



MALOSSI

P R E S S K I T

MHR THROTTLE BODY WITH Ø 37 OVAL

The most powerful engines require an adequate and constant supply of fuel. Increasing the performance of the Yamaha T-Max, drawing from the extremely complete Malossi catalogue, has made it essential to build a specific throttle body able to ensure a performance that is unthinkable for the standard unit.

Made of black anodized 7975-T6 aluminium, the MHR throttle body has been designed specifically to achieve maximum efficiency in combination with the Double PowerCam, providing the right intake to the engine in this configuration.

The inner diameter of the throttle body is widened to 37 mm, while its length remains identical to the original so that it can be placed without difficulty in its standard position between the head and the airbox.

Its inner ducts are cylindrical near the horns, to become progressively oval-shaped in correspondence of the manifolds. Thanks to this variation of internal shape, the fresh gases are pushed with more energy towards the head which, featuring two intake valves, requires a significant width, offered by the oval section that continues to the end of the manifold.

The specific horns for the MHR throttle body are calculated and optimized to achieve the maximum yield from the oval sections of the bodies, exploiting the perfect harmonization of the entire duct.

The throttle body reuses the original ride by wire throttle control system.

We suggest to match it with FM3 electronic controller art. 5519341 which features a map dedicated to this throttle body and with Double Power Cam art. 5919140.

8019353B



O2 CONTROLLER

Lambda emulator

The use of the new O2 controller allows for carburetion management in the area where the Lambda sensor controls the air/petrol mixture to be introduced into the combustion chamber. This device is able to make the Lambda sensor work at a value other than stoichiometric, improving the A/F (Air/Fuel ratio) to improve torque and power while respecting the engine's DNA.

Malossi's research and development department's main objective is to ensure that each vehicle has a calibration designed to optimise performance and consumption.

Full carburetion control is achieved by combining the O2 controller with the Force Master control unit. The synergy of these two devices has no limits, the entire quoted plane is managed, controlled and optimised for any processing step proposed by Malossi.

The evolution that engine control systems have undergone in recent years has led to the design of this new version. The emulation of the Lambda sensor signals now corresponds perfectly to the original sensor, while the appearance has been refined and enhanced with an essential optical interface, which emulates the real operation of the device.

The Power LED indicates correct power supply, while the remaining two LEDs show the carburetion status. After ignition of the vehicle, the power and Rich (rich carburetion) led lights up. After a period of sensor warm up, if you are in the Lambda closed loop control area, you will see the two Rich and Lean LEDs light up alternately. This type of action highlights the correct functioning of the device through continuous calibration of the A/F title.

5519172B



FORCE MASTER 3

LIMITLESS

Have you heard of the theory that argues we use only twenty per cent of our brain? With Force Master 3 you'll use a hundred per cent... of your engine!

To improve our most advanced control module, we designed with vision, starting with the milestones achieved so far. Thus was conceived Force Master 3, a futuristic control module both in hardware and in software.

LAMBDA MODULATOR

The original control module of the scooter, for analysis of the air/fuel ratio and to adjust the carburetion accordingly, normally interfaces with the lambda sensor installed on the silencer.

Force Master 3 intercepts the signal of the original sensor, sending to the primary control module the values produced by a "virtual" lambda and allowing dynamic and customised management of the air/fuel ratio in all the moments for which the original system would be programmed to analyse the results of the lambda sensor.

It has finally become possible to manage the air/fuel ratio of the carburetion between the idle and transmission zones, essentially for all those rpm and for those conditions in which control of the operations of the lambda might prevent intervention.

Thanks to a highly evolved circuit, the electrical disturbances normally present on the throttle position signal are removed in such a way as to allow more precise identification of its real degree of opening and significantly improving response times, all to the advantage of the performance and efficiency of the engine.

HARDWARE AND INTERFACE

Accompanying a hardware, there therefore needs to be a microprocessor with very high computing power that would enable the Malossi technicians to introduce new software strategies and to take advantage of all the ForceMaster 3 potentials.

5519341



Technical features:

- Fuel adjustment
- $\pm 14\%$ at LOW / HIGH / MID
- RPM limiter : + 700 RPM
- 4 different maps
- Lambda emulator
- Temperature range = -20°C +80°C
- Minimum working voltage = +7V
- Maximum working voltage = +16V
- Average current consumption <- 200mA
- Environmental protection = IP65

4 different maps :

- curve 0 : Malossi exhaust system with db killer, Malossi cylinder, original head, original camshaft and original filter
- curve 1 : Malossi exhaust system with db killer, original cylinder, original head, Malossi camshaft and original filter
- curve 2 : Malossi exhaust system with db killer, original cylinder, original head, Malossi camshaft and Malossi filter
- curve 3 : Malossi exhaust system with db killer, original cylinder, original head, Malossi camshaft and Malossi filter

Particular attention was paid to improvement of the user interface by introducing a graphical display that shows the main functional parameters of the device:

- Firmware version
- System status
- Position of carburetion correction switches

GEAR BOX

This is the challenge: is it possible to improve the gearbox where the Malossi gears turn, super performing and above all more beautiful?

Die-cast aluminum, machined and finished in our lines. It looks like a carter but it's not: it's an artwork. The art of ennobling every single part of one of our favorite vehicles, the Ciao (this gearbox is suitable for Piaggio mopeds such as Ciao, SI and cousins of the range). The art of increasing performance, shaping the material within the limits imposed by physics and by factory dimensions.

What's new.

We added ribs to strategic sections to increase stiffness. We increased the diameter of the wheel shaft bearing and of all the others, and added ribs to compensate the increased performance.

All within the original space: the gearbox uses pressed needle bearings for all gearbox shafts, NBR oil seals with spring sealing lip and auxiliary lip and a labyrinth to trap the oil and at the same time allow the gearbox to "breathe".

2519075



What we have optimized.

The gearbox simplifies the gear housing, improves brake shoe operation with dedicated machined surfaces to guide it more accurately. Two concentric positioning bushes closed by five screws (one more than the original), with hexagonal cylindrical head. The gearbox uses high quality steel pins, pressed into the crankcase, for the lever and brake shoe pins. To improve rigidity, we have eliminated the gasket: everything is sealed with silicone paste as in the most modern vehicles (the LOCTITE® SI 5926 art. 4319441B that you find in our catalogue is perfect).

The gearbox is supplied complete with bearings, oil seals, screws and shims: everything needed for A perfect assembly with Malossi gears (but if you want you can also assemble it with the original gears).

ATTENTION: the gearbox does not allow the vehicle to operate in "bicycle" mode.

Technical features

- Pair of crankcases, die-cast aluminum silicon alloy material with high mechanical resistance.
- High resistance textured black paint surface treatment.
- Crankcases complete with closing and fixing screws, shims, roller cases and pins for lever and brake shoe.
- Completely redesigned with reinforced structure with added ribs to withstand greater stresses.
- Oil breather with internal labyrinth and external fitting.
- Casing coupling guaranteed by 5 fixing screws and 2 bushes.
- M10 x 18 vehicle hub fixing screws.
- Internal wheel axle bearing 15 x 21 x 12.
- Wheel axle output bearing 20 x 26 x 12.
- Clutch shaft internal bearing 9 x 13 x 12.
- Clutch shaft output bearing 13 x 19 x 12.
- 4 gear transmission bearings 9 x 13 x 12.
- FKM oil seals.
- Pan head screw with bronze sealing washer for oil level/fill.

HTQ GEARS SHORT RATIO (13:1)

Gears for Piaggio Mopeds with variator

Malossi S.p.A. is pleased to offer its series of final transmission gears for mopeds.

The HTQ gears were designed and built with straight teeth to minimise losses through friction and stress on the supports. Moreover, our gears increase ratios slightly enabling you to exploit the full power of your vehicle, thus significantly increasing its original performance potential.

6719286



MHR TEAM CRANKSHAFT

Technical specifications

- Half-shafts material: 18 Ni Cr Mo5.
- Half-shafts with forged monolithic rotating masse.
- Manufactured using high-precision machine tools.
- All components are subjected to 5 heating treatment operations.
- Excellent surface finish for improved reliability.
- Dynamic balancing for speeds of up to 16,000 rpm.
- Coppered connecting rod in forged 18 Ni Cr Mo5, connected to the engine with precision roller bearing for high speeds.

OVER RANGE

The upgrading of the Big Deps engine and the Malossi crankcase, has led to a deficit in the transmission of this vehicle, to overcome which the great experience of Malossi engineers has designed a complete Over Range, suitable to support constantly increasing performance.

This latest system hinges on the new Fixed Pulley of the torque driver that has a larger diameter and the very latest specifications. The larger diameter of this pulley allows one to have a greater velocity-ratio range compared to the original pulley that has a notably smaller external diameter.

Malossi engineers have also taken particular care in realising this pulley right down to the smallest detail, using special materials and a particular type of thermochemical treatment that ensures exceptional surface hardness and therefore excellent wear and abrasion resistance. This new fixed pulley has been designed to offer perfect running if coupled to the Malossi Torque Driver that has the same diameter as the fixed pulley itself.

To complete the renewal of the transmission system and take full advantage of its exceptional specifications, the MHR Multivar variable-speed drive has also been upgraded by fitting it with new tracks for the rollers, new variator adjuster spring and a new hub a new hub which is longer than the previous one and therefore able to combine with a more powerful belt and optimise the ratios. This new variable-speed drive represents the evolution of the previous generations, the result of many years of experience on the race circuit and the currently available CAD/CAM technology that allows top-level specifications to be obtained.

To fully exploit the range of the new torque driver unit and the power ratings currently offered by competition machines, a new notched Special Belt has been introduced with larger section and revised length to ensure maximum performance under all running conditions (sold separately).

Attention: after fitting the Malossi Over Range it will no longer be possible to start the vehicle by pushing, it will be necessary to use special starting tools (not included in the kit).

6119262



THE KIT CONSISTS OF:

Multivar MHR variator

This is the first time that Multivar MHR has been adopted on the moped scene!

Malossi has completely redesigned this variator:

- New roller tracks
- New contrast spring
- Longer hub

Torque Driver

This is the great novelty of this kit: the ability to house a true torque driver with double sliding rails to customise the gear curve as desired!

- New pulley set, consisting of fixed and movable pulley with \varnothing increased from 100 to 110 mm
- One-piece welded fixed and moving pulley with especially surfacetreated bushing

Fly Clutch

\varnothing 107 mm clutch, redesigned with new masses to adapt to the opposite direction of rotation.

The Malossi spring coupling allows operation at a predefined optimum RPM attack point.

Optional: 2 sets of springs are available to customise your vehicle.

Wing Clutch Bell

Reinforced clutch bell with a finned cooling ring, perfectly matched to the newly developed high-performance Fly Clutch. This is the only component common to the scooter.

Primary gear shaft

We went as far as modifying the primary gear shaft to accommodate a pulley and clutch/bell assembly derived from the scooter world.

Having become the connecting element between the newly designed components, this shaft has been reinforced with an increase in the shaft \varnothing to 13.5 and is supplied with a nut, oil seal and roller shell for mounting.

Special Belt (sold separately)

Belt with section increased by 23% (from 13 to 16 mm)

- PIAGGIO BOSS 50 2T: art. 6118940
- PIAGGIO BRAVO 50 2T: art. 6119260
- PIAGGIO CIAO PX 50 2T: art. 6119261
- PIAGGIO SI 50 2T: art. 6118940

Attention: to be combined exclusively with Malossi belt.

Attention: in order to fit the primary gear shaft included in the kit, it is necessary to have fitted Malossi primary gears art. 6719286 or 67 7021 (6718630 - out of production).

CYLINDER KIT Ø 52 MHR100 FLANGED MOUNT

testa rossa

Technical specifications

Cooling: H2O

Timing system: 7 ports

Material: aluminium

Bore: 52 mm

Stroke: 47 mm

Capacity: 100 cc

