
PROPELLER SHAFT

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GENERAL INFORMATION

A two-joint propeller shaft was used for both the front and rear.

Rear propeller shaft is equipped with a carbon-fiber reinforced plastic (CFRP) tube.

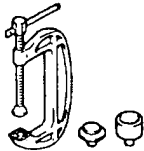
SERVICE SPECIFICATIONS

Items	Standard value	Limit
Propeller shaft runout mm	–	0.5
Clearance between rear propeller shaft tube end and shaft mm	0.2 – 0.5	–
Clearance of snap ring groove mm	0 – 0.06	–

LUBRICANT

Items	Specified lubricant	Quantity
Propeller shaft sleeve yoke	Hypoid gear oil SAE 75W-90 or 75W-85W or 80W conforming to API GL-4	As required

SPECIAL TOOL

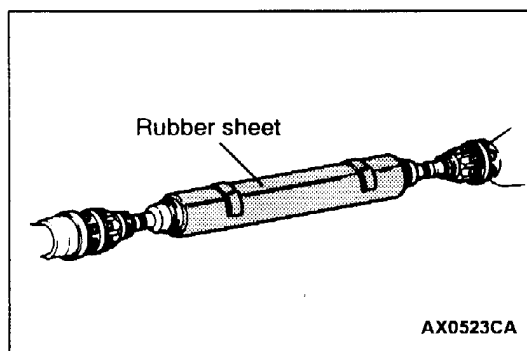
Tool	Number	Name	Use
 B990840	MB990840	Universal joint remover and installer	Disassembly and reassembly of the universal joint

PROPELLER SHAFT

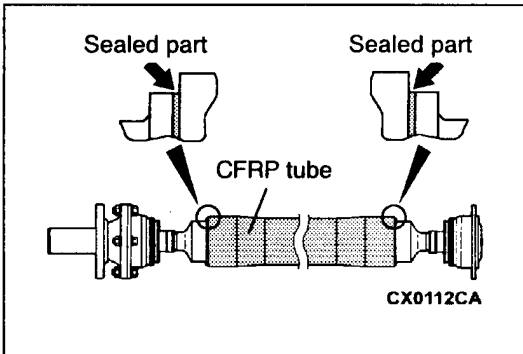
Caution

Observe the following precautions, as the rear propeller shaft uses a carbon fiber-reinforced plastic (CFRP) tube.

1. If a scratch is found on the propeller shaft tube, check that the tube is damaged by using a dye penetrant method.
2. If the tube is cracked, chipped or bent, replace the propeller shaft.
3. Be careful not to impact or damage the tube.
4. If the propeller shaft has been dropped accidentally, replace it.



5. In order to prevent damage, wrap a rubber sheet thicker than 10 mm or a special rubber sheet (parts No.: MR534563 – for short wheel base/parts No.: MR534564 – for long wheelbase) around the propeller shaft tube during the operation.



6. Replace the propeller shaft if cracks or peelings are found at the sealed part.
7. It is recommended that a defective propeller shaft should be buried in the earth. Toxic material never leaks from the buried propeller shaft tube.

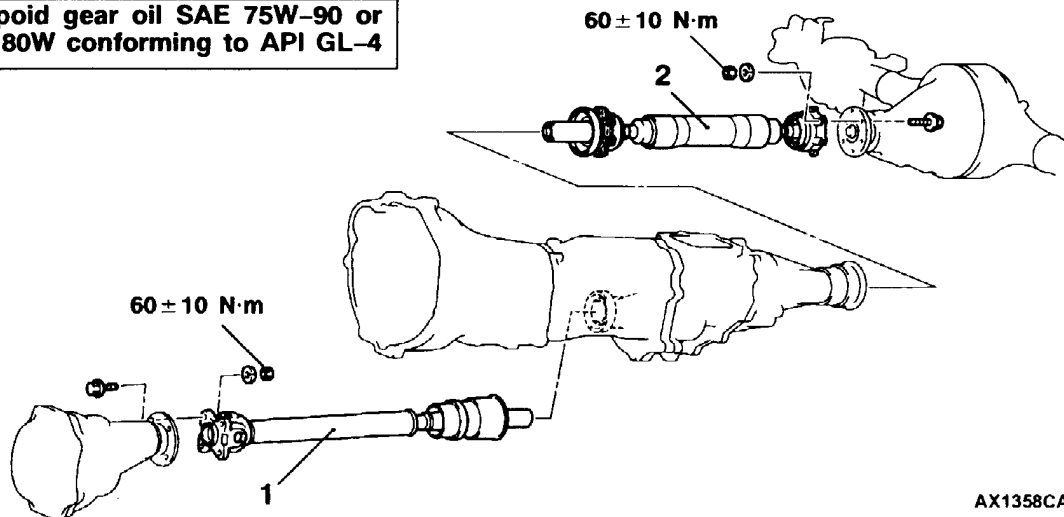
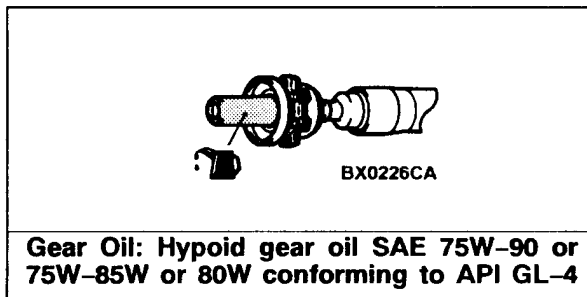
REMOVAL AND INSTALLATION

Pre-removal Operation

Wrap the rubber sheet around the rear propeller shaft (prior to the removal)

Post-installation Operation

- Remove the the rubber sheet, which is wrapped around the rear CFRP propeller shaft, and then visually check for any cracks.
(After installation of the rear CFRP propeller shaft)
- Transfer Gear Oil Supplying
(After the front propeller shaft installation)
(M/T: Refer to GROUP 22 – On-vehicle Service.)
(A/T: Refer to GROUP 23 – On-vehicle Service.)



- ◀A▶ ▶B▶ 1. Front propeller shaft assembly
 ▶B▶ ▶A▶ 2. Rear propeller shaft assembly

REMOVAL SERVICE POINTS

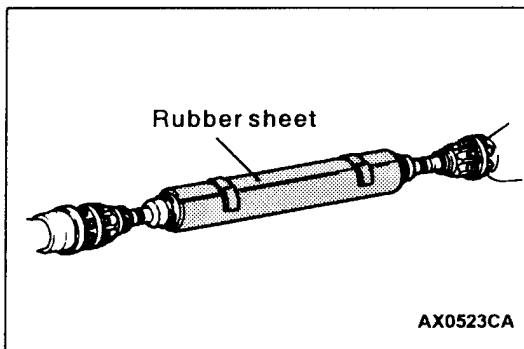
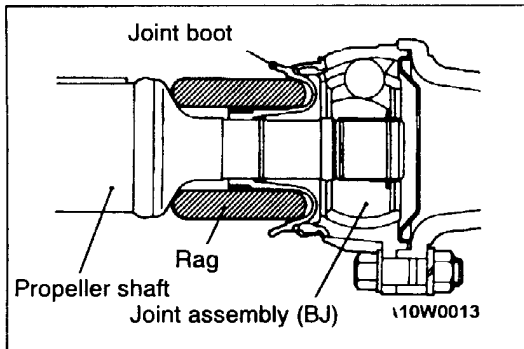
◀A▶ FRONT PROPELLER SHAFT ASSEMBLY
REMOVAL

1. Set the transfer shift lever to “2H” range.
2. Drain the transfer gear oil.
(M/T: Refer to GROUP 22 – On-vehicle Service.)
(A/T: Refer to GROUP 23 – On-vehicle Service.)
3. Make mating marks on the differential companion flange and flange yoke.
4. Wrap a rag around the joint boot, and then remove the front propeller shaft assembly.

Caution

When removing the propeller shaft, be careful not to damage the joint boot by pinching it.

5. Cover the transfer to prevent the entrance of foreign material.

◀B▶ REAR PROPELLER SHAFT ASSEMBLY
REMOVAL

1. Ensure that the rear propeller shaft assembly is wrapped by the rubber sheet.

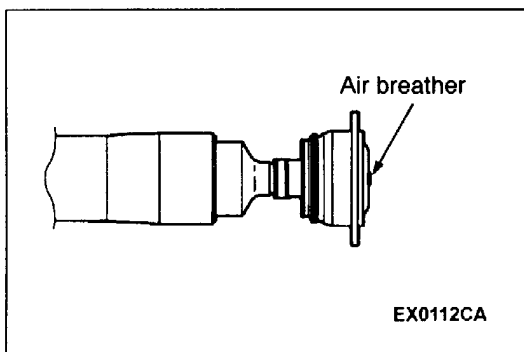
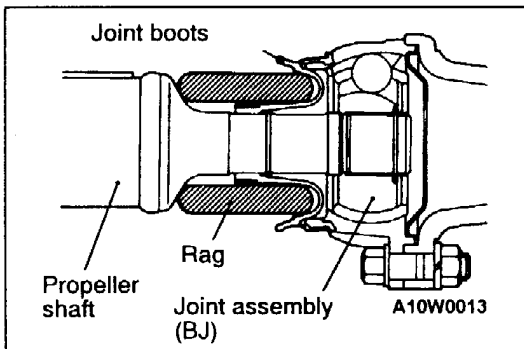
Caution

In order to prevent damage, make sure that the rubber sheet is wrapped around the carbon fiber-reinforced resin tube of the rear propeller shaft during the operation.

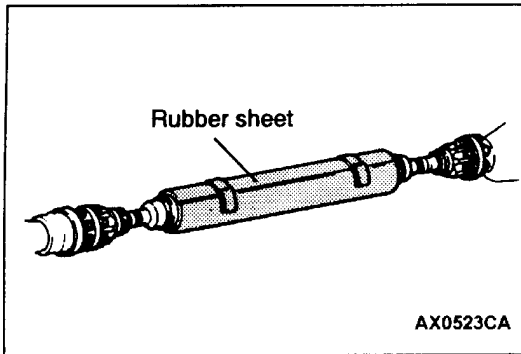
2. Make mating marks on the differential companion flange and the BJ assembly outer race.
3. Wrap a rag around the joint boot, and then remove the rear propeller shaft assembly.

Caution

(1) When removing the propeller shaft, be careful not to damage the joint boot by pinching it.



- (2) The air breather is located at the rear end of the rear propeller shaft. Be careful not to drop the air breather into the BJ.
- (3) Be careful not to impact or damage the propeller shaft.
- (4) If the propeller shaft has been dropped accidentally, replace it.
4. Cover the transfer to prevent the entrance of foreign material.



INSTALLATION SERVICE POINTS

►A◄ REAR PROPELLER SHAFT ASSEMBLY INSTALLATION

Ensure that the rubber sheet is wrapped around the rear propeller shaft assembly.

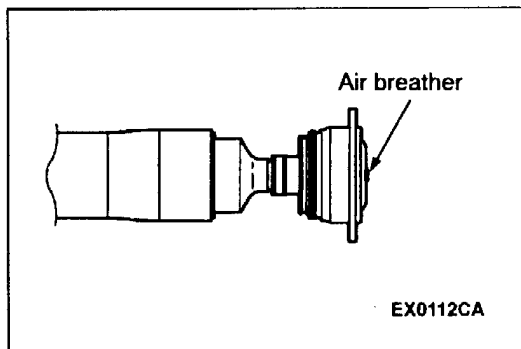
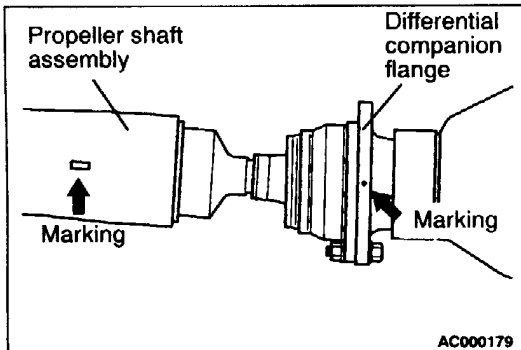
Caution

In order to prevent damage, make sure that the rubber sheet is wrapped around the carbon fiber-reinforced resin tube of the rear propeller shaft during the operation. Also, do not impact or damage the rear propeller shaft.

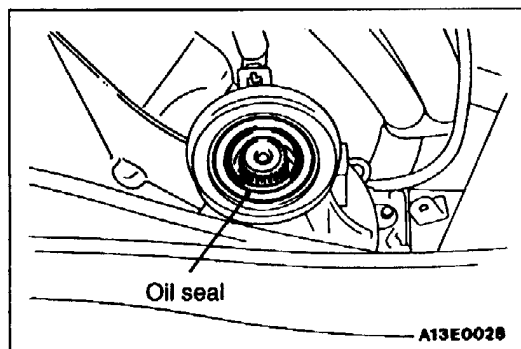
- (1) When reusing the propeller shaft, align the mating marks and install the propeller shaft.
- (2) When the rear propeller shaft assembly is installed, position it so that the marking on the propeller shaft assembly is closest to that on the differential companion flange (within 30°).

Caution

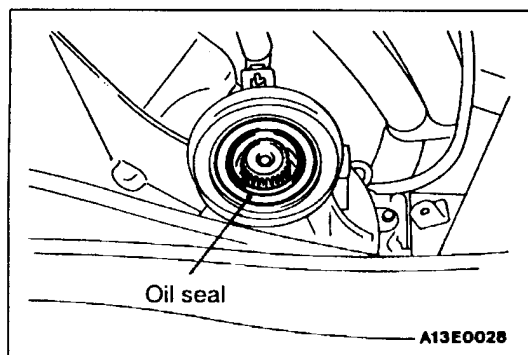
- (1) Wipe out oil and grease on the threads of the mounting bolts and nuts before tightening, or they will loosen.
- (2) Be careful not to impact or damage the propeller shaft.
- (3) If the propeller shaft has been dropped accidentally, replace it.



- (4) The air breather is located at the rear end of the rear propeller shaft. Be careful not to drop the air breather into the BJ.



- (5) Do not damage the oil seal lips of the transfer.

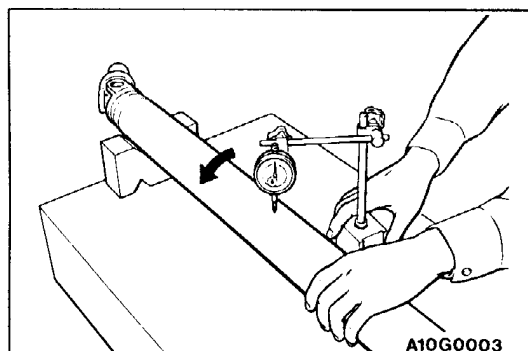


►B◄ FRONT PROPELLER SHAFT ASSEMBLY INSTALLATION

When reusing the propeller shaft, align the mating marks and install the propeller shaft.

Caution

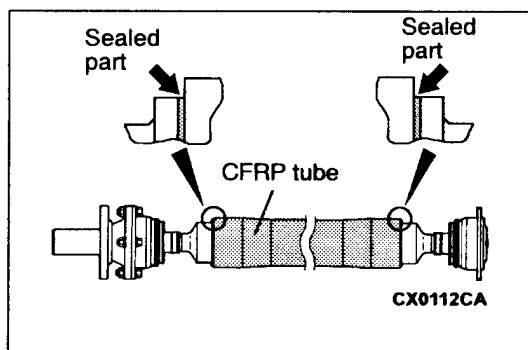
1. Do not damage the oil seal lips of the transfer.
2. Wipe out oil and grease on the threads of the mounting bolts and nuts before tightening, or they will loosen.



INSPECTION

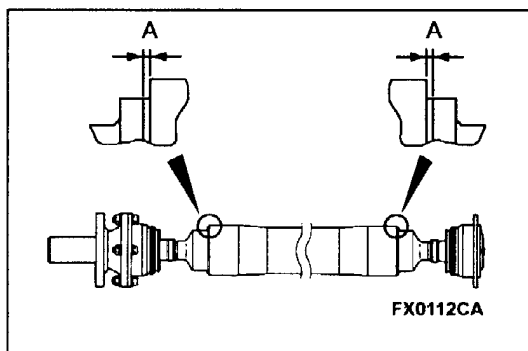
FRONT PROPELLER SHAFT RUNOUT

Limit: 0.5 mm



REAR PROPELLER SHAFT

1. Replace the propeller shaft if cracks or peelings are found at the sealed part.
2. Check the tube for cracks, chips or bends and replace the propeller shaft if damage is found. If defective, check for damage by a dye penetrant method.



3. Measure clearance (A) between the tube end and the shaft.

Standard value (A) : 0.2 – 0.5 mm

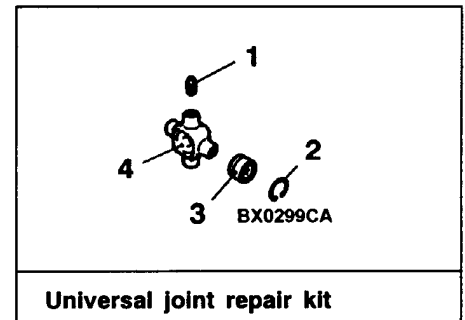
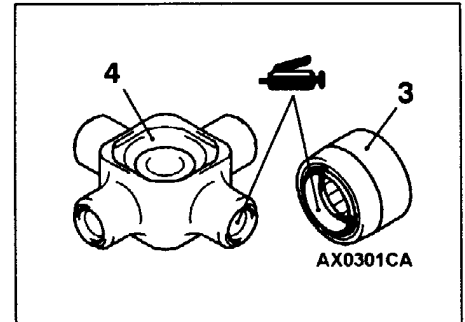
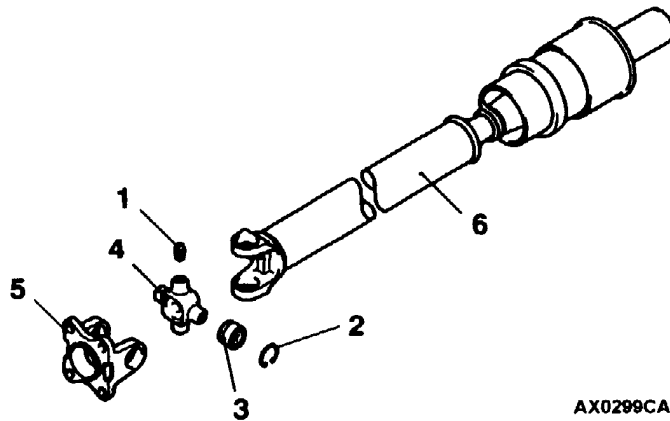
4. If the standard value is not met, replace the rear propeller shaft.

DISASSEMBLY AND REASSEMBLY

Caution

The rear propeller shaft is non-serviceable.

FRONT PROPELLER SHAFT

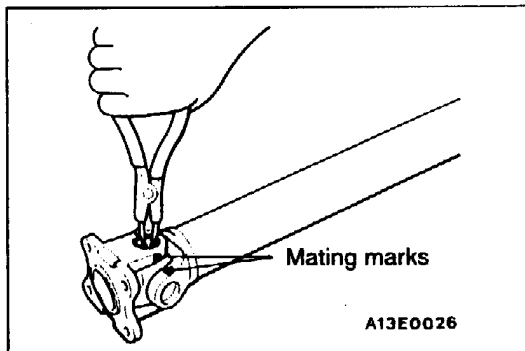


Disassembly steps



1. Grease fitting
2. Snap ring
3. Journal bearing

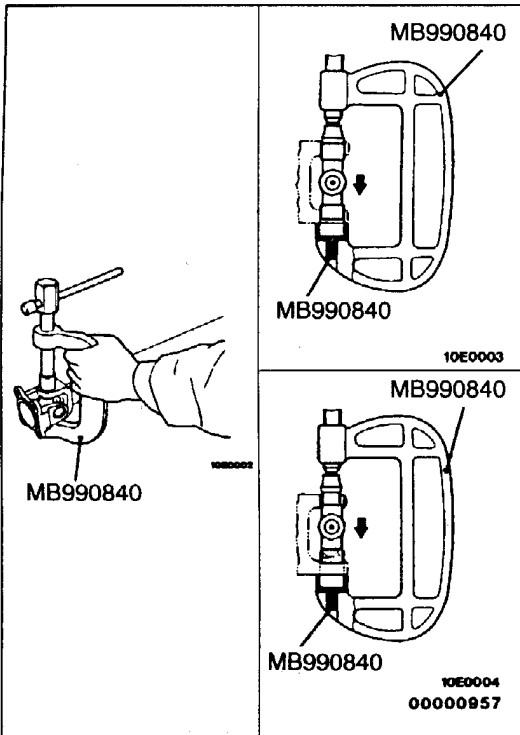
4. Journal
5. Flange yoke
6. Propeller shaft



DISASSEMBLY SERVICE POINTS

◀▶ SNAP RING REMOVAL

Make mating marks on the flange yoke and propeller shaft. Then, remove the snap rings.

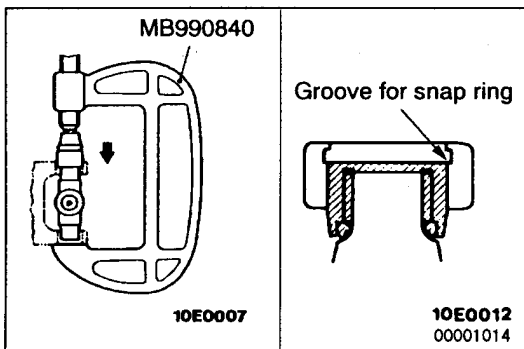


◀B▶ JOURNAL BEARING REMOVAL

1. Using the special tools, press in the journal bearing to remove the journal bearing on the opposite side.
2. Set the special tools reverse to press in the journal. Then, pull out the journal bearing pressed in step 1.

Caution

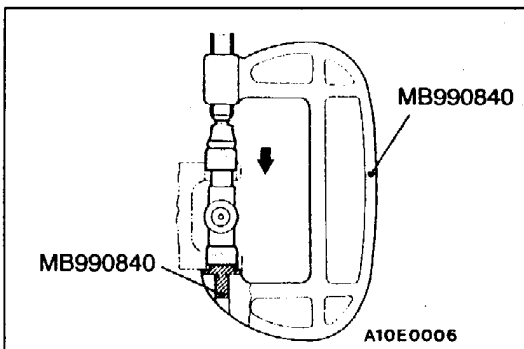
Do not tap the journal bearing to remove. Tapping the journal bearing will upset the balance of the propeller shaft.



REASSEMBLY SERVICE POINTS

▶A◀ JOURNAL BEARING INSTALLATION

1. Using the special tool, press in the journal bearing to the yoke until the snap ring groove can be seen completely.

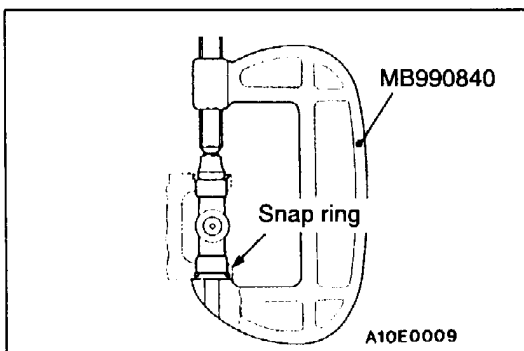


2. Using the special tools, press in the journal bearing on the opposite side to the yoke.

Caution

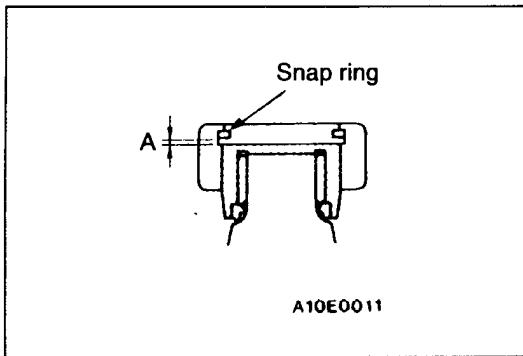
Press in the journal bearing straight, or the journal could damage the inside of the journal bearing.

3. Align the mating marks on the yoke and propeller shaft. On the propeller shaft side, install the journal bearing in the same steps of 1 and 2.



▶B◀ SNAP RING INSTALLATION

1. Install the snap ring to one side of the journal.
2. Using the special tool, press in the journal bearing toward the snap ring from the opposite side which the snap ring has been installed on.



3. Install the snap ring on the opposite side and measure the clearance of the snap ring groove with a thickness gauge.

Standard value (A) : 0 – 0.06 mm

Caution

Always use snap rings of the same thickness on both sides.

4. If the standard value(s) are not met, use other snap rings to adjust the clearance.

Snap ring thickness mm	Identification colour
1.28	–
1.31	Yellow
1.34	Blue
1.37	Purple