



**Rockster 410**

Owner's manual & warranty conditions

***macbor.com***

**This owner's manual is a practical guide to help keep your motorcycle in top condition. The wear and durability of all components will depend on responsible use of this manual. As you will already know, at Macbor we put passion and enthusiasm into every detail. We cannot help it, and this manual is clear proof of that.**

**We simply hope you find it useful and that it helps you take your Macbor wherever you want to go. That part is up to you.**

**Smart yourself.**

## Foreword

Thank you for choosing our motorcycle. To ensure pleasant and safe riding, please read this manual carefully before carrying out any operation. This manual explains the correct method for using and maintaining this motorcycle model. If you strictly follow the rules and guidelines in the manual, your motorcycle will remain in good condition and will last for many years. The after-sales staff have received specialised training on your model. They have a full set of the appropriate tools and will provide you with excellent after-sales service. All data, photographs and specifications refer to the most recent products available when this manual was published. Due to continuous improvements and other product changes, there may be some differences compared with the actual condition of your motorcycle. We reserve the right to make appropriate changes at any time. This manual contains the following messages, which have a special meaning:

**WARNING:** Indicates a potentially dangerous situation which, if not avoided, could result in serious injury or death.

**CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may damage your motorcycle.

**NOTE:** Provides information to assist with maintenance or instructions.

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# 1. User instructions

## SAFE RIDING INSTRUCTIONS

Riding a motorcycle is great fun and very exciting. Motorcycle riding requires additional precautions to ensure safe riding, as well as compliance with traffic regulations and the following provisions.

### **Wear a safety helmet**

Motorcycle safety begins with wearing a helmet, which is an essential item for safe riding. The first item of protection when riding is a helmet that complies with safety and quality standards.

### **Riding gear**

Loose or unusual clothing will make you feel uncomfortable and unsafe when riding. Choose close-fitting, high-quality protective clothing designed for motorcyclists.

### **Pre-ride inspection**

Carefully read the instructions in the "Pre-ride inspection" section of this manual, and check everything according to the instructions, which ensure the safety of the rider and passengers.

### **Do not ride under the influence of drugs or alcohol**

Alcohol and drugs can affect your perception and reaction time. Do not drink alcohol or take drugs before or while riding.

### **Familiarise yourself with the motorcycle**

Your riding skills and mechanical knowledge are the basis for safe riding. First, practise on the motorcycle until you fully understand its mechanical performance and how to control it. Remember: practice makes perfect.

### **Take account of the speed limit and safe speed**

Never ride too fast or allow the engine revs to become too high. Ride at a pace that feels comfortable for you, stay within your limits and avoid taking unnecessary risks.

### **Do not modify the mechanics**

Modifications to this type of vehicle without the manufacturer's approval may pose an unpredictable hazard. It is also illegal to modify or dismantle the motorcycle's original devices, as the safety of the motorcycle can no longer be guaranteed. Users must comply with traffic regulations on the use of vehicles.

### **Take care when riding on rainy days**

Pay particular attention when riding in cloudy and rainy conditions. Remember that the braking distance is twice as long as on sunny days. When riding, avoid speed bumps and raised areas, and pay attention to paint and oil on the road to avoid skidding. If the road surface is not ideal, reduce your riding speed.

### **INFORMATION ON LOAD AND ACCESSORIES**

Incorrect loading, inappropriate modification of the motorcycle or incorrect installation of accessories may create riding safety risks and even cause accidents. Special care must therefore be taken when loading the motorcycle and when modifying or installing accessories.

The maximum load capacity of this model is 150 kg, including the rider, baggage and accessories. Exceeding this limit will make the motorcycle more difficult to handle, increase the braking distance or cause other problems that may pose a hazard. Avoid overloading!

- To reduce the impact on the motorcycle's centre of gravity, all loaded baggage should be positioned as low as possible. The weight of the load should be balanced on both sides of the motorcycle, and baggage should not be loaded at the rear of the motorcycle.
- Baggage must be firmly secured so that it does not move to the left or right while riding. If you notice any instability while riding, stop immediately to check and readjust the load.

- Do not load objects that are too heavy or bulky. Overloading will affect weight distribution, which in turn will affect the motorcycle's handling and braking performance.
- Do not install or carry accessories that affect the motorcycle's performance. Check that they do not affect the lights, ground clearance, braking performance, handling or other functions.
- Additional electrical accessories may overload the electrical system. Severe overloading may damage the wiring, stop the engine while riding or even cause a fire in the vehicle.

## FRAME NUMBER (VIN) AND ENGINE NUMBER

The motorcycle identification number (VIN) and engine number are used for motorcycle registration. When ordering accessories or requesting special services, this number will help the dealer provide you with a better service.



**1. The frame number (VIN)** is stamped on the right-hand side of the steering head.



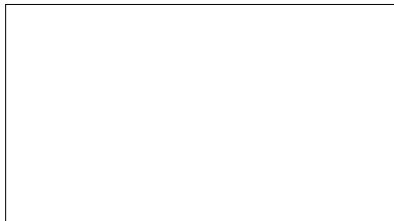
**2. The manufacturer's plate** is riveted to the left-hand side of the steering head.



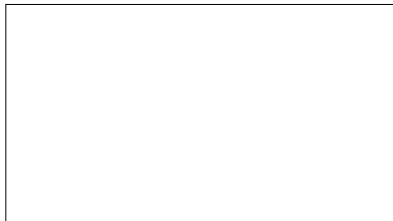
**3. The engine number** is engraved on the upper part of the left engine crankcase.

Please fill in the relevant numbers for future reference:

**Motorcycle identification number  
(VIN)**



**Engine number**

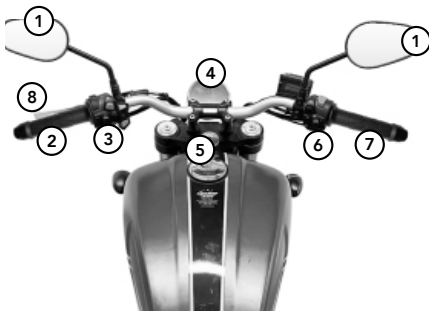


## **SAFETY INFORMATION**

Read and follow the instructions in this Manual carefully. The symbols **WARNING**, **CAUTION** and **NOTICE** are used to indicate the level of caution required. Study and make sure you fully understand their meanings.

## 2. Location of components

Figure: front view



- |                             |                 |
|-----------------------------|-----------------|
| 1. Rear-view mirror         | 8. Clutch lever |
| 2. Left handlebar grip      |                 |
| 3. Left switchgear          |                 |
| 4. Instrument panel         |                 |
| 5. Lockable fuel filler cap |                 |
| 6. Right switchgear         |                 |
| 7. Throttle grip            |                 |

## 2. Location of components

Figure: view from the right



- |                        |                                 |                            |
|------------------------|---------------------------------|----------------------------|
| 1. Number plate light  | 9. Ignition switch              | 16. Oil filler cap         |
| 2. Passenger seat      | 10. Rear brake pedal            | 17. Coolant expansion tank |
| 3. Rider's seat        | 11. Right front brake caliper   | 18. Steering lock          |
| 4. Fuel tank           | 12. Front wheel                 | 19. Air filter             |
| 5. Instrument panel    | 13. Headlight                   |                            |
| 6. Rear wheel          | 14. Front brake lever           |                            |
| 7. Rear brake calliper | 15. Oil level inspection window |                            |
| 8. Right silencer      |                                 |                            |

## 2. Location of components

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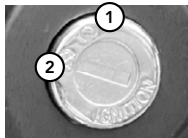
Figure: view from the left



- |                             |                                |                       |
|-----------------------------|--------------------------------|-----------------------|
| 1. Headlight                | 9. Side stand                  | 16. Battery and fuses |
| 2. Fuel tank                | 10. Left silencer              |                       |
| 3. Seat lock                | 11. Secondary drive chain      |                       |
| 4. Passenger grab handle    | 12. Rear wheel                 |                       |
| 5. Tail light               | 13. USB socket                 |                       |
| 6. Front wheel              | 14. Horn                       |                       |
| 7. Left front brake caliper | 15. Coolant expansion tank cap |                       |
| 8. Gear lever               |                                |                       |

## 3. Controls

The ignition key controls the operation of the ignition and lighting circuits as follows:

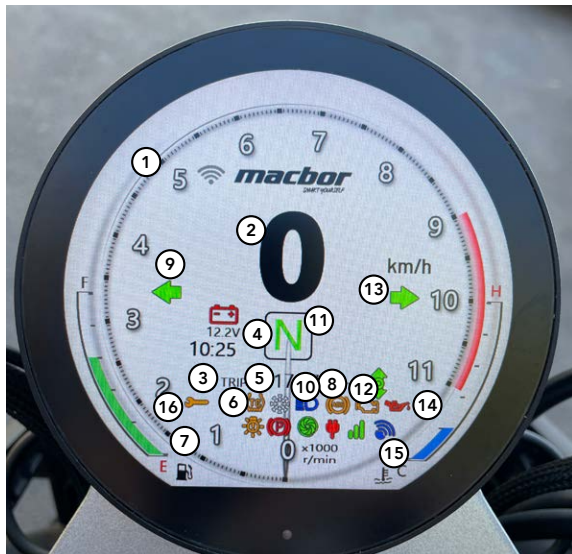


| Position                                                                                                  | Instructions for use                                                                                                              |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1.  <b>Ignition ON</b>   | Turn the key to position "Q"; the circuits are activated and the key cannot be removed.                                           |
| 2.  <b>Ignition OFF</b>  | Turn the key to position "X"; the circuits are deactivated and the key can be removed.                                            |
| 3.  <b>Steering lock</b> | Turn the handlebars fully to the left. Insert the key into the steering lock and turn it 90° anti-clockwise to lock the steering. |

**WARNING:**

1. For your safety and to prevent theft of your motorcycle, park it in a safe place and use the steering lock system.

## INSTRUMENT PANEL



### 3. Controls

| Name                 | Function                                                                                                                                   |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Rev counter       | Shows the engine speed                                                                                                                     |
| 2. Speedometer       | Shows the motorcycle's current speed                                                                                                       |
| 3. Odometer          | Shows the total mileage covered by the motorcycle                                                                                          |
| 4. Gear indicator    | Shows the selected gear                                                                                                                    |
| 5. TCS light on      | When the ignition key is switched on, the TCS ON light comes on until the motorcycle reaches a speed of 8 km/h, when it changes to TCS Off |
| 6. TCS light off     | It remains off once the vehicle is travelling at a speed above 8 km/h.                                                                     |
| 7. Fuel level        | Shows the amount of fuel available in the tank. F means full and E means empty.                                                            |
| 8. ABS warning light | The ABS warning light remains on when the motorcycle pulls away and goes off while riding.                                                 |

|                                           |                                                                                                                                                                                 |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>9. Left indicator light</b>            | When the left indicator is active, indicator "←" flashes.                                                                                                                       |
| <b>10. Main beam indicator</b>            | When the main beam is activated, indicator "≡D" remains on.                                                                                                                     |
| <b>11. Neutral indicator</b>              | If the N indicator is on, this means that the gearbox is in neutral                                                                                                             |
| <b>12. EFI warning light</b>              | When the ignition key is switched on, the indicator lights up and then goes off when the engine starts. If it lights up while riding, this indicates a fault in the EFI system. |
| <b>13. Right indicator light</b>          | When the right indicator is active, indicator "→" flashes.                                                                                                                      |
| <b>14. OIL warning light</b>              | This light comes on when the engine is not being lubricated properly.                                                                                                           |
| <b>15. High temperature warning light</b> | This light comes on when the engine coolant temperature is too high.                                                                                                            |

**16. Maintenance reminder**

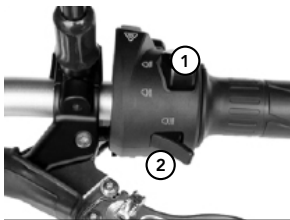
Indicates that periodic maintenance is required. It comes on for the first time at 1,000 km, then when the odometer reaches 6,000 km and every 5,000 km thereafter.

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**WARNING:**

1. When the engine coolant indicator is on, it means that the engine is overheated. If you continue riding when the engine is overheated, the engine components will suffer serious damage.

## LEFT HANDLEBAR CONTROL SYSTEM



| Name                            | Function                                                                                                                              |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Light switch</b>          | When the switch is moved to position "≡D", the main beam comes on. When it is moved to position "≡D", the dipped beam is activated.   |
| <b>2. Passing light button</b>  | When pressed, indicator "≡D" lights up to show that you are about to start an overtaking manoeuvre.                                   |
| <b>3. Indicator switch</b>      | Depending on whether it is moved to one side or the other, the indicators will come on and flash to show a left "←" or right "→" turn |
| <b>4. Horn button</b>           | Press and hold button "🔊" to sound the horn.                                                                                          |
| <b>5. Hazard warning switch</b> | When this switch is operated, the right and left indicators flash at the same time. When it is switched off, the flashing stops.      |

## **6-7. MODE/SET button**

A long press of the button means pressing it for more than 2 seconds. A short press of the button means pressing it for less than 2 seconds.

1. Briefly pressing the M button cycles through the different screens.
  2. When the trip meter is displayed, perform a long press to reset it (RESET). To do this, press and hold the button.
  3. With a short press of the S button, you can cycle through the different data screens: odometer, trip, average speed, maximum speed, l/h, etc.
  4. A long press of the S button gives access to the My Vehicle menu, software version, time setting, display brightness, telephone, motorcycle diagnostics, language, units of measurement, maintenance reset and restore factory settings.
  5. To change the units of measurement from kilometres to miles and vice versa, switch off the ignition, press and hold the S button, switch the ignition back on and keep the S button pressed for more than 5 seconds.
-

## RIGHT HANDLEBAR CONTROL SYSTEM



| Name                              | Function                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Emergency switch.</b>       | When the switch is in position  , the engine will stop or cannot be started. When it is in position  , the engine can be started                                                                                                                               |
| <b>2. TCS (traction control)</b>  | <p>When the ignition key is switched on, the TCS ON light comes on until the motorcycle reaches a speed of 8 km/h, after which the light should go out. When the system is operating, the light will flash.</p> <p>To switch the TCS system on or off, ride until the light goes out and then press the TCS button for more than 4 seconds. The light should then remain on. Repeat the operation to switch the system back on</p> |
| <b>3. Electric starter button</b> | Press button  to start the engine.                                                                                                                                                                                                                                                                                                                |
| <b>4. Throttle grip</b>           | Controls the engine's acceleration level and revolutions per minute                                                                                                                                                                                                                                                                                                                                                                |

**WARNING:**

1. Do not overuse the electric starter. When starting the motorcycle, do not press the starter button for more than 5 seconds.
2. Wait around 10 seconds after each failed starting attempt before trying again.
3. If the engine does not start after three consecutive attempts, the cause of the problem should be inspected.

## TFT DISPLAY

After switching on the ignition key, the TFT display will show the vehicle operating data screen (format #1)

Briefly pressing the MODE button switches the TFT display between four different views:

1. Vehicle operating data display (format #1)
2. Mirroring function. Requires installation of the Carbitride app. Allows you to use the app's built-in navigation system and mirror the smartphone screen on the instrument panel.
3. My vehicle.
4. Vehicle operating data display (format #2)



### 3. Controls

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### 6. MODE button

Press the MODE button repeatedly to cycle through the menu and activate the different available riding modes

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## TFT DISPLAY

Briefly pressing the SET button after switching on the vehicle ignition key displays the following information on the active vehicle data screen:

1. Total odometer
2. Trip odometer (TRIP)
3. Maximum speed
4. Average speed
5. Fuel consumption in litres per 100 km.
6. Fuel consumption in litres per hour.





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## 7. SET button

Press the SET button repeatedly to cycle through the menu and activate the different available settings.

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## TFT DISPLAY

Pressing and holding the SET button from the My Vehicle screen (see SET button operation) cycles through eight different views on the TFT display:

1. Software version
2. Clock settings
3. Instrument panel settings
4. Mobile phone settings and connection
5. OBD diagnostics
6. Language selection
7. Unit selection
8. Vehicle maintenance. Clear warnings and settings
9. Restore factory settings



### 3. Controls



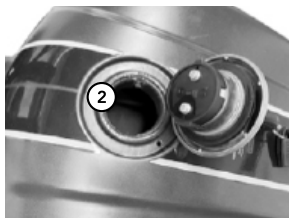
## FUEL TANK

Use unleaded petrol with an octane rating of 95 or higher. E5 and E10 fuel labels may be used interchangeably in accordance with Directive 2014/94/EU.



### WARNING:

1. When refuelling, do so with the engine stopped and in a well-ventilated area. The maximum fuel level must remain below the lower edge of the tank filler neck.
2. The refuelling area must be kept away from sources of heat, sparks and flames. Smoking is prohibited during this operation.

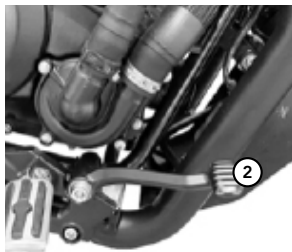


### CAUTION:

1. Use only authorised fuel to avoid affecting the proper operation of the vehicle.

## BRAKES

This model is equipped with disc brakes on both wheels, providing high braking power. The braking system is directly related to riding safety and must be maintained regularly and correctly



| Item                 | Functional description                                            |
|----------------------|-------------------------------------------------------------------|
| 1. Front brake lever | With lever travel of: 10 to 20 mm, braking action should be felt. |
| 2. Rear brake pedal  | With pedal travel of: 20 to 30 mm, braking action should be felt. |

### NOTE:

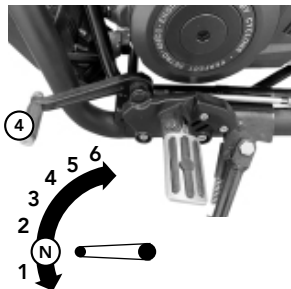
1. For any brake system maintenance or adjustment operation, we recommend visiting your nearest dealer.

## CLUTCH AND GEAR LEVER

The clutch system on this model is a manually operated wet multi-plate clutch. To adjust the clutch, where necessary, use either the adjuster on the operating lever (3) or the adjuster on the engine clutch cable bracket



| Item                | Functional description                                                                                                                                                                                                                  |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Clutch lever     | With lever travel of: 10 to 20 mm, braking action should be felt.                                                                                                                                                                       |
| 4. Gear shift pedal | The gearbox is a six-speed constant-mesh transmission with two-stage transmission. To change gear, close the throttle and operate the clutch at the same time. The functional structure of the gearbox is shown in the attached figure. |

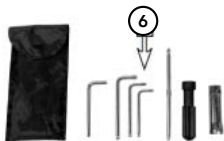


### NOTE:

1. Start the engine with the gearbox in neutral.
2. For any maintenance or adjustment of the clutch or gearbox system, we recommend visiting your nearest dealer.

## THROTTLE

| Item                | Functional description                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5. Throttle grip    | Controls the engine's acceleration level and revolutions per minute. Its free play is: 2 mm to 6 mm.                                                                                                                                                                                                                                                                                 |
| 6. Vehicle tool kit | <p>The vehicle is supplied with a number of tools to assist with simple, basic adjustments and maintenance</p> <p>Tool bag 1<br/>         6 mm angled Allen key 1<br/>         T40 angled key 1<br/>         T25 angled key 1<br/>         T20 angled key 1<br/>         Reversible screwdriver 1<br/>         Reversible screwdriver handle 1<br/>         Spark plug spanner 1</p> |



## MAXIMUM VEHICLE LOAD

This vehicle has been designed to carry only one rider and one passenger. Please follow the instructions below carefully to avoid seriously affecting the stability and safety of the motorcycle. Maximum payload of the completed vehicle: 150 kg.



### **WARNING:**

1. Any traffic accident caused by overloading the vehicle, resulting in material damage, injury or death, shall be the sole responsibility of the user.
2. If carrying any item on the motorcycle, it must be correctly and firmly secured, as close as possible to the centre of the motorcycle, so that the weight is balanced evenly on both sides.

## ELECTRONIC FUEL INJECTION (EFI) SYSTEM

The main function of the electronic fuel injection (EFI) system is to provide the correct air-fuel mixture for introduction into the engine combustion chamber. It consists of an Electronic Control Unit (ECU), an injector, a throttle body with throttle valve, an intake air temperature sensor and another engine temperature sensor, an intake pressure sensor, an ignition coil, a crankshaft position sensor, a fuel pump and an exhaust oxygen sensor (lambda sensor).

The EFI system precisely manages the ratio of air and petrol supplied to the engine, its combustion process and the control of exhaust gases in order to optimise engine performance, rideability and the level of exhaust gases emitted into the atmosphere.

The system has a fault indicator light on the instrument panel. When the ignition key is switched on, the EFI fault light will remain on until the engine starts. If the warning light comes on continuously or flashes while riding, this indicates a system fault.

In this case, the motorcycle must be diagnosed using suitable diagnostic equipment, which will indicate the source of the fault in the electrical system or in one of the EFI components:

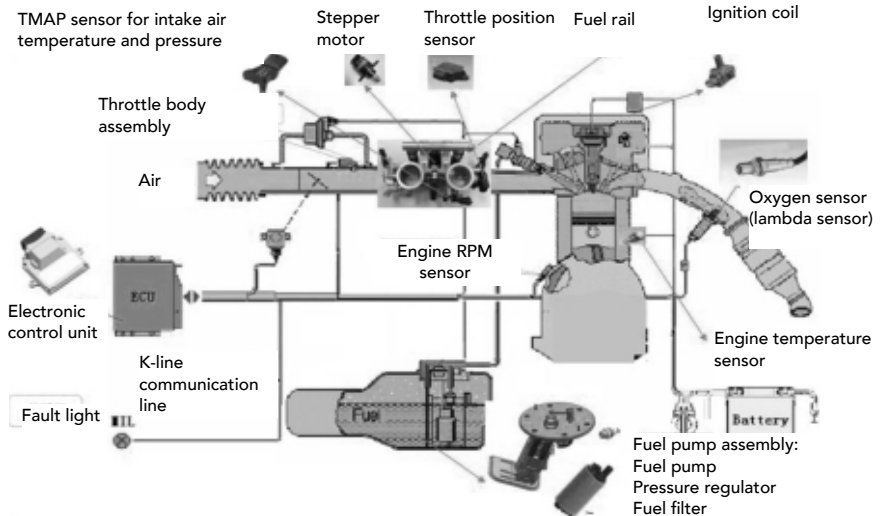
1. If a fault is detected, the system can be restarted and recovered by clearing the errors stored in the ECU memory. The procedure is as follows: Switch on the ignition while opening the throttle fully and hold it in this position for 5 seconds. Then return it to its resting position and switch off the ignition. This completes the system reset.
2. If the engine does not start after several consecutive attempts, contact your nearest Macbor dealer.

**WARNING:**

1. It is strictly prohibited to remove the ECU or any other EFI system component while the motorcycle is electrically powered.
2. Do not deform or overstretch the wiring harness when removing or installing EFI system components.
3. When installing parts fitted with rubber sealing rings, such as the intake temperature sensor, nozzles, etc., apply a little grease to facilitate assembly. For the exhaust oxygen sensor (lambda sensor), apply anti-seize sealant to the threaded area during installation.
4. Remove any dirt, rust or impurities that may accumulate in the fuel tank to prevent damage to the fuel pump. When removing it for this operation, first release the circuit pressure and place a cloth underneath to absorb the small amount of fuel that may leak out during the process.
5. To prevent damage to the fuel pump due to excessive temperature, never run it empty. During operation, always keep it submerged in fuel.
6. It is prohibited to apply voltage to EFI system components individually. The main wiring harness must not be damaged or modified. If accessories are installed, they must be positioned more than 300 mm away from the ECU and sensors.
7. During assembly of the fuel injector in its nozzle, pay special attention to correct positioning. To ensure the correct working angle.
8. In accordance with EURO 4 and 5 regulations, the EFI fault warning light will only go off after the problem that triggered it has been resolved and after four complete system operating cycles (ignition key ON to OFF).
9. If the system reset mode does not clear the fault, repair the internal fault in the system itself.

- 10.** If your vehicle remains unused for long periods, it is advisable to run it at least once every 2 months for around 20 minutes.
- 11.** EFI system components may only be replaced with specific Macbor spare parts. The ECU, sensors and components must not be swapped between different vehicles unless the models and types are confirmed to be exactly the same.
- 12.** Replace the fuel filter and air filter every 10,000 km.
- 13.** Do not tamper with the factory setting of the throttle valve in the throttle body. Do not attempt to adjust or replace EFI system components yourself. These operations must only be carried out by technical staff at your nearest authorised dealer.

## EFI SYSTEM STRUCTURAL DIAGRAM



**EFI FAULTS**

| Common faults           | Classification    | Probable causes                       | Troubleshooting method                    |
|-------------------------|-------------------|---------------------------------------|-------------------------------------------|
| Fuel pump does not work | Electrical system | Poor battery connection               | Check and retighten the battery terminals |
|                         |                   | Poor electrical contact or blown fuse | Check and/or replace the fuse             |
|                         |                   | Fuel pump relay faulty                | Check and/or replace the pump relay       |
|                         | EFI               | Fuel pump fault                       | Replace the pump                          |
|                         |                   | ECU or ECU programming fault          | Replace the ECU                           |

### 3. Controls

|                           |                    |                                                                                |                                                                                                           |
|---------------------------|--------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| The engine does not start | Intake and exhaust | Mixture too lean for ignition due to poor sealing and leaks in the intake line | Check, locate and repair any possible leaks along the entire engine intake line                           |
|                           | EFI                | Ignition coil fault                                                            | Replace the ignition coil                                                                                 |
|                           |                    | Electrical or mechanical injector fault/blockage                               | Check and/or replace the fuel injector                                                                    |
|                           |                    | Low fuel pump pressure                                                         | Check and/or replace the pump                                                                             |
|                           |                    | Throttle position sensor fault                                                 | Check and/or replace the throttle body sensor                                                             |
|                           |                    | Oxygen sensor (lambda sensor) damaged                                          | Check and/or replace the oxygen sensor (lambda sensor)                                                    |
|                           |                    | Temperature sensor damaged                                                     | Check and/or replace the intake or engine temperature sensor, as applicable                               |
|                           | Engine             | Ignition coil activation circuit fault                                         | Check the ignition coil circuit and wiring                                                                |
|                           |                    | Low spark plug output                                                          | Check and/or replace the spark plug cap or spark plug, as applicable                                      |
|                           |                    | Poor connection between the spark plug cap and the spark plug                  |                                                                                                           |
|                           |                    | Loss of compression in the cylinder or valve sealing fault                     | Check the compression pressure and cylinder pressure leaks. Repair and/or replace the damaged components. |

### 3. Controls

| Common faults                 | Classification     | Probable causes                                                                                     | Troubleshooting method                                                                                  |
|-------------------------------|--------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| The engine does not start     | Electrical system  | Poor battery connection                                                                             | Check and retighten the battery terminals                                                               |
|                               |                    | Poor electrical contact or blown fuse                                                               | Check and/or replace the fuse                                                                           |
|                               |                    | Fuel pump relay faulty                                                                              | Check and/or replace the pump relay                                                                     |
| High or unstable idling speed | Intake and exhaust | Poor sealing and leaks in the intake line result in a lean mixture and unstable idling speed        | Check, locate and repair any possible leaks along the entire engine intake line                         |
|                               |                    | Throttle cable with no free play, preventing the throttle valve from returning to the idle position | Check and adjust the throttle cable free play or replace the throttle body if it is damaged or deformed |
|                               |                    | Bypass passage blocked by carbon deposits                                                           | Clean and remove the carbon deposits                                                                    |
|                               | EFI                | Loss of stepper motor idle reference                                                                | Reset the stepper motor to restore the idle reference.                                                  |
|                               |                    | Stepper motor faulty                                                                                | Replace the stepper motor                                                                               |
|                               |                    | Throttle position sensor fault                                                                      | Check and/or replace the throttle position sensor                                                       |
|                               |                    | Low fuel pump pressure                                                                              | Check and/or replace the fuel pump                                                                      |

### 3. Controls

|                                                                  |        |                                                               |                                                                                                           |
|------------------------------------------------------------------|--------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| High or unstable idling speed                                    | Engine | Low spark plug output                                         | Check and/or replace the spark plug cap or the spark plug, as applicable                                  |
|                                                                  |        | Poor connection between the spark plug cap and the spark plug |                                                                                                           |
|                                                                  |        | Engine valve clearance too small                              | Check the engine valve clearance                                                                          |
| Throttle opening too wide and jerky engine running or backfiring | Engine | Low spark plug output                                         | Check and/or replace the spark plug cap or spark plug, as applicable                                      |
|                                                                  |        | Poor connection between the spark plug cap and the spark plug |                                                                                                           |
|                                                                  |        | Engine valve clearance too small or irregular                 | Check the engine valve clearance                                                                          |
|                                                                  |        | Loss of compression in the cylinder or valve sealing fault    | Check the compression pressure and cylinder pressure leaks. Repair and/or replace the damaged components. |

### 3. Controls

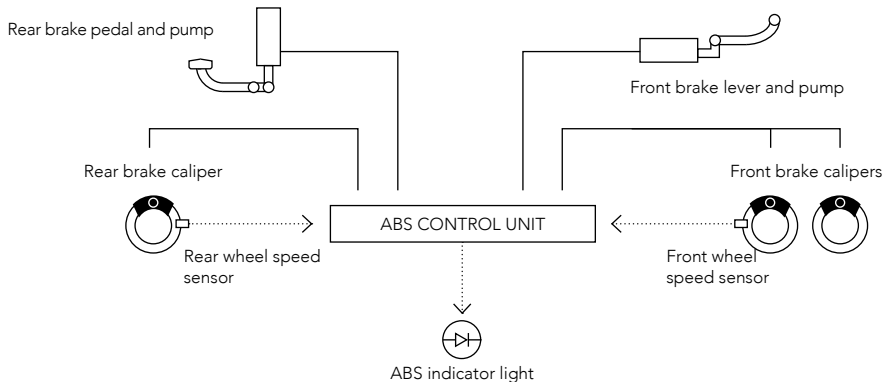
| Common faults                                                     | Classification     | Probable causes                                                    | Troubleshooting method                                              |
|-------------------------------------------------------------------|--------------------|--------------------------------------------------------------------|---------------------------------------------------------------------|
| Throttle opening too wide, causing engine juddering or backfiring | EFI                | Electrical or mechanical injector fault/blockage                   | Check and/or replace the fuel injector                              |
|                                                                   |                    | Dirty or blocked fuel filter                                       | Replace the fuel filter                                             |
|                                                                   |                    | Loss of stepper motor reference                                    | Reset the stepper motor                                             |
|                                                                   |                    | Throttle position sensor fault                                     | Check and/or replace the throttle position sensor                   |
|                                                                   | Intake and exhaust | Low fuel pump pressure                                             | Check and/or replace the fuel pump                                  |
|                                                                   |                    | Air filter grille very dirty or exhaust blocked by carbon deposits | Clean the air filter grille or replace the exhaust/silencer         |
| High fuel consumption                                             | EFI                | Oxygen sensor fault (lambda sensor)                                | Check and/or replace the oxygen sensor (lambda sensor)              |
|                                                                   |                    | Intake air pressure and temperature sensor fault                   | Check and/or replace the intake air pressure and temperature sensor |
|                                                                   |                    | Cylinder head temperature sensor fault                             | Check and/or replace the cylinder head temperature sensor           |

### 3. Controls

|                       |                    |                                                                    |                                                                                                           |
|-----------------------|--------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| High fuel consumption | Engine             | Low spark plug output                                              | Check and/or replace the spark plug cap or spark plug, as applicable                                      |
|                       |                    | Poor connection between the spark plug cap and the spark plug      |                                                                                                           |
|                       |                    | Loss of compression in the cylinder or valve sealing fault         | Check the compression pressure and cylinder pressure leaks. Repair and/or replace the damaged components. |
|                       | Intake and exhaust | Air filter grille very dirty or exhaust blocked by carbon deposits | Clean the air filter grille or replace the exhaust/silencer                                               |
|                       | Other              | Inappropriate riding habits                                        |                                                                                                           |
|                       |                    | Incorrect tyre pressure, usually low                               |                                                                                                           |
|                       |                    | Obvious damage to the drive chain                                  |                                                                                                           |
|                       |                    | Fault in the brake system                                          |                                                                                                           |

## ANTI-LOCK BRAKING SYSTEM (ABS)

The ABS (Antilock Brake System), as the name suggests, is designed to prevent the wheels from locking during sudden braking or on low-grip surfaces such as wet roads.



**NOTE:**

1. The ABS warning light comes on when the ignition switch is turned on and turns off once the vehicle starts moving and reaches a minimum speed (10 km/h). If there is a fault in the ABS system, the warning light will stay on continuously. When the light is on, the ABS does not function, but the conventional braking system will continue to operate.
2. ABS does not operate at speeds below 10 km/h.
3. When the ABS is operating, the brake lever and brake pedal may dip slightly and recover several times when the brakes are applied. This is normal.

## PRE-RIDE INSPECTION

Before using and riding the motorcycle, check the following points to ensure a comfortable and safe riding experience.

| No. | Item                                    | Check                                                                                                                          | Observations                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Fuel system                             | Check the fuel level and make sure there are no leaks                                                                          | <p>Regular periodic maintenance must be carried out based on the accumulated mileage and the following three-level scale:</p> <p>Level I:<br/>From 1,000 km to 2,000 km, mainly focused on lubrication and checking that the fasteners are tight.</p> <p>Level II:<br/>From 3,000 km to 6,000 km, mainly focused on visual inspection, adjustment, lubrication and checking that the fasteners are tight.</p> |
| 2   | Lubrication, antifreeze and brake fluid | Check the levels of all these fluids and ensure they are not below the required minimum. Replace at the recommended intervals. |                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3   | Electrical system                       | Check that the electrical circuits operate correctly when activated.                                                           |                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4   | Battery                                 | Check that the battery voltage is not below 12.5 V                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                               |
| 5   | Front brake lever                       | Check that its travel is within the specified limits                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6   | Rear brake pedal                        | Check that its travel is within the specified limits                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                               |
| 7   | Throttle grip                           | Check the throttle free play (2 to 6 mm) and that it operates smoothly and without sticking throughout its travel.             |                                                                                                                                                                                                                                                                                                                                                                                                               |

### 3. Controls

|    |                       |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----|-----------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8  | Steering system       | Check that there are no irregularities throughout the full steering angle                                 | <p>Level III:<br/>From 6,000 km to 10,000 km, focused on a full inspection, cleaning and lubrication of the vehicle and its fasteners, as well as paying attention to the replacement of worn components and any hidden problems and their repair.</p> <p>Maintenance must be carried out by qualified technical staff at the brand's authorised dealer or at the nearest authorised service centre in your area.</p> |
| 9  | Drive chain           | Check its free play (15 to 25 mm), wear level and correct lubrication.                                    |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 10 | Wheels and tyres      | Check the level of wear and tyre pressure.                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 11 | Lights and signalling | Check that all system lights switch on and operate correctly                                              |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 12 | Brakes                | Check the braking efficiency and the level of pad wear.                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 13 | Side stand            | Check that it operates and returns correctly, and check for any deformation                               |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 14 | Vehicle fasteners     | Check whether any bolts show signs of looseness or have been lost. Retighten or replace them as required. |                                                                                                                                                                                                                                                                                                                                                                                                                       |

## 4. Operating instructions

### STARTING AND WARMING-UP

The steps for starting and warming up a cold vehicle are as follows:

1. Turn the ignition key to ON, allow the fuel pump to pressurise the fuel supply system and check that the instrument panel has completed its initial check in full. This takes a few seconds.
2. Check that the gearbox is in neutral (N), then press and hold the clutch lever and either the front brake lever or the rear brake pedal.
3. Press the starter button to start the engine.
4. After starting, allow the engine to idle freely for around 3 to 5 minutes. You can then start riding normally.

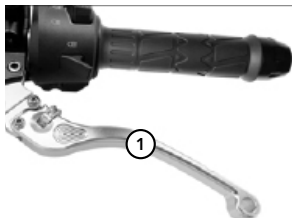


**WARNING:**

1. If the engine does not start, switch off the ignition key (OFF) and wait a few seconds before trying again, so that the battery can recover. During each engine starting process, do not operate the starter motor continuously for more than 5 seconds and leave at least 10 seconds between attempts. Do not repeat the process more than three times in succession. Check the cause of the problem instead.
2. In very cold ambient conditions, you will extend the service life of your engine by allowing it to warm up for 3 to 5 minutes after starting and by avoiding revving the engine or riding at high speed during this process.

## DRIVING INSTRUCTIONS

1. After warming up, press the front brake lever to ensure that the vehicle remains stationary, retract the side stand, fully squeeze the clutch lever (1) to disengage it, then press the gear shift lever (2) down and engage 1st gear.
2. Smoothly release the front brake lever while gently accelerating and gradually releasing the clutch lever, allowing it to begin engaging and transmit engine rotation to the gearbox and the entire transmission, through to the rear wheel, thereby starting the motorcycle moving.



### WARNING:

1. Before riding, wear specific protective clothing for motorcyclists, such as a helmet, gloves, jacket and goggles.
2. Do not rev the engine when starting the motorcycle.

## **RUNNING IN A NEW MOTORCYCLE**

The first 1,000 km of motorcycle use are used for running it in. This period is very important to ensure a long service life for the motorcycle. During this period, avoid exceeding an engine speed of 6,500 rpm, using the gearbox correctly to achieve this. Do not maintain high rpm or constant speeds. It is advisable to make as many gear changes as possible. After this period, the initial maintenance must be carried out. This includes replacing the engine oil and checking that the motorcycle is operating and performing correctly, helping to ensure its longevity. If you notice any abnormality or malfunction during running-in, contact qualified technical staff at the brand's authorised dealer or at the nearest authorised service centre in your area.

### **1.0km ~ 150km:**

During this period, do not exceed 4,000 rpm and keep the throttle grip at around  $\frac{1}{4}$ . After one hour of use, allow the engine to rest for around 5 to 10 minutes.

### **2.150km ~ 500km:**

During this period, do not exceed 5,000 rpm and keep the throttle grip at around  $\frac{1}{2}$ . After one hour of use, allow the engine to rest for around 5 to 10 minutes.

### **3.500km ~ 1,000km:**

During this period, do not exceed 6,000 rpm and keep the throttle grip at around  $\frac{3}{4}$ .

## SAFE RIDING INSTRUCTIONS

1. Precautions when riding uphill and downhill.

When riding on mountain roads with bends, uneven ground and slopes, it is advisable to control your riding speed to avoid overloading the engine:

A. When riding up a steep slope, open the throttle in advance to intentionally increase the engine rpm and prevent the engine from stalling.

B. When riding downhill, to avoid over-revving and overheating the engine, use the gearbox by shifting up a gear to reduce the engine rpm. Do not ride in neutral on downhill slopes.

2. Precautions when riding on wet or slippery roads, or in rain and fog.

When riding on wet roads on rainy days, remember that grip is reduced and the risk of aquaplaning increases. Ride at speeds appropriate to the reduced grip conditions to avoid dangerous accidental falls.

In these circumstances, bear the following points in mind:

A. Always maintain a speed that is reasonable for the grip conditions. Avoid sudden acceleration, braking or leaning manoeuvres when cornering. If the tyre tread depth is less than 2 mm, reduce your speed even further and do not brake suddenly.

B. On muddy roads, ride slowly and steadily, avoiding sudden manoeuvres.

3. Precautions when riding on snowy or icy roads.

Use winter tyres and tyres with improved grip, or anti-skid chains where feasible.

A. All riding actions, such as braking, accelerating, engaging the clutch and turning, must be carried out very smoothly and at very low speed. Avoid any sudden manoeuvres

and anticipate them well in advance.

B. To avoid wheel lock-up or wheelspin, reduce the engine speed and move the handlebars very gently. Riding at high speeds is strongly discouraged.

Precautions when braking.

The higher the speed, the greater the distance required to come to a complete stop. Both parameters must be adjusted to the existing riding conditions, so that the vehicle can be stopped safely in an emergency.

A. Reduce your speed in rainy conditions or in fog and poor visibility, to avoid loss of grip and tyre aquaplaning. Take account of side winds when overtaking, when exiting tunnels or in mountain pass areas, and pay close attention to the direction of travel to avoid unexpected gusts that may affect the motorcycle's trajectory. When braking, start by applying the front brake first and then the rear brake. This will keep the vehicle more stable throughout the process.

B. To avoid delays in emergency braking, ride with your fingers and foot resting on or as close as possible to the brake lever and brake pedal, but without activating them. When riding on muddy roads, in the rain or after washing the motorcycle, apply the brakes gently to dry and clean the brake systems, removing accumulated water. After riding on dusty roads or roads with sand or mud, clean the brake discs and callipers to remove any accumulated deposits and prevent premature damage to the brakes.

C. When riding on steep or long downhill slopes, do not keep your foot on the brake pedal for too long or brake too frequently. Otherwise, the brakes will overheat and braking performance will be affected. Braking must be carried out according to the actual situation. When riding on rainy, wet or slippery roads, do not ride at high speed.

4. Precautions concerning the toxicity of exhaust gases.

Try not to breathe in the motorcycle's exhaust gases, as they contain carbon monoxide (CO), which is harmful to health and, in large quantities, may cause asphyxiation. Do not start the motorcycle in enclosed spaces or garages that do not have a suitable ventilation or exhaust extraction system. The exhaust silencer is responsible for correctly directing the gases emitted by the engine into the atmosphere. Check that it is free from damage or leaks that could prevent it from functioning correctly.

## PERIODIC MAINTENANCE SCHEDULE

| Items to check              | Kilometres / Interval **       |                                                         |                                                           |                                                           |                                                           |                |
|-----------------------------|--------------------------------|---------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|----------------|
|                             | 1st Serv.<br>At 1,000 km (odo) | 2nd Serv.<br>At 6,000 km (odo)<br>and every 5,000<br>km | 3rd Serv.<br>At 11,000 km<br>(odo) and every<br>10,000 km | 5th Serv.<br>At 21,000 km<br>(odo) and every<br>20,000 km | 9th Serv.<br>At 41,000 km<br>(odo) and every<br>40,000 km | Annual service |
| 1. Engine air filter*       |                                | C                                                       | R: every 10,000 km                                        |                                                           |                                                           | I              |
| 2. Engine oil filter*#      | R                              |                                                         | R: every 10,000 km or 1 year                              |                                                           |                                                           | R              |
| 3. Engine oil*#             | R                              | R                                                       | R: every 5,000 km or 1 year                               |                                                           |                                                           | R              |
| 4. Engine oil level         | I: every 1,000km               |                                                         |                                                           |                                                           |                                                           |                |
| 5. Emissions control system |                                | I                                                       | I: every 5,000 km                                         |                                                           |                                                           |                |
| 6. Spark plugs              |                                |                                                         |                                                           | I                                                         | R                                                         |                |
| 7. Valve clearance          |                                |                                                         | I: every 10,000 km                                        |                                                           |                                                           |                |

#### 4. Operating instructions

|                                                       |   |   |                                       |   |
|-------------------------------------------------------|---|---|---------------------------------------|---|
| 8. Idle                                               | I | I | I: every 5,000 km                     | I |
| 9. Hoses, clamps and radiator of the cooling system # |   | I | I: every 5,000 km or 1 year           | I |
| 10. Coolant#                                          |   |   | R: every 2 years or 20,000 km         | I |
| 11. Coolant level                                     | I |   | I: every 1,000 km                     | I |
| 12. Fuel system/hoses#                                | I | I | I: every 5,000 km or 1 year           | I |
| 13. Fuel filter                                       |   |   | R: every 10,000 km                    |   |
| 14. Sprocket/Crown/Drive chain*                       |   |   | I/G: every 500km                      | I |
| 15. Brake operation                                   | I | I | I: every 5,000 km                     | I |
| 16. Brake fluid#                                      |   |   | R: every 2 years or 20,000 km         | I |
| 17. Brake fluid level                                 | I | I | I: every 5,000 km                     | I |
| 18. Brake hoses                                       |   | I | R: every 4 years                      | I |
| 19. Brake discs/pads*                                 | I | I | I: every 5,000 km                     | I |
| 20. Front ***/rear suspension function                | I | I | Front suspension oil R: every 2 years | I |
| 21. Wheels and tyres#                                 | I | I | I: every 5,000 km or 1 year           | I |
| 22. Spoke tension                                     | I |   | I: every 5,000 km                     |   |

|                                             |     |                   |                     |                    |     |
|---------------------------------------------|-----|-------------------|---------------------|--------------------|-----|
| 23. Tyre pressure                           | I   | I: every 1,000 km |                     |                    | I   |
| 24. Steering column bearings                | I   |                   | I                   | G: every 20,000 km | I   |
| 25. Shafts-joints and cables                | G   | G                 | G: every 5,000 km   |                    | G   |
| 26. Throttle function                       | I   | I                 | I: every 5,000 km   |                    | I   |
| 27. Clutch function                         | I   | I                 | I: every 5,000 km   |                    | I   |
| 28. Tightening of bolts and nuts            | I   | I                 | I: every 5,000 km   |                    | I   |
| 29. Stands                                  | I/G | I/G               | I/G: every 5,000 km |                    | I/G |
| 30. Electrical system                       | I   | I                 | I: every 5,000 km   |                    | I   |
| 31. Reading fault codes for EFI/ABS systems | I   | I                 | I: every 5,000 km   |                    | I   |

**I : Inspect and/or adjust. Replace if necessary.**

**C: Clean. Replace if necessary.**

**R: Replace**

**G: Grease**

**Odo: Kilometres read on the instrument panel.**

**NOTE:** First service at 1,000 total km, second service at 5,000 total km (4,000 km after the first), and the third and subsequent services every 5,000 km

\* :Increase service frequency when riding in adverse conditions, such as dust, humidity, mud, etc.

# :Service annually or at the indicated odometer reading intervals, whichever occurs first.

\*\* :When the total kilometres read on the instrument panel exceed those shown here, repeat the maintenance work for the corresponding interval.

\*\*\* :It is advisable to change the front suspension oil every 2 years.

**IMPORTANT:** Check tyre pressure, oil level, and coolant level every 1,000 km. Engine overheating caused by running with low oil and/or coolant levels is not covered by the warranty.

### **Requirements to keep the warranty valid:**

The maintenance plan must be carried out at Macbor authorised service centres.

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Unauthorised personnel may not make adjustments or repairs.  
The maintenance plan must be followed using original parts and oil recommended by Macbor.  
If the mileage indicated for services is not reached, an annual service is required.

**Recommendations:**

Request a detailed invoice for the services from the official Macbor service centre.  
Ask the official Macbor service centre to record the vehicle's service history on the Macbor website.

## 5. Maintenance

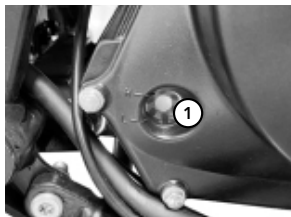
### ENGINE OIL INSPECTION AND CHANGE

Change the engine oil periodically. Warm up the engine for 3 minutes beforehand and replace the oil with the type and quality recommended by the manufacturer.

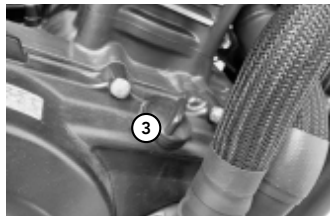
1. Using the oil level inspection window (1), check that the level is between the two marks, minimum (L) and maximum (H). If topping up is necessary, do not exceed the maximum limit (H).

2. Place a used oil collection tray under the engine. Remove the drain plug (2) and check that the oil has drained completely. Then refit the plug with a new sealing gasket. Tighten to 25 to 30 Nm, cleaning and degreasing any external residue that may have remained around it. Refill to the maximum level using the type and quality of oil recommended by the manufacturer.

3. Remove the oil filler cap (3) on the right-hand engine cover and add the amount of oil required for the level to reach the upper line in the inspection window. Wait for the oil to settle. Refit and retighten the filler cap.



4. Start the engine and let it warm up for a few minutes. Check that there are no oil leaks around the filler and drain plugs.
5. Stop the engine and wait a few minutes for the oil to settle again in the crankcase. Check that the level is between the minimum and maximum limits.



### **CAUTION:**

1. Disposing of used oil in the environment or down wastewater drains is prohibited. It must be recycled through an authorised agency in your area.
2. To avoid accidental burns and damage to the threaded body of the crankcase, do not remove the drain plug when the oil and engine are very hot.
3. The new oil used to refill the engine must be clean and free from external residue.
4. Check that the oil filter, its sealing gasket and O-ring, and the drain plug are in perfect condition. Replace them if they are damaged.

## OIL FILTER

Instructions for replacing the oil filter (2):

1. Replace it every 10,000 km.
2. Apply a little new oil to its sealing ring before installing it and tightening it to 17.2 Nm.
3. Start the engine and check that there are no leaks around the filter sealing ring contact area.



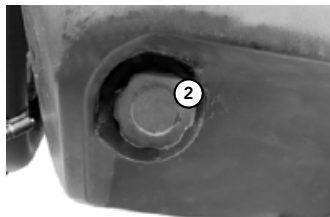
## ANTIFREEZE, CHECKING AND TOPPING UP THE LEVEL

1. The coolant used is a mixture of water and ethylene glycol.
2. Use only the coolant recommended by us. It must be completely replaced every 2 years.
3. Check the coolant level in the expansion tank (3). It must be between the minimum and maximum marks. Top up if necessary, but never above the maximum level. It is advisable to carry out this operation with the engine cold. To do this, remove the cap (2) and top up. After fully replacing the coolant, check that the level in the radiator is correct. When



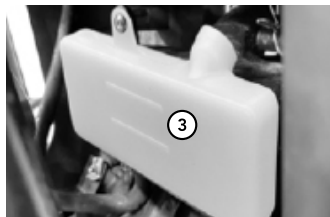
the radiator cap (1) is removed, the coolant should reach the top of the filler neck.

4. Never use concentrated antifreeze alone, without diluting it.



### **WARNING:**

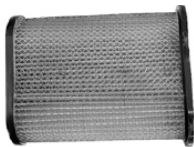
1. Never open the radiator cap when the engine is hot. In this situation, the coolant will escape at high pressure and temperature and you may suffer serious burns.
2. As an organic solvent, ethylene glycol will damage any painted and chrome-plated parts it comes into contact with. If this happens, wash the area with plenty of water.
3. It is toxic and flammable: Avoid prolonged contact with the skin. Wash the affected area quickly with plenty of water and, in the event of contact with the eyes, go to the nearest medical centre. Keep it away from hot engine parts, as if it catches fire, its flame may be invisible and you could suffer serious burns without realising you are being burned.
4. Do not mix antifreezes of different types or brands.



## CLEANING THE AIR FILTER

A dirty air filter will result in an abnormally rich mixture, high fuel consumption and noticeable loss of engine power. Check and inspect its cleanliness periodically.

1. Remove the air filter cartridge.
2. Clean any dirt inside the air filter box. Clean the air filter by blowing it from the inside out with compressed air, avoiding high pressure to prevent it from breaking. A damaged, broken or excessively dirty filter must be replaced.



### WARNING:

1. Always make sure that the air filter is installed in the correct position and properly fitted in its housing. Service it more often when riding on very dusty or very wet/muddy roads or in such areas.
2. Do not use solvents or petrol to clean the air filter.
3. To prevent damage to the cylinder, piston and rings due to the entry of impurities, never start the engine without the air filter installed.
4. Cleaning and replacement of the air filter must be carried out by a qualified technician at your nearest authorised dealer or service centre.

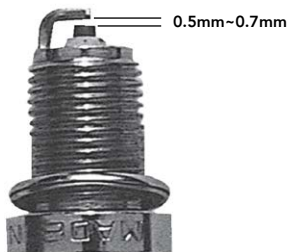
## SPARK PLUG INSPECTION AND GAP ADJUSTMENT

Remove the spark plugs and check the colour of the inner porcelain and the electrodes. A dark, oily colour indicates a rich mixture, a whitish shade indicates a very lean mixture, and a brownish colour shows correct combustion of the mixture. Check the electrode gap. If they are very worn and the gap is not correct, replace them directly.

Spark plug model: JH9RC

Electrode gap: 0.5 mm to 0.7 mm

Spark plug tightening torque: 17.5 Nm (1.75 kgf·m)



## THROTTLE CABLE ADJUSTMENT

To adjust the throttle cable free play (1), use the adjuster located at the outlet end of the throttle mechanism (2), as required.

1. Whenever the free play (1) is not correct, it must be readjusted.
2. To do this, loosen the locknut on the adjustment system (2), then turn the adjusting nut in either direction until the correct value is reached, and retighten the locknut. Check that, when the handlebar is turned fully in both directions, the free play does not change outside the specified range. If it does, readjust it.

**Throttle free play: 2 mm to 6 mm**



### WARNING:

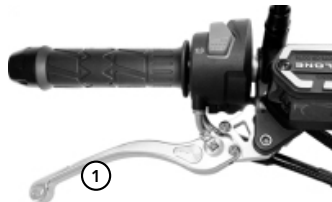
1. If, when operating the throttle grip throughout its full travel, any sticking or excessive hardness is detected, remove it completely, clean and grease it, or replace it, then readjust the free play.

## FRONT BRAKE INSPECTION AND ADJUSTMENT

The front and rear brake systems on this motorcycle are hydraulically operated and fitted with brake discs. This gives them high braking power, a high level of safety and good temperature control, while requiring very little maintenance.

1. The brake lever free play must be checked and readjusted if necessary.
2. Check that the brake fluid level is between the maximum and minimum limits (2). If the level is at the minimum and there are no leaks in the circuit, this indicates that the brake pads need to be replaced. Only top up the brake fluid if there is a leak in the system, after repairing the leak first.
3. Check the thickness of the brake pads and replace them when they reach 2.0 mm. The brake disc must also be replaced when it reaches 3.0 mm.

**Front brake lever free play:**  
10 mm to 20 mm



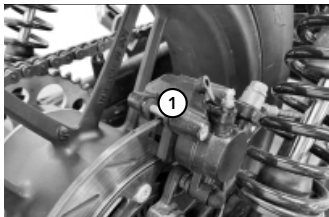
**WARNING:**

1. If the front brake lever travel increases and braking power is low, the air must be bled from the circuit by a qualified technician at the brand's nearest authorised service centre in your area.
2. Only the specified brake fluid must be used, and different brands or types must not be mixed.

## REAR BRAKE INSPECTION AND ADJUSTMENT

1. Adjust the brake pedal free play whenever it is outside the specified limits.
2. The brake fluid level must be between the maximum and minimum marks on the reservoir. If the level is at the minimum and there are no leaks in the circuit, this indicates that the brake pads need to be replaced. Only top up the brake fluid if there is a leak in the system, after repairing the leak first.
3. Replace the brake pads when they have worn down to their limit of 2.0 mm.

**Brake pedal free play: 20 mm to 30 mm**



### WARNING:

1. Adjustment of the brake pedal free play and replacement of the brake pads must only be carried out by a qualified technician at the brand's nearest authorised service centre in your area, and only genuine spare parts must be used.
2. Only the specified brake fluid must be used, and different brands or types must not be mixed.

## WHEEL INSPECTION

### Tyre size and pressure

|           |             |              |
|-----------|-------------|--------------|
| Tyre size | Front wheel | 120/80-17M/C |
|           | Rear wheel  | 150/70-17M/C |
| Pressure  | Front wheel | 225 kPa      |
|           | Rear wheel  | 250 kPa      |

### Tyre wear limit

|                 |             |                  |
|-----------------|-------------|------------------|
| Tyre wear limit | Front wheel | TWI line appears |
|                 | Rear wheel  | TWI line appears |

### Wheel rim runout limit

|                        |        |        |
|------------------------|--------|--------|
| Wheel rim runout limit | Axial  | 2.0 mm |
|                        | Radial | 2.0 mm |

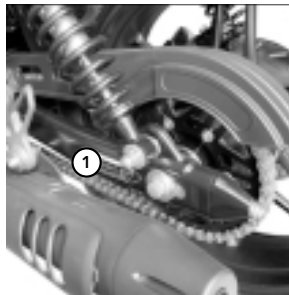
### **WARNING:**

1. Incorrect tyre pressure, whether too high or too low, permanently damages and deforms the tyres, shortens their service life and makes riding the motorcycle very dangerous.
2. Repair pressure leaks, whether in the inflation valve or in the tyre itself. Regularly check and inspect tyre pressures and the level of tyre wear. If in doubt, have this carried out by a qualified technician at the brand's nearest authorised service centre in your area.

## CHAIN INSPECTION AND ADJUSTMENT

Basic drive chain maintenance operations include regular visual inspection, cleaning and correct lubrication. The chain free play (1) must be within the specified values. Also check the wear of the engine output sprocket and the rear wheel sprocket.

The drive chain slack value must be 25 mm.



### **BATTERY**

This motorcycle uses a sealed, maintenance-free 12 V / 11 Ah battery as the power source for its DC electrical circuits. It does not require electrolyte level checks or topping up. It also has a pressure relief valve for the internal pressure generated by temperature changes and its own electrolytic reactions. The battery must be recharged when its no-load voltage is 12.60 V or less.



### **WARNING:**

1. A qualified technician at your nearest dealer or service centre must check and/or recharge the battery when necessary.
2. When handling and/or removing a battery, we recommend wearing protective gloves and goggles to avoid the risk of accidental contact with the electrolyte if it leaks. If this occurs, immediately wash the affected areas with plenty of water and go to the nearest medical centre in the event of contact with the eyes.
3. When charging the battery, ensure adequate ventilation in the surrounding area and keep it away from sources of heat or flames. If the battery overheats, deforms or leaks electrolyte through its sealed joints during charging, stop the process immediately, take it to an outdoor area, ventilated and away from the workshop, and wait until its temperature normalises before removing it from service.
4. When disposing of a battery that is no longer in service, follow the anti-contamination and waste treatment regulations in force in your country. Take it to your nearest authorised recycling centre.

## REPLACING FUSES

The fuses are connected in series to the circuits they protect against short circuits and thermal overloads. If the current value in an electrical circuit, in amps, is higher than that specified for that circuit, the fuse blows to protect it and prevent permanent damage.



### CAUTION:

1. When replacing a blown fuse, use only one with the same specified maximum amperage as shown on the fuse box cover. Never use a fuse with a higher amperage, as your motorcycle may suffer serious damage or even burn out.

## ADJUSTING THE HORN

If the horn needs adjusting because its sound is no longer audible, or is hoarse and erratic, have this carried out by a qualified technician at your nearest dealer or service centre.



### CAUTION:

1. The user is not authorised to readjust the horn function.  
If it is tampered with incorrectly, the manufacturer shall not be liable for any resulting damage or warranty claims.

## **CLEANING AND STORAGE**

### **1. Motorcycle cleaning**

- (1) Before washing the motorcycle, the engine must be stopped and the electrical systems switched off, with the ignition key OFF. After the engine has cooled, cover the exhaust silencer outlet to prevent wash water from entering accidentally. Do not direct the pressure from the washing lance directly at lubricated and sealed rotating points, such as the steering, suspension and wheel axles, to avoid damaging their bearings and causing loss of their internal grease.
- (2) To avoid damaging the electrical systems, do not direct the pressure from the washing lance directly at them or at their electrical connections, paying particular attention to the most exposed parts on the outside of the engine and on the frame.
- (3) After washing and thoroughly rinsing the vehicle, dry it with a soft cloth.
- (4) Wait a few minutes for any accumulated water to drain before starting the motorcycle again.

### **2. Motorcycle storage**

- (1). Before a long period of storage, empty the fuel tank. Try to start the engine at least once a month to restore internal oil circulation through all moving parts.
- (2) Remove the spark plugs and pour around 5 ml of engine oil into the combustion chamber. Refit the spark plugs and slowly turn the crankshaft several times to ensure that the cylinder, piston, cylinder head and valves are fully lubricated.
- (3). Remove the battery and trickle-charge it in a place away from natural light, at an ambient temperature of between 0°C and 30°C.

- (4) Inflate the tyres to their maximum pressure and place the motorcycle safely so that the wheels are not in contact with the ground, for example using external motorcycle-specific stands.
- (5) Store the vehicle in a place protected from the weather, in a dry environment and away from chemical and flammable substances.
- (6) After the storage period, refill the fuel tank, clean the motorcycle again, recharge the battery before the first start and replace the engine oil if the period has exceeded four months.

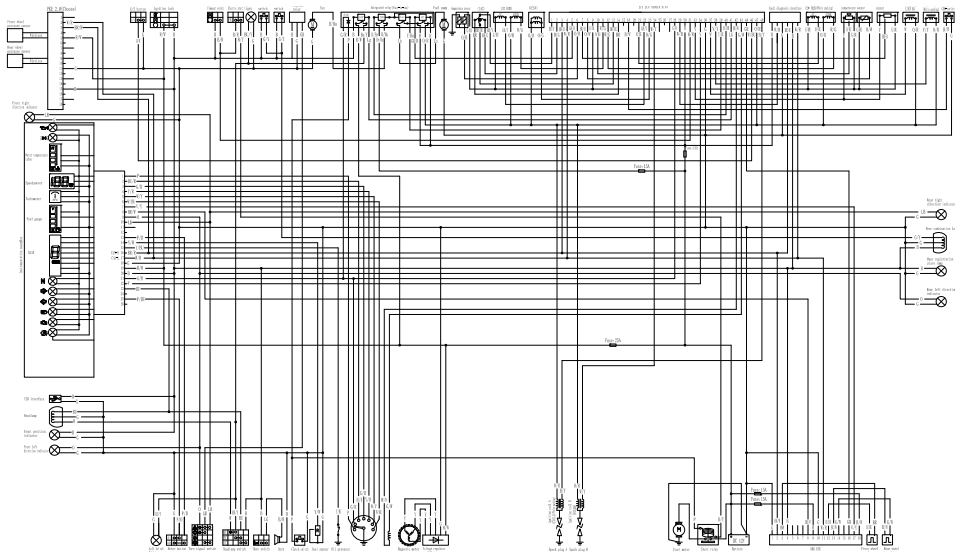
## 6. Technical specifications

| Items                                        | Specifications                            |
|----------------------------------------------|-------------------------------------------|
| Vehicle dimensions (length x width x height) | 2240mm × 785mm × 1140mm                   |
| Wheelbase                                    | 1490 mm                                   |
| Ground clearance                             | 140 mm                                    |
| Turning circle                               | 5300 mm                                   |
| Kerb weight                                  | 185 kg                                    |
| Maximum load                                 | 150 kg                                    |
| Engine model                                 | ZS268MQ-B                                 |
| Engine type                                  | Twin-cylinder, four-stroke, liquid-cooled |
| Cylinder bore x stroke                       | 68 mm x 55.2 mm                           |
| Total displacement                           | 401 cc                                    |
| Compression ratio                            | 11.6:1                                    |
| Electronic Control Unit (ECU) type           | BOSCH MSE6.0                              |

## 6. Technical specifications

|                                |                                                                                                      |
|--------------------------------|------------------------------------------------------------------------------------------------------|
| Lubrication system             | Wet sump with pressure pump                                                                          |
| Start type                     | Electric starter motor                                                                               |
| Maximum power                  | 31 kW / 9000 rpm                                                                                     |
| Maximum torque / rpm           | 32.8 Nm / 7000 rpm                                                                                   |
| Idle speed                     | 1500 ± 150 rpm                                                                                       |
| Maximum speed.                 | 155 km/h                                                                                             |
| Fuel tank capacity / fuel type | 17 l, ≥92 RON                                                                                        |
| Engine oil type and capacity   | SN-10W/40, total volume 3.0 l, oil change volume 2.5 l, volume including oil and filter change 2.7 l |
| Tyres: Dimensions and pressure | Front 120/80-17M/C 225 kPa, rear 150/70-17M/C 250 kPa                                                |

# 7. Wiring diagram



## 8. Warranty conditions

Dear customer,

With the “Macbor Warranty” we aim to eliminate the possibility of any potential material, assembly or manufacturing defects causing inconvenience or expense. This warranty is intended to offer you the highest level of protection, provided you commit to following the established maintenance schedule and use original materials and recommended oil, and always through an official Macbor dealer or authorised Macbor service centre. Following this maintenance schedule will help extend the service life of your vehicle while ensuring you enjoy it in the best possible condition. The warranty has no mileage limit and is valid throughout Spain.

**FAILURE TO CARRY OUT THE INSPECTIONS ESTABLISHED IN THE MAINTENANCE PLAN WITHIN THE INDICATED PERIOD WILL INVALIDATE THE WARRANTY.**

## GENERAL WARRANTY TERMS

### 1. **Warranty conditions**

Macbor guarantees that the vehicle covered by this warranty is free from defects in materials and construction. If any issue arises during the warranty period, you must go to an official Macbor dealer or authorised Macbor workshop to carry out the necessary repairs to ensure the proper functioning of your vehicle.

#### **THE WARRANTY IS VALID THROUGHOUT SPAIN.**

The warranty covers the replacement or repair of defective parts, including the labour required to carry out the operation.

There is no limit to the number of repairs.

### 2. **Duration**

Your motorcycle is covered for the period established by the applicable legal warranty in force on the date of registration. If the vehicle is unregistered, the warranty will start from the date of sale to the user.

### 3. **Warranty limitations**

The warranty will apply in all cases where the Macbor Technical Assistance Service finds anomalies in the vehicle's performance due to material or assembly defects originating from the factory, excluding the parts listed under the "Exclusions" section.

#### **4. Exclusions**

The following are excluded from the warranty:

- Vehicles used in sporting competitions or for rental purposes.
- Vehicles that have been totally or partially modified.
- Vehicles repaired outside the authorised Macbor network.
- Vehicles repaired or modified using non-original Macbor parts.
- Vehicles modified with kits, even if manufactured or sold by Macbor, or in any way that alters the vehicle's original features.
- Vehicles that have not followed the established maintenance schedule.
- Vehicles not used according to the instructions provided by Macbor in the owner's manual and maintenance guide.
- Vehicles with tampered identification numbers on the chassis.
- Vehicles with damage due to misuse or improper handling.
- Noises caused by wear.
- The cost of the necessary maintenance work and the specific maintenance operations (change of spark plugs, oil, etc.).

## PARTS, OPERATIONS AND DAMAGE NOT COVERED BY THE WARRANTY

### **Wear and consumable materials**

Spark plugs, gaskets, seals (except engine seals), clutch, brake pads, brake shoes and brake discs, tyres and inner tubes, bulbs, LEDs, fuses, transmission and control cables, hoses and other rubber parts, bearings, starter motor brushes, air and fuel filters, petrol and oil, chain, secondary transmission sprocket and pinion, tools, fasteners, piston rings.

### **Brake fluid and lubricants**

Oil, grease and other fluids specified by Macbor.

### **Aesthetic defects**

Paintwork, bodywork and any aesthetic issue that does not cause serious safety defects or affect performance, as well as damage caused by weather conditions (rust, corrosion, colour changes, peeling adhesives, etc.) due to lack of maintenance, care or cleaning of the vehicle.

### **Damage**

Caused by **overheating** of the engine due to improper use or insufficient engine oil or coolant.

- Caused to **people or property** by traffic accidents or any other event, or in any case resulting from damage covered by Macbor's warranty.
- Resulting from **incidents or falls** not attributable to manufacturing defects and/or caused by careless driving or improper use of the vehicle.

### **5. Important notes regarding warranty validity**

- These warranty conditions must be kept in their entirety and shown to the official Macbor dealer or Macbor authorised workshop together with the confirmation that the periodic checks have been carried out for each repair request.
- The warranty may be transferred to future owners until the end of the warranty period.
- Macbor reserves the right to introduce modifications or improvements to any of its models without being obliged to apply such modifications to vehicles already in circulation.

### **6. How to request a repair**

- Go to an official Macbor dealer or authorised Macbor service centre.
- Check whether the part(s) causing the fault are covered by the warranty.
- Ensure that the warranty conditions have been met.
- Submit:  
Copies of invoices for the periodic maintenance checks recommended by Macbor.
- The dealer will report the fault to Macbor's Warranty Service, which will analyse the issue and inform the dealer of the outcome.

### **7. Maintenance instructions**

The description and frequency of the periodic maintenance to be carried out on your motorcycle are set out in your motorcycle's owner's manual. It is the owner's responsibility to ensure that the maintenance checks are carried out according to Macbor's recommended schedule. The cost of maintenance checks are borne by the customer.

## **ATTENTION**

To avoid invalidating the warranty, it is essential to:

- Perform the periodic maintenance checks specified by Macbor.
- Have them carried out at an official Macbor dealer or authorised service centre.

### **1. Transfer of ownership**

The warranty may be transferred to subsequent owners until the end of the original warranty period.

### **2. Disclaimer**

Macbor shall be released from the obligation to provide this warranty, in addition to the cases outlined in section "4. Exclusions", in the event that a repair request is found to be false, misleading and/or dishonest regarding the defect, the stated mileage, and/or any other inaccurate claim. If it becomes clear during the course of the repair that the issue is not covered under this warranty, the full cost incurred up to that point must be borne by the vehicle owner, even if Macbor initially agreed to proceed with the repair on a provisional basis.

### **3. Reservation of Rights**

Macbor reserves the right to inspect the vehicle and/or the part causing the defect in order to determine whether the warranty is applicable. It is the responsibility of the Macbor Warranty Service to notify the customer of this requirement within 7 days of receiving the repair request.

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