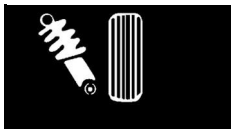
18

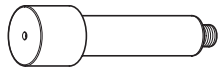
Suspension



Front and Rear Suspension

Special Tools

Ref. No.	Tool Number	Description	Qty
1	07GAF-SD40100	Hub Dis/Assembly Tool 42 mm	1
2	07MAC-SL00200	Ball Joint Remover, 28 mm	1
3	07MGK-0010100	Wheel Alignment Gauge Attachment	1
4	07746-0010500	Attachment, 62 x 68 mm	1
5	07749-0010000	Driver	1
6	07965-SA50500	Front Hub Dis/Assembly Tool	1
7	07965-SA70100	Hub Dis/Assembly Tool 34 mm	1
8	07965-SD90100	Support Base	1



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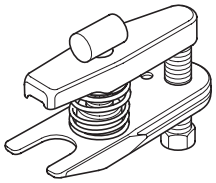

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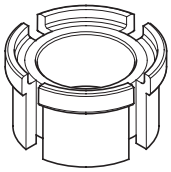

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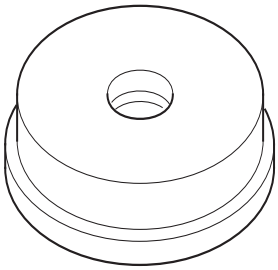

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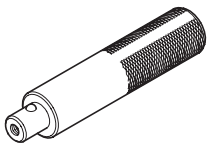

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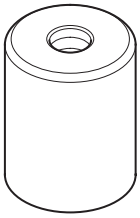

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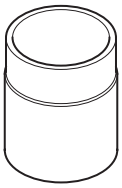

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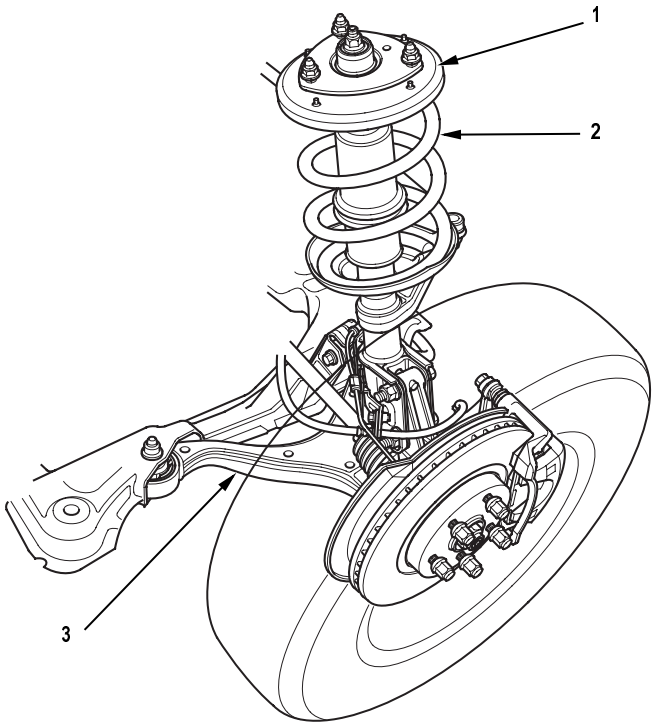
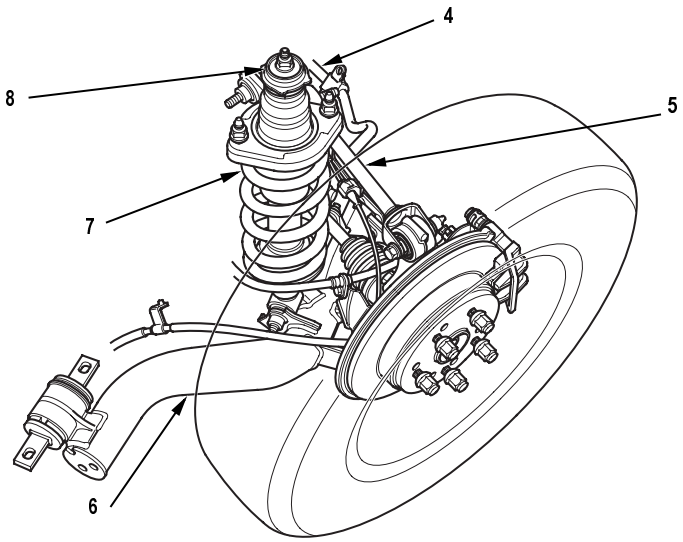
Component Location Index

Front Suspension:



Rear Suspension:



1	DAMPER	Disposal, page 18-11; Replacement, page 18-21
2	SPRING	Replacement, page 18-21
3	LOWER ARM	Replacement, page 18-20
4	STABILIZER BAR	Replacement, page 18-32
5	UPPER ARM	Replacement, page 18-34
6	TRAILING ARM	Replacement, page 18-35
7	SPRING	Replacement, page 18-36
8	DAMPER	Disposal, page 18-11; Replacement, page 18-36

Wheel Alignment

Special Tool Required
Wheel alignment gauge attachment 07MGK-0010100

The suspension can be adjusted for front camber, front toe, and rear toe. However, each of these adjustments are interrelated to each other. For example, when you adjust toe, the camber changes. Therefore, you must adjust the front wheel alignment whenever you adjust camber or toe.

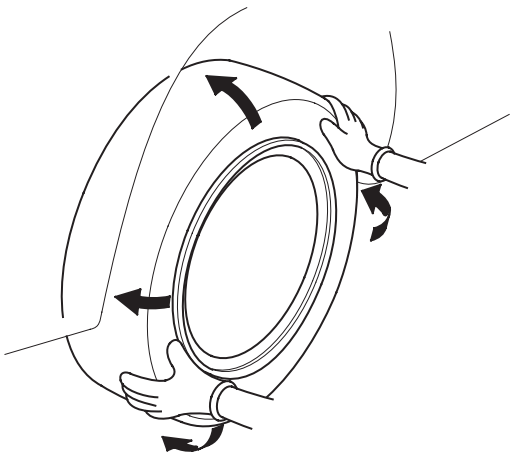
Pre-Alignment Checks

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. Check the tire size and tire pressure.

   Tire size:
   Front/rear:
   15 inch wheel disc: 205/70R15 96T
   16 inch wheel disc: 205/65R16 95T

   Tire pressure:
   Front/rear:
   180 kPa (1.8 kgf/cm², 26 psi)
4. Check the runout of the wheels and tires.
5. Check the suspension ball joints. (Hold a wheel with your hands, and move it up and down and right and left to check for wobbling).

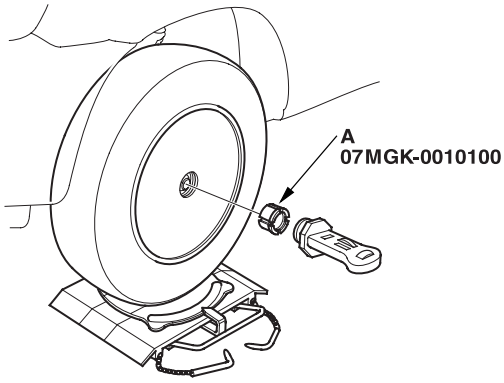


6. Bounce the vehicle up and down several times to stabilize the suspension.

Front Caster Inspection

1. Raise the vehicle and set the turning radius gauges beneath the front wheels, and place boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.

   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and boards.
2. Remove the wheel cap, and install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub, and apply the front brake.

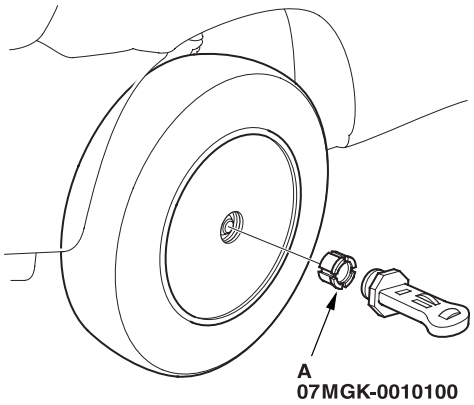


3. Turn the front wheel 20° outward, then turn the adjusting screw of the camber/caster gauge to set the bubble at 0°.
4. Turn the wheel 20° inward and read the caster on the gauge with the bubble at the center of the gauge. If the caster angle is not within the specification, check for bent or damaged suspension components.

   Front Caster angle: 1°45' ± 1°

Front Camber Inspection

1. Turn the front wheels to the straight ahead position.
2. Remove the wheel cap, and install the wheel alignment gauge attachment (A) and camber/ caster gauge on the wheel hub.

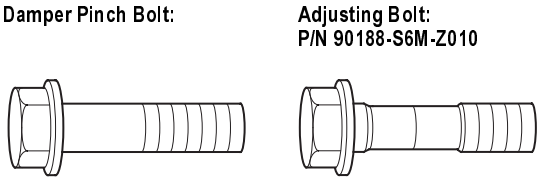


3. Read the camber angle on the gauge with the bubble at the center of the gauge. If the camber angle is not within the specification, adjust the camber (see the right column).

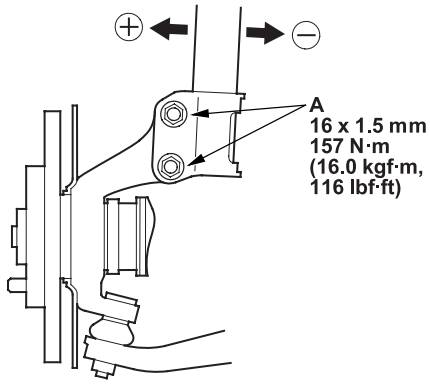
Front camber angle: 0°00' ± 45'

Front Camber Adjustment

The front camber can be adjusted by exchanging one or both of the damper pinch bolts with the smaller diameter adjusting bolt(s). The difference between the adjusting bolt diameter and the pinch bolt hole diameter allows a small range of adjustment.



1. Raise the front of the vehicle, and make sure it is securely supported. Remove the front wheels.
2. Loosen the damper pinch nuts and bolts (A), and adjust the camber by moving the bottom of the damper within the range of the damper pinch bolt free play.



3. Tighten the nuts to the specified torque. Make sure the damper pinch bolts tightening torque.
4. Reinstall the front wheels. Lower the front of the vehicle to the ground, and bounce the vehicle several times to stabilize the suspension.
5. Check the camber angle. If it is within the specification, check the front toe. If it is not within the specification, go to step 6.

(cont'd)

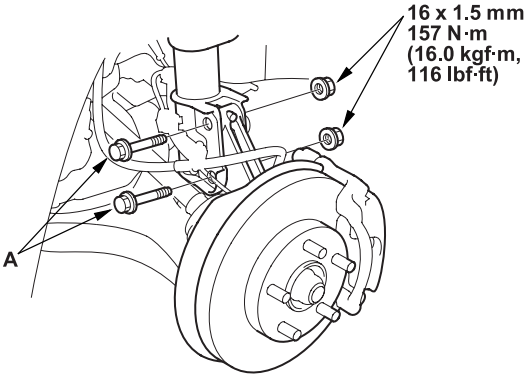
Wheel Alignment (cont'd)

Front Camber Adjustment (cont'd)

6. Raise the front of the vehicle, and make sure it is securely supported. Remove the front wheels.

7. Replace the damper pinch bolts with the adjusting bolts (A), and adjust the camber angle.

NOTE: The camber angle can be adjusted up to ± 15' (center of tolerance) by replacing one damper pinch bolt with the adjusting bolt. The camber angle can be adjusted up to ± 30' by replacing both upper and lower damper pinch bolts with the adjusting bolts.



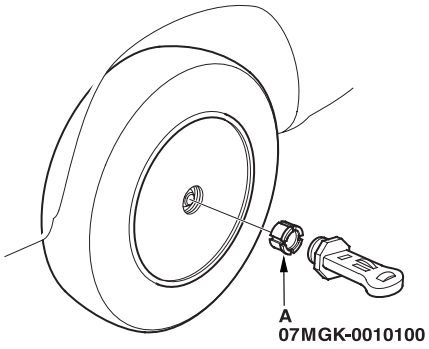
8. Tighten the bolts to the specified torque.

9. Reinstall the front wheels. Lower the front of the vehicle to the ground, and bounce the vehicle several times to stabilize the suspension.

10. Check the camber angle. If it is within the specification, check the front toe, and adjust it if necessary. If it is not within the specification, readjust it, and recheck. If the camber angle cannot be adjusted to the specification, check for bent or damaged suspension components.

Rear Camber Inspection

1. Remove the wheel cap, and install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.



2. Read the camber angle on the gauge with the bubble at the center of the gauge. If the camber angle is not within the specification, check for bent or damaged suspension components.

Rear camber angle: - 0°45' ± 45'

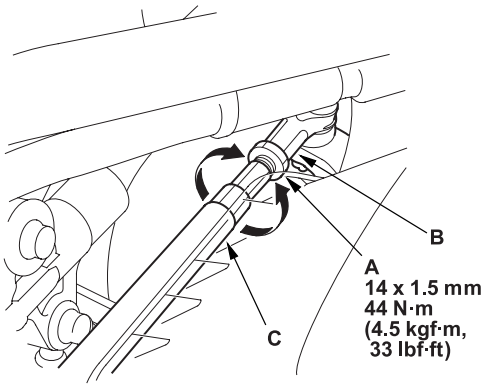
NOTICE

Do not loosen the special bolts on the trailing arm.

Front Toe Inspection/Adjustment

1. Center the steering wheel spokes.
2. Check the toe. If it is not within the specification, go to step 3.

   Front toe-in: 0 ± 2 mm (0 ± 0.08 in.)
3. Loosen the locknut (A) while holding the tie-rod end (B).



4. Turn the tie-rod end (C) until the toe is correct.

   NOTE: Adjust both the right and left wheels at the same time by the same amount in opposite directions to obtain the correct toe and to keep the steering wheel straight.
5. After adjusting, tighten the locknut while holding the tie-rod arm. Make sure the toe setting does not change.

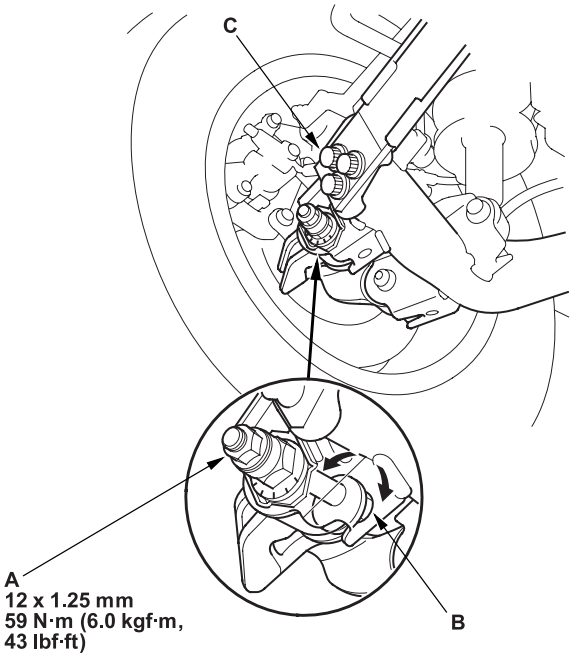
Rear Toe Inspection/Adjustment

1. Release the parking brake.
2. Check the toe. If it is not within the specification, go to step 3.

   Rear toe-in: 2 ± 2 mm (0 ± 0.08 in.)
3. Loosen the self-locking nut (A) while holding the adjusting bolt (B).

   NOTICE

   Do not loosen the special bolts (C) on the trailing arm.



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 loosened.
5. Turn the adjusting bolt until the toe is correct.

   Rear toe-in:
   0 (from -1 to +2) mm (0 (from -0.04 to +0.08) in.)
6. Tighten the self-locking nut to the specified torque while holding the adjusting bolt.

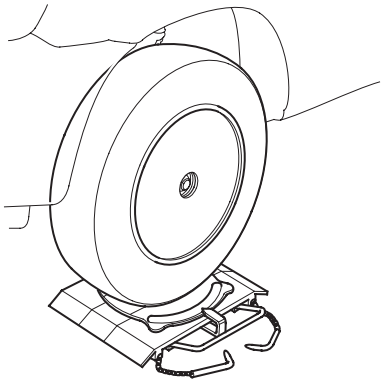
(cont'd)

Wheel Alignment (cont'd)

Turning Angle Inspection

1. Raise the vehicle and set the turning radius gauges beneath the front wheels, and place boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.

   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and boards.



2. Turn the steering wheel fully to the right and left while applying the brakes, and check the turning angles of both front wheels. If the turning angle is not within the specification or the inward turning angles differ between the right and left, go to step 3.

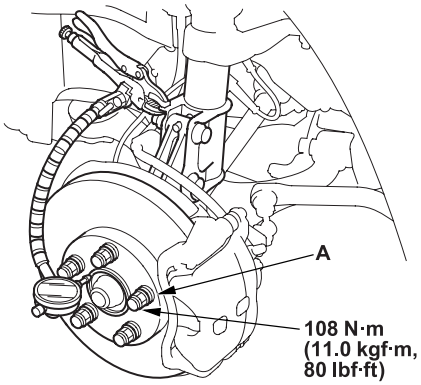
   Turning angle:
   Inward: 39°45' ± 2°
   Outward: 32°30' (reference)

3. Check the toe. If it is correct but the turning angle is not within the specification, check for bent or damaged suspension components.

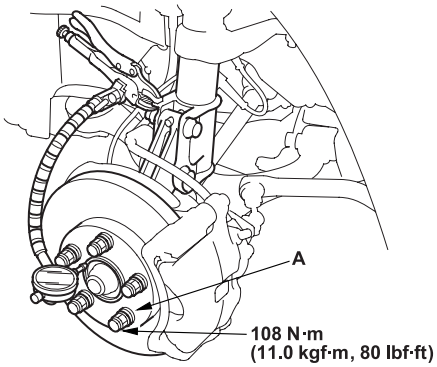
Wheel Bearing End Play Inspection

1. Raise the vehicle, and make sure it is securely supported. Remove the wheels.
2. Install suitable flat washers (A) and wheel nuts, and tighten the nuts to the specified torque to hold the brake disc securely against the hub.

   Front:



   Rear:



3. Set up the dial gauge against the hub cap or hub flange as shown, and measure the bearing end play by moving the brake disc inward and outward.

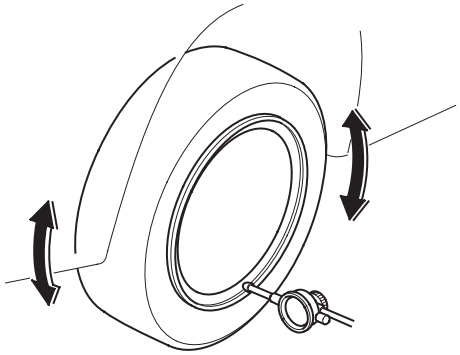
   Bearing end play:
   Standard:
   Front/rear: 0 - 0.05 mm (0 - 0.002 in.)

4. If the bearing end play is more than the standard, replace the wheel bearing.

Wheel Runout Inspection

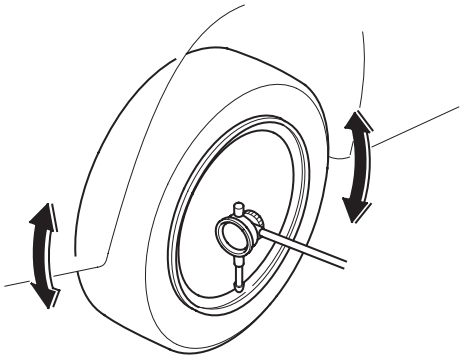
1. Raise the vehicle, and make sure it is securely supported.
2. Check for a bent or deformed wheel.
3. Set up the dial gauge as shown, and measure the axial runout by turning the wheel.

Front and rear wheel axial runout:
Standard:
Aluminum wheel: 0 - 0.7 mm (0 - 0.03 in.)
Steel wheel: 0 - 1.0 mm (0 - 0.04 in.)
Service limit: 2.0 mm (0.08 in.)



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

Front and rear wheel radial runout:
Standard:
Aluminum wheel: 0 - 0.7 mm (0 - 0.03 in.)
Steel wheel: 0 - 1.0 mm (0 - 0.04 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 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.

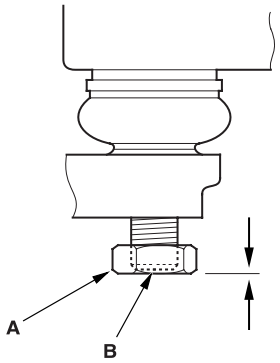
Ball Joint Removal

Special Tools Required
Ball joint remover, 28 mm 07MAC-SL00200

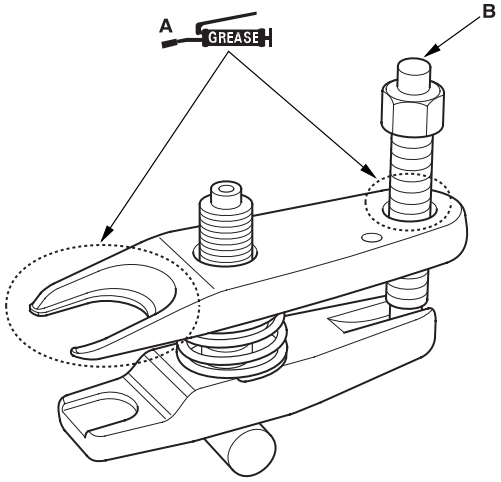
NOTICE

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.

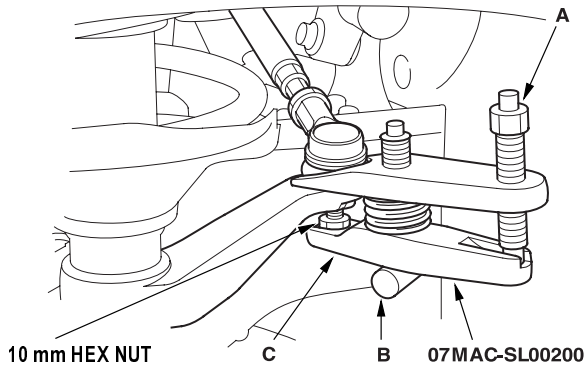
1. Install a hex nut (A) onto the threads of the ball joint (B). Make sure the nut is flush with the ball joint pin end to prevent damage to the thread end of the ball joint pin.



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



3. Install the special tool as shown. Insert the jaws carefully, making sure not to damage the ball joint boot. Adjust the jaw spacing by turning the pressure bolt (A).



4. After adjusting the adjusting bolt, make sure the head of the adjusting bolt (B) is in the position shown to allow the jaw (C) to pivot.

5. With a wrench, tighten the pressure bolt until the ball joint pin pops loose from the steering arm or knuckle. 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 tool, then remove the nut from the end of the ball joint pin, and pull the ball joint out of the steering arm or knuckle. Inspect the ball joint boot, and replace it if damaged.

Damper Disposal

WARNING

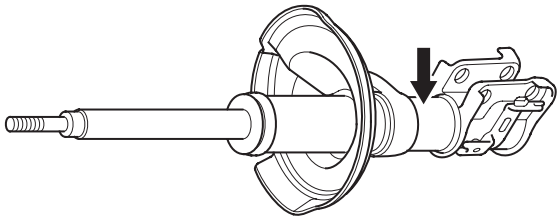
The dampers contain nitrogen gas and oil under pressure. The pressure must be relieved before disposal to prevent explosion and possible injury when scrapping.

WARNING

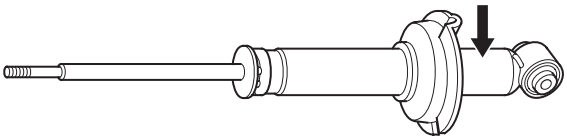
Always wear eye protection to avoid getting metal shavings in your eyes when the damper pressure is relieved.

Place the damper on a level surface with its shaft extended and drill a hole of 2 - 3 mm (0.078 - 0.118 in.) diameter in the body to release the gas.

Front damper:



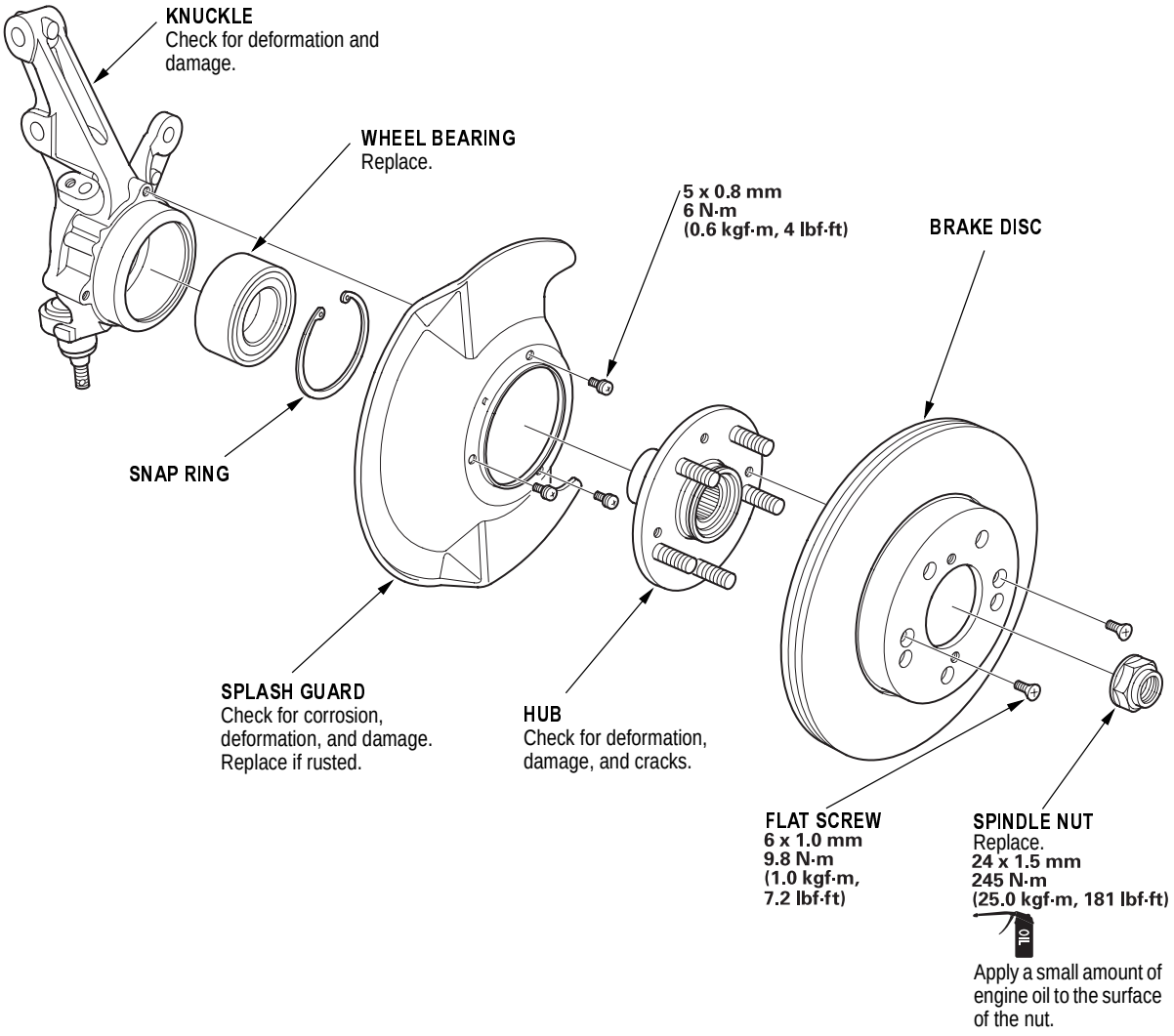
Rear damper:



Front Suspension

Knuckle/Hub/Wheel Bearing Replacement

Exploded View

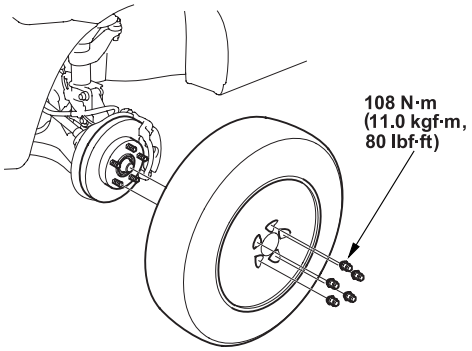


Special Tools Required
- Hub dis/assembly tool 07GAF-SD40100
- Ball joint remover, 28 mm 07MAC-SL00200
- Attachment 62 x 68 mm 07746-0010500
- Driver 07749-0010000
- Support base 07965-SD90100

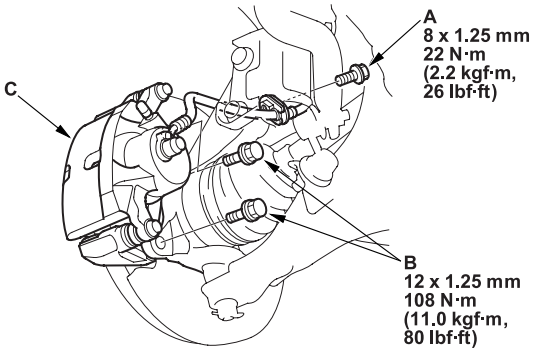
Knuckle/Hub Replacement

1. Raise the front of the vehicle, and make sure it is securely supported.

2. Remove the wheel cap, wheel nuts, and front wheel.

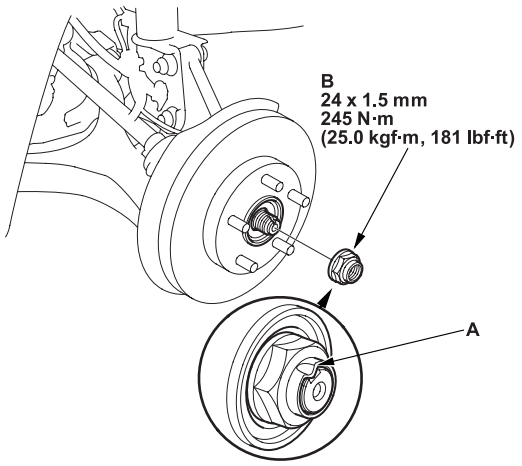


3. Remove the brake hose bracket mounting bolt (A).

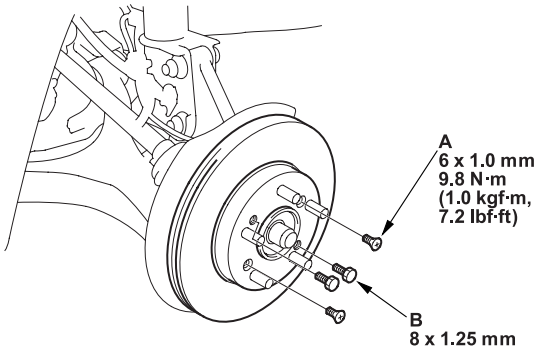


4. Remove the caliper bracket mounting bolts (B), and remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose with force.

5. Raise the stake (A), and remove the spindle nut (B).



6. Remove the brake disc retaining flat screws (A).



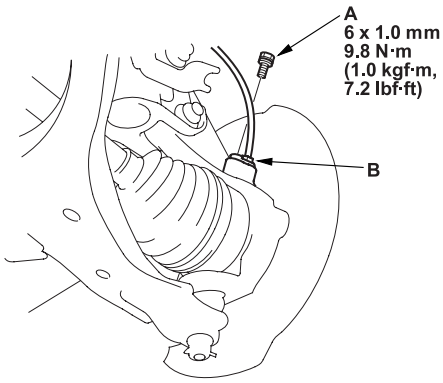
7. Screw two 8 ×1.25 mm bolts (B) into the disc to push it away from the hub. Turn each bolt two turns at a time to prevent cocking the disc excessively.

(cont'd)

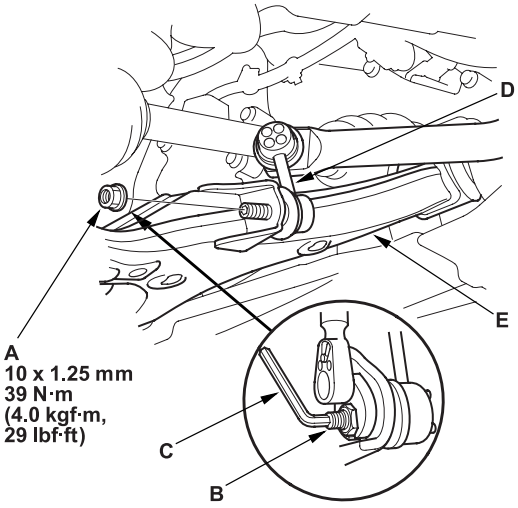
Knuckle/Hub/Wheel Bearing Replacement (cont'd)

Knuckle/Hub Replacement (cont'd)

8. Remove the flange bolt (A) and wheel sensor (B) from the knuckle. Do not disconnect the wheel sensor connector.

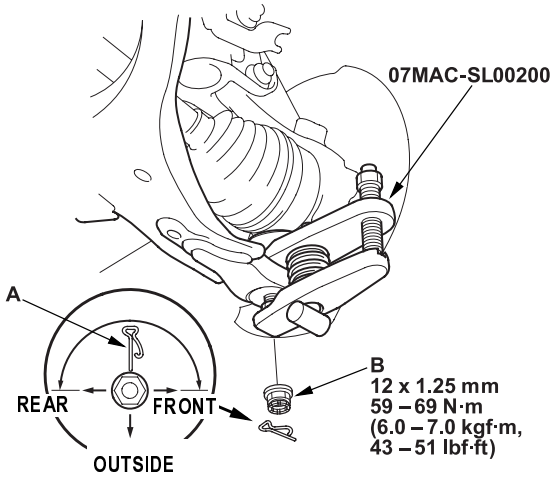


9. Remove the flange nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer link (D) from the lower arm (E).



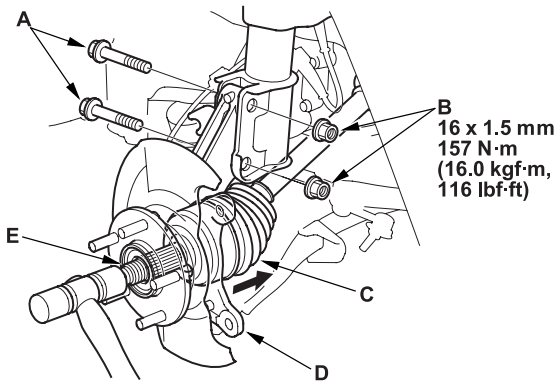
10. Remove the clip (A) from the lower arm ball joint, and remove the castle nut (B).

NOTE: During installation, insert the clip into the ball joint pin from the inside to the outside of the vehicle. The closed end of the clip must be in the range shown.



11. Disconnect the lower arm from the knuckle using the special tool (see page 18-10).

12. Loosen the damper pinch bolts (A) while holding the nuts (B), and remove the bolts and nuts.



13. Remove the driveshaft outboard joint (C) from the knuckle (D) by tapping the driveshaft end (E) with a plastic hammer while drawing the knuckle outward, then remove the knuckle.

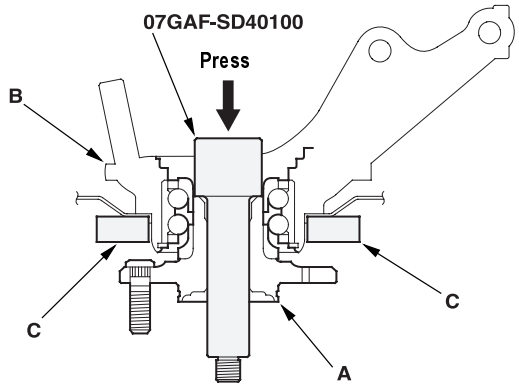
NOTE: Do not pull the driveshaft end outward. The driveshaft joint may come off.

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

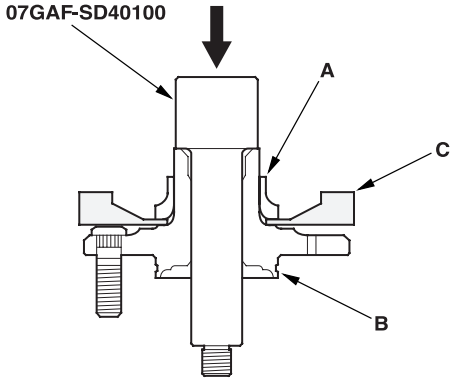
- Be careful not to damage the ball joint boot when installing the knuckle.
- Tighten all mounting hardware to the specified torque values.
- First install all the components and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torques. Do not place the jack against the ball joint pin of the lower arm.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the clip hole. Do not align the castle nut by loosening it.
- Install a new clip on the castle nut after torquing.
- 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.
- Replace the self-locking nuts, damper pinch bolts and nuts with new ones.
- Before installing the brake disc, clean the mating surface of the front hub and the inside of the brake disc.
- Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
- Check the front wheel alignment, and adjust it if necessary (see page 18-4).

Wheel Bearing Replacement

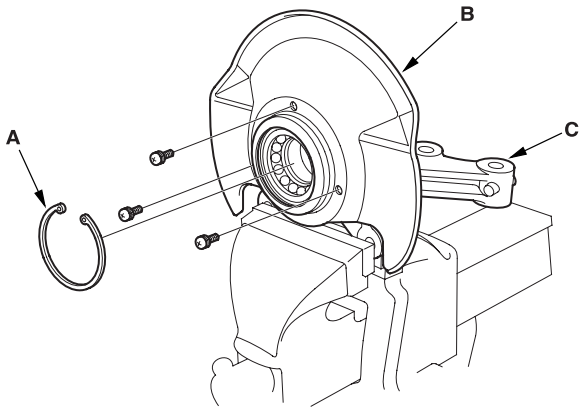
1. Separate the hub (A) from the knuckle (B) using the special tool and a hydraulic press. Hold the knuckle with the attachment (C) of the hydraulic press or equivalent tool. Be careful not to deform the splash guard. Hold onto the hub to keep it from falling when pressed clear.



2. Press the wheel bearing inner race (A) off of the hub (B) using the special tool, a commercially available bearing separator (C), and a press.



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

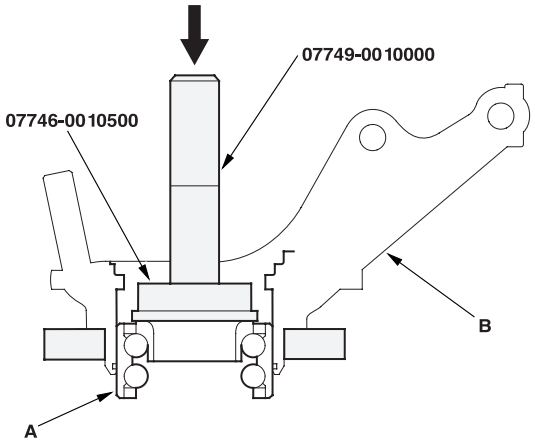


(cont'd)

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

Wheel Bearing Replacement (cont'd)

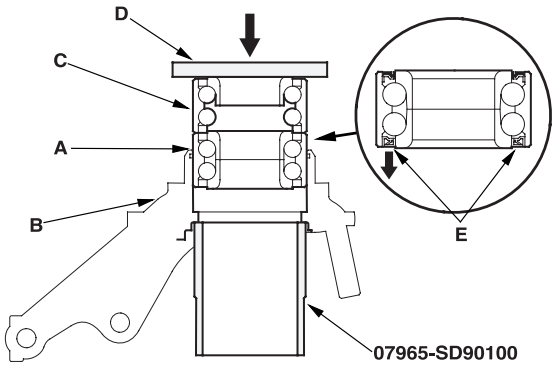
4. Press the wheel bearing (A) out of the knuckle (B) using the special tool and a press.



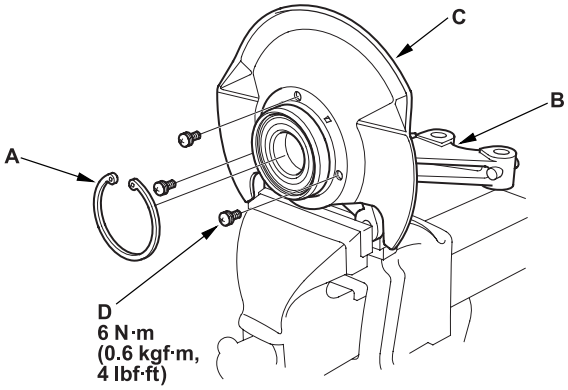
5. Wash the knuckle and hub thoroughly in high flash point solvent before reassembly.

6. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the special tool, and a press.

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

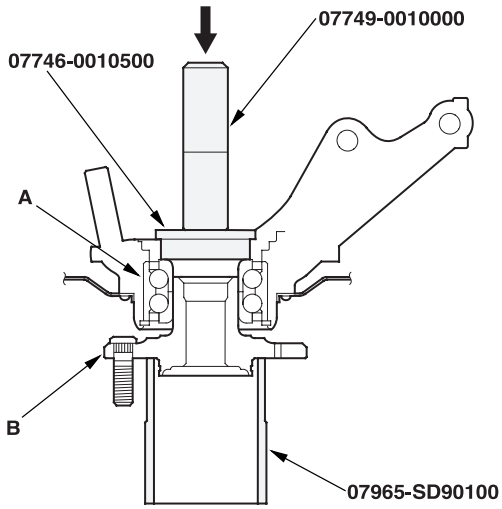


7. Install the snap ring (A) securely in the knuckle (B).



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

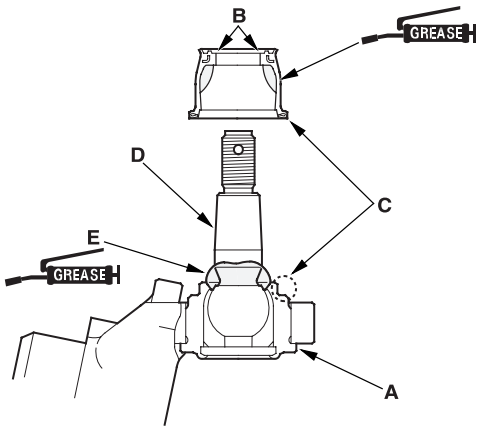
9. Press a wheel bearing (A) onto the hub (B) using the special tools and a press.



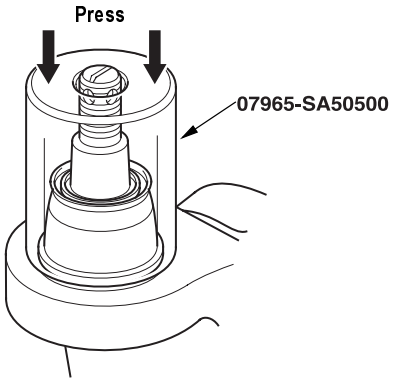
Ball Joint Boot Replacement

Special Tools Required
Front hub dis/assembly tool 07965-SA50500

1. Remove the boot. Check for a gap (A) between the ball joint and the knuckle. If there is a gap, replace the knuckle assembly. Do not press the ball joint back into the knuckle.
2. Pack the interior and lip (B) of a new boot with fresh grease. Keep the grease off of the boot-to-knuckle mating surfaces (C).



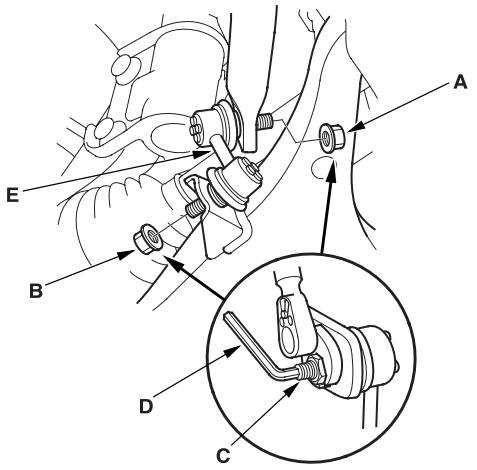
3. Wipe the grease off the tapered section of the pin (D), and pack fresh grease onto the base (E).
4. Install the boot onto the ball joint pin, then squeeze it gently to force out any air. Do not let dirt or other foreign materials get into the boot.
5. Press the boot with the special tool until the bottom seats on the knuckle (A) evenly around.



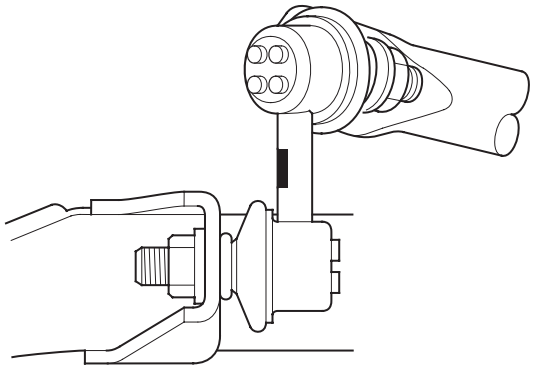
6. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.

Stabilizer Link Replacement

1. Raise the front of the vehicle, and make sure it is securely supported. Remove the front wheels.
2. Remove the self-locking nut (A) and flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), and remove the stabilizer link (E).



3. Install the stabilizer link on the stabilizer bar and lower arm with the joint pins set at the center of each moving range.



4. Install the self-locking nut and flange nut, and lightly tighten them.

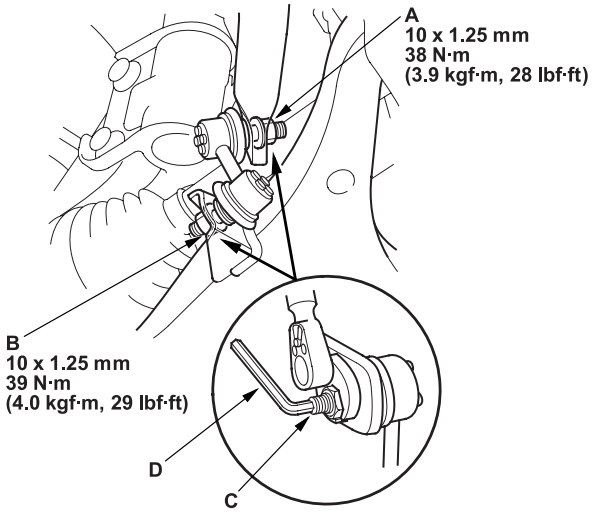
   NOTE: Use a new self-locking nut on reassembly.

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

   NOTICE

   Do not place the jack against the ball joint pin of the lower arm.

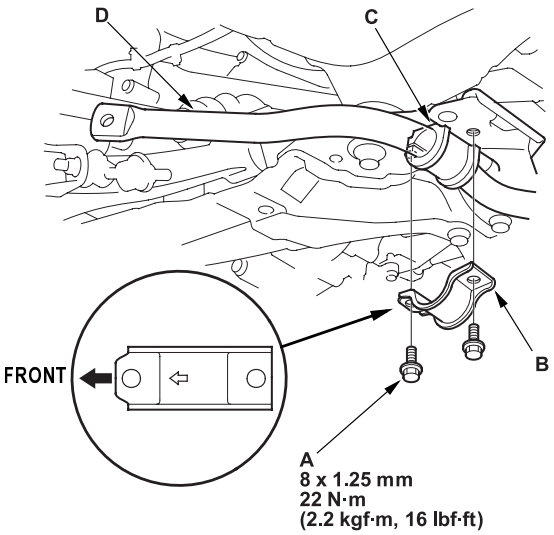
6. Tighten the new self-locking nut (A) and flange nut (B) to the specified torque values while holding the respective joint pins (C) with a hex wrench (D).



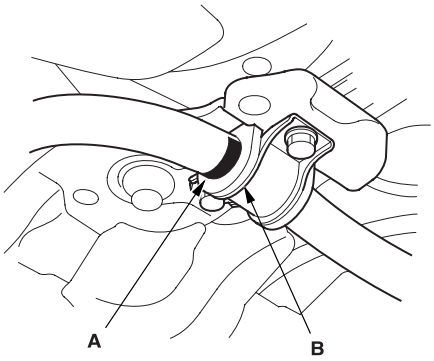
7. After 5 minutes of driving, re-tighten the self-locking nut again to the specified torque.

Stabilizer Bar Replacement

1. Raise the front of the vehicle, and make sure it is securely supported. Remove the front wheels.
2. Disconnect the stabilizer links from the stabilizer bar on the right and left (see page 18-18).
3. Remove the flange bolts (A) and bushing holders (B), then remove the bushings (C) and the stabilizer bar (D).



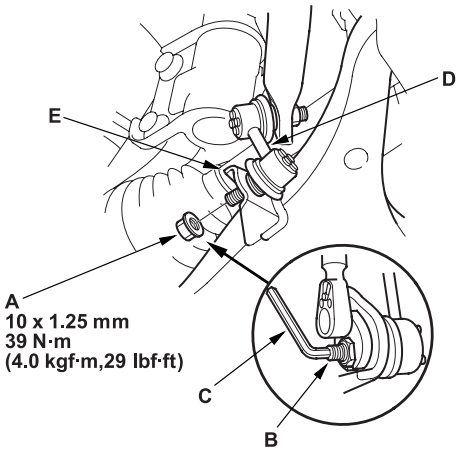
4. Install the stabilizer bar in the reverse order of removal, and note these items:
   - Use new self-locking nuts on reassembly.
   - Note the right and left direction of the stabilizer bar.
   - Align the ends of the paint marks (A) on the stabilizer bar with each end of the bushings (B).
   - Note the fore/aft direction of the bushing holders.
   - Refer to Stabilizer Link Replacement to connect the stabilizer bar to the links (see page 18-18).



Lower Arm Replacement

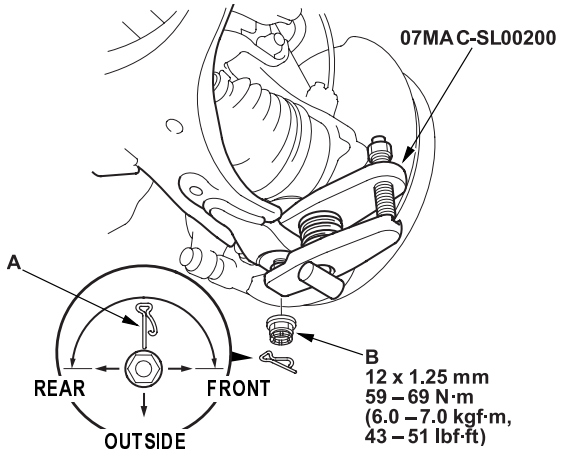
Special Tools Required
Ball joint remover, 28 mm 07MAC-SL00200

1. Raise the front of the vehicle, and make sure it is securely supported. Remove the front wheels.
2. Remove the flange nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer link (D) from the lower arm (E).

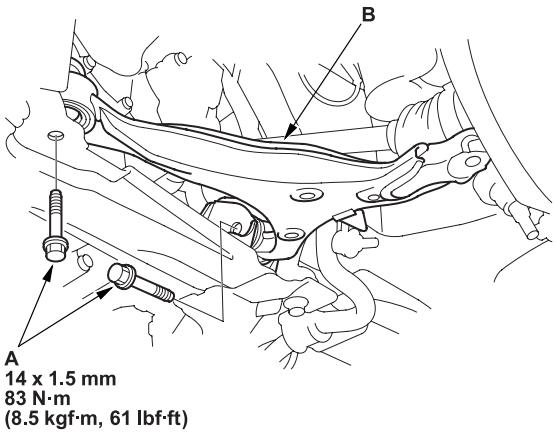


3. Remove the clip (A) from the lower arm ball joint, and remove the castle nut (B).

   NOTE: During installation, insert the clip into the ball joint pin from the inside to the outside of the vehicle. The closed end of the clip must be in the range shown.



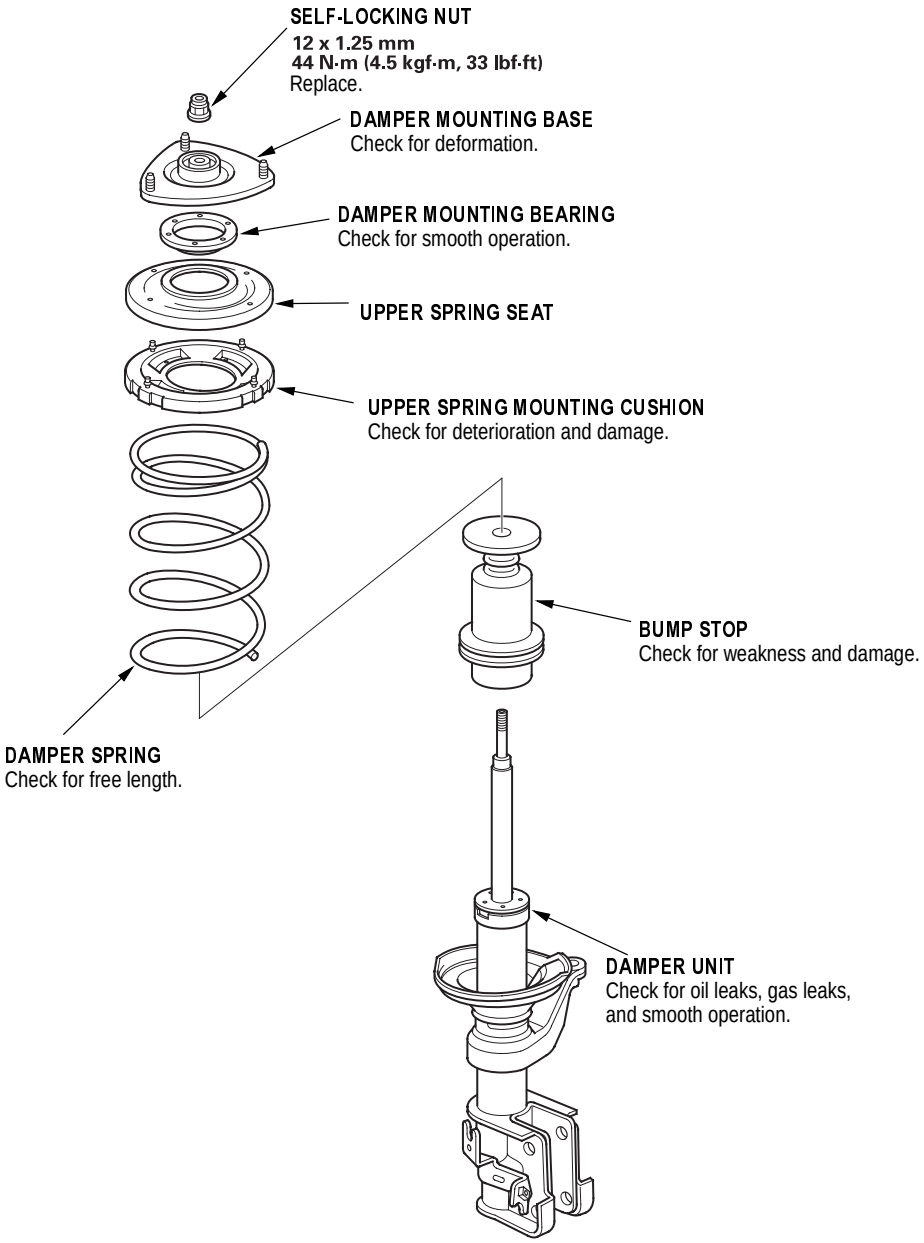
4. Disconnect the lower arm from the knuckle using the special tool (see page 18-10).
5. Remove the flange bolts (A), and remove the lower arm (B).



6. Install the lower arm in the reverse order of removal, and note these items:
   - Be careful not to damage the ball joint boot when connecting the lower arm to the knuckle.
   - Tighten all mounting hardware to the specified torque values.
   - First install all the components and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening it to the specified torques. Do not place the jack on the lower arm ball joint.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the clip hole. Do not align the castle nut by loosening it.
   - Install a new clip on the castle nut after torquing.
   - Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-4).

Damper/Spring Replacement

Exploded View



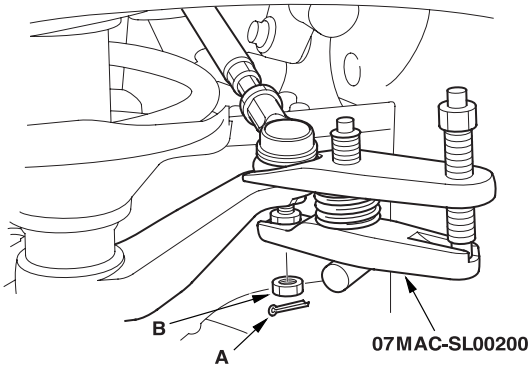
(cont'd)

Damper/Spring Replacement (cont'd)

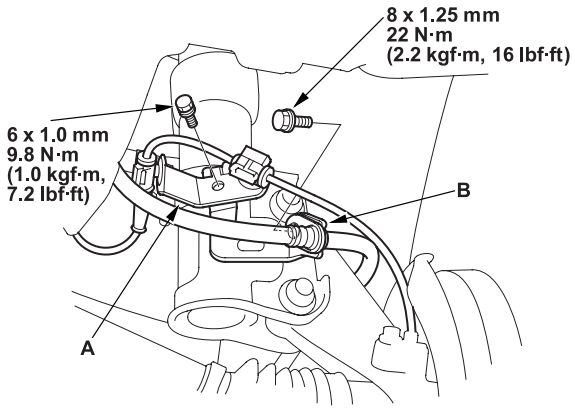
Special Tools Required
Ball joint remover, 28 mm 07MAC-SL00200

Removal

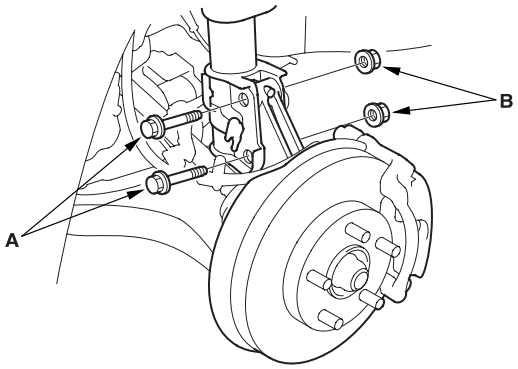
1. Raise the front of the vehicle, and make sure it is securly supported. Remove the front wheels.
2. Remove the cotter pin (A) from the tie-rod end ball joint, and remove the nut (B).



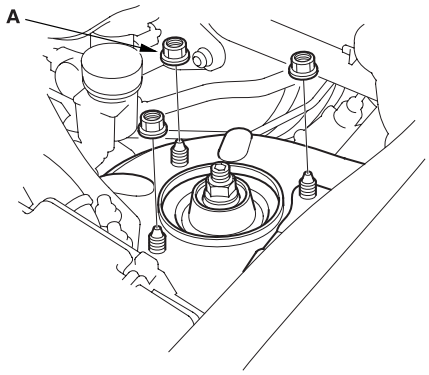
3. Disconnect the tie-rod end from the steering arm on the damper using the special tool (see page 18-10).
4. Remove the bolts, and remove the wheel sensor harness bracket (A) and brake hose bracket (B) from the damper. Do not disconnect the wheel sensor connector.



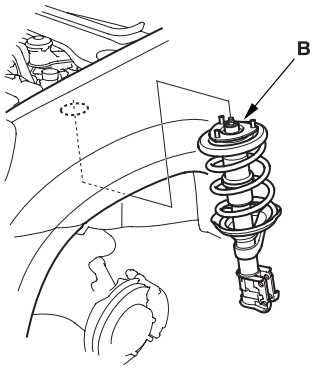
5. Remove the damper pinch bolts (A) while holding the nuts (B).



6. Remove the flange nuts (A) from the top of the damper.

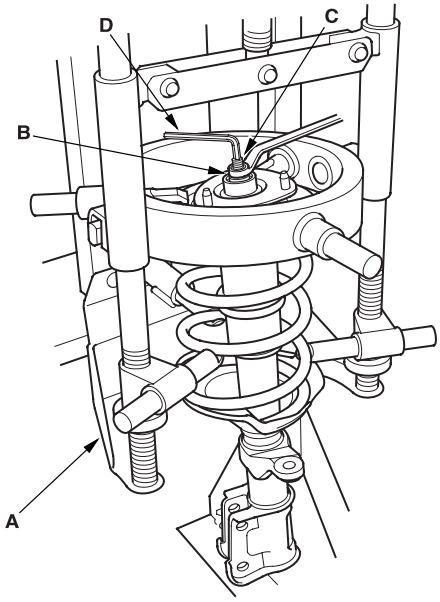


7. Lower the lower arm, and remove the damper assembly (B).



Disassembly/Inspection

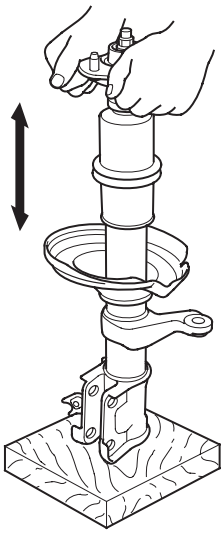
1. Compress the damper spring with the commercially available strut compressor (A) according to the manufacturer's instructions, then remove the self-locking nut (B) while holding the damper shaft (C) with a hex wrench (D). Do not compress the spring more than necessary to remove the nut.



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

3. Reassemble all the parts, except for the apper spring seat and spring.

4. 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.



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

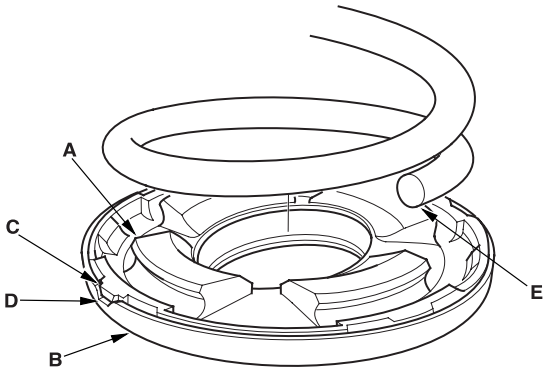
(cont'd)

Damper/Spring Replacement (cont'd)

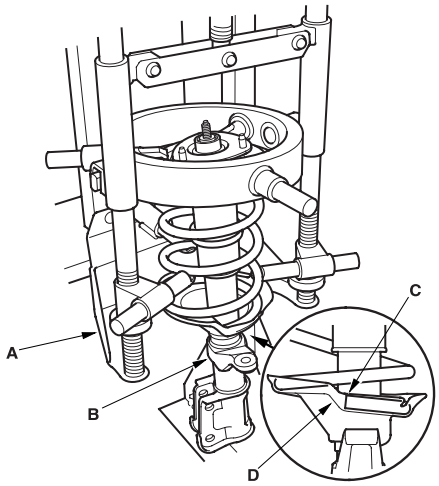
Reassembly

NOTE: Refer to the Exploded View as needed.

1. Install the upper spring mounting cushion (A) on the upper spring seat (B) by aligning the log portion (C) on cushion with cutout (D) in the seat.

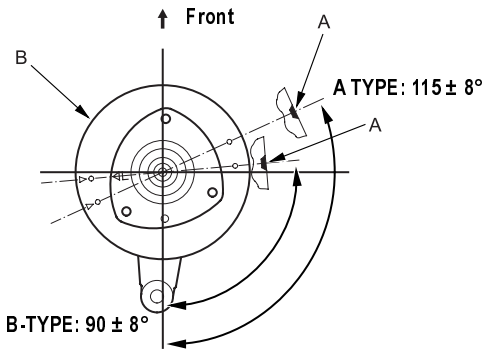


2. Install the spring (E) in the groove of the cushion securely fitted.
3. Install the damper mounting bearing and damper mounting base on the upper spring seat.
4. Install the upper spring seat and the spring on a commercially available strut spring compressor (A), and compress the spring lightly.

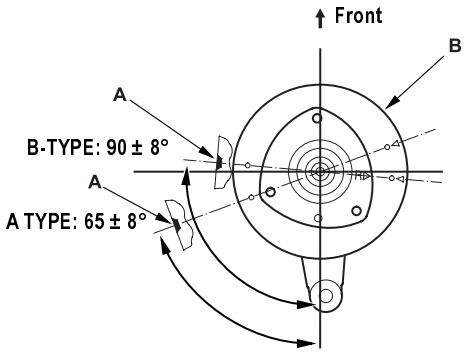


5. Insert the damper unit (B) up through the compressed spring.
6. Align the bottom of the spring (C) and the stepped part (D) of the lower spring seat.
7. Check that the cutout (A) in the side of the upper spring seat (B) is in position shown. Note that there are two types of the damper, A type and B type, and the cutout position is different from type to type.
   A type damper: P/N 51601/51602-S9A-G02
   B type damper: P/N 51601/51602-S9A-G12
   The part No. is shown on the damper unit label. If the cutout is out of position, repeat to the step 1 and reassemble the spring and upper spring seat accordingly.

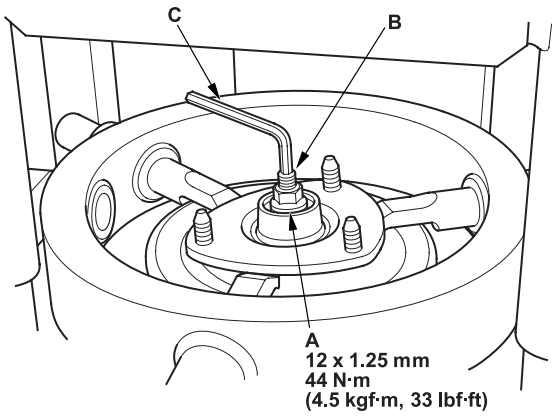
Left side:



Right side:



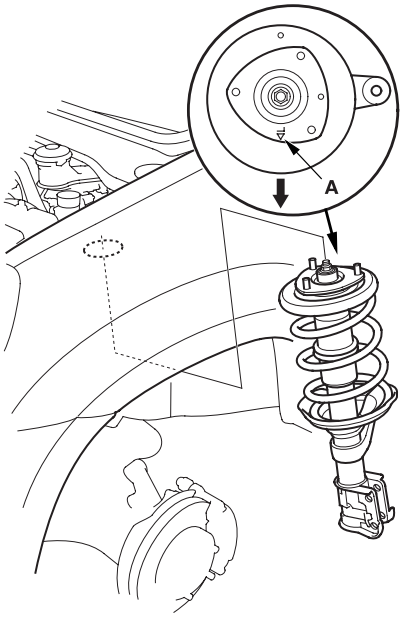
8. Hold the bottom of the damper with your hand, and compress the spring. Do not compress the spring excessively.
9. Install the 12 mm nut (A) on the damper shaft (B). Hold the damper shaft with a hex wrench (C), and tighten the 12 mm nut to the specified torque.



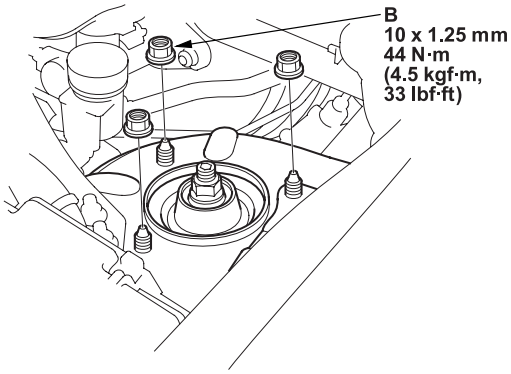
10. Remove the damper assembly from the strut spring compressor.

Installation

1. Lower the lower arm, and position the damper assembly in the body. Turn the damper mounting base so that the " ◁L" mark (A) faces toward the outside of the vehicle.



2. Loosely install flange nuts (B) onto the top of the damper.

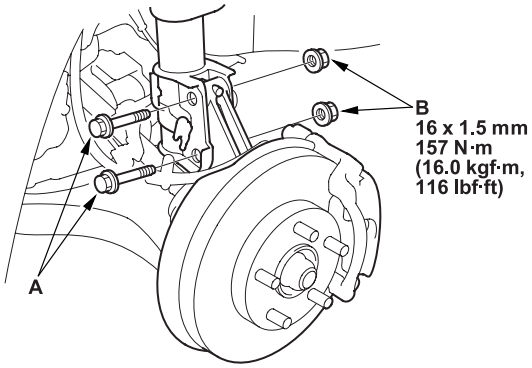


(cont'd)

Damper/Spring Replacement (cont'd)

Installation (cont'd)

3. Position the damper on the knuckle, and install the new damper pinch bolts (A) and nuts (B), and lightly tighten the nuts.

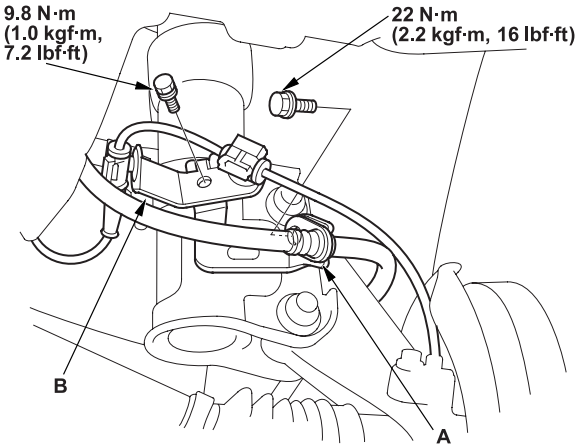


4. Place the floor jack under the lower arm ball joint, and raise the suspension to load it with the vehicle's weight.

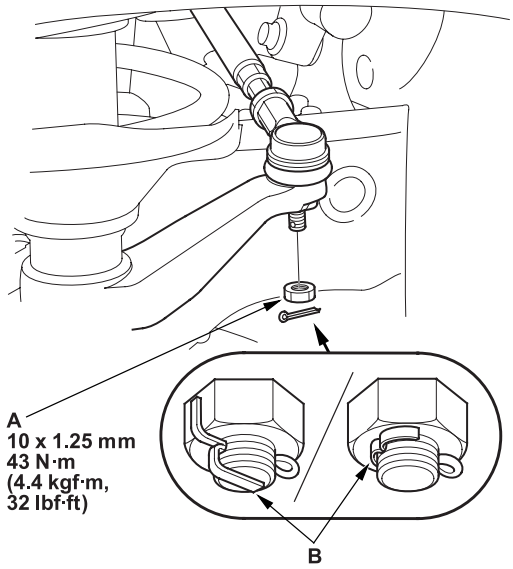
   NOTICE

   Do not place the jack against the lower arm ball joint.

5. Tighten the flange nuts on the top of the damper to the specified torque.
6. Tighten the damper pinch nuts to the specified torque.
7. Install the brake hose bracket (A) and the wheel sensor harness bracket (B) onto the damper, and tighten the bolt to the specified torque.



8. Connect the tie-rod end to the steering arm, and tighten the nut (A) to the specified torque. Install the cotter pin (B) after tightening, and bend its end as shown.

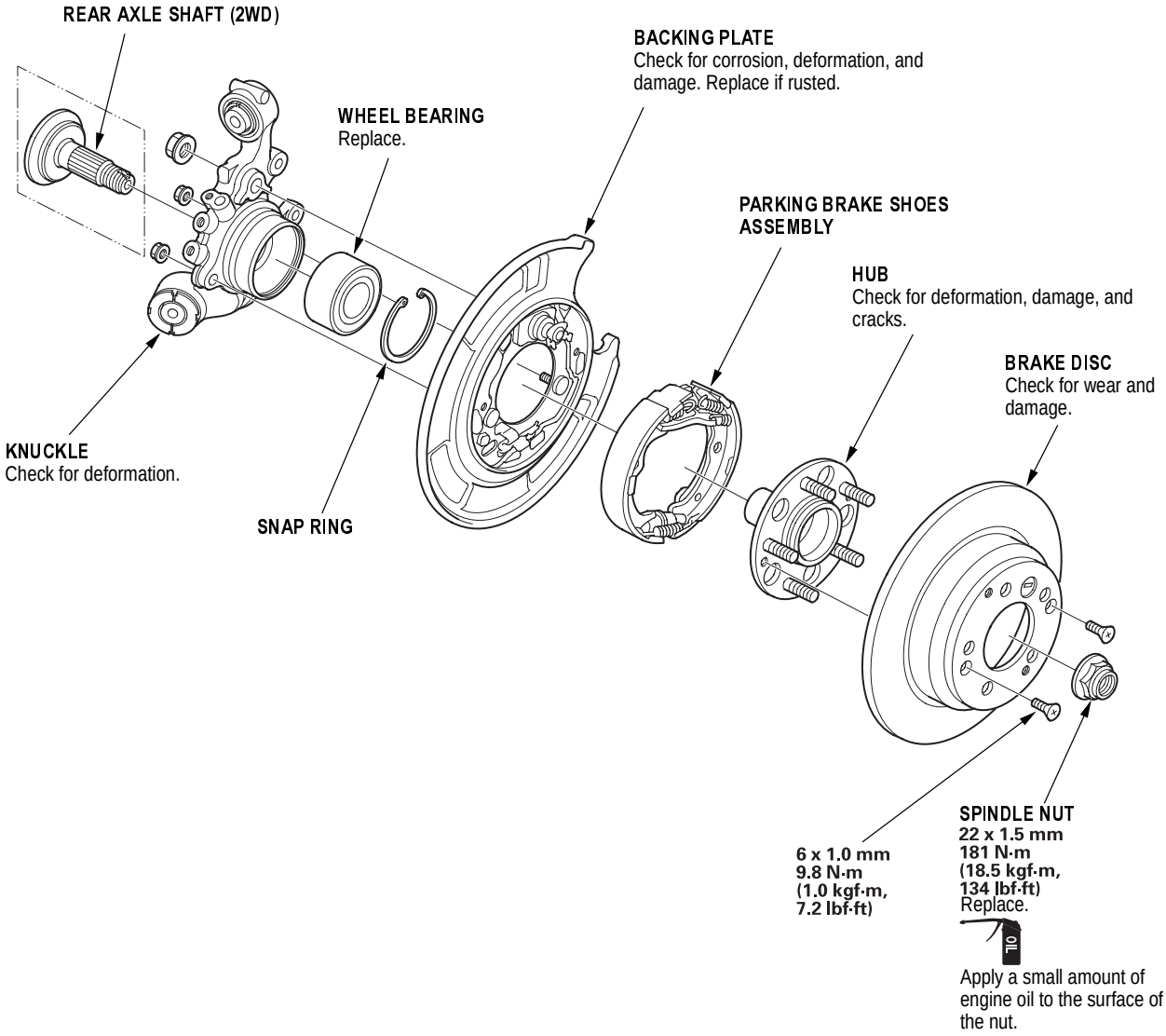


9. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheels.
10. Check the wheel alignment, and adjust it if necessary (see page 18-4).

Rear Suspension

Knuckle/Hub/Wheel Bearing Replacement

Exploded View



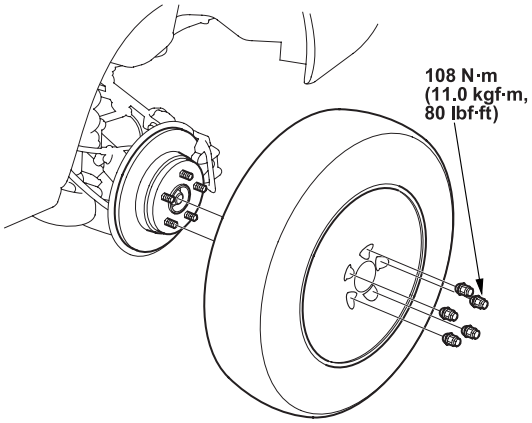
(cont'd)

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

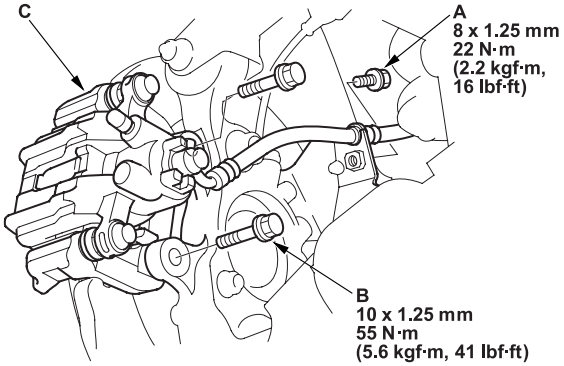
Special Tools Required
- Hub dis/assembly tool 34 mm 07965-SA70100
- Ball joint remover, 28 mm 07MAC-SL00200
- Attachment 62 × 68 mm 07746-0010500
- Driver 07749-0010000
- Support base 07965-SD90100

Knuckle Replacement

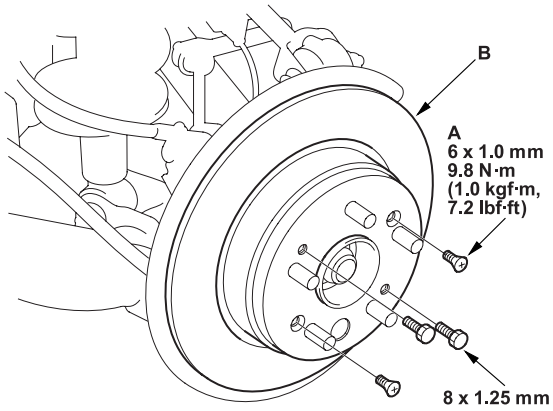
1. Raise the rear of the vehicle, and make sure it is securely supported. Remove the rear wheels.
2. Release the parking brake lever.



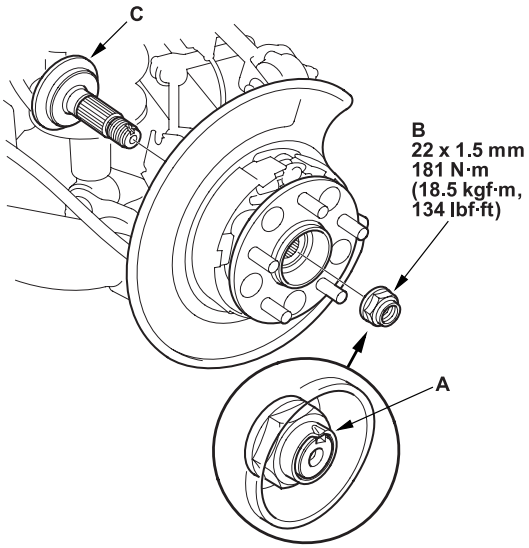
3. Remove the brake hose mounting bolt (A).
4. Remove the caliper bracket mounting bolts (B), and hang the caliper (C) to one side. To prevent damage to the caliper or brake hose, use a short piece of wire to hang the caliper from the undercarriage.



5. Remove the brake disc retaining screw (A), screw two 8 × 1.25 mm bolts into the brake disc/drum (B) to push it away from the hub. Turn each bolt two turns at a time to prevent cocking the brake disc/drum excessively. Remove the brake disc/drum.



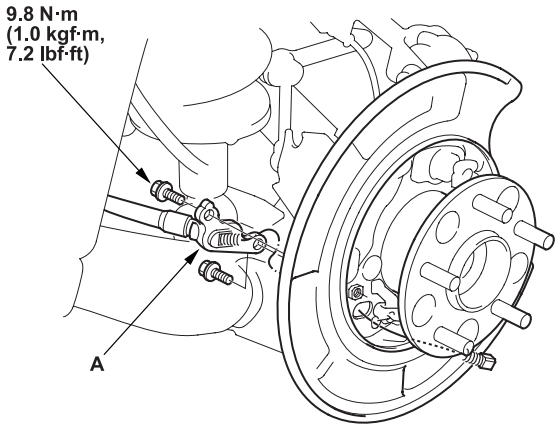
6. Raise the stake (A), and remove the spindle nut (B) and rear axle shaft (vehicles with 2WD) (C).



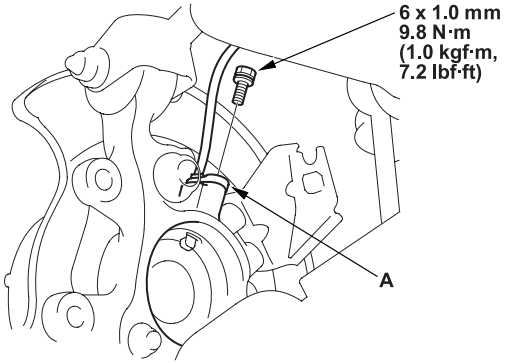
7. Remove the parking brake shoes (see page 19A-36).

8. Remove the parking brake cable (A) from the backing plate.

   NOTE: The parking brake cable must not be bent or distorted. This will lead to stiff operation and premature cable failure.

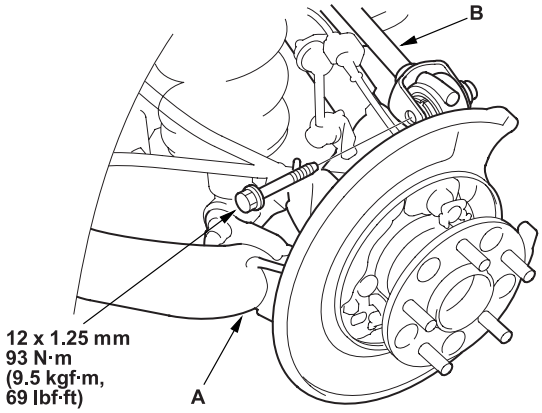


9. Remove the wheel sensor (A) from the knucke (if equipped with ABS).



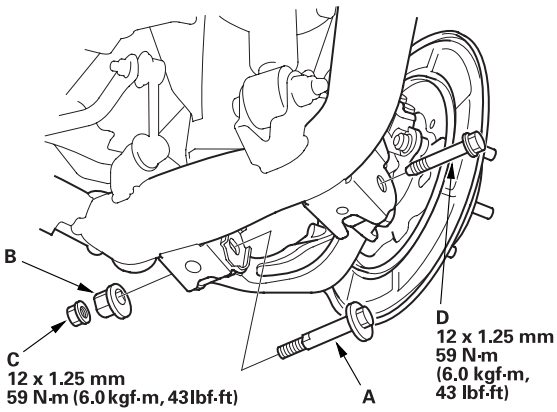
10. Place a floor jack under the trailing arm (A) to support it.

    NOTE: Do not place the jack against the plate section of the lower arm. Be careful not to damage any suspension components.



11. Remove the flange bolt, and disconnect the upper arm (B) from the knuckle.

12. Mark the cam positions of the adjusting bolt (A) and adjusting cam (B), then remove the self-locking nut (C), adjusting cam, and adjusting bolt. Discard the self-locking nut.

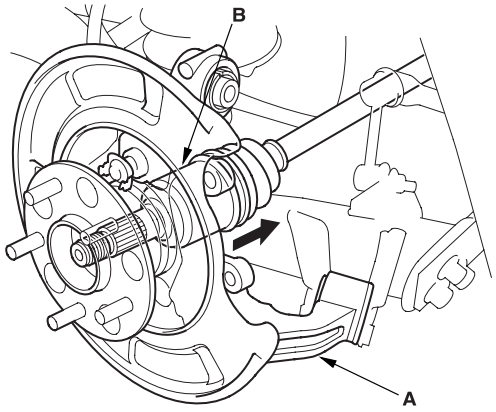


(cont'd)

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

Knuckle Replacement (cont'd)

13. Remove the knuckle (A) while pushing in the driveshaft and holding the driveshaft outboard joint (B). (4WD only)

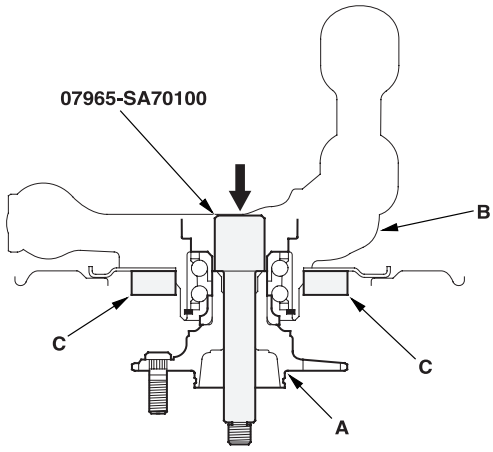


14. Install the knuckle in the reverse order of removal, and note these items:

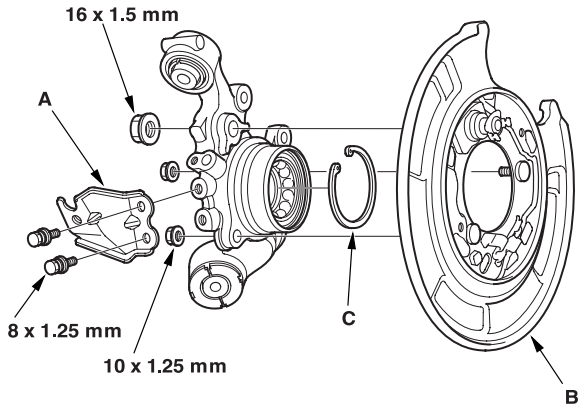
- First install all the suspension components, and lightly tighten the bolts and nuts, then place a floor jack under the lower arm, and raise the suspension to load it with the vehicle's weight before fully tightening the bolts and nuts to the specified torque values.
- Align the cam positions of the adjusting bolt (A) and adjusting cam (B) with the marked positions when tightening.
- Use a new self-locking nut on reassembly.
- 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/drum,clean the mating surfaces of the rear hub and the inside of the brake disc/drum.
- Before installing the wheel, clean the mating surfaces of the brake disc/drum and the inside of the wheel.
- Check the rear wheel alignment, and adjust it if necessary (see page 18-4).

Wheel Bearing Replacement

1. Separate the hub (A) from the knuckle (B) using the special tool and a hydraulic press. Hold the knuckle with a press attachment (C) or equivalent tool. Be careful not to deform the splash guard. Hold onto the hub to keep it from falling when pressed clear.

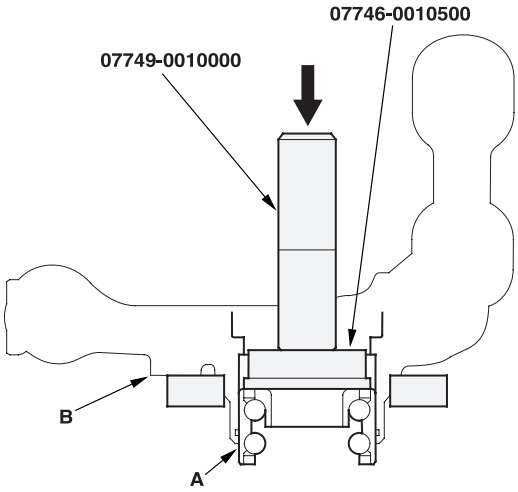


2. Remove the brake hose mounting bracket (A).

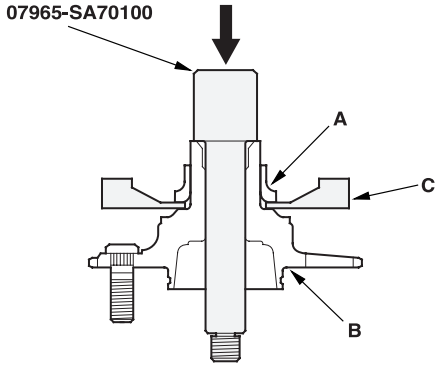


3. Remove the backing plate (B), and snap ring (C).

4. Press the wheel bearing (A) out of the knuckle (B) using the special tools and a press.



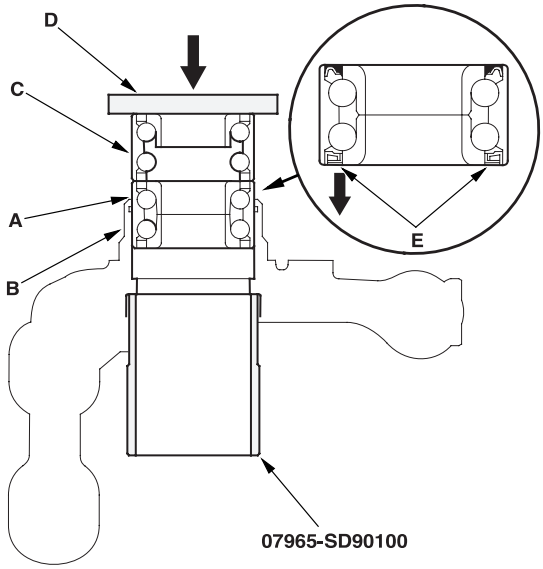
5. Press the wheel bearing inner race (A) from the hub (B) using the special tool, a commercially available bearing separator (C), and a press.



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

7. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the special tool, and a press. Be careful not to damage the sleeve of the pack seal.

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

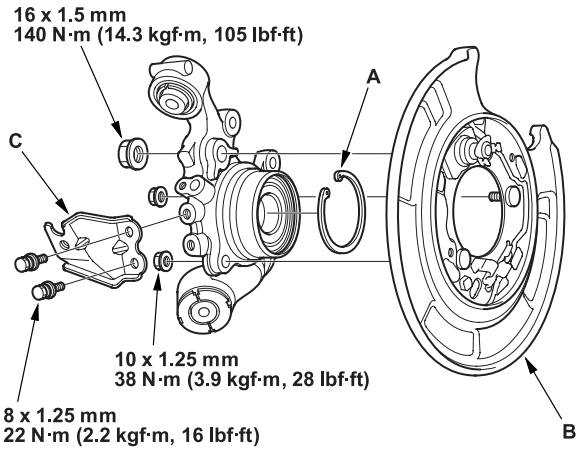


(cont'd)

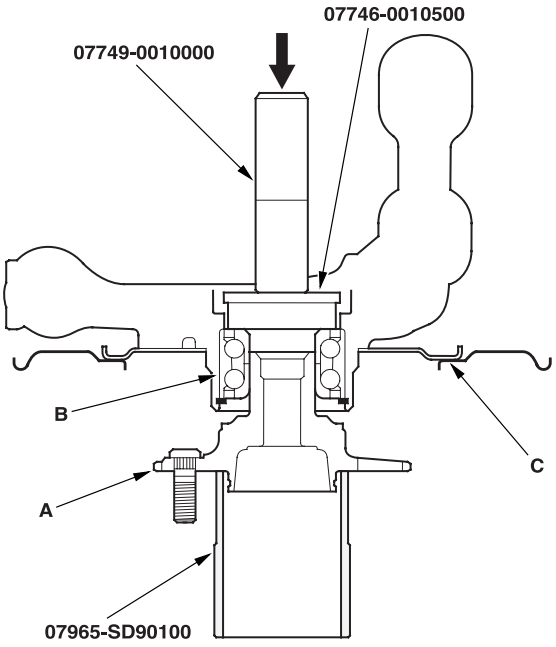
Knuckle/Hub/Wheel Bearing Replacement (cont'd)

Wheel Bearing Replacement (cont'd)

8. Install the snap ring (A), backing plate (B), and brake hose mounting bracket (C). Tighten the flange nuts and bolts to the specified torque.



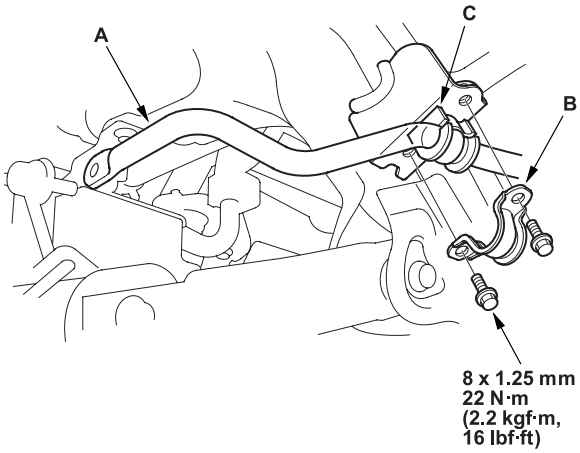
9. Install the hub (A) on the knuckle (B) using the special tools and a hydraulic press. Be careful not to deform the backing plate (C).



Stabilizer Bar Replacement

1. Raise the rear of the vehicle, and make sure it is securely supported. Remove the rear wheels.

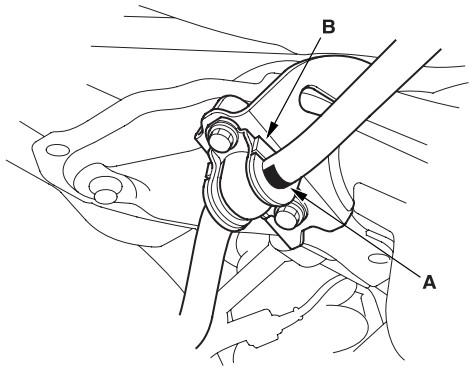
2. Disconnect the stabilizer links from the stabilizer bar (A) on the right and left (see page 18-33).



3. Remove the flange bolts and bushing holders (B), then remove the bushings (C) and the stabilizer bar.

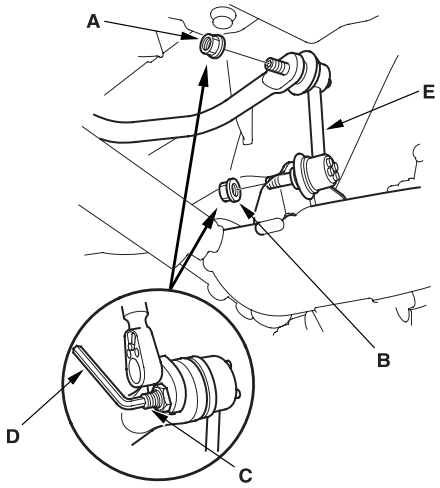
4. Install the stabilizer bar in the reverse order of removal, and note these items:

- Use new self-locking nuts on reassembly.
- Make sure the right and left ends of the stabilizer bar are installed on their respective sides of the vehicle.
- Align the ends of the paint marks (A) on the stabilizer bar with the bushings (B).
- Refer to Stabilizer Link Replacement to connect the stabilizer bar to the links (see page 18-33).

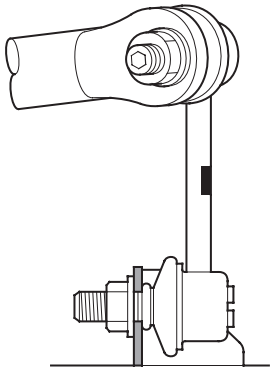


Stabilizer Link Replacement

1. Raise the rear of the vehicle, and make sure it is securely supported. Remove the rear wheels.
2. Remove the self-locking nut (A) and flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), and remove the stabilizer link (E).



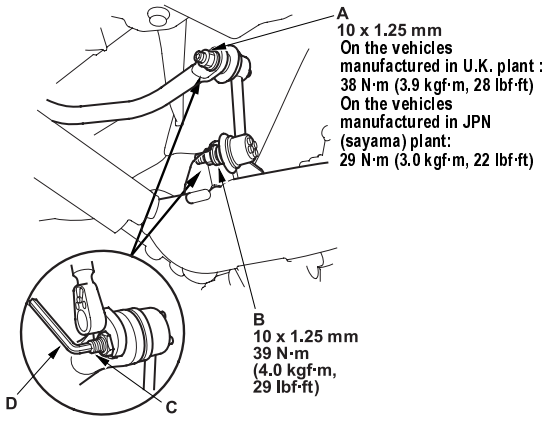
3. Install the stabilizer link on the stabilizer bar and trailing arm with the joint pins set at the center of each moving range.



4. Install the self-locking nut and flange nut, and lightly tighten them.

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

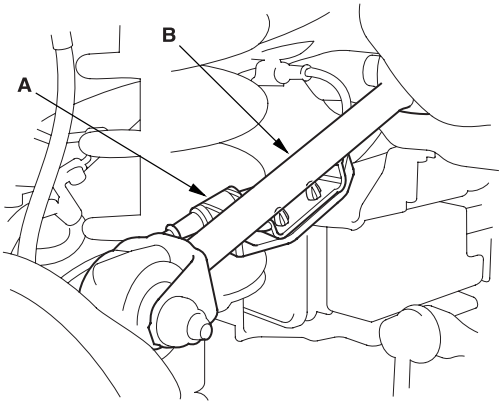
5. Place a jack under the trailing arm at the knuckle side end, and raise the suspension to load it with the vehicle's weight.
6. Tighten the new self-locking nut (A) and flange nut (B) to the specified torque values while holding the respective joint pins (C) with a hex wrench (D).



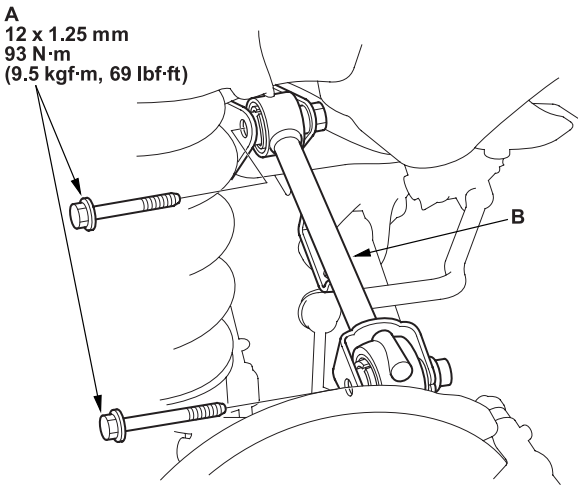
7. After 5 minutes of driving, re-tighten the self-locking nut again to the specified torque.

Upper Arm Replacement

1. Raise the rear of the vehicle, and make sure it is securely supported. Remove the rear wheels.
2. Place a floor jack under the trailing arm, and support the suspension.
3. Remove the wheel sensor harness bracket (A) from the upper arm (B).



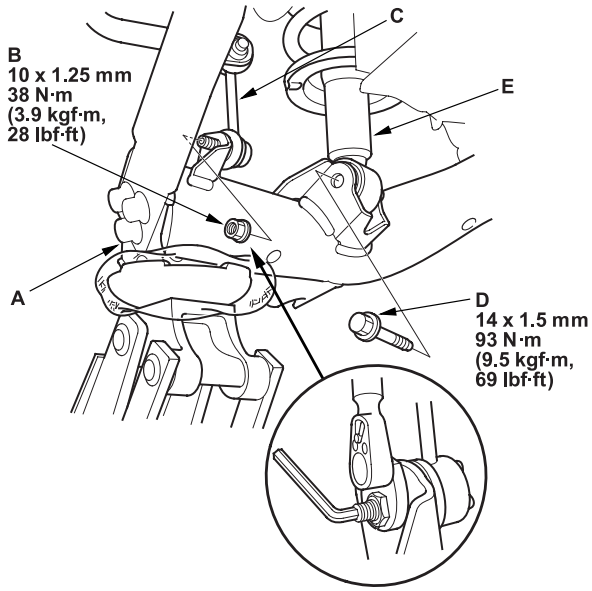
4. Remove the flange bolts (A), and remove the upper arm (B).



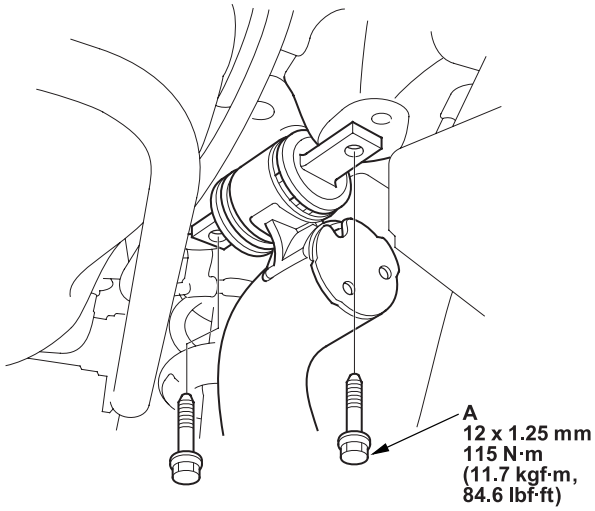
5. Install the upper arm in the reverse order of removal, and note these items:
   - First install all the suspension components and lightly tighten the bolts and nuts, then place a jack under the trailing arm, and raise the suspension to load it with the vehicle's weight before fully tightening the bolts and nuts to the specified torque values.
   - Tighten all the mounting hardware to the specified torque values.
   - Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-4).

Trailing Arm Replacement

1. Raise the rear of the vehicle, and make sure it is securely supported. Remove the rear wheels.
2. Remove the knuckle (see page 18-28).
3. Place the floor jack under the trailing arm (A) to support it.



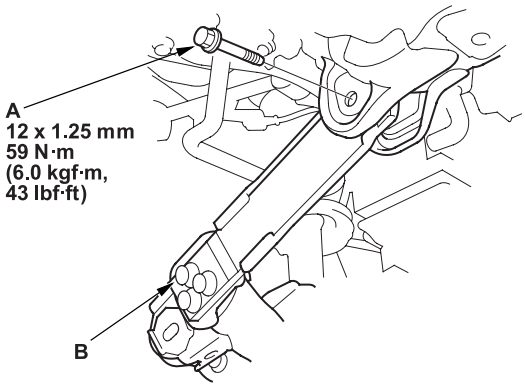
4. Remove the flange nut (B), and disconnect the stabilizer link (C) from the trailing arm.
5. Remove the flange bolt (D), and disconnect the damper (E) from the trailing arm.
6. Remove the trailing arm front mounting bolts (A).



7. Remove the trailing arm rear mounting bolt (A).

NOTICE

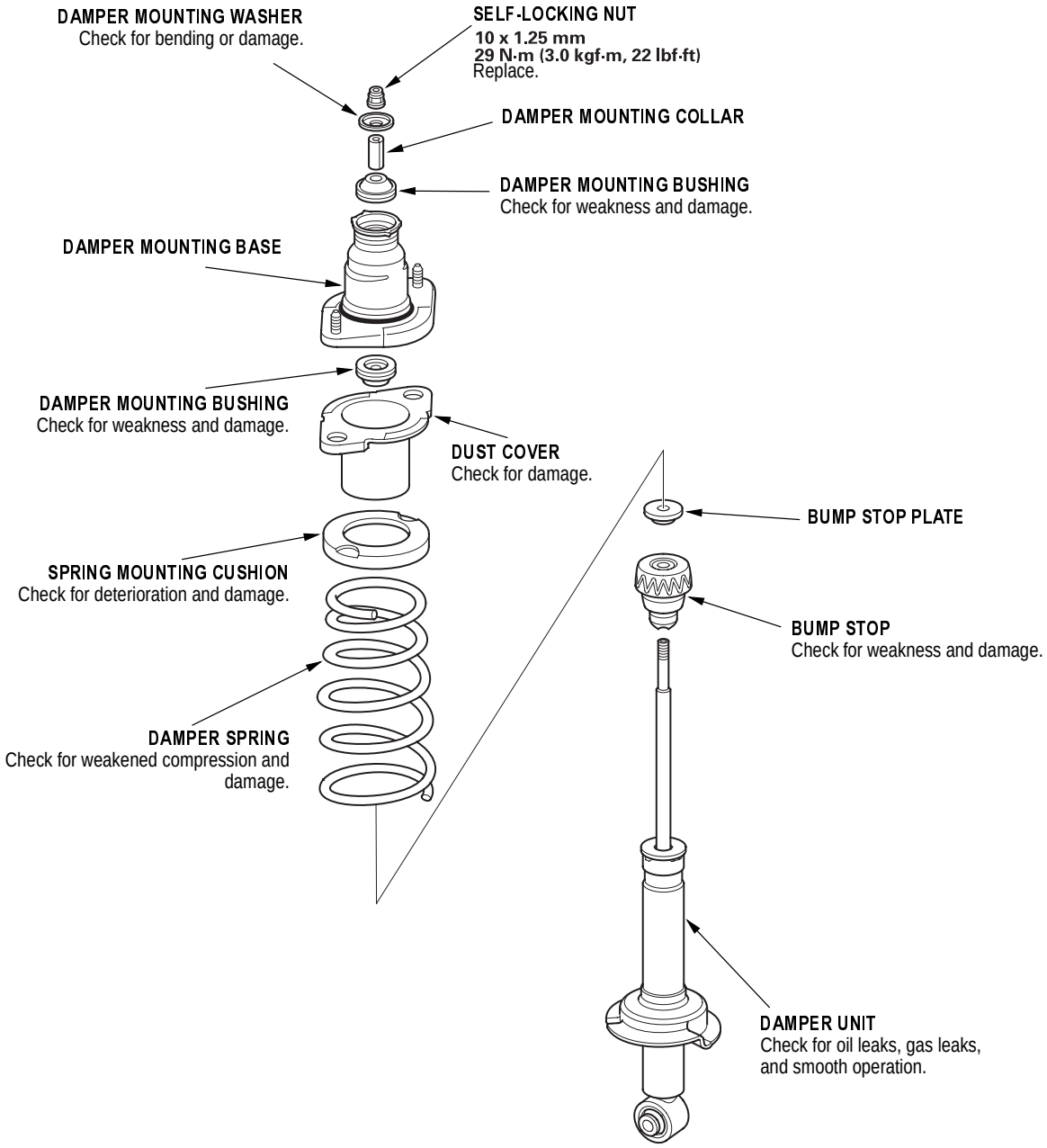
Do not loosen the special bolts (B) on the trailing arm.



8. Lower the jack, and remove the trailing arm.
9. Install the trailing arm in the reverse order of removal, and note these items:
   - First install all the suspension components and lightly tighten the bolts and nuts, then place a jack under the trailing arm, and raise the suspension to load it with the vehicle's weight before fully tightening the bolts and nuts to the specified torque values.
   - Tighten all the mounting hardware to the specified torque values.
   - Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-4).

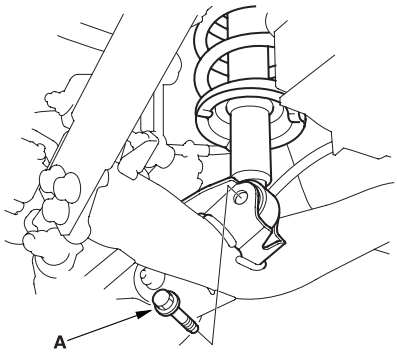
Damper/Spring Replacement

Exploded View

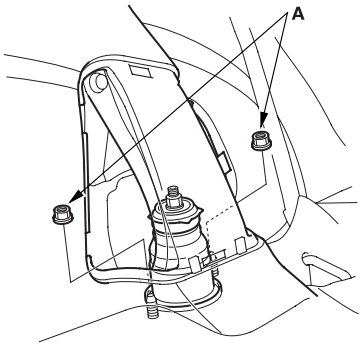


Removal

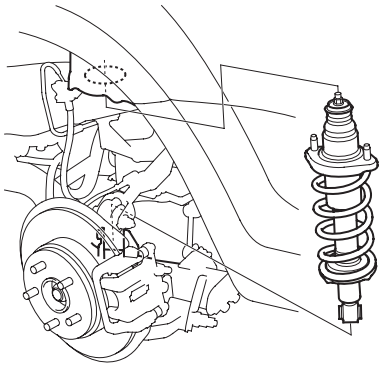
1. Raise the rear of the vehicle, and make sure it is securely supported. Remove the rear wheels.
2. Remove the flange bolt (A) from the bottom of the damper.



3. Remove the flange nuts (A) from the top of the damper in the cargo area.



4. Remove the damper assembly from the body.

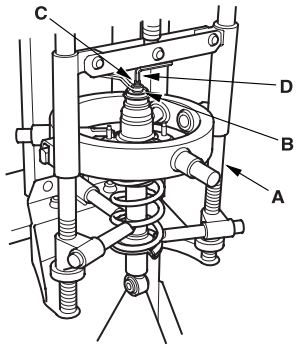


(cont'd)

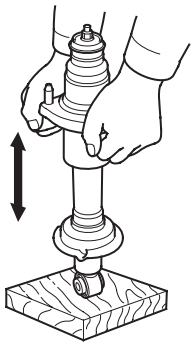
Damper/Spring Replacement (cont'd)

Disassembly/Inspection

1. Compress the damper spring with the commercially available strut compressor (A) according to the manufacturer's instructions, then remove the self-locking nut (B) while holding the damper shaft (C) with a hex wrench (D). Do not compress the spring more than necessary to remove the nut.



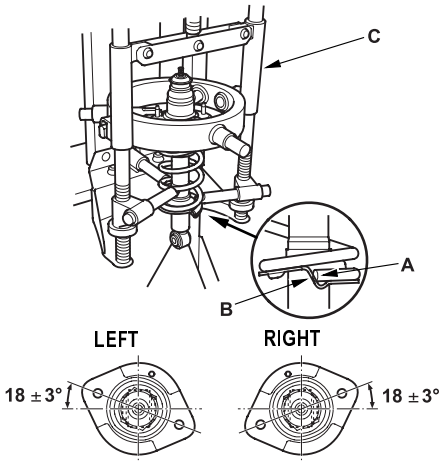
2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.
3. Reassemble all the parts, except for the spring.
4. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.



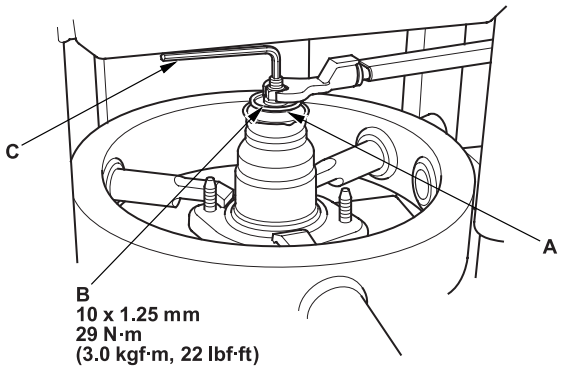
5. Check for oil leaks, abnormal noises, or binding during these tests.

Reassembly

1. Install all the parts except the damper mounting washer and self-locking nut onto the damper unit by referring to the Exploded View. Align the bottom of the spring (A) and the stepped part of the lower spring seat (B), and align the damper mounting base as shown.



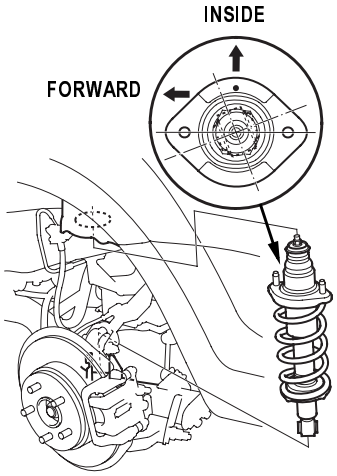
2. Install the damper assembly on a commercially available strut spring compressor (C).
3. Compress the damper spring with the spring compressor.
4. Install the washer (A) and a new self-locking nut (B) on the damper shaft.



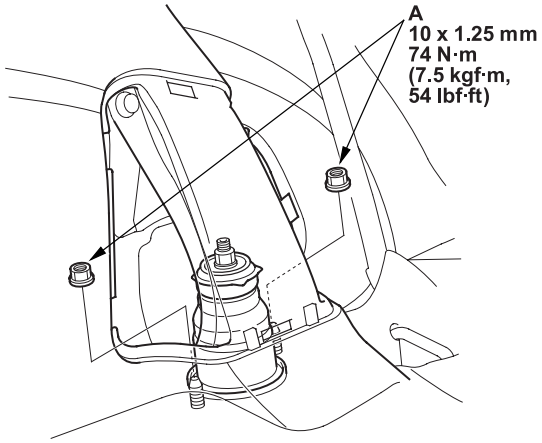
5. Hold the damper shaft with a hex wrench (C), and tighten the self-locking nut to the specified torque.

Installation

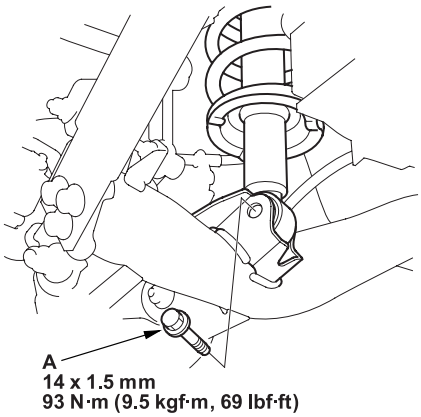
1. Position the damper assembly in the body. Note the direction of the damper mounting base so that the small hole dot on it is toward the inside of the vehicle.



2. Loosely install the flange nuts (A) onto the top of the damper.



3. Loosely install the flange bolt (A) on the bottom of the damper.



4. Raise the suspension with a floor jack to load the vehicle weight, and tighten the nuts and bolt to the specified torque values.
5. Clean the mating surface of the brake disc and the inside of the wheel, then install the rear wheel.
6. Check the wheel alignment, and adjust it if necessary (see page 18-4).