DMC Ignition installation manual 120 degree motor

Installation requirements

The electrical requirements are as folowed

1. A full functionell batterie with a high enough capacity to start the bike without dropping lower then 5 volts during starting.
2. To avoid interferences which could confuse the ignition computerbox , we recommend using resistor plugcaps .
3. The electrical should be in good funcional condition.

Mecanical installation

Remove the following parts of the original Bosch ignition:

Bosch ignition boxes (3 pieces)
Wiring harness of the ignitionboxes
Ignitionrotor, pickups with pick up plate
If you have resistors mounted to the ignition coils , remove them too.

Installing the new ignition

Bolt photocell to new base plate and install the complete plate . Position like in drawing below.
Install the new rotor to the crankshaft. Check clearance between rotor and photocell, if needed move photocell to get clearance even to the rotor.
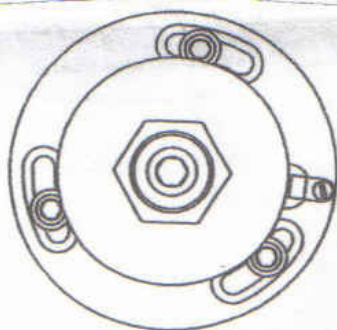
Baseplate with photocell
notice installing position of plate

The best place to install the new ignition computer is where three old boxes where located .
Bend the tongue to get a flat mounting plate.
Drill three holes to mount the new ignition box..

Electrical Installation

The wiring diagram shows all the electrical connections . The installation is easy , because the prefabricated wiring harness icludes most of the connections .
Connect the RED wire to the 12 volt + side of the ignition coils.
If your igniton coils cause a to high interference the RED wire must be connected directly to the on/ off switch
 The BLACK wire should be connected directly to the negative pole of the batterie or to a clean spot on the frame.
The other wires connect same as in the wiring diagram.

5. Use a 2 inch piece of 2 mm thick wire to bend a indicator . Bolt indicator with one of the 5 mm allenhead screws to the top bolthole of the pickup cover . (see drawing below)

Bend the indicator close to the ignitionrotor , install a mark on the rotor coresponding to your indicator arm.

Do not bolt the indicator to the photocell baseplate, the arm would move when you turn the plate to adjust the ignition.

Make sure your crankshaft has not turned and you are still in the 32 degree BTDC position.

Indicatorarm
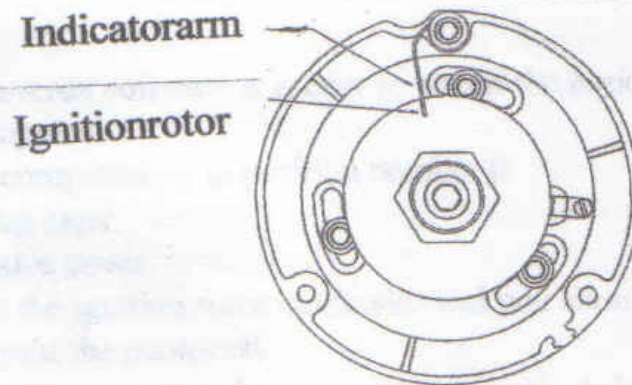
Ignitionrotor

6. Turn the baseplate to position the photocell in the center of the wide slot in your igntiion rotor.
See drawing below

7. Tighten baseplate

Rotor

Grundplatte/Fotozelle

Baseplate
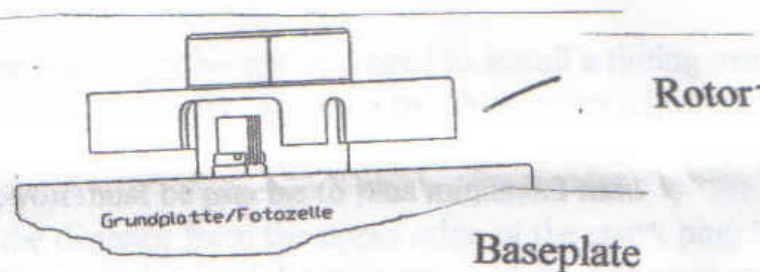
Test run

1. Check wiring and mecanical installation

2. Switch computer to igntion curve # 1 (switch position between 0 and 2)

3. Start the engine and warm up the motor

4, Rev the engine up to 4000 rpm. and check the ignition with a timing light . If necesary , adjust the baseplate align indicator arm and the timing mark on the rotor at 4000 rpm.

At idle speed (about 1000 rpm.) the ignition point switches between 0 and 8 degrees before TDC .

The idle speed regulation system is active now. With increasing revs the ignition should move to maximum advance 32 degrees at about 3000 rpm.

5. Stop the engine and adjust the ignition curve you want . Plug the hole with the supplied plug and cover the plug with a stripe of ductape to make sure no moisture can get to the switch.

Use only the supplied full metall connectors they have proven as the most reliable connectors. To crimp the metall connectors a inexpensive crimping plier is available from Radio Shack part # 64-410 or we can supply it too.
Do not solder , soldered connections tend to brake from vibrations .

Test of Functions

With the testprogram of the Laverda software it is easy to check the basic functions of the photocell, coils and igntioncomputer.
1. Put the microswitch on the computerbox in position number 0
2. Put the sparkplugs in the plug caps
3. Ground the plugs to your valve cover.
4. Switch on the ignition , turn the ignition rotor clockwise and you should have a continous spark when the cutouts in the rotor pass the photocell.

Do not touch the spark plugs during the test , high voltage could cause serious injuries.

Ignition adjustment

Before you can check the timing with a strobelight you need to install a timing mark first
How to istall a 32 degree advance timing mark. and do a rough ignition adjustement.
1. Switch of ignition
2. Turn the left piston to TDC, you must be precise to plus minus 0.3 mm.
3. With a caliper rule measure the distance from the upper edge of the spark plug hole to the top of the piston. Stay paralell to the central axis of the cylinder. Add 7mm to your measurement X.
4. Turn engine close to one turn and adjust the piston to your measurement X + 7mm.(see drawing below) Now the piston is positioned to 32 degree BTDC (equals 7mm BTDC)
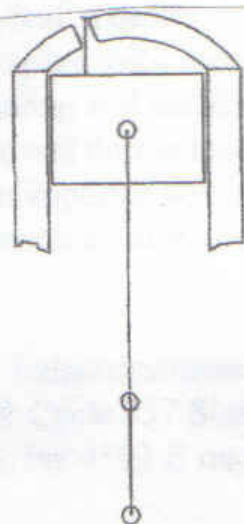
Distance X   Distance X plus 7 mm
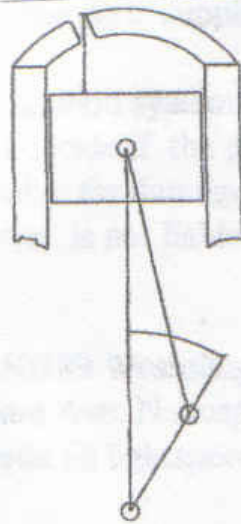
Adjust piston to 32 degree before top dead center

Chosing the best advance curve

Finding the best advance curve for you motor is influenced by different engine specifications. It needs some experiance to get the best results. For example engines with high compression should run a lower advance curve in the hot summer months . In the cooler time of the year a curve with more advance can be chosen.

This is one reason to have 15 different curves available . The curves can be switched with running engine .

The number one curve is the serial advance curve, which is very steep. To have a smooth and pinging free running engine a more flat curve is usually the better choice.

Consider the folowing experiances we have made on lots of Dyno and road tests.

At lower rpms up to 4000 revs. to curve should be oriented towards a smooth and pinging free running engine.

High compression motors work very good with a more flat advance curve.(a flat curve also works very good with the 120 degree crank Laverdas since they have the best torque at low and midrange of all triple motors)

We have reched optimum power, at high revs on the dyno ,with the following adjustments.

Compression ratio (engines with single spark plugs)

8: 1 for example Laverda 1200 with serial pistons 36 degrees

9: 1 for example Laverda 1000 with serial pistons 34 degrees

10: 1 for example Laverda 1000 SFC   32 degrees

10: 1 for example Laverda 1200 with HC pistons 30 degrees

11: 1 for example Laverda 1000 with very high compression pistons 28 to 30 degrees

We have not found any improvement on triple motors with dual spark plugs.

The optimum would be allways to find a individuell curve for each motor on the DYNO , which is only possible with a lot of extra work.

Warranty

Warranty on the parts is 6 months. Warranty starts at the date on your sales invoice.

Give us notice when you find a defect on any of the parts supplied with your ignition kit .

Include a copy of your original sales receipt.

If no error was made handling and installing the ignition system , the parts will be replaced free of charge. The manufacturer will do the testing and decide if the part is warantied.

The manufacturer and the importer will not be liable for damage that could happen using the DMC ignition. Also the manufacturer and importer is not liable if the ignition does not conform with any law.

Mnaufacturer Moto Witt Industriestrasse 53 A 50389 Wesseling Germany

Importer Columbia Car & Cycle 357 Shakes peare Ave. Nakusp B.C. Canada VOG 1RO

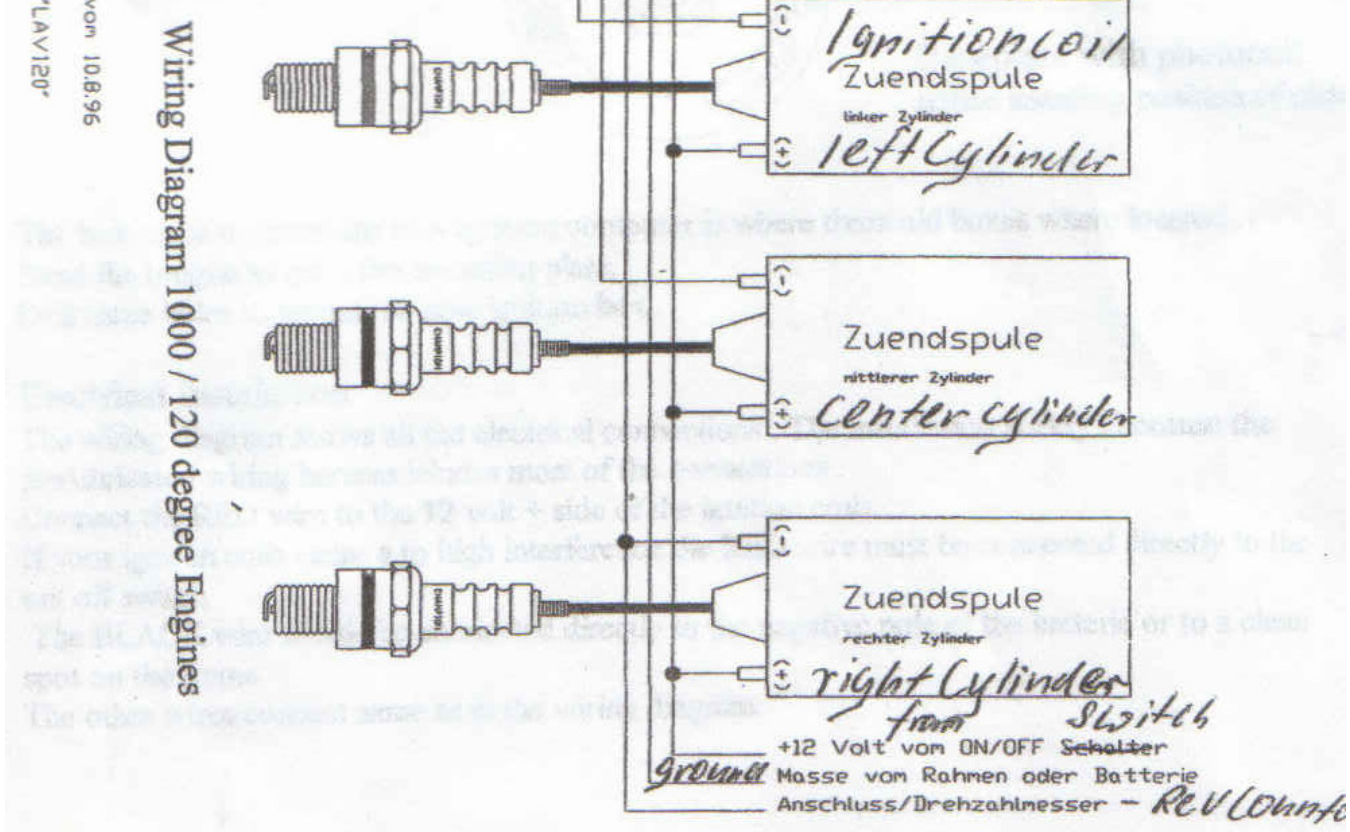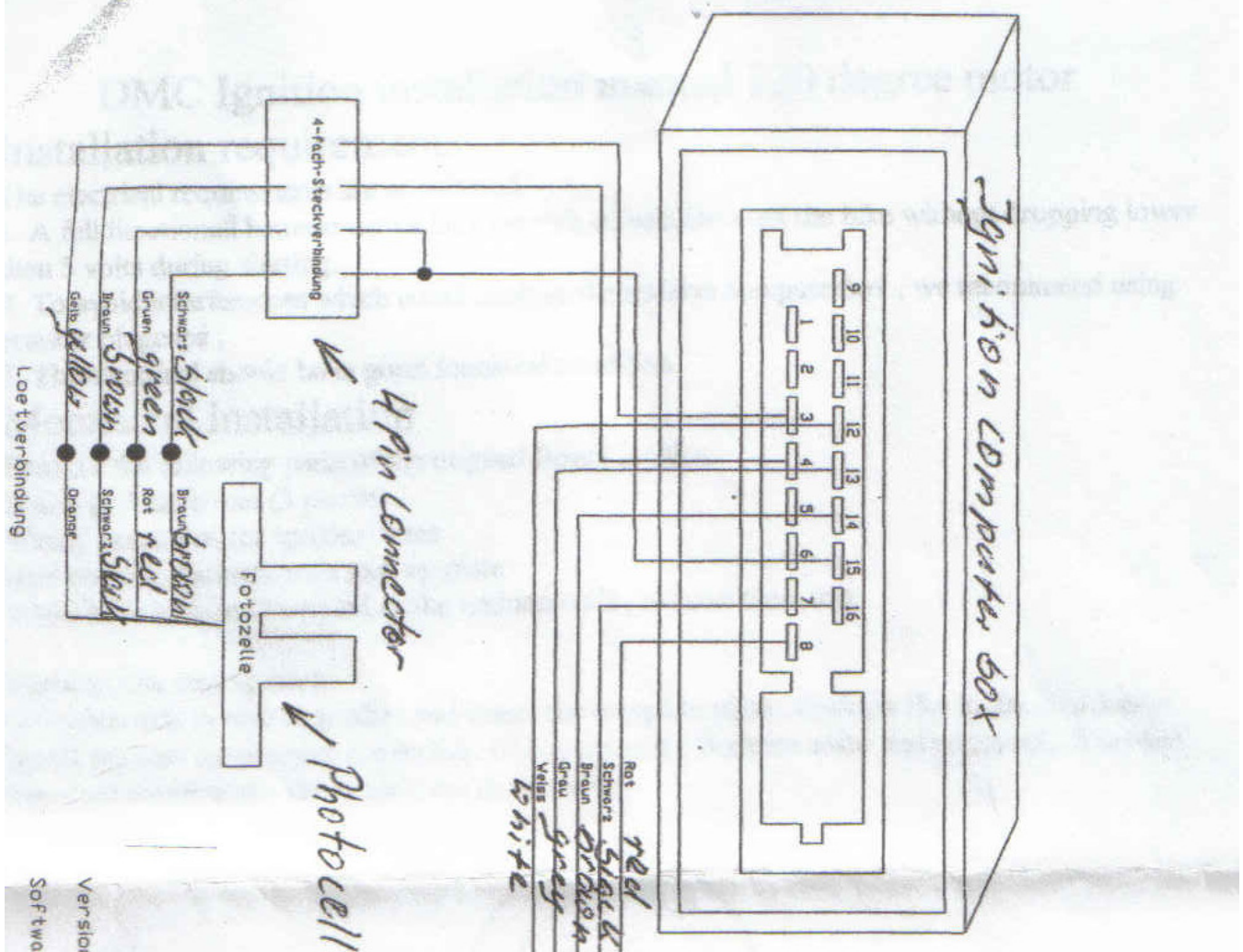Ph. 250 265 0165 or ph& fax 4502 E mail Laverda @ lightspeed .ca

Codeswitch

Located on the frontside of the DMC computerbox is a hole with about half inch diameter. At the bottom of the hole the is the microswitch to adjust the ignitioncurves. This little switch has 16 different positions, the numbers start with 0 ,next is a bar wich is number 1, then comes number 2 for the curve 2 , then a bar for curve number 3 and so on until you reach the bar behind number 8 (ucrve number9) now the switch changes to letters , so curve number 10 is a A, curve number 11 is the next bar and so on, same as with numbers before.

Position 0 switch position 0 (testprogram)
     1 bar between 0and 2
     2 switch position 2
     3 bar between 2and 4
     4switch position 4
     5 bar between 4and 6
     6 switch position 6
     7 bar between 6and 8
     8 switch position 8
     9 bar between 8 and A
     10 switch position A
     11 bar between Aand C
     12 switch posititon C
     13 bar between C and E
     14 switch position E
     15 bar between E and 0

Allways use a small screwdriver wich fits the slot in the switch.
Seal the switch hole with the supplied black plastic plug and ductape on top, to make sure, water and dust cannot get to the switch.

4-Pach-Steckverbindung

Schwarz black
Gruen green
Braun brown
Gelb yellow

Loetverbindung

Orange
Schwarz black
Rot red
Braun brown

4 Pin Connector

Fotozelle

← Photocell

Ignition computer box

Rot red
Schwarz black
Braun brown
Grau grey
Weiss white

Ignition coil
Zuendspule
linker Zylinder
left Cylinder

Zuendspule
mittlerer Zylinder
Center cylinder

Zuendspule
rechter Zylinder
right Cylinder
from Switch

+12 Volt vom ON/OFF Schalter
Ground Masse vom Rahmen oder Batterie
Anschluss/Drehzahlmesser – Rev Counter

Wiring Diagram 1000 / 120 degree Engines

Version 1.0 von 10.8.96
Software : "LAV120"