

GROUP 22A

MANUAL
TRANSMISSION

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GENERAL INFORMATION

M1221000100633

The manual transmission come in two models, namely, F5M42 and W5M42.

Item		Specification	
Transmission model		F5M42 (2WD)	W5M42 (4WD)
Engine model		4G63-DOHC-MPI	
Transmission type		5-speed forward, 1-speed reverse constant mesh	
Transmission gear ratio	1st	3.583	3.583
	2nd	1.947	1.947
	3rd	1.379	1.379
	4th	1.030	1.030
	5th	0.820	0.820
	Reverse	3.363	3.363
Final reduction ration (Differential gear ratio)		4.625	4.687
Speedometer gear ratio		31/36	31/36

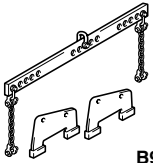
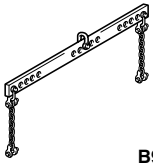
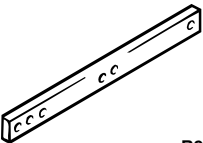
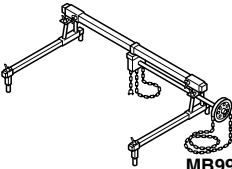
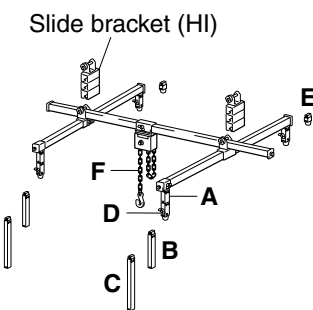
LUBRICANT

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Item	Specified lubricant	Quantity L
Transmission oil	Gear oil SAE 75W-90 or 75W-85W conforming to API GL-4	2.2 <2WD>
		2.3 <4WD>
Transfer oil	Hypoid gear oil API classification GL-5 SAE90	0.53

SPECIAL TOOLS

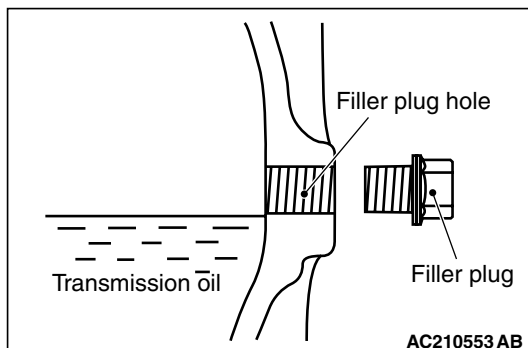
M1221000600627

Tool	Number	Name	Use
 <p>B991453</p>	MB991453	Engine hanger assembly	<p>When the engine hanger is used: Supporting the engine assembly during removal and installation of the transmission assembly</p> <p><i>NOTE: Special tool MB991454 is a part of engine hanger attachment set MB991453.</i></p>
 <p>B991454</p>	MB991454	Engine hanger balancer	
 <p>B991527</p>	MB991527	Engine hanger	
 <p>MB991895</p>	MB991895	Engine hanger	
<p>Slide bracket (HI)</p>  <p>B991928</p>	<p>MB991928</p> <p>A: MB991929</p> <p>B: MB991930</p> <p>C: MB991931</p> <p>D: MB991932</p> <p>E: MB991933</p> <p>F: MB991934</p>	<p>Engine hanger</p> <p>A: Joint (50) ×2</p> <p>B: Joint (90) ×2</p> <p>C: Joint (140) ×2</p> <p>D: Foot (standard) ×4</p> <p>E: Foot (short) ×2</p> <p>F: Chain and hook assembly</p>	

ON-VEHICLE SERVICE

TRANSMISSION OIL LEVEL CHECK

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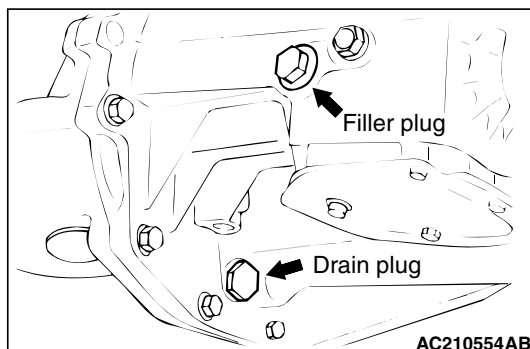


1. Remove the filler plug.
2. Check that the oil level is up to the lower edge of the filler plug hole.
3. Check that the oil is not noticeably dirty.
4. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m

TRANSMISSION OIL REPLACEMENT

M1221001000350



1. Remove the filler plug.
2. Remove the drain plug and drain the oil.
3. Tighten the drain plug to the specified torque.

Tightening torque: 32 ± 2 N·m

4. Fill with gear oil API classification GL-4 SAE 75W-85W or 75W-90 until the level comes to the lower portion of filler plug hole.

Quantity: 2.2 L <2WD>

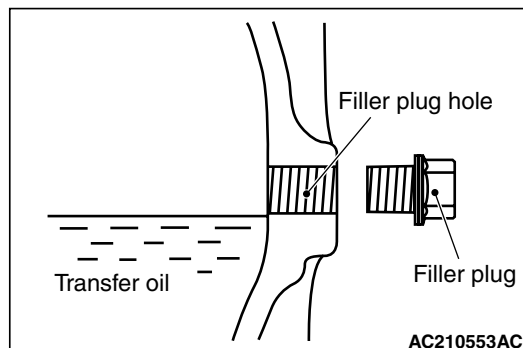
Quantity: 2.3 L <4WD>

5. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m

TRANSFER OIL CHECK

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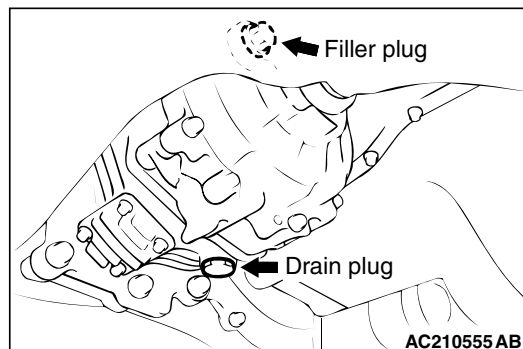


1. Remove the filler plug.
2. Check that the oil level is up to the lower edge of the filler plug hole.
3. Check that the oil is not noticeably dirty.
4. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m

TRANSFER OIL REPLACEMENT

M1221001200064



1. Remove the filler plug.
2. Remove the drain plug and drain the oil.
3. Tighten the drain plug to the specified torque.

Tightening torque: 32 ± 2 N·m

4. Fill with hypoid gear oil API classification GL-5 SAE90 until the level comes to the lower portion of filler plug hole.

Quantity: 0.53 L

5. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m

TRANSMISSION CONTROL

REMOVAL AND INSTALLATION

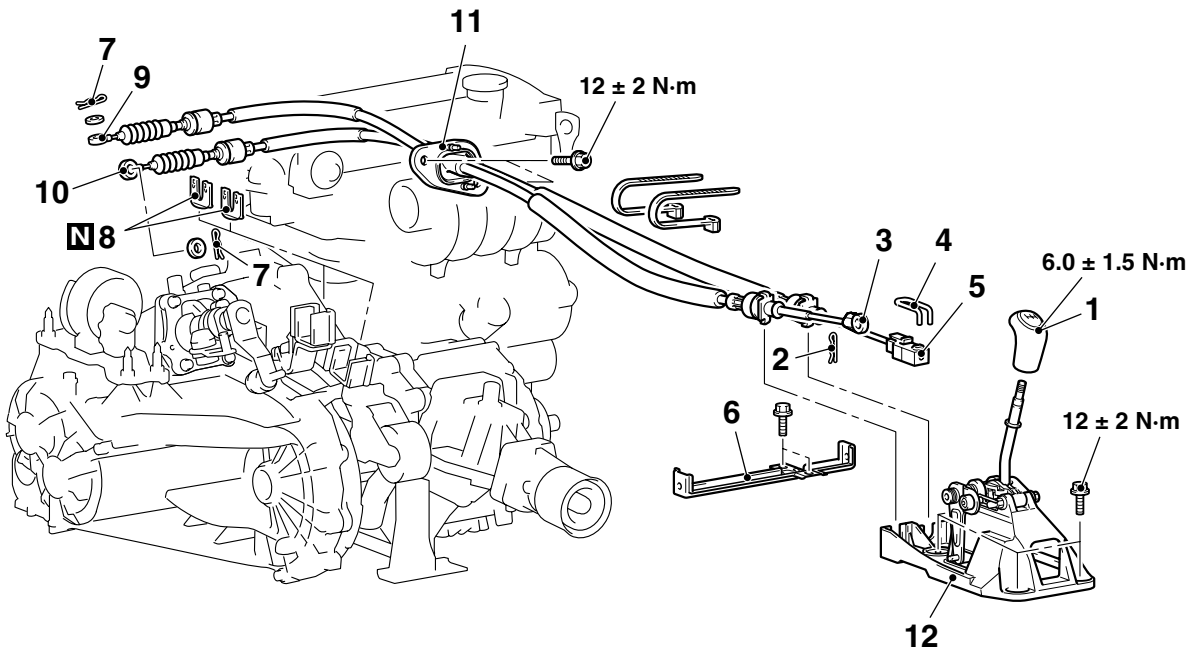
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WARNING

Be careful not to subject the SRS-ECU to any shocks during removal and installation of the shift cable and select cable assembly.

Pre-removal and Post-installation Operation

- Air Cleaner Assembly Removal and Installation (Refer to GROUP 15, Air Cleaner [P.15-3](#)).
- Battery and Battery Tray Removal and Installation.



AC210284AB

Gearshift cable and select cable assembly removal steps

- | | | |
|-------------|----|--|
| | 1. | Gearshift lever knob |
| | • | Front floor console (Refer to GROUP 52A P.52A-8). |
| | 2. | Snap pin |
| | 3. | Select cable connection (Gearshift lever side) |
| >>B<< | 4. | Gearshift cable clip |
| | 5. | Gearshift cable connection (Gearshift lever side) |
| | • | SRS-ECU (Refer to GROUP 52B P.52B-140). |
| | 6. | Console side cover bracket |
| | 7. | Snap pin |
| <<A>> >>A<< | 8. | Gearshift link clip |
| <<A>> >>A<< | 9. | Select cable connection (Transmission side) |

Gearshift cable and select cable assembly removal steps

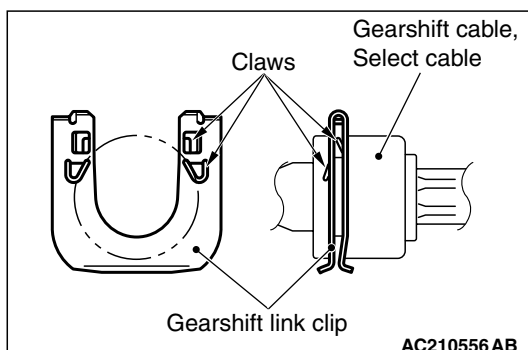
- | | | | |
|-------|-------|-----|--|
| <<A>> | >>A<< | 10. | Gearshift cable connection (Transmission side) |
| | >>A<< | 11. | Gearshift cable and select cable assembly |

Gearshift lever assembly removal steps

- | | | |
|-------|-----|--|
| | 1. | Gearshift lever knob |
| | • | Front floor console (Refer to GROUP 52A P.52A-8). |
| | 2. | Snap pin |
| | 3. | Select cable connection (Gearshift lever side) |
| >>B<< | 4. | Gearshift cable clip |
| | 5. | Gearshift cable connection (Gearshift lever side) |
| | 12. | Gearshift lever assembly |

REMOVAL SERVICE POINTS

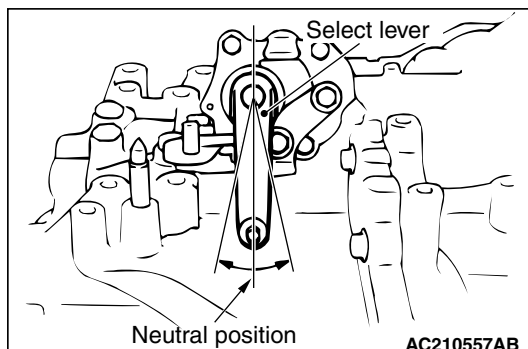
<<A>> GEARSHIFT LINK CLIP/SELECT CABLE CONNECTION (TRANSMISSION SIDE)/GEAR SHIFT CABLE CONNECTION (TRANSMISSION SIDE) REMOVAL



Push up the claws of the gearshift link clip using a screwdriver, etc., and then remove the gearshift link clip from the bracket together with the cables.

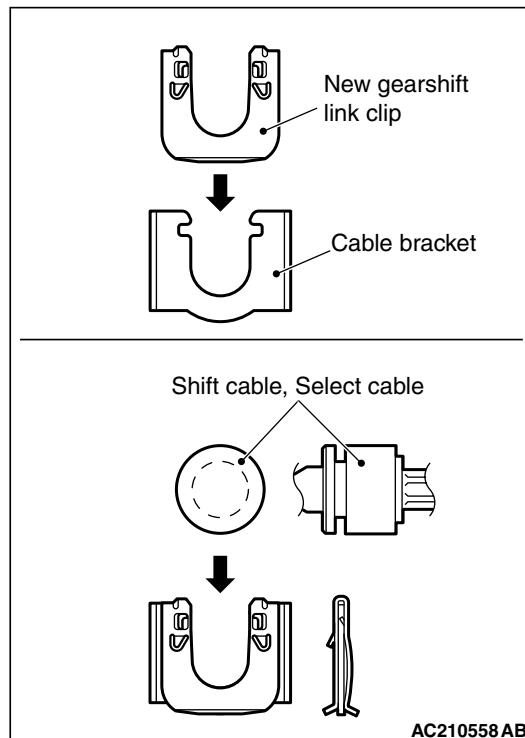
INSTALLATION SERVICE POINTS

>>A<< GEARSHIFT CABLE AND SELECT CABLE ASSEMBLY/GEARSHIFT CABLE CONNECTION (TRANSMISSION SIDE)/SELECT CABLE CONNECTION (TRANSMISSION SIDE)/GEARSHIFT LINK CLIP INSTALLATION



1. Set the transmission side shift lever and the passenger compartment side shift lever to the neutral position.
2. Install the painted part of the shift cable end (transmission side) and painted part of the select cable (transmission side) facing the snap pin.

⚠ CAUTION



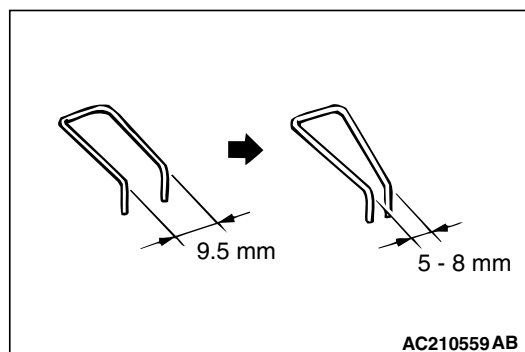
Insert thoroughly the gearshift link clip, shift cable and select cable until they click in place.

3. After installing the new gearshift link clip to the cable bracket of the transmission, install the shift cable and select cable to the cable bracket.

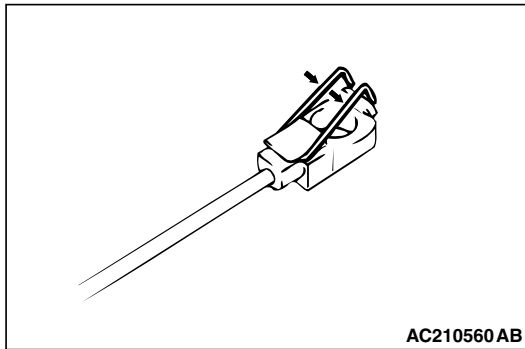
NOTE: The clip is reversible.

4. Move the shift lever to all positions and check that the operation is smooth.

>>B<< GEAR SHIFT CABLE CLIP INSTALLATION



1. Make sure that there is no excessive play at the shift cable end gearshift cable clip. If there is excessive play or the gearshift cable clip is disengaged from the shift cable end, check the clip opening gap. If the gap is more than 9.5 mm, squeeze the gearshift cable clip until the relaxed gap reaches 5 to 8 mm.



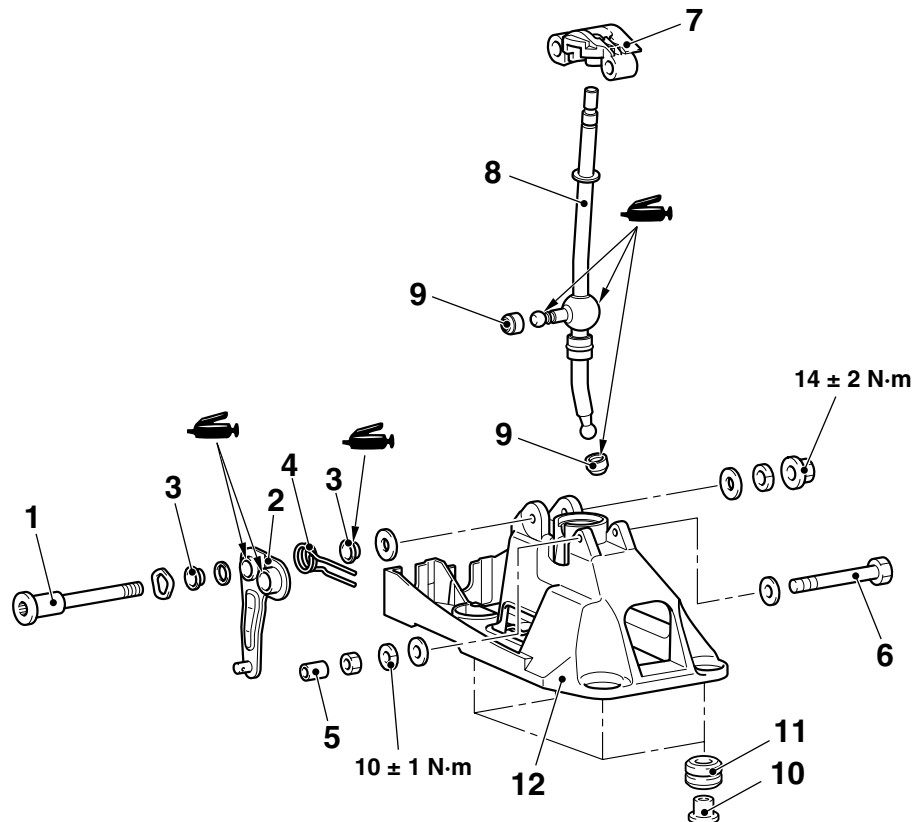
3. Install the shift cable to the shift lever.

2. Engage the gearshift cable clip with the shift cable hook securely, and push the gearshift cable clip with your thumbs until it clicks in place.

SHIFT LEVER ASSEMBLY

DISASSEMBLY AND REASSEMBLY

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AC210285 AB

Disassembly steps

1. Gearshift link bolt
2. Gearshift select lever
3. Gearshift link bushing
4. Gearshift lever spring
5. Gearshift link collar
6. Bolt
7. Gearshift lever retainer

Disassembly steps (Continued)

8. Gearshift lever
9. Gearshift link bushing
10. Gearshift lever bracket distance piece
11. Gearshift link bushing
12. Gearshift lever bracket

TRANSFER ASSEMBLY

REMOVAL AND INSTALLATION

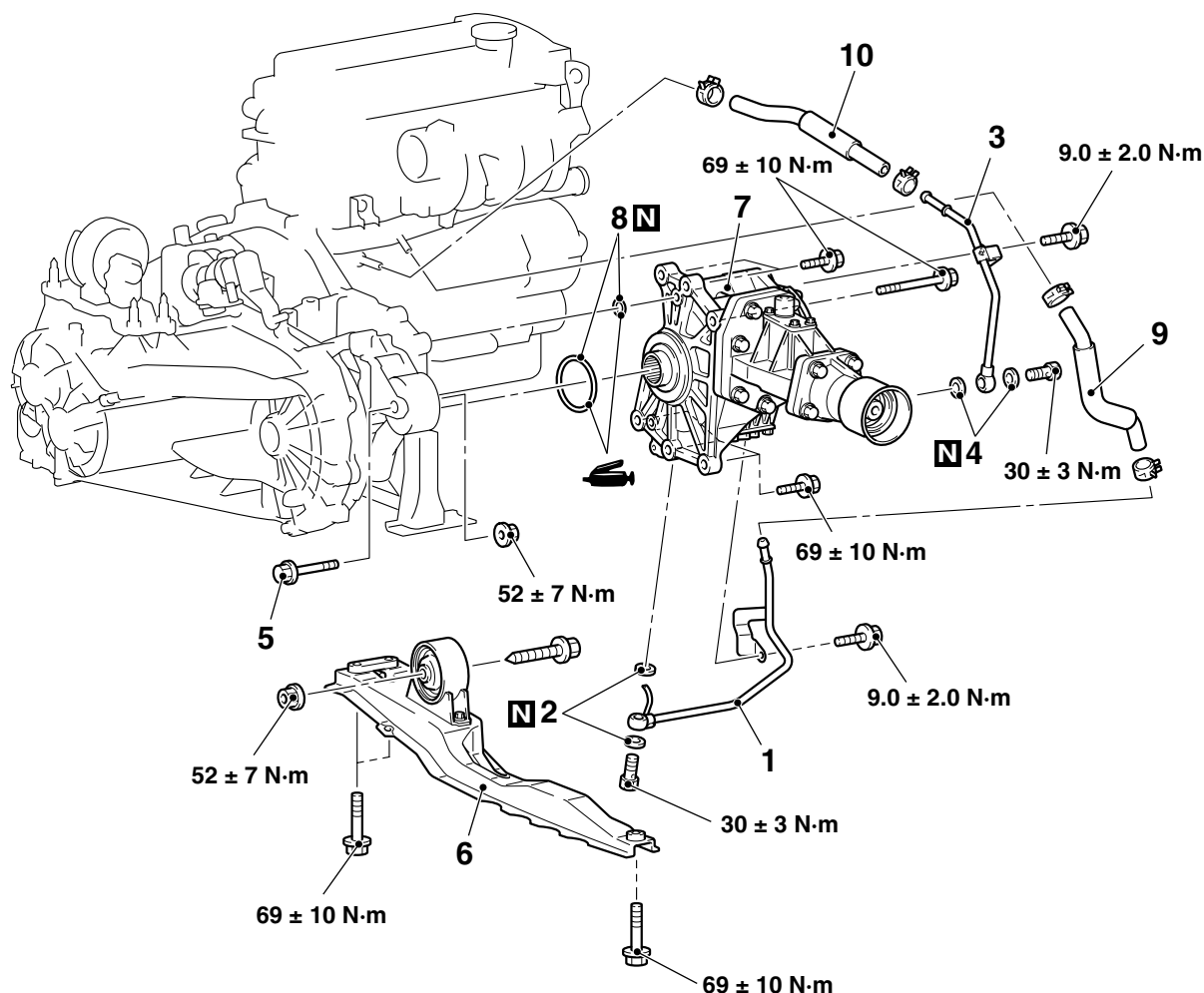
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 **CAUTION**

*: Indicates parts which should be temporarily tightened, and then fully tightened after installing the engine into the vehicle.

Pre-removal and Post-installation Operation

- Front Under Cover Removal and Installation (Refer to GROUP 51, Front Bumper [P.51-3](#)).
- Side Under Cover Removal and Installation (Refer to GROUP 51, Front Bumper [P.51-3](#)).
- Engine Coolant Draining and Supplying (Refer to GROUP 14, On-vehicle Service [P.14-15](#)).
- Transfer Oil Draining and Supplying (Refer to [P.22A-4](#)).
- Drive Shaft, Output Shaft Removal and Installation (Refer to GROUP 26 [P.26-14](#)).
- Front Exhaust Pipe Removal and Installation (Refer to GROUP 15, Exhaust Pipe and Main Muffler [P.15-8](#)).
- Propeller Shaft Removal and Installation (Refer to GROUP 25 [P.25-3](#)).



AC210286 AB

Removal steps

1. Water feed tube assembly
2. Gasket
3. Water return tube assembly
4. Gasket
5. Rear roll stopper connection bolt

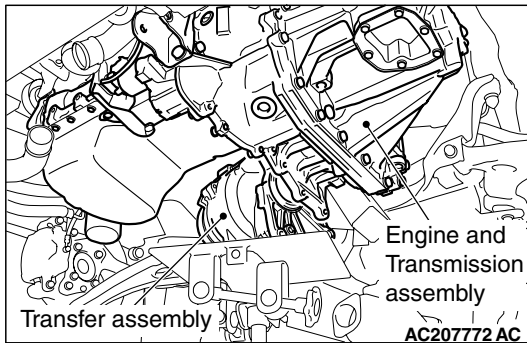
<<A>>

Removal steps (Continued)

6. Centre member assembly
7. Transfer assembly
8. O-ring
9. Water feed hose
10. Water return hose

REMOVAL SERVICE POINTS

<<A>> TRANSFER ASSEMBLY REMOVAL



With the engine mount and transmission assembly towards the front of the vehicle, and remove the transfer assembly from between the engine block and crossmember.

TRANSMISSION ASSEMBLY

REMOVAL AND INSTALLATION

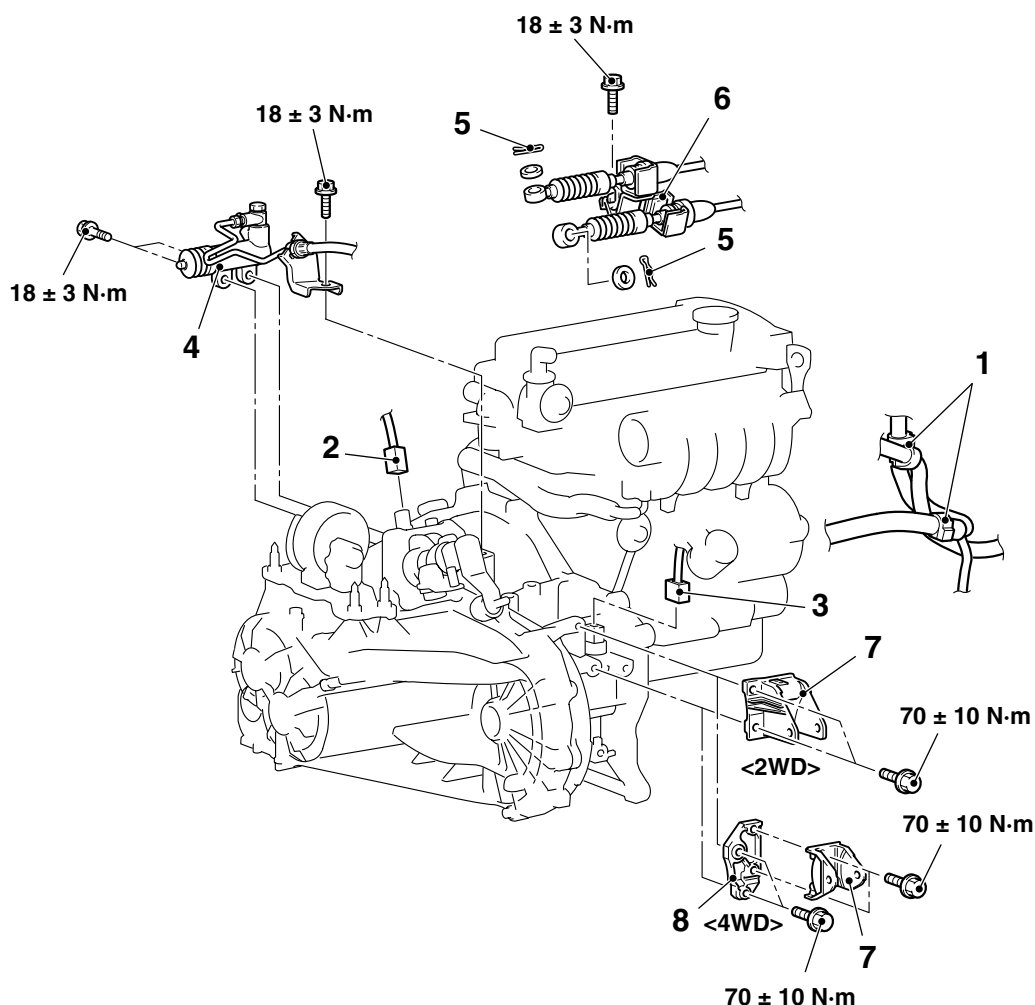
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 **CAUTION**

*: Indicates parts which should be temporarily tightened, and then fully tightened after installing the engine into the vehicle.

Pre-removal and Post-installation Operation

- Air Cleaner assembly, Air Cleaner Bracket Removal and Installation (Refer to GROUP 15, Air Cleaner [P.15-3](#)).
- Battery and Battery Tray Removal and Installation.
- Front Under Cover Removal and Installation (Refer to GROUP 51, Front Bumper [P.51-3](#)).
- Side Under Cover Removal and Installation (Refer to GROUP 51, Front Bumper [P.51-3](#)).
- Transfer Oil Draining and Supplying <4WD> (Refer to [P.22A-4](#)).
- Drive Shaft Removal and Installation (Refer to GROUP 26 [P.26-14](#)).
- Output Shaft Removal and Installation <4WD> (Refer to GROUP 26 [P.26-14](#)).
- Front Exhaust Pipe Removal and Installation (Refer to GROUP 15, Exhaust Pipe and Main Muffler [P.15-8](#)).
- Propeller Shaft Removal and Installation <4WD> (Refer to GROUP 25 [P.25-3](#)).



AC210287AB

Removal steps

1. Transmission harness clamp
2. Back-up lamp switch connector
3. Vehicle speed sensor connector
4. Clutch release cylinder and clutch oil pipe
5. Snap pin

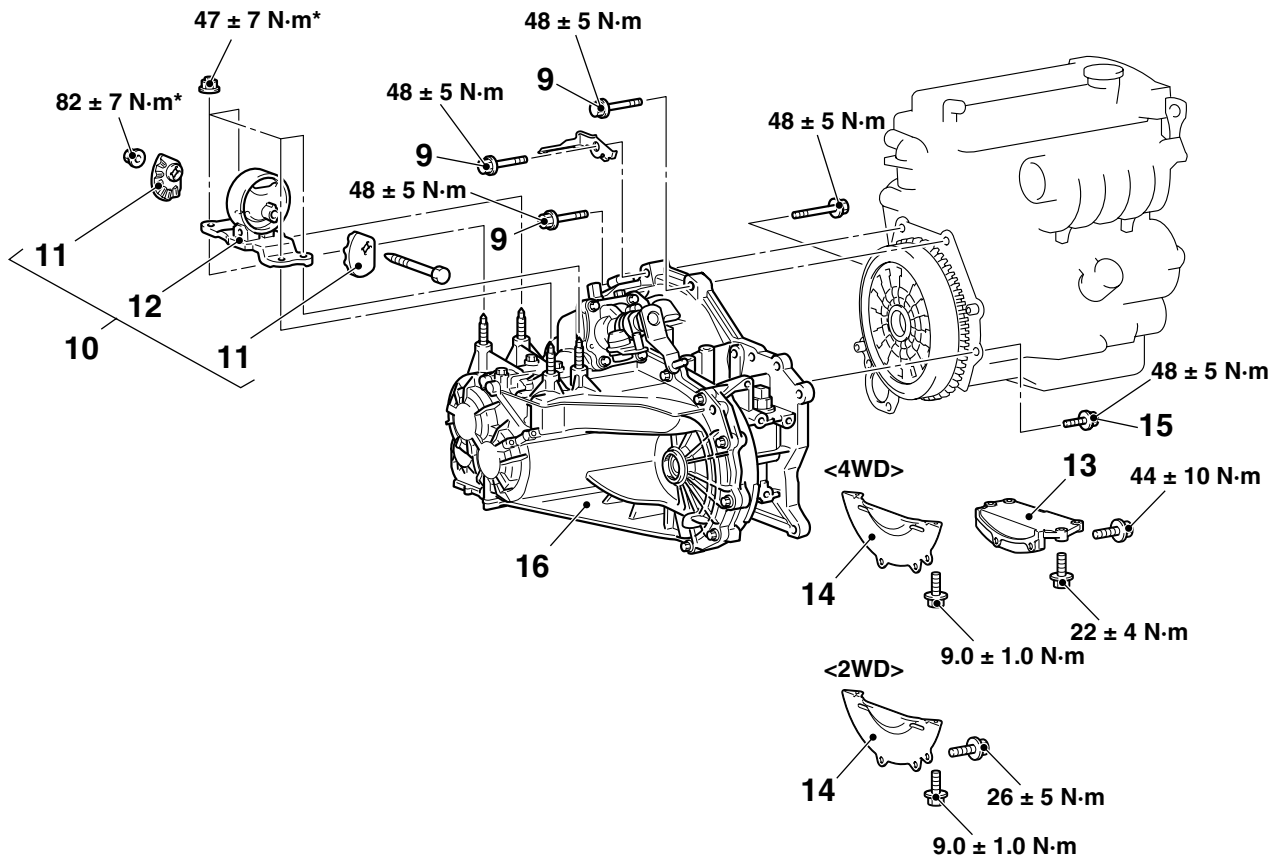
Removal steps (Continued)

6. Cable bracket and cable assembly <Transmission side>
 - Transfer assembly (Refer to [P.22A-8](#)).
7. Rear roll mount bracket

Removal steps (Continued)

8. Rear roll mount adapter bracket
<4WD>
- Engine and transmission
assembly supporting

<<A>>



Removal steps

9. Transmission assembly upper part
coupling bolts
- Starter coupling bolts (Refer to
GROUP 16 P.16-18.)
10. Transmission mount assembly
11. Transmission mount stopper
12. Transmission mount bracket

<<A>>

>>B<<

<>

<<C>>

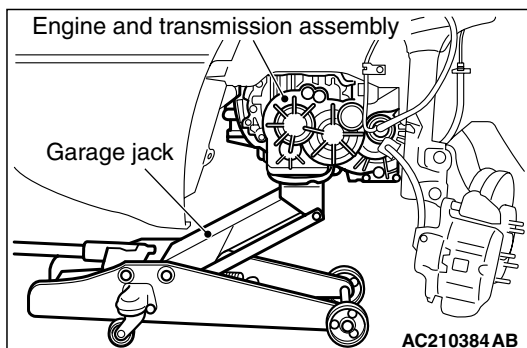
>>A<<

Removal steps (Continued)

- Engine assembly supporting
- Clutch release bearing connection
- 13. Transmission stay <4WD>
- 14. Bell housing cover
- 15. Transmission assembly lower part
coupling bolts
- 16. Transmission assembly

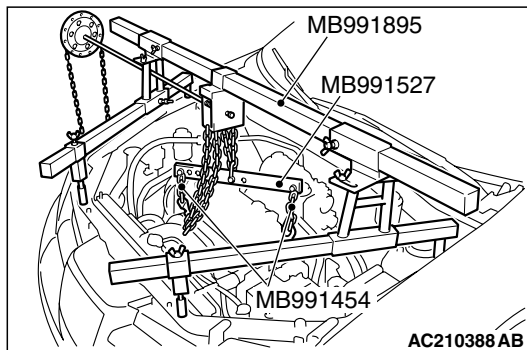
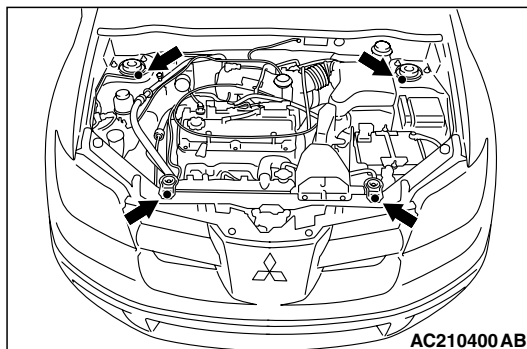
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REMOVAL SERVICE POINTS

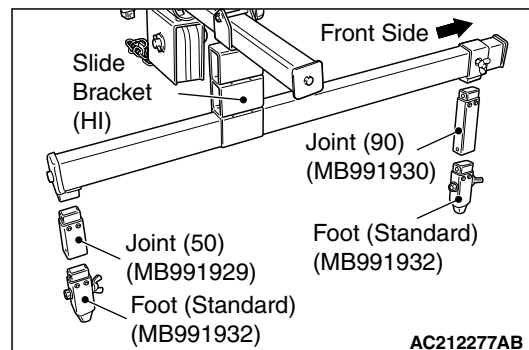
<<A>> ENGINE AND TRANSMISSION ASSEMBLY
SUPPORTING/TRANSMISSION MOUNT
ASSEMBLY REMOVAL

While supporting the engine and transmission assembly with a garage jack, remove the transmission mount assembly.

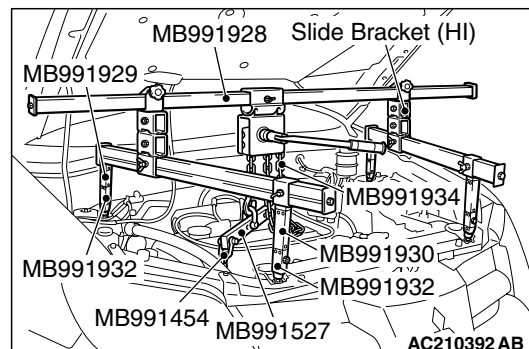
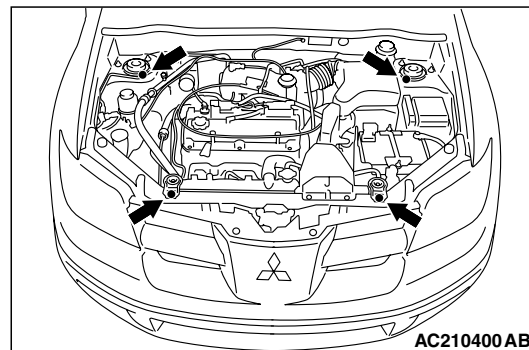
<> ENGINE ASSEMBLY SUPPORT



1. <Engine hanger (special tool MB991895) is used>
 - (1) Set special tool MB991895 to the strut mounting nuts and the radiator support upper insulator mounting bolts, which are located in the engine compartment, as shown.
 - (2) Set special tools MB991454 to hold the engine/transmission assembly.



2. <Engine hanger (special tool MB991928) is used>
 - (1) Assemble the engine hanger (special tool MB991928). Set following parts to the base hanger.
 - Slide bracket (HI)
 - Foot (standard) (MB991932)
 - Joint (90) (MB991930)
 - Joint (50) (MB991929)

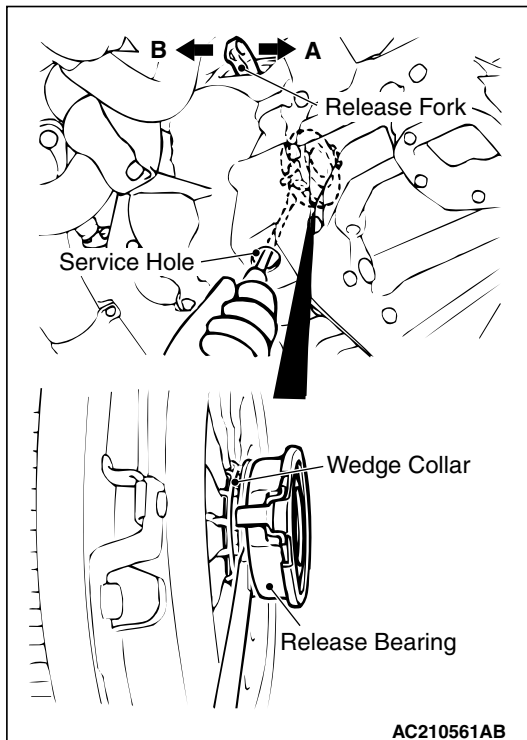


- (2) Set the engine hanger (special tool MB991928) to the strut mounting nuts and the radiator support upper insulator mounting bolts, which are located in the engine compartment, as shown.

NOTE: Adjust the engine hanger balance by sliding the slide bracket (HI).
- (3) Set special tools MB991454 to hold the engine/transmission assembly.

<<C>> CLUTCH RELEASE BEARING SEPARATION

⚠ CAUTION



If it is hard to turn the screwdriver (to pry off the release bearing), remove the screwdriver once and repeat the below procedure after pushing the release fork fully in the direction A two or three times. Forcibly prying can cause the release bearing to be damaged.

1. Remove the cover from the service hole in the clutch housing.
2. While pushing the release fork by hand in the direction A, insert a flap-tip screwdriver between the release bearing and the wedge collar.

⚠ CAUTION

Be sure to push the release fork in the direction A before inserting a screwdriver.

3. Separate the release bearing from the wedge collar by prying with the screwdriver (turning the screwdriver grip 90°).

NOTE: The release fork is forced to move fully in the direction B by the return spring as soon as it is separated from the wedge collar.

INSTALLATION SERVICE POINTS

>>A<< TRANSMISSION STAY INSTALLATION

Install the transmission stay as below.

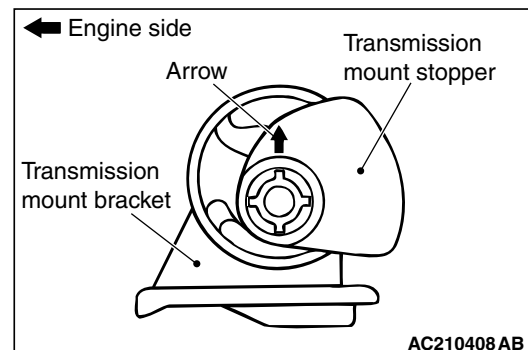
1. Tighten the engine-side bolts to the specified torque.

Tightening torque: 22 ± 4 N·m

2. Tighten the transmission-side bolts to the specified torque.

Tightening torque: 44 ± 10 N·m

>>B<< TRANSMISSION MOUNT STOPPER INSTALLATION



Install the transmission mount stopper so that the arrow points as shown in the illustration.

NOTES