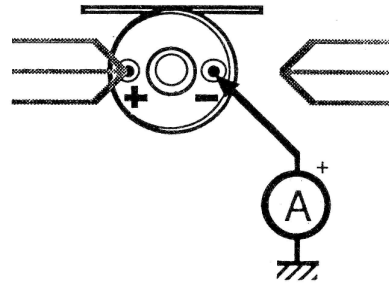


IDENTIFYING IGNITION COIL CONNECTIONS (Negative Earth)

C - Checking to find if a Ballast Resistor is fitted.

First check to see if the coil fitted is a 'constant energy' type (some electronic systems).

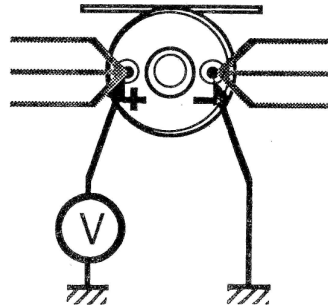
1. Remove the wires from the coil '-' (or 1) terminal and connect a test meter (DC Amps range) as shown.
2. Turn 'on' the ignition. If the current measured is in the region of 4 amps then the coil is a 'conventional' type. If the current is of the order of 10 to 20 amps (switch 'off' immediately) then the coil is a 'constant energy' type.
3. Switch 'off' the ignition and re-connect the coil wires.



If the coil is a 'constant energy' type a Ballast Resistor will not be fitted (unless fitted in error) and the following test will not be required.

Second check to see if a Ballast Resistor is fitted:

4. Connect a temporary link wire from the coil '-' (or 1) terminal to the chassis (earth) and a voltmeter from the coil '+' (or 15) terminal to the chassis (earth) as shown.
5. Turn 'on' the ignition.
6. Check the voltage. If it is between 40% and 80% of the Battery voltage then there is a Ballast Resistor somewhere in the feed to the coil '+' (or 15).



If the voltage measured is greater than 80% of that measured at the battery '+' terminal then there is unlikely to be a Ballast Resistor fitted.

7. Turn 'off' the ignition and re-connect the original wiring.

For correct ignition operation it is essential that the Ignition Coil is of the correct type and is correctly connected. If in doubt (especially where the coil wiring is hidden inside the wiring harness) it may be wise to fit a new coil. The MicroDynamics MS2 is a high performance coil suitable for all 12 volt applications - it comes complete with full fitting instructions and information on Ballast Resistors.

1. GENERAL INFORMATION

MicroDynamics Ignition Coils are polarity sensitive and intended for 12v Negative Earth only.

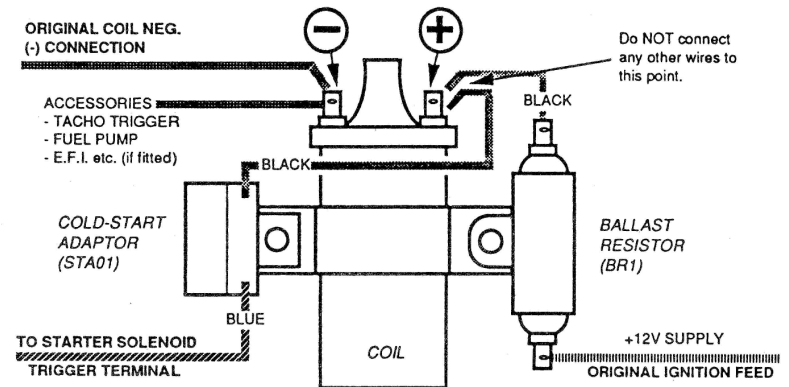
Incorrect connection will cause a severe loss of ignition performance; thus care must be taken to ensure that the + and - terminals are connected correctly.

Ignition coils should always be fitted well away from sources of excessive heat (such as the exhaust system). Always mount upright with the connections to the top. This will assist with cooling and avoid any problems with oil leakage.

The ideal coil location should use the shortest possible coil to distributor HT lead and should not involve any long runs of cable to the ignition unit.

Important Note: Vehicles are sometimes built with the connections to the coil reversed (therefore do not assume that the vehicles original coil was fitted correctly). Under these conditions the engine will still run but with reduced spark energy. To check for this fault refer the colour codes on the original coil terminals to those shown in the vehicle maker's handbook.

2. IGNITION SYSTEMS WHICH REQUIRE A BALLAST RESISTOR



Where a Ballast Resistor is required with a MegaSpark coil; use either a MicroDynamics BR1 or the vehicles original resistor (1.3 to 1.7 ohms). The vehicle makers handbook should be checked to ascertain whether there is a resistor as standard.

Many modern cars have a resistor fitted within the wiring harness or directly to the coil. These resistor leads do often deteriorate and increase in resistance over a period of years. So when fitting a MegaSpark coil, to a vehicle that has one, it is a good idea to change to a MicroDynamics Resistor instead.

On Vehicles which already have a suitable Ballast Resistor the MegaSpark Coil may be directly substituted for the original coil taking care to observe correct polarity; or a new resistor may be used and a direct connection taken from the ignition switch to the input of the new resistor.

On vehicles without a Ballast Resistor as standard (ie. with a 'standard' 12v coil) the new coil should be fitted complete with a resistor as shown in the diagram. In such cases (to achieve a boosted H.T. voltage when starting) it is possible to connect the coil + terminal to the "Ballast Resistor" terminal found on many starter motor solenoids. Or alternatively, the coil + terminal may be connected via a MicroDynamics Cold Start Adaptor to the starter solenoid trigger (starter switch) terminal as described below.

COLD-START ADAPTOR

Today more and more cars are being built with ballast resistors as standard equipment and these vehicles, whether fitted with a standard or pre-engaged starter motor, will almost certainly have a terminal on the starter solenoid which is suitable for bypassing the ballast resistor during starting. As a result the vast majority of users of MegaSpark coils on road vehicles do not require the Cold Start Adaptor as part of the kit.

However there will still be some instances where a Cold-Start Adaptor is required.

1. On older vehicles which were not originally fitted with a ballast resistor.
2. On Competition Vehicles which do not have a suitable bypass terminal on the starter solenoid.
3. On any vehicle where you are unsure of the existence of an original ballast resistor or a suitable solenoid
This is the most useful application for the Cold Start Adaptor because many installations can be greatly simplified by totally rewiring the ignition, regardless of whether or not a suitable OE Ballast Resistor or Starter Solenoid is fitted.

Technical Information

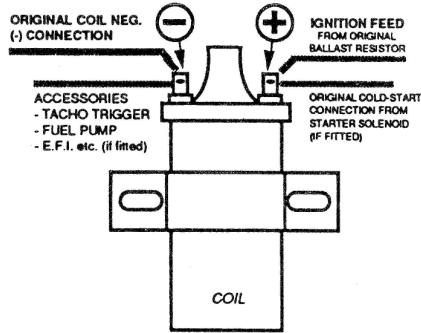
3. VEHICLES WHICH ALREADY HAVE A BALLAST RESISTOR

Some vehicles are built as standard with a ballast resistor fitted. In these cases if the MegaSpark 2 is to be used with the original ignition then the original ballast and its wiring may be used and the new coil fitted directly in place of the original as shown here. This also applies if a new ignition that requires a ballast is being fitted at the same time.

Alternatively if the ignition to be used (either original or new) requires a ballast and you do not wish to use the original then follow the instructions in section 2.

If fitting a new ignition that does not require a ballast then the original resistor should be bypassed.

When a coil is connected by this method the only wires connected to the coil + terminal should be those as originally fitted to the vehicle. Do not connect accessories to this point.

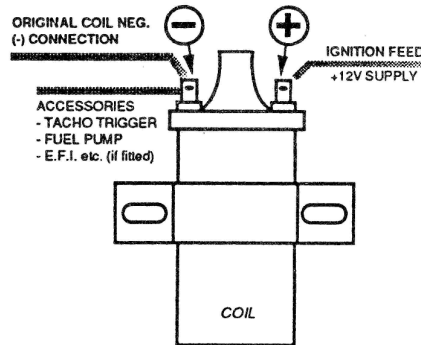


4. IGNITION SYSTEMS WHICH DO NOT REQUIRE A BALLAST RESISTOR

When fitting the MegaSpark 2 to ignition systems that do not require a ballast resistor such as MicroDynamics IGN & EXD types and Original Equipment Current Controlled (module) types it can be connected directly in place of the original part as shown here.

If fitting a new ignition system at the same time as the coil; carefully follow the ignition wiring instructions in conjunction with the notes on the back page of this leaflet.

When a coil is connected by this method the only wires connected to the coil + terminal should be those as originally fitted to the vehicle. Do not connect accessories to this point.



IMPORTANT

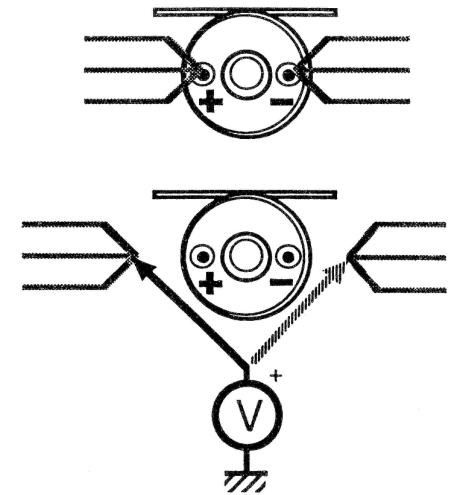
If, after having read these Instructions, you are not completely sure of the individual installation for your particular vehicle, the help of a competent auto-electrician should be sought before attempting Installation as misconnection may cause damage beyond repair.

IDENTIFYING IGNITION COIL CONNECTIONS (Negative Earth)

A - Finding the Coil '+' & '-' connections

1. Most coils have two terminals - They should be labelled '+' (or 15) and '-' (or 1). Each terminal may have more than one wire on it.
2. Remove the wires from both terminals.
3. Switch 'on' the ignition (be careful not to let any wires short circuit to earth).
4. With a test meter (or lamp) check to find which wire is live - this will be the coil supply feed from the ignition switch.
5. Switch 'off' the ignition and re-connect the coil wires.

NOTE - If the connections to the coil are reversed (ie. wrong) the ignition will still work but not at full efficiency. If the coil is wrongly connected then there is a danger of any accessory equipment also being wrongly connected to the coil.



B - Finding the Ignition 'drive' (or signal) wire

1. Where the coil '-' (or 1) terminal has more than one wire it may be difficult to locate which one is the ignition 'drive' (or signal) wire from the ignition amplifier (or contact breaker). Identifying this wire is essential when fitting some accessories (such as electronic ignition).
2. Carry out the tests in 'A' above to identify the coil '-' (or 1) terminal.
3. Remove one wire at a time to find out which one prevents the engine from being started.
4. If more than one wire is found in '3' one will be the ignition 'drive' wire and the other will be the signal feed to the fuel pump relay or the fuel injection. The ignition 'drive' is the one which, when removed, stops the ignition coil primary from being switched (no HT sparks when trying to start the engine).
5. Switch 'off' the ignition and replace connections.

