

## 05-11A MANUAL TRANSMISSION [M15M-D]

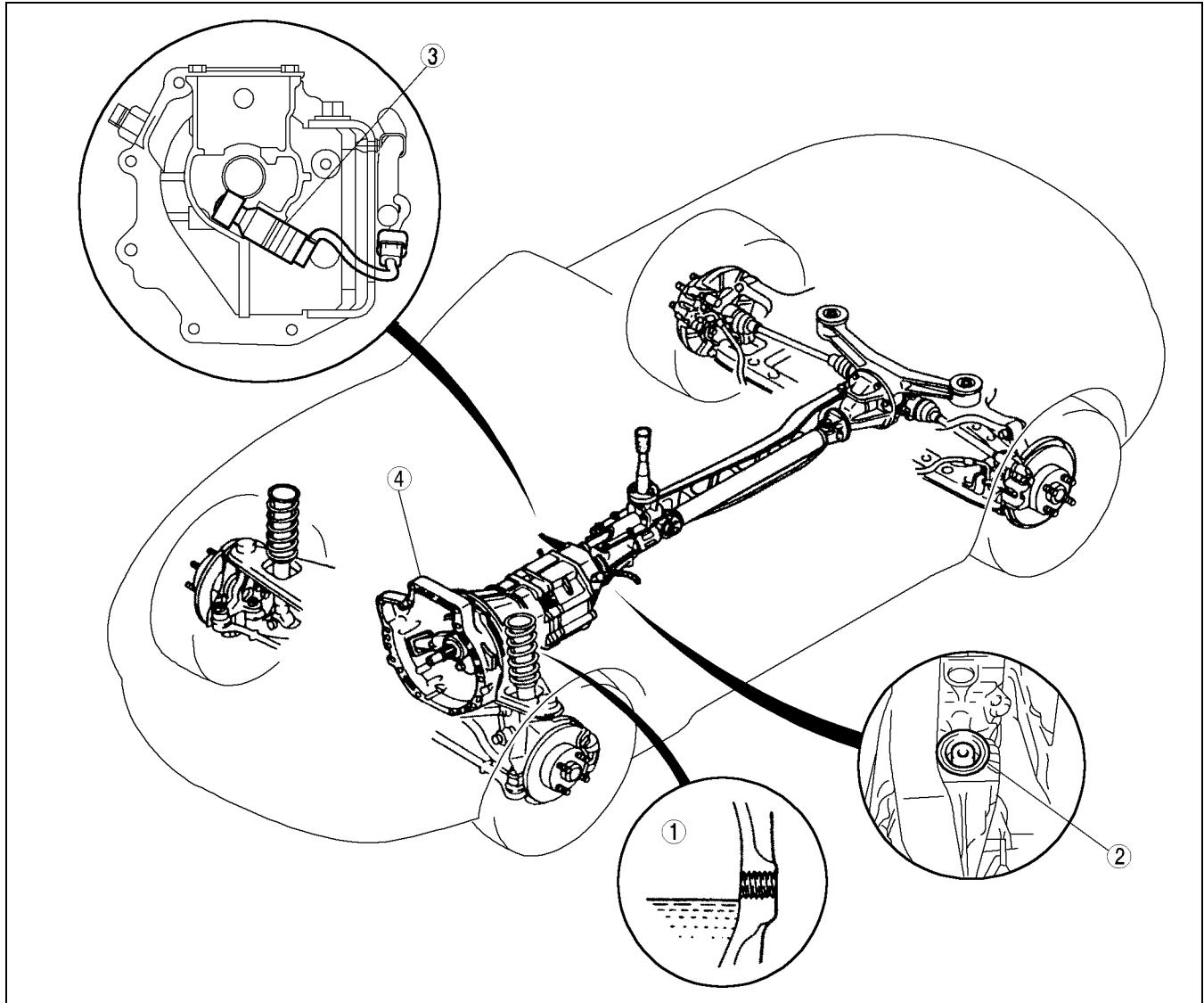
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# MANUAL TRANSMISSION [M15M-D]

## MANUAL TRANSMISSION [M15M-D] LOCATION INDEX

A5U051101025W01



Z5U0511WA0

1	Transmission oil (See 05-11A-3 TRANSMISSION OIL INSPECTION [M15M-D]) (See 05-11A-3 TRANSMISSION OIL REPLACEMENT [M15M-D])
2	Oil seal (rear) (See 05-11A-4 OIL SEAL (REAR) REPLACEMENT [M15M-D])

3	Vehicle speedometer sensor (See 05-11A-4 VEHICLE SPEEDOMETER SENSOR REMOVAL/INSTALLATION [M15M-D]) (See 05-11A-4 VEHICLE SPEEDOMETER SENSOR INSPECTION [M15M-D])
4	Manual transmission (See 05-11A-4 MANUAL TRANSMISSION REMOVAL/INSTALLATION [M15M-D])

## TRANSMISSION OIL INSPECTION [M15M-D]

1. Remove the check plug A.
2. Verify that the oil is at the brim of the check plug hole as shown.
  - If it is low, add the specified oil from the check plug hole.

### Specified oil

**Grade:** API service GL-4 or GL-5

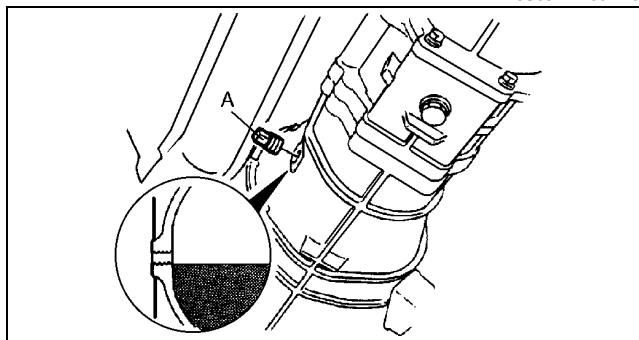
**Viscosity:** SAE 75W-90 (All season) or SAE 80W-90 (Above 10°C {50°F})

3. Wipe the plug clean and apply sealant to the plug threads before installing.

### Tightening torque

**A:** 25—39 N·m {2.5—4.0 kgf·m, 19—28 ft·lbf}

A5U051127001W01



A5U0511W001

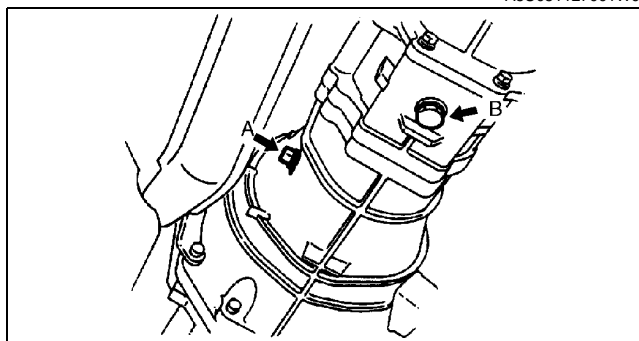
## TRANSMISSION OIL REPLACEMENT [M15M-D]

1. Remove the drain plug B with washer and the check plug A.
2. Drain the oil into a container.
3. Wipe all plugs clean.
4. Install the drain plug B with new washer.

### Tightening torque

**B:** 40—58 N·m {4.0—6.0 kgf·m, 29—43 ft·lbf}

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A5U0511W002

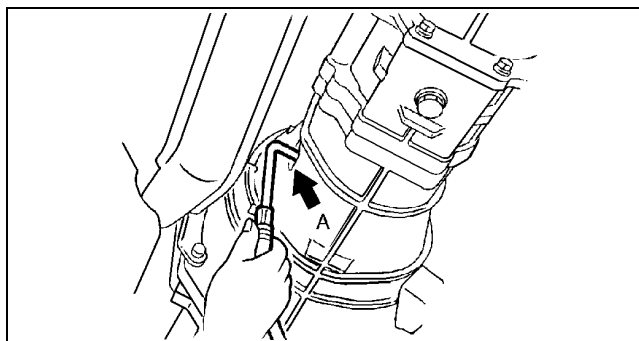
5. Add the specified oil from check plug A port until the level reaches the brim of check plug hole.

### Specified oil

**Grade:** API service GL-4 or GL-5

**Viscosity:** SAE 75W-90 (All season) or SAE 80W-90 (Above 10°C {50°F})

**Capacity (approximate quantity):** 2.0 L {2.1 US qt, 1.8 Imp qt}

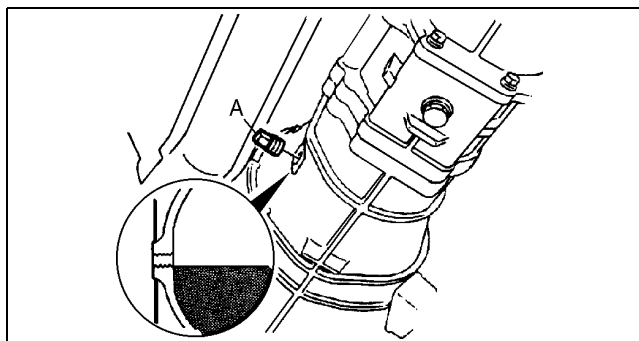


A5U0511W003

6. Apply sealant to the threads of check plug A.
7. Install the check plug A.

### Tightening torque

**A:** 25—39 N·m {2.5—4.0 kgf·m, 19—28 ft·lbf}



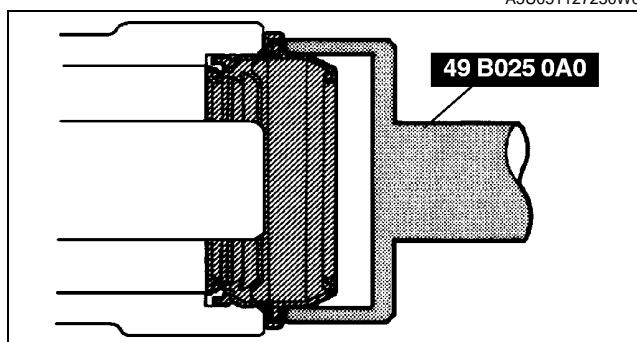
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## MANUAL TRANSMISSION [M15M-D]

### OIL SEAL (REAR) REPLACEMENT [M15M-D]

A5U051127230W01

1. Raise the vehicle and support it with safety stands.
2. Remove the propeller shaft. (See 03-15-2 PROPELLER SHAFT REMOVAL/INSTALLATION.)
3. Remove the oil seal from the extension housing.
4. Apply the specified oil to a new oil seal.
5. Install the new oil seal using the **SST**.
6. Install the propeller shaft. (See 03-15-2 PROPELLER SHAFT REMOVAL/INSTALLATION.)
7. Inspect the oil level. (See 05-11A-3 TRANSMISSION OIL INSPECTION [M15M-D].)



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### VEHICLE SPEEDOMETER SENSOR REMOVAL/INSTALLATION [M15M-D]

A5U051117400W01

1. Disconnect the negative battery cable.
2. Drain the transmission oil. (See 05-11A-3 TRANSMISSION OIL REPLACEMENT [M15M-D].)
3. Disconnect the vehicle speedometer sensor connector.
4. Remove the vehicle speedometer sensor.
5. Apply transmission oil to a new O-ring and install it on a new vehicle speedometer sensor.
6. Install the vehicle speedometer sensor.

#### Tightening torque

**7.9—10.7 N·m {80—110 kgf·cm, 69.5—95.4 in·lbf}**

7. Connect the vehicle speedometer sensor connector.
8. Add the specified amount and type of transmission oil. (See 05-11A-3 TRANSMISSION OIL REPLACEMENT [M15M-D].)
9. Connect the negative battery cable.

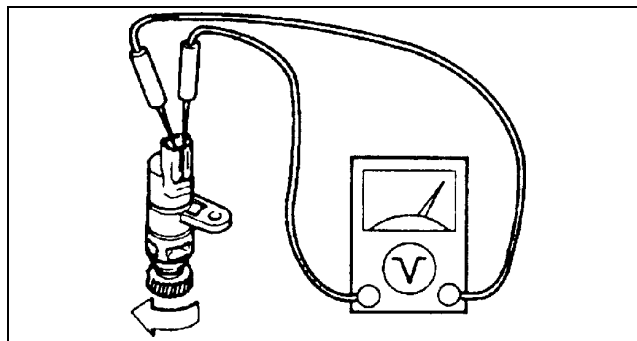
### VEHICLE SPEEDOMETER SENSOR INSPECTION [M15M-D]

A5U051117400W02

1. Remove the vehicle speedometer sensor. (See 05-11A-4 VEHICLE SPEEDOMETER SENSOR REMOVAL/INSTALLATION [M15M-D].)
2. Measure voltage between terminals of the vehicle speedometer sensor while the gear is turning.

Meter needle	Action
Moves slightly under 5 V	Inspect wiring harness (Instrument cluster — vehicle speedometer sensor)
Does not move	Replace vehicle speedometer sensor

3. Install the vehicle speedometer sensor. (See 05-11A-4 VEHICLE SPEEDOMETER SENSOR REMOVAL/INSTALLATION [M15M-D].)



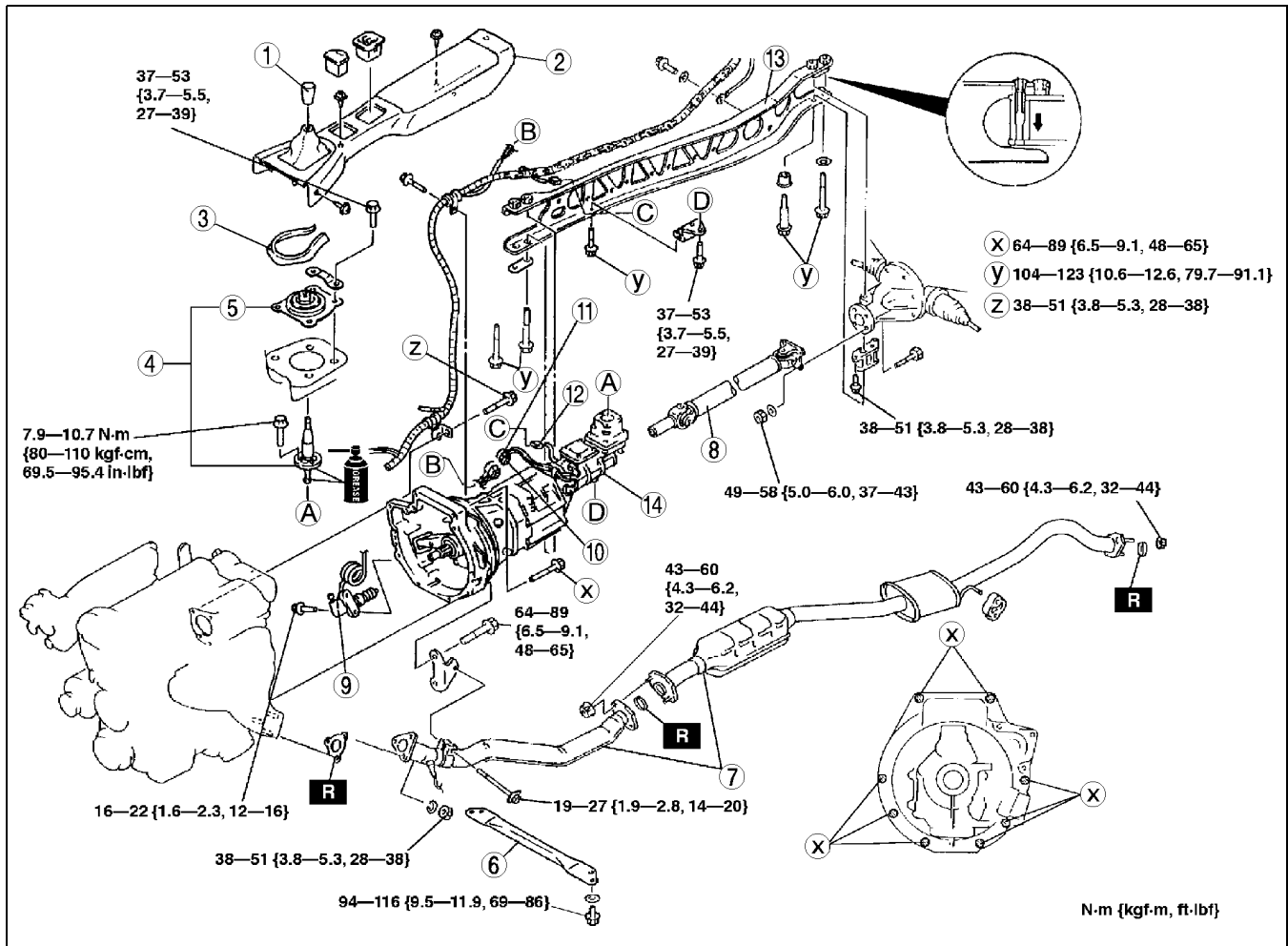
A5U0511W006

### MANUAL TRANSMISSION REMOVAL/INSTALLATION [M15M-D]

A5U051101025W02

1. Drain the transmission oil. (See 05-11A-3 TRANSMISSION OIL REPLACEMENT [M15M-D].)
2. Remove the cross member component. (16-inch wheel vehicles)
3. Remove the cross member bracket. (16-inch wheel vehicles)
4. Remove the crossbar. (16-inch wheel vehicles) (See 02-14-8 REAR CROSSMEMBER REMOVAL/INSTALLATION.)
5. Remove the undercover.
6. Remove the starter. (See 01-19-2 STARTER REMOVAL/INSTALLATION.)
7. Remove in the order indicated in the table.
8. Install in the reverse order of removal.
9. Add the specified amount and type of transmission oil. (See 05-11A-3 TRANSMISSION OIL REPLACEMENT [M15M-D].)
10. Warm up the engine and transmission, inspect for oil leakage, and verify the transmission operation.

# MANUAL TRANSMISSION [M15M-D]



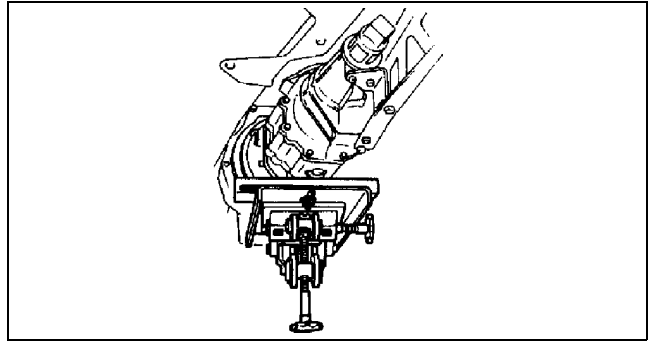
A5U0511W007

1	Shift lever knob
2	Rear console
3	Insulation
4	Shift lever component (See 05-11A-9 Shift Lever Component Installation Note)
5	Dust boot
6	Front crossbar
7	Front pipe and middle pipe (See 01-15-1 EXHAUST SYSTEM REMOVAL/INSTALLATION)
8	Propeller shaft (See 03-15-2 PROPELLER SHAFT REMOVAL/INSTALLATION)

9	Clutch release cylinder
10	Back-up light switch connector
11	Neutral switch connector
12	Speedometer sensor connector
13	Power plant frame (PPF) (See 05-11A-6 Power Plant Frame (PPF) Removal Note) (See 05-11A-7 Power Plant Frame (PPF) Installation Note)
14	Transmission (See 05-11A-7 Transmission Removal Note) (See 05-11A-7 Transmission Installation Note)

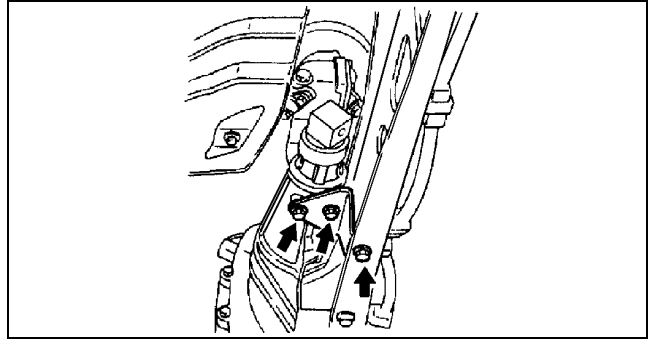
### Power Plant Frame (PPF) Removal Note

1. Disconnect the wire harness from the PPF.
2. Support the transmission with a jack.



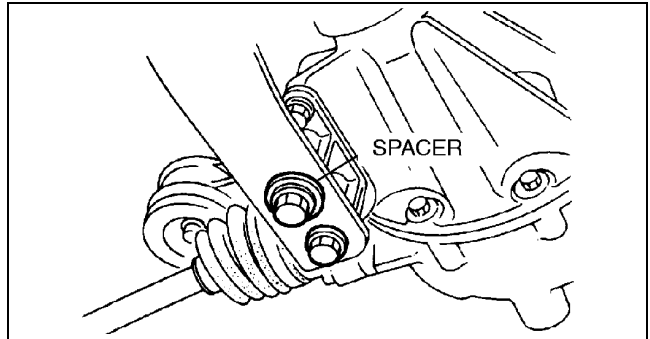
A5U0511W008

3. Remove the PPF bracket.



A5U0511W009

4. Remove the differential-side bolts, and pry out the spacer.

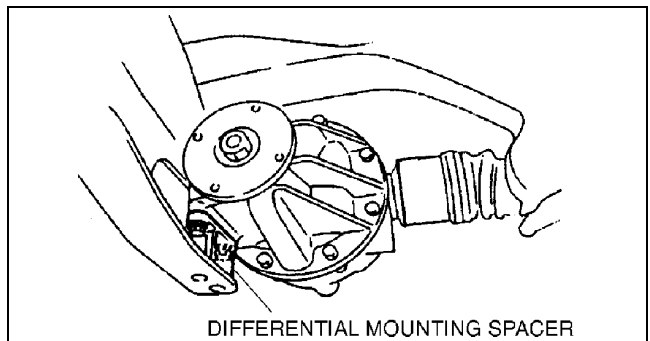


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5. Remove the differential mounting spacer.

### Caution

- Removing the PPF spacers will reduce the performance of the PPF.
- If the spacers are removed, replace the PPF as an component.

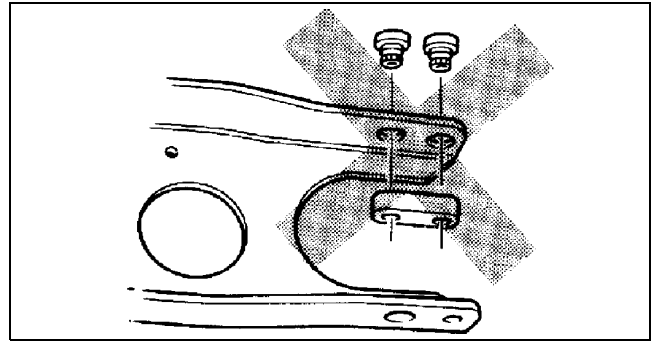


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- Remove the transmission-side bolts, and remove the PPF.

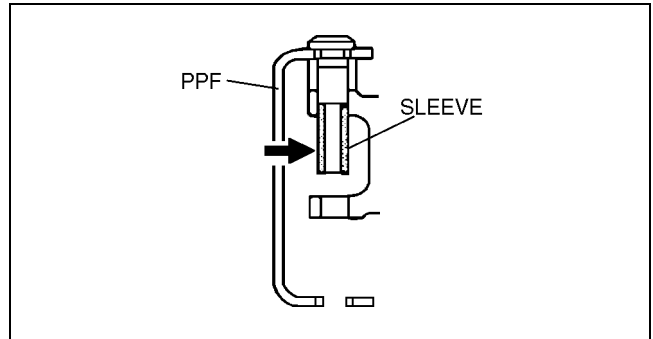
**Note**

- If the sleeve can not be removed easily, tap the side of sleeve with a plastic hammer.



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- Remove the sleeve.



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05-11A

**Transmission Removal Note**

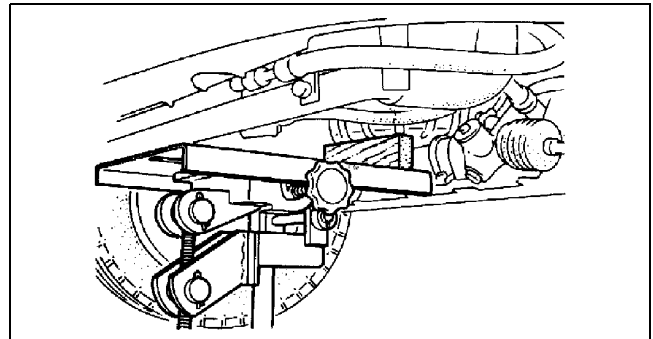
- Support the transmission with a transmission jack.
- Loosen the transmission installation bolts.
- Remove the transmission.

**Transmission Installation Note**

- Tilt the engine by pushing up on the front of the oil pan with a wooden block and a transmission jack.
- Support the transmission with a transmission jack.
- Raise the transmission into place and install and tighten the installation bolts.

**Tightening torque**

64—89 N·m {6.5—9.1 kgf·m, 48—65 ft·lbf}



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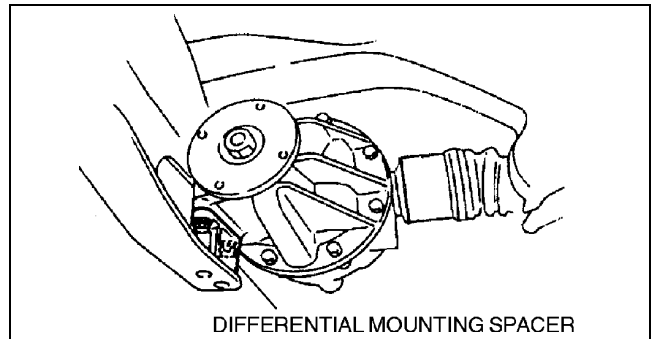
**Power Plant Frame (PPF) Installation Note**

- Install the differential mounting spacer.

**Tightening torque**

38—51 N·m {3.8—5.3 kgf·m, 28—38 ft·lbf}

- Support the transmission with a jack so that it is level.

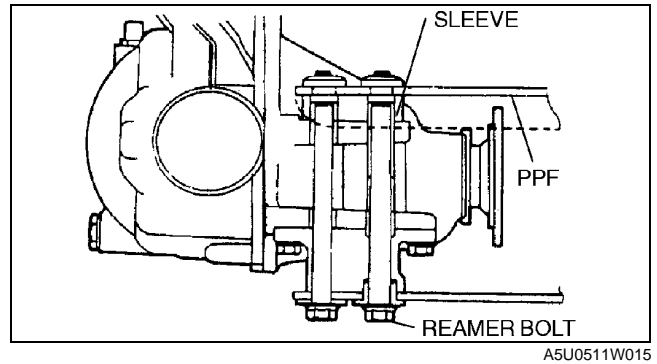


DIFFERENTIAL MOUNTING SPACER

A5U0511W014

## MANUAL TRANSMISSION [M15M-D]

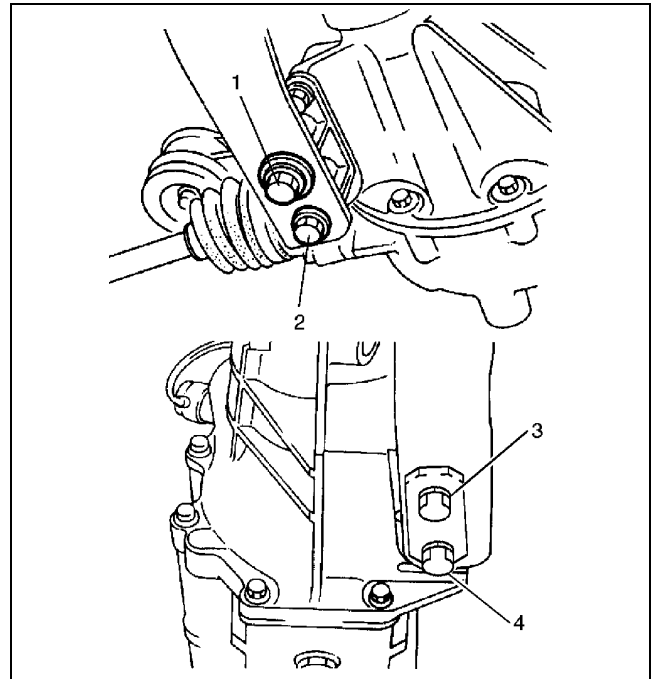
3. Position the PPF and install the sleeve.
4. Install the spacer and bolts and tighten the reamer bolt making sure the threading is aligned properly. The reamer bolt should be installed in the forward hole.
5. Tighten the outer bolts making sure the threading is aligned properly.



6. Tighten the bolts to the specified torque in the order shown.

### Tightening torque

104—123 N·m {10.6—12.6 kgf·m, 76.7—91.1 ft·lbf}



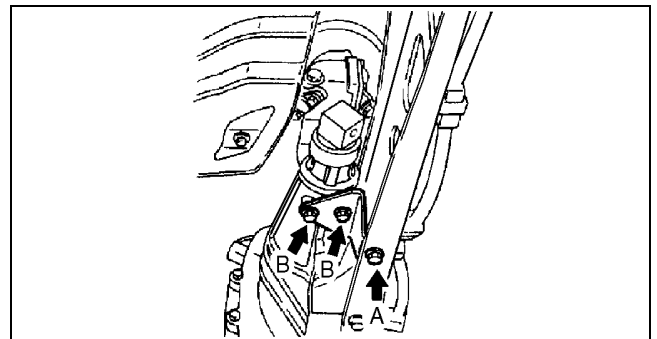
7. Install the PPF bracket.

### Tightening torque

A: 104—123 N·m {10.6—12.6 kgf·m, 76.7—91.1 ft·lbf}

B: 37—53 N·m {3.7—5.5 kgf·m, 27—39 ft·lbf}

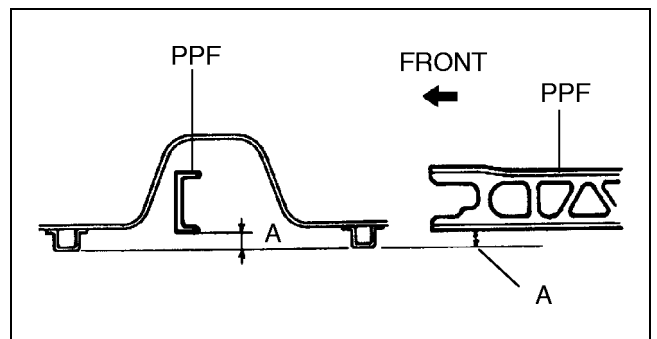
8. Remove the jack, and connect the wire harness.



9. Measure distance A with a straightedge and vernier calipers.
  - If the distance is not as specified, reposition the PPF to the transmission.

### Distance

A: 60.0—72.0 mm {2.37—2.83 in}





## Shift Lever Component Installation Note

### Note

- The change control case must also be filled with the specified amount of oil whenever the extension housing has been removed or the transmission has been overhauled.

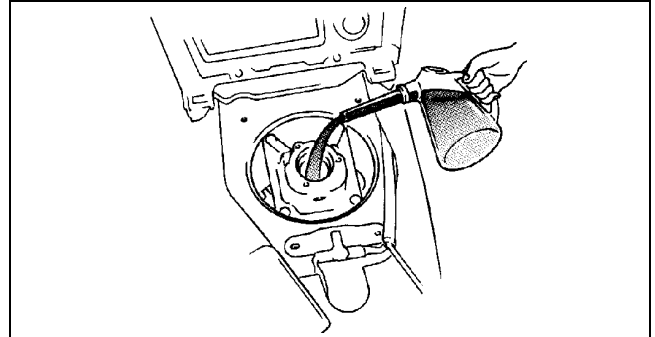
1. Pour the specified amount of oil into the change control case.

### Specified oil

**Grade:** API service GL-4 or GL-5

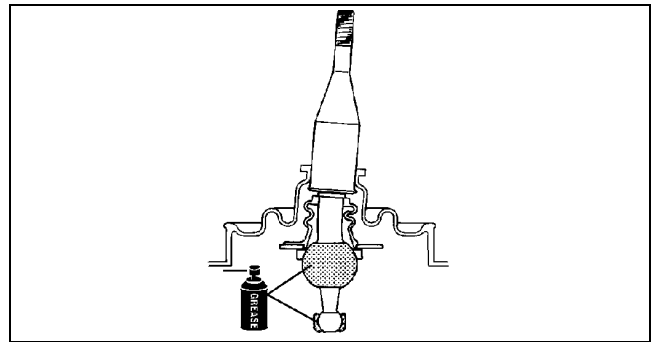
**Viscosity:** SAE 75W-90

**Capacity (approximate quantity):** 80—95 ml  
(80—95 cc, 4.9—5.8 cu in)



A5U0511W019

2. Apply grease to the shift lever component as shown in the figure.
3. Apply sealant to the contact surfaces of the shift lever component and the change control case.
4. Install the shift lever component.



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