



Delivery Scope:

- Rotor, suitable for Varitronic flywheel fan or similar
- Stator, CNC milled stator mounting
- DC regulator, usable with or without battery
- Ignition control unit with 16 ignition timing curves
- Ignition coil
- Bracket to block the rotor
- Mounting screws and connectors
- (Plastic Flywheel fan)

Disclaimer:

FOR RACING USE ONLY! Not for highway use! This ignition is changing your ignition timing point. A wrong timing point will damage your engine! We do not assume liability for any damages on vehicle, engine or persons!

Mounting / Connection:

Stator

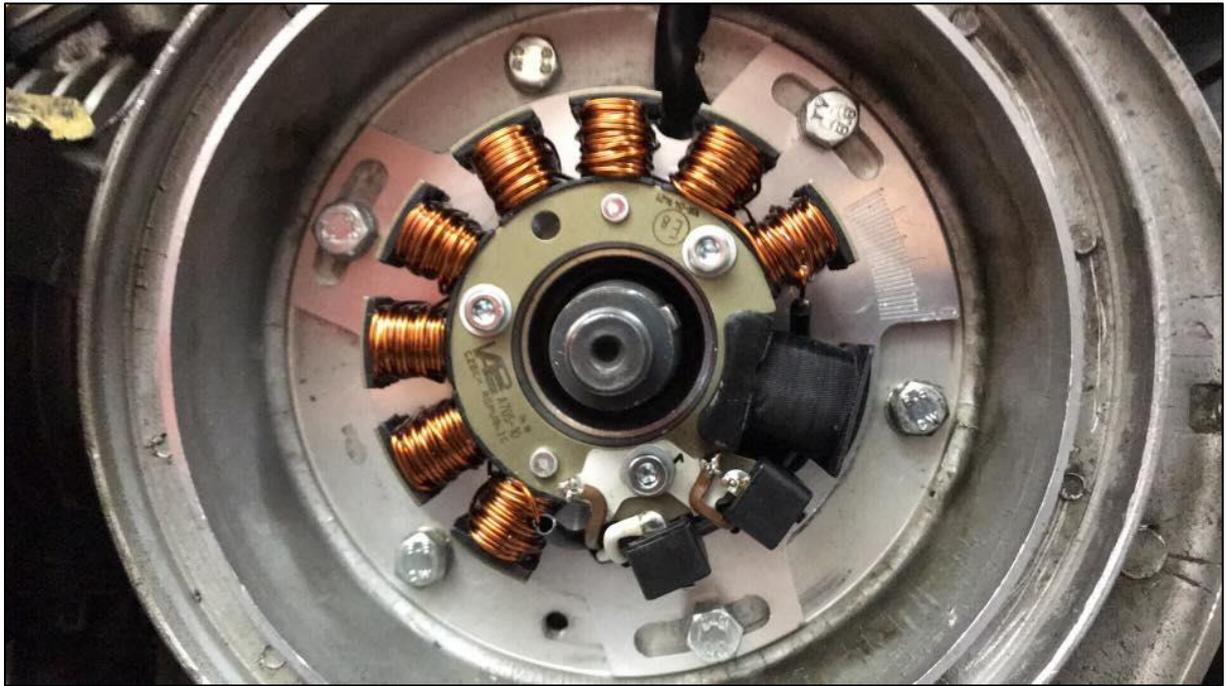


Abbildung 1 – stator on mounting plate

Chamfer sharp edges, pull the cables through the oval hole and mount the stator as shown in Picture 2 (Ignition coil near to the scala). Use Loctite or similar screwlock and tighten the screws with 3Nm.

Please assure that the stator has contact to the aluminum mount all over. Pull the cable through the cable-hole in your engine and mount the connectors (matching cable colors!)

Cable colors:

Black (big 2x connector) = light coil

Black (big 2x connector) = light coil

Red (small 2x connector) = ignition energy

White (small 2x connector) = ignition timing signal

Brown (cable lug) = ground

Rotor

Assure that the cone of your crankshaft is in good condition. If that is not the case use an OLD flywheel and fine grinding paste to get a decent looking crank. If your crank is new, you normally do not need to fine grind the cone-connection to suit the Overrev ignition.



Abbildung 2 – mounted blocking bracket



Abbildung 3 – marked TDC

Clean crank and rotor cones with brake cleaner; mount the key in the crank and the rotor on the crank. Tighten the blocking bracket on the rotor with M6x12mm screws (NOT LONGER!!!) to hold the rotor. Tighten the crank-nut with 70Nm (52 ft lb).

Be nice to your cranktrain Do neither use a piston stopper nor a wheel gun.

Fit a piston stopper, slowly rotate the crank against it counterclockwise, make a scratch on the flywheel at the "0°" mark on the stator mount, rotate the crank clockwise, make another scratch at "0°". Use a caliper to mark the middle of the two scratches. This is the top dead center of your engine. Mark positions 17° / 18° and 19° before TDC.

Remove the piston stopper and mount the spark Plug to check the timing



Abbildung 4 – TDC mark for pre-adjusting the Ignition

For PRE-Adjusting, rotate the stator likely wise that the line on the rotor and the mark on the stator mount are aligning in TDC. This setting represents 18° BTDC with Ignition curve #1.

The Ignition NEEDS to be fine-tuned with a timing stroboscope gun. Due to manufacturing error the timing can be incorrect by roughly 3° crank angle!

Ignition Coil

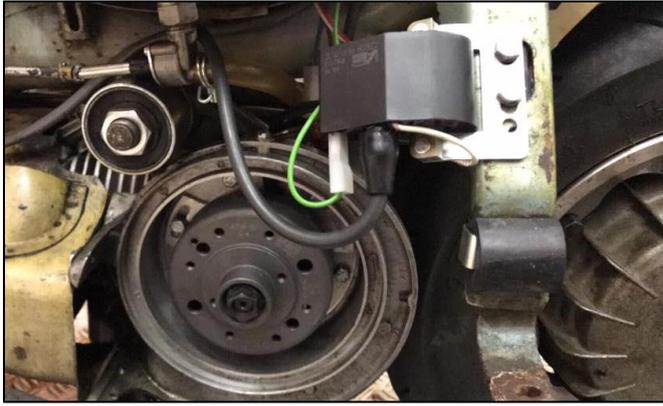


Abbildung 5 - Zündspule

Please make sure to mount the ignition on electrical ground. Otherwise pull a cable from the mounting point to your engine.

Screw in the ignition cable.

Cable-allocation:

1x connector = green cable from CDI

Regulator



Abbildung 6 - Regulator

Whilst mounting, keep in mind that the regulator will get hot! Mount it direct on your frame.

Cable-allocation

Black1 (big 2x connector) = light coil

Black2 (big 2x connector) = light coil

Brown (1x Connector) = - ground

red = +13,8 Volt

Mounting example for electrics



Abbildung 7 – The Regulator suits perfectly on the carrier screws on some models



Abbildung 8 – CDI (controll unit)

CDI (controll unit)



Abbildung 9 - Overrev controll unit

Cable-allocation

Red (small 2x connector) = ignition energy

White (small 2x connector) = ignition timing signal

Green (1x connector) = to ignition coil (**NOT THE KILL CABLE!!!**)

Blue-white (1x connector) = KILL when closed to ground

Brown (cable lug) = ground

Please assure that all ground points have electric connection to the frame of your scoot. An extra ground cable from frame to engine is not mandatory as it is the brown cables job.

Ignition Timing Curves:

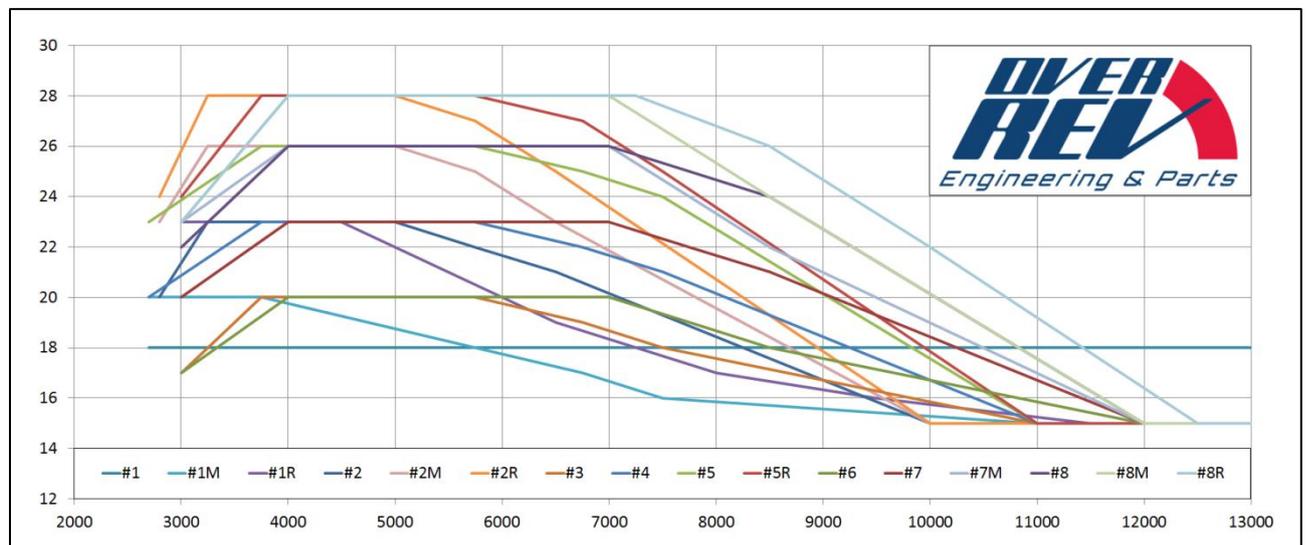


Abbildung 10 – Timing Curves of the „Overrev 2018“ ignition controll unit

Bigger in Appendix, or online at <https://www.germanscooterforum.de/topic/349810-overrev-2018-für-lambretta/>

Curves are to choose as following:

#1 = 0000	#5 = 1000
#1M = 0001	#5R = 1001
#1R = 0010	#6 = 1010
#2 = 0011	#7 = 1011
#2M = 0100	#7M = 1100
#2R = 0101	#8 = 1101
#3 = 0110	#8M = 1110
#4 = 0111	#8R = 1111



Abbildung 11 – example picture – timing curve #2 (0011)

Adjusting the ignition / Putting into operation:

Preamble:

Ignition timing is affecting the temperature of your engine. Therefore it is important that you adjust the carburetor of your engine on timing curve #1 BEFORE you continue with this manual. A slightly rich adjustment is preferable.

If your engine is running too lean, you may damage your engine. If your carburation is way too fat, the effect of a variable ignition timing point is not developing its full potential.

Also: The higher the power density of your engine, the more your engine will benefit of variable ignition timing. An original PK50 / PX200 will have a small advantage of this ignition, a 35HP Falc Smallframe will benefit a lot.

Important: In general an earlier ignition timing requires a richer carburetor jetting.

Step 1:

Adjust the ignition to 18° with timing curve #1, mount the flywheel fan and cowling and adjust your carb slightly rich.

(When you use an Air-Fuel-Ratio-meter, be aware that a lambda probe is only measuring residual air. A two-stroke engine has ALWAYS residual air in its exhaust gas. If your engine is outside of its power band it's a lot of air, inside it is less. Therefore the probe is showing always a lean combustion even if the engine is properly jetted. Final word: Every engine requires its own adjustment).

Step 2:

Define the RPM range of your engine:

Engines with LOW RPM (Peak Power below 7500 RPM) use the timing curves #1, #1M, #1R and #2.

Engines with medium RPM (Peak Power at 7000-9000 U/min) use the timing curves #1, #2, #2M, #2R, #3, #4 and #5.

Engines with HIGH RPM (Peak Power above 8000 U/min) use the timing curves #1, #2, #5, #5R, #7, #7M, #8, #8R and #9R.

The addition „M“ to the timing curves defines curves for „medium“ engines: Daily drivers with a resonant chamber and a power density of over 80HP / liter. (For example a PX200 with ~20HP).

The addition „R“ means „racing“. These curves are designed for engines with highest power density (over 250HP / liter, for example a Falc Smallframe with 35HP). For long distance races these curves might be too extreme, as the pre-ignition in low rpm is quite extreme.

WARNING: An engine working in the „HIGH RPM“ range will run without issues on an ignition curve of the „LOW RPM“ range. But **an engine with peak performance at <8000 RPM will be damaged whilst using an ignition curve above #5. If you are not sure which curve to choose, stick with #1, adjusted to 18°!**

Step 3:

After choosing the correct RPM range of your engine and the inherent timing curves, try the curves in increasing number. Write down the timing curves with the „best“ result.

The optimal way to do it is on a dyno, with at least three runs for each timing curve (the temperature of your engine needs to be the same while starting a run, otherwise the results are worthless). If needed, change the jetting.

Step 4:

Remove the fan and turn the stator one degree to „early“ (**#1 \geq 19°**), check how your engine behaves with the chosen ignition curves. Afterwards rotate the stator to „late“ timing (**#1 \geq 17°**) and probably check a bit more extreme curves (higher number or „R“ instead of „M“ or „_“) what your engine likes best. While overlaying the power curves you will see the „best“ performance curve of your engine.

Step 5:

After the final adjustment of your ignition, it is commended to remove the fan and glue it to the rotor with a small amount of silicon sealant (for example Dirko HT). This prevents self-oscillating of the flywheel and therefore prevents damage or loosening of your fan.

Check if all screws are tightened:

Stator mounting plate into casing: 3-4Nm (2,2 -3 ft lb)

Stator on mounting plate: 3-4Nm (2,2 -3 ft lb)

Fan on rotor: 12Nm (8,8 ft lb)

Rotor on crankshaft: 70Nm (51 ft lb)

Fine tune your carburetor, if necessary.

Final Step:

Drive your scooter and listen carefully to the engine. If your engine starts knocking, rotate the stator 1-3° clockwise to a „later“ timing or change to a lower ignition curve.

We hope you have a lot of success in your races & enjoy driving our ignition.

Thanks for purchasing!

Kindest regards!



Braunschweig, April 2018

Referenzzündkurve #1 auf 18 [°KW vor OT]) geblitzt ergibt die folgenden Zündkurven

DIP code		0000 0001	
rpm1 / deg	#1	#1M	
CA BTDC	18	20	
	18	20	
	18	18	
	18	17	
	18	16	
	18	15	
	18	15	

0010		0011 0100 0101	
rpm1.3 / deg CA	#1R	#2M	#2R
3000	23	23	24
4500	23	26	28
6500	19	26	28
8000	17	25	27
9500	16	23	25
11500	15	15	15
15000	15	15	15

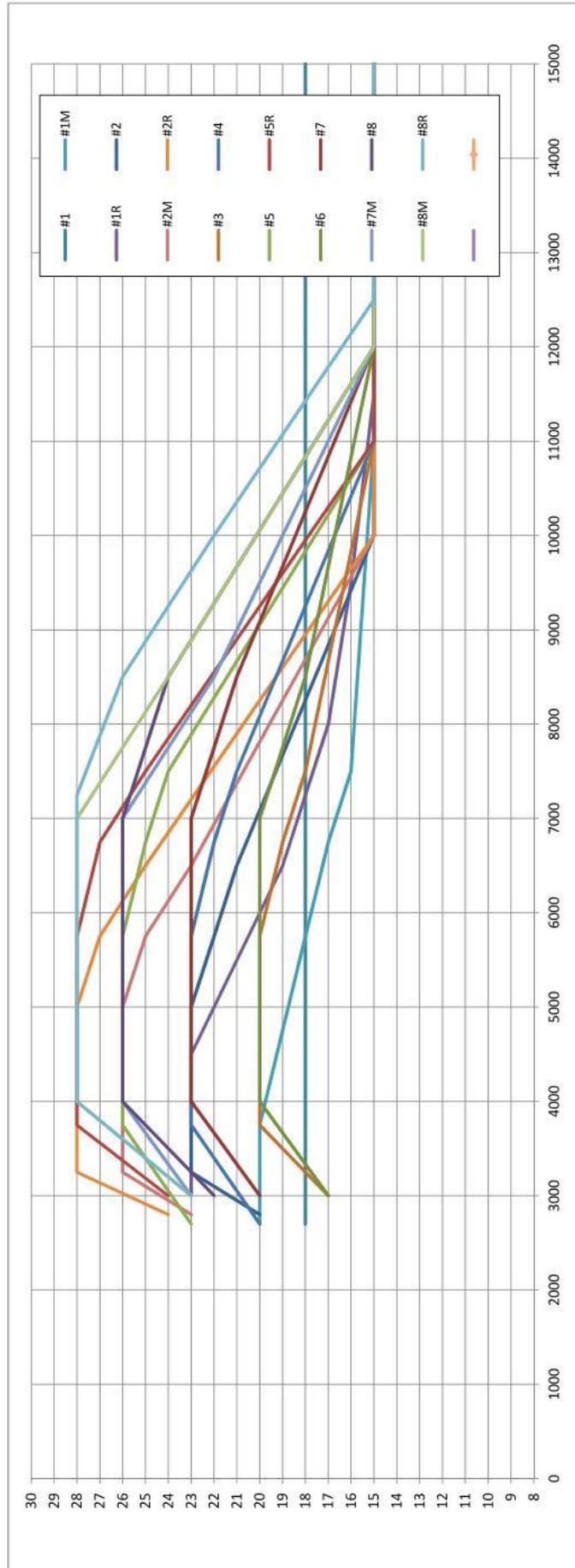
rpm2 / deg CA BTDC		0110 0111 1000 1001	
2800	#2	#3	#4
3250	23	20	23
5000	23	23	26
5750	22	22	25
6500	21	21	24
10000	15	15	15
15000	15	15	15

rpm3 / deg CA BTDC		1010 1011 1100 1101 1110 1111	
3000	#3	#5	#5R
3750	20	23	24
5750	20	23	28
6750	19	22	27
7500	18	21	25
11000	15	15	15
15000	15	15	15

rpm4 / deg CA BTDC		rpm5 / deg CA	
3000	#6	#7M	#8M
4000	17	23	23
7000	20	26	26
7750	20	26	28
8500	19	24	26
12000	18	22	24
15000	15	15	15



Please mark CDI with: "Overrev 2018"



How to choose

„Overrev 2018“

- #1 = 0000
- #1M = 0001
- #1R = 0010
- #2 = 0011
- #2M = 0100
- #2R = 0101
- #3 = 0110
- #4 = 0111
- #5 = 1000
- #5R = 1001
- #6 = 1010
- #7 = 1011
- #7M = 1100
- #8 = 1101
- #8M = 1110
- #8R = 1111

For a digital version of this manual, the datasheets of regulator, stator, CDI and an interactive timing table, please visit the German-Scooter-Forum.