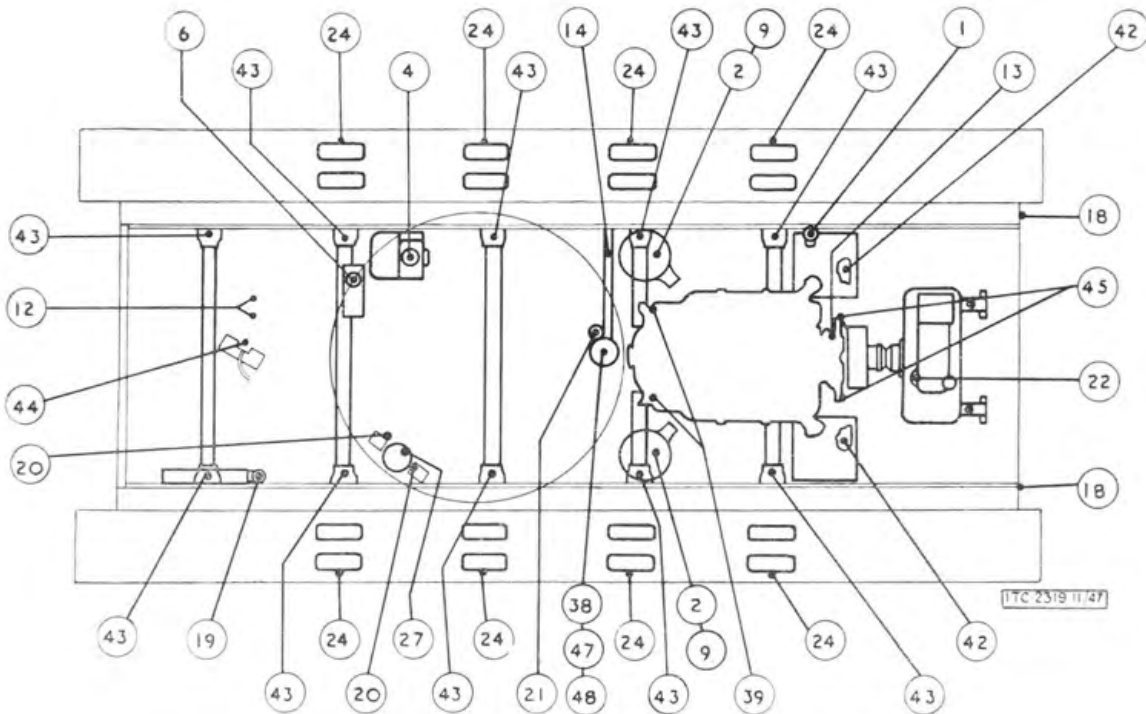
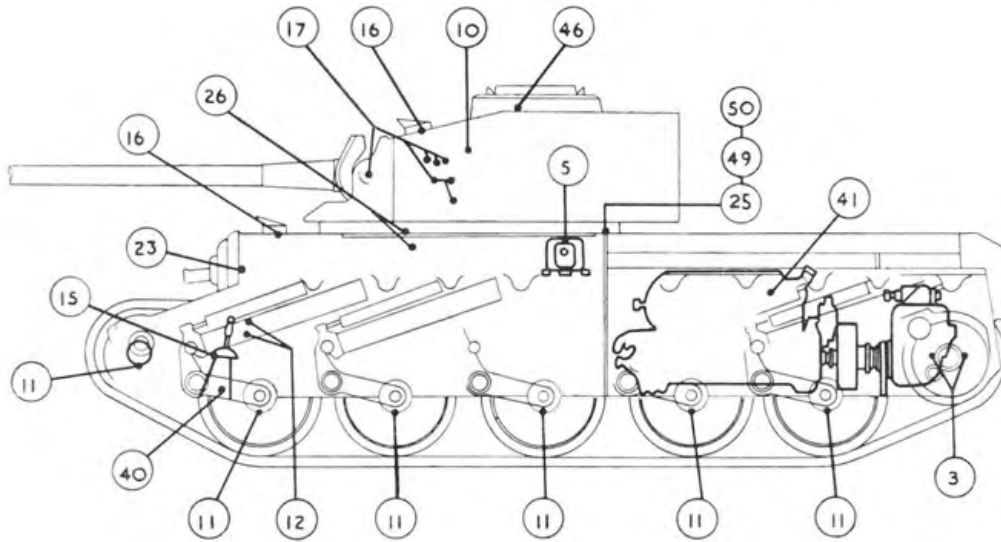


LUBRICATION CHART T.D.19979 E



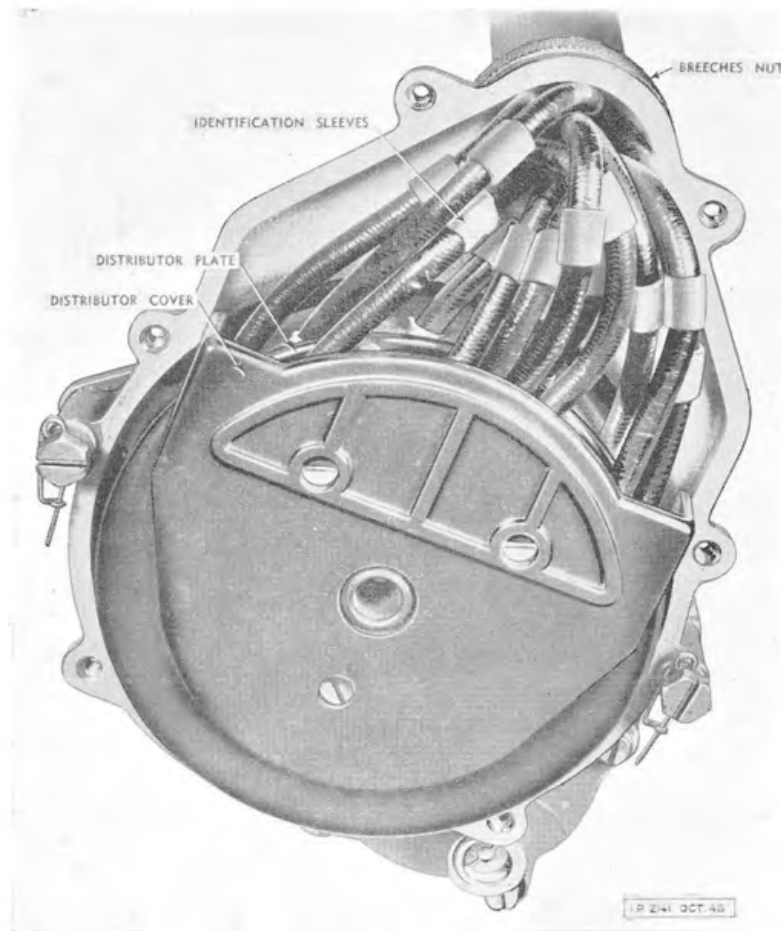


Fig. 25. Distributor screen

Detach the safety pins, unscrew the two screws securing the " B " (right-hand) side distributor cover, disconnect the four clips securing the exhaust harness to the cylinder blocks and remove the exhaust harness complete with its distributor cover.

Remove the screen cover from the screen, unscrew the three countersunk screws securing the distributor cover and remove the cover (Fig. 25).

Detach the exposed six leads from their segment cable pins, lift off the cover plate and detach the remaining six leads (Fig. 26).

Using strap wrench, Part No. Z3000, remove the ignition harness breeches knurled nut and withdraw the leads from the screen (Fig. 25).

REPLACEMENT

Enter the leads into the screen and, using wrench, Part No. Z3000, secure the ignition harness breeches to the screen by the knurled nut (Fig. 26).

Secure the upper six leads to the cable pins, replace the cover plate and secure the remaining leads to their appropriate pins (Fig. 25).

Secure the distributor cover to the screen by the three countersunk screws (Fig. 25) and replace the screen cover.

Replace the exhaust harness complete with distributor screen and connect the four clips to the cylinder block.

Secure the exhaust harness distributor screen to the " B " (right-hand) side magneto and replace the safety pins (Fig. 26).

Replace the inlet harness complete with distributor screen and connect the eight clips securing the harness to each side of the induction manifold together with the additional clip attaching it to the wheelcase.

Secure the inlet harness distributor screen to the " A " (left-hand) side magneto and replace the safety pins (Fig. 26).

4. When fitting the bearings a check should be made that there is a clearance between the top of the dowel and the bottom of the slot in the shell.
5. It should be realized that as these bearings are not reamed in position, they cannot be adjusted to give any specified clearances. Furthermore the relieving at the edges of the bearings is slightly more than in the lead bronze type. These conditions may result in some reduction of the high oil pressure of the engine.

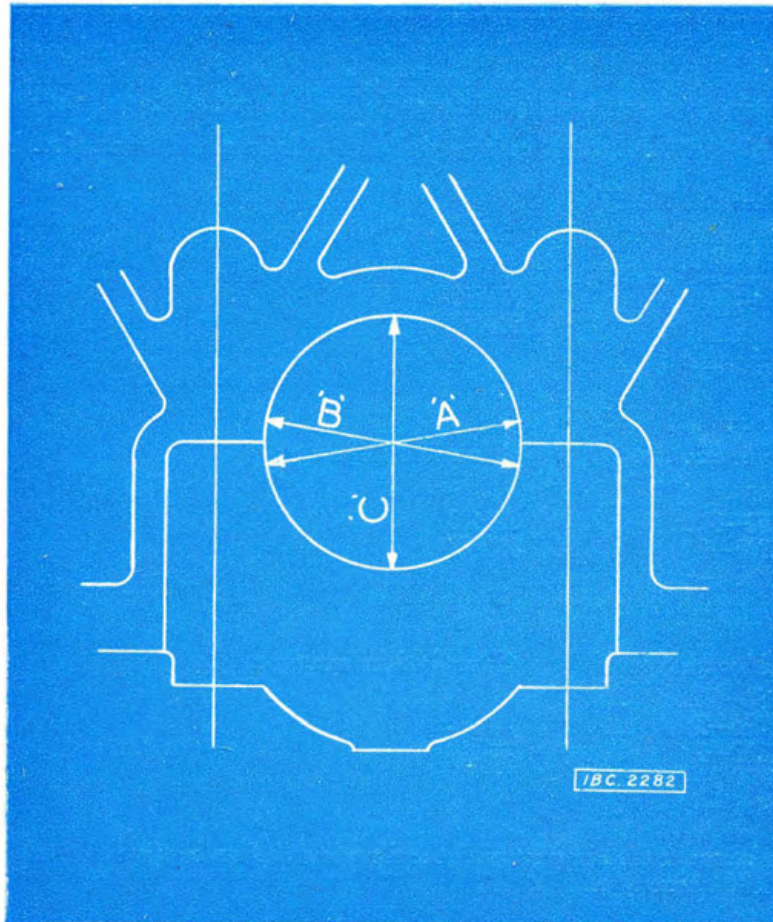


Fig. 122. Method of ascertaining mean diameter of crankshaft main bearing housing

After all examinations and checks have been made, the bearing cap nuts should be slackened off and the crankcase lateral bolts removed. Until required for final engine assembly, the crankcase should be stored with the bearing surfaces protected against damage.

Refit the oil baffle plate to the lower half of the crankcase and secure in position with 12 set screws and new lock-washers.

Refit the timing plug with spanner, Part No. Z2993, using a new washer if necessary.

PISTONS, CONNECTING RODS AND CRANKSHAFT

Weight of :—

Pistons	...	...	...	...	...	...	...	...	...	...	4½ lb. each (approx.)
Connecting rods	...	...	...	...	...	...	...	...	...	...	4½ lb. each (approx.)
Crankshaft	...	...	...	...	...	...	...	...	...	...	1 cwt. 0 qrs. 5½ lb. (117½ lb.)

Tap the end of the torsion spindle lightly with a hide hammer and withdraw the spindle from its inner driving sleeve.

Remove the presser plate, floating bush and friction disc in that sequence

Bend back the tabs of the lock-washer and remove the $\frac{1}{16}$ in. slotted ring nut, retaining the driven piece and bush, using spanner, Part No. E30863, for the "Commonised" type spring drive, or spanner, Part No. EMT589, for the "Strengthened" type spring drive.

NOTE.—Before removing the driven piece, alignment marks should be made on the driven piece and the inner driving sleeve, to ensure that on reassembly, the driven piece is replaced on the same serrations.

Attach withdrawal tool, Part No. EMT586, and pull the driven piece off its taper.

The inner driving sleeve can now be withdrawn from the outer driving sleeve, and the second friction disc removed.

To remove the spring drive bevel pinion from the outer sleeve, bend back the tabs of the locking washer and unscrew the $\frac{1}{16}$ in. ring nut with a serrated box spanner.

Remove the locking washer and key washer and withdraw the bevel pinion. The easiest method to remove the bevel pinion is with the aid of a hand press, suitably supporting the gear from the underside and pressing out the sleeve.

Remove the two parallel keys and draw off the fuel pump cam.

NOTE.—In the "Strengthened" type spring drive, it will be found that the bevel gear and fuel pump cam are integral and are therefore withdrawn as one piece.

Press out the outer driving sleeve from its ball race within the housing.

Remove the retaining circlip and press out the ball race from its housing.

NOTE.—This completes the dismantling of the wheel case and spring drive to their component details, but does not include the associated assemblies which were removed in the early stages of dismantling. Details for dismantling these assemblies are given below.

COOLANT PUMP

Very little servicing is required on the coolant pump and therefore it should not be dismantled unnecessarily.

Remove eight nuts, spring and plain washers securing the pump cover to the pump body.

Hold the pump in one hand over a bench and with a hide hammer gently tap the pump cover evenly away from the body.

Bend back the tab washer and loosen the $\frac{7}{16}$ in. nut securing the impeller to the shaft.

Tap the end of the shaft with a hide hammer to free the impeller on its taper.

Remove the nut and lock-washer, lift off the impeller, and remove the key from the shaft.

Remove five nuts, spring and plain washers, securing the drive housing to the pump, and lift off the pump body. Retain the adjusting washer for reassembly, as this determines the end float for the impeller.

Remove the gland components, taking note of their relative positions for reassembly.

The oil insert bush may be extracted by using extractor, Part No. EMT588.

Withdraw the driving shaft through the drive housing and, if necessary, release the $\frac{7}{16}$ in. nut securing the bevel pinion to the shaft and tap the shaft out of the pinion with a hide hammer.

OIL PUMPS

Pressure Pump (Fig. 138)

Remove the six nuts and spring washers retaining the cover-plate to the pump.

Remove the two fitted dowel bolts and remove the cover-plate.

NOTE.—The cover-plate is marked with either a centre dot or flat, which mates with a corresponding mark on the pump body to facilitate reassembly.

Lift out the pump gears.

Do not remove the spindle bushes, unless it is definitely decided to renew them for any reason.

Tighten the gland nut by the application of a torque spanner of 30 lb./ft. \pm 2 lb./ft. This is important as excessive tightening may distort the components of the plug, whilst too little pressure may cause leakage, resulting in the passage of hot gases, burning of the sealing surfaces and subsequent failure. The torque wrench should be tested in accordance with The War Office (D.M.E.) WORKSHOP BULLETIN (General), Serial No. G.69.

Set the spark gaps to 0.012 in. by carefully adjusting the outer electrodes. In no circumstances should the central electrode be bent as a means of adjustment.

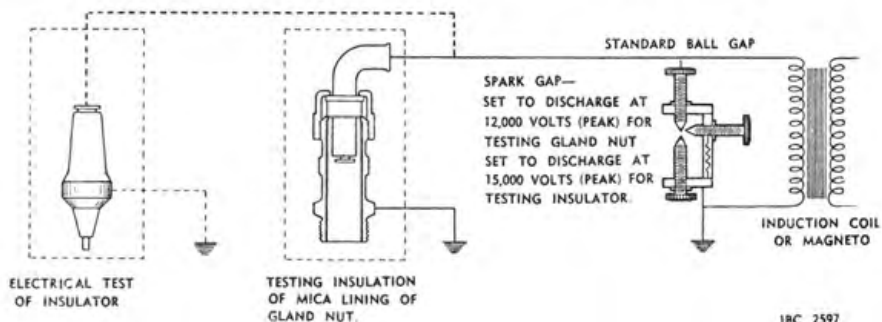


Fig. 183. Method of testing insulator and gland nut

Before the plug can be regarded as acceptable for service, each plug must be checked for sparking at an applied voltage of 12,000 volts (peak) under conditions of air pressure at 100 lb. per sq. in. It must also be checked for leakage between the body and gland at the same pressure. A typical pressure test equipment is shown diagrammatically in Fig. 184.

Sparking Test

Fit the sparking plug in a pressure rig fitted with an observation window.

Connect the plug in parallel with a standard ball gap set to discharge at 12,000 volts (3.25 mm.).

Apply H.T. current to the circuit from a magneto or similar device and apply an air pressure of 100 lb. per sq. in. to the plug.

Sparking must occur regularly across the sparking plug gap and not across the ball gap. No sparking at the plug or ball gap indicates faulty insulation or short-circuited gaps. Sparking at the ball gap indicates excessive test pressure or gap width or an open circuit in the electrode assembly.

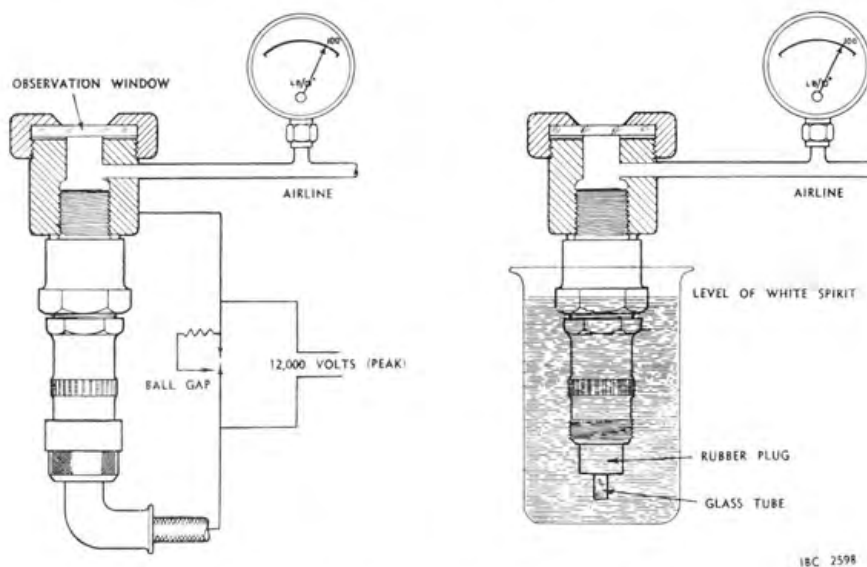


Fig. 184. Method of pressure testing

Gas leakage test

Remove the cable connector and replace it by a rubber plug having a small hole and glass tube through its centre. This prevents liquid entering the interior of the gland nut and affecting the mica.

Remove the split pin, slotted nut, and plain washer, from the starter drive shaft, and remove the starter drive bevel gear.

Press out the drive shaft with a hand press, or support the housing and drive the shaft out with a hide hammer. Remove the chip washer located under the starter dog.

The upper and lower ball bearings may be removed from the housing by carefully tapping them out with a soft drift.

Remove the four set screws and spring washers retaining each dynamo drive assembly to the gearbox, and remove the assemblies. Mark their relative positions to gearbox to ensure replacement in their original positions.

Remove the split pin, slotted nut, and plain washer, from the dynamo drive shaft, and withdraw the coupling gear from the shaft.

Remove the oil seal housing and oil seal.

Remove the Woodruff key from the shaft. Bend back the tab of the lock-washer under the nut securing the drive shaft and bearings, and unscrew the nut.

Support the housing and either press out the shaft with a hand press or it can be driven out with a hide hammer.

Extract from the housing the ball bearing, inner and outer distance pieces, and the roller bearing, in that order.

Dismantle the remaining dynamo drive shaft assembly in a similar manner but, although these assemblies are similar in all respects, it is advisable to retain the parts with their respective assemblies to facilitate reassembly.

Remove the split pin, cone nut, and washer, from the engine side of the main drive shaft, and withdraw the coupling flange.

Remove the four set screws and spring washers retaining the oil seal housing to the gearbox, and remove the housing.

Remove the small cover plate, retained by three set screws and spring washers, from the opposite side of the gearbox main drive.

Remove the split pin and slotted nut from the shaft and remove the four set screws and spring washers which retain the large cover plate to the gearbox.

This will disclose the outer ball bearing, which must be removed before the shaft and dynamo drive bevel gear can be withdrawn through the gearbox opening.

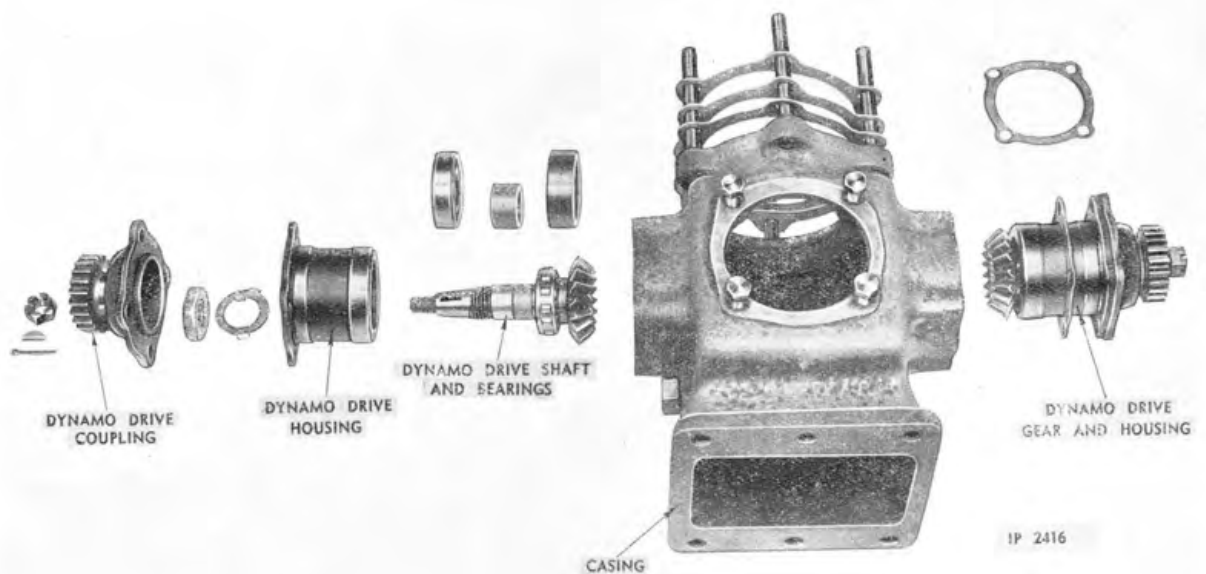


Fig. 212. Bevel gearbox