M717979900

system 71 79 799 00 **generator/electronic ignition**
=> €/$ **for Kleinschnittger**

Before ordering the system, please check the length of the crank shaft! See here!

Magnet based generator with integrated fully electronic ignition.
Output at 12V/150W DC.
Solid state electronic battery-ignition, that ignites at start revolutions from 60rev/min. So you avoid starting problems at your magneto with your otherwise solutions (control cable or electric starter).
Replaces the original 6 Volt DC Noris magneto of type MLZ, incl. centrifugal governer, breaker and ignition coil. No changes on engine casing needed. Ignition coil, regulator and converter must be installed outside of the motor.

advantage against the old system

- all parts are new
- more light output
- very stable ignition with solid spark
- better starting, better fuel burning
- no wear anymore on points

documentation

- assembly instruction
- wiring diagram
- parts in the pack (photo)

pßhotos

- view at the mounted new system
- view at the new stator
- rotor at point of ignition
- mounted external parts (proposal)
- the new regulator fixed in an empty battery case

assembly instruction for system 71 79 799 00

Version 08.01.2014

If you can install and time a stock ignition and possess basic mechanical skills, you can install a VAPE system!
If you never have worked on your ignition, better have it done by someone who knows.

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.

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.

IMPORTANT:

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 (this statement is valid for Germany, for other countries, please check locally against your road licensing regulations). This system is not suitable for use in competition events. If used other than the designated way, warranty will be voided and it might well be that you do not obtain the desired results or, worst you loose legal roadworthiness.

	The charging system is only suitable for use with rechargable 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 recharchable or non rechargable batteries. 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.
	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.
	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. Read our information for suitable solutions. 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.
	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. You might want to order light bulbs, fuse, horn, flasher unit etc. 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 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.
Internet	**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

To pull the new rotor again, you need a puller screw M27x1,25 (part 99 99 799 00 **-not provided-**).

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

You should have received those parts!

Take care, the sensor is only mounted loosely on the ground plate - because you have to adjust it!

Make sure that you have good access to the generator side of the engine.

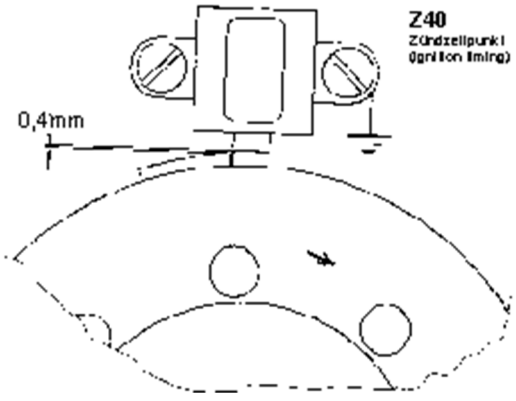
Disconnect the battery and take it out of the automobile. Note that should you be installing a 12 volt system, you will either need a 12 volt battery. You will still have to replace all lightbulbs to 12 volt ones. The horn may stay at 6 volts.

Disconnect all cables from your old generator and remove it. Take the woodruff key from the crank. 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 cone. It simply guides to the correct setting which will now be otherwise achieved.)

Take the preassembled cover holding plate off the new generator. Put the ground plate/stator unit onto the crank case and screw it down with the 2 screws M8. Don't forget to use the washers.

Place the screws in the centre of the oblong holes, so you have the possibility for adjustment in both directions.



Have a look at the new rotor. You will find on its circumference a protrusion. It serves for impulse. The moment the elevation reaches the sensor, it triggers the spark.

Remove the spark plug out. Put the rotor onto the crank shaft for turning the crank. Bring the piston into ignition position (2-2,5mm BTDC).

Pull the rotor carefully off the crank (without changing the crank's position) and reset it again that the sensor's right edge aligns to the left edge of the sensor core. Take care that during this procedure the crank don't moves, otherwise you have to start again. In this position (see left) tighten the rotor by the screw M8x50, not forgetting the supplied washer.

Turn the rotor slowly by hand and check clearance between the sensor and the rotor nose. This has to be about 0.4mm. You may adjust the gap by loosening the 2 holder screws of the sensor and shifting it a little. Do not forget to tighten the 2 holder screws of the sensor carefully. If loose, the sensor will get into contact with the rotor and will be destroyed.

Check that the rotor runs freely above the baseplats and that its impulse protrusions run at sensor height. (There can be problems with regenerated crankshafts.)

The ignition adjustment is now finished. In theory you could change the attitude as desired by pull-off the rotor and reset it in a required angle.

Replace now the cover holder plate on the ground plate. You have to put the two M8x60 screws through the holes in the cover holder plate and the two spacers. (The upper side of the plate is marked by a small bored hole!) Then screw it tight on the ground plate.

Fasten the regulator/rectifier, the relais and the ignition coil at a convenient place.

You can position the parts at every other place.

(The photo shows fastening proposal on a motorcycle!)

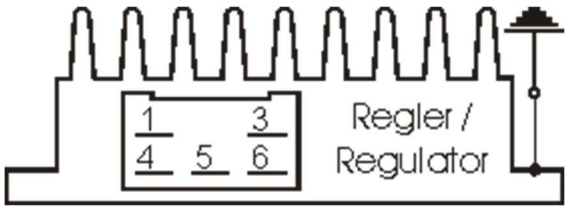
Maybe you would like to "hide" regulator and ignition coil in an empty battery case.

This ignition system is a battery ignition - although the existing (magnetic) flywheel.
We have made this version to enable (resp. to simplify) the starting of the engine at low speed.

*		The ignition energy is amplified by adding battery power converted into some 340 Volts.

Connect the parts as shown in wiring diagram 71x-bat-n:

*	**Parts of the magneto ignition**
	Caused by the disconnected red wire of the stator unit the magnetic ignition is de-activated. **ATTENTION:** Do never connect this red wire!

*	**Parts of lighting voltage genaration**	
		The new regulator/rectifier has a compact plug with 6 positions, of which *one* is not used. A female plug cover fitting to this plug is delivered. Into this female plug you have to insert the following wires (which have terminals that snap into the plug):
	The two black cables leading from the generator ...	... 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.
	The new brown cable with the round eye terminal ...	... 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).
	The new red cable with the round eye terminal ... **Take care:** Wrong polarity will damage the electronics!	... connects to pin 5 of the new regulator (from there equally a red wire goes inside the unit). 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).
	Make sure that you have a ***16A-fuse*** between battery and vehicle circuitry.	
	The green/red wire at pin 6 of the new regulator ... **Remark:** Until November 2007 this wire has been a single wire outside the compact plug.	... 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.
*	**Parts of battery support for ignition**	

		The converter transforms battery voltage (be that 6 or 12 Volts is of no relevance) into some 340 Volts to amplify the charge of the ignition condenser (which is inside the ignition coil). Depending on primary voltage (6 or 12 Volts), revs and therefore number of sparks, the unit consumes between 10 and 15 Watts.
	The red wire of the converter ...	... is the wire to input battery voltage Plus. It has to be connected to a terminal of the main switch (ignition lock) that carries voltage when the switch is in ON position (German bikes: terminal 15). It switches the converter on (resp. off).
	The brown wire of the converter ...	... connects to minus of the battery (ground).
	The 3-position plug of the converter (with the 3 cabels white, red/white yellow) ...	... connected to the fitting counterpart at the ignition coil. Consider the altered cable colours: • red to /white • white to brown • yellow to yellow
	The yellow wire of the converter ...	... connectes to the yellow wire from the sensor.
	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.	
*	**High tension cables**	
	Screw the high tension (ignition) cables ... Please **do not use** any spark amplifying cables, such as "Nology supercables" or "hot wire". This will disturb the system and possibly damage it.	... into the ignition coil and pull over the rubber seals before mounting the coil (it will be easier). Please do use the cable arriving with the pack and not any old cable.
	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.	

	Do not use spark plugs with an intern suppression resistor. NGK (e.g.) offered such spark plugs coded with an "R" (for resistor).
	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). 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.
*	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). 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.
*	**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. For more detail and how to check see (online) here.
	Important safety and operating information
#	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.
#	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 dangerous. 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. Never pull sparkplug caps when engine is running. Wash your vehicle only with engine at standstill and ignition off.
#	Should you have received in the kit HT cables with a fixed rubber boot(which does not contain a resistor) you might have to use spark plugs with an inbuilt resistor (or replace the cap with one containing a resistor) to comply with your local laws.

#	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!***

Schaltplan 71bat-n (wiring diagram)