GENERAL MOTORS FLOATING CALIPER DISCS

Chevrolet, GMC

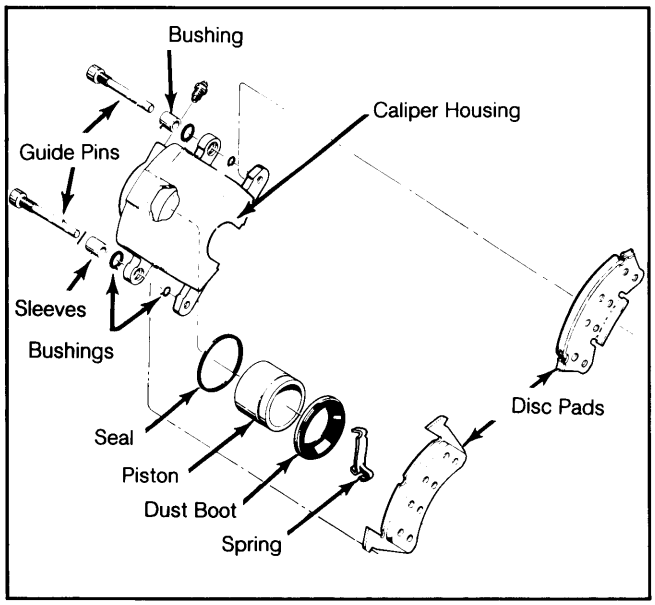
NOTE: Delco floating caliper disc brakes are used on all gasoline engine models except those equipped with Bendix Hydroboost power brake units and/or 4-wheel disc brakes. All other models use Bendix sliding caliper disc brakes.

DESCRIPTION

Delco floating caliper disc brake assembly uses a single piston caliper. The caliper is mounted to an anchor plate which is bolted to the steering knuckle. The caliper assembly floats through 4 rubber bushings on 2 steel guide pins. The pins are threaded into caliper anchor plate.

When brakes are applied, hydraulic pressure is passed to caliper piston. This force pushes inner brake pad against inner rotor braking surface. Pressure then moves caliper inward on guide pins, thus forcing outer disc pad against outer rotor braking surface. When brakes are released, pressure is removed from cylinder. Rotor runout moves piston back off of rotor to maintain sufficient rotor-to-pad clearance.

Fig. 1: Exploded View of Floating Caliper Assembly



ADJUSTMENT & SERVICING

DISC PAD ADJUSTMENT

Pad wear is automatically compensated for by piston moving outward in cylinder bore. No disc pad adjustment in service is required.

NOTE: Inspect condition of disc pads whenever wheels are removed. If any disc pad is worn to within 1/32" (.8 mm) of rivet heads, replace complete disc pad set.

BLEEDING SYSTEM

See Hydraulic Brake Bleeding in this section

REMOVAL & INSTALLATION

DISC BRAKE PADS

Removal

1) Remove 2/3 of brake fluid from front reservoir in master cylinder. Raise vehicle and remove wheel. Place a large "C" clamp on caliper so that solid side of clamp rests against metal part of outer disc pad. Tighten "C" clamp until caliper moves away from vehicle far enough to push piston to bottom of bore. Remove "C" clamp.

2) Do not disconnect brake line to caliper. Remove 2 mounting bolts which secure caliper to support bracket. Lift caliper off rotor and remove inner disc pad. Pry out outer disc pad. Place caliper on front suspension arm so that caliper weight is not supported by brake hose.

3) Remove shoe support spring from cavity in piston. Remove sleeves from inner ear in caliper. Remove rubber bushings from grooves in each of 4 caliper ears.

Installation

1) Install new rubber bushings in 4 caliper ears. Install sleeves in bushings with installation tool (J-22835). Position sleeves so that end toward disc pad is flush with machined surface of ear. Install shoe support spring on inner disc pad. Place single tang end of spring over notch in center edge of pad. Now press 2 tangs at spring end of inner disc pad over bottom edge of pad.

2) Place inner disc pad in caliper (with spring attached) so that the ear end of disc pad is down and the bottom end is up. Install at an angle so that the spring rests on the inside diameter of piston. Press down on both ends of disc pad until pad is in a flat position, resting on piston. Be sure to install inner brake pads on the correct side. Wear sensor will be toward the rear of the caliper when correctly installed.

3) Place outer disc pad in caliper with ears of pad over caliper ears. Tab at bottom of pad should be engaged in caliper cut-out. Note left and right disc pads. Place caliper over rotor, lining up caliper ears with holes in the mounting bracket. With caliper in place, make sure brake hose is not twisted.

4) Start bolts through sleeves in inner caliper ears and mounting bracket. Make sure that bolts pass under retaining ears in inner disc pad. Push bolts through holes in outer disc pads and caliper ears. Thread bolts into mounting bracket and tighten to 35 ft. lbs. (48 N.m).

5) Fill master cylinder with new brake fluid. Pump brake pedal several times to seat disc pads against rotor. Clinch upper ears of outer disc pad with channel lock pliers, placing 1 jaw on top of upper ear and other jaw on bottom of disc pad, in notch. After clinching, ears should be flat against caliper housing with no radial clearance. If clearance exists, repeat procedure.

BRAKE CALIPER

Removal & Installation

Brake caliper removal and installation procedures are same as for disc brake pads, except that it will be necessary to disconnect brake hose.

DISC ROTOR

Removal (2-WD Models)

1) Raise vehicle and support on safety stands. Remove brake caliper (do not disconnect brake line).

2) Remove grease cover from end of hub. Remove cotter pin nut, washer and outer bearing. Remove rotor and hub assembly.

GENERAL MOTORS FLOATING CALIPER DISCS (Cont.)

Installation

Install rotor and hub assembly on spindle. Install outer bearing, washer and nut. Adjust wheel bearing. *See Wheel Bearing Adjustment in SUSPENSION section.*

Removal & Installation (4-WD Models)

Raise and support vehicle on safety stands. Remove wheel and tire. Remove locking hub as outlined in *Locking Hub article in DRIVE AXLE section.* Remove wheel bearing lock nut, lock ring and adjuster nut. Remove rotor and hub assembly. To install, reverse removal procedures and adjust wheel bearing. *See Wheel Bearing Adjustment in SUSPENSION section.*

OVERHAUL

BRAKE CALIPER

Disassembly

1) Clean exterior of caliper with denatured alcohol and place on clean work surface. Remove brake hose, discarding copper gasket. Drain brake fluid from caliper. Use clean shop towels to pad interior of caliper and apply compressed air at caliper inlet to remove piston. Use just enough pressure to ease piston out of bore.

2) Use screwdriver to pry boot out of caliper housing. Pry piston seal from its groove in caliper bore with a piece of wood or plastic. Do not use metal tool of any type to remove piston seal. Remove bleeder valve from housing.

Inspection

1) Boot, seal, rubber bushings and sleeves are to be replaced each time caliper is overhauled. Clean all other parts in denatured alcohol. Dry 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 during reassembly.

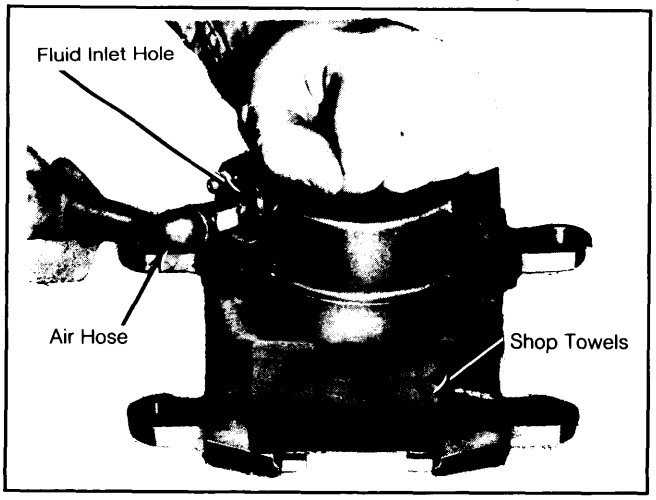
2) Check guide pins for corrosion, breaks in plating or other damage. Do not attempt to clean pins; replace them. Check outside diameter of piston for scoring, nicks, corrosion, and worn or damaged plating. If surface defects exist, piston must be replaced.

3) Piston bore should be checked for similar defects. Bore is not plated, therefore, it may be polished with crocus cloth. Thoroughly clean after polishing. Replace caliper housing if bore corrosion cannot easily be cleaned out.

Reassembly

1) Lubricate bore in caliper housing and new piston seal with clean brake fluid. Position seal in caliper bore groove. Lubricate piston with clean brake fluid and assemble new boot into groove in piston with fold facing open end of piston. Insert piston into caliper bore using care not to unseat seal. Force piston to bottom of bore.

Fig. 2: Using Compressed Air to Remove Caliper Piston



2) Position outer diameter of boot in caliper counterbore and drive in until fully seated. Check boot installations to ensure retaining ring (molded into boot) is not bent, and that boot is installed completely below caliper face. Install brake hose, using new copper gasket.

DISC ROTOR

Lateral Runout

Adjust wheel bearings until all end play is eliminated. Attach dial indicator with contact tip of indicator about 1" from rotor edge. Set indicator to zero and turn rotor through one complete revolution, noting indicator reading.

Parallelism

Check thickness of rotor at 4 or more points around circumference of rotor. Make all measurements at same distance from edge of rotor. If thickness variation is excessive, refinish or replace rotor as necessary.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Brake Hose-to-Caliper	32 (44)
Caliper Mounting Bolts	35 (48)
	INCH Lbs. (N.m)
Hydraulic Line-to-Brake Hose	150 (17.0)
Support Plate-to-Knuckle Bolts	140 (15.9)

DISC BRAKE ROTOR SPECIFICATIONS

Application	Disc Diameter In. (mm)	Lateral Runout In. (mm)	Parallelism In. (mm)	Original Thickness In. (mm)	Min. Refinish Thickness In. (mm)	Discard Thickness In. (mm)
All 10 Series & G20	11.86 (301.2)	.004 (.10)	.0005 (.013)	1.28 (32.5)	1.23 (31.2)	1.22 (30.9)
All Other Models	[1] 12.5 (317.5)	.004 (.10)	.0005 (.013)	[2] 1.28 (32.5)	[3] 1.23 (31.2)	[3] 1.22 (30.9)

[1] — 14.25" (361.9 mm) rotor used on some P30 models.
[2] — 1.53" (38.9 mm) thick rotor used on some 30 series models.
[3] — On models with 1.53" (38.9 mm) rotor, refinish thickness is 1.48" (37.6 mm), discard at 1.47" (37.3 mm).