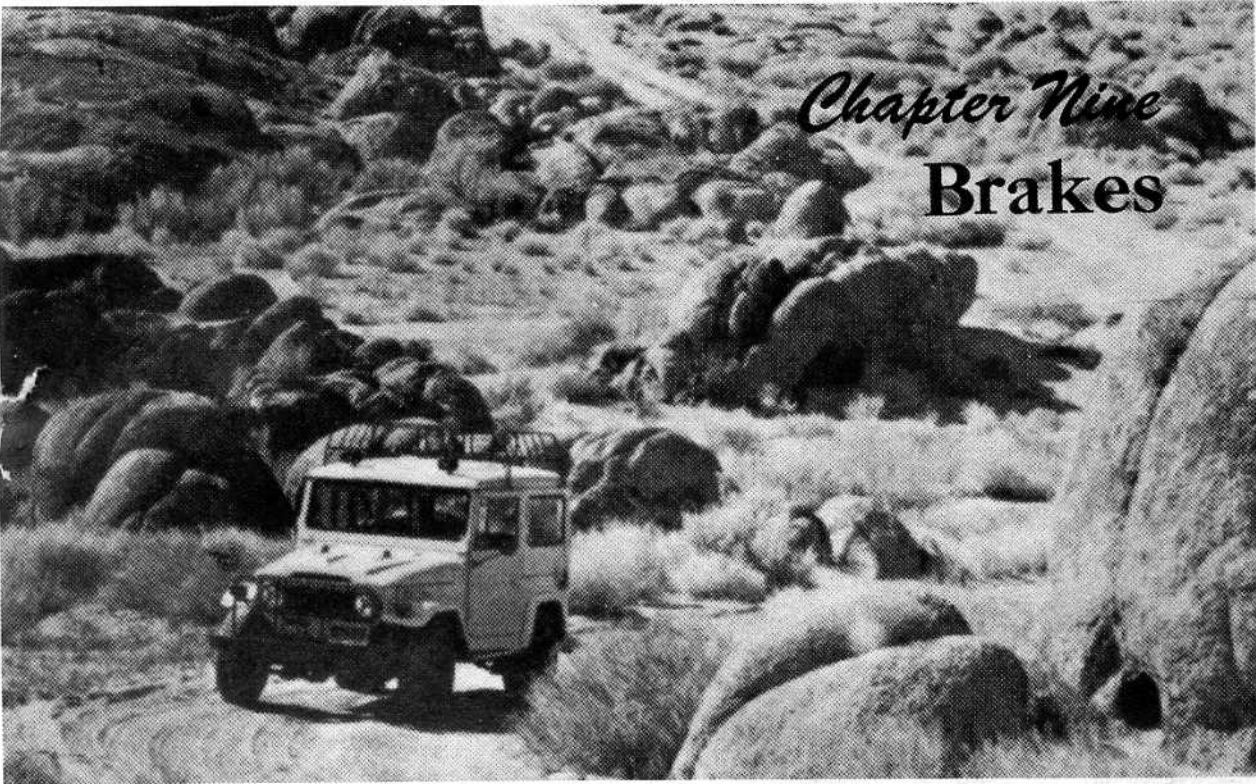


Chapter Nine Brakes



The brakes are internal expanding, hydraulically-operated type, actuated by means of a brake pedal connected to the brake master cylinder via a pushrod.

The front brakes are the two leading shoe type with two brake wheel cylinders on each wheel. The rear brakes are of the dual two leading shoe type with two brake wheel cylinders on each wheel. The front wheel cylinders have one piston; the rear wheel cylinders have two pistons.

A vacuum-operated brake booster is an option on the FJ 55 model.

The parking brake is a mechanical, internal expanding shoe type, mounted at the rear of the transmission. The parking brake exerts braking force on the drive-shaft through the driveline to the rear wheels.

Brake System

Adjustment

Brake shoe adjustment reestablishes the proper brake lining-to-drum clearance and compensates for lining wear. The brakes are adjusted by turning the adjusting nut located on the wheel cylinders' piston. The adjusting screws are

accessible through service holes located in the brake backing plate.

1. Raise the vehicle until the wheels to be adjusted are off the ground. Ideally, all four wheels should be raised off the ground at the same time. However, if the necessary equipment is not available, raise just the wheels on one axle or even one at a time.

2. Release the parking brake completely and make sure that the rear wheels turn freely.

3. Remove the adjusting screw access hole plug from the rear of the backing plate.

4. Expand the brake shoe by turning the wheel cylinder adjusting nut with a brake adjusting tool until the shoe is tight against the drum.

5. Pump the brake pedal a few times to make sure that the entire surface of the brake shoes contact the drum.

6. If the wheel still turns after releasing the brake pedal, turn the adjusting nut further until the wheel is locked completely.

7. Back off the adjusting nut five notches. If the shoe still drags lightly on the drum, back off an additional one or two notches. The wheel should rotate freely after performing the adjustment.

8. Perform the above adjustment for all of the brake shoes (two at each

wheel). Never adjust the shoes with the two adjusting nuts at the same time.

9. Lower the vehicle and road-test it, looking for maximum effectiveness and even straight-line braking.

Hydraulic System

MASTER CYLINDER

Removal and Installation

1. Disconnect the brake tubes from the master cylinder.

2. Disconnect the fluid pressure switch wires.

3. Remove the master cylinder from the vehicle by removing the four attaching bolts.

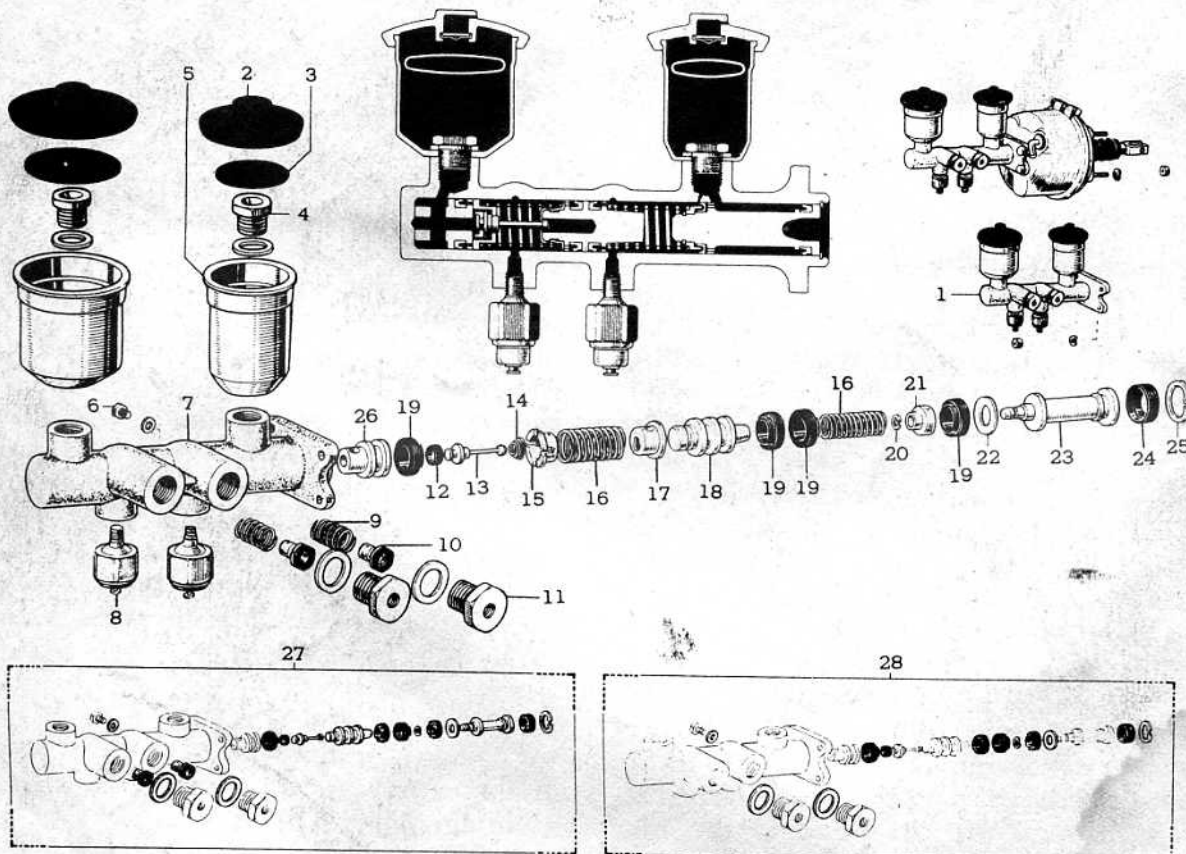
4. Install the master cylinder in the reverse order of removal and bleed the brake hydraulic system.

Overhaul

1. Remove the master cylinder from the vehicle.

2. Remove the fluid pressure switches.

3. Remove the snap-ring and take out the No. 1 piston and spring.



Exploded view of the tandem type brake master cylinder

- | | |
|---------------------------------------|---|
| 1. Tandem master cylinder subassembly | 15. Inlet valve case |
| 2. Reservoir filler cap | 16. Spring |
| 3. Reservoir float | 17. No. 2 piston return spring retainer |
| 4. Reservoir bolt | 18. No. 2 piston |
| 5. Master cylinder reservoir | 19. Cylinder cup |
| 6. Bolt | 20. Shaft snap link |
| 7. Master cylinder body | 21. Piston return spring retainer |
| 8. Oil pressure switch | 22. Piston cup spacer |
| 9. Spring | 23. No. 1 piston |
| 10. Outlet check valve | 24. Snap-ring |
| 11. Fluid outlet plug | 25. Master cylinder boot |
| 12. Inlet valve | 26. Inlet valve seat |
| 13. Inlet valve connecting rod | 27. Master cylinder kit |
| 14. Spring | 28. Master cylinder cup kit |

4. Loosen the bolt and take out the No. 2 piston and the inlet valve seat.

5. Remove the outlet plugs and take out the outlet check valves.

6. Disassemble the piston assembly by first prying up on the spring retainer lips and removing the piston. Next, remove the connecting rod from the retainer and remove the inlet valve. Then, remove the piston cap from the piston.

7. Inspect the cylinder bore and the piston for wear or damage. Light scoring can be removed with emery paper or crocus cloth soaked in brake fluid. Flush the parts with brake fluid after polishing them.

8. Wash all the parts to be assembled with clean brake fluid before assembling.

9. Assemble the inlet valve seat. Make sure that it is assembled in the correct direction.

10. Bend down the spring retainer lips.

11. Insert the inlet valve seat into the master cylinder bore.

12. Insert the No. 2 piston into the cylinder bore and install the stop bolt.

13. Insert the return spring into the master cylinder bore.

14. Install the No. 1 piston assembly into the bore and install the snap-ring.

15. Install the spring, outlet check valve, gasket and union bolt.

16. Install the fluid pressure switches.

17. Install the master cylinder reservoirs.

18. Install the master cylinder on the vehicle and bleed the brake hydraulic system.

soft mallet and remove the drum from the hub assembly. Back off the wheel cylinder adjusting nuts if the drum cannot be removed.

NOTE: *Never depress the brake pedal while the brake drum is removed.*

4. Install the brake drum in the reverse order of removal.

Inspection

1. Clean all dirt out of the drum and check for cracks, scores, roughness, deep grooves and out-of-roundness. If any of the above conditions exists, correct them or replace the brake drum, as efficiency of the operation of the brakes can be impaired and also premature failure of the brake linings can occur.

2. Smooth any slight scoring by polishing with fine emery cloth.

3. Deep, heavy, or extensive scoring must be removed by resurfacing the friction surface of the brake drum on a drum lathe. The refinished friction surface must be smooth and free from chatter and tool marks. The diameter of the brake drum is 11.42 in. with the serviceable limit being 11.54 in.

BRAKE SHOES

Inspection

1. Inspect the brake shoes, after removing the brake drum, for wear, deformation, rust and damage. Look for scores and excessive wear indicating the entrance of dirt, stones, or sand. If the brake shoes show signs of being scored by foreign material, then chances are that the brake drum is scored also. If the thickness of the brake lining is less than 0.16 in., replace the brake shoe assembly or have the lining replaced.

Front Drum Brakes

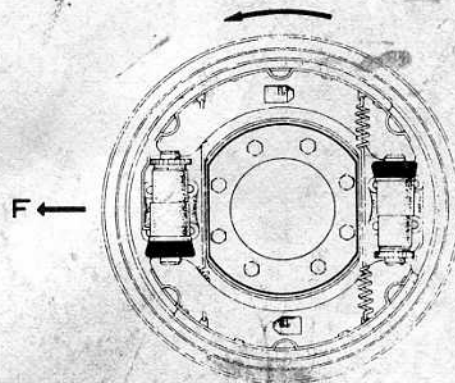
BRAKE DRUMS

Removal and Installation

1. Pry off the wheel cap and loosen the hub nuts.

2. Raise the front end of the vehicle and support the front axle housing with jackstands, then remove the front wheel.

3. Loosen and remove the brake drum set screws. Tap the drum lightly with a



Assembled view of the left front brake assembly

