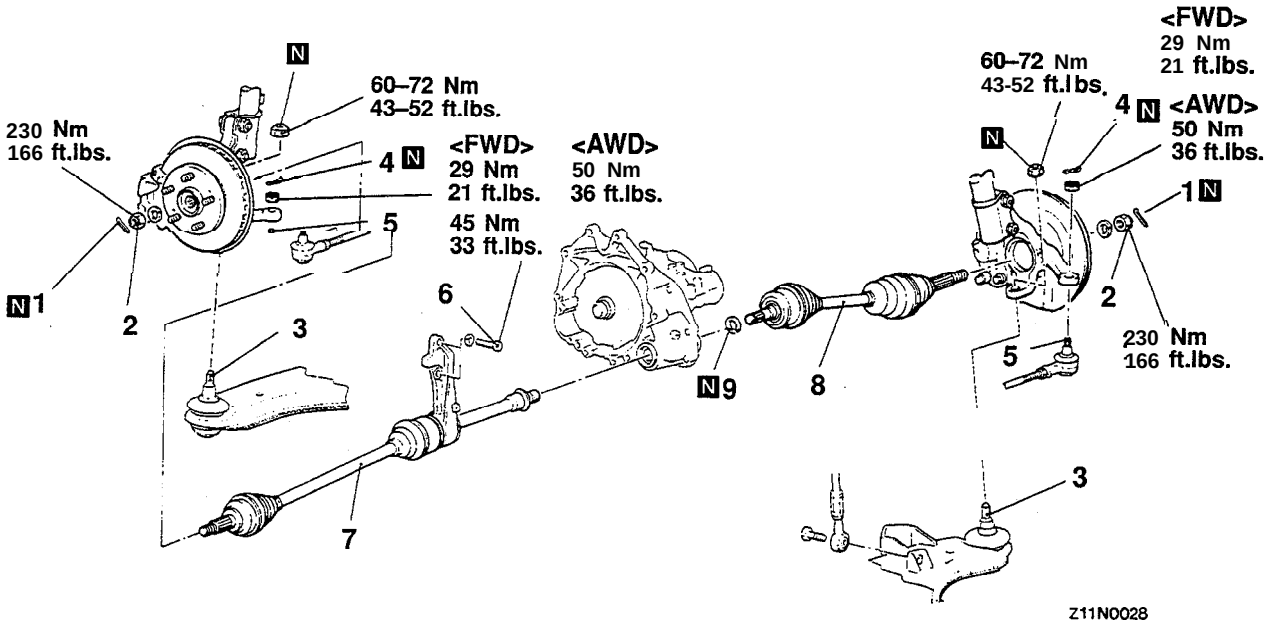
DRIVE SHAFT

REMOVAL AND INSTALLATION

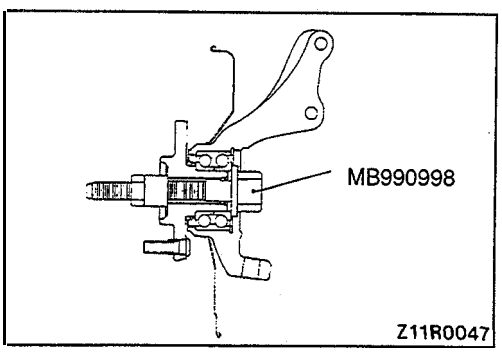
Pre-removal and Post-installation Operation
- Under Cover Removal and Installation



Removal steps

1. Cotter pin
◀A▶ ▶A◀ 2. Drive shaft nut
◀B▶ 3. Lower arm ball joint connection
4. Cotter pin
◀C▶ 5. Tie rod end connection
6. Center bearing bracket installation bolt
◀D▶ 7. Drive shaft and inner shaft assembly (L.H.)
◀D▶ 8. Drive shaft (R.H.)
9. Circlip

Caution
In the case of AWD-vehicles with ABS, take care not to damage the rotor for ABS installed to the B.J. outer race.



REMOVAL SERVICE POINTS

◀A▶ DRIVE SHAFT NUT REMOVAL

Loosen the drive shaft nut while the vehicle is on the floor with the brakes applied.

Caution
Do not apply vehicle load to the wheel bearing loosing the drive shaft nut. If, however, vehicle load must be applied to the bearing in moving the vehicle, temporarily secure the wheel bearing by using the special tools, MB990998, etc.

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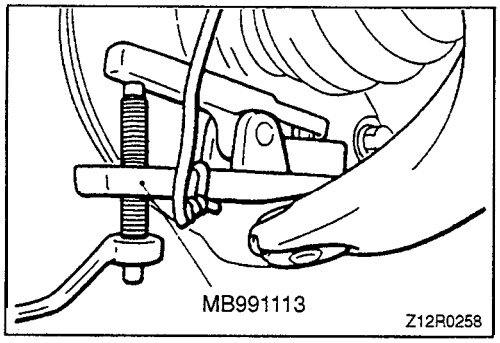


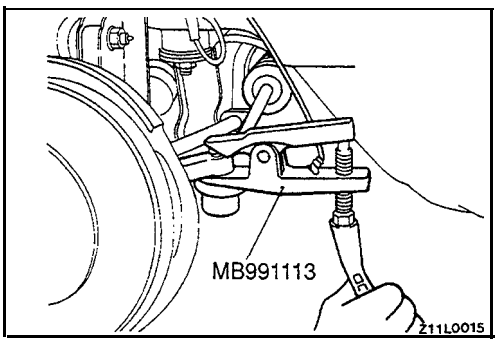
◀B▶ LOWER ARM BALL JOINT DISCONNECTION

Using the special tool, disconnect the lower arm ball joint from the knuckle.

Caution

1. Be sure to tie the cord of the special tool to the nearby part.

2. Loosen the nut but do not remove it.



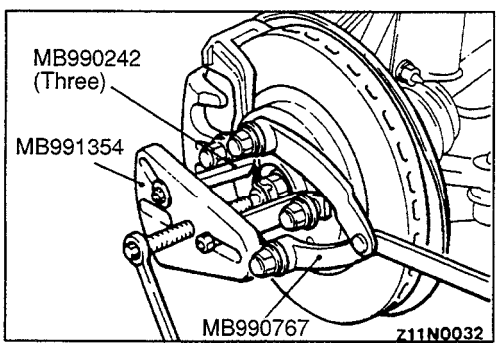
◀C▶ TIE ROD END DISCONNECTION

Using the special tool, disconnect the tie rod end from the knuckle.

Caution

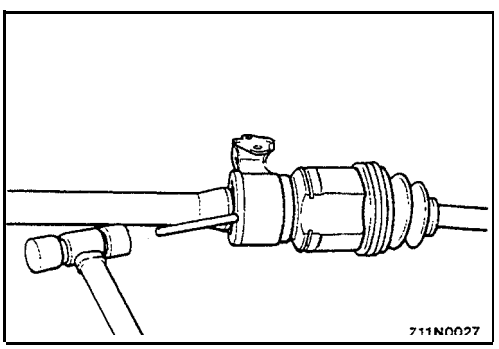
1. Be sure to tie the cord of the special tool to the nearby part.

2. Loosen the nut but do not remove it.

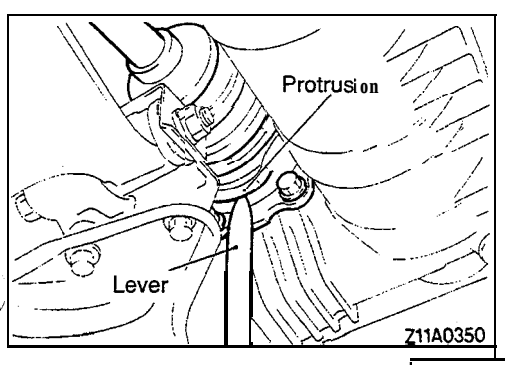


◀D▶ DRIVE SHAFT AND INNER SHAFT ASSEMBLY (L.H.) / DRIVE SHAFT (R.H.) REMOVAL

(1) Using the special tool, push out the drive shaft and inner shaft assembly (L.H.) or the drive shaft (R.H.) from the hub.



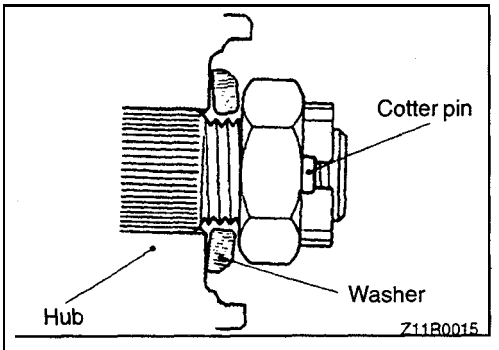
(2) If the inner shaft is hard to remove from the transaxle, strike the center bearing bracket lightly with a plastic hammer.

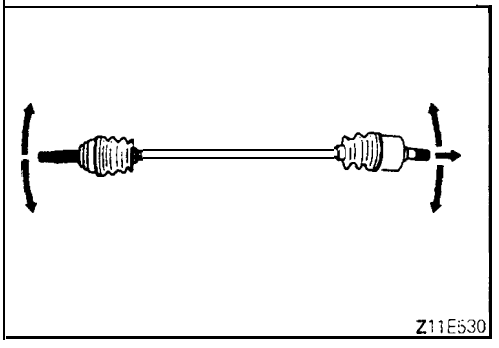


(3) To remove the drive shaft (R.H.) from the transaxle, pry off the shaft using a lever against' the protrusion of the drive shaft.

Caution

Pulling the drive shaft can cause damage to the T.J. Be sure to use a lever.





INSTALLATION SERVICE POINT

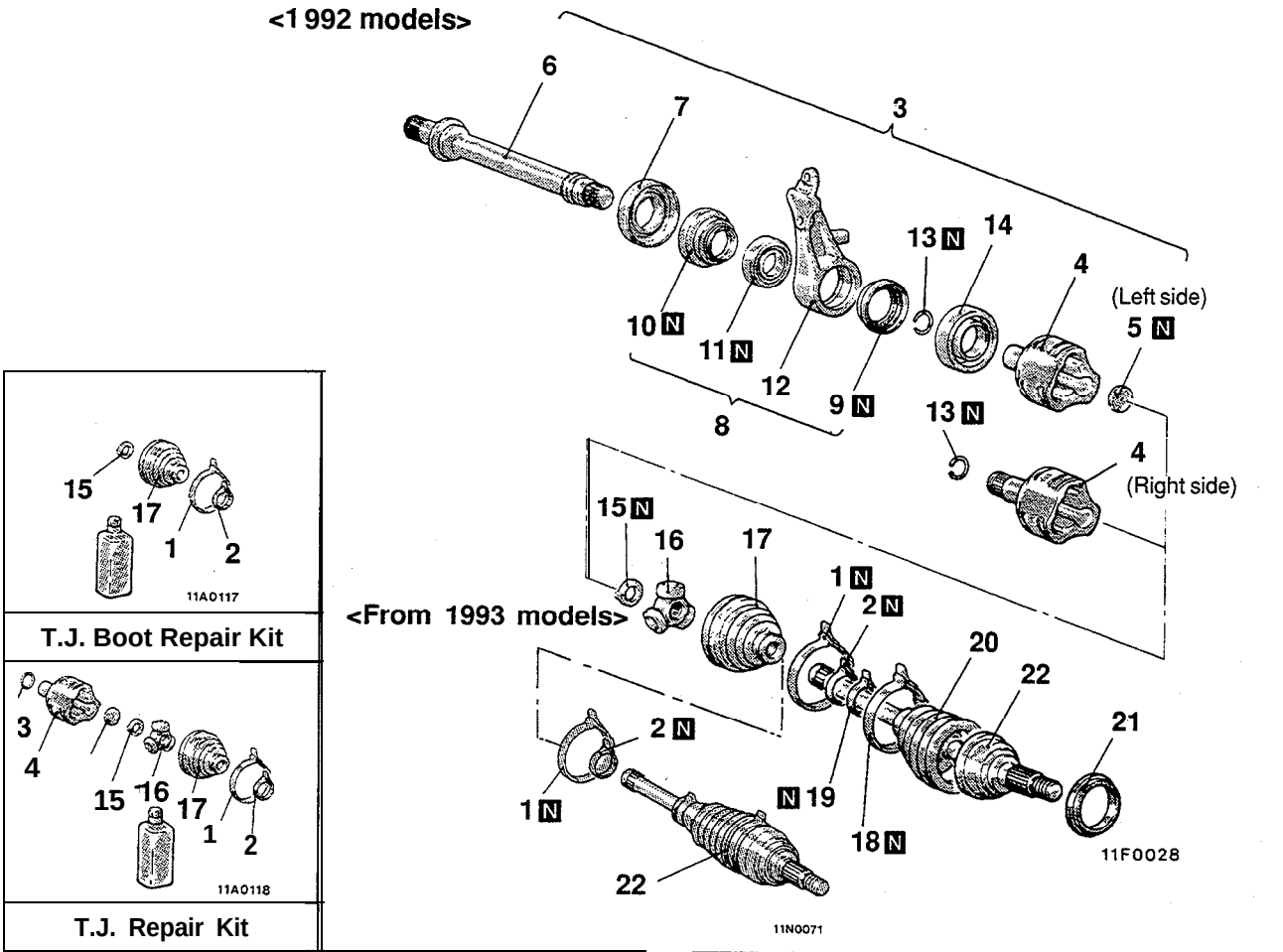
▶A◀ DRIVE SHAFT NUT INSTALLATION

(1) Be sure to install the washer and wheel bearing nut in the specified direction.
(2) After installing the wheel, lower the vehicle to the ground and finally tighten the wheel bearing nut.
(3) If the position of the cotter pin holes does not match, tighten the nut up to 260 Nm (188 ft.lbs.) in maximum.
(4) Install the cotter pin in the first matching holes and bend it securely.

INSPECTION

- Check the drive shaft boot for damage or deterioration.
- Check the ball joints for wear or operating condition.
- Check the spline part for wear or damage.

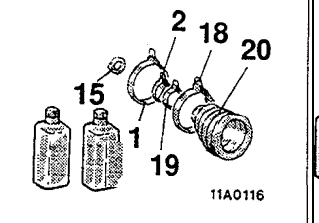
DISASSEMBLY AND REASSEMBLY



T.J. Boot Repair Kit

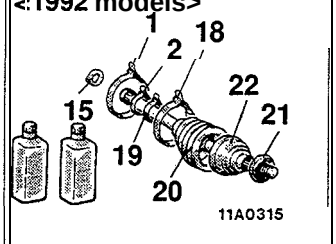
T.J. Repair Kit

<:1992 models>

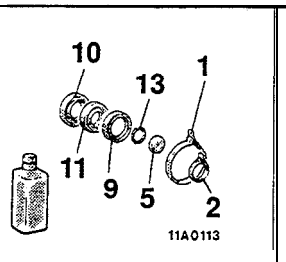


B.J. Boot Repair Kit

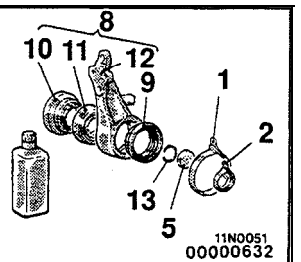
<:1992 models>



B.J. Repair Kit



Bearing Dust Seal Repair Kit



Bracket Assembly Repair Kit

Disassembly steps

- ▶G◀ 1. T.J. boot band (large)
- ▶G◀ 2. T.J. boot band (small)
- ▶F◀ 3. T.J. case and inner shaft assembly
- 4. T.J. case
- 5. Seal plate
- ◀A▶ ▶E◀ 6. Inner shaft
- 7. Dust shield
- 8. Bracket assembly
- ▶D◀ 9. Dust seal outer
- ▶D◀ 10. Dust seal inner
- ◀B▶ ▶C◀ 11: Center bearing
- 12. Center bearing bracket
- 13. Circlip
- 14. Dust shield
- 15. Snap ring
- ▶B◀ **16.** Spider assembly
- ◀C▶ ▶A◀ **17.** T.J. boot
- 18. B.J. boot band (large) cl 992 models>
- 19. B.J. boot band (small) <1 992 models>
- ◀C▶ ▶A◀ 20. B.J. boot <1992 models>
- 21. Dust shield <1992 models>
- ◀D▶ 22. B.J. assembly

Caution
in the case of AWD-vehicles with ABS, take care not to damage the rotor installed to the B.J. outer race.

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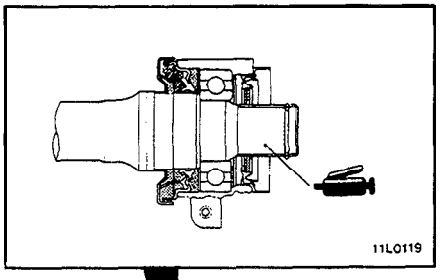
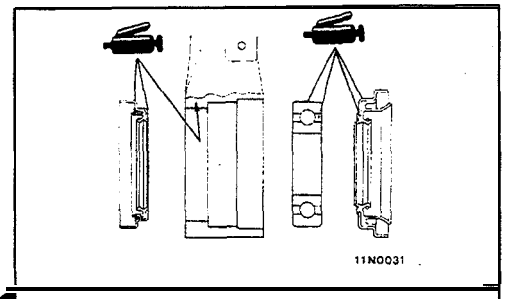
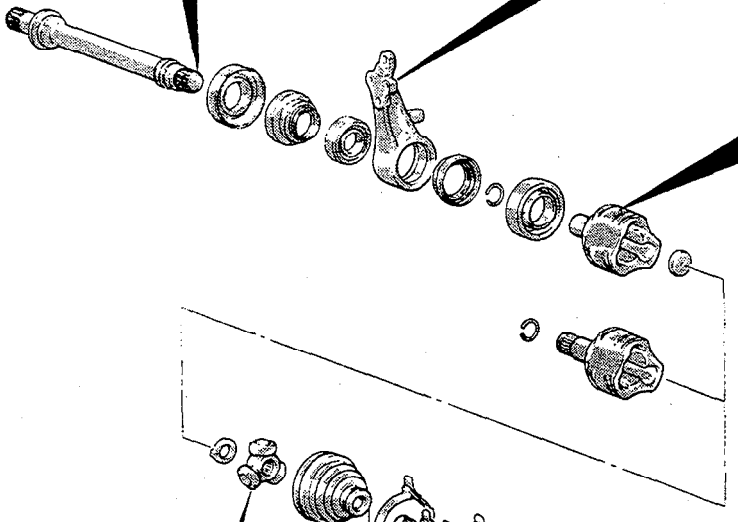
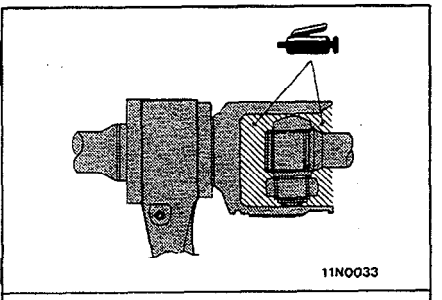
Lubrication Points





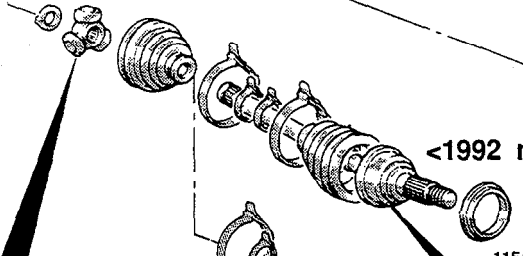
Grease: Multipurpose grease
Dustseal inner 14–20 g (.49–.711 oz.)
Dust seal outer 8–12 g (.28–.42 oz.)

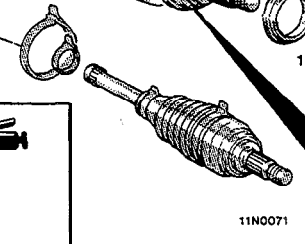




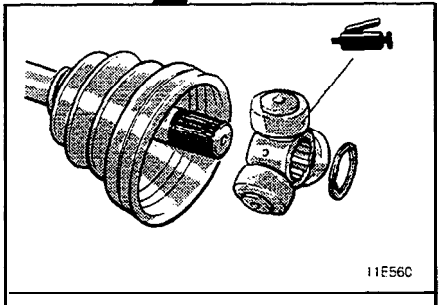
Grease: Repair kit grease
160 g (5.64 oz.)
Caution
The grease in the repair kit should be divided in half for use, respectively, at the joint and inside the boot.
Special grease is used to lubricate the joint. Do not mix old and new grease or different types of grease.

<1992 models>



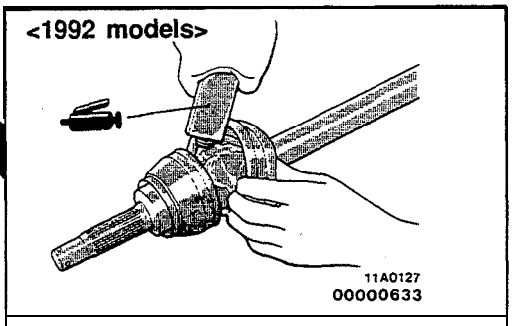


<From 1993 models,



Grease: Repair kit grease

<1992 models>



Grease: Repair kit grease
<FWD> 145 g (5.11 oz.)
<AWD> 135 g (4.76 oz.)
Caution
The grease in the repair kit should be divided in half for use, respectively, at the joint and inside the boot.
Special grease is used to lubricate the joint. Do not mix old and new grease or different types of grease.

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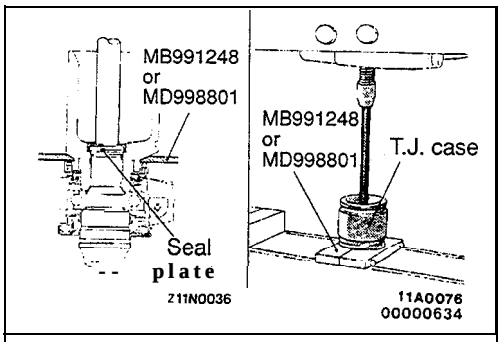
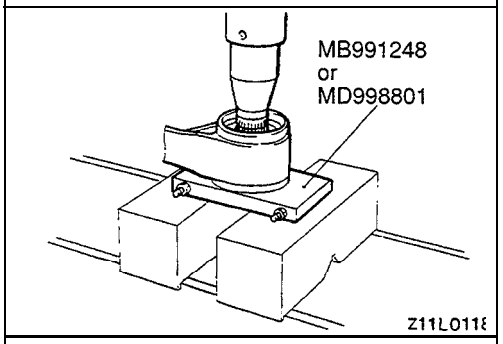


DISASSEMBLY SERVICE POINTS

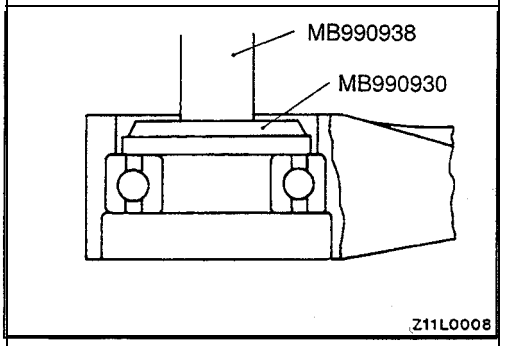
◀A▶ INNER SHAFT REMOVAL

(1) Using the special tool, remove the inner shaft assembly, together with the seal plate, from the T.J. case.

NOTE
Press the tool directly against the seal plate. The tool under pressure will puncture and deform the seal plate, and push out the inner shaft underneath.

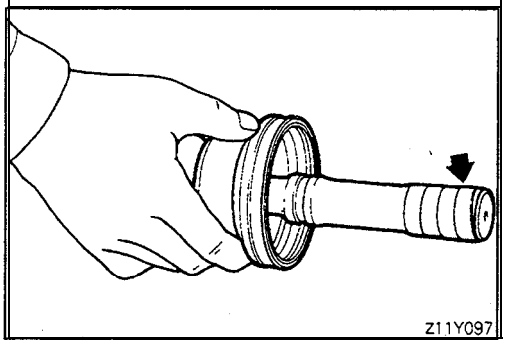


(2) Use the special tool to remove the inner shaft from the center bearing bracket.



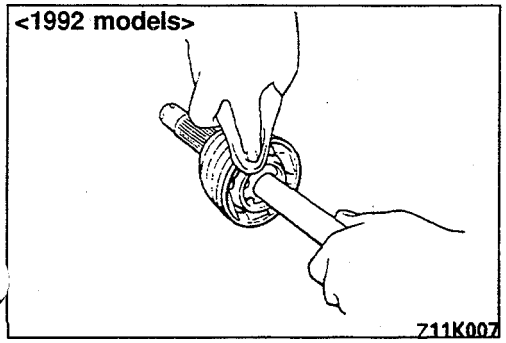
◀B▶ CENTER BEARING REMOVAL

Use the special tools to remove the center bearing from the center bearing bracket.



◀C▶ T.J. BOOT / B.J. BOOT <1992 models> REMOVAL

(1) Wrap vinyl tape around the spline on the T.J. side of the drive shaft so that the T.J. and B.J. boots are not damaged when they are removed.
(2) Withdraw the T.J. and B.J. boots from the drive shaft.



◀D▶ GREASE FROM B.J. ASSEMBLY <1992 models> REMOVAL

Wipe off grease from the B.J. assembly.

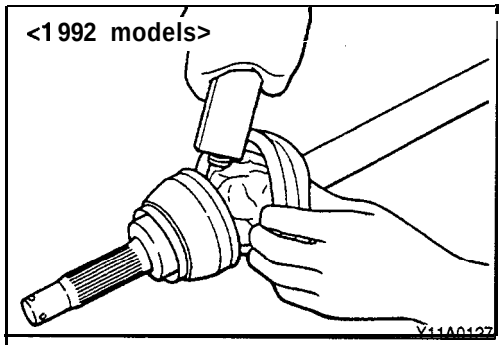
Caution
B.J. assembly cannot be disassembled.

TSB Revision

REASSEMBLY SERVICE POINTS

▶A◀ B.J. BOOT cl992 models> / T.J. BOOT INSTALLATION

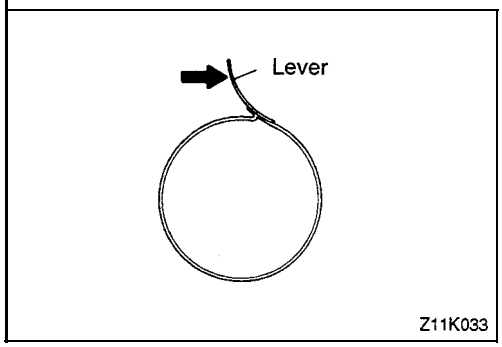
(1) Wrap vinyl tape around the splines on the drive shaft, and then install the R.J. boots and T.J. boots, in that order.



(2) Fill the inside of the B.J. and B.J. boot with the specified grease.

Specified grease:
Repair kit grease
<FWD> 145 g (5.11 oz.)
<AWD> 135 g (4.76 oz.)

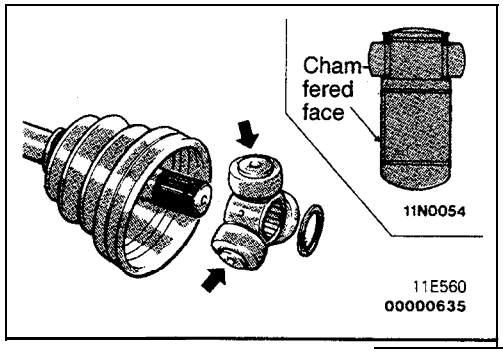
Caution
1. The grease in the repair kit should be divided in half for use, respectively, at the joint and inside the boot.
2. Special grease is used to lubricate the joint. Do not mix old and new grease or different types of grease.



(3) Secure the boot bands.

Boot band		FWD	AWD
B.J. boot band <1992 models>	Large	20–22#BJ104	20–75#BJ100L
	Small	20–15#BJ104	20–72#BJ100
T.J. boot band	Large	20–131#BJ100	20–131#BJ100
	Small	20–72#BJ100	20–72#BJ100

Caution
1. The boot bands should be tightened with the drive shaft at a 0° joint angle.
2. The B.J. boot band and T.J. boot band are identified by the identification number stamped on the lever. Take good care to install the correct one.



▶B◀ SPIDER ASSEMBLY INSTALLATION

(1) Pack specified grease amply between the spider shaft and rollers of the spider assembly.

Specified grease: Repair kit grease

Caution
Special grease is used to lubricate the joint. Do not mix old and new grease or different types of grease.

(2) To install the spider assembly to the shaft, insert the shaft from the chamfered end of the spider.

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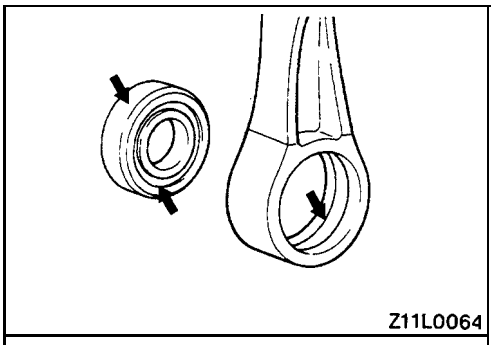
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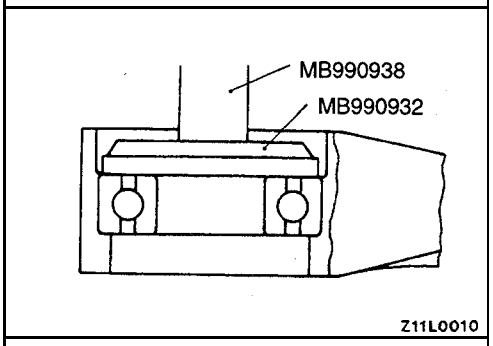
▶C◀ CENTER BEARING INSTALLATION

(1) Apply multipurpose grease to the center bearing and inside the center bearing bracket.



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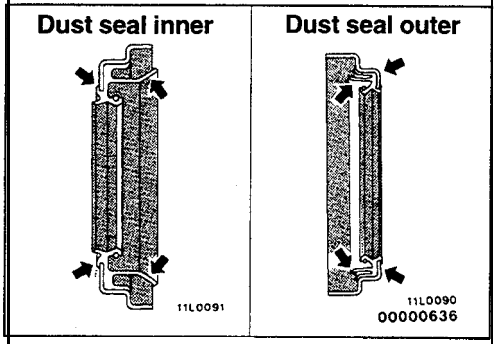
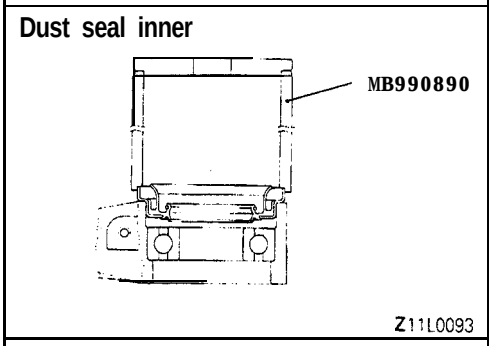
(2) Use the special tools to press-fit the center bearing into the center bearing bracket.



▶D◀ DUST SEALS INSTALLATION

(1) Apply multipurpose grease to the rear surfaces of all dust seals.

Dust seal inner: 14-20 g (.49–.71 oz.)
Dust seal outer: 8-12 g (.28–.42 oz.)



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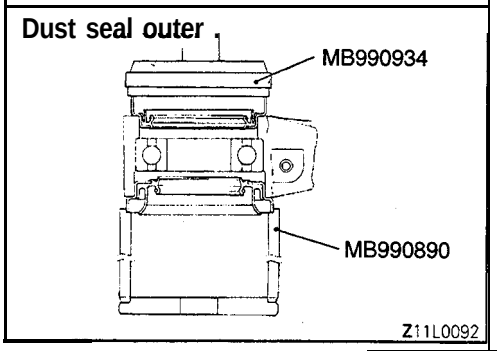
(2) Press the oil seal into the center bearing bracket using the special tool.

Caution
Take care not to damage the rubber part on the periphery of the dust seal.

(3) Apply multipurpose grease to the lip of each dust seal.

NOTE
When applying grease, make sure that it does not adhere to anything outside the lip.



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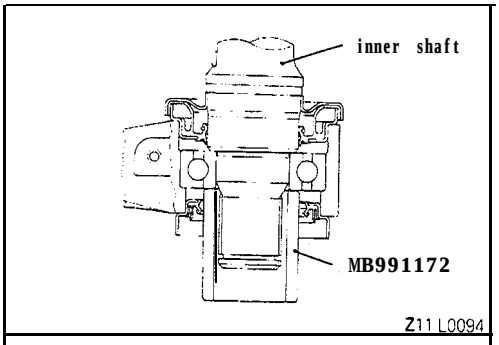
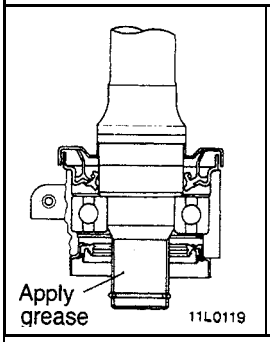
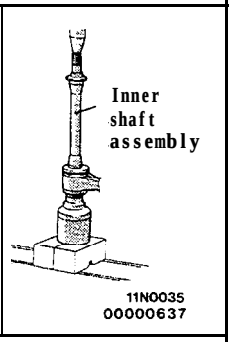


▶E◀ INNER SHAFT INSTALLATION

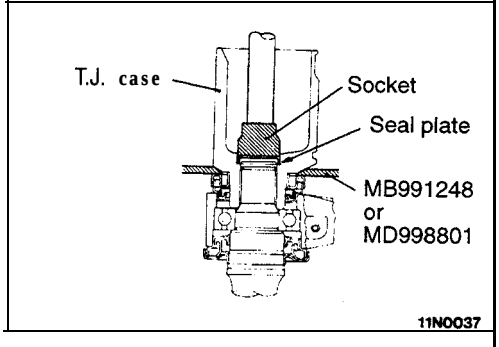
Use the special tool to hold the inner race of the center bearing and force the inner shaft into place.



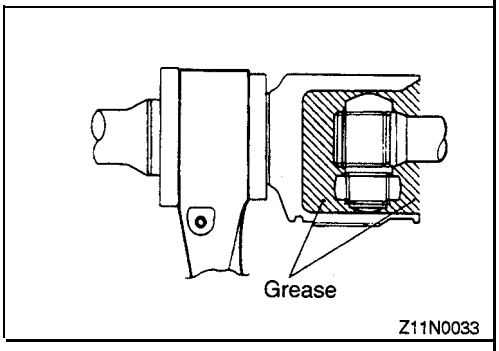


▶F◀ T.J. CASE AND INNER SHAFT ASSEMBLY INSTALLATION

(1) Apply multipurpose grease to the inner shaft spline, then press fit it into the T.J. case.



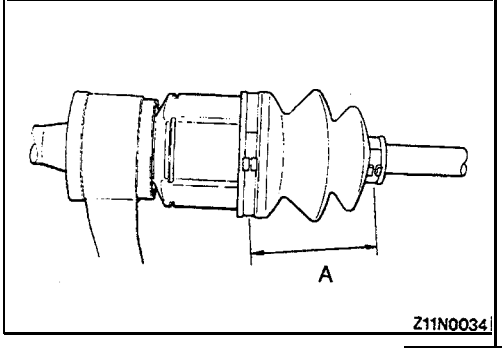
(2) Using the special tool, press the seal plate into the T.J. case.



(3) Fill the specified grease furnished in the repair kit to the T.J. case.

Specified grease:
Repair kit grease 160 g (5.64 oz.)

Caution
1. **The grease in the repair kit should be divided in half for use, respectively, at the joint and inside the boot.**
2. **The drive shaft joint uses special grease. Do not mix old and new or different types of grease.**



▶G◀ T.J. BOOT BANDS INSTALLATION

Set the T.J. boot bands at the specified distance in order to adjust the amount of air inside the T.J. boot, and then tighten the T.J boot band securely.

Standard value (A): 85 ± 3 mm (3.35 ± .12 in.)

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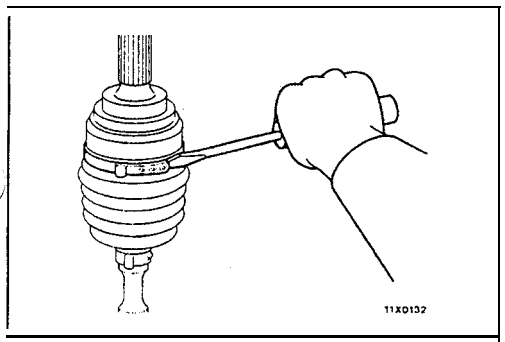
INSPECTION

- Check the drive shaft for damage, bending or corrosion.
- Check the inner shaft for damage, bending or corrosion.
- Check the drive shaft splines for wear or damage.
- Check the inner shaft splines for wear or damage.
- Check for entry of water and/or foreign material into B.J.
- Check the spider assembly for roller rotation, wear or corrosion.
- Check the groove inside T.J. case for wear of corrosion.
- Check the boots for deterioration, damage or cracking.
- Check the center bearing for seizure, discoloration or roughness of rolling surface.
- Check the dust cover for damage or deterioration.

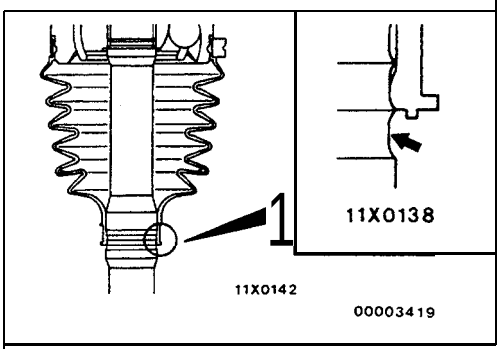


B.J. BOOT (RESIN BOOT) REPLACEMENT

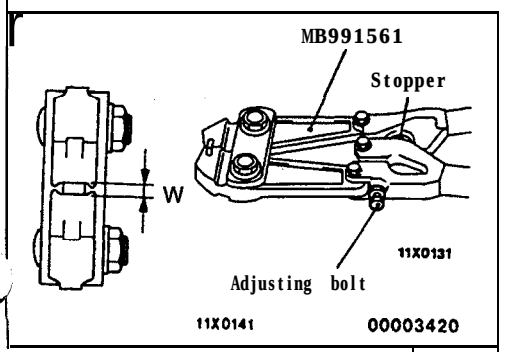
(1) Remove the large and small boot bands.

NOTE
Do not reuse the boot bands.

(2) Remove the B.J. boot.



(3) Install the small diameter end of the B.J. boot by so locating it as to expose only one of the grooves provided on the shaft.



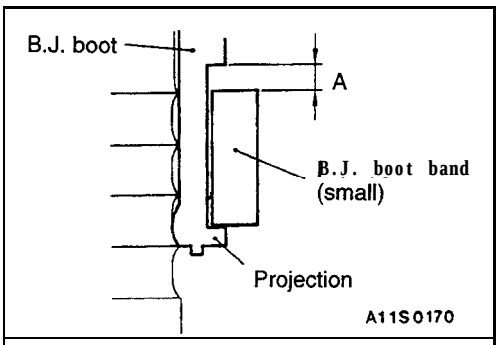
(4) Turn the adjusting bolt of the special tool to obtain a standard value of the opening width (W).

Standard value (W): 2.9 mm (.114 in.)

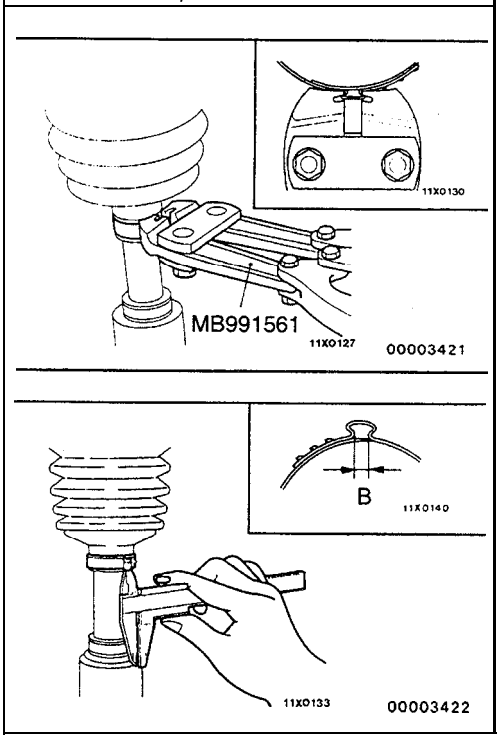
<When width is above 2.9 mm (.114 in.)>
Tighten the adjusting bolt.

<When width is below 2.9 mm (.114 in.)>
Loosen the adjusting bolt.

NOTE
(1) One complete turn of the adjusting bolt will change the width by approx. 0.7 mm (.028 in.).
(2) Do not give more than one turn to the adjusting bolt.



(5) Install the boot band (small) against the projection at the boot end to provide clearance A as shown in the illustration.



(6) Using the special tool, crimp the boot band.

Caution

1. With the drive shaft secured vertically, pinch positively the portion to be crimped of the band between the tips of the special tool.

2. Be sure to compress the boot band until the special tool handle comes in contact with the stopper.

(7) Make sure that the amount of boot band crimping (B) is of the standard value.

Standard value (B): 2.4 – 2.8 mm (.094 – .110 in.)

<When amount of crimping is above 2.8 mm (.110 in.)>

Readjust W given in (4) above to the value calculated by the following formula, and repeat work described in (6).

W = 5.5 mm (.217 in.) – B

[Example: When B = 2.9 mm (.114 in.), W = 2.6 mm (.102 in.)]

<When amount of crimping is below 2.4 mm (.094 in.)>

Remove the boot band, readjust W given in (4) to the value calculated by the following formula and repeat work described in (5) and (6) by using a new boot band.

W = 5.5 mm (.217 in.) – B

[Example: When B = 2.3 **mm (.091 in.), W = 3.2 mm (.126 in.)]**

(8) Make sure that the boot band does not protrude from the band mounting area. If the band protruds, replace it with a new band and repeat work described in (5) through (7).

(9) Pack the boot with specified amount of grease to specification.

Specified grease: Grease in repair kit

Amount applied: 155 g (5.47 oz.)

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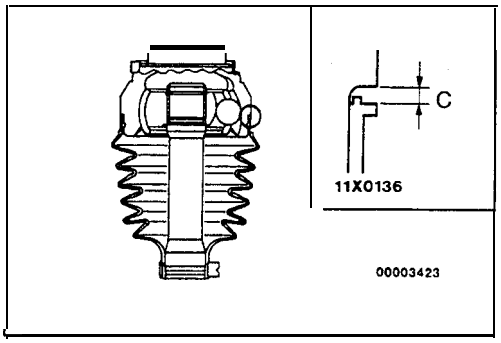
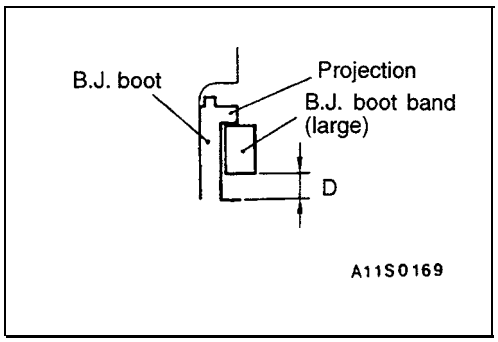


(10) Install the boot with a clearance of standard value (C) provided between the large diameter end of the boot and the shoulder of B.J. housing.

Standard value (C): 0.1 – 1.55 mm (.004 – .061 in.)

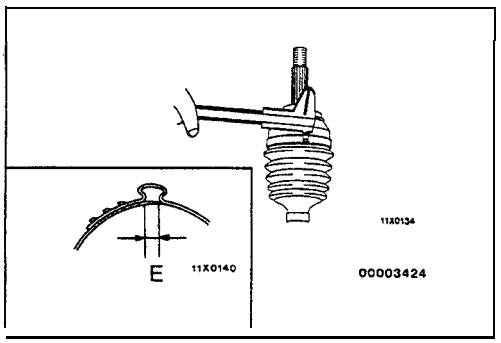
(11) Adjust the width of opening in the special tool (W) to standard value in the same manner as described in (4).

Standard value (W): 3.2 mm (.126 in.)



(12) Install the boot band (large) against the projection at the boot end to provide clearance D as shown in the illustration.

(13) Crimp the boot band (large) with the special tool in the same manner as described in (6) above.



(14) Make sure that the amount of boot band crimping is within the range of standard value (E).

Standard value (E): 2.4-2.8 mm (.094 – .110 in.)

<When amount of crimping is above 2.8 mm (.110 in.)>

Readjust W given in (11) to a value obtained by the following formula and repeat work described in (13) above.

W = 5.8 mm (.228 in.) – E

[Example: When E = 2.9 mm (.114 in.), W = 2.9 mm (.114 in.)]

<When amount of crimping is below 2.4 mm (.094 in.)>

Remove the boot band, readjust W given in (11) to a value calculated by the following formula and repeat work described in (12) and (13) by using a new boot band.

W = 5.8 mm (.228 in.) – E

[Example: When E = 2.3 mm (.091 in.), W = 3.5 mm (.138 in.)]

(15) Make sure that the boot band does not protrude from its mounting area. If the band protrudes, replace it with a new -band and repeat work described in (12) through (14).

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NOTES