GROUP 22A

MANUAL TRANSAXLE

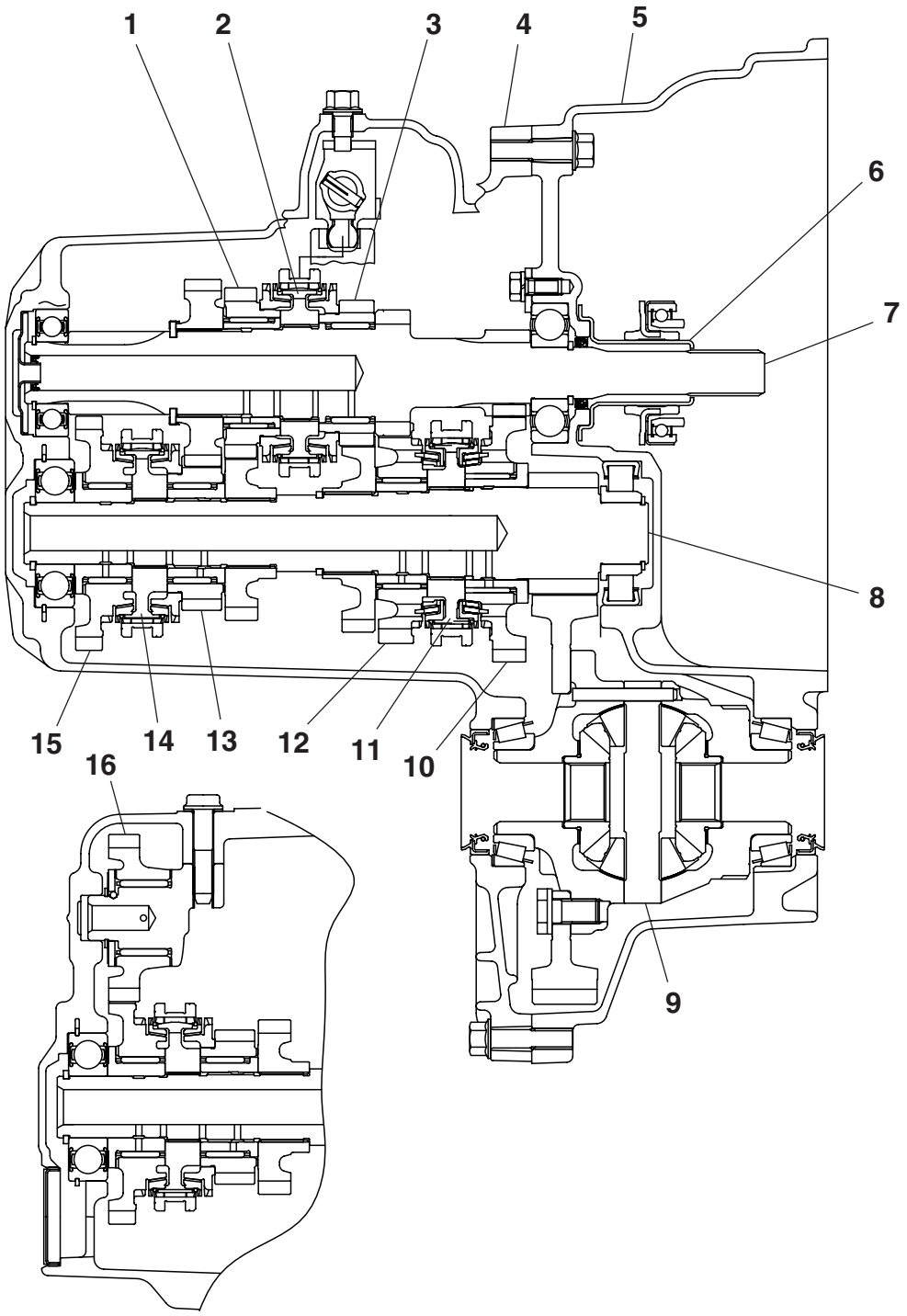
CONTENTS

GENERAL DESCRIPTION

M1221000100826

ITEM		SPECIFICATION	
Transaxle model		F5M42	F6MBA
Engine model		2.4L Engine	3.8L Engine
Transaxle type		5-speed forward, 1-speed reverse constant mesh	6-speed forward, 1-speed reverse constant mesh
Transaxle gear ratio	1st	3.583	3.214
	2nd	1.947	2.238
	3rd	1.379	1.535
	4th	1.030	1.171
	5th	0.767	1.085
	6th	–	0.790
	Reverse	3.363	3.456
Final reduction ratio		4.312	3.777 (1st, 2nd, 3rd, 4th)
			3.238 (5th, 6th, Reverse)
Speedometer gear ratio		28/36	25/33

SECTIONAL VIEW <5M/T>



AC309077AC

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

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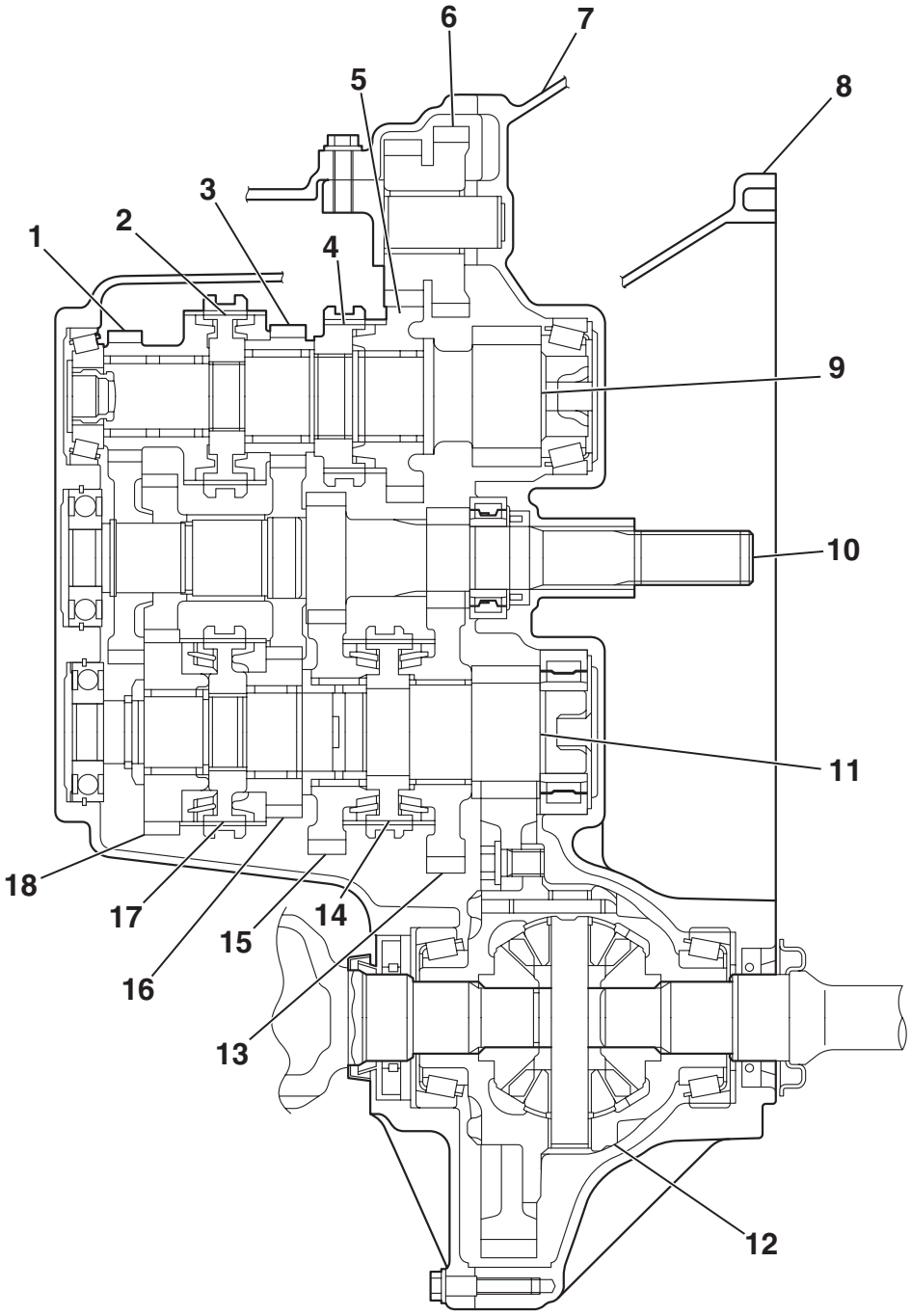
<6M/T>



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1. 6TH SPEED GEAR
2. 5TH– 6TH SPEED SYNCHRONIZER HUB
3. 5TH SPEED GEAR
4. REVERSE SPEED SYNCHRONIZER HUB
5. REVERSE SPEED GEAR
6. REVERSE IDLER GEAR
7. TRANSAXLE CASE
8. CLUTCH HOUSING
9. OUTPUT SHAFT NO.2
10. INPUT SHAFT
11. OUTPUT SHAFT NO.1
12. DIFFERENTIAL
13. 1ST SPEED GEAR
14. 1ST– 2ND SPEED SYNCHRONIZER HUB
15. 2ND SPEED GEAR
16. 4TH SPEED GEAR
17. 3RD– 4TH SPEED SYNCHRONIZER HUB
18. 3RD SPEED GEAR

TSB Revision

MANUAL TRANSAXLE DIAGNOSIS

INTRODUCTION

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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.

TROUBLESHOOTING STRATEGY

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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.

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.

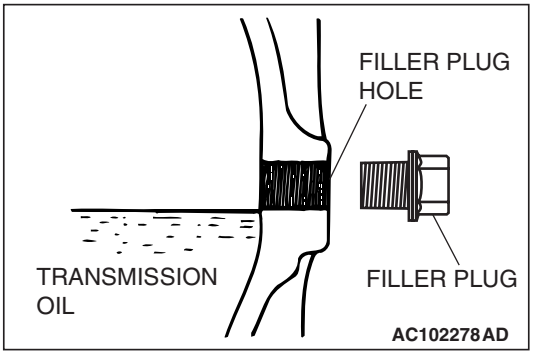
Q: Does the idle speed meet the standard values?

YES : Go to Step 2.
NO : Refer to GROUP 11A <2.4L Engine>, On-vehicle Service –Curb Idle Speed Check P.11A-13 or GROUP 11C <3.8L Engine>, On-vehicle Service – Curb Idle Speed Check P.11C-15.

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 DiaQueen NEW MULTI GEAR OIL 75W –80 (GL-3). Then go to Step 7 .

STEP 4. Check for the specified oil.

Q: Is the specified DiaQueen NEW MULTI GEAR OIL 75W – 80 (GL-3)?

YES : Go to Step 5.
NO : If in doubt, replace the oil (Refer to P.22A-10). 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. Then go to Step 7.
NO : Go to Step 7.

STEP 7. Retest the system.

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 the 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 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. 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. Check trouble symptoms.

Q: Is the oil still leaking?
YES : Return to Step 1.
NO : This diagnosis 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-11). Then go to Step 7.

STEP 2. Check the transaxle oil.

Q: Is the oil dirty?
YES : Replace the oil (Refer to P.22A-10). 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 GROUP 21A P.21A-3). Then go to Step 7.

STEP 4. Remove and disassemble the transaxle. Check the control housing <5M/T> or selecting bell-crank assembly and control bell-crank dust cover and the shift and select lever shaft <6M/T>.

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-6) <5M/T> or the selecting bell-crank assembly and control bell-crank dust cover and the shift and select lever shaft (Refer to GROUP 22C, Transaxle P.22C-6) <6M/T>. 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-11). Then go to Step 6.

STEP 2. Remove and disassemble the transaxle. Check the poppet spring <5M/T> or lock ball assembly <6M/T> for breakage.

Q: Is the poppet spring or lock ball assembly broken?
YES : Replace the poppet spring (Refer to GROUP 22B, Transaxle P.22B-6) <5M/T> or the lock ball assembly (Refer to GROUP 22C, Transaxle P.22C-6) <6M/T>. Then go to Step 6.
NO : Go to Step 3.

STEP 3. Check the control housing <5M/T> or selecting bell-crank assembly and control bell-crank dust cover and the shift and select lever shaft <6M/T>.

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-6) <5M/T> or the selecting bell-crank assembly and control bell-crank dust cover and the shift and select lever shaft (Refer to GROUP 22C, Transaxle P.22C-6) <6M/T>. 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.22B-6 <5M/T> or GROUP 22C, Transaxle P.22C-6 <6M/T>). 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-16, Output Shaft P.22B-24 <5M/T> or GROUP 22C, Output Shaft P.22C-28, P.22C-38 <6M/T>). Then go to Step 6.
NO : Go to Step 6.

STEP 6. Check trouble symptoms.

Q: Does the transaxle still jumps out of gear?
YES : Return to Step 1.
NO : This diagnosis is complete.

SPECIAL TOOLS

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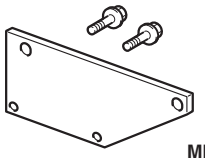
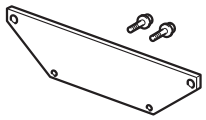
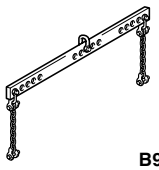
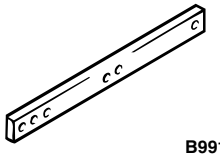
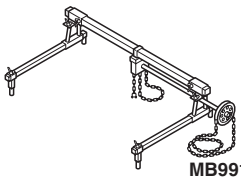
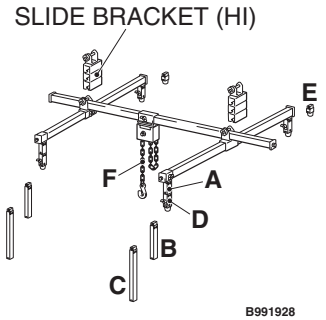
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 MB992012	MB992012 Engine hanger plate A	General service tool	Supporting the engine assembly during removal and installation of the transaxle assembly <Vehicles with 3.8 L Engine>
 MB992013	MB992013 Engine hanger plate B	General service tool	
 B991454	MB991454 Engine hanger balancer	MZ203827-01	When the engine hanger is used: Supporting the engine assembly during removal and installation of the transaxle assembly *NOTE: Special tool MB991454 is a part of engine hanger attachment set MB991453.*
 B991527	MB991527 Hanger	Tool not available	
 MB991895	MB991895 Engine hanger	Tool not available	
 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	Tool not available	

ON-VEHICLE SERVICE

TRANSMISSION OIL LEVEL CHECK

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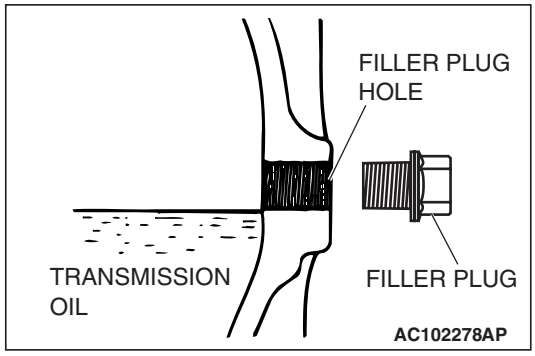

1. Remove the filler plug.
2. Check that the oil level is up to the lower edge of the filler plug hole.
3. Check that the oil is not noticeably dirty.
4. Tighten the filler plug to the specified torque.
   Tightening torque: 32 ±2 N· m (24 ±1 ft-lb)

TRANSMISSION OIL REPLACEMENT

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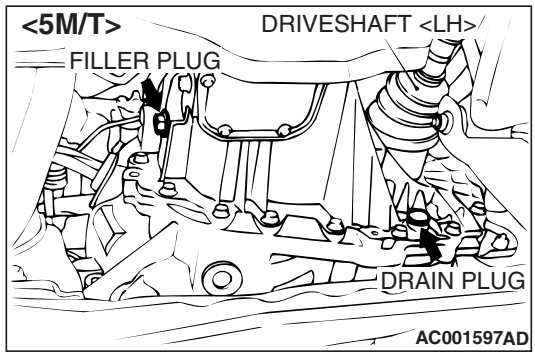

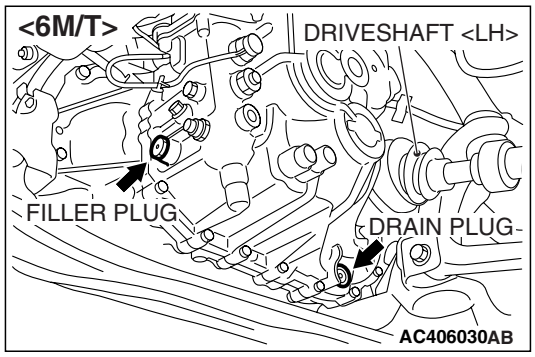

1. Remove the filler plug.
2. Remove the drain plug and drain the oil.
3. Tighten the drain plug to the specified torque.
   Tightening torque: 32 ±2 N· m (24 ±1 ft-lb)
4. Fill with DiaQueen NEW MULTI GEAR OIL 75W –80 (GL-3) until the level comes to the lower portion of filler plug hole.
   Quantity:
   <5M/T> 2.2 dm^3 (2.3 quarts)
   <6M/T> 2.2 dm^3 (2.3 quarts)
5. Tighten the filler plug to the specified torque.
   Tightening torque: 32 ±2 N· m (24 ±1 ft-lb)

TRANSAXLE CONTROL

REMOVAL AND INSTALLATION

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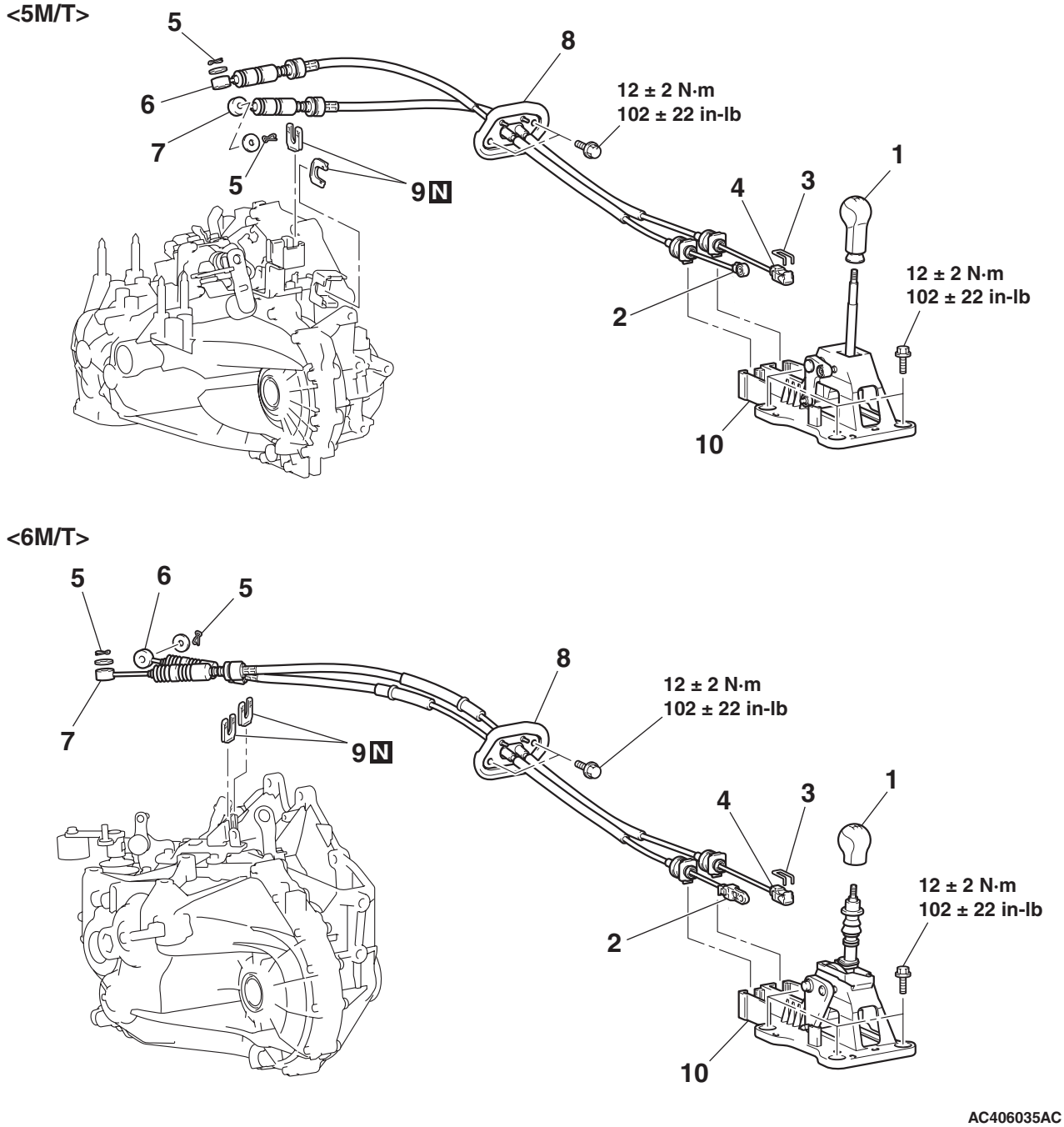
⚠ ***WARNING***

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



SHIFT CABLE AND SELECT CABLE ASSEMBLY REMOVAL STEPS

>>E<< 1. SHIFT KNOB
- FLOOR CONSOLE BOX (REFER TO GROUP 52A, FLOOR CONSOLE ASSEMBLY P.52A-28).

>>D<< 2. SELECT CABLE CONNECTION (SHIFT LEVER SIDE)
3. CLIP

<<A>> >>C<< 4. SHIFT CABLE CONNECTION (SHIFT LEVER SIDE)
- AIR CLEANER ASSEMBLY (REFER TO GROUP 15, AIR CLEANER P.15-4 <2.4L ENGINE> P.15-5 <3.8L ENGINE>).
- BATTERY AND BATTERY TRAY
- ENGINE CONTROL MODULE (REFER TO GROUP 13A, ENGINE CONTROL MODULE (ECM) AND POWERTRAIN CONTROL MODULE P.13A-1214 <2.4L ENGINE> OR GROUP 13B, ENGINE CONTROL MODULE (ECM) AND POWERTRAIN CONTROL MODULE P.13B-1295 <3.8L ENGINE>).

5. SNAP PIN

>>B<< 6. SELECT CABLE CONNECTION (TRANSAXLE SIDE)

>>B<< 7. SHIFT CABLE CONNECTION (TRANSAXLE SIDE)

SHIFT CABLE AND SELECT CABLE ASSEMBLY REMOVAL STEPS (Continued)
- HEATER UNIT AND FRONT DECK CROSSMEMBER ASSEMBLY (REFER TO GROUP 55A, HEATER UNIT, HEATER CORE, BLOWER ASSEMBLY AND EVAPORATOR UNIT P.55A-194).

>>B<< 8. SHIFT CABLE AND SELECT CABLE ASSEMBLY

<<B>> >>A<< 9. GEARSHIFT LINK CLIP

SHIFT LEVER ASSEMBLY REMOVAL STEPS

>>E<< 1. SHIFT KNOB
- FLOOR CONSOLE BOX (REFER TO GROUP 52A, FLOOR CONSOLE ASSEMBLY P.52A-28).

>>D<< 2. SELECT CABLE CONNECTION (SHIFT LEVER SIDE)
3. CLIP

<<A>> >>C<< 4. SHIFT CABLE CONNECTION (SHIFT LEVER SIDE)

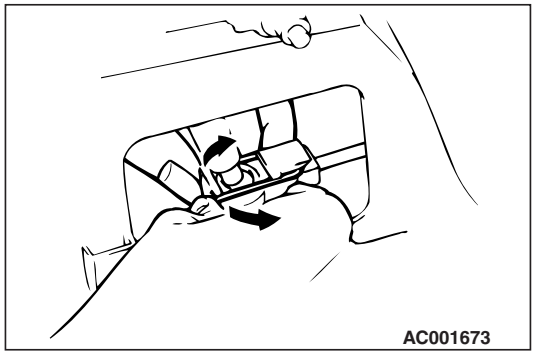
10. SHIFT LEVER ASSEMBLY

REMOVAL SERVICE POINT

<<A>> SHIFT CABLE CONNECTION (SHIFT LEVER SIDE) REMOVAL

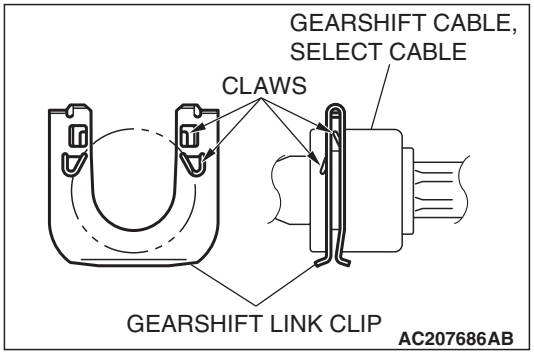
⚠ CAUTION

Be careful not to disengage the clip from the shift cable or deform it.

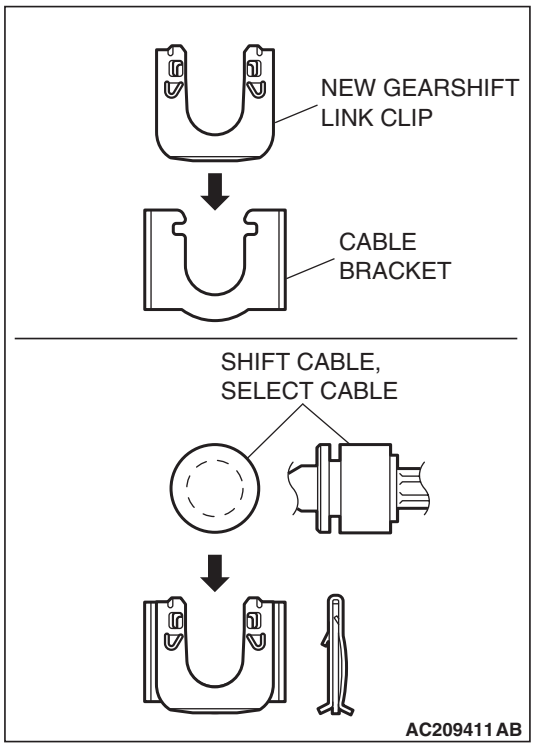


Expand the clip at the shift cable end toward the arrow direction, and remove the cable from the shift lever by pushing the shift cable down.

<<B>> GEARSHIFT LINK CLIP 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 LINK CLIP INSTALLATION

⚠ CAUTION

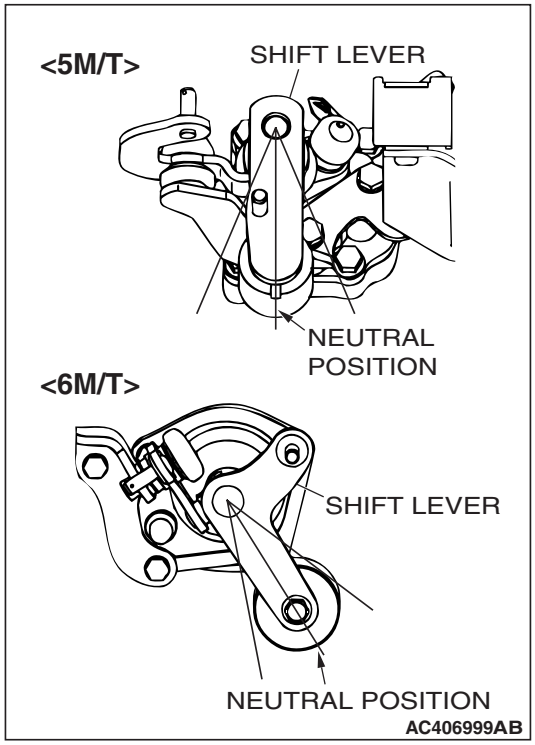
Insert thoroughly the gearshift link clip, shift cable and select cable until they click in place.

1. 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.

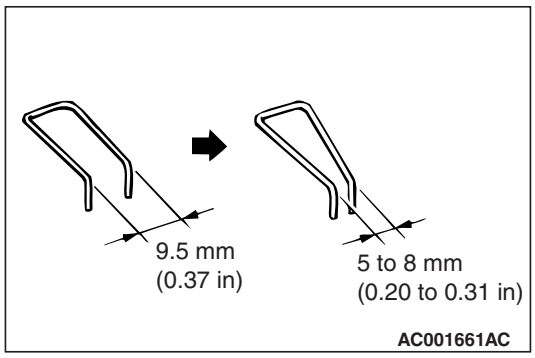
2. Move the shift lever to all positions and check that the operation is smooth.

>>B<< SHIFT CABLE AND SELECT CABLE ASSEMBLY/SHIFT CABLE CONNECTION (TRANSAXLE SIDE)/SELECT CABLE CONNECTION (TRANSAXLE SIDE) INSTALLATION

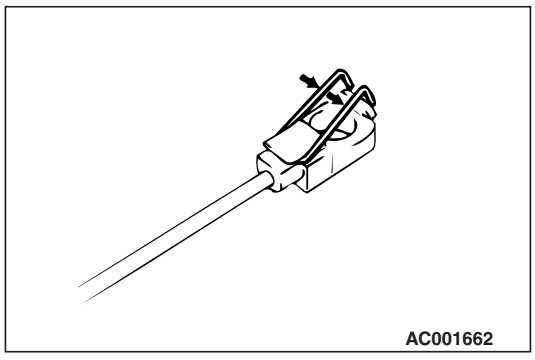


1. Set the transaxle side shift lever and the passenger compartment side shift lever to the neutral position.
2. For the transaxle side, the white and yellow paint marks on the shift and select cable ends should face the snap pins.
3. Move the shift lever to all positions and check that the operation is smooth.

>>C<< SHIFT CABLE CONNECTION (SHIFT LEVER SIDE) INSTALLATION

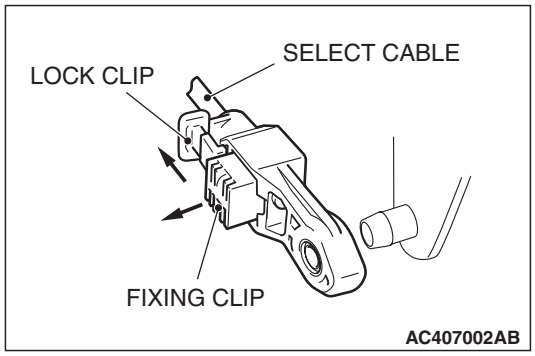


1. Make sure that there is no excessive play at the shift cable end clip. If there is excessive play or the clip is disengaged from the shift cable end, check the clip opening gap. If the gap is more than 9.5 mm (0.37 inch), squeeze the clip until the gap reaches 5 to 8 mm (0.20 to 0.31 inch).

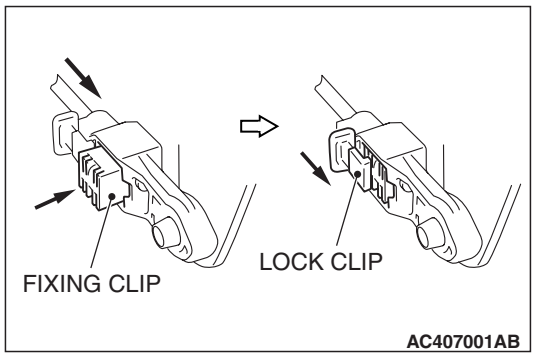


2. Engage the clip with the shift cable hook securely, and push the clip with your thumbs until it clicks in place.
3. Install the shift cable to the shift lever.

>>D<< SELECT CABLE CONNECTION (SHIFT LEVER SIDE) INSTALLATION <6M/T>



1. Place the shift lever to the neutral position .
2. Move the lock clip of the select cable towards the arrowed direction in the figure, and pull the fixing clip.
3. Install the select cable to the select lever, taking care not to move the shift lever from the neutral position.



4. Pulling the select cable slightly towards the cabin side, press in the fixing clip of the select cable. Then, return the lock clip back to the original state.
5. Move the shift lever to all shift positions.

   NOTE: If the shift lever cannot be moved to each position or is difficult to move, repeat from step 1 to step 5.

>>E<< SHIFT KNOB INSTALLATION

Screw in the shift knob. When the shift knob is hard to turn (approximately seven turns), screw in the shift knob four additional turns until its shift pattern faces forward.

TRANSAXLE ASSEMBLY

REMOVAL AND INSTALLATION <5M/T>

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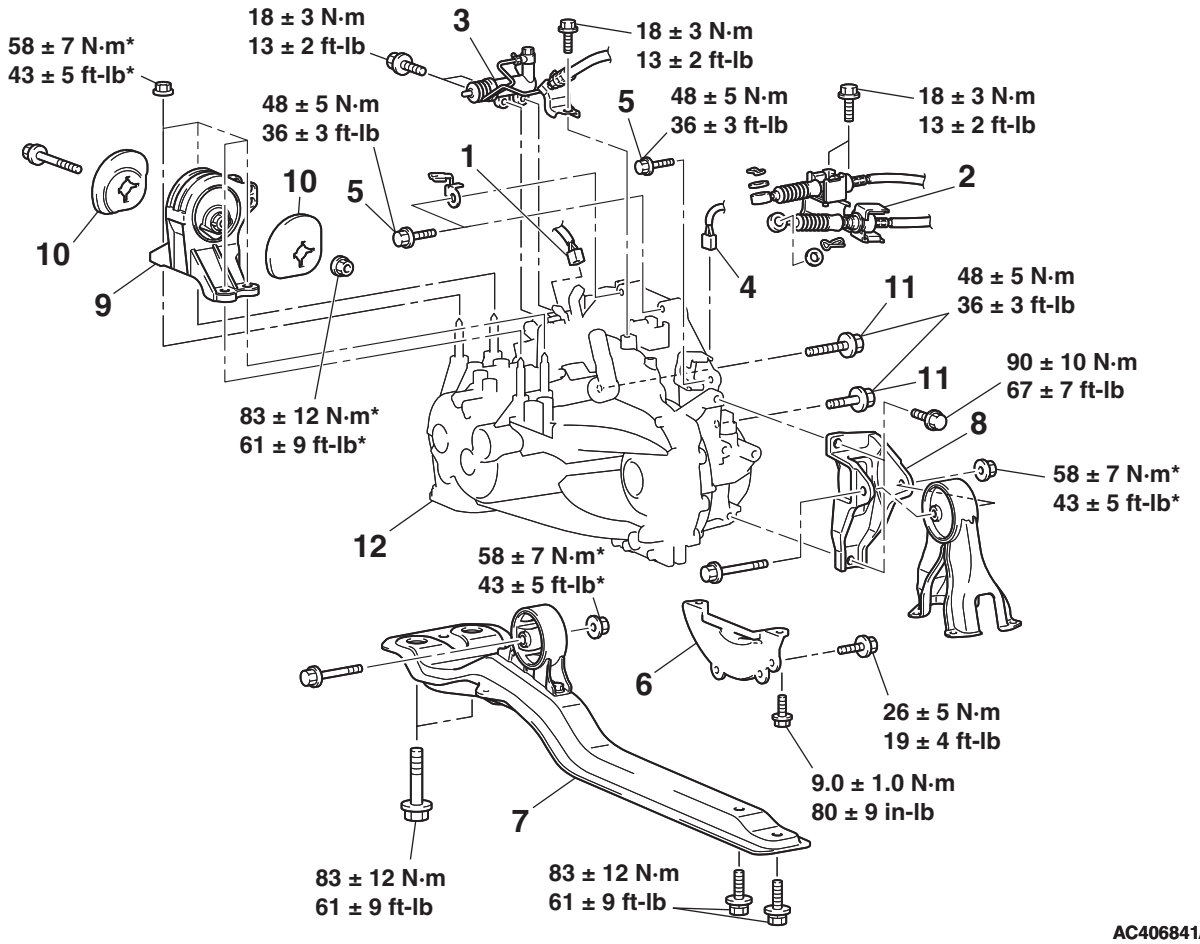
⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.**

Pre-removal Operation	Post-installation Operation
• Transmission Oil Draining (Refer to P.22A-10). • Side Under Cover (LH) Removal (Refer to GROUP 51, Under Cover P.51-8). • Front No.1 Exhaust Pipe Removal (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-23). • Drive Shaft Removal (Refer to GROUP 26, Drive Shaft Assembly P.26-14). • Battery and Battery Tray Removal • Air Cleaner Assembly Removal (Refer to GROUP 15, Air Cleaner P.15-4). • Engine Control Module Removal (Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13A-1214). • Starter Assembly Removal (Refer to GROUP 16, Starter Motor Assembly P.16-27).	• Starter Assembly Installation (Refer to GROUP 16, Starter Motor Assembly P.16-27). • Engine Control Module Removal (Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13A-1214). • Air Cleaner Assembly Installation (Refer to GROUP 15, Air Cleaner P.15-4). • Battery and Battery Tray Installation • Drive Shaft Installation (Refer to GROUP 26, Drive Shaft Assembly P.26-14). • Front No.1 Exhaust Pipe Installation (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-23). • Side Under Cover (LH) Installation (Refer to GROUP 51, Under Cover P.51-8). • Transaxle Oil Refilling (Refer to P.22A-10). • Shift Lever Operation Check • Speedometer Operation Check • Wheel Alignment Adjustment (Refer to GROUP 33, On-vehicle Service –Wheel Alignment Check and Adjustment P.33-6).



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TSB Revision

REMOVAL STEPS

1. BACKUP LIGHT SWITCH CONNECTOR
2. SHIFT CABLE AND SELECT CABLE CONNECTION

<<A>>

3. CLUTCH RELEASE CYLINDER CONNECTION
4. VEHICLE SPEED SENSOR CONNECTOR
5. TRANSAXLE ASSEMBLY UPPER PART COUPLING BOLTS
6. BELL HOUSING COVER

REMOVAL STEPS (Continued)

7. CENTERMEMBER ASSEMBLY
8. REAR ROLL STOPPER BRACKET

<<B>>

9. TRANSAXLE MOUNTING BODY SIDE BRACKET

>>A<<

10. TRANSAXLE MOUNTING STOPPER

<<C>>

- ENGINE ASSEMBLY SUPPORT

11. TRANSAXLE ASSEMBLY LOWER PART COUPLING BOLTS
12. TRANSAXLE ASSEMBLY

Required Special Tools:

- MB991454: Engine Hanger Balancer (chain)
- MB991527: Hanger
- MB991895: Engine Hanger
- MB991928: Engine Hanger
- Slide bracket (HI)
- MB991931: Joint (140)
- MB991932: Foot (standard)

REMOVAL SERVICE POINTS

<<A>> CLUTCH RELEASE CYLINDER DISCONNECTION

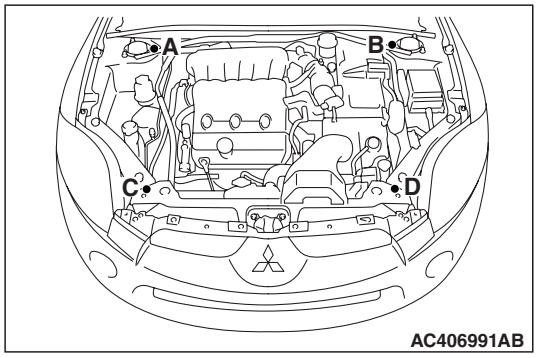
Remove the clutch release cylinder without disconnecting the oil line connection, and fix it to the vehicle chassis.

<<B>> TRANSAXLE MOUNT BRACKET REMOVAL

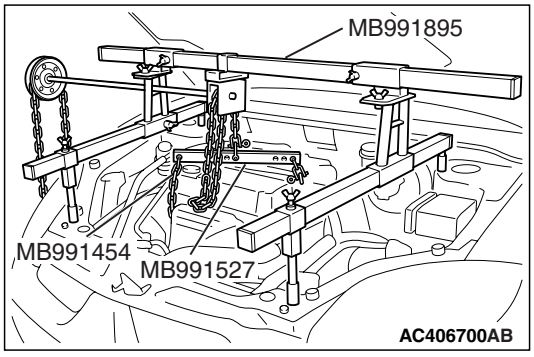
Jack up the transaxle assembly gently with a garage jack, and then remove the transaxle mount bracket.

<<C>> ENGINE ASSEMBLY SUPPORT

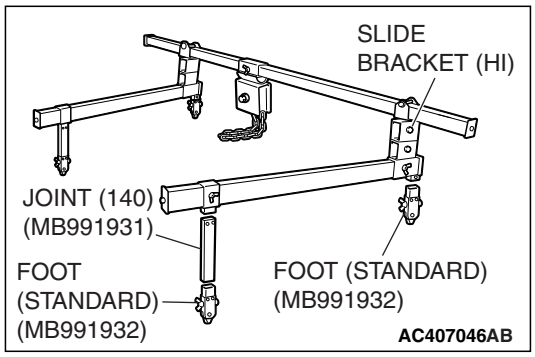
1. <Engine hanger MB991895 is used>
   (1) Set special tool MB991895 to the front fender mounting bolts (A and B) and the radiator support upper insulator mounting bolts (C and D), which are located in the engine compartment, as shown.



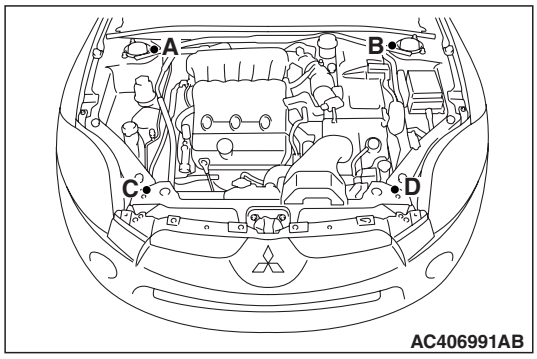
   (2) Set special tool MB991527 and MB991454 (chain) to hold the engine/transaxle assembly.



TSB Revision

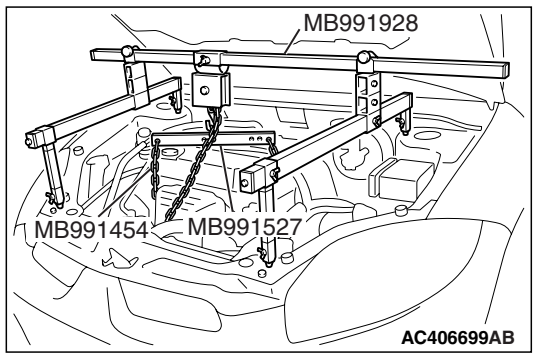


2. <Engine hanger MB991928 is used>
   (1) Assemble the engine hanger (special tool MB991928). Set following parts to the base hanger.
- Slide bracket (HI)
- Foot (standard) (MB991932)
- Joint (140) (MB991931)



   (2) Set the engine hanger (special tool MB991928) to the front fender mounting bolts (A and B) and the radiator support upper insulator mounting bolts (C and D), which are located in the engine compartment, as shown.

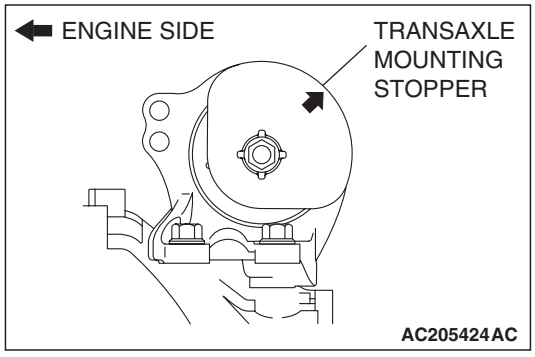
   NOTE: Adjust the engine hanger balance by sliding the slide bracket (HI).



   (3) Set special tools MB991527 and MB991454 (chain) to hold the engine/transaxle assembly.

INSTALLATION SERVICE POINTS

>>A<< TRANSAXLE MOUNT STOPPER INSTALLATION



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

REMOVAL AND INSTALLATION <6M/T>

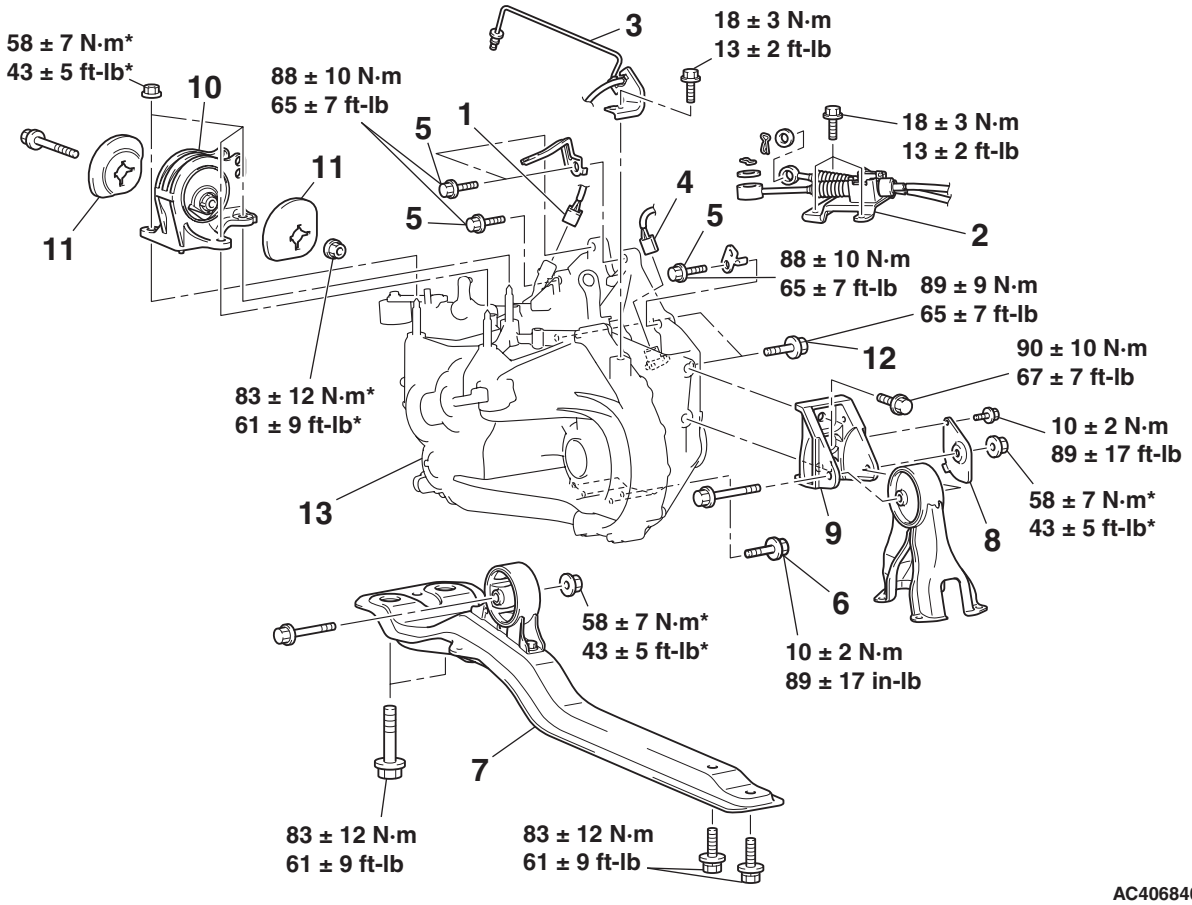
M1221002700534

⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.**

Pre-removal Operation	Post-installation Operation
• Transmission Oil Draining (Refer to P.22A-10). • Clutch Fluid Draining. • Side Under Cover (LH) Removal (Refer to GROUP 51, Under Cover P.51-8). • Front No.1 Exhaust Pipe and Front No.2 Exhaust Pipe Removal (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-24). • Drive Shaft/Drive Shaft and Inner Shaft Assembly Removal (Refer to GROUP 26, Drive Shaft Assembly P.26-14). • Strut Tower Bar Removal (Refer to GROUP 42 P.42-12). • Battery and Battery Tray Removal • Air Cleaner Assembly and Air Cleaner Resonator Removal (Refer to GROUP 15, Air Cleaner P.15-5). • Engine Control Module Removal (Refer to GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13B-1295). • Starter Assembly Removal (Refer to GROUP 16, Starter Motor Assembly P.16-30). • Engine Coolant Draining (Refer to GROUP 14, On-vehicle Service P.14-22). • Radiator Upper Hose Removal (Refer to GROUP 14, Radiator P.14-26). • Intake Manifold Plenum Removal (Refer to GROUP 15 P.15-7). • Left Bank Heated Oxygen Sensor (Front, Rear) connector and Right Bank Heated Oxygen Sensor (Front, Rear) connector Removal (Refer to GROUP 15, Exhaust Manifold P.15-19). • Engine Oil Dipstick Removal	• Engine Oil Dipstick Installation • Intake Manifold Plenum Installation (Refer to GROUP 15 P.15-7). • Left Bank Heated Oxygen Sensor (Front, Rear) connector and Right Bank Heated Oxygen Sensor (Front, Rear) connector Installation (Refer to GROUP 15, Exhaust Manifold P.15-19). • Radiator Upper Hose Installation (Refer to GROUP 14, Radiator P.14-26). • Engine Coolant Refilling (Refer to GROUP 14, On-vehicle Service P.14-22). • Starter Assembly Installation (Refer to GROUP 16, Starter Motor Assembly P.16-30). • Engine Control Module Removal (Refer to GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13B-1295). • Air Cleaner Assembly and Air Cleaner Resonator Installation (Refer to GROUP 15, Air Cleaner P.15-5). • Battery and Battery Tray Installation • Strut Tower Bar Installation (Refer to GROUP 42 P.42-12). • Drive Shaft/Drive Shaft and Inner Shaft Assembly Installation (Refer to GROUP 26, Drive Shaft Assembly P.26-14). • Front No.1 Exhaust Pipe and Front No.2 Exhaust Pipe Installation (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-24). • Side Under Cover (LH) Installation (Refer to GROUP 51, Under Cover P.51-8). • Clutch Fluid Supplying • Clutch Line Bleeding (Refer to P.21A-10). • Transaxle Oil Refilling (Refer to P.22A-10). • Shift Lever Operation Check • Speedometer Operation Check • Wheel Alignment Adjustment (Refer to GROUP 33, On-vehicle Service –Wheel Alignment Check and Adjustment P.33-6).

TSB Revision



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REMOVAL STEPS

1. BACKUP LIGHT SWITCH CONNECTOR
2. SHIFT CABLE AND SELECT CABLE CONNECTION
3. CLUTCH RELEASE CONCENTRIC CYLINDER CONNECTION
4. VEHICLE SPEED SENSOR CONNECTOR
5. TRANSAXLE ASSEMBLY UPPER PART COUPLING BOLTS
6. UPPER OIL PAN CONNECTING BOLT

<<A>>

>>A<<

<<B>>

REMOVAL STEPS (Continued)

7. CENTERMEMBER ASSEMBLY
8. HEAT PROTECTOR
9. REAR ROLL STOPPER BRACKET
10. TRANSAXLE MOUNTING BODY SIDE BRACKET
11. TRANSAXLE MOUNTING STOPPER
- ENGINE ASSEMBLY SUPPORT
12. TRANSAXLE ASSEMBLY LOWER PART COUPLING BOLTS
13. TRANSAXLE ASSEMBLY

Required Special Tools:

- MB991454: Engine Hanger Balancer
- MB991895: Engine Hanger
- MB991928: Engine Hanger
- Slide bracket (HI)
- MB991931: Joint (140)
- MB991932: Foot (standard)
- MB992012: Engine Hanger Plate A
- MB992013: Engine Hanger Plate B

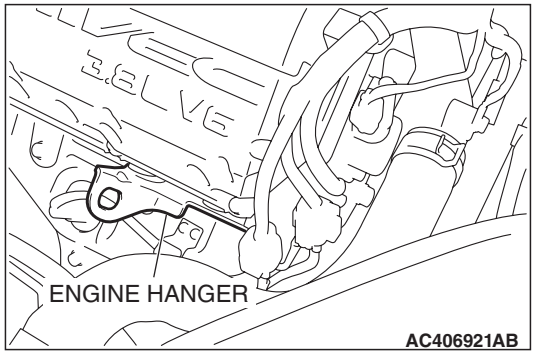
REMOVAL SERVICE POINTS

<<A>> TRANSAXLE MOUNT BRACKET REMOVAL

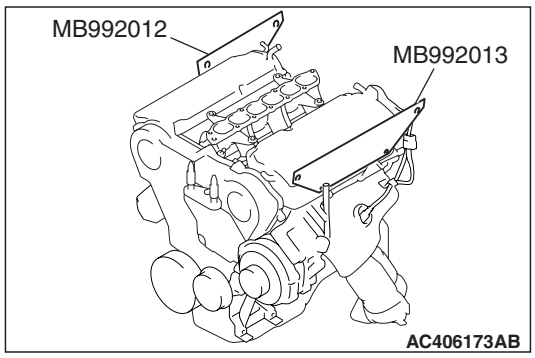
Jack up the transaxle assembly gently with a garage jack, and then remove the transaxle mount bracket.

TSB Revision

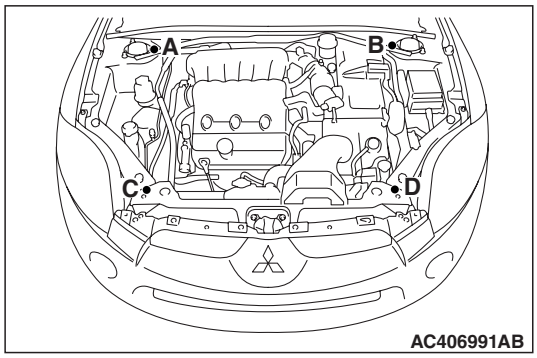
<<B>> ENGINE ASSEMBLY SUPPORT



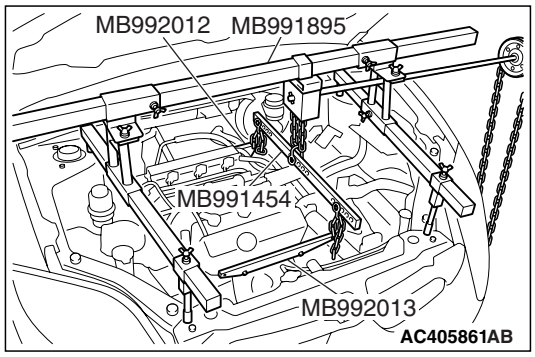
1. Remove the engine hanger.



2. After removing the intake manifold plenum stay (rear) and the engine hanger, set special tool MB992012 and MB992013 to each cylinder head.

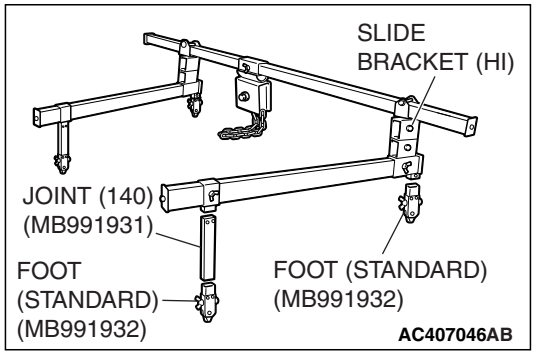


3. <Engine hanger MB991895 is used>
   (1) Set special tool MB991895 to the front fender mounting bolts (A and B) and the radiator support upper insulator mounting bolts (C and D), which are located in the engine compartment, as shown.



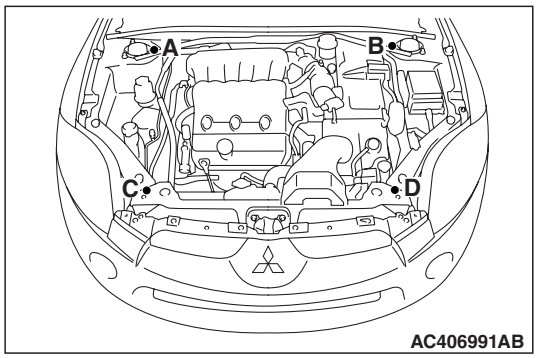
   (2) Set special tool MB991454 to hold the engine/transaxle assembly.

4. <Engine hanger MB991928 is used>



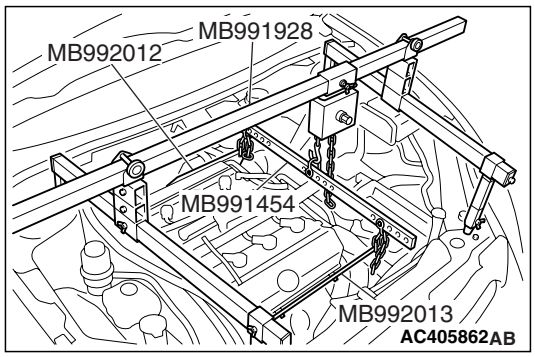
(1) Assemble the engine hanger (special tool MB991928). Set following parts to the base hanger.

- Slide bracket (HI)
- Foot (standard) (MB991932)
- Joint (140) (MB991931)



(2) Set the engine hanger (special tool MB991928) to the front fender mounting bolts (A and B) and the radiator support upper insulator mounting bolts (C and D), which are located in the engine compartment, as shown.

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

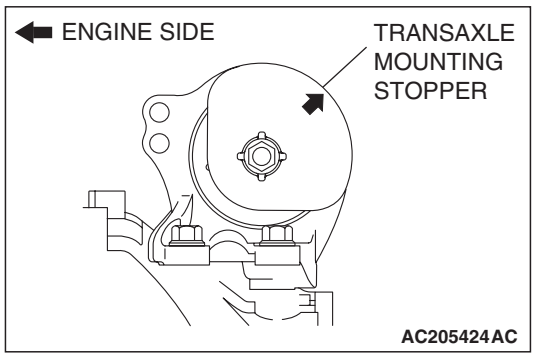


(3) Set special tools MB991454 to hold the engine/transaxle assembly.

INSTALLATION SERVICE POINTS

>>A<< TRANSAXLE MOUNT STOPPER INSTALLATION

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



SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1221006600216

ITEM		SPECIFICATION
Transaxle assembly		
Bell housing cover (to engine)	5M/T	9.0 ±1.0 N· m (80 ±9 in-lb)
Bell housing cover (to transaxle)	5M/T	26 ±5 N· m (19 ±4 ft-lb)
Centermember attaching bolt	Front side	83 ±12 N· m (61 ±9 ft-lb)
	Rear side	83 ±12 N· m (61 ±9 ft-lb)
Clutch hose bracket attaching bolt		18 ±3 N· m (13 ±2 ft-lb)
Clutch release cylinder	5M/T	18 ±3 N· m (13 ±2 ft-lb)
Engine front roll stopper bracket nut		58 ±7 N· m (43 ±5 ft-lb)
Engine rear roll stopper bracket nut		58 ±7 N· m (43 ±5 ft-lb)
Heat protector attaching bolt	6M/T	10 ±2 N· m (89 ±17 in-lb)
Shift cable and select cable assembly bracket bolt		18 ±3 N· m (13 ±2 ft-lb)
Transaxle assembly lower part coupling bolt	5M/T	48 ±5 N· m (36 ±3 ft-lb)
	6M/T	89 ±9 N· m (65 ±7 ft-lb)
Transaxle assembly upper part coupling bolt	5M/T	48 ±5 N· m (36 ±3 ft-lb)
	6M/T	88 ±10 N· m (65 ±7 ft-lb)
Transaxle case rear roll stopper bracket attaching bolt		90 ±10 N· m (67 ±7 ft-lb)
Transaxle mounting body side bracket attaching nut		58 ±7 N· m (43 ±5 ft-lb)
Transaxle mounting stopper attaching nut		83 ±12 N· m (61 ±9 ft-lb)
Transmission oil drain plug		32 ±2 N· m (24 ±1 ft-lb)
Transmission oil filler plug		32 ±2 N· m (24 ±1 ft-lb)
Upper oil pan connecting bolt	6M/T	36 ±5 N· m (26 ±4 ft-lb)
Transaxle control		
Shift cable and select cable assembly attaching bolt		12 ±2 N· m (102 ±22 in-lb)
Shift lever assembly attaching bolt		12 ±2 N· m (102 ±22 in-lb)

LUBRICANT

M1221000400366

ITEM		SPECIFIED LUBRICANTS	QUANTITY
Transmission oil dm^3 (qt)	5M/T	DiaQueen NEW MULTI GEAR OIL 75W –80 (GL-3)	2.2 (2.3)
	6M/T		2.2 (2.3)