Preface

Dear User:

Sincerely thank you for choosing BD500-2/2A two-wheeled motorcycle designed and produced by our company! This motorcycle is independently developed and produced by our company combining advanced technology at home and abroad and avant-garde design concepts. I hope it can bring you a safe driving process and comfortable driving experience!

Before you drive a motorcycle, please fully read the regulations and requirements put forward in this instruction manual!

This instruction manual outlines the repair and maintenance of this motorcycle. Please follow the instructions in this instruction manual!

Our company has specialized technical maintenance personnel and maintenance departments, which can provide you with good technical maintenance service support!

The company has always adhered to the service tenet of "making consumers more satisfied", and will constantly optimize and improve the products. Please understand that the changes in appearance and structure may be inconsistent with this instruction manual. The pictures in this instruction manual are for reference only, and the actual product shall prevail.

Thank you again for your attention and trust in our company!

Hangzhou Saturn Power Technology Co., Ltd

Important Notes

Please operate and drive according to this instruction manual, strictly abide by national and local traffic laws and regulations, and always pay attention to safety!

This instruction manual is one of the necessary accessories of this vehicle, please attach it with the vehicle when the vehicle is resold to others.

The preparation of this instruction manual complies with the requirements of GB/T9969-2008 and GB/T19678-2005 standards.

Danger/Warning/Note

Please read the contents of this instruction manual and keep the essentials in mind.

> **Danger:**
> **The matter suggested by this word involves the personal safety of the driver, and ignoring this item may lead to injury.**

> **Warning:**
> **The items prompted by this word indicate the operation precautions to avoid damaging the motorcycle.**

> **Note:**
> **The matters indicated by this word are special explanations for the convenience of maintenance or to make important explanations clearer.**

Catalogue

I、Instructions for Users

1.1. Safety instructions for motorcycle drivers

For your personal and vehicle safety, please abide by the following six regulations:

①. Wear various protective equipment

Cycling protective equipment includes safety helmets, goggles, knee pads, elbow pads and gloves. Wearing protective equipment can greatly reduce the injury to your body when you accidentally crash, and protect your personal safety to the maximum extent.

②. Familiar with vehicle structure

The driver's driving skills and understanding of the vehicle are the foundation of safe driving. Before officially riding on the road, it is necessary to practice in an open field without other vehicles and be fully familiar with the vehicle and the methods of manipulating it.

③. Understand the limit of your own safe speed

Driving speed depends on the conditions on the ground, your own skills and the weather. Drive at a safe speed and within your skills at all times. Knowing this limit will avoid accidents.

④. Wear appropriate clothing

Slack, exotic clothing can make you both uncomfortable and unsafe while driving. When in the saddle, wearing a well-fitted clothing will allow you to move your hands, feet and whole body freely. Therefore, try to choose high-quality tight clothing.

⑤Inspection before driving

Please carefully read the instructions in the section "Pre-Driving Inspection" in this manual. Driving according to the rules will ensure the safety of you and the passengers.

⑥ Pay more attention to safety when driving on rainy days.

Keep in mind that the braking distance is twice that of a sunny day, and steer clear of hole covers, paint labels, and greasy road surfaces when driving to avoid skidding

1.2.Number position（Fig1）

①. Frame number (VIN): rear frame rear, rear end center tube;

②Nameplate: middle of right frame, right engine cover

③ Engine number: right side of engine box;

Please fill in the frame and engine codes below for future reference:

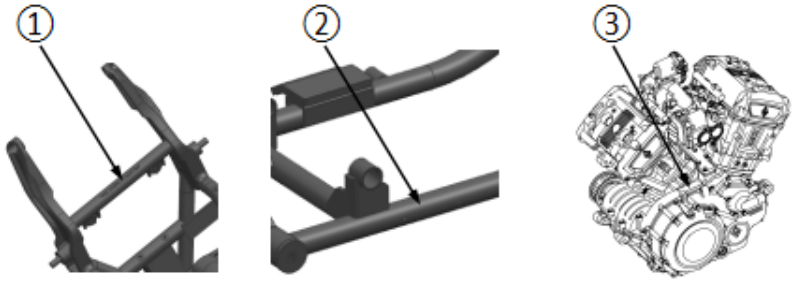


Fig 1　Nameplate,VIN,Location map of engine number

VIN Number	
Engine code	

II、Motorcycle Introduction

The motorcycle has compact structure, unique style, novel appearance, good driving stability and comfortable ride. It adopts electronic fuel injection system, which is more environmentally friendly and efficient, and meets the national emission requirements.

BendaBD500-2/2 A Two-wheeled motorcycles will bring you a driving experience like never before!

2.1. Scope of application of Benda two-wheeled motorcycle

BD500-2/2A It is a self-developed two-wheeled motorcycle, which is suitable for both urban roads and rural roads.

Note：BD500-2: Use spring rear shock absorber.

BD500-2A: Use airbag rear shock absorber.

2.2.Characteristics of Benda two-wheeled motorcycles

1. Strong power and heavy load.
2. Large torque and strong climbing.
3. Electronic fuel injection system
4. Domestic advanced and professional water-cooled engines.
5. Full DC power supply system.

2.3. Loading regulations

Number of people to motorcyclery: 2 people (including driver).

Maximum allowable load capacity: 150kg.

2.4. Fuel

Fuel grade: 95 # or above unleaded gasoline.

Since gasoline is extremely flammable, if the fuel tank, fuel filter, fuel pipeline, throttle valve body and other parts of this vehicle leak oil due to damage and aging, they must be repaired in time before they can be used.

Unleaded gasoline extends the life of spark plugs and mufflers, among other things.

2.5. Electrical appliances

You cannot install or change the wiring of this motorcycle by yourself, nor can you modify the electrical equipment by yourself. Otherwise, the electrical system will be overloaded, causing the circuit to overheat, causing the fuse to melt or the circuit to short circuit, and even generating sparks, causing dangers such as motorcycle burning.

> ⚠**Danger:**
> **Our company will not be responsible for the consequences caused by installing or changing the circuit of this motorcycle or modifying electrical equipment.**

2.6. Inspection

You should maintain your vehicle strictly in accordance with the requirements in the "Maintenance Period Table".

III、Safe driving of motorcycles

This motorcycle is a two-wheeled motor vehicle designed to offer riders convenience and swiftness. To ensure that your motorcycle always operates at its peak performance, proper maintenance and care are of utmost importance. Whenever you take this motorcycle out for a ride, it must be in a safe and fully functional condition. Likewise, when you are either driving or riding as a passenger, it is essential that you are in good physical health, allowing you to enjoy the ride and handle the vehicle with optimum focus and ability.

> ⚠**Danger:**
> **When driving a motorcycle, you must abide by traffic laws; Before driving, the vehicle must be motorcycle fully examined.**

3.1. Safe driving rules

1. Before starting the motorcycle, the vehicle must be carefully checked to confirm that the vehicle is safe and normal. This can avoid accidents and damage to parts.

2. Motorcycle drivers must pass the examination of the traffic management department and obtain a "motorcycle driver's license"; Don't lend your motorcycle to people who don't have a "motorcycle driving license".

3. In order to avoid causing harm, you should:

- Dress strikingly.
- Don't drive too close to other motor vehicles, and use signal such as turn signals, horns and brake lights correctly.
- Please do not drive in the blind spot of other drivers' sight.

4. Strictly abide by traffic laws and regulations.

- Speeding is the main factor leading to motorcycle accidents. In case of rain and snow, gravel roads, intersections and other road conditions, you must drive carefully at low speed or decelerate.
- When turning and changing lanes, you must turn on signal devices such as turn signals to attract the attention of other drivers.

5. The driver should hold the direction handle with both hands and step on the front pedal with both feet; Occupants should hold the armrest tightly or hold the driver's waist with both hands, and step on the rear pedal with both feet.

3.2. Safety protective equipment

1. Most of the injured people in motorcycle traffic accidents are head injuries. Therefore, drivers and passengers must wear helmets that meet safety and quality standards, as well as protective equipment such as dust proof glasses and gloves.

2. When driving, the temperature of the exhaust muffler is high. In order to avoid contact burns, both drivers and passengers should wear boots and other equipment.

3. Do not wear loose clothing to prevent hooking of direction handles, clutch handles, pedals or vehicles next to them, resulting in accidents.

3.3. Vehicle modification

Warning:

1. It is illegal to modify the motorcycle or replace the device of the original motorcycle at will, which cannot guarantee the driving safety of the motorcycle. You must comply with the traffic authority's regulations on the use of vehicles.

2. In order to ensure that the exhaust emissions can meet the national emission requirements, you cannot modify or dismantle the following parts without authorization.

1) The idle speed cannot be adjusted at will;

2) Because the exhaust muffler is equipped with an optimized catalyst, if the exhaust muffler is

Danger:

If you modify cables and electrical appliances by yourself, the company will not be responsible for dangerous consequences such as short circuit of wires, blown fuses, electrical appliances exceeding

Note:

Improper loading or overweight of motorcycle goods will affect the performance of vehicles, reduce the driving stability of vehicles and easily cause safety accidents.

When loading the goods:

1. The goods should be loaded in the center and down, close to the center of the vehicle.

2. All goods must be firmly fixed on the vehicle, which is conducive to vehicle control and vehicle stability.

3. Do not tie large or heavy objects to the steering handle, front shock absorber or front fender, otherwise it will easily cause unstable driving or ineffective steering.

4. It is strictly forbidden to exceed the maximum loading mass of 150kg (including drivers, passengers and loaded goods)

3.4. Attachments

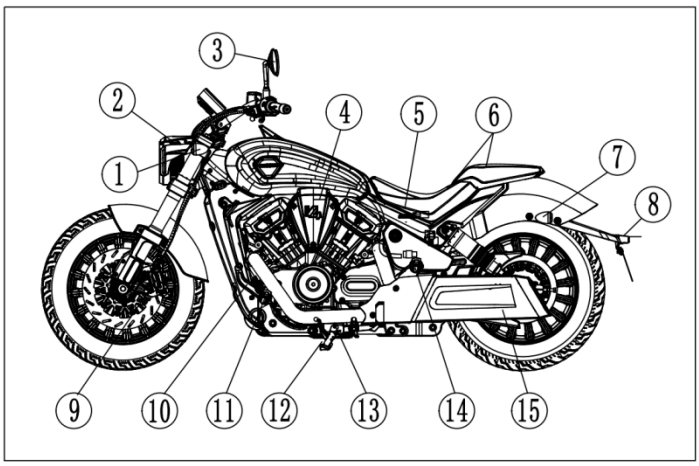
The original accessories of this motorcycle have been tested by the company. The company will not be responsible for the adverse consequences caused by the installation of non-original accessories.

After installing non-original accessories, you must carefully check: sight obstruction, ground clearance, side tilt angle, steering flexibility of control mechanism, ease of operation, performance of accessories. If the above problems exist, the accessories should be cancelled before using this vehicle.

IV、Instructions for Use

4.1. Part location

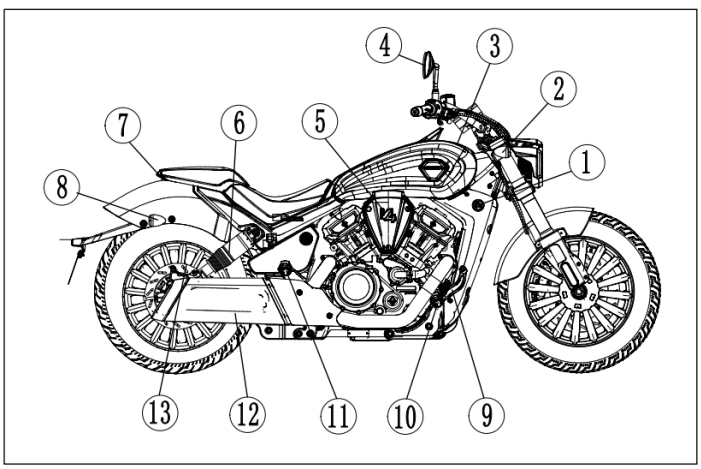
1. (Figure 2)



(1)Front Left Turn Signal (9)Front Brake Caliper
(2)Headlights (10)Gear Shifter
(3)Left rearview mirror (11)Front left pedal
(4)Left air filter (12)side stand
(5)Battery (under cushion) (13)Side stand kill

(6)Seat cushion (14)Rear left pedal
(7)Rear Left Turn Signal (15) Left Exhaust Muffler
(8)Rear license plate lamp

Figure 2

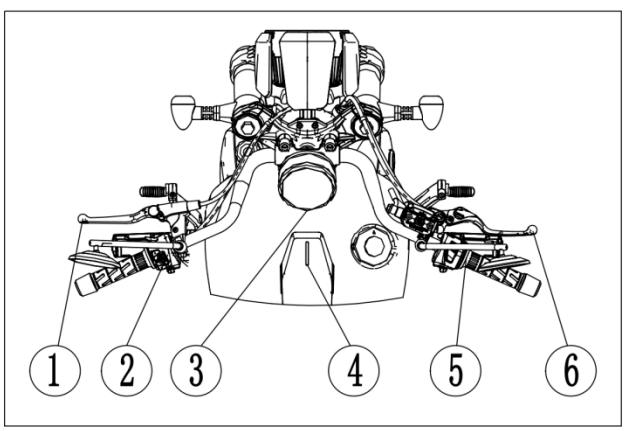


2. (Figure 3)

(1)Ignition Lock (8)Rear Right Turn

(2)Front right turn signal (9)Brake pedal
(3)Fuel tank cap (10)Front right pedal
(4)Right rearview mirror (11)Rear right pedal
(5)Air filter (12) Right exhaust muffler
(6)Rear shock absorbers (13)Rear brake caliper
(7)Rear Taillights

Figure 3



3. Front motorcycle body (Figure 4)

① Clutch handle
② Left switch combination
③ Instrument
④Oil display small instrument
⑤ Right switch combination
⑥ Front brake handle

Figure 4

4.2. Instrument（TFT）, oil display small instrument (Figure 5, Figure 6)

Please refer to Table 1 for the names and functions of indicator symbols.

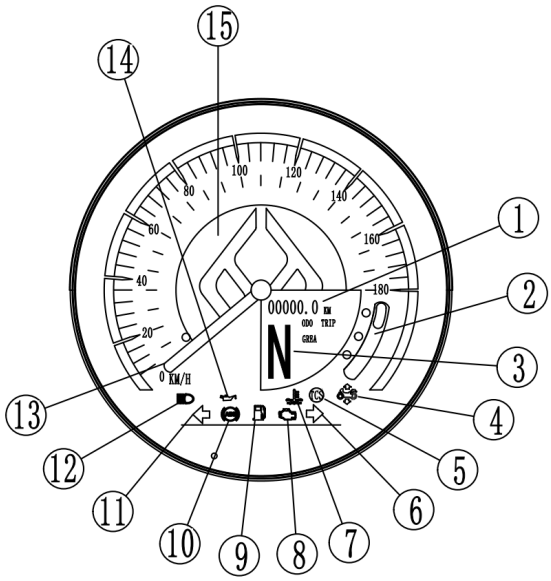


Figure 5

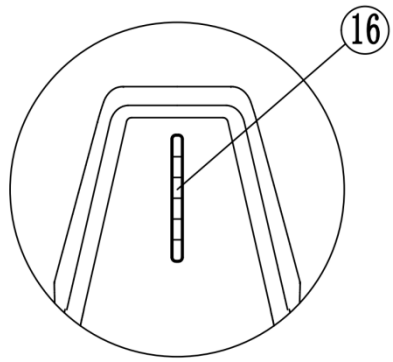


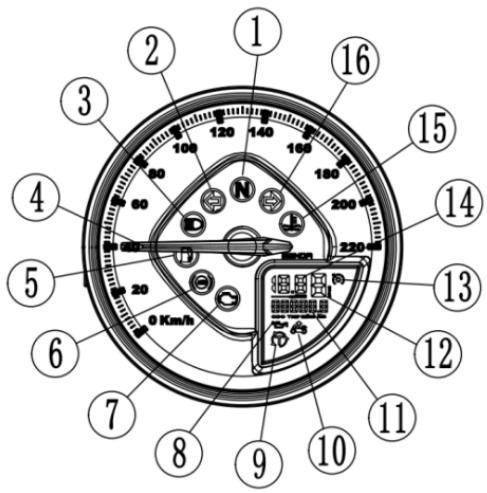
Figure 6

Serial no.	Name	Function
1	Mileage indication	Total mileage traveled by vehicle
2	Airbag shock absorber gear Indicate	Displays current body height
3	Gear indication	Displays the gear the engine is in
4	Shock absorber status lamp	Airbag shock lights up when in "Sport mode/High"
5	TCS indication	TCS is always on when it is off or faulty, and flashes when work is triggered
6	Right turn indication	Front and rear right turn signals flash, illuminate to display green
7	Water temperature alarm indication	Light up red: coolant overheating, cooling system failure
8	EFI fault indicator lamp	The lamp goes off after the engine is running, and if there is a fault, it will display yellow light and flash
9	Fuel quantity alarm indicator	There is insufficient gasoline in the fuel tank, indicating that refueling is required
10	ABS indication	Display ABS status
11	Left turn indication	Front and rear left turn signals flash, illuminate to display green
12	High beam indication	High beam on, light up displays blue

13	Vehicle speed indicator	Instantaneous speed at which the vehicle travels
14	Oil indicator light	Displays the current oil level. It shows red low oil.
15	Cruise control and idle cylinder closed display area	Displays cruise control and idle cylinder closed status.
16	Fuel quantity indicator	LED strip display, white LED light displays oil quantity, lowest point displays red

4.2.1 Instrument,

Please refer to Table 1 for the names and functions of indicator symbols.



Serial no.	Name	Function
1	neutral gear indicator	In neutral, the display is green
2	Left turn indicator	The front and rear left turn signals flash and illuminate in green
3	high beam indicator	The high beam light is on, and it will display blue when illuminated
4	Vehicle speed indication	The instantaneous speed at which the vehicle is traveling
5	Fuel level indicator	Indicates whether the current fuel level is sufficient
6	ABS indication	Display ABS status
7	EFI Malfunction Indicator Light	The light goes out when the engine is running, if there is a malfunction, the display flashes yellow.
8	Oil Failure Indicator	Comes on when there is not enough oil left or when there is a malfunction such as oil viscosity, etc.
9	TCS indication	Always on when TCS is off or faulty, blinking when work is

		triggered
10	Damping status light	Illuminates when the airbag dampers are in "Sport mode/high".
11	Mileage indication	The total mileage traveled by the vehicle
12	Gear position indication	Display the gear position of the engine
13	Cruise control indication	Illuminates when cruise control is on, blinks when temporarily disengaged
14	Engine Speed Indicator	Displays current engine speed
15	Water temperature alarm indication	Illuminate and display in red: coolant overheating, cooling system malfunction
16	Right turn indicator	The front and rear right turn signal lights flash and illuminate in green

4.3. Ignition switch lock

The ignition switch lock (Figure 7) is set on the front right side of the motorcycle body, and the ignition switch must be turned on before starting the motorcycle. See Table 2 for key locations and functions.

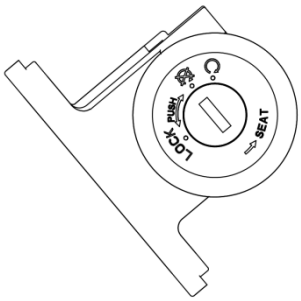


Figure 7

Key location	Function	Key status
Close "⊗"	The circuit is disconnected and the engine cannot start	Can be pulled out
Open "↻"	The electrical circuit is closed and the engine can start	Cannot be pulled out
Note: **When the vehicle is not in use, the key is turned to off "⊗"Position, take out the key; Turn the key counterclockwise (self-reset) to open the rear seat cushion.**		

Table 2

4.4. Head lock

Head lock (Fig.8) Installed at the lower connecting plate of the vehicle. Lock the steering mechanism when parked and not in use.

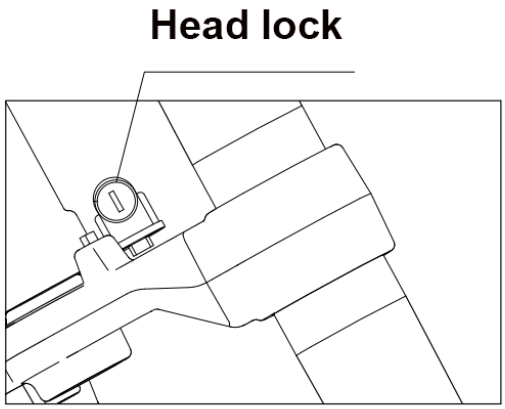


Figure 8 Head lock

Note: Park the vehicle properly before locking the steering mechanism. After locking, the motorcycle cannot be pushed, and it is difficult to master the balance and roll over.

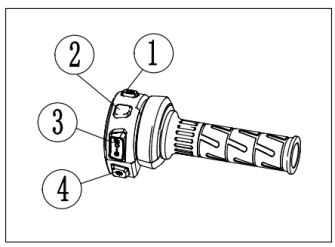
Whenever possible, park your vehicle on a level ground.

Warning:

This vehicle is equipped with an airbag rear suspension system. When the vehicle is static, the body is low. If the ground is uneven, there will be a risk of reversing; Therefore, when parking, you must hit the front of the motorcycle to the left side to the end, and pull out the key after the airbag suspension is completed; To keep the vehicle stable.

4.5. Right switch combination

This motorcycle throttle adopts electronic control system: the electronic throttle replaces the cable by wiring harness, and the original mechanical transmission mechanism is replaced by electronic control. The electronic throttle transmits the signals of throttle depth and speed through the position sensor, so as to realize the electronic control device of throttle function, which is more accurate than the cable throttle.



① TCS switch/MODE switching button
② ABS switch/SET setting button
③ Start the kill switch
④ Warning light switch

Figure 9 Right switch

MODE/TCS button, SET/ABS button operation instructions:

key	Vehicle status	Current interface	Short press	Long press (≥ 3 seconds)
MODE/TCS	No vehicle speed	Main interface	Toggle mileage display	Trigger TCS function switch (total mileage interface) Subtotal mileage clearing (subtotal mileage interface)
		Menu interface	Switch to next	No effect
	There is speed	Main interface	Toggle mileage display	No effect
SET/ABS	No vehicle speed	Main interface	Enter the settings menu interface (automatically return to the main interface without operation in 5s)	Trigger ABS function switch (total mileage interface)
	There is speed	Main interface	No effect	No effect

Description of triggering TCS and ABS function switches:

1. MODE/TCS key

When the vehicle is powered on and the engine starts, there is no current fault, and the vehicle speed exceeds 8KM/h, the TCS completes the self-test and the indicator light goes out; And when the instrument displays the total mileage interface, the system automatically recognizes the current TCS status and responds after long pressing: when the current TCS is on, it will be closed after long pressing; When the current TCS is closed, press and hold to open it; The current TCS switch status can be determined by observing whether the indicator light on the instrument is lit:

①TCS function turned off : The TCS indicator is always on.

②TCS function failure : The TCS indicator is always on.

③TCS function Trigger: TCS When triggered Indicator lamp Flicker.

2. SET/ABS key

When the vehicle is powered on and the engine starts, there is no current fault, and the vehicle speed exceeds 8KM/h, the ABS completes self-test and the indicator light goes out; And when the instrument displays the total mileage interface, the system automatically recognizes the current ABS status and responds after long pressing: when the current ABS is on, it will be turned off after pressing; When the current ABS is off, press it to turn on; You can judge the current ABS switch status by observing whether the indicator light on the instrument is lit:

①. ABS function is turned off : The ABS indicator light is always on.

②. ABS function failure : The ABS indicator light is always on.

3.Activate kill switch

The operation method is: After completing the preparation work for starting (see page 16), press the electric start button "", if necessary, turn the throttle handle sleeve at the same time to properly refuel, and then start the engine.

Close ""	kill Switch Off-At this position the ignition circuit is open, the running engine is off, and the engine cannot be started.
Open ""	kill switch on-need to be switched to this position while running, ignition circuit is closed.

4.6. Left switch combination

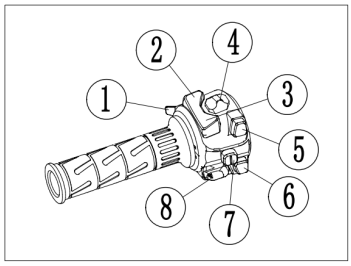


Figure 10 Left switch combination

① Near and high beam, overtaking switch
② Cruise control vehicle speed +
③ Cruise control speed-
④ Cruise control switch
⑤Mode change switch
⑥Headlight switch
⑦Turn signal switch
⑧Horn switch

1.Near and high beam, overtaking switch

When the "overtaking light button" is pressed, the overtaking light comes on;

When the "overtake light button" is released, the overtake light does not light up.

⚠Note:

Current lamp light in high beam state"" When the overtaking lights do not work.

⚠Warning:

Please change the state of the high and low beams in a timely manner according to the road conditions. If there is an oncoming motorcycle, please adjust the light to the low beam state, so as to prevent direct light from affecting the driving state of the oncoming driver and causing traffic accidents.

2.Cruise control speed +

In cruise control mode, press the button to increase the vehicle speed by 1KM/H

3.Cruise control speed-

In cruise control mode, press the button to reduce the vehicle speed by 1KM/H

4.Cruise control switch

Slide the switch to the left to turn on cruise control.

5. Mode transfer switch

Switch body height (see page "16" for details)

6.Headlight switch

Press the headlight switch to turn on the headlight, and press it again to turn off the headlight; The daytime running lights are always on.

7.Turn signal switch

When turning left, turn "turn signal switch" to "⇦"Position; The front and rear turn signals on the left side, and the left turn indicator light in the instrument panel is on.

When turning right, turn "turn signal switch" to "⇨"Position; The front and rear turn signals on the right side, and the right turn indicator light in the instrument panel is on.

Dial the "turn signal switch" to the "middle" position; Turn off the left and right turn signals and indicators.

⚠Warning:

The turn signal switch must be turned on when you are about to turn or change lanes, and the turn signal switch can not be turned off until you complete the turn or change lanes.

4.7. Headlamp pitch angle adjustment (Figure 11)

Due to the different heights and observation habits of users, they have different needs for lighting for night driving. In order to give users a better night driving experience, the dark flag headlights are specially designed in the form of adjustable pitch angle. Users can adjust according to their own needs. The adjustment method is as follows:

The first step is using6#Allen wrench,10#Open-ended wrench loosens the upper and lower set screws that hold the headlights.

Step 2: After loosening the screws, gently rotate the headlight up and down with the following fixing screws as the axis, adjust to the appropriate position, and tighten the screws.

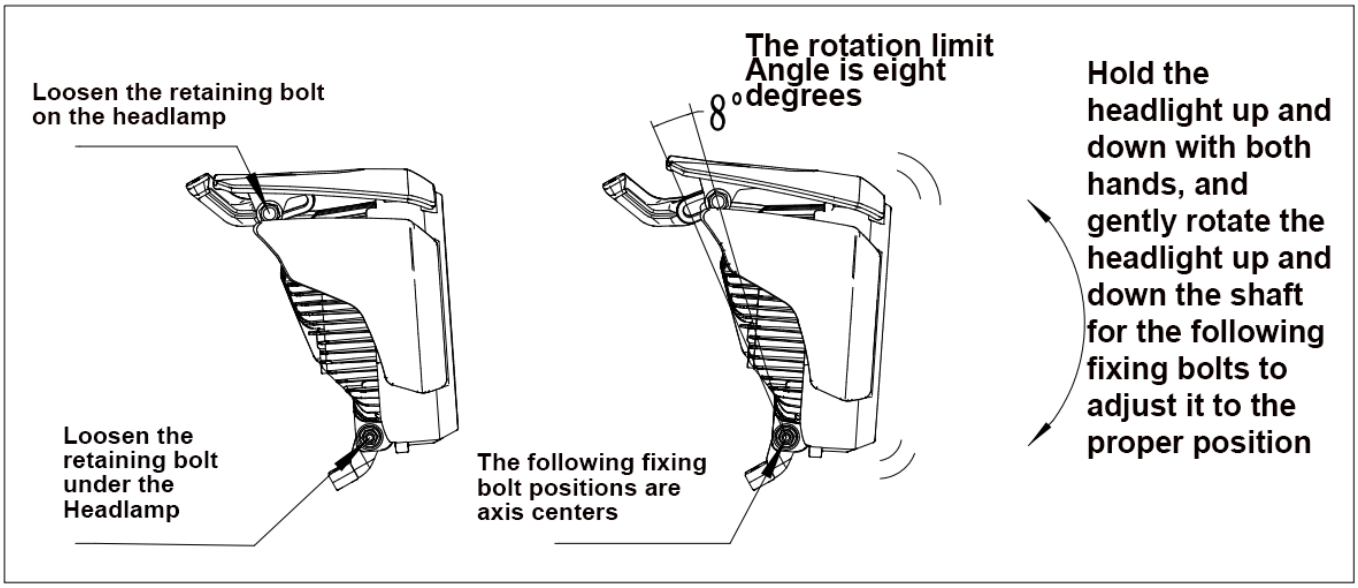
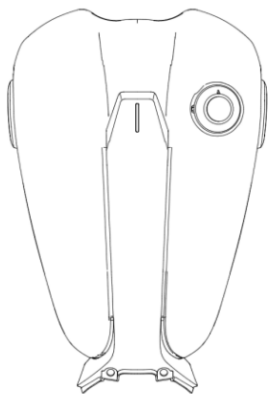


Figure 11

4.8. Opening method of fuel tank cap (Figure 12)



Open the small cover blocking the keyhole, insert the key into the fuel tank lock hole, and rotate it clockwise to open the fuel tank lock; When closing, pull out the key, gently close the fuel tank cap, "" facing straight ahead, and press hard until you hear a "click" sound. Finally, put on the small lid that blocks the keyhole.

Figure 12 Fuel tank cap

4.9. Tires

1. Correct tire pressure will ensure: stable driving, comfortable driving and durable tires. Tire pressure should be checked on "cold tires".

Refer to Table 3 for tire specifications and tire pressure:

2.

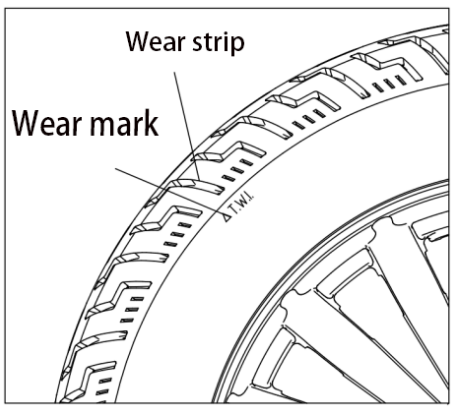


Figure 13 Inspection of tires

Determine tire status, incorrect tire sizes can affect the handling performance of your motorcycle. Damage and scratches on tires can lead to tire failure and cause the vehicle to lose control. Excessively worn tires can puncture the tires and cause the vehicle to lose control. Tire wear also

affects tire shape and handling performance.

Check the condition and air pressure of your tires every day before use. If there is a lot of obvious damage on the tire, such as: breakage, scratch, or the tire is worn to extreme position, tyres must be replaced.

Note:

1. When you feel that the tire pressure drops, you should check and repair it in time.

2. Incorrect tire pressure can cause abnormal tread wear and even cause safety accidents.

3. Insufficient tire pressure can cause tire damage or detachment from the rim.

Warning:

1. The triangular mark indicates the position of the wear strip. If the wear strip touches the ground, the tire has worn to its limit. The tires must be replaced.

2. When replacing tires, it is determined that the size and model of the replacement tires should comply with the contents of the "Main Technical Parameter Table" on page 39. If a different size or model of tires is replaced, it will affect the handling performance of the motorcycle and may cause the motorcycle to lose control.

Danger:

1. This motorcycle is equipped with a vacuum tire, and the rim and tire lip are sealed in contact with each other. In order to avoid air leakage, disassembling and installing tubeless tires require special tools to protect the rim and lip parts, and use a special tire disassembling machine.

2. To repair the small holes of the tubeless tire, you need to remove the tire and patch the inside of the tire. Do not use external patching methods, because when turning, the centrifugal force of the tire will loosen the patched area. The vehicle speed cannot exceed 80 kilometers per hour 24 hours after the tire is repaired, and the vehicle speed cannot exceed 130 kilometers per hour in the future. If you exceed the speed limit, the heat generation of the tire increases dramatically, which can invalidate the repair and cause the tire to be flat. If the side of the tire is damaged, or if the damaged area of the tire is greater than 6mm, the tire cannot be repaired and used.

Cold tire pressure	Single ride			Double ride		
	kPa	kgf/cm2	psi	kPa	kgf/cm2	psi
Front wheel	270	2.70	39	270	2.70	39
Rear wheel	270	2.70	39	270	2.70	39

V、 Idle cylinder closing function (BD500-2A)

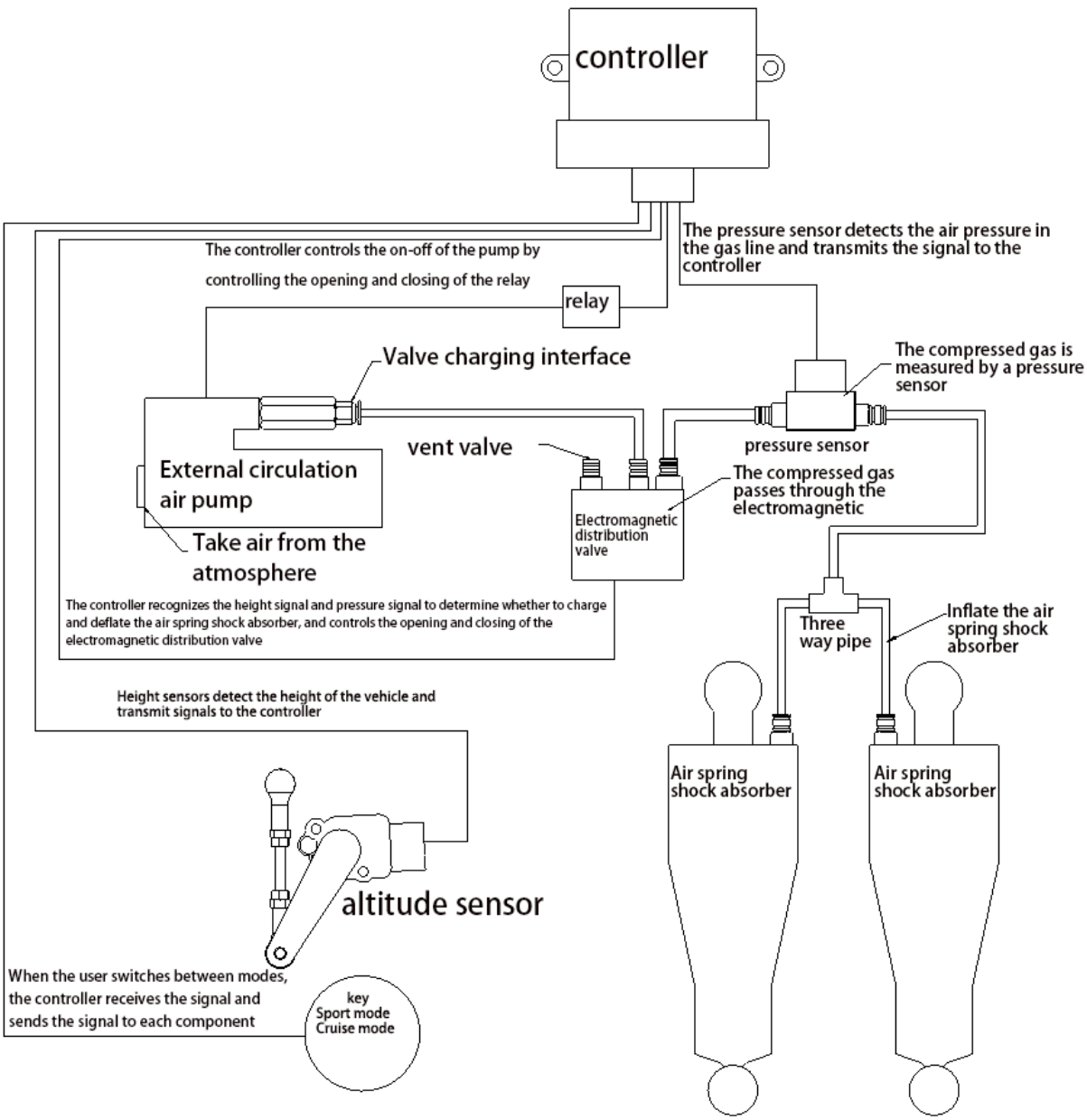
Benda Dark Flag also has idle cylinder closing technology, also known as rear cylinder start-stop, that is, when the engine is idle, the rear two cylinders will stop working, and only the first two cylinders will be retained to maintain idle operation, thus reducing the heat generation during parking, which can also save fuel to a certain extent.

When the vehicle is idling in neutral, the water temperature reaches60℃And above, the engine runs5Seconds, the idle cylinder closing function is turned on; Shift gears or turn the throttle handle, the rear cylinder starts to work and exits the idle cylinder closed state.

VI、 Airbag rear shock absorber (BD500-2A)

6.1 System Composition:

The components of the air suspension system include: controller (ECU), pipeline, wiring harness (including relay, safety, etc.), height sensor, pressure sensor, external circulation air pump, distribution valve, etc.



6.2 Functional Description:

6.2. 1 Mode switching

This system has two modes: cruise mode and sports mode. The default power-on is cruise mode. The mode switching button is continuously pressed for ≥ 2 s, and the modes are switched between cruise and sports. Cruise mode: "Status light" is off, Sport mode: "Status light" is on.

6.2. 2 Static lifting

In cruise mode: Press the mode switch button for ≥ 2 s, adjust the vehicle height to the middle position, and enter the sports mode and the "status light" will light up.

In sports mode: Press the mode switch button for ≥ 2 s, the motorcycle height is adjusted to a low position, and the "status light" goes off when entering cruise mode. It is strictly forbidden to continuously switch modes for a long time, otherwise the air pump will be burned out. The continuous working time of the air pump is designed to be < 60s.

6.2. 3 Rising and descending with speed

Sports mode: When static, the height is median, the vehicle speed is ≥ 20 km/h and lasts for a certain period of time. The vehicle height rises from the median to the high position, and returns to the median position at the speed of 0 km/h ≤ V ≤ 15 km/h.

Cruise mode: When static, the height is low, the vehicle speed is ≥ 20 km/h and lasts for a certain period of time. The vehicle height rises from the low position to the middle position, and returns to the low position at the speed of 0 km/h ≤ V ≤ 15 km/h.

6.2. 4 Brake suppression

Receive the braking signal and do not adjust the vehicle height when braking.

6.2. 5 Repair

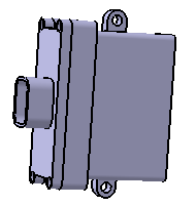
When the vehicle is powered down, the ECU goes to sleep, and the vehicle height is not adjusted. At this time, maintenance can be performed. It is strictly forbidden to power on the vehicle during maintenance to prevent accidents caused by lifting and lowering of the vehicle body. If it is necessary to power on for inspection, remove the controller and power on again.

6.2. 6 Automatic calibration

At the same time, press and hold the brake and mode switch buttons for more than 15S. After you hear the exhaust sound of the shock absorber (if the newly installed air spring shock absorber is not inflated, there will be no sound), the automatic calibration function will start and the vehicle height will be automatically calibrated. Every time the height sensor is disassembled and assembled and the tie rod combination is adjusted, the vehicle height needs to be recalibrated.

6.3 Maintenance precautions

6.3. 1 controller



Direct contact between the controller pins is strictly prohibited to prevent static electricity from damaging the internal components of the controller; If the controller is replaced, the connector needs to be inserted in place to ensure normal communication and good sealing; It is strictly forbidden to disassemble the controller without permission, and the disassembler shall be responsible for any problems caused by disassembly without permission.

When washing the motorcycle, it is strictly forbidden to use a high-pressure water gun to directly inject the surroundings of the parts (especially at the connectors) to prevent water from rushing into the interior.

6.3. 2 Tubing

At the air inlet and outlet of the shock absorber, it is strictly forbidden to step on, press, etc. to avoid abnormal phenomena such as bending and flattening of the trachea. During vehicle maintenance, regularly check the air pipeline for bending, cracking and other problems. If the air pipeline is bending, cracking and

other abnormalities, please go to the nearest 4S shop to replace the air pipeline, so as not to affect the air pipeline and cause abnormal lifting of the motorcycle body.

During maintenance, check whether there is air leakage in the pipeline and whether the vehicle can lift and lower normally.

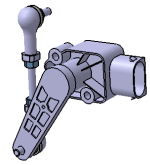
6.3. 3 Wiring harness

Regularly check the connectors for looseness, falling off, damage, etc.

Regularly check the relay and safety for any abnormalities, and if there are any abnormalities, replace the corresponding parts in time.

When washing the motorcycle, it is strictly forbidden to use a high-pressure water gun to directly inject the surroundings of the parts (especially at the connectors) to prevent water from rushing into the interior.

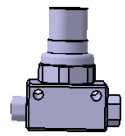
6.3. 4 Height sensor



Regularly check whether the bolts related to the height sensor assembly are loose and tighten them regularly. The tightening torque should be 5 - 7N.m. If components such as the height sensor and pull rod assembly are disassembled and assembled on the vehicle, it is necessary to recalibrate the vehicle height (refer to the automatic calibration function).

When washing the motorcycle, it is strictly forbidden to use a high-pressure water gun to directly inject the surroundings of the parts (especially at the connectors) to prevent water from rushing into the interior.

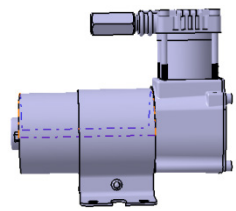
6.3. 5 Pressure sensors



Regularly check the pressure sensor mounting bolts for looseness and tighten them regularly.

When washing the motorcycle, it is strictly forbidden to use a high-pressure water gun to directly inject the surroundings of the parts (especially at the connectors) to prevent water from rushing into the interior.

6.3. 6 External circulation air pump

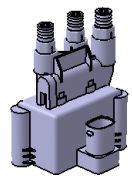


Regularly check whether the installation bolts, bracket tightening bolts, pipelines and connectors are loose, and tighten them regularly.

Vehicles are strictly prohibited from wading, so as to avoid water flooding the air pump and causing damage to the air pump.

When washing the motorcycle, it is strictly forbidden to use a high-pressure water gun to directly inject the air pump around (especially at the pump body and connectors) to prevent water from rushing into the interior.

6.3. 7 Inspection of wearing parts of external circulation air pump



The air pump is a wearing part, so it is necessary to regularly check whether the air pump can supply air normally: if it is not overweight, the sports mode and cruise mode can be switched normally, and the vehicle height can rise and fall normally. If the cumulative working time of the air pump reaches 200h, the air pump or related parts need to be replaced.

6.3. 8 Solenoid distribution valve

Regularly check whether the installation bolts, pipes and connectors are loose.

When washing the motorcycle, it is strictly forbidden to use a high-pressure water gun to directly inject the surroundings of the parts (especially at the connectors) to prevent water from rushing into the interior.

6.3. 9 Air spring shock absorbers

It is strictly forbidden to squeeze, step on, etc. at the air inlet of the air spring shock absorber, so as to prevent abnormal phenomena such as bending and flattening of the pipeline, which will affect the normal lifting of the motorcycle body. Regularly check whether the air spring shock absorber can rise and fall normally, and whether the airbag is cracked and other abnormalities.

6.3. 10 Requirements for replacement of wearing parts of air spring shock absorbers

a、 Air spring assembly, dust cover, shock absorber, dust cover, buffer block:

- ✓ After 2 years of use or 30,000 kilometers (whichever comes first), it is recommended to replace it;
- ✓ After 3 years or 50,000 kilometers of use (whichever comes first), it is forced to replace it. If it continues to be used without replacement, the user will bear full responsibility for the consequences;
- ✓ If a certain part is damaged within 2 to 3 years or 30,000 kilometers to 50,000 kilometers, the damaged part can be replaced separately.

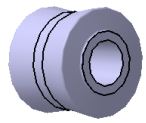
b、 O-ring seals, rubber bushings:

- ➢ After 2 years or 20,000 kilometers of use (whichever comes first), it is forced to be replaced. If it continues to be used without replacement, the user will bear full responsibility for the consequences;

Air spring shock

Air spring

Dust cover



Rubber

VII、TCS (traction control system)

1 This vehicle Equipped with TCS (traction control system), when the vehicle brakes on smooth roads, the wheels will slip and even make the direction out of control. Similarly, when starting or accelerating rapidly, the driving wheels may also slip, and on smooth roads such as ice and snow, the direction may get out of control and get out of danger. TCS is designed for this problem;

When the TCS relies on electronic sensors to detect that the driven wheel speed is lower than the driven wheel (which is a characteristic of slippage), it will send out a signal to adjust the ignition time, reduce the valve opening, reduce the throttle, downshift or brake the wheel, so that the wheel no longer slips. TCS can improve vehicle driving stability, acceleration and climbing ability.

If TCS is used in conjunction with ABS, it will further enhance the safety performance of vehicles. TCS and ABS can share the wheel speed sensor on the axle, and connect with the trip computer to constantly monitor the speed of each wheel. When slippage is found at low speed, TCS will immediately notify ABS to reduce the slippage of this wheel. If slippage is found at high speed, TCS immediately sends instructions to the trip computer to direct the engine to slow down or the transmission to downshift, so that the slipping wheels will no longer slip and the vehicle will be prevented from losing control and tailing.

2 TCS Instrument indicator lamp:

①TCS Normal opening; When the vehicle is powered on, the TCS indicator light is always on (at this time, the TCS has normal function; if the rear wheel is idling, the TCS will exit around 3S). After the vehicle speed exceeds 8KM/H and the TCS completes the dynamic self-test, the TCS indicator light goes out; (Whenever the

vehicle is powered on again, the TCS function is turned on by default).

② TCS function is turned off : The TCS indicator is always on.

③ TCS function failure : The TCS indicator is always on.

Note:

Usually, the TCS on the vehicle is kept on by default, which can prevent the wheel from slipping and dangerous situations such as body traversing and tail flicking; This system is a very important function in driving safety guarantee; Never close it at will.

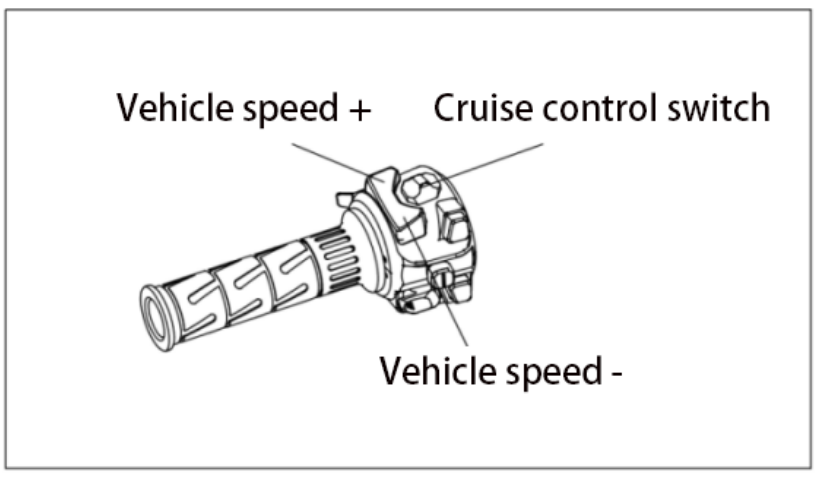
VIII、Cruise control

1.The principle of cruise control system is: the cruise control component reads the pulse signal sent by the vehicle speed sensor and compares it with the set speed, so as to issue an instruction to adjust the opening of the throttle valve to ensure that the vehicle is always kept at the set speed. Automatically maintains the vehicle speed without throttle, so that the vehicle runs at a fixed speed. When driving on the road for a long time, this device eliminates the need to control the accelerator, reduces unnecessary speed changes and saves fuel. At the same time, the accelerator, brake, and clutch can temporarily release this cruising state, improving comfort without losing safety.

2.Cruise control switch, vehicle speed adjustment button (Figure14）：

The cruise control switch is located at the top of the left hand handle switch, and slide to the left to turn on the cruise control; Swipe to the right to turn off cruise control completely.

On the left side of the cruise control switch is the vehicle speed increase/decrease switch. Click to speed up or slow down the vehicle speed 1KM/h



3.Function introduction

①The fixed-speed battery life button is in a self-locking state. Turn on the switch to enter the "fixed-speed cruise ready state". At this time, the fixed-speed cruise indicator light on the instrument flashes at a frequency of twice per second; Turning off the switch is regarded as exiting the "cruise control state", and the cruise control indicator light on the instrument goes out;

②The cruise control function must be at a speed of 40 ~ 120km/h Interval If it is not within this speed range, it will not be able to enter the "cruise control state" or automatically exit the "cruise control state".

③In the "cruise control readiness state" with a speed of 40 ~ 120km/h Interval When, press and hold "fixed speed +”Press the key for 2 seconds to enter the "cruise control state" at this time, the cruise control indicator light of the instrument is always on.

④In the process of cruise control, if the whole vehicle brakes, pinches the clutch, throttle, etc., it immediately exits the cruise control mode and is in the "cruise control preparation state""The instrument cruise control indicator flashes twice per second. If the speed is still between 40 and 120km/h, press and hold the "Fixed Speed +" button2You can still enter the "cruise control state" in seconds”.

⑤If right slide to close Press the cruise control button to exit the cruise control mode.

⑥The fixed speed + and-buttons are self-reset buttons. When they are in the "fixed speed cruise state", each press (long press is also regarded as one, the same below） The "Fixed Speed +" button increases the speed by 1km/h. Similarly, every time you press the "Fixed Speed-" button, the speed decreases by 1km/h.

⑦If the whole vehicle is not in the "cruise control state", all other operations are invalid except that the "fixed speed +" button can be pressed and held for two seconds to enter the "cruise control state".

⚠**Note:**
After using brake, throttle, clutch and other operations to temporarily release the cruise control state, if you want to completely exit the cruise control, you must slide the cruise control switch to the right to completely turn off the cruise control function.

IX、Operation guidance

9.1 New motorcycle running-in

The running-in period refers to a treatment method for new vehicles during the initial usage stage to ensure that the mating surfaces between parts reach the best mating state. Correct running-in operation can maximize the service life of the vehicle. New motorcycle running-in mileage: 3000km.

1. During the running-in period, the following must be achieved: The throttle should avoid being fully opened, and the maximum engine speed should not exceed 6,500 revolutions per minute. The vehicle speed should be controlled within the following range: Run-in within 0 to 300 kilometers.

0 ~ 300km running-in:

Avoid opening of the throttle handle exceeding 1/2 of the maximum opening; The vehicle speed is within 50km/h.

300 ~ 600km running-in:

Avoid opening of the throttle handle exceeding 2/3 of the maximum opening; The vehicle speed is within 60km/h.

600 ~ 1500km running-in:

The opening of the throttle handle should avoid exceeding 3/4 of the maximum opening; The vehicle speed is within 70km/h.

2. Avoid continuous low speed: When the engine runs at a certain low speed (light load), the parts will be ground smoothly and the running-in will not be good.

3. Use each gear reasonably: Do not continue to drive at a fixed speed of the engine. You can appropriately

change the vehicle speed so that all parts of the engine can "bear" the pressure, which can make the engine run in better.

4. Before driving, circulate the oil first: after the hot and cold engines are started, and before running without load, the engine should have sufficient idle time, so that the oil can be lubricated to all important parts of the engine, reduce wear, prolong the service life, and preheat the engine well.

5. Running-in of new tires: Tires also need to be run-in. Before the new tires are run-in, you should gradually increase your turning inclination angle within 160 kilometers, but avoid sudden braking, acceleration and sharp turning.

⚠Danger:

Poor tire running-in can cause the tire to slip sideways or lose control. Special motorcycle needs to be taken when using new tires, and within the first 160 km (100 miles), the tires are run-in.

6. Maintenance during running-in period: Please inspect the vehicle after driving the new motorcycle for 1,000 kilometers. During the running-in period, other parts have been meshed. At this time, each parts should be adjusted, and then the oil should be changed.

⚠Note:

Under complex road conditions and severe weather conditions, vehicles should be overhauled in advance during running-in period

9.2 Pre-driving inspection

To ensure driving safety, please carefully check your motorcycle before using it every time; If there is any abnormal phenomenon during the inspection, it must be repaired and solved before it can be used.

The inspection can follow the following procedure:

1. Check the oil in the engine (see page 26) and ensure that there is no leakage;
2. Check whether the fuel is sufficient;
3. Check whether the coolant in the cooling system is sufficient and ensure that there is no leakage;
4. Check the front and rear brakes: free stroke (front 5-10mm, rear 10-15mm), smooth operation;
5. Check the front and rear tires: air pressure, wear depth of tread tread and cracks (see page 15);
6. Check the drive belt: elasticated fit, no defects or damage;
7. Check the throttle handle: whether refueling or returning oil is easy to operate;
8. Check the lighting and signal lights: ensure that the headlights, taillights, brake lights, turn signals, indicator lights and horns are in good condition;
9. Check that the battery voltage is greater than 12.8 V;
10. Check the steering device: it should be smooth, flexible in rotation, free of looseness and axial movement;
11. Check the clutch handle: free clearance (5-10mm), smooth operation;
12. Fastening bolts and nuts: front and rear shock absorbers, flat fork axles, front and rear wheel axles, engine suspension, steering system, direction handles, front and rear brakes, clutches, rear suspension

systems, electrical components, etc.

> **Warning:**
> **Failure to check and repair before riding will leave potential safety hazards for riding, and maintenance of motorcycles before riding can eliminate potential safety hazards.**

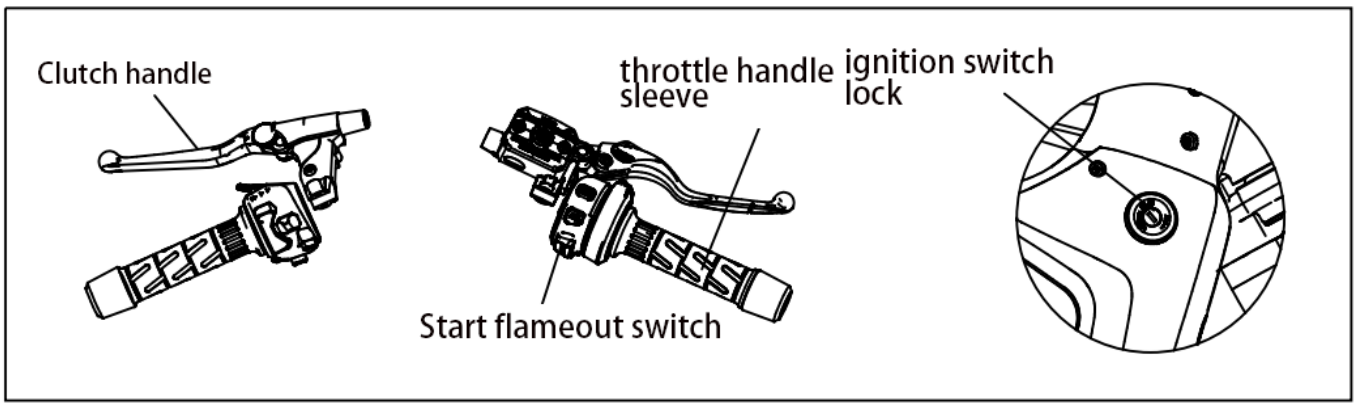
9.3 Starting of the motorcycle(Figure 15)

1. Open the ignition switch lock. (Note: The ignition lock is located on the right side of the frame).

2. Shift the gear to low gear or neutral. When starting in low gear, you need to hold the clutch handle tightly and hit the side stand.

3. Press the electric start button "", if necessary, turn the throttle handle at the same time to properly refuel, and then start the engine.

Figure 15 Start-up preparation



9.4 Side Stand Kill Switch (Figure 16)

1. When the side stand is supported on, the side stand kill switch is turned on, and when the side stand is retracted, the side stand kill switch is turned off.

2. When the side stand switch is turned on, neutral can be started; It can't be started with gear (neither can pinch clutch).

3. When the side stand switch is turned off, neutral can be started; Pinch clutch with gear can be started (not pinch clutch can not be started).

4. When the engine is working, when the gear is on, the side stand switch is turned on, and the vehicle should be turned off immediately; In neutral state, the vehicle operates normally.

5. When the engine is working, when the stand switch is turned on (at this time for Neutral). After shifting into gear, the vehicle stalls immediately.

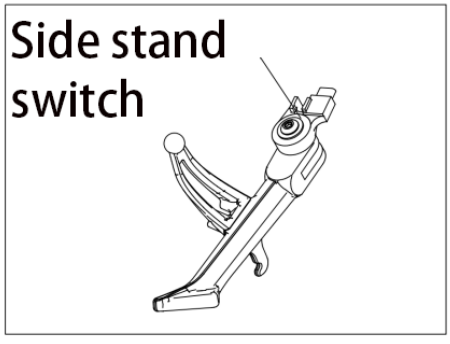


Figure 16

Danger:

1. Starting the vehicle in gear is prone to the risk of vehicle forward rush, which is easy to cause accidents.

2. When not driving, the engine speed should not be too high and the idling time should not be too long, otherwise the engine will overheat and damage the internal parts.

Danger:

1. If you are driving this motorcycle for the first time, we suggest that you find a non-public road to practice until you are familiar with the control methods and manipulation methods of this motorcycle.

2. Driving with one hand is the most dangerous. You should hold the direction handle firmly with both hands and put your feet on the pedals. Under any circumstances, do not drive with your hands off the handlebar.

3. Reduce the speed to a safe speed before turning.

4. The road surface is wet and smooth, the tire friction is small, and the braking ability and turning ability are naturally reduced, so it is necessary to slow down in advance.

5. Cross winds are usually most likely to occur at tunnel exits, valleys or when large vehicles overtake from behind. In case of cross wind, you must be motorcycleeful and calm and slow down.

6. Obey traffic rules and control vehicle speed.

Note:

1. It should be warmed up for 2-3 minutes after starting before driving on the road. An engine with insufficient preheating temperature will aggravate the wear of cylinders, piston rings, rocker arms and other parts when driving.

2. Use the electric start button“  ”When each run, it should be released immediately within 3 ~ 5 seconds; Otherwise, it is easy to cause the battery to discharge too fast and affect the service life of the battery.

3. After the engine starts, the electric start button should be released immediately "  ", otherwise the engine will be easily damaged

4. Do not start the vehicle continuously and frequently, and the interval between two starts should be more than 10 seconds;

5. Ensure that the single support is completely retracted to avoid driving obstruction and control failure when turning left.

6. After starting or driving, refuel must be smoothly (turn the accelerator handle).

7. Do not start the motorcycle in a narrow space to avoid the risk of poisoning caused by the exhaust gas not easily spreading.

8. If the clutch switch fails, it should be replaced in time.

9. It is strictly forbidden to start the engine without disengaging the clutch, otherwise it will cause damage to parts or safety accidents.

9. Don't start the motorcycle when there is a lack of fuel or oil.

9.5. Motorcycle driving

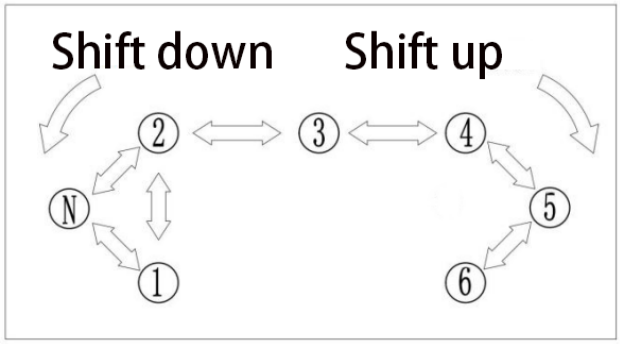


Fig. 17 Shift position diagram

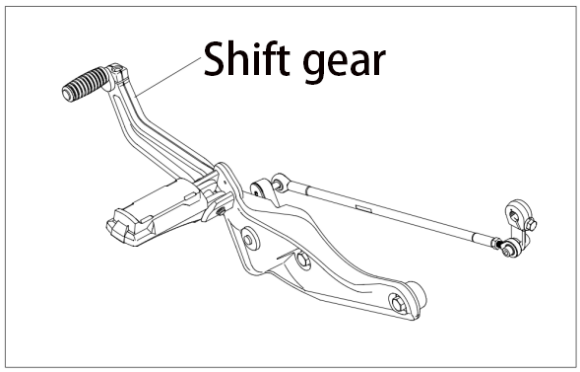


Figure 18 Shift lever

9.5.1. Shift operation (Figure 17, Figure 18)

This motorcycle is constantly meshed in sixth gear;①.②The gear is low,③.④The gear is medium speed,⑤.⑥The gear is high speed. Shifting can refer to the following operations:

1) Neutral shift①Gear: Return the accelerator with your right hand, quickly grasp the clutch handle with your left hand, and step down the shift lever with your left foot once to make the transmission enter①Gear, gradually release the clutch handle with your left hand, and gradually accelerate with your right hand. The movements are coordinated to make the motorcycle run smoothly①Gear drive.

2）①Gear shift②Gear: Return the throttle with your right hand, quickly grasp the clutch handle with your left hand, and hook the shift lever upward with your left foot once to make the transmission enter②Gear, gradually release the clutch handle with your left hand, and gradually accelerate with your right hand. The movements are coordinated to make the motorcycle run smoothly②Gear drive.

3）②Gear shift③.④.⑤.⑥File method and①Gear shift②The file method is the same.

4) Method of lowering gear position and neutral shift①The same method for files.

⚠**Note:**

1.Reduce the vehicle speed or increase the engine speed before shifting down gears. Increase the vehicle speed or reduce the engine speed before engaging in high gear. This prevents unnecessary wear and tear of driveline elements and rear tires.

Warning:

1. It is strictly forbidden to shift gears without returning the throttle and holding the clutch handle tightly, otherwise it will easily cause damage to the engine and transmission system and safety accidents.

2. When shifting gears, please confirm that the shift lever is stepped in place, and then release the clutch handle.

3. During the period of holding the clutch handle tightly when shifting gears, the clutch disengages and the motorcycle relies on inertia to drive. Therefore, the shifting time should be shortened as much as possible.

4. When driving at high speed, the gear is suddenly lowered or the accelerator is returned quickly, and the engine speed is lower than the rear wheel speed. When the clutch handle is released, the clutch plate friction meshes and decelerates, causing the rear wheel to brake, which may lose control and cause accidents. Therefore, when driving at high speed to low speed, you must use brakes to slow down, and then lower the gear.

5. Using low gear to drive at high speed and high gear to drive at low speed can easily lead to engine damage. It is necessary to adjust the gear in a timely manner according to the vehicle speed to make the engine run within the normal speed range.

9.5.2. Climbing or turning driving (Figure 19)

1) When driving uphill, the gear will be too high and the deceleration phenomenon of insufficient power will occur. Therefore, the gear must be lowered quickly before driving uphill.

2) When driving down a long slope, you must lower the gear and use the front and rear brakes intermittently. If the front and rear brakes are used continuously for a long time, the brakes will overheat and reduce the braking effect, which will cause danger.

3) It is not allowed to stall and coast when going downhill, and use engine braking to ensure driving stability. Otherwise, it will lead to dangerous accidents.

4) When turning, you must decelerate and downshift in advance. Otherwise, it may rush out of the corner due to excessive speed when turning, or suddenly brake when turning, resulting in dangerous accidents.

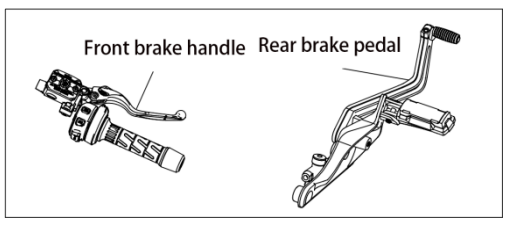


Figure19 brake location diagram

9.5.3. Tilt kill

This motorcycle is equipped with a roll and kill function.When the angle between the vehicle body and the ground is less than 60 ° (±10°), and when it is held for more than 5 seconds, the whole vehicle will automatically stall.

The tiltl switch is located in the battery compartment under the seat cushion (Fig.20）

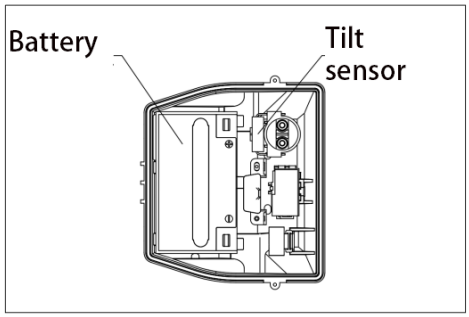


Figure 20

9.5.4. Use brakes

1) When you need to slow down, you must use the front and rear brakes at the same time (slowly hold the front brake handle with your right hand and slowly step on the rear brake pedal with your right foot to avoid using the front and rear brakes separately).

2) In an emergency situation, directly turn off the kill switch and use the front and rear brakes at the same time to stop the motorcycle.

3) Sudden braking should be avoided as much as possible. Sudden braking may cause the front and rear wheels to stop suddenly, making it difficult to control the vehicle.

4) On slippery or soft roads, avoid sudden acceleration, sharp braking and sharp turns. Prevents the vehicle from slipping and is difficult to control.

9.5.5. Parking

1) Gradually release the throttle to make it return to its fully closed position.

2) At the same time, slowly hold the front brake handle with your right hand and slowly step on the rear brake pedal with your right foot to avoid using the front and rear brakes separately.

3) Wait for the vehicle speed to decrease and lower the gear at the same time.

4) Hold the clutch handle tightly, put it in neutral and then stop it completely. The neutral indicator light on the instrument lights up after the neutral position is put into neutral position.

5) If you want to use a single stand to park on a gentle slope, you should put it in a low gear with the front of the motorcycle uphill to avoid rollover. (Be sure to put it in neutral position when starting again)

6) Close the ignition switch lock; In an emergency, the kill switch can be directly turned off to turn off the engine.

7) Lock the steering mechanism and pull out the key to prevent theft.

Danger:

1. The higher the vehicle speed, the longer the braking distance. Therefore, a safe distance must be maintained to prevent rear-end collision.

2. Using only the front brake or rear brake will cause slippage and loss of control; The braking system must be used motorcycle fully on slippery roads and when changing lanes; Emergency braking on uneven roads or smooth roads can make the motorcycle lose control.

X、Maintenance and maintenance

10.1. Maintenance cycle table

Number of maintenance Maintenance items	Maintenance interval	Odometer km (Remark ②)				
		1000km	4000km	8000km	12000km	Remark
★ Fuel tank, fuel pipe		Damage or aging should be repaired or replaced in time				Before use
★ throttle		I	I	I	I	Before use
★ Coolant		Replacement every 2 years				Pre-use check
Air cleaner element	Remarks ①	Every 40 hours of travel or 1000km/I; Every 80 hours of driving or 2000km/C; Every 5000km/R driven				
Spark plug		Every 2000km traveled or 80 hours/I; Every 6000km/R driven				
Engine oil	The new motorcycle is replaced once at 1000km, the second time it is driven 3000km, the third time it is driven 4000km, and every 4000km or so thereafter					
Oil filter element	The new motorcycle is replaced once at 1000km and driven for the second time3000km replacement, and then every 4000km or so after driving					
Belt\ Pulley	Remarks ①	I, L every 500km driven				
★ Brake friction pads		I, R if necessary every 1000km driven				
★ ★ Brake oil		Replacement every 2 years				
★ ★ Front and rear braking system	Remarks ③	I	I	I	I	Before use
★ Switch		I	I	I	I	Before use
★ Lights, speakers		I	I	I	I	Before use
★ Battery	Monthly	I	I	I	I	
Fuse		I	I	I	I	
Connection line		I	I	I	I	
★ ★ Valve clearance	Remarks ③	Initially: 20 hours or 200 km/I; Every 2000km traveled or 80 hours/I				
★ Clutch		Every 2000km traveled or 80 hours/I				Before use
★ Suspension system		I	I	I	I	
★ Fastening of nuts and bolts		I	I	I	I	Before use
★ Wheels		I	I	I	I	Before use

★ ★ Steering handlebar bearing (steering column thrust bearing)	Remarks ③	I	I	I	I	
★ ★ Engine overhaul	Remarks ③	I	I	I	I	

Motorcycles should be regularly maintained according to the time and mileage specified in the above table, and the vehicles must be cleaned before maintenance.

The symbols in the above table are: "I" Check, clean, adjust, lubricate or replace in time; "C" cleaning; "R" replacement; "L" lubrication.

No items are maintained by you yourself, or you can go to a Benda store for maintenance.

One ★ item is maintained by the personnel of Benda store; If you have special tools, repair spare parts or repair capabilities, you can also repair and maintain it yourself.

Two ★ ★ items, for the sake of driving safety, can only be maintained by the personnel of Benda store.

Remarks ① Indicates: When driving in dusty areas, the cleaning cycle should be shortened.

Remark ② means that when the odometer reading exceeds the highest number in the table, the maintenance cycle will still be repeated according to the mileage specified in the table.

Remarks ③ Indicates: It can only be repaired and adjusted by the personnel of the Benda Store

10.2. Inspection, selection and replacement of engine oil

The effects of engine oil on the engine: reducing friction, increasing sealing, cooling parts, cleaning parts and preventing rust.

If the oil quality is poor, the use time is too long, or the oil quantity is insufficient, etc., it will accelerate the wear of engine parts and reduce the service life of the engine; It even causes the engine temperature to be too high, clutch worn or burned out, power drop, abnormal noise, oil burning, etc.

[Inspection] (Figure 22)

Before each use, the oil level must be checked, and whether the oil is sufficient is judged by the highest position of the oil dipstick. Start the engine and run for 3 minutes, turn off the engine and wait for 3 minutes. Park the motorcycle on flat ground, and the whole vehicle is perpendicular to the ground. At this time, the oil level should be between the upper and lower scale marks of the oil dipstick. If the oil is low, unscrew the dipstick and add the appropriate amount of oil. After installing the oil dipstick, check for leakage.

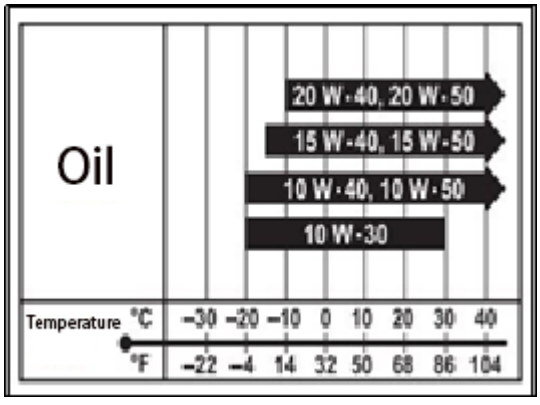
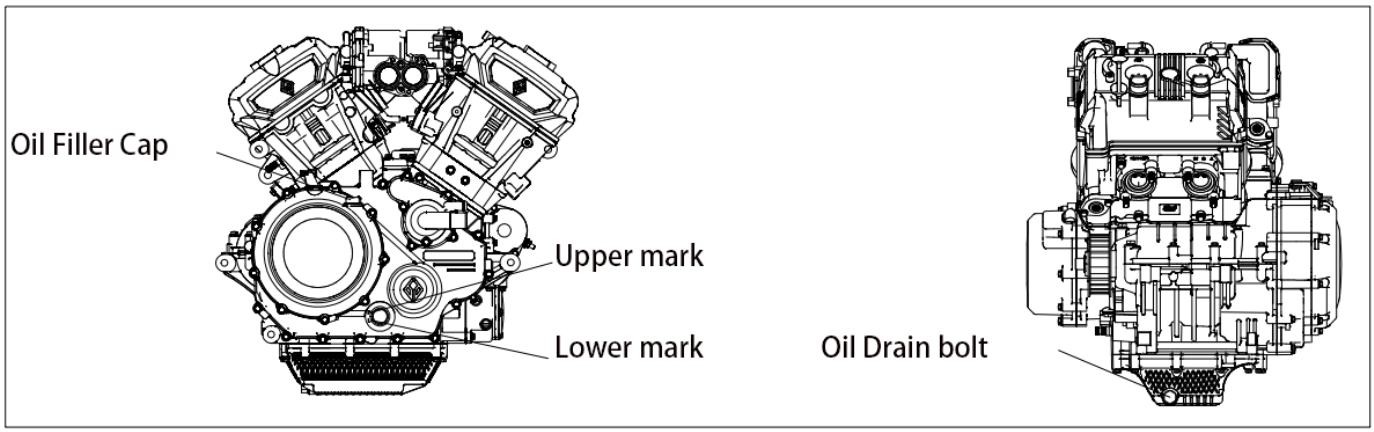


Figure 21 Oil Selection

API	SN or higher
SAE	SAE 15W-50
JASO	MA



[Select] (Figure 21)

Engine oil grade:SAE 15W-50

Engine oil quality requirements: SAE grade or above

Using high-quality four-stroke engine oil can prolong engine life. Its viscosity is SAE 15W-50 SN in API classification should be selected for engine oil.It is recommended to use synthetic engine oil for grade or higher products, and please choose as appropriate according to Figure 22 and compare the local temperature conditions:

Figure 22 Oil Inspection

Warning:

1. Using inferior engine oil will seriously affect the performance and life of the engine.

2. If the engine oil is not changed for a long time, it will deteriorate, and the deteriorated engine oil will cause excessive wear of the engine and parts.

3.If there is insufficient oil, it will seriously damage the engine.

[Replacement]

Completely change the engine oil within 1000km of the running-in period of the new motorcycle;After the second drive of 2000km, it was replaced.In the future, it will be replaced every 3000km or so.

1、Turn off the engine after running for 3 minutes, and place an oil tank under the engine oil drain bolt.

2、Drain the engine oil after 3 minutes (caution: don't get burned by the engine or oil). Unscrew the oil bolt, loosen the nut, and take out the machine filter cover, spring, filter element, etc.

3、After draining oil, the oil drain bolt and machine filter cover must be cleaned; Replace the filter element and check whether the sealing ring is intact. If it is damaged, replace it with a new one; Then install the filter element, spring, sealing ring and machine filter cover.

4、Inject about 3.8 L of new oil from the filler. If the filter element is replaced with a new filter element, 4L of new oil is needed. Check and confirm that there is no oil leakage, and then install the filler plug.

5. Run the engine at different speeds for 3 minutes, and check whether the disassembled parts are leaking. Observe after the engine is turned off for 3 minutes. If the oil level is lower than the scale mark under the oil window, add an appropriate amount of engine oil, and then check again for leakage.

Common causes of engine oil deterioration:

1、The oil temperature is too high and it naturally deteriorates.

2、Engine oils of different grades are mixed together and deteriorate.

3、More and more metal chips are produced by friction of machine parts.

4、There are many dust and impurities in the oil barrel.

5、If the gap between the piston and the cylinder is too large, exhaust gas will leak, and motorcycle residue will be generated when the fuel burns.

Danger:

1.The engine oil and the exhaust pipe of the muffler can cause burns. Wait for the drain bolt and the exhaust pipe to cool down before draining the old engine oil.

2.If engine oil is accidentally swallowed, it can cause harm to the body. It is reiterated that long-term exposure to engine oil may lead to skin cancer. Short-term exposure to engine oil can irritate the skin. Keep children and pets away from engine oil. When changing engine oil, to reduce skin irritation, please wear long-sleeved clothes and protective gloves (such as the gloves used when washing clothes). If the skin comes into contact with engine oil, wash it thoroughly with soap and water.

Warning:

If the prescribed engine is not used engine oil, which may damage the engine.

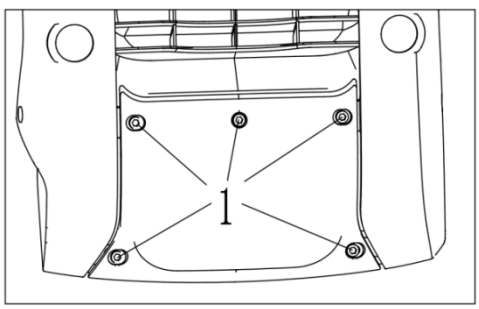
Note:

Please properly dispose of the waste engine oil, do not pour it into the garbage bin or directly on the ground, put the waste oil in a sealed container and send it to the local recycling center to avoid polluting the environment.

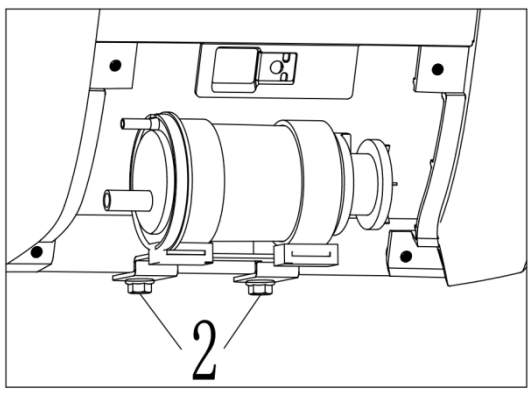
10.3. Replacement of oil filter

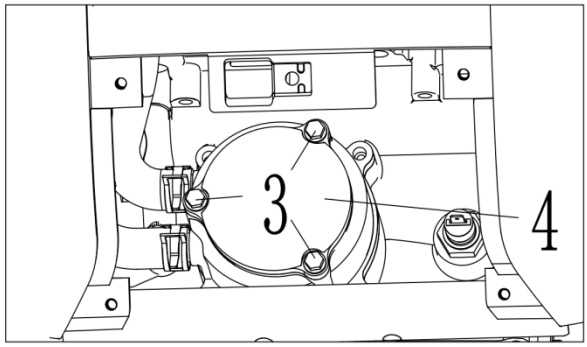
[Filter element replacement] (Figure 23)

1. Find the position of the oil filter element and remove the five fixing bolts of the lower radiator guard①



2. Remove the two fixing bolts that fix the motorcycle canister bracket②

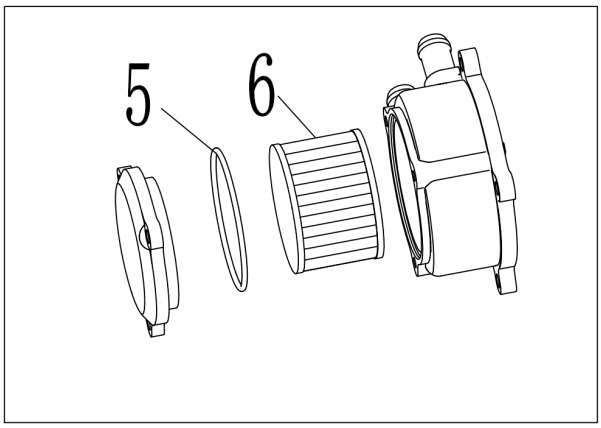




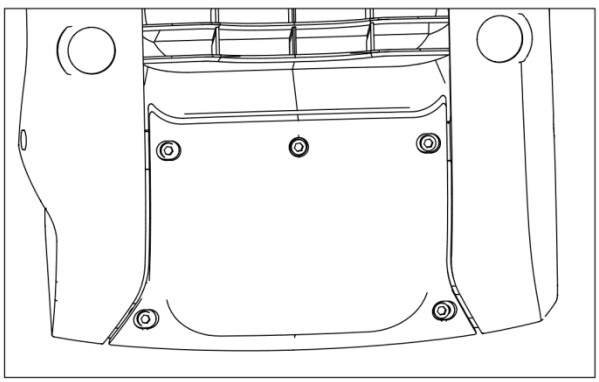
3. Use 8 # socket and ratchet wrench

Remove the fixed machine filter cover④Three fixing bolts for③.

Note: **In the process of removing the oil filter element, residual oil will flow out.**



4. Remove the sealing O-ring⑤, remove the filter element⑥And replace it with a new filter element.



5.Install the filter element in the reverse order..

Bolt tightening torque: 10N. m

10.4. Selection and replacement of spark plugs

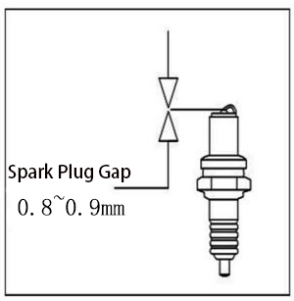


Figure 24 Spark plug

[Select] (Figure 24)

Spark plug model:CPR8EA-9 (NGK),

Opposite side of spark plug sleeve: 16mm

[Inspection and Replacement]

1. The spark plug replacement cycle is: once every 6000 km.

2. Remove the spark plug cap. Do not damage the spark plug cap during the process. Remove the surrounding dirt. Use the spark plug socket wrench in the tool bag to remove the spark plug, and use a wire brush to remove the motorcycle deposits and dirt from the spark plug.

3. Check whether the spark plug is damaged, whether the electrode gap is ablated, and whether the sealing gasket is intact; If it is damaged, it should be replaced.

4. Use a high-precision feeler gauge to check the electrode gap. The normal electrode gap is 0.8 ~ 0.9 mm.

5. When installing the spark plug: You must first screw the spark plug into the thread by hand, and then tighten it with a spark plug socket wrench.

Warning:

1. Dirt will enter the engine through the spark plug mounting hole, which will damage the engine. After removing the spark plug, you must use something to block the spark plug mounting hole.

2. If the color of the spark plug electrode is different from the normal spark plug, it must be replaced with a new spark plug of the same model. Different models of spark plugs have different calorific ranges, so they can cause

10.5. Cleaning and disassembly of air filter

[Clean or replace]

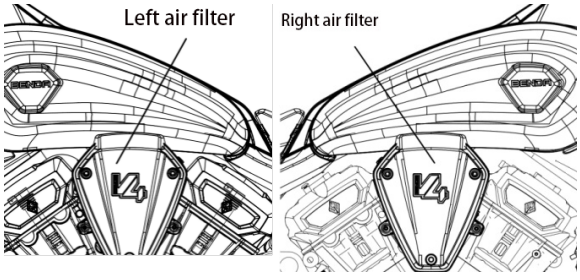
1. The filter element of the air filter must be maintained regularly: the filter element must be inspected, cleaned and adjusted in time every 40 hours or 1000km of driving; The air filter must be cleaned every 80 hours or 2000km driving; The filter element must be replaced with a new one every 5000km driven.

2. If the motorcycle is used in a muddy, wet or dusty environment, the cycle of filter cleaning or replacement should be shortened.

3. If the filter element is too dirty, water enters or damaged, it must be replaced with a new filter element, otherwise the intake resistance will increase, the engine output power will decrease, and the fuel consumption will increase. Keeping the air filter clean can improve the working efficiency of the engine and prolong the service life of the engine.

4. This motorcycle has a sponge filter element. When cleaning,It can be washed in clean water and then soaked in clean engine oil. If the sponge is aged or slagged, the filter element must be replaced with a new one.

5. During regular maintenance, remove the oil accumulation pipe and drain the waste oil inside. The oil accumulation line is located below the air filter.



[Disassembly and assembly] (Figure 25)

1. Remove the 3 screws on the upper cover of the air filter and remove the fixing screws of the filter element. Remove the filter element.
2. Assembly: Proceed in the reverse order of the disassembly steps mentioned above.

Warning:

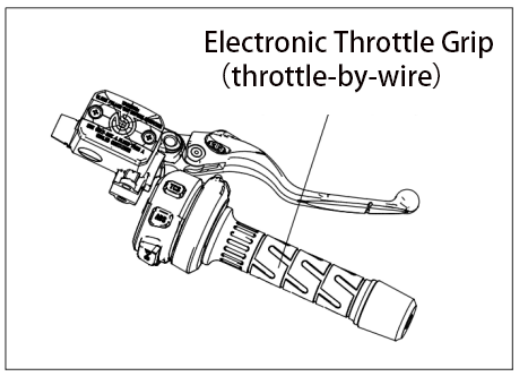
1. It is dangerous to start the engine without installing the filter element. Without the blocking of the filter element, the flame of the engine will be sprayed back from the engine to the air filter intake chamber, and the dirt will also be sucked into the engine, causing serious wear and tear to the engine. Therefore, it is forbidden to start and run the engine without the filter element installed.

2. When flushing the motorcycle, don't let water enter the air filter.

3. When cleaning the air filter, you must check whether the filter element is damaged. If the filter element is damaged, you must replace it with a new filter element.

4. If the filter element is installed in an incorrect position, dust will enter the engine around the filter element and damage the engine. Verify that the filter element is installed in the correct position and properly sealed.

10.6 Inspection of throttle handle



[Inspection] (Figure 26)

1. Check whether it is normal for the front of the motorcycle to turn from the far left to the far right and whether the limit is reliable.
2. Check whether the rotation of the throttle control handle is flexible from the fully open position to the fully closed position; Whether it can automatically return when the handle is released.

[Throttle Body]

The throttle limit screw on the throttle body has been set precisely and you cannot adjust it yourself. Check whether the idle speed of the vehicle is stable (after the engine is sufficiently warmed up, the idle speed of the engine should be every minute1350 ~ 1550RPMBetween), if the idle speed is unstable, please ask the professional service personnel of the maintenance unit designated by our company to check and handle it.

10.7. Clutch adjustment

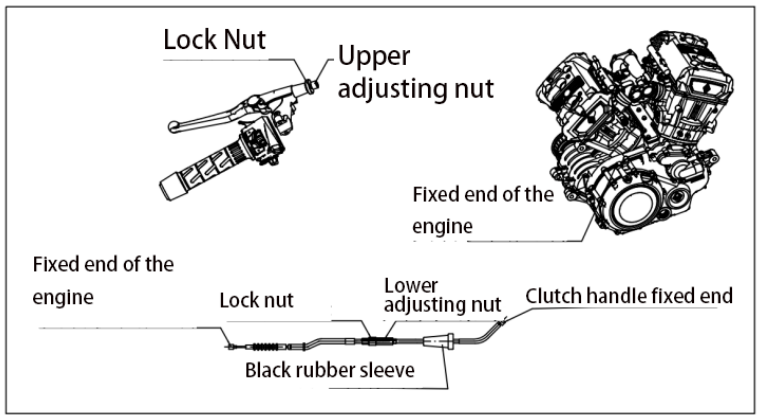


Figure 27 Clutch

The free stroke of the clutch handle is: 5 ~ 10mm.

The function of the clutch:**(Figure 27)**

1. Make the engine crankshaft and the variable speed transmission system smoothly and softly combine to ensure the smooth start of the motorcycle.
2. Make the engine crankshaft and the variable speed transmission system quickly and completely separate to ensure that the motorcycle does not cause impact when shifting gears.

3. It can prevent the variable speed transmission system parts from being damaged due to excessive load.

> ⚠**Note:**
> **When you use the clutch handle, you should grab or release it all; Try to avoid grasping only half or putting only half (using half clutch), otherwise it will easily cause clutch wear or burn.**

XI、Belt inspection and adjustment

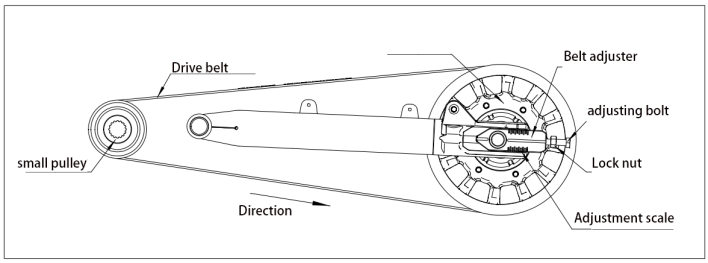


Figure 28 Belt Drive

Belt model: 1881-H11M-30mm

[Inspection] (Figure 28)

Before each ride, check that the belt drive system is working correctly. If you notice any defects or damages, they must be carefully inspected and repaired immediately, replacing parts of the drivetrain if necessary, and only from a qualified dealer. You of dealers are able to identify any signs of wear and can replace parts that are needed if necessary. Therefore, bring your vehicle to the dealer for testing if necessary.

[Adjustment]

The belt installation tension needs to be tested by professional tools. If you need to test or adjust the belt tension, please go to the vehicle dealer. Do not adjust it yourself.

Belt tension: 65-70HZ; If the user drives intensely for a long time, the recommended tension force is 85-90HZ.

[Replacement]

1. Use tools to disassemble the big pulley and the small pulley;

2. Install the big pulley, small pulley, and transmission belt in the reverse order of disassembly and adjust the tightness of the belt;

3. During the installation and debugging of the belt, attention should be paid to: If the belt is handled incorrectly, the tension cord may break；

This will cause the belt to lose tensile strength and tear, risking failure!

- Avoid kinking, bending, twisting, knotting or flipping the belt, never use it as a belt whip.
- Do not lift the belt with pulleys during installation.
- Do not use (sharp-edged) tools to tamper with the belt.
- Do not oil or lubricate the belt.
- Do not attempt to open or repair the belt.

> ⚠**Note:**
> Before each ride, check whether the transmission system is working properly. If you notice any defects or damage, it is necessary to conduct a careful inspection and repair immediately.

XII、ABS anti-lock braking system

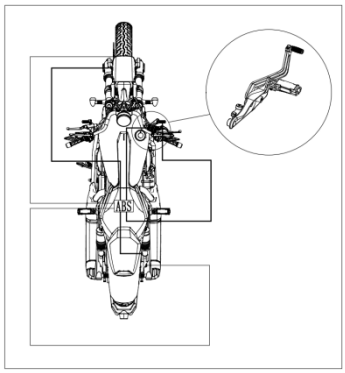


Figure29 ABS system

The ABS consists of a hydraulic unit, an ABS control unit and an oil return pump, mounted under the frame. There is a wheel speed sensor on the front and rear wheels respectively.

The ABS works using two separate brake circuits (front and rear brakes). In normal operating mode, the braking system functions identically to a regular braking system with an unequipped ABS. Only when the ABS control unit recognizes that a wheel tends to lock, the ABS will start to work by adjusting the brake pressure. This adjustment process can be felt by a slight jump on the front brake handle or brake pedal.

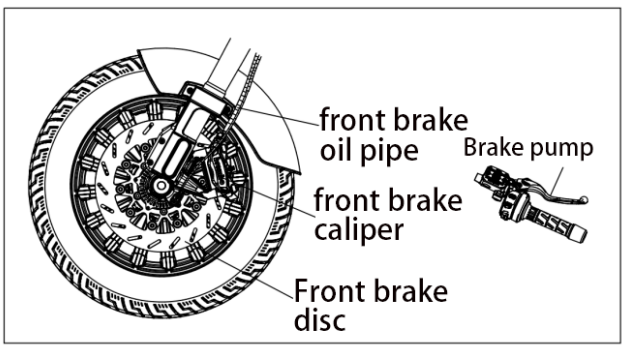
After turning on the ignition switch, the ABS warning indicator light must light up and go out after the starting speed is greater than 5KM/H. If the ABS warning indicator is not extinguished after starting, or lights up during driving, it means that there is a fault in the ABS system. At this time, ABS can no longer be activated, and the wheels may lock when braking.

⚠Warning:

1. Only when the ABS is turned off, the rear wheel can rotate when the front brake is tightened.

2. If modification is made, such as shortening or extending the shock absorption stroke, using other rim diameters, other tires, wrong tire pressure, other brake friction pads, etc., ABS may not continue to function. Optimal ABS functioning is guaranteed only when Benda Motorcycle recommended spare parts and tires are used on the braking system.

XIII、inspection and adjustment of front brakes



[Inspection] (FIG. 30)

● Measure the free stroke of the front brake handle as: 5 ~ 10mm.

● Measure the thickness of the front brake disc and the thickness of the brake friction pad.

● Check the oil level in the oil cup; Check whether the brake caliper is normal; Check the brake oil line and

The brake oil cup has no oil leakage or cracks; Check the brake discs for wear.

● When operating the brake handle, if you feel that the pressure on the handle is insufficient, you should overhaul it in time; Failure to do so will reduce braking performance or brake failure. This work should be completed at "Benda Specialty Store".

Warning:

1. Should be added: non-petroleum-based brake oil of grade DOT3 or DOT4; Different brands cannot be mixed;

2. Brake oil is highly corrosive, so do not splash it on the surface of paint or plastic parts; If you drink it by mistake, you should be forced to spit it out; If it touches the eyes or skin, rinse it immediately with plenty of water and consult a doctor for treatment;

3. Hydraulic disc brakes work under high pressure. In order to ensure safety and reliability, the replacement time of brake friction pads and brake oil cannot exceed the maintenance cycle;

4. When the hydraulic disc brake system needs maintenance, it can only be repaired by professional technicians.

Note:

The brake is an extremely important part to ensure the personal safety of the rider, and the brake should be checked and adjusted frequently.

Replace it with a new brake disc or brake friction pad, and do not drive immediately; The front brake handle should be manipulated (gripped) several times until the brake disc engages well with the brake caliper.

13.1. Check the front brake disc (Figure 31)

The brake disc will gradually wear out during long-term use, so it is necessary to check the thickness of the brake disc at multiple positions of the brake disc. And check its appearance to confirm whether the brake disc is damaged, cracked and deformed.

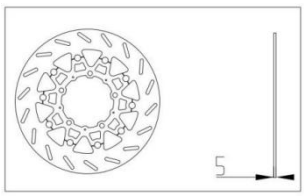


Figure 31 Front brake disc

If the thickness of the brake disc is less than the specified value: Please replace the brake disc.

If the brake disc is damaged, cracked and deformed: replace the brake disc

Thickness of brake disc: not less than 4.5 mm.

Warning:

Due to wear of the brake disc, the thickness of the brake disc within the contact surface of the brake friction pad will be reduced, which will reduce the braking effect and pose a threat to your driving safety. Once there is damage, crack or deformation, please replace the brake disc immediately.

When the brake disc is worn to the limit.When thickness is 4.5 mm, it must be replaced； Remove the front brake caliper and the front wheel and replace the brake rotors.

13.2. Check the friction pads of the front brake (Figure 32)

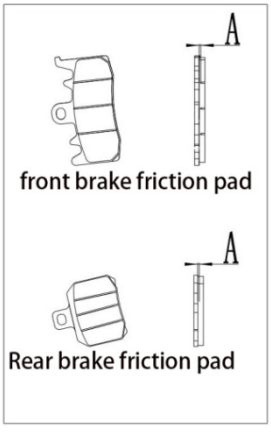


Figure32 Front brake pad inspection

Check the minimum thickness of the brake friction pads (A).

Minimum thickness value of brake friction pad: A = 1.5 mm.

If its thickness is lower than the minimum thickness: Please replace the friction plate in time.

If the friction plate is found to be damaged or cracked: Please replace the friction plate in time.

⚠Note:

Friction plates will gradually wear out during the braking of the vehicle. The braking effect will also gradually decrease. To ensure the safety of you and the vehicle, please check frequently and replace it in time. If you do not know the specifications of the friction plate or cannot replace it yourself, please go to Benda's designated after-sales point for repair.

13.3. Check the brake fluid level of the front brake system

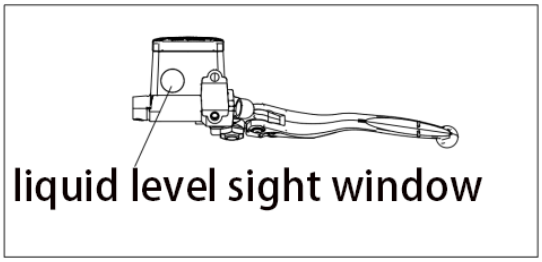


Figure 33 Front Brake Fluid Level Check

Adjust the placement posture of the vehicle so that the brake fluid in the brake fluid irrigation is in a horizontal position, and check the brake fluid level through the fluid level window. When the brake fluid level is below the scale mark: Please replenish the brake fluid in time.

⚠Warning:

If the brake fluid level is below the scale mark, it means that the brake system is not sealed or the brake friction pads have been completely worn. Check the braking system and do not continue driving. Please go to Benda's designated after-sales point for maintenance.

Using the brake fluid for too long will reduce the braking effect, please replace the brake fluid in time.

XIV、Inspection and adjustment of rear brakes

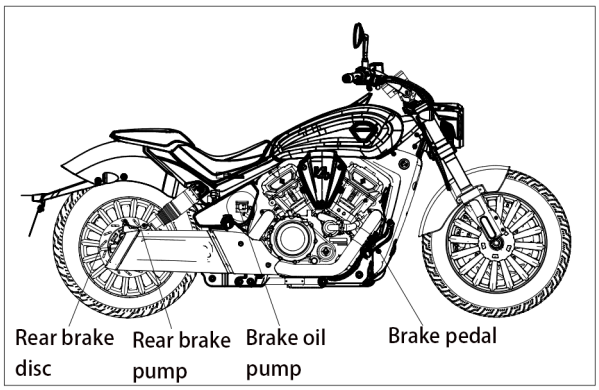


Figure 34 Rear Brake Check

[Inspection] (Figure 34)

●The free stroke of the brake pedal after measurement is: 10 ~ 20mm.

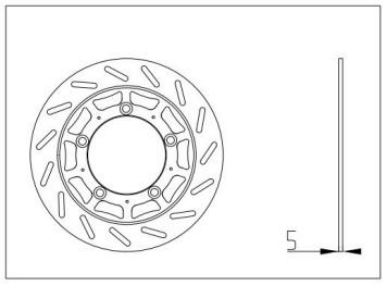
●Measure the thickness of the rear brake disc and the thickness of the brake friction pad.

●Check the oil level in the oil cup; Check whether the brake caliper is normal; Check the brake oil pipe and brake oil cup for oil leakage or cracks; Check the brake discs for wear.

●When operating the brake pedal, if you feel that the pedal pressure is insufficient, then there is air in the brake system; The air of the brake system should be completely discharged before it can be used normally; Failure to do so will reduce braking performance or brake failure. Please ask the professional technicians of the maintenance unit to serve you for this maintenance.

14.1. Check the rear brake disc (Figure 35)

The brake disc will gradually wear out during long-term use, so it is necessary to check the thickness of the brake disc at multiple positions of the brake disc. And check its appearance to confirm whether the brake disc is damaged, cracked and deformed.



If the thickness of the brake disc is less than the specified value: Please replace the brake disc.

If the brake disc is damaged, cracked and deformed: replace the brake disc

Thickness of brake disc: not less than 4.5 mm.

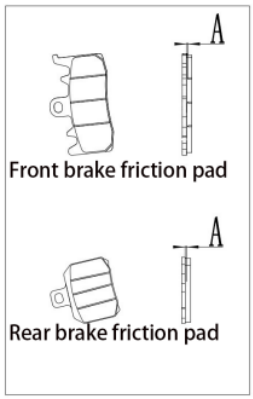
Figure 35 Rear brake disc inspection

Warning:

Due to wear of the brake disc, the thickness of the brake disc within the contact surface of the brake friction pad will be reduced, which will reduce the braking effect and pose a threat to your driving safety. Once there is damage, crack or deformation, please replace the brake disc immediately.

When the brake disc is worn to the limit.At 4.5 mm thickness, must be replaced; Remove rear brake caliper and rear wheels, and then replace the brake disc.

14.2. Check the friction pads of the rear brake (Figure 36)



Check the minimum thickness of the brake friction pads (A).

Minimum thickness value of brake friction pad: A = 1.5 mm.

If its thickness is lower than the minimum thickness: Please replace the friction plate in time.

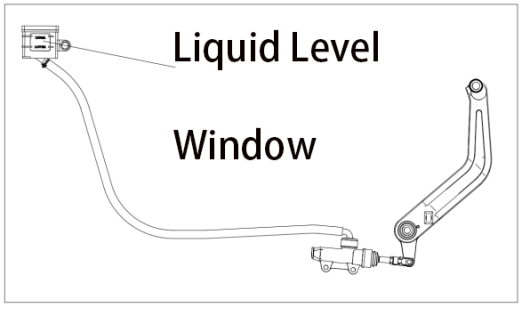
If the friction plate is damaged or cracked, please replace the friction plate in time

Figure 36 Rear Brake Friction Pad Inspection

Note:

Friction plates will gradually wear out during the braking of the vehicle. The braking effect will also gradually decrease. To ensure the safety of you and the vehicle, please check frequently and replace it in time. If you do not know the specifications of the friction plate or cannot replace it yourself, please go to Benda's designated after-sales point for repair.

14.3. Check the brake fluid level of the rear brake system (Figure 37)



Adjust the placement posture of the vehicle so that the brake fluid in the brake fluid tank is in a horizontal position, and check the brake fluid level through the fluid level window.

When the brake fluid level is below the scale mark, please replenish the brake fluid in time.

Figure 37 Rear Brake Fluid Level Check

Warning:
If the brake fluid level is below the scale mark, it means that the brake system is not sealed or the brake friction pads have been completely worn. Check the braking system and do not continue driving. Please go to Benda's designated after-sales point for maintenance.
Using the brake fluid for too long will reduce the braking effect, please replace the brake fluid in time.

XV、Battery maintenance

[Battery Type] (Figure 38)

Model Number:MG14ZS-C

Capacity : 12V 11.2 Ah

Standard charging: 1A ~ 1.4 A × 6 ~ 8 hours

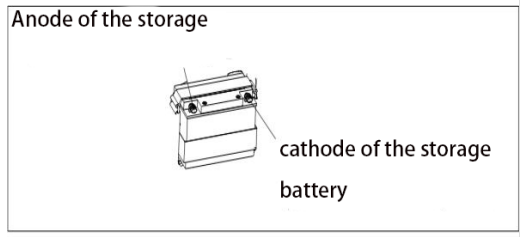


Figure38 Battery

[Disassembly and Mounting of Battery]

Remove:

1. Open the seat cushion lock and remove the seat cushion;
2. Remove the electrical box cover and ECU mounting bracket;
3. First remove the negative lead (—);
4. Remove the positive lead (then);
5. Remove the battery.
6. Pay attention to the orientation of the positive and negative poles of the battery during installation.

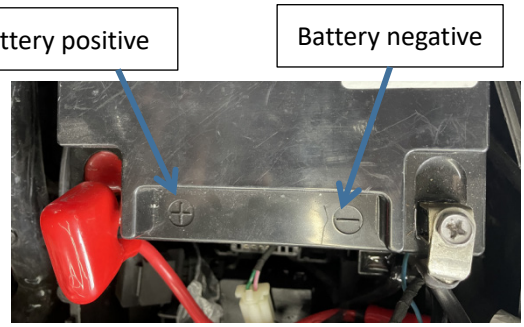


Figure 39 Battery installation

Installation:

1. The installation sequence is reverse to the disassembly step.
2. Install the positive lead (then), and then install the negative lead (—), and ensure that the positive and negative

The terminals are not loose, and the positive and negative poles cannot be connected reversely. Reverse connection can damage electrical parts.

Danger:
Arrange the positive and negative wires of the cable on the left and right sides of the battery for installation (as shown in Figure 39), and install the protective sleeves of the positive and negative terminals in place to avoid short circuit caused by overlapping with the battery pressure plate, causing battery damage, explosion and fire, and even threatening personal safety.

[Battery Charging]

1.Remove the vehicle seat cushion.

2.Remove the electrical box cover, ECU mounting bracket, remove the positive and negative wires, and take out the battery.

3.Connect the charger wire and ensure that the charging current is 1/10 A of the battery capacity. For example, if you charge a battery with a capacity of 10Ah, its charging current is 1 amp.

4.Please contact your dealer for detailed instructions on the charger.

[Battery Inspection and Maintenance]

1.When used regularly, the motorcycle charging system automatically fully charges the battery. If you use the motorcycle occasionally or for a short time, the battery power may be low. The battery will discharge itself, and the speed of its own discharge changes with the battery type and ambient temperature.

2.When the motorcycle is not used for a long time, the battery must be removed and stored after charging, and the battery must be charged regularly;

3.Regularly clean the positive and negative terminals of the battery.

4.When replacing batteries, batteries of the same model and specification should be used.

Danger:

1. Battery terminals, terminals and related components contain lead or lead compounds. If lead or lead compounds enter the blood system, it will harm your health and must be cleaned in time after contact with pollution.

2. The battery must be stored out of the reach of children.

3. The battery contains toxic substances, including sulfuric acid and lead. It will cause harm to people and pollute the environment. Used batteries must be disposed of or recycled in accordance with local laws. It cannot be dismotorcycleded like ordinary domestic garbage.

Note:

1. Overcharging or undercharging the battery will shorten the life of the battery. Don't overcharge or undercharge the battery.

2. If your vehicle is rarely driven, you must use a voltmeter to check the battery voltage every week. If the voltage of the battery is lower than 12.8 V, the battery must be charged with a charger.

3. If you don't use the vehicle for more than two weeks, you must use a charger to charge the battery. Do not use an automatic fast charger to charge the battery, otherwise it may overload the battery and damage the battery.

[Replacement of Fuse]

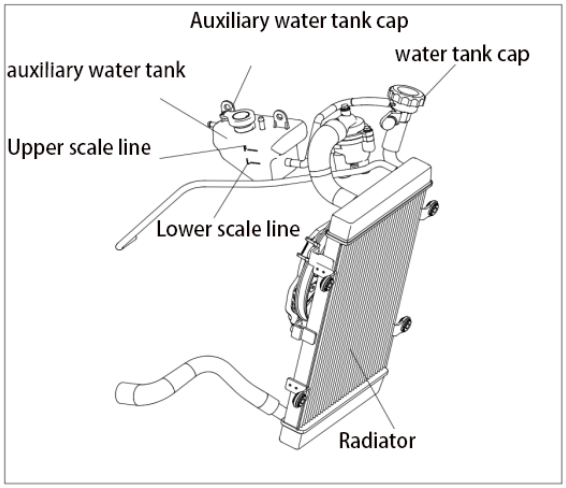
There are a total of six tab fuses in the circuit system. There are 1A fuses 1PCS, 10A fuses 2PCS, 15A fuses 2PCS and 20A fuses 1PCS in the six-way fuse box, totaling 6PCS. There are additional 10A, 15A and 20A spare fuses 1PCS each in the fuse box. In addition, there is a separate 30A fuse 1PCS on the start relay. If the fuse blows frequently, the circuit system is short-circuited or overloaded. Please ask the professional technicians of the maintenance unit to serve you.

When replacing the fuse, unplug the old fuse first and plug in the spare fuse.

Warning:

Before inspecting or replacing the fuse, the ignition switch and the electrical switch must be turned off to prevent short circuits. Never use a fuse that is different from the rated current, otherwise, it will damage the electrical system of the vehicle or cause a fire, and it may also lead to the danger of the lights not being turned on or the engine failing at night or while driving.

XVI、Instructions for the use and maintenance of engine water cooling system



[Cooling System] (Figure 40)

The cooling system can prevent the engine from overheating. Proper use and maintenance of the cooling system can prolong the service life of the engine.

The radiator is located at the front of the engine and should be cleaned up periodically for dust and dirt depending on the condition of the road you are driving.

Figure 40 Cooling system

[Coolant Type]

Coolant has five characteristics: anti-corrosion, anti-cavitation, high boiling point, anti-scaling and anti-freezing.

Coolant is generally made by mixing concentrated antifreeze and soft water (purified water or distilled water) in an appropriate proportion. Please adjust it to a fixed concentration that adapts to the local lowest temperature. Generally, when it is adjusted to a concentration of 40% ~ 50%, the antifreeze function is the best.

Use direct coolant specially designed for aluminum alloy engines. This coolant has been prepared in the factory, containing antifreeze, rust inhibitor, foam inhibitor and trace silicate, etc., and the operating ambient temperature is indicated on the container.

⚠**Note:**

1. This coolant is a special coolant and cannot be replaced by tap water or other liquids, otherwise it may cause engine damage.

2. Please go to the "Benda Store" to purchase direct coolant for aluminum alloy engines.

3. If you need to replace the coolant or if there is coolant leakage, please go to the "Benda Store" for replacement and repair.

[Check coolant capacity]

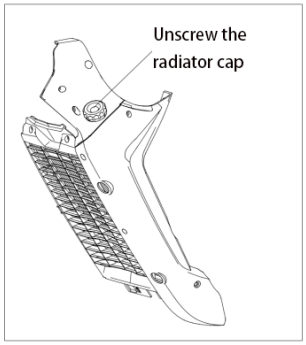
The total amount of coolant in the cooling system is about 2300ml

1. Park the motorcycle on the flat ground with a single support.

2. Check the coolant level when the engine is cooling. The coolant level should be between the upper and lower scale lines.

[Add a small amount of coolant]

If the coolant in the auxiliary water tank is lower than the lower scale mark, please add special coolant to the upper scale mark in time.



[Addition Method]

1. Park the single stay of the motorcycle on the flat ground until the engine cools down; Otherwise, the heat will cause scalding skin;
2. Unscrew the water tank cover and the auxiliary kettle cover;
3. Pour the coolant from the mouth of the water tank, and add the coolant to the upper scale mark;
4. Cover the water tank cover and auxiliary kettle cover.

Figure 41 Adding coolant

[Storage of Coolant]

1. When the coolant is not in use, it should be stored in a special sealed container.

2. It should be placed in a cool and dry place. The coolant is a toxic liquid and must be avoided from children's contact.

3. Pay attention to the fact that the coolant should be strictly prevented from being contaminated by petroleum products, let alone mix or store two different brands of coolant.

⚠Danger:

1. Antifreeze is an organic solvent, which is toxic and corrosive. During use, it is not allowed to spill on the surface of rubber products and paint parts, and it is not allowed to come into contact with human skin. If it is accidentally spilled on rubber products, painted surfaces or people's bodies, rinse it with water immediately.

2. When repairing the engine, if you need to loosen the cylinder nut, please drain the coolant first to prevent the coolant from entering the crankcase.

3. Since the boiling point of antifreeze is higher than that of pure water, when the temperature does not drop (60 ℃) after the engine is running normally or stopping, do not open the radiator cover to avoid burning the body.

XVII、Vehicle cleaning and storage

[Vehicle Cleaning]

1. Motorcycles should be cleaned regularly, so as to find out the damage, wear or oil leakage of the vehicle in time.

2. When cleaning, you must wait for the engine to cool down and rinse it with clean water. After cleaning, dry the motorcycle and start the engine and let it run for a few minutes; Lubricate the chain with lubricating oil; Check the brakes before driving on the road, and the front and rear brakes should be normal.

3. Parts that cannot be sprayed with high-pressure water: headlights, turn signals, ignition switch locks, electrical switches, instruments, electrical parts and circuits, batteries, air filters, wheel hubs, exhaust pipe outlets, under fuel tanks and engine cylinder heads, etc. These parts are best scrubbed with a rag.

4. The braking performance may be reduced after cleaning, so it must be checked by test ride and adjusted and restored before it can be used.

[Vehicle Storage]

After the motorcycle has been used for the day, it should be stored in a safe place that is dry, has a small temperature difference and is well ventilated. If it is to be stored for a long period (more than 30 days), necessary maintenance should be carried out before storing the motorcycle; otherwise, the problems that need to be repaired may be overlooked when it is used after the storage period ends. For long-term storage (more than 30 days), in addition to the above maintenance, the following maintenance requirements should also be followed:

1. Clean and dry the motorcycle, and wax the painted surface of the whole vehicle.

2. Drain the fuel out of the fuel tank and spray rust inhibitor into the fuel tank.

3. Thoroughly drain the engine oil and add new engine oil to the crankcase again.

4. Remove the spark plug and inject a small amount (15 ~ 20 ml) of lubricating oil into the cylinder; Then reinstall the spark plug, open the ignition switch lock, and press the start button for 2 to 3 seconds to distribute the oil evenly on the cylinder wall.

5. Remove the battery, remove the corrosion on the terminals and wiring connectors, and store it in a well-ventilated, dry, cool place away from direct sunlight.

6. Inflate the tires to the specified air pressure, and place the motorcycle above the cushion block, so that the front and rear wheels leave the ground. If the tire pressure is too low, the tires will age prematurely and crack.

7. Cover the air inlet of the air filter and the exhaust port of the exhaust muffler with a rag containing new engine oil to prevent moisture from entering.

8. Cover the motorcycle with highly breathable materials and store it in a dry, safe place with small temperature difference and good ventilation.

[Use after vehicle is stored]

1. Remove the motorcycle cover and clean the motorcycle.

2. Check the voltage of the battery. If the voltage is below 12.8 V, it must be charged at low speed before installing the battery.

3. Remove the rust inhibitor in the fuel tank and add new fuel.

4. Try riding a motorcycle in a safe place to check whether the performance of the motorcycle is normal.

XVIII、Vehicle service life and vehicle disposal

[Vehicle Use Life]

The service life of the vehicle shall be implemented in accordance with the regulations of the traffic management department or the local vehicle management office.

[Vehicle Handling]

1. Disposal of waste engine oil: The waste engine oil replaced by motorcycle should be put into a plastic bucket and handed over to the recycling company for treatment. You cannot discharge waste engine oil at will, otherwise it will cause damage to the site, soil, water source and other environments.

2. Disposal of used batteries, light bulbs, exterior parts, filter elements, tires, iron parts, aluminum parts and other parts: These scrapped parts should be classified and recycled. You can't throw it away at will, let alone dump the dilute sulfuric acid in the battery, causing harm to people or pollution to the environment.

3. After the vehicle is scrapped, please dispose of it in accordance with the vehicle scrapping regulations of the traffic management department or the local vehicle management office.

XIX、Motorcycle adjustment data

Free stroke of front (hand) brake 5 ~ 10mm; Free clearance of throttle handle: 2 ~ 6mm;

Free stroke of rear (foot) brake 10 ~ 15mm; Free stroke of clutch: 5 ~ 10mm;

Spark plug clearance: 0.8 ~ 0.9 mm; Intake valve clearance: 0.14 ~ 0.18 mm;

Exhaust valve clearance: 0.24 ~ 0.28 mm;

Torque value of rear shock absorber fastening bolt: 30 ~ 40 N · m;

Torque value of handlebar fastening bolt: 22-30 N · m;

Torque value of flat fork shaft fastening nut: 70 ~ 90 N · m;

Front wheel axle fastening nut torque value : 70 ~ 90 N · m;

Torque value of steering system fastening nut: 50 ~ 70 N · m;

Rear wheel axle fastening nut torque value: 100-120 N · m;

Torque value of fastening bolts between front shock absorber and upper connecting plate: 10 ~ 14 N · m;

Torque value of front damper and directional column fastening bolt: 20 ~ 25 N · m;

Engine suspension tightening nut torque value: M10: 30 ~ 40 N · m, M12: 50 ~ 60 N · m

XX、Table of main technical parameters

Vehicle Type (Project)		BD500-2
Complete vehicle Parameter	Manufacturer Name	Zhejiang Saturn Power Technology Co., Ltd
	Vehicle Model (Trade Name)	Dark Flag 500commander
	Vehicle brand	BENDA (BENDA)
	Type of vehicle	Regular two-wheeled motorcycle
	Vehicle identification number	H84PDTPAxxxxxxx
	approved passengers capacity	2 people (one driver and one passenger)
	Steering mode	Handlebar
	Gear form	Sixth gear constant mesh
	Braking form	Front wheel: disc Rear wheel: disc
	Brake operation mode	Front wheel: hand brake Rear wheel: foot brake
	Clutch form	Sliding clutch/wet multi-disc
	Start-up mode	Electric start
	Length * width * height	2330*907*1110
	Wheelbase	1575
	Minimum ground clearance	134
	Vehicle curb weight	241
	Maximum load mass	150
	Tank volume	16L
	Number of tires	2
	Front wheel specifications	130/90-16
	Rear wheel specifications	150/80-16
	Ignition method	ECU

Electrical Installation	Spark plug model	CPR8EA-9 (NGK)
	Headlamp specifications	12V LED
	Turn signal specifications	12V LED
	Taillight/Brake Light Specifications	12V LED
	Fuse specifications	Main cables: 1A (1), 10A (2), 15A (2), 20A (1) 10A (1 spare), 15A (1 spare), 20A (1 spare). Start relay: 30A (1)
	Battery specifications	12V 11.2 Ah
Engine	Engine form	V-four cylinder
	Engine model	BD4V53MR
	Compression ratio	11.5：1
	Actual displacement	496
	Maximum net power	40kW/9000rpm
	Maximum torque	42 N • m/6500 rpm
	Bore * stroke	53.5*55.2
	Idle speed	1450±100
	Engine oil	SAE15W-50
	Brand	Grade SN or above
	Oil capacity	4L
	Fuel grade	95 # and above gasoline
	Plug clearance	0.8 ~ 0.9 mm
Gear Ratio	Primary speed ratio	2.17
	First gear ratio	3.071
	Second gear ratio	2.235
	Third gear ratio	1.777
	Fourth gear ratio	1.520
	Fifth gear ratio	1.333
	Six gear ratio	1.214
	Final speed ratio	2.692
Performance	Maximum vehicle speed	160
	Fuel consumption	3.4 L/100km

XXI、Common faults and causes of motorcycles

Phenomenon	Part location	Cause of failure	Disposal Method
Can not start	Fuel system	No fuel in the tank	Refuel
		Clogged or damaged oil pump, poor fuel quality	Clean or replace
	Ignition system	Spark plug failure: excessive motorcycle deposits, too long use time	Check or replace
		Spark plug cap failure: poor contact or burned out Ignition coil failure: poor contact or burned out	Check or replace Check or replace
		CDI failure: poor contact or burnout	Check or replace
		Trigger coil failure: poor contact or burned out	Check or replace
		Stator failure: poor contact or burnout	Check or replace
		Failure of each connecting line: poor contact	Check or adjust
	Cylinder pressure system	Starting mechanism failure: worn or damaged	Check or replace
		Intake and exhaust valve and valve seat failure: the fuel contains too much colloid or has been used for too long	Check or replace
		Cylinder, piston, piston ring failure: fuel gum or worn	Check or replace
		Air leakage in intake pipe: use time too long	Check or replace
		Valve timing failure	Check or replace
Be short of power	Valve piston	Excessive motorcycle deposits in intake and exhaust valves and pistons: poor fuel quality, poor oil quality	Repair or replace
	Clutch	Clutch slippage: poor oil quality, long service time, overload	Adjust or replace
	Cylinder block, ring	Cylinder block and piston ring wear: poor oil quality, too long service time	Oil Change
	Brake	Incomplete brake separation: brakes are too tight	Adjustment
	Belt	Tight belt: Improper adjustment	Adjustment
	Engine	Engine overheating: the mixture is too rich or too thin, and the quality of engine oil and fuel is poor. There are shields, etc.	Adjust or replace
	Spark plug	Improper spark plug clearance, normal 0.8-0.9 mm	Adjust or replace
	Intake pipe	Air leakage in intake pipe: adjust or replace it after too long use	Adjust or replace
	Cylinder head	Cylinder head or valve leakage	Check or replace
	Electrical system	Faulty electrical system	Inspection or repair

	Air filter	Clogged air filter	Cleaning or adjusting
Headlights, taillights do not light up	Cable	Poor line connection	Adjustment
	Left and right switch	Poor or damaged switch contact	Adjust or replace
	Headlamp	Inspection of bulbs and lamp holders	Adjust or replace
Headlights, taillights do not light up	Voltage regulator	Voltage regulator check: poor contact or burn-out	Check or replace
	Magnetor	Magneto coil inspection: poor contact or burned out	Check or replace
The horn doesn't sound.	Battery	The battery is dead	Adjust or replace
	Left switch	Horn button check	Adjust or replace
	Cable	Poor line contact	Adjust or replace
	Megaphone	Horn damage	Adjust or replace

Listed above are the common faults of motorcycles. If your motorcycle breaks down, please go to the designated maintenance unit for inspection and repair in time.

OBD Fault Code Table

Fault Code	Detection component	Test items	Fault trigger condition	Troubleshooting method
P 0031	One cylinder oxygen sensor heating circuit	Low voltage	Turn on the key. If the heating signal of the oxygen sensor is open or short to ground for 1S, it appears more than 15 times out of 20 cycle detections	Oxygen sensor, cable, connector connection
P 0032		High voltage	After the engine is running, if the heating signal of the oxygen sensor is short-circuited to the high level by size 1S, more than 15 times in 20 cycle detection	Oxygen sensor, cable, connector connection
P 0037	Two-cylinder oxygen sensor heating circuit	Low voltage	Turn on the key. If the heating signal of the oxygen sensor is open or short to ground for 1S, it appears more than 15 times out of 20 cycle detections	Oxygen sensor, cable, connector connection
P 0038		High voltage	After the engine is running, if the heating signal of the oxygen sensor is short-circuited to the high level by size 1S, more than 15 times in 20 cycle detection	Oxygen sensor, cable, connector connection
P 0043	Three-cylinder oxygen sensor heating circuit	Low voltage	Turn on the key. If the heating signal of the oxygen sensor is open or short to ground for 1S, it appears more than 15 times out of 20 cycle detections	Oxygen sensor, cable, connector connection

P 0044		High voltage	After the engine is running, if the heating signal of the oxygen sensor is short-circuited to the high level by size 1S, more than 15 times in 20 cycle detection	Oxygen sensor, cable, connector connection
P 0051	Four-cylinder oxygen sensor heating circuit	Low voltage	Turn on the key. If the heating signal of the oxygen sensor is open or short to ground for 1S, it appears more than 15 times out of 20 cycle detections	Oxygen sensor, cable, connector connection
P 0052		High voltage	After the engine is running, if the heating signal of the oxygen sensor is short-circuited to the high level by size 1S, more than 15 times in 20 cycle detection	Oxygen sensor, cable, connector connection
P 0107	Intake pressure 1 circuit	Low voltage	Sensor output voltage less than 0.1 V and more than 3S	Intake pressure sensor, cable, connector connection
P 0108		High voltage or open circuit	Sensor output voltage greater than 4.9 V and more than 3S	Intake pressure sensor, cable, connector connection
P 0109	Intake pressure 1 justification	Performance	After the engine is running in a steady state, the intake pressure reading is below 25kpa and the engine is running for 30S	Intake pressure sensor, cable, connector connection
P 0106		Stuck	During the start-up and operation of the engine, the sudden change of the intake pressure source signal is less than 0.3 V within 30S	Intake pressure sensor, cable, connector connection
P 0102	Intake pressure 2 circuit	Low voltage	Sensor output voltage less than 0.1 V and more than 3S	Intake pressure sensor, cable, connector connection
P 0103		High voltage or open circuit	Sensor output voltage greater than 4.9 V and more than 3S	Intake pressure sensor, cable, connector connection
P 0104	Intake pressure 2 justification	Performance	After the engine is running in a steady state, the intake pressure reading is below 25kpa and the engine is running for 30S	Intake pressure sensor, cable, connector connection
P 0101		Stuck	During the start-up and operation of the engine, the sudden change of the intake	Intake pressure sensor, cable,

			pressure source signal is less than 0.3 V within 30S	connector connection
P 0112	Intake temperature sensor 1 circuit	Low voltage	Sensor output voltage less than 0.1 V and more than 3S	Intake air temperature sensor, cable, connector connection
P 0113		High voltage or open circuit	Sensor output voltage greater than 4.9 V and more than 3S	Intake air temperature sensor, cable, connector connection
P 0111	Intake Temperature Sensor 1 Justification	Stuck	When the vehicle stands for more than 240 minutes, the intake air temperature changes less than 2 ℃ during the 30S before the engine is running.	Intake air temperature sensor, cable, connector connection
P 0114		Unstable	If the key is turned on or the engine is running, the intake air temperature jumps greater than 10 °C every 60S test cycle	Intake air temperature sensor, cable, connector connection
P 0097	Intake temperature sensor 2 circuit	Low voltage	The output voltage of intake temperature sensor is less than 0.1 V and more than 3S	Intake air temperature sensor, cable, connector connection
P 0098		High voltage or open circuit	The output voltage of the intake temperature sensor is greater than 4.9 V and more than 3S	Intake air temperature sensor, cable, connector connection
P 0096	Intake Temperature Sensor 2 Justification	Stuck	When the vehicle stands for more than 240 minutes, the intake air temperature changes less than 2 ℃ during the 30S before the engine is running.	Intake air temperature sensor, cable, connector connection
P 0099		Unstable	If the key is turned on or the engine is running, the intake air temperature jumps greater than 10 °C every 60S test cycle	Intake air temperature sensor, cable,

				connector connection
P 0117	Engine temperature sensor circuit	Low voltage	The output voltage of intake temperature sensor is less than 0.1 V and more than 3S	Engine temperature sensor, cable, connector connection
P 0118		High voltage or open circuit	The output voltage of the intake temperature sensor is greater than 4.9 V and more than 3S	Engine temperature sensor, cable, connector connection
P 0116	Engine temperature sensor reasonableness	Stuck	When the vehicle stands for more than 240 minutes, the engine temperature change value is less than 5 ℃ during the 60S before the engine runs.	Engine temperature sensor, cable, connector connection
P 0119		Out of range	The vehicle stands for more than 240 minutes, and the coolant temperature is 50 °C higher than the intake temperature.	Engine temperature sensor, cable, connector connection
P 0122	Throttle opening sensor 1 circuit	Low voltage	The output voltage of the intake temperature sensor is greater than 0.1 V and more than 3S	Throttle opening sensor, cable, connector connection
P 0123		High voltage or open circuit	The output voltage of the intake temperature sensor is greater than 4.9 V and more than 3S	Throttle opening sensor, cable, connector connection
P 0222	Throttle opening sensor 2 circuit	Low voltage	The output voltage of the intake temperature sensor is greater than 0.1 V and more than 3S	Throttle opening sensor, cable, connector connection
P 0223		High voltage or open circuit	The output voltage of the intake temperature sensor is greater than 4.9 V and more than 3S	Throttle opening sensor, cable, connector connection
P 0226	Throttle opening sensor 3 circuit	Low voltage	The output voltage of the intake temperature sensor is greater than 0.1 V and more than 3S	Throttle opening sensor, cable, connector connection
P 0227		High voltage or open circuit	The output voltage of the intake temperature sensor is greater than 4.9 V	Throttle opening sensor, cable,

			and more than 3S	connector connection
P 2122	Throttle opening sensor 4 circuit	Low voltage	The output voltage of the intake temperature sensor is greater than 0.1 V and more than 3S	Throttle opening sensor, cable, connector connection
P 2123		High voltage or open circuit	The output voltage of the intake temperature sensor is greater than 4.9 V and more than 3S	Throttle opening sensor, cable, connector connection
P 2132	Handle position sensor circuit	Low voltage	The output voltage of the handle position sensor is greater than 0.1 V and exceeds 3S	Rotary handle sensor, cable, connector connection
P 2133		High voltage or open circuit	The output voltage of the handle position sensor is greater than 4.9 V and exceeds 3S	Rotary handle sensor, cable, connector connection
P 0130	One cylinder oxygen sensor circuit	Malfunction	After the engine is running and successfully heated for more than 100 seconds, the sensor output voltage is not within the set range	Oxygen sensor, cable, connector connection
P 0131		Low voltage	After engine operation and successful heating for more than 100 seconds, sensor output voltage below 10mV for more than 10S	Oxygen sensor, cable, connector connection
P 0132		High voltage	After the engine is running and successfully heated for more than 100 seconds, the sensor output voltage is greater than 1200mV for more than 10S	Oxygen sensor, cable, connector connection
P 2195	Rationality of one-cylinder oxygen sensor	PE too thin	When the engine is running in power enrichment mode and the oxygen sensor output voltage is below 200mV for more than 30S	Oxygen sensor, cable, connector connection
P 0133		Slow reaction from thick to dilute	The engine is running in fuel closed-loop control mode and the engine temperature is higher than 60 °C. Every 60S test cycle, the average time from rich to lean is calculated to be greater than 650ms	Oxygen sensor, cable, connector connection
P 0134		Slow reaction	When the engine is running in the fuel closed-loop control mode and the engine	Oxygen sensor, cable, connector

		from dilute to concentrated	temperature is higher than 60 ℃, the average time value of the calculated lean to rich is greater than 650ms every 60S test cycle	connection
P 0136	Two-cylinder oxygen sensor circuit	Malfunction	After the engine is running and successfully heated for more than 100 seconds, the sensor output voltage is not within the set range	Oxygen sensor, cable, connector connection
P 0137		Low voltage	After engine operation and successful heating for more than 100 seconds, sensor output voltage below 10mV for more than 10S	Oxygen sensor, cable, connector connection
P 0138		High voltage	After the engine is running and successfully heated for more than 100 seconds, the sensor output voltage is greater than 1200mV for more than 10S	Oxygen sensor, cable, connector connection
P 2197	Rationality of two-cylinder oxygen sensor	PE too thin	When the engine is running in power enrichment mode and the oxygen sensor output voltage is below 200mV for more than 30S	Oxygen sensor, cable, connector connection
P 0139		Slow reaction from thick to dilute	When the engine is running in the fuel closed-loop control mode and the engine temperature is higher than 60 ℃, the average time value of the calculated cluster rich to lean is greater than 650ms for one test cycle every 60S	Oxygen sensor, cable, connector connection
P 0140		Slow reaction from dilute to concentrated	When the engine is running in the fuel closed-loop control mode and the engine temperature is higher than 60 ℃, the average time value of the calculated lean to rich is greater than 650ms every 60S test cycle	Oxygen sensor, cable, connector connection
P 0143	Three cylinder oxygen sensor circuit	Low voltage	Sensor output voltage below 10mV after engine operation and successfully heated for more than 100 seconds	Oxygen sensor, cable, connector connection
P 0144		High voltage	After engine operation and successful heating for more than 100 seconds, sensor output voltage greater than 1200mV	Oxygen sensor, cable, connector connection
P 2270	Three-cylinder	PE too thin	When the engine is operating in power	Oxygen sensor,

P 0153	Oxygen sensor reasonableness	Slow reaction from thick to dilute	The engine is running in enrichment mode and the oxygen sensor output voltage is less than 200mV	Oxygen sensor cable connector connection
P 0145		Slow reaction from thick to dilute	The engine is running in the fuel closed-loop control mode and the engine temperature is higher than 60 °C, and the average time from rich to lean is calculated every 650ms for one test cycle	Oxygen sensor, connection cable, connector connection
P 0146		Slow reaction from dilute to concentrated	The engine is running in a closed-loop fuel control mode and the engine temperature is higher than 60 °C, and the average time from lean to rich is calculated to be greater than 650ms for one test cycle every 60S	Oxygen sensor, cable, connector connection
P 0154		Slow reaction from dilute to concentrated	The engine is running in a closed-loop fuel control mode and the engine temperature is higher than 60 °C, and the average time from lean to rich is calculated to be greater than 650ms for one test cycle every 60S	Oxygen sensor, cable, connector connection
P 0151	Four-cylinder oxygen sensor circuit	Low voltage	Sensor output voltage below 10mV after engine operation and successfully heated for more than 60S seconds	Oxygen sensor, cable, connector connection
P 0262	One cylinder fuel injector	High voltage	After engine operation and successful heating for more than 100 seconds, sensor output voltage greater than 1200mV	Oxygen sensor, Injector cable, connector connection
P 0152		Open circuit or short to ground	Turn on the key if the one cylinder injector signal is open or	add plug-in
P 2272	Four-cylinder oxygen sensor	PE too thin	When the engine is operating in power enrichment mode and the oxygen sensor output voltage is less than 200mV	Oxygen sensor, cable, connector connection

	circuit		short to ground for more than 2S	connection, injector power supply
P 0262		Over-current/over-temperature or short circuit	Open the key, if one cylinder injector Drive over current/over temperature or short circuit more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0264	Two-cylinder fuel injector Circuit	Open circuit or short to ground	Turn on the key, if the second cylinder injector signal is open or short to ground for more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0265		Over-current/over-temperature or short circuit	Open the key, if Two Cylinder inject or Drive over current/over temperature or short circuit more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0267	Three-cylinder fuel injector circuit	Open circuit or short to ground	Turn on the key, if the three-cylinder fuel injector signal is open or short to ground for more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0268		Over-current/over-temperature or short circuit	Open the key, if Three Cylinder inject or Drive over current/over temperature or short circuit more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0270	Four-cylinder fuel injector circuit	Open circuit or short to ground	Turn on the key, if the four-cylinder injector signal is open or short to ground for more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0271		Over-current/over-temperature or short circuit	Open the key, if Four Cylinder inject or Drive over current/over temperature or short circuit more than 2S	Injector, cable, add plug-in connection, injector power supply
P 0691	Fan relay circuit	Open circuit or short to ground	Turn on the key if the fan relay circuit is open or shorted to ground more than 2S	Fan relay, connection cable, power

				supply
P 0692		Over current or short circuit	Open the key if the fan relay circuit is over current or shorted to ground for more than 2S	Fan relay, connection cable, power supply
P 0231	Oil pump relay circuit	Open circuit or short to ground	Open the key, if the oil pump relay circuit is open or shorted to ground more than 2S	Oil pump relay, connection cable, power supply
P 0232		Over current or short circuit	Open the key, if the oil pump relay circuit is over current or shorted to ground for more than 2S	Oil pump relay, connection cable, power supply
P 0336	Crankshaft position sensor circuit	Noisy signal	If the magneto rotor tooth error occurs for 50 consecutive cycles after engine operation	Crankshaft sensor, cable, connector connection
P 0335		No signal	If the tooth signal does not reach the ECU for more than 2 seconds after the engine is running	Crankshaft sensor, cable, connector connection
P 2300	One cylinder ignition coil circuit	Open circuit or short to ground	Turn on the key if the one cylinder ignition coil circuit is open or short to ground	Ignition coil, cable, connector connection, battery power supply
P 2301		Electrical short circuit	Open the key, if the ignition coil circuit of one cylinder is electrically shorted for more than 2S	Ignition coil, cable, connector connection, battery power supply
P 2303	Two-cylinder ignition coil circuit	Open circuit or short to ground	Turn on the key if the second cylinder ignition coil circuit is open or short to ground	Ignition coil, cable, connector connection, battery power supply
P 2304		Electrical short circuit	Turn on the key, if the second cylinder ignition coil circuit is shorted more than 2S	Ignition coil, cable, connector connection, battery power

				supply
P 2306	Three-cylinder ignition coil circuit	Open circuit or short to ground	Turn on the key if the three-cylinder ignition coil circuit is open or short to ground	Ignition coil, cable, connector connection, battery power supply
P 2307		Electrical short circuit	Open the key, if the three-cylinder ignition coil circuit is electrically shorted for more than 2S	Ignition coil, cable, connector connection, battery power supply
P 2309	Four-cylinder ignition coil circuit	Open circuit or short to ground	Open the key if the four-cylinder ignition coil circuit is open or short with the ground	Ignition coil, cable, connector connection, battery power supply
P 2310		Electrical short circuit	Open the key, if the four-cylinder ignition coil circuit is electrically shorted for more than 2S	Ignition coil, cable, connector connection, battery power supply
P 2103	Throttle actuator 1 drive circuit	Electrical short circuit	Open the key if the throttle actuator drive circuit is electrically shorted for more than 2S	Throttle actuator, cable, connector connection
P 2102		Short circuit to ground	Turn on the key if the throttle actuator drive circuit is shorted to ground for more than 2S	Throttle actuator, cable, connector connection
P 2100		Open circuit	Open the key if the throttle actuator drive circuit is open for more than 2S	Throttle actuator, cable, connector connection
P 0300	Misfire detection	Random/multiple detected	After engine operation, the total misfire event count exceeds 100 in 2000 engine cycles	Ignition coil, spark plug, etc. Engine/Engine Management Department
P 0301		Misfire in one cylinder	One cylinder misfire event count exceeds 100 in 2000 engine cycles after engine operation	Ignition coil, spark plug, etc. Engine/Engine Management

				Department
P 0302		Second cylinder misfire	Two-cylinder misfire event count exceeds 100 in 2000 engine cycles after engine operation	Ignition coil, spark plug, etc. Engine/Engine Management Department
P 0303		Three-cylinder misfire	After engine operation, three cylinder misfire event count exceeds 100 in 2000 engine cycles	Ignition coil, spark plug, etc. Engine/Engine Management Department
P 0304		Four-cylinder misfire	Four-cylinder misfire incident count exceeds 100 in 2000 engine cycles after engine operation	Ignition coil, spark plug, etc. Engine/Engine Management Department
P 0458	Motorcycle canister solenoid valve circuit	Open circuit or short to ground	Open the key if the motorcycle canister solenoid circuit is open or short to ground	motorcycle canister solenoid, cable/connector connection, battery power supply
P 0459		Electrical short circuit	After the engine is running, if the canister battery valve circuit is short-circuited for more than 2S	Motorcycle canister solenoid, cable/connector connection, battery power supply
P 0562	Battery voltage	Excessive	Turn on the key, battery voltage above 16V, over 10S	Battery, ECU cable/connector connection
P 0563		Too low	Turn on the key, battery voltage below 9V for more than 10 seconds	Battery, ECU cable/connector connection
P 0560	Charge rectifier voltage	Excessive	After the engine is running, the system supply voltage is high	Rectifier, ECU cable/connector connection
P 0561		Too low	System supply voltage is low	Rectifier, ECU

			after engine operation	cable/connector connection
P 0650	Fault lamp circuit	Malfunction	After the engine is running, if the fault lamp circuit is over-current/over-temperature or electrical short for more than 2S	Fault lamp, cable/connector connection
P 0500	Vehicle speed sensor	No signal	The engine is running in a steady state, and if the engine speed is higher than 3000rpm, the intake pressure is higher than 50kpa	Vehicle speed sensor, ECU cable/connector connection
P 0601	Stored checksum	Non-compliance	After the key is turned on, if the current checksum value	ECU Data/Program Version

Listed above are common fault codes for motorcycles. If your motorcycle breaks down, please go to the designated maintenance unit for inspection and repair in time.

Remember: You can't deal with motorcycle failure by yourself, otherwise it will easily cause potential safety hazards or safety accidents. If you handle the motorcycle failure yourself, you are responsible for causing the safety accident.

XXII、 BD500-2A electrical circuit diagram

XXIII、 BD500-2A airbag suspension electrical circuit diagram

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