WESTINGHOUSE

AIR COMPRESSORS

FOR

AUTOMOBILE SERVICE.

THE WESTINGHOUSE BRAKE & SAXBY SIGNAL Co LTD.

82 YORK ROAD KING'S CROSS, LONDON, N.1.

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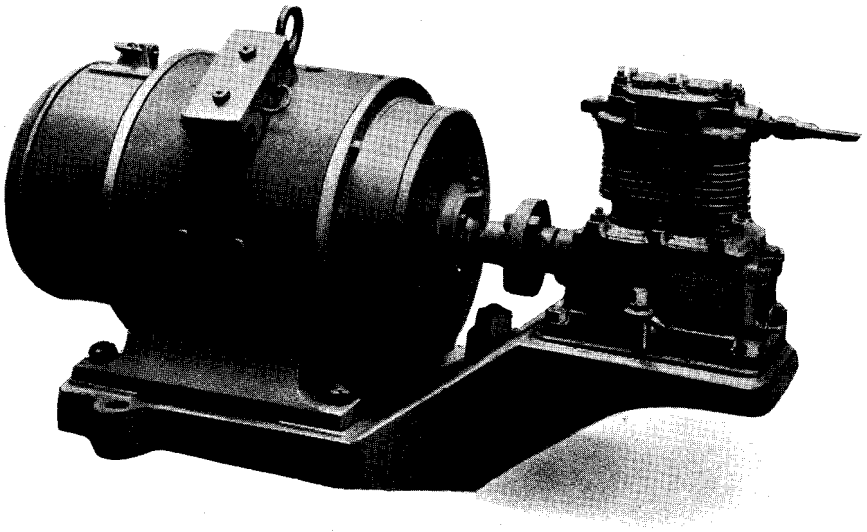


Type O.35 Compressor, coupled to ½ h.p. 500-volt Motor.
Suitable for Trolley Bus, etc.

AIR COMPRESSORS FOR AUTOMOBILE SERVICE.

The two compressors described herein have been designed for use on power driven road vehicles to supply air for operating the air brake system, as well as for auxiliary purposes such as inflating tyres, door operation, etc.

While primarily intended for service on vehicles driven by other forms of power, they are suitable also for installation on petrol driven vehicles when it is not desired to take the pressure necessary for operating the brakes from the engine cylinders.

Two sizes are available: Type O.35, having a displacement of about $1\frac{3}{4}$ cu. ft. (50 litres), and Type M.50, having a displacement of about $2\frac{3}{4}$ cu. ft. (80 litres), at the normal running speed of 700 to 800 revs. per minute, and against a normal pressure of 70 lbs. per square inch.

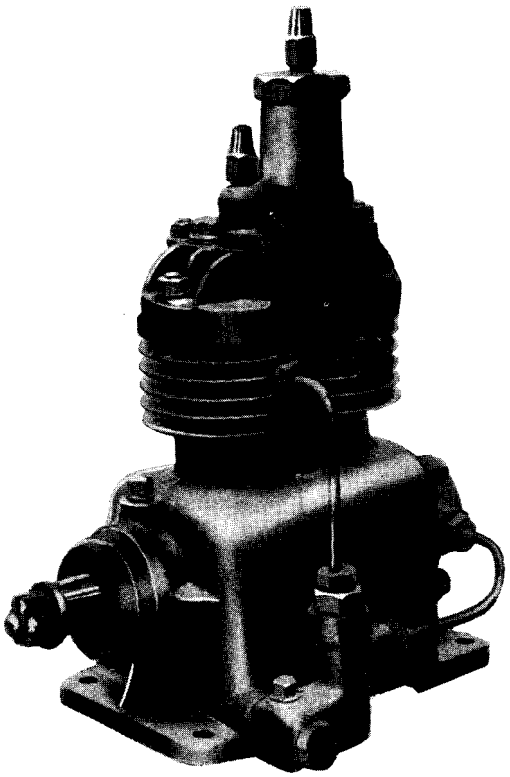
The compressors are compact, light, quiet running and very efficient, requiring very little power to run them—0.5 H.P. and 0.75 H.P. respectively.

They are of the vertical type, with single acting twin cylinders; and as they operate at a high speed, can be driven from one of the auxiliary shafts of the engine by means of a belt, chain or gears, or by direct coupling to an electric motor.

They are constructed throughout from the best materials by first class workmanship, ensuring reliability and long life under the hardest working conditions.

AIR COMPRESSOR TYPE M. 50.

Piston displacement at 700-800 r.p.m., **2¾ cu. ft. (80 litres).**

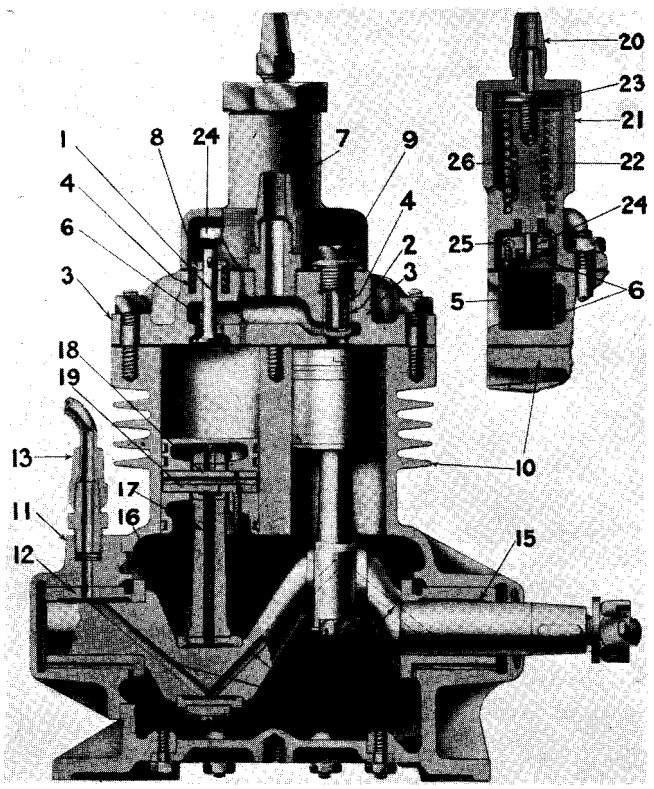


This compressor has automatic inlet (1) and delivery valves (2) of the poppet type, one pair for each cylinder, located in the cylinder head (3). The valves are assisted in their action by light springs (4).

A suction strainer (5), consisting of a perforated plate containing a quantity of curled hair, is fitted across the passage (6) through which the air flows to the inlet valves, ensuring that clean air is sucked into the cylinders.

The cylinder head, which covers both cylinders and contains, as previously stated, all the valve gear, is cast in two pieces, the whole being held down by seven studs and nuts. By removing three of these nuts the top casting, which also forms the base of the pressure regulator (7) described later, can be lifted off, giving access to the washers (8) and springs of the inlet valves, and to the suction strainer (5). Access to the delivery valves (2) is had by unscrewing the two cap nuts (9) in the main cylinder head casting.

The cylinder body (10), which has radiating fins, is cast in one piece with the crank case, to one end of which is fitted a detachable cap (11) carrying one of the main bearing bushes (12) and an inlet connection (13) for the oiling system.



A small automatic pump, described on page 7, is so connected that oil is drawn from the sump in the crank case, and forced by pressure to the main bearing (12), whence it flows through the drilled crank webs (14) to the further main bearing (15), outlets being provided on the way to the big end bearings (16) of the connecting rods (17). The connecting rods are themselves drilled to convey the oil, still under pressure, up to the small end bearings (18), and thence to the cylinder walls through the drilled gudgeon pins (19).

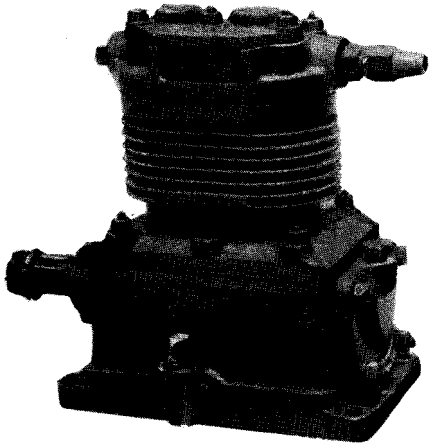
A drain plug is fitted on the side of the crank case opposite to the oil pump. This should be removed regularly to allow the old oil to be drained out. The compressor should then be thoroughly rinsed out with petrol, before refilling with clean oil. Best quality cylinder oil only should be used.

The pressure regulator is bolted direct on to the cylinder head, and is provided with a connection (20) at the top, for a pipe from the main reservoir. The body (21) of the regulator is cylindrical and contains a spring-supported piston (22) with expanding leather (23). When the pressure in the reservoir rises above a predetermined value, the piston is forced down against the action of the spring (26), and depresses the end of a lever (24), pivoted on pin (25) in the air inlet passage (6), the further end of the lever being pressed on to the top end of the inlet valve stem, so that this valve is held open and all the air inhaled is pushed out again through the inlet port instead of being compressed.

The weight of the compressor, including the pressure regulator and oil pump, is approximately 30 lbs. (13.6 kgs.), and the overall dimensions are $13\frac{3}{4}$" high (350 mm.), $8\frac{3}{4}$" long (228 mm.) (excluding projecting crank shaft), and $6\frac{1}{2}$" wide (165 mm.).

AIR COMPRESSOR TYPE O. 35.

Piston displacement at 700-800 r.p.m., **1¾ cu. ft. (50 litres).**



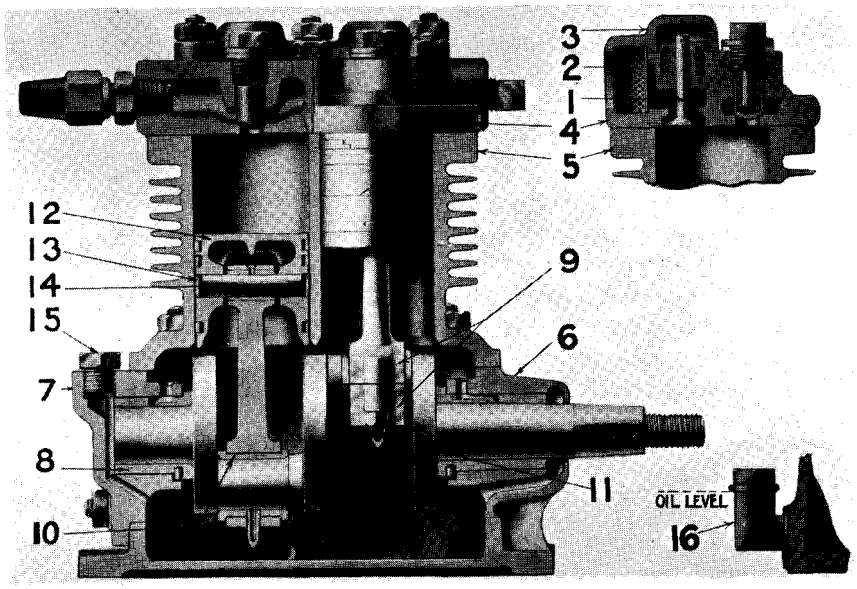
This compressor is similar in many respects to the type M. 50, but is not fitted with the pressure regulator or the automatic oil pump.

It has the same arrangement of inlet and delivery valves, the two inlet valves (1) and the suction strainer (2) being covered by a separate casting (3) on the cylinder head (4).

The cylinders (5) are cast in one block, and have radiating fins for cooling, but in this case form a separate casting, being bolted to the crank case (6) by means of six studs and nuts. The crank case is also in one piece, with the exception of the end plate (7), which is detachable and carries one of the crank end-bearing bushes (8), and an oil filling plug (15).

The connecting rod big ends (9) and their bushes (10) are split, with oil scoops (11) screwed into the lower halves to provide adequate lubrication of the big end bearings. Care should be taken to see that the compressor, when installed, is arranged to rotate in the correct direction, as indicated by the arrow on the crank case cap (7), otherwise these oil scoops will be inoperative.

The pistons (12) each have four rings, the third from the top (13) being wider and covering the ends of the gudgeon pins (14), keeping them in place. The oil splashed up into the inside of the pistons is deflected and carried by webs to points over the holes in the small ends of the connecting rods, so that proper lubrication of the gudgeon pin bearings is ensured.

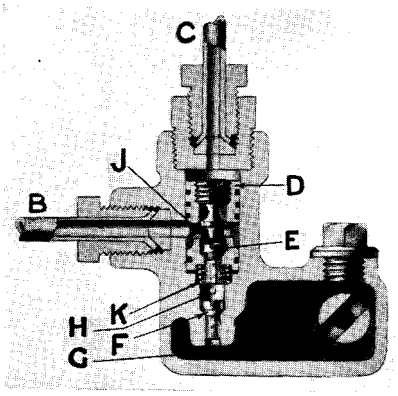


All bearings are splash lubricated, and the oil should be inserted through the plug (15) in the top of the crank case end cap (7). Two drain plugs are also fitted, one on each side of the crank case; and one of these is so constructed that it serves as an oil level indicator (16).

The crank case should be drained regularly by removing the drain plug, and cleaned and rinsed out with petrol before refilling with clean oil. Best grade cylinder oil only should be used.

The weight of the compressor is approximately 13 lbs. (6 kgs.), and the overall dimensions are $7\frac{3}{4}$" (195 mm.) high, 4 in. (100 mm.) wide (excluding drain plug and oil level indicator), and $6\frac{5}{8}$" (167 mm.) long (excluding projecting crank shaft.)

OIL PUMP FOR M. 50 COMPRESSOR.



This has three connections, the one at A being a passage from the oil sump in the crank case, B being the delivery pipe for oil under pressure, while C is a pipe from one of the air cylinders. This latter pipe is so connected with the air cylinder that pressure is transmitted during a period in the upward movement of the compressor piston, and suction during the downward stroke. This causes the piston D of the pump to be moved up and down, being assisted in the upward movement by spring K. On the upward movement, the small valve E in piston D automatically closes, owing to the pressure of oil in pipe B. Valve F in body is therefore lifted, and oil from the bottom chamber G is drawn into chamber H. On the downward movement of the piston D, the valve F is closed by the pressure now exerted on the oil in chamber H, and the valve E is pushed open, the oil in chamber H being forced into chamber J in the piston D, and so out into the delivery pipe B.

Stops are provided to prevent valves E and F from being pushed too far off their seats.

The illustration on page 4 shows one of these pumps fitted to a type M. 50 compressor.