

## Full Race Unit installation manual part № “D-K1” “D-K41” “D-K46” “D-K86”

Please read carefully before attempting any use of this product!

[Installation video link – click here.](#)

To install the SP-Full Race Unit you will have to:

1. Gain access to the ignition coils (for best results refer to your motorcycle service manual). Plug in the female connectors to the ignition coils and the male connectors to the bike's harness. You must connect each male and female pair connectors to the same corresponding cylinder!

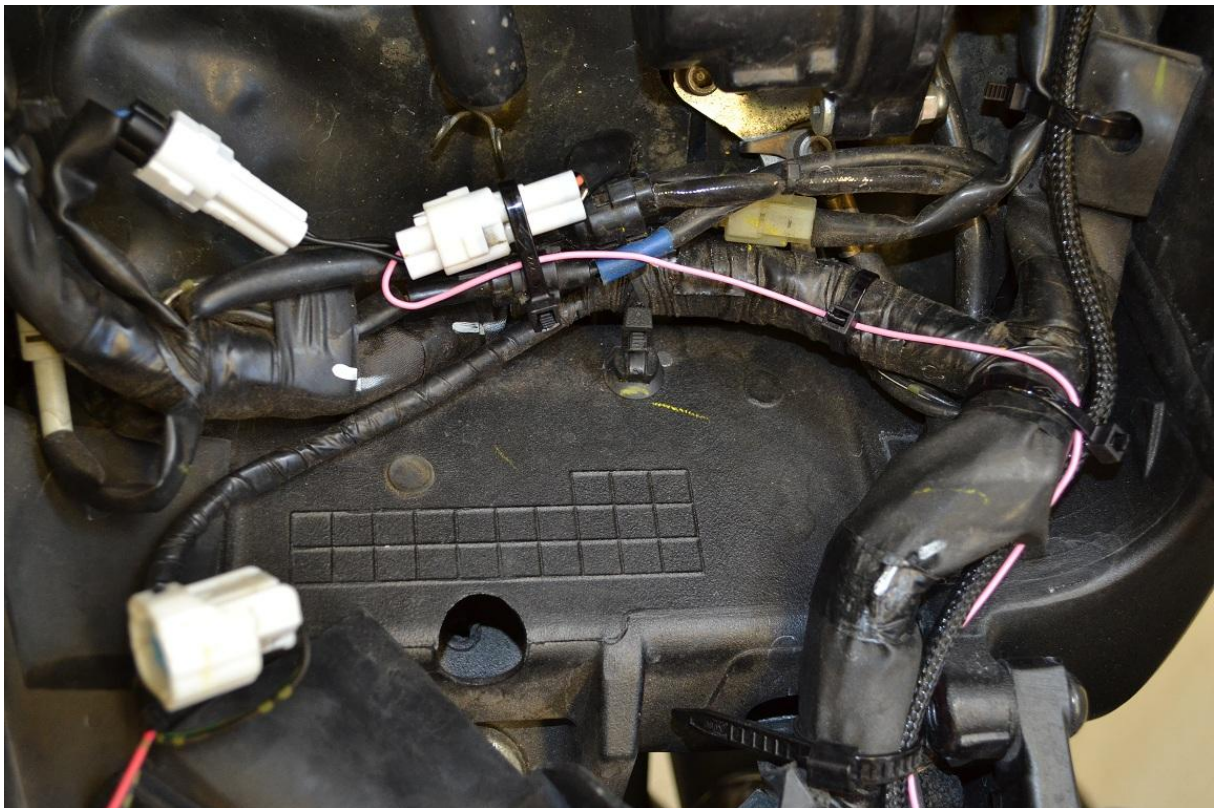
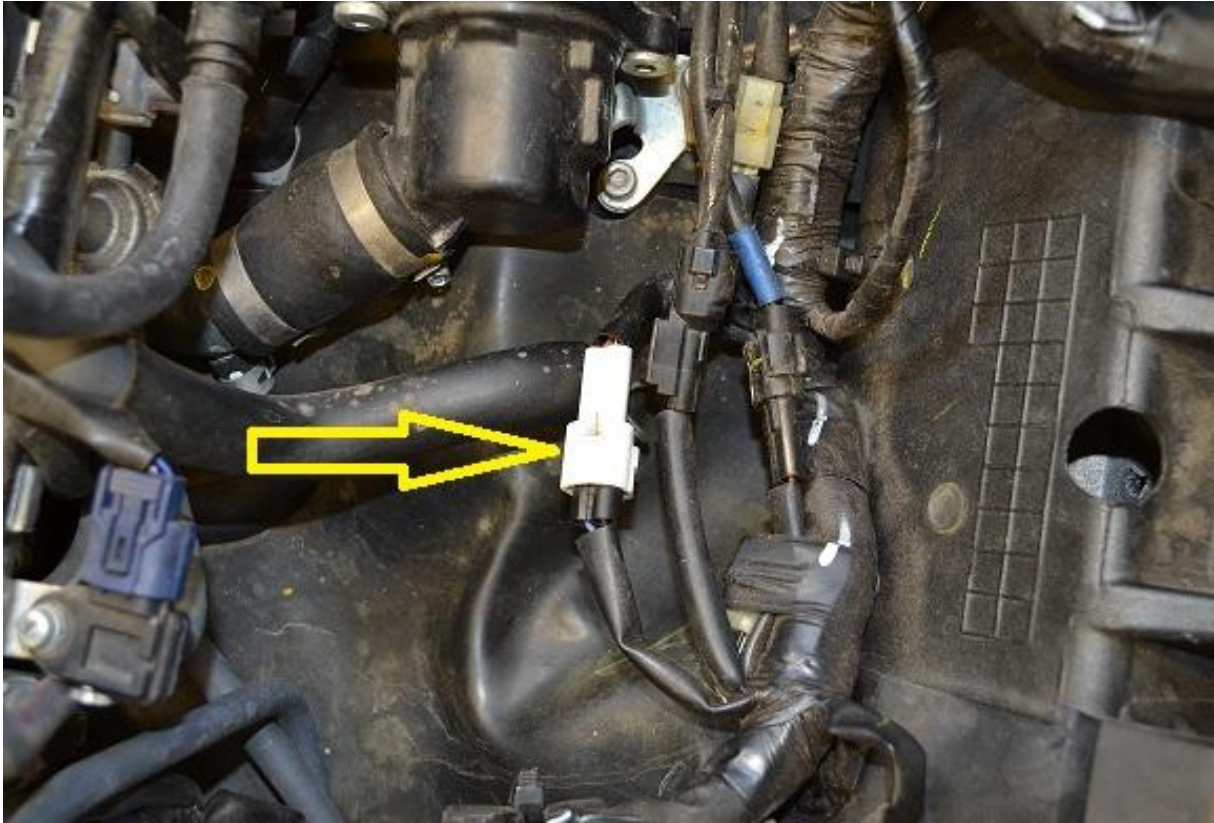


**IMPORTANT NOTE:** Make sure when plugging the connectors that you press them well enough to lock, as this will provide sealed and reliable electrical connection, vital for the function of the Full Race Unit. Find appropriate place for the Full Race Unit control box and route the cables, they are high quality, automotive class, heat resistant cables but there is some care you should take: Avoid moving parts as they might damage them, the best way is to follow other cables from the bike's harness, use the cable ties provided to fasten them. Make sure the place for the Full Race Unit control box is **away from heavy vibrations**, heat, and it is not constantly exposed to rain and water.

**NOTE:** The Full Race Unit connects directly to the ignition coils, if you use another product(s) for altering or modifying the ignition coil signals (that needs to be connected to the ignition coils as well) you need to connect the Full Race Unit control box first in line to the ignition coils.



2. Connect the male and female 3-way white connectors to the speed sensor. It is usually located to the upper crankcase under the fuel pump and the OEM sensor connector may be black or white depending on model.



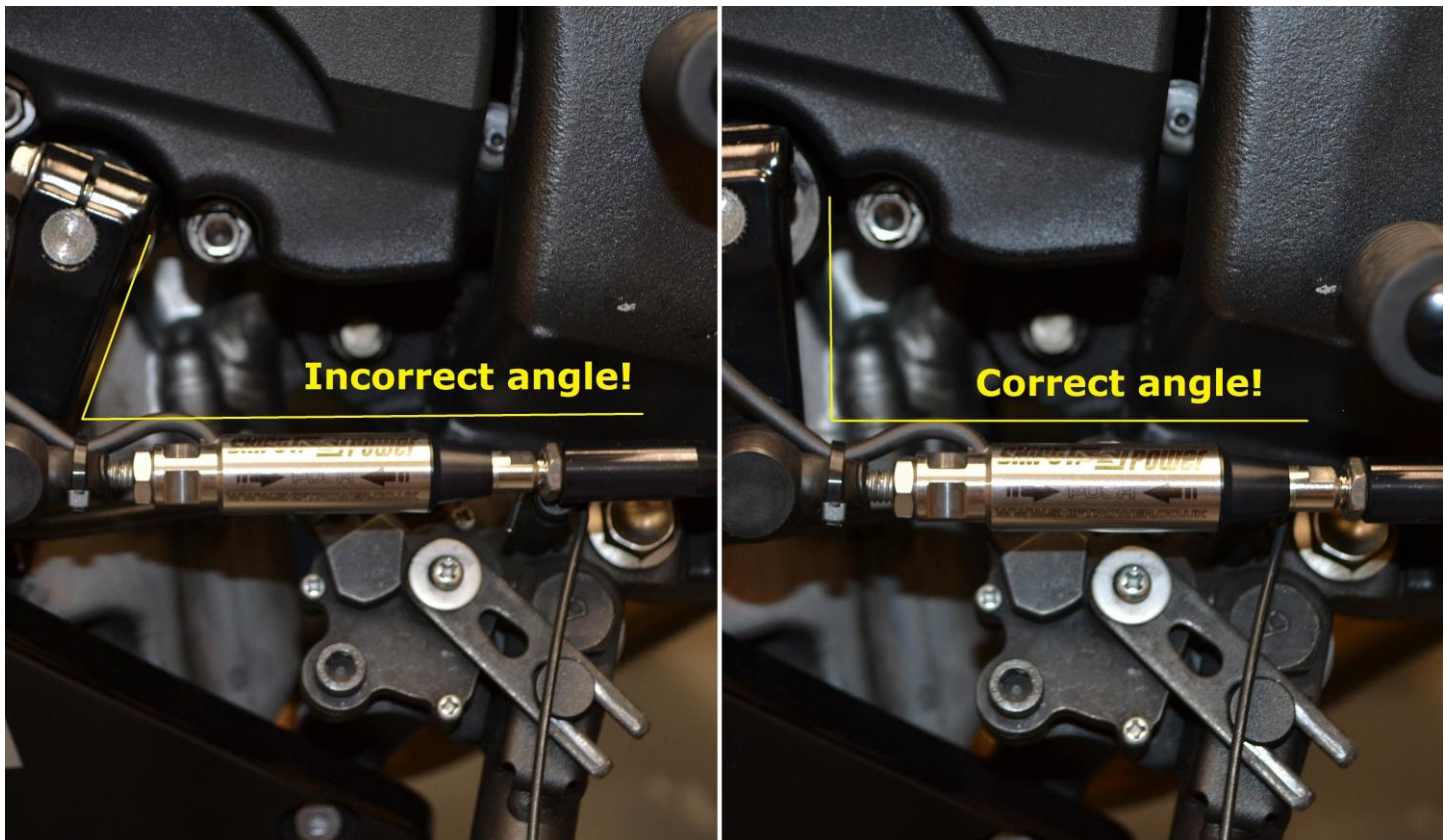
**The pictures are for illustrative purposes actual connector may differ.**

3. The Full Race Unit will require negative (ground) connection to power up, connect the single black wire to the battery NEGATIVE (-) lead!

4. Remove your original shift rod and install SP-Shift Sensor with the fitting rod(s) provided to its place. Route the wire to the Full Race Unit control box and plug it in. When installing the sensor, make sure all counter nuts are locked and the sensor wire is not under tension when pressing the gear lever all the way up and down. The rod and sensor provided are made with DUAL THREADS (left and right hand at the same time) which makes fitting universal.

**NOTE:** Never use the shift sensor to hold the sensor body! Use the notches in the steel top side and a (10mm) open end wrench - spanner to hold the sensor body when tightening counter locking nuts.

**NOTE:** The gearbox pivot arm must extend to 90 degrees with the shift rod in order to receive equal force in both directions, if not set correctly, the gearbox may not react accordingly and miss gears when using the quickshifter!



After this is done, turn the ignition key ON, make sure the engine kill switch is in RUN position and the gearbox is in neutral, at this time the Full Race control box must power up and display the sensor type PH for PUSH or PL for PULL, shift time in mSec resolution, (if not recheck connections and particularly the single black wire for the ground connection).

### **Sensor adaptation**

This is necessary if you're changing the sensor type from PULL to PUSH or vice versa.

1. Unplug the shift sensor from the SP control box.
2. Turn the ignition key on, engine kill switch must be in run position, gear in neutral, the display will indicate "55" for 5 seconds
3. Plug in the shift sensor to the SP control box - you must do it within 5 seconds. If everything is correct the module will display the sensor type PH for PUSH type or PL for PULL type.



The Full Race Unit is compatible to the make and model of motorcycle it is intended, do not install it on another make and model of motorcycles before checking for compatibility as you might damage the ECU or the Full Race Unit permanently.

### Setting the Launch Control and Pit Limiter RPM limits

**Video link:** <https://www.youtube.com/watch?v=8geasw6B9E8>

**NOTE:** The Full Race Unit arrives from the manufacturer with the Launch Control deactivated, you have to set the Launch Control RPM limit to make it active.

- Place the bike on a rear wheel paddock stand or on a dynamometer. Disconnect the shift sensor connector from the Full Race Unit control box, the ignition key must be off! .
- Start the engine and put the bike on **1st gear**, then accelerate the engine to the desired range, hold it there and press the **SETLC** button. It takes less than a second and you will see **LC** flashing on the display, this means that the Full Race Unit has memorised it, release the **SETLC** button.

### Activating sequence for the Launch Control:

- The vehicle speed must be 0km (rear wheel standing still).
- The engine RPM must drop at idle for at least 1,5seconds.
- The engine RPM must raise to the pre-set Launch Control RPM limit (twist the throttle here).

### Adjusting the Launch Control level (Ar):

**NOTE: This adjustment is available to control modules manufactured after April.2020**

The Launch Control feature has further 3 levels of adjustment, which defines the RPM limit range, by default it has been pre-set to level-2 and you can change it through the following procedure.

To enter the setting mode:

Press and hold the **+mSEC** button then turn the ignition key on to power the unit, hold it until "Ar" display, release the button. Now press the **+mSEC** button to cycle through the levels, the control module will memorize the setting as it displays them. You can exit the "Ar" setting mode by starting the engine or turning the ignition key off.

"r1" – short range

"r2" – medium range

"r3" – long range

### Deactivating the Launch Control RPM limit

With everything connected turn the ignition key on with the engine kill switch in RUN position, the engine must not be running then press and hold the shift lever in the direction of upshifting all the way in – at this point the control box will display a counter starting from 1 hold the shift lever until 9 is reached. Now you have deactivated the Launch Control RPM limit, if you would like to activate it again - just re set it.

### Adjusting the Speed Limiter:

- Place the bike on a rear wheel paddock stand or on a dynamometer. Disconnect the shift sensor connector from the Full Race Unit control module, the ignition key must be off!
- Start the engine and put the bike on **1st gear**, then accelerate the engine to the desired speed, hold it there and press the **SETPL** button, it takes less than a second and you will see **PL** flashing on the display, this means that the Full Race Unit has memorise it and you can release the button.

➤ Turn the ignition key OFF and reconnect the shift sensor to the Full Race Unit connector!

**NOTE:** The Speed Limiter activates when the Full Race Unit control box single male pin connector is connected to the chassis ground or battery(-)! Use the single blue wire with connector and the external handlebar switch (provided in the kit) to activate the Speed Limiter mode!

### Adjusting the Quickshifter (St) shift time

**video link:** [https://www.youtube.com/watch?v=xWN\\_Ir7EpOM](https://www.youtube.com/watch?v=xWN_Ir7EpOM)

Adjusting the quickshifter engine interrupt time(Shift time): The shift sensor must be connected to the control box. Press and hold the **-mSEC** button, turn the ignition key on to power the unit in about 5 seconds the unit will display "St", release the button and then you can adjust the time in 2ms (milliseconds) increments by pressing the **-mSEC / +mSEC** buttons. Press and hold the **-mSEC** while in St adjusting mode to change the increment of adjusting in 1ms. You can exit the Shift time setting mode by starting the engine or turning the ignition key off. The St adjustable range is from 50ms to 140ms, the display is 2 digit and when it displays the range from display 00ms to 40ms it will add 100ms to that value!

### Switching on and off the Ultra Smooth shift

This feature allows smooth transitions between shifts, the control module will restore the power to the next gear after each shift gradually. To enter the setting mode:

Press and hold the **-mSEC** and **+mSEC** buttons at the same time, turn the ignition key on to power the unit - now it will display "uS", continue to hold the buttons until capital letters "US" displays, release the buttons.

"U1" – Ultra Smooth feature is On

"U0" – Ultra Smooth feature is Off

Press the right button **+mSEC** to cycle through settings, the control module will memorize the setting as it displays them. You can exit the "US" setting mode by starting the engine or turning the ignition key off.

### Tips on adjusting your Quickshifter!

The Full Race Unit arrives with best overall setting to your motorcycle make and model. We strongly recommend you to test ride it before changing the St settings. Use the following as a general guide when adjusting your Quickshifter:

If when using the Quickshifter the gearbox seems to push back the shift lever, the shift feels rough and you have experienced missed gears - this means that the gearbox needs more time to react-turn the adjuster clockwise for more time.

If when using the Quickshifter the motorcycle front dives for too long and the shift seems slow - this means that you have to lower the shift time - turn the adjuster anticlockwise for less time. Best results for most motorcycles are achieved with the following time settings - (60ms-70ms).

**NOTE:** : Before changing the factory setting make sure to remember the length of the Shift Time, so that you will be able to set it back and have a good starting point. If you want to switch OFF the Full Race Unit functions for any reason, unplug the Shift Sensor from the Full Race Unit control box. The Quickshifter has a threshold RPM which means that the engine speed must exceed the minimum threshold in order to activate the Quickshifter function. The factory setting are over 3000RPM and this is not adjustable.

If for some reason you're experiencing difficulties adjusting your Shift Power product, you think it is not functioning as expected or you would like to share your opinion please feel free to contact us to support you with a professional help.

**Web: <https://www.shiftpower.co.uk> Email: [info@ShiftPower.co.uk](mailto:info@ShiftPower.co.uk)**

This product is covered by one year warranty against malfunctions from the original date of purchase under the following conditions – [link click here.](#)

**Warranty disclaimer:**

Shift Power Ltd shall not under any circumstances, be liable for any special, incidental or consequential damaged including, person, party or property, but not limited to, damage loss of cost of purchased or replacement goods or service, claims of customers of the purchaser, which may arise and/or result from sale or use of these parts. Installation of these parts could adversely affect the engine manufacturer warranty coverage.

**Thank you for using the SP-Full Race Unit!**