

GROUP 22A

MANUAL

TRANSAXLE

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WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

WARNING

- *Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).*
- *Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.*
- *MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B - Supplemental Restraint System (SRS) before beginning any service or maintenance of any component of the SRS or any SRS-related component.*

NOTE

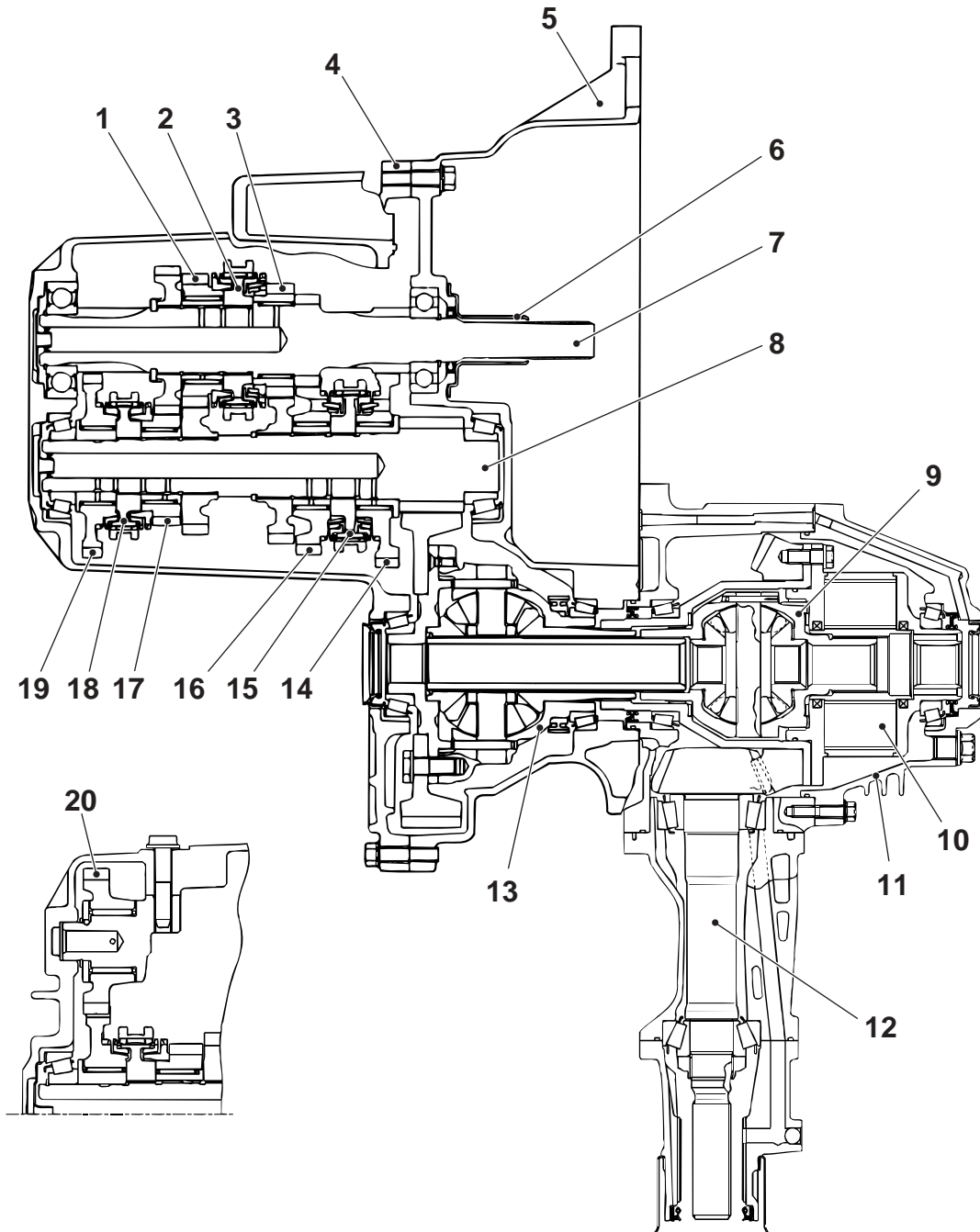
The SRS includes the following components: SRS air bag control unit, SRS warning light, front impact sensors, air bag module, clock spring, and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).

GENERAL DESCRIPTION

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ITEMS		SPECIFICATIONS
Transaxle model		W5M51
Engine model		4G63-DOHC-Charge Air Cooler Turbo
Transaxle type		5-speed forward, 1-speed reverse constant mesh
Transaxle gear ratio	1st	2.928
	2nd	1.950
	3rd	1.407
	4th	1.031
	5th	0.720
	Reverse	3.416
Final reduction ratio (Differential gear ratio)		4.529
Speedometer gear ratio		31/36

SECTIONAL VIEW



- | | | | |
|-----|----------------------------------|-----|--------------------------------------|
| 1. | 4TH SPEED GEAR | 11. | TRANSFER CASE |
| 2. | 3RD - 4TH SPEED SYNCHRONIZER HUB | 12. | HYPOID PINION |
| 3. | 3RD SPEED GEAR | 13. | CENTER DIFFERENTIAL |
| 4. | TRANSAXLE CASE | 14. | 1ST SPEED GEAR |
| 5. | CLUTCH HOUSING | 15. | 1ST - 2ND SPEED SYNCHRONIZER HUB |
| 6. | CLUTCH RELEASE BEARING RETAINER | 16. | 2ND SPEED GEAR |
| 7. | INPUT SHAFT | 17. | 5TH SPEED GEAR |
| 8. | OUTPUT SHAFT | 18. | 5TH - REVERSE SPEED SYNCHRONIZER HUB |
| 9. | FRONT DIFFERENTIAL | 19. | REVERSE SPEED GEAR |
| 10. | VISCOUS COUPLING UNIT (VCU) | 20. | REVERSE IDLER GEAR |

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MANUAL TRANSAXLE DIAGNOSIS

INTRODUCTION

The manual transaxle can exhibit any of the following symptoms: noise or vibration is generated, oil leaks, shifting gears is hard or troublesome, or the transaxle jumps out of gear.

The causes of these symptoms could come from: incorrect mounting, the oil level may be low, or a component of the transaxle may be faulty.

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TROUBLESHOOTING STRATEGY

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a manual transaxle fault.

1. Gather information from the customer.

2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

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SYMPTOM CHART

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SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Noise, vibration	1	P.22A-4
Oil leaks	2	P.22A-5
Hard shifting	3	P.22A-6
Jumps out of gear	4	P.22A-7

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Noise, Vibration

DIAGNOSIS

STEP 1. Check the idle speed.

Q: Does the idle speed meet the standard values?

YES : Go to Step 2.

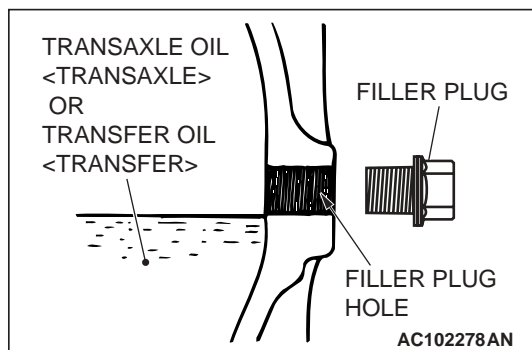
NO : Refer to GROUP 11A [P.11A-13](#), On-vehicle Service – Curb Idle Speed Check.

STEP 2. Check whether the transaxle and transfer assembly and engine mount is loose or damaged.

Q: Are the transaxle and transfer assembly and engine mount loose or damaged?

YES : Tighten or replace the part. Then go to Step 7.

NO : Go to Step 3.



STEP 3. Check that the oil level is up to the lower edge of the filler plug hole.

Q: Is the oil level up to the lower edge of the filler plug hole?

YES : Go to Step 4.

NO :

- Refill gear oil API classification GL-4 SAE 75W-85W or 75W-90. <Transaxle oil>
- Refill hypoid gear oil API classification GL-5 SAE90. <Transfer oil>
- Then go to Step 7.

STEP 4. Check for the specified oil.

Q: Is the specified oil gear oil GL-4 SAE 75W-85W or 75W-90 <Transaxle oil> and the hypoid gear oil API classification GL-5 SAE90 <Transfer oil>?

YES : Go to Step 5.

NO : If in doubt, replace the oil. Refer to [P.22A-9](#). Then go to Step 7.

STEP 5. Remove the transaxle and transfer assembly. Check the end play of the input and output shafts.

Q: Does the end play of the input and output shafts meet the standard value?

YES : Go to Step 6.

NO : Adjust the end play of the input and output shafts. Then go to Step 7.

STEP 6. Disassemble the transaxle and transfer assembly. Check the gears for wear and damage.

Q: Are the gears worn or damaged?

YES : Replace the gears. Go to Step 7.

NO : Go to Step 7.

STEP 7. Retest the systems.

Q: Is the noise or vibration still there?

YES : Return to Step 1.

NO : The procedure is complete.

INSPECTION PROCEDURE 2: Oil Leaks

DIAGNOSIS

STEP 1. Visual check.

Raise the vehicle, and check for oil leaks. If oil leak is difficult to locate, steam clean the transaxle and transfer assembly and drive the vehicle for at 10 min-

utes. Then check the leak again.

Q: Is the oil leak(s) found?

YES : Go to Step 2.

NO : Check for the oil leak(s) around the engine. Then go to Step 4.

STEP 2. Visual check at the clutch housing.

Q: Do oil leaks appear around the joint between the engine and the clutch housing?

- YES :** Remove the transaxle and transfer assembly. Check the input shaft oil seal, and replace if necessary. Then go to Step 4.
NO : Go to Step 3.

STEP 3. Check the oil seal or O-ring for damage.

Q: Is the oil seal or O-ring damaged?

- YES :** Replace the oil seal or the O-ring. Then go to Step 4.
NO : Go to Step 4.

STEP 4. Retest the system.

Q: Is the oil still leaking?

- YES :** Return to Step 1.
NO : The procedure is complete.

INSPECTION PROCEDURE 3: Hard Shifting**DIAGNOSIS****STEP 1. Check the transaxle control**

Q: Are the shift cable and the select cable in good condition?

- YES :** Go to Step 2.
NO : Repair or replace the shift cable and the select cable. Refer to [P.22A-9](#). Then go to Step 7.

STEP 2. Check the transaxle oil.

Q: Is the oil dirty?

- YES :** Replace the transaxle oil. Refer to [P.22A-9](#). Then go to Step 7.
NO : Go to Step 3.

STEP 3. Check the clutch system.

Q: Is the clutch system normal?

- YES :** Go to Step 4.
NO : Repair or replace the clutch system. Refer to [P.22A-9](#). Then go to Step 7.

STEP 4. Remove and disassemble the transaxle. Check the control housing.

Q: Is the control housing in good condition?

- YES :** Go to Step 5.
NO : Repair or replace the control housing. Refer to GROUP 22B, Transaxle [P.22A-9](#). Then go to Step 7.

STEP 5. Check for poor meshing of worn synchronizer ring and gear cone.

Q: Is poor meshing or worn synchronizer ring and gear cone found?

- YES :** Repair or replace the synchronizer ring and gear cone. Then go to Step 7.
NO : Go to Step 6.

STEP 6. Check the synchronizer spring for weakness.

Q: Is the synchronizer spring weak?

- YES :** Replace the synchronizer spring. Then go to Step 7.
NO : Go to Step 7.

STEP 7. Retest the system.

Q: Is the shifting of the gears still hard?

- YES :** Return to Step 1.
NO : The procedure is complete.

INSPECTION PROCEDURE 4: Jumps Out of Gear

DIAGNOSIS

STEP 1. Check the transaxle control

Q: Are the shift cable and the select cable in good condition?

YES : Go to Step 2.

NO : Repair or replace the shift cable and the select cable. Refer to [P.22A-9](#). Then go to Step 6.

STEP 2. Remove and disassemble the transaxle. Check the poppet spring for breakage.

Q: Is the poppet spring broken?

YES : Replace the poppet spring. Refer to GROUP 22B, Transaxle [P.22A-9](#). Then go to Step 6.

NO : Go to Step 3.

STEP 3. Check the control housing.

Q: Is the control housing in good condition?

YES : Go to Step 4.

NO : Repair or replace the control housing. Refer to GROUP 22B, Transaxle [P.22A-9](#). Then go to Step 6.

STEP 4. Check the gear shift forks for wear.

Q: Is the gear shift forks worn?

YES : Replace the gear shift fork. Refer to GROUP 22B, Transaxle [P.22A-9](#). Then go to Step 6.

NO : Go to Step 5.

STEP 5. Check the clearance.

Q: Is the clearance between the synchronizer hub and sleeve excessive?

YES : Replace the synchronizer hub or sleeve. Refer to GROUP 22B, Input Shaft [P.22A-9](#), Output Shaft [P.22A-9](#). Then go to Step 6.

NO : Go to Step 6.

STEP 6. Retest the system.

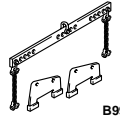
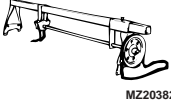
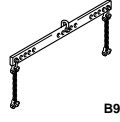
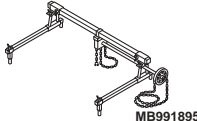
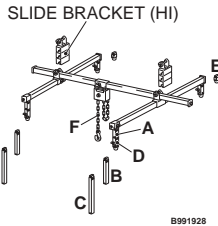
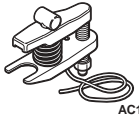
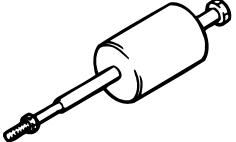
Q: Does the transaxle still jump out of gear?

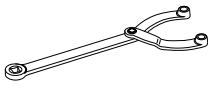
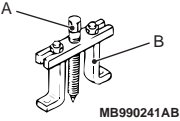

YES : Return to Step 1.

NO : The procedure is complete.

SPECIAL TOOLS

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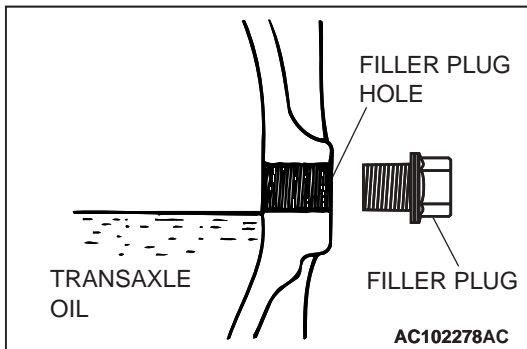
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 B991453	MB991453 Engine hanger assembly	MZ203827-01	When the engine hanger is used: Supporting the engine assembly during removal and installation of the transaxle assembly
 MZ203827	GENERAL SERVICE TOOL MZ203827 Engine lifter	MZ203827-01	<i>NOTE: Special tool MB991454 is a part of engine hanger attachment set MB991453.</i>
 B991454	MB991454 Engine hanger balancer	MZ203827-01	
 MB991895	MB991895 Engine hanger	—	
 SLIDE BRACKET (HI) B991928	MB991928 Engine hanger A: MB991929 Joint (50) ×2 B: MB991930 Joint (90) ×2 C: MB991931 Joint (140) ×2 D: MB991932 Foot (standard) ×4 E: MB991933 Foot (short) ×2 F: MB991934 Chain and hook assembly	—	
 AC106827	MB991897 Ball joint remover	MB991113-01, MB990635-01 or general service tool	Knuckle and tie rod end ball joint breakaway torque check <i>NOTE: Steering linkage puller(MB990635 or MB991113)is also used to disconnect knuckle and tie rod end ball joint.</i>
	MB991721 Slide hammer	—	Removal of the output shaft

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB990767 End yoke holder	MB990767-01	Fixing of the hub
	MB990241 Axle shaft puller A: MB990242 Puller shaft B: MB990244 Puller bar	MB990241-01 or General service tool	Removal of the drive shaft
	MB991354 Puller body	General service tool	

ON-VEHICLE SERVICE

TRANSAXLE OIL LEVEL CHECK

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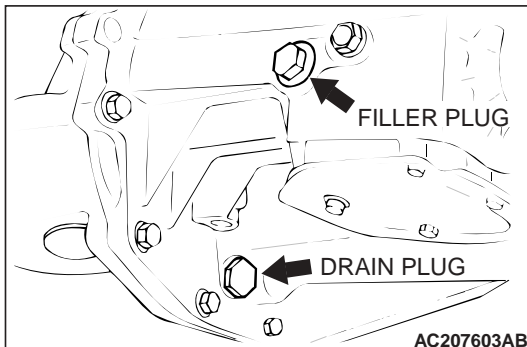


1. Remove the filler plug.
2. Check that the oil level is up to the lower edge of the filler plug hole.
3. Check that the oil is not noticeably dirty.
4. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m (23 ± 2 ft-lb)

TRANSAXLE OIL REPLACEMENT

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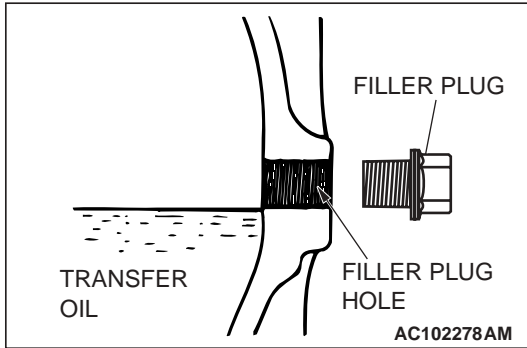


1. Remove the filler plug.
2. Remove the drain plug and drain the oil.
3. Tighten the drain plug to the specified torque.
4. Fill with gear oil API classification GL-4 SAE 75W-85W or 75W-90 until the level comes to the lower portion of filler plug hole.

Quantity: 2.8 dm³ (2.9 quart)

5. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m (23 ± 2 ft-lb)

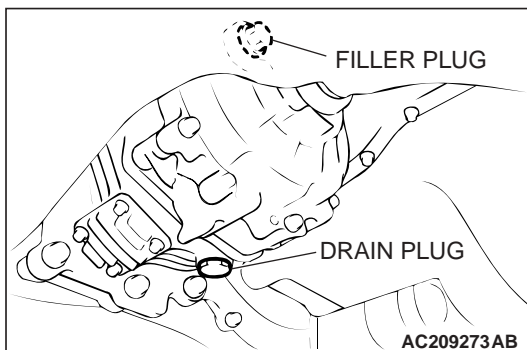


TRANSFER OIL CHECK

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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 (23 ± 2 ft-lb)



TRANSFER OIL REPLACEMENT

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1. Remove the filler plug.
2. Remove the drain plug and drain the oil.
3. Tighten the drain plug to the specified torque.
4. Fill with hypoid gear oil API classification GL-5 SAE90 until the level comes to the lower portion of filler plug hole.

Quantity: 0.55 dm³ (0.58 quart)

5. Tighten the filler plug to the specified torque.

Tightening torque: 32 ± 2 N·m (23 ± 2 ft-lb)

TRANSAXLE CONTROL

REMOVAL AND INSTALLATION

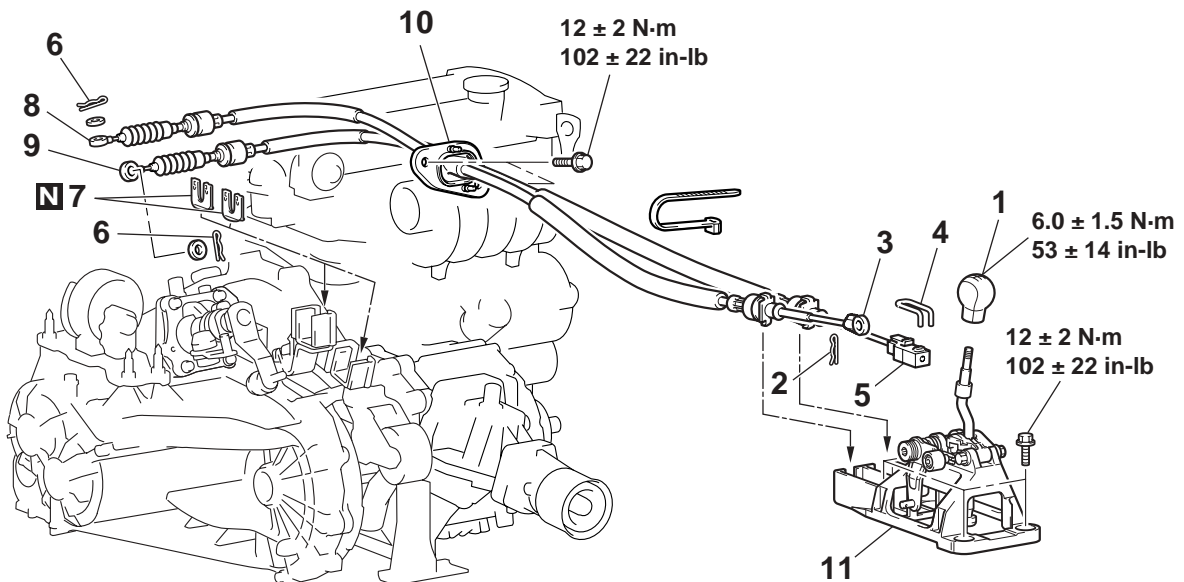
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⚠ WARNING

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.15-7.)
- Air Hose E, Air Hose C, Air Hose D Removal and Installation (Refer to GROUP 15, Charge Air Cooler P.15-8.)
- Battery and Battery Tray Removal and Installation.



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GEARSHIFT CABLE AND SELECT CABLE ASSEMBLY REMOVAL STEPS

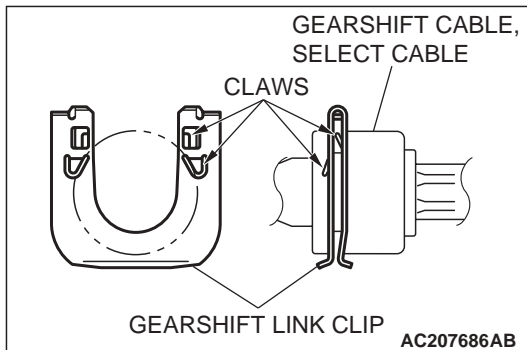
- | | | | | |
|-------|-------|---|--|-------|
| | 1. | GEARSHIFT LEVER KNOB | <<A>> | >>A<< |
| | • | FRONT FLOOR CONSOLE (REFER TO GROUP 52A P.52A-7.) | | |
| | 2. | SNAP PIN | | |
| | 3. | SELECT CABLE CONNECTION (GEARSHIFT LEVER SIDE) | | |
| >>B<< | 4. | GEARSHIFT CABLE CLIP | | |
| | 5. | GEARSHIFT CABLE CONNECTION (GEARSHIFT LEVER SIDE) | | |
| | • | SRS-ECU (REFER TO GROUP 52B P.52B-182). | | |
| | 6. | SNAP PIN | | |
| <<A>> | >>A<< | 7. | GEARSHIFT LINK CLIP | |
| <<A>> | >>A<< | 8. | SELECT CABLE CONNECTION (TRANSAXLE SIDE) | |

GEARSHIFT CABLE AND SELECT CABLE ASSEMBLY REMOVAL STEPS (Continued)

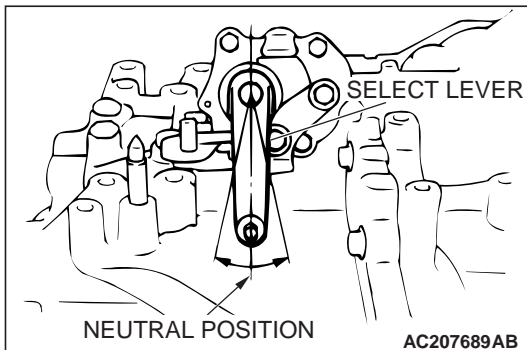
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|-------|-----|---|-------|--|
| | 9. | GEARSHIFT CABLE CONNECTION (TRANSAXLE SIDE) | | |
| | 10. | GEARSHIFT CABLE AND SELECT CABLE ASSEMBLY | >>A<< | |
| | | GEARSHIFT LEVER ASSEMBLY REMOVAL STEPS | | |
| | 1. | GEARSHIFT LEVER KNOB | | |
| | • | FRONT FLOOR CONSOLE (REFER TO GROUP 52A P.52A-7.) | | |
| | 2. | SNAP PIN | | |
| | 3. | SELECT CABLE CONNECTION (GEARSHIFT LEVER SIDE) | | |
| >>B<< | 4. | GEARSHIFT CABLE CLIP | | |
| | 5. | GEARSHIFT CABLE CONNECTION (GEARSHIFT LEVER SIDE) | | |
| | 11. | GEARSHIFT LEVER ASSEMBLY | | |

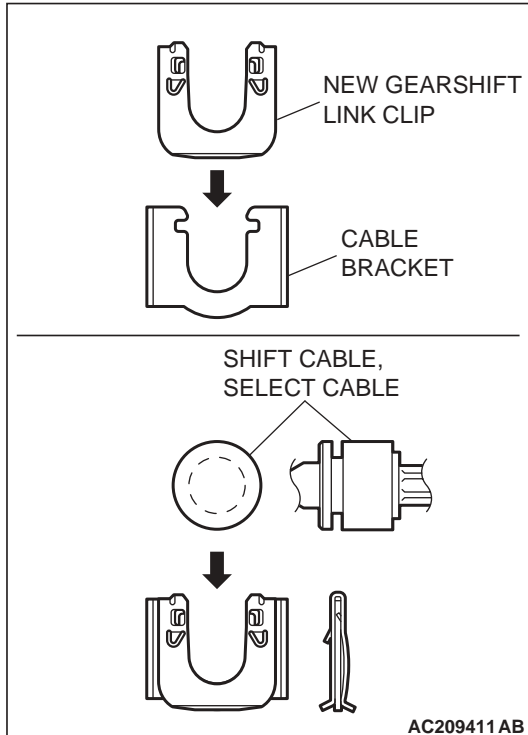
REMOVAL SERVICE POINT**<<A>> GEARSHIFT LINK CLIP/SELECT CABLE CONNECTION (TRANSAXLE SIDE)/GEAR SHIFT CABLE CONNECTION (TRANSAXLE SIDE) INSTALLATION**

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 POINT****>>A<< GEARSHIFT CABLE AND SELECT CABLE ASSEMBLY/GEARSHIFT CABLE CONNECTION (TRANSAXLE SIDE)/SELECT CABLE CONNECTION (TRANSAXLE SIDE)/GEARSHIFT LINK CLIP**

1. Set the transaxle side shift lever and the passenger compartment side shift lever to the neutral position.
2. Install the painted part of the shift cable end (transaxle 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.

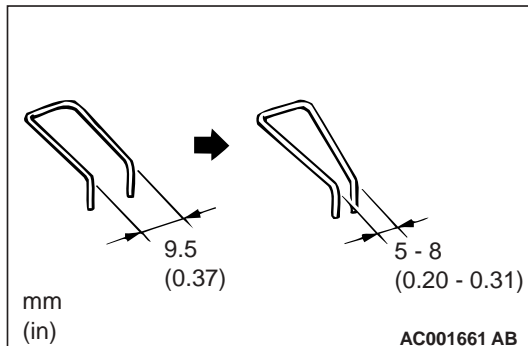
3. After installing the new gearshift link clip to the cable bracket of the transaxle, install the shift cable and select cable to the cable bracket.

NOTE: The clip is reversible.

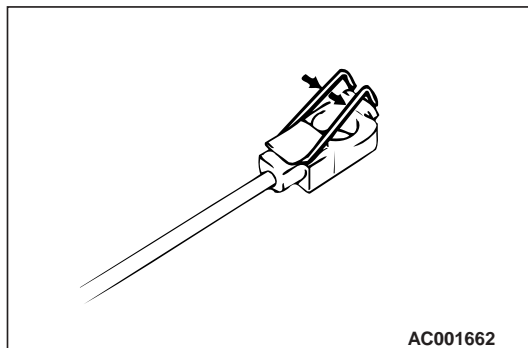
4. Move the shift lever to all positions and check that the operation is smooth.

>>B<< SHIFT CABLE CONNECTION (SHIFT LEVER SIDE) 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 (0.37 inch), squeeze the gearshift cable clip until the relaxed gap reaches 5 to 8 mm (0.20 to 0.31 inch).

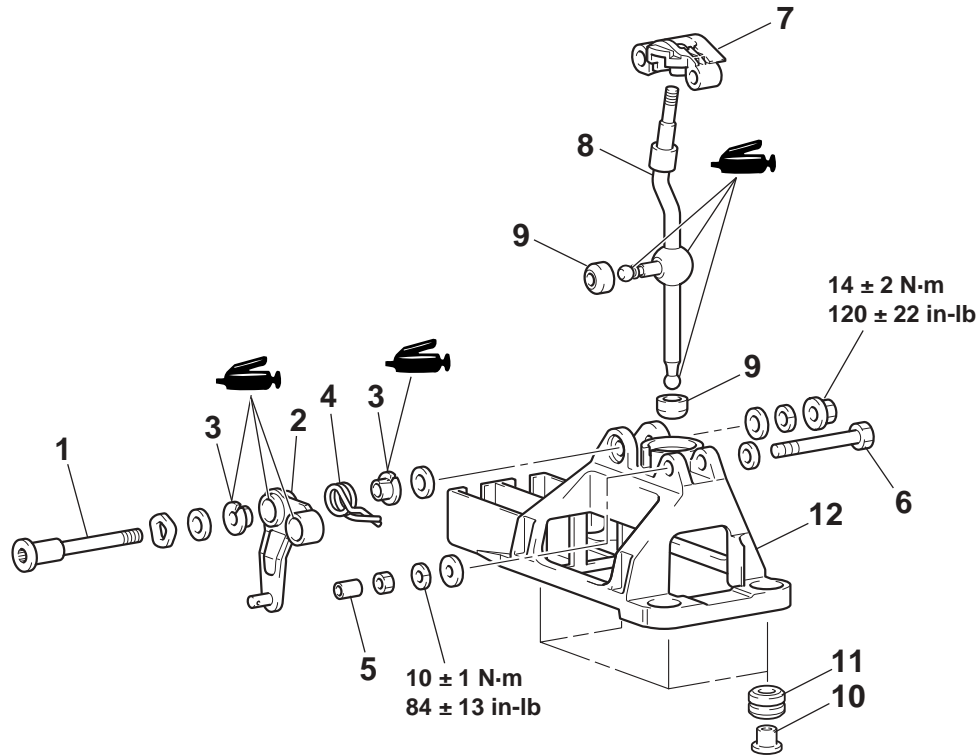


2. Engage the gearshift cable clip with the shift cable hook securely, and push the gearshift cable clip with your thumbs until it clicks in place.
3. Install the shift cable to the shift lever.



SHIFT LEVER ASSEMBLY
DISASSEMBLY AND ASSEMBLY

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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

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

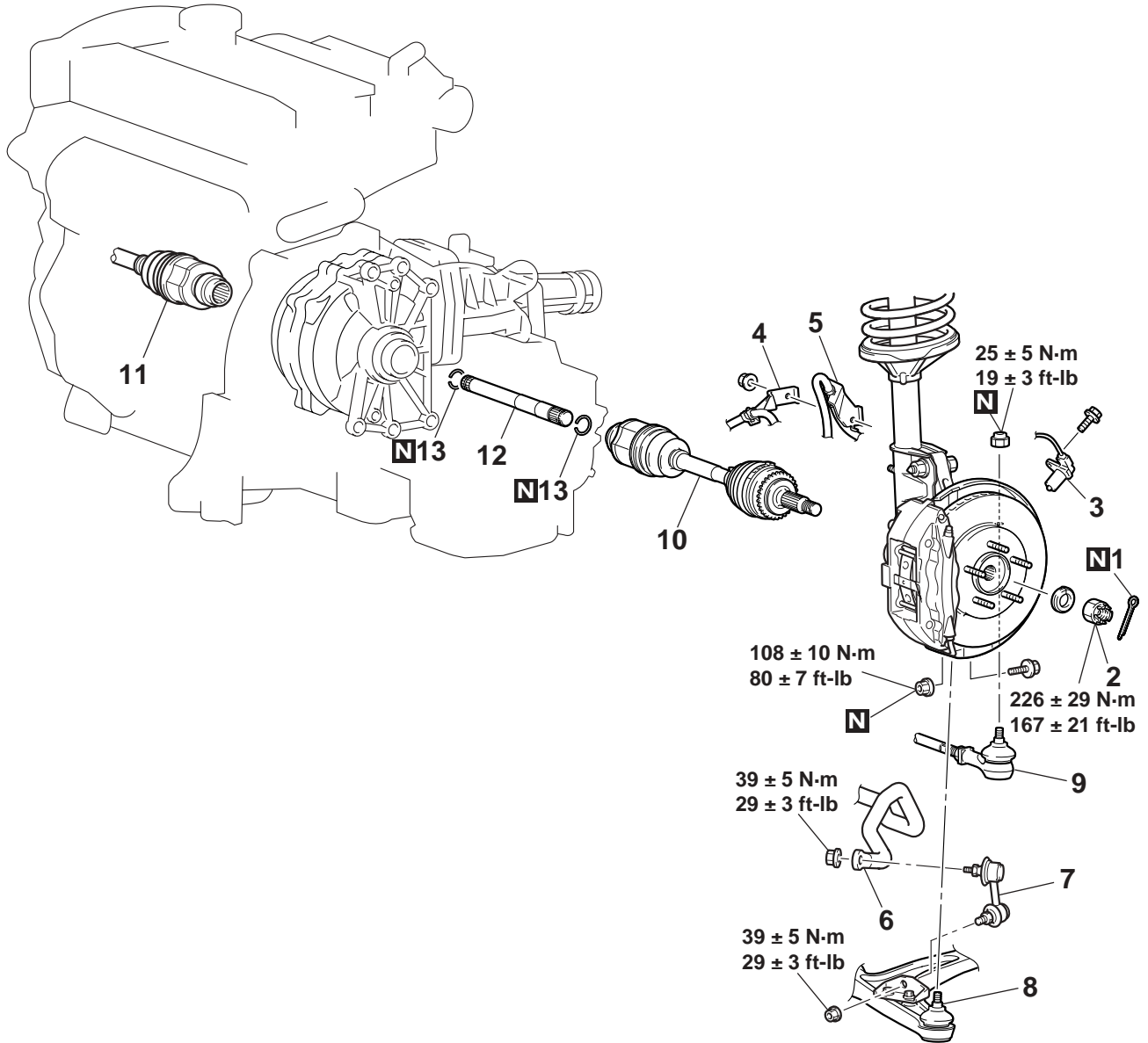
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CAUTION

- If the vehicle is equipped with the Brembo disc brake, during maintenance, take care not to contact the parts or tools to the caliper because the paint of caliper will be scratched. And if there is brake fluid on the caliper, wipe out quickly.
- For vehicles with ABS, do not strike the rotor for wheel speed sensor installed to the BJ outer race of drive shaft against other parts when removing or installing the drive shaft. Otherwise the rotor for wheel speed sensor will be damaged.
- *: Indicates parts which should be temporarily tightened, and then fully tightened after installing the engine into the vehicle.

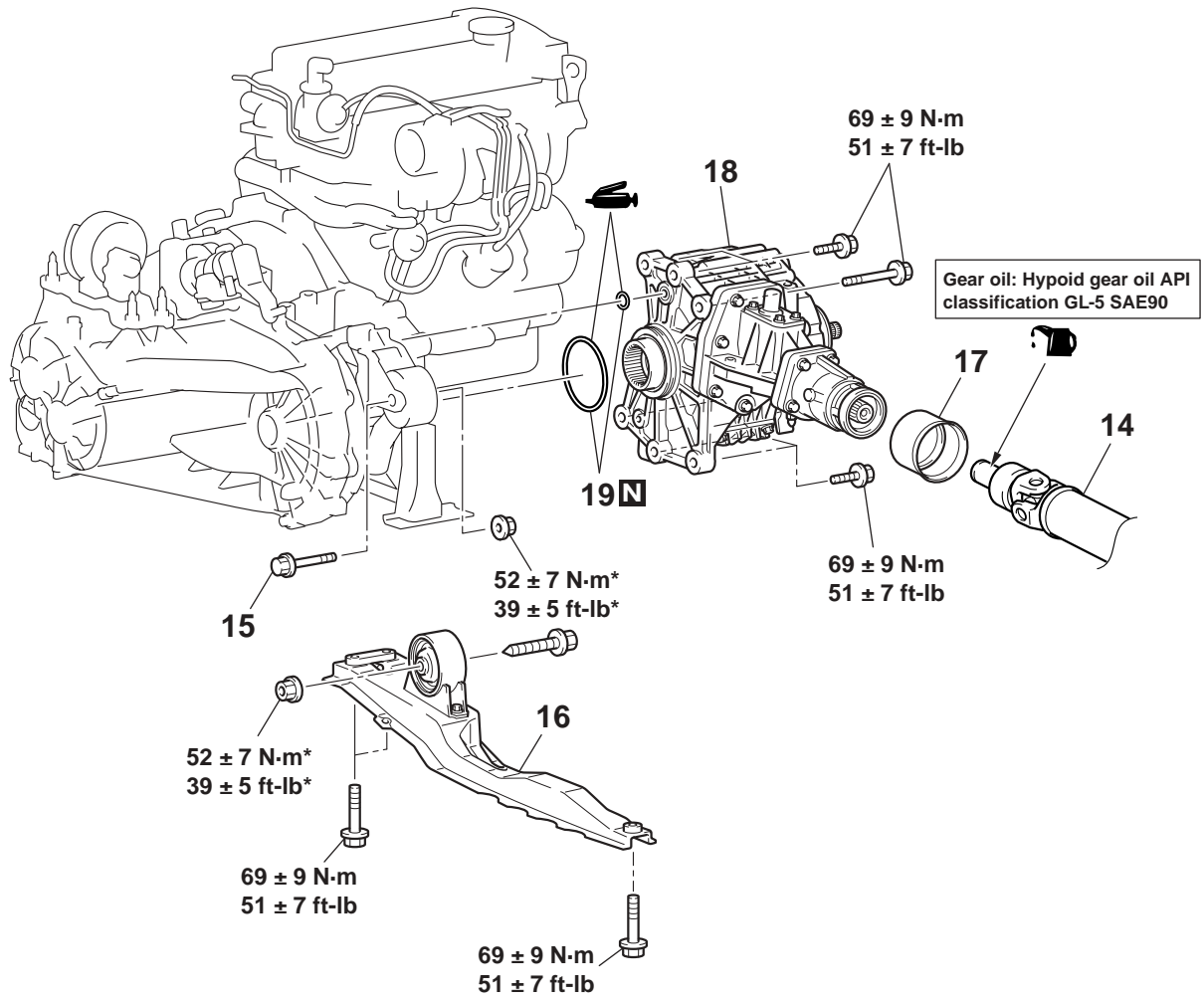
Pre-removal and Post-installation Operation

- Under Cover Removal and Installation (Refer to GROUP 51, Front Bumper [P.51-2.](#))
- Side Under Cover Removal and Installation (Refer to GROUP 51, Front Bumper [P.51-2.](#))
- Transaxle Oil Draining and Supplying (Refer to [P.22A-9.](#))
- Engine Coolant Draining and Supplying (Refer to Group 14, On-vehicle Service [P.14-18.](#))
- Crossmember Bar Removal and Installation (Refer to GROUP 32, Engine Roll Stopper, Centermember [P.32-6.](#))
- Front Exhaust Pipe Removal and Installation (Refer to GROUP 15, Exhaust Pipe and Main Muffler [P.15-23.](#))
- Air Cleaner, Air Intake Hose Removal and Installation (Refer to GROUP 15, Air Cleaner [P.15-7.](#))
- Strut Tower Bar Removal and Installation (Refer to GROUP 42 [P.42-12.](#))
- Air Hose E, Air By-pass Hose and Turbocharger Bypass Valve, Air Pipe C, Air Hose D, Air Pipe B, Air Hose A Removal and Installation (Refer to GROUP 15, Charge Air Cooler [P.15-8.](#))
- Radiator Removal and Installation (Refer to GROUP14 [P.14-22.](#))



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- | | | | |
|-------|---------------------------------------|-------|------------------------------------|
| | REMOVAL STEPS | | REMOVAL STEPS (Continued) |
| <<A>> | 1. SPLIT PIN | <> | 8. LOWER ARM BALL JOINT CONNECTION |
| >>B<< | 2. DRIVE SHAFT NUT | <> | 9. TIE ROD END CONNECTION |
| | 3. FRONT SPEED SENSOR HARNESS BRACKET | <<C>> | 10. DRIVESHAFT <LH> CONNECTION |
| | 4. FRONT SPEED SENSOR HARNESS BRACKET | <<C>> | 11. DRIVESHAFT <RH> CONNECTION |
| | 5. BRAKE HOSE BRACKET | <<D>> | >>A<< |
| | 6. STABILIZER BAR CONNECTION | | 12. OUTPUT SHAFT |
| | 7. STABILIZER LINK | | 13. CIRCLIP |



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- 14. FRONT PROPELLER SHAFT
- 15. REAR ROLL STOPPER CONNECTION BOLT
- 16. CENTERMEMBER ASSEMBLY

<<E>>

- 17. DUST SEAL GUARD
- 18. TRANSFER ASSEMBLY
- 19. O-RING

Required Special Tools:

- MB990767: End Yoke Holder
- MB991897: Ball Joint Remover
- MB990241: Axle Shaft Puller
- MB991354: Puller Body
- MB991721: Slide Hammer

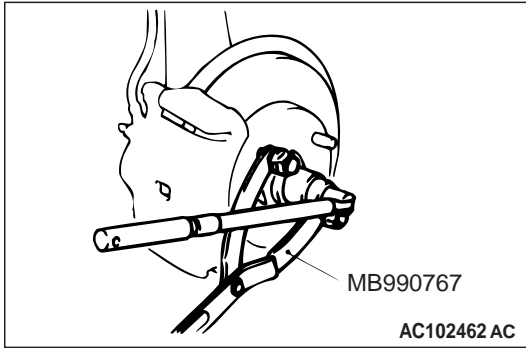
REMOVAL SERVICE POINTS

<<A>> DRIVE SHAFT NUT REMOVAL

⚠ CAUTION

Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage when the drive shaft nut is loosened.

Use special tool MB990767 to fix the hub and remove the drive shaft nut.

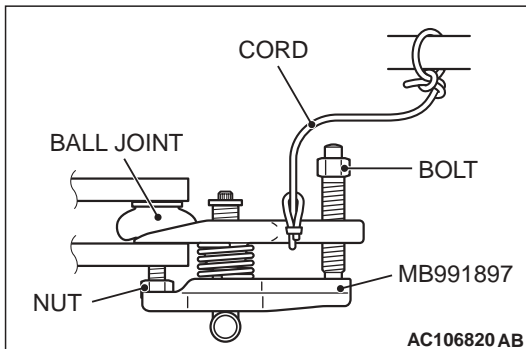


<> LOWER ARM BALL JOINT/TIE ROD END DISCONNECTION

⚠ CAUTION

- Do not remove the nut from ball joint. Loosen it and use special tool MB991897 to avoid possible damage to ball joint threads.
- Hang special tool MB991897 with cord to prevent it from falling.

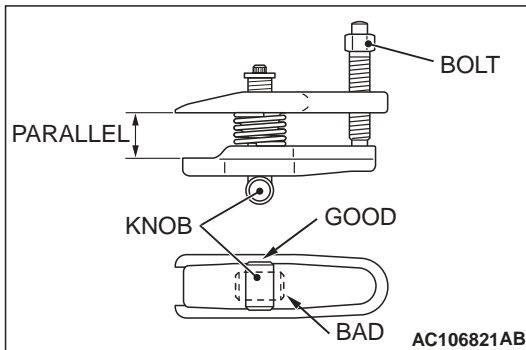
1. Install the special tool MB991897 as shown in the figure.



2. Turn the bolt and knob as necessary to make the jaws of special tool MB991897 parallel, tighten the bolt by hand and confirm that the jaws are still parallel.

NOTE: When adjusting the jaws in parallel, make sure the knob is in the position shown in the figure.

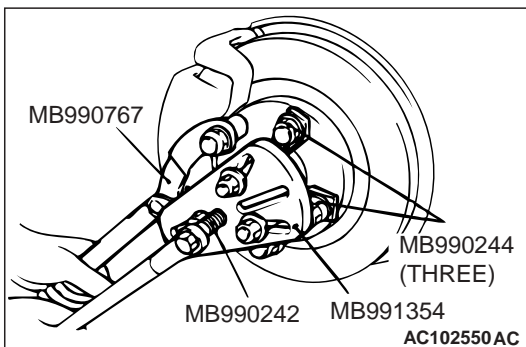
3. Tighten the bolt with a wrench to disconnect the tie rod end.

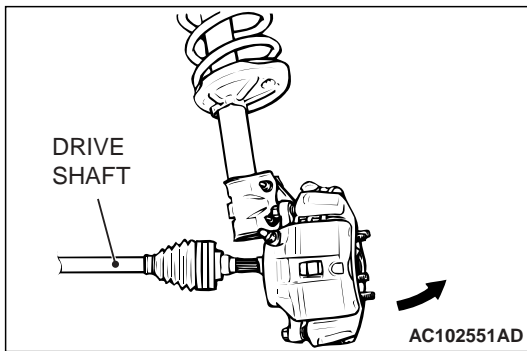


<<C>> DRIVE SHAFT <LH>/DRIVE SHAFT <RH> DISCONNECTION

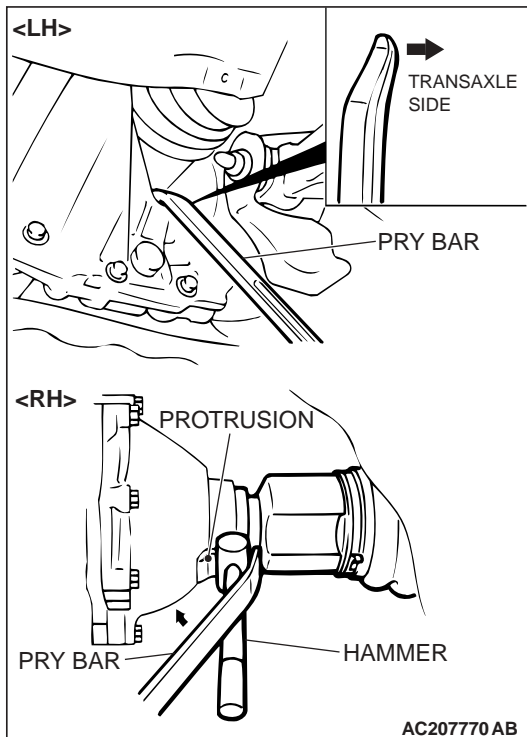
1. <Removal of the disc brake side>

- (1) Use special tools MB990241 (MB990242 and MB990244), MB991354 and MB990767 to push out the drive shaft or the drive shaft and inner shaft assembly from the hub.





- (2) Remove the drive shaft from the hub by pulling the bottom of the brake disc towards you.

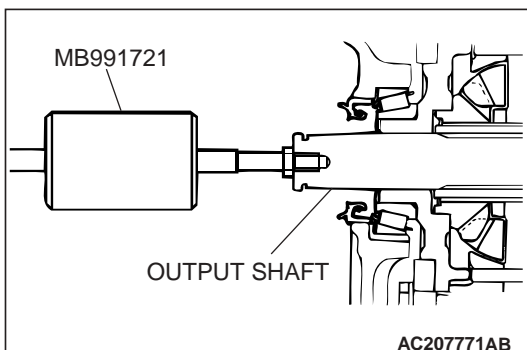


2. <Removal of the transaxle side>

CAUTION

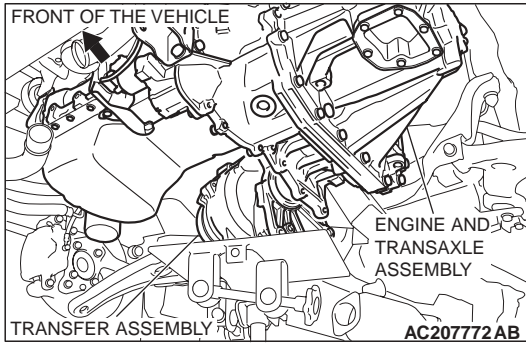
As the TJ may damage when the driveshaft is pulled out from the BJ side, be sure to use the lever.

- (1) As shown in the figure, pull out the transfer shaft <LH> from the transaxle using the pry bar. As shown in the illustration, press a hammer, etc. against the driveshaft <RH>, and pull out the driveshaft from the transfer assembly using the pry shaft.
- (2) Cover with a cloth to prevent foreign particles from entering the transfer.



<<D>> OUTPUT SHAFT REMOVAL

1. Using the special tool (MB991721), remove the output shaft.
2. Cover with a cloth to prevent foreign particles from entering the transaxle case.

**<<E>> TRANSFER ASSEMBLY REMOVAL**

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

INSTALLATION SERVICE POINTS**>>A<< OUTPUT SHAFT INSTALLATION****⚠ CAUTION**

When installing the output shaft, the drive shaft or the drive shaft and inner shaft assembly, be careful that the spline part of the output shaft, the drive shaft or the drive shaft and inner shaft assembly do not damage the oil seal.

>>B<< DRIVE SHAFT NUT INSTALLATION

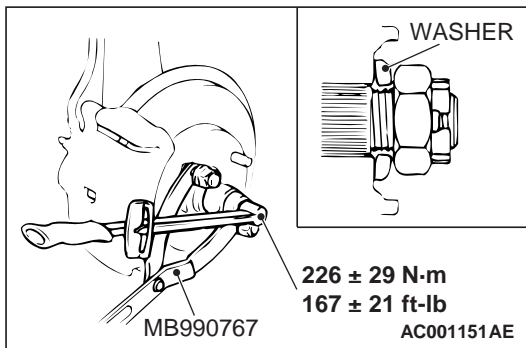
1. Be sure to install the drive shaft washer in the specified direction.

⚠ CAUTION

Before securely tightening the drive shaft nuts, make sure there is no load on the wheel bearings. Otherwise the wheel bearing will be damaged.

2. Using special tool MB990767, tighten the drive shaft nut to the specified torque.

Tightening torque: 226 ± 29 N·m (167 ± 21 ft-lb)



TRANSAXLE ASSEMBLY

REMOVAL AND INSTALLATION

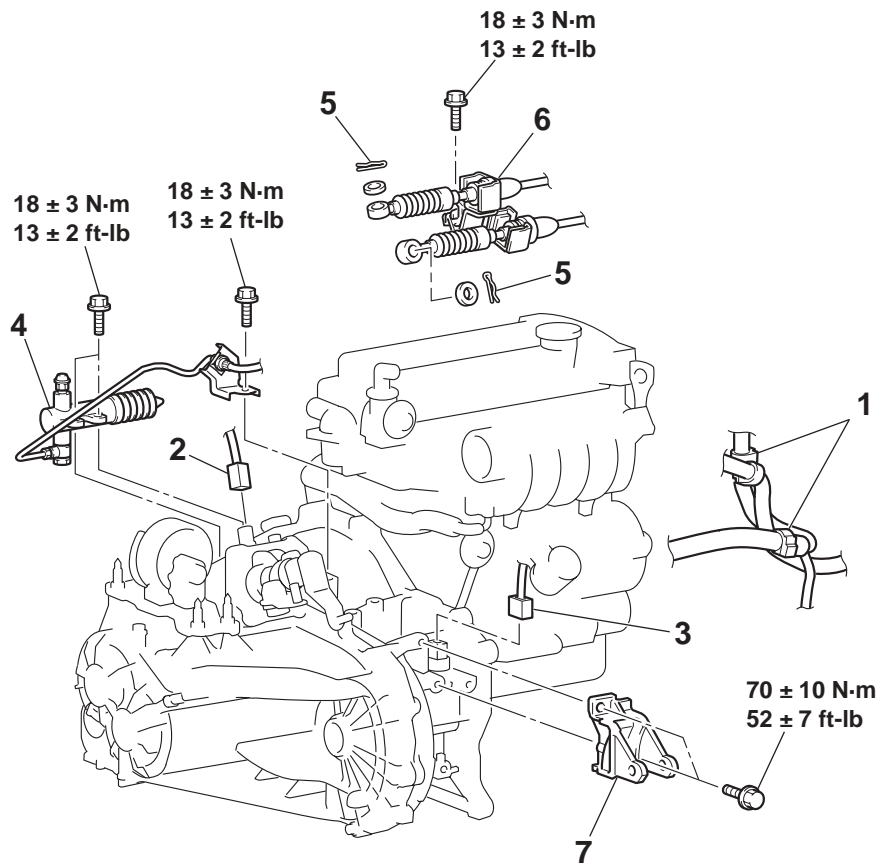
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CAUTION

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

Pre-removal and Post-installation Operation

- Transfer Assembly Removal and Installation (Refer to P.22A-15.)
- Starter Motor Removal and Installation (Refer to GROUP 16 P.16-24.)
- Air Cleaner Bracket Removal and Installation (Refer to GROUP 15, Air Cleaner P.15-7.)
- Rear Roll Rod Assembly and Rear Roll Rod Bracket Removal and Installation (Refer to GROUP 32, Engine Roll Stopper and Center member P.32-6).



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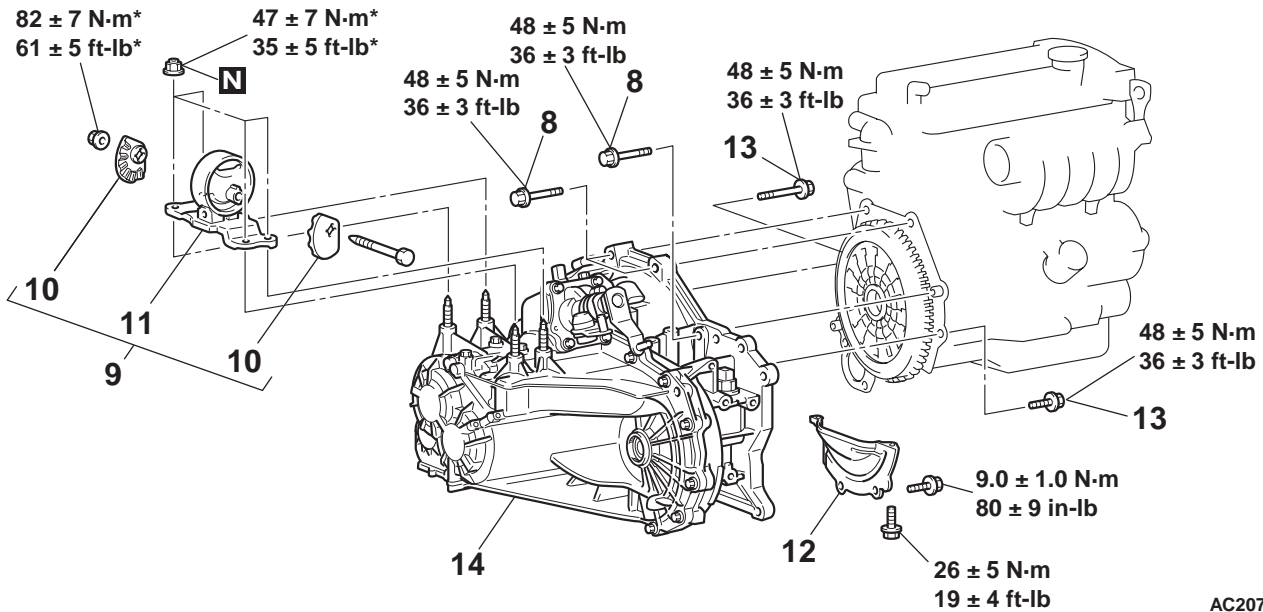
REMOVAL STEPS

1. TRANSAXLE HARNESS CLAMP
2. BACK-UP LAMP SWITCH CONNECTOR
3. VEHICLE SPEED SENSOR CONNECTOR
4. CLUTCH RELEASE CYLINDER AND CLUTCH OIL PIPE

<<A>>

REMOVAL STEPS (Continued)

5. SNAP PIN
6. CABLE BRACKET AND CABLE ASSEMBLY <TRANSAXLE SIDE>
7. REAR ROLL MOUNT BRACKET
 - ENGINE AND TRANSAXLE ASSEMBLY SUPPORTING



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REMOVAL STEPS

- <<A>> 8. TRANSAXLE ASSEMBLY UPPER PART COUPLING BOLTS <<C>>
- 9. TRANSAXLE MOUNT ASSEMBLY
- >>A<< 10. TRANSAXLE MOUNT STOPPER
- <> 11. TRANSAXLE MOUNT BRACKET
 - ENGINE ASSEMBLY SUPPORTING

REMOVAL STEPS (Continued)

- CLUTCH RELEASE BEARING CONNECTION
- 12. BELL HOUSING COVER
- 13. TRANSAXLE ASSEMBLY LOWER PART COUPLING BOLTS
- 14. TRANSAXLE ASSEMBLY

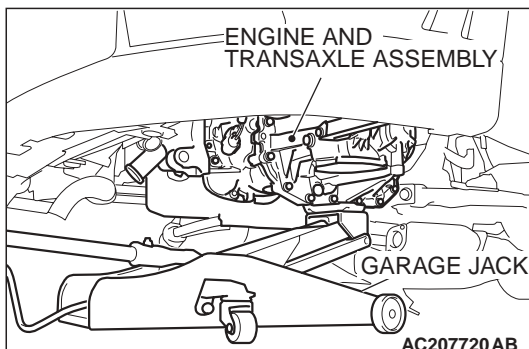
Required Special Tools:

- MB991453: Engine Hanger Assembly
- MB991454: Engine Hanger Balancer
- MZ203827: Engine Lifter
- MB991895: Engine Hanger
- MB991928: Engine Hanger

REMOVAL SERVICE POINTS

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

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

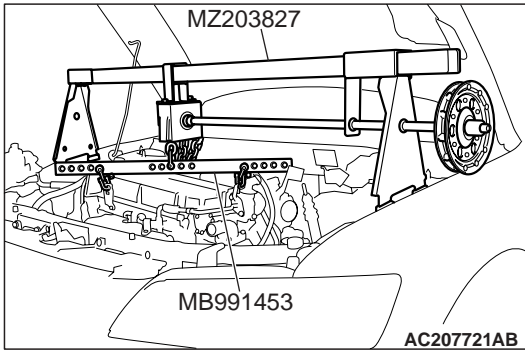


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<> ENGINE ASSEMBLY SUPPORT

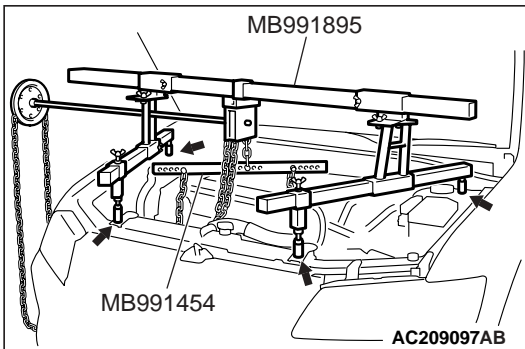
1. <Engine lifter (special tool MZ203827) is used>

- (1) Set the special tools MB991453 and MZ203827 to the vehicle to support the engine assembly.
- (2) Set special tools MB991453 to hold the engine/transaxle assembly.



2. <Engine hanger (special tool MB991895) is used>

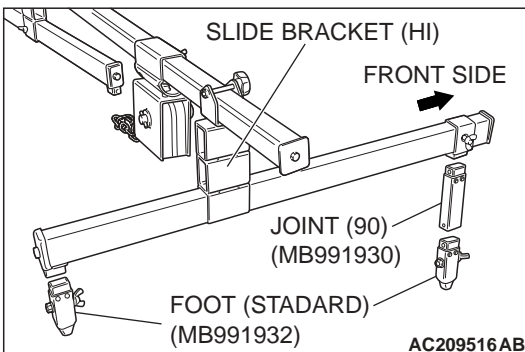
- (1) Set special tool MB991895 to the strut mounting nuts and the radiator support upper insulator mounting bolts, which are located in the engine compartment, as shown.
- (2) Set special tools MB991454 to hold the engine/transaxle assembly.



3. <Engine hanger (special tool MB991928) is used>

(1) Assemble the engine hanger (special tool MB991928).
Set following parts to the base hanger.

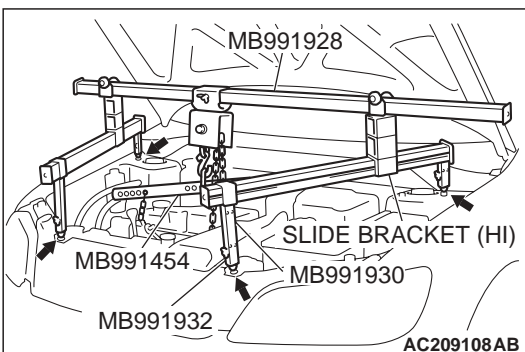
- Slide bracket (HI)
- Foot (standard) (MB991932)
- Joint (90) (MB991930)



(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/transaxle 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 above procedure after pushing the release fork fully in the direction A two to three times. Forcibly prying can cause the release bearing to be damaged.

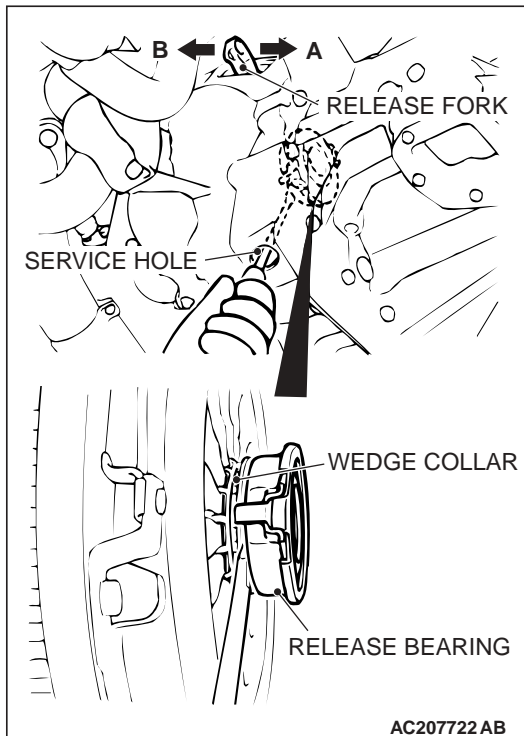
1. Remove the cover from the service hole in the clutch housing.
2. While pushing the release fork by hand in the direction A, insert a flap-tip screwdriver between the release bearing and the wedge collar.

⚠ 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°).

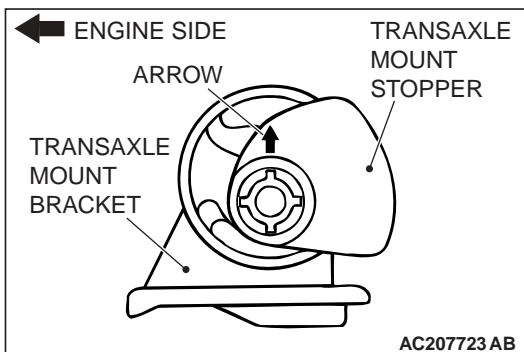
NOTE: The release fork is forced to move fully in the direction B by the return spring as soon as it is separated from the wedge collar.



INSTALLATION SERVICE POINTS

>>A<< TRANSAXLE MOUNT STOPPER INSTALLATION

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



SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

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ITEM	SPECIFICATION
Transaxle control	
Gearshift cable and select cable assembly attaching bolt	12 ± 2 N·m (102 ± 22 in-lb)
Gearshift lever base bracket attaching bolt	12 ± 2 N·m (102 ± 22 in-lb)
Shift lever assembly	
Gearshift select lever retainer nut	10 ± 1 N·m (84 ± 13 in-lb)
Gearshift lever retainer nut	14 ± 2 N·m (120 ± 22 in-lb)
Transfer assembly	
Centermember attaching bolt	69 ± 9 N·m (51 ± 7 ft-lb)
Crossmember bar attaching bolt	49 ± 10 N·m (37 ± 7 ft-lb)
Driveshaft connecting nut	226 ± 29 N·m (167 ± 21 ft-lb)
Front roll stopper bracket retainer nut	52 ± 7 N·m (39 ± 5 ft-lb)
Lower arm connecting nut	108 ± 10 N·m (80 ± 7 ft-lb)
Rear roll stopper bracket retainer nut	52 ± 7 N·m (39 ± 5 ft-lb)
Stabilizer link connecting nut	39 ± 5 N·m (29 ± 3 ft-lb)
Tie rod end connecting nut	25 ± 5 N·m (19 ± 3 ft-lb)
Transfer assembly part coupling bolt	69 ± 9 N·m (51 ± 7 ft-lb)
Transfer oil drain plug	32 ± 2 N·m (23 ± 2 ft-lb)
Transfer oil filler plug	32 ± 2 N·m (23 ± 2 ft-lb)
Transaxle assembly	
Bell housing cover attaching bolt (transaxle side)	9.0 ± 1.0 N·m (80 ± 9 in-lb)
Bell housing cover attaching bolt (engine side)	26 ± 5 N·m (19 ± 4 ft-lb)
Clutch release cylinder and clutch oil pipe attaching bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Rear roll mount bracket attaching bolt	70 ± 10 N·m (52 ± 7 ft-lb)
Shift cable and select cable assembly attaching bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Transaxle assembly lower part coupling bolt	48 ± 5 N·m (36 ± 3 ft-lb)
Transaxle assembly upper part coupling bolt	48 ± 5 N·m (36 ± 3 ft-lb)
Transaxle mount bracket attaching nut	47 ± 7 N·m (35 ± 5 ft-lb)
Transaxle mount stopper attaching nut	82 ± 7 N·m (61 ± 5 ft-lb)
Transaxle oil drain plug	32 ± 2 N·m (23 ± 2 ft-lb)
Transaxle oil filler plug	32 ± 2 N·m (23 ± 2 ft-lb)

LUBRICANT

M1221000400140

ITEM	SPECIFIED LUBRICANTS	QUANTITY
Transaxle oil dm ³ (qt)	Gear oil API classification GL-4 SAE 75W-85W or 75W-90	2.8 (2.9)
Transfer oil dm ³ (qt)	Hypoid gear oil API classification GL-5 SAE90	0.55 (0.58)

NOTES