

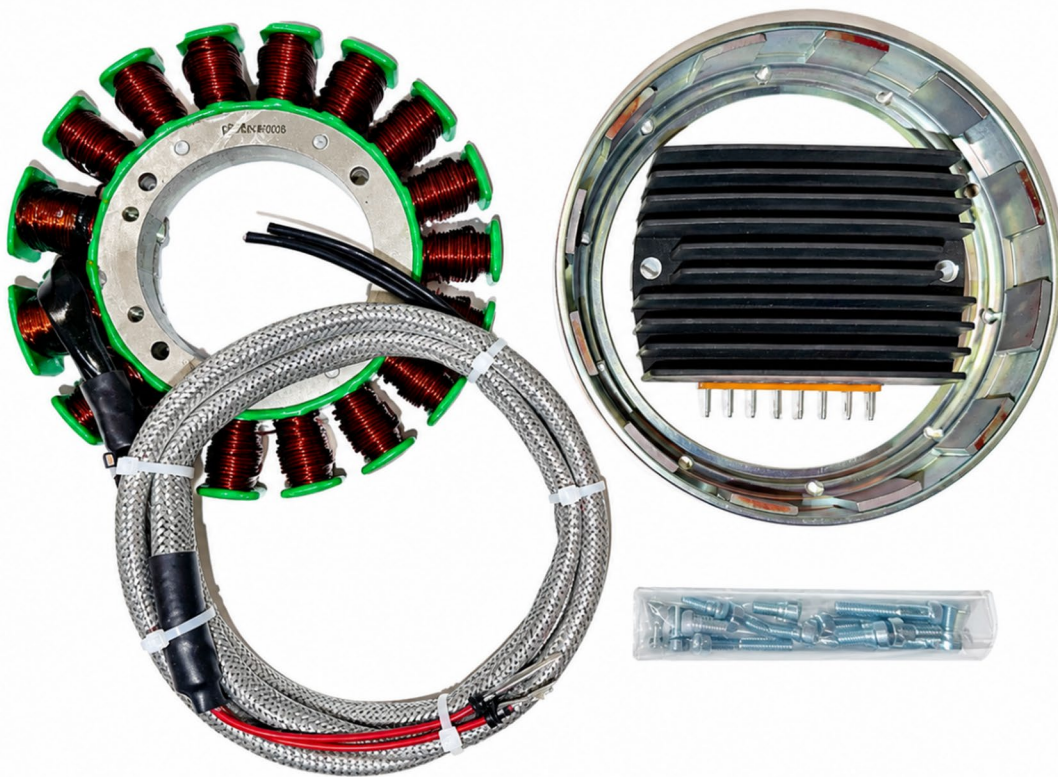


EDGE PERFORMANCE

“510W / 38A Primary Alternator”

LITHIUM SAFE

Installation Manual

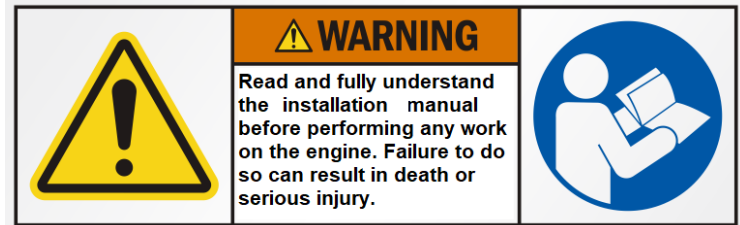


When Performance Meets Perfection & Reliability.



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1) Introduction & Safety Information

The EP 38A primary alternator is designed as a direct replacement for Rotax 912UL/ULS and 914UL engines. Its design utilizes a 3-phase stator with dual ignition charge coils. The flywheel is machined from billet with neodymium magnets for excellent low speed power output. The voltage regulator and rectifier are a 14V DC / 40A model with a dedicated charge light output.

WARNING	
Incorrect installation and operation may cause the electrical system to fail, ignition circuit(s) to fail, and ultimately resulting in total loss of engine power. It is important to follow the installation steps carefully and to ensure no electrical wires or connections are bad.	

System Limit	Min.	Max.
Rotor/Stator Assy.	- 40 °C (- 40 °F)	140 °C (176 °F)
Voltage regulator/rectifier	- 40 °C (- 40 °F)	60 °C (176 °F)

1) List of content

- 510W Stator 1x
- Magneto rotor 1x
- 40A Voltage regulator / rectifier 1x
- 8x13 sealing copper washer
- M5x25 Socket head bolt DIN 6912 4x
- M5x10 Socket head bolt DIN 6912 9x
- M5x10 Socket head bolt DIN 6912 (modified head diameter 1x



2) Removal of components

The original Ducati/Rotax voltage regulator / rectifier can be disconnected from the firewall and replaced with the new one supplied in the kit.

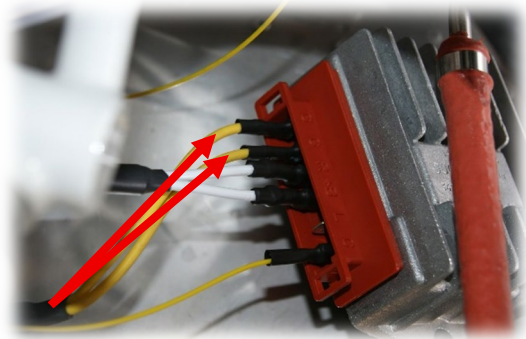


OLD

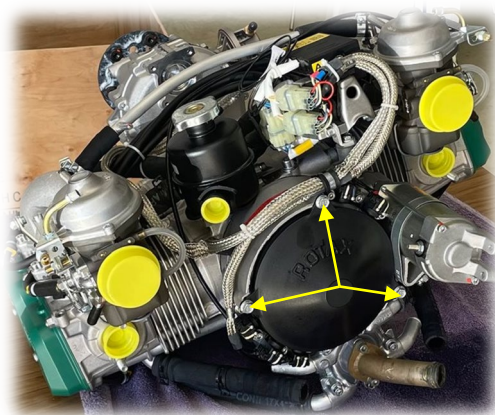


NEW

Next, unpin the two red wires from the 6-pin connectors on the SMD modules, and free up the wiring from the alternator to the regulator. There are two yellow wires. Both the red wires and the yellow wires are removed by using a tiny flat screwdriver or a pointed picker. Bend the locking tab gently and pull back on the cables from its connectors.



Remove the plastic cover to expose the flywheel by undoing the 3x M6 10mm hex bolts.





Install the crankshaft locking pin after positioning piston number 1 at TDC. Look for a v-groove in the crankshaft by looking down into this threaded hole using a flashlight.

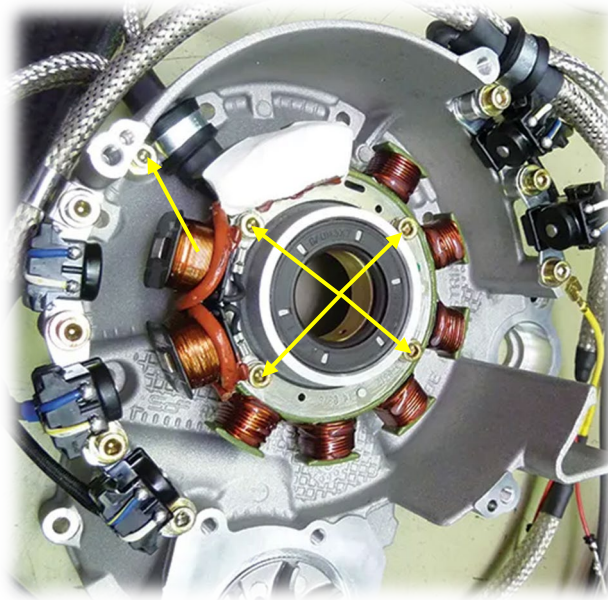


Loosen the M16 hex flywheel bolt using a tubular handle. Once loose, turn it out 6-10 turns and use a flywheel puller to pull back and loosen the flywheel. Once it pops loose, remove the puller tool, completely remove the M16 hex bolt and re-install the puller. With both hands pull it completely free of the crankshaft tapered end.



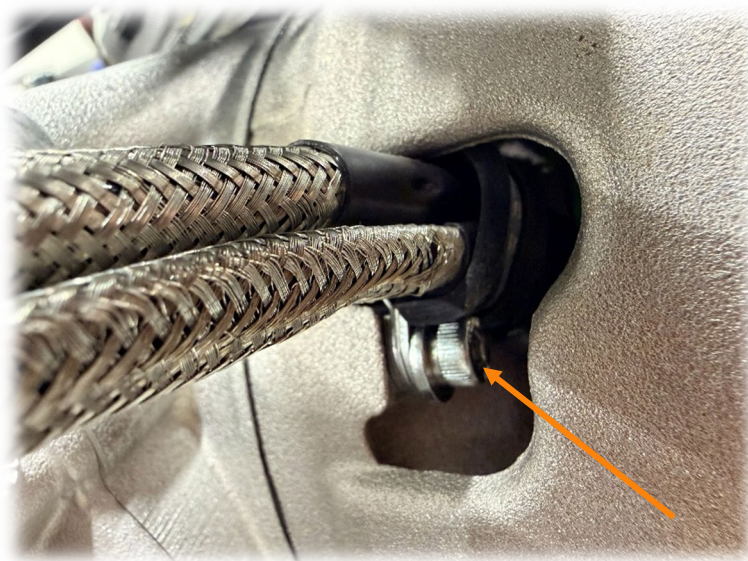
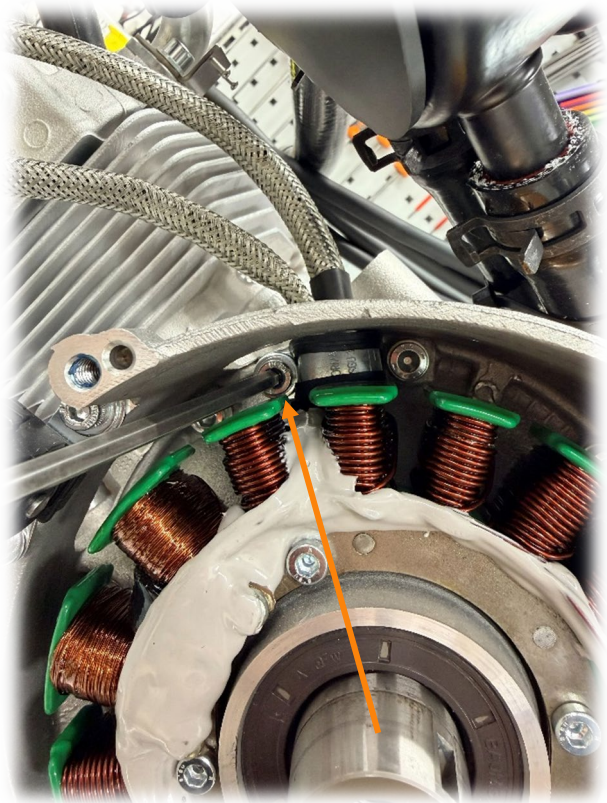
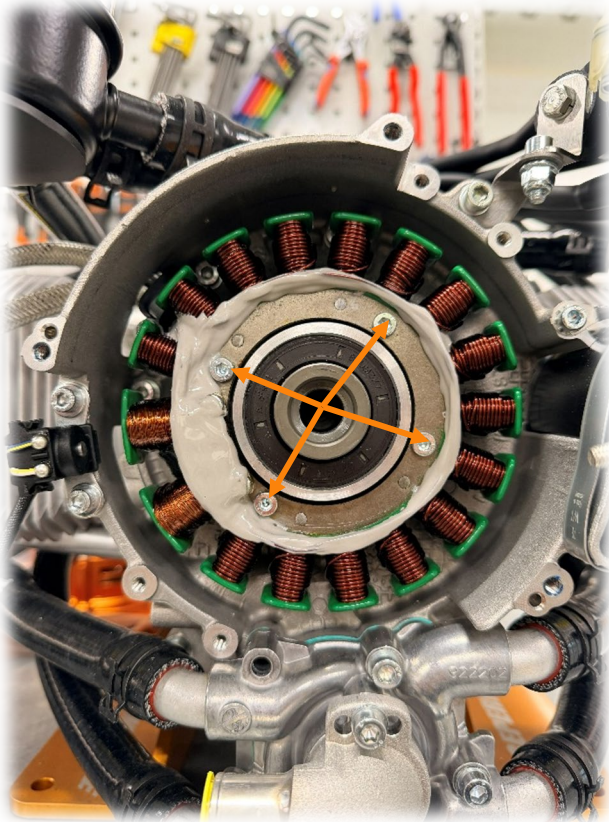


Now you have gained access to the original stator. Start by loosening and removing the 4x M5 socket head bolts and the 1x M5 socket head bolt securing the adel clamps. See illustration below.



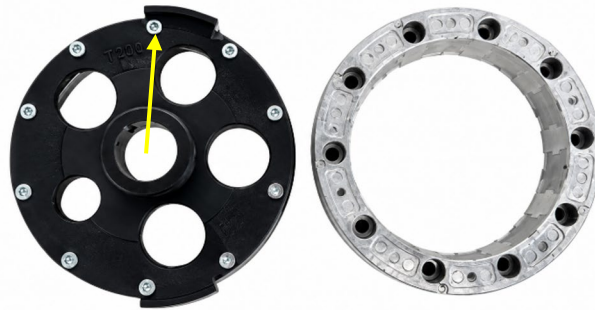
3) Installation of hardware

With the stator removed from the ignition housing, orientate and install the new stator. Use the supplied M5 socket head bolt, apply Loctite 243 and torque in cross pattern to 6Nm.
Reuse and secure the adel clamp to avoid the wires to be bent and cause strain on the termination point on the stator. See illustration below.





With the flywheel removed, separate the flywheel hub (dark part) from the magneto rotor. Install the flywheel hub onto the new magneto rotor. Use the supplied M5 socket head bolts, apply Loctite 243 and torque to 6Nm. Note that one bolt has had the head turned down slightly to clear the trigger tooth on the flywheel hub. See below.



HIGHLY CRITICAL STEP: Before installing the new rotor assembly, clean the crankshaft portion with Loctite 7063 super clean or mineral spirits, alternatively acetone to remove any old residue of Loctite. Apply a super thin coat of Loctite 222 (Alternatively 221) on the tapered portion of the crankshaft. Install the flywheel puller onto the flywheel assembly and be extremely careful not to allow the flywheel by its strong magnetic forced snap into place, as contact between the magnets and the stator will result in damage.



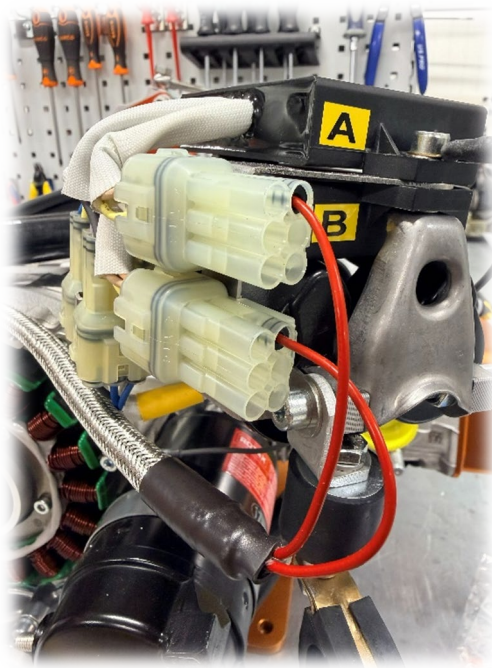


Once the stator and rotor have been installed, lubricate the threads and spring washer with engine oil and torque the M16 HEX bolt to 45Nm + 180°.

Remove the crankshaft locking pin, re-install the M8 socket head bolt and replace the 8x13mm copper sealing washer. Torque to 15Nm.

Ensure that the new shielded cables from the stator assy. Have been secured with zip-ties and that they do not chafe against any sharp corners or objects.

Insert the two red ignition coil charge wires in their respective slot on the 6-pin connectors.



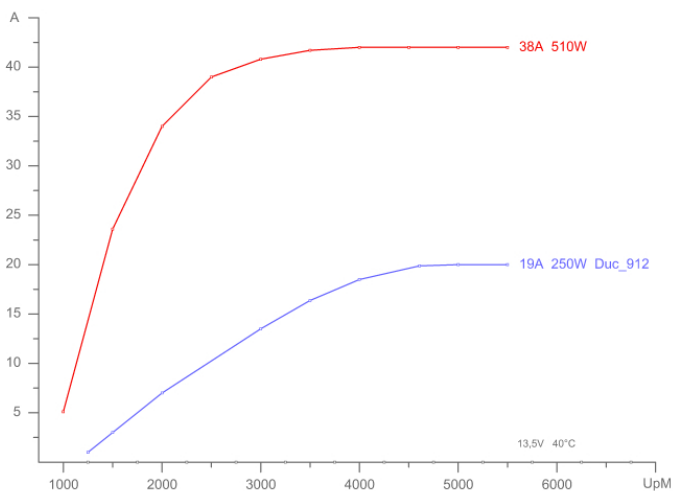
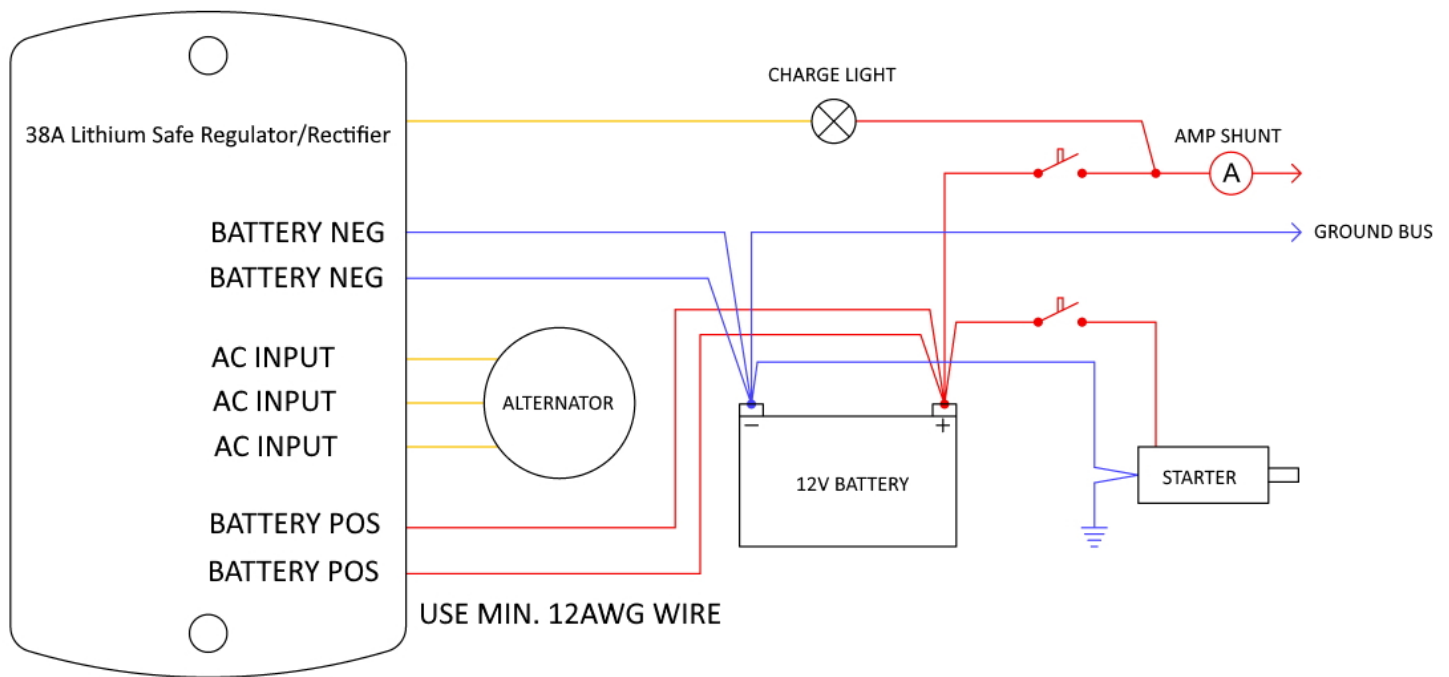
4) Wiring Instructions & Diagrams

Use only high-quality aviation grade wiring like MIL-W-22759/16. Do not use cheap hardware store electrical terminals and connectors. If extending the 3 black AC wires, use appropriate "Raychem Butt-splice" connectors, as very few connector types can handle 40A continuously. Failing to do so can cause heat development, short circuit, fire and loss of electrical power.

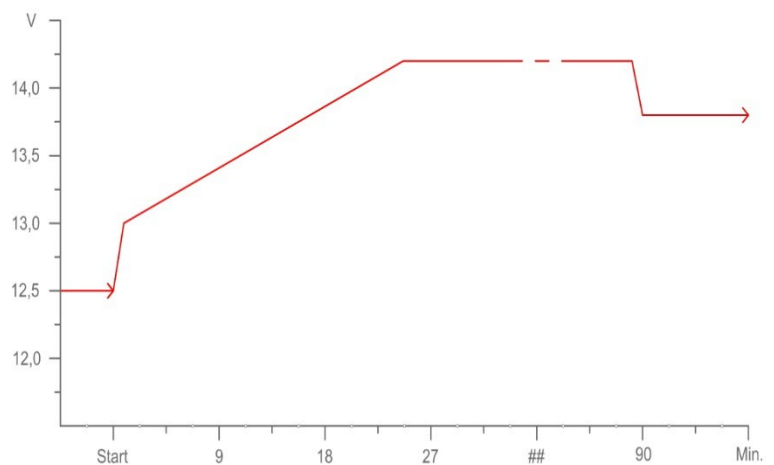




The regulator / rectifier is wired per the diagram below. Note – use minimum 12 AWG wire on the AC and DC charge wires.



Output stock vs 38A vs RPM



Regulator charge profile



5) Testing post installation

After completing the installation, perform a 30-minute ground run. Check for positive charging, no alternator warning lamp and perform mag-check at 4000rpm. Max. allowed rpm drop 500rpm.

Check all connections during scheduled maintenance with special attention to heat development on all electrical connections and for damage to the wiring.

6) Maintenance

The alternator system is maintenance free but should be thoroughly inspected during scheduled and annual maintenance.

- IF IN DOUBT, STOP YOUR WORK AND CONSULT WITH US -