

DELCO-MORAINÉ SINGLE PISTON DISC – FRONT

Buick
Cadillac
Chevrolet (Exc. Chevette & Corvette)
Oldsmobile
Pontiac

DESCRIPTION

Caliper is a single casting with 1 large piston inboard of disc rotor. It is mounted on the steering knuckle or a support bracket attached to front suspension. Brake rotors are cast iron with ventilation fins separating the 2 braking surfaces. Some models use a groove machined in the braking surfaces to help control brake noise.

Shoes are stamped steel with riveted linings. Most models use a wear sensor, a piece of spring steel riveted to the rear edge of inner brake shoe. The sensor produces a high pitched squeal when lining needs replacement.

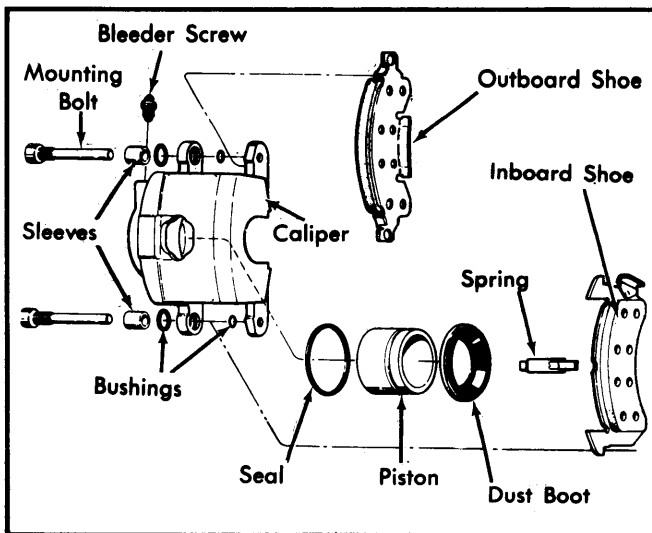


Fig. 1 Exploded View of Caliper Assembly

ADJUSTMENT

Disc brakes are self-adjusting. Caliper piston seals are designed to retract pistons just enough to allow brake lining to lightly brush disc without any drag. Sliding caliper design compensates for any lining wear.

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 any that are worn to within .032" of rivets on either end of lining.

SHOE & LINING REPLACEMENT

NOTE — Relining should be done in complete sets only.

Removal — 1) Remove and discard 2/3 of brake fluid in master cylinder reservoir to prevent overflow during servicing.

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. Unbolt caliper from steering knuckle or support bracket.

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. Ensure that shoe is installed in caliper with wear indicator to rear of vehicle.

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.

4) Push bolts or pins through caliper to engage holes in outboard shoe and ears of caliper. Thread bolts into mounting bracket and tighten.

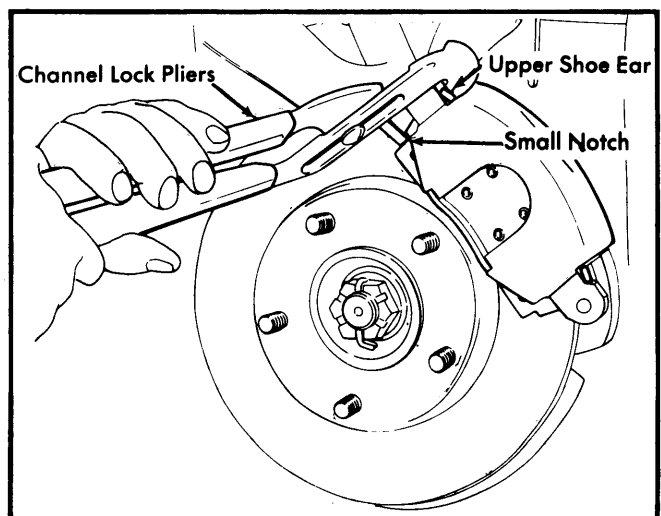


Fig. 2 Clinching Tabs on Outboard Shoe

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

DELCO-MORAINÉ SINGLE PISTON DISC – FRONT (Cont.)

6) Use pliers to clinch upper ears of outboard shoe against caliper. Make sure ears are flat against caliper with no clearance.

ROTOR SERVICING

Lateral Runout – Adjust wheel bearings until all end play is eliminated. Attach a dial indicator to front suspension so pointer contacts face of rotor about 1 inch from edge. Set gauge to zero, then turn rotor through one complete revolution. Check gauge reading with specifications for maximum runout.

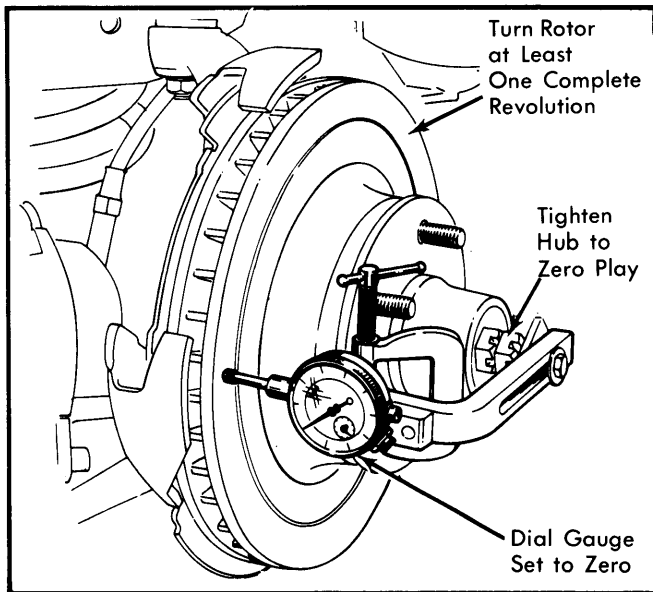


Fig. 3 Checking Rotor Lateral Runout

Parallelism – Check thickness of rotor at 4 or more points around edge of rotor. Make all measurements the same distance from edge. If thickness varies more than specified, refinish or replace rotor.

REMOVAL & INSTALLATION

BRAKE CALIPER

Removal of caliper requires the same procedure as for lining replacement, except it will be necessary to remove and plug brake line to caliper. After installation of caliper, bleed hydraulic system.

BRAKE ROTOR

Removal & Installation (Eldorado, Seville, Riviera & Toronado) – Raise and support vehicle. Remove front wheel and reinstall one wheel nut to retain rotor during caliper removal. Remove cotter pin and nut securing brake hose to upper control arm. Remove caliper and wire up out of way. Mark rotor and hub for reassembly and remove rotor. To install, reverse removal procedure.

Removal & Installation (All Other Models) – Raise and support vehicle. Remove wheel, then remove and support caliper. Remove grease cup, cotter pin and nut, then remove rotor. 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.

CAUTION – Do not attempt to catch or protect piston with fingers while applying compressed air.

2) Using clean shop towels to pad interior of caliper, apply just enough clean compressed air to caliper inlet so piston will ease out of bore.

3) Using a screwdriver, pry boot out of caliper. Pry piston seal from caliper using a piece of wood or plastic. DO NOT use a metal tool as bore may be damaged, requiring caliper replacement. 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 parts using clean dry compressed air. Lubricated shop air will ruin rubber parts upon contact at reassembly.

3) Check mounting bolts for corrosion, breaks in plating or other damage. Replace bolts if damaged in any way, DO NOT attempt to wire brush or clean them.

4) Check outside diameter of piston for scoring, nicks, corrosion, or worn and damaged plating. If surface defects are visible, replace piston. DO NOT attempt to refinish 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.

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.

Brake Systems

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

DISC BRAKE SPECIFICATIONS						
Application	Disc Diameter	Lateral Runout	Parallelism	Original Thickness	Minimum Refinish Thickness	Discard Thickness
Buick						
Century						
13" Wheel	9.72"	.005"	.0005"	.866"	.830"	.815"
14" Wheel	10.24"	.004"	.0005"	.866"	.830"	.815"
Skylark	9.72"	.005"	.0005"	.866"	.830"	.815"
Skyhawk	9.72"	.005"	.0005"	.866"	.830"	.815"
Electra	11.86"	.004"	.0005"	1.030"	.977"	.964"
LeSabre	11.00"	.004"	.0005"	1.030"	.977"	.964"
Heavy Duty & Wagon	11.85"	.004"	.0005"	1.030"	.977"	.964"
Riviera	10.50"	.005"	.0005"	1.030"	1.019"	.956"
Regal	10.50"	.004"	.0005"	1.030"	.977"	.964"
Cadillac						
Cimarron	9.72"	.005"	.0005"	.866"	.830"	.815"
Eldorado & Seville	10.50"	.004"	.0005"	1.000"
All Others	12.00"	.004"	.0005"	1.250"
Chevrolet						
Camaro, Malibu & Monte Carlo	10.50"	.004"	.0005"	1.030"	.980"	.965"
Cavalier	9.72"	.005"	.0005"	.866"	.830"	.815"
Celebrity & Citation	9.72"	.005"	.0005"	.866"	.830"	.815"
Chevette	9.68"	.005"	.0005"	.44"	.390"	.374"
Corvette	11.75"	.005"	.0005"	1.250"	1.230"	1.215"
Caprice & Impala	11.00"	.004"	.0005"	1.030"	.977"	.964"
Wagon	11.86"	.004"	.0005"	1.030"	.977"	.964"
Oldsmobile						
Firenza	9.72"	.005"	.0005"	.866"	.830"	.815"
Cutlass						
Supreme	10.50"	.004"	.0005"	1.000"	.984"	.956"
Ciera	9.72"	.005"	.0005"	.870"	.830"	.815"
Delta 88	11.00"	.004"	.0005"	1.000"	.984"	.965"
Ninety-Eight & Wagon	11.00"	.004"	.0005"	1.000"	.984"	.965"
Custom Cruiser	12.00"	.004"	.0005"	1.000"	.984"	.965"
Omega	9.72"	.005"	.0005"	.870"	.830"	.815"
Toronado	10.50"	.004"	.0005"	1.000"	.984"	.965"
Pontiac						
Bonneville & Grand Prix	10.50"	.005"	.0005"	1.000"	.980"	.965"
Firebird	10.50"	.004"	.0005"	1.000"	.980"	.965"
J-2000	9.72"	.005"	.0005"	.866"	.830"	.815"
Phoenix & 6000	9.72"	.005"	.0005"	.874"	.830"	.815"
T1000	9.68"	.005"	.0005"	.44"	.390"	.374"

TIGHTENING SPECIFICATIONS			
Application	Ft. Lbs. (N·m)	Application	Ft. Lbs. (N·m)
Brake Hose-to-Caliper		Pontiac	
Buick		Phoenix	32 (44)
LeSabre, Electra	21 (29)	All Other Models	35 (48)
All Other Models	32 (44)	Caliper-to-Mounting Bracket	
Cadillac	30 (41)	Buick, Chevrolet, Pontiac	
Chevrolet	32 (44)	Skylark, Citation & Phoenix	28 (39)
Oldsmobile	32 (44)	All Other Models	35 (48)
		Oldsmobile	28 (39)
		Cadillac	30 (41)