Foreword

Dear users,

Thank you for choosing BD125-30 two-wheel motorcycle designed and produced by our company! This model is developed and produced in combination with advanced technology and avant-garde design concepts at home and abroad. We hope it will bring you a safe driving process and a comfortable driving experience!

Please read all the provisions and requirements in this manual thoroughly before driving the motorcycle!

This manual outlines the repair and maintenance of this motorcycle. Please follow the procedures herein!

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

We have been committed to improving the customer satisfaction through continuous improvement of the product quality and performance. Considering this, we may introduce changes in color and structure, and thus differences from the information herein may be involved. The pictures in this manual are for reference only, and the actual product shall prevail.

Thank you again for your attention and trust in us!

Hangzhou Saturn Power Technology Co., Ltd.

Important precautions

When operating and driving the motorcycle, please operate according to the provisions of this manual, strictly abide by national and local traffic laws and regulations, and always pay attention to personal safety!

This Operation and Maintenance Manual is one of the necessary accessories of the motorcycle. Please hand it over together with the motorcycle to the new user when the motorcycle is sold.

The copyright of this Operation and Maintenance Manual is owned by Hangzhou Saturn Power Co., Ltd. Reproduction is not allowed without the written consent of the Company, and offenders will be prosecuted.

This Manual is prepared in accordance with the provisions of GB/T9969-2008 and GB/T19678-2005.

Danger/Warning/Caution

Please read this manual thoroughly and keep the operation essentials in mind.

DANGER:
This word indicates a precaution related to personal safety of the driver which, if ignored, may lead to personal injury.

DANGER:
This word indicates a precaution for operation to avoid damage to the motorcycle.

CAUTION:
This word indicates a special explanation for the convenience of maintenance or to make important instructions clearer.

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I. Notice to users

1.1. Safety instructions for motorcycle drivers

For your personal and motorcycle safety, please observe the following six regulations:

① . Wear various safety protection articles correctly

Riding protective equipment includes safety helmets, goggles, knee pads, elbow pads, gloves, etc. Wearing protective equipment can greatly reduce the injury to your body in case of accidental fall and protect your personal safety to the maximum extent.

② Be familiar with the motorcycle structure

The driver's driving skills and knowledge of the motorcycle are the basis of safe driving. Before driving, the driver needs to practice in an open area without other motorcycles and be fully familiar with the motorcycle and the way to operate it.

③ Understand the safe speed range under your control

The driving speed depends on the ground conditions, your own skills and the weather. Always drive at a safe speed within your skill range. Your knowledge of your safety speed limit will prevent the occurrence of accidents.

④ Wear appropriate clothing

Loose, bizarre clothing will make you uncomfortable and unsafe while driving. Wearing suitable clothing during driving will allow you to move your hands, feet and whole body freely. Therefore, try to choose high-quality tight clothing.

⑤ Conduct inspection before driving

Please carefully read the instructions in the section "Inspection before driving" in this manual. Driving according to the rules can ensure the safety of you and passengers.

⑥ Pay more attention to safety when driving in rainy days

Pay more attention in rainy days, keep in mind that the braking distance is twice that of sunny days, and be cautious of slipping when avoiding manhole covers, paint marks and oily roads during driving.

1.2. Location of number (Figure 1)

① Vehicle identification number (VIN): right side of frame riser;

② Nameplate: right bent tube of frame;

③ Engine number: above the left tank body.

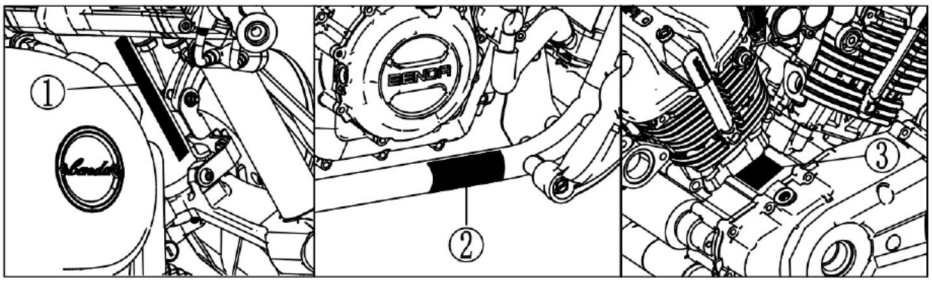


Figure 1 Location of Nameplate, VIN and Engine Number

Please fill in the VIN and engine number below for future reference:

VIN	
Engine number	

II. Introduction to Benda two-wheel motorcycle

The Benda two-wheel motorcycle features a compact structure, a novel appearance with a unique style, and a good riding comfort and driving stability. The adoption of electronic fuel injection (EFI) system makes it more environment-friendly, with low fuel consumption and emission meeting the national emission requirements.

Benda two-wheel motorcycle will bring you an unprecedented driving experience!

2.1. Scope of application of Benda two-wheel motorcycle

BD125-30 is a two-wheel motorcycle independently developed by Benda, which is suitable for both urban and rural roads.

2.2. Features of Benda two-wheel motorcycle

1. Strong power and heavy load.
2. Large torque and strong gradeability.
3. EFI (electronic fuel injection) system.
4. Advanced and professional water-cooled engine in China.
5. "Full DC power supply system".

2.3. Load regulations

Seating capacity: 1 person.
Maximum allowable load: 75kg.

2.4 Fuel

Fuel grade: 92# and above unleaded gasoline.
The gasoline is highly flammable. Therefore, if the fuel tank, fuel filter, fuel pipe, throttle valve body and other parts of the motorcycle incur leakage due to damage and aging, be sure to repair the concerning part in time before use.
Unleaded gasoline can prolong the service life of spark plug and muffler.

2.5 Electrical appliances

Neither retrofit or modify the lines of the motorcycle without authorization, nor increase the power of electrical equipment or install additional electrical equipment. Otherwise, the electrical system will be overloaded, which will cause the line to overheat, resulting in fuse melting or short circuit, and even spark and more dangerous incident such as fire.

⚠ DANGER:
We will not be responsible for consequences arising from retrofitting or modification of the lines of the motorcycle, or power increase or addition of electrical equipment.

2.6. Inspection

You are required to maintain the listed parts and components in strict accordance with the requirements in the "Maintenance Schedule".

III. Safe driving of motorcycle

This motorcycle features a two-wheel configuration and will bring convenience and speed to the rider. In order to ensure the best performance of your motorcycle, be sure to maintain your motorcycle correctly. The motorcycle that you use must be in a safe and normal condition; And you are required to be in a good health state during driving or riding, allowing yourself to control the motorcycle in the best way.

⚠ DANGER:
When driving a motorcycle, traffic regulations must be observed; Before driving, the motorcycle must be carefully inspected.

3.1. Safe driving rules

1. Before starting the motorcycle, carefully check the motorcycle to confirm that it is in a safe and normal condition, which can avoid accidents and damage to parts and components.

2. Do not drive a motorcycle until you have passed the examination of the traffic management authority and obtained the "motorcycle driver's license"; Do not lend the motorcycle to people without a "motorcycle driver's license".

3. In order to avoid injury:

● Wear eye-catching clothes.

● Do not drive too close to other motor vehicles, and use turn signal, horn and brake light correctly.

● Do not drive in the blind spot of other traffic users.

4. Strictly abide by traffic regulations.

● Speeding is the main cause of motorcycle accidents. In case of rain and snow, gravel roads, intersections and other road conditions, be sure to drive at a low speed or slow down carefully.

● When turning and changing lanes, always turn on turn signals and other signal devices to attract the attention of other drivers.

5. When you are the driver, hold the steering handlebar with both hands and step on the front steps with both feet; When you are the passenger, hold the passenger holds or the driver's waist with both hands, and step on the rear steps with both feet.

3.2. Safety protection articles

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

2. The temperature of the exhaust muffler is high during driving. In order to avoid contact scalding, the driver and passengers should wear long boots and other protective equipment.

3. Do not wear loose clothing to prevent them from being caught by handlebar, clutch lever, steps or adjacent vehicle, which may cause accidents.

3.3. Modification

⚠ WARNING:

1. Modifying the motorcycle or replacing its original devices without authorization is illegal and may endanger the driving safety. Therefore, you must comply with the regulations of the traffic management authority on the use of motorcycles.

2. In order to ensure that the exhaust emission meets the national emission requirements, do not modify or remove the following parts and components without authorization.

1) Do not adjust the idle speed without authorization;

2) Since the exhaust muffler is equipped with an optimized catalyst, if the exhaust muffler is damaged, please go to the designated maintenance workshop for maintenance or replacement.

3. If your have good modification suggestions, please write to us, and we will be responsible for their implementation after confirmation. We shall not be responsible for any adverse consequences arising from unauthorized modification.

⚠ DANGER:

If you modify cables and electrical appliances without authorization, and dangerous consequences including short circuit, fuse blowout, electrical appliance overloading, electrical spark and fire occur thereafter, we will not be responsible for them.

⚠ CAUTION:

Improper loading or overloading will cause performance degradation of the motorcycle and affect its driving stability.

The modification or removal of original accessories of the motorcycle may lead to reduced safety or violation of laws. Therefore, be sure to follow all local regulations.

When you use the motorcycle to transport goods:

1. Keep the center of weight (center of gravity) of the cargo low and close to the center of the motorcycle.
2. Adjust the tire pressure according to the load and driving conditions.
3. Always secure all goods firmly on the motorcycle to ensure stable operation.
4. Do not attach large and heavy objects to the steering handlebar, front shock absorber or front mudguard, otherwise it will cause unstable driving or poor steering.
5. Never load the motorcycle above the maximum load (75kg).

3.4 Accessories

The original accessories of this motorcycle have been tested by us before delivery. Therefore, we will not be responsible for the adverse consequences caused by the installation of non-genuine accessories.

When any non-original accessory is installed, make sure to check for: obstructed field of view, ground clearance, side tilt angle, steering flexibility, operation convenience, and accessory performance. If any of the problems is found, remove the accessory concerned before use.

IV. Operation instructions

4.1. Component location

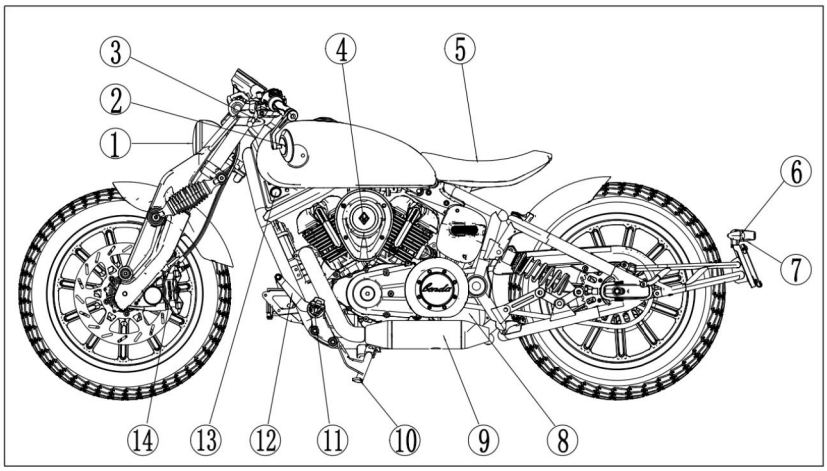


Figure 2

1. Left body (Figure 2)

(1) Headlight
(2) Left rearview mirror
(3) Left front turn signal
(4) Air filter
(5) Seat cushion
(6) Left rear turn signal
(7) Rear license plate light
(8) Battery (inside the protective cover)
(9) Left exhaust muffler
(10) Side stand
(11) Front left step
(12) Shift lever
(13) Ignition switch
(14) Front brake caliper

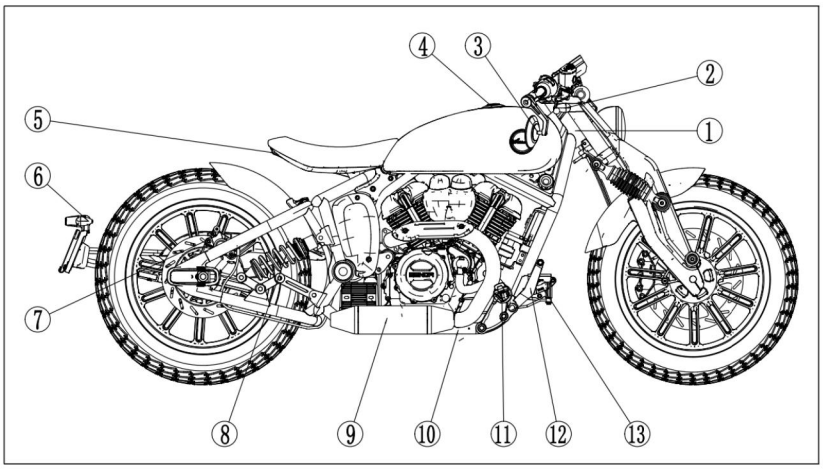


Figure 3

2. Right body (Figure 3)

(1) VIN
(2) Right front turn signal
(3) Right rearview mirror
(4) Fuel tank cap
(5) Taillight
(6) Right rear turn signal
(7) Rear brake caliper
(8) Rear shock absorber
(9) Right exhaust muffler
(10) Motorcycle nameplate
(11) Right front step
(12) Brake pedal
(13) Rear brake master cylinder

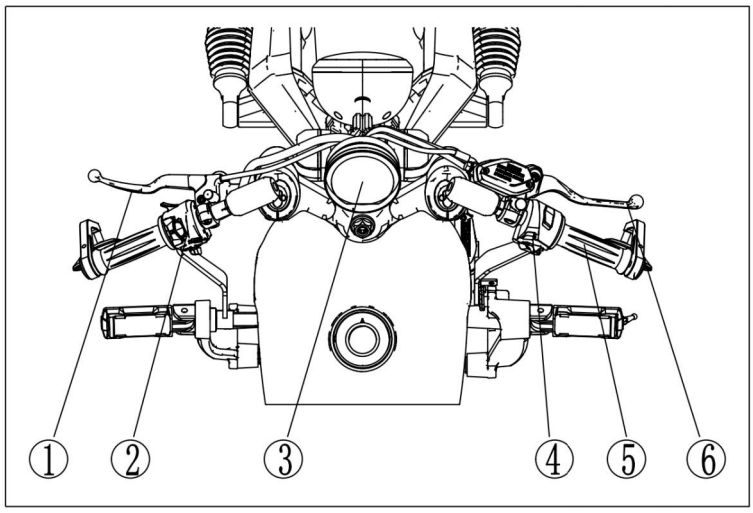


Figure 4

3. Front body (Figure 4)

(1) Clutch lever
(2) Left combination switch
(3) Instrument
(4) Right combination switch
(5) Throttle grip
(6) Front brake lever

4.2. Instrument

Please refer to Table 1 for the name and function of the indicator lights.

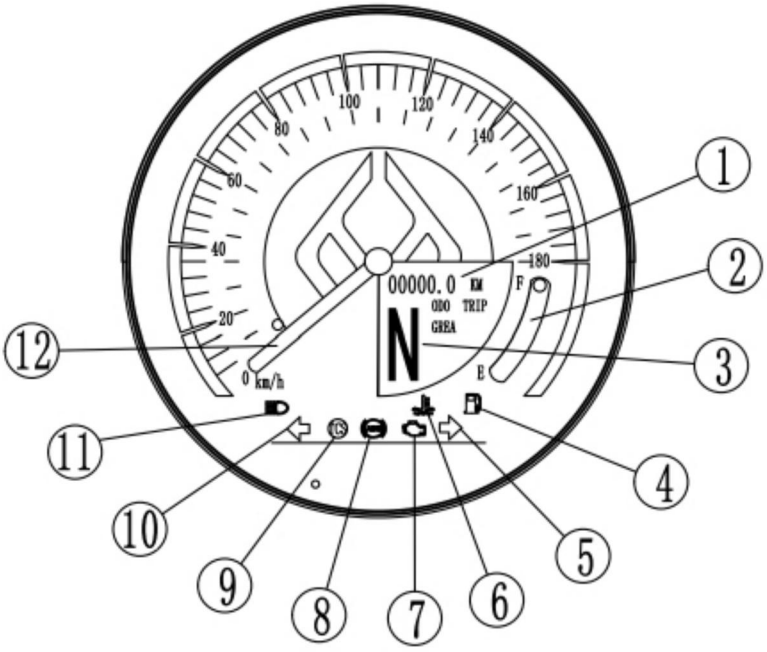


Figure 5

S/N	Description	Function
1	Mileage indicator	Display the total mileage of the motorcycle
2	Fuel level indicator	Display the remaining fuel level of the fuel tank
3	Gear indicator	Display the gear of the engine
4	Fuel level alarm indicator	Indicate for an immediate refueling when the gasoline level in fuel tank is too low
5	Right turn indicator	It is on in green when the front and rear right turn signals flash
6	Coolant temperature alarm indicator	It is on in red in case of coolant overheating or cooling system fault
7	EFI fault indicator light	It goes out after the engine starts running, and goes on in yellow and then flashes when EFI system is faulty
8	ABS indicator	Display ABS status
9	TCS indicator	Display TCS status
10	Left turn indicator	It is on in green when the front and rear left turn signals flash
11	High beam indicator	It is on in blue when the high beam is on
12	Speed indicator	Display the instantaneous speed of the motorcycle

Table 1

4.3. Ignition switch

The ignition switch lock (Figure 6) is set in front of the handlebar, and the ignition switch must be turned on before starting the motorcycle. The key position and function are shown in Table 2.

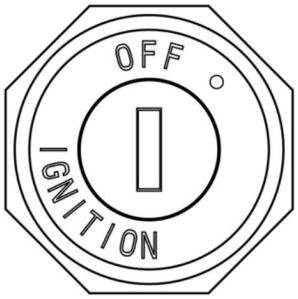


Figure 6

Key position	Function	Key status
OFF	The electric circuit is disconnected and the engine cannot be started	The key can be pulled out
ON "○"	The electric circuit is closed and the engine can be started	The key cannot be pulled out
⚠ **CAUTION:** **1. When the motorcycle is not in use, turn the key to the "OFF" position and take out the key.**		

Table 2

The steering lock (Figure 7) is installed at the lower connecting plate of the motorcycle. Lock the steering mechanism when the motorcycle is parked and not in use.

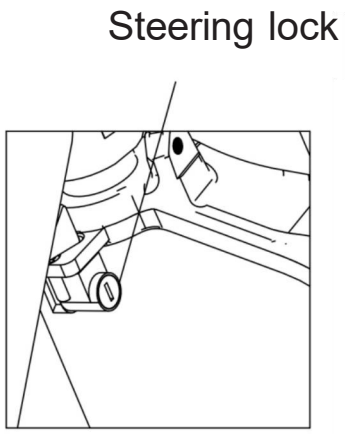
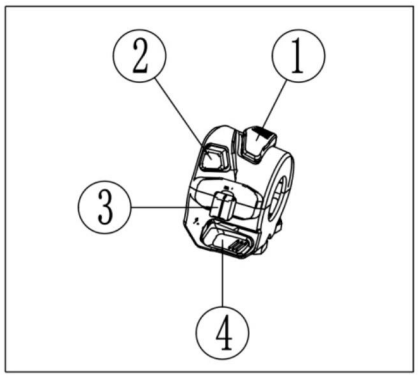


Figure 7

⚠ **CAUTION:**

Before locking the steering mechanism, park the motorcycle properly. After the steering mechanism is locked, do not push the motorcycle, because it is not easy to maintain its balance and rollover is likely to occur in this case.

4.4. Right combination switch (Figure 8)



① Shutdown switch

② Left and right flashing light switch

③ Headlight and position light switch

④ Electric start button

Figure 8 Right Combination Switch

1. Shutdown switch

The shutdown switch is located on the right side of handlebar, and it has two positions: "" and "".

OFF ""	Shutdown switch OFF - the ignition circuit is disconnected at this position, the engine is shut down, and cannot be started.
ON ""	Shutdown switch ON - it is required to switch to this position during operation, and the ignition circuit is closed.

2. Headlight and position light switch

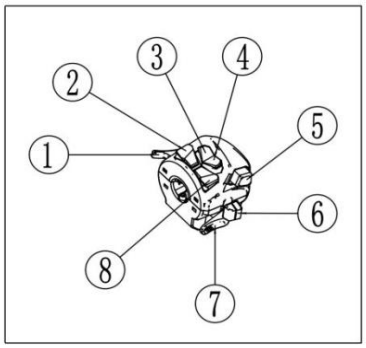
Headlight and position light switch has three positions: "", "" and "●"

Headlight ""	When the switch is turned to this position, the headlight, position light and taillight are on.
Position light ""	When the switch is turned to this position, the position light and the taillight are on.
OFF "●".	When the switch is turned to this position, the headlight, position light and taillight are off.

3. Electric start button

The operation method is as follows: After completing the starting preparation (see page 12), press the electric start button "", and turn throttle grip as necessary to accelerate to start engine.

4.5. Left combination switch (Figure 9)



① Overtaking light button
② SET button
③ ABS switch
④ TCS switch
⑤ Headlight dimmer switch
⑥ Turn signal switch
⑦ Horn button
⑧ MODE button

Figure 9 Left Combination Switch

1. Overtaking light switch

When the "Overtaking light button" is pressed, the overtaking light will be on;

When the "Overtaking light button" is released, the overtaking light will be off.

⚠ **CAUTION:**

When headlight is in high beam mode "", the overtaking light does not work.

2. ABS switch

When the motorcycle is stationary, press and hold this switch for three seconds and then release.

At this time, the fault indicator light will flash at a frequency of 1 HZ, indicating that the ABS has been turned off.

If the switch is pressed continuously for more than ten seconds, the ABS will remain on; After the motorcycle is powered on again, the ABS will also be restored.

When the switch is pressed again with the ABS off, the ABS will be turned on again.

① When ABS is not initialized and fails: ABS indicator light is always on.

② When the ABS is turned off: the ABS indicator light flashes.

③ When the ABS is turned on: the ABS indicator light goes out.

Initialization conditions: the speed is greater than 5 Km/h after starting.

3. TCS switch

Each time the motorcycle is powered on, the TCS is activated by default.

When the switch is pressed and held for more than two seconds, the TCS indicator light will flash at a frequency of 2 HZ, indicating that it can be released.

At this time, if the switch is released, the TCS indicator light is always on, and he TCS function is turned off.

Press the switch again, and the TCS will be restored.

① Before initialization: the TCS indicator light is always on.

② After initialization: the TCS indicator light goes out.

③ When TCS is working: the TCS indicator light flashes at 2 HZ.

The conditions for initialization are as follows: engine started, speed greater than 1 Km/h and no active fault.

⚠ WARNING:

TCS, or Traction control system in full name, is designed to prevent the driving wheels slipping when the motorcycle starts and accelerates, so as to maintain stability of the motorcycle's driving direction. When the TSC is turned off, the motorcycle may slip and roll over. Please operate carefully!

4. Headlight dimmer switch

The headlight switch has two operating states: when ignition switch is turned on and the " headlight and position light switch" is turned to "☼" position

Low beam "≡D"	Turn the " headlight dimmer switch" to "≡D" position to switch to low beam status
High beam "≡D"	Turn the "headlight dimmer switch" to "≡D" position to switch to high beam status.

⚠ WARNING:

Please change the high beam and low beam status according to the road conditions. If there is an oncoming vehicle, please adjust to the low beam status to avoid the dazzling light affecting the driving status of the oncoming vehicle's driver and causing traffic accidents.

5. Turn signal switch

To turn left, turn the "turn signal switch" to "⇦" position; The left front and rear turn signals, and the left turn indicator light in the instrument panel are on.

To turn right, turn the "turn signal switch" to "⇨" position; The right front and rear turn signals, and the right turn indicator light in the instrument panel are on.

Turn the "turn signal switch" to the "middle" position; Then the left and right turn signals and turn indicator lights are off.

⚠ WARNING:

When turning or lane change is required, the turn signal switch must be turned on until the turning or lane change is completed.

4.6. Fuel tank cap opening method (Figure 10)

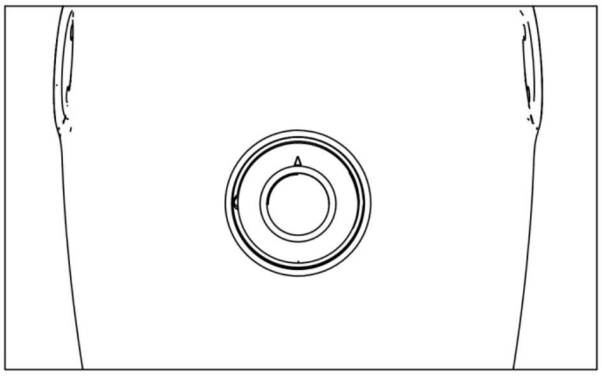


Figure 10 Fuel Tank Cap

Rotate and open the small cover of the keyhole, insert the key into the fuel tank keyhole, and rotate it clockwise to disengage the fuel tank lock; To close the fuel tank cap, turn the key clockwise, put the lock into the fuel filler, release the key, and press it hard with " △ " facing straight ahead until a click sound is heard. Finally, close the small cover of the keyhole.

4.7. Tires

Correct tire pressure will ensure stable driving, comfortable driving and long tire service life. Be sure to check the tire pressure when the tire is "cold".

Refer to Table 3 for tire specifications and tire pressure:

Tire pressure in cold state	Single rider		
	kPa	kgf/cm^2	psi
Front wheel	225	2.25	33
Rear wheel	225	2.25	33

Table 3

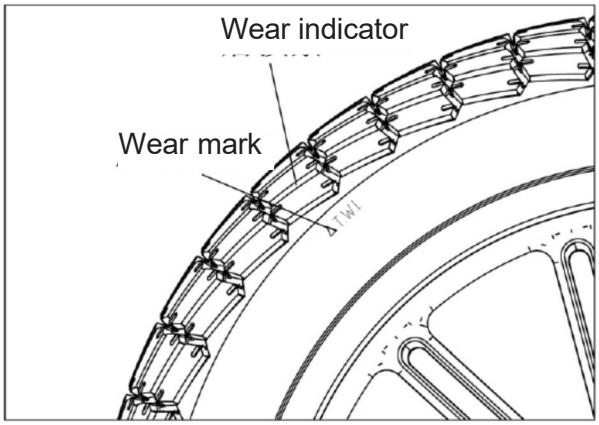


Figure 11 Tire Inspection

Determine the tire status. Incorrect tire specifications will affect the maneuverability of the motorcycle. Damage and scratches on the tires will cause tire failure and make the motorcycle out of control. Excessive wear tires can cause the tires to puncture and the motorcycle to lose control. Tire wear also affects the appearance and maneuverability of the tire.

Check the condition and pressure of the tires before use every day. If there are many obvious defects on the tire, such as damage, scratch, or the tire wear reaches the limit position, make sure to replace the tire.

⚠ CAUTION:

1. When you feel the tire pressure drop, check whether there are nails, small holes on the tire, and whether the side of the rim is damaged. Tubeless tires will gradually deflate when they have small holes.

2. Incorrect tire pressure can cause abnormal tread pattern wear, which may cause safety accident.

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

⚠ WARNING:

1. The triangle mark indicates the position of the wear indicator. If the wear indicator touches the ground, it indicates that the tire has been worn to the limit. The tire must be replaced.

2. When replacing the tire, make sure that the size and model of the replacement tire shall comply with the specifications of the Main Technical Parameters Table on Page 30. If a tire of different size or different model is replaced, the handling performance of the motorcycle will be affected, which may cause the motorcycle to lose control.

3. Balance the wheels after repairing or replacing the tire. It is very important to balance the wheels correctly to avoid uneven contact between the tires and the road surface and uneven wear of the tires.

⚠ DANGER:

1. The tubeless tire is sealed at the contact part between the rim and the bead. In order to avoid air leakage, the removal and installation of the tubeless tire requires special tools to protect the rim and the bead, and a special tire disassembling machine is required.

2. To repair the small hole of the tubeless tire, remove the tire and patch the inner side of the tire. Do not use the external repair method, because the centrifugal force of the tire will loosen the repairing patch during turning. Do not drive at a speed above 80km/h within 24 hours after the tire is repaired, and at a speed above 130km/h thereafter. At a speed higher than the specifications here, the heat generated by the tire will increase sharply, which will make the repair fail and cause tire leakage. If the side of the tire is damaged, or the tire is damaged by more than 6mm, repair is not allowed for use.

4.8. Headlight pitch angle adjustment (Figure 12)

Users different in body height and observation habits have different requirements for lighting at night. Users can adjust the headlights according to their own needs. The adjustment method is as follows:

Step 1: Loosen the upper and lower fixing screws of the headlight with an 10# open-end wrench and a 5# socket wrench.

Step 2: After loosening the screws, gently rotate the headlight up and down with the lower fixing screw as the axis, adjust it to the proper position, and tighten the screws.

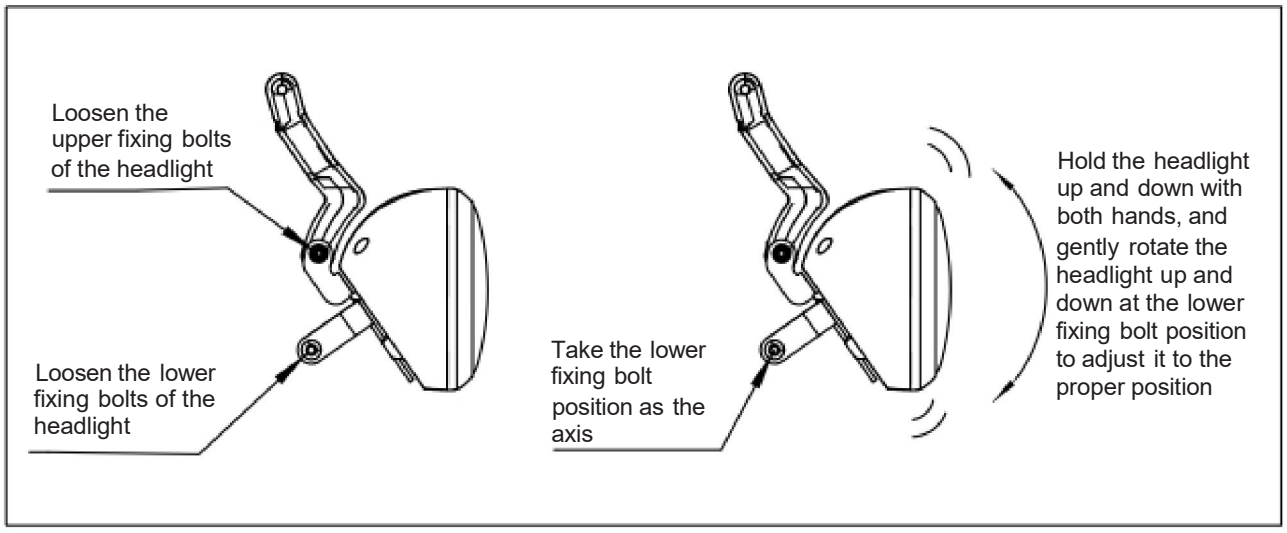


Figure 12

⚠ CAUTION:

The rotation limit of the pitch angle of the headlight is about 5 degrees.

V. Operation guidance

5.1. Running-in

Running-in period refers to a method to run in a new motorcycle during the initial use to ensure that the joint surface between parts reaches the best mating state. Proper running-in can maximize the service life of the motorcycle.

Running-in mileage: 1500 km.

1. During the running-in period, it it not allowed to drive with throttle fully opened, and the maximum rotational speed of the engine shall not exceed 6500 rpm (see the instrument). The speed shall be controlled in the following range:

0~300km of running-in:

The throttle grip shall not be rotated by more than 1/2 of the maximum travel; The speed shall be controlled within 50km/h.

300~600km of running-in:

The throttle grip shall not be rotated by more than 2/3 of the maximum travel; The speed shall be controlled within 60km/h.

600~1500km of running-in:

The throttle grip shall not be rotated by more than 3/4 of the maximum travel; The speed shall be controlled within 70km/h.

2. Avoid continuous low speed driving: when the engine runs at a certain low speed (with light load), the parts and components will be ground smoothly and the running-in will be poor.

3. Use each gear reasonably: do not drive continuously at a fixed speed of the engine. Change the speed appropriately to make all parts and components of the engine "bear" pressure, which can ensure a better engine running-in effect.

4. Before driving, circulate the engine oil first: when the engine is started in cold/hot state, before loading, run the engine at idle speed as appropriate to circulate the engine oil to all important parts of the engine for a proper lubrication, so as to, reduce wear, prolong the service life, and also preheat the engine well.

5. Running-in of new tires: tires also need running-in. Before running-in of new tires, gradually increase the turning inclination angle within 160km, but avoid harsh braking, sharp acceleration and sharp turn.

> **DANGER:**
>
> **Poor tire running-in can cause sideslip or control loss. Exercise special care when new tires are used. Run in the tires within the first 160km (100 miles).**

6. Running-in maintenance: please carry out the maintenance of the motorcycle after driving for 1,000km. During the running-in period, other parts have been engaged. At this time, adjust each part and component. Then change the engine oil.

> **CAUTION:**
>
> **When the motorcycle is being operated in harsh conditions,the maintenance shall be conducted before 1,000km.**

5.2. Inspection before driving

In order to ensure driving safety, please carefully check the motorcycle before each use; If there is any abnormality during the inspection, be sure to repair and eliminate the abnormality before use.

The recommended inspection procedure is as follows:

1. Check the lubricating oil in the engine (see page 17) 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 for free stroke (front 5-10 mm, rear 10-20 mm) and smooth operation;
5. Check the front and rear wheels for tire pressure, tread pattern wear depth, cracks (see Page 10);
6. Check that the transmission chain is tensioned properly, and free from defects or damage;
7. Check the throttle grip for free play (2-6 mm), and check whether it is easy to operate for acceleration and deceleration;
8. Check the illuminating lights and signal lights: ensure that the headlight, taillight, brake light, turn signal, indicator light and horn are in good condition;
9. Check that the steering device works stably and rotates flexibly, without looseness and axial movement;
10. Check the clutch lever for free play (5-10 mm) and smooth operation;
11. Fasten bolts and nuts for front and rear shock absorbers, horizontal fork shaft, front and rear axles, engine mounting, steering system, handlebar, front and rear brakes, clutch, rear suspension system, electrical components, etc.

⚠ WARNING:

Failure to inspect and properly maintain the motorcycle before driving will cause possible safety hazard unidentified and unsolved. Properly inspecting and maintaining the motorcycle before driving can help eliminate safety hazards.

5.3 Startup **(Figure 13)**

1. Unlock the ignition switch and turn the shutdown switch to "" position.
2. Shift to low gear or neutral gear.
3. Hold the clutch lever tightly with your left hand (disengage the clutch when it is not in neutral).
4. Press the electric start button "", and turn throttle grip as necessary for acceleration to start engine.

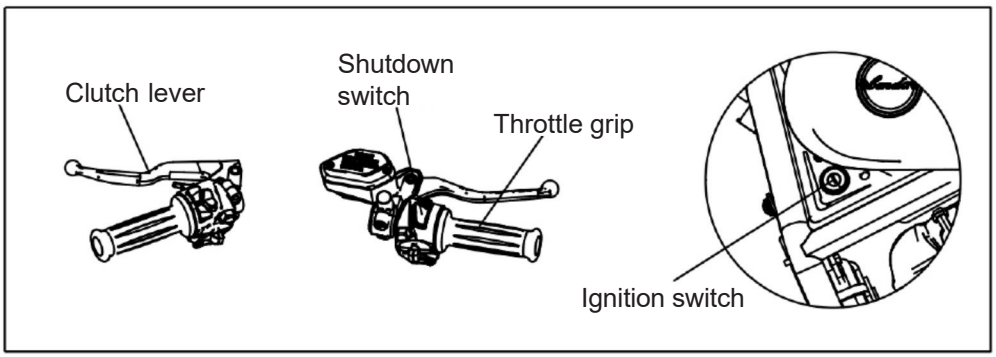


Figure 13 Starting Preparations

⚠ DANGER:

1. To avoid errors and dangers caused by forward rushing during starting, engage neutral gear and do not increase throttle opening.

2. When the motorcycle is not running, neither run the engine speed at a too high speed, nor run it at idle speed too long, otherwise the engine will be overheated and the internal parts will be damaged, and the exhaust pipe muffler will change color.

⚠ DANGER:

1. When you drive this motorcycle for the first time, we recommend that you find a non-public road to practice until you are familiar with the control method and operation method of this motorcycle.

2. Driving with only one hand on handlebar is the most dangerous. You should hold the handlebar firmly with both hands and put your feet on the steps to drive. In any case, do not drive with both hands off the handlebar.

3. Slow down to a safe speed before turning.

4. When the road is wet and smooth on which the tire friction is small, and the braking ability and turning ability are naturally reduced, decelerate in advance.

5. Since crosswinds are most likely to occur at tunnel exits, valleys or when large motorcycles overtake from behind, always drive with prudence and slow down when necessary.

6. Observe traffic rules and speed limits.

⚠ CAUTION:

1. After starting, warm up for 2-3 min before driving. If the engine is not properly warmed up before driving, premature wear of cylinder, piston ring, rocker arm and other parts and components will occur during driving.

2. Release the electric start button "⟳" immediately after 3 to 5 seconds of pressing; Otherwise, the battery will be discharged too fast and the service life of the battery will be affected.

3. After engine starts, release the electric start button "⟳" immediately; When the engine is running, do not press the electric start button "⟳" again, otherwise the engine may be damaged.

4. Ensure that the kick stand is completely retracted to avoid obstruction and control failure during left turn.

5. After starting or during driving, accelerate smoothly (by turning the throttle grip) and avoid sharp acceleration.

6. Do not start the motorcycle in a narrow space, as the exhaust gas is hard to spread and there is risk of poisoning arising therefrom.

7. If the clutch switch fails, replace it in time.

8. Never start the engine when the clutch is not disengaged, otherwise it will cause damage to the parts and components or safety accident.

9. Do not start the motorcycle when there is no fuel or engine oil.

5.4. Driving

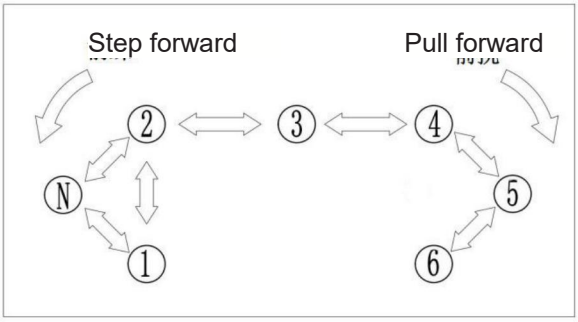


Figure 14 Gear Shifting Position

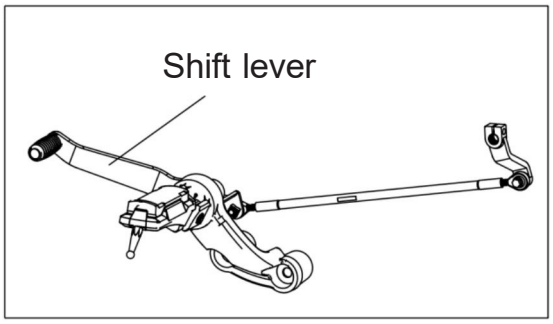


Figure 15 Shift Lever

5.4.1 Gear shifting operation (Figure 14 and Figure 15)

This motorcycle features six constant-mesh gears, among which gears ① and ② are low speed gears, gears ③ and ④ are medium-speed gears, and gears ⑤ and ⑥ are high-speed gears. Refer to the following operations for gear shifting:

1) Shift from N to ① : Release the throttle grip with your right hand, quickly hold clutch lever with your left hand, and step down the shift lever with your left foot to shift the transmission into gear ① , gradually release clutch lever with your left hand and gradually rotate the throttle grip with your right hand. Perform actions in a coordinated way to make motorcycle run smoothly in gear ① .

2) Shift from gear ① to gear ② : Release the throttle grip with your right hand, quickly hold clutch lever with your left hand, and move the shift lever upward with your left foot to shift the transmission into gear ② , gradually release clutch lever with your left hand and gradually rotate the throttle grip with your right hand. Perform actions in a coordinated way to make motorcycle run smoothly in gear ① .

3) The method to shift from gear ② to gear ③ , ④ , ⑤ or ⑥ is the same as the method to shift from gear ① to gear ② .

4) The method to shift down is the same as the method to shift from N to gear ① .

⚠ WARNING:

1. Do not perform gear shifting with the throttle grip not released and the clutch lever hot held, otherwise it is easy to cause damage to the engine and transmission system and safety accident.

2. When shifting gears, please confirm that the shift lever has been stepped into place before releasing the clutch lever.

3. When the clutch lever is held during gear shifting, the clutch is disengaged and the motorcycle runs by inertia. Therefore, the gear shifting time shall be shortened as much as possible.

4. When the gear is suddenly shifted down or the throttle grip is suddenly released during high-speed driving, the engine speed is low while the rotational speed of the rear wheel is high. When the clutch lever is released, the clutch plate engages with friction in deceleration, and the rear wheel is braked, causing control loss and thereafter an accident. Therefore, when changing from high-speed driving to low-speed driving, be sure to slow down with brake before downshifting.

5. Never drive at high speed in low gear or drive at low speed in high gear, otherwise the engine will be damaged.

6. Before acceleration, be sure to perform upshift to make the engine run within the normal speed range. Ensure that the engine speed is not too high in any gear.

⚠ **CAUTION:**

1. Reduce the vehicle speed or increase the engine speed before downshift, and increase the Vehicle speed or decrease the engine speed before unshift, preventing unnecessary wear on drivetrain components and rear tires.

2. When the transmission is in neutral and the neutral indicator light is on, it is best to slowly release the clutch lever to confirm whether the neutral gear is engaged.

5.4.2. Driving uphill or turning (Figure 16)

1) When you are driving uphill, insufficient power will occur if the gear is too high. Therefore, be sure to perform downshift quickly before driving uphill.

2) When driving down a long slope, be sure to shift down and use the front and rear brakes intermittently. If the front and rear brakes are applied continuously for a long time, the brakes will overheat and the braking effect will be reduced, which will cause danger.

3) Do not turn off the ignition switch or the engine shutdown switch for coasting when driving downhill, otherwise the life of the catalyst in the exhaust muffler will be shortened.

4) Before turning,be sure to apply the brake to reduce the speed to prepare for downshift. Otherwise, the motorcycle may run out of the curve at a very high speed, or if the brake is applied on the curve, dangerous accident will occur.

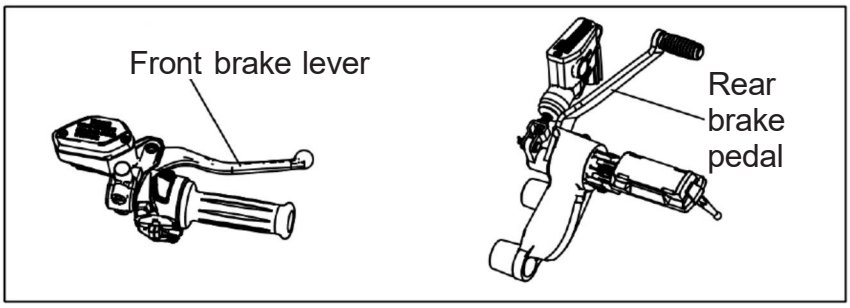


Figure 16 Brake Position

5.4.3. Use of brake

1) When deceleration is required, always apply the front and rear brakes at the same time. (slowly hold the front brake lever with your right hand, and slowly step on the rear brake pedal with your right foot, and avoid applying the front and rear brakes separately). Avoid sharp deceleration, which may cause clutch slipping.

2) In case of emergency, directly turn off the shutdown switch and apply the front and rear brakes at the same time to stop the motorcycle.

3) Avoid harsh braking as much as possible, as harsh braking will cause the front and rear wheels to stop suddenly, making the motorcycle difficult to control.

4) Avoid sudden acceleration, harsh braking and sharp turning on slippery or soft roads, so as to prevent motorcycle from sideslip or losing control.

5.4.4. Stop

1) Gradually release the throttle grip to return the throttle to the original position completely.

2) At the same time, slowly press the front brake lever with your right hand, and slowly step on the rear brake pedal with your right foot, and avoid applying the front and rear brakes separately.

3) When the speed decreases, perform downshift.

4) Press the clutch lever tightly, shift to neutral and stop completely. After the neutral gear is engaged, the neutral gear indicator light on the instrument will be on.

5) To park the motorcycle on a gentle slope with a kick stand, engage a low gear and keep the front of the motorcycle uphill to avoid rollover. (be sure to engage the neutral gear when starting again)

(6) Turn off the ignition switch. In case of emergency, it is recommended to turn off the shutdown switch can be directly to shut down the engine.

7) Lock the steering mechanism and remove the key to prevent unauthorized use.

⚠ DANGER:

1. The higher the speed, the longer the brake distance. Therefore, a safe distance must be maintained from other traffic users to prevent rear-end collision. (Frequent application of rear brake only will accelerate wear of the brake system, and increase the brake distance)

2. Using only the front brake or rear brake will cause sideslip and loss of control; The brake system must be used with caution on slippery roads and turns; Emergency braking on uneven or smooth roads will make the motorcycle out of control.

VI. Service and maintenance

6.1. Maintenance schedule

Maintenance times / Maintenance item	Maintenance interval	Mileage (odometer) km (Note ②)				
		1000km	4000km	8000km	12000km	Remarks
★ Fuel tank, fuel pipe		Repair or replace in case of damage and aging				Before use
★ Accelerator		I	I	I	I	Before use
★ Coolant		Replace every 2 years				Inspection before use
Air filter element	Note ①	I/every 40h or 1000km; C/every 80h or 2,000km; R/every 20,000km				
Spark plug		I/every 2,000km or 80h; R/every 6,000km				
Engine oil	Replace at 1000km for the first time, replace at 4000km for the second time, and thereafter, replace every 4000km (approx.),					
Oil filter element	Replace at 1000km for the first time, replace at 4000km for the second time, and thereafter, replace every 4000km (approx.),					
★ Chain / sprocket	Note ①	I & L/every 500km				
★ Brake lining		I ; R (if necessary)/every 1000km				
★★ Brake fluid		Replace every 2 years				
★ Front and rear brake systems	Note ③	I	I	I	I	Before use
★ Switch		I	I	I	I	Before use
★ Lights and horn		I	I	I	I	Before use
★ Battery	Monthly	I	I	I	I	
Fuse		I	I	I	I	
Connecting line		I	I	I	I	
★★ Valve clearance	Note ③	First maintenance 1000km, second maintenance 5000km, subsequent interval 5000km				
★ Clutch		and thereafter, I/every 2000km or 80h				Before use
★ Suspension system		I	I	I	I	
★ Tightening of nuts and bolts		I	I	I	I	Before use
★ Wheel		I	I	I	I	Before use
★ Steering handlebar bearing (steering column thrust bearing)	Note ③	I	I	I	I	
★★ Engine overhaul	Note ③	I	I	I	I	

Table 4

The motorcycle shall be regularly maintained according to the time and mileage specified in Table 4, and the motorcycle must be cleaned before maintenance.

The definition of symbols in the table is as follows: "I": timely inspection, cleaning, adjustment, lubrication or replacement; "C": cleaning; "R": replacement; "L": lubrication.

Items not marked with ★ may be performed by yourself or a Benda service center.

Items marked with one ★ shall be maintained by professional technician of Benda service center; Or by yourself provided you have special tools, maintenance spare parts or maintenance capabilities for such maintenance.

The items marked with two ★★ must be performed by professional technician of Benda service center for the driving safety.

Note ① : the cleaning interval should be shortened for driving in dusty areas.

Note ② : when the odometer reading exceeds the maximum specification in the table, the maintenance interval defined based on the mileage in the table shall still be applied.

Note ③ : the maintenance and adjustment must be performed by professional technician of Benda service center

6.2. Inspection, selection and change of engine oil

Lubricating oil in the engine serves to reduce friction, increase sealing performance, cool and clean parts and components, and prevent rust, etc.

Poor quality, long service time or insufficient lubricating oil will accelerate the wear of engine parts and reduce the service life of engine; And may even cause engine overtemperature, clutch wear or burnout, power drop, abnormal noise, oil burning, etc.

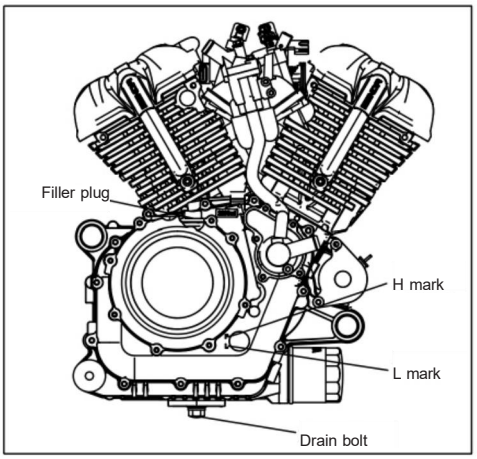


Figure 17 Inspection of Lubricating Oil

[Inspection] (Figure 17)

Always check the lubricating oil level before each use, through the access window on the right crankcase cover.

Start the engine and run it for 3 minutes, and then shut it down and wait for another 3 minutes. Park the motorcycle on a flat ground with the motorcycle perpendicular to the ground. Check that the oil level is between the H and L marks through the access window.

If the oil level is too low, directly open the filler plug and add an appropriate amount of lubricating oil. Check for seepage after installing the filler plug.

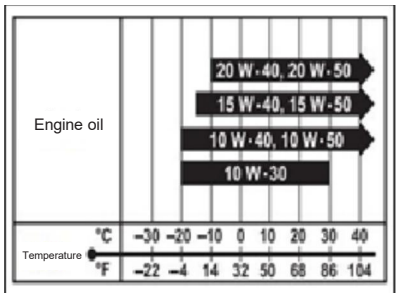


Figure 17 Selection of Lubricating Oil

[Optional] (Figure 18)

Lubricating oil grade: SAE 10W-40

Lubricating oil quality requirements: SG or above

The use of high-quality four-stroke engine oil can prolong the service life of the engine. Please select the engine as appropriate according to Figure 18 against the local temperature:

⚠ WARNING:

1. The use of inferior lubricating oil will seriously affect the performance and service life of the engine.

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

3. If the lubricating oil is insufficient, the engine will be seriously damaged.

[Replacement]

Replace at 1000km for the first time, replace at 2000km for the second time, replace at 3000km for third time, and thereafter, replace every 4000km (approx.),

1. After the engine runs for 3 minutes, shut it down, and put a container under the drain bolt of the engine.

2. Wait for another 3 minutes, drain the lubricating oil of the engine (Caution: Do not be scalded by the engine or lubricating oil). Unscrew the drain bolt, and take out the filter cover, filter element, etc.

3. Always clean the drain bolt and filter cover after oil draining; Replace the filter element, and check whether the seal ring is in good condition. If there is any damage, replace it with a new one; Then install the filter element, spring, seal ring and filter cover.

4. Add about 1.9L of new lubricating oil from the oil filler. If the filter element is replaced, add 2.1L of new lubricating oil. If the engine is overhauled, add 2.2L of new lubricating oil; Check that there is no oil leakage, and then install the filler plug.

5. Run the engine at different speeds for 3 minutes. During running, check whether there is seepage at the disassembled parts. Shut down the engine and wait for 3 minutes. In the idling state, if the oil level is still lower than the L mark of the access window, add an appropriate amount of lubricating oil. Then, make sure to check for seepage again.

Common causes of lubricating oil deterioration:

1. Natural deterioration due to a high lubricating oil temperature.
2. Use of lubricating oil with different grades together.
3. Increased metal chips due to the friction of machine parts.
4. Too many dust and impurities in the lubricating oil barrel.
5. Carbon deposit from fuel combustion due to large clearance between the piston and the cylinder and resultant exhaust gas leakage.

⚠ DANGER:

1. The engine oil, and the exhaust pipe and muffler are scalding. Wait for the drain bolt and exhaust pipe to cool before draining the used lubricating oil.

2. Children and pets who drink lubricating oil by mistake will cause physical injury. ⚠ It is hereby restated that long-term exposure to lubricating oil can cause skin cancer, and short-term exposure to lubricating oil can irritate the skin. Keep children and pets away from lubricating oil. When changing the lubricating oil, in order to reduce skin irritation, please wear long-sleeved clothes and protective gloves (such as the gloves for washing clothes). If the skin comes into contact with lubricating oil, wash it thoroughly with soap and water. Clean clothes and rags stained with lubricating oil.

⚠ WARNING:

If the specified engine oil is not used, the engine may be damaged.

⚠ CAUTION:

Please dispose of the waste engine oil properly. Do not pour it into the trash can or directly pour it on the ground to avoid polluting the environment. We recommend that you send the used oil to local recycling center in a sealed container.

6.3 Selection and replacement of spark plug

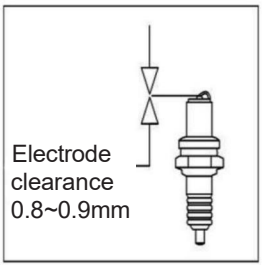


Figure 19 Spark Plug

[Optional] (Figure 19)

Spark plug model: B8RC

Opposite side of spark plug sleeve: 16 mm

[Inspection and replacement]

1. The replacement interval of the spark plug is about 6,000km.

2. Remove the spark plug cap, clean up the dirt in the surrounding, remove the spark plug with the spark plug socket wrench from the tool bag, and clean the carbon deposit and dirt on the spark plug with a wire brush.

3. Check whether the spark plug is damaged, whether the electrode clearance is ablated, and whether the seal gasket is in good condition; And replace the damaged part.

4. Check the electrode clearance with a high-precision feeler gauge, which shall be 0.8~0.9mm in normal cases.

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

⚠ WARNING:

1. The dirt can enter the engine through the spark plug mounting hole and damage the engine. Therefore, be sure to cover the spark plug mounting hole after the spark plug is removed.

2. If the color of the spark plug electrode is different from that of the normal spark plug, replace the spark plug with a new one of the same model, as different models of spark plugs are different in calorific values, and use a spark plug of different model can cause serious damage to the engine, and such losses are not covered by warranty and claim.

3. Excessive torque or thread disorder of the spark plug will seriously damage the engine cylinder head. Therefore, be sure to install the spark plug carefully by hand.

6.4. Cleaning, removal and installation of air filter

[Cleaning or replacement]

1. The air filter element must be regularly maintained: the filter element must be checked, cleaned and adjusted in time every 40 h or 1000 km; The air filter must be cleaned every 80 h or 2000 km; The filter element must be replaced with a new one every 20,000 km.

2. If the motorcycle is used in muddy, humid or dusty environment, the interval for cleaning or replacing the filter element shall be shortened.

3. If the filter element is too dirty, or incurs water ingress or damage, it must be replaced with a new one, otherwise the air 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 is adopted with a sponge filter element. For the purpose of cleaning, it can be washed in clean water and then soaked in clean engine oil. If the sponge is aged or has slags, be sure to replace the air filter element with a new one.

5. During regular maintenance, remove the oil collector pipe and drain the waste oil inside. The oil collector pipe is located under the air filter.

[Removal and refitting] (Figure 20)

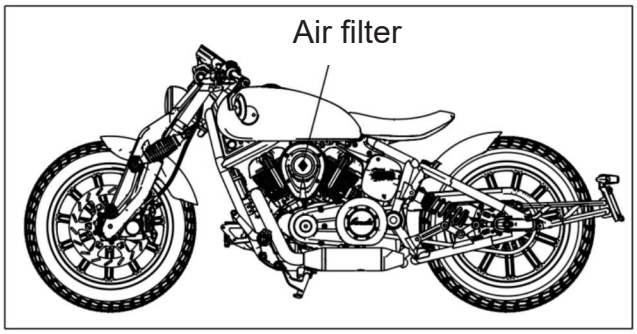


Figure 20 Position of Air Filter

1. Remove the 4 screws on the side cover of the air filter and take down the fixing screws of the filter element. Remove the filter element.
2. Assembly: Assemble in the reverse order of disassembly.

WARNING:

1. It is very dangerous to start the engine without an air filter element. When the filter element is blocked, the flame of the engine will be ejected from the engine to the intake chamber of the air filter, and the dirt will also be sucked into the engine, causing serious wear to the engine. Therefore, it is forbidden to start the engine without an air filter element.

2. When flushing the motorcycle, prevent the water from entering the air filter.

3. If the filter element is damaged, be sure to replace it with a new one. When cleaning the air filter, check whether the filter element is damaged.

4. If the filter element is installed incorrectly, dust will bypass the filter element and enter the engine, causing damage to the engine thereafter. Verify that the filter element is installed in the correct position and properly sealed.

6.5. Inspection and adjustment of throttle grip

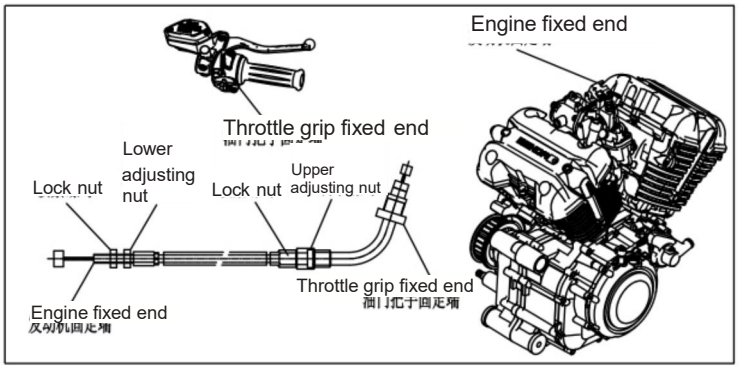


Figure 21

[Inspection] (Figure 21)

1. Check whether the front of the motorcycle turns from the leftmost to the rightmost normally and whether the position limit is reliable.
2. Check whether the rotation of the throttle grip from the full open position to the full closed position is flexible; And whether the throttle grip can return automatically when being released.
3. Check whether the throttle cable is flexible and in good condition.

[Adjustment]

1. The free stroke of the throttle grip is 2~6mm.
2. The upper adjusting screw is for fine adjustment, and the lower adjusting screw (the connection between the throttle and the throttle cable) is for adjustment of a certain travel.
3. When fine adjustment is required, first loosen the lock nut on the upper adjusting screw, and then turn the upper adjusting screw to adjust.
4. When long-travel adjustment is required, loosen the fastening nut and then adjust the free stroke to 2~6mm.
5. Apply lubricating oil to the throttle cable regularly to reduce the wear of the cable; Do not bend the throttle cable.

⚠ DANGER:

1. If the throttle cable is routed improperly, install it again correctly.

2. If the throttle cable incurs twist-breakage, seizure or return failure, please replace the throttle cable.

3. After the free stroke adjustment of the throttle cable, be sure to check that the throttle grip can return normally, and the idle speed does not increase when the head of the motorcycle is turned after adjustment.

[Throttle body]

Do not adjust the throttle limit screw on the throttle body without authorization, which has been set accurately before delivery. Check whether the idle speed of the motorcycle is stable (after the engine is fully preheated, the idle speed of the engine should be between 1450~1750RPM). If the idle speed is unstable, please ask the professional service personnel of the service center designated by us for inspection and treatment.

6.6. Adjustment of clutch

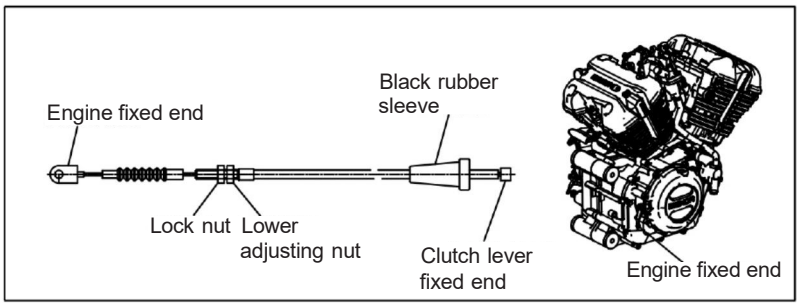


Figure 22 Clutch

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

Function of clutch: **(Figure 22)**

1. The clutch allows the engine crankshaft to be engaged with the transmission system smoothly and gently to ensure the smooth start of the motorcycle.
2. The clutch allows the engine crankshaft to be disengaged quickly and completely from the transmission system to ensure that the motorcycle will not produce impact during gear shifting
3. The clutch can prevent the parts of the transmission system from being damaged due to excessive load.

⚠ **CAUTION:**

When using the clutch lever, please hold or release it fully; And try to avoid hold or release it by half (application of half clutch), otherwise it is easy to cause clutch wear or burnout.

VII. Inspection and adjustment of chain

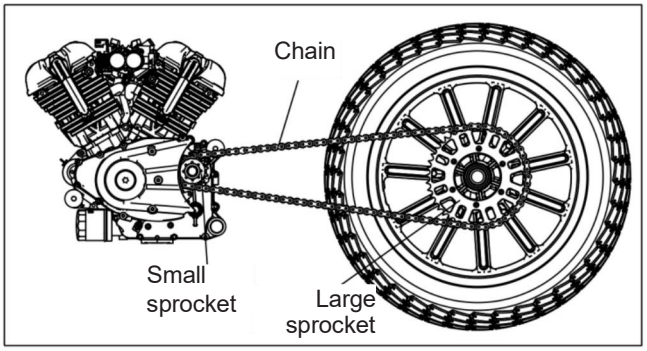


Figure 23 Chain Drive

Chain model: 428-138

[Inspection] (Figure 23)

1. Park the motorcycle on a flat ground, shift to N and shut down the engine.

2. Swing the chain up and down to check that the chain is tensioned with a swing of 20-25 mm.

3. Check whether the chain locking clip is loose, and whether the large and small sprockets are in the same horizontal plane.

4. Check the wear condition of the chain. If the chain incurs joint defect, excessive wear, or too long length, be sure to replace it.

5. Check the wear condition of the large and small sprockets. If the gear teeth are seriously worn, missing or broken, be sure to replace the sprocket.

[Adjustment]

Adjust the tension of the motorcycle chain in time to ensure that its swing is within 20-25 mm. Check the buffer body bearing frequently and apply lubricating grease on time.

When adjusting the chain, please use the frame chain adjustment scale as reference, and instead, visually observe whether the front and rear chain rings are in the same straight line as the chain.

The chain must be installed safely and reliably.

[Lubrication]

1. Clean the chain and sprocket, and then apply an appropriate amount of engine oil or spray clean lubricating oil.

2. Clean and lubricate the chain every 500 km.

3. Generally, it is required to remove chain for cleaning every 3,000km by soaking it in the heat-melted graphite lubricating grease for 5-10 minutes.

4. After the motorcycle is driven on the marl road, remove the dust in the chain link in time and apply lubricating oil.

[Replacement]

1. Remove the engine left sprocket cover and sprocket cover bracket;

2. Carefully remove the chain locking clip with a pair of needle-nose pliers, disassemble the chain link and remove the chain;

3. Install the chain in the reverse order of removal and adjust the swing of the chain;

4. Regularly clean the chain and chain ring, and apply lubricating grease in time. In case of rainy and snowy days and muddy roads, please strengthen the maintenance of the chain and chain ring.

> ⚠ **CAUTION:**
>
> **Before each ride, check whether the transmission system works normally. If you notice any defect or damage, be sure to check carefully and repair the concerning part in time.**

VIII. Anti-lock braking system (ABS)

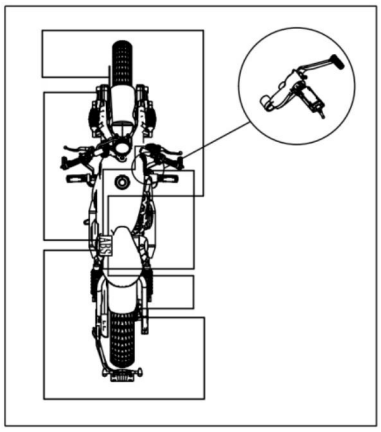


Figure 24 ABS

ABS consists of a HCU, an ABS ECU and a return oil pump. It is installed on the left (behind the engine). Both front and rear wheels are installed with a wheel speed sensor.

ABS features two separate brake circuits (front brake and rear brake). In normal operation mode, the brake system functions in the same way as a conventional brake system without ABS. Only when the ABS ECU recognizes that a wheel tends to lock, the ABS starts to work by adjusting the brake pressure. This adjustment can be felt by a slight bounce on the front brake lever or brake pedal.

After the ignition switch is turned on, the ABS warning indicator light must be on and go out after starting. If the ABS warning indicator light does not go out after starting, or it is on during driving, it indicates that there is a fault in the ABS. At this time, the ABS can no longer be activated. The wheels may be locked during braking. In this case, the brake system is still serviceable, only the ABS fails.

⚠ WARNING:

1. Only when ABS is off can the rear wheels rotate while the front brake is applied.

2. If modifications are made, for example, damping stroke increase/decrease, use of rim of other diameters or other tire, incorrect tire pressure, use of other brake lining, etc., the ABS may not continue to function. The best performance of ABS can be guaranteed only when the spare parts and tires recommended by Benda are used on the brake system.

3. Please perform maintenance and repair as required.

IX. Inspection and adjustment of front brake

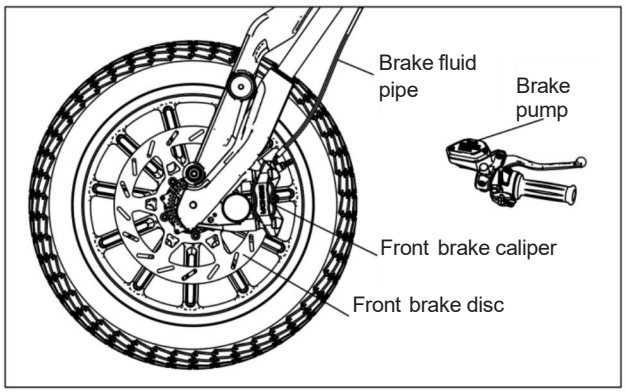


Figure 25 Inspection of Front Brake

[Inspection] (Figure 25)

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

● Measure the thickness of the front brake disc and brake lining.

● Check the oil level in the reservoir; Check whether the brake caliper is normal; Check that the brake fluid pipe and brake fluid reservoir are free of leakage or cracks; Check the wear condition of the brake disc.

● When operating the brake lever, if you feel that the lever pressure is insufficient, then there is air in the brake system; In this case, bleed the brake system completely to ensure a normal functioning; Otherwise, the brake performance will be degraded or brake failure will occur. The bleeding of brake system shall be completed at the "Benda service center".

⚠ WARNING:

1. Use DOT3 or DOT4 non-petroleum base brake fluid; Do not use brake fluids of different grades together;
2. The brake fluid is highly corrosive, so do not splash it on the surface of painted parts or plastic parts; In case of accidental swallowing, induce vomiting forcibly; In case of accidental swallowing, induce vomiting forcibly;
3. The hydraulic disc brake works under high pressure. In order to ensure safety and reliability, be sure to strictly follow the maintenance interval for replacement of brake lining and brake fluid without delay;
4. Always get the repair of hydraulic disc brake system, if necessary, carried out by professional technicians.

⚠ CAUTION:

The brake is a very important component to ensure the personal safety of the rider, and should be checked and adjusted frequently.
Do not drive immediately after replacing the brake disc or brake lining; In this case, operate (hold and release) the front brake lever for several times until the brake disc is well engaged with the brake caliper.

9.1. Inspection of front brake disc

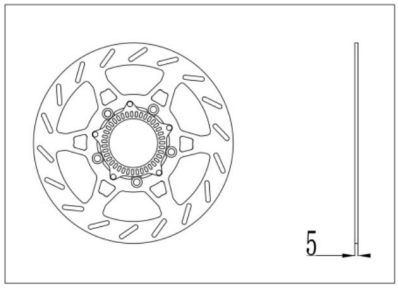


Figure 26 Inspection of Front Brake Disc

The brake disc will be gradually worn as time goes, so it is necessary to check the thickness of the brake disc at several positions, and check its appearance to confirm whether the brake disc is damaged, cracked or deformed.

If the brake disc thickness is lower than the specified value, please replace the brake disc.

If the brake disc is damaged, cracked or deformed, please replace the brake disc

Brake disc wear limit	
Front	4.5mm

⚠ WARNING:

The brake disc thickness within the surface in contact with brake lining will reduce due to wear, which will reduce the braking effect and pose a threat to your driving safety. In case of damage, crack or deformation, please replace the brake disc immediately.

When the brake disc is worn to the limit thickness of 4.5mm, always replace it. Remove the front brake caliper and front wheel, and then replace the brake disc.

9.2. Inspection of front brake lining

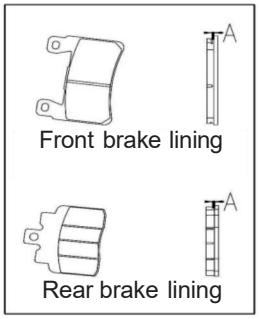


Figure 27 Inspection of Front Brake Lining

Check the minimum thickness (A) of the brake lining.
Minimum thickness of brake lining: A=1.5mm.

If the thickness is lower than the minimum thickness, please replace the brake lining in time.
If the brake lining is found to be damaged or cracked, please replace the brake lining in time.

⚠ CAUTION:

The lining will be gradually worn during braking, and the braking effect will also gradually decrease thereafter. In order to ensure the safety of you and the motorcycle, please check it frequently and replace it in time. If you do not know the specifications of the brake lining or cannot replace it by yourself, please go to the designated after-sales service center of Benda for repair.

9.3 Inspection of brake fluid level in front brake system

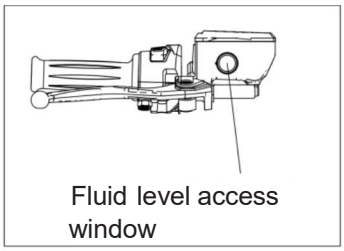


Figure 28 Inspection of Front Brake Fluid Level

Adjust the motorcycle's placement posture so that the brake fluid in the brake fluid tank is in a horizontal position, and check the brake fluid level through the access window. (Figure 28)
When the brake fluid level is below the mark, please add the brake fluid in time.

⚠ WARNING:

If the brake fluid level is below the mark, it means that the brake system is not sealed, or the brake lining is completely worn. Check the brake system and do not continue driving. Please go to the designated after-sales center of Benda for maintenance.

Brake fluid which has been used for too long will reduce the braking effect. Please change the brake fluid in time.

X. Inspection and adjustment of rear brake

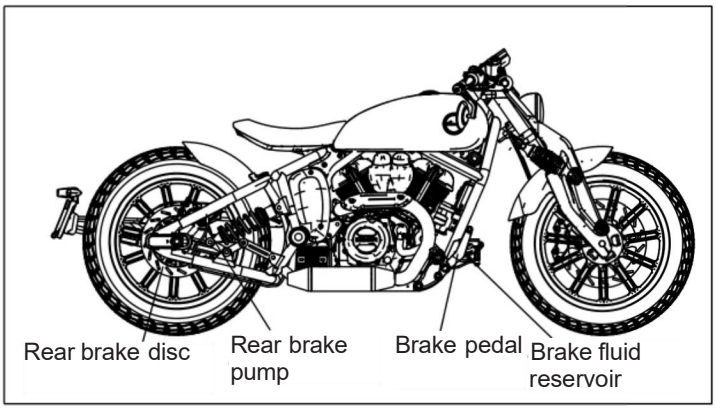


Figure 29 Inspection of Rear Brake

[Inspection] (Figure 29)

● Measure the free stroke of the rear brake pedal: 10~20 mm.

● Measure the thickness of the rear brake disc and brake lining.

● Check the oil level in the reservoir; Check whether the brake caliper is normal; Check that the brake fluid pipe and brake fluid reservoir are free of leakage or cracks; Check the wear condition of the brake disc.

● When operating the brake pedal, if you feel that the pedal pressure is insufficient, then there is air in the brake system; In this case, bleed the brake system completely to ensure a normal functioning; Otherwise, the brake performance will be degraded or brake failure will occur. Please ask the professional technicians of the service center to serve you for this maintenance.

10.1. Inspection of rear brake disc

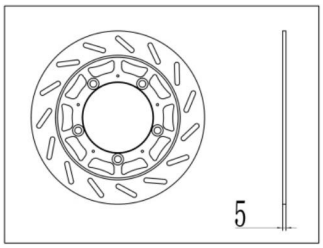


Figure 30 Inspection of Rear Brake Disc

Brake disc wear limit	
Rear	4.5mm

The brake disc will be gradually worn as time goes, so it is necessary to check the thickness of the brake disc at several positions, and check its appearance to confirm whether the brake disc is damaged, cracked or deformed.

If the brake disc thickness is lower than the specified value, please replace the brake disc.

If the brake disc is damaged, cracked or deformed, please replace the brake disc

⚠ WARNING:

The brake disc thickness within the surface in contact with brake lining will reduce due to wear, which will reduce the braking effect and pose a threat to your driving safety. In case of damage, crack or deformation, please replace the brake disc immediately.

When the brake disc is worn to the limit thickness of 4.5mm, always replace it. Remove the rear brake caliper and rear wheel, and then replace the brake disc.

10.2. Inspection of rear brake lining

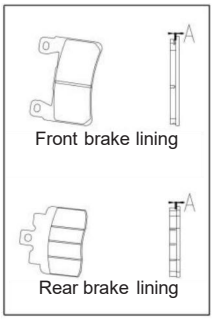


Figure 31 Inspection of Rear Brake Lining

Check the minimum thickness (A) of the brake lining.
Minimum thickness of brake lining: A=1.5mm.

If the thickness is lower than the minimum thickness, please replace the brake lining in time.
If the brake lining is found to be damaged or cracked, please replace the brake lining in time.

⚠ CAUTION:

The lining will be gradually worn during braking, and the braking effect will also gradually decrease thereafter. In order to ensure the safety of you and the motorcycle, please check it frequently and replace it in time. If you do not know the specifications of the brake lining or cannot replace it by yourself, please go to the designated after-sales service center of Benda for repair.

10.3. Inspection of brake fluid level in rear brake system

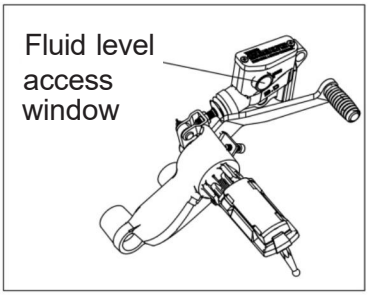


Figure 32 Inspection of Rear Brake Fluid Level

Adjust the motorcycle's placement posture so that the brake fluid in the brake fluid tank is in a horizontal position, and check the brake fluid level through the access window.
When the brake fluid level is below the mark, please add the brake fluid in time.

⚠ WARNING:

If the brake fluid level is below the mark, it means that the brake system is not sealed, or the brake lining is completely worn. Check the brake system and do not continue driving. Please go to the designated after-sales center of Benda for maintenance.

Brake fluid which has been used for too long will reduce the braking effect. Please change the brake fluid in time.

XI. Maintenance of battery

[Model of battery]

Model: MG14ZS-C

Capacity: 12V 11.2Ah

Standard charging: 1A~1.5A×6~8h

[Removal and installation of battery] (Figure 33)

Removal:

1. Check the battery bracket at the bottom of the motorcycle;
2. Remove the battery pressure plate;
3. Remove the negative wire (-) first;
4. Remove the positive wire (+) later;
5. Take out the battery.

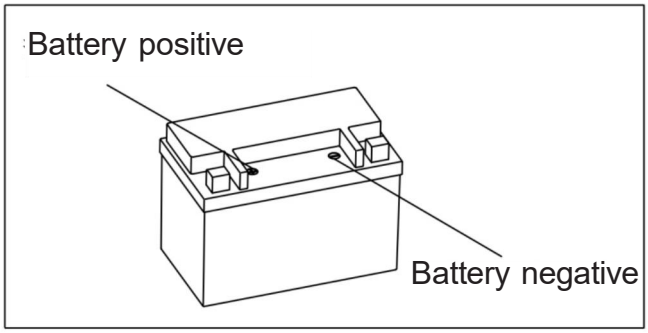


Figure 33 Battery

Installation:

1. Install in the reverse order of removal.
2. Install the positive wire (+) first, and then the negative wire (-),

and ensure that the positive and negative terminals are not loose, and the positive and negative terminals must not be connected reversely. Reverse connection will damage the electrical parts.

3. **Battery orientation: Positive and negative poles shall face forward (the front of the motorcycle) after installation**

[Battery charging]

1. Remove the battery bracket;
2. Remove the battery pressure plate, and the positive and negative wires, and take out the battery.
3. Connect the charger cable and ensure that the charging current is 1/10A of the battery capacity. For example, for a battery with a capacity of 10 Ah, the charging current is 1A.
4. Please contact your dealer for detailed instructions on the charger.

[Inspection and maintenance of battery]

1. When the motorcycle is used frequently, the motorcycle charging system automatically charges the battery fully. If the motorcycle is used occasionally or for a short period of time, the battery may be low. The battery experiences self-discharge, and the self-discharge rate will change with the battery type and ambient temperature.
2. When the motorcycle is not used for a long time, be sure to remove the battery and store it after charging, and during the storage period, charge the battery regularly;
3. Clean the battery positive (+) and negative (-) terminals regularly.
4. When replacing battery, use battery of the same model and specifications.

⚠ DANGER:

1. The battery poles, terminal and related parts contain lead or lead compounds, which are harmful to your health if entering the blood system. Therefore, please wash hands after handling any parts containing lead.

2. Always store the battery in a place out of reach of children.

3. The battery contains toxic substances, including sulfuric acid and lead, which are harmful to people's heath and will cause environment pollution. Therefore, always dispose of or recycle used batteries in accordance with local laws. DO not discard it as ordinary household waste.

⚠ CAUTION:

1. Do not overcharge or undercharge the battery, as this behavior will shorten the service life of the battery.
2. If your motorcycle is rarely driven, always check the battery voltage with a voltmeter every week. If the battery voltage is lower than 12.8V, always charge the battery with a charger.
3. If you do not use the motorcycle for more than two weeks, always charge the battery with charger. In this case, do not use an automatic fast charger to charge the battery, otherwise the battery will be overloaded and then damaged.

[Fuse] (Figures 34, 35)

The electric circuit system contains a total of 7 plug-in fuses (Figure 34), including one 15A fuse for lighting system; One 10A fuse for ignition system and ABSECU respectively; One 20A fuse for ABS motor, ECU system and fan motor respectively; One 5A fuse for ABS activating system. In addition, the fuse box additionally contains one 20A spare fuse and one 10A fuse. If the fuse is often blown, it indicates that the electric circuit system incurs short circuit or overload. Please ask the professional technician of the service center for inspection and repair.

One 30A main fuse is inserted in the start relay (Figure 35).

When replacing the fuse, first unplug the old fuse and connect the spare fuse.

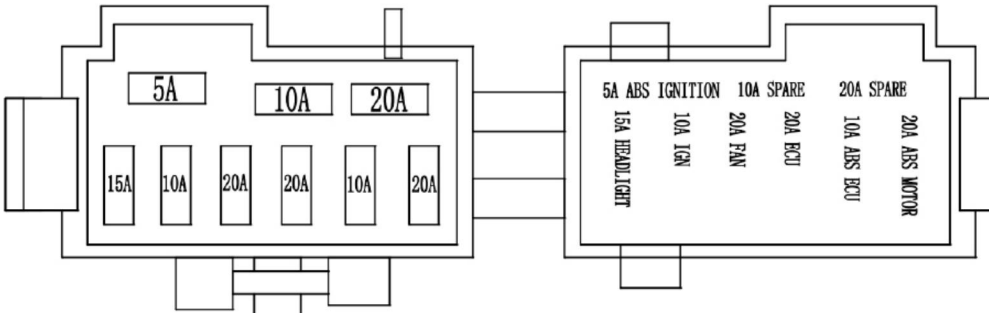


Figure 34 Fuse Box



Figure 35 Main fuse

⚠ WARNING:

Before checking or replacing the fuse, always turn off the ignition switch and electrical switches to prevent short circuit of the electric circuit. Never use a fuse with a different rated current, otherwise, the motorcycle's electrical system will be damaged or a fire will be caused, and there may be a risk of failure to turn on the light or failure of the engine at night or during driving.

XII. Operation and maintenance instructions for engine cooling system

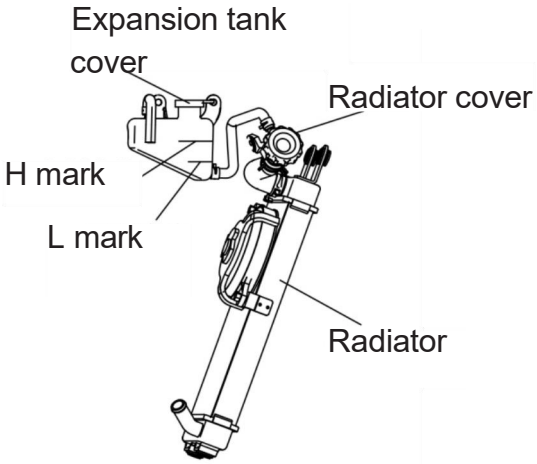


Figure 36 Cooling System

[Cooling system] (Figure 36)

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., which shall be cleaned regularly according to the road conditions.

[Coolant type]

The coolant features corrosion resistance, cavitation resistance, high boiling point, anti-scale capability, and anti-freeze capability.

Coolant is generally the mixture of concentrated antifreeze and soft water (pure water or distilled water) in an appropriate ratio. Please adjust it to the fixed concentration suitable for the local minimum temperature. Generally, the antifreeze performs best when the concentration is 40%~50%.

It is recommended that you use a direct type coolant specially designed for aluminum alloy engine. This coolant has been prepared in the factory and contains antifreeze, rust inhibitor, foam inhibitor and trace amount of silicate, etc., and the ambient temperature for use is indicated on the container.

⚠ **CAUTION:**

1. This coolant is a special product and cannot be replaced by tap water or other liquids, otherwise it may cause engine damage.
2. Please purchase direct type coolant for aluminum engine from a "Benda service center".
3. If the coolant needs to be replaced or the coolant leakage occurs, please go to the "Benda service center" for replacement and repair.

[Coolant capacity inspection]

The total coolant capacity of the cooling system is about 900ml

1. Park the motorcycle with kick stand on a flat ground.
2. Check the coolant level when the engine is cooled, which shall be between the H and L marks.

[Coolant refilling]

If the coolant level in the expansion tank is at or below the L mark, please add the special coolant to the H mark in time.

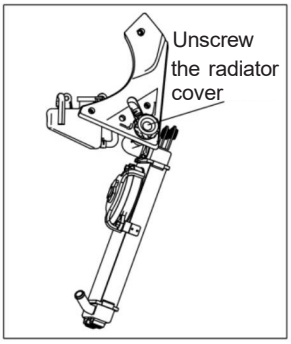


Figure 37 Coolant Refilling

[Refilling method]

1. Park the motorcycle with kick stand on a flat ground and wait for the engine to cool down; Otherwise, the heat will cause skin burns;
2. Unscrew the radiator cap;
3. Pour the coolant into the tank from the radiator filler until the coolant level is flush with the H mark;
4. Close the radiator cap.

[Storage of coolant]

1. When the coolant is not in use, store it in a special sealed container.
2. Place the coolant in a cool and dry place for storage, and keep it out of reach of children as it is a toxic liquid.
3. Prevent the coolant from being contaminated by petroleum products, and do not use or store coolant of different brands together.

DANGER:

1. Ethylene glycol antifreeze is an organic solvent, which is toxic and corrosive. During use, prevent it from being splashed on the surface of rubber products and painted parts, or onto the human skin. If this occurs by accident, rinse with water immediately.

2. When the cylinder nut needs to be loosened for repairing the engine, 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, do not open the radiator cap when the engine is running normally or the temperature does not drop (60℃) after stop, so as to avoid scalding.

XIII. Cleaning and Storage

[Vehicle cleaning]

1. Clean the motorcycle regularly to find damage, wear or oil leakage of the motorcycle in time.
2. Always clean the motorcycle with clean water after the engine cools down. After cleaning, dry the motorcycle and start the engine, and let it run for several minutes; Lubricate the chain with lubricating oil; Check that the front and rear brakes are normal before driving.
3. Do not rinse the following parts with high-pressure water: headlights, turn signals, ignition switch lock, electrical switches, instruments, electrical parts and lines, battery, air filter, hubs, exhaust pipe outlets, underside of fuel tank, engine cylinder head, etc. Instead, it is recommended to clean them with a rag.
4. The brake performance may be degraded after cleaning. Therefore, always perform trial driving for adjustment and restoration before official use.

[Storage]

After the motorcycle is used in a day, store it in a safe and dry place with small temperature difference and good ventilation. If the motorcycle is to be stored for a long time (more than 30 days), carry out necessary maintenance before storage; Otherwise, the problem that needs repair may be forgotten after storage. For long-term storage (more than 30 days), in addition to the above repairs, carry out maintenance according to the following requirements:

1. Clean and dry the motorcycle, and wax the painted surface of the whole motorcycle.
2. Drain the fuel from the fuel tank, and spray the anti-rust agent into the fuel tank.
3. Drain the engine oil thoroughly and add new engine oil to the crankcase.

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

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

6. Inflate the tire to the specified pressure and place the motorcycle above the cushion block with the front and rear wheels off the ground. If the tire pressure is too low, the tire will age prematurely and crack.

7. Cover the intake port 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 breathable material and store it in a safe and dry place with small temperature difference and good ventilation.

[Use after storage]

1. Remove the motorcycle cover and clean the motorcycle.
2. When the battery voltage is too low to start the motorcycle, charge the battery in time.
3. Remove the anti-rust agent in the fuel tank and add new fuel.
4. Perform trial driving in a safe place and check whether the performance of the motorcycle is normal.

XIV. Service life and disposal

[Service life]

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

[Disposal]

1. Disposal of waste lubricating oil: the waste lubricating oil drained from the motorcycle shall be put into a plastic bucket and handed over to the recycling company for disposal. It is not allowed to discharge waste lubricating oil at will, otherwise it will cause damage to the site, soil, water and other environments.

2. Disposal of waste battery, bulb, appearance parts, filter element, tire, iron parts, aluminum parts and other parts: these scrapped parts shall be recycled and disposed of by classification. It is not allowed to discard them at will, or pour out the dilute sulfuric acid in the battery at will, which will cause harm to people or pollute the environment.

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

XV. Adjustment data

Free stroke of front (hand) brake: 5~10 mm	Free play of throttle grip: 2~6 mm
Free stroke of rear (foot) brake: 10~20mm	Free stroke of clutch: 5~10mm
Spark plug clearance: 0.8~0.9 mm	Intake and exhaust valve clearance: 0.08~0.12 mm
Torque of rear shock absorber fastening bolt: 30~40 N · m	
Torque of handlebar fastening bolt: 4 ~ 6 N·m	Torque of horizontal fork shaft fastening nut: 70 ~ 90 N·m
Torque of front axle fastening nut: 70 ~ 90 N·m	Torque of engine mounting fastening nut: M8: 18 ~ 25 N · m, M10: 30 ~ 40 N · m
Torque of rear axle fastening nut: 70~90 N · m	
Torque of fastening bolt for front shock absorber link and upper connecting plate: 20~25 N·m	
Torque of fastening bolt of front shock absorber link and front shock absorber: 20~25 N·m	
Torque of fastening bolt for front shock absorber and steering column: 20~25 N · m	

XVI. Main technical parameters

Model (item)		BD125-30
Motorcycle parameters	Manufacturer	Hangzhou Saturn Power Technology Co., Ltd.
	Model (commercial name)	BD125-30
	Brand	BENDA
	Vehicle type	Ordinary two-wheel motorcycle
	VIN	H84PDJLBXXXXXXXXX
	Approved passenger capacity	1 person
	Steering form	Handlebar
	Gear form	6 constant-mesh gears
	Brake form	Front wheel: disc brake Rear wheel: disc brake
	Brake control mode	Front wheel: hand brake Rear wheel: foot brake
	Clutch form	Slip clutch
	Starting mode	Electric start
	Length * width * height	2333mm*838mm*1038mm
	Wheel base	1545mm
	Minimum ground clearance	120mm
	Curb weight	182kg
	Maximum load	75kg
Model (item)		BD125-30
Motorcycle parameters	Volume of fuel tank	9.5 L
	Number of tires	2
	Front wheel specification	130/80-18
	Rear wheel specification	160/70-18
Electric installations	Ignition mode	ECU
	Spark plug model	B8RC
	Headlight specification	12V LED
	Turn signal specification	12V LED
	Specification of taillight/ brake light	12V LED
	Fuse specification	Main cable: 20A (* 3), 15A (* 1), 10A (* 2), 5A (* 1), 20A (* 1, spare), 10A (* 1, spare)
	Battery specification	12V 11.2Ah
Engine	Engine type	V-type, double cylinder
	Engine model	BD2V42MI
	Compression ratio	11.3:1
	Actual displacement	124.8cc
	Maximum net power	10.3KW/9500Rpm
	Maximum torque	10.9Nm/6500Rpm
	Cylinder bore * stroke	42*45
	Idle speed	1600±150
	Engine oil	SAE
	Grade	10W-40
	Lubricating oil capacity	2.2L
	Fuel grade	Gasoline above 92#
	Spark plug clearance	0.8~0.9 mm

Speed ratio	Primary speed ratio	3.74
	1st gear ratio	2.42
	2nd gear ratio	1.53
	3rd gear ratio	1.18
	4th gear ratio	1.04
	5th gear ratio	0.91
	6th gear ratio	0.81
	Final drive ratio	4.07
Performance	Maximum speed	98km/h
	Fuel consumption	≤3.40

XVII. Common faults and their causes

Fault	Part	Cause(s)	Troubleshooting method
Start failure	Fuel system	No fuel in the fuel tank	Refuel
		Fuel pump blockage or damage, poor fuel quality	Clean or replace
	Fuse	Fuse blowout	Check or replace
	Ignition system	Spark plug fault: excessive carbon deposit, long-time use	Check or replace
		Spark plug cap fault: poor contact or burnt-out	Check or replace
		Ignition coil fault: poor contact or burnt-out	Check or replace
		Ignition coil fault: poor contact or burnt-out	Check or replace
		Connecting wire fault: poor contact	Check or adjust
	Cylinder pressure system	Starting mechanism fault: wear or damage	Check or replace
		Intake/exhaust valve and valve seat fault: too much colloid in fuel, or long-time use	Check or replace
		Cylinder, piston, piston ring fault: colloid in fuel or wear	Check or replace
		Air leakage of intake pipe: long-time use	Check or replace
		Valve timing fault	Check or replace
Insufficient power	Valve piston	Excessive carbon deposit on intake/exhaust valves and pistons: poor fuel quality and poor engine oil quality	Repair or replace
	★ Clutch	Clutch slipping: poor engine oil quality, long-time use, overload	Adjust or replace
	Cylinder block, ring	Wear of cylinder block and piston ring: poor engine oil quality and long-time use	Change the engine oil
	Brake	Incomplete brake release: over-tight brake	Adjust
	Chain	Over-tensioned chain: improper adjustment	Adjust
	Engine	Engine overheating: rich/lean mixture, poor engine oil and fuel quality, presence of obstructions, etc.	Adjust or replace
	Spark plug	Improper spark plug clearance (standard: 0.8-0.9 mm)	Adjust or replace
	Intake pipe	Air leakage of intake pipe: long-time use	Adjust or replace
	Cylinder head	Cylinder head or valve leakage	Check or replace
	ECU system	ECU fault	Check or repair
	Air filter	Air filter blockage	Clean or adjust
Inoperative headlight and taillight	Cable	Poor line connection	Adjust
	Fuse	Light fuse blow-out	Adjust or replace
	Left and right switches	Poor contact or damage of switch	Adjust or replace
	Headlight	Inspection of bulb and lamp holder	Adjust or replace
	Voltage regulator	Inspection of voltage regulator: poor contact or burnt-out	Check or replace
	Magneto	Inspection of magneto coil: poor contact or burnt-out	Check or replace
Horn failure	Battery	Dead battery	Adjust or replace
	Left switch	Horn button check	Adjust or replace
	Cable	Poor contact of line	Adjust or replace
	Horn	Horn damage	Adjust or replace

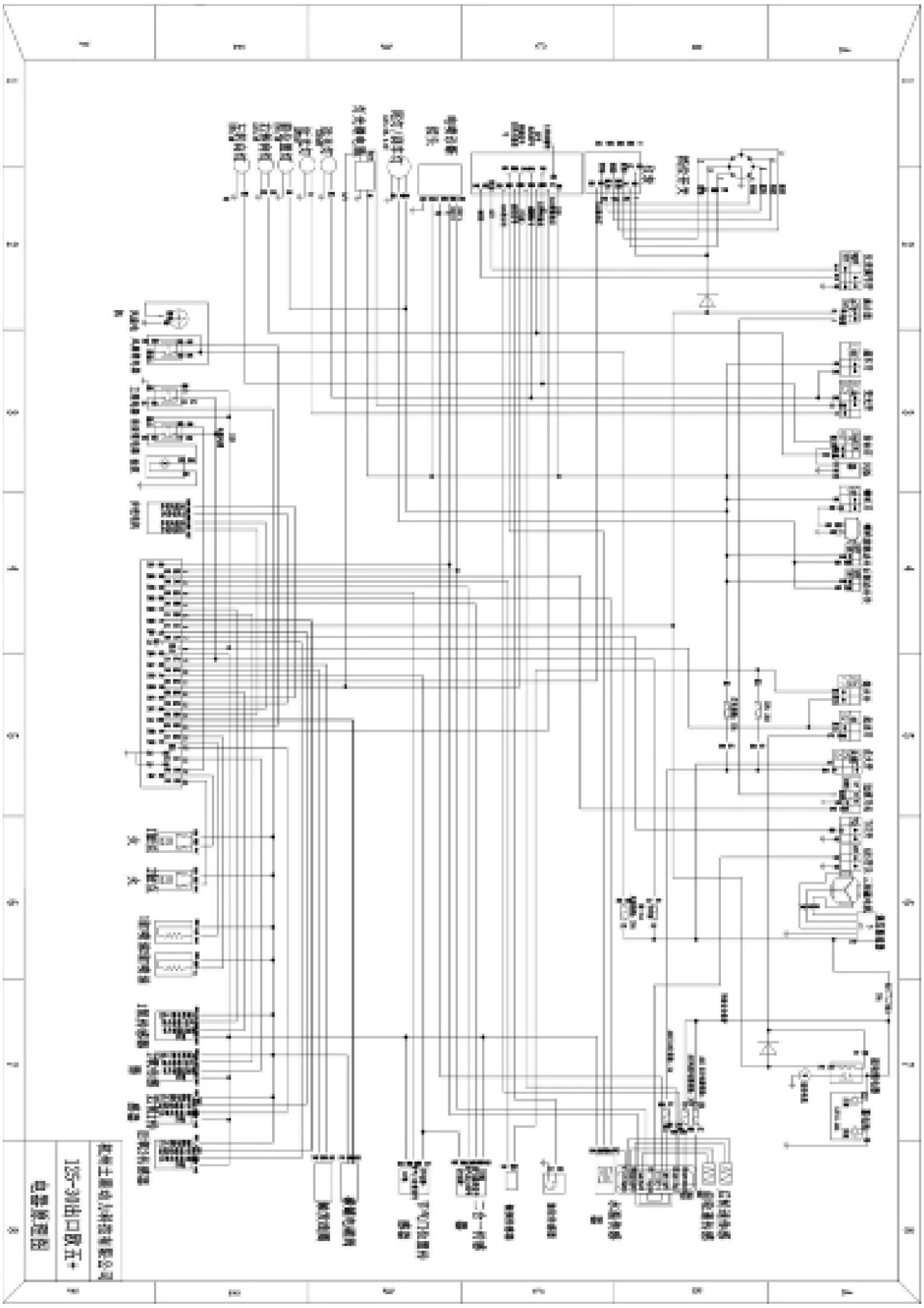
The above are common faults of the motorcycle. If your motorcycle breaks down, please go to the designated service center for inspection and repair in time.

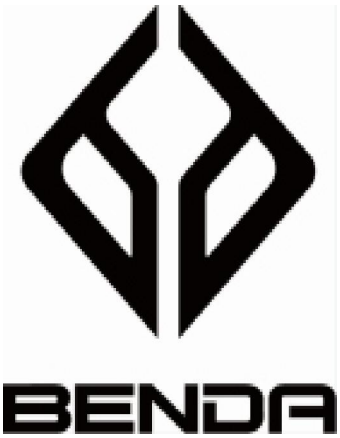
DTC table	
DTC	Description
P 0118	Cylinder temperature sensor line high voltage/open circuit
P 0117	Cylinder temperature sensor line low voltage
P 0336	Crankshaft position sensor line signal interference
P 0335	No signal from crankshaft position sensor line
P 2301	Ignition coil "A" short to high voltage (1# cylinder)
P 2300	Ignition coil "A" short to low voltage (1# cylinder) / open
P 2304	Ignition coil "B" short to high voltage (2# cylinder)
P 2303	Ignition coil "B" short to low voltage (2# cylinder) / open
P 0123	Throttle position sensor short to high voltage
P 0122	Throttle position sensor short to low voltage/open
P 0459	Canister solenoid valve line short to high voltage
P 0458	Canister solenoid valve line short to low voltage/open
P 0232	Fuel pump relay short to high voltage
P 0231	Fuel pump relay short to low voltage/open
P 0601	ECM ROM check error
P 0262	1# cylinder injector short to high voltage
P 0261	1# cylinder injector short to low voltage/open
P 0265	2# cylinder injector short to high voltage
P 0264	2# cylinder injector short to low voltage/open
P 0108	Intake pressure sensor line high voltage
P 0107	Intake pressure sensor line low voltage/open
P 0113	Intake temperature sensor line high voltage/open
P 0112	Intake temperature sensor line low voltage
P 0650	Malfunction indicator light fault
P 0132	1# cylinder front oxygen sensor short to high voltage/open
P 0131	1# cylinder front oxygen sensor circuit short to ground
P 0031	1# cylinder front oxygen sensor heater short to low voltage/open
P 0032	1# cylinder front oxygen sensor heater short to high voltage
P 0138	2# cylinder front oxygen sensor short to high voltage/open
P 0137	2# cylinder front oxygen sensor short to ground
P 0037	2# cylinder front oxygen sensor heater short to low voltage/open
P 0038	2# cylinder front oxygen sensor heater short to high voltage
P 0563	System voltage high
P 0562	System voltage low
P 0500	Vehicle speed sensor fault
P 0505	Idling control fault

The above are common DTCs of motorcycle. If your motorcycle breaks down, please go to the designated service center for inspection and repair in time.

Attention: Do not handle the motorcycle fault without authorization, otherwise it is easy to cause safety hazard or safety accident. Any safety accident arising from your unauthorized handling of motorcycle fault shall be born by yourself.

XVIII. BD125-30 electrical diagram





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