See the Front Brake Caliper overhaul procedure, earlier in this section.

1992 Volvo 940

Submodel: | **Engine Type:** L4 | **Liters:** 2.3
Fuel Delivery: FI | **Fuel:** GAS

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240 Series

1. Raise and safely support the vehicle.
2. Remove the wheels.
3. Remove the guard plate, if equipped.
4. Disconnect any ABS wires, if equipped.
5. Disconnect the brake line from the rear axle and remove the mounting bolts for the caliper.
6. Disconnect the brake line from the caliper and remove the caliper.
7. Remove the brake pads.

To install:

8. Attach the brake line loosely to the caliper.
9. Install the caliper using new mounting bolts.
10. Check the position of the caliper in relation to the disc as follows:

    A. Use feeler gauges to check the distance between the disc and the caliper support stubs on both sides.
    B. The difference between the two measurements must not exceed 0.001 in. (0.25mm).
    C. Repeat the measurements using the upper and lower support stubs to check if the caliper is mounted parallel to the disc.
    D. If the caliper is not correctly aligned, shims can be used to adjust its position.

11. Tighten the bleed screw and line.
12. Attach the brake line to the rear axle.
13. Install the brake pads.
14. Connect any ABS wires unfastened earlier.
15. Bleed the brake system.
16. Install the wheels.
17. Lower the vehicle.
18. Check brake function before driving the vehicle.

700 Series, 900 Series, S90 and V90 Models

1. Raise and safely support the vehicle.
2. Remove the wheels.
3. Disconnect any ABS wires, if equipped.
4. Clean the brake hose and line connection. Disconnect the hose from the line. Disconnect the hose from the caliper.
5. Disconnect the parking brake cable from the bracket.
6. On models with an independent rear axle, do the following;

    A. Remove the caliper retaining bolt and swing the caliper up. Remove the brake pads.
    B. Unfasten the two caliper bolts and remove the caliper.
    C. Mount the caliper in a vise. Remove the remaining guide pin retaining bolt and separate the caliper from its retainer.

7. On models with a solid rear axle, do the following;

    A. Remove the guide pins using a 3mm punch.
    B. Remove the dampening spring, and brake pads.
    C. Unfasten the caliper mounting bolts and remove the caliper.

To install:

8. On models with an independent rear axle, do the following;

    A. Clean the caliper retainer and install new rubber sleeves. Lubricate the guide pins with silicone grease. Reassemble the caliper and retainer using one retainer bolt, but do not tighten.
    B. Install the caliper using new bolts and tighten them to 43 ft. lbs. (58 Nm). Install the brake pads. Swing the caliper down and install the lower caliper guide pin retaining bolt and tighten them both to 25 ft. lbs. (34 Nm).

9. On models with a solid rear axle, do the following;

    A. Lubricate the shims and install the brake pads.
    B. Install one fluid pin, and a new dampening plate. Then install the other guide pin.

10. Connect the brake hose, caliper and brake line.
11. Connect the parking brake cable to the bracket.
12. Connect any ABS wires, unfastened earlier.

NOTE: Make sure the hose is not twisted between the caliper and line.

13. Bleed the brake system using upper nipple.
14. Install the wheels.
15. Lower the vehicle.

850, S70, C70 and V70 Series

1. Turn the ignition switch **OFF** and, if equipped with ABS, remove the key to prevent accidental pump activation.
2. Raise and safely support the vehicle.
3. Remove the wheel(s).
4. Disconnect any ABS wires, if equipped.
5. Clean the brake caliper thoroughly and remove the dust caps from the bleeder nipple.

6. Open the bleed nipple and lock the brake pedal the depressed position. Collect the brake fluid spillage in a suitable container.
7. Remove the brake pads and disconnect the brake pipes from the caliper.
8. Remove caliper mounting bolts and lift the caliper off.
9. Drain the remaining brake fluid in the caliper into suitable container.

To install:

10. Clean the caliper mount where the caliper lies.
11. Install the caliper and new mounting bolts. Tighten the bolts to 44 ft. lbs. (60 Nm).
12. Connect the brake line to the caliper and tighten to 10 ft. lbs. (14 Nm).
13. Grease the brake pad shims with a thin layer of silicon grease. Put the shims on the back of the pads and install them in the caliper.
14. Install one retaining pin, spring then the other retaining pin.
15. Fill the brake master cylinder and bleed the brake system.
16. Connect any ABS wires, unfastened earlier.
17. Install the wheels.
18. Lower the vehicle and check the brake function before driving.

Fig. 1: To avoid damaging the fastener, be sure to use the correct size flare nut or "line wrench" to disconnect the brake line

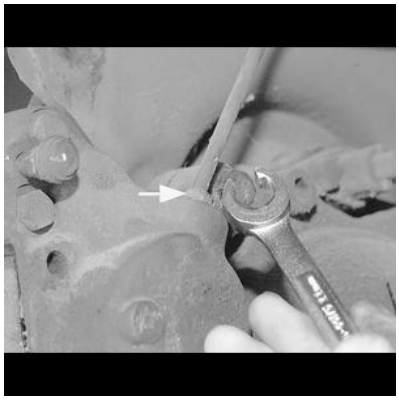

Fig. 2: After the brake line is loosened, remove it from the caliper . . .

Fig. 3: . . . and plug the brake line to prevent dirt from entering

Fig. 4: Unfasten the brake caliper mounting bolts . . .

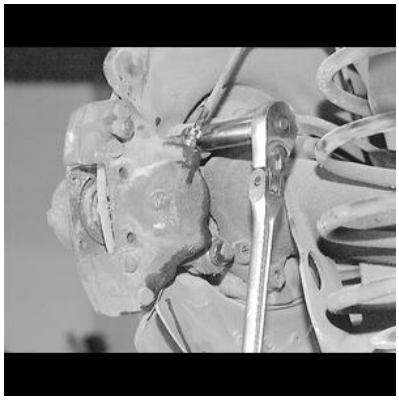

Fig. 5: . . . then remove the caliper

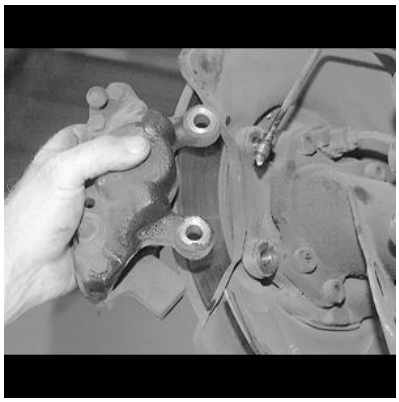

Fig. 6: Volvo recommends that you spread a small amount of threadlocking compound on the caliper mounting bolts

1992 Volvo 940

Submodel: | **Engine Type:** L4 | **Liters:** 2.3
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Inspect the brake rotor for scoring and wear; minor scoring or disc pad lining build-up does not require rotor machining or replacement. If heavy scoring, cracks or other damage is evident, replace or have the rotor machined, as necessary.

Glaze on the rotor can be removed by hand-sanding it with medium grit garnet paper or aluminum oxide sandpaper.

The minimum thickness of each brake rotor is indicated on the rotor itself. Do not utilize a rotor which is worn below the minimum allowable thickness. If rotor damage cannot be corrected by grinding to these minimums, the rotor must be replaced.

Rotor lateral run-out must not be more than 0.001 in. (0.035mm).

1992 Volvo 940

Submodel: | **Engine Type:** L4 | **Liters:** 2.3
Fuel Delivery: FI | **Fuel:** GAS

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240 Series

1. Raise and safely support vehicle.
2. Remove the wheel(s).
3. Remove the brake caliper and hang it from the spring with a piece of wire.
4. Remove the two screws securing the disc.
5. Lift off the disc; it may be necessary to tap on the disc with a soft-faced hammer.

To install:

6. Install the new disc, make sure the mating surfaces of the disc and hub are clean and dry.
7. Install the caliper using new mounting bolts.
8. Check the location of the caliper in relation to the disc. Use feeler gauges to check the distance between the disc and the caliper support stubs on both sides. The difference between the two measurements must not exceed 0.001 in. (0.0013mm). Repeat the measurements using the upper and lower support stubs to check if the caliper is mounted parallel to the disc. If the caliper is not correctly aligned, shims can be used to adjust the caliper's position.
9. Install the brake pads and make sure that the disc can rotate freely between the pads.
10. Install the disc securing screws.
11. Install the wheels.
12. Lower the vehicle.
13. Check brake pedal function before driving vehicle.

700 Series, 900 Series, S90 and V90 Models

1. Raise and safely support vehicle.
2. Remove the wheel(s).
3. Remove the caliper and brake pads.
4. Hang the caliper on the spring to prevent damaging the brake hose.
5. Remove the locating pin and tap the disc off with a plastic mallet if stuck.
6. Clean the axle shaft flange, remove all corrosion and dirt.

To install:

7. Install the new disc making sure that the friction surfaces on both sides are clean.
8. Install the locating stud and tighten to 72 inch lbs. (8 Nm).
9. Install the caliper using new bolts, then install the brake pads.
10. Install the wheels.
11. Lower the vehicle.

850, S70, C70 and V70 Series

1. Raise and safely support the vehicle.
2. Remove the wheel(s).
3. Remove the brake pads and shims.
4. Remove the two caliper and disconnect the brake line from its clip.
5. Remove the brake caliper and hang it from the spring to prevent damaging the line.
6. Loosen the parking brake adjuster slightly so the disc a can be removed.
7. Remove the wheel guide pin bolt and disc.

To install:

8. Clean the face of the hub and check it for signs of damage. If the hub shows signs of damage, check the run-out by:
    A. Mounting a dial indicator and rotating the hub with sensor tip on the face of the hub.
    B. If the highest spot on the hub is higher than 0.007 in. (0.20mm), the hub must be replaced.
9. Carefully brush the ABS pulse wheel off with a soft brush.
10. Install the brake disc and guide pin bolt.
11. Tighten the bolt to 72 inch lbs. (8 Nm).
12. Install the caliper and pads, using new mounting bolts.
13. Install the brake line and mounting clip.
14. Depress the brake pedal several times and check the brake fluid reservoir.
15. Adjust the parking brake.
16. Install the wheels.
17. Lower the vehicle.
18. Check the brake function before driving the vehicle.

Fig. 1: Use the appropriate size wrench to loosen . . .

Fig. 2: . . . and remove the wheel guide pin bolt

Fig. 3: Remove the brake disc; if stuck, lightly tap with a soft-faced hammer to loosen it

1992 Volvo 940

Submodel: | **Engine Type:** L4 | **Liters:** 2.3
Fuel Delivery: FI | **Fuel:** GAS

The rear disc brake pads are checked for thickness in the same manner as the front. Refer to the Front Disc Brake Pad inspection procedure.

1992 Volvo 940

Submodel: | **Engine Type:** L4 | **Liters:** 2.3
Fuel Delivery: FI | **Fuel:** GAS

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240 Series

WITH ATE CALIPER

1. Raise and safely support vehicle.
2. Remove the wheel(s).
3. Drive the retaining pins out using a 3mm punch.
4. Remove the retaining spring and brake pads.

   NOTE: If the brake pads are difficult to remove, tool 2917 or equivalent can be used to compress the caliper pistons to ease removal.
5. Clean the brake caliper and inspect the dust caps for damage, replace if necessary.
6. Check the rotor for signs of wear, warping or variations in thickness.
7. Compress the piston into the caliper using a large pair of pliers, or tool 2809 or equivalent.

   NOTE: It may be necessary to remove some fluid from the master cylinder, to prevent spilling when compressing the piston.

   To install:
8. Caliper piston position must be checked before installation:

   A. To check the position of the piston and prevent brake squeal, rotate the piston 20° in relation to the lower surface of the brake caliper.
   B. Use tool 2919 or equivalent to position the piston. The allowable tolerance is 18–22° when the template is pressed against one of the shoulders, the distance to the other (A) should be a maximum of 0.04 in. (1mm).
   C. If necessary, use tool 2918 or equivalent to rotate the piston. The tool should be placed against the piston, and tightened by turning the handle. The correct clearance is obtained by moving the handle up or down.
9. Install the brake pads and one retaining pin.
10. Install a new retaining spring and the other retaining pin.
11. Tap the retaining pins into place.
12. Check the brake fluid level and pump brake pedal repeatedly. It may be necessary to bleed the brake system.
13. Install the rear wheels.
14. Lower the vehicle.
15. Check the brake pedal operation before driving the vehicle.

WITH GIRLING CALIPER

1. Raise and safely support vehicle.
2. Remove the rear wheels.
3. Remove the spring clips and retaining pins.
4. Remove the retaining springs and brake pads.

   NOTE: If the brake pads are difficult to remove tool 2917 or equivalent can be used to collapse the caliper pistons to ease removal.
5. Clean the brake caliper and inspect the dust caps for damage, replace if necessary.
6. Check the rotor for signs of wear, warping or variations in thickness.
7. Compress the piston into the caliper using a large pair of pliers or tool 2809 or equivalent.

   NOTE: It may be necessary to remove some fluid from the master cylinder, to prevent spilling when compressing the piston.

   To install:
8. Install the brake pads, retaining springs, retaining pins, and spring clips.
9. Check the brake fluid level and pump brake pedal repeatedly. It may be necessary to bleed the brake system.
10. Install the rear wheels.
11. Lower the vehicle.
12. Check the brake pedal operation before driving the vehicle.

700 Series, 900 Series, S90 and V90 Models

1. Raise and safely support the vehicle.
2. Remove the wheels.
3. On models with an independent rear axle, do the following;

   A. Remove the lower caliper guide bolt.
   B. Swing the caliper up and tie it back with a piece of wire. Remove the brake pads.
4. On models with solid rear axles, remove the brake pads in this sequence:

   A. Using a 3mm punch, drive out the guide pins.
   B. Remove spring plate.
   C. Remove the brake pads and shims.

      NOTE: If the brake pads are difficult to remove, extractor 2917 or equivalent can be used to remove them.

      NOTE: Do not operate the brake pedal while the pads are removed.
5. Clean the caliper where the pads rest.
6. Inspect the piston dust boot for damage of dirt. If dirt has entered the caliper, it must be reconditioned or replaced.
7. Press the piston back into the caliper using large adjustable pliers, taking care not to damage the dust boot. If the piston is difficult to compress, this could indicate that oxidation has occurred. The caliper must be reconditioned or replaced in this case.
8. Inspect the rubber guide pin boots and replace if necessary.

9. Check the disc brake surface for distortion or variation in thickness. Replace if needed.

To install:

10. On models with an independent rear axle, install the new pads and lower the piston housing and tighten the lower guide pin bolt to 25 ft. lbs. (34 Nm).
11. On models with a solid rear axle;

    A. Check the piston position with tool 2918 or equivalent to minimize brake noise.
    B. To check the position of the piston and prevent brake squeal, rotate the piston 20° in relation to the lower surface of the brake caliper.
    C. Use tool 2919 or equivalent to position the piston. The allowable tolerance is 18–22° when the template is pressed against one of the shoulders, the distance to the other (A) should be a maximum of 0.04 in. (1mm).
    D. If necessary, use tool 2918 or equivalent to rotate the piston. The tool should be placed against the piston and tightened by turning the handle. The correct clearance is obtained by moving the handle up or down.
    E. Coat the anti-squeal shim with a thin coating of silicone grease on both sides. Then install the shims and brake pads in the order they where removed.
    F. Install one guide pin, a new spring plate, then the other guide pin.

12. Install the wheels.
13. Lower the vehicle.
14. Check the brake fluid reservoir level.
15. Operate the brake pedal repeatedly.

850, S70, C70 and V70 Series

1. Raise and safely support the vehicle.
2. Remove the wheels.
3. Drive out the retaining pins with a 3mm drift and remove the retaining spring.
4. Clean the brake caliper surfaces where the pads lie.
5. Check and clean the piston dust boot for dirt or damage and replace if necessary.
6. Check the brake disc surface for damage, if it is warped or distorted, replace it or check the run-out.

To install:

7. Press the pistons back into their housing using a suitable tool. Make sure that they are seated properly.
8. Grease the pad shims on both sides with a thin layer of silicone grease.
9. Install the shims on the pads,
10. Install the pads in the caliper.
11. Install one retaining pin, the retaining spring and then the other pin.
12. Depress the brake pedal several times and check the brake fluid reservoir level.
13. Install the wheels.
14. Lower the vehicle.
15. Check the brake function before driving the car.

Fig. 1: The rear pads are retained by two pins

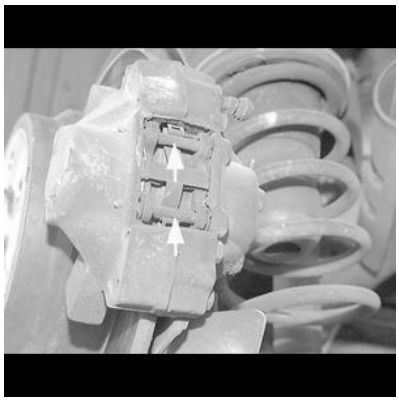

Fig. 2: A spring is also used to retain the springs

Fig. 3: Use a punch and hammer to lightly tap out the retaining pins

Fig. 4: Slide the pads out through the opening in the rear of the caliper

Fig. 5: Remember to transfer the shims to the new pads

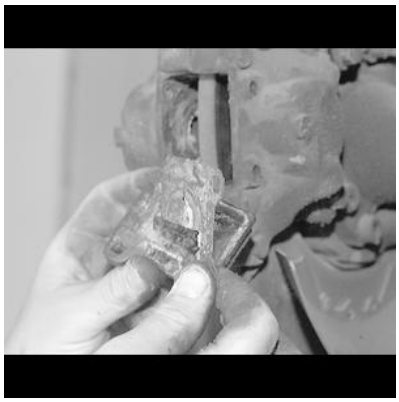

Fig. 6: An easy way to compress the piston is to use a prybar and the old pad, but take care not to damage the rotor

Fig. 7: Install the retaining pins and drive them into place using a hammer and punch, or other suitable tool

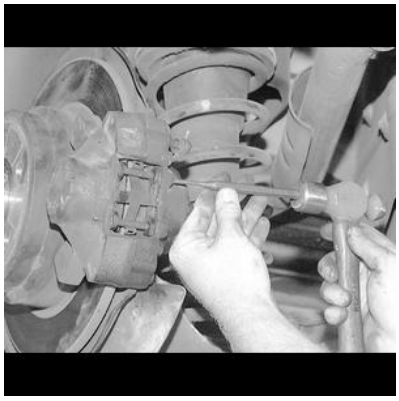

Fig. 8: A light tap with a hammer will ensure that the pins are seated