

**bgme**®

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*IGNITION SYSTEM*

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*LAMBRETTA*

## BGM PRO IGNITION SYSTEM FOR LAMBRETTA

Thank you for purchasing the bgm PRO Lambretta ignition system or one of the parts of this system. We wish you many trouble free riding miles using bgm PRO electrical components. With this fitting instruction we would like to advise you how to fit it properly and show you all the options that are available.

A full bgm PRO ignition system consists of:

1. bgm PRO flywheel – Made in Germany
2. bgm PRO electronic stator plate
3. bgm PRO CDI unit
4. bgm PRO regulator

These fitting instructions are basically divided in two parts. First is how to set up the ignition timing, fit the flywheel and get the engine firing up. Second part is how to wire up the electrical system and get it work. Here we will show you three common options used on the Lambretta.

### SETTING THE IGNITION TIMING

Our bgm PRO flywheel is designed for best reliability, it is made in Germany and these are the key features:

- Torque of inertia 6240 kg / mm<sup>2</sup> (-5%)
- Weight dL/GP 2025 gramm
- Weight LI/SX 2051 gramm



Pictures shows AC version

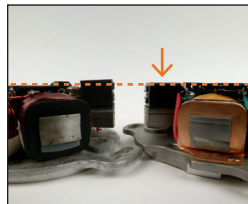


Pictures shows DC version

- Imbalance test < 100 gmm
- Burst test 24.000 rpm
- Better cooling

Basically it is recommended to use our flywheel with the bgm PRO stator plate for highest reliability and best power output. But it can be made to work with all other stator and ignitions components that are based on the original Ducati 6-pole layout. If there should occur problems these are down to manufacturing tolerances of all the different ignition parts, crankshaft tapers and woodruff key slots as well differences in magneto housings. Nine times out of ten problems can be solved by checking the Pickup height and match this by lowering the Pickup by cutting off under Pickup laminates or to raise the stator with spacers.

If there is a problem, simply contact [info@bgm-tuning.com](mailto:info@bgm-tuning.com) for immediate help.



Timing marks



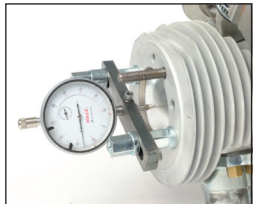
21st century technology



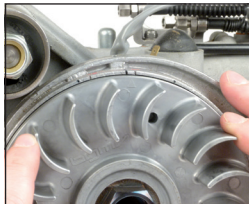
Holding tool BGM2109T

## BGM PRO IGNITION SYSTEM FOR LAMBRETTA

Once the stator plate is fitted, make sure the woodruff key is in its position. Put the flywheel on. The flywheel does have a small arrow for setting the top dead centre (=TDC) mark. The TDC position can be found by different ways. If you are doing a full engine rebuild it can be done with a dial gauge attached to the cylinder. If you are using this way turn the flywheel until you found the top dead centre of the piston. Consider that there is the dwell period where the piston moves, but the dial gauge hand is at a standstill. Take the middle of this. When you are sure you found TDC, mark the point opposite to the arrow on the flywheel in a permanent way.



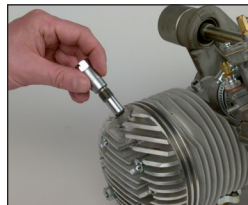
Dial gauge fitted with our bracket and cylinder nuts used as packers



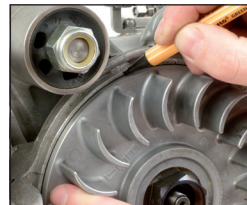
Once you found the TDC using the dial gauge you can mark this opposite to the arrow on the flywheel

When your engine is not completely rebuilt it is not worth to take the head off to fit the dial gauge. In this case, you should use the positive stop method. For this method you will need a piston stop and a soft ruler or timing degree disc. The piston stop is fitted instead of the spark plug and by turning the flywheel by hand you will find the piston stopping. Turn the flywheel in both directions until the piston rests against the piston

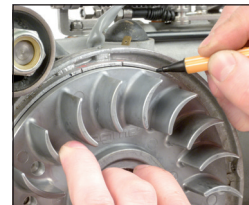
stop. Mark the stopping positions. In the middle of these there is the TDC of the engine. For greater accuracy it is advisable to shorten the piston stop to get stopping points as close together as possible. Once you have marked both stopping points use the soft ruler to measure the distance and mark the middle position. To be 100% sure double check. Once you are sure you found the TDC permanent mark it opposite to the arrow. Remove the piston stop and refit the spark plug.



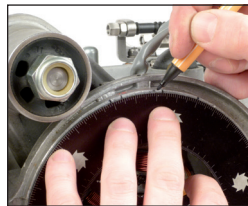
Fitting the piston stop instead of spark plug



Turn the flywheel clockwise until it rests against the piston stop and then mark it on the maghousing



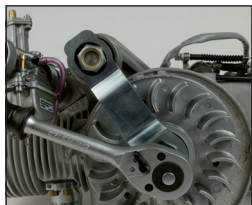
Turn the flywheel anti clockwise until it rests against the piston stop and then mark it on the maghousing



Use a soft ruler or a timing degree disc to find the middle between the two positions. This is your Top Dead Centre (TDC).

## BGM PRO IGNITION SYSTEM FOR LAMBRETTA

When the settings of your TDC are done, you can start to adjust the ignition timing. To ease up this there are timing marks on the flywheel. (Don't be confused that these are opposite to the timing marks you normally put on the magneto housing, this is right.) Wire the ignition system up at this stage. Therefore you put the green from the loom as well as green, red and white from the stator plate to the CDI unit. Put the flywheel in place. Take care that the woodruff key is in position and use a washer and flywheel nut torque the nut down to 75 Nm (or 55 LBS-FT or 7.6 KG-M). It is advisable to use a high quality flywheel nut with the right taper and made from sufficient material, like the bgm PRO flywheel nut included to the complete ignition kits (part number BGM2109GP).



Tighten down the flywheel nut to the right setting, using the holding tool BGM2109T that holds in place on the flywheel and on the engine bolt nut of the large silent blocks.



Now you can fire the engine up and strobe the ignition timing settings. Hold the strobe gun to your TDC marking and have a look at the flywheel timing marks to see your actual ignition timing. If you are happy with the setting, you can start to wire the electrical system.

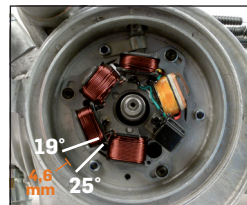
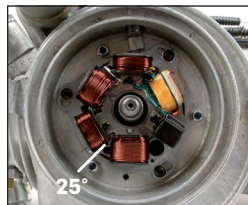
If you have to adjust your ignition timing, take the flywheel off again and adjust the stator plate to the required ignition timing.

Moving the stator plate clockwise gives less pre-ignition timing: e.g. 15° instead of 20°.\*

Moving the stator plate anti-clockwise gives more ignition pre-timing, e.g. 20° instead of 15°.\*

\*Depending how far the stator plate is moved.

If you need to adjust the pre-ignition timing, by a certain amount of degrees, you can use the circumference of the stator plate to speed things up. The stator plate circumference is 333 mm. This equals out that moving the stator by 0.9 mm gives around 1° change of ignition timing. So if you have 25° pre-ignition and you want to set 19°, simply turn the stator plate by 4.6 mm clockwise and strobe again.



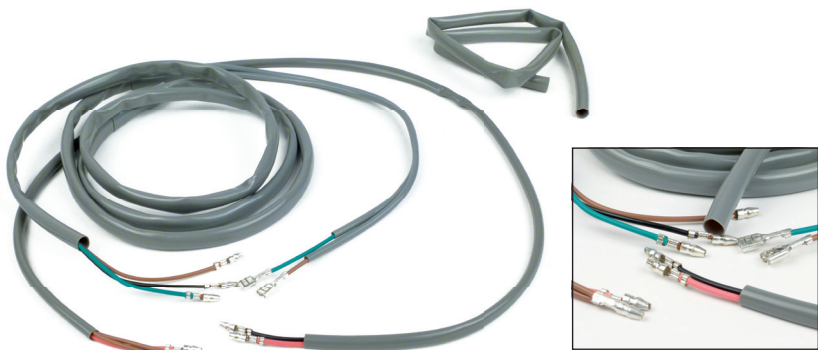
Once everything is fine, make sure that the nut is tightened down properly and refit the cowling.

It is recommended to use the flywheel with a cowling of the height as found on Italian scooters. This gives a small gap between the cooling fins and even better the improved cooling figures of your bgm PRO flywheel.

## BGM PRO IGNITION SYSTEM FOR LAMBRETТА

### WIRING UP OF ELECTRICAL SYSTEM

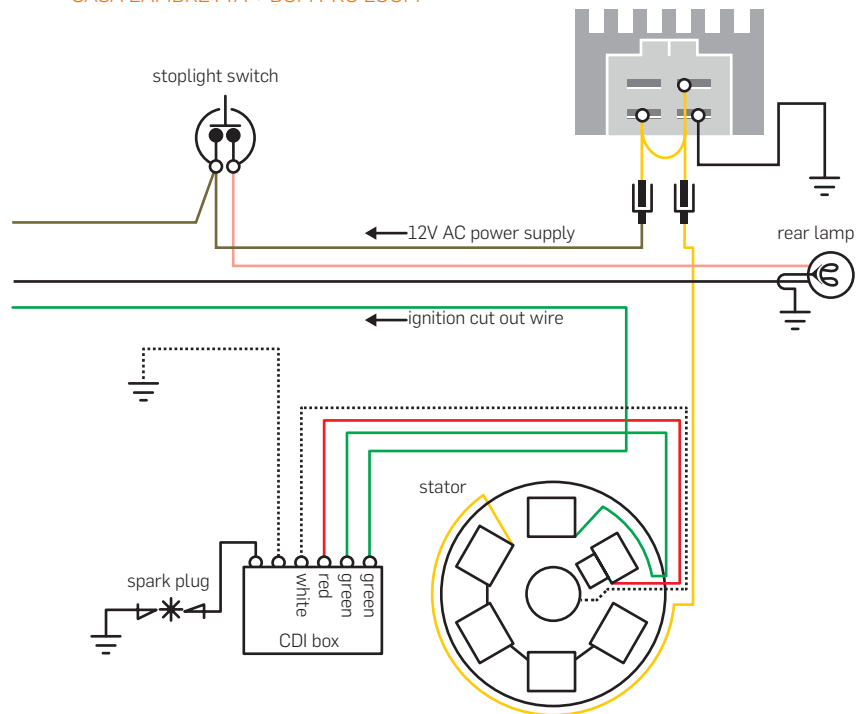
There are now more options than ever before to have the electrical system of your Lambretta running. Still the most common system is to use the complete system operated on alternate current (=AC). This can be realized with your existing original wiring loom or using one of the minimal electric wiring looms available for electronic ignition system. Like BGM6680 (grey hose) or BGM6681 (black hose). See attached wiring diagrams for the BGM loom and the original AC Lambretta loom.



Here are some wiring diagrams commonly used:

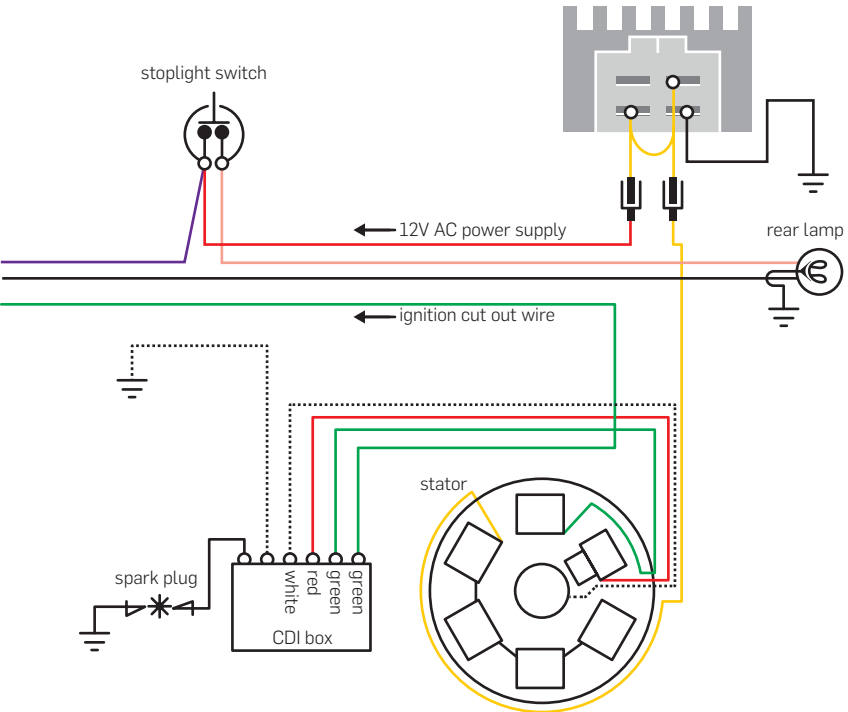
## LAMBRETТА

### CASA LAMBRETТА + BGM PRO LOOM



## LAMBRETTA

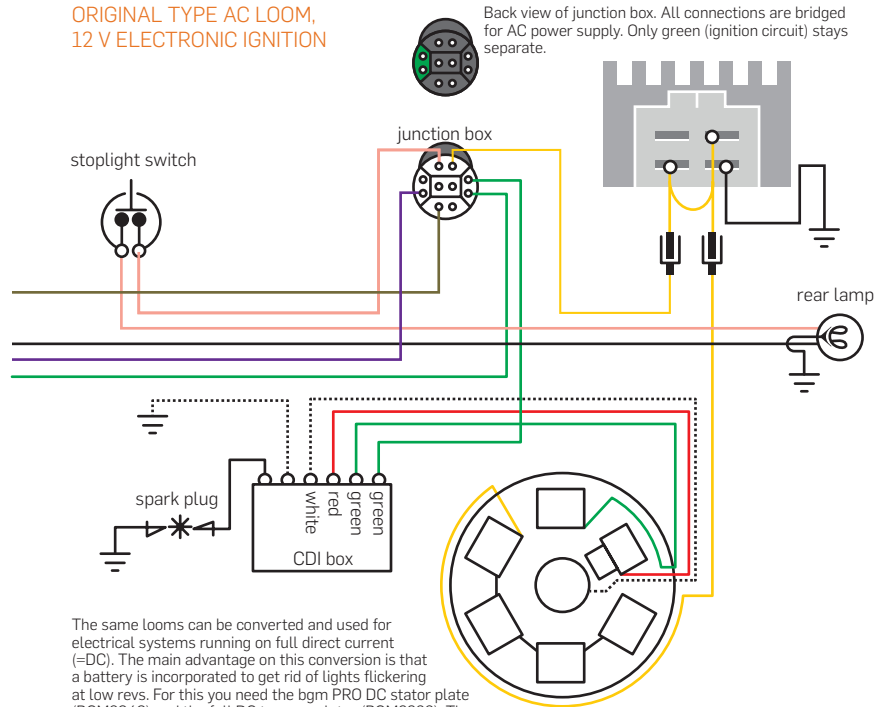
### MB DEVELOPMENTS LOOM



for reference: Sticky page 280

## LAMBRETTA

### ORIGINAL TYPE AC LOOM, 12 V ELECTRONIC IGNITION

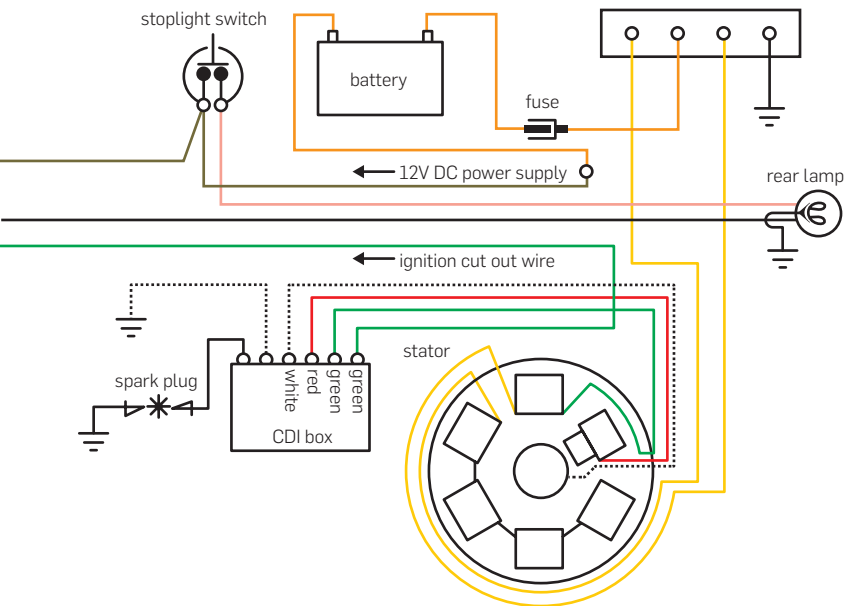


The same looms can be converted and used for electrical systems running on full direct current (=DC). The main advantage on this conversion is that a battery is incorporated to get rid of lights flickering at low revs. For this you need the bgm PRO DC stator plate (BGM8040) and the full DC type regulator (BGM6698). The connections remain nearly the same, but you need to add a battery and wire that into the system.

for reference: Sticky page 266

## LAMBRETTA

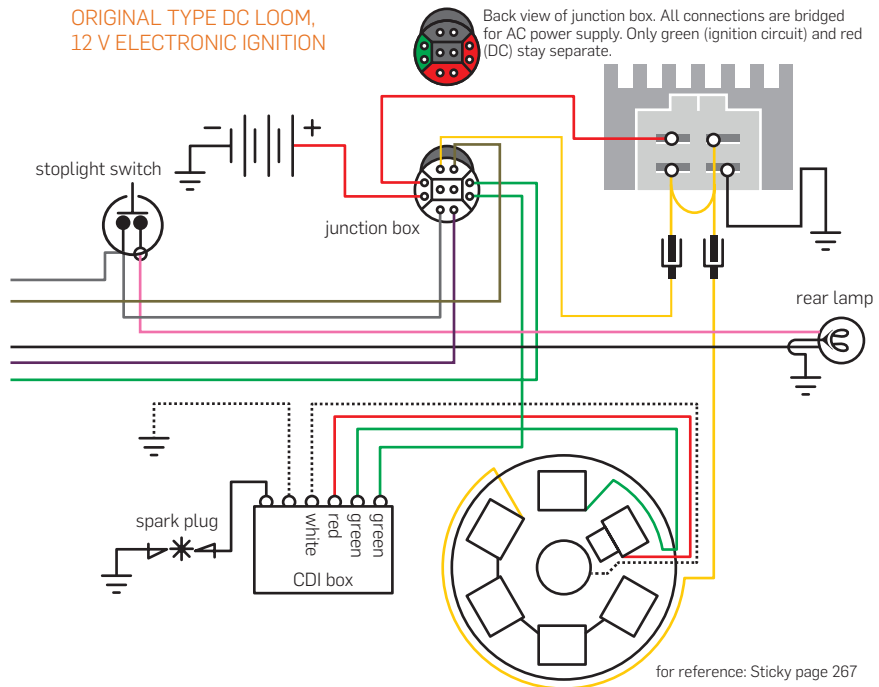
### MB AC, AC-DC, DC LOOM CONNECTED FOR FULLY DC SETUP



for reference: Sticky page 281

## LAMBRETTA

### ORIGINAL TYPE DC LOOM, 12 V ELECTRONIC IGNITION

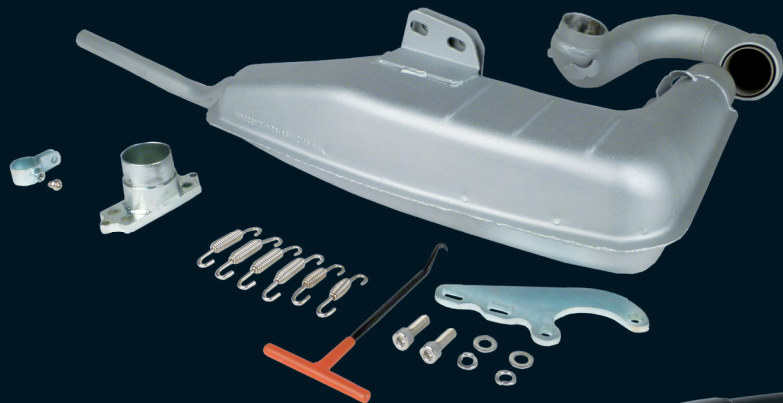


for reference: Sticky page 267

The third option to set up the electrical system on your Lambretta is to use the original Lambretta loom design for scooters that came equipped with a battery. These machines used the AC for the driving lights and the DC for stop light and horn. With regulator BGM6690 you can wire it up like intended from Innocenti for original battery equipped Lambrettas. Simply follow the wiring diagram.

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[WWW.BGM-TUNING.COM](http://WWW.BGM-TUNING.COM)

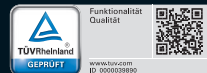


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*The bgm PRO Vespa PX 200 BIG BOX gives a standard look with full expansion chamber performance.*

*The bgm PRO shockers for Vespa are fully adjustable, most versatile suspension units from race to rally going to daily commuting. With German TÜV certificate of conformity.*





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*Lambretta bgm PRO MRB RaceTour cylinder kits.  
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