EXHAUSTER-6·247 ENGINE

Description

The exhauster is a rotary sliding vane pump, with an eccentrically mounted rotor. The unit is mounted on two adjustable brackets on the right hand side of the engine and is belt driven from the engine crankshaft pulley.

The unit comprises a cast-iron body and end cover containing an eccentrically-mounted steel rotor which has four equi-spaced slots to accommodate fibre type blades. The rotor shaft runs in a sintered-bronze plain bearing pressed into the body. An oil seal is fitted to prevent oil leaking from the exhauster and to prevent dirt from entering, the seal, is pressed into the body. A passage in the body, between the seal cavity and the discharge port, relieves oil pressure on the seal. The rotor shaft drive-end is tapered and fitted with a key, washer and locknut to secure the pulley on the shaft and to transmit the drive.

The unit has an oil check valve screwed into the inlet port to prevent oil from passing into the vacuum pipe and reservoir during operation.

Lubrication is by engine pressure feed, oil entering through a connection in the body and passing to an annular groove in the plain bearing. The oil passes through holes in the bearing to oilways in the rotor shaft communicating with the slots in the rotor. Surplus oil returns through the discharge port to the engine crankcase.

Operation

At all speeds, the rotor blades are kept in contact with the bore of the body by centrifugal force, assisted by the hydraulic action of the oil beneath the blades. When the rotor turns, the spaces between the blades vary because of the eccentric mounting of the rotor in the exhauster body. As a blade passes the inlet port, the space between it and the following blade increases and air is drawn from the vacuum reservoir. Further rotation decreases the space and the air is then compressed until the blade passes the discharge port when the air, together with any surplus lubricating oil, is discharged to the engine crankcase.

To Remove

Disconnect the battery.

Open and secure bonnet.

Remove the air intake trunking.

Slacken off the pulley locknut.

Disconnect the oil feed pipe and vacuum pipe at the exhauster. Blank off pipes.

Remove the two adjustment bolts, washers, nuts and spacers. Disengage the belt, tilt the exhauster and disconnect the delivery pipe. Blank off pipe. Remove exhauster assembly.

Remove locknut and washer securing pulley, remove pulley and collect key.

Remove nuts and washers securing mounting plates to exhauster. Remove two mounting plates.

To Dismantle

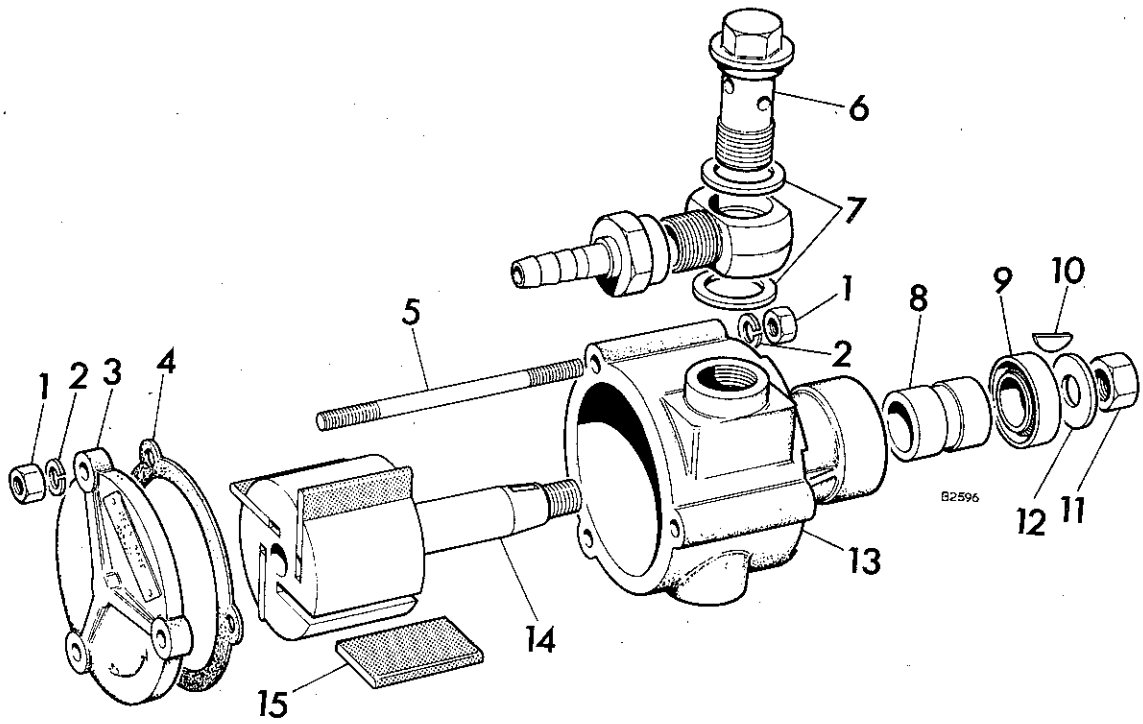
Remove dirt and grease from the exterior of the exhauster and clean with solvent and brush.

Mark the end cover in relation to the body to ensure correct location on re-assembly.

Unscrew the nuts securing the end cover to the body and remove the spring washers, cover, joint and studs.

Mark the rotor blades in relation to the rotor and withdraw the rotor and blades from the body.

Unscrew the oil check valve and remove the copper washer.



1.	NUT	6.	OIL CHECK VALVE ASSEMBLY	11.	NUT
2.	SPRING WASHER	7.	COPPER WASHER	12.	WASHER
3.	END COVER	8.	PLAIN BEARING	13.	BODY
4.	JOINT	9.	OIL SEAL	14.	ROTOR
5.	STUD	10.	DRIVE KEY	15.	ROTOR BLADE

Fig. 1 *Exhauster details*

Inspection and Overhaul

Wash all parts in cleaning solvent and blow dry with compressed air. Clear the oilways in the rotor and body with compressed air.

Examine the body for cracks and damage and the bore for longitudinal ripples or lines. If these are only slight the body is still serviceable; if excessive, the body should be renewed. Check that the threads in the inlet, oil supply and air/oil discharge ports are in good condition.

Inspect the end cover for cracks and damage.

The rotor shaft should be a good running fit in the plain bearing. If worn excessively, renew the bearing, taking care to align the oil feed hole.

Examine the rotor for damage. Inspect the rotor blades for wear and damage, and check that the blades are a good sliding fit in the rotor slots.

Carefully examine the oil seal, the sealing edge should be intact and sharp. If renewing, the seal lip is fitted facing the body and the rear of the seal flush with the body.

Examine the oil check valve for damage. If damaged or defective, the whole assembly should be renewed.

To Re-assemble

Lubricate all working parts with clean engine oil to prevent possible damage when the engine is started and until the oil supply is functioning.

Insert the rotor into the body taking care not to damage the oil seal. Hold the body, drive-end downwards, and insert the rotor blades into the rotor slots, making sure that they are located in their original positions. Check for freedom of movement.

Apply a suitable jointing compound to both faces of the joint, and position on the body. Fit the end cover in its original position, refit the studs, spring washers and nuts, tighten securely. Rotate the rotor to ensure it turns freely without binding. Check that the end float is a minimum of 0.089 mm (0.0035 in) and a maximum 0.16 mm (0.0063 in).

Screw the oil check valve, together with copper washer into the inlet port and tighten securely.

To Refit

Refitting is a reversal of the removal procedure.

Note: To assist the refitting of the adjustment bolt spacers slacken off the engine mounting plates.

Start the engine and check for oil leaks and operation of exhauster. Stop engine.