System 721979900

Advantages over the old system:

Alternator with electronic ignition for Motobecane LT 125

- Magneto ignition system with integrated fully electronic ignition. Light output 12V/150W DC. Contactless electronic ignition with its own power supply within the system. Replaces the entire old lighting/ignition system, including ignition coils. No modifications to your engine housing are required. You can run the system completely without a battery (but must then install a smoothing capacitor if turn signals are present).

- All parts are new
- Very stable ignition with high-energy sparks
- Better starting and better combustion
- No more wear on the breaker

M721979900

Installation instructions for System 721979900	30.3.2026

- If you can install and adjust the original ignition system and have general mechanical skills, you can also install a VAPE system. If you have never worked with one before, it is better to have the system installed by someone who is familiar with it.

- VAPE cannot monitor compliance with these instructions, nor with the conditions and methods for the installation, operation, use, and maintenance of this system. Improper installation may result in property damage or even personal injury. We assume no responsibility or liability for any loss, damage, or costs arising from or in any way related to 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

Be sure to read the entire manual carefully before you begin installation

Keep in mind that unauthorized modifications, including repair attempts, to the parts may void your warranty. This also applies to cutting cables, which very often results in the loss of reverse-polarity-protected connectors and, consequently, to short circuits or reverse polarity that can damage the components.

Please note the **instructions on the system information page**. Make sure that the system configuration shown actually meets the requirements of your engine. Incorrect ignition settings, for example, can damage the engine and/or cause injury when starting (kickback from the kickstarter). Special 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 parts of the system therefore look different from the original parts, and in particular, the ignition coil and regulator may have different mounting points that require adjustments on your part. 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 it does not result in significantly higher engine power. However, it does improve the vehicle's roadworthiness and safety through better lighting, more visible turn signals, a consistently loud horn, and greater overall reliability compared to the aging original systems. Since our systems do not cause any significant change in engine characteristics, exhaust and noise emissions do not deteriorate. In most cases, exhaust emissions may even 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), ensuring that the product specifications consistently comply with the relevant ECE type-approval regulations (in particular ECE R10.05). Inspections are conducted regularly by the competent authority

- The charging system is **intended solely for use 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.

VAPE spol. s r.o., Bílanská 1647, 767 01 Kroměříž, Czech Republic
vape@vape.cz

- The system is **not intended for use at sporting events.**
Improper use will void the warranty. Furthermore, the system may not perform as you expect, and we will be unable to assist you with our support services because we are unaware of the situation. In the worst-case scenario, improper use may even result in the revocation of the operating permit.

- **When installing the parts, be sure to start with the engine-side components** (adapter, stator, rotor) to verify that they fit properly before installing the parts that go on the outside of the engine. Unfortunately, it is often the case that people start by installing the regulator, ignition coil, and, if applicable, the control unit, and these parts are very often modified (without proper calibration!), which makes it impossible for us to resell them later. Replacing the lighting and ignition systems on older motorcycles is unfortunately not like picking something off the shelf at the supermarket; given the wide variety of models and the possible changes to the parts since they were manufactured many years ago, it is always a complex matter that can unfortunately also lead to errors.

- Our systems have **NOT been tested for use with other electronic components (such as aftermarket ignition systems, navigation devices, cell phones, LED lights, etc.)** and may cause damage to such components under certain circumstances. Any existing tachometers are not supported by the system. However, we do offer a tachometer solution. Similarly, any circuit breakers or ignition-controlled exhaust control systems are not supported. It is also possible that your original ignition system had a speed-limiting device installed for legal reasons. The new system does not have such a device. Therefore, please check the legal requirements beforehand.

- If you do not have the necessary expertise to install the system, please have it installed by a qualified professional or a specialized workshop. Improper installation can 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 package. If not, it's best to order it at the same time! If the rotor is damaged by using other tools or aids, the warranty will be void!

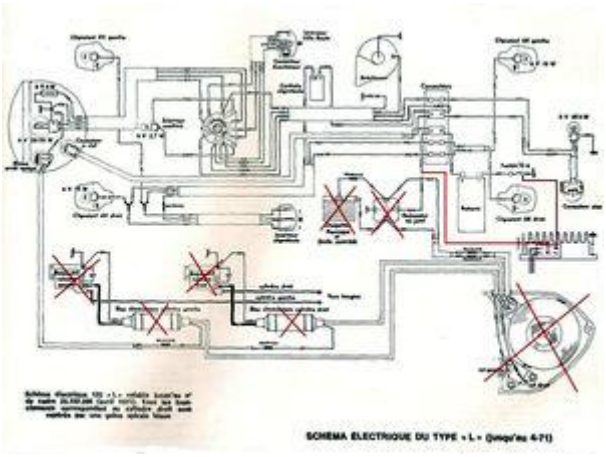
- The rotor is extremely sensitive to impact (e.g., even during transport). Be sure to inspect the rotor for any damage before installation. If the rotor has magnets that are not encapsulated, check that the magnets are securely in place by trying to push them sideways with your fingers. After being subjected to impact, some of the glued-in magnets may have become loose and are now held in place only by their magnetic force. This could 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 objects).

- **If you have internet access, we recommend viewing this documentation online**. You can click on most of the images to enlarge them, and you'll find more—and possibly more up-to-date—information. System list available at: *http://www.powerdynamo.biz*

You should have received these parts!

- Rotor
- Base plate with stator coil
- Sensor holder with sensor
- Electronic dual ignition coil
- Electronic regulator/rectifier
- Ignition cable
- Mounting screws
- Washer

- Make sure your motorcycle is securely positioned, preferably on a raised work platform, and that you have good access to the alternator side.

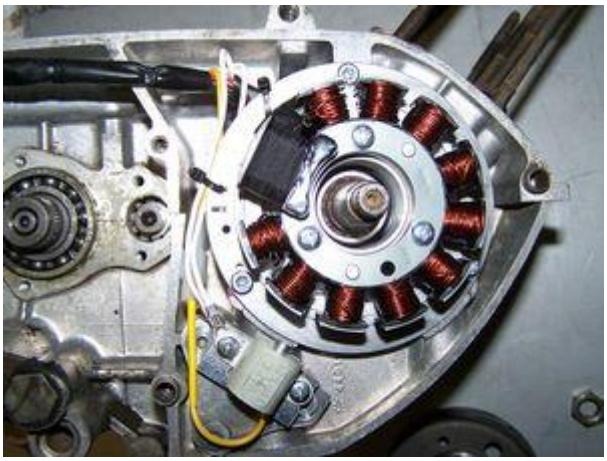


- Disconnect all cables leading to the old alternator, the rectifier, the choke coil (heat sink), and the two ignition coils and ignition modules (electronic control unit), and remove these parts.

- Click on the diagram to enlarge

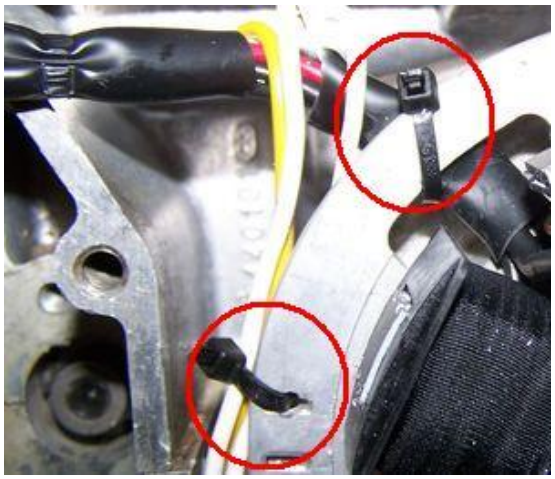
- Please also remove the key from the crankshaft. It is no longer needed and will interfere with the rest of the installation process.

- Place the sensor holder with the sensor in the location of the original pickup module and secure it there with the 3 M6 countersunk screws (tighten them one at a time; otherwise, the plate will jam)



- Place the stator unit in the location of the old stator coils and secure it with the three M6 flat-head screws.

VAPE spol. s r.o., Bílanská 1647, 767 01 Kroměříž, Czech Republic
vape@vape.cz

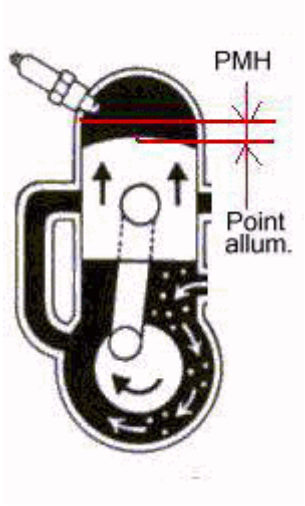


- Secure the outgoing cable with a cable tie (shown at the top of the image). This is to prevent the cable from getting caught in the rotating rotor and to provide some strain relief.

- Secure the two white cables and the yellow cable leading to the sensor with a cable tie (see bottom of the image)

- Take the new rotor (flywheel). Check that its magnets have not picked up any metal parts (which could cause damage) and slide the rotor onto the shaft until it is snug (do not screw it in yet)
- Turn the rotor by hand (remove the spark plug to ensure smooth rotation). Check the clearance between the sensor and one of the rotor's two control tabs. This should be approximately 0.4 mm.

- You can adjust the gap by moving the sensor after loosening its two mounting screws. Finally, tighten the sensor's two mounting screws securely. If the screws are loose, the sensor can slip onto the rotor and be destroyed! It's a good idea to check the tightness of these screws from time to time.



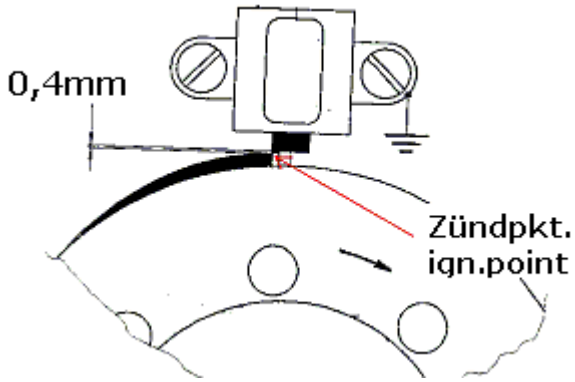
- Remove both spark plugs.

- Fit the new rotor onto the crankshaft by hand (do not screw it in). You can now turn the crankshaft. (While doing so, check immediately whether the rotor turns freely over the base plate and the screws.)

- Now move one of the two pistons to its top dead center (the highest position the piston can reach). Then turn the rotor slightly to the left (counterclockwise) until the piston has dropped 1.5 mm toward the ignition point.

- It does not matter which cylinder you adjust, as the ignition coil fires both cylinders simultaneously. This means that a wasted spark occurs in one cylinder when the piston is before bottom dead center. This is completely harmless and standard practice in ignition systems.

- Please also note our instructions regarding the dual ignition coil.



- Use the attached rotor to turn the crankshaft. Once you have found the correct crankshaft position, carefully remove the rotor without changing the crankshaft position, and then reattach it so that the right edge of one of the two (either one) control vanes aligns with the left edge of the sensor core (as shown in the picture). In this position, secure the rotor with the original retaining nut and the supplied washer. The ignition is now adjusted.

- To remove the new rotor, you will need an M27x1.25 puller (part 99 99 799 00).

- CAUTION: If you use a claw puller, the magnets in the rotor will come loose!

- This completes the work on the engine. Now screw the spark plugs back in.

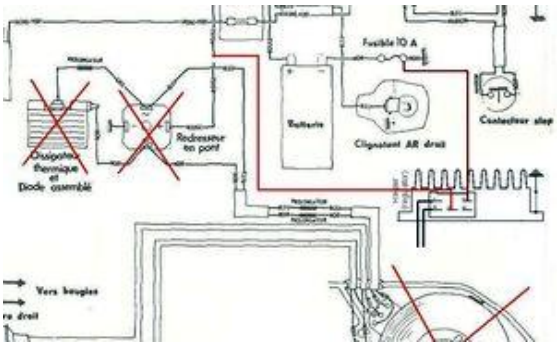
- Mount the ignition coil in a suitable location, preferably near the spark plugs.

- Screw the ignition wires into the ignition coil first; this makes the process easier. Leave one of the mounting screws loose; a ground wire must be attached here later.

- Now install the new regulator/rectifier in a suitable location.

- Electrical installation

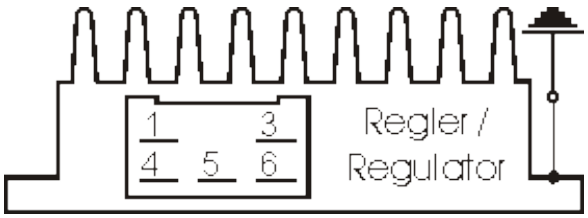
The installation of the new parts is described below. This involves replacing only the wiring for the ignition system itself (from the alternator to the ignition coils) as well as the previous wiring from the alternator to the rectifier and from there to the battery. All other wiring for the lights, horn, etc., remains unchanged. The new parts are connected to the original existing wiring harness at the battery.



- The new system is integrated with the old one at the new regulator/rectifier.

- Terminal 5 of the new regulator (positive) is connected to the red cable (the red cable that went to the old rectifier).

- Terminal 3 of the new controller is connected to ground

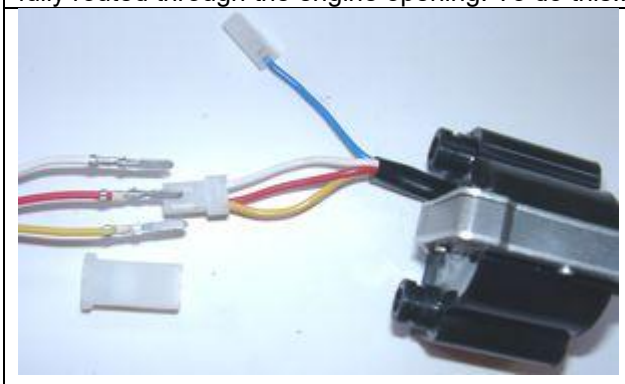


VAPE spol. s r.o., Bílanská 1647, 767 01 Kroměříž, Czech Republic
vape@vape.cz

Connect the cables as shown in the respective wiring diagram!

- For our DC (standard) controller (952269906), use wiring diagram **72xk12:**
- If the DC controller is delivered with a built-in smoothing capacitor (730079950), also use wiring diagram **R_102:**

- To make it easier—or even possible—to route the cable through tight openings, the connector on the cable leading to the new ignition coil from the new alternator has not yet been attached to the terminals at the end of the cable. You should not connect the connector until the cable has been fully routed through the engine opening. To do this...



... take the female connector of the ignition coil with the red, white, and yellow wires.

- Slide the loose 4-pin connector sleeve provided onto this plug, and insert the loose alternator wires (red, white, and yellow) into the plug, aligning the terminals at the back. Make sure the terminals snap into place inside the plug housing. Be sure to pay close attention to the correct positioning of these wires in the plug:

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

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

Connecting the alternator to the electrical system:

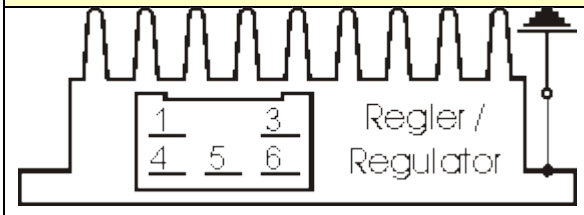
- The two black cables coming from the alternator carry the power for the lights, horn, turn signals, etc. Like the regulator itself, they have nothing to do with the ignition.

- This voltage must first be stabilized (regulated) and, for most applications, rectified, since it is initially alternating current.

- **There are 2 different controller variants available for this:**

Warning: Any **reversal of positive and negative terminals** will **immediately destroy the regulator, which is not covered by the warranty!** (You can clearly tell it's destroyed by the smell of burning!). Warning: There are batteries on the market where the positive terminal is where the negative used to be!

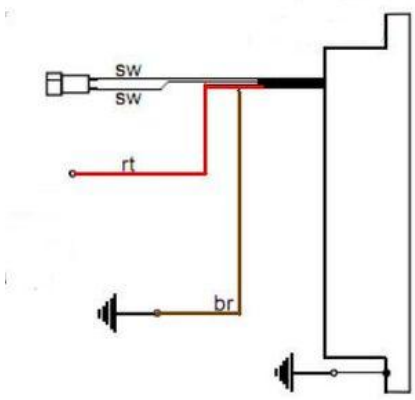
Controller variant 1: with DC (standard) controller (95 22 699 06), use wiring diagram **72xk12**:



- The new regulator/rectifier has a compact connector with 6 ports, *one* of which is free. A matching connector is supplied with the regulator; the cables must be inserted into this connector and snap into place.

- The two black cables from the new alternator ...	...are connected to terminals 1 and 4 of the new rectifier (black cables then run from there into the regulator). It does not matter which cable is connected to which of the two terminals (1 and 4), as alternating current is fed in here.
- The new brown cable with the ring terminal on one end ...	... connect terminal 3 of the regulator/rectifier (a brown cable also runs into the regulator from there) to the negative terminal of the battery or a solid ground. Caution: Do not reverse the polarity!
Connect the new red cable with the ring terminal on one end ...	...connects terminal 5 of the regulator/rectifier (a red cable also runs into the regulator from there) to the positive terminal of the battery or to the terminal on the fuse box where the power cable from the old alternator was connected (on German motorcycles: terminal 51).
- Make sure a **15A fuse** is used between the battery and the vehicle electrical system. If there is an old, higher-amp fuse (from the original 6-volt system) at the ignition switch, please replace it.	
- Connect the green/red wire of the new regulator to terminal 6 ...	... is for connecting the charge indicator. This is where the indicator light (if present) is connected. Of course, this only works if a battery is present. If the indicator light is connected even without a battery, it will glow dimly while the engine is running, even though power is being generated. In short, leave the connection open if there is no battery. The same applies if no light is present.

Regulator variant 2: with DC regulator with built-in smoothing capacitor (730079950), also use **wiring diagram R_102:**



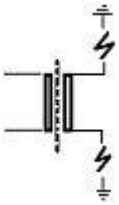
- Connect the two black cables to the black cables coming from the alternator
- the red cable is the 12V DC output
- The brown wire is the negative terminal and is connected internally to the regulator housing

- That leaves the blue/white wire from the ignition coil—the cut-off wire. **- Note:** If you experience ignition problems, disconnect this cable first (pull the plug). In most cases, the vehicle will then continue running	**- If it is connected to ground, the ignition will shut off!** - We use this wiring configuration on vehicles that originally had magneto ignition (rotor) and thus also shut down due to a short circuit to ground. - These vehicles have a terminal on the ignition switch (terminal 2 on German vehicles) that is connected to ground when in the "OFF" position. The blue (or white) cable is connected to this terminal. This allows the ignition to be turned off as before.

VAPE spol. s r.o., Bílanská 1647, 767 01 Kroměříž, Czech Republic
vape@vape.cz

- The high-voltage cable (ignition cable) ... Please **do not use** "Nology Super Cables" ("hot wire"). These cause interference in VAPE systems and can damage the electronics.	... screw them into the ignition coil and place the rubber cap over them. This is, of course, easier to do before installing the coil on the vehicle. Please also use the ignition cable provided and not an old, unknown cable.

- You'll be doing yourself a favor if you install new spark plugs and new spark plug connectors (preferably with 1–2, but no more than 5 kiloohms) on your motorcycle at this point. More than enough interference can be traced back to "seemingly good" cables, plugs, and connectors (including brand-new ones)!
- **Do not use** spark plugs with built-in suppression resistors **in combination** with suppressed spark plug boots (this results in double the resistance). Always use only one suppression method.



- With our dual ignition coils, both outputs go to the spark plugs and only then to ground.

- The typical resistance between the two outputs is 6.2 kΩ. Both channels always fire simultaneously (which, incidentally, is the case with many ignition systems and poses no problem). However, the spark phases are offset by 180 degrees on each side, a factor that must be taken into account when taking measurements with a stroboscope.

- The ignition will only function properly if both spark plugs are connected to the coil. This means you can't even disconnect one spark plug to test it, because each output draws ground through the spark plug of the other output. If you really want to test just one side, the other coil output must be grounded. Then the circuit is the same as for a single-output ignition coil (see above). If the current flow on one side is interrupted, either nothing happens at all, or the system draws ground from the nearest point. This often results in sparks flying around the ignition coil. If you really need two separate outputs, you must use two individual coils.

- Finally—**before installing the battery and before the first start**—please take your time to check all fasteners and wiring. Remember to replace all bulbs from 6 to 12 volts. Also remember that you will now need a 12V battery. The horn can remain at 6 volts.

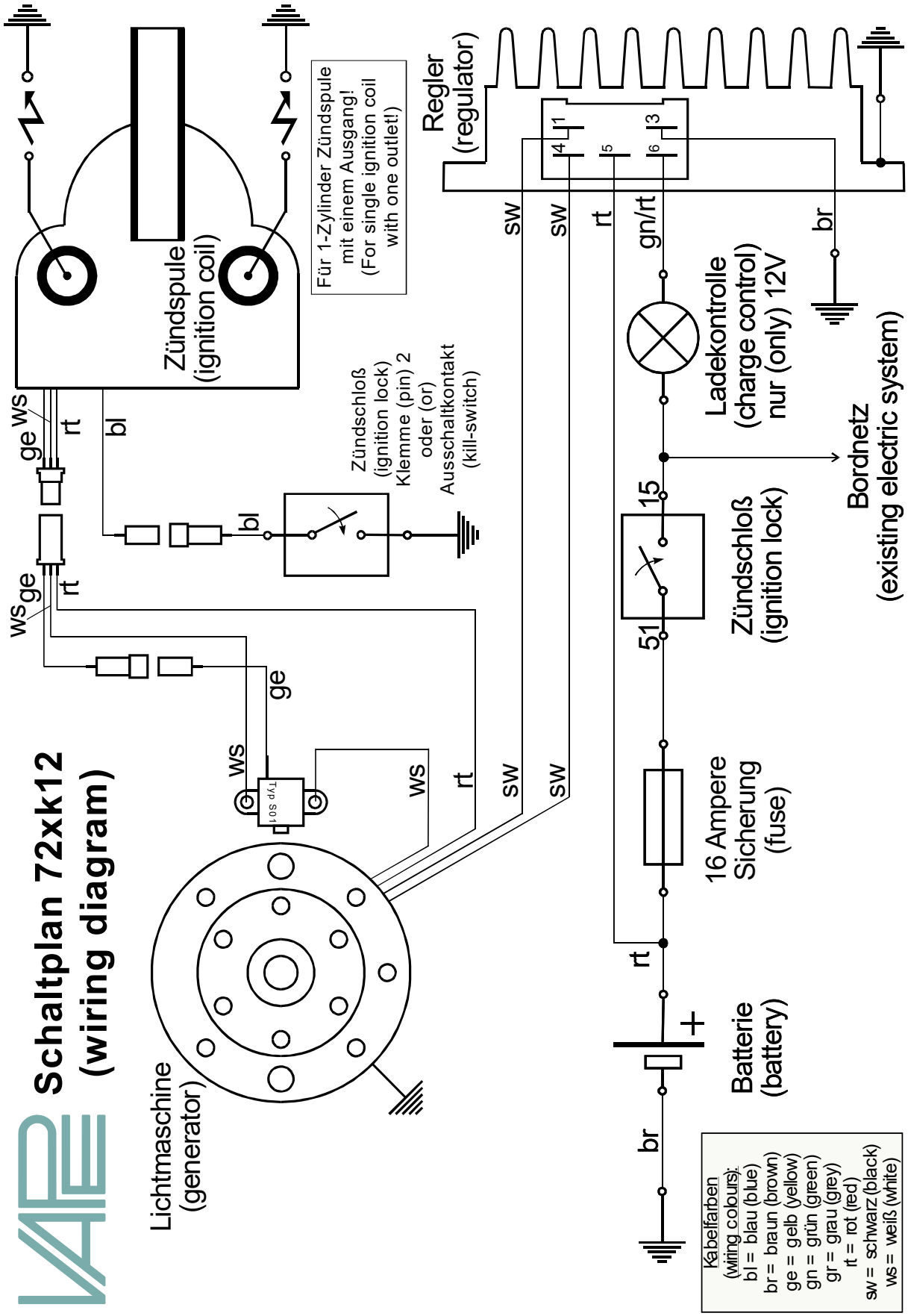
- If the system does not work right away, please consult our troubleshooting page. As a first step, disconnect the blue cable between the relay and the ignition coil (disconnect the connector); most faults are hidden in the shutdown circuit.

- IMPORTANT: Please note that if **the crankshaft** has been **reconditioned** (even previously), its alternator journal has been over-machined and is therefore shorter. As a result, the rotor sits lower, which can cause contact between the rotor (the rivets are the lowest point) and the stator coil. This will result in a damaged stator and subsequent loss of ignition.

Important Safety and Operating Instructions - MUST be read and followed in their entirety!
- Follow the safety instructions and requirements specified by the vehicle manufacturer and the automotive trade. Installation requires technical expertise. The ignition marks on the material are intended solely for guidance during installation. After installation, please verify the correctness of your settings 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—danger to life! 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 perform any work on ignition systems. Always maintain a safe distance from the electrode and exposed high-voltage cables, and during testing, firmly press the spark plug connector to ground with an insulating object to safely discharge the voltage. Never disconnect a spark plug wire to synchronize the carburetor! Never disconnect or touch the ignition wires while the engine is running or at starting speed. Wash the vehicle only when the engine is off.
- If your VAPE ignition cable came with rubber spark plug connectors *(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 should you use both suppressed spark plugs AND suppressed spark plug connectors at the same time. This would cause interference, particularly difficulty starting the engine).* The total resistance of the spark plug-spark plug connector combination should not exceed 5 kΩ. - Keep in mind that spark plug wires age and become more resistant over time. If an engine only starts when cold, the cause is almost certainly a faulty spark plug wire or spark plug. Do not use so-called spark-enhancing cables (e.g., Nology).
- After installation, be sure to check that all retaining screws are tight. If the parts loosen, they will be damaged. We only tighten the screws loosely during pre-assembly!
- First, give the system you 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 shipment. You can hardly measure anything on them anyway. Under no circumstances should you measure the electronic components (including the ignition coil, except for its high-voltage output). You risk destroying them and will still not get usable results! Keep in mind that if the engine doesn't run right away, the problem is often due to the carburetor, the intake hose, and especially the spark plug wires and spark plugs (unfortunately, even brand-new ones). (As a rule, after installing a Lima alternator, its settings must also be adjusted.) If the system doesn't run right away, check the ground connections first and foremost, particularly between the chassis ground and the engine block. Before you immediately remove the parts and send them to us for inspection, check our knowledge base to see if there is already an answer to your problem there. If not, use our service ticket system to request specific assistance.
- If you have a system with a dual ignition coil, be aware of some specific features of this coil. The ignition will only function properly if both spark plugs are connected to the coil. This means you cannot simply remove one spark plug to test it, because each output is grounded through the other spark plug. If you really want to test only one side, the other coil output must be grounded.
- The spark from conventional breaker systems has a low energy level of approximately 10,000 volts and therefore appears yellow and thick. The spark from our systems is a high-energy spark of up to 40,000 volts and is therefore very sharply focused and blue, which makes it harder to see. In addition, the spark is only generated at engine speeds reached by kicking the starter. Simply pushing the kickstarter lever by hand does not produce a spark.
- Most of our systems combine the ignition and the alternator into a single unit. You can tell this by the presence of a regulator. You can measure almost nothing on the regulator except for the voltage it outputs. If you are not getting any power, check the ground connections and the wiring from the regulator to the ignition switch first. 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 considerations that must be taken into account.

VAPE spol. s r.o., Bílanská 1647, 767 01 Kroměříž, Czech Republic
vape@vape.cz

- Never perform 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. Solder only with soldering equipment powered by series transformers, or unplug the soldering iron before soldering to prevent overvoltage damage to the components. Never use copper paste on connectors or spark plugs.
- Electronics are sensitive to reverse polarity. After making any changes to 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 regulator and the ignition coil! As a general rule, wires should always be connected color-to-color. Any exceptions are explicitly mentioned in the manual. 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;** 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 can cause the magnets to come loose. Always use only a screw-in puller M27x1.25 (see installation instructions).
- If your vehicle will not be used for an extended period, you should disconnect the battery (if equipped) to prevent any slow discharge through the rectifier diodes. However, even with the battery disconnected, you may notice that it has discharged after a long period of time; this is normal.
- Please follow these instructions, but don't let them unsettle you. Thousands of customers have already successfully installed our systems before you. ***Good luck and have fun driving!***



VAPE spol. s r.o., Bílanská 1647, 767 01 Kroměříž, Czech Republic
vape@vape.cz

Schaltplan Regler 102
(wiring diagram regulator)