System 772079900

Alternator/electronic ignition for
- Malagutti
- Moteur FRANCO MORINI 4-5 V.TS and V.TS/RR

- Please note: not for Malagutti Olympique!

- Magneto lighting and ignition system with integrated fully electronic ignition. Light output 12V/100W DC. Contactless electronic ignition. Replaces the entire old magneto lighting and ignition system, including the sensor, regulator and ignition coil.

- No modifications to your engine casing are required. You can run the system entirely without a battery

Advantages over the old system:

- all parts are new
- significantly brighter light
- very stable ignition with high-energy sparks
- Better starting and improved combustion

M772079900

Installation instructions for System 772079900	7.5.2026

- 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 dealt with this before, it is best to have the system fitted by someone who is familiar with it.

- 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 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

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

Please note 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 components.

Please note the **information 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 care 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** as a replacement for 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 emissions and noise levels are not adversely affected. In most cases, exhaust emissions are likely to improve, as combustion is 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 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.**

The warranty will lapse if the system is used for purposes other than those for which it is intended. 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 revocation of the operating licence.

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vape@vape.cz

- When fitting the parts, **be sure to start with 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 old motorcycles is not like picking something off the shelf in a 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, 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 could 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 objects).

- If you have internet access, it is best to view this documentation online. You can click on most of the images to enlarge 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:

- Pre-assembled stator unit
- rotor
- Regulator/rectifier with integrated capacitor
- electronic ignition coil
- ignition leads
- Small parts

- To remove the new rotor, you will need an M27x1.25 puller (order no.: 99 99 799 00 **– not included!**).

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

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

- Remove the rotor's fixing nut and pull the rotor off the crankshaft. You will need a puller for this.

- Now disconnect all cables from your old alternator and remove these parts. They are no longer required.

- Remove the key from the crankshaft that was fitted into the groove of the old ignition rotor. Don't worry, it doesn't serve a retaining function; its sole purpose is to facilitate ignition timing adjustment. If you forget to remove the key, the rotor won't fit onto the shaft later on, and you'll have to dismantle the stator again to access the pin.

- Don't worry: provided the taper is correct, there is no risk of the rotor coming loose or twisting unintentionally, as it has always been held in place by the taper and never by the key. The key served only to guide the rotor into position to ensure the correct ignition timing.

- To screw the new stator unit into place, you need to loosen the stator from the base plate and lift it slightly.

Loosen the three Phillips-head screws that secure the new stator to the base plate.

- Place the new unit in the position of your old stator and secure the plate using the 3 M4 screws and washers supplied

(Please do not use any other screws, as the head may be too high!).

- Now screw the stator back onto the base plate using the 3 M4x25 screws.

- Take care not to trap any cables and ensure the stator is not positioned at an angle! The cables tend to get trapped under the stator, causing it to sit at an angle. Therefore, please push the cables away to the side as far as possible when placing the stator on the plate. If the stator sits softly on the plate, a cable is definitely trapped underneath. Otherwise, it will click audibly into place with a metallic sound if everything is OK.

- A misaligned stator would come into contact with the rotating rotor drum and cause damage. Furthermore, the trapped cables may cause a short circuit to earth

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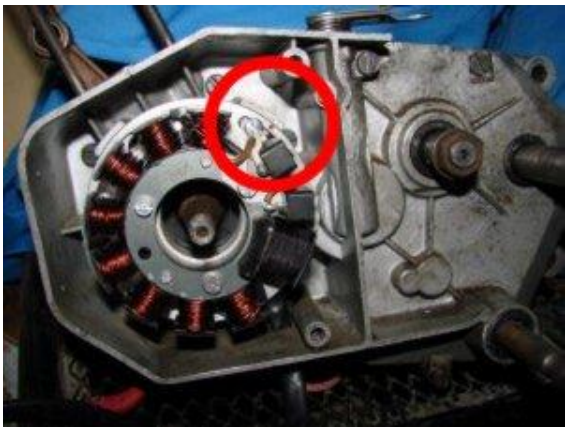
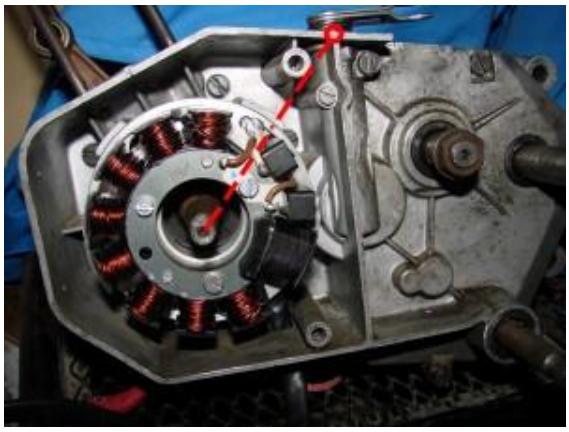
- Take a look at the new stator unit. You will find a red alignment mark near the black coils.
- As this is no longer visible once the rotor has been fitted, you will need to transfer it to the motor housing.





- Ignition timing: To ensure maximum flexibility in ignition timing, the rotor is not secured to the crankshaft by a key and keyway. Nevertheless (provided the taper is correct), there is no risk of the rotor becoming unintentionally dislodged or twisted, as it was always held in place by the taper and never by the key. The key served only to guide the setting of the correct ignition timing.

- Take a look at the new rotor now. You will find a small indented line mark around its circumference. This is an ignition timing mark. Although it is permanent due to the indentation, it is not always easy to see once fitted. It is therefore a good idea to trace it with a felt-tip pen.

Before fitting the rotor, check that its magnets have not picked up any screws or other small parts that could cause damage.

- Remove the spark plug and set the piston to top dead centre. To do this, you can loosely fit the new rotor onto the shaft and turn it. Check your manual for the correct setting.

Check very carefully that the rotor turns freely over the plate and over the coil and does not rub against anything due to changes in the engine's mechanical configuration (modifications to the housing and/or shaft). Any rubbing will certainly result in the system being destroyed.

- Carefully pull the rotor off the crankshaft again; it is best to use the puller for this. Then reposition the rotor so that the ignition mark on the rotor is exactly aligned with the

ignition mark previously marked on the stator.

- You must ensure at all times that the ignition position of the crankshaft (and the piston) does not change. Otherwise, you will have to repeat the ignition timing adjustment.

- Now secure the rotor using the original M10x1.25 nut and the supplied M10 washer.

- Please remember to remove the new rotor using only an M27x1.25 puller (order no.: 99 99 799 00 **– not included!**).

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

- Refit the engine cover. Check carefully that nothing is jammed or rubbing.

- This completes the work on the engine. Screw the spark plug back in.

- Now secure the new ignition coil and the new regulator in a suitable position. It is best to attach them to the ignition coil's mounting bracket. Leave one of the ignition coil's retaining screws loose for now; a ground cable will be attached here later. Route the new alternator cable along the frame using the cable ties provided so that it ends at the same level as the regulator and ignition coil, alongside all the other cables. Ensure that nothing can rub against it.

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Connect the cables as shown in wiring diagram 71ik_102, 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 terminals at the end of the cable. You should only connect the plug once the cable has been fed through the engine opening. To do this ...

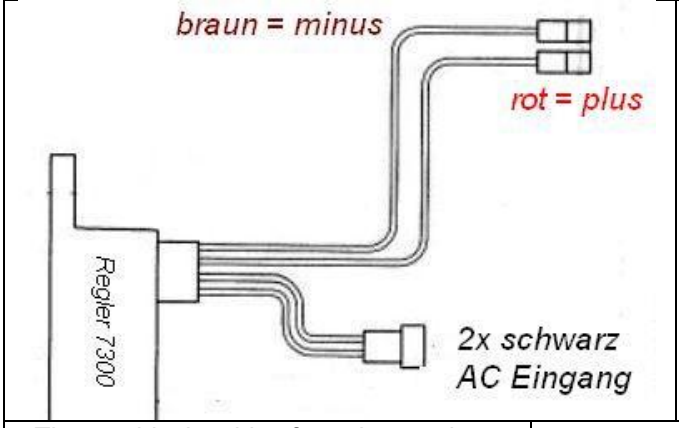
... take the female connector from the ignition coil with the red and white wires.

- Fit the loose 2-pin connector sleeve supplied onto this plug and insert the loose alternator cables (red and white) with their terminals into the back of the plug. Ensure that the cable terminals click into place inside the plug housing. It is essential to ensure that these cables are positioned correctly within the plug:

  - white to white
  - red to red

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

- The brown cable from the alternator with the ring terminal is screwed onto the ignition coil's earth terminal (retaining clip). The system will not work without this connection! Please do not rely on the frame's earth. Paint, dirt and oil residues often prevent a good earth contact for the coil here.



The new regulator/rectifier has 4 cables:

- the two black cables with the plastic plugs
  are the AC input
- the red cable with the plastic plug which supplies the positive terminal
- the brown cable with the plastic plug
  is the earth contact

- The two black cables from the regulator ...	... are connected to the two black cables from the alternator. To do this, insert the two black alternator cables into the supplied 2-pin connector housing. It does not matter which cable goes to which of the two terminals, as alternating current is supplied here.
- The brown cable from the regulator ...	... is connected to **the negative terminal** of the battery, or to **earth** if the vehicle is being driven without a battery.
- The red cable from the controller ... **- Caution:** Incorrect polarity will damage the electronics!	... is connected either to **the positive terminal of the 12-volt battery** or, when driving without a battery, to the cable leading to the electrical loads (usually the input terminal on the main switch).

- If you are riding with a battery, ensure that a **15A fuse** is used between the battery and the electrical system.

- There is no option to connect a charging indicator light; it would not work anyway when driving without a battery. The regulator has a built-in capacitor which smooths out the pulsating DC voltage. This ensures that any indicators and the horn will function correctly even without a battery.

- The blue (sometimes blue and white) cable from the ignition coil remains – the cut-off cable. **- Note:** If you experience ignition problems, disconnect this cable first (pull the plug). In most cases, you will then be able to continue your journey	**- If it is connected to earth, the ignition will cut out!** - We use this circuit variant in vehicles that were originally fitted with magneto ignition (magneto rotor) and therefore also shut down when short-circuited to earth. - These vehicles have a terminal on the ignition switch (on German vehicles: terminal 2) which is connected to earth when in the 'OFF' position. The blue (/white) cable is connected to this terminal. This ensures that the ignition is switched off in the same way as before.
- The high-voltage cable (ignition cable) ... Please **do not use** "Nology Super Cables" ("hot wire"). These cause interference in VAPE systems and may damage the electronics.	... screw it into the ignition coil and fit the rubber cap over it. 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, unidentified cable.
- You'll be doing yourself a favour if you fit new spark plugs and new spark plug leads (preferably with 1–2 kiloohms, but no more than 5) to your motorbike at this stage. More than enough interference can be traced back to 'seemingly good' cables, plugs and leads (including brand-new ones)! - **Do not use** spark plugs with an internal interference suppression resistor **in conjunction** with interference-suppressed spark plug leads (this results in double the resistance). Always use only one interference suppression method.	
- Finally – **before fitting 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 area.	
- 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. Once installed, 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 during testing, press the spark plug connector firmly to earth using an insulating object to safely discharge the voltage. Never disconnect a spark plug cap 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.

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- 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-spark plug connector combination should not exceed 5 kΩ.

- Remember that spark plug caps age and their resistance increases as a result. If an engine only starts when cold, the cause is almost certainly a faulty spark plug cap 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 of all, 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 caps and spark plugs (unfortunately even brand new ones); usually, the settings need to 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 correctly 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 grounded via the other spark plug. If you really only want to test one side, the other coil output must be grounded.

- 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 once the engine has reached a certain speed following the kick-start. Simply pressing the kick-start lever by hand does not produce a spark.

- Most of our systems combine the ignition and alternator functions. 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 operated via series transformers, 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 of time; this is normal.
- Please take note of these instructions, but don't let them unsettle you. Thousands of customers before you have already successfully installed our systems. ***Good luck and enjoy your drive!***

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Schaltplan 71ik102 (wiring diagram)