

System 701099900**Advantage over original system****Generator/electronic ignition for MZ BK350**

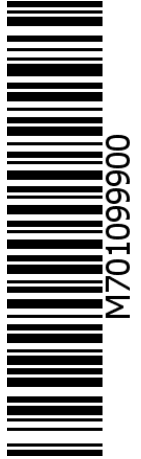
- all Versions


- Magnet based generator with integrated fully electronic ignition. Output 12V/150W DC. Solid state electronic ignition with own power supply from within the system.

- Replaces the old dynamo GMR 6/45, inclusive of governor, points and condenser as well as the ignition coils. There is no need for changes on engine casing. You may drive without a battery, if you want, you will have to install in that case however a large capacity condenser.

- All components, except regulator are housed inside the engine and are hence not visible from outside.

- all parts are new
- more light output
- very stable ignition with high energy spark
- better starting, better fuel burning
- no trouble anymore with points and governor
- no trouble anymore with burnt ignition coils



Assembly instructions for system 701099900	701099900
<p>- If you can install and time a stock ignition and possess basic mechanical skills, you can install a VAPE! If you never have worked on your ignition, better have it done by someone who knows.</p>	
<p>- VAPE can not monitor the compliance to those instructions, nor the conditions and methods of installation, operation, usage and maintenance of the system. Improper installation may result in damage to property and possibly even bodily injury. Therefore we assume no responsibility for loss, damage or cost which result from, or are in any way related to, incorrect installation, improper operation, or incorrect use and maintenance. We reserve the right to make changes to the product, technical data or assembly and operating instructions without prior notice</p>	
<p><u>IMPORTANT</u></p>	
<p>- Please read these instructions fully and carefully before starting work on your motorcycle Please bear in mind that any modification of the material as well as own repair attempts which have not been agreed with VAPE may result in a loss of warranty. Do not cut off wires. This leads to a loss of reverse polarity protection and often results in damage to electronics. Also, please take note of the information provided on the information page for this system. Check that what you have bought really corresponds to the motorcycle you have. Wrong ignition settings may damage your engine and even hurt you during kickstart (violent kickbacks). Be careful during the first test runs. If needed change settings to safer values (less advance). During assembly check carefully that the rotor (flywheel) does not touch the stator coils or anything else, which may happen due to various circumstances and lead to severe damage.</p>	
<p>Designated use - This system is designated to replace stock dynamo/alternator & ignition systems in vintage and classic motorcycles whose engine characteristics have not been modified aftermarket. This system is not a tuning system and it will not bring significant increases in engine output. It does however significantly enhance roadworthiness and comfort by offering better lighting, better function of side indicators and horn and, compared with the aging stock systems, increased reliability. As our system does not tamper with engine characteristics it does not increase emission of gaseous pollutants and noise. In most cases emission of pollutants should even be reduced due to better combustion. If used as designated the system therefore will not normally infringe the existing legal status of the motorcycle. (Please check your local legal regulations!) This system is not suitable for use in competition events. If used other than the designated way, your warranty will be voided and it might well be that you do not obtain the desired results or, worst you loose legal roadworthiness.</p>	
<p> - VAPE guarantees homologated products marked with the “E” mark in the ring (E8 specifically for the Czech Republic), thereby ensuring a consistent conformity of the product properties with the relevant ECE homologation regulations (especially ECE R10.05). Inspection is regularly carried out by the competent authority.</p>	
<p>- The charging system is only suitable for use with rechargeable 12V (6V systems 6V) lead-acid batteries with liquide electrolyte or sealed lead-acid batteries, AGM, Gel. It is not suitable for use with nickel-cadmium, nickel-metal-hydride, lithium-ion or any other types of rechargeable or non rechargeable batteries.</p>	
<p>- This is a replacement system and not a copy of the stock material. The parts in this system therefore look different and might fit differently (notably ignition coil and regulator) requiring some adaptation by you.</p>	
<p>- During assembly imperatively start with assy of engine based parts to see that those really fit before you start fitting the external parts. In many cases customers assemble those first and thereby often modify them in breach of warranty which renders them unfit for renewed sale. Replacing old ignition systems is not a matter of taking something from a supermarket shelf as there have been very many types, versions and possibly unknown aftermarket modifications which harbour plenty of room for error.</p>	
<p>- Our systems are NOT tested for use with third party electronic devices (such as GPS, mobile phones, LED lighting etc) and may cause damage to such parts. Possibly existing electronic tachometers will not work with the new system. Possibly existing safety switches and electronic valve controls are not supported. It might be that your motorcycle was originally equipped with an ignition that did limit top speed for legal reasons. The new system does not have such a facility, so check your legal situation beforehand.</p>	

- If you have no expertise for the installation have it done by an expert or at a specialist's workshop. Improper installation may damage the new system and your motorcycle, possibly even lead to bodily harm.

- Before you order a system, please check whether a puller tool for the new rotor is included in the kit. If not, better order it at the same time. Never use anything other than the recommended puller tool to pull the new rotor again. Damage to the rotor as a result of use of other tools or methods is not covered by your warranty.

- The rotor is sensible to blows (including during transport). Before assembly, please always check for damage (on rotor without magnet plastification try to push the magnets aside with your fingers). After impact the glued in magnets might have broken loose, sticking to the rotor solely by magnetic force, so that one does not notice right away. During engine run the damage would be considerable. Before placing the rotor onto the engine, please make sure that its magnets have not collected any metal objects such as small screws, nuts and washers. That equally would lead to severe damage.

- **If you have access to the Internet, best view those instructions online.** You get larger and better pictures by clicking onto them and possibly updated information. System list at <http://www.powerdynamo.biz>



You should have received those parts:

- pre-assembled oval plate with advance control unit and relais
- stator unit with pickup
- regulator/rectifier
- twin CDI ignition coil prefitted on holder
- 1.3m HT cable (please cut as needed)
- flywheel (rotor)
- wire loom (to connect the new parts, not a complete loom for the bike)
- fastening screws

Please pay attention:

- The stator and the sensor are not screwed tightly to the base plate. You have to remove the stator for mounting the base plate on the crank case. And the sensor has to be adjusted by yourself. Tighten the screws after that well.



- To pull the old rotor, you will need a puller tool M10x90 (part-no.: 89 99 026 00 **-Not provided!**).



- To pull the new rotor again, you will need a puller tool M27x1,25 (part-no.: 99 99 799 00 - **Not provided!**).

Note: Never use a claw puller, a hammer or any other device, that will shake the magnets off.

- **Notes on wiring:** Experience shows that in the course of time nearly every motorcycle undergoes changes to its wiring. As a result, wire colours and wires themselves on your bike might differ to those we describe. In case of doubt, please consult the original wiring diagrams for MZ on the homepage of EastbikesUnited.

- Make sure your bike rests securely on her stand, preferably on an elevated work bench and that you have good access to the generator side of the engine. You will have to move the direction of the front fork for better handling at the generator.

- Disconnect your battery and take it out of the motorcycle. Note that you will have a 12 volts system further on, so you will either need a 12 volt battery or you use the option of driving without. You will have to replace all lightbulbs to 12 volt ones however in that case too. The horn may stay at 6 volts. For driving without battery, please observe our information on driving without battery.

- You have to decide which method of ignition cut-off you will use. There are different ways, every one with pros and cons. We have pre-assembled the relay option.

- **Relay option** (delivered as standard):

- pro: You may use the ignition lock as previously. There are no changes on the handling of your bike.

- contra: You can't use the new system without the battery (but in a case of emergency you can drive without, only the ignition cut-off is out of work).

- **Position 5 method**:

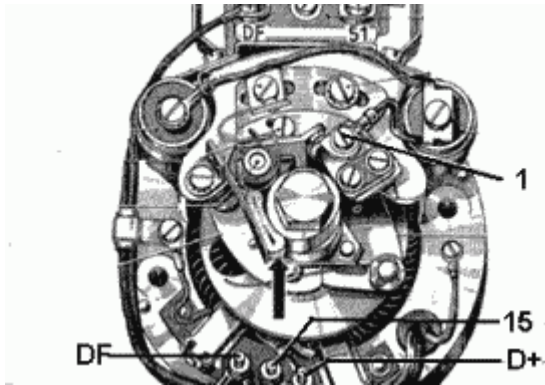
- pro: The bike will be totally driven without battery. This is a big **PRO** for classic bikes as they will be only occasionally used.

- contra: You can't cut-off the ignition with the ON/OFF position of the ignition lock, you have to switch the lock short-time on position 5 (previous bump-start position). Further, the bike may be kick-started without ignition key.

- **Cut-off switch method**:

- pro: The bike will be totally driven without battery. There is no relay, that might fail.

- contra: You have to install an additional cut-off switch, preferably at the handle-bars.



- Disconnect the cables from your old generator.

- Those are normally:

- from the regulator pin 51 (pale blue)
- 2 red cables on pin 15
- pin D+ (yellow/black)
- from the circuit breaker pin 1

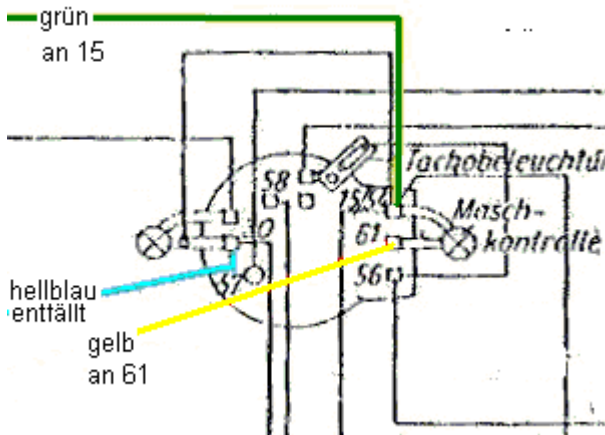
- Then remove the dynamo with the regulator and ignition coils.



- Take the woodruff key from the crank (red arrow top). You will not need it any more. Please do not forget to do so, otherwise you will have trouble later on the assembly.

- (Remark: This woodruff key does not actually hold your rotor on the shaft, this is done by the taper. It simply guides to the correct setting which will now be otherwise achieved.)

- Also remove the pin (see red arrow bottom right) from the dynamo seat.



- Open the lamp casing. Look for the harness with 3 cables, that goes to the engine. You have to remove the following cables:

a) one pale blue-coloured cable on pin 30 (from regulator, pin 51). It will not be replaced by a new wire.

b) one yellow/black-coloured cable on pin 15 (from the ignition coil). It will be later connected with the new harness. Put in place of this wire the supplied short piece of green cable as a marker.

c) one red-coloured cable on pin 61 (ignition control, pin D+). Put in place of this wire the supplied short piece of yellow cable as a marker.



- Disconnect the battery-plus cable from the fuse box and pull it out of the battery case. Now you have to enlarge the wire entrance hole to 12mm. With the drill at hand, drill a further 12mm hole in the upper section between battery case and tool box. Put in per hole one grommet. Still on the drilling side (but lastly) drill two holes of 5.5-6mm (in the distance of the mounting lugs of the regulator) into the rear wall of the right (tool-) part of the battery case. That will hold the regulator.



- Remove the 3 fixing screws which hold the stator coil to its base. Now you can lift-off the coil a little away from the ground plate. So as the mounting holes on the ground plate become accessible.

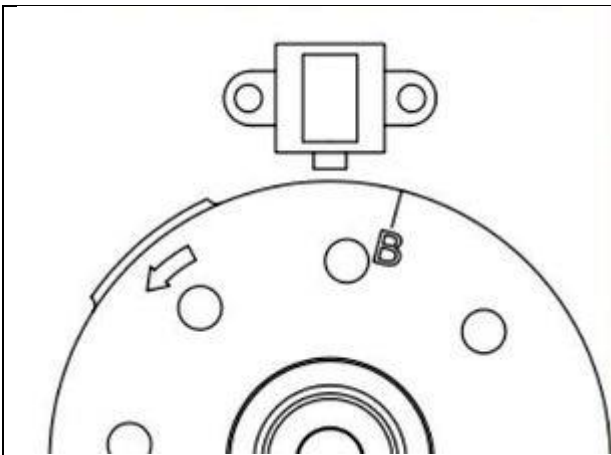
- Take care not to damage the paint insulation!

- Mount the new stator plate (steel- & aluminium ring), using the original mounting holes, on the crank case. The sensor has to shown upwards. Screw it down with the 2 countersunk bolts M5x30. Easiest, first the right one loosely, then the left one. Finally fasten both of them securely.

- Take care not to jam any wires underneath the plates. This is the most tricky bit of work in the whole installation. So, take it slowly at this point. Before you screw down the generator, lead the stator cable through the harness-opening upwards. It's easier.



- Once the plate is fixed, reset the stator coil onto it. Here make double sure not to pinch any wires underneath. As the coil sits quite low in the engine, this is difficult to see.
- Best push the coil gently down and pull at the same time at the wire from rear (ignition coil opening) - little by little until the unit sits properly. At the end, the coil will sort of snap in sharply, even with some noticable click. If it sits down rather softly, that you can bet there is a wire underneath.
- Screw down the coil with the 3 hex screws M6x30.

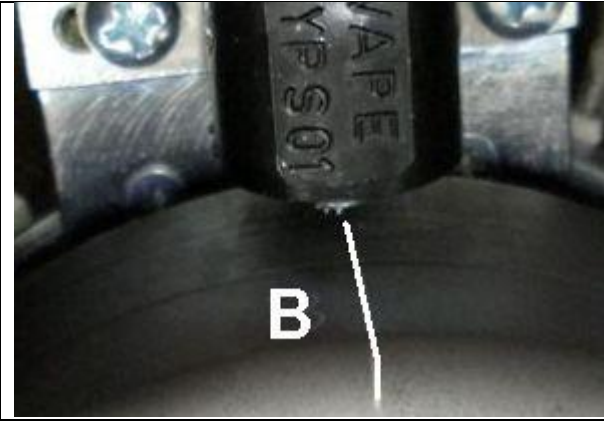


- Have a look at the new rotor. You will find on its circumference a protrusion. This one is the ignition impulse trigger. Our system reads the time the protrusion needs to pass the sensor and calculates from that how many revs the crank is doing to set the advance correspondingly.
- That's why ignition always happens after the complete protrusion has passed the sensor.
- **In the picture you see the position of the rotor against the sensor at max advance (25° BTDC).**

- Adjustments at certain ignition angles are often not easy to measure. It's easier to define the top dead centre (TDC). The adjustments of the system were converted and marked on piston position at TDC. You have only to bring any one of the pistons in TDC position, the rest will done by the system (spark advance from ATDC = 3° to BTDC = 25°).



- Remove the spark plugs to ease turning of the crank. Place the rotor **loosely** onto the crank and check that it may move freely above the stator base. Bring the piston into TDC position. You may use the new (hand tightened) rotor as a turning knob for that. Insert some gauge, in the simplest case a small screwdriver into the spark plug opening. If you want to shift the crank by the kicklever, use the cylinder at the opposite side to check piston height (with your left hand whilst your right hand presses the kickstarter). At the point where the screwdriver is furthest pushed out, you have top dead center (TDC). Take time to find that point for sure.



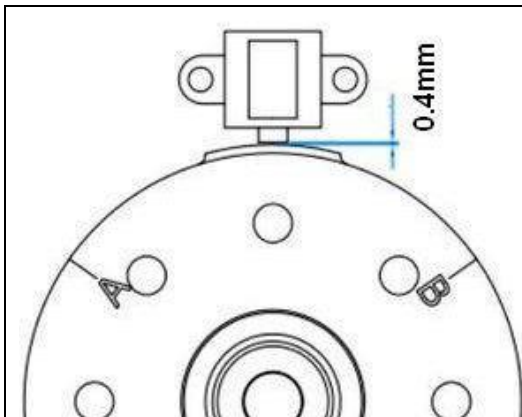
- Once TDC is found, disengage the rotor carefully without changing the crank's position. Then, reset it onto the crank in such a way that the marking on the rotor (not the protrusion) aligns with the center of the sensor core (a little difference of 1-2mm is acceptable). If there is any bigger change in the crank's position, you have to start again. In that position fasten the rotor carefully with the M7x40 screw (please don't forget to use the washer).



- Please don't undertake any mechanical changes on the engine case, thinking that only with some modifications there you are able to fit the system. It will fit without physical changes, for sure.

- The steel adapter of the system will come to sit at the upper recess for the dynamo, as shown here in the picture (and not somewhere further down the engine as you might initially tend to think).

(The photo shows another MZ motor.)



- Turn the rotor by hand. Check the space between the sensor and the protrusion on the rotor, it has to be 0.4-0.6mm. You can adjust that with the locking screws of the sensor. You have to tighten the screws well after that. It's a good idea to check the screws sometimes.

- Please equally check that the rotor has no contact with the ground plate.

- Time to fit the external parts. Fasten the new regulator vertically with 2 screws M6 on the inside back wall of the tool box (you have drilled 2 holes there for that).

- **Now you have to put the new harness.** You do that from rear to front of the bike, starting in the tool box compartment. The big white plug remains there and will be connected to the regulator later. Now lead the new harness through the enlarged hole first into the battery compartment. Pull the harness through the partition, until both cables for the battery (red & brown) are through. Then continue to lead the harness through the enlarged hole out of the battery case. The temporarily removed original plus cable (removed temporarily as you have to enlarge the hole) has to be lead again into the battery case and screwed again to the plus pin. In the right (tool box) part of the case you have now the regulator and a "bunch" of cables. Left, in the battery side, you will have the minus (brown) and the plus (red) cable, waiting to be connected over the fuse terminal board to the battery. We have pre-assembled connections for a dryfit (sealed lead/acid) battery, but you can equally fit there round-eye terminals for an ordinary acid battery.

- Lead the new harness along the frame under the tank and fasten it (not to fast yet, you may need to re-arrange them a little later on). The harness will divide at the steering head. Lead the part with the 2 cables (green & yellow) to the lamp housing. Connect them there at the main switch in place of the same-coloured placeholders (green to pin 15, yellow to pin 61).

- Before you lead the second partial harness to the engine, you have to put a grommet (for the case entrance) over the harness-part and then both black wires in the double plastic plug. Push the contacts in the narrow end of the plug. They have on one side a small hook, for engaging in the plug. If they don't engage, turn round the contacts and try again. No matter which of the black wires is in which position there (it's AC).

- The brown cable with the round-eye terminal from the harness will be lead upwards through the case opening to the ignition coil room.



- Screw both HT-cables onto the ignition coil. Lead the HT wires than from inside the coil compartment through the exit holes outside (just like the original cabled had been).



- Mount the new pre-assembled, electronic ignition coil with screws M5 (please don't forget washers and two nuts as spacers) on the mounting holes of the original ignition coil holder. The even side of the plate shows into direction of the case partition, the coil hangs downwards into the engine case.

- You have to screw down the brown ground cable with the round-eye terminal on the left screw (you look from front to the bike) of the ignition coil holder. At the ignition coil is a shorter blue cable located, let it hang loosely at first.



- Take the oval-shaped plate with the pre-assembled advance unit ("black box") and the relay.

- Take a look at the little blue switch block at the upper narrow side of the unit. There are 4 small switches which select the ignition advance curve. Make sure the switches are set as shown below.



Switch 1/2 on ON
Switch 3/4 to OFF (that is away from ON).
Otherwise your system will not function properly. Please do not experiment with other settings!

- Connect the cable, coming from the advance unit and guided through the hole of the oval-shaped plate to its back, with the plug of the ignition coil. Pull the short harness from the new generator, the

blue wire from the ignition coil, the green wire from the new harness and the 2 black wire pairs from rear to front through the opening in the oval plate.

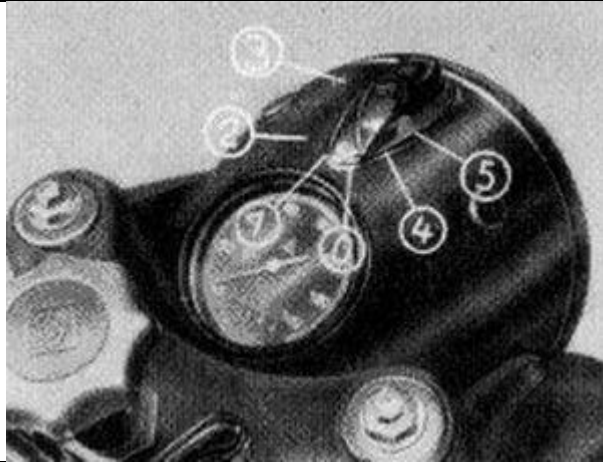
- Secure the plate provisionally to the engine (use 2 of the cover screws M6). Connect the 2 plugs with the black wires. Those plugs remain above the baseplate to prevent contact with the rotor. Have a look at the terminals at the relay. 2 of them have a brown wire (ground), one is covered with black insulation. Set the blue wire from the ignition coil to the relay terminal that is closest to the oval base plate. The green wire will be put onto the remaining free terminal at the relay. You will see that wiring as a drawing further down those instructions.



- Disengage the provisionally set screws, which hold the oval plate. Put on the generator cover over the whole thing and screw it down - the oval plate now appearing as some sort of gasket between cover and block.

- Take care: pinch no cable!

Advice for cut-off by position 5 method (without battery)



- To cut-off the ignition, you have to shift into idle gear and switch the ignition lock briefly into position 5. As soon as the engine has stalled, turn to OFF and pull out the key.

- The ignition lock will be wired in such a way, that in position 5 ground will be connected to the blue cable of the ignition coil, terminating ignition.

- In position 5 terminal 61 is bridged to terminal 15. From there leads a cable to the neutral gear indicator. Bulb and the idle gear switch with that assembly connect the blue wire of the coil to ground.

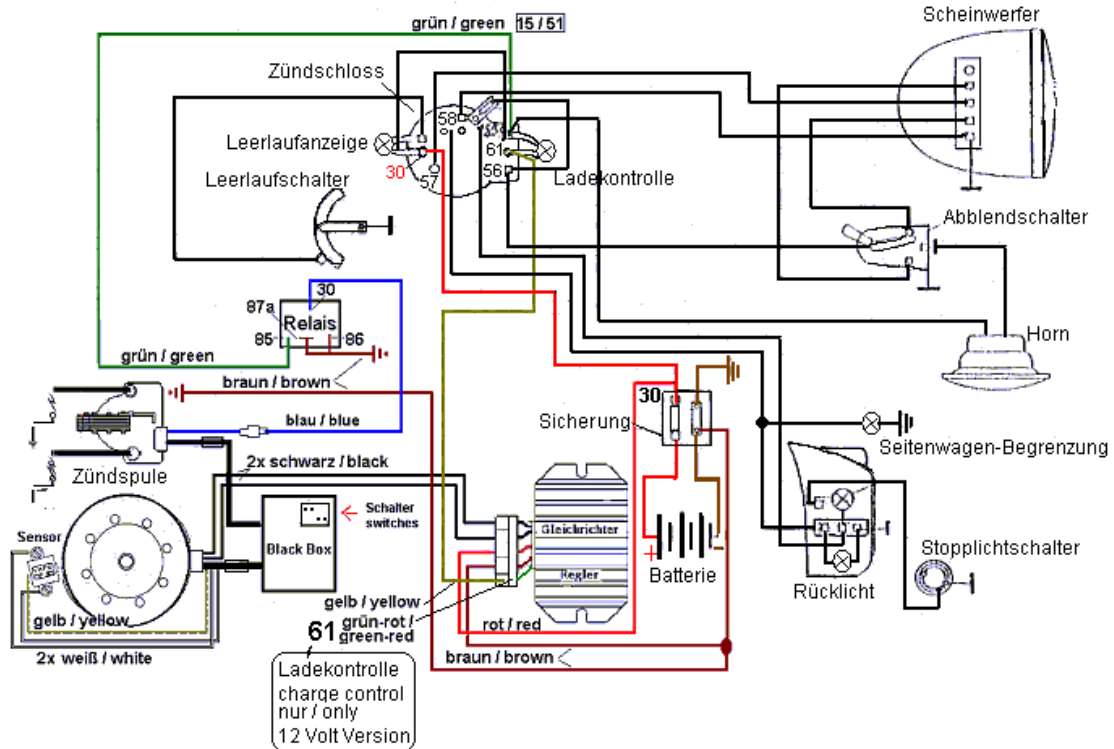
- With position 5 method, the relay on the oval plate will not be used and may be removed. The blue cable of the ignition lock will be connected with the green one from the harness (which leads with the normal battery method to the relay). Without battery the charge control light is not functioning.

Connect the parts as shown in the respective wiring diagram!

- For our standard DC regulator (95 22 699 06), use the wiring diagram **92xr12**.
- For our DC regulator with built in smoothing condenser (73 00 799 50), use additional the wiring diagram **reg_102**

Schaltbild MZ-BK

zur Lichtmaschine mit integrierter kontaktloser vollelektronischer Zündung

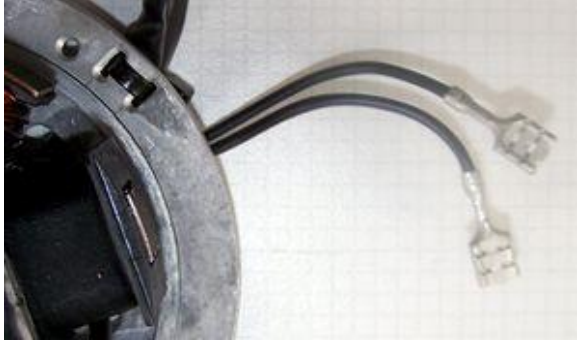
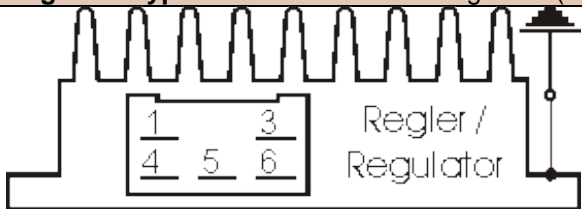


- To facilitate wire exit through the often small openings in the engine casing, the plastic plug of the generator's wiring that leads to the ignition coil have not been put onto the wire terminal. You should place the plug there only once all has been properly installed on the engine side.



- Look for the advance unit with its female plug and the three wires (red, yellow and white).
- Put the provided 4-position plug housing onto this plug and insert the three wires (red, yellow and white) from the generator. Make sure that the terminals engage securely in the housing and that you connect:

- red to red
- yellow to yellow
- white to white

<p>- Should you need (or want) to get the terminals out of the plug housing again, enter a paper clip from front next to the terminals and push the little barb aside. Than pull the wire out.</p>	
<p>- The second plug at the advance (a male plug) will be connected to the plug at the ignition coil. This two plugs can only be connected in one position. Note the changing colour:</p>	<ul style="list-style-type: none"> • red to red • white to white • blue/white of the advance unit to yellow of the ignition coil
<p>- Important! Never run the high tension cable(s) and the cable(s) of the advance unit closely in parallel (say in one shielding). This will trigger back coupling that disturbs ignition and might even damage the advance unit.</p>	
<p>Connecting Powerdynamo alternator to lighting circuit (via regulator):</p>	
	<p>- The 2 black wires running from the stator coil carry the voltage for lights, horn, flashers etc. They have nothing to do with ignition.</p> <p>- This voltage (something between 10 and 50 volts AC) has however to be stabilized (regulated) and for most uses rectified into direct current (DC) as it primarily is alternating current (AC).</p> <p>- For this we offer 2 different regulators:</p>
<p>Attention: Any confusion between plus and minus (with the DC versions) leads to immediate destruction of the regulator. This will not constitute a warranty case as it is negligence! One can recognize a burnt regulator mostly by its sharp smell.</p>	
<p>Regulator type 1: with standard DC regulator (95 22 699 06), use the wiring diagram 92xr12:</p>	
	
<p>The two black cables leading from the generator ...</p>	<p>... connect to pins 1/4 of the new regulator (from there equally black wires lead inside the unit). It does not matter which wire connects to which of the both terminals (1/4) as they carry alternating current.</p>
<p>The new brown cable with the round eye terminal.</p>	<p>... connects pin 3 of the regulator unit (from there equally a brown wire goes inside the unit) with the negative pole of the battery or (in case you drive without battery) to ground (chassis).</p>
<p>The new red cable with the round eye terminal ...</p> <p style="text-align: center;">Take care: Wrong polarity will damage the electronics!</p>	<p>... connects to pin 5 of the new regulator (from there equally a red wire goes inside the unit). This wire is a major integration point between the old and the new system. Here your regulated positive voltage comes out to connect to battery plus, or (in case you drive without battery) to the voltage input terminal of the main switch (ignition lock, German bikes: pin 51/30).</p>
<p>Make sure that you have a 15A-fuse between battery and vehicle circuitry.</p>	

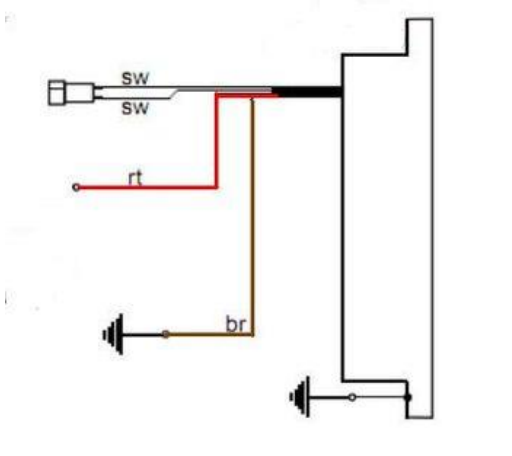
The green/red wire at pin 6 of the new regulator ...

... is for the charge control light. You connect there the wire that formerly did run from the control light to the original regulator.

- Sure that this control only functions with a battery present. Should you drive without battery but still connect the wire, you will see that the light glows even as the generator generates voltage. So without battery, do not connect it.

- The charge light control function is based on a transistor switch and is an additional function. Even if that should fail, the regulator might still be in ok working condition. Simple check: have the engine running, turn lights on, disconnect the battery. If you have bright lights the unit is ok.

Regulator type 2: with DC regulator with built in smoothing condenser (73 00 799 50), use additional the wiring diagram **reg_102:**



- the 2 black (sw) wires are the AC input from the alternator (as it is AC it does not matter which black to which black)
- the red (rt) wire is the 12V DC output plus
- the brown (br) wire is ground, internally connected to housing

- Remains the blue (sometimes blue/white) wire at the ignition coil. This is the kill (cut-off) wire.

- **Connected to ground - it will stop ignition!**

Note:

- Should you experience ignition failures, disconnect as a first measure this blue wire. In many cases that will permit you to get mobile again

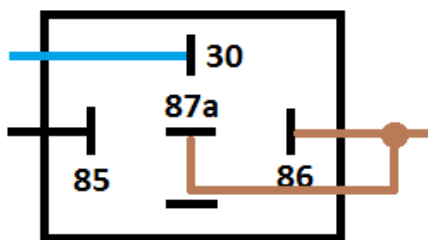
- **Switch off via separate kill switch (when driving without battery):**

The relay will not be fitted. The blue(/white) cable of the ignition coil will be connected to a kill switch, closing against ground (a button at the handlebars). Or you mount an ignition lock that has a facility to connect against ground when in OFF position.

- **Battery method:**

Connect the brown relay wire to good ground. Lead the longer black wire from the relay to the wire that did run previously to a pin carrying voltage when the switch is on (in German bikes: pin 15) and connect it there. Connect the blue wire from pin 30 of the relay to the blue(/white) wire at the new ignition coil. Should your battery fail on the road, just disconnect that blue wire and your bike will run again (it will now only not stop by switching off).

Relay wiring (if used):



- The brown wire with the ring terminal from pins 87a and 86 goes to ground.

- The black wire from pin 85 goes to a main switch terminal carrying voltage if switched on.

<p>Screw the high tension (ignition) cable ...</p> <p>- Please do not use any spark amplifying cables, such as "Nology supercables" or "hot wire". This will disturb the system and possibly damage it.</p>	<p>... into the ignition coil and pull over the rubber seal before mounting the coil (it will be easier).</p> <p>- Please do use the cable arriving with the pack and not any old cable.</p>
<p>- You will do yourself a favour to treat your bike to new spark plugs and spark plug sockets (preferably some between 0-2kOhm). Plenty of problems are to be traced back to "apparently good" (even completely "brand-new") sparks plugs, terminals and cables.</p> <p>- Do not use spark plugs with an intern suppression resistor. NGK (e.g.) offered such spark plugs coded with an "R" (for resistor).</p>	
	 <p>- In our twin outlet coils both ends of the secondary go to the spark plugs.</p> <p>- Typical resistance between both exits is 6.2kOhm. Both exists fire at the same time (as many twin systems do). Sparks will be polarised however at a 180 degrees difference which might manifest when you strobe it.</p>
<p>- Ignition will only work correctly if both plug terminals are connected. You may not test one side with the other open (not sitting on the mounted spark plug). This is because (effectively) each exit uses ground from the other. That means also that both plugs are working in serial, adding resistances, so better use low resistance spark plug (resistor) sockets and make sure they are good. If in doubt, measure resistance on a hot socket (warm it up before measuring).</p> <p>- Is the flow from ground of one side via spark plug there, via coil, to the other spark plug and its ground interrupted you get no spark - on neither side. If you really want to test only one side, put the HT wire of the other to ground (earth it) than it will work. Sometimes a coil deprived of its ground from the other side searches for a substitute - with some solid fireworks around it to the chassis.</p>	
<p>- Finally - and before installing the battery and before the first kickstart - please re-check carefully all connections and fitments against the wiring diagram. Do check battery and light bulbs for correct voltage (12V).</p> <p>- Should something not work, please consult our trouble-shooting guide on our homepage. As a first step disconnect the blue wire from the coil and re-test.</p>	
<p>- IMPORTANT: During crank shaft repair the dynamo shaft is often machined and gets shorter. The result is a rotor sitting lower, possibly touching now with its rivets the stator coil. The result is a destroyed stator and ignition failure.</p>	

Important safety and operating information
<p>- Safety first! Please observe the general health and safety regulations motor vehicle repair (MVR) as well as the safety information and obligations indicated by the manufacturer of your motorcycle. The timing marks on the material are for general guidance only during first installation. Please check after assembly by suitable means (stroboscope) that settings are correct to prevent damage to the engine or possibly even your health. You alone are responsible for the installation and the correctness of settings.</p>
<p>- Ignition systems generate high tension! With our material right up to 40,000 Volts! This may, if handled carelessly, not only be painful, but outrightly <u>dangerous</u>. Please do keep a safe distance to the electrode of your spark plug and open high tension cables. Should you need to test spark firing, hold the spark plug socket securely with some well insulating material and push it firmly to solid ground of the engine block.</p>

Never pull sparkplug caps when engine is running. Wash your vehicle only with engine at standstill and ignition off.

- You should have received the HT Cable with the fixed rubber cap (*which does not contain a resistor*) as a part of the kit, you should have to use a spark plug with an inbuilt resistor (*or replace the cap with the one containing a resistor*) to comply with your local laws (*Electromagnetic compatibility requirements*).

- Do not use a spark plug cap(s) containing a resistor **WITH** a spark plug(s) containing a resistor at the same time. It would cause problems, especially difficult engine starting. The total resistance of cap and spark plug combined should not exceed 5kOhm.

- Remember that candle plugs age, increasing resistance. If an engine only starts when it is cold, it is very likely that a defective spark plug connector or faulty spark plug is the cause. Do not use so-called ignition-reinforcing cables (e.g. Nology).

- After installation, please check tightness of all screws, even those preinstalled. If parts get loose during run, there will be inevitably damage to the material. We pre-assemble screws only loosely.

- Give the newly installed system a chance to work, before you start to check and test values, or what is worse apply changes to it.

Our parts have been checked before delivery to you. You will not be able to check much anyway.

At any rate do refrain from measuring the electronic components (such as ignition coil, regulator and advance unit). You risk severe damage to the inner electronics there. You will not get any tangible results from the operation anyway. Bear in mind that also your carburetor, your spark plugs and spark plug sockets (even if completely new) might be the reason for malfunction. The general experience with our systems is that the carburetor will have to be re-adjusted to lower settings. Should the system not start after assembly, first disconnect the blue (or blue/white) cut-off wire directly at the ignition coil (or in some cases advance unit) to eliminate any malfunction in the cut-off circuitry. Check ground connections carefully, make sure there is a good electrical connection between frame and engine block.

In case of troubles, please consult our Knowledge Base first before you send off the material to us for checking.

- The spark of classic, points based ignition systems has with about 10,000 Volts comparatively little energy and looks therefore yellow and fat (which however makes it highly visible). The spark from our system is a high energy spark with up to 40,000 Volts and therefore is needle thin focused in form, and blue in colour, which makes it not so visible. Furthermore you get spark only at kick-start operated speeds and not by pushing the kick-lever down slowly with your hand (as you might get with battery based ignitions).

- Systems using a twin outlet ignition coils have a few peculiarities. Please observe that during tests on one side, the other has either to be connected to an fitted spark plug or securely earthed/grounded. Otherwise there will be no spark on either side. Also with such open exits long and dangerous sparks may fly all over the coil.

- Never do electric arc welding on the bike without completely disconnecting all parts containing semiconductors (ignition coil, regulator, advance) stator and rotor need not be taken off. The same is true for soldering. Before touching electronics disconnect the soldering iron from mains! Never use copper putty on spark plugs.

- Electronics are very sensitive to wrong polarity. After work on the system, do check correct polarity of the battery and the regulator. Wrong polarity creates short circuits and will destroy the regulator, the ignition coil and the advance unit. As a rule, wiring will always be colour to colour. Instances, where colour jumps between wires are expressly mentioned in our instructions.

- When you handle the new rotor, take care not to damage its magnets. Refrain from direct blows to the circumference of the rotor. **When transporting never put the rotor over the stator.** Observe our information relative to transport of the material.

- Do not use spark plug sockets with a resistance of more than 5kOhm. Better use 1 or 2kOhm ones. Bear in mind that spark plug sockets do age and thereby increase their internal resistance. Should an engine start up only when cold, a defective spark plug socket and/or spark plug is very probably the cause. In case of problems check high tension cables too. Never use carbon fibre HT-cables, never use so called "hot wires" which promise to increase spark.

- It is a good idea to cover the rotor in a thin layer of oil to reduce the risk of corrosion.

- Never use a claw puller or a hammer to disengage the rotor. Its magnets might become loose in the event. We offer a special puller for disengaging the new rotor again (see assembly instruction)!

- Should the motorcycle not be in use for some longer period, please disconnect the battery (so existing) to prevent current bleeding through the diodes of the regulator. Though, even a disconnected battery will empty itself after a while.

- Please do observe these remarks, but at the same time, don't be afraid of the installation process. Remember, that before you, thousands of other customers have successfully installed the system.

Enjoy driving your bike with its new electric heart!

VAPE

Schaltplan 92xr12 (wiring diagram)

