

## MAZDA

GLC  
RX-4  
Cosmo  
B1800

### DESCRIPTION

Brake system is hydraulically actuated using a dual piston master cylinder and power brake unit. All models use single piston front disc brakes. Cosmo models have single piston rear disc brakes with integral parking brake shoes covered by hub/rotor assembly. All other models are equipped with leading-trailing drum brakes. All models use lever and cable operated parking brake actuating shoes of rear brake assemblies or, on Cosmo models, operating the separate parking brake shoes. All models are equipped with a proportioning valve to regulate brake pressure to rear wheels and prevent rear wheel lockup.

### ADJUSTMENT

#### BRAKE PEDAL FREE PLAY

Brake pedal free play must be set to specifications (see table) to ensure compensating port is not covered by master cylinder piston. To adjust free play, loosen lock nut, adjust brake pedal push rod until proper free play is obtained, and tighten lock nut.

#### Brake Pedal Free Play Adjustment

Application	Inches (mm)
All Models .....	.28-.35 (7-9)

#### FRONT DISC BRAKE PADS

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

#### REAR DISC BRAKE PADS

No adjustment is required.

**NOTE** — *On self-adjusting brakes, perform adjustment procedures only after overhaul or when servicing other components affects brake adjustment.*

#### REAR DRUM BRAKES

1) Raise and support rear of vehicle. Release parking brake. Remove adjusting hole plugs from back plate. Use suitable tool and expand one shoe at a time by rotating star adjuster until wheel locks.

**NOTE** — *Direction for star rotation may be marked on back plate.*

2) Back off adjuster about 4-6 notches or until wheel rotates freely without drag. Repeat procedure on each adjuster mechanism.

#### PARKING BRAKE

**RX-4, GLC** — With rear brakes properly adjusted, raise parking brake lever boot inside vehicle and turn lever adjusting screw so parking brake begins to apply when pulling lever 3-7 notches.

**Cosmo** — 1) Raise rear of vehicle and place on safety stands. Release parking brake. Remove dust plug and rotate star wheel in direction printed on backing plate. When drum locks, back off 7 to 9 notches. Clearance between shoe and drum should be .006-.008" (.15-.20 mm).

2) Work inside vehicle and free shift lever boot. Adjust brake lever screw so rear wheels will lock when lever is pulled 5 to 7 notches with normal application force.

**B1800 Pickup** — With rear brakes properly tightened, adjust length of front cable with adjusting nut (located under vehicle where cable guide attaches to threaded shaft) so rear wheels lock when parking brake is pulled 5-10 notches. Apply parking brake several times, release, and check that rear wheels rotate freely.

#### BRAKE FAILURE SWITCH RESET

**All Models** — Turn ignition switch "On". Depress brake pedal and piston will center itself and light will go out. Turn ignition switch to "Off".

#### HYDRAULIC SYSTEM BLEEDING

**NOTE** — *DO NOT use secondary stop bolt to bleed hydraulic system.*

Bleed hydraulic system in sequence starting with line furthest from master cylinder, and ending with line closest to master cylinder. Attach a bleed tube to wheel cylinder or caliper bleeder screw, and immerse opposite end of tube in a container partially filled with brake fluid. Pump brake pedal several times, and with pedal depressed, open bleeder screw 3/4 turn allowing air to escape, tighten bleeder screw, and release brake pedal. Continue operation until air bubbles are no longer seen in discharged fluid. Repeat procedure at remaining brake lines until all air is bled from system.

### REMOVAL & INSTALLATION

#### FRONT DISC BRAKE PADS

**Removal, Cosmo, RX-4, GLC, Pickup** — Raise and support front of vehicle. Remove retainers and take out stopper plate. Take off caliper and anti-rattle spring. DO NOT allow caliper to hang by brake hose. Pull out disc pads and shims. If pad lining has worn to less than .276" (7 mm), replace disc pads. Make sure to always replace pads in sets of same make.

**Installation** — To install, reverse removal procedure and note: It may be necessary to open bleed valve and seat piston into caliper bore so disc pads can be inserted.

## MAZDA (Cont.)

## FRONT DISC BRAKE CALIPER

**Removal, Cosmo, RX-4, GLC, Pickup** – 1) Raise and support vehicle. Remove front wheel(s). Disconnect brake hose from caliper and plug openings to prevent entry of dirt and loss of fluid.

2) Remove fastening clips and stopper plates, then remove caliper and anti-rattle spring. Remove disc pads. If necessary, lift off disc pad (caliper) bracket.

**Installation** – If removed, reinstall caliper bracket. Attach a bleed tube to caliper bleeder screw, open bleeder screw, press caliper piston to bottom of bore, and tighten bleeder screw. Install disc pads and replace anti-rattle spring, caliper, stopper plates, and fastening clips. Install hydraulic line and bleed hydraulic system.

## FRONT DISC BRAKE ROTOR

**Removal** – With caliper assembly removed, remove wheel hub grease cap, cotter pin, nut lock, and bearing adjusting nut. Remove thrust washer and outer bearing from hub, then slide hub and rotor assembly from spindle. Remove bolts attaching rotor to hub, and separate.

**Installation** – Reverse removal procedure, tighten rotor-to-hub bolts evenly, and adjust wheel bearings. See *Wheel Bearing Adjustment* in WHEEL ALIGNMENT Section.

## REAR DISC BRAKE PADS

**Removal, Cosmo** – Raise vehicle and place on safety stands. Remove wheel. Remove lock pins, then take out stopper plates. Slide off caliper and anti-rattle springs. DO NOT hang caliper from chassis by rubber brake hose. Pull out disc pads and shims. If pads have worn to .276" (7 mm) or less, disc pads must be replaced. Always replace all pads at one time and do not mix lining types.

**Installation** – To install, reverse removal procedure.

## REAR DISC BRAKE CALIPER

**Removal, Cosmo** – Raise rear of vehicle and place on safety stands. Disconnect brake line from caliper and plug openings. Remove lock pins, then take out stopper plates. Slide off caliper and anti-rattle spring.

**Installation** – To install, reverse removal procedure and bleed brakes.

## REAR DISC BRAKE ROTOR

**Removal, Cosmo** – Raise and support rear of vehicle. Remove caliper mounting bolts and remove caliper and mounting bracket assembly. Suspend caliper out of way with a wire hanger. Fully release parking brake. Unscrew hub/rotor mounting screws. Insert screws into tapered holes and tighten

evenly until hub/rotor is free. Before removal of hub/rotor index mark axle shaft flange and hub/rotor assembly.

**Installation** – To install, reverse removal procedure and note following: Make sure index marks on axle shaft flange and hub/rotor assembly are aligned.

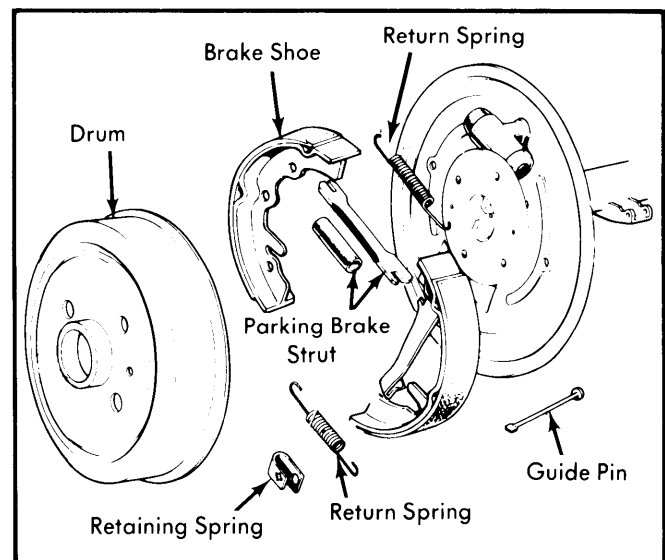
## BRAKE DRUM

**Removal** – Raise and support vehicle and remove wheels to be serviced. Remove set screws securing drum to wheel hub or axle flange, fit screws into tapped holes in drum, and tighten evenly to force drum from hub or flange.

**Installation** – Mount brake drum to hub or axle flange, install and tighten set screws, and adjust brake shoes.

## REAR BRAKE SHOES

**Removal** – With brake drum removed, remove brake shoe return springs. Remove brake shoe retaining springs and guide pins by compressing retaining spring and turning guide pin 90°. Remove brake shoes. Remove parking brake strut and disengage parking brake cable from operating lever of secondary shoe.



**Fig. 1 Disassembled View of GLC Rear Brakes**  
Other Models Similar

**Installation** – 1) Lubricate adjusting screw threads and contact surfaces of shoes and backing plate with brake grease. Install parking brake operating lever to secondary shoe and secure with clip. Engage lever in parking brake cable.

2) Position operating strut between slots of shoes. Mount assembly to backing plate so slots in shoes are toward adjusting screws. Install return springs and retainer springs.

## WHEEL CYLINDERS

**Removal** – With brake drum and shoes removed, remove hydraulic lines from cylinders at rear of backing plate and cover openings to prevent entry of dirt and loss of fluid. Remove nuts and/or bolts securing wheel cylinder to backing plate, and remove cylinders.

**Installation** – Reverse removal procedure. With brake shoes and drum installed, bleed hydraulic system.

## MAZDA (Cont.)

### PARKING BRAKE SHOES

**Removal, Cosmo** — Remove rear hub/rotor assembly as previously outlined. Disengage parking brake shoe return springs. Take off secondary brake shoe mounting spring, pin, and retainer. Pull out brake shoe. Repeat procedure on primary shoe.

**Installation** — To install, reverse removal procedure.

### PROPORTIONING VALVE

**Removal & Installation** — Disconnect and plug all hydraulic lines. Remove mounting bolts and lift off valve. When installing valve make sure lines are connected as shown in Fig. 2.

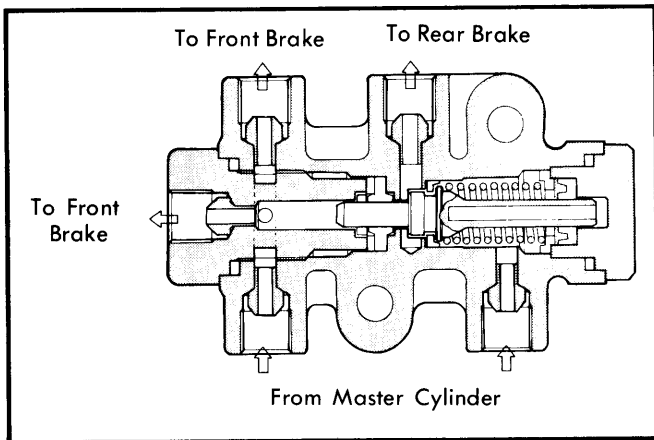


Fig. 2 Points Where Hydraulic Lines Attach to Proportioning Valve

### MASTER CYLINDER

**Removal** — Disconnect hydraulic lines at master cylinder and plug openings to prevent entry of dirt and loss of fluid. Remove nuts attaching cylinder to firewall or power brake unit and remove master cylinder from vehicle.

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

### POWER BRAKE UNIT

**Removal** — Disconnect hydraulic lines at master cylinder, and vacuum line at power brake unit. From inside vehicle, remove cotter pin and clevis pin retaining push rod to brake pedal, and separate. Remove nuts retaining power unit to firewall, and remove power brake unit and master cylinder as an assembly from engine compartment.

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

## OVERHAUL

### DISC BRAKE CALIPER

**Disassembly** — Thoroughly clean exterior of caliper and remove retainer and dust boot. Place a piece of wood in front of piston, apply compressed air to fluid inlet, and remove piston. Remove piston seal from caliper bore. Remove bleed screw if necessary.

**NOTE** — If piston is stuck, tap lightly with hammer while forcing compressed air into caliper.

**Cleaning & Inspection** — Wash all parts in clean alcohol or brake fluid and air dry. Inspect cylinder bore and piston for scoring, scratches or rust; replace piston or caliper as necessary. Minor damage may be removed using crocus cloth.

**NOTE** — Manufacturer recommends replacing piston seal and dust boot whenever caliper has been disassembled.

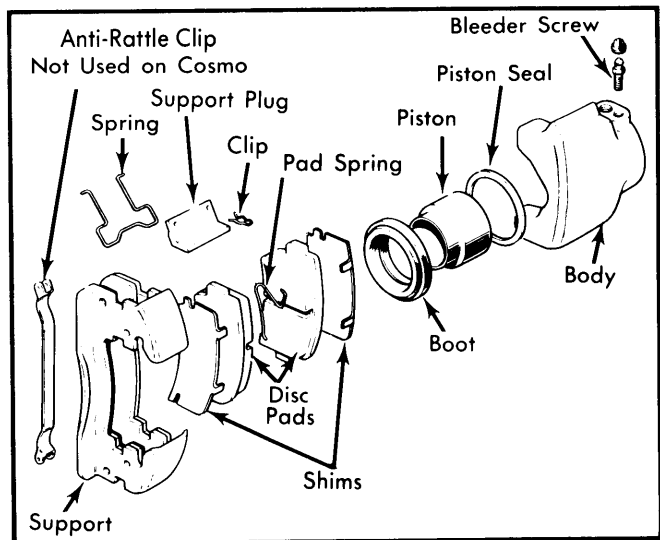


Fig. 3 Exploded View of Front Disc Brake Caliper

**Reassembly** — Apply clean brake fluid to cylinder bore, piston and piston seal, then seat piston seal in caliper bore. Install piston carefully into cylinder bore and install dust boot and retainer.

### WHEEL CYLINDERS

**Disassembly** — Remove rubber dust boots and withdraw pistons with adjuster assemblies. Press in on piston cup allowing cups, filling blocks and return spring to be removed.

**Cleaning & Inspection** — Clean all parts in alcohol or brake fluid. **CAUTION** — DO NOT use gasoline or kerosene. Check cylinder bore, pistons and/or adjusters for scores, roughness, or wear. Check clearance between cylinder bore and pistons; replace if clearance exceeds .006". Check cups for softening, swelling, wear, or other damage; replace as necessary.

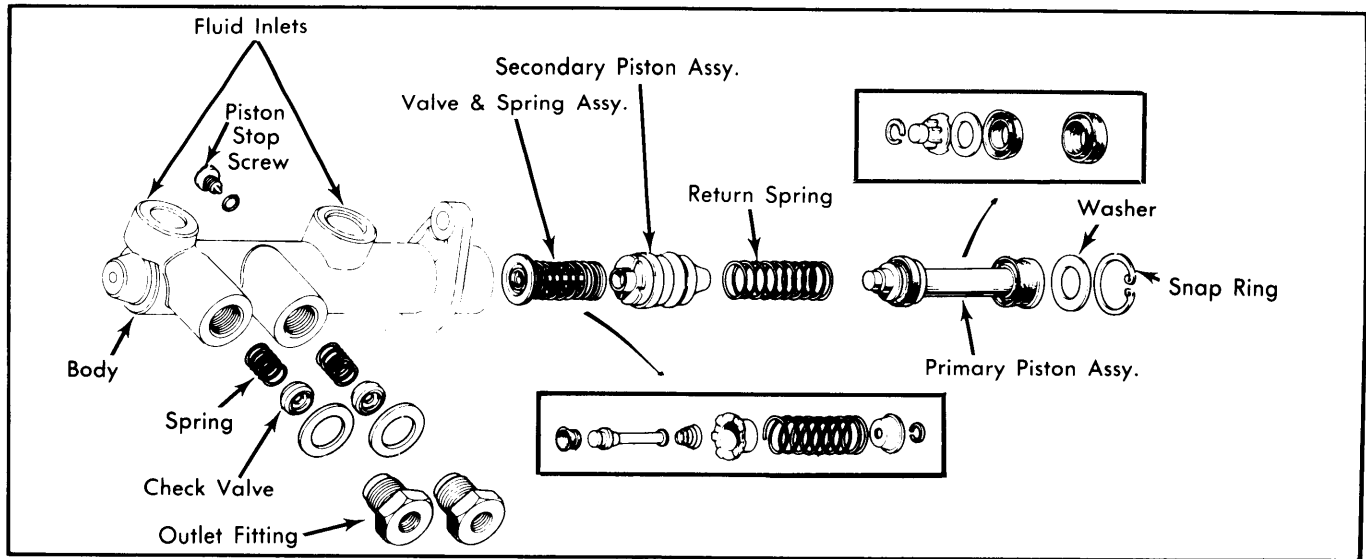
**Reassembly** — Reverse disassembly procedure and note the following: Coat all parts with clean brake fluid before reassembly. When installing cylinder cups, make sure flat side of cup faces outward. On models so equipped, coat threads of adjuster with brake grease and install into piston.

### MASTER CYLINDER

**Disassembly** — Thoroughly clean exterior of cylinder and pour out any remaining brake fluid. If equipped, remove reservoir and dust boot. Depress primary piston assembly, remove retaining ring from rear of cylinder bore, and remove washer, primary piston assembly, and return spring. Depress secondary piston, loosen, DO NOT remove, secondary piston stop bolt, and carefully withdraw secondary piston assembly and return

# Brakes

## MAZDA (Cont.)



**Fig. 4 Exploded View of Master Cylinder Assembly. All Models are Similar. Major Difference Occurs in Area of Piston Shape and Reservoir Attachment.**

spring. Remove joint bolts from outlets, and withdraw check valves and return springs.

**Cleaning & Inspection** — Clean all parts in alcohol or brake fluid. **CAUTION** — DO NOT use gasoline or kerosene. Check all parts for scoring, roughness or wear. Check clearance between cylinder bore and piston; if clearance exceeds .006", replace parts as required. Check all recesses, openings and internal passages for foreign matter; remove with compressed air. Check cylinder cups for softening, swelling, or wear; replace as necessary.

**Reassembly** — Reverse disassembly procedure and note the following: Coat all parts with clean brake fluid before reassembly. Use new gaskets at all hydraulic unions. When assembled, make sure piston cups do not cover compensating ports. Make sure valve with hole in center faces front side outlet hole.

### POWER BRAKE UNIT

**Disassembly** — 1) Remove master cylinder and check valve from power unit, then place power unit in a vise with push rod up. Scribe alignment marks on front and rear shells to assure reassembly in original position. Remove clevis, lock nut and dust boot from rear shell.

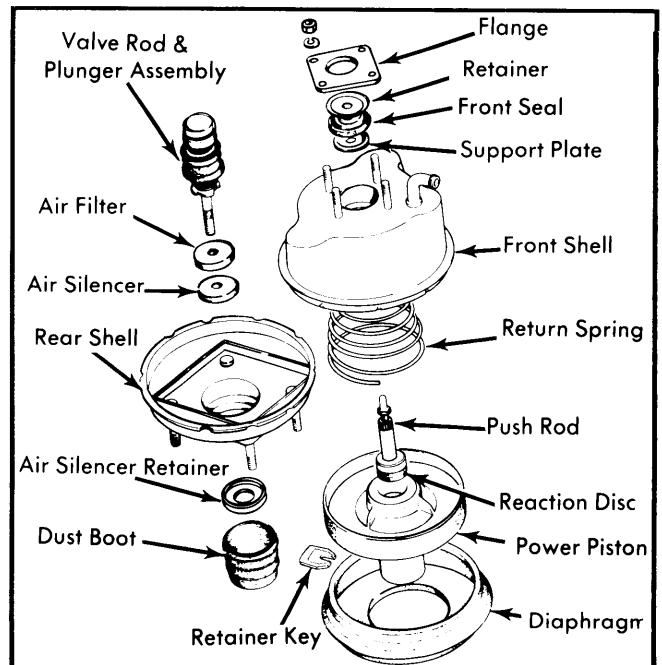
2) Attach suitable removal tool to rear shell mounting studs, then press down on tool while rotating clockwise to unlock rear shell. **NOTE** — Loosen shell carefully because it is under spring tension. Lift rear shell assembly from power unit, then separate diaphragm and power piston assembly, valve rod and plunger assembly from rear shell. Remove return spring from power unit.

3) Remove diaphragm from power piston, then lift air silencer and filter from piston. Press in on valve rod and remove retainer key, then remove valve rod and plunger assembly. Press reaction disc from power piston. Remove push rod from front shell and if necessary, remove front seal.

**Cleaning & Inspection** — Clean all parts and blow dry with compressed air. Inspect all rubber parts for cuts, nicks, deterioration or other damage. Check power piston for

cracks, distortion, chipping and damaged seats. Inspect front and rear shells for scratches, scores, pits, dents or other damage. Replace any defective parts.

**Reassembly** — Reverse disassembly procedure and note the following: Apply clean brake fluid to parts before reassembly.



**Fig. 5 Exploded View of Power Brake Unit. All Models are Similar. Some Models May Have Slightly Different Internal Design.**

When assembling rear shell assembly to front shell, ensure marks made during disassembly are aligned. Before installing master cylinder to power unit, measure clearance between master cylinder primary piston and power unit push rod. Clearance should be .004-.020" (.1-.5 mm). If clearance is not within specifications, correct by adjusting push rod length.

## MAZDA (Cont.)

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)	Application	Ft. Lbs. (mkg)
Rotor-to-Hub		10 mm Bolt/Nut .....	23-34 (3.2-4.7)
Cosmo, B1800 .....	40-47 (5.5-6.5)	12 mm Bolt/Nut .....	41-59 (5.6-8.2)
RX-4 .....	36-43	14 mm Bolt/Nut .....	56-76 (7.7-10.5)
GLC .....	33-40 (4.5-5.5)	8T Bolts/Nuts	
UNLESS OTHERWISE SPECIFIED:		6 mm Bolt/Nut .....	6-9 (.8-1.2)
6T Bolts/Nuts		8 mm Bolt/Nut .....	13-20 (1.8-2.7)
6 mm Bolt/Nut .....	5-7 (.7-1)	10 mm Bolt/Nut .....	27-40 (3.7-5.5)
8 mm Bolt/Nut .....	12-17 (1.6-2.3)	12 mm Bolt/Nut .....	46-69 (6.4-9.5)
		14 mm Bolt/Nut .....	75-101 (10.4-14)

### 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)
RX-4	9.055 (230)	.004① (.10)	.....	.472 (12)	.433 (11)	②
Cosmo	9.843 (250)	.004① (.10)	.....	.709 (18)	.669 (17)	②
Front						
Rear	11.024 (280)	.004① (.10)	.....	.394 (10)	.354 (9)	②
Pickup	10.079 (256)	.004① (.10)	.....	.472 (12)	.433 (11)	②
GLC	8.150 (207)	.002① (.06)	.....	.512 (13)	.472 (12)	②

① — Maximum allowable.

② — Less than Minimum Refinish Thickness.

### BRAKE DRUM SPECIFICATIONS

Application	Drum Diameter In. (mm)	Original Diameter In. (mm)	Maximum Refinish Diameter In. (mm)	Discard Diameter In. (mm)
RX-3SP, 808, GLC	7.874 (200)	7.874 (200)	7.914 (201)	①
RX-4	9.000 (228.6)	9.000 (228.6)	9.040 (229.6)	①
Rotary Pickup	10.236 (260)	10.236 (260)	10.276 (261)	①
Cosmo	.....	.....	.....	②

① — More than Maximum Refinish Diameter.

② — Max refinish diameter for PARKING BRAKE drum 6.535" (166 mm).

### BRAKE SYSTEM SPECIFICATIONS

Application	Drum Diam. In. (mm)	Wheel Cylinder Diameter		Master Cylinder
		Front In. (mm)	Rear In. (mm)	Diameter In. (mm)
GLC	7.874① (200)	2.0② (50.8)	.750 (19.05)	.813 (20.6)
RX-4	9.00① (228.6)	2.125② (54)	.687 (17.5)	.875 (22.2)
Cosmo	.....	2.0② (50.8)	1.375② (34.9)	.875 (22.2)
Pickup	10.236 (260)	2.125② (54)	.750 (19.05)	.875 (22.2)

① — Rear.

② — Caliper bore diameter.