

CRANKSHAFT PINION

Removal of the crankshaft pinion is facilitated by service tool 61-6019, which consists of a protective cap and three claw extractor body, complete with extractor bolt.

To extract the pinion, first press the protection cap over the end of the crankshaft, then place the extractor over the pinion, locate the three claws behind the pinion and screw down the body to secure them. Using a tommy bar and spanner the crankshaft pinion can then be extracted (see Fig. B26). When this is achieved, the key and (clamping washer if fitted) should be removed and placed in safe-keeping.

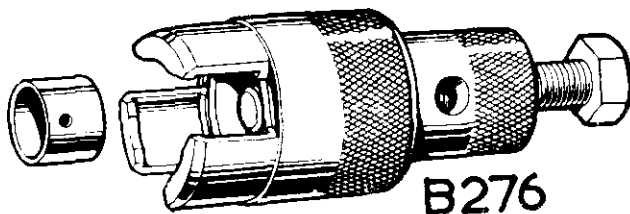


Fig. B27. Extractor tool 61-6019 showing protection cap which fits over crankshaft

When replacing the clamping washer ensure that the chamfered side is towards the crankshaft shoulder. Screw the guide onto the crankshaft. Smear the bore of the crankshaft pinion with grease to assist assembly and position it over the guide, so that the counter bore is outwards. Align the key and keyway and drive the pinion onto the crankshaft.

CAMSHAFT PINIONS

To extract both the inlet and exhaust camshaft pinions extractor Pr. No. 61-6132 should be used. To extract pinion screw the two outrigger bolts into the camwheel and screw in the central bolt; the pinion will then be withdrawn from the camshaft. See Fig. B28.

The location keys in each of the camshafts are a tight fit and may be left in position if it is not intended to subsequently remove the camshafts from the crankcase. When replacing the camwheels use a suitable hollow drift and lightly drive the camwheels onto the camshaft as far as possible. They will not drive fully home because of the camshaft float, but when the retaining nuts are replaced and tightened the camwheels will then seat into position.

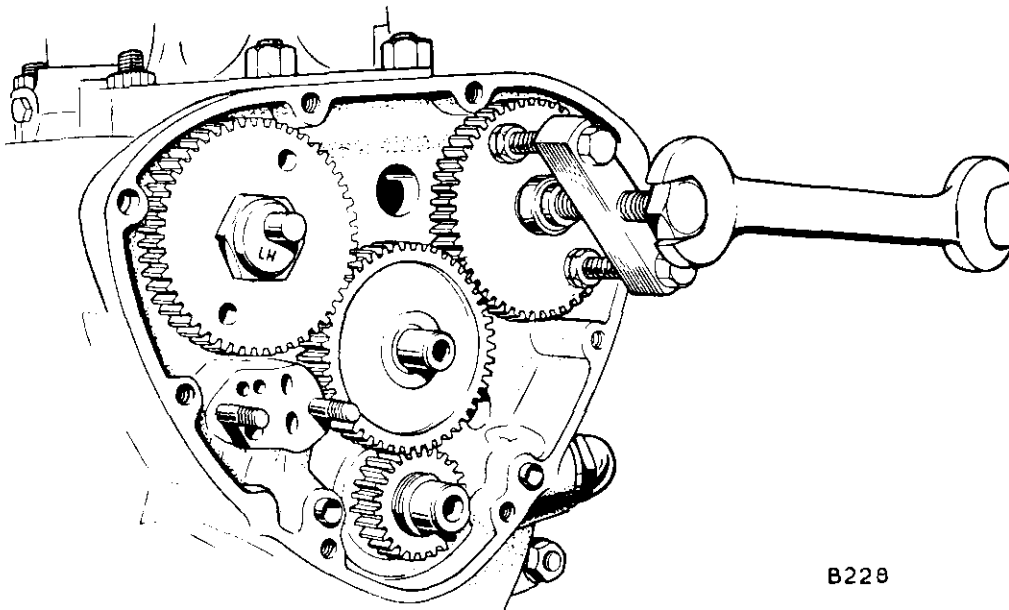


Fig. B28. Extracting the cam wheels

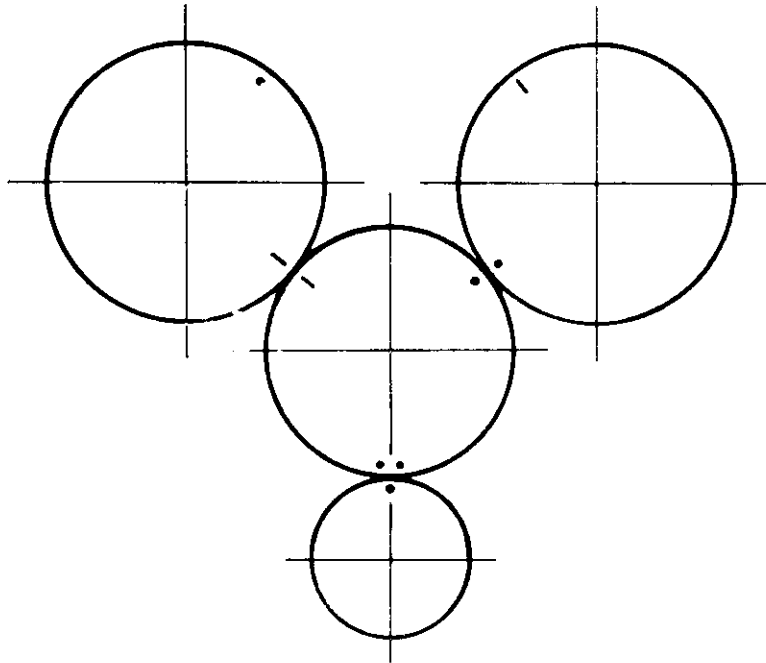


Fig. 29. Valve timing marks from ENG No. CX06001

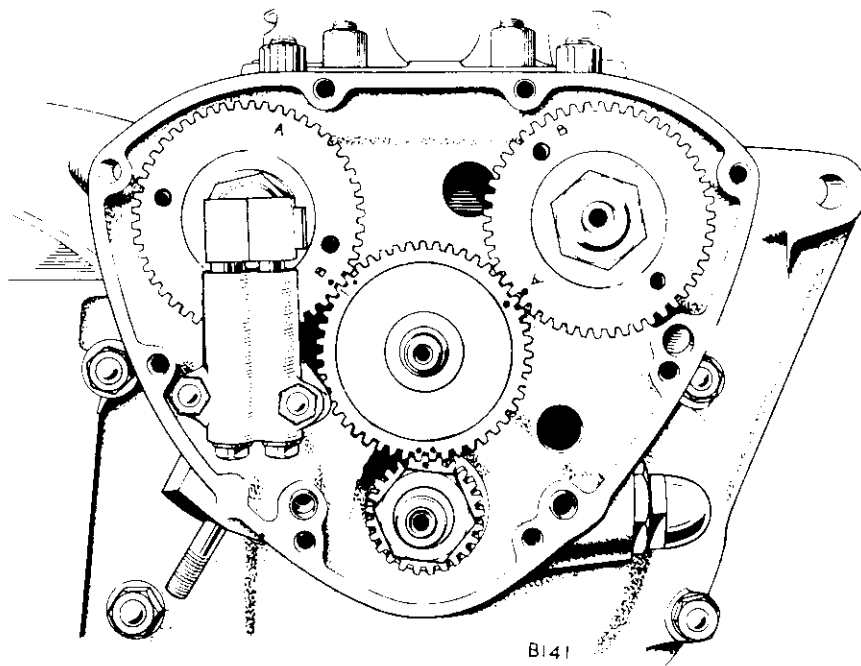


Fig. B30. Valve timing marks — EARLY MODELS ONLY

SECTION B33

VALVE TIMING

The valve timing is sufficiently accurate for machines which are to be used under normal conditions, when the intermediate wheel is assembled in the position shown in Fig. B29, (Fig. 30 refers to EARLY MODELS only), and the camshaft pinions are located by means of the keyway directly opposite the timing mark.

It should be noted that, due to the intermediate wheel having a prime number of teeth, the timing

marks only coincide every 94th revolution, thus there is no cause for alarm if the timing marks will not readily re-align.

When checking the valve timing against the figures given in "General Data" for the particular model, it should be noted that these figures are relative to a valve rocker clearance of .020 in. (.5 mm.) for checking only.

SECTION B34

DISMANTLING AND REASSEMBLING THE CRANKCASE ASSEMBLY

It is advisable to partially dismantle the engine unit whilst it is fixed to the motorcycle, then remove the remaining crankcase assembly and dismantle it on a work bench.

Proceed as described in Section B1 for removal of the engine unit, but leave the rear chain connected and the engine firmly mounted in the frame by means of the front and bottom engine mounting bolts. Remove the outer primary cover as shown underneath the engine (two snap connectors).

Unscrew three nuts securing the stator and withdraw it from over the mounting studs. Do not try to withdraw the leads at this stage.

Remove the pressure plate and clutch plates as detailed in Section C4. Select 5th gear and apply the rear brake, then unscrew the clutch hub securing nut and extract the clutch hub with the gearchange shaft as shown in Section C9. When the primary chain has been threaded over the stator the sleeve nut should be unscrewed and the stator leads withdrawn.

Remove the gearbox outer cover and dismantle the gearbox (see Section D) then remove the rocker boxes, cylinder head, block and pistons as shown in Sections B2, B14, B19 and B22 respectively, then disconnect the control cable(s) and remove the carburetter(s).

Remove the contact breaker, timing cover complete with oil switch and oil pump (Sections B28, B32 and B33) then extract the crankshaft pinion. If it is

required to inspect or change the camshafts or bushes, the camshaft pinions should also be extracted.

Remove the front and bottom engine mounting studs, disconnect the rear chain and remove the crankcase assembly.

Remove the crankcase filter and oilway blanking plug located at the bottom of the crankcase in line with the oil pump, and catch any oil that may be present in the crankcase.

Grip the crankcase firmly in a vice by means of the bottom mounting lug and unscrew the three bolts from the left side which are situated at the cylinder barrel spigots and rear of the primary drive breather outlet. Then the remaining four studs and unscrew two nuts adjacent to the gearbox housing. The crankcase-halves may now be parted. If difficulty is encountered parting the crankcase halves it will be due to the front TOP (crankcase to frame) hollow dowel which is a press fit. Prior to splitting the crankcase drift the dowel out of position using a suitable bar (an old rocker shaft is ideal for this purpose). When the halves are apart, withdraw the crankshaft assembly and store it carefully.

Remove the timing side main bearing. See Section B38.

Thoroughly clean and degrease the crankcase paying particular attention to the oilways. **DO NOT DAMAGE** the scavenge pipe to crankcase joint.

REASSEMBLY

Prior to reassembly, the junction surfaces should be carefully scraped clean, giving special attention to the location spigot and dowels. Replace the oilway blanking plug located at the bottom of the R/H crankcase in line with the oil pump, and crankcase filter.

Mount the left half-crankcase on its side on two wooden blocks, or a bench with a hole in for crankshaft clearance, lubricate the main bearings and camshaft bushes. Assemble the crankshaft into position ensuring that it is right home in the bearing by giving it a sharp blow with a hide mallet.

Apply a fresh coat of jointing compound to the junction surface of the left half-crankcase then lubricate the main bearings and camshaft bushes in both halves of the crankcase. Position the con-rods centrally and lower the right half-crankcase into position over the crankshaft. When the halves are

mated, check the crankshaft and camshafts for freedom of rotation. The crankshaft should revolve freely whilst the camshafts should offer little or no resistance to rotation by hand.

Refit the crankcase securing bolts and studs, and tighten them until they are just "pinched-up".

Check that the cylinder block junction surface of the crankcase is level.

If there is a slight step between the two halves, this should be corrected by tapping the front and rear of the crankcases as required, until a level surface is achieved. The crankcase securing bolts should then be tightened, a turn at a time, to the torque figures given in "General Data".

Reassembly then continues as a reversal of the dismantling instructions. Prior to refitting the cylinder block, pour approximately ¼ pint (0.14 litres) of oil into the crankcase.