



**PowerBlock**

*Ignition  
Systems*

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**Assembly Instructions for GUZZI Induktive on dynamo**

E\_MG\_PB\_5F\_08

7. Version

(c)Sep.2005

Parts List:

Ignition box  
Pickup with 2 screws  
Rotor with 6 washers  
Cable binder  
Ignition coil  
Ignition cable

The Power Block ignition system is far superior to conventional ignitions that usually achieve double the ignition tension, double the ignition energy, as well as double the spark duration. The adjustment of the ignition timing is worked out by a digital High Speed Microprocessor, with 16bit resolution (65536 points) for each single revolution. The Signal conditioning as well as the ignition amps control are also carried out digitally, to achieve maximum efficiency with a minimum loss. The necessary D-Well time of the ignition coils is worked out digitally to achieve maximum energy saving. The output requirements of the ignition system (module + ignition coil) is approximately 17W with 1000 RPM and approximately 67W with 5000 RPM.

**The full performance of our Power Block ignitions is only possible with SILENT HEKTIK ignition coils, because the ignition curves for the relevant ignition energy as well as tensions are tuned and the D-Well timing on the technical details of the coils are cut.**

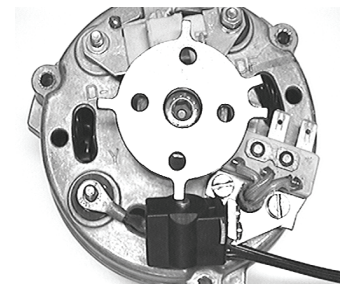
**With unsuitable or inadequate ignition coils, not only does the gaurantee expire , there will also be bad trottle response; bad coldstart or perhaps missfire:**

### **SAFETY PRECAUTIONS AND NOTICES**

Caution High Tension! Danger ! Mortal danger !

To avoid injury or destruction of the electronic, attention should be paid to the following when working on vehicles with full electronic digital high energy ignition systems:

- Read the assembly instructions carefully and completely and follow the instructions. Display warning labels in a good visible place!
- To install the modules, specialized knowledge and tools are required.
- People with a Pacemaker should not carry out work on electronic ignition systems.
- To synchronize the carburettor **never** pull out a spark plug.
- Do not touch or remove ignition cable when the ignition is on.
- Only connect or disconnect the cable from the ignition system when the ignition is turned off.
- Always connect the high tension cable to ground (mass) with or without the spark plugs after removal.
- Checking the function of the high tension part with a spark to the ground (mass) leads to damage.
- Washing the engine or vehicle is only to be carried out when the ignition is turned off and the engine is stopped.
- The ignition module should be carefully protected from static tension.
- Seperate ignition module from the cable harness when electric welding.
- Faulty alternator regulators (max. tension 15V ) are often the cause of breakdown.
- Jumpstarting with a battery charger is only permitted for 1 minute with max. 15V.
- There is no gaurantee for the accuracy of the timing curves with tuned engines; consultation and tuning of the tuner absolutely necessary.
- Gaurantee-, replacement or claim for compensation only in reference to the supplied electronic; mistakes and changes in future to be accepted.



### **MAGNETIC POLING OF THE BOSCH-ALTERNATOR:**

For a faultless function of the ignition system, the front of the Bosch-dynamo rotor have to be at the magnetic **south pole**. That was always the case with the previous original Bosch rotors.

Replacement or accessory dynamo-rotors are often poled wrongly. You can easily check the poling with a compass. With a switched on ignition, the compass's north pole will be pulled to the front of the Bosch rotor located south pole.

If you don't have a compass, then use the ignition in normal powerstroke for the time being. If problems occur with the stuck dynamo, like idle speed revs or missfire, then the dynamo-rotor is presumably magnetically poled wrong. By replacing the rotors, the correct poling of the alternator is again produced, as Bosch intended.

You don't have to check the magnetic poling of the Saprisa- or the Ducati-alternator.



## ASSEMBLY OF THE PICKUPS AND THE ROTORS:

The assembly of the ignition rotors is carried out directly on the dynamo-rotor. Use the original screws without the spring washer. Please check the rotor's seating areas and remove any possible calibration that can result from the spring washer. The pickup is fastened to the Bosch-dynamo with the original U.V.W.plug's screws. On the SAPRISA-dynamo an original screw with a 5mm distance-sleeve is used; for others a M5 thread must be installed for the second fastening on the dynamo.

The distance of the rotors to the pickup should be 0,2mm - 0,3mm on all trigger-noses. The mechanical basic adjustment refers to the static ignition timing:

<b>With a switch:</b>	<b>Calis</b>	<b>2° / 6° BTDC stat.</b>	<b>all LMs</b>	<b>8° BTDC stat.</b>
<b>Without a switch</b>	<b>Calis</b>	<b>2° / 6° BTDC stat.</b>	<b>all LMs</b>	<b>8° BTDC stat.</b>

For the basic adjustment, use the right cylinder and the corresponding ignition rotor nose, as in the right photo.

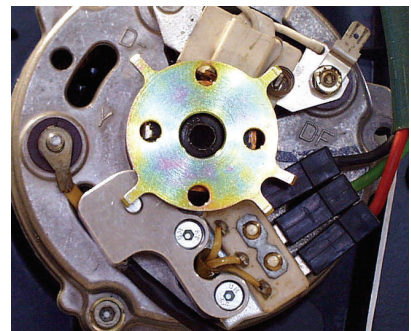
The left over edge of the rotor should stand in the middle of the steel pickup centre.

The trigger-rotor turns clockwise.

To hold the ignition rotor when tightening, use the tool of a Flex and a screwdriver on the sprocket of the clutch.

Check the static ignition timing with a stroboskop-light at approximately 1200 RPM.

You don't need to adjust the left cylinder.



inductive pickup on the Bosch alternator



static position of the trigger system

## ASSEMBLY OF THE IGNITION BOX AND IGNITION COILS:

The assembly of the Power ignition box is most successful in a protected place, like under the tank or under the saddle. Our digital ignition box can be fastened with rubber rings to the frame tube or with the backside of the M4 threads on an aluminium plate. The cable exit of the box should always be dry.

The ignition coils are assembled in place of the original ignition coils. Depending on suitable mounting. To avoid faults, take care when laying the cable that the biggest possible distance is from the Pickup cable to the ignition cable. The engine housing must have a good ground (mass) connection to the battery -> Battery ground (mass) cable on gearbox housing.

With an optimal working ignition system the amount of the spark plug gap is 0.6 - 0.8mm. Please use radio suppressed ignition coil connectors with a minimum resistance of 5KOhm or a resistance cable. The operation of this device will only be perfect with a good radio suppression (also for alternator-regulator), especially with old contact-regulators.

Protect all connectors from damp and humidity with a special grease. Never use battery Pole grease, because it is alkaline. Soldered crimp connectors lead to hairline cracks and breakdown. Faulty Kill switches on the handlebars and the sidestand are often a source of trouble.

Only ignition coils with a primary resistance of minimum 30ohm should be used -> Guaranteed loss when not used!!! When the engine is stopped the amps power of the ignition module will be switched off after a few seconds. Careful when carrying out maintenance work.

Older electronic rev counters should be connected to the grey exit of the box. Newer rev counters can be connected to the ignition coil clamp KL1. Our box will not be damaged from trying out.



coil assembly on the frame for cooling

## ADJUSTMENT:

For basic maintenance of all single-spark ignitions (normal ignitions) the 34° curves come into consideration:

<b>T3Cali - Cal2 - Cal3</b>	<b>(2°vOT)</b>	<b>Nr. D</b>	<b>LM1 - LM2 - LM3</b>	<b>Nr. 9</b>
<b>all Tourer</b>	<b>(6°vOT)</b>	<b>Nr. 9</b>	<b>LM4 - LM5 - LM1000</b>	<b>Nr. 8</b>

On ignition-knocking because of bad petrol or with side car combination (overload), use the next flatter timing-curve form.

To tune a twin-spark ignition, a lot of experience & feeling for it is necessary. It is better if you stick with the tuners instructions. With independent tuning use the following adjustments first of all and try the next timing-curves in driving:

<b>all Tourer</b>	<b>till 1:10</b>	<b>4°</b>	<b>Nr. 5</b>	<b>alle Tourer up 1:11</b>	<b>6°</b>	<b>Nr. 3</b>
<b>all Sportler</b>	<b>till 1:10</b>	<b>8°</b>	<b>Nr. 2</b>	<b>alle Sportler up 1:11</b>	<b>7°</b>	<b>Nr. 1</b>

With maximum driveability and the smoothest engine run is the tuning complete. With compression-ratio over 1:10 you should use radio compressed spark plugs.

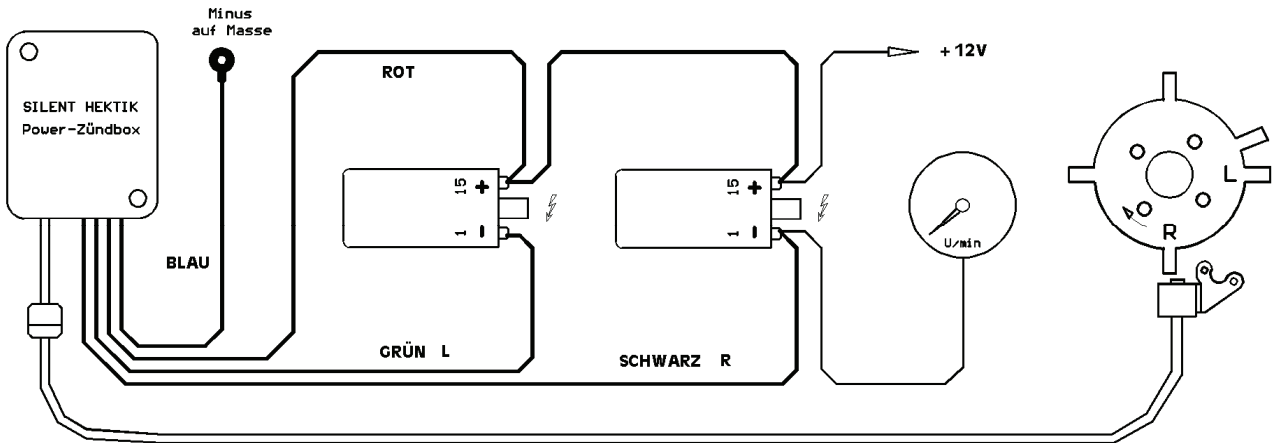


MotoCoil 2.7Ω 120mJ 21kV



TwinCoil 2.2Ω 160mJ 42kV

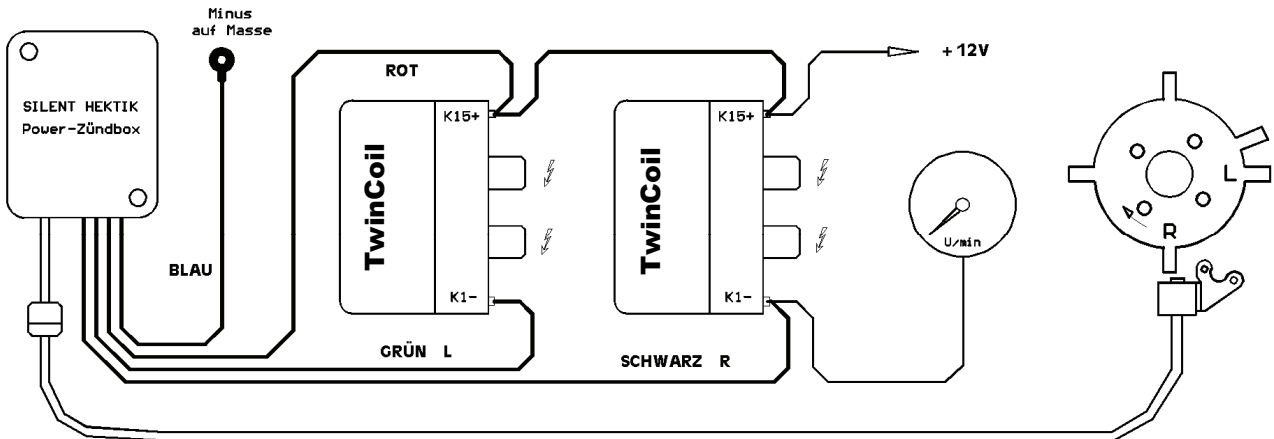
**Connection diagram for single-spark :**



rev counter for camshaft speed = on gray cable  
 Basic - ignition without a switch : for Calis 4°-6°BTDC stat.  
 On the TEC ignition-coils the plus is black.

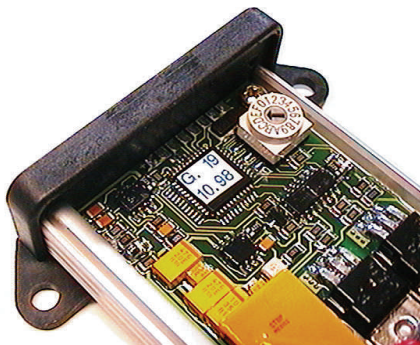
rev counter for crankshaft speed = on coil minus  
 for LMS 8°BTDC stat. = controll at 1200 RPM

**Connection diagram for twin-spark :**



BLAU = blue      ROT = red      GRÜN = green      SCHWARZ = black      LINKS = left      RECHTS = right

**IGNITION TIMING RANGES AND BOX - DIAGNOSIS:**



By undoing the four screws on the bearer angle, the top cover can be removed.

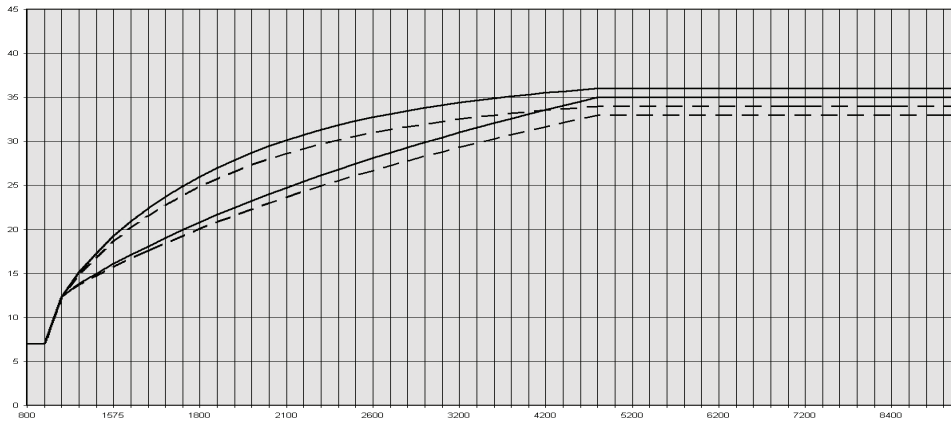
The switch for the ignition lines, range 0 to 15, is inside the box.  
 Take the appropriate timing-curve from the diagramms.

There is also a diagnosis interface in the form of a light diode:

- |                      |   |                                 |
|----------------------|---|---------------------------------|
| Ignition off         | = | LED off                         |
| Ignition on          | = | LED blinks to switch position   |
| Start with > 7V      | = | LED blinks at half engine speed |
| Start with < 7V      | = | LED don't lights at BTDC        |
| Start with > 120 RPM | = | LED blinks at half engine speed |
| Start with < 120 RPM | = | LED blinks to switch position   |

Die 16 Zündkurven der **PowerBlock** - Zündung ab Version PB\_43

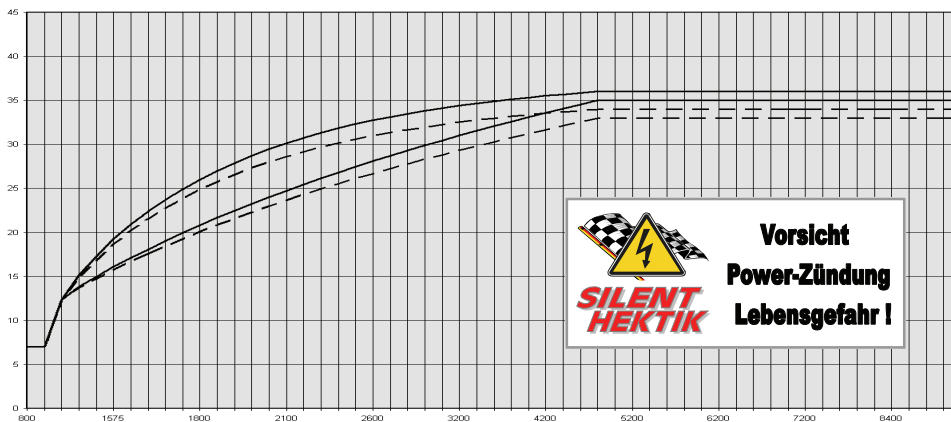
Schalterstellungen:



7° vOT statisch

Nr.	<b>F</b>	36°	L
Nr.	<b>E</b>	35°	S
Nr.	<b>D</b>	34°	L
Nr.	<b>C</b>	33°	S

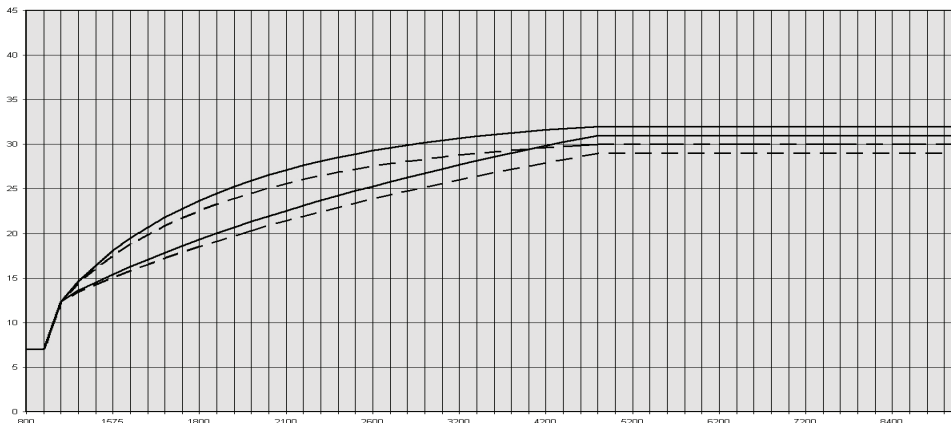
11700 U/min max.  
TwinCoil D-Well



7° vOT statisch

Nr.	<b>B</b>	36°	L
Nr.	<b>A</b>	35°	S
Nr.	<b>9</b>	34°	L
Nr.	<b>8</b>	33°	S

11700 U/min max.  
TwinCoil D-Well

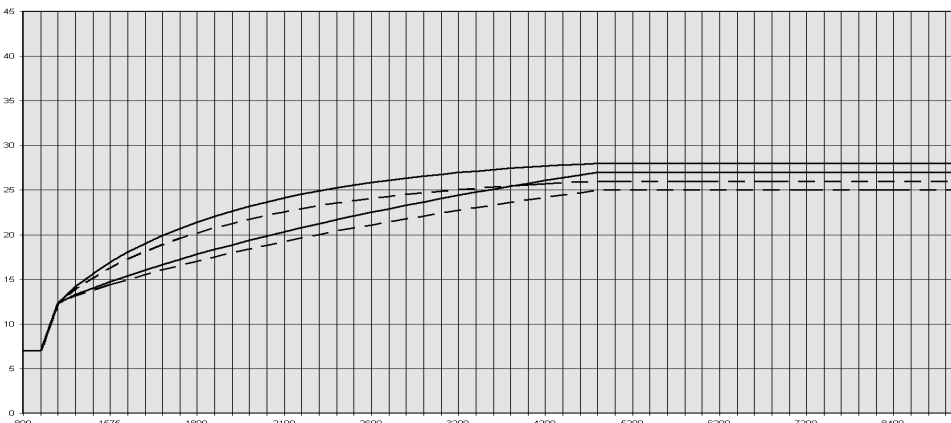


7° vOT statisch

Nr.	<b>7</b>	32°	L
Nr.	<b>6</b>	31°	S
Nr.	<b>5</b>	30°	L
Nr.	<b>4</b>	29°	S

11700 U/min max.  
TwinCoil D-Well

Twinspark bei 4° vOT



7° vOT statisch

Nr.	<b>3</b>	28°	L
Nr.	<b>2</b>	27°	S
Nr.	<b>1</b>	26°	L
Nr.	<b>0</b>	25°	S

11700 U/min max.  
TwinCoil D-Well

Twinspark

# **SILENT HEKTIK**

**INJEKTIONS IGNITIONS COILS SPARK-PLUGS REGULATORS TOOLS**

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