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1 Function

The digital ignition kit ZDG3 replaces original electronic ignition units as well as old points including the weights advancer or manual advance wires.

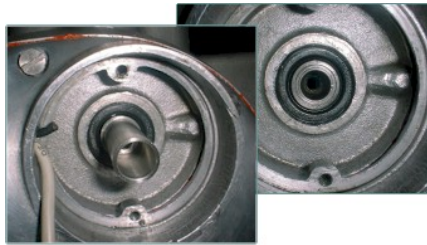
Function: Per revolution of the crankshaft starting from TDC, the momentary peripheral speed is determined and by this means, the time up to ignition is calculated. Because the peripheral speed varies substantially during acceleration, this long measurement is selected in order to determine a relatively exact measurement.

The computation of ignition timing is divided into 4 ranges:

Range	Function
0 – 400 rpm	Starting range, ignition always at TDC
400 – 1000 rpm	Idling range, 2° to 8° advanced ignition, depending on curve selection
1000 – 6200 rpm	Partial load range, the spark advance adjustment occurs here
6200 – 12000 rpm	Maximum load range, constant maximum advanced ignition, depending on curve selection

2 Mounting

- Remove the contact breaker plate and the mechanical advance unit and fit the driver sleeve.
- Now comes the hard part of the assembly, because the connecting cable of the pickup must be led through the engine. There are two possibilities: either the old wire will act as a pull wire, connect the two ends (pull wire and sensor lead) using electrical tape and then pull the line out through the housing. Often it works even. Or remove the crankcase cover, sometimes the faster method.
- Then insert the circuit board and fix it with the original screws. Finally, put the magnetic disk onto the driver, but don't tighten the set screws in the disk.



1

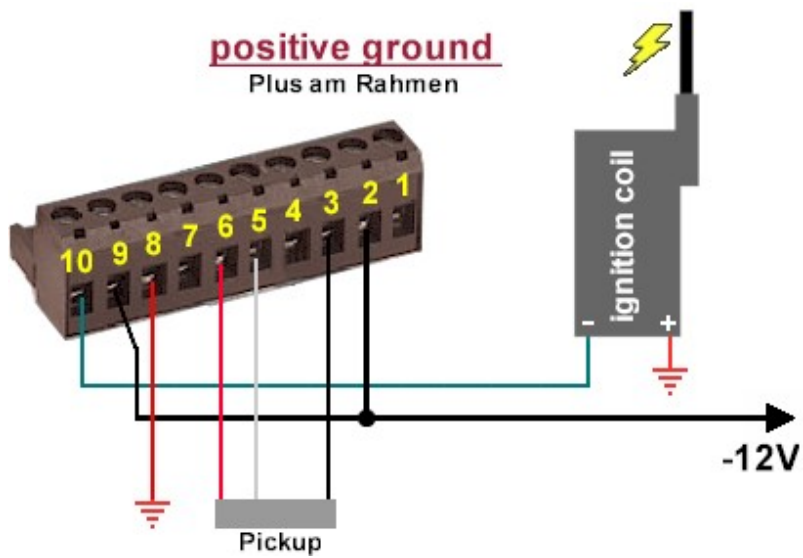
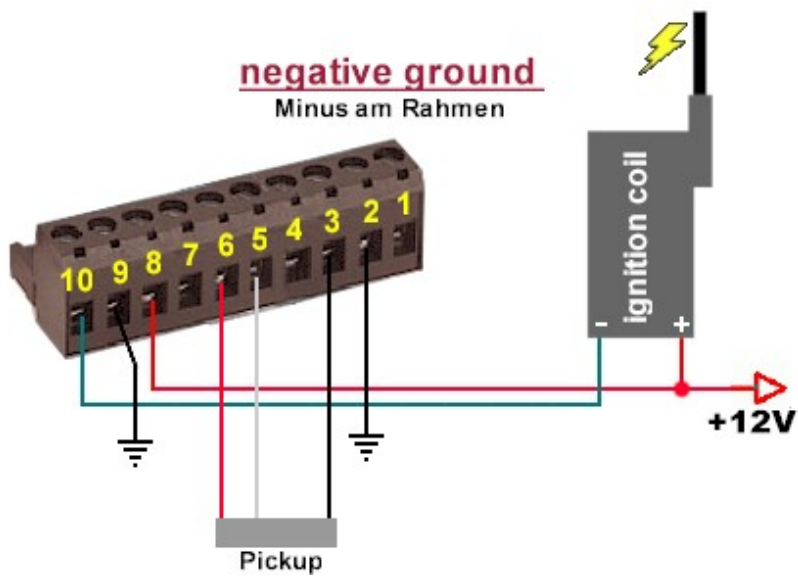


2

3 Electrical Connections

The wire cross section of the ground cable should not be below 1.5 mm^2 and should be kept as short as possible. The wire cross-section of the other cables should not be below 0.5 mm^2 .

Attention: Please do not shorten the pickup lead and use insulated wire end ferrules on the other cables!



The original ignition coil can be used, a new one should have a primary resistance (measured between the connections) of 2-8 Ohm!

Connector	Function
1	Ignition coil –
2	Ground
3	Pickup lead, brown
4	Pickup lead, yellow
5	Pickup lead, white
6	+12 V supply voltage, switched

4 Settings

- Bring the piston into TDC position
- Turn the 'S'-marked Magnet close to the sensor. Take care that the magnets in the disk are approximately in the same height as the sensor.

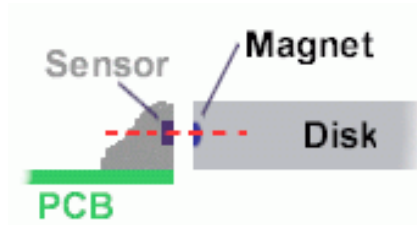
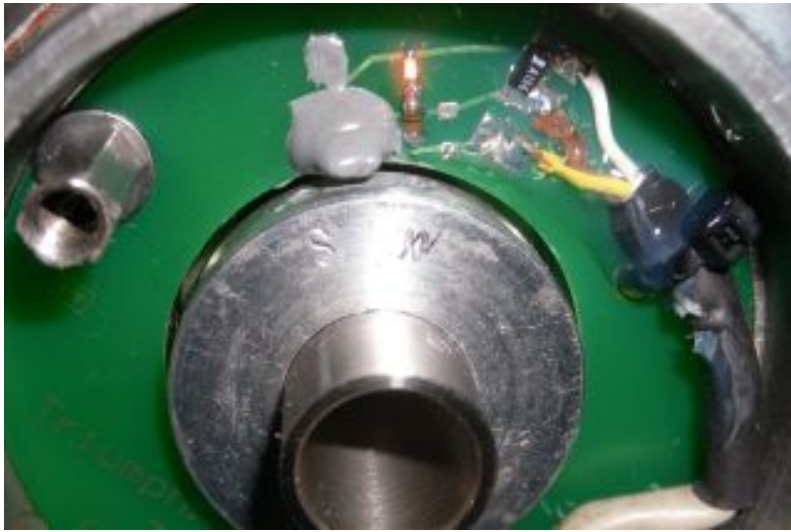


Figure 1

to the 'S' marked magnet.

- Turn on the ignition switch
- Go on turning the disk. The LED near the sensor should light up at the 'S'-marking. (It is possible that the LEDs already indicating at power on)
- Slowly turn the disk to the 'N'-marking until the Led is switching off. The disk is in the correct position and can be tightened by the set screws
- Notice: you can't switch the LED on only by turning back. Therefore the disc must be turned back



1

The advance curve selection switches shown in the image, is currently in test mode selection.

The ignition curves can be set using the two DIP switches at the side of the box. Curve No. 0 is a test mode in which the box continually fires without the engine running. This tests the installation of the unit and coils. But it doesn't test the pickup. DIP switch flipped *down* means OFF, DIP switch flipped *up* means ON.



Figure 2 DIP switches and advance curve selection.

1	2	
off	off	Test mode
on	off	Curve number 1
off	on	Curve number 2
on	on	Curve number 3

5 General Notes / Troubleshooting

Only use interference-free caps for the spark plugs! Recommended are NGK caps with 5 kΩ internal resistance.

Doesn't start: If the engine should not start, or the engine kicks back, then the ignition coils are mixed up. If so, swap the ignition cables which lead to the spark plugs or reconnect the external ignition coils. As a general rule: each time when a piston reaches TDC also

the corresponding plug must have a spark. To check the cable connecting and the supply voltage turn the rotary switch to '0'. Now the spark plugs must fire continually. If now the rotary switch is turned again on a level you can easily check the timing with a strobe only by activating the starter (without plugs in the cylinders). If the engine should not start with slowly turning starter, probably the battery voltage falls under the minimum supply voltage of the ignition (approx. 7 V).

Irregular engine cutouts: If sometimes the engine suspends while driving for 2-3 seconds and keeps running thereafter normally. That means that the ignition has been reset. The cause for it can be a defective cap or a loose ignition cable in the coil or cap. But in most cases a bad contact in the operating voltage supply (kill switch, starter lock, fuse holder, terminals etc.) causes this effect. For a test you can connect a cable directly from the ignition coils and the ignition box to the positive terminal of the battery. Also put a second cable from the negative terminal of the battery to the ignition box (secure ground connection). If the engine is running well now you can assume an error in the wiring harness. With contact brakers such a bad contact is not noticeable, because a short break for a few milliseconds of the supply voltage doesn't matter, electronics in contrast are more sensitively.

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