



# Technical Service Bulletin

SUBJECT:		NO.:	<b>TSB-23-35-002</b>
<b>CORRECTION/ADDITION OF SERVICE BRAKE AND CHASSIS ELECTRICAL INFORMATION – SERVICE MANUAL REVISION</b>		DATE:	<b>March 2023</b>
		MODEL:	<b>2023 Outlander PHEV</b>
<b>CIRCULATE TO:</b>	<input type="checkbox"/> GENERAL MANAGER	<input checked="" type="checkbox"/> PARTS MANAGER	<input checked="" type="checkbox"/> TECHNICIAN
<input checked="" type="checkbox"/> SERVICE ADVISOR	<input checked="" type="checkbox"/> SERVICE MANAGER	<input checked="" type="checkbox"/> WARRANTY PROCESSOR	<input type="checkbox"/> SALES MANAGER

## PURPOSE

This TSB provides corrections and additional information for the Service Brake and Chassis Electrical sections of the Service Manual.

## AFFECTED VEHICLES

- 2023 Outlander PHEV

## AFFECTED SERVICE MANUAL

- 2023 Outlander PHEV Service Manual

## PROCEDURE

Please use the attached chart as a guide to replace the indicated pages of the affected Service Manual, Group 35 Service Brake and Group 54 Chassis Electrical.



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Applicable manual	Pub. No.	Applicable title	Content
2023 OUTLANDER PHEV Service Manual	MSCD-027B-2023	GENERAL INFORMATION ↳ GENERAL INFORMATION ↳ PREPARATION ↳ PREPARATION ↳ Special Service Tool Number Substitution List	Attached sheet 2
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		ENGINE ↳ MULTIPOINT FUEL INJECTION (MFI) ↳ MULTIPOINT FUEL INJECTION (MFI) DIAGNOSIS ↳ DIAGNOSTIC TROUBLE CODE PROCEDURES ↳ DTC P0172-00: Fuel system too rich	Attached sheet 5
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Applicable manual	Pub. No.	Applicable title	Content
2023 OUTLANDER PHEV Service Manual	MSCD-027B-2023	SUSPENSION <ul style="list-style-type: none"> <li>└ REAR SUSPENSION               <ul style="list-style-type: none"> <li>└ SERVICE DATA AND SPECIFICATIONS (SDS)                   <ul style="list-style-type: none"> <li>└ SERVICE DATA AND SPECIFICATIONS (SDS)                       <ul style="list-style-type: none"> <li>└ Wheel Alignment</li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 15
		BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ SYSTEM DESCRIPTION                       <ul style="list-style-type: none"> <li>└ SYSTEM                           <ul style="list-style-type: none"> <li>└ Fail-Safe</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 16
		BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ ECU DIAGNOSIS INFORMATION                       <ul style="list-style-type: none"> <li>└ ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                           <ul style="list-style-type: none"> <li>└ DTC Inspection Priority Chart</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 17
		BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ ECU DIAGNOSIS INFORMATION                       <ul style="list-style-type: none"> <li>└ ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                           <ul style="list-style-type: none"> <li>└ DTC Index</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 18 (1/2)
		BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ ECU DIAGNOSIS INFORMATION                       <ul style="list-style-type: none"> <li>└ ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                           <ul style="list-style-type: none"> <li>└ OBD-II DRIVE CYCLE</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 18 (2/2)
		Added below BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ DTC/CIRCUIT DIAGNOSIS                       <ul style="list-style-type: none"> <li>└ C1047-04 SUCTION VALVE                           <ul style="list-style-type: none"> <li>└ Diagnosis Procedure</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 19
		Added below BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ DTC/CIRCUIT DIAGNOSIS                       <ul style="list-style-type: none"> <li>└ C1051-1C PUMP MOTOR                           <ul style="list-style-type: none"> <li>└ Diagnosis Procedure</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 20
		Added below BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ DTC/CIRCUIT DIAGNOSIS                       <ul style="list-style-type: none"> <li>└ C1056-1C Charge pump under voltage HEV                           <ul style="list-style-type: none"> <li>└ Diagnosis Procedure</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 21
		Added below BRAKES <ul style="list-style-type: none"> <li>└ BRAKE CONTROL SYSTEM               <ul style="list-style-type: none"> <li>└ WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)                   <ul style="list-style-type: none"> <li>└ DTC/CIRCUIT DIAGNOSIS                       <ul style="list-style-type: none"> <li>└ C1058-04 CONTROL UNIT                           <ul style="list-style-type: none"> <li>└ Diagnosis Procedure</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 22
		STEERING <ul style="list-style-type: none"> <li>└ STEERING SYSTEM               <ul style="list-style-type: none"> <li>└ REMOVAL AND INSTALLATION                   <ul style="list-style-type: none"> <li>└ STEERING GEAR AND LINKAGE                       <ul style="list-style-type: none"> <li>└ Removal and Installation</li> </ul> </li> </ul> </li> </ul> </li> </ul>	Attached sheet 23

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DRIVER CONTROLS ↳ MIRRORS ↳ SYSTEM DESCRIPTION ↳ SYSTEM ↳ DOOR MIRROR SYSTEM ↳ System Description (With automatic positioner system)	Attached sheet 33		

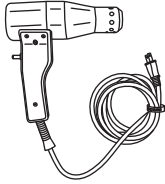
Applicable manual	Pub. No.	Applicable title	Content
2023 OUTLANDER PHEV Service Manual	MSCD-027B-2023	DRIVER CONTROLS ↳ MIRRORS ↳ DTC/CIRCUIT DIAGNOSIS ↳ POWER WINDOW MAIN SWITCH ↳ Diagnosis Procedure (Without automatic drive positioner system)	Attached sheet 34
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Applicable manual	Pub. No.	Applicable title	Content
2023 OUTLANDER PHEV Service Manual	MSCD-027B-2023	CRUISE CONTROL & DRIVER ASSISTANCE <ul style="list-style-type: none"> <li>└ DRIVER ASSISTANCE SYSTEM</li> <li>└ ADAS CONTROL UNIT               <ul style="list-style-type: none"> <li>└ BASIC INSPECTION</li> <li>└ ADDITIONAL SERVICE WHEN REPLACING ADAS CONTROL UNIT 2                   <ul style="list-style-type: none"> <li>└ Work Procedure</li> </ul> </li> </ul> </li> </ul>	Attached sheet 44
		CRUISE CONTROL & DRIVER ASSISTANCE <ul style="list-style-type: none"> <li>└ DRIVER ASSISTANCE SYSTEM</li> <li>└ ADAS CONTROL UNIT               <ul style="list-style-type: none"> <li>└ BASIC INSPECTION</li> <li>└ STEERING TORQUE CALIBRATION                   <ul style="list-style-type: none"> <li>└ Work Procedure</li> </ul> </li> </ul> </li> </ul>	Attached sheet 45
		CIRCUIT DIAGRAM <ul style="list-style-type: none"> <li>└ CENTRALIZED JUNCTION &lt;LOW VOLTAGE&gt;</li> </ul>	Attached sheet 46
		CIRCUIT DIAGRAM <ul style="list-style-type: none"> <li>└ FUSIBLE LINK, FUSE HOLDER, FUSE BLOCK</li> </ul>	Attached sheet 47
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## PREPARATION

## PREPARATION

## Commercial Service Tools

Tool name	Description
Industrial dryer  CF1009KVAA00USA	Heating heat shrinkable tube


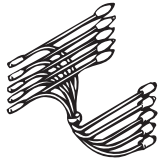
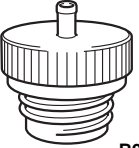
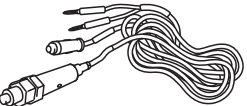
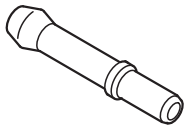
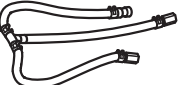
## Special Service Tool Number Substitution List

When you order special service tool, use part number on "tool order number" instead of part number on "tool number for service manual."

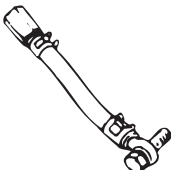
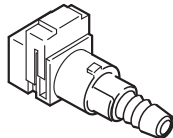
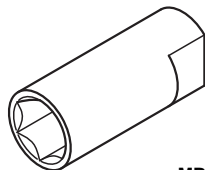
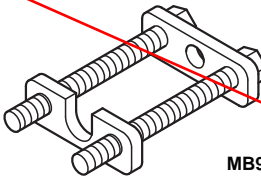
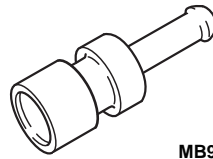

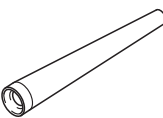
Tool name	Tool number for service manual	Tool order number
Hub lock nut wrench	KV40104000	MQ713879
Protector	KV38107900	MQ703696
Lock nut crimp punch	KV40108700	MQ600120
Lock nut chisel	KV40108800	MQ600063
Strut attachment	ST35652000	MQ703718
Boot band crimping tool	KV40107300	MB991561V
Laser marker	KV99120000	MQ600065
ICC target board (Type1)	KV99112700	MQ600096
Driver assistance targets	KV99117200	MQ600100

&lt;Added&gt;

## SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
-	MB992744 MB992745 MB992747 MB992748 Scan tool (M.U.T.-III SE)	-	MFI system inspection
	MB991709 Test harness	MB991709-01	<ul style="list-style-type: none"> <li>• Measurement of voltage during troubleshooting</li> <li>• Inspection using an oscilloscope</li> </ul>
 MB991658	MB991658 Test harness	Tool not available	<ul style="list-style-type: none"> <li>• Measurement of voltage during troubleshooting</li> <li>• Inspection using an oscilloscope</li> </ul>
 B992145	MB992145	-	Fuel leak check
 MB991981	MB991981 Fuel pressure gauge set	Tool not available	Measurement of fuel pressure
 MB992001	MB992001 Hose adaptor	-	<ul style="list-style-type: none"> <li>• Measure fuel pressure</li> <li>• Check the <del>spray condition</del> of injectors</li> </ul>
 MB992076	MB992076 Injector test set	-	<Deleted>



Tool	Tool number and name	Supersession	Application
	MD998709 Adapter hose	Hose adapter	Measure fuel pressure
 <b>MB992049</b>	MB992049 Quick connector	-	
 <b>MB992042</b>	MB992042 Engine coolant temperature sensor wrench	-	Engine coolant temperature sensor removal and installation  <b>&lt;Deleted&gt;</b>
 <b>MB992184</b>	MB992184 Injector holder	-	Check the spray condition of injectors
 <b>MB992088</b>	MB992088 Injector test nipple	-	
 <b>MB991607</b>	MB991607 Injector test harness	-	
 <b>B992106</b>	MB992106 O-ring installer	-	Installation of O-ring on fuel injector injection nozzle side

**12. STEP 12. Check fuel.**

Check for entry of foreign matter (water, kerosene, etc.) into fuel.

**Q:** Is the check result normal?

YES >>

[Go to Step 13](#) [after replacement of the injector.](#) <Added>

NO >>

Replace the fuel.

**13. STEP 13. Test the OBD-II drive cycle.**

After erasing the DTC, carry out test drive with the drive cycle pattern, and recheck the DTC.

- (1) Use scan tool (M.U.T.-III SE) to erase the DTC.
- (2) Carry out test drive with the drive cycle pattern (Refer to Diagnostic Function, OBD-II Drive Cycle – Pattern 2 [OBD-II DRIVE CYCLE](#)).
- (3) Use scan tool (M.U.T.-III SE) to recheck the DTC.

**Q:** Is DTC P0171-00 set?

YES >>

Replace the ECM (Refer to [REMOVAL AND INSTALLATION](#)).

NO >>

Intermittent malfunction (Refer to GENERAL INFORMATION, General Information – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [HOW TO COPE WITH INTERMITTENT MALFUNCTIONS](#)).

**DTC P0172-00: Fuel system too rich****TECHNICAL DESCRIPTION**

- If a malfunction occurs in the fuel system, the fuel trim value becomes too small.
- The ECM checks whether the fuel trim value is within a specified range.

**DESCRIPTIONS OF MONITOR METHODS**

Air-fuel learning value (long time fuel trim) and air-fuel feedback integral value (short time fuel trim) are too rich.

**MONITOR EXECUTION**

Continuous.

**MONITOR EXECUTION CONDITIONS (Other monitor and Sensor)**

**Other Monitor (There is no temporary DTC set in memory for the item monitored below)**

- Misfire monitor

**Sensor (The sensor below is determined to be normal)**

- Mass airflow sensor
- Engine coolant temperature sensor
- Intake air temperature sensor
- Barometric pressure sensor
- Throttle position sensor
- Fuel tank pressure sensor

**9. STEP 9. Check harness between number 3 fuel injector connector terminal number 1 and ECM connector terminal number 5.**

Check output line for short circuit.

Q: Is the check result normal?

YES >>

[Go to Step 10.](#)

NO >>

Repair or replace the connector, or repair the damaged harness wire.

**10. STEP 10. Check harness between number 4 fuel injector connector terminal number 1 and ECM connector terminal number 6.**

Check output line for short circuit.

Q: Is the check result normal?

YES >>

[Go to Step 11.](#)

NO >>

Repair or replace the connector, or repair the damaged harness wire.

**11. STEP 11. Fuel pressure measurement.**

Fuel pressure test (Refer to [FUEL PRESSURE TEST](#)).

Q: Is the check result normal?

YES >>

[Go to Step 12](#) after replacement of the injector. <Added>

NO >>

Repair it.

**12. STEP 12. Test the OBD-II drive cycle.**

After erasing the DTC, carry out test drive with the drive cycle pattern, and recheck the DTC.

- (1) Use scan tool (M.U.T.-III SE) to erase the DTC.
- (2) Carry out test drive with the drive cycle pattern (Refer to Diagnostic Function, OBD-II Drive Cycle – Pattern 2 [OBD-II DRIVE CYCLE](#)).
- (3) Use scan tool (M.U.T.-III SE) to recheck the DTC.

Q: Is DTC P0172-00 set?

YES >>

Replace the ECM (Refer to [REMOVAL AND INSTALLATION](#)).

NO >>

Intermittent malfunction (Refer to GENERAL INFORMATION, General Information – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [HOW TO COPE WITH INTERMITTENT MALFUNCTIONS](#)).

**DTC P0221-00: Throttle Position Sensor (sub) plausibility check****TECHNICAL DESCRIPTION**

Compare the actual measurement of volumetric efficiency by a mass airflow sensor signal with volumetric efficiency estimated from a throttle position sensor (sub) signal.

**MONITOR EXECUTION**

Continuous.

**MONITOR EXECUTION CONDITIONS (Other monitor and Sensor)**

**Other Monitor (There is no temporary DTC set in memory for the item monitored below)**

- Not applicable

**Sensor (The sensor below is determined to be normal)**

- Not applicable

**8. STEP 8. Check the fuel pressure.**

Fuel pressure measurement (Refer to [FUEL PRESSURE TEST](#)).

Q: Is the check result normal?

YES >>

[Go to Step 9.](#)

NO >>

Repair it.

**9. STEP 9. Check the fuel injector.**

Check the number 1 cylinder fuel injector, number 2 cylinder fuel injector, number 3 cylinder fuel injector and number 4 cylinder fuel injector itself (Refer to [FUEL INJECTOR CHECK](#)).

Q: Are the check result normal?

YES >>

~~[Go to Step 10.](#)~~

<New>

NO >>

[Go to Step 9-1.](#)

Replace the faulty fuel injector (Refer to [REMOVAL AND INSTALLATION](#)).

**10. STEP 10. Check the harness between IPDM E/R connector terminal number 66 and number 1 cylinder fuel injector connector terminal number 2, between IPDM E/R connector terminal number 66 and number 2 cylinder fuel injector connector terminal number 2, between IPDM E/R connector terminal number 66 and number 3 cylinder fuel injector connector terminal number 2, and between IPDM E/R connector terminal number 66 and number 4 cylinder fuel injector connector terminal number 2.**

Check power supply line for damage.

Q: Are the check result normal?

YES >>

[Go to Step 11.](#)

NO >>

Repair or replace the damaged connector, or repair the damaged harness wire.

**11. STEP 11. Check the spark plug.**

Check the number 1 cylinder spark plug, number 2 cylinder spark plug, number 3 cylinder spark plug and number 4 cylinder spark plug itself (Refer to ENGINE , Engine Electrical – On-vehicle Service [SPARK PLUG CHECK AND CLEANING](#)).

Q: Are the check result normal?

YES >>

[Go to Step 12.](#)

NO >>

Replace the faulty spark plug (Refer to ENGINE , Engine Electrical – Ignition Coil [REMOVAL AND INSTALLATION](#)).

**12. STEP 12. Check the ignition coil.**

Check the number 1 cylinder ignition coil, number 2 cylinder ignition coil, number 3 cylinder ignition coil and number 4 cylinder ignition coil itself (Refer to ENGINE , Engine Electrical – On-vehicle Service [IGNITION COIL CHECK](#)).

Q: Are the check result normal?

YES >>

[Go to Step 13.](#)

NO >>

Replace the faulty ignition coil (Refer to ENGINE , Engine Electrical – Ignition Coil [REMOVAL AND INSTALLATION](#)).

<Added>

**9-1. STEP 9-1. Check for clogged fuel injectors.**

Q: Is the check result normal?

YES>>

[Go to Step 10.](#)

NO>>

Replace the faulty fuel injector (Refer to [FUEL INJECTOR REMOVAL AND INSTALLATION](#)).

**7. STEP 7. Check the fuel injector.**

Check the number 1 cylinder fuel injector, number 2 cylinder fuel injector, number 3 cylinder fuel injector and number 4 cylinder fuel injector itself (Refer to [FUEL INJECTOR CHECK](#)).

Q: Are the check result normal?

YES >>

<Old> [Go to Step 8.](#) <New>

NO >>

[Go to Step 7-1.](#)

Replace the faulty fuel injector (Refer to [REMOVAL AND INSTALLATION](#)).

**8. STEP 8. Check the harness between IPDM E/R connector terminal number 66 and number 1 cylinder fuel injector connector terminal number 2, between IPDM E/R connector terminal number 66 and number 2 cylinder fuel injector connector terminal number 2, between IPDM E/R connector terminal number 66 and number 3 cylinder fuel injector connector terminal number 2, and between IPDM E/R connector terminal number 66 and number 4 cylinder fuel injector connector terminal number 2.**

Check power supply line for damage.

Q: Are the check result normal?

YES >>

[Go to Step 9.](#)

NO >>

Repair or replace the damaged connector, or repair the damaged harness wire.

**9. STEP 9. Check the harness between number 1 cylinder fuel injector connector terminal number 1 and ECM connector terminal number 3, between number 2 cylinder fuel injector connector terminal number 1 and ECM connector terminal number 4, between number 3 cylinder fuel injector connector terminal number 1 and ECM connector terminal number 5, and Check harness between number 4 cylinder fuel injector connector terminal number 1 and ECM connector terminal number 6.**

Check output line for open/short circuit and damage.

Q: Are the check result normal?

YES >>

[Go to Step 10.](#)

NO >>

Repair or replace the damaged connector, or repair the damaged harness wire.

**10. STEP 10. Visual check of ignition spark.**

- (1) Remove the spark plug and install it to the ignition coil (Refer to Engine, Engine Electrical – Ignition Coil [REMOVAL AND INSTALLATION](#)).
- (2) Connect the ignition coil connector.
- (3) Disconnect all injector connectors.
- (4) At the engine start, check each spark plug produces a spark (Refer to GENNERAL INFORMATION, General Information – Precautions – Continuous Idling Mode [CONTINUOUS IDLING MODE](#)).
- (5) Check that spark is produced between the electrodes of the spark plug.

Q: Are the check result normal?

YES >>

[Go to Step 11.](#)

NO >>

Troubleshoot "Inspection Procedure 10:Ignition circuit system " (Refer to [Inspection Procedure 13: Ignition circuit system](#)).

<Added>

**7-1. STEP 7-1. Check for clogged fuel injectors.**

Q: Is the check result normal?

YES>>

[Go to Step 8.](#)

NO>>

Replace the faulty fuel injector (Refer to [FUEL INJECTOR REMOVAL AND INSTALLATION](#)).

**7. STEP 7. Check the ignition coil.**

Check the number 1 cylinder ignition coil, number 2 cylinder ignition coil, number 3 cylinder ignition coil and number 4 cylinder ignition coil itself (Refer to ENGINE , Engine Electrical – On-vehicle Service [IGNITION COIL CHECK](#)).

Q: Are the check result normal?

YES >>

[Go to Step 8.](#)

NO >>

Replace the faulty ignition coil (Refer to ENGINE , Engine Electrical – Ignition Coil [REMOVAL AND INSTALLATION](#)).

**8. STEP 8. Check the compression pressure.**

Check the compression pressure (Refer to ENGINE, Engine Mechanical – On-vehicle Service [COMPRESSION PRESSURE CHECK](#)).

Q: Is the check result normal?

YES >>

[Go to Step 9.](#)

NO >>

Repair it.

**9. STEP 9. Check the positive crankcase ventilation valve.**

Check the positive crankcase ventilation valve itself (Refer to ENGINE, Engine, Motor and Emission Control – Emission Control – Positive Crankcase Ventilation System [POSITIVE CRANKCASE VENTILATION \(PCV\) VALVE CHECK](#)).

Q: Is the check result normal?

YES >>

[Go to Step 10.](#)

NO >>

Replace the positive crankcase ventilation valve (Refer to ENGINE, Engine Overhaul – Oil Pan and Timing Chain Case [REMOVAL AND INSTALLATION](#)).

**10. STEP 10. Check the purge control system.**

Check the purge control system (Refer to ENGINE, Engine, Motor and Emission Control – Emission Control – Evaporative Emission System – Purge Control System Check [PURGE CONTROL SYSTEM CHECK](#)).

Q: Is the check result normal?

YES >>

[Go to Step 11.](#)

NO >>

Repair it.

**11. STEP 11. Check the fuel injector.**

Check the number 1 cylinder fuel injector, number 2 cylinder fuel injector, number 3 cylinder fuel injector and number 4 cylinder fuel injector itself (Refer to [FUEL INJECTOR CHECK](#)).

Q: Are the check result normal?

YES >>

[Go to Step 12.](#)

NO >>

Replace the faulty fuel injector (Refer to [REMOVAL AND INSTALLATION](#)).

<Old> [Go to Step 12.](#) <New>

[Go to Step 11-1.](#)

<Added>

**11-1. STEP 11-1. Check for clogged fuel injectors.**

Q: Is the check result normal?

YES>>

[Go to Step 12.](#)

NO>>

Replace the faulty fuel injector (Refer to [FUEL INJECTOR REMOVAL AND INSTALLATION](#)).

8. While repeatedly racing the engine, measure the heated oxygen sensor (rear) output voltage.

**Standard value:**

Engine	Heated oxygen sensor (rear) output voltage	Remarks
When racing the engine	0.6 – 1.0 V	If you make the air-fuel ratio rich by racing the engine repeatedly, a normal heated oxygen sensor will output a voltage of 0.6 – 1.0 V.



**NOTE:**

- If the temperature of sensing area does not reach the high temperature [of approximately 400°C (752°F) or more] even though the heated oxygen sensor (rear) is normal, the output voltage would be possibly low in spite of the rich air-fuel ratio.
- When the vehicle is driven with high loads, the temperature of the sensing area of the heated oxygen sensor (rear) is sufficiently high. Thus, it is not necessary to apply the voltage to the heater.

9. If the voltage deviates from the standard value, replace the heated oxygen sensor (Refer to Intake and Exhaust - [REMOVAL AND INSTALLATION](#))

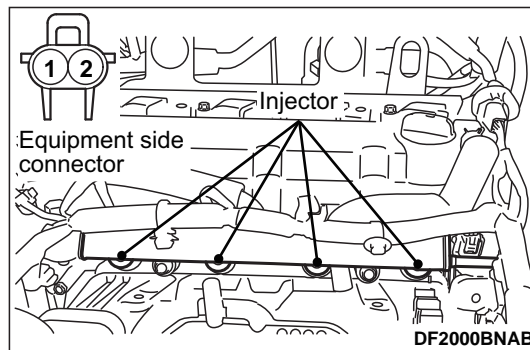
## FUEL INJECTOR CHECK

### CHECK THE OPERATION SOUND

1. Set the vehicle to the continuous idling mode (Refer to [CONTINUOUS IDLING MODE](#))

**CAUTION:**

Beware that, even if the injector to be checked is not operating, the operation sound of other injectors may be heard.



2. Use a stethoscope to listen to the operation sound (ticks) from the injectors.

3. Verify that the operation sound increases with the higher engine speed.



**NOTE:**

If the operating sound cannot be heard, inspect the injector actuation circuit.

## MEASUREMENT OF RESISTANCE BETWEEN TERMINALS

1. Disconnect the injector connector.

2. Measure the resistance between terminals.

**Standard value:** 10.5 – 13.5 Ω [at 20°C (68°F)]

3. If the resistance is deviates from the standard value, replace the injector (Refer to [REMOVAL AND INSTALLATION](#))

<Deleted>

## CHECK THE INJECTION CONDITION

1. Release the residual pressure in the fuel pipe line to prevent the fuel from running out (Refer to [REDUCE PRESSURIZED FUEL LINES](#)).

**CAUTION:**

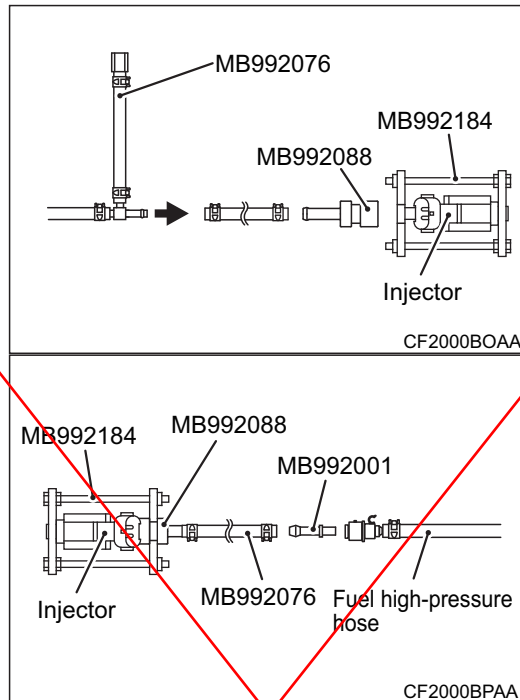
Cover the hose connection with rags to prevent splash of fuel that could be caused by some residual pressure in the fuel pipe line.

2. Remove the fuel high-pressure hose at the fuel rail (Refer to [REMOVAL AND INSTALLATION](#)).

3. Remove the injector (Refer to [REMOVAL AND INSTALLATION](#)).

4. Assemble the special tool called injector test set (MB992076) as shown in the figure according to the following procedure.

- (1) Disconnect the injector mounting hose.
- (2) Remove the adapter for mounting injector and attach the special tool Injector test nipple (MB992088) instead.
- (3) After attaching the injector on the special tool Injector test nipple (MB992088), secure it with the special tool injector holder (MB992184).



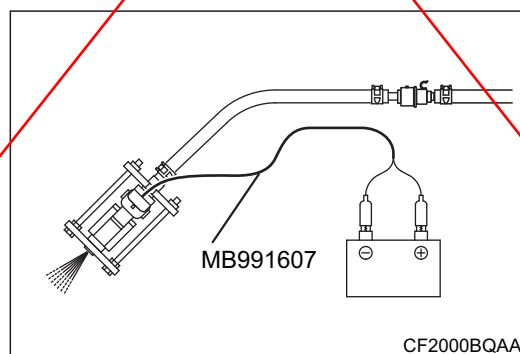
5. Mount the injector test set (MB992076) prepared with the special tool hose adapter (MB992001) onto the fuel high-pressure hose.

6. Connect the scan tool (M.U.T.-III SE) to the data link connector.

7. Operate the electric motor switch without depressing the brake pedal and turn the power supply mode of electric motor switch to ON.

8. Select "Item No. 20" of the scan tool (M.U.T.-III SE) actuator test to drive the fuel pump.

9. Connect the special tool Injector test harness (MB991607) between the injector and auxiliary battery to drive the injector.



10. Check each injector for spray conditions. The condition can be considered satisfactory unless it is extremely poor.

11. Stop the actuation of the injector, and check for leakage from the injector nozzle.

**Standard value: 1 drop or less per minute**

12. After turning off the power supply mode of the electric motor switch, remove the scan tool (M.U.T.-III SE).

13. Actuate the injector until it does not spray fuel any longer, then drain the fuel inside the special tool.

14. Remove the special tool.

15. When the spray condition is extremely poor or any fuel leaks from the injector nozzle, replace the injector.

16. Replace the injector and fuel high-pressure hose in the original places (Refer to [REMOVAL AND INSTALLATION](#)).



## REMOVAL AND INSTALLATION

## CAUTION:

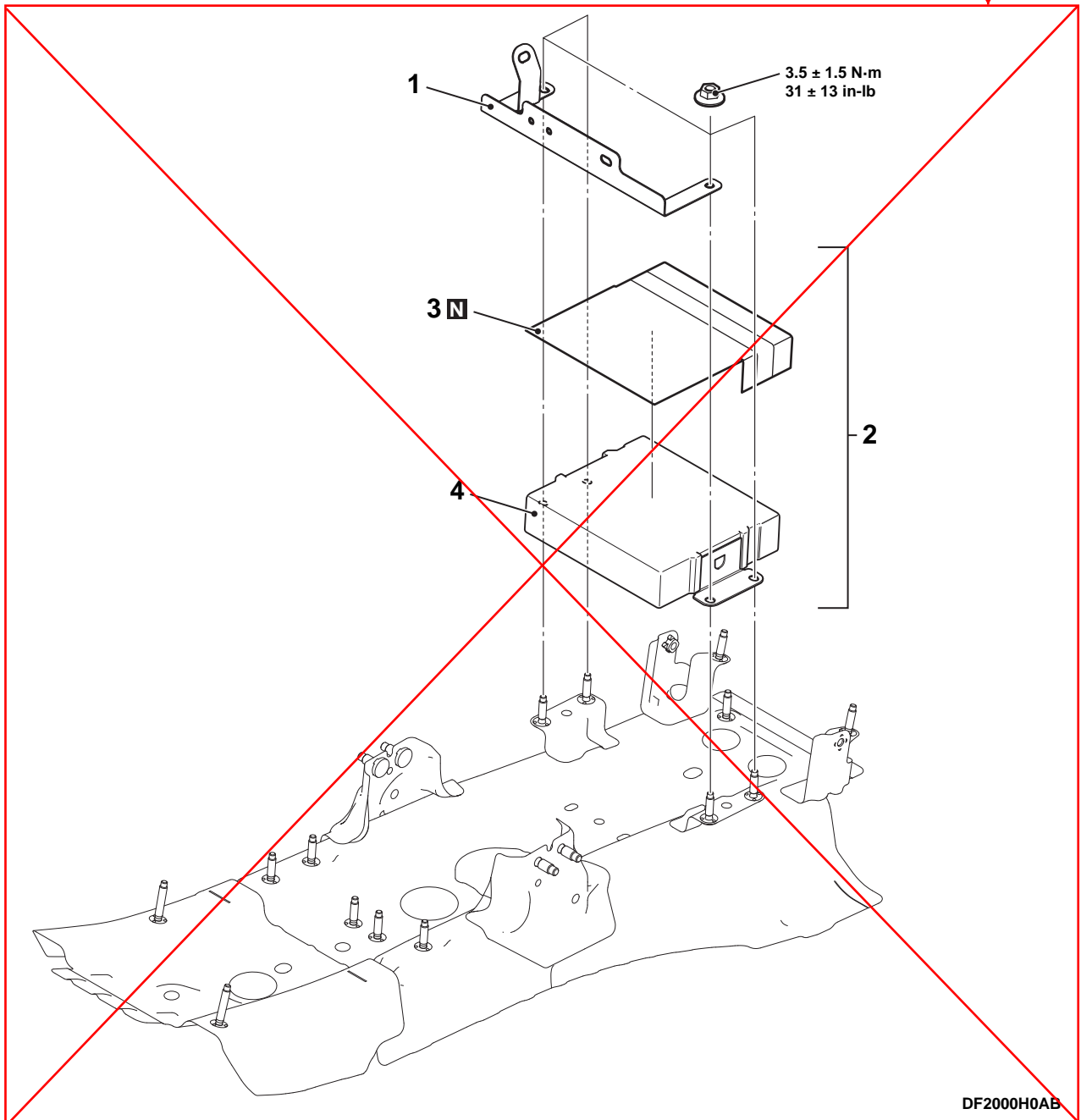
- If the PHEV-ECU is replaced, another ECU related to KOS system should not be replaced together. If at least two ECUs need to be replaced, replace one ECU and then use the M.U.T.-III SE to register its ID in the ECU. Then proceed to the replacement of the other ECU.
- When the PHEV-ECU is replaced, perform the following procedures.
  - Chassis number writing (Refer to [CHASSIS NUMBER WRITING](#))
  - MAC KEY writing (Refer to [MAC KEY WRITING](#))
  - Vehicle specification writing (Refer to [VEHICLE SPECIFICATION WRITING](#))

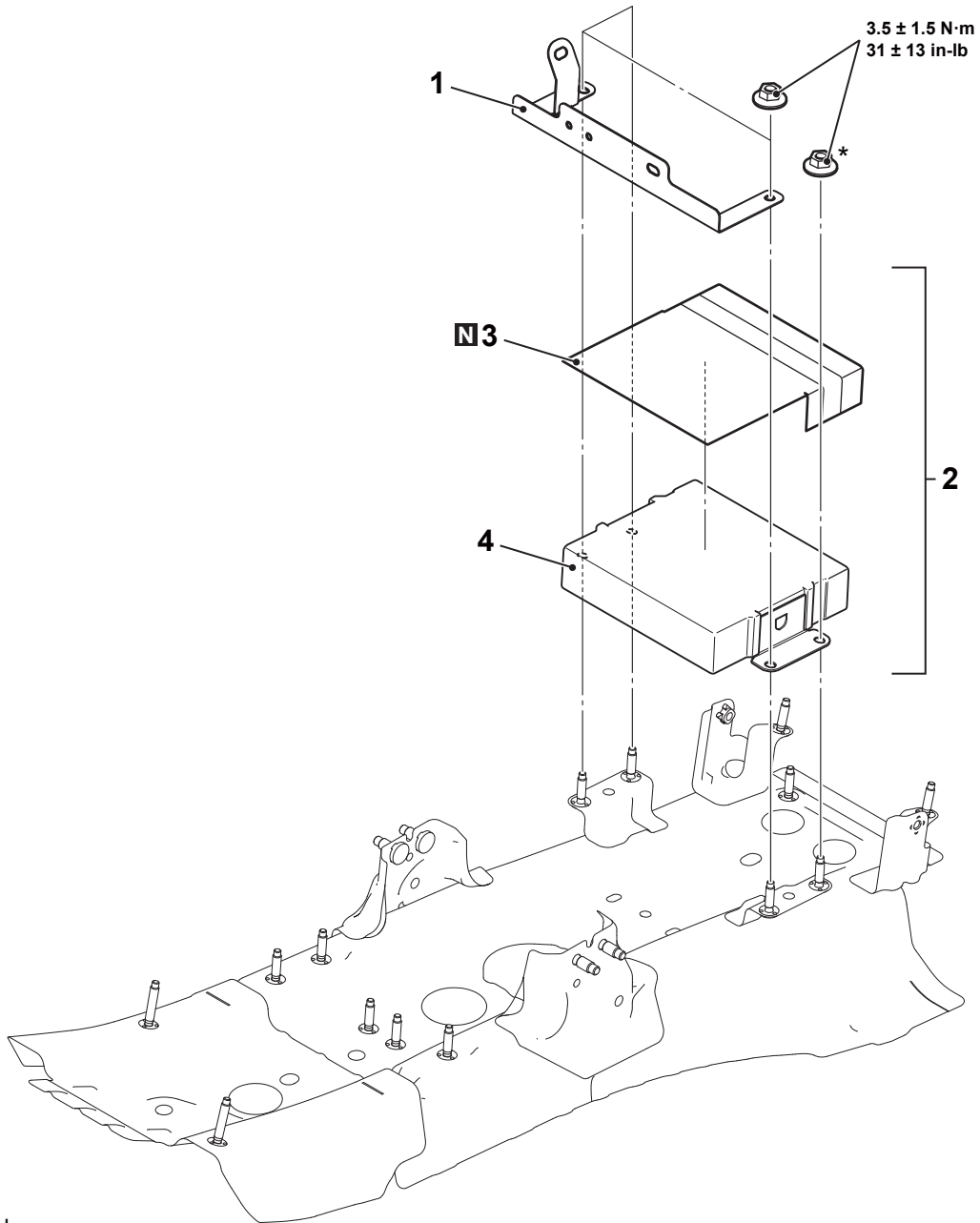
## Pre-removal and Post-installation Operation

Floor console removal and installation (Refer to Body Interior - Floor Console Assembly [Removal and Installation](#))

<New> Attached sheet 10 (2/2)

<Old>





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## SERVICE SPECIFICATIONS


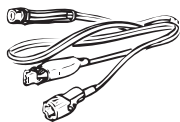
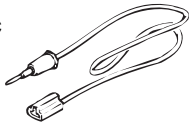
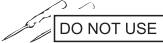
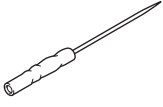
Items	Standard value
Front motor insulation resistance MΩ	10 or more
Generator insulation resistance MΩ	10 or more
Rear motor insulation resistance MΩ	10 or more
Power drive unit insulation resistance MΩ	10 or more
Electric A/C compressor insulation resistance MΩ	10 or more
On board charger (OBC)/DC-DC converter insulation resistance MΩ	10 or more
AC inverter insulation resistance MΩ	10 or more
120V AC socket insulation resistance MΩ	10 or more

&lt;Added&gt;

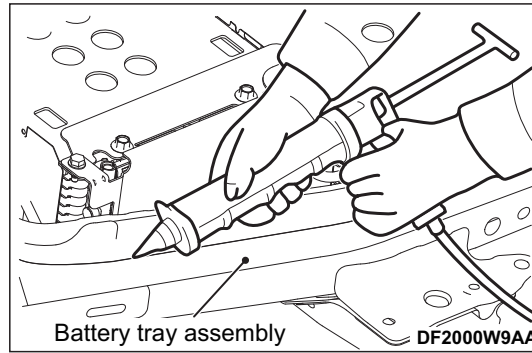
## ADHESIVE

Item	Specified adhesive
Battery tray assembly to battery tray cover	YOKOHAMA RUBBER HAMATITE WS-272 [service parts (MS990243)] or equivalent

## SPECIAL TOOLS

Tool	Tool number and name	Supersession	Use
-	MB992744 MB992745 MB992747 MB992748 Scan tool (M.U.T.-IIISE)	-	Battery Management Unit (BMU) system inspection
<p><b>a</b></p>  <p><b>b</b></p>  <p><b>c</b></p>  <p><b>d</b></p>  <b>MB991223</b>	MB991223 a. MB991219 Check harness b. MB991220 LED harness c. MB991221 LED harness adapter d. MB991222 Probe	General service tool	Continuity check and voltage measurement at wiring harness or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 <b>MB992006</b>	MB992006 Extra fine probe	-	Continuity check and voltage measurement at wiring harness or connector

4. Use the sealant gun.

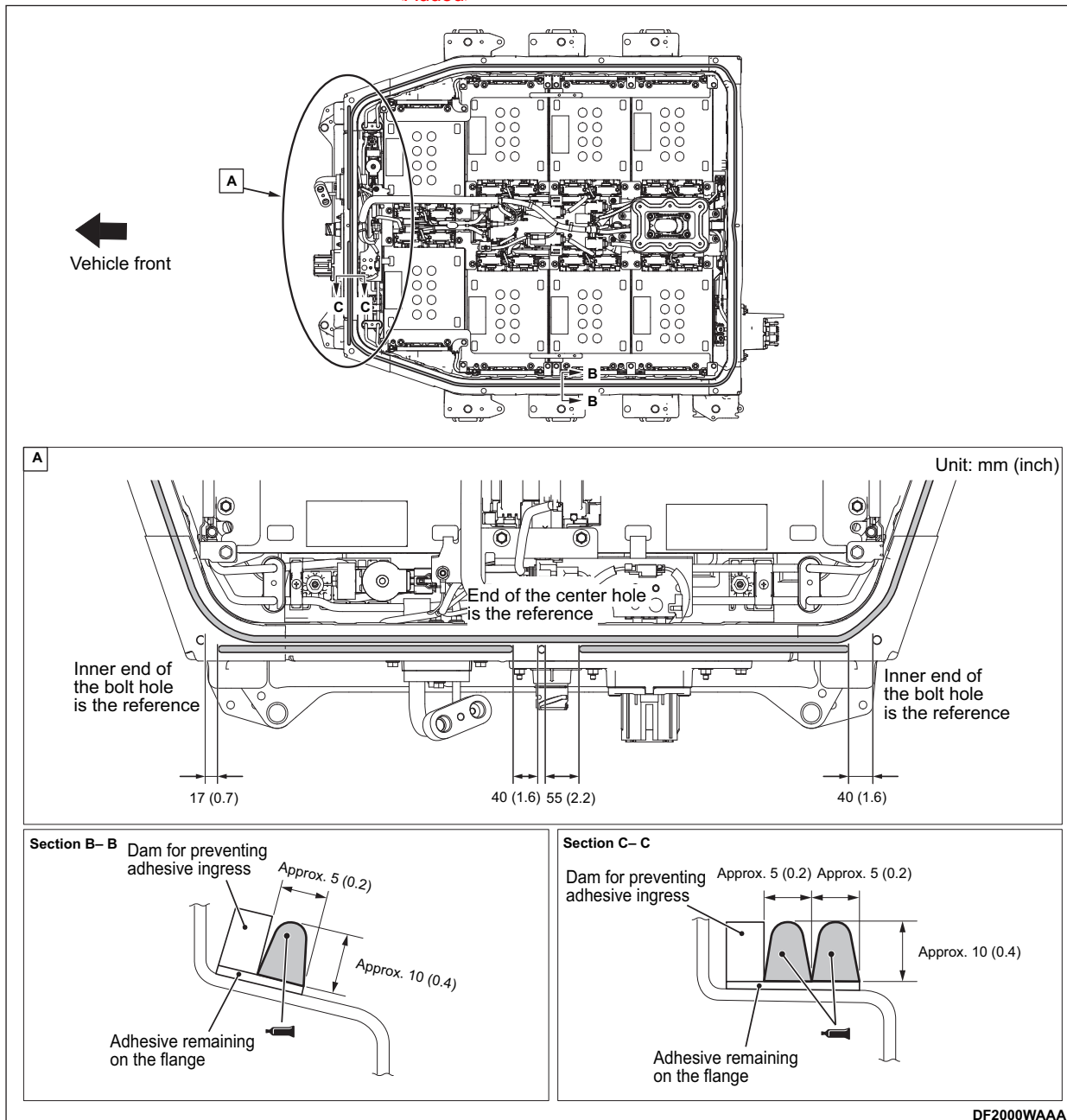


**CAUTION:**

After applying adhesive, make sure that the adhesive flow prevention dam has not fallen down toward the adhesive side.

5. Apply adhesive YOKOHAMA RUBBER HAMATITE WS-272 [service parts (MS990243)] or equivalent to the battery tray assembly as showing in the illustration.

<Added>

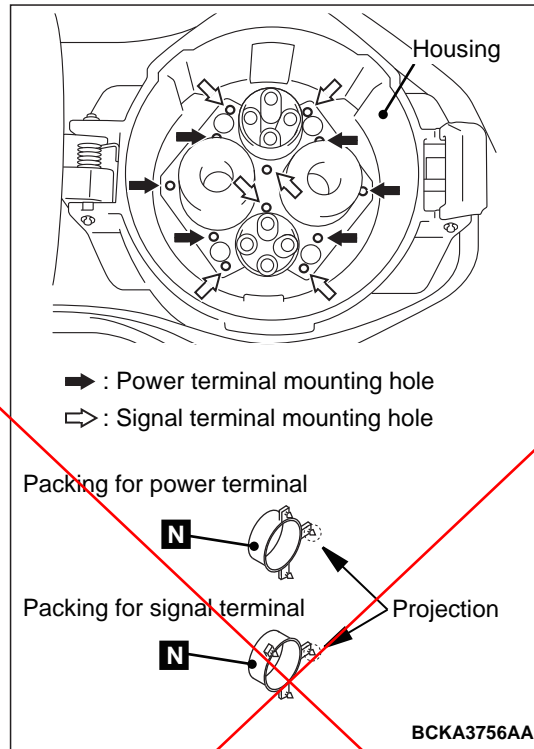


## REPLACEMENT OF THE INLET PACKING

**DANGER:**

When servicing the high-voltage system parts, be sure to wear the specified protection equipment and disconnect the service plug to interrupt the high-voltage supply (Refer to [PRECAUTIONS ON HOW TO USE THE HIGH-VOLTAGE VEHICLE](#)).

&lt;Old&gt;

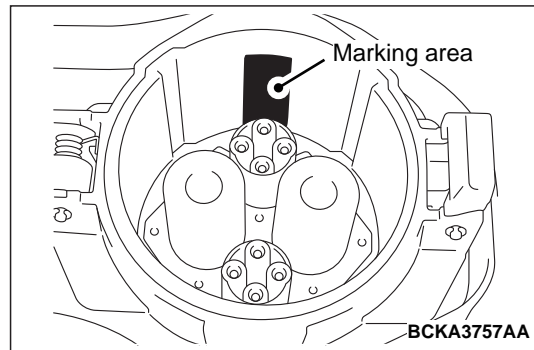


1. Install the packing by aligning it with the mounting hole of the housing.

**CAUTION:**

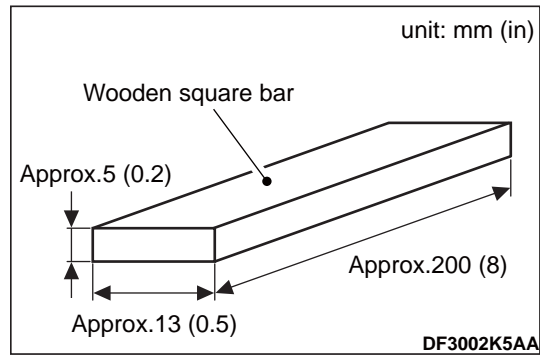
- Do not use a sharp tool when installing the packing. Otherwise, the packing may be damaged.
- Make sure that the projection of the packing is fit securely into the mounting hole of the housing.

2. Using a flat-tipped bar such as a hexagonal wrench, press the projection of the packing into the mounting hole of the housing.



3. Make a mark in the marking area of the housing with a white marker pen to record the history of the packing replacement.

<New> Attached sheet 13 (2/6) to 13 (6/6)

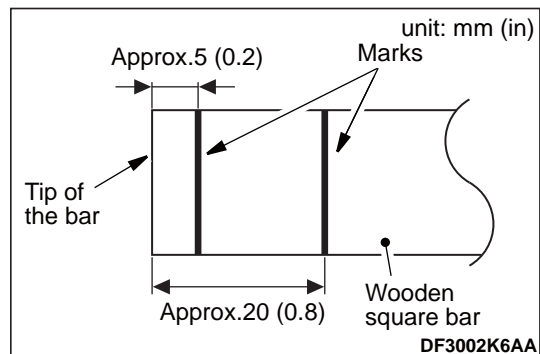


1. Prepare a wooden square bar of the size shown in the figure.

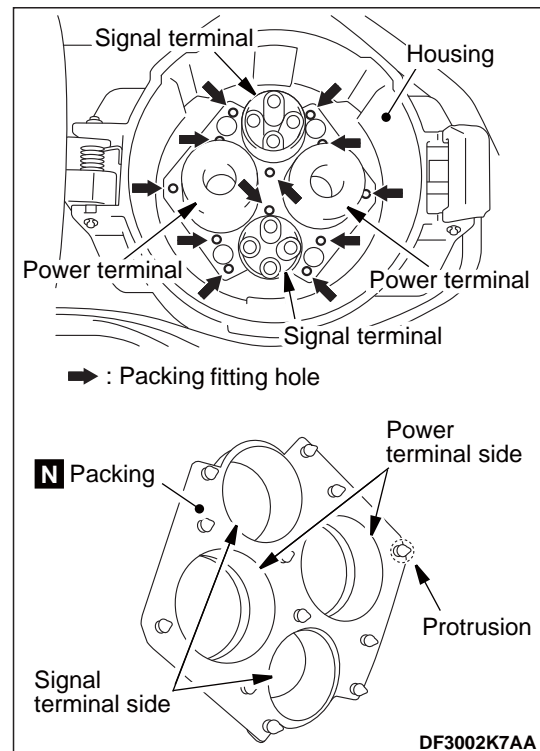


**NOTE:**

Be sure to prepare a wooden square bar because a square bar made of iron or resin is slippery and it is poor in workability.



2. Make marks on the prepared wooden square bar at positions approximately 5 mm (0.2 inch) and approximately 20 mm (0.8 inch) from the tip of the bar as shown in the figure.



3. Before setting the packing to the terminal of the housing, check that the protrusions of the removed packing is not torn and remaining on the packing fitting hole.



**NOTE:**

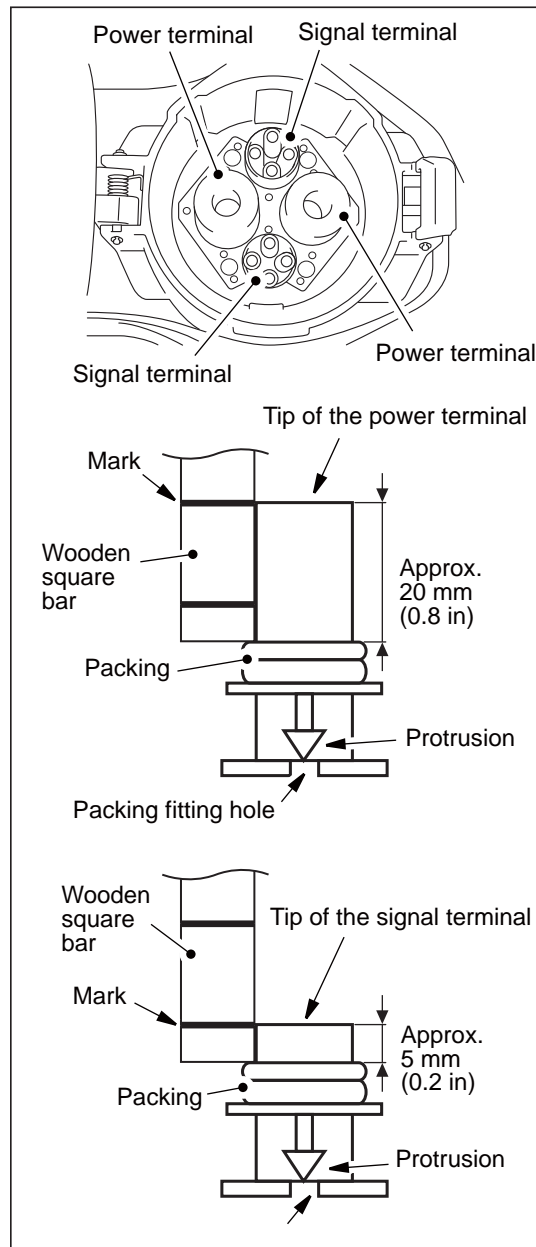
If the protrusions is remaining on the packing fitting hole, remove it by using a bar or the like of  $\phi 1.7$  mm (0.07 inch) or less.

4. Set the packing by aligning it with the terminal of the housing.



**NOTE:**

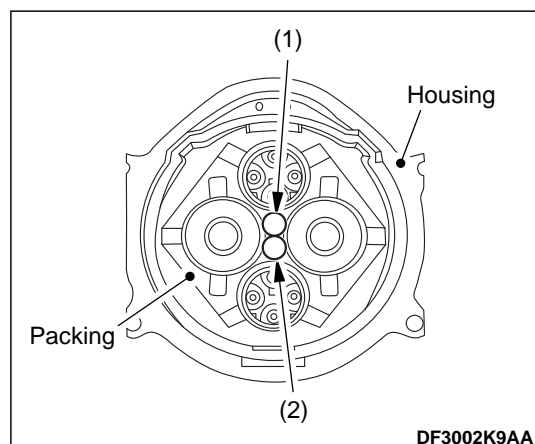
If dust has adhered when setting the packing, remove the dust.



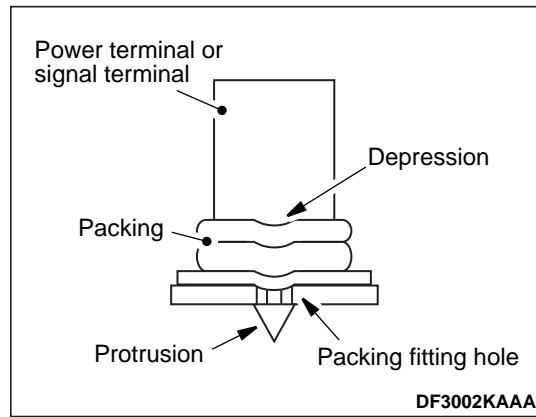
5. Using a wooden square bar, push the packing which is set to the terminal of the housing to the position approximately 20 mm (0.8 inch) from the tip of the power terminal side and approximately 5 mm (0.2 inch) from the tip of the signal terminal side.

**NOTE:**

Push the packing while checking its position by using the mark on the wooden square bar so that the packing is as parallel as possible to the housing.

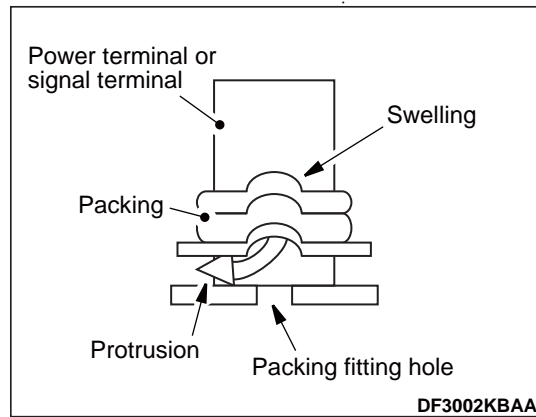


6. Using a wooden square bar, securely push and fit protrusions (1) and (2) of the packing (the position indicated by a circle) shown in the figure one by one in numerical order.



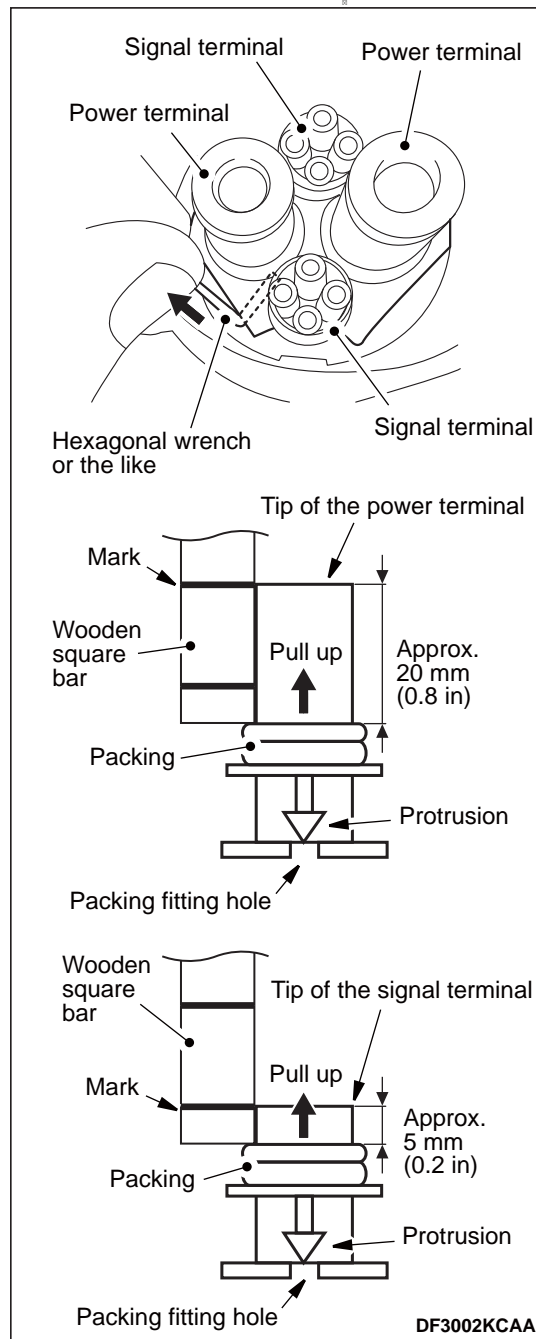
7. Check that there is a depression at protrusions (1) and (2) as shown in the figure and that the protrusions are fit into the fitting hole properly.

 NOTE:

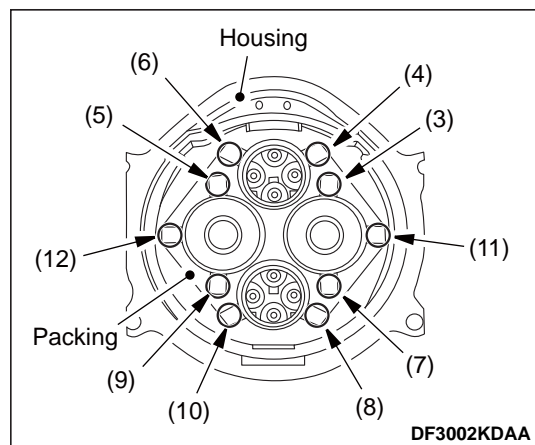


If there is a swelling at protrusion (1) or protrusion (2), the protrusion is not fit properly. Follow the procedure below to fit the protrusion into the fitting hole properly.

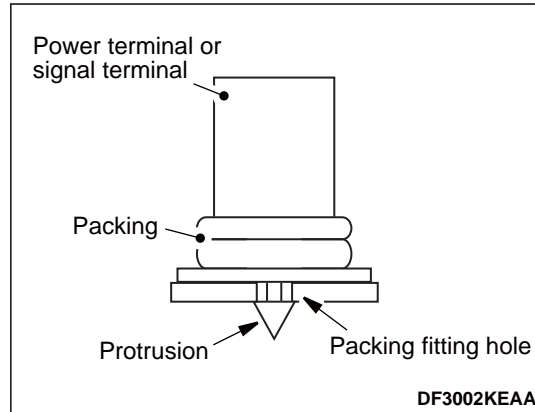




Pull up the packing to the position shown in the figure using a hexagonal wrench or the like, and then push the protrusions again to fit them securely.

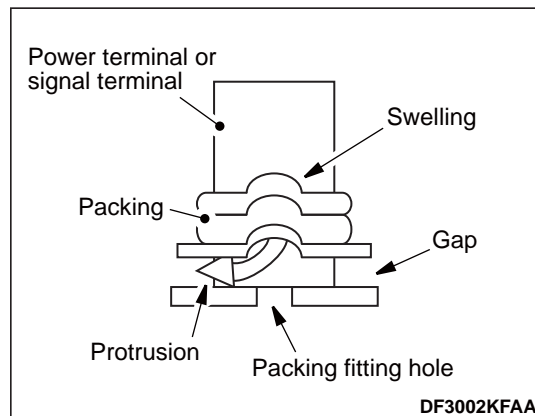


8. Using a wooden square bar, securely push and fit the protrusions (3) through (12) of the packing (the position indicated by a circle) shown in the figure one by one in numerical order.

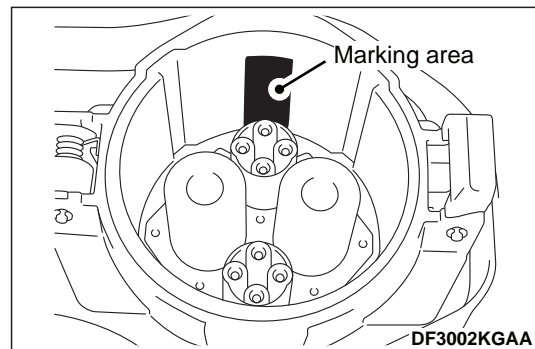


9. Check that there is no swelling or gap at protrusions (3) through (12) and that the protrusions are fit into the fitting hole properly.

**NOTE:**

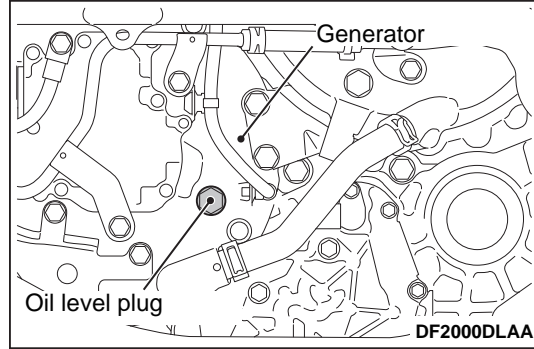


If there is a swelling or a gap at any of protrusions (3) through (12), the protrusion is not fit properly. Follow the same procedure as when the protrusions (1) and (2) are not fit properly in Step 7 to fit the protrusion into the fitting hole properly.

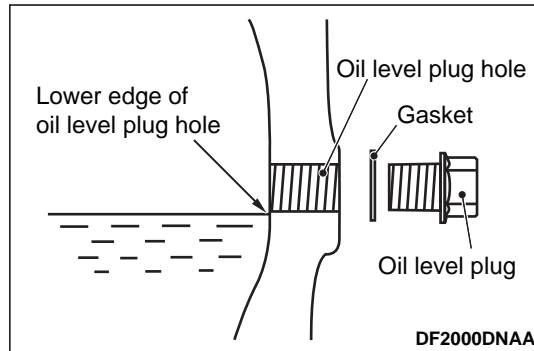


10. Make a mark in the marking area of the housing with a white marker pen to record the history of the packing replacement.

6. Remove the oil level plug and gasket.



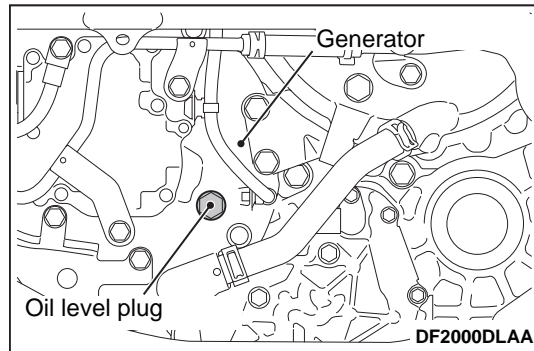
7. Fill the oil until the oil level reaches the lower edge of the oil level plug.



Specified fluid: MITSUBISHI MOTORS GENUINE CVTF-J4 or MITSUBISHI MOTORS GENUINE CVTF-J4+

Quantity: 2.4 dm<sup>3</sup> (2.5 quart)

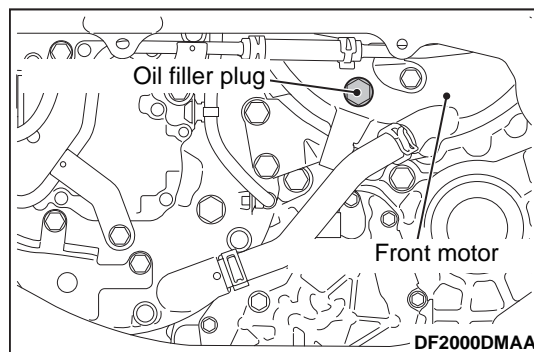
8. Install the oil level plug and gasket removed in Step 6, then tighten them to the specified torque.



Tightening torque: 41 ± 4 N·m (31 ± 2 ft-lb)

9. Add 1.0 L of oil from the oil filler plug hole.

10. Install the oil filler plug with a new gasket, then tighten them to the specified torque.



Tightening torque: 41 ± 4 N·m (31 ± 2 ft-lb)



**NOTE:**

To fill the oil cooler with oil, pour an additional 1.0 L of oil to raise the oil temperature efficiently.

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## EV COOLING SYSTEM

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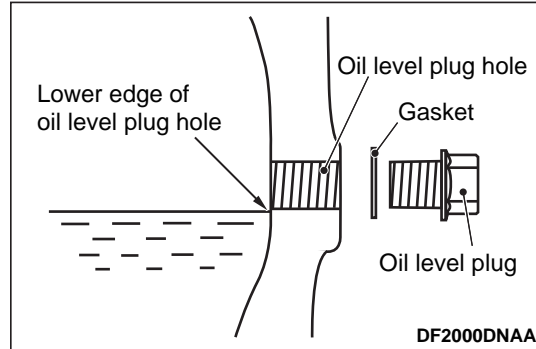
11. Set the EV mode to CHARGE (battery charge mode), then perform the racing with the generator speed maintained at nearly 7,500 rpm while checking the generator speed and generator oil temperature using M.U.T.-III SE.

**CAUTION:**

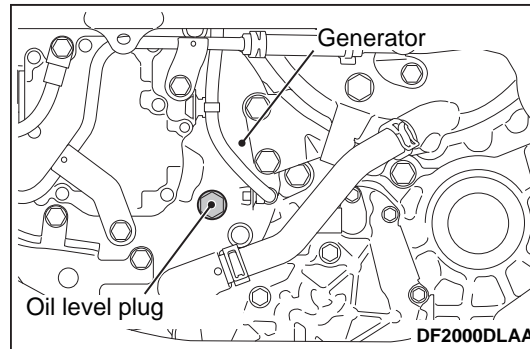
Do not perform the racing with the accelerator pedal fully depressed. If you do so, the generator speed will be restricted due to high engine coolant temperature.

12. After the temperature of the generator oil reaches to 60 °C (140°F), maintain the racing for 5 minutes.

13. Remove the oil level plug and gasket, and drain the excess oil until the oil level decreases to the lower edge of the oil level plug.



14. Install the oil level plug with a new gasket, then tighten them to the specified torque.



**Tightening torque: 41 ± 4 N·m (31 ± 2 ft·lb)**

15. Install the engine room under cover front B and engine room side cover (Refer to Body Exterior, Doors, Roof & Vehicle Security - Exterior, Under Cover [Removal and Installation](#)).

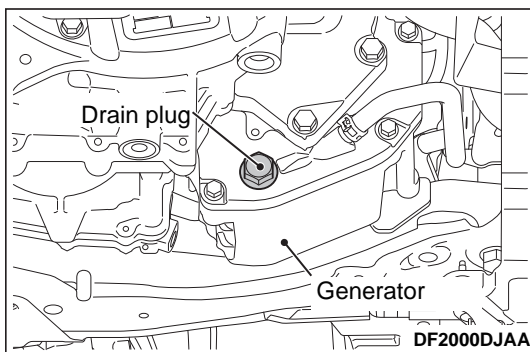
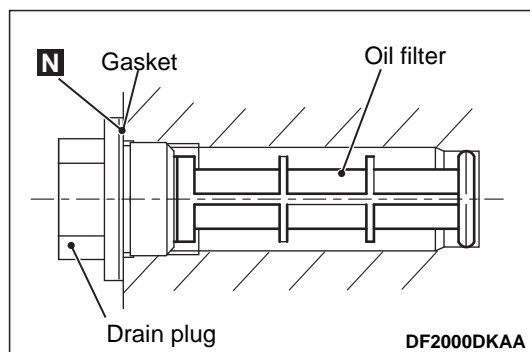
16. Install the front wheel and tire (LH) (Refer to Suspension - Road Wheel Tire Assembly [Removal & Installation](#)).

**CAUTION:**

Be careful with the drained oil, because it is hot.

**WHEN REPLACING THE EV OIL COOLER WITH A NEW ONE** <Added>

- 1.Remove the front wheel and tire (LH) (Refer to Suspension - Road Wheel Tire Assembly [Removal & Installation](#)).
- 2.Remove the engine room under cover front B and engine room side cover (Refer to Body Exterior, Doors, Roof & Vehicle Security - Exterior, Under Cover [Removal and Installation](#)).
- 3.Remove the drain plug and gasket to drain the oil.

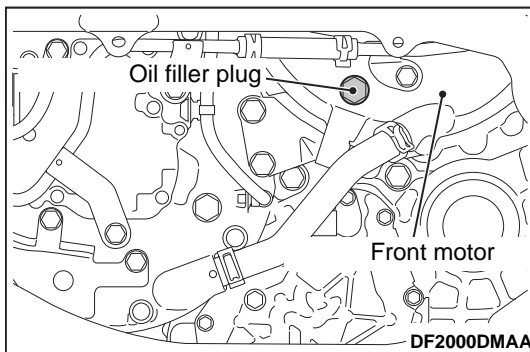
**NOTE:**

When removing the drain plug, check that the oil filter behind it is not clogged or damaged. If necessary, clean or replace the oil filter.

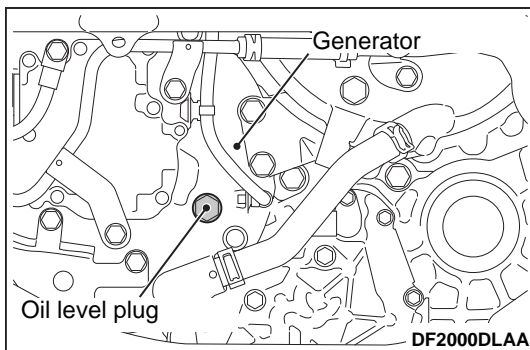
- 4.Install the drain plug with a new gasket, then tighten them to the specified torque.

**Tightening torque:  $65 \pm 5$  N·m ( $48 \pm 3$  ft·lb)**

- 5.Remove the oil filler plug and gasket.



- 6.Remove the oil level plug and gasket.



## REAR SUSPENSION

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## SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

## Wheel Alignment

Item		Standard value
Camber Degree minute (Decimal degree)		<Correct> $-0^{\circ}45' \pm 0^{\circ}45'$ ( $-0.75^{\circ} \pm 0.75^{\circ}$ ) $\rightarrow$ <del><math>0^{\circ}45' \pm 0^{\circ}45'</math> (<math>0.75^{\circ} \pm 0.75^{\circ}</math>)</del> <Incorrect>
Toe-in	Total toe-in Distance	3.0 mm $\pm$ 3.0 mm (0.12 $\pm$ 0.12 in)
	Total toe-angle Degree minute (Decimal degree)	$0^{\circ}14' \pm 0^{\circ}18'$ ( $0.23^{\circ} \pm 0.3^{\circ}$ )

## Ball Joint

Item		Standard value
Swing torque		0.5 – 3.4 N·m (0.06 – 0.34 kg·m, 5 – 30 in·lb)
Measurement on spring scale		13.5 – 91.9 N (1.4 – 9.4 kg, 3 – 21 lb)

## ELECTRIC PARKING BRAKE FUNCTION

- The electric parking brake warning light and/or electric parking indicator light turns ON when a malfunction with the system occurs.
- When parking brake switch is pulled/pushed during system malfunction, electric parking brake indicator light blinks and electric parking brake warning light turns ON when electric parking brake cannot be operated. It restricts braking and release operations of electric parking brake.


**NOTE:**

The parking brake can be mechanically released.

DTC Description	Fail-safe condition	
C1040-63	Normal control	
C1040-64		
C1040-92		
C1041-55		
C1042-04	The following functions are suspended.	
C1043-04		
C1046-04		
C1047-04		
C1048-01		
C1048-04		
C1048-11		
C1048-92		
C1049-04		
C104A-04		
C104B-04		
C104C-04		
C104D-04		
C104E-04		
C104F-04		
C1050-04		
C1051-04		The following functions are suspended.
C1051-13		
C1051-49	<ul style="list-style-type: none"> <li>• TCS function</li> <li>• ABS function</li> <li>• EBD function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Brake force distribution function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> <li>• Regenerative brake function</li> </ul>	
C1051-1C		
C1054-89		The following functions are suspended.
		<ul style="list-style-type: none"> <li>• ASC function</li> <li>• TCS function</li> <li>• ABS function</li> <li>• EBD function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Brake force distribution function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> </ul>

## BRAKE CONTROL SYSTEM

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DTC Description	Fail-safe condition
C1055-49	The following functions are suspended. <ul style="list-style-type: none"> <li>• ASC function</li> <li>• TCS function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> <li>• Regenerative brake function</li> </ul>
C1056-13	Normal control
C1056-16	The following functions are suspended. <ul style="list-style-type: none"> <li>• ASC function</li> <li>• TCS function</li> <li>• ABS function</li> <li>• EBD function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Brake force distribution function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> </ul>
C1056-17	The following functions are suspended. <ul style="list-style-type: none"> <li>• ASC function</li> <li>• TCS function</li> <li>• ABS function</li> <li>• EBD function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Brake force distribution function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> </ul>
C1056-1C	The following functions are suspended. <ul style="list-style-type: none"> <li>• ASC function</li> <li>• TCS function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> <li>• Regenerative brake function</li> </ul>
<Added> C1058-02	The following functions are suspended. <ul style="list-style-type: none"> <li>• ASC function</li> <li>• TCS function</li> <li>• ABS function</li> <li>• EBD function</li> <li>• Brake limited slip differential (BLSD) function</li> <li>• Brake assist function</li> <li>• Brake force distribution function</li> <li>• Hill start assist function</li> <li>• Electric parking brake function</li> <li>• Hill Descent Control function</li> </ul>
C1058-04	
<Added> C1058-19	
C1058-42	
C1058-44	
C1058-49	
C1058-51	
C1058-92	



## BRAKE CONTROL SYSTEM

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Priority	Detected item (DTC)
3	<ul style="list-style-type: none"> <li>• C1041-55 Configuration</li> <li>• C1058-02 Control unit &lt;Added&gt;</li> <li>• C1058-04 Control unit</li> <li>• C1058-19 Control unit &lt;Added&gt;</li> <li>• C1058-42 Control unit</li> <li>• C1058-44 Control unit</li> <li>• C1058-49 Control unit</li> <li>• C1058-51 Control unit</li> <li>• C1058-92 Control unit</li> <li>• C105A-61 Control unit</li> <li>• C105A-92 Control unit</li> <li>• C105F-85 Control unit</li> <li>• C105F-92 Control unit</li> <li>• C1076-55 Not configured</li> <li>• C1078-55 Not configuration</li> <li>• C1079-55 Not configuration</li> <li>• C107A-55 Not configuration</li> <li>• C107B-53 ASC function</li> <li>• C107C-53 Not configuration</li> <li>• C10B3-49 Parking brake control module</li> <li>• C10B3-53 Parking brake control module</li> <li>• C10B3-55 Parking brake control module</li> <li>• C10B3-68 Parking brake control module</li> <li>• C10B5-76 Parking brake assembly check</li> <li>• C10B6-68 Parking brake system</li> <li>• C10B8-77 Parking brake system</li> <li>• C10B9-77 Parking brake system</li> </ul>
4	<ul style="list-style-type: none"> <li>• C1040-63 Emergency brake</li> <li>• C1040-64 Emergency brake</li> <li>• C1040-92 Emergency brake</li> <li>• C106B-64 Stop light SW</li> <li>• C106E-54 Steering angle sensor</li> <li>• C106E-55 Steering angle sensor</li> <li>• C106E-64 Steering angle sensor</li> <li>• C106F-54 Steering angle sensor</li> <li>• C1077-55 TCM</li> <li>• C1077-92 TCM</li> <li>• C1080-86 ECM</li> <li>• C1083-86 Steering angle sensor</li> <li>• C1085-86 Combination meter</li> <li>• C1087-08 IPDM E/R</li> <li>• C1087-86 IPDM E/R</li> <li>• C1088-86 AV system</li> <li>• C1090-86 ADAS control unit</li> <li>• C1092-86 AWD invalid data</li> <li>• C1096-86 Chassis control module</li> </ul>

Priority	Detected item (DTC)
5	<ul style="list-style-type: none"> <li>• C1048-01 Valve relay &lt;Added&gt;</li> <li>• C1048-04 Valve relay</li> <li>• C1048-11 Valve relay</li> <li>• C1048-92 Valve relay</li> <li>• C1051-04 Pump motor</li> <li>• C1051-13 Pump motor</li> <li>• C1051-1C Pump motor</li> <li>• C1051-49 Pump motor &lt;Added&gt;</li> <li>• C1056-13 Battery power supply</li> <li>• C1056-16 Battery power supply</li> <li>• C1056-17 Battery power supply</li> <li>• C10AA-63 Pump motor</li> <li>• C10B0-09 Parking brake actuator (RH)</li> <li>• C10B1-09 Parking brake actuator (LH)</li> <li>• C10B7-16 Parking brake power supply</li> </ul>
6	<ul style="list-style-type: none"> <li>• C1042-04 Cut valve 1</li> <li>• C1043-04 Cut valve 2</li> <li>• C1046-04 Suction valve 1</li> <li>• C1047-04 Suction valve 2</li> <li>• C1049-04 FR LH ABS IN valve</li> <li>• C104A-04 FR LH ABS OUT valve</li> <li>• C104B-04 FR RH ABS IN valve</li> <li>• C104C-04 FR RH ABS OUT valve</li> <li>• C104D-04 RR LH ABS IN valve</li> <li>• C104E-04 RR LH ABS OUT valve</li> <li>• C104F-04 RR RH ABS IN valve</li> <li>• C1050-04 RR RH ABS OUT valve</li> <li>• C106C-01 Pressure sensor</li> <li>• C106C-02 Pressure sensor</li> <li>• C106C-16 Pressure sensor</li> <li>• C106C-17 Pressure sensor</li> <li>• C1070-01 Side G sensor</li> <li>• C1070-54 Side G sensor</li> <li>• C1070-64 Side G sensor</li> <li>• C1071-01 Yaw rate sensor</li> <li>• C1071-54 Decel G sensor</li> <li>• C1071-61 Decel G sensor</li> <li>• C1071-64 Decel G sensor</li> <li>• C1072-01 Yaw rate sensor</li> <li>• C1072-64 Yaw rate sensor</li> <li>• C1072-83 Yaw rate sensor</li> <li>• C10AC-54 Calibration incomplete</li> <li>• C10AF-01 Pressure sensor</li> <li>• C10B4-98 Overheat</li> </ul>

## BRAKE CONTROL SYSTEM

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## DTC Index

## Self Diagnostic Result

DTC Description	GST	Display item	ASC warning light	ABS warning light	Brake warning light	Electric parking brake warning light	Malfunction indicator light (Service engine soon or check engine light)	Trip	Refer to
C1040-63	-	Emergency brake	-	-	-	-	-	1	<a href="#">DTC Description</a>
C1040-64	-	Emergency brake	-	-	-	-	-	1	<a href="#">DTC Description</a>
C1040-92	-	Emergency brake	-	-	-	-	-	1	<a href="#">DTC Description</a>
C1041-55	-	Configuration	-	x	-	-	-	1	<a href="#">DTC Description</a>
C1042-04	C0004	Cut valve 1	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1043-04	C0002	Cut valve 2	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1046-04	C0003	Suction valve 1	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1047-04	C0001	Suction valve 2	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1048-04	-	Valve relay	x	x	x	-	-	1	<a href="#">DTC Description</a>
C1048-11	C053B	Valve relay	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1048-92	C062D	Valve relay	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1049-04	C0010	FR LH ABS IN valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C104A-04	C0011	FR LH ABS OUT valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C104B-04	C0014	FR RH ABS IN valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C104C-04	C0015	FR RH ABS OUT valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C104D-04	C0018	RR LH ABS IN valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C104E-04	C0019	RR LH ABS OUT valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C104F-04	C001C	RR RH ABS IN valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1050-04	C001D	RR RH ABS OUT valve	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1051-04	C052B	Pump motor	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1051-13	C052C	Pump motor	x	x	x	-	x	1	<a href="#">DTC Description</a>
C1051-1C	-	Pump motor	x	x	x	-	-	1	<a href="#">DTC Description</a>
C1054-89	-	Control unit	x	x	x	x	-	1	<a href="#">DTC Description</a>
C1055-49	C11F0	CAN system	x	-	-	x	x	1	<a href="#">DTC Description</a>
C1056-13	-	Battery power supply	-	-	-	-	-	1	<a href="#">DTC Description</a>
C1056-16	-	Battery power supply	x	x	x	x	-	1	<a href="#">DTC Description</a>
C1056-17	C0565	Battery power supply	x	x	x	x	x	2	<a href="#">DTC Description</a>
C1056-1C	-	Battery Voltage	x	-	-	-	-	1	<a href="#">DTC Description</a>
C1058-04	C11F1	Control unit	x	x	x	x	x	1	<a href="#">DTC Description</a>
C1058-42	C11F3	Control unit	x	x	x	x	x	1	<a href="#">DTC Description</a>
C1058-44	C11F4	Control unit	x	x	x	x	x	1	<a href="#">DTC Description</a>
C1058-49	C11F2	Control unit	x	x	x	x	x	1	<a href="#">DTC Description</a>
C1058-51	C11F6	Control unit	x	x	x	x	x	1	<a href="#">DTC Description</a>
C1058-92	C11F5	Control unit	x	x	x	x	x	1	<a href="#">DTC Description</a>
C105A-61	-	Control unit	x	x	-	-	-	1	<a href="#">DTC Description</a>
C105A-92	C006B	Control unit	x	x	x	-	x	2	<a href="#">DTC Description</a>
C105B-96	-	HEVE not ready as actuator	-	-	-	-	-	1	<a href="#">DTC Description</a>
<Added> C1048-01	C062D	Valve relav	x	x	x	-	x	1	Attached sheet 19
C1051-49	C052B	Pump motor	x	x	x	-	x	1	Attached sheet 20
C1058-02	C11F1	Control unit	x	x	x	x	x	1	Attached sheet 21
C1058-19	C11F1	Control unit	x	x	x	x	x	1	Attached sheet 22

## OBD-II DRIVE CYCLE

All kinds of diagnostic trouble codes (DTCs) can be monitored by carrying out a short drive according to the following 2 drive cycle patterns. In other words, doing such a drive regenerates any kind of trouble which involves illuminating the Malfunction Indicator light (SERVICE ENGINE SOON or Check Engine light) and verifies that the trouble has been eliminated [The Malfunction Indicator light (SERVICE ENGINE SOON or Check Engine light) is no longer illuminated].

### CAUTION:

Two technicians should always be in the vehicle when carrying out a test.



### NOTE:

Check that the diagnostic trouble code (DTC) is not set before driving the OBD-II drive cycle. Erase the DTC if it has been set.

## DRIVE CYCLE PATTERN LIST

MONITOR ITEM	DTC	PATTERN
Valve	C1042-04, C1043-04, C1046-04, C1047-04, <span style="border: 1px solid red; color: red;">C1048-01</span> , C1048-11, C1048-92, C1049-04, C104A-04, C104B-04, C104C-04, C104D-04, C104E-04, C104F-04, C1050-04	-
Pump motor	C1051-04, C1051-13, <span style="border: 1px solid red; color: red;">C1051-49</span> <span style="color: red;">&lt;Added&gt;</span>	-
CAN	C1055-49, C1082-08, C1087-08, C1095-08, U0073-88, U0076-88, U2143-87, U2212-87, U2241-87, U2243-87, U225B-87	-
Battery power supply	<span style="color: red;">&lt;Added&gt;</span> <span style="color: red;">&lt;Added&gt;</span> C1056-17	-
ECU	<span style="border: 1px solid red; color: red;">C1058-02</span> , C1058-04, <span style="border: 1px solid red; color: red;">C1058-19</span> , C1058-42, C1058-44, C1058-49, C1058-51, C1058-92, C105A-92, C1094-08	-
Wheel sensor	C1061-02, C1061-07, C1061-64, C1063-02, C1063-07, C1063-64, C1065-02, C1065-07, C1065-64, C1067-02, C1067-07, C1067-64, C106A-64	1
Wheel sensor	C1061-11, C1061-12, C1061-13, C1061-1C, C1061-38, C1061-4A, C1061-92, C1063-11, C1063-12, C1063-13, C1063-1C, C1063-38, C1063-4A, C1063-92, C1065-11, C1065-12, C1065-13, C1065-1C, C1065-38, C1065-4A, C1065-92, C1067-11, C1067-12, C1067-13, C1067-1C, C1067-38, C1067-4A, C1067-92, C106A-55, C106A-62	-
Pressure sensor	C106C-01	1
Pressure sensor	C106C-64	2
Pressure sensor	C106C-02, C106C-16, C106C-17	-
G sensor	C1070-64, C1071-64	1
G sensor	C1071-61	-

### PATTERN 1

Inspection condition	The vehicle is in sleep state.
Test procedure	<ol style="list-style-type: none"> <li>1. Change the power supply mode of the electric motor switch to ON (READY indicator: ON).</li> <li>2. Drive the vehicle at 25 km/h (15.5 mph) or more for 60 seconds.</li> <li>3. Change the drive mode to the battery charge mode to start the engine.</li> <li>4. Change the power supply mode of the electric motor switch to OFF.</li> <li>5. Lock the doors and wait for 5 minutes or more.</li> <li>6. Change the power supply mode of the electric motor switch to ON (READY indicator: ON).</li> <li>7. Drive the vehicle at 25 km/h (15.5 mph) or more for 60 seconds.</li> <li>8. Check that the DTC is not set.</li> </ol>

### PATTERN 2

Inspection condition	The vehicle is in sleep state.
Test procedure	<ol style="list-style-type: none"> <li>1. Change the power supply mode of the electric motor switch to ON.</li> <li>2. Depress the brake pedal several times.</li> <li>3. Change the drive mode to the battery charge mode to start the engine.</li> <li>4. Change the power supply mode of the electric motor switch to OFF.</li> <li>5. Lock the doors and wait for 5 minutes or more.</li> <li>6. Change the power supply mode of the electric motor switch to ON.</li> <li>7. Depress the brake pedal several times.</li> <li>8. Check that the DTC is not set.</li> </ol>

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

## C1048-01 VALVE RELAY

## DTC Description

## DTC DETECTION LOGIC

DTC No.		M.U.T.-III SE screen terms (Trouble diagnosis content)	DTC detection condition	
C1048	01	Valve relay (Valve relay)	Diagnosis condition	<ul style="list-style-type: none"> <li>When electric motor switch is ON.</li> <li>When the power supply voltage is normal.</li> </ul>
			Signal (terminal)	-
			Threshold	When a malfunction is detected in valve relay.
			Diagnosis delay time	2 seconds or less

## POSSIBLE CAUSE



## NOTE:

Confirm if DTC is Stored DTC or Active DTC. If DTC is Active DTC, proceed with Diagnosis Procedure. If DTC is Stored DTC, clear DTC. Do not replace the ABS actuator and electric unit (control unit) for a Stored DTC.

Stored DTC	Active DTC
<ul style="list-style-type: none"> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>	<ul style="list-style-type: none"> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit)</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>

## FAIL-SAFE

The following functions are suspended.

- ASC function
- TCS function
- ABS function
- EBD function
- Brake limited slip differential (BLSD) function
- Brake assist function
- Brake force distribution function
- Hill start assist function
- Electric parking brake function
- Hill descent control function


## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**DTC CONFIRMATION PROCEDURE****1. PRECONDITIONING**

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always electric motor switch OFF (Auto ACC function OFF) before conducting the next test.

&gt;&gt;

[GO TO 2](#)**2. CHECK DTC DETECTION** With M.U.T.-III SE

1. Electric motor switch OFF (Auto ACC function OFF).
2. Electric motor switch ON.

**NOTE:**

Wait at least 10 seconds after electric motor switch ON.

3. Perform Diagnostic Trouble Code for "ABS".

Is DTC "C1048-01" detected?

YES-1 &gt;&gt;

"Active DTC" is displayed: Refer to [Diagnosis Procedure](#).

YES-2 &gt;&gt;

"Stored DTC" is displayed: INSPECTION END (Erase the memory of Diagnostic Trouble Code results.)

NO-1 &gt;&gt;

To check malfunction symptom before repair: Refer to Intermittent Incident [Intermittent Incident](#).

NO-2 &gt;&gt;

Confirmation after repair: INSPECTION END

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

## Diagnosis Procedure

### 1. CHECK CONNECTOR

1. Disconnect 12V battery negative terminal.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >>

[GO TO 3](#)

.

NO >>

Repair / replace harness or connector, securely lock the connector.

[GO TO 2](#)

.

### 2. PERFORM DIAGNOSTIC TROUBLE CODE



With M.U.T.-III SE

1. Connect 12V battery negative terminal.
2. Electric motor switch ON.



**NOTE:**

Wait at least 10 seconds after electric motor switch ON.

3. Perform Diagnostic Trouble Code for "ABS".

Is DTC "C1048-01" detected?

YES >>

[GO TO 3](#)

.

NO >>

INSPECTION END

### 3. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Check the ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [Diagnosis Procedure](#).

Is the inspection result normal?

YES >>

[GO TO 4](#)

.

NO >>

Repair / replace harness, connector, terminal, fuse, or fusible link.

### 4. CHECK TERMINAL

1. Disconnect 12V battery negative terminal.
2. Check the ABS actuator and electric unit (control unit) terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >>

Replace the ABS actuator and electric unit (control unit). Refer to [Removal and Installation](#).

NO >>

Repair / replace harness, connector, or terminal.

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

## C1051-49 PUMP MOTOR

## DTC Description

## DTC DETECTION LOGIC

DTC No.		M.U.T.-III SE screen terms (Trouble diagnosis content)	DTC detection condition	
C1051	49	Pump motor (Pump motor)	Diagnosis condition	<ul style="list-style-type: none"> <li>When electric motor switch is ON.</li> <li>When the power supply voltage is normal.</li> </ul>
			Signal (terminal)	-
			Threshold	When a malfunction is detected in motor or motor relay.
			Diagnosis delay time	12 seconds or less

## POSSIBLE CAUSE



## NOTE:

Confirm if DTC is Stored DTC or Active DTC. If DTC is Active DTC, proceed with Diagnosis Procedure. If DTC is Stored DTC, clear DTC. Do not replace the ABS actuator and electric unit (control unit) for a Stored DTC.

Stored DTC	Active DTC
<ul style="list-style-type: none"> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>	<ul style="list-style-type: none"> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit)</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>

## FAIL-SAFE

The following functions are suspended.

- ASC function
- TCS function
- ABS function
- EBD function
- Brake limited slip differential (BLSL) function
- Brake assist function
- Brake force distribution function
- Hill start assist function
- Electric parking brake function
- Hill descent control function
- Regenerative brake function

## DTC CONFIRMATION PROCEDURE

## 1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always electric motor switch OFF (Auto ACC function OFF) before conducting the next test.


&gt;&gt;

[GO TO 2](#)



## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**2. CHECK DTC DETECTION**
 With M.U.T.-III SE

1. Electric motor switch OFF (Auto ACC function OFF) to ON, and wait 30 seconds.
2. Drive the vehicle at approximately 50 km/h (31 MPH) or more for approximately 2 minutes.
3. Stop the vehicle.
4. Electric motor switch OFF (Auto ACC function OFF).
5. Electric motor switch ON.

**NOTE:**

Wait at least 10 seconds after electric motor switch ON.

6. Perform Diagnostic Trouble Code for "ABS".

Is DTC "C1051-49" detected?

YES-1 >>

"Active DTC" is displayed: Refer to [Diagnosis Procedure](#).

YES-2 >>

"Stored DTC" is displayed: INSPECTION END (Erase the memory of Diagnostic Trouble Code results.)

NO-1 >>

To check malfunction symptom before repair: Refer to Intermittent Incident [Intermittent Incident](#).

NO-2 >>

Confirmation after repair: INSPECTION END

## Diagnosis Procedure

**1. CHECK CONNECTOR**

1. Disconnect 12V battery negative terminal.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >>

[GO TO 3](#)

.

NO >>

Repair / replace harness or connector, securely lock the connector.

[GO TO 2](#)

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**2. PERFORM DIAGNOSTIC TROUBLE CODE**

 With M.U.T.-III SE

1. Connect 12V battery negative terminal, and wait 30 seconds.
2. Drive the vehicle at approximately 50 km/h (31 MPH) or more for approximately 2 minutes.

**NOTE:**

Vehicle must be driven after repair or replacement to erase the previous DTCs.

3. Stop the vehicle.
4. Electric motor switch OFF (Auto ACC function OFF).
5. Electric motor switch ON.

**NOTE:**

Wait at least 10 seconds after electric motor switch ON.

6. Perform Diagnostic Trouble Code for "ABS".

Is DTC "C1051-49" detected?

YES >>

[GO TO 3](#)

.

NO >>

INSPECTION END

**3. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT**

Check the ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [Diagnosis Procedure](#).

Is the inspection result normal?

YES >>

[GO TO 5](#)

.

NO >>

Repair / replace harness, connector, terminal, fuse, or fusible link.

[GO TO 4](#)

.

**4. ERASE DIAGNOSTIC TROUBLE CODE RESULT (1)**

 With M.U.T.-III SE

1. Drive the vehicle at approximately 50 km/h (31 MPH) or more for approximately 2 minutes.

**NOTE:**

Vehicle must be driven after repair or replacement to erase the previous DTCs.

2. Stop the vehicle.
3. Erase Diagnostic Trouble Code result for "ABS".
4. Electric motor switch OFF (Auto ACC function OFF) → ON → OFF (Auto ACC function OFF).

>>

INSPECTION END

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**5. CHECK TERMINAL**

1. Disconnect 12V battery negative terminal.
2. Check the ABS actuator and electric unit (control unit) terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >>


Replace the ABS actuator and electric unit (control unit). Refer to [Removal and Installation](#).

NO >>

Repair / replace harness or connector.

[GO TO 6](#)

**6. ERASE DIAGNOSTIC TROUBLE CODE RESULT (2)**

 With M.U.T.-III SE

1. Connect 12V battery negative terminal.
2. Drive the vehicle at approximately 50 km/h (31 MPH) or more for approximately 2 minutes.

**NOTE:**

Vehicle must be driven after repair or replacement to erase the previous DTCs.

3. Stop the vehicle.
4. Erase Diagnostic Trouble Code result for "ABS".
5. Electric motor switch OFF (Auto ACC function OFF) → ON → OFF (Auto ACC function OFF).

>>

INSPECTION END

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

## C1058-02 CONTROL UNIT

## DTC Description

## DTC DETECTION LOGIC

DTC No.		M.U.T.-III SE screen terms (Trouble diagnosis content)	DTC detection condition	
C1058	02	Control unit (Control unit)	Diagnosis condition	<ul style="list-style-type: none"> <li>When electric motor switch is ON.</li> <li>When the power supply voltage is normal.</li> </ul>
			Signal (terminal)	-
			Threshold	When there is an internal malfunction in the ABS actuator and electric unit (control unit).
			Diagnosis delay time	2 seconds or less

## POSSIBLE CAUSE



## NOTE:

Confirm if DTC is Stored DTC or Active DTC. If DTC is Active DTC, proceed with Diagnosis Procedure. If DTC is Stored DTC, clear DTC. Do not replace the ABS actuator and electric unit (control unit) for a Stored DTC.

Stored DTC	Active DTC
<ul style="list-style-type: none"> <li>The vehicle travels near high-voltage electrical power lines.</li> <li>Motor built in the ABS actuator and electric unit (control unit) operates temporarily without a break.</li> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>	<ul style="list-style-type: none"> <li>Incomplete adjustment of steering angle sensor neutral position.</li> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit)</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>

## FAIL-SAFE

The following functions are suspended.

- ASC function
- TCS function
- ABS function
- EBD function
- Brake limited slip differential (BLSD) function
- Brake assist function
- Brake force distribution function
- Hill start assist function
- Electric parking brake function
- Hill descent control function

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**DTC CONFIRMATION PROCEDURE****1. PRECONDITIONING**

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always electric motor switch OFF (Auto ACC function OFF) before conducting the next test.

&gt;&gt;

[GO TO 2](#)**2. CHECK DTC DETECTION**

 With M.U.T.-III SE

1. Electric motor switch OFF (Auto ACC function OFF).
2. Electric motor switch ON.

 **NOTE:**

Wait at least 10 seconds after electric motor switch ON.

3. Perform Diagnostic Trouble Code for "ABS".

Is DTC "C1058-02" detected?

YES-1 >>

"Active DTC" is displayed: Refer to [Diagnosis Procedure](#).

YES-2 >>

"Stored DTC" is displayed: INSPECTION END (Erase the memory of Diagnostic Trouble Code results.)

NO-1 >>

To check malfunction symptom before repair: Refer to Intermittent Incident [Intermittent Incident](#).

NO-2 >>

Confirmation after repair: INSPECTION END

**Diagnosis Procedure****1. ADJUST THE NEUTRAL POSITION OF STEERING ANGLE SENSOR**

1. Perform neutral position adjustment of steering angle sensor. Refer to [Work Procedure](#).
2. Perform "Read All DTCs".

Is DTC detected?

YES >>

Check the DTC.

NO >>

[GO TO 2](#)

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT**

Check the ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [Diagnosis Procedure](#).

Is the inspection result normal?

YES >>

[GO TO 3](#)

.

NO >>

Repair / replace harness, connector, terminal, fuse, or fusible link.

**3. PERFORM DIAGNOSTIC TROUBLE CODE**

With M.U.T.-III SE

Perform Diagnostic Trouble Code for "ABS".

**NOTE:**

Replace the ABS actuator and electric unit (control unit) even if other DTCs are displayed along with "C1058-04" in Diagnostic Trouble Code for "ABS".

Is DTC "C1058-02" detected?

YES >>

Replace the ABS actuator and electric unit (control unit). Refer to [Removal and Installation](#).

NO >>

INSPECTION END [Although motor built in the ABS actuator and electric unit (control unit) operates temporarily without a break, this is not a malfunction. Erase the all memory of Diagnostic Trouble Code results.]

## BRAKE CONTROL SYSTEM

&lt;Added&gt;

## C1058-19 CONTROL UNIT

## DTC Description

## DTC DETECTION LOGIC

DTC No.		M.U.T.-III SE screen terms (Trouble diagnosis content)	DTC detection condition	
C1058	19	Control unit (Control unit)	Diagnosis condition	<ul style="list-style-type: none"> <li>When electric motor switch is ON.</li> <li>When the power supply voltage is normal.</li> </ul>
			Signal (terminal)	-
			Threshold	When there is an internal malfunction in the ABS actuator and electric unit (control unit).
			Diagnosis delay time	2 seconds or less

## POSSIBLE CAUSE



## NOTE:

Confirm if DTC is Stored DTC or Active DTC. If DTC is Active DTC, proceed with Diagnosis Procedure. If DTC is Stored DTC, clear DTC. Do not replace the ABS actuator and electric unit (control unit) for a Stored DTC.

Stored DTC	Active DTC
<ul style="list-style-type: none"> <li>The vehicle travels near high-voltage electrical power lines.</li> <li>Motor built in the ABS actuator and electric unit (control unit) operates temporarily without a break.</li> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>	<ul style="list-style-type: none"> <li>Incomplete adjustment of steering angle sensor neutral position.</li> <li>Harness or connector</li> <li>ABS actuator and electric unit (control unit)</li> <li>ABS actuator and electric unit (control unit) power supply system</li> <li>Fuse</li> <li>Fusible link</li> <li>12V battery</li> </ul>

## FAIL-SAFE

The following functions are suspended.

- ASC function
- TCS function
- ABS function
- EBD function
- Brake limited slip differential (BLSD) function
- Brake assist function
- Brake force distribution function
- Hill start assist function
- Electric parking brake function
- Hill descent control function

## BRAKE CONTROL SYSTEM


&lt;Added&gt;

**DTC CONFIRMATION PROCEDURE****1. PRECONDITIONING**

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always electric motor switch OFF (Auto ACC function OFF) before conducting the next test.

&gt;&gt;

[GO TO 2](#)**2. CHECK DTC DETECTION**

 With M.U.T.-III SE

1. Electric motor switch OFF (Auto ACC function OFF).
2. Electric motor switch ON.

**NOTE:**

Wait at least 10 seconds after electric motor switch ON.

3. Perform Diagnostic Trouble Code for "ABS".

Is DTC "C1058-19" detected?

YES-1 >>

"Active DTC" is displayed: Refer to [Diagnosis Procedure](#).

YES-2 >>

"Stored DTC" is displayed: INSPECTION END (Erase the memory of Diagnostic Trouble Code results.)

NO-1 >>

To check malfunction symptom before repair: Refer to Intermittent Incident [Intermittent Incident](#).

NO-2 >>

Confirmation after repair: INSPECTION END

**Diagnosis Procedure****1. ADJUST THE NEUTRAL POSITION OF STEERING ANGLE SENSOR**

1. Perform neutral position adjustment of steering angle sensor. Refer to [Work Procedure](#).
2. Perform "Read All DTCs".

Is DTC detected?

YES >>

Check the DTC.

NO >>

[GO TO 2](#)



## BRAKE CONTROL SYSTEM

&lt;Added&gt;

**2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT**

Check the ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [Diagnosis Procedure](#).

Is the inspection result normal?

YES >>

[GO TO 3](#)

.

NO >>

Repair / replace harness, connector, terminal, fuse, or fusible link.

**3. PERFORM DIAGNOSTIC TROUBLE CODE**

With M.U.T.-III SE

Perform Diagnostic Trouble Code for "ABS".

**NOTE:**

Replace the ABS actuator and electric unit (control unit) even if other DTCs are displayed along with "C1058-04" in Diagnostic Trouble Code for "ABS".

Is DTC "C1058-19" detected?

YES >>

Replace the ABS actuator and electric unit (control unit). Refer to [Removal and Installation](#).

NO >>

INSPECTION END [Although motor built in the ABS actuator and electric unit (control unit) operates temporarily without a break, this is not a malfunction. Erase the all memory of Diagnostic Trouble Code results.]

## Removal and Installation

### REMOVAL

- 1.Set vehicle to the straight-ahead position.
- 2.Remove front suspension member. Refer to [Removal and Installation](#).
- 3.Remove front stabilizer bar. Refer to [Removal and Installation](#).
- 4.Remove steering gear assembly.

### INSTALLATION

Note the following, and install in the reverse order of removal.

#### CAUTION:

- **Spiral cable may be cut if steering wheel turns while separating steering column assembly and steering gear assembly. Always fix the steering wheel using string to avoid turning.**

- Before installation, check that the tilt position is at the middle level.
- Clean mounting surface on the body side of fire wall seal when installing steering gear assembly.
- Perform final tightening of nuts and bolts on each part under unladen conditions with tires on level ground when removing steering gear assembly. Check wheel alignment.
- Rotate steering wheel to check for decentered condition, binding, noise or excessive steering effort.
- Perform inspection after installation. Refer to [Inspection](#).

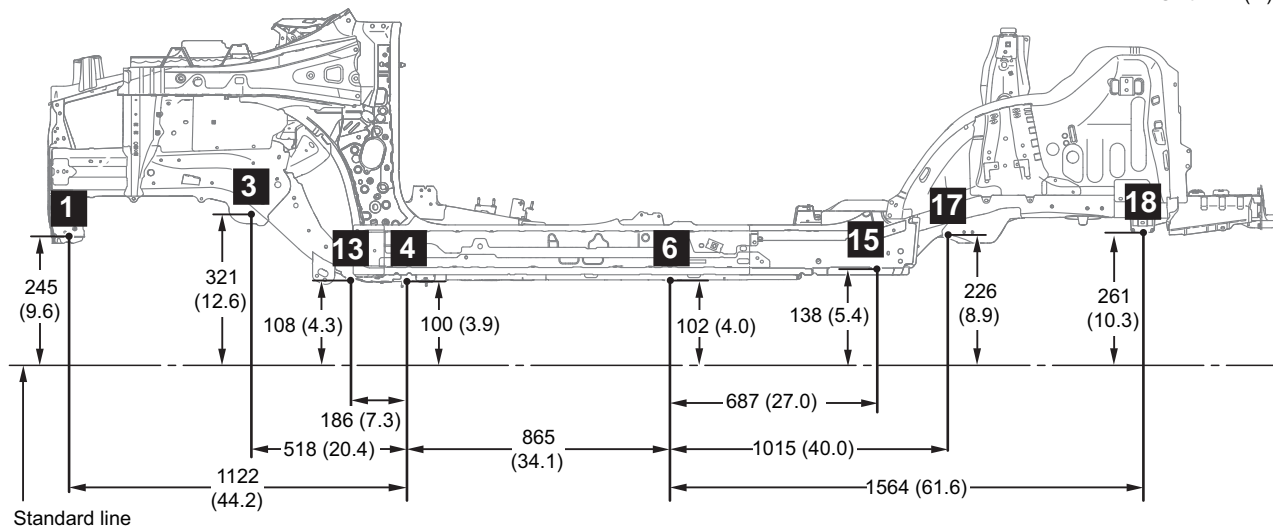
- ~~Perform steering torque calibration after replacing or removal and installation the gear housing assembly (integrated with power steering control unit). Refer to [Work Procedure](#).~~
- ~~If equipped with MI PILOT Assist, perform steering torque calibration after replacing or removing and installing the steering gear assembly. Refer to [Work Procedure](#).~~
- ~~Perform steering torque calibration after replacing or removal and installation the steering gear assembly. Refer to [Work Procedure](#).~~

<Incorrect>

<Correct>

- Perform the steering torque calibration after removing and installing the steering gear assembly or gear housing assembly (integrated with power steering control unit). Refer to STEERING - STEERING CONTROL SYSTEM - BASIC INSPECTION - STEERING TORQUE SENSOR CALIBRATION. If equipped with MI-PILOT, it is necessary to perform the steering torque calibration for the driver assistance system. Refer to CRUISE CONTROL & DRIVER ASSISTANCE - DRIVER ASSISTANCE SYSTEM - ADAS CONTROL UNIT - BASIC INSPECTION - STEERING TORQUE CALIBRATION.
- Perform the additional service when replacing power steering control module after replacing the steering gear assembly or gear housing assembly (integrated with power steering control unit). Refer to STEERING - STEERING CONTROL SYSTEM - BASIC INSPECTION - ADDITIONAL SERVICE WHEN REPLACING POWER STEERING CONTROL MODULE CONTROL UNIT. If equipped with MI-PILOT, it is necessary to perform the steering torque calibration for the driver assistance system. Refer to CRUISE CONTROL & DRIVER ASSISTANCE - DRIVER ASSISTANCE SYSTEM - ADAS CONTROL UNIT - BASIC INSPECTION - STEERING TORQUE CALIBRATION.

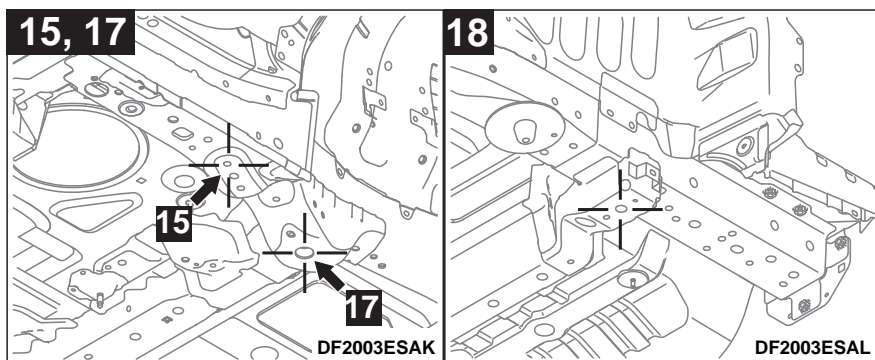
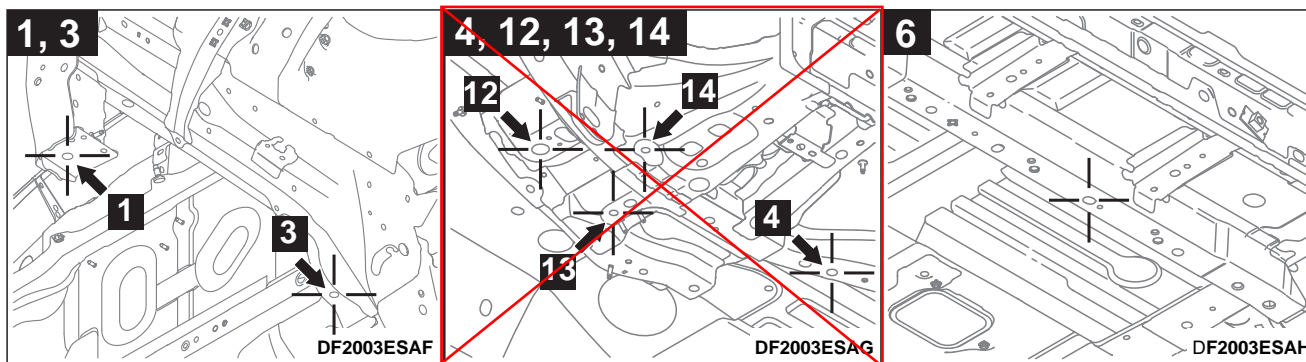
Unit: mm (in)



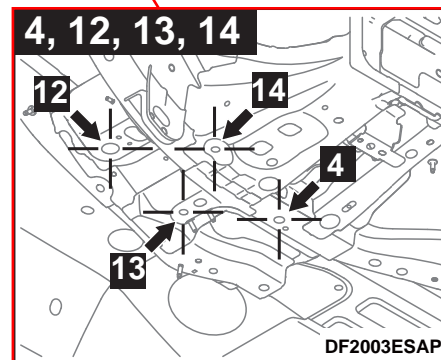
NOTE: The assumed standard line is established 100 mm (3.9 in) below the measurement point No.4.

DF100BSZAX

<Incorrect>



<Correct>



## BODY COLOR CHARTS

Check the vehicle's body color code, and then use this body color chart to determine the refinishing paint supplier from which the color can be purchased.

### [MONO-TONE]

Color	Color code	Color number	Color name	Coating film structure	Composition of film
BRONZE	C17	CSC10017	Deep Bronze Metallic	2M	Metallic
DARK BLUE	D14	CMD10014	Cosmic Blue Mica	2P	Interference Pearl
RED	P62	CMP10062	Red Diamond	3CM	Metallic
GRAY	U17	CMU10017	Titanium Gray Metallic	2M	Metallic
SILVER	U25	CSU10025	Sterling Silver Metallic	2M	Metallic
WHITE	W85	CSW10085	White Diamond	3M	Metallic
BLACK	X42	AC11342	Black Mica	2P	Interference Pearl
BLACK	X47	CMX10047	Black Diamond	3CM	Metallic

### [2-TONE]

Color	Color code	Color number	Color name	Coating film structure	Composition of film	
BRONZE / BLACK	C17X47	C17	CSC10017	Deep Bronze Metallic / Black Diamond	2M	Metallic
		X47	CMX10047		3CM	Metallic
BLACK / RED	X42P62	X42	AC11342	Black Mica / Red Diamond	2P	Interference Pearl
		P62	CMP10062		3CM	Metallic
BLACK / GRAY	X42U17	X42	AC11342	Black Mica / Titanium Gray Metallic	2P	Interference Pearl
		U17	CMU10017		2M	Metallic
BLACK / SILVER	X42U25	X42	AC11342	Black Mica / Sterling Silver Metallic	2P	Interference Pearl
		U25	CSU10025		2M	Metallic
BLACK / WHITE	X42W85	X42	AC11342	Black Mica / White Diamond	2P	Interference Pearl
		W85	CSW10085		3M	Metallic

#### NOTE:

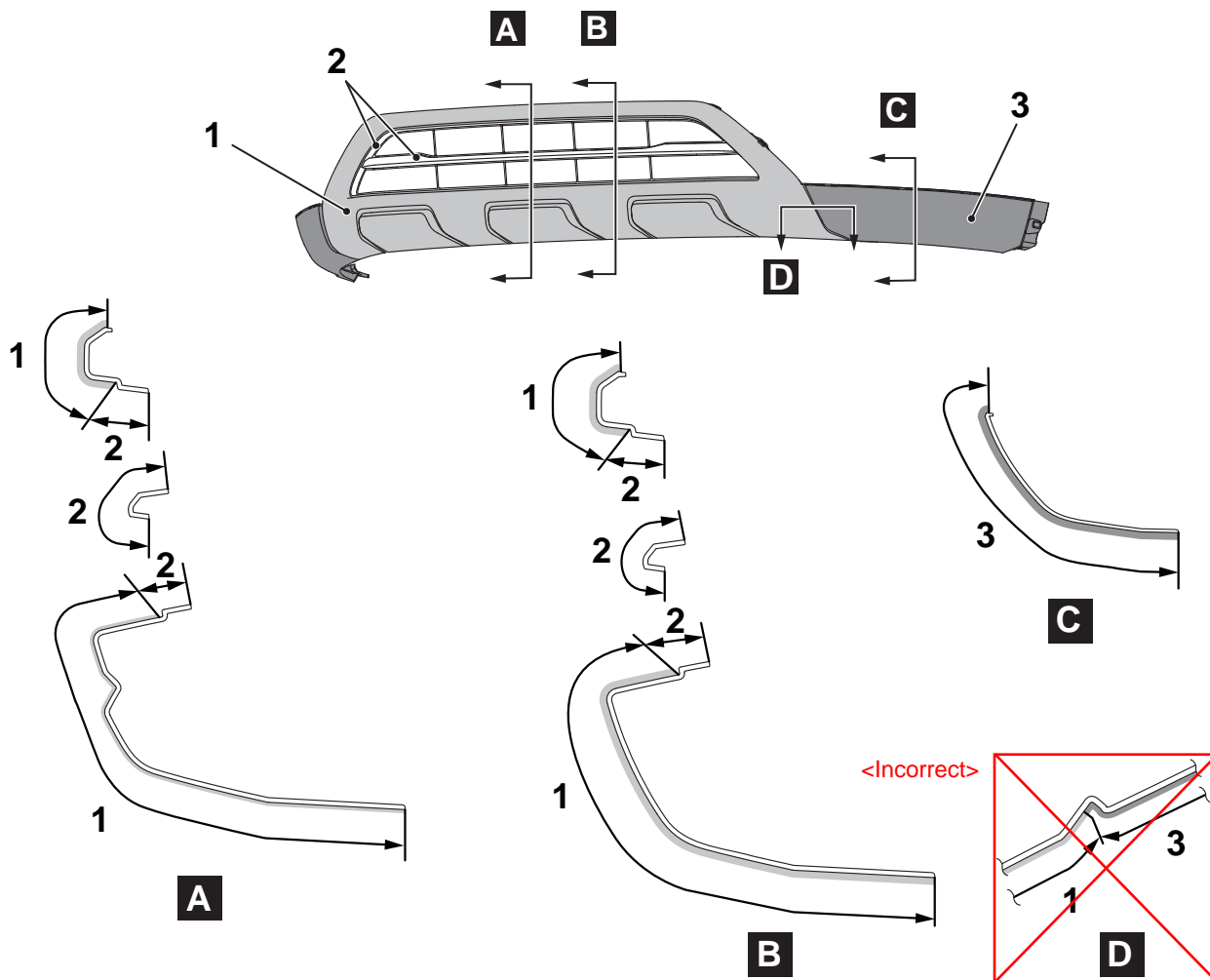
- The coating film structure indicates top coating only (2S: 2 coat solid, 2M: 2 coat metallic, 3M: 3coat metallic, 2P: 2 coat pearl, 3CM: 3 coat color clear metallic).
- For painting, inner panel colors should be similar to the outer panel colors.
- 2-tone color consists of 2 colors, a color before the slash (/) which indicates the body upper (roof and liftgate spoiler) color and a color after the slash (/) which indicates the body lower color.
- The front grille is coated in black (AC10705).
- The front bumper molding lower is coated in silver (CSU10025 or ~~CMX18001~~). <Deleted>
- The front fog light bezel is coated in silver (CSU10025).
- The rear bumper finisher is coated in silver (CSU10025 or ~~CMX18001~~). <Deleted>
- The front pillar finisher is coated in black (AC10705).
- The front door sash cover rear, rear door sash cover front and rear door sash cover rear is coated in black (~~AC10705~~). <Incorrect>
- The quarter window sash molding is coated in black (~~AC10705~~). <Incorrect>
- The roof rail is coated in silver (~~CSU10025~~). <Incorrect>

AC11169 <Correct>

CMX18010 <Correct>

Front Bumper

<Front bumper molding lower>

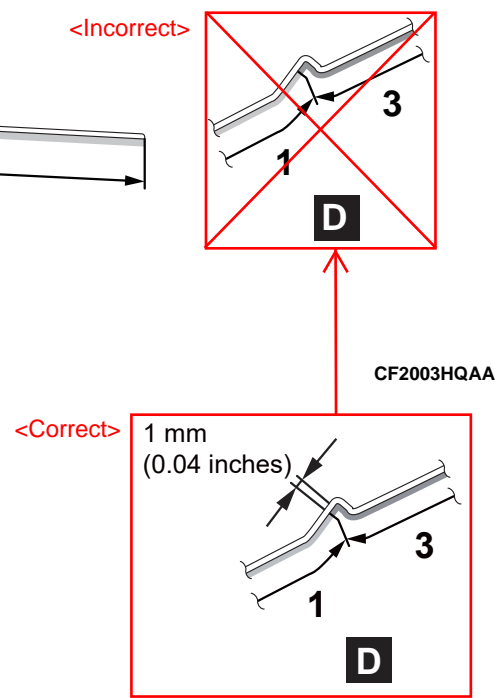


<Incorrect>

1	Silver (CSU10025 or CKH18001) or material color
2	Material color
3	Body color or material color

<Correct>

	Type A*1	Type B*2	Type C*3
1		Silver (CSU10025)	Silver (CSU10025)
2	Material color	Material color	Material color
3			Body color



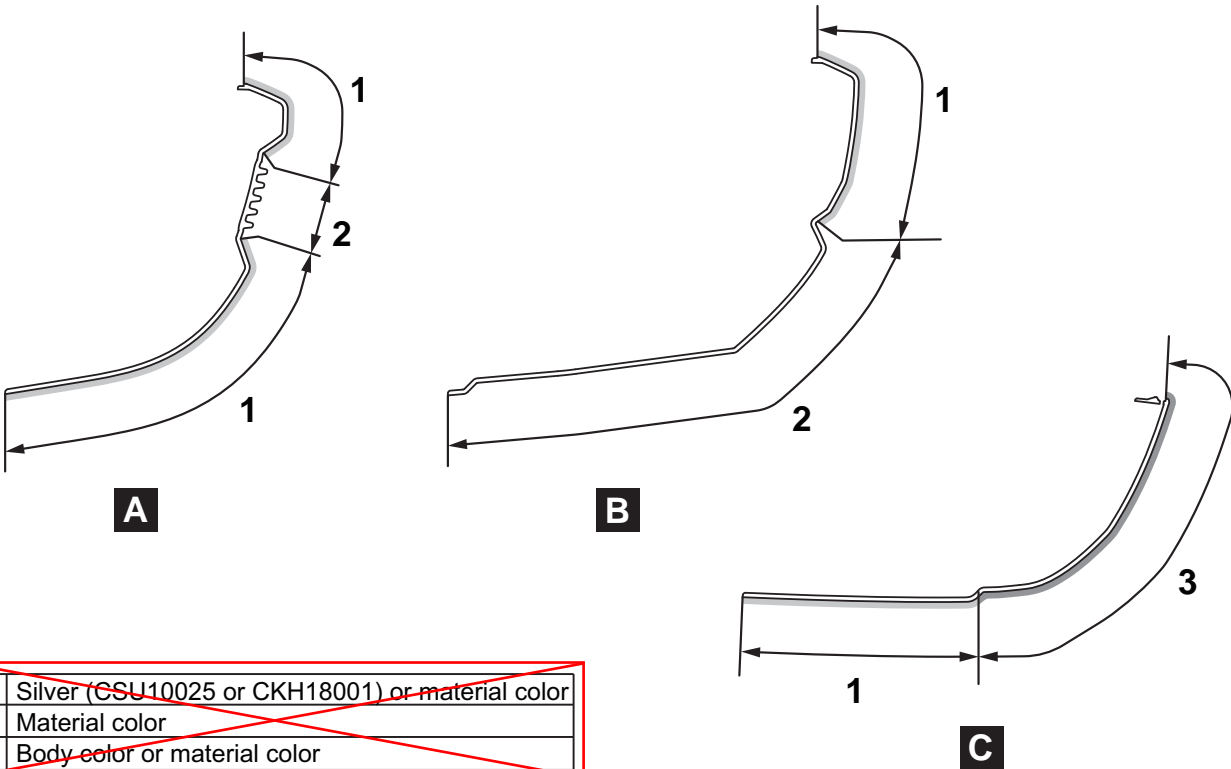
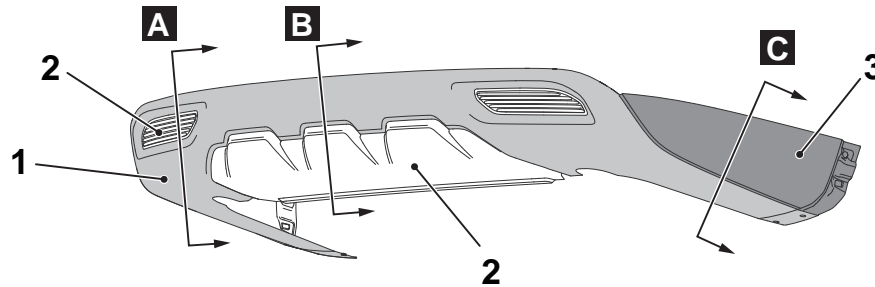
<Added>

**NOTE:**

- \*1: Type A: Low grade <Except vehicles for Mexico>, M-line <Vehicles for Mexico>
- \*2: Type B: Medium grade <Except vehicles for Mexico>, H-line <Vehicles for Mexico>
- \*3: Type C: High grade <Except vehicles for Mexico>, P-line <Vehicles for Mexico>

## Rear Bumper

&lt;Rear bumper finisher&gt;



CF2003HRAA

&lt;Incorrect&gt;

1	Silver (CSU10025 or CKH18001) or material color
2	Material color
3	Body color or material color

&lt;Correct&gt;

	Type A* <sup>1</sup>	Type B* <sup>2</sup>	Type C* <sup>3</sup>
1		Silver (CSU10025)	Silver (CSU10025)
2	Material color	Material color	Material color
3			Body color

&lt;Added&gt;

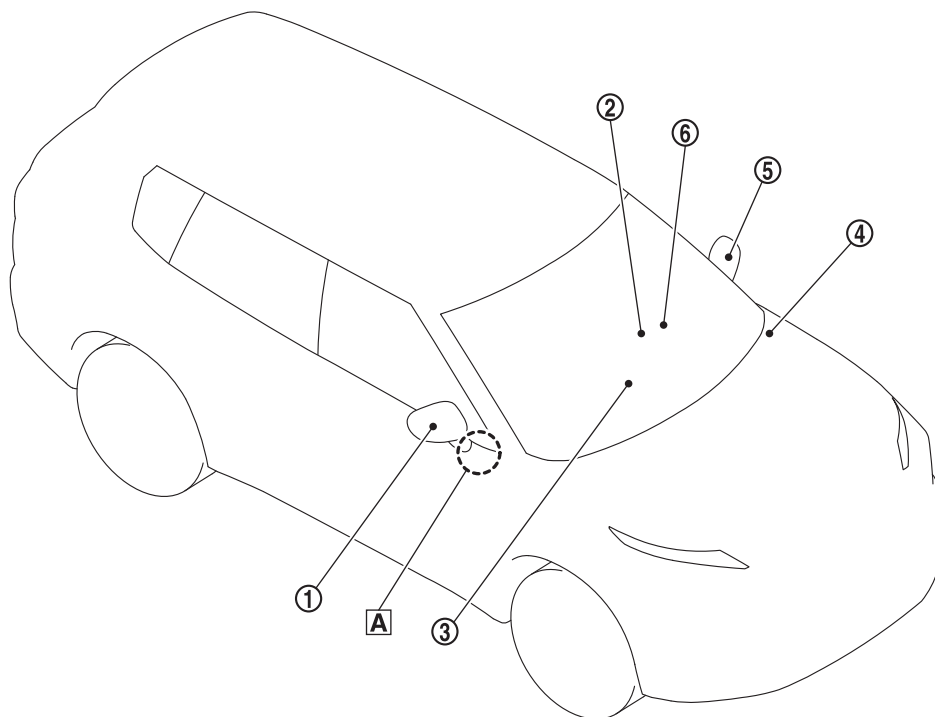
## NOTE:

- \*1: Type A: Low grade <Except vehicles for Mexico>, M-line <Vehicles for Mexico>
- \*2: Type B: Medium grade <Except vehicles for Mexico>, H-line <Vehicles for Mexico>
- \*3: Type C: High grade <Except vehicles for Mexico>, P-line <Vehicles for Mexico>

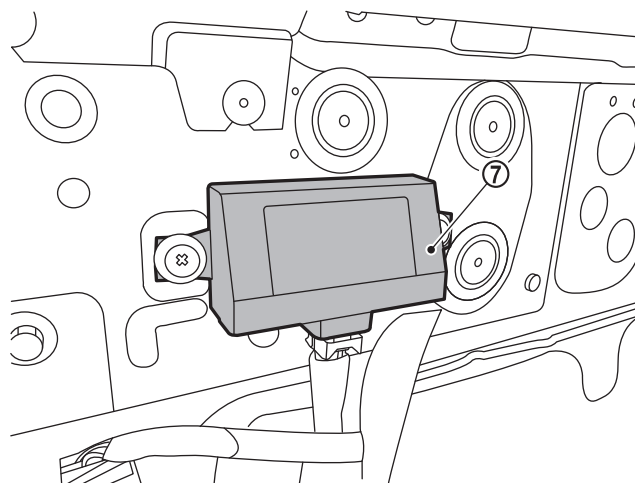
## SYSTEM DESCRIPTION

## COMPONENT PARTS

## Component Parts Location



A



DF100BTQAB00USA

①	Door mirror RH	②	Driver seat control unit <span style="color: red;">❑ &lt;Added&gt;</span>	③	PHEV-ECU Refer to <a href="#">REMOVAL AND INSTALLATION</a> .
④	BCM Refer to <a href="#">Component Parts Location</a> .	⑤	Door mirror LH	⑥	Power window main switch Refer to <a href="#">Power Window Main Switch</a> .
⑦	Passenger door mirror control module <span style="color: red;">❑ &lt;Added&gt;</span>				
A	View with front door finisher (passenger side) removed				

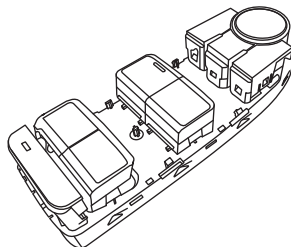
\*1: With automatic drive positioner system

\*2: With me3/6/2023 (door mirror)

## Power Window Main Switch (~~Without automatic drive positioner system~~)

### COMPONENT FUNCTION WITHIN SYSTEM

Power window main switch transmits mirror switch signal, changeover switch signal and door mirror power supply to door mirror.



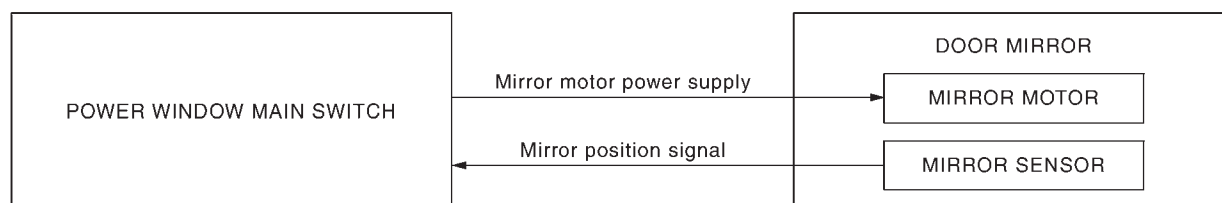
CF100BTRAA00USA

### INDIVIDUAL COMPONENT FUNCTION

- Power window main switch transmits the mirror motor power supply to door mirror.
- Power window main switch receives the mirror position signal from door mirror.

### COMPONENT OPERATION

- Mirror face angle adjustment is performed when mirror switch is operated.
- The door mirror for which angle adjustment is performed is switch by operating the changeover switch.



CF100BTSAA00USA

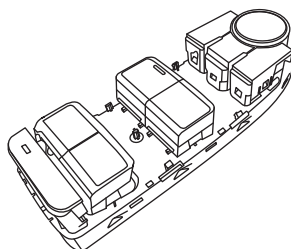
### COMPONENT PARTS LOCATION

Power window main switch is installed to front door finisher. Refer to [Component Parts Location](#).

## Power Window Main Switch (~~With automatic drive positioner system~~)

### COMPONENT FUNCTION WITHIN SYSTEM

Power window main switch transmits mirror switch signal, changeover switch signal and door mirror power supply to door mirror LH.



CF100BTRAA00USA



## 6

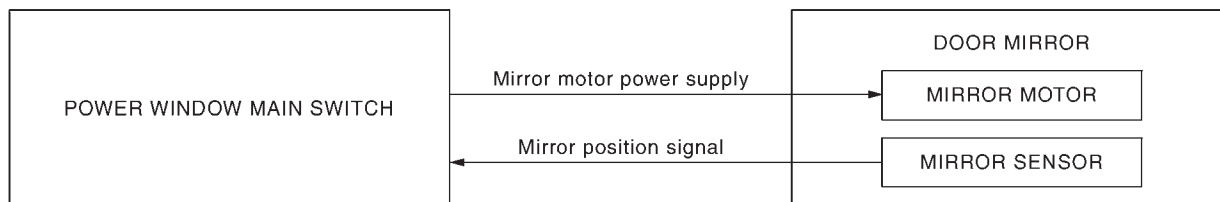
## MIRRORS

## INDIVIDUAL COMPONENT FUNCTION

- Power window main switch transmits the mirror motor power supply to door mirror LH.
- Power window main switch receives the mirror position signal from door mirror LH.

## COMPONENT OPERATION

- Mirror face angle adjustment is performed when mirror switch is operated.
- The door mirror for which angle adjustment is performed is switch by operating the changeover switch.



<Without memory function (door mirror)>

CF100BTSAA00USA

## COMPONENT PARTS LOCATION

Power window main switch is installed to front door finisher. Refer to [Component Parts Location](#).

<New>

Door Mirror (Without automatic drive positioner system)

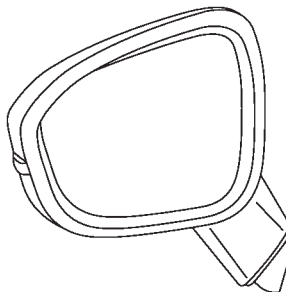
<Old>

## COMPONENT FUNCTION WITHIN SYSTEM

It makes mirror face operate from side to side and up and down with the electric power that power window main switch supplies.

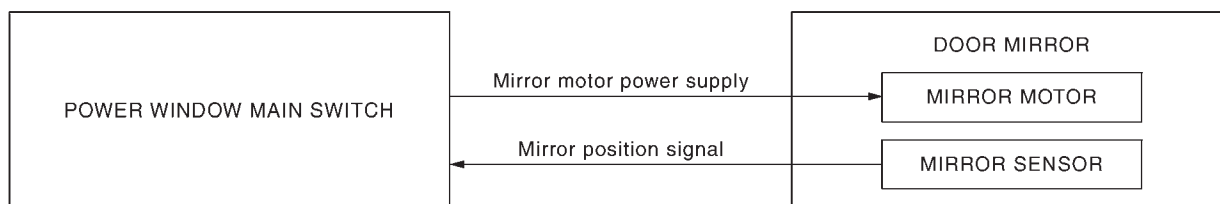
## INDIVIDUAL COMPONENT FUNCTION

It makes mirror face operate from side to side and up and down via integrated motor.



CF100BTTAA00USA

## COMPONENT OPERATION



CF100BTSAA00USA

## COMPONENT PARTS LOCATION

Door mirror is installed in front door panel. For detailed installation location. Refer to [Component Parts Location](#).

## Door Mirror (With automatic drive positioner system)

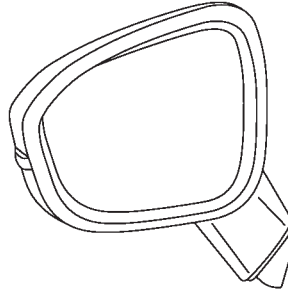
### COMPONENT FUNCTION WITHIN SYSTEM

&lt;Old&gt;

It makes mirror face operate from side to side and up and down with the electric power that power window main switch and passenger door mirror control module supplies.

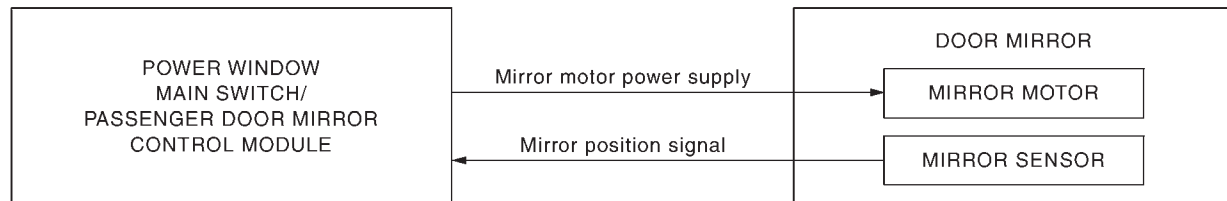
### INDIVIDUAL COMPONENT FUNCTION

It makes mirror face operate from side to side and up and down via integrated motor.



CF100BTAA00USA

### COMPONENT OPERATION



CF100BTUAA00USA

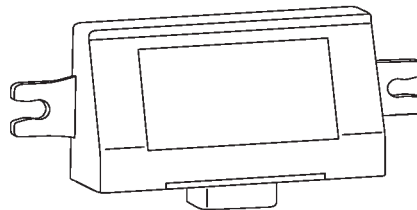
### COMPONENT PARTS LOCATION

Door mirror is installed in front door panel. For detailed installation location. Refer to [Component Parts Location](#).

## Passenger Door Mirror Control Module

### COMPONENT FUNCTION WITHIN SYSTEM

Passenger door mirror control module supplies mirror motor power supply in door mirror RH and operates door mirror RH.



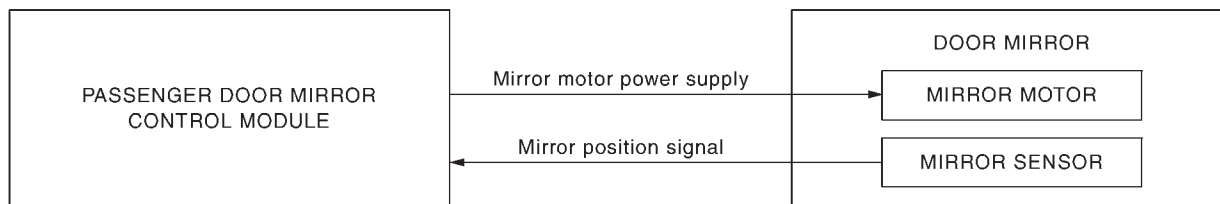
CF100BTVAA00USA

### INDIVIDUAL COMPONENT FUNCTION

- Passenger door mirror control module transmits the mirror motor power supply to door mirror RH.
- Passenger door mirror control module receives the mirror position signal from door mirror RH.

## COMPONENT OPERATION

- The mirror control signal is transmitted to passenger door mirror control module from BCM via LIN communication.
- When the mirror control signal is detected, passenger door mirror control module activated mirror motor RH.



CF100BTWAA00USA

## COMPONENT PARTS LOCATION

Passenger door mirror control module is installed in front door finisher (passenger side) removed. Refer to [Component Parts Location](#).

<Without memory function (door mirror)>

SYSTEM

&lt;New&gt;

DOOR MIRROR SYSTEM

System Description ~~(Without automatic positioner system)~~

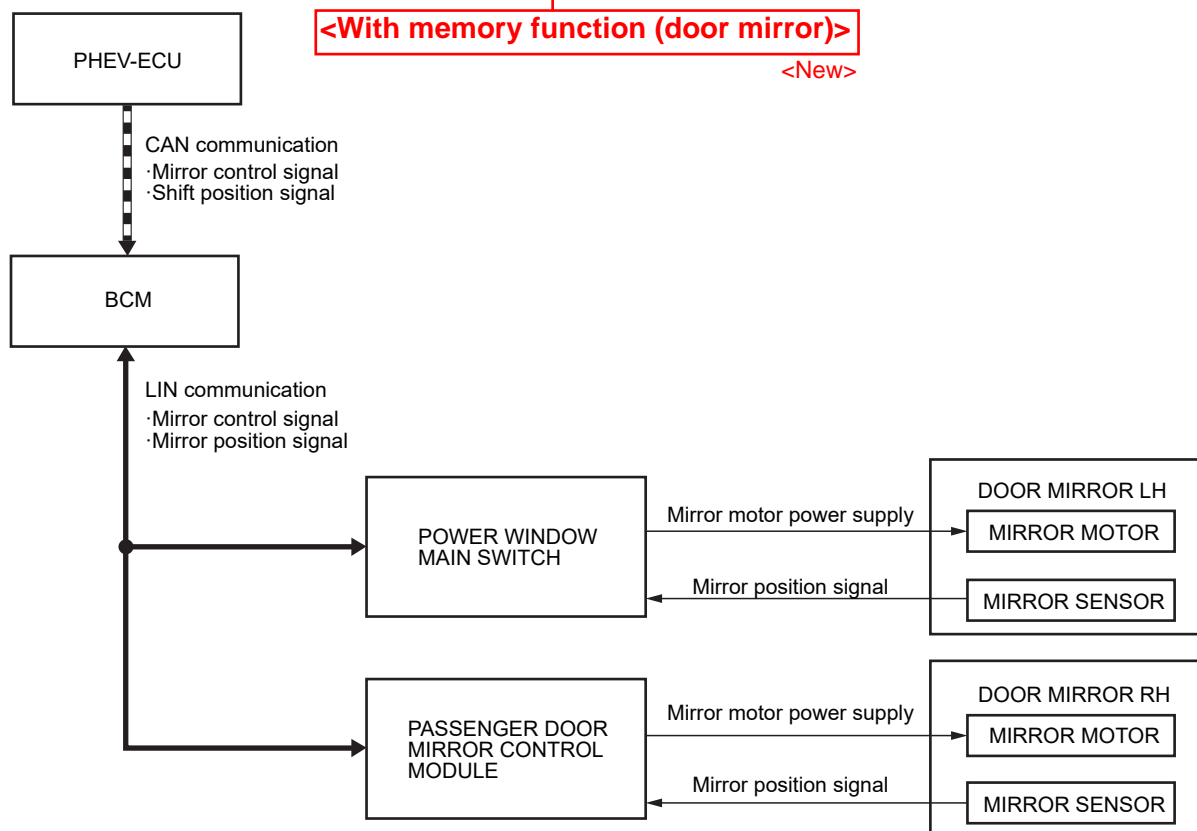
## SYSTEM DIAGRAM

&lt;Old&gt;

Component	Function
Power window main switch	Refer to Power Window Main Switch <a href="#">Power Window Main Switch (Without automatic drive positioner system)</a> .
Door mirror	Refer to Door Mirror <a href="#">Door Mirror (Without automatic drive positioner system)</a> .

## System Description (With automatic positioner system)

## SYSTEM DIAGRAM



DF100BTXAA00USA

Component	Function
BCM	BCM transmits the mirror control signal and mirror position signal to power window main switch and passenger door mirror control module via LIN communication.
PHEV-ECU	PHEV-ECU transmits the shift position signal to BCM via CAN communication.
Power window main switch	Refer to Power Window Main Switch <a href="#">Power Window Main Switch (With automatic drive positioner system)</a> .
Passenger door mirror control module	Refer to <a href="#">Passenger Door Mirror Control Module</a> .
Door mirror	Refer to Door Mirror <a href="#">Door Mirror (With automatic drive positioner system)</a> .

## MANUAL OPERATION

## Description

- Power window main switch inputs mirror control signal and perform the LH/RH control of door mirror motor supplying electric power when changeover switch is operated.
- Power window main switch inputs mirror control signal and supplies electric power to door mirror.

## Operation Conditions

If the following conditions are not satisfied, operation is not performed.

- Electric motor switch: ON
- Changeover switch: Select either left or right

## AUTOMATIC DRIVE POSITIONER LINKED OPERATION

Door mirror control is included in automatic drive positioner system. Refer to automatic drive positioner system for more details. Refer to [System Description](#).

### 3. REPLACE PASSENGER DOOR MIRROR CONTROL MODULE

Replace passenger door mirror control module. Refer to [Removal and Installation](#).

Is the inspection result normal?

YES >>

INSPECTION END

NO >>

[GO TO 4](#)

### 4. REPLACE BCM

Replace BCM. Refer to [Removal and Installation](#).

>>

INSPECTION END

## POWER WINDOW MAIN SWITCH

### Diagnosis Procedure ~~(Without automatic drive positioner system)~~

#### 1. CHECK POWER WINDOW MAIN SWITCH CIRCUIT

1. Electric motor switch OFF.
2. Disconnect power window main switch connector and door mirror connector.
3. Check continuity between power window main switch harness connector and door mirror harness connector.

<Old>

<Without memory function (door mirror)>

<New>

Power window main switch		Door mirror		Continuity	
Connector	Terminal	Connector	Terminal		
D6	6	Door mirror LH	D16	14	Existed
	10			5	
	17			3	
	18			11	
	21			6	
	7	Door mirror RH	D106	6	
	8			14	
	9			5	
	19			11	
	20			3	

## 5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to Intermittent Incident [Intermittent Incident](#).

>>

INSPECTION END

### Diagnosis Procedure ~~(With automatic drive positioner system)~~

<Old>

#### 1. CHECK POWER WINDOW MAIN SWITCH CIRCUIT

<With memory function (door mirror)>

<New>

1. Electric motor switch OFF.
2. Disconnect power window main switch connector and door mirror LH connector.
3. Check continuity between power window main switch harness connector and door mirror LH harness connector.

Power window main switch		Door mirror LH		Continuity
Connector	Terminal	Connector	Terminal	
D6	2	D16	1	Existed
	6		14	
	7		2	
	8		10	
	10		5	
	14		9	
	17		3	
	18		11	
	21		6	

4. Check continuity between power window main switch harness connector and ground.

Power window main switch		—	Continuity
Connector	Terminal		
D6	2	Ground	Not existed
	6		
	7		
	8		
	10		
	14		
	17		
	18		
	21		

Is the inspection result normal?

YES >>

[GO TO 2](#)

.

NO >>

Repair or replace harness.

## 4. CHECK MIRROR MOTOR CIRCUIT

1. Disconnect door mirror assembly (LH) and (RH) connector.
2. Check continuity between door mirror assembly (LH) and (RH) connector and power window main switch (mirror control switch) connector.

<Old> ~~<Without automatic drive positioner>~~ ← ~~<Without memory function (door mirror)>~~ <New>

Door mirror assembly		Power window main switch		Continuity	
Connector	Terminal	Connector	Terminal		
LH	D16	D6	5	10	Existed
			6	21	
			14	6	

<Old> ~~<With automatic drive positioner>~~ ← ~~<With memory function (door mirror)>~~ <New>

Door mirror assembly		Power window main switch		Continuity	
Connector	Terminal	Connector	Terminal		
LH	D16	D6	5	10	Existed
			6	21	
			14	6	

~~<Without memory function (door mirror)>~~  
<New>

3. Check continuity between door mirror LH harness connector and power window main switch connector. ~~<Without automatic drive positioner>~~

<Old>

Door mirror assembly		Power window main switch		Continuity	
Connector	Terminal	Connector	Terminal		
RH	D106	D6	5	9	Existed
			6	7	
			14	8	

~~<With memory function (door mirror)>~~  
<New>

4. Check continuity between door mirror LH harness connector and passenger door mirror control module. ~~<With automatic drive positioner>~~

<Old>

Door mirror assembly		Passenger door mirror control module		Continuity	
Connector	Terminal	Connector	Terminal		
RH	D106	D108	5	11	Existed
			6	10	
			14	3	

Is the inspection result normal?

YES >>

[GO TO 5](#)

NO >>

Repair or replace harnesses.

## 4. CHECK RETRACTOR MOTOR INPUT SIGNAL 1

1. Disconnect door mirror assembly (LH) and (RH) connector.
2. Check continuity between door mirror assembly (LH) connector and power window main switch connector.

<Old> ~~<Without automatic drive positioner>~~ ← ~~<Without memory function (door mirror)>~~ <New>

Door mirror assembly		Power window main switch		Continuity
Connector	Terminal	Connector	Terminal	
LH	D16	D6	3	Existed
			11	
			18	

<Old> ~~<With automatic drive positioner>~~ ← ~~<With memory function (door mirror)>~~ <New>

Door mirror assembly		Power window main switch		Continuity
Connector	Terminal	Connector	Terminal	
LH	D16	D6	3	Existed
			11	
			18	

~~<Without memory function (door mirror)>~~  
↓  
<New>

3. Check continuity between door mirror RH harness connector and power window main switch connector. ~~<Without automatic drive positioner>~~ <Old>

Door mirror assembly		Power window main switch		Continuity
Connector	Terminal	Connector	Terminal	
RH	D106	D6	3	Existed
			11	
			19	

~~<With memory function (door mirror)>~~  
↓  
<New>

4. Check continuity between door mirror RH harness connector and passenger door mirror control module. ~~<With automatic drive positioner>~~ <Old>

Door mirror assembly		Passenger door mirror control module		Continuity
Connector	Terminal	Connector	Terminal	
RH	D106	D108	3	Existed
			11	
			8	

5. Check continuity between door mirror assembly (LH) and (RH) connector and ground.

Door mirror assembly		-		Continuity
Connector	Terminal	Connector	Terminal	
RH	D106	Ground	3	Not existed
			11	
LH	D16	3		
		11		

Is the inspection result normal?

YES >>

[GO TO 5](#)

NO >>

Repair or replace harnesses.



## 5. CHECK RETRACTOR MOTOR INPUT SIGNAL 2

1. Connect power window main switch (mirror control switch) connector and remote controlled mirror switch connector.
2. Electric motor switch ON.
3. With operating the mirror folding/unfolding switch, check the voltage between door mirror assembly harness connector and ground.

+			-	Condition	Voltage	
Door mirror assembly						
Connector		Terminal				
RH	D106	11	Ground	Mirror folding/unfolding switch	Operated to OPEN	9 – 16 V
		3			Operated to CLOSE	0 – 1 V
LH	D16	11			Operated to OPEN	0 – 1 V
		3			Operated to CLOSE	9 – 16 V
					Operated to OPEN	9 – 16 V
					Operated to CLOSE	0 – 1 V
					Operated to OPEN	0 – 1 V
					Operated to CLOSE	9 – 16 V

Is the inspection result normal?

YES >>

[GO TO 6.](#)

NO >>

Replace door mirror assembly.

## 6. REPLACE POWER WINDOW MAIN SWITCH (MIRROR CONTROL SWITCH)

Replace power window main switch (mirror control switch).

Is the inspection result normal?

YES >>

INSPECTION END

NO >>

Refer to [Intermittent Incident](#).

## SYMPTOM DIAGNOSIS

### DOOR MIRROR DOES NOT OPERATE

#### Diagnosis Procedure ~~(Without automatic drive positioner system)~~

#### 1. CHECK DOOR MIRROR CIRCUIT

Check door mirror. Refer to Diagnosis Procedure [Diagnosis Procedure \(Without automatic drive positioner system\)](#).

Is the inspection result normal?

YES >>

[GO TO 2](#)

NO >>

Repair or replace the malfunctioning parts.

#### 2. REPLACE DOOR MIRROR MOTOR

Replace door mirror motor. Refer to [Removal and Installation](#).

Is the inspection result normal?

YES >>

INSPECTION END

NO >>

[GO TO 3](#)

↑ <Old>

<Without memory function (door mirror)>

<New>

### 3. REPLACE POWER WINDOW MAIN SWITCH

Replace power window main switch. Refer to [Removal and Installation](#).

Is the inspection result normal?

YES >>

INSPECTION END

NO >>

Check Intermittent incident. Refer to Intermittent Incident [Intermittent Incident](#).

### Diagnosis Procedure (With automatic drive positioner system)

#### 1. CHECK AUTOMATIC DRIVE POSITIONER SYSTEM

Check door mirror operate with automatic drive positioner system. Refer to [System Description](#).

Is the inspection result normal?

YES >>

[GO TO 2](#)

.

NO >>

Check automatic drive positioner system operation. Refer to Diagnosis Procedure [Diagnosis Procedure](#).

#### 2. CHECK DOOR MIRROR CIRCUIT

Check door circuit.

- Door mirror LH: Refer to Diagnosis Procedure [Diagnosis Procedure \(With automatic drive positioner system\)](#).
- Door mirror RH: Refer to [Diagnosis Procedure](#).

Is the inspection result normal?

YES >>

Check Intermittent incident. Refer to Intermittent Incident [Intermittent Incident](#).

NO >>

Repair or replace the malfunctioning parts.

## AUTO RETRACTABLE DOOR MIRROR DOES NOT OPERATE

### Diagnosis Procedure

#### 1. CHECK AUTO RETRACTABLE DOOR MIRROR OPERATION

1. Set the auto retractable door mirror to be operable with the combination meter.
2. Check if the auto retractable door mirror operates normally when the door lock/unlock operation or the electric motor switch is turned on.

Is the inspection result normal?

YES >>

INSPECTION END

NO >>

[GO TO 2](#)

.

#### 2. CHECK POWER WINDOW MAIN SWITCH POWER SUPPLY CIRCUIT AND GROUND CIRCUIT

Check power window main switch (mirror control switch) power supply circuit and ground circuit. Refer to BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY - POWER WINDOW CONTROL SYSTEM - DTC/CIRCUIT DIAGNOSIS - POWER SUPPLY AND GROUND CIRCUIT - POWER WINDOW MAIN SWITCH - Diagnosis Procedure [Diagnosis Procedure](#).

Is the inspection result normal?

YES >>

[GO TO 3](#)

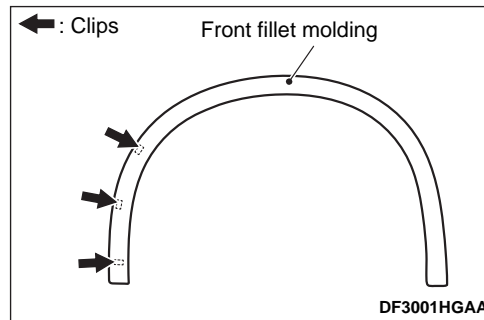
.

NO >>

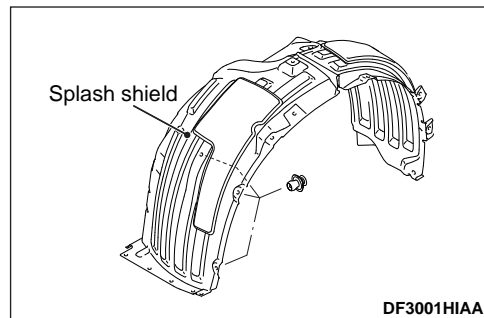
Repair or replace the malfunctioning part.

## FOG LIGHT ADJUSTMENT

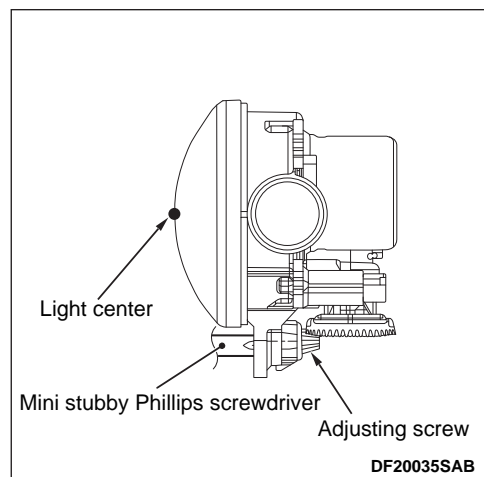
1. Turn the steering wheel all the way to the opposite side of the light being adjusted.



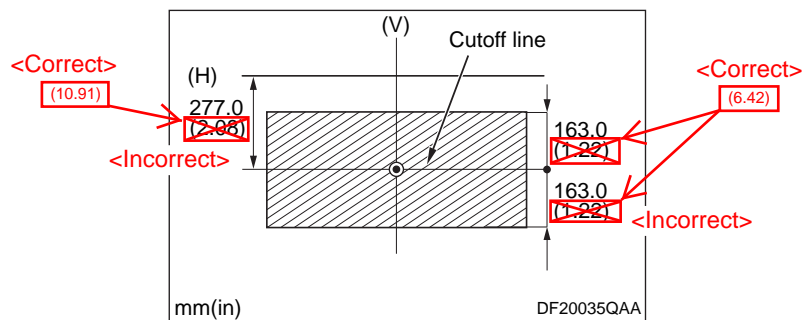
2. Partially remove the front fillet molding by remove the clips shown in the figure.



3. Remove the 3 clips of the front splash shield shown in the figure, and turn up the front splash shield.



4. Adjust the cut off line (boundary between light and dark) position to the standard value with the adjusting screw.



5. Check if the beam shining onto the screen is at the standard value.

**Standard value:**

(Cutoff line direction): The horizontal line 277.0 mm (10.91 in) (2.08 degrees angle) below the horizontal line (H)

**Limit:**

(Vertical direction): Area from 163.0 mm (6.42 in) (1.22 degrees angle) above the cutoff line to 163.0 mm (6.42 in) (1.22 degrees angle) below the cutoff line



**BODY CONTROL SYSTEM**

**WORK SUPPORT** <Incorrect>

Function name	Item	Description
Chassis No./VIN Registration	-	Register of the vehicle identification number when replacing BCM.
Setting change	3-time flasher setting	This function is change 3 time flasher setting.
MAC KEY writing	-	Write MAC key to BCM.

<Old>


**ACTUATOR TEST**



Item	Operation	Description
Front window defogger (passenger side)	ON	 <b>NOTE:</b> This item is displayed, but cannot be tested.
	OFF	
Front window defogger (driver side)	ON	 <b>NOTE:</b> This item is displayed, but cannot be tested.
	OFF	

**COMB SW**

**M.U.T.-III SE Function (BCM – COMB SW)**

**DATA MONITOR**

 **NOTE:**  
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to M.U.T.-III SE display items.

Monitor item [UNIT]	Description
Optical sensor [-]	Displays the value of the optical sensor.
Check diode 1 [ON/OFF]	Displays the status of the check diode 1 in combination switch.
High beam switch [ON/OFF]	Displays the status of the high beam switch in combination switch judged by BCM with the combination switch reading function.
Passing switch [ON/OFF]	Displays the status of the passing switch in combination switch judged by BCM with the combination switch reading function.
Rear fog switch [ON/OFF]	 <b>NOTE:</b> This item is displayed, but cannot be monitored.
Front fog switch [ON/OFF]	Displays the status of the front fog switch in combination switch judged by BCM with the combination switch reading function.
INT volume 1 [ON/OFF]	Displays the status of the INT volume 1 in combination switch judged by BCM with the combination switch reading function.
Check diode 2 [ON/OFF]	Displays the status of the check diode 2 in combination switch judged by BCM with the combination switch reading function.
Low beam switch [ON/OFF]	Displays the status of the low beam switch in combination switch judged by BCM with the combination switch reading function.
AUTO light switch [ON/OFF]	Displays the status of the AUTO light switch in combination switch judged by BCM with the combination switch reading function. (Except for Canada models)  <b>NOTE:</b> This item is displayed, but cannot be monitored. (For Canada models)

<New>

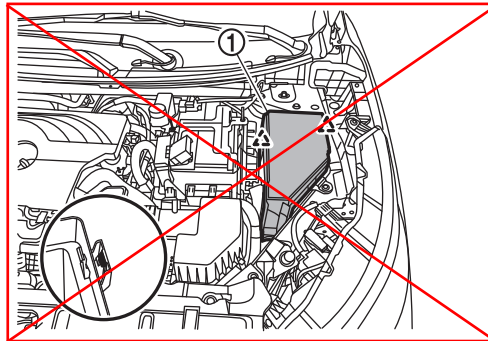
Setting change	Key lock hazard flashing pattern	Set the number of times the hazard lamp flashes when the doors are locked (once or twice).
	Key unlock hazard flashing pattern	Set the number of times the hazard lamp flashes when the doors are unlocked (once or twice).
	Headlight afterglow	Enable or disable the headlight afterglow function.
	Comfort flasher	Enable or disable the comfort flasher function. (5277/MSB22M35_54001)
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## Removal and Installation

### REMOVAL

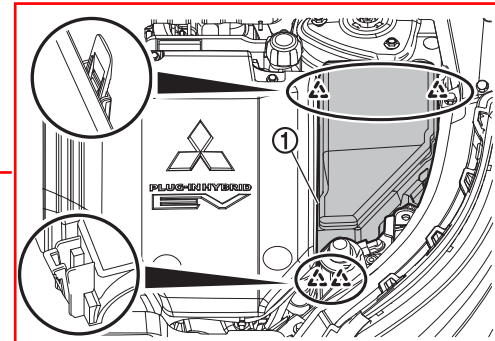
1. Disconnect the battery cable from the negative terminal.
2. Disengage the fixing pawls and then remove IPDM E/R cover A <sup>①</sup>.

&lt;Incorrect&gt;



CF100C2EAA00USA

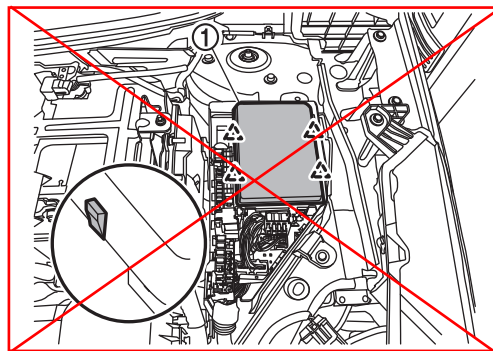
&lt;Correct&gt;



: Pawl

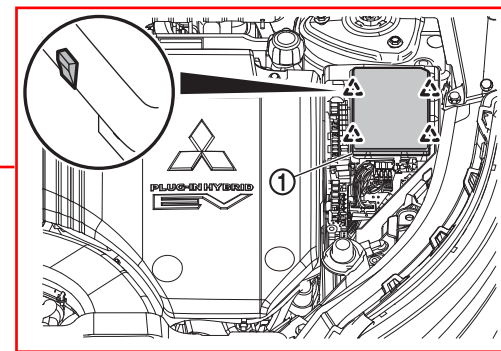
3. Disengage the fixing pawls and then pull up IPDM E/R <sup>①</sup>.

&lt;Incorrect&gt;



CF100C2FAA00USA

&lt;Correct&gt;



: Pawl

4. Disconnect the IPDM E/R harness connector and then remove IPDM E/R from the vehicle.

### INSTALLATION

Install in the reverse order of removal.

#### CAUTION:

Be sure to perform **ADDITIONAL SERVICE WHEN REPLACING IPDM E/R** when replacing IPDM E/R. Or not doing so, IPDM E/R control function does not operate normally. Refer to [Description](#).

## INSTALLATION SERVICE POINT

### >>A<< CORNER SENSOR, BRACKET INSTALLATION

1. Use parts cleaner (MZ100387 or equivalent) to decrease the circumference inside the scratching line.

**CAUTION:**

The primer strengthens the adhesive, so be sure to apply it. However, too thick application will weaken the adhesive.

2. Soak a sponge in the primer, and apply evenly to the circumference inside the scratching line.

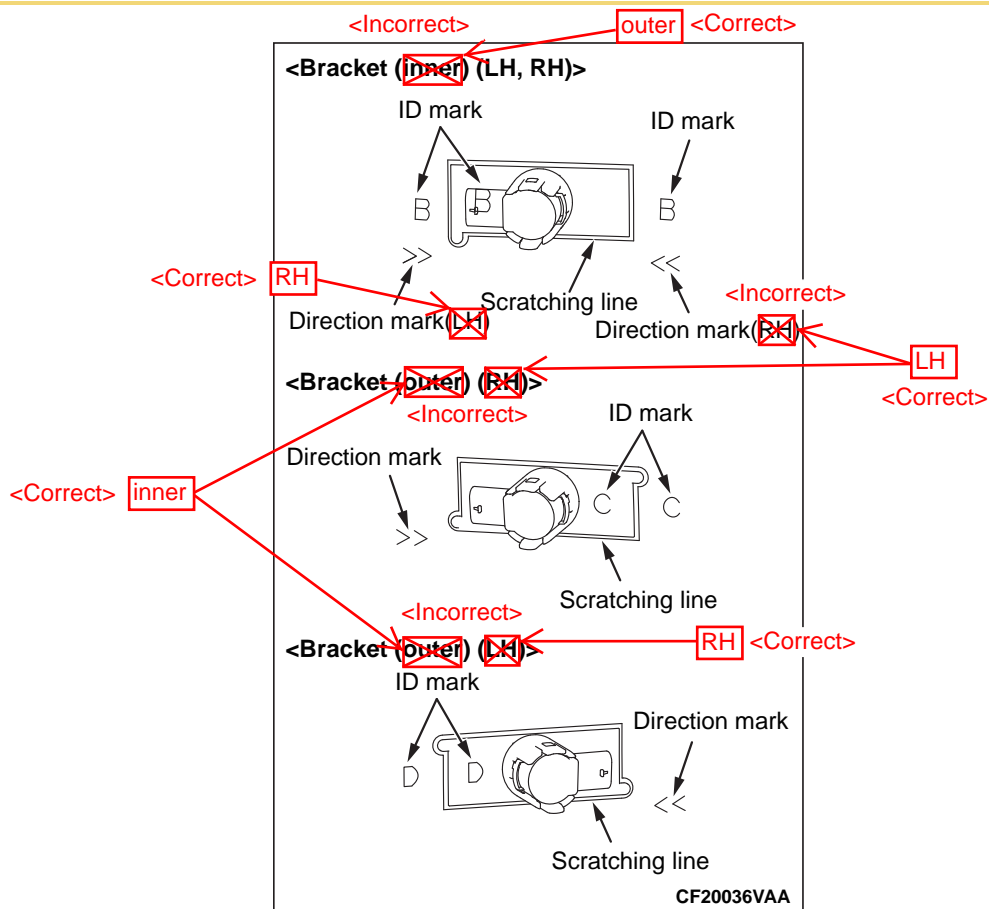
**CAUTION:**

Do not touch the coated surface.

3. After applying the primer, let it dry for 3 minutes or more.

**CAUTION:**

Align the ID marks on the bracket and front bumper assembly.



4. Install the bracket to the front bumper assembly.

**CAUTION:**

- Align the sonar sensor connector position and the direction mark on the front bumper assembly.
- When replacing the sonar sensor, do not mix the new part and old part. There is a square mark on the back of the new sonar sensor, and a circle mark on the back of the old sonar sensor.

5. Install the sonar sensor to the bracket.

## BASIC INSPECTION

## ADDITIONAL SERVICE WHEN REPLACING ADAS CONTROL UNIT 2

**Work Procedure**

Always perform the additional service after replacing the ADAS control unit 2.

**1. ADAS CONTROL UNIT 2 CONFIGURATION**

Perform the ADAS control unit 2 configuration. Refer to [Work Procedure](#).

>>

[GO TO 2](#)

.

**2. WRITING MAC KEY**

Perform MAC key writing. Refer to [Work Procedure](#).

With MI PILOT Assist >>

[GO TO 3](#)

.

Without MI PILOT Assist >>

INSPECTION END

**3. STEERING TORQUE CALIBRATION**

Perform the steering torque calibration. Refer to CRUISE CONTROL & DRIVER ASSISTANCE - ~~DRIVER ASSISTANCE SYSTEM - CHASSIS CONTROL - BASIC INSPECTION - MAC KEY WRITING.~~

<Incorrect>

<Correct>

ADAS CONTROL UNIT - BASIC INSPECTION - STEERING TORQUE CALIBRATION.

>>

INSPECTION END

## PRE-INSPECTION FOR DIAGNOSIS

## Inspection Procedure

## 1. CHECK THE STEERING WHEEL

Is the steering wheel equipped with a cover or other materials?

YES >>

Remove the steering wheel cover or other materials.

NO >>

Inspection End.

## STEERING TORQUE CALIBRATION

## Work Procedure

After replacing the ADAS control unit 2 and after replacing or removing the following steering components, the steering torque calibration is necessary to operate the system normally.

<Incorrect>

- Steering wheel
- Spiral cable
- Steering angle sensor
- Steering column assembly
- Steering gear assembly

<Correct>

After replacing the ADAS control unit 2 or after replacing or removing and installing the following steering components, the steering torque calibration is necessary to operate the system normally.



## NOTE:

Follow the M.U.T.-III SE when performing Steering Torque Calibration. (Steering Torque Calibration cannot be performed without M.U.T.-III SE).

## Work Procedure (Preparation)

## 1. PERFORM DIAGNOSTIC TROUBLE CODE

1. Turn the electric motor switch ON.
2. Perform Diagnostic Trouble Code of "ICC/ADAS 2".
3. Check if any DTC is detected.

Is any DTC detected?

YES >>

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to DTC Index [DTC Index](#).

NO >>

[GO TO 2](#)

## 2. PREPARATION BEFORE STEERING TORQUE CALIBRATION

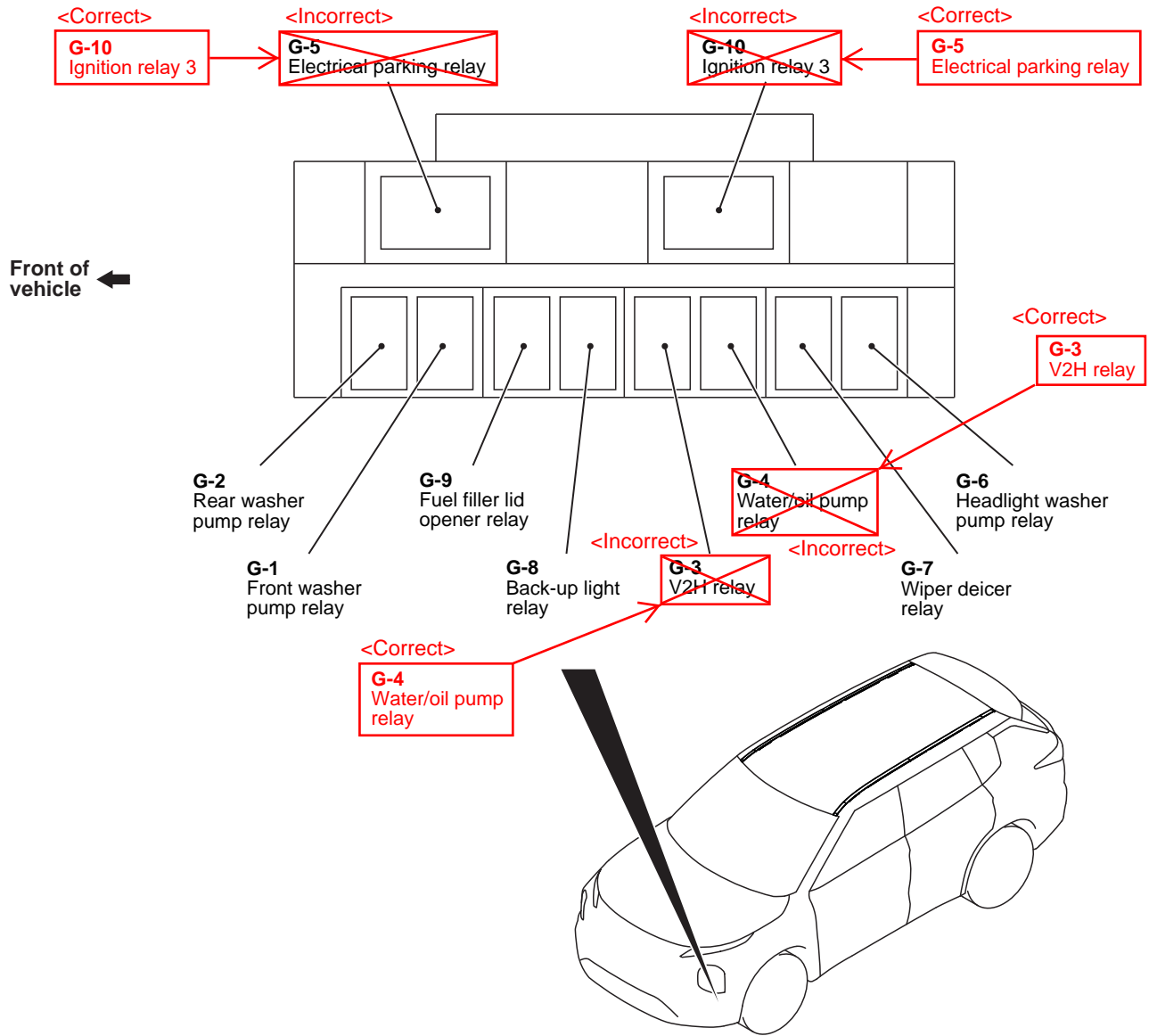
1. Perform pre-inspection for diagnosis. Refer to Work Procedure [Inspection Procedure](#).
2. Place the car on a level surface.
3. Adjust the tire pressure to the specified pressure value.
4. Maintain no-load in vehicle.
5. Check if the following conditions are satisfied.
  - Engine: Running
  - Shift position: P Range
  - Steering wheel: Center (within  $\pm 15$  degrees)
  - MI PILOT Assist: OFF
  - Vehicle speed: 0 km/h
  - ADAS control unit 2 voltage: More than 10.5 V
6. Release the parking brake.

>>

[Refer to Work Procedure \(Steering Torque Calibration\)](#)

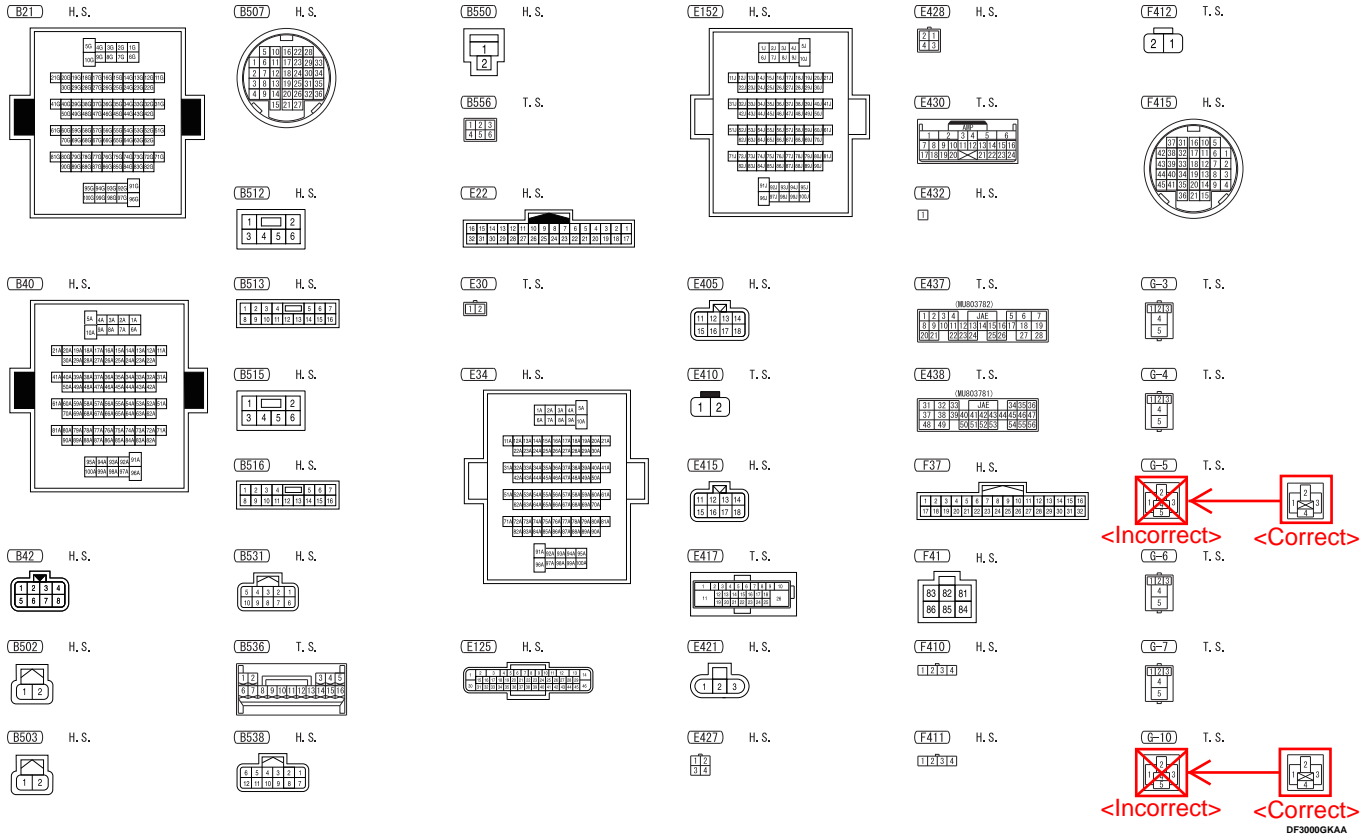


RELAY HOLDER



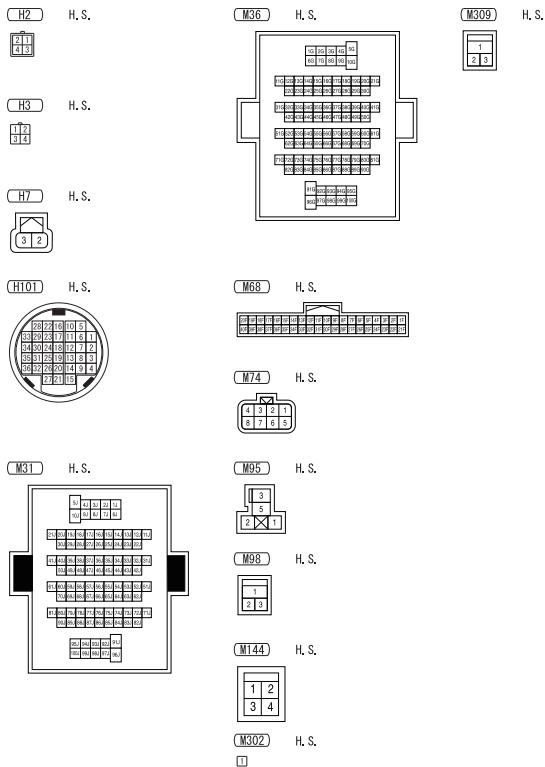
DF3000GBAA

FUSIBLE LINK, FUSE HOLDER, FUSE BLOCK (CONTINUED)



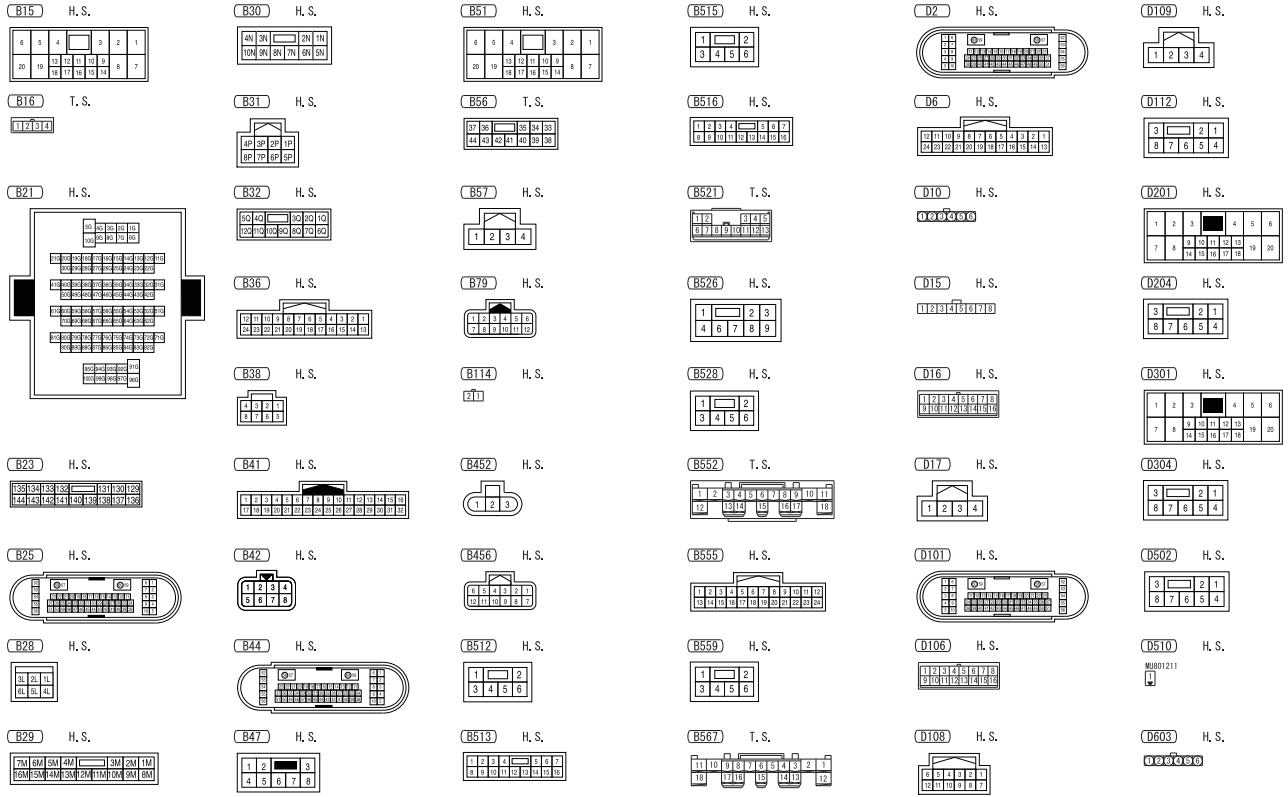
DF3000GKAA

FUSIBLE LINK, FUSE HOLDER, FUSE BLOCK (CONTINUED)



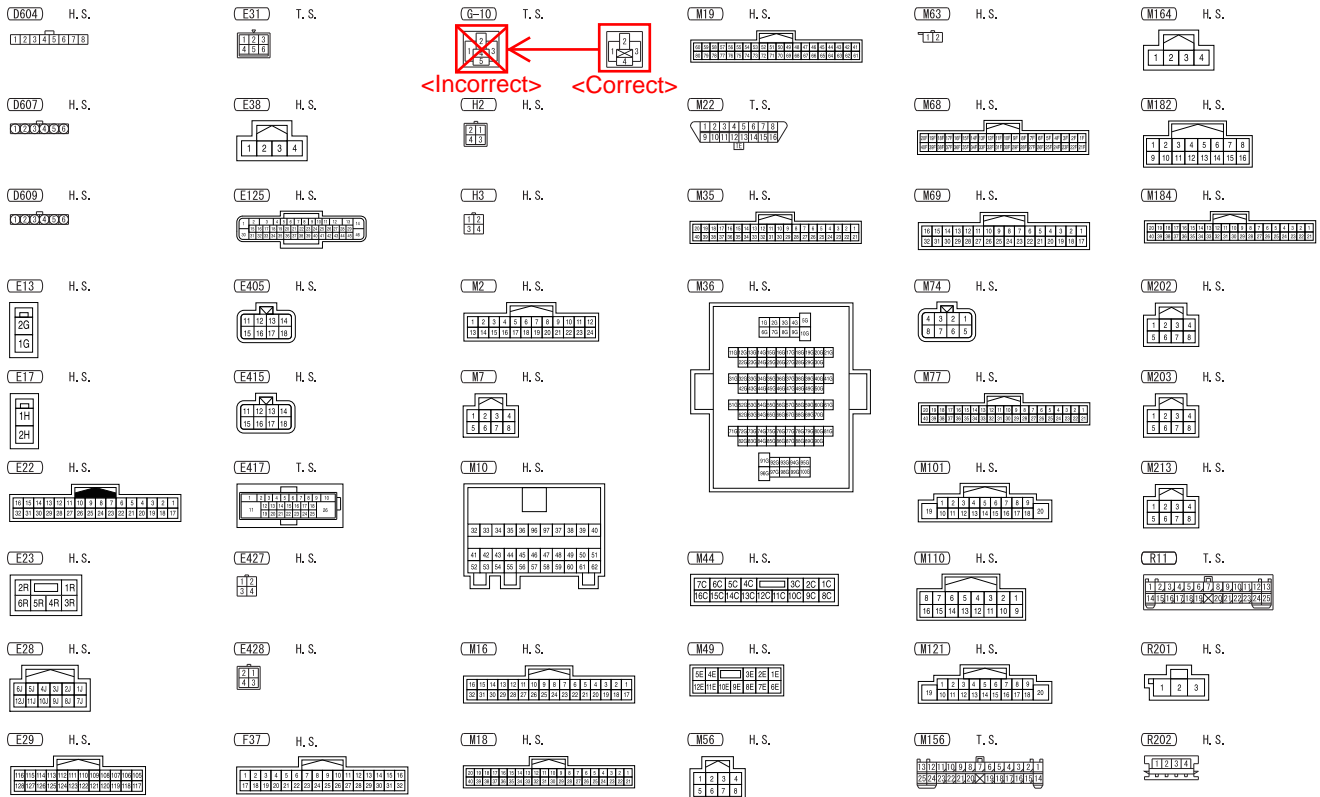
DF3000GLAA

POWER DISTRIBUTION SYSTEM (CONTINUED)



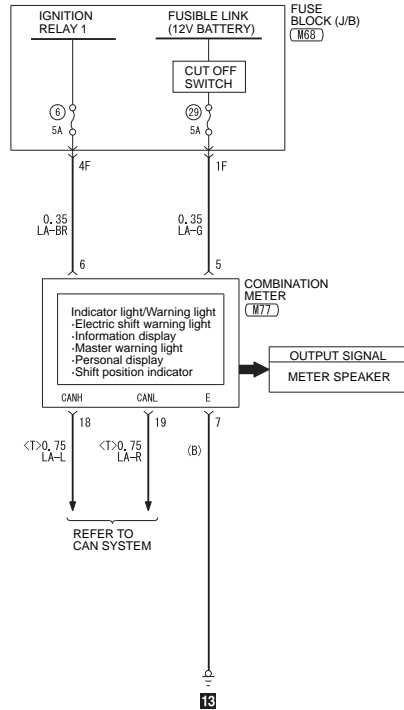
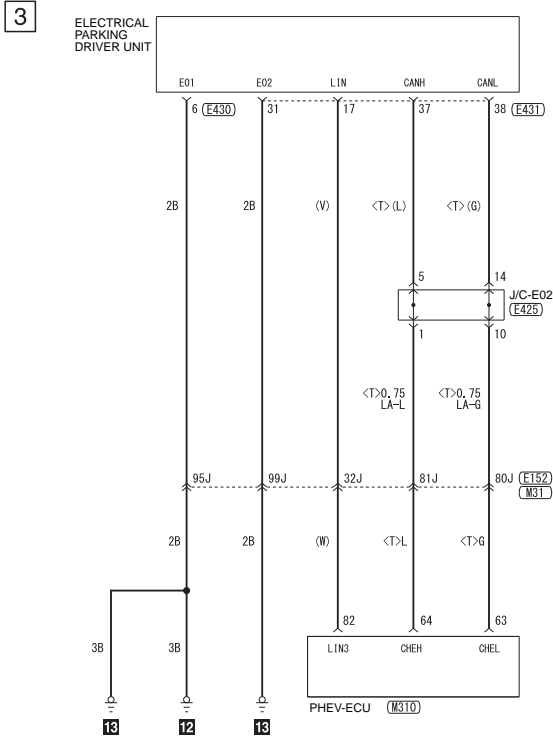
DF3000GSAA

POWER DISTRIBUTION SYSTEM (CONTINUED)



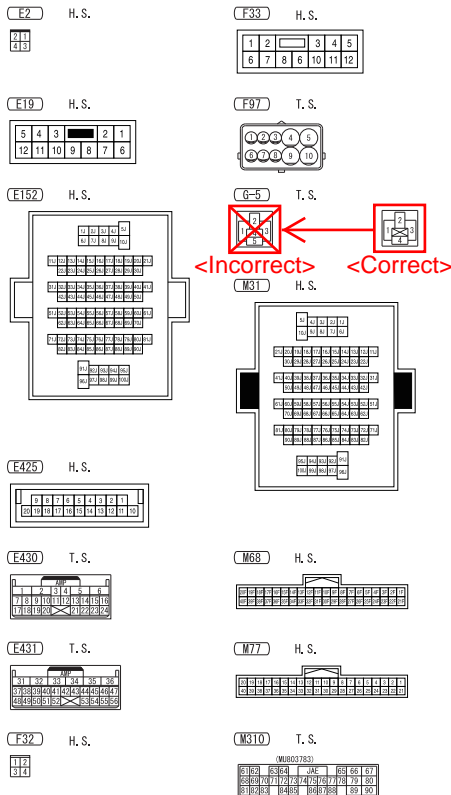
DF3000GTAA

SHIFT BY WIRE SYSTEM (CONTINUED)



DF30009AA

SHIFT BY WIRE SYSTEM (CONTINUED)



DF30001AAA