Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BGCP
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: PA10/PB10/PB12 (HYBRID TRANSMISSION / TRANSAXLE): ELECTRONIC SHIFT LEVER SYSTEM: ECU Power Source Circuit; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

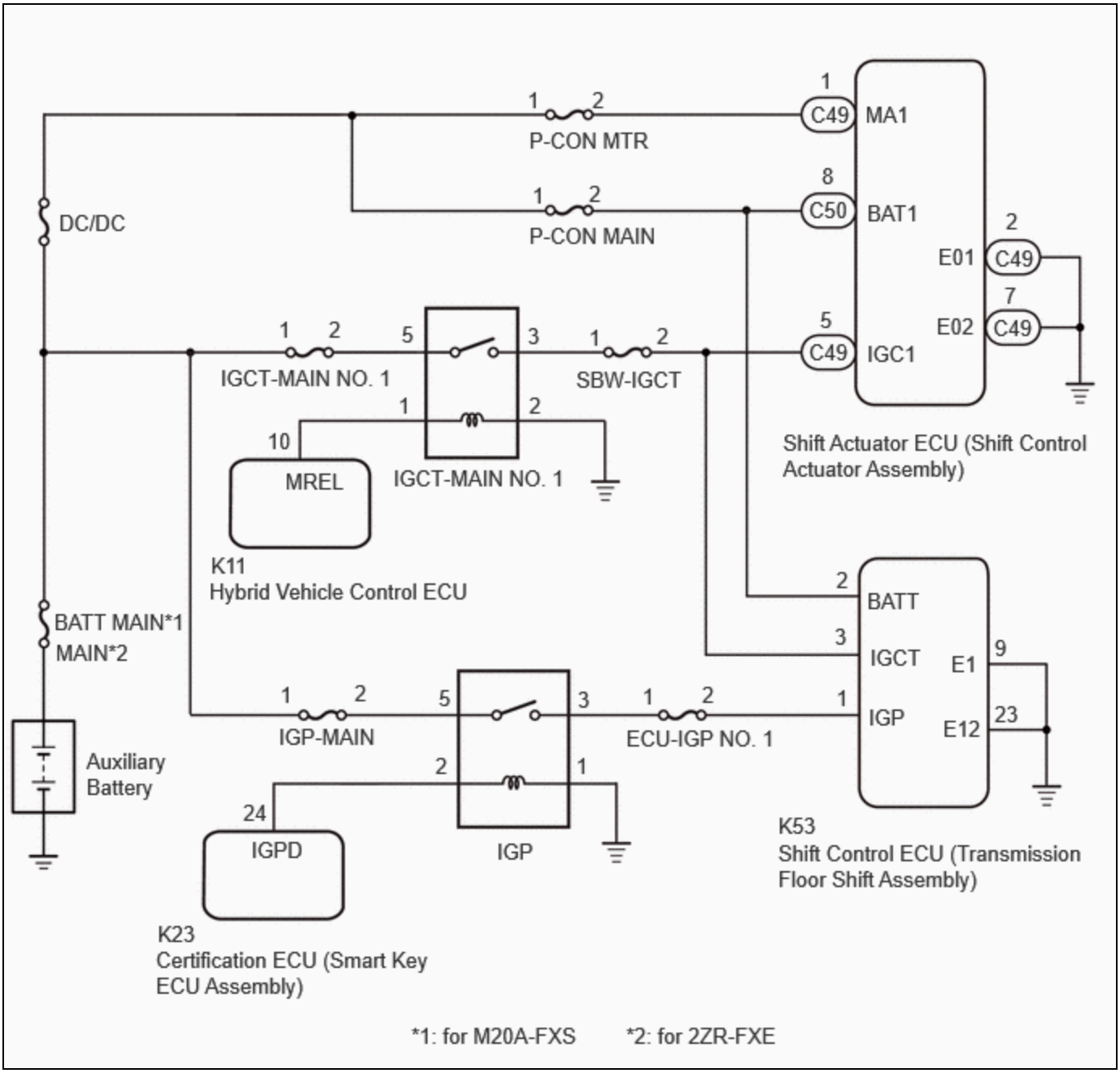
ECU Power Source Circuit

DESCRIPTION

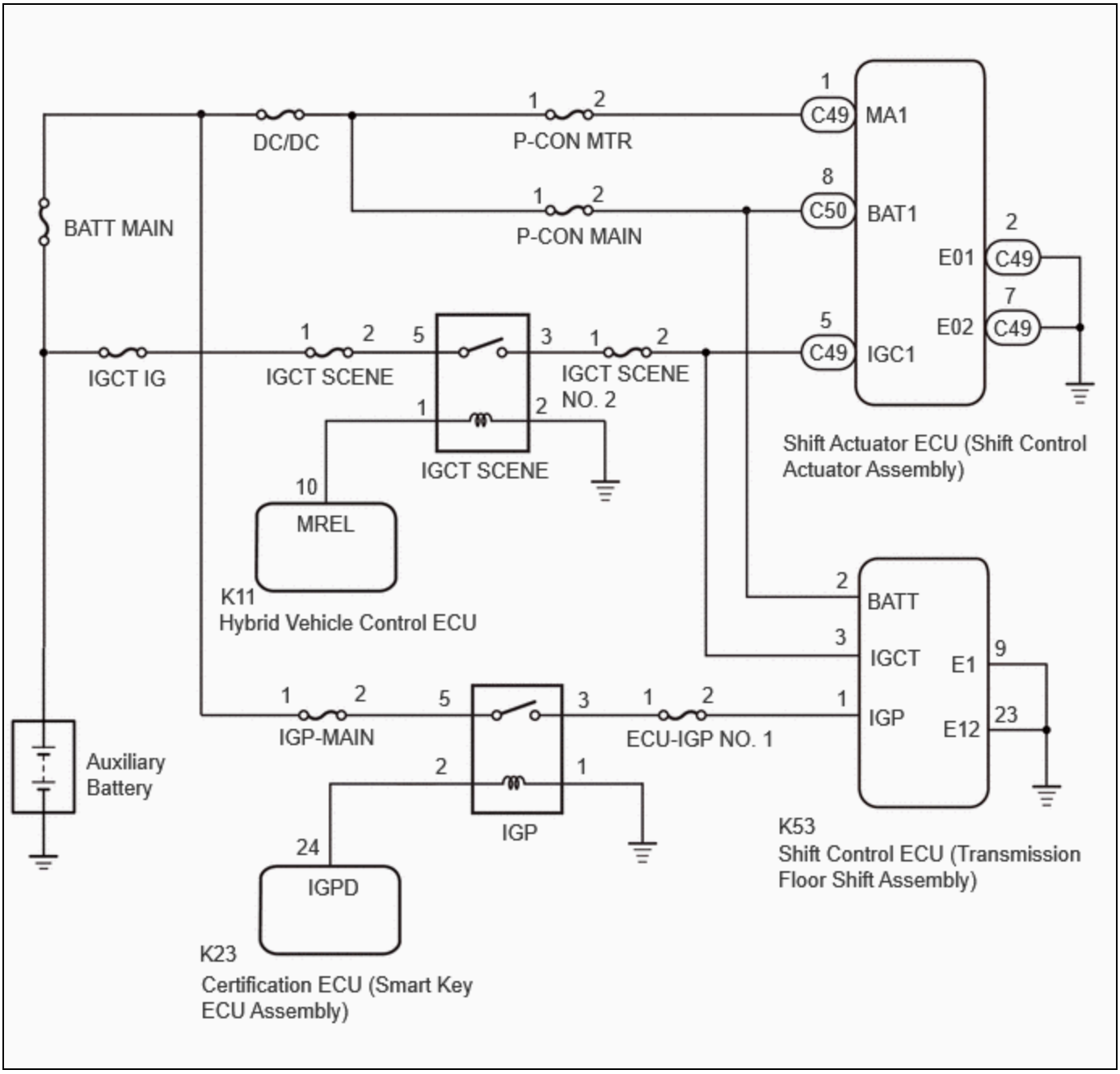
If the supply power to each ECU is discontinued due to a malfunction of the auxiliary battery power supply, the electronic shift lever system does not operate. Make sure to inspect the power supply system of the auxiliary battery for each ECU.

WIRING DIAGRAM

for HEV Model



for PHEV Model



CAUTION / NOTICE / HINT

NOTICE:

- When removing or installing the shift control ECU or shift actuator ECU, make sure there is no power supplied*1 when disconnecting or connecting the connectors.

  *1: Auxiliary battery, sub-battery, integrated capacitor, etc.
- When disconnecting a wire harness of any component connected to the supply power of the integrated capacitor or when removing the integrated capacitor, make sure to wait 5 minutes or more after turning the ignition switch off for self-diagnosis to complete and the voltage of the integrated capacitor to discharge.
- Before performing troubleshooting, check the fuses, connector connections and contact pressure of the relevant terminals for this circuit.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (BATT TERMINAL VOLTAGE)

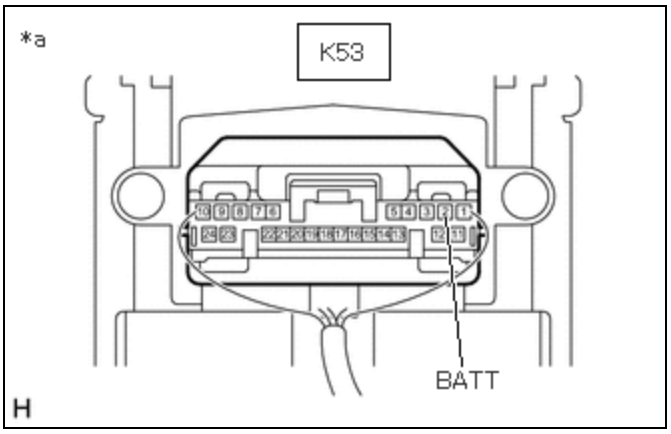
(a) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

EWD INFO

Click Location & Routing(K53)
Click Connector(K53)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K53-2 (BATT) - Body ground	Ignition switch off	11 to 14 V



*a	Component with harness connected (Shift Control ECU (Transmission Floor Shift Assembly))

NG ▶ **GO TO STEP 7**

OK ▼

2.	CHECK HARNESS AND CONNECTOR (IGCT, IGP TERMINAL VOLTAGE)

(a) Turn the ignition switch to ON.

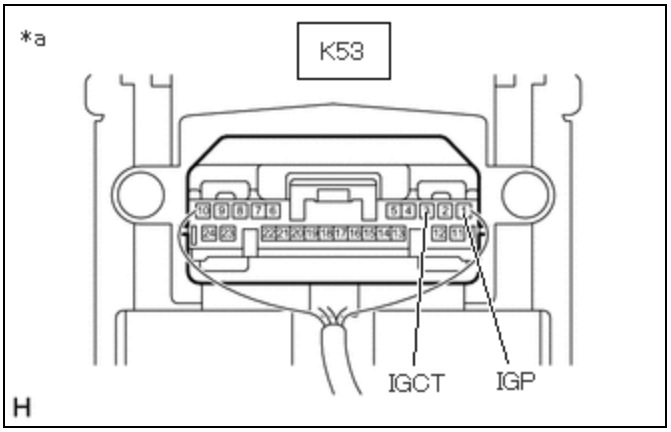
(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

EWD INFO

Click Location & Routing(K53)
Click Connector(K53)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K53-3 (IGCT) - Body ground	Ignition switch ON	11 to 14 V
K53-1 (IGP) - Body ground	Ignition switch ON	11 to 14 V



*a	Component with harness connected (Shift Control ECU (Transmission Floor Shift Assembly))

(c) Turn the Ignition switch off.

NG ▶ **GO TO STEP 8**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ECU - BODY GROUND)**

(a) Disconnect the K53 shift control ECU (transmission floor shift assembly) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K53)
Click Connector(K53)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K53-9 (E1) - Body ground	Always	Below 1 Ω
K53-23 (E12) - Body ground	Always	Below 1 Ω

(c) Reconnect the shift control ECU (transmission floor shift assembly) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (SHIFT CONTROL ECU - BODY GROUND)**

OK

4.	**CHECK HARNESS AND CONNECTOR (MA1, BAT1 TERMINAL VOLTAGE)**

(a) Disconnect the C49 and C50 shift actuator ECU (shift control actuator assembly) connectors.

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

Standard Voltage:

EWD INFO

Click Location & Routing(C49,C50)
Click Connector(C49)
Click Connector(C50)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C49-1 (MA1) - Body ground	Ignition switch off	11 to 14 V
C50-8 (BAT1) - Body ground	Ignition switch off	11 to 14 V

(c) Reconnect the shift actuator ECU (shift control actuator assembly) connector.

NG ▶ **GO TO STEP 9**

OK

5.	**CHECK HARNESS AND CONNECTOR (IGC1 TERMINAL VOLTAGE)**

(a) Disconnect the C49 shift actuator ECU (shift control actuator assembly) connector.

(b) Turn the ignition switch to ON.

NOTICE:

If the ignition switch is turned to ON with the connector disconnected, other DTCs will be stored. Be sure to clear the DTCs after the inspection.

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

Standard Voltage:

EWD INFO

Click Location & Routing(C49)
Click Connector(C49)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C49-5 (IGC1) - Body ground	Ignition switch ON	11 to 14 V

(d) Turn the Ignition switch off.

(e) Reconnect the shift actuator ECU (shift control actuator assembly) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IGCT-MAIN NO. 1 RELAY CIRCUIT)**

OK ▼

6.	**CHECK HARNESS AND CONNECTOR (SHIFT ACTUATOR ECU - BODY GROUND)**

(a) Disconnect the C49 shift actuator ECU (shift control actuator assembly) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(C49)
Click Connector(C49)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C49-2 (E01) - Body ground	Always	Below 1 Ω
C49-7 (E02) - Body ground	Always	Below 1 Ω

(c) Reconnect the shift actuator ECU (shift control actuator assembly) connector.

OK ▶ **GO TO PROBLEM SYMPTOMS TABLE**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (SHIFT ACTUATOR ECU - BODY GROUND)**

7.	**CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Remove the P-CON MAIN fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

(b) Disconnect the C50 shift actuator ECU (shift control actuator assembly) connector.

(c) Disconnect the K53 shift control ECU (transmission floor shift assembly) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K53)
Click Connector(K53)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K53-2 (BATT) - 2 (P-CON MAIN fuse holder)	Always	Below 1 Ω
K53-2 (BATT) or 2 (P-CON MAIN fuse holder) - Body ground and other terminals	Always	10 kΩ or higher

(e) Reconnect the shift control ECU (transmission floor shift assembly) connector.

(f) Reconnect the shift actuator ECU (shift control actuator assembly) connector.

(g) Install the P-CON MAIN fuse.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (AUXILIARY BATTERY - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (SHIFT CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

8.	**CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Remove the SBW-IGCT fuse from the No. 1 engine room relay block and No. 1 junction block assembly. (for HEV model)

(b) Remove the IGCT SCENE NO. 2 fuse from the No. 1 engine room relay block and No. 1 junction block assembly. (for PHEV model)

(c) Remove the ECU-IGP NO. 1 fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

(d) Disconnect the C49 shift actuator ECU (shift control actuator assembly) connector.

(e) Disconnect the K53 shift control ECU (transmission floor shift assembly) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K53)
Click Connector(K53)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K53-3 (IGCT) - 2 (SBW-IGCT fuse holder)	Always	Below 1 Ω
K53-1 (IGP) - 2 (ECU-IGP NO. 1 fuse holder)	Always	Below 1 Ω
K53-3 (IGCT) or 2 (SBW-IGCT fuse holder) - Body ground and other terminals	Always	10 kΩ or higher
K53-1 (IGP) or 2 (ECU-IGP NO. 1 fuse holder) - Body ground and other terminals	Always	10 kΩ or higher

(g) Reconnect the shift control ECU (transmission floor shift assembly) connector.

(h) Reconnect the shift actuator ECU (shift control actuator assembly) connector.

(i) Install the ECU-IGP NO. 1 fuse.

(j) Install the IGCT SCENE NO. 2 fuse. (for PHEV model)

(k) Install the SBW-IGCT fuse. (for HEV model)

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IGCT-MAIN NO. 1 RELAY POWER SUPPLY, IGP RELAY POWER SUPPLY)**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (SHIFT CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

9.	**CHECK HARNESS AND CONNECTOR (SHIFT ACTUATOR ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Remove the P-CON MTR fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

(b) Remove the P-CON MAIN fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

(c) Disconnect the K53 shift control ECU (transmission floor shift assembly) connector.

(d) Disconnect the C49 and C50 shift actuator ECU (shift control actuator assembly) connectors.

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

Standard Resistance:

EWD INFO

Click Location & Routing(C49,C50)
Click Connector(C49)
Click Connector(C50)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C49-1 (MA1) - 2 (P-CON MTR fuse holder)	Always	Below 1 Ω
C50-8 (BAT1) - 2 (P-CON MAIN fuse holder)	Always	Below 1 Ω
C49-1 (MA1) or 2 (P-CON MTR fuse holder) - Body ground and other terminals	Always	10 kΩ or higher
C50-8 (BAT1) or 2 (P-CON MAIN fuse holder) - Body ground and other terminals	Always	10 kΩ or higher

(f) Reconnect the shift actuator ECU (shift control actuator assembly) connector.

(g) Reconnect the shift control ECU (transmission floor shift assembly) connector.

(h) Install the P-CON MAIN fuse.

(i) Install the P-CON MTR fuse.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (AUXILIARY BATTERY - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (SHIFT ACTUATOR ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**