

GROUP 22A

MANUAL  
TRANSAXLE

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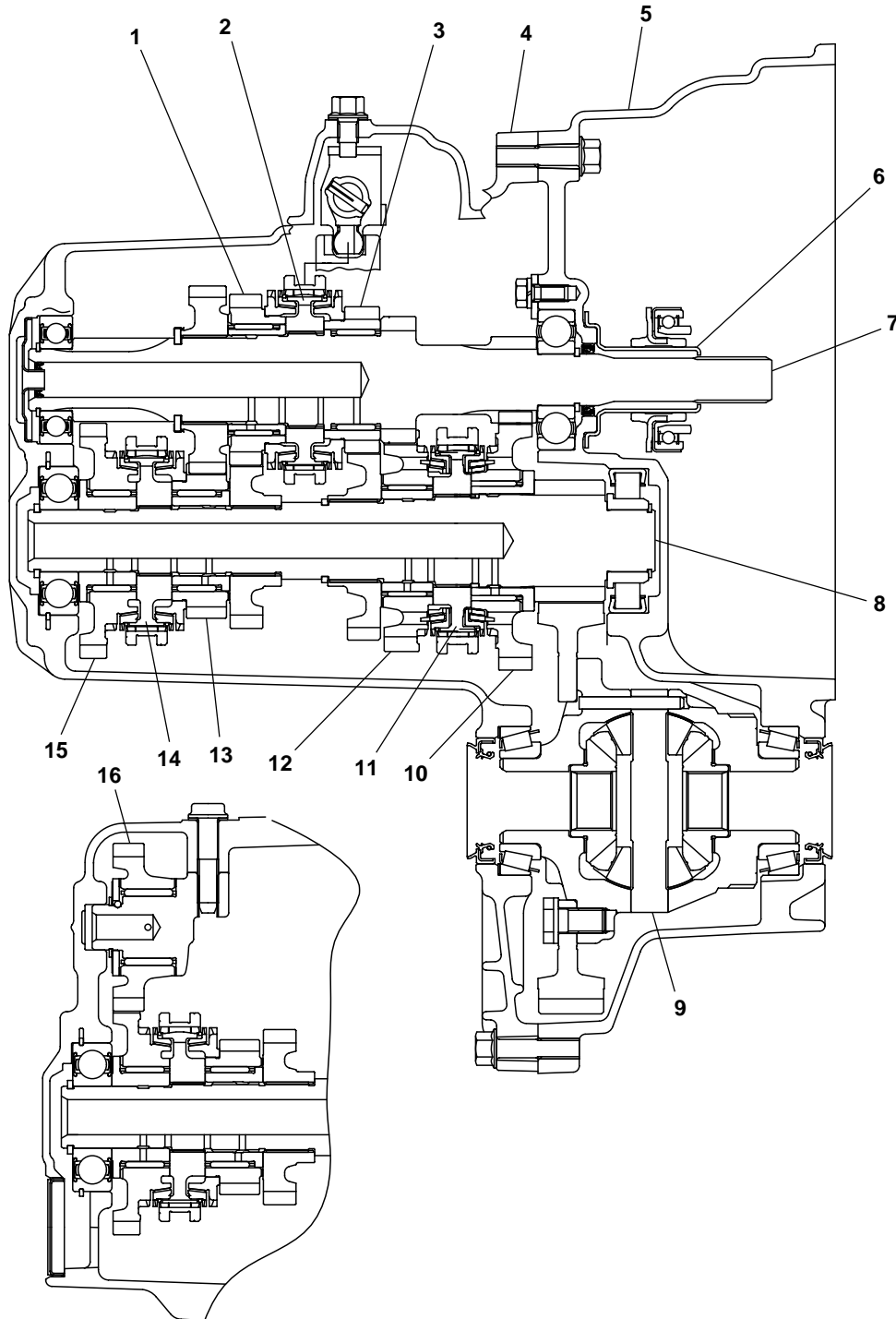
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**GENERAL DESCRIPTION**

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ITEM		SPECIFICATION		
Transaxle model		F5M42-1-F8B4	F5M42-1-F7B3	F5M42-2-R7B5
Engine model		4G94-MPI (2.0L ENGINE)		4G69-MPI-MIVEC (2.4L ENGINE)
Transaxle type		5-speed forward, 1-speed reverse constant mesh		
Gear ratio	1st	3.583		
	2nd	1.947		
	3rd	1.379		
	4th	1.030		
	5th	0.767		
	Reverse	3.363		
Final gear ratio (Differential gear ratio)		3.722		
Speedometer gear ratio		31/36	30/36	

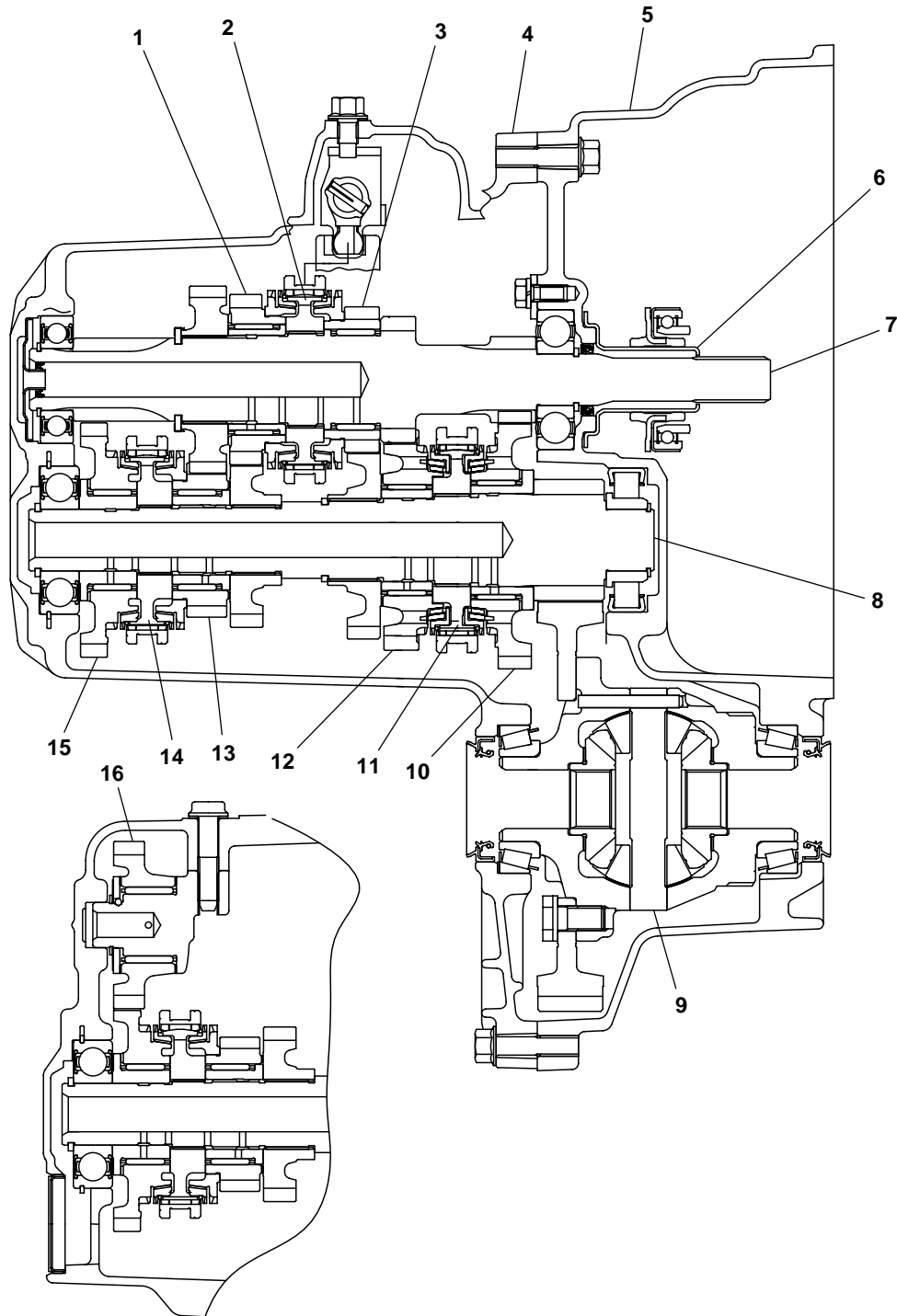
SECTIONAL VIEW <F5M42-1>



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- |                                   |  |
|-----------------------------------|--|
| 1. 4TH SPEED GEAR                 | 9. DIFFERENTIAL                        |
| 2. 3RD-4TH SPEED SYNCHRONIZER HUB | 10. 1ST SPEED GEAR                     |
| 3. 3RD SPEED GEAR                 | 11. 1ST-2ND SPEED SYNCHRONIZER HUB     |
| 4. TRANSAXLE CASE                 | 12. 2ND SPEED GEAR                     |
| 5. CLUTCH HOUSING                 | 13. 5TH SPEED GEAR                     |
| 6. REVERSE BEARING RETAINER       | 14. 5TH-REVERSE SPEED SYNCHRONIZER HUB |
| 7. INPUT SHAFT                    | 15. REVERSE GEAR                       |
| 8. OUTPUT SHAFT                   | 16. REVERSE IDLER GEAR                 |

## SECTIONAL VIEW &lt;F5M42-2&gt;



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- |                                   |  |
|-----------------------------------|--|
| 1. 4TH SPEED GEAR                 | 9. DIFFERENTIAL                        |
| 2. 3RD-4TH SPEED SYNCHRONIZER HUB | 10. 1ST SPEED GEAR                     |
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| 7. INPUT SHAFT                    | 15. REVERSE GEAR                       |
| 8. OUTPUT SHAFT                   | 16. REVERSE IDLER GEAR                 |

# 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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SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Noise, Vibration	1	P.22A-5
Oil Leaks	2	P.22A-7
Hard Shifting	3	P.22A-7
Jumps Out of Gear	4	P.22A-8

## 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 .

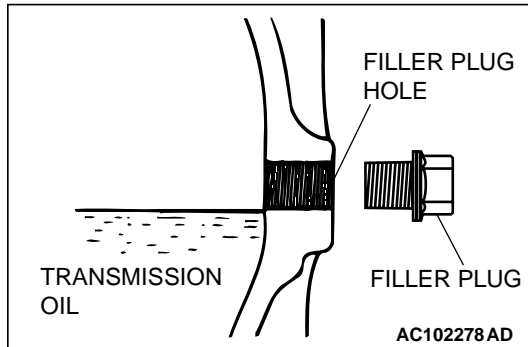
**NO :** Refer to GROUP 11A <2.0L Engine>P.11A-14 , or GROUP 11C <2.4L Engine>P.11C-14 , On-vehicle Service – Curb Idle Speed Check.

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

**Q: Are the transaxle 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. Then go to Step 7 .

---

**STEP 4. Check for the specified oil.**

**Q: Is the specified oil gear oil API classification GL-4 SAE 75W-85W or 75W-90 ?**

**YES :** Go to Step 5 .

**NO :** If in doubt, replace the oil. Refer to [P.22A-11](#). Then go to Step 7 .

---

**STEP 5. Remove the transaxle. 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. 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.

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## INSPECTION PROCEDURE 2: Oil Leaks

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### DIAGNOSIS

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#### STEP 1. Visual check.

Raise the vehicle, and check for oil leaks. If oil leak is difficult to locate, steam clean the transaxle and drive the vehicle for at 10 minutes. Then check the leak again.

**Q: Is the oil leak(s) found?**

**YES :** Go to Step 2 .

**NO :** Check for the oil leaks 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. 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.

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## INSPECTION PROCEDURE 3: Hard Shifting

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### DIAGNOSIS

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#### 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-11](#). Then go to Step 7 .

---

#### STEP 2. Check the transmission oil.

**Q: Is the oil dirty?**

**YES :** Replace the oil. Refer to [P.22A-11](#). 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-11](#). 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.22B-7](#). 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.

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**INSPECTION PROCEDURE 4: Jumps Out of Gear**

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**DIAGNOSIS**

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**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-11](#). 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.22B-7](#). Then go to Step 6 .**NO :** Go to Step 3 .

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**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.22B-7](#). 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-11](#). 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.22B-17](#), Output Shaft [P.22B-25](#). Then go to Step 6.**NO :** Go to Step 6 .


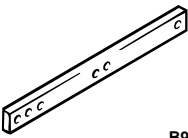
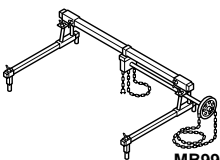
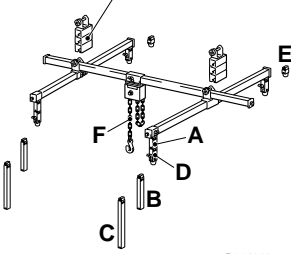
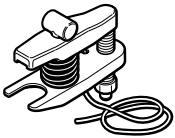
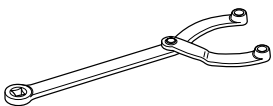
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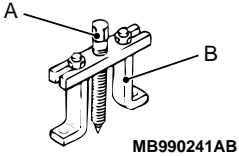

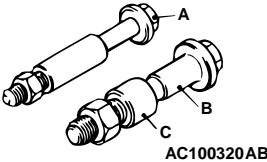

**STEP 6. Retest the system.****Q: Does the transaxle still jump out of gear?****YES :** Return to Step 1 .**NO :** The procedure is complete.



# SPECIAL TOOLS

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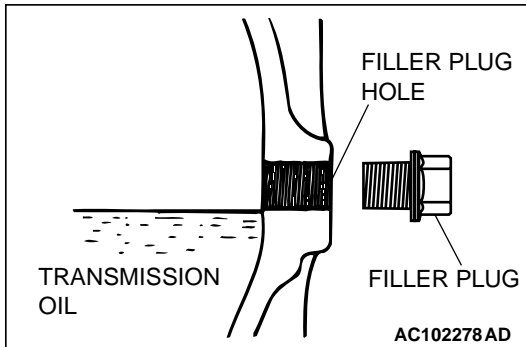
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 B991454	MB991454 Engine hanger balancer	MZ203827-01	<p>When the engine hanger is used: Supporting the engine assembly during removal and installation of the transaxle assembly</p> <p><i>NOTE: Special tool MB991454 is a part of engine hanger attachment set MB991453.</i></p>
 B991527	MB991527 Hanger	—	
 MB991895	MB991895 Engine hanger	—	
<p>SLIDE BRACKET (HI)</p>  B991928	<p>MB991928 Engine hanger</p> <p>A: MB991929 Joint (50) ×2</p> <p>B: MB991930 Joint (90) ×2</p> <p>C: MB991931 Joint (140) ×2</p> <p>D: MB991932 Foot (standard) ×4</p> <p>E: MB991933 Foot (short) ×2</p> <p>F: MB991934 Chain and hook assembly</p>	—	
 AC106827	MB991897 Ball joint remover	MB991113-01, MB990635-01 or general service tool	<p>Knuckle and tie rod end ball joint breakaway torque check</p> <p><i>NOTE: Steering linkage puller(MB990635 or MB991113)is also used to disconnect knuckle and tie rod end ball joint.</i></p>
 B990767	MB990767 End yoke holder	MB990767-01	Fixing of the hub

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 <p>MB990241AB</p>	MB990241 Axle shaft puller A: MB990242 Puller shaft B: MB990244 Puller bar	MB990241-01 or General service tool	Removal of the drive shaft
 <p>MB991354</p>	MB991354 Puller body	General service tool	
 <p>AC100320AB</p>	A: MB991017 B: MB990998 C: MB991000 A, B: Front hub remover and installer C: Spacer	MB990998-01	<ul style="list-style-type: none"> <li>• Removal of the hub</li> <li>• Provisional holding of the wheel bearing</li> <li>• Measurement of hub starting torque</li> <li>• Measurement of wheel bearing end play</li> </ul> <p><i>NOTE: MB991000, which belongs to MB990998, should be used as a spacer.</i></p>
	MB991460 Plug	General service tool	Prevention of transmission fluid drain and of entry of foreign objects

## ON-VEHICLE SERVICE

### TRANSMISSION OIL LEVEL CHECK

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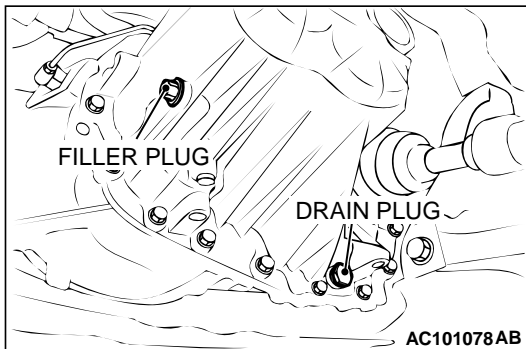


1. Remove the filler plug.
2. Check that the oil level is up to the lower edge of the filler plug hole.
3. Check that the oil is not noticeably dirty.
4. Tighten the filler plug to the specified torque.

**Tightening torque:  $32 \pm 2$  N·m ( $24 \pm 1$  ft-lb)**

### TRANSMISSION 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:  $2.2 \text{ dm}^3$  (2.3 quarts)**

5. Tighten the filler plug to the specified torque.

**Tightening torque:  $32 \pm 2$  N·m ( $24 \pm 1$  ft-lb)**

## TRANSAXLE CONTROL

## REMOVAL AND INSTALLATION

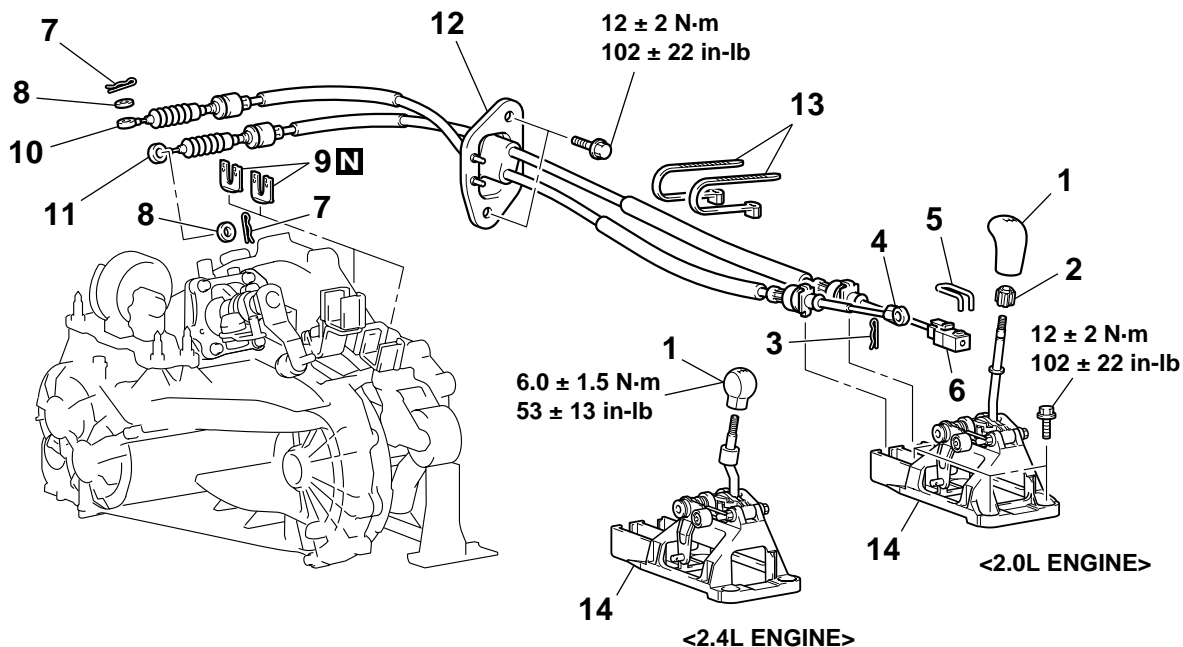
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**⚠ WARNING**

**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.15-4.)
- Battery and Battery Tray Removal and Installation.



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**GEARSHIFT CABLE AND  
SELECT CABLE ASSEMBLY  
REMOVAL STEPS**

- |             |     |   |
|-------------|-----|---|
|             | 1.  | GEARSHIFT LEVER KNOB  |
|             | 2.  | SPACER <2.0L ENGINE>  |
|             | •   | FRONT FLOOR CONSOLE ASSEMBLY AND CONSOLE SIDE COVER BRACKET (REFER TO GROUP 52A P.52A-8.) |
|             | 3.  | SNAP PIN  |
|             | 4.  | SELECT CABLE CONNECTION (GEARSHIFT LEVER SIDE)  |
| >>B<<       | 5.  | SHIFT CABLE CLIP  |
| >>B<<       | 6.  | SHIFT CABLE CONNECTION (GEARSHIFT LEVER SIDE)   |
|             | •   | SRS-ECU AND SRS-ECU BRACKET (REFER TO GROUP 52B P.52B-202.)                               |
|             | 7.  | SNAP PIN  |
|             | 8.  | WASHER  |
| <<A>> >>A<< | 9.  | GEARSHIFT LINK CLIP   |
| <<A>> >.A<< | 10. | SELECT CABLE CONNECTION (TRANSAXLE SIDE)  |

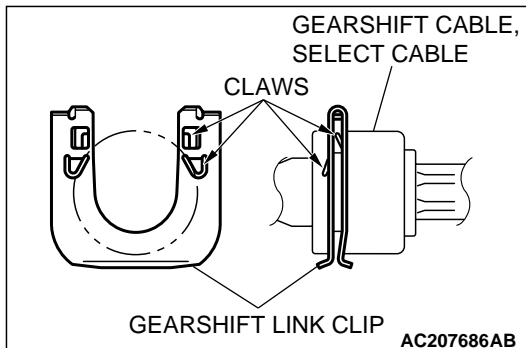
**GEARSHIFT CABLE AND  
SELECT CABLE ASSEMBLY  
REMOVAL STEPS (Continued)**

- |             |     |  |
|-------------|-----|--|
| <<A>> >>A<< | 11. | SHIFT CABLE CONNECTION (TRANSAXLE SIDE)                    |
|             | 12. | SHIFT CABLE AND SELECT CABLE ASSEMBLY                      |
|             | 13. | BAND   |
|             |     | <b>GEARSHIFT LEVER ASSEMBLY REMOVAL STEPS</b>              |
|             | 1.  | GEARSHIFT LEVER KNOB                                       |
|             | 2.  | SPACER <2.0L ENGINE>                                       |
|             | •   | FRONT FLOOR CONSOLE ASSEMBLY (REFER TO GROUP 52A P.52A-8.) |
|             | 3.  | SNAP PIN   |
|             | 4.  | SELECT CABLE CONNECTION (SHIFT LEVER SIDE)                 |
| >>B<<       | 5.  | SHIFT CABLE CLIP   |
| >>B<<       | 6.  | SHIFT CABLE CONNECTION (SHIFT LEVER SIDE)                  |
|             | 14. | GEARSHIFT LEVER ASSEMBLY                                   |

## REMOVAL SERVICE POINT

### <<A>> GEARSHIFT LINK CLIP/SELECT CABLE CONNECTION (TRANSAXLE SIDE) /SHIFT CABLE CONNECTION (TRANSAXLE SIDE) INSTALLATION

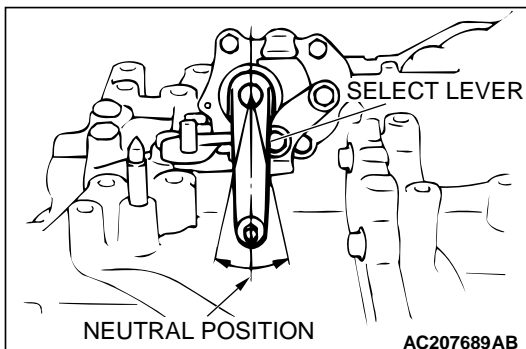
Push up the claws of the gearshift link clip using a screwdriver, etc., and then remove the gearshift link clip from the bracket together with the cables.



## INSTALLATION SERVICE POINT

### >>A<< SHIFT 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 (transaxle side) facing the snap pin.



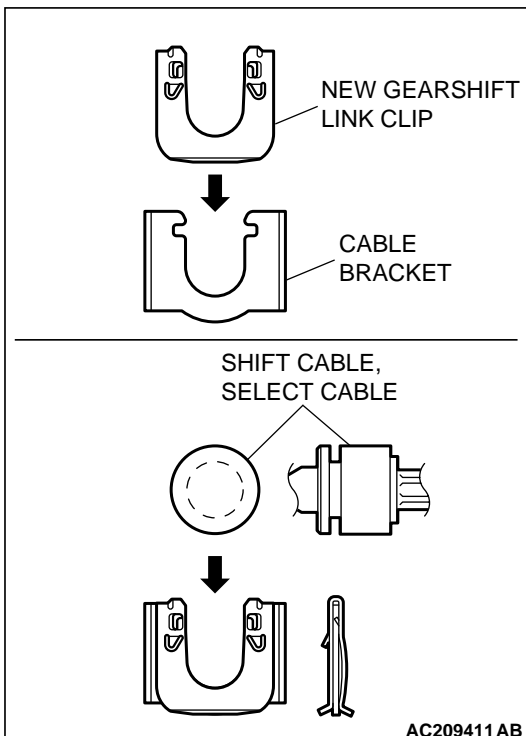
### **CAUTION**

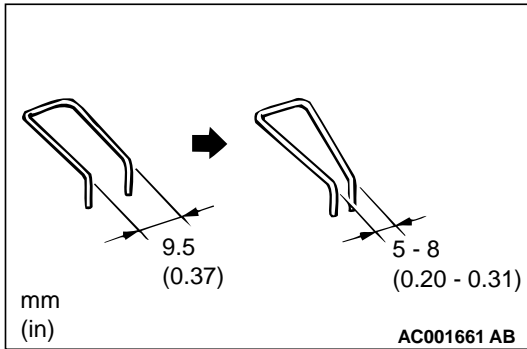
Insert thoroughly the gearshift link clip, shift cable and select cable until they click in place.

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.

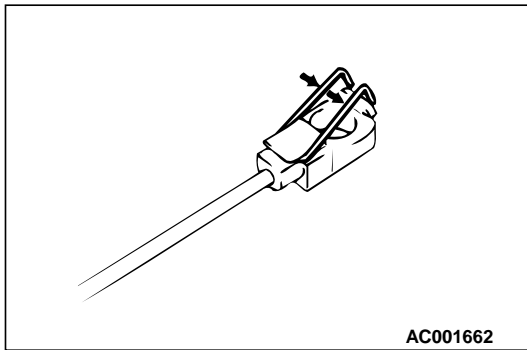
*NOTE: The clip is reversible.*

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



**>>B<< SHIFT CABLE CLIP/SHIFT CABLE CONNECTION  
(GEARSHIFT LEVER SIDE) INSTALLATION**

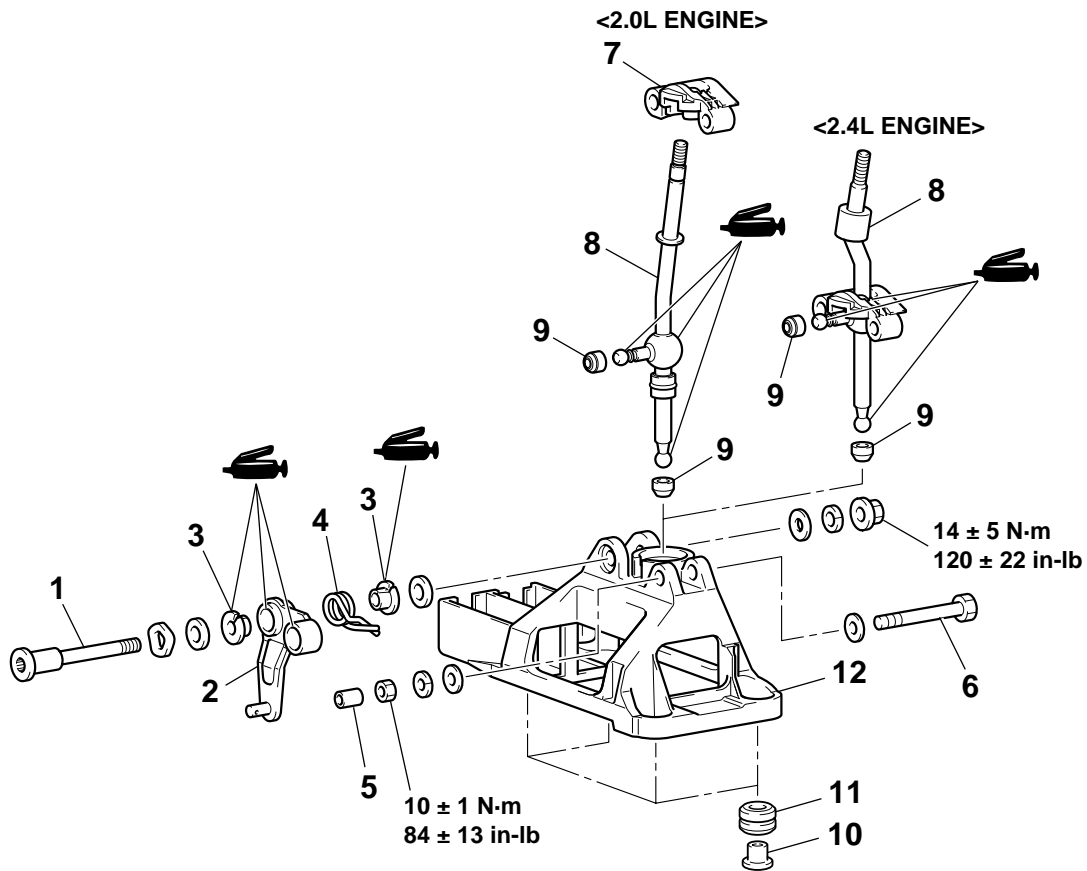
1. Make sure that there is no excessive play at the shift cable end gearshift cable clip. If there is excessive play or the shift cable clip is disengaged from the shift cable end, check the clip opening gap. If the gap is more than 9.5 mm (0.37 inch), squeeze the shift cable clip until the relaxed gap 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 shift 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. GEARSHFT LEVER BRACKET  
DISTANCE PIECE
11. GEARSHIFT LINK BUSHING
12. GEARSHIFT LEVER BRACKET

## TRANSAXLE ASSEMBLY

## REMOVAL AND INSTALLATION

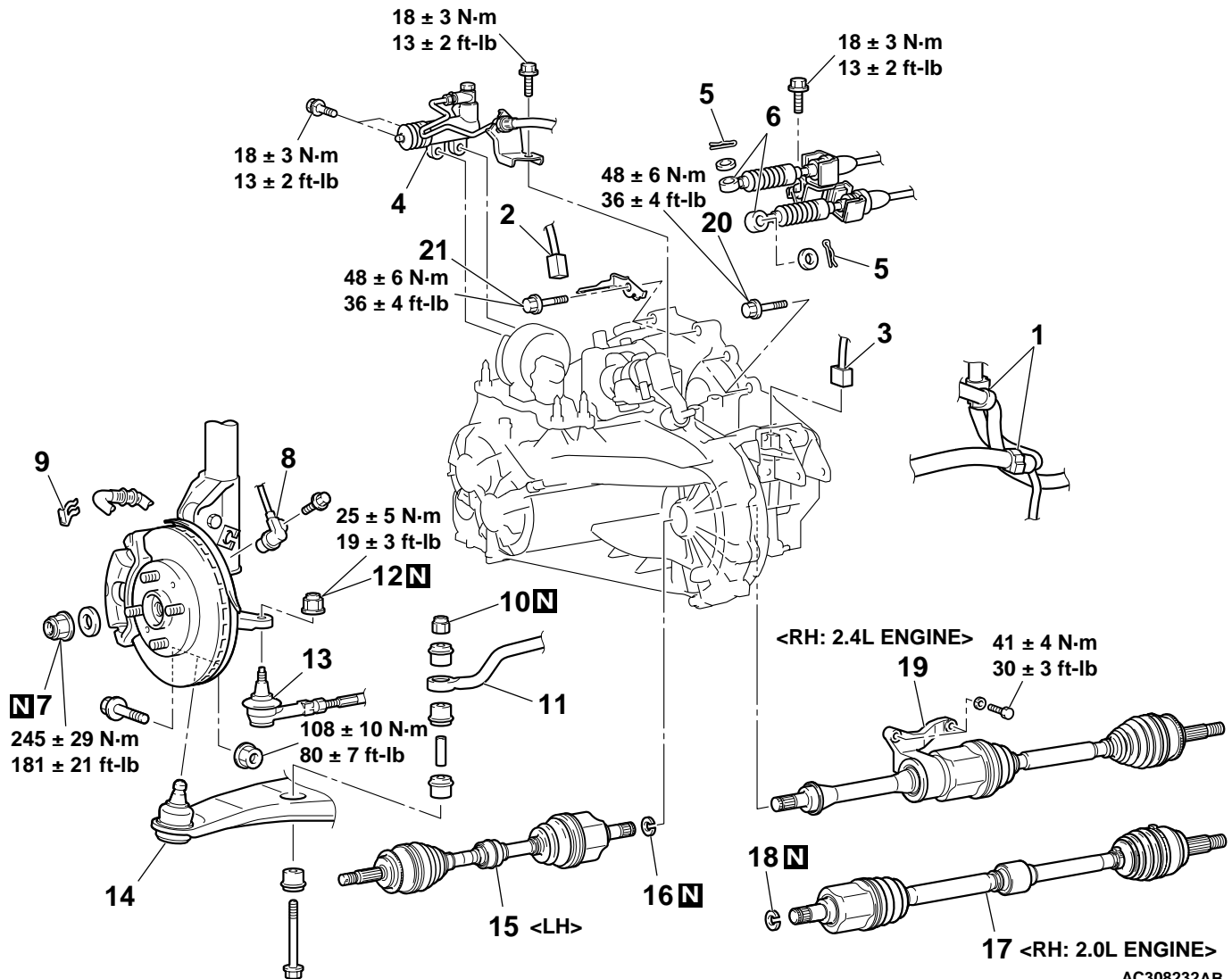
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**⚠ CAUTION**

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

**Pre-removal and Post-installation Operation**

- Under Cover Removal and Installation.
- Canister Removal and Installation (Refer to GROUP 17, Evaporative Emission Canister and Fuel Tank Pressure Relief Valve P.17-230.)
- Battery and Battery Tray Removal and Installation.
- Transmission Oil Draining and Supply (Refer to GROUP 00, Maintenance Service – Manual Transaxle P.00-53.)
- Shift Lever Operation Check <Post-installation Only> (Refer to P.22A-11.)
- Front Wheel Alignment Check and Adjustment <Post-installation Only> (Refer to GROUP 33, On-vehicle Service – Front Wheel Alignment Check and Adjustment P.33A-7.)



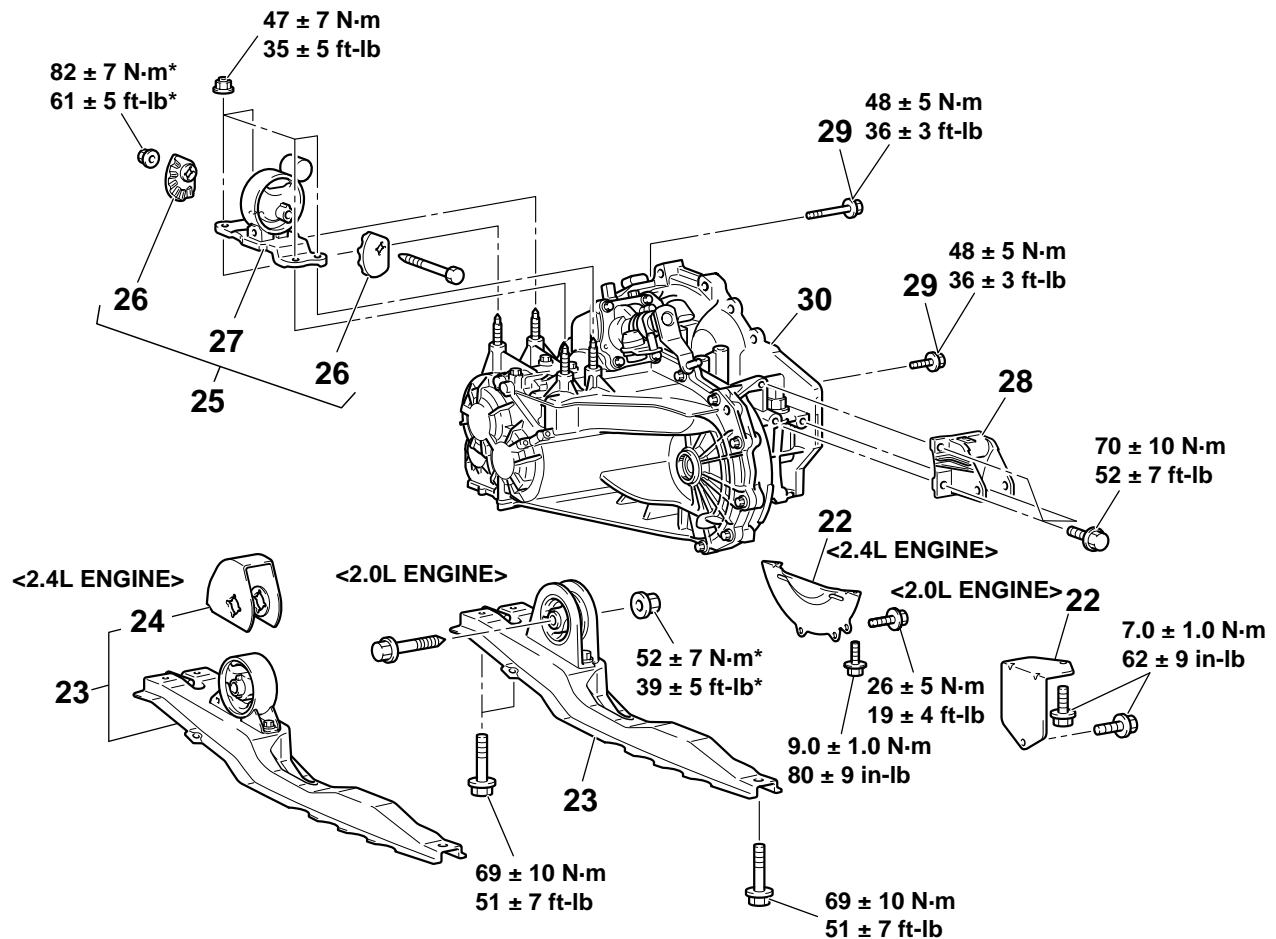


**REMOVAL STEPS**

- |       |       |  |  |
|-------|-------|--|--|
|       | 1.    | TRANSAXLE HARNESS CLAMP                        |  |
|       | 2.    | BACK-UP LAMP SWITCH<br>CONNECTOR               | <<B>>  |
|       | 3.    | VEHICLE SPEED SENSOR<br>CONNECTOR              | <<C>>  |
|       | 4.    | CLUTCH RELEASE CYLINDER<br>AND CLUTCH OIL PIPE | <<C>>  |
|       | 5.    | SNAP PIN                                       |  |
|       | 6.    | CABLE BRACKET AND SHIFT<br>CABLE ASSEMBLY      | <<C>>  |
| <<A>> | >>C<< | 7.   | DRIVE SHAFT NUT                                    |
|       |       | 8.   | FRONT ABS SENSOR<br><VEHICLES WITH ABS>            |
|       |       | 9.   | BRAKE HOSE CLAMP                                   |
|       |       | 10.  | SELF-LOCKING NUT<br>(STABILIZER BAR<br>CONNECTION) |
| >>B<< |       | 11.  | STABILIZER BAR CONNECTION                          |

**REMOVAL STEPS (Continued)**

- |     |  |
|-----|--|
| 12. | SELF-LOCKING NUT (TIE ROD<br>END CONNECTION)                 |
| 13. | TIE ROD END CONNECTION                                       |
| 14. | LOWER ARM CONNECTION   |
| 15. | DRIVE SHAFT <LH>   |
| 16. | CIRCLIP  |
| 17. | DRIVE SHAFT <RH: 2.0L<br>ENGINE>                             |
| 18. | CIRCLIP  |
| 19. | DRIVE SHAFT AND INNER<br>SHAFT ASSEMBLY <RH: 2.4L<br>ENGINE> |
| 20. | STARTER MOTOR COUPLING<br>BOLTS                              |
| •   | STARTER MOTOR  |
| 21. | TRANSAXLE ASSEMBLY UPPER<br>PART COUPLING BOLTS              |



AC308236AB

**REMOVAL STEPS**

- <<E>>
- >>A<<
- <<F>>
22. COVER
  23. CENTERMEMBER ASSEMBLY
  24. FRONT ROLL MOUNT STOPPER  
<2.4L ENGINE>
  25. TRANSAXLE MOUNT  
ASSEMBLY
  26. TRANSAXLE MOUNT STOPPER
  27. TRANSAXLE MOUNT BRACKET
    - CLUTCH RELEASE BEARING  
CONNECTION

&lt;&lt;G&gt;&gt;

**REMOVAL STEPS (Continued)**

28. REAR ROLL MOUNT BRACKET
  - ENGINE ASSEMBLY SUPPORT
  - LIFTING UP OF THE VEHICLE
  - SUPPORT THE TRANSAXLE  
WITH A TRANSAXLE JACK
29. TRANSAXLE ASSEMBLY  
LOWER PART COUPLING  
BOLTS
30. TRANSAXLE ASSEMBLY

**Required Special Tools:**

- MB990767: End Yoke Holder
- MB991897: Ball Joint Remover
- MB990241: Axle Shaft Puller
- MB990242: Puller Shaft Puller
- MB990244: Puller Bar
- MB991354: Puller Body
- MB991017: Front Hub Remover and Installer
- MB991000: Spacer
- MB991460: Plug
- MB991527: Hanger
- MB991454: Engine Hanger Balancer (chain)
- MB991895: Engine Hanger
- MB991928: Engine Hanger
- MB991932: Foot (standard)
- MB991933: Foot (short)
- MB991930: Joint (90)
- MB991931: Joint (140)

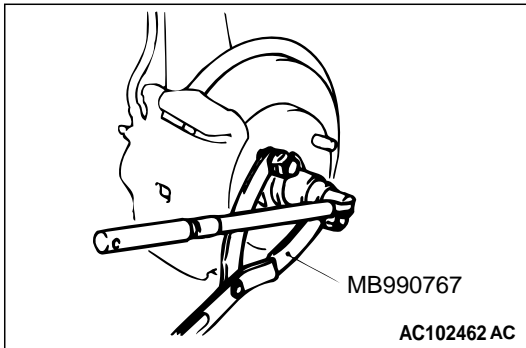
## REMOVAL SERVICE POINTS

### <<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 (end yoke holder) to fix the hub and remove the drive shaft nut.

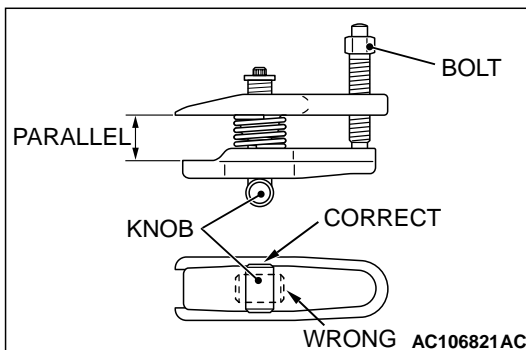
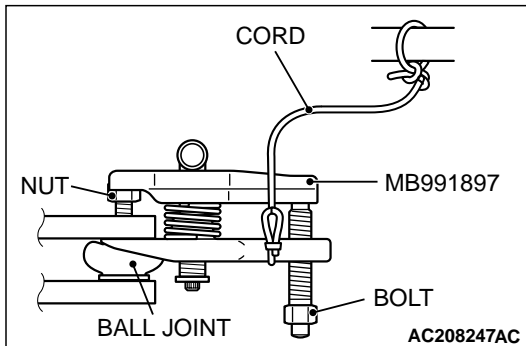


### <<B>> TIE ROD END CONNECTION REMOVAL

#### CAUTION

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

1. Install special tool MB991897 (ball joint remover) as shown in the figure.



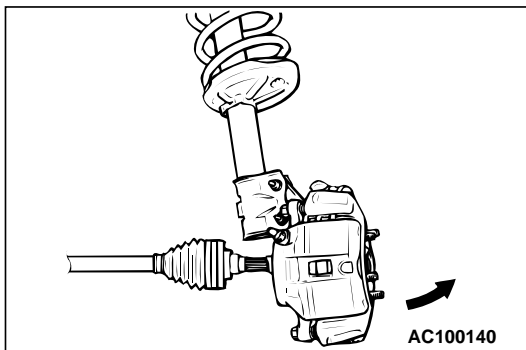
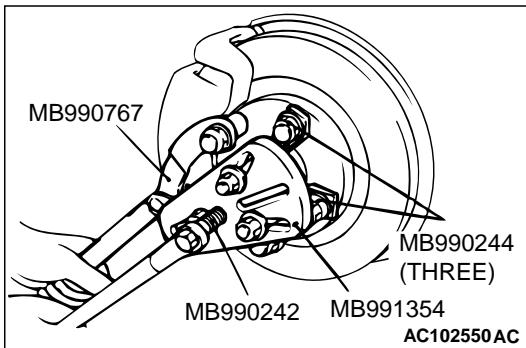
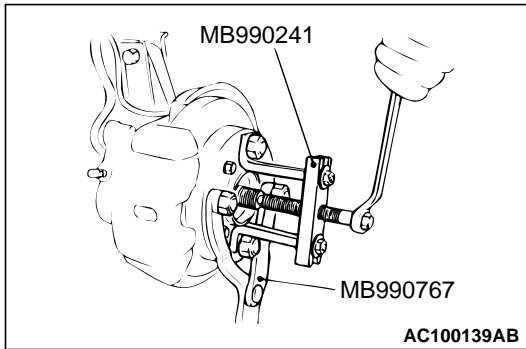
2. Turn the bolt and knob as necessary to make the jaws of special tool MB991897 (ball joint remover) parallel, tighten the bolt by hand and confirm that the jaws are still parallel.

*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 and remove the self locking nut.

<<C>> DRIVE SHAFT/DRIVE SHAFT AND INNER SHAFT  
ASSEMBLY REMOVAL

1. Use special tools MB990241 (axle shaft puller) and MB990767 (end yoke holder) <2.0L ENGINE>, MB990242 (puller shaft puller), MB990244 (puller bar), MB991354 (puller body) and MB990767 (end yoke holder) <2.4L ENGINE> to push out the drive shaft from the hub and knuckle.

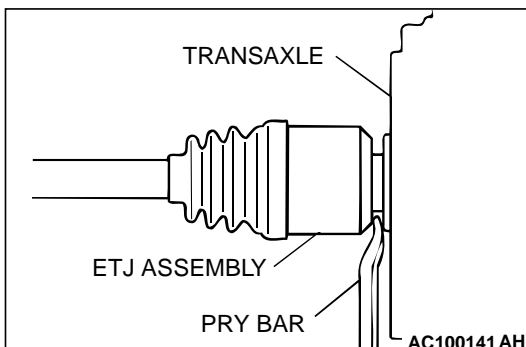


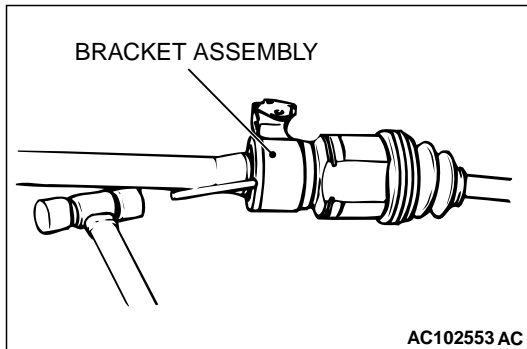
2. Remove the drive shaft from the hub by pulling the bottom of the brake disc towards you, and then remove the hub retaining bolts.

**⚠ CAUTION**

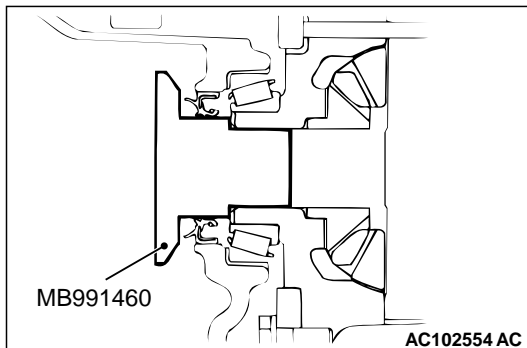
- Do not pull on the drive shaft; doing so will damage the ETJ; be sure to use the pry bar.
- When pulling the drive shaft out from the transaxle, be careful that the spline part of the drive shaft does not damage the oil seal.

3. Remove the drive shaft from the transaxle by the following procedure. Insert a pry bar between the transaxle case and the drive shaft, and then pry the drive shaft from the transaxle.

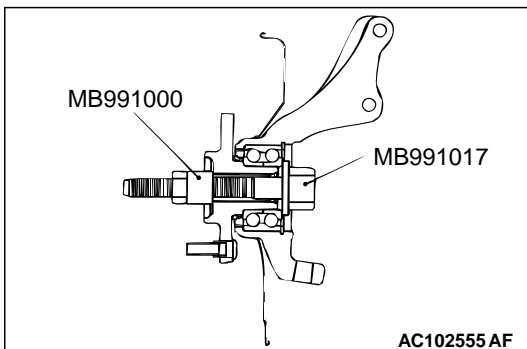




4. If the inner shaft is hard to remove from the transaxle, strike the bracket assembly lightly with a plastic hammer and remove the inner shaft.



5. Use special tool MB991460 (plug) to prevent the entry of foreign material into the transaxle case.



**⚠ CAUTION**

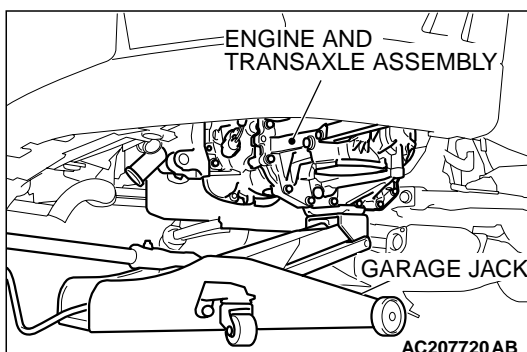
Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage when the drive shaft is removed. If, however, vehicle weight must be applied to the bearing in moving the vehicle, temporarily secure the wheel bearing by using special tools MB991017 (front hub remover and installer) and MB991000 (spacer).

**<<D>> STARTER MOTOR REMOVAL**

Remove the starter motor with the starter motor harness still connected and secure it inside the engine compartment.

**<<E>> TRANSAXLE MOUNT ASSEMBLY REMOVAL**

Jack up the transaxle assembly gently with a garage jack, and then remove the transaxle mount bracket.



## &lt;&lt;F&gt;&gt; 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 direction A two to three times. Forcibly prying can cause the release bearing to be damaged.

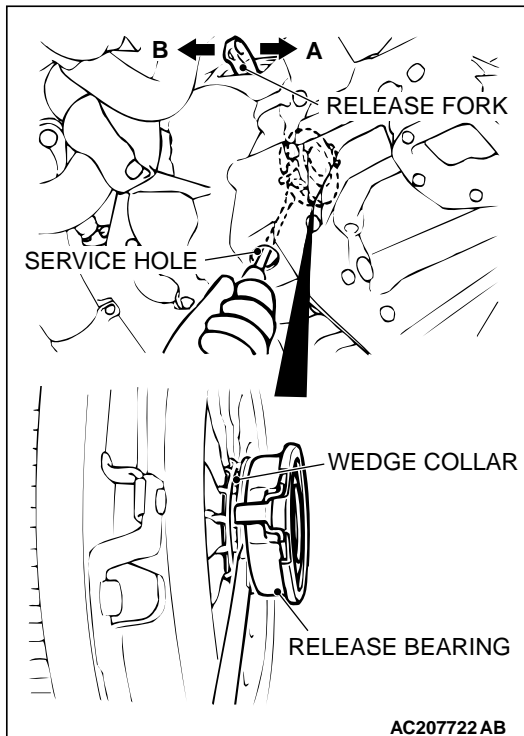
1. Remove the cover from the service hole in the clutch housing.
2. While pushing the release fork by hand in direction A, insert a flap-tip screwdriver between the release bearing and the wedge collar.

**⚠ CAUTION**

Be sure to push the release fork in 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°).

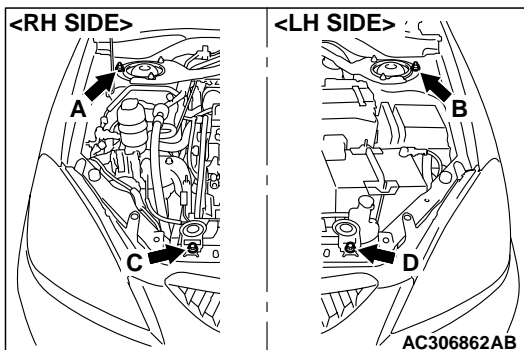
*NOTE: The release fork is forced to move fully in direction B by the return spring as soon as it is separated from the wedge collar.*



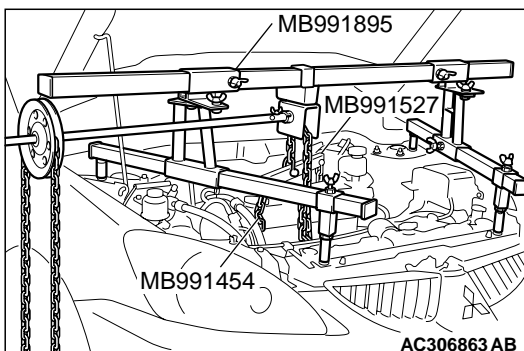
## &lt;&lt;G&gt;&gt; ENGINE ASSEMBLY SUPPORTING

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

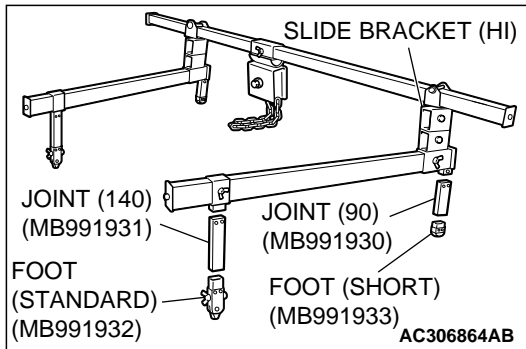
(1) Set special tool MB991895 (engine hanger) to the front fender assembling bolts (A and B) and radiator support upper insulator attaching bolts (C and D) as shown.



- (2) Set special tool MB991527 (hanger) and MB991454 (chain) to hold the engine/transaxle assembly.

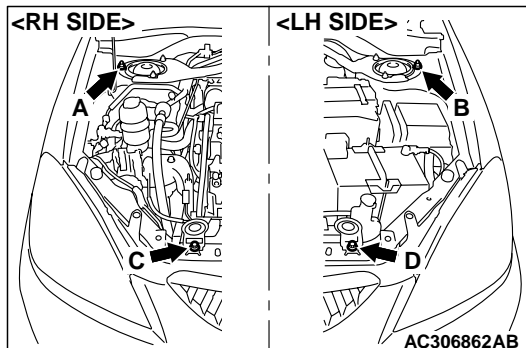


2. <Engine hanger (special tool MB991928) is used>

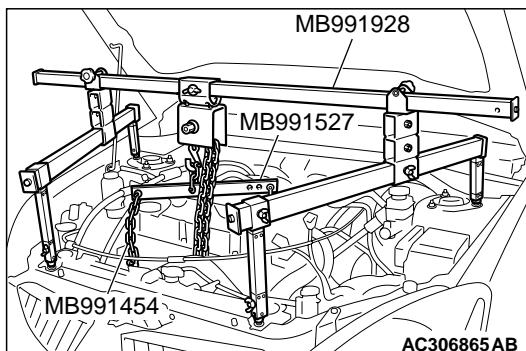


- (1) Assemble the engine hanger (special tool MB991928).  
Attach following parts to the base hanger.)

- SLIDE BRACKET (HI)
- JOINT (140) (MB991931) <FRONT SIDE>
- FOOT (STANDARD) (MB991932) <FRONT SIDE>
- JOINT (90) (MB991930) <REAR SIDE>
- FOOT (SHORT) (MB991933) <REAR SIDE>



- (2) Set special tool MB991928 (engine hanger) to the front fender assembling bolts (A and B) and radiator support upper insulator attaching bolts (C and D) as shown.



- (3) Position special tool MB991527 (hanger) and MB991454 (chain) to hold the engine/transaxle assembly.

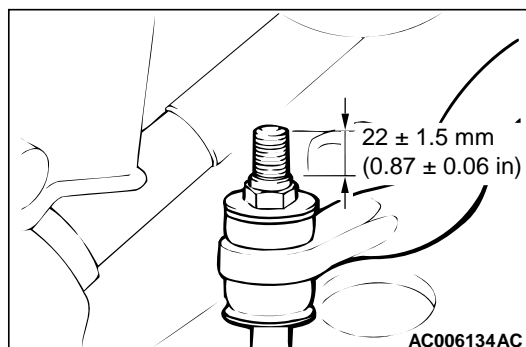
*NOTE: Adjust the engine hanger balance by sliding the slide bracket (HI).*

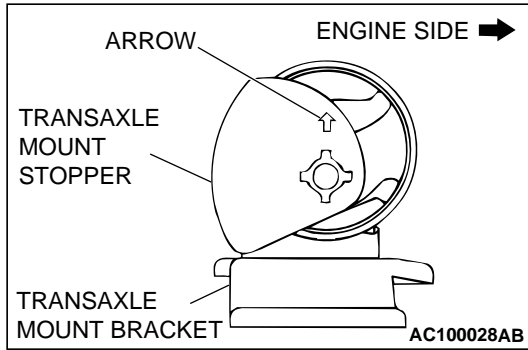
## INSTALLATION SERVICE POINTS

### >>A<< STABILIZER BAR INSTALLATION

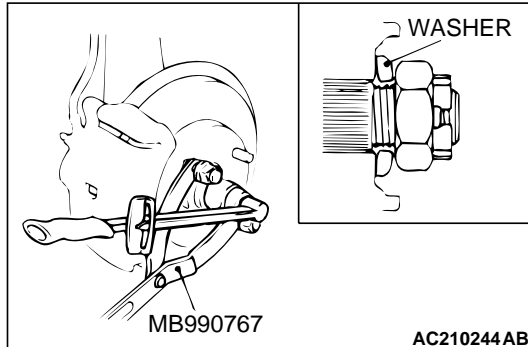
Tighten the self-locking nut so that the stabilizer bar mounting bolt protrudes as shown.

**Standard value (A):  $22 \pm 1.5$  mm ( $0.87 \pm 0.06$  in)**



**>>B<< TRANSAXLE MOUNT STOPPER INSTALLATION**

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

**>>C<< 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 (end yoke holder), tighten the drive shaft nut to the specified torque.

**Tightening torque:  $245 \pm 29$  N·m ( $181 \pm 21$  ft-lb)**



# SPECIFICATIONS

## FASTENER TIGHTENING SPECIFICATIONS

M1221006600175

ITEM	SPECIFICATION
<b>Transmission oil replacement</b>	
Drain plug	32 ± 2 N·m (24 ± 1 ft-lb)
Filler plug	32 ± 2 N·m (24 ± 1 ft-lb)
<b>Transaxle control</b>	
Gearshift lever assembly attaching bolt	12 ± 2 N·m (102 ± 22 in-lb)
Gearshift lever knob <2.4L ENGINE>	6.0 ± 1.5 N·m (53 ± 13 in-lb)
Select lever retainer nut	10 ± 1 N·m (84 ± 13 in-lb)
Shift cable and select cable assembly attaching bolt	12 ± 2 N·m (102 ± 22 in-lb)
Shift lever retainer nut	14 ± 5 N·m (120 ± 22 in-lb)
<b>Transaxle assembly</b>	
Cable bracket and shift cable assembly attaching bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Center bearing bracket bolt (RH) <2.4L ENGINE>	41 ± 4 N·m (30 ± 3 ft-lb)
Center member attaching bolt	69 ± 10 N·m (51 ± 7 ft-lb)
Clutch release cylinder and clutch oil pipe attaching bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Cover (engine side) attaching bolt <2.4L ENGINE>	9.0 ± 1.0 N·m (80 ± 9 in-lb)
Cover (transaxle side) attaching bolt <2.4L ENGINE>	26 ± 5 N·m (19 ± 4 ft-lb)
Cover attaching bolt <2.0L ENGINE>	7.0 ± 1.0 N·m (62 ± 9 in-lb)
Drive shaft connecting nut	245 ± 29 N·m (181 ± 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 attaching bolt	70 ± 10 N·m (52 ± 7 ft-lb)
Self-locking nut (tie rod end connection)	25 ± 5 N·m (19 ± 3 ft-lb)
Starter motor coupling bolt	48 ± 6 N·m (36 ± 4 ft-lb)
Transaxle assembly lower part coupling bolt	48 ± 5 N·m (36 ± 3 ft-lb)
Transaxle assembly upper part coupling bolt	48 ± 6 N·m (36 ± 4 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)

## SERVICE SPECIFICATION

M1221000300057

ITEM	STANDARD VALUE
Protruding length of stabilizer bar mounting bolt mm (in)	22 ± 1.5 (0.87 ± 0.06)

## LUBRICANT

M1221000400195

ITEM	SPECIFIED LUBRICANTS	QUANTITY
Transmission oil dm <sup>3</sup> (qt)	Gear oil API classification GL-4 SAE 75W-85W or 75W-90	2.2 (2.3)

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## NOTES