

BENDIX SINGLE PISTON DISC

American Motors
Ford Motor Co.

DESCRIPTION

The disc brake unit consists of a rotor, a single piston caliper assembly, two shoe and lining assemblies, a caliper housing and anchor plate (except Fairmont and Zephyr). Fairmont and Zephyr models use a pin sliding caliper assembly. On this system the caliper slides on two locating pins which also act as attaching bolts between caliper and combination anchor plate and spindle. All other models use the sliding type caliper assembly. On this system the caliper assembly is positioned in, and slides on machined surfaces on the leading and trailing edges of the caliper anchor plate.

The cast iron rotor has integrally cast cooling fins between the two braking surfaces. Brake linings are riveted to the brake shoes and insulator gaskets are bonded to the back of each brake shoe. On Ford Motor Co. vehicles, equipped with four wheel disc brakes, a parking brake mechanism is incorporated into the rear calipers and is cable actuated.

NOTE — Front disc brakes are standard on all vehicles. Rear wheel disc brakes are standard on Ford Motor Co. Mark V, and Versailles, and optional on Lincoln, Ford, Mercury, Granada and Monarch.

ADJUSTMENT

SERVICE BRAKES

Disc brakes are self-adjusting. Caliper piston seals are designed to retract pistons just enough to allow brake lining to lightly brush rotor without any drag.

PARKING BRAKE (REAR DISC BRAKES)

Piston Adjustment — Parking brake is self-adjusting. An automatic adjuster in the piston moves on thrust screw to compensate for lining wear and maintain proper clearance in parking brake mechanism.

Cable Adjustment — With parking brake fully released and transmission in neutral, raise and support vehicle. Tighten parking brake cable adjuster nut until levers on calipers just begin to move, then loosen nut until levers just return to the full stop position. Apply parking brake several times and ensure levers are fully returned to the stop by attempting to pull them rearward. If lever moves rearward, adjustment is too tight. Repeat adjustment procedure. **NOTE** — If levers do not return to stop, function of parking and service brakes will be affected.

SERVICING

BLEEDING SYSTEM

See Hydraulic Brake Bleeding in this section.

SHOE & LINING INSPECTION

Inspect condition of lining any time wheel and tire is removed. On American Motors vehicles, replace lining if thickness of lining is less than thickness of metal shoe. On Ford Motor Co. vehicles, replace lining if worn to less than $\frac{1}{8}$ " thick.

SHOE & LINING REPLACEMENT

Removal (Front) — 1) On American Motors vehicles, drain two-thirds of brake fluid from the front reservoir of the master cylinder. On Ford Motor Co. Fairmont and Zephyr vehicles, drain half of the brake fluid from the front reservoir of the master cylinder.

2) On all vehicles, raise and support vehicle, and remove front wheel. Bottom caliper piston in bore by inserting a screwdriver between inner shoe and piston and prying piston back into bore.

3) On Fairmont and Zephyr models, remove caliper locating pins and lift caliper assembly from integral spindle anchor plate and rotor. Remove outer shoe from caliper assembly.

4) On all other models, remove caliper support key screw. Using a soft metal punch and hammer, remove support key and spring. Lift caliper assembly from anchor plate and rotor. Remove inner shoe and lining from anchor plate. Remove anti-rattle spring from inner shoe.

5) On Fairmont and Zephyr, remove inner shoe and lining assembly. Support caliper with wire to prevent damage to brake hose. On all other models, remove outer shoe by tapping lightly on shoe to free it from caliper. Support caliper assembly to prevent damage to brake hose.

6) On Ford Motor Co. Fairmont and Zephyr models, remove and discard the plastic sleeves, located inside of locating pin insulators. Remove and discard locating pin insulators.

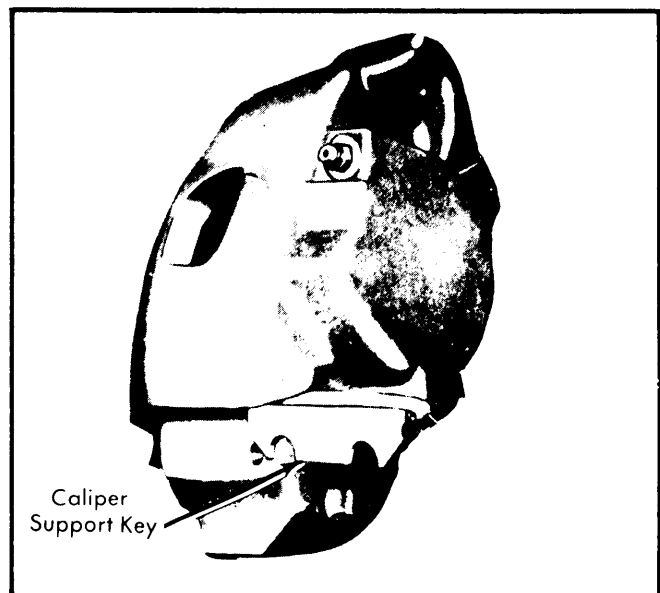


Fig. 1 Installing Caliper Support Key

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Installation (Front) — 1) To install, reverse removal procedure and note the following special instructions:

2) On Ford Motor Co. Fairmont and Zephyr models:

- Install new locating pin insulators and plastic sleeves.
- Make sure plastic sleeve flanges straddle caliper housing hole.
- Make sure inner and outer shoes are installed correctly. Shoes are marked for left side (LH) or right side (RH) use.
- Outer shoes have wear indicators which are installed toward front of vehicle.

3) On all other vehicles:

- Lubricate caliper and anchor plate sliding surfaces.
- Make sure anti-rattle spring is installed properly on outer shoe; looped section of spring away from rotor.

4) On all vehicles:

- Make sure master cylinder is full of brake fluid. Fill if necessary.
- Depress brake pedal several times to position caliper and brake shoe on rotor.

Removal (Rear) — 1) Raise and support vehicle, and remove rear wheels. Disconnect parking brake cable from lever on caliper. Remove support key retaining screw, and using a soft metal punch and hammer, remove support key and spring. Lift caliper assembly from anchor plate and rotor.

2) If rotor wear or scoring prevents caliper removal, it will be necessary to bottom piston in caliper bore. To bottom piston, remove parking brake lever from caliper and loosen caliper end retainer a maximum of one-half turn. **CAUTION** — If end retainer is loosened more than one-half turn, seal between thrust screw and housing may be damaged. Force piston back into bore and remove caliper assembly from anchor plate and rotor.

3) Remove inner shoe from anchor plate. If anti-rattle spring is displaced from anchor plate during inner shoe removal,

reposition it on plate with loop to inside of anchor plate. Tap lightly on outer shoe to free it from caliper. Support caliper assembly to eliminate strain on brake hose.

Installation (Rear) — 1) If caliper end retainer has been loosened, install caliper assembly (less brake shoes) on anchor plate and tighten end retainer to specifications. Install parking brake lever on caliper and tighten retainer screw. **NOTE** — Lever arm must point down and to the rear. Remove caliper assembly from anchor plate and rotor.

2) If caliper end retainer was not loosened, it will be necessary to screw piston back into bore. To bottom piston, remove rotor and install caliper assembly (less brake shoes) on anchor plate. Using suitable tool (T75P-2588-B), screw piston into bore until it is fully bottomed. **NOTE** — Piston will continue to turn even after it is fully bottomed. Remove caliper from anchor plate and install rotor.

3) Install new brake shoes (if required) and all related parts in reverse order of removal procedure, noting the following: Lubricate caliper and anchor plate sliding surfaces with a suitable lubricant. With caliper and shoe assemblies installed over rotor, but not secured to anchor plate, pull caliper outward until inner shoe is firmly seated against rotor. With caliper in this position, measure clearance between outer shoe and rotor. Clearance must be .063" or less. If clearance is greater than specified, remove caliper and readjust piston outward until correct clearance is obtained. Fill master cylinder to correct level and depress brake pedal several times to position caliper and shoe assemblies on rotor. Adjust parking brake cable tension (if necessary).

ROTOR SERVICING

Lateral Runout — Tighten wheel bearing adjusting nut until all end play is removed. Mount a dial indicator on a pedestal-type stand or on axle spindle with indicator pointer contacting braking surface one inch from edge of rotor. Turn rotor through one complete revolution, checking indicator reading as rotor moves. If runout exceeds specifications, replace or refinish rotor as necessary.

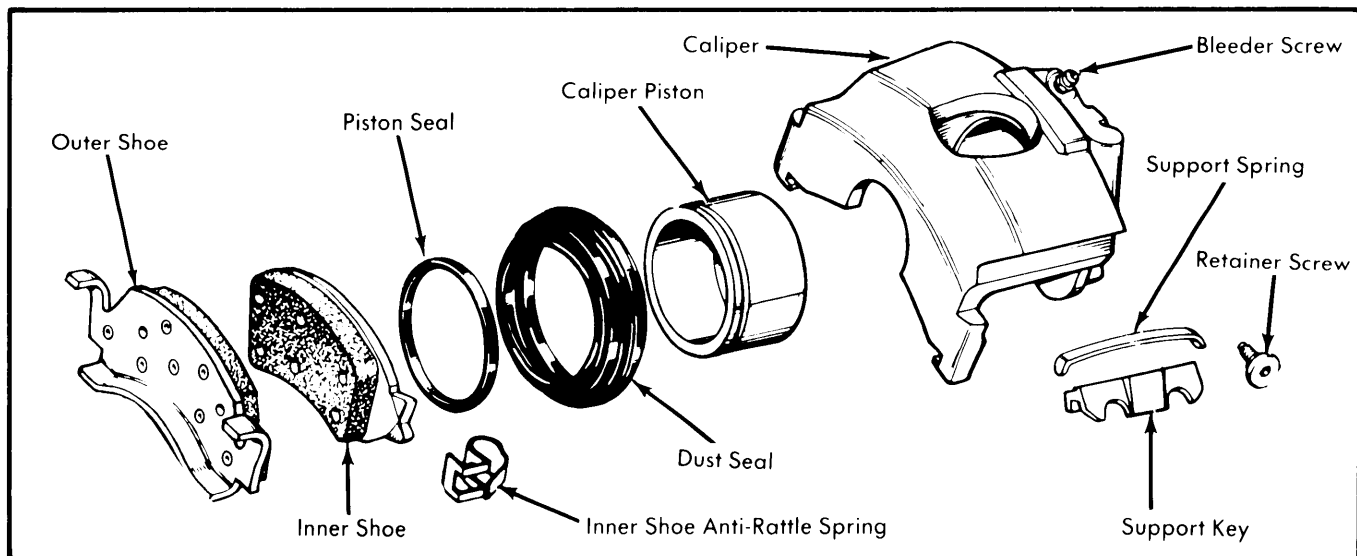


Fig. 2 Exploded View of Front Caliper Assembly (American Motors Shown)

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Parallelism — Measure thickness of rotor at four or more points around rotor. Make all measurements at same distance from edge of rotor. If rotor does not meet specifications, replace or refinish rotor as necessary.

REMOVAL & INSTALLATION

BRAKE CALIPER

Caliper removal and installation procedures are same as for brake shoe assembly replacement, except it will be necessary to disconnect brake hose. See *Shoe & Lining Replacement*.

HUB & ROTOR

Removal (Front) — Raise and support vehicle, and remove wheel. Remove caliper assembly and support out of way to avoid putting a strain on brake hose. Remove grease cap from hub, then remove cotter key, nut lock, adjusting nut and thrust washer from spindle. Pull hub and rotor assembly out far enough to remove outer wheel bearing, then pull hub and rotor assembly from spindle.

Installation (Front) — To install, reverse removal procedure and adjust wheel bearings. See *Wheel Bearing Adjustment in WHEEL ALIGNMENT Section*.

Removal (Rear) — Raise and support vehicle, and remove wheel. Remove caliper assembly and support out of way to avoid putting a strain on brake hose. **NOTE** — If both rear rotors are to be removed, mark hat section of rotors to distinguish right from left; rotor are not interchangeable. Remove the two retainer nuts and remove rotor from axle shaft.

Installation (Rear) — To install, reverse removal procedure and ensure that vanes on outer edge of rotor are pointing in direction of forward rotation.

OVERHAUL

BRAKE CALIPER

Disassembly (Front) — With caliper assembly removed from vehicle, pad interior of caliper with shop cloths. Apply compressed air to fluid inlet port of caliper to remove piston.

NOTE — If piston is seized and cannot be forced from caliper, lightly tap around piston while applying air pressure. Remove dust boot and pry piston seal from caliper bore.

NOTE — Be careful not to scratch piston bore when removing seal.

Cleaning & Inspection (Front) — Clean all parts with denatured alcohol or clean brake fluid and dry with compressed air. Clean out and dry all grooves and passages with compressed air. Inspect piston and caliper bore for wear, pitting, scoring, nicks or corrosion. Replace components as necessary.

NOTE — On American Motor vehicles, light corrosion can be removed with a fiber brush.

Reassembly (Front) — Apply a film of clean brake fluid to new piston seal and dust boot and install into caliper bore. Coat piston with clean brake fluid and install into caliper bore. **NOTE** — Spread dust boot over piston as it is installed. Seat dust boot in piston groove.

Disassembly (Rear) — 1) With caliper removed from vehicle, remove caliper end retainer. Lift out operating shaft, thrust bearing and balls. Remove thrust screw anti-rotation pin with a magnet or tweezers. If anti-rotation pin cannot be removed with magnet or tweezers, adjust piston out from caliper housing at least one inch using a suitable adjusting tool (T75P-2588-B). Push piston back into housing with adjusting tool, hold adjusting tool shaft in place and rotate tool handle counterclockwise until thrust screw clears anti-rotation pin. Remove thrust screw and anti-rotation pin.

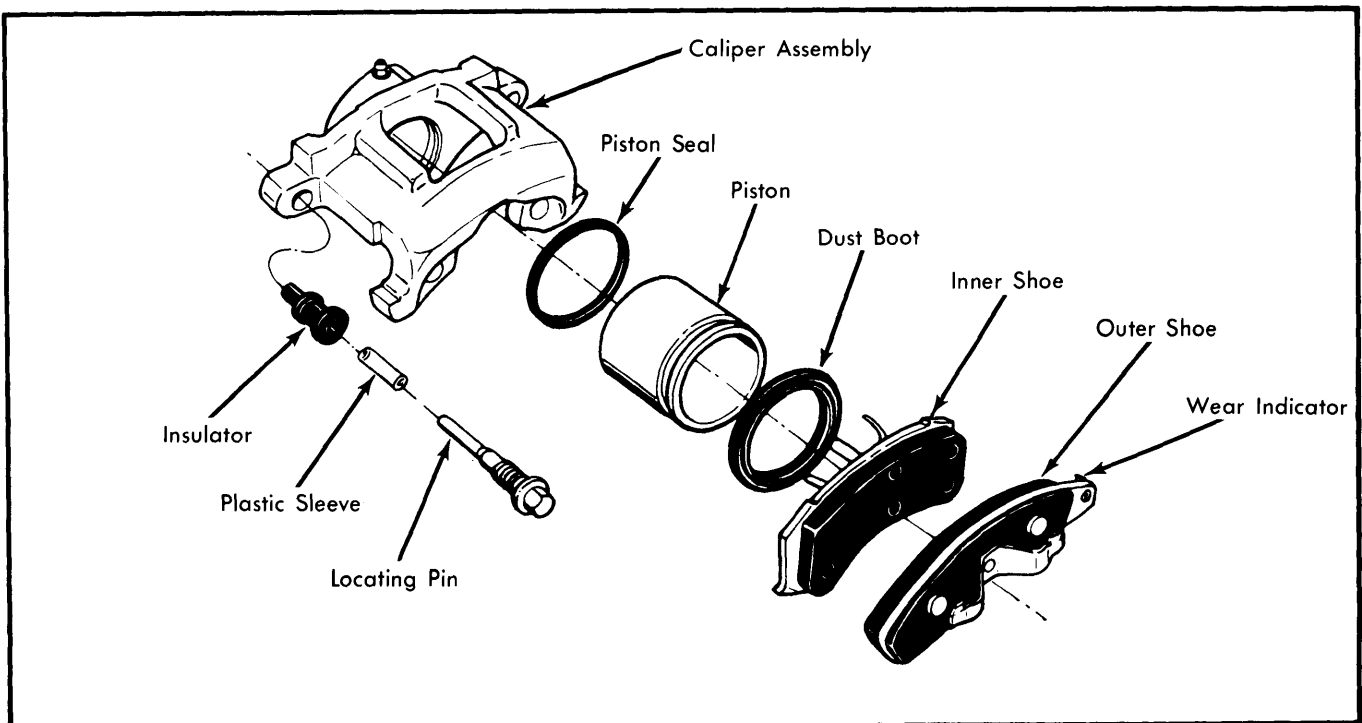


Fig. 3 Exploded View of Pin Slider Caliper Assembly (Ford Motor Co. Fairmont and Zephyr Models Only)

Brake Systems

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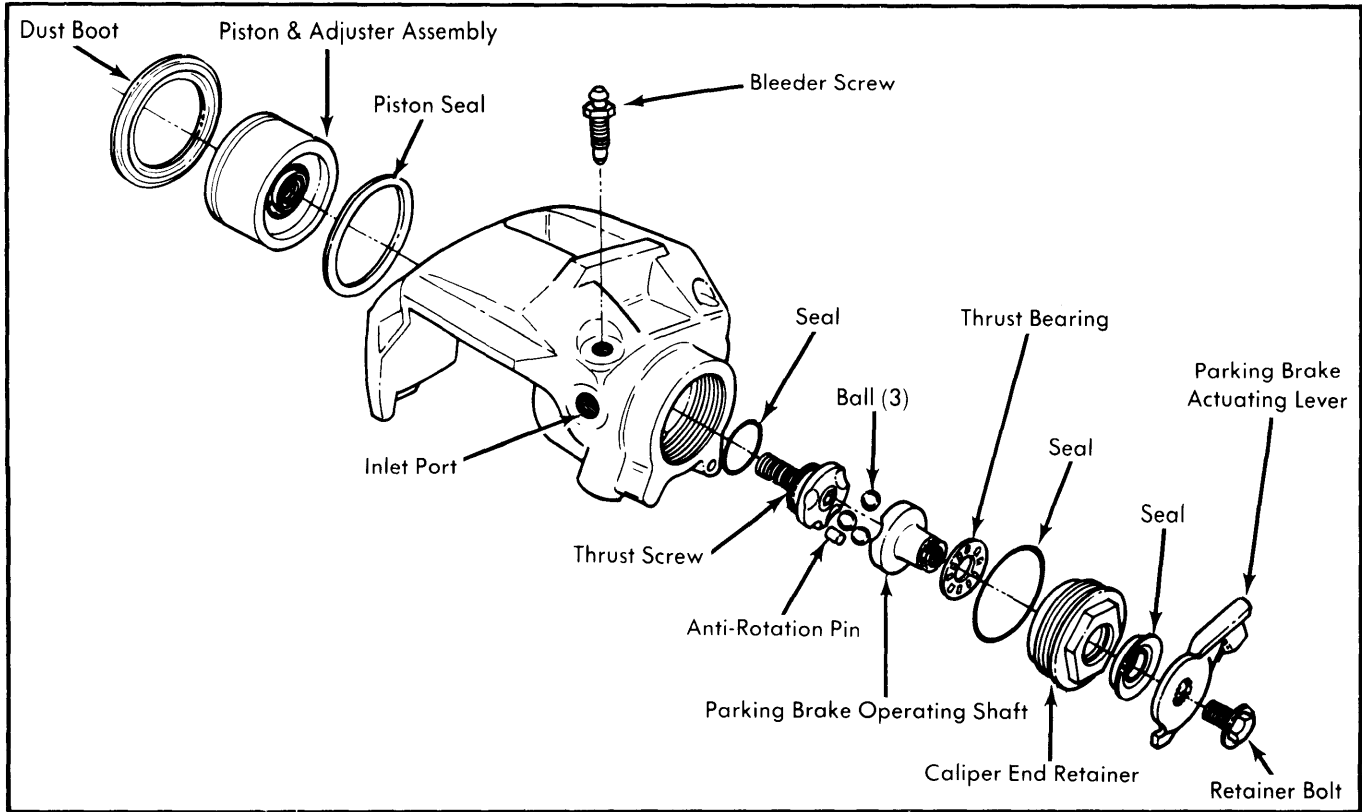


Fig. 4 Exploded View of Rear Caliper Assembly (Ford Motor Co. Only)

2) Remove piston adjuster assembly by installing suitable removal tool (T75P-2588-A) through back of caliper housing and pushing piston out. **NOTE** — Use care not to damage polished surface in thrust screw bore. Remove and discard piston seal, boot, thrust screw "O" ring seal, end retainer "O" ring seal and end retainer lip seal.

Cleaning & Inspection — Clean all metal parts in denatured alcohol or clean brake fluid and dry with compressed air. Inspect all parts for wear or damage and replace as necessary. Check operation of adjuster by assembling thrust screw into piston/adjuster assembly, pulling the two pieces apart by hand approximately .250" and then releasing them. When pulling on the two pieces, brass drive ring must remain stationary, causing nut to rotate. When releasing the two pieces, nut must remain stationary and drive ring must rotate. If action of components does not follow this pattern, replace piston adjuster assembly.

Reassembly (Rear) — To reassemble, reverse disassembly procedure and note the following: Apply a coat of clean brake fluid to all parts before reassembly. Fill piston/adjuster with clean brake fluid. Install thrust screw into piston/adjuster assembly until top surface is flush with bottom of threaded bore in piston/adjuster assembly. Lubricate all components of parking brake mechanism with a suitable silicone grease.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
American Motors	
Anchor Plate Mounting Bolts	80
Bracket Bolts	55
Brake Hose-to-Caliper	
Gremlin, Hornet, Matador	25
Pacer	100 INCH Lbs.
Wheel Attaching Bolts	75
Ford Motor Co.	
Anchor Plate Mounting Bolts [Ⓞ]	
Upper	90-120
Lower	
Ford, Mercury, Cougar, T-Bird	90-120
LTD II, Mk V, Lincoln	90-120
Pinto, Bobcat, Mustang II	55-75
Granada, Monarch, Versailles	55-75
Caliper Key Retainer Screw	12-16
Caliper Locating Pins	
Fairmont & Zephyr Only	30-40
Brake Hose-to-Caliper	12-20
Caliper End Retainer (Rear Only)	75-95
Parking Brake Lever Retainer Screw	16-22
Wheel Attaching Bolts	70-115

Ⓞ — Upper bolts must be tightened first.

Brake Systems

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DISC BRAKE ROTOR SPECIFICATIONS						
Application	Disc Diameter	Lateral Runout	Parallelism	Original Thickness	Minimum Refinish Thickness	Discard Thickness
American Motors						
Pacer, Gremlin, Hornet	10.82"	.003"	.0005"	.880"	.....	.810"
Matador	10.82"	.003"	.0005"	1.190"	.....	1.120"
Ford Motor Co. (Front)						
Pinto, Bobcat, Mustang II	9.30"	.003"	.0005"	.870"	.....	.810"
Cougar, LTD II, T-Bird	10.72" ①	.003"	.0005"	1.180"	.....	1.120"
Ford, Mercury	11.80"	.003"	.0005" ②	1.180"	.....	1.120"
Lincoln, Mk V	11.80"	.003"	.00025"	1.180"	.....	1.120"
Granada, Monarch, Versailles	11.03"	.003"	.0005"	.870"	.....	.810"
Fairmont, Zephyr	10.08"	.003"	.0005"	.870"	.....	.810"
Ford Motor Co. (Rear)						
Granada, Monarch	10.66"	.004"	.0005"	.945"	.....	.810"
All Other Models	11.50"	.004"	.0004" ③	.945"	.....	.810"

① — Police Vehicles — Same as Ford and Mercury.

② — Mercury — .0004".

③ — Ford and Mercury — .0005"