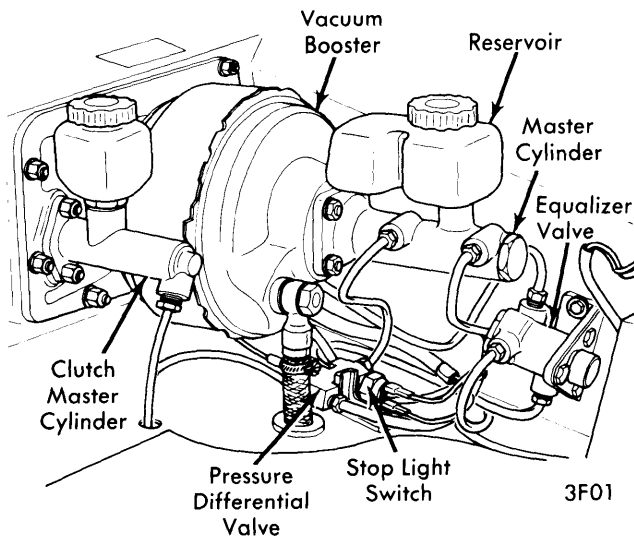


PANTERA

Pantera

DESCRIPTION

Power assisted hydraulic disc brakes are used on all four wheels. Two types are used, fixed calipers on front wheels and floating calipers on rear wheels. Master cylinder has two pistons which are separated into front and rear systems. A vacuum power brake booster installed between master cylinder and brake pedal supplies additional hydraulic pressure when brakes are applied. Also included within hydraulic brake system are a pressure differential valve and a front brake pressure equalizer valve.

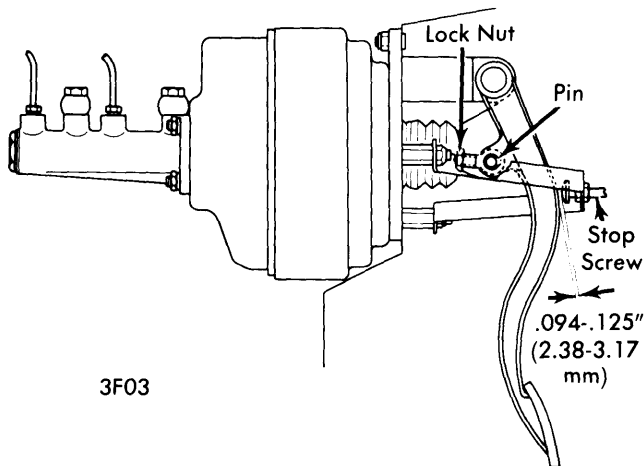


MASTER CYLINDER INSTALLATION

ADJUSTMENT

DISC BRAKES

No adjustment to disc brakes is necessary. A warning light on instrument panel comes on when brake pads are worn to .094" (2.38 mm) or less. If light is on, this signals that brake pads need replacement.



BRAKE PEDAL ADJUSTMENT

PARKING BRAKE

Set parking brake between notches five and six. Raise vehicle on a hoist and remove cotter pin and washer from pivot arm. Loosen lock nut and turn rod forward until sufficient tension exists so that rear wheels cannot be turned by hand. Tighten lock nut and reconnect rod to pivot arm, installing washer and cotter pin.

SERVICING

BLEEDING SYSTEM

1) Make sure master cylinder is filled with heavy duty brake fluid (ESA-M6C25-A or equivalent). Maintain level in reservoirs at least $\frac{3}{4}$ full during bleeding procedure.

2) Attach a flexible bleeder hose to right rear brake caliper bleeder valve. Immerse hose in a container of hydraulic fluid. Unscrew bleeder valve and press down hard on brake pedal. Wait a few seconds and repeat procedure until there are no air bubbles in container. Holding pedal down, close bleeder valve.

3) Repeat procedure on left rear wheel, right front wheel and left front wheel in this order. During bleeding operation, maintain fluid level in master cylinder reservoirs.

LINING REPLACEMENT

NOTE — If master cylinder is full, siphon some of brake fluid from reservoir to prevent overflowing when caliper pistons are backed off.

Front Brake Pads — 1) Raise vehicle on a hoist and remove wheels. Insert two screwdrivers under brake pad support springs. Flatten lock tabs and remove two caliper-to-spindle bolts and spacers. Remove caliper from rotor and wire caliper so it does not hang by brake hose.

2) Hold caliper and remove pads from centering pins. Using care not to damage dust boots, push back pistons. Clean and inspect pins and pilot surfaces of caliper for wear or damage. Install new brake pads. Hold caliper and spacers in place on spindle. Install and tighten bolts. Bend lock tabs down and remove screwdrivers.

Rear Brake Pads — 1) Raise vehicle on a hoist and remove wheels. Remove pad retaining spring, loosen holder retaining bolt and remove old pads and holder.

2) Insert a screwdriver in groove of direct piston and rotate piston back 45°. Push pistons together. Press back on indirect piston and push yoke towards rotor. Insert screwdriver and rotate piston to its original position.

3) Install new brake pads. Install pad return spring. With spring properly seated, make sure arrow points in direction of wheel rotation.

REMOVAL & INSTALLATION

BRAKE CALIPER

Front Caliper — With vehicle on a hoist and wheel removed, insert two screwdrivers under brake pad support springs. Flatten lock tabs and remove two caliper-to-spindle retaining bolts and spacers. Remove caliper from spindle. To install, reverse removal procedure.

PANTERA (Cont.)

Rear Caliper — With vehicle on a hoist and wheels removed, open bleeder valve and pump out hydraulic fluid. Remove brake pad retaining spring and holder. Remove brake pads. Flatten lock tabs and remove mounting bolts. Disconnect hand brake cable and brake line from caliper. Lift off caliper assembly. To install, reverse removal procedure.

BRAKE DISC

Front Disc — With brake caliper removed, remove grease cap from hub. Pull cotter pin and remove wheel spindle nuts. Withdraw rotor and splash shield from spindle. To install, reverse removal procedure.

Rear Disc — 1) With brake caliper removed, remove cotter pin and attaching nut from ball joint on vertical suspension support and disconnect ball joint from support.

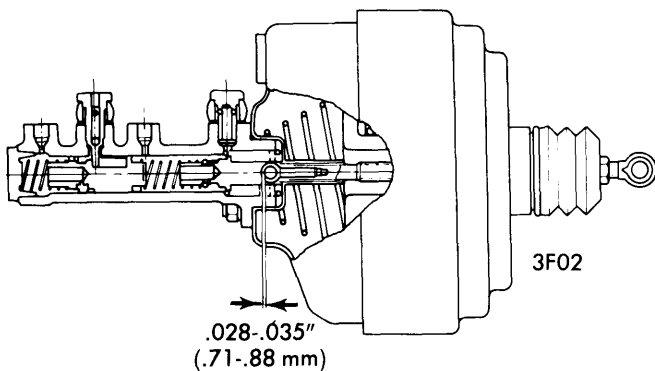
2) Remove bolts attaching "U" joint flange to rear axle shaft. Swing rotor and suspension support downwards. Remove nut and washer from one end of rod in lower arm of vertical suspension support.

3) Remove dust shields, washers and retaining rings from rod. Using a soft punch, remove pin attaching lower "A" frame to vertical support. Remove spindle, rotor and suspension support assembly. To install, reverse removal procedure.

MASTER CYLINDER

Removal — Drain fluid reservoirs and disconnect hydraulic lines. Remove nuts attaching master cylinder to vacuum booster. Lift master cylinder clear of vacuum booster, using care not to damage vacuum seal.

Installation — Place master cylinder and seal onto push rod and hold in this position. Loosely attach all brake lines to cylinder. Adjust push rod length to .028-.035" (.711-.889 mm), using domed nut and lock washer. Tighten mounting nuts and bleed hydraulic lines.



BOOSTER PUSH ROD ADJUSTMENT

BRAKE BOOSTER

Removal — Disconnect brake push rod from brake pedal. Remove master cylinder. Disconnect vacuum line from booster. Remove brake booster-to-mounting plate screws. Remove brake booster and seal.

Installation — Install brake booster to mounting plate in the same position and pedal adjustment as removal. Adjust push rod to obtain a length of .031-.047" (.787-1.19 mm) between end of push rod and seat in master cylinder. Position master cylinder and fluid seal to booster and tighten attaching bolts.

OVERHAUL

BRAKE CALIPER

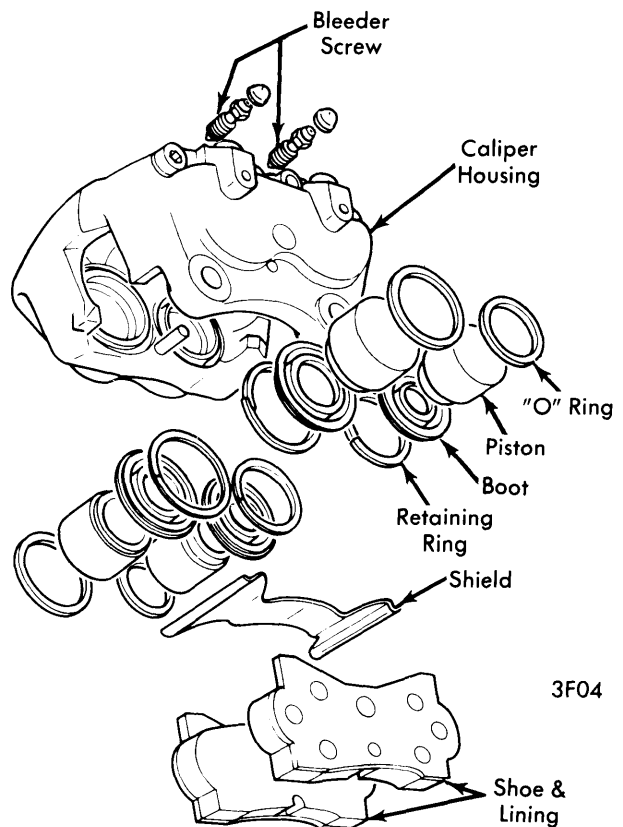
Disassembly Front Caliper — 1) Insert two screwdrivers under each pad spring. Invert caliper and remove pads from centering pins. Remove screwdrivers and pad springs.

2) Using a plastic pick to avoid damage, remove retaining ring and protective boots from caliper. Place a piece of wood in caliper gap. Using air pressure, remove four pistons from caliper bores.

3) Remove "O" rings from grooves in caliper bores. Clean and inspect caliper components and anchor plate. Coat cylinders with a thin film of hydraulic fluid.

Reassembly — 1) Install new "O" rings in grooves of caliper bores. Place pistons, new boots and retaining rings in caliper. Coat inside of boots with brake fluid.

2) Bottom pistons in caliper bores and check boots and rings for proper position. Place pad springs into position and secure it with two screwdrivers. Insert new pads and remove screwdrivers.



FRONT BRAKE ASSEMBLY

Disassembly Rear Caliper — 1) Separate yoke from cylinder housing by tapping wide side of yoke against work bench. Pull cylinder housing down and remove. Using a plastic pick, remove retaining rings and boots from cylinder.

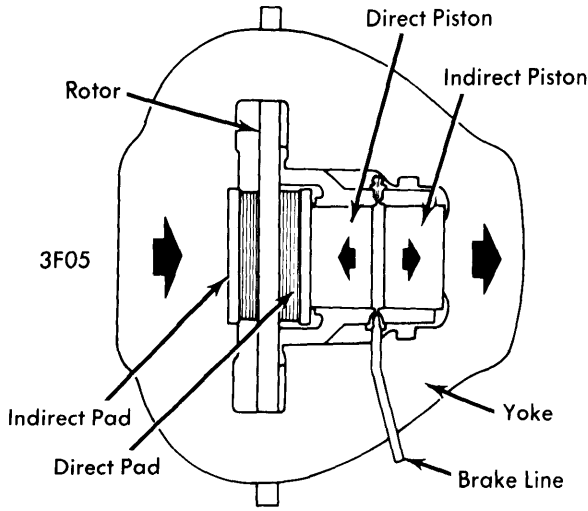
2) Remove "C" clip and spring. Raise hand brake lever slightly to disassemble support. Rotate piston 45° into release position. Using air pressure, remove direct piston and pull out indirect piston.

PANTERA (Cont.)

3) Remove "O" rings from grooves in caliper bore. Clean and inspect bore, pistons and caliper components for wear or damage. Replace as necessary.

Reassembly - 1) Apply a thin coat of brake grease to "O" rings and install in cylinder bore grooves. Insert piston into bores and rotate direct piston 45° to lock position.

2) Install protective boots and retaining rings. DO NOT grease guide openings on cylinder housing and yoke. With caliper housing in a vise, insert yoke in guide openings and seat in place.



REAR BRAKE ASSEMBLY

BRAKE SPECIFICATIONS		
Application	New in. (mm)	Used in. (mm)
Rotor Thickness (Front)	.797 (20.24)	.672 (17.06)
Rotor Thickness (Rear)	.734 (18.65)	.609 (15.47)
Runout	.004-.006 (.102-.152)	.004-.006 (.102-.152)

TIGHTENING SPECIFICATIONS	
Application	Ft. Lbs. (mkg)
Caliper Bolts	
Front	50-55 (6.9-7.6)
Rear	30-40 (4.1-5.5)
Stop Light Switch	14 (1.9)
Hydraulic Lines	14 (1.9)