

2.2 ROTARY VALVE ASSEMBLY

REMOVE

1. Remove steering gear from the vehicle, as detailed in [2.1 POWER STEERING GEAR - REMOVE](#) in this Section and in [3.6 POWER STEERING GEAR - REMOVE](#) in Section 9A, in this Volume of the Service Manual.
2. Clamp the steering gear in a bench vice, fitted with soft jaws, ONLY as illustrated in Figure 9B-16.
3. Disconnect steering rack feed pipes from the valve housing.

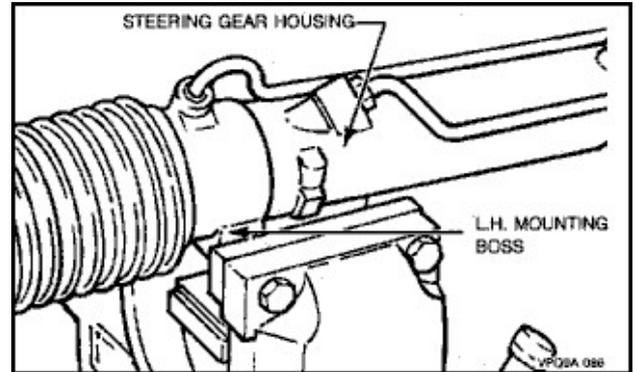


Figure 9B-16

4. Remove the dust cover from the valve housing and input shaft.

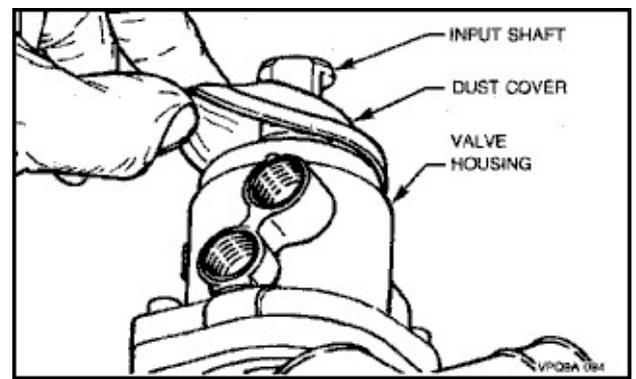


Figure 9B-17

5. Using a 5 mm Allen key, remove the valve housing attaching bolts. Withdraw the housing from the input shaft.

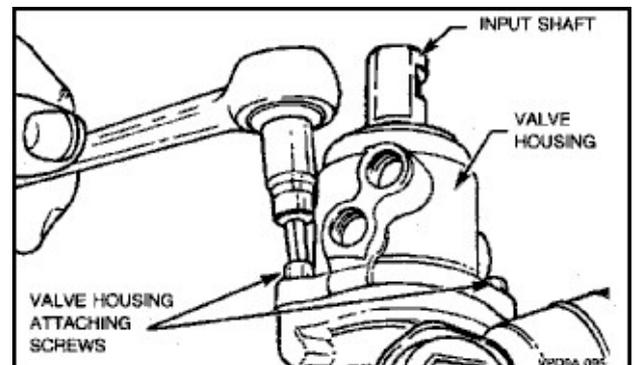


Figure 9B-18

6. Remove and discard valve housing to steering gear housing 'O' ring.

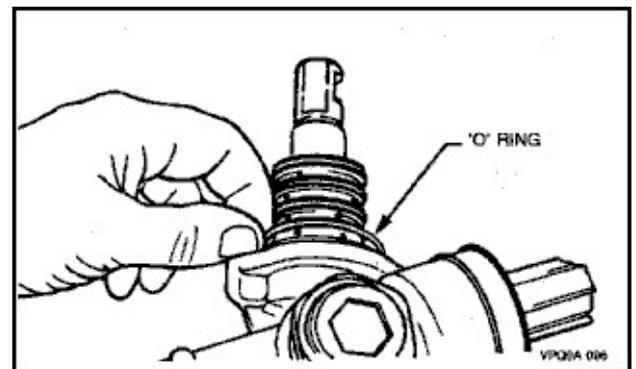


Figure 9B-19

7. Remove the rack pad adjuster lock nut, using Tool No. AU301.
8. Rotate pinion shaft fully clockwise.

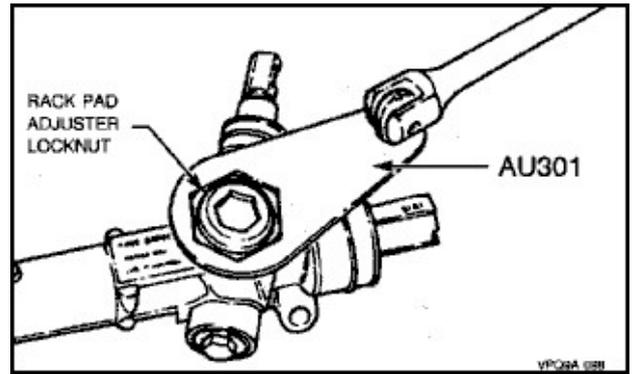


Figure 9B-20

9. Remove the pinion lower bearing retaining screw from the housing.

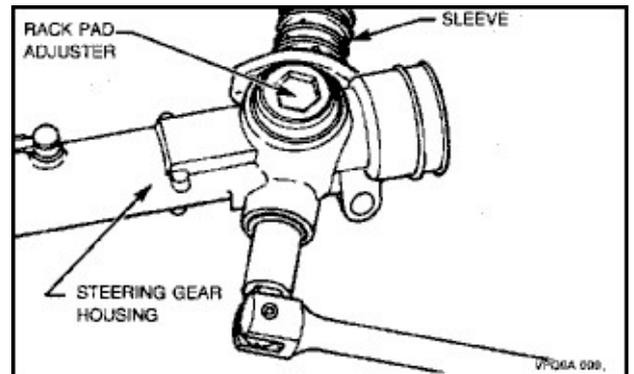


Figure 9B-21

10. Remove pinion lower bearing retaining nut from pinion.

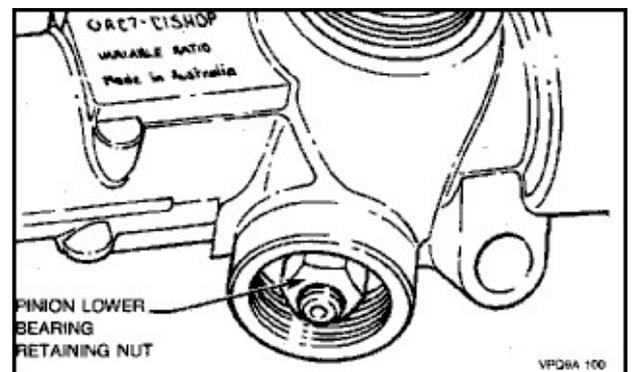


Figure 9B-22

11. Loosen and remove the rack pad adjuster screw, using Tool No. AU211-A.

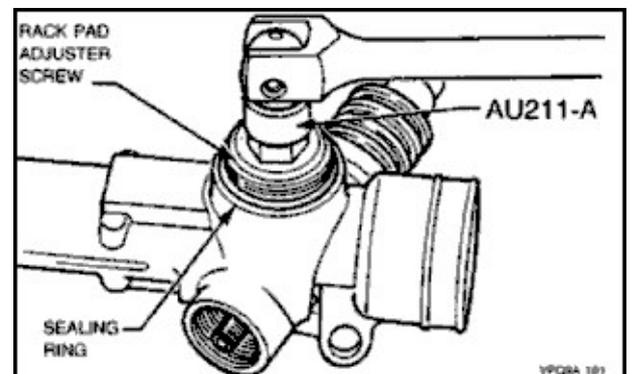


Figure 9B-23

12. Remove the rack pad spring and rack pad assembly from steering gear housing. Remove insert and rack pad insert from steering gear housing.

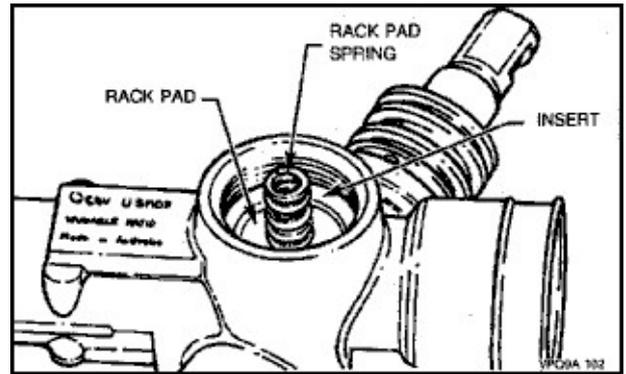


Figure 9B-24

13. Using a brass drift and a soft faced hammer, gently knock on lower end of pinion to remove pinion assembly from the housing.

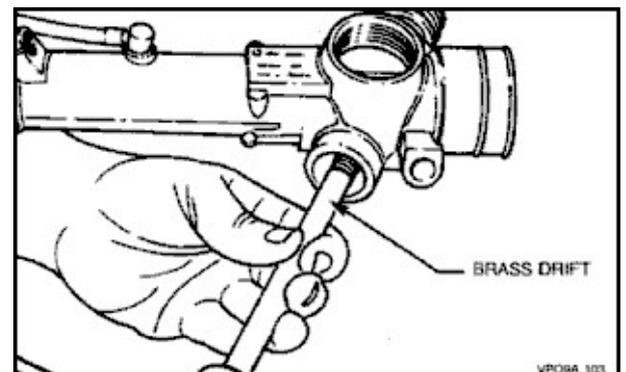


Figure 9B-25

14. Using a screwdriver, lever out pinion seal from the housing. Discard the seal.

NOTE:

Take care not to damage the housing lip.

15. Remove and discard the P.T.F.E. rings from the outer sleeve.

The seals are best removed by cutting diagonally with a sharp knife but care must be taken to avoid scratching the sides of the grooves, otherwise subsequent pressure losses will occur.

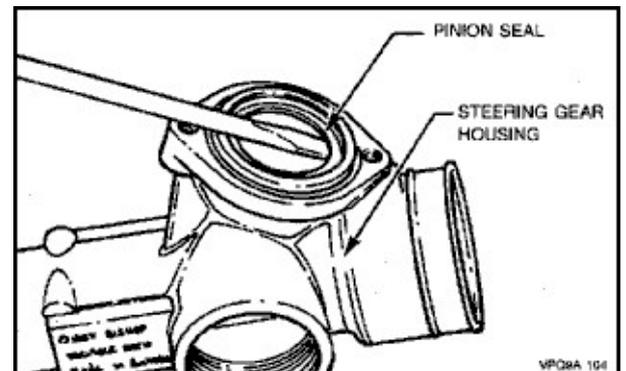


Figure 9B-26

16. Place flange face of valve housing onto a wooden block and, using Tool No. AU314, drive the valve seal and bearing from the housing.

NOTE:

As there is no inner race to support them, the needle rollers may fall from the outer race, during this process.

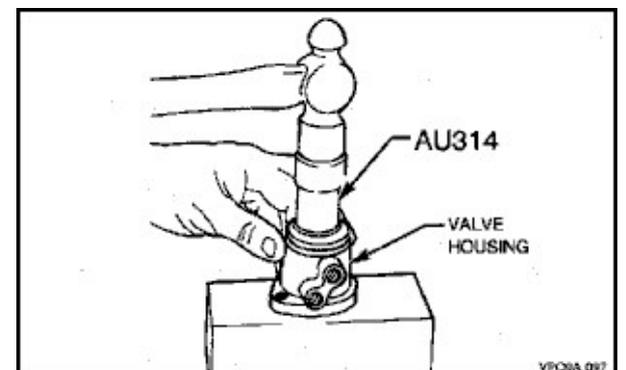


Figure 9B-27

NOTE:

Because of the component matching that is critical to the safe operation of the sleeve

critical to the safe operation of the sleeve and valve assembly, the pinion assembly must not be further dismantled.

17. For further dismantling procedures relating to the steering rack assembly, refer to **3.6 POWER STEERING GEAR - DISASSEMBLE**, in Section 9A, in this Volume of the Service Manual.

CLEAN AND INSPECT

Thoroughly wash all metal parts in a suitable cleaning solution and blow dry with compressed air.

1. Inspect input shaft dust cover for damage or deterioration, replace if necessary.
2. Inspect pinion bearings for signs of brinelling, damage or wear.

NOTE:

The pinion upper bearing cannot be removed from the steering gear housing. If the upper bearing is found to require replacement, then the housing and pinion bearing assembly will have to be replaced.

3. Inspect pinion for signs of tooth wear or damage.
4. Inspect housing for wear or damage in pinion bearing bores and seal bores.
5. Inspect rack pad for damage or excessive wear.
6. Inspect major components of pinion assembly (pinion, valve, sleeve and torsion bar) for damage or wear.

NOTE:

The pinion assembly components are not serviced individually as they are hydraulically balanced at the pinning stage of assembly to equalise the steering efforts required in right and left directions.

REINSTALL

1. Using Tool No. AU315-A, with driver handle AU355-A, support on suitable press plates such as Tool No. E6673 and press a new input shaft upper seal into the valve housing.

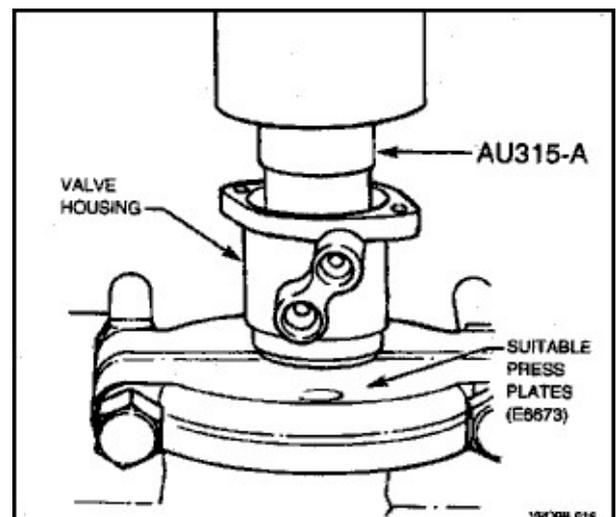


Figure 9B-28

- Place a new input shaft upper bearing onto Tool No. AU441 and place the valve housing onto Tool No. AU441. Turn the assemblies over and press the bearing into the valve housing until the flange of AU441 touches the flange of the valve housing.

NOTE 1. When installing the bearing, ensure that the identification stamping on the outer race, faces the housing flange.

NOTE 2. Only use Tool No. AU441 for this operation and do not use a hammer to install the bearing. During installation, the bearing is structurally weak and can easily be distorted, rendering the bearing unserviceable, if installed using any other means.

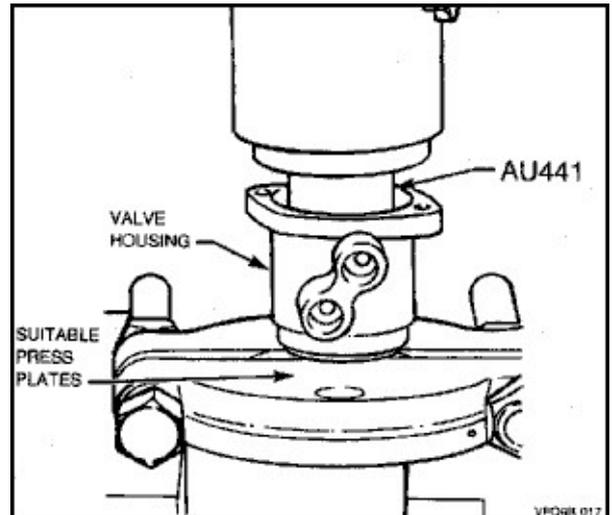


Figure 9B-29

- Expand new P.T.F.E. seal rings by warming in hot water and then position them over Tool No. 9A23.
- Install the expanded P.T.F.E. rings onto the rotary sleeve valve.

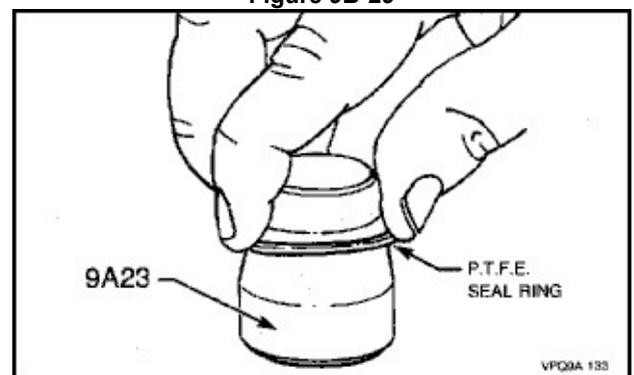


Figure 9B-30

- Push Tool No. AU440 over the sealing rings and leave for 5-10 minutes to allow the rings to return back to normal size.

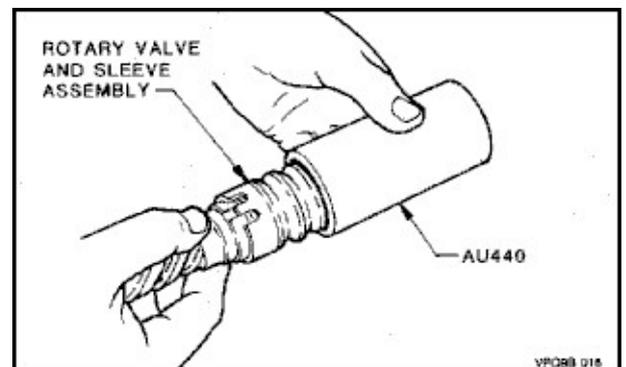


Figure 9B-31

For remaining Reinstallation operations, refer to both [3.6 POWER STEERING GEAR - REASSEMBLE](#), in Section 9A in this Volume of the Service Manual and [2.1 POWER STEERING GEAR - REINSTALL](#), in this Section.