

BRAKE SYSTEM

1994 Mitsubishi 3000GT

1994 BRAKES

Chrysler Corp./Mitsubishi Disc & Drum

Dodge; Stealth

Mitsubishi; Diamante, 3000GT

INTRODUCTION

This article contains information on repair and service of basic hydraulic brake system. If vehicle is equipped with anti-lock brakes, also see ANTI-LOCK BRAKE SYSTEM article in the BRAKES section.

DESCRIPTION

Brake system consists of a master cylinder, vacuum power brake unit, proportioning valve and self-adjusting assembly. All models are equipped with front disc brakes and either rear disc or drum brakes. Parking brake assembly activates rear brakes.

BLEEDING BRAKE SYSTEM

BLEEDING PROCEDURES

Bleed brakes whenever hydraulic lines are opened or pedal feels spongy. Bleed system in appropriate sequence. See BRAKE LINE BLEEDING SEQUENCE table. On all models, bleed system with engine running.

BRAKE LINE BLEEDING SEQUENCE TABLE

Application	Sequence
Diamante, Stealth & 3000GT	RR, LF, LR, RF

ADJUSTMENTS

BRAKE PEDAL HEIGHT & FREE PLAY

1) Separate connector from stoplight switch, and loosen lock nut. Position switch so it does not contact brake pedal arm. Adjust brake pedal height by rotating master cylinder push rod (yoke, if equipped) until distance from top of brake pedal, with pedal released, is within specification. See BRAKE PEDAL SPECIFICATIONS table.

2) DO NOT depress push rod. Tighten lock nut, and ensure brake pedal height is within specification. Start engine to evacuate brake booster chamber. Stop engine, and apply brake several times to remove vacuum from brake booster.

3) Using hand pressure, depress brake pedal to measure free play before resistance is felt. Free play distance for all models is .12-.31" (3.0-7.9 mm). If distance is not within specification, bleed system and check for misadjusted brakes.

BRAKE PEDAL SPECIFICATIONS TABLE

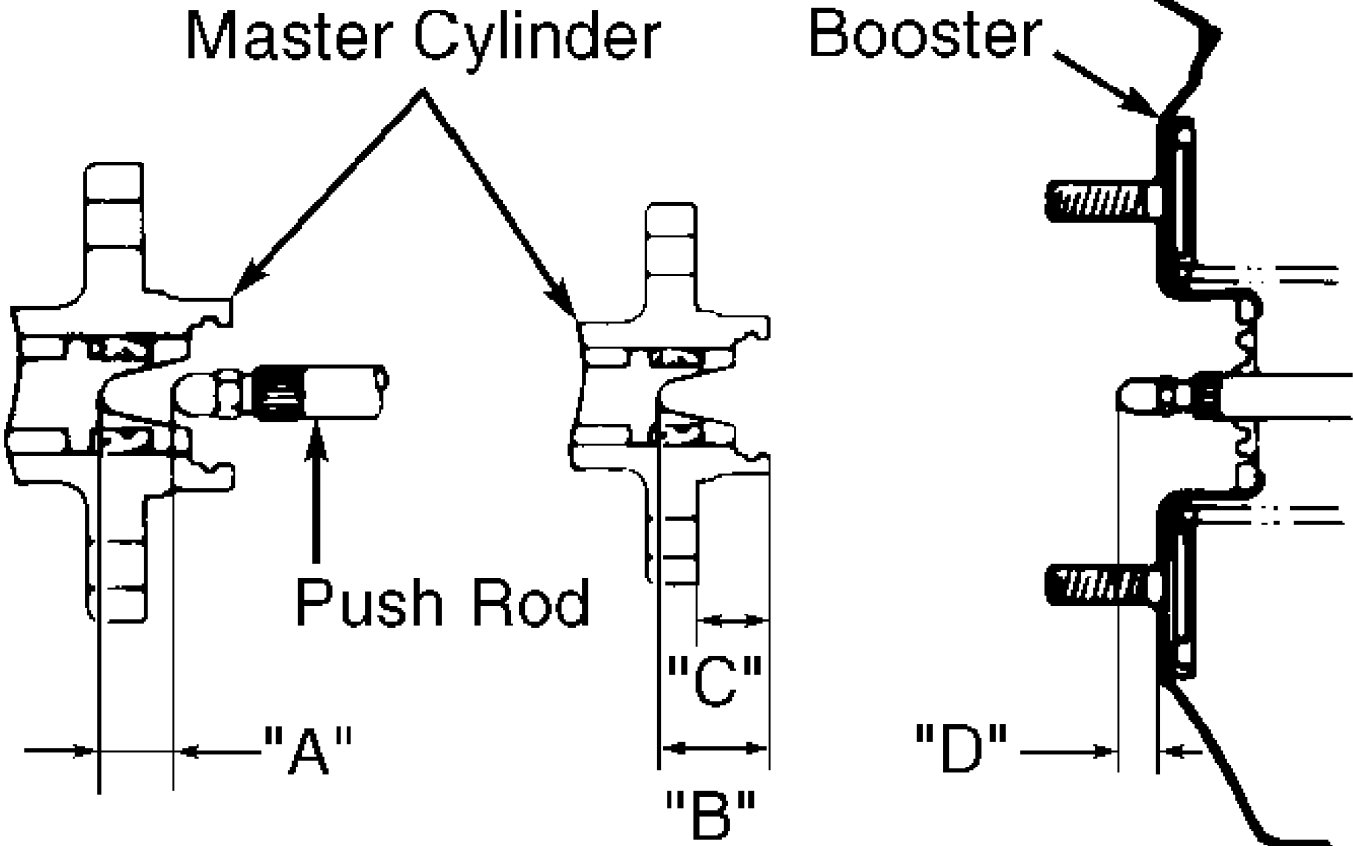
Application	Pedal Height In. (mm)
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Diamante	6.9-7.1 (175-180)
Stealth & 3000GT	7.0-7.2 (178-183)

MASTER CYLINDER PUSH ROD

Check and adjust clearance between back of master cylinder piston and master cylinder push rod. See Fig. 1. See PUSH ROD CLEARANCE SPECIFICATIONS table. After adjusting push rod clearance, adjust pedal height and bleed brake system.

Push Rod Clearance "A"
"A" = "B" - "C" - "D"



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Fig. 1: Adjusting Push Rod Clearance
Courtesy of Mitsubishi Motor Sales of America

PUSH ROD CLEARANCE SPECIFICATIONS TABLE

Application (1)	In. (mm)
Diamante .....	.026-.033 (.66-.84)
Stealth & 3000GT .....	.022-.030 (.56-.76)
7" & 8" Booster .....	.022-.030 (.56-.76)

8" & 9" Booster026-.033 (.66-.84)

- (1) - Front half-shell is smaller than rear half-shell on models using boosters with 2 diameters.
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PARKING/EMERGENCY BRAKE

NOTE: Adjust service brake before adjusting parking brake.

Start engine, and apply brake pedal. Pull parking brake lever with a force of 44-45 lbs. (20.0-20.4 kg). Parking brake lever should move up 3-5 notches on Diamante, Stealth and 3000GT. If adjustment is necessary, turn adjusting nut located under console or at end of cable rod. See Fig. 2.

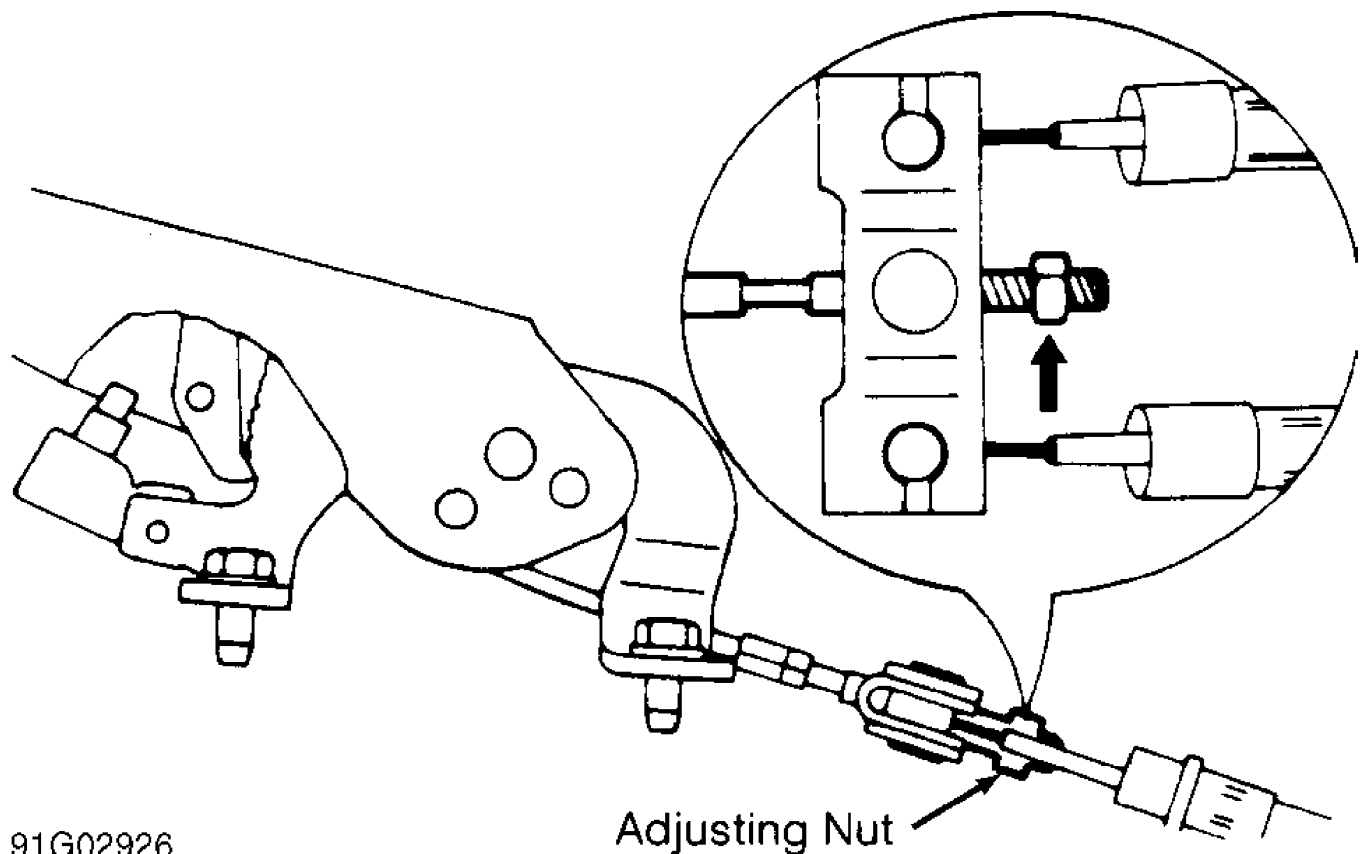


Fig. 2: Adjusting Parking/Emergency Brake (Typical)
Courtesy of Mitsubishi Motor Sales of America

REAR BRAKE SHOES

Set adjustment assembly so brake shoes lightly contact brake drum. With brake drum installed, fully release parking brake and depress brake pedal several times to center shoes and adjust brake shoe clearance. Adjust parking brake, and check pedal travel. Rotate brake drum to verify free movement.

STOPLIGHT SWITCH

Loosen lock nut, and adjust switch-to-pedal arm clearance to .02-.04" (0.5-1.0 mm). Tighten lock nut. DO NOT depress master

cylinder push rod during stoplight switch adjustment.

TESTING

POWER BRAKE UNIT

Check Valve Inspection

Remove vacuum hose from power brake unit. Check valve and hose are a unit. Using a vacuum pump, ensure airflow is in direction of intake manifold only.

System Check

1) Run engine for 2 minutes. Shut engine off, and depress brake pedal several times with normal pressure. If pedal height gradually becomes higher with successive applications, power brake unit is okay. If pedal height remains steady, power brake unit is faulty.

2) With engine stopped, depress brake pedal repeatedly until pedal height no longer falls. Hold brake pedal down, and start engine. If pedal moves downward slightly, power brake unit is okay. If pedal height does not change, power brake unit is faulty.

3) With engine running, press and hold brake pedal. Shut off engine. Hold brake pedal for 30 seconds. Brake pedal height should not change. If pedal height falls, power brake unit is faulty.

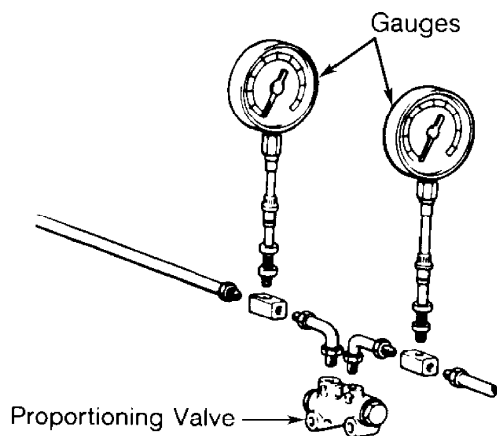
PROPORTIONING VALVE (NON-LOAD-SENSING)

Pressure Test

1) Connect pressure gauges to input and output ports of proportioning valve. See Fig. 3. Bleed brake system. See BLEEDING BRAKE SYSTEM.

2) Slowly depress brake pedal. Check readings on pressure gauges. Ensure output pressure begins to drop relative to input pressure at specified pressure range (split point). See SPLIT POINT PRESSURE SPECIFICATIONS table.

3) Continue depressing brake pedal, and check readings on pressure gauges. See PROPORTIONING VALVE PRESSURE SPECIFICATIONS table. If fluid pressures or split point are not within specification, replace proportioning valve.



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Fig. 3: Connecting Pressure Gauges To Proportioning Valve (Typical)
Courtesy of Mitsubishi Motor Sales of America

SPLIT POINT PRESSURE SPECIFICATIONS TABLE

Application	psi (kg/cm ²)
Diamante, Stealth & 3000GT	533-604 (38-43)

PROPORTIONING VALVE PRESSURE SPECIFICATIONS TABLE

Application	Inlet Pressure psi (kg/cm ²)	(1) Outlet Pressure psi (kg/cm ²)
Diamante	1138 (80)	676-747 (48-53)
Stealth & 3000GT	1138 (80)	739-811 (52-57)

(1) - Maximum side-to-side pressure differential is
57 psi (4 kg/cm²).

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

CAUTION: DO NOT remove or contaminate special grease coating on lock pins.

Removal

1) Raise and support vehicle. Remove front wheel(s). Remove lower lock pin or sleeve bolt. See Fig. 8. Lift caliper body upward.

2) Support caliper aside. Remove shim(s), shim holder (if equipped), anti-squeak shim and pad assembly from support mounting. Remove pad clips.

Installation

If installing new pads, compress piston to bottom of bore. Install retaining clips, pad assembly, shim(s), shim holder (if equipped) and anti-squeak shim onto support mounting. Start engine. Depress brake pedal several times to expand caliper piston. Check brake fluid level.

FRONT BRAKE CALIPER

Removal

1) Raise and support vehicle. Remove front wheel(s). Separate rubber flexhose from hydraulic line at brake hose mount, located on strut housing. Secure end of hydraulic line to prevent spillage of brake fluid.

2) Remove hose clip from brake hose mount. Disconnect brake hose from caliper. Remove upper and lower caliper-to-steering knuckle bolts. Lift caliper body upward. Remove caliper.

Installation

To install, reverse removal procedure. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Bleed brake system. See BLEEDING BRAKE SYSTEM.

FRONT BRAKE ROTOR

Removal & Installation

Raise vehicle, and remove wheel(s). Remove caliper, and slide rotor off hub. To install, reverse removal procedure.

PARKING BRAKE SHOES

Removal (Diamante)

1) Raise and support vehicle. Remove rear wheel(s). Disconnect rear speed sensor. Remove rear disc brake calipers and rotors. On all models, remove hub cap, flange nut and washer. See Fig. 4.

2) Remove rear hub/bearing assembly. On all models, remove adjusting wheel spring. Remove shoe hold-down cup, spring and pin. Note how shoe-to-anchor spring is installed, and then remove adjuster and shoe-to-anchor spring. Remove strut and return spring. Remove clip and shoe and lining assembly.

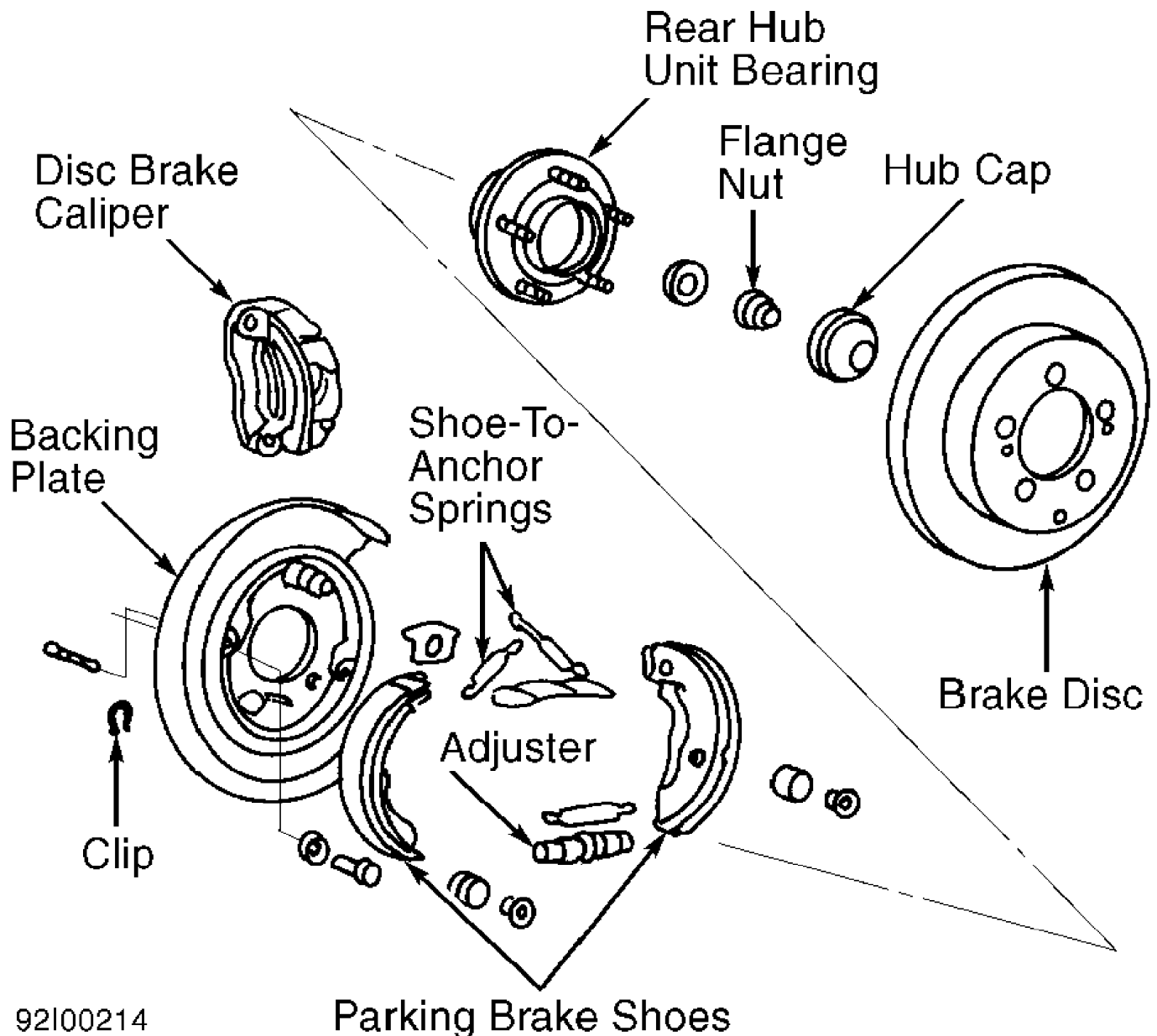


Fig. 4: Exploded View Of Parking Brake Assembly (FWD)
Courtesy of Mitsubishi Motor Sales of America

CAUTION: Shoe-to-anchor spring must be installed correctly for proper functioning of parking brakes.

Installation

1) To install, reverse removal procedure. When installing shoe-to-anchor spring, ensure spring is installed correctly. When installing adjuster, install left adjuster with adjusting bolt facing vehicle front and right adjuster with adjusting bolt facing vehicle rear.

2) On all models, after tightening flange nut, align spindle indentation and crimp nut. On all models, after installing speed sensor, ensure gap between rotor teeth and sensor pole piece is .008-.028" (0.20-0.71 mm).

Removal (Stealth & 3000GT)

1) Raise and support vehicle. Remove rear wheel(s). Disconnect rear speed sensor. Remove rear disc brake calipers and rotors. Disconnect axle from companion flange.

2) Secure hub with Holder (MB990767). Remove companion flange nut and flange. Using puller, remove hub. Remove adjusting wheel spring. Remove shoe hold-down cup, spring and pin. Note how shoe-to-anchor spring is installed, and then remove adjuster and shoe-to-anchor spring. Remove strut and return spring. Remove clip and shoe and lining assembly.

CAUTION: Shoe-to-anchor spring must be installed correctly for proper functioning of parking brakes.

Installation

To install, reverse removal procedure. When installing shoe-to-anchor spring, ensure spring is installed correctly. When installing adjuster, install left adjuster with adjusting bolt facing vehicle front and right adjuster with adjusting bolt facing vehicle rear. Tighten companion flange nut to 188-217 ft. lbs. (260-300 N.m).

REAR DISC BRAKE PADS

NOTE: Replace inner and outer pads at same time.

Removal

Raise and support vehicle. Remove rear wheel(s), and disconnect parking brake cable. Remove lower lock pin bolt. Lift caliper body upward. Using a wire, support caliper from underbody. Remove inner shim(s), anti-squeak shim and pad assembly from support mounting. Remove pad clips.

Installation

Rotate piston to align notches in piston projection on back of pads (if equipped). Install retaining clips, pad assembly, inner shim(s) and anti-squeak shim onto support mounting. Lower caliper body, and install lock pin.

REAR BRAKE CALIPER

Removal

Raise and support vehicle. Remove rear wheel(s). Disconnect parking brake cable connection. Disconnect brake hose from caliper. Secure end of hydraulic line to prevent spillage of brake fluid. Remove upper and lower caliper mounting bolts. Lift caliper body upward. Remove caliper.

Installation

To install, reverse removal procedure. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Bleed brake system. See BLEEDING BRAKE SYSTEM.

REAR BRAKE ROTOR

Removal & Installation

Raise and support vehicle. Remove rear caliper and rotor. To install, reverse removal procedure.

WHEEL CYLINDERS

Removal & Installation

Raise and support vehicle. Remove rear brake drum and shoes. See REAR BRAKE DRUM & SHOES. Remove wheel cylinder and seal assembly. To install, reverse removal procedure. Bleed brakes. See BLEEDING BRAKE SYSTEM.

MASTER CYLINDER

Removal

Drain brake fluid from master cylinder. Remove sensor connector (if equipped). Disconnect brakelines from master cylinder, and install plugs to prevent brake fluid spillage. Remove master cylinder from booster unit, and separate reservoirs from housing (if necessary).

Installation

To install, reverse removal procedure. Before installation, check and adjust clearance between back of master cylinder piston and power brake push rod. See MASTER CYLINDER PUSH ROD under ADJUSTMENTS. After installation, adjust pedal height. See BRAKE PEDAL HEIGHT & FREE PLAY under ADJUSTMENTS. Bleed brake system.

POWER BRAKE UNIT

Removal

Remove brake master cylinder. See MASTER CYLINDER. Disconnect vacuum hose from power brake unit. Disconnect clevis pin attaching brake pedal to power brake unit push rod. From inside vehicle, remove 4 nuts attaching power brake unit to firewall. Remove power brake unit.

Installation

To install, reverse removal procedure. Install master cylinder. Bleed brake system if necessary.

POWER BRAKE UNIT CHECK VALVE

NOTE: To test check valve before removal, stop engine and apply service brake to ensure air flows toward intake manifold only.

Removal & Installation

Remove vacuum hose with check valve from power brake unit. Coat end(s) of check valve with sealant before installation. Install valve with arrow (identification mark) pointing toward intake manifold. Install and secure hose clamp(s).

REAR AXLE HUB BEARINGS

NOTE: Rear hub bearings are not serviceable on Diamante and Stealth (FWD) models.

WHEEL BEARING NUT SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Diamante & Stealth (FWD)	166 (225)

OVERHAUL

NOTE: For exploded views of front disc brake calipers, see Figs. 5 and 6. For exploded views of rear brake calipers, see Fig. 8. For exploded view of master cylinder, see Fig. 7.

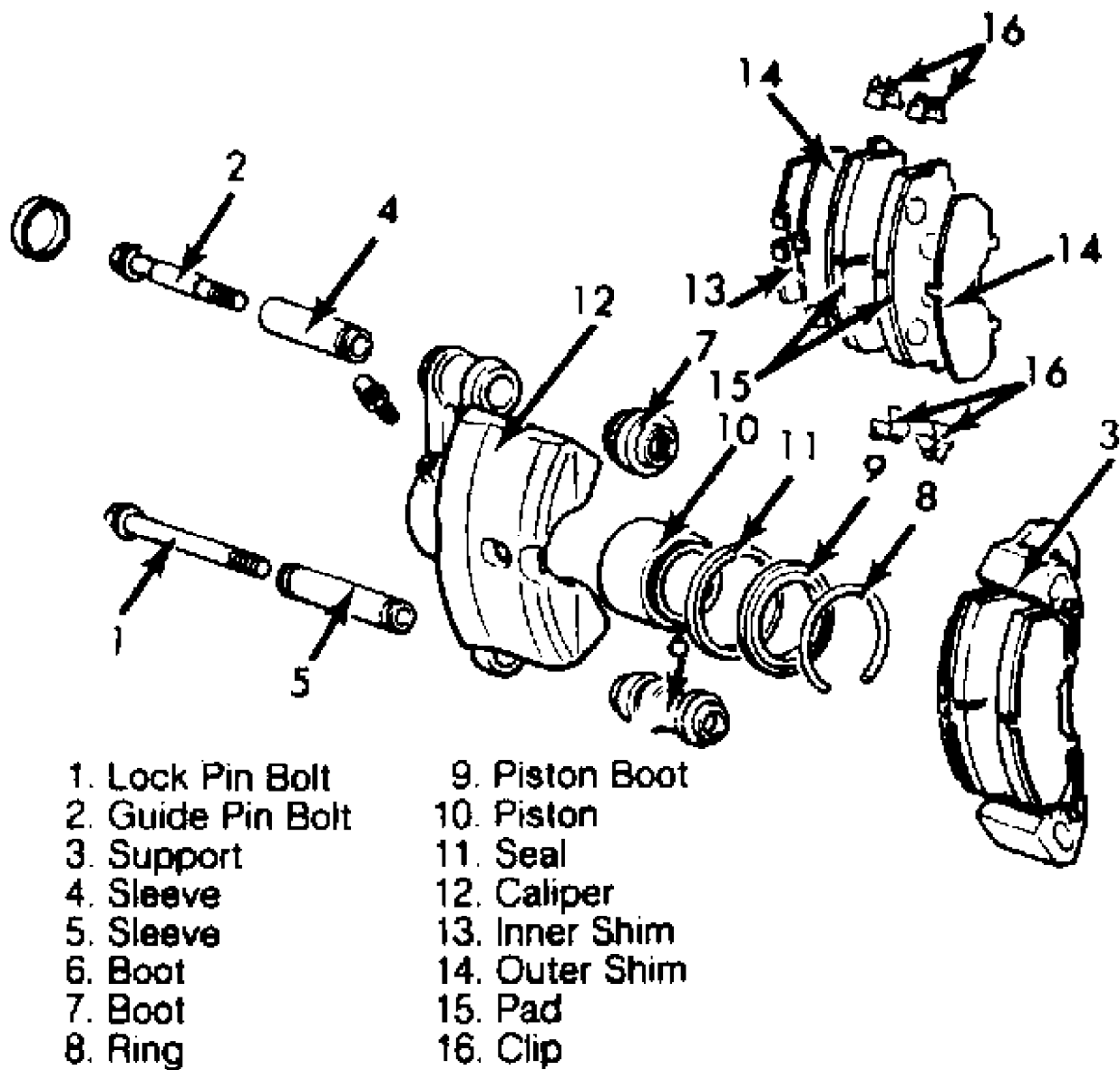


Fig. 5: View Of Front Disc Brake Assembly (Typical Single Piston)
 Courtesy of Mitsubishi Motor Sales of America

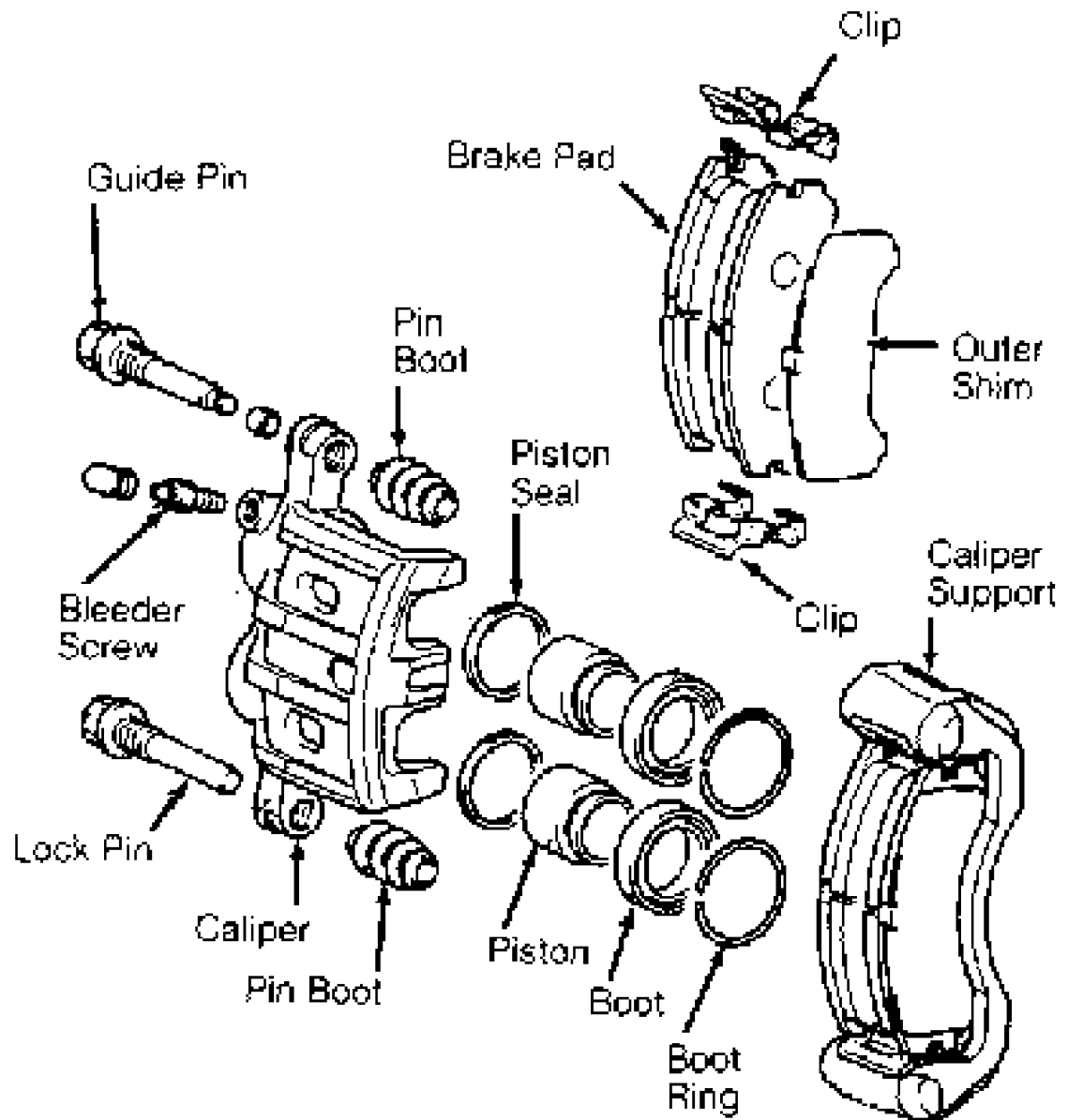


Fig. 6: View Of Front Disc Brake Caliper (Typical Dual Piston)
Courtesy of Mitsubishi Motor Sales of America

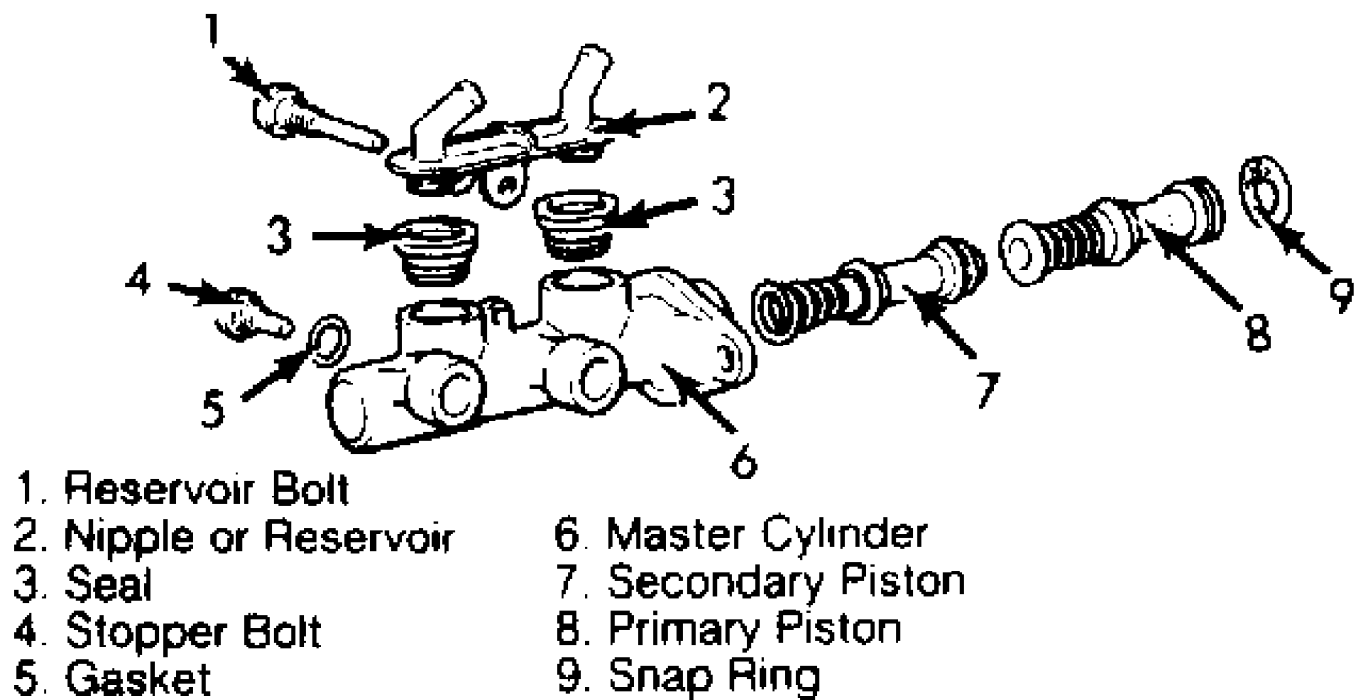


Fig. 7: Exploded View Of Master Cylinder (Typical)
 Courtesy of Mitsubishi Motor Sales of America

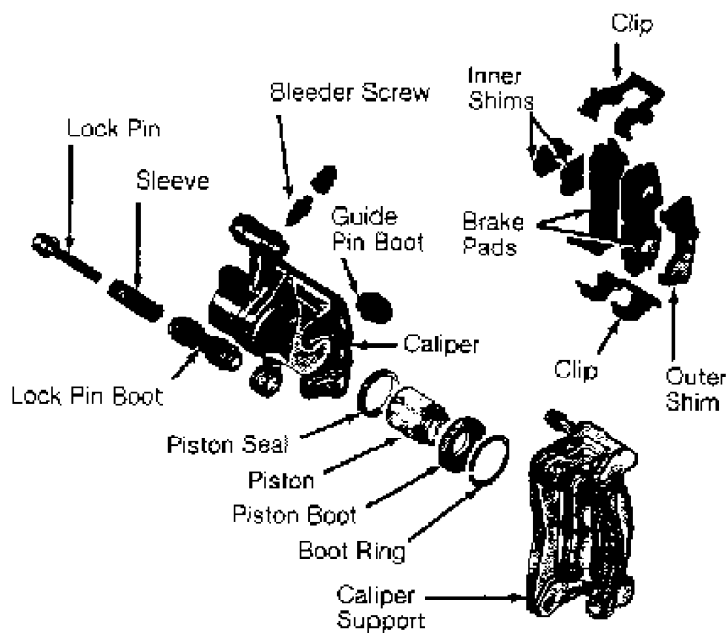


Fig. 8: View Of Rear Disc Brake Caliper Assembly (Diamante, Stealth & 3000GT)
 Courtesy of Mitsubishi Motor Sales of America

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Caliper Guide Or Lock Pin Bolt	
Front	54 (73)
Rear	20 (27)
Caliper Mounting Bolts	
Front	58-72 (79-98)
Rear	36-43 (49-58)
Front Wheel Bearing Nut	
FWD	144-188 (195-254)
RWD & 4WD	(1)
Hub/Bearing Bolt	60 (81)
Locking or Full-Time Hub Bolt	36-43 (49-60)
Rear Wheel Bearing Nut	(1)
Rotor-To-Hub Bolts Or Nuts	36-43 (49-60)
Wheel Lug Nut	
Diamante	65-80 (88-108)
Stealth & 3000GT	87-101 (118-137)
	INCH Lbs. (N.m)
Master Cylinder-To-Power Brake Unit Nut	
Diamante	84 (10)
Stealth & 3000GT	120 (14)
(1) - See REAR AXLE HUB BEARINGS or FRONT BRAKE ROTOR under REMOVAL & INSTALLATION.	

DISC BRAKE SPECIFICATIONS

DISC BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Disc Diameter	
Diamante	
Front	10.9 (277)
Rear	10.5 (267)
Stealth & 3000GT	
FWD (Front & Rear)	9.0 (229)
AWD	
Front	9.8 (249)
Rear	9.4 (239)
Lateral Runout .....	.006 (.15)
Parallelism	(1)
Original Thickness	
Diamante	
Front .....	.94 (24)
Rear .....	.71 (18.0)
Stealth & 3000GT	
Front	
FWD .....	.94 (24)
AWD	1.18 (30.0)
Rear	
FWD .....	.71 (18)
AWD .....	.79 (20.1)
Master Cylinder Diameter	

Diamante	1.000	(25.40)
Stealth & 3000GT		(1)
Minimum Refinish Thickness		
Diamante		
Front .....	.88	(22.4)
Rear .....	.65	(16.5)
Stealth & 3000GT		
Front		
FWD .....	.88	(22.4)
AWD	1.12	(28.5)
Rear		
FWD .....	.65	(16.5)
AWD .....	.72	(18.3)
Discard Thickness		(1)

(1) - Information is not available.

DRUM BRAKE SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Drum Width	(1)
Master Cylinder Diameter	(2)
Drum Discard Diameter	(1)

(1) - Information is not available.

(2) - See DISC BRAKE SPECIFICATIONS table under
DISC BRAKE SPECIFICATIONS.