

Article Text

For Volkswagen Technical Site: <http://vw.belcom.ru>

Wednesday, March 22, 2000 10:03PM

1992-93 BRAKES

Passat

All models are equipped with front disc brakes. Rear brakes are either disc or drum. Parking brake acts on rear brakes and is cable-actuated. All models use pressure regulator between front and rear brake circuits to avoid rear wheel lock-up during hard braking.

SERVICING

Manufacturer recommends replacing brake fluid every 2 years.

CAUTION: Ensure fluid level in master cylinder is adequate at all times during bleeding procedure. Use only DOT 4 brake fluid. DO NOT use DOT 5 silicone brake fluid.

NOTE: Manufacturer recommends bleeding brake system using Pressure Bleeder (US 1116). If a pressure bleeder is not available, use standard bleeding procedure.

- 1) Exhaust vacuum reserve from power unit by depressing brake pedal several times. On ABS-equipped vehicles, depress brake pedal at least 20 times to relieve system pressure.

- 2) On all vehicles, fill master cylinder with clean brake fluid. If master cylinder was replaced, bleed master cylinder before bleeding wheel calipers. Connect bleeder hose to appropriate caliper bleeder valve. See BRAKE BLEEDING SEQUENCE table.

BRAKE BLEEDING SEQUENCE TABLE

Application (1)	
Sequence	

Passat RR, LR, RF, LF

- (1) - Push lever of pressure regulator in direction of rear axle when bleeding rear brakes.

[illegible]

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3) Submerge other end of hose in clean glass jar partially filled with clean brake fluid. Pump brake pedal several times, then hold down. Open bleeder valve. Holding pedal down, close bleeder valve. Release brake pedal.

4) Repeat procedure until brake fluid shows no signs of air bubbles. When bleeding rear brakes, push lever of pressure regulator in direction of rear axle.

5) After bleeding ABS vehicles, turn ignition on. Allow pump to run until it shuts off. If pump runs longer than 2 minutes, allow pump to cool for 10 minutes. On all vehicles, ensure master cylinder reservoir is full.

ADJUSTMENTS

BRAKE PRESSURE REGULATOR

CAUTION: On all models, DO NOT adjust pressure regulator with brake pedal depressed.

1) Depress brake pedal once firmly. Release brake pedal quickly, watching for regulator lever to move when pedal is released. If regulator lever does not move when pedal is released, replace regulator. If regulator lever moved, go to next step.

2) Ensure vehicle fuel tank is full, luggage compartment is empty and a driver is in driver seat. Raise and support vehicle. Using Pressure Gauges (US 1016), attach one gauge to right rear brake cylinder or caliper. If vehicle is ABS-equipped, go to next step. If vehicle is not ABS-equipped, go to step 4).

3) Using Distributor "T" (803 611 755) and an additional 8" (203 mm) of brakeline, connect one gauge in front of pressure regulator. Bleed pressure gauge and hoses through valve on gauges. Lower vehicle. Bounce rear of vehicle several times. Go to step 5).

4) Attach Pressure Gauges (US 1016) to left front brake caliper. Bleed pressure gauge and hoses through valve on gauges. Lower vehicle. Bounce rear of vehicle several times.

5) Pump brake pedal several times. Press on brake pedal until reading on front gauge shows pressure given for first reading in the BRAKE PRESSURES table. Hold brake pressure to specification. Rear gauge reading should be within specification given for first reading in the BRAKE PRESSURES table.

6) Increase pressure on brake pedal until reading on front gauge shows pressure given for second reading in the BRAKE PRESSURES table. Hold brake pressure to specification. Rear gauge reading should be within specification given for second reading in BRAKE PRESSURES table. If pressures are within specification, brake pressure regulator is functioning properly. If pressures are not within specification, go to next step.

7) If pressure is too high, decrease spring pressure on regulator. If pressure is too low, increase spring pressure on regulator. If adjusting spring pressure on regulator does not bring pressures within specification, replace pressure regulator. Disconnect gauges, and bleed brakes.

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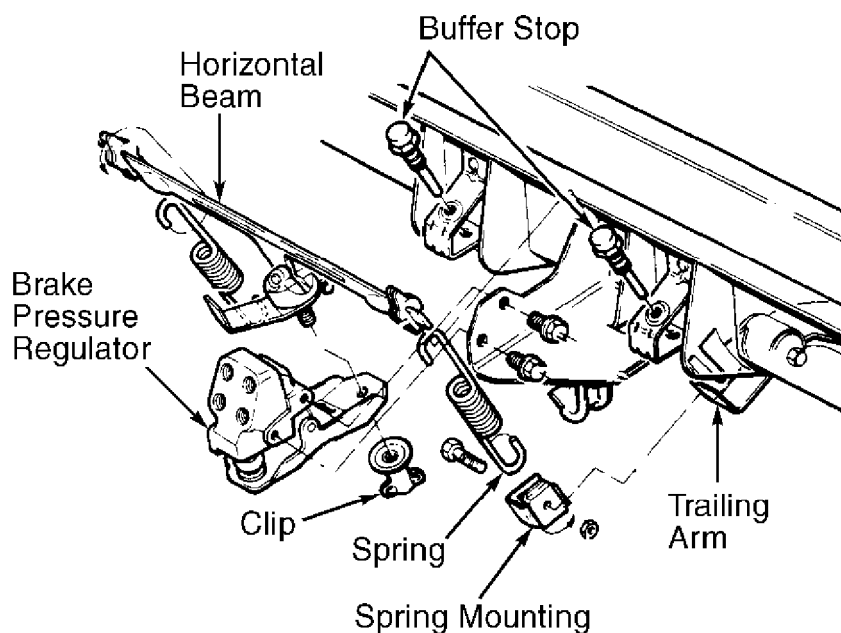
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93D83405

Fig. 1: Brake Pressure Regulator Component ID (Typical)
Courtesy of Volkswagen United States, Inc.

BRAKE PRESSURES TABLE

AA				
		Front Gauge		Rear Gauge
Application		psi (kg/cm ²)		psi (kg/cm ²)
1st Reading	725 (51)	435-522 (31-37)
2nd Reading	1450 (102)	739-826 (52-58)
AA				

STOPLIGHT SWITCH

NOTE: Stoplight switches mounted on master cylinder are nonadjustable.

Adjustable stoplight switch is located above brake pedal. See Fig. 2. To adjust, loosen lock nut. Turn switch until distance between brake pedal arm and first thread on switch body is .20-.24" (5-6 mm). Tighten lock nut.

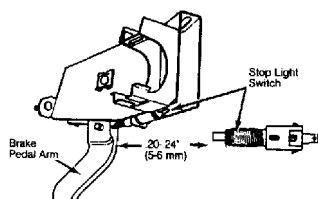


Fig. 2: Adjusting Stoplight Switch
Courtesy of Volkswagen United States, Inc.

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PARKING BRAKE

Rear Disc

1) Raise and support vehicle. Disengage parking brake. Loosen locking nuts at parking brake lever. Tighten adjusting nuts until levers on calipers just move off stops. Measure gap between stop and lever. See Fig. 3.

2) Maximum clearance between parking brake lever (on caliper) and stop is .060" (1.5 mm). Apply and release parking brake. Ensure rear wheels rotate freely. Tighten lock nuts.

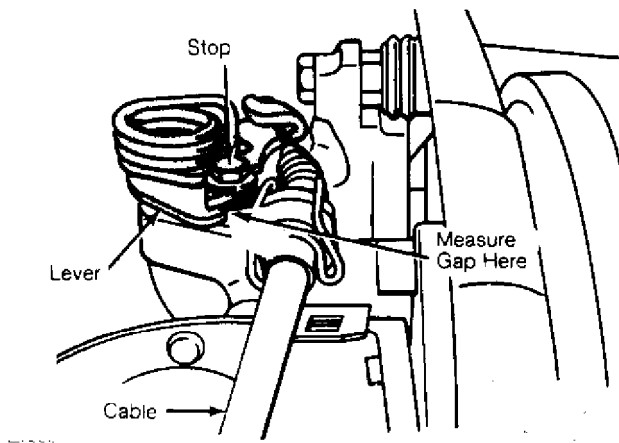


Fig. 3: Adjusting Rear Disc Parking Brake
Courtesy of Volkswagen United States, Inc.

WHEEL BEARINGS

NOTE: Front wheel bearings, also called hub or axle bearings, are sealed units with 1-piece outer race. Bearings are not adjustable.

Rear Wheel Bearings

Tighten adjusting nut snugly while turning drum or rotor. Back off and retighten nut just until axial movement is eliminated. Install locking cap and NEW cotter key. Install dust cap.

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

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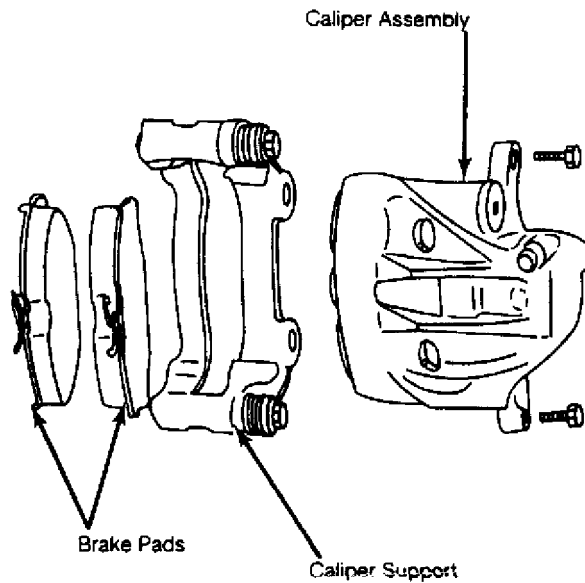


Fig. 4: Identifying Front Caliper Components (Typical)
Courtesy of Volkswagen United States, Inc.

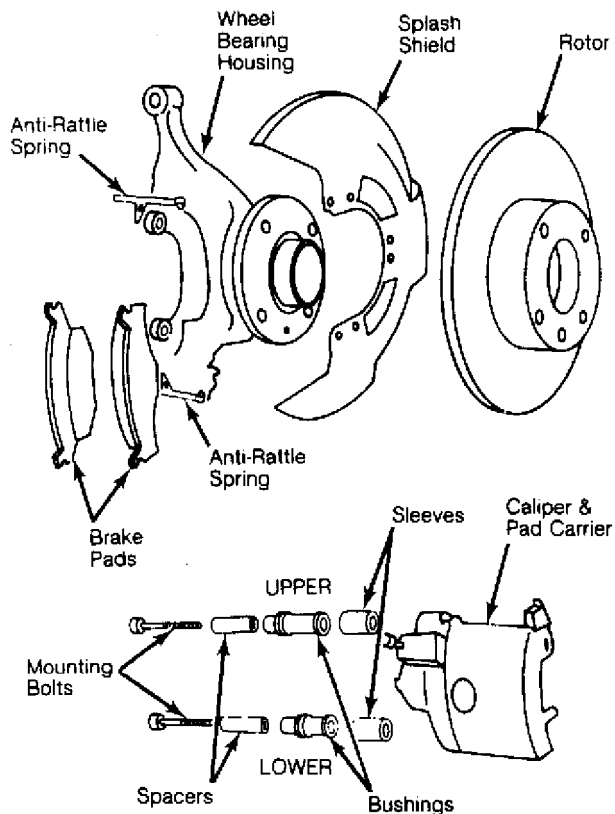


Fig. 5: Identifying Front Disc Brake Components
Courtesy of Volkswagen United States, Inc.

Removal

1) Raise and support vehicle. Remove front wheels. Hold lower

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guide pin using an open end wrench. Remove lower caliper mounting bolt. Push caliper assembly upward and swing out from bottom.

2) Siphon small amount of brake fluid from reservoir. Remove pads and retaining springs from caliper support. Replace pads exceeding wear limit. Wear limit of pads is .28" (7.0 mm), including backing plate. See Fig. 4 or 5.

Installation

1) Seat caliper piston fully into cylinder bore. Install inner pad and then outer pad. Swing caliper assembly down. Hold lower guide pin using an open end wrench.

2) Install lower caliper mounting bolt. Depress brake pedal several times to allow pads to move into operating position. Ensure master cylinder reservoir fluid level is full.

FRONT & REAR BRAKE CALIPER

Removal & Installation

1) Raise and support vehicle. Remove wheels. Disconnect brakeline from caliper, and plug openings. Bend back locking tabs (if equipped) on mounting bolts. If removing rear brake calipers, disconnect parking brake cables.

2) On all calipers, remove caliper mounting bolts. See Fig. 4 or 6. Remove caliper assembly from wheel bearing housing. To install, reverse removal procedure. Use NEW lock plates (if equipped) and mounting bolts. Bleed hydraulic brake system. See BLEEDING PROCEDURES under BLEEDING BRAKE SYSTEM.

FRONT & REAR BRAKE ROTOR

Removal

Raise and support vehicle. Remove wheels. Remove caliper and suspend from frame with wire. Remove countersunk screw that holds rotor to hub. Pull rotor off hub.

Installation

To install, reverse removal procedure. Adjust wheel bearings (if necessary). See WHEEL BEARINGS under ADJUSTMENTS.

REAR DISC BRAKE PADS

Removal

Raise and support vehicle. Remove rear wheels. Disconnect parking brake cable from caliper. Remove caliper mounting bolts. Remove caliper and wire aside. Siphon small amount of brake fluid from reservoir. Remove pads and retaining springs from caliper support. Replace pads that exceed wear limit. Wear limit of pads is .28" (7.0 mm), including backing plate.

Installation

Seat caliper piston fully into cylinder bore. Install inner pad first and then install outer pad. Position caliper. Install

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caliper mounting bolts. Depress brake pedal several times to allow pads to move into operating position. Ensure master cylinder reservoir fluid level is full.

MASTER CYLINDER

Removal

1) Drain master cylinder reservoir. Remove cover plate (if equipped). Disconnect brakelines and wiring at master cylinder.

2) On models without power assist servo, disconnect brake push rod at brake pedal. On models equipped with power assist servo, remove master cylinder from servo. Be careful to keep any spacers used on attaching bolts for proper installation.

Installation

To install, reverse removal procedure. Always use NEW "O" ring between master cylinder and power assist servo. Bleed hydraulic system.

VACUUM POWER ASSIST SERVO

Removal

Remove master cylinder from power assist servo. Disconnect brake push rod from brake pedal. Disconnect vacuum hose from servo. Remove servo from vehicle.

NOTE: Not all vehicles have all components.

Installation

To install, reverse removal procedure. Before attaching brake push rod to brake pedal, check and adjust push rod length. Always use NEW damping ring, washer, filter and "O" ring (as equipped). Slots in damping washer and filter must be offset 180 degrees (if equipped). Complete installation, and bleed hydraulic system.

OVERHAUL

NOTE: Black staining from piston seal wear may show on caliper bore walls and piston. This staining is normal. DO NOT disassemble power assist servo as parts are not available.

Refer to appropriate illustration for caliper and master cylinder overhaul. See Figs. 6 and 7.

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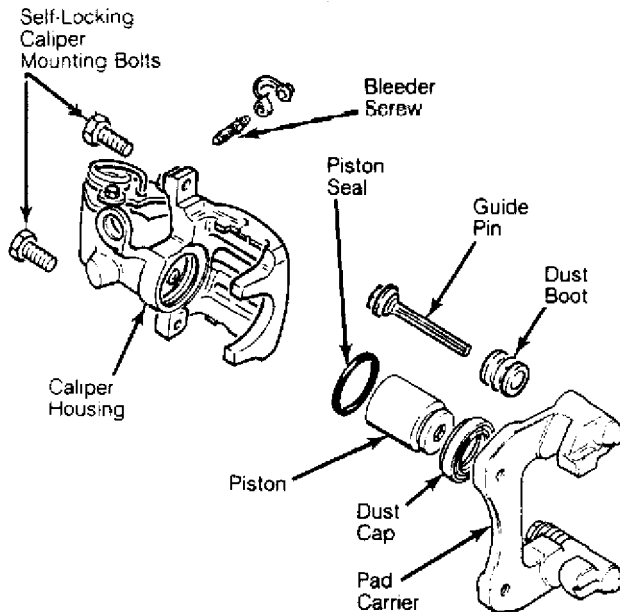


Fig. 6: Identifying Caliper Components (Typical)
Courtesy of Volkswagen United States, Inc.

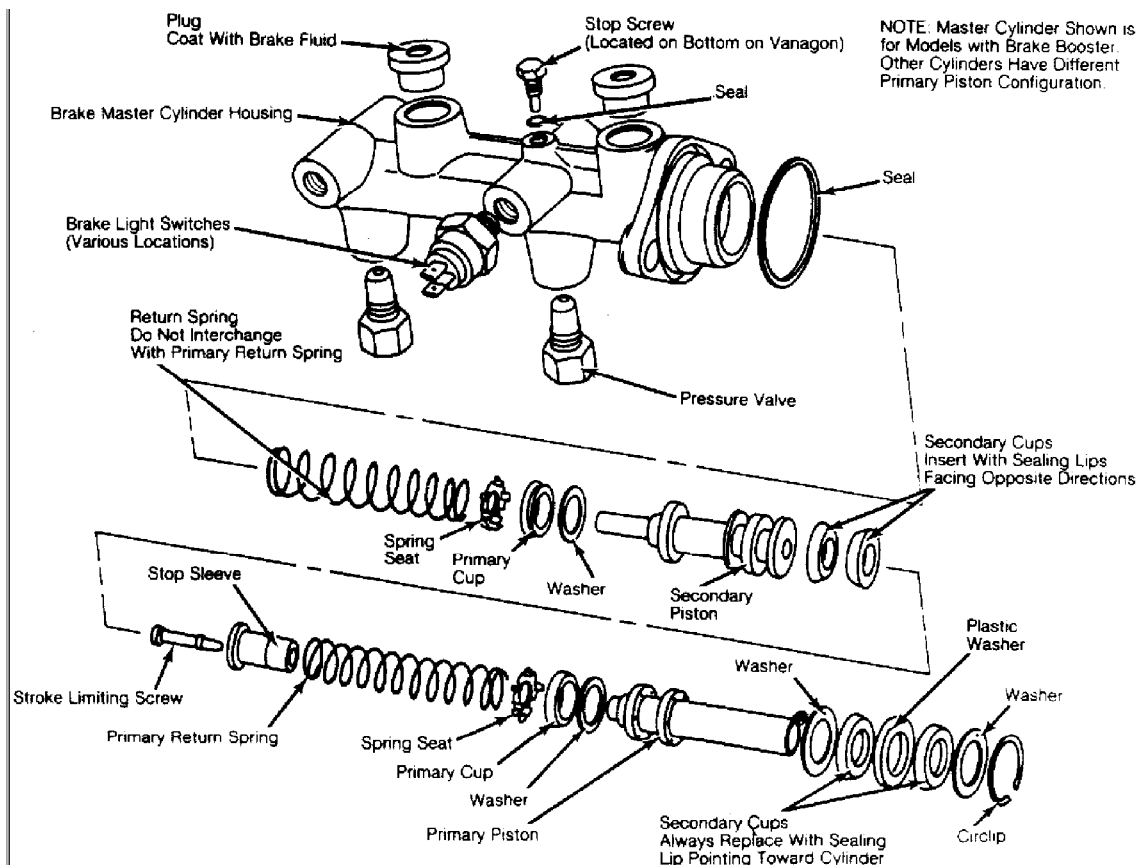


Fig. 7: Identifying Power Assist Master Cylinder Components
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TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AA

Application	Ft. Lbs. (N.m)
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Caliper Mounting Bolts (1)	26 (35)
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Pad Carrier Mounting Bolt	
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Front	92 (125)
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Rear	48 (65)
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Rear Backing Plate-To-Flange Bolt	44 (60)
---	---------

Wheel Lug Nut	81 (110)
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INCH Lbs. (N.m)

Wheel Cylinder Bolt	80 (9)
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(1) - Always replace all self-locking bolts.

AA

DISC BRAKE SPECIFICATIONS

DISC BRAKE SPECIFICATIONS TABLE (1)

AA

Application	In. (mm)
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Front

Disc Diameter	10.079 (256)
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Original Thickness787 (20)
--------------------------	-----------

Wear Limit709 (18)
------------------	-----------

Rear

Original Thickness394 (10)
--------------------------	-----------

Wear Limit315 (8)
------------------	----------

(1) - Lateral runout is .002" (.05 mm).

AA

END OF ARTICLE