

GENERAL INFORMATION

Repair procedure

1. Most repair operations begin with an overview illustration. It identifies the components, shows how the parts fit together, and describes visual part inspection. However, only removal/installation procedures that need to be performed methodically have written instructions.
2. Expendable parts, tightening torques, and symbols for oil, grease, and sealant are shown in the overview illustration. In addition, symbols indicating parts requiring the use of special service tools or equivalent are also shown.
3. Procedure steps are numbered and the part that is the main point of that procedure is shown in the illustration with the corresponding number. Occasionally, there are important points or additional information concerning a procedure. Refer to this information when servicing the related part.

SHOWS SERVICE ITEM(S)

Procedure

FRONT UPPER LINK, FRONT UPPER LEADING LINK REMOVAL/INSTALLATION

"Removal/Installation" Portion

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the splash shield(s).
(See 09-11-11 SPLASH SHIELD INSTALLATION.)
3. Remove in the order indicated in the table.
4. Install reverse order of removal.

"Inspection After Installation" Portion

5. Inspect the front wheel alignment and adjust it if necessary.

INDICATES RELEVANT REFERENCES THAT NEED TO BE FOLLOWED DURING INSTALLATION

SHOWS SPECIAL SERVICE TOOL (SST) FOR SERVICE OPERATION

SHOWS APPLICATION POINTS OF GREASE, ETC.

SHOWS EXPENDABLE PARTS

SHOWS DETAILS

SHOWS TIGHTENING TORQUE SPECIFICATIONS

SHOWS PROCEDURE ORDER FOR SERVICE

INSTALL THE PARTS BY PERFORMING STEPS 1-3 IN REVERSE ORDER

SHOWS REFERRAL NOTES FOR SERVICE

| | | | |
|--|-------------------------------|----|--------------------------------------|
| 1 | Split pin | 5 | Adjust cam bolt |
| 2 | Nut | 6 | Upper lateral link |
| 3 | Upper lateral link ball joint | 7 | Dust boot, clip (upper lateral link) |
| (See 02-13-6 Upper Lateral Link Ball Joint Removal Note) | | 8 | Split pin |
| 4 | Cam nut, cam plate | 9 | Nut |
| | | 10 | Upper leading link ball joint |
| | | 11 | Upper leading link |
| | | 12 | Dust boot (upper leading link) |

SHOWS REFERRAL NOTES FOR SERVICE

Upper Lateral Link Ball Joint Removal Note

- Remove the ball joint using the SSTs.

SHOWS SPECIAL SERVICE TOOL (SST) NO.

49 T028 303

49 T028 304 UPPER LEADING LINK

49 T028 305 UPPER LATERAL LINK

SHOWS TIGHTENING TORQUE UNITS

N·m (kgf·m, ft·lbf)

YLU000WA0

Symbols

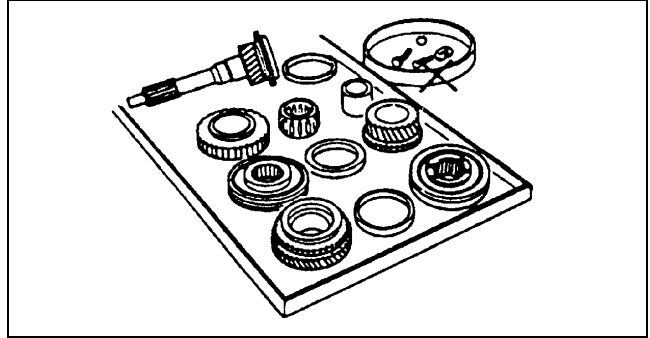
- There are eight symbols indicating oil, grease, fluids, sealant, and the use of **SST** or equivalent. use. These symbols show application points or use of these materials during service.

| Symbol | Meaning | Kind |
|--------|-----------|--|
| | Apply oil | New appropriate engine oil or gear oil |

GENERAL INFORMATION

Arrangement of Parts

- All disassembled parts should be carefully arranged for reassembly.
- Be sure to separate or otherwise identify the parts to be replaced from those that will be reused.



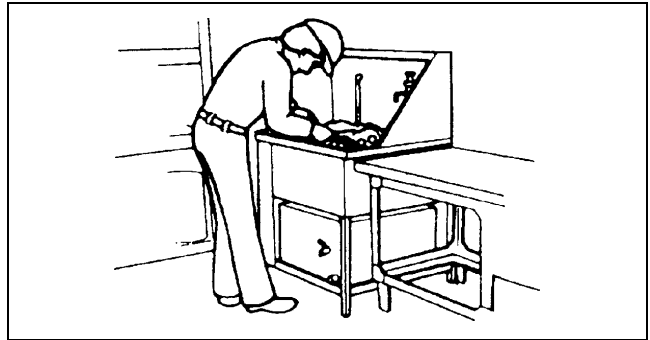
X3U000WAN

Cleaning of Parts

- All parts to be reused should be carefully and thoroughly cleaned in the appropriate method.

Warning

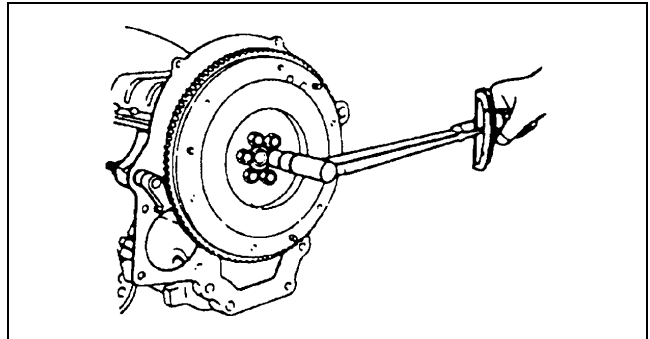
- **Using compressed air can cause dirt and other particles to fly out causing injury to the eyes. Wear protective eye wear whenever using compressed air.**



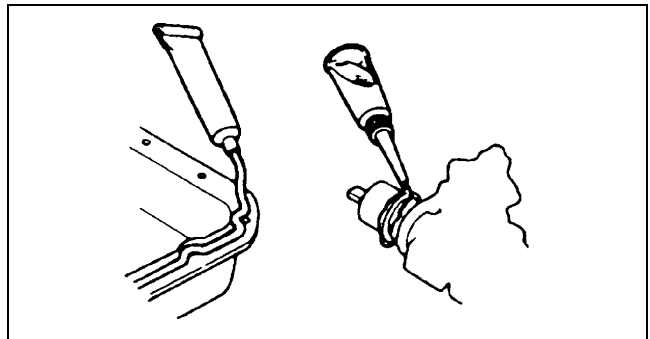
X3U000WAP

Reassembly

- Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.
- If removed, these parts should be replaced with new ones:
 - Oil seals
 - Gaskets
 - O-rings
 - Lockwashers
 - Cotter pins
 - Nylon nuts
- Depending on location:
 - Sealant and gaskets, or both, should be applied to specified locations. When sealant is applied, parts should be installed before sealant hardens to prevent leakage.
 - Oil should be applied to the moving components of parts.
 - Specified oil or grease should be applied at the prescribed locations (such as oil seals) before reassembly.



X3U000WAQ



X3U000WAR

ON-BOARD DIAGNOSTIC [ENGINE CONTROL SYSTEM (ZM)]

| STEP | INSPECTION | ACTION |
|------|---|---|
| 5 | INSPECT FUEL TANK PRESSURE SENSOR GROUND CIRCUIT FOR OPEN CIRCUIT (AT X-13 CONNECTOR) <ul style="list-style-type: none"> • Disconnect X-13 connector. • Check for continuity between X-13 male terminal E and body ground. • Is there continuity? | Yes Check for open circuit between following terminals: <ul style="list-style-type: none"> • X-13 female terminal E and FTP sensor terminal A (harness-side) Repair or replace suspected harness, then go to Step 12. |
| | | No Check for open circuit between following terminals: <ul style="list-style-type: none"> • PCM terminal 91 (harness-side) and X-13 male terminal E Repair or replace suspected harness, then go to Step 12. |
| 6 | CHECK 6-PIN INTERMEDIATE CONNECTOR <ul style="list-style-type: none"> • Disconnect X-13 connector. • Check for poor connection (damaged/pulled-out pins, corrosion, etc.). • Is there malfunction? | Yes Repair or replace suspected terminal, then go to Step 12. |
| | | No Go to next step. |
| 7 | INSPECT FUEL TANK PRESSURE SIGNAL CIRCUIT FOR SHORT TO CONSTANT VOLTAGE CIRCUIT (FUEL TANK PRESSURE SENSOR CONNECTOR AND X-13 CONNECTOR) <ul style="list-style-type: none"> • Check for continuity between X-13 female terminals A and C. • Is there continuity? | Yes Repair or replace suspected harness, then go to Step 12. |
| | | No Go to next step. |
| 8 | INSPECT FUEL TANK PRESSURE SIGNAL CIRCUIT FOR OPEN CIRCUIT (FUEL TANK PRESSURE SENSOR CONNECTOR AND X-13 CONNECTOR) <ul style="list-style-type: none"> • Check for continuity between fuel tank pressure sensor terminal B (harness-side) and X-13 female terminal C. • Is there continuity? | Yes Go to next step. |
| | | No Repair or replace suspected harness, then go to Step 12. |
| 9 | INSPECT PCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> • Disconnect PCM connector. • Check for poor connection at terminals 62, 90 and 91 (damaged/pulled-out terminals, corrosion, etc.). • Is there malfunction? | Yes Repair terminal, then go to Step 12. |
| | | No Go to next step. |
| 10 | INSPECT FUEL TANK PRESSURE SIGNAL CIRCUIT FOR SHORT TO CONSTANT VOLTAGE CIRCUIT (X-13 CONNECTOR AND PCM CONNECTOR) <ul style="list-style-type: none"> • Check for continuity between X-13 terminals A and C (PCM-side). • Is there continuity? | Yes Repair or replace suspected harness, then go to Step 12. |
| | | No Go to next step. |
| 11 | INSPECT FUEL TANK PRESSURE SIGNAL CIRCUIT FOR OPEN CIRCUIT (X-13 CONNECTOR AND PCM CONNECTOR) <ul style="list-style-type: none"> • Connect breakout box with PCM disconnected. • Check for continuity between X-13 male terminal C (PCM-side) and breakout box terminal 62. • Is there continuity? | Yes Go to next step. |
| | | No Repair or replace suspected harness, then go to next step. |
| 12 | VERIFY TROUBLESHOOTING OF DTC P0453 COMPLETED <ul style="list-style-type: none"> • Make sure to reconnect all disconnected connectors. • Turn ignition key ON (Engine OFF). • Clear DTC from memory using WDS or equivalent. • Start engine. • Is pending code of same DTC present? | Yes Replace PCM, then go to next step. |
| | | No Go to next step. |
| 13 | VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> • Perform "After Repair Procedure". (See 01-02A-10 AFTER REPAIR PROCEDURE [ZM].) • Is there any DTC present? | Yes Go to applicable DTC inspection. (See 01-02A-15 DTC TABLE [ZM].) |
| | | No Troubleshooting completed. |

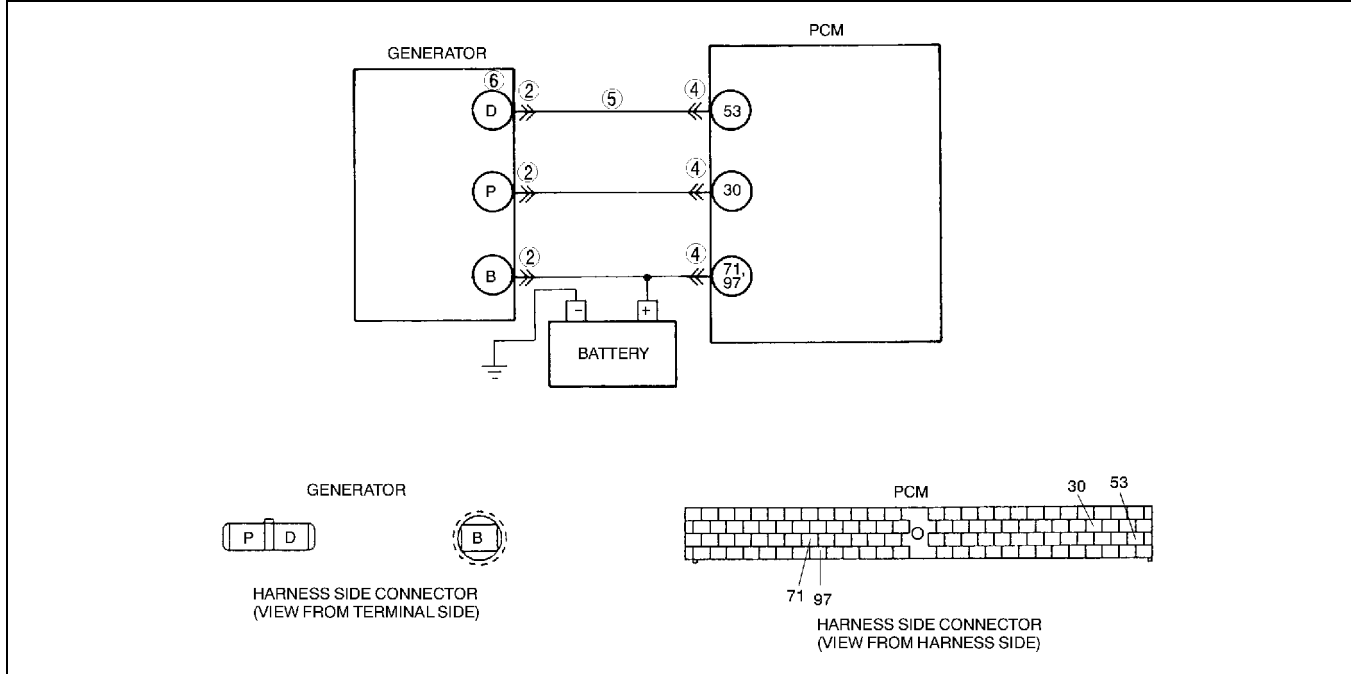
ON-BOARD DIAGNOSTIC [ENGINE CONTROL SYSTEM (FS)]

DTC P1633 [FS]

A3U010201083W15

| | |
|----------------------------|---|
| DTC P1633 | Battery overcharge |
| DETECTION CONDITION | <ul style="list-style-type: none"> PCM monitors input voltage from generator and battery positive terminal. If PCM detects generator output voltage above 18.47 V or battery voltage above 15.94 V for 5 seconds while engine running, PCM determines that charging system has malfunction. |
| POSSIBLE CAUSE | <ul style="list-style-type: none"> Short to power circuit between generator connector terminal D and PCM connector terminal 53 Generator malfunction PCM malfunction |

01-02B



Diagnostic procedure

| STEP | INSPECTION | ACTION |
|------|--|---|
| 1 | VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Check for related Service Bulletins availability. Is any related repair information available? | Yes Perform repair or diagnosis according to available repair information. • If vehicle is not repaired, go to next step. |
| | | No Go to next step. |
| 2 | INSPECT GENERATOR CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Turn ignition key to OFF. Disconnect generator connector. Check for poor connection (damaged/pulled-out terminals, corrosion, etc.). Is there malfunction? | Yes Repair or replace terminals, then go to Step 7. |
| | | No Go to next step. |
| 3 | CLASSIFY GENERATOR MALFUNCTION OR OTHER MALFUNCTION <ul style="list-style-type: none"> Turn ignition key to ON (Engine OFF). Measure voltage between generator terminal D (harness-side) and body ground. Is voltage B+? | Yes Go to next step. |
| | | No Malfunction at generator. Go to Step 6. |
| 4 | INSPECT PCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Turn ignition key to OFF. Disconnect PCM connector. Check for poor connection (damaged/pulled-out terminals, corrosion, etc.). Is there malfunction? | Yes Repair or replace pins, then go to Step 7. |
| | | No Go to next step. |
| 5 | INSPECT GENERATOR CONTROL CIRCUIT FOR SHORT TO POWER <ul style="list-style-type: none"> Turn ignition key to ON (Engine OFF). Measure voltage between generator terminal D (harness-side) and body ground. Is voltage B+? | Yes Repair or replace harness for short to power, then go to Step 7. |
| | | No Go to Step 7. |

CONTROL SYSTEM [ZM]

| Terminal | Signal | Connected to | Test condition | Voltage (V) | Action |
|----------|--------------------------|------------------|--|-------------|---|
| 102*1 | Shift solenoid C Control | Shift solenoid C | <ul style="list-style-type: none"> Inspect using the wave profile. (See 01-40A-21 Inspection Using An Oscilloscope (Reference)) | | <ul style="list-style-type: none"> Inspect shift solenoid C (See 05-17-28 SOLENOID VALVES INSPECTION) Inspect related harness |
| 103 | GND | GND | Under any condition | Below 1.0 | <ul style="list-style-type: none"> Inspect related harness |
| 104 | — | — | — | — | — |

01-40A

*1 : ATX only

Inspection Using An Oscilloscope (Reference)

Ne signal

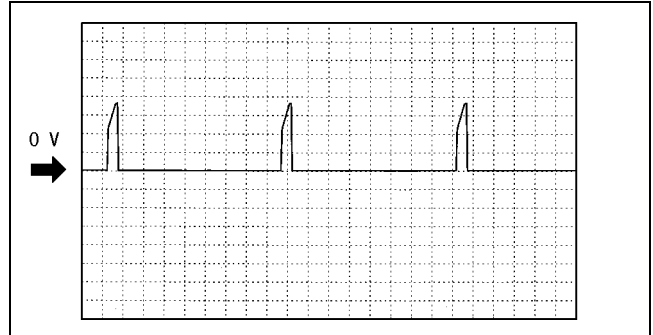
- PCM terminal: 21(+)-22(-)
- Oscilloscope setting: 2 V/DIV(Y), 2ms/DIV(X), AC range
- Vehicle condition: idle after warm up



Z3U0140W006

IGT signal

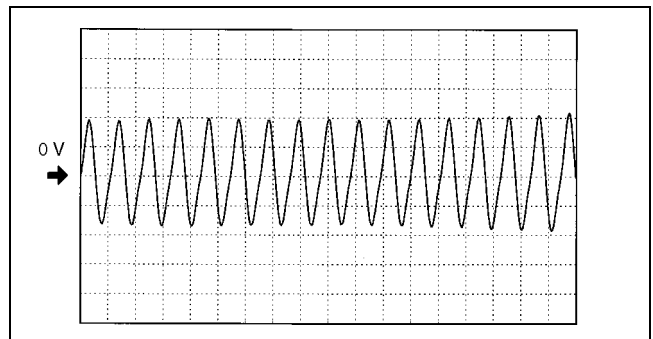
- PCM terminal:
 - IGT1: 26(+)-103(-)
 - IGT2: 52(+)-103(-)
- Oscilloscope setting: 1 V/DIV(Y), 10ms/DIV(X), DC range
- Vehicle condition: idle after warm up



Z3U0140W007

Input/turbine speed signal

- PCM terminal: 84(+)-23(-)
- Oscilloscope setting: 0.4 V/DIV(Y), 2.5 ms/DIV(X), DC range
- Vehicle condition: idle after warm up



Z3U0140W008

ON-BOARD DIAGNOSTIC

| STEP | INSPECTION | ACTION | |
|------|--|--------|---|
| 6 | CHECK OPERATION OF EACH VALVE AND EACH SPRING <ul style="list-style-type: none"> • Turn ignition key to OFF. • Remove control valve body. • Disassemble control valve body. • Is each valve operation okay and is return spring okay? (See 05-17-36 CONTROL VALVE BODY REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL (9999-95-FN4A-99).) | Yes | Replace ATX, then go to next step (See ATX Workshop Manual FN4A-EL (9999-95-FN4A-99).) |
| | | No | Repair or replace shift valve and return spring, then go to next step. (See 05-17-36 CONTROL VALVE BODY REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL (9999-95-FN4A-99).) |
| 7 | VERIFY TROUBLESHOOTING OF DTC P0752 COMPLETED <ul style="list-style-type: none"> • Make sure to reconnect all disconnected connectors. • Clear DTC from memory using WDS or equivalent. • Start engine. • Warm up ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR. <ul style="list-style-type: none"> — ATF temperature: 20 °C {68 °F} or above — Drive in D range • Is pending code present? | Yes | Replace PCM, then go to next step. (See 01-40A-7 PCM REMOVAL/INSTALLATION [ZM].) (See 01-40B-7 PCM REMOVAL/INSTALLATION [FS].) |
| | | No | Go to next step. |
| 8 | VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> • Perform "After Repair Procedure". (See 05-02-6 AFTER REPAIR PROCEDURE.) <ul style="list-style-type: none"> • Are any DTCs present? | Yes | Go to applicable DTC inspection. |
| | | No | Troubleshooting completed. |

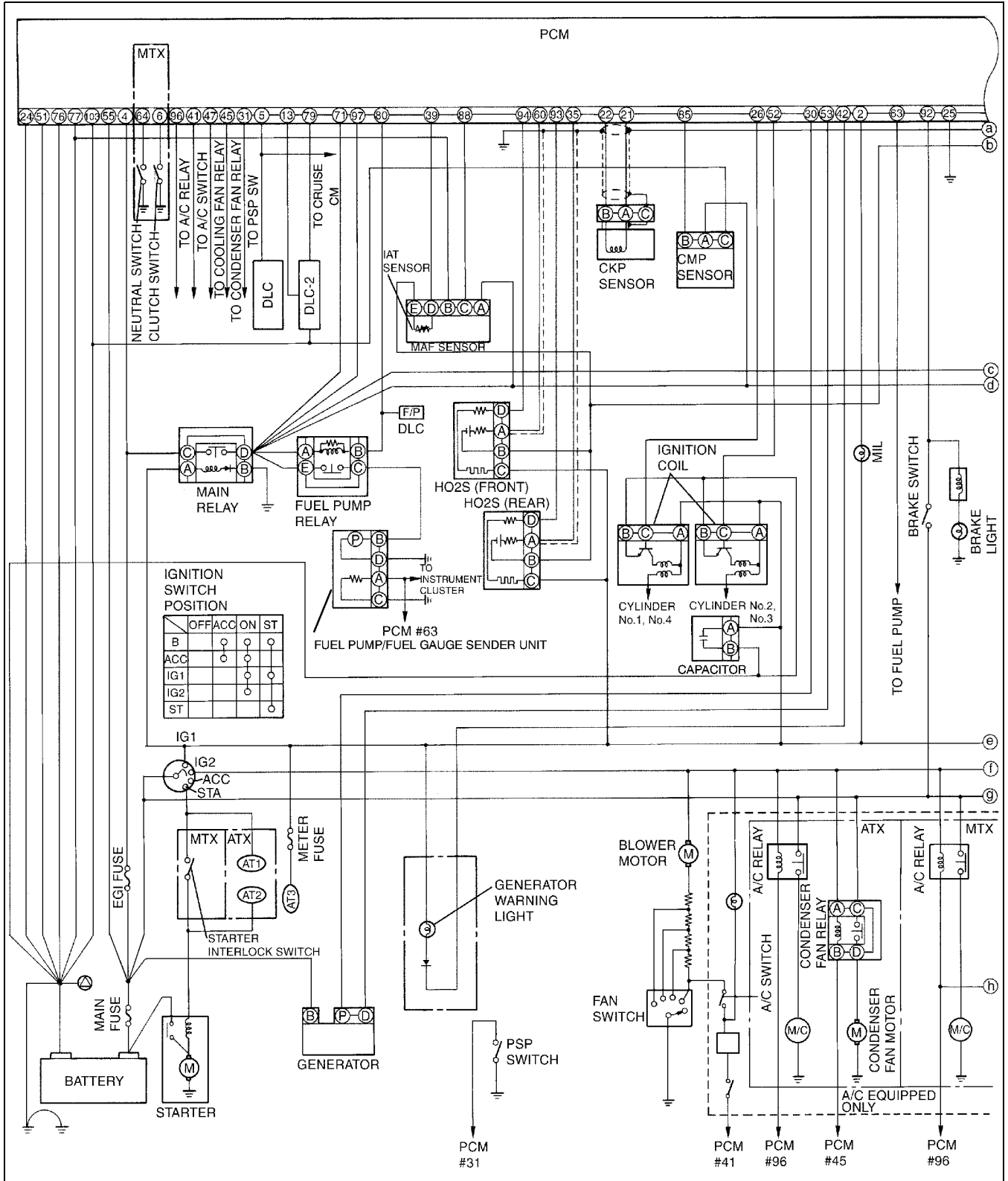
05-02

AUTOMATIC TRANSAXLE

SYSTEM WIRING DIAGRAM

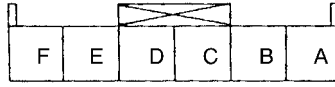
ZM Engine

A3U051701030W03



CONTROL SYSTEM

Terminal Voltage List (Reference)



PART SIDE CONNECTOR
(VIEW FROM HARNESS SIDE)

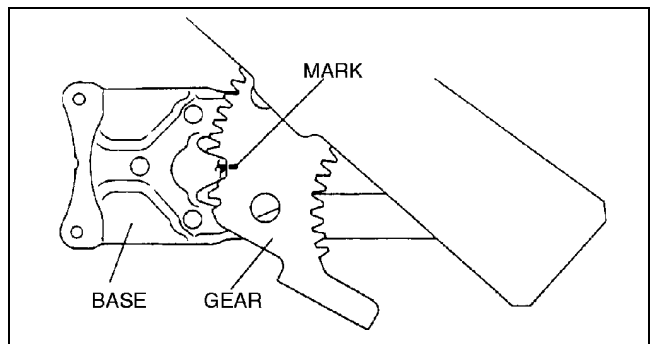
Y3E8540W024

| Terminal | Signal | Connected to | Test condition | Voltage (V) | Action |
|----------|------------|-----------------------------|---|-------------|--|
| A | IG2 | A/C 15 A fuse | Ignition switch at ON position | B+ | <ul style="list-style-type: none"> Inspect for continuity or short circuit (Fuse —A/C amplifier:A/C 15 A fuse —A) Inspect A/C 15 A fuse Inspect related harness |
| | | | Ignition switch at LOCK position | Below 1.0 | |
| B | A/C signal | Refrigerant pressure switch | Fan switch at 1st position, A/C switch ON | 0.6 | <ul style="list-style-type: none"> Inspect for continuity or short circuit (PCM—Refrigerant pressure switch:4F—B) (Refrigerant pressure switch—A/C amplifier:A—B) Inspect terminal voltage of A/C amplifier (C) Inspect refrigerant pressure switch Inspect PCM (See 01–40B–7 PCM INSPECTION [FS]) (See 01–40A–7 PCM INSPECTION [ZM]) Inspect related harness |
| | | | Fan switch OFF | 12 | |
| C | A/C switch | A/C switch | Fan switch OFF | 11.5 | <ul style="list-style-type: none"> Inspect for short circuit (A/C amplifier—climate control unit: C—B) Inspect terminal voltage of A/C amplifier (A) |
| | | | Fan switch at 1st position, A/C switch ON | 0.6 | |
| D | — | — | — | — | — |
| E | — | — | — | — | — |
| F | — | — | — | — | — |

GLASS/WINDOWS/MIRRORS

Power Window Motor Disassembly Note

1. Make marks on the gear and the base before disassembling the power window motor.



Power Window Motor Assembly Note

1. Align the marks on the gear and the base before assembling the power window motor.

REAR MANUAL WINDOW REGULATOR REMOVAL/INSTALLATION

A3U091272561W01

1. Remove the rear door glass. (See 09-12-4 REAR DOOR GLASS AND GUIDE REMOVAL/INSTALLATION.)
2. Remove the bolts, then remove the rear manual window regulator.

Tightening torque

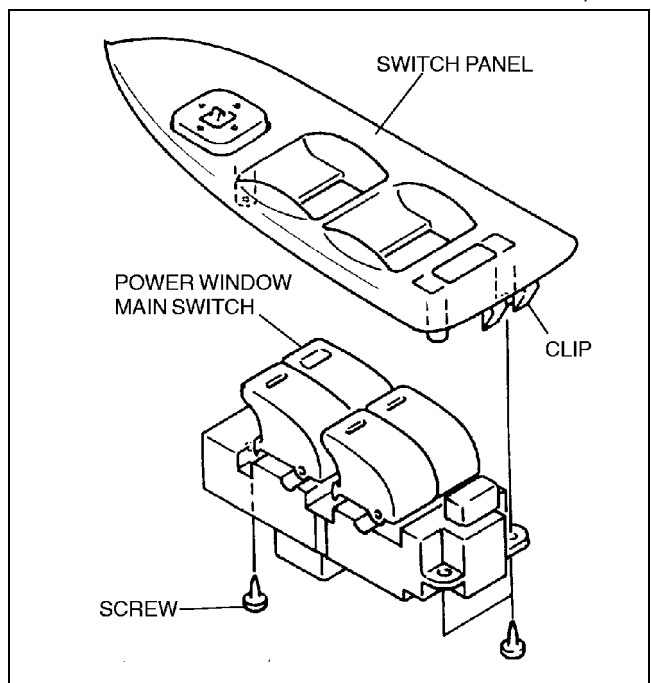
6.87—9.80 N·m {70—100 kgf·cm, 60.8—86.7 in·lbf}

3. Install in the reverse order of removal.

POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION

A3U091266350W01

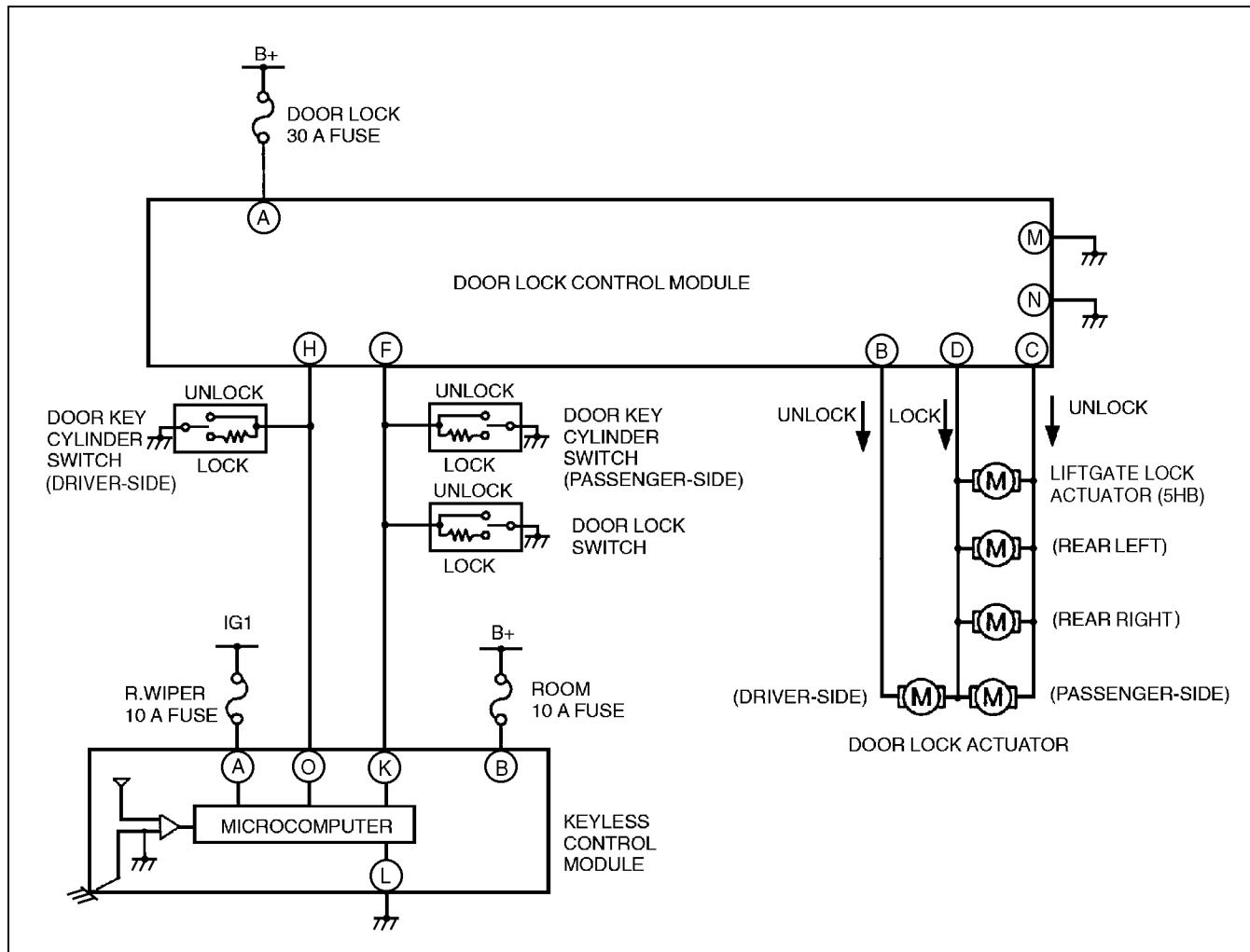
1. Disconnect the negative battery cable.
2. Remove the driver-side front door trim. (See 09-17-9 FRONT DOOR TRIM REMOVAL/INSTALLATION.)
3. Push out the clip from the reverse side of the trim, and remove the switch panel.
4. Remove the screw, and remove the power window main switch.
5. Install in the reverse order of removal.



SECURITY AND LOCKS

POWER DOOR LOCK SYSTEM WIRING DIAGRAM

A3U09146600W02



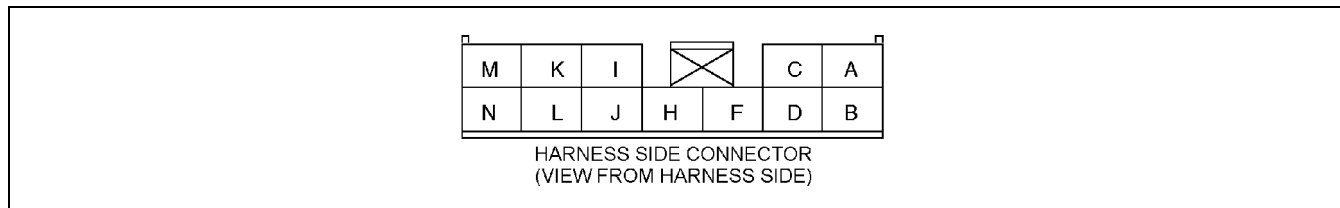
A3U0914W008

DOOR LOCK CONTROL MODULE INSPECTION

A3U091467830W01

1. Remove the lower panel.
2. Measure the voltage at the door lock control module terminals as indicated below.
3. Disconnect the door lock control module connector before inspecting for continuity at terminals F, H, M and N.
 - If not as specified, inspect the parts listed under "Action" and the related wiring harnesses.
 - If the parts and wiring harnesses are okay but the system still does not work properly, replace the door lock control module.

Terminal Voltage List (Reference)



Y3U914WA5

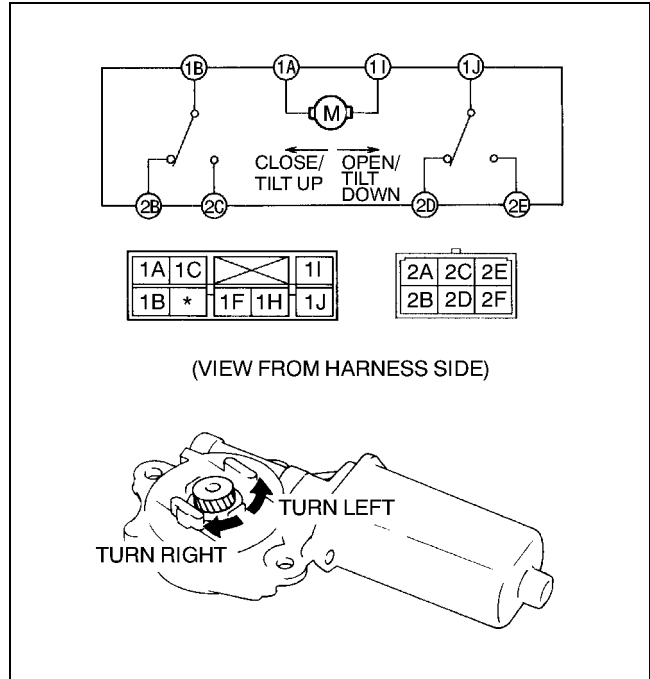
| Terminal | Signal | Connected to | Test condition | Voltage (V)/continuity | Action |
|----------|--------------|---------------------|---------------------|------------------------|--|
| A | Power supply | DOOR LOCK 30 A fuse | Under any condition | B+ | <ul style="list-style-type: none"> • Inspect DOOR LOCK 30 A fuse • Inspect related harness |

5HB

Motor

1. Remove the sunroof motor.
2. Apply battery positive voltage to the sunroof motor terminals and inspect the operation of the sunroof motor.
 - If not as specified, replace the sunroof motor.

| Connection | | Motor operation |
|------------|-----|-----------------------------------|
| 1A | 1I | |
| B+ | GND | Turn right (Slide open/Tilt down) |
| GND | B+ | Turn left (Slide close/Tilt up) |



A3U0915W017

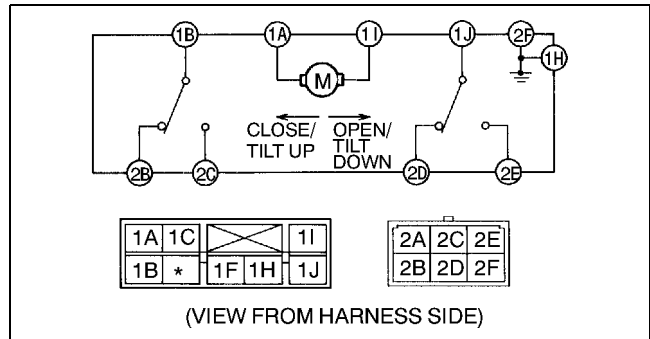
Limit Switch

1. Remove the headliner. (See 09-17-16 HEADLINER REMOVAL/INSTALLATION.)
2. Verify the glass panel position.
3. Disconnect the connector.
4. Inspect for continuity between the sunroof motor terminals using an ohmmeter.
 - If not as specified, replace the sunroof motor.

○—○ : Continuity

| Glass panel position | Terminal | | | | | | | | |
|----------------------|----------|----|----|----|----|----|----|----|----------|
| | 2B | 2C | 2D | 2E | 1B | 1J | 2F | 1H | Body GND |
| Fully open | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Fully closed | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Fully tilted up | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ |

A3U0915W018



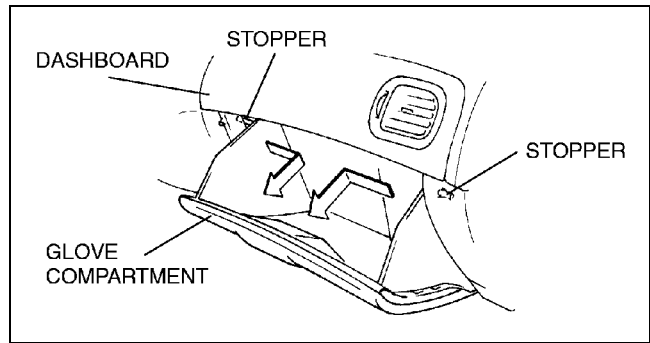
A3U0915W019

INTERIOR TRIM

GLOVE COMPARTMENT REMOVAL/INSTALLATION

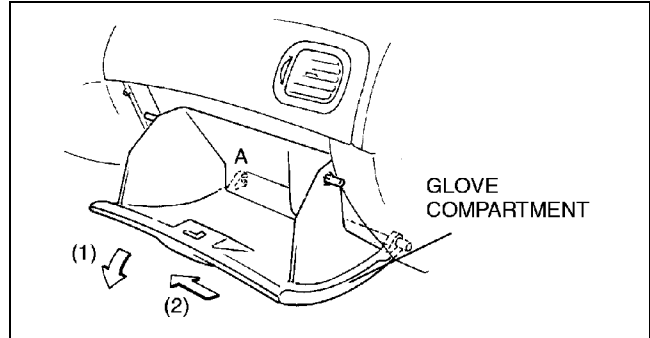
A3U091764030W01

1. Bend the stoppers inward, then remove them.



X3U917WAG

2. Pull the glove compartment toward you while pushing it downward (1), then remove clip A.
3. Slide the glove compartment toward driver's side door (2).
4. Install in the reverse order of removal.



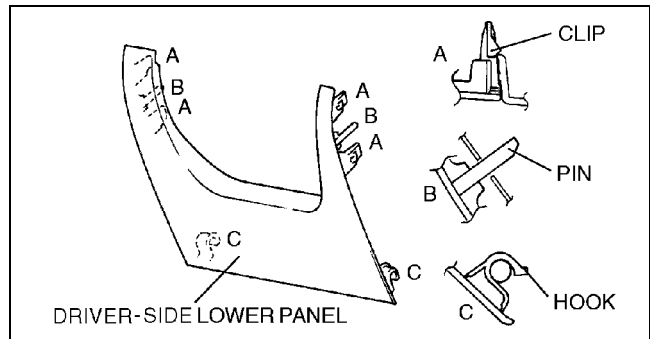
X3U917WAH

LOWER PANEL REMOVAL/INSTALLATION

A3U091764280W01

Driver's side

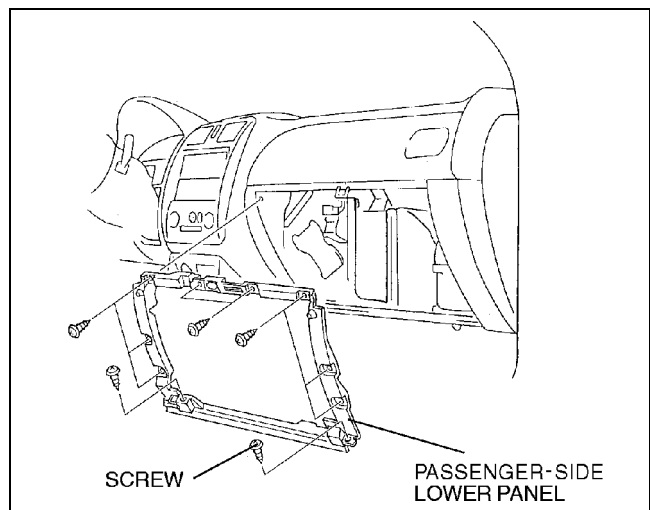
1. Pull the upper side of the lower panel downward, then disengage clips A and pins B from the dashboard.
2. Pull the lower panel toward you, then disengage hooks C from the dashboard.
3. Install in the reverse order of removal.



Z3U0917W003

Passenger's side

1. Remove the glove compartment.
2. Remove the screws.
3. Install in the reverse order of removal.



Z3U0917W004

LIGHTING SYSTEMS

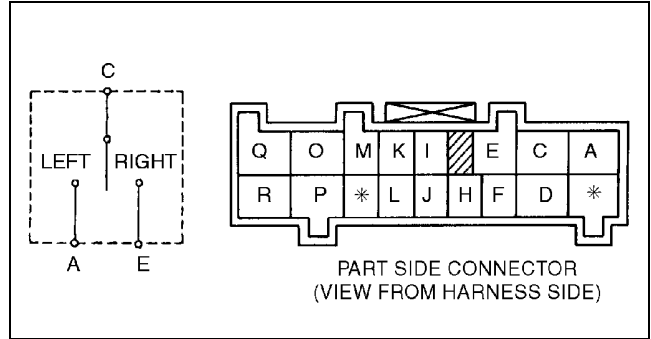
Turn switch

1. Remove the light switch. (See 09-18-13 LIGHT SWITCH REMOVAL/INSTALLATION.)
2. Inspect for continuity between the light switch terminals using an ohmmeter.
 - If not as specified, replace the light switch.

○—○ : Continuity

| Switch position | Terminal | | |
|-----------------|----------|---|-----|
| | C | A | E |
| Left | ○—○ | | |
| Off | | | |
| Right | | | ○—○ |

X3U918WBG

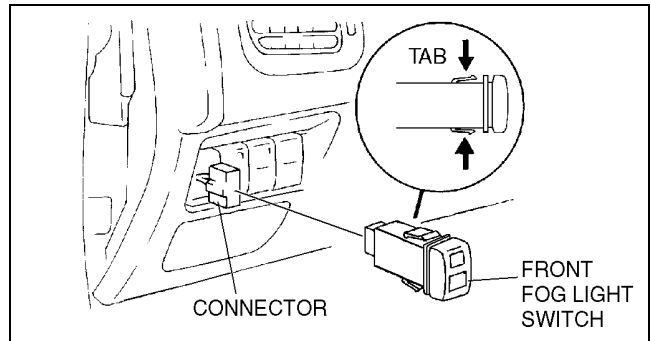


Y3U918WA1

FRONT FOG LIGHT SWITCH REMOVAL/INSTALLATION

A3U091866402W01

1. Disconnect the negative battery cable.
2. Remove the left side side panel from the dashboard.
3. Compress the tabs of the front fog light switch and pull the switch out of the dashboard.
4. Disconnect the connector to remove the front fog light switch.
5. Install in the reverse order of removal.



Z3U0918W009

FRONT FOG LIGHT SWITCH INSPECTION

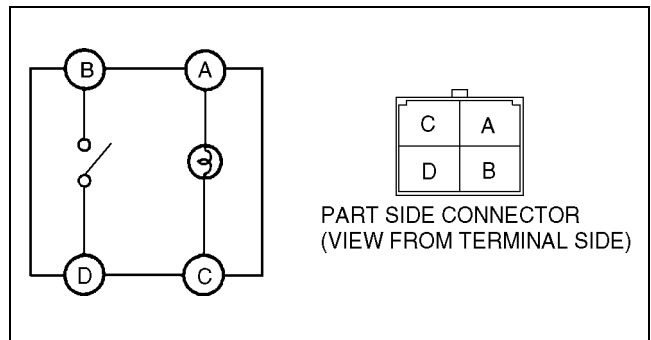
A3U091866402W02

1. Remove the front fog light switch. (See 09-18-14 FRONT FOG LIGHT SWITCH REMOVAL/INSTALLATION.)
2. Inspect for continuity between the front fog light switch terminals using an ohmmeter.
 - If not as specified, replace the front fog light switch.

○—○ : Continuity ○○ : Bulb

| Switch position | Terminal | | | |
|-----------------|----------|---|-----|---|
| | A | C | B | D |
| Off | ○○ | | | |
| On | ○○ | | ○—○ | |

Z3U0918W008

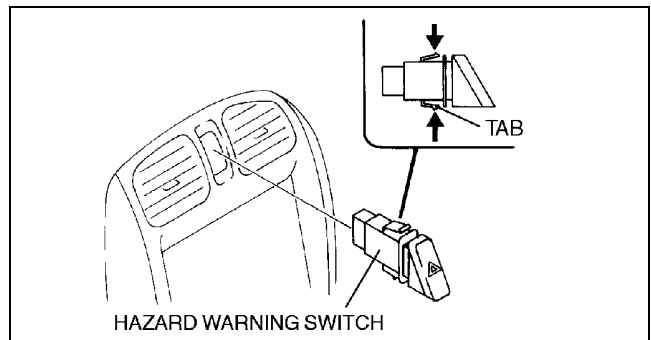


Z3U0918W007

HAZARD WARNING SWITCH REMOVAL/INSTALLATION

A3U091866401W01

1. Disconnect the negative battery cable.
2. Remove the center panel. (See 09-17-4 CENTER PANEL REMOVAL/INSTALLATION.)
3. Grasp the tabs of the hazard warning switch and pull it forward to remove it.
4. Install in the reverse order of removal.



Y3U918WAP

POWER SYSTEMS

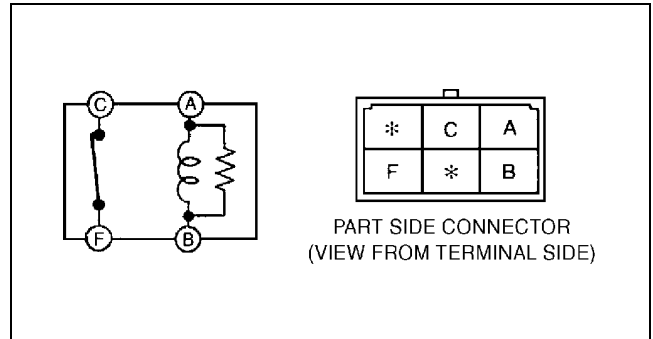
Type C

1. Remove the relay.
2. Inspect for continuity between the relay terminals using an ohmmeter.
 - If not as specified, replace the relay.

○—○: Continuity

| Step | Terminal | | | |
|------|----------|-----|-----|-----|
| | A | B | C | F |
| 1 | ○—○ | ○—○ | ○—○ | ○—○ |
| 2 | B+ | GND | | |

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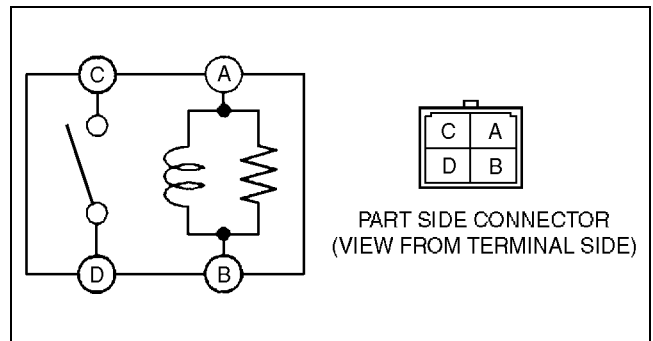
Type D

1. Remove the relay.
2. Inspect for continuity between the relay terminals using an ohmmeter.
 - If not as specified, replace the relay.

○—○: Continuity

| Step | Terminal | | | |
|------|----------|-----|-----|-----|
| | A | B | C | D |
| 1 | ○—○ | ○—○ | | |
| 2 | B+ | GND | ○—○ | ○—○ |

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Five-terminal

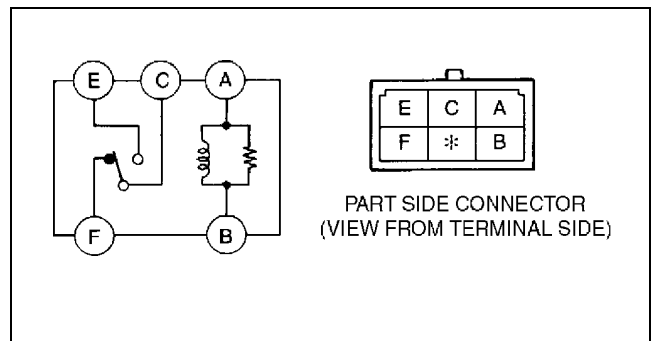
Type A

1. Remove the relay.
2. Inspect for continuity between the relay terminals using an ohmmeter.
 - If not as specified, replace the relay.

○—○: Continuity

| Step | Terminal | | | | |
|------|----------|-----|-----|-----|-----|
| | A | B | E | C | F |
| 1 | ○—○ | ○—○ | | ○—○ | ○—○ |
| 2 | GND | B+ | ○—○ | ○—○ | |

ZLU0921W009



ZLU0921W008