

TECH TIPS No 9a

ALL ABOUT THE BOB WEIGHTS AND SPRINGS.

THE Bob weights are short name for the centrifugal advance weights. They are a very important part of the distributor. If you have any problems with your car this could be causing the problem, for instance.

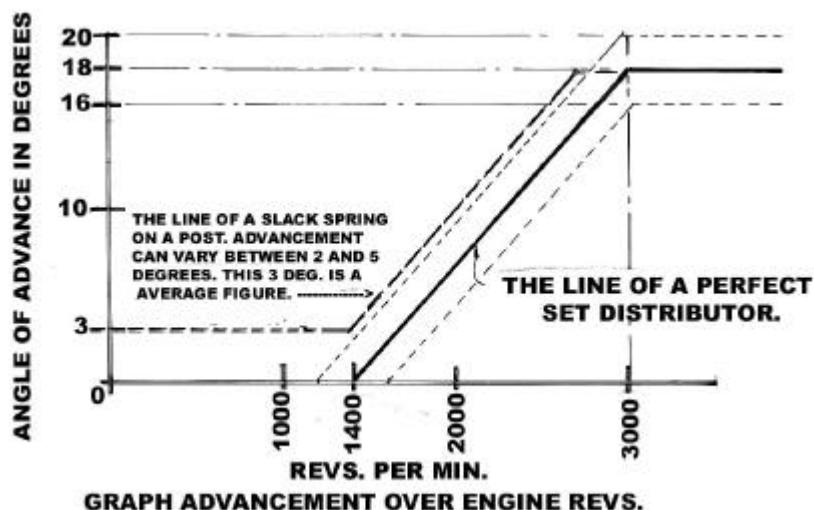
- a. Loss of acceleration.
- b. High fuel consumption.
- c. If the engine is too far advanced the engine will sound rough, and if not sorted out quickly will damage the engine.
- d. The engine could run hot.
- e. Rough slow running.
- f. Engine difficult to start.
- g. Engine will start but will not accelerate.

If you look at the above list it just about covers every fault that occurs on a 500. Over the years I have stripped dozens of distributors down and the main problem are; loose springs on the post, sticking Bob weights, worn holes on the Bob weights, damaged springs and sticking cam-plates.

THIS IS THE TECHNICAL SECTION.

If you look at graph below, angle of engine advancement against engine revs per minute. If you have a distributor that is set up perfectly, the graph shows that the engine does not start to advance until the engine has achieved the revs. of 1400rpm and then proceeds to advance to 18 degrees when the engine revs. have achieved 3000rpm.

So any deviation from this will cause one of the defects listed above.



From the graph it can be seen that, if you have a slack bob weight springs on the posts the engine can advance as much as 5 degrees at zero revs; when it should not reach 5 degrees until 1600 revs.

BOB WEIGHTS.

The Bob weights start to move out, when the engine turns the distributor shaft. The movement of the Bob weights is controlled by the Bob weight springs. The 479cc and 499cc engines had a plate type Bob weights and when fitted on the post there is a raised portion on the post so the Bob weight does not foul the Bob weight plate.

The later 600 and 650cc engines had cast type Bob weights. The Bob weights are kept clear of the Bob weight plate by a 1mm thick fibre washer that is situated on the post under the weights. If the Bob weights are fitted on the post and they touch the Bob weight plate, this will slow the advancement of the engine. There are two ways of clearing this foul. (a) Change the Bob weights for another set. (b) Put a thicker washer under the Bob weights, but watch it does not foul the under-side of the cam plate. You can shim the cam plate away from the bob weights.

Before the Bob weights are fitted on the post check that they are clean, if you fit Bob weights that are dirty they will advance the engine early.

BOB WEIGHT SPRINGS.

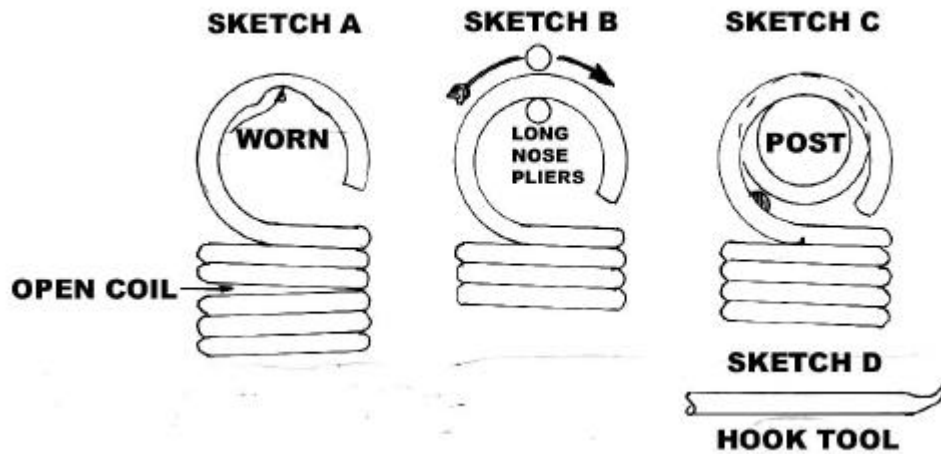
The Bob weight springs control the outward movement of the Bob weights. So that the springs work properly and control the weights, the following are to be checked.

- (1) The springs should not be slack on the posts. If they are slack you will find that the loop is worn. **See sketch 'A'**. Once the loop is worn it will not allow you to close the loop to shorten the spring. **See sketch 'B'** it will only open again, because the worn area is weak.
Therefore two new springs are required.
- (2) There should be no open coils, if they are damaged. **Two new springs are required.**

HOW TO ADJUST A TENSION SPRING.

Any tension spring can be adjusted in length by opening or closing the loop. All you need is a pair of long nose pliers. **See sketch 'B'**. If you turn the loop in on its self, this will shorten the length of the spring. If you turn the loop outwards this will lengthen the spring.

NOTE: So you don't damage the springs when taking them off the post. **See sketch 'C'**. Make a hook tool out of wire. **See sketch 'D'**.



How to strip down a 126 distributor **SEE TECH TIPS No 6**

How to strip down a 500 distributor **SEE TECH TIPS No 7**

COMMERCIAL BIT

Some time ago I could not buy bob weight springs so I had some made, to FIAT specification. So I have got together a distributor maintenance pack which comprises of (1) Bob weight springs 2off (2) Conical spring that goes under camplate screw 1off (3) A 3.5mm screw for the contact points. (4) Bob weight packing washers 2off (5) A 3mm roll pin for gear removal 1off.
Total cost £1.50 plus package and postage.

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