter lens.

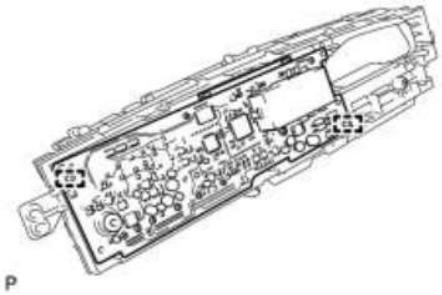
5. INSTALL COMBINATION METER CASE

(a) Engage the 2 guides to install the combination meter case.

cardiagn.com

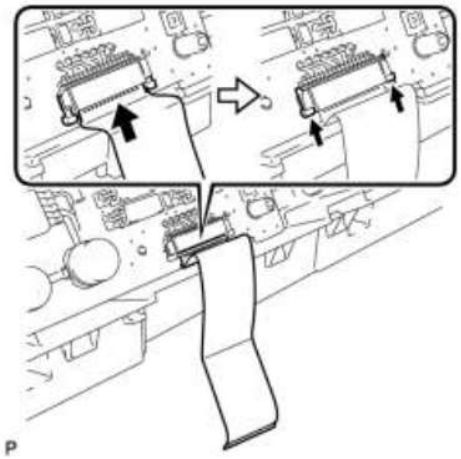


6. INSTALL NO. 3 METER CIRCUIT PLATE



(a) Engage the 2 guides to install the No. 3 meter circuit plate.

7. INSTALL NO. 4 METER CIRCUIT PLATE

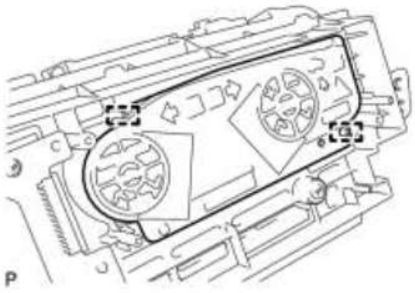


(a) Connect the connector to install the No. 4 meter circuit plate to the No. 3 meter circuit plate.

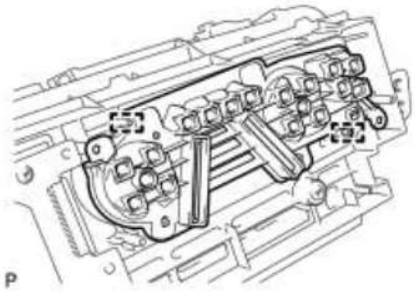
8. INSTALL NO. 1 METER LENS

(a) Engage the 2 guides to install the No. 1 meter lens.

cardiagn.com

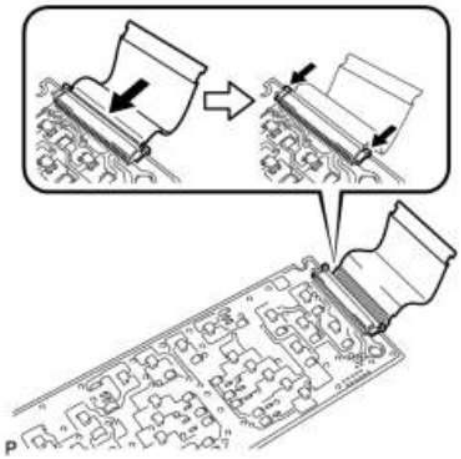


9. INSTALL NO. 2 COMBINATION METER CASE



(a) Engage the 2 guides to install the No. 2 combination meter case.

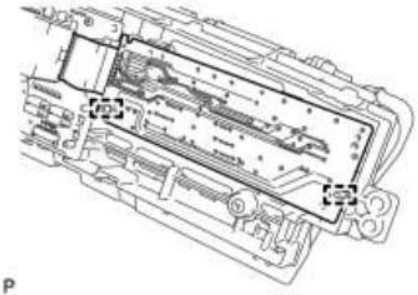
10. INSTALL NO. 2 METER CIRCUIT PLATE



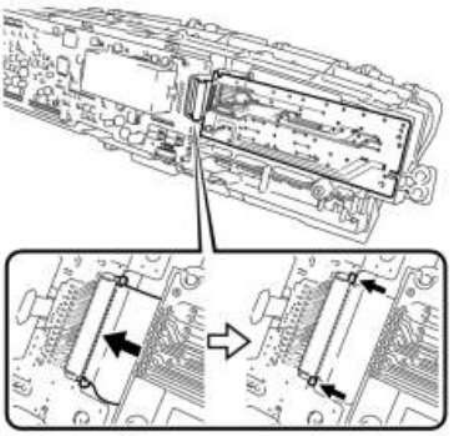
(a) Connect the connector to install the No. 5 meter circuit plate to the No. 2 meter circuit plate.

(b) Engage the 2 guides to install the No. 2 meter circuit plate.

cardiagn.com



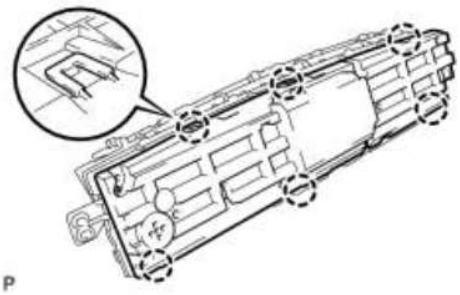
P



P

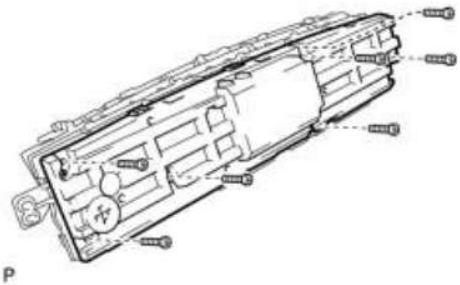
(c) Connect the connector as shown in the illustration.

11. INSTALL NO. 4 COMBINATION METER COVER



P

(a) Engage the 6 claws.

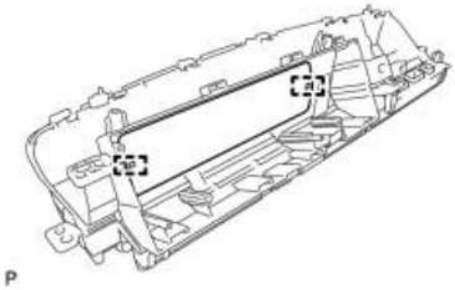


P

(b) Install the No. 4 combination meter cover with the 7 screws.

12. INSTALL NO. 1 COMBINATION METER COVER

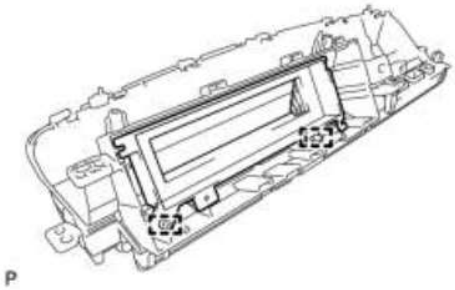
cardiagn.com



P

(a) Engage the 2 guides to install the No. 1 combination meter cover.

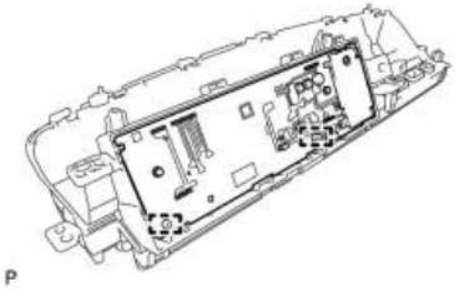
13. INSTALL NO. 2 COMBINATION METER COVER



P

(a) Engage the 2 guides to install the No. 2 combination meter cover.

14. INSTALL METER CIRCUIT PLATE

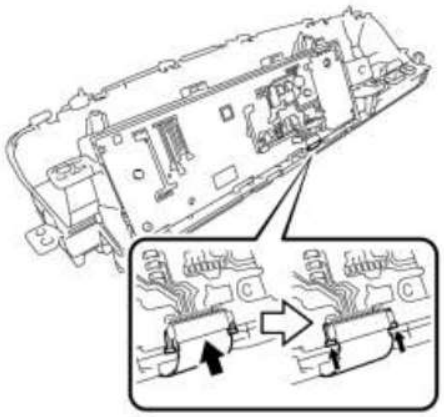


P

(a) Engage the 2 guides to install the meter circuit plate.

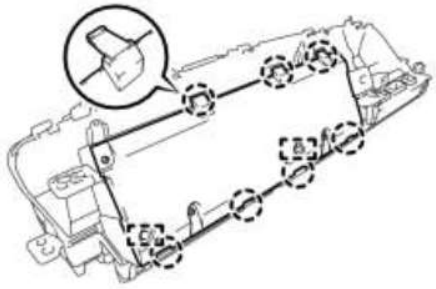
(b) Connect the connector as shown in the illustration.

cardiagn.com



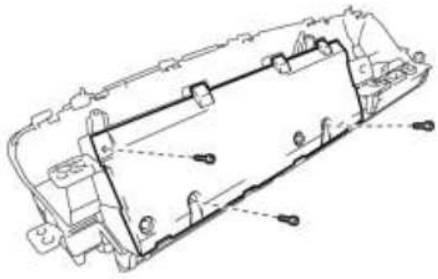
P

15. INSTALL NO. 3 COMBINATION METER COVER



P

(a) Engage the 7 claws and 2 guides.



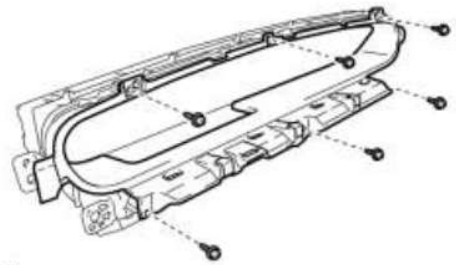
P

(b) Install the No. 3 combination meter cover with the 3 screws.

16. INSTALL INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY

(a) Install the instrument panel finish panel sub-assembly with the 6 screws.

cardiagn.com

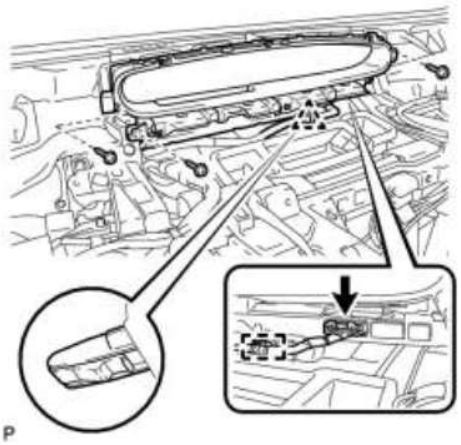


P

cardiagn.com

INSTALLATION

1. INSTALL COMBINATION METER ASSEMBLY



(a) Engage the clip.

(b) Install the combination meter assembly with the 3 screws.

(c) Engage the clamp.

(d) Connect the connector.

2. INSTALL NO. 1 HEATER TO REGISTER DUCT INFO

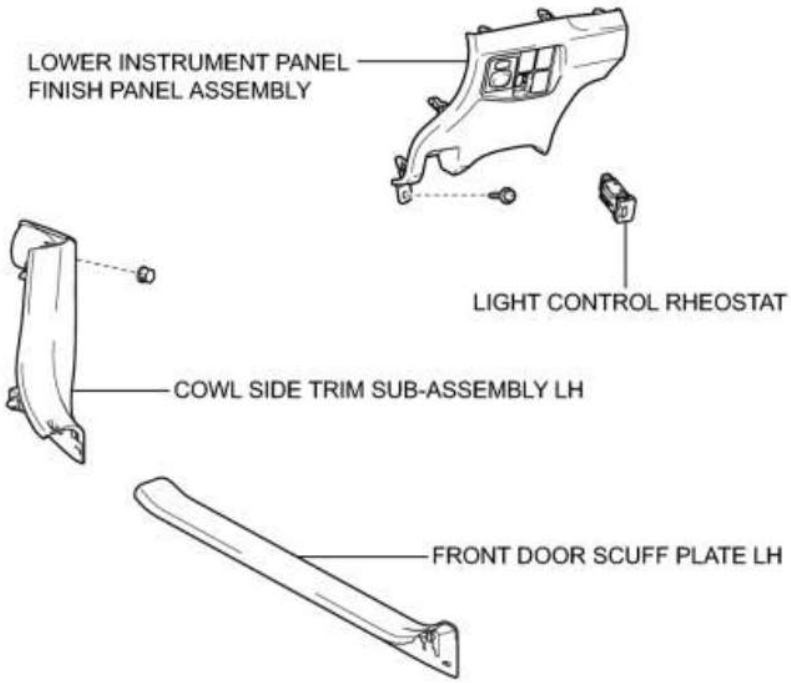
3. INSTALL UPPER INSTRUMENT PANEL ASSEMBLY

(a) Install the upper instrument panel assembly INFO.

cardiagn.com

COMPONENTS

ILLUSTRATION



P

cardiagn.com

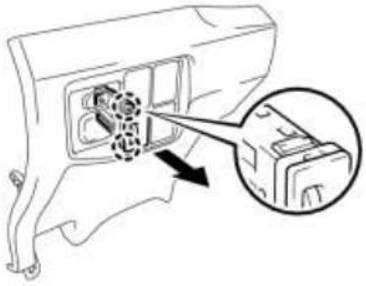
REMOVAL

1. REMOVE FRONT DOOR SCUFF PLATE LH INFO

2. REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH INFO

3. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

4. REMOVE LIGHT CONTROL RHEOSTAT



P

(a) Disengage the 2 claws to remove the light control rheostat.

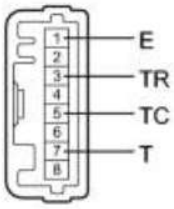
cardiagn.com

INSPECTION

1. INSPECT LIGHT CONTROL RHEOSTAT



*1



H

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
1 (E) - 3 (TR)	Turn the light control rheostat knob fully downwards (MIN.)	Below 50 Ω
1 (E) - 3 (TR)	Light control rheostat knob position is between MIN. and MAX.	The value changes gradually (Between 0 to 12 kΩ
1 (E) - 3 (TR)	Turn the light control rheostat knob fully upwards (MAX.)	8 to 12 kΩ
5 (TC) - 7 (T)	Light control rheostat knob position is except below	Below 50 Ω
5 (TC) - 7 (T)	Turn the light control rheostat knob fully upwards (Tail cancel switch is on)	8 to 12 kΩ

Text in Illustration

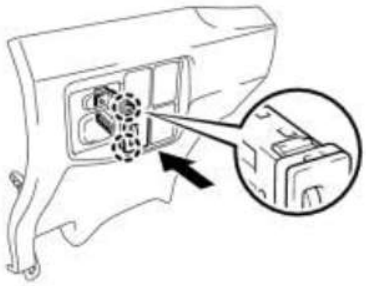
*1	Component with harness connected (Light Control Rheostat)

If the value is not as specified, replace the light control rheostat INFO.

cardiagn.com

INSTALLATION

1. INSTALL LIGHT CONTROL RHEOSTAT



P

(a) Engage the 2 claws to install the light control rheostat.

2. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

3. INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH INFO

4. INSTALL FRONT DOOR SCUFF PLATE LH INFO

cardiagn.com

PRECAUTION

NOTICE:

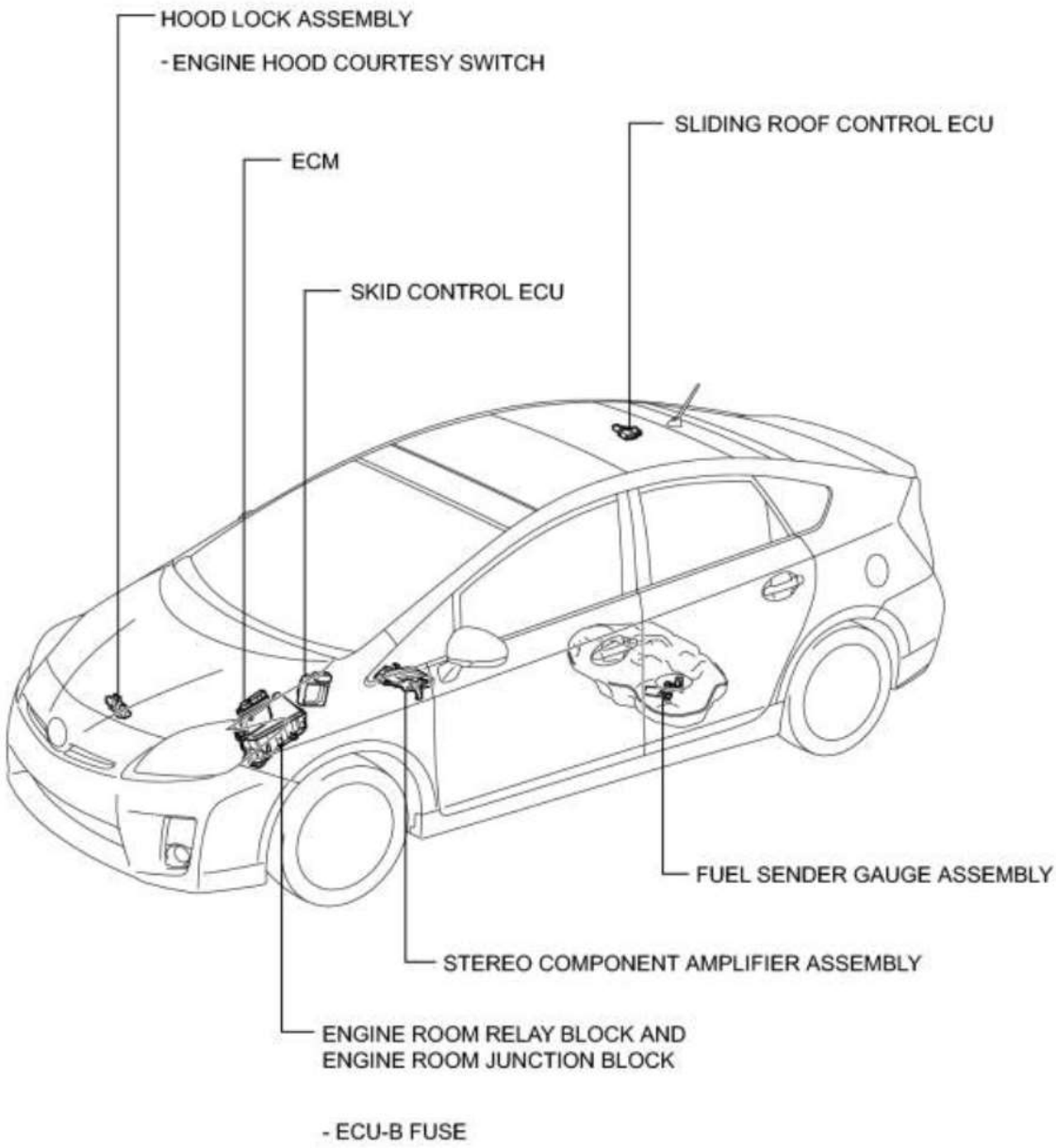
When disconnecting the cable from the negative (-) battery terminal, initialize the following systems after the cable is reconnected.

System Name	See Procedure
Advanced Parking Guidance System	INFO

cardiagn.com

PARTS LOCATION

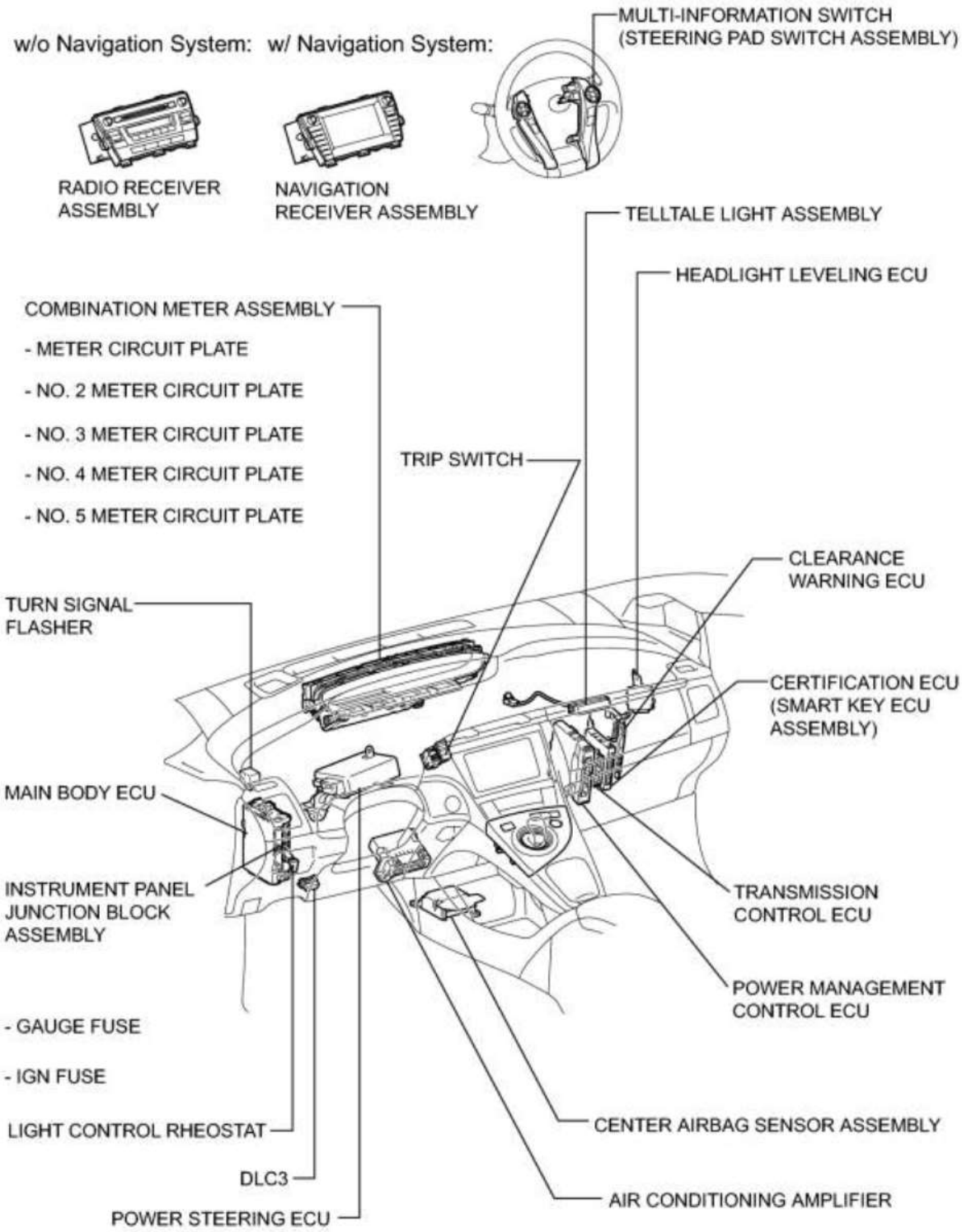
ILLUSTRATION



H

ILLUSTRATION

cardiagn.com

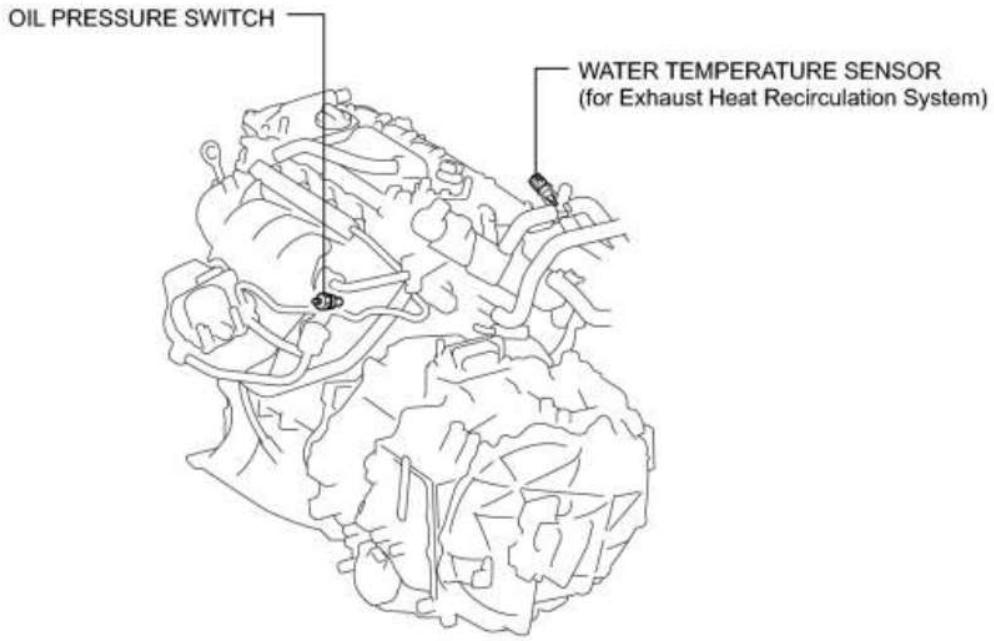


H

ILLUSTRATION

2010 Toyota Prius Repair Manual

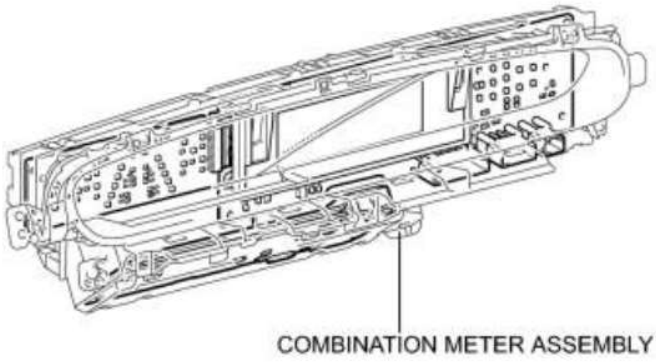
cardiagn.com

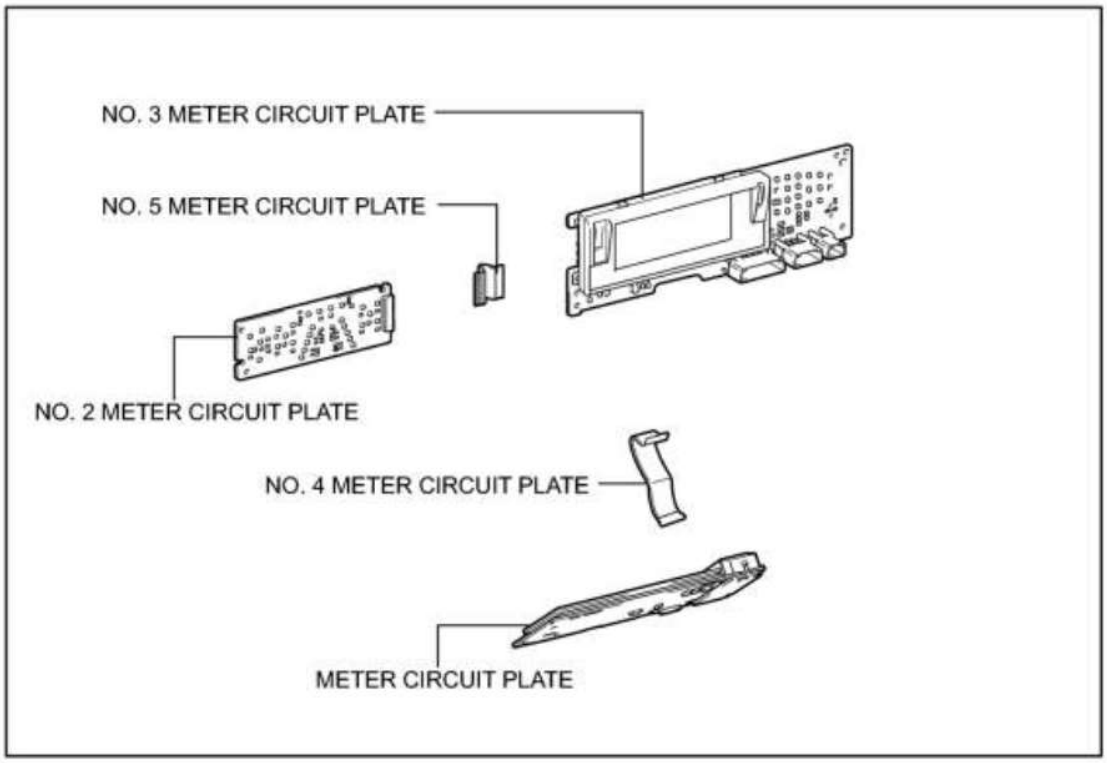


H

ILLUSTRATION

cardiagn.com

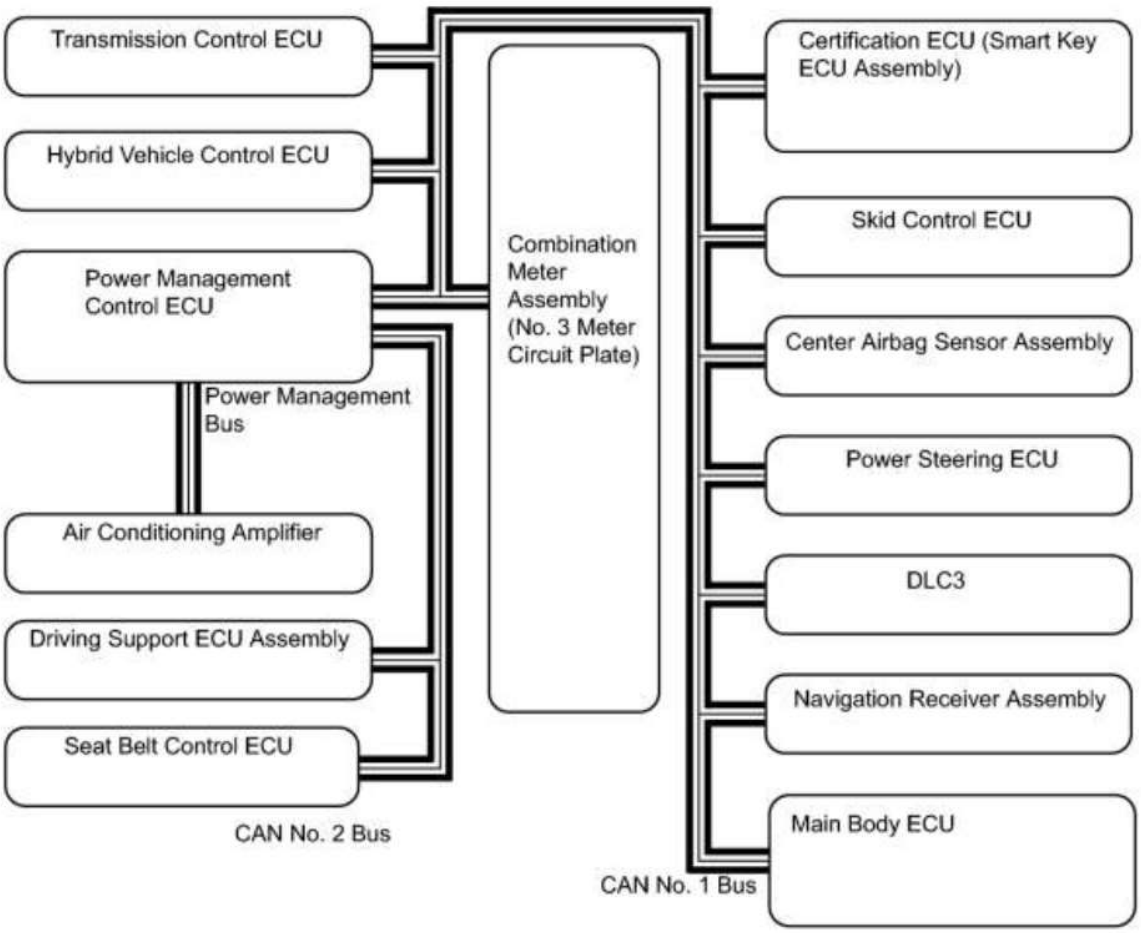




P

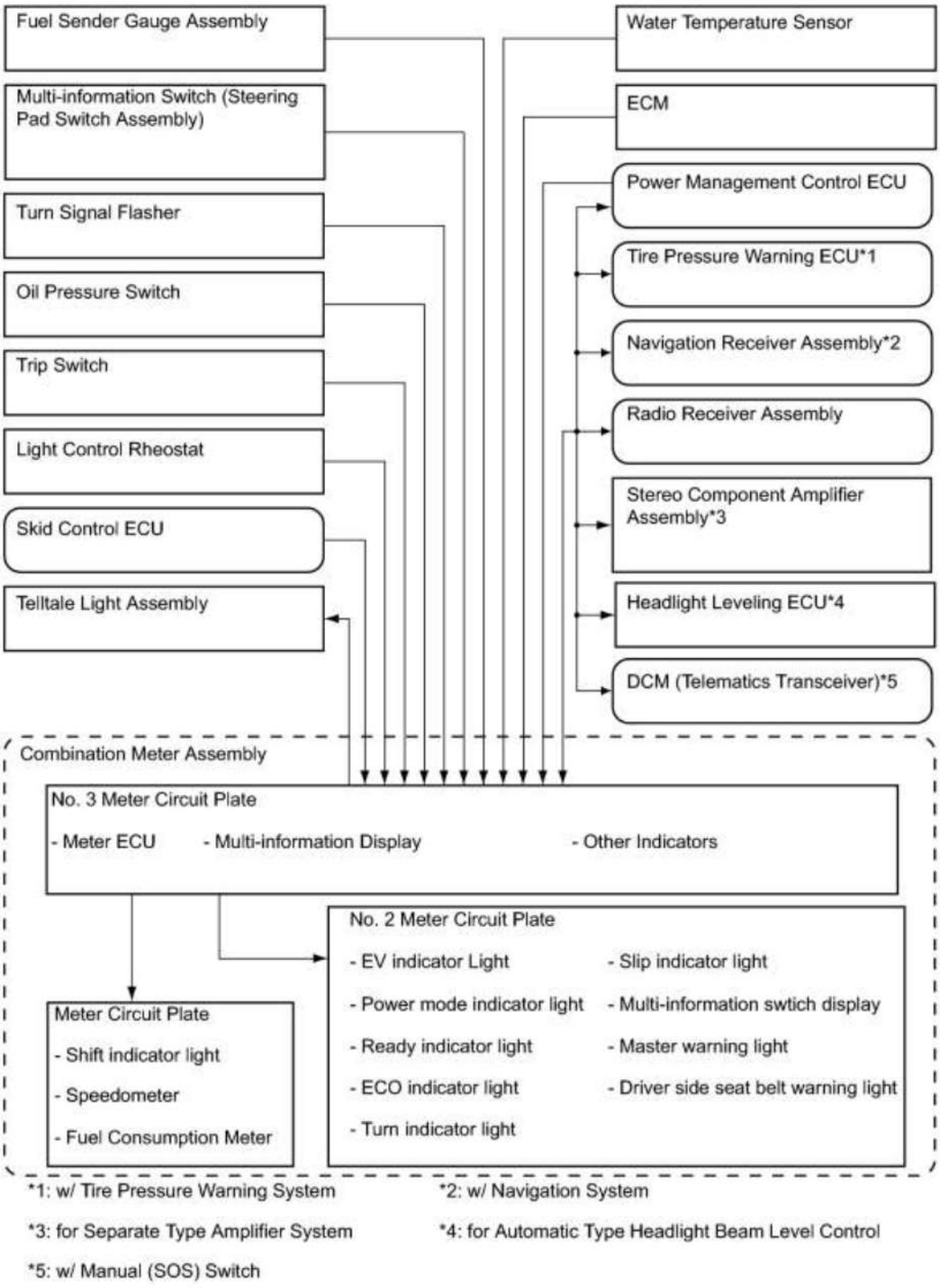
cardiagn.com

SYSTEM DIAGRAM



: CAN Communication Line

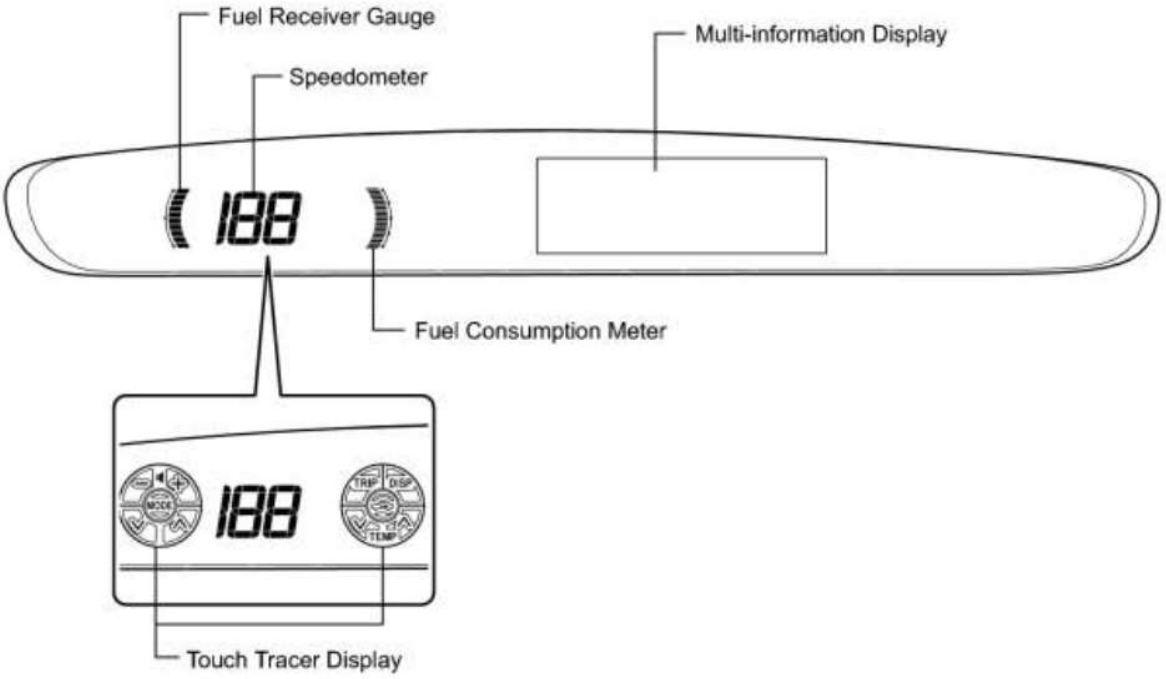
cardiagn.com



cardiagn.com

SYSTEM DESCRIPTION

1. OUTLINE OF COMBINATION METER ASSEMBLY



H

2. INPUT AND OUTPUT SIGNALS OF COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

(a) Meter or Gauge

Meter or Gauge	Communication Signal	Sender	Communication Line	Receiver
Speedometer	Vehicle speed	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Fuel receiver gauge	Fuel level	Fuel Sender Gauge Assembly	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
ODO/TRIP meter	ODO/TRIP change	Multi-information Switch (Steering Pad Switch Assembly)	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Unit change	Trip switch	Direct Line	
	ODO	Skid Control ECU	CAN (CAN No. 1 Bus)	

cardiagn.com

Meter or Gauge	Communication Signal	Sender	Communication Line	Receiver
Meter illumination	Illumination level	Light Control Rheostat	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Auto dimmer	Main Body ECU	CAN (CAN No. 1 Bus)	
	Tail cancel	Combination Meter Assembly (No. 3 Meter Circuit Plate)	CAN (CAN No. 1 Bus)	Main Body ECU
	Lounge illumination off			
	Illumination level	Combination Meter Assembly (No. 3 Meter Circuit Plate)	CAN (CAN No. 1 Bus)	Certification ECU (Smart Key ECU Assembly)

(b) Warning or Indicator

Warning or Indicator	Communication Signal	Sender	Communication Line	Receiver
Coolant temperature hot warning light	Coolant temperature hot warning light	ECM	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Coolant hot warning light	Water Temperature Sensor	Direct Line	
Turn indicator light	Turn indicator light	Turn Signal Flasher	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Fuel level warning light	Fuel level	Fuel Sender Gauge Assembly	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Brake warning light	Brake warning light	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Parking brake switch	Main Body ECU	CAN (CAN No. 1 Bus)	
Electrically controlled brake warning light	Electrically controlled brake warning	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
SRS warning light	SRS warning light	Center Airbag Sensor Assembly	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Open door warning light	Each door courtesy switch	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Charge warning light	Charge warning light	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
MIL (Check engine warning light)	MIL (Check engine warning light)	ECM	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)

cardiagn.com

Warning or Indicator	Communication Signal	Sender	Communication Line	Receiver
Driver side seat belt warning light	Driver side seat belt buckle switch	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
ABS warning light	ABS warning light	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EPS warning light	EPS warning light	Power Steering ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
SET indicator light	SET indicator light	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
LKA indicator light*1	LKA indicator light	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Headlight leveling indicator light*2	Headlight leveling indicator light	Headlight Leveling ECU	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Head indicator light*3	Head indicator light	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Tail indicator light*4	Taillight	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Slip indicator light	Slip indicator	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Cruise main indicator light	Cruise main indicator	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Cruise main indicator light	Cruise main indicator (Constant speed control mode)	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Cruise main indicator (Vehicle-to-vehicle distance control mode)*5			
Shift position indicator	Shift position	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Power mode indicator light	Power mode indicator light	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
PCS warning light*6	PCS warning	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3

cardiagn.com

Warning or Indicator	Communication Signal	Sender	Communication Line	Receiver
				Meter Circuit Plate)
Tire pressure warning light*7	Tire pressure warning	Tire Pressure Warning ECU	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Front fog indictor light	Front fog indicator	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Security indicator light	Security indicator light	Certification ECU (Smart Key ECU Assembly)	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
ECO mode indicator light	ECO mode indicator	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV indicator light	EV indicator	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Ready indicator light	Ready indicator	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Master warning light	Each system warning	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
		Power Steering ECU		
		Certification ECU (Smart Key ECU Assembly)		
		Center Airbag Sensor Assembly		
		Power Management Control ECU		
		Main Body ECU		
		Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	
		Headlight Leveling ECU		
		Tire Pressure Warning ECU*7	CAN (CAN MS Bus)	

- *1: w/ Lane-keeping Assist System
- *2: w/ Automatic Type Headlight Beam Level Control
- *3: for U.S.A.
- *4: except U.S.A.
- *5: w/ Dynamic Radar Cruise Control System
- *6: w/ Pre-collision System
- *7: w/ Tire Pressure Warning System

cardiagn.com

(c) Cruise Information Display

Cruise Information Display	Communication Signal	Sender	Communication Line	Receiver
Average fuel consumption (1 minute/5 minutes)	Fuel injection	ECM	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Vehicle speed	Skid Control ECU	CAN (CAN No. 1 Bus)	
	ODO			
	Multi-information switch	Multi-information Switch (Steering Pad Switch Assembly)	Direct Line	
Average vehicle speed	Vehicle speed	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	ODO			
	Multi-information switch	Multi-information Switch (Steering Pad Switch Assembly)	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Average fuel consumption after power switch on	Fuel injection	ECM	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Vehicle speed	Skid Control ECU	Direct Line	
	ODO		CAN (CAN No. 1 Bus)	
	Multi-information switch	Multi-information Switch (Steering Pad Switch Assembly)	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Hybrid System Indicator	Eco-zone indicator level	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
ECO Driving Indicator Light	Ecology Lamp Indicator signal	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Power mode indicator status			
	EV indicator			
	Shift position			
	Motor inverter high temperature warning			
	Hybrid system warning			
	Vehicle speed signal	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Lowest fuel consumption	Engine speed	ECM	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Fuel injection			
	Vehicle speed	Skid Control ECU	Direct Line	

cardiagn.com

Cruise Information Display	Communication Signal	Sender	Communication Line	Receiver
	Vehicle speed		CAN (CAN No. 1 Bus)	
Driving range	Engine speed	ECM	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Fuel injection			
	Engine variation			
	Vehicle speed	Skid Control ECU	Direct Line	
	Vehicle speed		CAN (CAN No. 1 Bus)	
	Destination	Main Body ECU	CAN (CAN No. 1 Bus)	
	Fuel level	Fuel Sender Gauge Assembly	Direct Line	
Multi-information display change	Multi-information switch	Multi-information Switch (Steering Pad Switch Assembly)	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Energy flow display	Energy flow	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)

(d) Multi-information Display Message

Multi-information Display Message	Communication Signal	Sender	Communication Line	Receiver
Multi-information display change	Multi-information switch	Multi-information switch (Steering Pad Switch Assembly)	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Brake! message	Brake! message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Maintenance mode message	Maintenance mode message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Certification mode message	Certification mode message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Adjusting LKA camera message*1	Adjusting LKA camera message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)

cardiagn.com

Multi-information Display Message	Communication Signal	Sender	Communication Line	Receiver
Check LKA system message*1	Check LKA system message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
LKA not available message*1	LKA not available message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Clean radar sensor message*2	Clean radar sensor message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Adjusting front radar beam message*2	Adjusting front radar beam message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Checking cruise control C/D message	Checking cruise control C/D message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Checking cruise control brake message	Checking cruise control brake message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Cruise not available message	Cruise not available message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Check PCS system message*3	Check PCS system message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
PCS temporary not available message*3	PCS temporary not available message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Precrash brake OFF message*3	Precrash brake OFF message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Check cruise control system message	Check cruise control system message	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Auto power off to	Auto power off to conserve	Power	CAN (CAN No.	Combination

cardiagn.com

Multi-information Display Message	Communication Signal	Sender	Communication Line	Receiver
conserve battery message	battery message	Management Control ECU	1 Bus)	Meter Assembly (No. 3 Meter Circuit Plate)
Turn power off message	Turn power off message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Shift to [P] position message	Shift to [P] position message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
		Certification ECU (Smart Key ECU Assembly)		
Shift to [P] position when parked message	Shift to [P] position when parked message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Low traction battery HV battery is not charged in neutral N message	Low traction battery HV battery is not charged in neutral N message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
[P] lock malfunction when parking. Park in flat place and apply parking brake securely message	[P] lock malfunction when parking. Park in flat place and apply parking brake securely message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
		Transmission Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Check hybrid system message	Check hybrid system message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Check stop light system message	Check stop light system message	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Engine oil pressure low message	Engine oil pressure low message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
		Oil Pressure Switch	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)

cardiagn.com

Multi-information Display Message	Communication Signal	Sender	Communication Line	Receiver
Shift to [P] position and push power switch turn off message	Shift to [P] position and push power switch turn off message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Key detected in vehicle message	Key detected in vehicle message	Certification ECU (Smart Key ECU Assembly)	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Depress brake pedal, touch power switch with key message	Depress brake pedal, touch power switch with key message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Depress brake pedal and push power switch to start message	Depress brake pedal and push power switch to start message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Shift to [P] position to start message	Shift to [P] position to start message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Key battery low message	Key battery low message	Certification ECU (Smart Key ECU Assembly)	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Key not detected message	Key not detected message	Certification ECU (Smart Key ECU Assembly)	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Hybrid system overheat message	Hybrid system overheat message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Check headlight system message	Check headlight system message	Headlight Leveling ECU Assembly	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Oil maintenance required soon message*4	ODO	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Oil maintenance required message*4	ODO	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Resetting oil	ODO	Skid Control ECU	CAN (CAN No.	Combination

cardiagn.com

Multi-information Display Message	Communication Signal	Sender	Communication Line	Receiver
maintenance data message*4			1 Bus)	Meter Assembly (No. 3 Meter Circuit Plate)
Oil maintenance reset unfinished message*4	ODO	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode currently not available message	EV mode currently not available message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode currently not available warming up message	EV mode currently not available warming up message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode currently not available low battery message	EV mode currently not available low battery message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode currently not available excessive speed message	EV mode currently not available excessive speed message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode currently not available excessive acceleration message	EV mode currently not available excessive acceleration message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode deactivated message	EV mode deactivated message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode deactivated not low battery message	EV mode deactivated not low battery message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode deactivated excessive speed message	EV mode deactivated excessive speed message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
EV mode deactivated excessive acceleration message	EV mode deactivated excessive acceleration message	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)

- *1: w/ Lane-keeping Assist System

cardiagn.com

- *2: w/ Dynamic Radar Cruise Control System
- *3: w/ Pre-collision System
- *4: for U.S.A.

(e) Buzzer

Buzzer	Communication Signal	Sender	Communication Line	Receiver
Key reminder buzzer	Driver side door courtesy switch	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Power switch			
Shift down reject buzzer	Shift down reject buzzer	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Seat belt warning buzzer	Driver side seat belt buckle switch	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Front passenger side door courtesy switch			
	Driver side door courtesy switch			
	Parking brake switch			
	Front passenger side seat belt buckle switch	Center Airbag Sensor Assembly	CAN (CAN No. 1 Bus)	
	Shift position R	Power Management Control ECU	CAN (CAN No. 1 Bus)	
	Shift position P			
	Vehicle speed	Skid Control ECU	CAN (CAN No. 1 Bus)	
Driving with any door opened warning buzzer	Vehicle speed	Skid Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Each door courtesy switch	Main Body ECU		
Smart key warning buzzer	Power switch	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Engine immobiliser certification buzzer	Certification complete	Certification ECU (Smart Key ECU Assembly)	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Driving with parking brake unreleased warning buzzer	Parking brake switch	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Vehicle speed	Skid Control ECU	CAN (CAN No. 1 Bus)	
Sliding roof open warning*1	Sliding roof open warning buzzer request	Main Body ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
Dynamic radar cruise control low speed	Dynamic radar cruise control low speed	Driving Support ECU Assembly	CAN (CAN No. 2 Bus)	Combination Meter Assembly (No. 3

cardiagn.com

Buzzer	Communication Signal	Sender	Communication Line	Receiver
cancel buzzer*2	cancel			Meter Circuit Plate)
NDB warning buzzer	NDB warning buzzer	Power Management Control ECU	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)

- *1: w/ Sliding Roof
- *2: w/ Dynamic Radar Cruise Control System

(f) Others

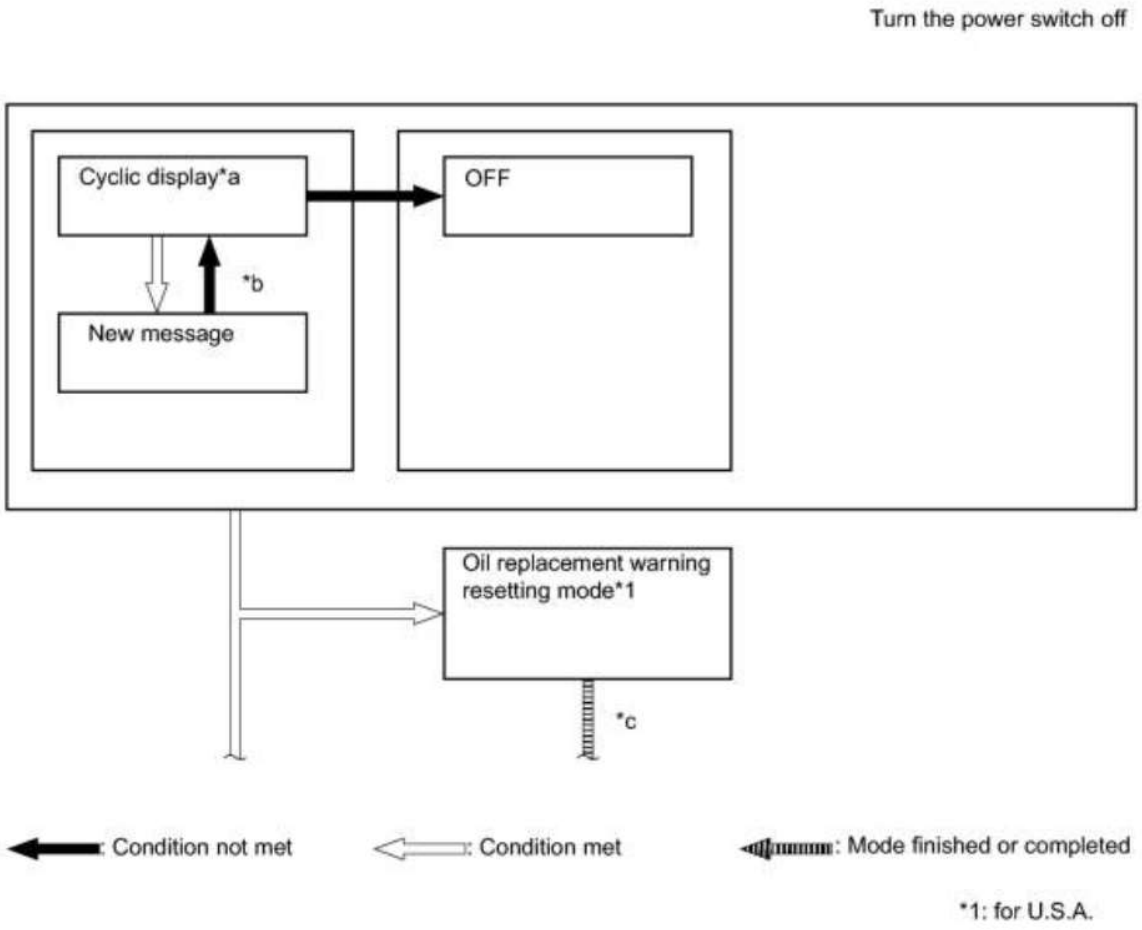
Signal	Communication Signal	Sender	Communication Line	Receiver
Vehicle speed signal	Vehicle speed	Skid Control ECU	Direct Line	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Vehicle speed	Combination Meter Assembly (No. 3 Meter Circuit Plate)	Direct Line	Radio Receiver Assembly
				Navigation Receiver Assembly*1
				Stereo Component Amplifier Assembly*2
				Power Management Control ECU
				Tire Pressure Warning ECU*3
				Headlight Leveling ECU Assembly*4
				DCM (Telematics Transceiver)*5
Front passenger side seat belt warning light	Front passenger side seat belt buckle switch	Center Airbag Sensor Assembly	CAN (CAN No. 1 Bus)	Combination Meter Assembly (No. 3 Meter Circuit Plate)
	Front passenger side seat belt warning light	Combination Meter Assembly (No. 3 Meter Circuit Plate)	Direct Line	Telltale Light Assembly

- *1: w/ Navigation System
- *2: for Separate Type Amplifier System
- *3: w/ Tire Pressure Warning System
- *4: for Automatic Type Headlight Beam Level Control
- *5: w/ Manual (SOS) Switch

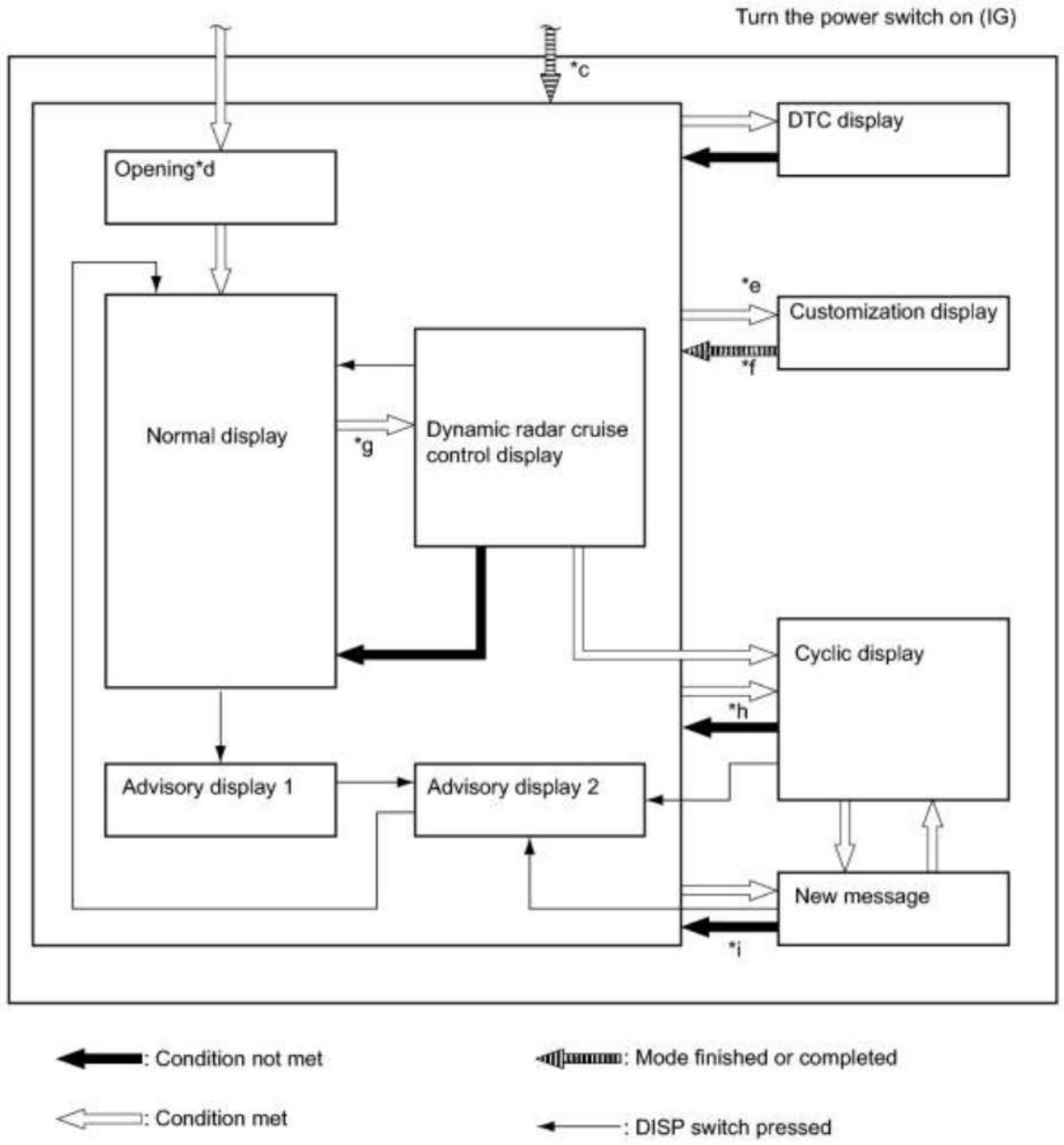
3. MULTI-INFORMATION DISPLAY FLOW CHART

cardiagn.com

(a) Multi-information display flow chart



cardiagn.com



Display Shifting Condition:

No.	Display Shifting Condition
*a	Display cycles between messages.
*b	Conditions are not met and all new messages have been displayed.
*c	Mode has completed or reset mode is interrupted.
*d	If the power switch turned off, then on (IG) during the opening, then the opening display will be shown

cardiagn.com

No.	Display Shifting Condition
	from the beginning.
*e	Conditions are met and vehicle speed is less than 8 km/h (5 mph).
*f	Conditions for displaying new messages other than the door open warning are met, or the vehicle speed is more than 8 km/h (5 mph).
*g	Mode has completed and conditions for dynamic radar cruise display are met.
*h	Up or down switch is not operated for more than 6 seconds.
*i	The advisory display will be shown as the last of the normal displays.

4. EACH WARNING DISPLAY

(a) Each warning display for combination meter assembly

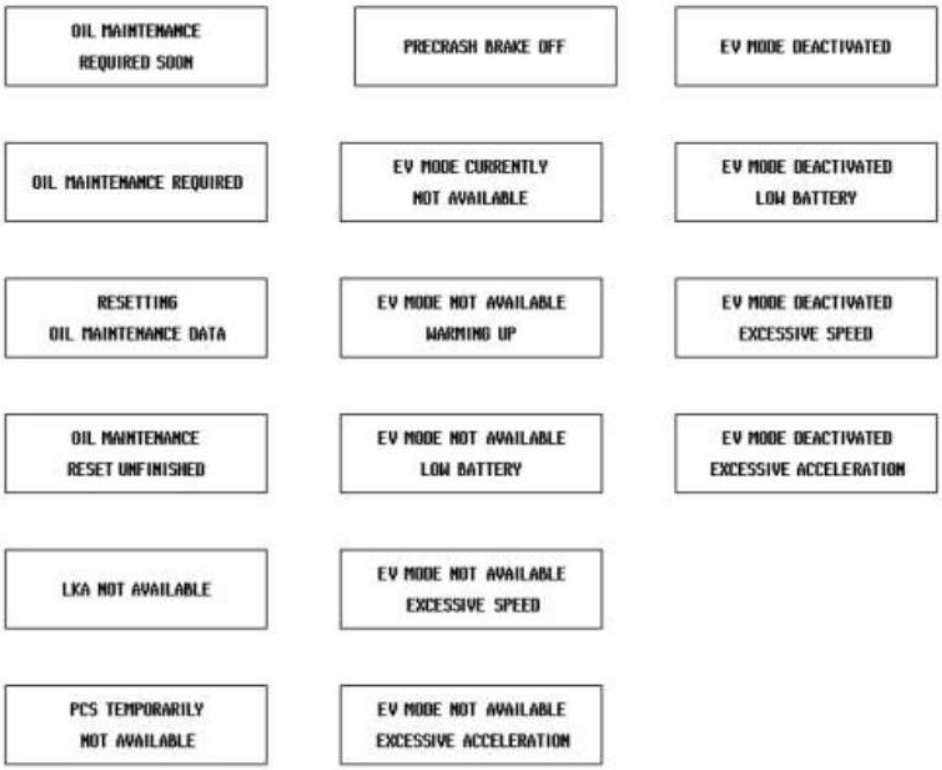
HINT:

Illustrations may differ from the actual screen displayed depending on the specifications of the vehicle.

cardiagn.com



cardiagn.com



5. LED INITIAL CHECK

(a) Check the illumination function of the warning or indicator lights listed below when turning the power switch on (IG).

OK:

Warning or Indicator Light	Specified Condition
PCS*1, Tire pressure*2, ECO mode, Master, Coolant temperature hot	Warning or indicator light comes on for about 3 seconds after turning the power switch on (IG).
SRS	Warning light comes on for about 6 seconds after turning the power switch on (IG).
Charge, MIL (Check engine), EPS,	Indicator or warning light comes on when turning the power switch on (IG) before hybrid system starts.
Brake, ABS, Slip, Electrically controlled brake	• Indicator or warning light comes on when turning the power switch on (IG) before hybrid system starts.*3 • Indicator or warning light comes on when turn the power switch off to on (READY) for 3 seconds, then goes off.

- *1: w/ Pre-collision System

cardiagn.com

- *2: w/ Tire Pressure Warning System
- *3: When turning the power switch on (IG), if it takes 3 seconds or more for the READY indicator light to illuminate, the warning or indicator light turns off right after the READY indicator light illuminates.

cardiagn.com

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Perform troubleshooting according to the following flow chart.
- *: Use the Techstream.

1.	VEHICLE BROUGHT TO WORKSHOP

NEXT

2.	CUSTOMER PROBLEM ANALYSIS

NEXT

3.	CHECK CAN COMMUNICATION SYSTEM*

(a) Check for DTC output INFO.

Result:

Result	Proceed to
No CAN DTC is output	A
CAN DTC is output	B

B INFO GO TO CAN COMMUNICATION SYSTEM

A

4.	PROBLEM SYMPTOM CONFIRMATION

NEXT

5.	SYMPTOM SIMULATION

NEXT

6.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO.

NEXT

7.	CIRCUIT INSPECTION

NEXT

8.	REPAIR OR REPLACE

NEXT

cardiagn.com

9.	CONFIRMATION TEST

NEXT ▶ **END**

cardiagn.com

CUSTOMIZE PARAMETERS

1. METER/GAUGE SYSTEM

(a) Combination Meter

NOTICE:

- Be sure to record the current value before customizing.

HINT:

The following items can be customized using the Techstream.

Warning

Tester Display	Default	Content	Setting
Key Remind Sound	Slow	Function to change the cycle of the key reminder buzzer	Normal, Fast or Slow
Driver Side Seatbelt Warning Buzzer*1	ON	Function to turn on/off the seat belt warning buzzer	ON or OFF
Front Passenger Side Seatbelt Warning Buzzer*1	ON	Function to turn on/off the seat belt warning buzzer	ON or OFF
Rear Seatbelt Warning Buzzer*2	ON	Function to turn on/off the rear seat belt warning buzzer	ON or OFF
Reverse Buzzer	Continual	Function to change the type of the reverse warning buzzer	Single or Continual

- *1: This setting is only valid for the buzzer which sounds at 20 km/h (12 mph) or more.
- *2: w/ Rear Seat Belt Warning

cardiagn.com

INITIALIZATION

1. OIL MAINTENANCE WARNING RESETTING PROCEDURE

HINT:

The ODO/TRIP change switch is located on the left side of the multi-information switch (steering pad switch assembly).

(a) Turn the power switch on (IG).

(b) Press the ODO/TRIP change switch until the TRIP A meter appears.

(c) Turn the power switch off.

(d) Turn the power switch on (IG) while pressing and holding the unit change switch. Hold the unit change switch until the following conditions are met and 5 seconds have elapsed.

(1) The TRIP A meter shows "-----".

(2) The TRIP A meter shows "COMPLETE".

(3) The master warning light illuminates.

(4) When "COMPLETE" disappears and the master warning light turns off, the resetting procedure is complete.

cardiagn.com

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptom are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Entire System

Symptom	Suspected Area	See page
Entire combination meter assembly does not operate.	Power Source Circuit	INFO
Meter illumination is always dark.	Meter Illumination Circuit	INFO
Meter illumination does not dim at night.	Meter Illumination Circuit	INFO
Operating light control rheostat does not change light brightness.	Light Control Rheostat Circuit	INFO
Trip switch malfunction	Trip Switch Circuit	INFO

Meter or Gauge

Symptom	Suspected Area	See page
Speedometer malfunction	Speedometer Circuit	INFO
Fuel receiver gauge malfunction	Fuel Receiver Gauge Circuit	INFO

Warning Light or Indicator Light

Symptom	Suspected Area	See page
Hybrid System Indicator malfunction	Power Management Control ECU	-
	CAN Communication System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
High beam indicator light does not come on.	Combination Meter Assembly (LED)	INFO
	Lighting System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Turn indicator light malfunction	Lighting System	INFO
	Wire Harness or Connector	-
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Fuel level warning light does not come on.	Combination Meter Assembly (LED)	INFO

cardiagn.com

Symptom	Suspected Area	See page
	Wire Harness or Connector	-
	Fuel Sender Gauge Assembly	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Brake warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Main Body ECU	INFO
	Brake Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Brake warning light does not go off.	Combination Meter Assembly (LED)	INFO
	Main Body ECU	INFO
	Brake Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
SRS warning light does not come on.	Combination Meter Assembly (LED)	INFO
	SRS Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
SRS warning light does not go off.	Combination Meter Assembly (LED)	INFO
	SRS Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
ECO Driving Indicator Light malfunction	Combination Meter Assembly (LED)	INFO
	CAN Communication System	-
	Power Management Control ECU	-
	Skid Control ECU	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Open door warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Door Courtesy Switch	INFO
	Main Body ECU	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Charge warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Power Management Control ECU	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
MIL (Check engine warning light) malfunction	MIL Circuit	INFO
	Combination Meter Assembly (No. 3	INFO

cardiagn.com

Symptom	Suspected Area	See page
	Meter Circuit Plate)	
Driver side seat belt warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Driver Side Seat Belt Warning Light Circuit	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
ABS warning light does not come on.	Combination Meter Assembly (LED)	INFO
	ABS Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
ABS warning light does not go off.	Combination Meter Assembly (LED)	INFO
	ABS Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EPS warning light malfunction	Combination Meter Assembly (LED)	INFO
	EPS Warning Light Circuit (for Blushless Type Motor)	INFO
	EPS Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Slip indicator light does not come on.	Combination Meter Assembly (LED)	INFO
	Slip Indicator Light Circuit	INFO
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Slip indicator light does not go off.	Combination Meter Assembly (LED)	INFO
	Slip Indicator Light Circuit	INFO
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

cardiagn.com

Symptom	Suspected Area	See page
Cruise main indicator light does not come on.	Combination Meter Assembly (LED)	INFO
	Cruise Main Indicator Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Cruise main indicator light malfunction (w/ Dynamic Radar Cruise Control System)	Combination Meter Assembly (LED)	INFO
	Dynamic Radar Cruise Control System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Master warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Shift indicator light does not come on.	Combination Meter Assembly (LED)	INFO
	Power Management Control ECU	-
	Combination Meter Assembly (No. 4 Meter Circuit Plate)	INFO
	Combination Meter Assembly (Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Head indicator light malfunction (for U.S.A.)	Combination Meter Assembly (LED)	INFO
	Lighting System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Tail indicator light does not come on. (except U.S.A.)	Combination Meter Assembly (LED)	INFO
	Wire Harness or Connector	-
	EPS Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
ECO Driving Indicator Light malfunction	Combination Meter Assembly (LED)	INFO
	CAN Communication System	-
	Power Management Control ECU	-
	Skid Control ECU	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
PCS warning light malfunction (w/ Pre-collision System)	Combination Meter Assembly (LED)	INFO

cardiagn.com

Symptom	Suspected Area	See page
	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Tire pressure warning light malfunction (w/ Tire Pressure Warning System)	Combination Meter Assembly (LED)	INFO
	Tire Pressure Warning System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Electrically controlled brake warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Electrically Controlled Brake Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Electrically controlled brake warning light does not go off.	Combination Meter Assembly (LED)	INFO
	Electrically Controlled Brake Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
ECO mode indicator light malfunction	Combination Meter Assembly (LED)	INFO
	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Ready indicator light malfunction	Combination Meter Assembly (LED)	INFO
	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV indicator light malfunction	Combination Meter Assembly (LED)	INFO
	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 5 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 2 Meter Circuit Plate)	INFO
	Combination Meter Assembly (No. 3	INFO

cardiagn.com

Symptom	Suspected Area	See page
	Meter Circuit Plate)	
Power mode indicator light malfunction	Combination Meter Assembly (LED)	INFO
	Hybrid Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Set indicator light malfunction (w/ Dynamic Radar Cruise Control)	Combination Meter Assembly (LED)	INFO
	Dynamic Radar Cruise Control System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
LKA indicator light malfunction (w/ Lane-keeping Assist System)	Combination Meter Assembly (LED)	INFO
	Lane-keeping Assist System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Headlight leveling indicator light malfunction (w/ Automatic Type Headlight Beam Level Control)	Combination Meter Assembly (LED)	INFO
	Wire Harness or Connector	-
	Lighting System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Coolant hot warning light malfunction	Combination Meter Assembly (LED)	INFO
	Wire Harness or Connector	-
	Exhaust Heat Recirculation System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Security indicator light malfunction	Wire Harness or Connector	-
	Theft Deterrent System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

Cruise Information Display

Symptom	Suspected Area	See page
Average vehicle speed display malfunction	Skid Control ECU	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Driving range display malfunction	Hybrid Vehicle Control System	-
	Skid Control ECU	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Average fuel consumption display or average fuel	Hybrid Vehicle Control System	-

cardiagn.com

Symptom	Suspected Area	See page
consumption after refueling display malfunction	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Current fuel consumption display malfunction	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Average vehicle speed display malfunction	Skid Control ECU	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Driving time display malfunction	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Energy flow display malfunction	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Operating multi-information switch does not change multi-information display.	Multi-information Switch (Steering Pad Switch Assembly)	INFO
	Wire Harness or Connector	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

Multi-information Display

Symptom	Suspected Area	See page
Multi-information display does not light up (Combination meter assembly operates normally).	Combination Meter Assembly (Multi-information Display)	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Multi-information display malfunction (All warning displays come on, cruise information display does not come on and outside temperature display indicates "F".) (for U.S.A.)	CAN Communication System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Multi-information display malfunction (All warning displays come on, cruise information display does not come on and outside temperature display indicates "C".) (except U.S.A.)	CAN Communication System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Oil maintenance required soon is displayed, not displayed, or not displayed correctly. (for U.S.A.)	Oil Maintenance Reminder Reset Procedure Undone	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Oil maintenance required is displayed, not displayed, or not displayed correctly. (for U.S.A.)	Oil Maintenance Reminder Reset Procedure Undone	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Resetting oil maintenance data is displayed, not displayed, or not displayed correctly. (for U.S.A.)	Oil Maintenance Reminder Reset Procedure Undone	INFO

cardiagn.com

Symptom	Suspected Area	See page
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Oil maintenance reset unfinished is displayed, not displayed, or not displayed correctly. (for U.S.A.)	Oil Maintenance Reminder Reset Procedure Undone	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Brake! message is displayed, not displayed, or not displayed correctly.	Skid Control ECU	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Engine oil pressure low message is displayed, not displayed, or not displayed correctly.	Oil Pressure Switch	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Key not detected message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Key battery low message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Depress brake pedal touch power switch with key message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Shift to P position and push power switch to turn power off message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Check stop light system message is displayed, not displayed, or not displayed correctly.	Vehicle Stability Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Key detected in vehicle message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Depress brake pedal and push power switch to start message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Checking cruise control C/D message is displayed, not displayed, or not displayed correctly. (w/ Dynamic Radar Cruise Control System)	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Checking cruise control brake message is displayed, not displayed, or not displayed correctly. (w/ Dynamic Radar Cruise Control System)	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly	INFO

cardiagn.com

Symptom	Suspected Area	See page
	(No. 3 Meter Circuit Plate)	
Check PCS system message is displayed, not displayed, or not displayed correctly. (w/ Pre-collision System)	Pre-collision System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
PCS temporarily not available message is displayed, not displayed, or not displayed correctly. (w/ Pre-collision System)	Pre-collision System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Precrash brake off message is displayed, not displayed, or not displayed correctly. (w/ Pre-collision System)	Pre-collision System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Shift to P position message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Shift to P position to start message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Turn power off message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Maintenance mode message display is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Certification mode message display is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Hybrid system overheat message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Check hybrid system message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Check brake system message is displayed, not displayed, or not displayed correctly.	Electrically Controlled Brake System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Check headlight system message is displayed, not displayed, or not displayed correctly.	Lighting System	INFO
	Combination Meter Assembly	INFO

cardiagn.com

Symptom	Suspected Area	See page
	(No. 3 Meter Circuit Plate)	
Check LKA system is displayed, not displayed, or not displayed correctly. (w/ Lane-keeping Assist System)	Lane-keeping Assist System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
LKA not available is displayed, not displayed, or not displayed correctly. (w/ Lane-keeping Assist System)	Lane-keeping Assist System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode not available warming up message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode not available low battery message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode not available excessive speed message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode not available excessive acceleration message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode currently not available message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode deactivated low battery message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode deactivated excessive speed message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode deactivated excessive acceleration message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
EV mode deactivated message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-

cardiagn.com

Symptom	Suspected Area	See page
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Adjusting LKA camera message is displayed, not displayed, or not displayed correctly. (w/ Lane-keeping Assist System)	Lane-keeping Assist System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Adjusting front radar beam message is displayed, not displayed, or not displayed correctly. (w/ Dynamic Radar Cruise Control System)	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Shift to [P] position when parked message is displayed, not displayed, or not displayed correctly.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Low traction battery shift to P position message is not charged in neutral N is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
[P] lock malfunction when parking. Park in flat place and apply parking brake securely message is displayed, not displayed, or not displayed correctly.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Clean radar sensor message is displayed, not displayed, or not displayed correctly. (w/ Dynamic Radar Cruise Control System)	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Cruise not available message is displayed, not displayed, or not displayed correctly.	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

Buzzer

Symptom	Suspected Area	See page
All the buzzer does not operate.	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Seat belt warning buzzer does not operate.	Seat Belt Warning Buzzer ON/OFF Setting	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Shift down reject buzzer does not operate.	Hybrid Transaxle System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Key reminder buzzer does not operate.	Smart Key System	-

cardiagn.com

Symptom	Suspected Area	See page
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Sliding roof open warning buzzer does not operate. (w/ Sliding Roof)	Sliding Roof Control System	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Driving with parking brake unreleased warning buzzer does not operate.	Parking Brake Switch	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Driving with any door opened warning buzzer does not operate.	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Smart key system buzzer does not sound.	Smart Key System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Engine immobiliser certification buzzer does not operate.	Engine Immobiliser System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
Dynamic radar cruise control cancel buzzer does not operate. (w/ Dynamic Radar Cruise Control System)	Dynamic Radar Cruise Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
NDB warning buzzer does not operate.	Hybrid Vehicle Control System	-
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

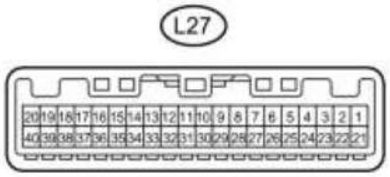
Others

Symptom	Suspected Area	See page
Front passenger side seat belt warning light does not come on.	Combination Meter Assembly (LED)	INFO
	Front Passenger Side Seat Belt Warning Light Circuit	INFO
	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO
	Telltale Light Assembly	INFO
Other systems that use the speed signal do not operate normally.	Speed Signal Circuit	INFO
Customizable parameters cannot be changed (Customizable parameters can be changed by using the Techstream).	Combination Meter Assembly (No. 3 Meter Circuit Plate)	INFO

cardiagn.com

TERMINALS OF ECU

1. COMBINATION METER ASSEMBLY



H

(a) Measure the voltage and resistance according to the value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L27-2 (TC O) - Body ground	G - Body ground	Trip switch signal (Unit change switch)	Unit change switch not pressed	11 to 14 V
			Unit change switch pressed	Below 1 V
L27-3 (TIRE)*1 - Body ground	G - Body ground	Tire pressure warning light signal	Power switch on (IG), tire pressure warning light off	3.2 V or higher
			Power switch on (IG), tire pressure warning light blinks	Below 3.2 V
L27-5 (S) - Body ground	R - Body ground	Oil pressure switch signal	Power switch on (IG), oil pressure warning display off	Below 1 V
			Power switch on (IG), oil pressure warning display comes on	11 to 14 V
L27-6 (LVWG) - Body ground	L - Body ground	Headlight leveling indicator light signal	Power switch on (IG), headlight leveling indicator light off	11 to 14 V
			Power switch on (IG), headlight leveling indicator light blinks	Below 1 V ←→ 11 to 14 V
L27-7 (+S) - Body ground	V - Body ground	Speed signal for other systems (Output)	Power switch on (IG), front wheel turns slowly	Pulse generation (See waveform 1)
L27-8 (SI) - Body ground	V - Body ground	Speed signal (Input)	Power switch on (IG), front wheel turns slowly	Pulse generation (See waveform 1)
L27-9 (E2) - Body ground	G - Body ground	Ground (Water temperature sensor ground)	Always	Below 1 Ω

cardiagn.com

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L27-10 (CANH) - Body ground	P - Body ground	CAN communication signal	Power switch off	200 Ω or higher
L27-11 (CANL) - Body ground	W - Body ground	CAN communication signal	Power switch off	200 Ω or higher
L27-12 (HOUR) - Body ground	B - Body ground	Trip switch signal (Hour adjust switch)	Hour adjust switch not pressed	11 to 14 V
			Hour adjust switch pressed	Below 1 V
L27-13 (MIN) - Body ground	B - Body ground	Trip switch signal (Minute adjust switch)	Minute adjust switch not pressed	11 to 14 V
			Minute adjust switch pressed	Below 1 V
L27-14 (L) - Body ground	B - Body ground	Fuel level signal	Power switch on (IG), fuel level warning light off	Below 1 V
			Power switch on (IG), fuel level warning light on	3 to 7 V
L27-15 (ES2) - Body ground	W - Body ground	Ground	Always	Below 1 Ω
L27-16 (TWS3) - Body ground	B - Body ground	Water temperature sensor signal	Power switch on (IG), coolant temperature below 113°C (235°F)	0.2 to 4.8 V
			Power switch on (IG), coolant temperature below 120°C (248°F) or more	Below 0.15 V
L27-17 (RST) - Body ground	R - Body ground	Trip switch signal (Set switch)	Set switch not pressed	11 to 14 V
			Set switch pressed	Below 1 V
L27-18 (B) - Body ground	R - Body ground	Battery	Power switch off	11 to 14 V
L27-19 (IG+) - Body ground	L - Body ground	Power switch signal	Power switch off	Below 1 V
			Power switch on (IG)	11 to 14 V
L27-20 (IG2) - Body ground	G - Body ground	Power switch signal	Power switch off	Below 1 V
			Power switch on (IG)	11 to 14 V
L27-21 (PBLT) - Body ground	Y - Body ground	Front passenger side seat belt warning light signal	Power switch on (IG), front passenger side seat belt warning light off	11 to 14 V
			Power switch on (IG), front passenger side seat belt warning light blinks	Below 1 V ←→ 11 to 14 V
L27-22 (LP) - Body ground	B - Body ground	Security indicator light signal	Power switch on (IG), security indicator light off	Below 2 V
			Security indicator light blinks	Pulse generation
L27-25 (EFI) - Body ground	LG - Body ground	MIL (Check engine warning light) signal	Power switch on (IG), MIL (Check engine warning light)	11 to 14 V

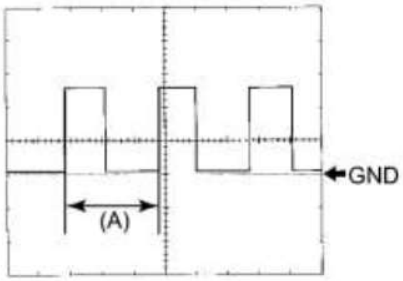
cardiagn.com

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
			off	
			Power switch on (IG), MIL (Check engine warning light) comes on	Below 1 V
L27-26 (B) - Body ground	Y - Body ground	Turn LH indicator light signal	Power switch on (IG), turn LH indicator light off	11 to 14 V
			Power switch on (IG), turn LH indicator light blinks	Below 1 V ←→ 11 to 14 V
L27-27 (B) - Body ground	G - Body ground	Turn RH indicator light signal	Power switch on (IG), turn RH indicator light off	11 to 14 V
			Power switch on (IG), turn RH indicator light blinks	Below 1 V ←→ 11 to 14 V
L27-29 (STRG) - Body ground	G - Body ground	Multi-information switch (steering pad switch assembly) signal	Always	Pulse generation
L27-30 (ES) - Body ground	BR - Body ground	Ground (Signal ground)	Always	Below 1 Ω
L27-35 (TC) - Body ground	G - Body ground	Light control rheostat signal (Tail cancel switch)	Power switch on (IG), light control rheostat position except below	1 to 6 V
			Power switch on (IG), turn the light control rheostat fully upwards	Below 1 V
L27-36 (SW1) - Body ground	B - Body ground	Light control rheostat signal	Always	4 to 6 V
L27-37 (SW2) - Body ground	B - Body ground	Light control rheostat signal	Power switch on (IG), light control rheostat except on tail cancel position	1 to 6 V (Gradually change)
L27-38 (SW3) - Body ground	R - Body ground	Light control rheostat signal (Rheostat ground)	Always	Below 1 Ω
L27-39 (RL) - Body ground	L - Body ground	Light control rheostat LED illumination signal	Power switch on (IG), light control rheostat LED illumination off	Below 1 V
			Power switch on (IG), light control rheostat LED illumination illuminates	4 to 6 V
L27-40 (RV) - Body ground	W - Body ground	Light control rheostat illumination signal	Power switch on (IG), light control rheostat illumination off	Below 1 V
			Power switch on (IG), light control rheostat illumination illuminates	4 to 6 V

cardiagn.com

- *1: w/ Tire Pressure Warning System

(b) Waveform 1 (Reference): Using an oscilloscope:



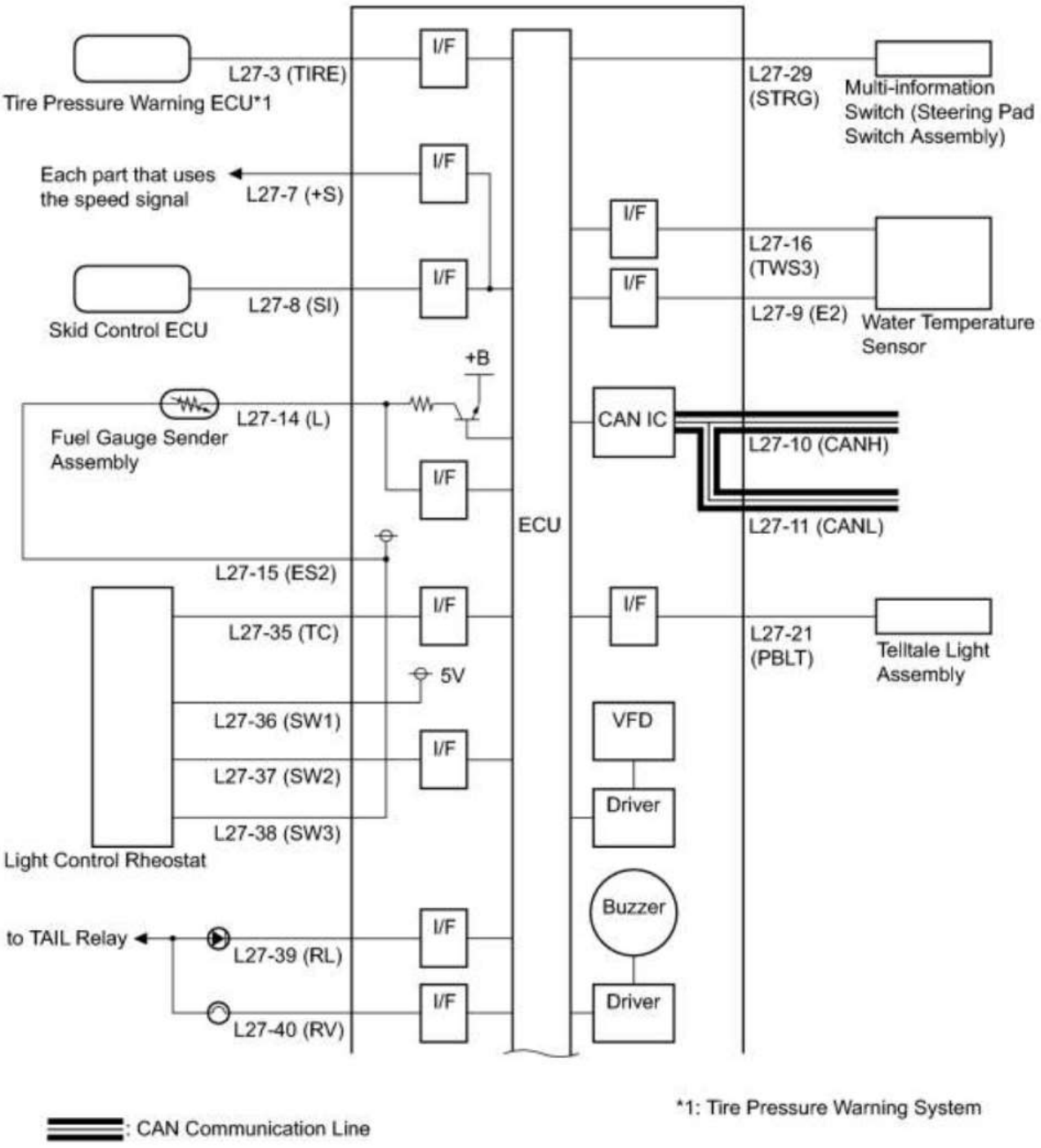
Item	Condition
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

HINT:

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

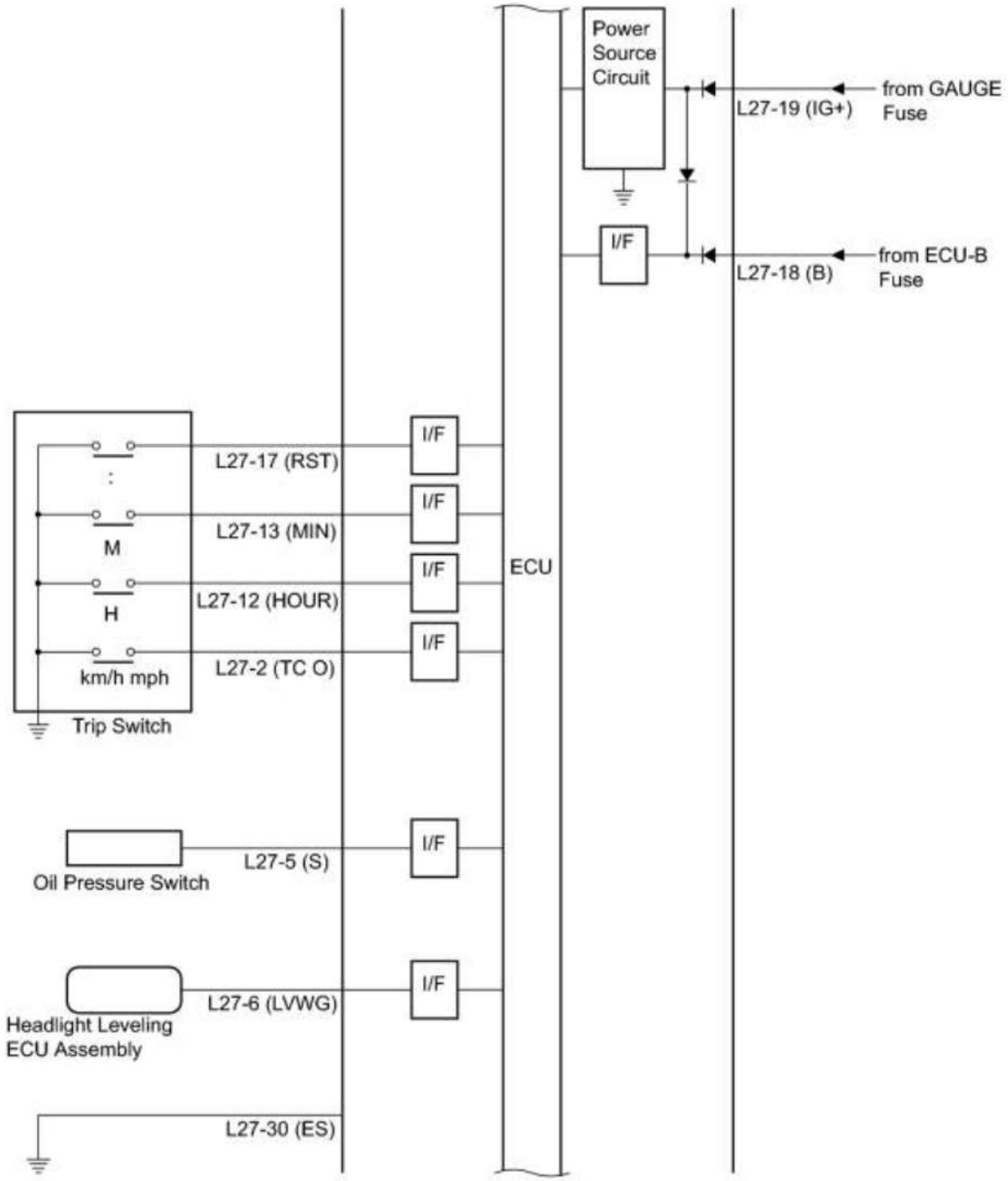
2. COMBINATION METER ASSEMBLY INNER CIRCUIT

cardiagn.com



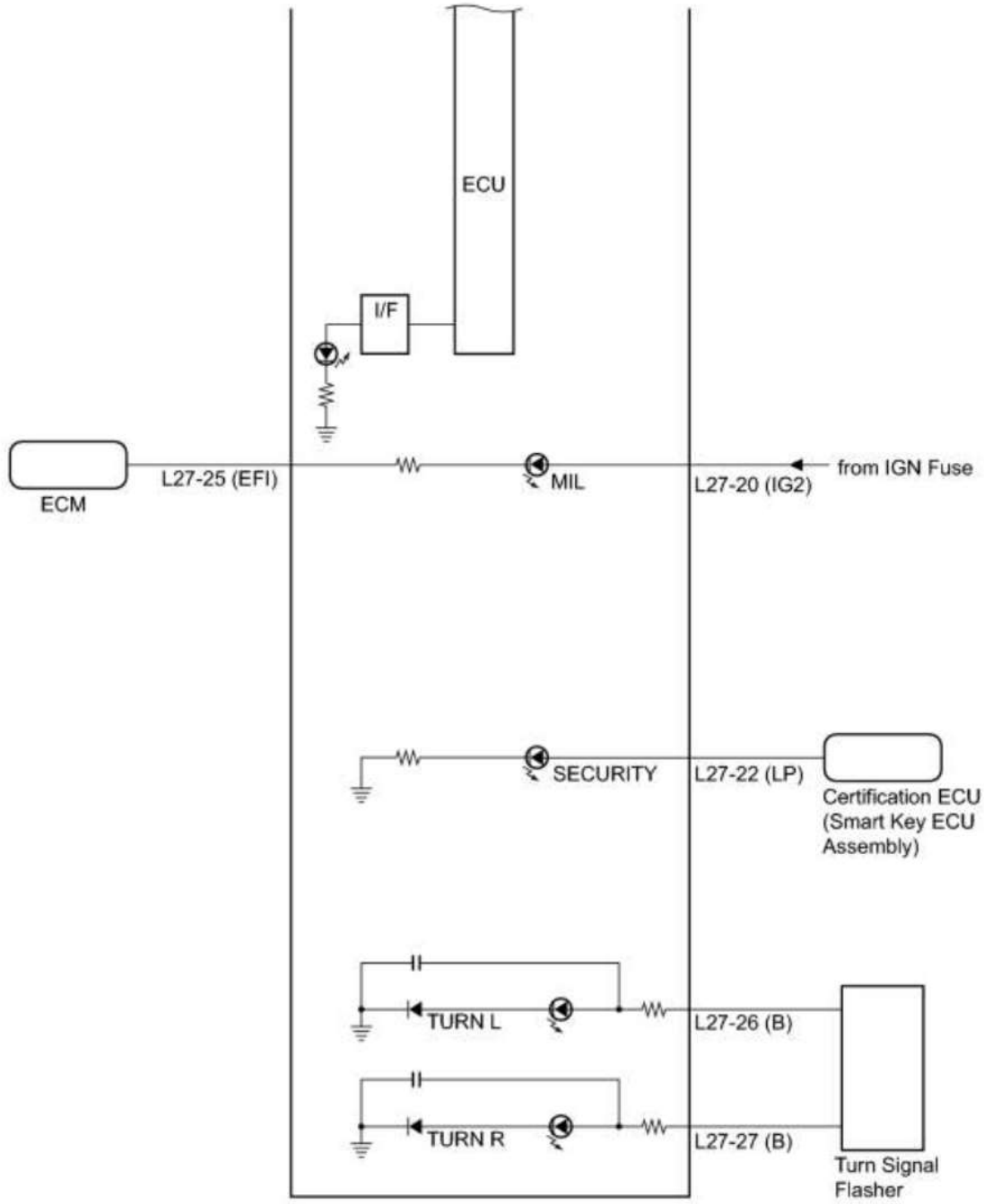
H

cardiagn.com



H

cardiagn.com



H

Terminal No. (Symbol)		Wire Harness Side
L27	1	-
	2 (TC O)	Trip Switch
	3 (TIRE)	Tire Pressure Warning ECU*1

cardiagn.com

Terminal No. (Symbol)	Wire Harness Side
4	-
5 (S)	Oil Pressure Switch
6 (LVWG)	Headlight Leveling ECU Assembly
7 (+S)	Each part that uses the speed signal
8 (SI)	Skid Control ECU
9 (E2)	Ground (Water Temperature Sensor Ground)
10 (CANH)	CAN Communication Line
11 (CANL)	CAN Communication Line
12 (HOUR)	Trip Switch
13 (MIN)	Trip Switch
14 (L)	Fuel Sender Gauge Assembly
15 (ES2)	Fuel Sender Gauge Assembly
16 (TWS3)	Water Temperature Sensor
17 (RST)	Trip Switch
18 (B)	ECU-B Fuse
19 (IG+)	GAUGE Fuse
20 (IG2)	IGN Fuse
21 (PBLT)	Telltale Light Assembly
22 (LP)	Certification ECU (Smart Key ECU Assembly)
23	-
24	-
25 (EFI)	ECM
26 (B)	Turn Signal Flasher
27 (B)	Turn Signal Flasher
28	-
29 (STRG)	Multi-information Switch (Steering Pad Switch Assembly)
30 (ES)	Ground
31	-
32	-
33	-
34	-
35 (TC)	Light Control Rheostat
36 (SW1)	Light Control Rheostat
37 (SW2)	Light Control Rheostat
38 (SW3)	Light Control Rheostat
39 (RL)	Each part that uses the illumination signal
40 (RV)	PANEL Fuse

cardiagn.com

- *1: w/ Tire Pressure Warning System

cardiagn.com

DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) Check the DLC3 INFO.

cardiagn.com

DTC CHECK / CLEAR

1. CHECK DTC

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Codes.

(e) Check for DTCs.

2. CLEAR DTC

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Code.

(e) Clear the DTCs.

cardiagn.com

FAIL-SAFE CHART

Engine Coolant Temperature Hot Warning Light

Condition	Response	Recovery
Engine coolant temperature data is interrupted for 3.1 seconds.	The warning light comes on.	Engine coolant temperature data is received.

Shift Indicator

Condition	Response	Recovery
Shift position data is interrupted for 3.1 seconds.	All indicator lights go off.	Normal data is received.

ABS, EBD, BA, TRAC, and VSC

Condition	Response	Recovery
ABS, brake, VSC, or slip data is interrupted for 1 second.	The warning light comes on.	Normal data is received.
Brake date is interrupted for 10 seconds.		

Door

Condition	Response	Recovery
Each door condition data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

Driver Side Seat Belt

Condition	Response	Recovery
Driver side front seat inner belt assembly data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

*Head*1*

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

*Tail*2*

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

Beam

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

SRS

Condition	Response	Recovery

cardiagn.com

Condition	Response	Recovery
SRS data is interrupted for 10 seconds or there is a malfunction in the combination meter assembly (meter ECU).	The warning light comes on.	Normal data is received.

EPS

Condition	Response	Recovery
Regular data is interrupted for 1 second.	The warning light comes on.	Normal data is received.

Multi-information Display

Condition	Response	Recovery
Cruise information data is interrupted for 3.1 seconds.	The display becomes blank (only measurement units are displayed).	Normal data is received.

- *1: for U.S.A.
- *2: except U.S.A.

cardiagn.com

DATA LIST / ACTIVE TEST

1. DATA LIST

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

(a) Warm up the engine.

(b) Turn the power switch off.

(c) Connect the Techstream to the DLC3.

(d) Turn the power switch on (IG).

(e) Turn the Techstream on.

(f) Enter the following menus:

(1) for Combination Meter: Body Electrical / Combination Meter / Data List.

(2) for ABS/VSC/TRAC: Chassis / ABS/VSC/TRAC / Data List.

(3) for Engine: Powertrain / Engine / Data List.

(g) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Tail Cancel SW	Tail cancel switch/OFF or ON	OFF: Tail cancel switch off	-
		ON: Tail cancel switch on	
P-Seatbelt Buckle SW	Front passenger side seat belt buckle switch/OFF or ON	OFF: Front passenger side seat belt unfastened	-
		ON: Front passenger side seat belt fastened	
Vehicle Speed Meter	Vehicle speed/Min.: 0 km/h (0 mph), Max.:199 km/h (124 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
Coolant Temperature	Engine coolant temperature/-40 to 127.5°C	After warming up: 80 to 100°C (176 to 212°F)	-

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
	(-40 to 261.5°F)		
Head Up Display Switch (Up)*1	Headup display position up switch/OFF or ON	OFF: Headup display position up switch not pressed	-
		ON: Headup display position up switch pressed	
Head Up Display Switch (Down)*1	Headup display position down switch/OFF or ON	OFF: Headup display position down switch not pressed	-
		ON: Headup display position down switch pressed	
Head Up Display Switch (Main)*1	Headup display main switch/OFF or ON	OFF: Headup display main switch not pressed	-
		ON: Headup display main switch pressed	
Timer Switch M on Combination Meter	Minute adjust switch/OFF or ON	OFF: Minute adjust switch not pressed	-
		ON: Minute adjust switch pressed	
Timer Switch H on Combination Meter	Hour adjust switch/OFF or ON	OFF: Hour adjust switch not pressed	-
		ON: Hour adjust switch pressed	
Timer Switch 00 on Combination Meter	Second adjust switch/OFF or ON	OFF: Reset switch not pressed	-
		ON: Reset switch pressed	
Fuel Input	Fuel input signal/Min.: 0, Max. 127.5	10th segment comes on: 39.6 to 45.0	Unit: Liter
		9th segment comes on: 35.7 to 39.6	
		8th segment comes on: 31.8 to 35.7	
		7th segment comes on: 27.9 to 31.8	
		6th segment comes on: 24.0 to 27.9	
		5th segment comes on: 20.1 to 24.0	
		4th segment comes on: 16.2 to 20.1	
		3rd segment comes on: 12.3 to 16.2	
		2nd segment comes on: 8.4 to 12.3	
		1st segment comes on: 6.1 to 8.4	
Check Engine SW	Check power switch/OFF or ON	OFF: Check power switch off	-
		ON: Check power switch on	
Light Control Up SW	Light control rheostat up switch/OFF or ON	OFF: Light control rheostat up switch not pressed	-
		ON: Light control rheostat up switch pressed	
Light Control	Light control rheostat	OFF: Light control rheostat down	-

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Down SW	down switch/OFF or ON	switch not pressed	
		ON: Light control rheostat down switch pressed	
Light Control Switch*1	Display contrast adjust switch/OFF or ON	OFF: Display contrast adjust switch not pressed	-
		ON: Display contrast adjust switch pressed	
Multi Display Select Switch	DISP switch in the multi-information switch (steering pad switch assembly)/OFF or ON	OFF: DISP switch in the multi-information switch (steering pad switch assembly) not pressed	-
		ON: DISP switch in the multi-information switch (steering pad switch assembly) pressed	
Drive Monitor Reset SW	TRIP switch in the multi-information switch (steering pad switch assembly)/OFF or ON	OFF: TRIP switch in the multi-information switch (steering pad switch assembly) not pressed	-
		ON: TRIP switch in the multi-information switch (steering pad switch assembly) pressed more than 1 second	
+B Voltage Value	Battery voltage/Min.: 0 V, Max.: 25.5 V	11 to 14 V	-
Rheostat value	Light control rheostat value/Min.: 0 (dark), Max.: 255 (bright)	The light control rheostat value 0 (dark)	-
		The light control rheostat value 255 (bright)	-
Integrated Value for Oil Maintenance*2	Oil maintenance warning value/Min.: 0, Max.: 25500 (mile)	Driving distance after performing oil maintenance resetting procedure displayed	If the value is 5000 (miles) or more, perform the oil maintenance resetting procedure after changing the oil.
TPMS Operation State*3	The condition of the tire pressure/OFF, ON, or Unknown	OFF: Tire pressure warning system not operated	-
		ON: Tire pressure warning system operated	
		Unknown: Wire harness between combination meter assembly and tire pressure warning ECU open	
2nd-Row Seatbelt Buckle (R)*4	Rear right seat belt buckle switch/OFF or ON	OFF: Rear right passenger seat belt unfastened	-
		ON: Rear right passenger seat belt fastened	
2nd-Row Seatbelt	Rear left seat belt buckle	OFF: Rear left passenger seat belt	-

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Buckle (L)*4	switch/OFF or ON	unfastened	
		ON: Rear left passenger seat belt fastened	
2nd-Row Seatbelt Buckle (C)*4	Rear center seat belt buckle switch/OFF or ON	OFF: Rear center passenger seat belt unfastened	-
		ON: Rear right passenger seat belt fastened	
Oil Pressure Switch	Oil pressure switch/OFF or ON	OFF: Engine oil pressure low	-
		ON: Engine oil pressure not low	
Key Remind Sound	The customized setting of the key remind buzzer/Normal, Fast, Slow	-	The customized setting of the key reminder buzzer displayed
Driver Side Seatbelt Warning Buzzer	The condition of the driver side seat belt warning buzzer/OFF or ON	OFF: The driver side seat belt warning buzzer does not sound at the vehicle speed of 20 km/h (12 mph) or more when the driver side seat belt unfastened	The customized setting of the driver side seat belt warning buzzer is displayed
		ON: The driver side seat belt warning buzzer sounds at the vehicle speed of 20 km/h (12 mph) or more when the driver side seat belt unfastened	
P-Seatbelt Warning Buzzer	The condition of the front passenger side seat belt warning buzzer/OFF or ON	OFF: The front passenger side seat belt warning buzzer does not sound at the vehicle speed of 20 km/h (12 mph) or more when the front passenger side seat belt unfastened	The customized setting of the front passenger side seat belt warning buzzer is displayed
		ON: The front passenger side seat belt warning buzzer sounds at the vehicle speed of 20 km/h (12 mph) or more when the front passenger side seat belt unfastened	
Rear Seatbelt Warning Buzzer*4	The condition of the rear seat belt warning buzzer/OFF or ON	OFF: The rear seat belt warning buzzer does not sound at the vehicle speed of 20 km/h (12 mph) or more when the rear passenger side seat belt unfastened	The customized setting of the rear seat belt warning buzzer displayed
		ON: The rear seat belt warning buzzer sounds at the vehicle speed of 20 km/h (12 mph) or more when the rear passenger side seat belt unfastened	
Reverse Buzzer	The customized setting of the reverse	Continual: When the shift lever moves to R, buzzer sounds	The customized setting of the reverse buzzer

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
	buzzer/Continual or Single	continuously	displayed
		Single: When the shift lever moves to R, a single buzzer sounds	
Number of Trouble Code	The number of the DTC which is currently output	0	-

- *1: w/ Headup Display
- *2: for U.S.A.
- *3: w/ Tire Pressure Warning System
- *4: w/ Rear Seat Belt Warning

ABS/VSC/TRAC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
FR Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
FL Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
RR Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
RL Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
Vehicle Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-

Engine

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Coolant Temp	Engine coolant temperature/Min.: -40°C (-40°F), Max: 215°C (419°F)	80 to 100°C (176 to 212°F): After warming up	• If -40°C (-40°F): sensor circuit open • If 140°C (284°F) or more: sensor circuit shorted

2. ACTIVE TEST

Using the Techstream to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

cardiagn.com

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Active Test.

(e) Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range	Diagnostic Note
Speed Meter Operation	Speedometer	0, 40, 80, 120 mph*1 0, 40, 80, 120, 160, 200, 240 km/h*2	Confirm that the vehicle is stopped with the engine idling
Fuel Meter Operation	Fuel receiver gauge	EMPTY, 1/2, FULL	Confirm that the vehicle is stopped with the engine idling
Fuel Consumption Meter Operation	Fuel consumption meter	OFF, MIN., 1/4, 1/2, 3/4, MAX.	Confirm that the vehicle is stopped with the engine idling
A/T Indicator Operation 1	Shift indicator light (D, P, N. R, 4, 3, 2, L)	OFF or ON	Confirm that the vehicle is stopped with the engine idling
A/T Indicator Operation 2	A/T shift indicator light (S, 6, 5)	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Airbag	SRS warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Doors All Open	Door indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Front Passenger Side Seat Belt	Front passenger side seat belt warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Driver Side Seat Belt	Driver side seat belt warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp ABS	ABS warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Charge	Charge warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Slip	Slip indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Coolant Hot	Coolant hot warning light	OFF or ON	Confirm that the vehicle is stopped with the

cardiagn.com

Tester Display	Test Part	Control Range	Diagnostic Note
			engine idling
Indicat. Lamp Beam	High beam indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Head*1	Head indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Tail*2	Tail indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Fr FOG	Front fog indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Rr FOG*3	Rear fog indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Precrash*4	Precrash warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Driver Side Door Open	Door open warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Front Passenger Side Door Open	Door open warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Rear Door RH Open	Door open warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Rear Door LH Open	Door open warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Back Door Open	Door open warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Headlamp Auto Leveling*5	Headlight leveling indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Tire Pressure Warning System*6	Tire pressure warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp ECB	Electrically controlled brake warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp ECT PWR	ECT PWR indicator light	OFF or ON	Confirm that the vehicle is stopped with the

cardiagn.com

Tester Display	Test Part	Control Range	Diagnostic Note
			engine idling
Drift From The Lane*7	LKA indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Cruise	Cruise main indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Lamp Brake	Brake warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. EPS	EPS warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Master Warning	Master warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Ready (HV)	Ready indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. EV Mode	EV mode indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. SET	Set indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. Radar Cruise*8	Cruise main indicator light (constant speed control mode or vehicle-to-vehicle distance control mode)	OFF or ON	Confirm that the vehicle is stopped with the engine idling
Indicat. ECO MODE	ECO mode indicator light	OFF or ON	Confirm that the vehicle is stopped with the engine idling
HV System Indicator	Hybrid System Indicator	MIN, -50, 0, 100, 200, 300, 400, MAX	Confirm that the vehicle is stopped with the engine idling
Meter Display 1	Multi-information display	All the dots in the multi-information display OFF or ON	Confirm that the vehicle is stopped with the engine idling

- *1: for U.S.A.
- *2: except U.S.A.
- *3: w/ Rear Fog Light
- *4: w/ Pre-collision System
- *5: w/ Automatic Type Headlight Beam Level Control
- *6: w/ Tire Pressure Warning System
- *7: w/ Lane-keeping Assist System
- *8: w/ Dynamic Radar Cruise Control System

cardiagn.com

cardiagn.com

DIAGNOSTIC TROUBLE CODE CHART

Meter/Gauge System

DTC Code	Detection Item	Trouble Area	See page
U0129	Lost Communication with Skid Control ECU	1. Skid control ECU 2. CAN communication system 3. Combination meter assembly	INFO
U0100	Lost Communication with ECM / PCM "A"	1. Power Management Control ECU 2. CAN communication system 3. Combination meter assembly	INFO
B1500	Fuel Sender Open Detected	1. Harness or connector 2. Combination meter assembly 3. Fuel sender gauge assembly	INFO
B1503	Exhaust Heat Management Warning Detected	1. Harness or connector 2. Water temperature sensor 3. Combination meter assembly	INFO
B1504	Lost Communication with Steering SW	1. Harness or connector 2. Spiral cable 3. Multi-information switch (Steering pad switch assembly) 4. Combination Meter Assembly	INFO
U0131	Lost Communication with Power Steering Control Module	1. Power steering ECU 2. CAN communication system 3. Combination meter assembly	INFO
U0142	Lost Communication with Main Body ECU	1. Main body ECU 2. CAN communication system 3. Combination meter assembly	INFO
U0151	Lost Communication with Airbag ECU	1. Center airbag sensor assembly 2. CAN communication system	INFO

cardiagn.com

DTC Code	Detection Item	Trouble Area	See page
		3. Combination meter assembly	

cardiagn.com

ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check speedometer operation.

NOTICE:

- The meter ECU (No. 3 meter circuit plate) receives the vehicle speed signal from the skid control ECU via CAN communication. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.
- The Data List values of the skid control ECU are used for this inspection. Therefore, make sure to perform the inspection after confirming that no DTCs are output from the brake control system.
- If the tire size or tire inflation pressure is not within the specified range, or the tires are excessively worn, the speedometer indication error will increase. Therefore, make sure to perform the inspection after checking that the tire size, tire inflation pressure and tire wear are in the specified range.

(1) Before starting the following inspection, check if the Brake Control System outputs the DTCs.

(2) Check the values by referring to the table below.

ABS/VSC/TRAC:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed/Min.: 0 mph (0 km/ h), Max.: 326 km/h (203 mph)	Vehicle stop: 0 km/h (0 mph)	-

Reference: mph (for U.S.A.)

Techstream Indication (mph)	Acceptable Range (mph)
20	20
40	40
60	60
80	80
100	100
120	120
140	140

Reference: km/h (for Canada)

Techstream Indication (km/h)	Acceptable Range (km/h)
20	20
40	40
60	60
80	80
100	100

cardiagn.com

Techstream Indication (km/h)	Acceptable Range (km/h)
120	120
140	140
160	160
180	180

Reference: km/h (except Canada)

Techstream Indication (km/h)	Acceptable Range (km/h)
20	21.0 to 25.0
40	41.7 to 46.2
60	62.7 to 67.2
80	83.4 to 88.4
100	104.3 to 109.3
120	125.1 to 130.6
140	145.8 to 151.8
160	166.2 to 173.2
180	186.9 to 194.5

cardiagn.com

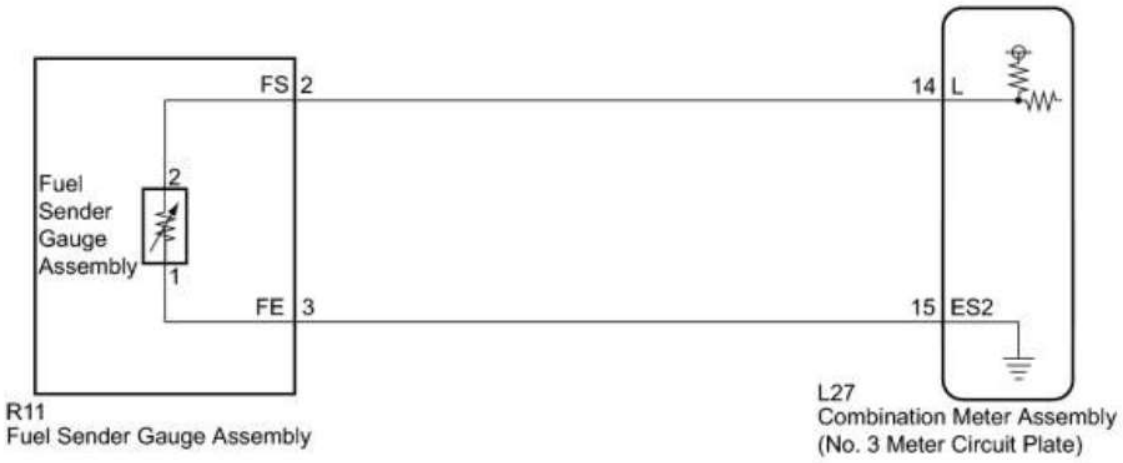
DTC	B1500	Fuel Sender Open Detected

DESCRIPTION

This DTC is stored when the combination meter assembly (No. 3 meter circuit plate) detects a fuel sender gauge malfunction via a direct line.

DTC No.	DTC Detection Condition	Trouble Area
B1500	When IG voltage is 9.5 V or more and the following condition is detected: 1. Fuel sender gauge operation malfunction	• Harness or connector • Combination meter assembly (No. 3 meter circuit plate) • Fuel sender gauge assembly

WIRING DIAGRAM



H

INSPECTION PROCEDURE

PROCEDURE

1.	READ VALUE USING TECHSTREAM (FUEL INPUT)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

cardiagn.com

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Fuel Input	Fuel input signal/Min.: 0, Max.: 127.5	10th segment comes on: 39.6 to 45.0	Unit: Liter
		9th segment comes on: 35.7 to 39.6	
		8th segment comes on: 31.8 to 35.7	
		7th segment comes on: 27.9 to 31.8	
		6th segment comes on: 24.0 to 27.9	
		5th segment comes on: 20.1 to 24.0	
		4th segment comes on: 16.2 to 20.1	
		3rd segment comes on: 12.3 to 16.2	
		2nd segment comes on: 8.4 to 12.3	
		1st segment comes on: 6.1 to 8.4	

Result:

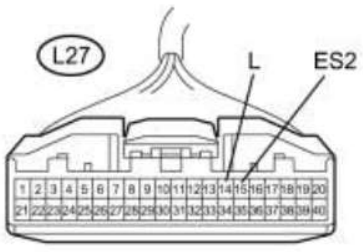
Result	Proceed to
Fuel level data can be displayed on the Techstream and DTC B1500 is output.	A
Fuel level data cannot be displayed on the Techstream.	B

B ▶ INSPECT FUEL SENDER GAUGE ASSEMBLY

A ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

2.	INSPECT FUEL SENDER GAUGE ASSEMBLY

*1



(a) Disconnect the L27 connector.

H

(b) Measure the resistance according to the value(s) in the table below.

cardiagn.com

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-14 (L) - L27-15 (ES2)	Always	12.0 to 415.0 Ω

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter Assembly (No. 3 Meter Circuit Plate))

NG CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - FUEL SENDER GAUGE ASSEMBLY)

OK **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

3.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - FUEL SENDER GAUGE ASSEMBLY)

(a) Disconnect the R11 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-14 (L) - R11-2 (FS)	Always	Below 1 Ω
L27-14 (L) - Body ground	Always	10 kΩ or higher
L27-15 (ES2) - R11-3 (FE)	Always	Below 1 Ω
L27-15 (ES2) - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	INSPECT FUEL SENDER GAUGE ASSEMBLY

(a) Remove the fuel sender gauge assembly INFO.

(b) Check that the float moves smoothly between E and F.

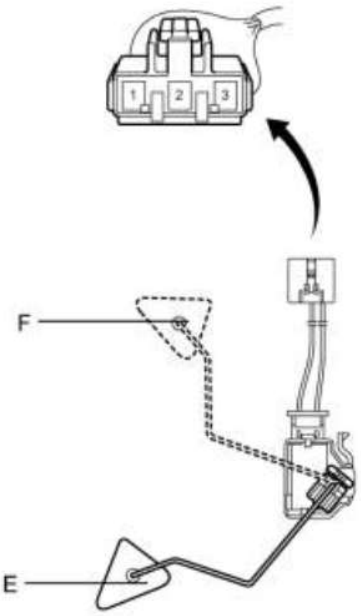
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Float level is F (upper)	12 to 18 Ω
1 - 2	Float level is between F	12 to 415 Ω (Gradually

cardiagn.com

*1



H

	(upper) and E (lower)	changes)
1 - 2	Float level is E (lower)	405 to 415 Ω

Text in Illustration

*1	Front view of wire harness connector (to Fuel Sender Gauge Assembly)

NG ▶ REPLACE FUEL SENDER GAUGE ASSEMBLY

OK

▼

5.	REPLACE COMBINATION METER ASSEMBLY (METER CIRCUIT PLATE)

(a) Replace the combination meter assembly (meter circuit plate) to a new or a known good one INFO.

OK:

The operation of the fuel receiver gauge returns to normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

OK ▶ **END**

cardiagn.com

DTC	B1503	Exhaust Heat Management Warning Detected

DESCRIPTION

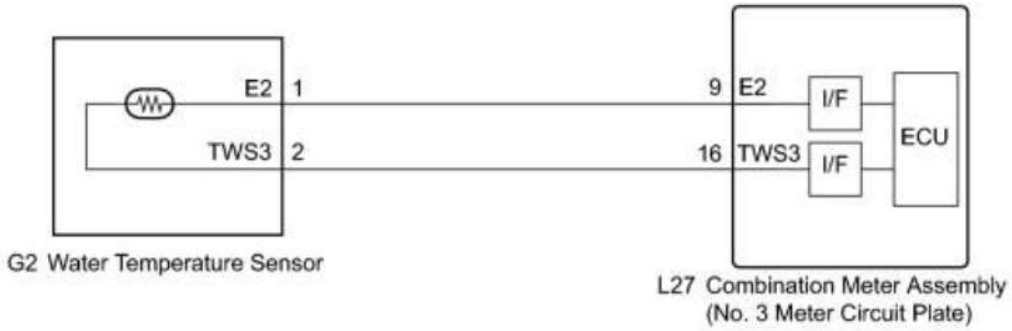
This DTC is stored when the combination meter assembly (No. 3 meter circuit plate) detects a malfunction in the water temperature sensor that is connected to the combination meter assembly (No. 3 meter circuit plate) via a direct line.

DTC No.	DTC Detection Condition	Trouble Area
B1503	When IG voltage is 9.5 V or more and the following condition is detected: 1. Water temperature sensor operation malfunction 2. Water temperature sensor circuit open or short 3. Engine coolant temperature is 120°C (248°F) or more	• Harness or connector • Water temperature sensor • Combination meter assembly (No. 3 meter circuit plate)

HINT:

This DTC is for the water temperature sensor which is used to detect the engine water temperature sensor for the exhaust heat recirculation system, not for the engine coolant temperature sensor which is used for the EFI system.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

cardiagn.com

1.	READ VALUE USING TECHSTREAM

(a) Set the vehicle in the maintenance mode using the Techstream INFO.

(b) Connect the Techstream to the DLC3.

(c) Turn the power switch on (IG).

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Combination Meter / Data List.

(f) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Coolant Temperature	Engine coolant temperature/-40 to 127.5°C (-40 to 261.5°F)	After warming up: 80 to 100°C (176 to 212°F)	-

HINT:

- The coolant temperature value in this inspection is the data sent from the engine coolant temperature sensor for the SFI system.
- When the Data List values do not match, a signal output error of the ECM is suspected.

OK:

Engine coolant temperature displayed on the Techstream is 80 to 100°C (176 to 212°F) after warming up.

NG ▶ GO TO EXHAUST HEAT RECIRCULATION SYSTEM

OK

▼

2.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - WATER TEMPERATURE SENSOR)

(a) Disconnect the G2 connector.

(b) Disconnect the L27 connector.

(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
G2-2 (TWS3) - L27-16 (TWS3)	Always	Below 1 Ω

cardiagn.com

Tester Connection	Condition	Specified Condition
G2-1 (E2) - L27-9 (E2)	Always	Below 1 Ω
G2-2 (TWS3) or L27-16 (TWS3) - Body ground	Always	10 kΩ or higher

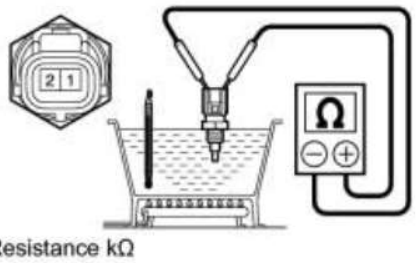
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

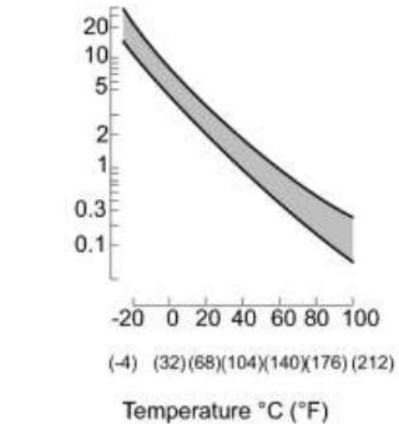
OK

▼

3.	WATER TEMPERATURE SENSOR

*1





(a) Remove the water temperature sensor INFO.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 (E2) - 2 (TWS3)	Temperature is 20°C (68°F)	2.32 to 2.59 kΩ
1 (E2) - 2 (TWS3)	Temperature is 80°C (176°F)	0.310 to 0.326 kΩ

Text in Illustration

*1	Component without harness connected (Water Temperature Sensor)

cardiagn.com

NG ▶ REPLACE WATER TEMPERATURE SENSOR

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

cardiagn.com

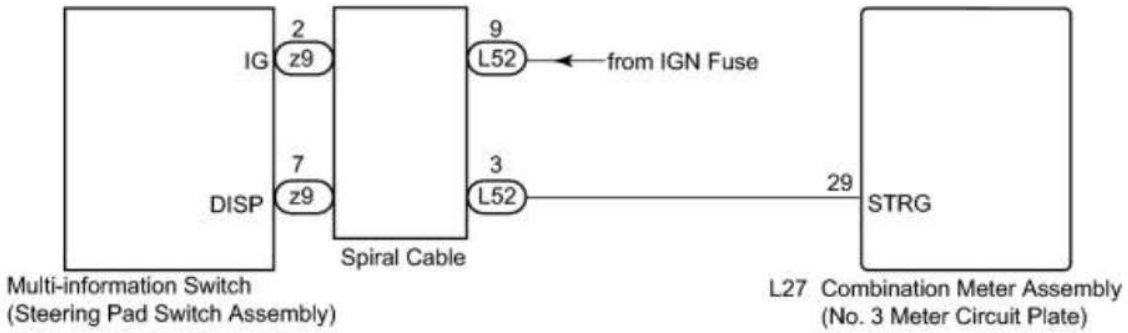
DTC	B1504	Lost Communication with Steering SW

DESCRIPTION

The combination meter assembly (No. 3 meter circuit plate) communicates with the multi-information switch (steering pad switch assembly) via a direct line . If the combination meter assembly (No. 3 meter circuit plate) detects a communication malfunction, it stores this DTC.

DTC No.	DTC Detection Condition	Trouble Area
B1504	When the IG voltage is 9.5 V or more and power switch on (IG) and the following condition is detected: 1. Multi-information switch (steering pad switch assembly) communication error has been detected more than 3 seconds.	• Harness or connector • Spiral cable • Multi-information switch (steering pad switch assembly) • Combination meter assembly (No. 3 meter circuit plate)

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Before starting the following inspection, confirm the multi-information switch (steering pad switch assembly) setting.

PROCEDURE

1.	READ VALUE USING TECHSTREAM (MULTI DISPLAY SELECT SWITCH)

cardiagn.com

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Multi Display Select Switch	DISP switch in the multi-information switch (steering pad switch assembly)/OFF or ON	OFF: DISP switch in the multi-information switch (steering pad switch assembly) not pressed	-
		ON: DISP switch in the multi-information switch (steering pad switch assembly) pressed	-
Drive Monitor Reset SW	TRIP switch in the multi-information switch (steering pad switch assembly)/OFF or ON	OFF: TRIP switch in the multi-information switch (steering pad switch assembly) not pressed	-
		ON: TRIP switch in the multi-information switch (steering pad switch assembly) pressed more than 1 second	-

OK:

Steering pad switch assembly (multi-information switch) condition displayed on the Techstream changes with the actual switch operation.

NG ▶ CHECK SPIRAL CABLE

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

2.	CHECK SPIRAL CABLE

(a) Check the spiral cable INFO.

NG ▶ REPLACE SPIRAL CABLE

OK

▼

3.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - STEERING PAD SWITCH ASSEMBLY)

(a) Disconnect the L27 and z9 connectors.

cardiagn.com

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
z9-2 (IG) - Body ground	Power switch off	Below 1 V
z9-2 (IG) - Body ground	Power switch on (IG)	11 to 14 V

(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
z9-7 (DISP) - L27-29 (STRG)	Always	Below 1 Ω
L27-29 (STRG) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	REPLACE MULTI-INFORMATION SWITCH (STEERING PAD SWITCH ASSEMBLY)

(a) Replace the multi-information switch (steering pad switch assembly) with a new or a known good one INFO .

OK:

The operation of the combination meter assembly (No. 3 meter circuit plate) returns to normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

OK ▶ **END**

cardiagn.com

DTC	U0100	Lost Communication with ECM / PCM "A"
DTC	U0129	Lost Communication with Skid Control ECU
DTC	U0131	Lost Communication with Power Steering Control Module
DTC	U0142	Lost Communication with Main Body ECU
DTC	U0151	Lost Communication with Airbag ECU

DESCRIPTION

The combination meter assembly (No. 3 meter circuit plate) communicates with the ECM via the CAN communication system (CAN No. 1 Bus).

DTC No.	DTC Detection Condition	Trouble Area
U0100	When IG voltage is 9.5 V or more and the following condition is detected: 1. No communication with ECM continues for 2 seconds or more	• ECM • CAN communication system • Combination meter assembly (No. 3 meter circuit plate)
U0129	When IG voltage is 9.5 V or more and the following condition is detected: 1. No communication with skid control ECU continues for 3 seconds or more	• Skid control ECU • CAN communication system • Combination meter assembly (No. 3 meter circuit plate)
U0131	When IG voltage is 9.5 V or more and the following condition is detected: 1. No communication with power steering ECU continues for 3 seconds or more	• Power steering ECU • CAN communication system • Combination meter assembly (No. 3 meter circuit plate)
U0142	When IG voltage is 9.5 V or more and the following condition is detected: 1. No communication with main body ECU continues for 3 seconds or more	• Main body ECU • CAN communication system • Combination meter assembly (No. 3 meter circuit plate)
U0151	When IG voltage is 9.5 V or more and the following condition is detected: 1. No communication with center airbag sensor assembly continues for 10 seconds or more	• Center airbag sensor assembly • CAN communication system • Combination meter assembly (No. 3 meter circuit plate)

INSPECTION PROCEDURE

cardiagn.com

PROCEDURE

1.	CONFIRM DTC OUTPUT

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Codes.

(e) Clear the stored DTCs.

(f) Drive the vehicle at more than 5 km/h (3.1 mph) for at least 60 seconds.

(g) Stop the vehicle.

(h) Check for DTCs INFO.

Result:

Result	Proceed to
DTC is output.	A
DTC is not output.	B

HINT:

If CAN communication system DTC U0100, U0129, U0131, U0142, or U0151 and another DTC are output at the same time, perform troubleshooting for CAN communication system DTC U0100, U0129, U0131, U0142, or U0151 first.

B ▶ USE SIMULATION METHOD TO CHECK
A ▶ **GO TO CAN COMMUNICATION SYSTEM**

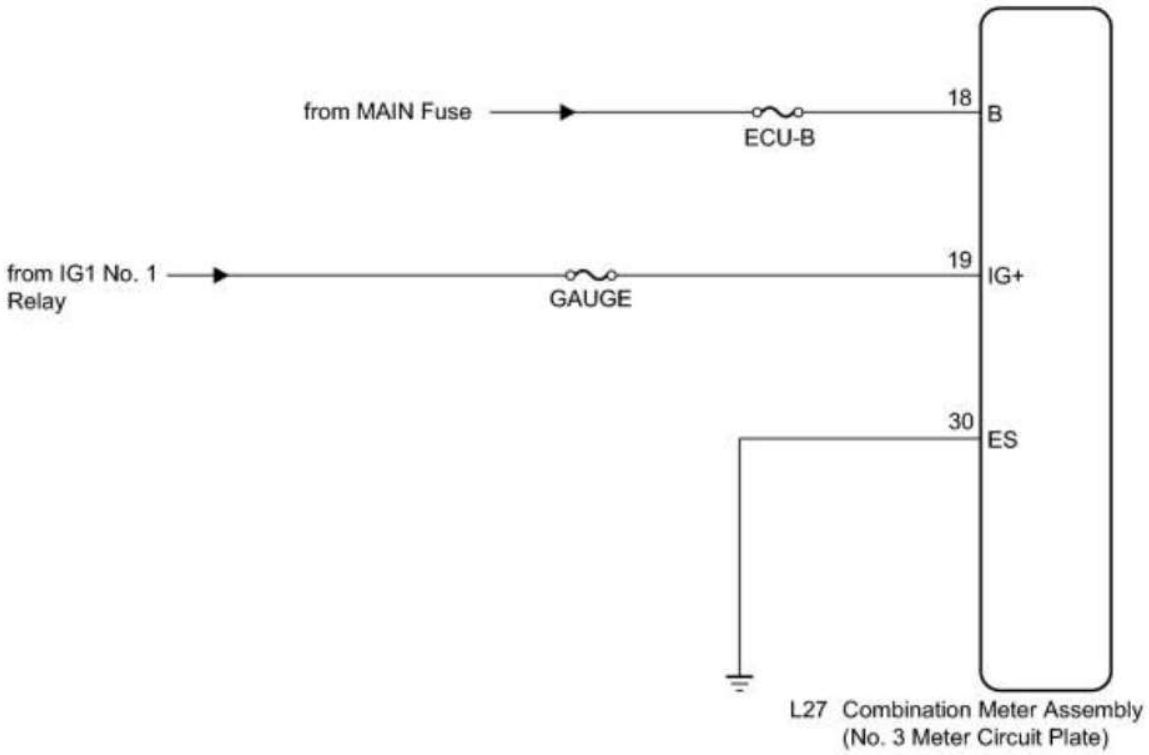
cardiagn.com

Entire Combination Meter does not Operate

DESCRIPTION

This circuit is the power source circuit for the meter. This circuit provides two types of power sources; one is a constant power source, and the other is an IG power source. If a voltage of 12 V is not applied to terminal IG+ when the power switch is turned on (IG), the indicators will not operate.

WIRING DIAGRAM



C

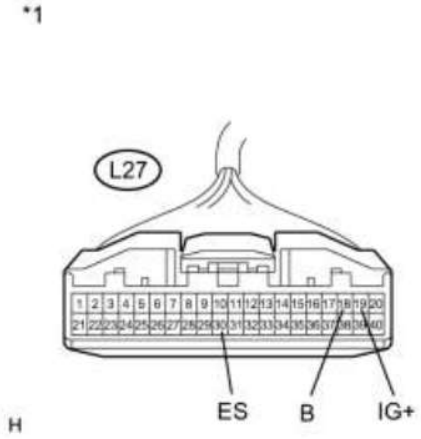
INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY CIRCUIT)

(a) Disconnect the L27 connector.

cardiagn.com



(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-30 (ES) - Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
L27-19 (IG+) - Body ground	Power switch off	Below 1 V
L27-19 (IG+) - Body ground	Power switch on (IG)	11 to 14 V
L27-18 (B) - Body ground	Power switch off	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter Assembly (No. 3 Meter Circuit Plate))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

cardiagn.com

Speedometer Malfunction

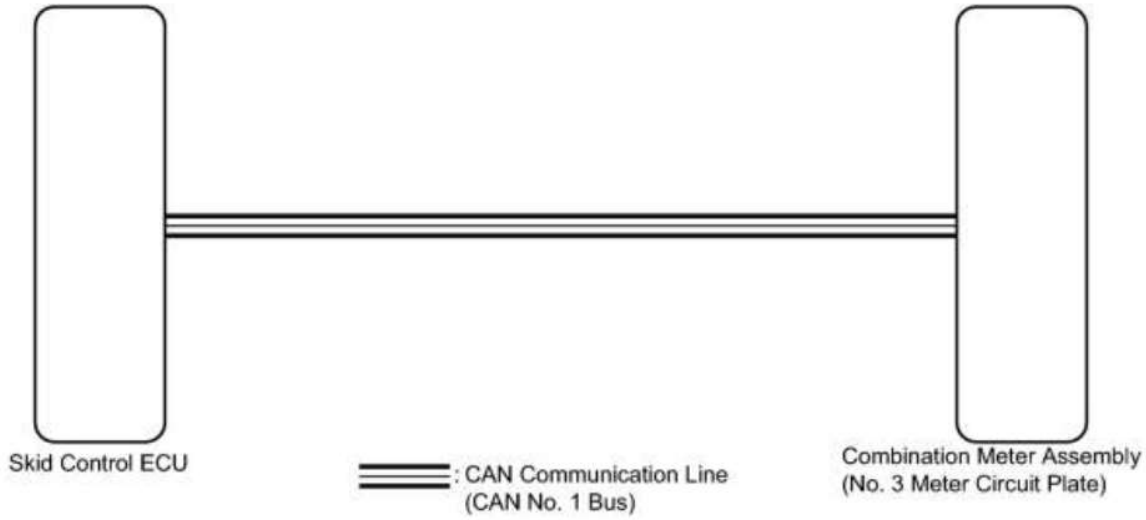
DESCRIPTION

The meter ECU (No. 3 meter circuit plate) receives vehicle speed signals from the skid control ECU via the CAN communication system (CAN No. 1 Bus). The speed sensor detects the wheel speed and sends the appropriate signals to the skid control ECU. The skid control ECU supplies power to the vehicle speed sensor. The skid control ECU detects vehicle speed signals based on the pulses of the voltage.

HINT:

- Factors that affect the indicated vehicle speed include tire size, tire inflation, and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO.
- If the vehicle speed sensor circuit has a malfunction, the skid control ECU stores the DTCs. Troubleshoot the Brake Control System INFO.

WIRING DIAGRAM



C

INSPECTION PROCEDURE

NOTICE:

If the vehicle speed is outside the allowable range when tested, perform the on-vehicle inspection INFO.

HINT:

Before starting the following inspection, check tire size and tire air pressure.

cardiagn.com

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM

(a) Check if a CAN communication DTC is output INFO.

Result:

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B ▶ GO TO CAN COMMUNICATION SYSTEM

A

▼

2.	PERFORM ACTIVE TEST USING TECHSTREAM (SPEED METER OPERATION)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Active Test.

(e) Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range	Diagnostic Note
Speed Meter Operation	Speedometer	0, 40, 80, 120 mph*1	Confirm that the vehicle is stopped with the engine idling
		0, 40, 80, 120, 160, 200, 240 km/h*2	

- *1: for U.S.A.
- *2: except U.S.A.

OK:

Speedometer indication is normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

OK

▼

cardiagn.com

3.	CHECK BRAKE CONTROL SYSTEM

(a) Check if the brake control system output the DTC INFO.

Result:

Result	Proceed to
The DTC is not output.	A
The DTC is output.	B

B GO TO BRAKE CONTROL SYSTEM

A

4.	READ VALUE USING TECHSTREAM (FR/FL/RR/RL WHEEL SPEED, VEHICLE SPEED METER)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus:

(1) for ABS/VSC/TRAC: Chassis / ABS/VSC/TRAC / Data List.

(2) for Combination Meter: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

ABS/VSC/TRAC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
FR Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
FL Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
RR Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-
RL Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed Meter	Vehicle speed/Min.: 0 mph (0 km/h), Max.: 255 km/h (158 mph)	Almost the same as actual vehicle speed (Speedometer tester)	-

OK:

When the Data List values of the ECUs match, an internal malfunction of the combination meter assembly is suspected.

NG:

When the Data List values of the ECUs do not match, a signal output error of the skid control ECU or an internal malfunction of the combination meter assembly is suspected.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (METER CIRCUIT PLATE)

OK ▶ **GO TO BRAKE CONTROL SYSTEM**

5.	REPLACE COMBINATION METER ASSEMBLY (METER CIRCUIT PLATE)

(a) Replace the meter circuit plate with a new or a known good one INFO.

OK:

The operation of the speedometer returns to normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO.4 METER CIRCUIT PLATE)

OK ▶ **END**

6.	REPLACE COMBINATION METER ASSEMBLY (NO.4 METER CIRCUIT PLATE)

(a) Replace the combination meter assembly (No. 4 meter circuit plate) with a new or a known good one INFO.

OK:

The operation of the speedometer returns to normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

OK ▶ **END**

7.	REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

(a) Replace the combination meter assembly (No. 3 meter circuit plate) with a new or a known good one INFO.

OK:

cardiagn.com

The operation of the speedometer returns to normal.

NG ▶ REPLACE SKID CONTROL ECU

OK ▶ **END**

cardiagn.com

Fuel Receiver Gauge Malfunction

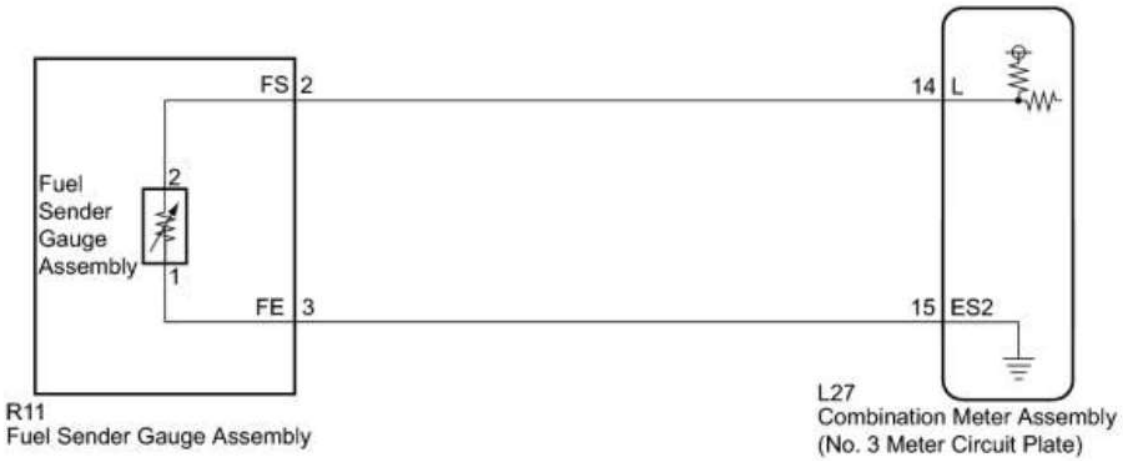
DESCRIPTION

• The meter ECU (No. 3 meter circuit plate) uses the fuel sender gauge assembly to determine the level of the fuel in the fuel tank. The resistance of the fuel sender gauge will vary between approximately 12 Ω with the float at the full position, and 415 Ω with the float at the empty position. The meter outputs battery voltage through two resistors of 820 Ω that are mounted in parallel inside the meter ECU (No. 3 meter circuit plate). The meter ECU (No. 3 meter circuit plate) measures the voltage between the variable resistor in the fuel sender gauge and the two resistors mounted in parallel in the meter. Voltage measured at this point will vary as the float of the fuel sender gauge is moved. The highest voltage observed should be approximately half of the battery voltage.

HINT:

The fuel level warning light will come on when the fuel level is below 6.0 liters (6.3 US qts, 5.3 Imp.qts).

WIRING DIAGRAM



H

INSPECTION PROCEDURE

PROCEDURE

1.	PERFORM ACTIVE TEST USING TECHSTREAM (FUEL METER OPERATION)

(a) Connect the Techstream to the DLC3.

cardiagn.com

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter following menus: Body Electrical / Combination Meter / Active Test.

(e) Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range	Diagnostic Note
Fuel Meter Operation	Fuel receiver gauge	Empty, 1/2, Full	Confirm that the vehicle is stopped with the engine idling

OK:

Fuel receiver gauge indication is normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

OK

▼

2.	READ VALUE USING TECHSTREAM (FUEL INPUT)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter following menus: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Fuel Input	Fuel input signal/Min.: 0, Max.: 127.5	10th segment comes on: 39.6 to 45.0	Unit: Liter
		9th segment comes on: 35.7 to 39.6	
		8th segment comes on: 31.8 to 35.7	
		7th segment comes on: 27.9 to 31.8	
		6th segment comes on: 24.0 to 27.9	
		5th segment comes on: 20.1 to 24.0	
		4th segment comes on: 16.2 to 20.1	
		3rd segment comes on: 12.3 to 16.2	
		2nd segment comes on: 8.4 to 12.3	

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
		1st segment comes on: 6.1 to 8.4	

Result:

Result	Proceed to
Fuel level data can be displayed on the Techstream.	A
Fuel level data cannot be displayed on the Techstream.	B

B ▶ CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - FUEL SENDER GAUGE ASSEMBLY)

A ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

3.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - FUEL SENDER GAUGE ASSEMBLY)

(a) Disconnect the L27 and R11 connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-14 (L) - R11-2 (FS)	Always	Below 1 Ω
L27-15 (ES2) - R11-3 (FE)	Always	Below 1 Ω
L27-14 (L) - Body ground	Always	10 kΩ or higher
L27-15 (ES2) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

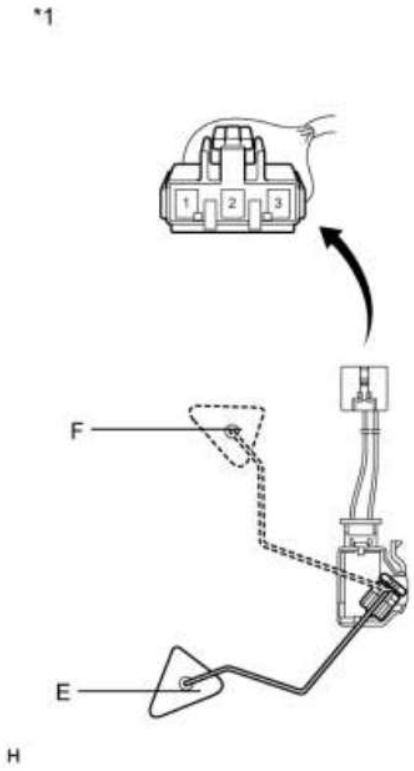
OK

▼

4.	INSPECT FUEL SENDER GAUGE ASSEMBLY

(a) Remove the fuel sender gauge assembly INFO.

cardiagn.com



(b) Check that the float moves smoothly between F and E.

(c) Check if the fuel sender gauge arm is deformed.

(d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Float level is F (upper)	12 to 18 Ω
1 - 2	Float level is between F (upper) and E (lower)	12 to 415 Ω (Gradually changes)
1 - 2	Float level is E (lower)	405 to 415 Ω

Text in Illustration

*1	Front view of wire harness connector (to Fuel Sender Gauge Assembly)

NG ▶ REPLACE FUEL SENDER GAUGE ASSEMBLY

OK

▼

5.	REPLACE COMBINATION METER ASSEMBLY (METER CIRCUIT PLATE)

cardiagn.com

(a) Replace the combination meter assembly (meter circuit plate) with a new or a known good one INFO.

OK:

There is no deformation.

NG ▶ REPLACE NO. 4 METER CIRCUIT PLATE

OK ▶ **END**

6.	REPLACE NO. 4 METER CIRCUIT PLATE

(a) Replace the combination meter assembly (No. 4 meter circuit plate) with a new or a known good one INFO.

OK:

The operation of the fuel receiver gauge returns to normal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

OK ▶ **END**

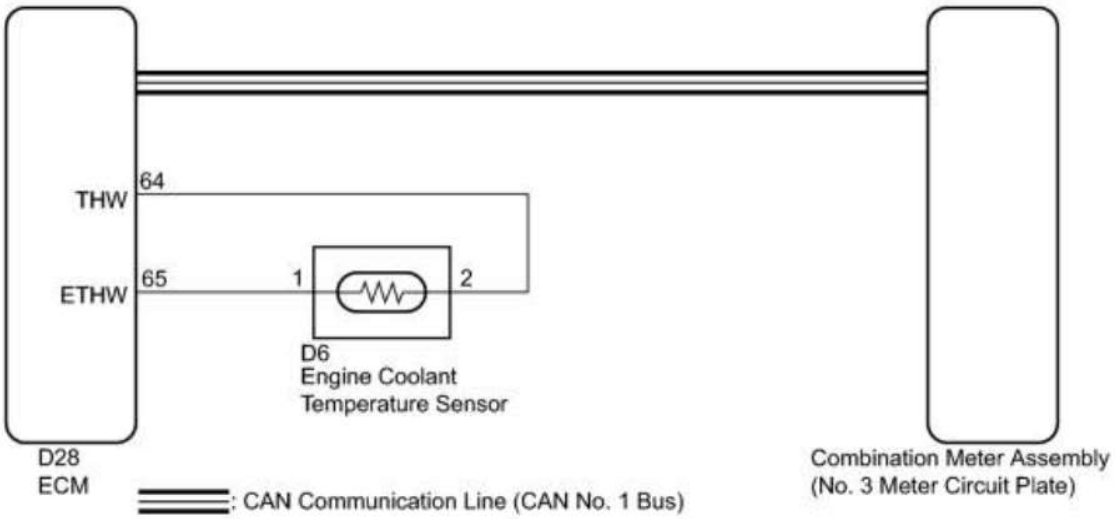
cardiagn.com

Malfunction in Water Temperature Warning Light

DESCRIPTION

In this circuit, the meter ECU (meter circuit plate No.3) receives engine coolant temperature signals from the ECM using the CAN communication system (CAN No. 1 Bus). The meter ECU (meter circuit plate No.3) displays engine coolant temperature that is calculated based on the data received from the ECM.

WIRING DIAGRAM



C

INSPECTION PROCEDURE

HINT:

- If there is an open or short in the engine coolant temperature sensor circuit, the ECM stores the DTCs. Troubleshoot the SFI System INFO.
- If the exhaust heat recirculation system has a malfunction, the engine coolant temperature hot warning light comes on to inform the driver of the malfunction.

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM

(a) Check if a CAN communication DTC is output INFO.

Result:

cardiagn.com

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B GO TO CAN COMMUNICATION SYSTEM

A

2.	SYSTEM CHECK

(a) Check the coolant hot warning light.

Result:

Result	Proceed to
Coolant hot warning light does not come on.	A
Coolant hot warning light remains on.	B

B CHECK FOR DTC

A

3.	PERFORM ACTIVE TEST USING TECHSTREAM (COOLANT HOT INDICATOR)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Active Test.

(e) Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range	Diagnostic Note
Coolant Hot Indicator	Coolant hot warning light	OFF or ON	Confirm that the vehicle is stopped with the engine idling

OK:

Coolant hot warning light operation is normal.

NG REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

cardiagn.com

OK

▼

4.	CHECK FOR DTC

(a) Check for the DTC.

Result:

Result	Proceed to
No DTC is output.	A
DTC P0115 is output.	B
DTC B1503 is output.	C

C ▶ GO TO METER / GAUGE SYSTEM

B ▶ GO TO SFI SYSTEM

A

▼

5.	READ VALUE USING TECHSTREAM (COOLANT TEMPERATURE, COOLANT TEMP)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus:

(1) for Combination Meter: Body Electrical / Combination Meter / Data List.

(2) for Engine: Powertrain / Engine / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Coolant Temperature	Engine coolant temperature/-40 to 127.5°C (-40 to 261.5°F)	After warming up: 80 to 100°C (176 to 212°F)	-

Engine

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Coolant	Engine coolant temperature/Min.: -40°C	After warming up: 80 to	• If -40°C (-40°F): sensor

cardiagn.com

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Temp	(-40°F), Max.: 215°C (419°F)	100°C (176 to 212°F)	circuit open • If 140°C (284°F) or more: sensor circuit shorted

OK:

When the Data List values of the ECUs do not match, a signal output error of the ECM is suspected.

NG ▶ REPLACE ECM

OK

▼

6.	REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

(a) Replace the combination meter assembly (No. 3 meter circuit plate) with a new or a known good one INFO.

OK:

The operation of the coolant hot warning light returns to normal.

NG ▶ REPLACE ECM

OK ▶ **END**

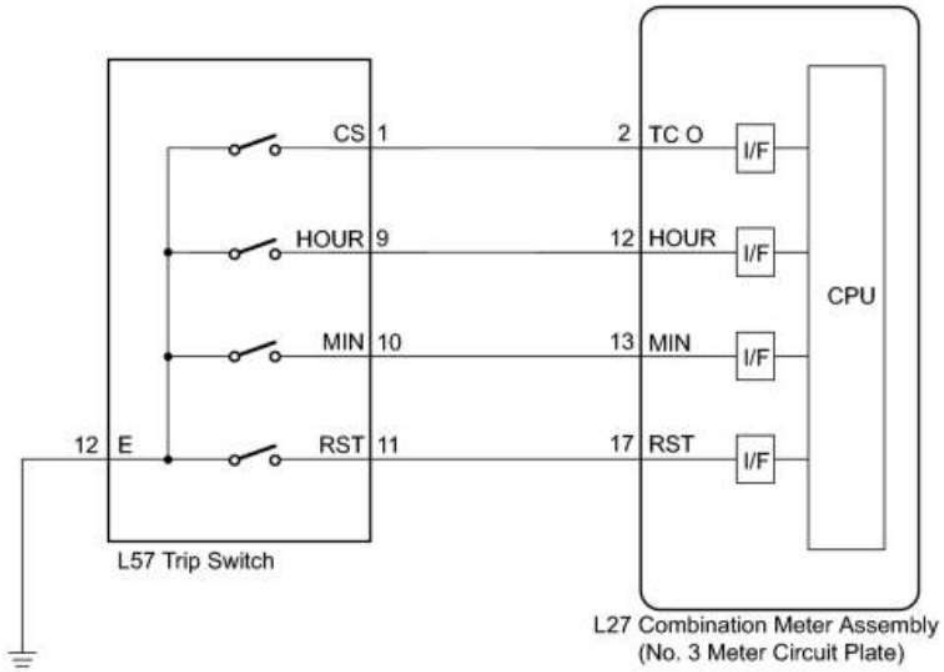
cardiagn.com

Odo/Trip Switch Malfunction

DESCRIPTION

The meter ECU (meter circuit plate No.3) receives trip switch signals from the trip switch via the direct line in this circuit.

WIRING DIAGRAM



cardiagn.com

INSPECTION PROCEDURE

PROCEDURE

1.	READ VALUE USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Timer Switch H on Combination Meter	Timer switch H on combination meter/OFF or ON	OFF: Hour adjust switch not pressed	-
		ON: Hour adjust switch pressed	
Timer Switch M on Combination Meter	Timer switch M on combination meter/OFF or ON	OFF: Minute adjust switch not pressed	-
		ON: Minute adjust switch pressed	
Timer Switch 00 on Combination Meter	Timer switch 00 on combination meter/OFF or ON	OFF: Reset switch not pressed	-
		ON: Reset switch pressed	

OK:

The value displayed on the Techstream changes as the actual switch operation.

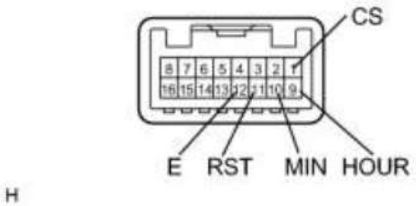
NG ▶ INSPECT TRIP SWITCH

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

2.	INSPECT TRIP SWITCH



(a) Remove the trip switch.



(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition

cardiagn.com

Tester Connection	Condition	Specified Condition
1 (CS) - 12 (E)	Unit change switch pressed	Below 1 Ω
1 (CS) - 12 (E)	Unit change switch not pressed	10 kΩ or higher
9 (HOUR) - 12 (E)	Hour adjust switch pressed	Below 1 Ω
9 (HOUR) - 12 (E)	Hour adjust switch not pressed	10 kΩ or higher
10 (MIN) - 12 (E)	Minute adjust switch pressed	Below 1 Ω
10 (MIN) - 12 (E)	Minute adjust switch not pressed	10 kΩ or higher
11 (RST) - 12 (E)	Set switch pressed	Below 1 Ω
11 (RST) - 12 (E)	Set switch not pressed	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Trip Switch)

NG ▶ REPLACE TRIP SWITCH

OK

▼

3.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - TRIP SWITCH)

(a) Disconnect the L27 and L57 connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-2 (TC O) - L57-1 (CS)	Always	Below 1 Ω
L27-2 (TC O) - Body ground	Always	10 kΩ or higher
L27-12 (HOUR) - L57-9 (HOUR)	Always	Below 1 Ω
L27-12 (HOUR) - Body ground	Always	10 kΩ or higher
L27-13 (MIN) - L57-10 (MIN)	Always	Below 1 Ω
L27-13 (MIN) - Body ground	Always	10 kΩ or higher
L27-17 (RST) - L57-11 (RST)	Always	Below 1 Ω
L27-17 (RST) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

cardiagn.com

Operating Light Control Rheostat does not Change Light Brightness

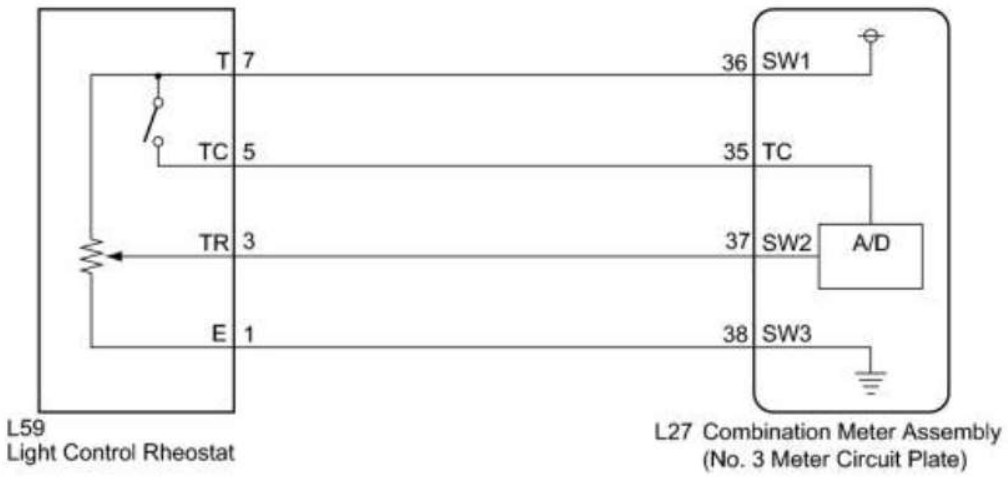
DESCRIPTION

The meter ECU (meter circuit plate No.3) receives signals from this circuit to adjust the illumination of the meter, and instrument panel. The meter ECU (meter circuit plate No.3) sets the illumination level based on the user operation of the light control rheostat.

HINT:

- The meter illumination level can be adjusted by operating the light control rheostat.
- The meter illumination dims when the light control switch is turned to the tail or head position at night.
- Setting the meter illumination to maximum brightness cancels the above dimming of the meter illumination.
- Setting the meter illumination to minimum brightness turns off the meter illumination when the light control switch is changed to the tail or head position.

WIRING DIAGRAM



H

INSPECTION PROCEDURE

PROCEDURE

1.	SYSTEM CHECK

cardiagn.com

(a) Confirm the symptoms.

Result:

Result	Proceed to
Meter illumination does not change in operating the light control rheostat.	A
Dimmer function cannot be canceled.	B

B ▶ READ VALUE USING TECHSTREAM (TAIL CANCEL SW)

A

▼

2.	READ VALUE USING TECHSTREAM (RHEOSTAT VALUE)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Rheostat value	Light control rheostat/Min.: 0 (dark), Max.: 255 (bright)	The light control rheostat value 0 (dark)	The value changes with the rheostat operation
		The light control rheostat value 255 (bright)	

OK:

The value displayed on the Techstream gradually changes as the actual rheostat knob operation.

NG ▶ INSPECT LIGHT CONTROL RHEOSTAT

OK

▼

3.	READ VALUE USING TECHSTREAM (TAIL CANCEL SW)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

cardiagn.com

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Tail Cancel SW	Tail cancel switch/OFF or ON	OFF: Tail cancel switch off	-
		ON: Tail cancel switch on	-

HINT:

The tail cancel switch is operated by turning the light control rheostat knob fully upward

OK:

Condition displayed on the Techstream is the same as the actual light control rheostat knob position.

NG ▶ INSPECT LIGHT CONTROL RHEOSTAT

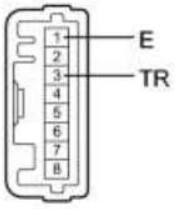
OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

4.	INSPECT LIGHT CONTROL RHEOSTAT



*1

(a) Remove the light control rheostat.



H

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

cardiagn.com

Tester Connection	Switch Condition	Specified Condition
1 (E) - 3 (TR)	Turn the light control rheostat knob fully downwards (MIN.)	Below 50 Ω
	Light control rheostat knob position is between MIN. and MAX.	The value changes gradually (Between 0 to 12 kΩ)
	Turn the light control rheostat knob fully upwards (MAX.)	8 to 12 kΩ

Text in Illustration

*1	Component without harness connected (Light Control Rheostat)

NG ▶ REPLACE LIGHT CONTROL RHEOSTAT

OK

▼

5.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - LIGHT CONTROL RHEOSTAT)

(a) Disconnect the L27 and L59 connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-37 (SW2) - L59-3 (TR)	Always	Below 1 Ω
L27-37 (SW2) - Body ground	Always	10 kΩ or higher
L27-38 (SW3) - L59-1 (E)	Always	Below 1 Ω
L27-38 (SW3) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

6.	READ VALUE USING TECHSTREAM (TAIL CANCEL SW)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

cardiagn.com

(e) Check the values by referring to the table below.

Combination Meter

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Tail Cancel SW	Tail cancel switch/OFF or ON	OFF: Tail cancel switch off	-
		ON: Tail cancel switch on	-

HINT:

The tail cancel switch is operated by turning the light control rheostat knob fully upward

OK:

Condition displayed on the Techstream is the same as the actual light control rheostat knob position.

NG ▶ INSPECT LIGHT CONTROL RHEOSTAT

OK

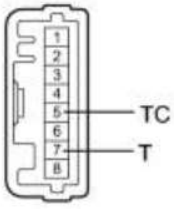
▼

7.	INSPECT LIGHT CONTROL RHEOSTAT



*1

(a) Remove the light control rheostat.



H

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition

cardiagn.com

Tester Connection	Switch Condition	Specified Condition
5 (TC) - 7 (T)	Light control rheostat position is except below	Below 50 Ω
	Turn the light control rheostat knob fully upwards (Tail cancel switch is on)	8 to 12 kΩ

Text in Illustration

*1	Component without harness connected (Light Control Rheostat)

NG ▶ REPLACE LIGHT CONTROL RHEOSTAT

OK

▼

8.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - LIGHT CONTROL RHEOSTAT)

(a) Disconnect the L27 and L59 connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-36 (SW1) - L59-7 (T)	Always	Below 1 Ω
L27-36 (SW1) - Body ground	Always	10 kΩ or higher
L27-35 (TC) - L59-5 (TC)	Always	Below 1 Ω
L27-35 (TC) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

cardiagn.com

Meter Illumination is Always Dark

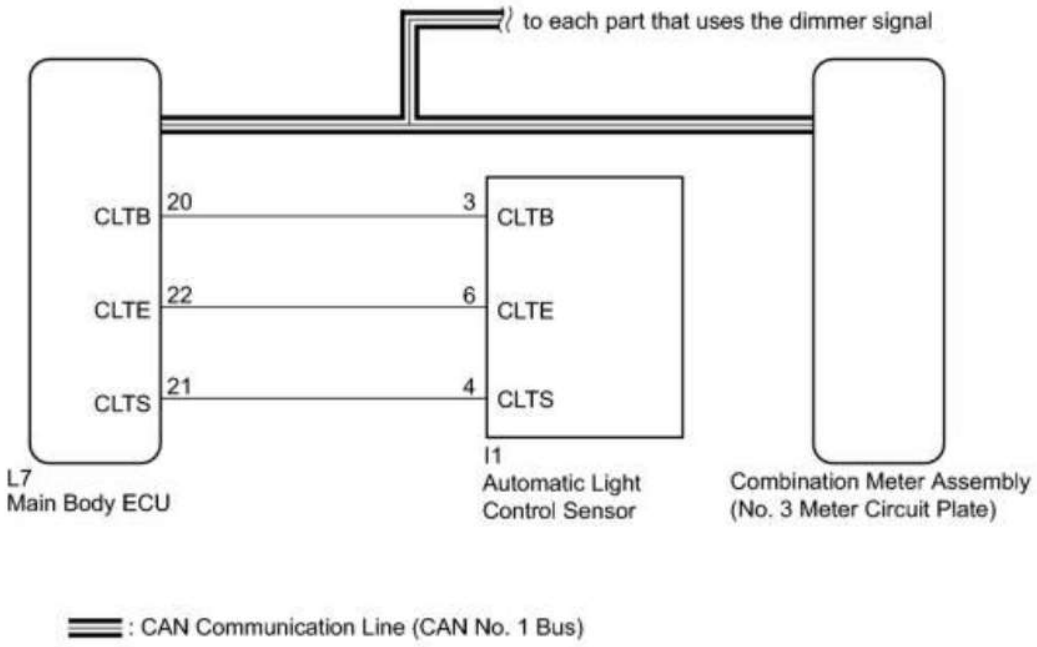
DESCRIPTION

The meter ECU (meter circuit plate No.3) receives signals from this circuit to adjust the illumination of the meter, and instrument panel. The meter ECU (meter circuit plate No.3) sets the illumination level based on the user operation of the light control rheostat.

HINT:

- The meter illumination level can be adjusted by operating the light control rheostat.
- The meter illumination dims when the light control switch is turned to the tail or head position at night.
- Setting the meter illumination to maximum brightness cancels the above dimming of the meter illumination.

WIRING DIAGRAM



H

INSPECTION PROCEDURE

HINT:

- The meter illumination can be customized by turning the light control rheostat.
- Setting the meter illumination to minimum brightness turns off the meter illumination when the light control switch is changed to the tail, head, or AUTO position at night.

cardiagn.com

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM

(a) Check if a CAN communication DTC is output INFO.

Result:

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B ▶ GO TO CAN COMMUNICATION SYSTEM

A ▼

2.	CHECK DTC (LIGHT SENSOR CIRCUIT)

(a) Check if DTC B1244 is output INFO.

Result:

Result	Proceed to
B1244 is not output.	A
B1244 is output.	B

B ▶ GO TO LIGHTING SYSTEM

A ▼

3.	CHECK OPERATION (HEATER CONTROL PANEL)

(a) Turn the power switch on (IG).

(b) Turn the light control switch to the tail, head, or AUTO position.

(c) Cover the automatic light control sensor.

(d) Check the heater control panel illumination.

Result:

Result	Proceed to
Heater control panel illumination does not operate normally.	A
Heater control panel illumination operates normally.	B

HINT:

cardiagn.com

Both the heater control panel and the combination meter assembly illumination dim according to the dimmer signal. Therefore, when only the meter illumination is always dark, there may be a malfunction in the combination meter assembly.

B REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

A

4.	CHECK OPERATION (AUTOMATIC LIGHT CONTROL SYSTEM)

(a) Turn the power switch on (IG).

(b) Turn the light control switch to the AUTO position.

(c) Cover the automatic light control sensor.

(d) Check the taillights and low beam headlights.

OK:

The taillights and low beam headlights come on.

(e) Uncover the automatic light control sensor.

(f) Check the low beam headlights and taillights.

OK:

The taillights and low beam headlights go off.

Result:

Result	Proceed to
Automatic light control system operates normally.	A
Automatic light control system does not operate normally.	B

B CHECK LIGHTING SETTING

A

5.	REPLACE MAIN BODY ECU

(a) Replace the main body ECU with a new or a normal one INFO.

OK:

The operation of the combination meter assembly returns to normal.

HINT:

cardiagn.com

The meter ECU (meter circuit plate No.3) controls the meter illumination based on an auto dimmer signal from the main body ECU. When the meter illumination is always dark (very dim), it may be due to the main body ECU sending an auto dimmer signal to the meter ECU (meter circuit plate No.3) because of a malfunction in the main body ECU.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)
OK ▶ **END**

cardiagn.com

Meter Illumination does not Dim at Night

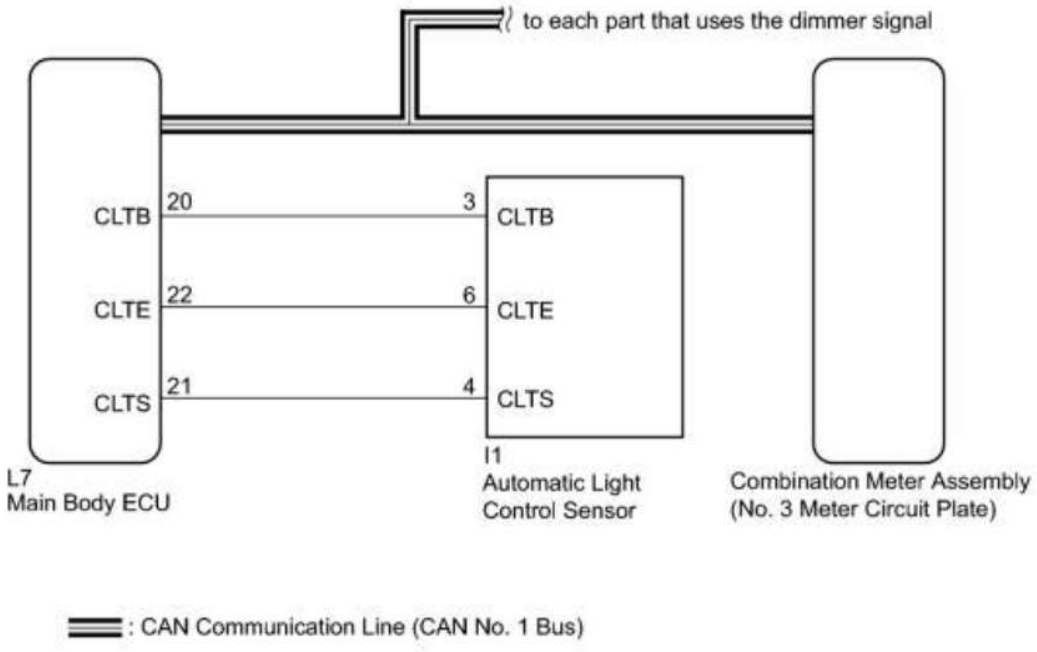
DESCRIPTION

In this circuit, the meter ECU (meter circuit plate No.3) receives auto dimmer signals from the main body ECU using the CAN communication system (CAN No. 1 Bus). When the meter ECU (meter circuit plate No.3) receives an auto dimmer signal, it dims the meter illumination (warning and indicator lights). The main body ECU determines whether it is daytime, twilight, or nighttime based on the waveform transmitted from the automatic light control sensor. If the main body ECU determines that it is nighttime and the light control switch is in the tail, head, or AUTO position, the ECU sends an auto dimmer signal. According to the signal, the combination meter assembly dims the meter illumination.

HINT:

When the meter illumination does not dim at night, there may be a malfunction in the automatic light control sensor, main body ECU, CAN communication system, harness or connector, or combination meter assembly.

WIRING DIAGRAM



H

INSPECTION PROCEDURE

HINT:

- The automatic light control sensor sensitiveness can be customized INFO.

cardiagn.com

- Setting the meter illumination to maximum brightness prevents the meter illumination from dimming when the light control switch is changed to the tail, head, or AUTO position at night. Therefore, check the meter illumination setting before proceeding to the following steps.

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM

(a) Check if a CAN communication DTC is output INFO.

Result:

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B ▶ GO TO CAN COMMUNICATION SYSTEM

A ▼

2.	CHECK DTC (LIGHT CONTROL SENSOR CIRCUIT)

(a) Check if DTC B1244 is output INFO.

Result:

Result	Proceed to
B1244 is not output.	A
B1244 is output.	B

B ▶ GO TO LIGHTING SYSTEM

A ▼

3.	CHECK OPERATION (HEATER CONTROL PANEL)

(a) Turn the power switch on (IG).

(b) Turn the light control switch to the tail, head, or AUTO position.

(c) Cover the light control switch.

(d) Check the heater control panel illumination.

Result:

Result	Proceed to
Heater control panel illumination does not operate normally.	A
Heater control panel illumination operates normally.	B

cardiagn.com

HINT:

Both the heater control panel and combination meter assembly illumination dim according to the dimmer signal. Therefore, when only the meter illumination does not dim at night, replace the combination meter assembly.

B ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)

A ▼

4.	CHECK OPERATION (AUTOMATIC LIGHT CONTROL SYSTEM)

(a) Turn the power switch on (IG).

(b) Turn the light control switch to the AUTO position.

(c) Cover the automatic light control sensor.

(d) Check the taillights and low beam headlights.

OK:

The taillights and low beam headlights come on.

(e) Uncover the automatic light control sensor.

(f) Check the low beam headlights and taillights.

OK:

The low beam headlights and taillights go off.

Result:

Result	Proceed to
Automatic light control system operates normally.	A
Automatic light control system does not operate normally.	B

B ▶ CHECK LIGHTING SETTING

A ▼

5.	REPLACE MAIN BODY ECU

(a) Replace the main body ECU with a new or a known good one INFO.

OK:

The operation of the combination meter assembly returns to normal.

HINT:

cardiagn.com

The meter ECU (meter circuit plate No.3) controls the meter illumination based on an auto dimmer signal from the main body ECU. If the meter does not dim when the light control switch is in the tail, head, or AUTO position at night, it may be for either of 2 reasons. The first reason is that the main body ECU does not send an auto dimmer signal. The second is that the meter ECU (meter circuit plate No.3) does not dim the meter illumination even though the meter ECU (meter circuit plate No.3) receives an auto dimmer signal.

NG ▶ REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)
OK ▶ **END**

cardiagn.com

Speed Signal Circuit

DESCRIPTION

The combination meter assembly (No. 3 meter circuit plate) receives the vehicle speed signal from this circuit. The wheel speed sensors produce an output that varies according to the vehicle speed. The wheel speed sensor output is received by the skid control ECU which uses this information to create the vehicle speed sensor signal*1. The vehicle speed sensor signal consists of pulses sent to the combination meter assembly from the skid control ECU. To create this signal, 12 V is output from IG2 which is behind a resistor in the combination meter assembly. This voltage is sent to the skid control ECU. The pulse signal is created by switching the transistor in the skid control ECU on and off, making the voltage on the wire drop to 0 V. A similar system is used for the output of this signal from the combination meter assembly via terminal +S. A voltage of 12 V or 5 V is applied to terminal +S from each ECU or relay that is connected to this terminal. The transistor in the combination meter assembly is controlled by the signal from the skid control ECU. When this transistor is turned on, this transistor makes the voltage supplied by the various ECUs (via their respective internal resistors) drop to 0 V. Each ECU connected to terminal +S of the combination meter assembly controls its respective system based on the pulse signal.

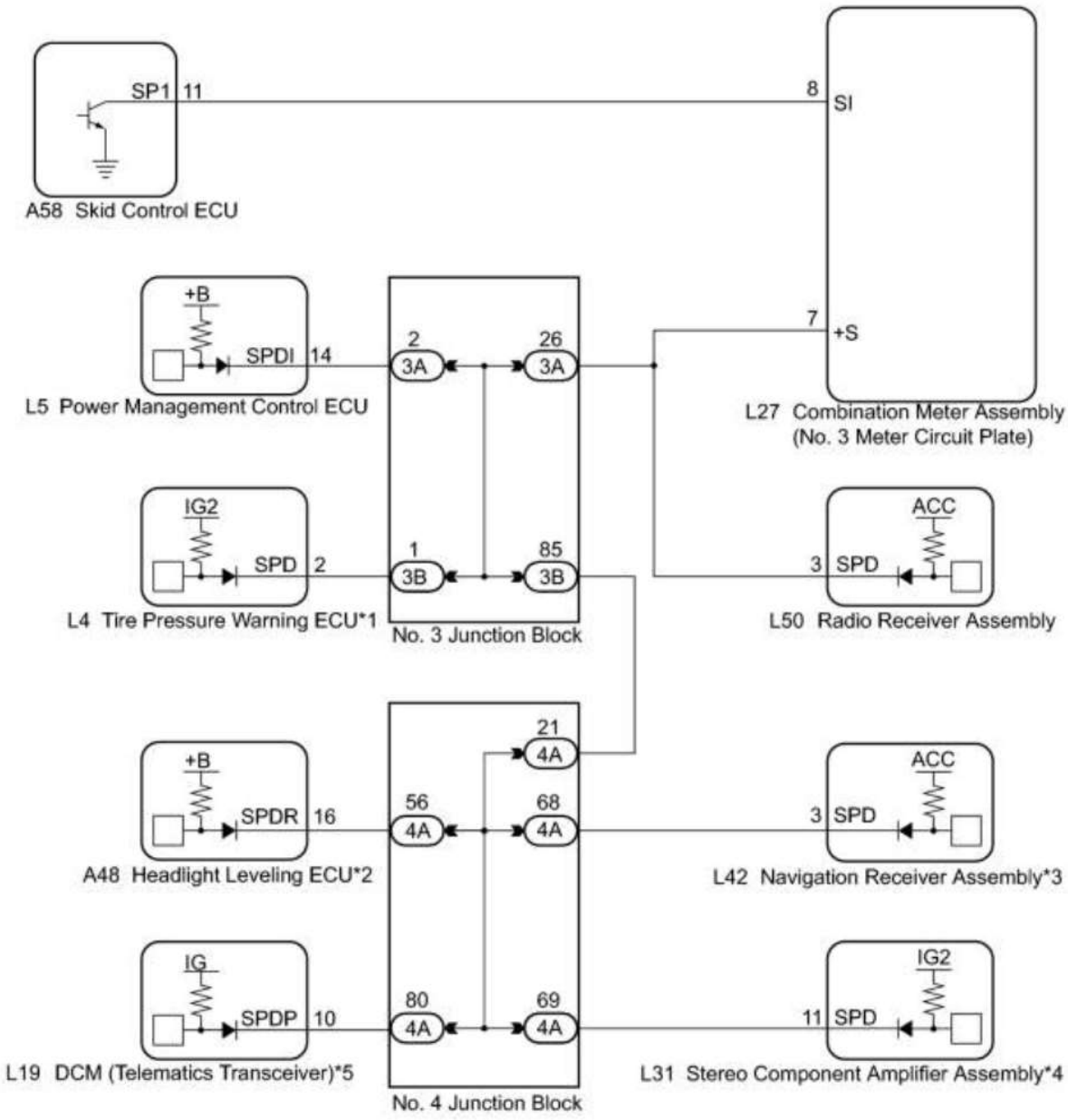
- *1: This vehicle speed sensor signal is created by the skid control ECU. There is no actual component that is referred to as the vehicle speed sensor. In addition, for some other systems, vehicle speed information may be exchanged using CAN communication.

HINT:

This circuit is used for the systems connected to terminal +S. This signal is not used for combination meter assembly (no. 3 meter circuit plate) operation. Combination meter assembly components such as the speedometer operate using data received via CAN communication.

WIRING DIAGRAM

cardiagn.com



*1: w/ Tire Pressure Warning System
*2: w/ Automatic Type Headlight Beam Level Control
*3: w/ Navigation System
*4: for Separate Type Amplifier System
*5: w/ Manual (SOS) Switch

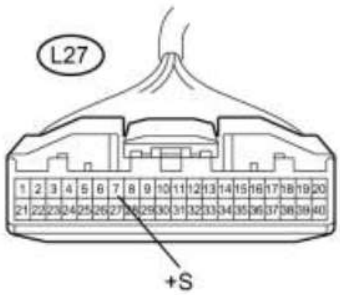
INSPECTION PROCEDURE

PROCEDURE

1.	INSPECT ECU TERMINAL VOLTAGE (INPUT VOLTAGE)

cardiagn.com

*1



H

(a) Disconnect the L27 connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
L27-7 (+S) - Body ground	Power switch on (IG)	4.5 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter Assembly (No. 3 Meter Circuit Plate))

HINT:

If any of the ECUs specified in the wiring diagram supplies power to the combination meter assembly, the combination meter assembly will output a waveform.

NG ▶ CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - RADIO RECEIVER ASSEMBLY)

OK

▼

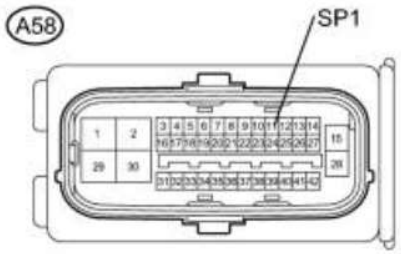
2.	INSPECT COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE) (OUTPUT VOLTAGE)

(a) Reconnect the L27 connector.

(b) Disconnect the A58 connector.

cardiagn.com

*1



(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
A58-11 (SP1) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Skid Control ECU)

NG ▶ CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - SKID CONTROL ECU)

OK

▼

3.	INSPECT SKID CONTROL ECU (INPUT WAVEFORM)

(a) Check the input waveform.

(1) Reconnect the A58 connector.

(2) Remove the combination meter assembly with the connector(s) still connected.

(3) Connect an oscilloscope to terminal L27-8 (SI) and body ground.

(4) Turn the power switch on (IG).

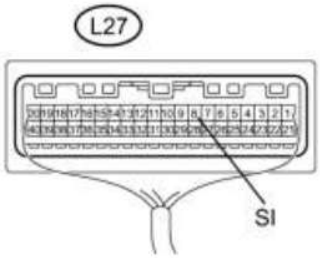
(5) Turn the wheel slowly.

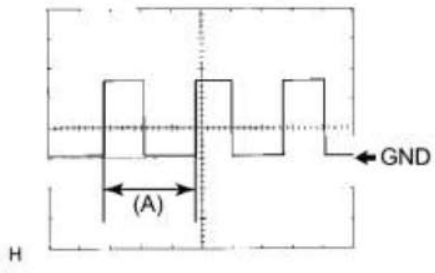
(6) Check the signal waveform according to the condition(s) in the table below.

cardiagn.com

*1

Item	Condition
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)





Text in Illustration

*1	Component with harness connected (Combination Meter Assembly)

OK:

The waveform is displayed as shown in the illustration.

HINT:

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

NG ▶ REPLACE SKID CONTROL ECU

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

4.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - SKID CONTROL ECU)

(a) Disconnect the L27 and A58 connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A58-11 (SP1) - L27-8 (SI)	Always	Below 1 Ω
A58-11 (SP1) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE COMBINATION METER ASSEMBLY (NO. 3 METER CIRCUIT PLATE)**

5.	CHECK HARNESS AND CONNECTOR (NO. 3 METER CIRCUIT PLATE - RADIO RECEIVER ASSEMBLY)

(a) Disconnect the L27 and L50 connectors.

(b) Measure the resistance according to the value(s) in the table below.

cardiagn.com

Standard Resistance:

Tester Connection	Condition	Specified Condition
L50-3 (SPD) - L27-7 (+S)	Always	Below 1 Ω
L50-3 (SPD) - Body ground	Always	10 kΩ or higher

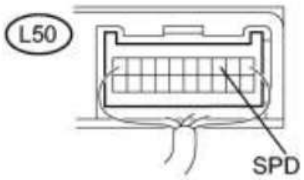
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

6.	INSPECT RADIO RECEIVER ASSEMBLY (OUTPUT VOLTAGE)

*1



(a) Reconnect the L50 connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
L50-3 (SPD) - Body ground	Power switch on (IG)	4 to 14 V

Text in Illustration

*1	Component with harness connected (Radio Receiver Assembly)

NG ▶ REPLACE RADIO RECEIVER ASSEMBLY

OK

▼

7.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - NO. 3 JUNCTION BLOCK)

cardiagn.com

(a) Disconnect the 3A connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L27-7 (+S) - 3A-26	Always	Below 1 Ω
L27-7 (+S) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

8.	CHECK HARNESS AND CONNECTOR (NO. 3 JUNCTION BLOCK (INSTRUMENT PANEL WIRE))

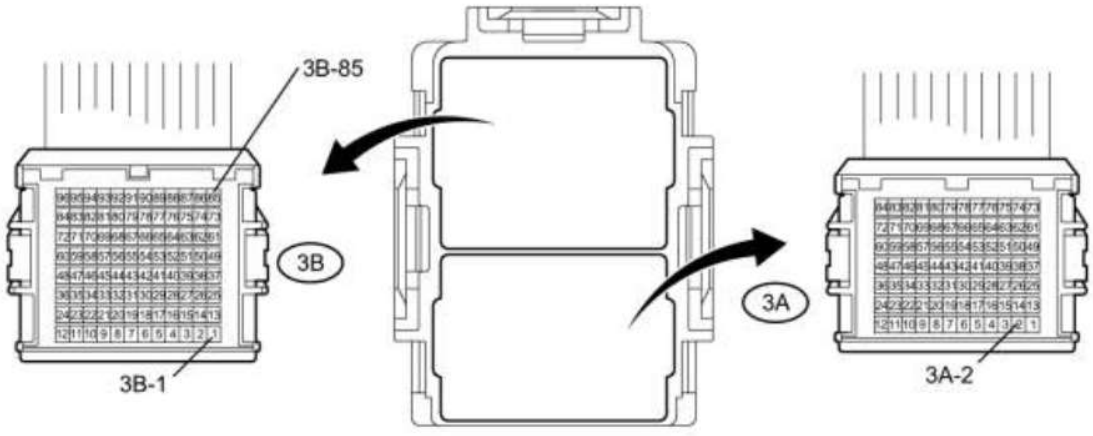
(a) Inspect for a short in the circuit that is connected to the junction block connector shown in the wiring diagram.

HINT:

If voltage is not present, it is possible that an ECU or circuit has a malfunction. The malfunctioning ECU or circuit will be diagnosed in the following steps.

(1) Disconnect the 3B connector.

*1



H

(2) Measure the voltage according to the value(s) in the table below.

cardiagn.com

Standard Voltage:

Tester Connection	Condition	Specified Condition
3A-2 - Body ground	Power switch on (IG)	4.5 to 14 V
3B-1 - Body ground	Power switch on (IG)	4.5 to 14 V
3B-85 - Body ground	Power switch on (IG)	4.5 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to No. 3 Junction Block)

Result:

Result	Proceed to
Voltage is not present in one circuit.	A
Voltage is present in all the circuits.	B

B ▶ REPLACE NO. 3 JUNCTION BLOCK (INSTRUMENT PANEL WIRE)

A

▼

9.	CHECK HARNESS AND CONNECTOR (NO. 3 JUNCTION BLOCK - NO. 4 JUNCTION BLOCK)

(a) Disconnect the 4A connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3B-85 - 4A-21	Always	Below 1 Ω
3B-85 - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

10.	CHECK HARNESS AND CONNECTOR (NO. 4 JUNCTION BLOCK (INSTRUMENT PANEL WIRE))

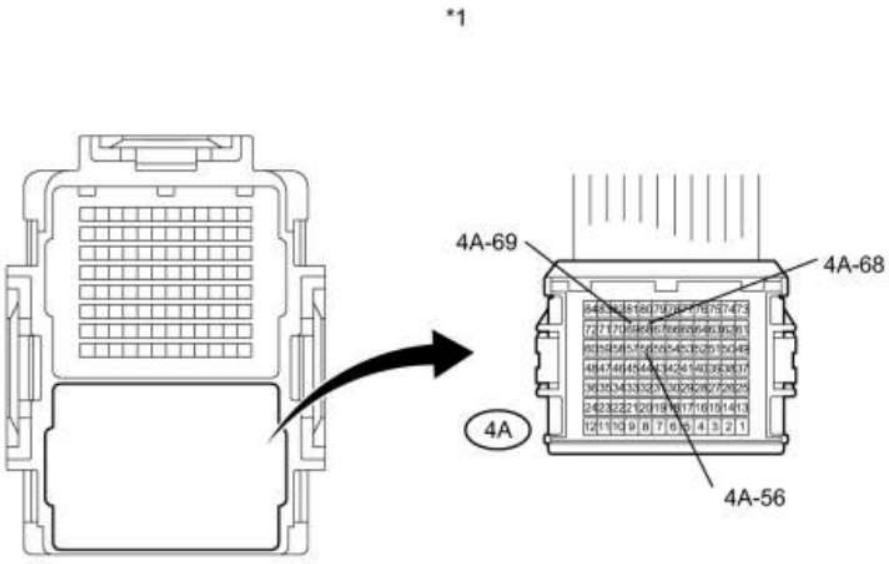
(a) Inspect for a short in the circuit that is connected to the junction block connector shown in the wiring diagram.

HINT:

cardiagn.com

If voltage is not present, it is possible that an ECU or circuit has a malfunction. The malfunctioning ECU or circuit will be diagnosed in the following steps.

(1) Measure the voltage according to the value(s) in the table below.



H

Standard Voltage:

Tester Connection	Condition	Specified Condition
4A-56 - Body ground	Power switch on (IG)	4.5 to 14 V
4A-68 - Body ground	Power switch on (IG)	4.5 to 14 V
4A-69 - Body ground	Power switch on (IG)	4.5 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to No. 4 Junction Block)

Result:

Result	Proceed to
Voltage is not present in one circuit.	A
Voltage is present in all the circuits.	B

B ▶ REPLACE NO. 4 JUNCTION BLOCK (INSTRUMENT PANEL WIRE)

A

▼

2010 Toyota Prius Repair Manual

cardiagn.com

11.	SYSTEM CHECK

(a) Select the circuit for which voltage was not present in step 7 or 9.

Result:

Tester Connection	System that Uses the Circuit	Proceed to
3A-2 - Body ground	Smart Key System	A
4A-69 - Body ground	Audio/Visual System	A
4A-68*1 - Body ground	Navigation System	A
3B-1*2 - Body ground	Tire Pressure Warning ECU	A
4A-56*3 - Body ground	Lighting System	A
4A-80*4 - Body ground	Safety Connect System	B

- *1: w/ Navigation System
- *2: w/ Tire Pressure Warning System
- *3: w/ Automatic Type Headlight Beam Level Control
- *4: w/ Manual (SOS) Switch

B ▶ CHECK HARNESS AND CONNECTOR (DCM (TELEMATICS TRANSCEIVER) CIRCUIT)

A

▼

12.	SYSTEM CHECK

(a) Select the circuit for which voltage was not present in step 7 or 9.

Result:

Tester Connection	System that Uses the Circuit	Proceed to
3A-2 - Body ground	Smart Key System	A
4A-69 - Body ground	Audio/Visual System	B
4A-68*1 - Body ground	Navigation System	C
3B-1*2 - Body ground	Tire Pressure Warning ECU	D
4A-56*3 - Body ground	Lighting System	E

- *1: w/ Navigation System
- *2: w/ Tire Pressure Warning System
- *3: w/ Automatic Type Headlight Beam Level Control

E ▶ CHECK HARNESS AND CONNECTOR (HEADLIGHT LEVELING ECU CIRCUIT)

D ▶ CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU CIRCUIT)

cardiagn.com

C CHECK HARNESS AND CONNECTOR (NAVIGATION RECEIVER ASSEMBLY CIRCUIT)

B CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY CIRCUIT)

A

13.	CHECK HARNESS AND CONNECTOR (POWER MANAGEMENT CONTROL ECU CIRCUIT)

(a) Disconnect the L5 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L5-14 (SPDI) - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK **REPLACE POWER MANAGEMENT CONTROL ECU**

14.	CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY CIRCUIT)

(a) Disconnect the L31 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L31-11 (SPD) - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

15.	CHECK HARNESS AND CONNECTOR (NAVIGATION RECEIVER ASSEMBLY CIRCUIT)

(a) Disconnect the L42 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L42-3 (SPD) - Body ground	Always	10 kΩ or higher

cardiagn.com

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE NAVIGATION RECEIVER ASSEMBLY**

16.	CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU CIRCUIT)

(a) Disconnect the L4 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L4-2 (SPD) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE TIRE PRESSURE WARNING ECU**

17.	CHECK HARNESS AND CONNECTOR (HEADLIGHT LEVELING ECU CIRCUIT)

(a) Disconnect the A48 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A48-16 (SPDR) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE HEADLIGHT LEVELING ECU ASSEMBLY**

18.	CHECK HARNESS AND CONNECTOR (DCM (TELEMATICS TRANSCEIVER) CIRCUIT)

(a) Disconnect the L19 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L19-10 (SPDP) - Body ground	Always	10 kΩ or higher

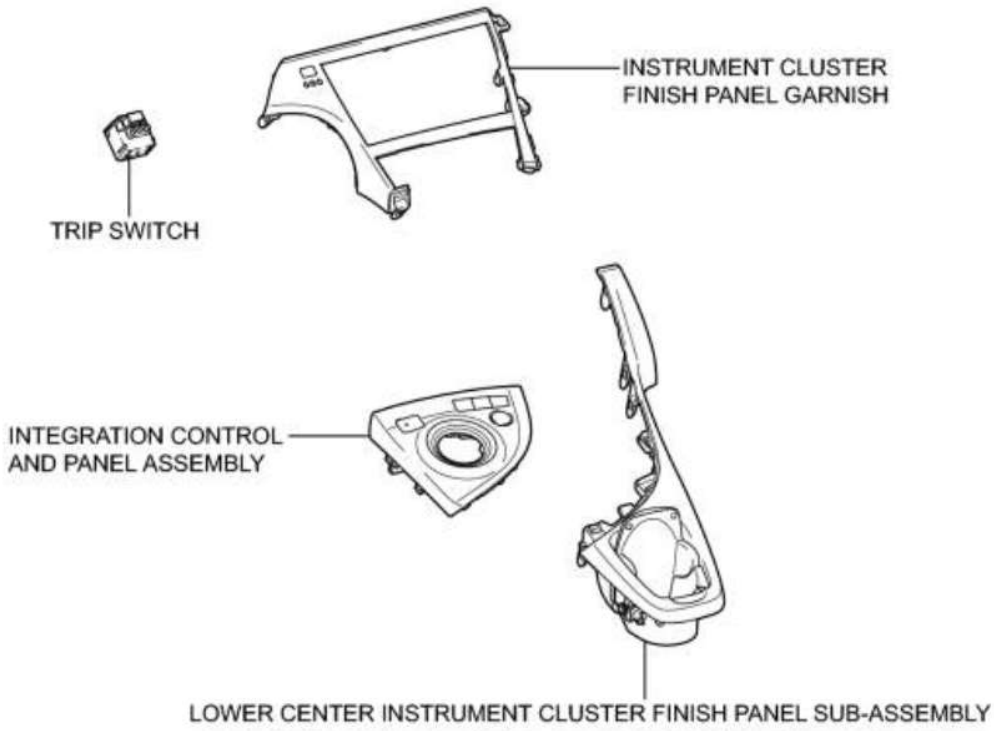
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE DCM (TELEMATICS TRANSCEIVER)**

cardiagn.com

COMPONENTS

ILLUSTRATION



P

cardiagn.com

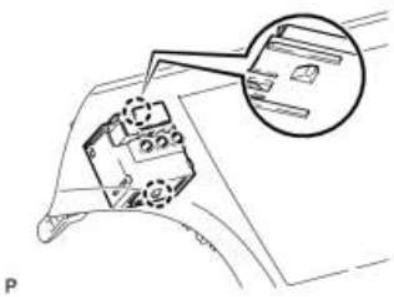
REMOVAL

1. REMOVE INTEGRATION CONTROL AND PANEL ASSEMBLY INFO

2. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY INFO

3. REMOVE INSTRUMENT CLUSTER FINISH PANEL GARNISH INFO

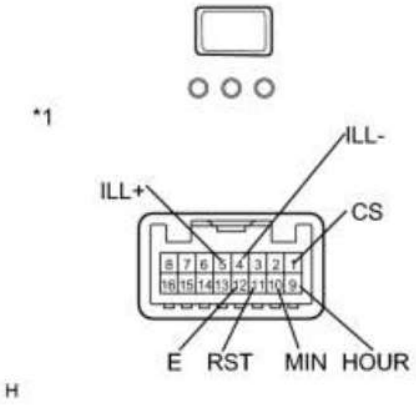
4. REMOVE TRIP SWITCH



(a) Disengage the 2 claws to remove the trip switch.

cardiagn.com

INSPECTION



1. INSPECT TRIP SWITCH

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 (CS) - 12 (E)	Unit change switch not pressed	10 kΩ or higher
1 (CS) - 12 (E)	Unit change switch pressed	Below 1 Ω
9 (HOUR) - 12 (E)	Hour adjust switch not pressed	10 kΩ or higher
9 (HOUR) - 12 (E)	Hour adjust switch pressed	Below 1 Ω
10 (MIN) - 12 (E)	Minute adjust switch not pressed	10 kΩ or higher
10 (MIN) - 12 (E)	Minute adjust switch pressed	Below 1 Ω
11 (RST) - 12 (E)	Set switch not pressed	10 kΩ or higher
1 (RST) - 12 (E)	Set switch pressed	Below 1 Ω

(b) Apply battery voltage from the wire harness back side between the terminals of the switch, and check the lighting condition of the trip switch.

OK:

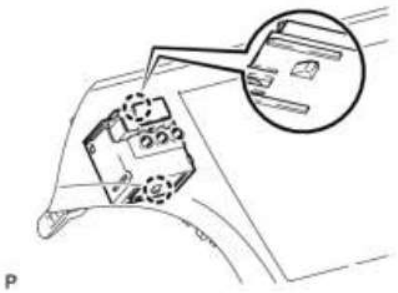
Measurement Condition	Condition	Specified Condition
Battery positive (+) → 5 (ILL+) Battery negative (-) → 4 (ILL-)	Always	Trip switch illuminates

If the result is not as specified, replace the trip switch INFO.

cardiagn.com

INSTALLATION

1. INSTALL TRIP SWITCH



P

(a) Engage the 2 claws to install the trip switch.

2. INSTALL INSTRUMENT CLUSTER FINISH PANEL GARNISH INFO

3. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY INFO

4. INSTALL INTEGRATION CONTROL AND PANEL ASSEMBLY INFO

cardiagn.com