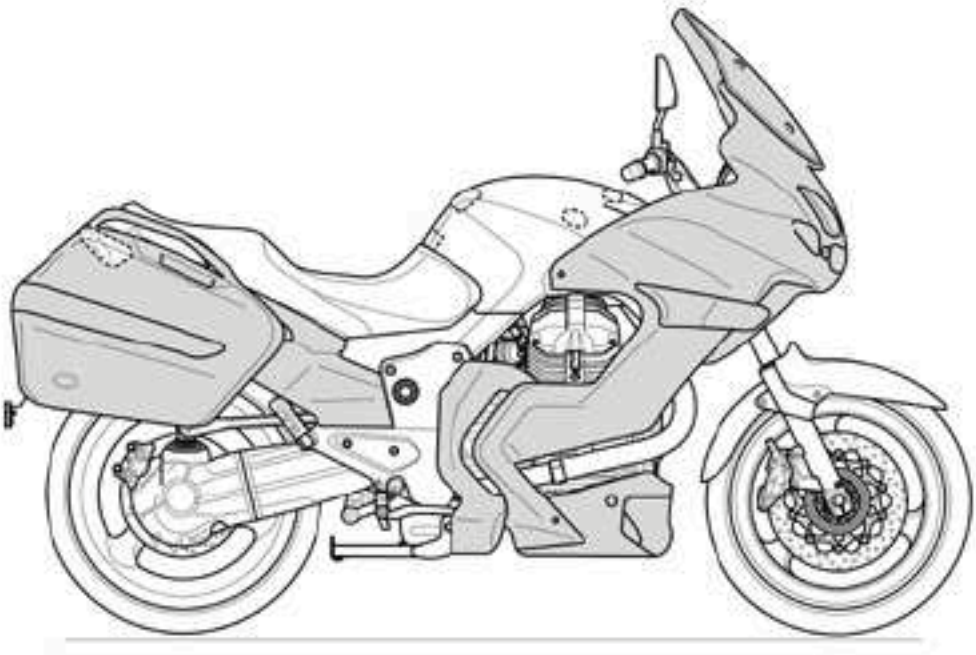
COMPLIMENTS OF:



SERVICE STATION MANUAL

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Norge 1200

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This manual provides the main information to carry out regular maintenance operations on your scooter.
This manual is intended to **Moto Guzzi Dealers** and their qualified mechanics; several concepts have been deliberately omitted as they are considered unnecessary. As it is not possible to include complete mechanical notions in this manual, users should have basic mechanical knowledge or minimum knowledge about the procedures involved when repairing scooters. Without this knowledge, repairing or checking the vehicle may be inefficient or even dangerous. As the vehicle repair and check procedures are not described in detail, be extremely cautious so as not to damage components or injure individuals. In order to optimise customer satisfaction when using our vehicles, **Moto Guzzi** s.p.a. commits itself to continually improve its products and the relative documentation. The main technical modifications and changes in repair procedures are communicated to all **Moto Guzzi Sales Outlets and its International Subsidiaries**. These changes will be introduced in the subsequent editions of the manual. In case of need or further queries on repair and check procedures, consult **Moto Guzzi CUSTOMER DEPARTMENT,** which will be prepared to provide any information on the subject and any further communications on updates and technical changes related to the vehicle.

NOTE Provides key information to make the procedure easier to understand and carry out.

CAUTION Refers to specific procedures to carry out for preventing damages to the vehicle.

WARNING Refers to specific procedures to carry out to prevent injuries to the repairer.

Personal safety Failure to completely observe these instructions will result in serious risk of personal injury.

Safeguarding the environment Sections marked with this symbol indicate the correct use of the vehicle to prevent damaging the environment.

Vehicle intactness The incomplete or non-observance of these regulations leads to the risk of serious damage to the vehicle and sometimes even the invalidity of the guarantee.

INDEX OF TOPICS

INDEX OF TOPICS

Rules

Safety rules

Carbon monoxide

If you need to keep the engine running in order to perform a procedure, please ensure that you do so in an open or very well ventilated area. Never let the engine run in an enclosed area. If you do work in an enclosed area, make sure to use a smoke-extraction system.

CAUTION

EXHAUST EMISSIONS CONTAIN CARBON MONOXIDE, A POISONOUS GAS WHICH CAN CAUSE LOSS OF CONSCIOUSNESS AND EVEN DEATH.

Fuel

CAUTION

FUEL USED TO POWER INTERNAL COMBUSTION ENGINES IS HIGHLY FLAMMABLE AND CAN BECOME EXPLOSIVE UNDER SPECIFIC CONDITIONS. IT IS THEREFORE RECOMMENDED TO CARRY OUT REFUELLING AND MAINTENANCE PROCEDURES IN A VENTILATED AREA WITH THE ENGINE SWITCHED OFF. DO NOT SMOKE DURING REFUELLING AND NEAR FUEL VAPOURS, AVOIDING ANY CONTACT WITH NAKED FLAMES, SPARKS OR OTHER SOURCES WHICH MAY CAUSE THEM TO IGNITE OR EXPLODE.
DO NOT DISPERSE FUEL IN THE ENVIRONMENT.
KEEP OUT OF THE REACH OF CHILDREN

Hot components

The engine and the exhaust system components get very hot and remain in this condition for a certain time interval after the engine has been switched off. Before handling these components, make sure that you are wearing insulating gloves or wait until the engine and the exhaust system have cooled down.

Used engine oil and gear oil

CAUTION

IT IS ADVISABLE TO WEAR LATEX GLOVES WHEN SERVICING THE VEHICLE. THE ENGINE OR GEARBOX OIL MAY CAUSE SERIOUS DAMAGE TO THE SKIN IF HANDLED FOR PROLONGED PERIODS OF TIME AND ON A REGULAR BASIS. IT IS RECOMMENDED TO WASH YOUR HANDS CAREFULLY AFTER HANDLING IT. HAND THE OIL OVER TO OR HAVE IT COLLECTED BY THE NEAREST USED OIL RECYCLING COMPANY OR THE SUPPLIER. IT IS ADVISABLE TO WEAR LATEX GLOVES WHEN SERVICING THE VEHICLE.
DO NOT DISPERSE THE OIL IN THE ENVIRONMENT
KEEP OUT OF THE REACH OF CHILDREN

Brake and clutch fluid

THE BRAKE AND CLUTCH FLUIDS CAN DAMAGE THE PLASTIC OR RUBBER PAINTED SURFACES. WHEN SERVICING THE BRAKING SYSTEM OR THE CLUTCH SYSTEM PROTECT THESE COMPONENTS WITH A CLEAN CLOTH. ALWAYS WEAR PROTECTIVE GOGGLES WHEN SERVICING THE SYSTEMS. BRAKE AND CLUTCH FLUIDS ARE EXTREMELY HARMFUL FOR YOUR EYES. IN THE EVENT OF ACCIDENTAL CONTACT WITH THE EYES, RINSE THEM IMMEDIATELY WITH ABUNDANT COLD, CLEAN WATER AND SEEK MEDICAL ADVICE.
KEEP OUT OF THE REACH OF CHILDREN

Battery electrolyte and hydrogen gas

CAUTION

THE BATTERY ELECTROLYTE IS TOXIC, CORROSIVE AND AS IT CONTAINS SULPHURIC ACID, IT CAN CAUSE BURNS WHEN IN CONTACT WITH THE SKIN. WHEN HANDLING THE BATTERY ELECTROLYTE, WEAR TIGHT-FITTING GLOVES AND PROTECTIVE APPAREL. IF THE FLUID GETS INTO CONTACT WITH THE SKIN, RINSE WELL WITH ABUNDANT FRESH WATER. IT IS EXTREMELY IMPORTANT TO PROTECT THE EYES BECAUSE EVEN A SMALL QUANTITY OF BATTERY ACID CAN CAUSE BLINDNESS. IF THE FLUID GETS INTO CONTACT WITH THE EYES, WASH WITH ABUNDANT WATER FOR FIFTEEN MINUTES AND CONSULT AN EYE SPECIALIST IMMEDIATELY. IF THE FLUID IS ACCIDENTALLY SWALLOWED, DRINK LARGE QUANTITIES OF WATER OR MILK, FOLLOWED BY MILK OF MAGNESIA OR VEGETABLE OIL AND SEEK MEDICAL ADVICE IMMEDIATELY. THE BATTERY RELEASES EXPLOSIVE GASES; KEEP IT AWAY FROM FLAMES, SPARKS, CIGARETTES OR ANY OTHER HEAT SOURCES. ENSURE ADEQUATE VENTILATION WHEN SERVICING OR RECHARGING THE

BATTERY.

KEEP OUT OF THE REACH OF CHILDREN

BATTERY LIQUID IS CORROSIVE. DO NOT POUR IT OR SPILL IT, PARTICULARLY ON PLASTIC COMPONENTS. ENSURE THAT THE ELECTROLYTIC ACID IS COMPATIBLE WITH THE BATTERY TO BE ACTIVATED.

Maintenance rules

GENERAL PRECAUTIONS AND INFORMATION

When repairing, dismantling and reassembling the vehicle follow the recommendations reported below carefully.

BEFORE DISMANTLING COMPONENTS

- Before dismantling components, remove dirt, mud, dust and foreign bodies from the vehicle. Use the special tools designed for this bike, as required.

DISMANTLING COMPONENTS

- Do not loosen and/or tighten screws and nuts using pliers or other tools than the especially designed wrench.
- Mark positions on all connection joints (pipes, cables etc.) before separating them, and identify them with distinctive symbols.
- Each component needs to be clearly marked in order to be identified during assembly.
- Clean and wash the dismantled components carefully using a low-flammability detergent.
- Keep coupled parts together since they have "adjusted" to each other due to normal wear and tear.
- Some components must be used together or replaced altogether.
- Keep away from heat sources.

REASSEMBLING COMPONENTS

CAUTION

THE BEARINGS MUST BE ABLE TO ROTATE FREELY, WITHOUT BINDING AND/OR NOISE, OTHERWISE THEY NEED REPLACING.

- Only use ORIGINAL Moto Guzzi SPARE PARTS.
- Comply with lubricant and consumables usage guidelines.
- Lubricate parts (whenever possible) before reassembling them.
- When tightening nuts and screws, start from the ones with the largest section or from the internal ones, moving diagonally. Tighten nuts and screws in successive steps before ap-

plying the tightening torque.

- Always replace self-locking nuts, washers, sealing rings, circlips, O-rings(OR), split pins and screws with new ones if their thread is damaged.
- When assembling the bearings, make sure to lubricate them well.
- Check that each component is assembled correctly.
- After a repair or routine maintenance procedure, carry out pre-ride checks and test the vehicle on private grounds or in an area with low traffic density.
- Clean all junction planes, oil guard rims and washers before refitting them. Smear a light layer of lithium-based grease on the oil guard rims. Reassembly the oil guard and the bearings with the brand or lot number facing outward (visible side).

ELECTRIC CONNECTORS

Electric connectors must be disconnected as described as follows as non-compliance with the procedure described below causes irreparable damages to both the connector and the cable harness:
Press the relevant safety hooks, if any.

- Grip the two connectors and disconnect them by pulling them in opposite directions.
- In presence of dirt, rust, humidity etc. clean the connector's internal parts carefully, using a pressurised air jet.
- Make sure that the cables are correctly linked to the connector's internal terminal ends.
- Then insert the two connectors making sure that they couple correctly (if the relevant hooks are provided, you will hear them "click" into place).

CAUTION

TO DISCONNECT THE TWO CONNECTORS, DO NOT PULL THE CABLES.

NOTE

THE TWO CONNECTORS CONNECT ONLY FROM ONE SIDE: CONNECT THEM THE RIGHT WAY ROUND.

TIGHTENING TORQUES

CAUTION

DO NOT FORGET THAT TIGHTENING TORQUES OF ALL FASTENING ELEMENTS ON WHEELS, BRAKES, WHEEL SPINDLES AND OTHER SUSPENSION COMPONENTS PLAY A KEY ROLE IN ENSURING THE VEHICLE'S SAFETY AND MUST COMPLY WITH SPECIFIED VALUES. CHECK THE TIGHTENING TORQUES OF FASTENING PARTS ON A REGULAR BASIS AND ALWAYS USE A TORQUE WRENCH TO REASSEMBLE THESE COMPONENTS. IF THESE RECOMMENDATIONS ARE NOT COMPLIED WITH, ONE OF THE COMPONENTS MAY BECOME LOOSE AND EVEN DETACHED, THUS BLOCKING A WHEEL, OR OTHERWISE COM-

PROMISING THE VEHICLE'S MANOEUVRABILITY. THIS CAN LEAD TO FALLS, WITH THE RISK OF SERIOUS INJURY OR DEATH.

Running-in

Engine run-in is essential to ensure engine long life and correct operation. Twisty roads and gradients are ideal to run in engine, brakes and suspensions effectively. Vary your driving speed during the run-in. In this way, you allow for the work of components to be "loaded" and then "unloaded", thus cooling the engine parts.

CAUTION

THE CLUTCH MAY EMIT A SLIGHT BURNING SMELL WHEN FIRST USED. THIS PHENOMENON SHOULD BE CONSIDERED NORMAL AND WILL DISAPPEAR AS SOON AS THE CLUTCH DISCS GET ADAPTED.
IT IS IMPORTANT TO STRAIN ENGINE COMPONENTS DURING RUN-IN, HOWEVER, MAKE SURE NOT TO OVERDO THIS.

CAUTION

ONLY AFTER THE SERVICE AT THE END OF THE RUN-IN PERIOD, IT IS POSSIBLE TO ATTAIN THE BEST PERFORMANCE OF YOUR VEHICLE.

Follow the guidelines detailed below:

- Do not twist the throttle grip abruptly and completely when the engine is working at a low revs, either during or after run-in.
- During the first 100 km (62 miles) step carefully on the brakes to avoid rough and long braking. That is to permit the adequate adjustment of the pad friction material to the brake discs.

AFTER THE SPECIFIED MILEAGE, TAKE THE VEHICLE TO AN OFFICIAL Moto Guzzi DEALER FOR THE CHECKS INDICATED IN THE "AFTER-RUN" TABLE IN THE SCHEDULED MAINTENANCE SECTION TO AVOID INJURING YOURSELF, OTHERS AND /OR DAMAGING THE VEHICLE

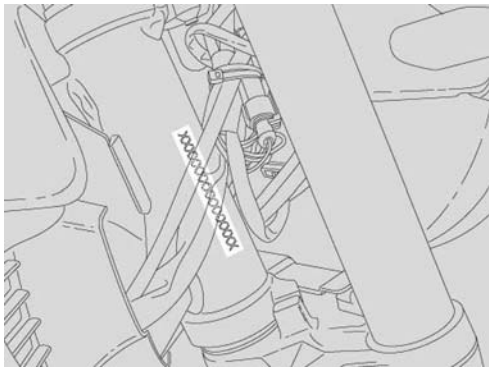
Vehicle identification

SERIAL NUMBER POSITION

These numbers are necessary for vehicle registration.

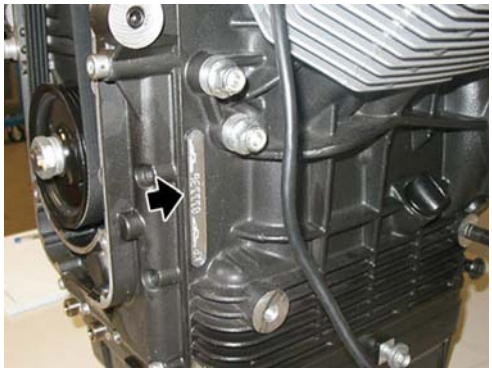
NOTE

ALTERING IDENTIFICATION NUMBERS CAN BE SERIOUSLY PUNISHED BY LAW, PARTICULARLY MODIFYING THE CHASSIS NUMBER WILL IMMEDIATELY INVALIDATE THE WARRANTY.



ENGINE NUMBER

The engine number is stamped on the left side, close to the engine oil level check cap.



This number is composed by numbers and letters, as in the example shown below.

ZGULPH010YMXXXXXX

KEY:

ZGU: WMI (World manufacture identifier) code;

LP: model;

H01: version variation;

0: digit free

Y year of manufacture

M: production plant (M= Mandello del Lario);

XXXXXX: progressive number (6 digits);

CHASSIS NUMBER

The chassis number is stamped on the right side of the headstock.

Dimensions and mass

WEIGHT AND DIMENSIONS

Specification	Desc./Quantity
Length	2195 mm (86.4 in)
Width	870 mm (34.2 in)
Max. height (to the windshield)	1405 - 1365 mm (55.3 - 53.7 in)

Specification	Desc./Quantity
Saddle height	800 mm (31.5 in)
Minimum height clearance	185 mm (7.3 in)
Centre to centre distance	1495 mm (58.8 in)
Kerb weight	246 kg (542 lb)

Engine

ENGINE

Specification	Desc./Quantity
Type	90° transversal V-twin, four stroke
Cylinder quantity	2
Cylinders layout	90° V
Bore/stroke	95 x 81.2 mm (3.74 x 3.20 in)
Cubic capacity	1151 cc (70 cu.in.)
Compression ratio	9.8 :1
Maximum power	over 65 kW (90 CV) at 7500 rpm
Ignition	electric
Engine idling speed	1100 ± 100 rpm
Clutch	dry, twin disc
Lubricating system	Pressure system regulated by valves and troch-oidal pump
Air filter	cartridge, dry
Cooling	air
Fuel supply	Electronic injection (Weber . Marelli) with stepper motor
Diffuser	diameter: 45 mm (1.77 in)
Fuel	Premium unleaded petrol, minimum octane rating of 95 (NORM) and 85 (NOMM)
Timing system diagram:	2 rod valves and rockers
Valid values with checking clearance between rockers and valve	inlet: 0.10 mm (0.0039 in) outlet: 0.15 mm (0.0059 in)

Transmission

TRANSMISSION

Specification	Desc./Quantity
Main transmission	with gear, ratio: 24/35 = 1 :1.4583

Specification	Desc./Quantity
Transmission	Mechanical, 6 speeds with foot lever on the left hand side of the engine
1st gear ratios	17/38 = 1 :2.2353
2nd gear ratios	20/34 = 1 :1.7
3rd gear ratios	23/31 = 1 :1.3478
4th gear ratio	26/29 = 1 :1.1154
5th gear ratios	31/30 = 1:0.9677
5th gear ratios	31/29 = 1 :0.9355
6th gear ratios	29/25 = 1:0.8621
6th gear ratios	30/24 = 1 :0.8
Final transmission	cardan shaft
Ratio	12/44 = 1:3.6667

Capacities

CAPACITY

Specification	Desc./Quantity
Engine oil	Oil and oil filter change 3600 cm³ (219 cu.in)
Gearbox oil	500 cm³ (30.5 cu.in)
Transmission oil	380 cm³ (23.2 cu.in)
Fuel (reserve included)	23 l (6.1 gal)
Fuel reserve	4 l (1.06 gal)
Fork oil	400 ± 2.5 cm³ (24.4 ± 0.15 in) (for each stem)
Seats	2
Vehicle maximum load	230 Kg (507 pounds) (rider + passenger + luggage)

Electrical system

ELECTRICAL SYSTEM

Specification	Desc./Quantity
Inner spark plug (long life)	NGK PMR8B
Outer spark plug	NGK BPR6ES
Electrode gap	0.6 - 0.7 mm (0.024 - 0.028 in)
Battery	12 V - 18 Ampere/hour
Electrical system - Generator	with permanent magnet, 12 V - 540 W

Specification	Desc./Quantity
Main fuses	30A - 40A
Secondary fuses	3A - 15A - 20A
Electrical system - ABS fuses	40 - 25A
Tail light	12V - 5 W
Low-beam light	12 V - 55 W H7
High-beam light	12 V - 65 W H9
Turn indicators	12V - 10 W (orange bulb)
Rear tail light / stop light	LED
Panel lighting	LED
license plate light	12V - 5W
Turn indicator warning light	LED
ABS warning light	LED
N gear warning light	LED
Alarm warning light	LED
Side stand down warning light	LED
Low fuel warning light	LED
High-beam warning light	LED
Antitheft device warning light	LED
Gear shift warning light	LED

Frame and suspensions

CHASSIS

Specification	Desc./Quantity
Type	high strength steel tube chassis
Front stroke	120 mm (4.72 in)
Headstock angle	25° 30'
Front:	hydraulic telescopic fork; Ø 45 mm (1.77 in)
Wheel travel	120 mm (4.72 in)
Rear	single arm suspension with progressive linkage, single shock absorber with adjustable rebound and ergonomic knob for spring preloading adjustment.
Wheel travel	140 mm (5.5 in)

Brakes

BRAKES

Specification	Desc./Quantity
Front:	stainless steel Ø 320 mm (12.6 in) twin floating disc, calliper with 4 different and counteracting plungers
Rear	Stainless steel disc; Ø 282 mm (11.1 in)

Wheels and tyres

WHEELS AND TYRES

Specification	Desc./Quantity
Type	hollow 3-spoke rim in chilled cast aluminium alloy
Front wheel rim	3.50" x 17"
Rear wheel rim	5.50" x 17"
Tyres	METZELER Roadtec Z6 MICHELIN Pilot Road DUNLOP D220 ST Sportmax
Tyres - front size	120/70 - ZR 17"
Inflation pressure (front)	250 kPa (36.3 PSI)
Inflation pressure with passenger (front)	250 kPa (36.3 PSI)
Tyres - Rear size	180 / 55 - ZR 17"
Inflation pressure (rear)	280 kPa (40.6 PSI)
Inflation pressure with passenger (rear)	280 kPa (40.6 PSI)

Supply

FUEL SUPPLY

Specification	Desc./Quantity
Fuel	premium unleaded petrol, minimum octane number 95 (NORM) and 85 (NOMM)
Throttle body diffuser	Ø 45 mm (1.77 in)
Type of supply	electronic multipoint sequential phased integrated electronic fuel injection, Magneti Marelli IAW5A, Alpha-N system with stepper engine; 2 throttle bodies of 45 mm (1.77 in) with Weber IW031 injector, lambda probe in closed loop

Tightening Torques

HEAD UNIT

Name	Torque in Nm
Head conical cover	4 Nm
M8x42 Stud bolt	35 Nm
Set screw	- Nm
Nut	8 -11 Nm
M6x16 TE DA screw	6 -8 Nm
Stainless M6x25 TBEI screw	10 Nm
Stainless steel M5x16 TBEI flanged screw	6 -7 Nm
M12x1.5 Oil / head temperature sensor	-
M10x1.5 head temperature sensor container	10 -12 Nm

TIMING SYSTEM UNIT

Name	Torque in Nm
M6x20 TE DA screw	8 -12 Nm
M18x1.5 Man. Nut	150 Nm
Belt tension	50 Nm

TORQUES

Name	Torque in Nm
M10x38 Stud bolt	40 Nm
Stud bolts	15 Nm + 90° + 90°
M10x1.5 EA ZB Nut	40 -42 Nm
Head fixing screw	15 Nm + 90° + 90°
M8x75 Stud bolt	35 Nm
M8x66 Stud bolt	35 Nm
M8x25 TE DA screw	25 Nm
M4x8 UNI 5933 TSPEI screw	5 Nm
M4x10 TCEI screw	25 Nm
M8x25 TE DA screw	25 Nm
M6x30 TCEI DA screw	8 -12 Nm
M8x55 TCEI DA screw compl.; 8.8 UNI 5931 dac-romet	23 Nm
M6x16 TCEI screw	8 -12 Nm
M6x30 TCEI DA screw	8 -12 Nm
M6x40 TCEI DA screw	8 -12 Nm
M6x60 TCEI DA screw	8 -12 Nm
M24x1.5 joint	40 Nm

Name	Torque in Nm
M6x55 TCEI DA screw	8 -12 Nm
M6x20 TCEI DA screw	8 -12 Nm
M18x1.5 nipples fixing copper pipes	20 Nm
Cover with rod	- Nm
M10x1.5 Magnetic cover	20 Nm

LUBRICATION UNIT

Name	Torque in Nm
M8x30 TCEI DA Screw	25 Nm
M8x1.25 slot screw	15 -18 Nm
M18x1.5 Cover	40 Nm
M32x1.5 Cover	40 Nm

CRANK MECHANISM UNIT

Name	Torque in Nm
Connecting rod screw	60 ÷ 62 Nm
MF25x1.5 EBFM ZB Nut	120 Nm

CHASSIS ON ENGINE UNIT

Name	Torque in Nm
M6x40 TCEI DA screw	8 -12 Nm
Reduction	20 Nm

IGNITION UNIT

Name	Torque in Nm
M8x45 TCEI DA screw	22 Nm
M10x60 TCEI DA screw	see nut
M10x1.5 Flanged nut	30 Nm
M8x50 TBEI DA screw	- Nm
EBFM DA MF16x1.5 Nut	80 Nm
NGK BPR 6ES Spark plug	20 -30 Nm
NGK PMR8B Spark plug	13 -15 Nm
M6x16 TCEI screw	8 -12 Nm

FUEL SUPPLY CONTROL UNIT

Name	Torque in Nm
M5x12 TCEI screw	6 -7 Nm
Stainless steel M5x16 TBEI flanged screw	6 -7 Nm

Name	Torque in Nm
M6x25 TCEI DA screw	8 -12 Nm

TRANSMISSION UNIT

Name	Torque in Nm
Clutch bell to gearbox tightening screws	13 Nm
Bearing on clutch bell retaining screws	10 Nm
Lock on clutch bell screws	24 Nm
Ring nut on clutch shaft	100 Nm
Idle sensor on gearbox housing	10 Nm
Magnetic cover	24 Nm
Oil filler cap	28 Nm
Joint for breather pipes	8 Nm

CHASSIS

Name	Torque in Nm
Electronic control unit retainer + coil plates	10 Nm
Electronic control unit retainer	10 Nm
Tank support rubber rings to chassis retainer	25 Nm
Gearbox to chassis retainer	80 Nm
Coil retainer	2 Nm
Engine retainer	80 Nm
Left and right footrest plate to chassis upper retainer	20 Nm
Right footrest plate to chassis lower retainer	30 Nm
Left footrest plate to chassis lower retainer	30 Nm
Right/left protection cover retainer	6 Nm
Plate ring to plate retainer	6 Nm
Handgrip to chassis fixing screw	25
Cover to handgrip retainer	25 Nm

FOOTRESTS AND LEVERS

Name	Torque in Nm
Footrest rubber retainer	10 Nm
Rod retainer (nut)	10 Nm
Gear shift lever / brake pin retainer	10 Nm
Gear shift lever / pre-selector retainer	10 Nm
Spring hook pin	4 Nm

SIDE STAND

Name	Torque in Nm
Stand plate to engine retainer	80 Nm
Side stand retainer pin	10 Nm
Switch fixing screw	10 Nm
Lock nut	30 Nm

CENTRE STAND

Name	Torque in Nm
Stand to plates fixing screw	50 Nm
Pipe guide ring to plates fixing screw	10 Nm

FRONT SUSPENSION

Name	Torque in Nm
Speed sensor retainer	10 Nm
Tube lock plate to steering base retainer	6 Nm
Fork stem to lower / upper plate retainer	25 Nm
Headstock ring nut	40 Nm
Headstock counter ring nut	manual + 90 degrees
Upper plate fixing cover	100 Nm
Fork hubs closing	10 Nm

REAR SUSPENSION

Name	Torque in Nm
Shock absorber to chassis retainer, 8.8	50 Nm
Double connecting rod/shock absorber retainer, 10.9	40 Nm
Single connecting rod/double connecting rod retainer, 10.9	50 Nm
Single connecting rod to chassis retainer, 8.8	50 Nm
Double connecting rod/fork retainer, 10.9	50 Nm

AIR FILTER CASING

Name	Torque in Nm
Filter casing cover/filter casing bracket	3 Nm
Blow by tank to filter casing cover retainer	3 Nm
Pressure sensor retainer	2 Nm

OUTLET

Name	Torque in Nm
Exhaust pipe to engine retainer	25 Nm
Exhaust pipe to compensator retainer (clamp)	10 Nm
Compensator to silencer retainer (clamp)	10 Nm
Lambda probe retainer	38 Nm
Silencer to support retainer (screw +nut)	25 Nm

FRONT WHEEL

Name	Torque in Nm
Wheel pin nut	80 Nm

REAR WHEEL

Name	Torque in Nm
Disc retainer	30 Nm
Rear wheel retainer, 10.9	110 Nm

FRONT BRAKING SYSTEM

Name	Torque in Nm
Front brake right and left calliper retainer	40 Nm

REAR BRAKING SYSTEM

Name	Torque in Nm
Rear brake calliper retainer	50 Nm
Rear brake lever pin	15 Nm
Rear brake fluid reservoir retainer	3 Nm
Rear brake fluid reservoir support to plate retainer	10 Nm
Rear brake rod lock nut	manual
Brake lever spring to plate retainer	6 Nm
Brake pump retainer	10 Nm

HANDLEBAR AND CONTROLS

Name	Torque in Nm
Half-handlebar to steering plate retainer	25 Nm
Handlebar pipes to half-handlebar retainer	25 Nm
Anti-vibration weights retainer	10 Nm
Clutch pipes retainer	20 Nm

ELECTRICAL SYSTEM

Name	Torque in Nm
Horn retainer	15 Nm

Name	Torque in Nm
Speed sensor to front fork retainer	12 Nm

INSTRUMENT PANEL AND LIGHTS

Name	Torque in Nm
Instrument panel support to light support retainer	10 Nm
Instrument panel support to fork upper plate retainer	25 Nm
Instrument panel retainer	3 Nm
Light support to fork lower plate retainer	25 Nm
Light + turn indicators retainer	10 Nm
Rear light to handgrip retainer	4 Nm

FUEL PUMP FLANGE

Name	Torque in Nm
Tank breather joint	6 Nm
Pump support to tank retainer	4 Nm

FUEL TANK

Name	Torque in Nm
Filler to tank retainer	4 Nm
Fuel pump flange to tank retainer	25 Nm

CHASSIS/ FAIRINGS (FRONT)

Name	Torque in Nm
Air inlet to tank retainer	4 Nm
Lug to engine retainer	25 Nm
Right to left lug retainer	4 Nm
Front mudguard retainer	4 Nm
M4 Allen screws fixing the instrument panel	2 Nm
M5 Allen screws fixing the instrument panel and fairings	3.8 Nm
M6 Electric windshield supports retainer	12 Nm

CHASSIS/ FAIRINGS (REAR)

Name	Torque in Nm
Tail section + fairings retainer	4 Nm
Tail section to handgrip retainer	4 Nm
Net hooks to chassis retainer	25 Nm

Name	Torque in Nm
reflector to support retainer	4 Nm
reflector support to license plate holder retainer	4 Nm
ABS support to mudflaps retainer	3 Nm
License plate lamp to license plate holder retainer	4 Nm

FINISHINGS

Name	Torque in Nm
Ignition lock - shear head screw	- Nm
Ignition lock retainer	25 Nm

Overhaul data

Assembly clearances

Cylinder - piston assy.

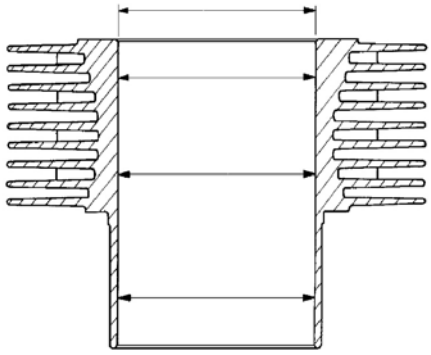
Measurement of the cylinder diameter must be done in three heights, turning the dial gauge 90°.

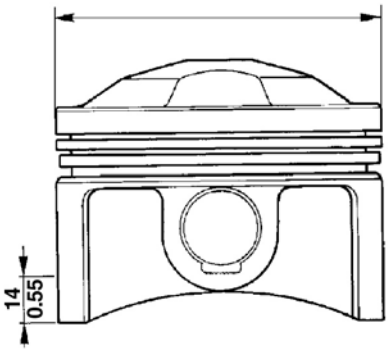
Check the clearance between the cylinders and pistons; if it is larger than indicated, it is necessary to replace cylinders and pistons.

The pistons of an engine must be balanced; a weight difference of up to 1.5 (0.0033 lb) is admitted.

ADMITTED MEASUREMENTS

Specification	Desc./Quantity
cylinder diameter	95.000 - 95.020 mm (3.7401 - 3.7409 in)
piston diameter	94.942 - 94.972 mm (3.7379 - 3.7390 in)
fitting clearance	0.048 - 0.068 mm (0.00189 - 0.00268 in)





Piston rings

Check the sealing piston rings and the oil scraper.

On each piston there are:

1 upper piston ring;

1 middle stepped piston ring ;

1 oil scraper piston ring.

The ends of the fitted piston rings are out of phase.

Fitting clearances between the ring thickness and the piston seats:

Sealing rings and oil scraper 0.030 - 0.065 mm (0.00118 - 0.00256 in)

Clearance between the end of the piston rings inserted in the cylinder:

Upper sealing ring and stepped ring 0.40 - 0.65 mm (0.00158 - 0.00255 in)

Oil scraper ring 0.30 - 0.60 mm (0.00118 - 0.00236 in).

Turn the rings so that the junction ends are 120 degrees from each other.

Crankcase - crankshaft - connecting rod

CAMSHAFT SUPPORTS DIAMETER AND THEIR SEATS ON THE BASE (TIMING SYSTEM SIDE)

Specification	Desc./Quantity
Shaft support diameter	47.000 - 46.984 mm (1.85039 ÷ 1.84976 inch)
Seat diameter on base	47.025 - 47.050 mm (1.85137 ÷ 1.85236 inch)
fitting clearance	0.025 - 0.066 mm (0.00098 ÷ 0.00260 inch)

CAMSHAFT SUPPORTS DIAMETER AND THEIR SEATS ON THE BASE (FLYWHEEL SIDE)

Specification	Desc./Quantity
Shaft support diameter	32.000 - 31.984 mm (1.25984 ÷ 1.25921 inch)
Seat diameter on base	32.025 - 32.050 mm (1.26082 ÷ 1.26181 inch)
fitting clearance	0.025 - 0.066 mm (0.00098 ÷ 0.00260 inch)

TAPPET WITH BASE SEATS COUPLING DATA (PRODUCTION)

Specification	Desc./Quantity
Seats diameter	22.021 - 22.000 mm (0.86697 ÷ 0.86614 inch)
Tappet external diameter	21.996 - 21.978 mm ((0.86598 ÷ 0.86527 inch)
Fitting clearances	0.004 - 0.043 mm (0.00016 ÷ 0.00169 inch)

Recommended products chart

RECOMMENDED PRODUCTS

Product	Description	Specifications
AGIP RACING 4T 10W-60	Engine oil	SAE 10W - 60. As an alternative for recommended oils, top branded oils that meet or exceed the requirements of CCMC G-4 API SG specifications can be used.
AGIP ROTRA MP 80 W 90	Transmission oil	-
AGIP ROTRA MP/S 85 W 90	Gearbox oil	-
AGIP FORK 5W or FORK 20W	Fork oil	SAE 5W / SAE 20W
AGIP GREASE SM2	Lithium grease with molybdenum for bearings and other points needing lubrication	NLGI 2
Neutral grease or petroleum jelly.	Battery poles	
AGIP BRAKE 5.1 DOT 4 (the braking system is also compatible with DOT 5)	Brake fluid	As an alternative for recommended fluids, top branded fluids that meet or exceed the requirements of SAE J1703, NHTSA 116 DOT 4, ISO 4925 synthetic fluid specifications can be used.

NOTE

USE ONLY NEW BRAKE FLUID. DO NOT MIX DIFFERENT BRANDS OR TYPES OF OIL

WITHOUT CHECKING THEIR BASE COMPATIBILITY.

INDEX OF TOPICS