PowerBlock Ignition Systems

ASSEMBLY INSTRUCTIONS V2 - 90° one Pickup

E_PB_V2_90_46 © Sep. 2014

16. Dezember 2015

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 resoloution (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 voltage 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 responce; 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 vehichles 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 of 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 vehichle 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.

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 surpressed 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 surpression (also for alternator-regulator), especially with old contact-regulators.
Protect all connectors form 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 2-3Ohm should be used -> Gauranteed 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.

ASSEMBLY OF THE PICKUPS AND THE ROTORS:

For the assembly of the rotor, please ensure the vehicle is on the crankshaft. Use the original screws. Please inspect the locating surface of the rotors and remove all possible metal shavings that can occur through spring washers.
For Ducati timing belts, the Kokusan-Pick-up can be used:

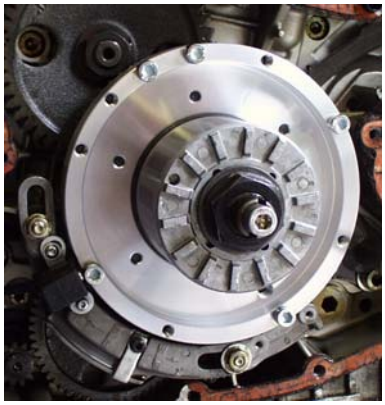
Sensor-Plus = yellow Sensor-Minus = black

We recommend allways the Silent Hektik Pickup :
Sensor-Plus = red Sensor-Minus = black

The distance between the rotor and the pickup should be app. 0.3-0.6 mm (at all rotor wings). The default mechanical setting assumes a static ignition point of app. 6°-8° BTDC for all models (please see photo on the right for vertical cylinder.
For the basic setting, please pull the vertical cylinder (as seen in the picture on the right) and move the ignition rotor's wing accordingly (as shown in photos). The leaving edge of the screw should be located centrally to the pickup steel core. Please keep in mind the direction of rotation!

Ducati beltdrive:	**right = vertical**	**left = horizontal**
Ducati bevel	right = horizontal	left = vertical
Guzzi	right = right	left = left

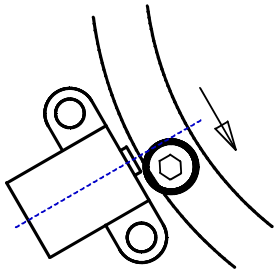
Check the static ignition timing with a strobolight at app. 1200 rpm.



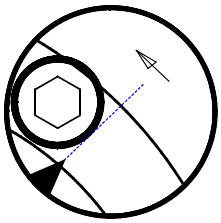
static adustment = leaving edge of the srew
in the middle of the pickup steelcore
for all singlespark ignitions 6° to 8° BTDC

ASSEMBLY OF THE IGNITION BOX AND IGNITION COILS:

The ignition coils replace the existing ones. Depending on the model, the bracket/ mounting will fit. Make sure that the distance from the pick-up lead and the ignition box to the ignition coils and ignition wires is maximised (at least 10cm) to prevent radio interference. The ignition box and the engine case must have excellent grounding with the battery.
To ensure an optimal ignition system, the distance between the ignition plugs electrodes needs to be 0.5 – 0.7mm. Please only use interference-suppressed inductor and ignition plug connectors with a minimum of 5kOhm resistance and/ or resistance-ignition cable.
All possible interference must be supressed in order to guarantee a smooth operation of this fully-electronic equipment. This is especially important for old contact-alternator controllers. Protect all electrical connectors with appropriate grease in order to protect them from dampness and humidity. Never use battery-pole grease as it is alkaline. Soldered Crimp-connectors lead to hairline cracks and malfunctions due to the engine vibrations. Also, faulty 'kill-switches' on handlebar controls and side stands switches are often a source for disturbances and interferences.
Only ignition coils with a primary resistance of 2-3 Ohm must be used – otherwise this will result in a loss of warranty!!
When the engine is stop, the module will be automatically turned off, please keep this in mind when working on it. Older tachometers can be connected to the grey outlet of the box (which box?). Please note that the box will not be damaged if you try to connect a tachometer.



static timing app. 6°-8° BTDC
all Modells - Singel- & Twinspark



check the static timing with a strobolamp on the vertical cylinder at app. 1200 rpm

ADJUSTMENTS:

For the basic setting, ALL single spark ignitions ('normal ignitions') have 33° curves (switch_1 right top): For touring use - No 8 for sports use - No 7

If the engine pings, which can be caused by bad petrol or sidecar use, please use a shallower curve.
To tune a twin spark-ignition (Dual ignition), a high level of experience is needed. It is best to follow the instructions of the tuners. If you do decide to tune it yourself, please start by using the following settings:

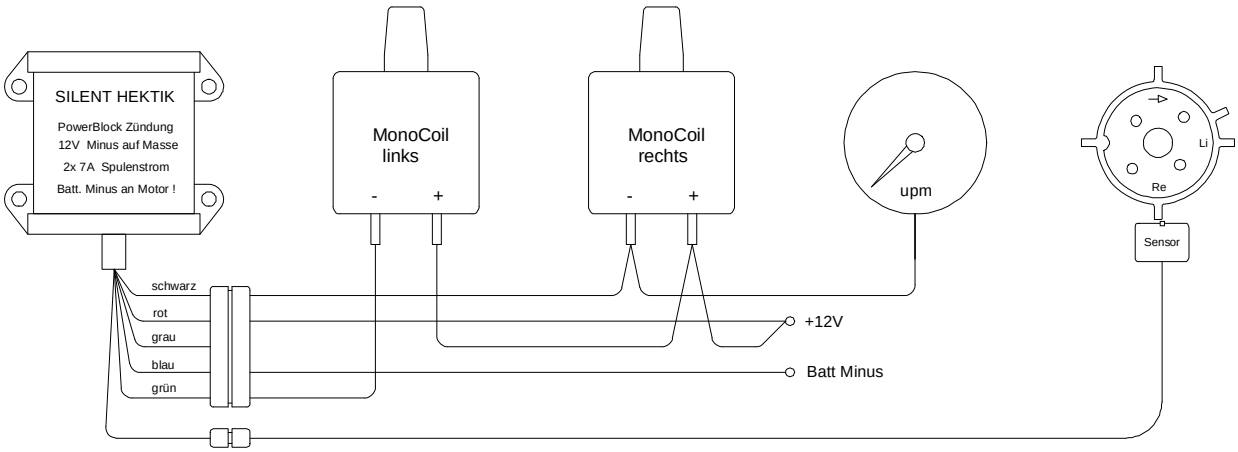
For touring use till 1:10 4°-6° - No 4, for touring use from 1:10 6°-8° - No 3, for sports use till 1:10 6°-8° - No 2, for sports use from 1:10 8°-10° - No 1
The tuning is completed when the maximum driving dynamic with the smoothest running of the engine is achieved

The engine speed limiter can be adjusted with the switch_2, left centre:

0 = 6000 rpm	1 = 6333 rpm	2 = 6666 rpm
3 = 7000 rpm	4 = 7333 rpm	5 = 7666 rpm
6 = 8000 rpm	7 = 8333 rpm	8 = 8666 rpm
9 = 9000 rpm	A = 9333 rpm	B = 9666 rpm
C = 10000 rpm	D = 10333 rpm	E = 10666 rpm
F = 11000 rpm		

factory setting = 8

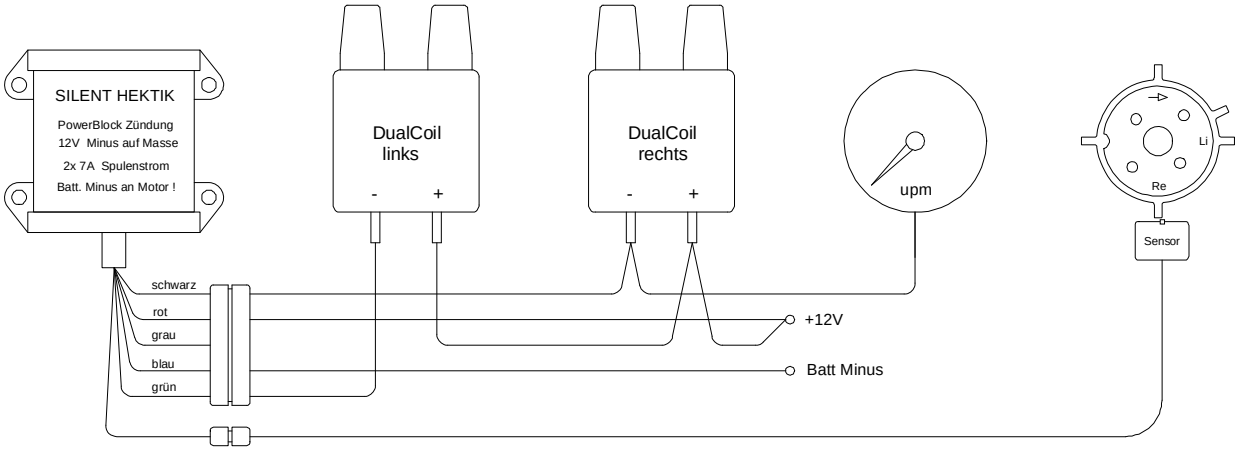
Connection diagram for single-spark :



rev counter for crankshaft speed = on coil minus On the TEC ignition-coils the plus is black.

trigger-rotor rotation for both diagrams is clockwise

Connection diagram for twin-spark :



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

IGNITION TIMING RANGES AND BOX - DIAGNOSIS:

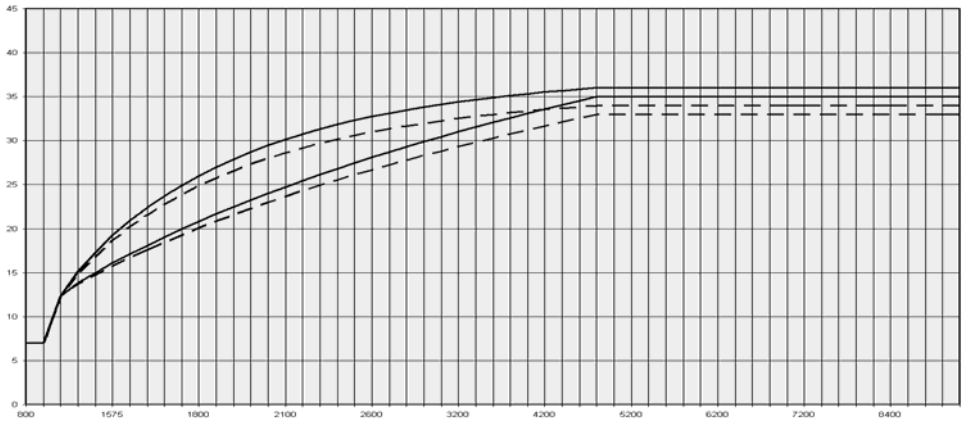
By undoing the four screws on the bearer angle, the top cover can be removed.

The right switch for the ignition timing, 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 the 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 Version PB_46

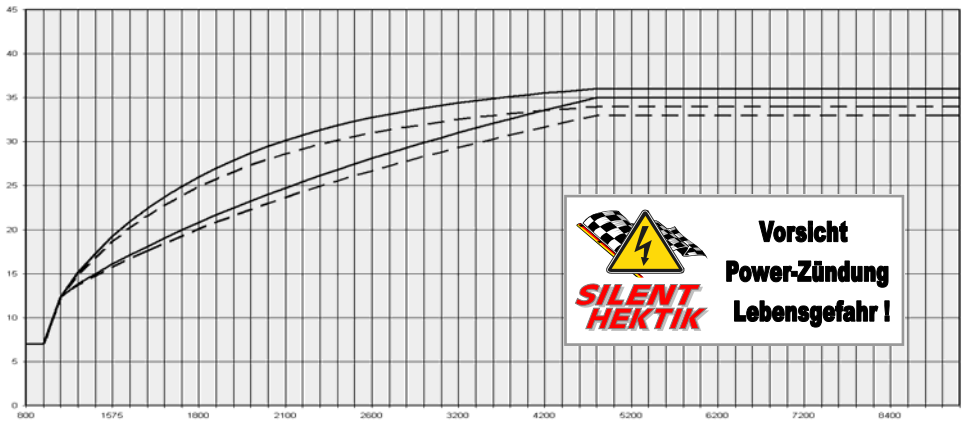


Schalterstellungen:

7° vOT statisch

Nr.	**F**	42°	L
Nr.	**E**	40°	S
Nr.	**D**	38°	L
Nr.	**C**	37°	S

MonoCoil D-Well

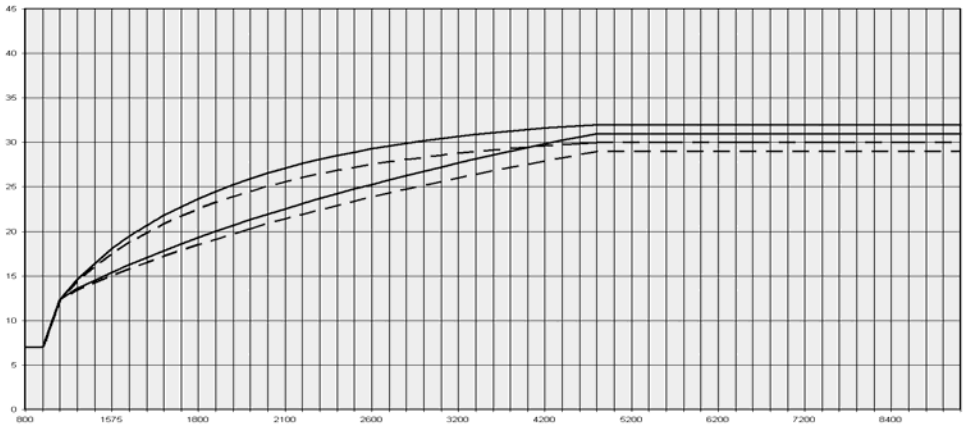


7° vOT statisch

Nr.	**B**	36°	L
Nr.	**A**	35°	S
Nr.	**9**	34°	L
Nr.	**8**	33°	S

MonoCoil D-Well

factory setting = 8

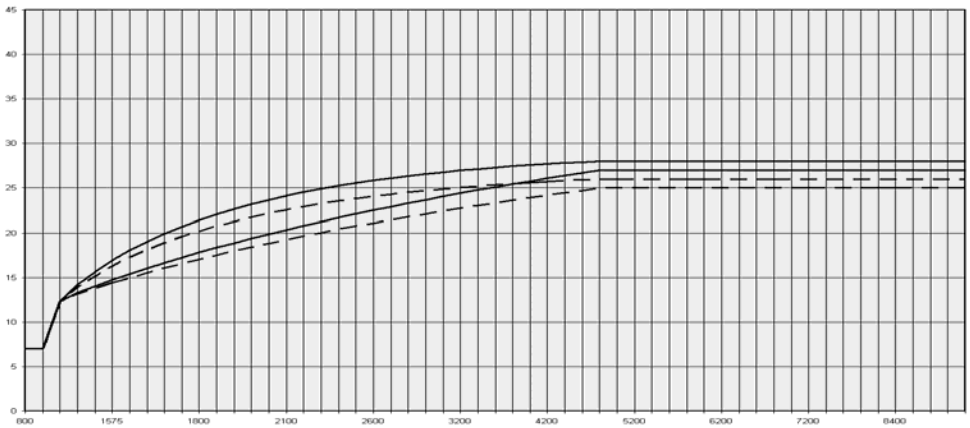


7° vOT statisch

Nr.	**7**	32°	L
Nr.	**6**	31°	S
Nr.	**5**	30°	L
Nr.	**4**	29°	S

DualCoil D-Well

Twinspark bei 2°-4° vOT



7° vOT statisch

Nr.	**3**	28°	L
Nr.	**2**	27°	S
Nr.	**1**	26°	L
Nr.	**0**	25°	S

DualCoil D-Well

Twinspark bei 6°-8°vOT

SILENT HEKTIK

INJEKTIONS IGNITIONS COILS SPARK-PLUGS REGULATORS TOOLS

... and the power will be with you !

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