

MANUAL TRANSMISSION

CONTENTS

22109000395

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

WARNING!

- (1) 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 driver and passenger (from rendering the SRS inoperative).
- (2) Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.
- (3) 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-ECU, SRS warning lamp, air bag module, clock spring, side impact sensors 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 (*).

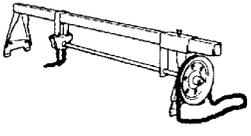
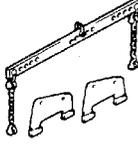
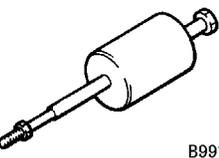
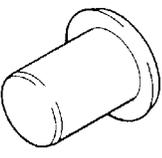
LUBRICANT

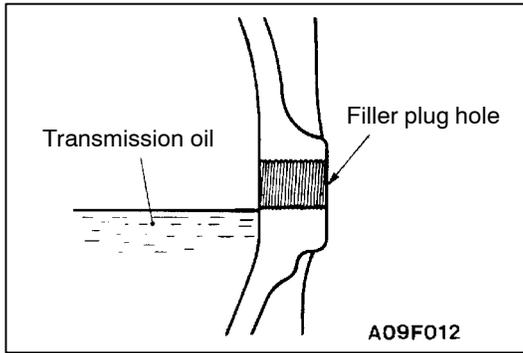
22100040310

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

SPECIAL TOOLS

221000600224

Tool	Number	Name	Use
 B991113	MB990635 or MB991113	Steering linkage puller	Ball joint disconnection
 Z203827	GENERAL SERVICE TOOL MZ203827	Engine lifter	Supporting the engine assembly during removal and installation of the transmission
 B991453	MB991453	Engine hanger	
 B991721	MB991721	Sliding hammer	Driving out of the output shaft
 B991193	MB991193	Plug	To prevent excessive transfer oil loss or system contamination



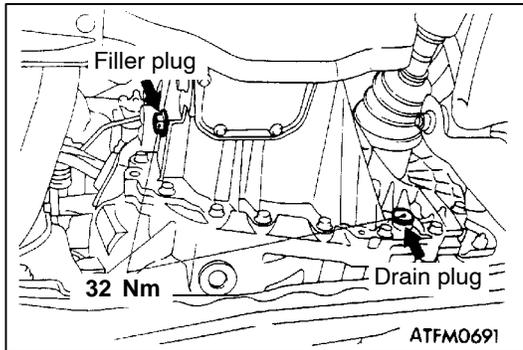
ON-VEHICLE SERVICE

22100090308

TRANSMISSION OIL CHECK

1. Remove the oil filler plug.
2. Oil level should be at the lower portion of the filler plug hole.
3. Check that the transmission oil is not noticeably dirty, and that it has a suitable viscosity.
4. Tighten the filler plug to the specified torque.

Tightening torque: 32 Nm



TRANSMISSION OIL CHANGE

22100100315

1. Remove the drain plug to drain oil.
2. Tighten the drain plug to the specified torque.
3. Remove the filler plug and fill with specified oil till the level comes to the lower portion of filler plug hole.

Transmission oil

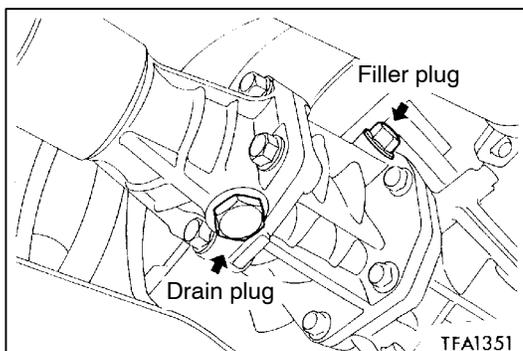
Specified oil:

**Hypoid gear oil SAE 75W - 90 or 75W - 85W
conforming to API GL-4**

Quantity: <2WD> 2.2 L

<4WD> 2.3 L

4. Tighten the filler plug to the specified torque.

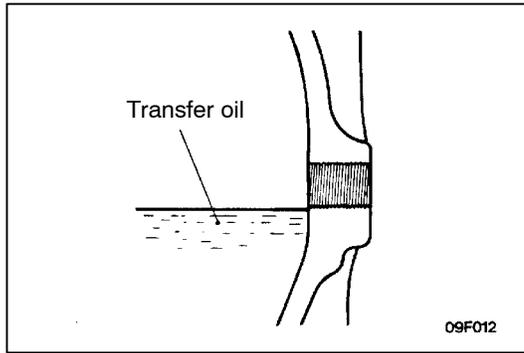


TRANSFER OIL CHECK

22100110134

1. Remove the oil filler plug.
2. Oil level should be at the lower portion of the filler plug hole.
3. Check that the transfer oil is not noticeably dirty, and it has a suitable viscosity.
4. Install the oil filler plug, and then tighten it to the specified torque.

Tightening torque: 32 Nm

**TRANSFER OIL CHANGE**

22100120137

1. Remove the oil drain plug to drain oil.
2. Install the oil drain plug, and then tighten it to the specified torque.

Tightening torque: 32 Nm

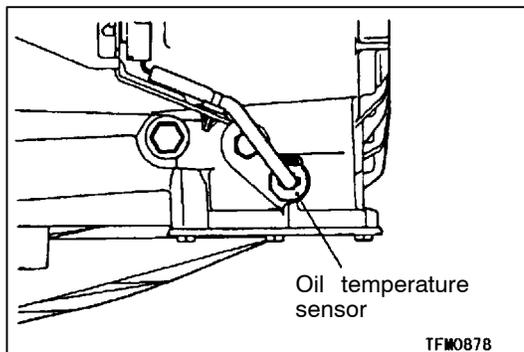
3. Remove the oil filler plug, and then fill with specified oil till the level comes to the lower portion of filler plug hole.

Transfer oil**Specified oil:**

Hypoid gear oil SAE 75W - 90 or 75W - 85W conforming to API GL-4

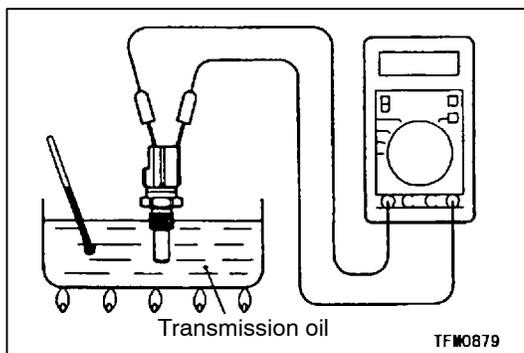
Quantity: 0.53 L

4. Install the oil filler plug, and then tighten it to the specified torque.

Specified torque: 32 Nm**OIL TEMPERATURE SENSOR CHECK**

22100670038

1. Remove the oil drain plug, and then drain the transmission oil.
2. Remove the oil temperature sensor.



3. Measure the resistance between terminals 1 and 2 of the oil temperature sensor connector.

Standard value:

Oil temperature °C	Resistance kΩ
20	2.31 - 2.59
110	0.145 - 0.149

4. If the resistance is not within the standard value, replace the oil temperature sensor.
5. Install the oil temperature sensor, and then tighten it to the specified torque.

Tightening torque: 20 - 25 Nm

6. Install the drain plug and tighten it to the specified torque. Supply a transmission oil. (Refer to P.22-3.)

TRANSMISSION CONTROL

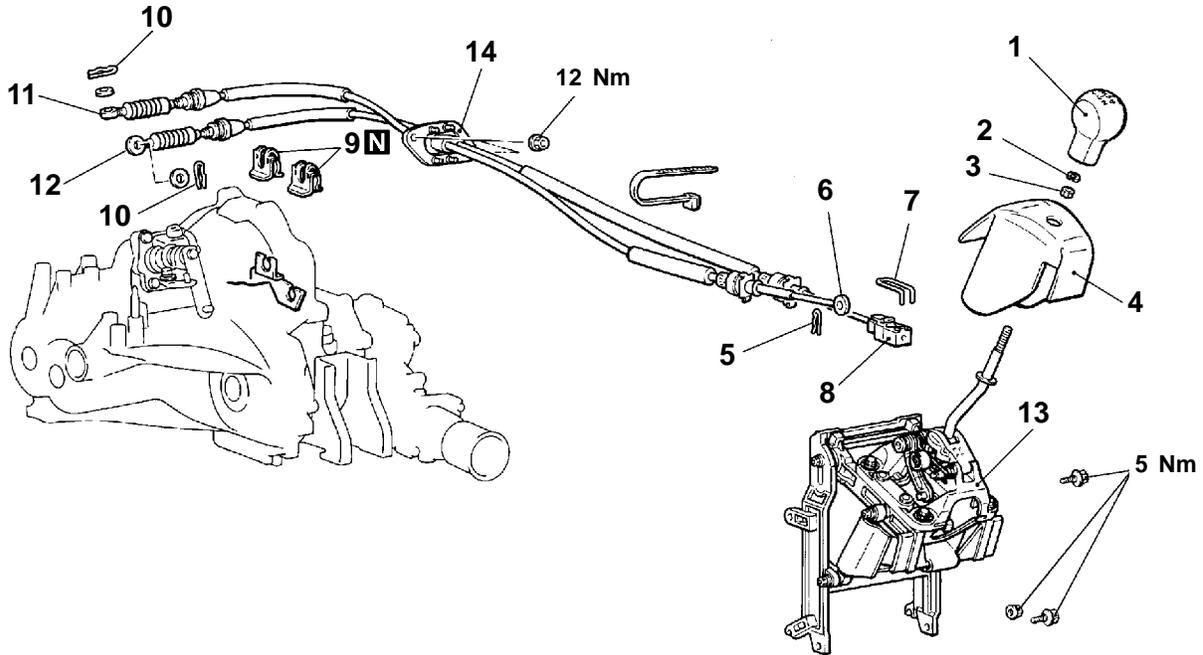
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REMOVAL AND INSTALLATION

Caution: SRS

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
 - Battery and Battery Tray Removal and Installation



AW0515AE

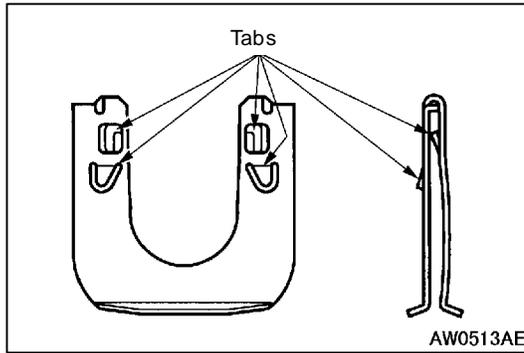
Shift cable and select cable assembly removal steps

- ▶B◀ 1. Shift knob
- ▶B◀ 2. Spring washer
- ▶B◀ 3. Nut
 - Center console box (Refer to GROUP 52A.)
- 4. Insulator
- 5. Snap pin
- 6. Select cable connection (Shift lever side)
- 7. Clip
- 8. Shift cable connection (Shift lever side)
- ◀A▶ ▶A◀ 9. Clip
- ▶A◀ 10. Snap pin
- ▶A◀ 11. Select cable connection (Transmission side)
- ▶A◀ 12. Shift cable connection (Transmission side)

- ▶A◀ 13. Shift lever assembly
- ▶A◀ 14. Shift cable and select cable assembly

Shift lever assembly removal steps

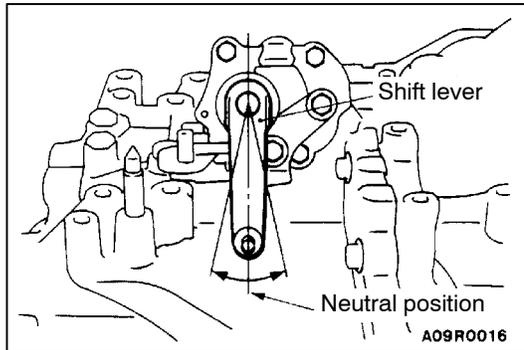
- ▶B◀ 1. Shift knob
- ▶B◀ 2. Spring washer
- ▶B◀ 3. Nut
 - Center console box (Refer to GROUP 52A.)
- 4. Insulator
- 5. Snap pin
- 6. Select cable connection (Shift lever side)
- 7. Clip
- 8. Shift cable connection (Shift lever side)
- 12. Shift lever assembly



REMOVAL SERVICE POINTS

◀A▶ CLIP REMOVAL

Pry the tabs of the clip with a screwdriver or similar, and then remove the clip.



INSTALLATION SERVICE POINTS

▶A◀ SHIFT CABLE AND SELECT CABLE ASSEMBLY/ SHIFT CABLE CONNECTION/SELECT CABLE CONNECTION

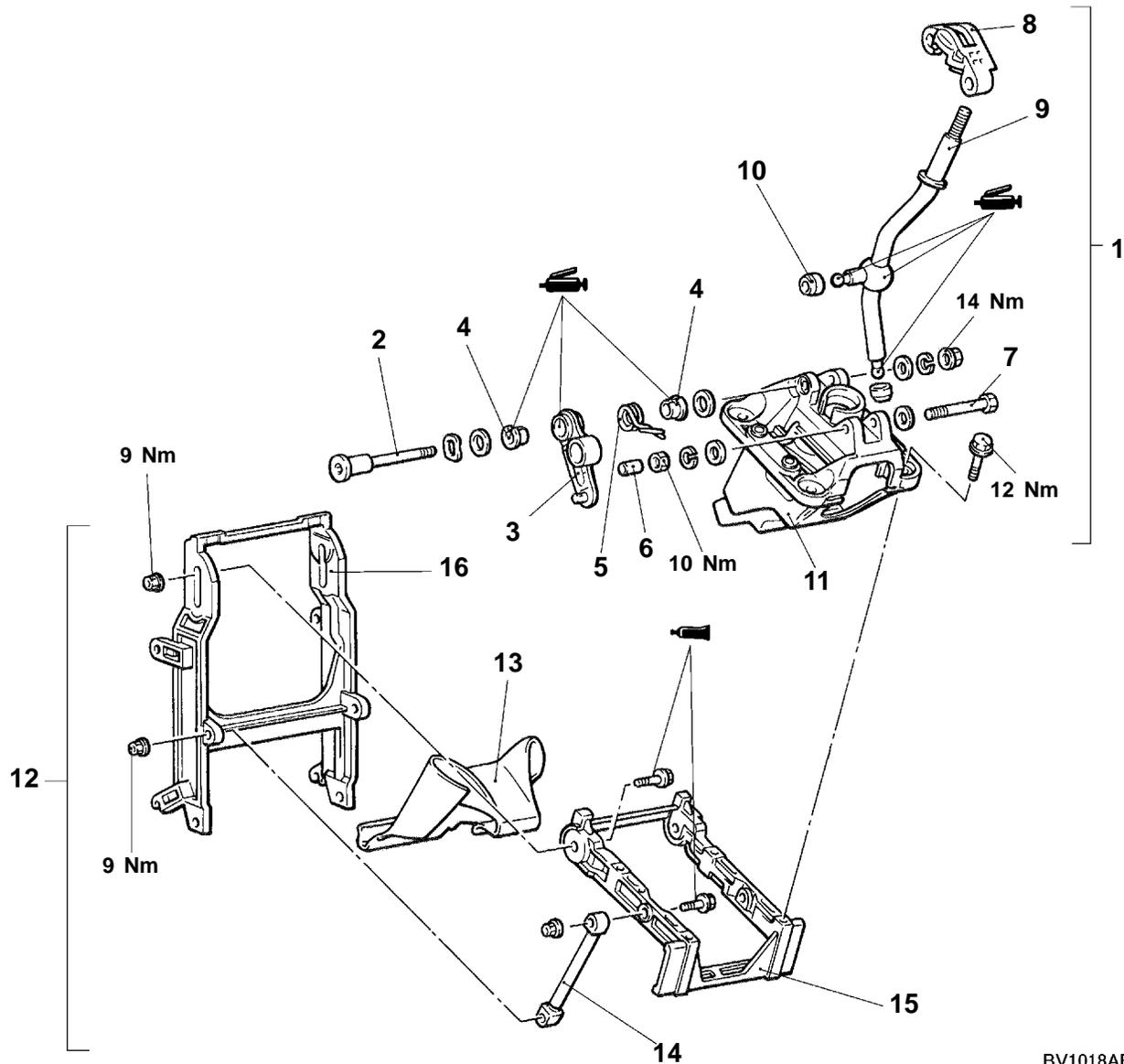
1. Set the transmission side shift lever and the passenger compartment side shift lever to the neutral position.
2. For the transmission side, the paint marks on the shift and select cable ends should face the snap pins.
3. Install new clips to the cable bracket at the transmission, and then install shift cable and select cable to the cable bracket.
4. Move the passenger compartment side shift lever to all positions and check that the operation is smooth.

▶B◀ NUT/SPRING WASHER/SHIFT KNOB INSTALLATION

1. Screw in the nut all the way by hand, turn back half a turn, and then insert the spring washer.
2. Screw in the shift knob until it touches the spring washer, and make one more turn. Then turn more to adjust the shift pattern on the shift knob.
3. If the above steps are impossible, you can turn back the shift knob by one turn at most after screwing in all the way to adjust the shift pattern.

**SHIFT LEVER ASSEMBLY
DISASSEMBLY AND REASSEMBLY**

22100400101



BV1018AE

Disassembly steps

- | | |
|-------------------|----------------------------------|
| 1. Lever assembly | 9. Shift lever |
| 2. Bolt | 10. Shift lever bushing |
| 3. Select lever | 11. Base bracket |
| 4. Bushing | 12. Lever mount bracket assembly |
| 5. Return spring | 13. Insulator |
| 6. Collar | 14. Stay |
| 7. Bolt | 15. Lever mount bracket |
| 8. Cap | 16. Base bracket |

TRANSMISSION ASSEMBLY

22100270290

<2WD>

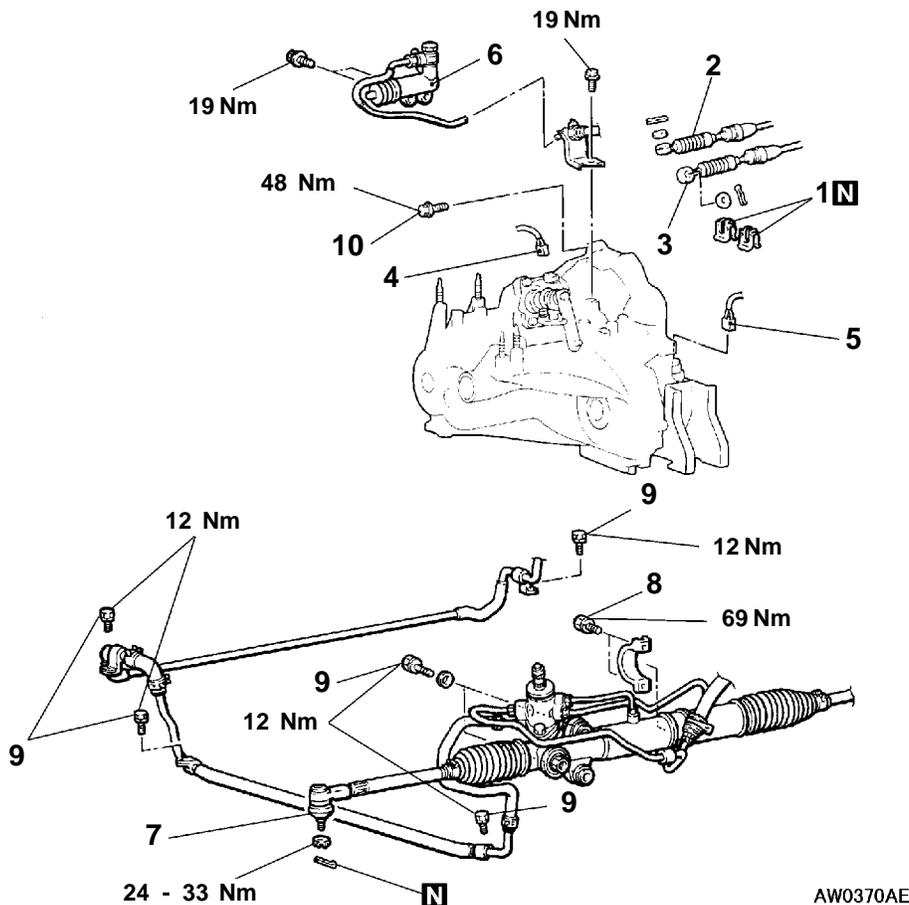
REMOVAL AND INSTALLATION

Caution

The fasteners indicated by * should be tightened to the specified torque after the engine weight is applied to the vehicle body.

Pre-removal and Post-installation Operation

- Transmission Oil Draining and Refilling (Refer to P.22-3.)
- Air Cleaner Assembly Removal and Installation
- Battery and Battery Tray Removal and Installation
- Radiator and Coolant Reservoir Removal and Installation (Refer to GROUP 14.)
- Starter Removal and Installation (Refer to GROUP 16.)
- Under Cover Removal and Installation
- Front Exhaust Pipe Removal and Installation (Refer to GROUP 15.)
- Check the Dust Cover for Crack or Damage by Pushing it with Finger <only after installation>
- Shift Lever Operation Check <only after installation>
- Instruments Operation Check <only after installation>
- Wheel Alignment Check <only after installation> (Refer to GROUP 33A - On-vehicle Service.)

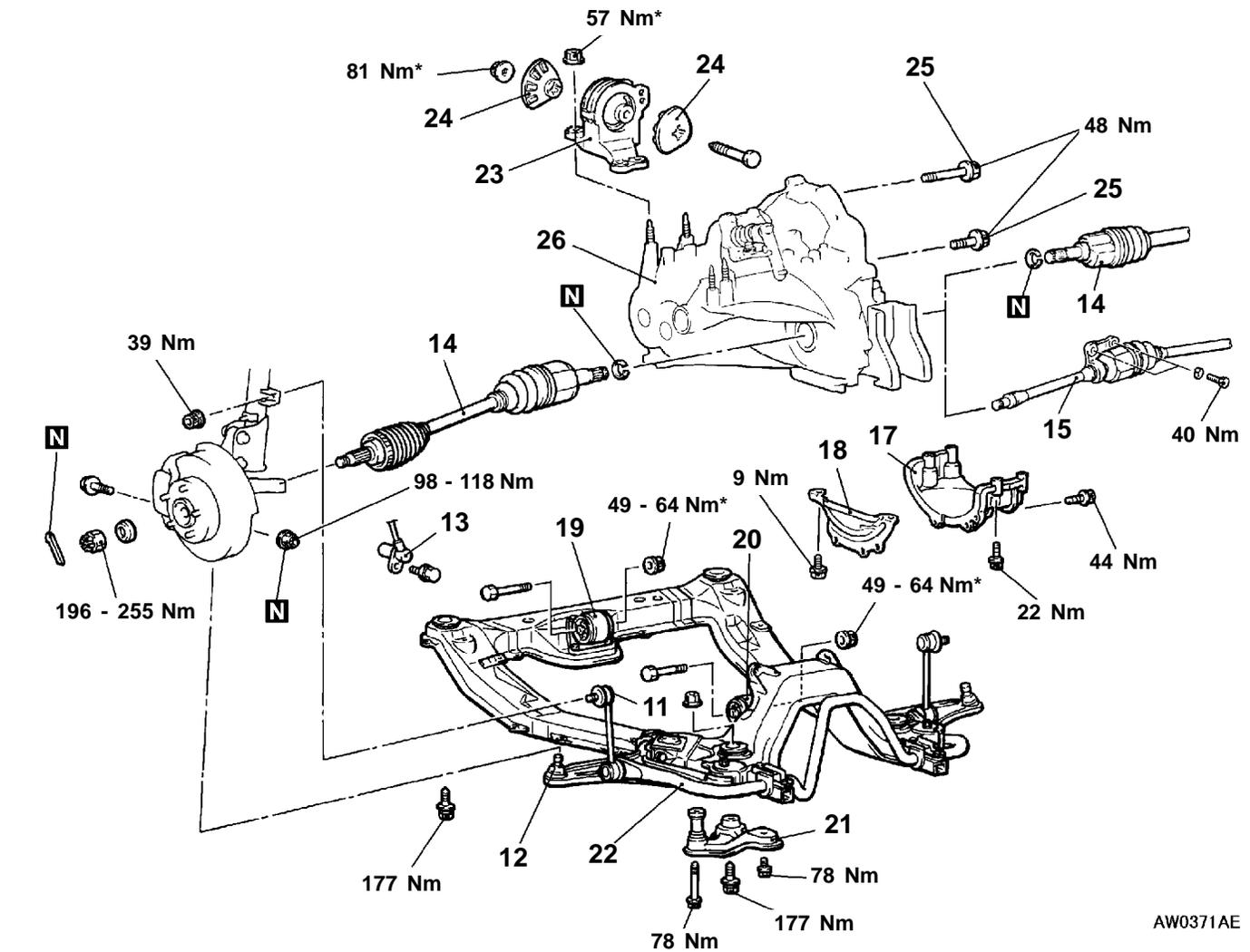


Removal steps

1. Clip (Refer to P.22-5.)
2. Select cable connection (Refer to P.22-5.)
3. Shift cable connection (Refer to P.22-5.)
4. Back-up lamp switch connector
5. Vehicle speed sensor connector



6. Clutch release cylinder connection
7. Tie rod end connection
8. Steering gear and linkage mounting bolts
9. Oil line mounting bolts
10. Transmission assembly upper coupling bolt



AW0371AE

- | | | | |
|-----|--|-----|---|
| ▶C◀ | 11. Stabilizer link connection | ▶A◀ | 20. Rear roll stopper connection |
| ▶C◀ | 12. Lower arm connection | ▶E◀ | 21. Stay |
| ▶C◀ | 13. Wheel speed sensor connection
(Refer to GROUP 35B.) | ▶F◀ | 22. Front member assembly |
| ▶C◀ | ▶B◀ 14. Drive shaft <Except SPACE WAGON-R.H.> | ▶G◀ | 23. Transmission mount bracket |
| ▶C◀ | ▶B◀ 15. Drive shaft and inner shaft <SPACE WAGON-R.H.> | ▶G◀ | 24. Transmission mount stopper
● Engine and transmission assembly supporting |
| | 17. Transmission stay | | 25. Transmission assembly lower part coupling bolts |
| | 18. Bell housing cover | | 26. Transmission assembly |
| | 19. Front roll stopper connection | | |

<4WD>

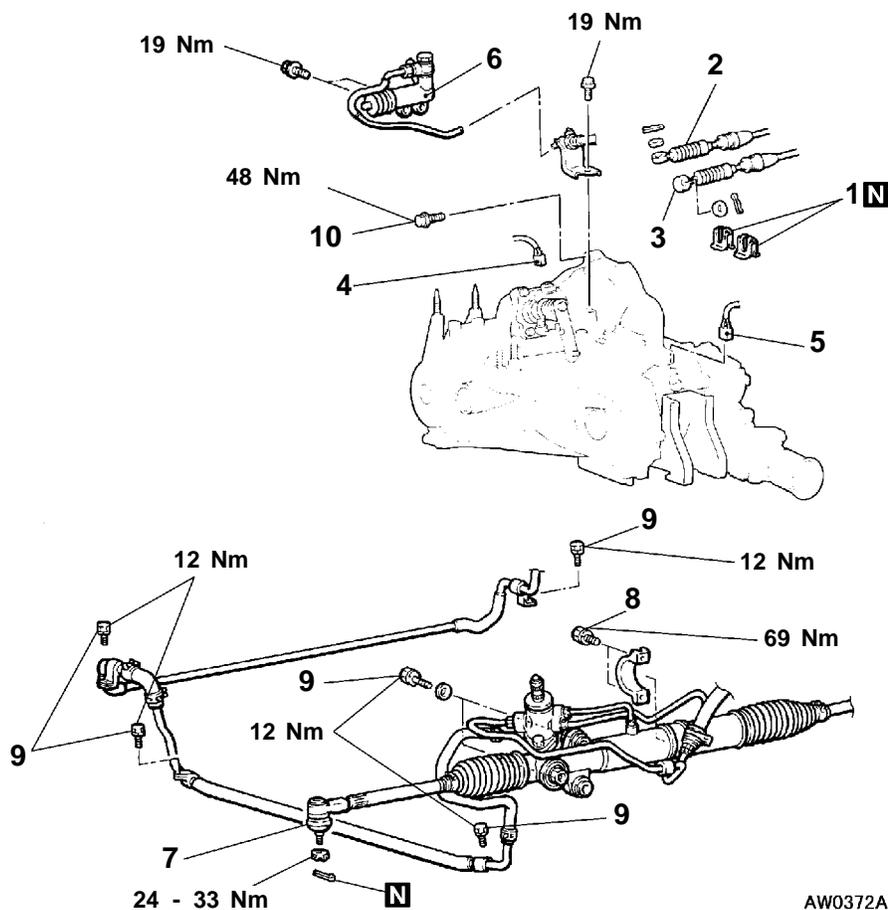
REMOVAL AND INSTALLATION

Caution

The fasteners indicated by * should be tightened to the specified torque after the engine weight is applied to the vehicle body.

Pre-removal and Post-installation Operation

- Transmission Oil Draining and Refilling (Refer to P.22-3.)
- Transfer Oil Draining and Refilling (Refer to P.22-3.)
- Air Cleaner Assembly Removal and Installation
- Battery and Battery Tray Removal and Installation
- Radiator and Coolant Reservoir Removal and Installation (Refer to GROUP 14.)
- Starter Removal and Installation (Refer to GROUP 16.)
- Propeller Shaft Removal and Installation (Refer to GROUP 25.)
- Under Cover Removal and Installation
- Front Exhaust Pipe Removal and Installation (Refer to GROUP 15.)
- Check the Dust Cover for Crack or Damage by Pushing it with Finger <only after installation>
- Shift Lever Operation Check <only after installation>
- Instruments Operation Check <only after installation>
- Wheel Alignment Check <only after installation> (Refer to GROUP 33A - On-vehicle Service.)



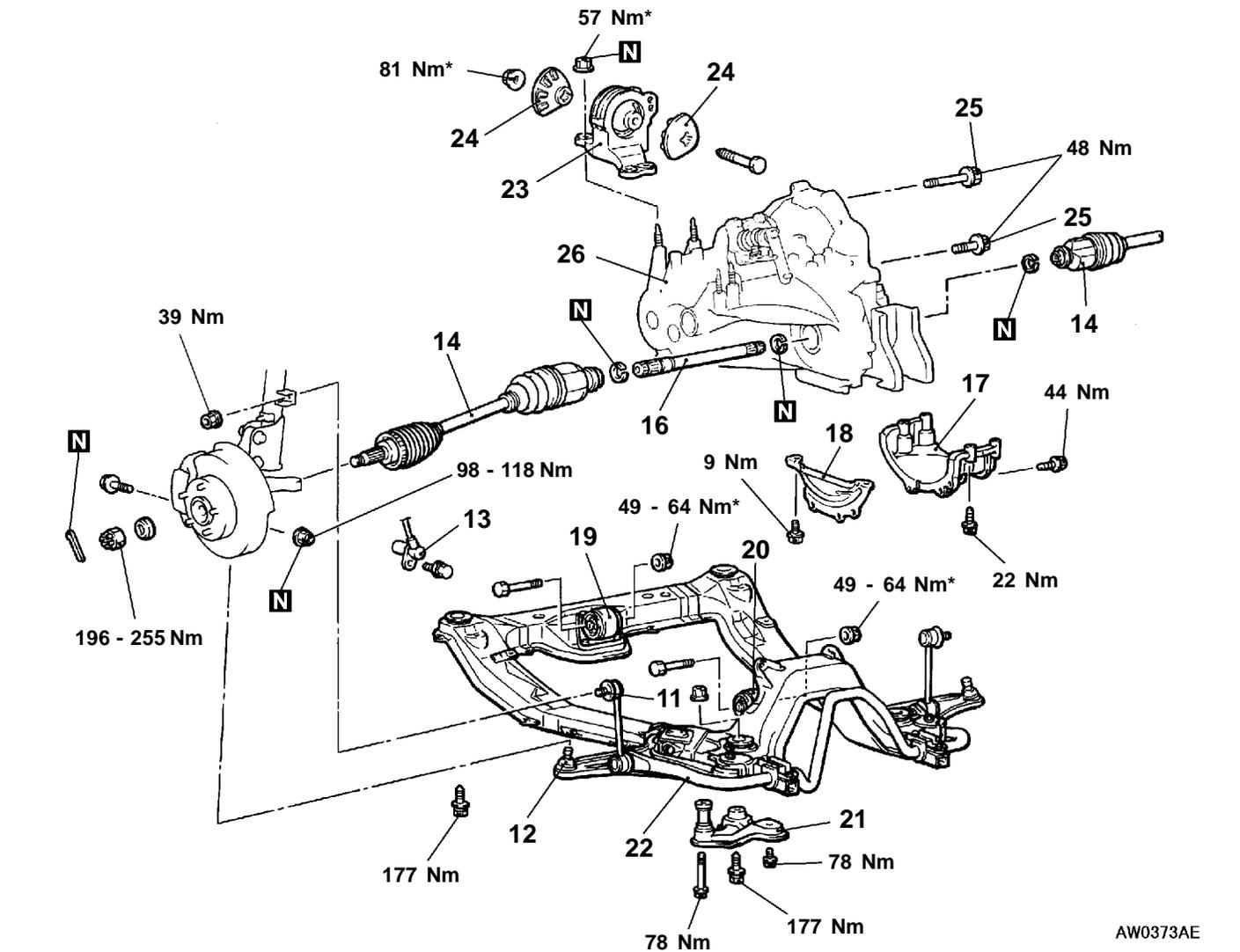
AW0372AE

Removal steps

1. Clip (Refer to P.22-5.)
2. Select cable connection (Refer to P.22-5.)
3. Shift cable connection (Refer to P.22-5.)
4. Back-up lamp switch connector
5. Vehicle speed sensor connector

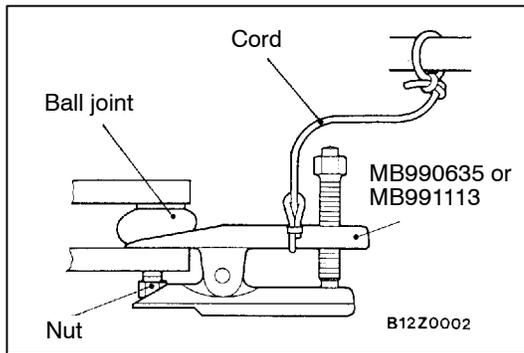


6. Clutch release cylinder connection
7. Tie rod end connection
8. Steering gear and linkage mounting bolts
9. Oil line mounting bolts
10. Transmission assembly upper coupling bolt



AW0373AE

- | | | | |
|-----|--|-----|---|
| ▶C◀ | 11. Stabilizer link connection | ▶A◀ | 20. Rear roll stopper connection |
| ◀C▶ | 12. Lower arm connection | ◀E▶ | 21. Stay |
| ◀D▶ | 13. Wheel speed sensor connection
(Refer to GROUP 35B.) | ◀F▶ | 22. Front member assembly |
| ◀B▶ | 14. Drive shaft | ◀G▶ | 23. Transmission mount bracket |
| ◀B▶ | 16. Output shaft | ◀G▶ | 24. Transmission mount stopper |
| | ● Transfer assembly removal (Refer to P.22-15.) | | ● Engine and transmission assembly supporting |
| | 17. Transmission stay | | 25. Transmission assembly lower part coupling bolts |
| | 18. Bell housing cover | | 26. Transmission assembly |
| | 19. Front roll stopper connection | | |



REMOVAL SERVICE POINTS

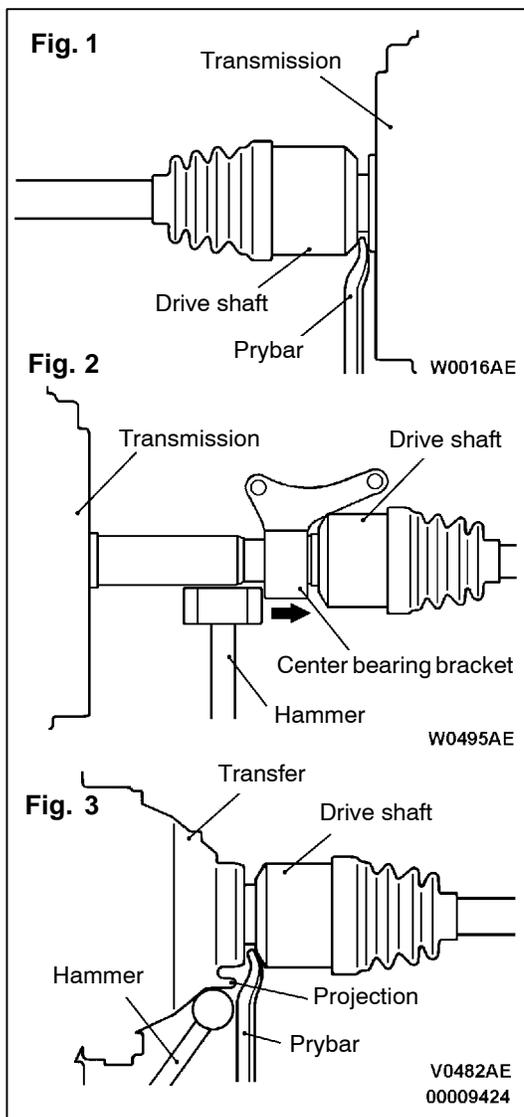
◀A▶ TIE ROD END DISCONNECTION

Caution

1. Use the special tool to loosen the tie rod end mounting nut. Only loosen the nut; do not remove it from the ball joint.
2. Support the special tool with a cord, etc. not to let it come off.

◀B▶ STEERING GEAR AND LINKAGE MOUNTING BOLT REMOVAL

Remove the steering gear and linkage mounting bolts, and then support the steering gear box to the vehicle body with a wire.



◀C▶ DRIVE SHAFT/DRIVE SHAFT AND INNER SHAFT ASSEMBLY REMOVAL

Remove the drive shaft or the drive shaft and inner shaft assembly from the transmission by the following procedure:

2WD (except SPACE WAGON-M/T-R.H.), 4WD (L.H.)	Fig. 1
2WD (SPACE WAGON-M/T-R.H.)	Fig. 2
4WD (R.H.)	Fig. 3

<Fig. 1>

Insert a pry bar between the drive shaft and the transmission case, and then pry off the drive shaft.

<Fig. 2>

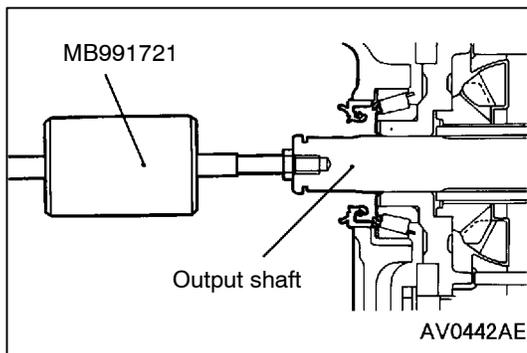
Tap the center bearing bracket with a hammer to remove the drive shaft.

<Fig. 3>

Place a hammer on the projection at the transfer and insert a pry bar between the drive shaft and the transfer, and then pry off the drive shaft.

Caution

1. Above-mentioned procedure must be observed. Pulling the B.J. assembly to remove the drive shaft or drive shaft and inner shaft assembly will damage the T.J. assembly.
2. Take care that the transmission oil seal will not be damaged by the drive shaft spline.



◀D▶ **OUTPUT SHAFT REMOVAL**

1. Use the special tool to withdraw the output shaft.

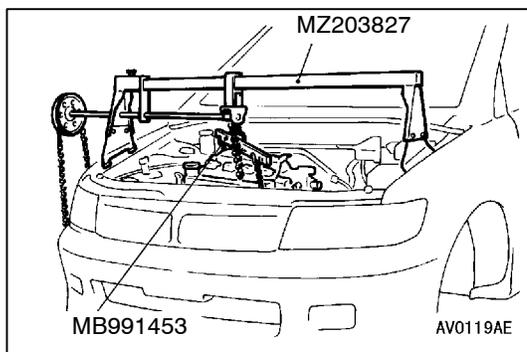
Caution

Be careful not to damage the oil seal of the transmission by the spline of the output shaft.

2. Use a shop towel to cover the transmission case not to let foreign material get into it.

◀E▶ **TRANSMISSION MOUNT BRACKET REMOVAL**

Carefully lower the transmission assembly with a garage jack, and remove the transmission mount bracket.



◀F▶ **ENGINE AND TRANSMISSION ASSEMBLY SUPPORTING**

Set the special tool to the vehicle to support the engine and transmission assembly.

◀G▶ **TRANSMISSION ASSEMBLY LOWER PART COUPLING BOLTS/TRANSMISSION ASSEMBLY REMOVAL**

1. Support the transmission assembly with a transmission jack.
2. Remove the transmission assembly lower part coupling bolts, and lower the transmission assembly to remove.

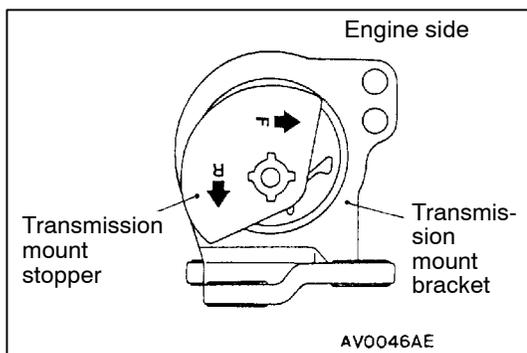
INSTALLATION SERVICE POINTS

▶A◀ **TRANSMISSION MOUNT STOPPER INSTALLATION**

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

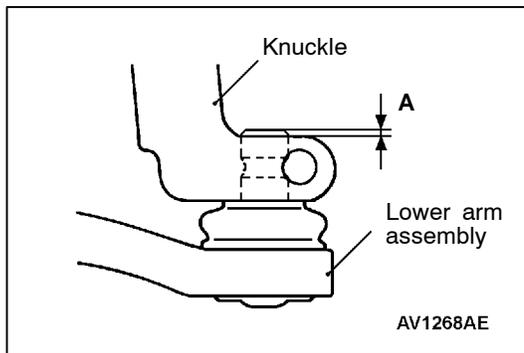
NOTE

Disregard F and R stamped as a shared part.



►B◄ OUTPUT SHAFT/DRIVE SHAFT INSTALLATION**Caution**

Be careful not to damage the oil seal of the transmission or transfer by the spline of the drive shaft or the output shaft.

**►C◄ LOWER ARM INSTALLATION**

1. Install the lower arm assembly to the knuckle.

Caution

The lower arm should not protrude 4 mm or more from the knuckle end (A shown), otherwise grease may pour out from the dust cover.

2. If grease has poured out due to the excessive arm protrusion, the dust cover must be replaced (Refer to GROUP 33A - Lower Arm).
3. There should be not clearance between the knuckle and the dust cover.

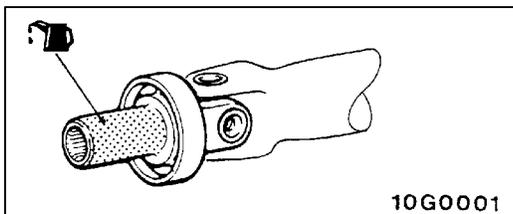
**TRANSFER ASSEMBLY
REMOVAL AND INSTALLATION**

Caution

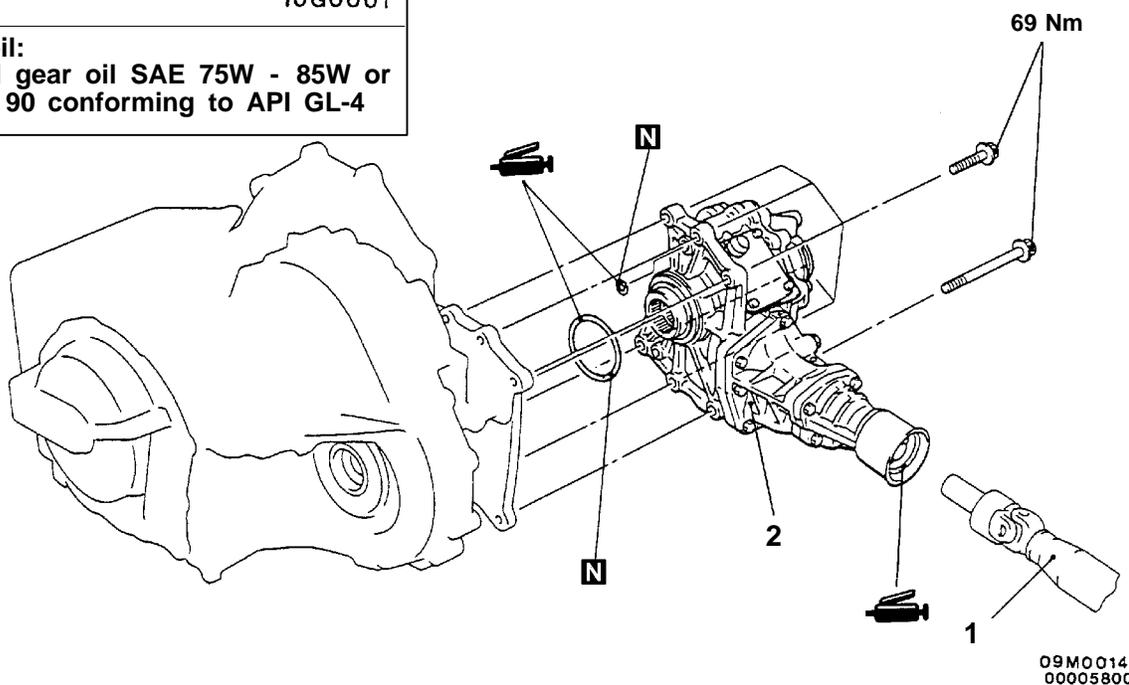
The fasteners indicated by * should be tightened to the specified torque after the engine weight is applied to the vehicle body.

Pre-removal and Post-installation Operation

- Transmission Oil Draining and Refilling (Refer to P.22-3.)
- Transfer Oil Draining and Refilling (Refer to P.22-4.)
- Front Exhaust Pipe Removal and Installation (Refer to GROUP 15.)

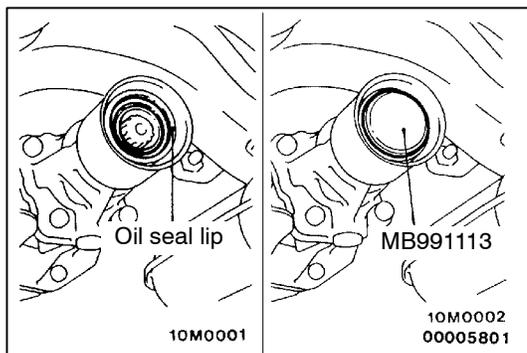


Gear oil:
Hypoid gear oil SAE 75W - 85W or
75W - 90 conforming to API GL-4



Removal steps

- Drive shaft connection (Refer to P.22-11.)
 - Output shaft (Refer to P.22-11.)
- ◀A▶
1. Front propeller shaft (Refer to GROUP 25.)
 2. Transfer assembly



REMOVAL SERVICE POINT

◀A▶ **TRANSFER ASSEMBLY REMOVAL**

Caution

1. Be careful not to damage the transfer oil seal lip.
2. Use the special tool to plug the transfer case opening to prevent excessive oil loss or system contamination.

NOTES