Axle Shaft Assembly: Service and Repair
Front Axle
REMOVAL
1. Loosen the wheel nuts slightly.
2. Raise the front of vehicle, and support it with safety stands in the proper locations.
3. Remove the wheel nuts and front wheels.
4. Drain the differential oil.

NOTE: It is not necessary to drain the differential oil when the right driveshaft is removed.

5. Raise the locking tab on the spindle nut, then remove the nut.
6. Remove the self-locking nut and flange bolt.

7. Remove the damper fork.
8. Remove the cotter pin from the lower arm ball joint castle nut, and remove the nut.
9. Install a 14 mm hex nut on the ball joint. Be sure that the hex nut is flush with the ball joint pin end, or the threaded section of the ball joint pin might be damaged by the ball joint remover.
10. Use the ball joint remover, to separate the ball joint and lower arm.

**CAUTION:** Be careful not to damage the ball joint boot.

**NOTE:** If necessary, apply penetrating type lubricant to loosen the ball joint.

11. Pry the left driveshaft assembly with a screwdriver, as shown, to force the set ring at the driveshaft end past the groove.

12. Pull on the inboard joint, and remove the left drive-shaft from the differential case as an assembly.

**CAUTION:**
- Do not pull on the driveshaft, as the inboard joint may come apart.
- Use care when prying out the assembly, and pull it straight to avoid damaging the differential oil seal or the intermediate shaft outer seal.
Remove the right driveshaft from the bearing support by tapping the inboard joint of the driveshaft with a plastic hammer.

13. Pull the knuckle outward, then remove the driveshaft outboard joint from the front wheel hub using a plastic hammer.

DISASSEMBLY
1. Carefully clamp the driveshaft in a vise with soft jaws, then remove the set ring from the inboard joint.

2. Remove the boot bands on the inboard joint and outboard joint.
   - If the boot band is a locking tabs type, pry up the locking tabs with a screwdriver and raise the end of the band.
- If the boot band is the welded type, cut it off as shown.

**CAUTION:** Take care not to damage the boot.

- If the boot band is a double loop band type, raise the band bend as shown.

3. Mark each roller and inboard joint to identify the locations of rollers and grooves in the inboard joint. Then remove the inboard joint on the shop towel.

**NOTE:** Be careful not to drop the rollers when separating them from the inboard joint.
4. Mark the rollers and spider to identify the locations of rollers on the spider, then remove the rollers.

5. Remove the circlip.

6. Mark the spider and driveshaft to identify the position of the spider on the shaft.

7. Remove the spider using a commercially-available bearing remover.

8. Remove the stop ring.

9. Wrap the splines on the driveshaft with vinyl tape to prevent damage to the boots and dynamic damper.

10. Remove the inboard boot.

   **CAUTION:** Take care not to damage the boot.

11. Remove the dynamic damper.

   **CAUTION:** Take care not to damage the dynamic damper.

12. Remove the outboard boot, then remove the vinyl tape.

   **CAUTION:** Take care not to damage the boot.

13. Inspect the outboard joint for faulty movement and wear. If any roughness or excess play is felt, replace the outboard joint.

14. Check the outboard ring for damage.
NOTE:
- Clean the disassembled parts with solvent, and dry them thoroughly with compressed air. Do not wash the rubber parts with solvent.
- Thoroughly pack the inboard joint and both joint boots with the joint grease included in the new driveshaft set.

Installation Method:

NOTE: To adjust the amount of air in the boots, install the boot bands so that the distance between the joints matches the specifications.
1. Wrap the splines with vinyl tape to prevent damage to the boots and dynamic damper.

2. Install the outboard boot, dynamic damper and inboard boot to the driveshaft, then remove the vinyl tape.

   **CAUTION:** Take care not to damage the boots and dynamic damper.

3. Install the stopper ring into the driveshaft groove.

   **NOTE:** Always rotate the stopper ring in its groove to be sure it is fully seated.

4. Install the spider on the driveshaft by aligning the marks on the spider and end of the driveshaft.
5. Fit the circlip into the driveshaft groove.

   **NOTE:** Always rotate the circlip in its groove to be sure it is fully seated.

6. Pack the outboard joint with the joint grease included in the new driveshaft set.
7. Fit the rollers to the spider with their high shoulders facing outward.

**NOTE:**
- Reinstall the rollers in their original positions on the spider by aligning the marks.
- Hold the driveshaft pointed up to prevent the rollers from falling off.

8. Pack the inboard joint with the joint grease included in the new driveshaft set.

9. Fit the inboard joint onto the driveshaft.

**NOTE:**
- Reinstall the inboard joint onto the driveshaft by aligning the marks on the inboard joint and the rollers.
- Hold the driveshaft so the inboard joint points up to prevent it from falling off.
10. Adjust the length of the driveshafts to the figure below, then adjust the boots to halfway between full compression and full extension.

**NOTE:** The ends of boots seat in the groove of the driveshaft and joint.

11. Position the dynamic damper as shown.

(A): \(45 \pm 2 \text{ mm (1.8 \pm 0.1 inch)}\)

12. Set the double loop band onto the boot and dynamic damper with the band end toward to front of the vehicle.

13. Pull up the slack in the band by hand.
14. Make a mark on the band 10-14 mm (0.4-0.6 inch) from the clip.
15. Thread the free end of the band through the nose section of the boot band tool and into the slot on the winding mandrel.

16. Place a wrench on the winding mandrel of the boot band tool, and tighten the band until the mark you made on the band meets the edge of the clip.

17. Raise up the boot band tool to bend the free end of the band 90 degrees, then center-punch the clip.
18. Unwind the boot band tool, and cut off the excess 5-10 mm (0.2-0.4 inch) from the clip.

19. Secure the end of the boot band by tapping it down with a hammer.

Note these items after reassembly:
- Make sure the band and clip does not interfere with anything and the band does not move.
- Remove any grease remaining on the surrounding surfaces.

**INSTALLATION**

1. Install the outboard joint into the knuckle.
2. Apply 0.5 - 1.0 g (0.02 - 0.04 oz.) of specified grease to the whole splined surface of the intermediate shaft. After applying grease, remove the grease from the splined grooves at intervals of 2-3 splines and from the set ring groove so air can bleed from the inboard joint.

3. Install a new set ring onto the driveshaft or intermediate shaft groove.

4. Install the inboard end of the driveshaft into the differential or the intermediate shaft.
5. Install the knuckle on the lower arm, then tighten the castle nut and install a new cotter pin.

6. Install the damper fork over the driveshaft and onto the lower arm. Install the damper in the damper fork so the aligning tab is aligned with the slot in the damper fork.

7. Loosely install the flange bolts and the new self locking nut.

**NOTE:** The bolts and nut should be tightened with the vehicle's weight on the damper.

8. Install a new spindle nut, then tighten the nut.

9. Install the front wheel with the wheel nuts.

**NOTE:** Before installing the wheel, clean the mating surfaces of the brake disc and the wheel.

10. Tighten the flange bolts and the new self-locking nut with the vehicle's weight on the damper.

11. Refill the transmission with recommended fluid.

12. Check the front wheel alignment and adjust if necessary.