2000-06 SUSPENSION

Front Suspension - Insight

KNUCKLE/HUB/HUB BEARING UNIT REPLACEMENT

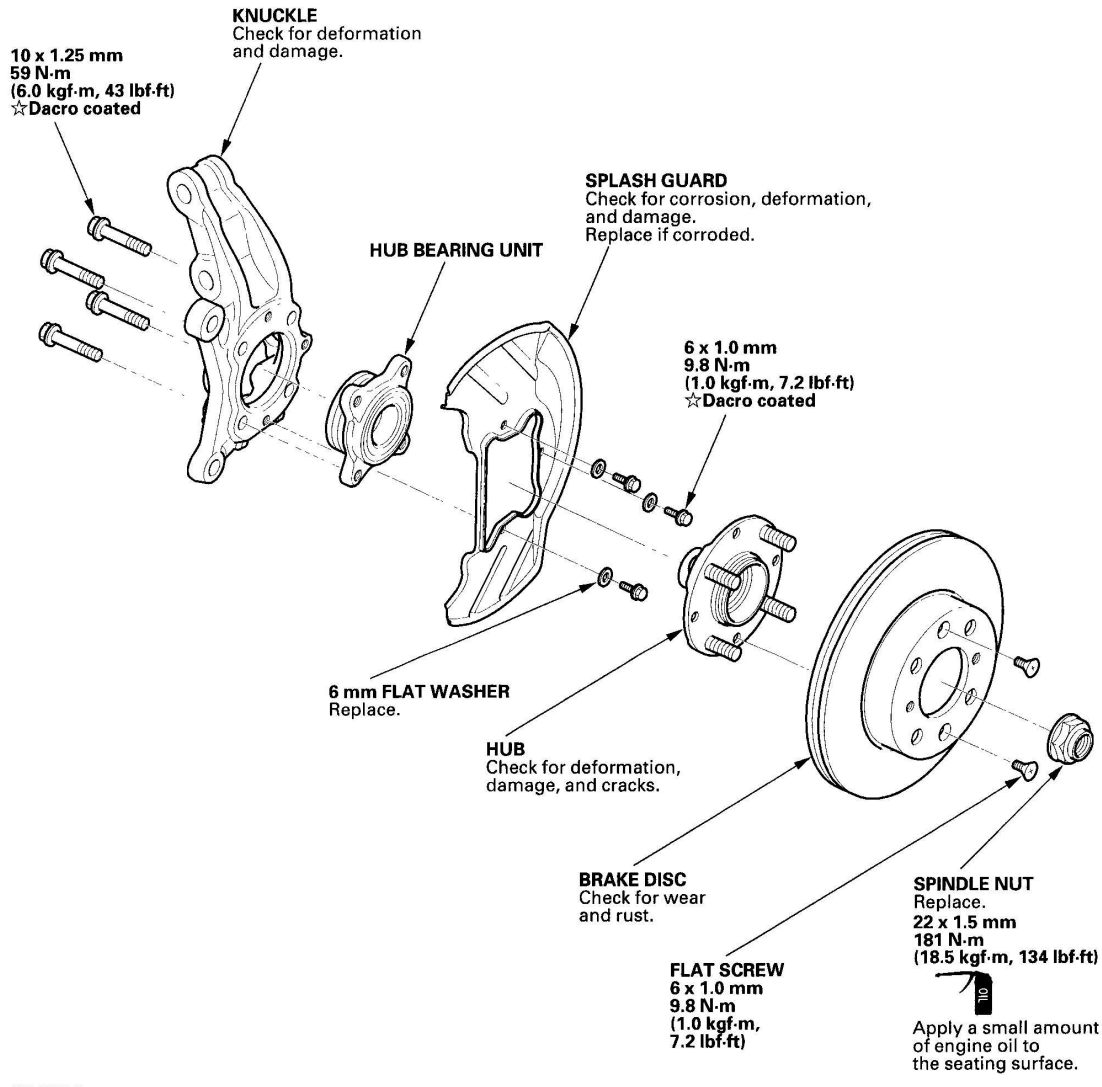


Fig. 1: Exploded View Of Front Suspension And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

- Ball joint thread protector, 12 mm 07AAF-SDAA100

- Hub assembly driver attachment 07GAF-SD40200
- Ball joint remover, 28 mm 07MAC-SL0A202
- Hub dis/assembly tool, 34 mm 07965-SA70100
- Support base 07965-SD90100

NOTE: To avoid damage, do not strike aluminum parts with a metal hammer. If necessary, tap gently with a plastic-tipped hammer.

NOTE: Bolts and nuts with the * mark are special corrosion-resistant Dacro fasteners. Use the same type if replacement is necessary.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **SAFETY STANDS**).
2. Remove the center cap (A), wheel nuts (B), and front wheel (C).

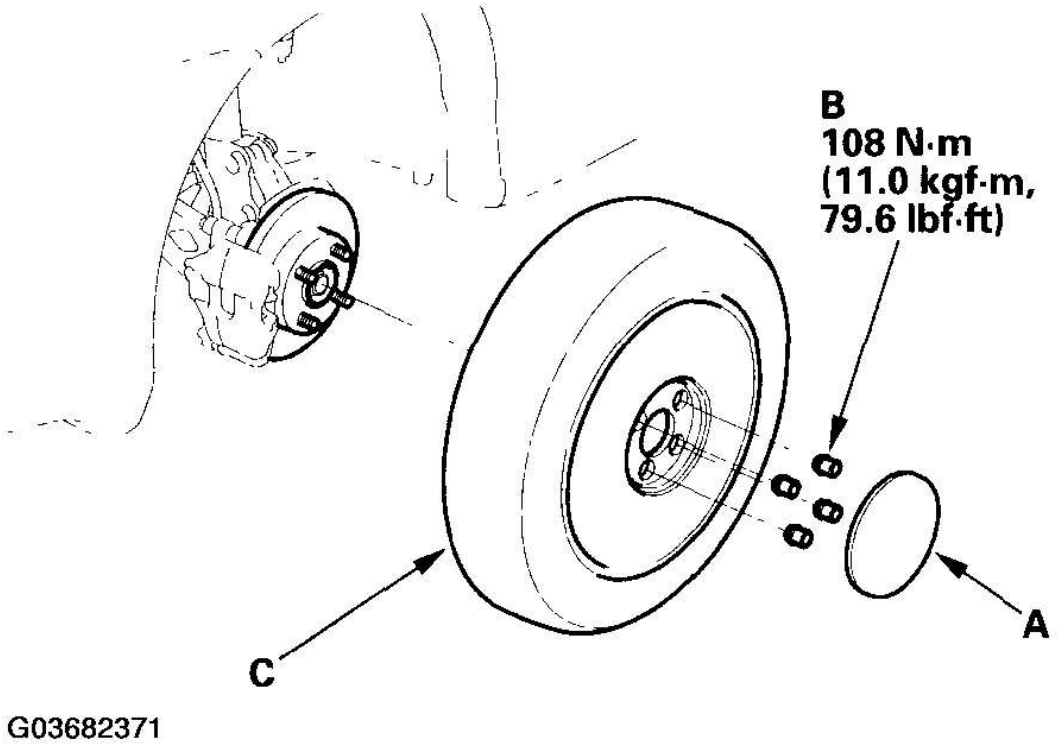


Fig. 2: Removing Center Cap, Wheel Nuts, And Front Wheel With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

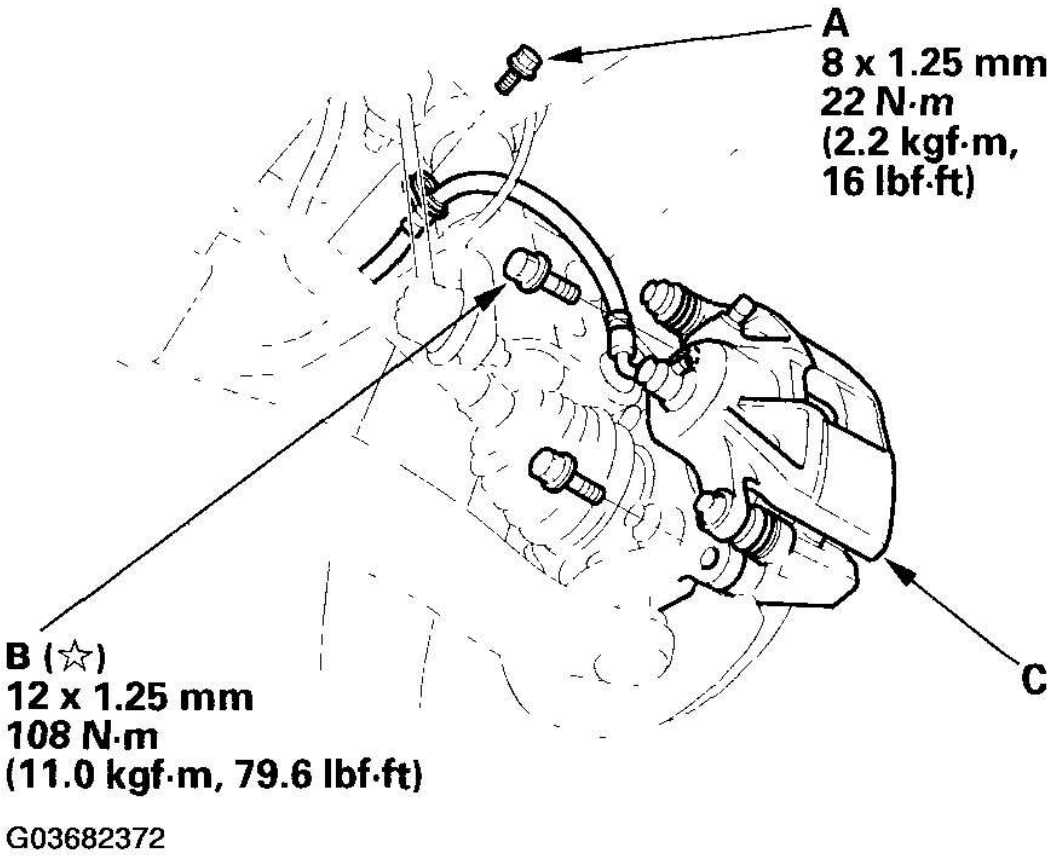


Fig. 3: Removing Brake Hose Bracket Mounting Bolt And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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), then remove the spindle nut (B).

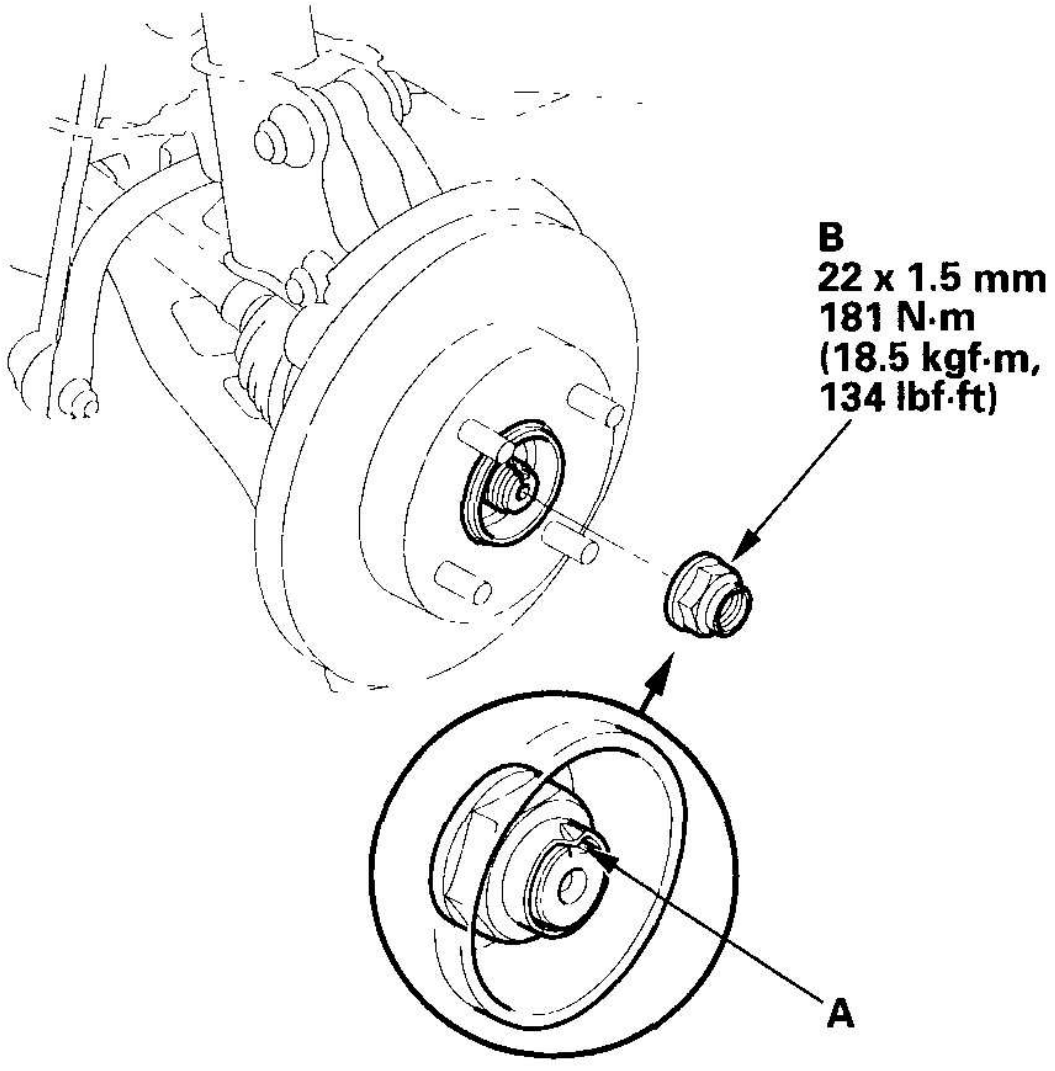


Fig. 4: Removing Spindle Nut And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

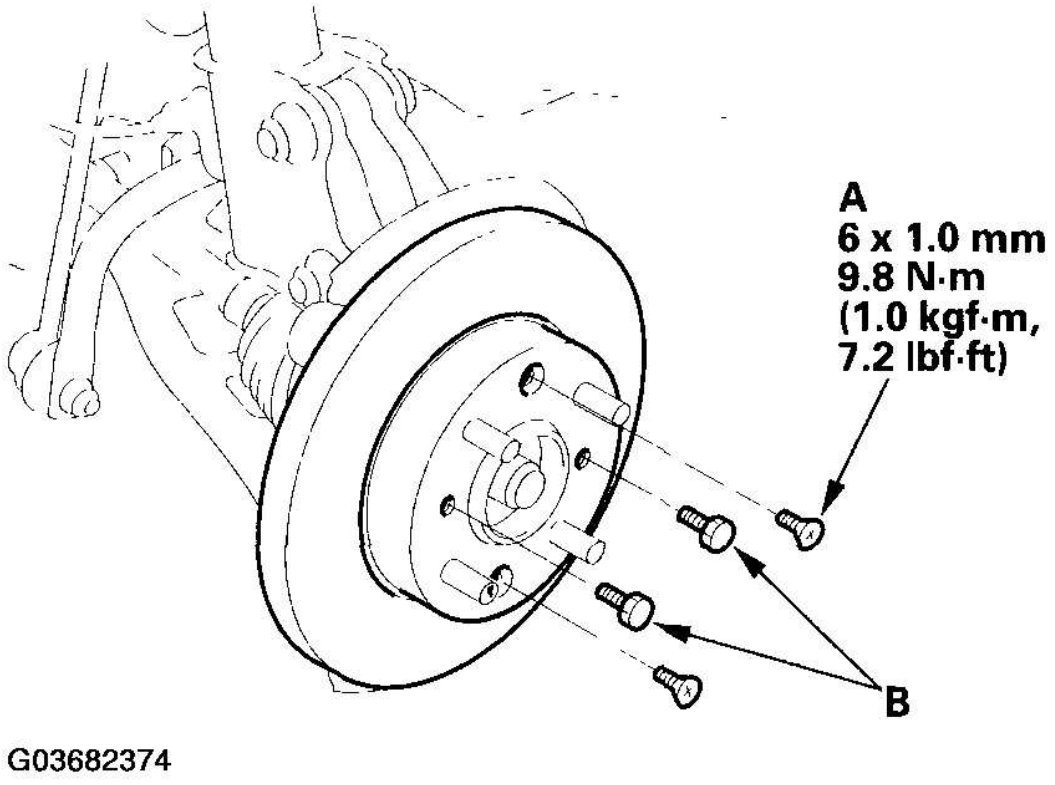


Fig. 5: Removing Brake Disc Retaining Flat Screws And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Screw two 8 x 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.
8. Remove the flange bolts (A) and wheel sensor (B) from the knuckle. Do not disconnect the wheel sensor connector.

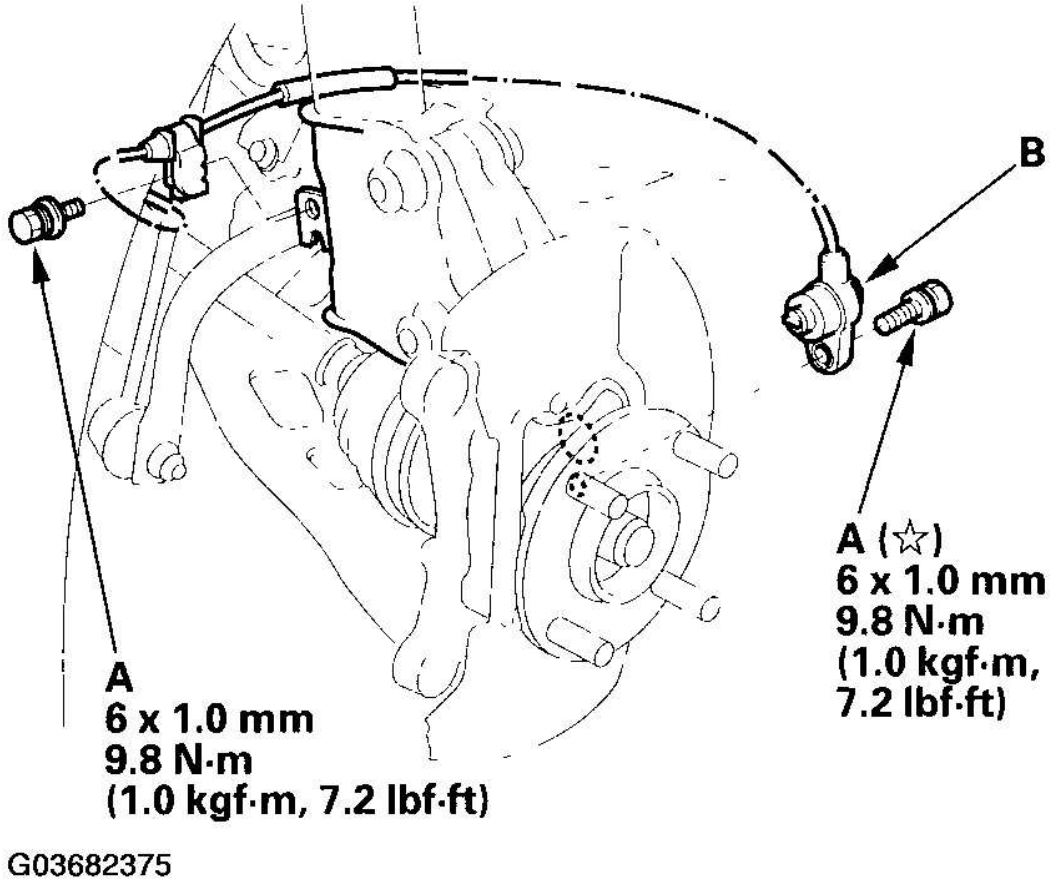


Fig. 6: Removing Flange Bolts And Wheel Sensor From Knuckle With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Turn the front of the knuckle outward. Tap the driveshaft (A) inward with a plastic hammer to allow space to install the special tool on the lower arm ball joint.

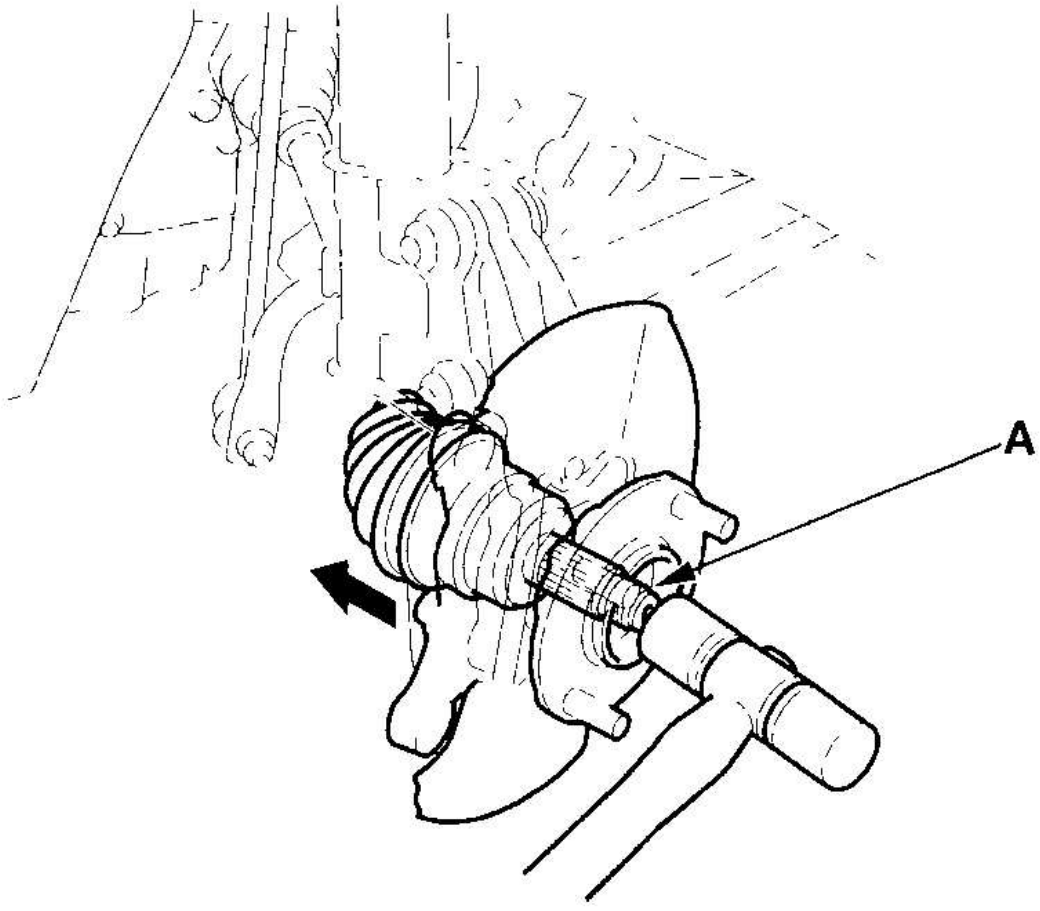


Fig. 7: Tapping Driveshaft Inward
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

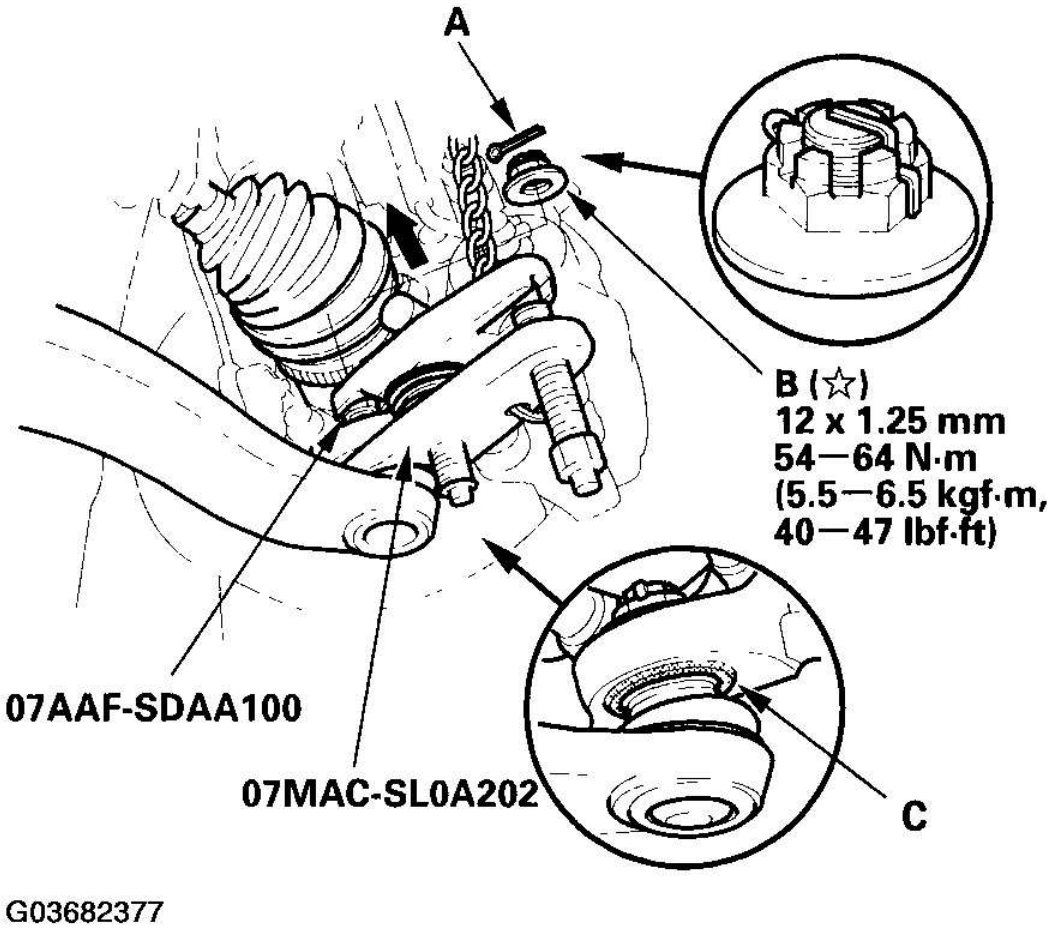


Fig. 8: Removing Cotter Pin And Castle Nut From Lower Arm Ball Joint With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Disconnect the lower arm ball joint from the knuckle using the special tools (see **BALL JOINT REMOVAL**).

NOTE: Make sure you position the ball joint remover jaw on the bushing (C) and not on the aluminum surface of the knuckle.

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

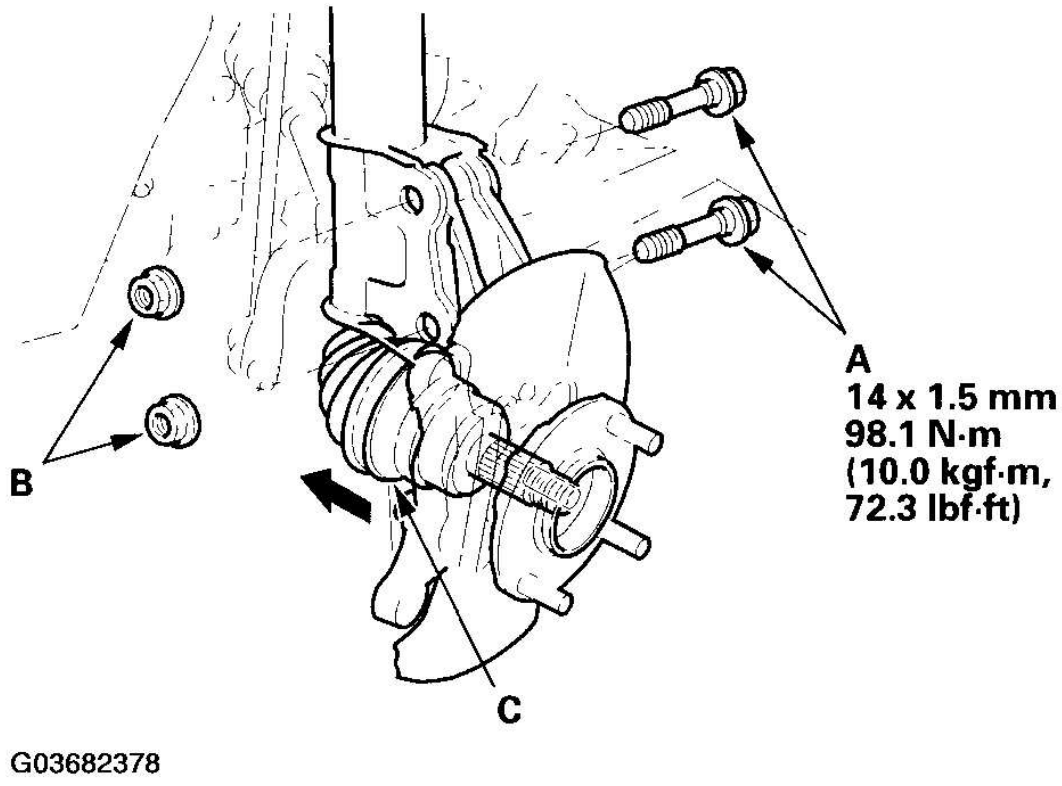


Fig. 9: Loosening Damper Pinch Bolts And Removing Bolts And Nuts With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Pull the knuckle off of the driveshaft while holding the outboard joint (C), and remove the knuckle from the damper.

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

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

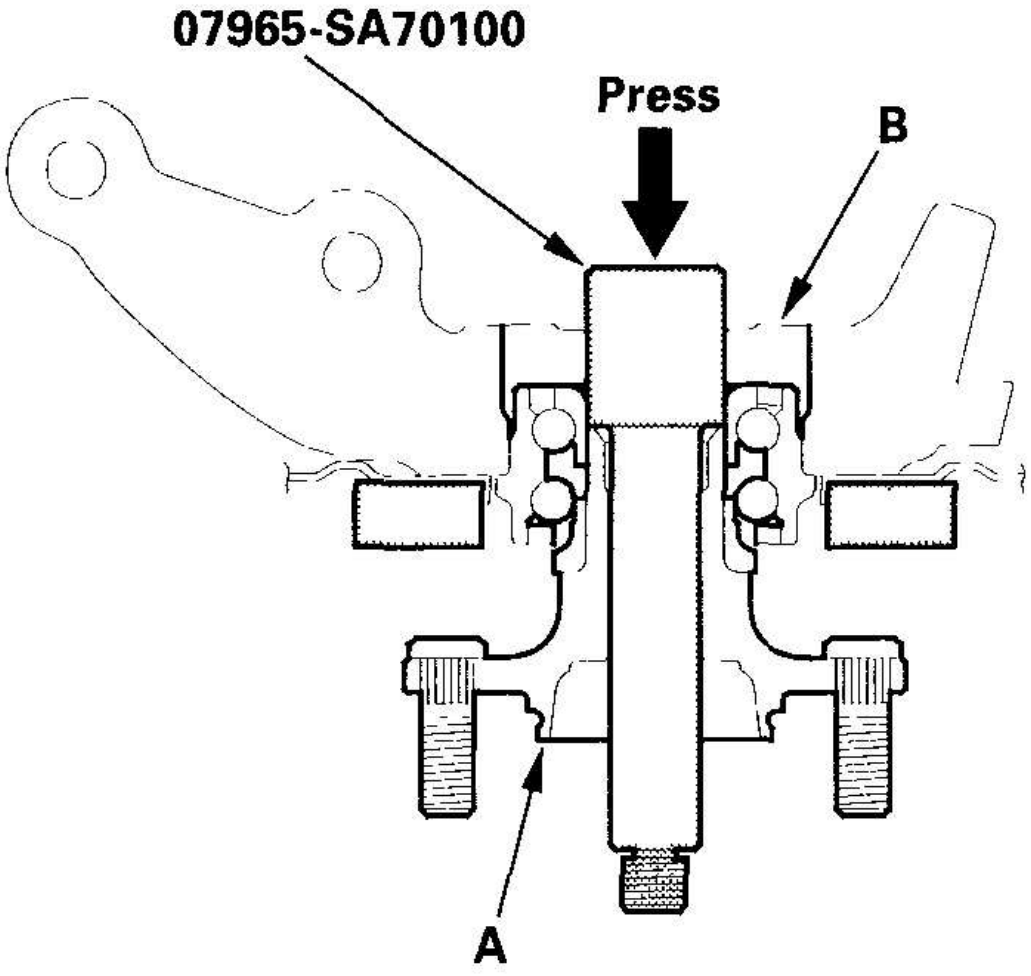


Fig. 10: Separating Hub From Knuckle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

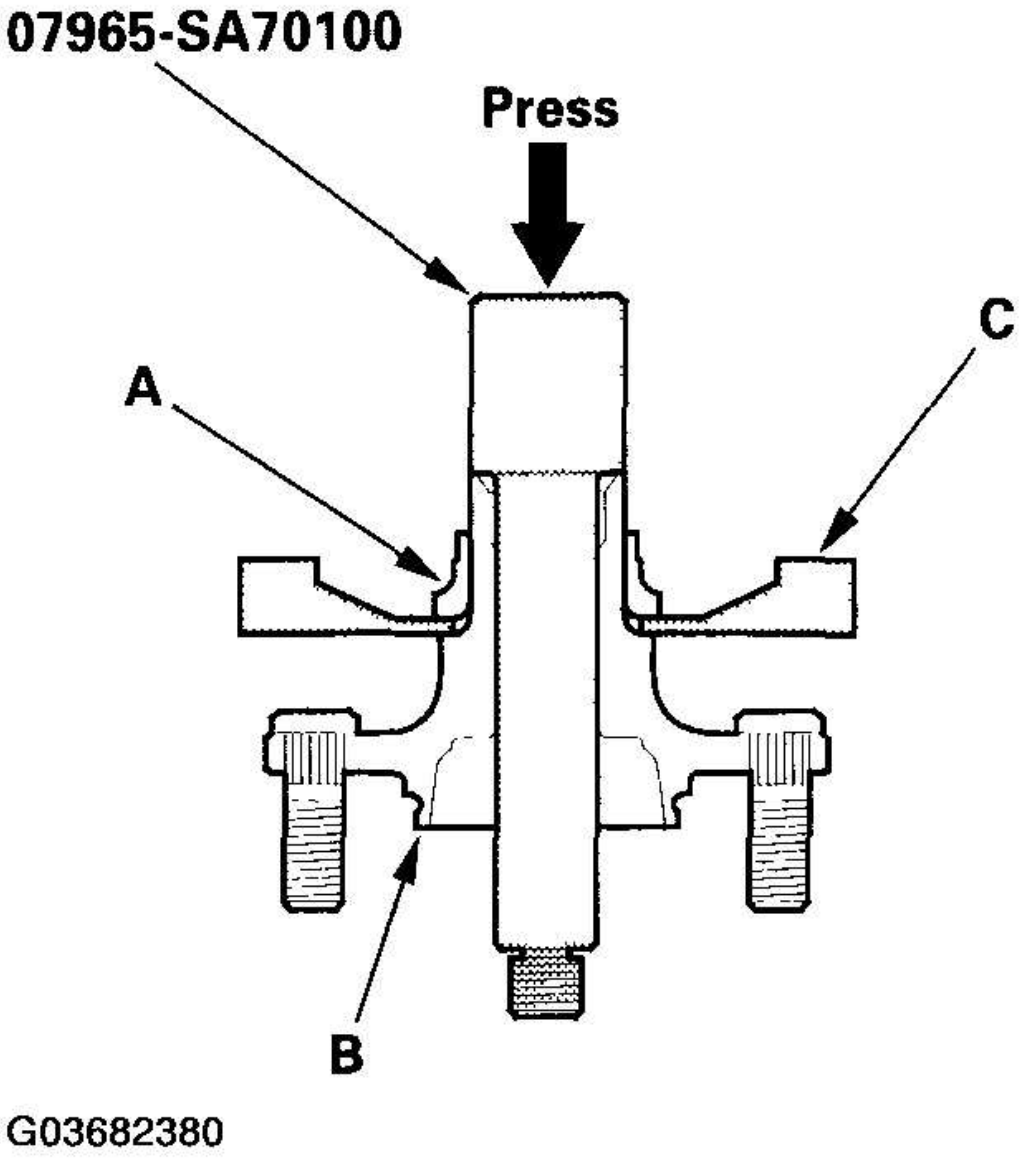


Fig. 11: Pressing Wheel Bearing Inner Race Out Of Hub Using Special Tool
Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Remove the splash guard (A) from the knuckle (B).

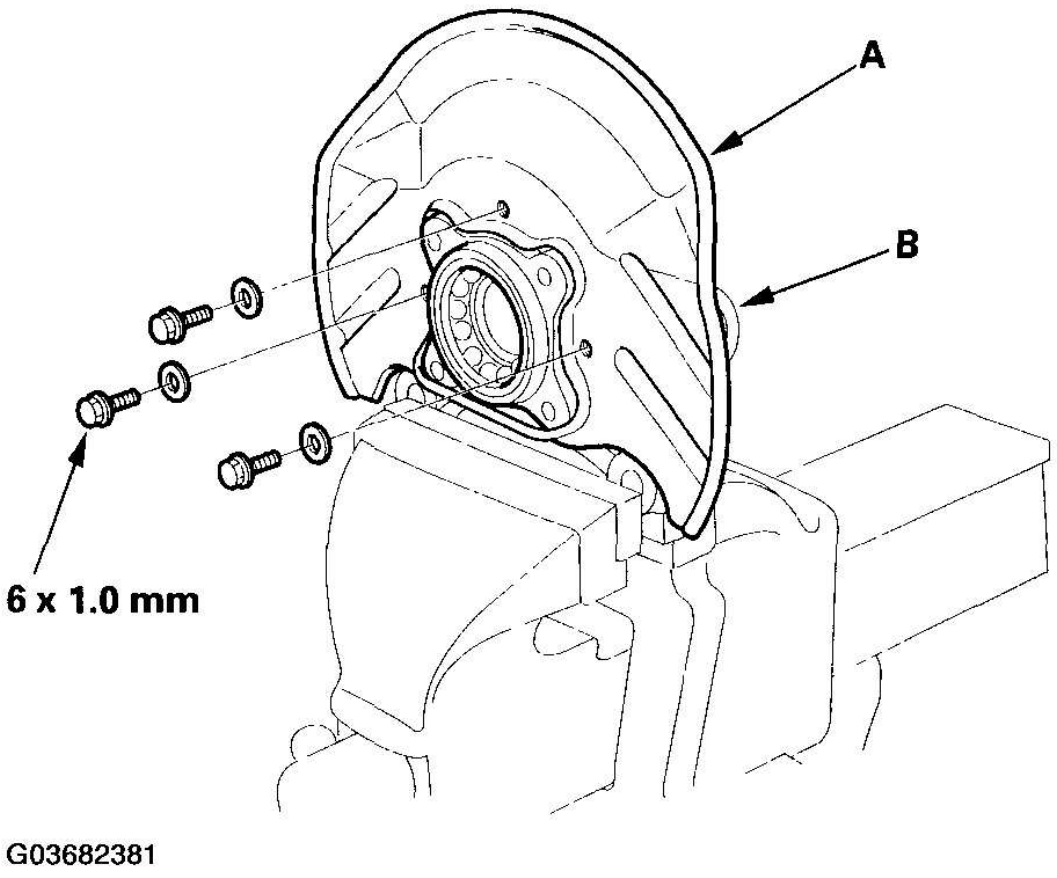
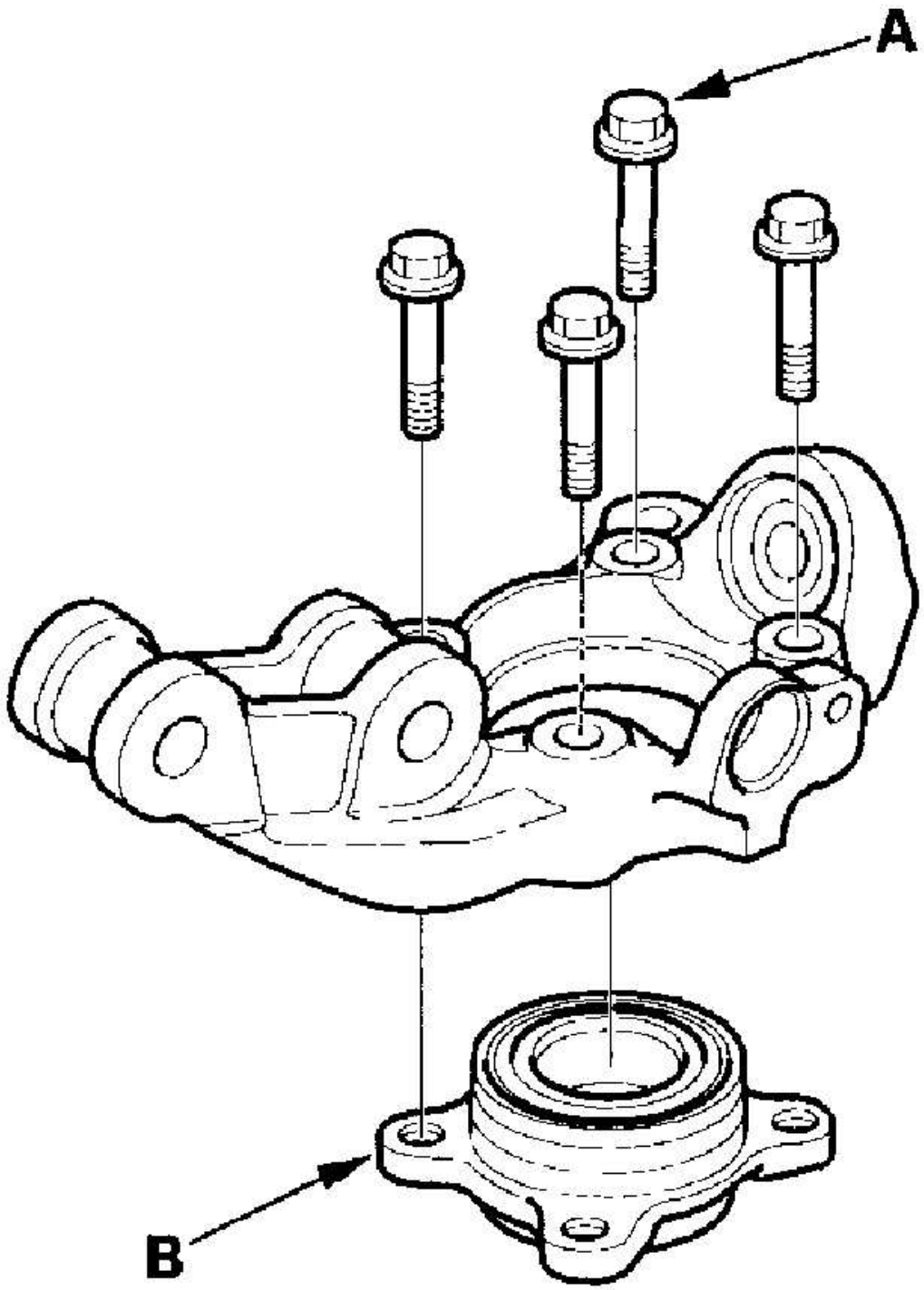


Fig. 12: Removing Splash Guard From Knuckle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Remove the flange bolts (A), and remove the hub bearing unit (B) from the knuckle.



G03682382

Fig. 13: Removing Flange Bolts And Hub Bearing Unit From Knuckle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

18. Wash the knuckle and hub thoroughly in high flash point solvent before reassembly.
19. Install the hub bearing unit (A) on the knuckle (B), and tighten the flange bolts (C) to the specified torque value.

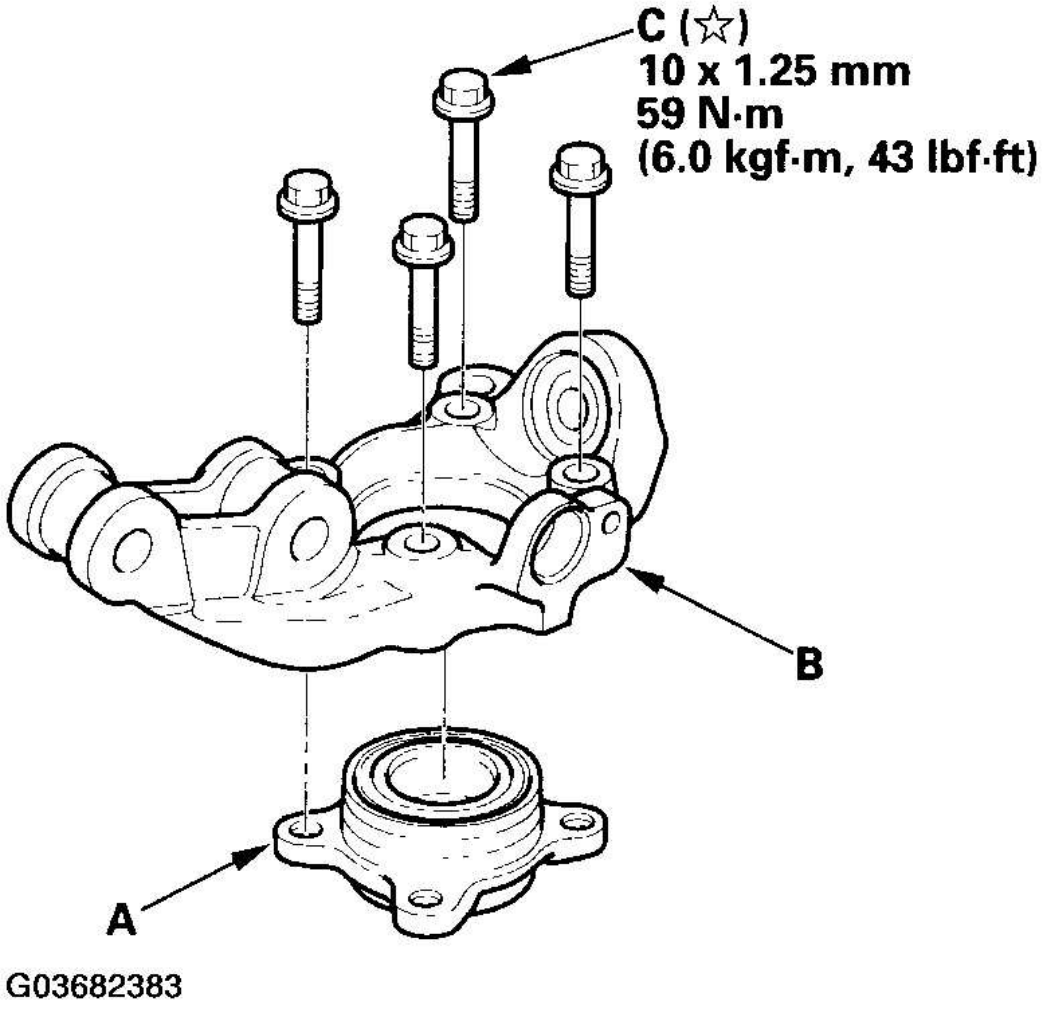


Fig. 14: Installing Hub Bearing Unit On Knuckle And Torque Specifications

Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Install the splash guard (A), and tighten the bolts (B) to the specified torque value.

NOTE: Replace the splash guard if it is corroded.

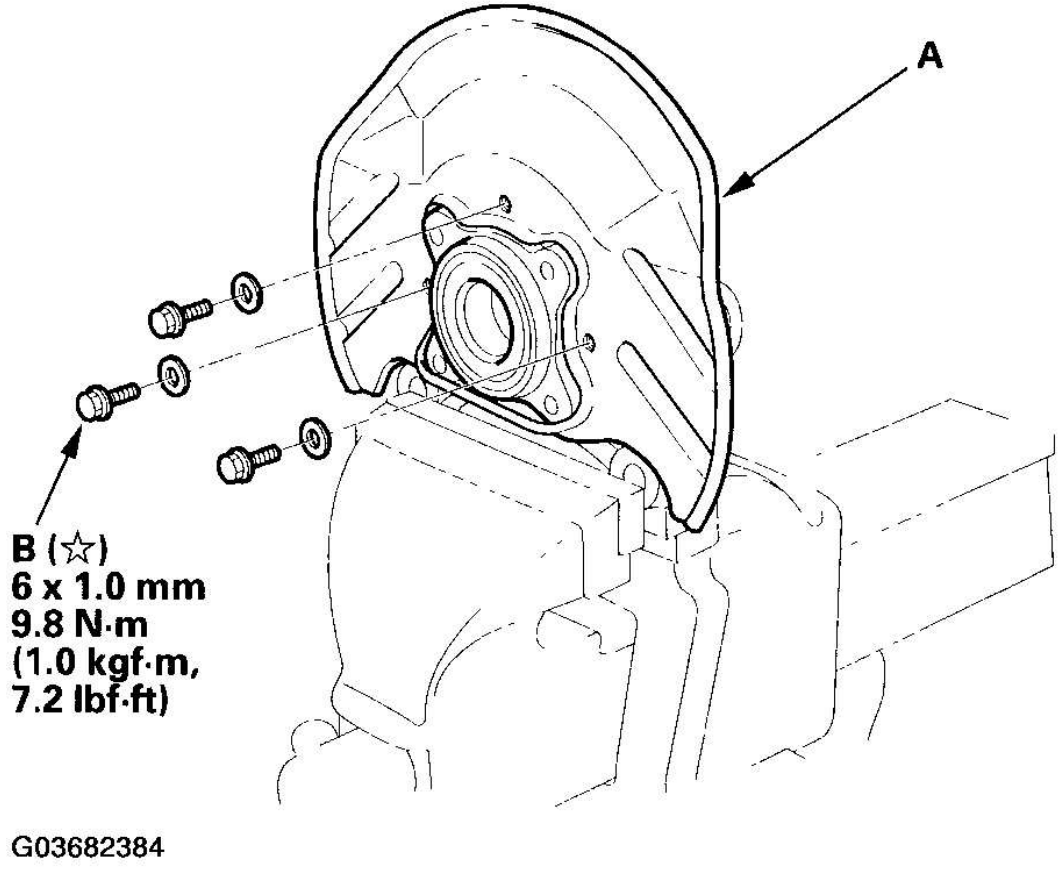


Fig. 15: Installing Splash Guard And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

21. Press a new hub bearing unit (A) into the hub (B) using the special tools and a press.

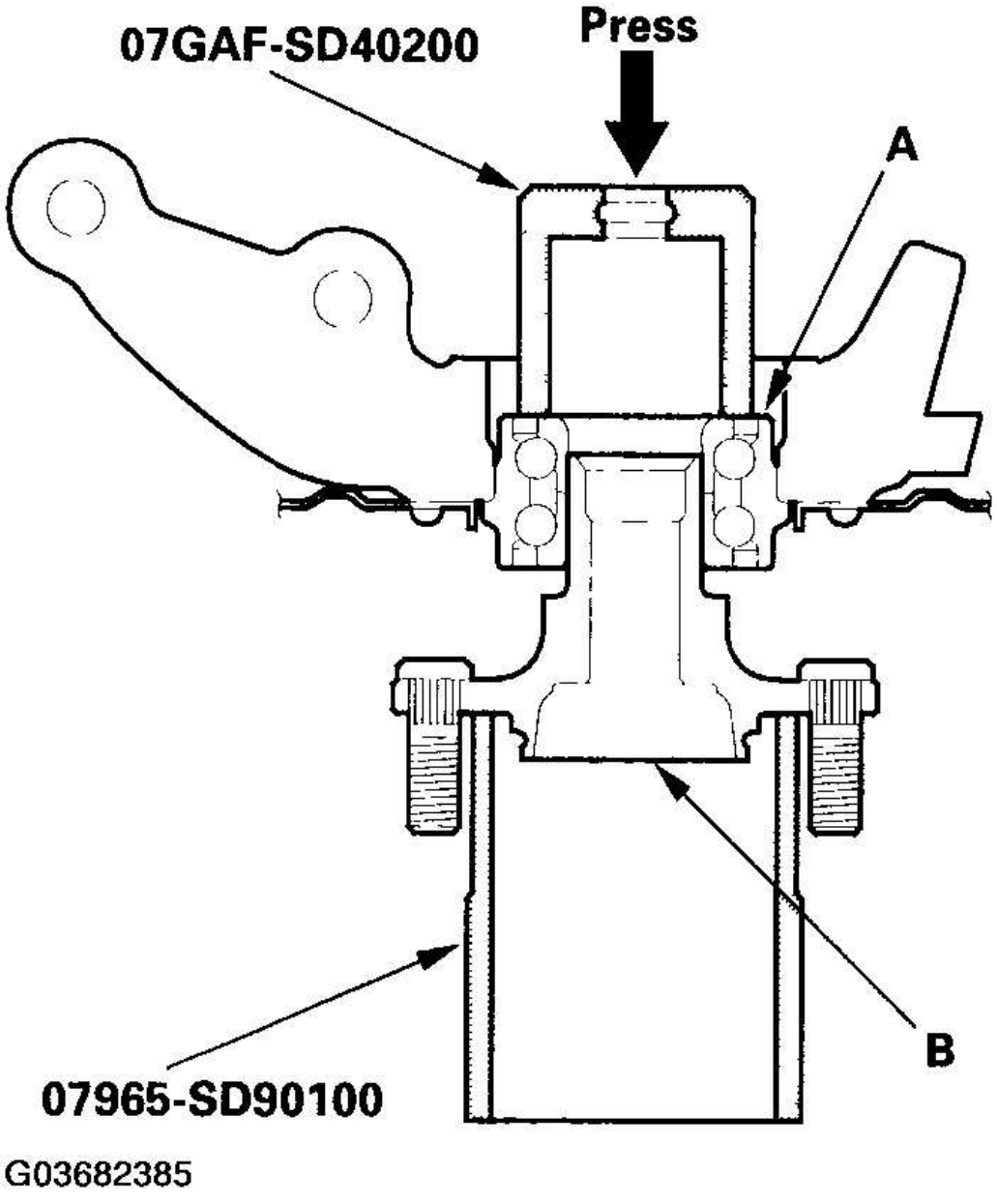


Fig. 16: Pressing A Hub Bearing Unit Into Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

22. Install the knuckle unit in the reverse order of removal, and note these items:
    - The hardware marked * are special corrosion-resistant Dacro fasteners.

Use the same type hardware during installation.

- Be careful not to damage the ball joint boot when installing the knuckle.
- Torque the castle nut to the lower torque value 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.
- Install a new cotter pin on the castle nut after torquing.
- Use a new spindle nut on reassembly.
- Before installing the new 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.
- Tighten all mounting hardware to the specified torque values.
- Before installing the hub/hub bearing unit, clean the mating surface of the hub/hub bearing unit and the knuckle.
- Before installing the brake disc, clean the mating surface of the 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 **WHEEL ALIGNMENT**).

BALL JOINT BOOT REPLACEMENT

Special Tools Required

Ball joint boot clip guide 07GAG-SD40700

1. Remove the boot clip and the boot.
2. Pack the interior and lip (A) of a new boot with fresh grease. Do not contaminate the lower collar of the boot (B) with grease.

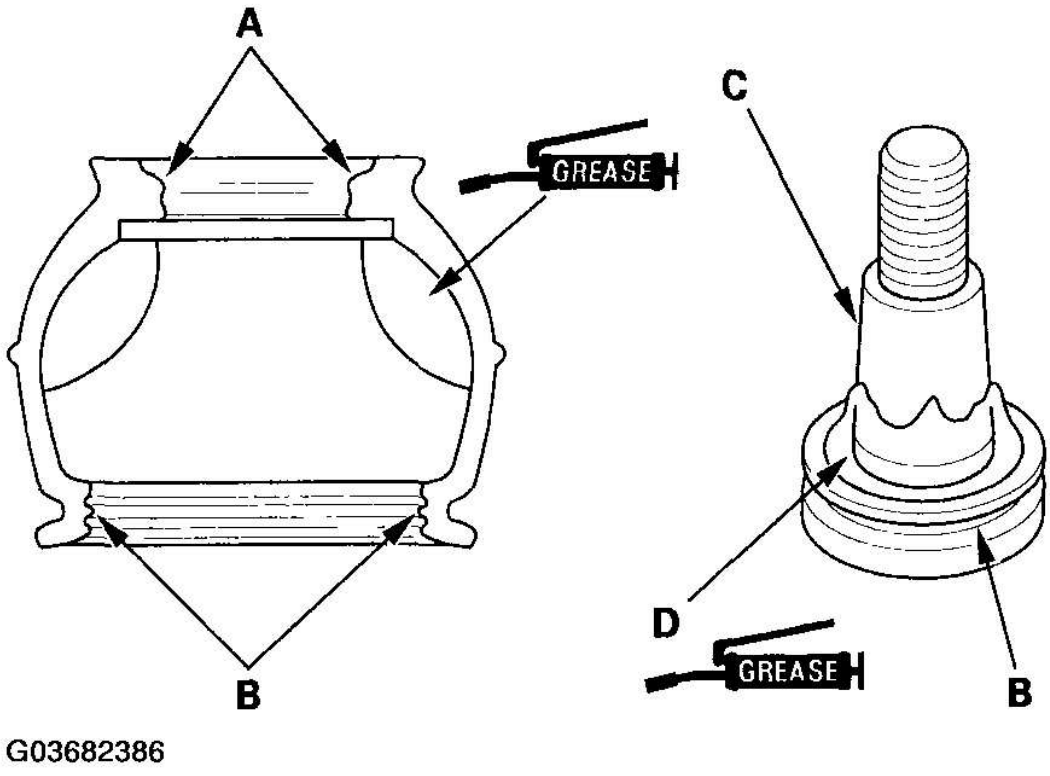


Fig. 17: Packing Interior And Lip Of Boot With Fresh Grease
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Wipe the grease off the tapered section of the pin (C), and pack fresh grease onto the base (D).
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. Adjust the special tool with the adjusting bolt (A) until its base is just above the groove around the bottom of the boot. Then slide the clip (B) over the tool into the position on the boot.

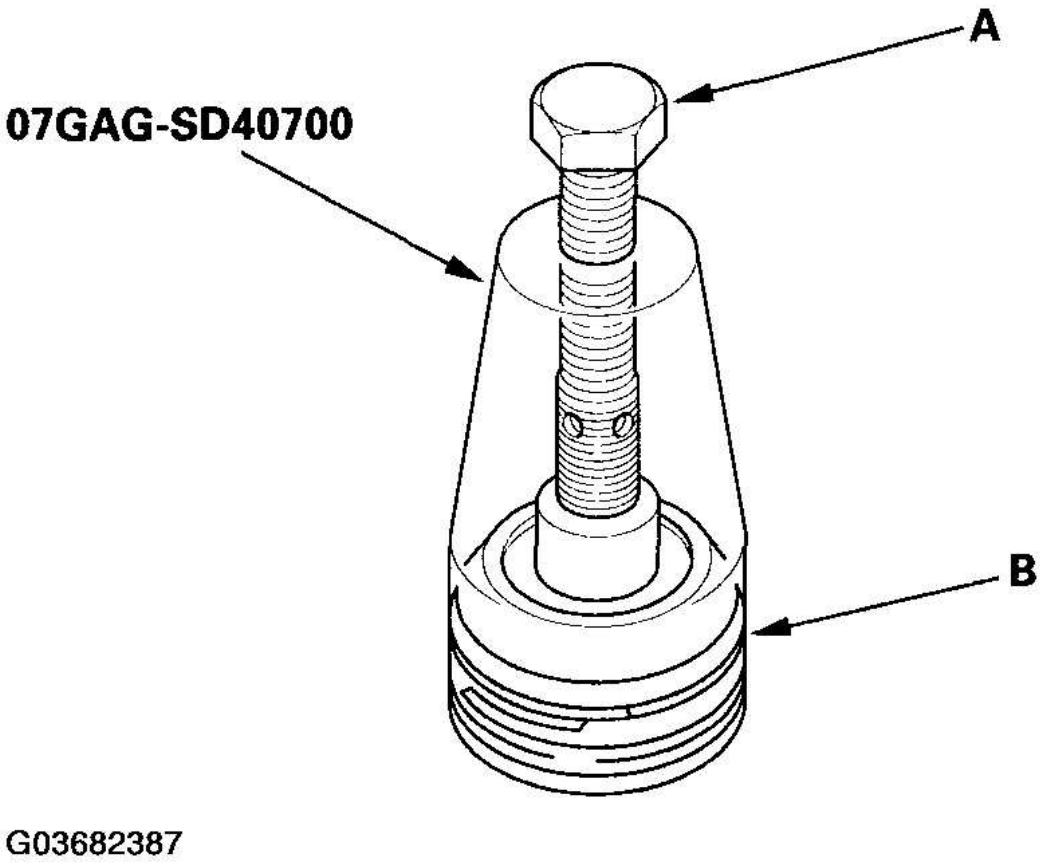


Fig. 18: Adjusting Special Tool With Adjusting Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

STABILIZER BAR REPLACEMENT

NOTE: Bolts and nuts with the * mark are special corrosion-resistant Dacro fasteners. Use the same type if replacement is necessary.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **SAFETY STANDS**).

2. Remove the front wheel.
3. Remove the splash shields (A) on the right and left side.

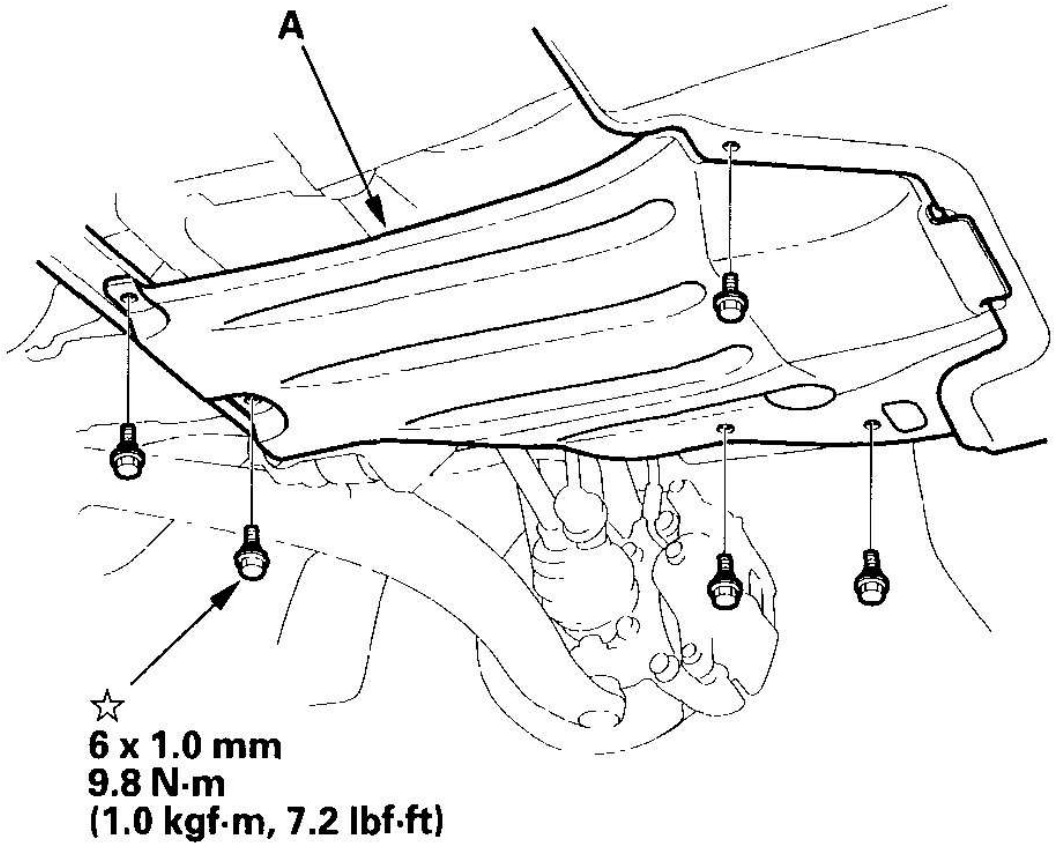


Fig. 19: Removing Splash Shields And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the self-locking nuts (A) while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer links (D) from the stabilizer bar (E) on the right and left side.

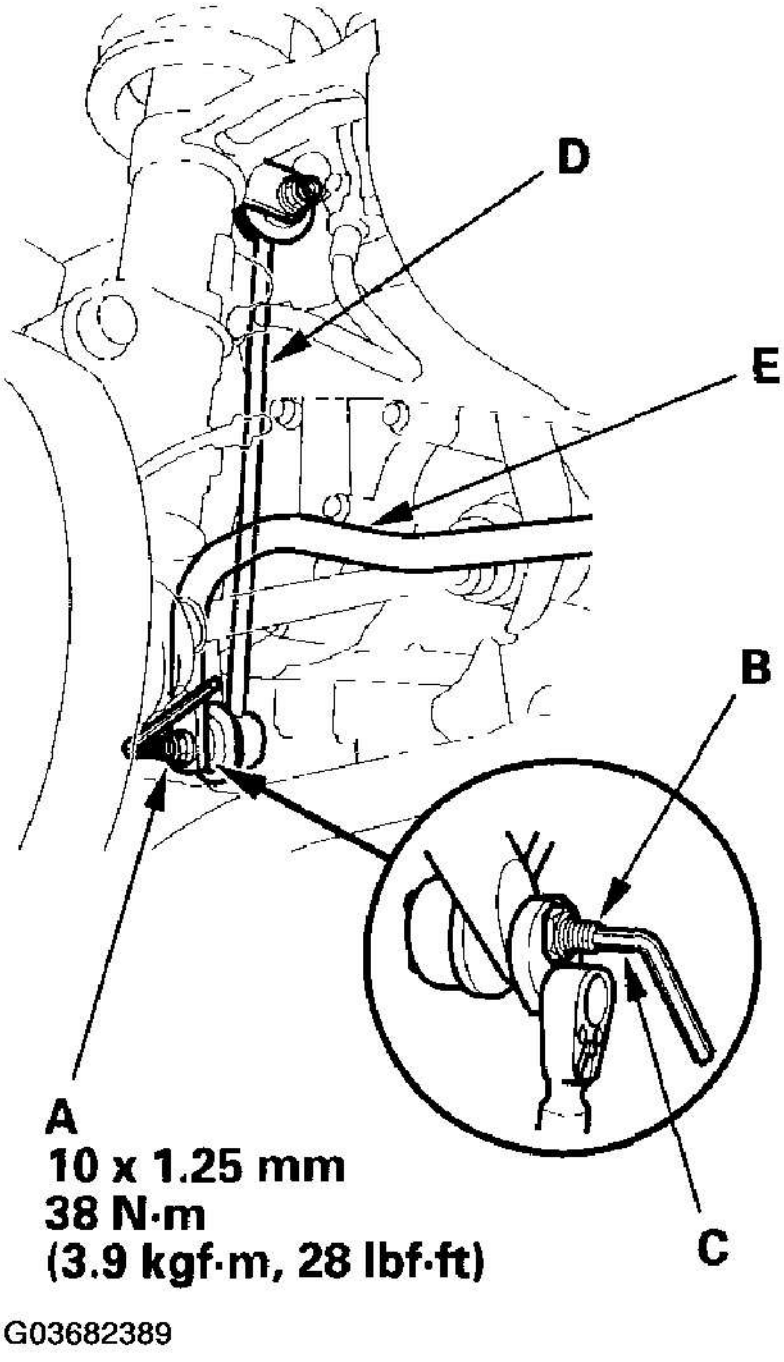


Fig. 20: Removing Self-Locking Nuts And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

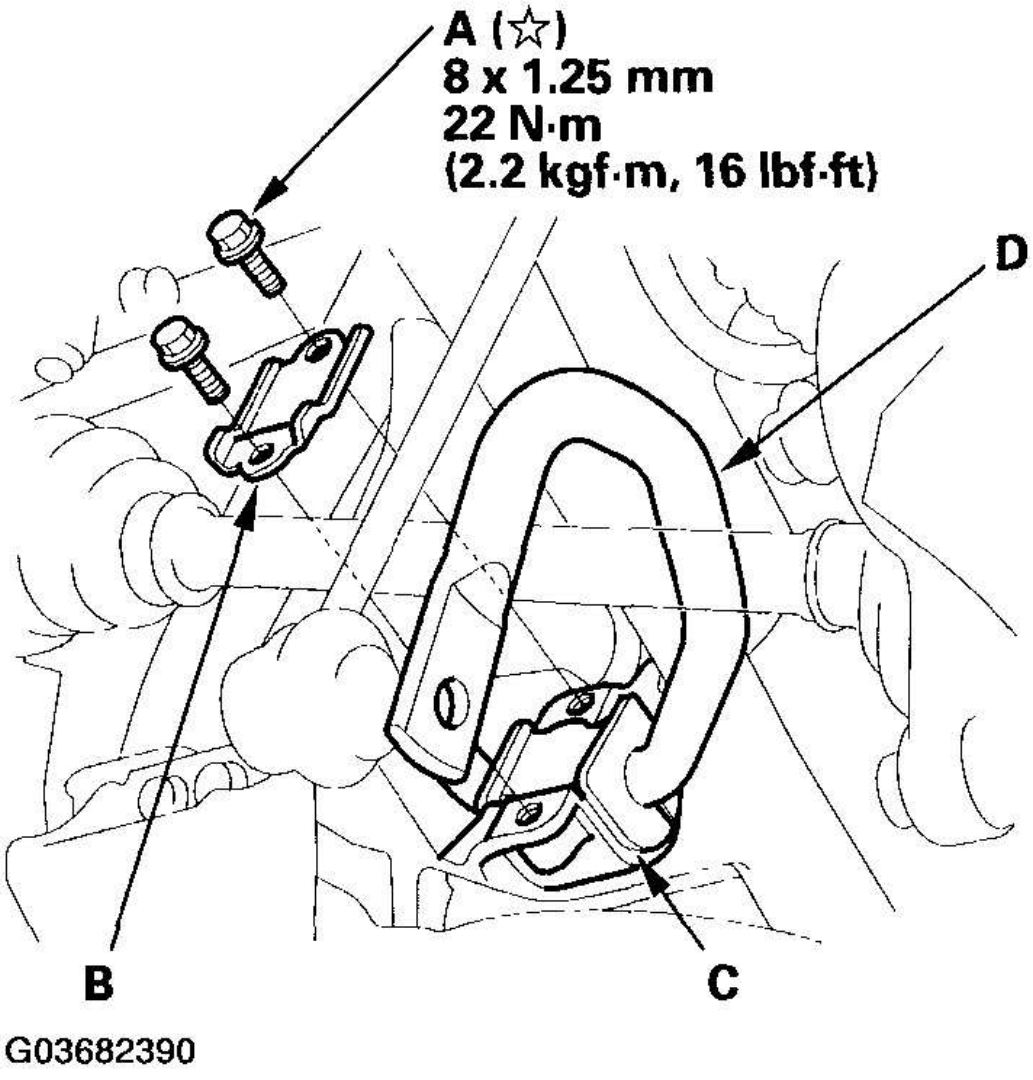


Fig. 21: Removing Flange Bolts, Bushing Holders, Brushings And Stabilizer Bar With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. 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 **STABILIZER LINK REMOVAL/INSTALLATION**).

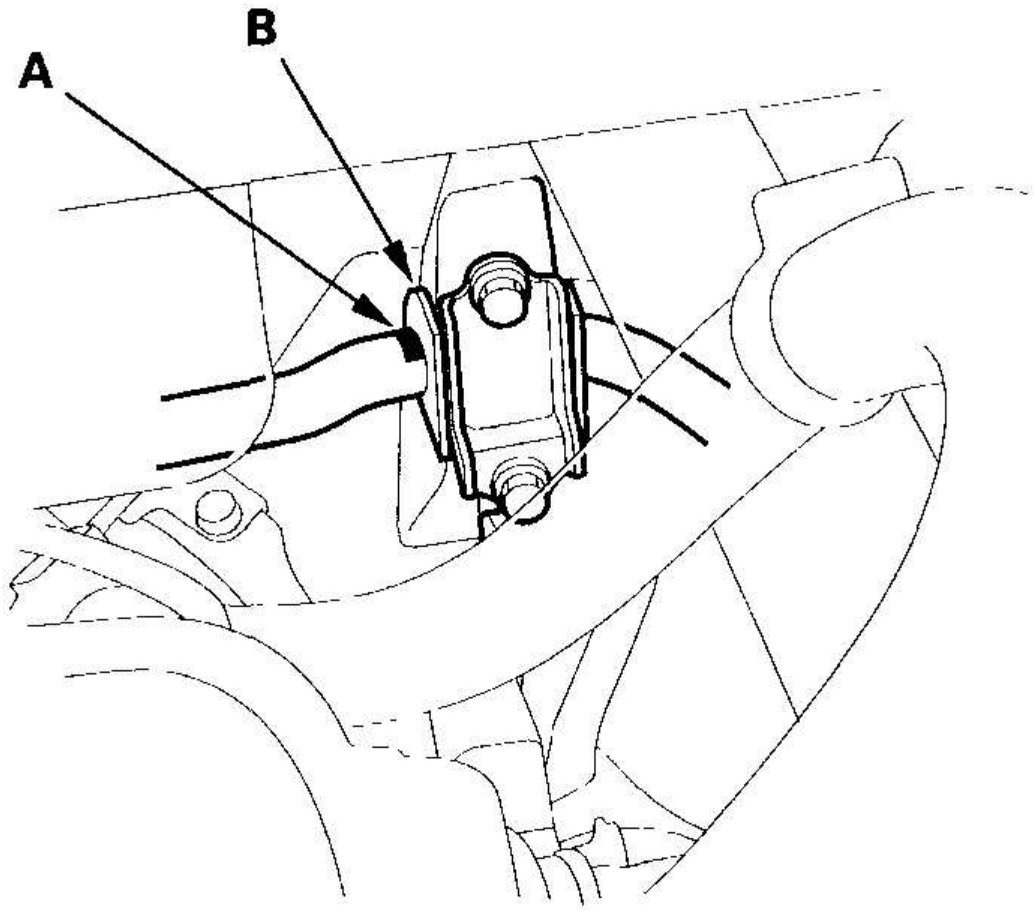


Fig. 22: Aligning Ends Of Paint Marks
Courtesy of AMERICAN HONDA MOTOR CO., INC.

STABILIZER LINK REMOVAL/INSTALLATION

NOTE: Bolts and nuts with the * mark are special corrosion-resistant Dacro fasteners. Use the same type if replacement is necessary.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **SAFETY STANDS**).
2. Remove the front wheel.
3. Remove the splash shield (see step 3).
4. 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).

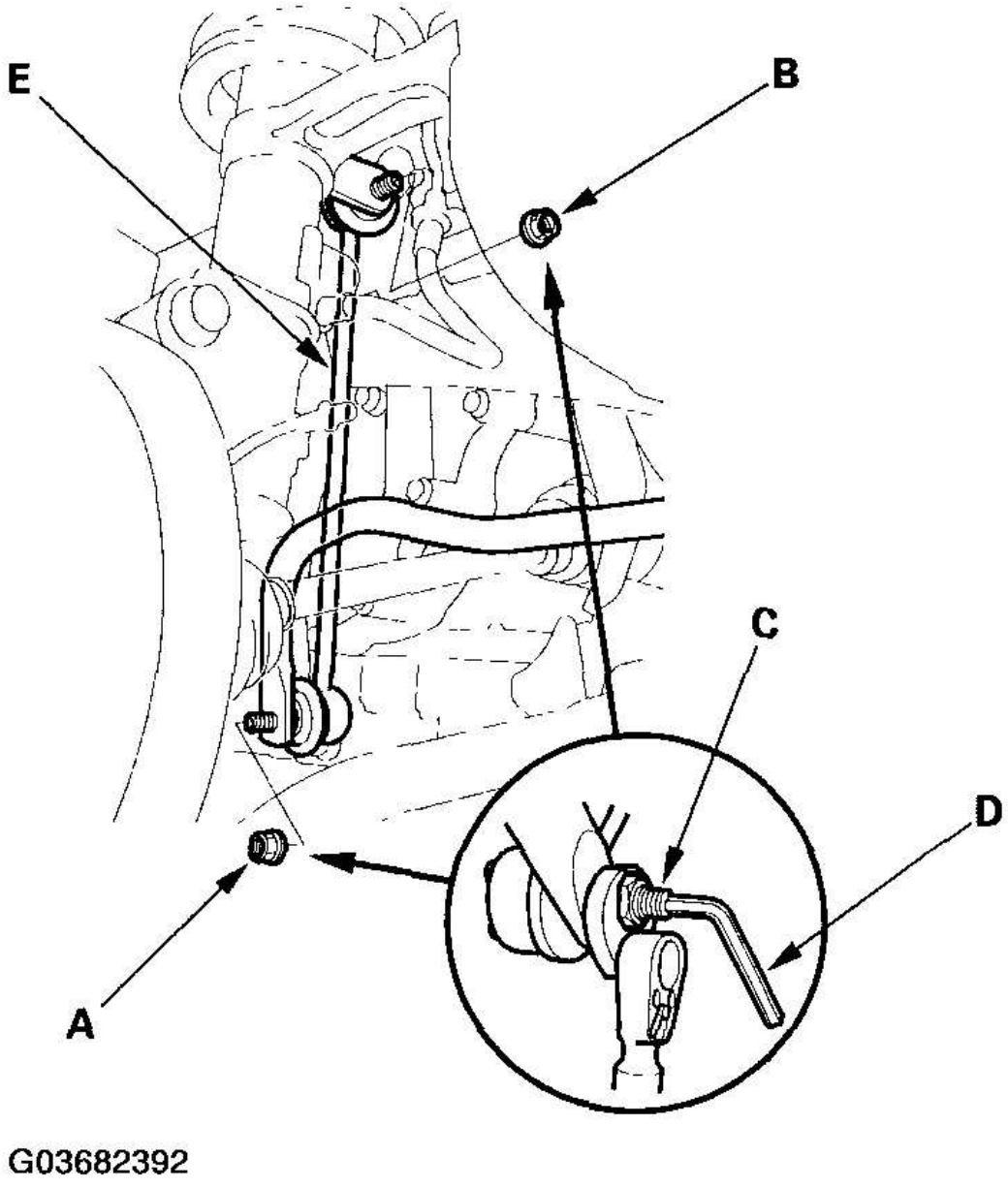


Fig. 23: Removing Self-Locking Nut And Flange Nut
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the stabilizer link (A) onto the stabilizer bar (B) and damper (C) unit with each joint pins (D) set at the center of its range of movement.

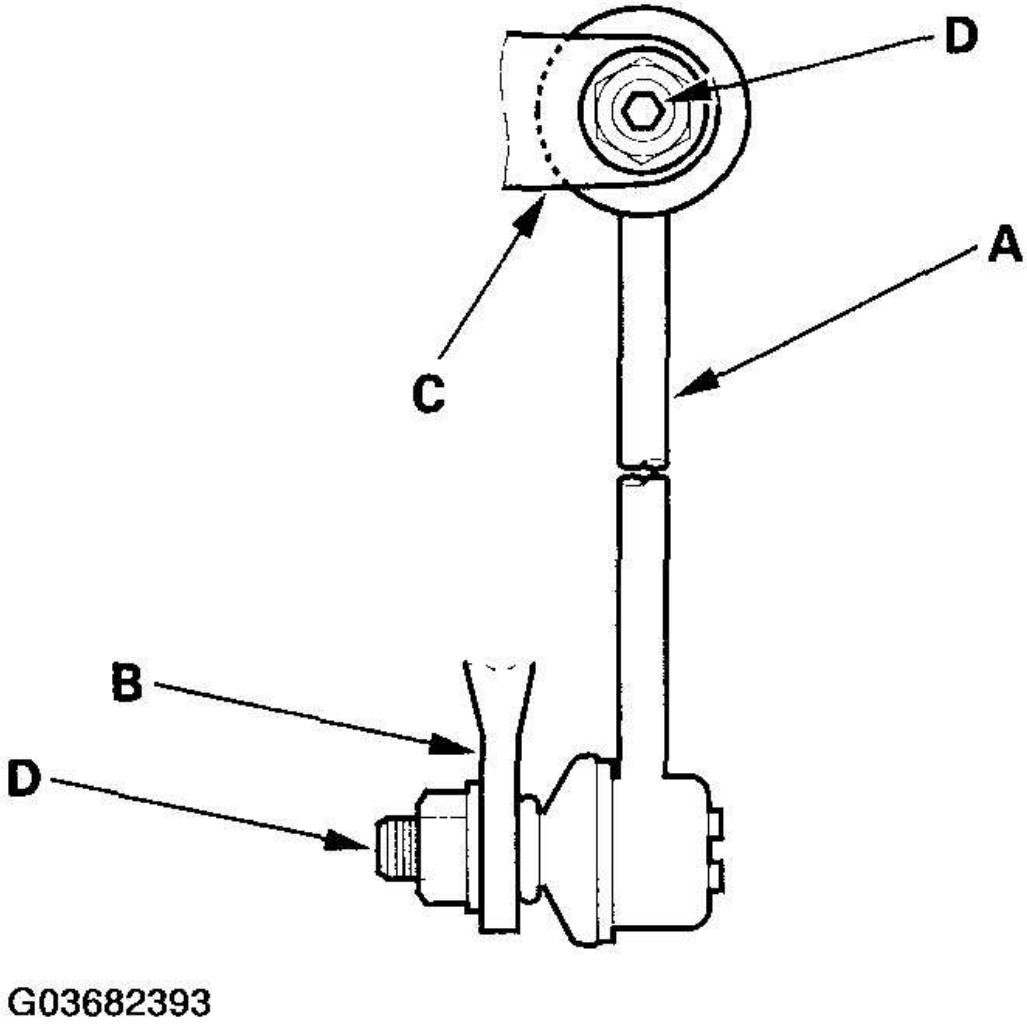


Fig. 24: Installing Stabilizer Link Onto Stabilizer Bar And Damper
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the new self-locking nut and flange nut, and lightly tighten them.
7. Place the jack with a wood block under the lower arm ball joint, and raise the suspension to load the stabilizer bar.
8. Tighten the self-locking nut (A) and flange nut (B) to the specified torque value while holding the respective joint pin (C) with a hex wrench (D).

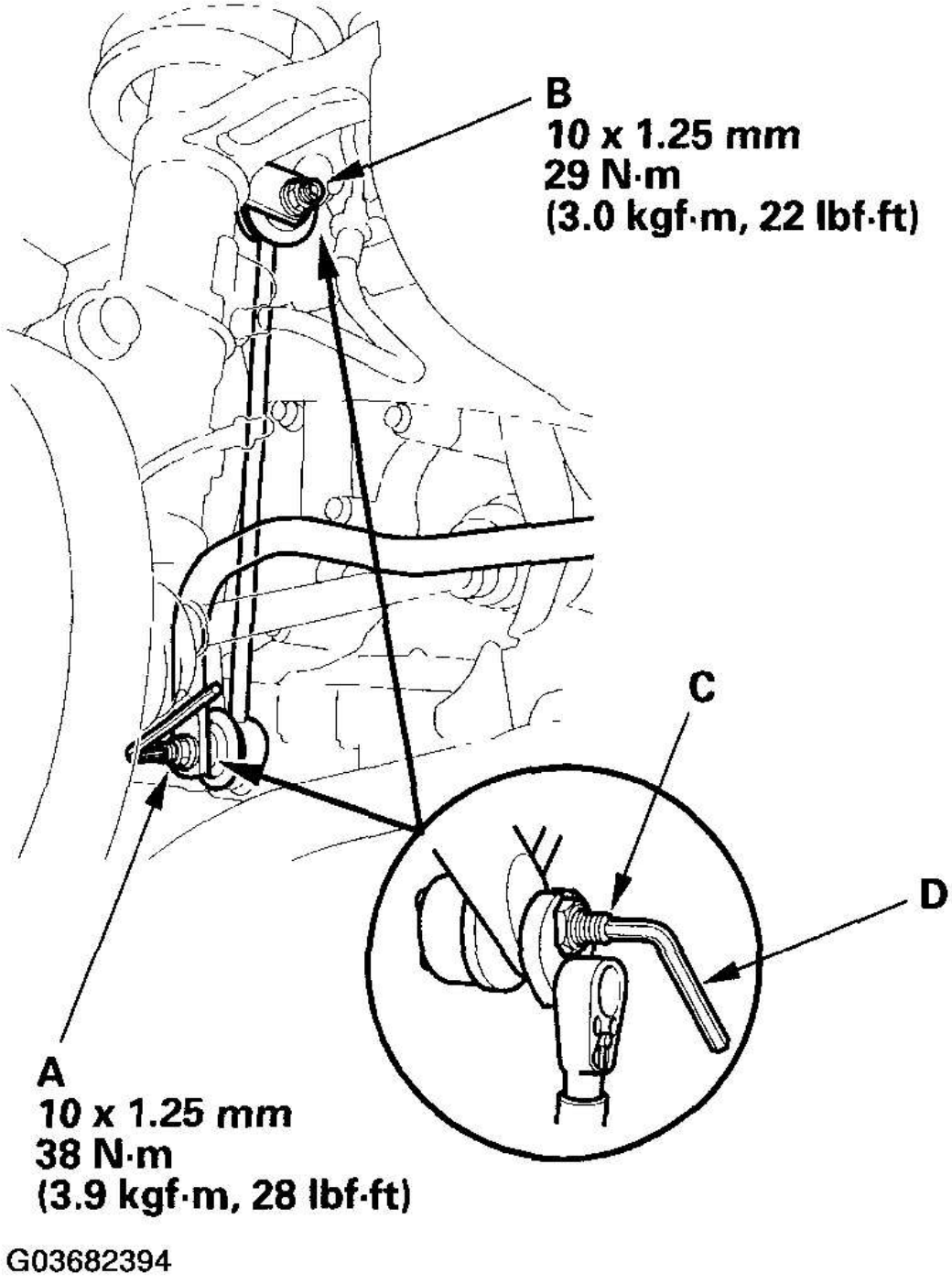


Fig. 25: Tightening Self-Locking Nut And Flange Nut With Torque Specifications

Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Reinstall all removed parts and test-drive the vehicle.
10. After 5 minutes of driving, recheck the self-locking nut torque value again.

LOWER ARM REMOVAL/INSTALLATION

NOTE: To avoid damage, do not strike aluminum parts with a metal hammer. If necessary, tap gently with a plastic-tipped hammer.

NOTE: Bolts and nuts with the * mark are special corrosion-resistant Dacro fasteners. Use the same type if replacement is necessary.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **SAFETY STANDS**).
2. Remove the front wheel.
3. Remove the spindle nut (see step 5).
4. Turn the front of the knuckle outward. Tap the driveshaft inward with a plastic hammer to allow space to install the special tool on the lower arm ball joint (see step 9).
5. Remove the lower arm ball joint from the knuckle (see step 10).
6. Remove the front lower arm cover (A).

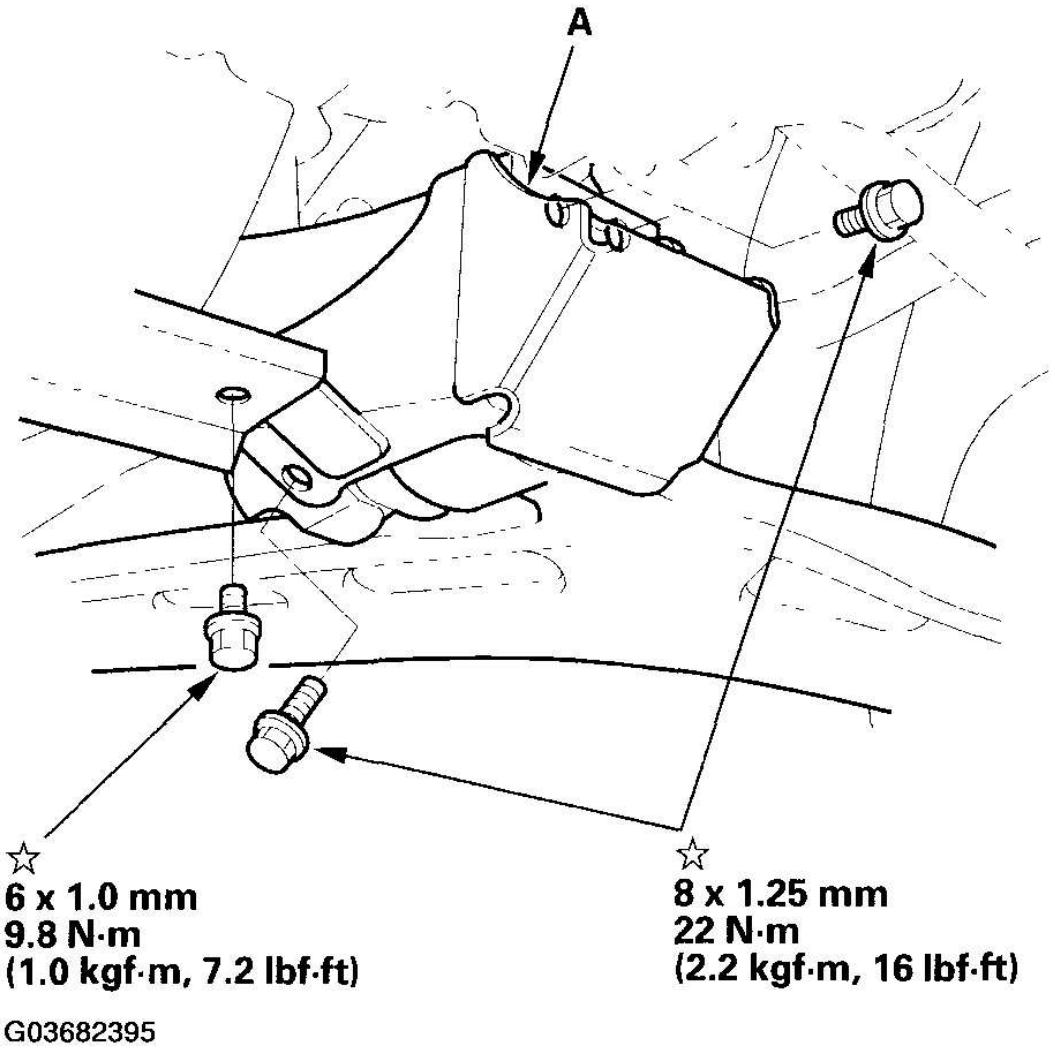


Fig. 26: Removing Front Lower Arm Cover And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the flange bolts (A) and nut (B), and remove the beam under-cover (C) and the lower arm (D).

NOTE: The lengths of the bolts (1 is 12 x 93.5 mm, 2 is 12 x 68.5 mm, 3 is 12 x 53.5 mm).

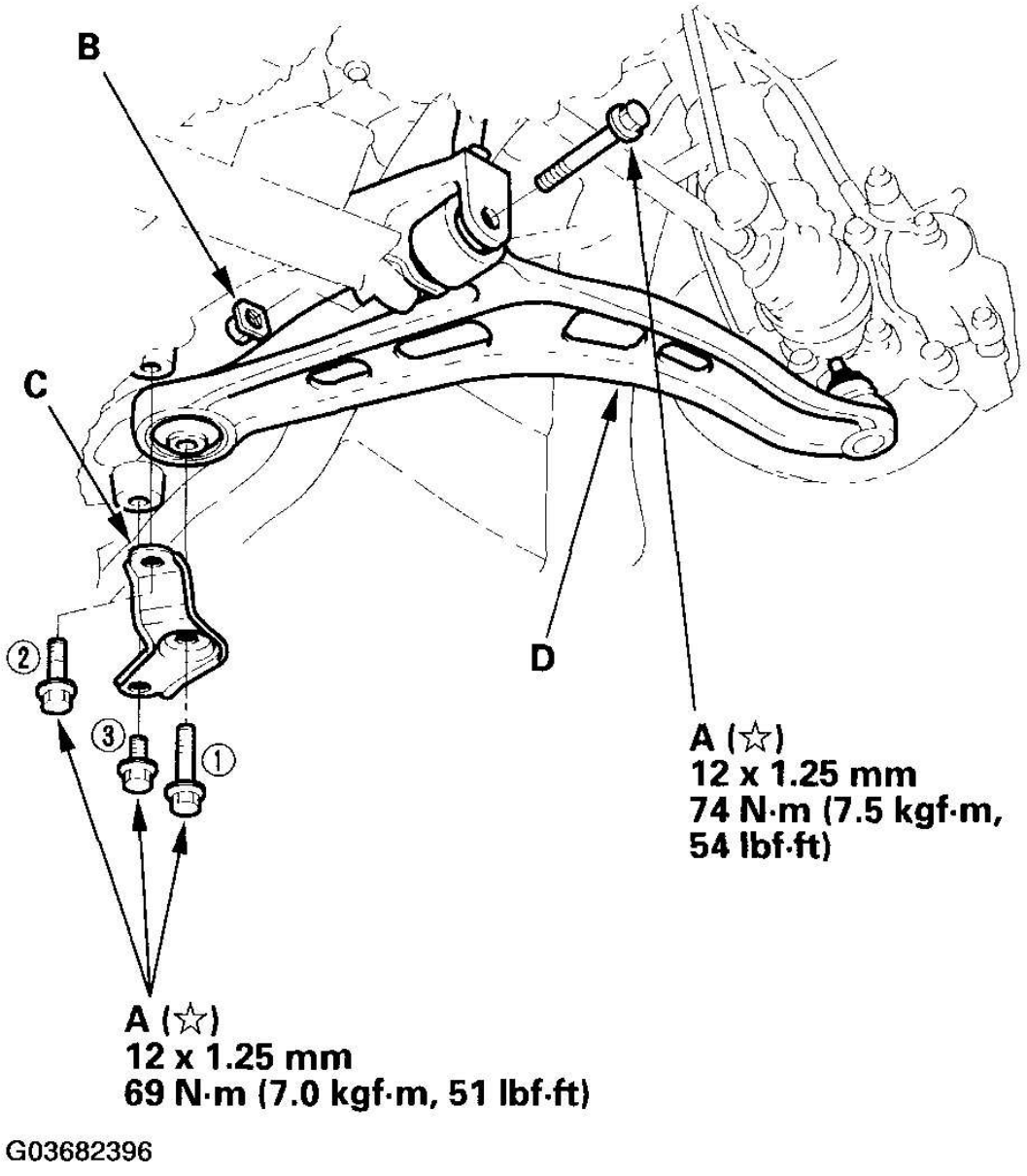


Fig. 27: Removing Flange Bolts And Nut With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. 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 the weight before fully tightening to the specified torque value.
- Torque the castle nut to the lower torque value, 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.
- Install a new cotter pin 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 **WHEEL ALIGNMENT**).

DAMPER/SPRING REPLACEMENT

EXPLODED VIEW

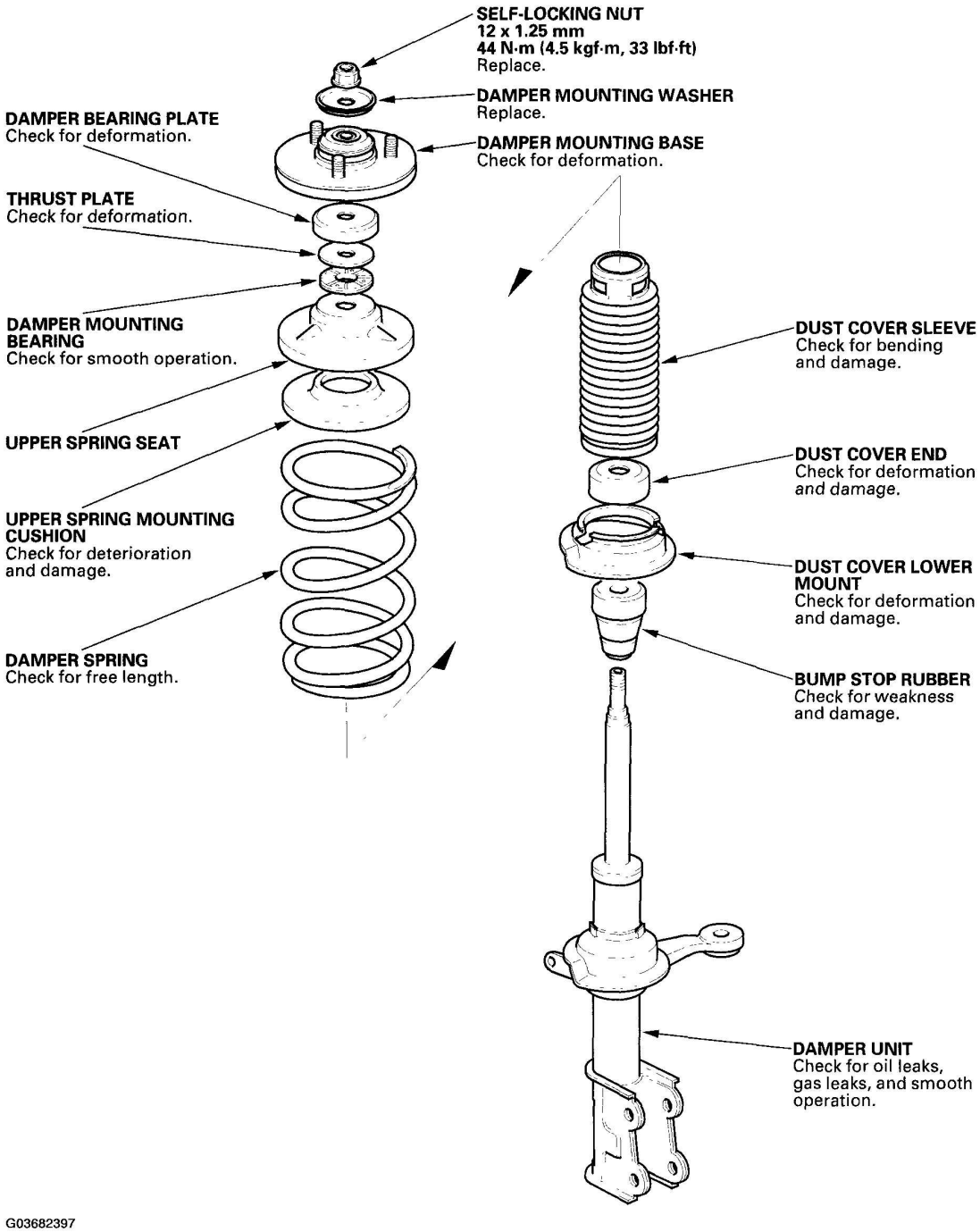


Fig. 28: Exploded View Of Damper/Spring And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

Ball joint remover, 28 mm 07MAC-SL0A202

NOTE: To avoid damage, do not strike aluminum parts with a metal hammer. If necessary, tap gently with a plastic-tipped hammer.

NOTE:

- **Bolts and nuts with the * mark are special corrosion-resistant Dacro fasteners. Use the same type if replacement is necessary.**
- **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.**

REMOVAL

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **SAFETY STANDS**).
2. Remove the front wheel.
3. Remove the cotter pin (A) from the tie-rod end ball joint, and remove the nut (B).

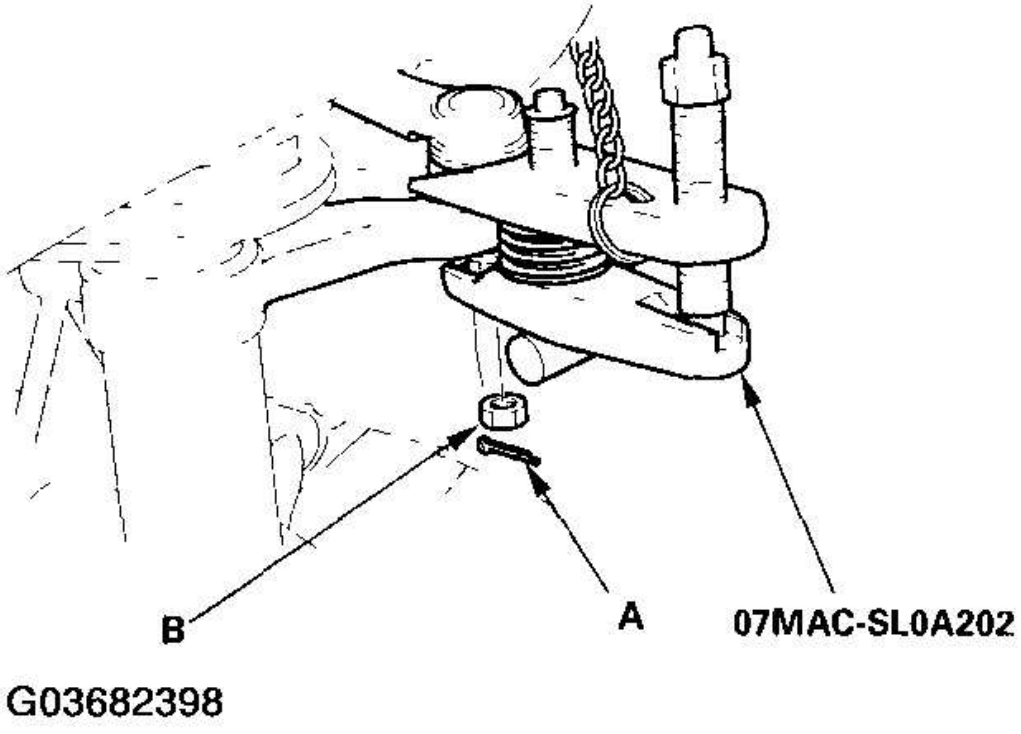


Fig. 29: Removing Cotter Pin From Tie-Rod End Ball Joint
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Disconnect the tie-rod end ball joint from the damper using the special tools (see **BALL JOINT REMOVAL**).
5. Remove the flange nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer link (D) from the damper.

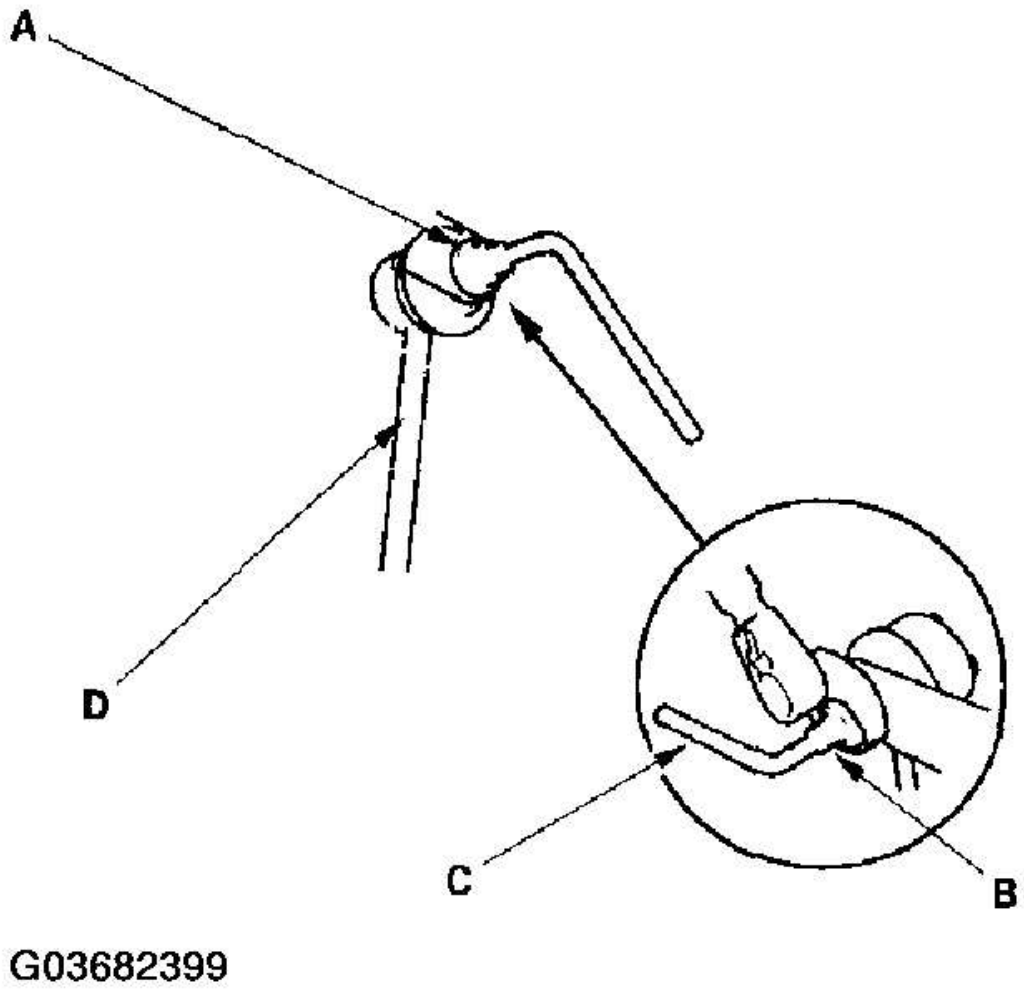


Fig. 30: Removing Flange Nut While Holding Joint Pin
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Remove the bolts (A), and remove the wheel sensor harness bracket (B) and brake hose bracket (C) from the damper. Do not disconnect the wheel sensor connector.

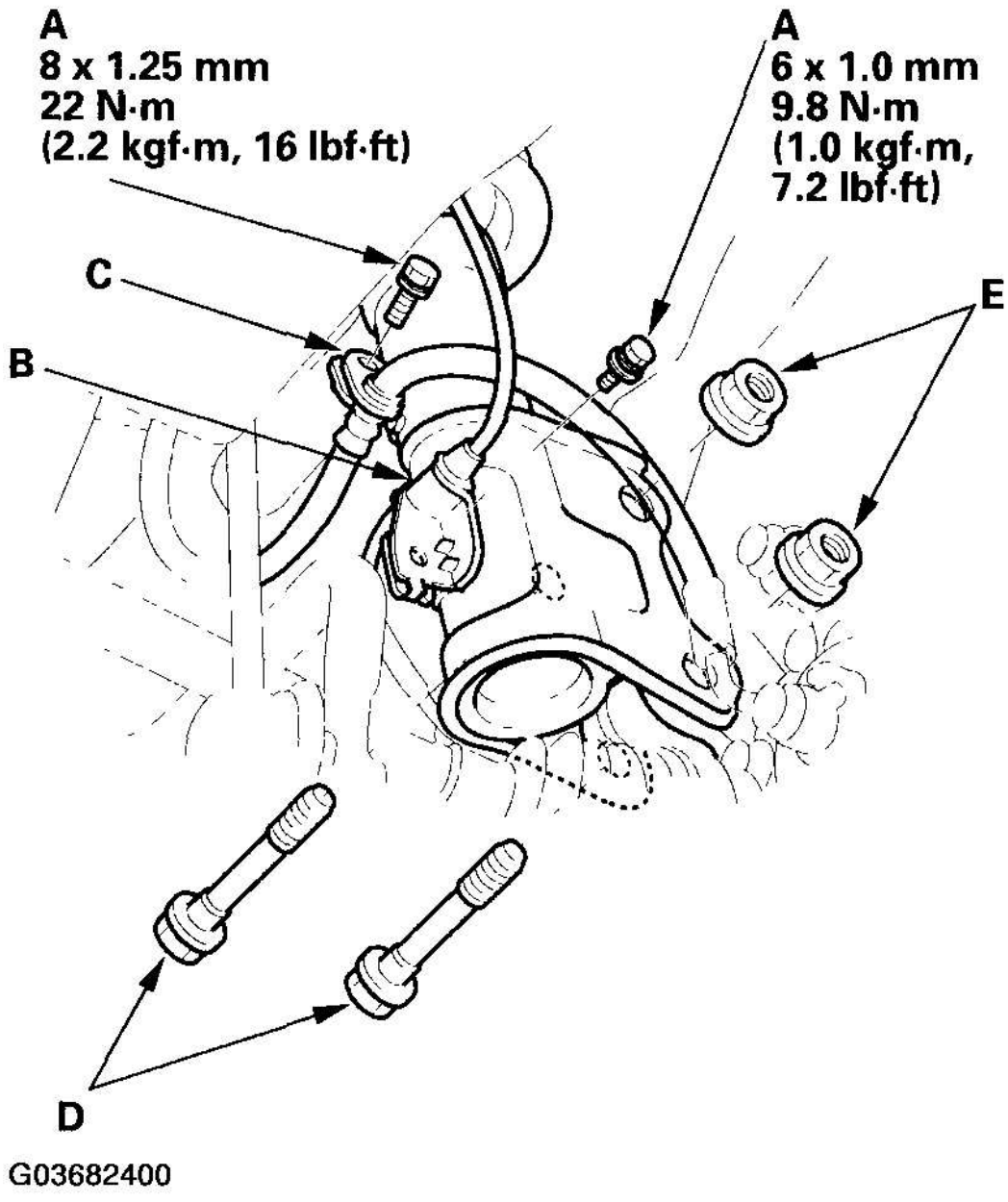


Fig. 31: Removing Wheel Sensor Harness Bracket And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the damper pinch bolts (D) while holding the nuts (E).

8. Remove the self-locking nuts (A) from the top of the damper.

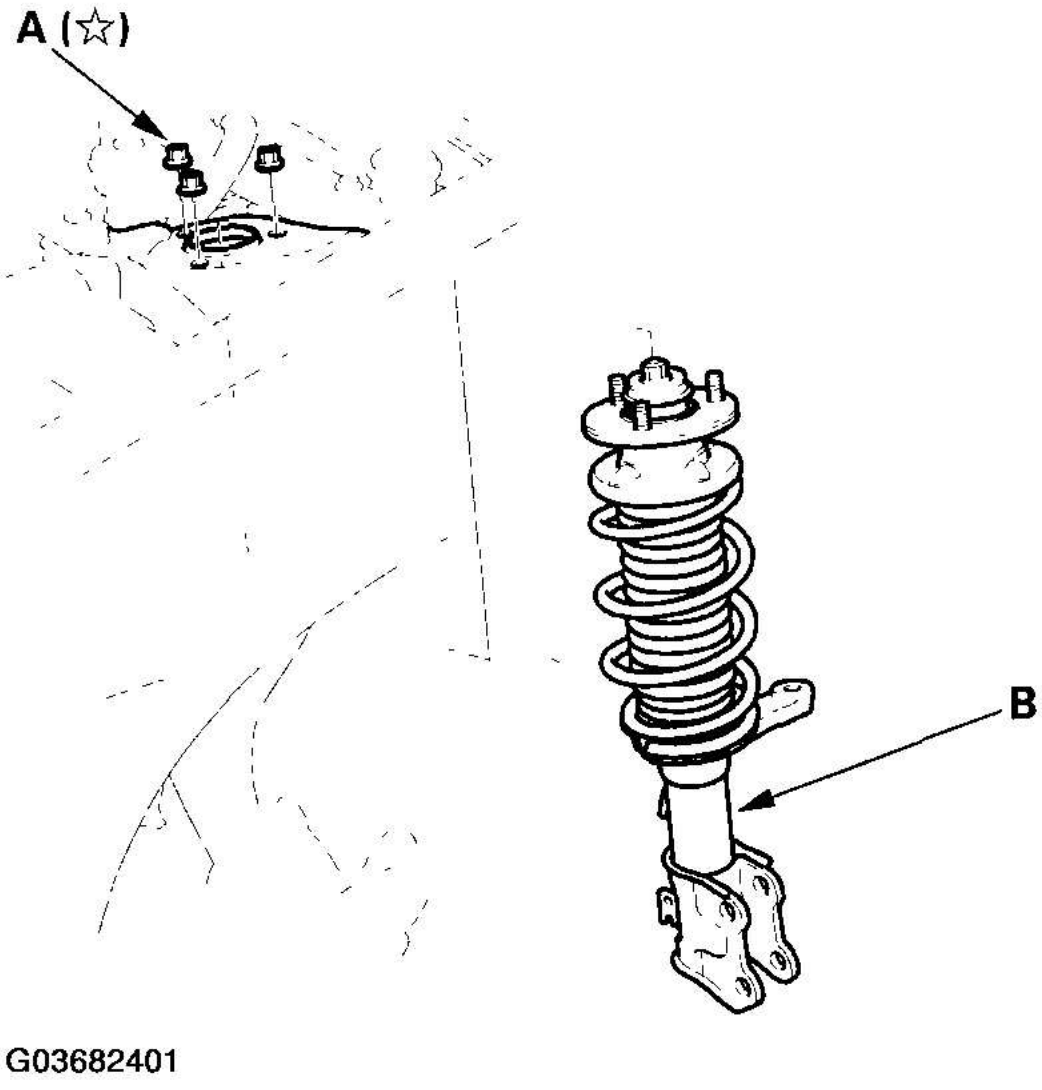


Fig. 32: Removing Self-Locking Nuts From Top Of Damper
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

DISASSEMBLY/INSPECTION

1. Compress the damper spring with a commercially available strut spring

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.

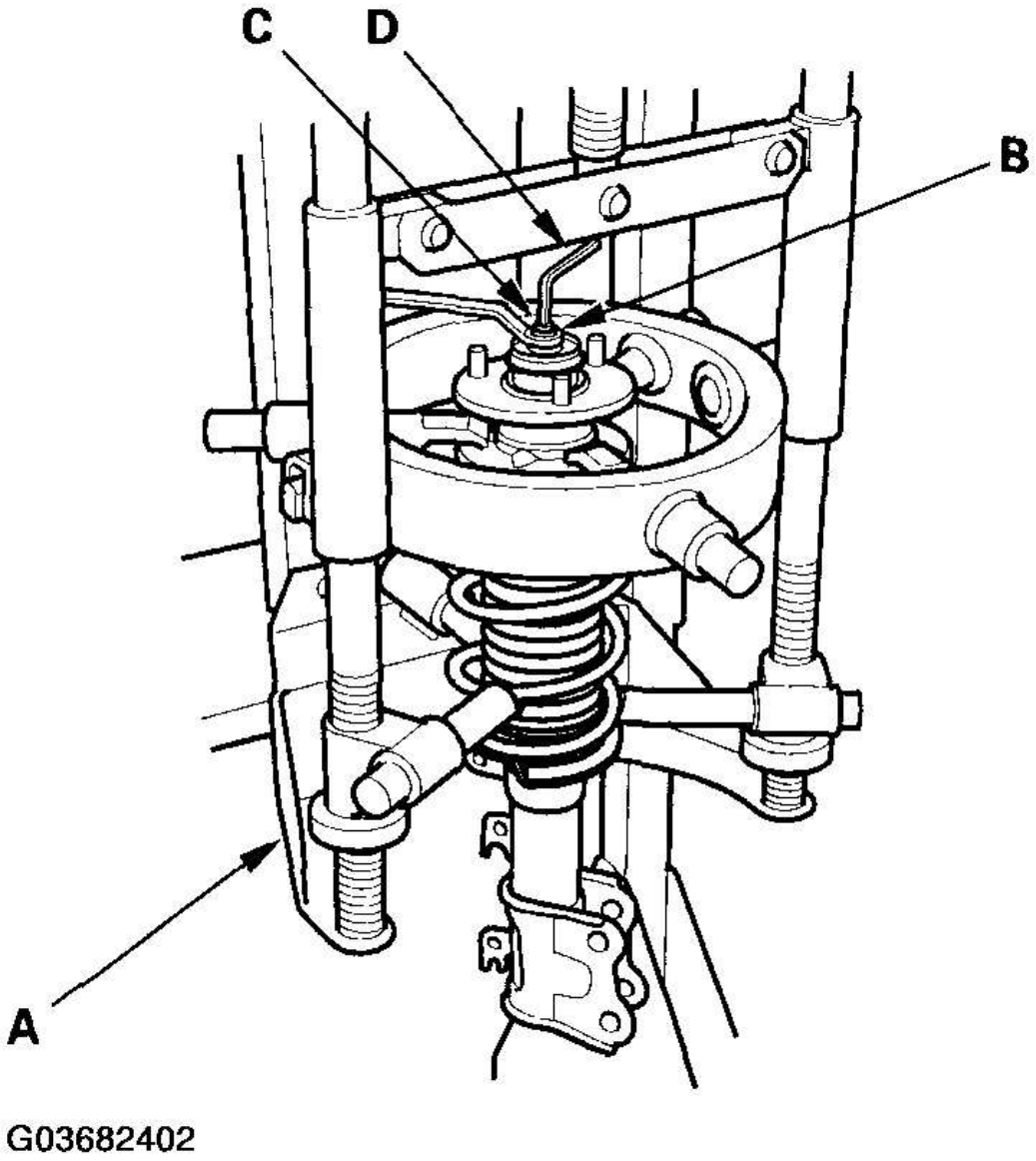
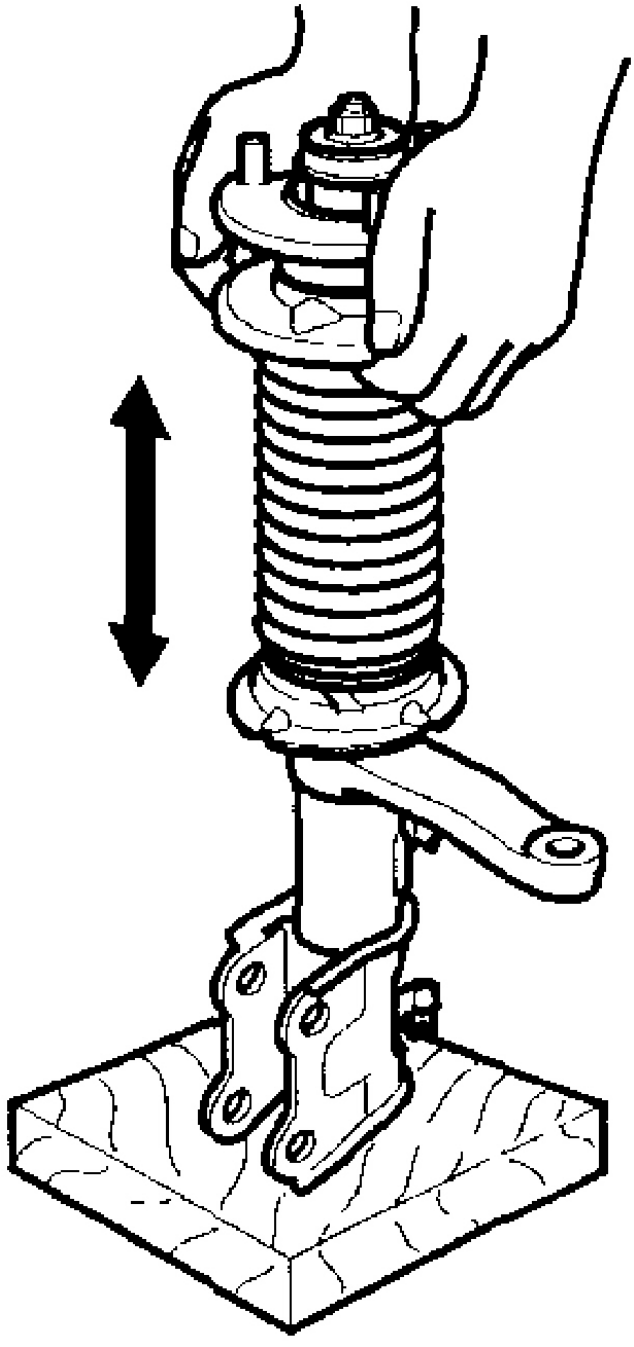


Fig. 33: Removing Self-Locking Nut
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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.



G03682403

Fig. 34: Compressing Damper Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

REASSEMBLY

1. Install the dust cover end inside the top of the dust cover sleeve, and install the dust cover lower mount on the bottom of the dust cover sleeve.
2. Install the bump stop on the damper shaft, then install the set of the dust cover (assembled in step 1) over it.
3. Install the rest of the parts except for the washer and self-locking nut onto the damper unit referring to the Exploded View. Align the spring bottom end (A), the stepped part of the dust cover lower mount (B), and the step on the lower spring seat (C).

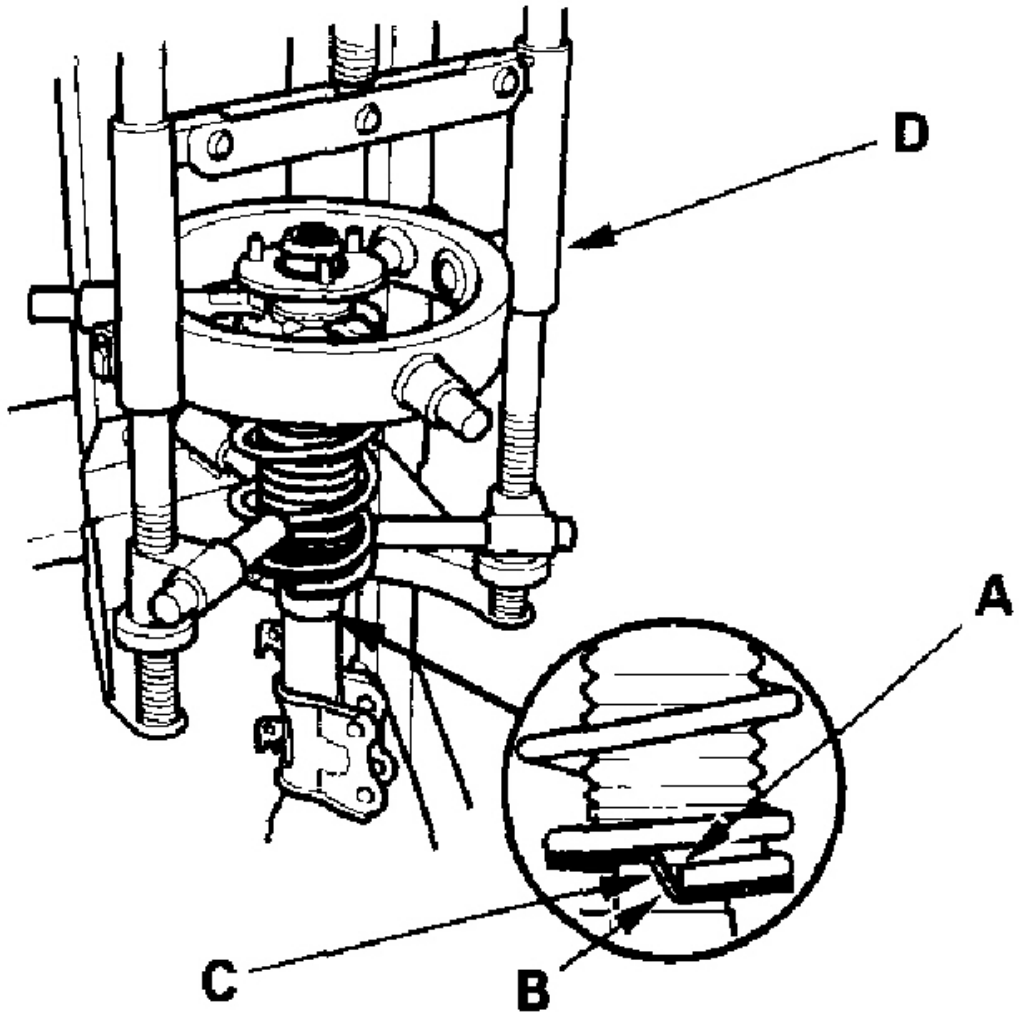


Fig. 35: Aligning Spring Bottom End
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

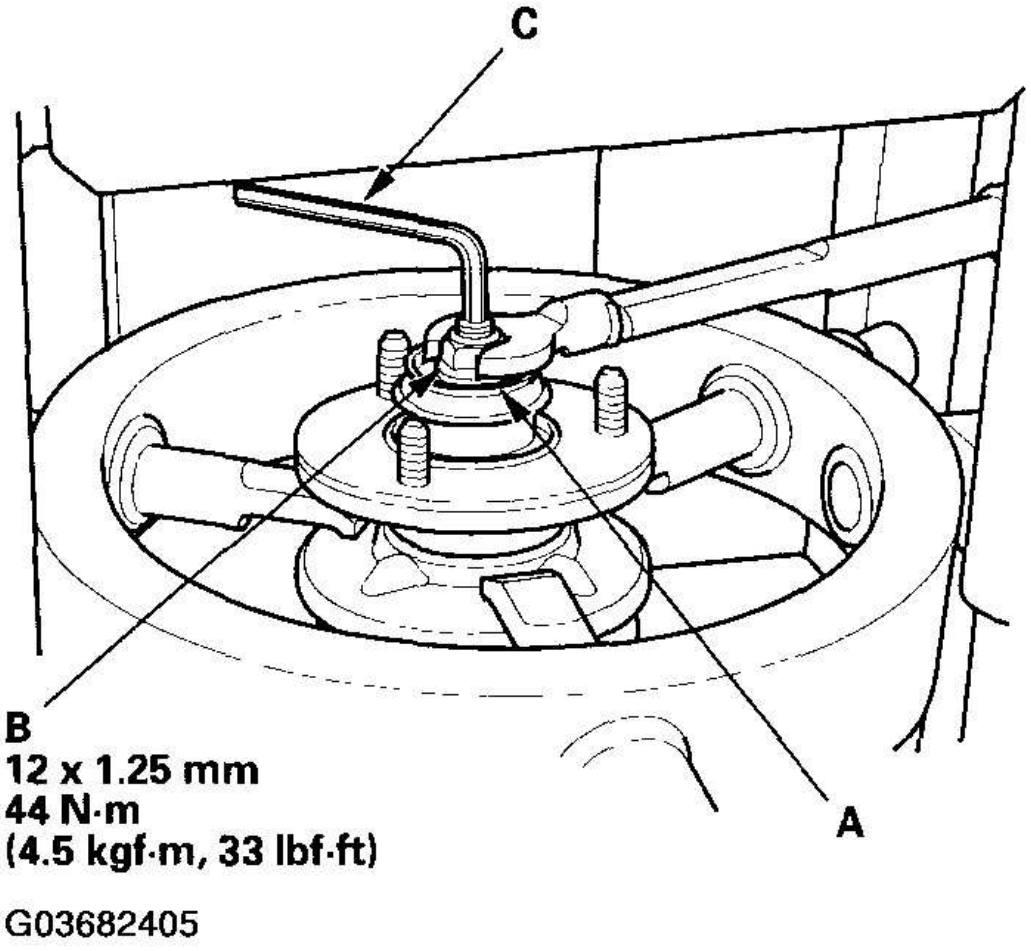


Fig. 36: Installing Washer And Self-Locking Nut With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

INSTALLATION

1. Lower the lower arm, and position the damper assembly (A) in the body.

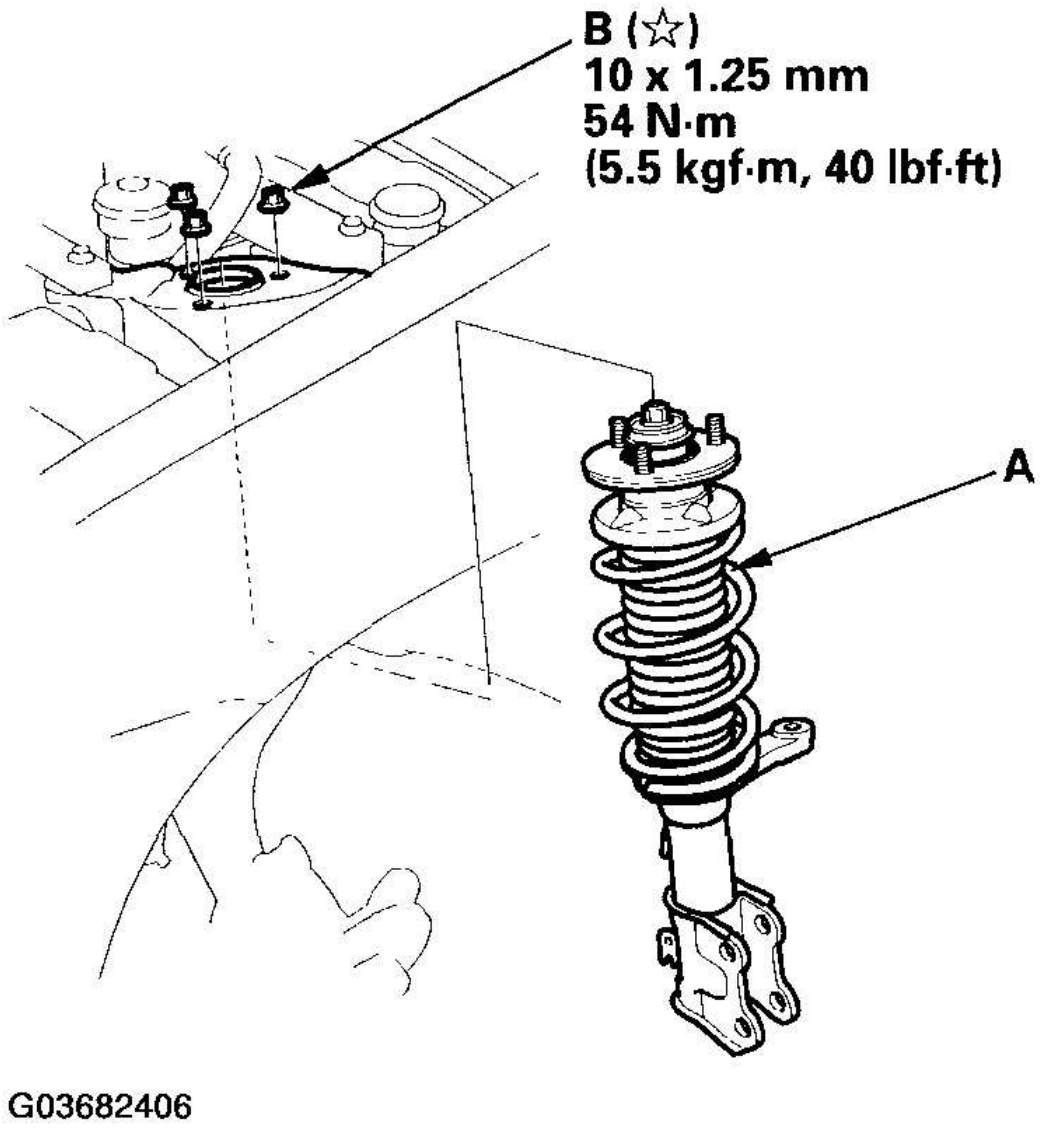


Fig. 37: Positioning Damper Assembly In Body And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Loosely install new self-locking nuts (B) onto the top of the damper.
3. Position the damper bottom on the knuckle, install the new damper pinch bolts (A) and nuts (B), and lightly tighten the bolts.

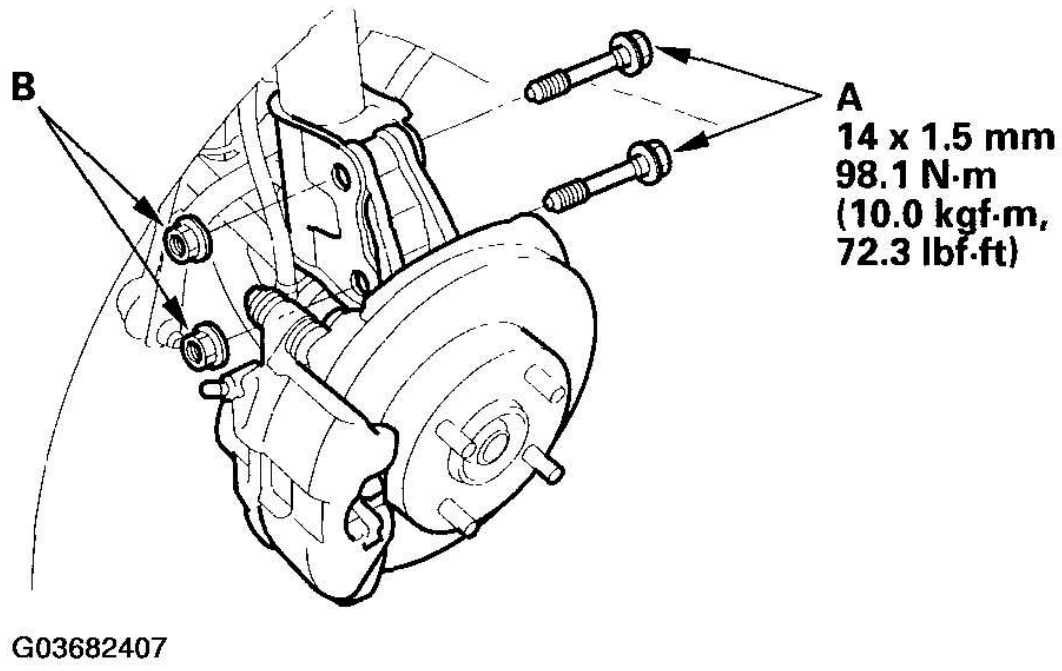


Fig. 38: Installing Damper Pinch Bolts And Nuts With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Connect the stabilizer link to the damper, and lightly tighten the nuts.
5. Place a jack with a wood block under the lower arm ball joint, and raise the suspension to load the suspension.
6. Tighten the flange nuts on the top of the damper to the specified torque value.
7. Tighten the damper pinch bolts to the specified torque value.
8. Connect the stabilizer link (A) to the damper, and tighten the flange nut (B) while holding the joint pin (C) with a hex wrench (D).

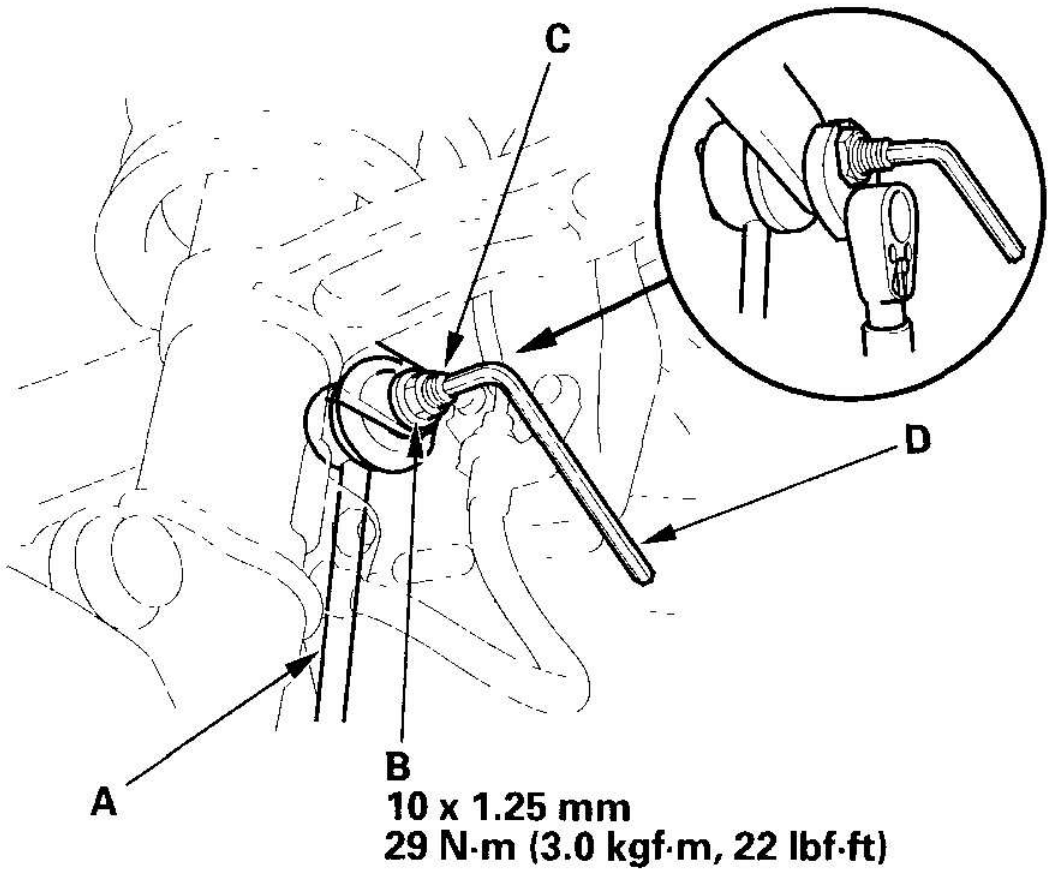


Fig. 39: Connecting Stabilizer Link To Damper And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

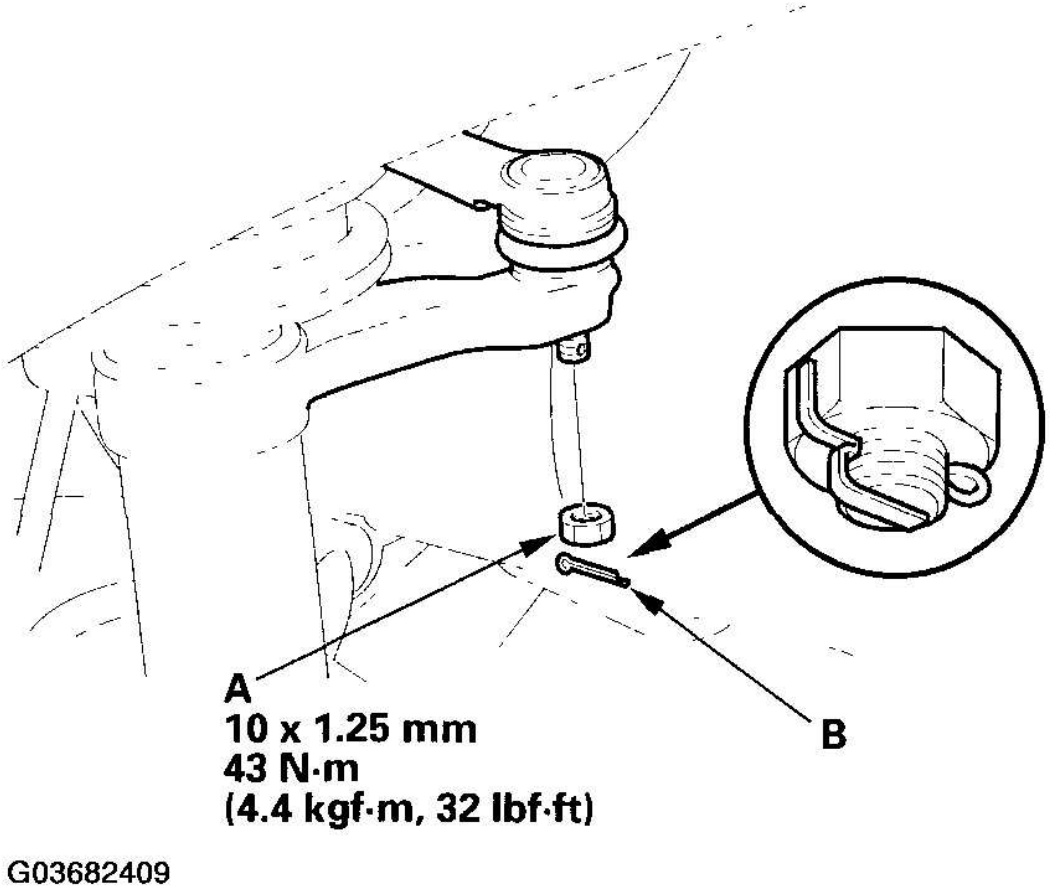


Fig. 40: Installing Cotter Pin And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Install the brake hose bracket and the flange bolt to the damper, and tighten the bolt to the specified torque value.
11. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheels.
12. Check the wheel alignment, and adjust it if necessary (see **WHEEL ALIGNMENT**).