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**Owners manual**

## PREFACE

**You have purchased a our scooter, congratulations and thank you for putting your trust in us.**

This model is a sturdy scooter in modern design.

Its sound construction, the meticulous selection of materials, the advanced manufacturing techniques and conscientious work of dedicated employees provides the scooter with all the characteristics such as economical operation, quality, reliability and its lasting value.

We cannot be held liable for any consequential damage caused by accessories not approved by the factory.

The scope of delivery and version of the scooter is solely determined by the purchase agreement concluded with the dealer.

This operating manual includes important instructions for handling your light scooter. Read it carefully, because professional handling combined with regular care and maintenance helps to maintain the scooter's value and is one of the requirements for warranty claims.

We wish you at all times a safe journey.

Yours

## Safety symbols and notes

**Please observe the following:**



### **WARNING**

Precautionary measures against the risk of accidents, injury and /or death.



### **FIRE HAZARD**

The vehicle is equipped with a catalyst, this results in extremely high temperatures on the exhaust system (risk of burning)



### **CAUTION**

Important instructions and precautionary rules to avoid damage to the vehicle. Nonobservance can lead to the warranty becoming void.



### **NOTE**

Special instructions for better handling during operation, inspection adjustments and service activities.

**OVERVIEW AND OPERATION**

Identification number, engine number.....	3
View of vehicle.....	4-5
Instrument, handlebar instrument.....	6-7
Ignition lock and fork-column lock.....	7-8
Storage box, luggage hooks.....	9
Fuel, fuel tank.....	10
Tank cap.....	11
Side stand, parking stand.....	12

**SAFETY TEST**

Checklist.....	13
Load and lights.....	14

**RIDING INSTRUCTIONS**

Ride safely.....	14
Ride economically and environmentally.....	15
Running-in instructions.....	16
Starting.....	17
Brakes.....	18-19
Stopping the engine.....	19

**SERVICE INSTRUCTIONS**

Servicing the scooter / cleaning agents.....	20-21
Winter operation and corrosion protection.....	21
Repairing paint damage / servicing the tyres.....	22
Lay-up commission.....	22
Technical modifications, accessories and spare parts.....	23

## CONTENTS

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### NOTES ON MAINTENANCE

Engine oil, Transmission oil.....	24-25
Checking steering bearing, telescopic fork.....	26
Tyres.....	27
Cleaning the air filter.....	28-29
Fuse.....	30
Battery.....	31-32

### TECHNICAL DATA

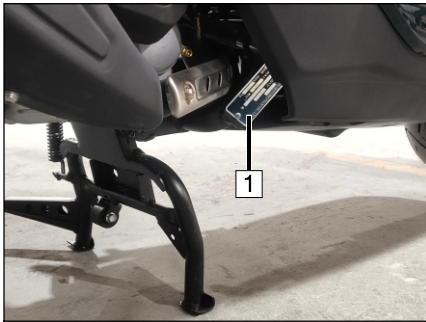
Engine.....	33
Power transmission.....	34
Chassis.....	34
Lubricants and operating fluids.....	35
Electrical equipment.....	35
Dimensions and weights.....	36

### WARRANTY AND SERVICE DATA

Warranty conditions.....	37
List of wear items.....	38-39
Inspection plan.....	40-44
Proof of maintenance.....	45-46
Circuit diagram.....	47



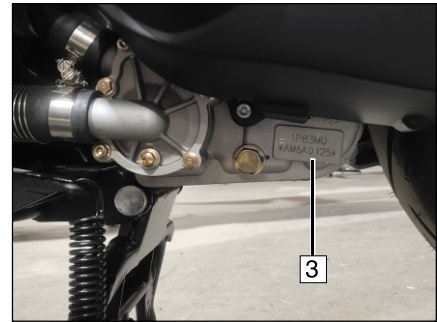
### Identification number



### Chassis number



### Engine number



### NOTE

The description for right-hand side is viewed from the driver.

The identification number (1) is located on the rear part of the frame below the right underside cover.

The chassis number is located on the frame behind the cover (2).

The engine number (3) is located on the front down side of the right crankcase.

## OVERVIEW AND OPERATION

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### Right-hand side view

- 1 Storage box with tool kit
- 2 Battery box and fuse
- 3 Ignition and fork-column lock
- 4 Brake fluid container for front wheel brake
- 5 Handbrake lever for front brake
- 6 Spark plug
- 7 Engine oil filter cap



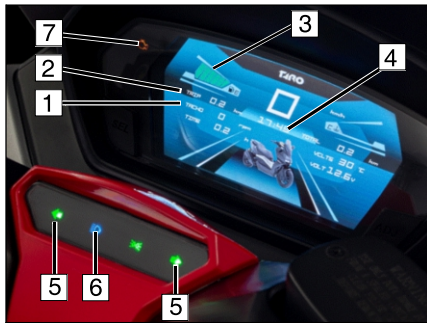
### Left-hand side view

- 8 Handbrake lever for rear brake
- 9 The left hand
- 10 Tank cap
- 11 Transmission oil filler plug
- 12 Air filter
- 13 Side stand



# OVERVIEW AND OPERATION

## Instrument

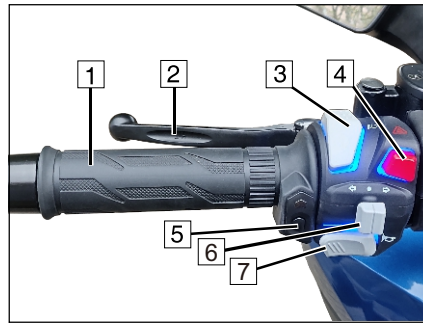


- |                  |          |
|------------------|----------|
| 1 Speedometer    | km/h/mph |
| 2 Odometer/Trip  | km/mile  |
| 3 Fuel indicator |          |
| 4 Date/Time      |          |

### Instrument lights

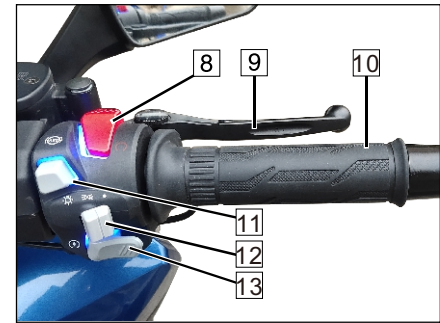
- |                                      |  |         |
|--------------------------------------|--|---------|
| 5 Left and right direction indicator |  | green   |
| 6 High beam indicator                |  | blue    |
| 7 EFI Indicator                      |  | oranger |

## Handlebar instrument, left



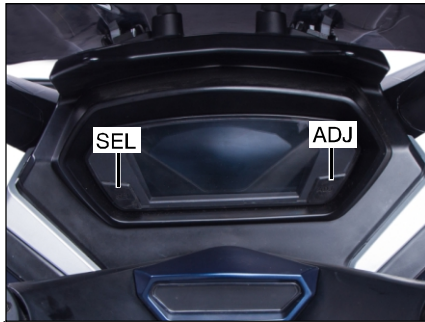
- |                                  |                            |
|----------------------------------|----------------------------|
| 1 Fixed grip                     |                            |
| 2 Handbrake lever for rear brake |                            |
| 3 High beam indicator            |                            |
|                                  | high beam                  |
|                                  | low beam                   |
| 4 Emergency alarm switch         |                            |
| 5 Steering Wheel Heating Button  |                            |
| 6 Direction-indicator switch     |                            |
|                                  | Switch to left             |
|                                  | Left indicator on          |
|                                  | Switch to right            |
|                                  | Right indicator on         |
|                                  | Push button for switch off |
| 7                                | Push-button:horn           |

## Handlebar instrument, right



- |                                   |   |
|-----------------------------------|---|
| 8 Engine off switch               |   |
|                                   | When the switch on "  " position,               |
|                                   | it has electric power, the engine can be start. |
|                                   | When the switch on "  " position,               |
|                                   | it is not power, the engine can not be start.   |
| 9 Handbrake lever for front brake |   |
| 10 Throttle                       |   |
| 11 ABS switch                     |   |
| 12 Headlight switch               |   |
| 13                                | Starter button                                  |

### Instrument




- 1 SEL: The meter brightness can be adjusted by short press.
- 2 ADJ: Short press to switch the interface. Long press can jump Ecu monitoring interface. In this interface, Short press can be ECU monitoring data page view, continue long press to enter the fault code display interface, prompt the current fault; continue long press to enter the settings interface, can be time, language, sub-total mileage reset settings, etc. , you can also choose to enter the ABS (Anti-lock braking system) fault diagnosis interface; continue long press to exit the ECU monitoring interface.
- 3 Short Press SEL can be combined with ADJ to adjust meter clock, subtotal mileage reset, metric-inch units switch, etc. .

### Ignition and fork-column lock



#### **WARNING**

While riding, do not switch the ignition off "  "!

#### **NOTE**

##### **Keys**

With the scooter you get two indefinite ignition keys. Keep the spare key at a safety place.

##### **Key positions**

#### **NOTE**

Activate the parking light only for a limited period. Take into account the charge of the battery.

Two ignition methods:

1. keyless ignition

Keyless start range: the remote lock is within 2 meters of an open area without interference. Press the knob on the lock of the Smart car, the indicator light is lighted, and the knob can be turned to drive;

2. Emergency Mechanical Lock

Lift up the black cover on the front lock and insert the mechanical lock to rotate the front lock.

#### **NOTE**

"○" It means that the whole circuit is open and the engine can not start.

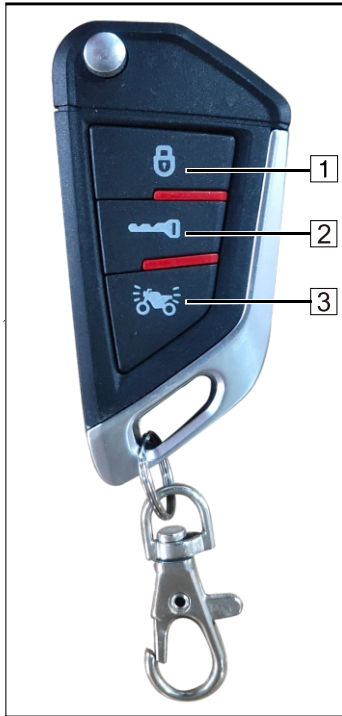
"⏻" It means the whole circuit is closed and the engine can start.

#### **NOTE**

##### **Automatic fortification function**

When the head lock knob is changed from "⏻" to "○", the host computer automatically enters the fortified state for 60 seconds without any operation. In this state, if the remote control lock is within the starting range, when the vibration signal is triggered, the host computer only enters the fortified state, but do not carry out the corresponding alarm, only the function of flashing lights; if beyond the starting range, when the vibration signal is triggered, the host only enter the fortification state, at the same time carry out the corresponding alarm.

### Emergency Mechanical Lock



### Inductive remote control operation

#### 1 Fortification key

Short press, lighting once, enter fortification function.

Long according to 3s into the sensitivity adjustment, sensitivity shift set needs, according to open the lock release.

#### 2 Induction key

Short Press, light twice, open the solenoid valve, the indicator light up.

Long Press 3S to turn the sensor on and off.

#### 3 Horn key

Short Press, light three times, enter the car-hunting function, lock the car's location.

### Anti-theft function

#### 1 Manual fortification: Manual fortification sound and light

Short press the fortification key(1) to enter the fortification function. Trigger alarm needs to detect remote sensing, sensing in the non-implementation of alarm, no sense when the alarm. The detection time is 1s, if the vehicle vibrates without induction, the first flashing light alarm 3s, the second flashing light alarm 10S.

#### 2 Automatic defense: Flash without sound

In the flameout state, the solenoid valve has fallen, and no manual fortification of the case, 60 seconds into such as automatic fortification. If the vehicle vibrates without induction, the first flash lamp 3S, the second flash lamp 10S.

#### 3 Disarm

In the fortified state, vehicles appear alarm and Flash, you can press the key to unlock, disarm, do not perform other operations. In the non-alarm state, press the key to unlock the solenoid valve and indicator light at the same time, can open the door lock. If you need to be in the secondary fortification, you can short press the fortification key(1); or wait for 60S to enter the automatic fortification.

### Working Condition

#### 1 The Electric Lock is OFF

In the induction range, trigger the induction switch, (solenoid valve, indicating LED light on) the door lock handle can be turned. Outside the induction range, the solenoid valve immediately down. The LED lights go out synchronously. Trigger the induction switch outside the induction range, detect the induction (solenoid valve, indicating LED light on)

#### 2 Electrically controlled lock in ignition (ON/ACC)

No detection of induction remote control, induction and ordinary remote control on the electronic host invalid. SOLENOID down. The LED indicator is always on.

## OVERVIEW AND OPERATION

### Storage box



- Do not store valuables in the box.
- Make sure that the seat has been locked completely after it was pressed down.
- Take out valuables before washing to avoid wetting these objects.
- Do not place thermal sensitive objects in the box because of engine's heat and high temperature.



#### Unlock

There's a "SEAT FUEL" button on the right side of the ignition.

In the keyless start state, press the Smart Car Lock Knob, turn the button to "SEAT FUEL", and press the SEAT button(1), SEAT (2)unlock, Can Punch a card cushion.

In the emergency mechanical lock condition, lift the black cover on the front lock, insert the Mechanical Lock, press the SEAT button(1), SEAT (2)unlock, Can Punch a card cushion.

#### WARNING

**After the seat is closed check if it was locked firmly! -Risk of accidents!**

**Maximun load capacity: 10 kg**

### The toolkit



There is a press buckle at the toolbox, which can realize the separation of the box body and the box cover by pressing. Press the box cover again to realize the closure of the box body and the box cover. Use the toolbox(3) only for gadgets.



#### CAUTION

**Maximum load capacity: 1.5 kg**  
**Do not transport bulky loads.**



Fuel, fuel tank

**⚠ WARNING**

Fuel is highly inflammable and can explode. Do not smoke or bring a naked flame near the fuel tank.

Fuel expands under the influence of heat and the sun. Therefore, never fill the tank to the brim. Never fill the tank while the engine is running.


Never bring a glowing cigarette or naked flame near an open tank, because fuel vapour could suddenly ignite.

Fuel stock, tanking



**NOTE**

When fuel indicating scaler (bottom) is flashing. It means, it is using spare fuel (around 1 L). Please fill the fuel accordingly.

The scale with the tank symbol  remembers for a tank stop.

**E = Empty**

Don't run down the fuel tank until it is empty.

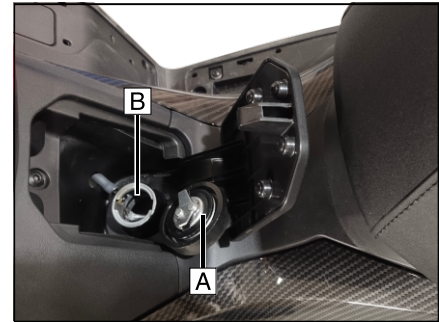
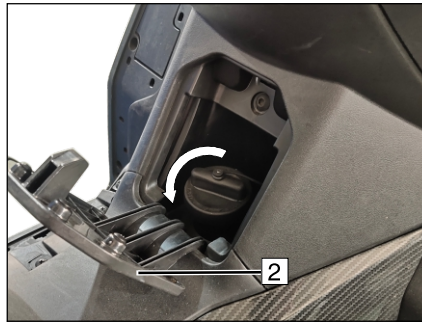
**Filling up with fuel**

- Use only premium lead-free fuel (min. 92 octane)



## OVERVIEW AND OPERATION

### Tank cap



#### Unlock:

There is a "SEAT FUEL" button on the right side of the ignition.  
In the keyless startup state, press the smart car lock knob. Turn the button to "SEAT FUEL", and press the FUEL button(1) to unlock the tank cover(2).  
In the state of emergency mechanical lock, lift the black cover on the front lock, insert the mechanical lock, and press the fuel button(1) to unlock the tank cover(2).

#### LOCK:

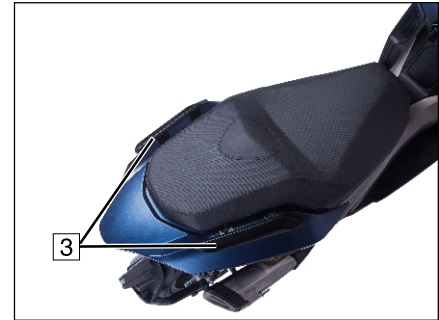
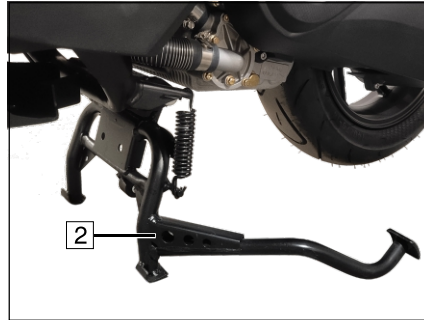
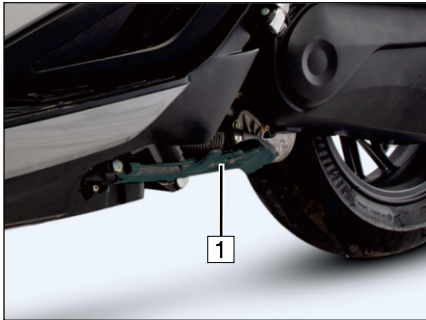
- Align A to B, press the tank cap and turn it clockwise.
- Close the tank cap(2).



#### NOTE

The tank cap is located under the seat.

### Side stand and parking stand



**Propping up the scooter on the side stand.**

#### **⚠ WARNING**

**Always make sure that the stand is resting on firm ground. On sloping roads, always park the scooter facing uphill. It is essential that the side stand is folded up before starting off! -Risk of accidents!**

#### **Side stand**



#### **NOTE**

The scooter is equipped with a side stand switch. If the side stand is folded up the engine is shut off and will not start.

- Switch off the engine.
- Put your left hand on the left-hand handlebar grip.
- Hold with your right hand the holder grip (3).
- Fold out the arm for the side stand(1) as far forward as it will go and stop by foot.
- Slowly tilt the scooter to the left until its weight is supported.

#### **Parking stand**

- Switch off the engine.
- Put your left hand on the left-hand handlebar grip.
- Hold the holder grip(3) with your right hand.
- Push the parking stand (2) down until the two skids are on the ground.
- Put your full body weight on the operating mandrel of the main standard.
- Pull the scooter towards the rear and simultaneously upwards onto parking stand.
- Check that the scooter is standing firmly.

## SAFETY TEST

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### Checklist

#### **Before each ride, carry out a safety check using the checklist.**

Take the safety check seriously. Carry out maintenance activities before you start your ride or ask a specialized dealer to do so.

This will provide you with the certainty that your motorcycle corresponds to traffic regulations. A technically faultless motorcycle is a basic requirement for the safety of both yourself and other road users.

Before starting your ride, check the following:

- Steering (smooth and free play)
- Engine oil quantity
- Fuel quantity
- Front brake
- Rear brake
- Tyres (profile and pressure)
- Telescopic fork
- Load / lights
- Total weight
- Lights
- Brake fluid (lever)
- Brake (operation)

In case of problems or difficulties, contact a dealer, who will do everything possible to assist you.



#### **WARNING**

**While the engine is running or the ignition is on, do not touch the ignition system.**



#### **FIRE HAZARD**

**The exhaust system becomes very hot. While riding, idling or parking, make sure that to inflammable materials (e.g. hay, leaves, grass, coverings or luggage, etc.) can come into contact with it!**

**Load / lights** **WARNING**

**For the sake of your safety, use only original accessories or products released by us.**

We cannot judge for each third-part product whether it can be safely used in combination with your scooter.

Nor can a official approval give such a guarantee in all cases, since the test scope is not always sufficient.

**NOTE**

Our accessories and approved products as well as qualified advice are available from all specialized dealers.

**Correctly loaded**

- Make sure that the left-right weight distribution is balanced.
- Check that fastenings are correct and tight.
- Do not transport bulky loads.
- Do not cover the lights.

 **WARNING**

**The total allowable weight may not be exceeded.**

**Check the tyre pressure.**

**Checking the lights** **WARNING**

**Before any ride, check the operation of all lighting components.**

- Check that the headlamps and lenses are clean.

**Ride safely****CAUTION**

**Riding safety is largely also determined by the manner of riding.**

Therefore:

- Put on a tested / approved safety helmet and correct close the buckle.
- Wear suitable protective clothes.
- Rest your feet on the footrests.
- Do not ride if your riding ability has been compromised.

Your reactions can be adversely affected not only by alcohol, but also by drugs and medicines.

- Strictly observe all traffic regulations.
- Always adapt your riding speed to the traffic and road conditions.

On smooth, slippery roads take into account that your riding stability and braking power are limited by the grip of the tyres on the road top.

## RIDING INSTRUCTIONS

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### Ride economically and be aware of the environment

Fuel consumption, environmental pollution and wear of engine, brakes and tyres depend on various factors.

Your personal riding style is highly determinant for economical fuel consumption and exhaust gas and noise generation.

While idling, the engine takes a long time to warm up to operational temperature. In the warm-up phase, however, the wear level and pollutant emissions are very high. It is therefore best to start riding immediately after start-up.

#### **Avoid rapid acceleration**

Open the throttle not further than needed, in order to reduce fuel consumption as well as pollution and wear levels.

Do not use excessive revs; change up as soon as possible and do not change down until it is necessary to do so.

#### **Ride as evenly as possible and look ahead as far as possible.**

Unnecessary acceleration and hard braking cause high fuel consumption and increased pollution levels.

#### **Turn the engine off when waiting in traffic.**

Different riding conditions affect fuel consumption. The following conditions are unfavourable for fuel consumption:

- High traffic density, especially in big cities with many stops for traffic lights.
- Frequent short rides with repeated starts and warm-ups of the engine.
- Riding in a column of motorcycles at low speed, meaning riding with relatively high revs.

Plan rides ahead of time in order to avoid heavy traffic.

Fuel consumption is also affected by conditions that are out of your control, for instance, poor road condition, hills, riding in winter.

Observe the following aspects for economical fuel consumption:

- The planned inspection intervals must be closely observed.
- Regular service by a specialized dealer will guarantee not only continued operability, but also economical fuel consumption, low environmental pollution and a long lifespan.
- Check the tyre pressure every two weeks.

Low tyre pressure increases rolling resistance. This increases fuel consumption and tyre wear and adversely affects riding behaviour.

- Continually check fuel consumption.
- Frequently check the engine-oil level.

### Running-in

Running-in instructions for engine and transmission.



#### CAUTION

Excessive revs while running-in the engine increases the wear of the engine.

Engine faults during the running-in period must be immediately reported to a specialized dealer.



#### NOTE

During the running-in period, ride in frequently changing load and rpm ranges. Select winding and slightly hilly routes. Avoid constantly low rpm counts and full throttle under load.

- During the first 500 km:

Less than 1/2 throttle.

- Up to 1.000 km:

Less than 3/4 throttle.



#### CAUTION

The first inspection must be carried out immediately after the first 1.000 km.

You can save yourself delays by making an appointment with a specialized dealer in advance.

### Running-in new tyres



#### CAUTION

New tyres have a smooth surface. They must therefore be roughened by carefully running them in at various slanted positions.

Only then will the surface obtain its full grip!

### Running-in new brake linings



#### WARNING

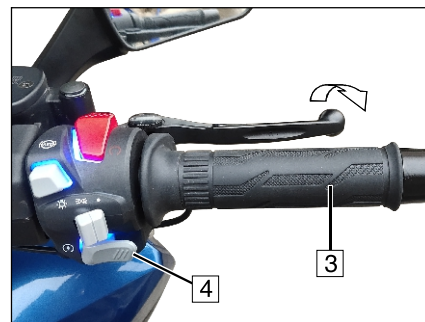
New brake linings must be run-in and will not have their full friction power until after 500 km.

The slightly reduced braking effect can be compensated for by an increase in the pressure on the brake lever.

During this period, avoid unnecessary hard braking actions.

## RIDING INSTRUCTIONS

### Starting with the electric starter



#### **WARNING**

**Propping up the scooter with the parking stand. Operate the rear handbrake lever to avoid a moving of the scooter.**

**Avoid high engine rpm's while the vehicle is standing still, otherwise the clutch will engage.**

#### **NOTE**

The scooter is equipped with a side stand switch. If the side stand is folded up the engine is shut down and will not start.

#### **Before starting**

- Propping up the scooter with the parking stand.
- Keyless startup mode: press the knob on the smart car lock, the indicator lights up, and the knob can be turned to "⏻" state;
- Emergency mechanical lock starting mode: lift the black cover on the front lock, insert the mechanical lock, the indicator light is on, the knob can be turned to "⏻" state;
- Do not open the throttle (3).
- Pull and hold the handbrake lever (2).
- Operate the start button (4).
- If the engine can not be started after the starter motor is running for 3-5 seconds, open the throttle(3) 1/8-1/4 turns and start again.

- Push the scooter off its parking stand.
- Mount the scooter.
- Release the brake before riding.

#### **CAUTION**

**If the engine won't start immediately, release the start button, wait a few seconds and push it again. Each time, push the start button for just a few seconds in order to save the battery. Never push the start button for more than 10 seconds.**

#### **WARNING**

**Never allow the engine to run in an enclosed space. Exhaust gases are highly toxic and can kill.**

## RIDING INSTRUCTIONS

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### Braking

#### Wet brakes

Washing the scooter or riding through water or rain can delay the braking effect due to wet or ( in winter ) ice-covered brake discs and linings.

#### **WARNING**

**The brakes must first be operated until they are dry.**

#### Salt film on the brakes

When riding on salted streets without braking for a while, the full braking effect may be delayed.

#### Oil and grease

#### **WARNING**

**The brake discs and linings must be free of oil and grease!**

**If the scooter is not used for a while , a rust film may form on the brakes and thus increase the braking effect. A thick rust film can cause the brakes to lock up. When setting out on a ride after a long lay-up period, carefully operate the brakes several times until they work normally.**



#### **NOTE**

Make sure you practice braking for emergency situations, but do so where you will not pose a risk to yourself or others(e.g.a deserted parking area).

#### **WARNING**

**Operate the brakes to grind off the salt deposited on the brake discs.**

#### Dirty brakes

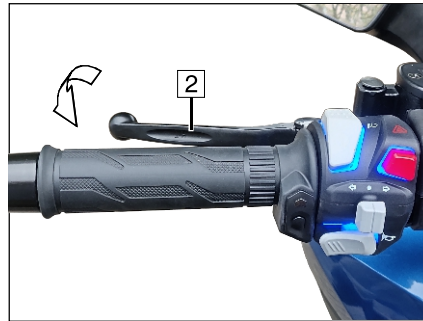
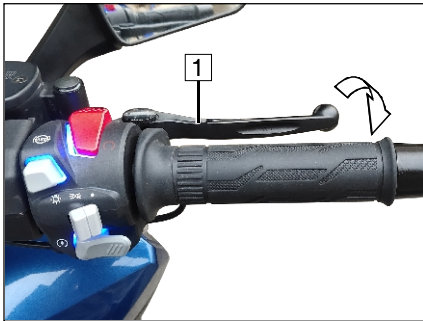
When riding on dirty streets, the braking effect can be delayed due to dirty brake discs and linings.

#### **WARNING**

**Operate the brakes until they are clean. Lining wear is increased by dirty brakes!**



## Braking



### Braking

The front brake and rear brake are operated independently from each other. The front brake is operated via the right-hand brake lever(1)on the handlebars,and the rear brake is operated via the left-hand brake lever(2).

When stopping or slowing down,release the throttle gas and operate **both** brakes at the same time.

On tight curves, sandy / dirty streets, wet asphalt and icy roads,use the front brake carefully: if the front wheel locks , the bike will slide sideways. Brake with care.Locked wheels do not have much braking effect and can lead to skidding / crashing. In principle,do not brake on a curve, but before the curve. Braking on a curve increases the danger of sliding.

## Stopping the engine



- Turn the knob (3) on the lock of the car to the " O " state.
- When using the mechanical lock, remember to remove the ignition key.

## SERVICE INSTRUCTIONS

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### Servicing the scooter / cleaning agents



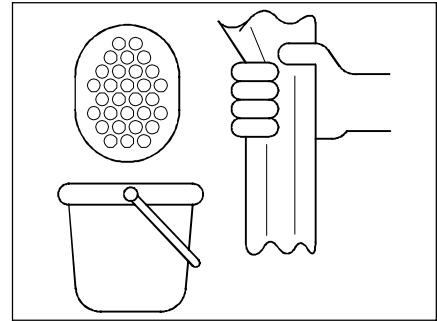
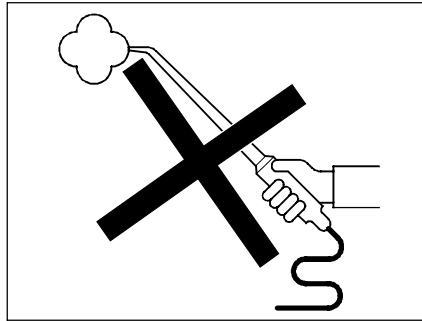
#### NOTE

Regular, expert service will help maintain the value of your scooter and is a condition for guarantee claims for corrosion and other such damage.



#### CAUTION

Rubber and plastic parts will be damaged by caustic or penetrating cleaning agents or solvents.



#### WARNING

Always carry out a brake test after cleaning and before starting a ride!



#### CAUTION

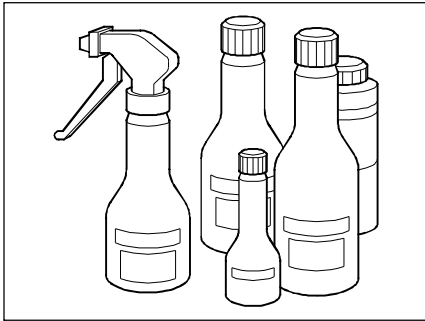
Do not use steam or high-pressure jet devices!

Such devices can damage seals, the hydraulic braking system and the electrical system.

#### CLEANING

- To wash the motorcycle, use a soft sponge and clean water.
- Afterwards, dry off with a polishing cloth or chamois.
- Do not wipe off dust or dirt with a drycloth, to avoid scratching the paint or covering.

### Servicing the scooter / cleaning agents



#### PRESERVATION AGENTS

When necessary, the scooter must be preserved with commercially available preserving and cleaning agents.

- By way of precaution (especially in winter), regularly treat parts liable to corrosion with preservation agents.

#### CAUTION

Never use paint-polishing agents on plastic parts.

- After a longish ride, thoroughly clean the chassis and the aluminium parts and preserve them with a commercially available anti-corrosion agent.

#### Operation in winter and anti-corrosion protection



#### NOTE

Protect the environment by using only environmentally friendly preservation agents, and use them frugally.

Use of the motorcycle in the winter can cause considerable damage due to the presence of salt on the roads.

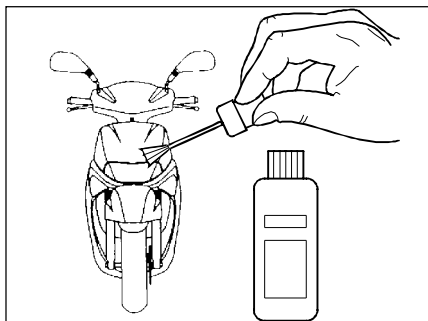
#### CAUTION

Do not use hot water, which would increase the effect of the salt.

- At the end of each ride, wash the motorcycle with cold water.
- Thoroughly dry the motorcycle.
- Treat parts liable to corrosion with waxborne anti-corrosion agents.

## SERVICE INSTRUCTIONS

### Repairing paint damage



Minor paint damage should be immediately repaired.

### Servicing tyres

If the scooter is not used for a longer period, it is recommended to support the scooter so that its weight is not on the tyres.

You can prevent the tyres from becoming dry and brittle by spraying them with a silicone-rubber treatment. First thoroughly clean the tyres.

Do not store the scooter or the tyres in hot spaces (such as a boiler room) for longer periods.

#### **WARNING**

**A minimum tyre-profile depth of 2.0 mm must be maintained at all times.**

### Lay-up / commission

#### **Lay-up**

- Clean the scooter.
- Remove the battery.
- Observe the maintenance instructions.
- Spray suitable lubricants onto the brake-lever and clutch-lever joints and the side-standard and main-standard bearings.
- Rub bright / chromium-plated parts with acid-free grease (Vaseline).
- Store the scooter in a dry room and jack it up so that its weight is not on the wheels.



#### **NOTE**

Combine lay-up / commission activities with an inspection by a dealer.

#### **Commission**

- Remove the preservation agents from the outside.
- Clean the motorcycle.
- Install the charged battery.
- Preserve the battery terminals with terminal grease.
- Check / adjust the tyre pressure.
- Check the brakes.
- Carry out activities according to the inspection plan.
- Carry out the safety checks.

### Technical changes, accessories and spare parts

#### **WARNING**

**Technical changes to the scooter can lead to cancellation of the EC operating license.**

Should you want to make technical changes, observe our guidelines. This will serve to prevent the scooter from being damaged and the traffic and operational safety being retained. A specialised dealer can carry out these activities with meticulous care.

Always consult a dealer before buying accessories or making any technical changes.

#### **CAUTION**

**We recommend using only approved accessories and original spare parts for our scooter.**

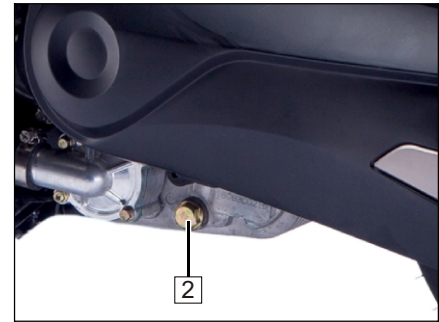
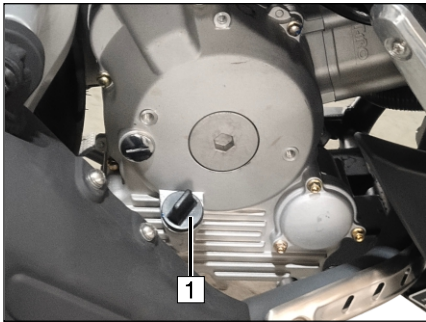
**This is in your own interests : the safety, suitability and reliability of these accessories and parts will have been tested specifically for the scooter.**

**Although we keep track of the market, we cannot evaluate nor be held liable for the quality of non-approved accessories and parts, even if they have a certificate of acceptance from an officially recognised technical testing / supervision agency, or a license issued by the authorities.**

For approved accessories and original spare parts, see a specialised dealer. He will also ensure that they are professionally installed.

## NOTES ON MAINTENANCE

### Engine oil



#### Checking the oil level



#### CAUTION

Checking the oil while the engine is cold will lead to a wrong measurement and therefore the wrong oil quantity. In order to avoid engine damage, never exceed the maximum oil level nor let it drop below the minimum level.



#### NOTE

Make sure that the scooter during oil-level checks stands level in all respects. Even the slightest inclination towards the side will produce measurement errors.

- Stop the warmed-up engine, wait for approx. 5 minutes and hold the scooter upright.
- Propping up the scooter on the parking stand.
- Stop the engine and remove the oil filler cap (1) on the lower right of the crank-case.
- Clean the oil filler cap at the MIN-MAX area with a clean rag.



#### CAUTION

For checking the oil level only insert the oil filler cap and don't screw in! Otherwise there will be a wrong measurement in order to avoid engine damage.

- The oil level must be between the minimum and maximum marks.
- Tighten the oil filler cap by hand.

If required, replenish the engine oil SAE 15 W/40 via the oil level up to the MAX level mark.

- When change new engine oil, open the oil hole screw (2), till all engine oil is flow out, then tighten the screw (2) and add new oil via the oil level up to the MAX. level mark.
- Tighten the oil filler cap (1).

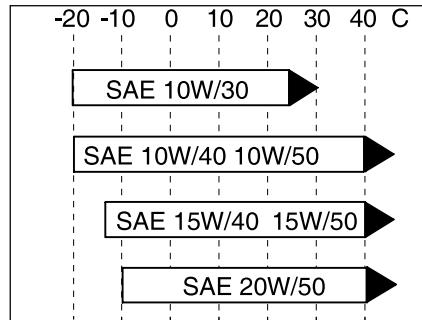
Engine oil



**CAUTION**

Do not use additives . Since the oil also serves to lubricate the clutch, do not use car engine oils supplemented with friction modifiers (such energy-conserving oils can lead to the clutch slipping). Use a suitable, light engine oil for scooters , such as Motorex SAE 10W/40 mineral oil API (SG or higher).

- If required, replenish the engine oil(for classification and viscosity, see the table) via the oil-filler opening up to the maximum level marking.



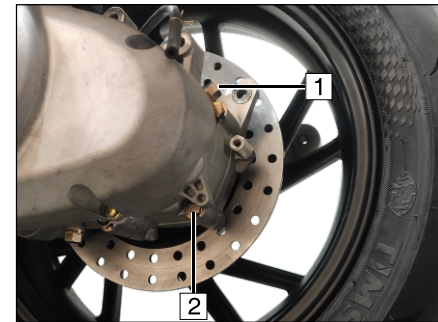
**Recommended grade:**

Per API:SG or higher or also with additional release status: ACEA A3/96 (CCMC G5)

Recommended viscosity:

Viscosity depends on the outside temperature. For short while, the temperature may exceed or fall short of the limits of the SAE grades.

The recommended viscosity grade SAE 10 W/40 covers the ambient temperature range -15°C to +40°C and therefore represents the optimum for out latitudes.



**Checking the transmission oil level**

- Stop the warmed-up engine, wait for approx. 5 minutes.
- Propping up the scooter on the parking stand.
- Remove the oil filler screw (1)and check if the oil level is below the oil-filler opening.
- If required, replenish transmission oil Hypoid SAE 85W-140 via the oil-filler opening.
- When change new transmission oil, open the oil hole screw(2),till all transmission oil is flow out, then tighten the screw (2) and add new oil via the oil-filler opening.
- Tighten the oil filler screw(1).

## NOTES ON MAINTENANCE

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### Checking the steering bearings



#### NOTE

The telescopic fork should not jam up when turned and it should swing back lightly to both end positions.

- Pull the hand brake to block the front wheel brake.
- Hold the handlebar with both hands and try to move the handle bar(1)back and forth.

If the fork column bearing shows noticeable play, it must be adjusted by a specialised dealer.

### Checking the telescopic fork

- Pull the hand brake to block the front wheel brake.
- Now pump the fork girders (2) several times up and down using the handlebar.
- The suspension should respond perfectly.
- Check the fork girders for oil leaks.

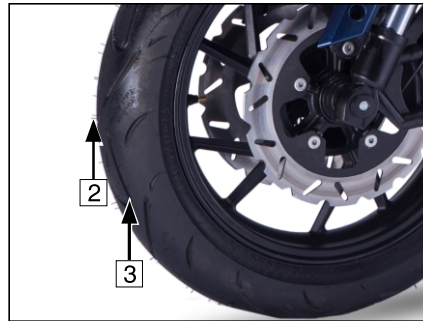
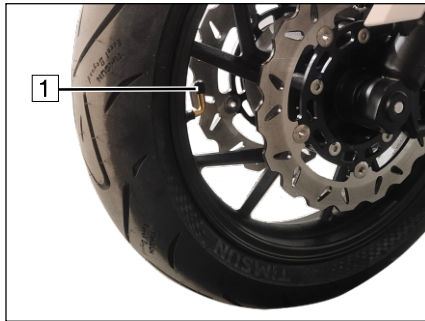


#### NOTE

If damage to the telescopic fork or the spring strut is found have the motorbike examined by a professional dealer.



**Tyre profile**



**Checking the tyre profiles**

**⚠ WARNING**

Observe the minimum profile depth prescribed by law.  
**Never ride without valve caps(1) . Firmly tightened valve caps prevent the tyre from suddenly losing pressure.**

- Measure the profile depth at the centre (2) of the tyre's tread.

Recommended minimum profile depth:  
**2.0 mm**

**Observe the wear marks(3).**

**Checking the tyre pressure**

**⚠ WARNING**

**Adjust the tyre pressure according to the total weight load. Never exceed the rated total weight or the bearing capacity of the tyres.**

**Incorrect tyre pressure will have a considerable effect on the riding properties of the scooter and the lifespan of the tyres.**

- While the tyres are cold:
- Twist off the valve caps.
- Check / adjust the tyre pressure.
- Twist on the valve caps.

Tyre pressure

One Rider: Front: 225 kpa      Rear: 225 kpa  
 Two Rider: Front: 250kpa      Rear: 250kpa

**Tyre size**

The standard scooter is provided with the following tyre sizes:

Front      120/70-15 56S  
 Rear      140/70-14 62S

All Tyres are tubeless.

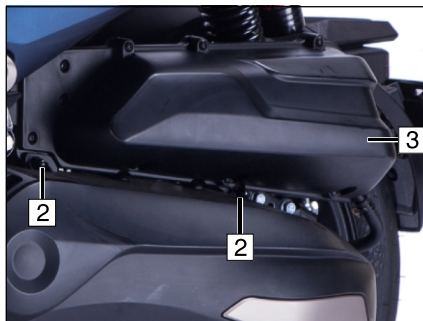
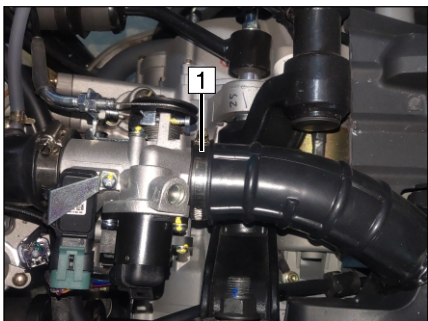
**⚠ WARNING**

**Use only tyres approved by the manufacturer. The use of non-approved tyre brands, types or sizes leads to the operating permit of the vehicle becoming null and void. Use only pairs of tyres produced by the same manufacturer.**

## NOTES ON MAINTENANCE

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### Cleaning the air filter



#### **NOTE**

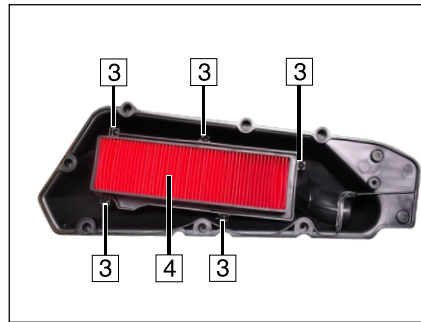
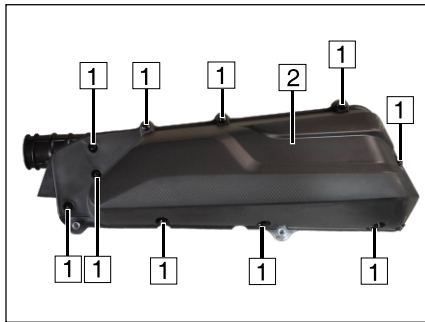
The scooter is attached with a oil foam air filter. In case of heavy dirtiness the paper filter element has to be replaced.

#### Disassembly and cleaning

- Remove the clamp(1)from the carburettor.

- Remove the screws (2) and take off the air filter (3).

Replacing the air filter



**NOTE**

The scooter is attached with a oil foam air filter. In case of heavy dirtiness the paper filter element (4) has to be replaced.

Disassembly and cleaning

- Use cross screws (1) and take off the air air filter cover (2).
- Remove the screws (3) and take off the paper filter element (4).
- Dust out the paper filter and clean with air pressure or renew if necessary.

Installation



**NOTE**

- Usually the installation takes place in reverse order to disassembly.

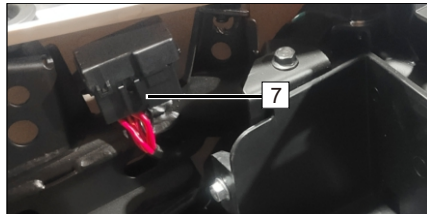
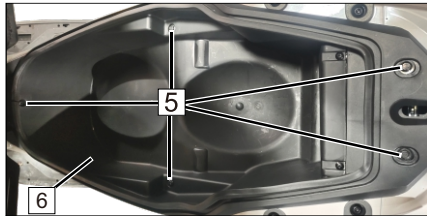
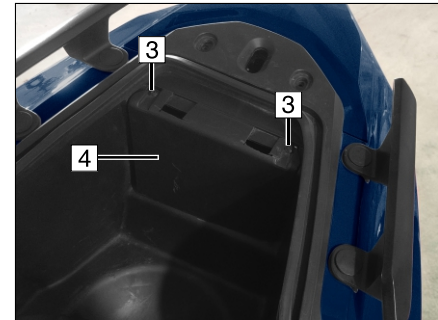


**CAUTION**

Never run the engine without air filter.

- Dust deposit is one of the major causes of reducing output horsepower and increasing fuel consumption.
- Change the air cleaner element more frequently to prolong the engine's service life if the scooter is ride on dusty roads very often.
- Check for properly installation of the foam housing in the filter case.
- Otherwise the engine runs poorly or lead to serious engine damage.
- Be careful not to soak the air cleaner when washing the scooter. Otherwise it will cause engine hard to start.

Checking the fuse



**⚠ CAUTION**  
**Never install a fuse with a larger rating, since this could destroy the entire electrical system.**

The fuse is located behind the inspection cover.

- Turn off the ignition.
- Press the seat button (1) to open the seat cushion (2).
- Remove the two screw (3) and open the battery cover (4).
- Remove the five screw (5) and open the main bucket (6).
- Open the fuse case (7) and remove the fuse.
- A faulty or blown fuse must be replaced by a new one with 20 A.
- Check the fuse for correct contact. Loose fuse will blow.

Installation takes place in reverse order to disassembly.

## NOTES ON MAINTENANCE

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### Battery



#### WARNING

Always wear safety glasses.

Keep children away from acids and batteries.



#### EXPLOSION DANGER

A battery being charged produces a highly explosive gas, which is why fire, sparks, naked flames and smoking are prohibited.



#### FIRE HAZARD

Avoid generating sparks and electrostatic discharges when handling cables and electrical devices.

Avoid short circuits.



#### DANGER-CAUSTIC ACTION

Battery acid is highly caustic, so always wear safety gloves and glasses.

Do not tilt the battery as acid can leak from the ventilation openings.



#### FIRST AID

If acid comes into contact with an eye, immediately flush the eye for several minutes with fresh water. Then immediately visit / call a doctor.

Acid on the skin or clothing must immediately be neutralised using acid converter or soap suds, and the spots must be flushed with plenty of water.

If acid is swallowed, immediately visit / call a doctor.



#### CAUTION

Do not expose batteries to direct sunlight. Discharged batteries can freeze, so they must be stored in a place where the temperature remains above 5 - 15 C.

Professional maintenance, charging and storage will increase the lifespan of the battery and are a condition for the honouring of guarantee claims.



#### WARNING

Take a dead battery to a collection point. Never dispose of one with household refuse.

#### Charging the battery

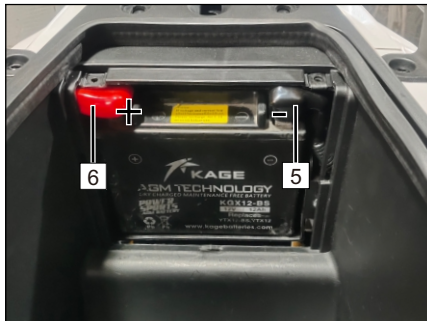
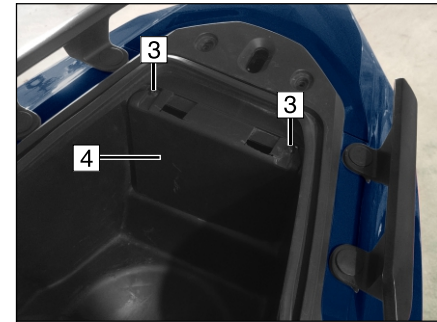
After a long lay-up(3-4 months), charge the battery. The charging current (in amperes) must not exceed 1/10<sup>th</sup> of the battery capacity (Ah).

The battery must not be fast-charged. The battery may only be charged using a special charger approved for MF batteries.

#### Maintenance

Although the battery is maintenance-free. Never leave the battery discharged. Keep the battery clean and dry and make sure that the connection terminals are firmly seated.

Removing and installing the battery



**CAUTION**

The battery may only be connected or disconnected while the ignition is inactive.

- Turn off the ignition.
- Press the seat button (1) to open the seat cushion (2).
- Remove the two screw (3) and open the battery cover (4).

**First disconnect the minus terminal (5, black cable).**

**Then disconnect the plus terminal (6, red cable).**

- Disconnect the battery.
- Remove the battery.

Installation takes place in reverse order to disassembly.

**When installing the battery, first connect the plus terminal (4, red cable).**

**The battery is maintenance-free. Do not try to open it.**

**TECHNICAL DATA**

<b>Engine type</b>	<b>1P83MQ</b>
Construction:	Single cylinder, 4-stroke
Piston displacement:	359 cm <sup>3</sup>
Bore:	φ83 mm
Stroke:	66.4 mm
Compression ratio:	11.5:1
Cooling:	Liquid cooled
Maximum net power output:	21.0kW at 8200rpm
Maximum net torque:	26.0Nm at 7000rpm
Ignition system:	Transistorized ignition system with electronic ignition control (ECU)
Spark plug:	NGK CR9E
Electrode gap:	0.6-0.8mm
Fuel supply:	EFI
Idle speed:	1500±100r/min
Air-filter:	Element air-cleaner
Typ of starter:	Electric starter

## TECHNICAL DATA

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<b>Power transmission</b>	
Clutch:	Centrifugal type
Transmission:	CVT
<b>Chassis</b>	
Scooter version:	TR400T
Front suspension:	Telescopic fork
Rear suspension:	Unit swing, hydraulic shock absorption, adjustable preload
Wheels front:	Light metal (Alu) MT 3.00×15
Wheels rear:	Light metal (Alu) MT 4.00×14
Tires front:	120/70-15 56S tubeless
Tires rear:	140/70-14 62S tubeless
Tire pressure:	One Rider: Front: 225 kpa    Rear: 225 kpa
	Two Rider: Front: 250 kpa    Rear: 250 kpa
Brakes, front:	Disc ABS
Brakes, rear:	Disc ABS



<b>Lubricants and operating fluids</b>	
Fuel tank capacity:	14.5 Liter
Fuel:	Unleaded fuel min. 92 octane
Engine oil: Filling quantity:	SAE 10W 40 mineral oil API(SG or higher) 1.5 liters
Transmission oil: Filling quantity:	Hypoid-oil SAE 85W-140 or SAE 80W-90 GL5 0.15 litres
<b>Electrical Equipment</b>	
Generator:	13V 320W
Battery:	12V 12Ah MF
Fuse:	20A
Head light:	Low beam/High beam 12V6W/6W
Position light:	LED 12V 1W
Instrument lights Speedometer:	LED 12V 0.1W
Control lights indicator and high beam:	LED 12V 0.01W
Brake/rear light:	LED 12V 10 W/1.5W
Front/rear turn signal light:	LED FR: 2×12V1.5W RR: 2×12V1.5W

## TECHNICAL DATA

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<b>Dimensions and weights</b>	
Overall length:	2150 mm
Width across handlebars:	775 mm without rear view mirror
Maximum height:	1335 mm without rear view mirror
Wheel base:	1538 mm
Seat height:	790mm
Net Weight	173kg
Top speed:	128km/h

### Warranty conditions

In case of an occurring fault we will provide the customer with the following performances through the authorized dealer (seller) within the scope of its statutory warranty obligations:

1. Within a period of 24 months after the delivery of the motorbike to the end customer the company we will rectify any deficiencies caused by material or manufacturing faults through the authorized dealer (seller) by repairing or replacing the affected part according to the statutory warranty regulations. We may deny the requested repair or replacement of the faulty part if this would only be possible with disproportionately high costs. In this case we rectify the deficiency through the authorized dealer (seller) by applying the other possible type of subsequent fulfillment. If both types of subsequent fulfillment
- are only possible with unproportionately high costs, we deny the subsequent fulfillment all-together through the authorized dealer (seller). The customer is then entitled to legal claims. Replaced parts pass over into the possession of us.
2. The installation of spare parts within the scope of warranty does not extend the warranty period that has started with the date of delivery of the motorcycle.
3. The warranty does not cover normal wear and tear caused by normal use as well as wear and tear caused by inappropriate handling and inappropriate use. Oxidation and corrosion are caused by environmental influences and are also not covered under warranty.
4. Warranty claims lodged by the customer will be rejected in case of: Manipulations to the motorcycle, installation of a different exhaust system, changes to the gearbox or secondary transmission ratio and installation of accessories or spare parts which have not been approved by us. Repairs carried out in workshops not authorized by us and the non-compliance with the maintenance intervals in the workshop of an authorized dealer will also cause the rejection of warranty claims.
5. When lodging a warranty claim the customer must present the correctly filled in service book to the seller.
6. The following table gives the customer an overview of the average limits of the respective wear parts.

## WARRANTY

### List of wear parts

Wear parts	Wear limits
Tires, houses, rims	depending on riding style, load and tire pressure the wear limit may already be reached after only 500 km or even earlier.
Wheels, hubs	depending on riding style, load and tire pressure the wear limit may already be reached after only 1500 km or even earlier. Check during each maintenance. Oxidation is a lack of maintenance!
Oils, air filter, leakage inspection on engine	during the first inspection, then with every maintenance interval(every 3000 km/6000 km). Check oil level before every ride.
Spring fork, spring strut	Cleaning / inspection during every maintenance.
Lamps, incandescent bulbs, electric system	depending on road conditions / unevenness of the road surface the lifetime will be reduced, this may already occur after 500 km.
Barke linings, brake shoes, brake lines	depending on riding style and load these may already be worn after 1500 km, in cross-country operation even earlier.
Sedal rings, sealants, O-rings	must be replaced during each maintenance interval to ensure proper function.
Radial seals on engine, gearbox, fork and wheels	depending on road conditions and care wear may start after 500 km. Dirt reduces the lifetime. Do not clean with a high pressure cleaner!
Wheel bearings, steering bearings	depending on road conditions and care wear may start after 1500 km. Soiling of the wheel hub reduces the lifetime. Check during each maintenance interval, do not clean with a high pressure cleaner!
Swing arm bearing	depending on load and care after 1500 km, check with every maintenance.
Cables	depending on care starting after 500 km. Check with every maintenance.
Coverings	Plastic parts will be damaged by caustic or penetrating cleaning agents or solvents.

**List of wear parts**

<b>Wear parts</b>	<b>Wear limits</b>
Air cleaner, oil filter	with each maintenance interval.
Starter battery, batteries, fuses, starter brushes	depending on ambient temperatures failures can be expected in the 6th month, when used for short rides even earlier.
Mirror glasses	depending on ambient temperatures and care failures can be expected in the 6th month, in winter operation even earlier. Oxidation is a lack of maintenance!
Bowden cables, brake cables, throttle cables	depending on use and care from the 6th month
Self-locking nuts, cotter pins locking plates bonded screw connections	during each maintenance interval or after unscrewing the nut or unlocking the lock.
Variomatic, CVT, rolls, belts	depending on riding style and load these may be worn after 500 km.
Clutch linings / friction discs	depending on riding style and load these may be worn after 500 km.
Pistons, cylinders, crankshaft, conrods, engine bearings	depending on riding style, load and care these parts may be worn after 200 hours. When riding mainly with full throttle even earlier.
Spark plug	with each or every second maintenance interval.
Exhaust system, inspection of mountings	depending on use and care from the 6th month, in winter and short distance operation even earlier. Oxidation is a lack of maintenance!

## INSPECTION PLAN

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Please observe the following:

- During and after the warranty period all inspections should solely be performed by a specialised dealer approved by us.
- Observe the inspection intervals and have the specialised dealer confirm them on the guarantee certificate.
- Use only original spare parts.



### CAUTION

**In case of non-compliance the warranty will become null and void.**

The various activities carried out are listed on the inspection plan.

During the warranty period the following inspection intervals must be complied with:

At 1.000 km (1<sup>st</sup> service)  
Every 3.000 km / or after 6 months  
Every 6.000 km / or after 12 months

After the warranty period the inspection intervals specified in this manual must be applied as follows:

Every 3.000 km / 6 months  
Every 6.000 km / 12 months



### WARNING

**For safety reasons, do not carry out any repair or adjustment activities to the scooter and chassis that exceed a closely restricted scope. Tinkering with safety-relevant parts could threaten the safety of yourself and third parties.**

**This applied especially to the exhaust system, carburettor, ignition system, fork column, brake system and lights.**

**Before starting work on the electrical system, disconnect the minus terminal of the battery.**

## INSPECTION PLAN

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### List of trouble codes

<b>Fault Code</b>	<b>Description of DTC</b>
P 0118	Engine Coolant Temperature Sensor Circuit High
P 0117	Engine Coolant Temperature Sensor Circuit Low
P 0116	Engine Coolant Temperature Sensor signal stuck
P 1116	Engine Coolant Temperature Sensor High at start up
P 0335	Crankshaft Position Sensor "A" Circuit
P 2301	Ignition Coil "A" Primary Control Circuit High
P 2300	Ignition Coil "A" Primary Control Circuit Low
P 0123	Throttle Position Sensor/Switch "A" Circuit High
P 0122	Throttle Position Sensor/Switch "A" Circuit Low
P 0459	Evaporative emission system purge control valve "A" Circuit High
P 0458	Evaporative emission system purge control valve "A" Circuit Low
P 0232	Fuel Pump circuit short High
P 0231	Fuel Pump circuit short Low
P 0601	Internal Control Module Memory Checksum Error
P 0262	Cylinder 1 Fuel Injector "A" Circuit High
P 0261	Cylinder 1 Fuel Injector "A" Circuit Low
P 0108	Manifold Absolute Pressure Sensor Circuit High
P 0107	Manifold Absolute Pressure Sensor Circuit Low

## INSPECTION PLAN

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### List of trouble codes

<b>Fault Code</b>	<b>Description of DTC</b>
P 3106	Manifold Absolute Pressure Sensor rationality at low TPS
P 0105	Manifold Absolute Pressure Sensor signal stuck
P 0113	Intake Air Temperature Sensor Circuit High
P 0112	Intake Air Temperature Sensor Circuit Low
P 0111	Intake Air Temperature Sensor signal stuck
P 0114	Intake Air Temperature Sensor Circuit Intermittent
P 0132	O2 Sensor Circuit High Voltage Bank 1 Sensor 1
P 0131	O2 Sensor Circuit Low Voltage Bank 1 Sensor 1
P 2195	O2 Sensor Signal Lean at PE
P 014D	O2 Sensor Slow Response - Lean to Rich Bank 1 Sensor 1
P 014C	O2 Sensor Slow Response - Lean to Rich Bank 1 Sensor 1
P 0031	O2 Sensor Heater Control Circuit Low Bank 1 Sensor 1
P 0032	O2 Sensor Heater Control Circuit High Bank 1 Sensor 1
P 00D1	O2 Sensor Heater current low
P 0301	Cylinder 1 Misfire Detected
P 0500	Vehicle Speed Sensor "A" Circuit
P 0505	Idle air control system error



<b>I = Inspection, cleaning, and adjustment</b> <b>A = Replacement</b> <b>R = Cleaning (replaced if necessary)</b> <b>S = Lubrication</b>					
<b>Component Assembly</b>	<b>Before each trip</b>	<b>1 st service after 1000 km</b>	<b>Every 3.000 km / 6 months</b>	<b>Every 6.000 km / 12 months</b>	<b>Every 12.000 km / 24 months</b>
Air cleaner foam	I	I	R		A
Oil filter (screen)			R		
Engine oil	I	A	A		
Fuel filter	I	I	I		A
Spark plug	I	I	I		A
Ignition time		I	I		
Valve clearance		I		I	
Compression check			I		
Carburetor (Idle speed)	I	I	I		
Throttle cable adjustment	I	I	I		
Transmission oil	I	A	I	A	
Transmission check for leakage	I	I	I		
Crankcase check for leakage	I	I	I		
Crankcase ventilation		I	I		
Driving belt, tight weight			I	I/A	
Clutch discs			I	I/A	

## INSPECTION PLAN

<b>I = Inspection, cleaning, and adjustment</b> <b>A = Replacement</b> <b>R = Cleaning (replaced if necessary)</b> <b>S = Lubrication</b>					
Component Assembly	Before each trip	1 st service after 1000 km	Every 3.000 km / 6 months	Every 6.000 km / 12 months	Every 12.000 km / 24 months
Bolts and nuts (engine)	I	I	I		
Compression teat			I		
Exhaust system		I	I		
Fuel tank, fuel hoses	I	I	I		
Battery	I	I	I		
Stearing and bearings	I	I	I		
Front and rear suspension	I	I		I	
Shock absorption	I	I		I	
Tire pressure	I	I	I		
Brake function, brake pads	I	I	I		
Brake fluid	I	I	I		A / every 2 years
Main-and side stand	I	I	I/S		
Bolts and nuts (chassis)	I	I	I		

**MAINTENANCE CONFIRMATION**

1.000 km/1 months  
1<sup>st</sup> service  
dealer stamp:

km.....  
date.....

After 3.000 km/6 months  
dealer stamp:

km.....  
date.....

After 6.000 km/12 months  
dealer stamp:

km.....  
date.....

After 9.000 km/18 months  
dealer stamp:

km.....  
date.....

After 12.000 km/24 months  
dealer stamp:

km.....  
date.....

After 15.000 km/30 months  
dealer stamp:

km.....  
date.....

After 18.000 km/36 months  
dealer stamp:

km.....  
date.....

After 21.000 km/42 months  
dealer stamp:

km.....  
date.....

## MAINTENANCE CONFIRMATION

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New brake fluid  
Yes                      no

km.....  
date.....

Stamp, signature

New brake fluid  
Yes                      no

km.....  
date.....

Stamp, signature

New brake fluid  
Yes                      no

km.....  
date.....

Stamp, signature

New brake fluid  
Yes                      no

km.....  
date.....

Stamp, signature

# Circuit diagram

