



EVO 2T EUROPE

Thanks for your preference, and have a good time! This handbook contains the information you need to properly operate and maintain your motorcycle.

The data, specifications and images shown in this manual does not constitute an engagement on the part of BETAMOTOR S.p.A. BETAMOTOR reserves the right to make any changes and improvements to its models at any moment and without notice.

Code 007440380 000

IMPORTANT

We recommend you to check all the tightenings after the first one or two hours' ride over rough ground. Special attention should be paid to the following parts:

- rear sprocket
- ensure that the footrests are properly fixed
- front/rear brake levers/calipers/discs
- check that the plastics are properly fastened
- engine bolts
- shock absorber bolts/swingarm
- wheel hubs/spokes
- rear frame
- pipe connections
- tensioning the chain

IMPORTANT

In the event of interventions on the vehicle, contact Betamotor after-sales service.

TABLE OF CONTENTS

| | |
|--|-----------|
| Operating instructions..... | 5 |
| Symbols..... | 5 |
| Riding safety | 6 |
| CHAPTER 1 GENERAL INFORMATION | 7 |
| Vehicle identification data | 8 |
| Familiarizing with the vehicle..... | 9 |
| Specifications | 10 |
| Electrical system..... | 14 |
| Recommended lubricants and liquids..... | 16 |
| CHAPTER 2 OPERATION | 17 |
| Main parts | 18 |
| Digital rpm indicator operating instructions..... | 22 |
| Checks before and after use | 26 |
| Breaking in..... | 26 |
| Fuelling..... | 27 |
| Startup..... | 28 |
| Engine shut-down | 28 |
| CHAPTER 3 ADJUSTMENTS..... | 29 |
| Key to symbols..... | 30 |
| Clutch..... | 30 |
| Adjustment of gas clearance..... | 31 |
| Accelerator | 31 |
| Handlebar adjustment | 31 |
| Adjusting fork | 32 |
| Shock absorber..... | 32 |
| Suspension adjustment according to the motorcyclist's weight | 34 |
| Headlight adjustment..... | 34 |
| CHAPTER 4 CHECKS AND MAINTENANCE | 35 |
| Key to symbols..... | 36 |
| Gear oil..... | 36 |
| Coolant | 37 |
| Air filter | 39 |
| Spark plug | 41 |
| Carburetor | 42 |
| Front Brake..... | 44 |

| | |
|---|-----------|
| Rear brake | 47 |
| Clutch control | 50 |
| Check of steering gear..... | 52 |
| Oil fork..... | 53 |
| Tyres..... | 56 |
| Chain | 57 |
| Headlight..... | 59 |
| Rear tail light..... | 60 |
| Turn indicators | 60 |
| Cleaning the vehicle..... | 61 |
| Prolonged inactivity | 62 |
| Scheduled maintenance vehicle | 63 |
| Tightening torque overview | 64 |
| CHAPTER 5 REMOVING AND INSTALLING SUPERSTRUCTURES | 67 |
| Removing and installing saddle-mudguard assembly..... | 68 |
| CHAPTER 6 TROUBLESHOOTING | 69 |
| Troubleshooting | 70 |

OPERATING INSTRUCTIONS

- The vehicle must be accompanied by: number-plate, registration document, tax disc and insurance.
- Changes to the engine or other parts is punishable by law with severe penalties, including the confiscation of the vehicle.
- Do not sit on the vehicle stand.
- Do not start the engine in a closed place.

WARNING

Any modifications and tampering with the vehicle during the warranty period exempt the manufacturer from all responsibility and invalidate warranty.

SYMBOLS



SAFETY/ATTENTION

Failure to respect information marked with this symbol can entail a personal hazard.



INTEGRITY OF THE VEHICLE

Failure to respect information marked with this symbol can entail serious damage to the vehicle and termination of the warranty.



FLAMMABLE LIQUID HAZARD



Read the use and maintenance manual carefully.



MANDATORY TO WEAR PROTECTIVE CLOTHING

Use of the vehicle is subject to wearing specific protective clothing and safety footwear.



PROTECTIVE GLOVES MANDATORY

To perform the operations described, it is mandatory to wear protective gloves.



FORBIDDEN TO USE NAKED FLAMES OR POSSIBLE UNCONTROLLED IGNITION SOURCES



NO SMOKING



DO NOT USE MOBILE PHONE



CORROSIVE SUBSTANCES HAZARD

Liquids marked with this symbol are highly corrosive: handle with care



POISONING HAZARD

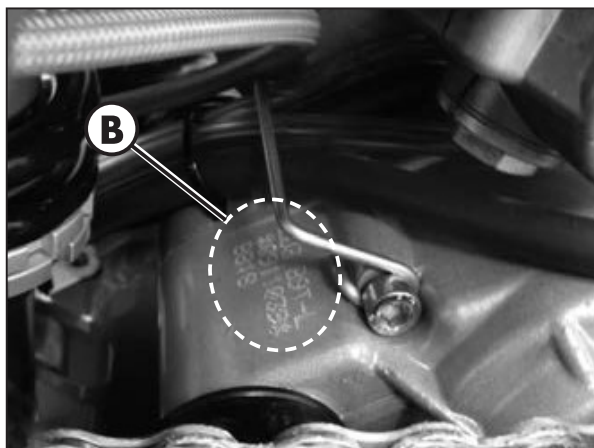
RIDING SAFETY

- Observe the Highway Code.
- Always wear approved personal safety equipment.
- Always ride with the low beam on.
- Always keep the crash helmet visor clean.
- Avoid wearing garments with hanging ends.
- Do not keep sharp or brittle objects in your pockets while riding.
- Properly adjust the rearview mirrors.
- Always ride in a seated position, with both hands on the handlebars and both feet on the footrests.
- Never ride abreast with other vehicles.
- Do not tow and avoid being towed by other vehicles.
- Always keep a safe distance from other vehicles.
- Do not start off while the vehicle is on its stand.
- Avoid swaying and wheelies as they are extremely dangerous for your own and other people's safety as well as for your vehicle.
- Always apply both brakes on dry roads with no gravel and sand. Using one brake may be dangerous and cause uncontrolled skidding.
- To reduce the braking distance, always apply both brakes.
- On wet roads and in off-road riding, drive with care and at moderate speed. Take special care in applying the brakes.

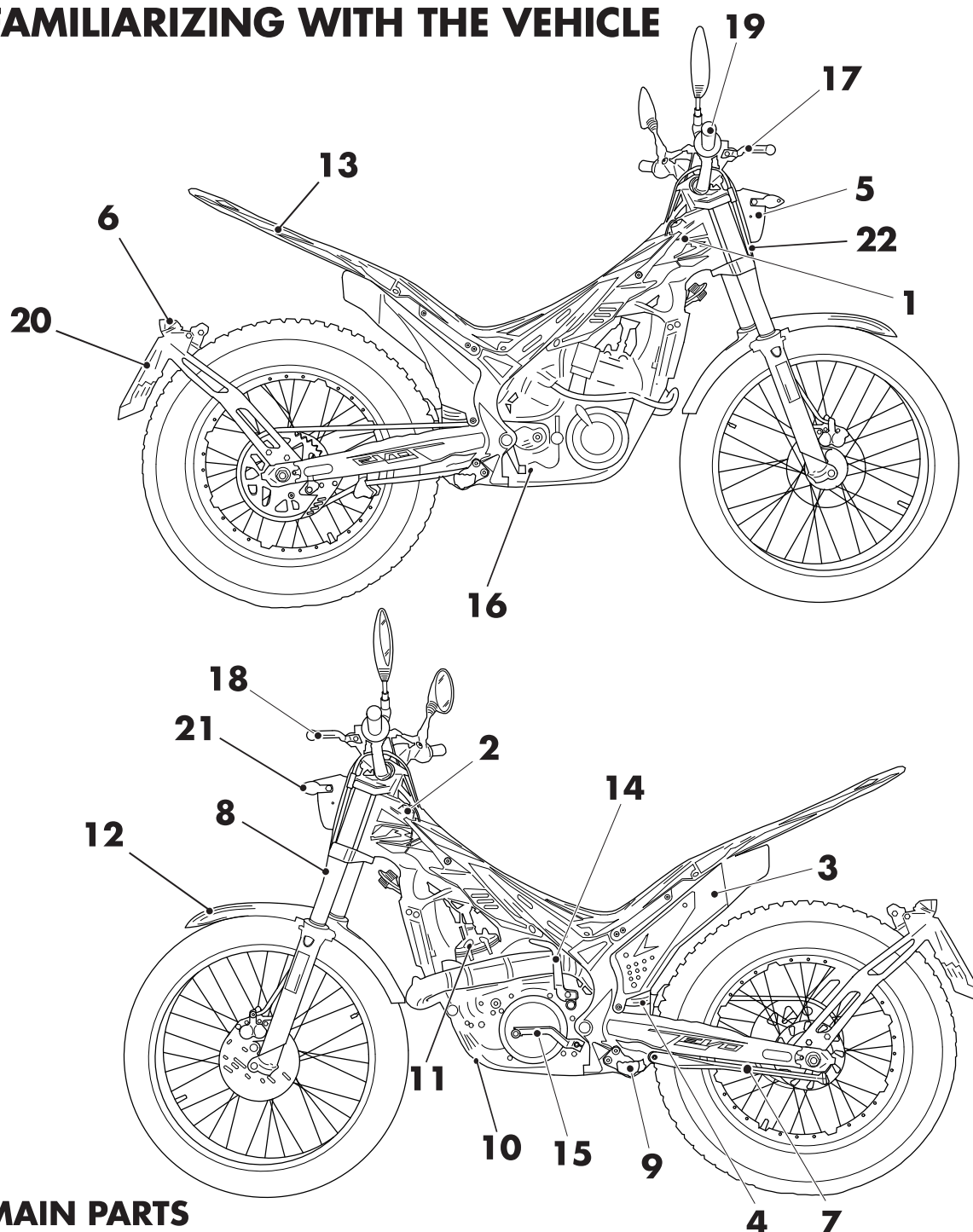
CHAPTER 1 GENERAL INFORMATION

CONTENTS

| | |
|--|----|
| Vehicle identification data | 8 |
| Frame identification | 8 |
| Engine identification | 8 |
| Familiarizing with the vehicle..... | 9 |
| Main parts..... | 9 |
| Specifications | 10 |
| Weight..... | 10 |
| Vehicle dimensions | 10 |
| Tyres | 10 |
| Capacities | 10 |
| Front suspension | 11 |
| Rear suspension | 11 |
| Front brake | 11 |
| Rear brake | 11 |
| Engine | 12 |
| Carburetor..... | 12 |
| Gear box | 13 |
| Electrical system..... | 14 |
| Electrical diagram | 14 |
| Legend electrical diagram | 15 |
| Recommended lubricants and liquids | 16 |



FAMILIARIZING WITH THE VEHICLE



MAIN PARTS

- | | |
|-----------------------|------------------------|
| 1 Fuel tank | 12 Front mudguard |
| 2 Tank cap | 13 Rear mudguard |
| 3 Silencer | 14 Kick-start |
| 4 Rear shock absorber | 15 Gear lever |
| 5 Headlight | 16 Rear brake lever |
| 6 Rear light | 17 Front brake lever |
| 7 Side stand | 18 Clutch lever |
| 8 Fork | 19 Throttle |
| 9 Rider's footrests | 20 Number-plate holder |
| 10 Lower bumper | 21 Turn indicators |
| 11 Engine | 22 Horn |

SPECIFICATIONS

WEIGHT

| Version | EVO 125 | EVO 250 | EVO 300/300SS |
|-----------------|---------|---------|---------------|
| Dry weight [kg] | 76 | 77 | 77 |
| Front [kg] | 38 | 38.5 | 38.5 |
| Rear [kg] | 38 | 38.5 | 38.5 |

VEHICLE DIMENSIONS

| | |
|-----------------------|---------|
| maximum length..... | 2020 mm |
| maximum width | 850 mm |
| wheelbase..... | 1305 mm |
| maximum height | 1115 mm |
| ground clearance..... | 310 mm |
| saddle height..... | 660 mm |

TYRES

| Dimensions | | Pressure [Bar] | |
|------------|-----------|----------------|-----------|
| Front tyre | Rear tyre | Front tyre | Rear tyre |
| 2.75 - 21 | 4.00 - 18 | 0.4 ÷ 0.5 | 0.3 ÷ 0.4 |

CAPACITIES

| | |
|------------------------|-----------|
| fuel tank..... | 2.8 litri |
| including reserve..... | 0.5 litri |
| coolant circuit: | |

| Version | EVO 125 | EVO 250 | EVO 300/300SS |
|---------------------------|---------|---------|---------------|
| With dry circuit [ml] | 630 | 530 | 530 |
| With circuit emptied [ml] | 530 | 420 | 420 |

| | |
|---------------|--------|
| gear oil..... | 550 ml |
|---------------|--------|

FRONT SUSPENSION

| Version | EVO 125 | | EVO 250 | | EVO 300/300SS | |
|-------------------------|------------------------------|---------------|----------------|---------------|----------------|---------------|
| Wheel excursion [mm] | 166 | | 166 | | 166 | |
| | right fork leg | left fork leg | right fork leg | left fork leg | right fork leg | left fork leg |
| K spring [N/mm] | X | 7.65 | X | 7.65 | X | 7.65 |
| Oil type | Shell Tellus S2 V32 SAE 6, 1 | | | | | |
| Oil quantity [g] | 297 | | | | | |
| Register spring preload | X | full open | X | full open | X | full open |
| Click in extension | full open | X | full open | X | full open | X |

REAR SUSPENSION

| Version | EVO 125 | EVO 250 | EVO 300/300SS |
|-------------------------------------|-------------------------------|-----------------------|-----------------------|
| k spring | 70N/mm | 70N/mm | 70N/mm |
| precharge (spring in its seat) [mm] | 126.5 | 126.5 | 126.5 |
| Oil type | oil titan SAF 5045 Eu 137 RED | | |
| Click in extension | 3.5 from fully closed | 3.5 from fully closed | 3.5 from fully closed |

FRONT BRAKE

disk-type with hydraulic control Ø 185 mm

REAR BRAKE

disk-type with hydraulic control Ø 160 mm

ENGINE

| Version | EVO 125 | EVO 250 | EVO 300 | EVO 300SS |
|---------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Type | Single-cylinder, 2-stroke | Single-cylinder, 2-stroke | Single-cylinder, 2-stroke | Single-cylinder, 2-stroke |
| Bore x stroke | 54 x 54.5 | 72.5 x 60.5 | 79 x 60.5 | 79 x 60.5 |
| Displacement [cm ³] | 124.8 | 249.7 | 296.5 | 296.5 |
| Pressure ratio | 15.9:1 | 9:1 | 10.17:1 | 9.96:1 |
| CO ₂ [g/km] | 60 | 68 | 66 | 66 |
| Fuel consumption [l/100km] | 2,6 | 2,9 | 2,8 | 2,8 |
| Fuel system | carburetor without mixer (1.5%) | carburetor without mixer (1.5%) | carburetor without mixer (1.5%) | carburetor without mixer (1.5%) |

CARBURETOR

| | EVO 125 | EVO 250 | EVO 300/300SS |
|-----------------------------------|----------------|----------------|----------------------|
| Carburetor type | PWK 28 | PWK 28 | PWK 28 |
| Main jet | 85 | 80 | 75 |
| Slow jet | 42 | 38 | 38 |
| Start jet | 60 | 60 | 60 |
| Needle | LHQ | LHQ | LHQ |
| Needle position (from top) | 3° | 3° | 3° |
| Air screw turns (from all closed) | 2 | 2 | 2 |

Cooling system forced liquid circulation by pump
 Spark plug NGK IR GR7CI-8
 Clutch wet, multidisc

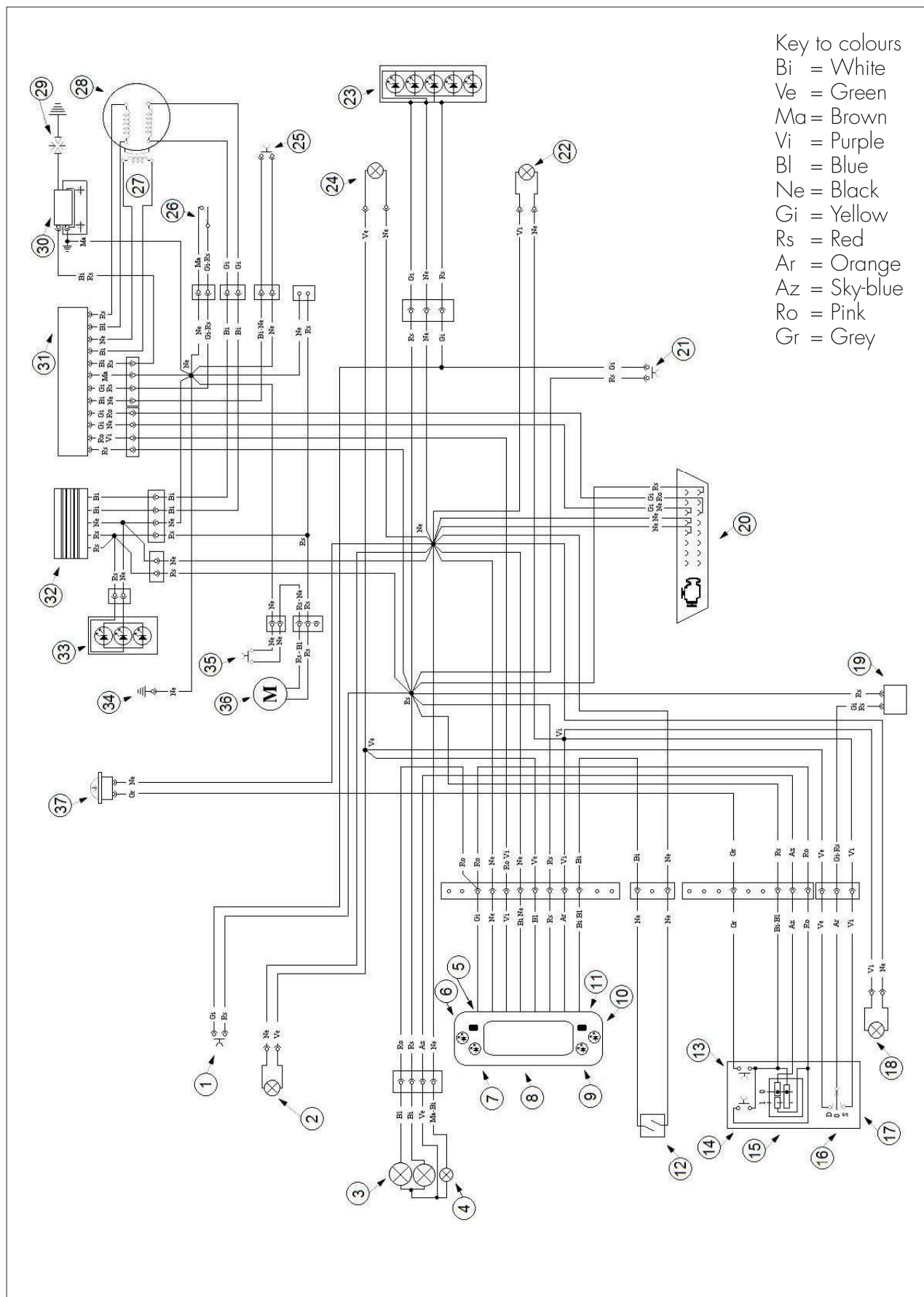
GEAR BOX

| Version | EVO 125 | EVO 250 | EVO 300/300SS |
|------------------------|----------------|----------------|----------------------|
| Primary drive | 20/71 | 22/69 | 22/69 |
| Gear ratio 1st gear | 12/34 | 12/34 | 12/34 |
| Gear ratio 2nd gear | 14/32 | 14/32 | 14/32 |
| Gear ratio 3rd gear | 15/29 | 15/29 | 15/29 |
| Gear ratio 4th gear | 18/27 | 18/27 | 18/27 |
| Gear ratio 5th gear | 24/22 | 24/22 | 24/22 |
| Gear ratio 6th gear | 28/18 | 28/18 | 28/18 |
| Secondary drive | 43/9 | 42/11 | 42/11 |

Ignitionelectronic Hidria 12V-110W

ELECTRICAL SYSTEM

ELECTRICAL DIAGRAM



LEGEND ELECTRICAL DIAGRAM

- 1) Stop button
- 2) R.H. front turn indicator 12V 6W
- 3) Headlamp 12V 35/35W
- 4) Position light 12V 5W
- 5) "Select" button
- 6) Diagnosys warning light
- 7) R.h. turn indicator warning light
- 8) Dashboard
- 9) High beam warning light
- 10) L.h. turn indicator warning light
- 11) "Mode" button
- 12) Speed sensor
- 13) Horn button
- 14) Unit turn signal lamps
- 15) Light switch
- 16) Turn signal switch
- 17) Control group
- 18) L.H. front turn indicator 12V 6W
- 19) Intermittence
- 20) Socket OBD
- 21) Rear brake stop button
- 22) L.H. rear turn indicator 12V 6W
- 23) Rear stop light Led
- 24) R.H. rear turn indicator 12V 6W
- 25) Engine stop button
- 26) Switch for change mapping
- 27) Pick-up
- 28) Stator
- 29) Spark plug
- 30) Coil
- 31) Electronic control unit
- 32) Regulator
- 33) Front light led
- 34) Frame earth
- 35) Thermal switch
- 36) Electrofan
- 37) Horn

RECOMMENDED LUBRICANTS AND LIQUIDS

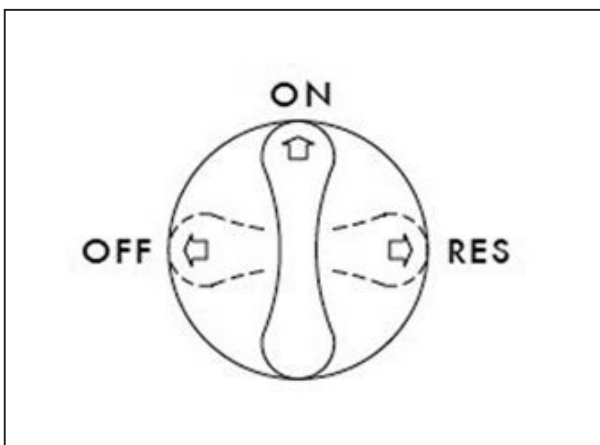
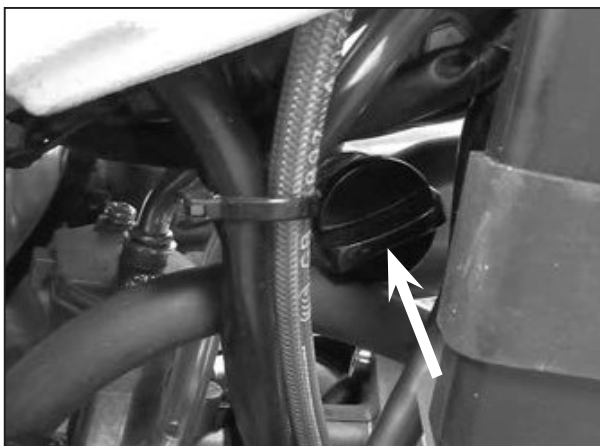
For better operation and longer vehicle life, we advise you to use the products listed in the following chart:

| PRODUCT TYPE | SPECIFICATIONS |
|---------------------|--|
| OILMIXTURE | LIQUI MOLY RACING SYNTH 2T |
| GEAR AND CLUTCH OIL | LIQUI MOLY RACING 4T 10W-30 |
| BRAKE OIL | LIQUI MOLY BRAKE FLUID DOT4 |
| CLUTCH ACTUATOR OIL | LIQUI MOLY BRAKE FLUID DOT4 |
| FORK OIL | SHELL TELLUS S2 V32 - SAE 6.1 |
| TIE ROD GREASE | LIQUI MOLY SCHMIERFIXIX |
| LIQUID COOLANT | LIQUI MOLY COOLANT READY MIX RAF12 PLUS |

CHAPTER 2 OPERATION

CONTENTS

| | |
|--|----|
| Main parts | 18 |
| Fuel valve | 18 |
| Starter | 18 |
| Clutch lever | 18 |
| LH switch | 19 |
| RH switch | 19 |
| Front brake lever and gas control | 19 |
| Gearchange lever | 20 |
| Brake pedal | 20 |
| Kick-start | 20 |
| Keys | 21 |
| Device against unauthorised use | 21 |
| Digital rpm indicator operating instructions | 22 |
| Main parts | 22 |
| Warning lights | 22 |
| Adjust button function instruction | 23 |
| Select button function instruction | 24 |
| To enter the setting mode | 24 |
| Checks before and after use | 26 |
| Breaking in | 26 |
| Fuelling | 27 |
| Startup | 28 |
| Engine shut-down | 28 |



MAIN PARTS

FUEL VALVE

Fuel valve has three positions:

OFF: fuel supply closed. Fuel cannot pass from the tank to the carburettor.

ON: fuel supply enabled. Fuel flows from the tank to the carburettor. The tank empties until it reaches the reserve level.

RES: reserve fuel supply. Fuel flows from the tank to the carburettor and the tank empties completely.

Attention!

During competition use or extreme "trial zone" is advising to position the fuel tap on "RES" to guarantee an optimal fuel supply in all condition use.

STARTER

The starter lever is located on the carburettor.

To operate the lever pull up.

CLUTCH LEVER

Clutch lever **1** is fitted to the left-hand side of the handlebars.

LH SWITCH

The dip and service switch is located on the left side of the handlebar and is composed as follows:

1 - Horn button;

2 - Dip switch:

 daylight lights and high beam;

 daylight lights and low beam;

3 - Flash-to-pass button;

4 - Turn signal light switch: shifting lever left or right activates the left or right indicators; To disable direction indicators, move the lever to the centre position.



RH SWITCH

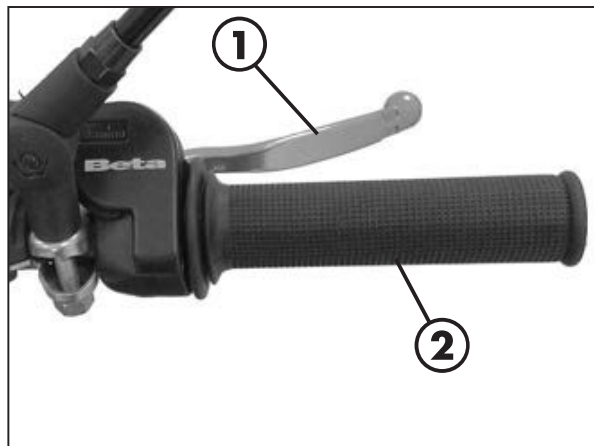
The off switch is positioned on the right-hand side of the handlebar and consists of the following:

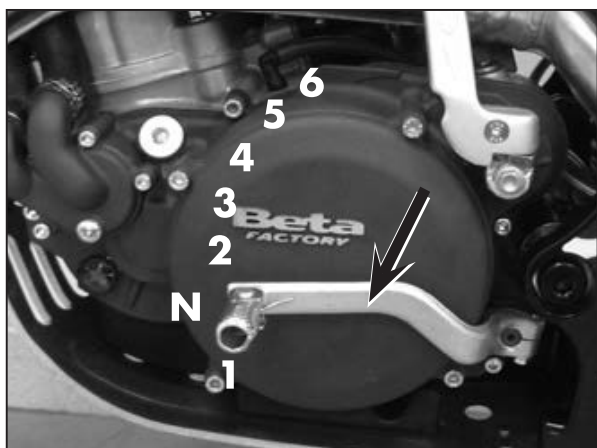
shut downs engine : it is necessary to hold it until the engine stops.



FRONT BRAKE LEVER AND GAS CONTROL

The front brake lever **1** and the gas throttle **2** are located on the right side of the handlebar.





GEARCHANGE LEVER

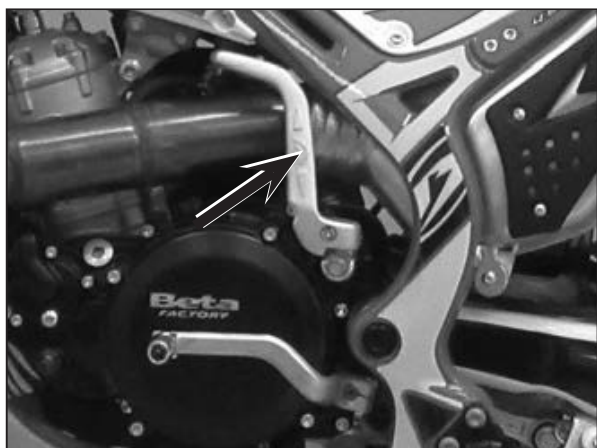
Gearchange lever is fitted to the left side of the engine.

The positions corresponding to the different gears are shown in the figure.



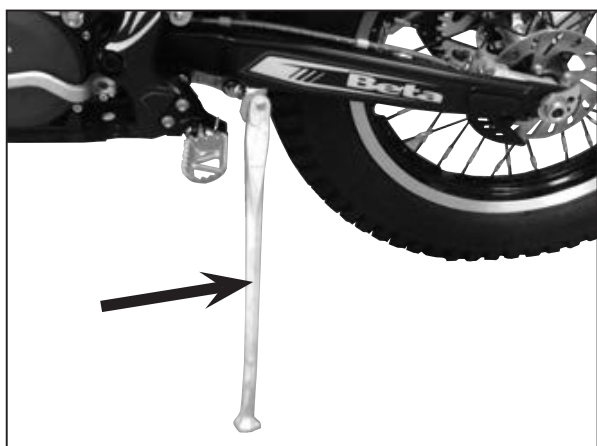
BRAKE PEDAL

Brake pedal is located in front of the right-hand footrest.



KICK-START

The kick-start pedal is located on the left side of the engine. The upper part is rotatable.



SIDE STAND

Press down side stand with the foot and lean the vehicle against it.

Ensure that the ground is solid and the vehicle stands steadily.



WARNING! The kickstand has an automatic closing device. When the vehicle weight on the kickstand is reduced, it closes automatically.



ATTENTION! Do not climb on the vehicle with the side stand lowered.



KEYS

The vehicle is supplied with two keys (one key and its spare).

DEVICE AGAINST UNHAUTHORISED USE

To enable the device:

- Turn the wheel until one of the windows on the ring gear completely uncovers the locking device pin;
- Insert the key into the lock, turn counterclockwise and push it until the pin reaches stroke end. From this position, turn the key clockwise and remove it.

In so doing, the rear wheel will be locked.

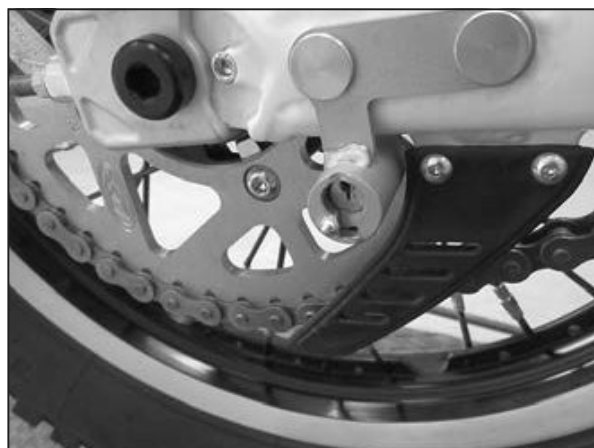
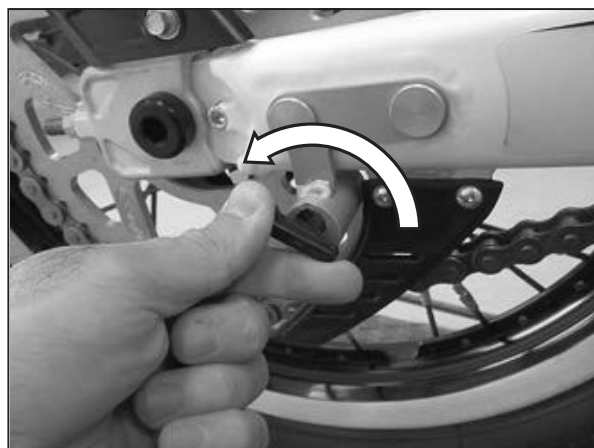
To disable the device:

- Insert the key into the lock and turn counterclockwise;
- Release the key until the pin is in a rest position. From this position, the rear wheel can move freely

CAUTION: Do not keep the spare key in the motor bike but place it in a safe place. We suggest noting down the number stamped on the keys in case you need a duplicate.



ATTENTION! Before starting up the vehicle, make sure you have switched off the device.



DIGITAL RPM INDICATOR OPERATING INSTRUCTIONS

MAIN PARTS

Speedometer

Display range: 0~360km/h (0~225 MPH)

Display unit: km/h or MPH

Indicator lights

High beam light (Blue) 

Direction light (Green) 

MIL Indicator light 

Select button

Press the **Select button** in the main screen to switch between stopwatch and MAX record.

Time

Stopwatch: According to setup distance to record the testing time.

Speed Log: Average speed and max speed record.

Adjust Button

Press the **Adjust button** in the main screen to switch between ODO, Trip A/B, Total Hour meter, Hour meter A/B. Press and hold the **Adjust button** for 3 seconds in Trip A/B screen to reset

Odometer

Display range: 0~99999 km (mile), reset automatically after 99999 km (mile).

Display unit: 1 km (mile).

Tripmeter

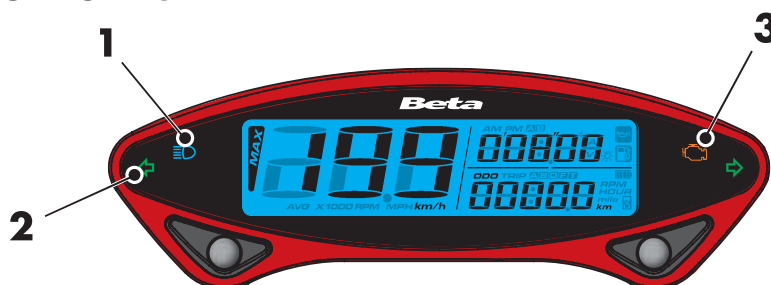
Display range: 0~9999.9 km (mile), reset automatically after 999.9 km (mile).

Display unit: 0.1 km (mile).

Note:

Switching on the instrument coincides with the engine ignition. Settings can be performed only with the engine running.

WARNING LIGHTS



1 Headlight indicator

The system activates the indicator in synchrony with the activation of the mains beams.

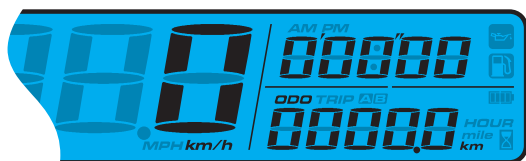
2 Direction indicator lights

The system activates the indicator in synchrony with the activation of the direction indicators.

3 Diagnostic indicator light

The system activates the light when a technical problem is detected.

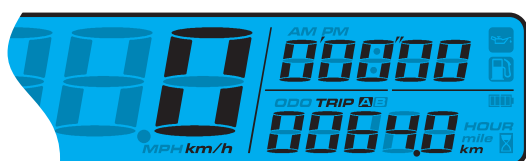
ADJUST BUTTON FUNCTION INSTRUCTION



In main screen, press the **Adjust button** once to switch the function from odometer to trip.



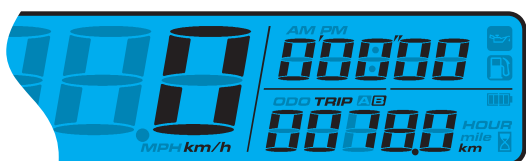
In main screen, you could hold pressing the **Adjust button** for 3 seconds to change the speed unit.



Press the **Adjust button** to switch from trip A to trip B.



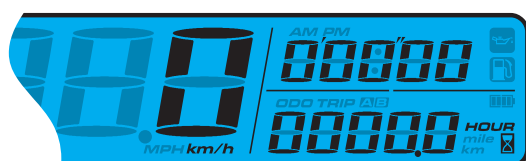
When the trip A is selected, hold pressing the **Adjust button** for 3 seconds to reset the trip A.



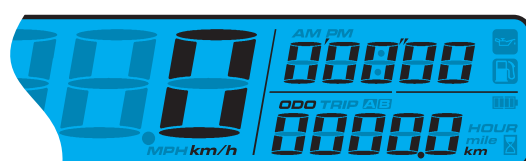
Press the **Adjust button** to switch from trip B to total hour meter.



Hold pressing the **Adjust button** for 3 seconds to reset the trip B.

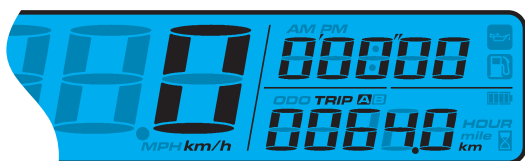


Press the **Adjust button** to switch from Hour Meter B back to the main screen.



The main screen.

SELECT BUTTON FUNCTION INSTRUCTION



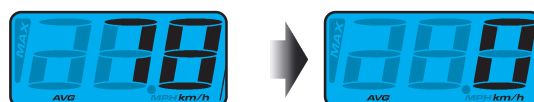
Press the **Select button** to switch from Stopwatch to Speed Record.

Press and hold the **Select button** for 3 seconds to reset the Stopwatch.

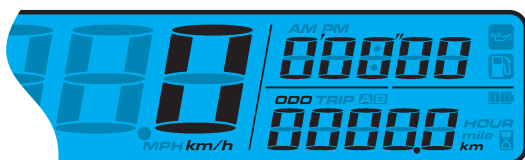


Press the **Select button** to switch from Speed Record back to main screen.

Press and hold the **Select button** for 3 seconds to reset the Speed Record.



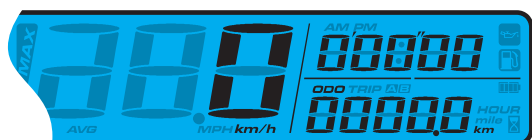
NOTE: Average speed and the Max speed display in the 3 seconds rotation.



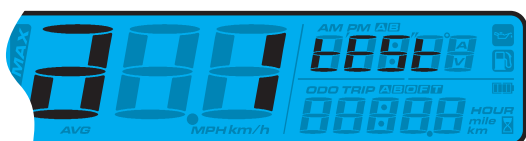
The main screen.

TO ENTER THE SETTING MODE

Function instruction



In the main screen press the combination of buttons Adjust + Select for 3 seconds to set chronometer preferences.



Press the **Adjust button** to set chronometer preferences.

Distance setup for Stopwatch



Press the **Select button** to choose auto/manual stopwatch function.

If Auto is chosen, press the **Select button** to exit the stopwatch setting function.

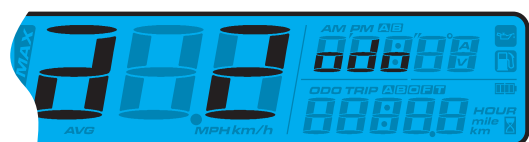


NOTE: Default: AUTO



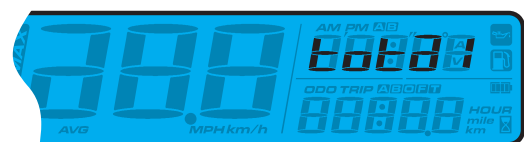
Switch from **a 1** to **a 2**

Press **Select button** to switch to total Mileage setting screen.



Press the **Adjust button** to set the speedometer.

ODO setting

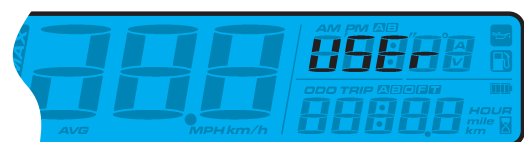


Press the **Adjust button** to enter the actual ODO viewing display.

Press the **Select button** to enter the User ODO setting.

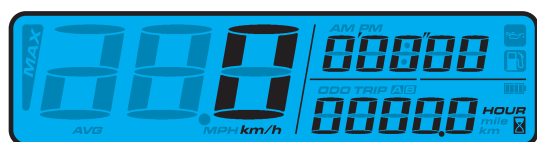


Press **Adjust button** to enter the User ODO setting.



Press the **Adjust button** to back to ODO adjust function.

Press **Select Button** to switch to ODO viewing adjusting function.



In Setting Screen, press and hold the both **Adjust** and **Select button** for 3 seconds to exit the setting.

CHECKS BEFORE AND AFTER USE

For safe driving and long vehicle life you should:



- Check all fluid levels.



- Check the correct operation of the brakes and brake pad wear (page 46).



- Check pressure, general condition and thickness of tread (page 10).

- Check that the spokes are properly tightened.
- Check the chain tension (page 57).



- Check the adjustment and the operation of all the cable controls.



- Inspect all the nuts and bolts.

- With the engine running, check the operation of the headlight, the rear and brake lights, the indicators, the warning lights and the horn.

- Wash the motorcycle thoroughly after off-road use (page 61).

BREAKING IN

The breaking-in period lasts approximately 5 hours, during which it is advisable to:

- Avoid travelling at constant speed.
- Avoid turning the throttle more than 3/4 of the way.

WARNING:

After the first 5 hours to replace the gearbox oil.

This procedure should be followed each time piston, piston rings, cylinder, crankshaft or crankshaft bearings are replaced.

FUELLING


Use a blend of high-octane unleaded gasoline and synthetic oil at 1.5%.

Fuel tank capacity is shown on page 10.

To open the fuel tank's cap, turn it anti-clockwise.

To close the fuel tank's cap, set it on the tank and crew it clockwise.



 **WARNING:**
The refuelling should be performed with the engine off.

 **WARNING:**
Fire hazard. Fuel is highly flammable.

  Always stop the engine when refuelling and keep open flames and lighted cigarettes away.


 Do not top up fuel while using a mobile phone.

Refuel in an open well ventilated area.

Pay special attention so that the fuel does not come into contact with hot parts of the vehicle. Immediately clean up any spilled fuel.

 **WARNING:** Risk of poisoning.

Fuel is poisonous liquid and a health hazard.

 Fuel must not come into contact with the skin, eyes, and clothing. Do not breathe in the fuel vapours. If contact occurs with the eyes, rinse immediately with plenty of water and seek medical advice. If contact occurs with skin, immediately clean contaminated areas with soap and water. If fuel is swallowed, contact a doctor immediately. Change clothing that is contaminated with fuel.

WARNING: Environmental pollution hazard.

The fuel must not contaminate the ground water, the ground, or the sewage system.

STARTUP

Set the fuel tank tap to ON or RES (see page 18).

- Check that the gears are in neutral (page 20).
- Pull the clutch lever (page 18).

KICKSTART (page 20):

depress the kick-starter with a sharp movement of the foot.



ATTENTION


Once the pedal has been depressed, release it immediately. This avoids jolts to the entire ignition group and to the foot.

COLD STARTING:

actuate the starter by pulling it upwards (page 18), start the engine, wait a few seconds, then return the lever to its original position.

ENGINE SHUT-DOWN

To shut-down the engine:

- press the button  on the right switch unit (see page 19).

NOTE:

With the engine stopped, always set the fuel tap to OFF (page 18).

CHAPTER 3 ADJUSTMENTS

CONTENTS

| | |
|--|----|
| Key to symbols..... | 30 |
| Clutch..... | 30 |
| Adjustment of gas clearance..... | 31 |
| Accelerator | 31 |
| Adjusting the idle speed | 31 |
| Handlebar adjustment | 31 |
| Adjusting fork | 32 |
| Adjusting the rebound damper | 32 |
| Adjusting the spring preload | 32 |
| Shock absorber..... | 32 |
| Adjusting the rebound damper | 32 |
| Adjusting the spring preload | 33 |
| Suspension adjustment according to the motorcyclist's weight | 34 |
| Headlight adjustment..... | 34 |

KEY TO SYMBOLS



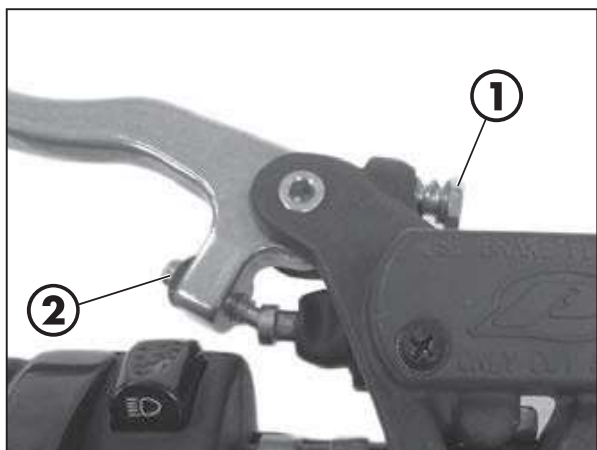
Tightening torque



Threadlocker Medium



Grease



CLUTCH

The position of the lever is controlled through the use of register **1**.

Once the position of the lever has been changed, register **2** must be changed to restore the initial correct clearance.



The idle stroke of push rod must not be less than 0.9 mm



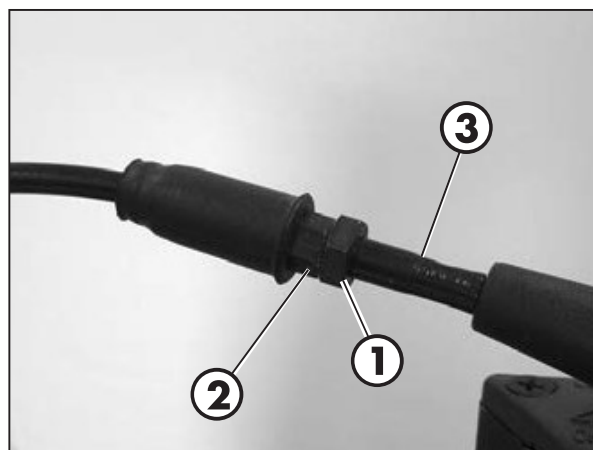
ATTENTION: reduced clearance leads to premature wear of the discs and overheating of the entire clutch group.

ADJUSTMENT OF GAS CLEARANCE

The throttle control cable should always have a 3-5 mm play. In addition, the idle speed should not change when the handlebars are fully rotated to the left or right.

To adjust the clearance proceed as follows:

- Loosen ring **1**.
- Rotate register **2** with respect to sheath **3**.
- Tighten ring **1**.



ACCELERATOR

ADJUSTING THE IDLE SPEED

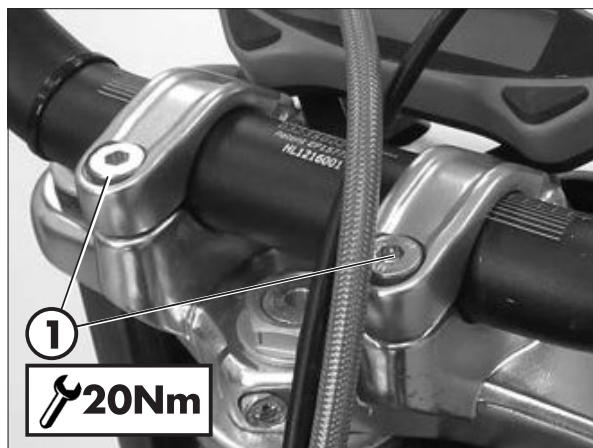
In order to perform this operation correctly, we advise you to do it when the engine is hot, connecting an electric revolution counter to the spark plug wire. Then use a screwdriver on register screw **A** to calibrate the minimum with 900÷1000 rpm.

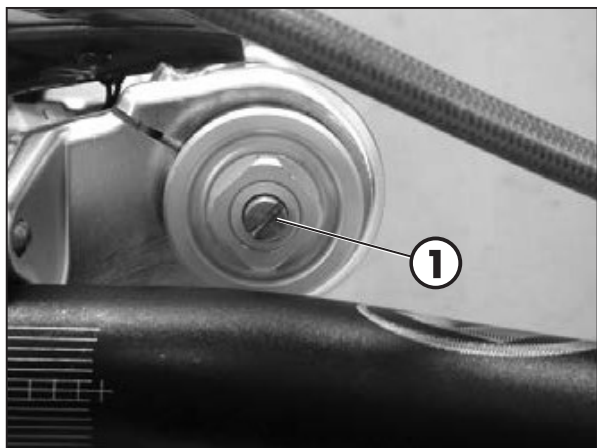


HANDLEBAR ADJUSTMENT

The handlebar can be adjusted by rotating it back and forth.

- To adjust the handlebar loosen screws **1**.
- Position the handlebar according to requirements.
- Tighten to the torque indicated.



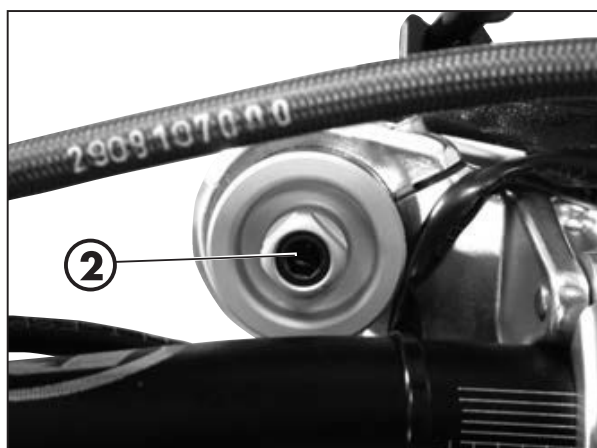


ADJUSTING FORK

ADJUSTING THE REBOUND DAMPER

The hydraulic brake unit in extension determines the behaviour in the extension phase of the fork and can be adjusted using screw **1**. Turning clockwise increases the action of the brake in extension, while rotating counter-clockwise decreases the action of the brake in extension.

For standard calibration, refer to page 11.



ADJUSTING THE SPRING PRELOAD

Spring preload is adjusted by means of screw **2**. Turning clockwise will increase the preload, while rotating counter-clockwise decreases the preload.

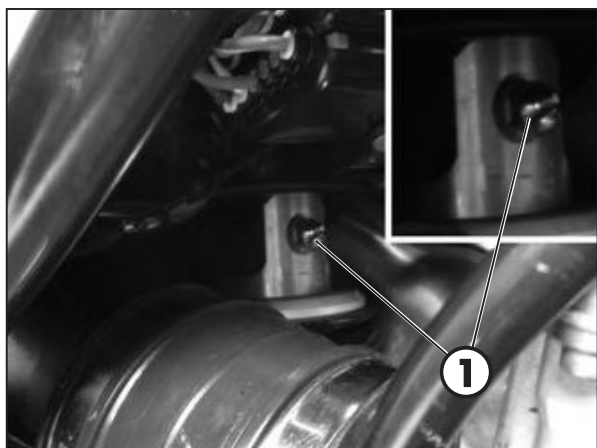
For standard calibration, refer to page 11.

SHOCK ABSORBER

ADJUSTING THE REBOUND DAMPER

The hydraulic brake unit in extension determines the behaviour in the extension phase of the shock absorber and can be adjusted using screw **1**. Turning clockwise increases the action of the brake in extension, while rotating counter-clockwise decreases the action of the brake in extension. For standard calibration, refer to page 11.

NOTE:
for adjustment use a T-handle wrenches with jointed hexagonal socket.



ADJUSTING THE SPRING PRELOAD

To adjust the spring preload, use the procedure described below.

Loosen counter-ring **1**, rotate ring **2** clockwise to increase the spring preload (and consequently the shock absorber preload) or anticlockwise to decrease it.

After obtaining the desired preload, turn counter-ring **1** until it stops against adjusting ring **2**.

For standard calibration, refer to page 11.

NOTE: for movement of the rings use a specific sector key with square pin.

ATTENTION! Do not move the screw **3** under any circumstances.



3

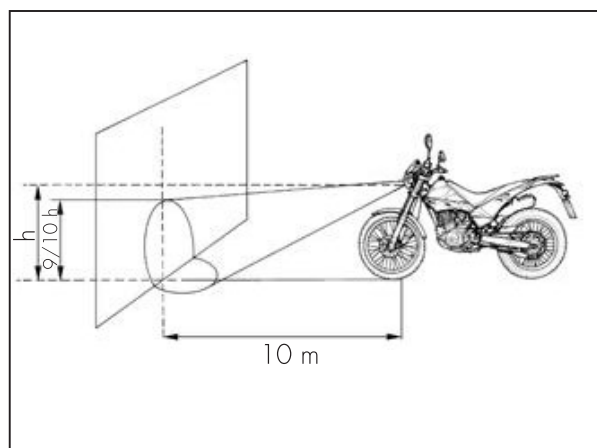
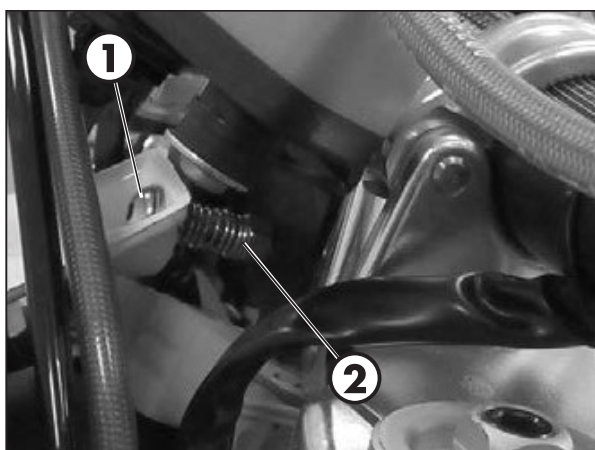
SUSPENSION ADJUSTMENT ACCORDING TO THE MOTORCYCLIST'S WEIGHT

The following table shows the approximate calibration of the suspension adjustment according to the motorcyclist's weight.

| p < 70 Kg | | 70 Kg < p < 80 Kg | | 80 Kg < p | |
|---------------------|----------------|--------------------------------|---------------------|---------------------|-------------------|
| Adjustment | | Adjustment | | Adjustment | |
| Fork | Shock absorber | Fork | Shock absorber | Fork | Shock absorber |
| Standard | Standard | + 5 turns preload | + 1,5 turns preload | + 10 turns preload | + 3 turns preload |

ATTENTION! Shock absorber pre-load max permitted = +6 turns.

ADJUSTMENTS



HEADLIGHT ADJUSTMENT

- The beam is adjusted by changing the inclination of the optical unit by turning the screw **1** and the nut **2**.
- Place the vehicle on level ground (but not on the stand) 10 metres from a vertical wall.
- Measure the height of the headlight centre above the ground and then draw a cross on the wall at 9/10 of the height of the headlight centre.
- Sit on the motor bike with only the high beam headlight on and check that the headlight beam on the wall is slightly lower than the cross drawn previously. Where this is not the case, proceed to adjustment.
- Periodically check the direction of the beam. The beam can only be adjusted vertically.

When adjustment is complete, make sure that nut **2** is fully tightened towards the instrument support.

CHAPTER 4 CHECKS AND MAINTENANCE

CONTENTS

| | |
|---|----|
| Key to symbols..... | 36 |
| Gear oil..... | 36 |
| Check the level..... | 36 |
| Replacement..... | 36 |
| Coolant..... | 37 |
| Check the level..... | 37 |
| Replacement..... | 38 |
| Radiator grill..... | 39 |
| Air filter..... | 39 |
| Removing and fitting air filter..... | 39 |
| Cleaning air filter..... | 40 |
| Spark plug..... | 41 |
| Carburetor..... | 42 |
| Draining the carburetor float chamber..... | 42 |
| Float level check..... | 43 |
| Front Brake..... | 44 |
| Check the level of the front brake fluid..... | 44 |
| Restoring the level of the front brake fluid..... | 44 |
| Bleeding the front brake..... | 45 |
| Front brake lining control..... | 46 |
| Brake disc thickness control..... | 46 |
| Rear brake..... | 47 |
| Check the level of the rear brake fluid..... | 47 |
| Restoring the level of the rear brake fluid..... | 47 |
| Bleeding the rear brake..... | 48 |
| Rear brake lining control..... | 49 |
| Brake disc thickness control..... | 49 |
| Clutch control..... | 50 |
| Check oil level..... | 50 |
| Bleeding clutch control..... | 51 |
| Check of steering gear..... | 52 |
| Oil fork..... | 53 |
| Removing legs..... | 53 |
| Oil replacement right leg..... | 53 |
| Oil replacement left leg..... | 54 |
| Legs assembly and parts..... | 55 |
| Tyres..... | 56 |
| Linkage rear suspension..... | 56 |
| Chain..... | 57 |
| Check and adjust tightening chain..... | 57 |
| Headlight..... | 59 |
| Replacing the headlight bulbs..... | 59 |
| Rear tail light..... | 60 |
| Turn indicators..... | 60 |
| Cleaning the vehicle..... | 61 |
| General precautions..... | 61 |
| Prolonged inactivity..... | 62 |
| Scheduled maintenance vehicle..... | 63 |
| Tightening torque overview..... | 64 |

KEY TO SYMBOLS



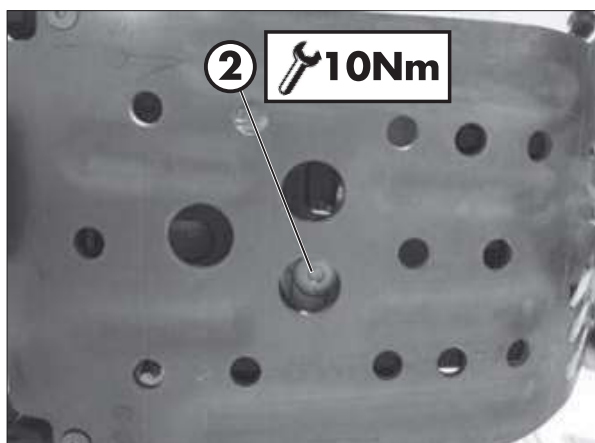
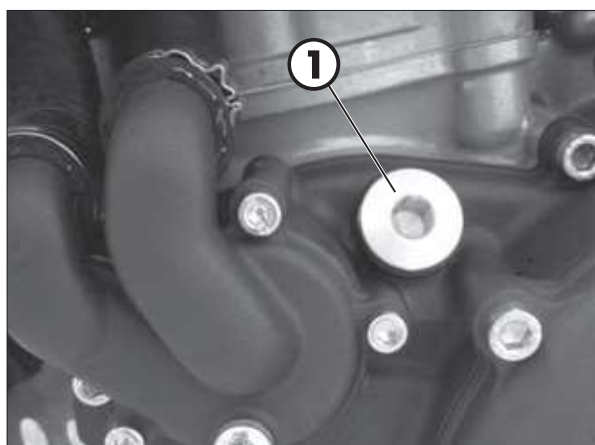
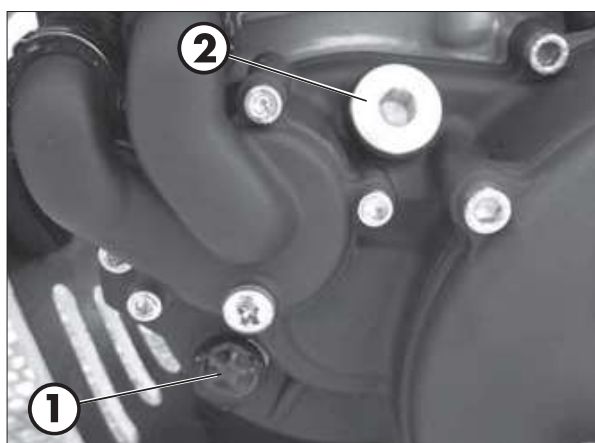
Tightening torque



Threadlocker Medium



Grease



GEAR OIL

CHECK THE LEVEL

Keep the vehicle in vertical position relative to the ground.

When engine is cold check the oil level by means of porthole **1**. The oil level must be always visible from the porthole.

In contrary case restore the oil level through filler cap **2**.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.

REPLACEMENT

Always perform the replacement when engine is hot:

- Position the drive on a flat base ensuring stability
- Place a container under the engine
- Unscrew the filler cap **1** and the drain plug **2**
- Completely empty the crankcase
- Close the cap **2**
- Introducing the quantity of liquid shown at page 10.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.

- Close the filler cap **1**.



WARNING:

Hot oil can cause severe burns!

COOLANT

CHECK THE LEVEL

Keep the vehicle in vertical position relative to the ground.

The level of the coolant must be checked when the engine is cold. Use the following procedure:

- Unscrew cap **1** and ensure that the liquid is visible in the lower portion of the loading tube.
- Where the liquid is not visible in the lower part of the loading tube position the vehicle as in the figure and then top up.
- At the end of operation refit the filler cap and the vent screw.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.



WARNING: Never unscrew the filler cap of the radiator when the engine is hot. Danger of burning!



WARNING: Wear appropriate protective clothing and protection gloves.



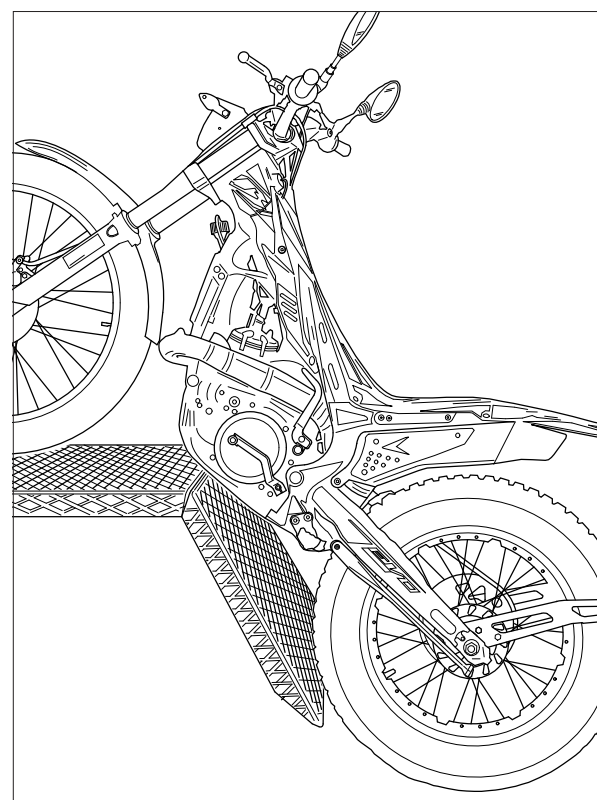
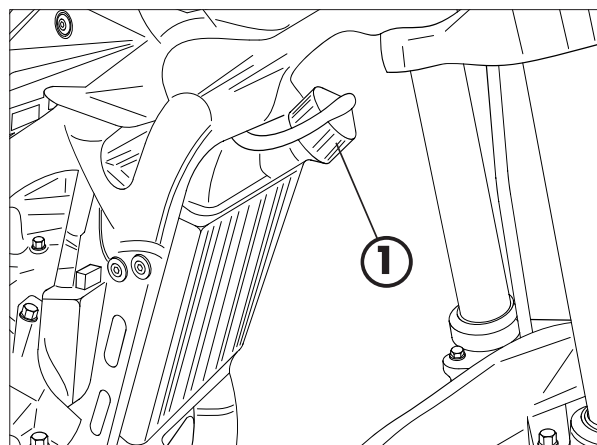
Keep coolant out of reach of children.

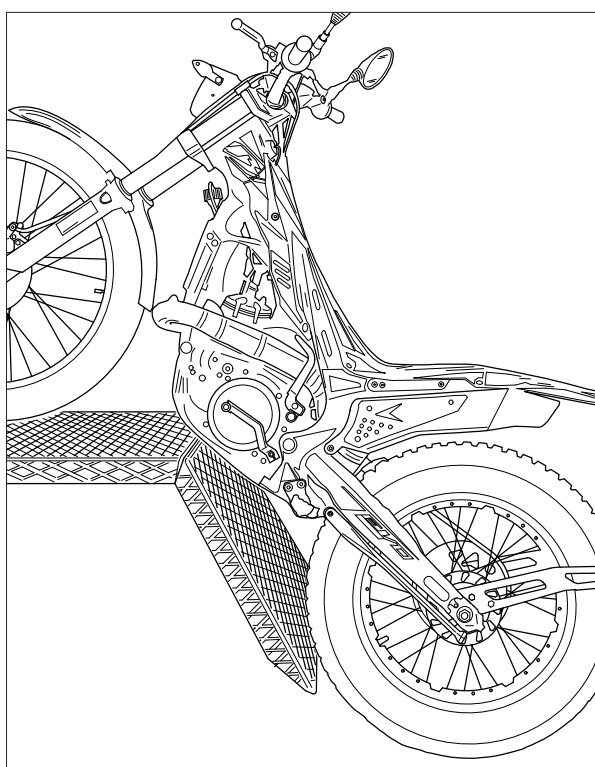
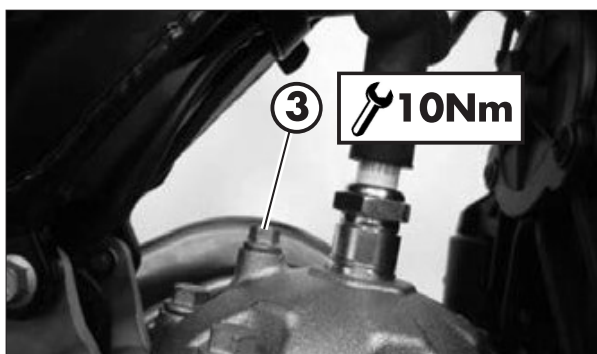
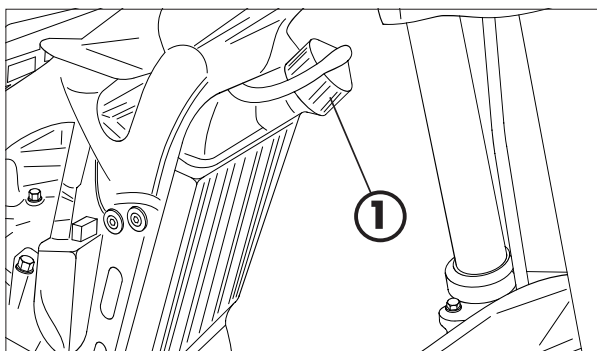


Avoid any direct contact of the coolant with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice;
- with skin, Immediately clean contaminated areas with soap and water Change clothing that is contaminated with coolant.

If coolant is swallowed, contact a doctor immediately.





REPLACEMENT

Position the vehicle on a flat base and in a stable manner.

Replacement of the coolant must take place when the engine is cold.

- 1) Unscrew cap **1**.
- 2) Place a container under screw **2**.
- 3) Unscrew the screw **2**.
- 4) Drain the liquid.
- 5) Tighten screw **2** applying the specific washer.
- 6) Unscrew drain screw **3** and fill until the liquid starts to overflow the screw.
- 7) Tighten screw **3**.
- 8) Place the vehicle as shown and proceed to filling.
- 9) Reapply the loading cap **1**.

The amounts of liquid are shown on page 10.

Use the liquid indicated on a page 16 in the "Recommended lubricants and liquids" table.



WARNING:

Never unscrew the filler cap of the radiator when the engine is hot. Danger of burning!



WARNING:

Wear appropriate protective clothing and protection gloves.



Keep coolant out of reach of children.



Avoid any direct contact of the coolant with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice;
- with skin, Immediately clean contaminated areas with soap and water Change clothing that is contaminated with coolant.

If coolant is swallowed, contact a doctor immediately.

RADIATOR GRILL

Should the grill be obstructed proceed as follows:

Remove the grill by pulling it towards the front of the vehicle.

Shake and wash the grill.

Reapply the grill pushing it towards the radiator.



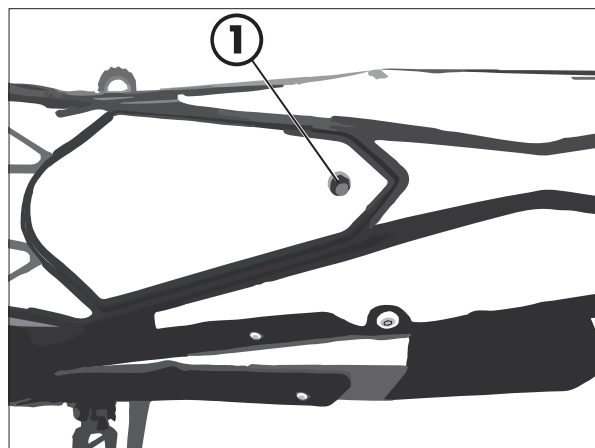
AIR FILTER

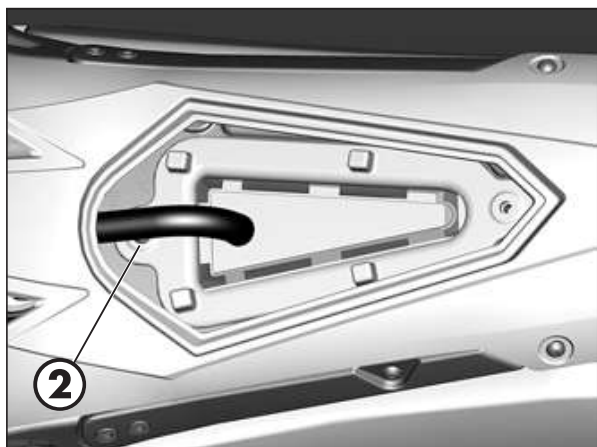
Check after every ride.

REMOVING AND FITTING AIR FILTER

To access the filter:

- Loosen the fastening screw **1** of the rear cover.





- Remove the filter frame and the filter by unscrewing the screw **2**.

**WARNING:**

After every intervention, check that nothing has been left inside the filter box.

- Reassemble by performing the operations in reverse order.

CLEANING AIR FILTER

- Thoroughly wash the filter with water and soap.
- Dry the filter.
- Wet the filter with specific oil and then remove the excess oil to prevent it from dripping.
- If necessary also clean the interior of the filter box.

**WARNING:**

Do not clean the filter with gasoline or petrol.

**NOTE:**

If the filter is damaged, replace it immediately.

Verify the integrity of water proofing gaskets on air box shown in the picture. Change them if these are damaged.

To replace, contact authorised Betamotor customer service.



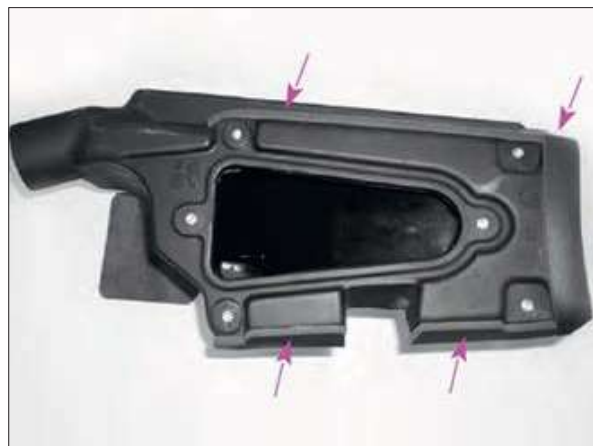
WARNING:

Never use the vehicle if the air filter is not in place. The infiltration of dust and dirt can cause damage and considerable wear.



WARNING:

After each operation check that no object is left in the filter box.



SPARK PLUG

Keeping the spark plug in good condition will reduce fuel consumption and increase engine performance.

To perform the check, simply slide off the electrical connection tube and unscrew the spark plug. Examine the distance between the electrodes with a feeler. This distance should be from $0.7 \div 0.8$ mm. If it is not, it may be corrected by bending the earth electrode.

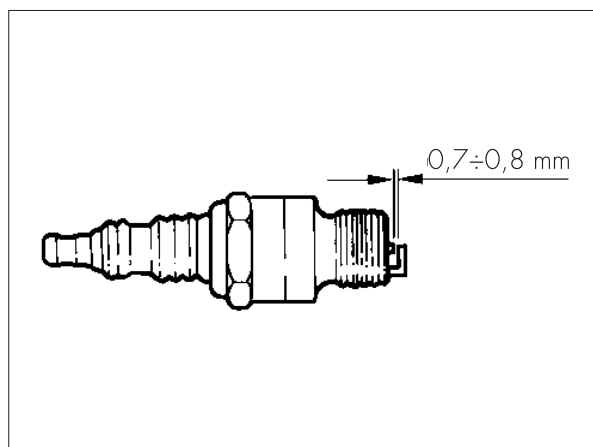
Check as well that there are no cracks in the insulation or corroded electrodes. If so, replace immediately.

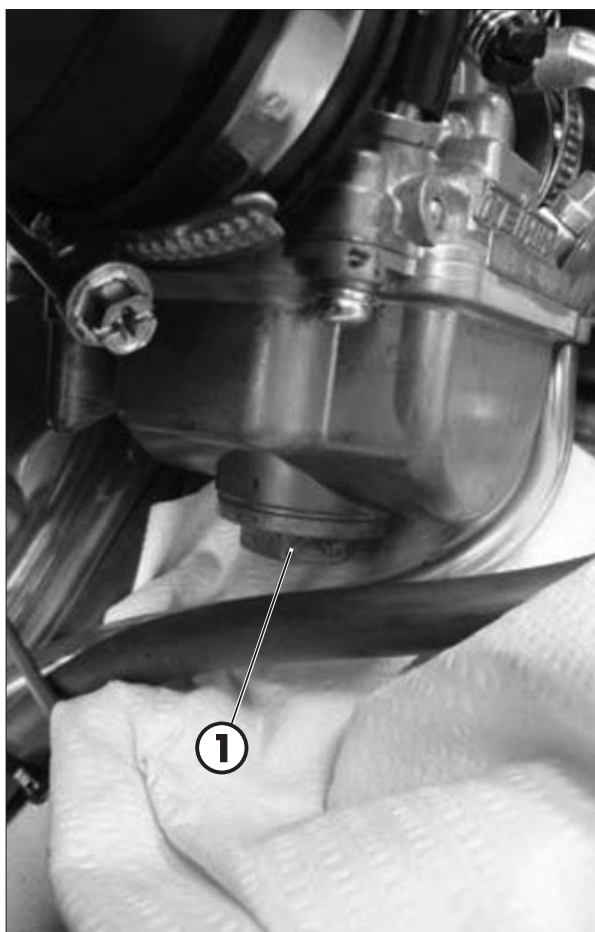
When replacing the spark plug, screw it in by hand until it stops, then tighten with a wrench.



WARNING:

Do not check while the engine is hot.





CARBURETOR

DRAINING THE CARBURETOR FLOAT CHAMBER

If the carburetor tank needs to be emptied, proceed as described. Perform the operation once the engine is cold.

Turn the fuel cock to OFF position (see page 20).

Place a cloth under the carburettor in order to collect the fuel that comes out.

Loosen screw **1** and drain the fuel until complete emptying of the tank.

Tighten screw **1**.



WARNING:

Follow action on a cold engine.



WARNING:

Fire hazard. Fuel is highly flammable.



Always stop the engine when refuelling and keep open flames and lighted cigarettes away.

Refuel in an open well ventilated area.



Immediately clean up any spilled fuel.



WARNING:

Risk of poisoning!

Fuel is poisonous liquid and a health hazard.



Wear appropriate protective clothing and protection gloves.

Fuel must not come into contact with the skin, eyes, and clothing. Do not breathe in the fuel vapours. If contact occurs with the eyes, rinse immediately with plenty of water and seek medical advice. If contact occurs with skin, immediately clean contaminated areas with soap and water. If fuel is swallowed, contact a doctor immediately. Change clothing that is contaminated with fuel.

WARNING:

Environmental pollution hazard!

The fuel must not contaminate the ground water, the ground, or the sewage system.

FLOAT LEVEL CHECK

Remove the carburetor from the vehicle after following the procedure for emptying the carburetor bowl.

Remove the bowl and place the carburetor as in the figure.

Start turn it in anticlockwise direction and stop immediately when the float assy closes the fuel valve needle.

The float level is correct if the plan surface over the float assy is parallel to the float chamber division plan. See the two red lines in the picture.

ATTENTION: It's important to avoid putting carburetor in vertical position, otherwise the weight of the float assy compresses the spring into the fuel valve needle and the position will look incorrect.

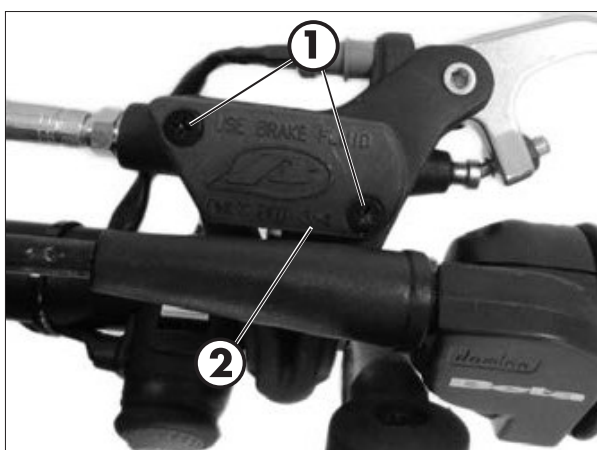
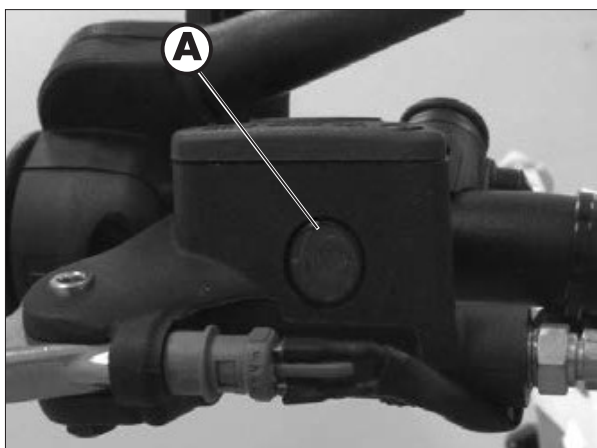
Replace the bowl to the carburetor.

Reassemble the carburetor to the vehicle, making sure to tighten the metal clamps on the sleeves.

WARNING:

before starting the vehicle to check for play on the throttle (page 31).





FRONT BRAKE

CHECK THE LEVEL OF THE FRONT BRAKE FLUID

Check the level of the brake fluid through sight **A**. The level of the fluid should never fall below the mark in the sight.

RESTORING THE LEVEL OF THE FRONT BRAKE FLUID

To restore the level of the brake fluid, loosen the two screws **1**, lift cap **2** and add brake fluid until its level is 5 mm below the upper rim of the reservoir.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.



WARNING:

The clutch fluid is extremely corrosive. Take care not to spill it on the paintwork.



Wear appropriate protective clothing and protection gloves.



Keep coolant out of reach of children.



WARNING: Avoid any direct contact of the liquid with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice.
- with skin, immediately clean contaminated areas with soap and water. Change clothing that is contaminated with liquid.

If liquid is swallowed, contact a doctor immediately.

BLEEDING THE FRONT BRAKE

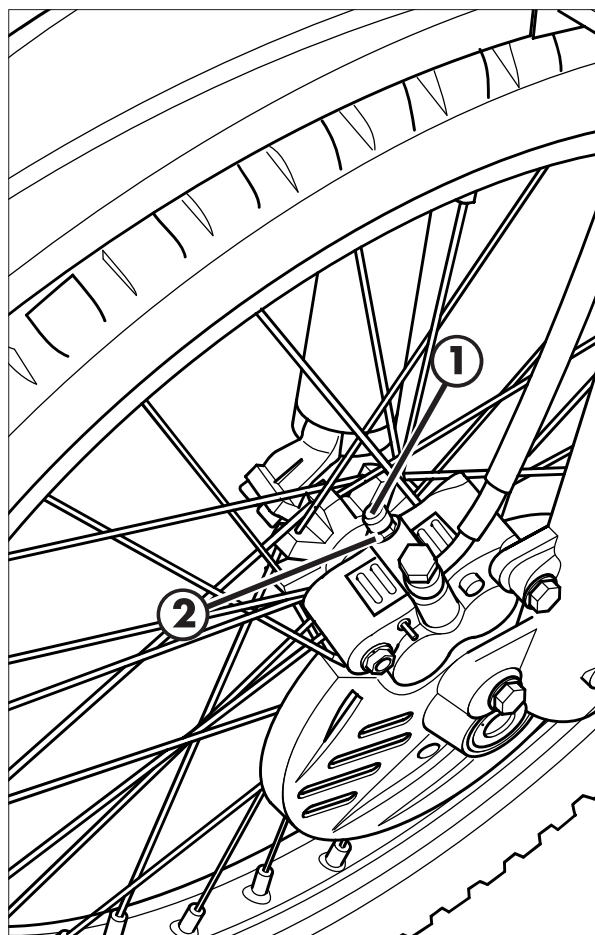
To bleed air from the front brake circuit, proceed as follows:

- Remove the rubber cap **1** from the valve **2**.
- Open the sump cap.
- Insert one end of a transparent tube into a container.
- Pump with the brake lever 2/3 times and keep the lever pressed.
- Unscrew the valve and let the oil drain.
- If air is still visible in the tube repeat above operation until obtaining a continuous outflow of oil without air bubbles.
- Close the valve and release the lever.

NOTE:

During this procedure, continuously top up the brake pump tank to replace the oil that is out flowing.

- Remove the tube.
- Replace the rubber cap.



Close the oil reservoir cap.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.



WARNING:

The brake fluid is extremely corrosive. Take care not to spill it on the paintwork.



Wear appropriate protective clothing and protection gloves.



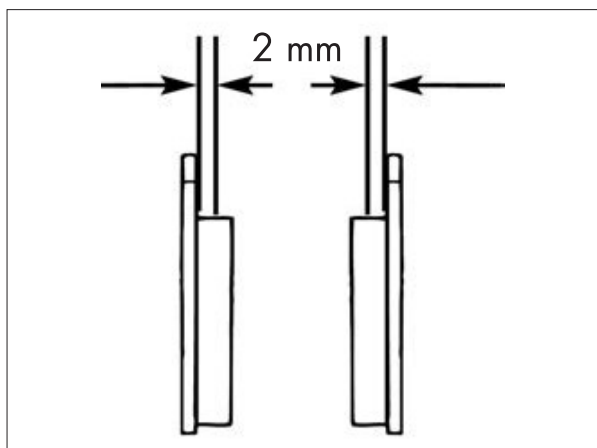
Keep coolant out of reach of children.



WARNING: Avoid any direct contact of the liquid with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice.
- with skin, immediately clean contaminated areas with soap and water. Change clothing that is contaminated with liquid.

If liquid is swallowed, contact a doctor immediately.



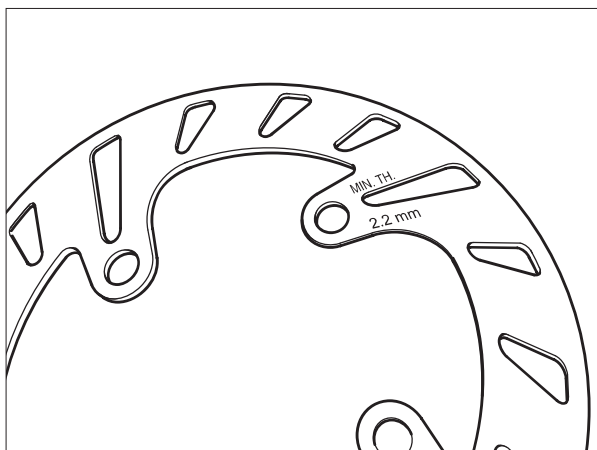
FRONT BRAKE LINING CONTROL

In order to verify the wear condition of front brake is enough to view the caliper from the bottom, where is possible to glimpse the brake lining tails which will have to show a brake of 2 mm in thickness. If the stratum is lesser let's start replacing them.

NOTE:

Perform the check according to the times shown in the table on page 63.

To replace, contact authorised Betamotor customer service.



BRAKE DISC THICKNESS CONTROL

Periodically verify disc condition. In case signs of damage, veins, or deformations are present, proceed with replacement.

Verify disc thickness. The minimum thickness is engraved on the disc.

Once the limit is in proximity or has been reached, proceed with brake disc replacement.

For replacement, contact an authorised Betamotor after-sales service centre.

REAR BRAKE

CHECK THE LEVEL OF THE REAR BRAKE FLUID

Check the level of the brake fluid through sight **A**. The level of the fluid should never fall below the mark in the sight.

RESTORING THE LEVEL OF THE REAR BRAKE FLUID

To restore the level of the brake fluid, loosen the two screws **1**, lift cap **2** and add brake fluid until its level is 5 mm below the upper rim of the reservoir.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.



WARNING:

The brake fluid is extremely corrosive. Take care not to spill it on the paintwork.



Wear appropriate protective clothing and protection gloves.



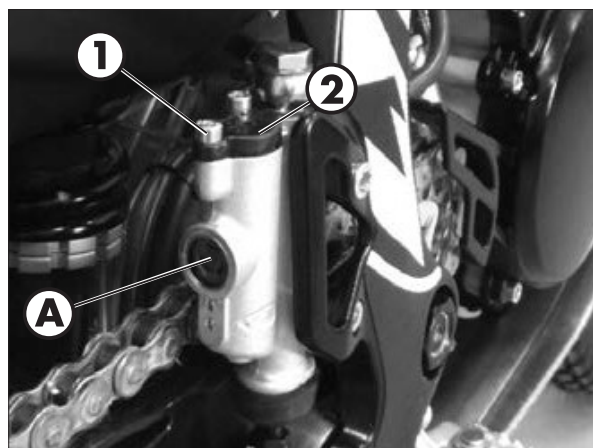
Keep coolant out of reach of children.

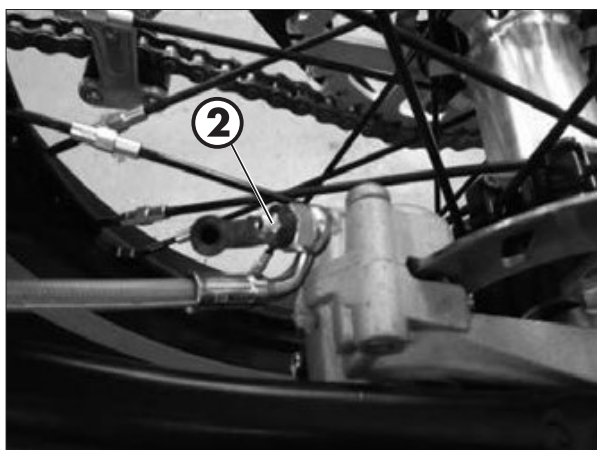
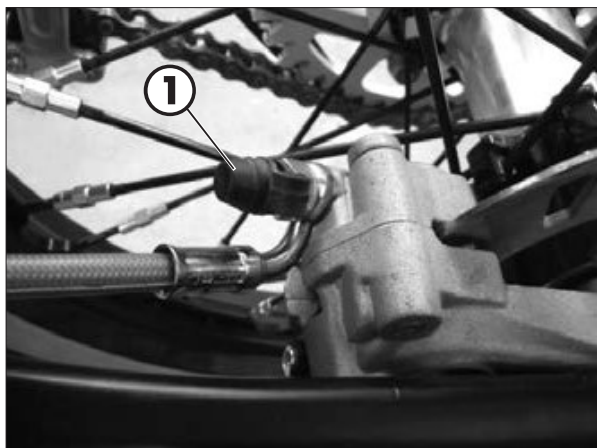


WARNING: Avoid any direct contact of the liquid with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice.
- with skin, immediately clean contaminated areas with soap and water. Change clothing that is contaminated with liquid.

If liquid is swallowed, contact a doctor immediately.





BLEEDING THE REAR BRAKE

To bleed air from the rear brake circuit, proceed as follows:

- Remove the rubber cap **1** from the valve **2**.
- Open the sump cap.
- Insert one end of a transparent tube into a container.
- Place one end of a small transparent tube into the valve **2**, and the other end inside a container.
- Unscrew the valve and let the oil drain.
- If are still visible in the tube repeat above operation until obtaining a continuous outflow of oil within no air bubbles.
- Close the valve and release the lever.

NOTE:

During this procedure, continuously top up the brake pump thank to replace the oil that is out flowing.

- Remove the tube.
- Replace the rubber cap.

Close the oil reservoir cap.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.



WARNING:

The brake fluid is extremely corrosive. Take care not to spill it on the paintwork.



Wear appropriate protective clothing and protection gloves.



Keep coolant out of reach of children.



WARNING: Avoid any direct contact of the liquid with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice.
- with skin, immediately clean contaminated areas with soap and water. Change clothing that is contaminated with liquid.

If liquid is swallowed, contact a doctor immediately.

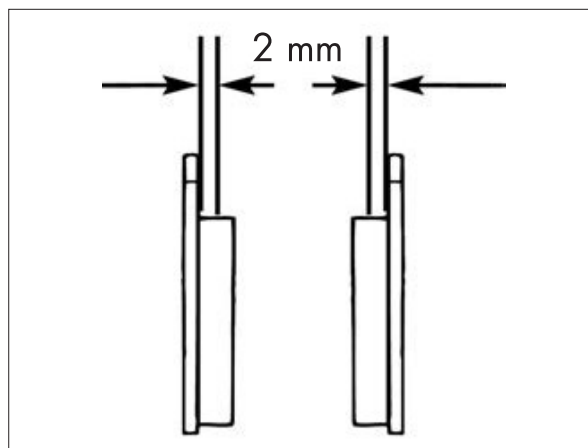
REAR BRAKE LINING CONTROL

In order to verify the wear condition of rear brake is enough to view the caliper from the back side, where is possible to glimpse the brake lining tails which will have to show a brake of 2 mm in thickness. If the stratum is lesser let's start replacing them.

NOTE:

Perform the check according to the times shown in the table on page 63.

To replace, contact authorised Betamotor customer service.



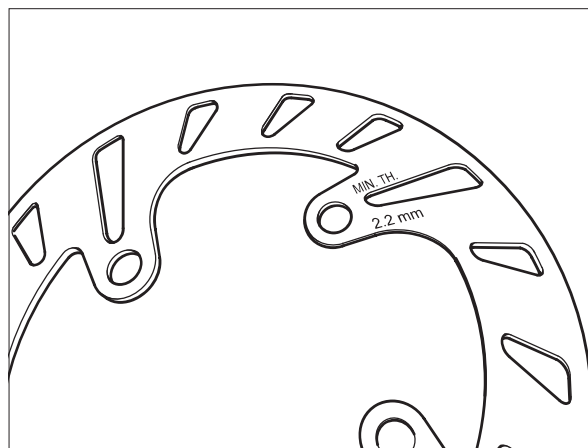
BRAKE DISC THICKNESS CONTROL

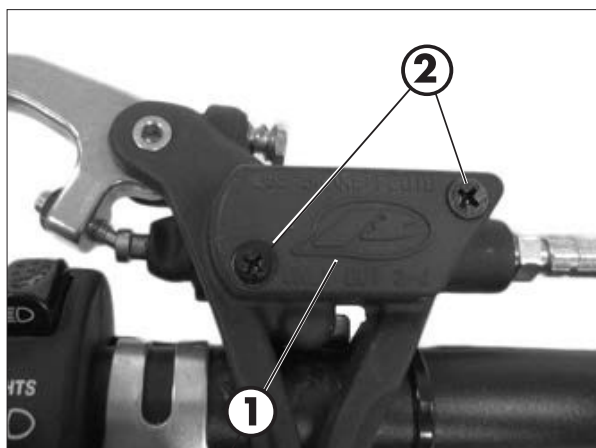
Periodically verify disc condition. In case signs of damage, veins, or deformations are present, proceed with replacement.

Verify disc thickness. The minimum thickness is engraved on the disc.

Once the limit is in proximity or has been reached, proceed with brake disc replacement.

For replacement, contact an authorised Betamotor after-sales service centre.





CLUTCH CONTROL

CHECK OIL LEVEL

To check the oil level in the clutch pump, first remove cover **1**.

Remove the two screws **2** and take off cover **1** together with the rubber bellows. With the clutch pump in a horizontal position, the level of the oil should be 5 mm below the upper rim.



WARNING:

The brake fluid is extremely corrosive. Take care not to spill it on the paintwork.



Wear appropriate protective clothing and protection gloves.



Keep coolant out of reach of children.



WARNING: Avoid any direct contact of the liquid with skin, eyes or clothing. If this happens:

- with the eyes, rinse immediately with plenty of water and seek medical advice.
- with skin, immediately clean contaminated areas with soap and water. Change clothing that is contaminated with liquid.

If liquid is swallowed, contact a doctor immediately.

BLEEDING CLUTCH CONTROL

- Remove the rubber cap **1** from the valve **2**.
- Open the sump cap.
- Insert one end of a transparent tube into a container.
- Pump with the brake lever 2/3 times and keep the lever pressed.
- Unscrew the valve and let the oil drain.
- If are still visible in the tube repeat above operation until obtaining a continuous outflow of oil within no air bubbles.
- Close the valve and release the lever.

NOTE:

During this procedure, continuously top up the brake pump thank to replace the oil that is out flowing.

- Remove the tube.
- Replace the rubber cap.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.



WARNING:

The clutch fluid is extremely corrosive. Take care not to spill it on the paintwork.



Wear appropriate protective clothing and protection gloves.



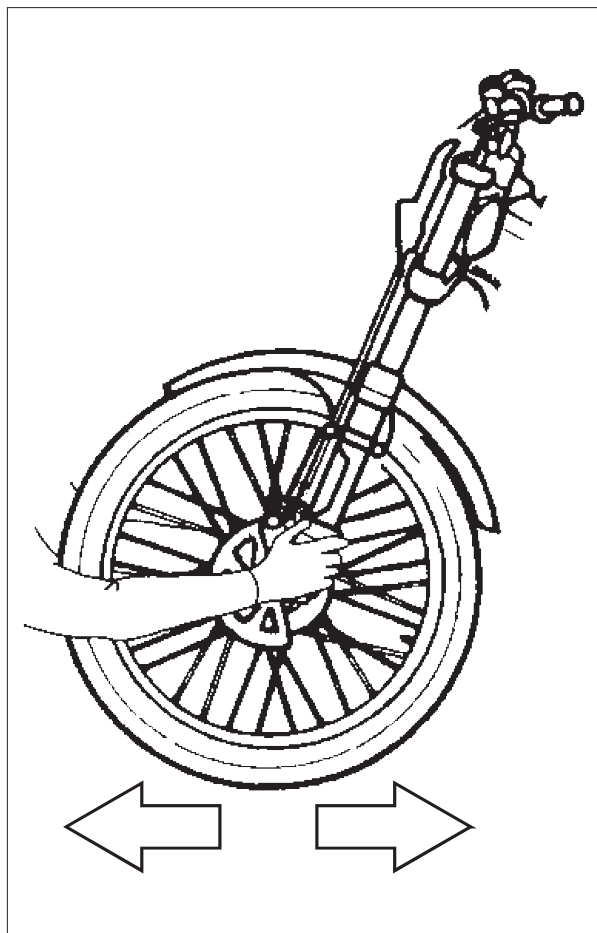
Keep coolant out of reach of children.



WARNING: Avoid any direct contact of the liquid with skin, eyes or clothing. If this happens:

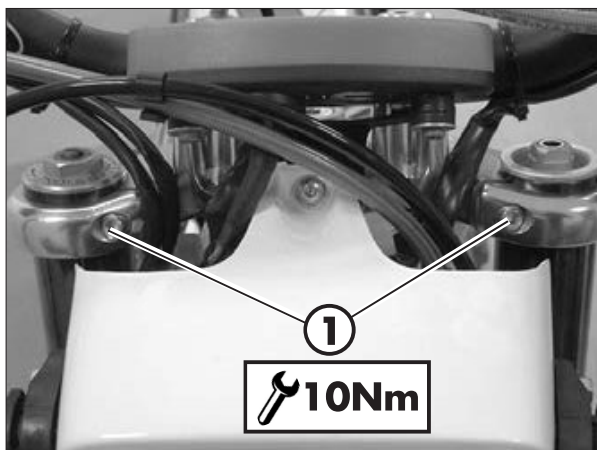
- with the eyes, rinse immediately with plenty of water and seek medical advice.
- with skin, immediately clean contaminated areas with soap and water. Change clothing that is contaminated with liquid.

If liquid is swallowed, contact a doctor immediately.

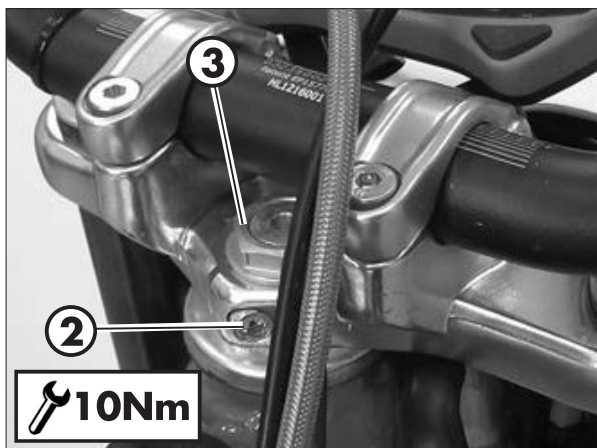


CHECK OF STEERING GEAR

Periodically check the play in the steering sleeve by moving the fork back and forth as shown in the figure. Whenever you feel play, adjust as described below:



Loosen the screws **1**.



Loosen the screw **2**.

Take up the play by means of nut **3**.

Tighten the screws to the specified torque values.

OIL FORK

The procedure for changing the oil in the forks is provided only for information. We recommend having the operation performed by a BETAMOTOR authorized workshop.

REMOVING LEGS

To replace, proceed as follows:

Position the vehicle on the central bike stand.

Remove the front wheel.

Remove the mudguard, the brake caliper and brake disc cover.

Loosen the screws **1** and pull off the stems.



OIL REPLACEMENT RIGHT LEG

Unscrew upper plug **2**.

Unscrew fixing lock nut and take off the plug.

Unscrew the fixing screw of the cartridge positioned under the fork leg, and extract the cartridge.



Empty the fork leg and the cartridge, draining all the oil inside.

Reassemble the cartridge on the fork leg tightening the fixing screw, then refill oil in the cartridge.

Pour in the quantity of liquid indicated on page 11.

Use the liquid indicated on page 16 in the "Recommended lubricants and liquids" table.

Reassemble the plug on the rod, tighten the lock nut and, extending the fork leg.



OIL REPLACEMENT LEFT LEG

Unscrew upper plug **3**.

Remove the spring and totally empty the oil.

Pour in the quantity of liquid indicated on page 11.

Reassemble the spring and extend fork leg.

Apply and tighten cap **3**.

LEGS ASSEMBLY AND PARTS

Apply the legs to the vehicle and tighten the screws **1** to the torque indicated.

ATTENTION: Tightening of the screws should be carried out by adjusting the torque wrench to the stability torque with repeated tightening until stability torque has been achieved.

Grease the wheel bolt.

Apply wheel and wheel bolt.

Apply brake caliper, disc cover and fender.

Tighten to the torque indicated.



ATTENTION: Tightening of the screws should be carried out by adjusting the torque wrench to the stability torque with repeated tightening until stability torque has been achieved.

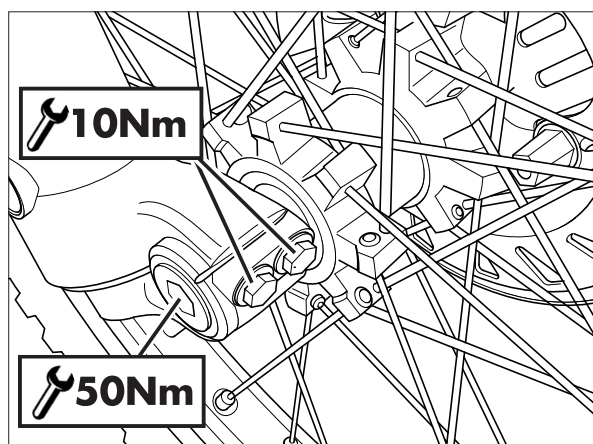
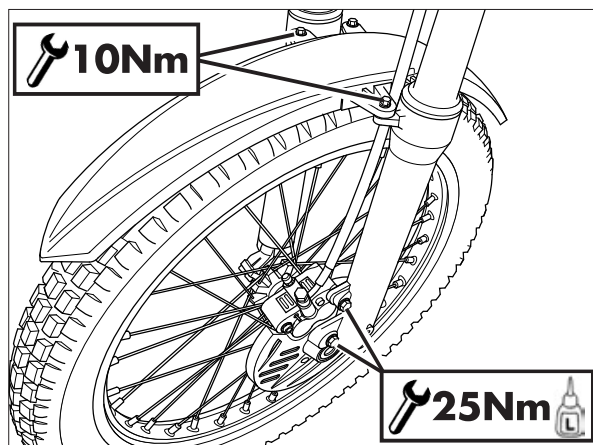
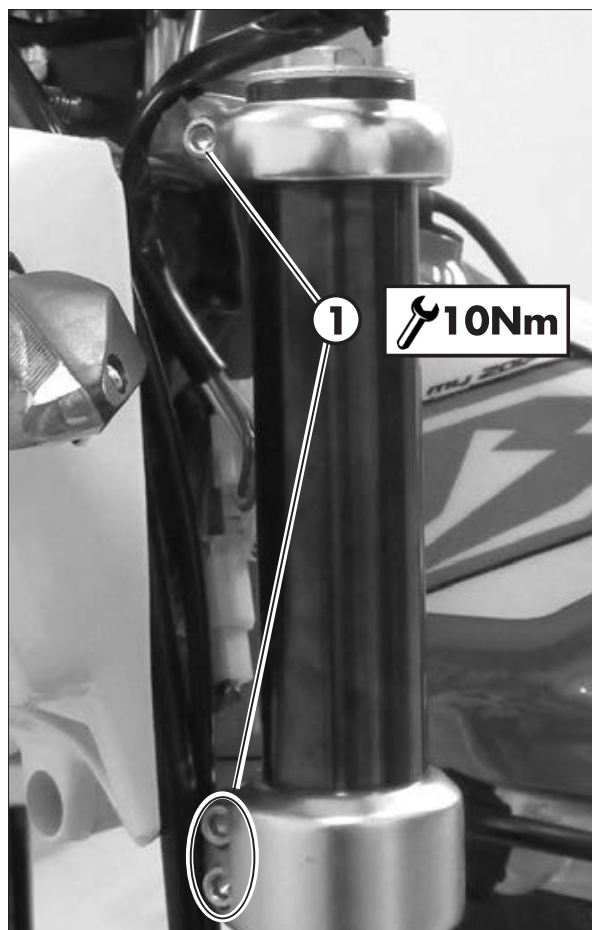
Place the vehicle on the ground.

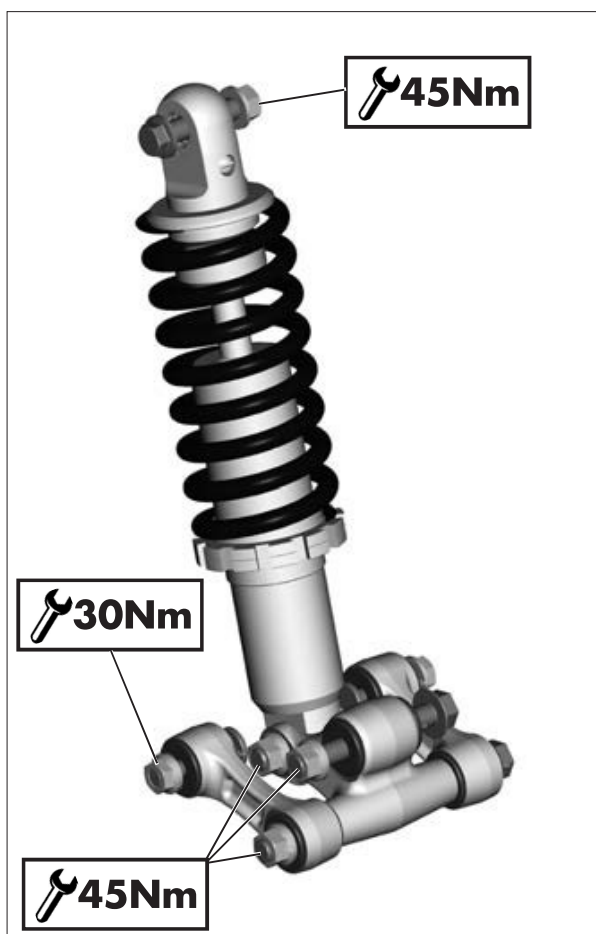
Compress and release the fork 3-4 times.

Tighten the wheel bolt and the screws of the foot.



ATTENTION: Tightening of the screws should be carried out by adjusting the torque wrench to the stability torque with repeated tightening until stability torque has been achieved.





LINKAGE REAR SUSPENSION

To guarantee an optimal operation and the longest lifetime of the progressive linkage of the rear suspension, it is recommended to check after every race/run the correct tightening of the bolt.

Verify that the result of the suspension bolts to specified torque.

To access the upper fixing, remove the entire mudguard group (page 68).

NOTE: It is recommended not to wash with water jets at high pressure in the zone of the linkage.

Perform the check according to the times indicated in the table on page 63.

To verify device, contact authorised Beta-motor customer service.

TYRES

Only fit tyres approved by BETAMOTOR.

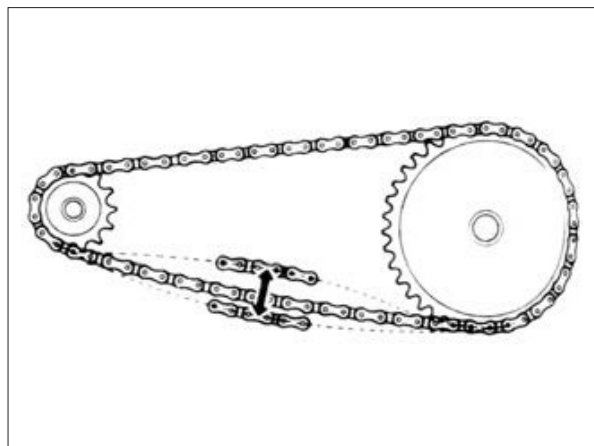
Unsuitable tyres can adversely affect the road holding of the vehicle.

- To protect your safety, immediately replace any damaged tyres.
- Slick tyres adversely affect the road holding of the vehicle, especially on wet roads and in off-road riding.
- Insufficient pressure results in abnormal wear and overheating of the tyres.
- The front and rear tyres must have the same tread design.
- Always measure the inflating pressures when the tyres are cold.
- Keep the tyre pressures within the prescribed range.

CHAIN

Checking the drive chain periodically to ensure longer chain life. Always keep it lubricated and clean of deposited dirt.

Take special care in preventing the lubricant from coming into contact with the rear tyre or brake disc, otherwise the tyre grip and the action of the brake would be greatly reduced, making it very difficult to control the vehicle.



CHECK AND ADJUST TIGHTENING CHAIN

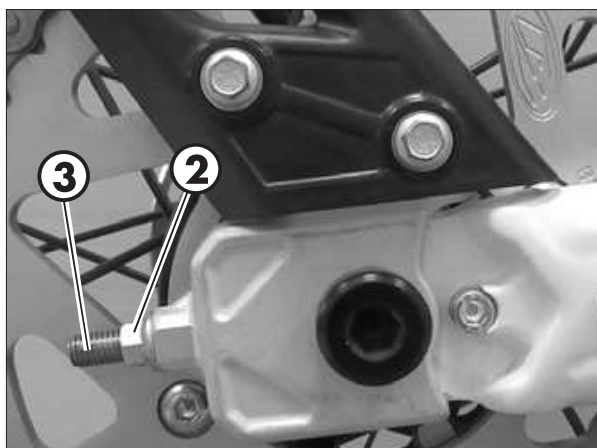
Position the vehicle on the central bike stand.

If the distance between chain and swingarm is less than 20 mm proceed with adjustment.

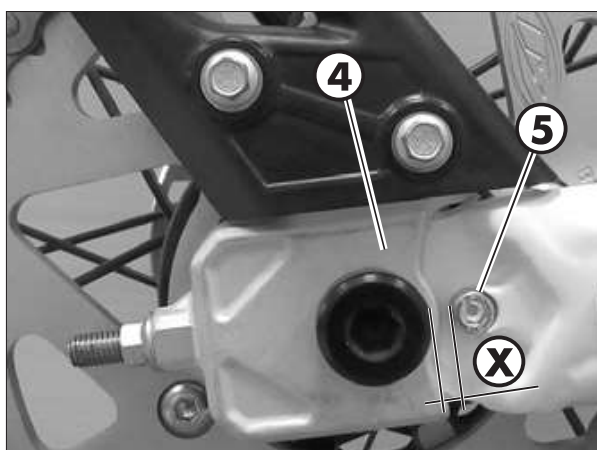


Loosen the pin **1**.

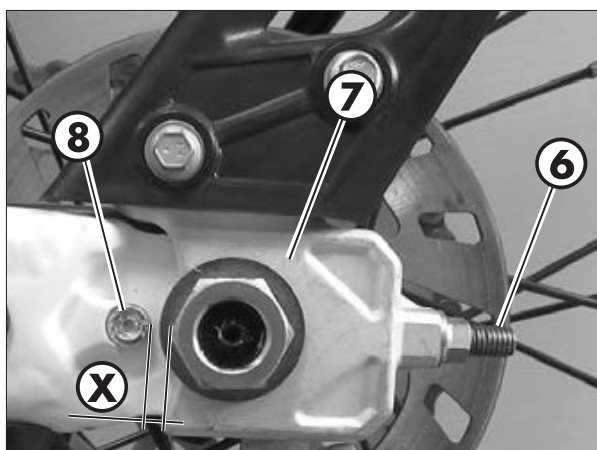




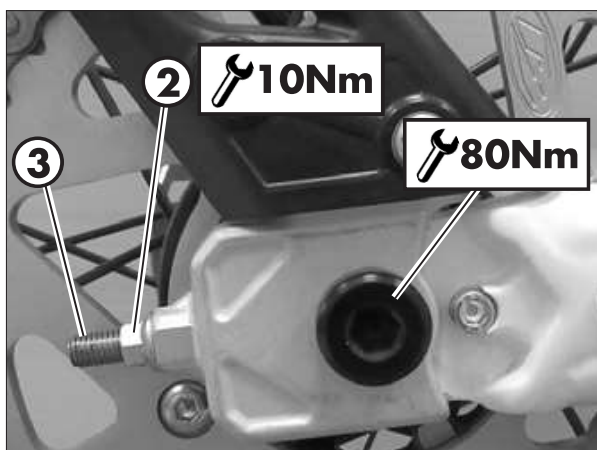
Loosen counter-nut **2** (one per side) and adjust register **3** until the desired tension is obtained.



Measure distance **X** between number plate holder support **4** and anvil **5**.



Measure distance **X** between number plate holder support **4** and anvil **5**.



Ensure the distance between chain and swingarm is that recommended.

If the distance between chain and swingarm is not that recommended proceed to readjustment.

After completing adjustment, keep register **3** locked and tighten counter-nut **2** (on each side) to the specified torque.

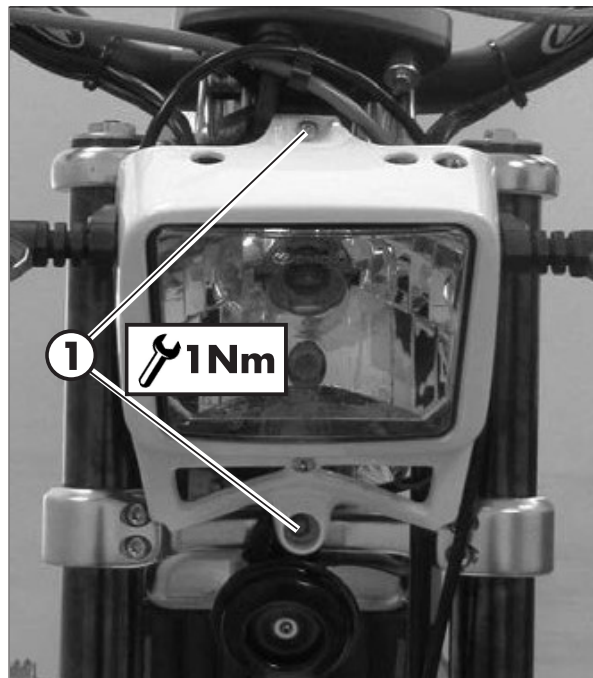
Tighten the pin to the torque indicated.

HEADLIGHT

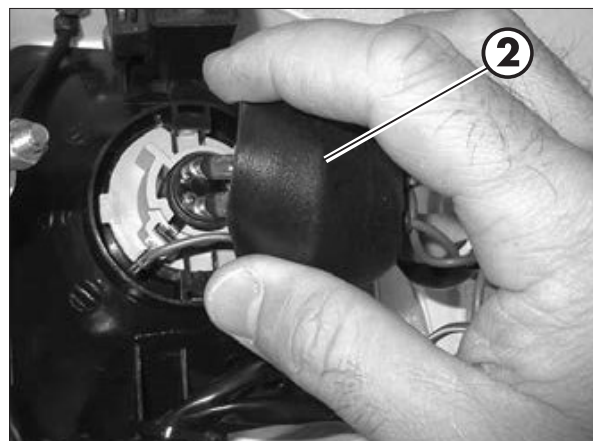
Keep the headlight glass clean at all times (page 61).

REPLACING THE HEADLIGHT BULBS

Dismantle the headlight mask removing the two retaining screws **1** indicated in the figure.



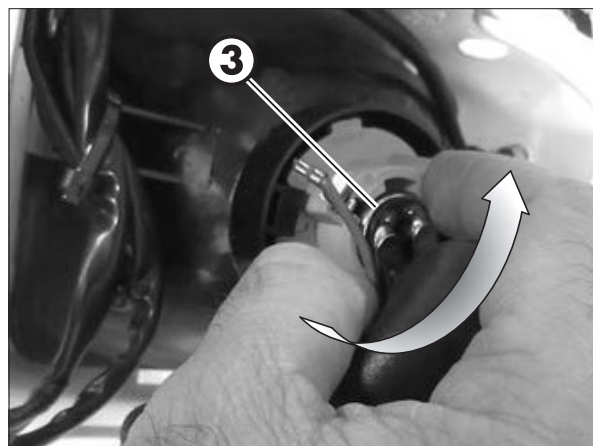
To replace the high/low beam bulb, proceed as follows:
lift rubber cap **2**.

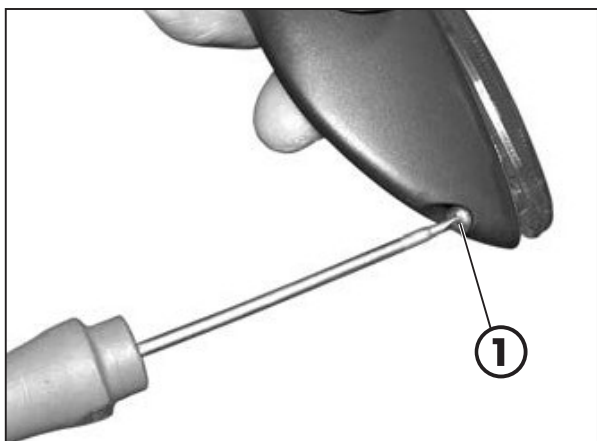
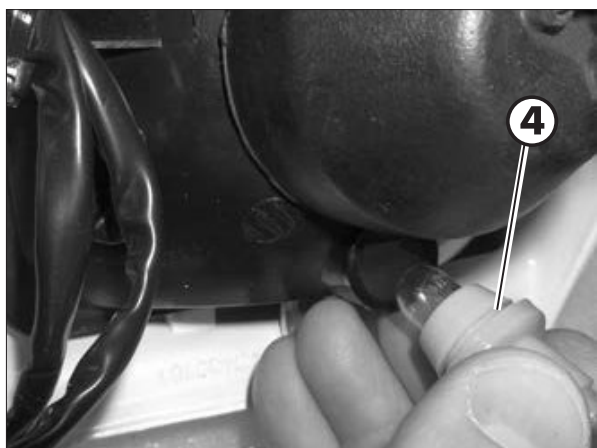


Turn bulb holder **3** anticlockwise and remove the bulb holder from the headlight body.

Turn the bulb counterclockwise with respect to the bulb holder.
Replace the bulb.

To reassemble the bulb and bulb holder, proceed in reverse order with respect to disassembly.





To replace the daylight bulb, proceed as follows.

Pull the whole bulb holder **4**.

Take the bulb and remove it from the bulb holder.

Replace the bulb.

To reassemble the bulb and bulb holder, proceed in reverse order with respect to disassembly.

To replace the headlight group proceed in reverse order with respect to the above instructions paying attention to the instrument and regulator support fixing devices.

REAR TAIL LIGHT

Keep the tail light glass clean at all times (see page 61).

The LED tail light is sealed. In the case of burnout of one or more LEDs it is necessary to replace the entire group.

To replace, contact authorised Betamotor customer service.


TURN INDICATORS


To reach the bulb, remove the glass cover by loosening screw **1**.

Remove the bulb from the connectors and carry out replacement.

CLEANING THE VEHICLE

GENERAL PRECAUTIONS

 **WARNING:** Do not clean your vehicle with a high-pressure device with a strong jet of water. Excessive pressure can reach electrical components, connectors, flexible cables, bearings, etc and can damage or destroy them.

 **WARNING:** Wash motorbikes frequently with cold water that are used near the sea (salty air) and on roads subject to salt spreading in winter. Cover with a film of oil or silicone spray unpainted parts and the most exposed parts such as wheels, forks and swingarm. Do not treat rubber parts and brakes.

When cleaning, avoid direct exposure to sunlight.

Close off the exhaust system to prevent water from entering.

 Avoid directing the jet of water onto the air filter box cover and the carburettor.

WASHING MODE



Use water jet to soften the dirt and mud accumulated on the paintwork, then remove them with a soft bodywork sponge soaked in water and shampoo. Subsequently rinse well with water, and dry with air and cloth or suede leather.

Detergents pollute water. Always wash the vehicle in areas equipped for collection and purification of the washing liquids.

AFTER WASHING

Proceed to the emptying of the filter box using the appropriate ventilation and drying.

After cleaning, ride a short distance until the engine reaches operating temperature.

  **WARNING:** braking effect is reduced with wet brakes. Operate the brakes cautiously to allow them to dry.

Push back the handlebar control covers, so that water can evaporate.

When the bike is completely dry and cooled down, lubricate all moving parts.

Treat all plastic and painted components with non-aggressive detergents or products that are specific for the care of the motorcycle.

To prevent malfunction of the electrical system, treat electric contacts and switches with electrical contact spray.



ATTENTION: any oxidation of electrical contacts may result in serious malfunctioning.

PROLONGED INACTIVITY

A few simple operations should be performed to keep the vehicle in good condition whenever it is to remain inactive for a long period (e.g. during the winter):

- Thoroughly clean the vehicle.
- Reduce the tyre pressures by approximately 30 percent, and if possible raise the tyres off the ground.
- Remove the spark plug and pour a few drops of engine oil into the spark plug hole. Make the engine turn a few times by operating the kick-start (where available) and then replace the spark plug.
- Cover the unpainted parts, excepting the brakes and the rubber parts, with a film of oil or spray silicone.
- Protect the vehicle with a dust cover.
- Drain the carburetor tank as described at page 42.

AFTER PROLONGED INACTIVITY

- Restore the tyre inflating pressures.
- Check the tightening of all the screws having an important mechanical function.

SCHEDULED MAINTENANCE VEHICLE

| | | End of running-in 5 hours | Coupon 1 40 hours or 1.000 Km | | Coupon 2 80 hours or 2.000 Km | | Coupon 3 120 hours or 3.000 Km | | Coupon 4 160 hours or 4.000 Km | | Coupon 5 200 hours or 5.000 Km | | Coupon 6 240 hours or 6.000 Km | | Coupon 7 280 hours or 7.000 Km | | Coupon 8 320 hours or 8.000 Km | | Coupon 9 360 hours or 9.000 Km | |
|----------------|--|---------------------------|-------------------------------|---|-------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|
| | | | | | | | | | | | | | | | | | | | | |
| Engine | Spark plug | P | | S | | | | | | | S | | | | | | S | | | |
| | Clutch | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Reed valve | | C | S | C | C | C | S | C | C | S | C | C | C | S | C | S | C | C | C |
| | Cylinder | | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Piston sealing rings | | C | S | C | C | C | S | C | C | S | C | C | C | S | C | S | C | C | C |
| | Piston | | | S | | | | S | | | S | | | | S | | S | | | |
| | Water pump fan | | C | S | C | S | C | S | C | S | S | C | S | C | S | C | S | C | C | C |
| | Shim water pump fan | | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Gear water pump fan | | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Water pump shaft | | C | S | C | S | C | S | C | S | S | C | S | C | S | C | S | C | C | C |
| | Water pump shaft sealing | | | S | | S | | S | | S | | S | | S | | S | | S | | |
| | Coolant | C | C | S | C | C | S | C | C | S | C | C | C | C | S | C | S | C | C | C |
| | Gear oil | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
| | Connecting rod | | | | S | | | S | | | S | | | S | | | S | | | S |
| | Crankshaft bearings | | | | S | | | S | | | S | | | S | | | S | | | S |
| | Gear | | | | C | | | C | | | C | | | C | | | C | | | C |
| Vehicle | Rear shock absorber | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Linkage rear suspension | T | T | C | T | C | T | C | T | C | T | C | T | C | T | C | T | C | T | T |
| | Fork oil | | S | | S | | S | | S | | S | | S | | S | | S | | S | S |
| | Steering bearings and steering clearance | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Wheel bearings | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Spokes | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Air filter | P | P | S | P | S | P | S | P | S | P | S | P | S | P | S | P | S | P | P |
| | Throttle control | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Braking system | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Oil pumps brakes | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Oil clutch actuator | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Transmission chain | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | State and tire pressure | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| | Electrical system | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |

Key

C Check (Clean, adjust, lubricate, replace as necessary)**S Replace/renew****R Adjust****P Clean****T Tighten**

4

TIGHTENING TORQUE OVERVIEW

Here below is an overview of the tightening torque of all pieces subject to adjustment or maintenance:

| Forecarriage | | |
|--------------------------------|------------------------|------------|
| | Tightening torque [Nm] | Threadlock |
| Wheel pin | 50 | |
| Fork foots - wheel pin | 10* | |
| Brake caliper - Fork | 25 | M |
| Steering head base - fork legs | 10* | |
| Steering head - fork legs | 10 | |
| Stem pin on steering head | 10 | |
| Upper handlebar u-bolt | 20 | |

| Rear axle | | |
|----------------------------------|------------------------|------------|
| | Tightening torque [Nm] | Threadlock |
| Wheel pin | 80 | |
| Rear shock absorber - frame | 45 | |
| Rear shock absorber - rocker arm | 45 | |
| Connecting rod - frame | 30 | |
| Connecting rod - rocker arm | 45 | |
| Rocker arm - swinging arm | 45 | |

| Engine | | |
|-------------------------------|------------------------|------------|
| | Tightening torque [Nm] | Threadlock |
| Gearbox oil drain plug | 10 | |
| Bleeding screw cooling system | 10 | |

| Superstructures | | |
|-----------------|------------------------|--------|
| | Tightening torque [Nm] | Grease |
| Front mudguard | 10 | |
| Rear mudguard | 2,5 | G |

| Headlamps | | |
|----------------|------------------------|------------|
| | Tightening torque [Nm] | Threadlock |
| Headlight mask | 1 | |

M Medium strength threadlock

*



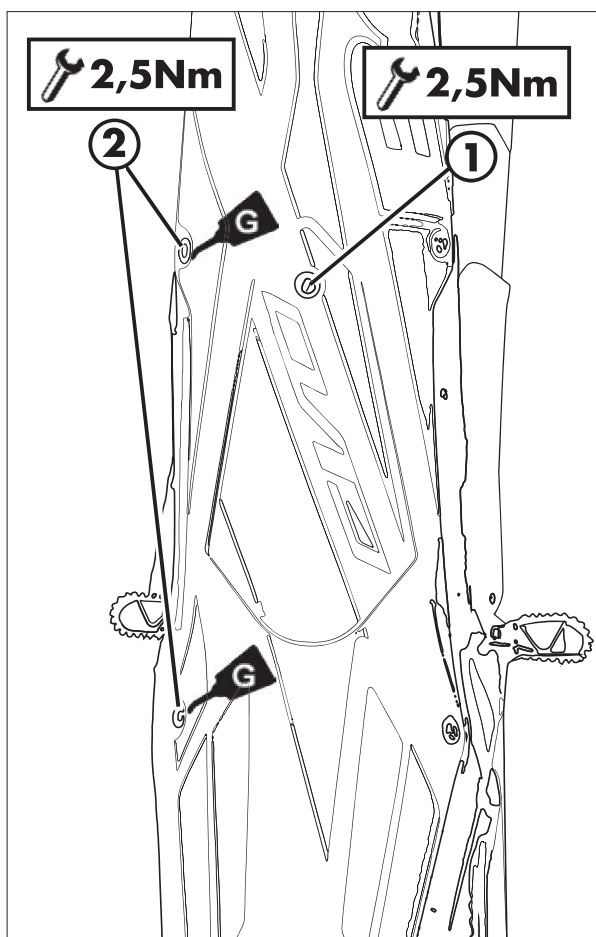
WARNING:

Tightening of the screws should be carried out by adjusting the torque wrench to the stability torque with repeated tightening until stability torque has been achieved.

CHAPTER 5 REMOVING AND INSTALLING SUPERSTRUCTURES

CONTENTS

| | |
|---|----|
| Removing and installing saddle-mudguard assembly..... | 68 |
|---|----|



REMOVING AND INSTALLING SADDLE-MUDGUARD ASSEMBLY

Remove screws **1** and **2** (two per side).
Remove the mudguard.

At the end refit the screws **1** and **2**.

Tighten to the torque indicated.

CHAPTER 6 TROUBLESHOOTING

CONTENTS

| | |
|--------------------------|----|
| Troubleshooting | 70 |
| Alphabetical index | 71 |

6 TROUBLESHOOTING

TRUBLESHOOTING

| PROBLEM | CAUSE | REMEDY |
|--|--|---|
| The engine turns over but will not start | Fuel valve in OFF position | Move the fuel valve in ON or RES position |
| | Dirty carburettor jets | Contact authorised Betamotor customer service |
| | Spark plug dirty | Clean or replace the spark plug |
| | Spark gap wrongly adjusted | Restore the spark gap (page 41) |
| | Fault in the ignition system | Contact authorised Betamotor customer service |
| The power delivered by the engine is insufficient | Tank vent obstructed | Check the tank vent |
| | Fuel system dirty | Contact authorised Betamotor customer service |
| | Air filter dirty | Clean the air filter |
| | Defective ignition system | Contact authorised Betamotor customer service |
| The motor stops or splutters | Lack of fuel | Move the fuel cock to RES |
| | | Refuel |
| | Poor carburettor seal | Make sure that the sleeve between carburetor and engine is intact |
| Engine overheats (liquid flows out/vapor from the vent radiator) | Loose or oxidized connector or ignition coil | Check the connector. Clean and treat with specific spray |
| | Radiator grill blocked | Remove and clean the grill (page 39) |
| | Radiator (air side) blocked | Clean the radiator |
| | Forced ventilation absent | Check that the cooling fan is working correctly |
| | Silencer partly clogged | Contact authorised Betamotor customer service |
| Front braking poor | Carburation too lean | Contact authorised Betamotor customer service |
| | Brake pads worn | Contact authorised Betamotor customer service |
| Rear braking poor | Air or humidity in the hydraulic circuit | Contact authorised Betamotor customer service |
| | Brake pads worn | Contact authorised Betamotor customer service |
| Rear braking poor | Air or humidity in the hydraulic circuit | Contact authorised Betamotor customer service |
| | Brake pads worn | Contact authorised Betamotor customer service |

ALPHABETICAL INDEX

| | |
|---|----|
| Accelerator | 31 |
| Adjusting fork | 32 |
| Adjustment of gas clearance..... | 31 |
| Air filter | 39 |
| Breaking in..... | 26 |
| Carburetor | 42 |
| Chain | 57 |
| Check of steering gear..... | 52 |
| Checks before and after use | 26 |
| Cleaning the vehicle | 61 |
| Clutch..... | 30 |
| Clutch control | 50 |
| Coolant | 37 |
| Digital rpm indicator operating instructions..... | 22 |
| Electrical system | 14 |
| Engine shut-down | 28 |
| Familiarizing with the vehicle..... | 9 |
| Front Brake..... | 44 |
| Fuelling..... | 27 |
| Gear oil..... | 36 |
| Handlebar adjustment | 31 |
| Headlight..... | 59 |
| Headlight adjustment..... | 34 |
| Key to symbols..... | 30 |
| Key to symbols..... | 36 |
| Main parts | 18 |
| Oil fork..... | 53 |
| Operating instructions..... | 5 |

| | |
|--|----|
| Prolonged inactivity | 62 |
| Rear brake | 47 |
| Rear tail light | 60 |
| Recommended lubricants and liquids | 16 |
| Removing and installing saddle-mudguard assembly..... | 68 |
| Riding safety | 6 |
| Scheduled maintenance vehicle | 63 |
| Shock absorber..... | 32 |
| Spark plug | 41 |
| Specifications | 10 |
| Startup..... | 28 |
| Suspension adjustment according to the motorcyclist's weight | 34 |
| Symbols | 5 |
| Tightening torque overview | 64 |
| Troubleshooting | 70 |
| Turn indicators | 60 |
| Tyres..... | 56 |
| Vehicle identification data | 8 |