Operation and Maintenance Manual for Fuel-Powered Three-Wheeled Cargo Truck

ZS150ZH-3

Manufacturer: ZONGSHEN INDUSTRIAL GROUP CO., LTD.

Place of Manufacture:

Website: http://www.huaihaiglobal.com

NOTICE

Dear Customer,

Thank you for purchasing and using our three-wheeled motorcycle. Please read this manual carefully before operating the vehicle.

This manual provides important instructions on vehicle operation and information on maintenance. Correct use, care and servicing help ensure safe driving, reduce vehicle faults and extend service life.

The data, descriptions, specifications and photographs given in this manual are based on the current state of the model. If later improvements differ from this manual, no further notice will be given. Please also note that all illustrations in this manual are intended only as an aid to description and are for reference purposes only; they serve no other purpose. This manual is intended for cargo models, and some descriptions of components correspond to optional equipment, so please identify them accordingly. The company reserves the right to make changes under any circumstances.

If you sell the vehicle, please pass this manual on with the vehicle.

We sincerely welcome your valuable comments on product design, manufacturing and quality.

The meanings of the symbols used in this manual are as follows:

▲ WARNING

Indicates a potential hazard that may cause serious personal injury or damage to the vehicle.

▲ CAUTION

Indicates a potential risk; improper operation may damage the complete vehicle.

▲ NOTE

Indicates information that provides quick service tips to make maintenance easier and clearer.

CONTENTS

Operation and Maintenance Manual for Fuel-Powered Three-Wheeled Cargo Truck

NOTICE

I. IMPORTANT INFORMATION 1

II. INFORMATION FOR USERS 2

1 Model Parameters and General Layout 2

2 Instrument Cluster 4

3 Ignition Switch 5

4 Left Handlebar Controls 6

5 Right Handlebar Controls 7

6 Fuel and Fuel Tank 8

7 Fuel Tank Valve 9

8 Tires 10

9 Reverse Gear Control System 11

III. OPERATING INSTRUCTIONS 11

1 Pre-Ride Inspection 11

2 Starting the Engine 12

3 Gear Shifting 14

4 Use of the Reverse Gearbox 14

5 Braking and Parking 15

6 On-Board Tools 16

7 Driving Precautions 16

IV. MAINTENANCE 16

1 Scheduled Maintenance 16

2 Running-In of a New Vehicle 17

3 Daily Inspection 18

4 Scheduled Maintenance Table 19

5 [Maintenance Every 1000 km–2000 km] 20

6 [Maintenance Every 3000 km–5000 km] 20

7 [Maintenance Every 6000 km–10000 km] 21

8 Carburetor Maintenance 22

9 Spark Plug Adjustment 23

10 Checking and Changing the Engine Oil 23

11 Throttle Grip Adjustment 25

12 Clutch Lever Adjustment 26

13 Air Cleaner Maintenance 27

14 Propeller Shaft Inspection and Adjustment 28

15 Reverse Gear System Maintenance 29

16 Rear Axle Maintenance 29

17 Front Brake Inspection and Adjustment 30

18 Rear Brake Inspection and Adjustment 31

19 Parking Brake 32

20 Leaf Spring Inspection 32

21 Front Shock Absorber Inspection 33
22 Muffler Maintenance 33
23 Replacement of the Circuit Fuse 34
24 Rear Brake Light Switch Adjustment 34
25 Battery Use and Maintenance 35
26 Vehicle Washing 35
27 Vehicle Storage 35
V. VEHICLE MARKINGS 36
1 Vehicle Identification Number (VIN) Location 36
2 Vehicle Nameplate 37
3 Engine Number Location 37
VI. TROUBLESHOOTING 38
1 Difficulty in Starting or Failure to Start 38
2 Poor Engine Idling 38
3 Engine Overheating 39
4 Clutch Fault 39
5 Brake Failure 40
VII. MAINTENANCE RECORDS 40

I. IMPORTANT INFORMATION

1. Safe Riding Rules

Motorcycle operators may drive the vehicle only after passing the examination of the local traffic administration department and obtaining a driving license.

1. To ensure personal safety, the operator should wear a helmet, dust-proof goggles, gloves and other protective equipment while driving.
2. Before starting the engine, the vehicle must be inspected to prevent accidents.
3. While driving, the operator must strictly observe traffic laws and regulations, drive in the designated lane, never exceed the speed limit and never race for the right of way.
4. Keep both hands firmly on the handlebar while driving. Do not hang any object on the handlebar, otherwise driving safety will be affected.

2. Prohibition of Vehicle Modification

The complete vehicles produced by our company must not be modified without authorization.

▲ WARNING

● Do not modify your vehicle. Modification will affect the performance of the complete vehicle, especially safety and durability, and may even violate national regulations. Vehicle faults or performance degradation caused by modification are not covered by the vehicle warranty. All consequences arising from unauthorized modification shall be borne by the owner.

3. Cargo Loading Requirements

1. When loading cargo, the load center should be close to the vehicle center to keep the vehicle balanced.
2. The load must not exceed the width or length limits (of the cargo box); the loading height shall comply with the regulations of the traffic administration department.

▲ WARNING

● Overloading is strictly prohibited. Tire blowouts and safety accidents caused by

overloading shall be the responsibility of the owner.

● When the vehicle is not in use, remove the key and switch off the power supply and other electrical equipment.

● For normal operation of the vehicle, cut open the breather pipes of the engine, reverse gearbox and rear axle final drive before using a new vehicle so that they are open to the atmosphere.

▲ NOTE

● When the motorcycle requires maintenance and servicing, please go to the service station where the vehicle was purchased and have the work performed by professional personnel.

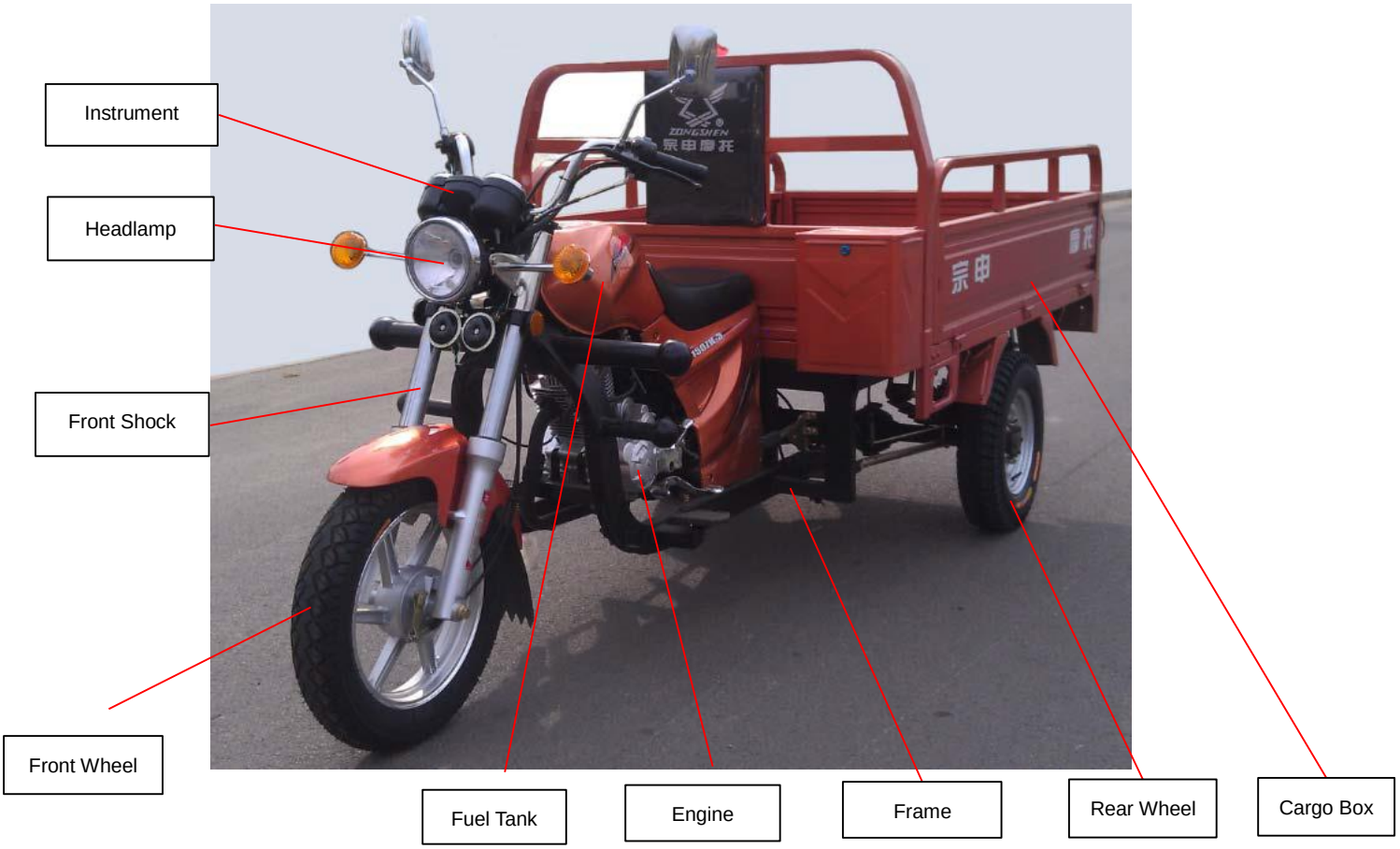
II. INFORMATION FOR USERS

1 Model Parameters and General Layout

This manual applies to ZS150ZH-3. The vehicle parameter table is as follows:

Vehicle Model Parameters	
Overall Dimensions (mm)	3500×1300×1460
Wheelbase (mm)	2230
Mass of the vehicle (with bodywork) in running order	390 kg
Unladen mass of the vehicle	375 kg
Technically permissible maximum laden mass	765 kg
Engine type as marked on the engine	ZS162FMJ-L
Engine Specification	149cm³
Maximum net power or maximum continuous rated power as applicable	8.5 kW at 8000 rev/min
Track (mm)	1060
Front / Rear Brake Type	Front: Mechanical drum; Rear: Mechanical drum
Suspension Type	Front: 50 mm external spring Rear: 5-leaf, 63 mm wide × 8 mm thick leaf spring
Minimum Turning Diameter	6500 mm
Minimum Ground Clearance	170 mm
Fuel Tank Capacity	16 L
Front / Rear Tire Size	110/90-16 /5.00-12
Drive Type	Shaft drive

Maximum Speed	60 km/h
Battery Specification	12 V 9 Ah
Rear Axle Specification	Changan small full-floating / mechanical brake / 38:12 / 60×5



2 Instrument Cluster



① Odometer (trip meter): a resettable distance recorder, mainly used for measuring short-trip mileage.

② Speedometer: indicates the current vehicle speed. ③ Odometer: records the total distance travelled.

④ Left turn indicator lamp: the corresponding indicator flashes when turning left.

⑤ Fuel gauge: shows the current amount of fuel remaining in the fuel tank.

⑥ Right turn indicator lamp: the corresponding indicator flashes when turning right.

⑦ Tachometer: shows the instantaneous engine speed in revolutions per minute.

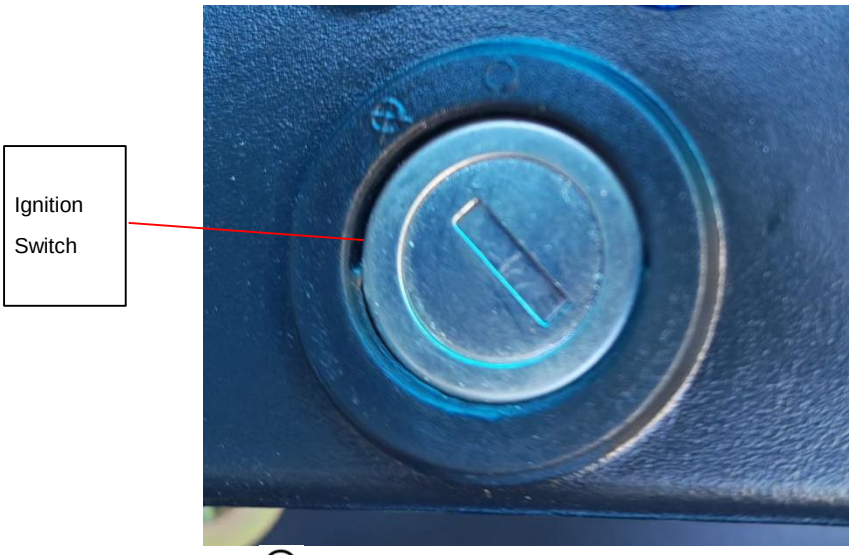
⑧ Fault indicator lamp: flashes when a system fault occurs.

⑨ Fog lamp indicator: the corresponding indicator lights up when the fog lamp is switched on.

⑩ Gear indicator: shows the current gear of the engine.

⑪High beam indicator: the blue indicator lights up when the high beam is switched on.

3 Ignition Switch



① "ON" position

The ignition circuit is connected, the engine can be started and the key cannot be removed.

② "OFF" position

All circuits are open, the engine cannot be started and the key can be removed.

4 Left Handlebar Controls



① Clutch lever: controls the power output of the motorcycle engine, i.e. engagement and disengagement of the power output.

② Passing light switch: press this switch when overtaking at night to warn the vehicle ahead.

③ Choke switch: when starting a cold engine, move the choke lever inward to close the choke and enrich the air-fuel mixture.

④ High beam switch: move the lighting switch to this position when the high beam is required.

⑤ Low beam switch: move the lighting switch to this position when the low beam is required.



⑥ Turn signal switch: operate this switch when changing the direction of travel.

⑦ Horn button: press and hold this button to sound the horn.

⑧ Hazard switch: press this button when the vehicle develops a fault.

5 Right Handlebar Controls

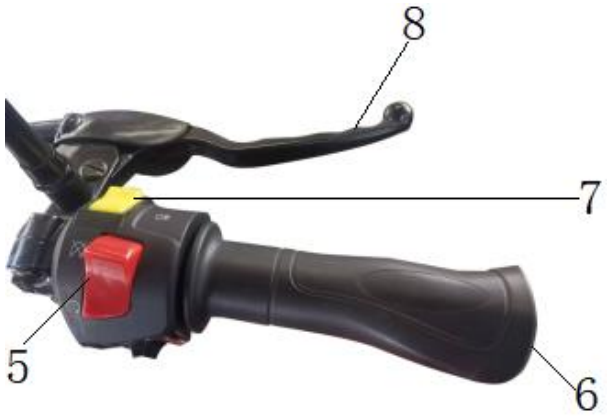


① Headlamp switch: move the headlamp switch to this position to turn on the high or low beam.

② Position lamp switch: move the headlamp switch to this position to turn on

the position lamps of the instrument cluster, headlamp and tail lamp. ③ Electric start button: for electric starting, turn the ignition key to the ON position, set the engine stop switch to this position and set the transmission to neutral, then press this button to start.

④ Lighting master switch: move the lighting master switch to this position to turn off the motorcycle lighting system.



⑤ Engine stop switch: to stop the engine quickly, move the stop switch to the OFF position; move it back to the ON position before restarting.

⑥ Throttle control grip: controls the amount of fuel supplied by the carburetor; rotate inward to accelerate and outward to decelerate.

⑦ Fog lamp switch: when driving in fog, move the fog lamp switch to this position to turn on the tail lamp and warn vehicles behind, preventing accidents.

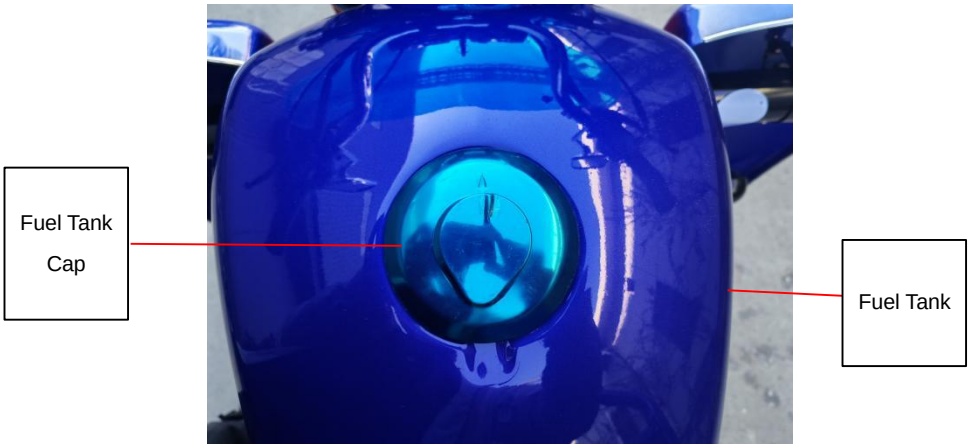
⑧ Front brake lever: used together with the rear brake pedal to control vehicle speed; apply the rear brake first.

▲ WARNING

● Turn on the fan switch when carrying a load; when not loaded, it is recommended to keep the fan switched off.

6 Fuel and Fuel Tank

Use gasoline of grade 92# or higher.



Opening and Closing the Fuel Tank Cap

To open: insert the key and turn it clockwise by 90 °to open the fuel tank cap.

To close: fit the cap into the filler opening and press it down, turn it to the tightened position, then turn the key back counterclockwise by 90 °and remove it.

▲ WARNING

● Do not overfill the tank (leave a suitable distance between the fuel level and the filler opening so that no fuel overflows when the cap is fitted), to prevent fuel from flowing onto the hot engine and causing a fire.

● If fuel overflows from the tank, wipe it clean to avoid ignition.

● Always fit the fuel tank cap properly after refueling.

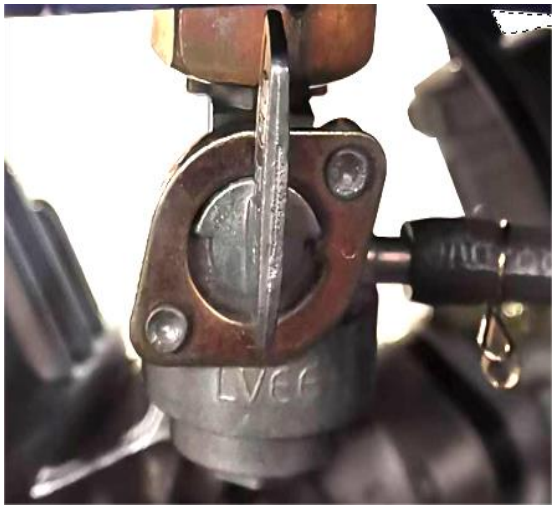
● Stop the engine and turn the key to the "OFF" position when refueling, and keep away from open flames and sparks.

7 Fuel Tank Valve

When the fuel tank is sufficiently filled, turn the fuel tank valve to the open position with the knob pointing down, as shown below.



When fuel is low, turn the fuel tank valve knob clockwise so that it points up; the fuel in the reserve tank can then be used for a range of about 15–30 km, as shown below.



8 Tires

Correct tire pressure provides the best riding stability and comfort and ensures long tire life. Reference tire pressures are as follows:

5.00-12	300 kPa (6PR) / 400 kPa (8PR)

▲ WARNING

● Before driving, check the tire pressure when the tires are "cold". Check the

tires for cuts, nails or other sharp objects penetrating the tread, and for dents or deformation. If any damage is found, have the tires repaired or replaced at a service station.

● Using excessively worn tires is dangerous and affects vehicle stability, traction, braking force and steering control. Incorrect tire pressure may cause abnormal tread wear and even safety accidents. Insufficient tire pressure may damage the tire or cause it to come off the rim. Replace the tire immediately when the tread at the center of the tire reaches the following limit.

Minimum Tread Depth			
Front Tire	1.6mm	Rear Tire	2.0mm

9 Reverse Gear Control System



Set the engine gear to neutral, start the engine and wait until it runs smoothly, then operate the clutch lever to fully disengage the clutch before selecting forward or reverse gear. When operating the forward/reverse lever, pushing forward selects the forward gear and pulling backward selects the reverse gear.

III. OPERATING INSTRUCTIONS

1 Pre-Ride Inspection

To ensure good performance of the complete vehicle, the following items must be checked before starting the vehicle:

① Engine oil level: add oil as required and check for oil leakage.

② Fuel level: add fuel as required and check for fuel leakage.

③ Front and rear brakes: check their operation; adjust the free play of the front brake lever and the rear brake pedal if necessary.

④ Tires: check the air pressure, wear and damage of the front and rear tires.

⑤ Propeller shaft: check that the propeller shaft is in good condition and that the cotter pins are not loose or missing.

⑥ Maintenance-free battery indicator window: green indicates sufficient charge, yellow indicates low charge and clear/colorless indicates that the battery is discharged.

⑦ Throttle: check that the control grip opens smoothly and closes fully; check the throttle free play; adjust if necessary.

⑧ Lighting and horn: check that the headlamp, position lamps, brake lamp, turn signals, indicator lamps and horn operate properly.

⑨ Steering mechanism: check its stability and smooth operation.

▲ WARNING

● Starting and driving without a pre-ride inspection may cause serious damage to your vehicle.

▲ CAUTION

● Check the tightness and safety of the fuel line, and check whether the fuel hose clamp is loose; if it is loose, tighten it immediately.

● Replace any fuel hose that is aged or cracked immediately.

2 Starting the Engine

(1) Preparation before starting

① Check the fuel level in the tank and add an appropriate amount of fuel if necessary. Turn the fuel tank valve knob to the open position.

② Insert the ignition key and turn it to the ON position.

③ Move the engine stop switch to the ON position.

④ Depress the gear shift pedal to neutral; the "N" indicator will light up.

▲ WARNING

● Before starting, shift the transmission lever to neutral; the "N" indicator should light up. If it does not, the indicator or another component is faulty.

● For kick starting, if everything is normal the engine will start after 1–3 kicks; otherwise check the electrical circuit, the fuel line and the air passage.

（2）Cold Kick Starting

① Turn the choke to the fully closed position.

② With the throttle slightly open, kick the starter lever rapidly and continuously from TDC (top dead center) to BDC (bottom dead center) to start the engine.

③ After the engine starts, turn the throttle grip slowly to adjust the throttle opening; after 1–2 minutes, return the choke to the fully open position.

▲ WARNING

● Do not kick the starter lever too hard, to avoid injury to your foot from the rebounding lever or damage to the engine cover.

（3）Warm Starting

① Do not use the choke.

② Start the engine by following step 2 of "Cold Starting".

（4）Electric Starting

Starting the engine with the electric start button: press the button, hold the clutch lever, turn the throttle inward slowly, and release the throttle once the engine speed is stable.

▲ WARNING

● Do not use the electric starter and the kick starter at the same time.

● The clutch lever must be operated when starting.

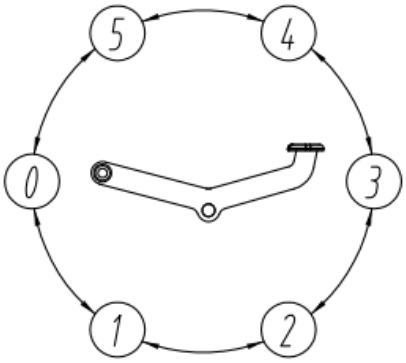
● Press the button; if the engine does not start within 5 seconds, press it again after 10 seconds to prevent damage to the battery from excessive discharge. If electric starting fails temporarily, use kick starting.

3 Gear Shifting

With the engine idling, disengage the clutch, depress the gear shift pedal and shift the transmission into low gear (first gear). Gradually increase the engine speed and slowly release the clutch lever, coordinating the two actions to ensure smooth starting.

Five-Speed Cyclic Shift:

The motorcycle uses a cyclic shift pattern. Shift when the engine speed is around (3000±500) r/min. Upshift through N, 1st, 2nd, 3rd, 4th and 5th gear; downshift from 5th gear successively back to N; the pattern repeats cyclically.



▲ WARNING

● Coasting in "N" and starting in a high gear are prohibited.

● The shift mechanism uses a ratchet; do not shift up or down several gears at a time.

4 Use of the Reverse Gearbox

The reverse gearbox must contain sufficient GL-3 gear oil.

① Stop the vehicle but keep the engine idling, and set the transmission to neutral.

② Depress the reverse pedal and check the situation behind the vehicle.

③ Hold the clutch lever with your left hand and turn the throttle grip clockwise with your right hand to reduce the throttle opening; at the same time depress the pedal to shift the transmission into 1st gear.

④ Release the clutch lever slowly; the vehicle moves backward slowly.

⑤ Hold the handlebar and steer while reversing. When the desired position is reached, squeeze the clutch lever, kick the reverse lever back and shift to "N".

⑥ Release the clutch lever and turn the knob to the "OFF" position.

⑦ Apply the parking brake.

5 Braking and Parking

① To decelerate or stop, release the throttle grip, squeeze the lever to disengage the clutch, and use the front and rear brakes to stop the vehicle.

② Shift to "N".

③ Turn the ignition switch to the "OFF" position to stop the engine.

④ Pull the parking brake lever tight.

⑤ Remove the key and lock the handlebar.

▲ WARNING

● Emergency braking may lock the front or rear wheel suddenly and make the vehicle difficult to control, so unnecessary emergency braking should be avoided.

● Excessive speed in a curve or emergency braking may cause skidding or leaning and loss of control.

● On slippery roads, control your speed; sudden acceleration, emergency braking and cornering can all easily cause loss of control.

● When going downhill, keep the vehicle in a low gear; coasting in neutral is strictly prohibited.

● Avoid continuous prolonged use of the brakes; prolonged use makes the brakes hot and reduces braking effect.

● After the vehicle has stopped, apply the parking brake to prevent it from rolling and causing an accident.

6 On-Board Tools

The on-board tools are stored in the tool box for adjustment, simple repairs and parts replacement during a trip.

7 Driving Precautions

★ Strictly observe traffic rules, drive within the speed limit and avoid overloading.

★ Do not change gear to slow down in a curve; reduce speed to a safe level before turning.

★ Always keep both hands on the handlebar.

★ Keep a safe distance.

★ Use the gears correctly; do not run the engine at high speed for a long time while driving at low speed.

★ The on-board tools are stored in the tool box for adjustment, simple repairs and parts replacement during a trip.

IV. MAINTENANCE

1 Scheduled Maintenance

Many parts of a three-wheeled motorcycle become loose and wear mechanically

during long-term operation. Without regular maintenance, the power performance, fuel economy, reliability and safety of the motor tricycle will be adversely affected and its service life may even be shortened. To keep the motor tricycle in good working condition, correct scheduled maintenance is required.

① Keep the engine clean, free from air and oil leakage, easy to start, with good acceleration and power performance and no abnormal noise.

② Ensure that the clutch operates smoothly, disengages completely and engages smoothly without slipping; that the gear shift pedal shifts accurately and smoothly with no abnormal noise; and that the throttle grip operates smoothly.

③ Ensure that the brake lever operates lightly and smoothly with good braking performance; that the brake shoes return automatically without friction noise when the brake is released; and that the motor tricycle rolls freely.

④ The front and rear shock absorbers work steadily and reliably, tire pressure is correct, and all electrical components function properly.

⑤ All connections of the vehicle are tight with no looseness, and the vehicle appearance is clean.

⑥ All lubrication points are adequately lubricated with no oil leakage.

⑦ The battery connections are tight and securely fixed.

⑧ A complete set of tools and spare parts is available, undamaged and free from rust.

2 Running-In of a New Vehicle

To ensure vehicle performance and improve reliability and service life, the moving parts should be "run in" before the engine is operated at maximum load. For this purpose, the running-in distance is specified as 1500 km.

① Before running in a new vehicle, check the levels of all oils and fluids and top them up as specified if insufficient. Tire pressure must comply with the vehicle parameter specifications.

② Speed limits during the running-in period of a new vehicle:

Running-In Distance (km)	Speed Limit (km/h)				
	1st gear	2nd gear	3rd gear	4th gear	5th gear
0～300	10	20	30	40	45
300～600	15	25	35	45	50
600～1000	15	30	35	45	55
1000～1500	15	30	40	50	60

③ Maximum engine speed during the running-in period:

0–600 km	≤5000 r/min
600–1500 km	≤7500 r/min
≥1500 km	≤9000 r/min

④ Maximum payload during the running-in period:

Total Distance	Maximum Permitted Payload
0–600 km	100 kg
600–1500 km	200 kg
≥1500 km	300 kg

⑤ Avoid driving on rough roads, slopes and uneven surfaces as far as possible.

⑥ Carry out regular inspections and tighten the fasteners at all connections.

⑦ Never rev the engine suddenly; avoid emergency braking.

⑧ During the first 1500 km, do not drive for long periods; stop briefly every 0.5–1 hour.

⑨ After running in 300 km, change the specified engine oil and rear axle gear oil, and lubricate the required components.

3 Daily Inspection

Vehicle condition may change every day. To ensure driving safety, check the following items before driving each day:

① Operation of the indicator lamps and instruments.

② Operation of the lighting system.

③ Operation of the horn and turn signals.

④ Fuel level in the fuel tank.

⑤ Legibility of the vehicle license plate.

⑥ Engine running sound and exhaust color.

⑦ Engine oil level.

⑧ Free play of the clutch lever.

⑨ Brake pedal travel and brake fluid level.

⑩ Travel of the parking brake lever.

⑪Tire pressure and wear.

⑫Charge level of the maintenance-free battery.

4 Scheduled Maintenance Table

After long-term operation, the surfaces of moving parts wear and the condition of many components and systems no longer meets requirements. To keep the vehicle in good working condition, scheduled maintenance must be carried out.

Maintenance Schedule Table

Time / Item	km	1000	4000	8000
	Months	1	4	8
Battery		Inspect	Inspect	Inspect
Cylinder head nuts and exhaust pipe bolts		Tighten	Tighten	Tighten
Air cleaner element		Clean or blow out every 500 km; replace if necessary		
Valve clearance		Inspect	Inspect	Inspect
Spark plug		Clean	Clean	Replace
Fuel line		Replace once a year		
		Inspect	Inspect	Inspect
Carburetor		Inspect	Inspect	Inspect
Clutch		Inspect	Inspect	Inspect
Propeller shaft		Lubricate every 1000 km		
Rear axle gear oil		Change at 300 km and 600 km during running-in; then change every 1000 km		
Tires		Inspect	Inspect	Inspect
Engine oil		Change every 300 km (running-in period)	Change every 1000 km (after running-in)	
Throttle cable		Inspect	Inspect	Inspect
Brake shoes		Inspect	Inspect	Inspect
Shock absorbers		Inspect	Inspect	Inspect
Nuts, bolts and fasteners		Inspect	Inspect	Inspect

▲ CAUTION

● When the odometer reading exceeds the distances given in this maintenance schedule, repeat the maintenance at the intervals shown in the table.

5 [Maintenance Every 1000 km–2000 km]

The inspection items are as follows:

① Regularly check the tightness of connected components, for example whether the rear axle half-shaft nuts are loose; tighten them if necessary.

② Regularly check the engine, transmission and brake systems and ensure that the lubrication points are well lubricated. If overheating occurs, find the cause and solve it promptly.

③ Regularly check the free play of the brakes, clutch, throttle grip and other controls and adjust them if necessary.

④ During the running-in period, warm up the engine before driving; drive 1–2 km in a low gear first, then shift to a high gear.

⑤ To reduce shock and impact loads, drive on flat and good roads.

⑥ Shift gears promptly when the engine load increases, otherwise the engine may wear abnormally or be damaged; avoid operating the engine under heavy load.

⑦ Avoid emergency braking and prolonged braking.

⑧ During the running-in period, the load must not exceed 80% of the rated payload.

6 [Maintenance Every 3000 km–5000 km]

The inspection items are as follows:

① Remove carbon deposits from the cylinder, piston, piston rings, cylinder head and muffler.

② Check the wear of the clutch friction plates and brake shoes and replace them if necessary.

③ Clean the air cleaner and the fuel tank.

④ Adjust the steering stem play and apply grease.

⑤ Check the axial and radial runout of the front and rear wheels and adjust them as necessary.

⑥ Check all cables for wear; replace them immediately if severely worn.

⑦ Check that the electrical components work properly.

⑧ Tighten all bolts and nuts.

⑨ Check the color of the maintenance-free battery indicator window.

7 [Maintenance Every 6000 km–10000 km]

The inspection items are as follows:

① Ensure an adequate oil supply from the lubrication system.

② Ensure that the electric starting system works properly.

③ Ensure that the clutch, shift mechanism and drive system work properly.

④ Check the gears for cracks, corrosion, pitting or severe wear.

⑤ When dismantling the engine, remove carbon deposits from the cylinder head, piston crown, piston rings and exhaust port, and check the valve train, piston, cylinder wall, crankshaft, connecting rod small end and piston pin.

⑥ Ensure that the front and rear shock absorbers, frame and accessory mechanisms work properly.

⑦ Ensure normal fuel supply.

⑧ Ensure that the instruments and electrical system work properly.

⑨ When dismantling the vehicle, check the steering stem, front and rear wheels, carburetor, air cleaner, front and rear brakes and drive components for damaged parts; clean all components, apply grease or oil, and adjust the clearances after assembly.

8 Carburetor Maintenance



Only with proper carburetor maintenance can the vehicle work well and meet the engine's fuel requirements, so that the engine achieves good power performance and fuel economy. Carburetor maintenance is as follows:

① Regularly check the tightness of the carburetor, intake pipe, cylinder head, cylinder and crankcase inlet and ensure good sealing; otherwise air leakage will cause failure to idle or unstable idling. Clean the jets regularly to keep them in good working condition.

② Impurities and fuel residue accumulate in the carburetor during operation. Remove, inspect and clean the carburetor every 2000 km; otherwise the main jet, idle jet and mixture screw may become blocked and normal operation will be affected.

③ After cleaning the carburetor, check the float needle for leakage before installation. Test method: first, remove the cap and float chamber; second, insert the fuel hose into the fuel tank outlet; third, turn the carburetor body upside down by hand, fit the float needle and open the fuel valve and the fuel tank. If fuel drops from the taper of the float needle, the leakage is severe and the float needle should be replaced to prevent leakage; otherwise the seal is good.

④ Finally check whether the rubber gasket is hardened, deformed or damaged; replace it immediately if damaged.

▲ CAUTION

● During installation, check for leakage between the carburetor connecting hose and the cylinder; apply sealant if there is any leakage.

9 Spark Plug Adjustment





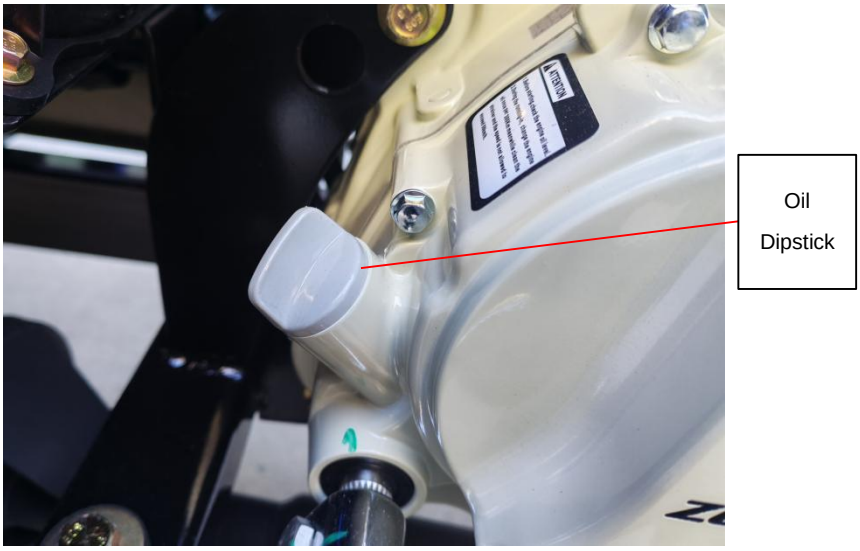
Remove the spark plug cap, clean the dirt around it, and remove the spark plug with the spark plug socket wrench from the tool bag. Clean carbon deposits and dirt from the spark plug with a wire brush, check the spark plug for damage and for erosion between the electrodes, and replace it immediately if damaged.

Check the spark plug during the first 1000 km and every 3000 km thereafter; replace it every 8000 km.

Check the spark plug electrode gap with a feeler gauge and adjust it to 0.65–0.75 mm; check that the spark plug gasket is in good condition. When installing the spark plug, to prevent cross-threading, screw it in by hand first and then tighten it with the socket wrench.

10 Checking and Changing the Engine Oil

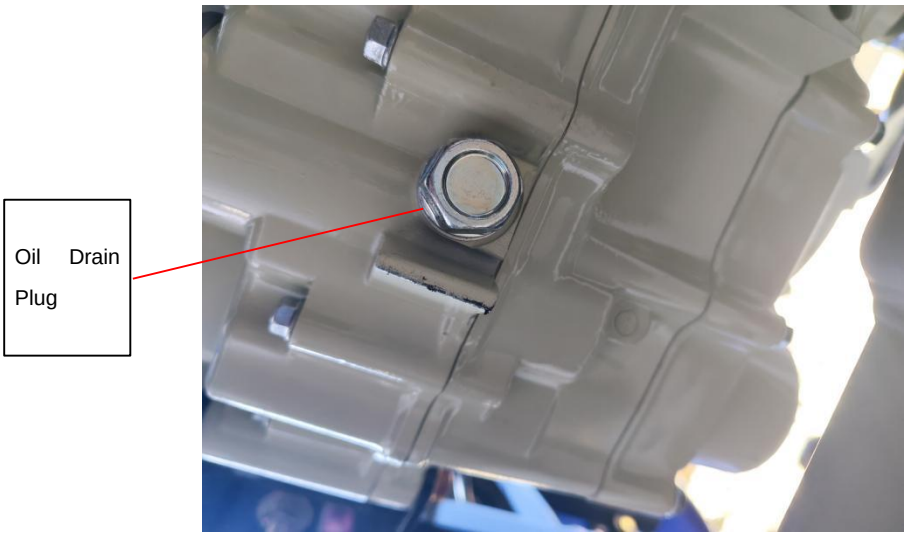
(a) Checking the Oil



Engine oil grade: SJ 15W/40 or higher is recommended. Other oils of the same grade may be used instead (oils of different grades must not be mixed).

Check the oil in the crankcase before starting; the dipstick is located at the rear of the right crankcase. Measure the oil level and make sure it is between the upper and lower marks.

When the oil turns black or deteriorates, drain the engine oil from the drain plug and change the oil. The position of the drain plug differs between engine types.



(b) Changing the Oil

Change the oil at normal operating temperature; park the motor tricycle on level ground and drain the oil quickly.

① Park the motor tricycle on level ground and let the engine idle for a few minutes. After stopping the engine, remove the dipstick and the drain plug at the bottom, and kick the starter lever a few times lightly to drain the oil completely.

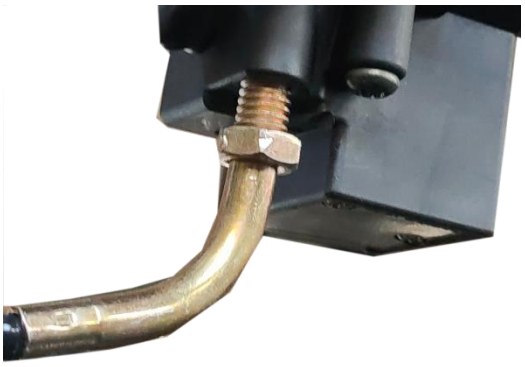
② Check the drain plug gasket; replace it if damaged. Tighten the drain plug securely.

③ Fill with the specified amount of oil: 1500 mL for models with a large oil sump. Fit the dipstick.

④ Start the engine and let it run in "N" for a few minutes.

⑤ Stop the engine, place the three-wheeled motorcycle on firm, level ground, and check for leakage and the oil level.

11 Throttle Grip Adjustment



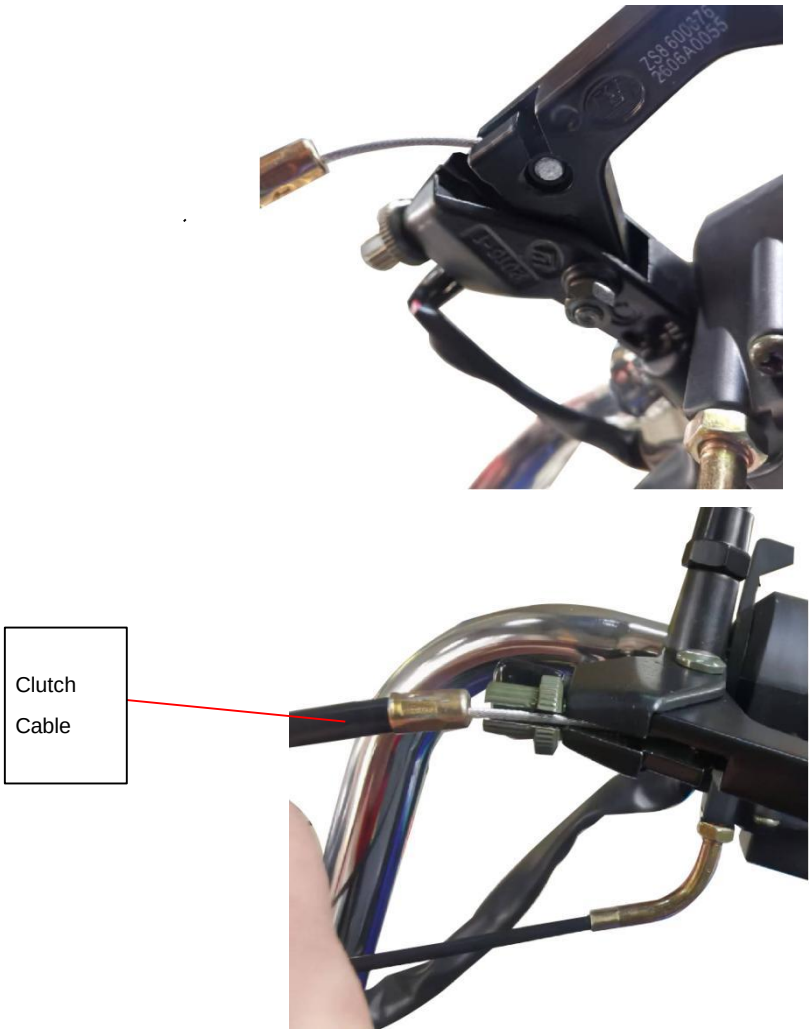
Check that the throttle grip free play is within 2–6 mm, then adjust it as follows:

① First loosen the locknut.

② Then adjust the adjuster barrel.

③ After adjustment, tighten the locknut.

12 Clutch Lever Adjustment

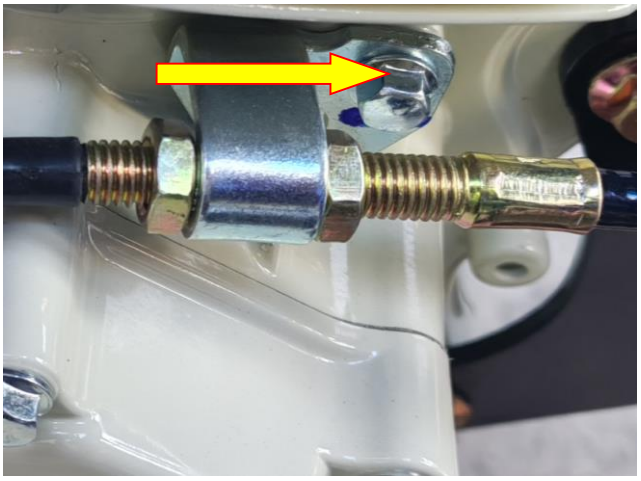


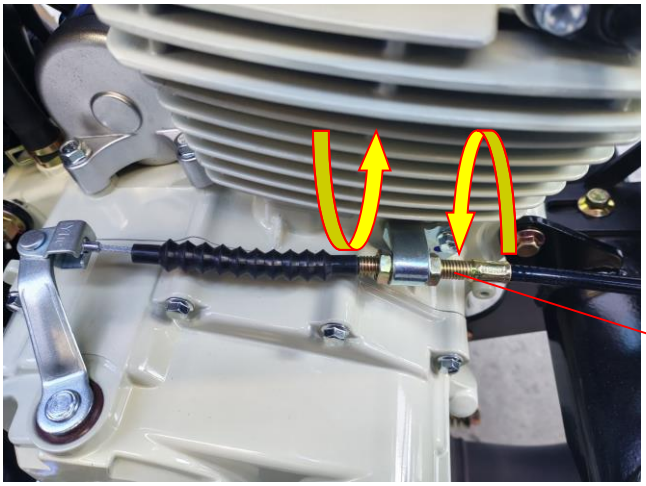
The free play at the end of the left-hand clutch lever should be 10–20 mm. If the free play is outside this range, the clutch may fail to disengage completely or may slip. Proceed as follows:

① First loosen the locknut.

② Then adjust the clutch cable clockwise.

③ After adjustment, tighten the locknut.





If the clutch lever cannot be adjusted, adjust it at the clutch cable locating point on the crankcase: first loosen the locknut, adjust the adjuster barrel in the direction of the arrow, and then tighten the nut clockwise/counterclockwise as appropriate.

13 Air Cleaner Maintenance

① Clean the air cleaner element regularly.

② Remove the air cleaner cover, take out the element, blow off the dust with compressed air, or replace the element.

③ Wipe the inside with a clean dry cloth.

④ Reinstall the air cleaner in the reverse order of removal.



▲ CAUTION

● Users should check the air cleaner according to its condition and clean or replace the element in good time.

▲ NOTE

In sandy areas, clean the element every 1000 km and replace it every 2500–3000 km.

Frequent element replacement helps greatly to extend engine service life.

14 Propeller Shaft Inspection and Adjustment



Propeller shaft adjustment directly affects the service life of the shaft as well as drive efficiency and driving safety; inspection and maintenance must be carried out strictly at the specified intervals.

① The propeller shaft is connected by splines and locked with a cotter pin; grease the splines every 1000 km.

② Adjust the rear axle forward or backward so that the exposed length of the spline shaft is 2–3 cm, and at the same time adjust the brake to ensure that the rear wheel turns freely.

15 Reverse Gear System Maintenance

① When the vehicle has travelled 200 km, drain all the oil from the reverse gearbox, refill with GL-5 85W/90 or higher gear oil, and pack the universal joint with lithium-based grease. Carry out a comprehensive inspection of the reverse gear mechanism to ensure safe and normal operation. Repeat the above servicing at 400 km and 600 km. Thereafter check the gearbox and top up the gear oil to the specified level every 200 km, and carry out the above servicing every 1000 km.

② Inspect the reverse gear mechanism regularly, particularly for reduced spring force, corrosion, fatigue or deformation of the support spring, and for loose or displaced adjusting bolts, so as to avoid slipping and gear jumping.

▲ CAUTION

● When draining the reverse gearbox, open the drain bolt. After the oil has been drained and the gearbox cleaned, tighten the drain bolt first and check for oil leakage. If there is leakage, replace the seal ring, then install the drain bolt and adjust the shift system.

● Fill with the special gear oil specified by our company as required.

16 Rear Axle Maintenance

Because the rear axle operates at high speed and under heavy load for long periods, it must be maintained regularly.



After the vehicle has travelled 300 km, drain all the rear axle gear oil and refill with 800 mL of GL-5 80W/90 gear oil.

Pack the universal joint with lithium-based grease; during servicing also carry out a comprehensive inspection of this mechanism to ensure safe and normal use.

Carry out the above servicing again after 600 km and for the third time after 1000 km; thereafter service the rear axle every 1000 km.

17 Front Brake Inspection and Adjustment



The brakes are directly related to personal safety and must be adjusted regularly.

The distance the front brake lever moves before the brake starts to act is called clearance. The clearance must not be less than half the adjustment amount. If the clearance is incorrect, adjust it as follows:

① Loosen the locknut at the lower end of the brake cable, and screw the adjusting nut in or out.

② Turn the adjusting nut clockwise to reduce the brake lever clearance and counterclockwise to increase it.

③ After adjustment, lift the front wheel off the ground; it should turn without resistance.

▲ CAUTION

● If the front brake lever travel cannot be adjusted, the front brake shoes are worn beyond the service limit and must be replaced.

18 Rear Brake Inspection and Adjustment



The distance the rear brake pedal moves before the rear brake starts to act is called free play.

The rear brake pedal free play is 1–2 cm. If it is incorrect, adjust it as follows:

① Loosen the rear brake rod nut.

② Turn the rear brake adjusting nut clockwise to reduce the clearance and counterclockwise to increase it.

▲ CAUTION

● If the rear brake pedal travel is too large and cannot be adjusted, the rear brake shoes are worn beyond the limit and must be replaced immediately.

19 Parking Brake



Pull the parking brake lever upward so that the pawl moves 4–8 teeth relative to the ratchet plate. If the free travel is too large, adjust immediately: loosen the nut, pull the steel cable in to the proper position and lock the nut.

20 Leaf Spring Inspection



① Replace the leaf spring bushing immediately if it is damaged.

② Before using a new vehicle or after reassembly, check the U-bolts every 200 km with the vehicle loaded; if they are loose, tighten the nuts evenly and repeat 2–3 times.

21 Front Shock Absorber Inspection



① Check the shock absorbers during use and replace them promptly if damaged or ineffective.

② Clean the fork tubes regularly.

22 Muffler Maintenance



Remove carbon deposits from the exhaust pipe regularly as specified, and check whether the inner pipe is loose or damaged and whether the gasket is loose; if damaged or loose, replace or repair immediately.

23 Replacement of the Circuit Fuse

The fuse rating is generally 15 A. If the fuse blows frequently, this is usually caused by a short circuit or system overload, and the circuit should be checked and repaired.

▲ WARNING

● Do not use fuses with a rated current other than specified, and do not connect the circuit directly with wire; otherwise serious consequences may result for the vehicle electrical system, including fire. Before checking or replacing the fuse, turn the ignition switch to the "OFF" position to prevent short circuits.

24 Rear Brake Light Switch Adjustment



① Turn the ignition switch to the "ON" position.

② Drive the rear brake pedal to the limit of its free play; the brake light should come on. Adjust the length of the adjusting screw to advance or delay the moment the brake light comes on.

25 Battery Use and Maintenance



(Maintenance-Free Battery)

▲ CAUTION

● On the indicator window of the maintenance-free battery, green indicates sufficient charge, yellow indicates low charge, and clear/colorless indicates that the battery is discharged.

26 Vehicle Washing

To maintain driving quality, wash the vehicle regularly.

Wash the whole vehicle with clean water. During washing, cover the following parts: spark plug, electrical switches, instruments, muffler, brakes and wheel bearings.

Dry the vehicle, start the engine and let it warm up for a few minutes.

▲ CAUTION

● Braking performance is reduced after washing.

27 Vehicle Storage

If the vehicle is not to be used for more than one month, carry out the following:

① Wash and dry the vehicle and apply oil to parts prone to rust.

② Drain the fuel from the carburetor.

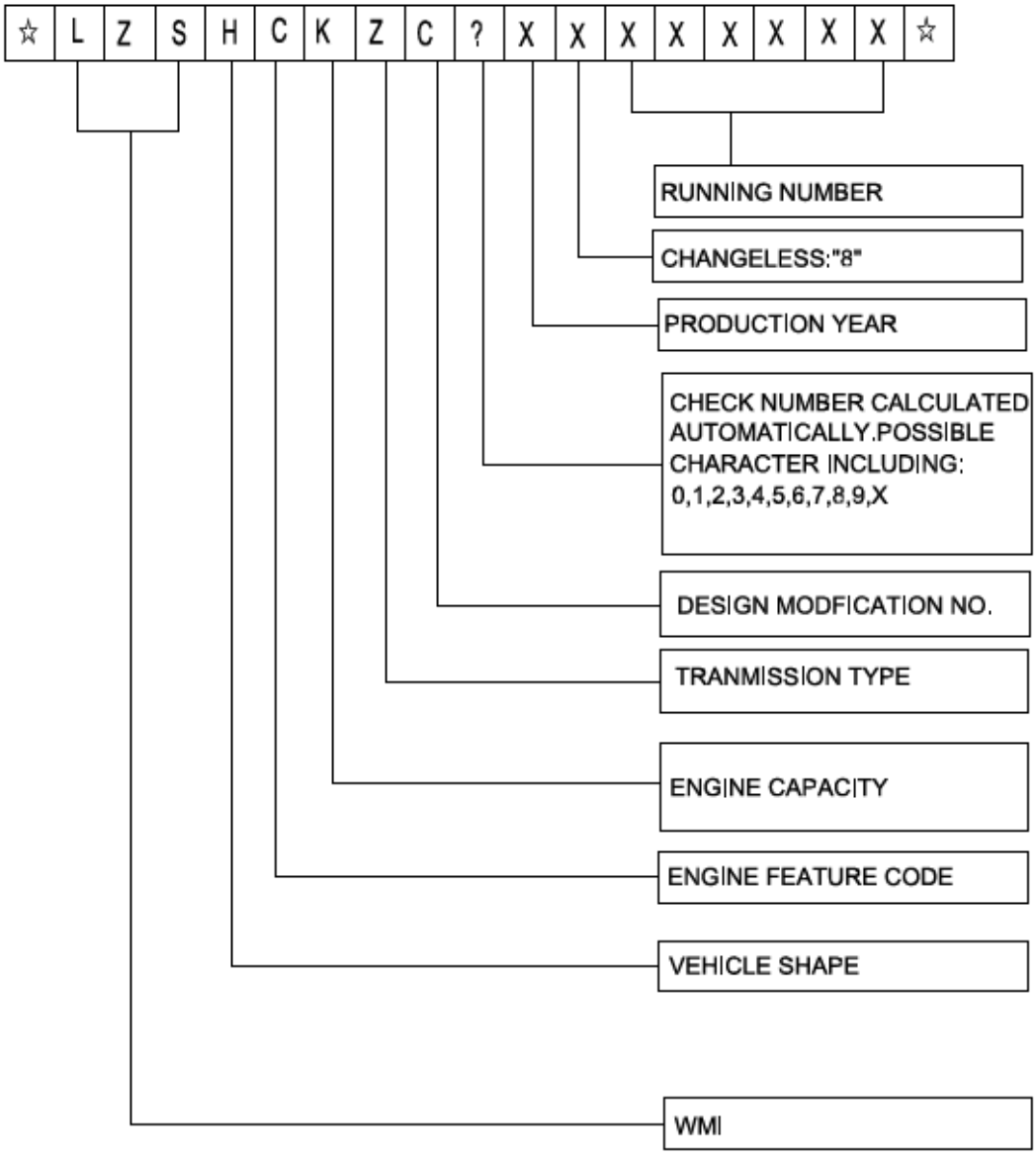
③ Remove the spark plug and pour 15–20 mL of oil into the cylinder.

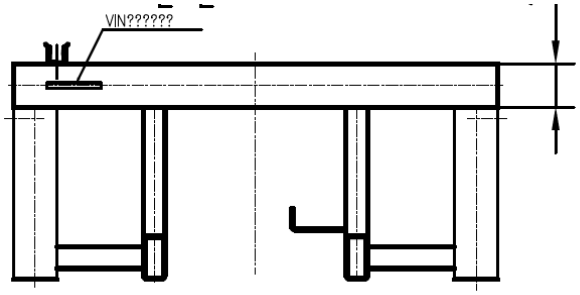
④ Remove the battery, charge it fully and store it in a dry, ventilated place away from direct sunlight.

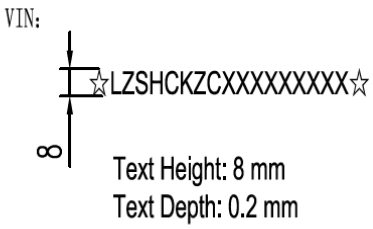
V. VEHICLE MARKINGS

The motorcycle identification number (VIN), engine number and certificate of conformity are used for registering the motorcycle license plate and ownership.

1 Vehicle Identification Number (VIN) Location

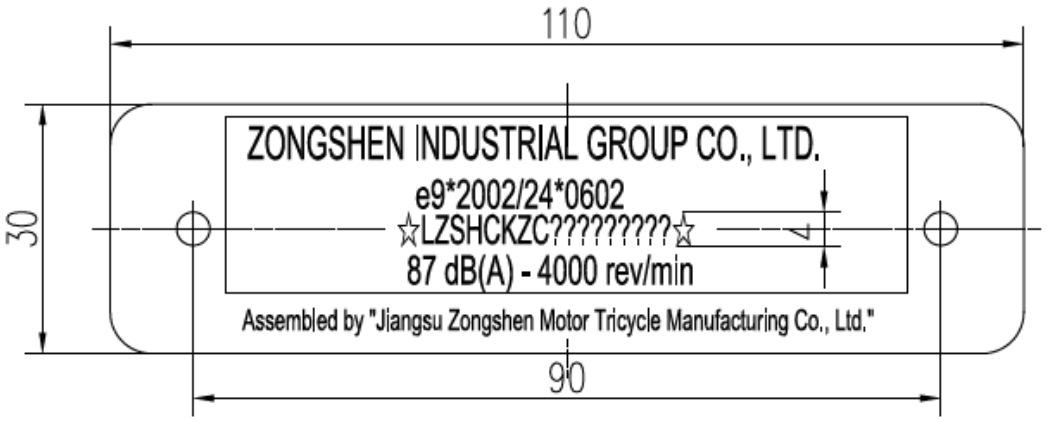


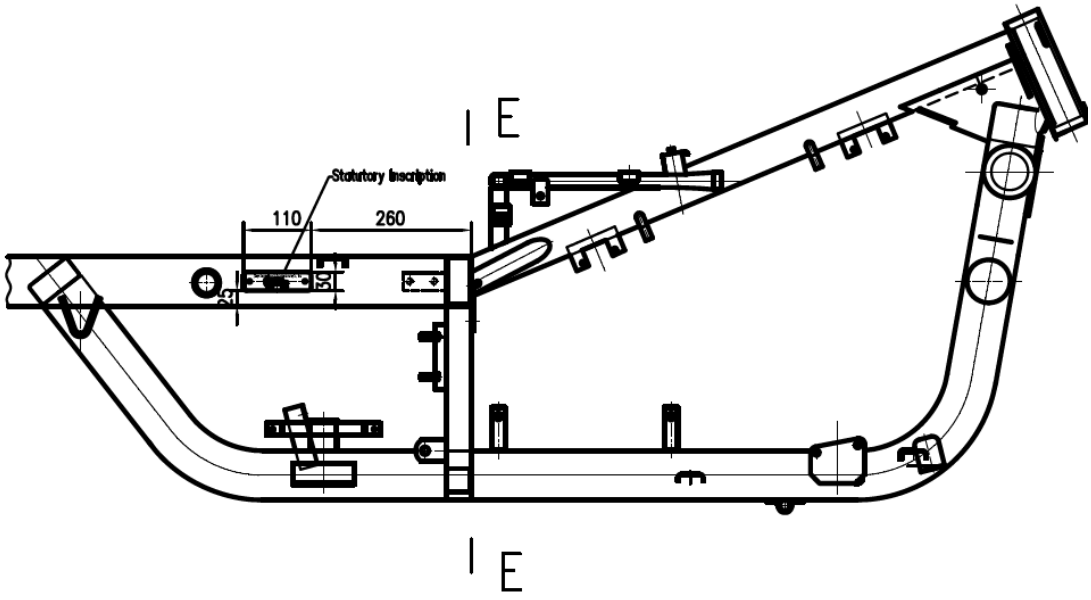




The vehicle identification number (VIN) is located on the right side of the front part of the frame, as shown above.

2 Vehicle Nameplate





3 Engine Number Location



The engine serial number is stamped below the left crankcase.

VI. TROUBLESHOOTING

1 Difficulty in Starting or Failure to Start

Symptom	Cause		Remedy
Failure to start	Improper operation		Operate as described in the manual
Fuel supply system	No fuel	Fuel tank empty	Add fuel
		Fuel tank valve or carburetor blocked	Clean the fuel passage
	Fuel accumulated in the cylinder		Drain the fuel from the cylinder
	Air cleaner blocked		Clean the element
	Air intake system leaking		Tighten the hose clamp of the connecting pipe
	Mixture too rich or too lean		Adjust
Electrical system	Fuse blown		Check the wiring to avoid short circuits; replace the fuse
	Faulty ignition coil		Replace
	Carbon deposits on the spark plug		Remove carbon deposits and adjust the gap
Intake system	Low cylinder compression	Leakage at the joint face of the cylinder head or cylinder block	Replace or adjust
		Leaking valve	Grind or replace
		Leaking spark plug	Tighten the spark plug

		Severely worn piston rings or cylinder	Replace
Exhaust system	Poor exhaust flow	Muffler blocked	Clear the blockage
		Carbon deposits at the cylinder exhaust port	Remove carbon deposits

2 Poor Engine Idling

Symptom	Cause	Remedy
No idling	Carburetor misaligned	Align the carburetor
	Fuel passage blocked	Clean the fuel passage
	Low fuel level in the float chamber	Adjust the float chamber level as specified
Idle speed too high	Insufficient throttle valve spring force	Replace the spring
	Idle jet too large	Replace the spring
Unstable idling	Incorrect ignition timing	Adjust
	Spark plug gap too small	Adjust
	Mixture too rich or too lean	Adjust

3 Engine Overheating

Symptom	Cause	Remedy
Poor heat dissipation	Oil or mud on the cylinder fins	Clean
	Idling at high speed in place, or driving at low speed for a long time	Allow to cool before continuing work
Overload operation	Clutch slipping	Adjust
	Muffler blocked	Remove carbon deposits

4 Clutch Fault

Symptom	Cause	Remedy
Clutch fault	Improperly adjusted or damaged control system	Adjust, repair or replace
	Worn or damaged friction plates	Replace
	Springs have lost their elasticity	Replace

	Improper disengagement travel	Adjust, repair or replace
	Uneven spring force	Replace

5 Brake Failure

Symptom	Cause	Remedy
Brake failure	Brake malfunction	Adjust or repair the brake system
	Brake shoes worn	Replace
	Brake cam worn	Replace

VII. MAINTENANCE RECORDS

Maintenance Record for Specified Items	Model		Mileage	
1. Change engine oil	Frame No.		Engine No.	
2. Lubricate the steering, suspension and drive systems	Date of Purchase		Date of Service	
3. Check or adjust all vehicle lights	Customer Name		Telephone	
4. Adjust engine clutch travel and performance	ID No.		Post Code	
5. Check battery level and indicator window	Customer Address		E-mail	
6. Check brake travel and performance				
7. Check the three filters and the tightness of all fasteners	Dealer		Serviced by	
8. Tighten all oil passages and pipe joints, eliminate oil, coolant and air leakage, top up coolant, engine oil, hydraulic oil and gear oil, and eliminate other abnormal conditions				
Servicing Dealer (Stamp) Manager:		Customer Comments: Customer:		