COURIER

Courier

DESCRIPTION

Courier brake system consists of front disc brakes (New for 1977), rear drum brakes, dual piston master cylinder and power brake unit (New for 1977). Brake system is protected by a pressure differential valve and warning light. Differential valve indicates when there is a pressure loss by a warning light on dash board. Light will stay on until problem is corrected. Disc brakes consist of a single piston cylinder mounted in a caliper retaining bracket. Rear brakes are fitted with dual piston wheel cylinders.

ADJUSTMENT

PEDAL FREE PLAY

Loosen lock nut on master cylinder push rod at clevis. Turn push rod in or out to obtain .33-.39" (8.5-10.0 mm) free play, measured at pedal pad. When clearance is correct, tighten lock nut.

FRONT DISC BRAKES

No adjustment is necessary.

REAR DRUM BRAKES

All shoe to drum adjustments must be made with brake shoes at normal room temperature. Turn lower wheel cylinder rachet to expand brake shoe locking it against drum. Back-off rachet 5 notches or until drum rotates freely. Repeat procedure for upper wheel cylinder.

PARKING BRAKE CABLE

NOTE – *Service brakes must be properly adjusted before adjusting parking brake.* Adjust length of cable at equalizer so that rear brakes are locked when parking brake lever is pulled out five to ten ratchet clicks (1 5/8-3 1/8"). After adjustment, apply and release parking brake several times, and make sure wheels rotate freely when parking brake is released.

COMBINATION VALVE

Combination Valve Reset – Place ignition switch in the on position. Depress brake pedal and piston will center itself. This will cause brake warning light to go out.

HYDRAULIC SYSTEM BLEEDING

NOTE – *Front and rear hydraulic systems are individual systems and are bled separately. Bleed longest line first on individual system being serviced.*

CAUTION – Do not bleed hydraulic system through master cylinder stop screw.

Manual Bleeding-1) Attach a bleeder tube to right rear lower brake cylinder, and immerse opposite end of tube in a container partially filled with brake fluid. Open bleeder screw 3/4 turn, push brake pedal through full travel, close bleeder screw, and return pedal. Continue operation until air bubbles are no longer seen in discharged fluid.

2) Repeat procedure at upper right rear wheel cylinder, and at wheel cylinders on left rear brake. If primary system is to be bled, repeat procedure at each right front wheel cylinder and each left front wheel cylinder. When bleeding operation is completed, fill master cylinder reservoirs to within 1/4" of top of reservoirs. Centralize pressure differential valve.

REMOVAL & INSTALLATION

DISC BRAKE PADS

Removal – **1)** Raise vehicle and place on safety stands. Remove front wheel. Remove 4 locking spring clips. Drift out both stopper plates.

2) Remove caliper piston and anti-rattle spring from pad bracket. Support caliper piston out of way. Pull out disc pads and shims (if any). Note position of shims.

NOTE – *All pads must be replaced at one time.*

Installation – **1)** Pull bleeder cap off caliper and attach a tube over bleed screw. Open bleed screw and seat piston in cylinder with "C" clamp. Tighten bleed screw and remove "C" clamp.

2) Install new pads and shims if thickness of pads (including shoe) has worn to .315" (8 mm). Fit anti-rattle spring and caliper piston. Apply a light coat of grease to stopper plates. Install plates and spring clips.

FRONT DISC BRAKE CALIPER

Removal – Raise vehicle and support with safety stands. Remove front wheel. Disconnect hydraulic line at flexible hose. Remove "U" clip to free hose. Take out 2 mounting bolts holding caliper bracket, then remove entire assembly.

Installation – To install, reverse removal procedure and note: Bleed brake system.

BRAKE ROTOR

Removal – Remove caliper. Remove dust cap, cotter pin, adjustment nut, thrust washer and outer bearing. Slide out hub and rotor assembly. Index mark and separate hub from rotor.

Installation – Thoroughly clean mating surface of hub and rotor. Position rotor on hub aligning index marks. Tighten mounting bolts. To complete installation, reverse removal procedure. *See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.*

BRAKE DRUM

Removal – Remove tire and wheel. Remove brake drum attaching screws and install them in tapered holes in brake drum. Turn screws in evenly to force drum away from wheel hub. Lift off drum.

Installation – Align attaching screw holes with ones in wheel hub. Transfer screws to retaining position and tighten evenly. Install tire and wheel.

COURIER (Cont.)

BRAKE SHOES

Removal – Remove tire, wheel and brake drum. Remove brake shoe return springs, withdraw shoe retaining pin and spring. Disconnect handbrake link and cable from lever. Lift out brake shoes.

Installation – Reassemble handbrake. Position new brake shoes to backing plate with slots toward wheel cylinders. Install retaining springs and clips. Replace brake drum and adjust brakes.

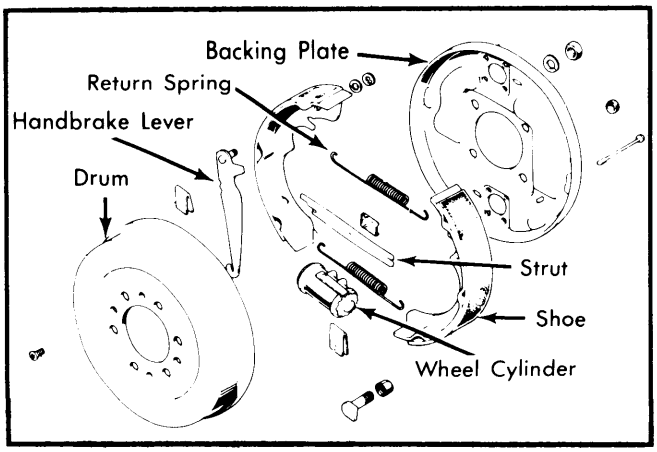

Fig. 1 Rear Brake Assembly Showing Relationship of Internal Components

WHEEL CYLINDER

Removal – With brake drum and shoes removed, disconnect hydraulic line from cylinder. Remove stud nuts and bolt which retain cylinder to backing plate and remove cylinder.

Installation – Reverse removal procedure, adjust brake shoes and bleed hydraulic system.

MASTER CYLINDER

Removal & Installation – Disconnect brake hydraulic lines at master cylinder outlets and inlet ports from cylinder reservoir. Remove 2 nuts mounting master cylinder to power brake booster. Lift assembly outward and upward away from booster push rod. To install reverse removal procedure and make sure to guide power brake booster push rod into master cylinder piston.

COMBINATION VALVE

Removal – Disconnect warning light wire. Disconnect hydraulic lines from combination valve. Remove bolt mounting valve assembly and take off combination valve.

Installation – To install combination valve, reverse removal procedure and note the following: Bleed hydraulic system and reset piston in valve.

POWER BRAKE BOOSTER

Removal – Remove master cylinder as previously outlined. Disconnect vacuum hose for power booster. Disconnect push rod from brake pedal. Work under instrument panel and remove 4 nuts mounting power brake booster.

Installation – Slide booster into position. Fit 4 mounting nuts. Install push rod to brake pedal. Connect vacuum line from intake manifold. Refit master cylinder to booster. Bleed brake system.

OVERHAUL

FRONT DISC BRAKE CALIPER

Disassembly – Clean outside of caliper. Separate cylinder from bracket. Remove boot retainer and slide off dust boot. Force compressed air into brake line hole to remove piston from caliper.

2) It may be necessary to tap outside of piston housing with plastic hammer while applying air pressure to unseat piston. Dig out piston seal from inside caliper bore.

Cleaning and Inspection – Wash all disassembled parts in clean brake fluid and completely dry with compressed air. Inspect caliper bore and piston for scratches, grooves or rust. Minor imprefections can be eliminated with crocus cloth. Piston seal and dust boot must be replaced during each overhaul.

Reassembly – Lightly coat piston seal with brake fluid and insert into groove in caliper bore. Make sure seal is not twisted in groove. Lubricate piston and bore with brake fluid, then slide piston into place. Fit dust boot with flange seated in inner groove of caliper. Fit dust boot retainer.

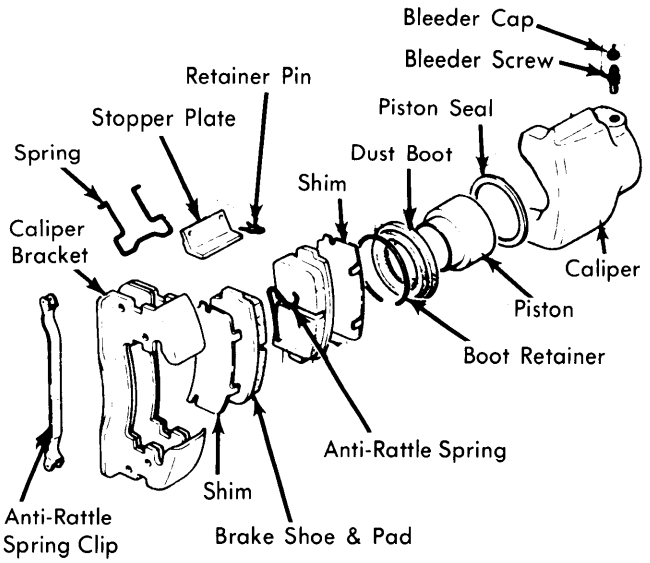

Fig. 2 Exploded View of Front Disc Brake

REAR WHEEL CYLINDER

Disassembly – Remove piston, adjusting screw, and boot assemblies from each end of cylinder and separate parts. Press in on either piston cup and force out piston cups, expanders, and return spring.

Cleaning & Inspection – Wash all parts in isopropyl alcohol. Examine cylinder bore, pistons, and adjuster for wear or damage. Check clearance between cylinder bore and pistons; if greater than .006" (.15 mm), replace parts as necessary.

COURIER (Cont.)

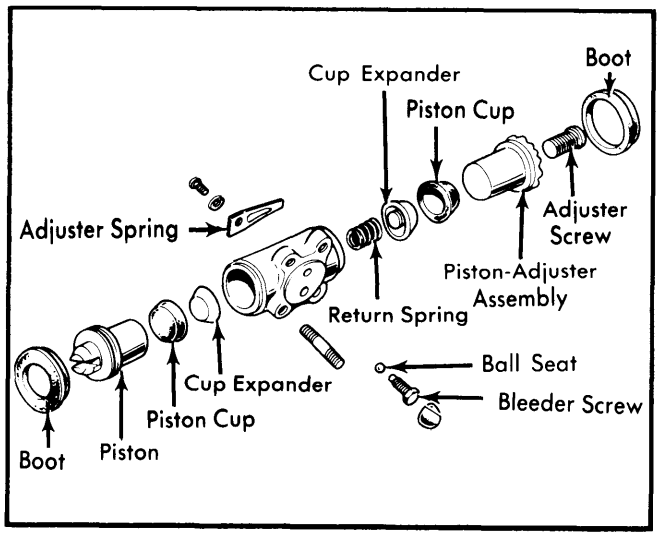

Fig. 3 Disassembled View of Courier Rear Wheel Cylinder

Reassembly – Apply brake fluid to cylinder bore, adjuster, and cylinder cups. Position return spring in cup expanders, place cups against expanders, and install into cylinder bore with flat side of cups facing outward. Install boot to piston with smaller lip of boot in groove of piston, install piston into cylinder, and install larger lip of boot into cylinder groove. Install adjusting screw into adjuster.

MASTER CYLINDER

Disassembly – 1) Drain brake fluid from reservoir and separate reservoir from master clyinder inlet ports.

2) Remove primary piston snap ring and stop washer. Slide out piston, return spring and cup from bore.

3) Remove secondary piston stop screw with "O" ring. Remove secondary pistion and return spring. If necessary, piston can be blown out with air pressure. Remove brake line fittings, gaskets, check valves and springs.

Cleaning and Inspection – Clean all parts in brake fluid and dry with compressed air. Check cups for wear, cracks or softening. Inspect piston and cylinder bore for wear, roughness, or scoring. Check clearance between cylinder bore and pistons. If clearance exceeds .006" (.15 mm), replace piston.

Reassembly – 1) Lightly coat all components with brake fluid. Install check valve springs and valves into outlet ports. Install gasket and brake line fittings.

NOTE – *Make sure check valve with hole is installed in hole on side of master cylinder.*

2) Insert secondary and primary cup onto secondary piston. Fit piston assembly and spring into cylinder. Seat piston with a screwdriver and install stop screw with washer.

3) Fit cup to primary piston. Insert primary piston assembly with return spring into cylinder. Install washer and snap ring.

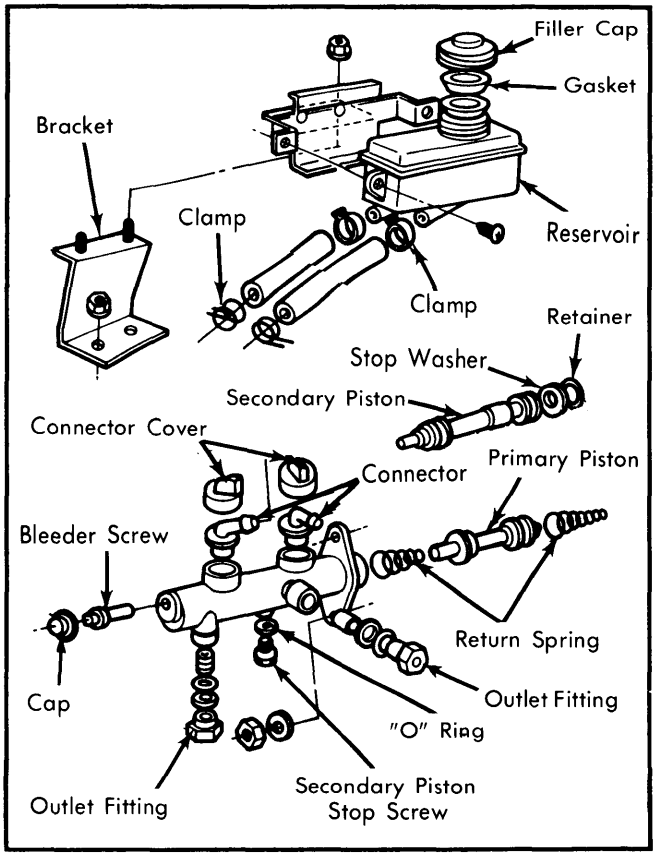

Fig 4 Exploded View of Master Cylinder and Related Components

POWER BRAKE BOOSTER

Disassembly – 1) Fit booster in vise with rod facing up. Index mark shell sides with a scribe. Remove lock nut and boot. Rotate rear shell clockwise to unlocked position and lift off shell complete with:

- Diaphragm
- Power Piston Assembly
- Valve Rod
- Plunger Assembly

2) Remove spring from front shell. From inside rear shell remove:

- Diaphragm
- Power Piston Assembly
- Valve Rod
- Plunger Assembly

3) Remove rear seal, with punch, from rear shell only if seal needs replacing. Take out air silencer retainer and air filter from power piston. DO NOT damage piston.

4) Press in valve rod and remove retainer key. Take valverod and plunger assembly off power piston. Press out reaction disc. Slide push rod out of front shell.

Cleaning – 1) Wipe down all components. Carefully inspect all components for damage. Especially look at rubber parts for cuts, nicks or deformation.

COURIER (Cont.)

2) Check power piston for cracks, distortion, chipping or damage.

3) Inspect reaction disc, valve rod and plunger. Replace components as necessary.

Reassembly – **1)** Apply brake fluid to inside of power piston bore and to surface of valve rod plunger assembly. Insert valve rod and plunger assembly into power piston. Press in valve rod and align plunger groove with slot in power piston. Insert key.

2) Install diaphragm on power piston. Be sure diaphragm is squarely seated on piston groove. Fit air silencer retainer and filter and fit over rod, then place in power piston. Coat surface of reaction disc with brake fluid and install in power piston.

3) Lightly coat outer edge of diaphragm and rear shell seal with brake fluid. Carefully guide tube end of power piston through seal in real shell. Fit push rod to front of power piston.

4) Put return spring in front shell. Position complete rear shell assembly over front half, press down and rotate counterclockwise until scribe marks align. Install dust boot, fork end and lock nut.

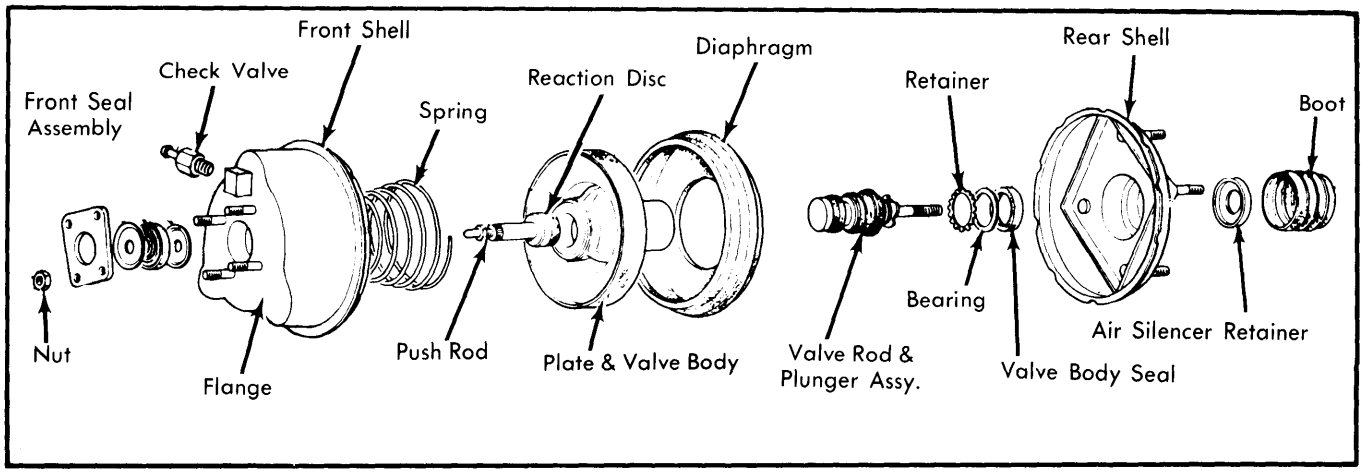

Fig. 5 Exploded View of Power Brake Booster

BRAKE DRUM SPECIFICATIONS

Application	Drum Diameter In. (mm)	Original Diameter In. (mm)	Maximum Refinish Diameter In. (mm)	Discard Diameter In. (mm)
Courier	10.236 (260)	10.236 (260)	10.2756 (261)	

DISC BRAKE ROTOR SPECIFICATIONS

Application	Disc Diameter In. (mm)	Lateral Runout In. (mm)	Parallelism In. (mm)	Original Thickness In. (mm)	Minimum Refinish Thickness In. (mm)	Discard Thickness In. (mm)
Courier	10.079 (256)	.004 (.10)	.....	.472 (12)	.433 (11)	.....

BRAKE SYSTEM SPECIFICATIONS

Application	Drum Diam. In. (mm)	Wheel Cylinder Diameter		Master Cylinder Diameter In. (mm)
		Front In. (mm)	Rear In. (mm)	
Courier	10.236 (260)	①	.750 (19)	.875 (22.2)

① – Front disc brake cylinder bore 2.12" (53.8 mm).