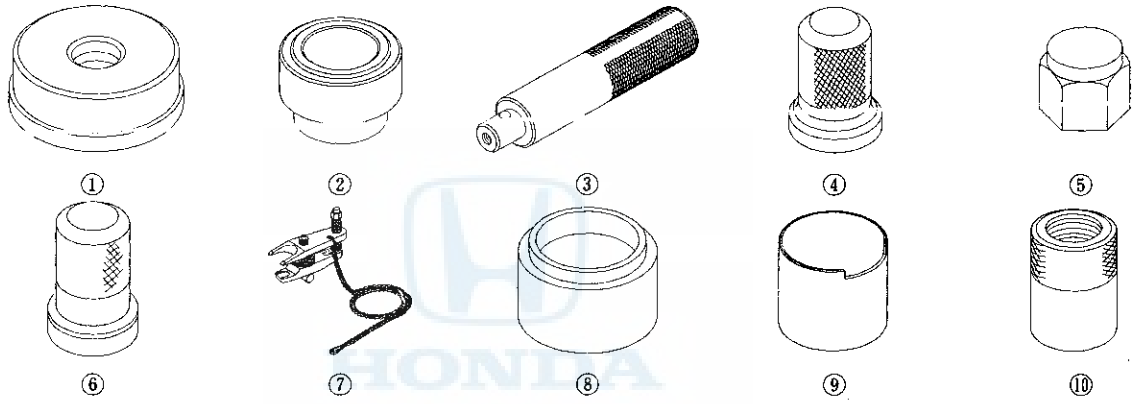
Transaxle

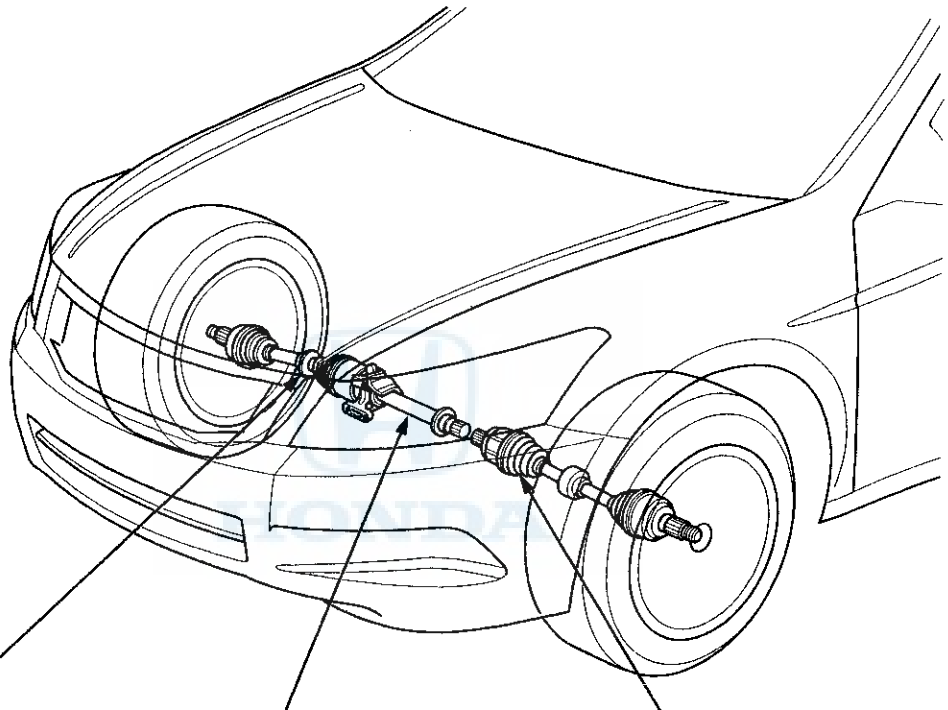
Driveline/Axle

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07746-0010400	Attachment, 52 x 55 mm	1
②	07746-0030400	Attachment, 35 mm I.D.	1
③	07749-0010000	Driver Handle, 15 x 135L	1
④	07947-SB00100	Oil Seal Driver, 44.5 mm	1
⑤	07AAE-SJAA100	Ball Joint Thread Protector, 14 mm	1
⑥	07GAD-PH70201	Oil Seal Driver	1
⑦	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑧	07MAD-PR90100	Attachment, 45 x 55 mm	1
⑨	07NAF-SR30101	Half Shaft Base	1
⑩	07XAC-001030A	Threaded Adapter, 26 x 1.5 mm	1



Component Location Index



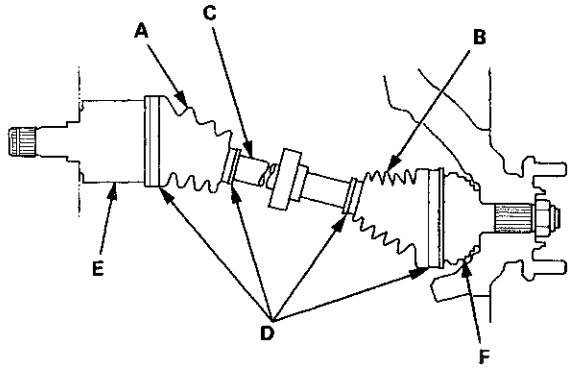
DYNAMIC DAMPER
Replacement, page 16-10

INTERMEDIATE SHAFT
Removal, page 16-22
Disassembly, page 16-23
Reassembly, page 16-25
Installation, page 16-28

DRIVESHAFT
Inspection, page 16-4
Removal, page 16-4
Disassembly, page 16-7
Reassembly, page 16-11
Installation, page 16-19

Driveshaft Inspection

1. Check the inboard boot (A) and the outboard boot (B) on the driveshaft (C) for cracks, damage, leaking grease, and loose boot bands (D). If any damage is found, replace the boot and the boot bands.

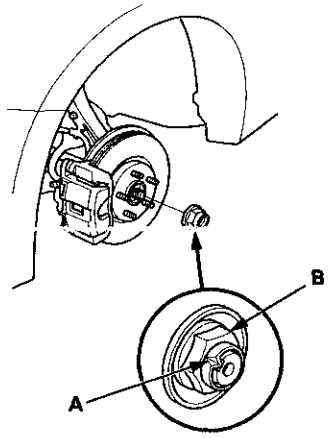


2. Check the driveshaft for cracks and damage. If any damage is found, replace the driveshaft.
3. Check the inboard joint (E) and the outboard joint (F) for cracks and damage. If any damage is found, replace the inboard joint or the outboard joint as an assembly.
4. Hold the inboard joint and turn the front wheel by hand, then make sure the joint is not excessively loose. If necessary, replace the inboard joint or the outboard joint as an assembly.

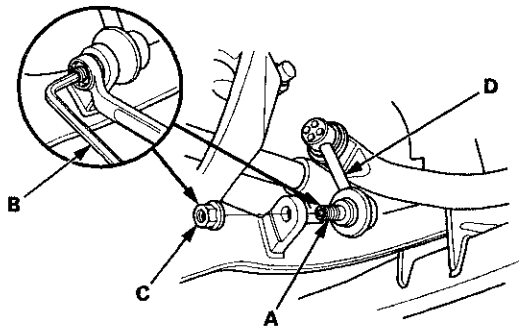
Driveshaft Removal

Special Tools Required
- Ball Joint Thread Protector, 14 mm 07AAE-SJAA100
- Ball Joint Remover, 28 mm 07MAC-SL0A202

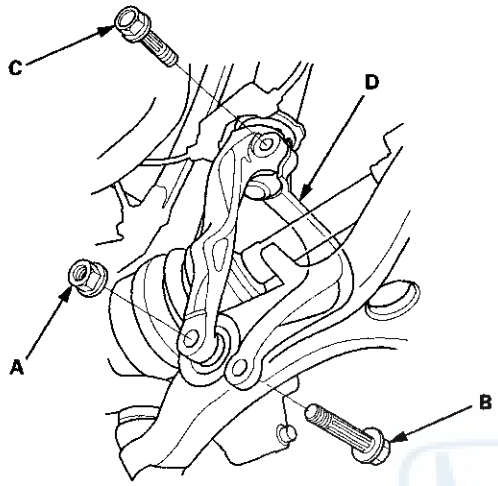
1. Raise and support the vehicle. (see page 1-13)
2. Remove the front wheels.
3. Pry up the stake (A) on the spindle nut (B), then remove the nut.



4. Drain the transmission fluid, then reinstall the drain plug with a new sealing washer:
   - Manual transmission (see page 13-5)
   - Automatic transmission (see page 14-192)
5. Hold the stabilizer link joint pin (A) using a hex wrench (B), and remove the flange nut (C). Separate the front stabilizer link (D) from the lower arm.



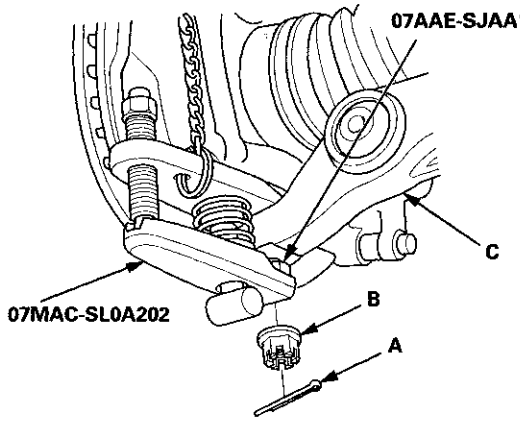
6. Remove the damper fork mounting nut (A), the damper fork mounting bolt (B), and the damper pinch bolt (C), then remove the damper fork (D).



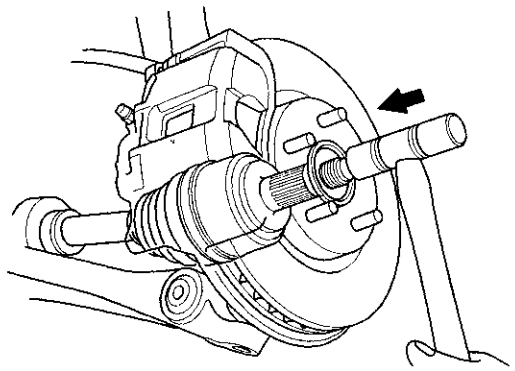
7. Remove the cotter pin (A) from the knuckle ball joint, then remove the castle nut (B). Separate the ball joint from the lower arm (C) using the 28 mm ball joint remover and the 14 mm ball joint thread protector (see page 18-10).

NOTE:

- Be careful not to damage the ball joint boot when installing the remover.
- Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.



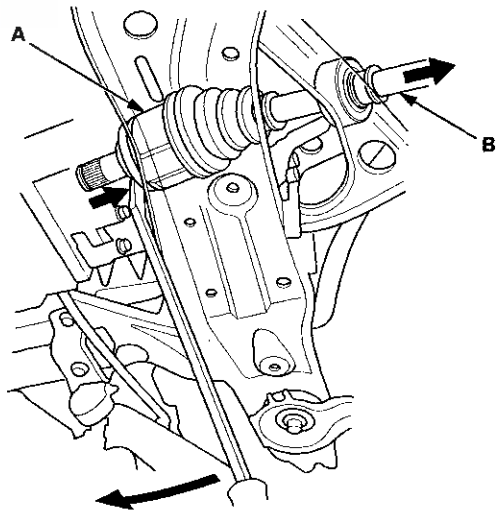
8. Pull the knuckle outward, and separate the outboard joint from the front hub using a plastic hammer.



9. Left driveshaft: Pry the inboard joint (A) from the differential using a prybar. Remove the driveshaft (B) as an assembly.

NOTE:

- Do not pull on the driveshaft, or the inboard joint may come apart. Pull the inboard joint straight out to avoid damaging the oil seal.
- Be careful not to damage the oil seal or the end of the inboard joint using the prybar.

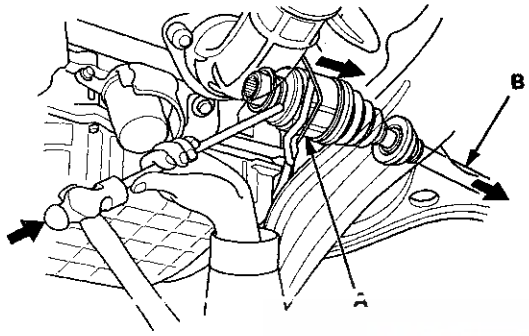


(cont'd)

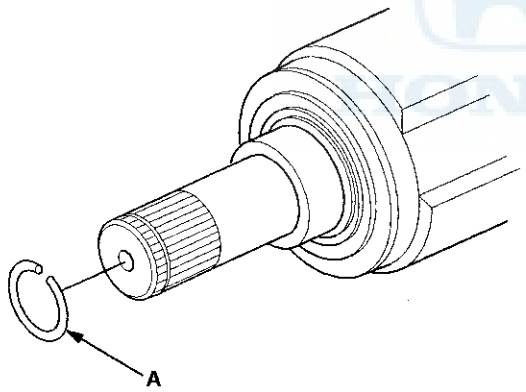
Driveshaft Removal (cont'd)

10. Right driveshaft: Drive the inboard joint (A) off of the intermediate shaft using a drift punch and a hammer. Remove the driveshaft (B) as an assembly.

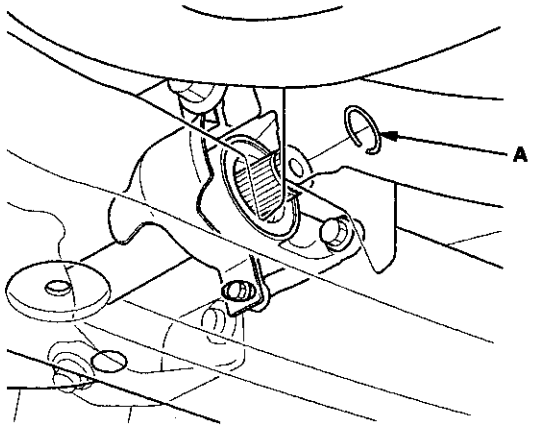
    NOTE: Do not pull on the driveshaft, or the inboard joint may come apart.



11. Remove the set ring (A) from the left driveshaft inboard joint.



12. Remove the set ring (A) from the intermediate shaft.



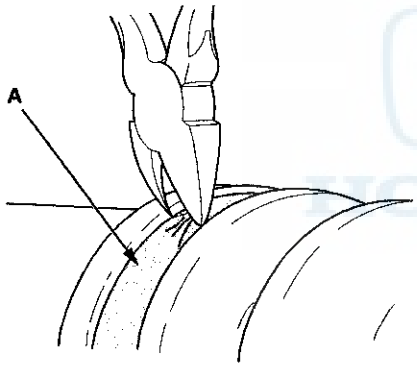
Driveshaft Disassembly

Special Tools Required
- Threaded Adapter, 26 x 1.5 mm 07XAC-001030A
- Slide Hammer 5/8"-18 UNF, commercially available
- Bearing Puller, commercially available
- Boot Band Pliers, commercially available

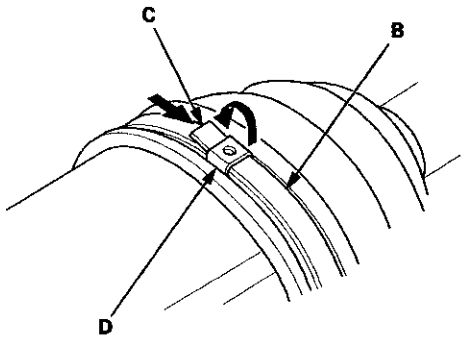
Inboard Joint Side

1. Remove the boot bands. Be careful not to damage the boot.
   - If the boot band is a welded type (A), cut the boot band.
   - If the boot band is a double loop type (B), lift up the band end (C), and push it into the clip (D).
   - If the boot band is a low profile type (E), pinch the boot band using commercially available boot band pliers (F).

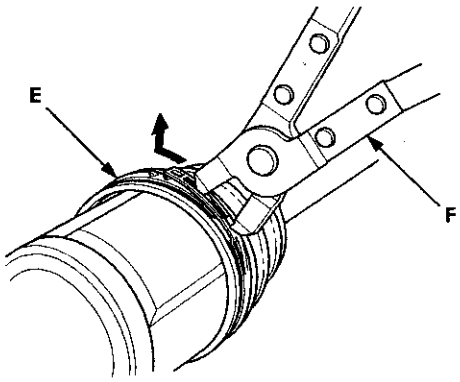
Welded type



Double loop type

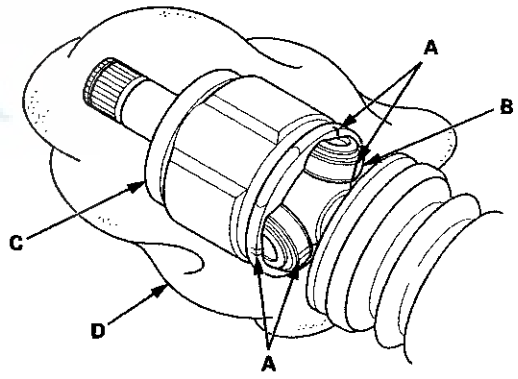


Low profile type



2. Make marks (A) on each roller (B) and the inboard joint (C) to identify the locations of the rollers to the grooves in the inboard joint.

   NOTE: Do not engrave or scribe any marks on the rolling surface.



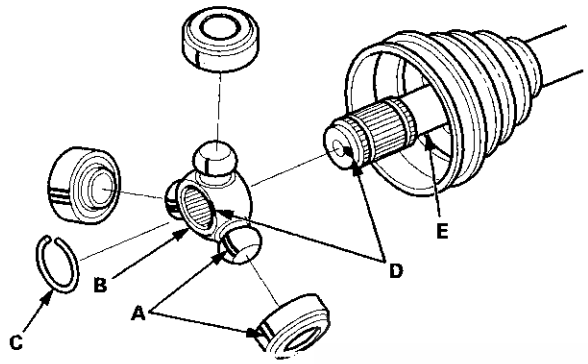
3. Remove the inboard joint on a clean shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.

(cont'd)

Driveshaft Disassembly (cont'd)

4. Make marks (A) on the spider (B) that match the marks on the rollers, then remove the rollers.

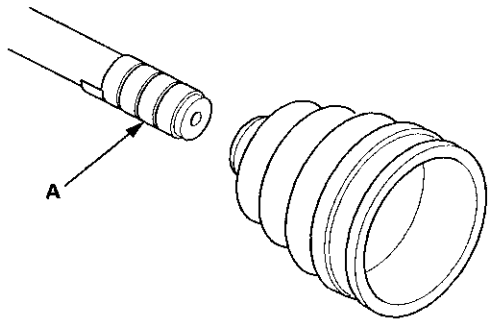
   NOTE: Do not engrave or scribe any marks on the rolling surface.



5. Remove the circlip (C).
6. Make marks (D) on the spider and the driveshaft (E) to identify the position of the spider on the shaft.
7. Remove the spider.

   NOTE: If necessary, use a commercially available puller while being careful not to damage the spider.

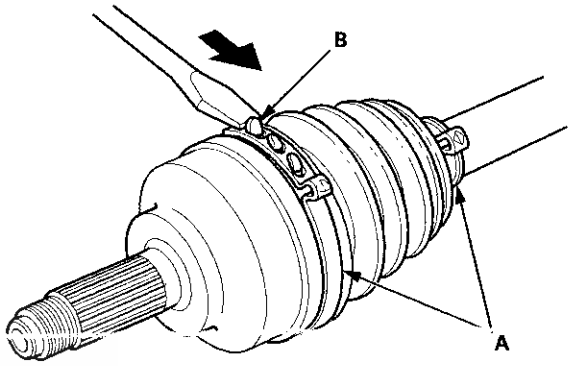
8. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the inboard boot.



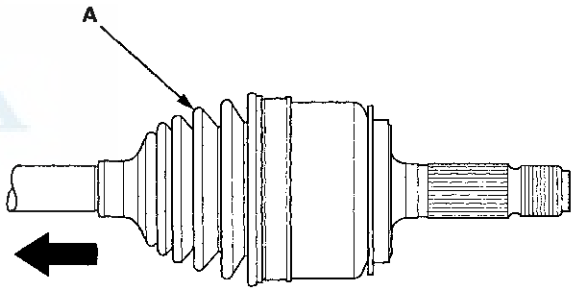
9. Remove the inboard boot. Be careful not to damage the boot.
10. Remove the vinyl tape.

Outboard Joint Side

1. Remove the boot bands (A). Lift up the three tabs (B) using a screwdriver, then release the band. Be careful not to damage the boot.

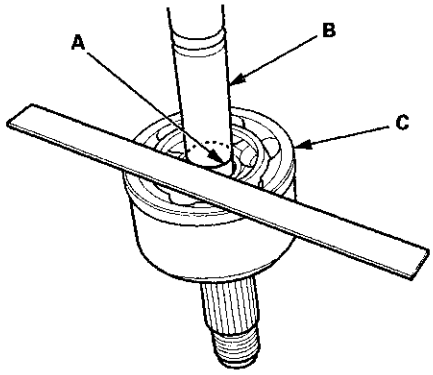


2. Slide the outboard boot (A) partially toward the inboard joint side. Be careful not to damage the boot.

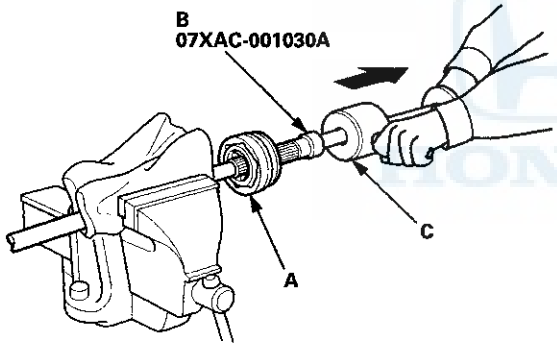


3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.

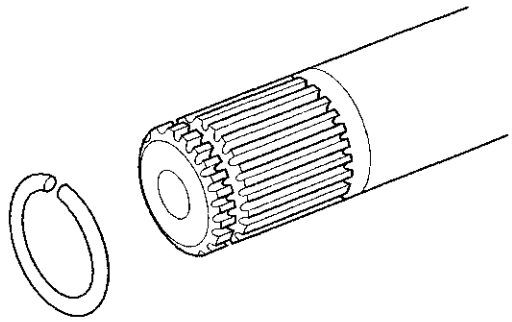
4. Make a mark (A) on the driveshaft (B) at the same level as the outboard joint end (C).



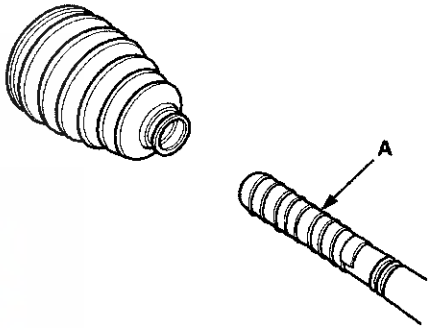
5. Securely clamp the driveshaft in a bench vise with a shop towel wrapped around the driveshaft.
6. Remove the outboard joint (A) using the 26 x 1.5 mm threaded adapter (B) and a commercially available 5/8"-18 UNF slide hammer (C).



7. Remove the driveshaft from the bench vise.
8. Remove the stop ring from the driveshaft.



9. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the outboard boot.

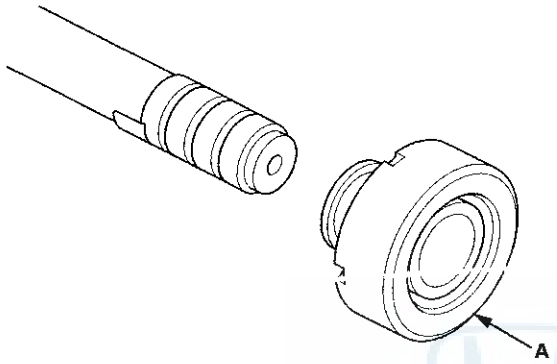


10. Remove the outboard boot. Be careful not to damage the boot.
11. Remove the vinyl tape.

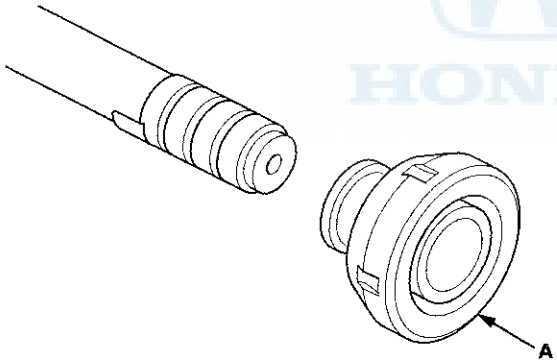
Dynamic Damper Replacement

1. Remove the inboard joint (see page 16-7).
2. Remove the dynamic damper band (see step 1 on page 16-7).
3. Remove the dynamic damper (A).

Left driveshaft



Right driveshaft



4. Install a new dynamic damper.

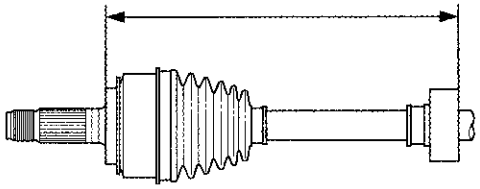
NOTE: Be careful not to swap the dynamic dampers. Check the type of dynamic damper by its shape.

5. Adjust the specified distance (A) between the outboard joint side and the dynamic damper edge.

NOTE: Check the type of dynamic damper by its shape.

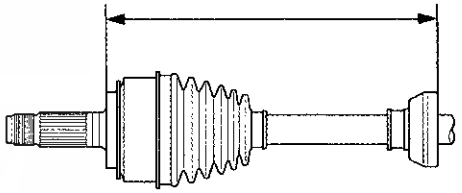
Left driveshaft

A: 298.5–303.5 mm (11.75–11.95 in)



Right driveshaft

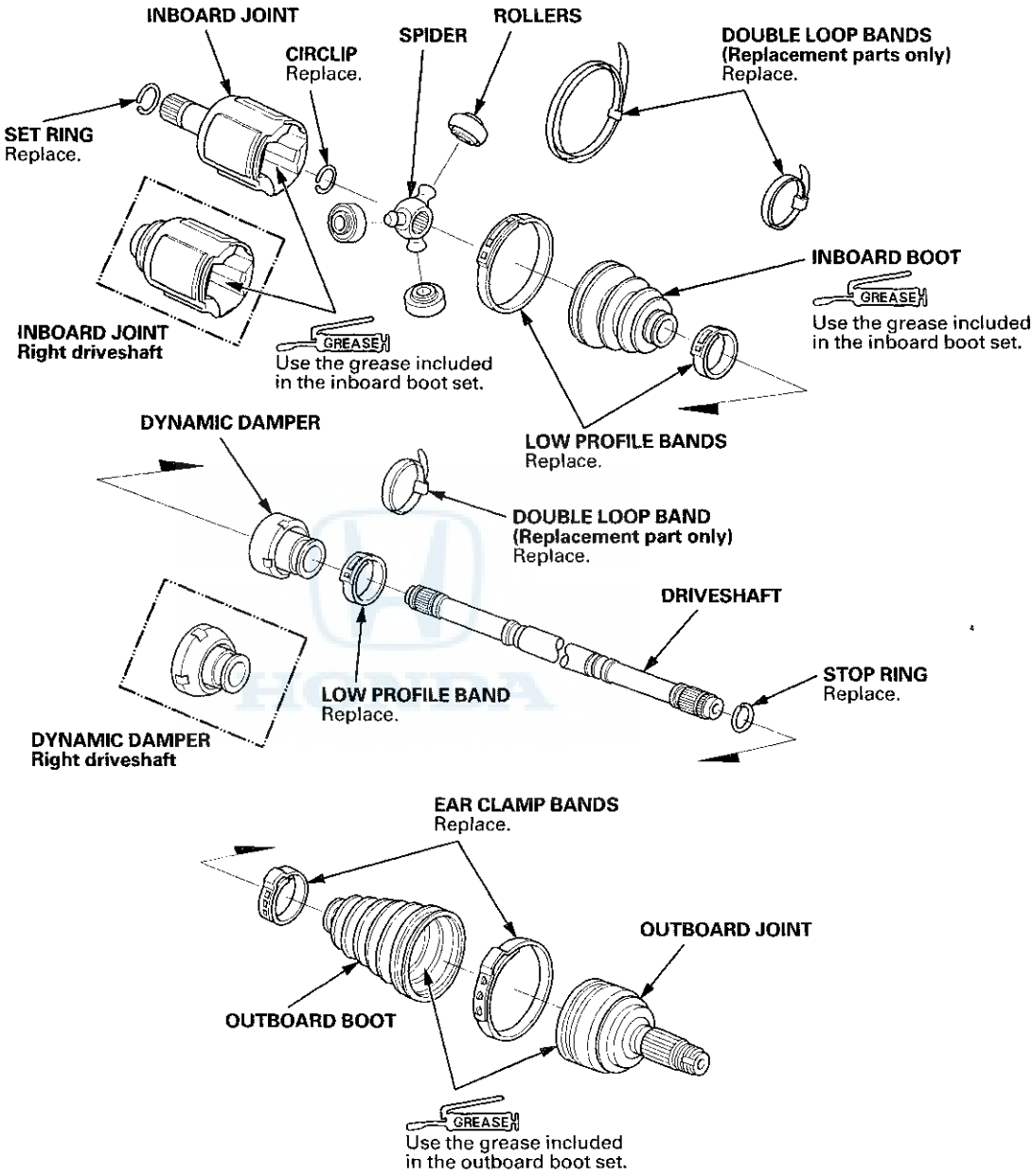
A: 292.5–297.5 mm (11.52–11.71 in)



6. Install the dynamic damper band (see step 10 on page 16-14).
7. Install the inboard joint (see page 16-12).

Driveshaft Reassembly

Exploded View



(cont'd)

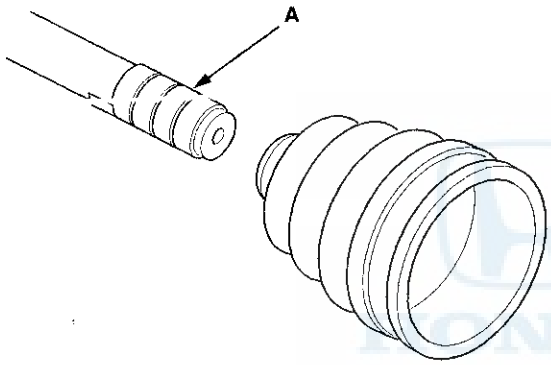
Driveshaft Reassembly (cont'd)

Special Tools Required
- Boot Band Tool KD-3191 or equivalent, commercially available
- Seal Clamp Tool Kent-Moore J-35910 or equivalent, commercially available
- Boot Band Pliers, commercially available

NOTE: Refer to the Exploded View, as needed, during this procedure.

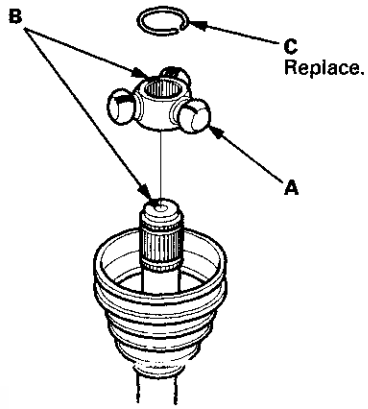
Inboard Joint Side

1. Wrap the splines with on the driveshaft vinyl tape (A) to prevent damaging the inboard boot.



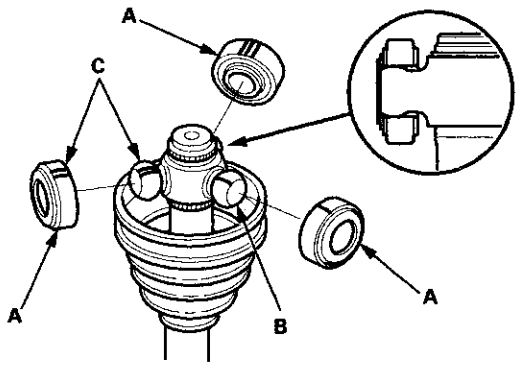
2. Install the inboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.

3. Install the spider (A) onto the driveshaft by aligning the marks (B) you made on the spider and the end of the driveshaft.



4. Install a new circlip (C) into the driveshaft groove. Always rotate the circlip in its groove to make sure it is fully seated.

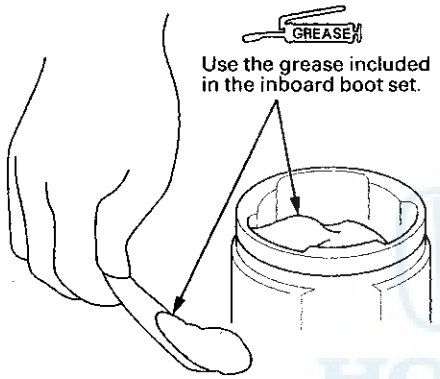
5. Fit the rollers (A) onto the spider (B) as shown, and note these items:
   - Reinstall the rollers in their original positions on the spider by aligning the marks (C) you made.
   - Hold the driveshaft pointed up to prevent the rollers from falling off.



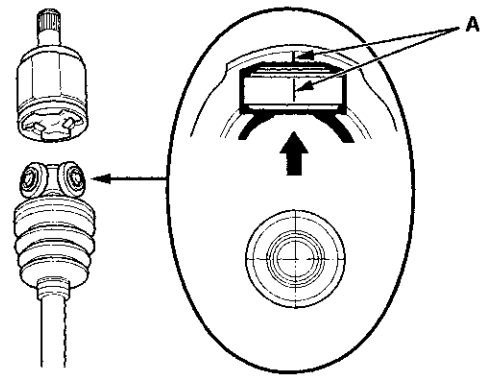
6. Pack the inboard joint with the joint grease included in the new inboard boot set.

Grease quantity
Inboard joint:

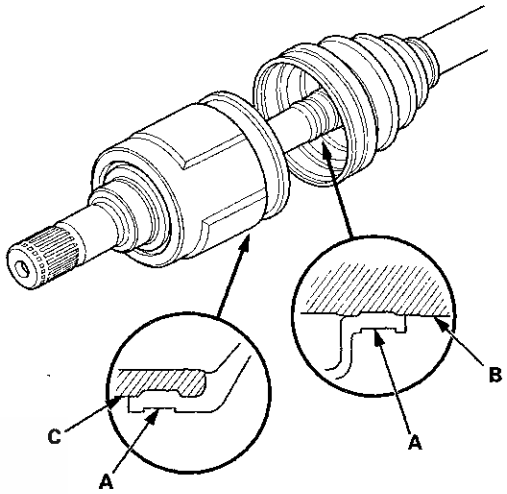
Model		Year	Quantity
K24Z2 engine model	M/T	'08-09	150–160 g (5.3–5.6 oz)
		'10	110–120 g (3.9–4.2 oz)
	A/T	'08-09	130–140 g (4.6–4.9 oz)
		'10	100–110 g (3.5–3.9 oz)
K24Z3 engine model		'08-09	150–160 g (5.3–5.6 oz)
		'10	110–120 g (3.9–4.2 oz)



7. Fit the inboard joint onto the driveshaft, and note these items:
   - Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
   - Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.



8. Fit the boot ends (A) onto the driveshaft (B) and the inboard joint (C).

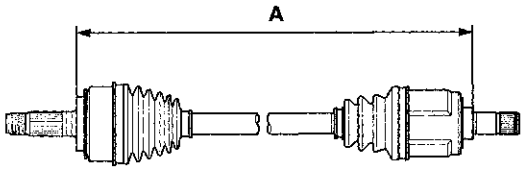


(cont'd)

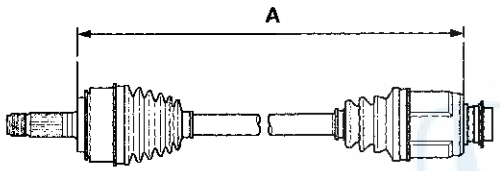
Driveshaft Reassembly (cont'd)

9. Adjust the length (A) of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension. Bleed excess air from the boots by inserting a flat-tipped screwdriver between the boot and the joint.

Left driveshaft



Right driveshaft

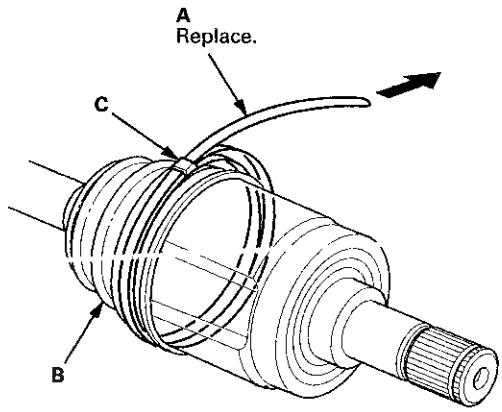


Model		Left/Right Driveshaft	Specified Length (A)
K24Z2 engine model	M/T	Left	554–559 mm (21.81–22.01 in)
		Right	480–485 mm (18.90–19.09 in)
	A/T	Left	554–559 mm (21.81–22.01 in)
		Right	477–482 mm (18.78–18.98 in)
K24Z3 engine model		Left	554–559 mm (21.81–22.01 in)
		Right	480–485 mm (18.90–19.09 in)

10. Install new boot bands.
    - For the double loop type, go to step 11.
    - For the low profile type, go to step 20.

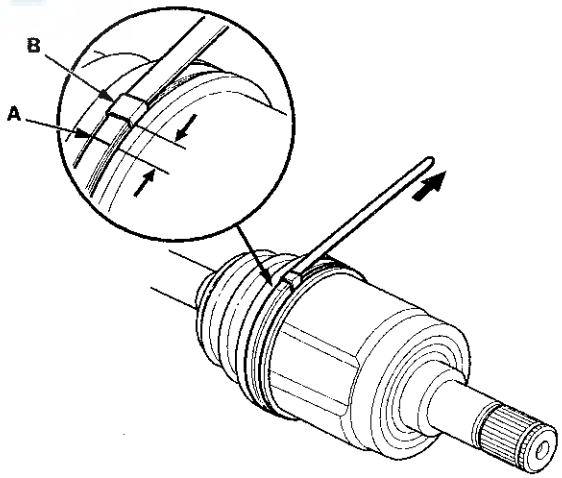
11. Fit the boot ends onto the driveshaft and the inboard joint, then install a new double loop band (A) onto the boot (B).

    NOTE: Pass the end of the double loop band through the clip (C) twice in the direction of the forward rotation of the driveshaft.

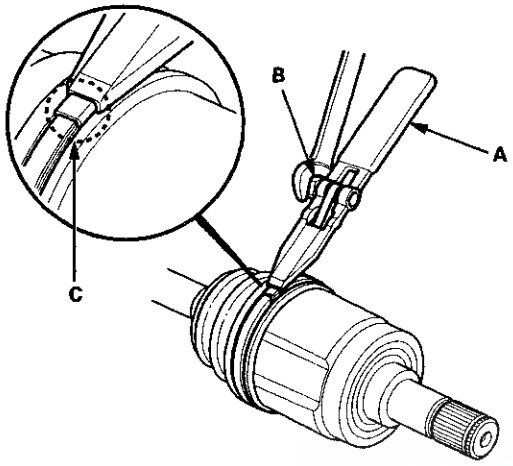


12. Pull up the slack in the band by hand.

13. Mark a line (A) on the band 10–14 mm (0.4–0.6 in) from the clip (B).

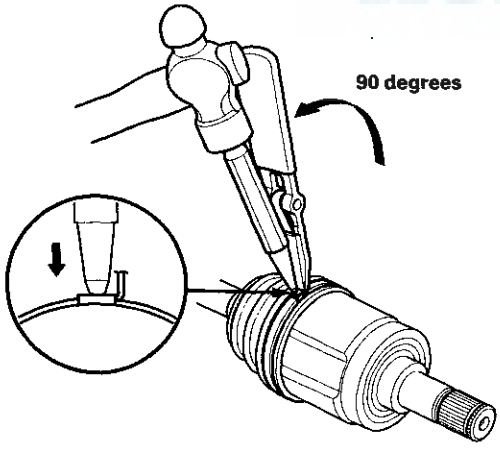


14. Thread the free end of the band through the nose section of the commercially available boot band tool (KD-3191 or equivalent) (A), and into the slot on the winding mandrel (B).

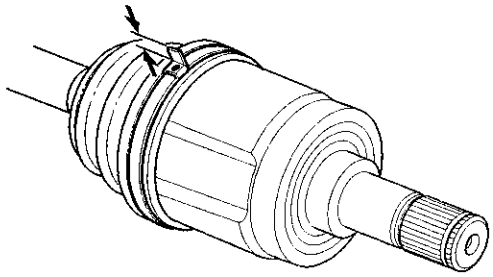


15. Using a wrench on the winding mandrel of the boot band tool, tighten the band until the marked line (C) on the band meets the edge of the clip.

16. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.



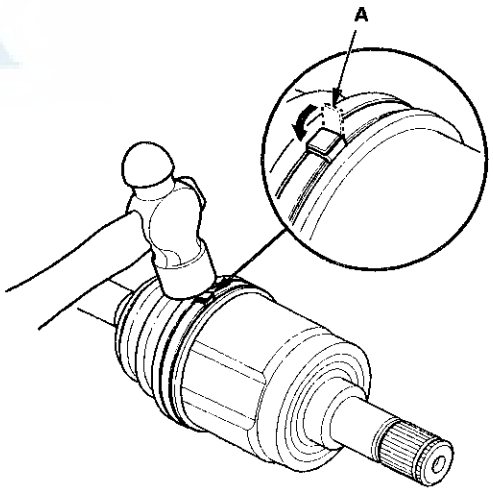
17. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5—10 mm (0.2—0.4 in) tail protruding from the clip.



18. Bend the band end (A) by tapping it down using a hammer.

NOTE:

- Make sure the band and the clip do not interfere with anything on the vehicle, and the band does not move.
- Clean any grease remaining on the surrounding surfaces.

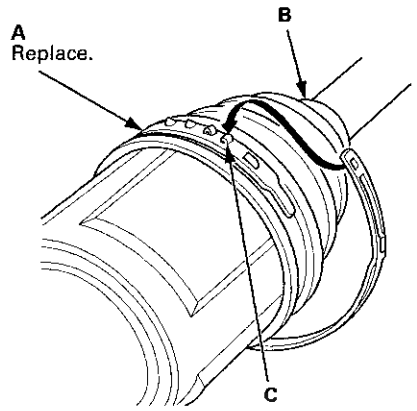


19. Repeat steps 11 through 18 for the band on the other end of the boot.

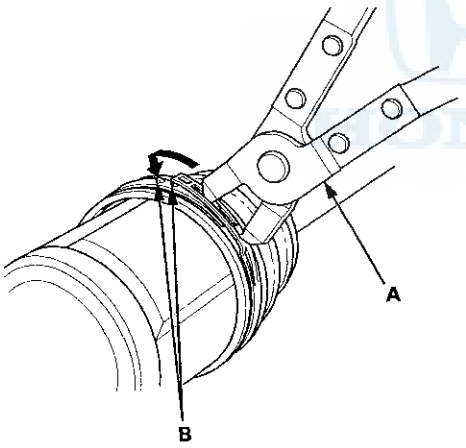
(cont'd)

Driveshaft Reassembly (cont'd)

20. Install a new low profile band (A) onto the boot (B), then hook the tab (C) of the band.



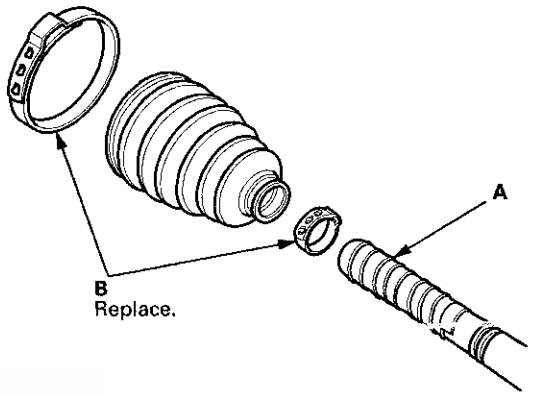
21. Close the hook portion of the band using commercially available boot band pliers (A), then hook the tabs (B) of the band.



22. Install the boot band on the other end of the boot, and repeat steps 20 and 21.

Outboard Joint Side

1. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the outboard boot.



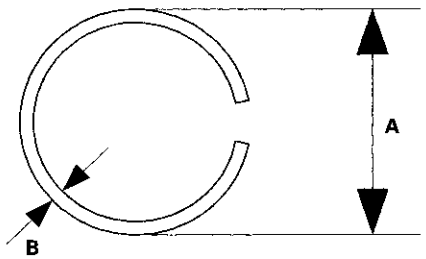
2. Install new ear clamp bands (B) and the outboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the outboard boot.
3. Make sure to check the size of a new stop ring.

NOTICE

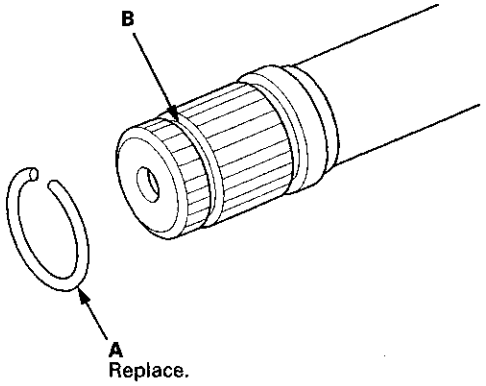
To avoid driveshaft and vehicle damage, make sure you install a new stop ring.

Stop ring specifications

Model		Overall Diameter (A)	Wire Diameter (B)
K24Z2 engine model	M/T	27.5 mm (1.08 in)	2.0 mm (0.08 in)
	A/T	26.0 mm (1.02 in)	2.0 mm (0.08 in)
K24Z3 engine model		27.5 mm (1.08 in)	2.0 mm (0.08 in)

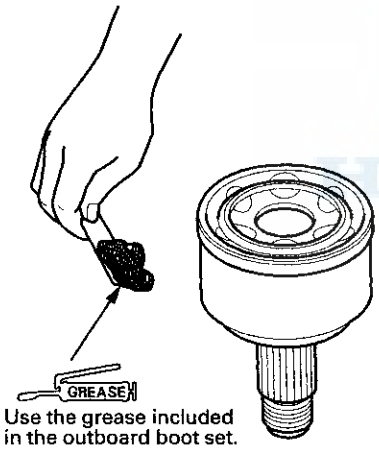


4. Install the stop ring (A) into the driveshaft groove (B).

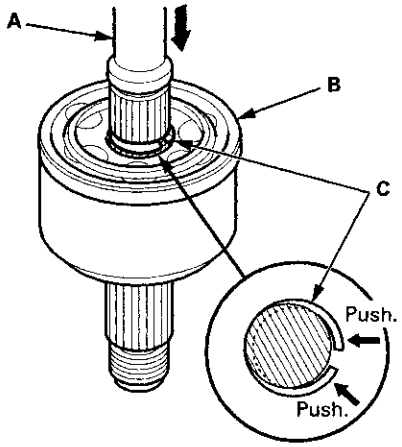


5. Pack about 35 g (1.2 oz) of grease included in the new outboard boot set into the driveshaft hole in the outboard joint.

   NOTE: If you are installing a new outboard joint, the grease is already installed.

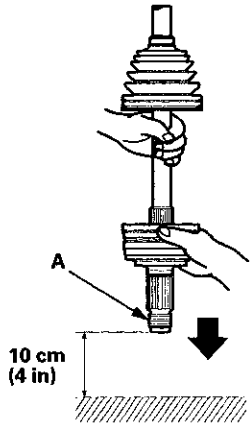


6. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is close to the joint.



7. To completely seat the outboard joint, pick up the driveshaft and the joint, and tap or hit the assembly onto a hard surface from a height of about 10 cm (4 in).

   NOTE: Do not use a hammer, as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.



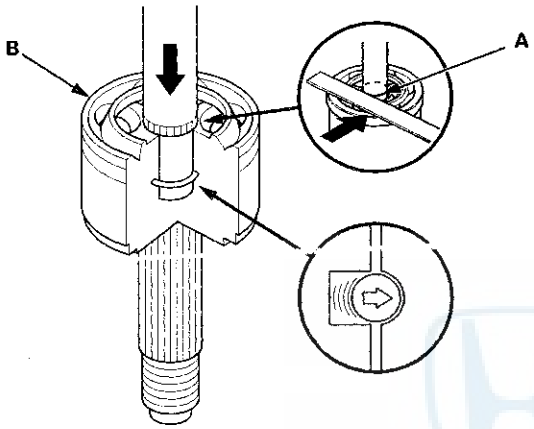
(cont'd)

Driveshaft Reassembly (cont'd)

8. Check the alignment of the paint mark (A) you made with the outboard joint end (B).

NOTICE

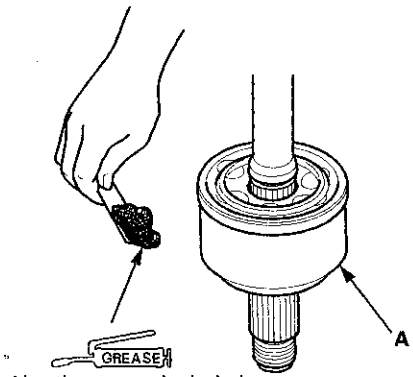
To avoid driveshaft and vehicle damage, the shaft must be all the way into the outboard joint to ensure the stop ring is properly seated.



9. Pack the outboard joint (A) with the remaining joint grease included in the outboard boot set.

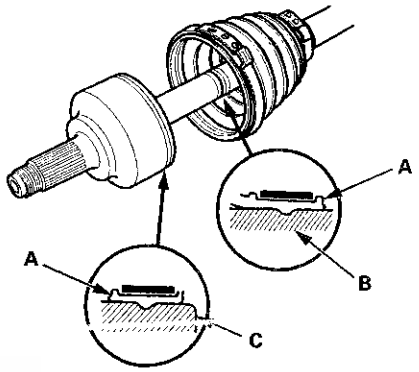
Total grease quantity
Outboard joint:

Model		Quantity
K24Z2 engine model	M/T	140–150 g (4.9–5.3 oz)
	A/T	105–115 g (3.7–4.1 oz)
K24Z3 engine model		140–150 g (4.9–5.3 oz)



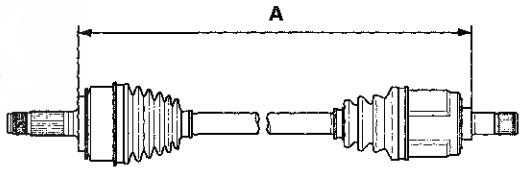
Use the grease included in the outboard boot set.

10. Fit the boot ends (A) onto the driveshaft (B) and the outboard joint (C). Bleed any excess air from the boot by inserting a flat-tipped screwdriver between the boot and the joint.

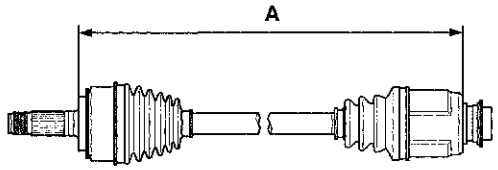


11. Inspect the length (A) of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension.

Left driveshaft

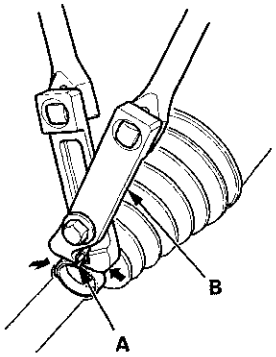


Right driveshaft

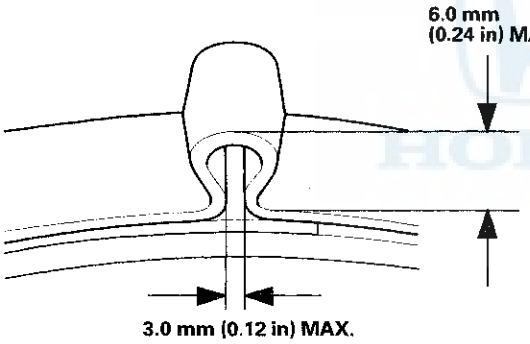


Model		Left/Right Driveshaft	Specified Length (A)
K24Z2 engine model	M/T	Left	554–559 mm (21.81–22.01 in)
		Right	480–485 mm (18.90–19.09 in)
	A/T	Left	554–559 mm (21.81–22.01 in)
		Right	477–482 mm (18.78–18.98 in)
K24Z3 engine model		Left	554–559 mm (21.81–22.01 in)
		Right	480–485 mm (18.90–19.09 in)

12. Close the ear portion (A) of the band using a commercially available seal clamp tool (Kent-Moore J-35910 or equivalent) (B).



13. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band tighter.

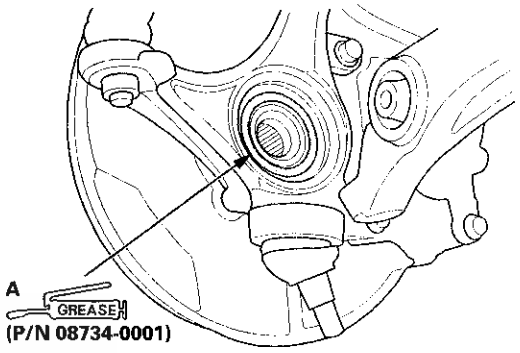


14. Repeat steps 12 and 13 for the band on the other end of the boot.

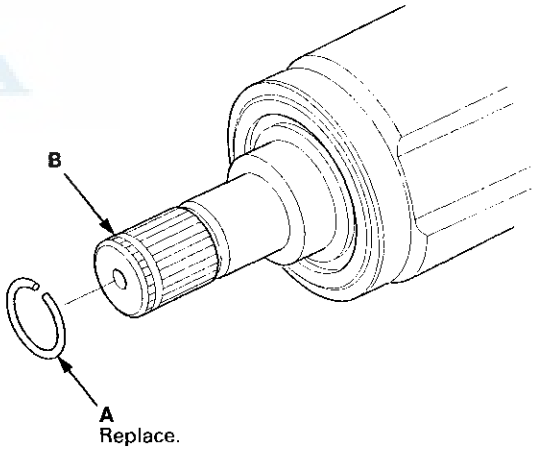
NOTE: Before starting installation, make sure the mating surfaces of the joint and the splined section are clean.

1. Apply about 5 g (0.18 oz) of moly 60 paste (P/N 08734-0001) to the contact area (A) of the outboard joint and the front wheel bearing.

   NOTE: The paste helps prevent noise and vibration.



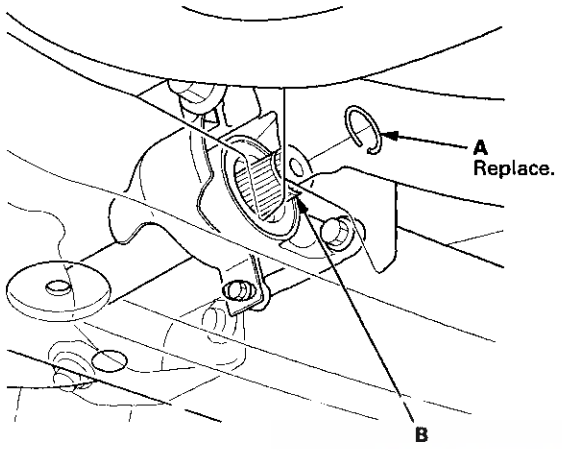
2. Install a new set ring (A) into the set ring groove (B) of the left driveshaft inboard joint.



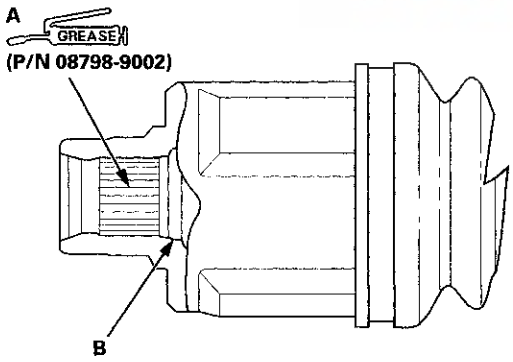
(cont'd)

Driveshaft Installation (cont'd)

3. Install a new set ring (A) into the set ring groove (B) of the intermediate shaft.



4. Apply 0.5—1.0 g (0.02—0.04 oz) of super high temp urea grease (P/N 08798-9002) to the whole splined surface (A) of the right driveshaft. After applying grease, remove the grease from the splined grooves at intervals of 2—3 splines and from the set ring groove (B) so that air can bleed from the intermediate shaft.



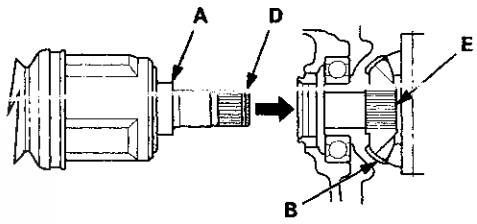
5. Clean the areas where the driveshaft contacts the differential thoroughly with solvent, and dry then with compressed air.

   NOTE: Do not wash the rubber parts with solvent.

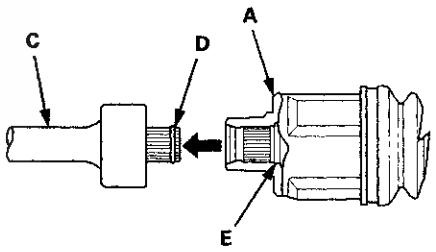
6. Insert the inboard end (A) of the driveshaft into the differential (B) or intermediate shaft (C) until the set ring (D) locks in the groove (E).

   NOTE: Insert the driveshaft horizontally to prevent damaging the oil seal.

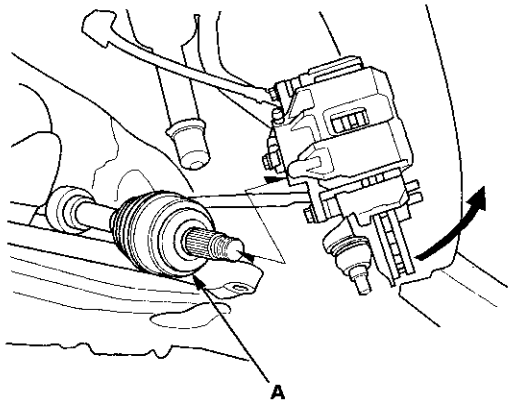
Left



Right



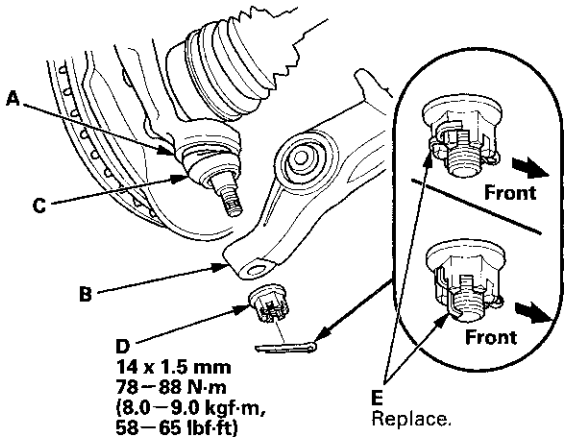
7. Install the outboard joint (A) into the front hub on the knuckle.



8. Wipe off any grease contamination from the ball joint tapered section and threads, then install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot (C). Wipe off the grease before tightening the nut at the ball joint. Torque the castle nut (D) to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole.

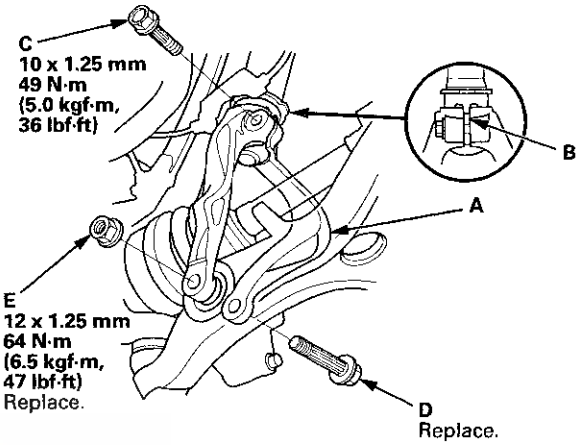
NOTE:

- Make sure the ball joint boot is not damaged or cracked.
- Do not align the nut by loosening it.



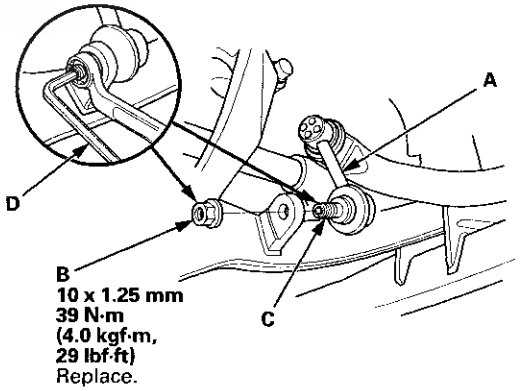
9. Install a new cotter pin (E) into the ball joint pin hole, and bend the cotter pin as shown.

10. Install the damper fork (A) over the driveshaft and onto the lower arm. Install the damper in the damper fork so the aligning tab (B) is aligned with the slot in the damper fork. Loosely install the damper pinch bolt (C).



11. Loosely install a new damper fork mounting bolt (D) and a new damper fork mounting nut (E).

12. Connect the front stabilizer link (A) to the lower arm, and loosely install a new flange nut (B). Hold the stabilizer link joint pin (C) using a hex wrench (D), and tighten the flange nut.



(cont'd)

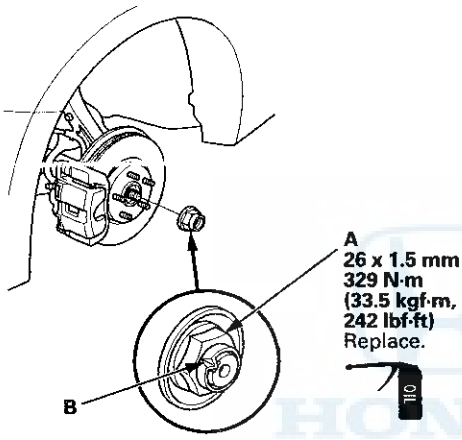
Driveshaft Installation (cont'd)

13. Place a floor jack under the lower arm, and raise the suspension to load it with the vehicle's weight.

    NOTE: Do not put the floor jack under the ball joint.

14. Tighten the damper pinch bolt and the damper fork mounting nut while holding the damper fork mounting bolt to the specified torque values, then remove the floor jack.

15. Apply a small amount of engine oil to the seating surface of a new spindle nut (A).



16. Install the spindle nut, then tighten it. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.

17. Clean the mating surfaces of the brake disc and the wheel, then install the front wheels.

18. Turn the wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.

19. Refill the transmission with the recommended transmission fluid:
    - Manual transmission (see page 13-5)
    - Automatic transmission (see page 14-192)

20. Lower the vehicle.

21. Check the wheel alignment, and adjust it if necessary (see page 18-5).

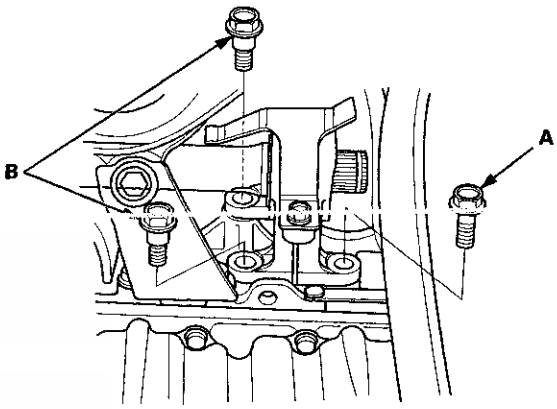
22. Test-drive the vehicle.

Intermediate Shaft Removal

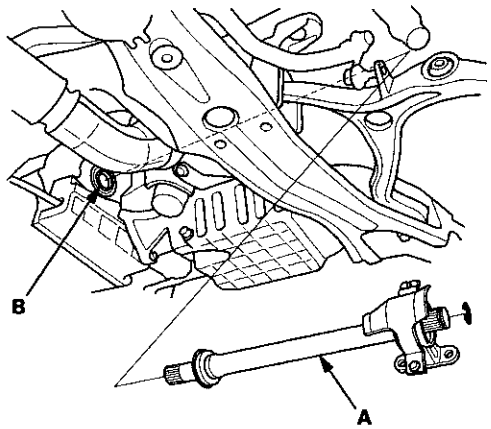
1. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer:
    - Manual transmission (see page 13-5)
    - Automatic transmission (see page 14-192)

2. Remove the right driveshaft (see page 16-4).

3. Remove the flange bolt (A) and the two dowel bolts (B).



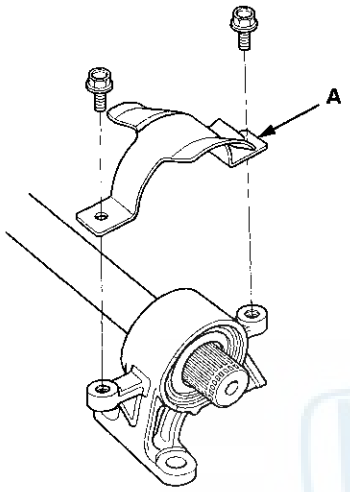
4. Remove the intermediate shaft (A) from the differential. Hold the intermediate shaft horizontally until it is clear of the differential to prevent damaging the oil seal (B).



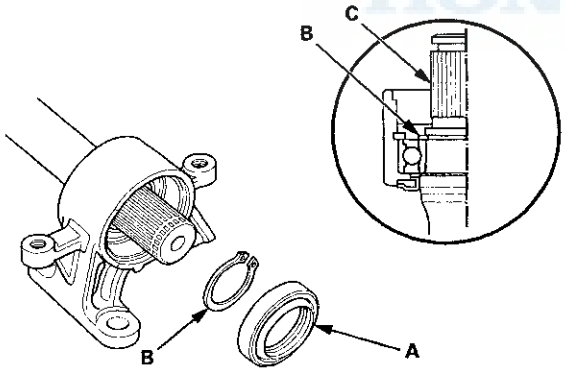
Intermediate Shaft Disassembly

Special Tools Required
- Half Shaft Base 07NAF-SR30101
- Oil Seal Driver, 44.5 mm 07947-SB00100

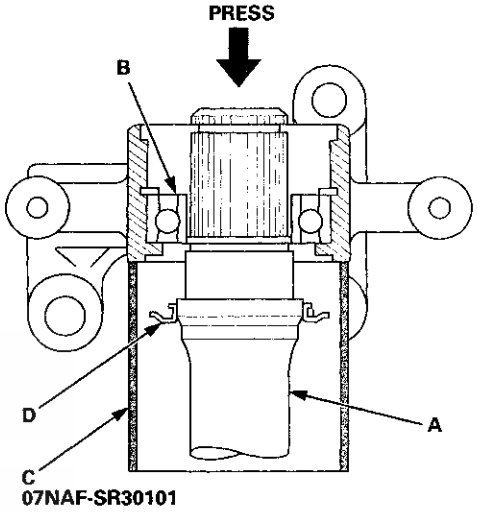
1. Remove the heat shield (A).



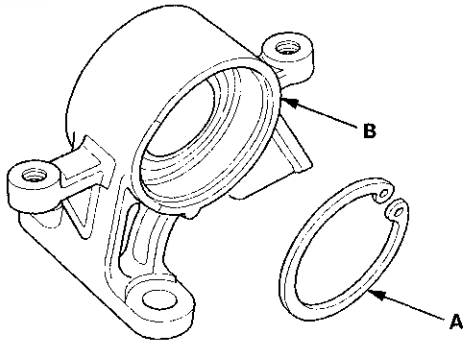
2. Remove the outer seal (A) and the external snap ring (B) from the intermediate shaft (C).



3. Press the intermediate shaft (A) out of the intermediate shaft bearing (B) using the half shaft base (C) and a press. Be careful not to damage the bearing support ring (D) on the intermediate shaft during disassembly.



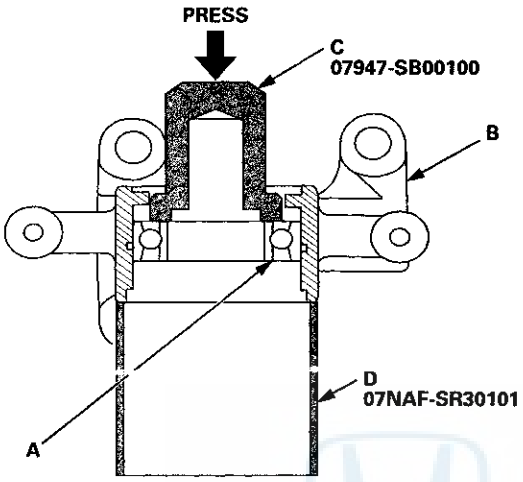
4. Remove the internal snap ring (A) from the bearing support (B).



(cont'd)

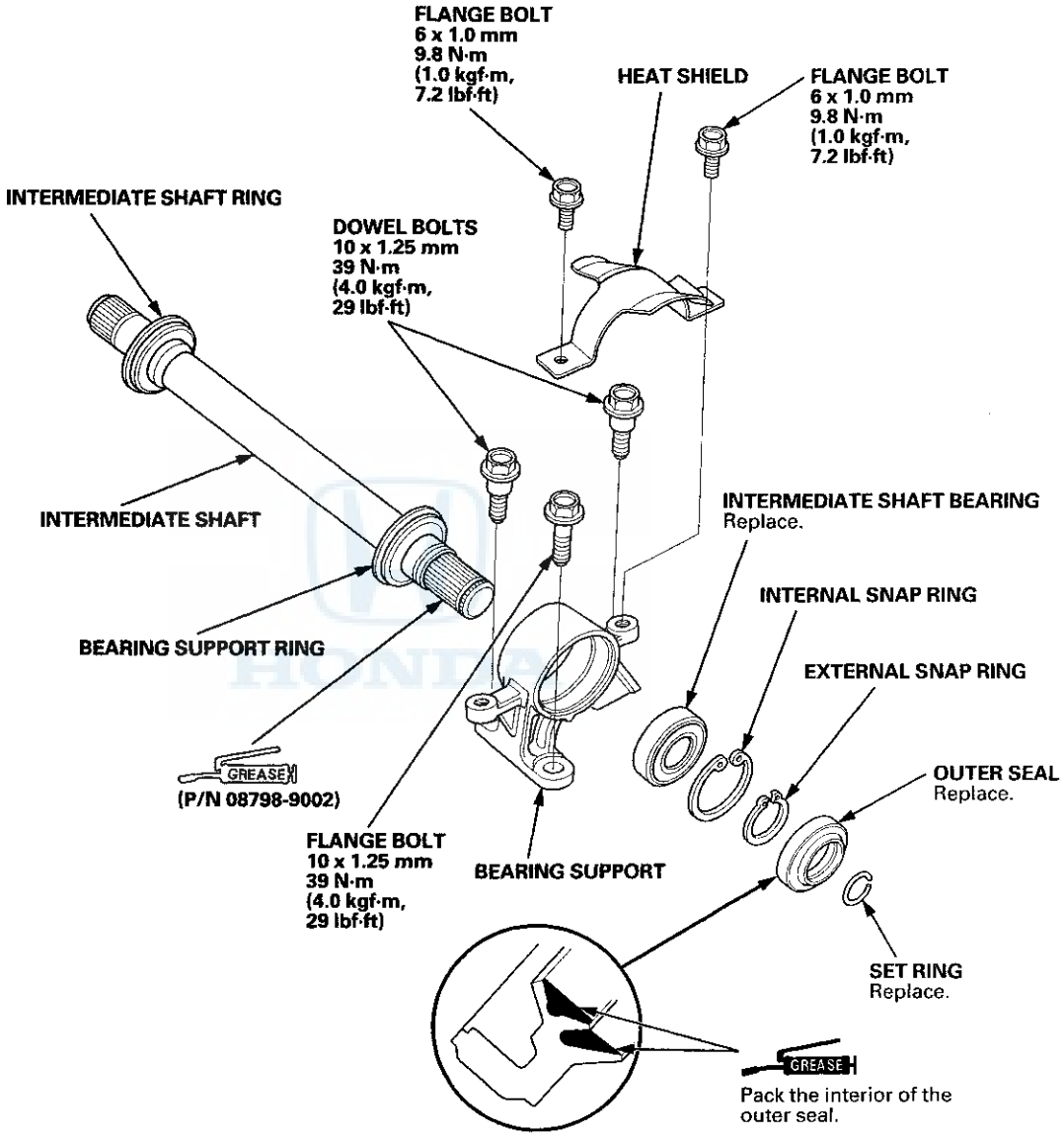
Intermediate Shaft Disassembly (cont'd)

5. Press the intermediate shaft bearing (A) out of the bearing support (B) using the 44.5 mm oil seal driver (C), the half shaft base (D), and the press.



Intermediate Shaft Reassembly

Exploded View



(cont'd)

Intermediate Shaft Reassembly (cont'd)

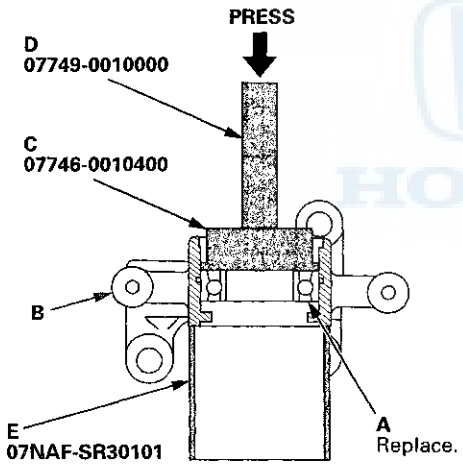
Special Tools Required
- Oil Seal Driver 07GAD-PH70201
- Half Shaft Base 07NAF-SR30101
- Attachment, 52 x 55 mm 07746-0010400
- Attachment, 35 mm I.D. 07746-0030400
- Driver Handle, 15 x 135L 07749-0010000
- Attachment, 45 x 55 mm 07MAD-PR90100

NOTE: Refer to the Exploded View, as needed, during this procedure.

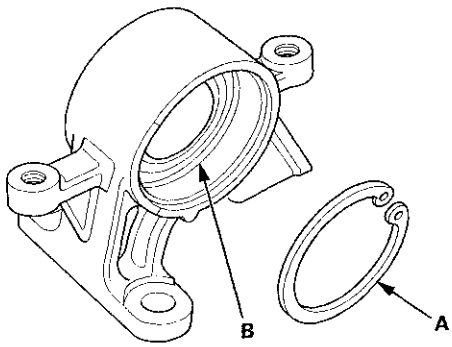
1. Clean the disassembled parts with solvent, and dry them with compressed air.

   NOTE: Do not wash the rubber parts with solvent.

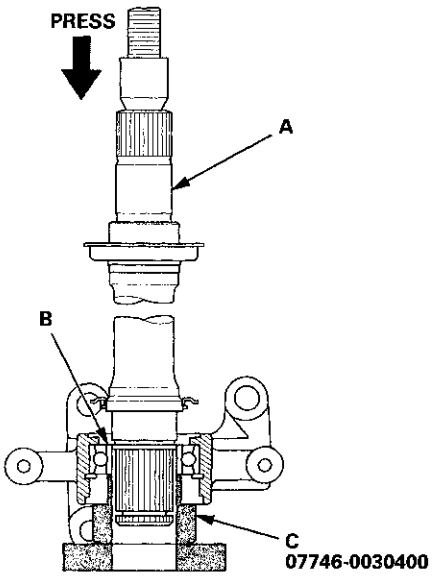
2. Press a new intermediate shaft bearing (A) into the bearing support (B) using the 52 x 55 mm attachment (C), the 15 x 135L driver handle (D), the half shaft base (E), and a press.



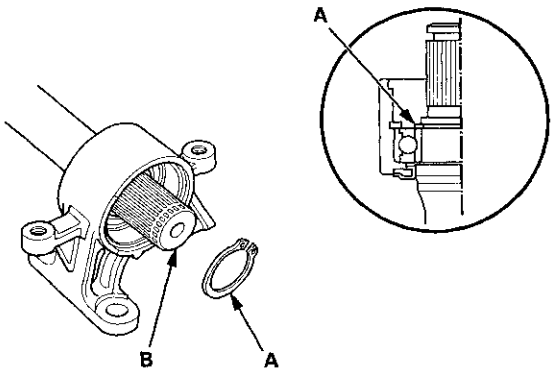
3. Install the internal snap ring (A) into the groove (B) of the bearing support.



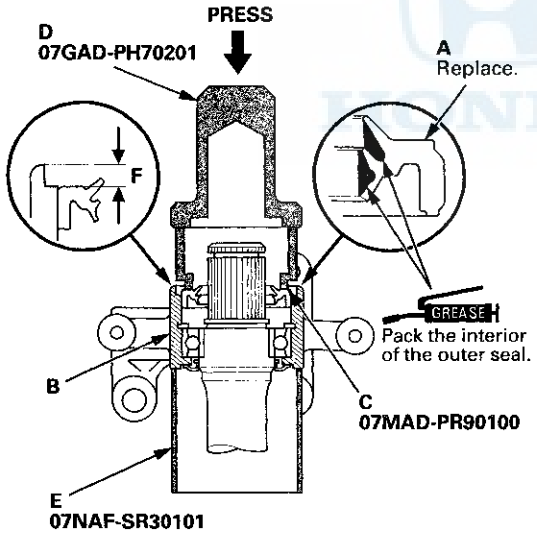
4. Press the intermediate shaft (A) into the shaft bearing (B) using the 35 mm attachment (C) and the press.



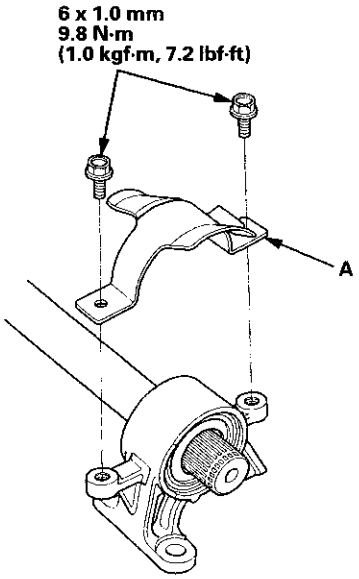
5. Install the external snap ring (A) into the groove of the intermediate shaft (B).



6. Install a new outer seal (A) into the bearing support (B) using the 45×55 mm attachment (C), the oil seal driver (D), the half shaft base (E), and the press. Press in the seal until it is 4 ± 0.2 mm (0.16 ± 0.008 in) (F) below the surface of the bearing support end.



7. Install the heat shield (A).

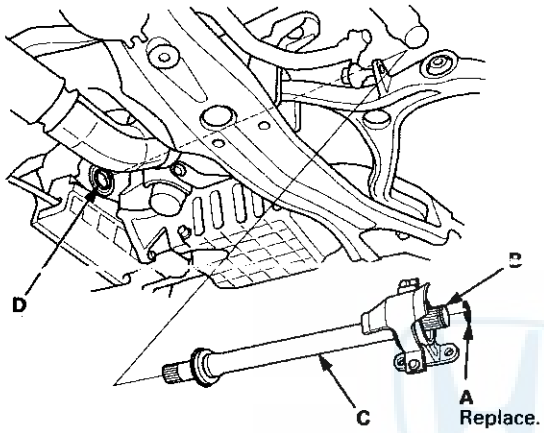


Intermediate Shaft Installation

1. Clean the areas where the intermediate shaft contacts the differential thoroughly with solvent, and dry then with compressed air.

   NOTE: Do not wash the rubber parts with solvent.

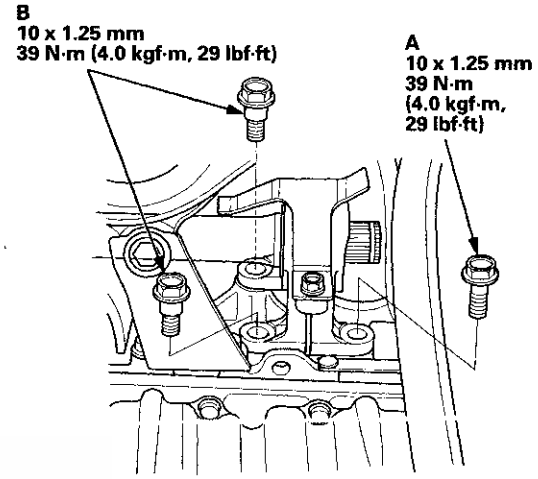
2. Install a new set ring (A) onto the set ring groove (B) of the intermediate shaft (C).



3. Insert the intermediate shaft into the differential correctly.

   NOTE: Insert the intermediate shaft carefully to prevent damaging the oil seal (D).

4. Install the flange bolt (A) and the two dowel bolts (B).



5. Install the right driveshaft (see page 16-19).
6. Refill the transmission with the recommended transmission fluid:
   - Manual transmission (see page 13-5)
   - Automatic transmission (see page 14-192)
7. Check the wheel alignment, and adjust it if necessary (see page 18-5).
8. Test-drive the vehicle.

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