
FRONT AXLE

FRONT AXLE

CONTENTS

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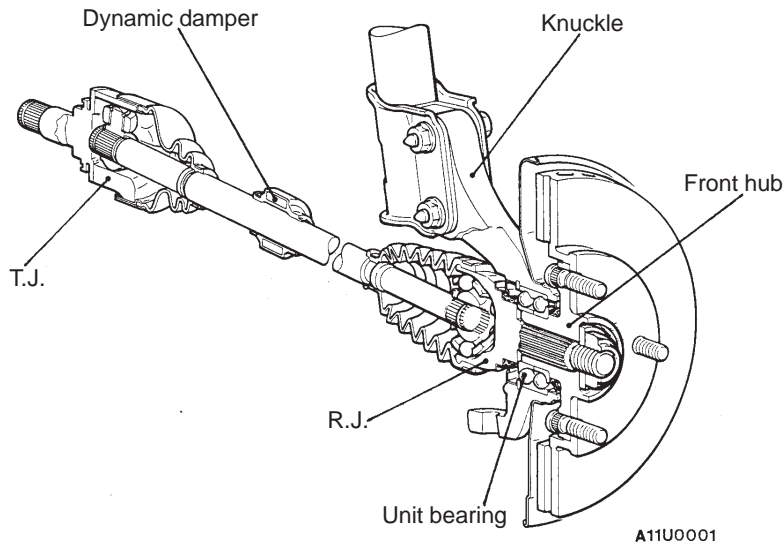
GENERAL INFORMATION	2	ON-VEHICLE SERVICE	5
SERVICE SPECIFICATIONS	2	Hub Axial Play Check	5
SEALANT	2	Hub bolt replacement	5
SPECIAL TOOLS	3	AXLE HUB	6
		DRIVE SHAFT	11

GENERAL INFORMATION

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The wheel bearing and front hub are press-fitted in the axle housing portion of the knuckle to support the drive shaft. In addition, the drive shaft uses

R.J. – T.J.-type constant velocity joints to improve power transmission efficiency and to reduce vibration or noise.



SERVICE SPECIFICATIONS

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Items	Limit
Hub axial play mm	0.05
Wheel bearing starting torque Nm	1.8 or less

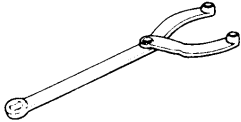
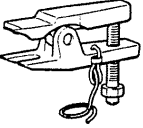
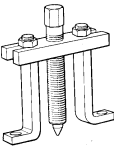
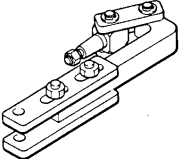
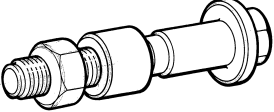

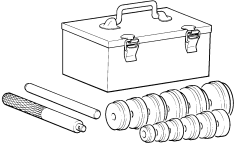

SEALANT

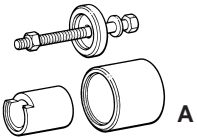
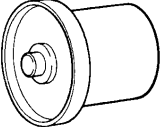
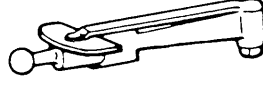
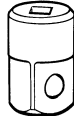
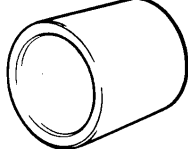
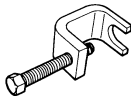
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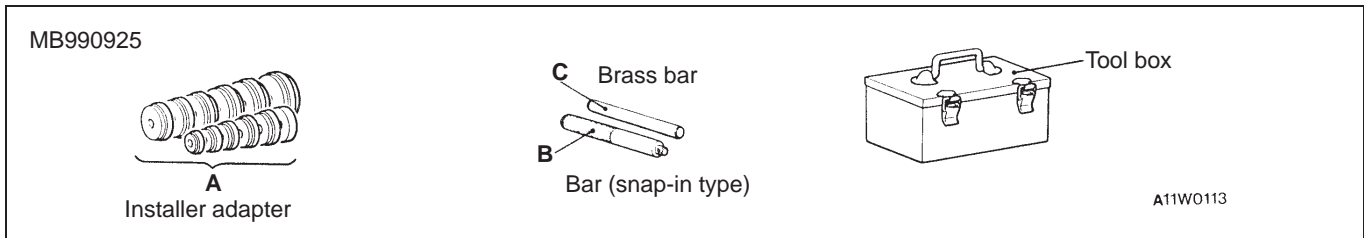
Items	Specified sealant	Remarks
Drive shaft lock pin	MITSUBISHI GENUINE PART MD997110 or equivalent	Semi-drying sealant

SPECIAL TOOLS

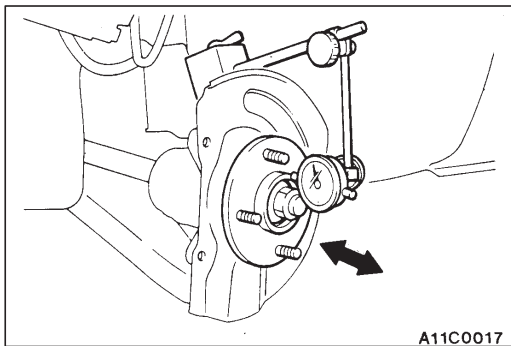
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Tool	Number	Name	Use
	MB990767	End yoke holder	Fixing of the hub
	MB991113 or MB990635	Steering linkage puller	<ul style="list-style-type: none"> ● Removal of the lower arm ball joint and knuckle ● Removal of the knuckle and tie rod end ball joint
	MB990241	Axle shaft puller	Removal of the drive shaft
	MB991056 or MB991355	Knuckle arm bridge	Removal of the hub
	MB990998	Front hub remover and installer	<ul style="list-style-type: none"> ● Removal of or pressing-in the hub ● Provisional holding of the wheel bearing
	MB990810	Side bearing puller	Removal of the wheel bearing inner race (outside)
	MB990925	Bearing and oil seal installer set	Removal of wheel bearing MB990932 MB990938
	MB990883	Rear suspension arbor	Press-fitting of wheel bearing

Tool	Number	Name	Use
	MB991045 A: MB991050	Bushing remover and installer	Press-fitting of wheel bearing Use together with MB990883
	MB991387	Bushing remover and installer	Press-fitting of the outer oil seal
	MB990685	Torque wrench	Measurement of the wheel bearing starting torque
	MB990326	Preload socket	Measurement of the wheel bearing starting torque
	MB991389	Bushing remover base	Press-fitting of the inner oil seal
 11H0072	MB991618	Hub bolt remover	Removal of the hub bolt



Type	Tool number	O.D. mm	Type	Tool number	O.D. mm
A	MB990926	39	A	MB990933	63.5
	MB990927	45		MB990934	67.5
	MB990928	49.5		MB990935	71.5
	MB990929	51		MB990936	75.5
	MB990930	54		MB990937	79
	MB990931	57	B	MB990938	–
	MB990932	61	C	MB990939	–



ON-VEHICLE SERVICE

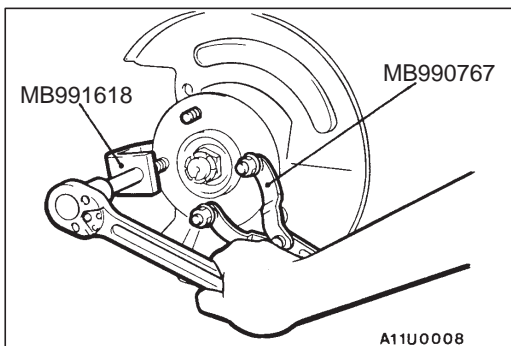
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HUB AXIAL PLAY CHECK

1. Remove the disc brake caliper and suspend it with a wire.
2. Remove the brake disc from the front hub.
3. Attach a dial gauge as shown in the illustration, and then measure the axial play while moving the hub in the axial direction.

Limit: 0.05 mm

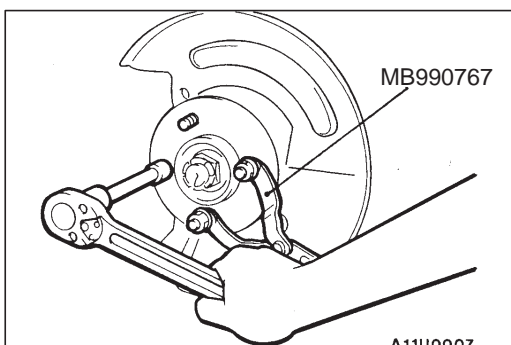
4. If axial play exceeds the limit, disassemble and check parts.



HUB BOLT REPLACEMENT

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1. Remove the caliper assembly and secure it with wire so that it does not fall.
2. Remove the brake disc.
3. Use the special tools to remove the hub bolts.



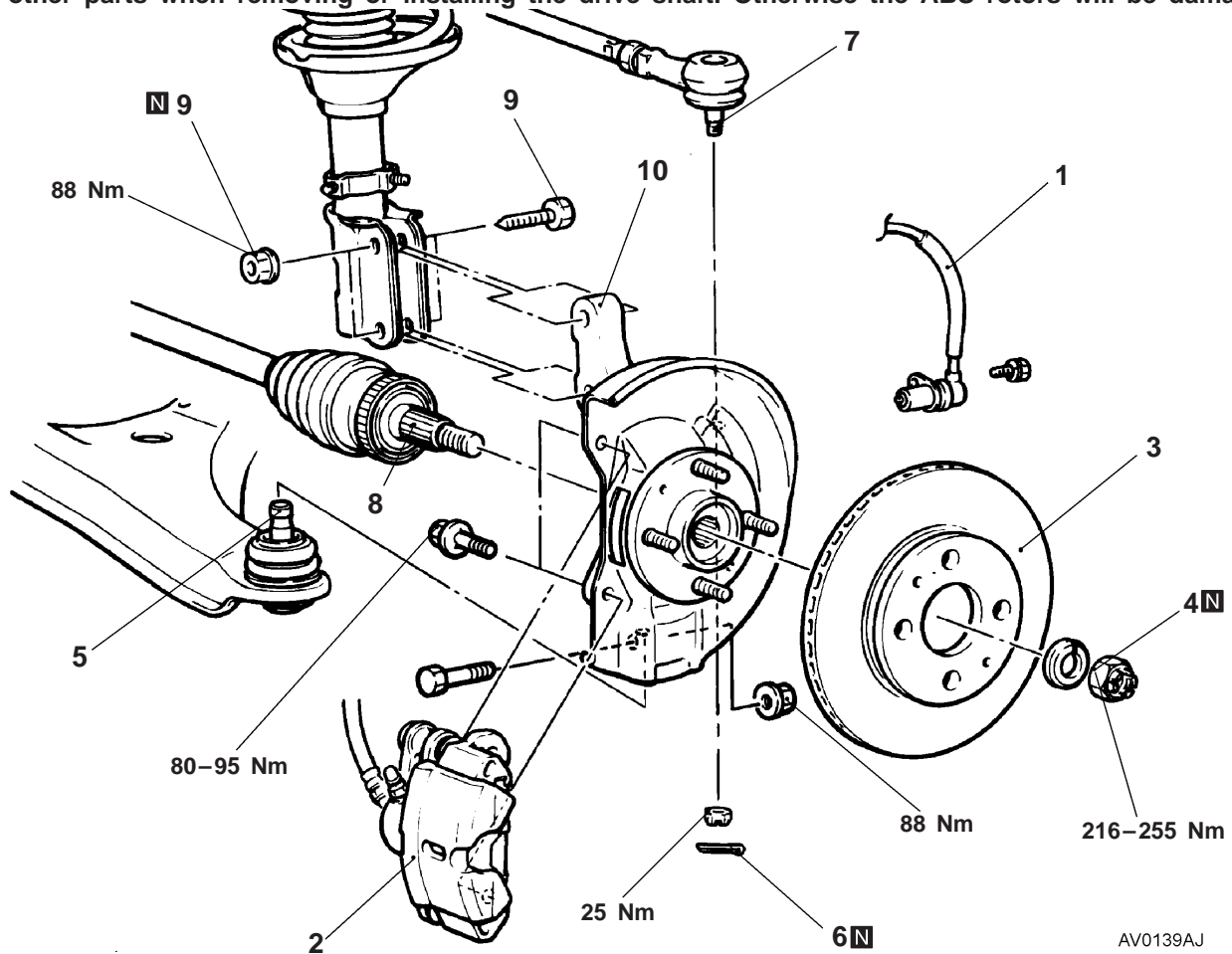
4. Use the wheel nuts to securely install the new hub bolts, while being careful of the serrations of the hub bolts and hub.

AXLE HUB

REMOVAL AND INSTALLATION

Caution

1. For vehicles with ABS, do not strike the speed sensor against other parts when removing or installing it. Otherwise the speed sensor will be damaged.
2. For vehicles with ABS, do not strike the ABS rotors installed to the B.J. outer race of drive shaft against other parts when removing or installing the drive shaft. Otherwise the ABS rotors will be damaged.



Removal steps

1. Front speed sensor
<Vehicles with ABS>
2. Caliper assembly
3. Brake disc
4. Drive shaft nut
5. Connection for lower arm ball joint

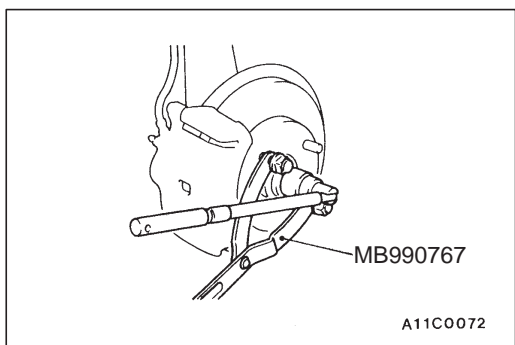
6. Split pin
7. Connection for tie rod end
8. Drive shaft
9. Front strut mounting bolt and nut
10. Hub and knuckle



REMOVAL SERVICE POINTS

◀A▶ CALIPER ASSEMBLY REMOVAL

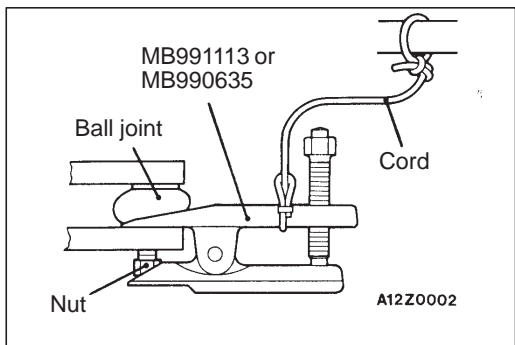
Secure the removed caliper assembly with wire, etc.



◀B▶ DRIVE SHAFT NUT REMOVAL

Caution

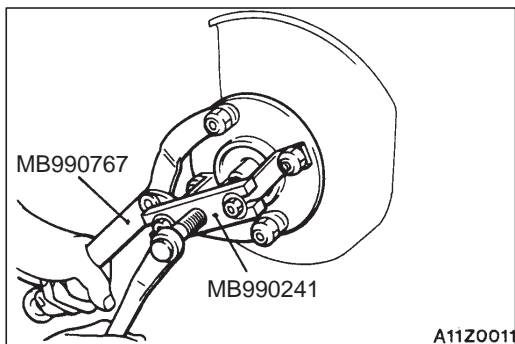
Do not apply the vehicle weight to the wheel bearing while loosening the drive shaft nut. Otherwise wheel bearing will be damaged.



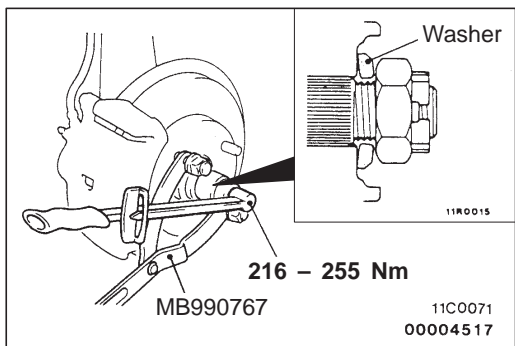
◀C▶ LOWER ARM BALL JOINT/TIE ROD END DISCONNECTION

Caution

1. Loosen the nut only; do not remove it from the ball joint. Otherwise ball joint thread will be damaged.
2. The special tool should be suspended by a cord to prevent it from coming off.



◀D▶ DRIVE SHAFT REMOVAL



INSTALLATION SERVICE POINT

▶A◀ DRIVE SHAFT NUT INSTALLATION

1. Be sure to install the drive shaft washer in the specified direction.
2. Using the special tool, tighten the drive shaft nut.

Caution

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

INSPECTION

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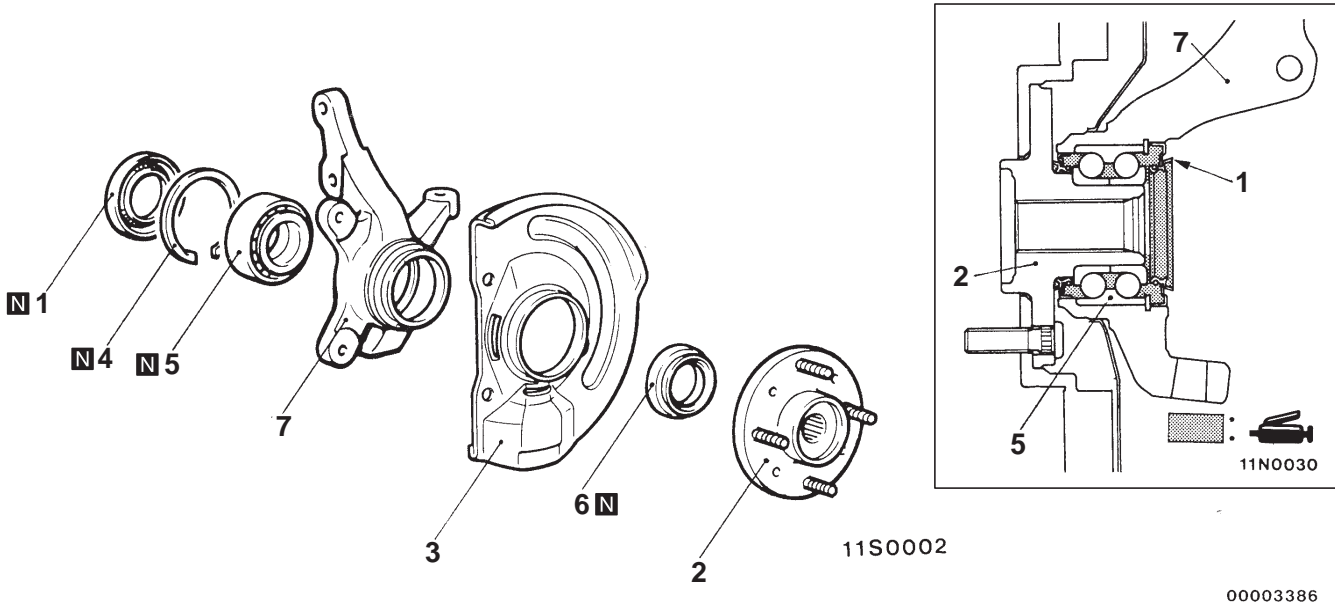
- Check the hub for cracks and spline for wear.
- Check the oil seal for damage.
- Check the knuckle for cracks.
- Check for defective bearing.

NOTE

If the meshing of the wheel bearing outer race and the knuckle, or of the wheel bearing inner race and the hub, is loose, replace the bearing or damaged parts.

DISASSEMBLY AND REASSEMBLY

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Disassembly steps



1. Inner oil seal
2. Hub
3. Dust cover
4. Snap ring
5. Wheel bearing
6. Outer oil seal
7. Knuckle



Reassembly steps



7. Knuckle
5. Wheel bearing
4. Snap ring
6. Outer oil seal
3. Dust cover
2. Hub



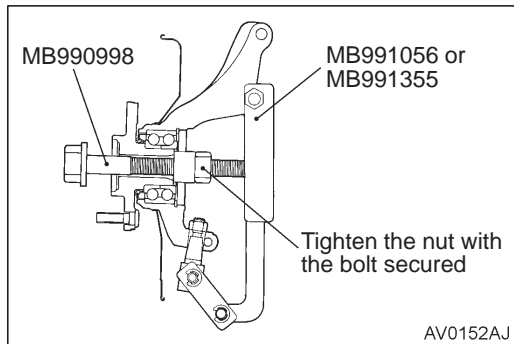
- Wheel bearing starting torque check



- Hub axial play check



1. Inner oil seal



DISASSEMBLY SERVICE POINTS

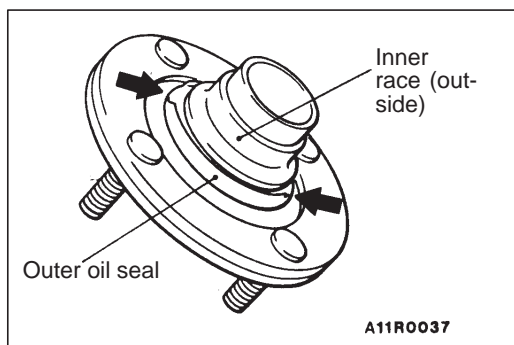
◀A▶ HUB REMOVAL

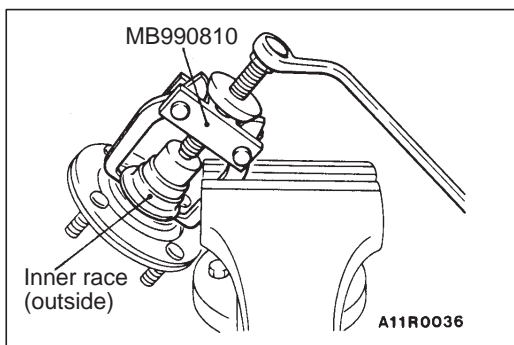
Caution

When the hub has been removed, always replace the wheel bearing with a new part because wheel bearing frictional surface will be damaged when removing the hub.

◀B▶ WHEEL BEARING REMOVAL

1. Crush the oil seal in two places so that the tabs of the special tool will be caught on the wheel bearing inner race (outside).

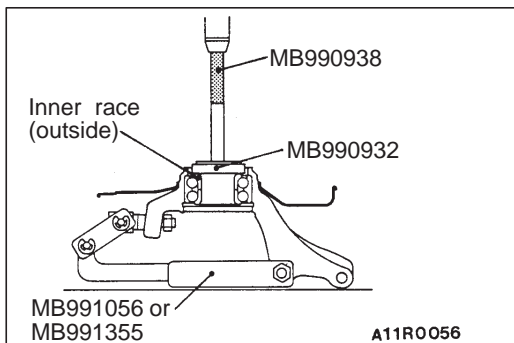




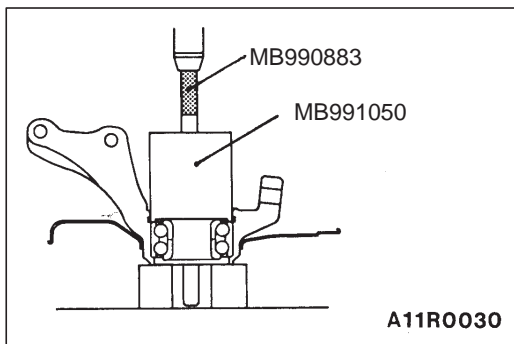
- Remove the wheel bearing inner race (outside) from the front hub by using the special tool.

Caution

When removing the inner race (outside) from the hub, be careful not to let the hub drop.



- Install the inner race (outside) that was removed from the hub to the wheel bearing, and then use the special tool to remove the wheel bearing.



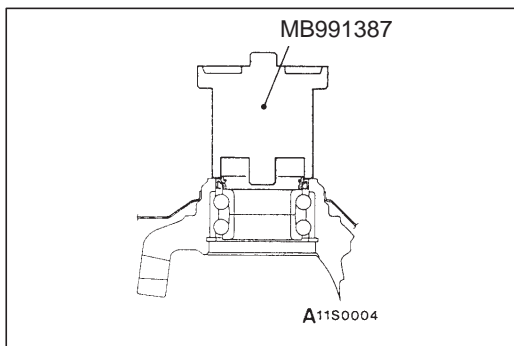
REASSEMBLY SERVICE POINTS

▶A◀ WHEEL BEARING INSTALLATION

- Fill the wheel bearing with multipurpose grease.
- Apply a thin coating of multipurpose grease to the knuckle and bearing contact surfaces.
- Press-in the bearing by using the special tools.

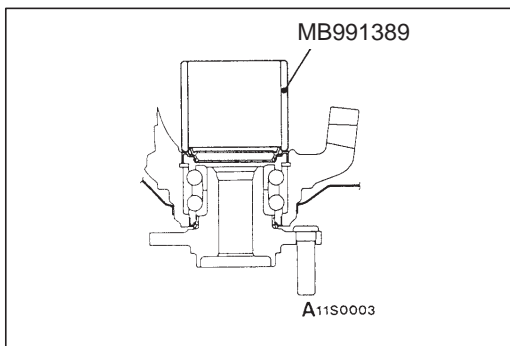
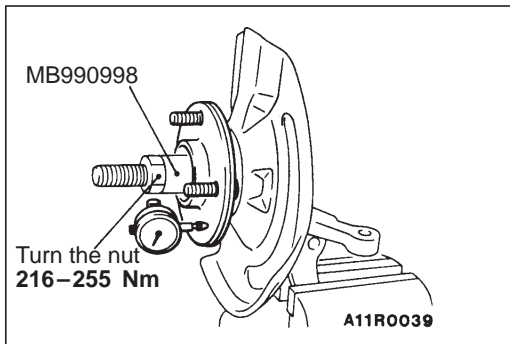
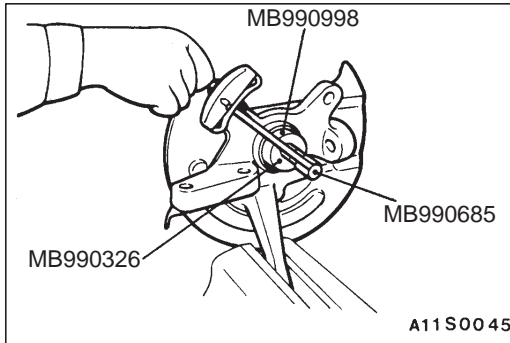
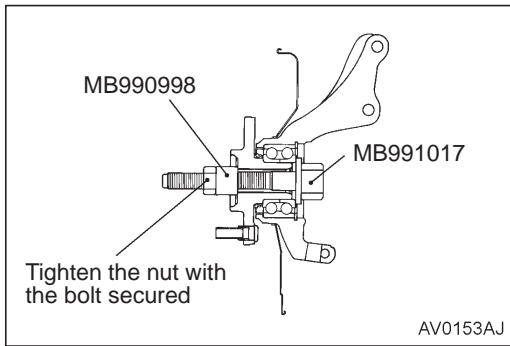
Caution

Press the outer race when pressing-in the wheel bearing. Otherwise wheel bearing will be damaged.



▶B◀ OUTER OIL SEAL INSTALLATION

- Drive the oil seal (hub side) into the knuckle by using the special tools until it is flush with the knuckle end surface.
- Apply multipurpose grease to the lip of the oil seal and to the surfaces of the oil seal which contact the front hub.



►C◄ WHEEL BEARING STARTING TORQUE CHECK

1. Use the special tool to mount the hub onto the knuckle.
2. Tighten the nut of the special tool to 216–255 Nm.
3. Rotate the hub in order to seat the bearing.

4. Measure the wheel bearing starting torque (hub starting torque) by using the special tools.

Limit: 1.8 Nm or less

5. The starting torque must be within the limit and, in addition, the bearing must not feel rough when rotated.

►D◄ HUB AXIAL PLAY CHECK

1. Measure to determine whether the axial play of the hub is within the specified limit or not.

Limit: 0.05 mm

2. If the starting torque and hub axial play are not within the limit range while the nut is tightened to 216–255 Nm, the bearing, hub and/or knuckle have probably not been installed correctly. Replace the bearing and re-install.

►E◄ INNER OIL SEAL INSTALLATION

1. Apply multipurpose grease to the reverse side of the inner oil seal.
2. Drive the inner oil seal into the knuckle until it contacts the snap ring.
3. Apply multipurpose grease to the lip of the inner oil seal.

INSPECTION

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- Check the front hub and brake disc mounting surfaces for galling and contamination.
- Check the knuckle inner surface for galling and cracks.
- Check for defective bearing.

DRIVE SHAFT

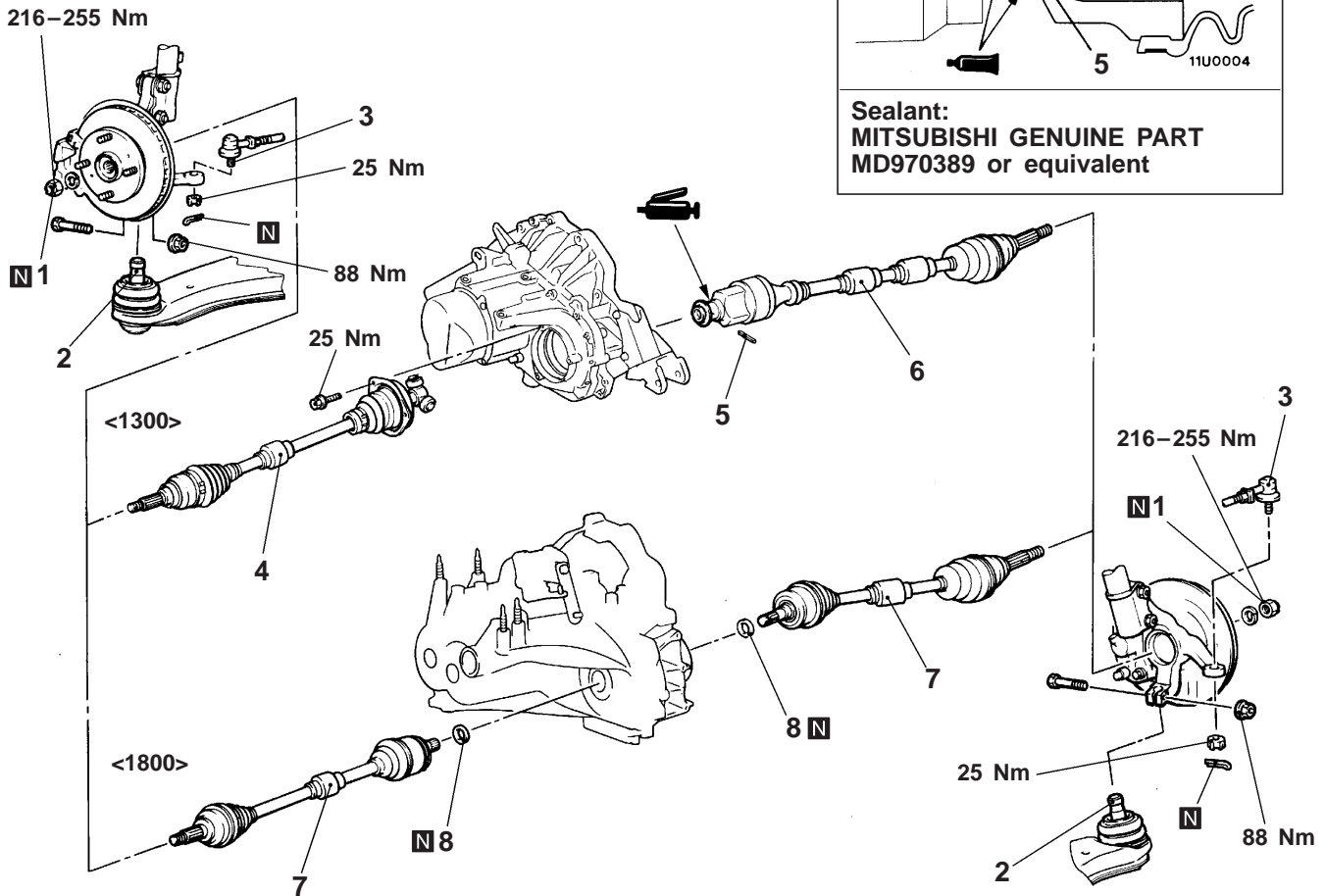
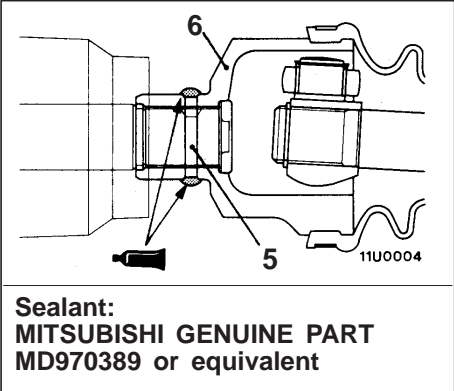
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REMOVAL AND INSTALLATION

Caution

For vehicles with ABS, do not strike the ABS rotors installed to the B.J. outer race of drive shaft against other parts when removing or installing the drive shaft. Otherwise the ABS rotors will be damaged.

Pre-removal and Post-installation Operation
 Brake hose Clamp, Speed Sensor Cable Connection
 <Vehicles with ABS>, Stabilizer Link Connection
 Removal and Installation.
 (Refer to GROUP 33A-Start Assembly.)



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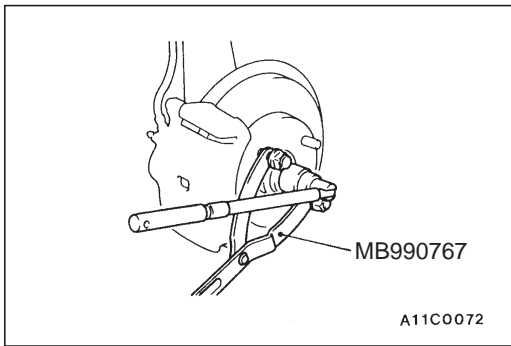
Removal steps



1. Drive shaft nut
2. Lower arm ball joint connection
3. Tie rod end connection
4. Drive shaft L.H. <1300>



5. Spring pin <1300>
6. Drive shaft R.H. <1300>
7. Drive shaft <1800>
8. Circlip <1800>

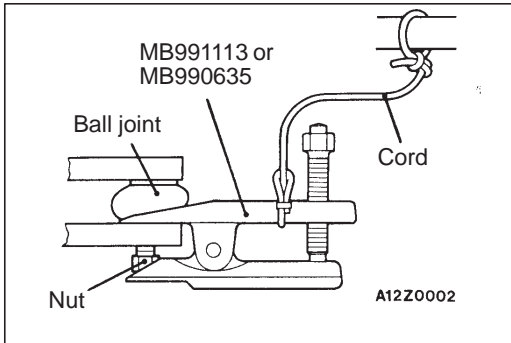


REMOVAL SERVICE POINTS

◀A▶ DRIVE SHAFT NUT REMOVAL

Caution

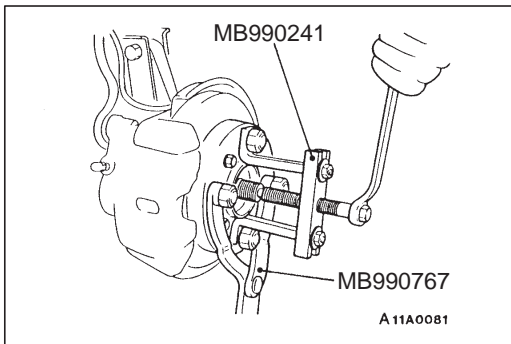
Do not apply the vehicle weight to the wheel bearing while loosening the drive shaft nut. Otherwise wheel bearing will be damaged.



◀B▶ LOWER ARM BALL JOINT/TIE ROD END DISCONNECTION

Caution

1. Loosen the nut only; do not remove it from the ball joint. Otherwise ball joint thread will be damaged.
2. The special tool should be suspended by a cord to prevent it from coming off.



◀C▶ DRIVE SHAFT REMOVAL

- (1) Use the special tools to push out the drive shaft from the hub.
- (2) Remove the drive shaft by the following procedures.

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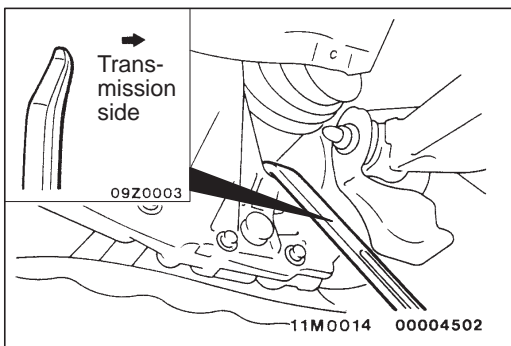
- Remove the bolt (L.H.) and the spring pin (R.H.) and pull out the drive shaft from the transmission.

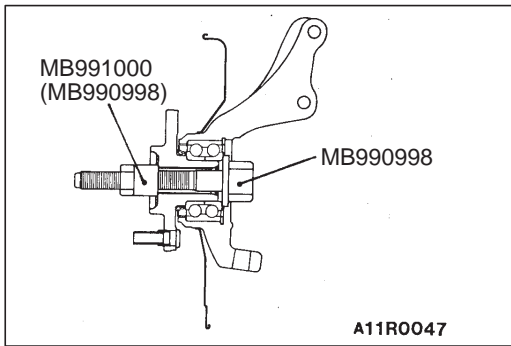
<1800>

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

Caution

- (1) Do not pull on the drive shaft; doing so will damage the T.J.; be sure to use the pry bar.
- (2) Do not insert the pry bar so deep as to damage the oil seal.



**Caution**

Do not apply the vehicle weight to the wheel bearing while loosening the drive shaft nut. Otherwise wheel bearing will be damaged. If, however, the vehicle weight must be applied to the bearing (because of moving the vehicle), temporarily secure the wheel bearing by using the special tool.

INSTALLATION SERVICE POINTS**▶A◀DRIVE SHAFT R.H./SPRING PIN INSTALLATION**

1. Install the drive shaft to the hub and the transmission. When installing the drive shaft to the transmission, apply multipurpose grease to the transmission-side spline and make sure that the spring pin hole at the end of the drive shaft is aligned with the spring pin hole at the end of the shaft at the transmission side. If the spring pin hole is slightly off-line, turn the drive shaft 180° and then install it again.

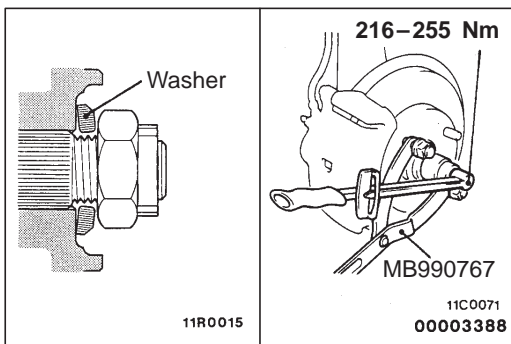
NOTE

Because there are an odd number of splines on the drive shaft, the pin hole will be off-line by half the width of the hole if the drive shaft is turned 180°.

2. Apply specified sealant to the spring pin and then insert it into the drive shaft. After inserting the pin, apply sealant to both ends of the pin hole to fully seal the hole.

Specified sealant:

MITSUBISHI GENUINE PART
MD970389 or equivalent

**▶B◀DRIVE SHAFT NUT INSTALLATION**

1. Be sure to install the drive shaft washer in the specified direction.
2. Using the special tool, tighten the drive shaft nut.

Caution

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

NOTES

GROUP 26 FRONT AXLE

GENERAL

OUTLINE OF CHANGES

Due to the addition of the vehicle with the F9Q1 engine, the service procedures for the front axle have been established.

DRIVE SHAFT <F9Q1>

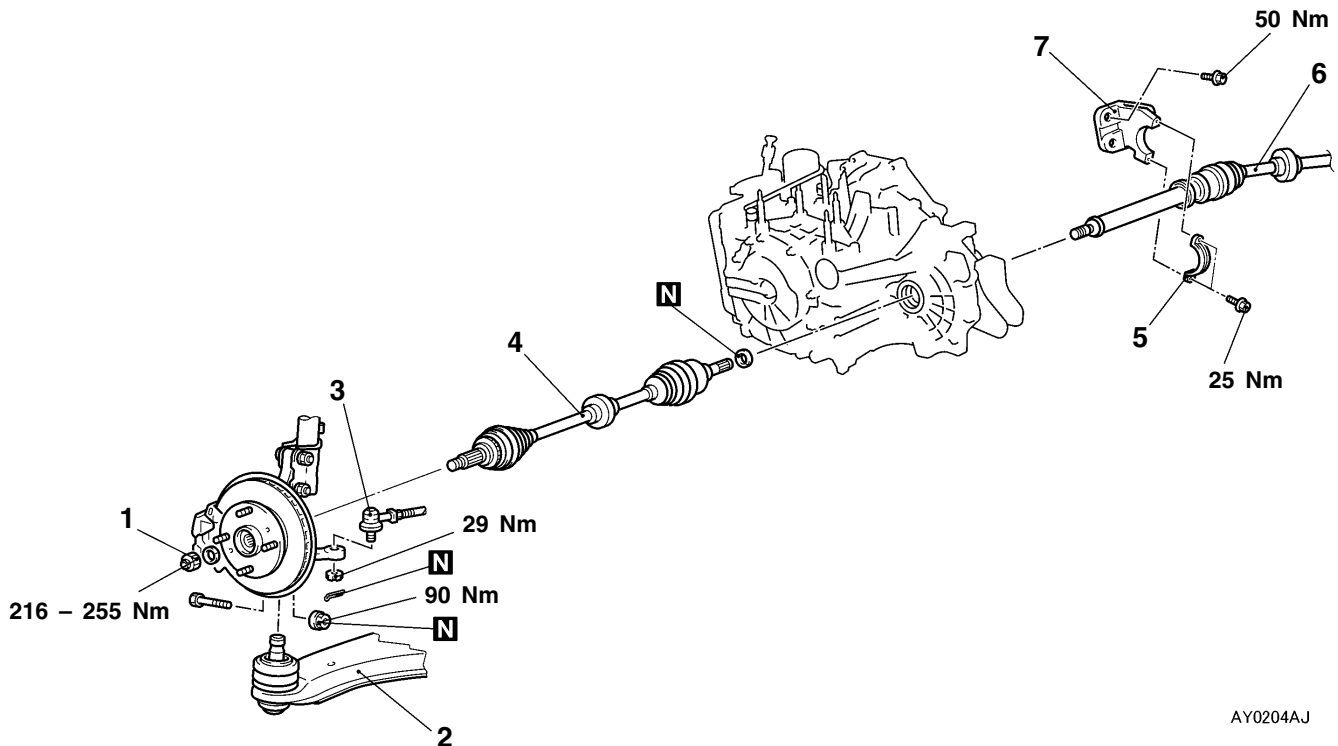
REMOVAL AND INSTALLATION

Caution:

Do not strike the ABS rotors installed to the R.J. outer race of drive shaft against other parts when removing or installing the drive shaft. Otherwise the ABS rotors will be damaged.

Pre-removal and Post-installation Operation

- Brake Hose Clamp, Speed Sensor Cable Connection.
- Stabilizer Link Connection Removal and Installation.
- Side Under Cover Removal and Installation



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Removal steps

- ◀A▶ ▶A▶ 1. Drive shaft nut
- ◀B▶ 2. Lower arm ball joint connection
- ◀C▶ 3. Tie rod end connection
- 4. Drive shaft (L.H.)
- 5. Bearing bracket cap

- ◀C▶ 6. Drive shaft and transmission side shaft (R.H.)
- 7. Bearing bracket

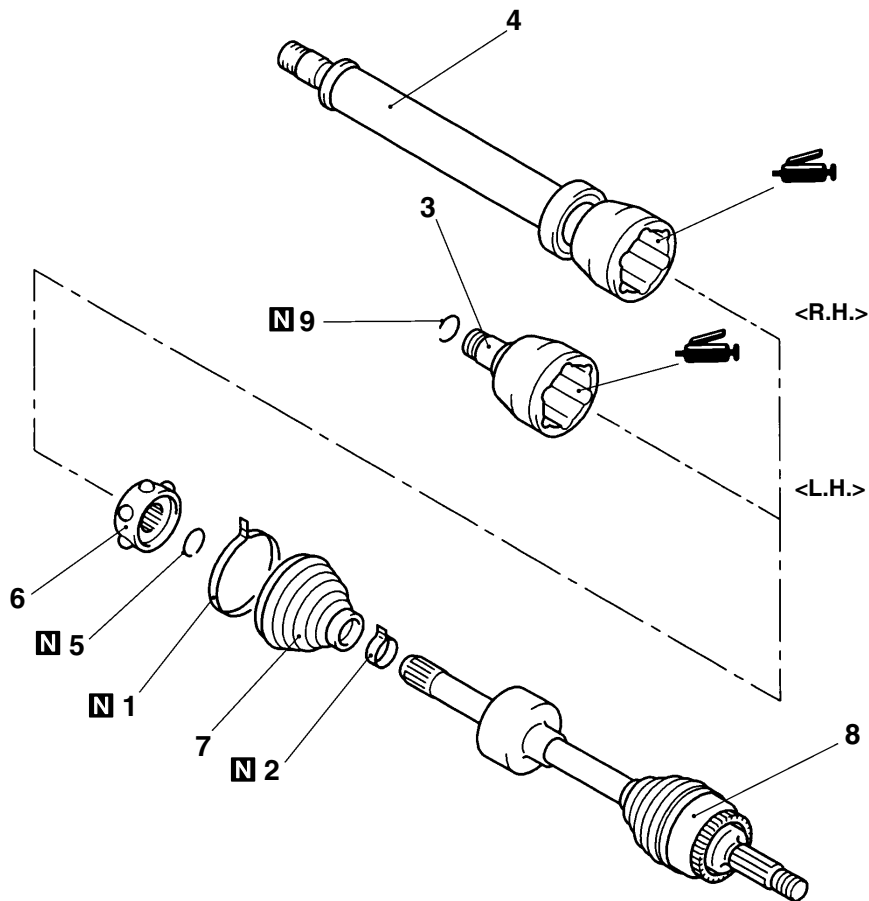
NOTE

The service points for removal and installation are the same procedures as before.

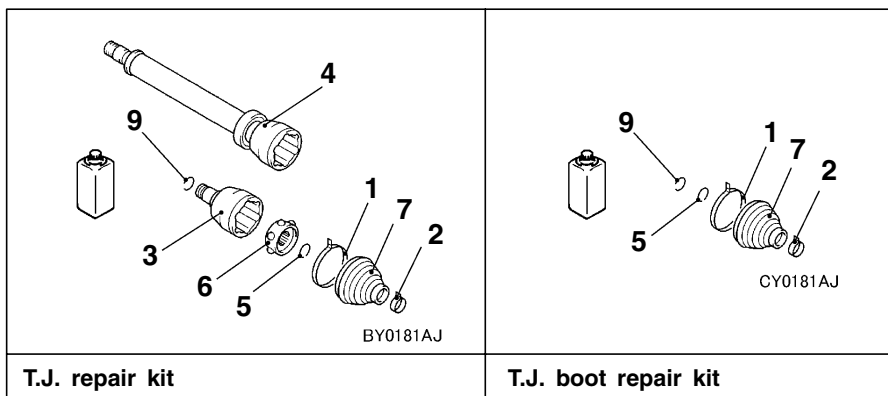
DISASSEMBLY AND REASSEMBLY

Caution

1. R.J. assembly cannot be disassembled.
2. Be sure not to damage the rotor attached to the R.J. outer race.



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Disassembly steps

1. T.J. boot band (large)
2. T.J. boot band (small)
3. T.J. case (L.H.)
4. T.J. assembly (R.H.)
5. Snap ring



6. Joint assembly
7. T.J. boot
8. R.J. assembly
9. Circlip (L.H.)

DISASSEMBLY SERVICE POINTS**◀A▶ T.J. CASE/T.J. ASSEMBLY/JOINT ASSEMBLY
REMOVAL**

1. Remove grease from T.J. case, T.J. assembly, and the joint assembly.
2. If removed grease contains foreign objects, such as water and dust, make sure to clean the joint assembly.

◀B▶ T.J. BOOT REMOVAL

1. Remove grease from the shaft spline.
2. If T.J. boot is reused, wind tape around the spline of the shaft to prevent the boot from being damaged during removal.

NOTES