BRAKE SYSTEM

1991 BRAKES Mazda Brake System

DESCRIPTION & OPERATION

NOTE: For information on anti-lock brake systems, see appropriate ANTI-LOCK BRAKE SYSTEM article in the BRAKES Section.

All models use hydraulic-operated brake system with a tandem master cylinder and a power brake unit.

BRAKE SYSTEM BLEEDING

NOTE: See BRAKE BLEEDING article in the BRAKES Section.

BRAKE LINE BLEEDING SEQUENCE

Application	Sequence
Protege & 323	RR, LR, LF, RF
RX7 (1)	RR, LR, RF, LF
All Others	Longest Line First
(1) If rear caliper has not been disassembled, open upper bleed valve only.	

ADJUSTMENTS

MASTER CYLINDER PUSH ROD (NAVAJO)

NOTE: Push rod has an adjustment screw to maintain correct distance between booster push rod and master cylinder piston. If push rod is adjusted too long, it prevents master cylinder piston from completely releasing hydraulic pressure, causing brakes to drag. If push rod is adjusted too short, it causes excessive pedal travel and an undesirable clunk in booster area.

1. Remove master cylinder to gain access to push rod. To check screw adjustment, fabricate a gauge. See **Fig. 1** .

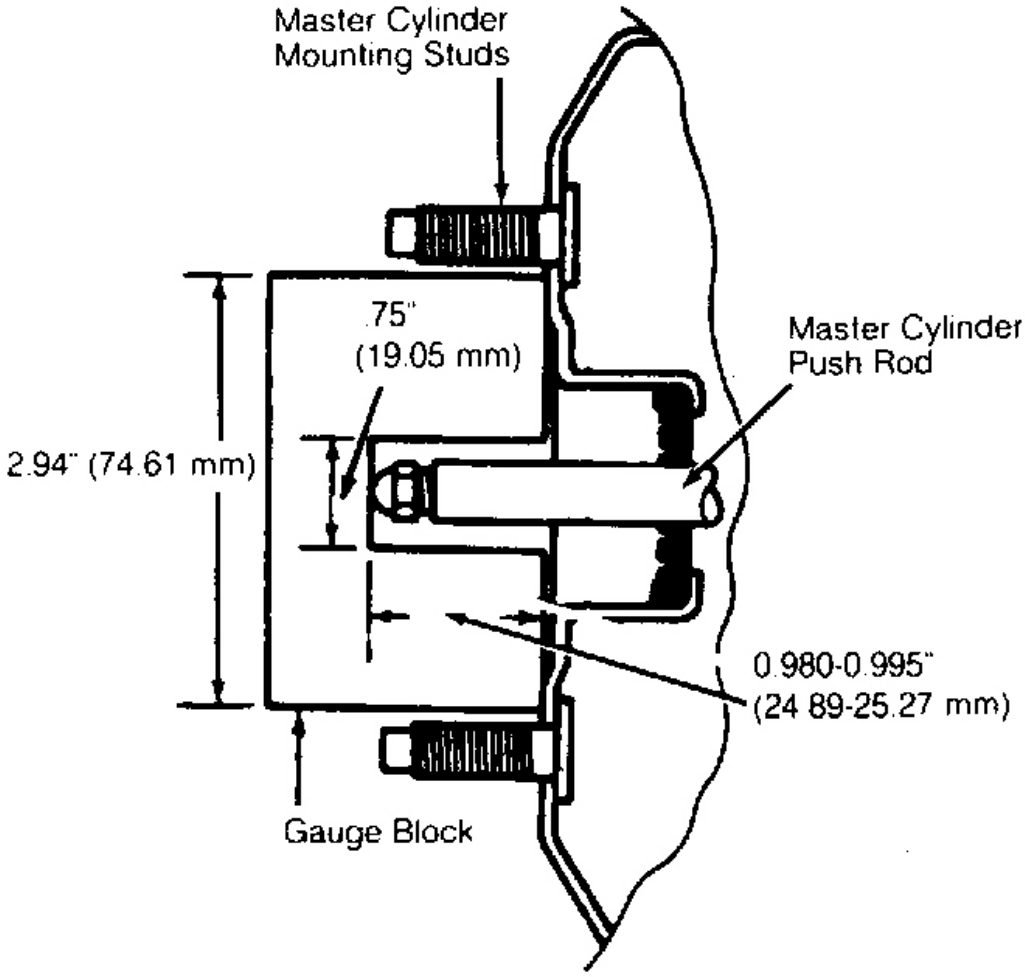


Fig. 1: Adjusting Brake Booster Push Rod (Navajo)
Courtesy of FORD MOTOR CO.

2. Place gauge against master cylinder mounting surface of booster. Adjust push rod screw by turning it until end of screw just touches inner edge of gauge slot.

REAR BRAKE SHOES

NOTE: Self-adjusting rear brakes only require manual adjustment when brake shoe is replaced or operating lever is moved during service operations.

B2200 & B2600i 2WD

1. Raise and support rear of vehicle. Ensure parking brake is released. Remove plugs from rear of backing plate (one below wheel cylinder, other near outer diameter of backing plate). Insert a screwdriver through hole below wheel cylinder. Rotate star wheel adjuster in direction of arrow stamped on backing plate until wheel locks.
2. Insert a drift through other hole in backing plate. Push pawl back from adjuster and back off adjuster 6-7 notches. Ensure wheel rotates freely. Perform same procedure on both sides. Adjust parking brake.

B2600i 4WD & MPV

1. Raise and support rear of vehicle. Ensure parking brake is released. Remove plugs from rear of backing plate. Insert a screwdriver through hole for star wheel. Rotate adjuster in direction of arrow stamped on backing plate until wheel locks.
2. Insert a drift through other hole in backing plate. Push pawl back from adjuster and back off adjuster 8-10 notches (13-15 notches on MPV). Ensure wheel rotates freely. Perform same procedure on both sides. Adjust parking brake.

MX-6, Protege, 323 & 626

1. Raise and support rear of vehicle. Remove wheel. Release parking brake. Remove lock nut from axle shaft. Remove brake drum. Insert screwdriver between adjusting plate and quadrant. Twist screwdriver to disengage teeth. See **Fig. 2** or **Fig. 3** .

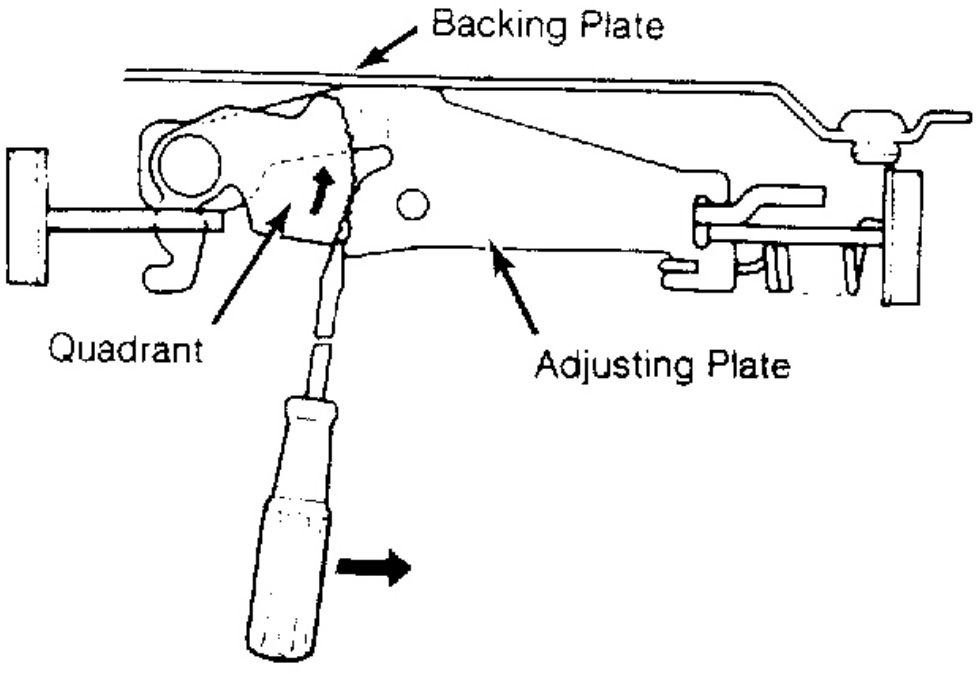


Fig. 2: Moving Quadrant on Rear Brake Adj. (MX-6 & 626)
Courtesy of MAZDA MOTORS CORP.

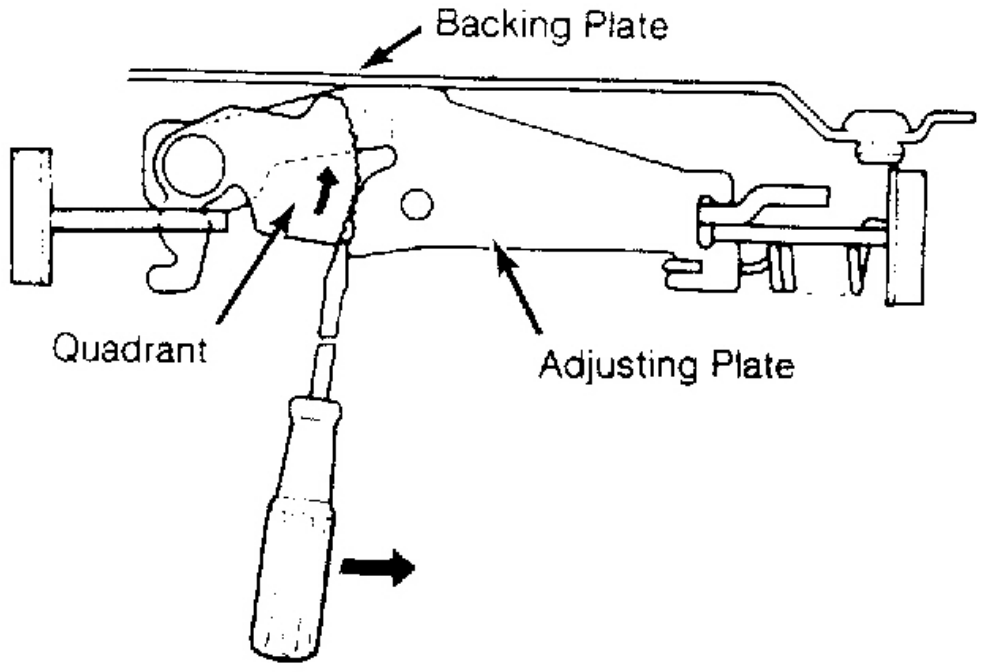


Fig. 3: Moving Quadrant on Rear Brake Adj. (Typical Protege & 323)
Courtesy of MAZDA MOTORS CORP.

2. Push adjusting lever toward backing plate. Install brake drum. Install new lock nut, and secure by crimping. Operate parking brake a few times to reset adjuster. Adjust parking brake.

Navajo

1. Raise and support rear of vehicle. If drums are installed on vehicle, remove cover from adjusting hole at bottom of brake backing plate. Turn adjusting screw with a brake adjusting tool until shoes drag against brake drum and lock drum.
2. When shoes are against drum, loosen adjusting screw an additional 10-12 notches so drum rotates freely. If drum does not rotate freely, remove wheel and drum and vacuum dust and dirt from linings. Use sandpaper and remove rust from points where shoes touch backing plate. Apply a light coating of molybdenum grease to brake shoe-to-backing plate contact points. Install wheel and drum and adjust shoes.
3. To adjust brakes with rear drums removed, first clean all rust and dirt on points where shoes touch backing plate and apply a small amount of molybdenum grease to those areas. Use a brake shoe adjustment gauge and adjust brakes to inside diameter of drum braking surface.
4. Reverse tool and adjust brake shoes until they touch gauge. Gauge contact points on shoes must be parallel to vehicle with center line through center of axle. Hold automatic adjusting lever out of

engagement while rotating adjusting screw to prevent burring screw slots. Ensure adjusting screw rotates freely.

PARKING BRAKE

B2200 & B2600i

1. Depress brake pedal several times while vehicle is moving in Reverse. Ensure brakes are properly adjusted. Pull parking brake lever with a force of 44 lbs. (20 kg). If stroke is 7-12 notches, parking brake is properly adjusted.
2. If stroke is not 7-12 notches, raise and support rear of vehicle. Release parking brake lever. Loosen cable lock nut at lever end of cable. Rotate adjusting nut until correct stroke is obtained. Operate parking brake several times and ensure rear wheels rotate freely. Ensure parking brake warning light illuminates when brake lever is pulled one notch.

Navajo

1. Adjust service brakes before adjusting parking brake cable. Ensure brake drums are cold. Apply parking brake to fully depressed position. Grip threaded rod to prevent it from spinning.
2. Thread equalizer nut 6 full turns past its original position on threaded rod. See **Fig. 4** . Check cable tension at rear of equalizer assembly using Cable Tension Gauge (021-00018). If tension is not 400-600 lbs. (182-272 kg), repeat step 2).

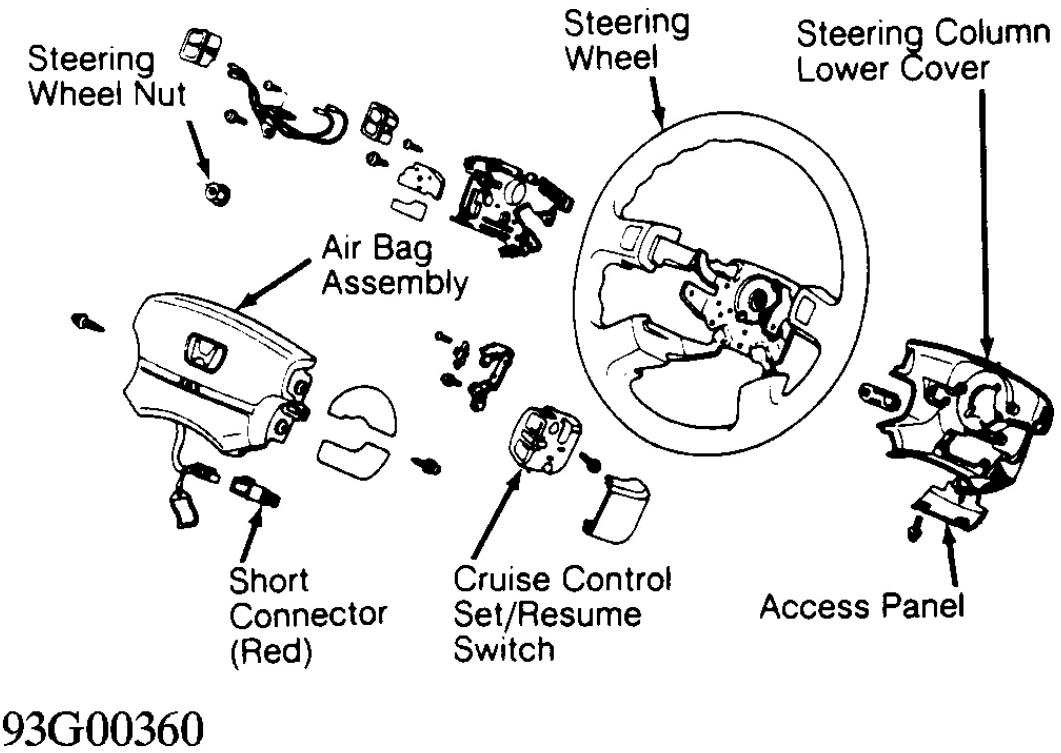


Fig. 4: Adjusting Parking Brake (Navajo)
Courtesy of FORD MOTOR CO.

3. Release pedal, and check rear wheel drag. If drag is noted, remove drums, and check for clearance between parking brake lever and cam plate. Cables should be tight enough to allow full application of rear brakes and loose enough to allow full release of rear brakes.

NOTE: Tension limiter will reset parking brake tension any time system is disconnected if distance between bracket and cinch strap hook is reduced during adjustment. When adjustment has been performed so cinch strap contacts bracket, system tension will increase greatly. This may cause an over-tension condition. When available adjustment travel has been used, replace tension limiter.

929

1. Depress brake pedal several times. Pull parking brake lever with a force of 44 lbs. (20 kg). If stroke is 6-8 notches, parking brake is properly adjusted. If stroke is not 6-8 notches, adjust parking brake shoes. See PARKING BRAKE SHOES under **ADJUSTMENTS** .

NOTE: If rear brake shoes are removed for any reason, parking brake cable

tension should be checked and adjusted.

2. Release parking brake lever. Using a screwdriver, reach through parking brake handle hole in console and rotate adjusting screw until stroke is 6-8 notches. Ensure rear wheels rotate freely. Ensure parking brake warning light illuminates when brake lever is pulled one notch.

Miata, MX-6, MPV, Protege, RX7, 323, 626

1. On models with rear disc brakes, depress brake pedal several times. On models with rear drum brakes, start engine and depress brake pedal several times while vehicle is moving in Reverse. Stop engine.
2. On all models, pull parking brake lever with a force of 22 lbs. (10 kg). If stroke is 5-7 notches, parking brake is properly adjusted. If stroke is not 5-7 notches, raise and support rear of vehicle. Release parking brake lever.
3. Rotate cable adjusting nut at lever end of cable (under console cover) until stroke is within specification. On models equipped with rear disc brakes, ensure clearance between stopper and lever (at each caliper) is not less than .08" (2 mm) on RX7, or zero on all other models. On all models, ensure parking brake warning light illuminates when brake lever is pulled one notch.

PARKING BRAKE SHOES

929

Raise and support vehicle. Remove rear wheels. Remove service plug from rotor. Using a screwdriver, rotate star wheel adjuster toward axle until rotor locks. Rotate adjuster in opposite direction 3-5 notches. Ensure rotors turn freely and parking brake functions properly. Install service plug and rear wheels.

PEDAL FREE PLAY

Depress pedal a few times to eliminate vacuum. Pedal free play should be .16-.28" (4-7 mm). Adjust play by loosening push rod lock nut. Turn push rod until correct free play is obtained. Tighten push rod lock nut.

PEDAL HEIGHT & STOPLIGHT SWITCH

NOTE: Pedal height and stoplight switch information is not available for Navajo.

1. Released pedal height is measured from carpet surface on vertical portion of firewall to pedal pad center. Disconnect stoplight switch electrical connector. Loosen lock nut on stoplight switch. Move switch away from pedal. Loosen push rod lock nut. Turn rod until correct pedal height is obtained. See **BRAKE PEDAL HEIGHT SPECIFICATIONS** .
2. Adjust pedal free play. See **PEDAL FREE PLAY** under ADJUSTMENTS. Tighten push rod lock nut. Rotate stoplight switch until it contacts pedal and then rotate an additional 1/2 turn. Tighten stoplight switch lock nut. Reconnect stoplight switch electrical connector.
3. Applied pedal height is measured from angled portion of firewall (without carpet) to pedal pad center. Start engine. On B2200, B2600i and MPV, depress brake pedal with 33 lbs. (15 kg) pressure. On all other models, depress brake pedal with 132 lbs. (60 kg) pressure.

4. On all models, measure applied pedal height. If distance is not as specified, check brake adjustment or system for air. See BRAKE PEDAL HEIGHT SPECIFICATIONS TABLE.

BRAKE PEDAL HEIGHT SPECIFICATIONS

Application	In. (mm)
Pedal Released	
B2200 & B2600i	7.1-7.3 (180-185)
Miata, MX-6, 626 & 929	6.7-7.1 (171-181)
MPV	7.5-7.9 (191-201)
Protege & 323	7.6-7.7 (193-196)
RX7	7.2-7.4 (184-189)
Pedal Applied (1)	
B2200 & B2600i	4.1 (105)
Miata, MX-6, 626 & 929	3.7 (95)
MPV	5.2 (133)
Protege & 323	2.8 (70)
RX7	3.9 (100)
(1) Minimum height.	

TESTING

POWER BRAKE UNIT

1. With engine off, depress brake pedal several times. Press and hold brake pedal and start engine. If brake pedal moves down slightly immediately after engine starts, power brake unit is operating. If brake pedal does not move as specified, go to next step.
2. Run engine for 1-2 minutes. Stop engine. Press brake pedal several times and note if first pedal stroke is longer than subsequent strokes. If first pedal stroke is longer than subsequent strokes, power brake unit is operating. If length of strokes is equal, test check valve and vacuum hose between vacuum source and power brake unit. Repair as necessary, and go to next step.
3. Start engine. Press and hold brake pedal. Stop engine. Hold pedal down for about 30 seconds. If pedal height remains at same height, power brake unit is operating. If pedal height recedes, test check valve and vacuum hose between vacuum source and power brake unit. Repair as necessary.

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

Removal & Installation (Protege & 323)

Raise and support front of vehicle. Remove wheels. Remove spring "A". See **Fig. 5** . Remove spring "B". Remove pad pins. Remove pads, shims and anti-squeak shim. Replace pad if lining thickness is less than specified. See MINIMUM PAD LINING SPECIFICATIONS (FRONT) TABLE. To install, reverse removal

procedure.

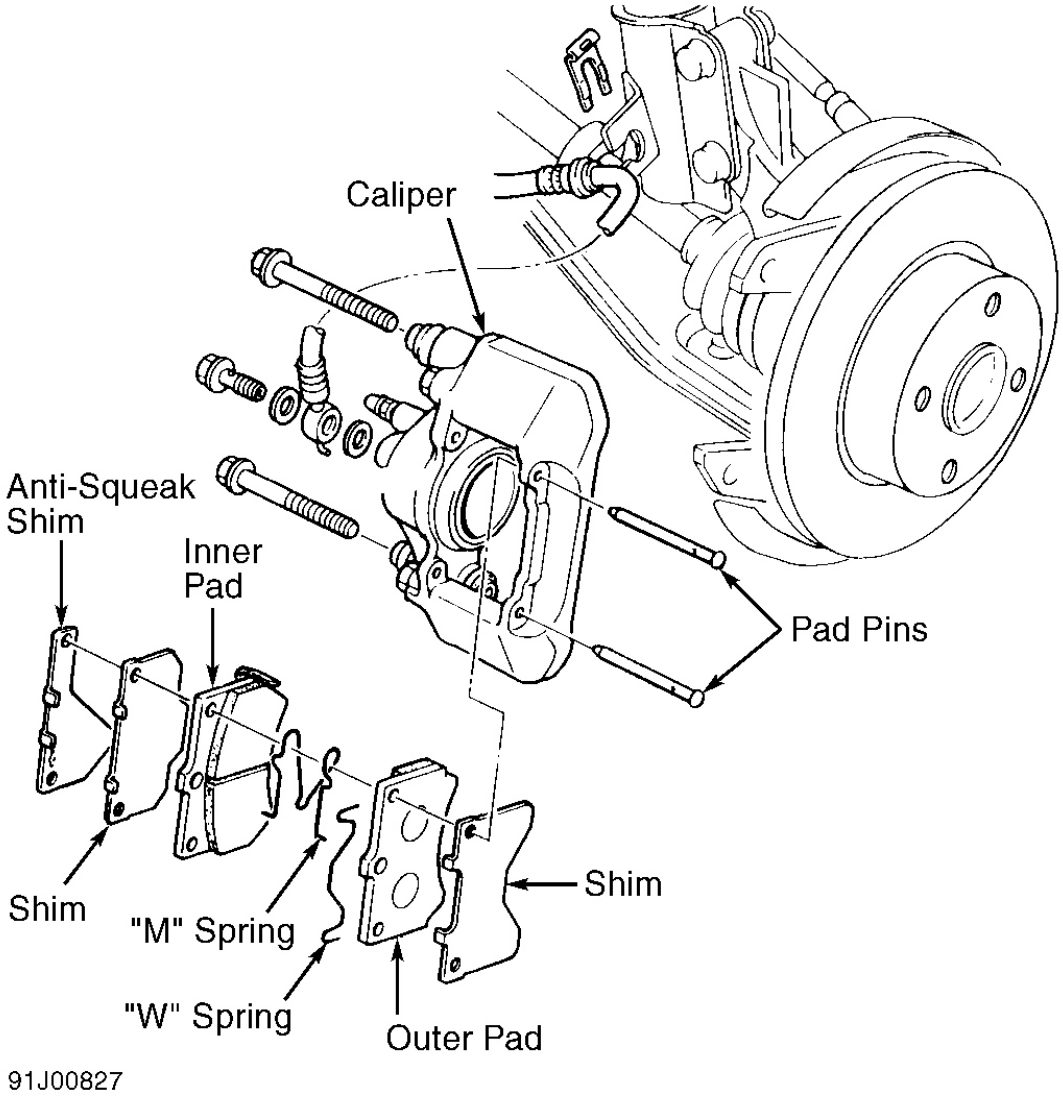


Fig. 5: Exploded View of Front Disc Brake Assembly (Protege & 323)
Courtesy of MAZDA MOTORS CORP.

Removal (Navajo)

1. To prevent master cylinder overflow when caliper piston is depressed, remove and discard some brake fluid from master cylinder. Raise vehicle, and support using safety stands.
2. Remove front wheel assembly. Place a large "C" clamp on caliper. See **Fig. 9** . Tighten clamp to bottom piston in cylinder bore. Remove clamp.
3. Remove dirt around caliper pin tabs. Tap upper caliper pin toward inboard side of vehicle until pin tabs

touch spindle face.

4. Insert screwdriver into slot provided behind pin tabs on inboard side of pin. Using pliers, compress end of pin while using screwdriver to pry until tabs slip into spindle groove.
5. Place a 7/16" diameter punch on end of pin, and drive caliper pin out of caliper slide groove. Repeat procedure for lower pin. Remove caliper from rotor. Remove outer brake pad. Compress anti-rattle spring clip, and remove inner brake pad. Support caliper aside. Replace pad if lining thickness is less than specified. See MINIMUM PAD LINING SPECIFICATIONS (FRONT) TABLE.

CAUTION: During installation, DO NOT tap caliper pin too far into spindle groove. If this happens, tap pin in other direction until tabs snap back into place. Tabs on each end of caliper pin must be free to catch on spindle flanks.

Installation

Use "C" clamp to push caliper piston into piston bore until it bottoms out. To install, reverse removal procedure. Bleed air from brake system.

Removal & Installation (RX7 With 4-Piston Caliper)

Raise and support front of vehicle. Remove wheels. Remove pad pins and pad springs. See **Fig. 6** . Remove brake pads and shims. Replace pad if lining thickness is less than specified. See **MINIMUM PAD LINING SPECIFICATIONS (FRONT)** . To install, reverse removal procedure.

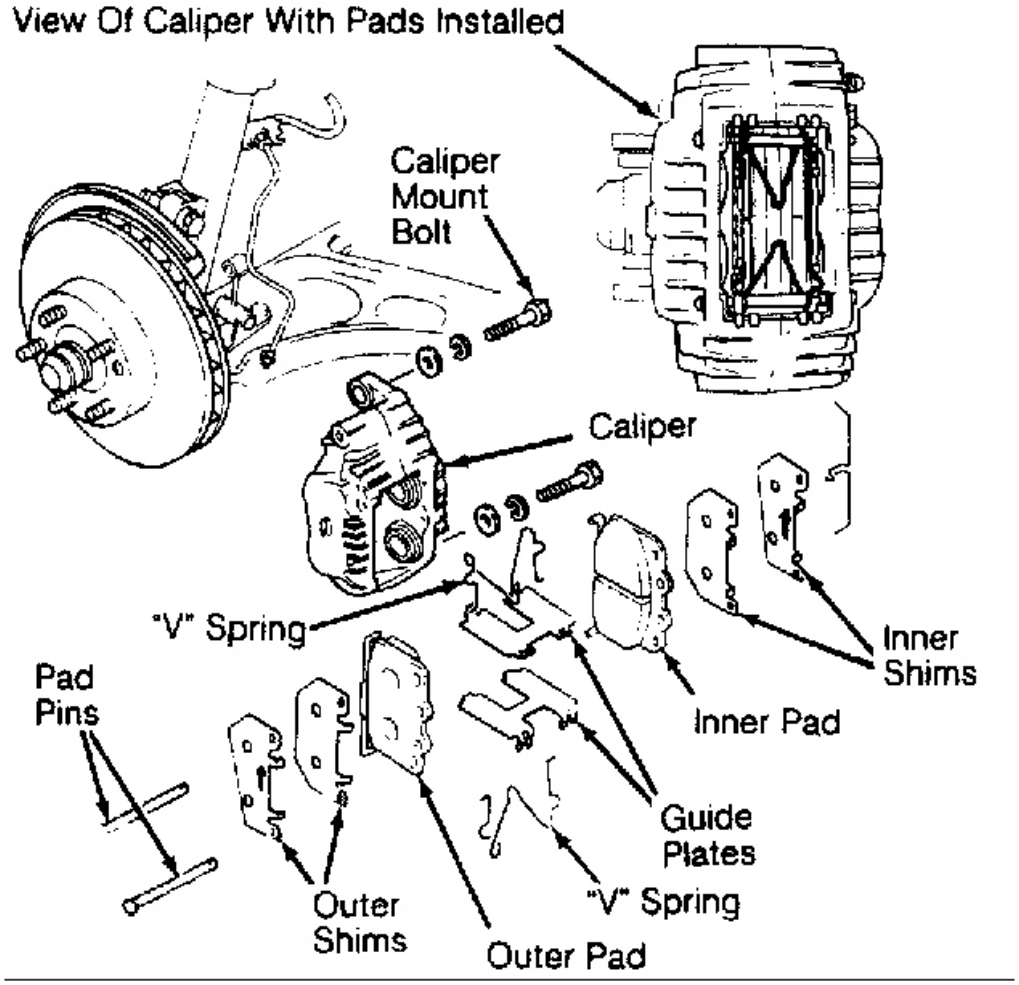


Fig. 6: Front Disc Brake Assembly (RX7 with 4-Piston Caliper)

Removal & Installation (All With Single-Piston Caliper)

Raise and support front of vehicle. Remove wheels. Remove lower lock pin/guide bolt. See **Fig. 7** , **Fig. 8** , **Fig. 10** , **Fig. 11** , or **Fig. 12** . Pivot caliper upward, and support using rope. Remove brake pads. Replace pad if lining thickness is less than specified. See MINIMUM PAD LINING SPECIFICATIONS (FRONT) TABLE. To install, reverse removal procedure.

MINIMUM PAD LINING SPECIFICATIONS (FRONT)

Application	Thickness In. (mm)
B2200, B2600i & Navajo	.12 (3.0)

Miata	.04 (1.0)
MPV, MX-6, Protege, RX7, 323, 626 & 929	.08 (2.0)

NOTE: The following figures are Courtesy Mazda Motors Corp.

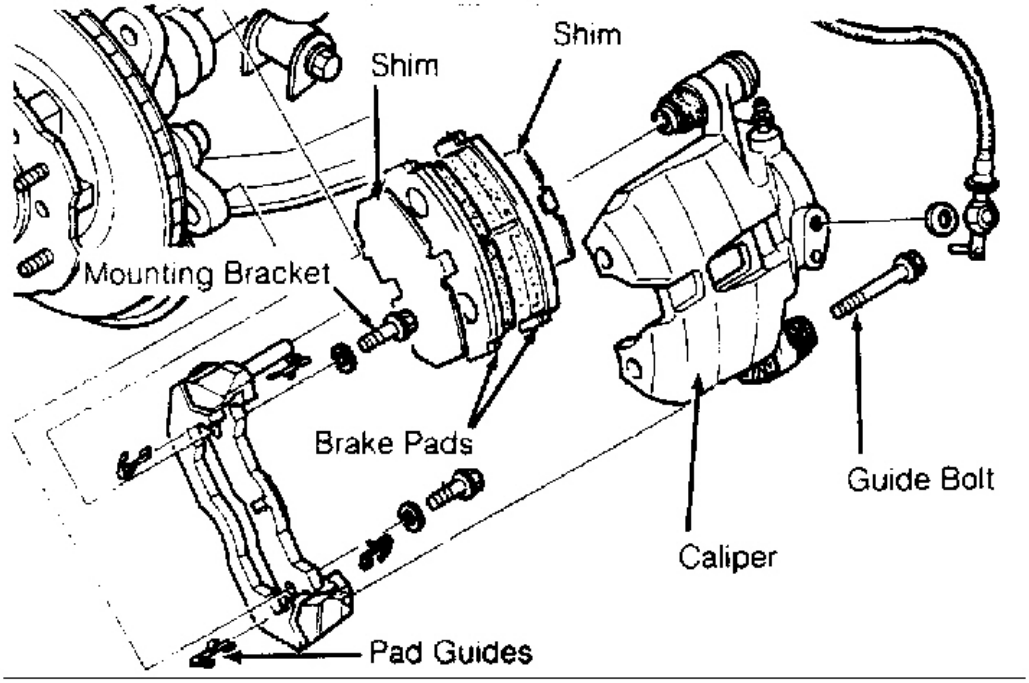


Fig. 7: View of Front Disc Brake Assembly B2200 & B2600I

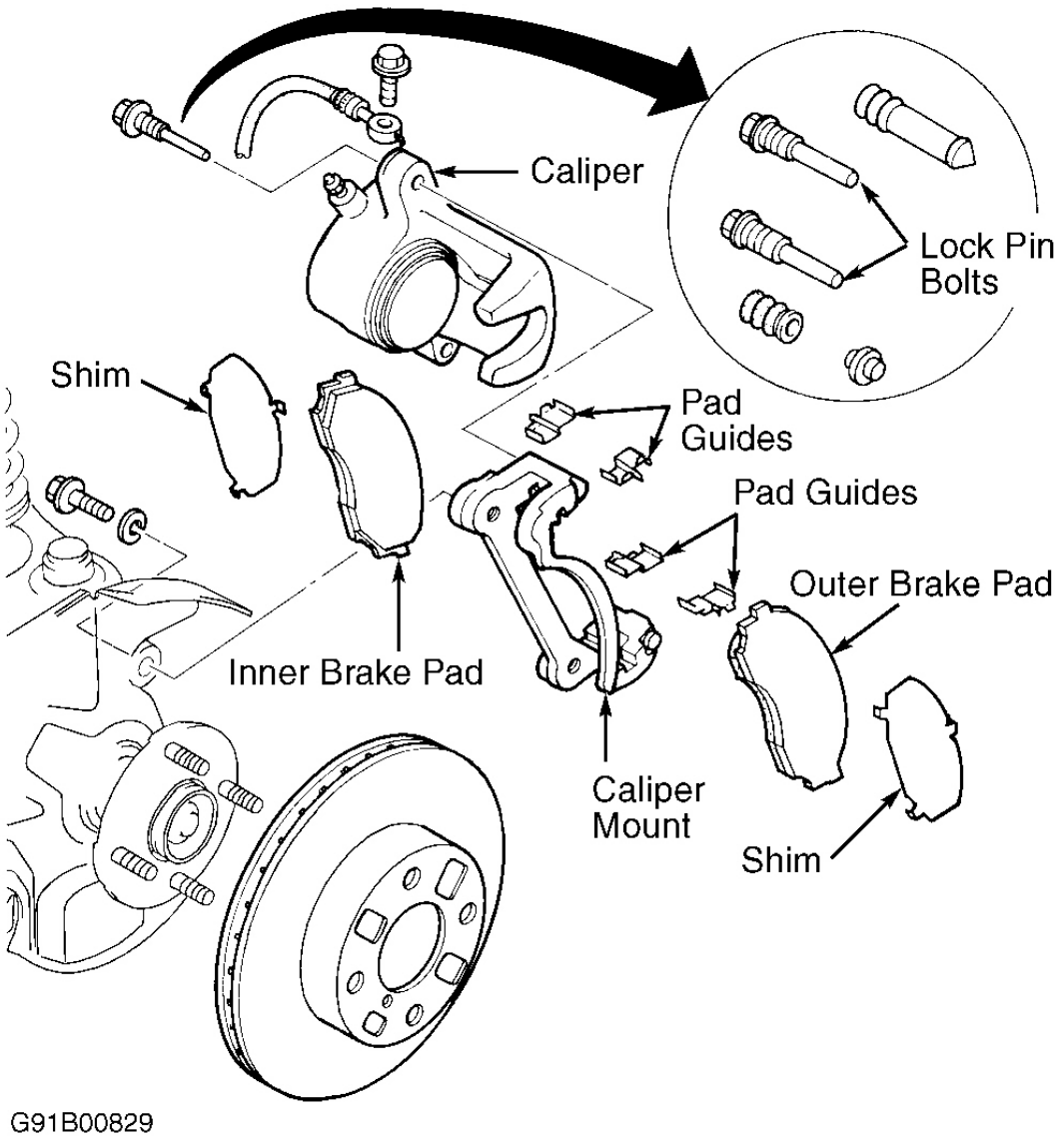


Fig. 8: View of Front Disc Brake Assembly, Miata Shown; MPV Similar.

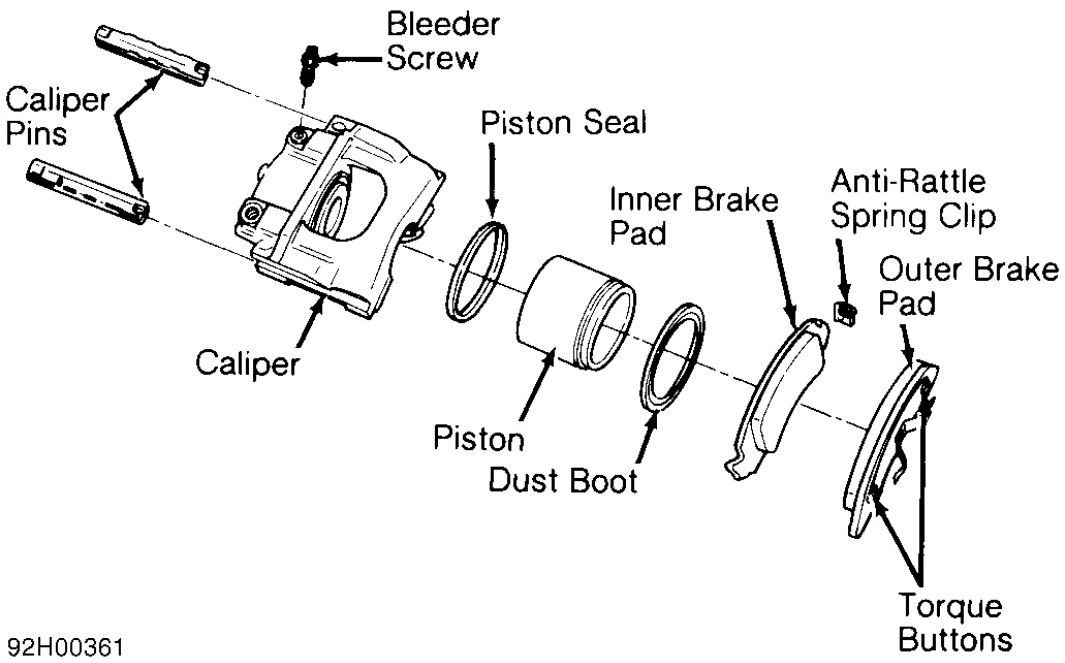


Fig. 9: View of Front Brake Disc Assembly Navajo.

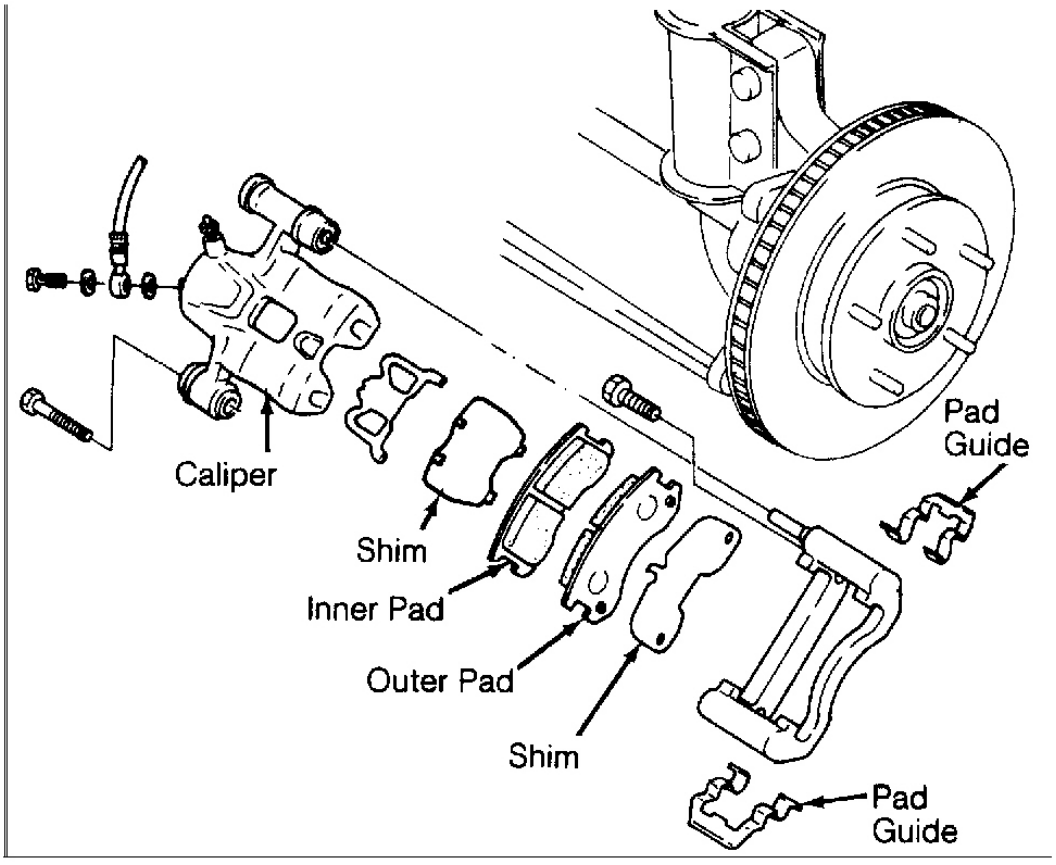


Fig. 10: View of Front Brake Disc Assembly MX-6 & 626.

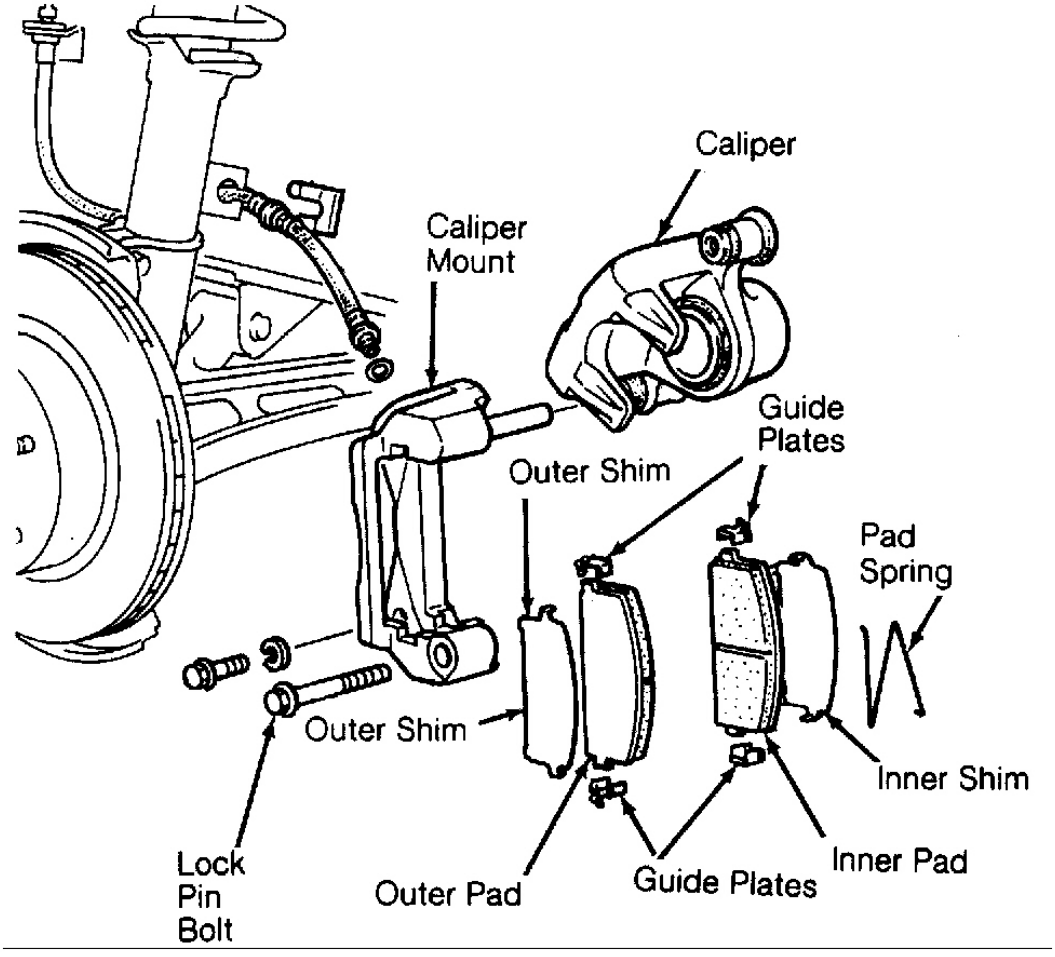


Fig. 11: View of RX7 Single-Piston Caliper Front Brake Assembly

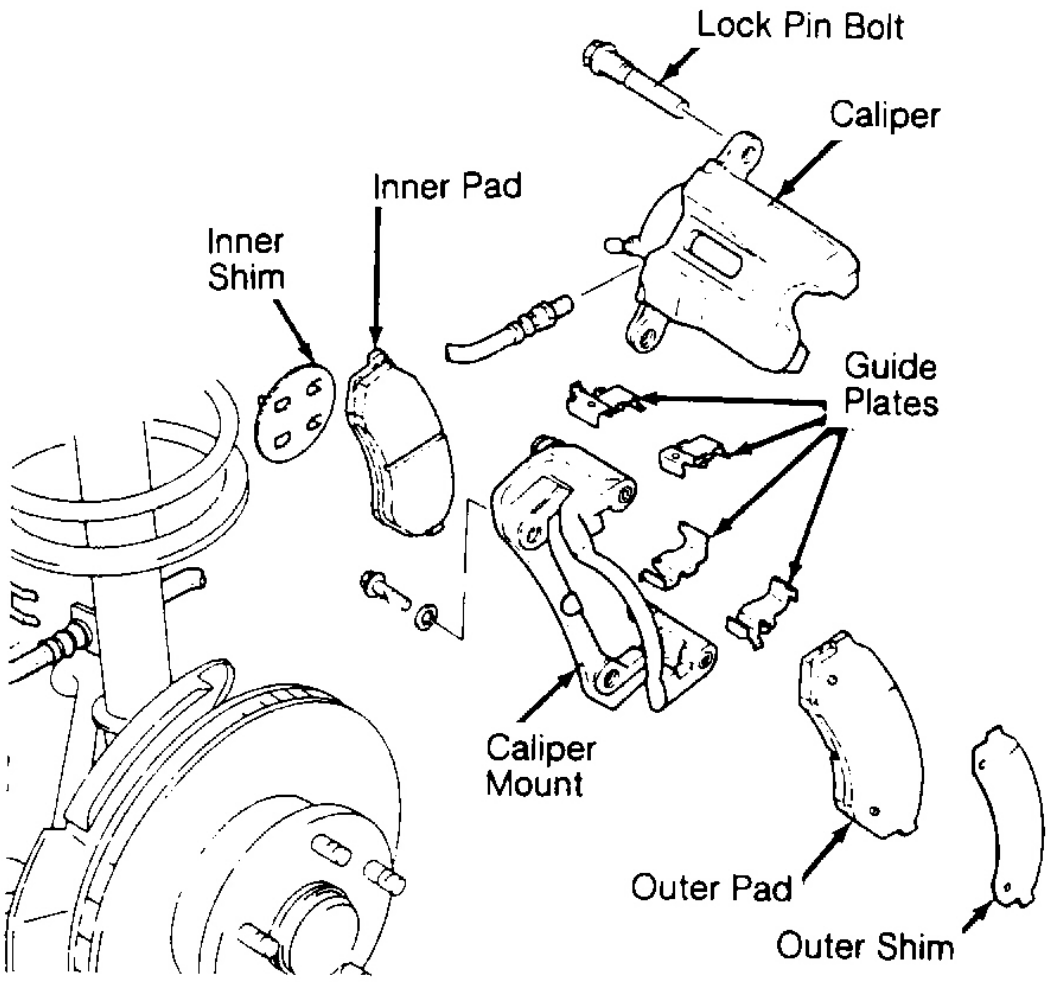


Fig. 12: View of Front Disc Brake Assembly 929

FRONT DISC BRAKE CALIPER

NOTE: For removal and installation of front disc brake caliper for Navajo, see FRONT DISC BRAKE PADS under REMOVAL & INSTALLATION.

Removal & Installation

Raise and support front of vehicle. Remove wheel and disconnect brake hose. Plug all openings. Remove brake disc pads. Remove remaining bolt(s). Remove caliper body from vehicle. To install, reverse removal procedure. Bleed hydraulic system.

FRONT BRAKE ROTOR

Removal & Installation (B2200 & B2600i 2WD)

1. With caliper assembly removed, remove wheel hub grease cap, cotter pin, lock plate and ring adjusting lock nut. Remove thrust washer and outer bearing from hub. Slide hub and rotor assembly from spindle.
2. Mark rotor-to-hub position. Separate rotor from hub. Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See **DISC BRAKE SPECIFICATIONS** at end of article.
3. To install, reverse removal procedure and evenly tighten rotor-to-hub bolts. Adjust wheel bearings. Removal & Installation (B2600i 4WD) 1) Remove front caliper. Set hub to FREE position. Remove hub bolts. Remove hub as an assembly. Install 2 bolts and nuts to retain hub assembly together. Remove snap ring and spacer.
4. Remove set bolt and plate. Remove nut. Remove rotor and hub assembly. Mark rotor-to-hub position. Remove rotor from hub. Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See **DISC BRAKE SPECIFICATIONS** at end of article. To install, reverse removal procedure.

Removal & Installation (Miata, MPV, MX-6, Protege, RX7, 323 & 626)

1. Raise and support front of vehicle. Remove wheel. Remove caliper with brake hose connected. Support caliper using rope. Remove 2 rotor-to-hub screws. Remove rotor.
2. Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See **DISC BRAKE SPECIFICATIONS** at end of article. To install, reverse removal procedure.

Removal & Installation (Navajo 2WD)

1. Raise vehicle, and support using safety stands. Remove wheel and caliper assemblies. Remove dust cap, cotter pin, nut, washer and outer bearing. Carefully remove hub and rotor assembly. Remove inner bearing and seal.
2. To install, reverse removal procedure. Adjust front wheel bearings. While rotating rotor, tighten adjusting nut to 17-25 ft. lbs. (23-34 N.m). Back off adjusting nut 120-180 degrees. Install bearing retainer and new cotter pin.

Removal (Navajo 4WD With Automatic Locking Hubs)

1. Raise vehicle, and support using safety stands. Remove wheel assembly and caliper. See **FRONT DISC BRAKE PADS** under REMOVAL & INSTALLATION. Remove retainer washers from lug nut studs. Remove automatic locking hub housing from spindle.
2. Remove snap ring from end of spindle shaft. Remove axle spacer. See **Fig. 13** . Carefully pull plastic moving cam off wheel bearing adjusting nut. Remove 2 plastic thrust spacers from adjusting nut. Using a magnet, remove locking key.

CAUTION: DO NOT pry on plastic cam or spacers during removal as damage may result. To prevent damaging spindle threads, remove locking key before removing adjusting nut.

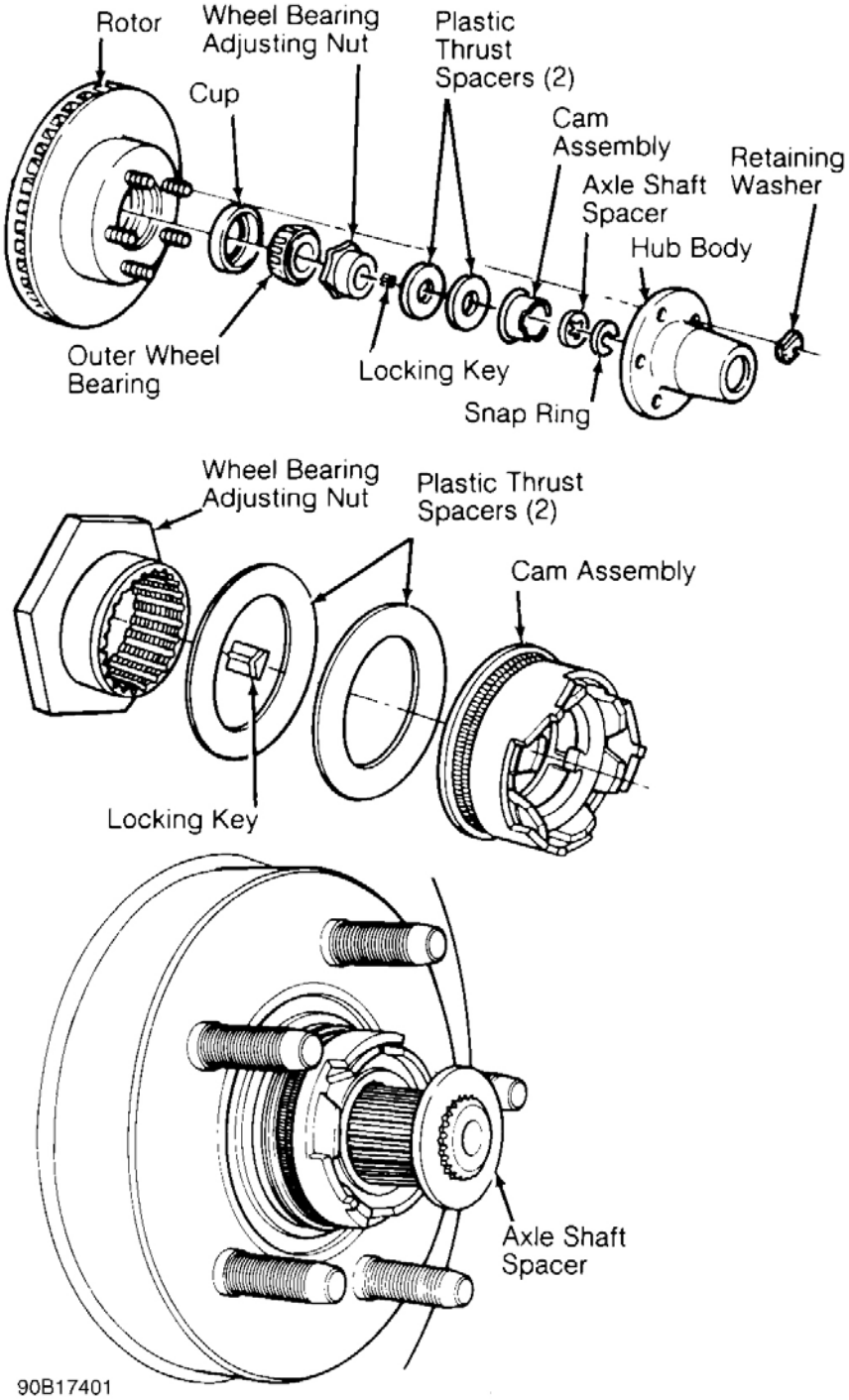


Fig. 13: Removing Front Rotor (Navajo with Automatic Locking Hubs)
Courtesy of FORD MOTOR CO.

3. If necessary, rotate adjusting nut slightly to relieve pressure on locking key. Using Hex Lock Nut Wrench

(T70T-4252-B), remove wheel bearing adjusting nut. Remove outer wheel bearing, and then remove rotor.

Installation

When installing rotor, outer bearing and adjusting nut, tighten adjusting nut to 35 ft. lbs (47 N.m) to seat bearings. Spin rotor, and back off adjusting nut 1/4 turn. Tighten adjusting nut to 16 INCH lbs. (1.8 N.m). To install remaining components, reverse removal procedure. See **Fig. 13** . After assembly is complete, wheel to spindle end play should be .001-.003" (.02-.08 mm).

CAUTION: Extreme caution must be used when aligning adjusting nut lug with spindle locking key slot to prevent damage to locking key. Extreme caution must be used when aligning fixed cam key with spindle key slot to prevent damage to fixed cam.

Removal (Navajo 4WD With Manual Locking Hubs)

1. Raise and support vehicle. Remove wheel assembly and caliper. See **FRONT DISC BRAKE PADS** under REMOVAL & INSTALLATION. Remove retainer washers from lug nut studs. Remove manual locking hub housing from spindle.
2. Remove snap ring from end of spindle shaft. Remove axle spacer. See **Fig. 14** . Using Lock Nut Wrench (T86T-1197-A), remove outer wheel bearing lock-nut. Remove lock washer. Using Lock Nut Wrench (T86T-1197-A), remove inner wheel bearing lock nut, outer wheel bearing and rotor.

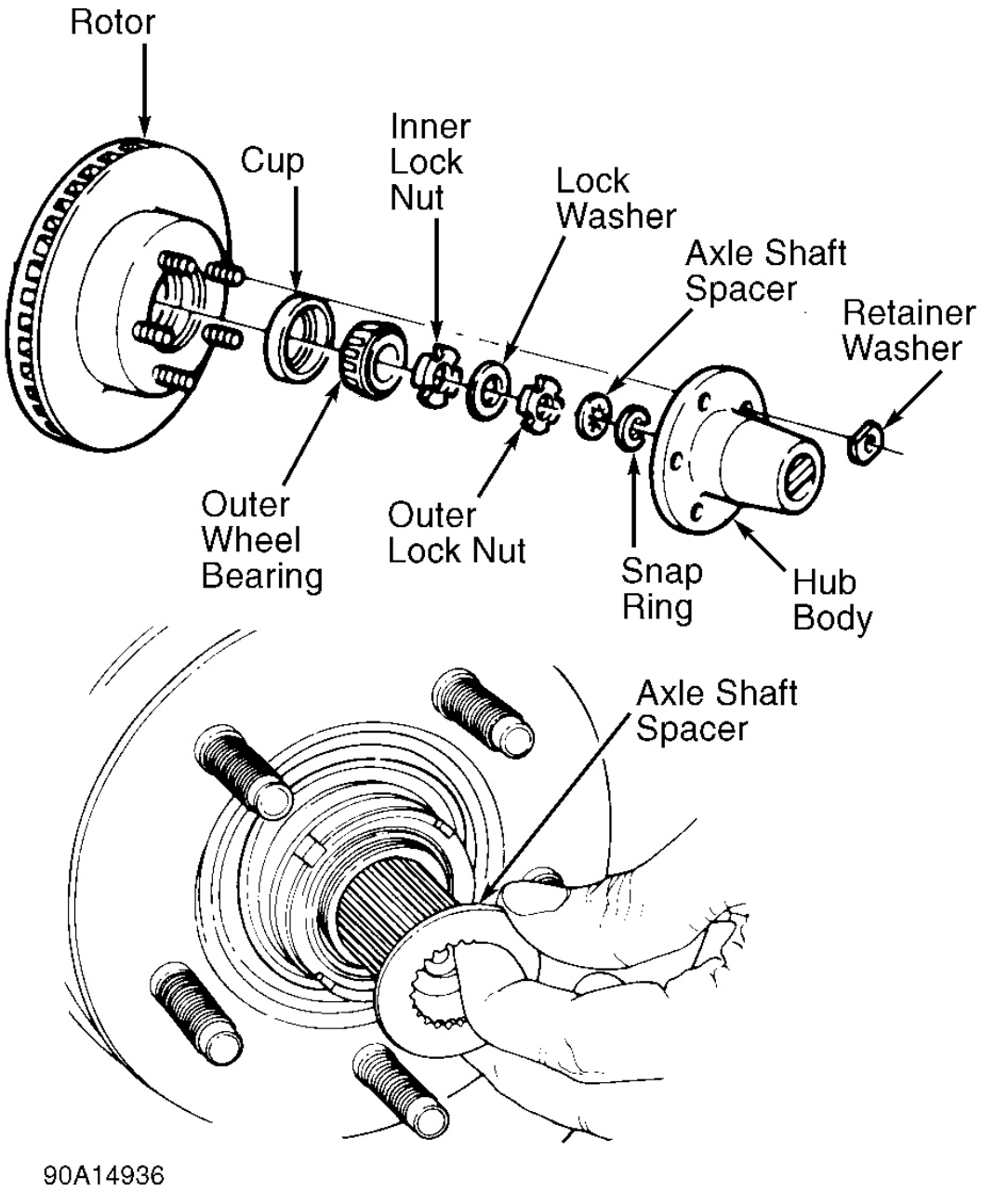


Fig. 14: Removing Front Rotor (Navajo with Manual Locking Hubs)
Courtesy of FORD MOTOR CO.

Installation

When installing rotor, outer bearing and inner lock nut, tighten inner lock nut to 35 ft. lbs (47 N.m) to seat bearings. Spin rotor, and back off inner lock nut 1/4 turn. Tighten inner lock nut to 16 INCH lbs. (1.8 N.m). To

install remaining components, reverse removal procedure. See **Fig. 14** . After assembly is complete, wheel to spindle end play should be .001-.003" (.02-.08 mm).

Removal & Installation (929)

1. Raise and support front of vehicle. Remove wheel. Remove caliper with brake hose connected. Support caliper with rope. Remove hub cap, wheel bearing lock nut and washer. Remove hub and rotor assembly.
2. Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See **DISC BRAKE SPECIFICATIONS** at end of article.
3. To install, reverse removal procedure. Replace wheel bearing lock nut, and tighten to 72-130 ft. lbs. (98-177 N.m). Check hub end play. If end play exceeds .002" (.05 mm), replace bearing. If end play is within specification, stake lock nut at groove in axle shaft.

REAR DISC BRAKE PADS

Removal & Installation (Miata, Protege & 323)

1. Raise and support rear of vehicle. Remove wheel. Remove manual adjustment gear concealment plug from caliper. See **Fig. 15** . Insert an appropriate size Allen wrench through hole and turn manual adjustment gear counterclockwise to retract caliper piston.

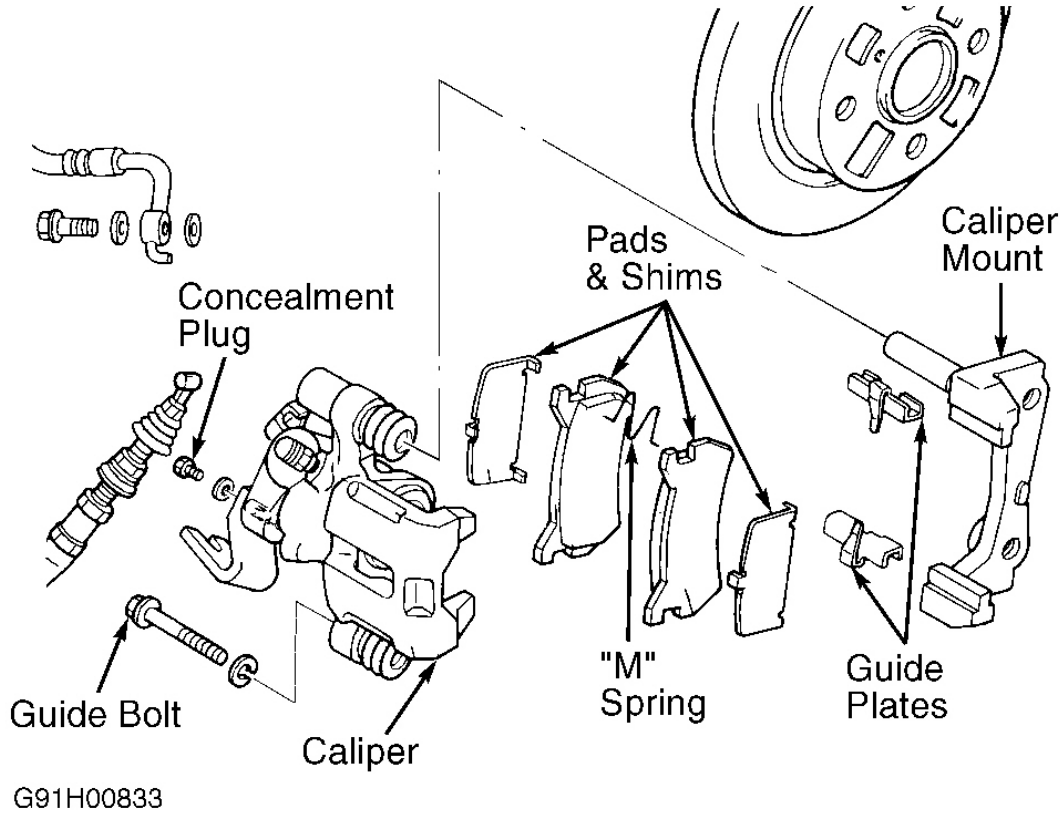


Fig. 15: Rear Disc Brake Assembly (Miata, Protege & 323)

2. Remove lower guide bolt from caliper. Rotate caliper upward, and support using rope. Remove "M" spring. Remove pads, shims and guide plates. Replace pad if lining thickness is less than .04" (1.0 mm). To install, reverse removal procedure.

Removal & Installation (MX-6 & 626)

1. Raise and support rear of vehicle. Remove wheel. Release parking brake and disconnect parking brake cable from caliper. Remove upper guide bolt from caliper. Rotate caliper downward and secure with rope. Remove "V" springs. Remove pads and shims.
2. To install, turn caliper piston clockwise using Disc Brake Piston Wrench (49-FA18-602) to retract caliper piston. Ensure groove in piston aligns with alignment pin on back of inner pad. Replace pad if lining thickness is less than .04" (1.0 mm). To complete installation, reverse removal procedure.

Removal & Installation (RX7)

1. Raise and support rear of vehicle. Remove wheel. Remove lower guide bolt from caliper. Rotate caliper upward, and secure using rope. Remove "V" springs. Remove pads and shims. Replace pad if lining thickness is less than .04" (1.0 mm).

2. To install, turn caliper piston clockwise using Disc Brake Piston Wrench (49-FA18-602) to retract caliper piston. Ensure groove in piston aligns with alignment pin on back of inner pad. To install remaining components, reverse removal procedure.

Removal & Installation (929)

Raise and support rear of vehicle. Remove wheel. Remove lower guide bolt from caliper. Rotate caliper upward and secure with rope. Remove pads and shims. Replace pad if lining thickness is less than .08" (2.0 mm). To install, reverse removal procedure.

REAR BRAKE CALIPER

Removal & Installation

1. Raise and support rear of vehicle. On all models except 929, release parking brake and disconnect parking brake cable from caliper. On all models, disconnect brake hose from caliper.
2. On Miata, Protege and 323, remove manual adjustment gear concealment plug from caliper. See **Fig. 15** . Insert an appropriate size Allen wrench through hole and turn manual adjustment gear counterclockwise to retract caliper piston.
3. On all models, remove lower guide bolt from caliper. Rotate caliper upward. Pull caliper toward center of vehicle to slide it off of caliper mount. To install, reverse removal procedure. Bleed hydraulic system.

REAR BRAKE ROTOR

Removal & Installation (Miata, Protege, RX7, 323 & 929)

Remove rear brake caliper. Remove rotor-to-hub screws. Remove rotor. Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See **DISC BRAKE SPECIFICATIONS** at end of article. To install, reverse removal procedure.

Removal & Installation (MX-6 & 626)

1. Remove rear caliper, and wire aside. Remove grease cap. Remove lock nut. Remove rotor. Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See **DISC BRAKE SPECIFICATIONS** at end of article.
2. To install, reverse removal procedure. Tighten lock nut to 73-131 ft. lbs. (99-178 N.m). Check end play at grease cap. If end play exceeds .008" (.20 mm), replace wheel bearings.

REAR BRAKE SHOES

Removal (B2200, B2600i & MPV)

With brake drum removed, remove brake shoe return springs, retaining springs and guide pins. See **Fig. 16** or **Fig. 17** . Remove brake shoes. Remove parking brake strut, and disconnect parking brake cable from operating lever of secondary shoe. Minimum lining thickness is .04" (1 mm).

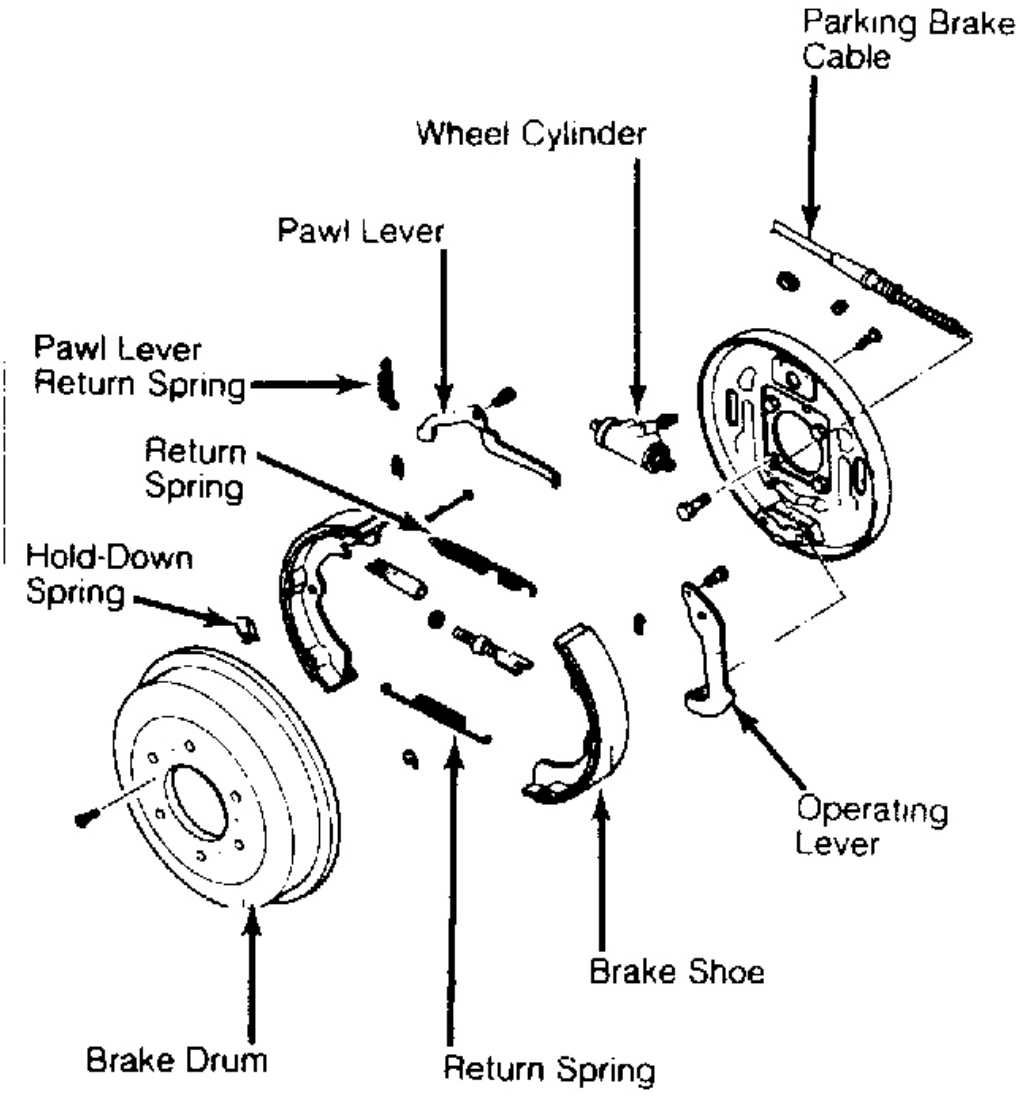


Fig. 16: Rear Drum Brake Assembly (B2200 & B2600i 2WD)
Courtesy of MAZDA MOTORS CORP.

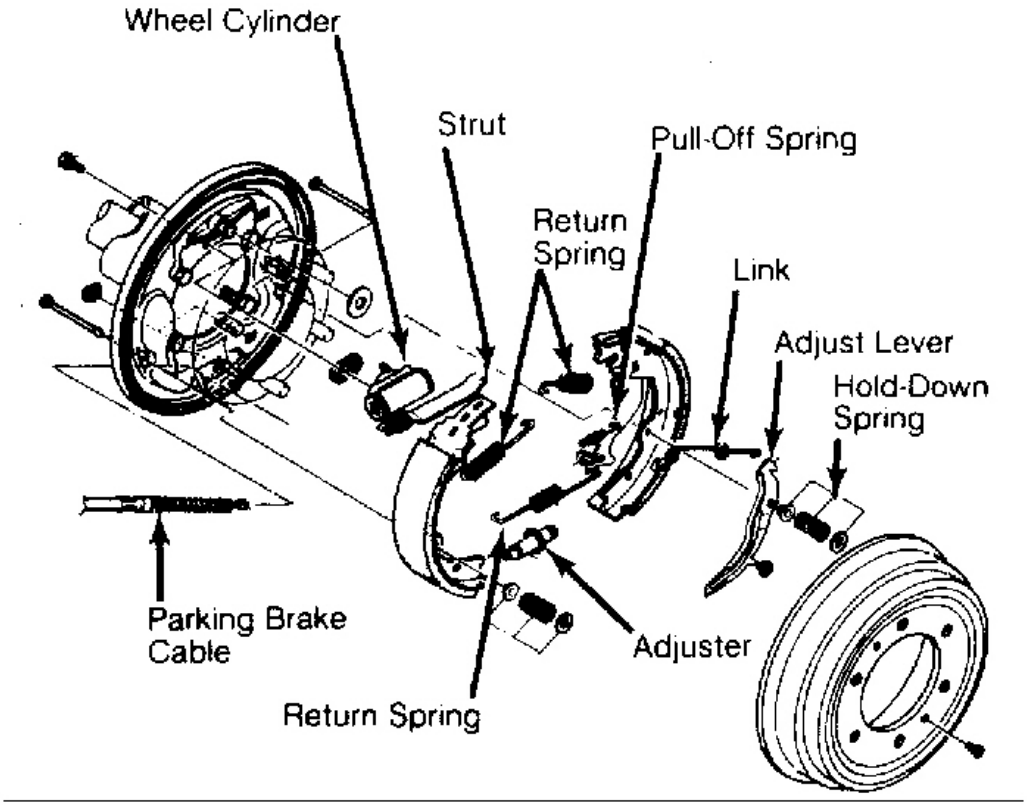


Fig. 17: Rear Drum Brake Assembly (B2600i 4WD & MPV)
Courtesy of MAZDA MOTORS CORP.

Installation

1. Apply brake grease to the adjusting screw threads and shoe contact points on backing plate. 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.

Removal (MX-6, Protege, 323 & 626)

1. Remove brake drum. Remove trailing shoe hold-down spring and pin. Remove trailing shoe assembly.
2. Remove return spring, anti-rattle spring, and leading shoe hold-down spring and pin. Remove leading shoe assembly. See **Fig. 18** . Minimum lining thickness is .04" (1 mm).

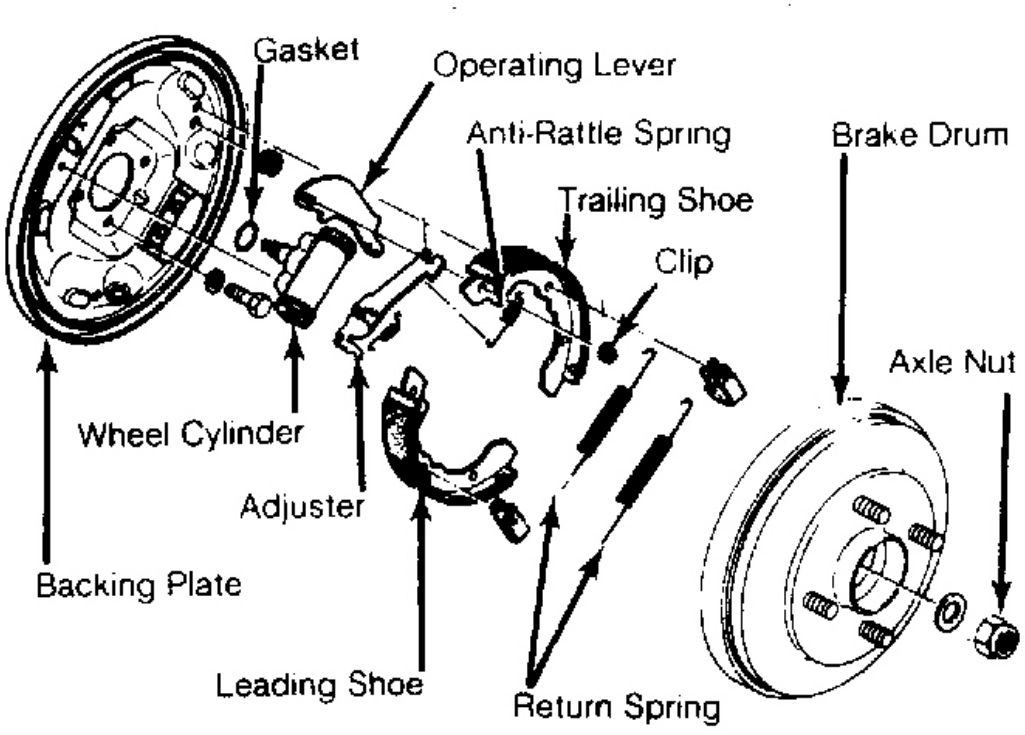


Fig. 18: View of Rear Drum Brake Assembly (Typical)
Courtesy of MAZDA MOTORS CORP.

Installation

1. Apply brake grease to brake shoe contact areas on backing plate. When installing adjuster between shoes, insert a flat-tipped screwdriver between adjuster quadrant and meshing teeth on MX-6 and 626, or between quadrant and knurled pin on Protege and 323. See **Fig. 2** .
2. To fully retract adjuster, move quadrant until it touches backing plate. To complete installation, reverse removal procedure. Adjust wheel bearings and stake lock nut.

Removal (Navajo)

1. Remove wheel assembly and drum. Place a wheel cylinder clamp over ends of wheel cylinder. Disengage adjusting lever from adjusting screw by pulling backwards on lever cable. See **Fig. 19** .

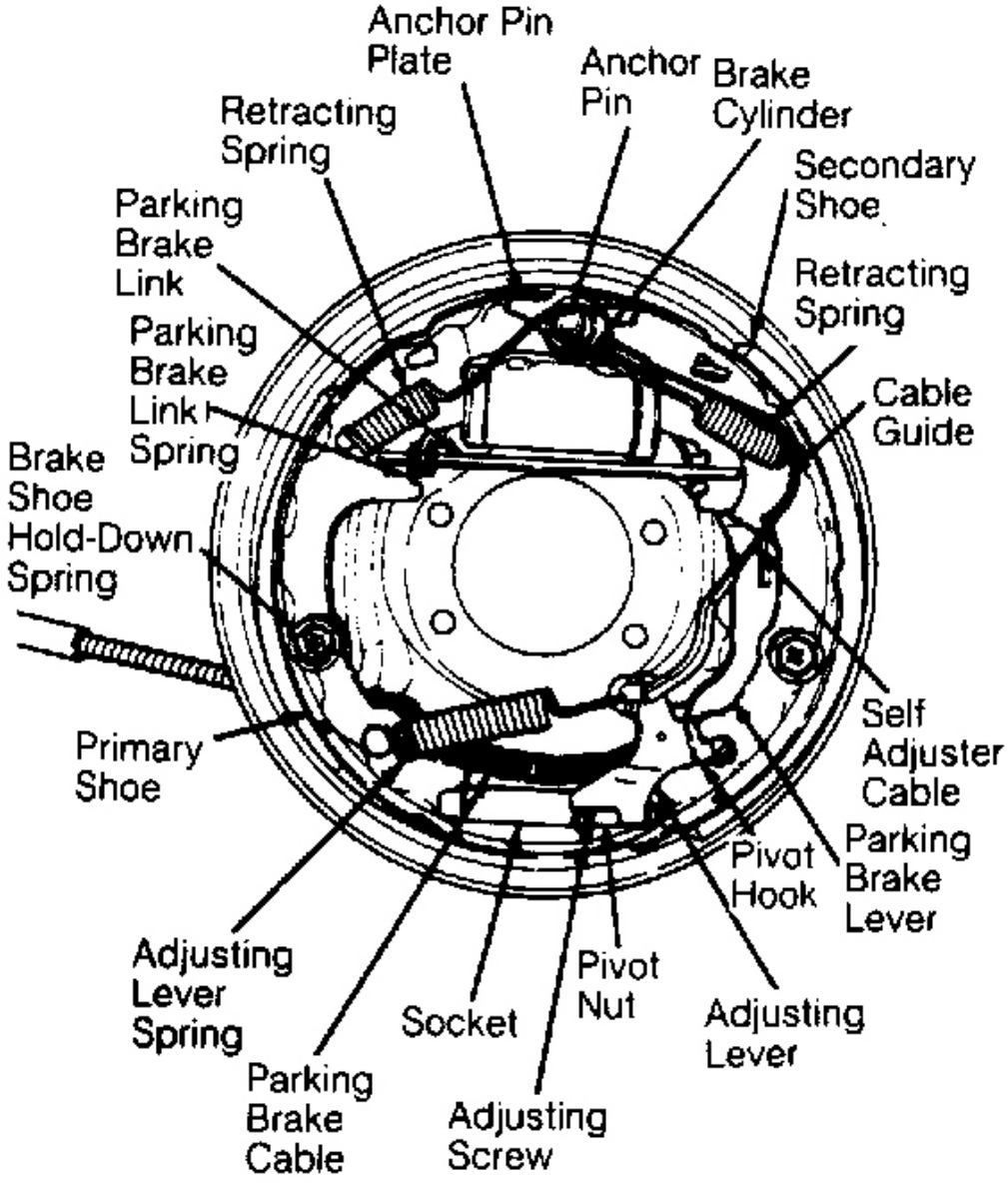


Fig. 19: Examining Rear Brake Assemblies (Navajo)
Courtesy of FORD MOTOR CO.

2. Move outboard side of adjusting screw upward, and back off pivot nut as far as possible. Pull adjusting lever, cable and adjusting spring down and toward rear to unhook pivot hook from large hole in secondary shoe. DO NOT pry pivot hook from hole.
3. Remove adjusting spring and adjusting lever. Remove secondary shoe-to-anchor spring. Remove primary

shoe-to-anchor spring. Unhook cable anchor, and remove anchor pin plate.

4. Remove cable guide, shoe hold-down springs, brake shoes, adjusting screw, pivot nut and socket. Remove parking brake link spring and link. Note color and position of springs for reassembly.
5. Disconnect parking brake cable from lever. Remove secondary shoe. Disassemble parking brake lever from shoe by removing retaining clip and spring washer. See **Fig. 20** .

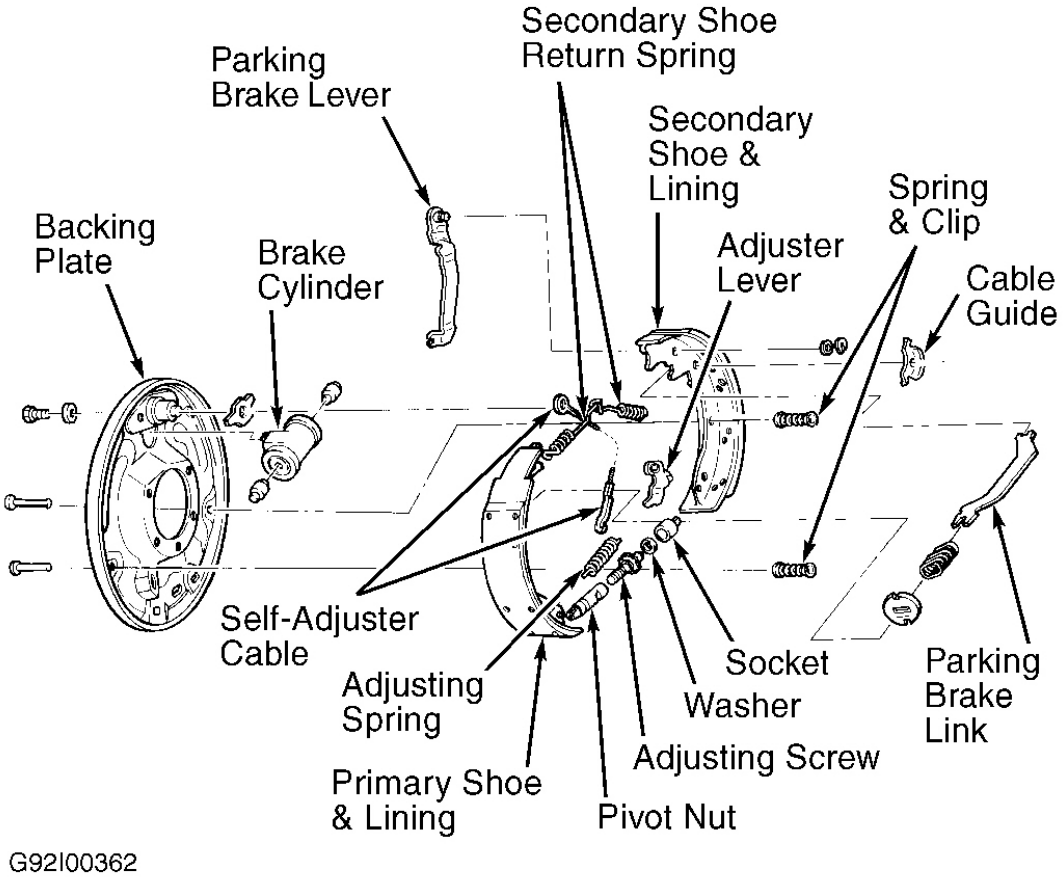


Fig. 20: Exploded View of Rear Drum Brake Assembly (Navajo)
Courtesy of MAZDA MOTORS CORP.

Installation

Clean and sand brake shoe contact points on backing plate. Apply a light coating of lithium base grease to contact points. Lubricate adjusting cable eye and anchor pin area. Lubricate adjusting screw, pivot and socket. To install, reverse removal procedure.

PARKING BRAKE SHOES

Removal (929)

Raise and support vehicle. Remove rear wheels. Remove brake rotor. Remove upper and lower return springs. See **Fig. 21** . Remove hold-down springs and pins. Remove parking brake shoes. Separate adjuster and operating lever. Minimum lining thickness is .04" (1 mm).

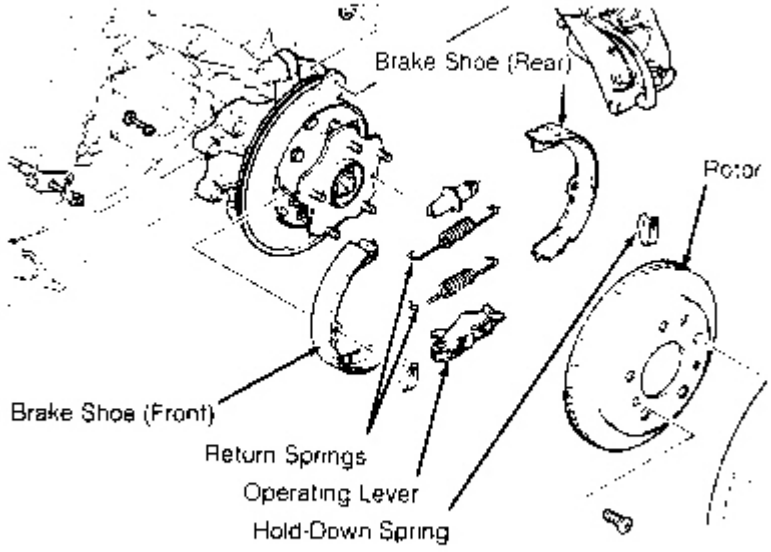


Fig. 21: Exploded View of Parking Brake Assembly (929)
Courtesy of MAZDA MOTORS CORP.

Installation

Connect operating lever to parking brake cable. Set marked side (with arrow) of operating lever to front side. Position shoes and adjuster. Ensure threaded side of adjuster faces forward on left wheel and rearward on right wheel. To complete installation, reverse removal procedure. Adjust parking brake. See PARKING BRAKE under **ADJUSTMENTS** at beginning of article.

REAR AXLE BEARING & OIL SEAL

NOTE: For information on models with sealed wheel bearings, see appropriate article in the SUSPENSION Section.

Removal (B2200 & B2600i)

1. Remove wheel and brake drum. Disconnect parking brake cable and brake line. Remove backing plate bolts. Remove backing plate and rear axle assembly. Remove axle bearing lock nut using Holder (49-

S120-645A) and Wrench (49-0603-635A).

NOTE: Left wheel lock nut has left-hand threads.

2. Using Puller (49-S120-520A) and Adapter (49-S120-523A), remove rear axle bearings. Remove oil seal from axle housing.

Installation

1. Install oil seal in axle housing. Install bearing inner race. Install and position oil seal flush with end of axle casing. Apply multipurpose grease to oil seal lip. Install spacer with concave side facing backing plate.
2. Press axle bearing onto axle shaft. Using wrench, install and tighten lock nut to 145-217 ft. lbs. (197-295 N.m). Install axle shaft assembly. Install backing plate. Reconnect brake line and parking brake cable. Install brake drum and wheel. Bleed brake system.

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. Remove master cylinder from vehicle. On RX7, remove proportioning valve by-pass bolt.

Installation

1. Place Adjustment Gauge (49-F043-001) onto master cylinder. Turn screw on adjuster gauge until it contacts piston. Remove adjuster gauge. Apply 19.7 in. Hg to power brake unit.
2. Invert adjuster gauge and place it on power brake unit. Adjust push rod on power brake unit until there is no clearance between push rod and adjuster gauge screw. Install master cylinder. Bleed hydraulic system.

POWER BRAKE UNIT

Removal & Installation

1. Remove master cylinder from power brake unit. See MASTER CYLINDER under **REMOVAL & INSTALLATION** . Disconnect vacuum line at power brake unit. From inside vehicle, remove cotter pin and clevis pin. Separate push rod from brake pedal.
2. Remove power brake unit-to-firewall nuts. Remove power brake unit. See **Fig. 22** To install, reverse removal procedure. Bleed hydraulic system.

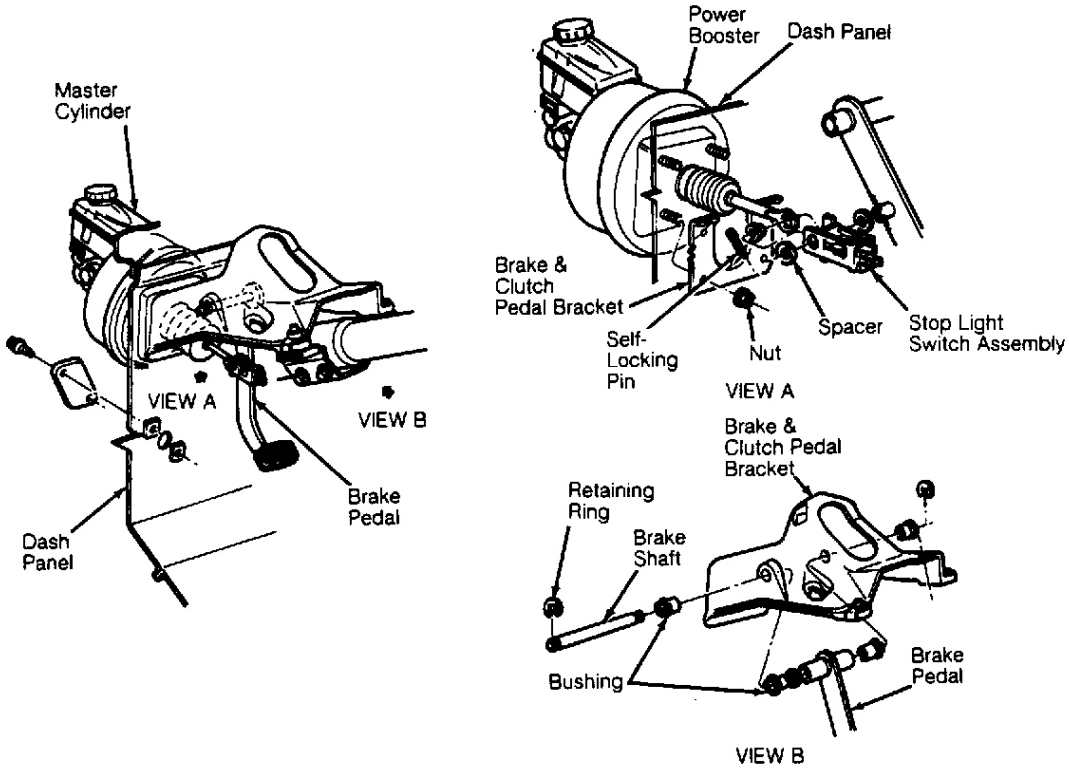


Fig. 22: Removing Master Cylinder & Power Brake Unit (Typical)
Courtesy of MAZDA MOTORS CORP.

OVERHAUL

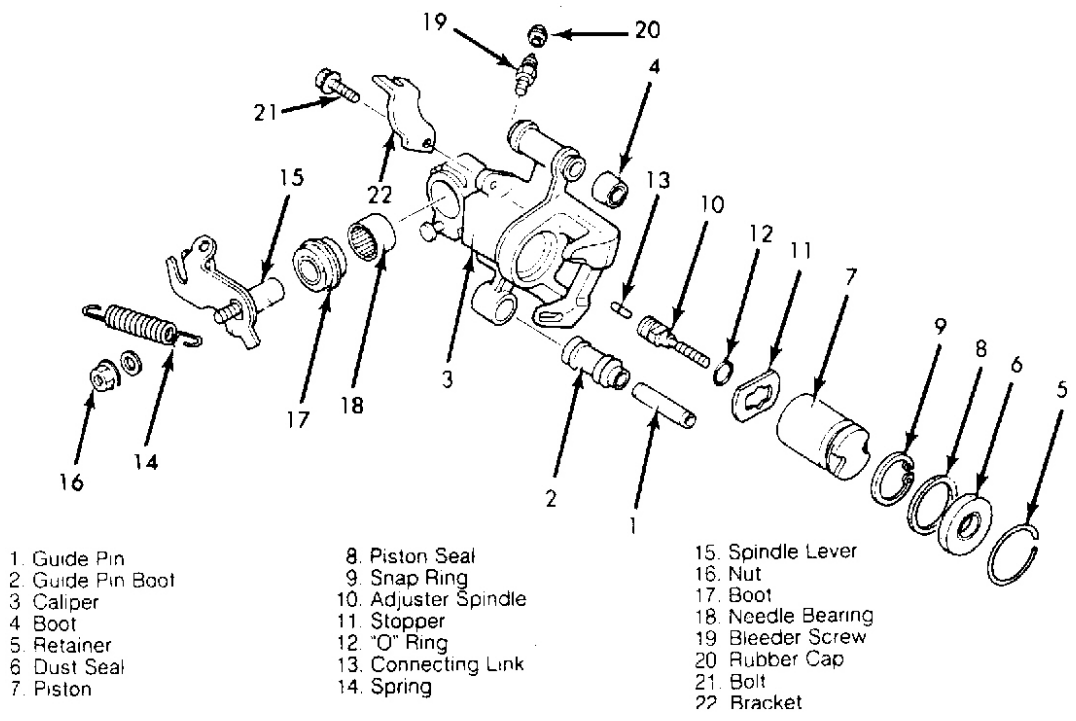


Fig. 23: Rear Caliper Assembly (Miata, Protege & 323)
Courtesy of MAZDA MOTORS CORP.

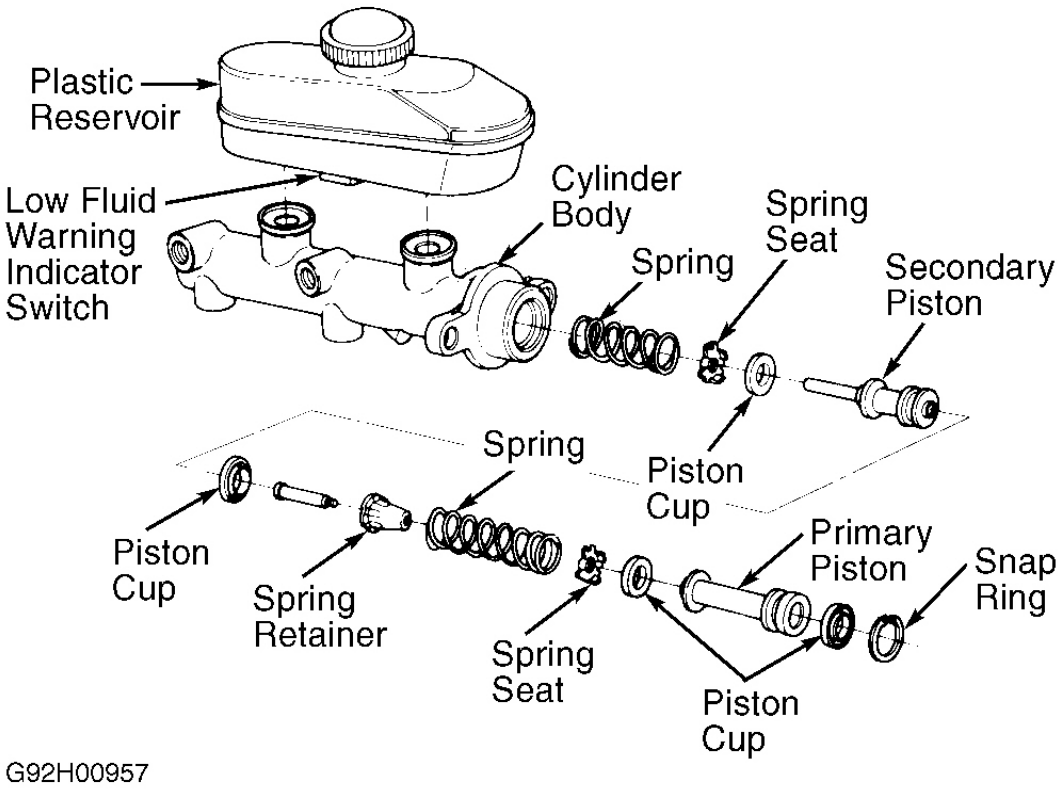


Fig. 24: Master Cylinder (Navajo).
Courtesy of MAZDA MOTORS CORP.

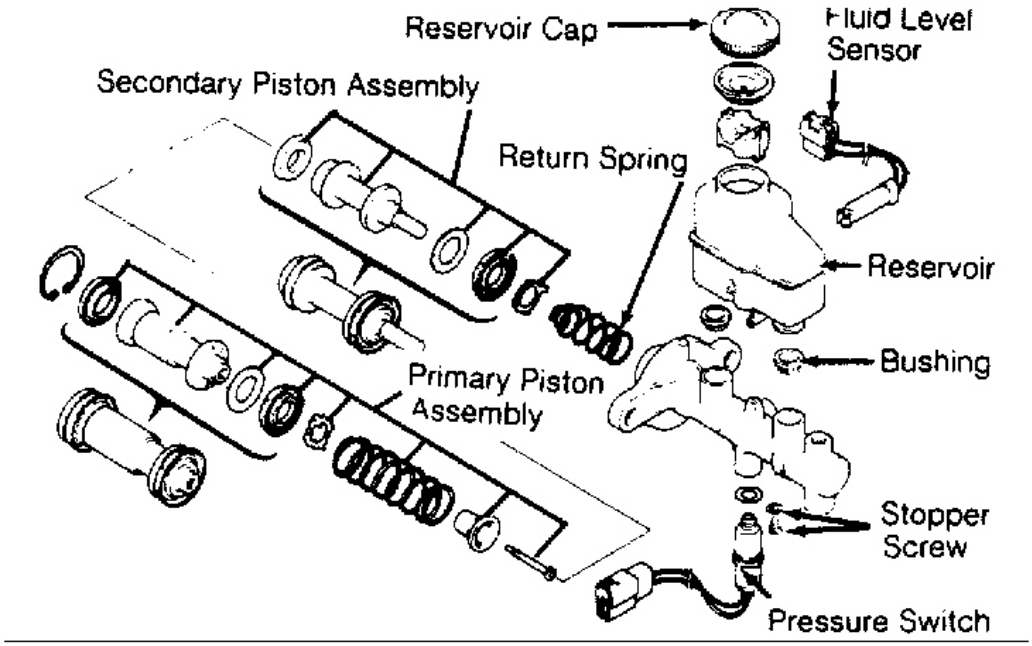
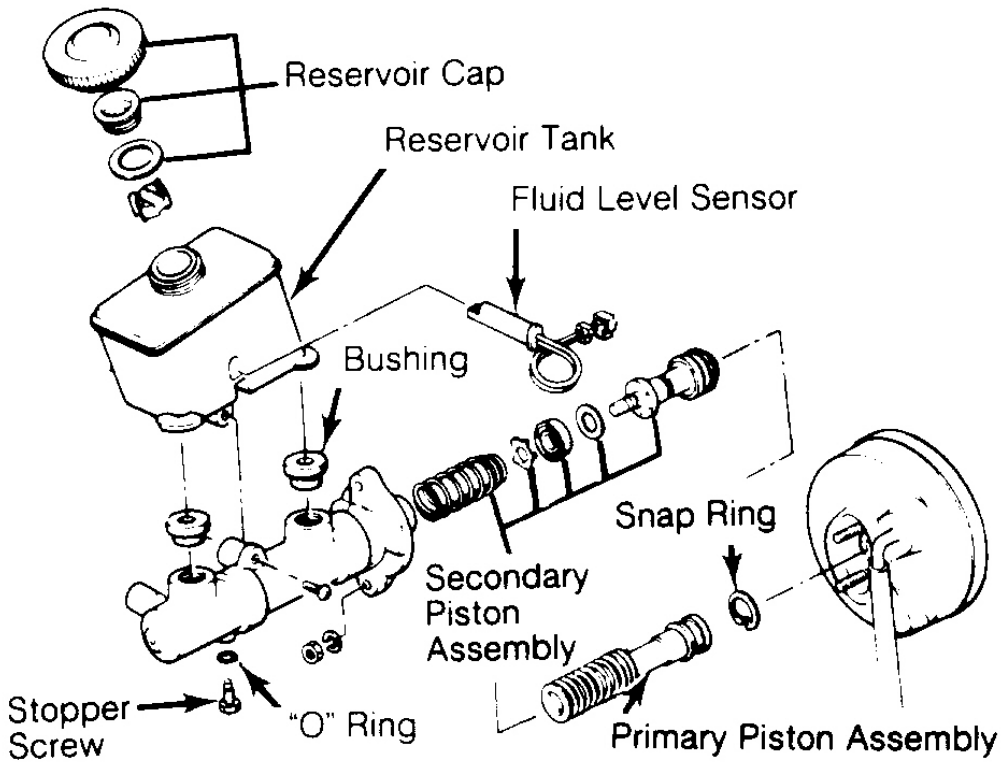


Fig. 25: Master Cylinder (929).
Courtesy of MAZDA MOTORS CORP.



58065
Mazda

Fig. 26: Typical Master Cylinder (Except Navajo & 929)
Courtesy of MAZDA MOTORS CORP.

SPECIFICATIONS

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Backing Plate (Rear)	
B2200 & B2600i 2WD	72-87 (98-118)
B2600i 4WD	65-80 (88-108)
Navajo	25-35 (34-47)
All Others	33-43 (45-58)
Caliper Guide Bolt	
B2200 & B2600i	23-30 (31-41)

Miata	
Front	
Lower	58-65 (78-88)
Upper	33-40 (45-54)
Rear	33-43 (45-59)
MPV	61-69 (83-93)
MX-6 & 626	
Front	23-30 (31-41)
Rear	12-17 (16-24)
Protege & 323	
Front	(1)
Rear	33-43 (45-59)
RX7	
Front	
Single-Piston Caliper	23-30 (31-41)
4-Piston Caliper	(1)
Rear	12-17 (16-24)
929	
Front	61-69 (83-93)
Rear	12-17 (16-24)
Caliper Mounting Bracket Bolt	
B2200, B2600i & MPV	65-80 (88-108)
Miata	
Front	36-51 (49-69)
Rear	33-43 (45-59)
MX-6 & 626	
Front	58-72 (78-98)
Rear	33-49 (45-67)
Protege & 323	
Front	(1)
Rear	33-43 (45-59)
RX7	
Front	
Single-Piston Caliper	58-72 (78-98)
4-Piston Caliper	(1)
Rear	33-40 (45-54)
929	
Front	58-86 (78-117)
Rear	33-50 (45-68)
Hub Bolt (4WD)	22-25 (30-34)

Rotor-To-Hub Bolt	
B2200 & B2600i	40-51 (54-69)
MX-6 & 626	36-43 (49-58)
323	33-40 (45-54)
Wheel Bearing Lock Nut	
B2200 & B2600i (Rear)	145-217 (197-295)
323 (Front)	116-174 (158-237)
Wheel Lug Nut	
B2200 & B2600i	
Standard Wheel	65-87 (88-118)
Styled Wheel	87-108 (118-147)
Navajo	85-115 (115-155)
All Others	65-87 (88-118)
	INCH Lbs. (N.m)
Parking Brake Cable Lock Nut	
B2200 & B2600i	60-84 (7-10)
All Others	168-252 (19-29)
Wheel Cylinder Mounting Bolt	
B2200 & B2600i 2WD	108-144 (12-16)
B2600i 4WD	180-216 (20-24)
Except B2200, B2600i & Navajo (2)	84-108 (10-12)

(1) These bolts secure caliper directly to steering knuckle. On Protege, tighten to 29-36 ft. lbs. (39-49 N.m). On RX7, tighten to 58-72 ft. lbs. (78-98 N.m).

(2) Information is not available from manufacturer for Navajo.

DISC BRAKE SPECIFICATIONS

DISC BRAKE SPECIFICATIONS

Application	**In. (mm)**
B2200 & B2600i 2WD Front (1)	
Original Thickness	.79 (20)
Discard Thickness	.71 (18)
B2600i 4WD Front (1)	
Original Thickness	.87 (22)
Discard Thickness	.79 (20)
Miata	
Front (2)	
Original Thickness	.71 (18)
Discard Thickness	.63 (16)

Rear (2)	
Original Thickness	.35 (9)
Discard Thickness	.28 (7)
MPV Front (2)	
Original Thickness	.94 (24)
Discard Thickness	.87 (22)
MX-6 & 626	
Front (2)	
Original Thickness	.94 (24)
Discard Thickness	.87 (22)
Rear (2)	
Original Thickness	.39 (10)
Discard Thickness	.31 (8)
Navajo Front (3)	
Original Thickness	.94 (24)
Discard Thickness	.81 (21)
Protege & 323	
Front (2)	
Original Thickness	.87 (22)
Discard Thickness	.79 (20)
Rear (2)	
Original Thickness	.35 (9)
Discard Thickness	.28 (7)
RX7	
Front (2)	
Original Thickness	.87 (22)
Discard Thickness	.79 (20)
Rear (2)	
Solid Rotor	
Original Thickness	.39 (10)
Discard Thickness	.31 (8)
Ventilated Rotor	
Original Thickness	.79 (20)
Discard Thickness	.71 (18)
929	
Front (2)	
Original Thickness	.87 (22)
Discard Thickness	.79 (20)
Rear (2)	

	.71 (18)
Discard Thickness	.63 (16)

(1) Maximum lateral runout is .006" (.15 mm).

(2) Maximum lateral runout is .004" (.10 mm).

(3) Maximum lateral runout is .003" (.08 mm).

DRUM BRAKE SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS

Application	In. (mm)
B2200 & B2600i	
Drum Diameter	
Original	10.24 (260.0)
Minimum	10.30 (261.5)
Wheel Cylinder Bore Diameter	
B2200 & B2600i 2WD	0.750 (19.05)
B2600i 4WD	0.688 (17.46)
MPV	
Drum Diameter	
Original	10.24 (260)
Minimum	10.30 (261.5)
Wheel Cylinder Bore Diameter	0.690 (17.50)
MX-6 & 626	
Drum Diameter	
Original	9.00 (228.6)
Minimum	9.06 (230.1)
Wheel Cylinder Bore Diameter	0.875 (22.22)
Navajo	
Drum Diameter	
Original	
9"	9.00 (228.6)
10"	10.00 (254.0)
Minimum	
9"	9.09 (230.8)
10"	10.09 (256.3)
Protege & 323	
Drum Diameter	
Original	9.00 (228.6)
Minimum	9.04 (229.6)
Wheel Cylinder Bore Diameter	0.875 (22.22)