# AUDI FOX

Fox

## DESCRIPTION

Brake system is hydraulically operated using a tandem master cylinder and power brake unit. Front brakes are single piston, floating caliper disc; rear brakes are leading/trailing drum. A brake pressure regulator is mounted on right rear of body to prevent premature rear wheel lock-up. Parking brake is cable operated on rear brakes.

## ADJUSTMENT

### FRONT DISC BRAKE PADS

Front disc brakes are self-adjusting, therefore, no adjustment in service is required.

### REAR DRUM BRAKE SHOES

Rear brakes are self-adjusting, therefore, no adjustment in service is required.

### PARKING BRAKE

Raise and support vehicle on safety stands. Firmly depress brake pedal once. Set parking brake lever at second notch from fully released position. Tighten adjusting nut at compensator bar until both wheels can just be turned by hand. Release parking brake lever and ensure both wheels rotate freely.

### BRAKE WARNING LIGHT

A dual warning light is mounted on dash. Light should glow when hand brake lever is pulled one notch and go off when lever is fully released (ignition on). To check circuit warning sensor, release hand brake (ignition on) and ensure light is off. Open bleeder screw on one wheel and depress brake pedal; light should glow.

### PRESSURE REGULATOR VALVE

**1)** Regulator is located on right rear frame. Empty vehicle, fill fuel tank and load driver's seat to 165 lbs. (74.8 kg). Bounce rear of car several times and allow vehicle to settle normally. Firmly depress brake pedal and release quickly; regulator lever should have moved.

**2)** Measure distance from top of tire rim to lower edge of fender lip (both sides). If a hoist type lift is being used, install spring tensioners to hold vehicle in settled position.

**3)** Raise vehicle and check measurement; adjust if necessary. Connect 1500 psi (110 kg/cm$^2$) gauge to left front caliper and another to right rear wheel cylinder. Bleed gauges and depress brake pedal firmly several times.

**4)** Depress pedal until front gauge reads 710 psi (50 kg/cm$^2$); rear should read 441-498 psi (31-35 kg/cm$^2$). Increase pedal pressure until front gauge reads 1420 psi (100 kg/cm$^2$); rear should read 753-810 psi (53-57 kg/cm$^2$). Remove gauges and bleed brakes.

**5)** If pressures were consistently high at rear gauge; loosen regulator clamp bolt and REDUCE spring tension. If pressures were consistently low, INCREASE spring tension. If pressures can not be obtained after adjustment, replace regulator.

NOTE – *DO NOT adjust regulator with pressure applied to brake pedal.*

### HYDRAULIC SYSTEM BLEEDING

NOTE – *When bleeding brake system push lever on brake pressure regulator in direction of rear axle to relieve residual pressure.*

Fill master cylinder reservoir with brake fluid and maintain level throughout bleeding operation. Attach a hose to bleeder screw, and immerse opposite end in a container partially full of brake fluid. Open bleeder screw approximately one-half turn, depress brake pedal, close bleeder screw, and slowly return pedal. Continue operation until air bubbles are no longer seen in discharged fluid. Bleeding sequence is right-rear, left-rear, right-front, left-front.

## REMOVAL & INSTALLATION

### FRONT DISC BRAKE PADS

**Removal** – **1)** Remove small quantity of brake fluid from master cylinder reservoir. Raise and support vehicle on safety stands; remove front wheel. Using hand pressure, force caliper to slide outward (toward outer wheel bearing) to seat piston in cylinder.

**2)** Take an open end wrench and hold guide pin head while removing lower mounting bolt. See *Fig. 2*. Rotate caliper cylinder upward. Take out disc pads.

**Installation** – **1)** Clean area where pads rest. Make sure grommets on guide pins are not damaged. Guide pins must slide smoothly in housing. Install brake pads. Swing caliper housing down.

**2)** Make sure pads do not hit piston; force piston deeper into housing if necessary. Tighten lower mounting bolt. Depress brake pedal several times to seat pads against rotor.

### FRONT DISC BRAKE CALIPER

**Removal** – Raise and support vehicle. Remove wheel. Disconnect brake line from caliper and plug opening to prevent entry of dirt and foreign matter. Bend back locking tabs (if equipped) on mounting bolts. Remove caliper mounting bolts and take off caliper assembly.

**Installation** – Reverse removal procedure and bleed hydraulic system.

### FRONT DISC BRAKE ROTOR

**Removal** – With wheel and tire removed, remove caliper. DO NOT disconnect hydraulic line unless necessary. Remove screw securing rotor to wheel hub and remove rotor.

**Installation** – Reverse removal procedure and bleed hydraulic system if necessary.

## AUDI FOX (Cont.)

### REAR BRAKE DRUM

**Removal** – Raise and support vehicle. Before removing right drum, release spring pressure on pressure regulator. Remove one wheel bolt and push adjusting wedge upward with a screwdriver. Reinstall wheel bolt, remove wheel bearing hardware. Remove drum assembly without dropping thrust washer or outer bearing.

**Installation** – To install, reverse removal procedure and adjust wheel bearings. *See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.* Depress brake pedal firmly to set self-adjusting mechanism.

### REAR BRAKE SHOES

**Removal** – 1) With drum removed, remove hold down springs and pins. Remove brake shoes from anchor pins and remove return springs.

2) Disconnect parking brake cable from lever. Disconnect adjusting wedge spring and upper return spring. Remove brake shoes. Place adjuster strut and shoe in vise; remove tension spring. Separate shoe and components.

**Installation** – To install, reverse removal procedure and note: Lug on adjusting wedge faces backing plate. Adjust wheel bearings. *See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.* After installing drum, depress brake pedal firmly to set adjuster mechanism.

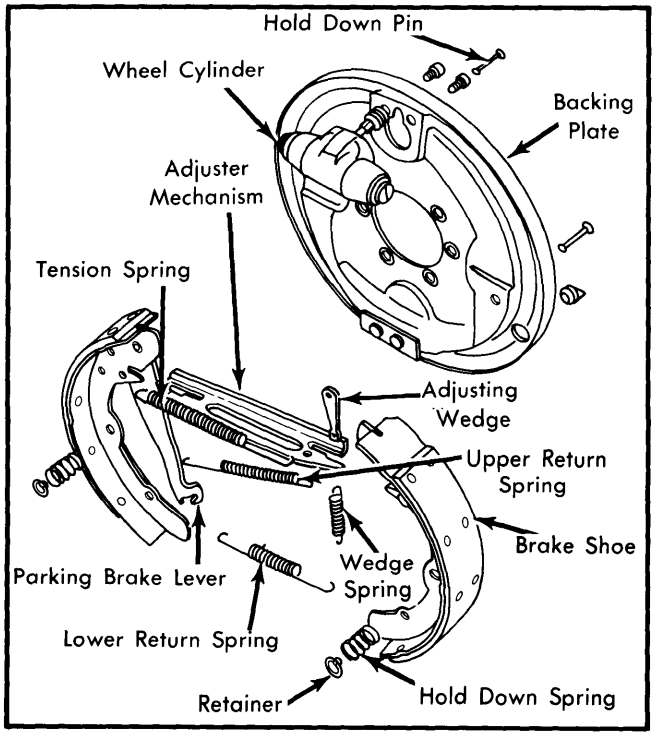


***Fig. 1 Exploded View of Rear Brake Assembly***

### REAR BRAKE WHEEL CYLINDER

**Removal & Installation** – With drum and shoes removed, remove hydraulic line from wheel cylinder and plug openings. Remove mounting bolts and wheel cylinder. To install, reverse removal procedure and bleed hydraulic system.

### MASTER CYLINDER

**Removal** – Siphon brake fluid from master cylinder reservoir. Disconnect hydraulic lines at cylinder, remove nuts attaching master cylinder to power unit, and remove master cylinder.

**Installation** – Reverse removal procedure and note the following: Make sure "O" ring is installed between master cylinder and power unit. After installing master cylinder, bleed hydraulic system.

### POWER BRAKE UNIT

**Function Test** – Depress and release brake pedal several times (engine off) to exhaust vacuum. Depress and hold pedal; start engine. Pedal should fall slightly and then hold. Replace booster assembly if check valve is operative and no defects or leaks are present in vacuum or hydraulic systems.

**Removal** – Remove master cylinder from power brake unit. Remove pin at brake pedal and disconnect operating rod. Remove mounting nuts from firewall. Disconnect vacuum line and remove power unit.

**Installation** – To install, reverse removal procedure and note the following: Replace filter at operating rod end.

NOTE – *Clevis and brake lever each have two holes. Install clevis pin only in holes nearest front of car.*

**Check Valve** – Large diameter side fits into power unit. To test, remove vacuum line and check valve. Blow into large diameter hole; valve should open. In the other direction, valve should close. Replace if defective.

## OVERHAUL

### FRONT DISC BRAKE CALIPER

**Disassembly** – 1) Remove caliper and clean outside surfaces. Remove both cylinder housing mounting bolts. Place a block of wood between piston and housing. Blow compressed air into cylinder housing to dislodge piston.

2) Remove dust seal. Using a plastic instrument, carefully dig piston seal from groove in cylinder housing.

**Cleaning & Inspection** – Clean all parts in alcohol only. Check cylinder bore and piston for wear or damage. Parts are serviced by replacement only. Boots, guide pins and other minor parts are only available with new pad carrier.

**Reassembly** – Coat piston, cylinder bore, and new seal with suitable brake paste. Fit seal into cylinder. Slide dust seal onto piston. Slowly insert piston into cylinder fitting inner lip of dust seal into cylinder housing groove. Fully seat piston into cylinder. Engage outer lip of dust seal into groove of piston.

## AUDI FOX (Cont.)

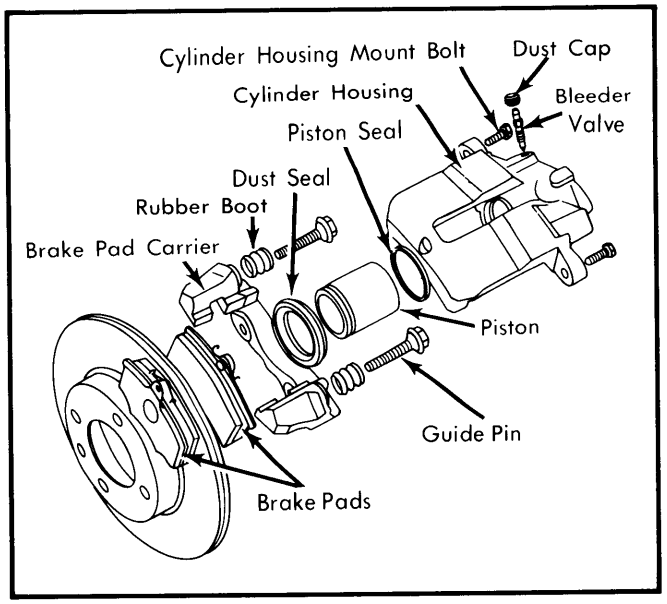


*Fig. 2 Audi Fox Disc Brake Caliper Assy.*

### REAR BRAKE WHEEL CYLINDER

**Disassembly** – Remove rubber dust caps, then withdraw front and rear piston and seal assemblies. Remove seals from pistons. Remove bleeder screw and dust cap.

**Cleaning & Inspection** – Clean all parts in alcohol only. Inspect cylinder and pistons for rust, corrosion or scoring; replace defective parts. Replace all rubber parts during overhaul.

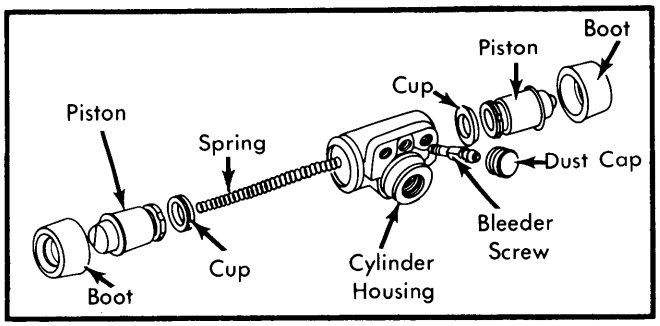


*Fig. 3 Exploded View of Rear Wheel Cylinder*

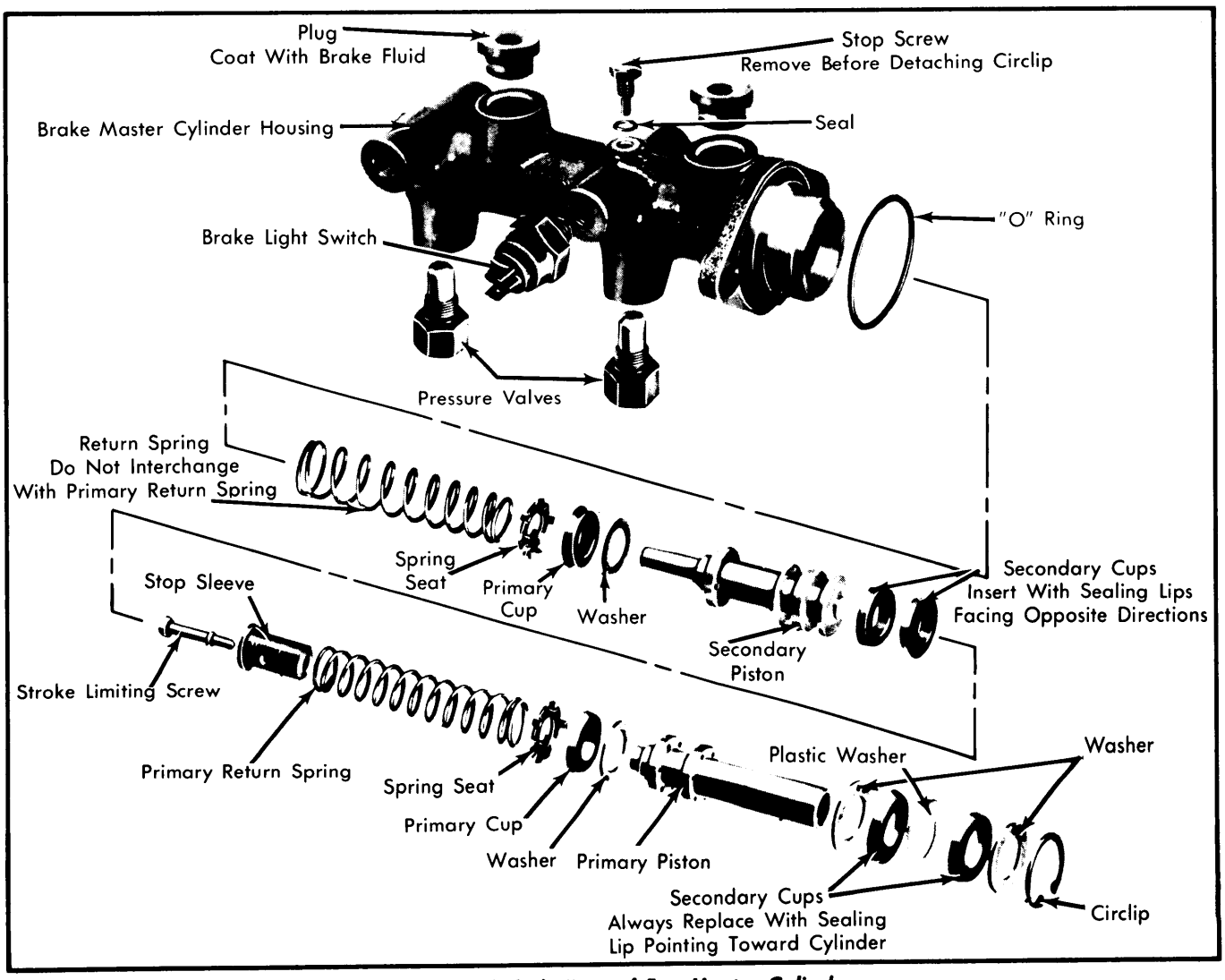


*Fig. 4 Exploded View of Fox Master Cylinder*

## AUDI FOX (Cont.)

**Reassembly** – Reverse disassembly procedure and note the following: Refer to *Fig. 3* for correct installation position of wheel cylinder pistons.

### MASTER CYLINDER

**Disassembly** – Remove "O" ring from master cylinder housing. Remove retaining ring and loosen piston stop screw, then remove both pistons from housing. Remove pressure valves and reservoir from master cylinder housing. Disassemble piston assemblies as necessary.

**Cleaning & Inspection** – Clean all parts in alcohol and check for rust, corrosion, or other damage; replace parts as necessary. Make sure compensating and filler holes are not plugged.

**Reassembly** – Reverse disassembly procedure and note the following: Make sure pressure and intermediate piston cups are installed correctly. See *Fig. 4*. Use new "O" ring on master cylinder between cylinder and power unit.

### POWER BRAKE UNIT

Manufacturer does not recommend overhaul of power brake unit. Replace as complete assembly if defective.

**TIGHTENING SPECIFICATIONS**

| Application | Ft. Lbs. (mkg) |
|---|---|
| Caliper Mounting Bolts | 43 (6.0) |
| Caliper-to-Support Bolt | 25 (3.5) |
| Master Cylinder-to-Booster | 9 (1.3) |
| Wheel Cylinder | 7 (1.0) |

**DISC BRAKE ROTOR SPECIFICATIONS**

| Application | Disc Diameter In. (mm) | Lateral Runout In. (mm) | Parallelism In. (mm) | Original Thickness In. (mm) | Minimum Refinish Thickness In. (mm) | Discard Thickness In. (mm) |
|---|---|---|---|---|---|---|
| Fox (Front) | ..... | .0023 (.06) | .0008 (.02) | .470 (12) | .413 (10.5) | .393 (10) |

**BRAKE DRUM SPECIFICATIONS**

| Application | Drum Diameter In. (mm) | Original Diameter In. (mm) | Maximum Refinish Diameter In. (mm) | Discard Diameter In. (mm) |
|---|---|---|---|---|
| Fox (Rear) | 7.87 (200) | 7.87 (200) | 7.89 (200.5) | 7.91 (201) |