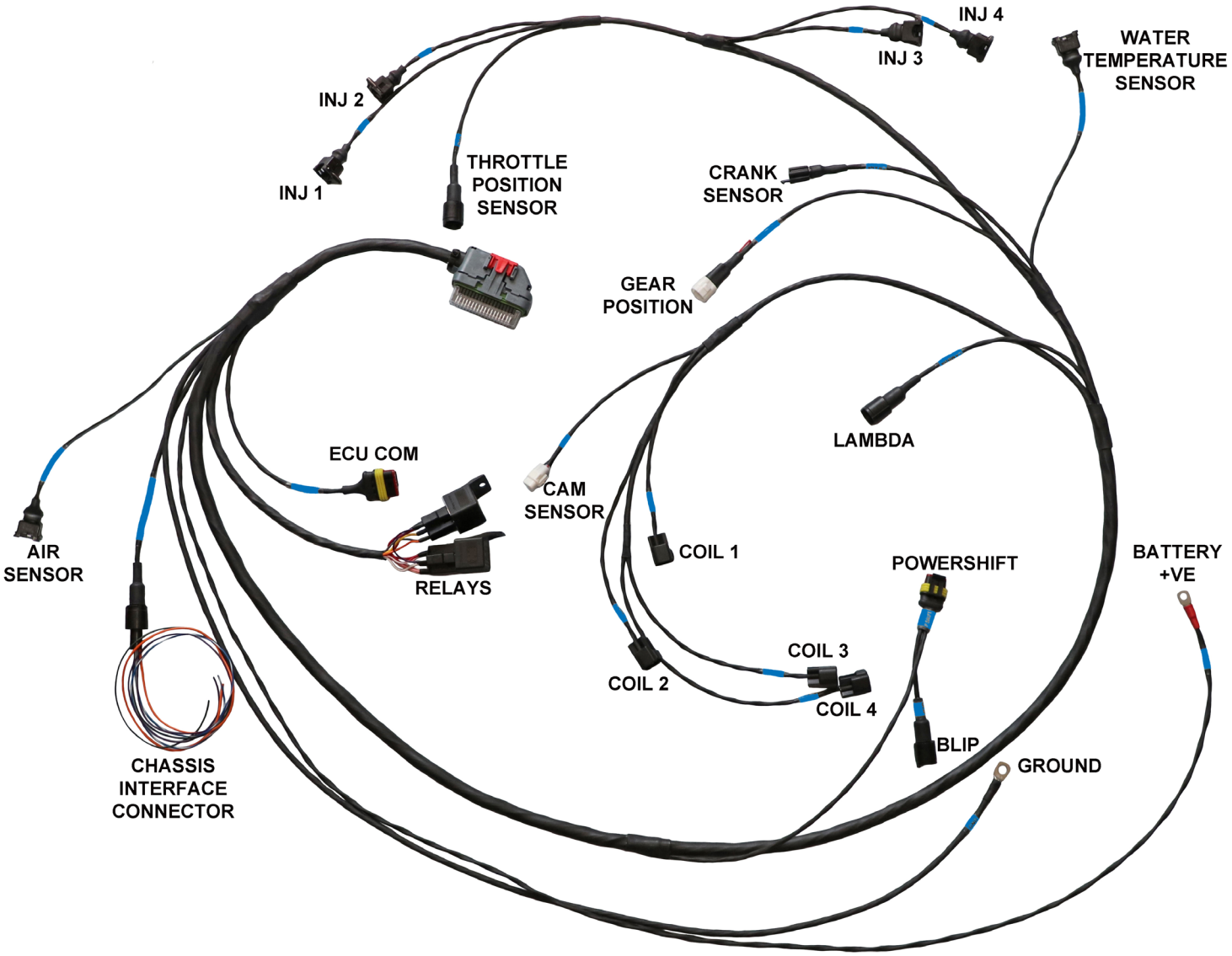
October 2022

LM9A4-ENG-GSXR-01 Fitting Instructions

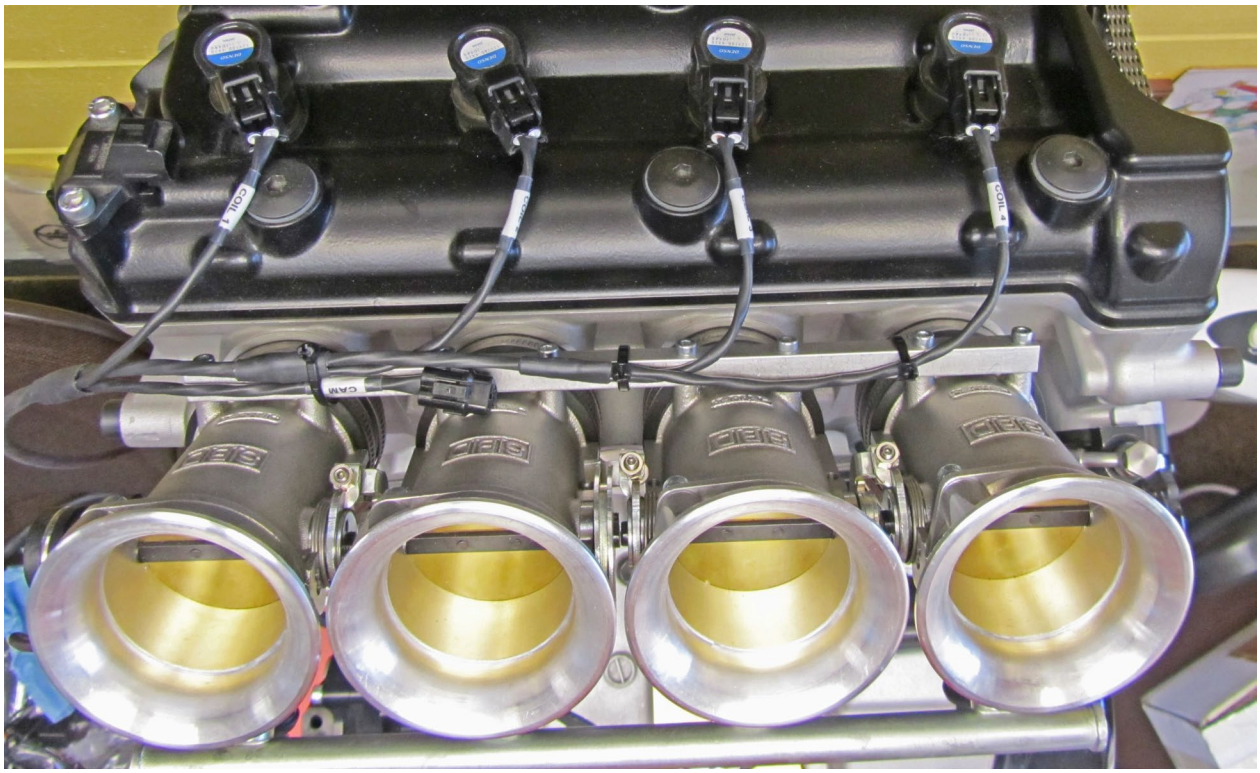


Chassis/Interface Connector 4 way male Sureseal

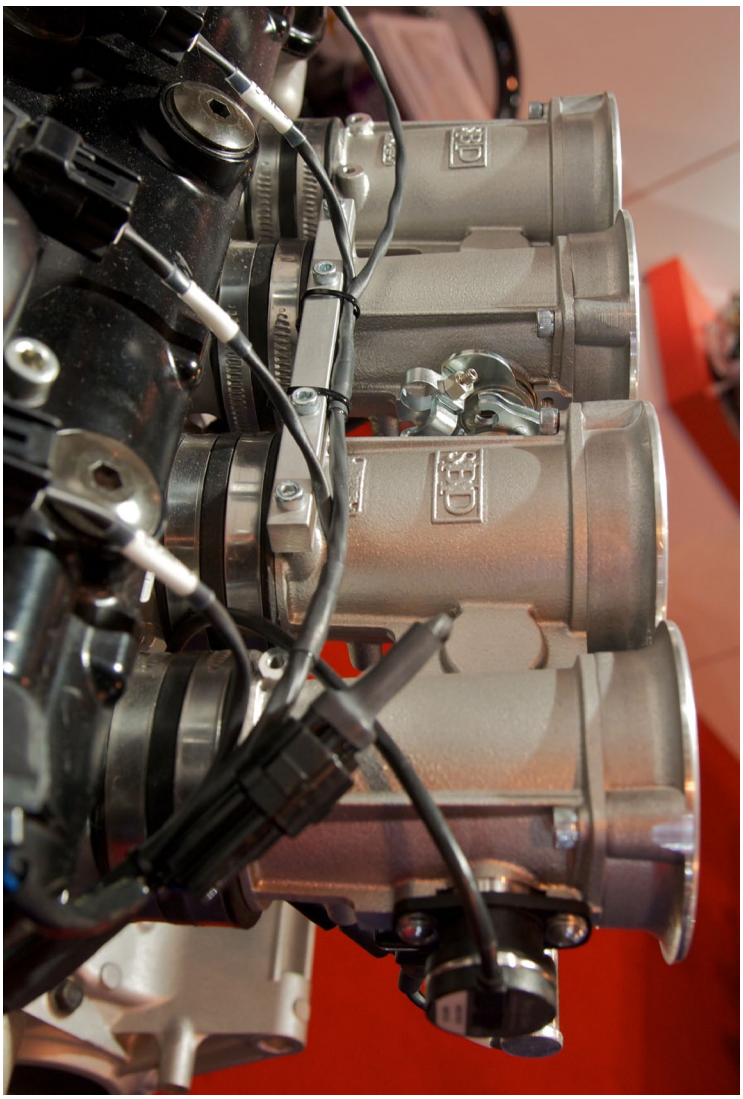
Purple	1	Ignition
Orange	2	Fuel Pump
Green	3	Tacho
Blue/White	4	Gear Shift Lamp

The LM9A4-ENG-GSXR-01 wiring loom will suit all generations of Hayabusa engine.

The injector sub harness has been built into this loom as many early Suzuki looms are now becoming quite old and can be faulty.

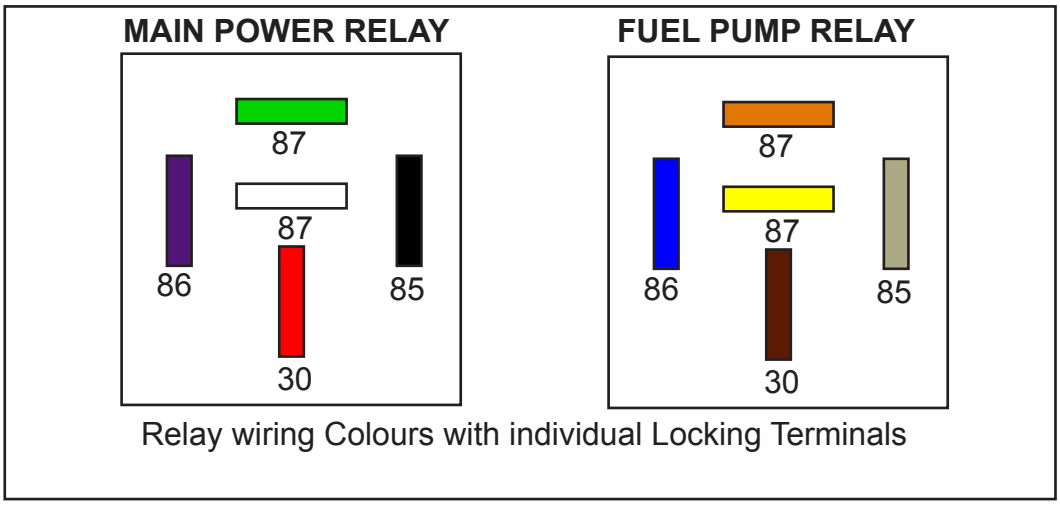


This harness is ideal for use with the TP-BUSA-50K throttle bodies (shown above) when used on the ‘99 - ‘07 engines or the TP-BUSA-T50K-TWIN throttle bodies (shown right) for the ‘08 onwards engine. See website for more details.



RELAYS

We have redesigned the relays and mountings on all our wiring harnesses to help overcome any potential vibration issues which could occur, particularly on high revving Hayabusa engines, which could produce premature failure of the relays or terminals. All our relays now have locking terminals, which physically lock on to each pin. Some of these are individual terminals and others are in a grouped connector. We then normally cable tie the relays directly to the harness as shown, this further helps to reduce vibration. Alternatively rubber mount each relay, they must NOT be screwed directly to the chassis of a car (carbon fibre tubbed cars are the worst for transmitting vibration).



Relay wiring Colours with individual Locking Terminals

INTERFACE COLOURS

Purple	(Pin 1)	Ignition (switched) to +12v
Orange	(Pin 2)	Fuel Pump (+12v Out to pump)
Green	(Pin 3)	Taco
Blue/White	(Pin 4)	Gear Shift Lamp (switch Neg 0.25amp max)

CHASSIS GROUND

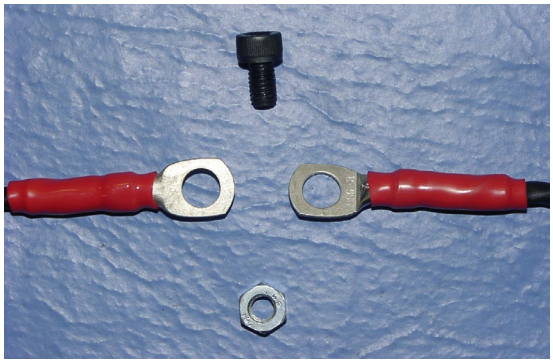
Chassis ground should be connected to a suitable earth. if your car is equipped with a steel chassis, it should be bolted to a cleaned steel surface. Alternatively directly to the battery.

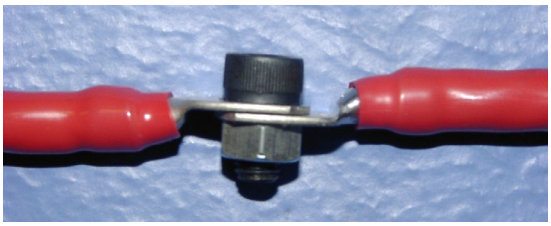
If your car is equipped with a carbon chassis, then you would need to connect it directly to the battery. You must also have an earth from the engine to the battery because the coils need to earth through the engine back to the battery.

PLEASE ENSURE VERY CLEAN SURFACES.

Battery +ve should be connected to the Master switch, if the lead won't reach use an extensionlead and join as follows.

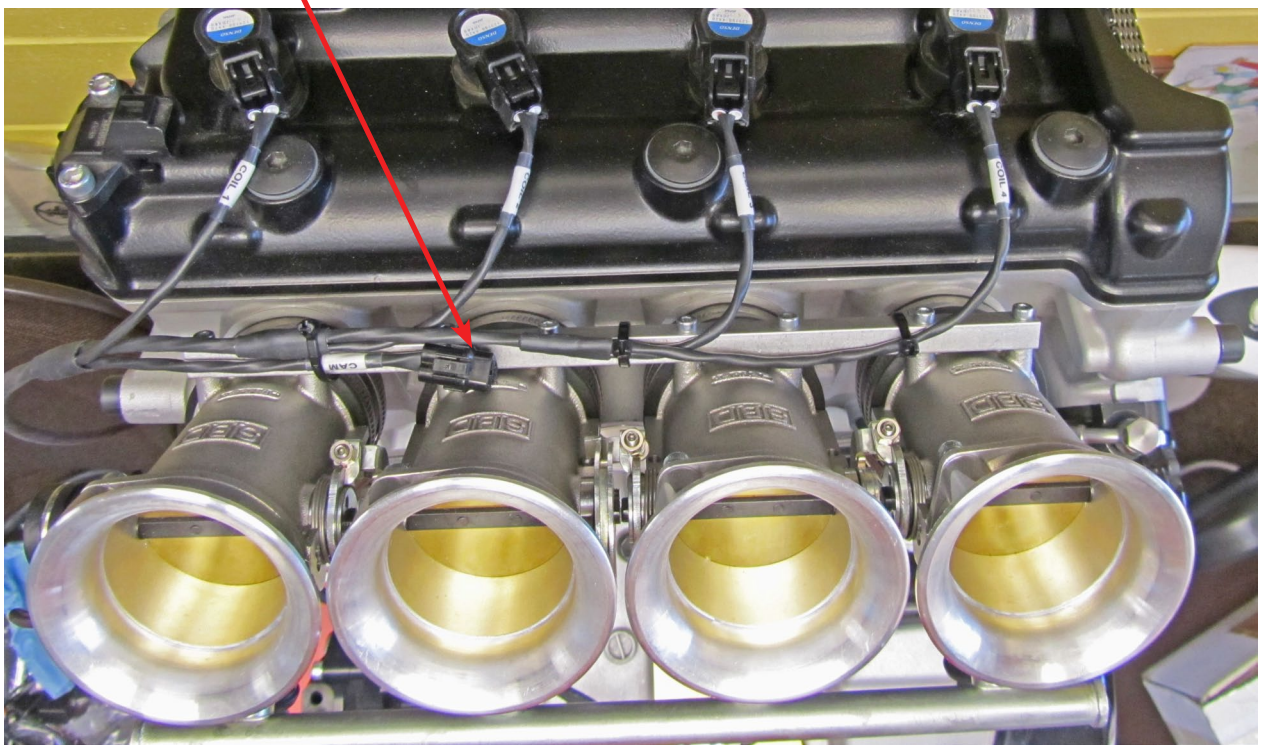
Join ends with nut & bolt, then cover with heat shrink.

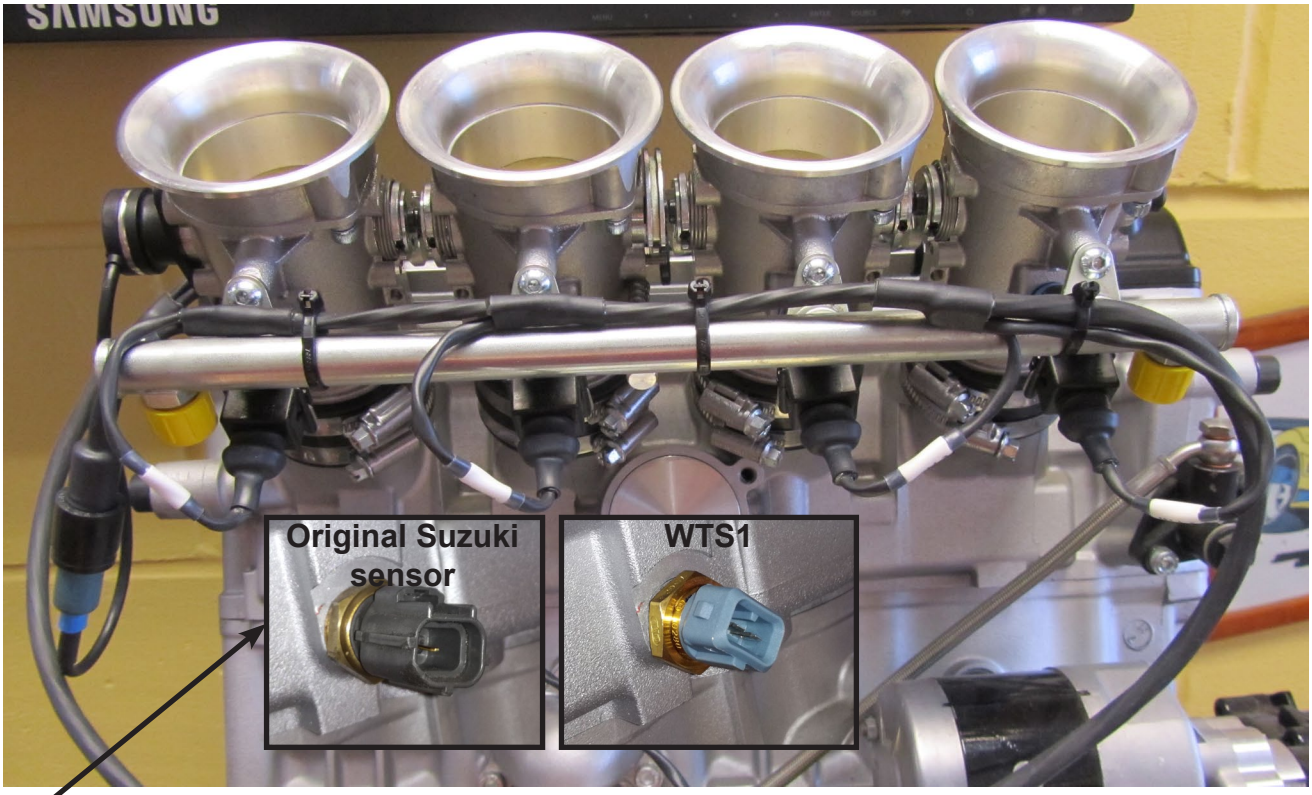




CAM SENSOR

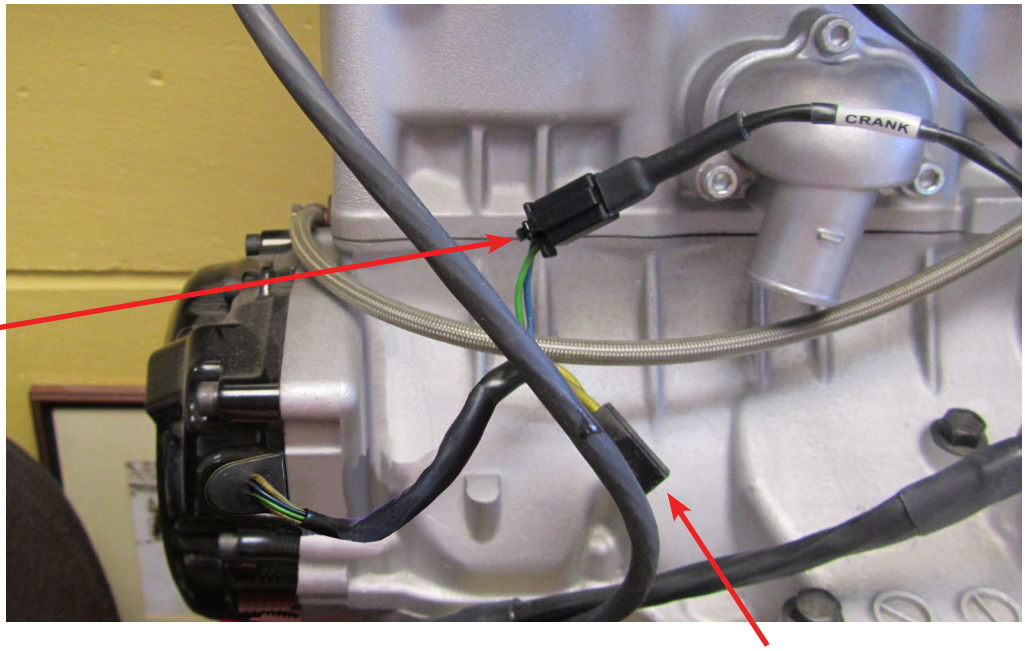
We have developed some very special software with MBE, which allows the Hayabusa engines to run even if the cam sensor becomes faulty. The cam sensor fitted to the earlier engines ('99-'07) is an inductive type sensor and not the most reliable. So the current harness has a connector that is the same as the Gen2 engine. You can either leave the engine to run without a cam sensor on the Gen1 versions or we can supply an uprated Hall effect type sensor, which will mount directly in the position where the original sensor was fitted (part no: CM-BUSA-SENSOR-02K). If fitting to the Gen2 with our throttle bodies, the harness will connect directly to the Gen2 sensor (this sensor does not fit the Gen1)





WATER TEMPERATURE SENSOR
WTS1

We have standardised the water temperature sensor for the Hayabusa installation. The original Suzuki component is very expensive, this sensor has the same calibration as the original Suzuki sensor, but less than a quarter of the price. This sensor has always been used by Radical as their standard sensor. Please check your engine to see if or what sensor you have fitted.
Sensor not supplied with harness.



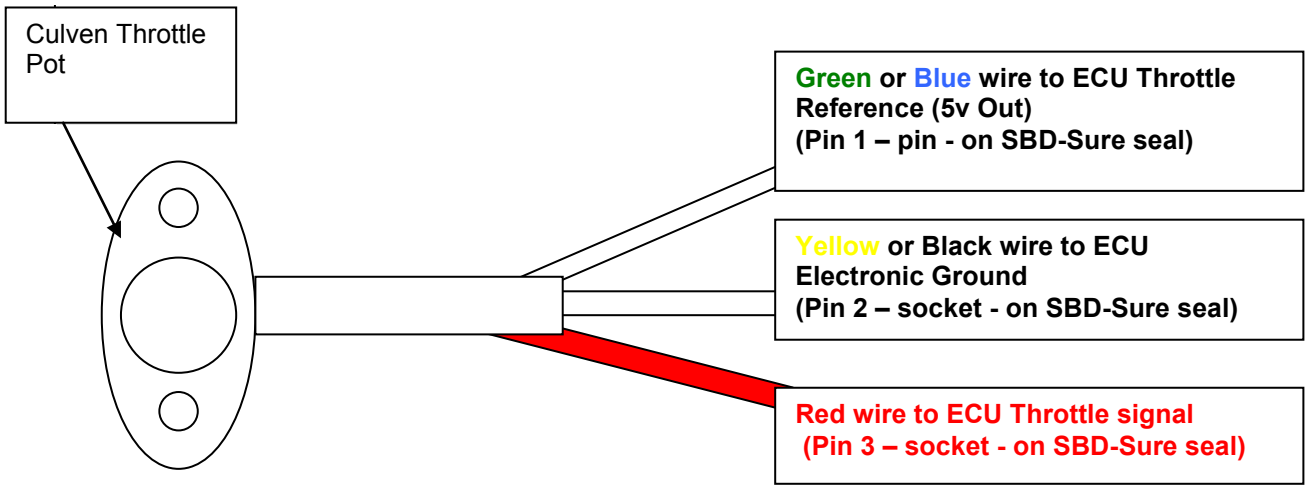
Crank sensor

Generator output.

Throttle pot wiring for Culven type sensor

9A4 ECU Pin out for Throttle sensor

5v Reference = Pin 22 of ECU
Electronic Ground = Pin 23 of ECU
Throttle Signal = Pin 20 of ECU



IMPORTANT NOTE

In most Cases the voltage for the throttle pot when the engine is at idle is 0.36 Volts this is however only for engine that have been programmed by SBD. You will also need to know the units of air when the engine is at idle (this will be in KGs per hour) & the fuel pressure your engine was mapped.

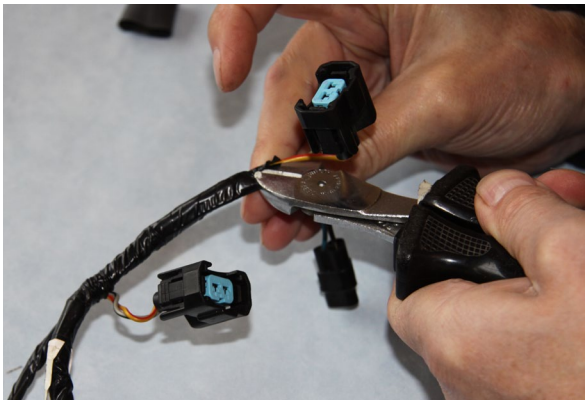
Using original Hayabusa throttle bodies with standard injectors

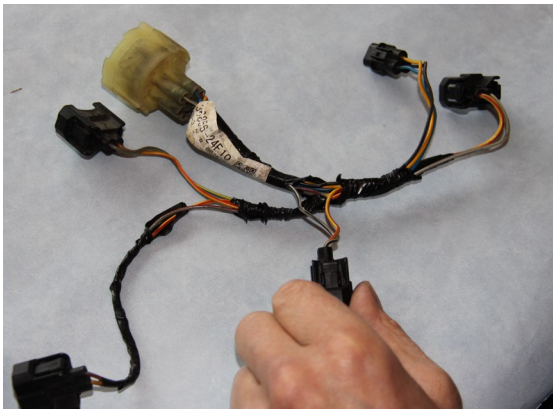
If using with original Hayabusa throttles with standard injectors, you will need to add adaptors to the injector connectors, SBD part number: LM9A4-GSXR-S-KEIHIN-01.

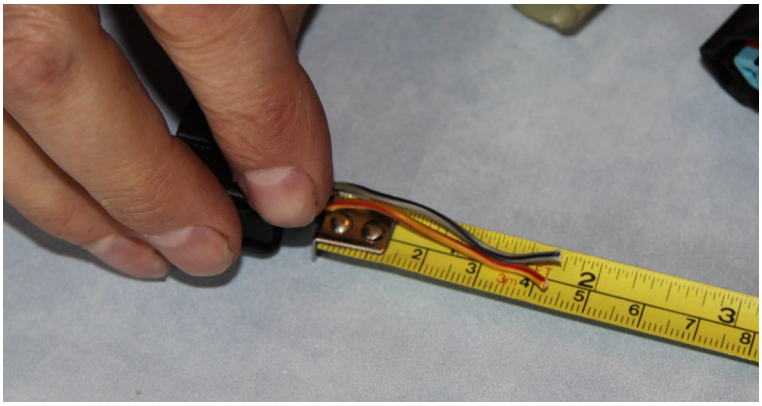
Alternatively you can make your own adaptor by adding SBD part no: LM-CONN-2P-M-K to each of the standard injector connectors to enable you to plug into our wiring harness. This means that if you wish to upgrade to our thottle bodies in the future, it is simply a matter of unplugging the adaptor.

You will need the following tools and components:

1. Trim the covering tape from the injector harness to reveal the wires.

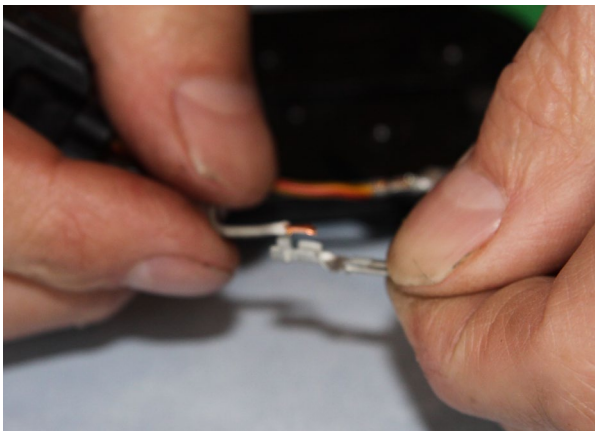




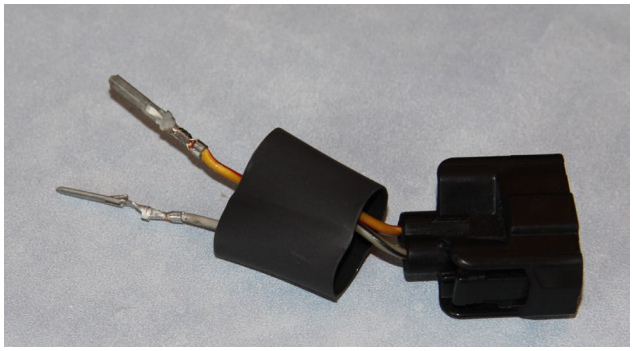


2. Cut each connector from the harness leaving 45mm of wire to allow the new connector to be fitted.

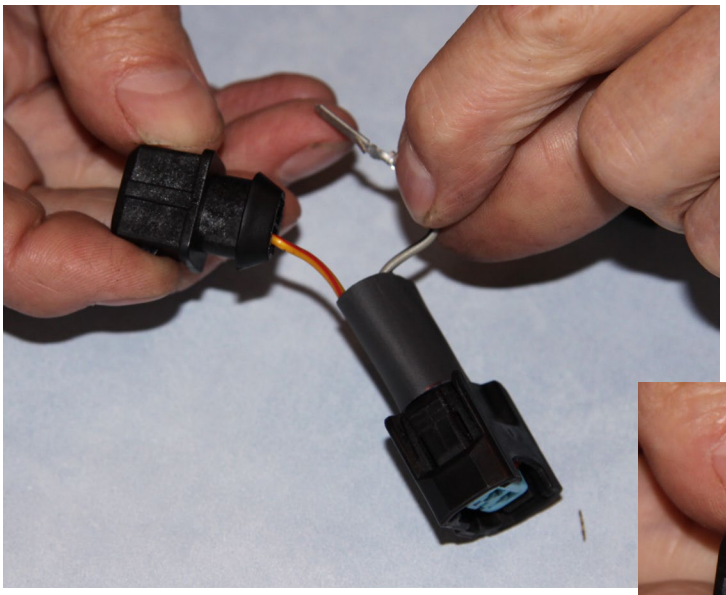
3. Strip approx 5mm of the covering insulation to expose bare wire. Crimp on the pins.

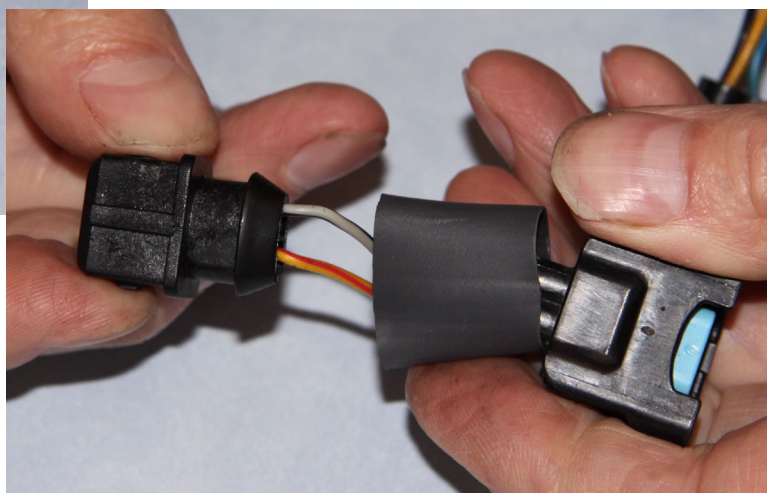


4. Put heat shrink over the wires before connecting to the new connector.

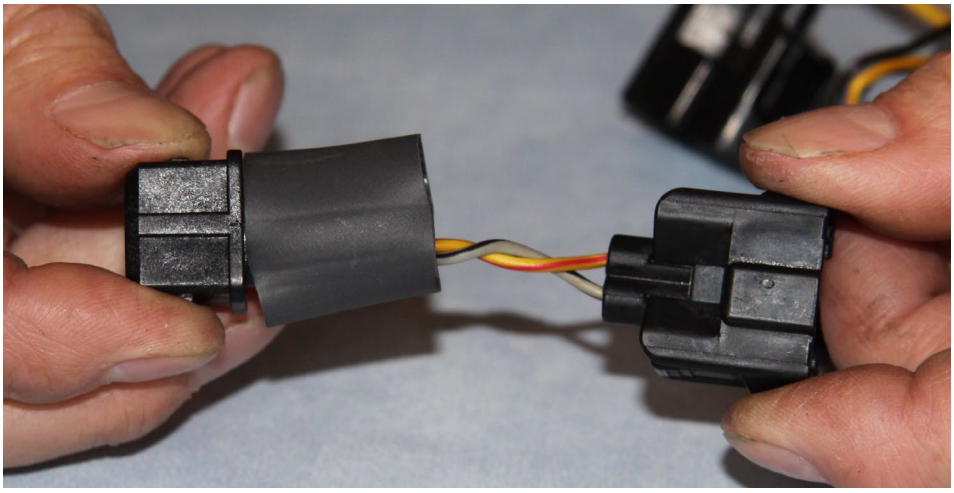


5. All the connectors have two wires, the 12v is the wire which is the same colour on all connectors, normally yellow with a red trace. Insert the terminals into the connector in the position shown below, ensuring that the terminals lock in.

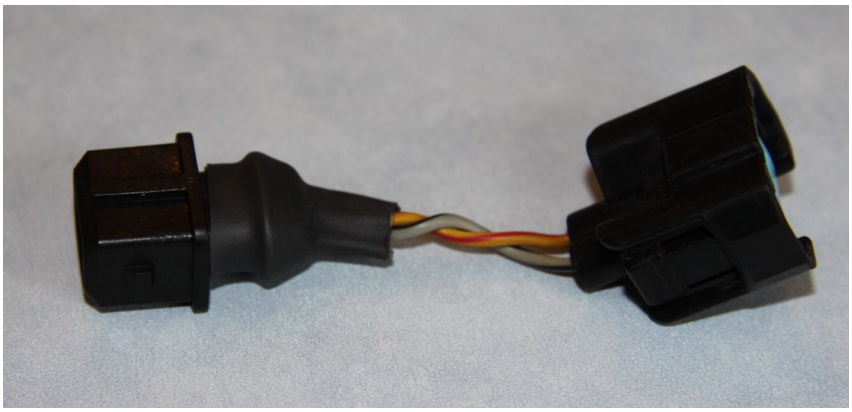




6. Twist wires together as shown below.



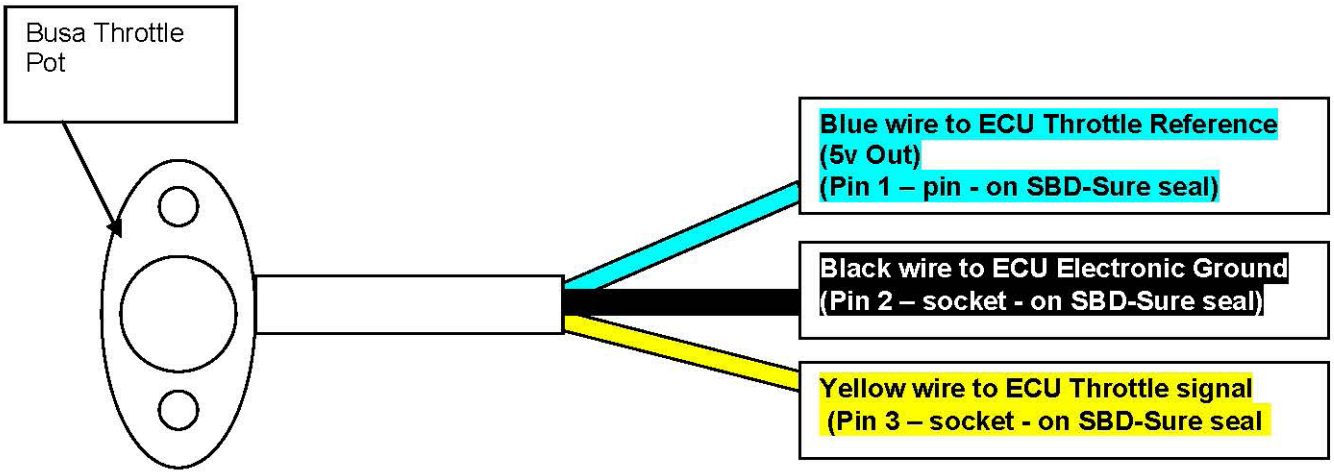
7. Move heat shrink in place and apply heat to shrink.



Throttle pot wiring for standard Hayabusa sensor only

9A4/992 ECU Pin out for Throttle sensor

5v Reference = Pin 22 of ECU
Electronic Ground = Pin 23 of ECU
Throttle Signal = Pin 20 of ECU



IMPORTANT NOTE

In most Cases the voltage for the throttle pot when the engine is at idle is 1.24 Volts this is however only for engine that have been programmed by SBD. You will also need to know the units of air when the engine is at idle (this will be in KGs per hour) & the fuel pressure your engine was mapped.

Please be aware that Technical Support involving our Technicians is chargeable.

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