BRAKES

SUPERDUPLEX BRAKE SYSTEM

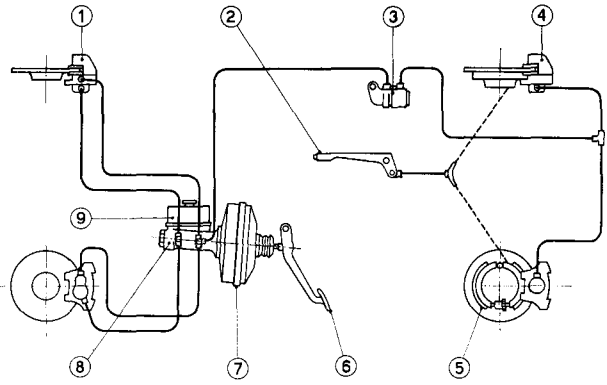

Fig. 25. - Superduplex brake system.

1. Front caliper - 2. Handbrake control lever - 3. Balance limiter - 4. Rear caliper - 5. Handbrake shoes - 6. Pedal - 7. Servo unit - 8. Master cylinder - 9. Fluid reservoir.

Superduplex Brake Circuits.

By depressing the brake pedal (6), pressure is exerted on a stem, which passing through the servo unit (7) operates the master cylinder (8). The servo unit boosts such pressure and reduces the load to be applied by the driver to brake the car.

The master cylinder (8) consists of two tandem arranged plungers, each one controlling an independent circuit.

The two circuits of the master cylinder (8) allow braking the car also when one of them has failed.

The brake fluid controlled by the master cylinder (8) actuates the caliper plungers (1-4) with displace the friction pads against the brake discs to brake the car.

Eeach front caliper friction pad is controlled by two plungers, having different diameters, whilst each rear caliper friction pad is operated through one plunger only.

The front caliper bigger plungers are controlled through the master cylinder front circuit.

The master cylinder rear circuit actuates both the front caliper smaller plungers (1) and the rear caliper plungers (4) and is called the mixed circuit.

In case of trouble to the front circuit, the braking is ensured on all the four wheels, as the mixed circuit controls both the front and rear friction pads.

In case of failure to the mixed circuit, fair braking action is ensured to the front wheels, owing to the bigger plungers.

The mixed circuit line to the rear calipers is fitted with the balance limiter (3) which sets the fluid pressure acting on the rear brakes according to the load bearing on the axle, in order to prevent locking to the rear wheels and skidding.

BRAKES MASTER CYLINDER

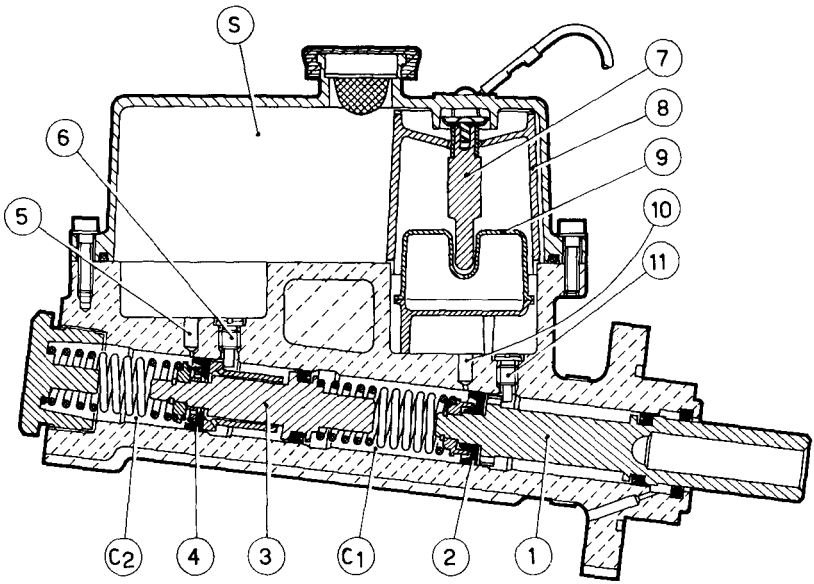

Fig. 27. - Master cylinder.

1. Rear plunger - 2. Rear plunger cup - 3. Front plunger - 4. Front plunger cup - 5. Front chamber inlet port - 6. Front plunger stop screw - 7. Low level warning light switch plunger - 8. Float guide - 9. Low level warning light switch float - 10. Rear chamber inlet port - 11. Rear plunger stop screw - C1. Rear chamber - C2. Front chamber - S. Brake fluid reservoir.

As previously mentioned, the master cylinder body consists of a single cylinder into which two tandem arranged plungers operate (1-3).

When master cylinder does not operate as shown in fig. 27, chambers (C1-C2) are both connected to brake fluid reservoir (S) throughout ports (5-10).

When brake servo unit protruding control rod acts upon plunger (1), this is shifted forward and the skirting of cup (2), fitted to its end, shuts off inlet port (10) connecting brake fluid reservoir (S) to chamber (C1).

Plunger (1) displacement increases the pressure in chamber (C1) and all along the system connected to.

This pressure acts upon one end of front plunger (3) and, by shifting it forward, shuts off brake fluid reservoir-to-chamber (C2) inlet port (5) at first, increasing the pressure in chamber (C2) and along its system immediately afterwards.

Should any fault to system connected to chamber (C1) occur (due to brake fluid loss or plunger cup (2) wear) with consequent lack of pressure in above mentioned chamber, plunger shall continue its motion till resting against rear end of front plunger (3) thus, emergency braking throughout system connected to chamber (C2) is granted.