

# EPS Components

## Steering Gearbox Removal and Installation

### Special Tools Required

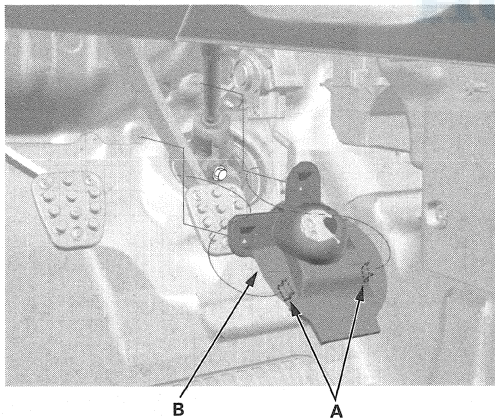
- Ball Joint Thread Protector, 12 mm 07AAF-SDAA100
- Ball Joint Remover, 28 mm 07MAC-SL0A202
- Ball Joint Thread Protector, 14 mm 071AF-S3VA000

Note these items during removal:

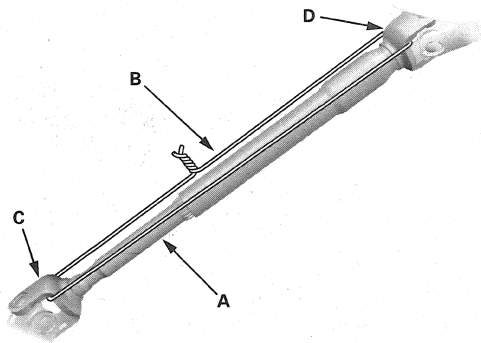
- Using solvent and a brush, wash any oil and dirt off the end of the steering gearbox. Avoid any electrical parts. Blow dry with compressed air.
- Be sure to hold the steering wheel before disconnecting the steering joint or damage to the cable reel can occur.

### Removal

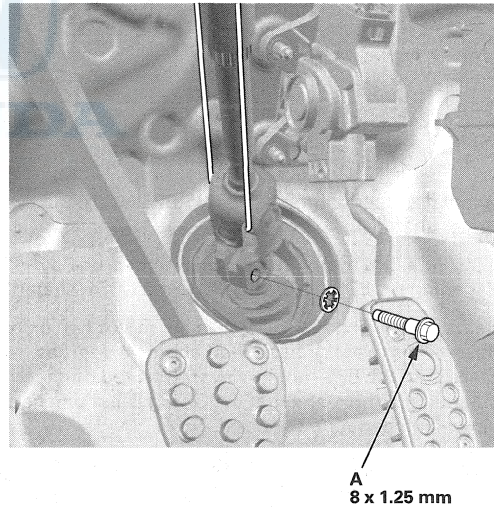
1. Do the 12 volt battery terminal disconnection procedure (see page 22-86).
2. Raise and support the vehicle (see page 1-10).
3. Remove the front wheels.
4. Tilt the steering column all the way down and move it all the way in.
5. Release the hooks (A), then remove the steering joint cover (B).



6. Hold the splined shaft (A) on the column with a piece of wire (B) between the joint yoke (C) of the splined shaft and joint yoke (D) of the splined tube to prevent the splined shaft from pulling out.

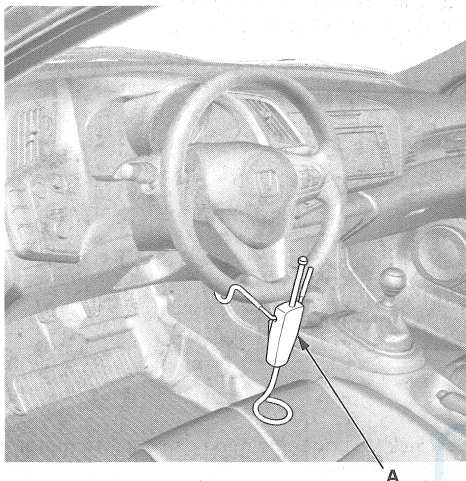


7. Remove the steering joint bolt (A).

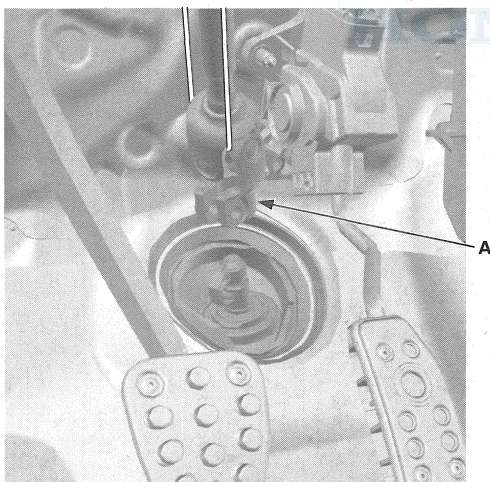




8. Center the steering wheel spokes, and install a commercially available steering wheel holder tool (A).

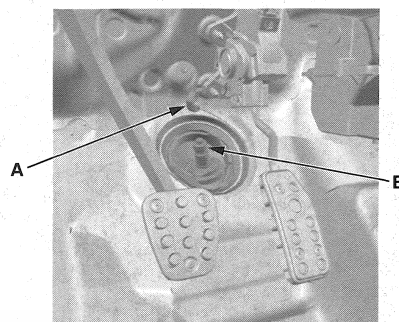


9. Disconnect the steering joint (A) by moving the steering joint toward the column.

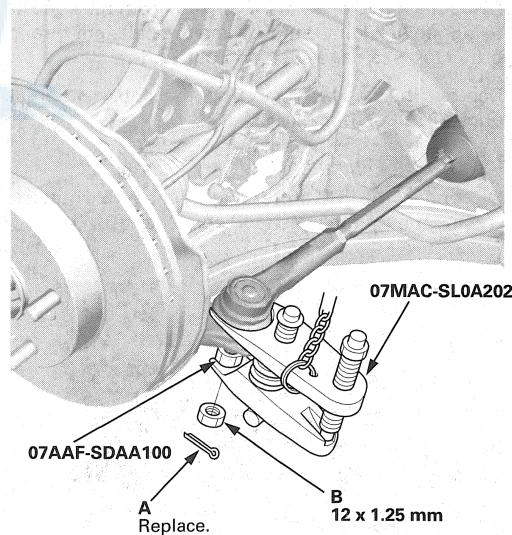


10. Remove the center guide (A) (if equipped) from the top of the pinion shaft (B), and discard it.

NOTE: The center guide is for factory assembly use only.



11. Remove the cotter pin (A) from the tie-rod end ball joint, then remove the nut (B) on both sides.



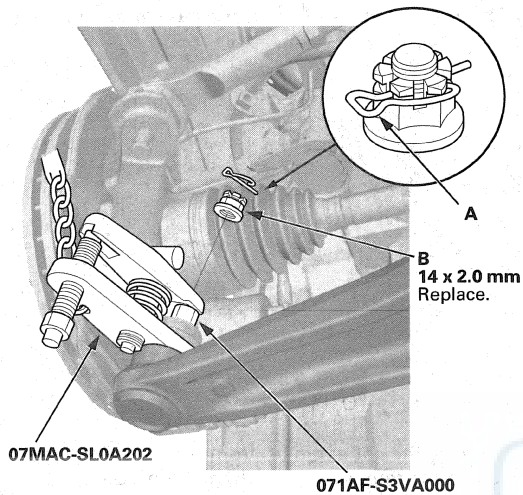
12. Disconnect the tie-rod end ball joint from the knuckle using the ball joint remover and the ball joint thread protector (see page 18-11) on both sides.

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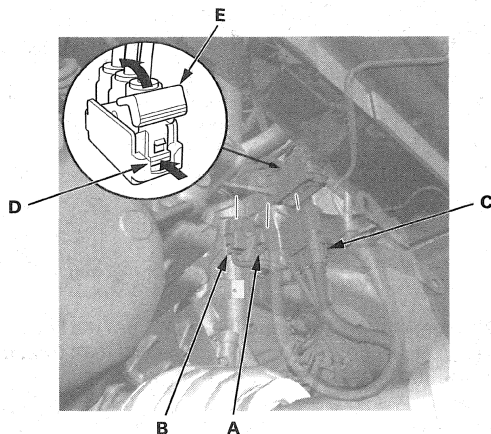
# EPS Components

## Steering Gearbox Removal and Installation (cont'd)

13. Remove the lock pin (A) from the lower arm ball joint, and remove the castle nut (B) from both sides.



14. Disconnect the lower arm ball joint from the knuckle using the ball joint remover and the ball joint thread protector (see page 18-11) on both sides.
15. Remove the stabilizer links from the stabilizer bar (see page 18-20) on both sides.
16. Remove the splash shield (see page 20-163).
17. Disconnect the EPS motor angle sensor 8P connector (A) and the torque sensor 6P connector (B).

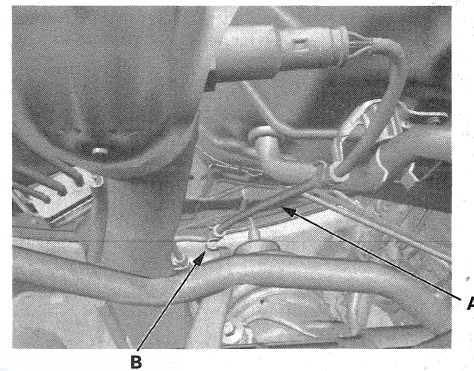


18. Disconnect the EPS motor 3P connector (C) by pushing the lock (D) and pulling up the lever (E).

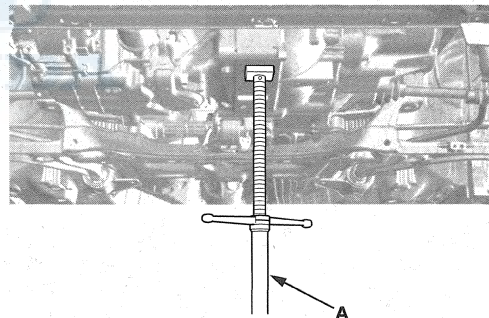
NOTE: Wrap the connectors with vinyl tape to avoid contamination from grease or water.

19. Remove the secondary HO2S wire (A) from the clamp (B).

NOTE: Do not disconnect the secondary HO2S 4P connector and the secondary HO2S.



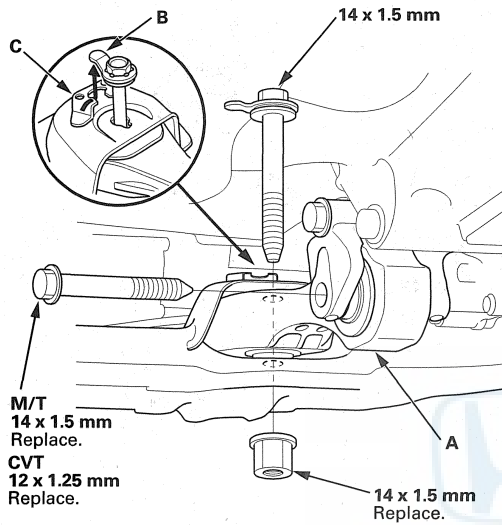
20. Place a jack (A) under the middle of the IMA motor housing.





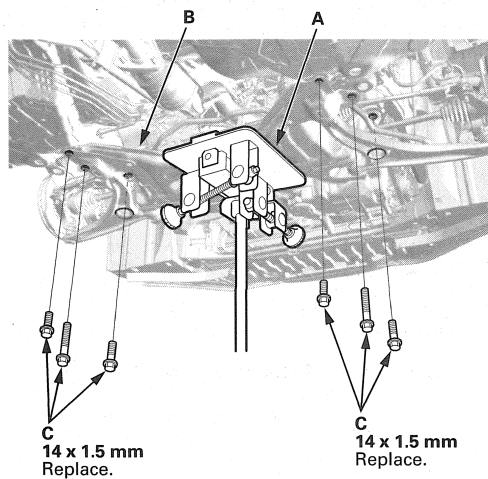
21. Remove the torque rod (A).

NOTE: Make sure the tab (B) on the bolt head aligned with the guide (C) on the front subframe.



\*: The illustration shows CVT model.

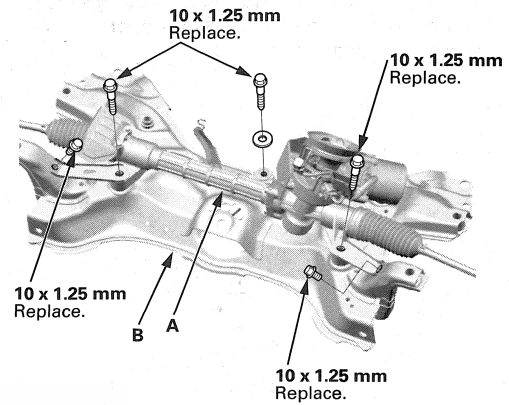
22. Attach a transmission jack (A) to the middle of the front subframe (B), and support the front subframe securely by raising the transmission jack.



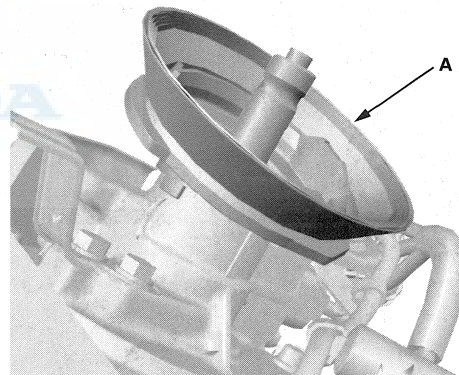
23. Remove the front subframe mounting bolts (C).

24. Lower the front subframe and the steering gearbox as an assembly by lowering the jack slowly.

25. Remove the steering gearbox (A) from the front subframe (B).



26. Remove the pinion shaft grommet (A).



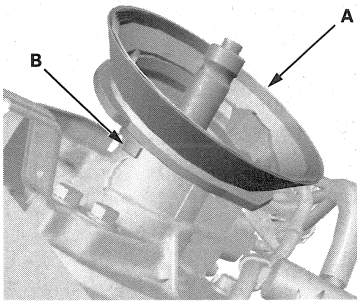
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# EPS Components

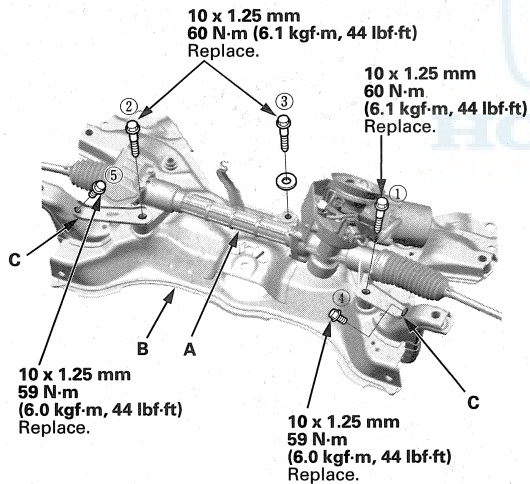
## Steering Gearbox Removal and Installation (cont'd)

### Installation

1. Install the pinion shaft grommet (A). Align the lug portion (B) in the pinion shaft grommet with the steering gearbox.

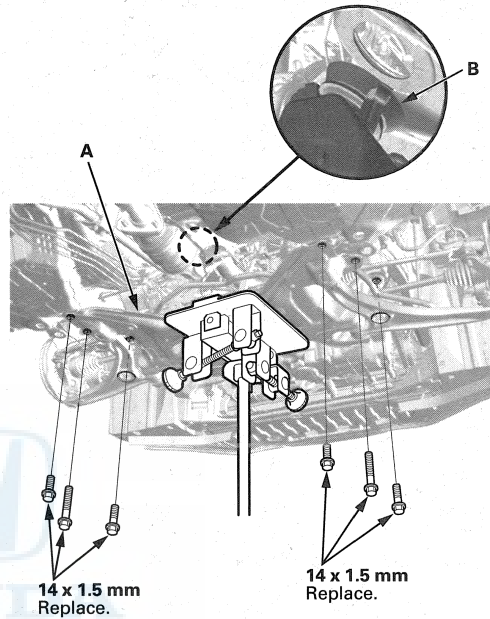


2. Place the steering gearbox (A) on the front subframe (B).



3. Loosely install the stiffener plates (C), and new gearbox mounting bolts, then tighten the bolts to the specified torque in the sequence as shown.

4. Set the front subframe (A) mounting the steering gearbox on the transmission jack and support it.



5. Carefully raise the front subframe with the transmission jack, and pass the pinion shaft into the passenger's compartment.

#### NOTE:

- Be sure that the pinion shaft grommet (B) is securely in place. Make sure the lip of the pinion shaft grommet is not turned up. Incorrect installation can cause leakage of water and mud, or noise.
- Take care not to damage the lower arm ball joint boot with the edge of the knuckle, etc.

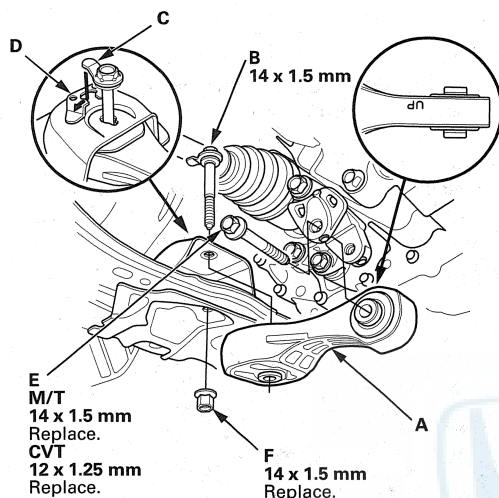
6. Install the front subframe, then loosely tighten the new front subframe mounting bolts.

7. Align the front subframe (see page 20-174).



8. Install the torque rod (A).

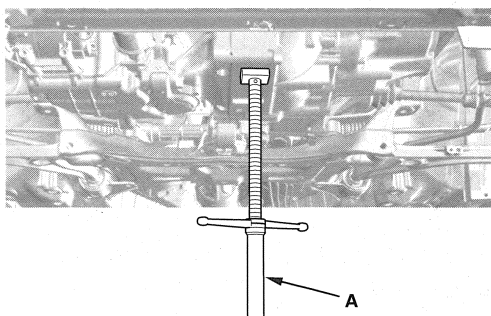
NOTE: Be sure to install the torque rod with the "UP" mark facing up.



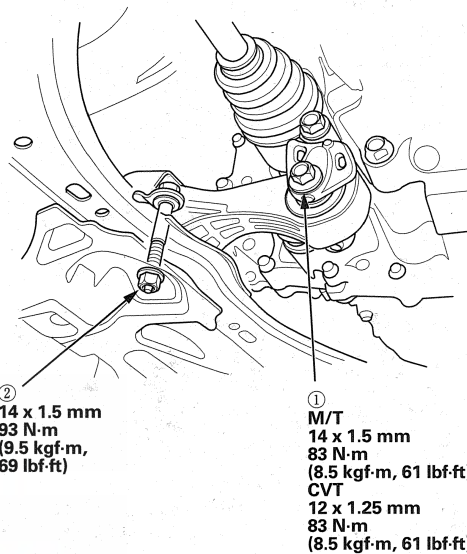
\*: The illustration shows CVT model.

9. Install the bolt (B) with the tab (C) on the bolt head aligned with the guide (D) on the front subframe, then loosely install a new torque rod mounting bolt (E) and nut (F).

10. Remove the jack (A).

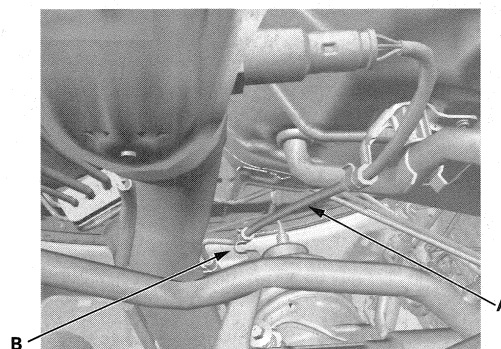


11. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.



\*: The illustration shows CVT model.

12. Install the secondary HO2S wire (A) in the clamp (B).



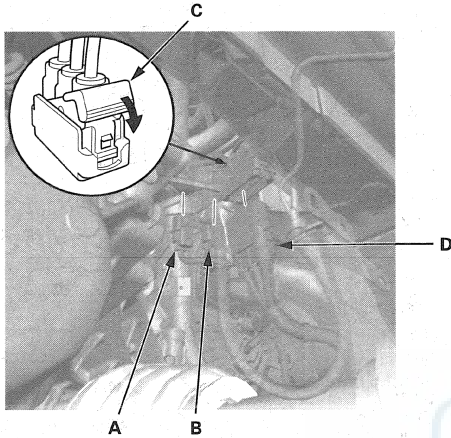
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## EPS Components

### Steering Gearbox Removal and Installation (cont'd)

13. Remove the vinyl tape from the connectors.

14. Connect the torque sensor 6P connector (A) and the EPS motor angle sensor 8P connector (B).



15. Pull down the lever (C) of the EPS motor 3P connector (D), then confirm the connector is fully seated.

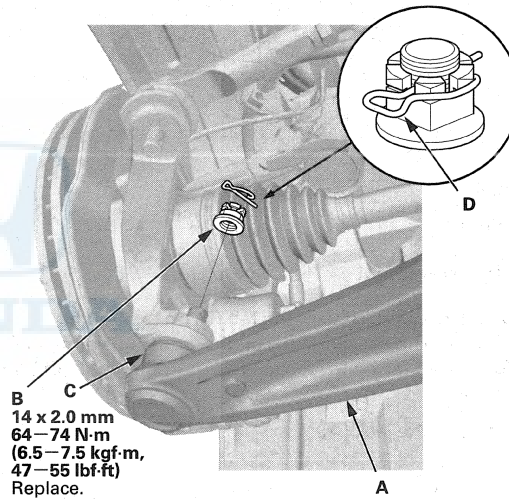
16. Install the stabilizer links to the stabilizer bar (see page 18-20) on both sides.

17. Install the splash shield (see page 20-163).

18. Wipe off any grease contamination from the tapered section and threads of the ball joint. Connect the lower arm (A) to the knuckle. Install a new castle nut (B), and tighten it to the specified torque on both sides.

#### NOTE:

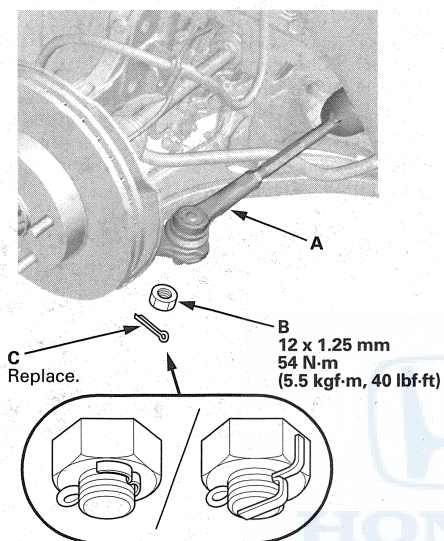
- Be careful not to damage the lower arm ball joint boot (C). Check the ball joint boot for deformation before connecting the knuckle.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the joint pin clip hole. Do not align the castle nut by loosening it.



19. Install the lock pin (D) on both sides.



20. Wipe off any grease contamination from the tapered section and threads of the tie-rod end ball joint. Connect the tie-rod end (A) to the knuckles. Install the nut (B), and tighten it to the specified torque on both sides.

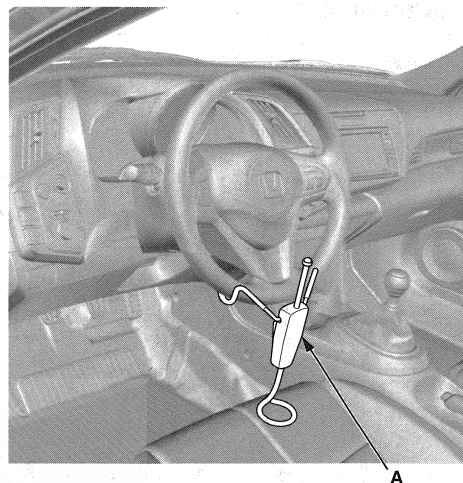


21. Install a new cotter pin (C), and bend it as shown on both sides.

22. Install the front wheels, then set the wheels in the straight ahead position.

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

23. Remove the steering wheel holder tool (A).



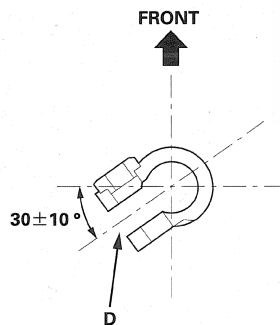
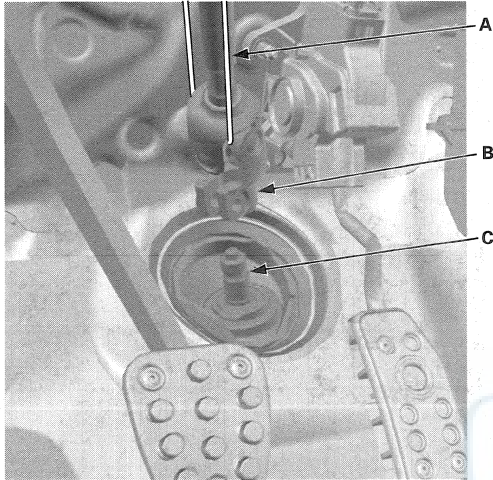
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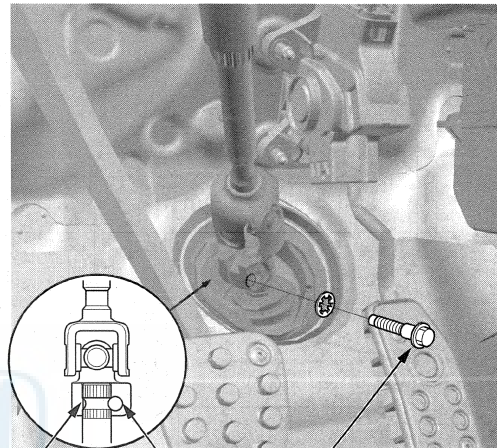
## EPS Components

### Steering Gearbox Removal and Installation (cont'd)

24. Cut the wire (A), and slip the lower end of the steering joint (B) onto the pinion shaft (C) taking care to align the gap (D) within the angle.



25. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft, then loosely install the steering joint bolt (C). Be sure that the joint bolt is securely in the groove in the pinion shaft.



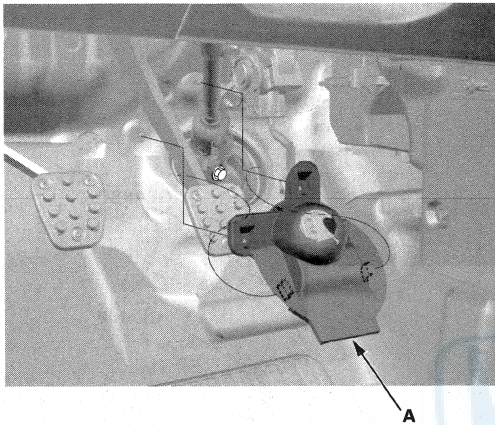
C  
8 x 1.25 mm  
28 N·m  
(2.9 kgf·m, 21 lbf·ft)

26. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the steering joint bolt to the specified torque.



27. Install the steering joint cover (A).

**NOTE:** Check the steering joint cover for damage and cracks. If the steering joint cover is cracked, replace the steering joint cover.



28. Do the 12 volt battery terminal reconnection procedure (see page 22-87).

29. After installation, check these items:

- Start the engine, allow it to idle, and turn the steering wheel from lock to lock several times. Check that the EPS indicator does not come on.
- Check the steering wheel spoke angle. If steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft serrations, then adjust the front toe by turning the tie-rod ends, if necessary.

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