System 786399900

Alternator/electronic ignition system for Ducati 125 Cadet

- Magneto lighting system with integrated fully electronic ignition. Light output: 12V/100W DC.

- Replaces the original 6-volt magneto system, including ignition coil, breaker and centrifugal adjuster.

- Fits onto the original alternator mounting without any modifications to the engine casing. Ignition timing and adjustment are controlled fully electronically and contactlessly.

- The system can be operated with or without a battery.

Advantages over the old system:

- all parts are new
- significantly brighter light
- very reliable ignition with high-energy sparks
- better starting and improved combustion
- no further wear on the breaker

M786399900

Installation instructions for System 786399900	30 June 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 with 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 whatsoever 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 ensure you read the entire instruction 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 your 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 **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 kick-starter). Particular caution is required during the first start-up after installation. If you notice any malfunction, check and adjust the ignition setting! 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 components**. 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, which will require you to make adjustments. This system is intended **exclusively** as a replacement for original lighting and ignition systems in classic and modern classic motorbikes **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 a significantly higher engine output. However, it does improve the vehicle's roadworthiness and safety through better lighting, more visible indicators, a consistently powerful horn and, compared to the ageing original systems, greater overall reliability. As our systems do not cause any significant change to the engine's performance characteristics, there is no deterioration in exhaust emissions or noise levels. 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 characteristics 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 types.** It is not suitable for use with nickel-cadmium, nickel-metal hydride, lithium-ion or other types of rechargeable or non-rechargeable batteries.

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- 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 be void. 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.

- **When assembling the parts, be sure to start by fitting the parts on the motor side** (adapter, stator, rotor) to check that they actually fit before fitting the parts to be mounted outside the motor. 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 (without being properly calibrated!), which makes it impossible for us to resell them later. Replacing the lighting and ignition systems on older motorbikes is, unfortunately, 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 which, regrettably, can 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, under certain circumstances, cause damage to such components. Any existing rev counters are not supported by the system. However, we do offer a rev counter solution. Similarly, any circuit breakers or exhaust control systems operated by the ignition are not supported. It may also be the case that, for legal reasons, your original ignition system was fitted with a speed-limiting device. 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 carried out by a qualified technician or a specialist workshop. Incorrect installation may damage both the new system and the motorbike, or may 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 equipment, 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**. This allows you to click on most of the images to enlarge them, and you will find more – 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
- electronic ignition coil / ignition leads
- Regulator/rectifier
- Control unit
- Small parts

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

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

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

- Disconnect the battery and remove it from the motorbike whilst you are working. Technically speaking, the system is capable of operating without a battery.

- Remove the old alternator.

- You will need an M19x1 rotor puller for this.

- Remove the dowel pin on the crankshaft that fitted into the groove of the old Limo rotor. Don't worry, it doesn't serve as a retaining pin; it's only there to aid ignition timing.
- 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 get hold of the key.
- (Don't worry, the key you've removed wasn't there to secure the rotor, but simply to prevent it from being fitted incorrectly.)

- Take a look at the new stator unit. You will find a red mark on the base plate. This is the ignition mark.

- When you detach the stator from the base plate in the next step, make sure you refit it in exactly the same position. Otherwise, the ignition mark will be 120 degrees out of alignment!

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- Remove the 3 screws securing the new stator to its base plate and pull it slightly away from the plate so that you can access the mounting holes underneath. Take care not to damage the enamel insulation on the coil wires.
- Place the plate onto the crankcase in place of the old alternator. The thick black coil should face towards the cable outlet.
- Secure the plate using the three M4x12 screws and washers. Take care not to pinch the cable!
- When reattaching the stator to the base plate, you must also take care not to pinch any cables or twist it (see above!).

- Take a look at the new rotor. There is a laser-etched line on its outer circumference. This is also an ignition mark.

- Place the rotor loosely onto the crankshaft. Check that the rotor rotates freely over the base plate and the stator coils and does not rub against anything.

- Unscrew the spark plug and move the piston to top dead centre (it does not matter which stroke the engine is in).

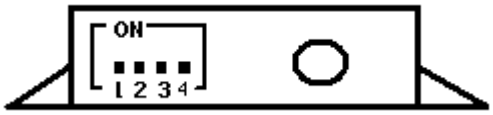
- Now carefully remove the rotor again without changing the ignition position of the crankshaft. Refit the rotor onto the crankshaft so that the two ignition marks described above are exactly aligned. Then carefully secure the rotor with the original M9x1 LH rotor nut.

- It is essential that you take care at all times not to alter the position of the crankshaft (and thus the piston); otherwise, you will have to repeat this adjustment.

- Screw the spark plug back in. The ignition is now set.

- Secure the ignition coil to the frame, ideally in the same position as the old ignition coil.

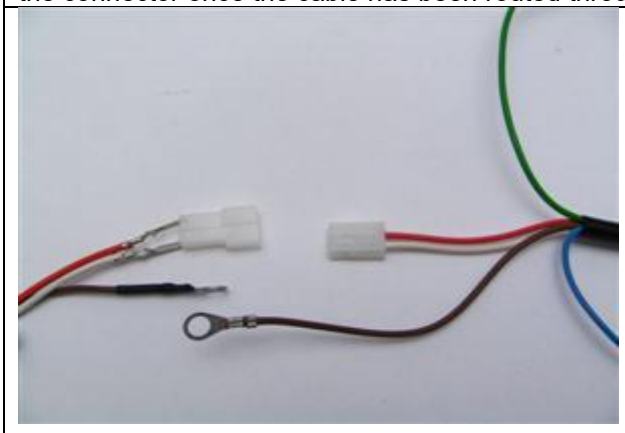
- You may need to drill a new hole for mounting it.



- For the Ducati, set all switches to OFF (i.e. away from ON towards the numbers). This results in a starting angle of 9° and an adjustment up to 38° at 3,000 rpm.

Connect the cables as shown in the relevant wiring diagram 91ik_102!

- To make it easier to route the cable through narrow openings, or indeed to make this possible in the first place, the connector on the cable leading to the new control unit from the new alternator has not yet been plugged onto the terminal tabs at the end of the cable. You should only connect the connector once the cable has been routed through the engine opening for good. To do this ...



... take the female connector from the control unit with the red and white wires.

- Fit the loose 2-pin connector sleeve supplied with the kit onto this plug and insert the loose alternator cables (red and white) with their terminals into the rear 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 wish (or need) to remove the cables from the connector housing again, 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.

- The brown cables from the alternator and the control unit, which have ring terminals, are screwed onto the ignition coil's earth terminal (retaining clip). The system will not work without these connections! Please do not rely on the frame's earth. Paint, dirt and oil residues often prevent a good earth connection to the coil.

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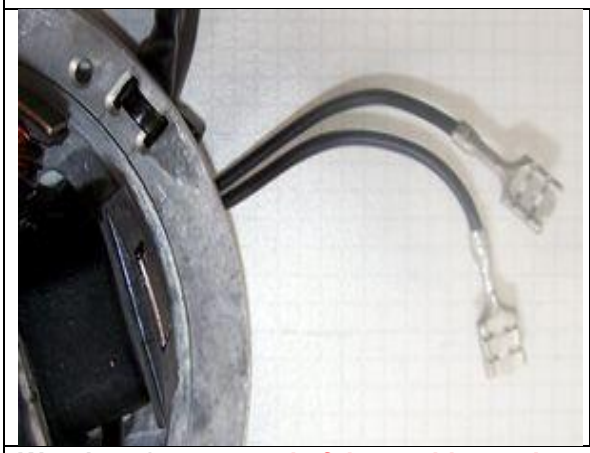
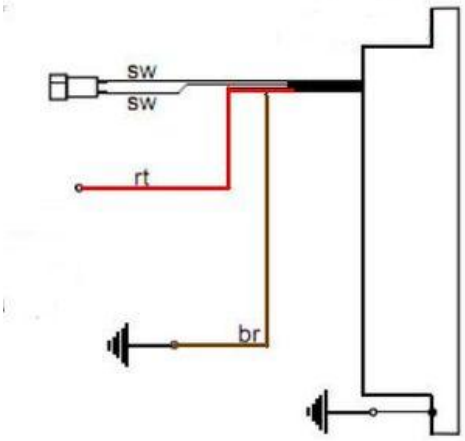
- The blue and white cable from the control unit – the cut-off cable. **- Note:** If you experience ignition problems, the first thing to do is to disconnect this cable (pull out the plug). In most cases, you'll then be able to carry on driving	**- If it is connected to earth, the ignition will cut out!** - We use this circuit configuration on vehicles that originally had magneto ignition (magneto rotor) and therefore also shut down due to a short circuit 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 means that the ignition is switched off in the same way as before. Alternatively, a separate short-circuit (kill) switch can be used.
- The green or grey cable from the control unit ...	... is connected to the plug terminal of the new ignition coil.
WARNING! Where possible, DO NOT extend the green cable from the control unit. This may cause ignition faults. Under no circumstances should you route the ignition cable(s) and the control unit cable(s) together in a shared sheath or otherwise run them parallel to one another over a long distance. This will cause feedback and consequently ignition faults, and may even result in the control unit being damaged.	

Connecting the alternator to the lighting circuit:	
	- The two black cables coming from the alternator supply power to the lights, horn, indicators, etc. They have nothing to do with the ignition. - This voltage must still be stabilised (regulated) and rectified for most applications, as it is initially alternating current.
Warning: Any **reversal of the positive and negative terminals** will result in the **immediate destruction of the regulator, which is not covered by the warranty!** (You can clearly tell that it has been destroyed by the smell of burning!)	

Regulator variant: for the DC regulator with built-in smoothing capacitor (73 00 799 50), use circuit diagram **91ik_102**:



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

- 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, at this stage, you fit new spark plugs and new spark plug leads (preferably with 1–2 kiloohms, but no more than 5) to your motorbike. More than enough interference can be traced back to 'seemingly good' cables, spark 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 from now on you will need a 12V battery. The horn can remain at 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 connector); most faults are hidden in the switch-off circuit.

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

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Important safety and operating instructions – YOU MUST read and follow these in full!
- Observe the safety instructions and requirements prescribed by the vehicle manufacturer and the automotive trade. Installation requires specialist knowledge. The ignition markings applied to the material are for guidance only during installation. Once installed, please check that your settings are correct using suitable 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, above all, 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 cap 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 leads whilst the engine is running or at starter 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 kOhm. - Bear in mind 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 fitting, 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 fitted a chance to fire before you start measuring and testing everything. Please also note our instructions on how to check for a spark. All our parts are tested before dispatch. In any case, there is hardly anything you can measure on them. Under no circumstances should you attempt to measure the electronic components (including the ignition coil, apart from 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, the fault can often lie with the carburettor, the intake rubber and, above all, the spark plug caps and spark plugs (unfortunately, even brand-new ones); as a rule, the Lima alternator's settings also need adjusting after installation. 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 inspection, 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 bear in mind 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 even remove one spark plug to test it, as each output is earthed via the other spark plug. If you really only want to test one side, the other coil output must be earthed.
- The spark produced by traditional breaker systems has a low energy level of around 10,000 volts and therefore appears yellow and thick. 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 the speed required by the kick-starter. Simply pressing the kick-start lever by hand does not produce a spark.
- Most of our systems combine the ignition and alternator functions in one unit. You can tell this by the presence of a regulator. Apart from the voltage output by the regulator, there is hardly anything 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 electric 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 soldering equipment powered by isolating transformers, or unplug the soldering iron from the mains before soldering to prevent damage to the components caused by overvoltage. Never apply copper paste to 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 mentioned 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 corrosive 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 an M27x1.25 screw-in puller (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 bear these points in mind, but don't let them unsettle you. Thousands of customers before you have already successfully fitted our systems. ***Good luck, and enjoy your drive!***

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Schaltplan 91ik_102 (wiring diagram)