

# Brake Systems

## FORD MOTOR CO. SLIDING CALIPER DISCS

All Models  
(Exc. P-350, M-450 & M-500)

**NOTE** — For reference purposes in this article only, Light Duty (LD) will refer to all E-100 and 150, F-100, 150 and 250 4x2 models up to 6900 G.V.W., F-100 and F-150 4x4 models, and U-100 (Bronco). Heavy Duty (HD) will refer to all remaining models.

### DESCRIPTION

All Ford models equipped with disc brakes use the sliding caliper type. All LD models use a single piston type and all HD models 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.

#### PRESSURE DIFFERENTIAL VALVE ADJUSTMENT

With ignition switch in "ON" or "ACC" position, slowly depress and release brake pedal until pressure differential valve is centered and warning light goes off. Bring fluid level in master cylinder to within  $\frac{1}{4}$ " of top and turn ignition switch to "OFF" position.

#### 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** — 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.

#### 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

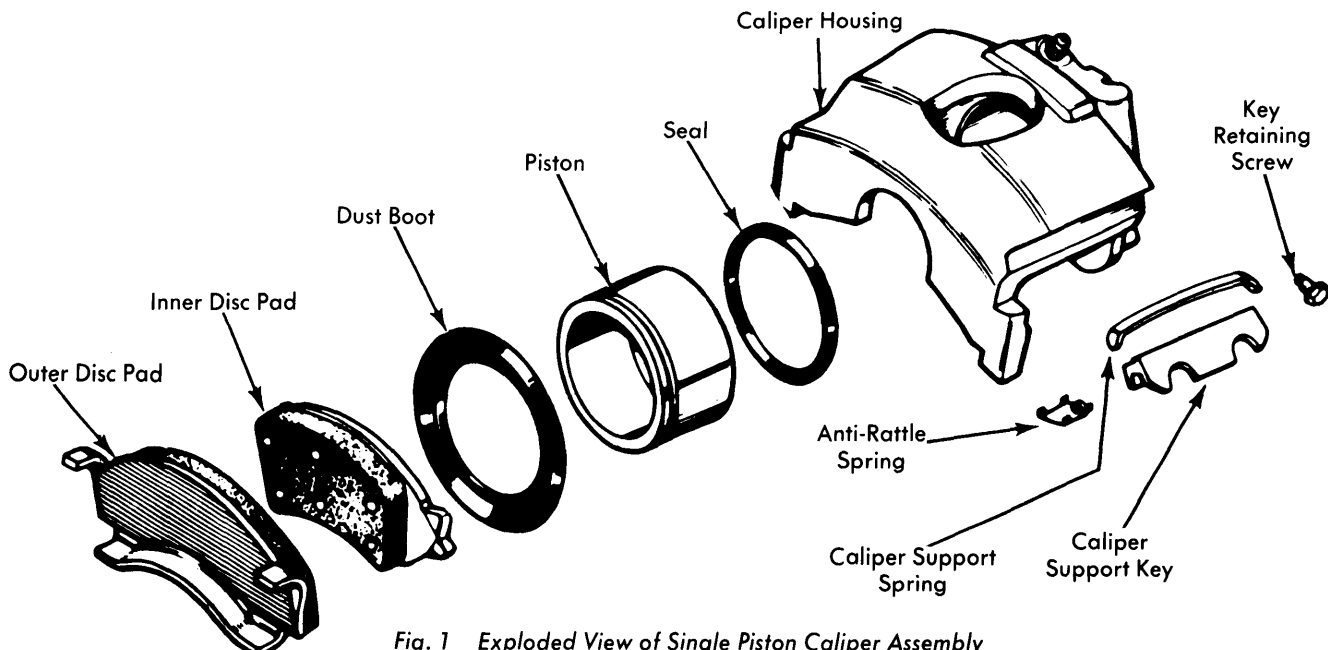


Fig. 1 Exploded View of Single Piston Caliper Assembly

## FORD MOTOR CO. SLIDING CALIPER DISCS (Cont.)

### OVERHAUL

#### BRAKE CALIPER

**Disassembly (LD & HD Models)** – 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).

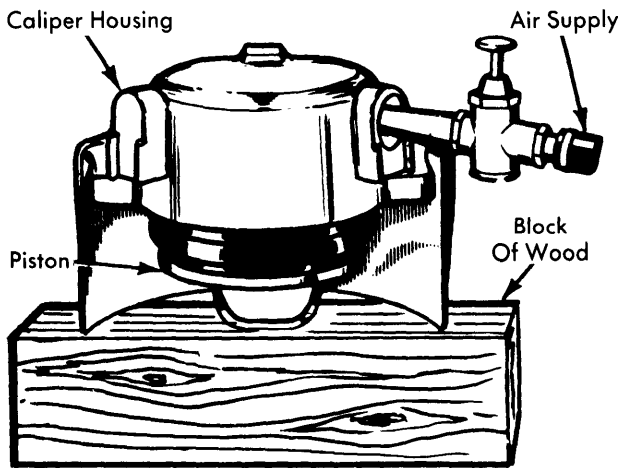


Fig. 2 Using Compressed Air to Remove Caliper Piston

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.

**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.

**Reassembly (LD Models)** – 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.

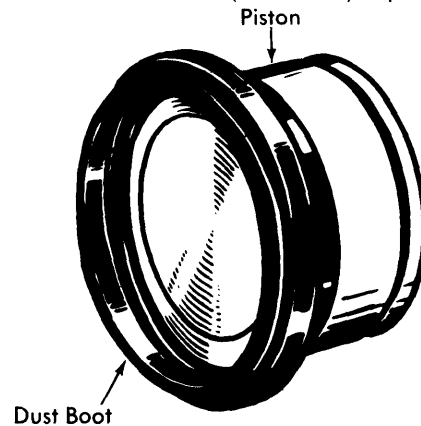


Fig. 3 Dust Boot Installation (Single Piston Type)

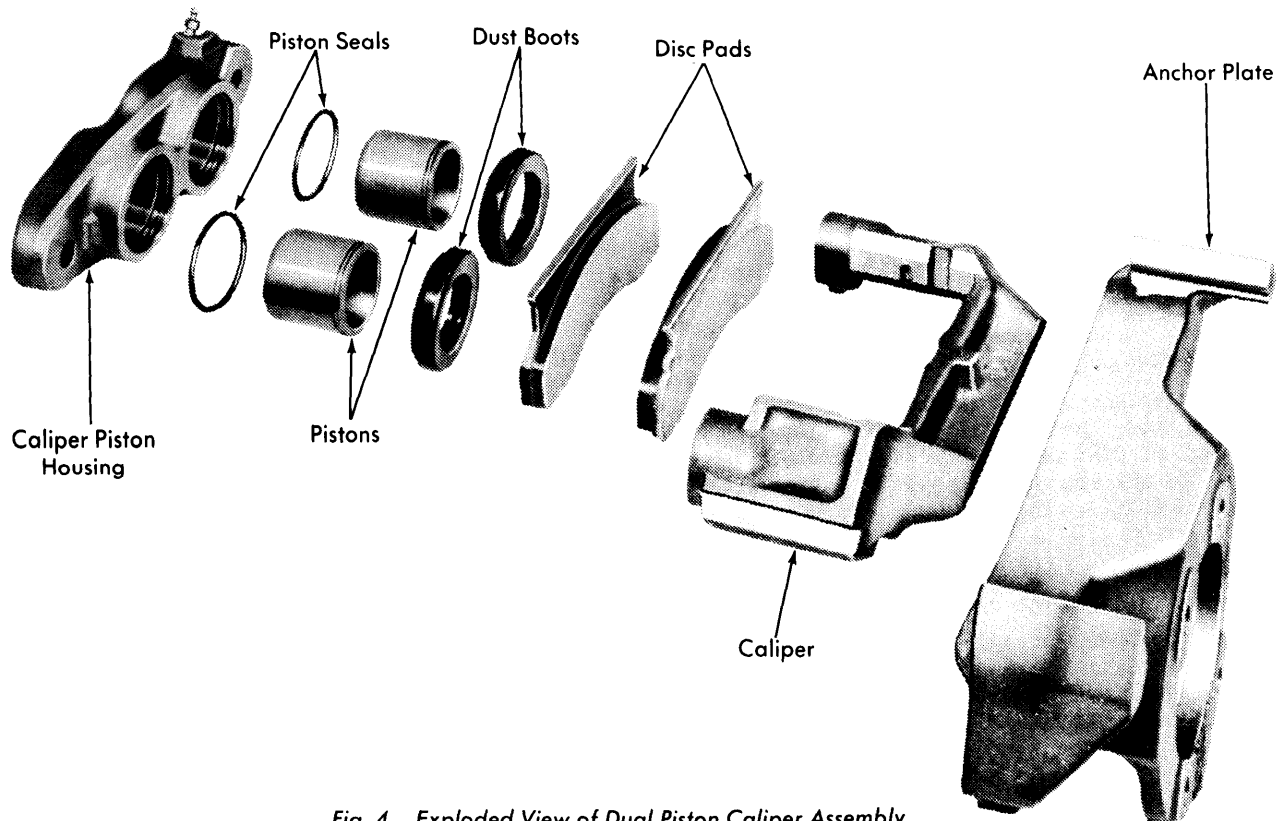


Fig. 4 Exploded View of Dual Piston Caliper Assembly

# Brake Systems

## FORD MOTOR CO. SLIDING CALIPER DISCS (Cont.)

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.

**Reassembly (HD Models) – 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.

### 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	
Light Duty Models.....	⓪11.54"
Heavy Duty Models.....	12.50"
New Rotor Thickness	
Light Duty Models.....	1.185"
Heavy Duty Models.....	1.250"
Resurface Rotor Thickness (Minimum)	
Light Duty Models.....	1.120"
Heavy Duty Models.....	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"

⓪ — Rotor diameter is 12.60" on F-250 models with single piston caliper.