

# **OPERATION MANUAL**

**STR50/STM50/XRAY50**

**e9\*168/2013\*11301**





## Preface

Thank you for choosing **STR50/STM50/XRAY50 (e9\*168/2013\*11301)** motorcycle. The product embodies high technology and reliability and incorporates experiences in manufacturing motorcycles for sports, contests and travel. This is why the model takes a leading position in the field.

The manual explains the use, operation, basic inspection and maintenance, etc. If you have any question about the operation and maintenance, please contact your distributor.

The light motorcycle is designed to fully meet the exhaust discharge standards prevailing on the date of manufacture.

To keep the compliance to the exhaust discharge standards, please carry out the maintenance schedule and instructions in this manual in cooperation with your distributor.

The following important information will appear in this manual:

 **Caution:**

Refers to procedures that must be followed. Otherwise, your personal safety may be endangered.

 **Notice:**

Refers to procedures that must be followed to avoid damaging the motorcycle.

 **Warning:**

Refers to procedures that must be followed to avoid injury to you, other person or the motorcycle.

**Note:**

Refers to some explanations for your better understanding.

**Note**

This manual should be regarded as part of the motorcycle and should be always with the motorcycle, even when it is resold.

**Note**

**Our company is working hard in improvement of product design and quality. This manual contains the latest product information at the time when it is printed. However, it is possible that the manual may be more or less different with your motorcycle. If you have any question, please contact your distributor.**

 **Warning**

**Read this manual carefully before driving the light motorcycle**

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## **Precautions for Safe Riding**

Please obey local traffic regulations and mind the safety prior to anything. It is advised to control the speed within safe limits.

### **Practice before Riding**

Before riding the motorcycle as a traffic tool, make adequate practice at a spacious and traffic-free place so that you are skilled enough to ride and are familiar with the motorcycle's controls. Practice is essential to safety.

### **Knowing Your Safety Speed Limit**

Safety speed limit varies in accordance with the road conditions, riding skill and the weather. To know the speed limit is helpful to avoid traffic accidents.

### **Be Careful in Rainy Days**

It is dangerous to ride on the moist or wet road. Therefore, high speed should be avoided and special care should be taken when turning. Bear this in mind, the braking distance in rainy days is twice as much as sunny days.

### **Proper Wearing of Safety Helmet**

Wear the safety helmet whenever you ride, and fasten the belt whenever you wear the helmet.

### **Garment Recommendation**

Bright-colored and well-fitting clothes are recommended. Mind that the clothes should allow the limbs to move freely.

Clothes of thick materials and shoes with short heels are also recommended.

### **Indispensable Maintenance and inspection**

The following items are indispensable:

- ◇ Check up before each riding.
- ◇ Half-year thorough inspection.
- ◇ One-year thorough serving.
- ◇ Those listed in Maintenance Schedule.

### **Care of High Temperature**

The high temperature at muffler may cause burn. Please park your motorcycle where there's little chance of touching.

Flammable materials, such as cotton waste, should not be put near the engine or the muffler as they might cause fire.

### **No modification is allowable**

Modification to the unit is not allowed and may not guarantee a safe driving.

## Names of different parts

Read the following labels carefully before using the motorcycle.

1. Rear lamp
2. Rear turning lamps
3. Muffler
4. Seat
5. Acceleration grip
6. Front turning lamps
7. Head lamp
8. Front Cushion
9. Rear disc brake
10. Rear brake pedal



Names of different parts

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- |                      |                      |                     |
|----------------------|----------------------|---------------------|
| 1. Speedometer       | 2. Rear-view mirrors | 3. Left grip switch |
| 4. Carburetor        | 5. Air filter        | 6. Rear reflector   |
| 7. Side stand        | 8. Shift pedal       | 9. Side reflector   |
| 10. Front disc brake |                      |                     |



# The Serial Number

## Engine number

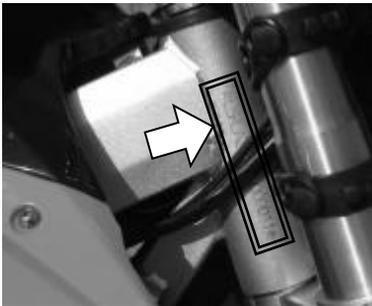
Engine number is stamped on the side of the crankcase assembly.

Note
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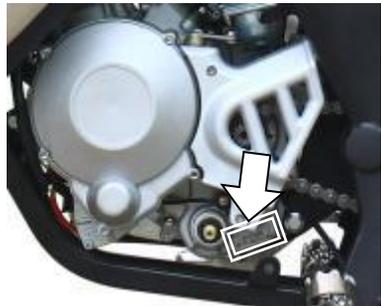
Remember your engine number in mind for convenience in purchasing correct spare parts from your distributor.
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## Chassis number

Chassis number is stamped on the frame.



Chassis number



Engine number

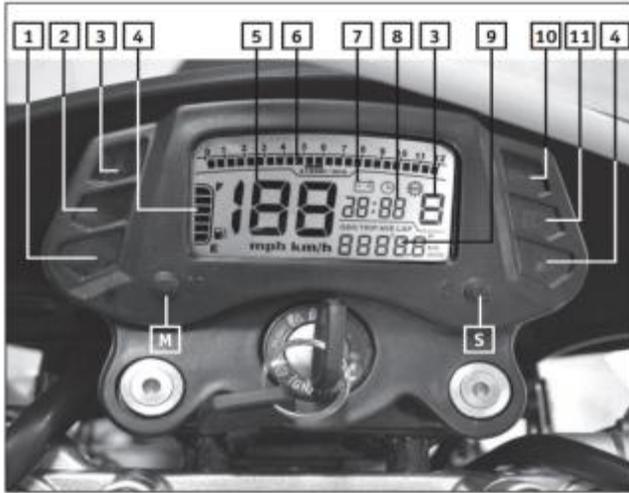
Please write down the serial numbers below for future reference.

Chassis Serial No. :
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Engine Serial No. :
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# Functions of Controllers

## Instrument Panel Indications



① **Coolant indicator lamp** When the temperature of the motor cooling circuit is too high, the indicator lamp will light up.



**WARNING**

Shut off the engine immediately when the cooling circuit indicator lamp lights up!

**DANGER OF DAMAGE!**

(See also the chapter on coolant)

② **Oil-level warning light.** If the oil level is too low this warning light turns on. Fill up immediately two-stroke oil, see chapter oil tank.



**WARNING**

**DANGER OF DAMAGE!**

Make sure that there is enough two-stroke oil in the oil tank before every ride. Otherwise there is a danger of damage to the engine!

③ **Neutral-gear indicator.** The indicator indicates no input is loaded. In addition the selected gear (0) is shown in the LCD-Display.

④ **Fuel gauge.** At the LCD-Display the tank contents is shown with bars. If the tank is even empty the warning lamp ④ in the cockpit lights up.

⑤**Speed display.** Displays the speed in kilometres per hour (km/h).

⑥**Revcounter.** The rev counter indicates the engine speed in revolutions per minute. The correspondence between the lattices and engine speed see the following form.

RPM	Lattices	RPM	Lattices
0	0	6400~7000	10
100~1600	1	7100~7700	11
1700~2000	2	7800~8400	12
2100~2400	3	8500~9100	13
2500~2800	4	9200~9800	14
2900~3500	5	9900~10500	15
3600~4200	6	10600~10900	16
4300~4900	7	11000~11300	17
5000~5600	8	11400~11700	18
5700~6300	9	11800~	18+OVER BOOST

⑦**Battery control display** When the battery voltage becomes too low, the control display of the battery will begin to flash. The symbol will stop flashing as soon as the voltage rises above the minimum voltage 11.5V.

⑧**Digital clock.** In the cockpit there is a digital clock.

**Setup.**

- 1.To activate the setup mode, press the button “S” until the time (hour) begins to flash.
- 2.Now set the hour even with the button “S” and confirm your entry with the button “M”
3. Now set the minutes with the button “S” and confirm with the Button “M” again.

⑨**Multifunction display.** This display shows several functions. Press and release the button “M” to change between the information: total distance counter – distance counter - average speed and travel time / lap time. The display of the distance counter – average speed and travel time / lap time can reset by pressing and holding the button “S” .

**total distance counter (ODO).** The counter displays the total distance covered by the vehicle in kilometres or miles.

**distance counter (TRIP).** The display indicates the distance travelled since the last reset.

**average speed (AVE).** This display shows the average speed since the last reset.

**travel time / lap time (LAP).** This display shows the travel time / lap time since the last reset.

**⑨.1 set the diameter of wheel**

Display	Press time	Result
TDO	>3s	enter the setting of wheel diameter, thousands digit if flash
thousands digit if flash	>3s	hundreds digit is flash
hundreds digit is flash	>3s	tens digit is flash
tens digit is flash	>3s	units digit is flash
units digit is flash	>3s	enter the speed units setting
any digit is flash	<3s	digit plus 1

**⑨.2 set the speed units**

Display	Press time	Result
speed units is flash	>3s	return TDO
speed units is flash	<3s	switch between km/h and mph

**⑨.3 time setting**

Display	Press time	Result
TIME	>3s	enter time setting hour-digits is flash
hour-digits is flash	<3s	hour-digits plus 1 between 0~23
hour-digits is flash	>3s	minute-digits is flash
minute-digits is flash	<3s	minute-digits plus 1 between 0~59
minute-digits is flash	>3s	return to TIME

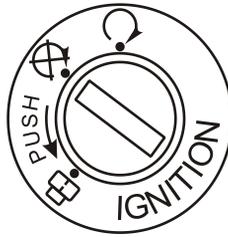
**⑨.4 Trip distance, time counting, average speed return to zero**

Display	Press time	Result
TD	>3s	trip distance record return to zero
LAP	>3s	time counting record return to zero
AVE	>3s	average speed return to zero

**⑩ Direction indicator** . This indicator  flashes when the direction indicators are in operation.

**(1) Full beam headlight indicator**  . The indicator lights when the headlight is on full beam.

## Ignition switch



Rotate the key to turn power ON or OFF.

ON	The engine can be started Possible to drive It is impossible to pull out the key.
OFF	The engine cannot be started. The engine is stopped The key can be inserted or pulled out
LOCK	The steering bars can be locked to one direction. The key can be inserted or pulled out.

When you leave the motorcycle, you may lock the steering handlebars to prevent your motorcycle from being stolen.

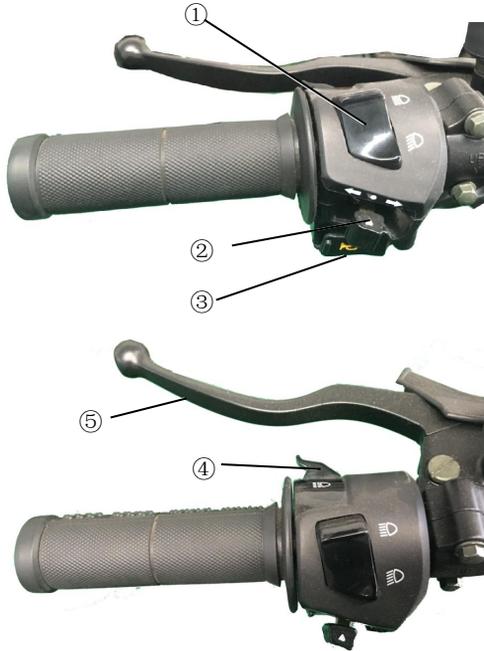
1. Turn the handlebars to the left.
2. Insert the key (if it is not in) from OFF position. Press the key in and turn it anti-clockwise to LOCK position.
3. Pull out the key.

To unlock the handlebars, insert the key from LOCK position, and turn it (without pressing) clockwise to OFF position.

### Note

- ❖ Swing the handlebars to check if they are locked.
- ❖ If it is hard to lock, you may turn the handlebars slightly rightward and try again.

## Switches on the Handlebars



### ①. Dimmer Switch

This switch is used to change the headlamp beam. When you turn the switch to:

HIGH 	the high beam is turned on.
LOW 	the low beam is turned on.

### ②. Turning Signal Lamp Switch

This switch is used to turn on/off the left/right turning signal lamps to show the other vehicles that you want to turn leftward/rightward. When you turn the lever to:

Right	the right signal lamps flash.
Left	the left signal lamps flash.
Center	push in the switch at the center position to cancel the turn-signal operation.

Please do turn off the lamps when they are no longer necessary, otherwise you may cause trouble to people in front of or behind you.

**③. Horn Button**

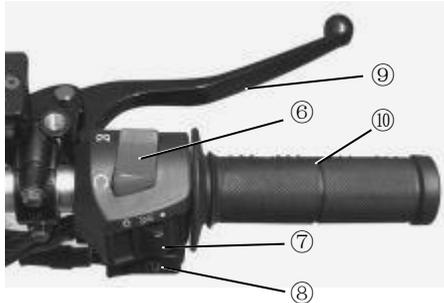
Press this button to sound the horn.

**④. High Beam Flash Button**

Press this button to light the high beam temporarily.

**⑤. Clutch Lever**

Grip this lever to disengage the driving system at the time of starting the engine or shifting the gear. Disengage the clutch by grasping the lever.



**⑥. Stop Switch of Engine**

This switch, located on the top of the control panel of the right handerbar, is of swinging plate type. It's shaft is placed on the center of the plate. When it is on the “ ○ ” position, the engine can be started.

If the switch is on the “ ⊗ ” position, the short circuit will be formed for ignition coil, so the engine cannot be started.

**⑦. Headlamp Switch**

Turn the switch to position:

☀ : the headlamp, instrument lamp, rear lamp will be on.

☞☜ : the front and rear position lamp will be on.

● : the headlamp, instrument lamp, rear lamp will be off.

**⑧. Starter Button**

This button is used to start the engine. Turn the ignition key to ON, squeeze the rear brake lever and press the button, the engine will be started immediately.

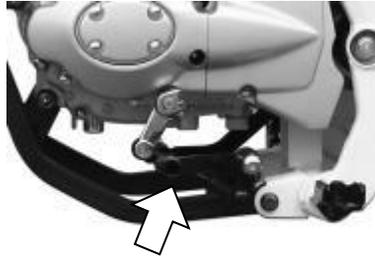
**Brake Levers**

By operating the brake levers ⑨, you can control the speed of the motorcycle and even make it stop. The brake is applied by squeezing the brake lever gently towards the grip. The brake light will be lit when the lever is squeezed inward.

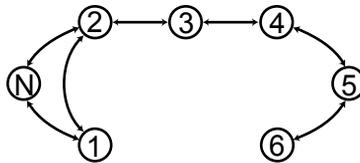
## Throttle Grip

Throttle grip ⑩ is used to control engine speed. Turn it towards you to increase engine speed; Turn it away from you to decrease the engine speed.

## Gear Shifting



This model of motorcycle is equipped with a six-shift gear-in transmission system. The working order of the gearshift is as shown in the fig.



The lever is connected to the ratchet of the gearshift. It will return automatically to its original position after selection of a certain gear so that it is possible to change to the next gear. The neutral gear is located between the bottom and second gears. In the neutral mode, press the lever and the low gear will be engaged, each time the lever is shifted up, a higher gear is engaged. With the Ratchet mechanism, only one upper or lower gear is engaged each time. When you shift the gear from the low to the second or from the second to the low, slide over the neutral position without stop. If the neutral gear is desired, stop between the bow gear and the second gear, thus getting in the neutral gear.

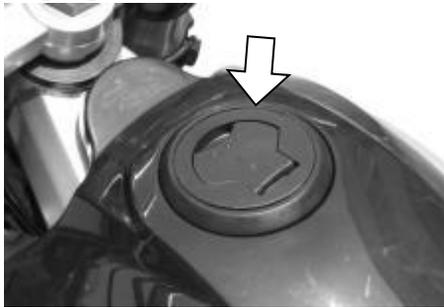
## Side Stand



To use the main, depress it by foot and lift the rear of the motorcycle until the rear wheel is lift. To use the side, depress the end of it until it rotates to the end and stops.

## Fuel Tank Cap

The fuel tank cap is provided with a latch.



To open it:

1. Lift the protection plate of the latch.
2. Keeping the tap in the locked position, turn the latch to the left side and then, remove the cap.

### Warning

The sealed lock can increase slightly the pressure in the tank, and so, it is normal that you hear a noise produced by the air when it comes out.

To close it:

1. Insert the cap with the key;
2. Turn the key to the right side and remove it.

## Seat Lock



To open and close the seat as follows:

1. The seat lock lever is under the seat, press the seat and pull the seat lock lever outside, then, lift the seat. The seat will be opened.
2. Push the seat gently and it will be locked automatically. Lift the seat gently to check if it is locked.

## Foot Brake (rear wheel)

The foot brake pedal is on the right hand side of the engine.

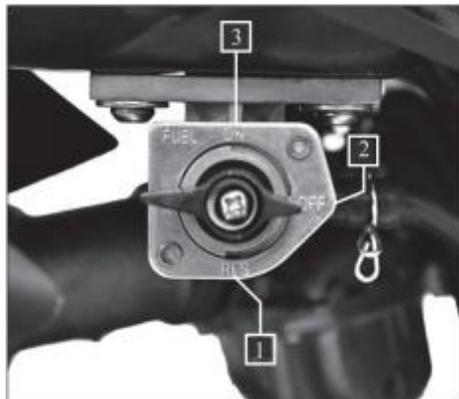
Your operate the rear wheel brake by pressing down the foot brake lever lightly with your foot.

## Petrol Tap

The petrol tap is on The left hand side, below the sent.

### Switch positions:

- 1.= reserve
- 2.= closed
- 3.= open



## Oil tank

The two-stroke engine installed in your vehicle requires two-stroke oil in addition to the petrol.



### **DANGER OF DAMAGE!**

Make sure that there is enough two-stroke oil in the oil tank before every ride. Otherwise there is a danger of damage to the engine!

The oil tank is located behind the left front side cladding.

Proceed as follows to top up with two-stroke oil:

1. Turn the handlebar to the right. After this you have a clear view on the oil tank.
2. Unscrew the closure cap with the inscription „OIL“ (see illustration/dart).
3. Fill up enough two stroke oil.
4. Close the oiltank with the closure cap.



## Kick starter



### **MORTAL DANGER DUE TO OPERATING ERRORS!**

Read the instructions on chapter Riding and operating instructions before starting the engine.

This vehicle has a kick starter on the right hand side of the engine. To start the engine, stand the vehicle on the stand and kick the kick starter down with full force.



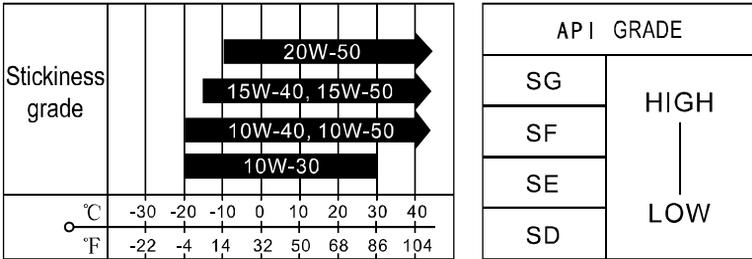
# Fuel and Oil Recommendations

## Fuel

Use unleaded gasoline with an octane number **95** or higher. Unleaded gasoline can extend spark plug life and exhaust component life.

## Engine Oil

**Use of high quality 2-stroke engine oil** would extend the lifetime of the engine. Grade SE or SD engine oil in API method is recommended, whose viscosity is SAE10W-40. If this oil is not available, please purchase appropriate substitutes according to the data listed below.



## Transmission Oil

Use good quality SAE 10W-40 multi-grade motor oil.

## Break-in of New Motorcycle

The first 1000km are the most important in the life of your motorcycle. Proper break-in operation during this period will help ensure maximum life and performance from your new motorcycle. The parts are manufactured of high quality materials, and machined parts are finished to close tolerances. Proper break-in operation allows the machined surfaces to polish each other and mate smoothly.

### Maximum Throttle Operation Recommendation

This table shows the maximum recommended throttle operation during the break-in period.

Initial 800km	Less than 1/2 throttle
Initial 1600km	Less than 3/4 throttle

### Vary the engine Speed

The engine speed should be varied and not held at a constant speed. This allows the parts to be “loaded” with pressure, and then unloaded, allowing the parts to cool. This aids the mating process of the parts. It is essential that some stress be placed on the engine component during break-in ensure this mating process. Do not, though, apply extensive load on the engine.

### Avoiding Constant Low Speed

It is not benefit to break-in the engine to operate it at a constant low speed. Allow the engine to accelerate freely within the recommended maximum limits. Do not, however, use full throttle for the first 1600km.

### Allow the Engine Oil to Circulate before Riding

Allow sufficient idling time after warm or cold engine start up before applying load or revving up the engine. This allows time for the lubricating oil to reach all critical engine components.

### Perform the Foremost Service

The 1000km service is the most important service your motorcycle will receive. During break-in all of the engine components will have worn in and all of other parts will have seated in. All adjustments will be restored,

## Break-in of New Motorcycle

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all fasteners will be tightened, and the dirty oil will be replaced.

Timely performance of the 1000km service will ensure optimum service life and performance from the engine.

 Caution
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<p>The 1000km service should be performed as the outlined in the inspection and maintenance section in this manual. Pay attention to the caution and warning in that section.</p>
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## Inspection before Riding

Before riding the motorcycle, be sure to check the following items. Never underestimate the importance of these checks. Perform all of them before riding the machine.

WHAT TO CHECK	CHECK FOR
Steering	1) Smoothness 2) No restriction of movement 3) No play or looseness
Brakes	1) Correct brake lever play 2) No obstruction in braking.
Tires	1) Correct pressure 2) Adequate thread depth 3) No cracks or cuts
Fuel	Enough fuel for the planned distance of the operation
Lighting	Operate all lights —headlamp, tail lamp, brake lamp, turning lamps
Indicators	Oil indicator and turning indicator
Horn	Correct function
Engine oil	Enough amount
Throttle	1) Correct play in the throttle cable 2) Smooth operation and positive return of the throttle grip to the closed position

### Inspection the Braking effect and the free play

Hold the brake levers until feel the resistance, measure the moved distances at the lever ends. The distances should be 10~20mm.

### Inspection of the Tire

#### 1. Tire Pressure

Observe the wear condition of the tire and determine the tire pressure. If the tire pressure is abnormal, check it with a tire pressure gauge and adjust it to the correct value.

#### 2. Crack, Damage, Foreign Object and Abnormal Wear

Check the surface of the tire:

- ◇ Is there any obvious damage?
- ◇ Are there any nail, stone, glass and etc in the tire or in the tread?
- ◇ Is there any abnormal wear?

### **Inspecting the Quantity of Fuel**

Make sure that the fuel is enough to reach the destination or not. Turn the ignition switch to ON position, if the fuel gauge hands points to the red region, the fuel should be refilled as soon as possible.

### **Inspecting the Quantity of Engine Oil**

Refer to page 28, to check the engine oil.

### **Inspection of the Ignition Unit and the Lights**

Start the engine, turn on the headlamp switch, and check if the headlight and the rear light are on.

Operate the front and rear brake separately, and check if the brake light is on.

Operate turning signal lamp switch, and check if the turn signal lights work normally.

### **Inspecting the Rear Mirror**

Check if the back and side objects can be seen clearly from the rear mirror at the driver's position.

Check if the rear mirror has dirt and damage.

### **Inspecting the Reflectors and the License Plate**

Check if the license plate and the reflectors have dirt and damage.

Check if the license plate is fixed enough and if the serial number is clear.

## Riding Tips

### Start the Engine

 Caution

Before starting, you must

- ◇ Check the quantity of fuel and engine oil.
- ◇ It is very important before starting the engine to check that the gear lever is in the neutral position.

- Turn the ignition key to the ON position.
- Check the gear level is in the neutral position.
- Twist the accelerator grip slightly, to no more than 1/4 of its travel.
- Push the starter button by hand or press the kick start lever backwards with your foot.
- Once the engine is running, keep it at half-speed for a few seconds, until it warms up.
- Once you are seated on the saddle and ready to set off, you have only to engage the gear for the moped to take you on a journey of real enjoyment.

 Caution

- ◇ Release the starter button soon after the engine is started. Otherwise damage may be done to the engine.
- ◇ To protect the battery from exhaustion, if the engine remain unstarted 5 seconds after the button has been pushed, please restart using the kick-starter and check if there is any problem with the starting system.
- ◇ If the engine remains unstarted after several starting, turn the throttle grip by 1/8~1/4 and try again. The grip should be released soon after the engine is started.

## Start off

1. Release the side stand.

2. Mount on the motorcycle.

While holding the handlebars with both hands, mount on the motorcycle from left side and sit on the seat. Support yourself with your left foot. You still need to squeeze brake lever at this moment.

 Caution

No turning of the throttle grip is allowed before you are ready to set out.

3. Look around to see if it's safe to set out.

Send out your starting signal by switching on the turning lamps. Look around to judge the safe condition. You need to squeeze the rear brake lever all the time before you set out.

 Caution

Special attention should be paid to the traffic approaching you from behind.

4. Start off

Release the rear brake lever and gradually rotate the throttle grip to let the motorcycle speed up slowly.

 Caution

Excessive rotation of the grip can lead to the danger of sudden rush

5. Adjust Speed

The speed of your motorcycle can be adjusted by turning the throttle grip. Rotate the grip to speed up. Gradual rotation is recommended. Release it to slow down. Quick release is advisable.

6. Apply Brakes

Combined application of both brakes is recommended.

Quickly release the throttle grip to the minimum position and squeeze the brake levers.

It is most advisable to reduce the speed slowly by gradual application of the brakes.

 Caution

- ❖ Single braking of the front or rear wheel may cause the danger of side slide.
- ❖ Hurried braking or sharp turning are the major causes of side slides or overturn, and are therefore extremely dangerous.

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7. Special care should be taken in rainy and snowy days.

Moist and wet road surface may cause danger. Sharp turning in the course of acceleration should be avoided. An appropriate distance should be kept from the vehicles ahead. Bear in mind that the braking distance in rainy days is twice as much as in sunny days.

Side sliding is apt to occur on wet road, therefore you'd better concentrate yourself and get ready to apply the brakes at any time.

8. Check the brakes after flushing or riding in water.

After flushing or riding in water boggles, the braking effect may be reduced. If this occurs, slow riding and gentle braking should be observed before the brakes restore normal function.

 Caution
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Never park your motorcycle on a slope or a loose surface, so that the motorcycle won't fall over.
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9. Lock the steering bar

When you leave the motorcycle for while, lock the steering bar to protect your motorcycle from theft.

## Inspection and Maintenance

The maintenance schedule indicates the intervals between periodic services in kilometers and months. At the end of each interval, be sure to inspect, check, lubricate and service as instructed. If your motorcycle is used under heavy load conditions such as continuous full throttle operation or is operated in a dusty climate, certain services should be performed more often to ensure reliability of the machine as explained in the maintenance section. The dealer can provide you with further guidelines. Steering components, suspensions and wheel components are key items and require very special and careful servicing. For maximum safety we suggest that you have these items inspected and serviced by your dealer or a qualified service mechanic.

### The first maintenance

The maintenance after first 1000 km is the most important. During running in, all engine parts have been fitted each other, together with other parts. Then, all parts should be readjusted; all fasteners retighten and contaminated engine oil replaced.

To guarantee the engine with a long service life and a good performance, carry out the 1000 km maintenance timely.

#### Caution

You may replace some components when you maintain your motorcycle. We suggest you use genuine replacement parts or their equivalent. If you are an expert or a do-it-yourself mechanic, we recommends that those items on the maintenance schedule marked with an asterisk (\*), be performed by authorized the dealer or qualified service mechanic. You may perform the unmarked items easily by referring to the instructions in this section.

**Maintenance Schedule**

Intervals	km	1000	5000	10000	15000	20000
	Months	2	12	24	36	48
<b>*Nuts at cylinder head and exhaust pipe</b>		T	T	T	T	T
<b>*Cylinder head, cylinder and muffler</b>		-	C	C	C	C
<b>Carburetor</b>		I	I	I	I	I
<b>Air filter</b>		<b>Cleaning every 1500km</b>				
<b>Spark plug</b>		I	I	R	I	R
<b>Fuel hoses</b>		I	I	R	I	R
<b>Transmission oil</b>		R	-	R	-	R
<b>Engine oil pump</b>		I	I	I	I	I
<b>*Brakes</b>		I	I	I	I	I
<b>*Front fork</b>		I	I	I	I	I
<b>*Steering</b>		I	I	I	I	I
<b>*Rear suspension</b>		I	I	I	I	I
<b>Tires</b>		I	I	I	I	I
<b>Fastening nuts and bolts</b>		T	T	T	T	T
<b>Lubrication of cables</b>		-	Grease	-	Grease	-

**NOTE:** I=Inspect and clean adjust lubricate or replace if necessary,  
 C=Clean, R=Replace, T=Tighten

## Engine Oil

Do the following operations:

1. Keep the vehicle in a perpendicular position to the ground.
2. Start the engine, let it idle during a few minutes and then switch it off.
3. Wait at least five minutes to let the oil that is inside the engine to drip down into the crankcase.
4. Loosen the tap of the refilling oil hole

**⚠ Caution**

Do not add a different oil that is inside the engine.

5. Clean the dipstick of oil residues and introduce it again without pressing the button. The correct oil level must be between the reference marks “B” and “C”.
6. If necessary, refill the oil level, tanking into account that it should not go over the “C” mark.
7. Press the tap



### Replace the engine oil and clean the filter element.

To assure the complete oil drainage, the engine must be at normal temperature of operation.

Do the following operations:

1. Keep the vehicle at perpendicular position to the ground.
2. place a container underneath the drain hole “D” to collect the burnt oil.
3. Loosen the tap from the hole of refilling oil.
4. Loosen the oil drainage tap “D”.
5. Check that the rubber ring and the stopper ring of the drainage tap “D” are not damaged, and then tighten the tap at the torque of 20N-m
6. Add oil to the engine.

7. Tighten the tap then start the engine letting it idle for at least 2 or 3 minutes.
8. Stop the engine and check if the oil level is at reference mark “C”.

**⚠ Warning**

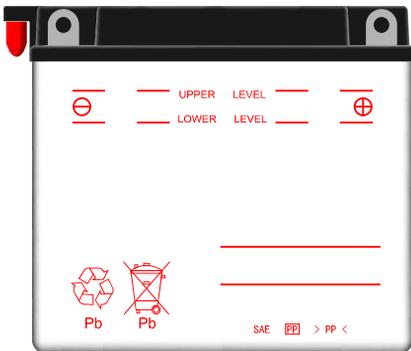
With the hot engine, work carefully avoiding the contact with the burnt oil: danger to get burn.

The burnt oil contains substances that are extremely harmful to the environment. It must be eliminated following the current rules.

**⚠ Warning**

The used oil can cause cancer to the skin. Because of this, avoid the contact for prolonged periods. Although the is unlikely unless you handle used oil on a daily basis, it is advisable to thoroughly wash your hands with soap and water as soon as possible

## Battery

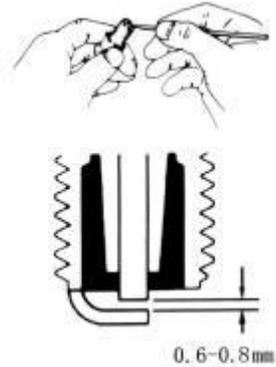


The vehicle is equipped with a maintenance-free battery. The battery is under the seat. Use the ignition key to open the seat lock which is located at the left side above the footrest (turn the key clockwise) and carefully remove the seat. The poles are accessible from the top. The battery can be pulled out after removing the holder.

## Spark Plug

Use a small metal brush or cleaner to remove the carbon deposits at the first 1000km or every 3000km laterly. Readjust the spark plug gap with a spark plug gap thickness gauge to keep it 0.6~0.8mm. After every 6000km, the spark plug should be replaced.

Whenever remove the carbon deposits, be sure to observe the color of the spark plug's porcelain tip. The color can tell you whether or not the standard spark plug is suitable for your type of usage. If the standard spark plug is very black, you'd better use a high-pressure hot type of spark plug. A normal operating spark plug should be light brown or tan in color. If the color is white or seem flashing, it is used in overheat condition and change it with a cold type one.



### ⚠ Caution

- ◇ Don't tighten the spark strongly or make screw thread interlock. In order not to damage the cylinder head, do not allow the contamination to enter the engine through spark plug hole.
- ◇ The standard spark plug for this motorcycle has been carefully selected to meet the vast majority of all operation ranges. If the spark plug color indicates that other than standard spark plug should be used, it is best to consult the dealer before selecting an alternate plug or heat range. The selection of an improper spark plug can lead to severe engine damage.

## Air Filter

The air filter element used in this motorcycle is a polyurethane foam element. If the filter element has become clogged with dust, intake resistance will increase with a resultant decrease in power output and increase in fuel consumption due to the richer mixture. Check and clean the air filter element according to the following procedure.

1. Remove the two screws.
2. Remove the two fixing slippers by sliding them rearward.
3. Remove the air filter cover.
4. Remove the filter element.

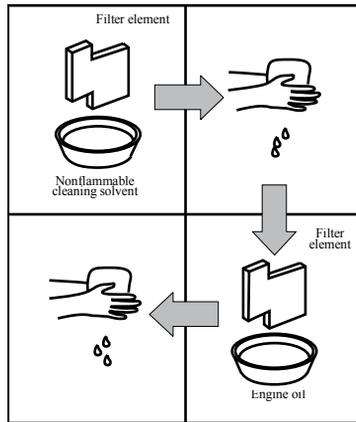
### Washing the Air Filter Element

Wash the air filter element as follows:

1. Fill a washing pan of a proper size with nonflammable cleaning

solvent . Immerse the filter element in the solvent and wash it clean.

2. Squeeze the solvent of the washed filter element by pressing it between the palms of both hands. Do not twist and wring the filter element or it will develop fissures.
3. Immerse the filter element in a pool of engine oil , and squeeze the oil off the filter element to make it slightly wet with the oil.
4. Reinstall the cleaned air filter element in reverse order of removal. Be absolutely sure that the filter element is securely in position and is sealing properly.



**⚠ Caution**

- ✧ Before and during the cleaning operation, carefully examine the air filter element for any tears in the material. A torn filter element must be replaced with a new one.
- ✧ If driving under dusty conditions, the filter element must be cleaned more frequently.
- ✧ NEVER OPERATE THE ENGINE WITHOUT THE FILTER ELEMENT. Operating the engine without the filter element will increase engine wear. Always be sure that the filter element is in excellent operational condition at all times. The life of the engine depends largely on this single component.

**Carburetor**

Undisturbed carburetion is the basis of the performance you ought to expect of your engine. The carburetor is factory set for the best carburetion. Do not attempt to alter its setting. There are two items of adjustment,

however, under your care: engine idle speed and throttle cable play. Adjust the carburetor idle speed and throttle cable play periodically.

### Engine Idle Speed Adjustment

1. Start up the engine and warm it up.
2. After engine warms up, turn the throttle stop screw in or out 50 that engine may run at 1700~1900rpm.

If you have a tachometer, you can do this adjustment by referring to the procedures described above. The engine idle speed should be adjusted after the engine warms up.

### Throttle Cable Adjustment

1. Loosen the lock nut .
2. Adjust the cable slack by turning adjuster in or out to obtain the correct slack of 0.5~1.0mm.
3. After adjusting the slack, tighten the lock nut.

### Tires

Check the tire inflation pressure and tire tread condition. For maximum safety and good tire life, the tire pressures should be inspected more often.

### Tire Pressure

Insufficient air pressure in the tires not only hastens tire wear but also seriously affects the stability of the motorcycle. Under inflated tires make smooth cornering difficult and over inflated tires decrease the amount of tire in contact with the ground, which can lead to skids and loss of control. Be sure that the tire pressure is within the specified limits at all times. Tire pressure should only be adjusted when the tires are cold.

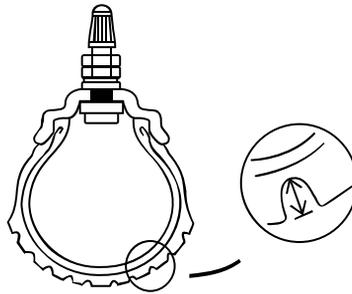
Cold inflation tire pressure

	OFFROAD	ON ROAD
Front Wheel	225kPa	225kPa
Rear Wheel	225kPa	225kPa

#### Caution

Tire inflation pressures and the general tire conditions are extremely important to the proper performance and safety of the motorcycle. Check your tires frequently for both wear and inflation pressures

## Tire Tread Condition



Operating the motorcycle with excessively worn tires will decrease riding stability and can lead to loss of control. It is recommended that a tire be replaced when the remaining depth of tire tread becomes 1.6mm or less.

### ⚠ Caution

The standard tires on your motorcycle are 3.50-10 4PR in front and rear. The use of a tire other than standard may cause trouble.

## Brake circuits

The front brake tank is located in the handlebar, near the throttle grip.

The Rear brake tank is located behind the rear brake pedal.

Follow the steps indicated in this procedure:

1. Keep the vehicle in vertical position with the handlebar centered.
2. The oil level lowers because of the brake pads are worn. In case that the level is lower than the minimum, refer to the nearest Distributor to perform a control of the brake system.

## Refilling the fluid

**Use only the specified brake fluid DOT 4**

Follow the next operations:

1. Keep the vehicle in vertical position with the handlebar centered.
2. Remove the tank cap by loosening the securing bolts.
3. Fill up the fluid at correct level, use only the specified liquid.
4. Install the cover in the reverse order of removal.

### ⚠ Warning

The circuit of the brake fluid is dangerous. In case of accidental contact, clean immediately with water the affected parts.

 Caution

Make sure there is no leakage in the circuit and check that the hoses and the unions are not damaged and also they should not be twisted.

 Warning

The adjustment of the brake pump has been done at the factory; if necessary, go to your nearest Dealer. It is forbidden to change these adjustments, because it can seriously damage the brake system.

 Caution

The brake circuit fluid is highly corrosive, avoid contact with the body, painted parts and and/or any plastic parts.

 Warning

The brake circuit fluid is hygroscopic( it absorbs the moisture). If the moisture of the brake fluid is higher than its specified value, the brakes will not work properly.

Under normal weather conditions, the brake fluid must be replaced every 2 years. For this operation which needs an special care, go to your nearest dealer.

## Fuel Hose

Replace the fuel hoses every four years.

## Fuse

The fuse is located nest to the battery. If there is any electrical system failure, first check the fuse. In the case the fuse blows, there is a 10A spare fuse.

 Caution

Always be sure to replace the blown fuse with the correct amperage fuse. Never use substitute, for example aluminum foil or wire, to replace a blown fuse. If the spare fuse installed blows in a short period of time, it means that you could have a major electrical problem. You should consult the dealer or a qualified service mechanic immediately.

## Coolant



### **DANGER OF DAMAGE DUE TO OPERATING ERRORS!**

When the coolant indicator lamp lights up in the cockpit, immediately switch off the engine and wait until the coolant has cooled off!



### **DANGER OF INJURY DUE TO OPERATING ERRORS!**

Never open the lid of the coolant vessel when the engine is still hot!



Since the level of the coolant changes with the engine temperature, you should only measure the level when the engine is cold.

Check the coolant level before every ride and especially after the coolant indicator lamp lights up. Please note that the coolant must be changed at the intervals described in the maintenance schedule.

The equalising tank is located on the left side of the vehicle, behind the side cover.

1. Stand the vehicle upright on a level surface.
2. The coolant level must lie between both marks of the equalising tank.



### **Refilling the coolant:**

1. Place the vehicle upright on a level surface.
2. If necessary open the left side covering.
3. Then remove the cap from the coolant vessel.
4. Now fill with coolant accordingly to the maximum mark.
5. Then put the coolant tank cap and the side covering on tight.

## Troubleshooting

If the engine refuses to start, perform the following inspections to determine the cause.

1. Is there enough fuel in the fuel tank?
2. Is there fuel reaching the carburetor from the fuel tank?
3. Loosen the carburetor drain plug and drain the fuel in the carburetor. Refit the drain plug.
4. Depress the kick-starter lever several times.
5. Loosen the drain plug and check that the fuel is in the carburetor.
6. If it has been determined that fuel is reaching the carburetor, the ignition system should be checked next.

 **Caution**

Do not allow the fuel to spill. Do not allow any fuel to come in contact with the hot engine or exhaust system. Extinguish any smoking materials by from any other fire or heat source.

1. Remove the spark plug and reattach it to the spark plug lead.
2. While holding the spark plug firmly against the engine, crank the engine with the ignition switch in ON position. If the ignition system is operating properly, a blue spark should jump across the spark plug gap. If there is no spark, consult the dealer for repairs.

 **Caution**

Do not hold the spark plug close to the open spark plug hole in the cylinder head as gasoline vapor inside the cylinder could be ignited, creating a fire hazard.

To reduce the chance of electrical shock, hold the metal shell of the spark plug against an unpainted metal portion of the engine. Due to the possibility of electrical shock, anyone with a heart condition or pacemaker should avoid this check.

### Engine Stalling

1. Check the fuel supply in the fuel tank.
2. Check the ignition system for intermittent spark.
3. Check the engine idle speed.

 **Caution**

It is best to consult the dealer before attempting to troubleshoot any problem. If the machine is still within the warranty, then the dealer should definitely be consulted before you attempt any repairs on the machine. Tampering with the machine by yourself while in warranty may affect warranty consideration.

## Storage Procedures

If the motorcycle is to be left unused for extended period of time for winter storage or any other reason, the machine needs special servicing requiring appropriate materials, equipment and skill. For this reason, we recommends that you trust this maintenance work to the dealer. If you need to service the machine for storage yourself, follow the general guidelines below.

### **Motorcycle**

Place the motorcycle on its main stand and thoroughly clean the entire motorcycle.

### **Fuel**

Fill the fuel tank to the top with fuel mixed with the amount of gasoline stabilizer recommends by the stabilizer manufacturer.

Drain the carburetor or run the engine for a few minutes until the stabilized gasoline fills the carburetor.

### **Battery**

Remove the battery from the motorcycle.

Clean the outside of the battery with mild detergent and remove any corrosion from the terminals and wiring harness connections.

Store the battery in a room above freezing.

### **Tire**

Inflate the tires to the normal specifications.

### **External**

Spray all vinyl and rubber parts with rubber preservative.

Spray the unpainted surfaces with rust preventative.

Coat the painted surfaces with car wax.

### **Procedure for Returning to Service**

Clean the entire motorcycle.

Remove the spark plug. Turn the engine a few times by depressing the kick-starter lever. Reinstall the spark plug.

Reinstall the battery.

Adjust the pressure of tires as described in the TIRE section.

Lubricate all places as instructed in this manual.

Do the INSPECTION BEFORE RIDING as listed in this manual.

## Specifications

Item	Parameter
Model	XRAY50
Overall size(mm)	2120×840×1120
Wheel base(mm)	1400
Net weight(kg)	112
Max loading weight(kg)	262
Fuel tank capability (L)	7.5 or 11.5litres
Engine model	1E40MB
Engine type	Single cylinder , two-stroke, liquid cooling
Bore×stroke(mm)	40.2×39.2
Total displacement(ml)	49.3
Compression ration	6.9±0.2:1
Max net power, rate (kW/r/min)	3.5/6800
Max net torque, rate (Nm/r/min)	5.0/6800
Start mode	Electric/Kick
Lubrication method	separate system
Lubrication oil mode	SAE 10W/40
Fuel type	Octane rating of 95 or higher
Ignition mode	C.D.I

Tire type:	
Front tire size	110/70-17 or 120/70-12 (off road:3.00-21)
Rear tire size	130/70-17 or 120/70-12 (off road:4.10-18)
Inflations:	
Front	225kPa(off road:280kPa)
Rear	225kPa(off road:280kPa)
Front brake	Disc brake
Rear brake	Disc brake
Spark plug	NGK BR8ES
Head lamp	12V 35W/35W HS1
Turning lamp	12V LED
Tail lamp/ Brake lamp	12V LED
Instrument indicator	12V 3W
Battery capacity	12V 7Ah
Fuse	10A
Horn	12V 1.5A 90-100dB(A)
Brake distance	≤7m
Max noise	≤71dB(A)
Max speed	45 km/h

## Warranty

### Warranty Terms and Conditions

All HANWAY LIMITED scooters are supplied with a 2 year / 30,000 Kms warranty from the date of registration. Normal wear and tear plus parts required for servicing are excluded.

All service and repair work must use genuine HANWAY LIMITED parts.

It is the end user's responsibility to ensure that the servicing and maintenance schedule is complied with – it may be a matter of importance to book your machine into your dealer for a service well in advance in order to guarantee an appropriate 'slot' for the work to be completed.

The Dealer has a responsibility to record work done to your machine via the HANWAY LIMITED online service portal. Your dealer should issue a completed Pre-Delivery Inspection sheet at the time of handing your machine over. Your servicing dealer can also issue you with a copy of the work recorded on the HANWAY LIMITED Service Portal – this is your copy of your service history.

The servicing schedule for HANWAY LIMITED scooters is the first service at 500kms or 6 months and then every 3000kms or 6 months whichever comes first.

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### **None Warranty – Excluded Items (except manufacturing Error)**

Spark Plug, Fuel Strainers, Oil Filters, Drive Chains, Air Cleaner Elements, Brake Pads, Clutch Disc/Centrifugal Clutch, Light Bulbs, Fuses, Gaskets, Tyres, Grommets, Rubber Hoses, Rubber Cushions, Step Rubber and Drive Belts, Breakdown Recovery, Accidental or Negligent Damage, Oil, Petrol. Corrosion and / or cosmetic deterioration of all components also excluded.

### **Six Month Limited Warranty Items**

Batteries, Side Stand, Main Stand, Seat, Wheel Rim (Distortion), Painted/plated Parts (including Exhaust), Stickers and Emblems.

### **Twelve Month Limited Warranty Items**

Exhaust System Structural failure only (Paint/Rust NOT Included) LED's.

ALL OTHER COMPONENTS AND ASSEMBLIES are covered for the full duration against faulty materials or workmanship, this does not include normal wear and tear, misuse, negligence, accidental damage. If a part or assembly has exceeded its normal lifespan and has simply 'worn out' then this is deemed as a part requiring replacement during normal servicing.

## Dealer Responsibility

In order to maintain your HANWAY LIMITED warranty, the supplying dealer must:

1.1: Register the bike for warranty on the dealer portal system Moto4parts.

1.2: Use genuine HANWAY LIMITED parts for maintaining the vehicle.

1.3: Enter the service details carried out, along with observations of the vehicle on the dealer portal system Moto4parts.

Failure to adhere to these conditions may make the servicing dealer responsible for any subsequent warranty claims for the remaining period of the warranty term.

2. Servicing, in order to make a warranty claim, the vehicle must be maintained according to the prescribed maintenance intervals and only genuine HANWAY LIMITED parts may be used. The owner is expected to ensure the execution of the necessary work, and is responsible for the cost of the work and the parts being replaced during periodic maintenance. It is also the owner's responsibility to ensure routine maintenance is carried out in accordance with the maintenance schedule. Failure to service the vehicle at the specified intervals will invalidate the warranty.

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3. The warranty is limited to the free replacement or repair of any defective part. This replacement or repair under warranty can only be done with the express permission of dealer.

4. The liability of the manufacturer or importer is limited solely to the warranty as defined in article 3. The buyer can in no way claim or apply for compensation for material or physical damage, consumables or loss of income, transport or accommodation, or vehicle recovery.

5. The warranty is void if: a) The product was not used or maintained according to prescribed maintenance intervals specified in the instructions for the related vehicle. b) The product was repaired or serviced outside the authorised dealer network, or using none original parts. c) Other fuels, lubricants or cleaning products were used than those which were recommended by the manufacturer. d) The product has been rented out or used for commercial purposes. e) A conversion or modification was carried out on the product or if the vehicle has been involved in an accident. f) The product was used for sporting events on closed circuit, off-road, free style, or for purposes for which it was not designed. g) Any alterations to the specification of your machine or the fitting of none standard parts.

6. Normal wear and damage caused by the use of the vehicle and not due to a material or manufacturing fault, are not covered by the warranty: replacement of tyres and tubes, lighting, spark plugs, fuses, rubber parts, brake pads and clutch linings, brake cables, clutch cables, speedometer cables, oil seals, brake discs or drive belts, filters, fluids such as engine oil, coolant, are expressly excluded from warranty coverage. Corrosion or deterioration of all components is also excluded.

7. On plastic parts and body panels they will be guaranteed only if their workmanship or manufacturing defects are detected prior to handover of the new vehicle to the customer.

8. Warranty on batteries is limited to 6 months.

9. HANWAY LIMITED reserves the right to make the final decision on any Warranty Claim.

10. Dealer reserves the right that the images and colours shown are for illustrative purposes Only. Details, prices and specifications are subject to change without prior notice. E & OE.

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