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**B93 0BJ ENGLAND**

**ROYAL ENFIELD AND AMAL SPARES**

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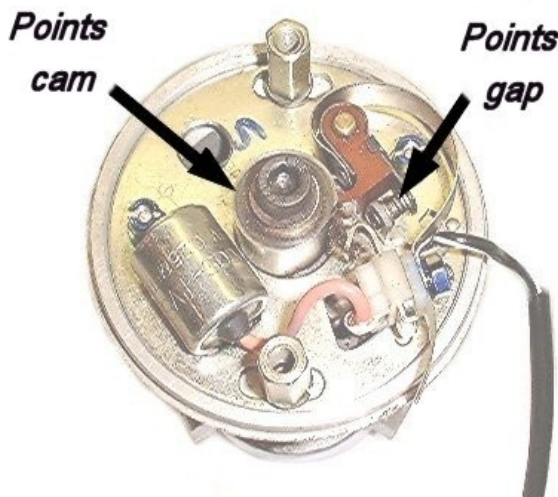
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## IGNITION TIMING

In this article we will cover static timing on distributor/points equipped Indian Enfield Bullets. The standard retarded or static timing is 0.8mm (10 degrees), before top dead centre on both 350 and 500 Bullets. A different publication will cover Bullets with Boyer electronic ignition fitted.

To get maximum power, mpg and engine life, accurate ignition timing is important. Too early, and the engine could knock under load, too late, and the fuel/air mixture will still be burning when the exhaust valve opens, causing overheating and loss of power, and possible burning of the valve and its seat.

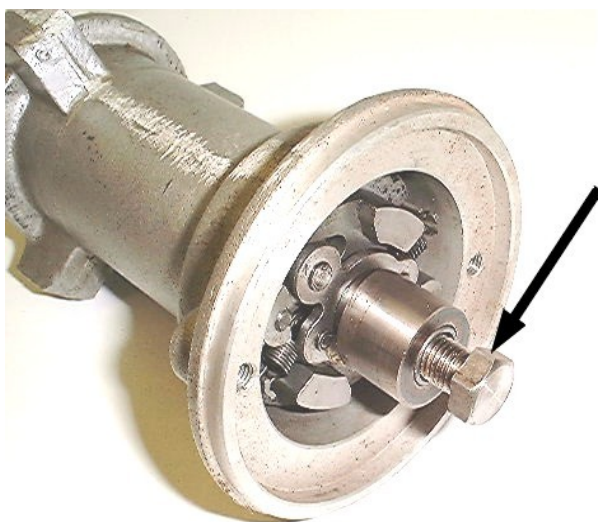


Because accurate timing is impossible with worn distributor shaft bushes/bearings, sticking advance/retard bobweights or dirty/worn points, attend to these first. (The early distributors fitted prior to June 1998 were fitted with bushes and these were prone to rapid wear). Check for up and down movement in the distributor shaft. The return springs must pull the points cam reliably back, broken or detached springs are common. Clean the points and set to 0.35 – 0.40mm (0.015”) clearance at maximum opening. Badly burnt points, or a misfire, may indicate the need for a replacement condenser.

To check ignition timing, remove the spark plug and tappet inspection cover. Fit either a proper top dead centre tool (**part E0003, see photo**) in the spark plug hole (or in emergency a home made substitute, but beware of dropping or jamming this in the cylinder). Raise the rear wheel off the ground so that it is free to rotate. Engage top gear and slowly turn the wheel in a forward rotation until the inlet pushrod rises, then falls and the piston reaches top dead centre. (By watching the inlet pushrod, you will be sure of finding TDC on the compression stroke and not on the exhaust stroke). You may find it easier to remove the primary chaincase and turn the engine by means of a spanner on the alternator rotor nut. Rock the engine back and forth to establish top dead centre. Mark the tool or use the scale to indicate top dead centre and then mark it again 0.8mm above this. Turn the engine back about a quarter turn and switch on the ignition. As you slowly turn the engine forward towards top dead centre, the ammeter should flick back to zero at the moment the higher mark appears. You will hear the ‘snap’ as the points separate.



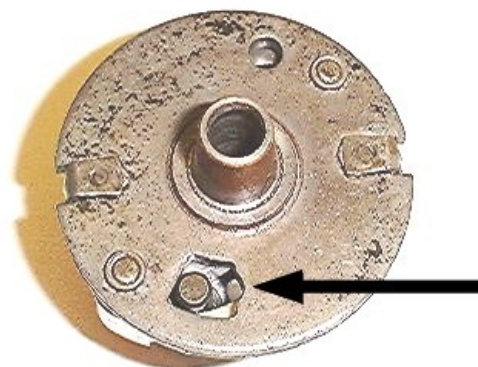
If this timing is incorrect, again turn the engine back a little and then rotate forward, (this is to eliminate the inevitable backlash in the gear train giving a false reading), until the highest mark is reached. This will then have the piston at 0.8mm before TDC. With the ignition still switched on, loosen the base plate securing screws and rotate the plate until the ammeter flicks to Zero, (Clockwise to retard or anticlockwise to advance the timing). Re-tighten the screws and recheck



If there is insufficient adjustment on the backplate you will need to alter the position of the cam in relation to the points. First with a marker pen, draw a line on the backplate and cam so that you know your starting position. If the timing cover has previously been removed, then you can simply slip the intermediate drive gear out of mesh and rotate the distributor pinion to the desired position. However if the timing cover is fitted and sealed, then it is easier to extract the points cam and auto advance unit off its taper and reposition. A special tool, (part 49622, see photo) makes releasing the cam a moments work. Clean the taper, reposition the cam, a light tap will lock the taper and replace the centre fixing socket screw and tighten.

As most of your riding will be done with the timing fully advanced, we suggest that this is also checked. If the advance/retard unit is worn, then most of the time the engine will be over-advanced. The advance/retard assembly will give approximately 8.5mm ( $\frac{21}{64}$ )" or 32 degrees at full advance before TDC.

To check the full advance timing position, mark the top dead centre tool with the advance setting above the TDC mark. Turn the engine back, then forwards until the piston reaches this new mark. Now turn on the ignition and carefully with your fingers, rotate the points cam clockwise, against the pressure of the springs. If everything is correct, you will hear the snap as the points open exactly as you reach the limit of the travel, and the ammeter will flick back to the centre. Should you find, due to wear etc, (see photo on right, this shows a common place of wear on the rear of the auto advance unit), this setting is wrong, then reset the ignition timing with the advanced figures whilst holding the points cam against its springs. It is better to have the timing correct in the fully advanced position and put up with a slightly poor tick-over. However if there is a major discrepancy, then it is time to renew the worn parts.



Replace the spark plug, tappet cover etc. before starting up. You should now be rewarded with easier starting and more miles per gallon.