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BRAKE SYSTEM
Article Text
1983 Mazda RX7
For www.iluvmyrx7.com

Sunday, August 26, 2001 04:54PM

ARTICLE BEGINNING

1983 Brakes
MAZDA

GLC Wagon, Pickups, RX7

DESCRIPTION

Brake system is hydraulically-operated, using a tandem master cylinder and power brake unit. Front brakes are floating caliper disc. Rear brakes on most models are leading/trailing drums.

Floating caliper rear disc brakes are available on RX7 as an option. Proportioning valves are used on most models to prevent premature lockup of rear wheels.

ADJUSTMENT

REAR DRUM BRAKE SHOES

GLC Wagon, RX7 & Pickups

1) Raise and support rear of vehicle. Release parking brake. Remove rear wheel. Through the hole in the brake drum of the GLC Wagon or on the backing plate of all others, remove the star wheel plug. Insert a flat-tipped screwdriver, and move the star wheel forward until the wheel is locked. See Fig. 1.

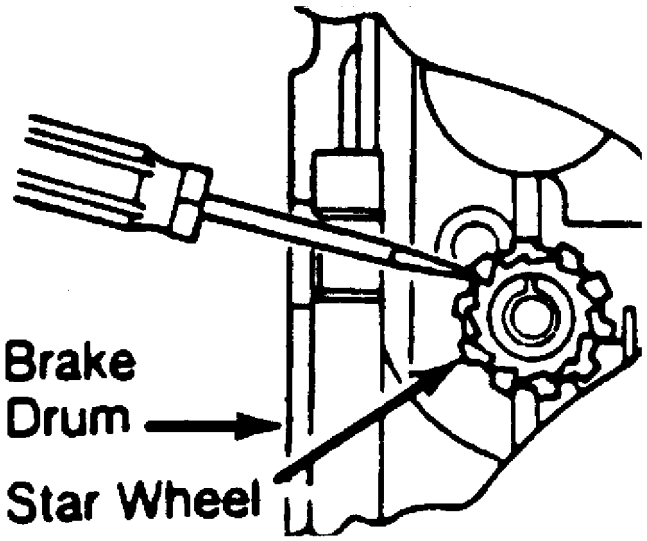

Fig. 1: Adjusting Rear Brake Shoe-to-Drum Position

2) On all backing plates, remove the pawl lever hole plug. Insert a flat-tipped screwdriver through hole. Push on the pawl lever self-adjuster, so the star wheel may be moved in the reverse direction.

3) Back off the star wheel about 3 or 4 notches, so the

wheel turns freely. Repeat procedure for opposite side. Adjust the parking brake. Install plugs in the adjusting holes.

BRAKE PEDAL HEIGHT ADJUSTMENT

Application	In. (mm)
GLC Wagon	
Man. Trans.	7.5-7.7 (190-195)
Auto. Trans.	7.7-7.9 (195-200)
RX7	7.5-7.7 (190-195)
B2000 & B2200	8.1-8.3 (205-210)

PARKING BRAKE

1) With service brakes properly adjusted, raise and support the rear of the vehicle. Remove parking brake lever boot or console, if necessary. Release the brake lever. Turn the adjusting screw or nut to obtain specified clearance. On Pickups, turn adjusting nut at equalizer under the vehicle.
2) The lever should be pulled with a force of 22 lbs. to obtain a stroke of 3-7 notches on GLC Wagon, 5-9 notches on GLC, 6-8 notches on RX7, 7-9 notches on 626, and 5-10 notches on Pickups.
3) Reinstall brake lever boot or console. Remove supports and lower vehicle. On all models, operate parking brake several times and make sure rear wheels rotate freely.

NOTE: Insure that the rear brakes are not dragging and the parking brake warning light is activated when the lever is pulled 1 notch.

BRAKE WARNING LIGHT

All Models (If Equipped)
1) Light indicates parking brake is engaged and also warns of low fluid level. With engine running, light should glow when parking brake lever is pulled 1 notch and go off when lever is fully released.
2) To check warning light operation with engine running, release parking brake lever and ensure light is off. Raise master cylinder reservoir cap and light should glow. If not, check switch and wire connector.

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

Removal
1) Raise and support the front of the vehicle. Remove the wheels. Detach brake hose attachment from shock absorber, if necessary.

2) On RX7 remove lower caliper guide pin and pivot caliper body up out of way. On GLC Wagon and Pickups remove locking clips and stopper plates.
3) Remove caliper body and hang from frame with wire. Do not disconnect hydraulic lines. On all models, remove anti-rattle springs (clips), pads, and shims, if equipped.

Installation
1) To install, reverse removal procedure. Before mounting caliper, loosen bleed screw, and seat piston. Tighten bleed screw.
2) After pad installation, depress brake pedal several times to seat pads. Bleed hydraulic system, if required.

NOTE: Grease pad mounting support, caliper contact area, and shims with special grease (NLGI No. 2 or equivalent).

REAR DISC BRAKE PADS

Removal (RX7)
1) Raise and support the rear of the vehicle. Remove wheel. Disconnect parking brake cable from caliper. Remove lower caliper attaching bolt.
2) Lift the lower side of caliper. Remove anti-rattle spring. Remove disc brake pads and shims.

Installation
1) Using brake piston wrench (49 FA18 602), turn piston clockwise until piston is inserted into caliper fully.
2) Position piston so that dowel on pad will seat in piston stopper groove. To complete installation, reverse removal procedure.

FRONT DISC BRAKE CALIPER

Removal
1) Raise and support the front of the vehicle. Remove the wheel. Disconnect and plug the fluid line at caliper. On RX7, remove lower caliper bolt, lift the caliper body, and remove by sliding toward the inside of the vehicle.
2) On GLC Wagon and Pickups, remove locking clips, stopper plates, and anti-rattle spring. Lift off caliper. Remove disc pads as previously described.

Installation
To install, reverse removal procedure and bleed hydraulic system.

REAR BRAKE CALIPER

Removal (RX7)
1) Raise and support the rear of the vehicle. Remove the wheel. Disconnect parking brake cable from caliper.
2) Remove caliper attaching bolt (lower side). Lift up

caliper. Slide the caliper toward the inside of the vehicle and remove the caliper. Disconnect the brake hose from the caliper.

Installation

To install caliper, reverse removal procedure and bleed hydraulic system.

FRONT DISC BRAKE ROTOR

Removal (All Models)

1) With caliper assembly removed, remove wheel hub grease cap, cotter pin, lock plate and ring adjusting lock nut.

2) Remove thrust washer and outer bearing from hub. Slide hub and rotor assembly from spindle. On Pickups, place wheel in a soft-jawed vise, make mating marks, remove hub-to-rotor bolts, and separate rotor from hub.

Installation

To install, reverse removal procedure, and tighten hub-to-rotor bolts evenly. Adjust wheel bearings. See Wheel Bearing Adjustment in SUSPENSION section.

REAR BRAKE DRUM

Removal (All Models)

Raise and support the rear of the vehicle. Release parking brake. Remove the wheel. On Pickups, remove brake drum retaining screws and insert into tapped holes of brake drum. Turn screws evenly and force brake drum off flange.

Installation (All Models)

To install, reverse removal procedure. Tighten retaining screws evenly (if equipped). On GLC & 626, adjust wheel bearings. See Wheel Bearing Adjustment in SUSPENSION section.

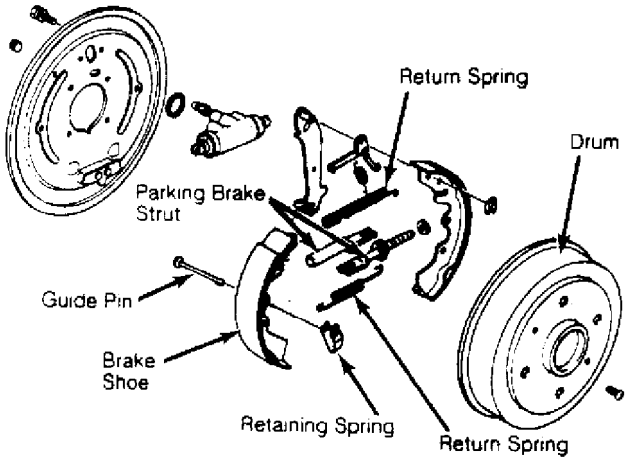

Fig. 2: Exploded View of GLC Wagon Rear Brakes Other models are similar.

REAR BRAKE SHOES

Removal (All Models)
1) With brake drum removed, remove brake shoe return springs, retaining springs and guide pins. Remove brake shoes.
2) Remove parking brake strut and disconnect parking brake cable from operating lever of secondary shoe.

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 operating lever with 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.

MASTER CYLINDER

Removal
1) Disconnect fluid level sensor coupler, if equipped. Disconnect and plug hydraulic lines at master cylinder to prevent entry of dirt and loss of fluid.
2) Remove nuts attaching master cylinder to firewall or power brake unit and remove master cylinder from vehicle. On RX7, remove proportioning valve by-pass bolt.

Installation
To install, reverse removal procedure and bleed hydraulic system.

POWER BRAKE UNIT

Removal
1) Remove master cylinder from power brake unit before removing power brake unit. Disconnect vacuum line at power brake unit.
2) From inside vehicle, remove cotter pin and clevis pin attaching push rod to brake pedal, and separate.
3) Remove nuts retaining power unit to firewall. Remove power brake unit and master cylinder as an assembly. Separate master cylinder from power brake unit.

Installation
To install, reverse removal procedure and bleed hydraulic system.

OVERHAUL

FRONT DISC BRAKE CALIPER

Disassembly
1) Thoroughly clean exterior of caliper and remove retainer

and dust boot. Place a piece of wood in front of piston.

2) Apply compressed air to fluid inlet and remove piston. Tap caliper with plastic hammer, if required. Remove piston seal without damaging caliper bore.

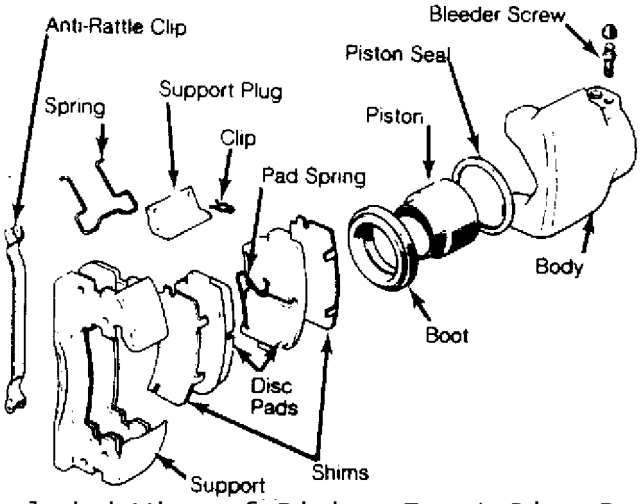

Fig. 3: Exploded View of Pickup Front Disc Brake Caliper

Cleaning & Inspection

1) Wash all parts in alcohol or brake fluid and air dry. Inspect cylinder bore and piston for scoring, scratches or rust. Replace defective parts.

2) Minor damage may be removed with crocus cloth. Always replace dust boot and piston seal when caliper is disassembled.

Reassembly

1) Apply clean brake fluid to cylinder bore, piston and piston seal. Seat piston seal in caliper bore.

2) Install piston carefully into cylinder bore and install dust boot and retainer.

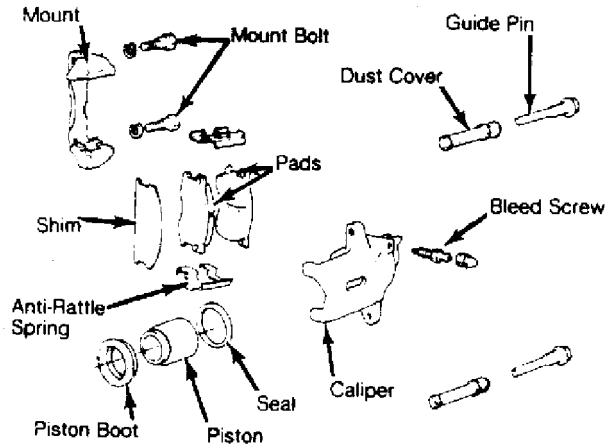

Fig. 4: Exploded View of RX7 Front Brake Caliper

REAR DISC BRAKE CALIPER

Disassembly (RX7)

1) Remove dust boot retainer and boot. Turn piston counterclockwise with disc brake piston wrench (49 FA18 602), and screw out piston. Remove piston seal.

2) Remove boot retainer. Slip off boot. Remove snap ring. Compress conical spring in caliper with spring compressor (49 FA18 601), valve spring lifter arm (49 0636 100A), and removing plate (49 E301 144).

3) Remove parking brake crank, torsion spring and strut. Remove adjusting bolt and conical spring assembly. Press out needle roller bearings.

Inspection

1) Clean all parts in brake fluid or alcohol. Air dry parts. Inspect caliper bore for scratches, scoring or rust. Minor damage can be removed by polishing with crocus cloth.

CAUTION: Never use gasoline or kerosene when cleaning caliper parts.

2) Inspect needle roller bearing, strut, adjusting bolt, and parking brake crank for corrosion, wear or damage. Check torsion spring and conical spring for corrosion, weakness or damage.

3) Check piston and sleeve nut for excessive play. It should be within .012-.020" (.3-.5 mm).

Reassembly

1) Assemble the caliper in the reverse order of disassembly. Use new piston and dust seals. Three kinds of grease contained in seal kit must be used.

2) White grease is for caliper slide bolts and mounting bolts. Orange grease is for bearings, adjusting bolt, strut and piston boot. Pink grease is for piston seal.

3) Lubricate the piston and caliper bore with clean brake fluid. Press in needle roller bearing so that arrow on bearing faces outward.

4) Assemble conical spring and adjusting bolt. See Fig. 5. Install adjusting bolt assembly, strut and torsion spring in the caliper. Install piston using disc brake wrench, as described under Disc Brake Pad Installation.

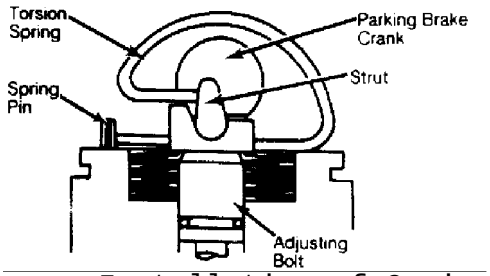

Fig. 5: Proper Installation of Conical Spring and Adjusting Bolt Apply orange grease, supplied in seal kit, to adjusting bolt.

WHEEL CYLINDERS

Disassembly

Remove dust boots. Remove piston assemblies by pressing on cylinder cup to force out filling blocks and return spring.

Cleaning & Inspection

1) Clean all parts in alcohol or brake fluid. Check cylinder bore and pistons for scores, roughness or wear.

2) Check clearance between cylinder bore and pistons. Replace if clearance exceeds .006" (.15 mm). Check cups for deformation. Replace as necessary.

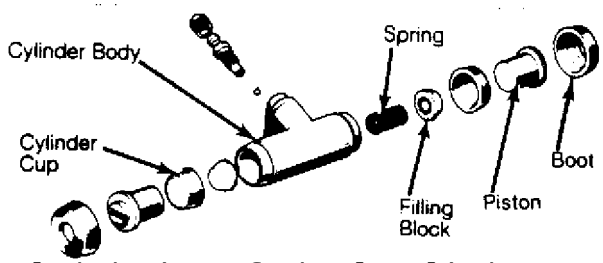

Fig. 6: Exploded View of Wheel Cylinder
Flat side of cylinder cups face outward.

Reassembly

1) Reverse disassembly procedure. Coat all parts with clean brake fluid before reassembly.

2) When installing cylinder cups, make sure flat side of cup faces outward.

MASTER CYLINDER

Disassembly

1) Thoroughly clean outside of master cylinder, and pour out any remaining brake fluid. If equipped, remove reservoir and dust boot. Depress primary piston assembly. See Fig. 7.

2) From rear of cylinder bore, remove retaining ring , washer, primary piston assembly, and return spring. Remove stopper bolt and secondary piston by blowing compressed air through the outlet port. See Fig. 8.

3) Carefully withdraw secondary piston assembly and return spring. Remove fittings, check valves, and springs.

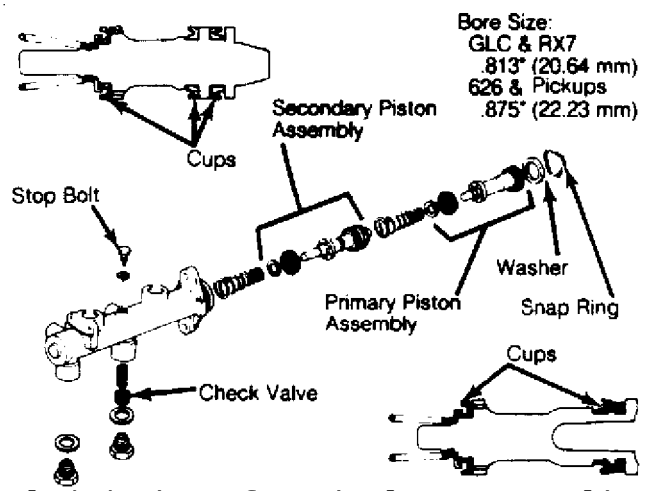

Fig. 7: Exploded View of Typical Master Cylinder
Some models may vary slightly.

Cleaning & Inspection

1) Clean all parts in alcohol or brake fluid. Check all parts for scoring, roughness or wear. Check piston-to-cylinder clearance.

2) If clearance exceeds .006" (.15 mm), replace parts as necessary. Remove all foreign matter from internal passages and recesses with compressed air.

3) Check cylinder cups for deformation and replace as required.

Reassembly

1) Reverse disassembly procedure. Coat all parts with clean brake fluid before reassembly. Use new gaskets at all hydraulic unions.

2) 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

NOTE: Power brake units vary slightly between model applications. The following general overhaul procedures can be used if attention is paid to specific order of components.

Disassembly

1) Remove master cylinder and check valve from power unit. Place power unit in a vise with push rod up.

2) Scribe alignment marks on front and rear shells to assure reassembly in original position. Remove clevis, lock nut, and dust boot from rear shell.

CAUTION: Separate front and rear shells carefully. Spring tension may cause rear shell to release quickly.

3) Attach suitable tool to rear shell mounting studs. Press down on tool while rotating it clockwise to unlock rear shell.

4) Lift rear shell assembly from power unit, remove air silencer retainer, and separate diaphragm from power piston assembly. Remove valve rod with plunger assembly from rear shell.

5) Remove lock plate and press the valve rod in to remove the valve retainer key. Remove valve rod and plunger assembly. Remove air silencer and filter.

NOTE: Service the valve rod plungers as an assembly.

6) Remove retainer, bearing, and rear seal.

NOTE: Never remove the rear seal from the rear shell unless seal is defective and a new one is available.

7) Remove the push rod, front seal, and the support plate.

Cleaning & Inspection

1) Clean all parts and blow dry with compressed air. Inspect all rubber parts for cuts, nicks, deterioration or other damage.

2) 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

1) Reverse disassembly procedure. Apply silicone grease to parts before reassembly. When assembling rear shell to front shell, make sure index marks are aligned.

2) Before installing master cylinder to power unit, measure clearance between primary piston and power unit push rod. Clearance on RX7 & GLC Wagon should be .004-.012" (.1-.3 mm).

3) On all other models, clearance should be .004-.020" (.1-.5 mm). If clearance is not to specifications, correct by adjusting push rod length.

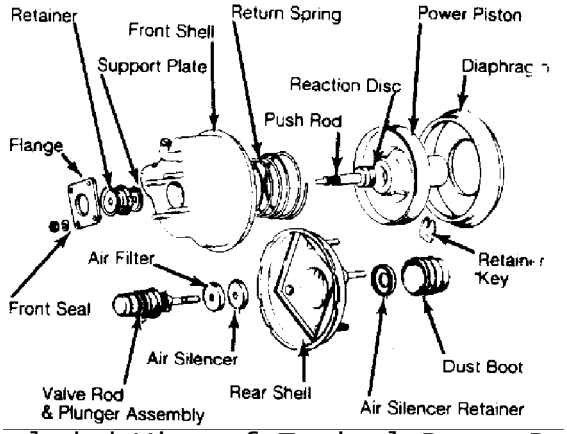

Fig. 8: Exploded View of Typical Power Brake Unit
Some models may vary slightly.

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TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Caliper Mounting Bracket	
Pickups	40-47 (55-65)
GLC Wagon	33-40 (45-55)
Caliper Guide Pin	33-40 (45-55)

DISC SPECIFICATIONS

DISC BRAKE ROTOR SPECIFICATIONS TABLE

Application	In. (mm)
GLC Wagon	
Disc. Diameter	9.02 (229)
Lateral Runout	.002 (.06)
Parallelism	
Original Thickness	.512 (13)
Min. Refinish Thickness	
Discard Thickness	.472 (12)
RX7	
Disc. Diameter	
Front / Rear	
Lateral Runout	
Front / Rear	.004 (.10)
Parallelism	
Original Thickness	
Front	.709 (18)
Rear	.394 (10)
Min. Refinish Thickness	
Discard Thickness	
Front	.669 (17)
Rear	.354 (9)
B2000	
Disc. Diameter	10.08 (256)
Lateral Runout	.004 (.10)
Parallelism	
Original Thickness	.472 (12)
Min. Refinish Thickness	
Discard Thickness	.433 (11)
B2200	
Disc. Diameter	10.08 (256)
Lateral Runout	.004 (.10)
Parallelism	

Original Thickness	.787 (20)
Min. Refinish Thickness	
Discard Thickness	.748 (19)

DRUM SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Mazda	
GLC Wagon	
Drum Diameter	7.87 (200)
Drum Width	
Max. Drum Refinish Diam.	7.91 (201)
Wheel Cyl. Diameter	.750 (19.0)
Master Cyl. Diameter	.8125 (20.6)
RX7	
Drum Diameter	7.87 (200)
Drum Width	
Max. Drum Refinish Diam.	7.91 (201)
Wheel Cyl. Diameter	.750 (19.0)
Master Cyl. Diameter	.8125 (22.2)
B2000 & B2200	
Drum Diameter	10.23 (260)
Drum Width	
Max. Drum Refinish Diam.	10.27 (261)
Wheel Cyl. Diameter	.875 (22.2)
Master Cyl. Diameter	.875 (22.2)

END OF ARTICLE