

## HONDA

Civic  
Civic CVCC

## DESCRIPTION

Brake system is hydraulically actuated, using a tandem master cylinder and a power brake booster unit. Front brakes are dual piston floating caliper disc type. Rear brakes are leading-trailing shoe/drum type actuated by a dual piston wheel cylinder. Parking brake is cable and lever operated, actuating shoes of rear brake assemblies. All models use a proportioning valve to differentiate pressure to rear wheels.

## ADJUSTMENT

## PEDAL FREE PLAY

Brake pedal free play is distance pedal travels from pedal stop (brake light switch) until push rod contacts vacuum booster which actuates master cylinder. Adjust free play to .039-.196", measured at pedal pad, by adjusting brake light switch.

## FRONT DISC BRAKE PADS

Front disc brakes are self-adjusting, therefore, no adjustment in service is required.

## REAR BRAKE SHOES

With parking brake released, depress brake pedal two or three times and release. Turn adjuster on backing plate clockwise until wheel no longer turns. Back off adjuster two clicks and ensure wheel rotates freely. If brakes are dragging, back off one additional click.

## PARKING BRAKE

With rear brakes adjusted, pull parking brake lever to check operation. Rear wheels should be locked when lever is pulled one to five notches on ratchet. Adjustment is made at equalizer located between rear lower control arms.

## HYDRAULIC SYSTEM BLEEDING

Attach a bleed tube to wheel cylinder bleeder screw and immerse opposite end of tube in a container partially filled with brake fluid. Open bleeder screw, pump brake pedal, and continue operation until air bubbles are no longer seen in dis-

charged fluid. Close bleeder screw and refill master cylinder reservoir. Repeat procedure on remaining brake lines until all air is bled from system. Bleeding sequence is left-rear, right-front, left-front, and right-rear.

## REMOVAL &amp; INSTALLATION

## DISC BRAKE PADS

**Removal** — Raise and support front of vehicle; remove front wheels. Remove pin retaining clip, retaining pins, and springs. Note that springs are not interchangeable; reference mark for reassembly. Remove disc pads and shims from one side. Do not remove pads from both sides at same time.

**Installation** — Clean exposed portions of caliper pistons and cavity. Manually seat caliper pistons into cylinders. Check disc pad thickness, if less than .060" (1.5 mm), replace with new lining. Install pads, shims (index arrow facing up), pad springs, and retaining pins. Secure retaining pin with clips.

## FRONT DISC BRAKE CALIPER

**Removal** — Raise and support front of vehicle and remove front wheels. Disconnect hydraulic line at caliper, remove bolts retaining caliper to steering knuckle, and remove caliper assembly.

**Installation** — Reverse removal procedure and bleed hydraulic system.

## DISC BRAKE ROTOR

**Removal** — Raise and support front of vehicle; remove front wheels. Before continuing removal procedure, check rotor run-out and compare value against specifications. Remove spindle nut and caliper assembly. **NOTE** — Do not allow caliper to hang by brake line. Using a slide hammer with a hub puller attachment, remove hub and rotor assembly. Index mark hub and rotor, then remove bolts and separate.

**Installation** — Reverse removal procedure, tighten rotor-to-hub bolts evenly, and bleed hydraulic system if necessary.

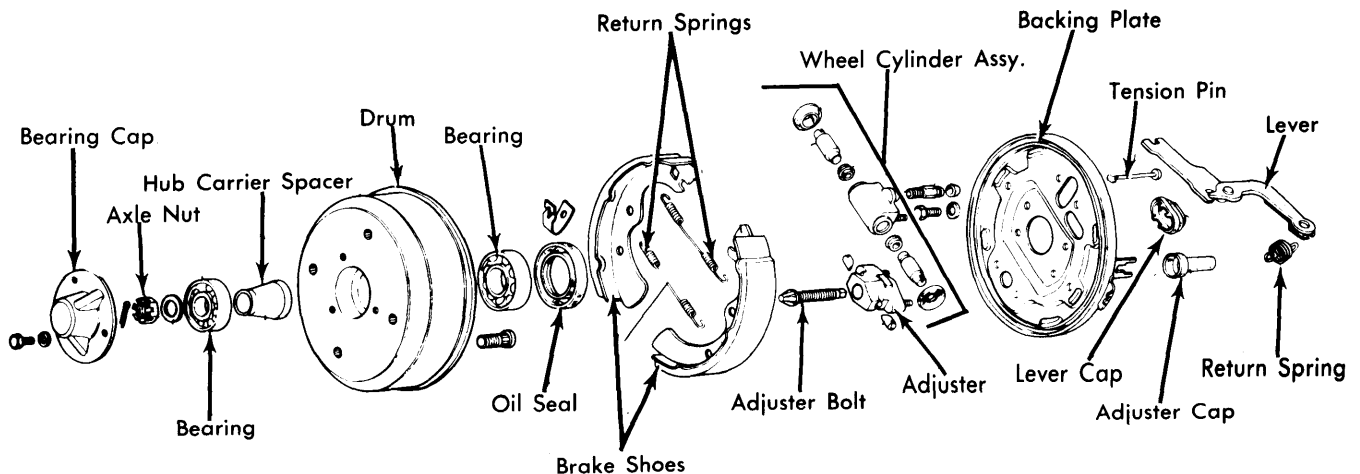


Fig. 1 Honda Rear Drum Brake Assembly

## HONDA (Cont.)

### REAR BRAKE DRUM

**Removal** — Raise and support rear of vehicle and remove rear wheels. Remove bearing retaining cap and rear axle nut, then remove brake drum. *NOTE* — If drum is difficult to remove, use a slide hammer with a hub puller attachment.

**Installation** — Reverse removal procedure and tighten axle nut.

### REAR BRAKE SHOES

**Removal** — With rear brake drum removed, remove tension pin clips and brake shoe return springs, and remove brake shoes.

**Installation** — Reverse removal procedure and note the following: Upper and lower brake shoe return springs are not interchangeable. Upper spring is identified by having a tight bend on each end and is designed so that spring coils are located on outside of shoes when installed. Lower spring has a large bend at each end and is designed so that coils are located inside of shoes when installed. See illustration.

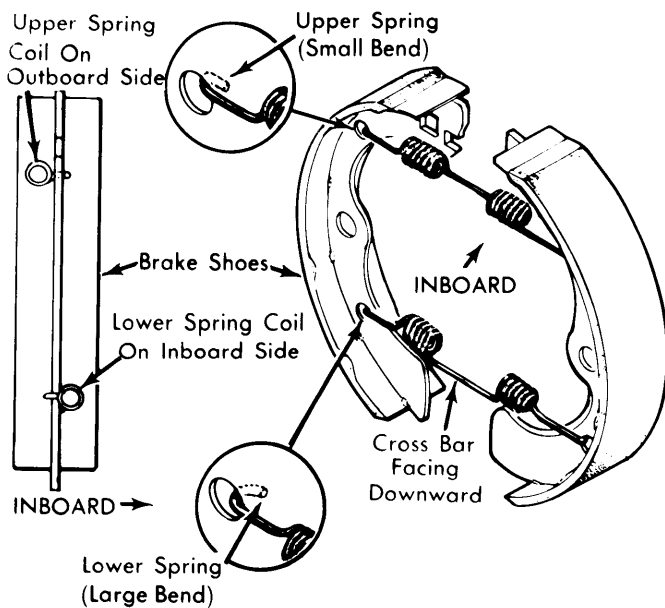


Fig. 2 Return Spring Installation on Rear Brake Shoes

### REAR BRAKE WHEEL CYLINDER

**Removal** — With rear brake drum and brake shoes removed, disconnect hydraulic line from wheel cylinder at rear of backing plate. Remove retaining nuts and wheel cylinder assembly.

**Installation** — Reverse removal procedure, tighten retaining nuts, and bleed hydraulic system.

### MASTER CYLINDER

**Removal** — Disconnect hydraulic lines at master cylinder, remove retaining nuts, and remove master cylinder from power brake unit.

**Installation** — Reverse removal procedure and bleed hydraulic system.

### POWER BRAKE UNIT

**Removal** — Disconnect vacuum hose at power brake unit, and hydraulic lines at master cylinder. Remove clevis pin retaining power brake unit push rod to brake pedal, and bolts attaching power unit to firewall, then remove power brake unit and master cylinder as an assembly.

**Installation** — Reverse removal procedure, tighten all nuts and bolts, and bleed hydraulic system.

## OVERHAUL

### DISC BRAKE CALIPER

**Disassembly** — Holding caliper assembly in hands, press caliper down to compress piston. Keep pistons compressed and lift up on caliper removing yoke. Remove yoke return springs. Using light air pressure applied at brake fluid inlet port, force out pistons. Remove seals from cylinder bore grooves being careful not to scratch bore. *NOTE* — Calipers are marked left "L" and right "R".

**Inspection** — Clean and thoroughly dry all parts. Inspect all components for wear or damage. Check piston and cylinder bore scratching. Do not reuse inner seals, replace them.

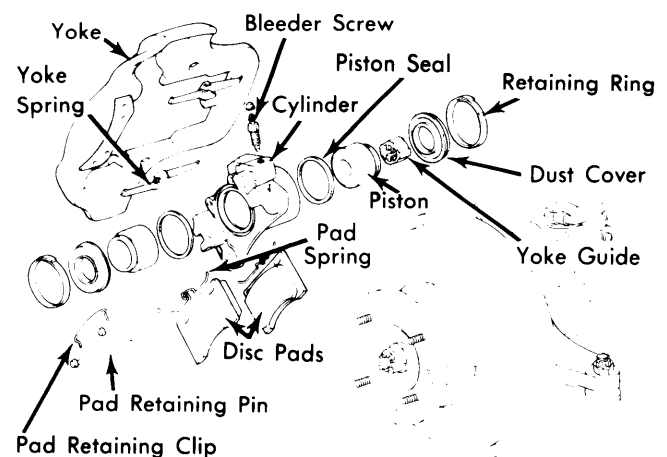


Fig. 3 Honda Front Disc Brake Assembly

**Reassembly** — 1) Install piston seals into grooves in cylinder. Lubricate pistons with brake fluid and install into cylinder. Install yoke guide into inboard piston. Hold yoke with retaining pin bracket facing up, and install yoke springs so long thin portion of spring is on upper side.

2) Hold yoke with retaining pin bracket facing up and to left. Place cylinder so that inlet port is facing up and to right. Slide yoke over cylinder. When yoke springs contact cylinder sliding surface, push down firmly and slide yoke to left until securely engaged with cylinder. Install disc pads, springs, pins and retainer.

### REAR WHEEL CYLINDER

**Disassembly** — Remove dust seals and pistons. Remove cylinder cups from pistons. If necessary, remove bleeder screw.

**Cleaning & Inspection** — Clean and dry all parts and inspect for wear or damage; replace parts as necessary. Check cylinder bore-to-piston clearance; if clearance exceeds .005", replace piston or cylinder as necessary.

# Brakes

## HONDA (Cont.)

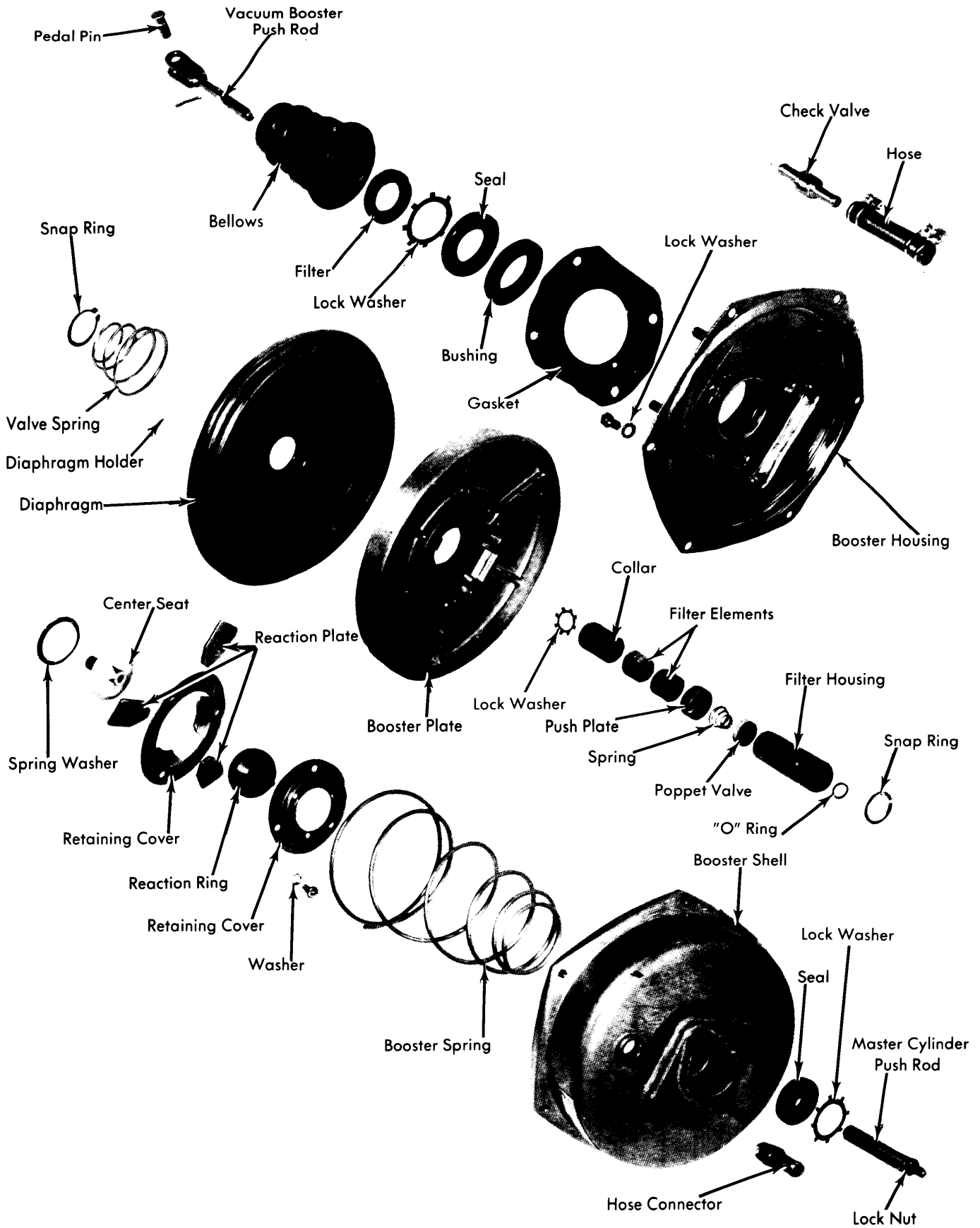


Fig. 4 Exploded View of Power Booster Assembly

## HONDA (Cont.)

**Reassembly** — Coat cylinder walls, pistons, and cups with brake fluid and install into cylinder bore. **NOTE** — Install cups on pistons so that lips of cups face center of cylinder. Install dust covers making sure lips engage grooves on cylinder body.

### MASTER CYLINDER

**Disassembly** — Remove reservoir caps and floats and drain brake fluid. Loosen retaining clamps and remove reservoirs. Remove primary piston stop bolt, retaining clip, and washer, then remove primary piston. Hold a finger over stop bolt hole, apply compressed air to secondary outlet, and remove secondary piston. Remove two union caps, washers, check valves, and springs.

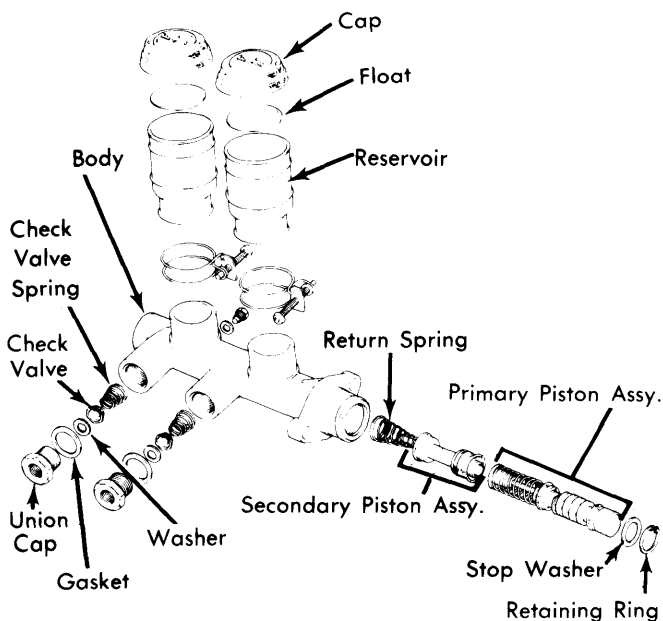


Fig. 5 Master Cylinder Reservoir Body and Piston Assemblies

**Cleaning & Inspection** — Clean and dry all parts and inspect for wear or damage. Check clearance between master cylinder bore and pistons; if greater than .005", replace pistons or cylinder assembly as required. Check for clogged orifices in pistons and cylinder. **NOTE** — Manufacturer recommends replacing piston cups and check valves whenever cylinder has been disassembled.

**Reassembly** — Reverse disassembly procedure and note the following: Coat all parts with brake fluid when assembling. When installing pistons, push in while rotating to prevent damaging cups.

### POWER BOOSTER UNIT

**Disassembly** — 1) Separate master cylinder from booster assembly, but leave retaining plate attached to booster shell. Remove spring clip and booster shell retaining tab, then separate push rod from master cylinder.

2) Place booster assembly in vice, index mark shell halves, and separate halves with a suitable tool. Turn tool clockwise and note shell half is spring loaded. Take booster from vice and remove master retaining plate, check valve, seal retainer, and seal.

3) Remove booster push rod and boot. Separate housing from diaphragm and piston. Take off seal retainer, seal (note position), and bushing. Disengage snap ring, spring, and seat, then pull out diaphragm.

4) Remove retaining cover, push rod actuator, retaining plate, center seat, and spring washer (note position). Push piston from diaphragm plate. Extract "O" ring from inside piston. Remove filter retaining clip, then take off filter, push plate, spring, and poppet valve.

**Inspection** — Thoroughly wash all components in alcohol and blow dry with compressed air. Check all parts for wear and carefully look at booster plate and piston for scratches.

**Reassembly** — Reverse disassembly and note the following: Coat lip of seal with silicon before installing into booster housing. Be sure bushing fully seats into position. Make sure piston "O" ring has a perfect fit. Install reaction plates with curved side facing up. Lightly coat piston with silicon before installing in booster housing. After fitting master cylinder push rod, measure distance between booster shell and end of push rod. Clearance should be .024" (.6 mm).

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Caliper Mounting Bolts .....	36-43 (4.9-5.6)
Rear Wheel Bearing Cap Bolts .....	3-5 (.41-.69)
Hydraulic Lines .....	9-11 (1.2-1.5)
Wheel Cylinder Mounting Bolts .....	9 (1.2)
Master Cylinder Stop Bolt .....	9 (1.2)
Master Cylinder-to-Power Booster .....	11-15 (1.5-2.0)
Power Booster Stud Nuts .....	5-9 (.7-1.2)

### 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)
Civic & Civic CVCC	.....	.006 (.152)	.0028 (.071)	.378 (9.60)	.354 (9.06)	⊙

⊙ — More than minimum refinish thickness.