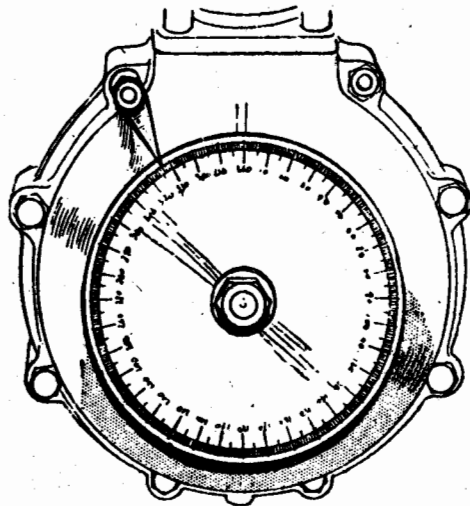


dummy plug immediately above the piston centre. Note that the B.T.-H. and M.L. magnetos are in the fully-advanced position when the inner wire is slack. More exact ignition timing can, of course, be made by measuring the advance in degrees of crankshaft rotation. For this purpose a timing disc made of sheet tin or cardboard is required (Fig. 51) for attachment to the engine



(From "The Motor-Cycle")

FIG. 51. SHOWING CRANKSHAFT DEGREE DISC FOR VALVE AND IGNITION TIMING

A suitable pointer can be fixed as shown to one of the crankcase bolts. T.D.C. position must first be accurately found

shaft. A cardboard disc can incidentally be obtained from the manufacturers of Castrol oil. It is quite easy to make a suitable disc if necessary. See page 100 for 1938-9 timings.

**Ignition Advance (1932-3 Models).** The settings given in the preceding paragraph are suitable with a few exceptions. On the "Big Four" give advance of  $\frac{1}{4}$  in. (20 degrees) before T.D.C. On Models 18, 20 ES2 give advance of  $\frac{3}{8}$  in. (42 degrees) before T.D.C. for touring and  $\frac{1}{2}$  in. (50 degrees) for racing. In the case of Model 19 give ignition advance of  $\frac{3}{8}$  in. (42 degrees) before T.D.C. for touring and  $\frac{1}{2}$  in. (50 degrees) for racing.

**Engine Timing (Models 16H, I, 18, 19, 20, ES2).** The valve timing diagram shown in Fig. 52, is applicable to the whole of the S.V. and O.H.V. 1932-9 range, except Models 50, 55, when timing is measured on the degree system, which is strongly

advocated. When timing by means of measurements taken on the piston stroke, there are certain variations which should be

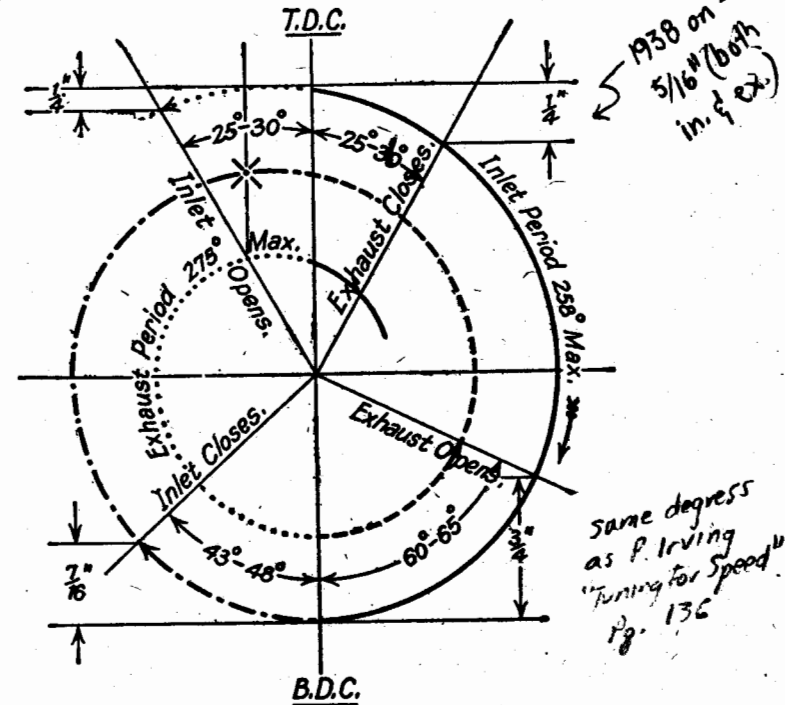


FIG. 52. VALVE-TIMING DIAGRAM FOR NORTON S.V. AND O.H.V. ENGINES

The valve-timing diagram shown is applicable to all 1932-9 S.V. and O.H.V. engines except Models 50, 55, if timing be measured by degrees of crank rotation, which is recommended. Norton Motors, Ltd., do not punch-mark their timing pinions except in the case of the "camshaft" models; and should the timing gear be dismantled, it is advisable to mark them first or else to retime. The valve clearances must be correct when retiming. When timing is effected by measuring the distance between the piston crown and the dead centres, it should be noted that on the 5.96 h.p. and 6.33 h.p. long-stroke engines lessened connecting-rod angularity necessitates the exhaust valve opening being  $\frac{1}{8}$  in. earlier and the other periods being increased to the extent of  $\frac{1}{8}$  in.

carefully noted. These variations are made clear in the caption below the illustration (see Fig. 52). Compression cocks are not provided on the S.V. engines, and the wire or pencil used for finding the piston advance before T.D.C. may be inserted through the hole occupied by a dummy plug immediately over the centre