SECTION K

THE BRAKING SYSTEM

The Master Cylinder.

The master cylinder is mounted on the driver's side of the car underneath the cover over the gearbox.

Within the cylinder is a piston, backed by a rubber cup, normally held in the "off" position by a piston return spring. Immediately in front of the cup, when it is in the "off" position, is a compensating orifice connecting the cylinder with the fluid supply. This port allows free compensation for any expansion or contraction of the fluid, thus ensuring that the system is constantly filled; it also serves as a release for additional fluid drawn into the system during brake application. Pressure is applied to the piston by means of the push-rod attached to the brake pedal. The push-rod is adjustable and should have a slight clearance when the system is at rest to allow the piston to return fully against its stop. Without this clearance, the main cup will cover the by-pass port, causing pressure to build up within the system, and produce binding of the brakes on all wheels. The reduced skirt of the piston forms an annular space which is filled with fluid from the supply tank via the feed hole. Leakage of fluid from the open end of the cylinder is prevented by the secondary cup fitted to the flange end of the piston. On releasing the brake pedal, after application, the piston is returned quickly to its stop by the return spring, thus creating a vacuum in the cylinder; this vacuum causes the main cup to collapse and pass fluid through the small holes in the piston head from the annular space formed by the piston skirt. This additional fluid finds its way back to the reserve supply under the action of the brake return springs, when the system finally comes to rest, through the outlet valve and compensating orifice. If the compensating orifice is covered by the piston cup when the system is at rest, pressure will build up as a result of the brake application. The combination inlet and outlet check valve in the head of the cylinder is provided to allow the passage of fluid under pressure from the master piston into the pipe lines, and control its return into the cylinder, so that a small pressure of approximately 8 lb. per square inch is maintained in the pipe lines to ensure that the cups of the wheel cylinders are kept expanded; it also prevents fluid pumped out from the cylinder when bleeding the system from returning to the cylinder, thus ensuring a fresh charge being delivered at each stroke of the pedal.

Adjustment of the Brake Pedal.

The correct amount of free movement between the master cylinder push-rod and piston is set during erection of the vehicle, and should never need alteration.

In the event of the adjustment having been disturbed, adjust the effective length of the rod connecting the cylinder to the pedal until the pedal pad can be depressed approximately .50 before the piston begins to move. The clearance can be felt if the pedal is depressed by hand.

NOTE: Before making any alteration it is important to ensure that neither the floorboard nor the floor carpet obstruct the pedal and that the piston has not stuck in the cylinder bore. In either case a false impression will be given, even though the adjustment is correct.

Brake Shoe Adjustment.

When lining wear has reached a point where the pedal travels to within 1.00 of the floorboards before the brakes come into action, it is necessary to adjust the brake shoes.

The Front Brakes.

Jack up the wheel on which it is desired to set the brake.

Remove the front hub cap and road wheel and rotate the brake drum until both adjustment screws are visible through the holes provided in the face of the brake drum. With a screwdriver turn both screws as far as they will go in a clockwise direction until the drum is locked solid, then turn them semi-clockwise one notch only. The brake drum should then be free to rotate without the shoes rubbing, and the adjustment on this wheel is complete. The brake-shoes on the other front wheel must be adjusted by the same method.

The Rear Brakes.

The procedure is similar to that detailed for the front brakes except that there is only one adjuster, and this controls both shoes and the handbrake operation.

Dismantling the Master Cylinder.

Remove the filler cap and drain the Lockheed hydraulic brake fluid from the master cylinder. Remove the main feed pipe, union and copper washers.

Push the piston down the cylinder bore and remove the retaining circlip.

Remove the remaining internal parts, i.e., the piston, piston master cup, return spring, valve cup assembly and valve seating washer.

To remove the secondary cup from the piston, carefully stretch it over the end flange, using the fingers only.