SBD Motorsport

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SBD Hayabusa TP50 Throttle Body Kit Set-up Instructions

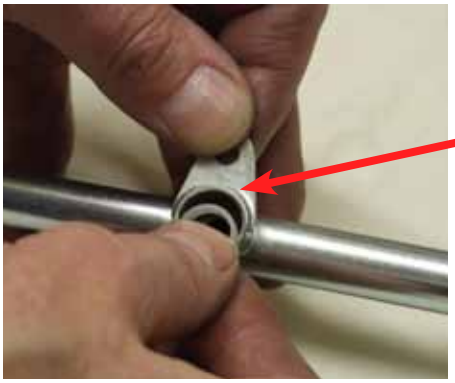
ONLY NEEDED IF FITTING SHORT AIR HORNS

In order to fit the short air horns to your throttle bodies, the holes must be drilled out to 5.50mm. This should be done before fitting the throttle bodies together.

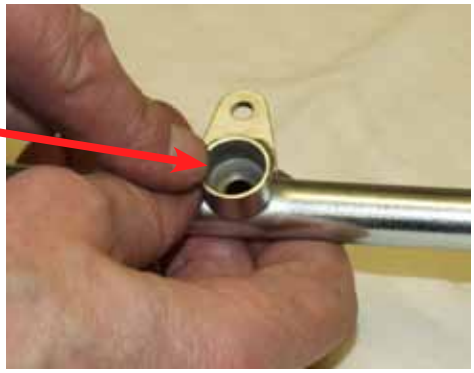
FITTING THE THROTTLE BODIES TOGETHER

Loosely fit stabilising bars to throttle bodies, ensuring they are in the correct order. Once all the bolts have been fitted, tighten bolts.

FITTING THE INJECTORS & FUEL RAIL

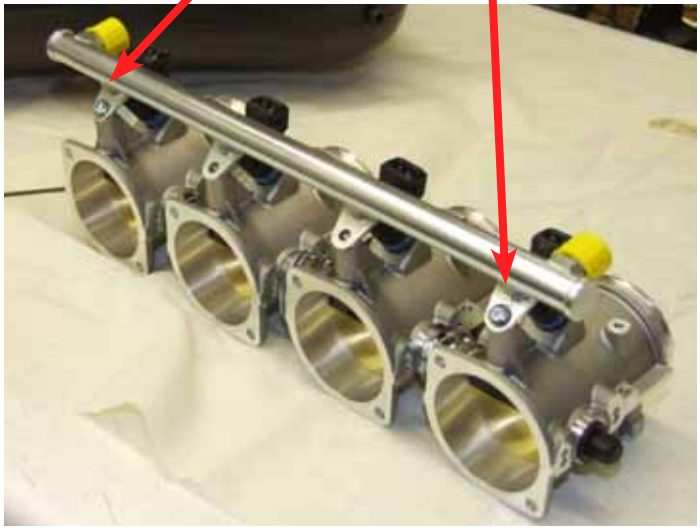


Insert the injectors spacers into the fuel rail



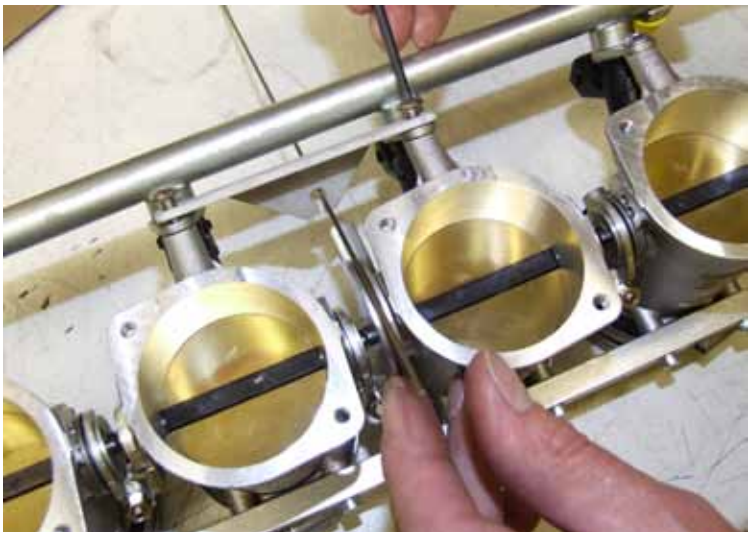
Put silicon on the injector o-rings & insert into the fuel rail.

Attach the fuel rail & injectors to the throttle bodies & hold in place with the end two bolts.



Attach the throttle cable bracket to the centre bolt holes. Do not tighten the bolts yet.

Use a rod (eg 1.5mm welding rod) to centre the bracket so the throttle cable runs straight. Once centred tighten all the bolts of the fuel rail.



When fitting your throttle cable, ensure that the cable clamp (or fixed end eye) length is 4.5mm maximum. If you are using our throttle cable clamp, you will need to trim off 2.5mm from the slotted end (shown left).

VERY IMPORTANT

This should be done with the injectors & fuel rail fitted. With the throttle stop screw undo or loose, put the butterflies fully shut with your finger, then adjust the adjacent cross link as shown making sure the grub screw just touches. Do this across all butterflies, this is to help ensure that all the butterflies are set up the same. Once you think you have completed this, hold up to the light to make sure no gaps can be seen through any of the butterflies. Then with your finger operate the throttle cable lever ensuring that all the butterflies open at exactly the same time. If they do not repeat the process again. **This is one of the most crucial parts of setting the butterflies up.**

When finally locking up use an allan key at the same time as the spanner to ensure you do not accidently move the adjusters. Finally re-check the whole set-up.

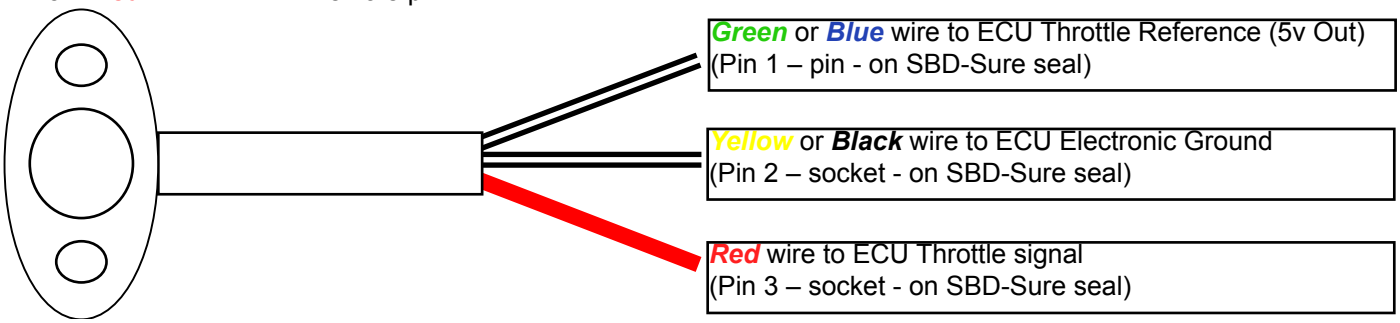
FITTING THE THROTTLE POTENTIOMETER

You have two throttle potentiometer options PT1 or PT8. Please fit the throttle pot now, but leave throttle pot loose & throttle pot screw loose as this will be dealt with later on in the set-up.

Culven Throttle Pot PT1

This will need the 3 pin sure seal connector fitted to it. First make sure you have about 25mm of the red, yellow & green cables protruding out the end of the black cable shield. Strip 5mm of cable outer off of each of the three wires and "tin" each wire using a soldering iron or gun. Now using a crimping tool fit the electrical pins to each of the 3 wires, being careful to ensure the correct pin is fitted to each wire. Solder each terminal onto its wire once it has been crimped.

Pin 1 – Green or Blue – Male pin
Pin 2 – Yellow or Black – Female pin
Pin 3 – Red – Female pin



MBE9A4 ECU Pin out for Throttle sensor

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

The terminals will now need inserting into the rubber Sure seal socket, this is done by spraying some silicon spray (or equivalent) on the terminals and into the rubber socket, and then evenly pushing the terminals into position from the back. Be careful to ensure the correct pin is fitted into the correct position. The sockets, when fitted correctly, should be flush with the inside rubber part of the connector & the pin level with them.
The throttle potentiometer is now ready to be fitted onto the throttle system.
Note – The pin positions are marked on the rubber sure seal at both ends.

The throttle potentiometer will only operate correctly if fitted the correct way around. The potentiometer must be mounted with the lip on the side, facing outwards, and the clamping plate will then fit on over the lip.

PT8 comes with the sure seal connector already fitted. It will only fit on the left hand end of the throttle bodies.

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.

FITTING THE FUEL REGULATOR

Tighten connections on fuel regulator mount.

Lubricate the regulator o-ring with a small amount of silcon (provided with the injectors).

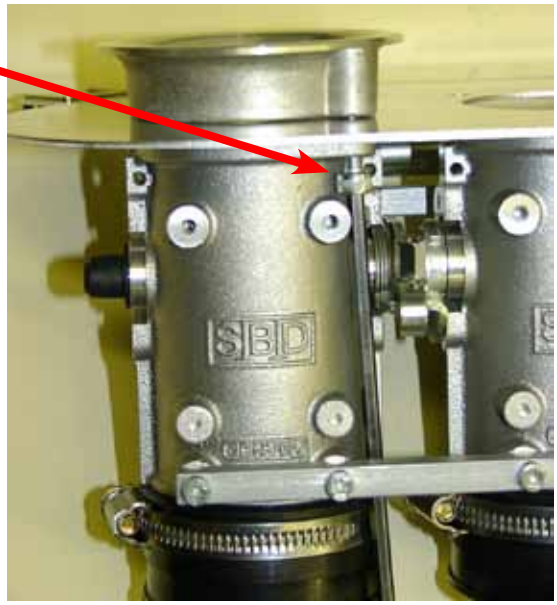
Insert the regulator into the mount & tighten the bolts.

FITTING THE AIR HORNS

The back plate is placed with the clips on the fuel rail side of the throttle bodies

If you are using the long air horns, they will need to be bolted from the air horn side into the throttle bodies, using the smaller of the bolts provided.

If you are using the short air horns, they will need to be bolted from the throttle body side into the air horns (see below & right), insert all the bolts loosely & once the air horns are all fitted tighten bolts.



GSXR INJECTION SET UP INSTRUCTIONS

This is a current list; new models are added all the time. As of Dec 2009, most MBE9A4s will be sent out with idle speed contol, the target speed will be set normally to the value listed below, any variation will be detailed with your ECU.

ENGINE	FUEL PRESSURE	INJECTOR NO	IDLE VOLTAGE (check with engine running)	IDLE SPEED kg/ph	ENGINE SPEC	FUEL TYPE minimum
GSX1300R	4.5 bar	INJ330P PECO	0.36 v	1450-1500rpm 8.0-9.0kg/ph	STD	98/99RON
GSX1300R	3.0 bar	NJ480P PECO	0.36 v	1450-1500rpm 7.0-8.0kg/ph	STD	98/99RON
GSX1300R	3.0 bar	INJ480P PECO	0.36 v	1450-1500rpm 7.0-8.0kg/ph	SBD/CM-BUSA03/BV	98/99RON
GSX1300R	4.5 bar	INJ330P PECO	0.36 v	1450-1500rpm 8.0-9.0kg/ph	ROE 01/02	98/99RON
GSX1396R	3.0 bar	INJ480P PECO	0.36 v	1450-1500rpm 7.0-8.0kg/ph	Powertec1400	98/99RON
GSX1396R	3.0 bar	INJ480P PECO	0.36 v	1400-1450rpm 7.5kg/ph	Mistral big valve	98/99RON
GSX1585R	3.0 bar	INJ480P PECO	0.36 v	1500-1550rpm 9.0-9.5kg/ph	SBD/CM-BUSA03/BV	98/99RON
GSX1598R	3.0 bar	INJ480P PECO	0.36 v	1600rpm 9.0-kg/ph	1585 Basic Map	98/99RON
GSX1585R	3.0 bar	INJ480P PECO	0.36 v	1500-1550rpm 9.0-9.5kg/ph	Powertec1585	98/99RON
GSX1585R	3.0 bar	INJ480P PECO	0.36 v	1500-1550rpm 9.0-9.5kg/ph	ROE1 1585	98/99RON
GSX1585R	3.0 bar	INJ480P PECO	0.36 v	1600 rpm 9.0kg/ph	Mistral big valve	98/99RON
GSX1585R	3.0 bar	INJ480P PECO	0.36v	1450rpm 9.0kg/ph	Mistral big valve 2010 onwards	98/99RON

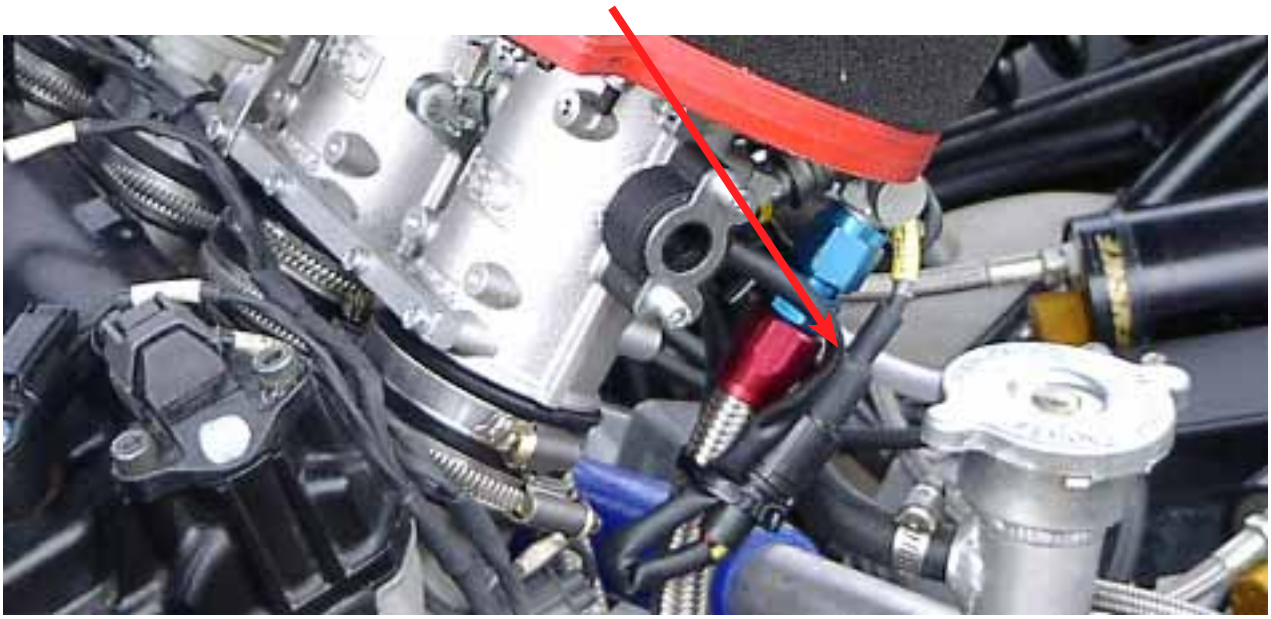
The GSXR1300 to 1600 can be set-up with or without air horns.

SET-UP PROCEDURE

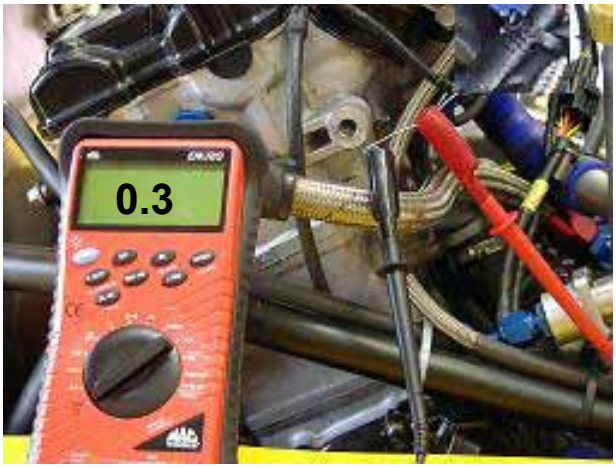
NOTE- Before attempting to start setting up you will need a Syncrometer & either a computer with Easimap6 software + a CAN/USB adapter or a voltmeter

Setting up idle RPM & voltage at idle is the most important part of getting your engine running correctly. If you do not set these correctly, your engine will not run properly. The only way the ECU knows how much fuel is required to make the engine run correctly is by the amount of air being drawn into the engine at idle. The Syncrometer, as shown in the pictures, are available from us, or many reputable Motorsport accessories suppliers. The Syncrometer is extremely accurate and can measure kilograms of air per hour. Without the use of this type of meter, you will not be able to set up your engine accurately enough.

1. Before you start your engine for the first time, you must make sure the throttle pot is at least set at a point which will allow you to adjust the idle settings easily. If you have a computer with Easimap 6, connect it using the CAN/USB lead to the 985 harness. When you turn on the ignition which will power up the ECU, the computer screen will display the throttle position voltage, which is the voltage you must set your throttle pot to when the engine is idling. These are detailed in the table. For example, the idle voltage for the GSXR 1300 is 0.35 – 0.37 volts. If you don't have a computer then connect the voltmeter to the Yellow wire & Black wire on the pot connector.



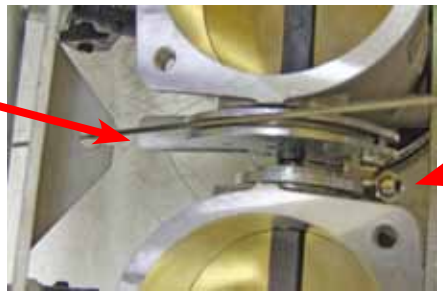
2. With the ignition on & engine NOT running set the voltage to less than the idle voltage, by loosening the 2 screws & twisting the pot. (e.g. 0.3 volts) This is an ideal starting point.



3. Take your vacuum gauge and place it in the position as shown below. You should now attempt to start your engine, if your engine starts first time and keeps running, this is great because it means you are not a long way out from the vacuum you require. If the butterflies are a long way out, e.g. too far open or too far closed, you may find it difficult to start. If you managed to get the engine to run for a few seconds take a note of the vacuum from the Syncrometer, if the vacuum is too small, then you need to adjust the throttle stop screw to increase the amount of air going in and then try again (only make small adjustments to the throttle stop and make sure the voltage you see is never greater than the idle voltage. Re adjust the throttle pot if reqd to read lower than the idle voltage). If the air shown on the Syncrometer is too great, then reduce the throttle stop screw, to reduce the amount of air going in.

4. Once you have got the engine running, you can then balance the butterflies by using the screws in between the bodies as shown below (picture 4)

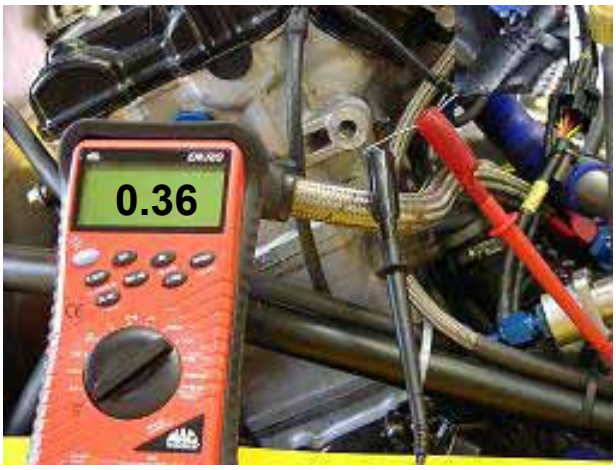
Throttle stop screw



Balancing screw

5. Using the throttle stop screw, adjust the butterflies until the kilograms of air per hour are correct for your engine specification (pictures 5-8) see table at the beginning of Set up procedure.

6. You now need to adjust the throttle position sensor to read the correct idle voltage. If you fail to set the throttle pot to the correct voltage, the engine is likely to not respond well when the throttle is opened (picture 9)



7. After setting the correct voltage check the butterflies for the correct amount of air.

8. Again check the idle voltage to ensure this is still correct. Re set if required.

9. Once throttle idle voltage & vacuum is as listed then you are set up correctly.