

# Brakes

## COURIER

### Pickup

### DESCRIPTION

Brake system is hydraulically-operated, using a tandem master cylinder and vacuum power brake unit. Front brakes are sliding caliper disc. Rear brakes are leading/trailing drum. Brake system is protected by a pressure differential combination valve and warning light.

If a leak occurs in front or rear brake system, or if uneven fluid pressure develops, the piston is moved off center, activating the warning light. Light will remain on until problem is corrected. Service brake systems are self-adjusting. Parking brake is cable-actuated on rear wheels.

### ADJUSTMENT

#### DRUM BRAKES

**CAUTION:** Shoe-to-drum clearance must be made with brake drums at normal room temperature.

1) Rear brakes are self-adjusting. They require manual adjustment only after brake shoes have been replaced or adjusting rod length has been changed. To adjust, raise rear of vehicle and support it on safety stands. Release parking brake, and remove adjusting hole plugs from rear of backing plate.

2) Insert brake adjuster tool through hole, rotate star wheel in direction of arrow stamped on backing plate until wheel locks. Insert a pointed tool through hole, and push adjusting lever off star wheel. Back off star wheel 3 or 4 notches until wheel rotates freely without drag. Test drive vehicle after adjustment to ensure equal brake action.

**NOTE:** Adjustment must be equal on both wheels.

#### PEDAL FREE PLAY

Loosen lock nut on master cylinder push rod at clevis pin. 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.

#### STOP LIGHT SWITCH

Loosen lock nut, and adjust stop light switch until it just contacts brake pedal stop. DO NOT depress master cylinder push rod during stop light switch adjustment.

#### PARKING BRAKE

Adjust length of cable at equalizer so rear brakes are locked when parking brake lever is pulled out 5 to 10 ratchet clicks (1 5/8-3 1/8" or 40-80 mm). After adjustment, operate parking brake several times to ensure wheels rotate freely when parking brake is released.

**NOTE:** Service brakes must be properly adjusted prior to adjusting parking brake.

#### BRAKE WARNING LIGHT

1) A dual warning light is mounted on instrument panel. Parking brake light should glow when parking

brake lever is pulled 1 notch (ignition on). It should go off when lever is fully released.

2) To check circuit warning sensor, fully release parking brake and ensure light is off (ignition on). Open 1 bleed screw, and depress brake pedal. Light should glow. Close bleed screw.

3) To reset warning light, turn ignition on and depress brake pedal. Piston will center itself, causing the warning light to go off. Turn ignition off.

**NOTE:** Warning light will glow after any repair on service brake system, and will not go out until piston is centered in pressure differential valve.

### REMOVAL & INSTALLATION

#### DISC BRAKE PADS

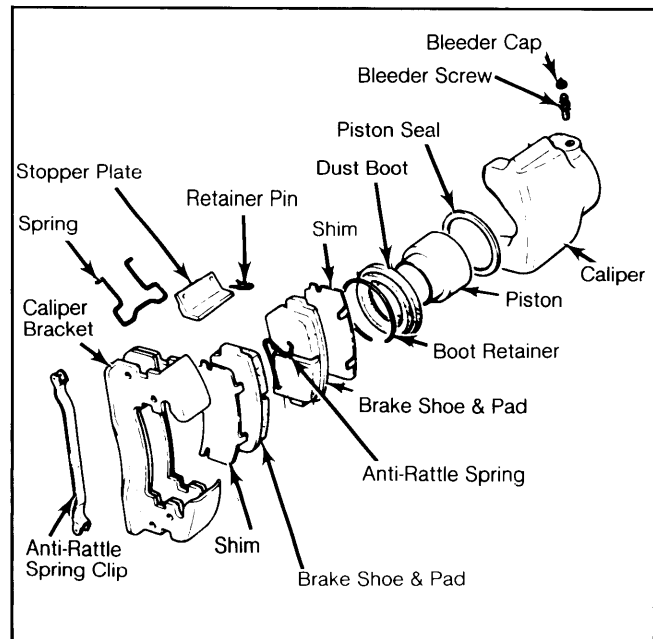
##### Removal

1) Raise front of vehicle, support it on safety stands, and remove wheel. Remove locking spring clips, and drive out stopper plates.

2) Remove caliper body and anti-rattle spring from caliper bracket. Set caliper out of way. DO NOT allow caliper to hang from brake line. Remove disc pads and shims (if equipped). Note position of shims.

**NOTE:** All pads must be replaced at same time.

**Fig. 1: Exploded View of Front Disc Brake**



##### Installation

1) Pull bleeder cap off caliper, and attach a tube to bleed screw. Open bleed screw, and seat piston in bore with "C" clamp. Tighten bleed screw, and remove clamp.

2) Install new pads and shims (if required) when pad thickness has worn to .276" (7 mm). Install anti-rattle spring and caliper body.

## COURIER (Cont.)

3) Apply light coat of grease to stopper plates. Install plates and spring clips. Install wheel. Check brake fluid level, and test brakes for proper operation.

### FRONT DISC BRAKE CALIPER

#### Removal

1) Raise and support vehicle on safety stands, and remove wheel. Remove clip at connection of flexible hose and brake line. Separate and plug openings.

2) Remove caliper bracket mounting bolts, and remove entire assembly.

#### Installation

Reverse removal procedure, bleed brake system, and centralize differential valve.

### BRAKE ROTOR

#### Removal

1) With caliper assembly removed, remove dust cap, cotter pin, adjusting cap, adjusting nut, thrust washer and outer bearing.

2) Remove hub and rotor assembly from spindle. Remove hub-to-rotor bolts, and separate hub from rotor.

#### Installation

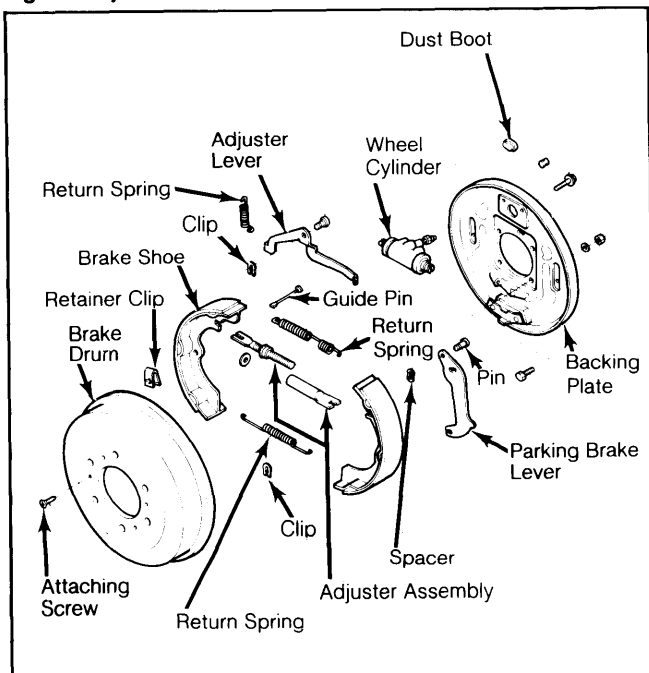
Reverse removal procedure, tighten hub-to-rotor bolts securely, and adjust wheel bearings. See *Wheel Bearing Adjustment* in *SUSPENSION* Section.

### BRAKE DRUM

#### Removal

Raise and support vehicle on safety stands. Remove wheel and brake drum attaching screws. Install brake drum attaching screws in tapered holes of brake drum. Turn screws in evenly to force drum away from wheel hub. Remove drum.

**Fig. 2: Exploded View of Rear Brake Assembly**



#### Installation

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

### BRAKE SHOES

#### Removal

1) With brake drum removed, remove brake shoe return springs, retaining springs, and guide pins.

2) Disconnect hand brake cable from lever. Remove brake shoes as an assembly. Separate components.

#### Installation

1) Apply Lubriplate (or equivalent) to screw threads of adjuster assembly and brake shoe contact surfaces on backing plate. Attach parking brake lever to rear shoe with retaining clip. Hold shoe close to backing plate, and install parking brake cable to lever.

2) Position both shoes on backing plate. Insert adjuster assembly between shoes. Ensure shoe slots are engaged in wheel cylinder pistons and adjuster assembly. Install guide pins, retaining springs, and return springs. Install drum, and adjust brakes.

### MASTER CYLINDER

#### Removal

Disconnect brake hydraulic lines and reservoir lines and plug all openings. Remove master cylinder-to-brake booster mounting nuts. Lift master cylinder outward and upward, away from booster and push rod.

#### Installation

Reverse removal procedure, and carefully guide push rod into master cylinder piston. Bleed brake system and check pedal free play.

### PRESSURE DIFFERENTIAL VALVE

#### Removal

Disconnect warning light wire and hydraulic lines from combination valve. Remove mounting bolt and differential valve.

#### Installation

To install, reverse removal procedure, and note the following: Bleed hydraulic system and center pressure differential valve.

### POWER BRAKE BOOSTER

#### Removal

With master cylinder removed, disconnect vacuum line from booster. From inside vehicle, remove cotter pin attaching operating rod clevis to brake pedal. Remove 4 mounting nuts, located under dash panel. Remove brake booster from engine compartment.

#### Installation

To install, reverse removal procedure, and note the following: Install master cylinder, bleed hydraulic system, check pedal free play, center pressure differential valve, and ensure proper brake operation.

## OVERHAUL

### FRONT DISC BRAKE CALIPER

#### Disassembly

1) 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.

# Brakes

## COURIER (Cont.)

2) It may be necessary to tap outside of piston housing with plastic hammer while applying air pressure to unseat piston. Remove 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 imperfections can be eliminated with crocus cloth. Piston seal and dust boot must be replaced.

### Reassembly

1) Lightly coat piston seal with brake fluid, and insert into groove in caliper bore. Make sure seal is not twisted in groove.

2) Lubricate piston and bore with brake fluid. Slide piston into place. Fit dust boot with flange seated in inner groove of caliper. Fit dust boot retainer.

## MASTER CYLINDER

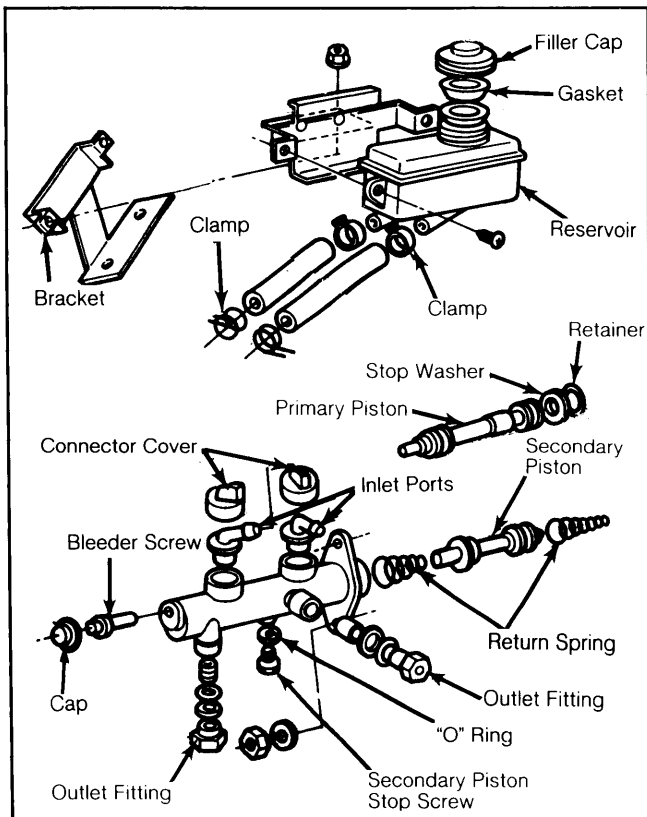
### Disassembly

1) Drain brake fluid from reservoir, and separate reservoir from master cylinder inlet ports. Remove primary piston snap ring and stop washer. Slide out primary piston, return spring and cup from bore.

2) Loosen secondary piston stop screw. Push secondary piston into cylinder bore with a screwdriver. Remove stop screw and "O" ring. Insert fabricated guide pin into stop screw hole. See Fig. 4.

3) Release pressure on secondary piston. Remove secondary return spring and cup. Use low air pressure if required. Remove brake line fittings, gaskets, check valves and springs.

**Fig. 3: Exploded View of Master Cylinder and Related Components**



### Cleaning & Inspection

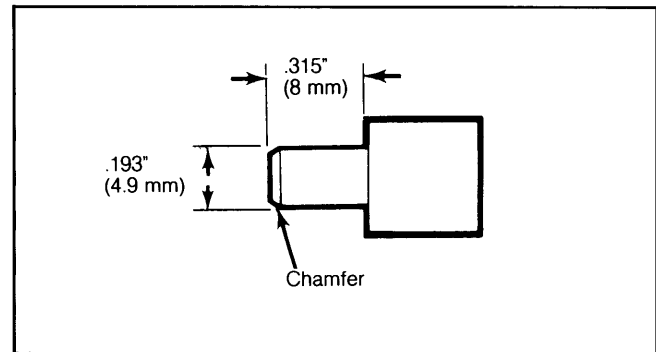
Clean all parts in isopropyl alcohol, and dry with compressed air. Check cups for wear, cracks or deformation. Check cylinder bore and pistons for wear, roughness or scoring. Replace defective parts. Check cylinder bore-to-piston clearance. If greater than .006" (.15 mm), replace pistons.

### Reassembly

1) Apply brake fluid to pistons and cups. Install check valves and springs, gaskets, and brake line fittings in outlet holes.

**NOTE:** Check valve with hole must be installed in outlet hole on side of master cylinder.

**Fig. 4: Dimensions for Fabricating Guide Pin**



2) Install secondary and primary cups to secondary piston. Insert fabricated guide pin into stop screw hole. Slide piston assembly and spring into cylinder. Seat piston with screwdriver, remove guide pin and install stop screw and "O" ring. Release pressure on secondary piston.

3) Install cups to primary piston, and insert piston assembly and spring into cylinder. Install washer and snap ring. Install reservoir and hoses to master cylinder.

## POWER BRAKE BOOSTER

### Disassembly

1) Fit booster in vise with rod facing up, and scribe index mark on both shells. Remove lock nut, clevis, and dust boot. Rotate rear shell clockwise, unlocking it from front shell.

2) Lift off rear shell complete with diaphragm, power piston assembly, valve rod, and plunger assembly.

3) Remove spring from front shell. From inside rear shell, remove diaphragm, power piston assembly, valve rod, and plunger assembly.

4) Remove air silencer retainer and air filter from power piston. DO NOT damage piston.

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

### Cleaning & Inspection

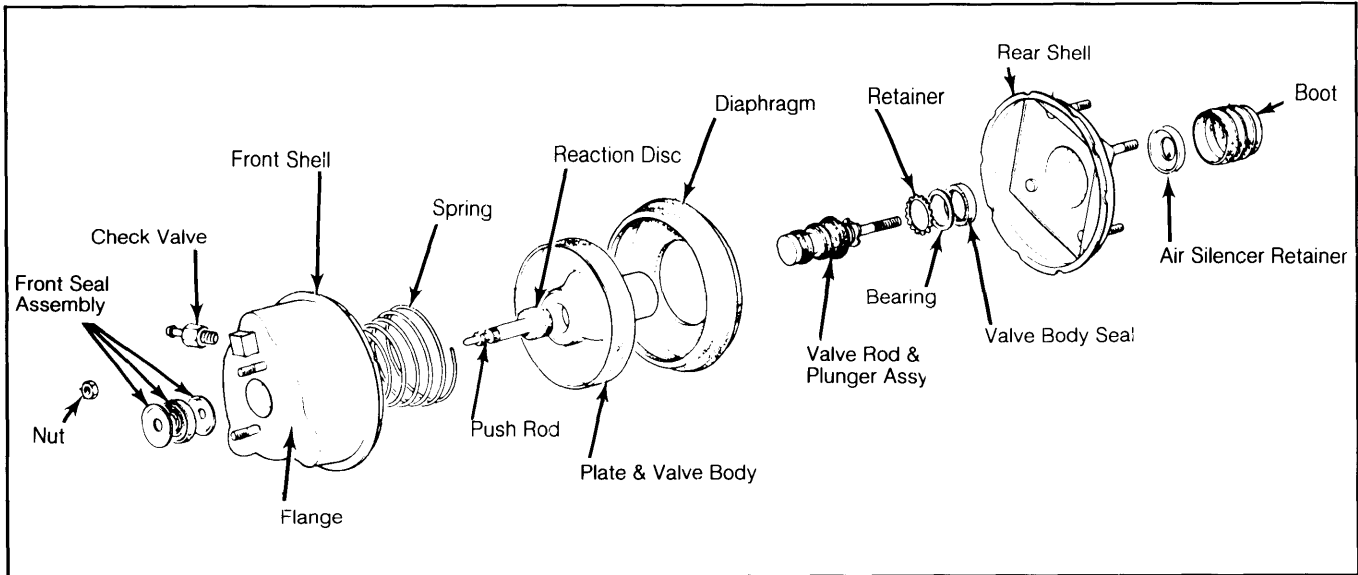
Wipe parts clean, and inspect rubber parts for cuts, nicks or distortion. Inspect power piston for cracks, chipping, distortion or damaged seats. Inspect reaction disc, valve rod and plunger assembly and shells for nicks, dents or other damage. Replace defective parts.

### Reassembly

1) Apply brake fluid to inside of power piston bore and to surface of valve rod and plunger assembly.

## COURIER (Cont.)

**Fig. 5: Exploded View of Power Brake Booster**



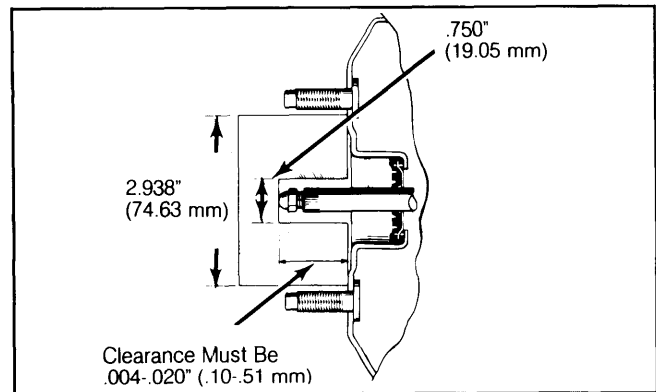
Insert valve rod and plunger assembly into power piston. Press in valve rod and align plunger groove with slot in power piston. Insert retainer key.

**2)** Install diaphragm on power piston. Diaphragm must be seated in piston groove. Install air silencer and filter over valve rod, and insert in power piston. Coat reaction disc surface with brake fluid, and install in power piston.

**3)** Coat outer edge of diaphragm and rear shell seal with brake fluid. Carefully guide tube end of power piston through rear shell seal. Install push rod to front of power piston. Install return spring in front shell. Position rear shell over front shell, press down, and rotate counterclockwise until scribe marks align.

**4)** Install dust boot, clevis, and lock nut. Check push rod clearance with fabricated gauge. Clearance should be .004-.020" (.10-.51 mm). See Fig. 6.

**Fig. 6: Adjusting Push Rod Clearance**



Dimensions shown are for making gauge.

### 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)
Pickup	10.079 (256)	.004 (.10)	.....	.472 (12)	.433 (11)	.....

### DRUM BRAKE SPECIFICATIONS

Application	Drum Diam. In. (mm)	Drum Width In. (mm)	Max. Drum Refinish Diam. In. (mm)	Brake Cyl. Diam. In. (mm)	Master Cyl. Diam. In. (mm)
Pickup	10.236 (260)	.....	10.276 (261)	7/8 (22.23)	7/8 (22.23)