

# ELEC1

## ELECTRONIC IGNITION KIT FITTING INSTRUCTIONS

### General

This kit is suitable for a 12V negative earth system.

It is compatible only with a points style coil with a resistance of 3 ohms.

***We highly recommend that you fit our 3 ohm Flamethrower coil UD10846PP.***

Never use a High Energy Ignition coil as this will damage your new module and invalidate your warranty.

Do not remove the green tape from the magnet sleeves if present.

### Initial checks before removing old points system:

1. Check the charging rate and, if necessary, adjust as per Workshop Manual instructions.
2. Turn the engine to number 1 TDC timing mark. Check position of the rotor arm in relation to the distributor cap electrode number 1. The points should be just opening and the rotor arm and number 1 electrode should be aligned. If this is not the case it may affect the smooth running of your new Electronic ignition system and cause excessive resistance.
3. If you suspect that the distributor drive gear is in the wrong position, remove the distributor at the bottom of its pedestal and check alignment of drive gear. We offer loan tool ELEC1TOOL to check the oil pump distributor drive gear position. For further details see the Troubleshooting section at the end of these instructions.
4. ***Prior to installation turn the ignition switch off or disconnect the battery.***
5. Remove distributor cap and rotor arm. Do not disconnect HT leads from cap. Check cap and rotor arm for wear.
6. Disconnect the points wire from the negative (-) side of the coil.
7. Remove the baseplate, points, condenser and grommet. We recommend you keep these with the car for back up if required.
8. Clean any oil or dirt from the breaker plate and cam.
9. Install the new baseplate & pick-up module using the provided hardware in the same manner as a set of points. Confirm the mounting plate is flat and fits without any need for modification.
10. Insert the black and red wires from the new module through the distributor housing ensuring the grommet is seated properly.
11. If the distributor ground wire was removed during installation re-attach it securely.
12. Place the magnet sleeve down onto the distributor shaft.
13. Rotate the sleeve until you feel the cam line up correctly.
14. Push down firmly until seated. If a spacer is supplied fit it to allow the sprung loaded rotor arm to hold it in position.
15. Set the air gap between the module and magnet sleeve using the provided plastic feeler gauge (0.030" thick), in the same way you would for a set of points. If required it can be adjusted by removing the module on the two fixing nuts and gently elongating the holes with a small round file so the pick-up module has some adjustment if required. Then replace and measure again until correct.
16. Replace rotor arm including spacer ring and distributor cap and ensure all HT leads are seated correctly.
17. Connect the black wire to the negative (-) side of the coil.
18. Connect the red wire to the positive (+) side of the coil.
19. Reconnect battery and make sure all wires are connected.

20. The engine can now be started. Let the engine run a few minutes until the choke releases and normal idle speed is obtained and then set check the ignition timing with a stroboscopic timing light and set according to workshop manual specifications of 2 degrees before Top Dead Centre. Adjust carburetters as necessary.

***Please ensure that the ignition is not left switched on for more than 20 seconds as this may burn out your module and invalidate any warranty.***

#### Troubleshooting

If, after fitting, you are struggling to set the ignition timing or you feel that the engine is not running as smoothly as you had anticipated it may be that the mechanical side of the distributor has not been timed correctly (often following a previous repair or engine overhaul).

#### To identify this potential fault:

1. Manually turn the engine to Number 1 TDC timing marks.
2. Check whether the rotor arm correctly aligns with the cylinder firing and the electrode in the distributor cap – if it does not then we suggest that the position of the distributor driveshaft is checked and/ or corrected.

Our loan tool ELEC1TOOL can be used to confirm correct alignment of the distributor drive shaft.

If, after fitting ELEC1 or ELEC1POS, you have confirmed that the rotor arm is firing off reference to the distributor electrode when it was previously firing the points correctly these options may help you:

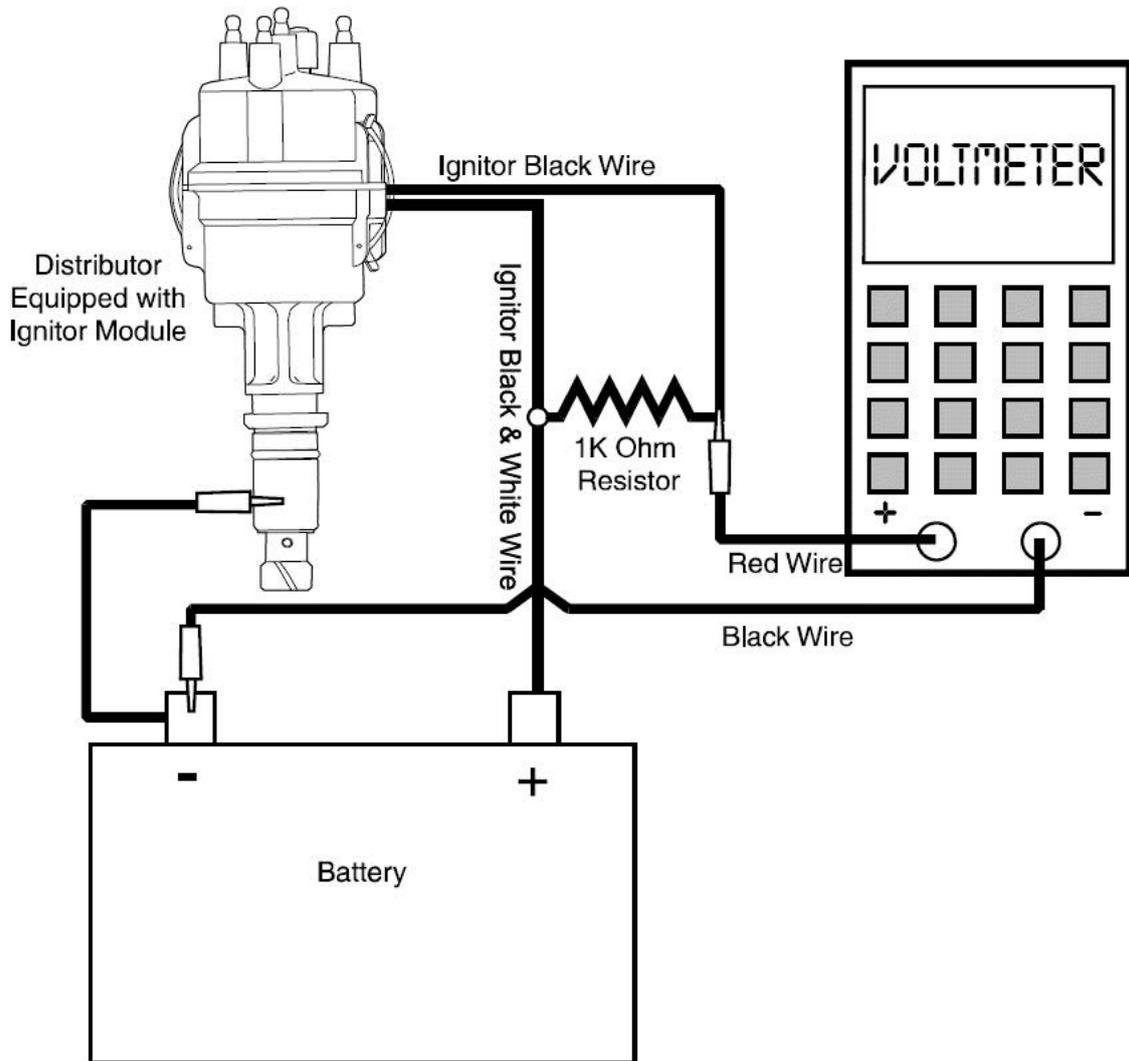
1. Fit Electronic Ignition kit as described in these instructions
2. Check the firing order and location of spark plug leads into the distributor cap
3. If the firing order from the cylinder spark plugs to the distributor is correct, it is a good indication that the reference points of the rotor arm to the distributor electrode are only wrong by one tooth on the oil pump drive at TDC no. 1.
4. THE RECOGNISED WAY FOR RECTIFYING THIS IS TO REMOVE THE ENGINE SUMP AND OIL PUMP AND RE-TIME THE OIL PUMP DISTRIBUTOR DRIVE TO THE REFERENCE POINT ON THE DISTRIBUTOR.

WHEN THE DISTRIBUTOR IS SITUATED IN ITS NORMAL/ CORRECT POSITION & FIRING CORRECTLY THE DELCO NAME PLATE (ON THE SIDE OF THE DISTRIBUTOR) IS SQUARE TO THE SIDE OF THE ENGINE AND FACES YOU AS YOU LOOK IN FROM ABOVE THE WHEEL ARCH.

BUT IF THIS IS NOT THE CASE TRY THIS AS AN ALTERNATIVE TO REMOVING THE SUMP AND RE-POSITIONING THE OIL PUMP DISTRIBUTOR DRIVE SHAFT:

5. When the ignition system is functioning correctly on TDC no.1 the rear of the rotor arm should line up with the rear (right hand) rivet on the DELCO name plate on the side of the distributor with a line going through the rotor arm to reference point no. 1 on the distributor cap. Our loan tool ELEC1TOOL can be used to confirm correct drive gear alignment.
6. If the oil pump is one camshaft distributor tooth out of alignment it will be at right angles to the engine and 36 degrees out of alignment.
7. The distributor electrode positions are divided into six points 60 degrees apart and the oil pump drive has 10 teeth 36 degrees apart. It is, therefore, impossible to bring the gear into total reference with the distributor cap (without removing the oil pump) but it can be greatly improved as follows:
8. On the advance side of the direction of rotation the drive gear position is out by 36 degrees on a 60-degree movement of the rotor arm to the electrode in the distributor cap giving a difference of 24 degrees

9. The centrifugal advance of 15 degrees at 3000 rpm brings the distributor electrode to within 9 degrees of the reference point.
10. The rotor arm head is 8mm wide (equivalent to 18 degrees) reducing the reference point gap still further by 9 degrees (half of the rotor arm tip width).
11. This means that with everything assembled and connected according to the original factory positions with the distributor tightened and the rotor arm positioned to the maximum of the centrifugal advance it is almost at the next reference point which is number 4-cylinder firing position.
12. BASICALLY, YOU ARE GOING TO MAKE THE ROTOR ARM ADVANCE ONTO THE REFERENCE POINT NOT MOVE IT FURTHER AWAY.
13. To achieve this, move the plug leads in the distributor cap as follows:
  - 1 to 4
  - 4 to 2
  - 2 to 6
  - 6 to 3
  - 3 to 5
  - 5 to 1
14. See diagram A1 which shows how to construct a basic low voltage test of the distributor module in position.
15. Turn the distributor body a further 8mm ANTI-CLOCK WISE and check that the module is working on full centrifugal advance (Basic timing).
16. By doing this you have brought the reference points back into position and reduced the gap the spark must jump in position from 36 degrees (plus the 15 degree centrifugal advance) down to 0 degrees (+/- 2) at 3000rpm this greatly reduces the resistance and spark jump to the module pick-up.
17. Dimensions are as follows:  
Initially the rotor arm to distributor cap electrode reference points were out 36 degrees at idle (equal to 15.96 mm) plus 15-degree centrifugal advance (equal to 6.65mm) giving a potential "spark jump" circular distance of 22.61mm at 3000 rpm.
18. When the plug lead is altered in position 1 to 4 position it reduces the circular distance dramatically as follows:  
24 degrees retarded to reference point less the centrifugal advance of 15 degrees at 3000 rpm gives 9 degrees difference, then subtracting half the rotor arm width of 9 degrees means that the engine is now firing theoretically close to the correct reference point for the rotor arm to the distributor cap electrode.
19. At idle it will come off reference points by 15 centrifugal degrees which in circular distance is approximately 6.65mm for the spark from the rotor arm to electrode to travel
20. The risk of loose spark strike and excessive resistance to the distributor module is greatly reduced.
21. Start the engine and adjust timing and carburettors as per Workshop Manual, road test the car and recheck reference positions.



### 12 & 6-volt Negative Ground Module Test in Distributor

1. Connect the distributor to the battery negative terminal.
2. Connect the black & white Ignitor wire to the battery positive
3. Attach a 1K ohm resistor between the black ignitor lead and the black & white Ignitor lead.
4. Attach the red lead from the voltmeter to the 1k resistor and Ignitor black wire.
5. Attach the black lead from the voltmeter to the negative battery terminal.
6. Rotate the distributor shaft; the meter should fluctuate between battery voltage and 0.
7. A constant measurement indicates that the power transistor or hall cell may have failed.
8. For best results turn the distributor shaft slowly while watching voltmeter display.