

## Service Operations

## Bleeding Hydraulic Brake System

## Note:

It is necessary to bleed the entire hydraulic brake system whenever any hydraulic brake connection had to be disconnected for any reason (an exception to the above is the hydraulic fluid line connecting the fluid reservoir with brake master cylinder).

The brake system should be bled also when the brake pedal travel is too long or the braking action uneven.

If the hydraulic brake system has been completely drained for any reason (brake overhaul, etc.), it may have to be bled for the second time subsequent to a short test drive.

The pedal free travel will remain constant due to the automatic brake self-adjustment, providing that the brake system has been properly bled; pedal travel to the point of brake actuation is about 30 to 50 % of the total brake pedal travel. The pedal travel normally will be somewhat greater following the installation of new pads and until these are run in.

## Caution:

The hydraulic brake fluid will run out of the fluid reservoir, through the by-pass port in the brake master cylinder, when any hydraulic connection is detached. This may be avoided by propping the brake pedal in a slightly depressed position, thus bringing the piston cup past the compensating (by-pass) port.

## Bleeding Brakes without Filling and Bleeding Devices

Two persons are required for this operation. The procedure is always initiated at the farthest point from the brake master cylinder in the following order (applies to cars with left-hand drive):

1. Left rear wheel, outer bleeder valve, inner bleeder valve.
2. Right rear wheel, outer bleeder valve, inner bleeder valve.
3. Right front wheel, outer bleeder valve, inner bleeder valve.
4. Left front wheel, outer bleeder valve, inner bleeder valve.

## Note:

When the system has been drained, it must first be filled. Open bleeder valve by one-half turn, depress brake pedal, close bleeder valve, and release brake pedal. Repeat the above until brake fluid begins to come out through the bleeder hose, continuing on all bleeder valves in the above given sequence and performing the actual bleeding operation only after the primary filling has been accomplished.

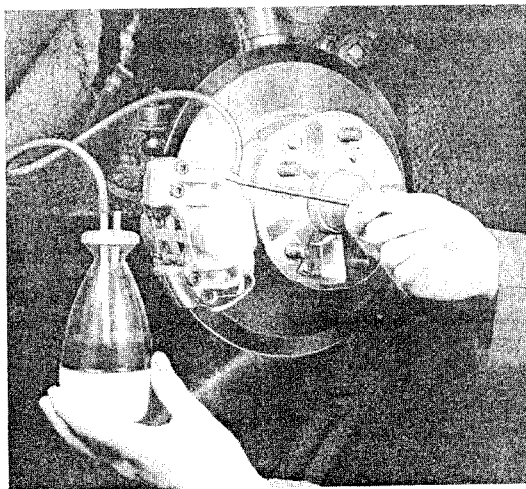


Fig. 6

## Bleeding the Brake System

1. Remove dust cap from bleeder valve and attach bleeder hose.
2. Place the free end of the bleeder hose into a glass container partly filled with brake fluid so that hose end is submerged.
3. Quickly pump the brake pedal several times until pressure can be felt. Holding the pedal down, open the bleeder valve by one-half turn and push the pedal all the way down. Do not release pedal pressure until the bleeder valve has been closed. This procedure is to be repeated until there are no more air bubbles in the brake fluid coming out of the bleeder hose.
4. Remove bleeder hose and replace dust cap.
5. Repeat the above procedure on the remaining bleeder valves by following the above given sequence. It should be ensured that the brake fluid reservoir does not run dry since this would allow more air to enter the system.