

Suspension

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TPMS	18-57



Suspension

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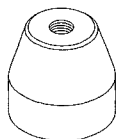
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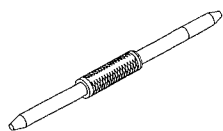
Front and Rear Suspension

Special Tools

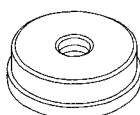
Ref.No.	Tool Number	Description	Qty
①	070AG-SJA0300	Clip Guide, 45 mm	1
②	070AG-SJAA10S	Subframe Alignment Pin	1
③	07746-0010600	Attachment, 72 x 75 mm	1
④	07749-0010000	Driver Handle, 15 x 135L	1
⑤	07965-SD90100	Support Base	1
⑥	07974-SA50700	Clip Guide, 41 mm	1
⑦	07AAE-SJAA100	Ball Joint Thread Protector, 14 mm	1
⑧	07AAF-SDAA100	Ball Joint Thread Protector, 12 mm	1
⑨	07AAF-SECA120	Ball Joint Thread Protector, 10 mm	1
⑩	07GAF-SD4A100	Hub Dis/Assembly Pin, 42mm	1
⑪	07MAC-SL0A102	Ball Joint Remover, 32 mm	1
⑫	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑬	07ZAD-PNA0100	Oil Seal Driver Attachment, 96 mm	1



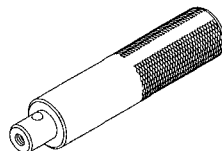
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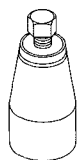
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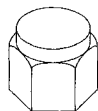
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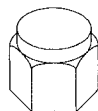
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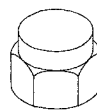
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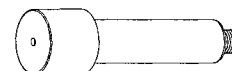
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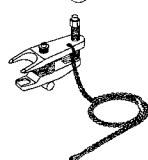
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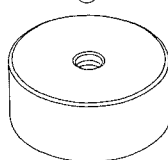
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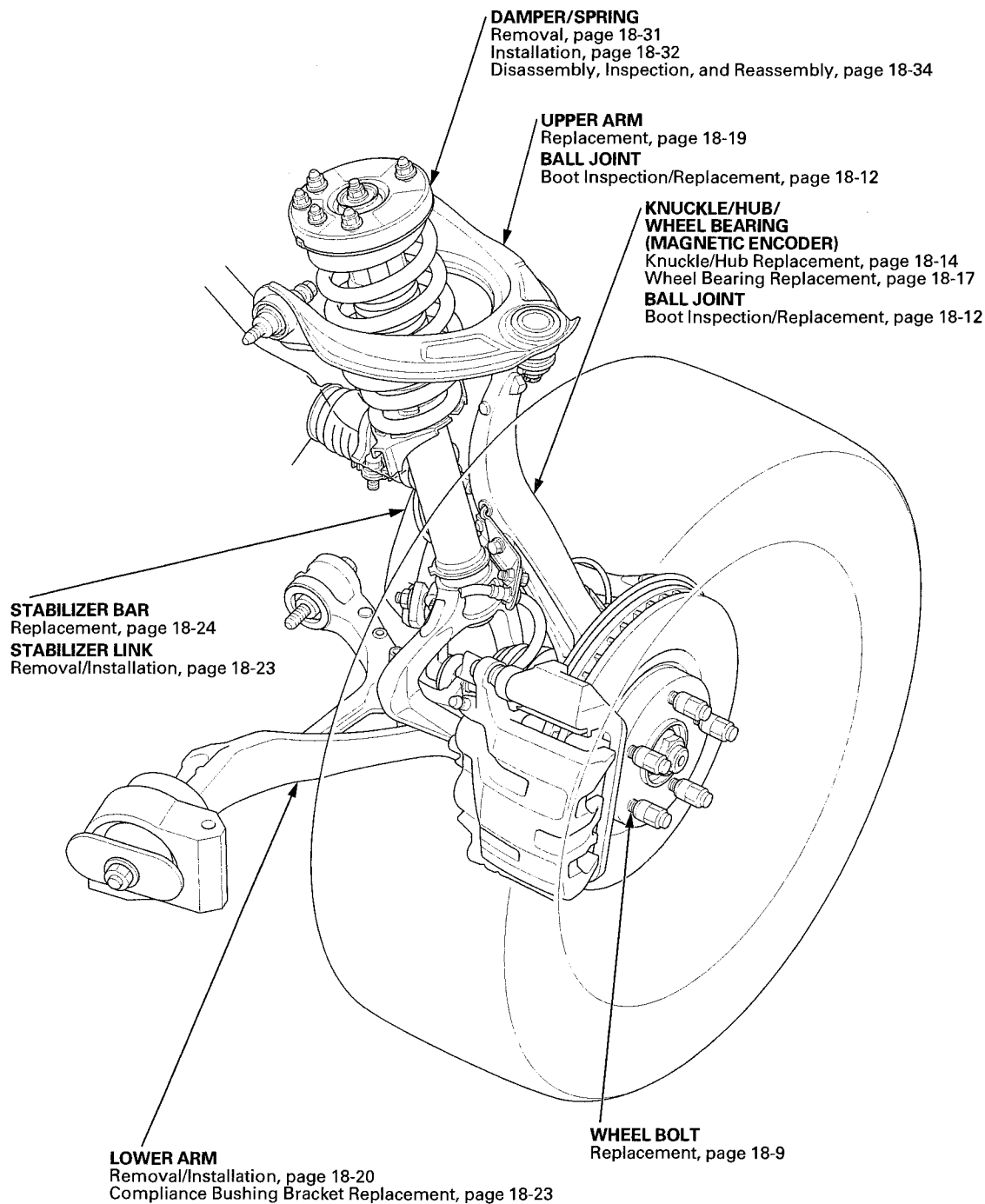


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Component Location Index

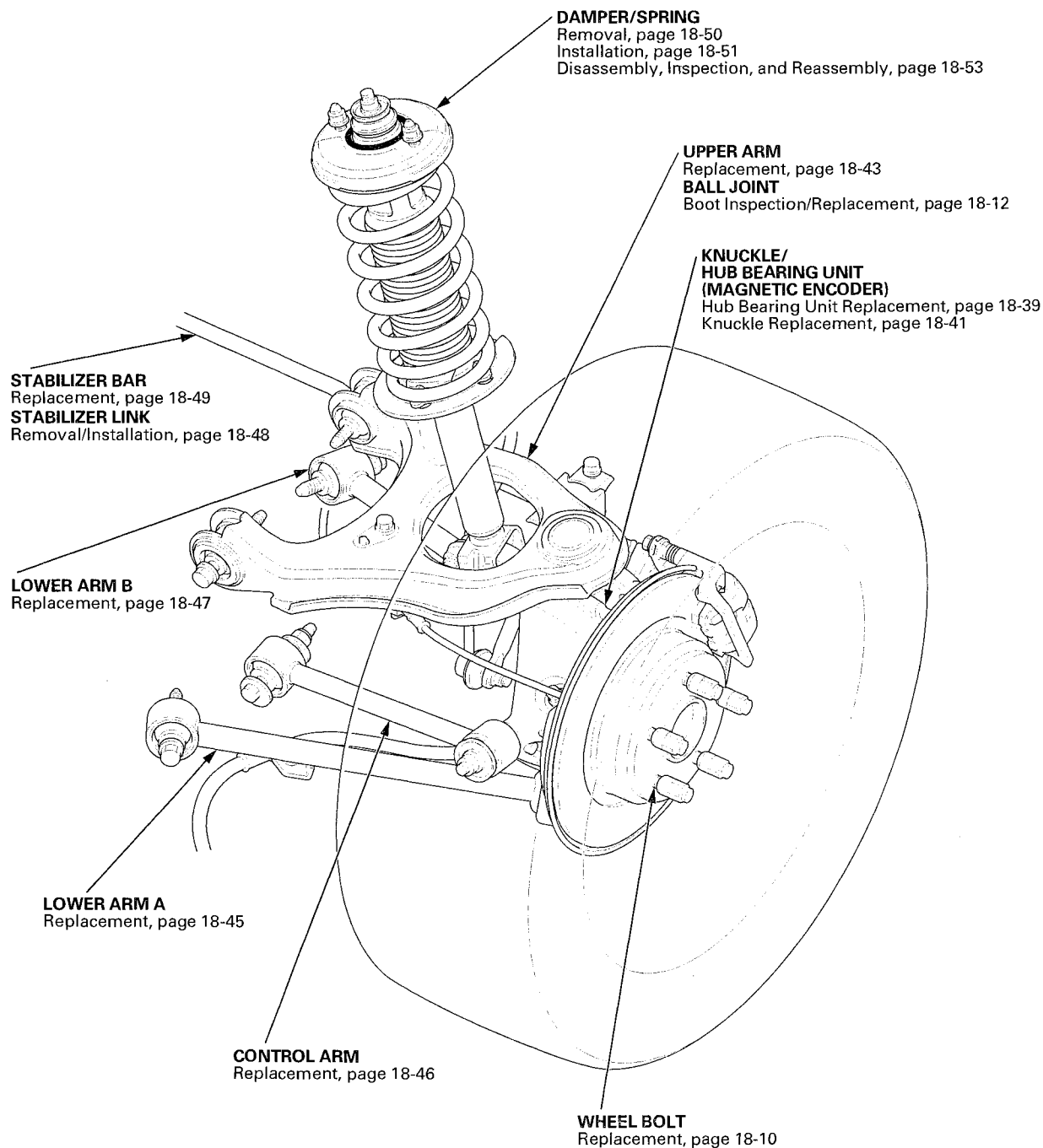
Front Suspension



Front and Rear Suspension

Component Location Index (cont'd)

Rear Suspension





Wheel Alignment

NOTE: After adjusting the wheel alignment on a model with SH-AWD, do the VSA sensor neutral position memorization (see page 19-117).

The suspension can be adjusted for front and rear toe.

Pre-Alignment Checks

For proper inspection and adjustment of the wheel alignment, do these checks:

1. Release the parking brake to avoid an incorrect measurement.
2. Make sure the suspension is not modified.
3. Make sure the fuel tank is full, and that the spare tire, the jack, and the tools are in place on the vehicle.
4. Check the tire size and tire pressure.

Tire size:

Without SH-AWD:

Without 18 inch wheels:

Front/Rear: P245/50R17 98V

With 18 inch wheels:

Front/Rear: P245/45R18 96V

With SH-AWD:

Without 19 inch wheels:

Front/Rear: P245/45R18 96V

With 19 inch wheels:

Front/Rear: 245/40ZR19 94Y

Tire pressure (at cold):

Without SH-AWD:

Front/Rear: 220 kPa (2.2 kgf/cm², 32 psi)

With SH-AWD (P245/45R18 96V tire):

Front/Rear: 220 kPa (2.2 kgf/cm², 32 psi)

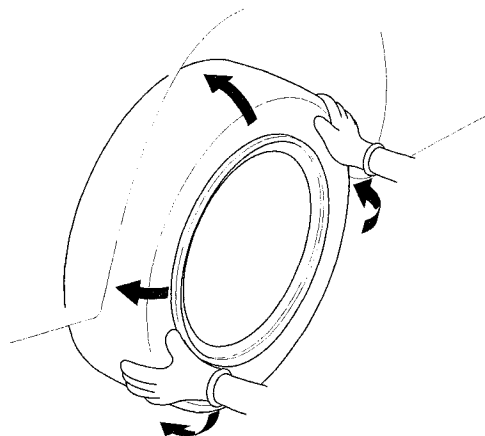
With SH-AWD (245/40ZR19 94Y tire):

Front: 255 kPa (2.6 kgf/cm², 37 psi)

Rear: 220 kPa (2.2 kgf/cm², 32 psi)

5. Check the runout of the wheels and tires (see page 18-8).

6. Check the suspension ball joints (Raise and support the vehicle (see page 1-10). Hold a tire with your hands, and move it up and down and right and left to check for movement).



7. Before doing alignment inspections, be sure to remove all extra weight from the vehicle, and no one should be inside the vehicle (driver or passengers).
8. Lower the vehicle to the ground. Bounce the vehicle up and down several times to stabilize the suspension.
9. Check that the steering column is set at the center tilt and telescopic position.

Caster Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the caster angle.

Caster angle: 3° 48' ±45'

(Maximum difference between the right and left side: 0° 30')

- If the measurement is within specifications, measure the camber angle.
- If the measurement is not within specifications, check for bent or damaged suspension components.

(cont'd)

Front and Rear Suspension

Wheel Alignment (cont'd)

Camber Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the camber angle.

Camber angle:

Front: $-0^{\circ} 30'$ $+30'$ $-45'$

Rear: $-1^{\circ} 00'$ $+30'$ $-45'$

(Maximum difference between the right and left side: $0^{\circ} 30'$)

- If the measurement is within specifications, measure the toe-in.
- If the measurement is not within specifications, check for bent or damaged suspension components.

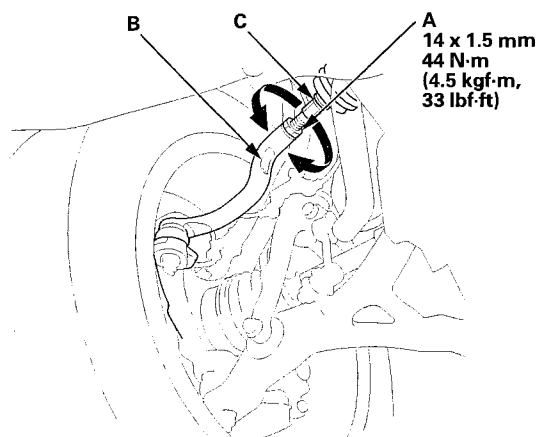
Front Toe Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Set the steering column to the middle tilt and telescopic positions. Center the steering wheel spokes, and install a steering wheel holder tool.
2. Check the toe with the wheels pointed straight ahead.

Front toe-in: 0 ± 2 mm (0 ± 0.08 in)

- If adjustment is required, go to step 3.
 - If no adjustment is required, go to rear toe inspection/adjustment.
3. Loosen the tie-rod locknuts (A) while holding the flat surface sections (B) of the tie-rod end with a wrench, and turn both tie-rods (C) until the front toe is within specifications.



4. After adjusting, tighten the tie-rod locknuts to the specified torque. Reposition the rack-end boot if it is twisted or displaced.
5. Go to rear toe inspection/adjustment.



Rear Toe Inspection/Adjustment

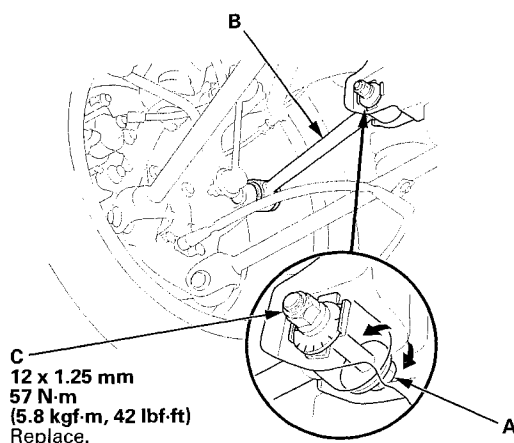
Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Release the parking brake to avoid an incorrect measurement.
2. Check the toe.

Rear toe-in: 2 ± 2 mm (0.08 ± 0.08 in)

- If adjustment is required, go to step 3.
- If no adjustment is required, go to turning angle inspection.

3. Hold the adjusting bolt (A) on the rear control arm (B), and loosen the self-locking nut (C).



C
12 x 1.25 mm
57 N·m
(5.8 kgf·m, 42 lbf·ft)
Replace.

4. Replace the self-locking nut with a new one, and lightly tighten it.

NOTE: Always use a new self-locking nut whenever it has been tightened to the specified torque.

5. Adjust the rear toe by turning the adjusting bolt until the toe is correct.
6. While holding the adjusting bolt, tighten the self-locking nut to the specified torque.

Turning Angle Inspection

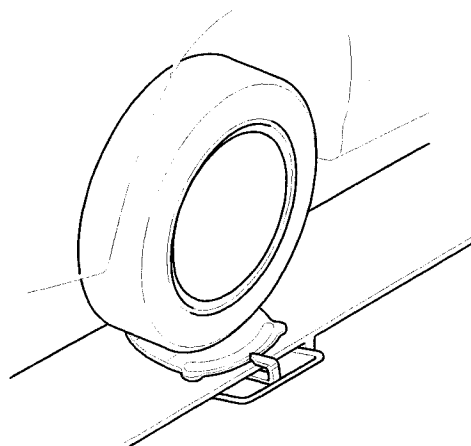
Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Turn the wheel right and left while applying the brake, and measure the turning angle of both wheels.

Turning angle:

Inward: $38^\circ 06' \pm 2^\circ$

Outward (reference): $30^\circ 24' \pm 1^\circ$



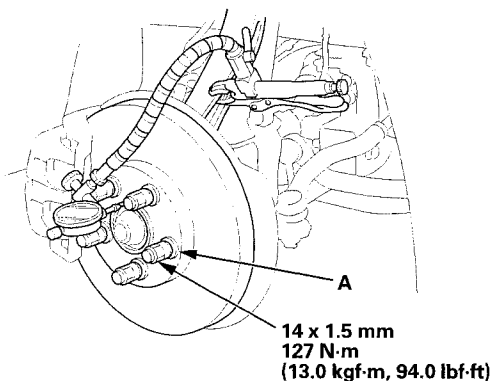
2. If the measurement is not within the specifications, even up both sides of the tie-rod threaded section length while adjusting the front toe. If it is correct, but the turning angle is not within the specifications, check for bent or damaged suspension components.

Front and Rear Suspension

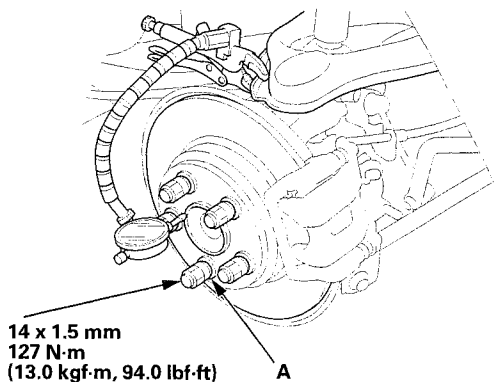
Wheel Bearing End Play Inspection

1. Raise and support the vehicle (see page 1-10).
2. Remove the wheels.
3. Install suitable flat washers (A) and the wheel nuts. Tighten the nuts to the specified torque to hold the brake disc or the brake disc/drum securely against the hub.

Front



Rear



4. Attach the dial gauge. Place the dial gauge against the hub flange.
5. Measure the bearing end play while moving the brake disc or the brake disc/drum inward and outward.

Wheel bearing end play:

Front/Rear: 0—0.05 mm (0—0.002 in)

6. If the bearing end play measurement is more than the standard, replace the wheel bearing or the hub bearing unit.

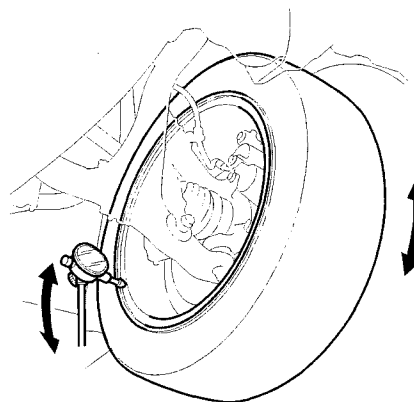
Wheel Runout Inspection

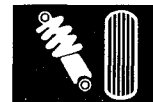
1. Raise and support the vehicle (see page 1-10).
2. Check for bent or deformed wheels.
3. Set up the dial gauge as shown, and measure the axial runout by turning the wheel.

Front and rear wheel axial runout:

Standard: 0—0.7 mm (0—0.03 in)

Service limit: 2.0 mm (0.08 in)





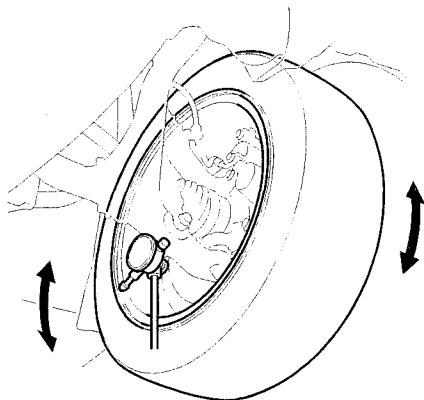
Wheel Bolt Replacement

4. Reset the dial gauge to the position shown, and measure the radial runout.

Front and rear wheel radial runout:

Standard: 0–0.7 mm (0–0.03 in)

Service limit: 1.5 mm (0.06 in)



5. If the wheel runout is not within the specification, check the wheel bearing end play (see page 18-8), and make sure the mating surfaces on the brake disc or the brake disc/drum and the inside of the wheel are clean.
6. If the bearing end play is within the specification but the wheel runout is more than the service limit, replace the wheel.

Special Tools Required

Ball Joint Remover, 28 mm 07MAC-SL0A202

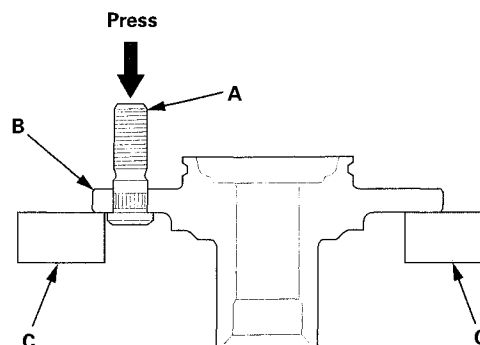
NOTICE

- Do not use a hammer or impact tools (pneumatic or electric) to remove and install the wheel bolts.
- Be careful not to damage the threads of the wheel bolts.

Front

1. Remove the front hub (see page 18-14).
2. Separate the wheel bolt (A) from the hub (B) using a hydraulic press. Support the hub with hydraulic press attachments (C) or equivalent tools.

NOTE: Before installing the new wheel bolt, clean the mating surfaces on the bolt and the hub.



3. Insert the new wheel bolt into the hub while aligning the splined surfaces on the hub hole with the wheel bolt.

NOTE:

- Degrease the area around the wheel bolt.
- Make sure the wheel bolt is installed vertically in relation to the hub disc surface.

4. Install the wheel bolt using a hydraulic press until the wheel bolt shoulder is fully seated.
5. Install the front hub (see page 18-14).

NOTE: If you cannot tighten the wheel nut to the specified torque value when installing the wheel, replace the front hub as an assembly.

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Front and Rear Suspension

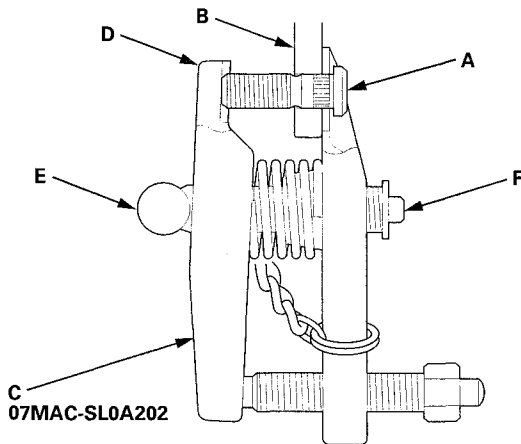
Wheel Bolt Replacement (cont'd)

Rear

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear brake disc/drum (see page 19-29).
3. Separate the wheel bolt (A) from the hub (B) using the ball joint remover (C), and keep the jaw (D) of ball joint remover vertical against the wheel bolt (see page 18-11).

NOTE:

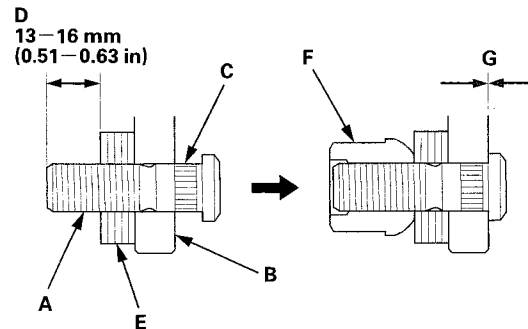
- If the angle of the remover against the wheel bolt is not square, readjust the ball joint remover by turning the head (E) of the adjusting bolt (F).
- Before installing the new wheel bolt, clean the mating surfaces on the bolt and the hub.



4. Insert the new wheel bolt (A) into the hub (B) while aligning the splined surfaces (C) on the hub hole with the wheel bolt. Adjust the measurement (D) with the washers (P/N 94101-14800 or equivalent) (E), then install a nut (P/N 90304-SHJ-A91 or equivalent) (F) hand-tight.

NOTE:

- Degrease the area around the wheel bolt and the threaded section of the nut.
- Make sure the wheel bolt is installed vertically in relation to the hub disc surface.
- Do not install the nut and the washers that have been used as tools on a vehicle.



5. Tighten the nut until the wheel bolt is drawn fully into the hub. Do not exceed the maximum torque limit. Make sure there is no gap (G) between the bolt and the hub.

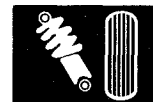
Limited torque:

127 N·m (13.0 kgf·m, 94.0 lbf·ft) max.

6. Install the rear brake disc/drum (see page 19-29).

NOTE:

- If you cannot tighten the wheel nut to the specified torque when installing the wheel, replace the rear hub bearing unit as an assembly.
- Before installing the wheel, clean the mating surfaces of the brake disc/drum and the inside of the wheel.



Ball Joint Removal

Special Tools Required

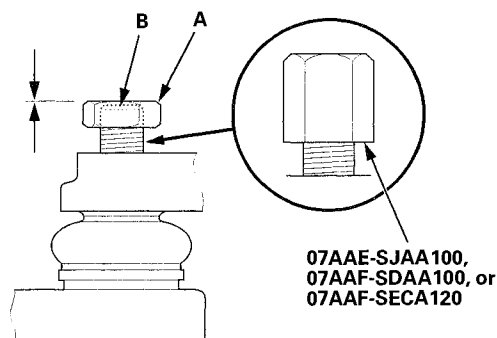
- Ball Joint Thread Protector, 14 mm 07AAE-SJAA100
- Ball Joint Thread Protector, 12 mm 07AAF-SDAA100
- Ball Joint Thread Protector, 10 mm 07AAF-SECA120
- Ball Joint Remover, 32 mm 07MAC-SL0A102
- Ball Joint Remover, 28 mm 07MAC-SL0A202

NOTICE

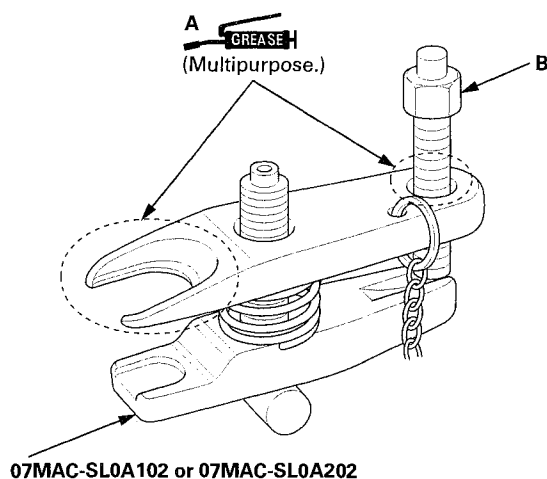
Always use a ball joint remover to disconnect a ball joint. Do not strike the housing or any other part of the ball joint connection to disconnect it.

1. Install a hex nut (A) or the ball joint thread protector onto the threads of the ball joint (B).

NOTE: Using a hex nut, make sure the nut is flush with the ball joint pin end to prevent damage to the threaded end of the ball joint pin.

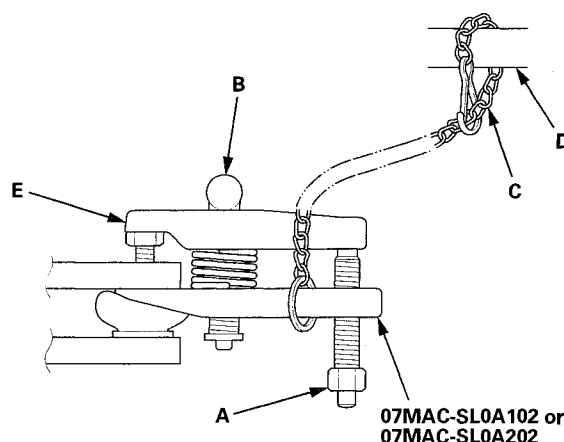


2. Apply grease to the ball joint remover on the areas shown (A). This will ease the installation of the tool, and prevent damage to the pressure bolt (B) threads.



3. Loosen the pressure bolt (A), and install the ball joint remover as shown. Insert the jaws carefully, making sure not to damage the ball joint boot. Adjust the jaw spacing by turning the adjusting bolt (B).

NOTE: Fasten the safety chain (C) securely to a suspension arm or the subframe (D). Do not fasten it to a brake line or wire harness.



4. After adjusting the adjusting bolt, make sure the head of the adjusting bolt is in the position shown to allow the jaw (E) to pivot.
5. With a wrench, tighten the pressure bolt until the ball joint pin pops loose from the ball joint connecting hole. If necessary, apply penetrating type lubricant to loosen the ball joint pin.

NOTE: Do not use pneumatic or electric tools on the pressure bolt.

6. Remove the ball joint remover, then remove the nut or the ball joint thread protector from the end of the ball joint pin, and pull the ball joint out of the ball joint connecting hole. Inspect the ball joint boot, and replace it if damaged.

Front and Rear Suspension

Ball Joint Boot Inspection/Replacement

Special Tools Required

- Clip Guide, 45 mm 070AG-SJA0300
- Clip Guide, 41 mm 07974-SA50700

1. Check the ball joint boot for weakness, damage, cracks, and grease leaks.

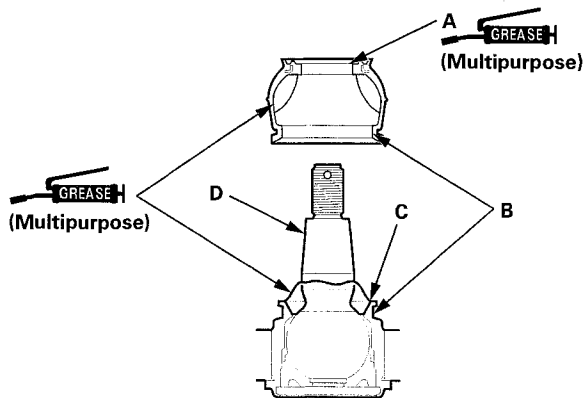
NOTE:

- If the ball joint boot is damaged with grease leaks, replace the appropriate part as an assembly.
- If the ball joint boot is soft and cracked without grease leaks, go to step 2. Replace the appropriate ball joint boot.

2. Disconnect the appropriate ball joint connection, and remove the component including the ball joint:
 - The front knuckle (see page 18-14).
 - The front upper arm (see page 18-19).
 - The rear upper arm (see page 18-43).

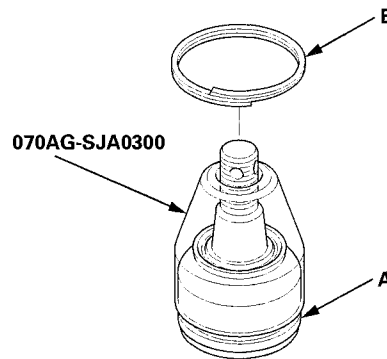
3. Remove the boot clip and the boot.

4. Pack the interior and lip (A) of a new boot with grease. Keep the grease off of the boot-to-housing mating surfaces (B).

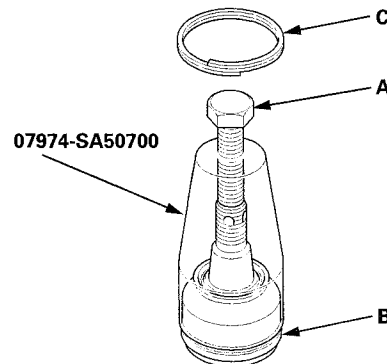


5. Pack fresh grease into the base (C). Do not let dirt or other foreign materials get into the boot.
6. Install the boot on the ball joint, then squeeze it gently to force out any air, then wipe the grease off the tapered portion of the ball joint pin (D).

7. The front knuckle ball joint or the rear upper arm ball joint: Adjust the depth by turning the clip guide until its base is just above the groove around (A) the bottom of the boot. Then slide the clip (B) over the tool and into position on the boot.

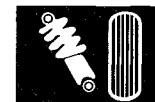


8. The front upper arm ball joint: Adjust the clip guide with the adjusting bolt (A) until its base is just above the groove around (B) the bottom of the boot. Then slide the clip (C) over the clip guide and into position on the boot.



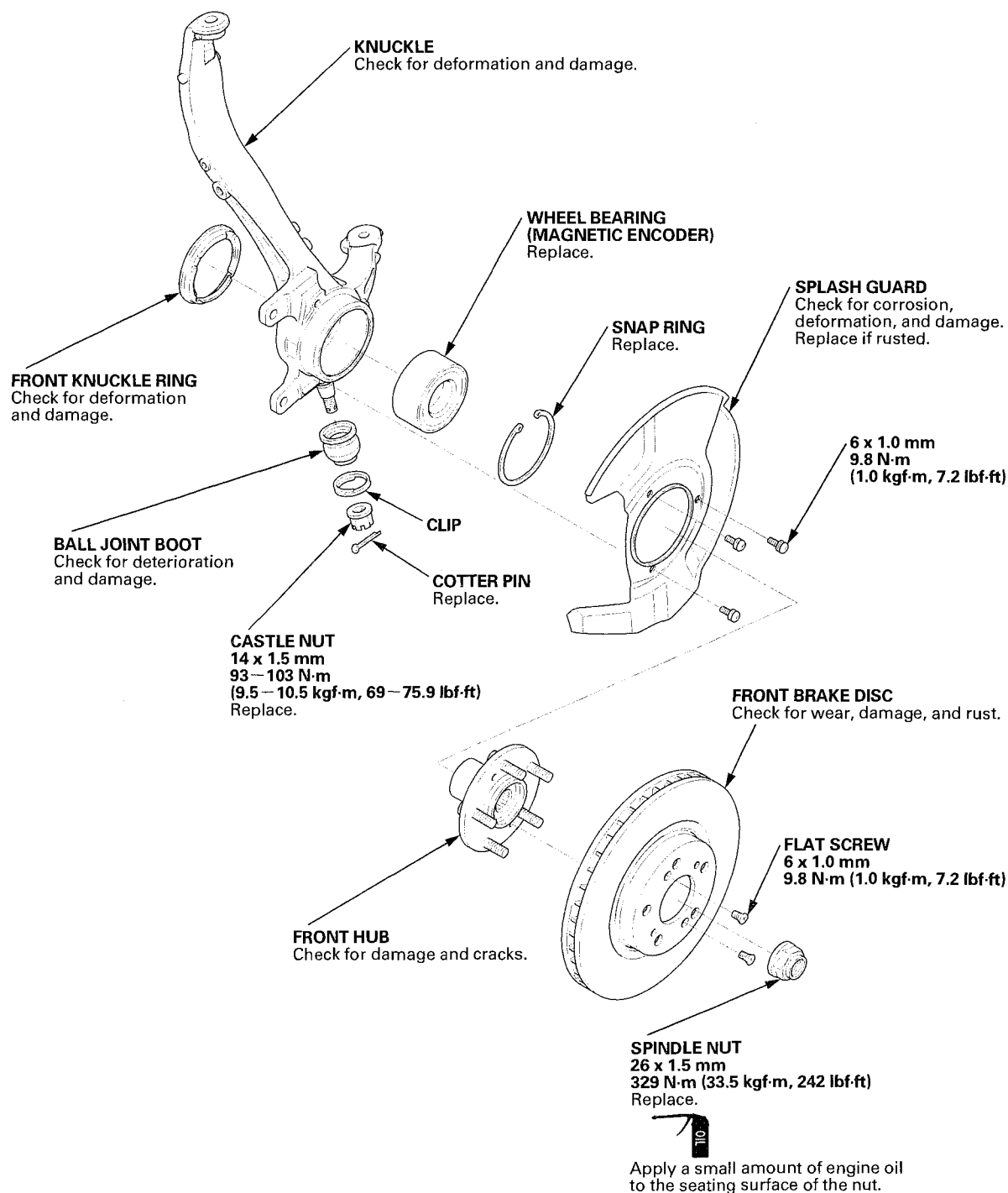
9. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.
10. Install all of the removed parts.

Front Suspension



Knuckle/Hub/Wheel Bearing Replacement

Exploded View



(cont'd)

Front Suspension

Knuckle/Hub/Wheel Bearing Replacement (cont'd)

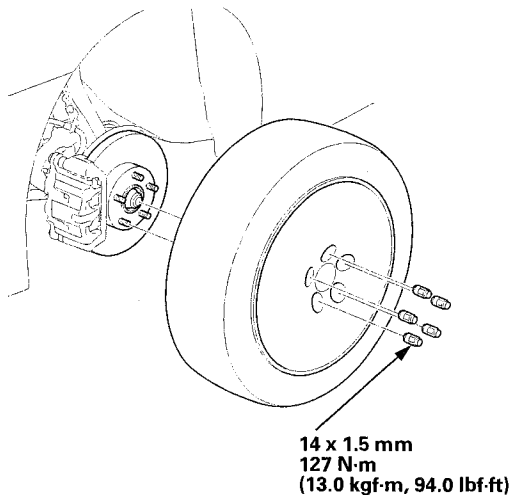
Special Tools Required

- Ball Joint Remover, 28 mm 07MAC-SL0A202
- Ball Joint Thread Protector, 14 mm 07AAE-SJAA100
- Ball Joint Thread Protector, 12 mm 07AAF-SDAA100
- Ball Joint Thread Protector, 10 mm 07AAF-SECA120
- Hub Dis/Assembly Pin, 42mm 07GAF-SD4A100
- Attachment, 72 x 75 mm 07746-0010600
- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment, 96 mm 07ZAD-PNA0100
- Support Base 07965-SD90100

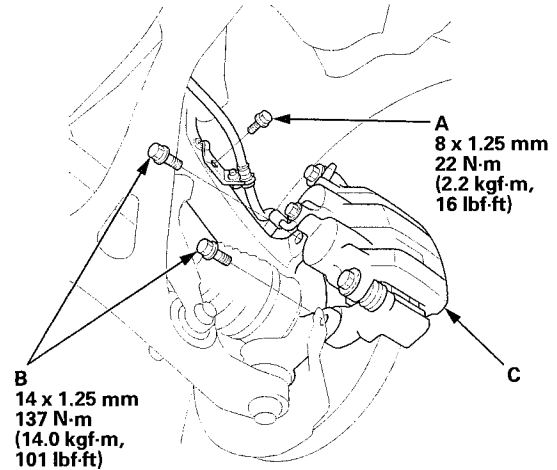
NOTE: Refer to the Exploded View as needed during the following procedure.

Knuckle/Hub Replacement

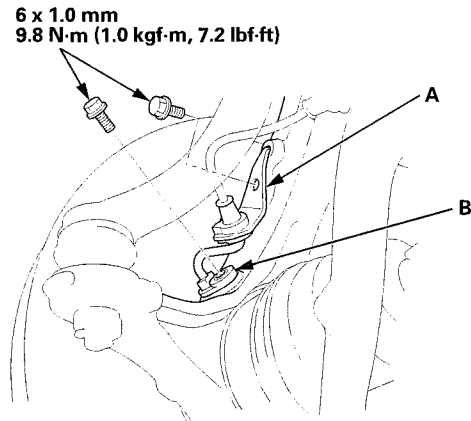
1. Raise and support the vehicle (see page 1-10).
2. Remove the wheel nuts and the front wheel.



3. Remove the brake hose bracket mounting bolt (A).

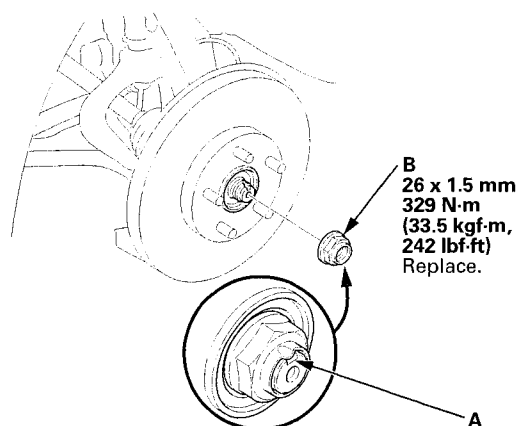


4. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or the brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.
5. Remove the wheel speed sensor harness bracket (A) and the wheel speed sensor (B) from the knuckle. Do not disconnect the wheel speed sensor connector.





6. Pry up the stake (A) on the spindle nut (B), then remove the nut.

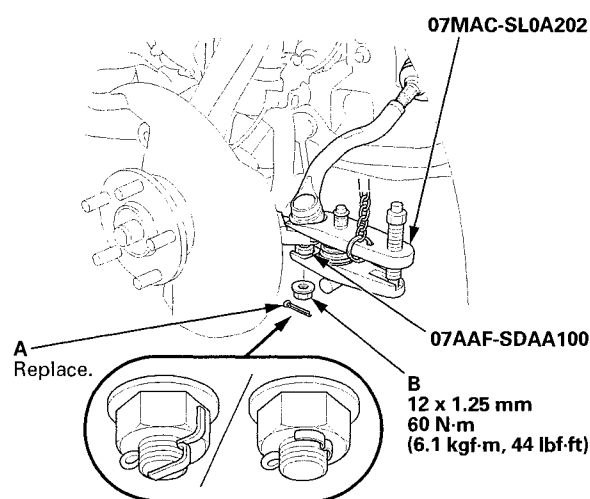


7. Remove the front brake disc (see page 19-17).

8. Check the front hub for damage and cracks.

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

NOTE: During installation, install the new cotter pin after tightening the nut, and bend its end as shown.

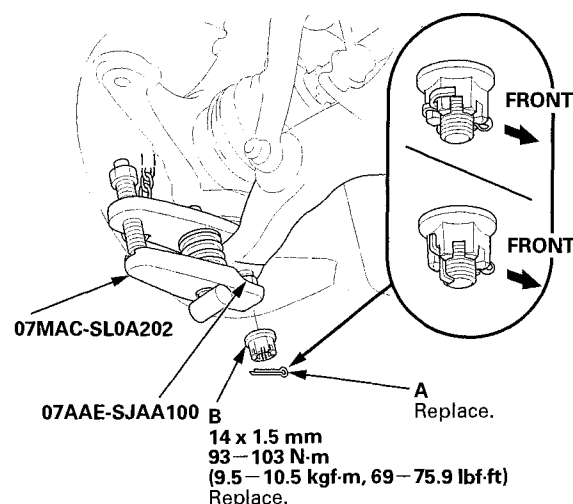


10. Disconnect the tie-rod end ball joint from the knuckle using the ball joint thread protector and the ball joint remover (see page 18-11).

11. Remove the cotter pin (A) from the knuckle ball joint, then remove the castle nut (B).

NOTE:

- Use the new castle nut during reassembly.
- During installation, insert the new cotter pin into the ball joint pin hole from the front to the rear of the vehicle, and bend its end as shown. Check the ball joint pin hole direction before connecting the ball joint.



12. Disconnect the knuckle ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-11).

NOTE:

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

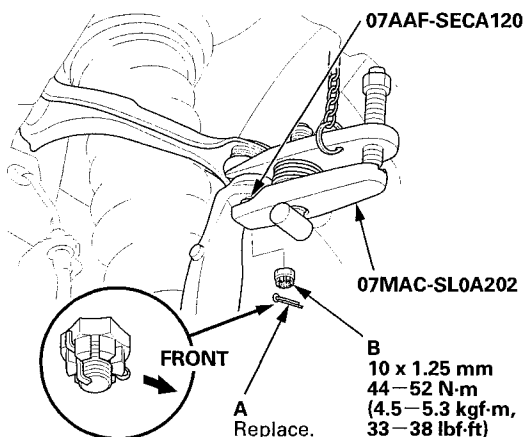
(cont'd)

Front Suspension

Knuckle/Hub/Wheel Bearing Replacement (cont'd)

13. Remove the cotter pin (A) from the upper arm ball joint, then remove the castle nut (B).

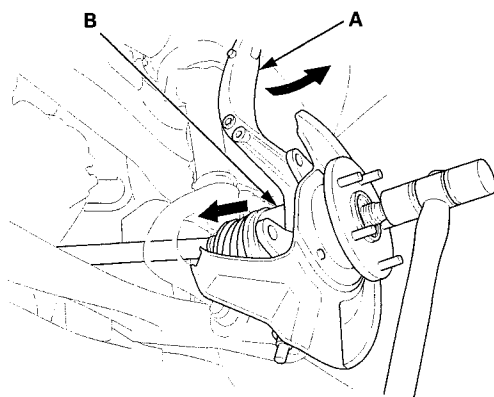
NOTE: During installation, insert the new cotter pin into the ball joint pin hole from the front to the rear of the vehicle, and bend its end as shown. Check the ball joint pin hole direction before connecting the ball joint.



14. Disconnect the upper arm ball joint from the knuckle using the ball joint thread protector and the ball joint remover (see page 18-11).
15. Pull the knuckle (A) outward, and separate the outboard joint (B) from the front hub using a soft face hammer, then remove the knuckle/hub.

NOTE:

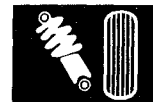
- Do not pull the driveshaft end outward. The driveshaft inboard joint may come apart.
- During installation, apply grease to the mating surfaces of the wheel bearing and the driveshaft outboard joint (see step 1 on page 16-20).



16. Install the knuckle/hub in the reverse order of removal, and note these items:

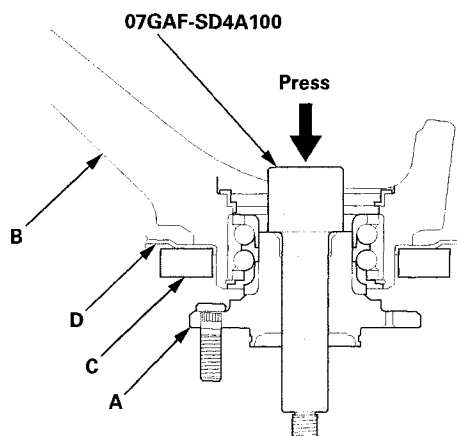
- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque. Do not place the jack against the ball joint pin of the knuckle.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section, and the mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Use a new spindle nut on reassembly.
- Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before installing the brake disc, clean the mating surfaces of the front hub and the inside of the brake disc.
- Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

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

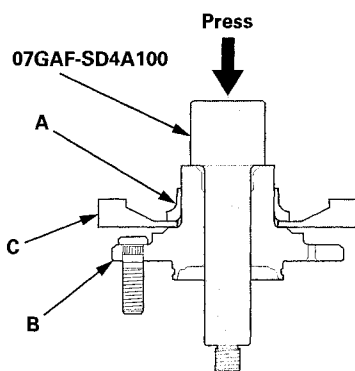


Wheel Bearing Replacement

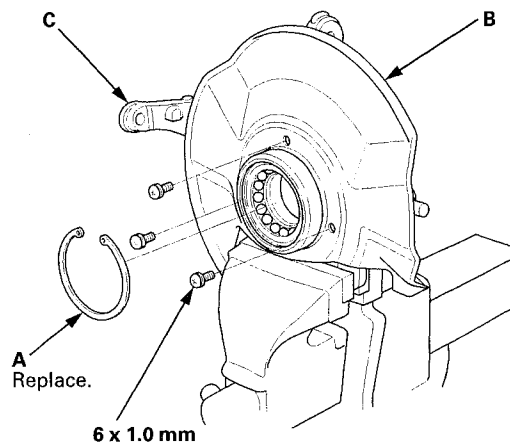
1. Remove the knuckle/hub.
2. Separate the hub (A) from the knuckle (B) using the hub dis/assembly pin and a hydraulic press. Hold the knuckle with the attachment (C) of the hydraulic press or equivalent tool. Be careful not to damage or deform the splash guard (D). Hold onto the hub to keep it from falling when pressed clear.



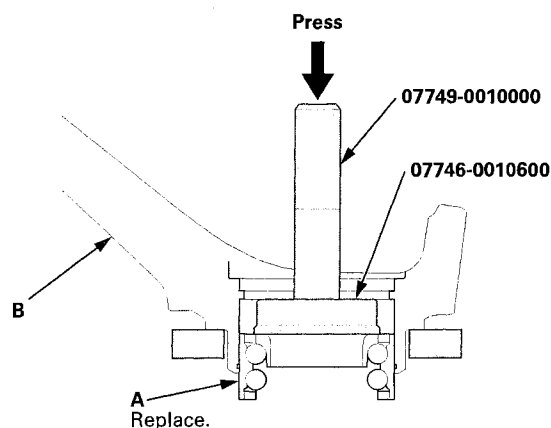
3. Press the wheel bearing inner race (A) off of the hub (B) using the hub dis/assembly pin, a commercially available bearing separator (C), and a press.



4. Remove the snap ring (A) and the splash guard (B) from the knuckle (C).



5. Press the wheel bearing (A) out of the knuckle (B) using the attachment, the driver handle, and a press.



6. Wash the knuckle and the hub thoroughly in high flash point solvent before reassembly.

(cont'd)

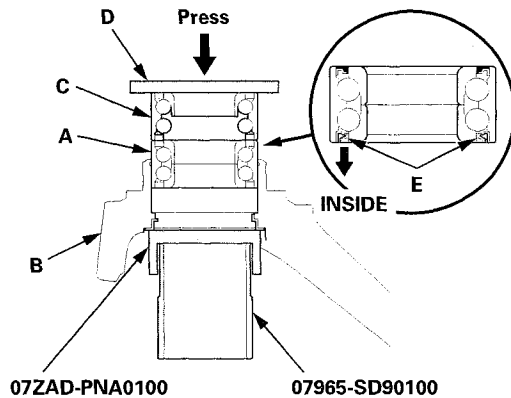
Front Suspension

Knuckle/Hub/Wheel Bearing Replacement (cont'd)

7. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the attachment, the support base, and a press.

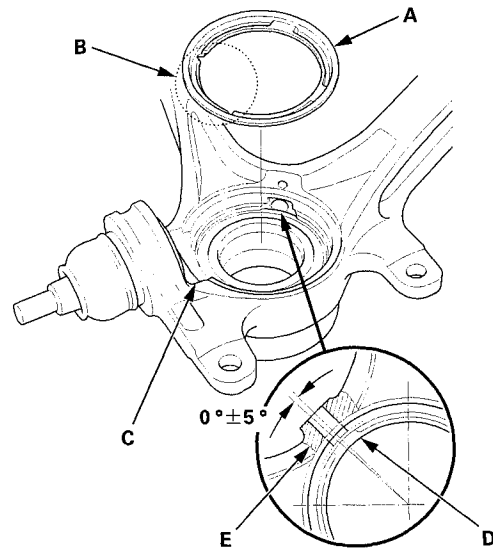
NOTE:

- Install the wheel bearing with the wheel speed sensor magnetic encoder (E) (brown color), toward the inside of the knuckle.
- Remove any oil, grease, dust, metal debris, and other foreign material from the magnetic encoder surface.
- Keep any magnetic tools away from the magnetic encoder surface.
- Be careful not to damage the magnetic encoder surface when you insert the wheel bearing.

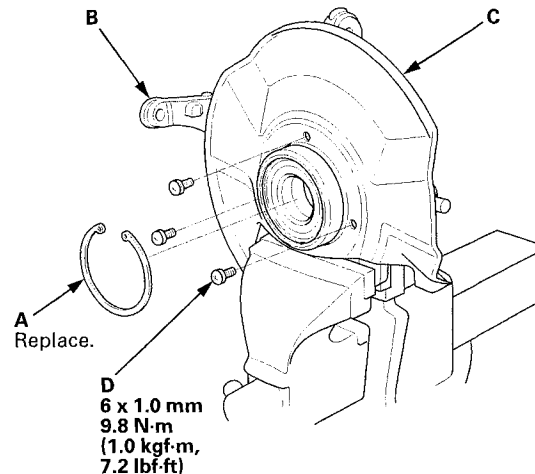


8. Check the front knuckle ring (A) for damage or deformation, and replace it if necessary.

NOTE: When installing the new front knuckle ring, position the knuckle ring notch portion (B) toward the cut out (C) near the ball joint in the knuckle, and align the center of the knuckle ring ledge portion (D) with the center of the wheel speed sensor hole (E) on the knuckle as shown.



9. Install the new snap ring (A) securely in the knuckle (B).

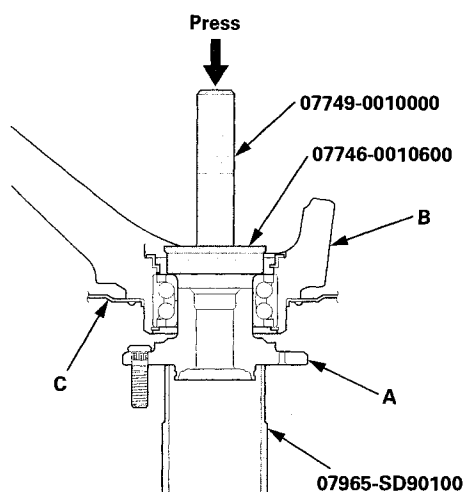


10. Install the splash guard (C), and tighten the screws (D) to the specified torque.



Upper Arm Replacement

11. Install the hub (A) onto the knuckle (B) using the attachment, the driver handle, the support base, and a hydraulic press. Be careful not to damage the splash guard (C).



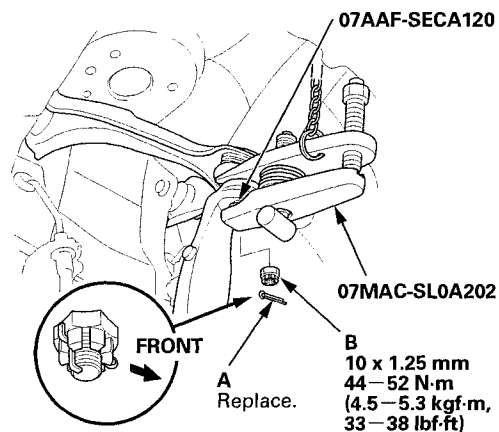
12. Install the knuckle/hub.

Special Tools Required

- Ball Joint Thread Protector, 10 mm 07AAF-SECA120
- Ball Joint Remover, 28 mm 07MAC-SL0A202

1. Raise and support the vehicle (see page 1-10).
2. Remove the front wheel.
3. Remove the front damper/spring (see page 18-31).
4. Remove the cotter pin (A) from the upper arm ball joint, then remove the castle nut (B).

NOTE: During installation, install the new cotter pin into the ball joint pin hole from the front to the rear of the vehicle, and bend its end as shown. Check the ball joint pin hole direction before connecting the ball joint.



5. Disconnect the upper arm ball joint from the knuckle using the ball joint thread protector and the ball joint remover (see page 18-11).

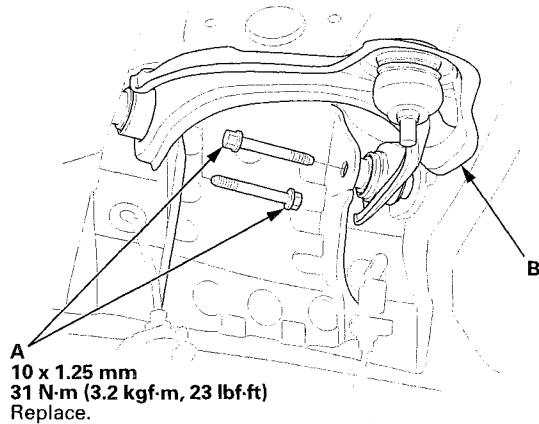
(cont'd)

Front Suspension

Upper Arm Replacement (cont'd)

6. Remove the upper arm mounting bolts (A), then remove the upper arm (B).

NOTE: Use new upper arm mounting bolts during reassembly.



7. Install the upper arm in the reverse order of removal, and note these items:

- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening it to the specified torque. Do not place the jack against the ball joint pin of the knuckle.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section, and the mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

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

Lower Arm Removal/Installation

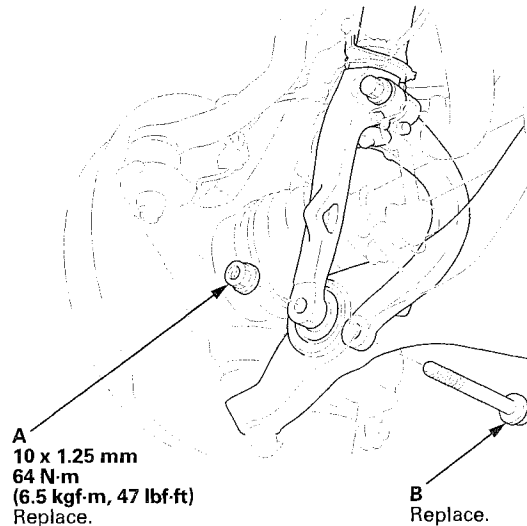
Special Tools Required

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

Removal/Installation

1. Raise and support the vehicle (see page 1-10).
2. Remove the front wheel.
3. Remove the spindle nut (see step 6 on page 18-15).
4. Remove the front splash shield (see page 20-205).
5. Remove the damper fork mounting nut (A) while holding the mounting bolt (B), then remove the mounting bolt.

NOTE: Use the new damper fork mounting bolt and the new mounting nut, and torque the nut while holding the bolt during reassembly.



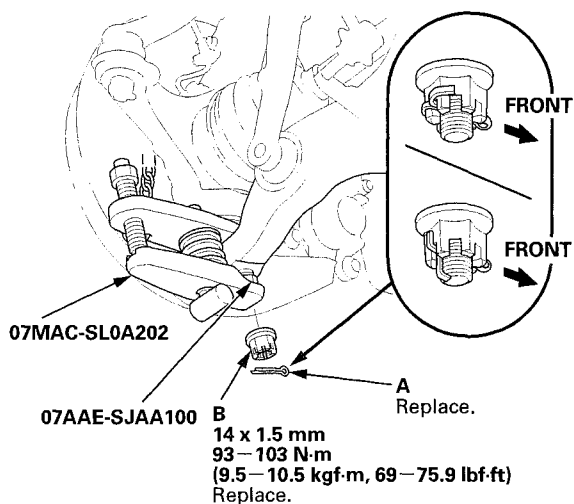
6. Disconnect the stabilizer link from the lower arm (see page 18-23).



7. Remove the cotter pin (A) from the knuckle ball joint, then remove the castle nut (B).

NOTE:

- Use the new castle nut during reassembly.
- During installation, insert the new cotter pin into the ball joint pin hole from the front to the rear of the vehicle, and bend its end as shown. Check the ball joint pin hole direction before connecting the ball joint.



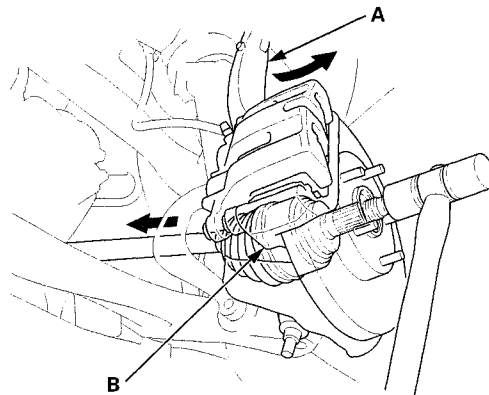
8. Disconnect the knuckle ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-11).

NOTE:

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

9. Pull the knuckle (A) outward, and separate the outboard joint (B) from the front hub using a soft face hammer.

NOTE: Do not pull the driveshaft end outward. The driveshaft inboard joint may come apart.



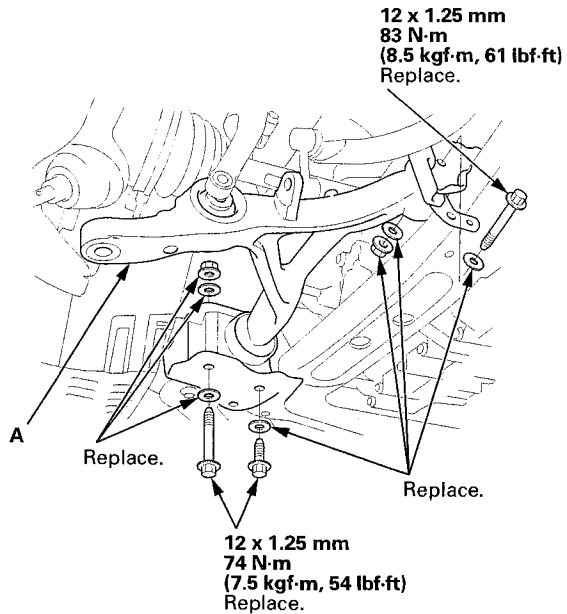
(cont'd)

Front Suspension

Lower Arm Removal/Installation (cont'd)

10. Remove the lower arm mounting bolts, mounting nuts, and the washers, then remove the lower arm (A).

NOTE: Use new lower arm mounting bolts, new mounting nuts, and new washers during reassembly.



11. Install the lower arm in the reverse order of removal, and note these items:
- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening it to the specified torque. Do not place the jack against the ball joint pin of the knuckle.
 - Be careful not to damage the ball joint boot when connecting the knuckle.
 - Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section, and the mating surfaces of the castle nut.
 - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
 - Refer to stabilizer link removal/installation to connect the stabilizer bar to the lower arm (see page 18-23).
 - Use a new spindle nut on reassembly.
 - Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
 - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
12. Check the wheel alignment, and adjust it if necessary (see page 18-5).

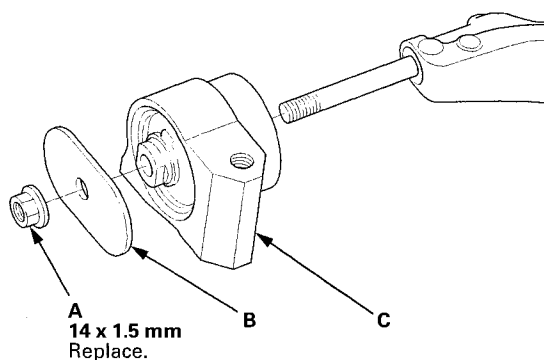


Stabilizer Link Removal/Installation

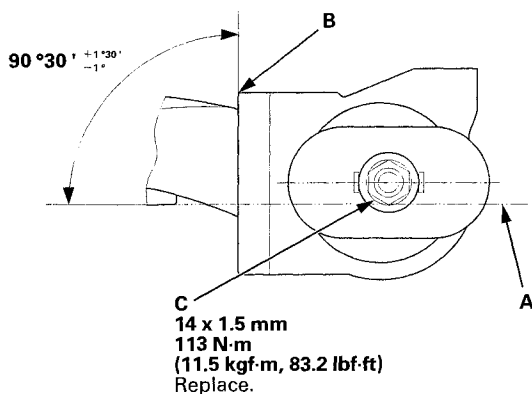
Compliance Bushing Bracket Replacement

1. Remove the self-locking nut (A), then remove the lower arm stopper (B) and the compliance bushing bracket (C).

NOTE: Do not remove the compliance bushing from the bracket.

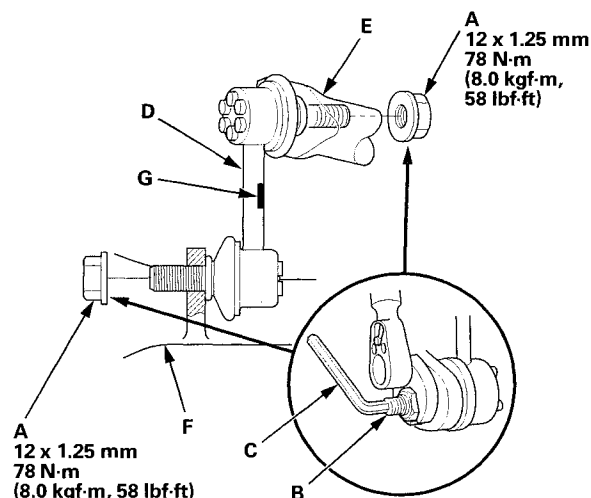


2. Position the lower arm center line (A) with the end (B) of the compliance bushing bracket to the angle as shown.



3. Install a new self-locking nut (C), then tighten the nut to the specified torque.

1. Raise and support the vehicle (see page 1-10).
2. Remove the front wheel.
3. Remove the flange nuts (A) while holding the respective joint pin (B) with a hex wrench (C), then remove the stabilizer link (D).



4. Install the stabilizer link on the stabilizer bar (E) and the lower arm (F) with the joint pins set at the center of their range of movement.

NOTE: The stabilizer link has a paint mark (G). The left stabilizer link is marked with yellow paint, and the right stabilizer link is marked with white paint.

5. Install the new flange nuts, and tighten them to the specified torque while holding the respective joint pin with a hex wrench.
6. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.

Front Suspension

Stabilizer Bar Replacement

Special Tools Required

- 2008 V6 Attachment Arm SIL02C000033*
- Engine Support Hanger, A and Reds AAR-T1256*
- Engine Hanger Balance Bar VSB02C000019*
- Subframe Adapter VSB02C000016*
- Subframe Alignment Pin 070AG-SJAA10S

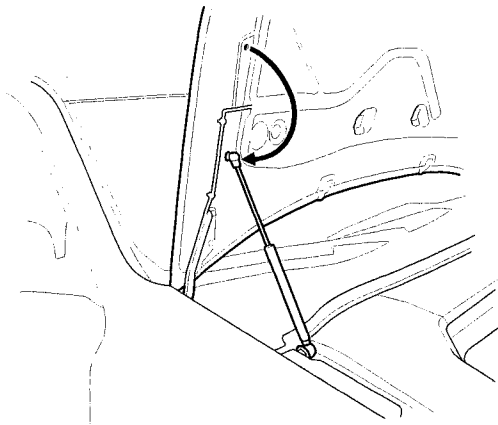
*: Available through the Acura Tool and Equipment Program, 888-424-6857

1. Note these items during replacement:

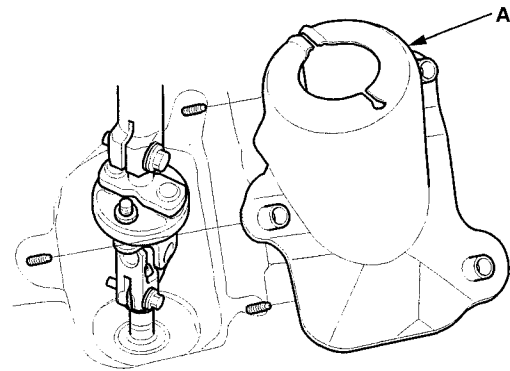
- Be sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.
- Lower the front subframe from the body, and replace the front stabilizer bar through the gap created by lowering the front subframe.

2. Disconnect the support struts from both sides of the pivot ball (bolted to the hood). Secure the hood in a vertical position. Install the right side pivot ball into the lower threaded hole.

NOTE: Do not attempt to close the hood with the support strut in the vertical position, as it will damage the support strut and hood.



3. Remove the engine compartment covers (see page 20-186).
4. Do the battery terminal disconnection procedure (see page 22-86).
5. Remove the front strut brace (see page 20-210).
6. Raise and support the vehicle (see page 1-10).
7. Remove the front wheels.
8. Disconnect both sides of the stabilizer link from the stabilizer bar (see page 18-23).
9. Disconnect both sides of the tie-rod end ball joint from the knuckle (see step 9 on page 18-15).
10. Remove the driver's airbag and the steering wheel (see page 17-6).
11. Remove the steering joint cover (A).

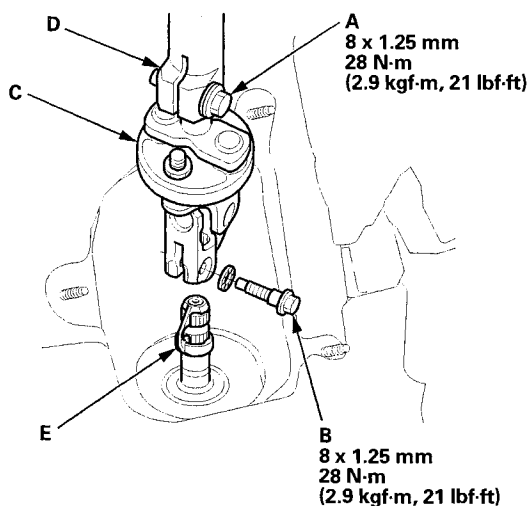




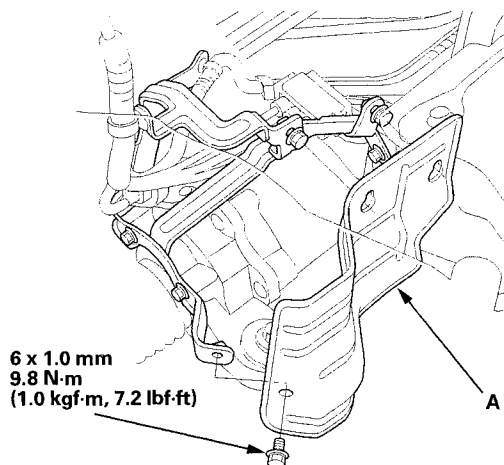
12. Loosen the upper steering joint bolt (A), and remove the lower steering joint bolt (B). Disconnect the steering joint (C) by sliding the steering joint into the column shaft (D). Tighten the steering joint upper bolt to hold the column shaft.

NOTE:

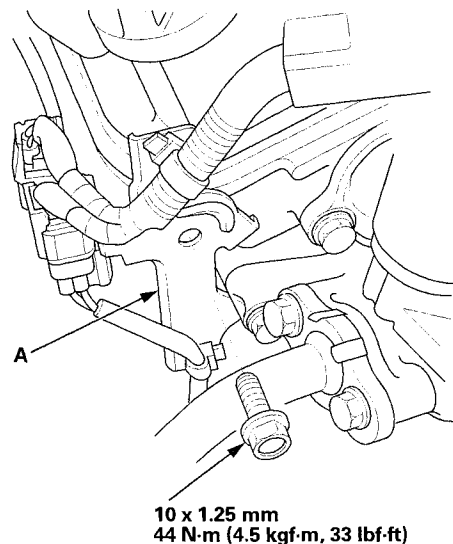
- If the center guide (E) is in place and has not moved, leave it in place.
- If the center guide has moved or been removed, discard it.



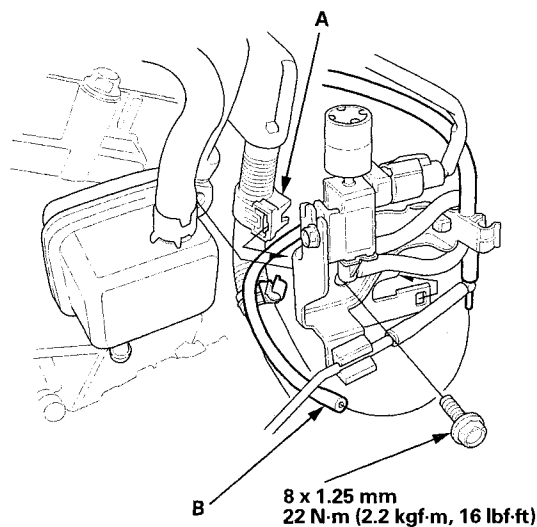
13. M/T: Remove the P/S heat shield (A).



14. Remove the connector bracket (A) from the front cylinder head; use the bracket bolt hole to attach the engine hanger balance bar front arm.



15. Remove the harness clamp (A), then remove the engine mount control solenoid valve bracket from the rear cylinder head; use the bracket bolt hole to attach the 2008 V6 attachment arm.



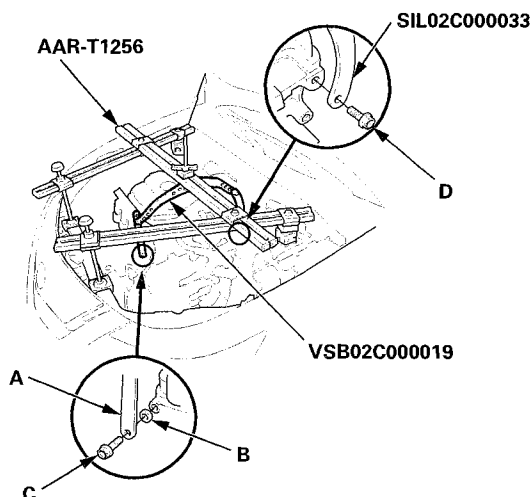
16. A/T: Disconnect the vacuum hose (B).

(cont'd)

Front Suspension

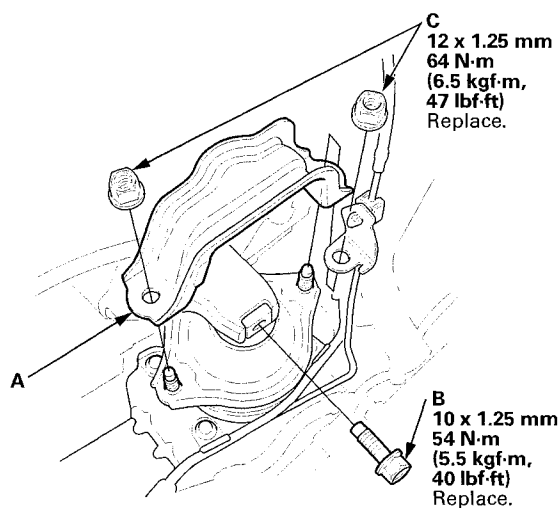
Stabilizer Bar Replacement (cont'd)

17. Lift and support the engine with the engine support hanger (AAR-T1256) and the engine hanger balance bar (VSB02C000019). Attach the front arm (A) to the front cylinder head with a spacer (B) and a 10 x 1.25 mm bolt (C). Remove the rear arm from the engine hanger balance bar, and install the 2008 V6 attachment arm (SIL02C000033), then attach the 2008 V6 attachment arm to the rear cylinder head with a 8 x 1.25 mm bolt (D).



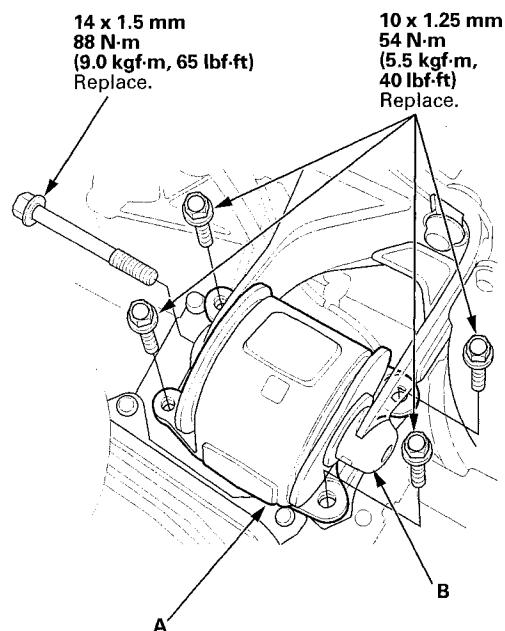
18. Remove the front engine mount stop (A), then remove the front engine mount bolt (B).

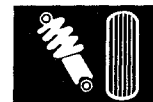
NOTE: Use new nuts (C) and a front engine mount bolt during reassembly.



19. M/T: Remove the rear engine mount bolts from the rear engine mount (A) and the rear engine mount bracket (B).

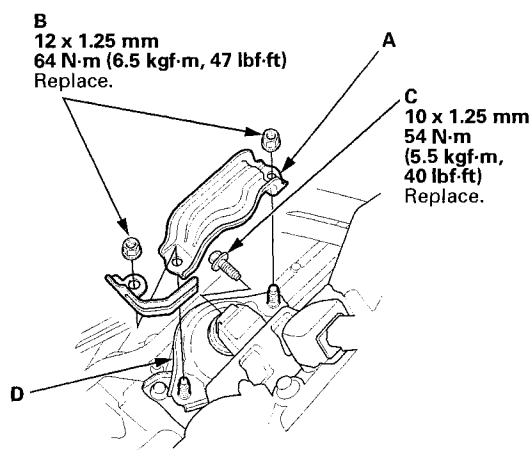
NOTE: Use new engine mount bolts during reassembly.





20. A/T: Remove the rear engine mount stop (A).

NOTE: Use new nuts (B) during reassembly.



21. A/T: Remove the rear engine mount bolt (C) from the rear engine mount (D).

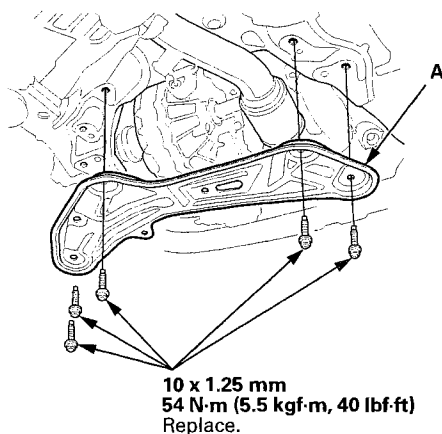
NOTE: Use a new rear engine mount bolt during reassembly.

22. Raise the vehicle on the lift.

23. Remove the front splash shield (see page 20-205).

24. Remove the flange bolts, and remove the front subframe stiffener (A).

NOTE: Use new flange bolts during reassembly.



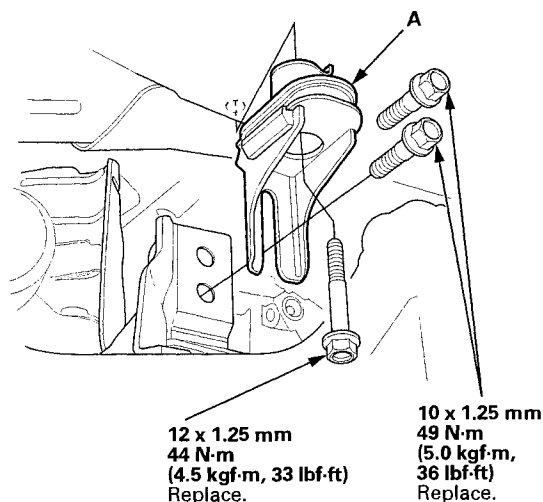
25. Remove exhaust pipe A:

- Without SH-AWD (see page 9-9)
- With SH-AWD (see page 9-10)

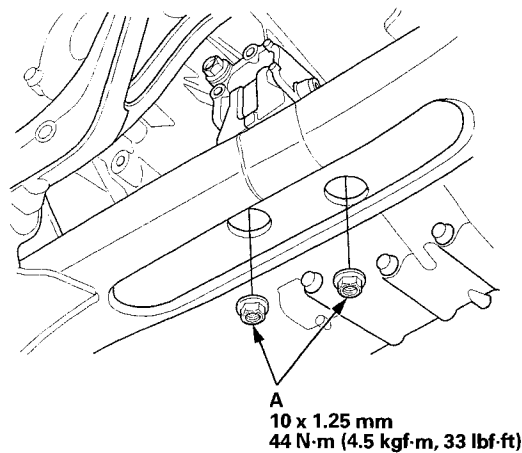
26. With SH-AWD: Remove the propeller shaft (see page 16-50).

27. Remove the front subframe mounting bolts, and the front subframe middle mounts (A).

NOTE: Use new mounting bolts during reassembly.



28. Remove the nuts (A) securing the lower transmission mount.

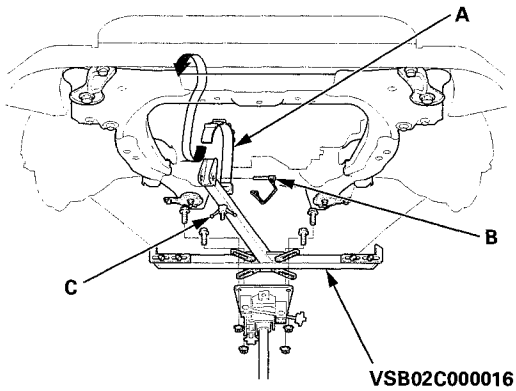


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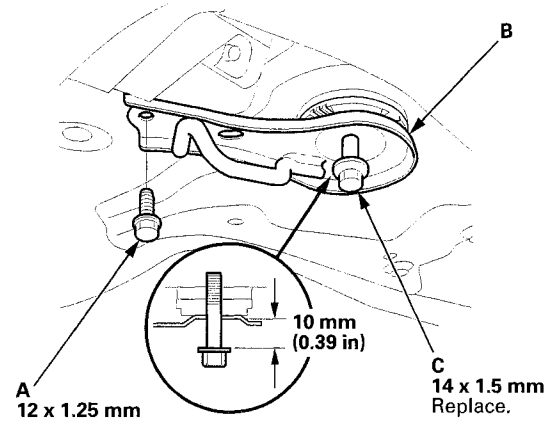
Front Suspension

Stabilizer Bar Replacement (cont'd)

29. Attach the subframe adapter (VSB02C000016) to a transmission jack, then raise up the jack to the subframe. Hang the belt (A) over the front of the subframe, then secure the belt by inserting the stop (B) and then tighten the wing nut (C).

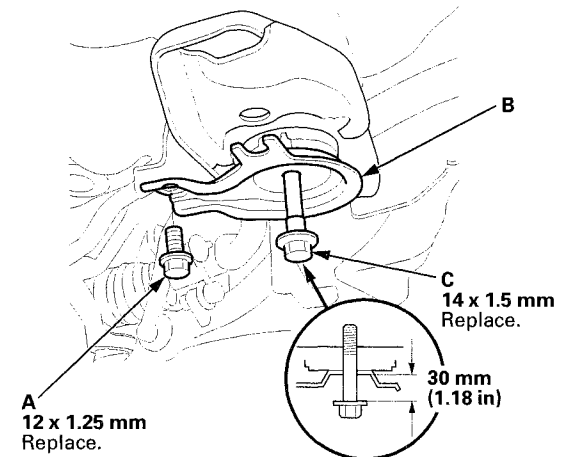


30. Remove the stiffener mounting bolt (A) on both sides of the front stiffener (B).

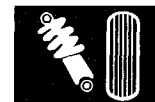


31. Loosen the subframe mounting bolts (C) to obtain a 10 mm (0.39 in) distance between the bolt seat and the mounting surface. Do not loosen the mounting bolts more than necessary.

32. Remove the stiffener mounting bolt (A) on both sides of the rear stiffener (B).



33. Loosen the subframe mounting bolts (C) to obtain a 30 mm (1.18 in) distance between the bolt seat and the mounting surface. Do not loosen the mounting bolts more than necessary.

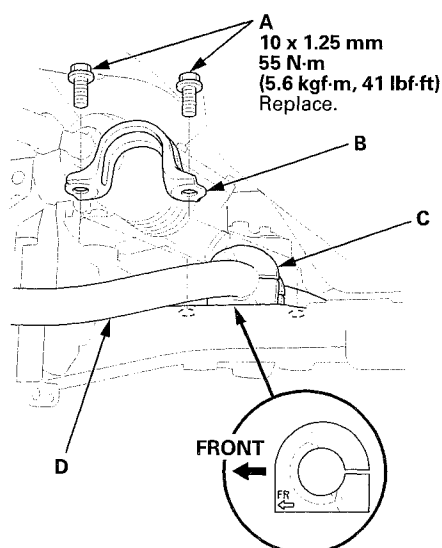


34. Lower the transmission jack slowly with the front subframe adapter until the front subframe has dropped about 30 mm (1.18 in).

NOTE: Do not lower the front subframe beyond the loosened subframe mounting bolts clearance.

35. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C).

NOTE: Use new flange bolts during reassembly.



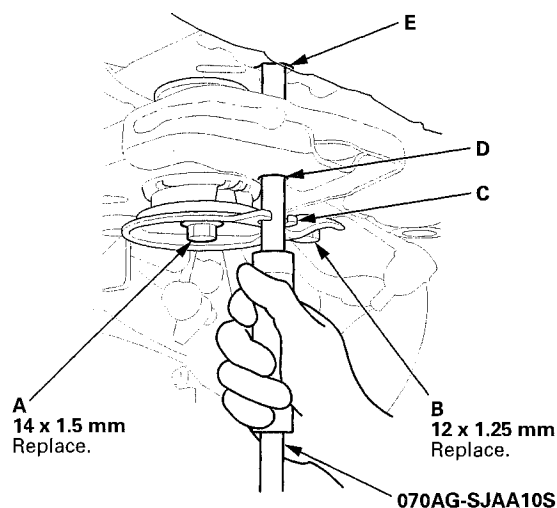
36. Move the stabilizer bar (D) toward the passenger's side, and remove the stabilizer bar.

37. Install the stabilizer bar.

NOTE:

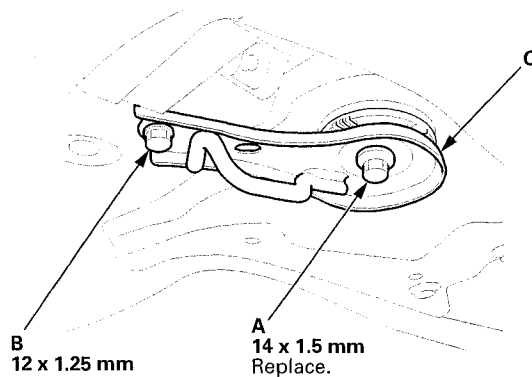
- Note the right and left direction of the stabilizer bar.
- Note the direction of installation for the bushings.
- Do not set the bushings on the bent or curved part of the stabilizer bar.

38. Loosely install the new right rear subframe mounting bolt (A) and the new stiffener mounting bolt (B); insert the 15.7 mm side of the subframe alignment pin (070AG-SJAA10S) through the positioning slot (C) on the rear stiffener, through the positioning hole (D) on the front subframe, and into the positioning hole (E) on the body, then tighten the right rear subframe mounting bolt.



39. Loosely install the new left rear subframe mounting bolt and the new stiffener mounting bolt with the same procedure as the right rear using the subframe alignment pin.

40. Loosely install the new subframe mounting bolt (A) and the stiffener mounting bolt (B) to both front stiffeners (C).

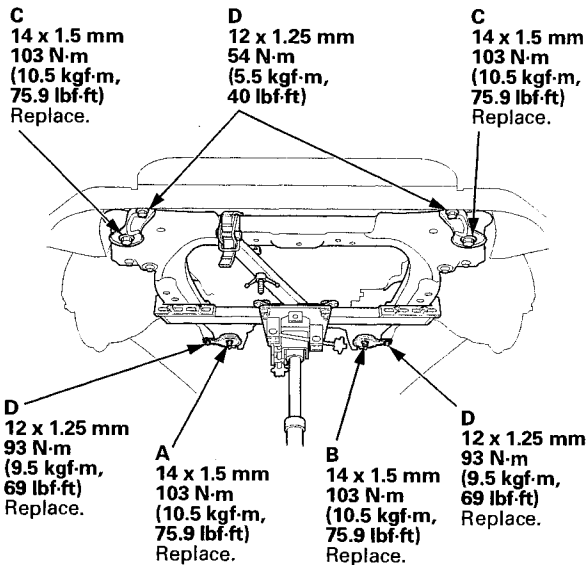


(cont'd)

Front Suspension

Stabilizer Bar Replacement (cont'd)

41. Tighten the right rear subframe mounting bolt (A) to the specified torque.



42. Tighten the left rear subframe mounting bolt (B) to the specified torque.

43. Tighten the front side subframe mounting bolts (C) to the specified torque.

NOTE: Check all of the subframe mounting bolts, and retighten if necessary.

44. Tighten the stiffener mounting bolts (D) to the specified torque.

NOTE: Before tightening the stiffener mounting bolts, check that the positioning holes and slot are aligned using the subframe alignment pin.

45. Install all of the removed parts in the reverse order of removal, and note these items:

- Refer to stabilizer link removal/installation to connect the stabilizer bar to the links (see page 18-23).
- If the center guide is in place, use it to determine the steering joint installation angle.
- If the center guide is gone, check the steering joint installation angle (see step 3 on page 17-11).
- Check the steering wheel installation (see page 17-8).
- When connecting the front and rear engine mount, first lightly tighten the mounting bolts, supporting the engine/transmission with a floor jack, then remove the jack, and tighten the bolts to the specified torque.
- Before installing the wheel, clean the mating surfaces of the brake disc and inside of the wheel.

46. Do the battery terminal reconnection procedure (see page 22-86), then turn the ignition switch to ON (II) and check that the SRS indicator should come on for about 6 seconds and then go off.

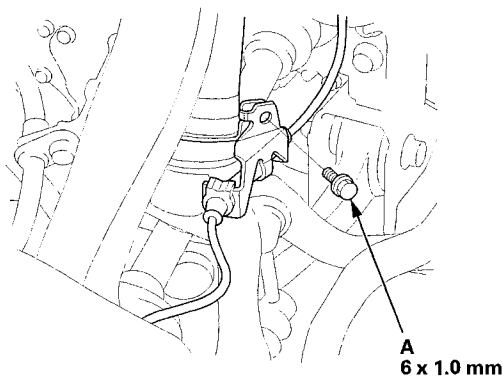
47. Check the wheel alignment, and adjust it if necessary (see page 18-5).



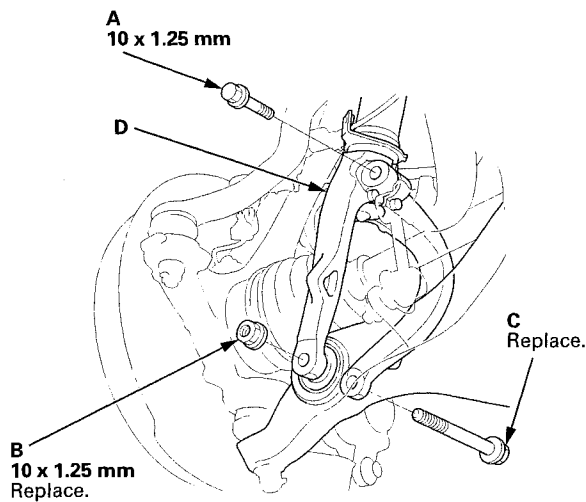
Damper/Spring Removal and Installation

Removal

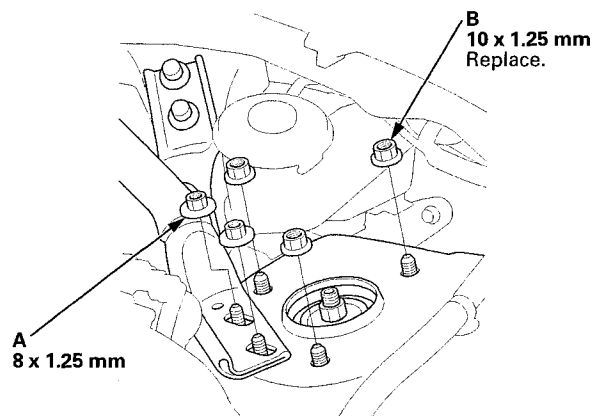
1. Raise and support the vehicle (see page 1-10).
2. Remove the front wheel.
3. Remove the wheel speed sensor harness bracket mounting bolt (A).



4. Remove the damper pinch bolt (A) and the damper fork mounting nut (B) while holding the mounting bolt (C), then remove the damper fork (D) from the damper and the lower arm.



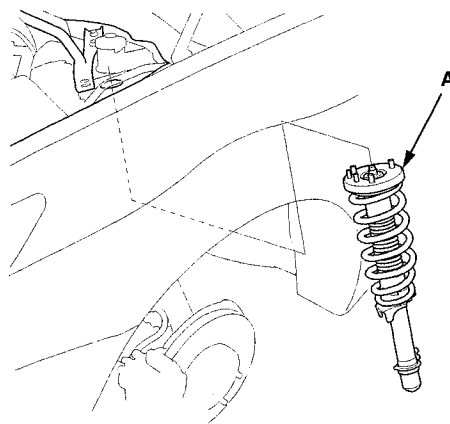
5. Remove the front strut brace mounting nuts (A).



6. Remove the damper mounting nuts (B) from the top of the damper. Do not let the damper/spring drop down under its own weight.

7. Remove the damper/spring (A).

NOTE: Be careful not to damage the body.



(cont'd)

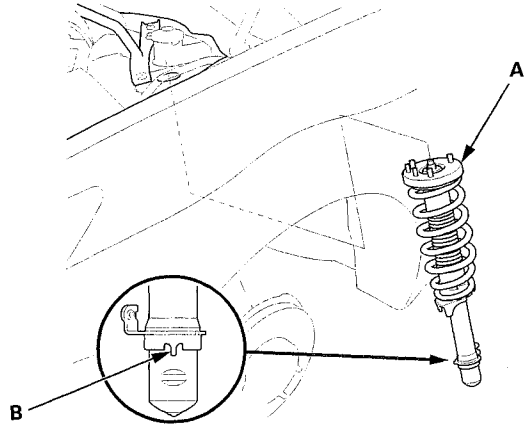
Front Suspension

Damper/Spring Removal and Installation (cont'd)

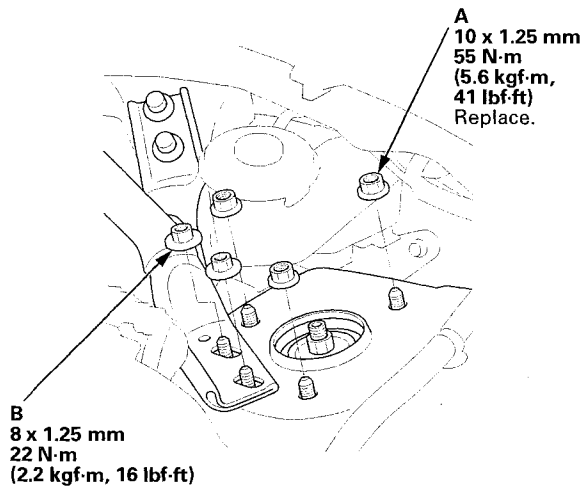
Installation

1. Position the damper/spring (A) in the body with the aligning tab (B) facing inside.

NOTE: Be careful not to damage the body.

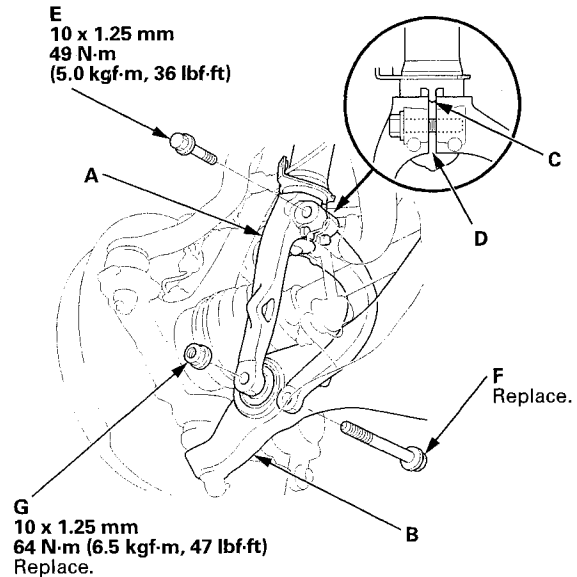


2. Loosely install the new damper mounting nuts (A) to the top of the damper.



3. Loosely install the front strut brace mounting nuts (B).

4. Install the damper fork (A) over the driveshaft and onto the lower arm (B). Install the aligning tab (C) on the damper unit into the slot (D) of the damper fork.

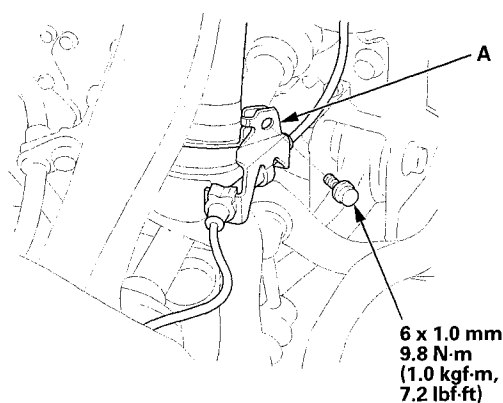


5. Loosely install the damper pinch bolt (E) into the damper fork.

6. Connect the damper fork and the lower arm with the new damper fork mounting bolt (F), then lightly tighten the new mounting nut (G).



7. Place a floor jack under the lower arm, and raise the suspension to load it with the vehicle's weight.
8. Tighten the damper pinch bolt and the damper fork mounting nut while holding the mounting bolt to the specified torque.
9. Tighten the damper mounting nuts and front strut brace mounting nuts on top of the damper to the specified torque.
10. Install the wheel speed sensor harness bracket (A).

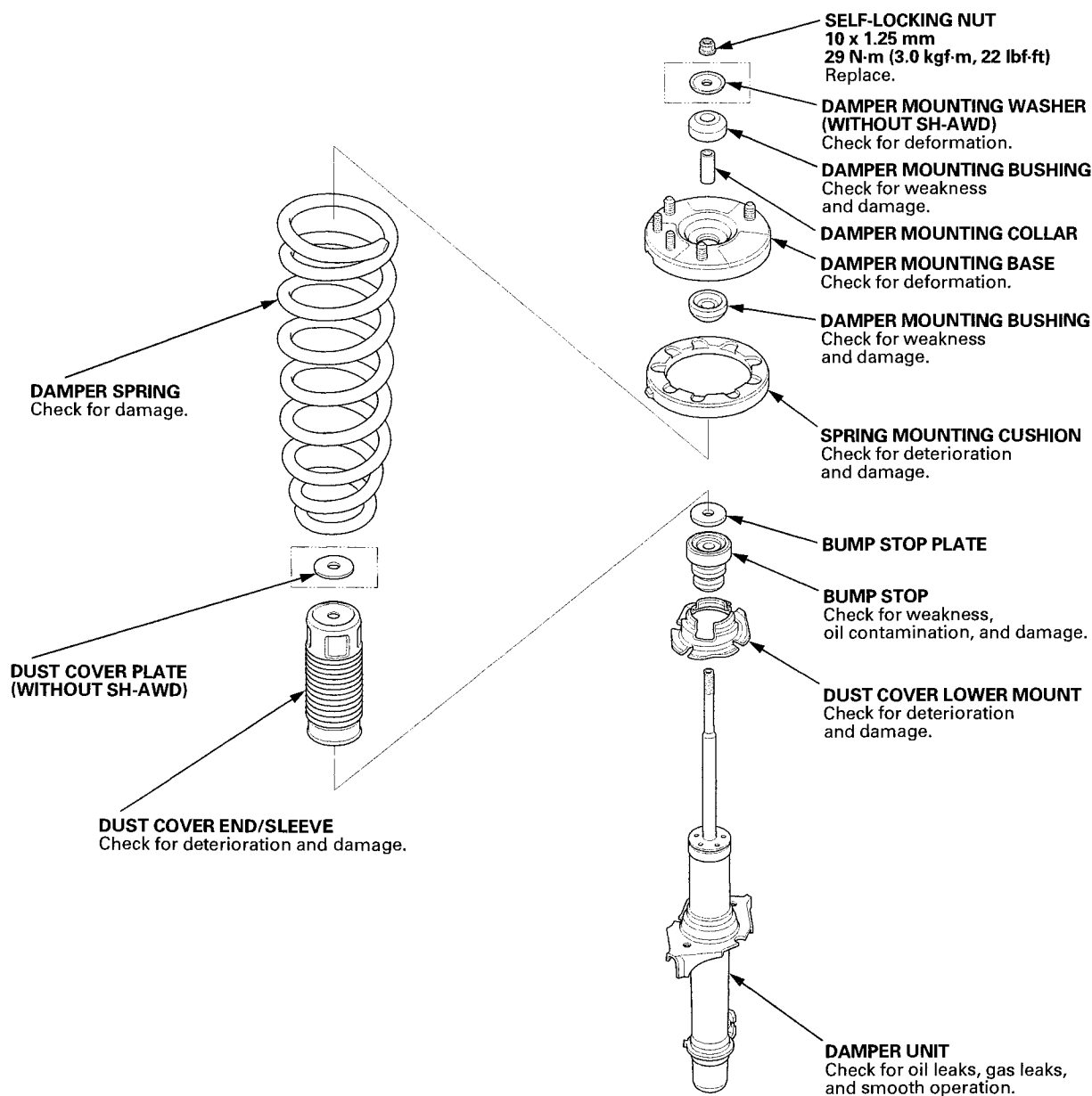


11. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.
12. Check the wheel alignment, and adjust it if necessary (see page 18-5).

Front Suspension

Damper/Spring Disassembly, Inspection, and Reassembly

Exploded View



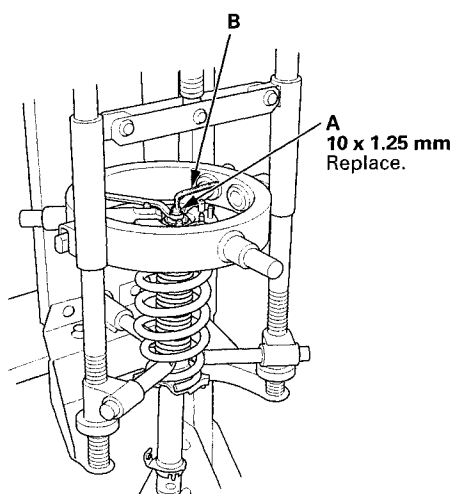


NOTE:

- When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or Model 7200, or equivalent) according to the manufacturer's instructions.
- Refer to the Exploded View as needed during the following procedure.

Disassembly

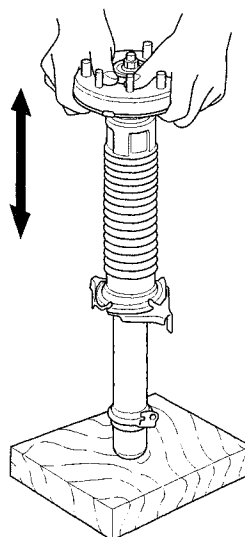
1. Compress the damper spring, then remove the self-locking nut (A) while holding the damper shaft with a hex wrench (B). Do not compress the damper spring more than is necessary to remove the self-locking nut.



2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

1. Reassemble all the parts, except for the damper spring.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.



3. Check for oil leaks, abnormal noises, and binding during these tests.

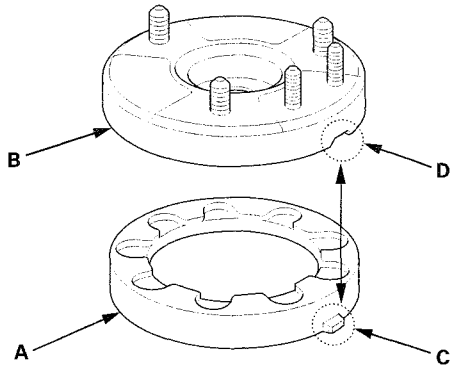
(cont'd)

Front Suspension

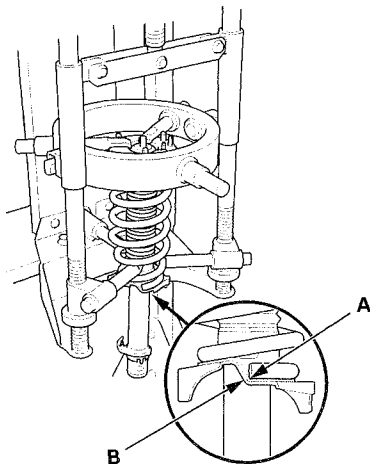
Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

Reassembly

1. Install the spring mounting cushion (A) on the damper mounting base (B) by aligning the tab (C) and notch (D).

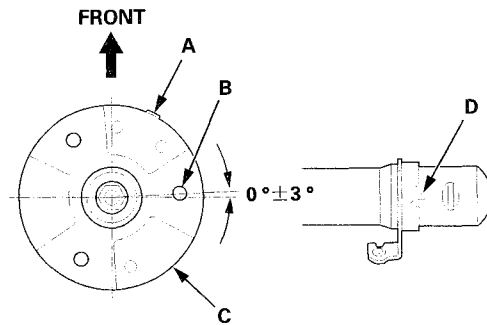


2. Install all the parts except the damper mounting washer (Without SH-AWD) and the self-locking nut onto the damper unit by referring to the Exploded View.
3. Compress the damper spring using a strut spring compressor. Do not compress the spring excessively.
4. Align the lower end (A) of the damper spring with the stepped part (B) of the dust cover lower mount and the lower spring seat on the damper unit.

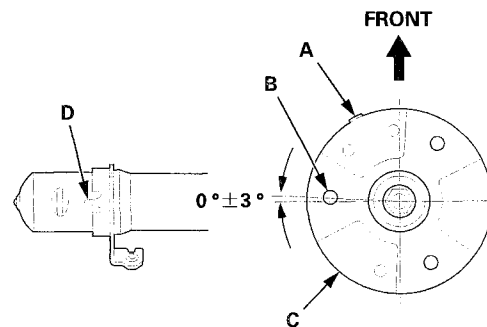


5. Position the tab (A) on the spring mounting cushion facing forward but toward the inside of the vehicle.

Left



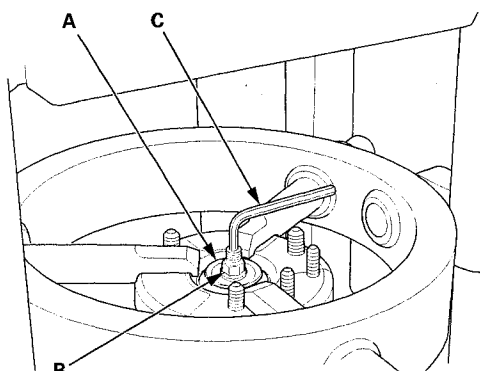
Right



6. Align the angle of the stud (B) on the damper mounting base (C) with the aligning tab (D) on the bottom of the damper unit as shown.



7. Install the damper mounting washer (Without SH-AWD) (A) and the new self-locking nut (B).



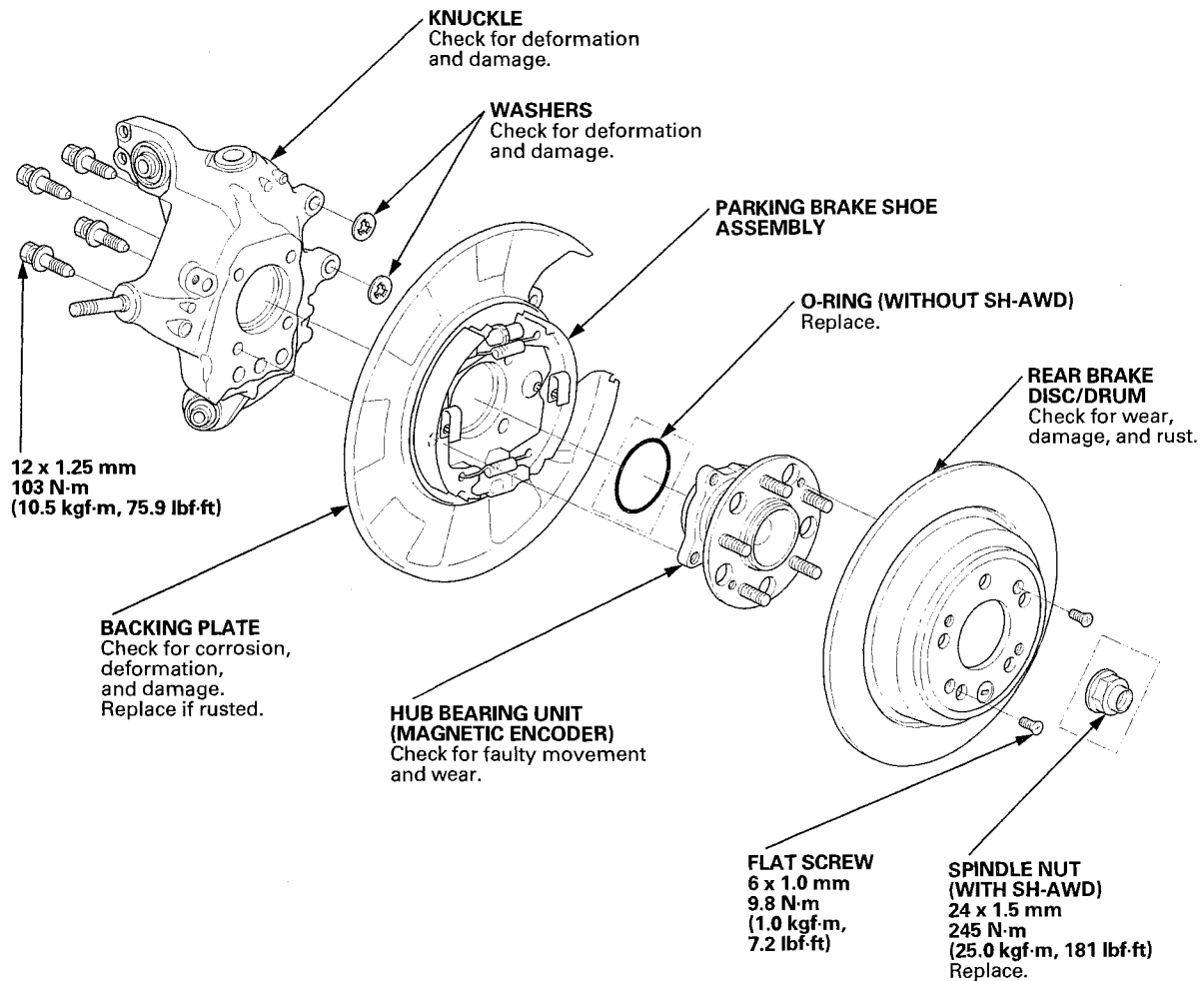
B
10 x 1.25 mm
29 N·m (3.0 kgf·m, 22 lbf·ft)
Replace.

8. Hold the damper shaft with a hex wrench (C), and tighten the self-locking nut to the specified torque.
9. Remove the damper/spring from the strut spring compressor.

Rear Suspension

Knuckle/Hub Bearing Unit Replacement

Exploded View



Apply a small amount of engine oil to the seating surface of the nut.



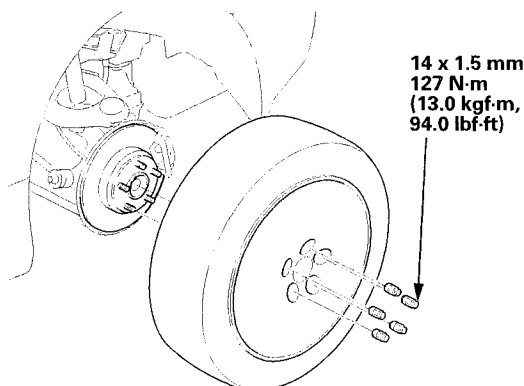
Special Tools Required

- Ball Joint Thread Protector, 14 mm 07AAE-SJAA100
- Ball Joint Remover, 32 mm 07MAC-SL0A102

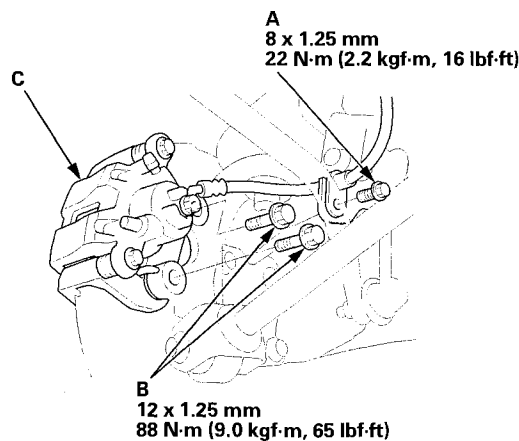
NOTE: Refer to the Exploded View as needed during the following procedure.

Hub Bearing Unit Replacement

1. Raise and support the vehicle (see page 1-10).
2. Remove the wheel nuts, and the rear wheel.



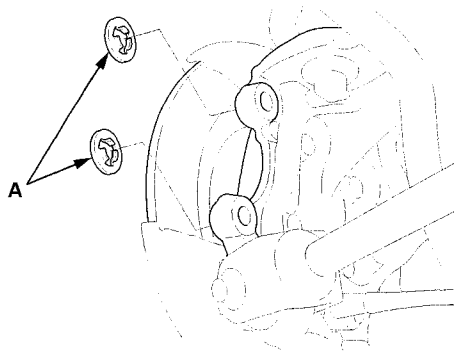
3. Release the parking brake lever fully.
4. Remove the brake hose mounting bolt (A).



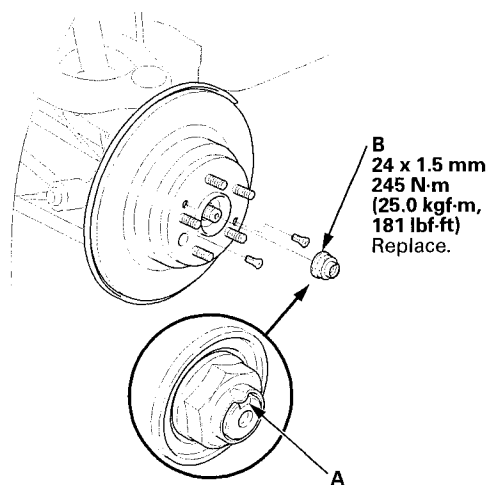
5. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or the brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.

6. Remove the two washers (A).

NOTE: During installation, make sure the washers are installed between the brake caliper bracket and the knuckle.



7. With SH-AWD: Pry up the stake (A) on the spindle nut (B), then remove the nut.



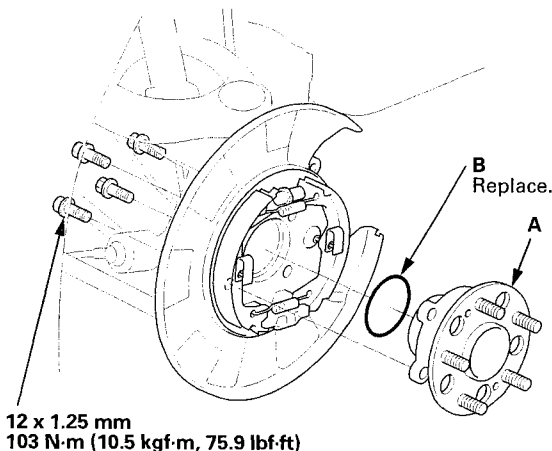
8. Remove the rear brake disc/drum (see page 19-29).

(cont'd)

Rear Suspension

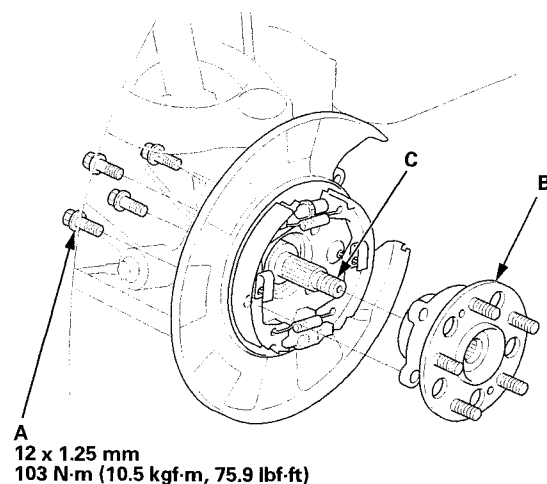
Knuckle/Hub Bearing Unit Replacement (cont'd)

9. Without SH-AWD: Remove the hub bearing unit (A) and the O-ring (B).



10. With SH-AWD: Remove the flange bolts (A), and remove the hub bearing unit (B) by tapping the driveshaft end (C) with a soft face hammer while drawing the hub bearing unit outward.

NOTE: Do not pull the driveshaft end outward. The driveshaft inboard joint may come apart.



11. Check the hub bearing unit for damage and cracks.

12. Install the hub bearing unit in the reverse order of removal, and note these items:

- Without SH-AWD: Use a new O-ring on reassembly.
- With SH-AWD: Use a new spindle nut on reassembly.
- With SH-AWD: Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before installing the brake disc/drum, clean the mating surfaces of the hub bearing unit and the brake disc/drum.
- Before installing the wheel, clean the mating surfaces of the brake disc/drum and the inside of the wheel.

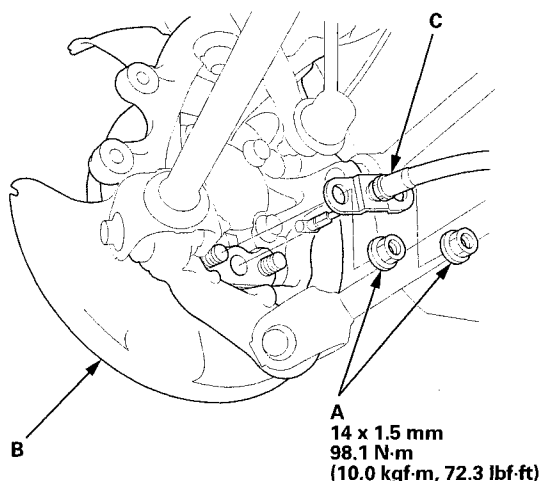
13. Check the wheel alignment, and adjust it if necessary (see page 18-5).



Knuckle Replacement

NOTE: The illustrations show the model without SH-AWD; the model with SH-AWD is similar.

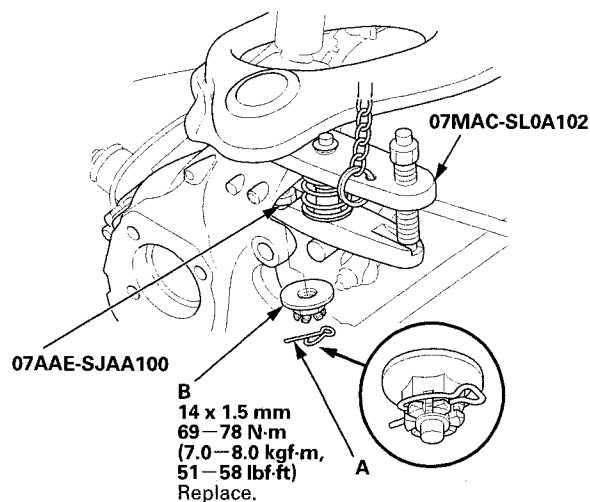
1. Remove the hub bearing unit.
2. Remove the parking brake shoes, and disconnect the parking brake cable from the parking brake lever (see page 19-34).
3. Remove the parking brake cable mounting nuts (A) from the backing plate (B), and remove the parking brake cable (C).



4. Remove the backing plate with the parking brake shoe assembly.

5. Remove the lock pin (A) from the upper arm ball joint, then remove the castle nut (B).

NOTE: During installation, install the lock pin as shown after tightening the new castle nut.

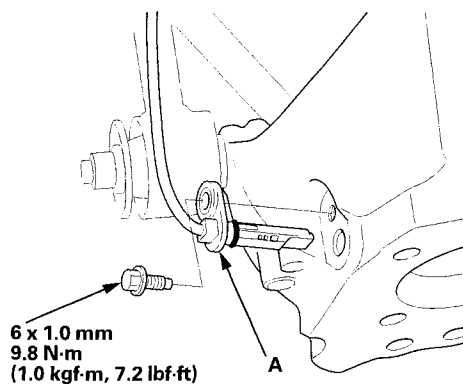


6. Disconnect the upper arm ball joint from the knuckle using the ball joint thread protector and the ball joint remover (see page 18-11).

NOTE:

- Be careful not to damage the ball joint boot when installing the remover.
- During installation, to connect the ball joint, raise up the suspension with a jack (see step 7 on page 18-43).

7. Remove the wheel speed sensor (A) from the knuckle. Do not disconnect the wheel speed sensor connector.



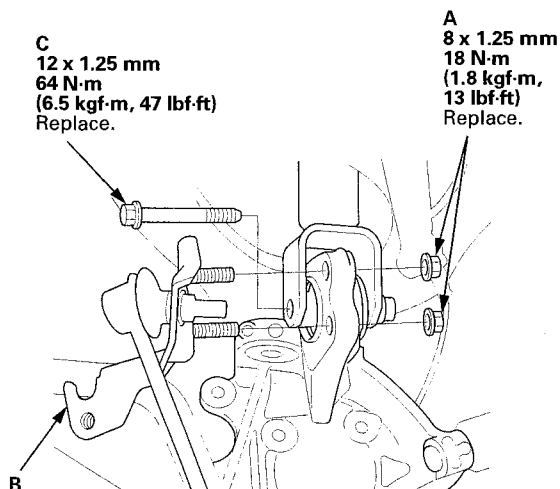
(cont'd)

Rear Suspension

Knuckle/Hub Bearing Unit Replacement (cont'd)

8. Remove the brake hose bracket mounting nuts (A), then disconnect the brake hose bracket (B) from the knuckle.

NOTE: Use the new mounting nuts during reassembly.

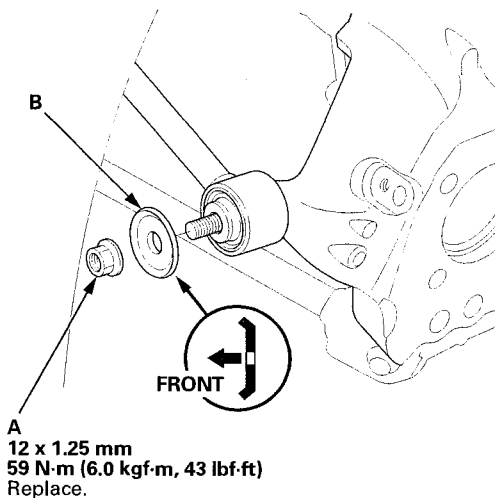


9. Remove the damper lower mounting bolt (C).

NOTE: Use a new mounting bolt during reassembly.

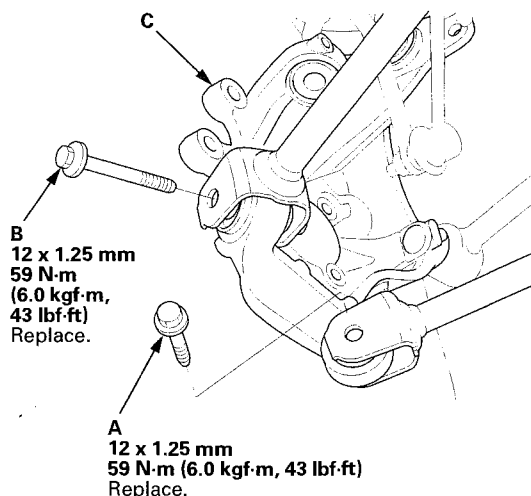
10. Remove the control arm mounting self-locking nut (A) and the washer (B).

NOTE: Use a new self-locking nut during reassembly.



11. Remove the lower arm A mounting bolt (A), and the lower arm B mounting bolt (B), then remove the knuckle (C).

NOTE: Use new mounting bolts during reassembly.



12. Install the knuckle in the reverse order of removal, and note these items:

- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section, and the mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Before installing the wheel, clean the mating surfaces on the brake disc/drum and the inside of the wheel.

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



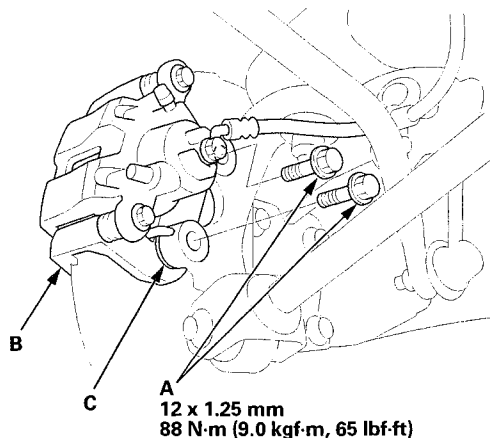
Upper Arm Replacement

Special Tools Required

- Ball Joint Thread Protector, 14 mm 07AAE-SJAA100
- Ball Joint Remover, 32 mm 07MAC-SL0A102

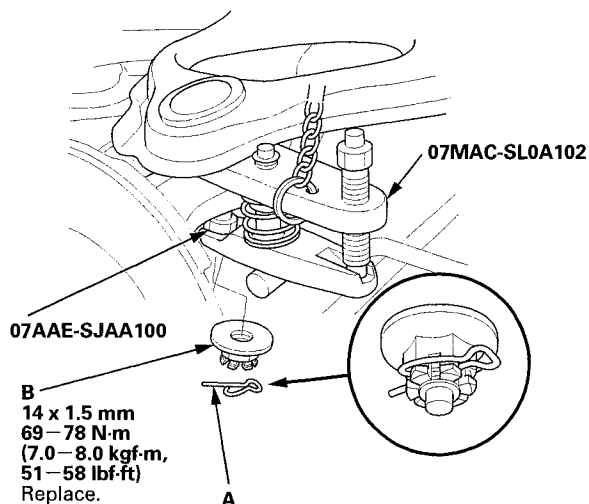
1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheel.
3. Remove the rear damper/spring (see page 18-50).
4. Release the parking brake lever fully.
5. Remove the brake caliper bracket mounting bolts (A), then remove the caliper assembly (B) from the knuckle. To prevent damage to the caliper assembly or the brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.

NOTE: Make sure the washers (C) are reinstalled between the brake caliper bracket and the knuckle, if they are removed (see step 6 on page 18-39).



6. Remove the lock pin (A) from the upper arm ball joint, then remove the castle nut (B).

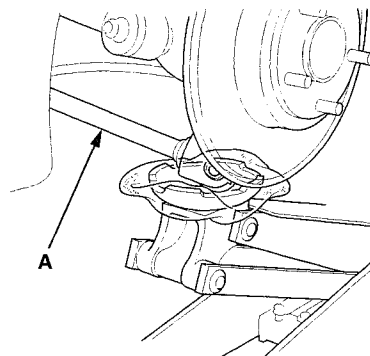
NOTE: During installation, install the lock pin as shown after tightening the new castle nut.



7. Disconnect the upper arm ball joint from the knuckle using the ball joint thread protector and the ball joint remover (see page 18-11).

NOTE:

- Be careful not to damage the ball joint boot when installing the remover.
- During installation, to connect the ball joint, position a floor jack under the connecting point of the knuckle and lower arm A, and raise the suspension with the jack.

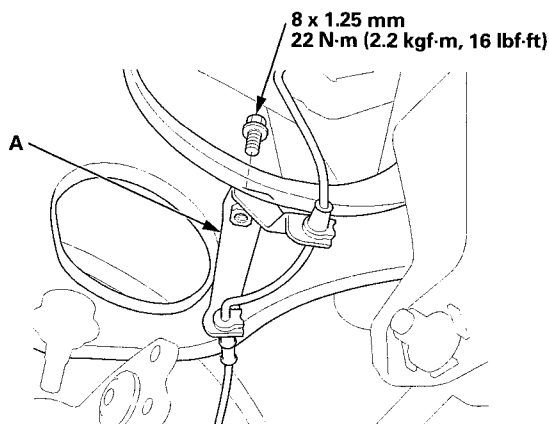


(cont'd)

Rear Suspension

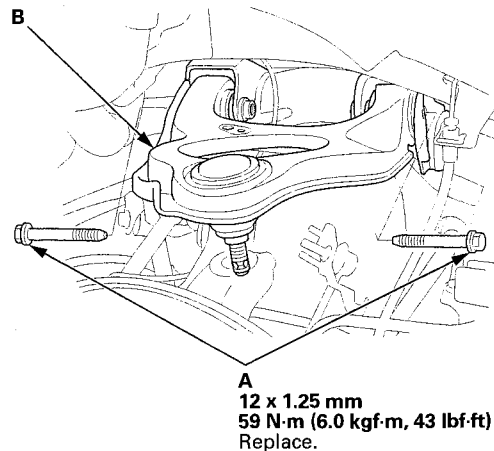
Upper Arm Replacement (cont'd)

8. Remove the wheel speed sensor harness bracket (A).



9. Remove the upper arm mounting bolts (A), then remove the upper arm (B).

NOTE: Use new mounting bolts during reassembly.



10. Install the upper arm in the reverse order of removal, and note these items;

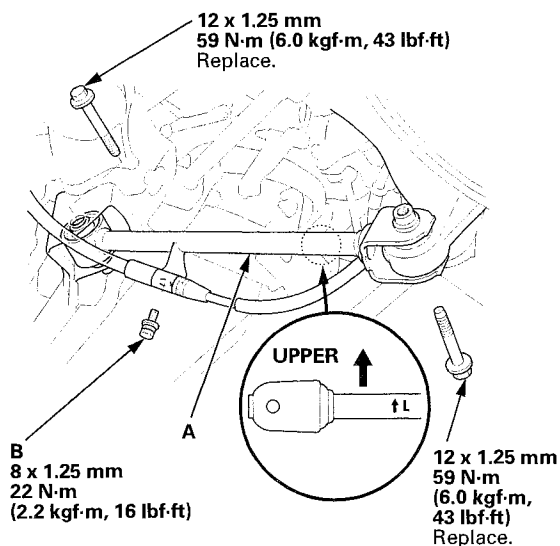
- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section, and the mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Before installing the wheel, clean the mating surfaces on the brake disc/drum and the inside of the wheel.

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



Lower Arm A Replacement

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheel.
3. Remove the parking brake cable mounting bolt (B).



4. Remove the lower arm A mounting bolts, then remove lower arm A.

NOTE: Use new mounting bolts during reassembly.

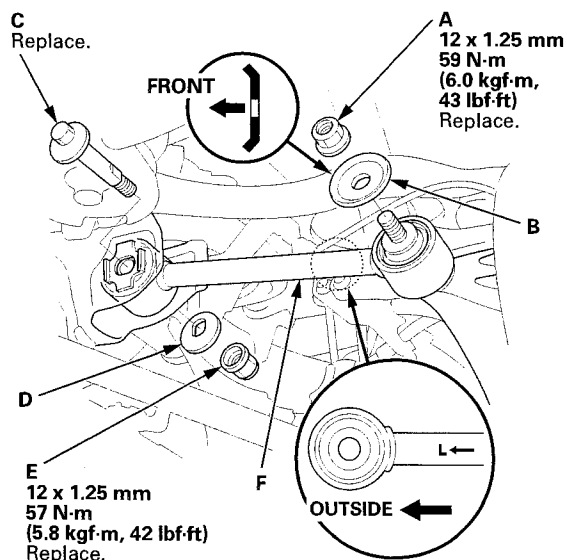
5. Install lower arm A in the reverse order of removal, and note these items:
 - First install all of the components, and lightly tighten the bolts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
 - Before installing the wheel, clean the mating surfaces on the brake disc/drum and the inside of the wheel.
6. Check the wheel alignment, and adjust it if necessary (see page 18-5).

Rear Suspension

Control Arm Replacement

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheel.
3. Remove the control arm mounting self-locking nut (A) and the washer (B) from the knuckle side.

NOTE: Use a new self-locking nut during reassembly.



4. Mark the cam positions of the adjusting bolt (C) and the adjusting cam plate (D) with the frame.
5. Remove the self-locking nut (E) while holding the adjusting bolt, then remove the adjusting cam plate, the adjusting bolt, and the control arm (F).

NOTE: Use a new adjusting bolt and a new self-locking nut during reassembly.

6. Install the control arm in the reverse order of removal, and note these items:

- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
- Position the extended surfaces of the cam on the adjusting bolt and the adjusting cam plate facing down.
- Align the cam positions of the adjusting bolt and the adjusting cam plate with the marked positions on the frame when tightening the self-locking nut.
- Before installing the wheel, clean the mating surfaces on the brake disc/drum and the inside of the wheel.

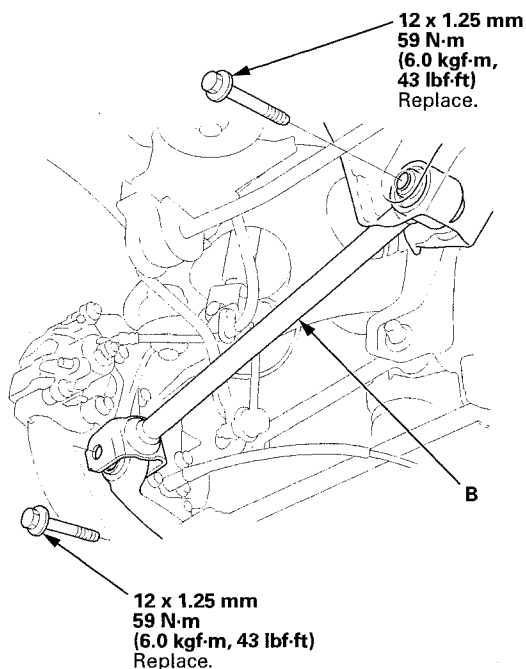
7. Check the wheel alignment, and adjust it if necessary (see page 18-5).



Lower Arm B Replacement

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheel.
3. Remove the lower arm B mounting bolts, then remove lower arm B.

NOTE: Use new mounting bolts during reassembly.

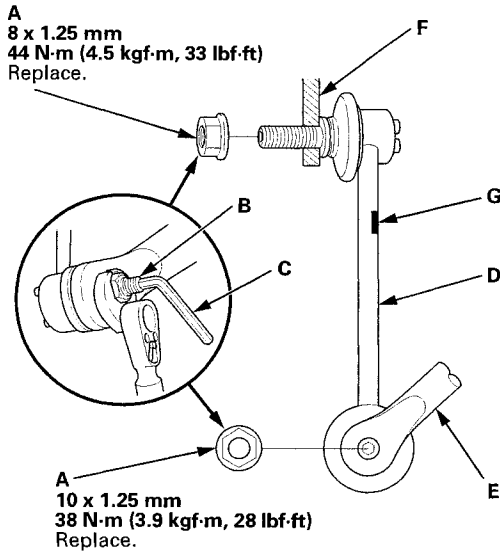


4. Install lower arm B in the reverse order of removal, and note these items:
 - First install all of the components, and lightly tighten the bolts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
 - Before installing the wheel, clean the mating surfaces on the brake disc/drum and the inside of the wheel.
5. Check the wheel alignment, and adjust it if necessary (see page 18-5).

Rear Suspension

Stabilizer Link Removal/Installation

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheel.
3. Remove the self-locking nuts (A) while holding the respective joint pin (B) with a hex wrench (C), then remove the stabilizer link (D).

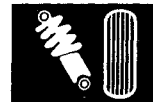


4. Install the stabilizer link on the stabilizer bar (E) and the brake hose bracket (F) with the joint pins set at the center of their range of movement.

NOTE:

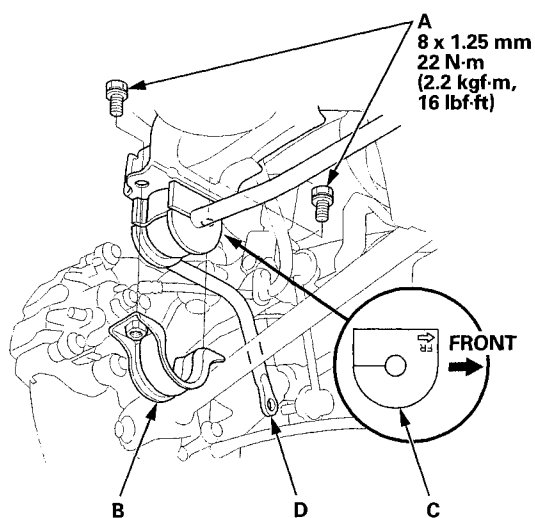
- The stabilizer link has a paint mark (G). The paint mark indicates the difference between the left and right stabilizer links.
 - Install the end of the stabilizer link with the paint mark in the upper position.
5. Install the new self-locking nuts, and tighten them to the specified torque while holding the respective joint pin with a hex wrench.

6. Clean the mating surfaces of the brake disc/drum and the inside of the wheel, then install the rear wheel.
7. Test-drive the vehicle.
8. After 5 minutes of driving, tighten the self-locking nuts again to the specified torque.



Stabilizer Bar Replacement

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheels.
3. Disconnect both stabilizer links from the stabilizer bar (see page 18-48).
4. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C) and the stabilizer bar (D).



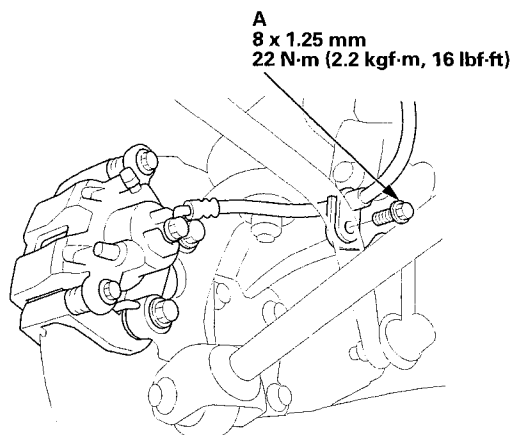
5. Install the stabilizer bar in the reverse order of removal, and note these items:
 - Note the right and left direction of the stabilizer bar.
 - Note the direction of installation for the bushing.
 - Do not set the bushings on the bent or curved part of the stabilizer bar.
 - Refer to the stabilizer link removal/installation to connect the stabilizer bar to the links (see page 18-48).
 - Before installing the wheel, clean the mating surfaces of the brake disc/drum and the inside of the wheel.

Rear Suspension

Damper/Spring Removal and Installation

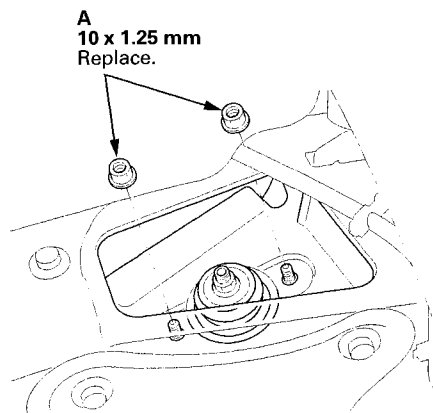
Removal

1. Raise and support the vehicle (see page 1-10).
2. Remove the rear wheel.
3. Remove the brake hose mounting bolt (A).

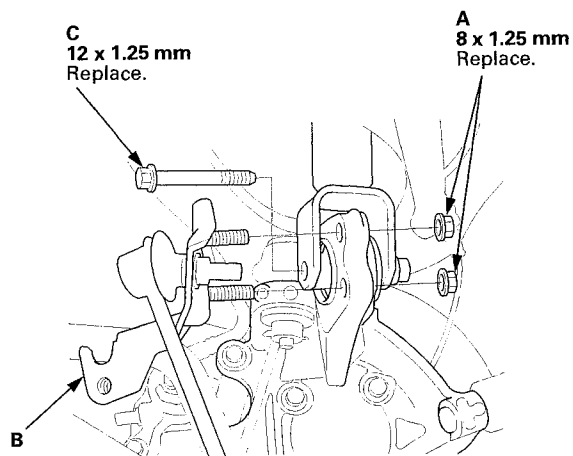


4. Remove the rear seat (see page 20-156).

5. Remove the damper mounting nuts (A) from the top of the damper.



6. Remove the brake hose bracket mounting nuts (A), then disconnect the brake hose bracket (B) from the knuckle.

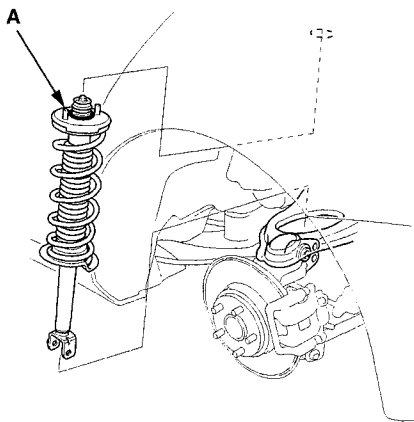


7. Remove the damper lower mounting bolt (C).



8. Remove the damper/spring (A) by lowering the rear suspension.

NOTE: Be careful not to damage the body.

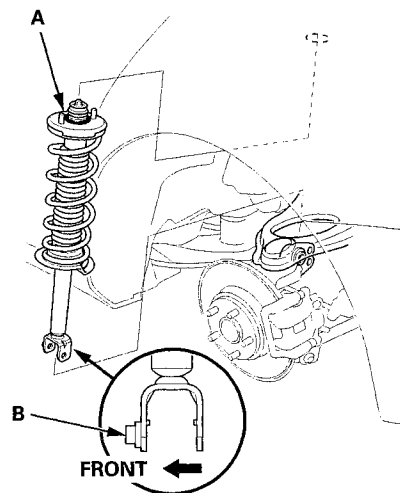


Installation

1. Lower the rear suspension, and position the damper/spring (A) in the body with the welded nut (B) on the bottom of the damper facing forward.

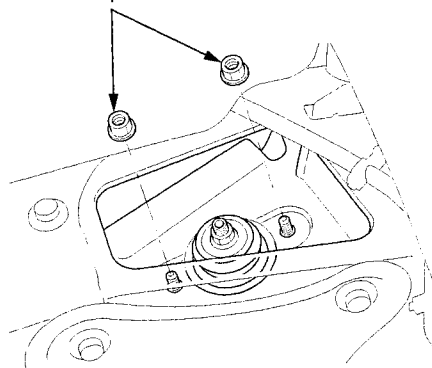
NOTE:

- Be careful not to damage the body.
- Make sure the damper is installed in the correct direction.



2. Loosely install the new damper mounting nuts (A) to the top of the damper.

A
10 x 1.25 mm
55 N·m (5.6 kgf·m, 41 lbf·ft)
Replace.

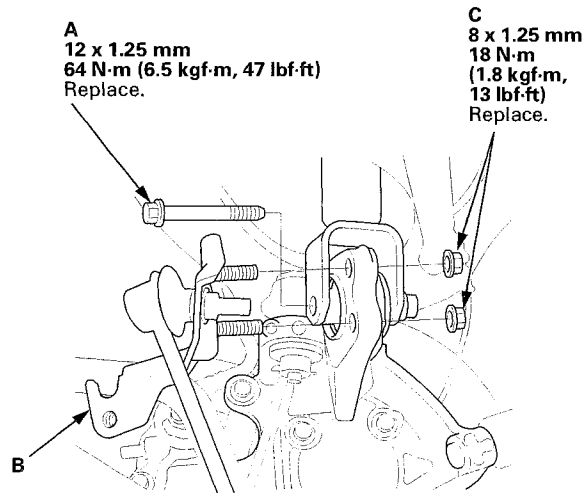


(cont'd)

Rear Suspension

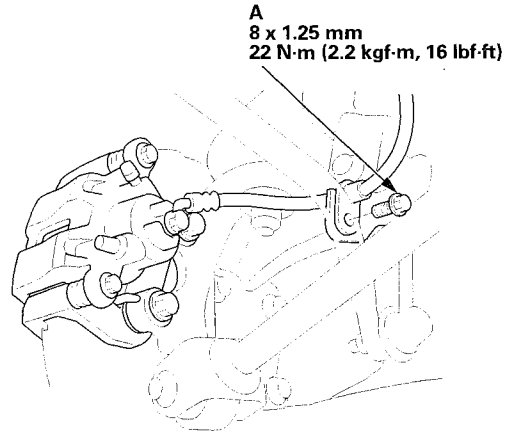
Damper/Spring Removal and Installation (cont'd)

3. Loosely install the new damper lower mounting bolt (A) on the bottom of the damper. Connect the brake hose bracket (B) to the knuckle, and loosely install the new brake hose bracket mounting nuts (C).



4. Place a floor jack under the connecting point of the knuckle and lower arm A, and raise the suspension to load it with the vehicle's weight.
5. Tighten the damper lower mounting bolt and the brake hose bracket mounting nuts to the specified torque.
6. Tighten the damper mounting nuts on top of the damper to the specified torque.

7. Install the brake hose mounting bolt (A), and tighten the mounting bolt to the specified torque.

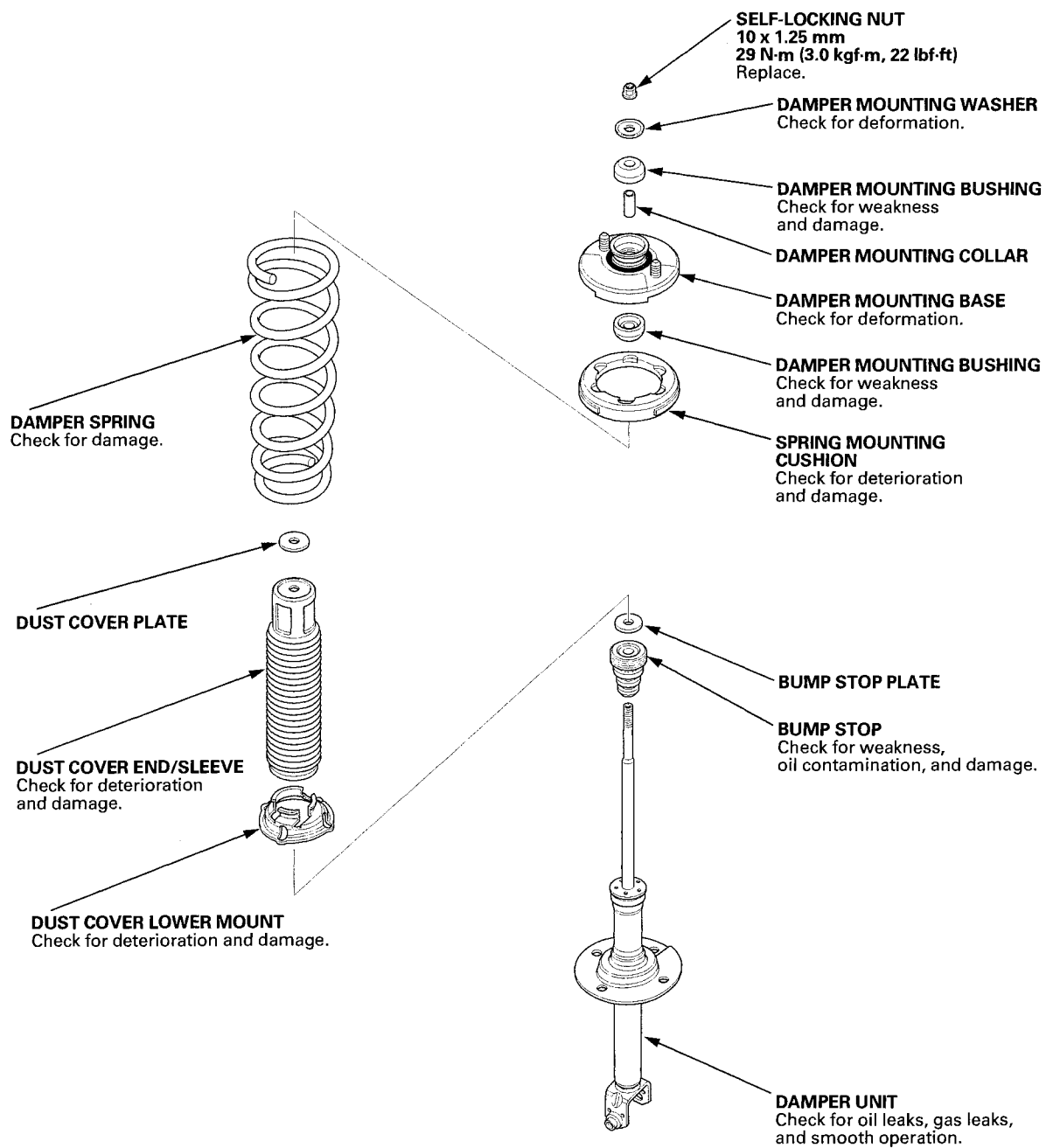


8. Install the rear seat (see page 20-156).
9. Clean the mating surfaces of the brake disc/drum and the inside of the wheel, then install the rear wheel.
10. Check the wheel alignment, and adjust it if necessary (see page 18-5).



Damper/Spring Disassembly, Inspection, and Reassembly

Exploded View



(cont'd)

Rear Suspension

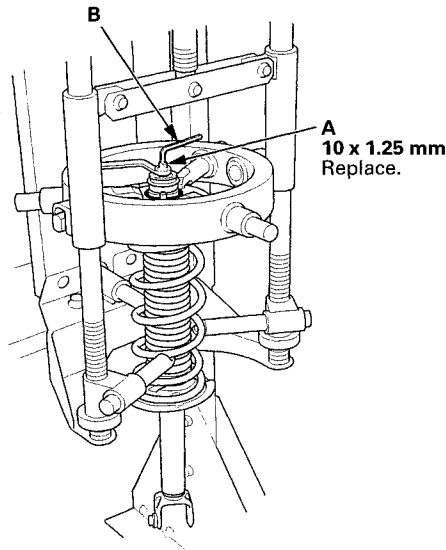
Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

NOTE:

- When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or Model 7200, or equivalent) according to the manufacturer's instructions.
- Refer to the Exploded View as needed during the following procedure.

Disassembly

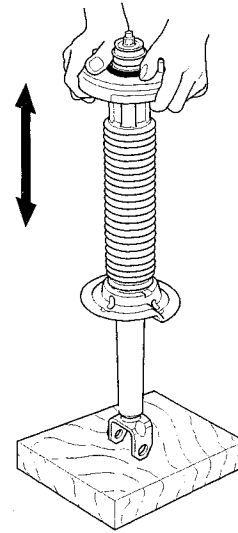
1. Compress the damper spring, then remove the self-locking nut (A) while holding the damper shaft with a hex wrench (B). Do not compress the damper spring more than is necessary to remove the self-locking nut.



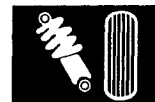
2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

1. Reassemble all parts, except for the damper spring.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.

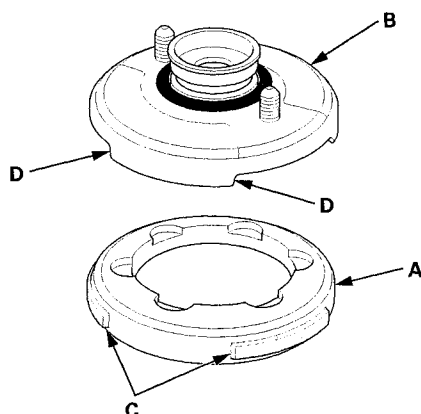


3. Check for oil leaks, abnormal noises, and binding during these tests.

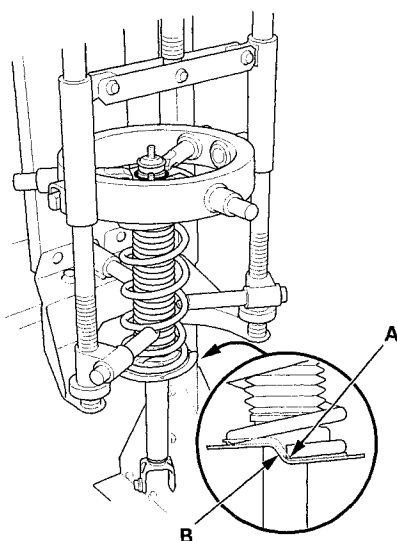


Reassembly

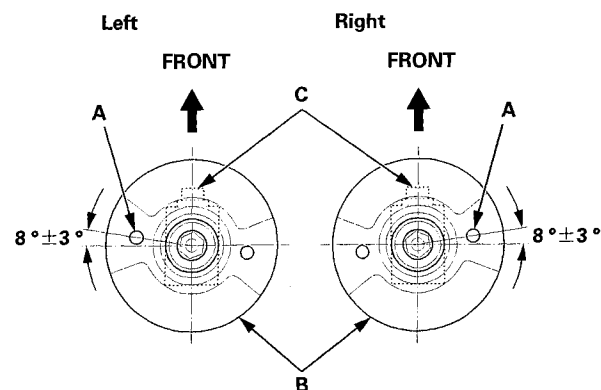
1. Install the spring mounting cushion (A) on the damper mounting base (B) by aligning the tabs (C) and notches (D).



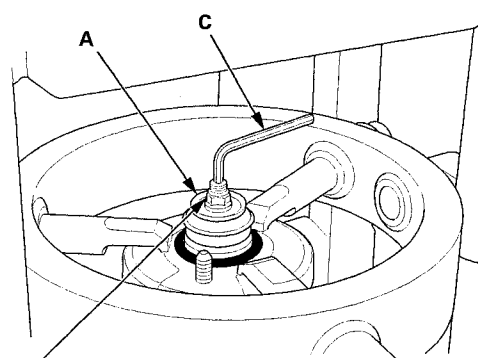
2. Install all the parts except the damper mounting washer and the self-locking nut onto the damper unit by referring to the Exploded View.
3. Compress the damper spring using a strut spring compressor. Do not compress the spring excessively.
4. Align the lower end (A) of the damper spring with the stepped part (B) of the dust cover lower mount and the lower spring seat on the damper unit.



5. Align the angle of the stud (A) on the damper mounting base (B) with the welded nut (C) on the bottom of the damper unit as shown.



6. Install the damper mounting washer (A), and loosely install the new self-locking nut (B).



B
10 x 1.25 mm
29 N·m (3.0 kgf·m, 22 lbf·ft)
Replace.

7. Hold the damper shaft with a hex wrench (C), and tighten the self-locking nut to the specified torque.
8. Remove the damper/spring from the strut spring compressor.

Suspension

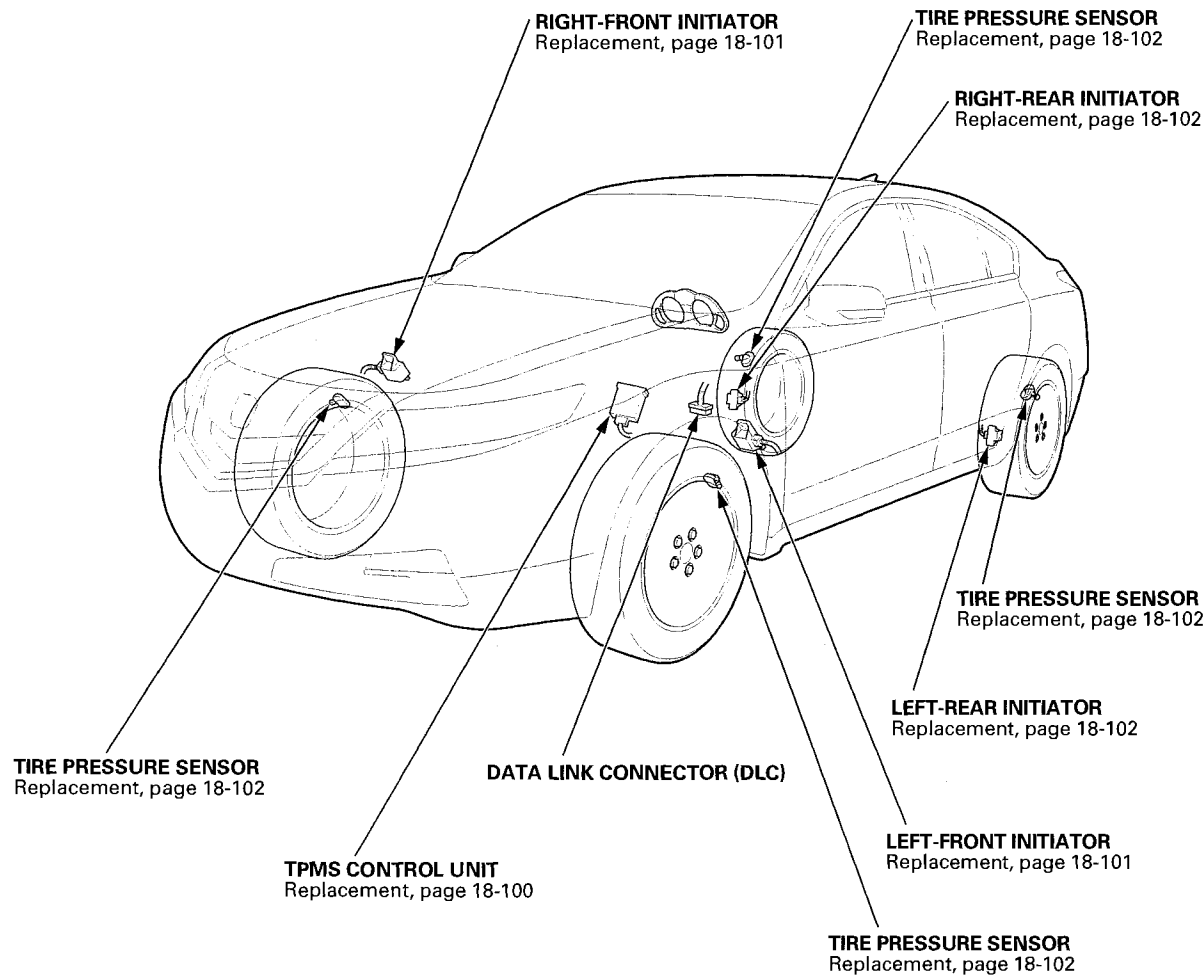
TPMS

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TPMS

Component Location Index



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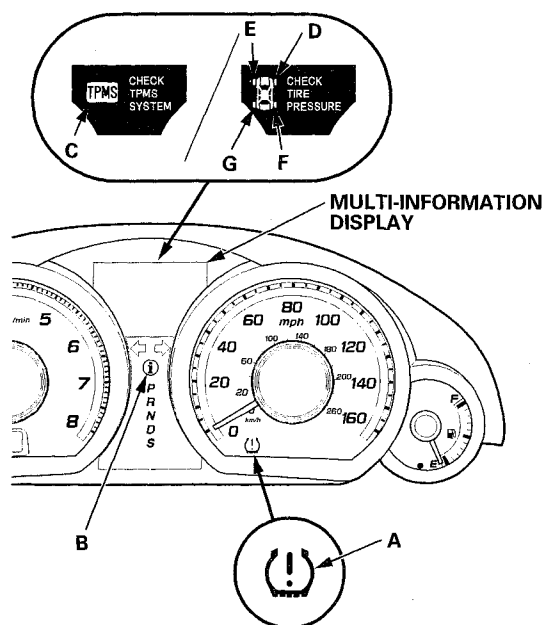


General Troubleshooting Information

System Indicator

The system has seven indicators.

- The low tire pressure indicator (A)
- The message indicator (B)
- The TPMS indicator (C)
- The right-front (RF) tire indicator (D)
- The left-front (LF) tire indicator (E)
- The right-rear (RR) tire indicator (F)
- The left-rear (LR) tire indicator (G)



The Low Tire Pressure Indicator

- If the system detects low tire pressure in any of the four tires, the low tire pressure indicator and the appropriate tire indicator(s) come on, as well as the message indicator.
- If the TPMS control unit detects a problem in the system during an indication of low tire pressure, it will turn off the tire indicator(s), store the DTC(s), and turn on the TPMS indicator and the low tire pressure indicator after blinking.

The TPMS Indicator

- If a problem in the system is detected, the TPMS indicator comes on, as well as the message indicator, and the low tire pressure indicator comes on after blinking for about 75 seconds.
- If low tire pressure and a problem in the system are detected, the TPMS indicator comes on, as well as the message indicator, and the low tire pressure indicator comes on after blinking for about 75 seconds.

If the system is OK, the low tire pressure indicator should come on when you turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and then goes off 2 seconds later. If it does not, there is a problem with the system.

(cont'd)

TPMS

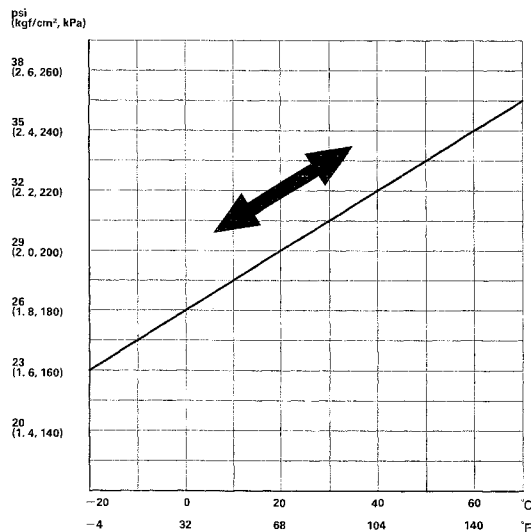
General Troubleshooting Information (cont'd)

DTC 11, 13, 15, 17

If the system detects low tire pressure in any of the four tires, the low tire pressure indicator and the appropriate tire indicator(s) with the message indicator come on, and the TPMS control unit sets one or more of these codes: DTC 11, 13, 15, 17. When the tire pressure returns to normal, and TPMS control unit receives the normal pressure signal from the tire pressure sensor, the TPMS control unit turns off the indicators.

Tire Pressure Changing by Temperature

Tire pressures increase slightly as the temperature in the tires rises during driving. Pressures can also increase or decrease slightly with changes in outside air temperature. A temperature change of about 18 °F (10 °C) changes tire pressure by about 10 kPa (0.1 kgf/cm², 1.5 psi). If the temperature drops, tire pressure could decrease enough to turn on the low tire pressure indicator and tire indicator(s), but later, the tire temperature could increase enough to turn indicator off. To resolve a complaint of such intermittent indications, confirm and clear the stored DTC(s) and check the tire pressures. Then explain to the client how temperature changes can affect the system.



Problems That Are Not System Faults

- **Tire Sealant**
Fluid sealant used to repair a punctured tire can damage the tire pressure sensor mounted on each wheel. It can prevent the system from detecting the correct tire pressure, which sets a DTC 11, 13, 15 or 17 even though the system is normal.
- **Cold Weather**
When the weather is extremely cold, about -40 °F (-40 °C) or colder, the output of the lithium battery in each tire pressure sensor may drop far enough that the TPMS control unit sets a DTC for low battery voltage (31, 33, 35, or 37) even though the system is normal.
- **Non-TPMS Type Wheels (Including Spare Tire)**
Vehicles equipped with TPMS must use wheels made for the system. Every TPMS type wheel has an exclusive mark; do not use any other type of wheel (see page 18-69).
When a flat tire is replaced with the spare tire, the TPMS indicator comes on (DTC 32, 34, 36, or 38) because the system is no longer receiving the signal from the flat tire's transmitter.
This is not a problem with the spare tire.



How a Diagnostic Trouble Code (DTC) is Set

- When the system detects a problem, the TPMS control unit sets a code, but shifts to fail-safe mode, and does not alert the driver to low tire pressures.
- If the TPMS control unit loses power, or fails, the TPMS indicator and the low tire pressure indicator (starts blinking) comes on, but no DTCs are set.
- The memory can hold all the DTCs that could possibly be set. However, when the same DTCs are detected more than once, the most recent one overwrites the previous one, so only the latest DTC of each type is stored.
- DTCs are indicated in ascending order, not in the order they occurred.
- Set DTCs are stored in the EEPROM (nonvolatile memory), and cannot be cleared by disconnecting the battery. To clear a DTC, connect the HDS (Honda Diagnostic System) to the data link connector (DLC), and follow the screen prompts.

How to Troubleshoot DTCs

DTC troubleshooting procedures assume the cause of the problem is still present and the TPMS indicator and the low tire pressure indicator (starts blinking) are still on. Do not use a troubleshooting procedure unless the system has set the DTC listed for it.

NOTE: For DTCs 11, 13, 15, and 17 (tire low pressure), the TPMS indicator and the low tire pressure indicator (starts blinking) come on only if the DTCs are caused by a system problem rather than low tire pressure.

1. Ask the client to describe the conditions when the indicators came on or blinked, and try to reproduce the same conditions for troubleshooting. Find out if the client checked and/or adjusted tire pressures since the indicator came on.
2. If an indicator does not come on during the test-drive, check for loose terminals, poor contact due to damaged terminals, etc. before you start troubleshooting.
3. After troubleshooting, repair and clear the DTCs, and test-drive the vehicle. Make sure no indicators come on.
4. Check for DTCs from other control units that are connected via the F-CAN. If there are DTCs that are related to the F-CAN, the most likely cause was that the ignition switch was turned to ON (II), or the engine start/stop button was pressed to select the ON mode with the TPMS control unit connector disconnected. Clear the DTCs. Check for PGM-FI and TPMS codes, and troubleshoot those first.

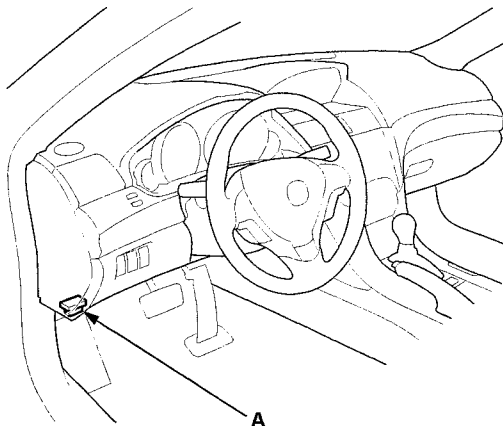
(cont'd)

TPMS

General Troubleshooting Information (cont'd)

How to Retrieve DTCs

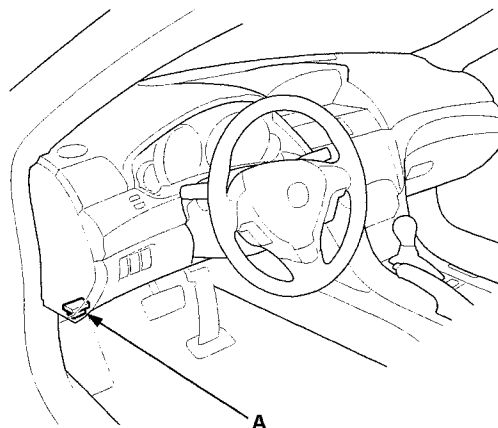
1. With the ignition switch in LOCK (0), or press the engine start/stop button to select the OFF mode, connect the HDS (Honda Diagnostic System) to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
 3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, troubleshoot the DLC circuit (see page 11-258).
 4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
- NOTE: See the HDS Help menu for specific instructions.
5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

How to Clear DTCs

1. With the ignition switch in LOCK (0), or press the engine start/stop button to select the OFF mode, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
 3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, troubleshoot the DLC circuit (see page 11-258).
 4. Clear the DTC(s) by following the screen prompts on the HDS.
- NOTE: See the HDS Help menu for specific instructions.
5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

Memorizing the Tire Pressure Sensor ID

Memorizing a Tire Pressure Sensor ID

All four tire pressure sensor IDs must be memorized to the TPMS control unit whenever you do any of these actions:

- Replace the TPMS control unit.
- Replace the tire pressure sensor.
- Substitute a known-good wheel with tire pressure sensor.

NOTE: To ensure the TPMS control unit memorizes the correct ID, the vehicle with the new sensor must be at least 10 ft (3 m) away from other vehicles that have tire pressure sensors.

Memorizing a Sensor ID Automatically

After rotating the tires or replacing a tire pressure sensor, drive the vehicle for at least 40 seconds at a speed of 15 mph (24 km/h) or more, and all the sensor IDs are memorized automatically.

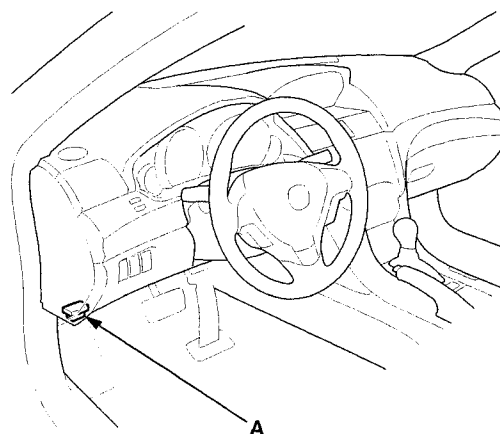
NOTE:

- When replacing the TPMS control unit, use the HDS to memorize IDs.
- After the IDs are memorized, reduce the pressure in all four tires to less than the appropriate specification, and check to see that the four tire indicators come on.

Memorize the ID with the HDS

The HDS can memorize the ID of a new tire pressure sensor or a previously memorized ID.

1. With the ignition switch in LOCK (0), or press the engine start/stop button to select the OFF mode, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, troubleshoot the DLC circuit (see page 11-258).
4. Memorize the ID of the tire pressure sensor by following the screen prompts on the HDS.

NOTE:

- See the HDS Help menu for specific instructions.
 - When replacing the TPMS control unit, use the HDS to memorize IDs.
 - After the IDs are memorized, reduce the pressure in all four tires to less than the appropriate specification, and check to see that the four tire indicators come on.
5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

TPMS

DTC Troubleshooting Index

DTC	Detection Item	Troubleshooting
11	Right-front Tire Low Air Pressure	DTC Troubleshooting (see page 18-75)
13	Left-front Tire Low Air Pressure	DTC Troubleshooting (see page 18-75)
15	Right-rear Tire Low Air Pressure	DTC Troubleshooting (see page 18-75)
17	Left-rear Tire Low Air Pressure	DTC Troubleshooting (see page 18-75)
21	Right-front Tire Pressure Sensor Abnormally High Temperature	DTC Troubleshooting (see page 18-76)
22	Left-front Tire Pressure Sensor Abnormally High Temperature	DTC Troubleshooting (see page 18-76)
23	Right-rear Tire Pressure Sensor Abnormally High Temperature	DTC Troubleshooting (see page 18-76)
24	Left-rear Tire Pressure Sensor Abnormally High Temperature	DTC Troubleshooting (see page 18-76)
31	Right-front Tire Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-77)
32	Right-front Tire Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-77)
33	Left-front Tire Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-77)
34	Left-front Tire Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-77)
35	Right-rear Tire Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-77)
36	Right-rear Tire Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-77)
37	Left-rear Tire Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-77)
38	Left-rear Tire Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-77)
41	Abnormal Signal Reception Error	DTC Troubleshooting (see page 18-82)
45	Initiator Circuit Short Detection	DTC Troubleshooting (see page 18-83)
51	Right-front Tire Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-86)
53	Left-front Tire Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-86)
55	Right-rear Tire Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-86)
57	Left-rear Tire Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-86)
61	Right-front Initiator Circuit Open Detection	DTC Troubleshooting (see page 18-90)
63	Left-front Initiator Circuit Open Detection	DTC Troubleshooting (see page 18-90)
65	Right-rear Initiator Circuit Open Detection	DTC Troubleshooting (see page 18-90)
67	Left-rear Initiator Circuit Open Detection	DTC Troubleshooting (see page 18-90)
81	TPMS Control Unit Failure	DTC Troubleshooting (see page 18-93)
83	No VSP Signal	DTC Troubleshooting (see page 18-93)
85	F-CAN Communication Failure	DTC Troubleshooting (see page 18-94)
91	Right-front Tire Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-95)
93	Left-front Tire Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-95)
95	Right-rear Tire Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-95)
97	Left-rear Tire Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-95)



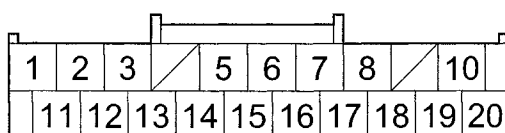
Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
HDS does not communicate with the TPMS control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-258)	Faulty data link cable
Low tire pressure indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-96)	
Low tire pressure indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-97)	
TPMS indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-97)	
TPMS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-98)	

TPMS

System Description

TPMS Control Unit Inputs and Outputs for 20P Connector

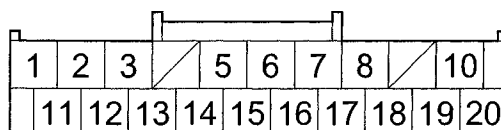


Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal
1	PNK	RF LF PWR. (RF low frequency power)	Power source for the right-front initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: About 7 V
2	WHT	CAN H (F-CAN communication signal high)	F-CAN communication circuit	With ignition switch ON (II), or vehicle in ON mode: pulses
3	BLK	GND (Ground)	Ground for the TPMS control unit	Less than 0.1 V at all times
5	PUR	LF LF SIG. (LF low frequency signal)	Detects the signal from the left-front initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: pulses 0–2 V After 40 seconds with ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
6	LT GRN	RF LF SIG. (RF low frequency signal)	Detects the signal from the right-front initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: pulses 0–2 V After 40 seconds with ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
7	LT BLU	K-LINE (Data link connector)	Communications with the HDS	
8	BRN	IG1 (Ignition switch 1)	Power source for activating the system	With ignition switch ON (II), or vehicle in ON mode: battery voltage (about 12 V) With ignition switch in LOCK (0), or vehicle in OFF mode: less than 0.1 V
10	WHT	+B (Battery positive)	Power source for the TPMS control unit	Battery voltage (about 12 V) at all times
11	BLK	CAN L (F-CAN communication signal low)	F-CAN communication circuit	With ignition switch ON (II), or vehicle in ON mode: pulses
12	GRY	LR LF GND (LR low frequency ground)	Ground for the left-rear initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
13	WHT	RR LF GND (RR low frequency ground)	Ground for the right-rear initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
14	YEL	LF LF GND (LF low frequency ground)	Ground for the left-front initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: less than 0.1 V



TPMS Control Unit Inputs and Outputs for 20P Connector (cont'd)



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal
15	BLU	RF LF GND. (RF low frequency ground)	Ground for the right-front initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
16	PNK	LR LF SIG. (LR low frequency signal)	Detects the signal from the left-rear initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: pulses 0–2 V After 40 seconds with ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
17	ORN	RR LF SIG. (RR low frequency signal)	Detects the signal from the right-rear initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: pulses 0–2 V After 40 seconds with ignition switch ON (II), or vehicle in ON mode: less than 0.1 V
18	LT GRN	LR LF PWR. (LR low frequency power)	Power source for the left-rear initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: About 7 V
19	BLU	RR LF PWR. (RR low frequency power)	Power source for the right-rear initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: About 7 V
20	BRN	LF LF PWR. (LF low frequency power)	Power source for the left-front initiator	For the first 5 seconds after turning the ignition switch ON (II), or vehicle in ON mode: About 7 V

(cont'd)

TPMS

System Description (cont'd)

System Structure

Whenever the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode, the TPMS control unit continuously monitors all four tire pressure sensors and the system function. If it detects low pressure in a tire, it alerts the driver by turning on the low tire pressure indicator and the appropriate tire indicator. If it detects a problem in the system, it turns on the TPMS indicator and the low tire pressure indicator (starts blinking).

Initiators

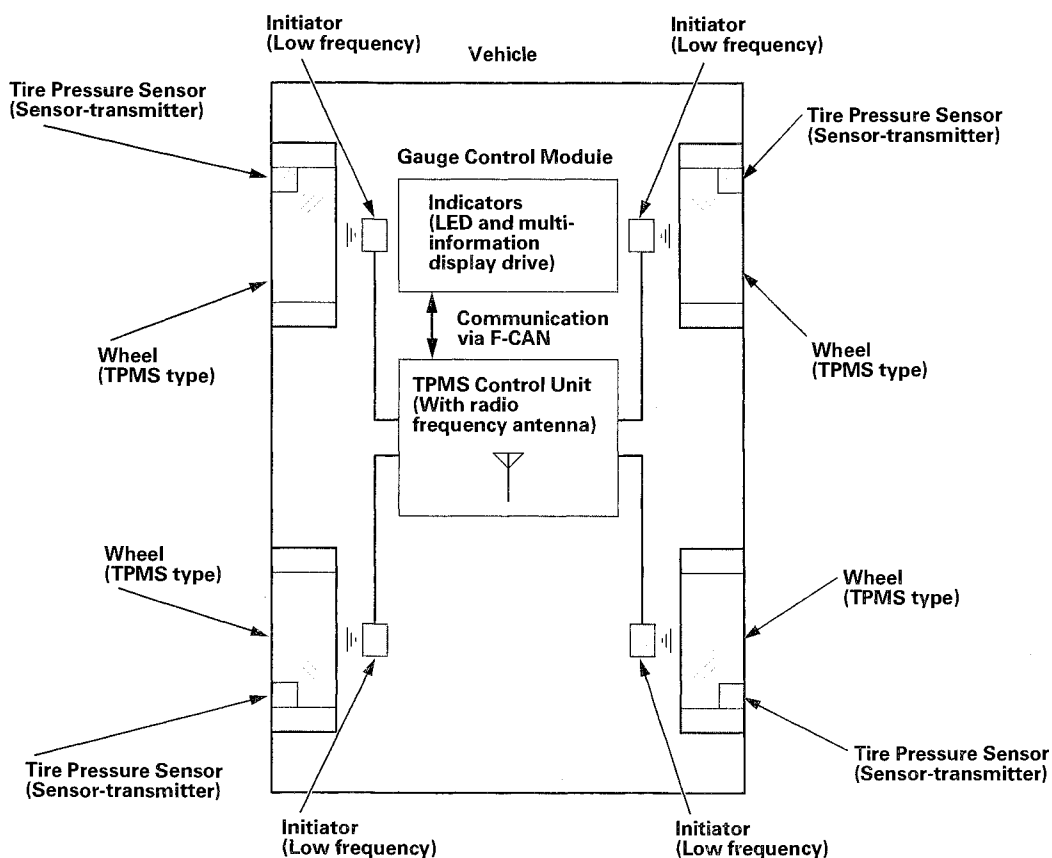
Mounted on the top of each wheelwell, each initiator sends a start/stop signal to the tire pressure sensor in the tire below it.

TPMS control unit

Mounted on top of the brake pedal support member, the TPMS control unit sends signals to the initiators and receives signals from the tire pressure sensor to verify pressure sensor IDs every time the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode. It also receives signals from the transmitters for tire pressure and the sensor condition, and it continuously monitors and controls the system.

Indicators

All indicators are in the gauge control module: The low tire pressure indicator (LED indicator), the four tire indicators (on the multi-information display) to show which tire is affected, and the TPMS indicator (on the multi-information display) that comes on only if there's a problem with the system. The message indicator (LED indicator) comes on when there is one or more indicators on in the multi-information display. When two or more tire pressures are low, the low tire pressure indicator comes on about 5 seconds before the appropriate tire indicator. Once low pressure is detected, the system scans all four tire pressure sensors to ensure that it turns on the correct tire indicator.



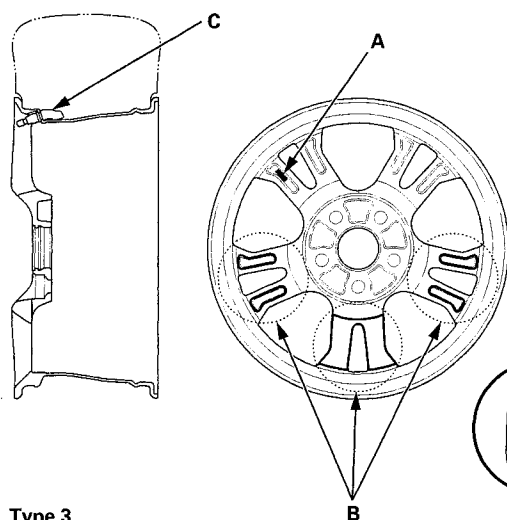
Tire pressure sensor

Each sensor is an integrated unit made up of the tire valve stem, a pressure sensor, and a transmitter. The unit is attached to the inside of the wheel, around the valve stem. The sensor transmits internal tire information one time per 60 seconds to the TPMS control unit. When the TPMS control unit receives a tire pressure reading of less than: With 17 inch and 18 inch wheels 175 kPa (1.8 kgf/cm², 25 psi), or with 19 inch wheels front 202 kPa (2.1 kgf/cm², 29 psi), rear 175 kPa (1.8 kgf/cm², 25 psi), the TPMS control unit then turns on the low tire pressure indicator and the appropriate tire(s) indicator. When that tire's pressure is increased to more than: With 17 inch and 18 inch wheels 200 kPa (2.0 kgf/cm², 29 psi), or with 19 inch wheels front 235 kPa (2.4 kgf/cm², 34 psi), rear 200 kPa (2.0 kgf/cm², 29 psi), the transmitter sends the tire pressure reading to the TPMS control unit, and the TPMS control unit turns the indicators off.

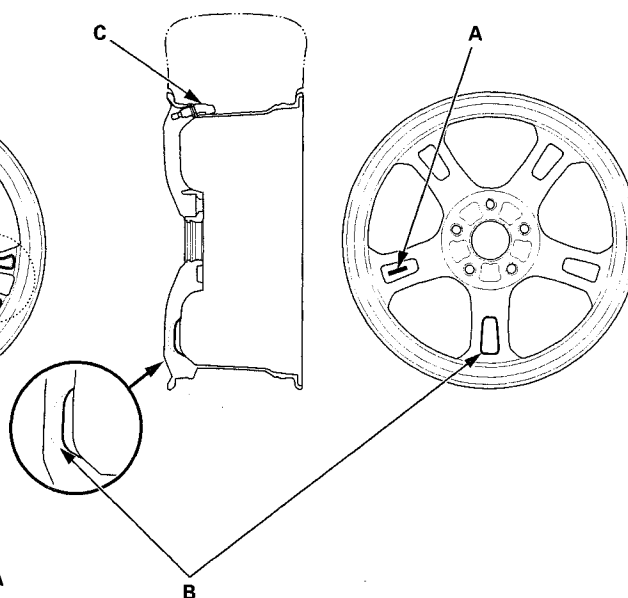
Wheels

The TPMS will not work unless TPMS type wheels are installed on the vehicle. There are three different types of wheels used. The original equipment wheels have a "TPMS" mark (A) on them, and are counterweighted (B) by adding material on the opposite side of the tire pressure sensor (C), to counterbalance the weight of the sensor.

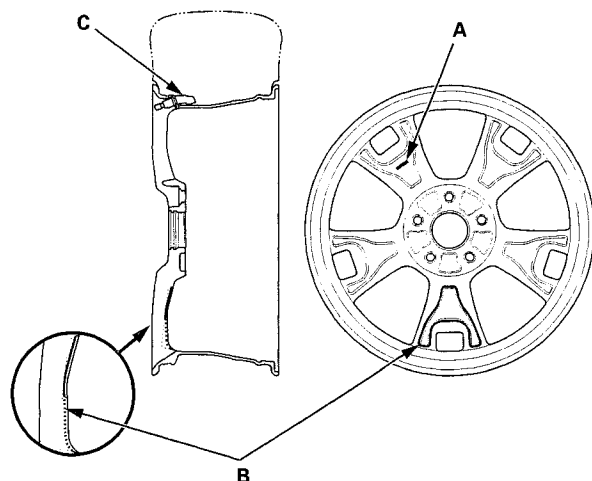
Type 1



Type 2



Type 3



(cont'd)

TPMS

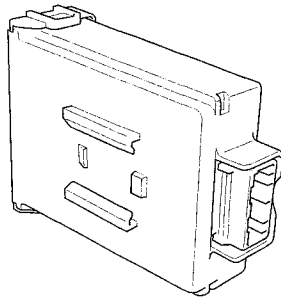
System Description (cont'd)

System Communication

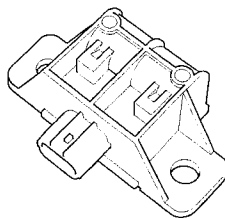
- When the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode, an RF (radio frequency) band wave signal is transmitted from each tire pressure sensor to the TPMS control unit.
- When the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode, the initiators send a LF (low frequency) band wave signal to the tire pressure sensors, switching them from sleep mode to normal function mode. When the ignition switch is turned to LOCK (0), or the engine start/stop button is pressed to select the OFF mode, the sensors switch from normal function mode back to sleep mode to extend their battery life.
- Each tire pressure sensor has its own ID to prevent jamming by similar systems on other vehicles. After memorizing all the sensor IDs, the TPMS control unit recognizes only those specific signals.
- An ID can be memorized manually or automatically. Each initiator is hardwired to the TPMS control unit. Every time the ignition is turned to ON (II), or the engine start/stop button is pressed to select the ON mode, the TPMS control unit asks each initiator to wake up the appropriate tire pressure sensor. The transmitters in the tire pressure sensors then transmit the sensor IDs, and the TPMS control unit receives, and memorizes them. The TPMS control unit then knows which ID belongs to each tire location. This recurring ID confirmation prevents any confusion in the system as a result of normal tire rotation.

NOTE: Be careful not to bend the brackets on the TPMS control unit and the front/rear initiators. Misalignment of the TPMS control unit and initiators could interfere with sending and receiving signals.

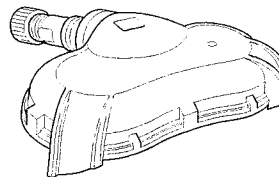
**TPMS Control Unit
(With radio frequency antenna)**



**Initiator
(Low frequency initiator)**



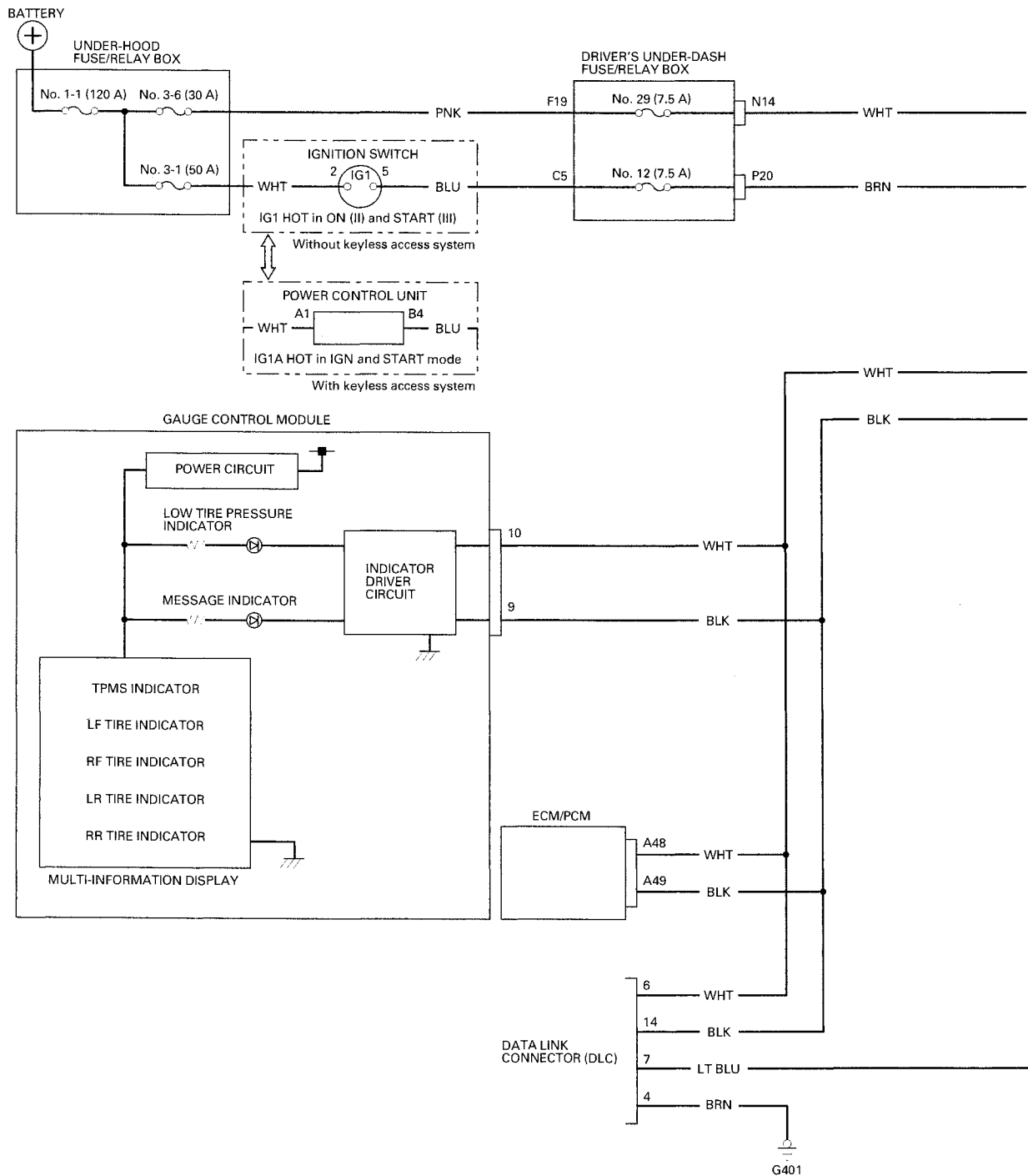
**Tire Pressure Sensor
(Sensor-transmitter)**

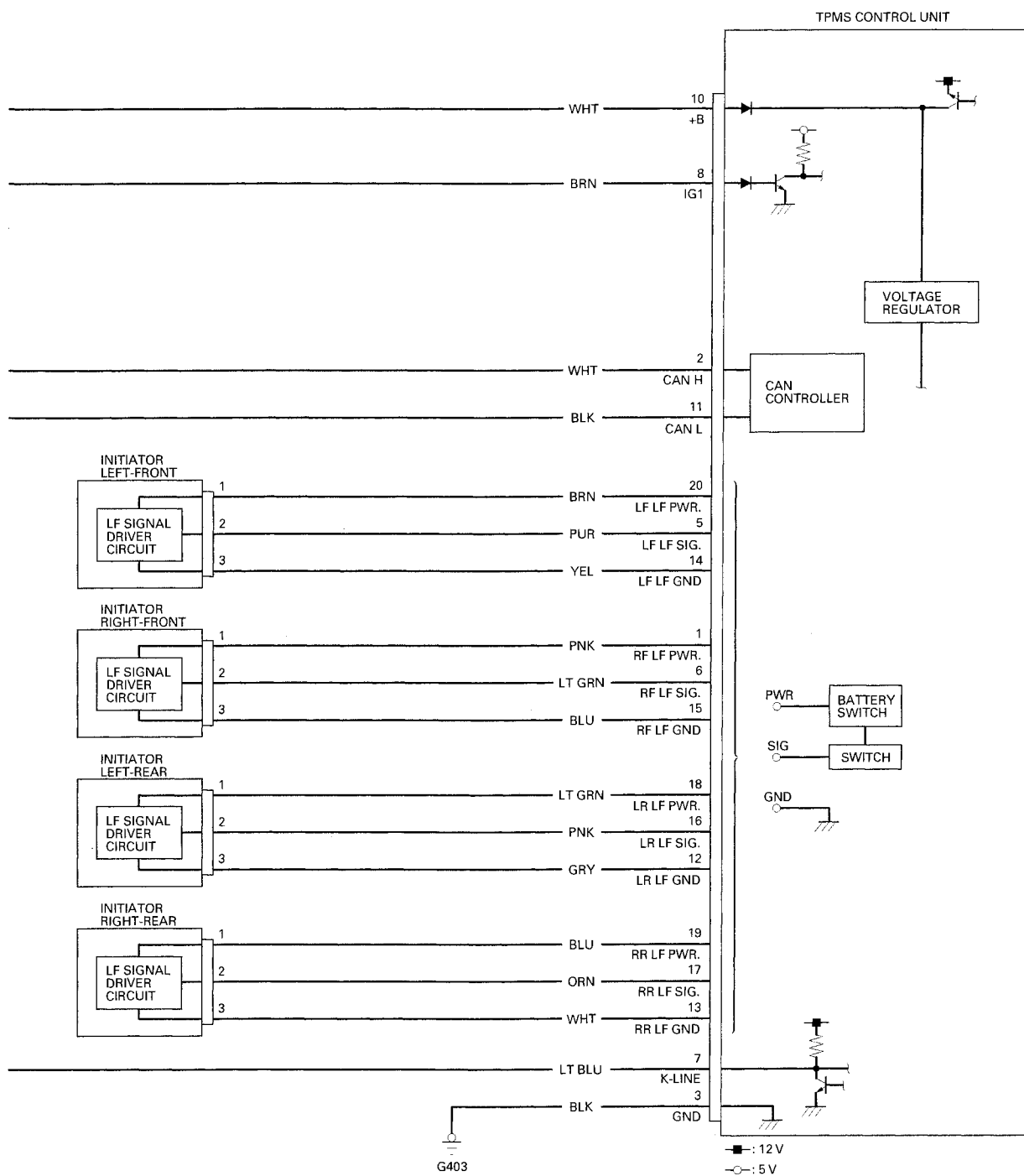




TPMS

Circuit Diagram



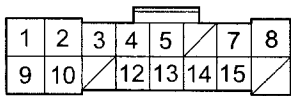


(cont'd)

TPMS

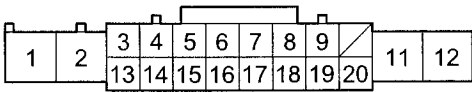
Circuit Diagram (cont'd)

DRIVER'S UNDER-DASH
FUSE/RELAY BOX CONNECTOR N (16P)



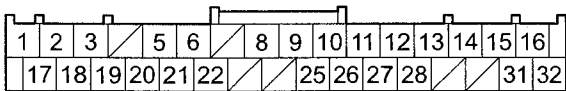
Wire side of female terminals

DRIVER'S UNDER-DASH
FUSE/RELAY BOX CONNECTOR P (20P)



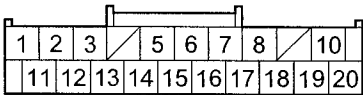
Wire side of female terminals

GAUGE CONTROL MODULE 32P CONNECTOR



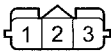
Wire side of female terminals

TPMS CONTROL UNIT 20P CONNECTOR



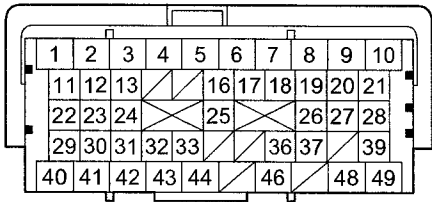
Wire side of female terminals

INITIATOR 3P CONNECTOR



Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals



DTC Troubleshooting

DTC 11, 13, 15, 17: Tire Low Air Pressure

NOTE: If low tire pressure is detected, the TPMS control unit sets one or more of these DTCs, and turns on the low tire pressure indicator and the appropriate tire indicator(s). If the low tire pressure and tire indicators come on because of a low tire pressure, and the client corrects it before bringing the vehicle in, the DTCs will be stored, but all the indicators turn off.

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
2. Make sure the tires are inflated to the specified tire pressure listed on the doorjamb sticker.
3. Test-drive the vehicle.

Does the low tire pressure indicator go off?

YES—The system is OK at this time. Check for and repair the cause of air loss. ■

NO—Go to step 4.

4. Check the RF, LF, RR, or LR TIRE PRESSURE in the TPMS DATA LIST with the HDS, and compare it with the measured actual tire pressure.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

NO—Check that the tire pressure sensor is properly mounted. If the mounting is OK, then replace the appropriate tire pressure sensor (see page 18-102). ■

TPMS

DTC Troubleshooting (cont'd)

DTC 21, 22, 23, 24: Tire Pressure Sensor Abnormally High Temperature

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Check the tire indicated by the DTCs you retrieved.

NOTE: An abnormal rise in the internal temperature of the tires can be caused by:

- Excessive braking
- Failure to release the parking brake (rear tires only)
- Leaving the vehicle running while parked
- Improper assembly of a wheel and tire

DTC	Tire Location
21	Right-front
22	Left-front
23	Right-rear
24	Left-rear

3. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
4. Make sure the tires have cooled down.
5. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

Does the TPMS indicator go off within one minute?

YES—The system is OK at this time. Clear the DTC with the HDS. ■

NO—Go to step 6.

6. Check the RF, LF, RR, or LR TIRE PRESSURE SENSOR TEMPERATURE in the TPMS DATA LIST with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

Is 176 °F (80 °C) or more indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-102). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■



DTC 31, 33, 35, 37: Tire Pressure Sensor Low Battery Voltage

NOTE: This problem occurs when the temperature around the sensor is -40°F (-40°C) or less. Note that the diagnosis must be made in a place where ambient temperature is -4°F (-20°C) or more.

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

Does the TPMS indicator go off within one minute?

YES—The system is OK at this time. Clear the DTC with the HDS. ■

NO—Go to step 2.

2. Check the RF, LF, RR, or LR TIRE PRESSURE SENSOR BATTERY STATUS in the TPMS DATA LIST with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
31	Right-front
33	Left-front
35	Right-rear
37	Left-rear

Is LOW indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-102). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

DTC 32, 34, 36, 38: Tire Pressure Sensor Signal Failure

NOTE:

- Inspect for an aftermarket electrical device(s) (such as an inverter, battery charger, CB radio, etc) interfering with the RF signal from the sensors when the ignition switch is ON (II), or press the engine start/stop button to select the ON mode.
- Vehicle must be driven for 3 minutes at 15 mph (24 km/h) or more for DTC 32, 34, 36, or 38 to set.

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Check the DTC indicated to the tire location to make sure the wheel is a TPMS type with the tire pressure sensor.

DTC	Tire Location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is a TPMS type wheel with a tire pressure sensor mounted on the vehicle?

YES—Go to step 3.

NO—Install a TPMS type wheel, and memorize the sensor ID. Drive the vehicle above 15 mph (24 km/h) continuously for 40 seconds, or memorize the ID with the HDS (see page 18-63). ■

3. Test-drive the vehicle.
4. Check the VEHICLE SPEED in the TPMS DATA LIST with the HDS.

Is the vehicle's speed indicated?

YES—Go to step 8.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
6. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

(cont'd)

DTC Troubleshooting (cont'd)

7. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Go to the DTC 85 troubleshooting (see page 18-94). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

8. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
9. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
10. Check TPMS DATA LIST for RF, LF, RR, or LR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—The system is OK at this time. Clear the DTC with the HDS. ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
12. Substitute a wheel with a known-good tire pressure sensor on the vehicle.
13. To memorize the sensor ID, drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID with the HDS (see page 18-63).
14. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
15. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
16. Check TPMS DATA LIST for RF, LF, RR, and LR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—Replace the tire pressure sensor on the original wheel (see page 18-102). ■

NO—Go to step 17.

17. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.



18. Substitute an initiator from a known-good location on the current vehicle, or from another known-good vehicle (see page 18-101).
19. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
20. Check TPMS DATA LIST for RF, LF, RR, and LR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—Replace the appropriate initiator (see page 18-101). ■

NO—Go to step 21.

21. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

22. Disconnect the appropriate initiator 3P connector.

DTC	Initiator Location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

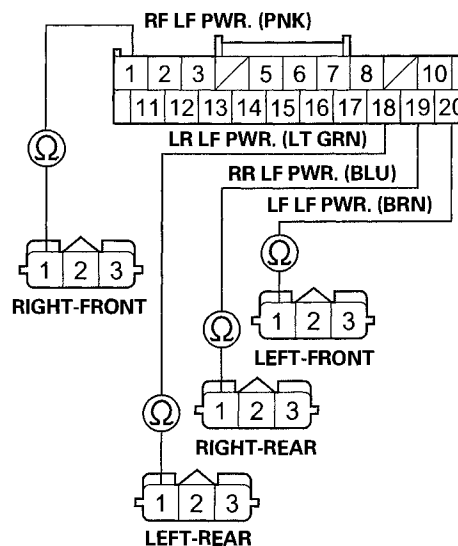
23. Disconnect the TPMS control unit 20P connector.

24. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 1.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
32	No. 1	Right-front
34	No. 20	Left-front
36	No. 19	Right-rear
38	No. 18	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR

Wire side of female terminals



INITIATOR 3P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator. ■

(cont'd)

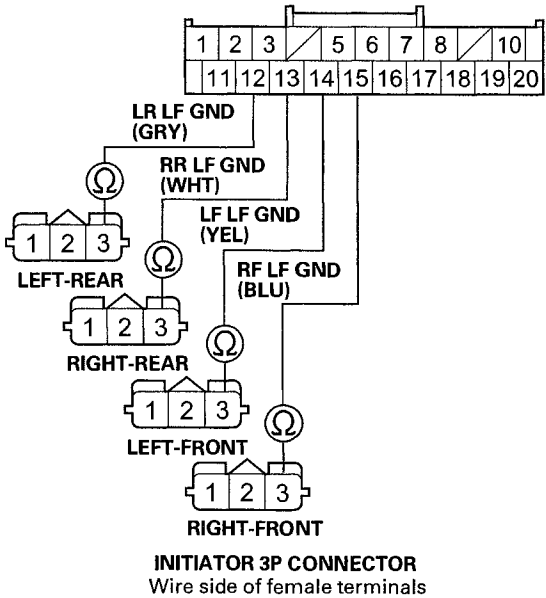
TPMS

DTC Troubleshooting (cont'd)

25. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 3.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
32	No. 15	Right-front
34	No. 14	Left-front
36	No. 13	Right-rear
38	No. 12	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



Is there continuity?

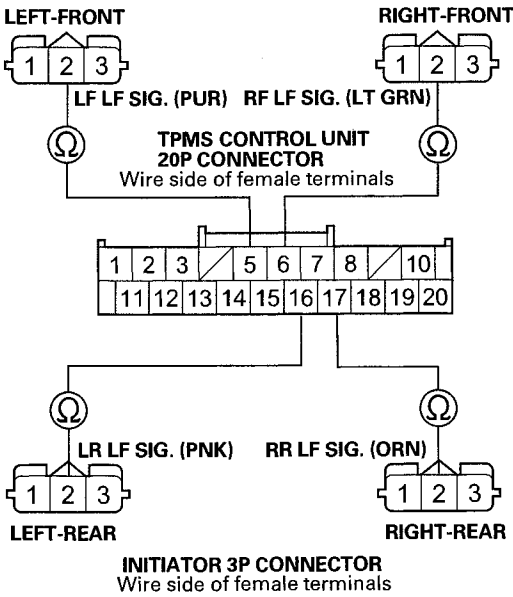
YES—Go to step 26.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator.■

26. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 2.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
32	No. 6	Right-front
34	No. 5	Left-front
36	No. 17	Right-rear
38	No. 16	Left-rear

INITIATOR 3P CONNECTOR
Wire side of female terminals



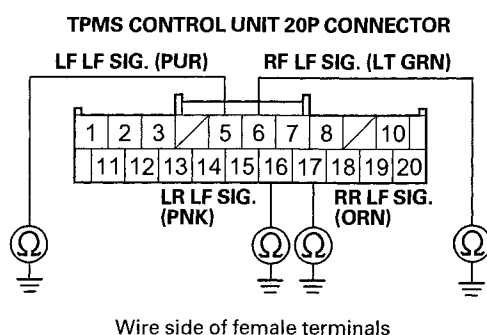
Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator.■

27. Check for continuity between body ground and the appropriate TPMS control unit 20P connector terminal.

DTC	TPMS Control Unit 20P Connector Terminal
32	No. 6
34	No. 5
36	No. 17
38	No. 16



Is there continuity?

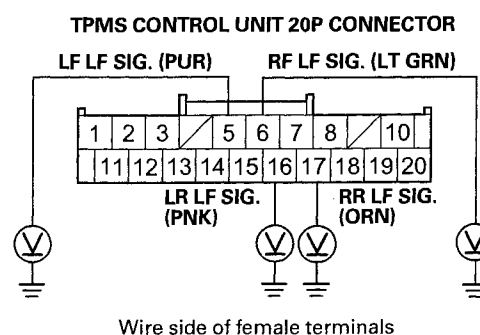
YES—Repair a short to body ground in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Go to step 28.

28. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

29. Measure the voltage between body ground and the appropriate TPMS control unit 20P connector terminal.

DTC	TPMS Control Unit 20P Connector Terminal
32	No. 6
34	No. 5
36	No. 17
38	No. 16



Is there battery voltage?

YES—Repair a short to power in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Replace the TPMS control unit (see page 18-100). ■

DTC Troubleshooting (cont'd)

DTC 41: Abnormal Signal Reception Error

NOTE:

- Inspect for an aftermarket electrical device(s) (such as an inverter, battery charger, CB radio, etc) interfering with the RF signal from the sensors when the ignition switch is ON (II), or press the engine start/stop button to select the ON mode.
- If DTC 32, 34, 36, or 38 is also set, troubleshoot those DTCs first.

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
2. Check all four wheels to make sure they are the TPMS type with the tire pressure sensor.

Is each wheel a TPMS type with a tire pressure sensor mounted on the vehicle?

YES—Go to step 3.

NO—Install a TPMS type wheel, and memorize the sensor ID. Drive the vehicle above 15 mph (24 km/h) continuously for 40 seconds, or memorize the ID with the HDS (see page 18-63). ■

3. Test-drive the vehicle.
4. Check the VEHICLE SPEED in the TPMS DATA LIST with the HDS.

Is the vehicle speed indicated?

YES—Go to step 8.

NO—Go to step 5.
5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
6. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

7. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Go to the DTC 85 troubleshooting (see page 18-94). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

8. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
9. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
10. Check TPMS DATA LIST for LF, RF, LR, and RR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

Is NORMAL indicated within one full turn of the tire?

YES—The system is OK at this time. Clear the DTC with the HDS. ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■



DTC 45: Initiator Circuit Short Detection

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again, or select the OFF mode, then the ON mode.
4. Check for DTCs with the HDS.

Is DTC 45 indicated?

YES—Go to step 5.

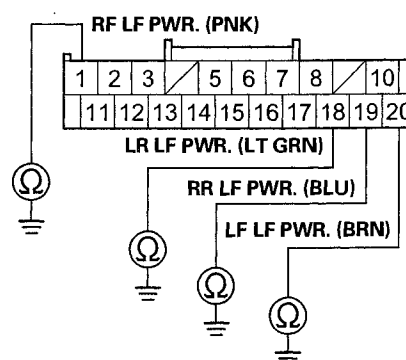
NO—The system is OK at this time. ■

5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
6. Disconnect the TPMS control unit 20P connector.

7. Check for continuity between body ground and the appropriate TPMS control unit 20P connector terminal.

Terminal Name	TPMS Control Unit 20P Connector Terminal
RF LF PWR.	No. 1
LF LF PWR.	No. 20
RR LF PWR.	No. 19
LR LF PWR.	No. 18

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Go to step 10.

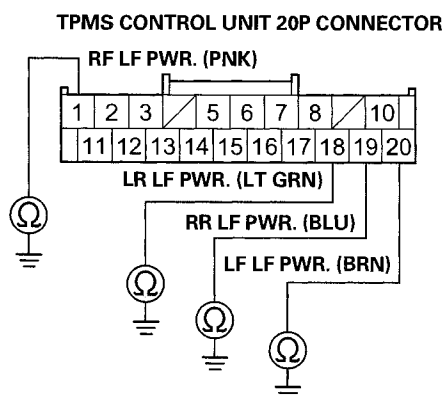
(cont'd)

TPMS

DTC Troubleshooting (cont'd)

8. Disconnect the appropriate initiator 3P connector.
9. Check for continuity between body ground and the appropriate TPMS control unit 20P connector terminal.

Terminal Name	TPMS Control Unit 20P Connector Terminal
RF LF PWR.	No. 1
LF LF PWR.	No. 20
RR LF PWR.	No. 19
LR LF PWR.	No. 18



Wire side of female terminals

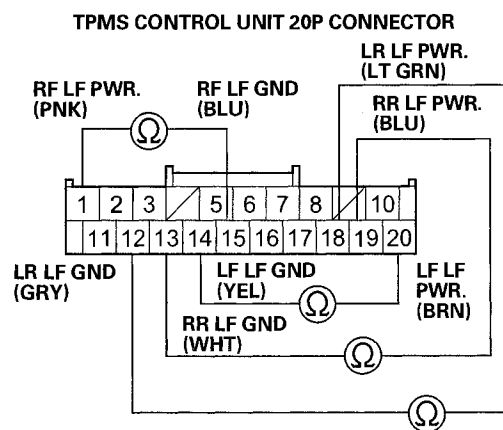
Is there continuity?

YES—Repair a short to body ground in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Replace the appropriate initiator (see page 18-101). ■

10. Check for continuity between the appropriate TPMS control unit 20P connector terminal.

Tire Location	TPMS Control Unit 20P Connector Terminal	
Right-front	RF LF PWR./ No. 1	RF LF GND/ No. 15
Left-front	LF LF PWR./ No. 20	LF LF GND/ No. 14
Right-rear	RR LF PWR./ No. 19	RR LF GND/ No. 13
Left-rear	LR LF PWR./ No. 18	LR LF GND/ No. 12



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

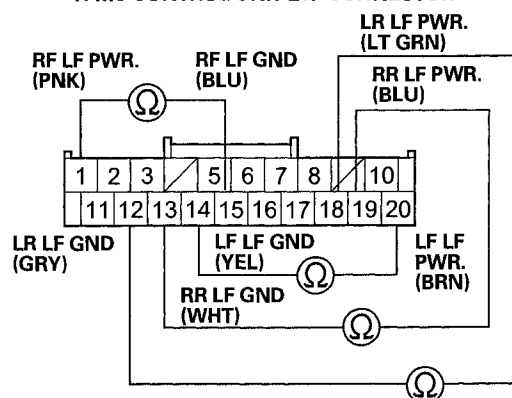
NO—Go to step 13.



11. Disconnect the appropriate initiator 3P connector.
12. Check for continuity between the appropriate TPMS control unit 20P connector terminal.

Tire Location	TPMS Control Unit 20P Connector Terminal	
Right-front	RF LF PWR./ No. 1	RF LF GND/ No. 15
Left-front	LF LF PWR./ No. 20	LF LF GND/ No. 14
Right-rear	RR LF PWR./ No. 19	RR LF GND/ No. 13
Left-rear	LR LF PWR./ No. 18	LR LF GND/ No. 12

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

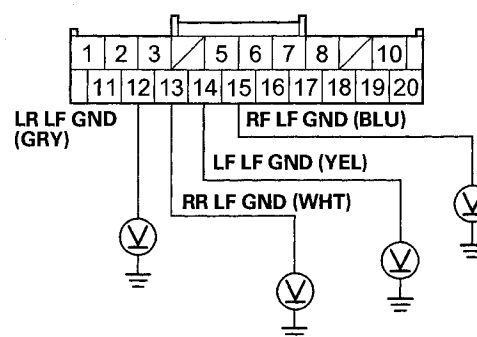
YES—Repair a short in the wire between the TPMS control unit and the appropriate initiator.■

NO—Replace the appropriate initiator (see page 18-101).■

13. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
14. Measure the voltage between body ground and the appropriate TPMS control unit 20P connector terminal.

Terminal Name	TPMS Control Unit 20P Connector Terminal
RF LF GND	No. 15
LF LF GND	No. 14
RR LF GND	No. 13
LR LF GND	No. 12

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the TPMS control unit and the appropriate initiator.■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100) and recheck.■

DTC Troubleshooting (cont'd)

DTC 51, 53, 55, 57: Tire Pressure Sensor Registration Error

NOTE: The following DTCs will only set during initialization with the HDS.

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Check the DTC indicated to the tire location to make sure the wheel is a TPMS type with the tire pressure sensor.

DTC	Tire Location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

Is a TPMS type wheel with a tire pressure sensor mounted on the vehicle?

YES—Go to step 3.

NO—Install a TPMS type wheel, and memorize the sensor ID. Drive the vehicle above 15 mph (24 km/h) continuously for 40 seconds, or memorize the ID with the HDS (see page 18-63).■

3. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
4. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

5. Check TPMS DATA LIST for RF, LF, RR, or LR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—The system is OK at this time. Clear the DTC with the HDS.■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
7. Substitute a wheel with a known-good tire pressure sensor on the vehicle.
8. To memorize the sensor ID, drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID with the HDS (see page 18-63).
9. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
10. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.



11. Check TPMS DATA LIST for RF, LF, RR, or LR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—Replace the tire pressure sensor on the original wheel (see page 18-102).■

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

13. Substitute an initiator from a known-good location on the current vehicle, or from another known-good vehicle (see page 18-101).

14. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

15. Check TPMS DATA LIST for RF, LF, RR, and LR TIRE PRESSURE SENSOR STATUS changes to NORMAL with the HDS.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

DTC	Tire Location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—Replace the appropriate initiator (see page 18-101).■

NO—Go to step 16.

16. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

(cont'd)

TPMS

DTC Troubleshooting (cont'd)

17. Disconnect the appropriate initiator 3P connector.

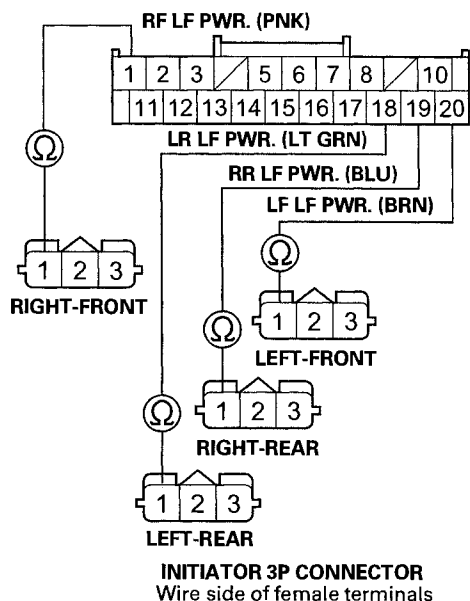
DTC	Initiator Location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

18. Disconnect the TPMS control unit 20P connector.

19. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 1.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
51	No. 1	Right-front
53	No. 20	Left-front
55	No. 19	Right-rear
57	No. 18	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



Is there continuity?

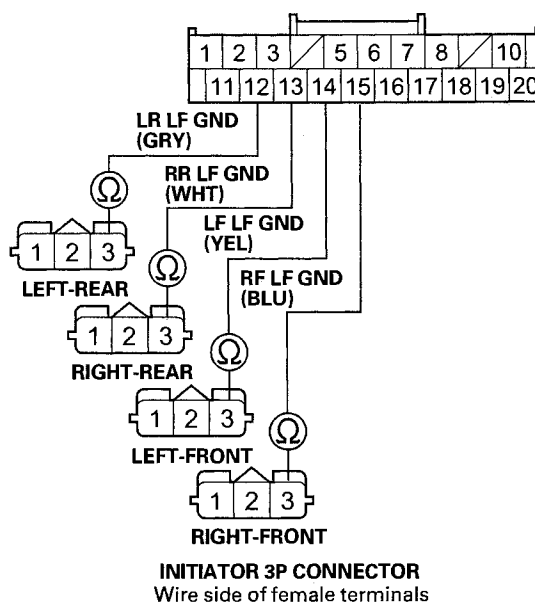
YES—Go to step 20.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator.■

20. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 3.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
51	No. 15	Right-front
53	No. 14	Left-front
55	No. 13	Right-rear
57	No. 12	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



Is there continuity?

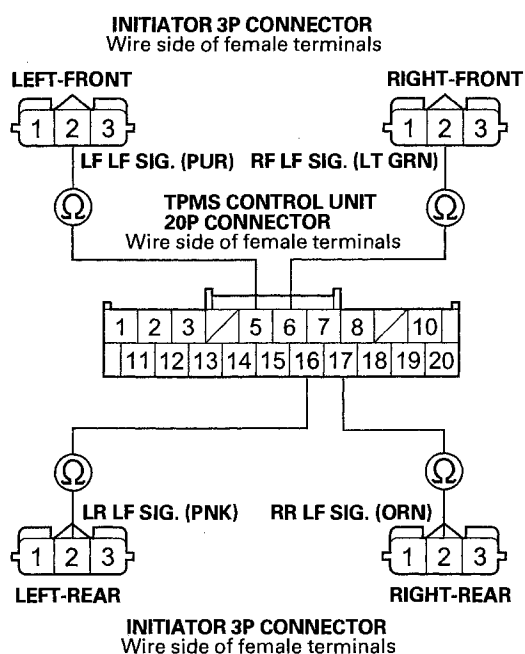
YES—Go to step 21.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator.■



21. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 2.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
51	No. 6	Right-front
53	No. 5	Left-front
55	No. 17	Right-rear
57	No. 16	Left-rear



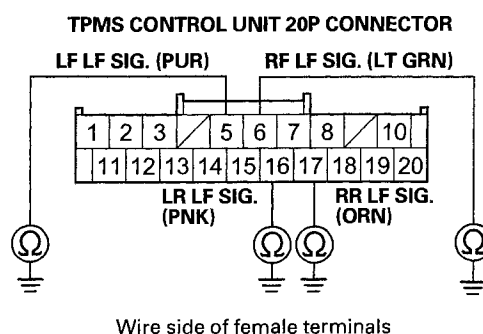
Is there continuity?

YES—Go to step 22.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator. ■

22. Check for continuity between body ground and the appropriate TPMS control unit 20P connector terminal.

DTC	TPMS Control Unit 20P Connector Terminal
51	No. 6
53	No. 5
55	No. 17
57	No. 16



Is there continuity?

YES—Repair a short to body ground in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Go to step 23.

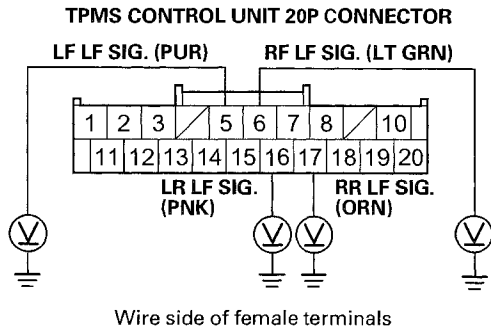
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TPMS

DTC Troubleshooting (cont'd)

23. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
24. Measure the voltage between body ground and the appropriate TPMS control unit 20P connector terminal.

DTC	TPMS Control Unit 20P Connector Terminal
51	No. 6
53	No. 5
55	No. 17
57	No. 16



Is there battery voltage?

YES—Repair a short to power in the wire between the TPMS control unit and the appropriate initiator.■

NO—Replace the TPMS control unit (see page 18-100).■

DTC 61, 63, 65, 67: Initiator Circuit Open Detection

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again, or select the OFF mode, then the ON mode.
4. Check for DTCs with the HDS, and note the indicated DTC(s).

Is DTC 61, 63, 65, and/or 67 indicated?

YES—Go to step 5.

NO—The system is OK at this time.■

5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
6. Disconnect the appropriate initiator 3P connector.

DTC	Initiator Location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

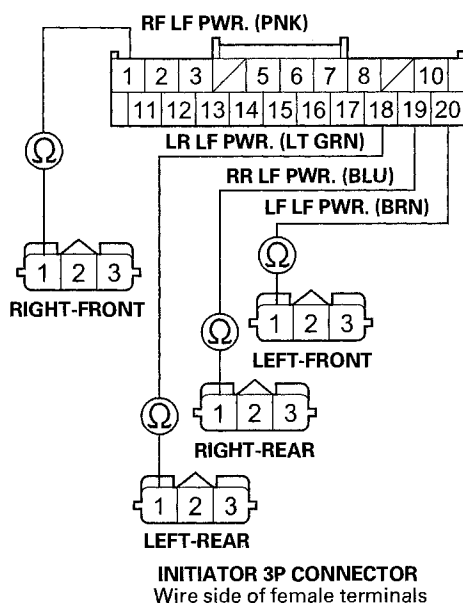
7. Disconnect the TPMS control unit 20P connector.



8. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 1.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
61	No. 1	Right-front
63	No. 20	Left-front
65	No. 19	Right-rear
67	No. 18	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



Is there continuity?

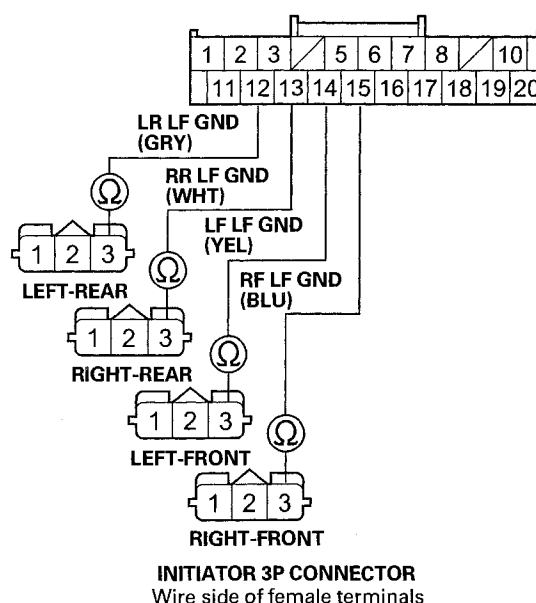
YES—Go to step 9.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator.■

9. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 3.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
61	No. 15	Right-front
63	No. 14	Left-front
65	No. 13	Right-rear
67	No. 12	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator.■

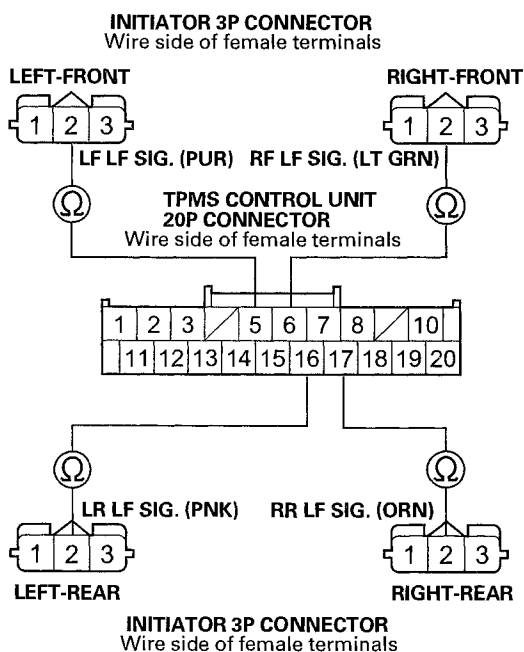
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TPMS

DTC Troubleshooting (cont'd)

10. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 2.

DTC	TPMS Control Unit 20P Connector Terminal	Initiator Location
61	No. 6	Right-front
63	No. 5	Left-front
65	No. 17	Right-rear
67	No. 16	Left-rear



Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the TPMS control unit and the appropriate initiator. ■

11. Check for noted DTC(s) in step 4.

Were DTC 61, 63, 65, and 67 indicated at the same time?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

NO—Go to step 12.

12. Swap a known-good initiator with the initiator indicated by the DTC (see page 18-101).

DTC	Initiator Location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

13. Reconnect all connectors.

14. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

15. Clear the DTC with the HDS.

16. Turn the ignition switch to LOCK (0), then turn it to ON (II) again, or select the OFF mode, then the ON mode.

17. Check for DTCs with the HDS, and compare the indicated DTC with the noted DTC(s) in step 4.

DTC	Initiator Location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

Does the indicated DTC change between the initiators that were replaced in step 12?

YES—Replace the appropriate initiator (see page 18-101). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■



DTC 81: TPMS Control Unit Failure

NOTE: Low battery voltage can cause this DTC. Make sure the battery is fully charged and in good condition (see page 22-84).

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again, or select the OFF mode, then the ON mode.
4. Check for DTCs with the HDS.

Is DTC 81 indicated?

YES—Replace the TPMS control unit (see page 18-100). ■

NO—The system is OK at this time. Check for loose terminals and poor connections at the TPMS control unit and G403. ■

DTC 83: No VSP Signal

NOTE: Check for fuel and emissions systems DTCs with the HDS, and troubleshoot the ECM/PCM and F-CAN communication errors first (see page 11-3).

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
4. Check for DTCs with the HDS.

Is DTC 83 indicated?

YES—Go to step 5.

NO—The system is OK at this time. ■

5. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Go to DTC 85 troubleshooting (see page 18-94). ■

NO—Go to step 6.

6. Test-drive the vehicle.

(cont'd)

DTC Troubleshooting (cont'd)

7. Check the VEHICLE SPEED in the TPMS DATA LIST with the HDS.

Is the vehicle's speed indicated?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

NO—Go to step 8.

8. Check the speedometer.

Does the speedometer register speed?

YES—Replace the TPMS control unit (see page 18-100). ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-281), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM (see page 11-282). ■

DTC 85: F-CAN Communication Failure

NOTE: Check for fuel and emissions systems DTCs with the HDS, and troubleshoot the ECM/PCM and F-CAN communication errors first (see page 11-3).

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again, or select the OFF mode, then the ON mode.
4. Wait about 5 seconds.
5. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Go to step 6.

NO—The system is OK at this time. ■

6. Test-drive the vehicle.

Does the speedometer work?

YES—Go to step 10.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
8. Disconnect the TPMS control unit 20P connector.
9. Test-drive the vehicle.

Does the speedometer work?

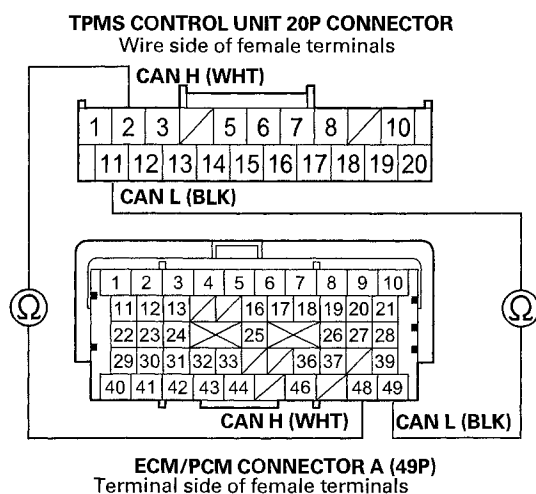
YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

NO—Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, and reconnect all connectors, then check and troubleshoot the fuel and emissions systems (see page 11-3). ■



10. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
11. Short the SCS line with the HDS.
12. Disconnect ECM/PCM connector A (49P).
13. Disconnect the TPMS control unit 20P connector.
14. Check for continuity between the TPMS control unit 20P connector terminals and the ECM/PCM connector A (49P) terminals according to the table.

Terminal Name	TPMS Control Unit 20P Connector Terminal	ECM/PCM Connector A (49P) Terminal
CAN L	No. 11	No. 49
CAN H	No. 2	No. 48



Is there continuity?

YES—Check for loose terminals and poor connections at the TPMS control unit and G403. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck.■

NO—Repair an open in the appropriate wire between the TPMS control unit and the ECM/PCM.■

DTC 91, 93, 95, 97: Tire Pressure Sensor Internal Error

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again, or select the OFF mode, then the ON mode.
4. Wait about 1 minute.
5. Check for DTCs with the HDS.

NOTE: The tire pressure sensor of the appropriate wheel is shown.

DTC	Tire Location
91	Right-front
93	Left-front
95	Right-rear
97	Left-rear

Is DTC 91, 93, 95, or 97 indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-102).■

NO—The system is OK at this time.■

Symptom Troubleshooting

Low tire pressure indicator does not come on, and no DTCs are stored

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Check the low pressure indicator for several seconds when the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode.

Did the indicator come on, and then go off?

YES—Go to step 3.

NO—Do the troubleshooting for the gauge control module (see page 22-342). If necessary, substitute a known-good gauge control module (see page 22-367), and recheck.■

3. Lower the pressure in each tire until the low tire pressure indicator comes on (see table).

NOTE:

- If 5 minutes has passed since the ignition switch has been turned ON (II), or the engine start/stop button is pressed to select the ON mode turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, and wait 2 minutes, then turn it back ON (II), or press the engine start/stop button to select the ON mode again.
- Reinflate the tire before continuing to the next tire.
- After noting whether the low tire pressure indicator came on, make sure it goes off when you reinflate the tire before proceeding to the next tire.

Model	Qualification	Specified Tire Pressure Lower Limit
17 inch or 18 inch wheels	Front and rear	175 kPa (1.8 kgf/cm ² , 25 psi)
19 inch wheels	Front	202 kPa (2.1 kgf/cm ² , 29 psi)
	Rear	175 kPa (1.8 kgf/cm ² , 25 psi)

Does the indicator come on when the pressure drops below the specified tire pressure lower limit?

YES—The system is OK at this time.■

NO—Go to step 4.

4. Check the TIRE PRESSURE in the TPMS DATA LIST with the HDS, and compare it with the actual measured tire pressure.

NOTE: If UNDEFINED is shown on the sensor transmitter status, turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode, rotate the tire 1/4 turn, then turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and try again. If UNDEFINED is still displayed, repeat this procedure until NORMAL is shown.

Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck.■

NO—Replace the appropriate tire pressure sensor (see page 18-102).■



Low tire pressure indicator does not go off, and no DTCs are stored

NOTE: If the low tire pressure indicator is turned on at the same time as the TPMS indicator, go to the following TPMS symptom troubleshooting first: TPMS indicator does not go off, and no DTCs are stored (see page 18-98).

1. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
2. Check the low tire pressure indicator for several seconds when the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode.

Did the indicator come on, and then blink for about 75 seconds?

YES—Check for gauge DTCs with the HDS (see page 22-6) and go to the indicated gauge DTC's troubleshooting. ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
4. Disconnect the TPMS control unit 20P connector.
5. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
6. Check the low tire pressure indicator for several seconds when the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode.

Did the indicator come on, and then blink for about 75 seconds?

YES—Replace the TPMS control unit (see page 18-100). ■

NO—Do the troubleshooting for the gauge control module (see page 22-342). If necessary, substitute a known-good gauge control module (see page 22-367), and recheck. ■

TPMS indicator does not come on, and no DTCs are stored

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
2. Disconnect the TPMS control unit 20P connector.
3. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
4. Check the TPMS indicator when the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode.

Did the indicator come on?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

NO—Do the troubleshooting for the gauge control module (see page 22-342). If necessary, substitute a known-good gauge control module (see page 22-367), and recheck. ■

TPMS

Symptom Troubleshooting (cont'd)

TPMS indicator does not go off, and no DTCs are stored

NOTE:

- Check for gauge DTCs with the HDS (see page 22-6). If multiple DTCs are present, including U0029, troubleshoot those DTCs first. If only DTC U0029 is present, continue with the following troubleshooting.
- If the TPMS control unit was replaced, the TPMS indicator will be on until all four sensor ID codes are learned.

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

2. Check the No. 29 (7.5 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse blown?

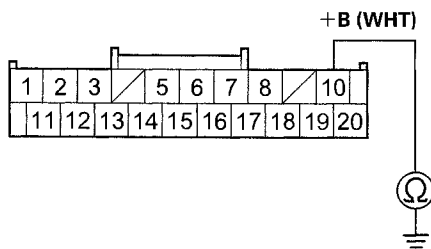
YES—Go to step 3.

NO—Reinstall the checked fuse, then go to step 5.

3. Disconnect the TPMS control unit 20P connector.

4. With the No. 29 (7.5 A) fuse removed, check for continuity between body ground and TPMS control unit 20P connector terminal No. 10.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the No. 29 (7.5 A) fuse in the driver's under-dash fuse/relay box and the TPMS control unit.■

NO—Install a new No. 29 (7.5 A) fuse in the driver's under-dash fuse/relay box, then go to step 8.

5. Check the No. 12 (7.5 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse blown?

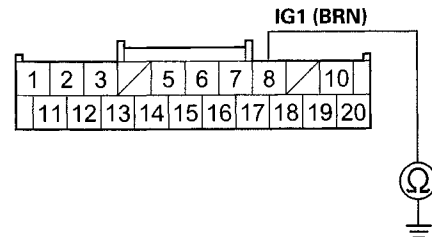
YES—Go to step 6.

NO—Reinstall the checked fuse, then go to step 11.

6. Disconnect the TPMS control unit 20P connector.

7. With the No. 12 (7.5 A) fuse removed, check for continuity between body ground and TPMS control unit 20P connector terminal No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the No. 12 (7.5 A) fuse in the driver's under-dash fuse/relay box and the TPMS control unit.■

NO—Install a new No. 12 (7.5 A) fuse in the driver's under-dash fuse/relay box, then go to step 8.

8. Reconnect the TPMS control unit 20P connector.



9. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
10. Check the TPMS indicator when the ignition switch is turned ON (II), or the engine start/stop button is pressed to select the ON mode.

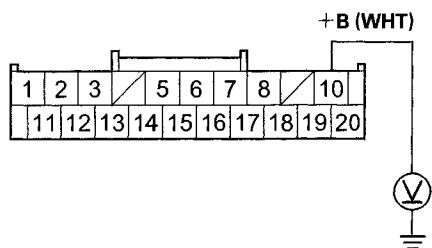
Did the indicator come on?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-100), and recheck. ■

NO—Troubleshooting is complete. ■

11. Disconnect the TPMS control unit 20P connector.
12. Measure the voltage between body ground and TPMS control unit 20P connector terminal No. 10.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

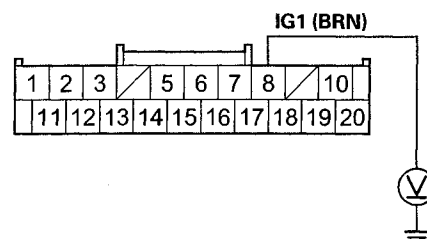
Is there battery voltage?

YES—Go to step 13.

NO—Repair an open in the wire between the TPMS control unit and the No. 29 (7.5 A) fuse in the driver's under-dash fuse/relay box. ■

13. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
14. Measure the voltage between body ground and TPMS control unit 20P connector terminal No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Repair an open in the wire between the TPMS control unit and the No. 12 (7.5 A) fuse in the driver's under-dash fuse/relay box. ■

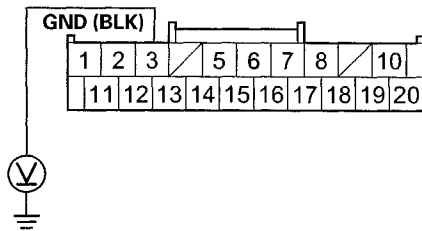
(cont'd)

TPMS

Symptom Troubleshooting (cont'd)

15. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
16. Reconnect the TPMS control unit 20P connector.
17. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
18. Measure the voltage between body ground and TPMS control unit 20P connector terminal No. 3.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair an open or high resistance in the wire between the TPMS control unit and body ground (G403). ■

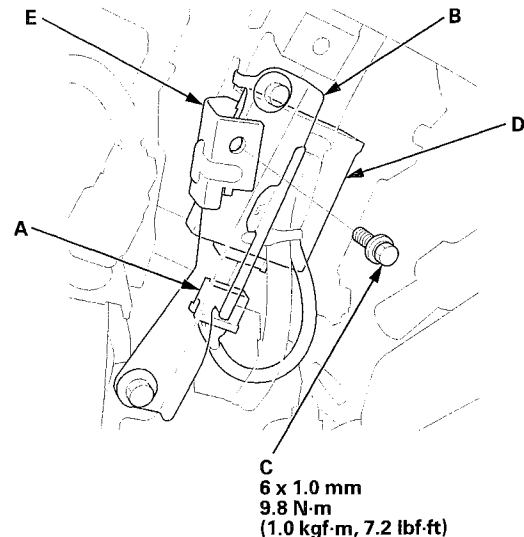
NO—Do the troubleshooting for the gauge control module (see page 22-342). If the gauge control module is OK, check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control (see page 18-100), and recheck. ■

TPMS Control Unit Replacement

NOTE: Make sure the TPMS control unit mounting bracket is not bent or twisted as this may affect its communication with the initiators and the tire pressure sensors.

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
2. Remove the driver's dashboard undercover (see page 20-118).
3. Disconnect the TPMS control unit connector (A).

NOTE: The TPMS control unit is located on the brake pedal support member (B).

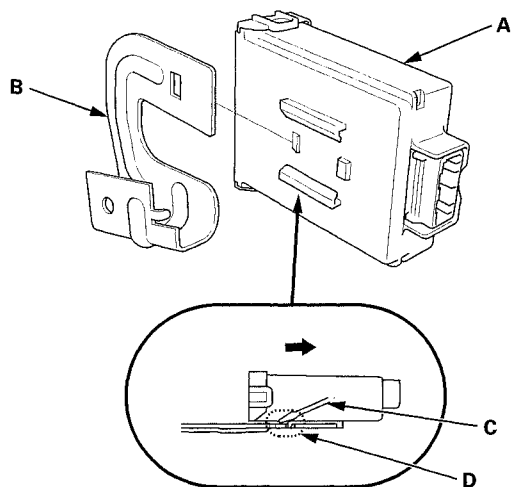


4. Remove the flange bolt (C) from the brake pedal support member.
5. Remove the TPMS control unit (D) with the bracket (E).

Initiator Replacement

6. Remove the TPMS control unit (A) from the bracket (B).

NOTE: To disconnect the TPMS control unit from its bracket, insert a small flat-tipped screwdriver (C) between the TPMS control unit and the bracket shown in (D) to release the hook, then slide out the TPMS control unit.



7. Install the TPMS control unit in the reverse order of removal.

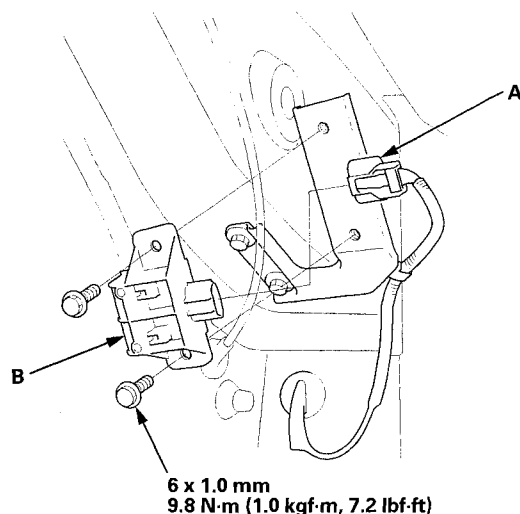
NOTE: Make sure the TPMS control unit is properly installed. You will hear a click when the TPMS control unit is securely mounted on the bracket.

8. Connect the HDS, and memorize the tire pressure sensor IDs (see page 18-63). Do not memorize the IDs automatically.

NOTE: Make sure the initiator mounting bracket is not bent or twisted as this may affect its communication with the TPMS control unit and the tire pressure sensor.

Front

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
2. Raise and support the vehicle (see page 1-10).
3. Remove the front wheel.
4. Remove the front inner fender (see page 20-203).
5. Disconnect the initiator connector (A).



6. Remove the initiator (B) from the bracket.
7. Install the initiator in the reverse order of removal.

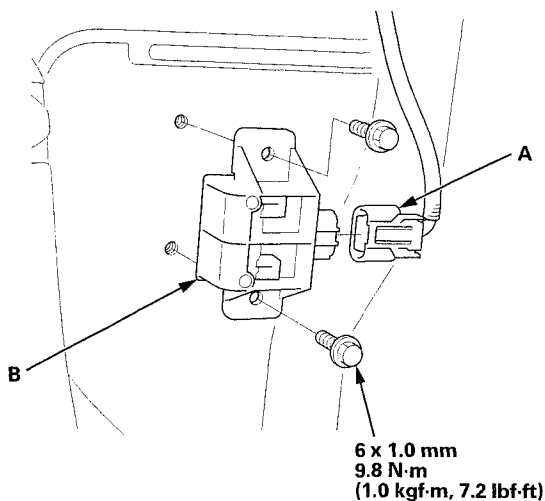
(cont'd)

TPMS

Initiator Replacement (cont'd)

Rear

1. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
2. Raise and support the vehicle (see page 1-10).
3. Remove the rear wheel.
4. Remove the rear inner fender cover (see page 20-209).
5. Disconnect the initiator connector (A).



6. Remove the initiator (B) from the inner side of the wheelwell.
7. Install the initiator in the reverse order of removal.

Tire Pressure Sensor Replacement

Removal

NOTICE

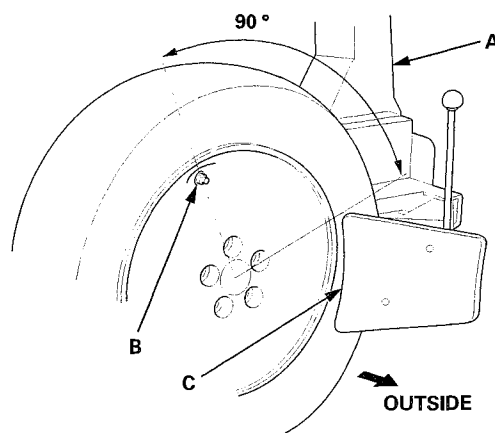
Each tire pressure sensor contains a lithium anode battery that is not removable. The complete tire pressure sensor should be disposed of according to local battery disposal guidelines or requirements. An improperly disposed of battery can be harmful to the environment.

1. Raise and support the vehicle (see page 1-10).
2. Remove the wheel with the faulty sensor.
3. Remove the tire valve stem cap and the valve stem core to deflate the tire.
4. Remove any balance weights, and then break the bead loose from the wheel with a commercially available tire changer (A).

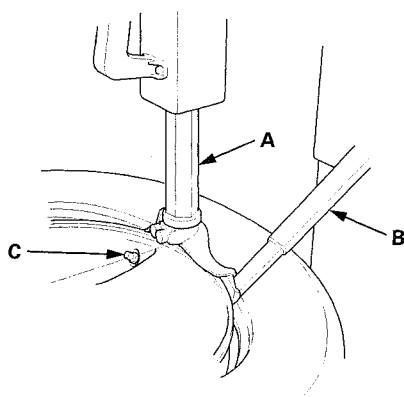
NOTICE

Note these items to avoid damaging the tire pressure sensor:

- Do the outside of the wheel first.
- Position the wheel as shown so the valve stem (B) is 90 degrees from the bead breaker (C) as shown.
- Do not position the bead breaker of the tire changer too close to the rim.

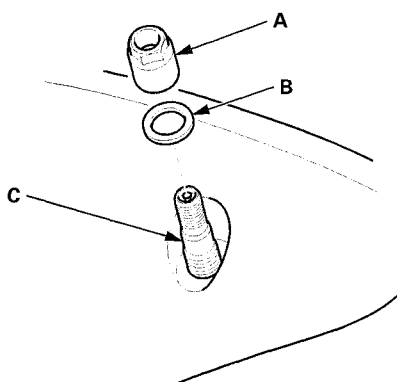


5. Position the wheel so that the tire machine (A) and the tire iron (B) are next to the valve stem (C), and will move away from it when the machine starts. Then remove the tire from the wheel.



6. Remove the valve stem nut (A) and the washer (B), then remove the tire pressure sensor with the valve stem (C) from the wheel.

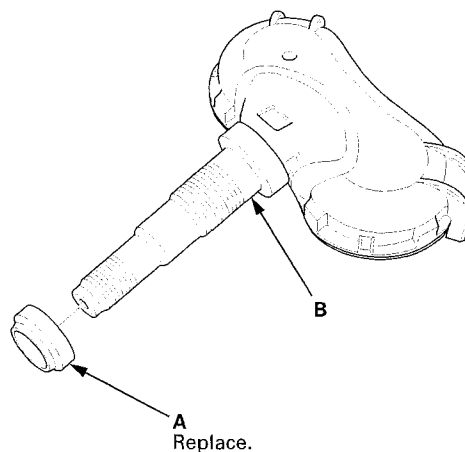
NOTE: Check the nut and the washer, if they have deterioration or damage, replace them with new ones during reassembly.



7. Remove and replace the valve stem grommet (A) from the tire pressure sensor (B).

NOTE:

- The valve stem grommet might stay in the wheel; make sure you remove it.
- Always use a new valve stem grommet whenever the tire pressure sensor has been removed from the wheel, or when replacing the tire.



(cont'd)

TPMS

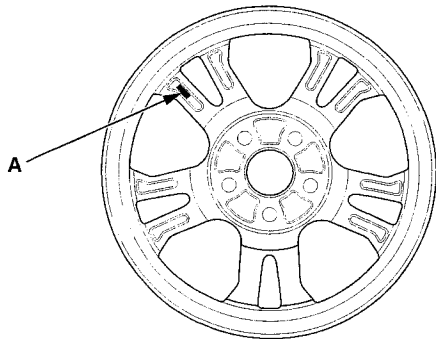
Tire Pressure Sensor Replacement (cont'd)

Installation

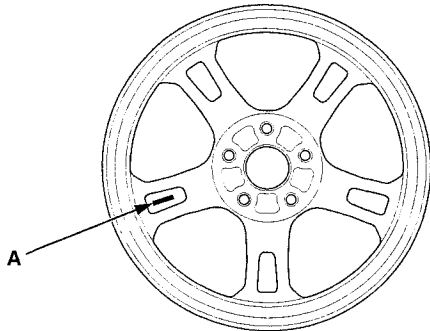
NOTE:

- Use only wheels that have a "TPMS" mark (A) on them.
- The vehicle may be equipped with one of the three types of wheels.

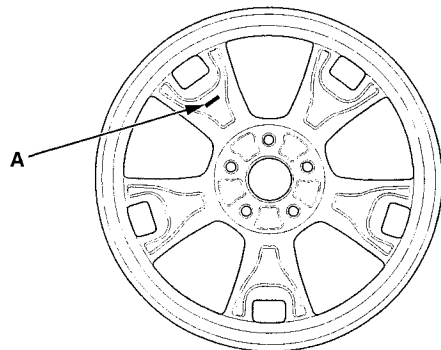
Type 1



Type 2

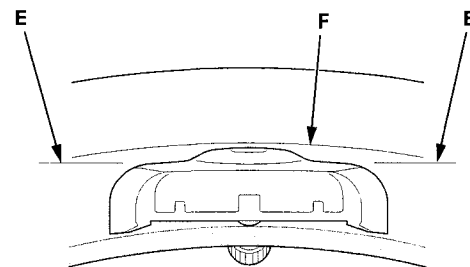
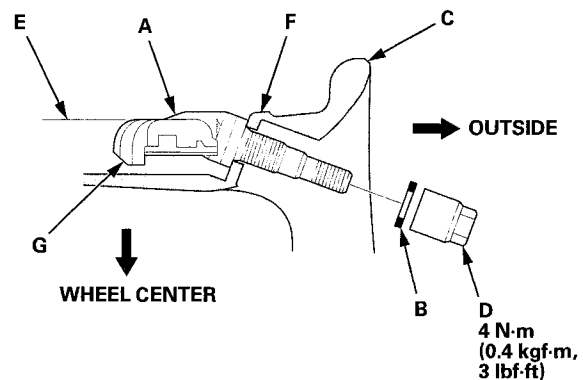


Type 3



1. Before installing the tire pressure sensor, clean the mating surfaces on the sensor and the wheel.
2. Install the tire pressure sensor (A) and the washer (B) to the wheel (C), and tighten the valve stem nut (D) finger tight. Make sure the pressure sensor is resting on the wheel.

NOTE: Install the tire pressure sensor so that the sensor housing surface (E) should not exceed the protrusion (F) of the wheel to prevent the sensor housing from being caught on the bead of the tire when assembling the tire. Be sure to always mount the tire pressure sensor with the feet (G) in the downward position toward the wheel.

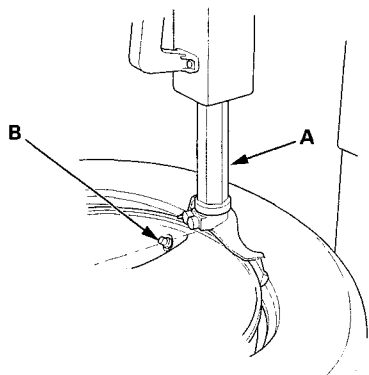


3. Tighten the valve stem nut to the specified torque while holding the tire pressure sensor.

NOTE:

- Do not use air or electric impact tools to tighten a valve stem nut.
- Do not twist the tire pressure sensor to adjust its position with the wheel, as this will damage or deform the valve stem grommet.

4. Lube the tire bead sparingly, with a paste-type tire mounting lubricant, and position the wheel so that the tire machine (A) is next to the valve stem (B) and will move away from it when the machine starts. Then install the tire onto the wheel.



5. With a dry air source, inflate the tire to 300 kPa (3.1 kgf/cm², 44 psi) to seat the tire bead to the rim, then adjust the tire pressure (see page 18-5), then install the valve stem cap.

NOTE: Make sure the tire bead is seated on both sides of the rim evenly.

6. Check and adjust the wheel balance, then install the wheels on the vehicle.
7. Lower the vehicle. Torque the wheel nuts to specifications (see step 2 on page 18-14).
8. Connect the HDS, and memorize the tire pressure sensor IDs (see page 18-63).