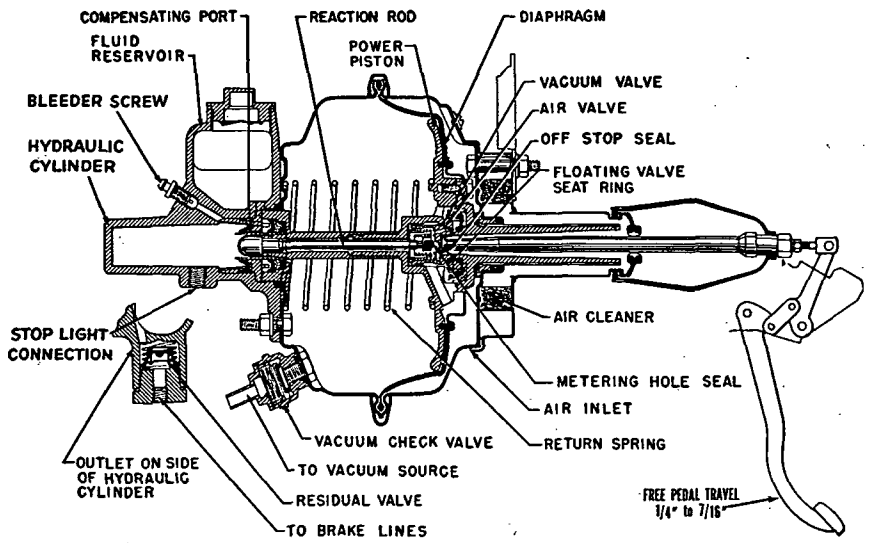

Figure 62

INTEGRAL — DIAPHRAGM TYPE

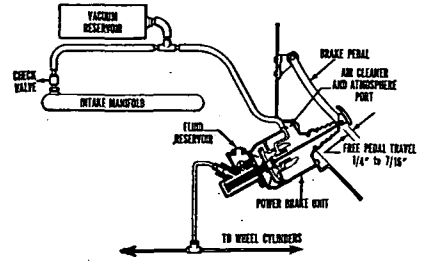

Figure 63

ing in loss of vacuum. Further power unit failure is compensated for by adequate by-pass ports in the power units to allow the brakes to be applied hydraulically.

Complete servicing details cannot be given here hence only important highlights and inspection are presented. Consult manufacturers' distributors for complete details of service and replacement.

Manufacturers of units in use on present cars and light trucks are as follows: Moraine, Bendix, Kelsey-Hayes, Midland and Borg-Warner.

Factory Installed Passenger Car Power Brakes

Buick	Kelsey-Hayes (cylinder type)
Cadillac	Bendix Hydrovac
Chevrolet	Bendix Treadle-Vac
Chrysler (except disc brake model)	Kelsey-Hayes Vacdraulic
De Soto	Kelsey-Hayes Vacdraulic
Dodge	Kelsey-Hayes Vacdraulic
Ford	Midland Hy-Power
Hudson	Bendix Treadle-Vac
Lincoln	Bendix Treadle-Vac
Mercury	Bendix Treadle-Vac
Nash (some models)	Bendix Treadle-Vac
Oldsmobile	Bendix Treadle-Vac
Packard	Bendix Treadle-Vac
Plymouth	Kelsey-Hayes Vacdraulic
Pontiac	Bendix Treadle-Vac

Note: Since power brake installations may be made in the field, it is possible that some types of cars may have units other than that listed above.

Testing and Adjusting Power Brakes

Road test by making brake application at 20 mph to see if car stops evenly and quickly. If brakes are spongy, bleeding of hydraulic lines is in order.

With engine stopped and transmission in neutral, apply brakes several times to remove all vacuum in system. Depress brake pedal, hold light foot pressure on pedal and start engine. If vacuum system is functioning properly, pedal will tend to fall away under foot pressure, and less pressure will be required to hold pedal in applied position. If no action is felt, vacuum system is not working. Stop engine and again remove all vacuum in system. Depress brake pedal and hold pressure on pedal. If pedal gradually falls away, hydraulic system is leaking.

There are no special adjustments for power brakes. Before investigating power system for trouble, check conventional hydraulic brake system for usual sources of trouble. However, at same time as conventional braking system is being checked, make following inspections on power system. Check vacuum lines and connections between intake manifold, check valve, vacuum reserve tank (Fig. 63) and vacuum power cylinder for possible vacuum leaks. Check fluid in master cylinder reservoir; level should be ½ in. from top of filler plug opening. Check condition of air cleaner hair and insert clean hair if necessary. Check mechanical connections between foot pedal and power unit. Use only recommended brake fluid for refill.

Observe brake pedal height when brakes are fully applied and engine is running. If clearance between pedal pad and floor is less than one inch, adjust shoe-drum clearance to proper setting.

Spring and fall, or at least every 10,000 mi., remove intake manifold tee connector (vacuum supply) and clean. This connector tends to "coke up" and restrict vacuum line if not cleaned periodically.

Brake troubles especially peculiar to power brake system are as follows:

Bleeding Power Brakes

The bleeding of the integral type is the same as conventional hydraulic system. Bleeding of auxiliary system differs in that the slave cylinder must be bled first, then the wheel cylinders. (See Figs. 59 and 60 for location of bleeder point, some have one, others two as shown.)

Pedal Almost Goes To Floor: (1) Fluid reservoir needs replenishing; (2) Power brake hydraulic leakage due to compensating valve leak, hydraulic plunger seal leak, compensating port or output port fitting seal leak, leaks at wheel cylinders or in pipes and connections.

Brakes Fail To Release (Or Slow Release): (1) Bound up brake pedal mechanism; (2) Power brake unit trouble due to faulty residual check valve, excessive hydraulic plunger seal friction, faulty compensating port, excessive piston packing friction, restricted air passage, piston stroke interference, sticky sliding valve, broken piston return spring.

Hard Pedal: (1) Vacuum failure due to faulty vacuum check valve, collapsed vacuum hose, plugged vacuum fittings; (2) Bound up pedal mechanism; (3) Power brake unit trouble due to internal vacuum hose looseness or restriction, jammed sliding valve, vacuum leaks in unit caused by loose screws in piston plate or faulty packing and seals, broken reaction spring.

Grabby Brakes: Power brake unit valve trouble due to reaction diaphragm leakage of faulty rubber bumper pad, sticking sliding valve action, restricted diaphragm passage.