

## A7 Ignition Timing

The Austin Seven engine's capacity is nominally 747cc and it develops around 10.5 to 17 BHP depending on the model. Although this sounds small, it is sufficient to give acceptable performance provided the engine is correctly timed.

According to the Austin Motor Company – static ignition timing is set by – Rotating the engine so that No1 cylinder is on compression stroke and position the 1/4 flywheel timing mark 1.25 to 2" before top dead centre. If the car has a manual advance/retard lever, this should be set to maximum advance (although some prefer the mid position). Slacken the distributor body clamp and rotate it so the points are just about to open.

This method is of course correct but can be difficult and time consuming particularly on early engines where the starter motor assembly has to be removed to expose the flywheel timing marks. It is also difficult to visually judge the exact position of points opening – which can lead to timing inaccuracy.

From experience, the following method employed by garages to set the static engine timing on any petrol engine is easier, quicker, more accurate and does not involve exposing the flywheel .....

- Remove No1 sparking plug (nearest the radiator) and set cylinder No1 on compression by rotating the engine and placing a finger over the plug hole and feel for compression developing (some people find this easier with the plugs from cylinders 2, 3 and 4 removed)
- Set No1 piston exactly at top-dead-centre using a thin wooden dowl (to prevent any damage to the piston crown) inserted through the plug hole
- Renew or re-face the contact points and set to 12 thou' (0.012"). If the distributor has been removed, replace it in the correct position with the flat side of the body facing mid way between cylinders 1 and 2. When entering the distributor into the dynamo to engage the skew gears – make sure the fibre heel on the contact points is mid way between cam lobes
- Connect a low wattage lamp between the low tension terminal on the side of the distributor and a convenient earth point. If the ignition is now switched-on and the fibre heel is mid way between cam lobes (i.e. the points are closed) – the test lamp will remain unlit
- With the ignition still switched-on, slacken the clamp at the base of the distributor body and very slowly turn the body anti-clockwise whilst observing the test lamp. When the cam approaches the fibre heel, the points will start to open and the test

lamp will light immediately the points separate. It is useful to repeat this several times to determine the correct static timing position. Having done this – tighten the distributor retaining clamp bolt. The engine should now start-up and run reasonably well and the final fine adjustments should be done with the engine running at fast tick-over by one of the following two methods .....

- If you are old enough to have worked on engines before the advent of electronic tuning devices (i.e. when sweets were on ration!) you will be able to make fine timing adjustments by simply listening to the sound of the engine. This is impossible to explain in writing but can be learned by years of practice
- Alternatively make a series fine timing adjustments by trial and error. This is the easiest and most-common method but tends to be more time consuming. Make small rotational adjustments to the distributor (Note - coil ignition is much more sensitive to timing changes than a magneto) and carry-out a road test (preferably including a hill) after each adjustment. Note - to advance the timing, rotate the distributor anti-clockwise and of course clockwise to retard. Try to reach a compromise between best performance and a smooth engine note. Over-advanced engines will sound harsh, feel rough and vibrate under load. Excessively retarded engines will be noticeably down on power, can sound rough and may run rather hot

For the above guidance to be effective – all the components of the ignition system must be in good working order e.g. Plugs, gaps, distributor cap, plug leads, rotor arm, condenser and distributor spindle bearing etc. You can also obtain a good indication of whether the static timing is about right by turning the engine over slowly by hand with the ignition switched-on. You should feel the lightest of kickback through the starting handle as each cylinder fires.

Correct ignition timing may lead to excessive noise if the engine main bearings are worn, in which case it may be desirable to run the engine slightly retarded.

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