DELCO-MORAINE SINGLE PISTON DISC (FRONT)

Buick
Cadillac
Chevrolet (Except Corvette)
Oldsmobile
Pontiac

DESCRIPTION

Caliper is constructed from a single casting with one large piston bore. Piston bore is in inboard section of caliper. Caliper is mounted on a support bracket attached to front suspension. NOTE – *On some models caliper is directly connected to steering knuckle.* Brake rotor is cast iron type with venting ribs separating the two braking surfaces. Some models use a groove in center of braking surface. This groove is to reduce brake noise.

Shoe is stamped steel with riveted linings. Some models use a wear sensor. Wear sensor is spring steel and riveted to rear edge of inner brake shoe. Sensor produces a high pitched squeal when lining is worn to within .030" of rivet heads.

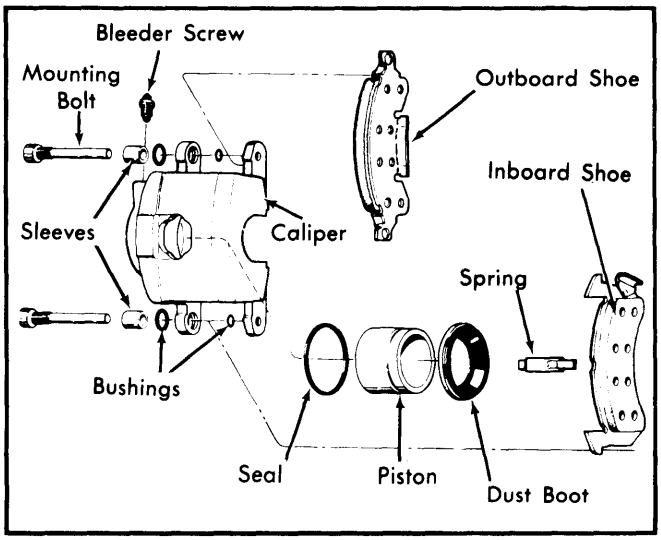

Fig. 1 Exploded View of Caliper Assembly

ADJUSTMENT

Shoe wear is automatically compensated for by sliding caliper feature, therefore, no brake adjustment in service is required.

SERVICING

BLEEDING

See Hydraulic Brake Bleeding in this section.

SHOE & LINING INSPECTION

Inspect linings every 6,000 miles or 12 months, or whenever wheels are removed. Check both ends of inboard and outboard linings for wear. Replace all linings if any lining wears to the following limits:

Buick & Pontiac ..... ①Within .020" of Rivets
Cadillac & Oldsmobile ..... Approx. Thickness of Shoe
Chevrolet ..... Within .030" of Shoe or Rivets

① – .030" on Skyhawk and Sunbird.

SHOE & LINING REPLACEMENT

NOTE – *Relining should be done in complete sets only.*

Removal – 1) Remove and discard two-thirds (one-half on Skyhawk and Sunbird) of brake fluid in master cylinder front (rear on Eldorado) reservoir.

NOTE – *Do not remove all fluid or disconnect brake line or it will be necessary to bleed system.*

2) Raise vehicle and remove front wheels. Position a "C" clamp on caliper. Place solid side of clamp against inside of caliper and screw end of clamp against outboard shoe.

3) Tighten clamp until caliper moves away from vehicle. When caliper moves enough, push piston to bottom of its bore. This will allow shoes to back off from rotor surface.

4) Remove "C" clamp. On Monza, Skyhawk and Sunbird models, remove retainer rings and pins. On all other models, unbolt caliper from support bracket or steering knuckle.

5) Lift caliper off rotor and support with a wire so brake hose will not be damaged. Remove shoes and shoe support spring from cavity in piston. Remove sleeves from inboard ears of caliper and rubber bushings from all caliper ears.

Installation – 1) Using silicone lubricant, coat and install new sleeves and rubber bushings in caliper ears. Attach shoe support spring to inboard shoe. Position shoe in caliper with wear indicator (if equipped) to rear of vehicle. NOTE – *With wear indicator, there is a specific right side and a left side inboard shoe.*

2) Position outboard shoe in caliper. Engage tab at bottom of shoe with caliper cutout and shoe ears with caliper ears at top of shoe. Place caliper over rotor, aligning caliper ears with mounting holes.

3) Start bolts or pins through inboard caliper ears and mounting bracket. Make sure bolts or pins pass under retaining ears of inboard shoe.

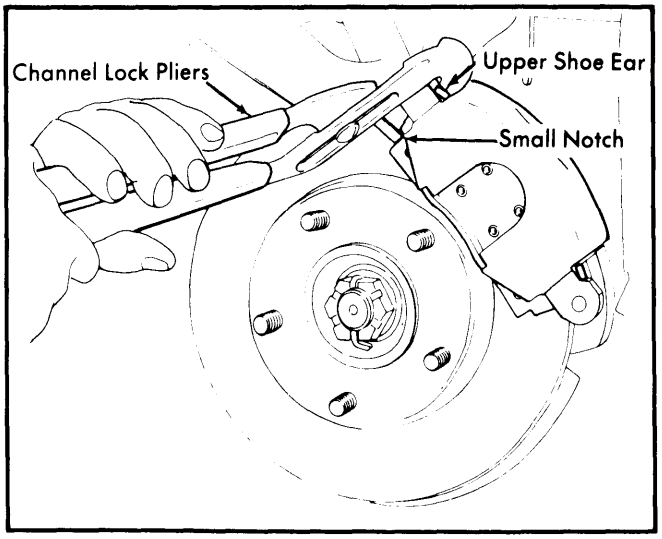

Fig. 2 Clinching Tabs on Outboard Shoe (Except Monza, Skyhawk and Sunbird)

DELCO-MORAINE SINGLE PISTON DISC (FRONT) (Cont.)

4) Push bolts or pins through to engage holes in outboard shoe and ears of caliper. Install retainer rings or pins on Monza, Skyhawk and Sunbird models. Thread bolts into mounting bracket and tighten on all other models.

5) Add brake fluid to fill master cylinder to within 1/8" of top. Pump brake pedal to seat shoes against rotor.

6) Use pliers to clinch upper ears of outboard shoe against caliper. Make sure ears are flat against caliper with no clearance (except Monza, Skyhawk and Sunbird models).

ROTOR SERVICING

Lateral Runout – Adjust wheel bearings until all endplay is eliminated. Attach a dial indicator to front suspension so that pointer contacts face of rotor approximately one inch from rotor edge. Set gauge to zero, then turn rotor through one complete revolution noting gauge. See Rotor Specifications for maximum allowable runout.

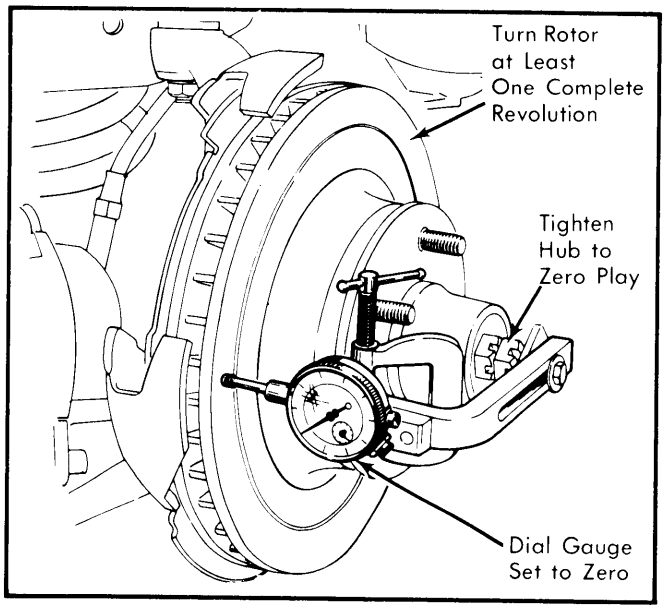

Fig. 3 Checking Rotor Lateral Runout

Parallelism – Check thickness of rotor at four or more points around circumference of rotor. Make all measurements at same distance from edge of rotor. If thickness varies more than specified (see specifications), refinish or replace rotor as necessary.

REMOVAL & INSTALLATION

BRAKE CALIPER

Removal of caliper for overhaul is same procedure as for lining replacement, except it is necessary to disconnect brake hose.

BRAKE ROTOR

Removal & Installation – 1) On all vehicles except Eldorado, remove wheel. Remove and support caliper. Remove grease cup, cotter pin and nut. Remove brake rotor.

2) On Eldorado vehicles, remove wheel. Remove cotter pin, loosen upper ball joint nut and slip brake hose collar out of its clip. Remove and support caliper assembly. Mark rotor and a wheel stud for installation alignment. Remove brake rotor.

3) To install brake rotor, reverse removal procedure.

OVERHAUL

BRAKE CALIPER

Disassembly – 1) Clean exterior of caliper with denatured alcohol and place on a clean work surface. Remove brake hose and discard copper gasket. Drain fluid from caliper.

2) Using clean shop towels to pad interior of caliper, apply compressed air to caliper inlet and remove piston. **CAUTION** – *Use only enough air pressure to ease piston out of bore.*

3) Using a screwdriver, pry boot out of caliper. Pry piston seal from caliper using a piece of wood or plastic. **CAUTION** – *Do not use a metal tool to remove piston seal as bore may be damaged.* Remove bleeder valve from caliper.

Cleaning & Inspection – 1) Replace boot, piston seal, rubber bushings and sleeves each time caliper is overhauled.

2) Clean all parts in denatured alcohol. Dry all parts with dry filtered compressed air. **NOTE** – *Using lubricated shop air will leave a film of mineral oil on metal parts. This may damage rubber parts upon contact at reassembly.*

3) Check mounting bolts for corrosion, brakes in plating or other damage. **NOTE** – *Replace bolts if corroded, do not attempt to clean them.*

4) Check outside diameter of piston for scoring, nicks, corrosion, worn or damaged plating. If surface defects exist, replace piston. **CAUTION** – *Do not attempt to refinish piston with abrasives.*

5) Check piston bore in caliper for scratches or other damage. Minor scratches or corrosion may be polished clean with crocus or emery cloth. Thoroughly clean bore after polishing. Replace caliper if corrosion is not easily cleaned.

Reassembly – 1) Lubricate bore in caliper and new piston seal with clean brake fluid. Position seal in caliper bore groove. Lubricate piston with clean brake fluid. Assemble new boot into groove in piston with fold facing open end of piston.

2) Insert piston into caliper bore using care not to unseat seal. Do not force piston to bottom of bore. Position outer diameter of boot in caliper counterbore. Seat boot using suitable tool.

- Use tool J-26267 on LeMans, Grand Prix, Sunbird, Century, Regal, Skyhawk, Cutlass, Starfire, Malibu, and Monte Carlo.
- Use tool J-22904 on all other vehicles.

3) Check boot installation to make sure retaining ring moulded into boot is not bent and that boot is installed completely below caliper face. Install brake hose, using a new copper gasket. **NOTE** – *After caliper has been overhauled and installed, it must be bled.*

DELCO-MORAINE SINGLE PISTON DISC (FRONT) (Cont.)

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Brake Hose-to-Caliper	
Buick	
Skyhawk, Skylark, Century, Regal	32
LeSabre, Estate Wagon, Riviera, Electra	21
Cadillac	30
Chevrolet	32
Oldsmobile	
Starfire, Omega, Cutlass	32
88 & 98	21
Toronado	①48
Pontiac	
Sunbird, Phoenix, LeMans	32
Catalina, Bonneville	21
Caliper-to-Mounting Bracket	
Buick, Chevrolet, Pontiac, Oldsmobile	35
Cadillac	30

① — 32 Ft. Lbs. on Skyhawk, Skylark, Century and Regal.

Application	Ft. Lbs.
Wheel Attaching Bolts	
Buick	
All Models With 7/16" Studs	80
Century, Regal, Skylark, Skyhawk LeSabre, Estate Wagon & Riviera	
All Models With 1/2" Studs	100
LeSabre, Estate Wagon, Riviera, Electra	
Cadillac (Exc. Eldorado)	100
Cadillac Eldorado	130
Chevrolet	②80
Oldsmobile	
Starfire, Omega, Cutlass, 88	80
88, Custom Cruiser & 98	100
Toronado	130
Pontiac	
All Models with 7/16" Wheel Studs	80
LeMans, Catalina, Bonneville, Sunbird Phoenix	
All Models with 1/2" Wheel Studs	100
Catalina, Bonneville	

② — 80 Ft. Lbs. on Monza with aluminum wheels.

DISC BRAKE ROTOR SPECIFICATIONS

Application	Disc Diameter	Lateral Runout	Parallelism	Original Thickness	Minimum Refinish Thickness	Discard Thickness
Buick						
Skyhawk	9.88"	.005"	.0005"	.880"	.830"	.815"
Skylark, Century, Regal	11.00"	.004"①	.0005"	1.040"	.980"	.965"
All Others	11 or 12"	.005"	.0005"	1.040"	.980"	.965"
Cadillac						
Limousine & Commercial Chassis	12.00"	.005"	.0005"	1.285"	1.220"	1.215"
Eldorado	11.00"	.008"	.0005"	1.205"	1.195"	1.170"
All Others	11.81"	.005"	.0005"	1.037"	.980"	.965"
Chevrolet						
Monza	9.74"	.004"	.0005"	.880"	.830"	.815"
Malibu, Monte Carlo	10.5"	.004"	.0005"	1.030"	.980"	.965"
Chevrolet (Exc. Wagon) Camaro, Nova	11.00"	.004"	.0005"	1.030"	.980"	.965"
Chevrolet Wagon, Police	11.86"	.004"	.0005"	1.030"	.980"	.965"
Oldsmobile						
Starfire	9.88"	.005"	.0005"	.880"	.850"	.820"
88, 98	11.88"	.005"	.0005"	1.040"	.980"	.965"
Toronado	11.00"	.002"	.0005"	1.245"	1.185"	1.170"
All Others	11.00"	.004"	.0005"	1.040"	.980"	.965"
Pontiac						
Phoenix	9.740"	.004"	.0005"	.880"	.830"	.815"
LeMans, Grand Prix	10.50"	.004"	.0005"	1.00"	.950"	.935"
All Others	11.00"	.004"	.0005"	②1.030"	.980"	.965"

① — Skylark has lateral runout of .005"
② — Rotor thickness is 1.00" on Catalina and Bonneville with 5" bolt circle.