

BRAKE SYSTEM

1992 Subaru SVX

1992 BRAKES
Subaru Disc & Drum

Justy, Legacy, Loyale, SVX

DESCRIPTION & OPERATION

All models are equipped with front disc brakes. Rear brakes are either disc or drum. On Justy, Legacy, and SVX, parking brake is cable actuated on rear drum brakes. On Loyale, parking brake is cable actuated on front disc brakes.

M/T models (except Justy) are equipped with hill-holder system. Incorporated in the primary brakeline from the master cylinder, hill-holder system permits easy uphill acceleration during take-off from a standing/stopped position. Hill-holder is activated when both brake and clutch pedals are pressed as vehicle stops on an incline of 3 degrees or greater. Hill-holder uses a gravity-actuated Pressure Hold Valve (PHV) to control fluid flow to brakes while clutch pedal is fully pressed to floor. PHV is connected by cable to clutch lever.

BLEEDING BRAKE SYSTEM

BRAKE FLUID

Recommended brake fluid is FMVSS No. 116, fresh DOT 3 or 4. Avoid mixing different brands of brake fluid to prevent degrading quality of fluid.

BLEEDING PROCEDURES

Ensure joints and connections of brake system do not leak. Bleed air from brake system in sequence. See BRAKELINE BLEEDING SEQUENCE table. Time interval between release and depression of brake pedal during bleeding should be 3-4 seconds. Open brake cylinder bleeder screw for 1-2 seconds on every pressure stroke.

BRAKELINE BLEEDING SEQUENCE TABLE

Application	Sequence
Justy	Longest Line First
Legacy	
With ABS	(1) HS, RF, LR, (1) HP, LF, RR
Without ABS	RF, LR, LF, RR
Loyale	LF, RR, RF, LR
SVX	(1) HP, (1) HS, RF, LR, LF, RR

(1) - HP (hydraulic unit primary bleeder between LF and RR);
HS (hydraulic unit secondary bleeder between RF and LR).

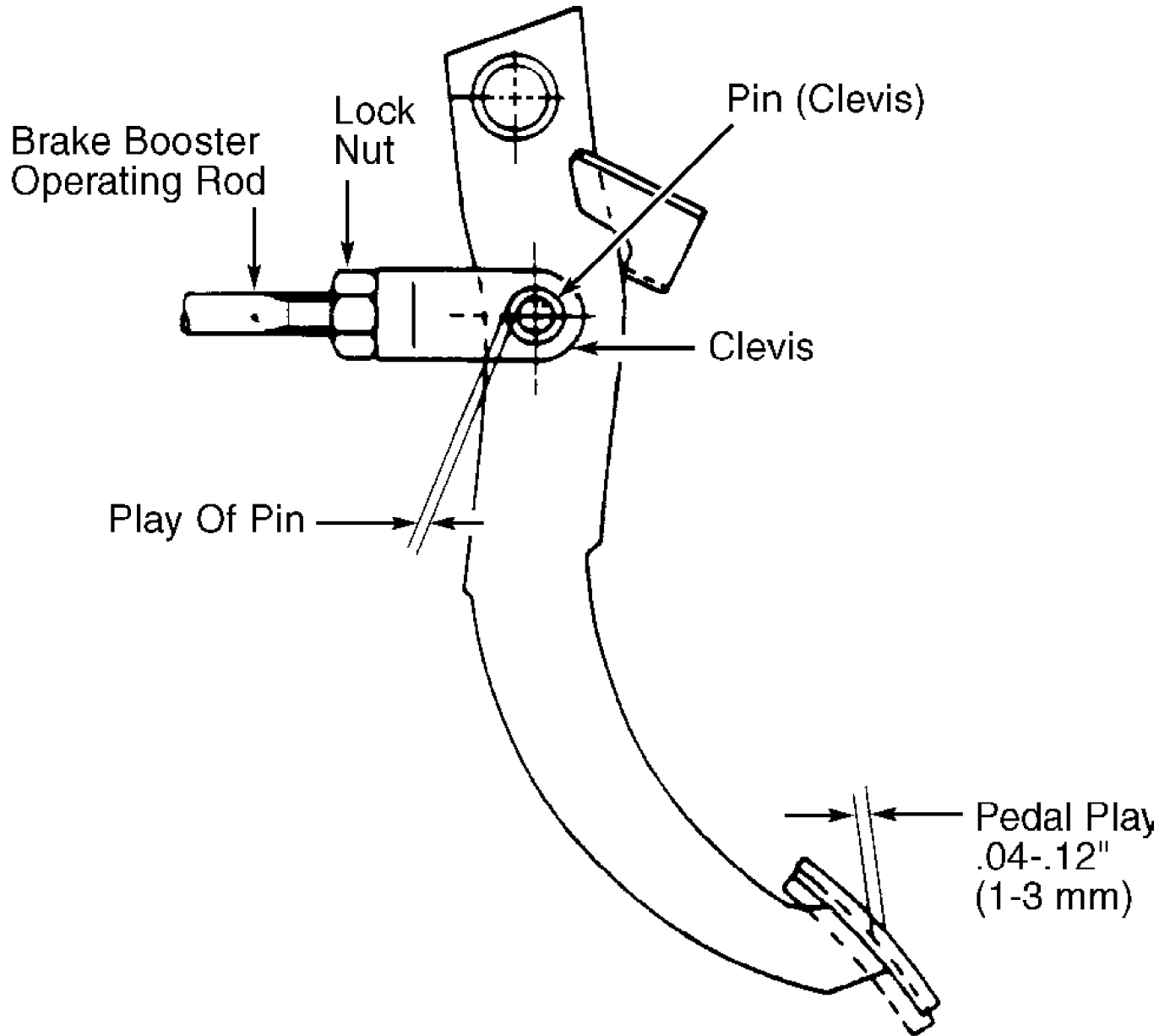
ADJUSTMENTS

BRAKE PEDAL HEIGHT & FREE PLAY

1) Adjust brake pedal height using brake power booster

operating rod. On Justy, lowest brake pedal height is 3.35" (85.0 mm). On Legacy and Loyale, pedal height is 6.22" (158.0 mm). On SVX, pedal stroke is 5.51" (140.0 mm). See MASTER CYLINDER PUSH ROD.

2) Adjust brake pedal free play using stoplight switch. Adjust free play to .20-.43" (5.0-11.0 mm) on Justy, .020-.098" (.51-2.49 mm) on Loyale and .04-.12" (1.0-3.0 mm) on Legacy and SVX. See Fig. 1. DO NOT rotate stoplight switch. Tighten stoplight switch lock nut to 51.6-86.4 INCH lbs. (6-10 N.m).



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Fig. 1: Adjusting Pedal Free Play (Typical)
Courtesy of Subaru of America, Inc.

HILL-HOLDER BRAKE

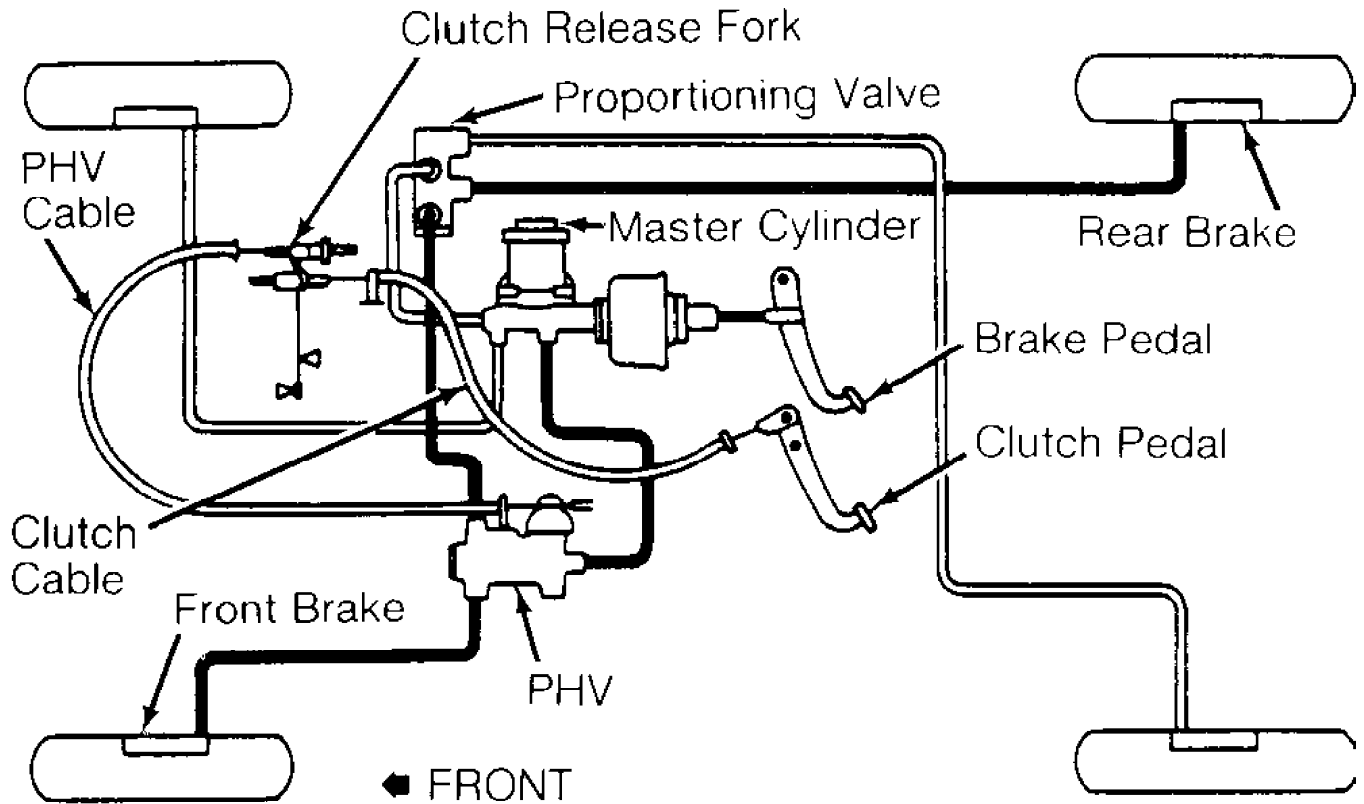
Legacy & Loyale

1) Before adjusting hill-holder Pressure Hold Valve (PHV) cable, ensure clutch pedal and clutch release fork free play are within specification. See CLUTCH PEDAL FREE PLAY (LEGACY & LOYALE) table.

2) Inspect clutch pedal free play by hand. Adjust clutch free play by turning adjusting nut on engine side of clutch cable at release fork. See Fig. 2.

CLUTCH PEDAL FREE PLAY TABLE (LEGACY & LOYALE)

Application	In. (mm)
Legacy	
Non-Turbo	
Clutch Pedal .....	.39-.79 (10.0-20.0)
Cable Center On Clutch Release Fork .....	.12-.16 (3.0-4.0)
Turbo	
Clutch Pedal .....	.12-.59 (3.0-15.0)
Loyale	
Clutch Pedal39-.79 (10.0-20.0)
Cable Center On Clutch Release Fork	
2WD08-.12 (2.0-3.0)
4WD12-.16 (3.0-4.0)



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Fig. 2: Locating Hill-Holder Components (Legacy & Loyale)
 Courtesy of Subaru of America, Inc.

NOTE: Hill-holder may not activate on a very slight incline.

3) Check stopping and starting performance by activating

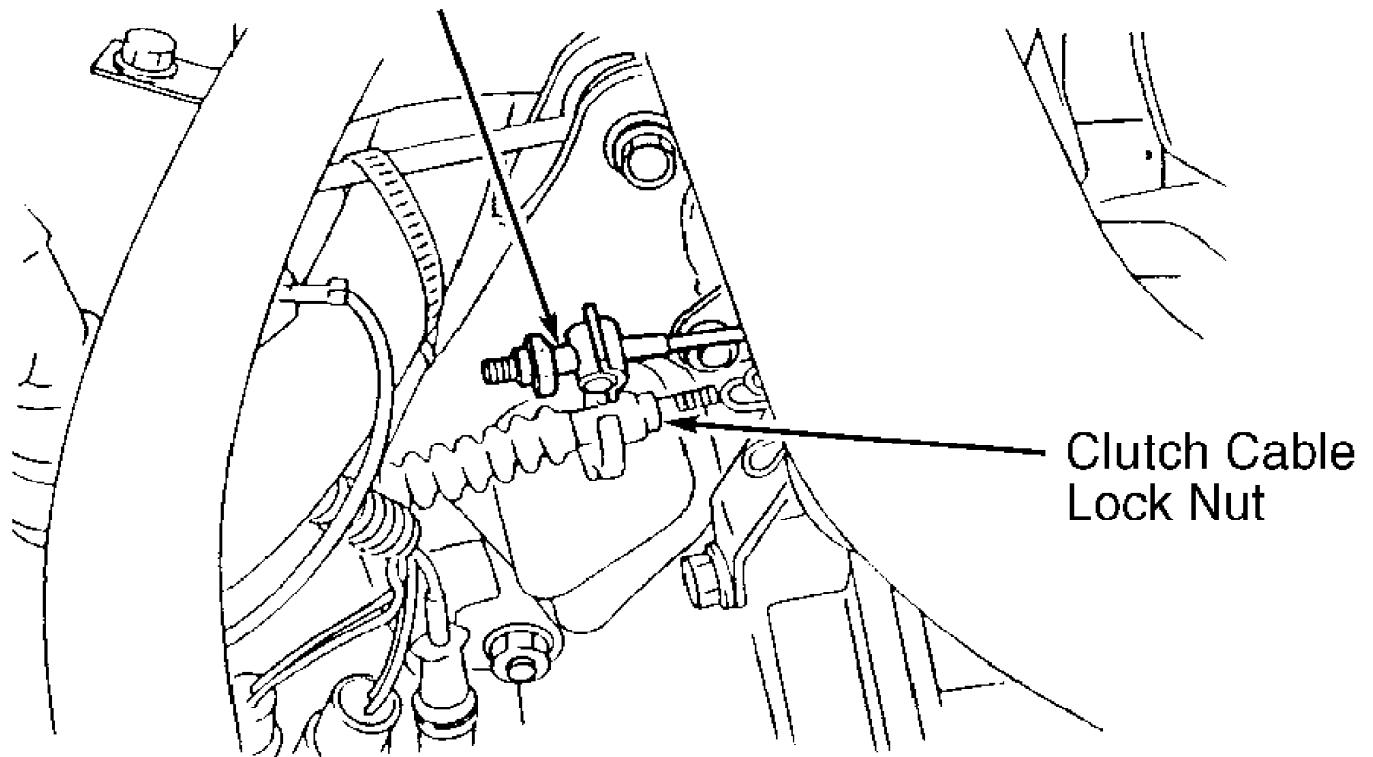
hill-holder on an uphill road with more than 3-degree incline. If hill-holder PHV releases brakes after clutch is released (causing engine to stall), go to step 4). If hill-holder PHV releases brakes before clutch engages (vehicle slips downhill), go to step 5).

4) If hill-holder releases too late (engine tends to stall), loosen PHV cable and adjust it at clutch release fork in small increments until smooth starting is possible. See Figs. 3 and 4.

5) If hill-holder releases too early (vehicle slips backward slightly), overtighten cable until vehicle tends to stall. Adjust cable at clutch release fork in small increments until smooth starting is possible.

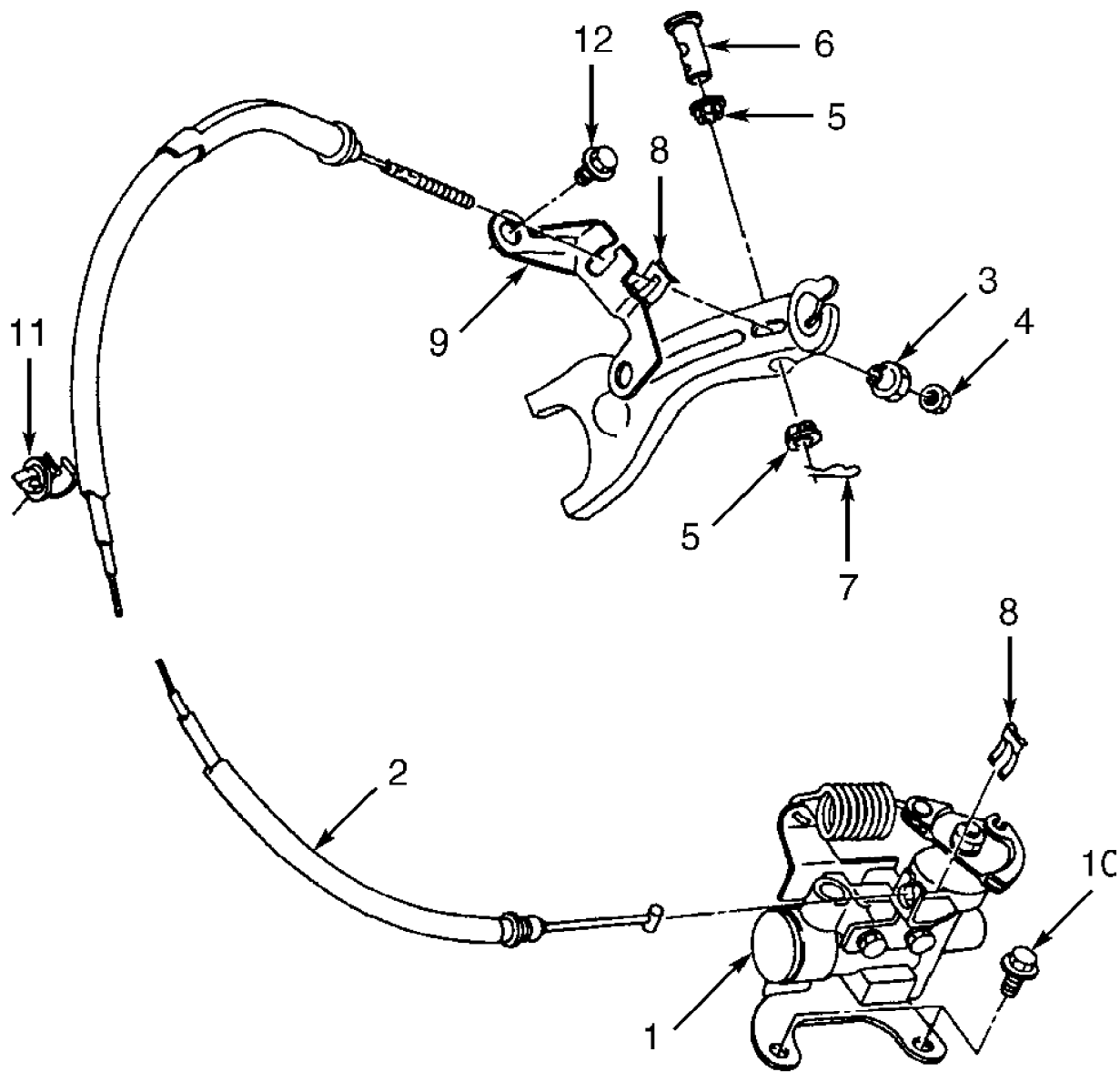
6) When turning adjusting nut, ensure PHV cable does not turn. PHV assembly is not serviceable. If necessary, replace assembly.

PHV Cable Lock Nut



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Fig. 3: Locating PHV Cable Lock Nut At Clutch Fork
Courtesy of Subaru of America, Inc.



- 1. Pressure Hold Valve (PHV)
- 2. PHV Cable Assembly
- 3. Adjusting Nut
- 4. Lock Nut
- 5. PHV Cable Bushing
- 6. PHV Cable Pin

- 7. "J" Clip
- 8. Clamp
- 9. PHV Cable Bracket
- 10. Flange Bolt
- 11. Retaining Clip
- 12. Retaining Bolt

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Fig. 4: Exploded View Of Hill-Holder System (Typical)
 Courtesy of Subaru of America, Inc.

MASTER CYLINDER PUSH ROD

With engine off (no vacuum to booster), free play should exist between operating rod clevis pin and brake pedal. See Fig. 1. If free play does not exist, loosen operating rod lock nut and adjust free play. Pedal clevis free play should be 0.04-0.12" (1.0-3.0 mm).

PARKING BRAKE

Justy

Pull parking brake handle using 55 lbs. (25 kg) of force. Parking brake should lock wheels when handle is pulled up 6-7 notches (11 maximum). If parking brake does not lock wheels as specified, raise vehicle and tighten parking brake cable until correct adjustment (6-7 notches) is obtained. Ensure wheels rotate freely with parking brake released.

Legacy & SVX

1) Remove adjusting hole cover from rear wheel backing plate. Using flat blade screwdriver, turn brake adjusting screw star wheel until shoes make snug contact with drum surface of rotor and wheel will not turn. Back off adjusting screw star wheel 3-4 notches.

2) Turn wheel to ensure brake shoes do not drag. If shoes drag, back off shoe adjustment a few more notches. Install adjusting hole cover to rear wheel backing plate.

3) With service brakes properly adjusted, pull parking brake lever 3-5 notches. Raise vehicle on hoist. Loosen lock nut at parking brake cable equalizer. Turn adjusting nut until clearance is 0-.02" (0-.5 mm). See Fig. 5. Hold adjusting nut and tighten lock nut.

4) Lower vehicle, but keep tires off ground. Release parking brake lever. Rotate front wheels and pull parking brake lever using 44 lbs. (20 kg) of force. Wheels should lock when handle is pulled up 6-7 notches. Readjust parking brake if needed.

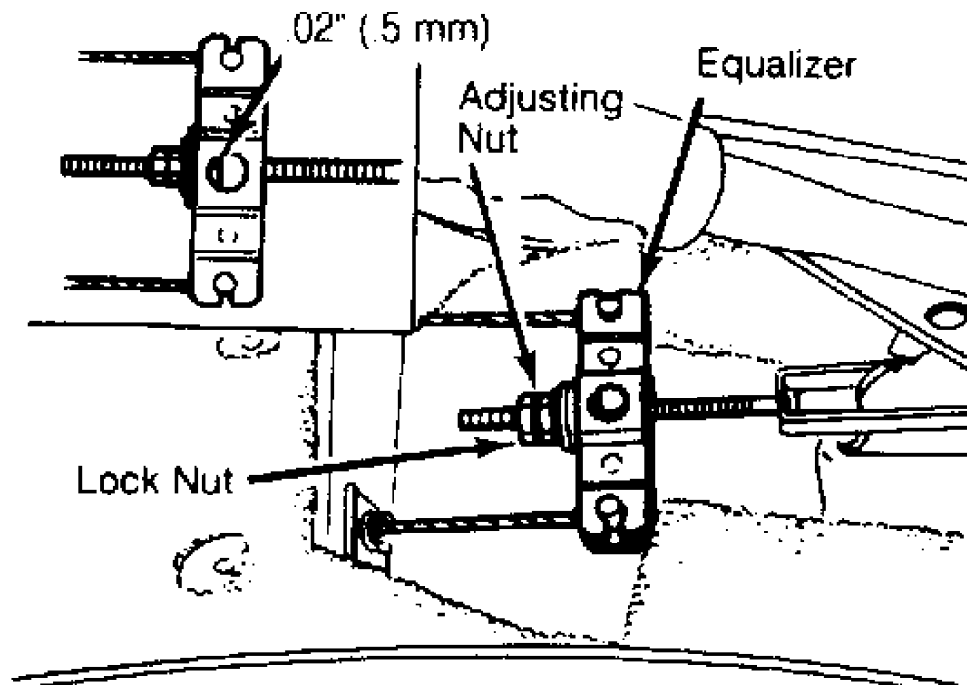


Fig. 5: Adjusting Parking Brake (Legacy, Loyale & SVX)
Courtesy of Subaru of America, Inc.

Loyale

1) With service brakes properly adjusted, pull parking brake

lever 3-5 notches. Raise vehicle on hoist. Loosen lock nut at parking brake cable equalizer. Turn adjusting nut until clearance is 0-.02" (0-.5 mm). See Fig. 5. Hold adjusting nut and tighten lock nut.

2) Lower vehicle, but keep tires off ground. Release parking brake lever. Rotate front wheels and pull parking brake lever using 55 lbs. (25 kg) of force. Wheels should lock when handle is pulled up 3-5 notches. Readjust parking brake if needed.

REAR DRUM BRAKE SHOES

NOTE: Rear brakes on Justy and Loyale 4WD are self-adjusting.

Loyale 2WD

Raise and support vehicle. Turn adjuster wedge until wheel locks. Back off adjusting wedge 180 degrees. Clearance between drum and shoes should be .004-.006" (.10-.15 mm). Wheel should rotate easily by hand.

TESTING

POWER BRAKE UNIT

1) Start engine, run it 1-2 minutes, and then turn it off. Depress brake pedal several times using normal pedal force. Each time pedal is depressed, pedal height should decrease. While brake pedal is depressed, start engine. Pedal should move slightly toward floor. Continue to hold brake pedal down and turn off engine.

2) Continue to hold brake pedal down longer than 30 seconds. Brake pedal height should not change. If pedal goes slowly downward, a vacuum leak exists in power brake system. Inspect brake vacuum check valve for proper operation. If check valve is okay, replace power brake unit.

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

NOTE: DO NOT disconnect hydraulic line from caliper. DO NOT press on brake pedal after caliper has been removed.

Removal & Installation (Justy)

1) Raise and support vehicle. Remove wheel. Remove brake caliper from brake caliper support bracket on steering knuckle, and wire caliper aside. Remove brake pads from caliper support bracket, noting positions of pad clips and shims.

2) Minimum pad thickness, including metal backing plate, is .295" (7.49 mm). Open caliper bleeder screw, and press piston into caliper. To install, reverse removal procedure. Before test driving vehicle, pump brake pedal a few times to push caliper piston against pads to set proper pad-to-rotor clearance. Recheck brake fluid in reservoir.

Removal (Legacy, Loyale & SVX)

Raise and support vehicle. Remove wheel. Remove parking brake cable from caliper. Remove lower caliper guide pin bolt. Rotate caliper body up and away from disc. Remove pads, clips and shims from caliper support bracket. Standard front pad thickness is .67" (17.0 mm) on Legacy and SVX and .709" (18.00 mm) on Loyale. Minimum front pad thickness, including metal backing plate, is .295" (7.49 mm) for all models.

Installation

1) On Loyale, use Piston Wrench (926430000) and Spacer (926440000) to turn piston clockwise to seat it in caliper bore and align caliper piston notches with raised tab on installed pads. See Fig. 6. After turning and seating piston, check piston boot for twist. On Legacy and SVX, push piston(s) into caliper body.

2) On Loyale, install anti-squeak shim on outer pad only. On Legacy and SVX, install anti-squeak shims on both inner and outer pads. Install pad clips to support bracket, and install pads. On all models, rotate caliper body down, aligning piston notches with pad tabs. Install lower caliper guide pin bolt. Reconnect parking brake cable. Depress brake pedal several times to set pad-to-rotor clearance.

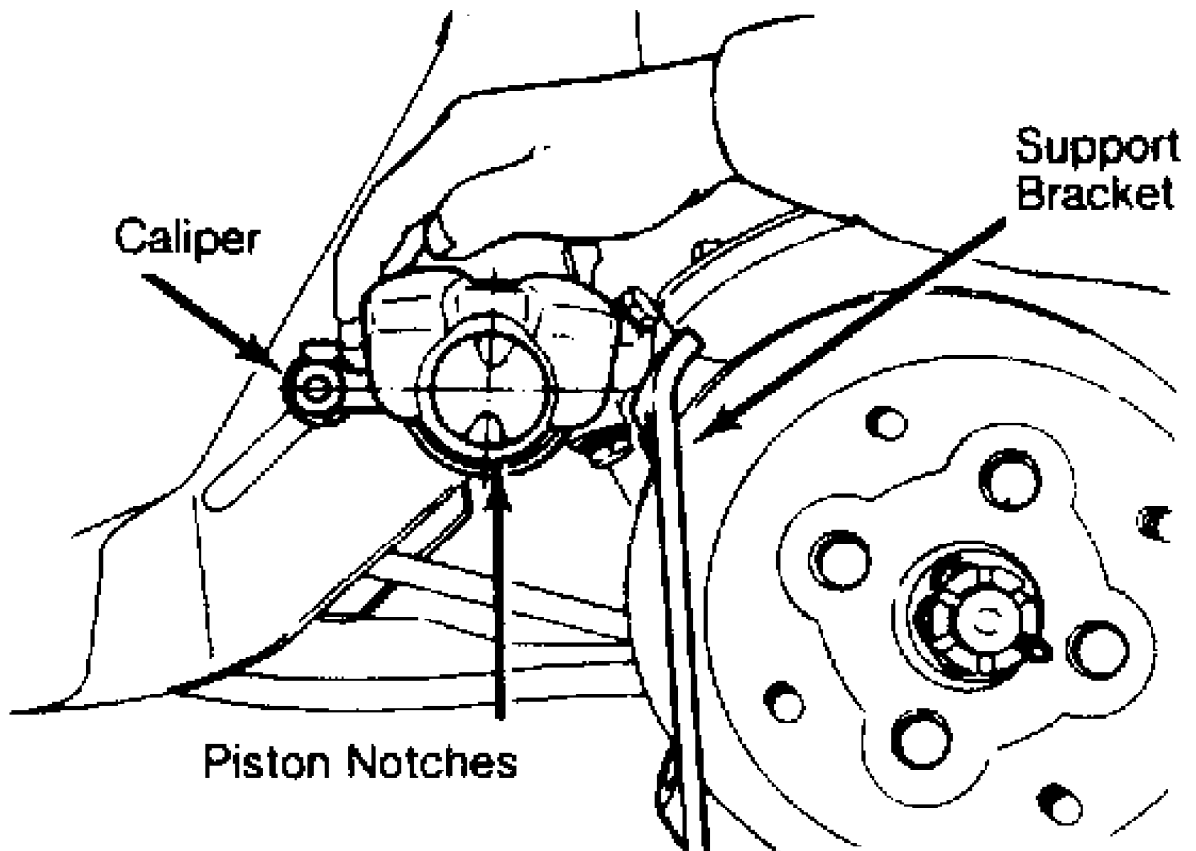


Fig. 6: Aligning Caliper Piston Notches To Brake Pads (Loyale)
Courtesy of Subaru of America, Inc.

FRONT & REAR BRAKE CALIPER

Removal

1) Raise and support vehicle. Remove wheel. Disconnect brakeline from caliper, and plug openings. On Justy and Loyale, remove parking brake cable from front caliper.

2) Remove brake caliper guide pin bolts from brake caliper support bracket. Remove caliper. DO NOT remove pads or support bracket unless rotor is being removed.

Installation

Apply silicone grease to guide pin, boot and guide pin bolt.

Install caliper assembly, pads and parking brake cable. Install brakeline. Bleed hydraulic system. See BLEEDING BRAKE SYSTEM.

FRONT BRAKE ROTOR

Removal

1) Raise and support vehicle. Remove wheel. Remove caliper assembly, and wire it aside. DO NOT disconnect brakeline or parking brake cable from caliper. Remove caliper support bracket with attached disc pads from steering knuckle.

2) On Justy, remove center piece wedge using a screwdriver. Lightly tap screwdriver into center piece slot to spread wedge, and remove wedge from axle.

3) On Legacy and SVX, remove rotor from hub assembly. If rotor seizes to hub, use 8-mm bolts in screw holes on rotor to remove rotor.

4) On Loyale, remove cotter pin and nut from axle shaft. Remove rotor and hub assembly from axle shaft using a puller. Separate rotor from hub.

Installation

1) To install, reverse removal procedure. Tighten hub-to-rotor bolts evenly and to specification. See TORQUE SPECIFICATIONS table at end of article.

2) On Justy, tighten wheel bearing/axle nut to 130 ft. lbs. (177 N.m). On Loyale, tighten axle shaft nut to 145 ft. lbs. (196 N.m). On all models, depress brake pedal several times to seat pads.

HILL-HOLDER PRESSURE HOLD VALVE (PHV)

Removal

Siphon brake fluid from master cylinder. Disconnect PHV cable at PHV. See Figs. 2 and 4. Disconnect brakelines from PHV. Remove PHV from support bracket. Plug all lines and fittings.

NOTE: DO NOT disassemble PHV. It is not rebuildable. If PHV is defective, replace complete PHV assembly.

Inspection

Inspect boots of PHV cable for damage and corrosion. Inspect return spring for damage and corrosion. Listen for internal check ball rolling sound when PHV valve is tilted. Inspect PHV lever for smooth rotation operation.

Installation

To install, reverse removal procedure. Apply grease to hook of return spring, cable end portion of lever and cable end portion of clutch release fork. Bleed hydraulic system, and adjust PHV cable. See BLEEDING BRAKE SYSTEM. See HILL-HOLDER BRAKE under ADJUSTMENTS.

MASTER CYLINDER

Removal & Installation

Siphon brake fluid from reservoir. Disconnect warning light fluid level connection. Remove hydraulic lines. Remove master cylinder from power brake unit. To install, reverse removal procedure. Bleed hydraulic system. See BLEEDING BRAKE SYSTEM.

REAR BRAKE DRUM

Removal (Justy)

1) Raise and support vehicle. Remove wheel. Remove hub dust

cap and nut from axle shaft. Remove center piece wedge using a screwdriver. Lightly tap screwdriver into center piece slot to spread wedge, and remove wedge from axle.

2) Loosen parking brake cable. Loosen brake shoe adjustment by inserting a screwdriver through backing plate access hole to push adjuster lever to initial position. See Fig. 7. Slide hub/drum assembly with wheel bearing components off axle shaft.

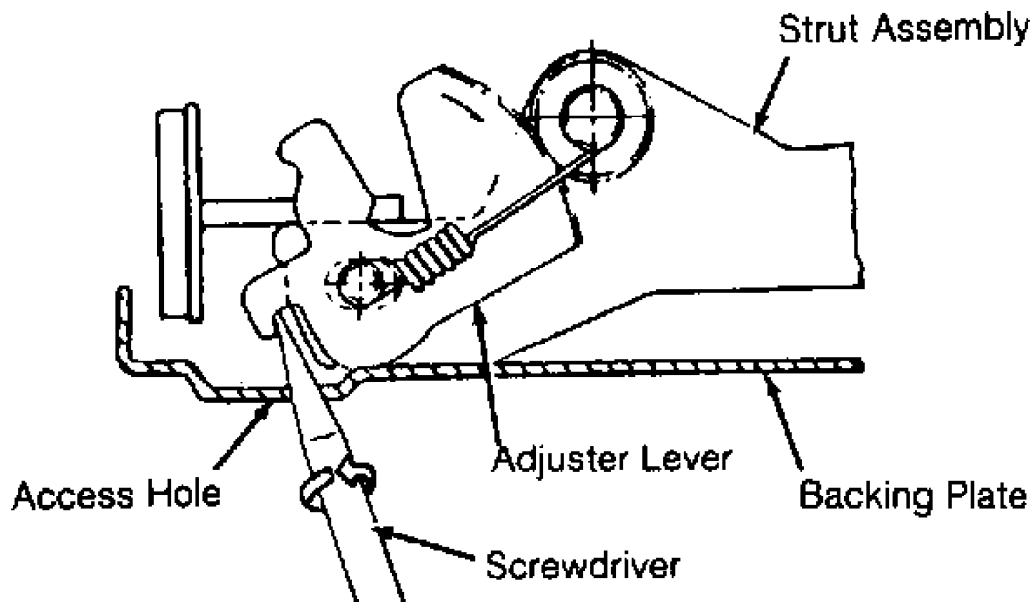


Fig. 7: Resetting Brake Shoe Strut Assembly Adjuster Lever (Justy)
Courtesy of Subaru of America, Inc.

Installation

To install, reverse removal procedure. On 2WD models, tighten wheel bearing nut to 29 ft. lbs. (39 N.m). Back nut off, and then tighten nut until hub rotating starting torque, measured using a spring scale, is 3.1-4.4 lbs. (1.4-2.0 kg). On 4WD models, tighten axle nut to 108 ft. lbs. (147 N.m).

Removal (Loyale)

1) Raise and support vehicle. Remove wheel. On 2WD models, remove hub dust cap and nut from axle shaft. Loosen brake adjustment (if necessary). Slide hub/drum assembly with wheel bearing components off axle shaft.

2) On 4WD models, remove cotter pin and axle shaft castle nut. Loosen brake adjustment (if necessary). Remove drum/hub assembly from axle shaft. If necessary, use a puller to remove drum/hub assembly from axle shaft.

Installation

To install, reverse removal procedure. On 2WD models, tighten wheel bearing nut to 36 ft. lbs. (49 N.m). Back nut off about 1/8 turn until hub rotating starting torque, measured using a spring scale, is 1.87-3.20 lbs. (.85-1.45 kg). On 4WD models, tighten axle shaft nut to 145 ft. lbs. (196 N.m).

REAR BRAKE PADS

Removal & Installation

1) Raise and support vehicle. Remove wheel. Remove lower guide pin bolt. Rotate caliper upward, and wire it aside. Remove brake pads from support bracket, noting positions of shims and clips.

2) Standard rear pad thickness is .591" (15.00 mm). Minimum pad thickness, including metal backing plate, is .256" (6.50 mm). To install, reverse removal procedure. Open caliper bleeder screw and press piston back into caliper bore. Bleed brake system (if necessary). See BLEEDING BRAKE SYSTEM.

REAR BRAKE ROTOR

Removal & Installation (Legacy & SVX)

1) Raise and support vehicle. Remove wheel. Remove rear caliper from support bracket, and wire it aside. Remove pads and support bracket from rear axle housing. Pull rotor from hub (outboard type rotor). Remove rotor from hub assembly. If rotor seizes to hub, use 8-mm bolts in screw holes on rotor to remove rotor.

2) To remove disc rotor from hub, loosen parking brake shoe adjustment by inserting a screwdriver through backing plate access hole to turn adjusting star wheel. To install, reverse removal procedure. Tighten bolts to specification. See TORQUE SPECIFICATIONS table at end of article.

REAR BRAKE SHOES

Removal (Justy)

1) Remove brake drum. See REAR BRAKE DRUM. To aid in removing brake drum, insert a screwdriver through backplate access hole to push strut assembly adjuster lever to initial position. See Fig. 7.

2) Remove hold-down spring clips and strut assembly springs to release shoe tension. Remove lower return spring from shoes. Remove parking brake arm from shoe. Remove brake shoes.

Installation

Ensure strut assembly is not damaged or worn. Ensure yellow strut assembly is on right side of vehicle and white strut assembly is on left side. Preset strut assembly adjuster to 3.78" (96.0 mm). See Fig. 8. To install, reverse removal procedure. See Fig. 9.

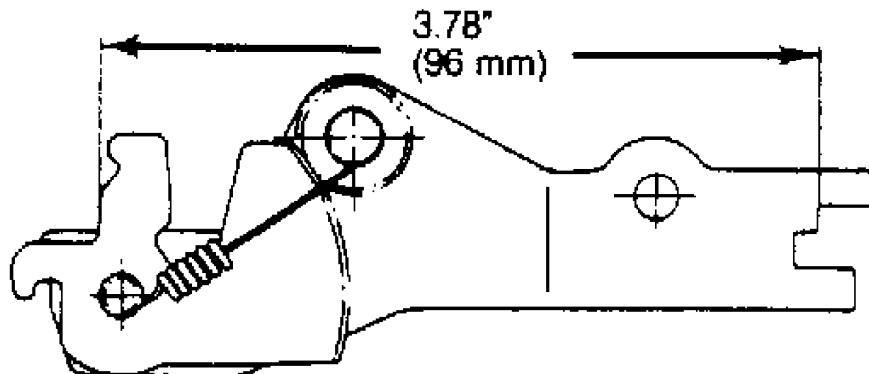
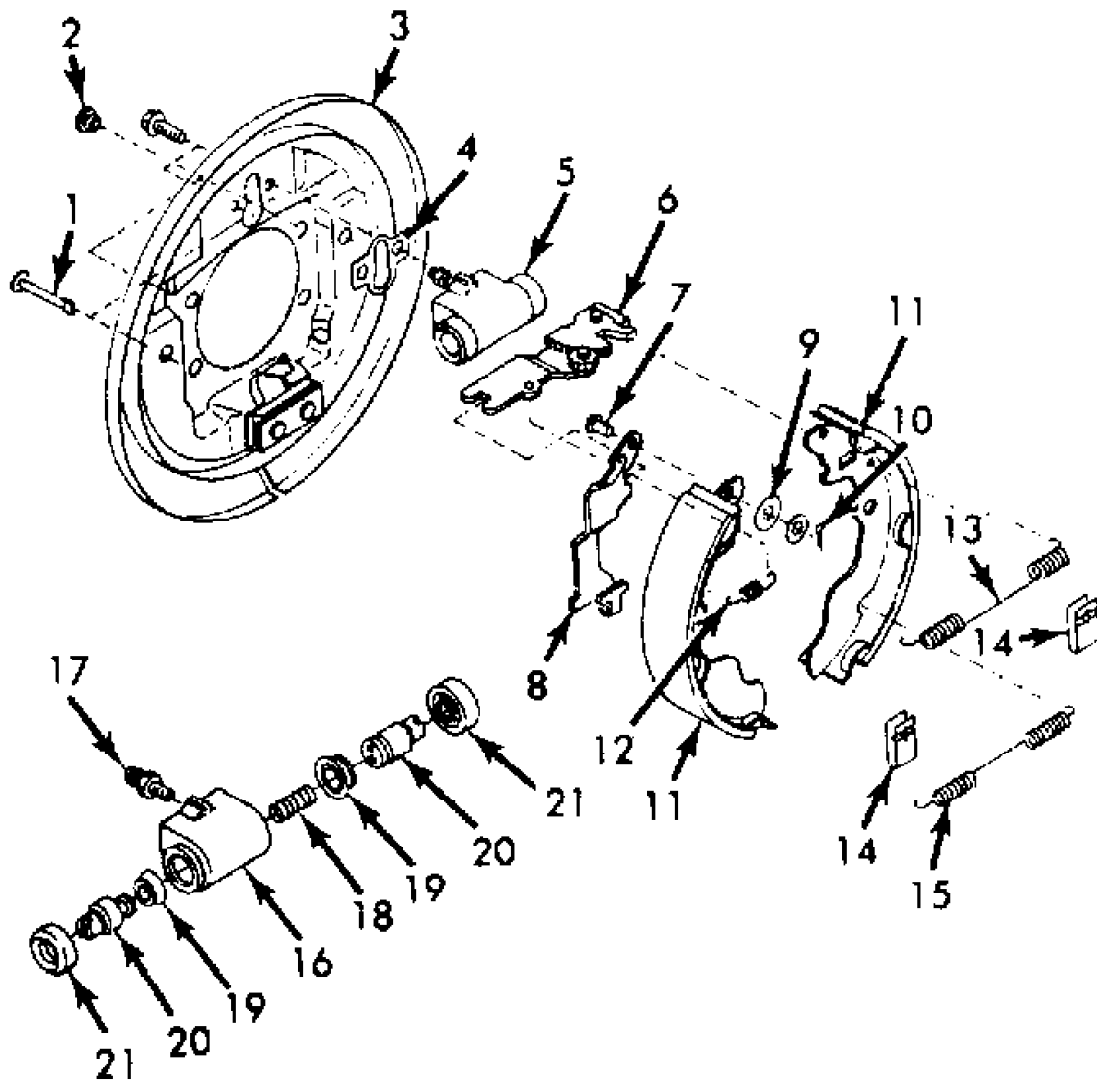


Fig. 8: Presetting Brake Shoe Strut Assembly Adjuster Lever (Justy)
Courtesy of Subaru of America, Inc.



- | | |
|----------------------------|-------------------------|
| 1. Hold-Down Pin | 11. Brake Shoe |
| 2. Cap | 12. Strut Return Spring |
| 3. Backing Plate | 13. Upper Return Spring |
| 4. Gasket | 14. Hold-Down Spring |
| 5. Wheel Cylinder Assembly | 15. Lower Return Spring |
| 6. Strut Assembly | 16. Wheel Cylinder |
| 7. Clevis Pin | 17. Bleeder Screw |
| 8. Parking Lever | 18. Spring |
| 9. Washer | 19. Cup |
| 10. Cotter Pin | 20. Piston |
| | 21. Boot |

Fig. 9: Identifying Rear Drum Brake Components (Justy)
 Courtesy of Subaru of America, Inc.

Removal & Installation (Legacy & SVX)

1) Remove rear caliper from support, and wire it aside. To

remove disc rotor from hub, loosen parking brake shoe adjustment by inserting a screwdriver through backing plate access hole to turn adjusting star wheel. Remove disc rotor/drum from hub.

2) Remove front shoe return springs and shoe hold-down spring. Remove center strut and spring from between shoes. Remove adjuster star wheel assembly. Remove rear shoe return springs and shoe hold-down spring. Remove parking brake cable from lever. Remove lever from shoe. To install, reverse removal procedure. Adjust parking brake. See PARKING BRAKE under ADJUSTMENTS.

Removal (Loyale)

Remove brake drum. See REAR BRAKE DRUM. Remove shoe hold-down springs from backing plate. Remove bottom of shoe from adjuster. Remove top of shoe from cylinder. Remove return springs from shoes, noting spring locations. See Fig. 10 or 11.

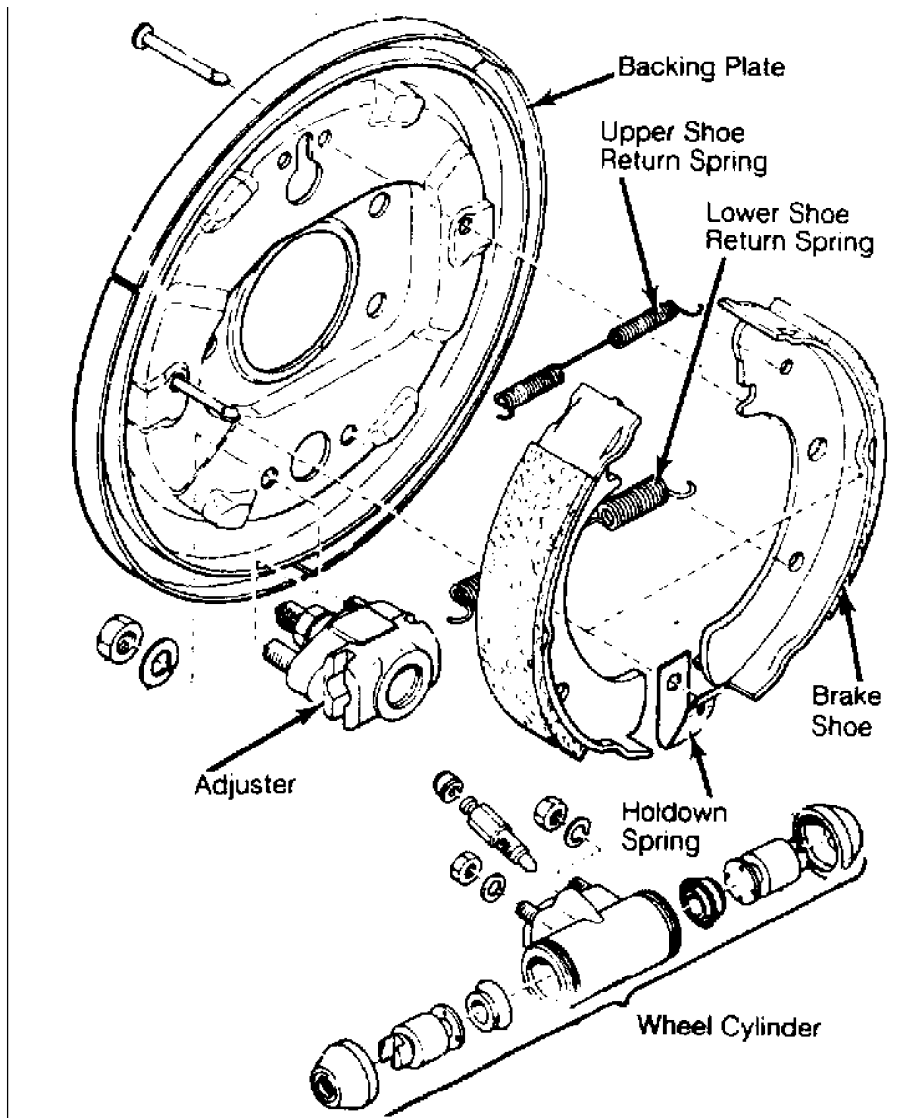
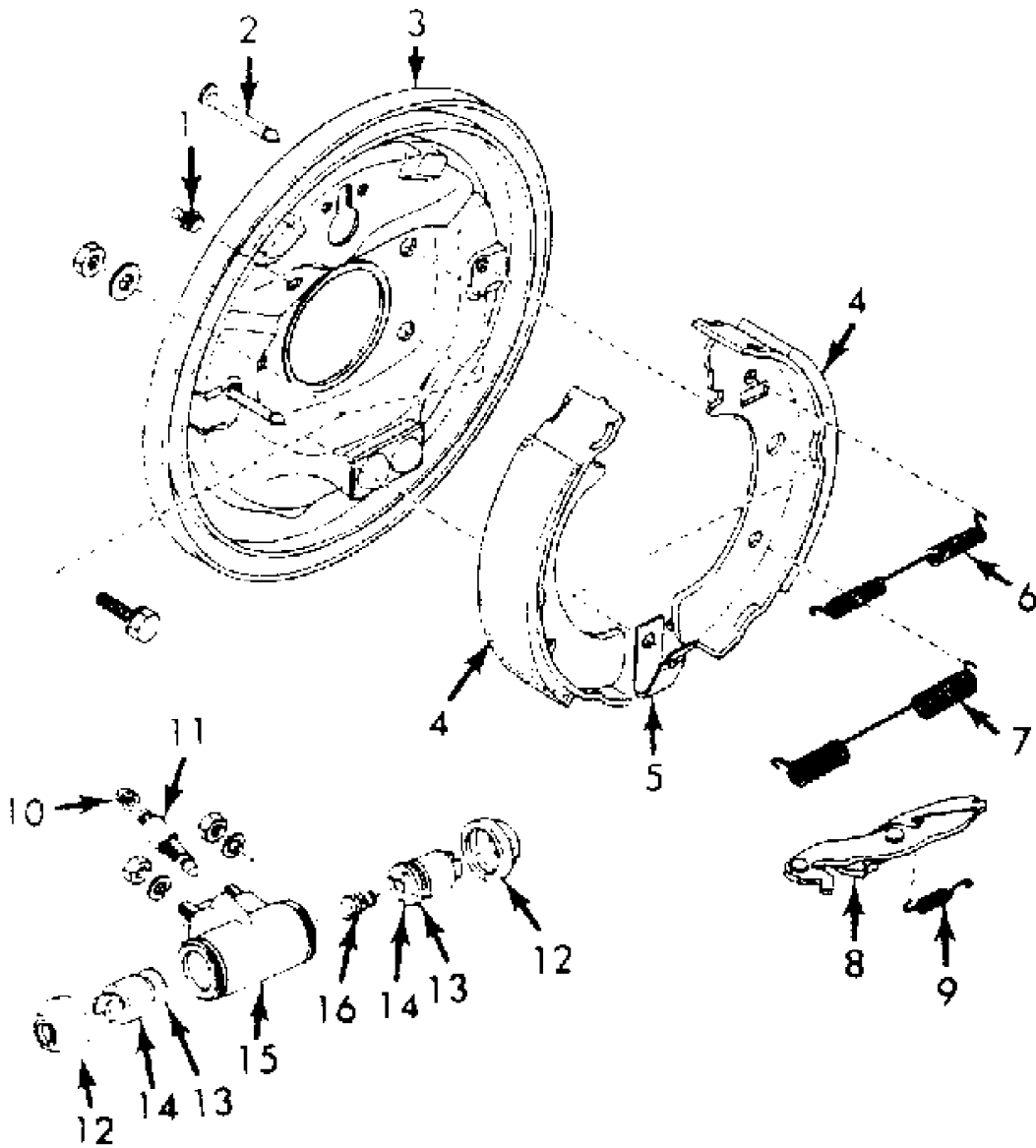


Fig. 10: Identifying Rear Drum Brake Components (Loyale 2WD)
Courtesy of Subaru of America, Inc.



- | | |
|------------------------|--------------------|
| 1. Plug | 9. Strut Spring |
| 2. Hold-Down Pin | 10. Cap |
| 3. Backing Plate | 11. Bleeder Screw |
| 4. Brake Shoe | 12. Boot |
| 5. Hold-Down Spring | 13. Cup |
| 6. Upper Return Spring | 14. Piston |
| 7. Lower Return Spring | 15. Wheel Cylinder |
| 8. Strut Assembly | 16. Spring |

Fig. 11: Identifying Rear Drum Brake Components (Loyale 4WD)
 Courtesy of Subaru of America, Inc.

Installation

- 1) On rear of backing plate, turn adjuster screw outward

before installing new shoes. Apply white grease to adjusters and to backing plate at all locations where shoe touches plate.

2) To install shoes, reverse removal procedure. Return springs are not interchangeable from top to bottom. Lower spring has larger diameter. Adjust brakes, and bleed hydraulic system. See REAR DRUM BRAKE SHOES under ADJUSTMENTS. See BLEEDING BRAKE SYSTEM.

POWER BRAKE UNIT

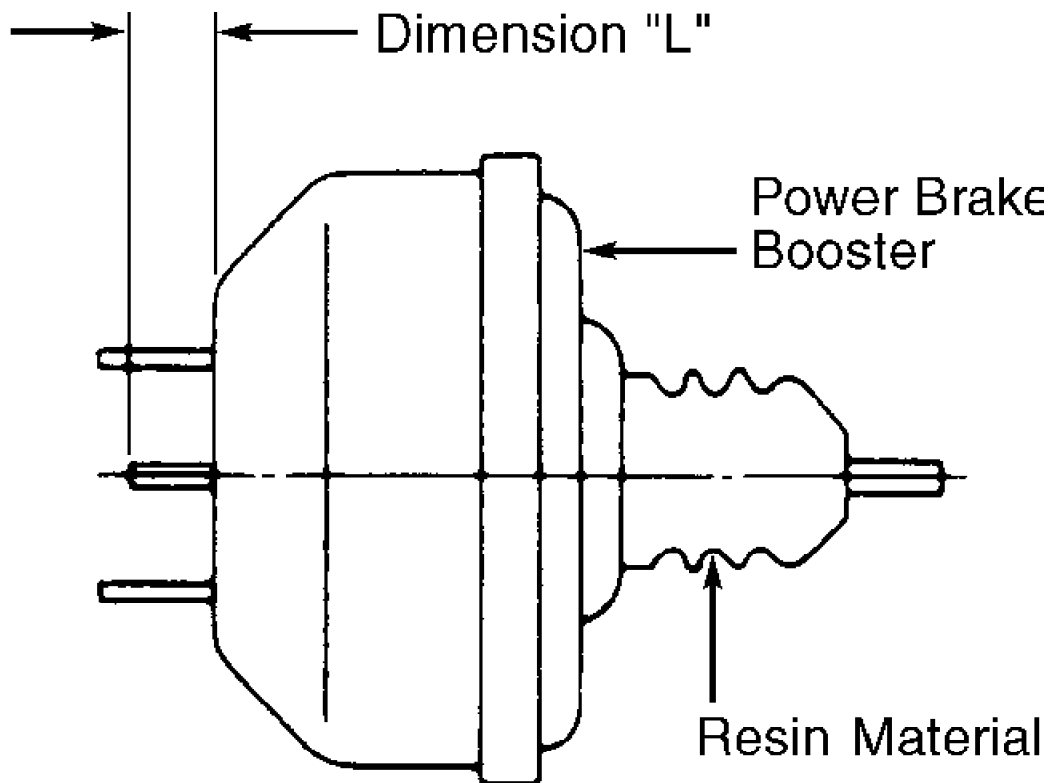
Removal

1) From inside vehicle, remove brake pedal clevis pin snap pin and clevis pin. Remove power brake retaining nuts from firewall inside vehicle. Remove master cylinder. See MASTER CYLINDER under REMOVAL & INSTALLATION.

2) Disconnect vacuum hose at power brake unit. Remove power brake unit without damaging hydraulic lines.

Installation

Check booster-to-master cylinder push rod length at measurement "L". See Fig. 12. Length should be .409" (10.40 mm) on Justy, .366" (9.30 mm) on Loyale and .394" (10.00 mm) on Legacy and SVX. Use care when handling booster assembly; excessive lateral force to operating rod will damage power piston cylinder. Ensure booster resin material around brake pedal rod is not damaged. Replace power booster assembly if it is dropped. To install, reverse removal procedure. Bleed hydraulic system. See BLEEDING BRAKE SYSTEM.



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Fig. 12: Measuring Power Booster Push Rod Length
Courtesy of Subaru of America, Inc.

OVERHAUL

FRONT CALIPER

NOTE: When overhauling caliper, DO NOT remove mounting bracket. Loosen or remove mounting bracket only if it is being replaced.

Disassembly (Justy)

1) With caliper removed from vehicle, place narrow wood block between piston and caliper body. With bleeder screw installed, apply low-pressure air to caliper brakeline inlet port to pop out piston.

2) Remove boots and seals from caliper grooves. See Fig. 13. Inspect grooves and bore. Clean bore using crocus cloth or emery paper.

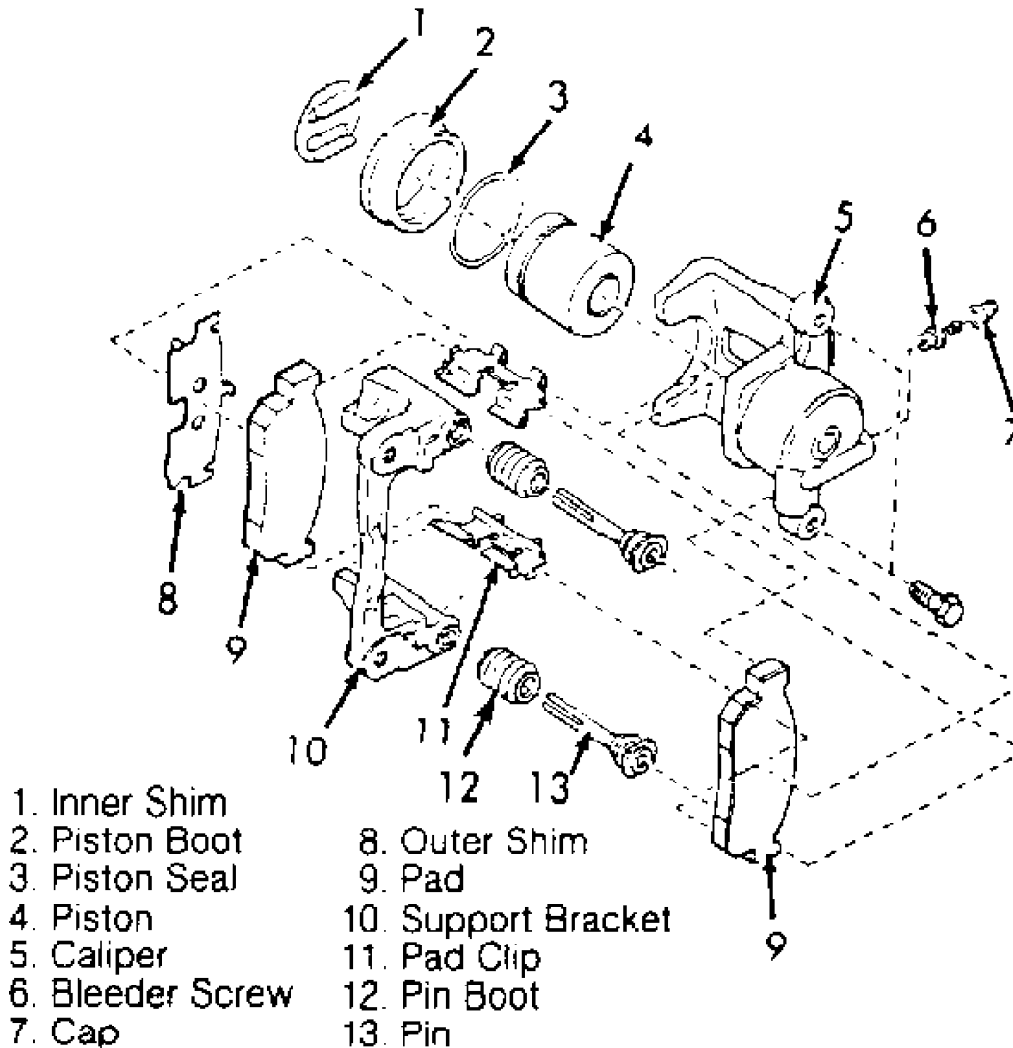


Fig. 13: Front Caliper Component ID (Justy; Legacy Non-Turbo Similar)
Courtesy of Subaru of America, Inc.

Reassembly

1) Wash caliper bore and piston with brake fluid. Install

piston seal into caliper seal groove. Apply caliper lubricant to piston seal and caliper bore. Install boot top onto bottom of piston.

2) Apply caliper lubricant lightly inside of piston boot. Install bottom of boot into caliper top groove, and push piston into caliper bore by hand. Ensure dust boot is positioned into groove correctly and is not twisted.

Disassembly (Legacy, Loyale & SVX)

1) Thoroughly clean caliper assembly exterior with brake fluid. DO NOT use solvents, diesel fuel or gasoline to clean caliper assembly exterior; these chemicals break down reusable rubber components.

2) If equipped, remove pad clip (shim) from piston opening. Remove piston dust boot retainer and dust boot. Place narrow wood block between piston and caliper body.

3) With bleeder valve installed, apply low pressure compressed air to fluid inlet of caliper to force piston out of caliper bore. Remove piston boot(s) and piston seal(s) from caliper grooves. See Fig. 13, 14 or 15.

4) On Loyale, remove parking brake lever cap ring and rubber lever cap from rear of caliper. Remove snap ring from bottom of lever and spindle. Mount caliper assembly in soft-jawed vise. Install Puller (925471000) to push down on spring washer to release cone spring tension. See Fig. 16.

5) With spring tension released, pull out lever and spindle. Remove puller. Remove connecting link, return spring, spindle and cone spring.

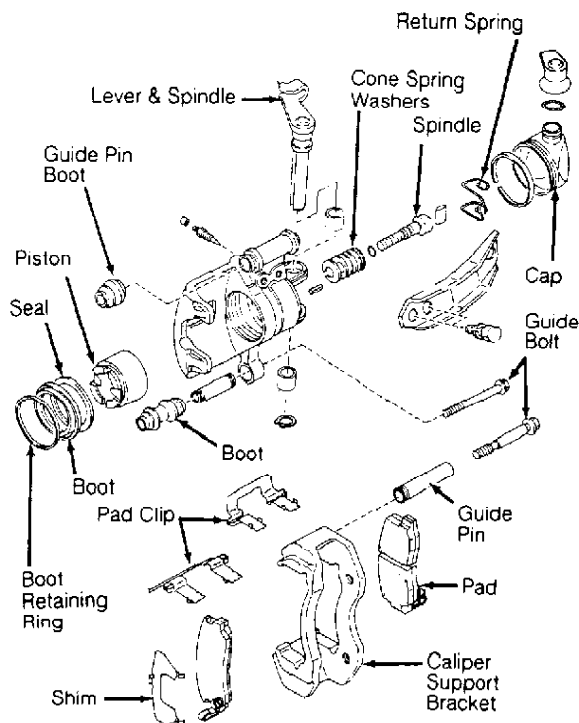
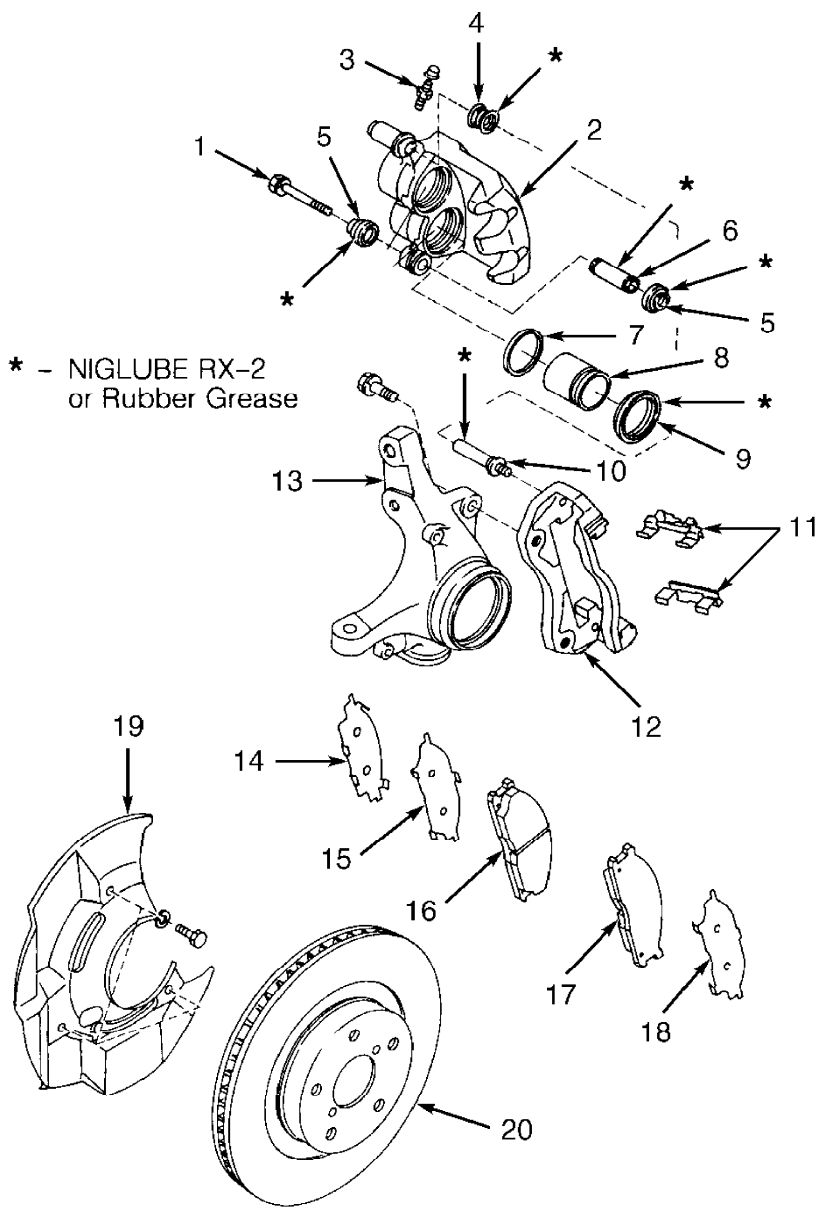


Fig. 14: Identifying Front Disc Caliper Components (Loyale)
Courtesy of Subaru of America, Inc.



* - NIGLUBE RX-2
or Rubber Grease

- | | |
|----------------------|----------------|
| 1. Lock Pin | 11. Pad Clip |
| 2. Caliper Body | 12. Support |
| 3. Air Bleeder Screw | 13. Housing |
| 4. Guide Pin Boot | 14. Shim |
| 5. Lock Pin Boot | 15. Inner Shim |
| 6. Lock Pin Sleeve | 16. Inner Pad |
| 7. Piston Seal | 17. Outer Pad |
| 8. Piston | 18. Outer Shim |
| 9. Piston Boot | 19. Disc Cover |
| 10. Guide Pin | 20. Disc Rotor |

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Fig. 15: Front Dual Piston Caliper (Legacy Turbo & SVX)
Courtesy of Subaru of America, Inc.

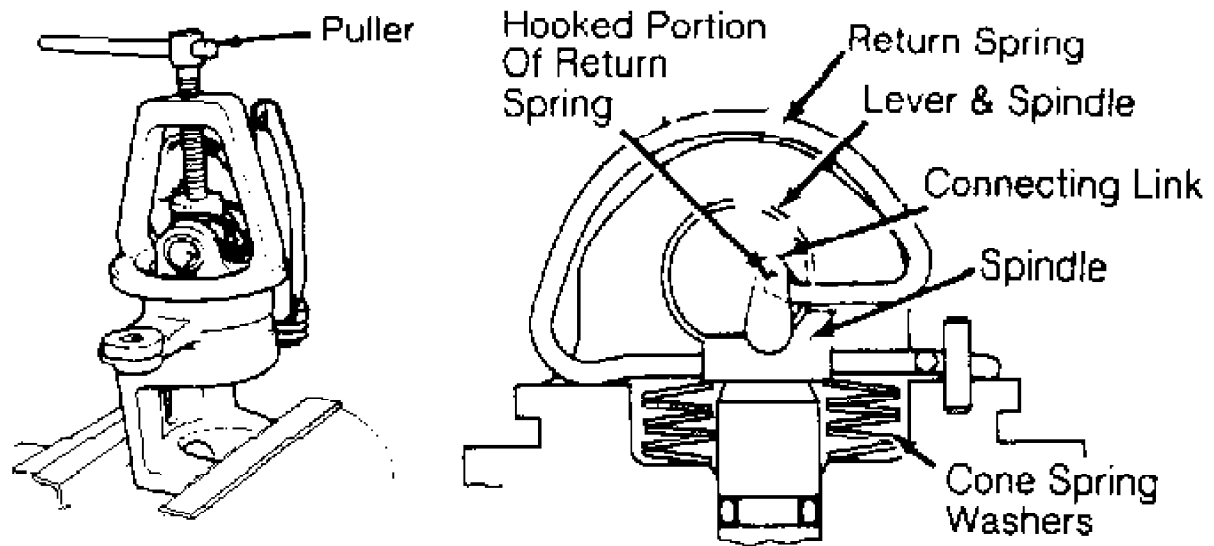


Fig. 16: Removing & Installing Caliper Lever & Spindle (Loyale)
 Courtesy of Subaru of America, Inc.

Reassembly

1) Coat piston seal with Silicone Compound (725191050), and install seal into caliper groove. Coat piston, inside of piston boot and caliper bore with brake fluid. Insert piston into caliper bore. Using hand pressure, push piston inward until it is bottomed. Install boot and boot retainer.

2) Install cone spring washers to spindle in order. See Fig. 16. Position Adapter Sleeve (925600000) onto spindle, and install "O" ring seal to spindle. See Fig. 17. Lightly coat spindle shaft spline and "O" ring with silicone grease.

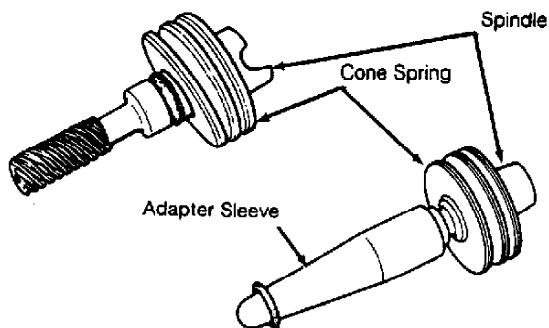


Fig. 17: Installing Spindle "O" Ring Using Adapter Sleeve (Loyale)
 Courtesy of Subaru of America, Inc.

3) Install spindle with attached spring washers into caliper, and compress spindle using Puller (925471000). Lubricate and install

connecting link to spindle (thick side toward spindle head slot). See Fig. 16.

4) Install lever and spindle assembly. Ensure hooked portion of return spring is installed into groove of lever and spindle. Install snap ring at end of lever and spindle. Remove puller. Install lever cap and cap retainer ring.

NOTE: Always replace guide pin boots with new boots.

5) On all models, clean holes for guide pins in caliper body. Evenly tap new guide pin boots into caliper hole. See Fig. 13, 14 or 15. Ensure boots are not damaged.

HILL-HOLDER PRESSURE HOLD VALVE (PHV)

Manufacturer does not recommend overhaul of this unit. Replace unit as complete assembly. See Fig. 4.

MASTER CYLINDER

NOTE: DO NOT disassemble piston assemblies. Piston cup replacement requires replacement of piston assemblies. Removal of fluid reservoir requires installation of new reservoir and gaskets.

Disassembly

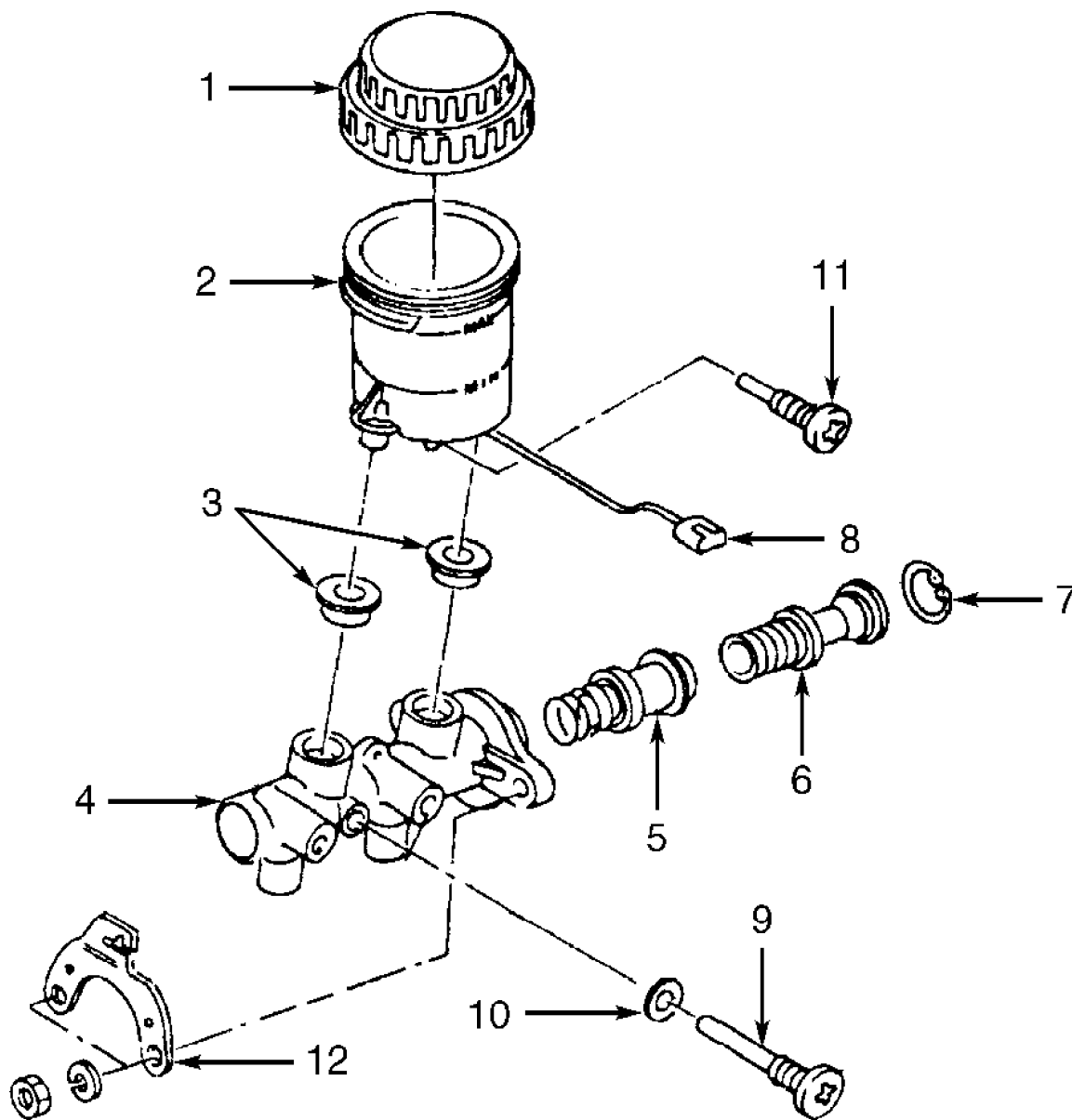
Remove warning light level indicators and filters from reservoir, and siphon fluid. Push primary piston into cylinder bore, and remove stopper bolt and/or primary piston circlip. See Fig. 18. Remove stop washer, gasket, and primary and secondary piston assemblies. Remove check valve plug and valve assembly.

Cleaning & Inspection

Clean all components in brake fluid. Inspect cylinder bore for smoothness and roundness. Replace cylinder if scored, corroded or out of round. DO NOT hone cylinder. Piston-to-cylinder clearance should not exceed .0043" (.110 mm).

Reassembly

To reassemble master cylinder, reverse disassembly procedure. Bleed brake system. See BLEEDING BRAKE SYSTEM.



- | | |
|---------------------|-----------------------------|
| 1. Cap | 7. Snap Ring |
| 2. Reservoir Tank | 8. Level Indicator Assembly |
| 3. Seal | 9. Secondary Piston Stopper |
| 4. Cylinder Body | 10. Gasket |
| 5. Secondary Piston | 11. Reservoir Stopper Bolt |
| 6. Primary Piston | 12. Connector Bracket |

93C01996
 Fig. 18: Exploded View Of Master Cylinder (Similar)
 Courtesy of Subaru of America, Inc.

Manufacturer does not recommend overhaul of this unit.
 Replace unit as complete assembly.

REAR CALIPER

Disassembly

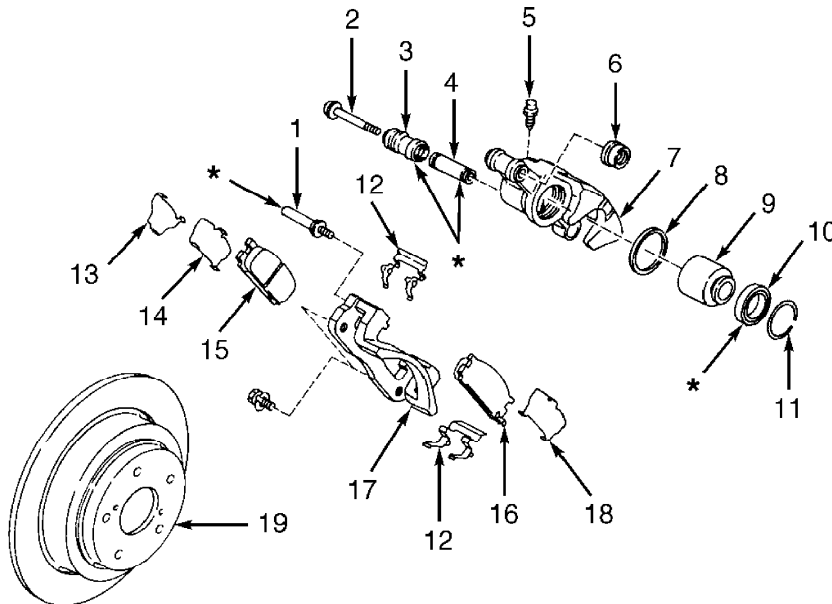
1) If equipped, remove pad clip (shim) from piston opening.
 Place narrow wood block between piston and caliper body.

2) With bleeder screw installed, apply low-pressure compressed air to fluid hose inlet of caliper to force piston out of caliper bore. Remove piston boot and piston seal from caliper grooves. See Fig. 19.

Reassembly

1) Wash caliper bore and piston with brake fluid. Install piston seal into caliper seal groove, ensuring seal is not twisted. Apply caliper lubricant to piston seal and caliper bore. Install boot top onto bottom of piston.

2) Apply caliper lubricant lightly inside of piston boot. Install bottom of boot into caliper top groove and push piston into caliper bore by hand. Ensure dust boot is positioned into groove correctly and is not twisted.



- | | |
|----------------------|----------------|
| 1. Guide Pin | 11. Boot Ring |
| 2. Lock Pin | 12. Pad Clip |
| 3. Lock Pin Boot | 13. Shim |
| 4. Lock Pin Sleeve | 14. Inner Shim |
| 5. Air Bleeder Screw | 15. Inner Pad |
| 6. Guide Pin Boot | 16. Outer Pad |
| 7. Caliper Body | 17. Support |
| 8. Piston Seal | 18. Outer Shim |
| 9. Piston | 19. Disc Rotor |
| 10. Piston Boot | |

93E01997

Fig. 19: Exploded View Of Rear Disc Caliper (SVX; Legacy Is Similar)
 Courtesy of Subaru of America, Inc.

REAR WHEEL CYLINDER

Disassembly

Remove end cap boots, pistons with cups and spring. See Fig. 9, 10 or 11. DO NOT separate rubber cup seal from piston unless replacement is available.

Cleaning & Inspection

Clean all parts in brake fluid only. If cylinder is out of round, burred or corroded, replace cylinder as an assembly. DO NOT hone cylinder.

Reassembly

To reassemble, reverse disassembly procedure. Ensure piston cup is not installed on piston in reverse direction.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Backing Plate Mounting Bolts	
Justy	14-22 (19-30)
Legacy, Loyale & SVX	34-43 (46-58)
Booster Mounting Nut	9-17 (12-23)
Brakeline-To-Caliper	12-14 (16-19)
Brakeline-To-Master Cylinder	10-13 (14-18)
Brakeline-To-Wheel Cylinder	10-13 (14-18)
Caliper Guide Pin	
Dual Piston	25-32 (34-44)
Single Piston	33-40 (45-54)
Caliper Pin Bolt	
Justy	16-23 (22-31)
Legacy, Loyale & SVX	23-30 (31-41)
Caliper-To-Support Bolt (Rear)	16-23 (22-31)
Hill-Holder	
PHV Bracket	22-27 (30-36)
PHV Mount	9-17 (12-23)
Hub-To-Rotor Bolt	33-42 (45-57)
Master Cylinder Mounting Nut	7-13 (10-18)
Support Bracket Mounting Bolts	
Front	
Dual Piston	50-65 (68-88)
Single Piston	36-51 (49-69)
Rear	34-43 (46-58)
Wheel Bearing Nut	
Front	
Justy	131 (177)
Legacy, Loyale & SVX	145 (196)
Rear	
2WD	
Justy & Loyale	(1)
Legacy	123-152 (167-206)
4WD	
Justy	108 (147)
Legacy & SVX (AWD)	123-152 (167-206)
Loyale	145 (196)
Wheel Lug Nut	58-72 (79-98)
	INCH Lbs. (N.m)
Bleeder Screw	61.2-78.0 (7.0-9.0)
Master Cylinder Stop Bolt	12.0-24.0 (1.4-2.7)

PHV Cable Lock Nut 21.6-39.6 (2.5-4.4)

(1) - See REAR BRAKE DRUM under REMOVAL & INSTALLATION.

DISC BRAKE SPECIFICATIONS

DISC BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Disc Rotor Diameter	
Justy	8.35 (212.0)
Loyale	9.53 (242.0)
Legacy	
Non-Turbo	
Front	10.2 (259)
Rear	10.5 (267)
Turbo	
Front	10.9 (277)
Rear	10.5 (267)
Loyale	9.53 (242.0)
SVX	
Front	11.89 (302.0)
Rear	11.42 (290.0)
Lateral Runout (Front Or Rear)	
Justy .....	.006 (.15)
Legacy, Loyale & SVX .....	.004 (.10)
Parallelism	(1)
Original Rotor Thickness	
Justy & Loyale .....	.71 (18)
Legacy	
Front .....	.94 (24.0)
Rear .....	.71 (18.0)
SVX	
Front	1.10 (28.0)
Rear .....	.39 (10.0)
Minimum Refinish Thickness	
Justy .....	.61 (15.5)
Loyale	
Front .....	.630 (16.00)
Rear .....	.335 (8.50)
Legacy	
Front .....	.870 (22.00)
Rear .....	.335 (8.50)
SVX	
Front	1.020 (26.00)
Rear .....	.335 (8.50)
Discard Thickness	(1)
Master Cylinder Diameter	
Justy (2)	
Primary .....	.875 (22.22)
Secondary	1.000 (25.40)
Loyale (2)	
Primary .....	.813 (20.64)
Secondary	1.000 (25.40)
Legacy	
Primary & Secondary	
With ABS	1.059 (26.9)
Without ABS	1.000 (25.40)
SVX	
Primary & Secondary (With ABS)	1.060 (26.99)

- (1) - Information is not available from manufacturer.
 (2) - Dual master cylinder.

DRUM BRAKE SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Drum Diameter	
Justy & Loyale	7.09 (180.0)
Legacy (1)	6.69 (170.0)
SVX (1)	7.48 (190.0)
Maximum Refinish Diameter	
Justy & Loyale	7.17 (182.0)
Legacy (1)	6.73 (171.0)
SVX (1)	7.52 (191.0)
Discard Diameter	(2)
Shoe Width	1.18 (30.0)
Master Cylinder Diameter	
Justy (3)	
Primary .....	.875 (22.22)
Secondary	1.000 (25.40)
Loyale (3)	
Primary .....	.8126 (20.640)
Secondary	1.0000 (25.400)
Wheel Cylinder Diameter	
Justy .....	.750 (19.05)
Loyale .....	.687 (17.46)

- (1) - Parking brake drum located inside rear disc rotor.
 (2) - Any diameter greater than maximum refinish diameter.
 (3) - Dual master cylinder.
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