

GAMMATRONIX **BLACK TOP** Ignition System Fitting Instructions

Preparation

READ THIS INSTALLATION MANUAL THOROUGHLY BEFORE YOU START

Before attempting to fit the unit, **check that you have the correct type** (voltage and earth) for your vehicle! The unit comes as a 6v or 12v version, positive earth. The LED is colour coded to indicated type. Orange = 12v, positive earth. Red = 6v, positive earth.

Fitting consists of mechanically mounting the unit, fitting a new contact breaker (points) and removing the existing condenser, and connecting up the four wires. In the unlikely event you encounter problems contact Gammatronix at email gammatronix@gmail.com for advice. We will always take back and refund if the unit is found to be unsuitable for your vehicle.

Contact Breaker (Points)

To get full benefit from the unit, you should replace the contact breaker (points), which may have already lead a hard life in your conventional ignition and have pitted or damaged surfaces. This is not essential, but is a useful step to maximise performance. Set the normal gap and dwell angle as for your cars standard setup. It is also recommended that you replace the spark plugs at the same time as fitting the electronic system to obtain maximum benefit from your new installation. Ensure that the engine runs after fitment of the new breaker and plugs.

After verifying engine operation after fitting the new points, disconnect the condenser, as the Electronic ignition box will not work optimally with it in circuit. The Electronic ignition box has its own 'condenser' facility inside. DO NOT run the car without the condenser fitted until installation is complete.

Mounting the unit

To mount to the coil, use suitable screws through the 3.5mm holes. Alternatively use the cable ties provided, looped through the mounting holes.

Avoid mounting the unit too close to any direct source of heat (i.e. directly over the exhaust manifold!). The unit, like the rest of your ignition system, doesn't like getting wet, so mount in a suitable position away from where water may spray or enter the engine compartment.

Wiring

With the unit mounted, new contact breaker fitted, and the condenser disconnected, we now have to wire up the unit. The cable supplied is approx 400mm long, which you can trim to suit.

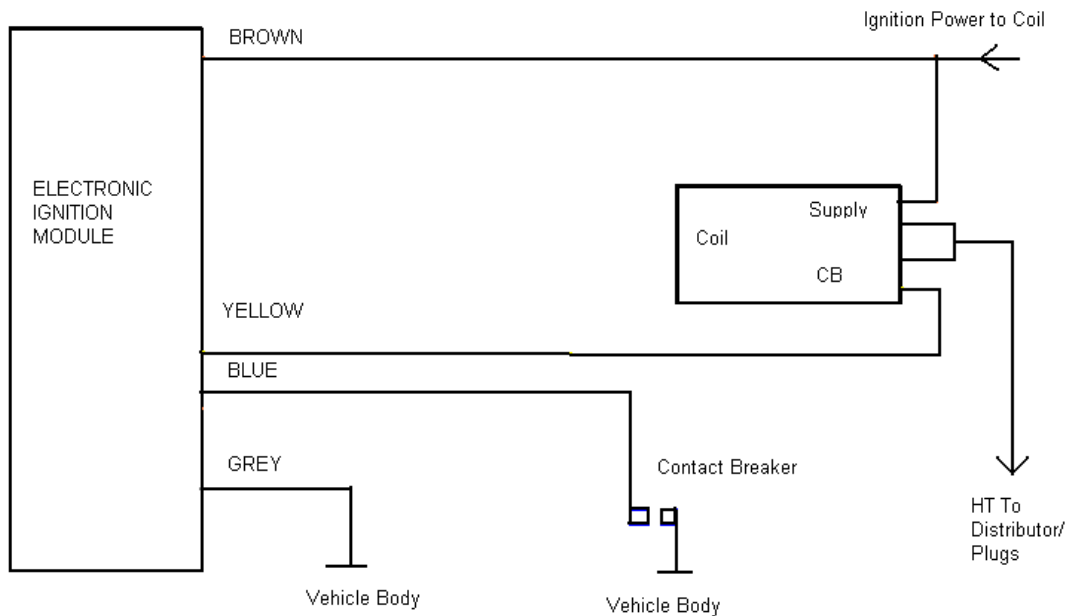
We want to keep all our wiring WELL AWAY from the coil's HT cable when fitting. This is to prevent insulation breakdown from the HT wire arcing over to the smaller cables and damaging the unit. You will also want to avoid touching the ignition system HT leads during operation, or you may obtain a nasty shock, as would be the case with any ignition system.

When installing the system, all you are doing is connecting up power and ground to the unit, and 'breaking into' the lead which originally went from the contact breaker / points directly to the coil, so that the Electronic Ignition box is now in circuit with the original contact breaker / points lead routing.

You will need to fit suitable connectors to the leads to suit your installation as every vehicle is different as to connectors required. Auto stores, such as Halfords in the UK, stock a further selection of automotive electrical connectors.

You have four wires to connect from the unit. They are colour coded as follows:

Brown – ignition power connection.
Grey – system ground / earth (vehicle chassis).
Yellow – Coil contact breaker terminal.
Blue – contact breaker connection.



Firstly, we need to find out which coil connection provides power, and which is the contact breaker / points connection. If you can clearly tell which lead is physically going to the contact breaker / points, the other has to be the power lead. If however there is ANY doubt, you need to use a voltmeter. Disconnect both leads from the coil, (measuring with them fitted will give a false result!) and with the ignition switched on, look for a power supply feed with the meter on each of the wires with respect to vehicle earth. One should show battery voltage, the other should have no voltage present. The one with no voltage is the contact breaker, the one with power is the ignition coil power supply. Note which cable is which, and mark them up to avoid confusion later.

Some cars use a 'ballasted coil' system that provides full 12v to the coil during starting, but drops it by a few volts during running. This is to give a 'boost' to the spark when starting. If your car has a ballasted system, you cannot connect the brown power wire of the system directly to the coil supply terminal (as shown in the drawing), as this point will not carry full power in operation and the system may malfunction due to lack of supply voltage. If you are not sure if your car has a ballasted system, measure the voltage at the coil power wire **with engine running**. If it is not over 12v, you may have a ballasted coil system. In this case, leave the coil connected to its original power terminal, and take power to the brown wire of the unit from a fused full 12v feed via the ignition switch. The diagram above shows a non-ballasted system.

Connect as follows:

Brown - Fit the Brown wire to the coil supply terminal wire you located earlier. You should now have the Brown wire and the original coil power wire on the coil power terminal. (Ballasted systems, as described, should take power for the brown wire from a point supplying full 12v, NOT from the coil terminal).

Grey - Connect this ground wire to a **good clean earth** position on the vehicle body. Not a rusty, tucked under a dirty screw, earth.

Yellow – Connect using a suitable connector onto the coil contact breaker tab / post / wire. (This will be the one and only wire on this coil terminal)

Blue – Connect to the wire that you found earlier that goes to the contact breaker points.

Using the small cable ties provided, make good the cable routing and tie together any excess loose cable. In particular, make sure wiring cannot touch the large HT output wire, as arcing may occur which will damage the unit.

Testing

If all is correct, switch on the ignition and start the engine. It should fire up, and run under your new electronic installation. If it does not, or the engine runs poorly, go through the below checklist. All units are bench run for at least 4 hours on an ignition rig driving a real coil / spark system and are delivered as 100% operational. Any problems are often due to one of the below:

- Check the wiring. In particular, be sure that you have identified the contact breaker/points and power wires to the coil correctly. Getting this wrong can damage the unit internally.
- Make sure you have a full 12v feed to the brown wire, and that the grey wire has a good earth to the vehicle body. Failing to have a good supply and earth may cause the vehicle not to start, or cause erratic running.
- Did you remove the condenser from the contact breaker / points as instructed? Failing to do so may alter ignition timing.
- Did you ensure your original setup (after fitting new points) still worked? If you didn't change your points, check they are clean, flat, correctly gapped and timed and un-pitted. Ideally, fit new points.
- Is the mechanical advance system in your distributor working correctly?
- With ignition on, and engine not running, open and close the points by hand. Ensure that the LED on the ignition box goes on and off as the points are operated. If it does not come on, this indicates low power supply, or wiring issues.

Always take the vehicle on a short journey close to home to test the installation is sound and working correctly.

LED Indicator

This monitors the position of the contact breaker points (LED will be ON if breaker is closed). Therefore, with the engine stationary and ignition on, it will be on or off depending on the position of the contact breaker points. Once the engine is started, the LED will rapidly flash, or seem to be permanently on once the engine is revved much above tick over. **If the LED does not light at any time, or does not flash as the contact breaker is opened and closed, you have a wiring problem.**

NOTE: IF you have photosensitive epilepsy, DO NOT VIEW THE FLASHING LED. Cover it with tape if it is hazardous to you.

A note on Conventional Ignition Systems

Conventional ignition systems are simple designs, dating back over 100 years. They create a spark by simply connecting and disconnecting a source of DC current to the primary (via the contact breaker) to create a high voltage pulse on the coil secondary. If you turn on the ignition without starting and running the engine, you have an approx 50/50 chance that the contact breaker is either open or closed. If closed, the coil will be fed with a constant (not pulsed) source of current which will cause it, and the electronic ignition, to heat up excessively if left in this state for more than a minute or two. It is good practice never to leave the ignition on without the engine actually running.

Safety, end of life, and warranty statement



This unit is an installable component and not a complete system in its own right and therefore requires installation into an existing vehicle ignition system. The installation, use and suitability in a given application is the responsibility of the installer. Any damages or consequences are limited to the replacement of the unit under the 12 month guarantee or original purchase price. Do not allow the unit to become damaged, wet, dismantled, or make modifications to the enclosure or internal parts. Do not use the unit outside of its operating voltage specification (according to model). At end-of-life this product should be taken to suitable recycling facilities and not put into general household rubbish.