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Aprilia RS660 - Alternator Fitting Info

Contents:

1 x Stator windings assembly in casing
1 x Rotor assembly
6 x M6x12 button head screws
1 x length PVC sheathing
3 x 6.3mm female spade crimps
1 x male connector block
1x Loctite

Fitting:

1) With the bike on level ground and on the paddock stand undo the coolant drain plug and completely drain the system.

2) Remove the plug in the center of the generator casing along with the water pump cover.

3) Remove the original alternator cover and flywheel assembly retaining the rotor key.

4) Remove the starter clutch assembly from your original rotor and install on the newly supplied BDK lightweight rotor using the Loctite and M6x12 socket screws supplied (tighten bolts to 17 Nm)

5) Mount our flywheel in place of the original (anodized nut outwards) ensuring the key is located correctly and replace with original bolt, use thread lock and torque to 100Nm

6) Remove the right hand pick-up plate bolt ONLY noting the location of the plate (see photo) Aprilia only locate the left end of the pickup to allow for adjusting the gap from the trigger to the pickup. This plate will need to be fitted in the newly supplied cover in the SAME place.

7) Remove the 3 bolts retaining the stator.

8) Cut the original stator wires (not pick up) close to the connector block and retain connector block in case of reversal to standard upon sale of bike. Withdraw stator wires through grommet.

9) Coat the pickup retaining bolts with thread locking compound and mount the pick-up in the supplied casing. Note do not overtighten the pick-up bolts, tighten to manufacturers specification

10) Ensure the silicone sheath is in place at the stator end in the newly supplied casing then pass the stator wires through the retained original grommet in the place of the original stator wires. A drop of washing-up liquid helps pass the wires through the grommet but this must be cleaned off with brake cleaner upon completion.

11) Remove the original regulator / rectifier.

12) Locate supplied regulator / rectifier where desired but ideally in air flow and where it can be mounted to a flat metal surface. Regulator can be bolted one end and tie-wrapped the other.

13) Attach the blue/yellow reg/rec wire to a switched positive 12V supply (this is so there is no drain when the bike is off) and the black and red wires to the battery positive and negative terminals. Ensure a 35A fuse is present and undamaged in the positive wire holder.

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14) Holding the generator cover in place assess how long the stator wires will need to be to comfortably reach the reg/rec connector where you have fitted it then add an inch for luck and cut the stator wires to length.

15) Cut the sheathing to length to slide into the short length of original Yamaha sheathing coming out of the grommet and slide over the stator wires leaving the last inch or so exposed.

16) Fit the spades to the stator wires with the tang towards the middle and fit them in the connector block ensuring that every one clearly 'clicks' into place – the outer end of the crimp should be over the wire covering and the inner part of the crimp on the wire itself. Only the smallest amount of exposed wire should be present past the second crimp or this will prevent the spade clicking into place. The colour of the stator wires is of no relevance – they can be placed in any order.

17) Ensure the gasket surface on the crankcase is clean and free of old gasket material/sealant

18) Ensure both of the casing dowels are undamaged and located either in the crankcase or the generator casing. Apply a thin layer of silicone sealant to the grommet then fit the casing with a new gasket (Part no. 1A013508) making sure to keep it central to the rotor and that the casing fits flush on the crankcase without pressure. Ensure the threads are cleaned and dried and coated in thread locking compound before doing the casing bolts up to manufacturers spec.

19) Fit the center plug to the new casing ensuring the seals are good according to manufacturer's instructions.

20) Refit the water pump cover with new gasket (part No. 1A013510) and fill with coolant

21) Plug the stator to the reg/rec and you are ready to go.

Please Note: Never run the bike with the battery or regulator/rectifier disconnected as this will cause damage to the alternator. Please also be aware that as the system is designed for race use it only starts charging the system at approx 5000rpm, if left running for long periods of time below this it will eventually flatten the battery.
When the generator starts overcoming losses the green light on the reg/rec will shine brightly.

Always start bike with a fully charged battery & remove fuse from regulator OR isolate the 12V power supply after each use

Also note that the regulator body must be earthed at all times

Important : All bolts must be fitted with thread locking compound – FAILURES HAVE OCCURRED IF NOT!

Do not use standard regulator

If in doubt – ask:

Testing your race generator if a fault is suspected:

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1) Check that there is a 30 or 35A fuse in the reg/rec positive lead and that it is not blown.

2) Ensure that there is at least 12V DC at the blue wire feed with the ignition on and that the connection is secure.

3) Connect the reg/rec to the stator and with the battery terminals and blue wire fixed if your battery has 13+V you should see a very dim light from the reg/rec LED (you may need to shield out the light to see this).

4) Check that the three pins in both the stator side and reg/rec side connectors are firmly fixed by giving them a gentle tug each in turn.

5) Unplug the stator from the reg/rec and check continuity between the stator pins – you should have continuity between any two of them, but no continuity between any of them and earth.

6) With the stator unplugged from the reg/rec and whilst the engine is running at a fixed speed measure the voltage in AC across the pins out of the stator in turn (three different ways).
It is important that your meter is set to AC before doing this, and you should be getting the same voltage between any two pins. You should be getting somewhere between 3V & 4V per 1krpm, ie 9-12V for 3krpm.

7) Reconnect the stator to the reg/rec. Fire the bike up, set your multi-meter to DC and measure the voltage across the battery terminals. You should be seeing between 13V and 14.1V across the terminals at around 5k rpm. The generator will not fire below around 3krpm. The green LED on the reg/rec should be brightly lit – this indicates over 13.5V.

8) If all the above have been checked and yet the desired charging is not happening get in touch with us for further instruction and advice before sending the unit back.

Warranty and Liability Disclaimer

Due to the high stress environment of high performance riding, competition riding and especially from previous or future crash damage, in common with other racing parts no warranty, guarantee or liability is expressed or implied whatsoever in terms of but not limited to the item itself and any consequential damage. It is imperative that customers understand and recognise that they are purchasing racing equipment which has been designed with performance in mind over longevity and that they are solely responsible for their own skill and judgment when selecting and installing these products.

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