

FRONT DISC BRAKES

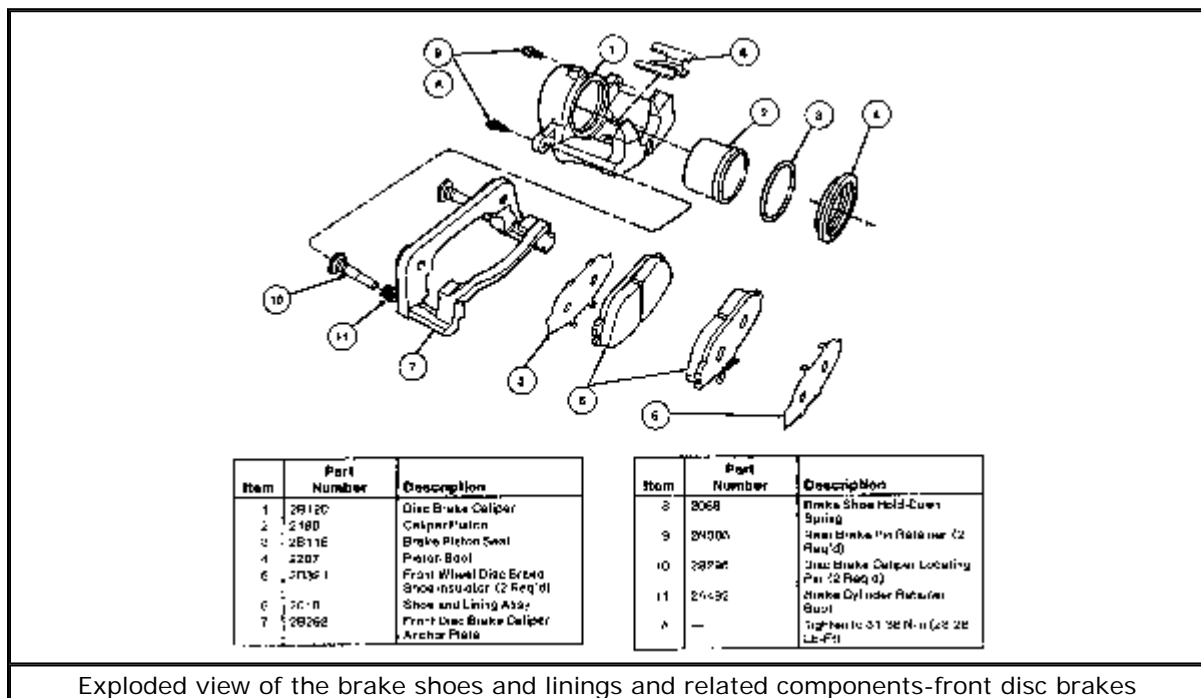
CAUTION

Brake shoes may contain asbestos, which has been determined to be a cancer causing agent. Never clean the brake surfaces with compressed air! Avoid inhaling any dust from any brake surface! When cleaning brake surfaces, use a commercially available brake cleaning solvent.

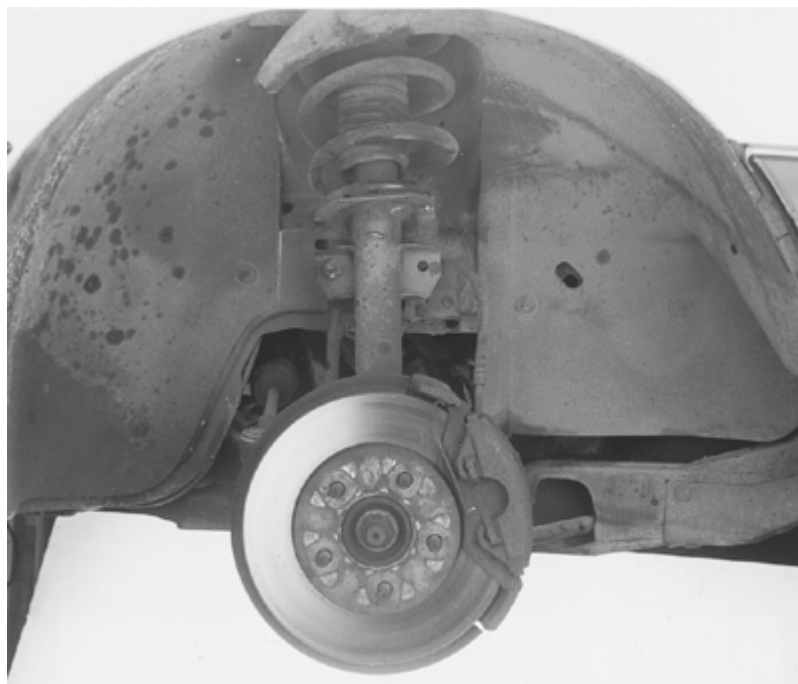
Brake Pads

REMOVAL & INSTALLATION

1. Remove the master cylinder cap and check the fluid level in the reservoir. Remove the brake fluid until the reservoir is half full. Discard the removed fluid.
2. Raise and safely support the vehicle. Remove the wheel and tire assembly from the rotor mounting face, being careful not to damage or interfere with the caliper, rotor shield or the steering knuckle.



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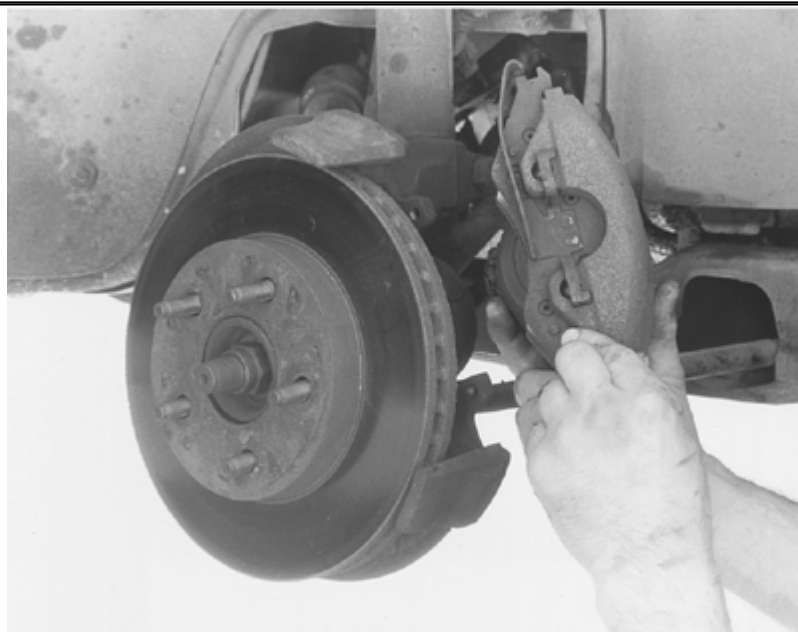


View of an early model front disc brake assembly

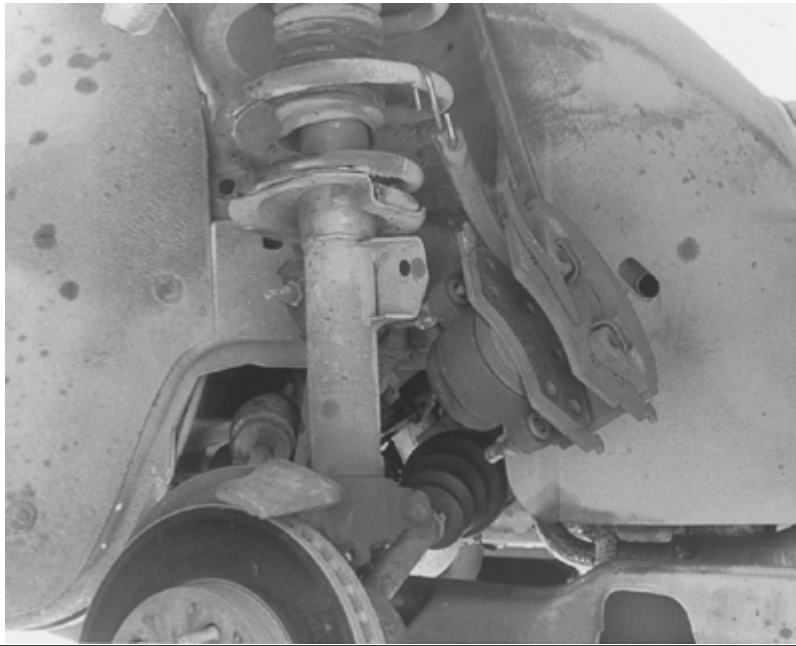
3. For vehicles through 1993, remove the caliper locating pins using Torx® Drive Bit D79P-2100-T40, or equivalent. For 1994-95 vehicles, remove the rear brake pin retainers.

It is not necessary to disconnect the brake lines.

4. Lift the caliper assembly from the integral knuckle, anchor plate and rotor using a rotating motion. Suspend the caliper inside the fender housing with wire. Do not allow the caliper to hang from the brake hose.



Lift the caliper assembly from the integral knuckle, anchor plate and rotor using a rotating motion



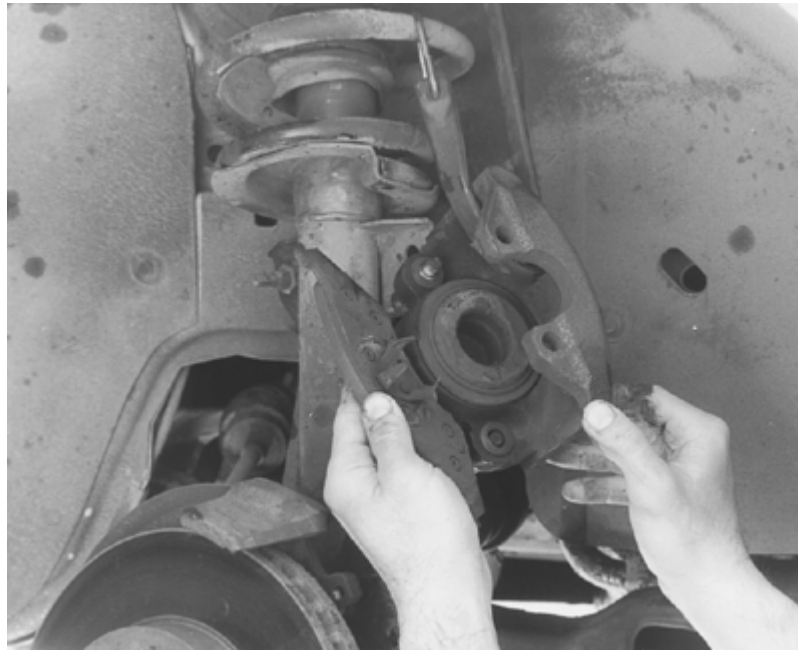
Suspend the caliper inside the fender housing with wire. Do NOT let the caliper hang from the brake hose

Do not pry directly against the caliper piston or damage will result.

- 5. Remove the inner and outer brake pads. Inspect the rotor braking surfaces for scoring and machine as necessary. Refer to the minimum rotor thickness specification when machining. If machining is not necessary, hand sand the glaze from the braking surfaces with medium grit sandpaper.**



Remove the outer brake pad from the caliper assembly, then ...



... remove the inner brake pad

To install:

6. Use a 4 in. (10cm) C-clamp and a wood block about $2\frac{3}{4}$ in. x 1 in. (7cm x 2.5cm) and about $\frac{3}{4}$ in. (19mm) thick to seat the caliper piston in its bore. This must be done to provide clearance for the caliper assembly with the new brake pads to fit over the rotor during installation. Care must be taken during this procedure to prevent damage to the caliper piston. Do not allow metal or sharp objects to come into direct contact with the piston surface or damage will result.
7. Remove all rust buildup from the inside caliper legs (brake shoe contact area). Install the inner pad in the caliper piston. Do not bend the pad clips during installation in the piston or distortion and rattles can occur. Install the outer pad. Make sure the clips are properly seated.
8. Install the caliper over the rotor as outlined later in this section. Install the caliper locating pins or rear brake pin retainer, as applicable. Tighten the rear brake pin retainer to 25 ft. lbs. (34 Nm).
9. Install the wheel and tire assembly. Lower the vehicle, then, using a torque wrench, tighten the lug nuts to 85-105 ft. lbs. (115-142 Nm).
10. Pump the brake pedal prior to moving the vehicle to position the brake linings. Refill the master cylinder.

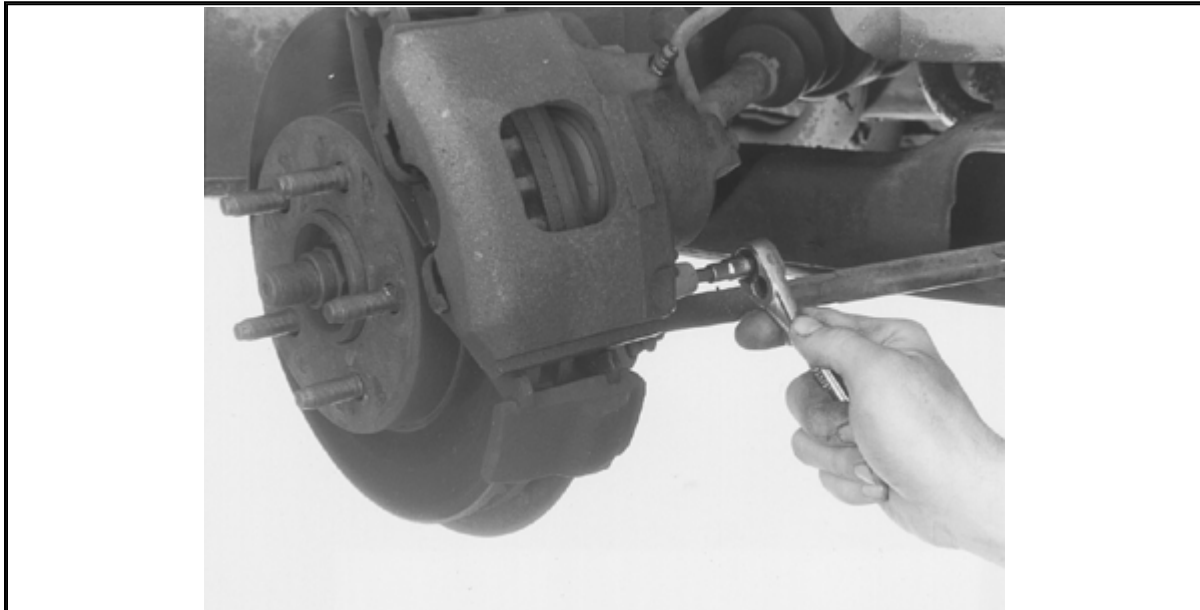
INSPECTION

1. Remove the pads from the caliper.
2. Check both the inner and outer pads for excessive wear. Please refer to the specification chart in this section.
3. If only one pad is found to be defective, replace both of them on each side (complete axle set), not just the defective one.

Brake Caliper

REMOVAL & INSTALLATION

1. Raise and safely support the vehicle.
2. Remove the wheel and tire assembly, making sure not to damage the bleeder screw fitting during removal. Mark the caliper to ensure that it is reinstalled on the correct knuckle.
3. Disconnect the flexible brake hose from the caliper or rotor, depending upon application. Remove the hollow retaining bolt that connects the hose fitting to the caliper or rotor. Remove, then plug the hose assembly from the caliper or rotor.
4. For vehicles through 1993, remove the caliper locating pins using Torx® Drive Bit D79P-2100-T40, or equivalent. For 1994-95 vehicles, remove the two rear brake pin retainers.

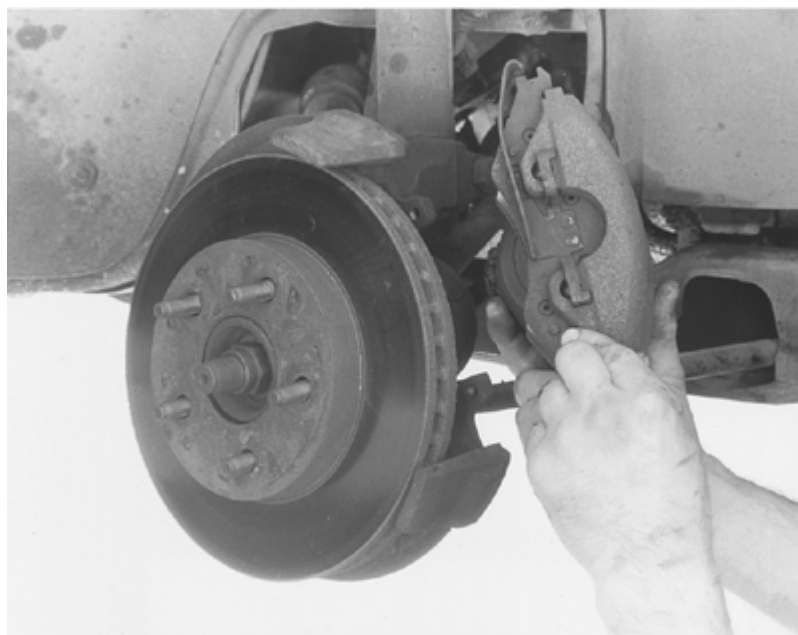


Using a Torx® head tool to disconnect the caliper locating pins-vehicles though 1993



Removing one of two caliper locating pins

5. Lift the caliper off of the rotor, integral knuckle and anchor plate using a rotating motion.

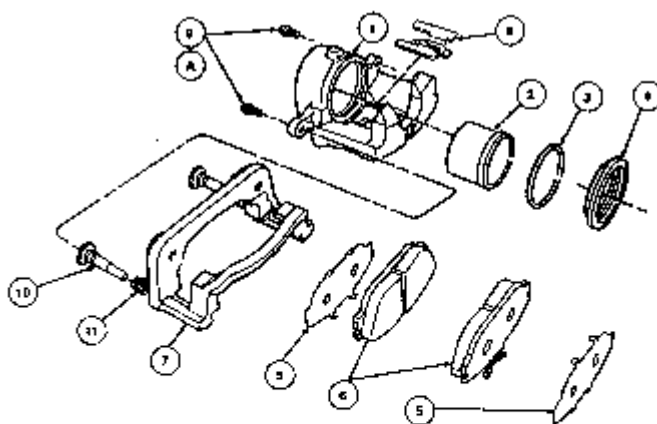


Lift the caliper off of the rotor using a rotating motion

To install:

Do NOT pry directly against the piston or damage to the piston will likely result.

- Retract the piston fully into the piston bore. Position the caliper assembly above the rotor with the anti-rattle spring under the upper arm of the knuckle. Install the caliper over the rotor with a rotating motion. Make sure the inner and outer shoes are properly positioned and the outer anti-rattle spring is properly positioned. Make sure the clip-on insulators are attached to the brake shoe plate.



Item	Part Number	Description
1	2B120	Disc Brake Caliper
2	2186	Caliper Piston
3	2B115	Brake Piston Seal
4	2207	Front Disc Brake Caliper Boot
6	2B324	Front Wheel Disc Brake Shoe Insulator (2 Req'd)
8	2001	Shoe and Lining Assembly
7	2B282	Front Disc Brake Caliper Anchor Plate

Item	Part Number	Description
8	2088	Brake Shoe Hold-Down Spring
8	2N378	Rear Brake Pin Retainer (2 Req'd)
10	2B298	Disc Brake Caliper Lining Pin (2 Req'd)
11	2A422	Brake Slide Pin Boot
A	-	Tighten to 21-30 Nm (23-25 Lb-Ft)

Exploded view of a common caliper and related components

[Click to enlarge](#)

7. Lubricate the locating pins and the inside of the insulators with silicone grease. For vehicles through 1993, install the locating pins through the caliper insulators and hand-start the threads into the knuckle attaching holes. For 1994-95 vehicles, install the rear brake pin retainers through the caliper holes and into the caliper locating pins, then hand-start.

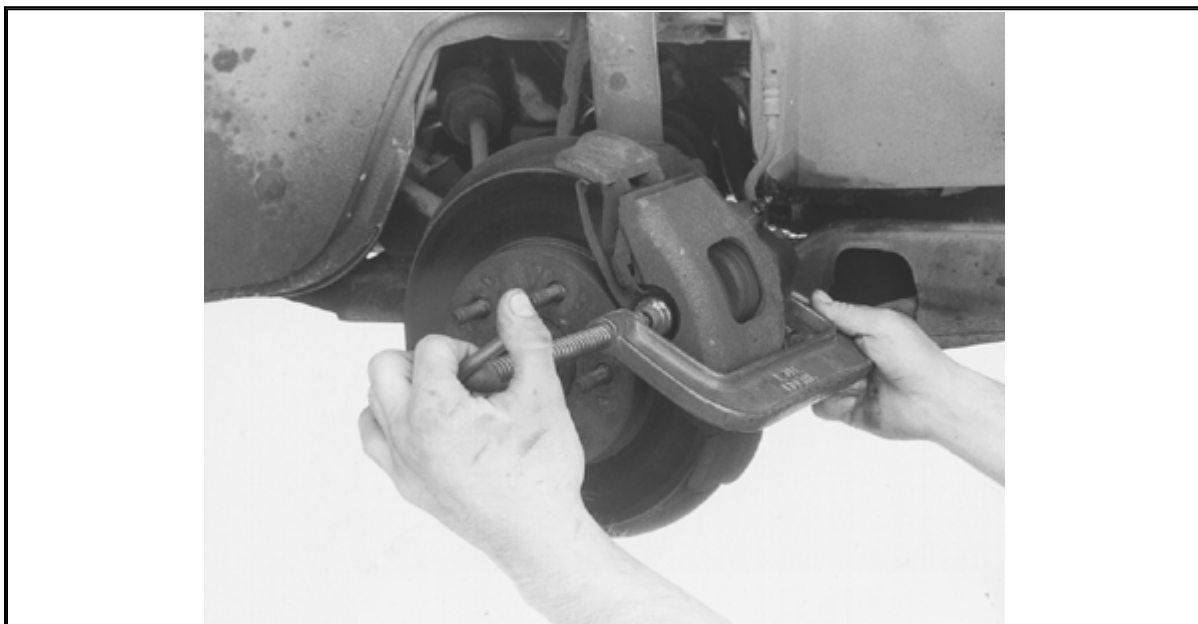
Make sure the correct caliper assembly, as marked during removal, is installed on the correct knuckle. The caliper bleed screw should be positioned on top of the caliper when assembled on the vehicle.

8. Tighten the locating pins to 18-25 ft. lbs. (24-34 Nm) or the rear brake pin retainers to 25 ft. lbs. (34 Nm).
9. Remove the plug and install the brake hose on the caliper using a new copper washer on each side of the fitting outlet. Insert the attaching bolt through the washers and fittings, then tighten to 30-40 ft. lbs. (41-54 Nm).
10. Bleed the brake system, filling the master cylinder as required; make sure to replace the rubber bleed screw cap after bleeding.
11. Install the wheel and tire assembly, then lower the vehicle. Final tighten the lug nuts, in a star pattern, to 85-105 ft. lbs. (115-142 Nm) using a torque wrench, not an impact tool. Pump the brake pedal prior to moving the vehicle to position the brake shoes and linings.

OVERHAUL

1. Remove the caliper assembly from the knuckle and rotor. Do not use a screwdriver or similar tool to pry the piston back into the cylinder bore. Use a C-clamp. Remove the outer shoe by pushing the shoe to move the "buttons" from the caliper housing and slipping down the caliper leg until the clip is disengaged. Remove the inner shoe by pulling it straight out of the piston.

Inner shoe removal force may be as high as 10-20 lbs. (45-90 N).

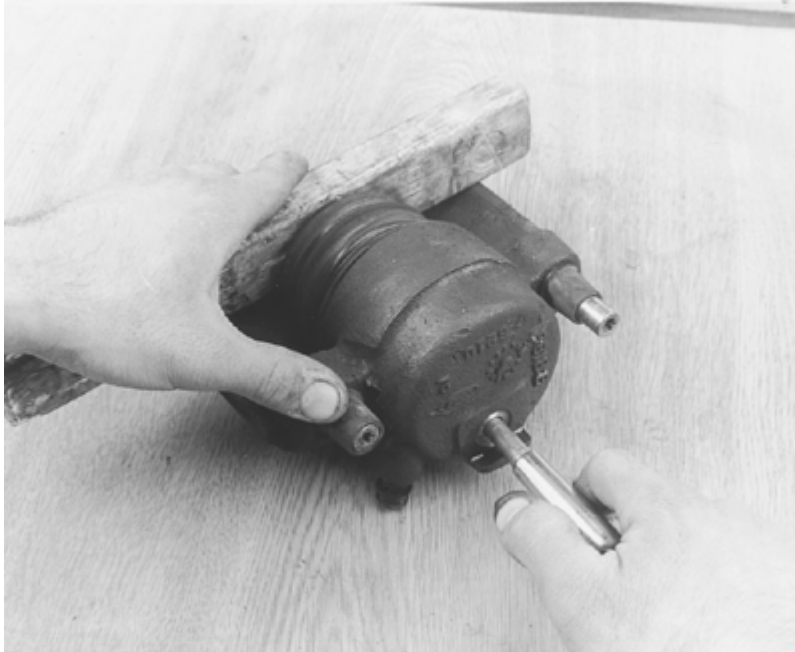


When removing the caliper assembly from the knuckle and rotor, do not use a screwdriver or other prytool to pry the piston back into the cylinder bore; use a C-clamp

1. If further disassembly is required to service the piston, disconnect the caliper from the hydraulic system, then blow the piston out using air pressure. If the caliper

piston is seized, and cannot be forced from the caliper, tap lightly around the piston while applying air pressure.

Do NOT use a screwdriver or any similar tool to pry the piston out of the bore. It will result in damage to the piston. Cushion the piston's impact against the caliper when blowing it out of the bore by placing rags or a block of wood between the piston and the caliper bridge.



Blow the piston out of the caliper using air pressure, but be sure to put a piece of wood or rags between the piston and the caliper bridge first



Remove the piston from the caliper

2. Remove the dust seal from the caliper, then discard it and replace with a new one during assembly.

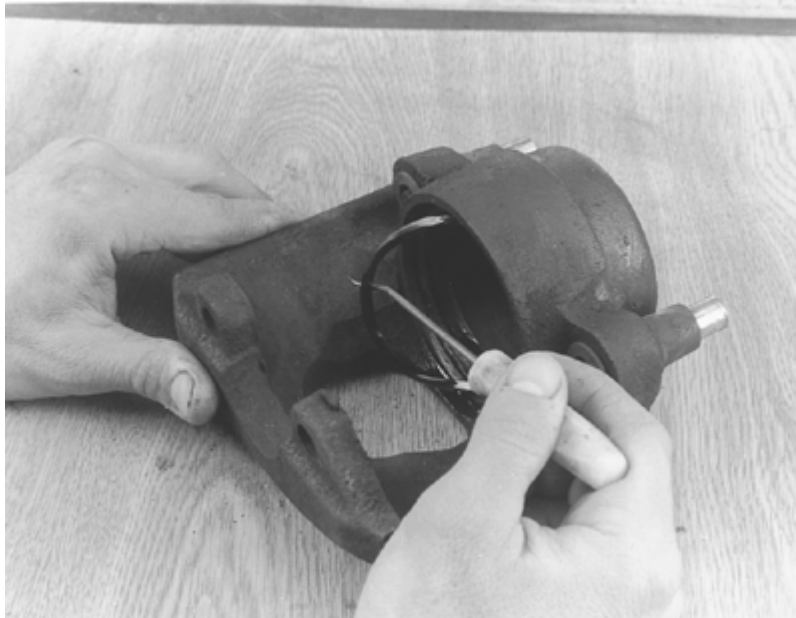


Remove the dust seal from the caliper, then discard it and replace with a new one during assembly

3. Remove the rubber piston seal from the caliper, then discard it and replace with a new one during assembly.

To assemble:

4. When assembling the caliper, examine the piston for surface irregularities or small chips and cracks. Replace the piston if damaged. Be sure to clean the foreign material from the piston surfaces and lubricate with brake fluid before inserting it into the caliper. Always install a new seal and dust boot.



When overhauling the caliper, always install a new seal

5. When installing the piston back into its bore, use a wood block or another flat stock, like an old shoe lining assembly, between the C-clamp and piston. Do not apply the C-clamp directly to the piston surface. This can result in damage to the piston. Be sure the piston is not cocked.

6. Be certain the dust boot is tight in the boot groove on the piston and in the caliper.
7. To install the inner shoe with its attached three-finger clip into the piston, grab each end of the shoe, making it square with the piston. Push firmly until the shoe clip snaps into the piston. Do not allow the shoe or the clip tangs to cock during installation.
8. Install the brake caliper as outlined earlier in this section.

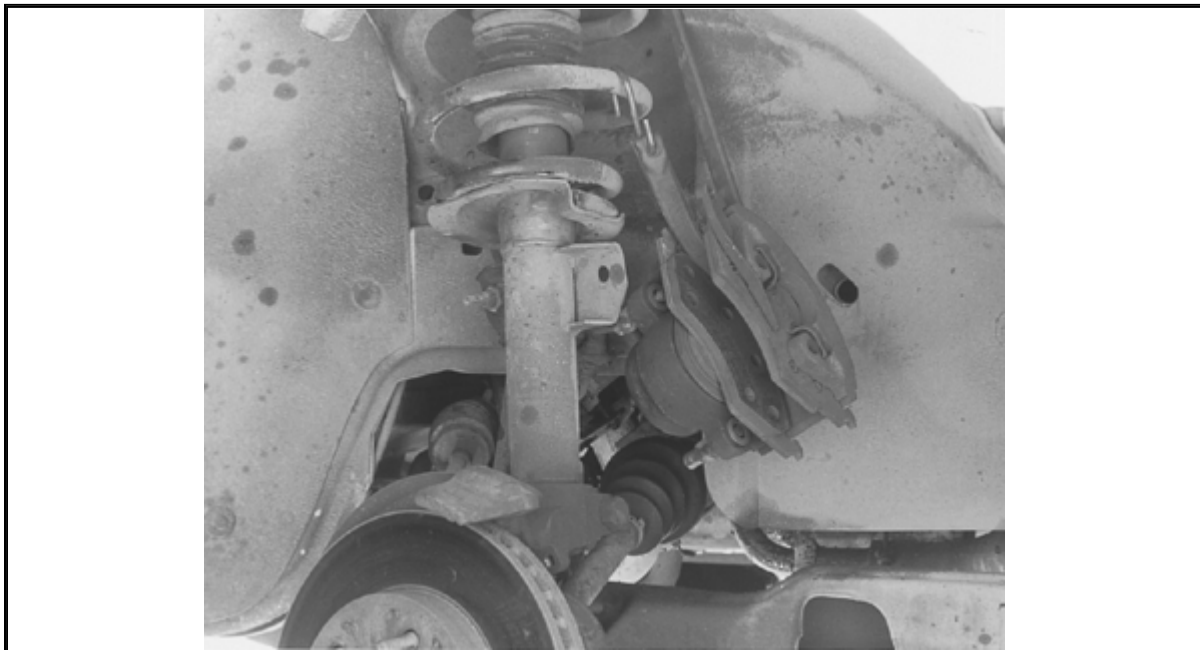
Brake Rotor

REMOVAL & INSTALLATION

1. Raise the vehicle and support it safely.
2. Remove the wheel and tire assembly from the rotor face, being careful not to damage or interfere with the caliper bleeding screw fitting.

Handle the rotor and caliper carefully as to prevent deformation, nicking, scratching and/or contamination of the rotor.

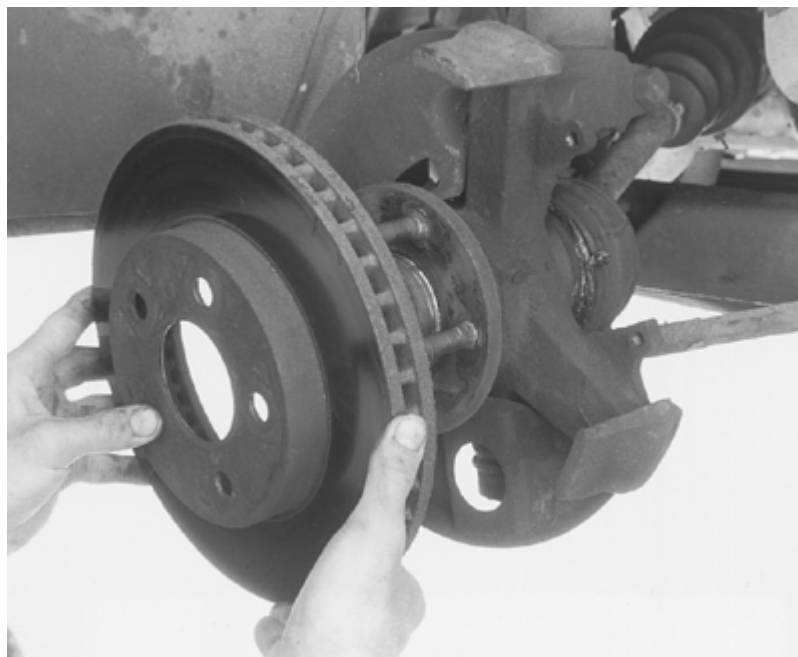
3. Remove the caliper anchor plate bolt, then remove the caliper assembly from the rotor. Position the caliper aside and support it with a length of wire. Do NOT allow the caliper to hang by the brake hose.



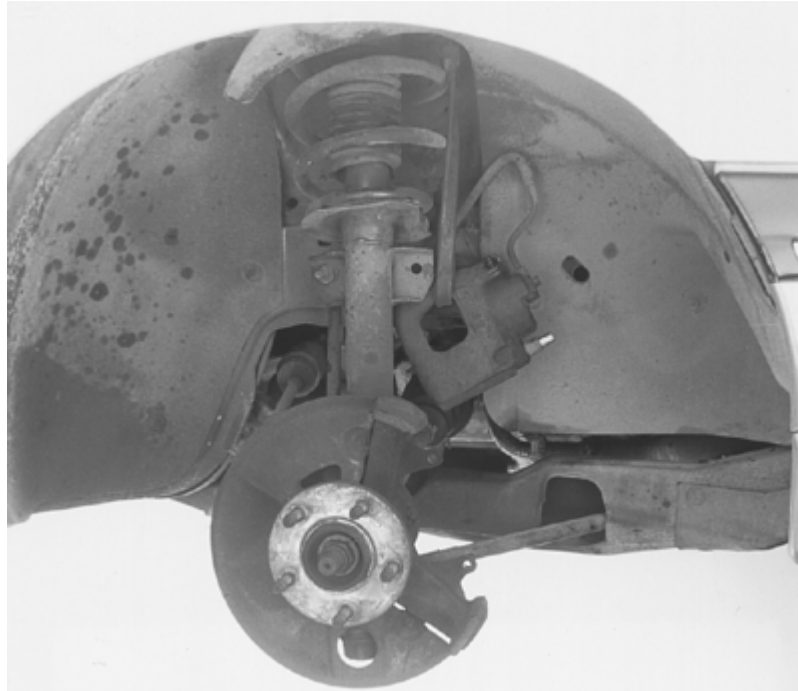
After removing the caliper assembly from the rotor, position the caliper aside and support it with a length of wire. Do NOT allow the caliper to hang by the brake hose

4. Remove the rotor from the hub assembly by pulling it off the hub studs. If additional force is required to remove the rotor, apply rust penetrator on the front and rear rotor/hub mating surfaces, then strike the rotor between the studs with a plastic hammer. If this does not work, attach a 3-jaw puller and remove the rotor.

If excessive force must be used to remove the rotor, it should be checked for lateral run-out before installation.



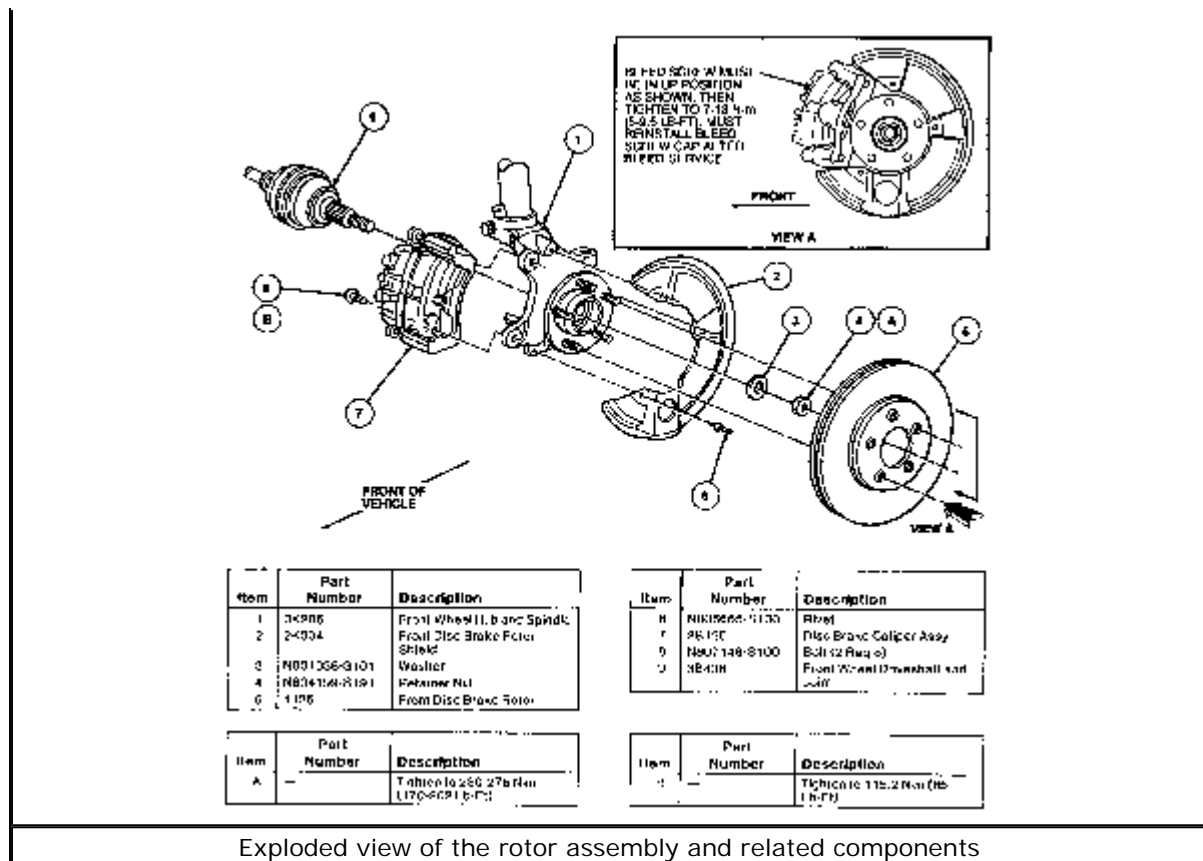
Remove the rotor from the hub assembly by pulling it off the hub studs



View of the hub assembly with the rotor removed

To install:

- 5. Check the rotor for scoring and/or other wear. Machine or replace, as necessary. If machining, observe the minimum thickness specification.**



[Click to enlarge](#)

- If a new rotor is being installed, remove the protective coating from the rotor with Carburetor Tune-Up Cleaner D9AZ-19579-AA or equivalent before installation. If the old rotor is being installed, make sure the rotor braking and mounting surfaces are clean.

Failure to clean rust and foreign debris from the rotor and hub mounting faces when installing a new or used rotor, will result in high lateral run-out, which will speed up the development of brake roughness, shudder and/or vibration.

- Apply a small amount of Silicone Dielectric Compound D7AZ-19A331-A or equivalent to the pilot diameter of the rotor.
- Install the rotor on the wheel hub assembly.
- Install the caliper and caliper anchor bolts on the rotor, then tighten the bolts to 85 ft. lbs. (115 Nm).
- Install the wheel and tire assembly, then hand-tighten the lug nuts.
- Lower the vehicle, then final tighten the lug nuts to 85-105 ft. lbs. (115-142 Nm). Pump the brake pedal before moving the car to position the brake shoes and linings.

INSPECTION

Check the disc brake rotor for scoring, cracks or other damage. Rotor run-out should be measured while the rotor is installed, but rotor thickness (or thickness variation) may be checked with the rotor installed or removed. Use a dial gauge to check the rotor run-out. Check the rotor thickness to make sure it is greater than the minimum allowable thickness, and check for thickness variations using a

caliper micrometer.

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