

Steering

Steering

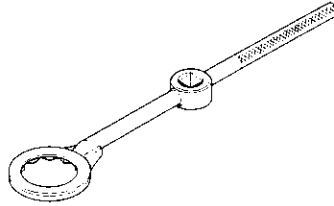
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Steering

Special Tools

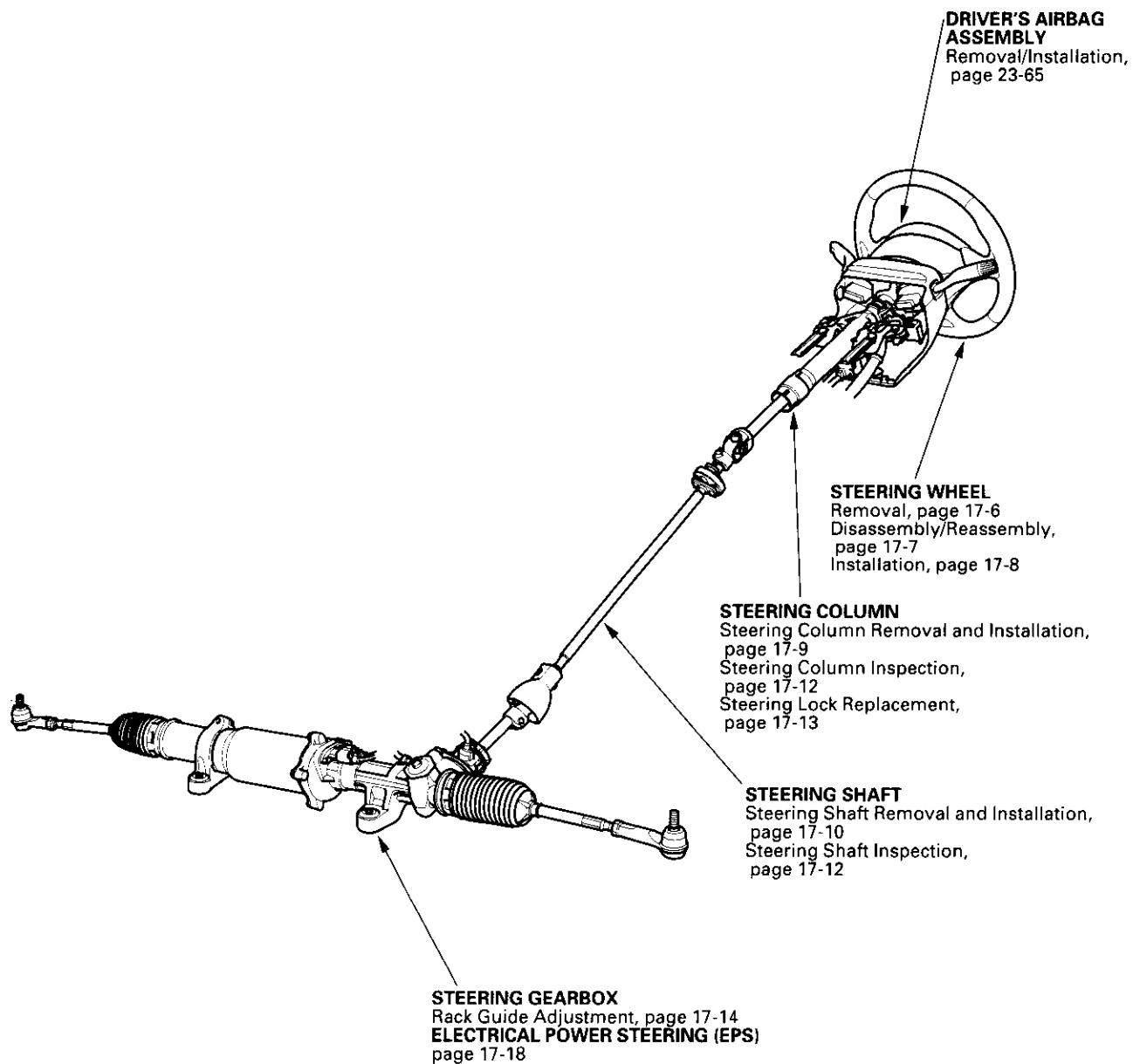
Ref.No.	Tool Number	Description	Qty
①	07MAA-SL0020A	Locknut Wrench, 43 mm	1



①



Component Location Index

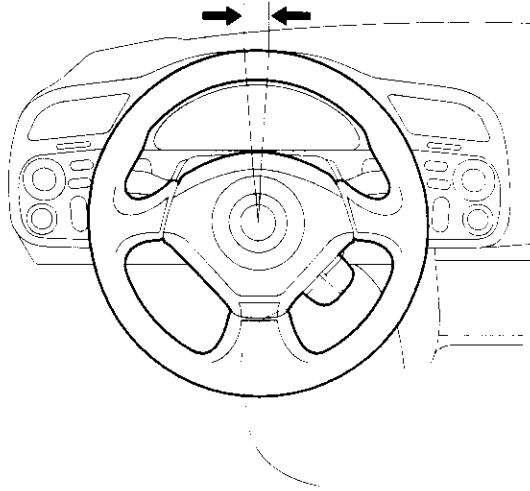


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Steering Wheel Rotational Play Check

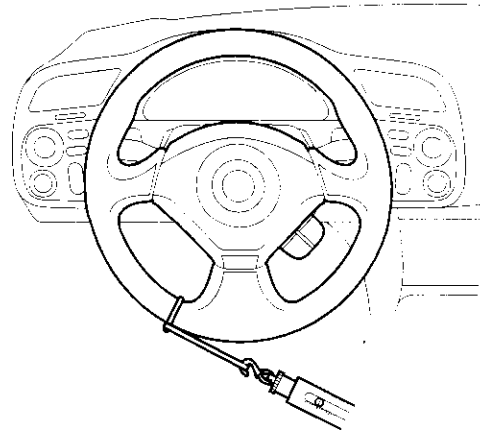
1. Turn the front wheels to the straight ahead position.
2. Measure how far you can turn the steering wheel left and right without moving the front wheels.
 - If the play is within the limit, the gearbox and linkage are OK.
 - If the play exceeds the limit, adjust the rack guide (see page 17-14). If the play is still excessive after rack guide adjustment, inspect the steering linkage and gearbox (see page 17-5).

ROTATIONAL PLAY: 0–10 mm (0–0.39 in.)



Power Assist Check

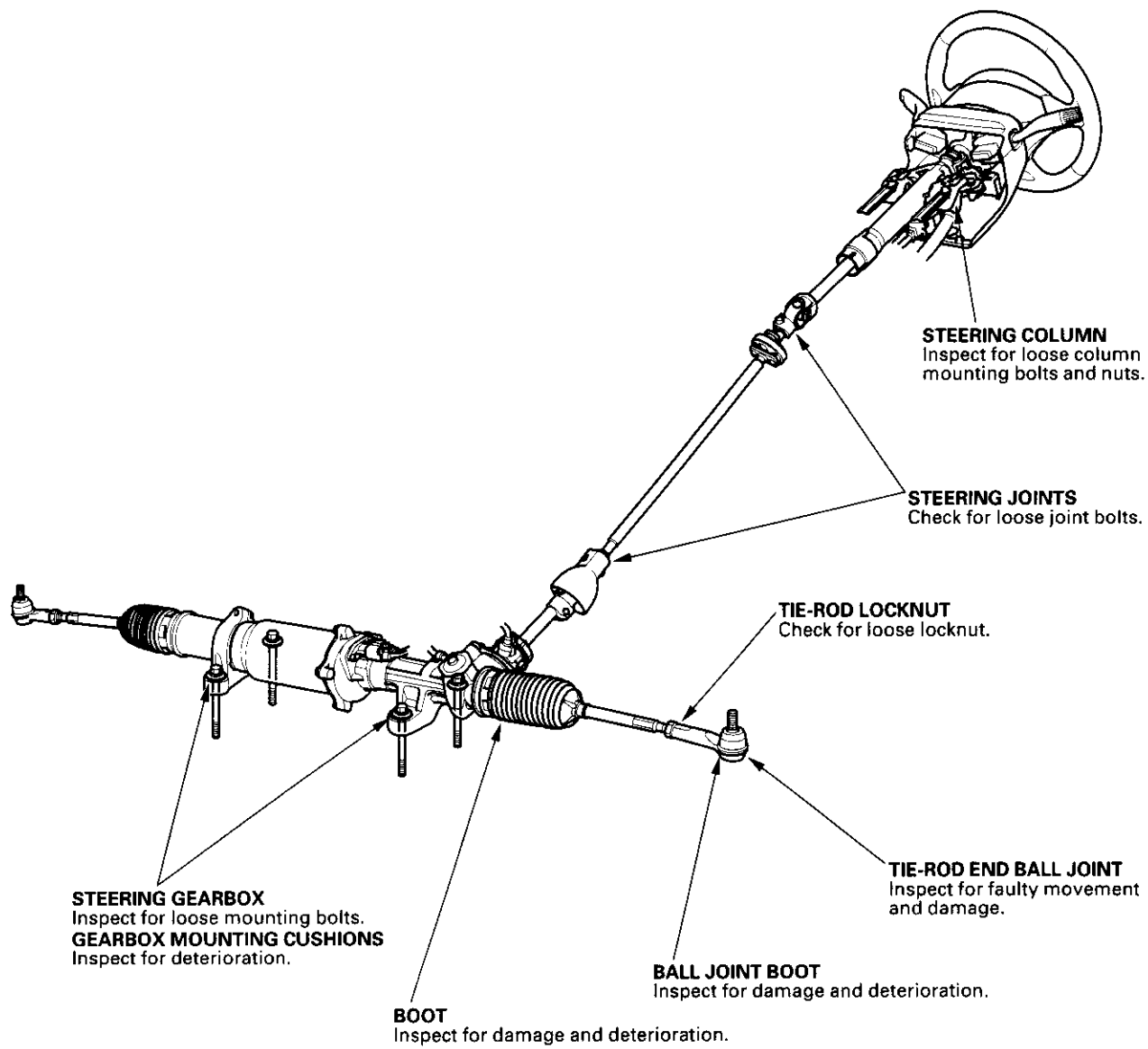
1. Start the engine, let it idle.
2. Attach a commercially available spring scale to the steering wheel. With the engine idling and the vehicle on a clean, dry floor, pull the scale as shown and read it as soon as the tires begin to turn.



3. If the scale reads no more than 34 N (3.5 kgf, 7.7 lbf), the power assist is OK. If it reads more, check the steering linkage for damage (see page 17-5), and check the rack guide adjustment (see page 17-14).



Steering Linkage and Gearbox Inspection

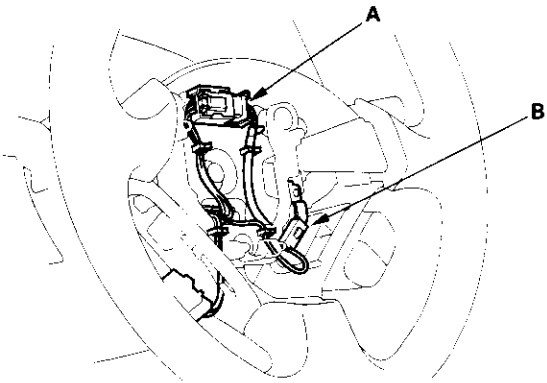


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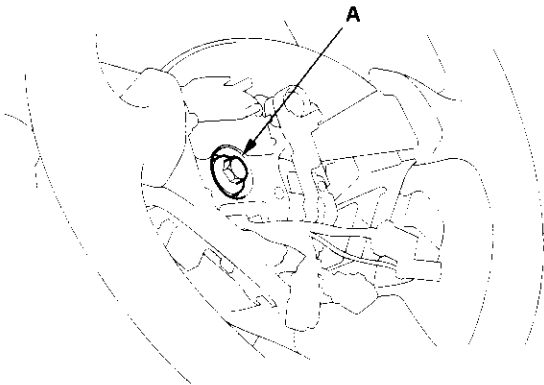
Steering Wheel Removal

SRS components are located in this area. Review the SRS component locations, precautions, and procedures in the SRS section before performing repairs or service (see page 23-10).

1. Make sure you have the anti-theft code for the radio, then write down the radio station presets.
2. Align the front wheels straight ahead, then remove the driver's airbag from the steering wheel (see page 23-65).
3. Disconnect the cruise control switch connector (A) and horn switch connector (B).



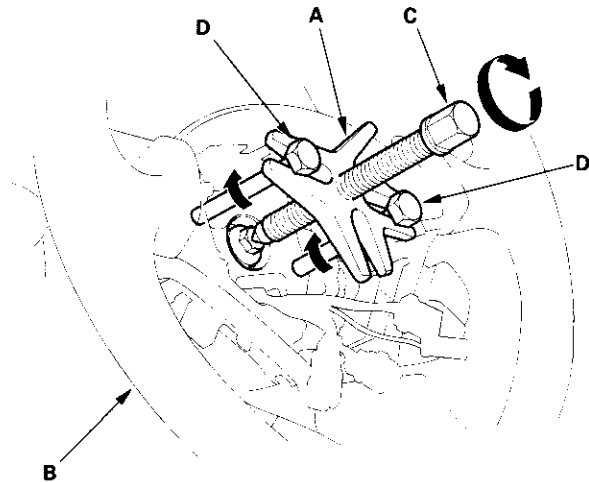
4. Loosen the steering wheel bolt (A).



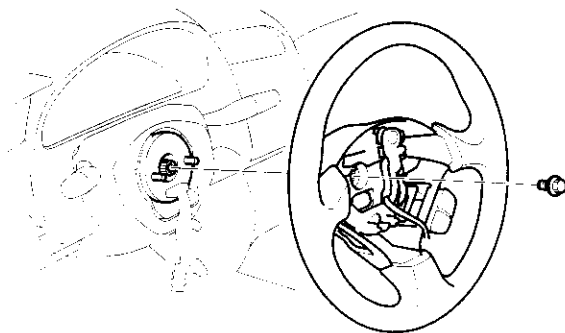
5. Install a commercially available steering wheel puller (A) on the steering wheel (B). Free the steering wheel from the steering column shaft by turning the pressure bolt (C) of the puller.

Note these items when removing the steering wheel:

- Do not tap on the steering wheel or the steering column shaft when removing the steering wheel.
- If you thread the puller bolts (D) into the wheel hub more than five threads, the bolts will hit the cable reel and damage it. To prevent this, install a pair of jam nuts five threads up on each puller bolt.

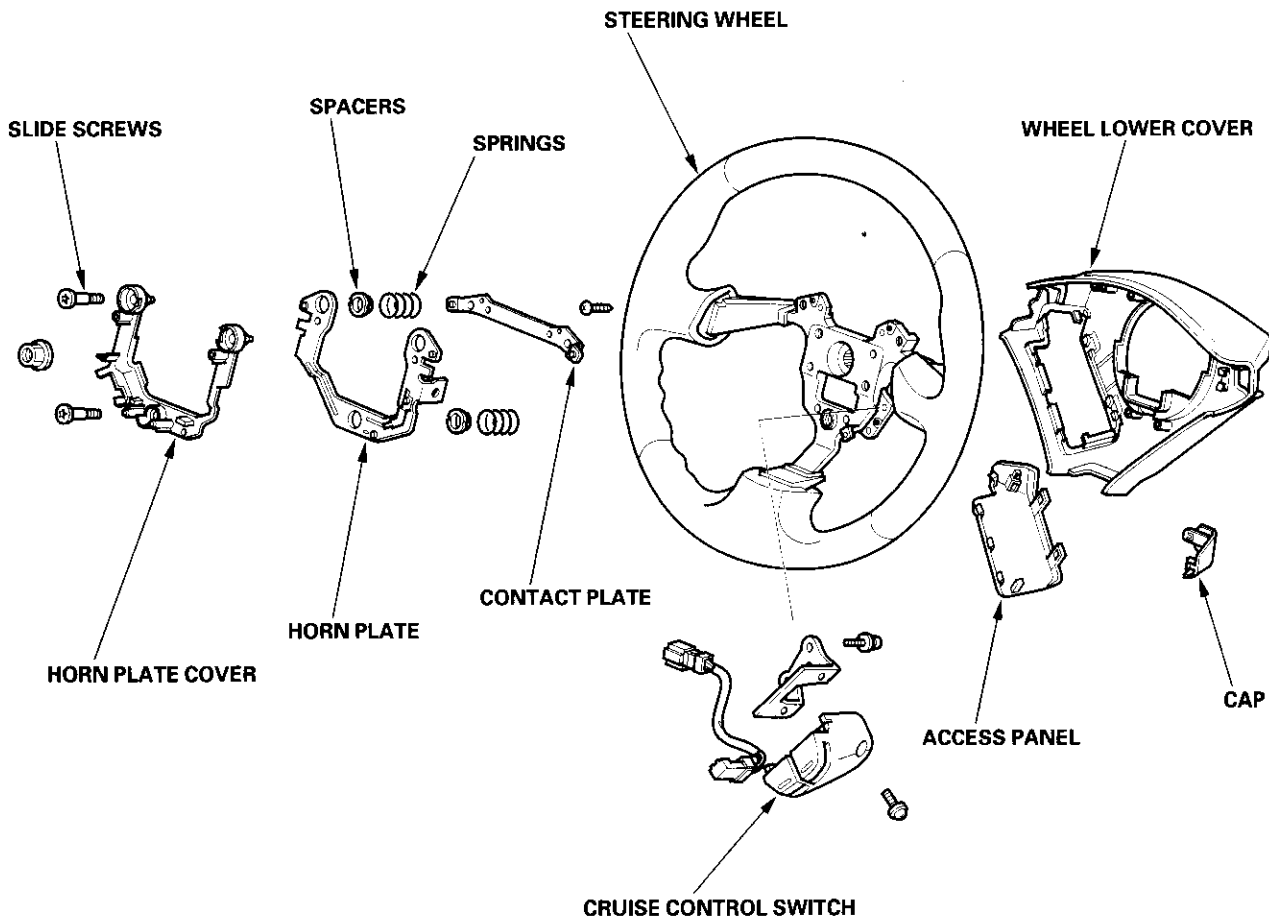


6. Remove the steering wheel puller, then remove the steering wheel bolt and steering wheel from the steering column.





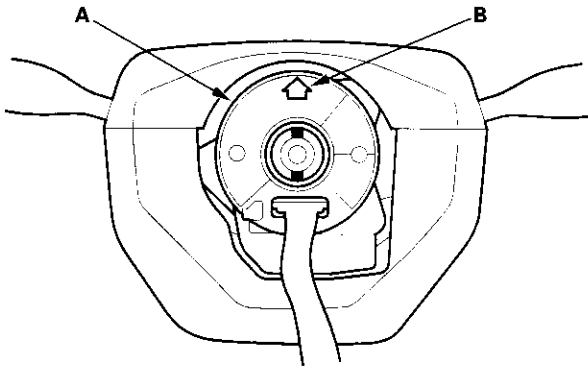
Steering Wheel Disassembly/Reassembly



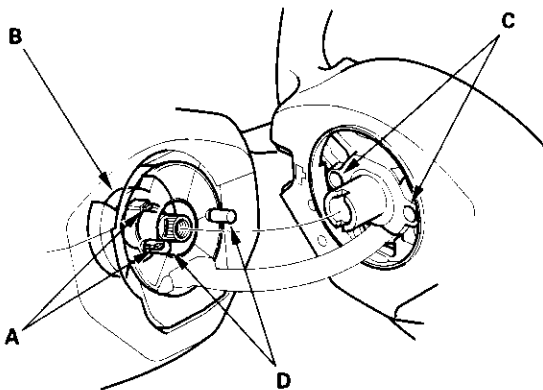
Steering

Steering Wheel Installation

1. Before installing the steering wheel, make sure the front wheels are aligned straight ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about two and half turns. The arrow mark (B) on the cable reel label point should point straight up.

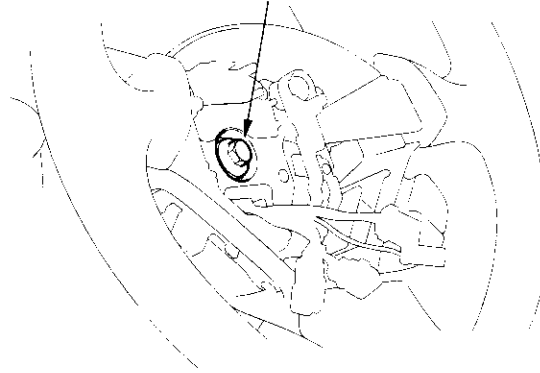


2. Position the two tabs (A) of the turn signal cancelling sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



3. Install the steering wheel bolt and tighten it.

39 N·m (4.0 kgf·m, 29 lbf·ft)



4. Connect the horn switch connector and cruise control switch connector.
5. Install the driver's airbag, and confirm that the system is operating properly (see page 23-66).
6. Reconnect the battery.
7. Check the horn, cruise control set/resume switch, and turn signal cancelling for proper operation.
8. Enter the anti-theft code for the radio, then enter the customer's radio station presets.
9. For '01-03 models; reset the clock.

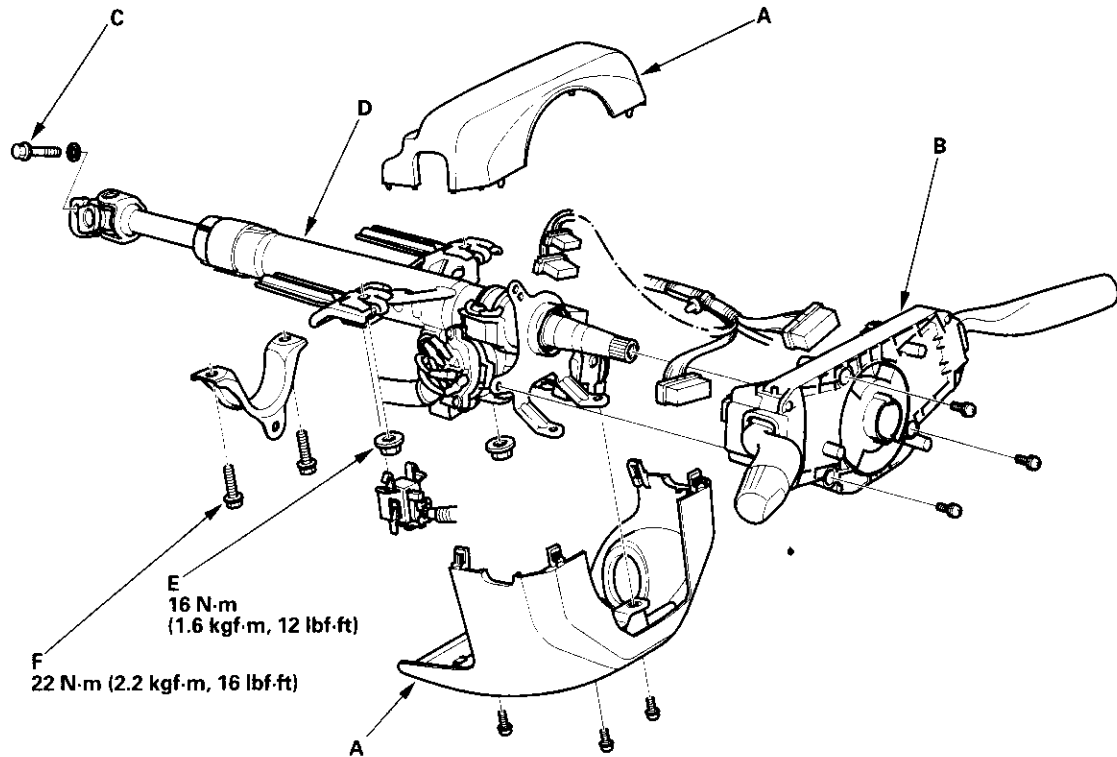


Steering Column Removal and Installation

SRS components are located in this area. Review the SRS component locations, precautions, and procedures in the SRS section before performing repairs or service (see page 23-10).

Removal

1. Record the radio station presets, and disconnect the battery.
2. Remove the driver's airbag (see page 23-65), steering wheel, and cable reel (see page 23-72).
3. Remove the column covers (A).



4. Remove the combination switch assembly (B) from the steering column shaft by disconnecting the connectors and removing the screws.
5. Disconnect the ignition switch connectors from the under-dash fuse/relay box.
6. Remove the steering joint bolt (C).
7. Remove the steering column (D) by removing the attaching nuts (E) and bolts (F).

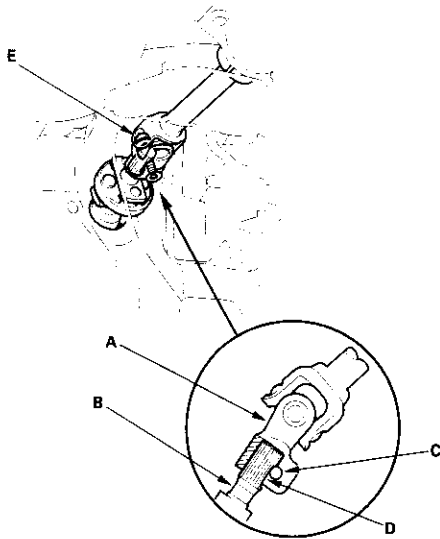
(cont'd)

Steering

Steering Column Removal and Installation (cont'd)

Installation

1. Install the steering column, and make sure the wires are not caught or pinched by any parts.
2. Insert the lower end of the steering joint (A) onto the steering shaft (B) (line up the bolt hole (C) with the flat portion (D) on the shaft).



3. Pull on the steering joint to make sure that the steering joint is fully seated, but do not pull excessively on the joint. Then install the steering joint bolt (E) and tighten it to the specified torque.

US thru VIN JHMAP 114-YT008411
Canada thru VIN JHMAP 114-YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

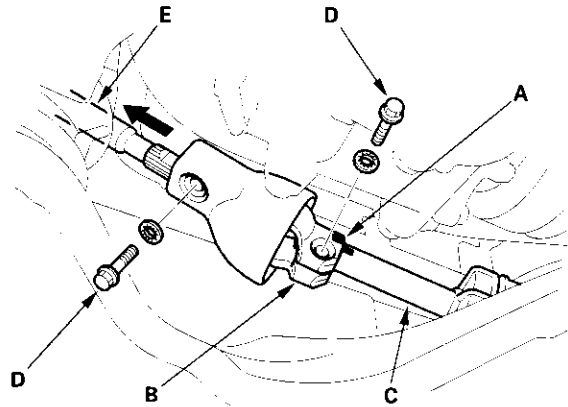
US from VIN JHMAP 114-YT008412
Canada from VIN JHMAP 114-YT800751
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)

4. Finish the installation, and note these items:
 - Make sure the wire harness is routed and fastened properly.
 - Make sure the connectors are properly connected.
 - Reinstall the steering wheel (see page 17-8).
 - Reconnect the battery and reset the radio presets.
 - Enter the anti-theft code for the radio, then enter the customer's radio station presets.
 - For '01-03 models; set the clock.
 - Verify cruise control, horn, and turn signal switch operation.
 - Check wheel alignment (see page 18-5).

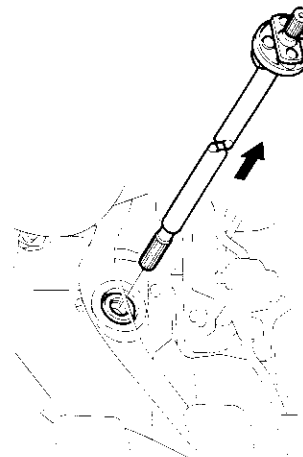
Steering Shaft Removal and Installation

Removal

1. Remove the steering column (see page 17-9).
2. Mark (A) the steering joint (B) and pinion shaft (C) to identify the position of the joint on the pinion shaft.



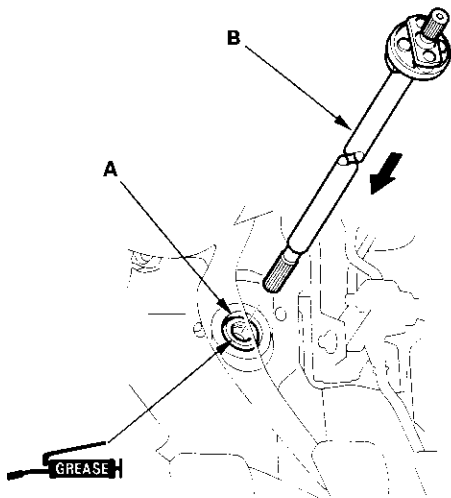
3. Remove the steering joint bolts (D).
4. Disconnect the steering joint from the pinion shaft by pulling the steering shaft (E).
5. Remove the steering joint (B) from steering shaft.
6. Remove the steering shaft.



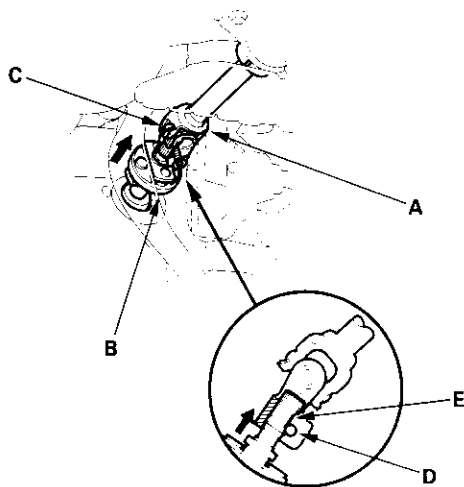


Installation

1. Apply multipurpose grease to the inside surface of the pinion dust seal (A).

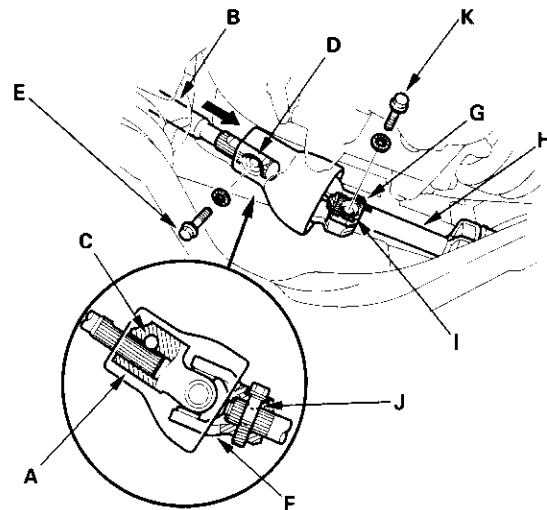


2. Insert the steering shaft (B) into the engine compartment carefully to avoid damaging the pinion dust seal. Make sure the shaft comes out of frame hole.
3. Install the steering column with the column mounting nuts and column holder (see page 17-9).
4. Slip the joint (A) of the column shaft onto the steering shaft (B), then loosely install the joint bolt (C) (line up the bolt hole (D) with the flat portion (E) of the shaft). Pull the steering shaft toward the column.



5. Slip the upper end (A) of the steering joint onto the

steering shaft (B) (from the engine compartment). Be sure the steering joint and steering shaft are aligned with the serrations; the joint should slip on freely. If not, reposition the serration of the steering joint.



6. Line up the bolt hole (C) with the flat portion (D) of the shaft (B), and loosely install the upper joint bolt (E). Pull the steering joint to make sure that the joint is fully seated.
7. Slip on the lower end (F) of the steering joint by aligning the marks (G) on the pinion shaft (H) and joint. Line up the bolt hole (I) with groove around (J) the pinion shaft, and install the lower joint bolt (K) and tighten it by hand. Don't torque the bolt yet. Pull the steering joint to make sure that the joint is fully seated.
8. Pull the steering shaft toward the pinion shaft. Then tighten the upper joint bolt (E). The lower joint bolt (K) (both in the engine compartment), and the joint bolt on column shaft (under the dashboard) to the specified torque.

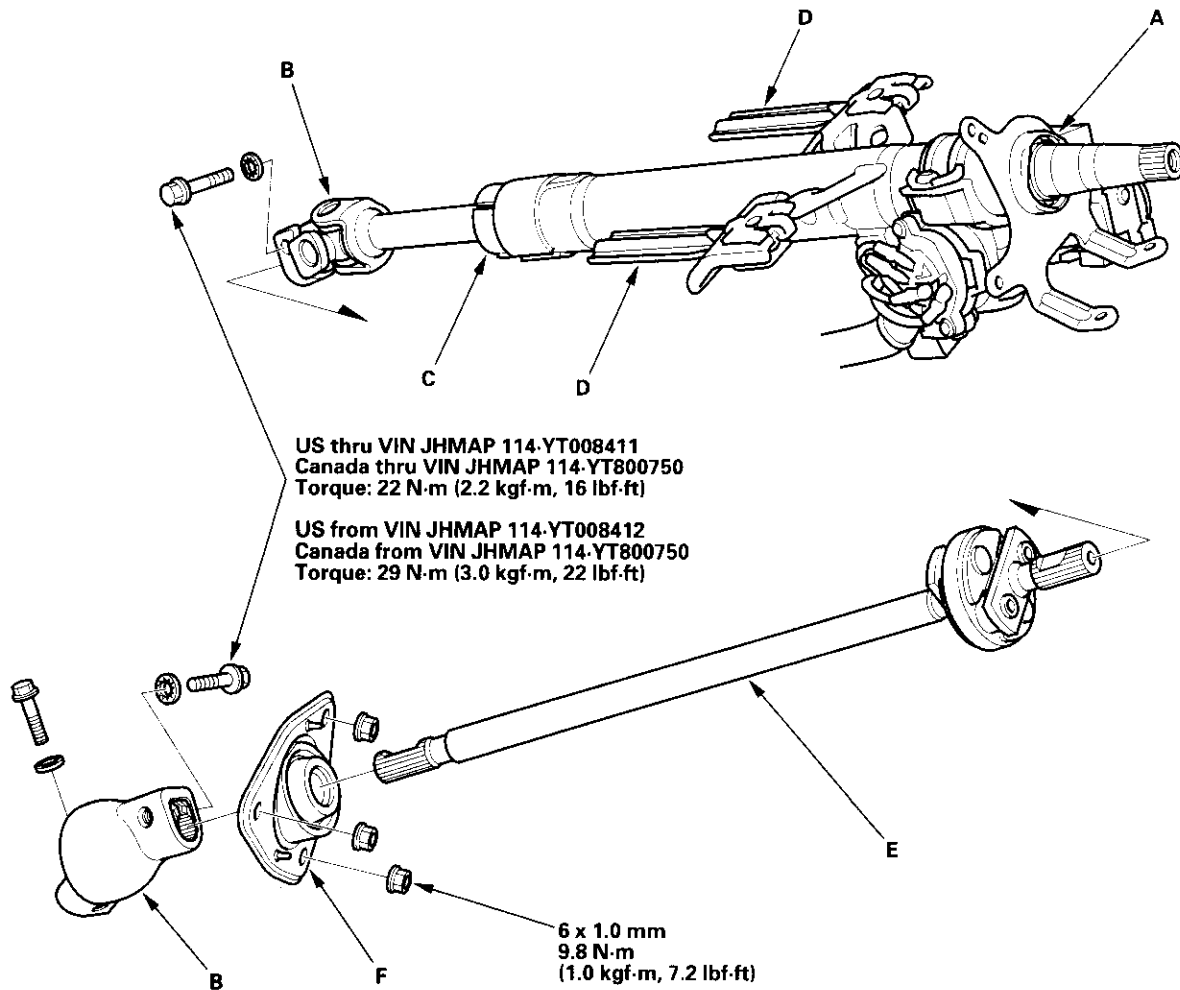
US thru VIN JHMAP 114-YT008411
Canada thru VIN JHMAP 114-YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

US from VIN JHMAP 114-YT008412
Canada from VIN JHMAP 114-YT800751
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)

Steering

Steering Column/Steering Shaft Inspection

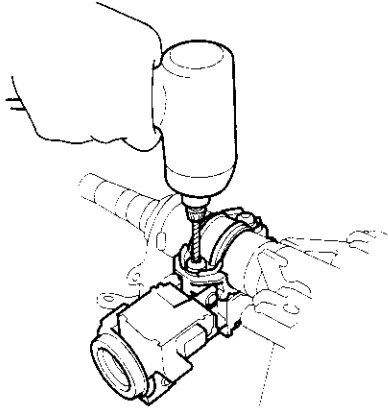
- Check the steering column ball bearing (A) and the steering joint bearings (B) for play and proper movement. If any bearing is noisy or has excessive play, replace the steering column as an assembly.
- Check the retaining collar (C) for damage. If it is damaged, replace the steering column as an assembly.
- Check the absorbing plates (D) for distortion or breakage. If there is distortion or breakage replace the steering column as an assembly.
- Check the steering shaft (E) for bending and damage.
- Check the joint dust seal (F) for deterioration and damage.



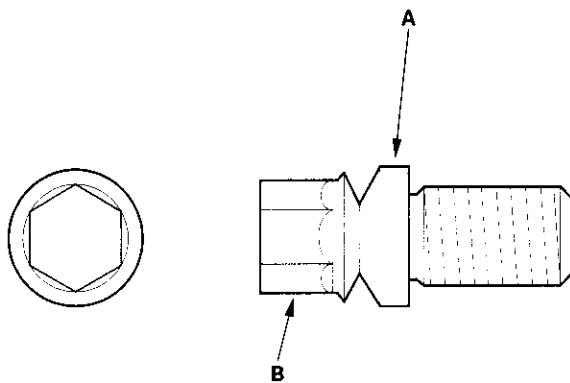


Steering Lock Replacement

1. Remove the steering column (see page 17-9).
2. Center punch each of the two shear bolts, and drill their heads off with a 5 mm (3/16 in.) drill bit. Be careful not to damage the switch body when removing the shear bolts.



3. Remove the shear bolts from the switch body.
4. Install the switch body without the key inserted.
5. Loosely tighten the new shear bolts.
6. Insert the ignition key, and check for proper operation of the steering wheel lock and that the ignition key turns freely.
7. Tighten the shear bolts (A) until the hex heads (B) twist off.



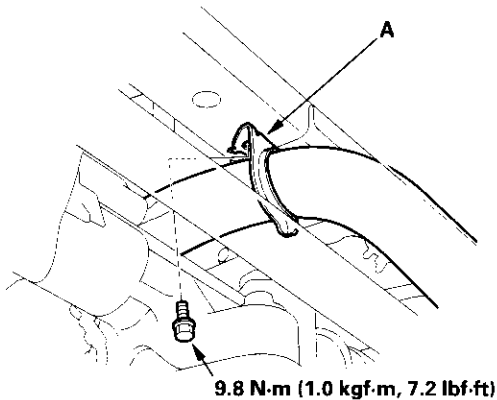
Steering

Rack Guide Adjustment

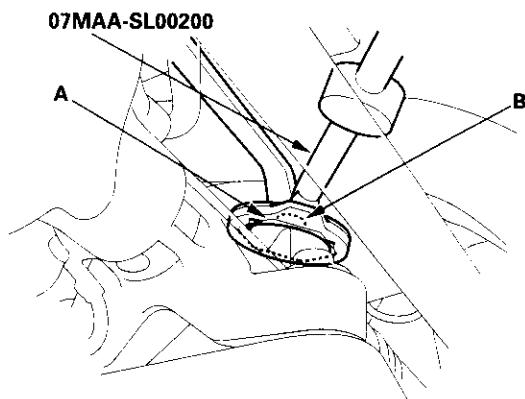
Special Tools Required

Locknut wrench, 43 mm 07MAA-SL0020A

1. Set the wheels in the straight ahead position.
2. Remove the splash shield.
3. Remove the lower radiator hose bracket (A).



4. Loosen the rack guide screw locknut (A) with the special tool, then loosen the rack guide screw (B).



5. Tighten the rack guide screw to 25 N·m (2.5 kgf·m, 18 lbf·ft), then loosen it.
6. Retighten the rack guide screw to 3.9 N·m (0.4 kgf·m, 2.9 lbf·ft) then back it off to the specified angle.

Specified Return Angle: $15 \pm 5^\circ$

7. Tighten the locknut to 25 N·m (2.5 kgf·m, 18 lbf·ft) while holding the rack guide screw.
8. Install the lower radiator clamp.
9. Check for tight or loose steering from lock to lock.
10. Perform following inspections:
 - Steering wheel rotational play (see page 17-4).
 - Power assist with vehicle parked (see page 17-4).

Electrical Power Steering (EPS)

EPS Components

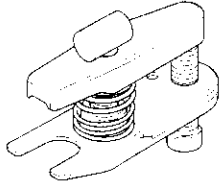
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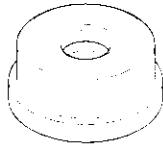
EPS Components

Special Tools

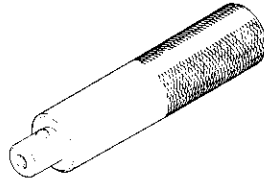
Ref.No.	Tool Number	Description	Qty
①	07MAC-SL00200	Ball Joint Remover, 28 mm	1
②	07746-0010100	Attachment, 32 x 35 mm	1
③	07749-0010000	Driver	1
④	07974-6790000	Oil Seal Driver	1



①



②



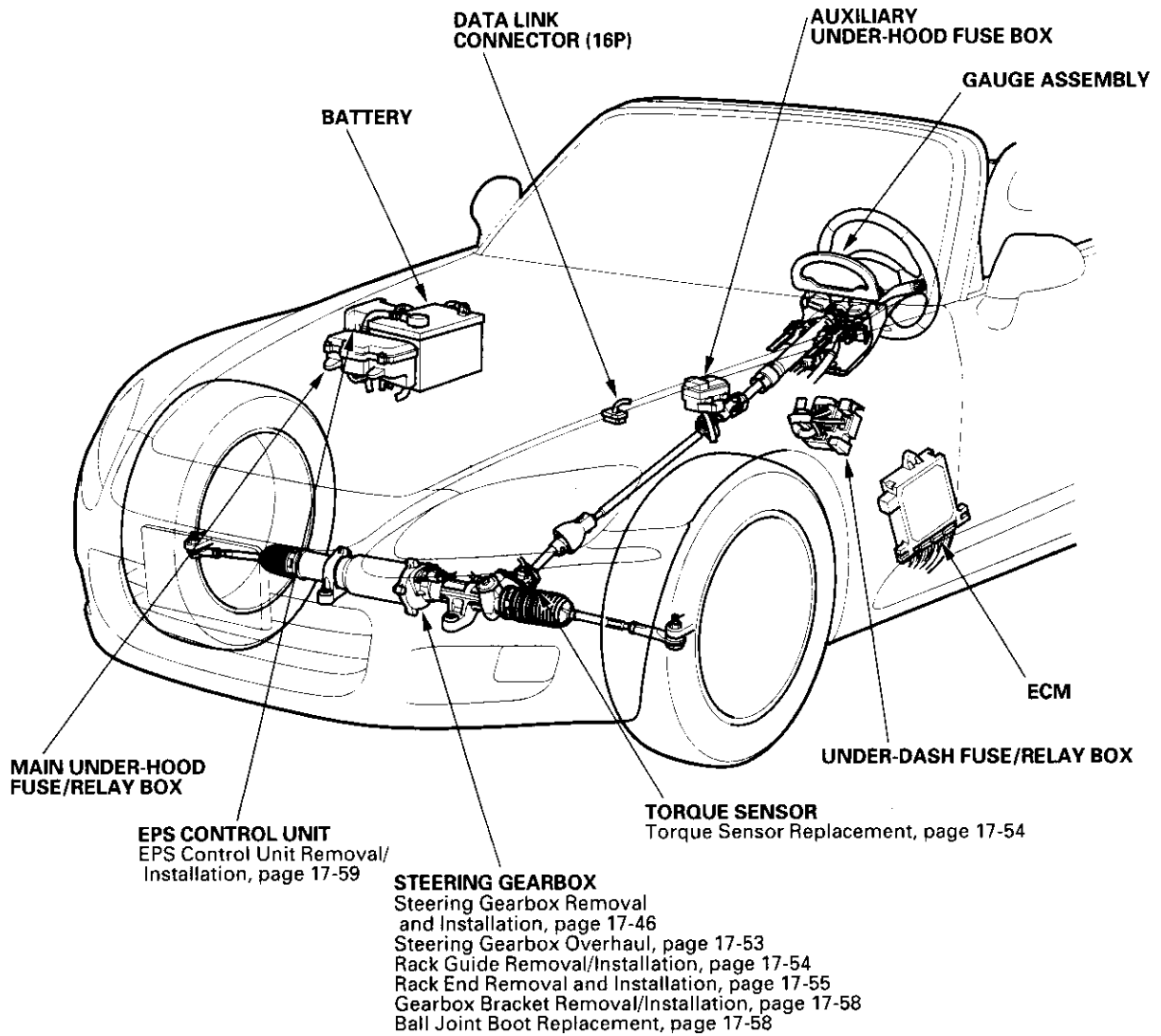
③



④



Component Location Index



EPS Components

General Troubleshooting Information

EPS Indicator

Under normal conditions, the EPS indicator comes on when the ignition switch is turned to the ON (II) position, then goes off after the engine is started. This indicates that the bulb and its circuit are operating correctly. If there is any trouble in the system after the engine is started, the EPS indicator will stay on, and the power assist is turned off.

When EPS indicator comes on, the control unit memorizes the DTC. In this case, the control unit will not activate the EPS system after the engine starts again, but it keeps the EPS indicator on.

When DTC 11, 12, or 13 is stored in the control unit, the EPS indicator will stay on until the DTC is erased. Even though the system is operating normally, the EPS indicator will come on under the following conditions:

- When the vehicle is barely moving, 0.62 mph (1 km/h) or stopped, and the engine speed is 2,000 rpm or higher for about 3 minutes.
- When the engine speed is 500 rpm or less, and the vehicle is travelling at a speed of 6.2 mph (10 km/h) or more for about 3 minutes.

To determine the actual cause of the problem, question the customer about the conditions during which the problem occurred, taking the above conditions into consideration.

Diagnostic Trouble Code (DTC)

- If the CPU cannot be activated, or it fails, the EPS indicator comes on, but the DTC is not memorized.
- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the most recent DTC is written over the prior DTC, therefore only one occurrence is memorized.
- The lowest DTC is indicated first. The DTCs are indicated in ascending order, not in the order that they occurred.
- The DTCs are memorized in the EEPROM (non-volatile memory) therefore the memorized DTCs cannot be erased by disconnecting the battery. Perform the specified procedures to clear DTCs.

Self-diagnosis

Self-diagnosis can be classified into two categories:

- Initial diagnosis: performed right after the engine starts and until the EPS indicator goes off.
- Regular diagnosis: performed right after the initial diagnosis until the ignition switch is turned OFF.

The EPS control unit performs the following functions when a problem is detected by self-diagnosis:

1. Turns on the EPS indicator.
2. Memorizes the DTC.
3. Stops power assist and manual steering operation resumes.

NOTE:

- When DTC 23 (a problem with the circuit for engine speed signal) is detected, the power assist will return to normal when the vehicle speed is 6.2 mph (10 km/h) or above.
- For DTCs 21, 22, and 23 the EPS indicator will go off automatically, and the system returns to normal.

Restriction on Power Assist Operation

Repeated extreme steering force, such as turning the steering wheel continuously back-and-forth with the vehicle stopped, causes an increase of power consumption in the EPS motor. The increase of electric current causes the motor to heat up. Because this heat adversely affects the system, the control unit monitors the electric current of the motor.

When the control unit detects heat build-up in the motor, it reduces the electric current to the motor gradually to protect the system, and it restricts the power assist operation. The EPS indicator does not come on during this function.

When steering torque is not applied to the steering wheel, or when the ignition is turned off, the control unit will restore the power assist gradually until it's fully restored (after about 8 minutes).

EPS Control Unit Noise

A relay sound or "click" can be heard from the EPS control unit about 30 seconds after the ignition switch is turned off. This sound is normal.

Torque Sensor Neutral Position

The EPS control unit stores the torque sensor neutral position in the EEPROM. Memorize the torque sensor neutral position whenever the gearbox is removed and installed, or when the torque sensor or EPS control unit is replaced.

NOTE: The torque sensor neutral position is not effected when erasing the DTCs.



How to Troubleshoot EPS DTCs

The troubleshooting flowchart procedures assume that the cause of the problem is still present and the EPS indicator is still on. Following the flowchart when the EPS indicator does not come on can result in incorrect diagnosis.

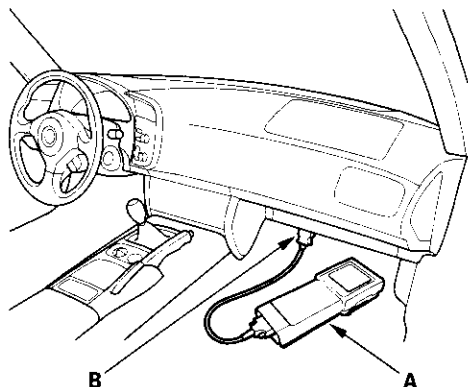
The connector illustrations show the female terminal connectors with a single outline and the male terminal connectors with a double outline.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the EPS indicator came on, such as during EPS control, after EPS control, when the vehicle was at a certain speed, etc.
2. When the EPS indicator does not come on during the test drive, but troubleshooting is done based on the DTC, check for loose connectors, poor terminal contact, etc., before you start troubleshooting.
3. After troubleshooting, clear the DTC and test-drive the vehicle. Be sure the EPS indicator does not come on.

How to Retrieve EPS DTCs

Honda PGM Tester Method:

1. With the ignition switch OFF, connect the Honda PGM Tester (A) to the 16P data link connector (DLC) (B) located under the dash on the passenger's side of the vehicle.

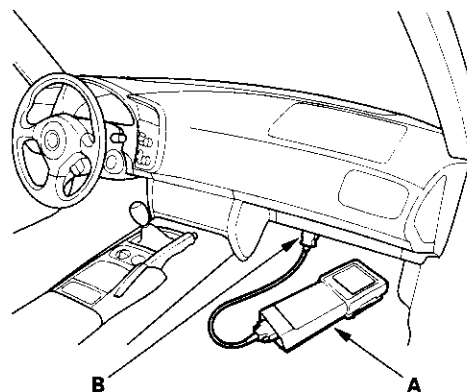


2. Turn the ignition ON (II), and follow the prompts on the PGM Tester to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting index.

NOTE: See the Honda PGM Tester user's manual for specific instructions.

Service Check Signal Circuit Method:

1. With the ignition switch OFF, connect the Honda PGM Tester (A) to the 16P data link connector (DLC) (B) located under the dash on the passenger's side of the vehicle.



2. Short the SCS circuit to body ground using the Honda PGM Tester.
3. Turn the ignition switch ON (II).

(cont'd)

EPS Components

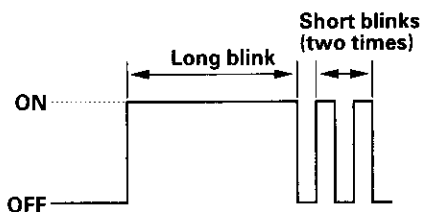
General Troubleshooting Information (cont'd)

4. The blinking frequency indicates the DTC. DTCs are indicated by a series of long and short blinks. Add the long and short blinks together to determine the DTC. After determining the DTC, refer to the DTC troubleshooting index.

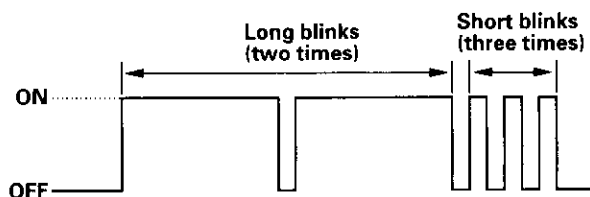
The system will not indicate the DTC unless these conditions are met:

- Set the front wheels in the straight ahead driving position.
- The ignition switch is turned ON (II).
- The engine is stopped.
- The SCS circuit is shorted to body ground before the ignition switch is turned ON (II).

Example of DTC 12



Example of DTC 23

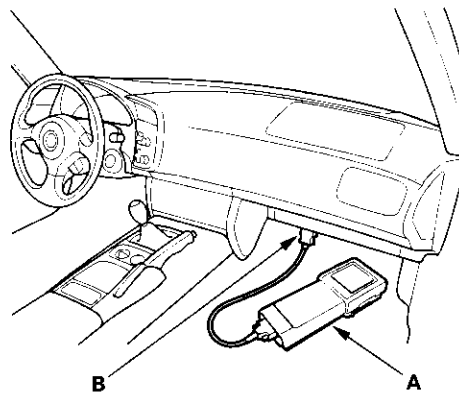


5. Turn the ignition switch OFF.
6. Disconnect the Honda PGM Tester from the DLC.

How to Clear EPS DTCs

Honda PGM Tester Method:

1. With the ignition switch OFF, connect the Honda PGM Tester (A) to the 16P data link connector (DLC) (B) located under the dash on the passenger's side of the vehicle.



2. Turn the ignition switch ON (II), and clear the DTC(s) by following the screen prompts on the PGM Tester.

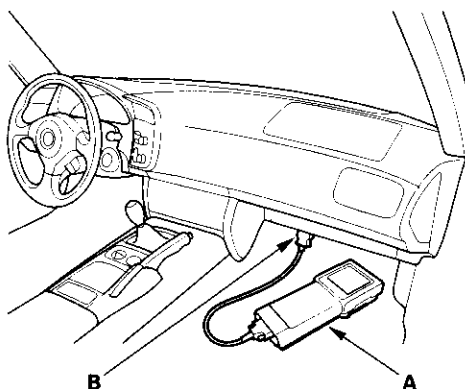
NOTE: See the Honda PGM Tester user's manual for specific instructions.



Service Check Signal Circuit Method:

NOTE: Use this procedure when the PGM Tester software does not match the year/model vehicle you are working on.

1. With the ignition switch OFF, connect the Honda PGM tester (A) to the 16P data link connector (DLC) (B) located under the dash on the passenger's side of the vehicle.



2. With the vehicle on the ground, set the front wheels in the straight ahead driving position.
3. Short the SCS circuit to body ground using the Honda PGM Tester.
4. Turn the steering wheel 45 degrees to the left from the straight ahead driving position, and hold the steering wheel in that position.
5. Turn the ignition switch ON (II). The EPS indicator comes on, then it goes off after 4 seconds.
6. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position and release the steering wheel. The EPS indicator comes on again 4 seconds after releasing the steering wheel.
7. Within 4 seconds after the EPS indicator comes on, turn the steering wheel 45 degrees to the left again and hold it in that position. The EPS indicator goes off after 4 seconds.

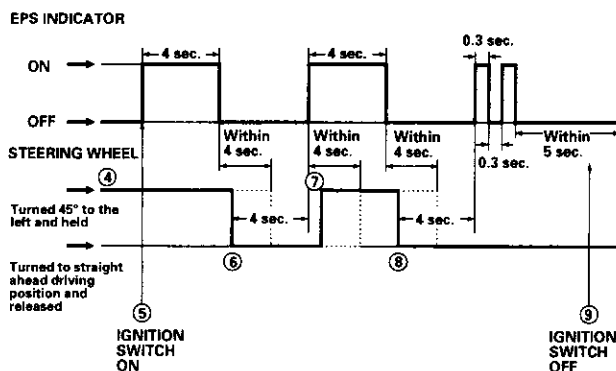
8. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position again and release the steering wheel. The EPS indicator blinks twice 4 seconds after releasing the steering wheel, indicating that the DTC was erased.

NOTE: If the EPS indicator does not blink twice, an error was made in the procedure and the DTC was not erased. Turn the ignition switch OFF, and repeat the operation from the step 3.

9. Turn the ignition switch OFF within 5 seconds after the EPS indicator blinks twice.

NOTE: If the ignition switch is not turned OFF within 5 seconds after the EPS indicator blinks, the system will go to the memorizing mode of the torque sensor neutral position. To avoid this, turn the steering wheel 45 degrees to left from the straight ahead driving position and turn the ignition switch OFF. This will return the system to the alert mode.

10. Disconnect the Honda PGM Tester from the DLC.
11. Perform the DTC code output operation, and be sure that the code has been erased.



EPS Components

DTC Troubleshooting Index

DTC	Detection Item	Note
DTC: 1	Power relay stuck ON	(see page 17-28)
DTC: 2	Fail-safe relay stuck ON	(see page 17-28)
DTC: 3	LOW FET (Motor drive transistor) stuck ON	(see page 17-28)
DTC: 4	UP FET (Motor drive transistor) stuck ON	(see page 17-29)
DTC: 5	Open to body ground in the motor circuit	(see page 17-30)
DTC: 11	Difference of high voltage and lower voltage on the torque sensor	(see page 17-32)
DTC: 12	A problem with voltage for torque sensor VT3	(see page 17-33)
DTC: 13	A problem with average of voltage for torque sensor VT1 and VT2	(see page 17-32)
DTC: 14	Open or short to body ground in the torque sensor circuit	(see page 17-34)
DTC: 21	A problem with the voltage for IG1	(see page 17-35)
DTC: 22	Excessive change of the vehicle speed sensor signal	(see page 17-36)
	A problem with average for vehicle speed and engine speed	(see page 17-36)
DTC: 23	A problem with the circuit for engine speed signal	(see page 17-37)
DTC: 30	A problem with the sub-microcomputer	(see page 17-38)
DTC: 31	A problem with the initial current sensor offset	(see page 17-38)
DTC: 32	A problem with the main current sensor offset	(see page 17-38)
DTC: 33	A problem with the current sensor	(see page 17-38)
DTC: 34	A problem with the main microcomputer	(see page 17-39)
DTC: 35	A problem with the sub-microcomputer	(see page 17-39)
DTC: 36	A problem with the change of the motor voltage	(see page 17-39)
DTC: 37	A problem with the motor voltage	(see page 17-40)
DTC: 50 to 62	A problem with the CPU in the EPS control unit	(see page 17-42)



Symptom Troubleshooting Index

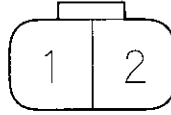
Symptom	Diagnostic procedure	Also check for
EPS indicator does not come on	EPS Indicator Circuit Troubleshooting (see page 17-42)	
EPS indicator does not go off and no DTC is stored	EPS Indicator Circuit Troubleshooting (see page 17-42)	
EPS indicator does not stay on, no DTC is stored, and there is no power assist	<ol style="list-style-type: none">1. Check the RED wire between the EPS control unit and the motor for a short to ground. Repair as needed.2. If the RED wire is OK, replace the steering gearbox (short in the motor).	

EPS Components

System Description

EPS Control Unit Inputs and Outputs for Connector A (2P)

EPS CONTROL UNIT CONNECTOR A (2P)

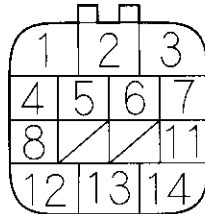


Wire side of female terminals.

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement		
				Terminals	Conditions (Ignition Switch ON (II))	Voltage
1	GRN	MOTOR - (Motor minus)	Drives the actuator motor	1-Ground	---	---
2	RED	MOTOR + (Motor plus)	Drives the actuator motor	2-Ground	---	---

EPS Control Unit Inputs and Outputs for Connector B (14P)

EPS CONTROL UNIT CONNECTOR B (14P)



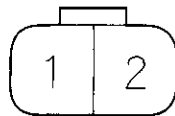
Wire side of female terminals.

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement		
				Terminals	Conditions (Ignition Switch ON (II))	Voltage
1	YEL	IG1 (Ignition 1)	Power source for activating the system	1-Ground	Ignition switch ON (II) Ignition switch OFF	Battery voltage 0 V
2	WHT/BLK	VSP (Vehicle speed pulse)	Detects vehicle speed signal from the speedometer	2-Ground	Turn the rear wheel	About 5 V - 0 V
3	PNK	VS1 (Voltage sensor 1)	Detects torque sensor signal	---	---	---
4	BLK	GND2 (Ground 2)	Ground for the EPS control unit	---	---	---
5	BLU	NEP (Engine pulse)	Detects tachometer signal	5-Ground	Start the engine	About 3 V - 6 V
6	BLK	GND1 (Ground 1)	Ground for the EPS control unit	---	---	---
7	BLU/RED	PVF (Voltage fade)	Drives the torque sensor	---	---	---
8	BRN	SCS (Service check signal)	Detects service check connector signal	---	---	---
11	WHT/GRN	VS2 (Voltage sensor 2)	Detects torque sensor signal	---	---	---
12	YEL/BLU	WLP (Warning)	Drives the EPS indicator light	12-Ground	Start the engine Ignition switch OFF	Battery voltage 0 V
13	BLU/BLK	PS-SIG (Power steering signal)	Provides idle speed-up signal to the ECM	13-Ground	Start the engine and turn the steering wheel to full lock	Battery voltage for 1 second
14	LT BLU	DLC (Data link connector)	Communicates with Honda PGM-Tester	---	---	---



EPS Control Unit Inputs and Outputs for Connector C (2P)

EPS CONTROL UNIT CONNECTOR C (2P)

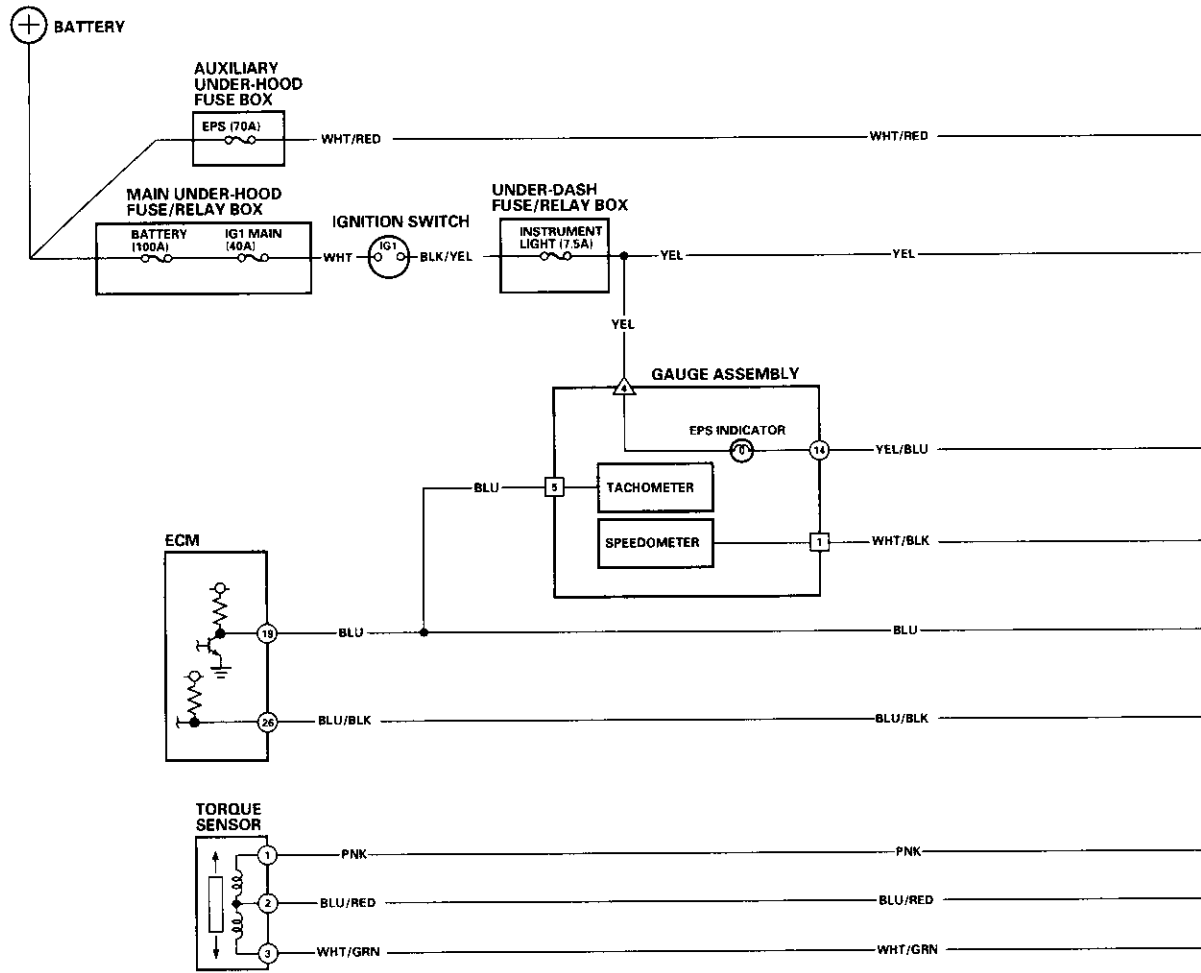


Wire side of female terminats.

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement		
				Terminals	Conditions (Ignition Switch ON (II))	Voltage
1	BLK	PG (Power ground)	Ground for the actuator motor	1-Ground		
2	WHT/RED	+ B (Plus battery)	Power source for the actuator motor	2-Ground	At all times	Battery voltage

EPS Components

Circuit Diagram



TORQUE SENSOR 3P CONNECTOR



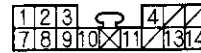
Terminal side of female terminals

ECM CONNECTOR A (32P)



Wire side of female terminals

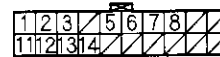
GAUGE ASSEMBLY CONNECTOR A (14P)
(○: connector)



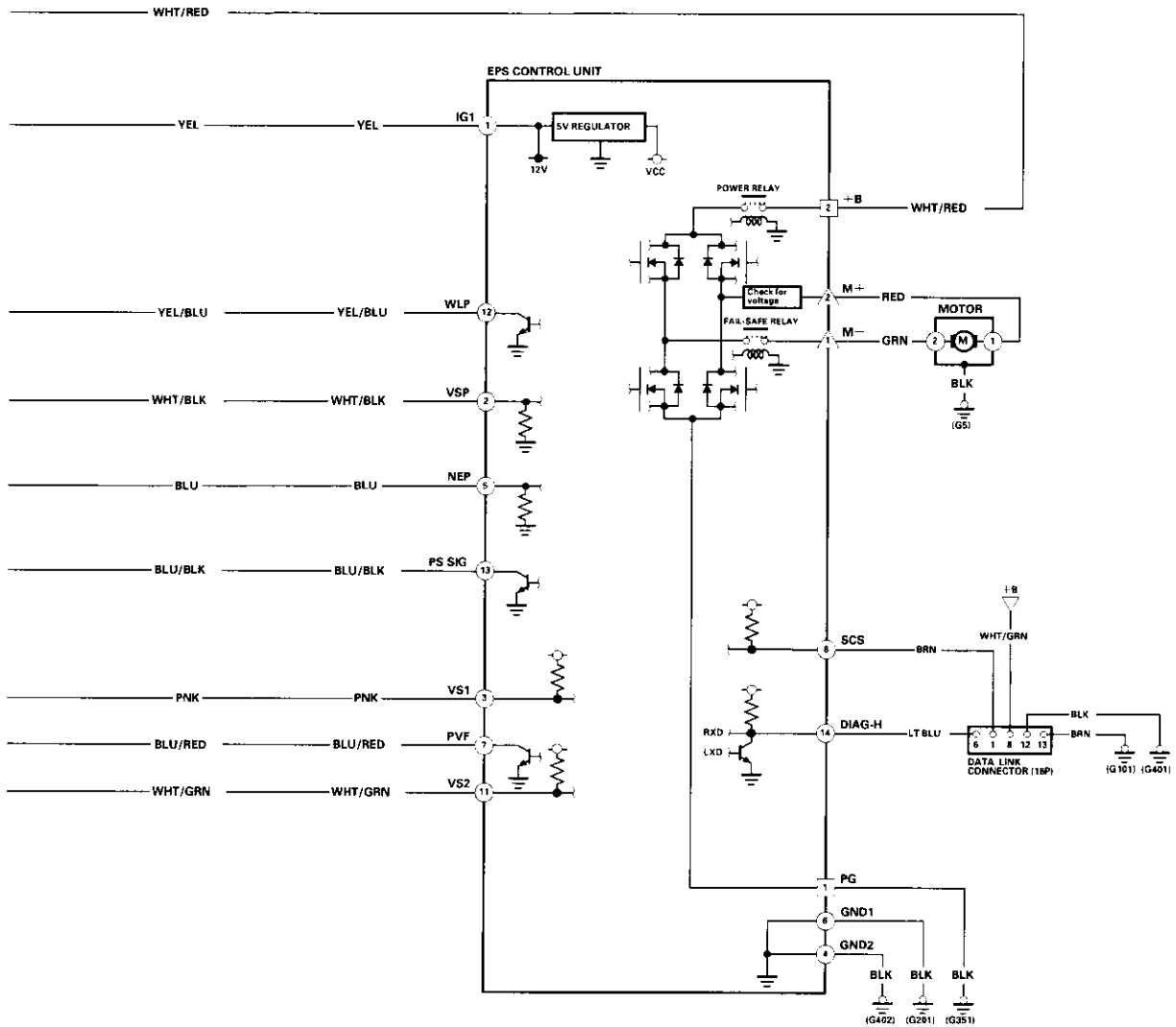
GAUGE ASSEMBLY CONNECTOR B (12P)
(△: connector)



GAUGE ASSEMBLY CONNECTOR C (20P)
(□: connector)



Wire side of female terminals



MOTOR CONNECTOR (2P)



Terminal side of female terminals

EPS CONTROL UNIT CONNECTOR C (2P)
(□: connector)



Terminal side of female terminals

EPS CONTROL UNIT CONNECTOR A (2P)
(△: connector)



Wire side of female terminals

EPS CONTROL UNIT CONNECTOR B (14P)
(□: connector)



Terminal side of female terminals

DATA LINK CONNECTOR (16P)



Wire side of female terminals

EPS Components

DTC Troubleshooting

DTC 1: Power Relay Stuck ON

DTC 2: Fail-safe Relay Stuck ON

1. Clear the DTC.
2. Start the engine.
3. Wait at least 10 seconds.

Does the EPS indicator come on and DTC 1 or DTC 2 indicated?

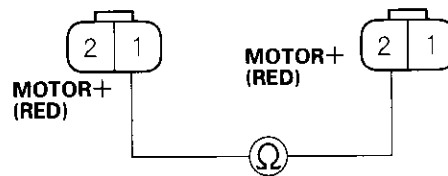
YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – The system is OK at this time. ■

DTC 3: Lower FET Stuck ON

1. Disconnect EPS control unit connector A (2P) and the motor 2P connector.
2. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and motor 2P connector terminal No. 1.

MOTOR 2P CONNECTOR **EPS CONTROL UNIT CONNECTOR A (2P)**



Terminal side of female terminals

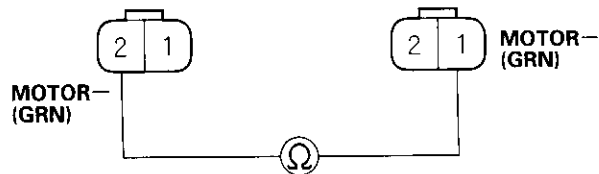
Is there continuity?

YES – Go to step 3.

NO – Repair open in the wire between EPS control unit and the motor. ■

3. Check for continuity between the EPS control unit connector A (2P) terminal No. 1 and motor 2P connector terminal No. 2.

MOTOR 2P CONNECTOR **EPS CONTROL UNIT CONNECTOR A (2P)**



Terminal side of female terminals

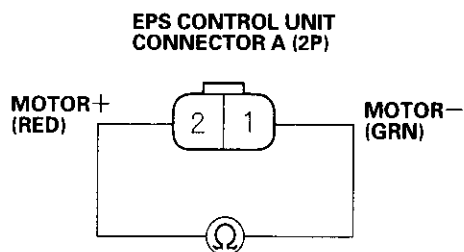
Is there continuity?

YES – Go to step 4.

NO – Repair open in the wire between the EPS control unit and the motor. ■



4. Check for continuity between EPS control unit connector A (2P) terminals No. 2 and No. 1.



Terminal side of female terminals

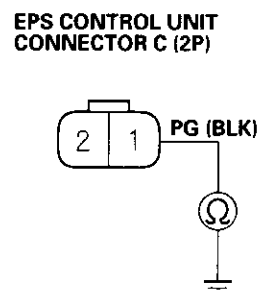
Is there continuity?

YES – Repair short between the RED and GRN wires for the EPS motor circuit. ■

NO – Replace the steering gearbox. (Short circuit to body ground inside the gearbox). ■

DTC 4: Upper FET Stuck ON

1. Disconnect EPS control unit connector C (2P).
2. Check for continuity between EPS control unit connector C (2P) terminal No. 1 and body ground.



Terminal side of female terminals

Is there continuity?

YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Repair open in the wire between the EPS control unit and the body ground (G351). ■

EPS Components

DTC Troubleshooting (cont'd)

DTC 5: Open In The Motor Wire Harness

1. Clear the DTC.
2. Start the engine.
3. Turn the steering wheel to right or left, and wait 10 seconds or more.

Does the EPS indicator come on?

YES – Go to step 4.

NO – Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Stop the engine, and verify the DTC.

Is DTC 5 indicated?

YES – Go to step 5.

NO – Perform the appropriate troubleshooting for the code indicated. ■

5. Check the EPS (70 A) fuse in the auxiliary underhood fuse box, and reinstall the fuse if it is OK.

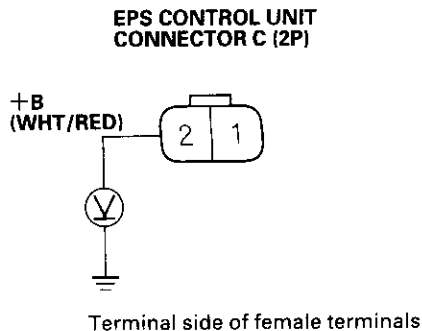
Is the fuse OK?

YES – Go to step 6.

NO – Replace the fuse and recheck. ■

6. Make sure the ignition switch is OFF, then disconnect EPS control unit connector C (2P).

7. Measure the voltage between terminal No. 2 and body ground.

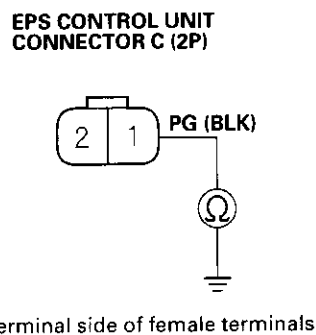


Is there battery voltage?

YES – Go to step 8.

NO – Repair open in the wire between the EPS (70 A) fuse and the EPS control unit. ■

8. Check for continuity between EPS control unit connector C (2P) terminal No. 1 and body ground.



Is there continuity?

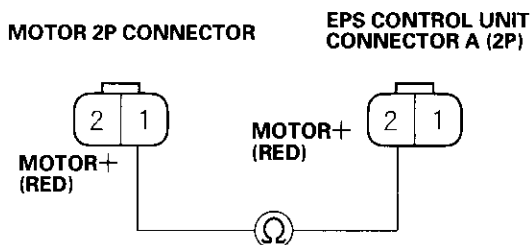
YES – Go to step 9.

NO – Repair open in the wire between the EPS control unit and body ground (G351). ■

9. Disconnect EPS control unit connector A (2P) and the motor 2P connector.



10. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and motor 2P connector terminal No. 1.



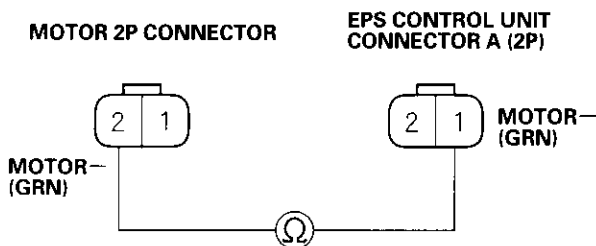
Terminal side of female terminals

Is there continuity?

YES – Go to step 11.

NO – Repair open in the wire between EPS control unit and the motor. ■

11. Check for continuity between the EPS control unit connector A (2P) terminal No. 1 and motor 2P connector terminal No. 2.



Terminal side of female terminals

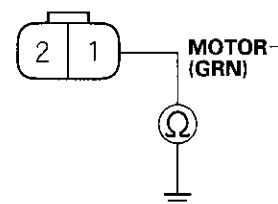
Is there continuity?

YES – Go to step 12.

NO – Repair open in the wire between the EPS control unit and the motor. ■

12. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR A (2P)



Terminal side of female terminals

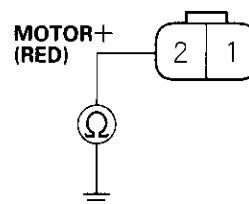
Is there continuity?

YES – Repair short to body ground in the wire between the EPS control unit and the motor. ■

NO – Go to step 13.

13. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and body ground.

EPS CONTROL UNIT CONNECTOR A (2P)



Terminal side of female terminals

Is there continuity?

YES – Repair short to body ground in the wire between the EPS control unit and the motor. ■

NO – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

EPS Components

DTC Troubleshooting (cont'd)

DTC 11, 13: Torque Sensor

1. Clear the DTC.

2. Start the engine.

Does the EPS indicator come on?

YES – Go to step 3.

NO – Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

3. Stop the engine, and verify the DTC.

Is DTC 11 or 13 indicated?

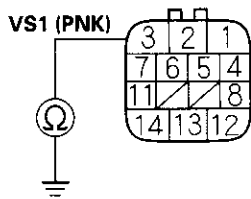
YES – Go to step 4.

NO – Perform the appropriate troubleshooting for the code indicated. ■

4. Make sure the ignition switch is OFF, then disconnect EPS control unit connector B (14P).

5. Check for continuity between terminal No. 3 and body ground.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

Is there continuity?

YES – Go to step 6.

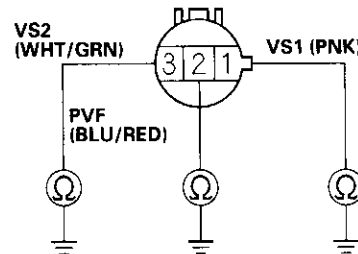
NO – Go to step 9.

6. Disconnect the torque sensor 3P connector.

7. Check for continuity between the appropriate torque sensor 3P connector terminal and body ground (see table).

Terminal name	Torque Sensor terminal No.
VS1	1
PVF	2
VS2	3

TORQUE SENSOR 3P CONNECTOR



Terminal side of female terminals

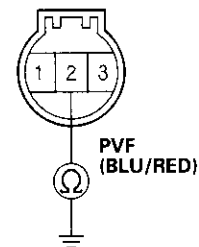
Is there continuity?

YES – Repair short to body ground in the appropriate sensor circuit between the torque sensor and the EPS control unit. ■

NO – Go to step 8.

8. On the sensor side, check for continuity between the torque sensor 3P connector terminal No. 2 and body ground.

TORQUE SENSOR 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

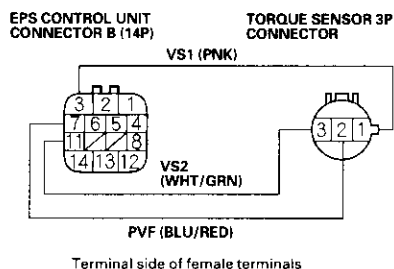
YES – The EPS system is OK at this time. Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Replace the torque sensor. ■



9. Check for continuity between the appropriate EPS control unit connector B (14P) and torque sensor 3P connector terminals (see table).

Terminal name	Torque Sensor terminal No.	EPS control unit terminal No.
VS1	1	3
PVF	2	7
VS2	3	11

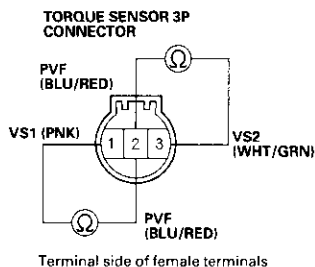


Is there continuity?

YES – Go to step 10.

NO – Repair open in the appropriate torque sensor circuit between the EPS control unit and the torque sensor. ■

10. On the sensor side, check for resistance between torque sensor 3P connector terminals No. 1 and No. 2, and between terminals No. 2 and No. 3.



Is the resistance between 12 – 14 Ω (at 20°, 68°F)?

YES – The EPS system is OK at this time. Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Replace the torque sensor. ■

DTC 12: Torque Sensor PVF

1. Clear the DTC.
2. Start the engine.
3. Wait at least 10 seconds.

Does the EPS indicator come on?

YES – Go to step 4.

NO – Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Verify the DTC.

Is DTC 12 indicated?

YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Perform the appropriate troubleshooting for the code indicated. ■

EPS Components

DTC Troubleshooting (cont'd)

DTC 14: Torque Sensor (Resistance)

1. Clear the DTC.
2. Start the engine.
3. Turn the steering wheel fully to the left, and hold it in that position for 10 seconds or more.

Does the EPS indicator come on?

YES—Go to step 4.

NO—Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Stop the engine, and verify the DTC.

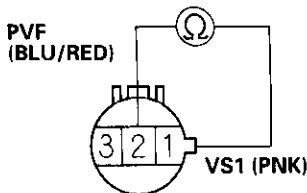
Is DTC 14 indicated?

YES—Go to step 5.

NO—Perform the appropriate troubleshooting for the code indicated. ■

5. Make sure the ignition switch is OFF, then disconnect the torque sensor 3P connector and EPS control unit connector B (14P).
6. Check for continuity between torque sensor 3P connector terminals No. 1 and No. 2.

TORQUE SENSOR 3P CONNECTOR



Terminal side of female terminals

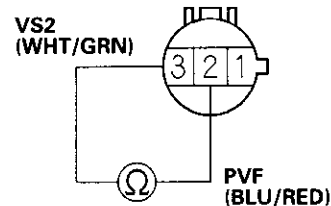
Is there continuity?

YES—Repair short between the BLU/RED and PNK wires in the torque sensor circuit between the torque sensor and the EPS control unit. ■

NO—Go to step 7.

7. Check for continuity between torque sensor 3P connector terminals No. 2 and No. 3.

TORQUE SENSOR 3P CONNECTOR



Terminal side of female terminals

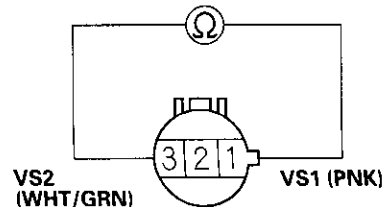
Is there continuity?

YES—Repair short between the WHT/GRN and BLU/RED wires in the torque sensor circuit between the torque sensor and the EPS control unit. ■

NO—Go to step 8.

8. Check for continuity between torque sensor 3P connector terminals No. 1 and No. 3.

TORQUE SENSOR 3P CONNECTOR



Terminal side of female terminals

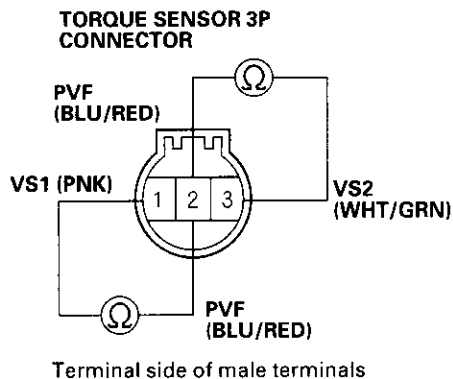
Is there continuity?

YES—Repair short between the WHT/GRN and PNK wires in the torque sensor circuit between the torque sensor and the EPS control unit. ■

NO—Go to step 9.



9. On the sensor side, check for resistance between the torque sensor 3P connector terminals No. 1 and No. 2, and between terminal No. 2 and No. 3.



Is the resistance between 12–13 Ω (at 20°, 68°F)?

YES – The EPS system is OK at this time. Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Replace the torque sensor. ■

DTC 21: Voltage For IG1

1. Check the INSTRUMENT LIGHT (7.5 A) fuse in the under-dash fuse/relay box, and reinstall the fuse if it is OK.

NOTE: All indicators except the charging system indicator will not come on when the INSTRUMENT LIGHT (7.5 A) fuse is blown.

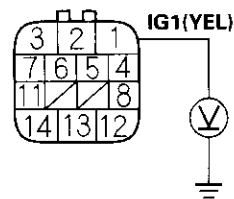
Is the fuse OK?

YES – Go to step 2.

NO – Replace the fuse and recheck. ■

2. Disconnect EPS control unit connector B (14P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

Is there battery voltage?

YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Check for an open in the wire between the under-dash fuse/relay box and the EPS control unit, and repair it if necessary. If the wire is OK, check for an open circuit inside the under-dash fuse/relay box. ■

EPS Components

DTC Troubleshooting (cont'd)

DTC 22: Vehicle Speed Signal

NOTE:

- If the MIL indicator is ON, troubleshoot the PGM-FI system first.
- When the engine is running at 2,000 rpm or above and the vehicle speed is 0.62 mph (1 km/h) or below for 3 minutes, the EPS indicator comes on.

1. Test-drive the vehicle.

Is the vehicle speedometer working correctly?

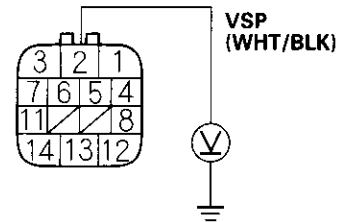
YES—Go to step 2.

NO—Perform the speedometer system troubleshooting (see page 22-53). ■

2. Turn the ignition switch OFF.
3. Block the front wheels and release the parking brake.
4. Raise the vehicle, and make sure it is securely supported.
5. Disconnect EPS control unit connector B (14P).

6. Block the right rear wheel, and slowly rotate the left rear wheel and measure the voltage between EPS control unit connector B (14P) terminal No. 2 and body ground.

**EPS CONTROL UNIT
CONNECTOR B (14P)**



Terminal side of female terminals

Does the voltage pulse 0 V and 5 V ?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO—Repair open or short to body ground in the wire between the EPS control unit and body ground, or faulty the speedometer. ■



DTC 23: Engine Speed Signal

NOTE: If the MIL indicator is on, troubleshoot the PGM-FI problem first.

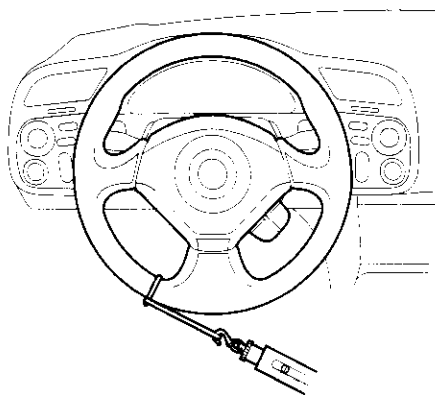
1. Start the engine and check the tachometer.

Is the tachometer working correctly?

YES— Go to step 2.

NO— Go to step 5.

2. Connect a commercially available spring scale to the steering wheel.
3. Pull on the scale to measure when the front wheels start to move. If the system is in good condition, the scale should read no more than 34 N (3.5 kgf, 7.7 lbf).



Is the measurement within the specification?

YES— The system is OK at this time. ■

NO— Go to step 4.

4. Test-drive the vehicle with the vehicle above 6.2 mph (10 km/h).

Does EPS provide power assist?

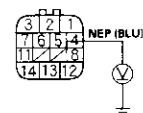
YES— Go to step 5.

NO— Perform the troubleshooting for DTC 22. ■

5. Turn the ignition switch OFF.
6. Disconnect EPS control unit connector B (14P).
7. Start the engine.

8. Measure the voltage between the No. 5 terminal and body ground.

EPS CONTROL UNIT
CONNECTOR B (14P)



Terminal side of female terminals

Is there about 3 to 6 volts?

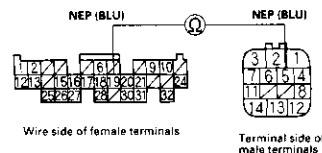
YES— Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO— Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect ECM connector A (32P).
11. Check for continuity between ECM connector terminal A19 and EPS control unit (14P) connector terminal No. 5.

ECM CONNECTOR (32P)

EPS CONTROL UNIT
CONNECTOR B (14P)



Wire side of female terminals

Terminal side of male terminals

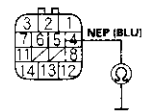
Is there continuity?

YES— Go to step 12.

NO— Repair the open in the wire between the EPS control unit and the ECM. ■

12. Disconnect gauge assembly connector C (20P).
13. Check for continuity between EPS control unit connector terminal No. 5 and body ground.

EPS CONTROL UNIT
CONNECTOR B (14P)



Terminal side of female terminals

Is there continuity?

YES— Repair the short in the wire between the EPS control unit and the ECM. ■

NO— Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

EPS Components

DTC Troubleshooting (cont'd)

DTC 30: Sub-Microcomputer

1. Clear the DTC.
2. Start the engine.
3. Wait at least 10 seconds.

Does the EPS indicator come on?

YES— Go to step 4.

NO— Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Verify the DTC.

Is DTC 30 indicated?

YES— Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO— Perform the appropriate troubleshooting for the code indicated. ■

DTC 31, 32, 33: Motor Current Sensor

1. Clear the DTC.
2. Start the engine.
3. Wait at least 10 seconds.

Does the EPS indicator come on?

YES— Go to step 4.

NO— Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Verify the DTC.

Is DTC 31, 32, or 33 indicated?

YES— Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO— Perform the appropriate troubleshooting for the code indicated. ■



DTC 34, 35: EPS Control Unit Internal Circuit

1. Clear the DTC.
2. Start the engine.
3. Wait at least 10 seconds.

Does the EPS indicator come on?

YES – Go to step 4.

NO – Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Verify the DTC.

Is DTC 34 or 35 indicated?

YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Perform the appropriate troubleshooting for the code indicated. ■

DTC 36: Charge of the Motor Voltage

1. Clear the DTC.
2. Start the engine.
3. Turn the steering wheel to right or left, and wait 10 seconds or more.

Does the EPS indicator come on?

YES – Go to step 4.

NO – Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Stop the engine, and verify the DTC.

Is DTC 36 indicated?

YES – Go to step 5.

NO – Perform the appropriate troubleshooting for the code indicated. ■

5. Check the EPS (70 A) fuse in the auxiliary under-hood fuse box, and reinstall the fuse if it is OK.

Is the fuse OK?

YES – Go to step 6.

NO – Replace the fuse recheck. ■

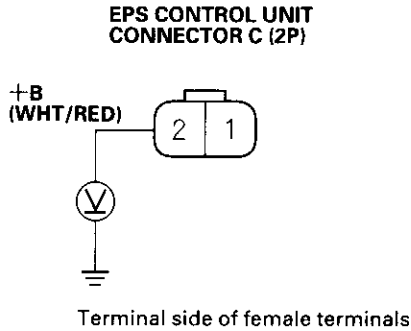
6. Disconnect EPS control unit connector C (2P).

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

7. Measure the voltage between terminal No. 2 and body ground.



Is there battery voltage?

YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Repair open in the wire between the EPS (70 A) fuse and the EPS control unit. ■

DTC 37: Motor Voltage

1. Check the EPS (70 A) fuse in the auxiliary underhood fuse box, and reinstall the fuse if it is OK.

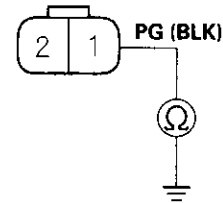
Is the fuse OK?

YES – Go to step 2.

NO – Replace the fuse and recheck. ■

2. Check for continuity between EPS control unit connector C (2P) terminal No. 1 and body ground.

**EPS CONTROL UNIT
CONNECTOR C (2P)**



Is there continuity?

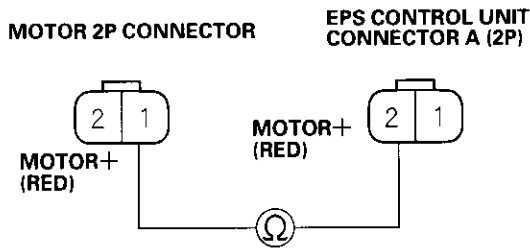
YES – Go to step 3.

NO – Repair open in the wire between the EPS control unit and body ground (G351). ■

3. Disconnect EPS control unit connector A (2P) and the motor 2P connector.



4. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and motor 2P connector terminal No. 1.



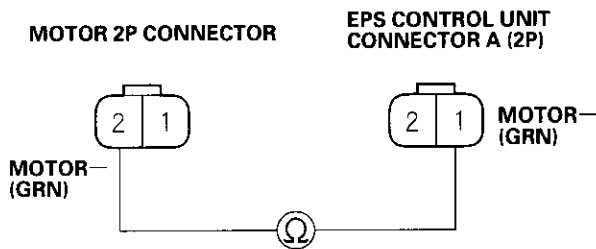
Terminal side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Repair open in the RED wire between the EPS control unit and the motor. ■

5. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and motor 2P connector terminal No. 2.



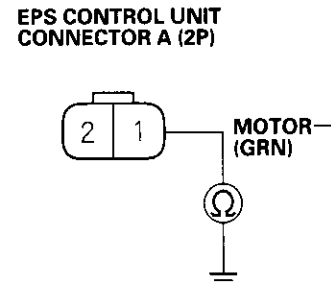
Terminal side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Repair open in the GRN wire between the EPS control unit and the motor. ■

6. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and body ground.



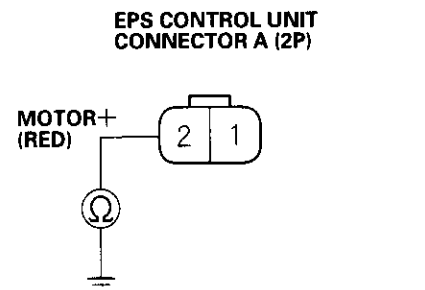
Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the GRN wire between the EPS control unit and the motor. ■

NO—Go to step 7.

7. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the RED wire between the EPS control unit and the motor. ■

NO—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

EPS Components

DTC Troubleshooting (cont'd)

DTC 50 to 62: Central Processing Unit (CPU)

1. Clear the DTC.
2. Start the engine.
3. Wait at least 10 seconds.

Does the EPS indicator come on?

YES— Go to step 4.

NO— Check for loose wires or poor connections. If the connections are good, the system is OK at this time. ■

4. Verify the DTC.

Is DTC 50 to 62 indicated?

YES— Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO— Perform the appropriate troubleshooting for the code indicated. ■

EPS Indicator Circuit Troubleshooting

1. Turn the ignition switch ON (II), start the engine, and watch the EPS indicator.

Does the EPS indicator come on?

YES— If the EPS indicator comes on and goes off, it's OK. If the EPS indicator stays on or blinks, go to step 13.

NO— Go to step 2.

2. Turn the ignition switch OFF, then ON (II) again, and watch the brake system indicator.

Does the brake system indicator come on?

YES— Go to step 3.

NO— Repair open in the indicator power source circuit. ■

- Blown INSTRUMENT LIGHT (7.5 A) fuse.
- Open in the wire between the INSTRUMENT LIGHT (7.5 A) fuse and gauge assembly.
- Open circuit inside the under-dash fuse/relay box.

3. Turn the ignition switch OFF.
4. Check the EPS indicator bulb in the gauge assembly.

Is the bulb OK?

YES— Go to step 5.

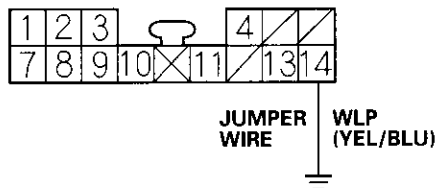
NO— Replace the EPS indicator bulb. ■

5. Turn the ignition switch ON (II).



6. Connect gauge assembly connector A (14P) terminal No. 14 to body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR A (14P)



Wire side of female terminals

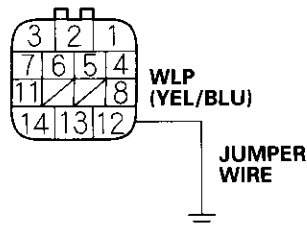
Does the EPS indicator come on?

YES – Go to step 7.

NO – Replace the bulb circuit board in the gauge assembly. ■

7. Turn the ignition switch OFF.
 8. Disconnect EPS control unit connector B (14P).
 9. Turn the ignition switch ON (II).
 10. Connect EPS control unit connector B (14P) terminal No. 12 and body ground with a jumper wire.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

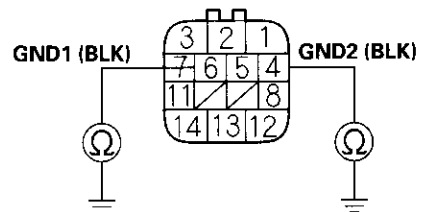
Does the EPS indicator come on?

YES – Go to step 11.

NO – Repair open in the wire between the gauge assembly and the EPS control unit. ■

11. Check for continuity between body ground and EPS control unit connector B (14P) terminals No. 4 and No. 6 individually.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

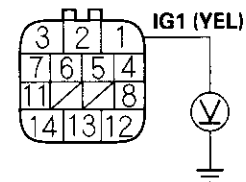
Is there continuity?

YES – Go to step 12.

NO – Repair open in the wires between the EPS control unit and body ground (G201 and G402). ■

12. Measure the voltage between EPS control unit connector B (14P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

Is there battery voltage?

YES – Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO – Repair open in the wire between the INSTRUMENT LIGHT (7.5 A) fuse and the EPS control unit. ■

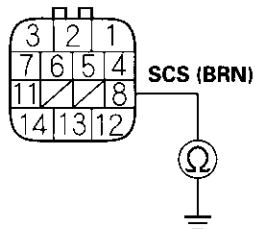
(cont'd)

EPS Components

EPS Indicator Circuit Troubleshooting (cont'd)

13. Turn the ignition switch OFF.
14. Disconnect EPS control unit connector B (14P).
15. Disconnect the connectors from the following units.
 - ECM (32P)
 - ABS control unit
 - SRS control unit
16. Check for continuity between EPS control unit connector B (14P) terminal No. 8 and body ground.

EPS CONTROL UNIT
CONNECTOR B (14P)



Terminal side of female terminals

Is there continuity?

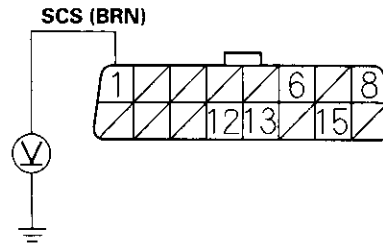
YES – Repair short to body ground in the SCS circuit. ■

NO – Go to step 17.

17. Turn the ignition switch OFF, then remove the Honda PGM Tester.
18. Connect EPS control unit connector B (14P).
19. Turn the ignition switch ON (II).

20. Measure the voltage between data link connector (16P) terminal No. 1 and body ground.

DATA LINK CONNECTOR (16P)



Wire side of female terminals

Is there about 6 V?

YES – Go to step 21.

NO – Repair open in the wire between the data link connector (16P) and the EPS control unit. ■

21. Turn the ignition switch OFF.
22. Connect all disconnected connectors.
23. Disconnect EPS control unit connector B (14P).
24. Turn the ignition switch ON (II), and start the engine.

Does the EPS indicator go off?

YES – Go to step 25.

NO – Repair short to body ground in the wire between the EPS indicator and the EPS control unit. ■

25. Inspect the bulb circuit board in the gauge assembly (see page 22-47).

Is it normal?

YES – Check for loose EPS control unit connectors. If necessary substitute a known-good EPS control unit and recheck. ■

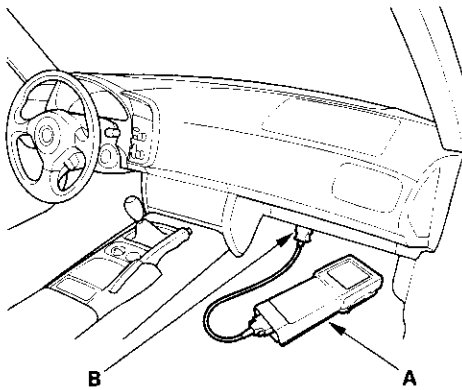
NO – Replace the bulb circuit board in the gauge assembly. ■



Memorizing the Torque Sensor Neutral Position

The torque sensor neutral position must be memorized whenever the gearbox is removed or installed, or when the torque sensor or EPS control unit is replaced. Note that the torque sensor neutral position is not affected when erasing the DTC.

1. With the ignition switch OFF, connect the Honda PGM tester (A) to the 16P Data Link Connector (DLC) (B) located under the dash on the passenger's side of the vehicle.



2. With the vehicle on the ground, set the front wheels in the straight ahead driving position.
3. Short the SCS circuit to body ground using the Honda PGM Tester.
4. Turn the steering wheel 45 degrees to the left from the straight ahead driving position, and hold the steering wheel in that position.
5. Turn the ignition switch ON (II). The EPS indicator comes on, then it goes off after 4 seconds.
6. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position and release the steering wheel. The EPS indicator comes on again 4 seconds after releasing the steering wheel.

7. Within 4 seconds after the EPS indicator comes on, turn the steering wheel 45 degrees to the left again and hold it in that position.

The EPS indicator goes off after 4 seconds.

8. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position and release the steering wheel. Do not move the steering wheel before turning the ignition switch OFF.

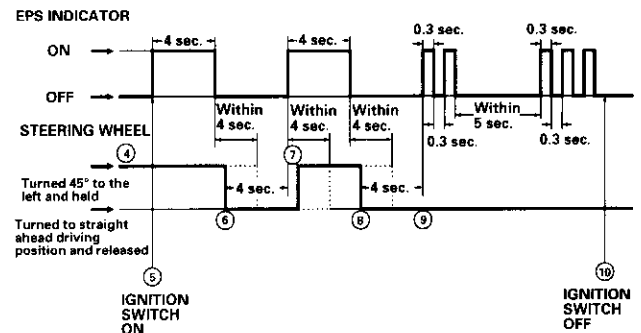
NOTE: If the steering wheel is moved, the torque sensor neutral position cannot be written to memory.

9. The EPS indicator blinks twice 4 seconds after releasing the steering wheel, then it blinks three times 5 seconds after. Then, the indicator goes off. The torque sensor neutral position is memorized.

NOTE: If the EPS indicator stays on, there was an error in writing the torque sensor neutral position to memory. Repeat the procedure starting from step 3.

10. Turn the ignition switch OFF.

11. Disconnect the Honda PGM Tester from the DLC.



EPS Components

Steering Gearbox Removal and Installation

Special Tools Required

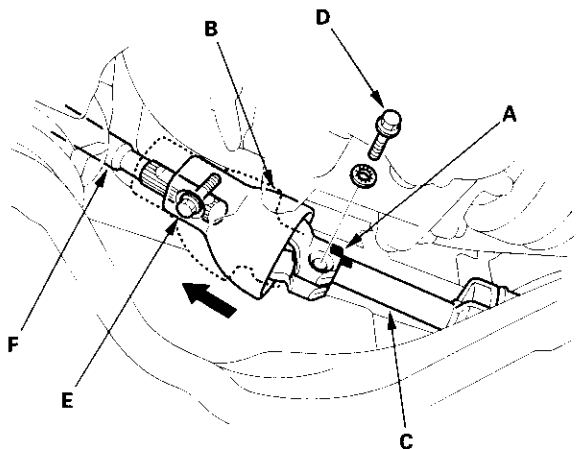
Ball joint remover, 28 mm 07MAC-SL00200

Removal

Note these items during removal:

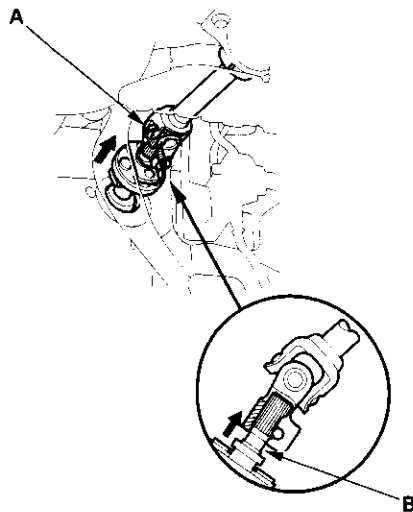
- Using solvent and a brush, wash any oil and dirt off the gearbox. Blow dry with compressed air.
- Be sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.

1. Make sure you have the anti-theft code for the radio, then write down the frequencies for the radio preset buttons. Disconnect the negative cable from the battery.
2. Raise the vehicle, and make sure it is securely supported.
3. Remove the front wheels.
4. Remove the driver's airbag (see page 23-65).
5. Remove the steering wheel (see page 17-6).
6. Place a mark (A) on the steering joint (B) and the pinion shaft (C) to identify the position of the joint on the pinion shaft.

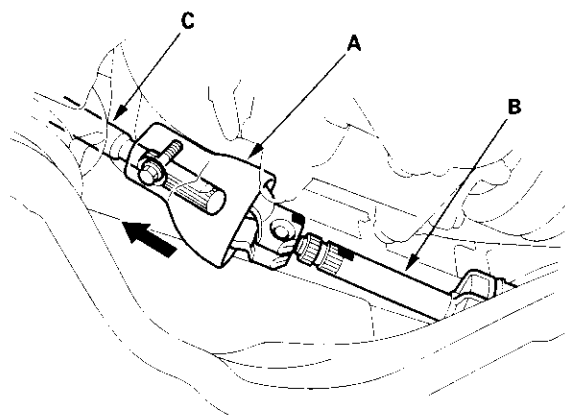


7. Remove the lower joint bolt (D) from the steering joint.
8. Loosen the upper joint bolt (E) on the steering joint, and pull the steering joint fully to the steering shaft (F) side.

9. From the under the dashboard; loosen the joint bolt (A) on the column, and pull the steering shaft (B) fully to the column side.

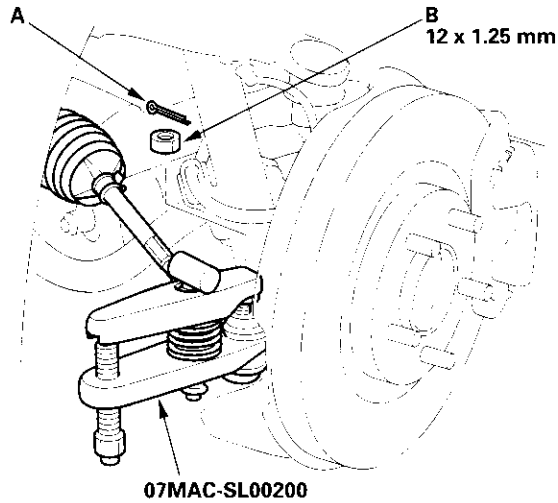


10. From the engine compartment; disconnect the steering joint (A) and pinion shaft (B) by moving the steering joint toward the steering shaft (C).

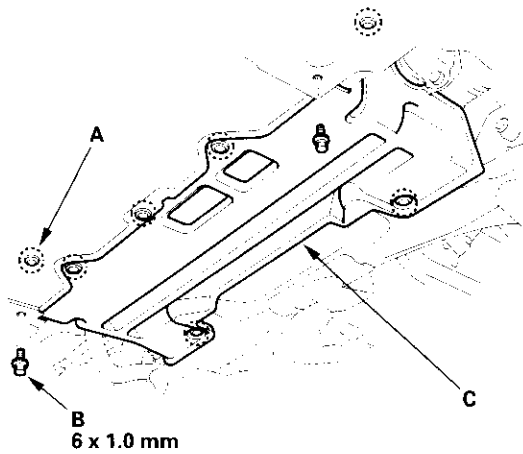




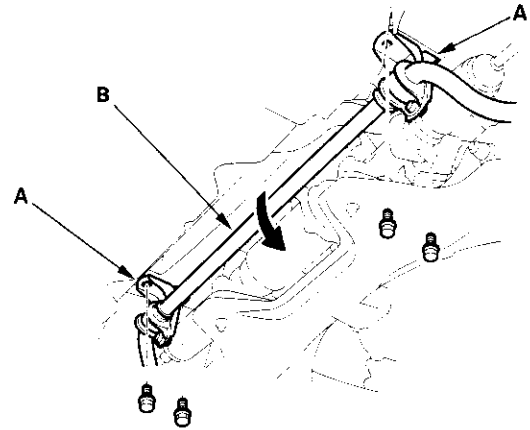
11. Remove and discard the cotter pin (A) from the 12 mm nut (B), then remove the nut.



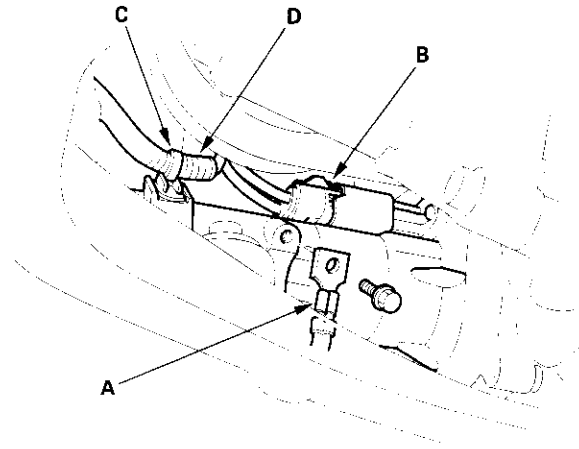
12. Separate the tie-rod ball joint and knuckle using the special tool (see page 18-10).
13. Remove the seven clips (A) and the two flange bolts (B), then remove the splash shield (C).



14. Remove the stabilizer bar holder brackets (A) from the frame, and lower the stabilizer bar (B).



15. Disconnect the ground cable (A) and motor 2P connector (B). Loosen the harness band (C), and release the wire harness (D) from the gearbox. After disconnecting the connector, put a piece of tape over the steering gearbox connector to protect it from dust, dirt, and foreign materials.

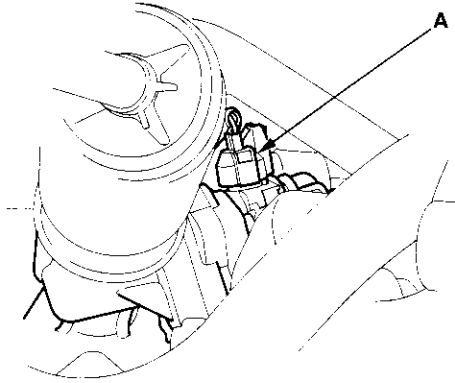


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EPS Components

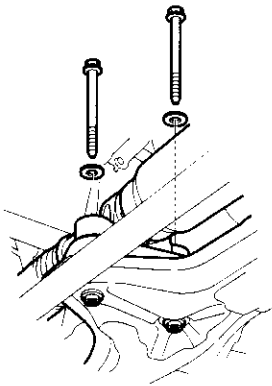
Steering Gearbox Removal and Installation (cont'd)

16. Disconnect the torque sensor 3P connector (A). After disconnecting the connector, put a piece of tape over the steering gearbox connector to protect it from dust, dirt, and foreign materials.

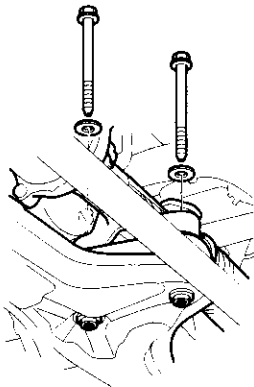


17. Remove the four gearbox mounting bolts.

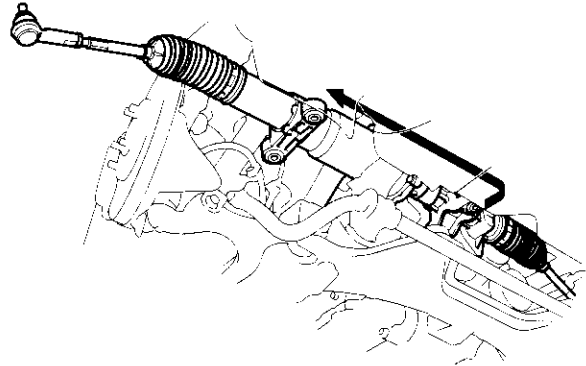
Right side:



Left side:



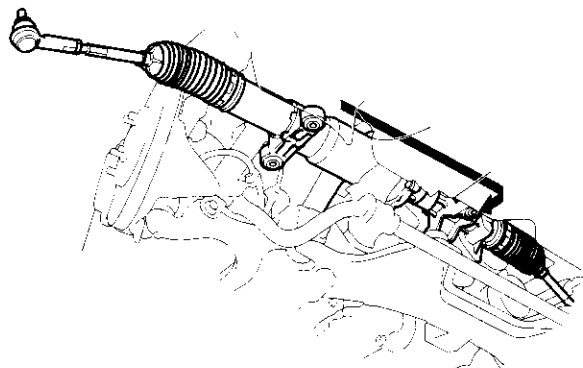
18. Pull the steering gearbox toward the front. Move the steering gearbox to the passenger's side and remove it.





Installation

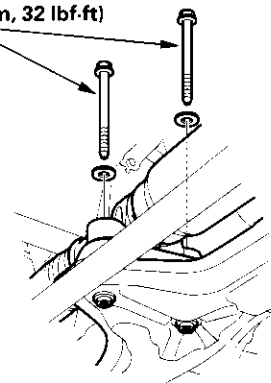
1. Before installing the gearbox, center the steering rack within its stroke.
2. Pass the driver's side of the steering gearbox through the left wheel housing. Place the steering gearbox on the front subframe, and move it into the original position.



3. Install the four gearbox mounting bolts.

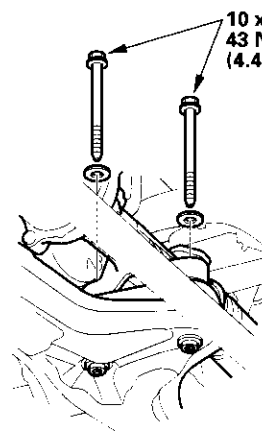
Right side:

10 x 1.25 mm
43 N·m
(4.4 kgf·m, 32 lbf·ft)



Left side:

10 x 1.25 mm
43 N·m
(4.4 kgf·m, 32 lbf·ft)

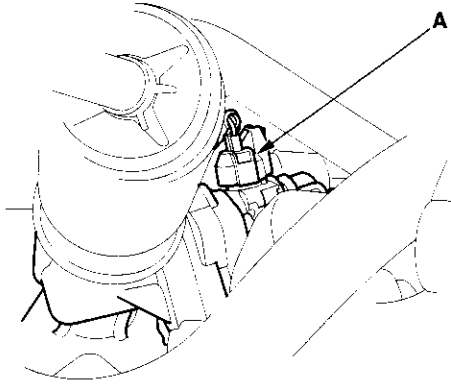


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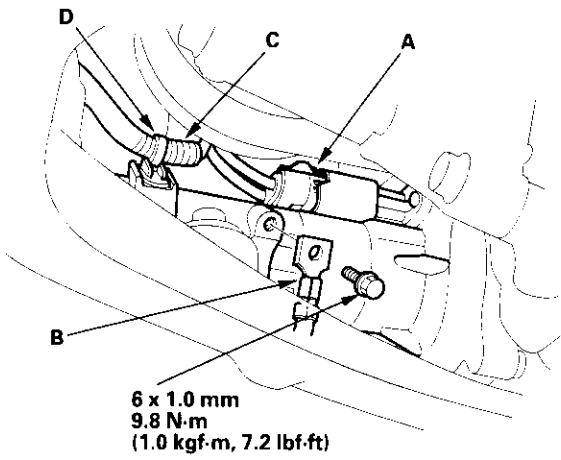
EPS Components

Steering Gearbox Removal and Installation (cont'd)

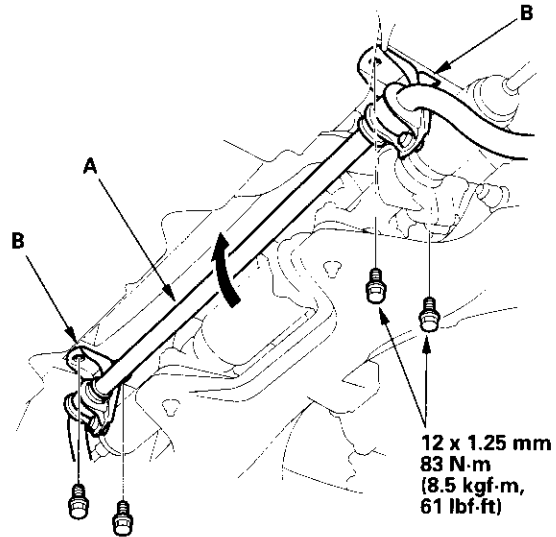
4. Connect the torque sensor 3P connector (A).



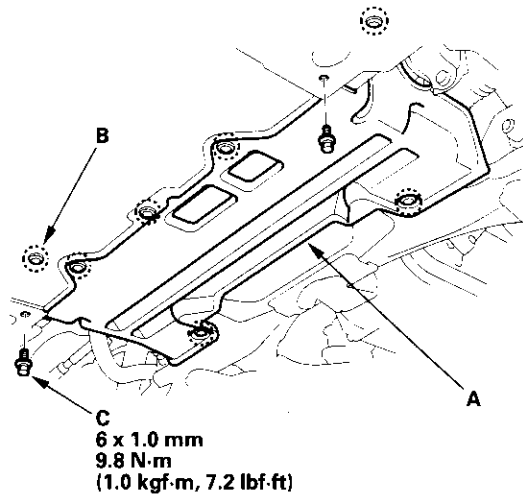
5. Connect the motor 2P connector (A) and ground cable (B). Secure the wire harness (C) with the harness band (D).



6. Raise the stabilizer bar (A) to the original position, and install the stabilizer bar holder bracket (B).

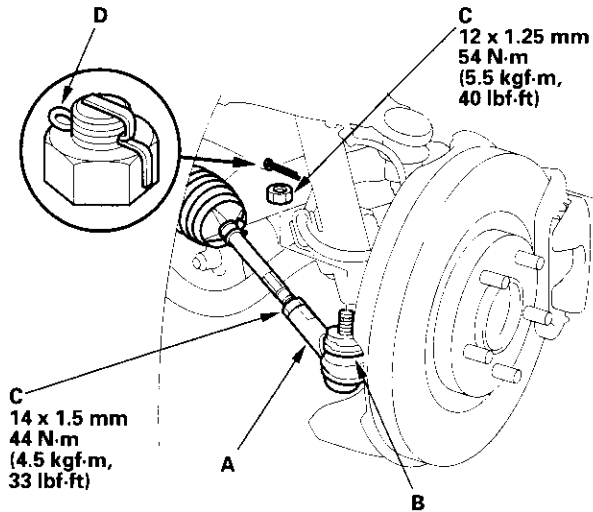


7. Install the splash shield (A) with the seven clips (B) and two flange bolts (C).



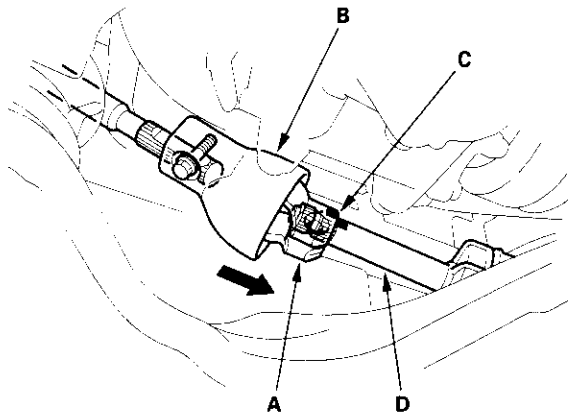


8. Wipe off any grease contamination from the ball joint tapered section and threads. Then reconnect the tie-rod ends (A) to the steering knuckles (B), and tighten the 12 mm nut (C) to the specified torque.

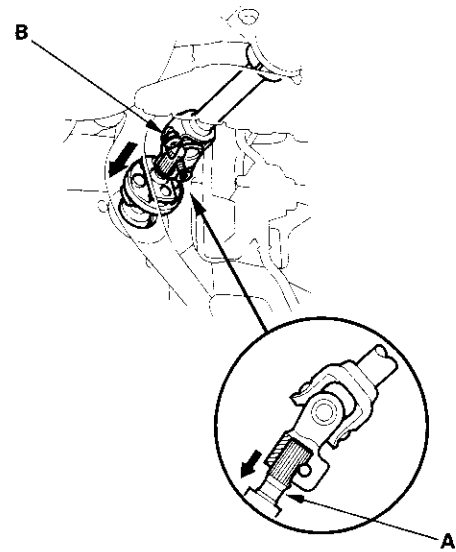


9. Install the new cotter pins (D), and bend them as shown.

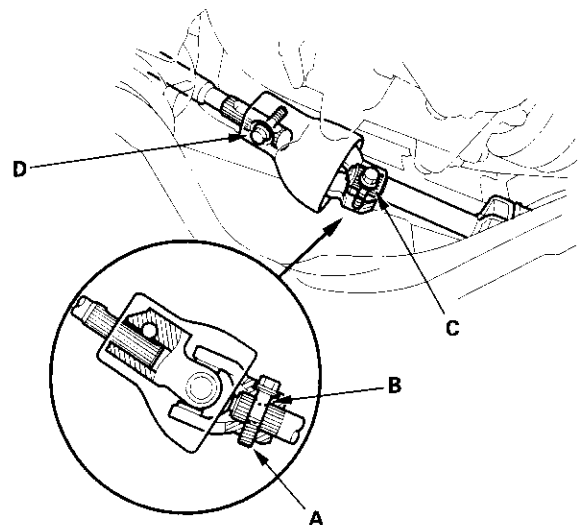
10. From the engine compartment, slip the lower end (A) of the steering joint (B) by aligning the marks (C) on the pinion shaft (D) and joint.



11. From the under the dashboard, push the steering shaft (A) fully to engine compartment side, but do not push excessively on the steering shaft. Then tighten the joint bolt (B) to the specified torque.



12. Line up the bolt hole (A) with the groove around (B) the pinion shaft, and install the lower joint bolt (C) and the upper joint bolt (D) to the specified torque.



US thru VIN JHMAP 114-YT008411
Canada thru VIN JHMAP 114-YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

US from VIN JHMAP 114-YT008412
Canada from VIN JHMAP 114-YT800751
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)

(cont'd)

EPS Components

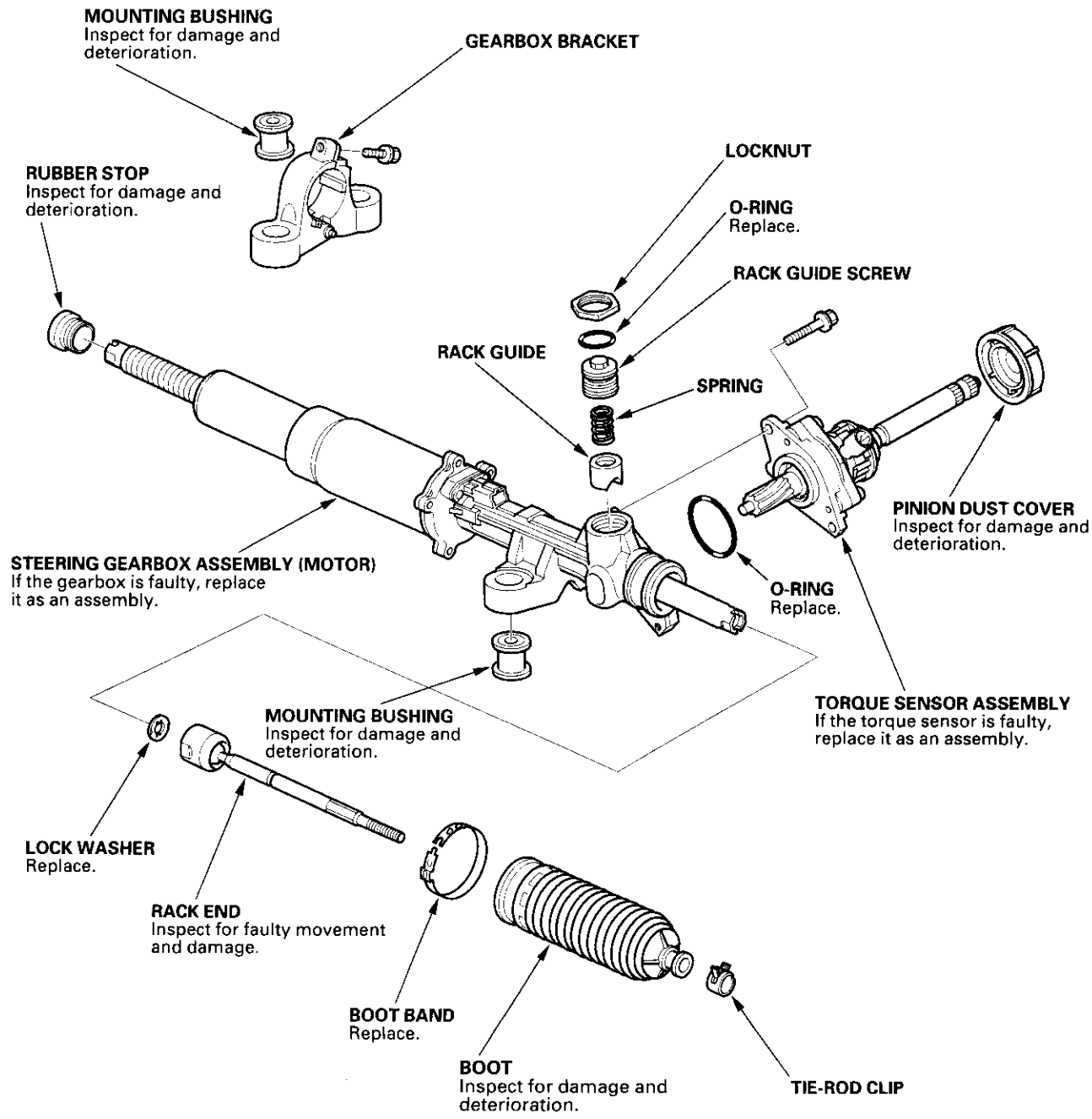
Steering Gearbox Removal and Installation (cont'd)

13. Install the steering wheel (see page 17-8).
14. Install the driver's airbag (see page 23-65).
15. Reconnect the negative cable to the battery.
16. Install the front wheels, and adjust the front wheel alignment (see page 18-5).
17. After installation, perform the following checks.
 - Make sure the steering gearbox wires are not caught or pinched by any parts.
 - Make sure the steering gearbox connectors are properly connected.
 - Turn the ignition switch ON (II), and check that the EPS indicator goes off.
 - If you replaced the steering gearbox assembly, let the EPS control unit memorize the torque sensor neutral position (see page 17-45).
 - Test-drive the vehicle;
 - Check that the EPS indicator light does not come on.
 - Check the steering wheel spoke angle. Recheck and adjust the front wheel alignment, if necessary.
 - Reset the radio presets.
 - For '01-03 models; set the clock.



Steering Gearbox Overhaul

Exploded View



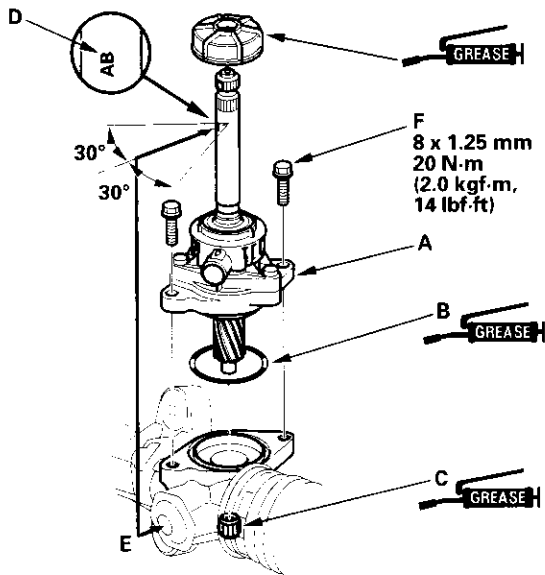
EPS Components

Torque Sensor Replacement

Note these items during replacement:

- Do not allow dust, dirt, or other foreign materials to enter the gearbox.
- Do not try to disassemble the torque sensor assembly. If the torque sensor is faulty, replace it as an assembly.
- If the torque sensor is replaced, the EPS control unit must memorize the torque sensor neutral position (see page 17-45).

1. Center the steering rack within its stroke.
2. Remove the torque sensor assembly (A).

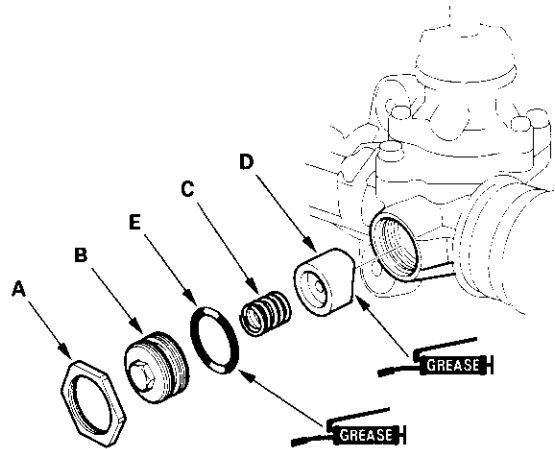


3. Coat the new O-ring (B) with multipurpose grease, and carefully fit it on the torque sensor housing.
4. Apply multipurpose grease to the needle bearing (C) in the gearbox housing.
5. Install the torque sensor assembly (A) on the gearbox housing by engaging the gear. The alphabet stamping (for example "AB") (D) on the pinion shaft aligns with the rack guide screw (E) when the rack is in the straight ahead driving position. When installing the torque sensor assembly, make sure the "alphabet" stamping ("AB") is within the range shown.
6. Tighten the 8 mm flange bolts (F).

Rack Guide Removal/Installation

NOTE: During removal/installation, do not allow dust, dirt, or other foreign materials to enter the gearbox.

1. Loosen the locknut (A), then remove the rack guide screw (B), spring (C), and rack guide (D).



2. Apply multipurpose grease to the sliding surface of the rack guide, and install it onto the gearbox housing.
3. Coat the new O-ring (E) with multipurpose grease, and carefully fit it on the rack guide screw groove.
4. Install the spring, rack guide screw, and locknut.
5. Adjust the rack guide screw (see page 17-14). After adjusting, check that the rack moves smoothly by sliding the rack right and left.



Rack End Removal and Installation

Special Tools Required

- Attachment, 32 x 35 mm 07746-0010100
- Driver, 07749-0010000

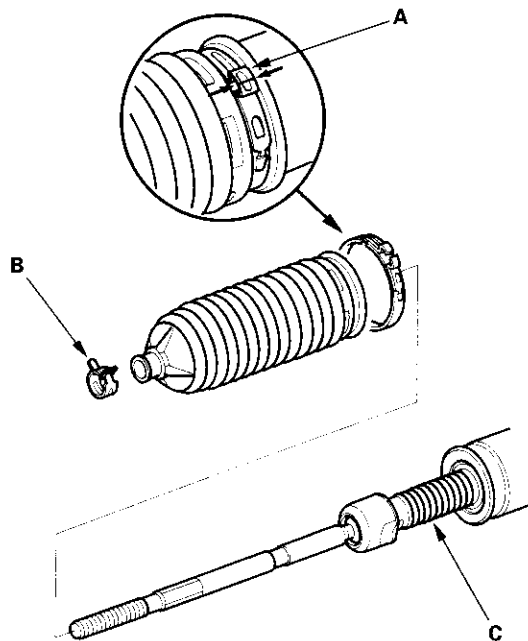
Removal

Note these items during removal/installation:

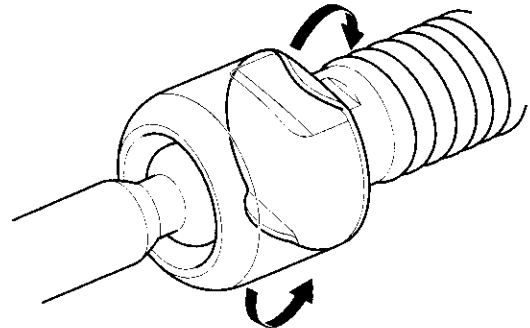
- Do not allow dust, dirt, or other foreign materials to enter the gearbox.
- Do not disassemble the steering gearbox assembly (motor). If the motor is faulty, replace it as an assembly.

1. Remove the boot bands (A) and discard them. Remove the tie-rod clips (B), and pull the boots away from the ends of the gearbox.

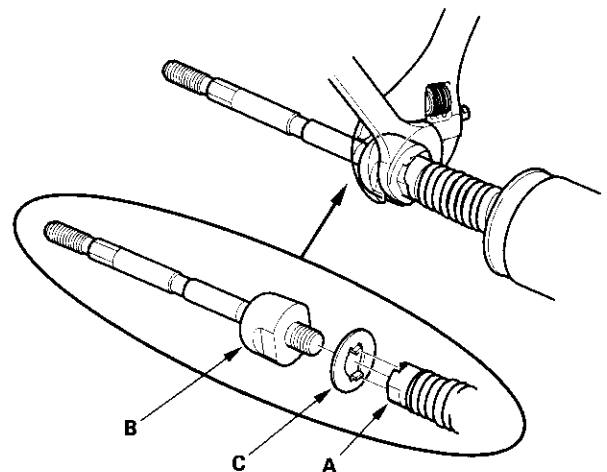
NOTE: After removing the boot, check for water, dirt, or other foreign matter on the ball screw surface (C) and interior of the boot. If contaminated, clean the ball screw, gearbox housing, and boot completely.



2. Unbend the lock washer.



3. Hold the flat surface sections (A) on the passenger's side steering rack shaft with one wrench, and unscrew both rack ends (B) with another wrench. Be careful not to damage the shaft surface with the wrench. Remove the lock washer (C) and discard it.

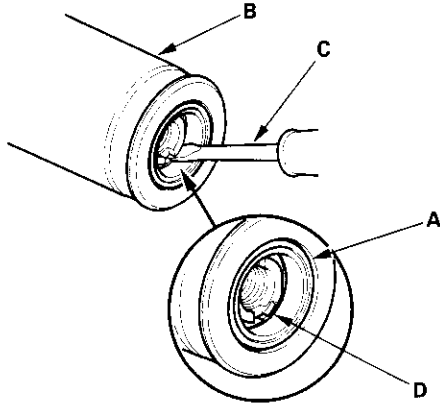


(cont'd)

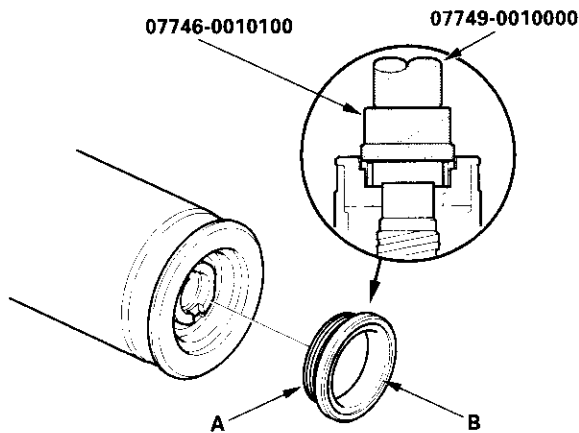
EPS Components

Rack End Removal and Installation (cont'd)

4. Check the rubber stop (A) for damage or deterioration. If the rubber stop is damaged or deteriorated, replace it.
Grasp the left rack end, and pull the rack shaft all the way to the left. Carefully remove the rubber stop by prying it out of the gearbox housing (B) with a flat tip screwdriver (C) on the cut-out portion (D) so as not to damage the housing.

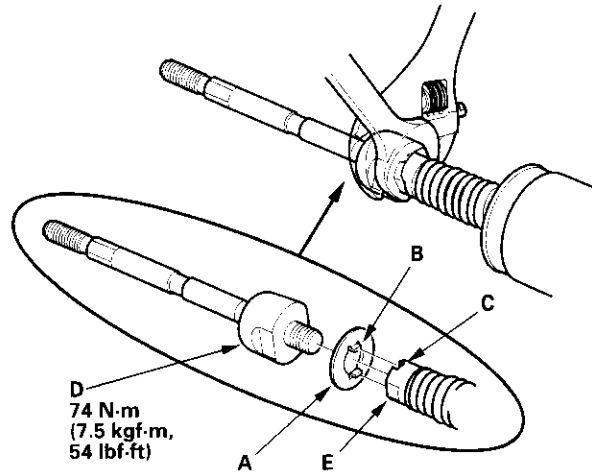


5. If the rubber stop was removed, position the new rubber stop (A) in the gearbox housing, then drive it in using the special tools as shown. Make sure that the special tool presses against the metal portion (B) of the rubber stop.

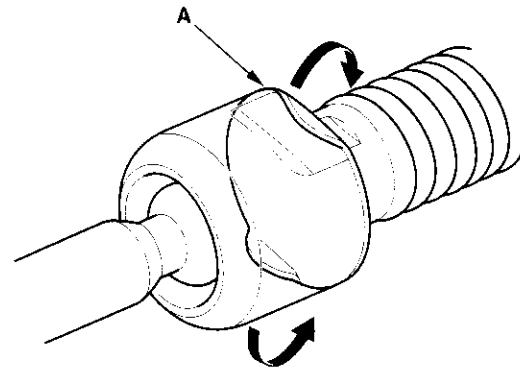


Installation

1. Install the new lock washer (A) on the rack shaft. Align the lock washer tabs (B) with slots (C) in the rack shaft. Install the rack end (D) while holding with lock washer in place. Repeat this step for the other side of the rack shaft.

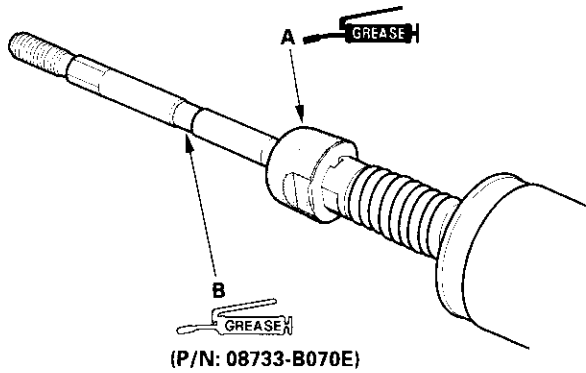


2. Hold the flat surface sections (E) on the passenger's side of the steering rack shaft with a wrench, and tighten both rack ends. Be careful not to damage the shaft surface with the wrench.
3. Bend the lock washer (A) back against the flat spots on the rack end joint housing.

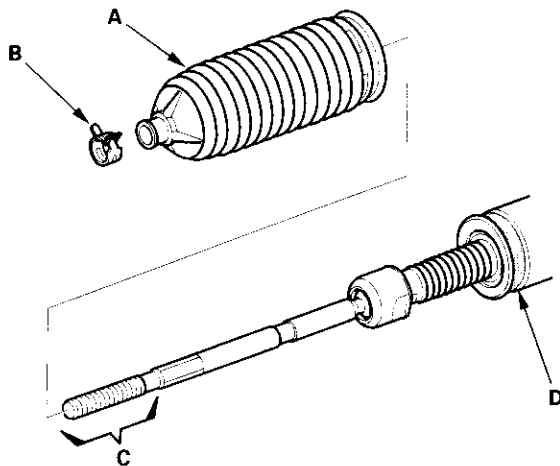




4. Apply multipurpose grease to the circumference (A) of the rack end joint housing.

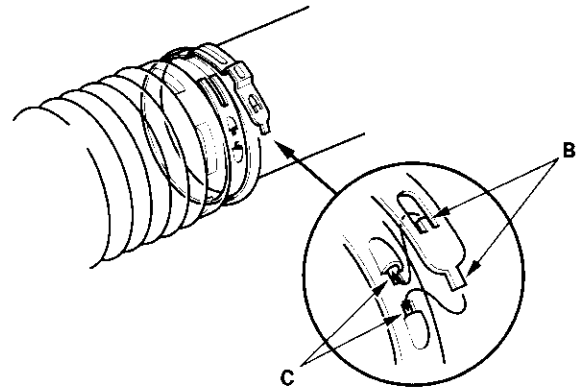


5. Apply a light coat of silicone grease to the boot grooves (B) on the rack ends.
6. Center the steering rack within its stroke. Install the boots (A) in the rack end with the tie-rod clips (B). Clean off any grease or contamination from the groove around (C) on housing.

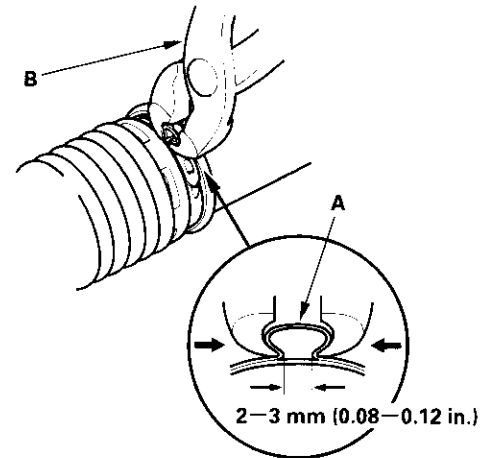


7. After installing the boots, wipe the grease off the thread section (D) of rack end.

8. Install the new boot band (A) by aligning the tabs (B) with holes (C) of the band.



9. Close the ear portion (A) of the band with commercially available pincers, Oetiker 1098 or equivalent (B).

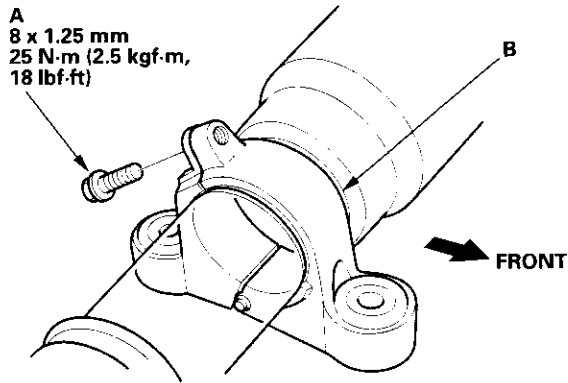


10. Slide the rack right and left to be certain that the boots are not deformed or twisted.

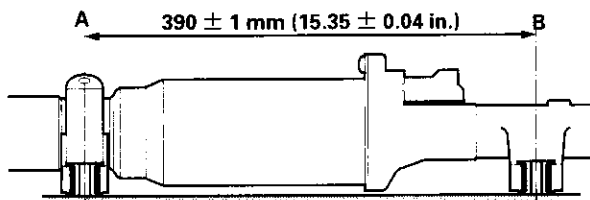
EPS Components

Gearbox Bracket Removal/Installation

1. Remove the bracket clamp bolt (A) from the gearbox bracket (B), then pry open the bracket to remove it from the gearbox.



2. Install the gearbox bracket on the gearbox with the bracket clamp bolt toward the rear.
3. Adjust the distance between the bracket mounting bolt hole (A) and the gearbox mounting bolt hole (B) to the dimension shown. Make sure the bracket mounting bolt holes are parallel with gearbox mounting bolt holes.



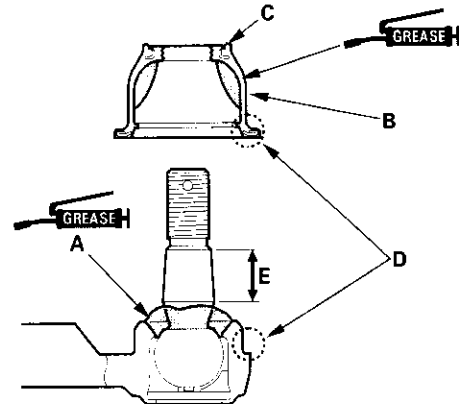
4. Install the bracket clamp bolt, and tighten it to 25 N·m (2.5 kgf·m, 18 lbf·ft).

Ball Joint Boot Replacement

Special Tools Required

Oil seal driver, 07974-6790000

1. Remove the boot from the tie-rod end, and wipe the old grease off the ball pin.
2. Pack the lower area of the ball pin (A) with fresh multipurpose grease.

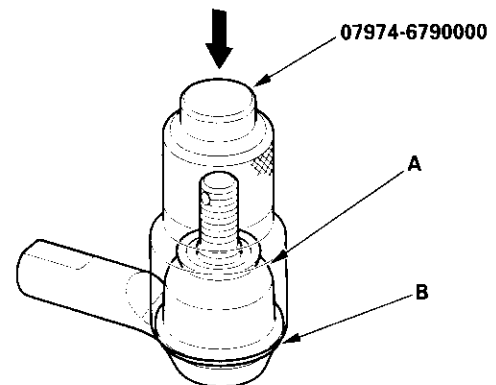


3. Pack the interior of the new boot (B) and lip (C) with fresh multipurpose grease.

Note these items when installing new grease:

- Keep grease off the boot installation section (D) and the tapered section (E) if the ball pin.
- Do not allow dust, dirt, or other foreign materials to enter the boot.

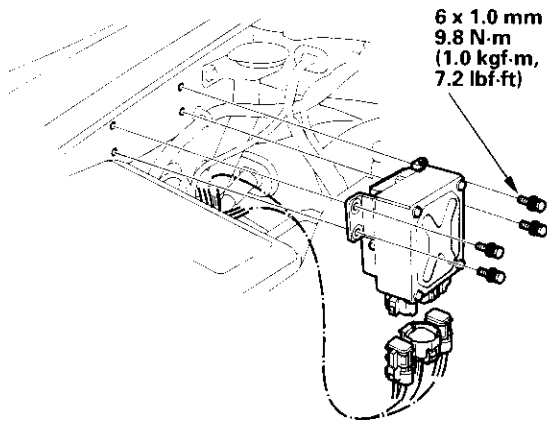
4. Install the new boot (A) using the special tool. The boot must not have a gap at the boot installation sections (B). After installing the boot, check the ball pin tapered section for grease contamination, and wipe it if necessary.





EPS Control Unit Removal/Installation

1. Make sure you have the anti-theft code for the radio, then write down the frequencies for the radio preset buttons. Remove the battery.
2. Remove the EPS control unit.



3. Disconnect the EPS control unit connectors.
4. Install the EPS control unit in the reverse order of removal.

NOTE: If the EPS control unit is replaced, the EPS control unit must memorize the torque sensor neutral position (see page 17-45).