

**System 772279900****Alternator/electronic ignition system for Ardie BZ 350**

- Magneto-type lighting and ignition system with integrated ignition and a lighting output of 12V/150W DC.
- Replaces the original Ardie lighting/ignition systems
- No modifications to the engine block are required

**Advantages over the old system:**

- All parts are new
- contactless electronic ignition
- Good lighting
- very reliable ignition with high-energy sparks
- Better starting and improved combustion
- No further wear on the breaker



<b>Installation instructions for system 772279900</b>	<b>23 June 2026</b>
<p><b>- If you are able to fit and adjust the original ignition system and have general mechanical skills, you can also fit a VAPE system. If you have never worked on one before, it is best to have the system fitted by someone who knows what they are doing.</b></p>	
<p>- 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.</p>	
<p><b><u>IMPORTANT</u></b></p>	
<p><b><u>Please ensure you read the entire instruction manual carefully before you begin installation</u></b> 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 <b>instructions on the system information page</b>. 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 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.</p>	
<p><b><u>Intended use</u></b> - This is a <b>replacement system and not a copy of the original components</b>. 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 <b>exclusively</b> as a replacement for original lighting and ignition systems in classic and modern classic motorbikes <b>whose engine characteristics have not been subsequently altered by design modifications</b>. 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.</p>	
	<p>- VAPE guarantees that its products are type-approved and marked with the letter 'E' (specifically 'E8' for the Czech Republic), thereby ensuring that the products' characteristics consistently comply with the relevant ECE type-approval regulations (in particular ECE R10.05). Inspections are carried out regularly by the competent authority</p>
<p>- The charging system is strictly <b>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</b>. 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 <b>not suitable for use at sporting events</b>. 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.</p>	

- **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
- Ignition coil, rubber grommet and ignition cable
- Regulator
- Cable, blue with relay
- Cable ties
- Screws / 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 motorbike is securely positioned, preferably on a raised work platform, and that you have good access to the alternator side of the engine.
- Remove the original alternator/ignition unit.
- Remove the key from the crankshaft journal; it is no longer required and would get in the way of fitting the system. If you forget to do this now, you will have to dismantle the whole new system again later.



- Place the new stator unit onto the motor and secure it with screws. The cable must point towards the cable outlet and the thick black coil should be positioned at approximately 9 o'clock.



- Please note the small (red) mark on the stator base plate between the countersunk fixing holes.
- This is an ignition mark. (More on this below!)



- Take a look at the new rotor. You will find a laser-etched line on its outer circumference; this is also an ignition mark.

- To ensure maximum flexibility when setting the ignition timing, we have not milled a notch into the rotor. You therefore do not need to worry about the 'missing' key; it did not serve any fastening function, but was solely responsible for ensuring the correct ignition timing. This is now achieved using markings.

- Place the rotor loosely onto the crankshaft and ...

- **VERY IMPORTANT:** .... check that it can rotate freely over the stator coils. It is quite possible that, following a reconditioning process, the crankshaft has become shorter at the journal, meaning the rotor may then come into contact with the coils and damage them



- Ignition occurs the moment the two marks described above are aligned.

- In this position, carefully secure the rotor using the supplied M8x35 rotor screw and the two 8x25x2 washers



- Customer installation report: Ardie BZ 350

- It is not possible to fit the twin ignition coil to the frame beneath the fuel tank, as the tank is only 50 mm wide. The ignition coils are fitted beneath the seat. There are two mounting eyes on the frame (close to the fuel tank) which are suitable for this purpose. To do this, two sheet metal brackets are fabricated, which are bolted to the ignition coil and fitted to the frame.

- The ignition cables are routed along both sides of the tank, separated by the frame tube, to the spark plugs. The ignition cable is only slightly longer, as fitting it directly in the fuel tank tunnel would require a loop. The length of the cables is almost halved compared to the standard ignition cables.

- The regulator-rectifier has been fitted and wired in the battery box, directly next to the ventilation slots. An additional hole needs to be drilled in the battery box to route the cables from the ignition alternator. Connections – cable lengths (ignition cables) are of sufficient length.

- No modifications are required to the rotor cone seat (height) or to the system itself; everything fits perfectly.

### Connect the cables as shown in the relevant circuit diagram!

- For our (standard) DC regulator (952269906), use circuit diagram **72ir12**:

- If the DC regulator is supplied with a built-in smoothing capacitor (730079950), also use circuit diagram **R\_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 ignition coil 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 finally routed 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 terminals click into place inside the plug housing. It is essential to ensure that these cables are positioned correctly within the plug:

- white goes to white
- red to red

- Mixing them up, even briefly, will immediately destroy the ignition coil!

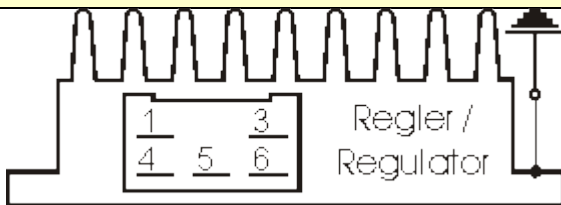
- If you want (or need) to remove the cables from the connector housing again, it is best to use a paperclip that has been bent open and use it to push the barbs on the contact tabs to one side, so that the connectors can be released.

- The brown cable from the alternator, fitted with a 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 for earth. Paint, dirt and oil residues often prevent a good earth connection for the coil.

**Connecting the alternator to the lighting circuit:**


- The two black cables coming from the alternator supply power to the lights, horn, indicators, etc. Like the regulator itself, they have nothing to do with the ignition.
  - This voltage must be stabilised (regulated) and, for most applications, rectified, as it is initially alternating current.
- **There are two different types of regulator available for this purpose:**

**Warning:** Any **mix-up between the positive and negative terminals** will result in the **immediate destruction of the controller, which is not covered by the warranty!** (You can clearly tell that it has been destroyed by the smell of burning!). Please note that there are batteries on the market where the positive terminal is in the position where the negative terminal used to be!

**Regulator variant 1: with a DC (standard) regulator (95 22 699 06), use circuit diagram 72ir12:**


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

- The two black cables from the new alternator ...

... go to terminals 1 and 4 of the new rectifier (black cables then run from there into the regulator). It doesn't matter which cable goes 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 ...

... connects terminal 3 of the regulator/rectifier (a brown cable also runs from there into the regulator) to the negative terminal of the battery or a solid earth. Caution: do not reverse the polarity!

The new red cable with the ring terminal on one end ...

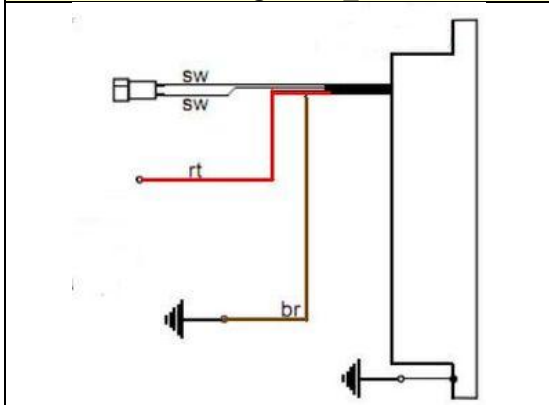
... connect terminal 5 of the regulator/rectifier (a red cable also runs into the regulator from there) to the positive terminal of the battery or to the terminal on the fuse box to which the power cable from the old alternator was connected (on German motorbikes: terminal 51).

- Ensure that a **15A fuse** is used between the battery and the vehicle's electrical system. If there is an old, higher-amp fuse (due to the original 6-volt system) at the ignition switch, please replace it.

- Connect the green/red cable from the new regulator to terminal 6 ...

.. is for connecting the charge indicator. This is where the indicator light (if fitted) is connected. Naturally, this only works if a battery is present. If the indicator light is connected without a battery, it will glow dimly whilst the engine is running, even though electricity is being generated. In short, leave the connection unconnected if there is no battery. The same applies if no light is fitted.

**Regulator variant 2:** when using a DC regulator with a built-in smoothing capacitor (730079950), also use **circuit diagram R\_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

- That leaves the blue/white cable from the ignition coil – the cut-off cable.

**- If it is connected to earth, the ignition will cut out!**

**- Note:**

If you experience ignition faults, disconnect this cable first (pull out the plug). In most cases, you'll then be able to continue your journey

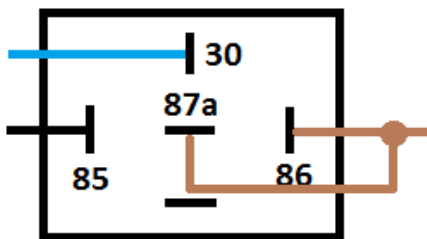
**- Switching off via a separate switch:**

- The relay is not fitted. The blue/white cable from the ignition coil is connected to a switch that cuts the circuit to earth (e.g. a push-button switch to be fitted to the handlebars). See the information on switching off for further details. Alternatively, you can use an ignition switch that cuts the circuit to earth.

**- Battery type:**

Connect the brown cable from the relay with the ring terminal to earth. Route the longer black cable from the relay to a live terminal on the main switch (ignition switch; on German motorbikes: terminal 15 or 54) when the switch is in the 'On' position. Connect the blue cable (coming from terminal 30 of the relay) to the blue (/white) cable from the ignition coil. In the event of a battery failure whilst on the road, this cable should be disconnected to allow you to continue your journey. (However, the engine cannot then be switched off!)

**- Relay pinout (if this option is used):**



- The brown cable with the ring terminal from terminals 87a and 86 is connected to earth.

- The black cable from terminal 85 goes to terminal 15 on the ignition switch (live terminal when 'On').

- 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 motorbike. Please also use the ignition lead supplied and not an old, unknown lead.

- You'll be doing yourself a favour if, at this stage, you fit your motorbike with new spark plugs and new plug leads (preferably with 1–2 kilohms, but no more than 5 kilohms). 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 suppression resistor **in conjunction** with suppressed spark plug caps (this results in double the resistance). Always use only one suppression method.



- With our twin ignition coils, both outputs are connected to the spark plugs and only then to earth via them.

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

- The ignition will only work correctly if both spark plugs are connected to the coils. This means you cannot even remove one spark plug to test it, as each output draws its ground via the spark plug of the other output. If you really only want to test one side, the other coil output must be connected to earth. The circuit then works in the same way as an ignition coil with a single output (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. Anyone who really needs two separate outputs must use two individual coils.

- 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.

### 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 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!***



# VAPE Schaltplan Regler 102 (wiring diagram regulator)

