

System 7211799DC**Advantages over the old system:**

Alternator/electronic ignition for:
CZ 250cc motocross (Type 513) from 1974 onwards, CZ 380cc (Type 981), later CZ 125 motocross models from 1974 onwards
>> small shaft 20 mm

- Magneto ignition system with integrated, fully electronic, contactless ignition. Light output: 12V/100W DC. No modifications to your engine casing are required. You can run the system entirely without a battery. No modifications to the engine casing are necessary.

- Rotor weight: 1.25 kg! The only difference compared to the 72 09 and 72 10 systems is the weight (and diameter) of the rotor and the cone.

- Approved for use in sporting competitions.

- all parts are new
- Lighting support (very good lighting)
- Very reliable ignition with high-energy sparks
- Improved starting and combustion



Installation instructions for System 7211799DC	17.7.2026
- 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	
<u>Please ensure you read the entire instruction manual carefully before you begin installation</u> 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 following installation. Should 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 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 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	
- 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.	
- 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, improper use may even result in the revocation of the operating licence.	

- **When fitting the parts, be sure to start by fitting the parts on the motor side** (adapter, stator, rotor) to check that these components 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 as a result of using other tools or aids, the warranty claim will be void!

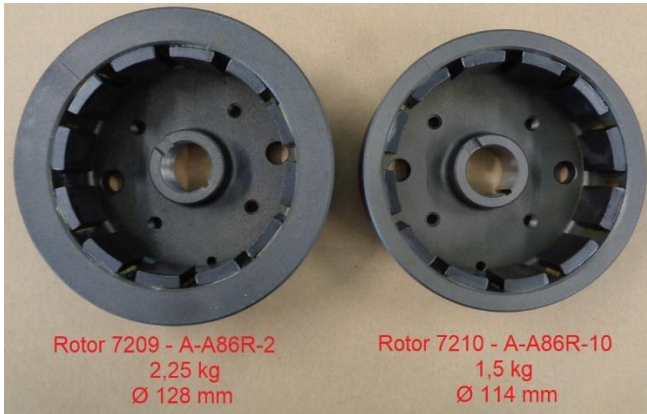
- The rotor is extremely sensitive to impact (e.g. including during transport). You must always check the rotor for any damage before installation. If the rotor has magnets that are not encapsulated, check that the magnets are securely in place by trying to push them sideways with your fingers. Following 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 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 (the photo shows the heavy-duty rotor from System 72 09 799 DC)
- electronic ignition coil / ignition leads
- Regulator/rectifier with integrated capacitor
- rotor puller
- Small parts



- All images in these fitting instructions show the heavy rotor (2.25 kg) of the 7209799DC system!



- You can only remove the new rotor using the puller supplied (order no.: 720979999).

- Important note: For off-road use (without battery or indicators), we offer an alternative AC regulator which is smaller and lighter but supplies alternating current (see System 72 11 799 AC). [Click here](#)

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



- Disconnect all cables leading to the old alternator and ignition coil, and remove these parts. If there are any adaptors for alternative alternators fitted to the housing, please remove these as well.



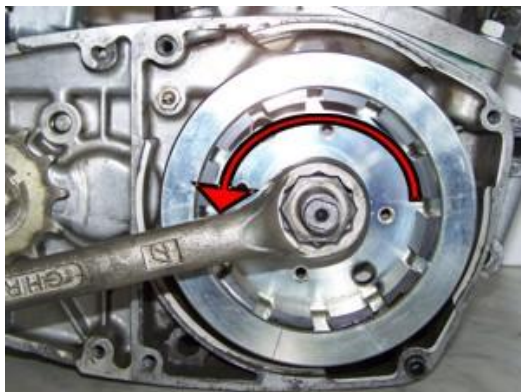
- Remove the original rotor.
- To do this, first loosen the fixing nut.
Caution: left-hand thread! So loosen it clockwise!
- The nut and the lock washer underneath it will still be used when fitting the new system. So take good care of them.



- Next, use a puller (presumably M36x1.5 – not included!) to remove the rotor from the crankshaft.



- Be sure to take care of the key on the crankshaft. It is still required for correct ignition timing.



- Now fit the new rotor onto the crankshaft (as shown in the picture). Remember that the key remains on the crankshaft.
- Now secure the rotor with the original nut (and the lock washer). Remember: left-hand thread! Tighten anti-clockwise.



- Then, using a suitable tool, bend the lock washer over all 6 sides of the fixing nut. It is essential to secure the nut over all 6 sides, as otherwise the washer will rub against the stator unit.



- Now take a look at the rotor. You will find a red ignition mark on the upper edge of its open side. This must be aligned with the mark on the stator at the point of ignition (see below).

- It is a good idea to turn the rotor (including the crankshaft) now so that this ignition mark is at the top of the engine casing. To do this, unscrew the spark plug so that the piston can be moved more easily within the cylinder.



- Take the new stator unit and feed its wiring harness through the cable guide in the engine cover. Proceed very carefully, as space is very tight there. You may need to apply a little grease to the insulation of the wiring harness.

- Next, secure the stator unit to the cover using the 3 M5x12 screws supplied (along with the washers and spring washers). Do not tighten the screws completely yet; the stator unit needs to be rotated to adjust the ignition.

- Check the routing of the wiring harness once more.

- (The two left-hand pictures show the stator of the 'ignition-only' version without light coils!)



- Now carefully feed the wiring harness through the motor's cable outlet. It's very tight here too!



- Replace the motor cover with the stator on the motor. Take great care to ensure that the lock washer on the rotor nut does not rub against the stator or the stator base plate (as described above). Whilst doing so, continue to pull the wiring harness through the cable outlet, taking care that nothing gets jammed.

- Now secure the motor cover with the original fixing screws.



- **Ignition timing:** If you have not yet removed the spark plug, please do so now. Then move the piston to the ignition position. Please refer to your manual for the correct setting (if no values are available, try 2 mm before TDC). It is best to use a size 10 open-ended spanner to turn the crankshaft.

- Hold the crankshaft and piston in the ignition position. Now turn the stator assembly until the ignition mark on its rear aligns with that on the rotor (see above). Now secure the stator assembly to the engine cover permanently.

- Finally, fit the engine cover and secure it. This completes the work on the engine.

- 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 retaining clamp. Leave one of the ignition coil's retaining bolts 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 up at the same level as the regulator and ignition coil, alongside all the other cables. Make sure that nothing can rub against anything.



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

- 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 fitted to 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. 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 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 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.

	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 connection - this controller has a built-in smoothing capacitor
- 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 is connected 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 operating 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 fitted between the battery and the on-board 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 – this is the cut-off cable. - 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	- If it is connected to earth, the ignition will cut out! - We use this circuit variant in vehicles that were originally fitted with a magneto ignition (magneto rotor) and therefore also cut out 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 Superkabel' ('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 to do before fitting the coil to the vehicle. Please also use the ignition cable supplied and do not use 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 kilohms, but no more than 5 kilohms) 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** (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 – 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 legislation 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, in particular 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, this will result in damage. 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 very little 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 may 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 straight away 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's 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!

Schéma zapojení 71ik102

