System 73625992Z

Alternator/electronic ignition for stationary engine ZW1103 in the GDR fire pump TS8

- Contactless, electronic ignition system for the ZW1103 stationary engine, used to operate the GDR standard TS8 fire pump.

- Replaces the entire old ignition system, including the breaker and ignition coil.

- Switch for interrupting the ground connection of cylinder 2 not included

- The system supports the function of deactivating one cylinder (for suction)!

- The switch for deactivating a cylinder is not included. The original switch cannot be used, as it switches to ground. However, this original switch can be used to deactivate the entire ignition system by connecting it to ignition coil 1 using the blue cut-off cable.

- Note regarding the switch

- Advantages over the old system:

- all parts are new
- very stable ignition with high-energy sparks
- better starting and better combustion
- no more wear on the breaker

Installation instructions for system 73625992Z	17.4.2026

- If you are able to fit and adjust the original ignition system and have general mechanical skills, you can also fit a VAPE system. If you have never worked on one before, it is best to have the system fitted by someone who knows what they are doing.

- VAPE is unable to monitor compliance with these instructions, or the conditions and methods relating to the installation, operation, use and maintenance of this system. Incorrect installation may result in damage to property or even personal injury. We accept no responsibility or liability for any loss, damage or costs arising from, or in any way connected with, faulty installation, improper operation, or incorrect use and maintenance. We reserve the right to make changes to the product, technical specifications or installation and operating instructions without prior notice.

IMPORTANT

Please make sure you read the entire manual carefully before you begin installation

Please bear in mind that unauthorised modifications, including attempts at repair, to the components may result in the loss of warranty rights. This also applies to cutting cables, which very often leads to the loss of reverse-polarity-protected connectors and, consequently, to short circuits or reverse polarity that can damage the equipment.

Please note the **instructions on the system information page**. Ensure that the system configuration shown actually meets the requirements of your engine. Incorrect ignition settings, for example, can certainly damage the engine and/or cause injury when starting (kickback from the kickstarter). Particular caution is required during the first start-up after installation. If you notice any malfunction, check and adjust the ignition timing! During installation, check very carefully that the rotor is not rubbing against the stator coil or anywhere else, as this can occur for various reasons and lead to serious damage.

Intended use

- This is a **replacement system and not a copy of the original equipment**. The components of the system therefore look different from the original parts, and in particular the ignition coil and regulator may have different mounting points, requiring you to make adjustments. This system is intended **exclusively** for replacing original lighting/ignition systems in classic and modern classic motorcycles **whose engine characteristics have not been subsequently altered by design modifications**. It is not a tuning system; it does not alter the original engine characteristics and does not result in significantly higher engine power. However, it does improve the roadworthiness and safety of the vehicle through better lighting, clearer indicators, a consistently loud horn and, compared to the ageing original systems, greater overall reliability. As our systems do not cause any significant change to the engine characteristics, exhaust and noise emissions are not adversely affected. In most cases, exhaust emissions are likely to improve, as combustion becomes more complete.

- VAPE guarantees that its products are type-approved and marked with the letter 'E' (specifically 'E8' for the Czech Republic), thereby ensuring that the product specifications consistently comply with the relevant ECE type-approval regulations (in particular ECE R10.05). Inspections are carried out regularly by the competent authority

- The charging system is strictly **intended for use only with rechargeable 12V (6V systems 6V) lead-acid batteries with liquid electrolyte or sealed lead-acid batteries, AGM, and gel.** It is not suitable for use with nickel-cadmium, nickel-metal hydride, lithium-ion or other types of rechargeable or non-rechargeable batteries.

- The system is **not suitable for use at sporting events.**

If the system is used for purposes other than those for which it is intended, the warranty will lapse. Furthermore, the system may not perform as you require, and we will be unable to assist you via our support service as we will not be aware of the situation. In the worst-case scenario, improper use may even result in the withdrawal of the operating licence.

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- When fitting the parts, **you must start by fitting the engine-side components** (adapter, stator, rotor) to check that they actually fit before fitting the parts that are to be mounted outside the engine. Unfortunately, it is often the case that people start by fitting the regulator, ignition coil and, where applicable, the control unit, and these parts are very often modified (incorrectly!) in the process, which makes it impossible for us to resell them later. Unfortunately, replacing the lighting and ignition systems on older motorcycles is not like picking something off the shelf at the supermarket; given the wide variety of models and the possible changes to the components since they were first produced many years ago, it is always a complex matter that can, regrettably, also involve errors.
- Our systems have **NOT been tested for use with other electronic components (such as third-party ignition systems, sat-navs, mobile phones, LED lights, etc.)** and may cause damage to such components under certain circumstances. Any existing rev counters are not supported by the system. However, we do offer a rev counter solution. Similarly, any circuit breakers or ignition-controlled exhaust control systems are not supported. It may also be the case that your original ignition system had a speed-limiting device fitted for legal reasons. The new system does not have such a device. You should therefore check the legal situation beforehand.
- If you do not have the necessary expertise to carry out the installation, please have it done by a qualified professional or a specialist workshop. Incorrect installation may damage both the new system and the motorcycle, or even result in injury to the rider.
- Before ordering a system, please check whether the **rotor puller** we recommend is included in the scope of delivery. If not, it is best to order it at the same time! If the rotor is damaged by the use of other tools or aids, the warranty claim will be void!
- The rotor is extremely sensitive to impact (e.g. including during transport). You must always check the rotor for any damage before installation. If the rotor has magnets that are not encapsulated, check that the magnets are securely in place by trying to push them sideways with your fingers. Following an impact, some of the glued-in magnets may have become loose and are now held in place solely by their magnetic force. This would cause serious damage to the system during operation. At the same time, please check the rotor's magnets for foreign objects (e.g. screws or other metallic items).
- If you have internet access, it is best to view this documentation online. You can enlarge most of the images by clicking on them, and you will find more detailed and possibly more up-to-date information. System list available at: *http://www.powerdynamo.biz*

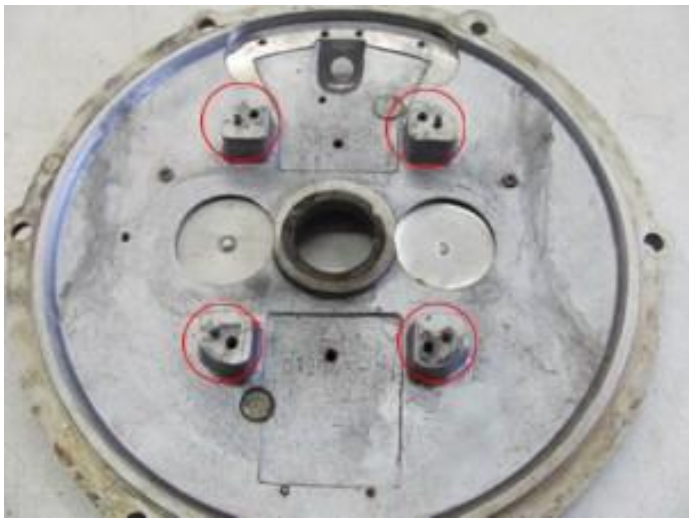
You should have received the following parts:

- Rotor and rotor nut
- Stator (pre-assembled on base plate)
- 2 ignition coils
- Ignition coil distributor cable
- 2 ignition cables with plugs
- Small parts for installation

Installation:

- Remove the old ignition components completely from the engine casing.

- Also remove the screw connection from the old cable outlet. This will make room for the cable from the new stator.



- The motor housing should now look like this. Take particular care to ensure that the four pins next to the threaded holes are present (circled in red in the image). The base plate of the new stator will be centred on these.

- Also ensure that the pins do not protrude beyond the installed stator base plate. Otherwise, they could rub against the rotor later on.

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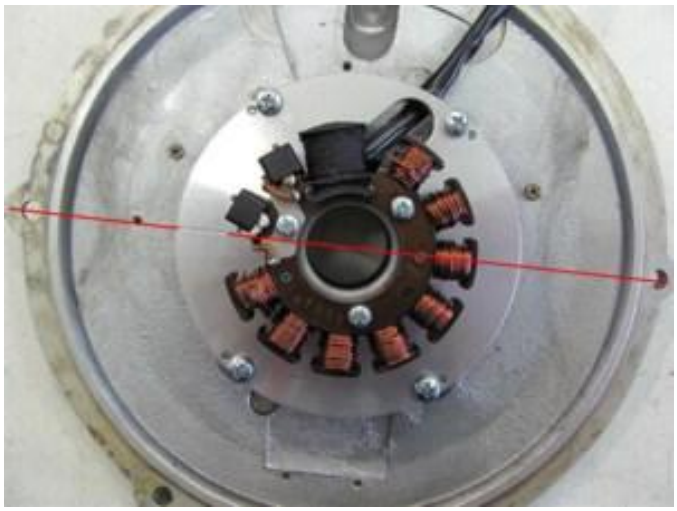


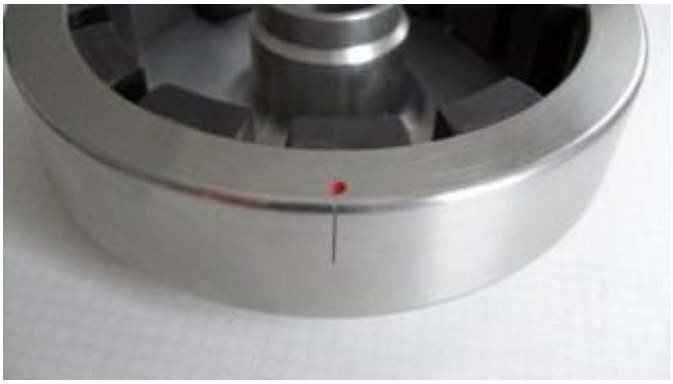
- Now place the new stator onto the motor housing. The markings on the base plate (engraved lines) should align with the holes in the motor housing to form a straight line, as shown in the picture.

- Secure the base plate using the 4 M5 screws and washers supplied (the image still shows the prototype with Phillips-head screws). Under no circumstances should you use different screws, as these could rub against the rotor.

- The mark on the left (next to the two small black coils) is an ignition mark. The rotor must later be aligned with this mark.

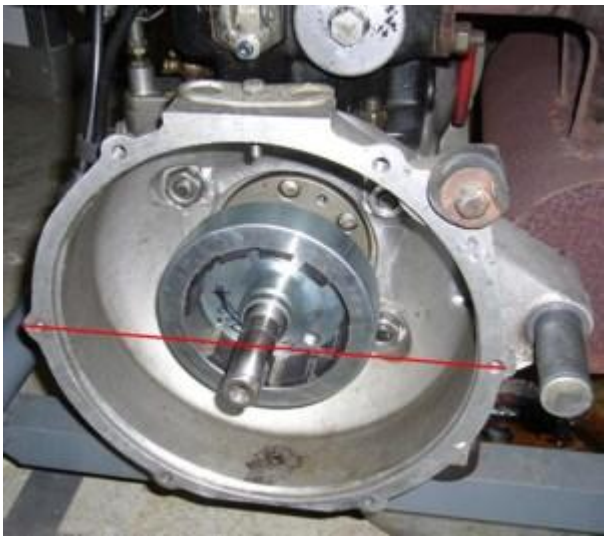
- Look at the hexagon bolts circled in red in the picture. You can use these later to fine-tune the ignition timing.

- This means you don’t have to remove and reposition the rotor every time you need to make minor adjustments.



- Look at the rotor. It has a stamped line marked with a red dot. This is an ignition mark.

- Set the ignition timing on one cylinder (any cylinder will do). The recommended setting is 3 mm **before** top dead centre.



- Now place the rotor on the shaft taper so that its mark lies on the imaginary axis between the two holes in the engine casing.

- Tighten the rotor with the nut supplied. Take care not to twist the rotor on the crankshaft whilst doing so.

- You can now screw the engine casing plate with the stator back onto the engine.

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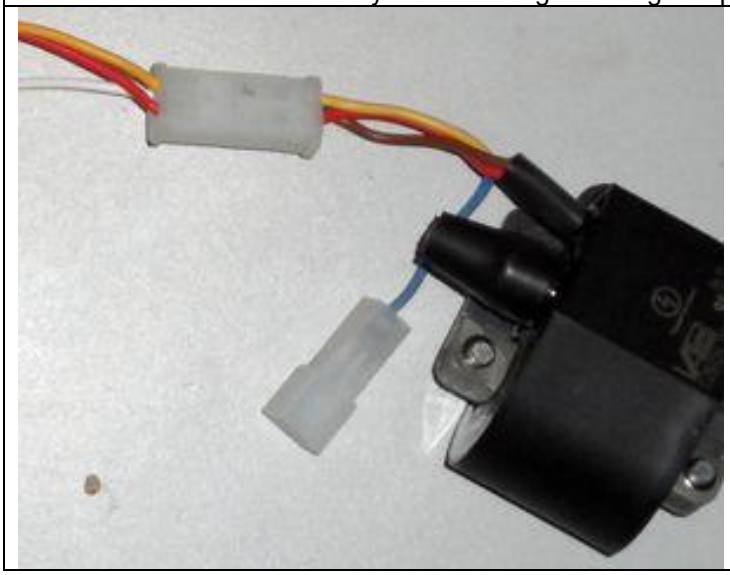
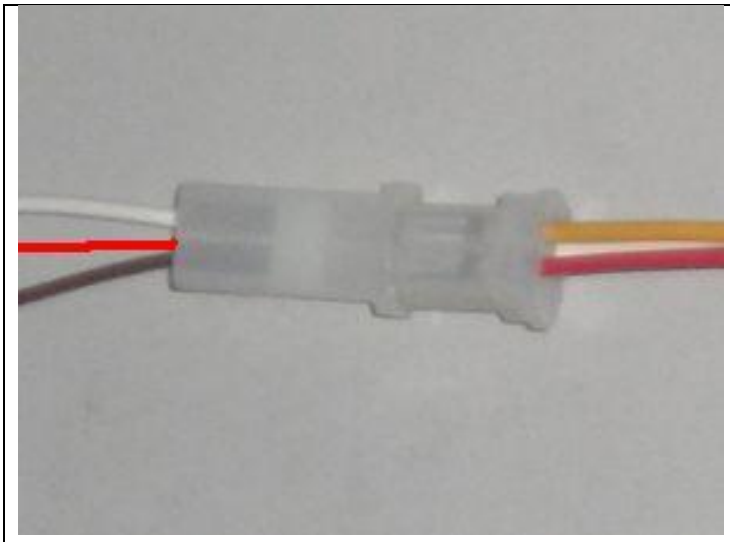
- Here is another example of how to route the cables and fit the ignition coils (the image shows the version with a dual coil):

Connect the cables as shown in wiring diagram 51-2ik, i.e.:	
- To make it easier to feed the cable through narrow openings, or indeed to make this possible in the first place, the plug on the cable leading to the new ignition coil from the new alternator has not yet been connected to the terminal tabs at the end of the cable. You should only attach the plug once the cable has been finally routed through the engine opening. To do this ...	
	... take the red-yellow-white distributor cable. You will find identical male connectors at both ends. These go to the ignition coils. There is a colour mismatch here. • Yellow goes to yellow • red to red • but white goes to brown



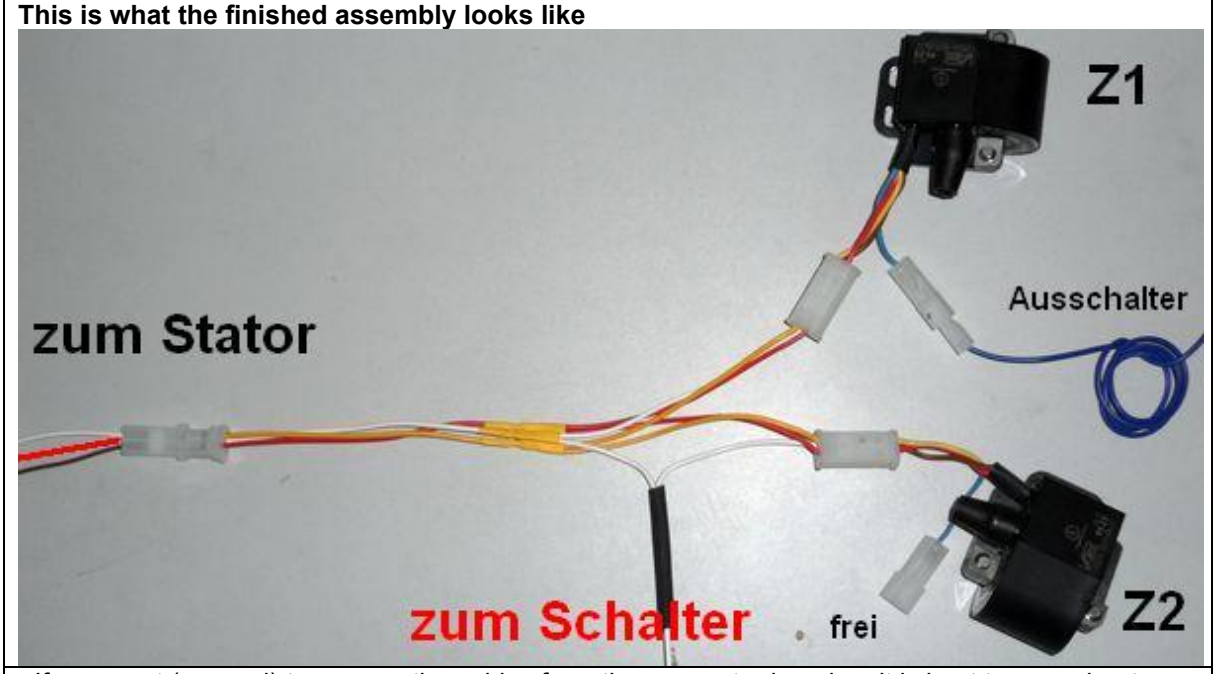
... take the other end of the distributor cable with the female connector. This is connected to the cable from the alternator.

- First, the connector sleeve must be fitted onto the alternator cable (after passing through the engine)

- Fit the loose 4-pin connector sleeve supplied with this connector and insert the loose alternator cables (red, white and brown) into the connector, ensuring the contact tabs are positioned at the rear. Ensure that the connector tabs click into place in the connector housing. It is essential to ensure that these cables are positioned correctly within the connector: Please note that the colours do not correspond. Please check several times!

- Brown goes to white
- red to red
- white goes to yellow

This is what the finished assembly looks like



- If you want (or need) to remove the cables from the connector housing, it is best to use a bent-open paperclip to push the barbs on the contact tabs to one side, so that the connectors can be released.

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- The blue (sometimes blue and white) cable from the ignition coil remains – this is the cut-off cable.	- The blue cable from ignition coil 2, which can be disconnected for bleeding, remains free. Please ensure that it cannot come into contact with earth - The blue cable from ignition coil 1 is connected to a switch that cuts off the circuit to ground using the extension cable supplied. **If it is connected to earth, the ignition (on both coils) will cut out!**
The high-voltage cable (ignition cable) ...	... screw them into the ignition coils and fit the rubber cap over them. This is, of course, easier if you do this before fitting the coil to the vehicle. Please also use the ignition cable supplied and not an old, unknown cable.
- You still need to connect the switch for deactivating cylinder 2	- The distributor cable to ignition coil 2 is cut in the white cable. Here you have two free ends. These are connected to a suitable switch. If the switch contact is open, the ignition on this coil is off.
- Finally – **before installing the battery and before starting the engine for the first time** – please take your time to check all fixings and wiring. Remember to replace all bulbs from 6 to 12 volts. Also bear in mind that you will now need a 12V battery. The horn can remain on 6 volts. - If the system does not work straight away, please consult our troubleshooting page. As a first step, disconnect the blue cable between the relay and the ignition coil (disconnect the contact); most faults are hidden in the switch-off circuit.	
- IMPORTANT: Please note that if **the crankshaft has been reconditioned** (previously), its alternator journal will have been over-machined and is therefore shorter. This causes the rotor to sit lower, which may result in contact between the rotor (the rivets are the lowest point) and the stator coil. The result is a damaged stator and, consequently, a loss of ignition.	

Important safety and operating instructions – MUST be read in full and observed!
- Observe the safety instructions and requirements prescribed by the vehicle manufacturer and the automotive trade. Installation requires specialist knowledge. The ignition marks applied to the material are for guidance only during installation. After installation, please check that the settings are correct using appropriate methods (such as a stroboscope) to prevent damage to the engine or risks to your health. You are solely responsible for the installation and correct adjustment.
- Caution Ignition systems generate high voltage – risk of fatal injury! Our ignition coils can reach up to 40,000 volts! If handled carelessly, this can not only cause severe pain but, more importantly, be harmful to the heart! People with pacemakers should not carry out any work on ignition systems. Always maintain a safe distance from the electrode and exposed high-voltage cables, and when testing, press the spark plug connector firmly to earth using an insulating object to safely discharge the voltage. Never disconnect a spark plug lead to synchronise the carburettor! Never disconnect or touch the ignition cables whilst the engine is running or at starting speed. Only wash the vehicle when the engine is switched off.
- If your VAPE ignition cable was supplied with rubber spark plug connectors attached *(which do not have a built-in suppression resistor)*, please use spark plugs with a built-in resistor *(to comply with local laws regarding electromagnetic compatibility requirements)*. Alternatively, replace the cable(s) with standard ones and use shielded spark plug connectors *(under no circumstances, however, should you use suppressed spark plugs AND suppressed spark plug connectors at the same time. This would lead to interference, particularly difficulty in starting the engine).* The total resistance of the spark plug and spark plug connector combination should not exceed 5 kΩ. - Remember that spark plug connectors age and their resistance increases as a result. If an engine only starts when cold, the cause is almost certainly a faulty spark plug connector or a faulty spark plug. Do not use so-called spark-boosting cables (e.g. Nology).
- After installation, please ensure you check that all retaining screws are tight. If the parts become loose, they will be damaged. We only tighten the screws loosely during pre-assembly!

- First, give the system you've just installed a chance to fire up before you start measuring and testing everything. Please also follow our instructions on how to check for a spark. All our parts are tested before dispatch. In any case, there is little you can measure on them. Under no circumstances should you attempt to measure the electronic components (including the ignition coil, except for its high-voltage output). You risk damaging them and will still not obtain any useful results! Bear in mind that if the engine does not run straight away, this is often due to the carburettor, the intake rubber and, above all, the spark plug connectors and spark plugs (unfortunately, even brand new ones); as a rule, the settings must also be adjusted after installing a Lima alternator. If the system does not run straight away, check the earth connections first and foremost, particularly between the chassis earth and the engine block. Before you remove the parts again and send them to us for testing, please check our knowledge base to see if there is already an answer to your problem there. If not, please use our service ticket system to request specific assistance.
- If you have a system with a dual ignition coil, please note a few specific features of this coil. The ignition will only work properly if both spark plugs are connected to the coil. This means you cannot simply remove one spark plug to test it, as each output is connected to the other's spark plug via the ground. If you really only want to test one side, the other coil output must be connected to ground.
- The spark produced by traditional breaker systems has a low energy level of around 10,000 volts and therefore appears thick and yellow. The spark produced by our systems is a high-energy spark of up to 40,000 volts and is therefore very sharply focused and blue, which makes it less visible. Furthermore, the spark is only generated at engine speeds reached when the kick-starter is engaged. Simply pressing the kick-start lever by hand does not produce a spark.
- Most of our systems combine the ignition and the alternator in one unit. You can tell this by the presence of a regulator. Apart from the voltage output by the regulator, there is little else you can measure on it. If you are not getting any power, check the earth connections and the wiring from the regulator to the ignition switch first and foremost. This important connection is often cut and overlooked during installation! Most PD systems have DC regulators/rectifiers. However, there are also AC regulators, which have specific features that need to be taken into account.
- Never carry out electrical welding on the vehicle without first completely disconnecting all electronic components containing semiconductors (regulator, ignition coil and control unit). The stator and rotor do not need to be removed. Only solder using equipment powered by a step-down transformer, or unplug the soldering iron before soldering to prevent damage to the components caused by overvoltage. Never use copper paste on connectors or spark plugs.
- Electronic components are sensitive to reverse polarity. After carrying out any work on the system, always check that the battery is connected correctly and that the wiring is correct. Reverse polarity and short circuits will immediately destroy the control unit and the ignition coil! As a general rule, wires should always be connected colour to colour. Any exceptions are explicitly stated in the instructions. Damage caused by reverse polarity is not covered by the warranty.
- When assembling the rotor, please take care not to damage the magnets. Avoid applying direct mechanical force to the rotor. **Never place the stator inside the rotor when transporting the generator;** please follow our shipping instructions (packaging).
- Lightly oil the outside of the rotor; otherwise, it will rust quickly in the harsh environment (which is not harmful, but looks unsightly).
- Never use a claw puller or a hammer to remove the rotor. This may cause the magnets to come loose. Always use only a screw-in puller M27x1.25 (see installation instructions).
- If your vehicle is not going to be used for a prolonged period, you should disconnect the battery (if fitted) to prevent any slow discharge via the rectifier diodes. However, even with the battery disconnected, you will notice that it has discharged after a long period; this is normal.
- Please take note of these instructions, but don't let them unsettle you. Thousands of customers have already successfully installed our systems before you. ***Good luck and enjoy your drive!***

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Schaltplan 51-2ik (wiring diagram)