

FORD MOTOR CO. SLIDING CALIPER DISCS

All Models

DESCRIPTION

All Ford models equipped with front disc brakes use the sliding caliper type. All 100, 150 and 250 Series (up to 6800 GVW) use a single piston type. All 250 Series (over 6800 GVW) and 350 Series use a dual piston type. On all models, caliper is secured to anchor plate by a retaining key and spring. Ventilated rotor is cast with wheel hub. As brake pedal is depressed, fluid from master cylinder passes through the metering valve and into caliper cylinder.

ADJUSTMENT & SERVICING

DISC PAD ADJUSTMENT

Pad wear is automatically compensated for by piston sliding outward in cylinder bore; therefore, no disc pad adjustment in service is required.

BLEEDING SYSTEM

See *Hydraulic Brake Bleeding in this Section.*

REMOVAL & INSTALLATION

DISC BRAKE PADS

NOTE — Always replace both disc brake pads on an axle together. Never service one wheel only.

Removal (Single Piston Type) — 1) To prevent master cylinder overflow when caliper is depressed, remove a small amount of brake fluid from master cylinder. Raise vehicle and remove front wheel. Place a large "C" clamp on caliper, and tighten clamp to bottom piston in cylinder bore. Remove clamp.

2) Remove key retaining screw, then, using a brass rod and light hammer, drive out caliper support spring. Remove caliper from spindle by pushing it downward against spindle and rotating upper end upward and out of spindle. **CAUTION** — Lay caliper on tie rod or support with wire. Do not allow caliper to hang by brake line.

3) Remove outer disc pad from caliper. It may be necessary to tap pad to loosen pad flange from caliper. Remove inner disc pad from spindle assembly, then remove pad anti-rattle clip from spindle.

Installation — 1) Install new anti-rattle clip in spindle. Place lower end of inner pad into spindle against anti-rattle clip and slide upper end of pad into position. Be sure clip is still in position.

2) With caliper piston fully bottomed in cylinder bore, position outer pad on caliper and press shoe tabs into place. If shoe cannot be pressed into place by hand, use a large "C" clamp.

Removal (Dual Piston Type) — 1) To prevent master cylinder overflow when caliper is depressed, remove a small amount of brake fluid from master cylinder. Raise vehicle and remove front wheel. Remove key retaining screw.

2) Using a brass rod, and light hammer, drive out key and spring. Remove caliper by rotating key and spring end out away from rotor. Slide opposite end of caliper clear of slide in the support and off the rotor. **CAUTION** — Lay caliper on tie rod or support with wire. Do not allow caliper to hang by brake line. Remove caliper disc pad anti-rattle spring. Now remove inner and outer disc pads.

Installation — 1) Make sure caliper pistons are fully bottomed in caliper. Install disc pads and anti-rattle spring. Place caliper rail into the slide on support and rotate caliper onto rotor.

2) Place key and spring into position and start inserting between caliper and support. **NOTE** — Spring is between key and caliper and spring tangs overlap ends of key. Use a screwdriver if necessary to hold caliper up against support.

3) Drive key and spring into position aligning correct notch with existing hole in support. Install key retaining screw and tighten to 12-20 Ft. Lbs. Check brake fluid level in master cylinder and fill as necessary.

BRAKE CALIPER

Removal & Installation — Caliper removal and installation procedures are same as for disc pad replacement, except it will be necessary to disconnect brake hose. After caliper installation, bleed brake system

DISC ROTOR

Removal (Two Wheel Drive Models) — Raise vehicle and install safety stands. Remove wheel, tire and caliper assembly. Remove dust cap, cotter pin, nut, washer and outer bearing. Carefully remove hub and rotor assembly from spindle.

Installation — 1) To install hub and rotor assembly, reverse removal procedures and adjust front wheel bearings. See *Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.*

Removal (Four Wheel Drive Models — 1) Remove lock-out hub screws, hub bolts and washers. Remove hub ring, actuator knob and snap ring. Remove cam body and clutch retainer as an assembly. Remove axle shaft snap ring by pushing inward on axle shaft sleeve ring while pulling out on axle with a bolt.

2) Remove axle shaft sleeve ring and inner clutch ring. Rocking hub may make removal easier. Remove pressure spring and retaining ring.

Installation — 1) Grease hub inner splines and install spring retainer ring with recessed undercut area going in first. Be sure ring seats against bearing. Install spring with large end entering first. Grease and install axle shaft sleeve, ring and inner clutch ring. Be sure teeth are meshed together in locked position for easy assembly. It may be necessary to rock hub back and forth to align splines.

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2) Keeping gears in locked position, install axle shaft snap ring. Push inward on gear and pull out on axle shaft with bolt for snap ring clearance. Make sure snap ring is fully seated. Install actuating cam body ring into outer clutch retaining ring and install in hub. Install internal snap ring making sure snap ring is fully seated in hub groove.

3) Apply small amount of grease to ears of cam body. Apply small amount of Parker "O" Ring Lube (or equivalent) to groove of actuating knob before assembling outer "O" ring. Be sure knob is in locked position and install on axle. Install screws and washers alternately and evenly. Be sure retainer ring is not cocked in hub. Tighten lock-out hub bolts to 2.5-3 ft. lbs.

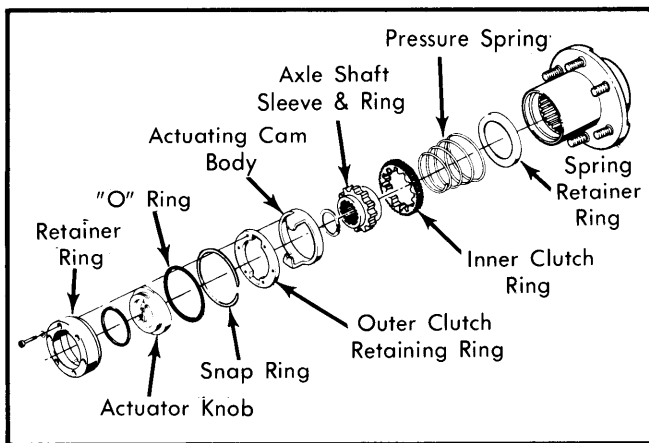


Fig. 1 Exploded View of 4 Wheel Drive Internal Hub Assembly

OVERHAUL

BRAKE CALIPER

Disassembly (Single & Dual Piston) – 1) Remove caliper as previously outlined. Remove plug from inlet port (if equipped) and drain fluid from cylinders. Place a block of wood between caliper and cylinders. Apply low air pressure to brake hose inlet. Air pressure will force out piston(s).

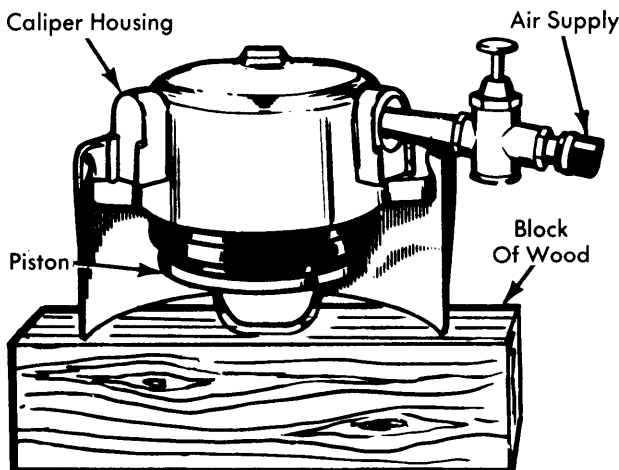


Fig. 2 Using Compressed Air to Remove Caliper Piston

2) If a piston is jammed or cocked and will not easily come out. Tap end of piston sharply with a brass hammer to straighten. **CAUTION** – DO NOT use a sharp tool to pry piston out of bore. Reapply low air pressure to remove cocked piston. Remove seal and boot from grooves. Discard seals and boots. On dual piston units, remove bolts and separate caliper from housing.

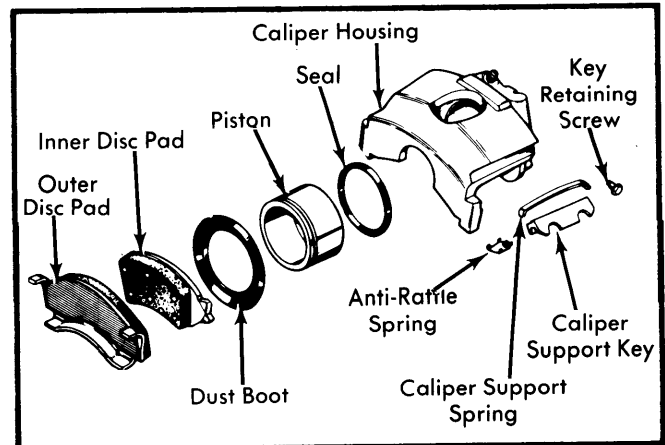


Fig. 3 Exploded View of Single Piston Caliper

Cleaning & Inspection – Clean rust or corrosion from caliper machined surfaces with a wire brush. **CAUTION** – DO NOT use wire brush in cylinder bores. Clean all components with denatured alcohol and dry with compressed air. Inspect cylinder bore, seal grooves and boot grooves for wear or damage. Replace anti-rattle clip, caliper support spring and key.

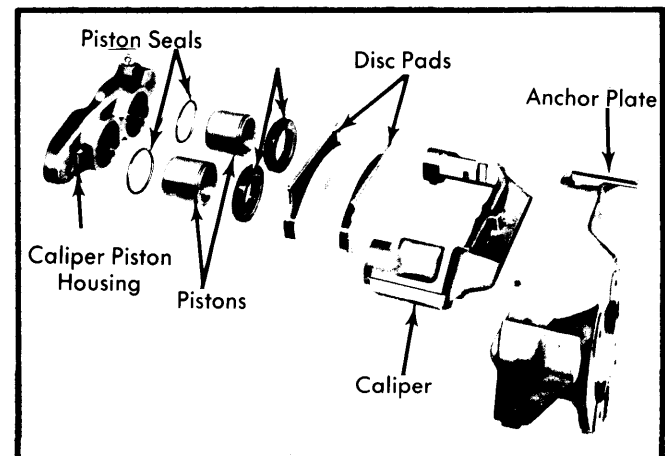


Fig. 4 Exploded View of Dual Piston Caliper

Reassembly (Single Piston) – 1) Lubricate piston seal with clean brake fluid and install in cylinder bore groove. Lubricate cylinder with clean brake fluid. Coat piston and outside beads of dust boot with clean brake fluid. Push piston through boot until boot is around bottom (closed end) of piston.

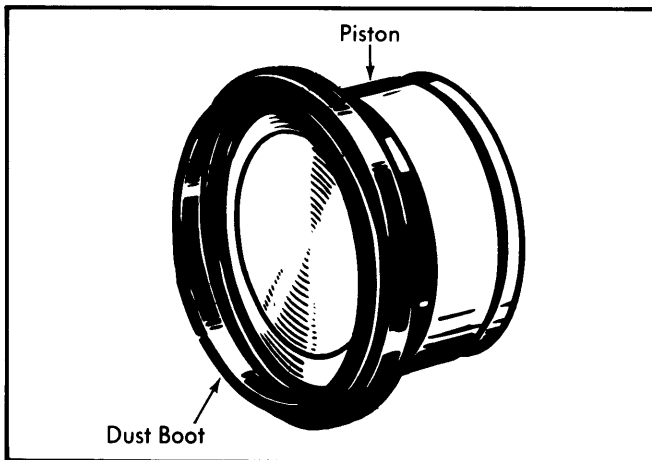
2) Position piston and boot directly over cylinder bore. Work bead of dust boot into groove near top of cylinder bore. With bead seated in groove, press straight down on piston until it bottoms in cylinder bore. Care must be taken not to cock or jam piston in cylinder. If necessary use a "C" clamp and a block of wood to bottom piston in cylinder.

Brake Systems

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Reassembly (Dual Piston) — 1) Lubricate new piston seals with clean brake fluid and install seals in grooves in cylinders. Lubricate cylinders with clean brake fluid. Lubricate retaining lips of boots with clean brake fluid and install in grooves in cylinders.

2) Coat pistons with clean brake fluid. Insert into cylinders by hand until they are beyond piston seals. Position a wood block over one piston and press into cylinder, taking care not to cock piston. Install other piston in same manner. Place piston housing on caliper. Install mounting bolts and tighten to 155-185 ft. lbs.



**Fig. 5 Dust Boot Installation
Single Piston Type**

DISC ROTOR SERVICING

Maximum of .020" material may be taken equally off each braking surface. Finished braking surfaces of rotor must be parallel within .0007" for integral hub and disc and .001" or separate hub and disc.

BRAKE SPECIFICATIONS

Application	Dimension
Disc Pad Wear Limit.....	.030" Above Rivet Head
Caliper Piston Diameter	
Single Piston Type.....	2.875"
Dual Piston Type.....	2.18"
Disc Rotor Diameter	
Single Piston Type.....	① 11.54"
Dual Piston Type.....	12.50"
New Rotor Thickness	
Single Piston Type.....	1.190"
Dual Piston Type.....	1.250"
Resurface Rotor Thickness (Minimum)	
Single Piston Type.....	1.120"
Dual Piston Type.....	1.180"
Rotor Runout (Maximum)	
Integral Hub Type.....	.003"
Separate Hub Type.....	.005"
Rotor Thickness Variation (Maximum)	
Integral Hub Type.....	.0007"
Separate Hub Type.....	.001"

① — Rotor diameter is 12.60" on F-250 models with single piston caliper.