

Service operations with Engine in Frame

19. Removal of the Timing Cover

Before attempting to remove the timing cover it is first necessary to dismantle the contact breaker. Remove the oval cover retained by three screws and the contact breaker assembly will be revealed. Undo the hexagon nut and slotted headed screw retaining the contact breaker plate, pull the plate away from its recess, and leave suspended on the wiring harness. Remove the contact breaker centre screw and replace by the special extractor pin W.49622 included in the tool kit. Tightening this screw will force the unit from the taper on the end of the camshaft.

Place a tray under the engine to catch the oil which will escape when the timing cover is removed. Unscrew the timing cover fixing screws and draw off the cover, tapping it lightly if necessary.

Inspect both oil seals, particularly the crankshaft seal which is subjected to a high pressure. Any sign of a split in the rubber or of a fault in the bonding of the rubber to the casing means the seal must be replaced. Before the crankshaft seal can be changed, it is necessary to dismantle the oil pump as described in Sub-section 38. The new seal must be fitted carefully and a special tool Part No. W50011 is available for this purpose. Make certain the seal enters squarely into the housing and is fitted the right way round. The garter spring on the crankshaft seal faces into the recess and on the camshaft seal faces towards the engine.

In refitting the cover, make sure that the gasket is fitted the correct way round and that it is correctly located with no oil ways obstructed. Also see that the thrust washer is on the chain tensioner sprocket spindle.

Careful assembly of the timing cover is necessary to avoid damage to the oil seals. A special thimble Part No. W49994, fitted over the end of the exhaust camshaft, will ensure that the shaft enters the seal without causing damage to the sealing lip. Two studs can be screwed into the timing cover holes in the crankcase to act as temporary dowels to ensure that the seals line up with the shafts before entry.

The refitting of the cover will be facilitated if the engine is turned gently forwards while the cover is being put into place. This will help the engagement of the pump worm with the pump spindle and prevent damage to the gears.

Before refitting the contact breaker auto-advance unit, clean out the taper hole and also the mating taper on the end of the camshaft. If these are not clean and dry the unit may turn on the taper when the centre screw is tightened up. Assemble and time the ignition as described in Subsection 23.

To verify that the oil pump is working after replacing the timing cover, start the engine and slacken off the hexagon headed nut at the top of the finned oil cleaner cap.

20. Valve Timing

The camshaft sprockets are keyed to the camshafts so that the valve timing can only be incorrect if the timing chain is incorrectly fitted.

The correct setting is obtained with the marks stamped on the camshaft sprockets facing each other inwards on the centre line and the mark on the crankshaft sprocket pointing vertically downwards. (See Fig. 5). If it is necessary to remove the camshafts and sprockets see Subsections 22 and 41.

Remember that the camshaft sprocket nuts and the timing sprocket fixing bolt all have **Left-Hand Threads**. While tightening the camshaft nuts the sprockets should be held.

The correct valve timing at .020 in. tappet clearance is as follows:—

Exhaust opens 73° Before B.D.C.

Exhaust closes 33° After T.D.C.

Inlet opens 33° Before T.D.C.

Inlet closes 73° After B.D.C.

When checking opening and closing points do not expect precise agreement with the figures quoted. The figures obtained when checking will depend largely on the method used to decide when the valve opens or closes also, if using a dial gauge, whether this is reading the movement of the tappet or spring collar. It must be remembered, too, that the precise timing of each valve depends on the accurate position of *four* keyways and on whether the timing chain is new or worn. The figures in the table are intended as a guide to enable a check to be made that the timing marks are correctly lined up. If opening and closing points on the same shaft are early or late by about 30° the sprocket is fitted one tooth wrong.

