

Scavenging Air Pump.

The scavenging air pump is secured to the foremost end-frame of the engine and is driven direct from the crankshaft. The scavenging air pump consists of a cylinder, divided by the partition 1. This gives two double-acting pumps, one above and one below the partition 1, which supply the cylinders with scavenging air. The piston 2 operates in the top cylinder, and the piston 3 in the bottom cylinder.

The piston 2 is secured to the piston rod 4. The latter is guided in the whitemetal guide in the top cover 5, the partition 1 and the bottom cover 6. The piston rod is connected to the crankshaft 9 through the crosshead 7 and the connecting rod 8.

The piston 3 has a whitemetal guide through which the piston rod 4 passes. The piston 3 is secured to two piston rods 10 which are guided in whitemetal guides in the bottom cover 6 in a similar way as the piston rod 4, and these two piston rods are also connected to the crankshaft 9 through the crossheads and connecting rods 11. The guides for the three crossheads are cast together with the bottom cover 6.

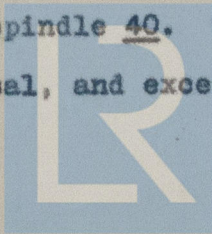
The cylinder is built up of three parts, the upper part 12, the centre part 13, and the lower part 14. On the sides the necessary valve boxes for delivery and suction valves are cast. All delivery chambers above and below the delivery valves are connected by a common delivery duct, and all suction chambers above and below the suction valves are connected with each other in the same manner.

Air is drawn in through the silencer 45 to the holes A-B-C. The air is drawn in through the suction valves 16 to the suction chambers in the cylinder and is delivered through the delivery valves to the common discharge duct D and further to the scavenging air receiver. The partition is fitted in the centre cylinder section, to which it is secured by the cylindrical pins 17 and the screws 18.

Suction and delivery valves are of the disc type and are exactly alike. All valves are guided. The drive from the crankshaft to the camshafts 19 with cams 20 and 21 is arranged in the following manner. The gearwheel 22 is keyed onto the crankshaft, in engagement with the gearwheel 23. The latter is fitted loose on the eccentric shaft 24, and the power is transmitted to the eccentric shaft through the coupling 25, of which one half is fitted to the gearwheel 23 and the other half to the coupling boss 26 which is keyed onto the eccentric shaft. The eccentric rods will produce the necessary rocking motion through the rocking levers 28 and 29, connected by the pushrods 30 and 31 respectively.

The reversal is carried out in similar manner as the reversal of the engine. When the change-over valve for the brake cylinder (see Reversal of Engine) admits the air to the brake cylinder, air will simultaneously be admitted to the brake cylinder 32 and air cylinders 39 fitted at all suction valves. The roller 36 is thrust down against the brake disc 37 by the pushrod 33, the rocking levers 34 and 35. The brake disc 37 is secured to the coupling boss 26, and thus it prevents the eccentric shaft from moving, until the coupling half 25 on the gearwheel 23 has undergone the necessary turning and is again in engagement with the coupling half 25 on the coupling boss 26. The locking mechanism 38 is, furthermore, incorporated in the gearwheel 23. This mechanism acts in a similar manner as that of the engine, inasmuch as it prevents the coupling from rattling during running.

When air is supplied to the air cylinder 39, the piston with spindle 40 will move a certain distance "X" outwards, whereby the rocking lever 41 is prevented from reaching its end position as it will strike against the spindle 40. The suction valves are thereby kept open during reversal, and excess pressure in the cylinders prevented.



Lubrication of Scavenging Air Pump.

Connecting rod bearings and guide are lubricated through the crankshaft from the forced lubrication system of the engine. All outer bearings, rollers and guides for valves are lubricated from the wick feed lubricating cups 42 and 43. The inner guides are lubricated from the lubricator 44. The lubricating oil, group No. 2 is used (see list of oils).

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W175-0196(313)