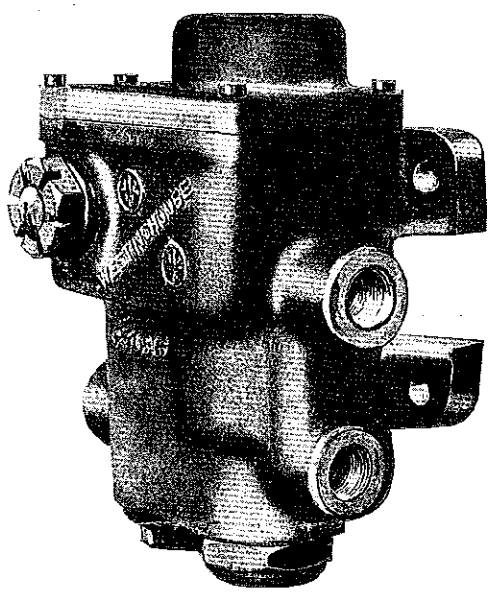
D.P. 34.
(4th Edition)

WESTINGHOUSE

DRIVER'S
CONTROL VALVE

FOR ROAD VEHICLE AIR BRAKES

(Fully protected by Letters Patent)



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D.P. 34.

DRIVER'S CONTROL VALVE

This valve is operated by the driver's brake pedal, to which it is usually connected by a rod. It controls the flow of air to the brake cylinders, and is arranged so that the driver can " feel " the amount of braking at all times, the pressure of air admitted to the cylinders being always in proportion to the pressure exerted by the driver on the pedal.

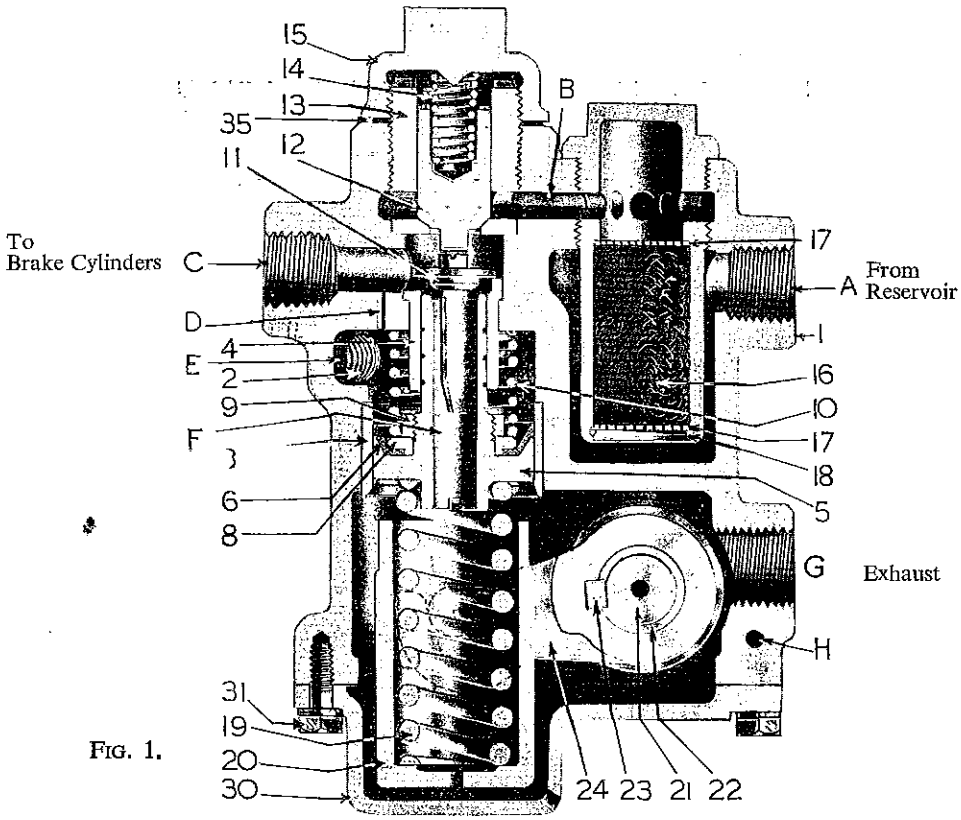


FIG. 1.

Numbers and Names of Parts

WHEN ORDERING REPAIR PARTS kindly quote D.P.34 and Ref. No. of part required.

Ref. No.	Name of Part.
1.	Body, includes 1 each of 2, 3, 4 and 2 of 1A.
1A.	Bushes for ditto.
2.	Plug, for lubricating.
3.	Piston bush.
4.	Piston guide bush.
5.	Piston complete, includes 6, 8 and 9.
6.	Piston packing. " Westcup."
8.	Piston packing washer.
9.	Piston packing nut.
10.	Piston spring.
11.	Exhaust valve.
12.	Inlet valve.
13.	Inlet valve seat.
14.	Inlet valve spring.
15.	Inlet valve cap.
16.	Strainer, complete with 17, 18 and hair.
17.	Strainer plates.
18.	Strainer plate retaining ring.
18A.	Hair.
19.	Main spring.
20.	Spring carrier.
21.	Spindle.
22.	Spindle sleeve.
23.	Key, $\frac{1}{4}'' \times \frac{3}{16}'' \times 1\frac{1}{2}''$.
24.	Forked lever.
25.	Operating lever.
26.	Operating lever keys (not shown).
27.	Operating lever spindle washer (not shown).
28.	$\frac{5}{8}''$ Whit. castle nut for 25.
28A.	Split pin for ditto, $\frac{3}{32}'' \times 1\frac{3}{4}''$.
30.	Cover.
31.	$\frac{1}{4}'' \times \frac{5}{8}''$ B.S.F. set screw for ditto.
31A.	$\frac{1}{4}''$ washers for ditto.
32.	$\frac{3}{8}'' \times 1\frac{1}{2}''$ adjusting screw for operating lever.
33.	$\frac{3}{8}''$ B.S.F. lock nuts for 32.
35.	Copper asbestos washer for 15.

OPERATION

Application.—Air from the reservoir enters at A and passes through the strainer 16 and passage B to the top side of inlet valve 12, which is closed by the action of spring 14 and the air pressure above it.

When the foot pedal is depressed the spindle 21 is turned by means of the external lever 25, Fig. 2, and the forked lever 24 moves upwards, carrying with it spring carrier 20, thereby compressing spring 19. This spring forces piston 5 up against the effort of the release spring 10. The upper end of the hollow piston stem which forms the exhaust valve seat is pressed against exhaust valve 11, thus closing it. Further movement of the piston brings the top of the exhaust valve 11 into contact with inlet valve 12, which is thereby opened. Air from chamber B flows through inlet valve 12 into chamber C, which is connected to the brake cylinders. Air also flows from chamber C through the small hole D, and thence to chamber E above the piston. The pressure in this chamber builds up slowly until it is sufficient to overcome the force due to spring 19, when the piston moves downwards, allowing inlet valve 12 to close, and the brake is then held applied. Additional pressure on the pedal increases the pressure on spring 19, forcing up piston 5, and the cycle of action is repeated.

Release.—To release the brake partially, the pressure on the pedal is diminished, thus reducing the compression on spring 19. The pressure of air above piston 5 overcomes the force of spring 19, and the piston moves downwards, opening exhaust valve 11 and allowing air to escape from the brake cylinders to atmosphere through passage F and boss G. Since pressure in chamber E is now greater than that in chamber C, air flows from chamber E through the small hole D into chamber C and thence to atmosphere, until the force of spring 19 is again sufficient to overcome the pressure above piston 5, when the exhaust valve is closed. The inlet valve 12 remains closed during this operation.

To release the brake completely, the foot pressure is removed from the pedal; pressure is relieved from spring 19, allowing piston 5 to move downwards to the full extent of its travel, thus opening exhaust valve 11 and allowing all air in the brake cylinders to escape to atmosphere.

TYPES

A series of driver's control valves is available, having various types of fixing and of control lever. A range of these is shown in Figs. 2 (below) and 3 to 11 (page 4), so that users may select the one best suited to their requirements.

MAINTENANCE

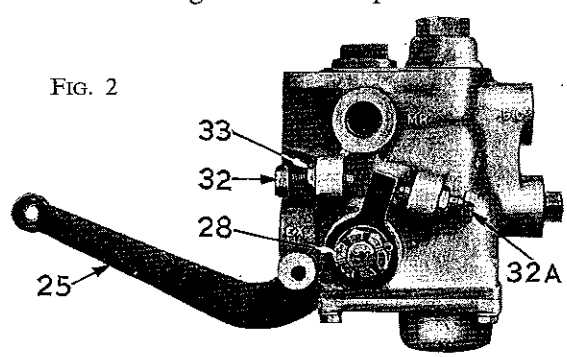
The strainer should be cleaned at regular intervals. If at any time there is leakage, the valves should be removed and cleaned. Leakage through the exhaust, when the brakes are released, indicates that the inlet valve 12 is leaking; while if leakage occurs at the exhaust, when the brakes are applied, it is the exhaust valve 11 which is the cause.

Plug 2 should be removed occasionally and "Paragon" grease injected to lubricate the piston, and the spindle bearings should be greased regularly by means of the grease nipple, which communicates with passage H leading to the two bearings.

ADJUSTMENT

Two set screws 32 and 32A, Fig. 2, are provided for defining the correct position of the operating lever 25 when the brake is on or off. The maximum pressure obtainable in the brake cylinder is adjusted by means of the set screw 32, with which the stop comes into contact when the brake is fully applied. Greater brake cylinder pressure is obtained by unscrewing the set screw to allow of greater movement, and *vice versa*. The stop 32A, in the release position, should not require alteration. It is set so that the exhause valve is fully open to ensure quick release, but it is not so far open as to result in excessive movement before the brake begins to apply.

FIG. 2



DRIVER'S CONTROL VALVE *(contd.)*

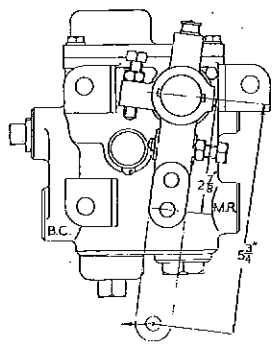


FIG. 3.

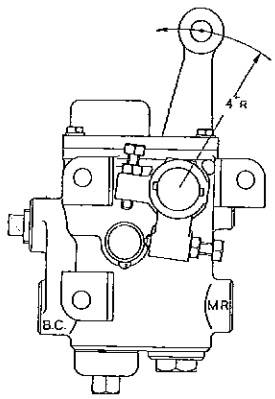


FIG. 4.

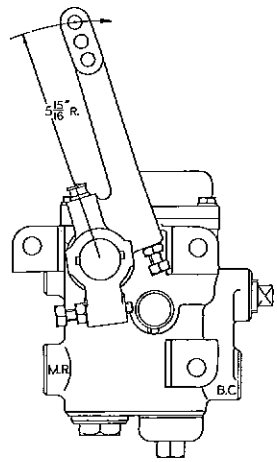


FIG. 5.

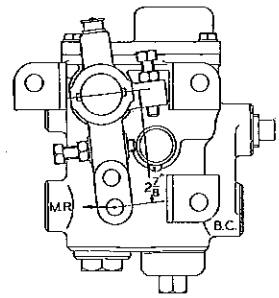


FIG. 6.

Typical range of control valves, showing various types of fixing and different types of control lever.

Fig. 4 . Fixing bracket is the same as for Fig. 3.

Fig. 6 . Fixing bracket is the same as for Fig. 5.

Figs. 8–11 . Fixing brackets are the same.

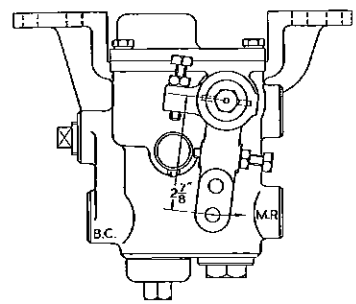


FIG. 7

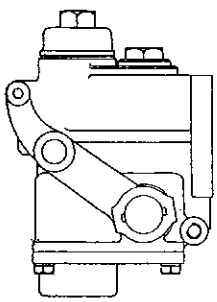


FIG. 8.

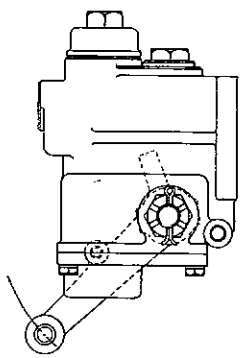


FIG. 9.

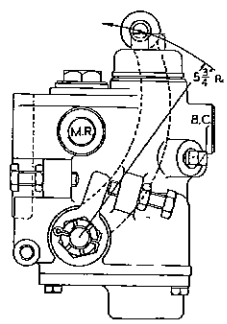


FIG. 10.

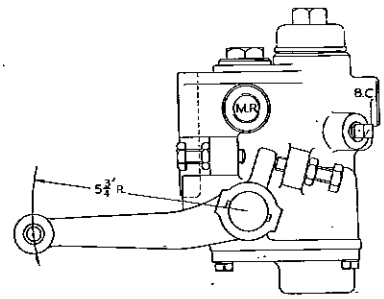


FIG. 11.

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