Power Electronics

Assembly instruction 14V 370W alternator
R1333K Kontroller with generator indicator

V1325K / V1335K (c)12.05.2012

Assembly instruction 14V 370W alternator with voltage controller 14 V 37A

The electronic box is a solid state controller and output rectifier. The modern concept of using micro-chips allows a connection to all major alternators which run with permanent magnets, but preferably with our 14V 370W alternator. The special voltage control enables the use of all types of lead-acid batteries from 7Ah til 37Ah. However, the battery types have to be made for the use of the specific vehicle.

Precautions:

- Read the whole instructions carefully
- Only work with engine at standstill
- Plug only strainless cables, in as far as possible
- For welding work: disconnect all electronic from on-board power supply
- Assist-starting only for 1 min with maximal 15V
- Use WITHOUT battery and WITHOUT cooling leads to breakdown
- The alternator potential can be up to 80V --> mortal danger!
- technical knowledge and tools required for mounting the controller
- Warranty claim, claim for compensation and claim of recourse only apply for the delivered goods and under the GTC (general terms and conditions)

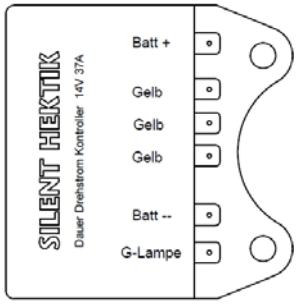
Cooling:

The usage of the alternator-controller produces heat with up to 30W, therefore the heat has to be dissipated to ensure a safe constant load. The frame or another cooling metal insert/valve can be used for that. However, a temperature of 55°C should not be exceeded in the long run. At all times it should be possible to touch the aluminium frame with bare hands. Never install the controller in or onto the engine! Also ensure to install the controller where wind can reach it at all times for cooling.

Battery – voltage

The regulation of the controller's potential (Bordspannung) occurs mainly independently of the size of the battery. However, the battery's capacity should be at least 7Ah. The highest potential of 14,2V +/-0,2V may only be reached under high RPM plus fully charged battery. Measure the voltage after the installation with a voltmeter. The maximum potential is often not reached due to battery wear and tear or inapplicable battery type. Excessive voltage can often be measured if the battery is damaged. Also in case of an overload of the alternator, the maximum potential won't be reached. The battery charge indicator works as a generator light and goes off when enough energy is produced by the alternator. The max. alternator-load should not exceed 66% for best lifetime.

Connection



red	plus	to battery	2.5 sqmm
black	phase	to alternator	1.5 sqmm
black	phase	to alternator	1.5 sqmm
black	phase	to alternator	1.5 sqmm
blue	minus	to battery	2.5 sqmm
gray	minus	generator contoll max. 3W	1.0 sqmm

The minus plug which connects the alternator controller and the battery is obligatory!
If there is a loose connection between alternator and battery, it will blow a fuse and lead to total failure.
The crimp-connectors MUST be handled with quality pliers.
Soldered crimp-connectors lead to fine cracks or breakdown in the long run due to the engine vibrations.
Please ONLY use spezial grease (order no: M5103) for plug-connectors; NO battery-grease, NO cupper paste
Technical changes & mistaking reserved – all information is subject to change – 59425 Unna Germany EU

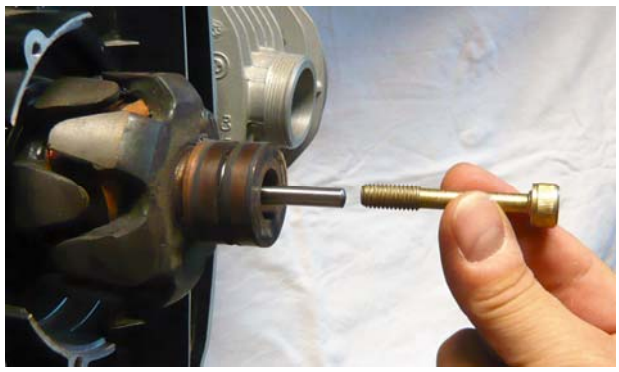
Disassembly of the Bosch alternator

To disassembly the alternator, follow the steps of the hand-book.

First, disconnect the battery from the alternator and remove the alternator cover. The next step is to remove all other plugs which are not needed and after that dismantle the stator with the three M5 screws.

A 6mm (width) x 55mm (length) steel pin is required for the rotor's removal which has to be pushed into the drilled whole all the way to the stop. Then tighten the mounting screw with 25Nm and loosen the rotor with gentle knocks with a plastic tip hammer on the cone seat. (wird auf den konus gehämmert oder 'im konus gelöst???).

Be careful not to tighten the mounting screw too much, otherwise it might be difficult to remove it from the drill hole.



Assembly of the SH alternator

Before beginning to assemble the new alternator, clean deeply all parts of the engine and check everything for potential damages. The cone seat must be clean and fat-free.!

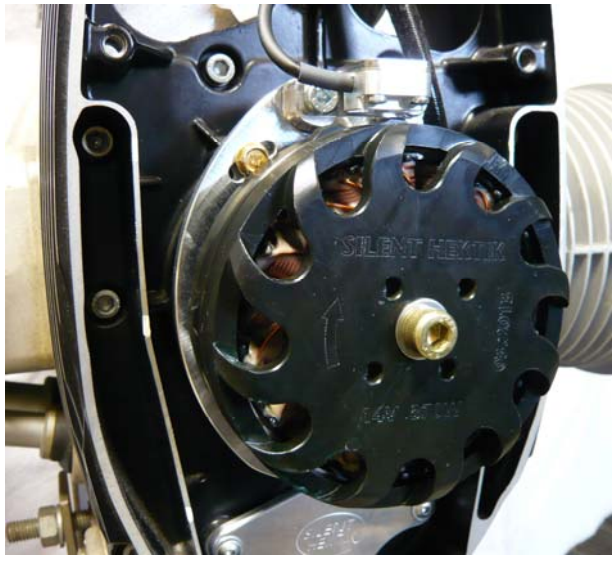
First, mount the stator with the three M5 screws. Care has to be taken that the pick-up attachment should be on '12 o'clock position' and the M5 screws should be in the middle of the holes. Secure the screws with glue!

Put the stator's connections through the grommet to the installation site of the controllers. During this step, don't forget the protective tube for the three cables.

Next step is to check if the core seat of the alternator's rotor is clean and to grease or anoint the cylindrical outer part so that the shaft seal can't get damaged. The rotor's position is irrelevant when not using a SH ignition.

Tighten the rotor's mounting screw with the help of a washer with max. 30Nm. A pin-tool for the rotor or a screwdriver for the startergear can help to fix the rotor / crankshaft.

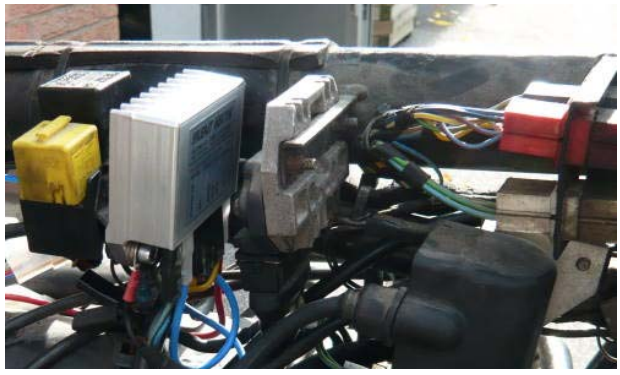
For fine adjustment for the ignition timing there are long holes in the stator. Never adjust while the engine is running, because the strong magnets attract the stator and that leads to grinding or breakdown. Only work with motor at stand still!



Assembly of the SH alternator controller

The original spot of the Bosch-controllers can be used as the installation site since the grounding clips match. Also during this assembly, care has to be taken that all parts are clean and stainless.
Put the supply cables from the bottom to the top of the controller while making a little loop for water that can drip off from that. Big radii ensure that the connections are mechanically strainless.

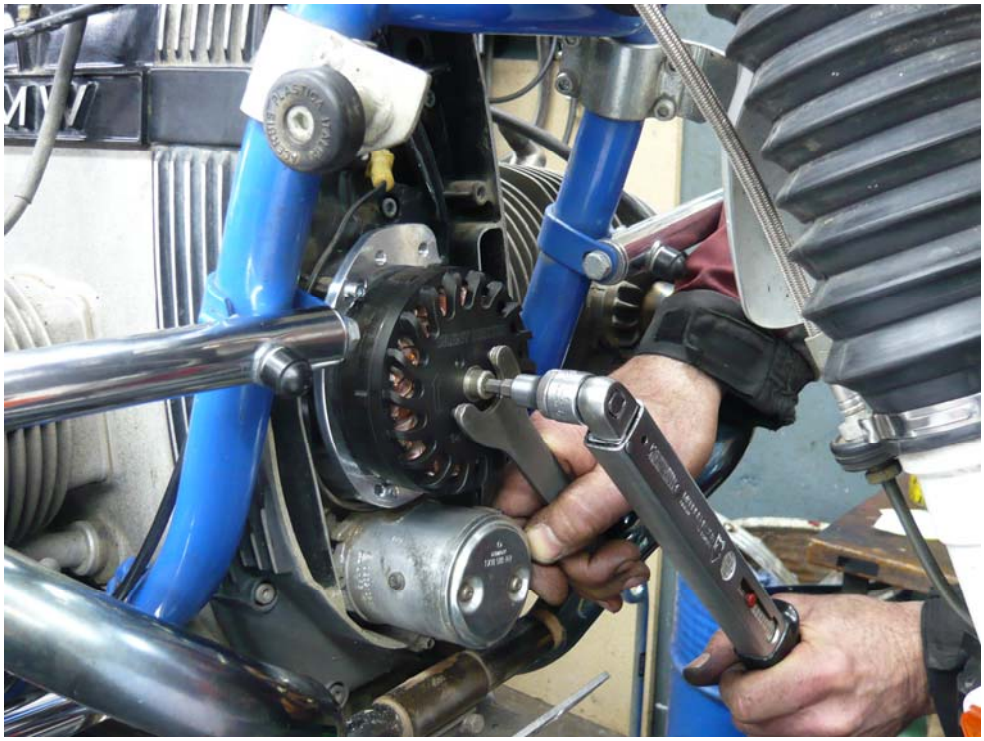
All cables have to be protected by isolating tubes and have to be attached to the vehicle with cable ties to prevent fractions caused by vibrations.
After the assembly and the electronic start-up, check the performance of the whole system with a voltmeter. At the connection between alternator controller and battery, it should be measured 14,2V-14,4V. After several tries to start the engine, it can take some time to achieve the maximum potential.
Among ideal conditions the voltage should be 14V at idle.



Cooling on Moto Guzzi and BMW Boxern:

For reliable continuous operation, the alternator must be adequately supplied with fresh air so that the fan cooling can work properly. When installing on the Moto Guzzi's therefore the plastic intermediate ring must be modified for the Smalblock's and the Bigblock's. The easiest way to disconnect with a small saw and deburr.
The BMW boxers adequate cooling slots are standard in the aluminum cover. With accessories covers, for example, the carbon fiber parts, cooling slots must be placed at a sufficient size.

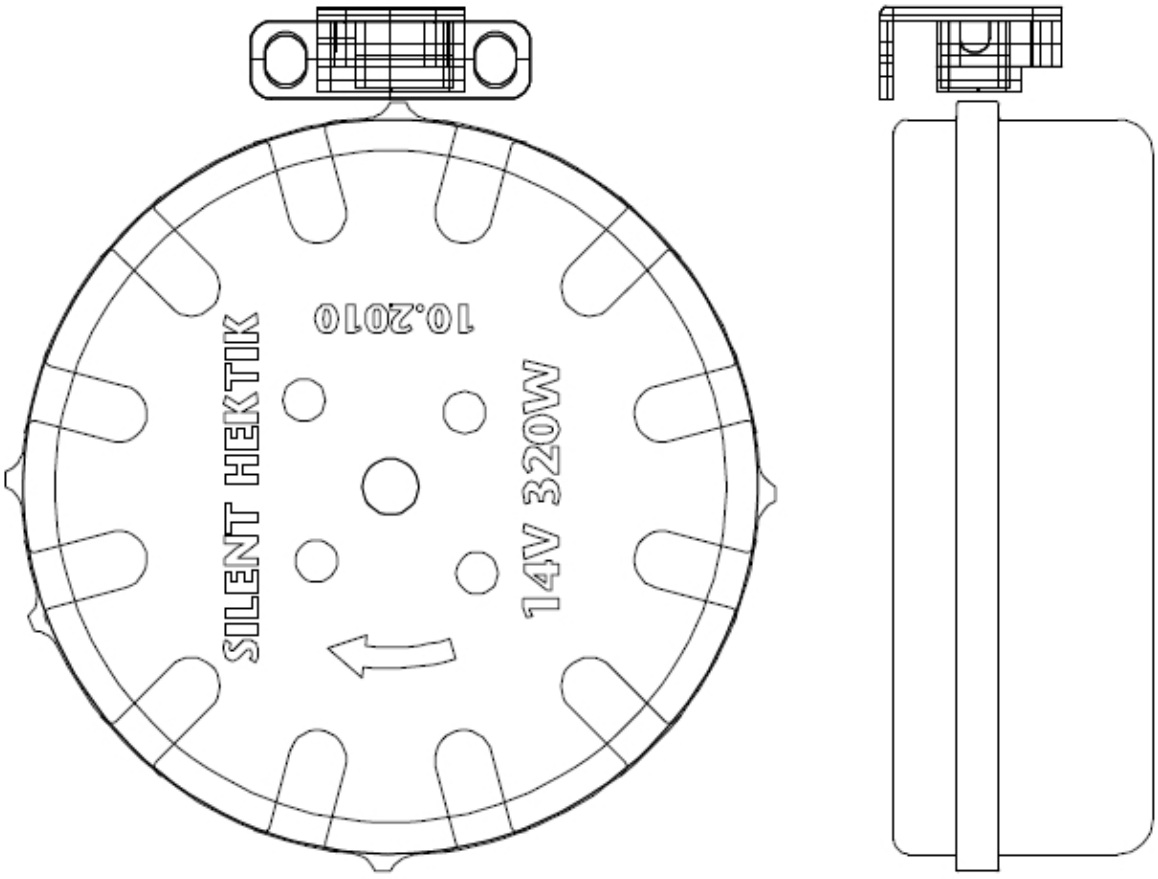
Against holding the screw is tightened with a flex-hook key :



Grundeinstellung des LiMa-Rotors für die PowerBlock Zündung:

Moto Guzzi beim statischen Zündzeitpunkt rechter Zylinder
BMW 2V Boxer beim statischen Zündzeitpunkt rechter Zylinder

Im Drehsinn die verlassende Kante der Triggernase mitte Pickup
Der Abstand vom Pickup zum Rotor darf 0,5mm bis 1,0mm betragen.



Nach Motorstart Feineinstellung mit Strobolicht bei 1200rpm

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