

BL Motorcycles Ltd

Professional Workshop Manual - English Translation

Piaggio - mss_x9_evolution_250

WORKSHOP MANUAL

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MSS X9 Evolution 250

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PIAGGIO & C. S.p.A. - After-Sales

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WORKSHOP MANUAL

MSS X9 Evolution 250

This workshop manual has been drawn up by Piaggio & C. Spa to be used by the workshops of Piaggio-Gilera dealers. This manual is addressed to Piaggio service mechanics who are supposed to have a basic knowledge of mechanics principles and of vehicle fixing techniques and procedures. Any important changes made to the vehicles or to specific fixing operations will be promptly reported by updates to this manual. Nevertheless, no fixing work can be satisfactory if the necessary equipment and tools are unavailable. It is therefore advisable to read the sections of this manual relating to specific tools, along with the specific tool catalogue.

N.B. 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.

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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.

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CHARACTERISTICS CHAR

Rules

This section describes general safety rules for any maintenance operations performed on the vehicle.

Safety rules

- If work can only be done on the vehicle with the engine running, make sure that the premises are well-ventilated, using special extractors if necessary; never let the engine run in an enclosed area. Exhaust fumes are toxic.
- The battery electrolyte contains sulphuric acid. Protect your eyes, clothes and skin. Sulphuric acid is highly corrosive; in the event of contact with your eyes or skin, rinse thoroughly with abundant water and seek immediate medical attention.
- The battery produces hydrogen, a gas that can be highly explosive. Do not smoke and avoid sparks or flames near the battery, especially when charging it.
- Fuel is highly flammable and it can be explosive given some conditions. Do not smoke in the working area, and avoid open flames or sparks.
- Clean the brake pads in a well-ventilated area, directing the jet of compressed air in such a way that you do not breathe in the dust produced by the wear of the friction material. Even though the latter contains no asbestos, inhaling dust is harmful.

Maintenance rules

- Use original PIAGGIO spare parts and lubricants recommended by the Manufacturer. Non-original or non-conforming spares may damage the vehicle.
- Use only the appropriate tools designed for this vehicle.
- Always use new gaskets, sealing rings and split pins upon refitting.
- After removal, clean the components using non-flammable or low flash-point solvents. Lubricate all the work surfaces except the tapered couplings before refitting.

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- After refitting, make sure that all the components have been installed correctly and work properly.
- For removal, overhaul and refit operations use only tools with metric measures. Metric bolts, nuts and screws are not interchangeable with coupling members with English measurement. Using unsuitable coupling members and tools may damage the scooter.
- When carrying out maintenance operations on the vehicle that involve the electrical system, make sure the electric connections have been made properly, particularly the ground and battery connections.

MSS X9 Evolution 250 Characteristics

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Vehicle identification

Chassis prefix: ZAPMXXXX > XXXXXX

Engine prefix: M23XM

Dimensions and mass

DIMENSIONS AND WEIGHT

Specification Desc./Quantity

Empty weight 173 Kg

Wheelbase 1500 mm

Overall height 1450 mm

Saddle height 790 mm

Overall length 2130 mm

Overall width 910 mm

Characteristics MSS X9 Evolution 250

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Engine

Characteristics Version 250

Type Single-cylinder, 4 stroke and 4 valves

Piaggio QUASAR with secondary air system and catalytic converter.

Cooling system Liquid

Number of cylinders 1

Bore 72 mm

Stroke 60 mm

Piston displacement 244,29 cm³

Compression ratio 10,5 - 11,5 : 1

Timing system Single-head camshaft controlled by left side chain, 3-arm rockers with threaded register.

Valve clearance:

intake 0,10 mm

exhaust 0,15 mm

Walbro Carburettor WVFH

Kehin Carburettor CVK 30

Air filter Sponge, impregnated with mixture (50% Selenia Air Filter Oil and 50% lead-free fuel).

Start-up system electric starter

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Lubrication with twin-screw pump (inside the crankcase) controlled by chain and dual filter: net and paper filter.

Power supply Petrol (with minimum octane level 95, lead-free) with vacuum pump and through carburettor.

Max speed xxx Km/h

Spark plug CHAMPION RG4HC

Transmission

TRANSMISSIONS

Specification Desc./Quantity

Transmission With automatic expandable pulley variator, V belt, automatic clutch, gear reduction unit and transmission housing with forced-circulation air cooling.

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Gas control transmission fixing

Please take note that starting from the frame number ZAPM2300004502417, the gas control transmission fixing has been changed, in fact a tear-off clamp and a sheath have been introduced, in order to improve its passage

Capacities

CAPACITÀ

Specification Desc./Quantity

Rear hub 150 cc (recommended oil: TUTELA ZC 90)

Cooling system ~ 1.2 litres (recommended fluid PARAFLU MOTORIDER).

Fuel tank (including a ~ 2.5 l reserve) ~ 14.5 l

Engine oil approx. 1300 cc (recommended oil Selenia HI Scooter 4 Tech)

Electrical system

ELECTRIC COMPONENTS 250

Specification Desc./Quantity

Ignition type Electronic capacitive discharge ignition (CDI) and variable advance, with separate HV coil.

Spark plug CHAMPION RG4HC

Battery 12V-12Ah

Generator Three-phase alternating current

Variable spark advance $10^\circ \pm 1$ at 2000 Rpm

$28^\circ \pm 1$ at 6500 Rpm

Frame and suspensions

CHASSIS AND SUSPENSIONS

Specification Desc./Quantity

Rear wheel max. travel 90 mm.

Rear suspension Engine with oscillating fork articulated to the chassis by means of a double swinging arm. Double-acting hydraulic shock absorbers, coaxial helicoidal spring with variable step, adjustable at preloading on 4 positions.

Front fork stroke 90 mm

Front suspension Hydraulic telescopic fork with Ø 35-mm stem

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Type of chassis Welded tubular steel chassis with stamped sheet reinforcements.

X9 Evolution 125-250-500:

Please take note that, starting from chassis serial number ZAPM2300003509521, the front small chassis fixing system has changed in order to improve its locking to the chassis. Therefore we have introduced:

N°2 screws drawing 432142

N°2 4x11x0 external teeth spring washers drawing 012533

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