

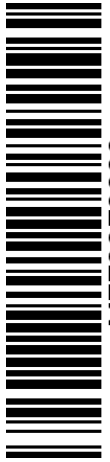
System 778879900**advantages over the old system:**

- all parts are new
- Significantly brighter light
- Very stable ignition with high-energy sparks
- Better start and better combustion

Alternator/electronic ignition for Hiro 125 / 250 (1978)**Fastening the rotor to the shaft with nut M12x1.25**

- Magneto ignition system with integrated fully electronic ignition. Light output at 12V/100W direct current. Contactless, maintenance-free, electronic ignition with its own power supply within the system.

- Replaces the complete old alternator and ignition. You do not need to make any changes to your engine housing.



M778879900

Installation instructions for system 778879900 and 764979900	25.6.2024
<p>- If you can install and adjust the original ignition and have general mechanical skills, you can also install a VAPE system. If you have never had to deal with this before, it is better to have the system installed by someone who is familiar with it.</p>	
<p>- VAPE cannot monitor compliance with these instructions or the conditions and methods of installation, operation, use and maintenance of this system. Improper 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 connected with incorrect installation, operation, use or maintenance. We reserve the right to make changes to the product, technical data or installation and operating instructions without prior notice.</p>	
<p style="text-align: center;"><u>IMPORTANT</u></p>	
<p><u>Please read the complete instructions carefully before starting installation</u> Remember that unauthorised modifications, including attempts to repair parts, may invalidate the warranty. This also applies to the cutting of cables, which very often leads to the loss of the reverse polarity protected plugs and consequently to material-destroying short circuits or reverse polarity. Follow the instructions on the information page for the system. Make sure that the system configuration shown actually corresponds to the requirements of your engine. Incorrect ignition values, for example, can damage the engine and/or cause injuries when starting (kickback of the kickstarter). Special care should be taken when starting the engine for the first time after installation. If you notice any misbehaviour, check and change the ignition setting! During installation, check very carefully that the rotor is not rubbing against the stator coil or elsewhere, which can happen for various reasons and can lead to serious damage.</p>	
<p><u>Intended use</u> - This is a replacement system and not a copy of the original material. The parts of the system will therefore look different to the original parts and the ignition coil and regulator in particular may have different fixing points that require you to make adjustments. This system is intended exclusively for replacing original light/ignition systems in vintage and classic motorbikes whose engine characteristics have not been subsequently influenced by design changes. It is not a tuning system, it does not change the original engine characteristics and no significantly higher engine performance is achieved, but the roadworthiness and safety of the vehicle is improved by better lighting, clearer flashing, a constantly powerful horn and greater general reliability compared to the aged original systems. As our systems do not significantly change the engine characteristics, the exhaust and noise behaviour does not deteriorate. In most cases, the exhaust behaviour should even improve, as combustion is more complete.</p>	
	<p>- VAPE guarantees homologated products that are marked with the "E" symbol in the ring (specifically for the Czech Republic, E8), which ensures consistent compliance of the product properties with the relevant ECE homologation regulations (in particular ECE R10.05). The inspection is carried out regularly by the competent authority</p>
<p>- The charging system is only suitable for use with rechargeable 12V (6V systems 6V) lead-acid batteries with liquid electrolyte or sealed lead-acid accumulators, AGM, gel. It is not suitable for use with nickel-cadmium, nickel-metal-hydride, lithium-ion or other types of rechargeable or non-rechargeable batteries.</p>	
<p>- The system is not suitable for use in the context of sporting events. If the system is not used as intended, the warranty will become void. In addition, it is possible that the system will not provide the performance you require and we will not be able to help you with our support because we are not familiar with the situation. In the worst case, improper use can even lead to the cancellation of the operating permit.</p>	
<p>- When fitting the parts, <u>always</u> start by fitting the parts on the engine side (adapter, stator, rotor) to ensure that this material really fits before fitting the parts to be fitted outside the engine. Unfortunately, it is usually the case that the installation of the regulator, ignition coil or control unit is the first step and these parts are very often modified in the process (without being matched!), which makes it impossible for us to resell them later. Unfortunately, replacing the lighting/ignition systems of old motorbikes is not like shopping in a supermarket ex shelf, but in view of the variety of types and the possible changes to the material since their production many years ago, always a complex matter, which unfortunately can also involve errors</p>	

- Our systems are **NOT tested for use with other electronic components (such as third-party ignitions, sat navs, mobile phones, LED lights, etc.)** and may cause damage to such parts under certain circumstances. Any existing rev counters are not supported by the system. However, we offer a rev counter solution. Likewise, any circuit breakers or exhaust controls controlled by the ignition are not supported. It is also possible that your original ignition had a device to limit the speed 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 specialist knowledge required for installation, please have the installation carried out by a specialist or an appropriate specialist workshop. Incorrect installation can damage both the new system and the motorbike or even cause injury to the rider.

- Before ordering a system, please check whether the **rotor puller** recommended by us is included in the scope of delivery. If not, it is best to order it at the same time! Damage to the rotor caused by the use of other tools and aids will invalidate the warranty!

- The rotor is extremely sensitive to impact (e.g. also during transport). Always check the rotor for any damage before installation. If it is a rotor in which the magnets are not moulded, check the tight fit of the magnets by trying to push them sideways with your fingers. After impact, some of the glued-in magnets may have become loose and are only held in place by their magnetic force. This would cause serious damage to the system during operation. At the same time, please check the magnets of the rotor for foreign objects (e.g. screws or other metal objects).

- If you have access to the Internet, it is better to view this documentation online. You can enlarge most of the images by clicking on them and obtain more and possibly more up-to-date information. System list at: <http://www.powerdynamo.biz>



You should have received these parts!

- Pre-assembled stator unit
- Rotor
- Ignition coil, high-voltage cable and blue switch-off cable
- Regulator with rectifier
- Small parts



- Now disconnect all cables from your old alternator and ignition coil and remove these parts.

- Remove the dowel pin on the crankshaft, which is in the groove of the old limo rotor. Don't worry, it has no holding function, it should only lead to the ignition setting. If you forget to remove the pin, the rotor will not go onto the shaft later and you will have to dismantle the stator again to get to the pin.



- Take a look at the base plate of the new stator.
- There is a red marking (arrow pointing to it) on the circumference. This is an ignition mark that is required when adjusting.



- The whole thing looks like this with the coil. This is how the unit arrives pre-assembled.
- To attach the base plate to the motor block, however, the coil must be lifted slightly (to access the screws underneath).

- To do this, remove the 3 screws holding the stator on its base plate and pull it slightly away from the plate (1 cm) so that you have access to the mounting holes underneath. Take care not to damage the enamelled insulation of the coil wires.



- Place the base plate on the motor with the stator coil hanging loosely from it.
- Screw the plate in place using the 3 M4 screws. Take care not to pinch the cable.
- Place the stator coil back on the base plate. The coil must snap into place quite firmly. If it only rests softly on the plate, a cable is almost certainly trapped underneath!

- Make sure that the stator is sitting straight on the plate and that no cables are jammed - otherwise the system will be destroyed or at least malfunction. Screw the stator back on with the 3 M4 screws.



- As the ignition mark on the base plate is unfortunately no longer visible once the rotor has been fitted, you must either extend the mark to the engine block or remember a prominent point on the block that remains visible beyond the rotor.

- On this (similar) motor, this would be the right-hand edge of the housing.



- Take a look at the rotor, you will find a small marking (notched line) on its outer circumference. Highlighted in white in the picture for better recognisability.

- It may be a good idea to make this line clearer with a fibre-tip pen so that you can see it better on the engine. This is also an ignition marking.



- Remove the spark plug and move the piston to **the ignition timing position**. This varies from model to model and is between 1 and 3.5 mm before TDC. Please refer to your documents for more information.

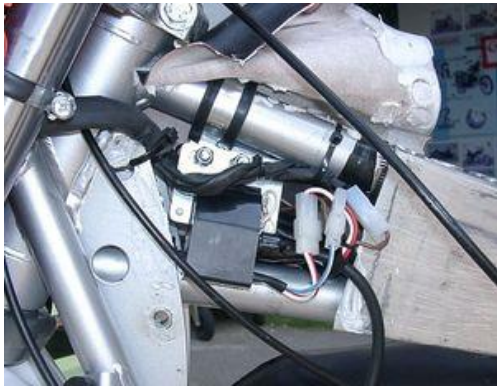
- You can loosely place the new rotor on the shaft and turn it. Remember that the shaft rotates anti-clockwise. You must therefore **turn clockwise away from TDC** to achieve the ignition timing.



- Carefully pull the rotor off again and then place it on the crankshaft so that the mark on the circumference is exactly on the mark on the base plate. Press the rotor firmly onto the shaft and screw it in place using the original retaining nut. Use an M27x1.25 puller to loosen the rotor again.

- It is very important not to change the position of the crankshaft (which is in the ignition timing). If this changes, you must repeat the process.

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



- Attach the new ignition coil in a suitable place. As far as this is concerned, any location is fine, although proximity to the spark plug is of course advantageous.

- First twist the ignition cable into the ignition coil. First leave one of the two screws loose. An earth cable goes here.

- For example, the ignition coil could be placed in the frame triangle under the tank.



- Attach the new small regulator in a suitable place, e.g. as shown here in the frame triangle under the tank (where it can be screwed against the ignition coil, for example) or under the seat or the side panelling.

Lay the new alternator cable on the frame using the cable ties provided so that it ends with all cables at the level of the regulator/ignition coil. Make sure that nothing can chafe.

Connect the cables as shown in wiring diagram 71ik_102, i.e:

- To make it easier for the cable to pass through narrow openings or to enable it to do so in the first place, the plug of the cable leading to the new ignition coil from the new alternator has not yet been plugged onto the contact lugs 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 female plug of the ignition coil with the cable colours red and white.

- Plug the loose 2-pin connector sleeve supplied onto this connector and insert the loose alternator cables (red and white) with the contact lugs into the back of the connector. Ensure that the connector lugs engage in the connector housing. Pay strict attention to the correct position of these cables in the plug:

- white comes on white
- red on red

- If you want (or need) to remove the cables from the connector housing, it is best to use a bent paper clip and press the barbs of the contact lugs to the side so that the connectors can be released.

- The brown cable from the alternator with the ring terminal is screwed to the ignition coil on its earth (retaining bracket). The system will not work without this connection! Please do not rely on the frame ground. Paint, dirt and oil residue often prevent the coil from making good ground contact.

	<p>The new regulator/rectifier has 4 cables:</p> <ul style="list-style-type: none"> ▪ The two black cables with the plastic plug are the AC voltage input ▪ the red cable with plastic plug which supplies plus ▪ the brown cable with plastic plug is the ground contact
<p>- The two black cables from the controller ...</p>	<p>... are connected to the two black cables of the alternator. To do this, insert the two black alternator cables into the 2-pin connector sleeve supplied. It does not matter which cable goes to which of the two terminals, as alternating current is fed in here.</p>
<p>- The brown cable from the controller ...</p>	<p>... is connected to the negative of the battery, or to earth if driven without a battery.</p>
<p>- The red cable from the controller ...</p> <p>- Caution: Incorrect polarity damages the electronics!</p>	<p>... is either connected to the positive of the 12-volt battery or, when driving without a battery, to the cable that goes to the consumers (normally the input terminal on the main switch).</p>
<p>- If you are driving with a battery, make sure that a 15A fuse is used between the battery and the vehicle electrical system.</p>	
<p>- It is not possible to connect a charge indicator lamp, which would not work anyway when driving without a battery. The regulator has an integrated capacitor which smoothes the pulsating DC voltage. This ensures that any indicators and horn work correctly even without a battery.</p>	
<p>- This leaves the blue (sometimes also blue/white) cable of the ignition coil - the switch-off cable.</p> <p>- Note: In the event of ignition faults, disconnect this cable first (pull the plug). The journey will then usually continue</p>	<p>- If it is connected to earth, the ignition goes out!</p> <p>- This circuit variant is used by us in vehicles that originally already had magneto ignition (pole wheel) and thus also switched off by short-circuiting to earth.</p> <p>- These vehicles have a terminal on the ignition lock (terminal 2 on German vehicles), which is connected to earth in the "OFF" position. The blue (/white) cable is connected to this terminal. This switches off the ignition as before.</p>
<p>- The high-voltage cable (ignition cable) ...</p> <p>Please do not use "Nology super cables" ("hot wire"). These cause faults in VAPE systems and can damage the electronics.</p>	<p>... screw into the ignition coil and place 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, undefined cable.</p>
<p>- You will be doing yourself a favour if you fit new spark plugs and new spark plug connectors (preferably 1-2, but no more than 5 kilohms) to your motorbike at this point. More than enough faults can be traced back to "apparently good" cables, spark plugs and plugs (including brand new ones)!</p> <p>- Do not use spark plugs with an internal suppression resistor together with suppressed spark plug connectors (this results in double the resistance). Only ever use one interference suppression method.</p>	
<p>- Finally - before installing the battery and before the first start - please take your time to check all fastenings and wiring. Remember to change all bulbs from 6 to 12 volts. Also remember that you will now need a 12V battery. The horn can remain on 6 volts.</p>	

- 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 ignition coil (pull off the contact), most faults are hidden in the switch-off area.

- **IMPORTANT:** Please note that during any (earlier) **regeneration of the crankshaft**, its alternator journals were overtightened and thus shortened. This lowers the rotor and can result in contact between the rotor (the rivets are the lowest point) and the stator coil. The result is a destroyed stator and thus ignition failure.

Important safety and operating instructions - MUST be read and observed in full!

- Observe the safety instructions and requirements specified by the vehicle manufacturer and the motor vehicle trade. Installation requires specialised knowledge.

The ignition markings on the material are for orientation purposes only during installation. After installation, please use suitable methods (stroboscope) to check the correctness of your setting to prevent damage to the engine or danger to your health. You are solely responsible for installation and correct adjustment.

- Caution Ignition systems generate high voltage, danger to life! Up to 40,000 volts with our ignition coils! If handled carelessly, this can not only cause severe pain, but can also damage the heart in particular! People with pacemakers should not carry out any work on ignition systems. Always keep a safe distance from the electrode and open high-voltage cables and press the spark plug connector firmly to earth with an insulating object during the test in order to safely discharge the voltage.

Never pull a spark plug connector to synchronise the carburettor! Never disconnect or touch the ignition cable while the engine is running or at cranking speed. Only wash the vehicle when the engine is not running.

- If your VAPE ignition cable was supplied with rubber spark plugs attached to it (*which do not have a built-in interference suppression resistor*), please use the plugs with built-in resistor (*to comply with local laws regarding electromagnetic compatibility requirements*). Or change the cable(s) for normal ones and use shielded plug connectors (*under no circumstances should you use suppressed plugs AND suppressed plug connectors at the same time. This would lead to malfunctions, especially difficult starting of the engine*). The total resistance of the plug/plug connector combination should not exceed 5kOhm.

- Remember that spark plug connectors age and increase their resistance. If an engine only starts when cold, the cause is almost certainly a defective spark plug connector or a defective spark plug. Do not use any so-called ignition-boosting cables (e.g. Nology).

- After installation, please check that all retaining screws are tight. If the parts become loose, they will be destroyed. We only tighten the screws loosely during pre-assembly!

- First give the newly installed system a chance to ignite before you start measuring and testing everything. Please also note our instructions on how to check for the existence of sparks. Our parts are all tested before delivery. You can hardly measure anything on them anyway. In any case, refrain from measuring the electronic parts (including the ignition coil except for its high-voltage output). You risk destroying them and still not getting usable results!

Remember that the carburettor, the intake rubber and, above all, the spark plugs and spark plugs (unfortunately also completely new ones) can often be the cause if the engine does not run straight away (as a rule, its setting must also be changed after the air conditioner has been installed). If the system does not run straight away, check the earth connections in particular, especially between the chassis earth and the engine block.

Before you remove the parts again and send them to us for testing, check our knowledge database to see if there is already an answer to your problem. If not, use our service ticket system to request specific help.

- If you have a system with a dual ignition coil, please note some special features of this coil. The ignition only works correctly if both plugs are connected to the coil. This means that you cannot even disconnect one spark plug to test it. This is because each output draws ground from the plug of the other. If you really only want to test one side, the other coil output must be connected to earth.

- At around 10,000 volts, the spark from classic interrupter systems only has a low energy and therefore looks yellow and thick. The spark from our systems is a high-energy spark with up to 40,000 volts and is therefore very sharply focussed and blue, which makes it less visible. In addition, the spark is only generated at kick-start speeds. Simply pushing the kickstarter lever by hand does not produce a spark.

- Most of our systems are ignition and lighting current generator in one. This can be recognised by the presence of a regulator. You can hardly measure anything on the regulator apart from the voltage it emits. If you are not getting any current, check the earth connections and the wiring from the regulator to the ignition switch in particular. This important connection is often cut and overlooked during installation! Most PD systems have DC regulators/rectifiers. However, there are also AC regulators for which special features must be observed.

- Never electrically weld on the vehicle without first completely disconnecting all electronic parts containing semiconductors (regulator, ignition coil and control unit). The stator and rotor do not have to be removed; solder only with soldering equipment that is operated via ballast transformers or disconnect the mains plug of the soldering iron before soldering to avoid overvoltage damage to the parts. Never use copper paste on connectors or spark plugs.

- Electronics are sensitive to polarity reversal. Always check the correct connection of the battery and the correct wiring after interfering with the system. Reverse polarity and short circuits will immediately destroy the regulator and the ignition coil! As a rule, the wiring is always colour on colour. Exceptions are expressly mentioned in the instructions. Reverse polarity damage is not covered by the warranty.

- When installing the rotor, please take care not to damage the magnets. Avoid direct mechanical impact on the rotor. **When transporting the Lima, never place the stator in the rotor**; follow our shipping instructions (packaging).

- Lightly oil the outside of the rotor, otherwise it will rust quickly in the aggressive environment (which is not harmful, but looks unattractive).

- Never use a claw puller or a hammer to pull off the rotor. This can loosen the magnets. Only ever use a screw-in puller M27x1.25 (see installation instructions).

- If your vehicle will not be used for a longer period of time, you should disconnect the battery (if present) to prevent any slow discharge via the rectifier diodes. However, even if the battery is disconnected, you will notice it discharging after a longer period of time - this is normal.

- Please follow these instructions, but at the same time do not let yourself be unsettled. Thousands of customers have already successfully installed our systems before you.

Good luck and have fun driving!

VAPE Schaltplan 71ik102 (wiring diagram)

