



OFF ROAD ELECTRONICS DIVISION

SWM TL240/320/350 Electronic Ignition RMK-14 Fitting Guide

Rev 2 Oct 2018. Applicable to Clubman & Pro kits

Thank for purchasing Rex's electronic ignition kit. Its unique "Dual Power" stator gives twice the power compared to single source coil ignitions, its output remains stable over the entire rev range. The CDI unit also gives a dynamic timing curve to unlock extra power ensuring this ignition will release real performance from your SWM! Despite this there is no complicated timing procedure to follow, Rex's kits take away all the guess work from the set up, just bolt on and enjoy outstanding performance.

The standard kit is the 'Clubman' with a single advance curve suitable for "all round" Trials conditions.



'Pro' versions have an additional, boosted timing curve, selectable via a handlebar switch (the "advance" setting). This gives boosted performance for hill climbs or where a temporary boost in power is needed.

Both options can have adjuster slots machined to the stator to allow owners to adjust the base timing. This is an expert option intended to allow highly skilled engine tuners to alter base timing for highly tuned engines. This is an optional extra and not included in the kit price.

Dual power systems give more power than ignitions with only a single source coil.

We take away all the guess work from the ignition set up - just bolt on and go.
No strobe lamp needed (standard kits). No fiddling about repeatedly removing the flywheel!

Warnings & Cautions:

Working on motor vehicles requires specialist tools, knowledge and training. Serious injuries or accidents may result if parts are not correctly fitted or adjusted. Loss, serious accident, injury or misadventure may occur where parts are modified or incorrectly fitted or adjusted or where the fitting guide or shop manual or industry standard procedures or conventions are not followed or ignored.

This guide must be used in conjunction with the shop manual for your bike. You must refer to the latest revision of the manual for torque figures, assembly procedures and safety precautions. This guide does not over-ride any safety warnings or cautions.

Only use strobe lamps with an inductive clamp that fits around the HT lead when checking ignition timing. The type of strobe lamp that is connected between the spark plug and HT lead, interrupting the HT supply must **NEVER** be used as this type can cause the system HT voltage to rise to dangerous levels that can result in severe electric shocks which may be lethal or could cause serious injury.

People with heart conditions or those fitted with a pacemaker must not work on or adjust our ignition systems, nor work on the machine whilst the engine is running in case of electric shock from the ignition

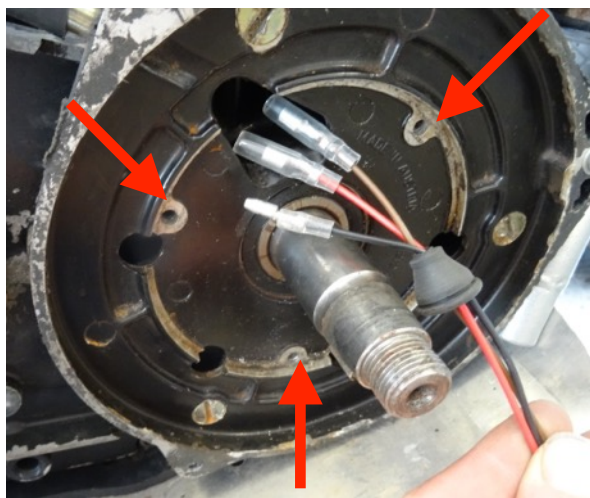
Fitting Guide

1. Start by removing the flywheel. The correct tools make this job much easier. The flywheel can be virtually impossible to remove without the correct tools. Contact Moto SWM if you do not have the tools needed.

Damage to the engine and/or flywheel will be caused if you attempt to remove the flywheel with pry bars, "three leg" pullers or other tools than the correct puller



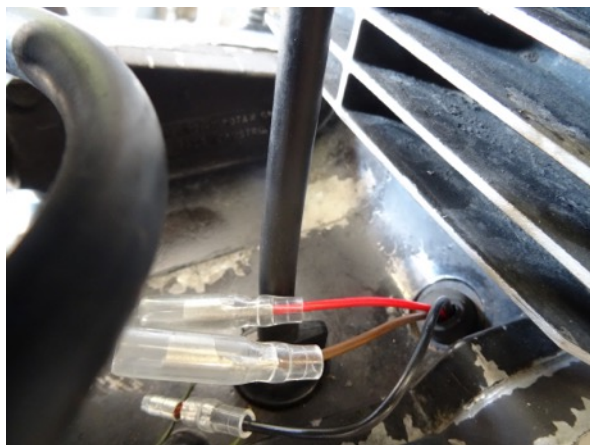
2. Undo the stator retaining screws and remove the points stator along with the wiring. It may be easier to remove the stator adaptor from the engine to allow the new sealing grommet to be fitted as the window the wires feed through doesn't allow good access. Fit the grommet to the engine case. Feed the electronic ignition wires through the engine cases as shown. It is important to ensure the generator case is properly sealed from water ingress.



3. Refit the adaptor plate if you removed it. Use the 3 X M5 allen screws in the kit to secure it to the engine. Torque tighten to the same values as for the original stator. All three mounting holes will only align with the electronic ignition stator in the correct position.

4. Refit the fly-wheel. Torque tighten to the specification given in the shop manual. A good quality engine case sealant should be applied to the mating surfaces of the generator cover.

Ignitions damaged by excessive water ingress to the generator housing will not be repaired under warranty.

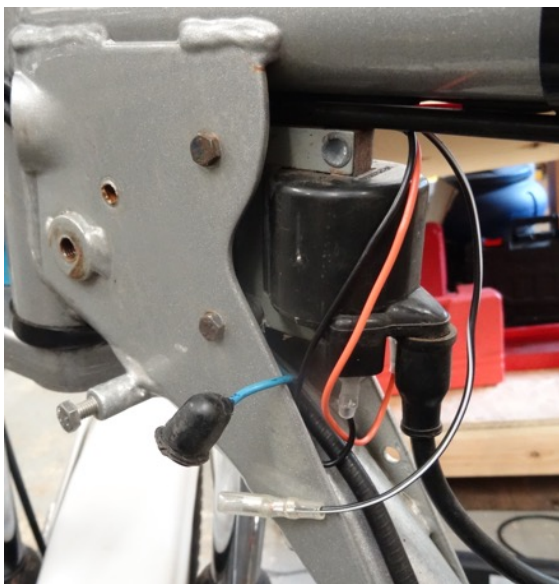


5. Route the stator wire up along the frame as shown. Secure the wires in three places with the cable ties in the kit so they cannot touch the exhaust, nor become caught by branches etc.

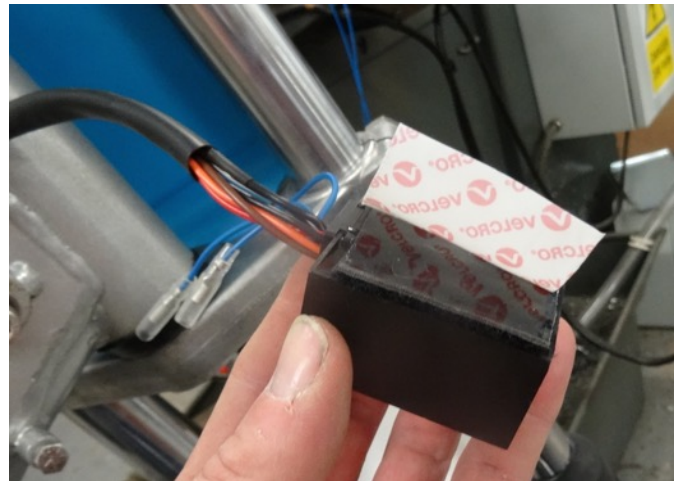




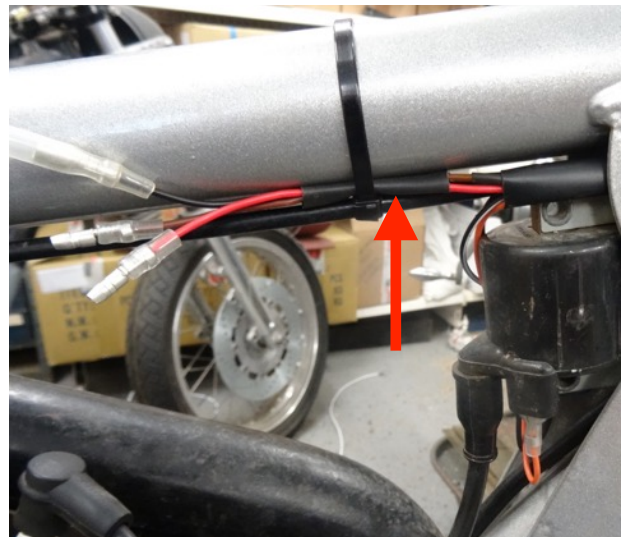
6. Route the wires from the CDI unit as shown



8. Connect the CDI unit to the coil. The CDI has its own earth. The blue earth wire can be used as an earth point for a kill switch.



7. The CDI is fixed with velcro in the centre of the rear of the number board, which must be clean and oil free. We have used this method for many years on trials machines. You can back up the velcro by drilling two holes in the board and adding a cable tie around the CDI unit.



9. Connect the CDI unit to the stator wires. Secure the wires to the frame. Note the loose sleeving, ensure the cable tie sits on this.

10. **WARNING:** Ensure you can easily slip one finger between the CDI wire and the headstock with the bars on full lock. If you cannot adjust the wires. Ensure the wires do not impeded the steering.

11. Connect the black/white wire from the CDI to the kill switch wire. Note some kill switches only have one wire, connect the black/white to this. Some will have an earth wire, connect this to the old HT coil earth (blue wire).

Test the kill function stops the engine before riding the machine.

12. Fit the new waterproof NGK HT cap supplied in the kit.



13. If you have a “Pro” kit see the page on fitting the switch.

Final Actions - all types

Double check you have made all the connections correctly.

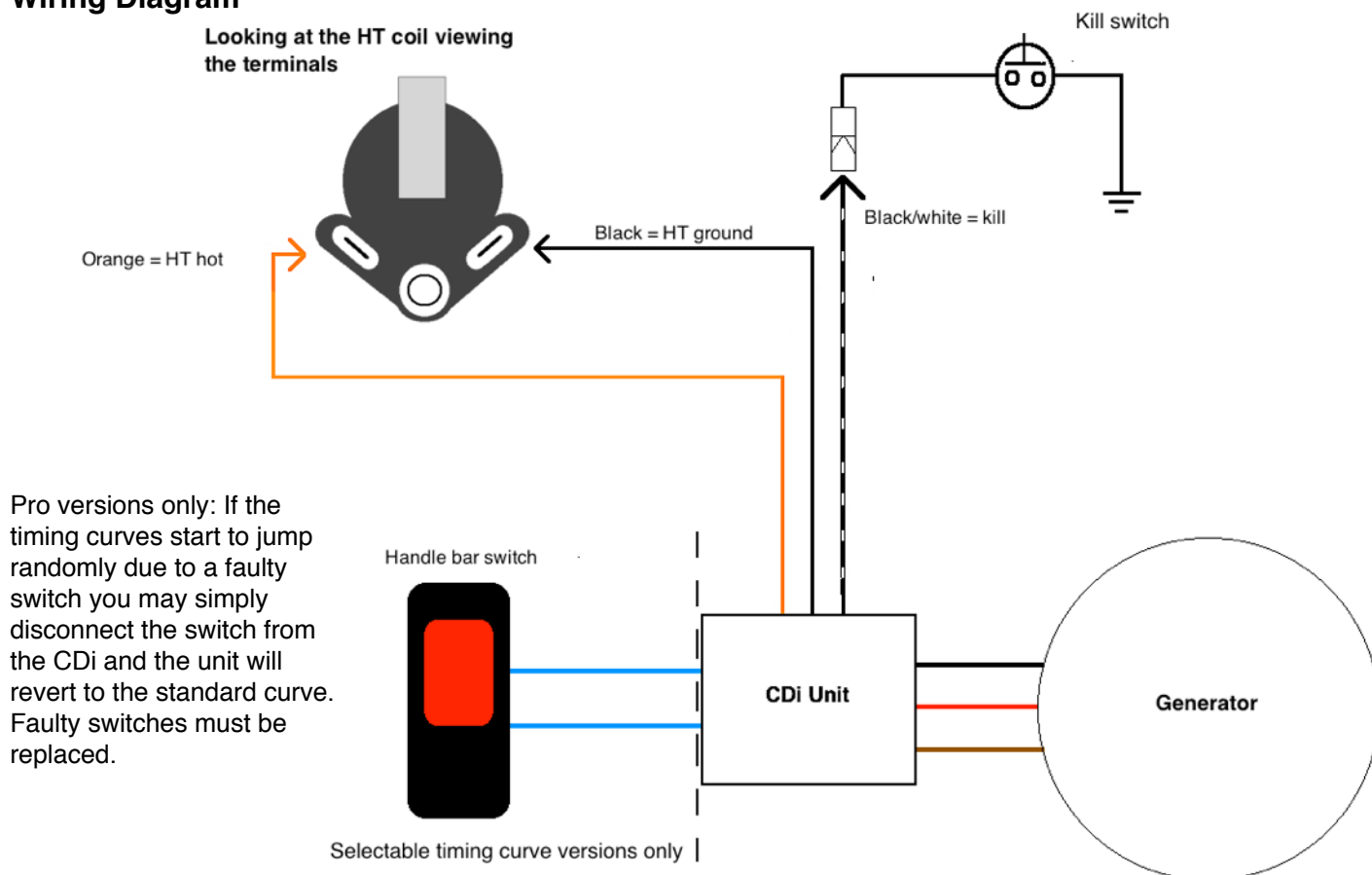
Check that all wires are secured and don't interfere with other controls or pull tight around the head stock.

Refit the seat and fuel tank.

Start the engine. Confirm that the engine kill switch is working.

That's it - you're ready to go!

Wiring Diagram



Rex's RMK-14 SWM240/350 Ignition Specifications	
Recommended spark plug	NGK BP5ES. Competition use: BPR5EiX (Iridium spark plug)
Spark plug gap	0.7 - 0.8 mm (0.028-0.032")
Plug cap	LB05F, LB05EMH
Timing	2.5mm BTDC +/- 0.3mm @1,100 RPM. Dynamic not fixed curve
RPM Range	Sparks from 150, rated to 12,000 RPM
HT Coil	Use stock coil for Trials machines
Ignition Source winding	P/N: SC-14
Source winding resistance	Black to brown 93 Ohms +/- 5% Brown to red 36 ohms +/- 5% Measure at 20 degrees C, engine not run for several hours.

‘Pro’ versions only

Fit the switch to the handle bar, it is designed for traditional 7/8" bars. You should loop the wires under the brake lever and then along the back of the handle bars so that branches or bushes on the course don't catch in the wire.



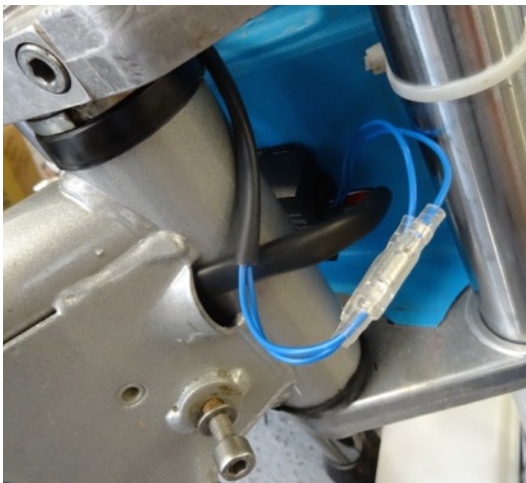
The switch will not fit to "fatbars" between the bar clamps.

Route the wires down and pass them behind the number board towards the CDi unit. Secure the wire to the bars with cable ties. Ensure the steering is free to move and that the wire does not interfere with or impede other controls.

Maintenance of the Dual Timing Curve Switch

The switch should be removed from the handle bars, any dirt, green sludge or corrosion removed using brake or contact cleaner at least once a year, ideally at the end of the season. The internal parts must be treated with petroleum jelly, which must be pressed in to the contacts from inside the switch housing. This will ensure trouble free operation of the ignition curve selector.

If the switch is repeatedly submerged in water the switch may need more frequent servicing. Dirty, wet or corroded contacts may cause the timing to change randomly. If a fault develops, stop riding the machine immediately and replace or repair any faulty parts before riding it again.



It does not matter which way round the blue wires connect. Secure the wires with a small cable tie.

WARNING: The engine must only be started in the normal setting.

WARNING: The throttle **MUST** be closed when switching between timing curves.

Danger: Operating the selector switch with the throttle open may cause the engine to have a power surge or falter, this may cause loss of control and/or personal injury. Always close the throttle before switching timing curve.

Hill Climbing or when more power is needed. Push the front of the switch down, towards the 'advance' for boosted engine power. Close the throttle while operating the switch!

Normal Trials terrain. Press the rear of the switch down, towards the rider. This position should also be used for starting the engine.

The switch is shown in the standard position in the pictures above.

