



A. CHANNEL NUMBERING

The Newtronic switching unit may have 1, 2 or 3 ignition channels depending upon the application.

A **Single** lamp is always connected to channel 1 of the switching unit with a blue wire on **pin 3**. This will trigger **LED1** on the left of the switching unit.

A **Double** lamp will generally have lamp 1 (blue) at the end of the sensor assembly run with lamp 2 (black) closer to the connector.

Lamp 1 connected to **pin 3** will trigger **LED1** on the left of the switching unit.

Lamp 2 connected to **pin 5** will trigger **LED2** on the right of the switching unit.

A **Triple** lamp assembly will usually have lamp 3 (white) at the end of the sensor run with Lamp 2 (black) in the centre and Lamp 1 (blue) nearest the switching unit.

Lamp 1 connected to **pin 3** will trigger **LED1** on the left of the switching unit.

Lamp 2 connected to **pin 5** will trigger **LED2** on the right of the switching unit.

Lamp 3 connected to **pin 4** will trigger **LED3** in the centre.

In some cases the general connection rules above are changed to suit a particular installation. In this case refer to the instructions provided with the kit for the Lamp to switching unit pin assignment.

B. SWITCHING OPERATION

It is possible to static time the ignition using the LED indicators on the switching unit. When an LED is ON it shows that the coil connected to that channel will be charging. When the LED changes from ON to OFF the ignition coil will fire on that channel.

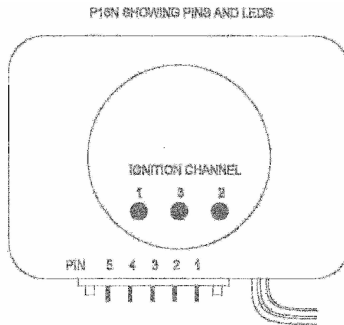
Remember, if the coils are connected they will be drawing current all the time that the LEDs are ON. It is recommended that the static timing is done initially with the coils disconnected to avoid possible damage by overheating of the ignition parts.

On single lamp units LED1 on the left will show the operation of the coil connected to the yellow wire out from the switching unit.

On double lamp units, LED1 on the left will show the operation of the coil connected to the yellow wire out from the switching unit. LED2 on the right will show the

operation of the coil connected to the violet wire.

On triple lamp units, LED1 on the left will show the operation of the coil connected to the orange wire out from the unit. LED2 on the right shows for the coil connected to the violet wire. LED3 in the centre shows operation for the coil connected to the yellow wire.



C. STATIC TIMING PROCEDURE

Refer to previous information or fitting instructions to identify the correct sensors and channels for your engine. Ignition must be on but it is recommended to remove the power from the coils or their connection to the Newtronic unit.

1. Set your engine to the static timing position for the first cylinder or cylinder pair.
2. The trailing edge of the rotor blade should be close to the centre of the lamp sensor for that cylinder.
3. If the LED for the firing coil is initially OFF, rotate the sensor baseplate in the direction of engine rotation until the LED is ON.
4. If the LED for the firing coil is ON, rotate the sensor baseplate in the opposite direction to the engine until the LED just goes OFF.
5. Tighten the screws on that baseplate to fix the firing position.
6. Set the engine to the static timing position for each cylinder or cylinder pair in turn.
7. Carry out the same procedure 2 to 5 observing the LED for the appropriate firing coil and moving the baseplate for the relevant sensor.
8. The static ignition positions should now be set for all cylinders.
9. Reconnect the coils and start the engine. Check ignition timing with the engine running using a strobe light.

WARNING: Ignition must not be left on or coils charging for periods in excess of a few minutes at a time as over-heating and damage may occur to either the coils and/or the Newtronic Switching Unit.



A. ENGINE DOES NOT START

Incorrect wiring

- Check connections to the coils and that the 12V feed from the ignition switch is connected to the coils.
- Check that the earth connection is sound.
- Check that the wiring to the switching unit is correct, especially in the moulded plug.

Engine backfires on cranking

- Timing rotor 180° out.
- Check coil connections for correct colour coding.
- Check that the condensers have been disconnected.

Flat battery

Charge battery.

Lack of fuel

Check that the fuel tap is on and that there is fuel in the tank.

Timing rotor not covering lamps properly

Slacken adjusting screws and move plates carrying the lamps inwards.

Timing rotor has severed the lamp lead

Send assembly back to Newtronic Systems.

Faulty system

Follow assembly check procedure.

B. ENGINE STARTS BUT RUNS POORLY

Engine does not advance properly

- Auto advance mechanism binding.
- Engine timed on T mark instead of F mark.
- Auto advance mechanism not engaged properly in end of crankshaft.

Engine misfires at low revs

- Loose electrical connections, especially earth.
- Rotor not covering lamps.
- Incorrect ignition timing.
- Faulty ignition system.

Engine runs on only half number of cylinders

- Check all electrical connections.
- Rotor not covering lamps.
- Faulty ignition system.

Engine misfires at high revs

- Faulty electrical connections.
- Water in HT connection.
- Spark plugs breaking down.
- Cracked spark plug caps.
- Faulty ignition system.

C. SYSTEM CHECK PROCEDURE

1. *To check the Switching Unit*

Disconnect lamp leads from the switching unit. Remove the HT leads from the plugs and connect spare spark plugs into the caps. Place the plugs on top of the engine or similar earthed structure.

Switch on the ignition and all LEDs (1, 2 or 3) should be ON.

Using a short length of wire connect Pin 1 to Pin 3 repeatedly and sparks should occur at one of the plugs.

(Two plugs in the case of a 4 cylinder engine). The left hand LED1 will go OFF each time the connection is made. Continue by connecting Pin 1 to Pin 5 and sparks should occur at another plug or plugs. The right hand LED2 will show operation.

If available, connecting Pin 1 to Pin 4 repeatedly will give sparks at the remaining plug(s) and LED3 will show operation.

Care should be taken **NOT TO SHORT PIN1 TO EARTH.**

If sparks appear at relevant plug (or plugs) when the connections are made the unit is satisfactory.

2. *To check the lamp assembly*

To be done after checking the switching unit. Re-connect the lamps with the coil HT leads still connected to the plugs on top of the engine. Move a piece of card or plastic through each lamp sensor in turn and a spark should be visible at each plug (or plugs) in turn. The LEDs should initially be OFF if the lamp sensor beam is open. When the beam is obstructed the LED will come ON and the coil charged ready to fire. The coil will fire when the lamp sensor becomes clear again.

If this occurs both the unit and the lamps are satisfactory.

D. PROBLEMS IN TIMING ENGINE

- A xenon stroboscope is easier to use than a neon one. This has a brilliant white light not an orange-red one.
- Check for free movement of Auto advance mechanism.
- For additional accuracy check the position of the manufacturer's timing marks using a dial gauge.

WARNING: Ignition must not be left on or coils charging for periods in excess of a few minutes at a time as over-heating and damage may occur to either the coils and/or the Newtronic Switching Unit.