



GENERIC



ONYX 50

DESIGN  AUSTRIA

Service Manual



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ONYX

Service Manual



Generic Motor GmbH

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Preface

This is maintenance manual for QJ50QT-22D.

Preparing Documents include all necessary instructions and statements. Please carefully read this manual before operation.

Inspection & Adjustment states how to check and adjust your motorcycle. All safety rules and maintenance regulations shall be carried out from the beginning of periodic inspection.

Except for chapter one, the rest chapters explain the disassembly/ assembly/ inspection of engine, entire motorcycle and electrical parts.

Breakdown drawing, systematic drawing, failure analysis and statement are contained at the first part of each chapter.

Please note that photos, pictures or instructions are for your reference only. The actual object may differ from these mentioned here. We will not make notification for any discrepancy.

Generic Motor GmbH

Preparing documents

General safety

Maintenance rules

Specification table

Failure diagnosis

General Safety

Carbon monoxide

Engine shall be started in a ventilated place, not in a closed area.

Note

Exhaust gas contains poisonous carbon monoxide, which may cause unconsciousness or even death of human being.

Start engine in an open place. The exhaust cleaning system shall be adopted if engine is started in a closed area.

Petrol

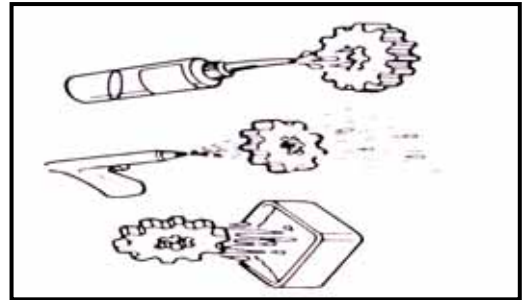
Ventilated place is required for working. Fire is strictly forbidden in work place or where petroleum is stored.

Maintenance Rules

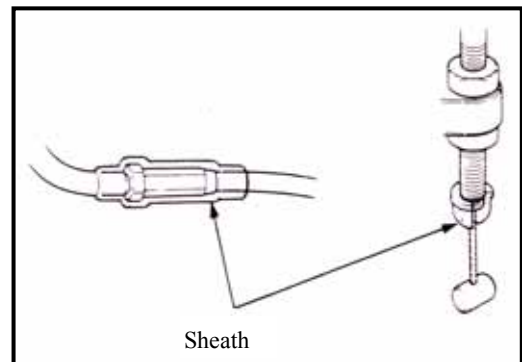
Metric tools are preferable for the maintenance of this motorcycle. Improper tools may cause damage.

Clean up the surface of parts or assembly parts before removing or opening the shield for maintenance, which can prevent dirt from falling into the engine, chassis or braking system.

Wash parts and dry with compressed air machine after disassembly and before measurement of attrition value.

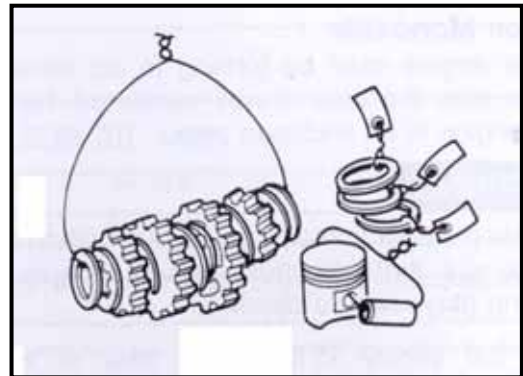


Solvent or oil can easily damage aging rubber articles. Check rubber before reassembly and replace rubber if necessary.

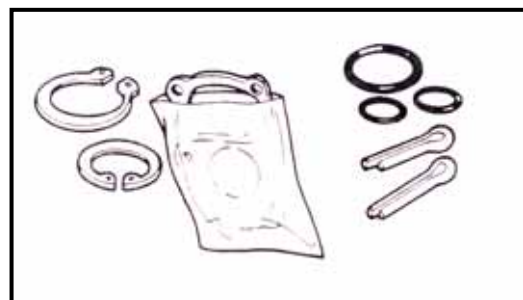


When releasing assembly parts, please start from outside to inside. Small assembly parts shall be loosened first.

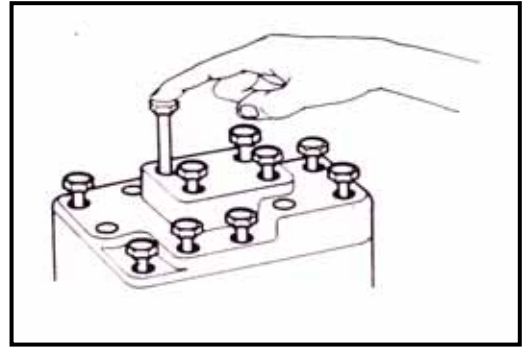
Complex assembly parts, such as gear box, shall be stored in proper order for facilitating installation in the future.



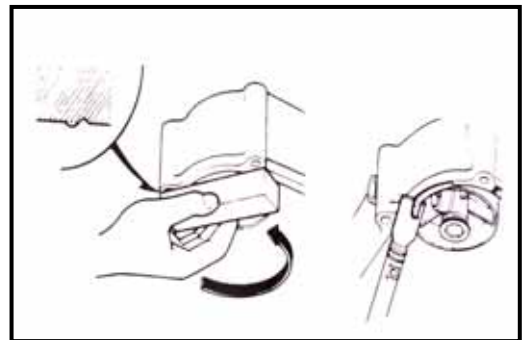
Please specially note the important connections before disassembly. Replace parts which will not be in use before disassembly.



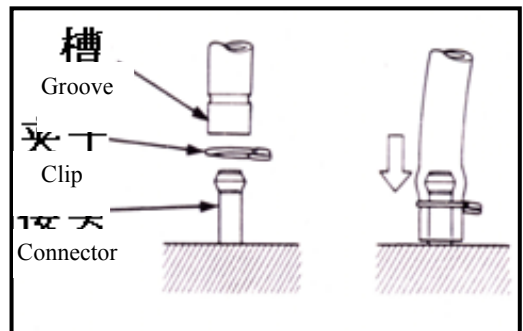
Bolts and screws with different length will be separately used for assembly parts and shields, and they shall be correctly mounted. Insert a bolt into a hole to check whether it is proper if you are confused.



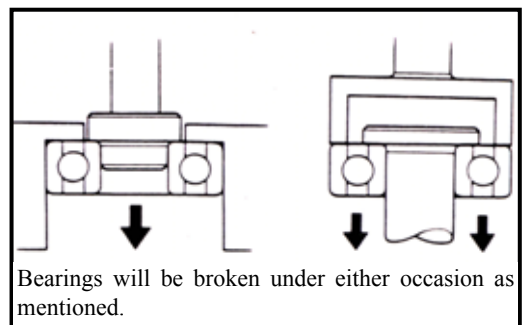
Fill the groove with grease before mounting an oil seal. Check whether the oil seal is smooth or damaged during assembly.



When installing a hosepipe (fuel, vacuum or cooling agent), insert its end into the bottom of the connector so that the hose clip can properly fix the connector. Rubber or plastic dirt-proof boot shall be mounted according to the original design.



During dismantling ball bearing, one or two (inside & outside) bearing rollers shall be supported by tools. Ball bearings may be damaged and have to be replaced if only one roller (either inside or outside) is imposed with force.



Loose cables threaten electrical safety. Check each cable after they are all clamped to ensure the electrical safety;

Wire clamps are not allowed to bend towards welding point;

Bind cables at the designated place;

Do not deploy cables at the end of frame or at sharp point;

Do not deploy cables at the end of bolts or screws;

Cable deployment shall be far from heat source and where cables may be clamped during moving;

Cables along the handlebar shall be neither too tight nor too loose, and do not interface with any neighboring parts at steering positions;

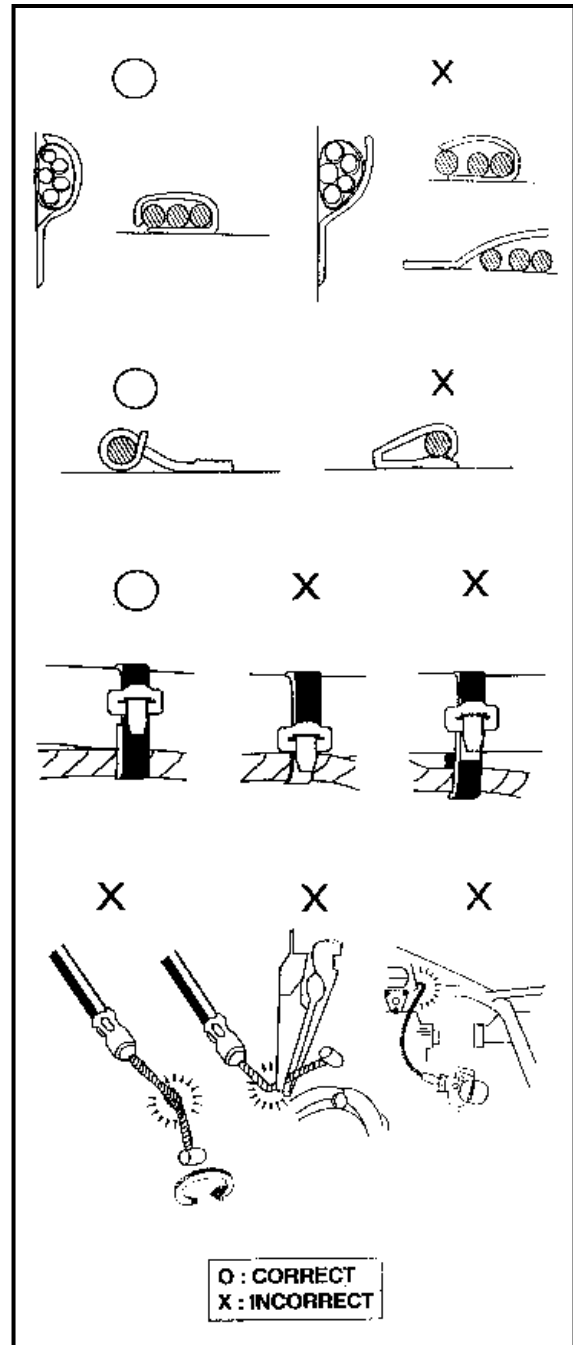
Cables shall be properly deployed without twist or knot;

Check whether the connector jacket is damaged and whether the connector is over-stretched before mounting connectors;

Adopt adhesive tape or hosepipe to protect cables if they are positioned at sharp point or corner;

Bind cables with tape after repairing;

Control cables shall not be bent or twisted. Clumsy operation may be caused in light of damaged control cables.



Identification of Motorcycle

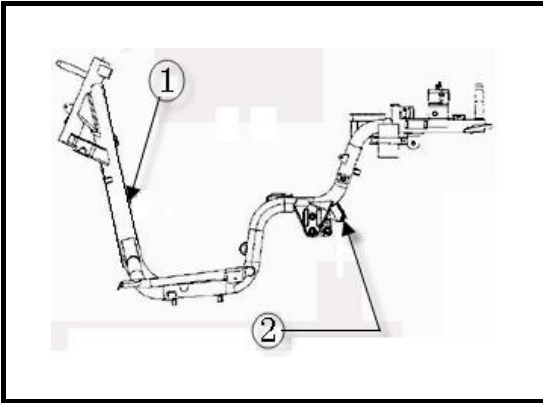


Fig. 1-1

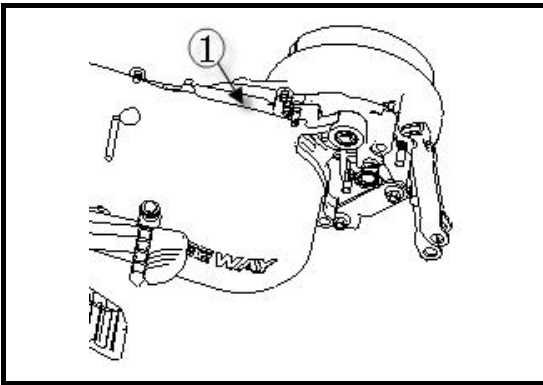


Fig. 1-2

1. The identification number of motorcycle frame is marked at □: *LBBB4900?8B?????*. The 9th digital, 10 digital and 11th digital respectively indicate inspection code, year and supplier code. There are 17-digital in total. The frame sign is nailed at □. See Fig. 1-1.

2. The serial number of engine is printed on the shell of crankcase of engine and shall be in the format of KW1E40QMB-4*□□□□□□□□*. Please see fig. 1-2.

Significant Notes

1. Please apply valid Generic parts and accessories. Any part or accessory not in accordance with the design specification of Generic Company may cause damage to engine.
2. Only metric tools are valid for maintenance and repair. Metric screws, bolts and nuts can not be exchanged with imperial fasteners.
3. New gaskets, O-rings, cotter pins and locking pieces shall be applied for re-assembly.
4. Bolts with large diameter or positioned inside shall be fastened first and then diagonally screw down until reaching required torque, otherwise there is special instruction.
5. Wash disassembled parts with cleanser. Lubricate all sliding surface before assembly.
6. Check whether all the parts and accessories are correctly mounted and operated after assembly.
7. Clean and remove oil before measurement. Add recommended lubricant to the lubricating areas during assembly.
8. Apply lubricant to the surface of engine and driving system if they are dismantled for long-term storage, which can prevent rust and dirt.

Special Tools

Special tools refer to tools which are specially designed for assembling or disassembling some motorcycle parts on special positions. Applicable special tools are necessary for precise adjustment and installation. With them, parts and accessories can be mounted safely, reliably and rapidly, which improves efficiency and saves energy.

1 . Tools for repairing engine

Special tools are required for properly disassembling/assembling some engine parts.

List and drawing (1-1, 1-2) of special tools for disassembling/assembling engine parts are as follows:

Table 1-1

Name	Remark
Special socket spanner	Used for assembling/disassembling bolts for flywheels, Fig. 1-3
Clutch clamp holder	Fig. 1-4
Flywheel puller	Fig. 1-5
Feeler gauge	Fig. 1-6
Bearing disassembly tools	Fig. 1-7
Bearing assembly tools	Fig. 1-8
Oil seal remover	Fig. 1-9
Handle for dismantling tools	Fig. 1-10
Piston pin pulling device	Fig. 1-11
Piston pin pliers	Fig. 1-12
Socket spanner for spark plug	Fig. 1-13
Clutch thickness measuring device	Fig. 1-14
Cylinder diameter measuring device	Fig. 1-15
Dial indicato	Measuring the inner diameter of piston pin, Fig. 1-16

Table 1-2 (continued)

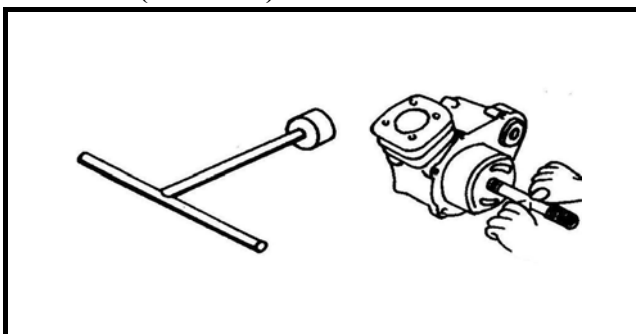


Fig. 1-3

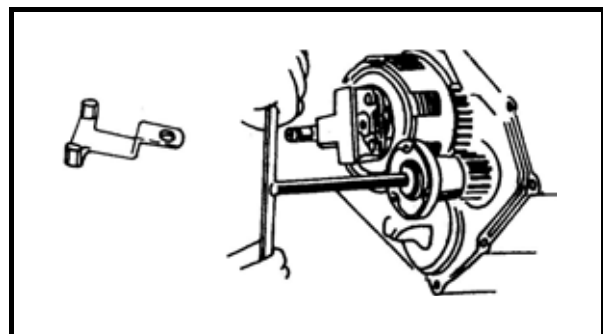


Fig. 1-4

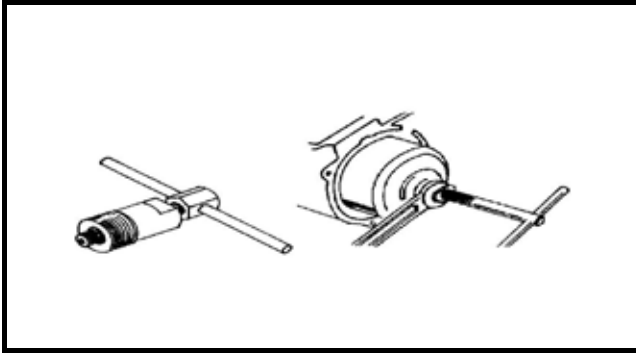
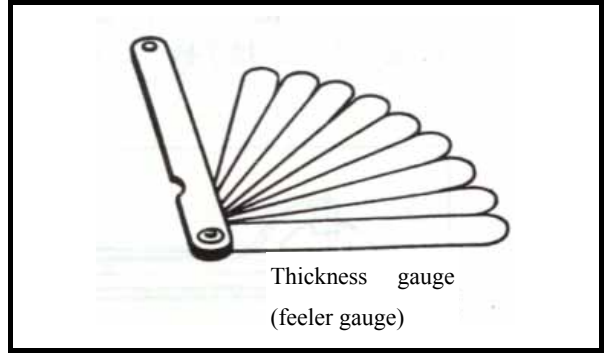


Fig. 1-5



Thickness gauge
(feeler gauge)

Fig. 1-6

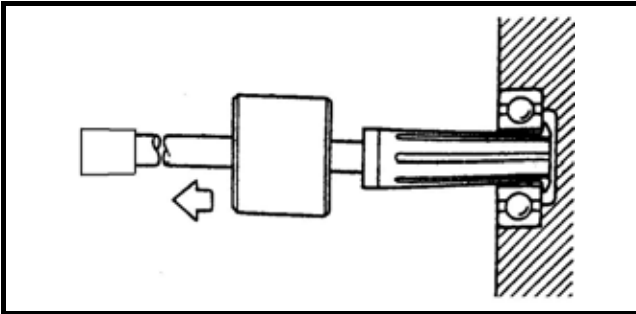


Fig. 1-7

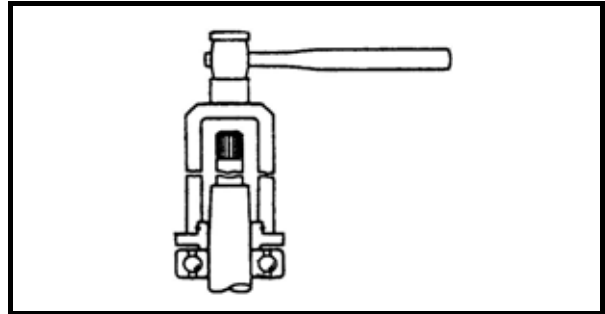


Fig. 1-8

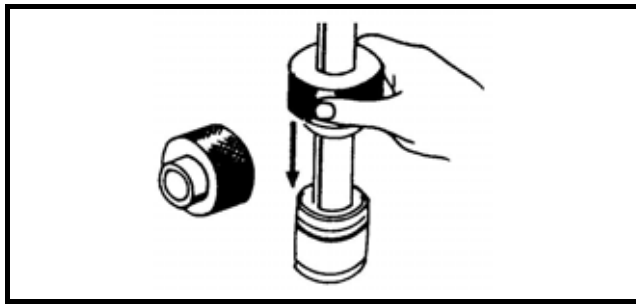


Fig. 1-9

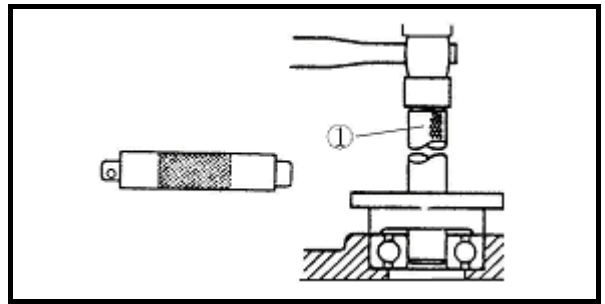


Fig. 1-10

□ handle

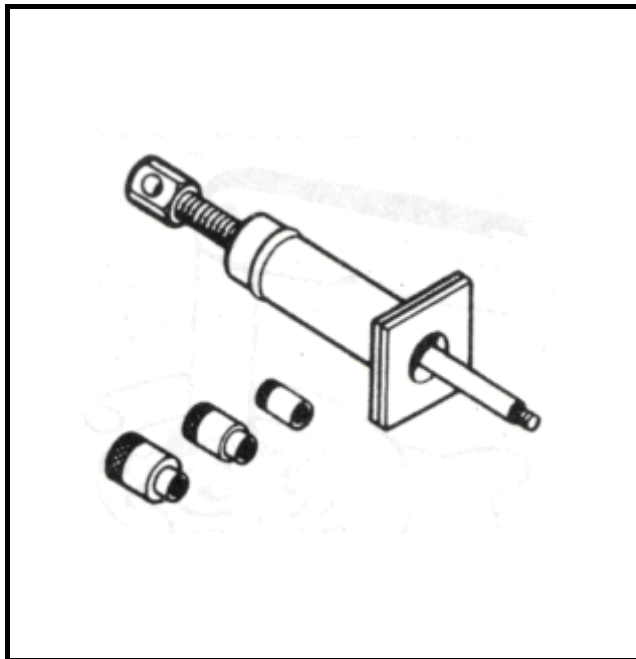


Fig. 1-11

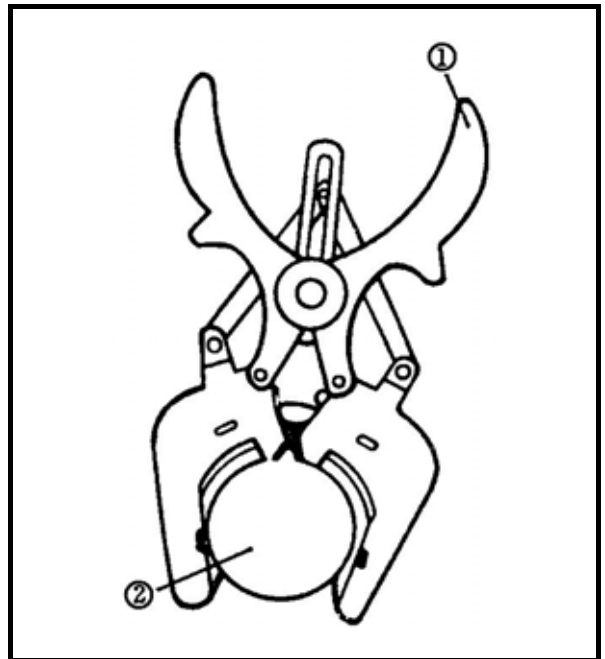


Fig. 1-12

□ pliers □ piston

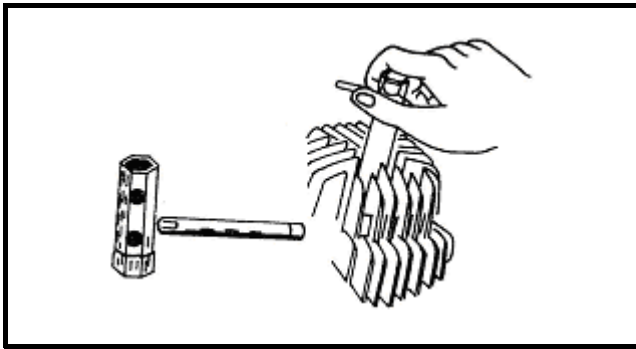


Fig. 1-13

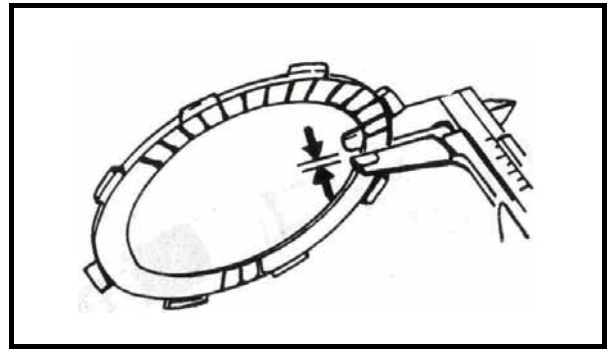


Fig. 1-14

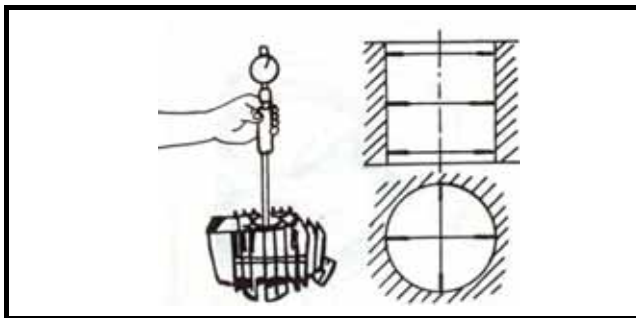


Fig. 1-15

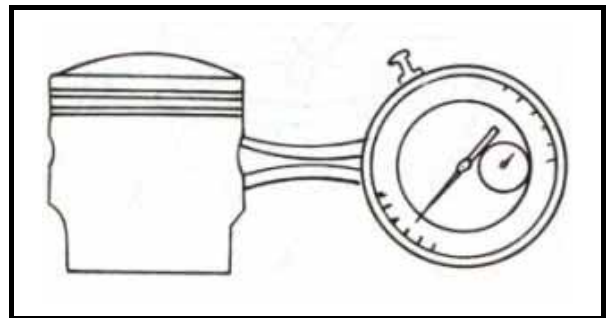


Fig. 1-16

2 . Tools for repairing chassis

List and drawing (1-17, 1-18) of ordinary tools and special tools for disassembling/assembling chassis parts are as follows:

Table 1-17

Name	Remark
Torque spanner	Fig. 1-19
Inner hexagon spanner	Fig. 1-20
Socket spanner	Fig. 1-21
Dial indicator	Fig. 1-22
Magnetic rack, V-block	Fig. 1-23
Micrometer	Fig. 1-24
Vernier calipers	Fig. 1-25
Circlip pliers	Fig. 1-26
Screwdriver with striking cap	Fig. 1-27
Tool for assembling oil seal of front fork	Fig. 1-28
Tool for hammering seal of front fork	Fig. 1-29
Steering nut spanner	Fig. 1-30

(1) Ordinary tools for repairing chassis

Table 1-18 (continued)

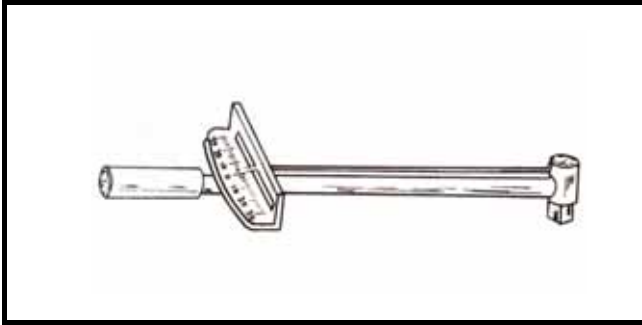


Fig. 1-19

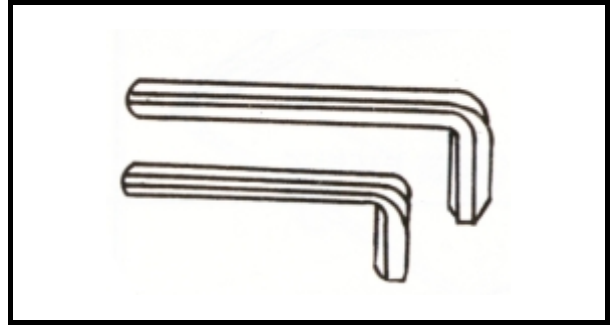


Fig. 1-20

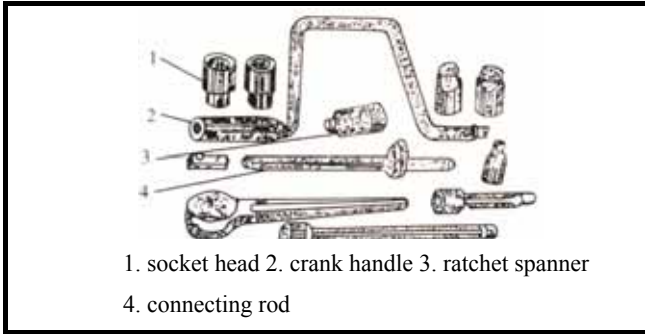


Fig. 1-21



Fig. 1-22

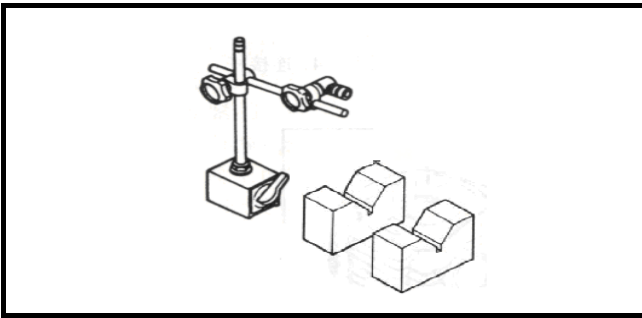


Fig. 1-23



Fig. 1-24

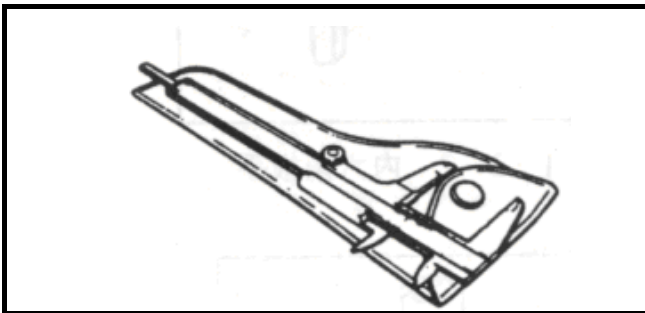


Fig. 1-25

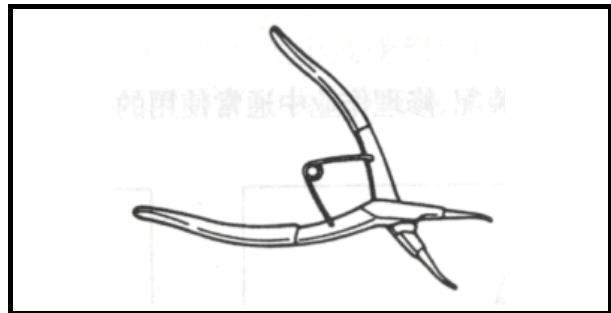


Fig. 1-26

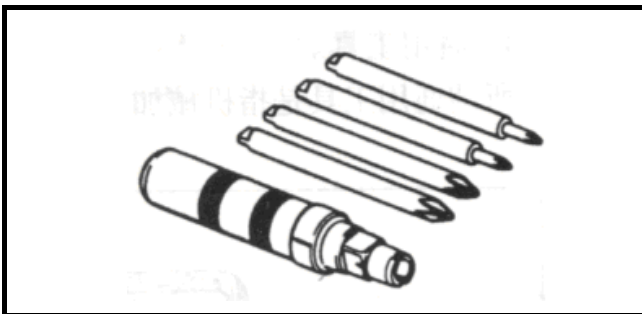


Fig. 1-27

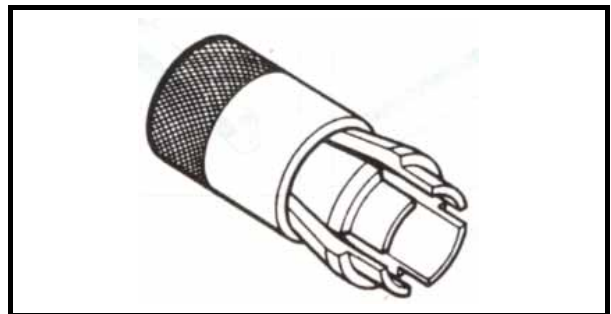


Fig. 1-28

(2) Special tools for repairing chassis: tool for hammering seal of front fork

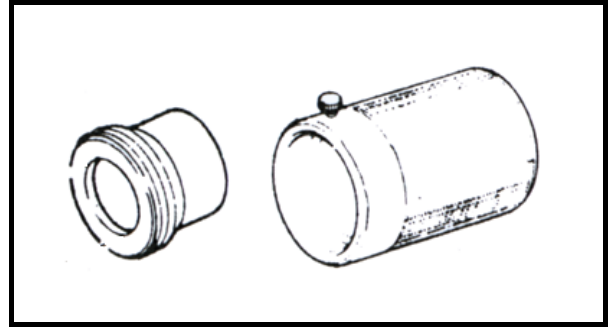
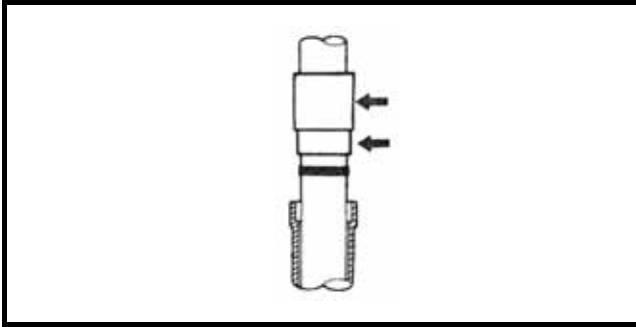


Fig. 1-29

(3) Steering nut spanner

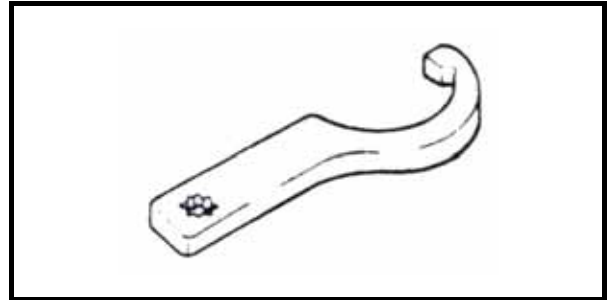
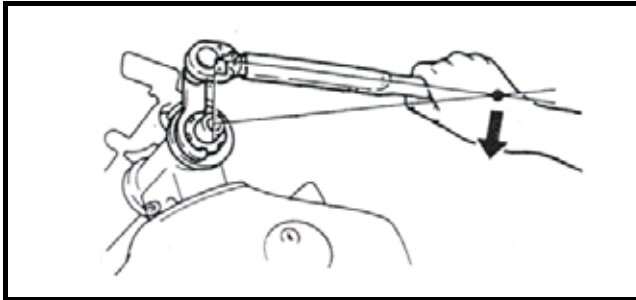


Fig. 1-30

3 . Tools for electric parts

List and drawings (1-31, 1-32) of special tools for testing electric parts are as follows:

Table 1-31

Name	Remark
Multimeter	Fig. 1-33
Ignition tester	Fig. 1-34

Table 1-32 (continued)

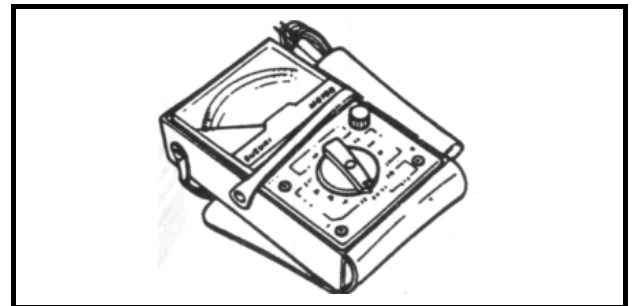
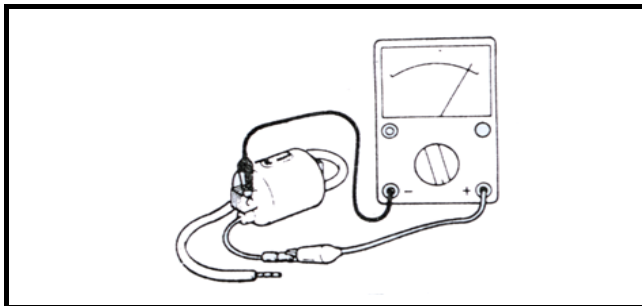


Fig. 1-33

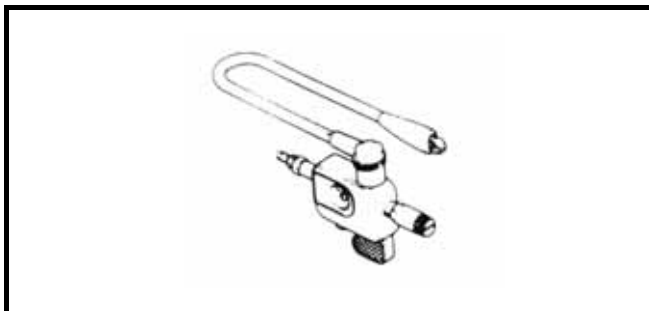


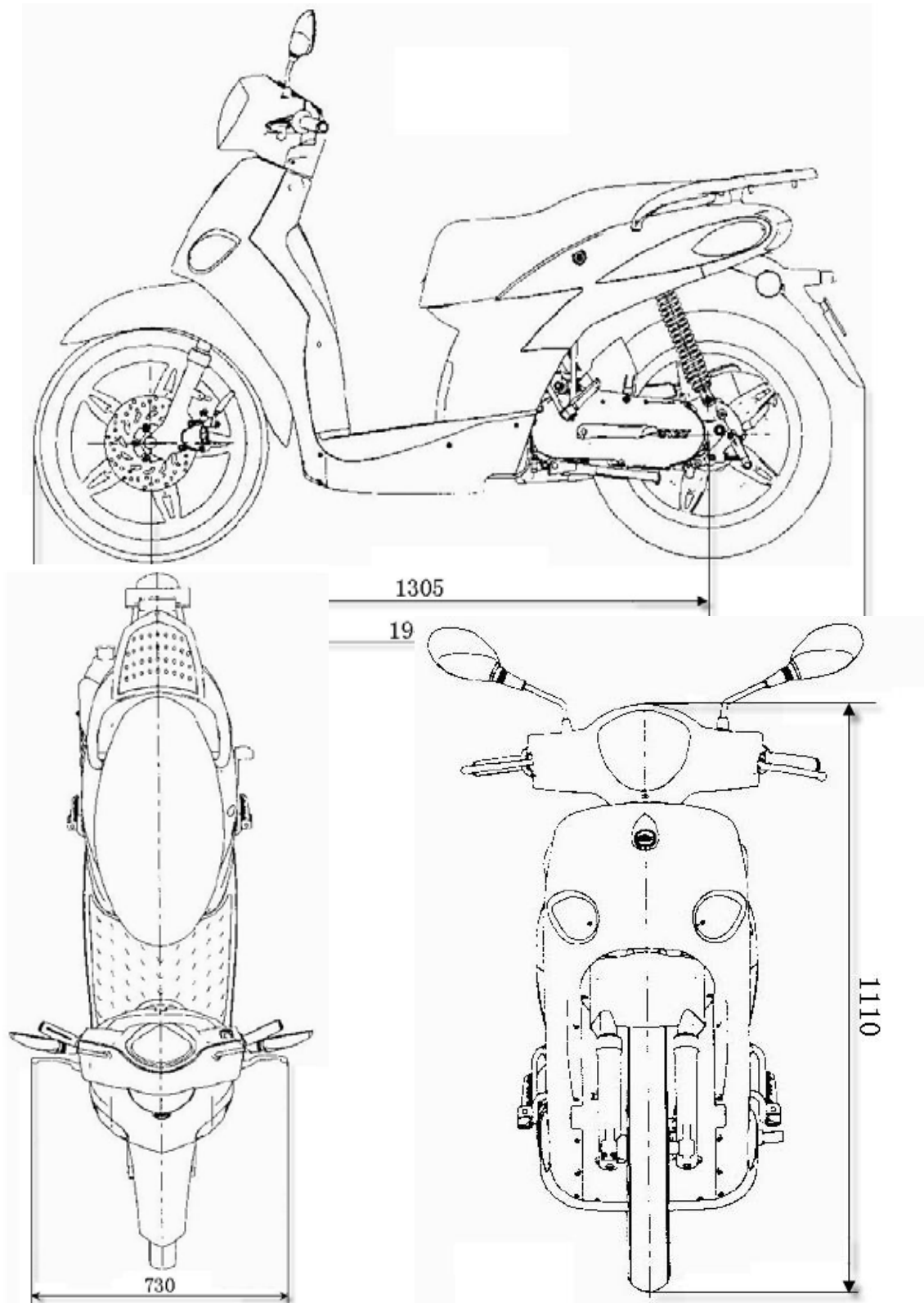
Fig. 1-34

Specification (QJ50QT-22D)

Model		QJ50QT-22D		Engine	Engine type	QJ1E40QMB-4	
Length mm		1940			Fuel type	Unleaded petrol (92/95)	
Width mm		730			No. of cylinder	1	
Height mm		1110			ID × stroke	40×39.2	
Wheelbase mm		1305			Total displacement	49.2CC	
Weight kg (Curb weight)		Forward shaft	39		Startup	Electric/kick	
		Backshaft	62		Cooling	Air cooling	
		Total	102		Lubrication	Separate lubrication	
Tyre Size		Front outer tyre	80/80-16		Air filter	AF-B45	
		Front rim	16X1.6		Capacity of gasoline tank	5.5 L±0.2L	
		Rear outer tyre	90/80-16	Carburetor type	PZ19JB-2K		
		Rear rim	16X1.85	Idle speed	1900±100rpm/min		
Transmission gear	Clutch	Dry centrifugal clutch		Performance	Max. torque	4.36N.m/5250rpm	
	Variable speed gear	Stepless			Max. Hp	2.60kW/6500rpm	
	Transmission	Belt transmission			Compression ratio	6.9 : 1	
Electric devices	Battery capacity	12V-4AH			Max. speed	45km/h	
	Electromagnetic motor capacity	90W/5000rpm			Braking	Dia. of fluid brake disc, front wheel	φ220mm
	Spark plug	BR8HSA (NGK)					
	Clearance of spark plug	0.6-0.7mm					
	Ignition	CDI					

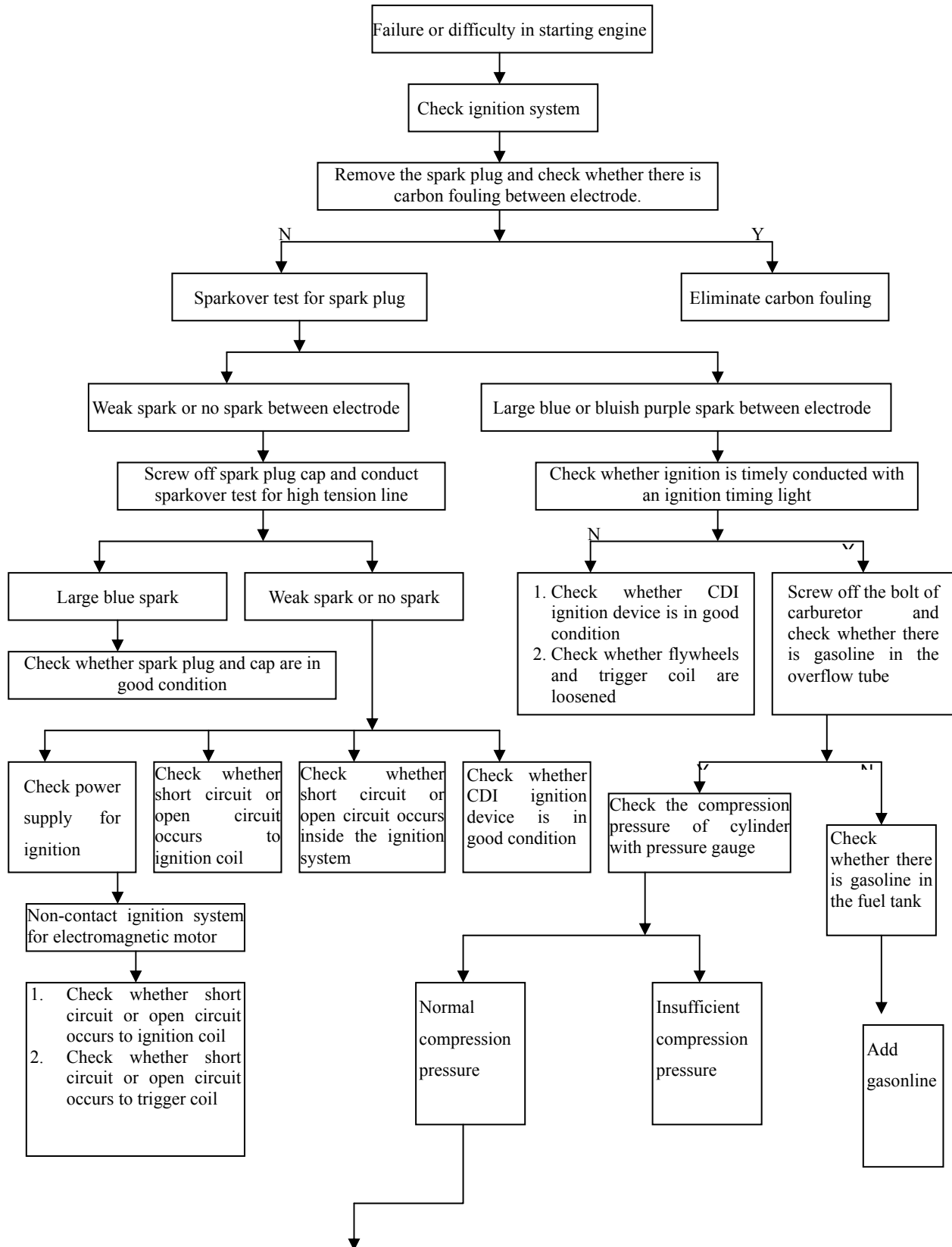
			system	I.D. of brake drum, rear wheel	φ140mm
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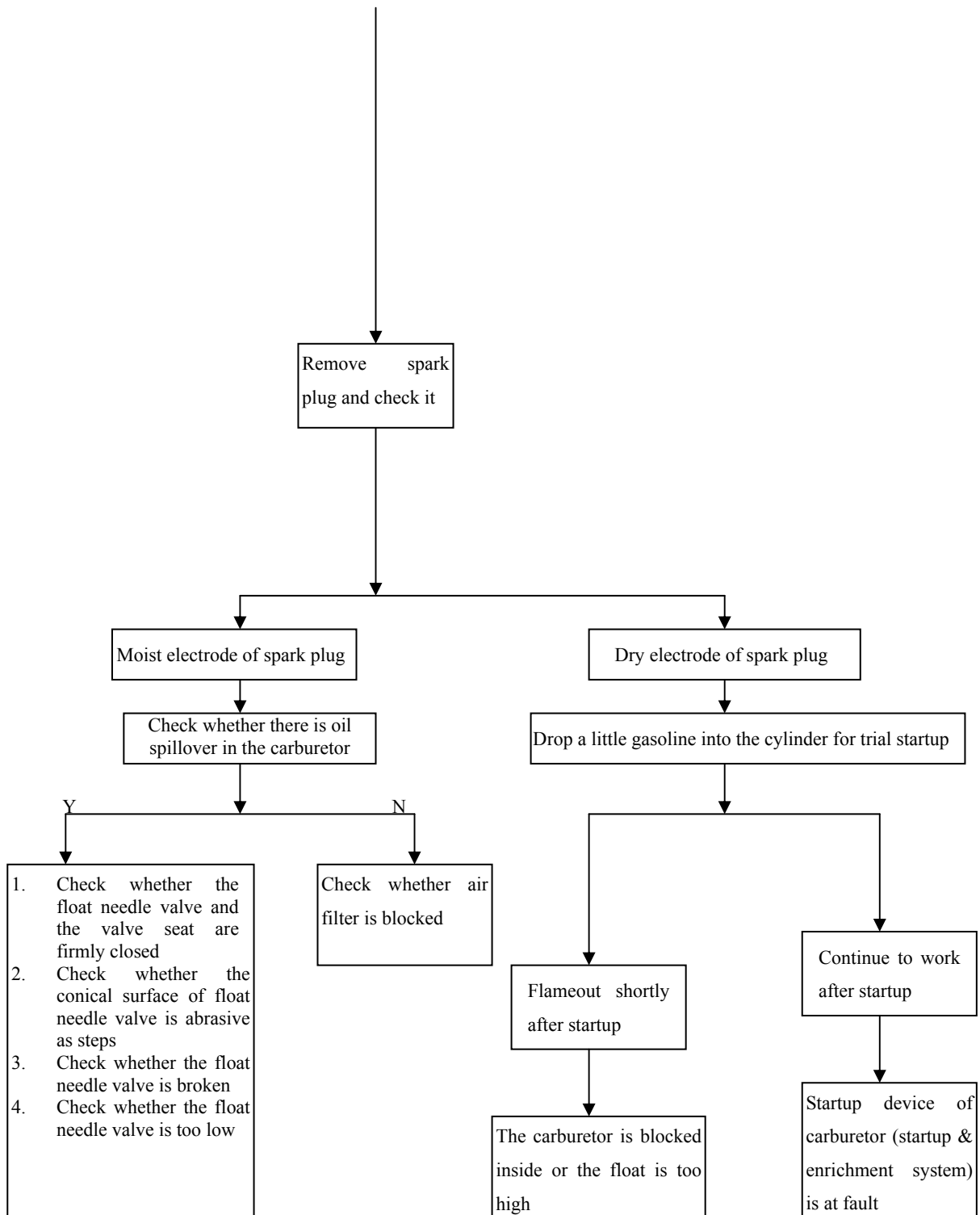
QJ50QT-22D



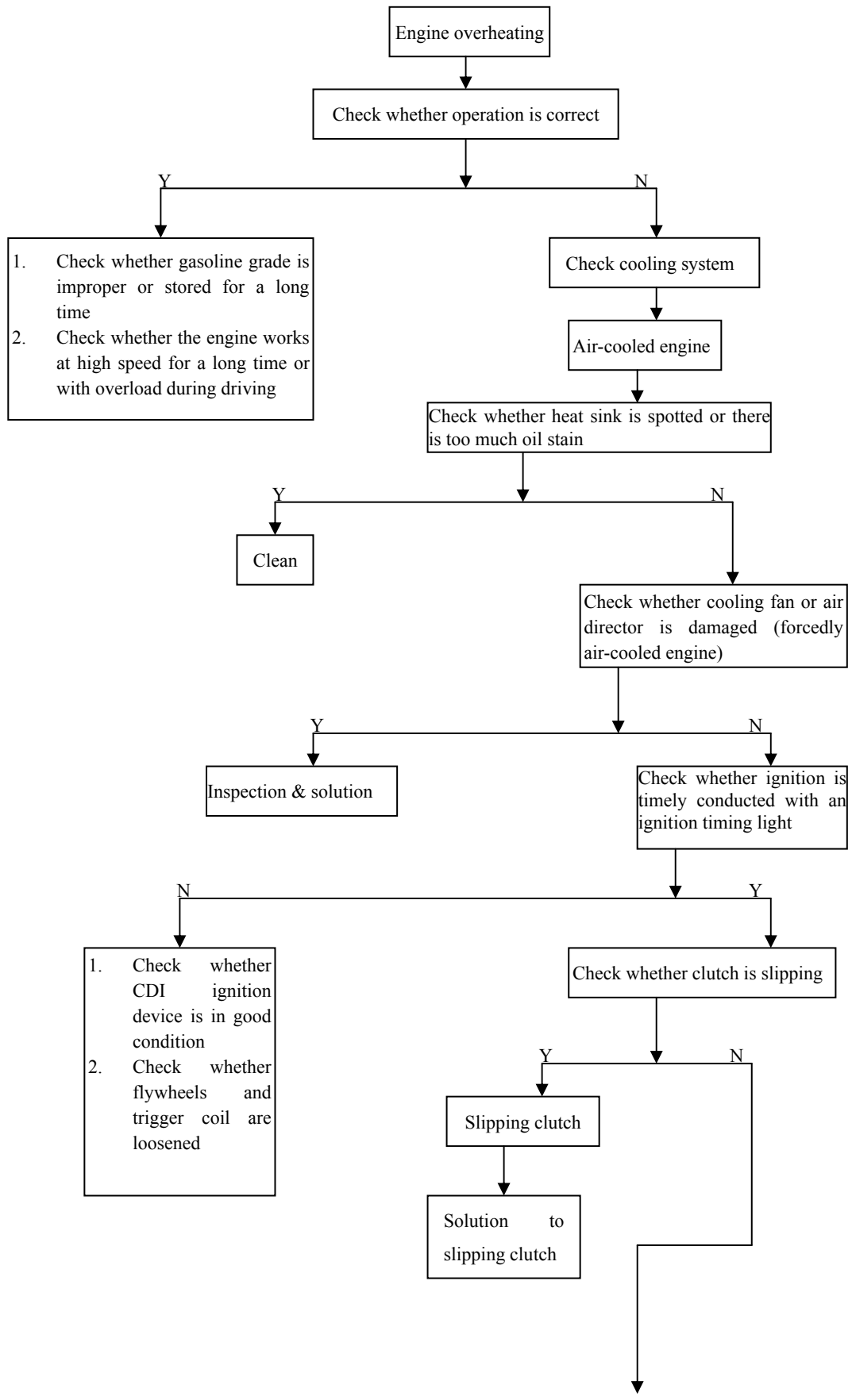
Failure Diagnosis

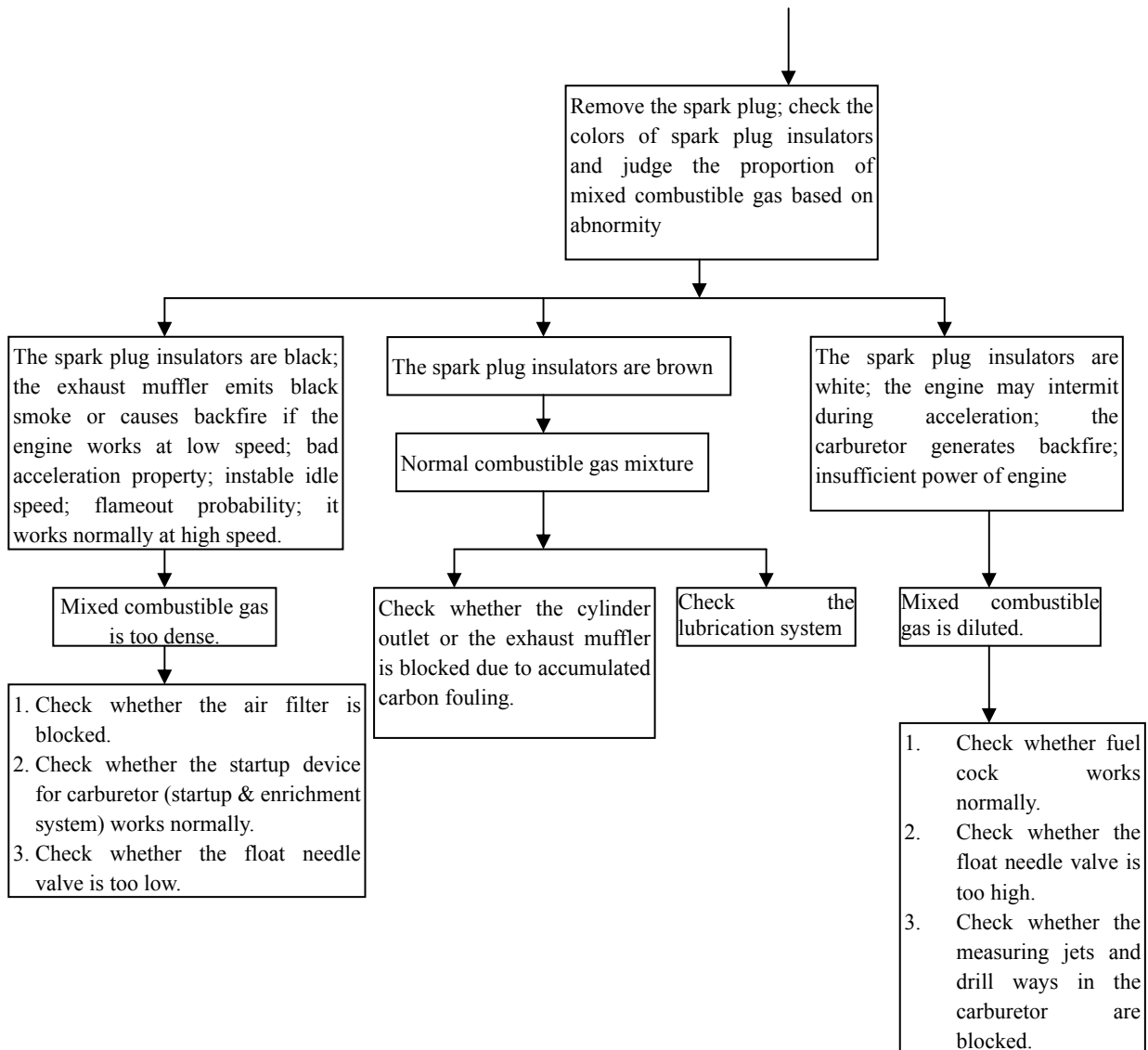
Diagnosis on failure or difficulty in starting engine



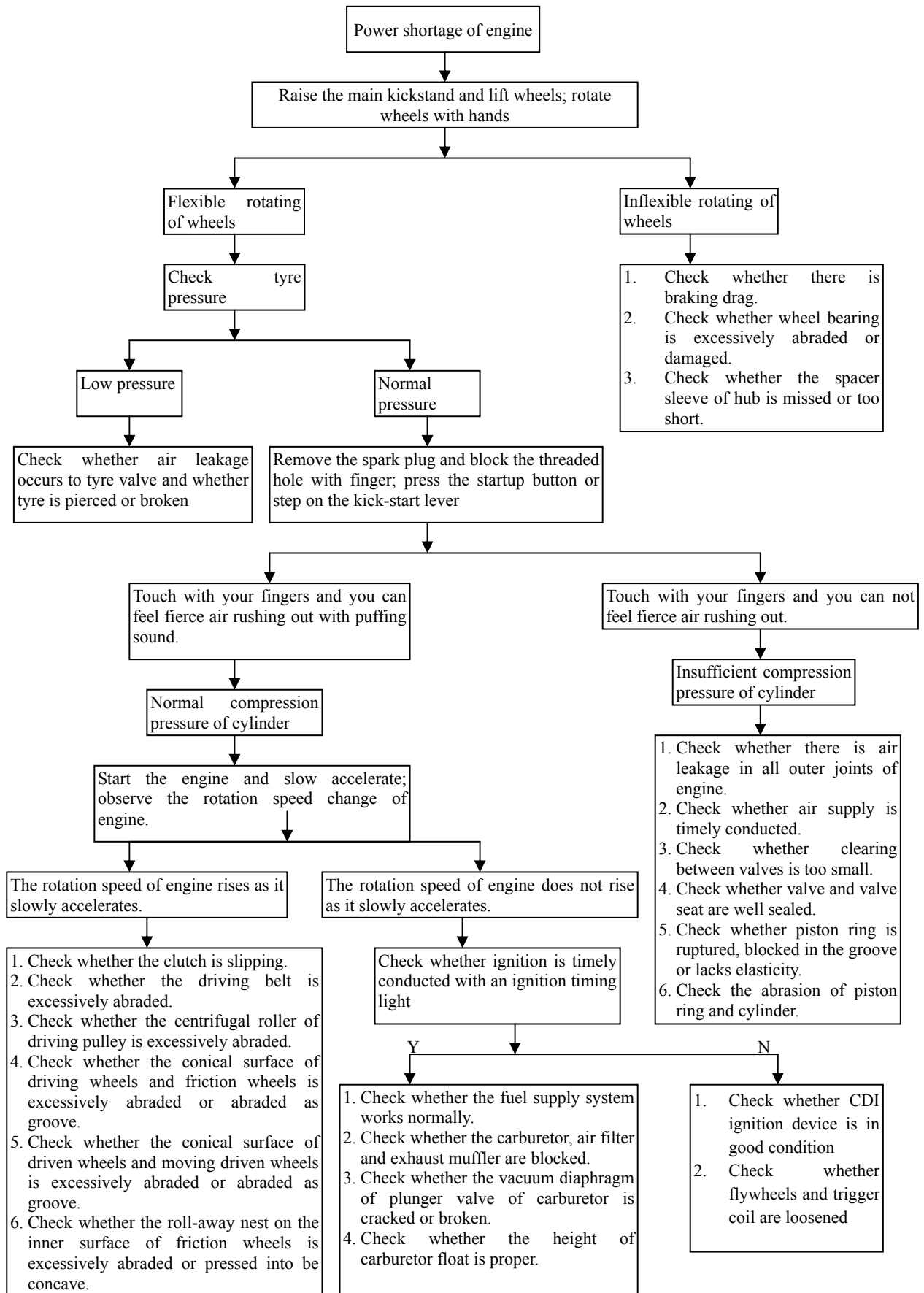


Diagnosis on engine overheating

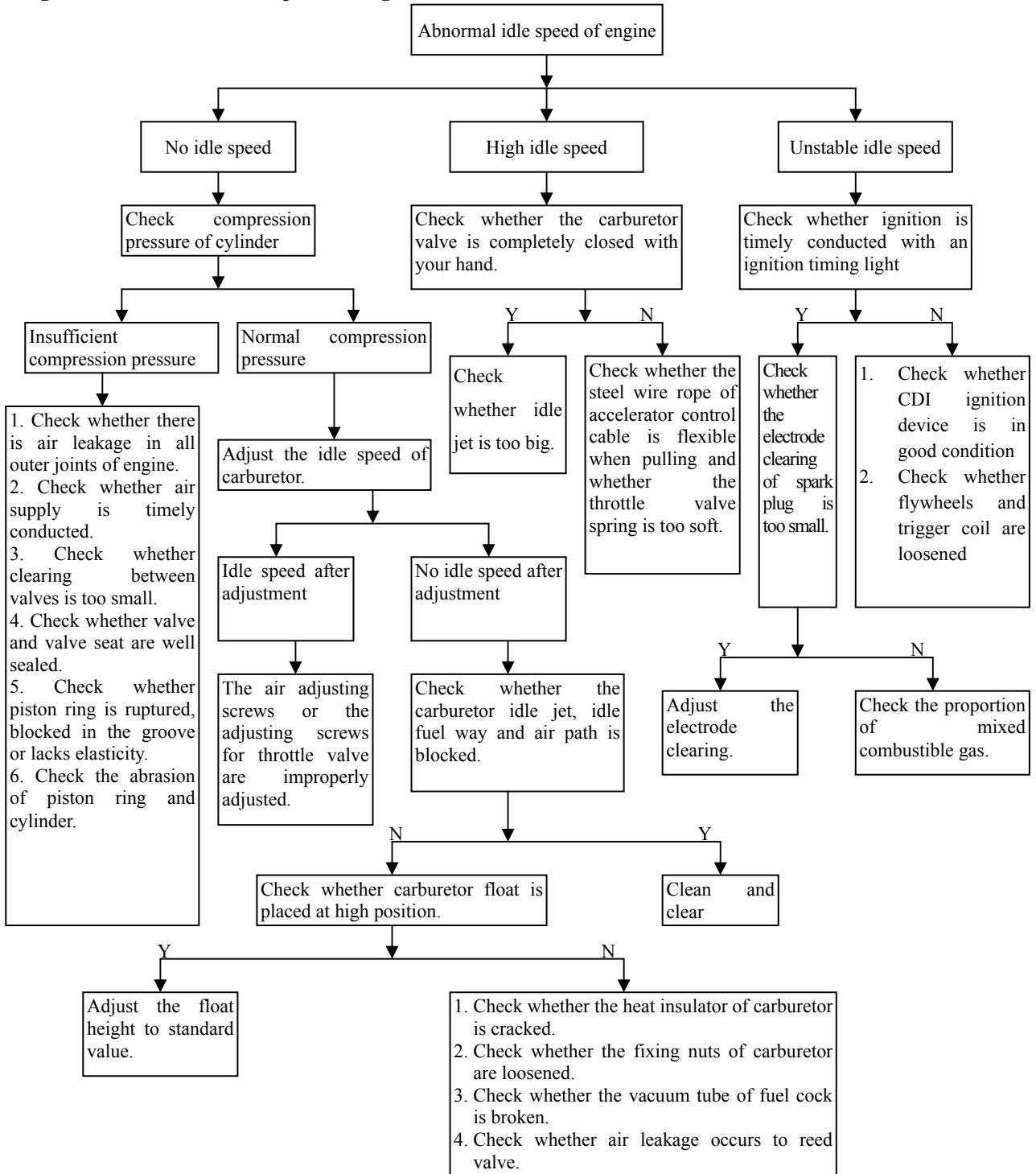




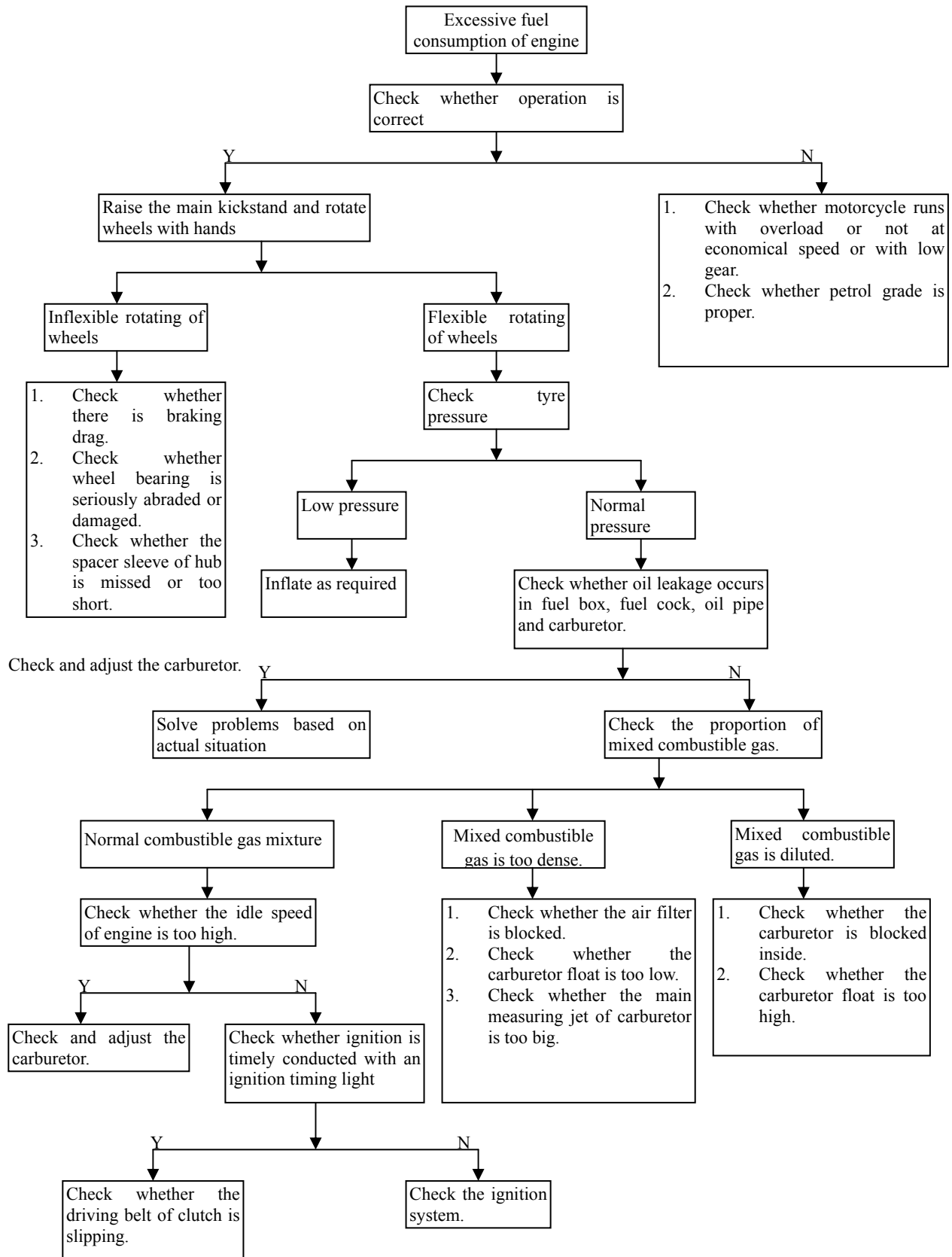
Diagnosis on power shortage of engine



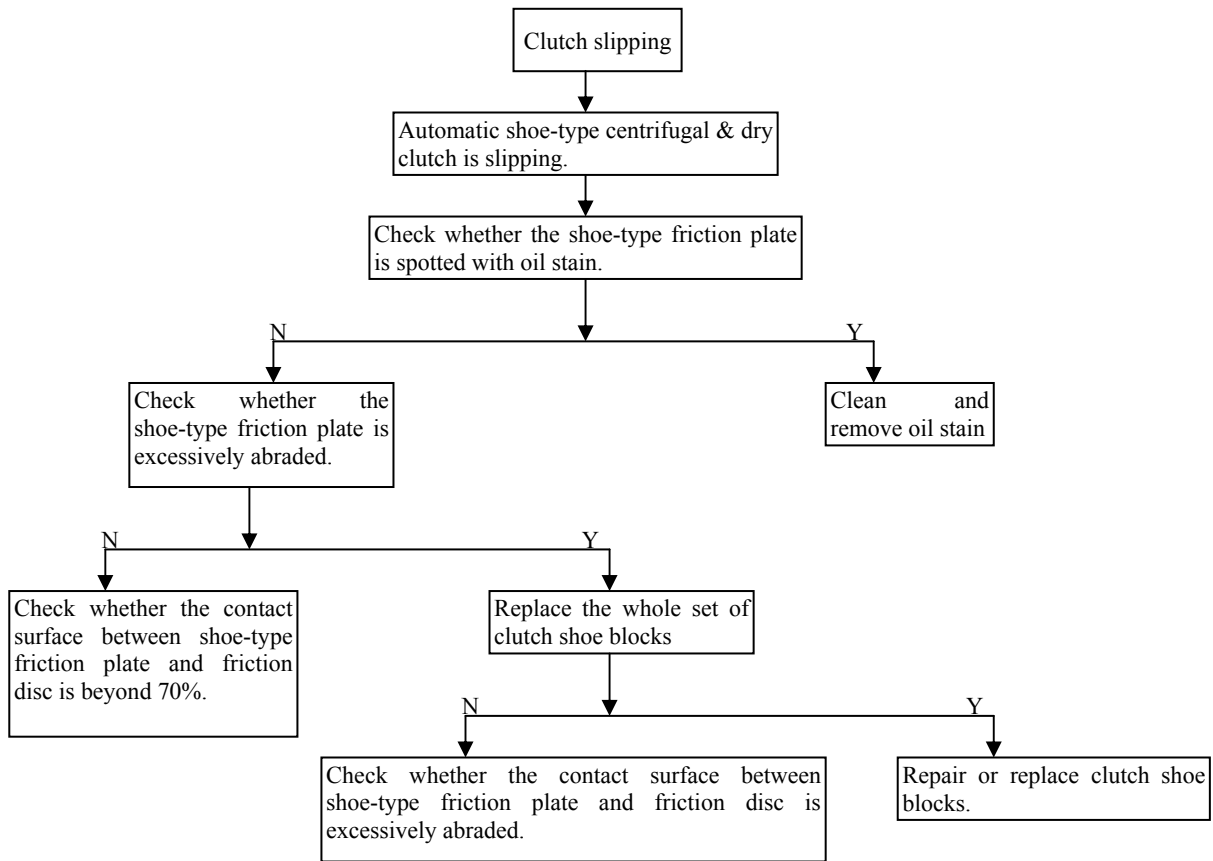
Diagnosis on abnormal idle speed of engine



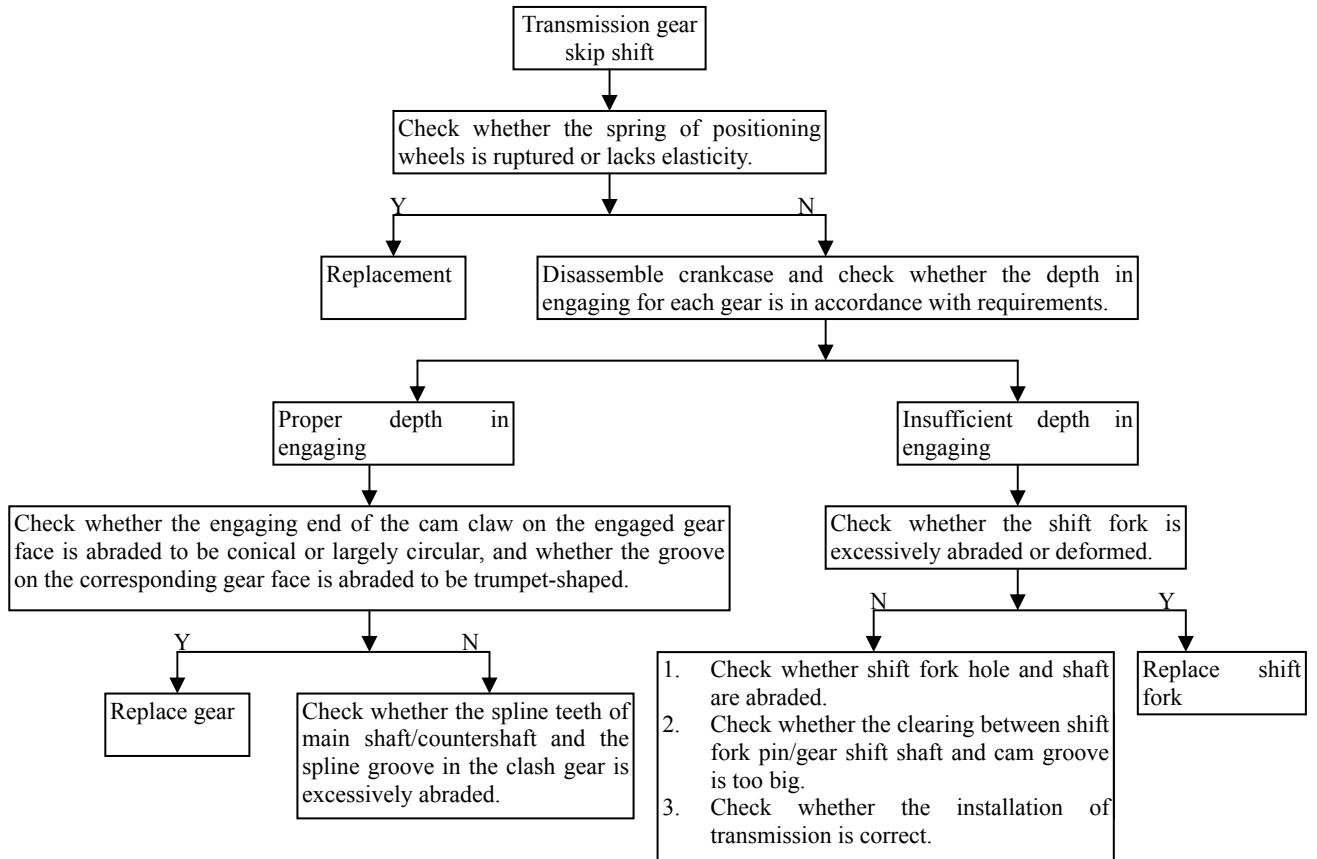
Diagnosis on excessive fuel consumption of engine



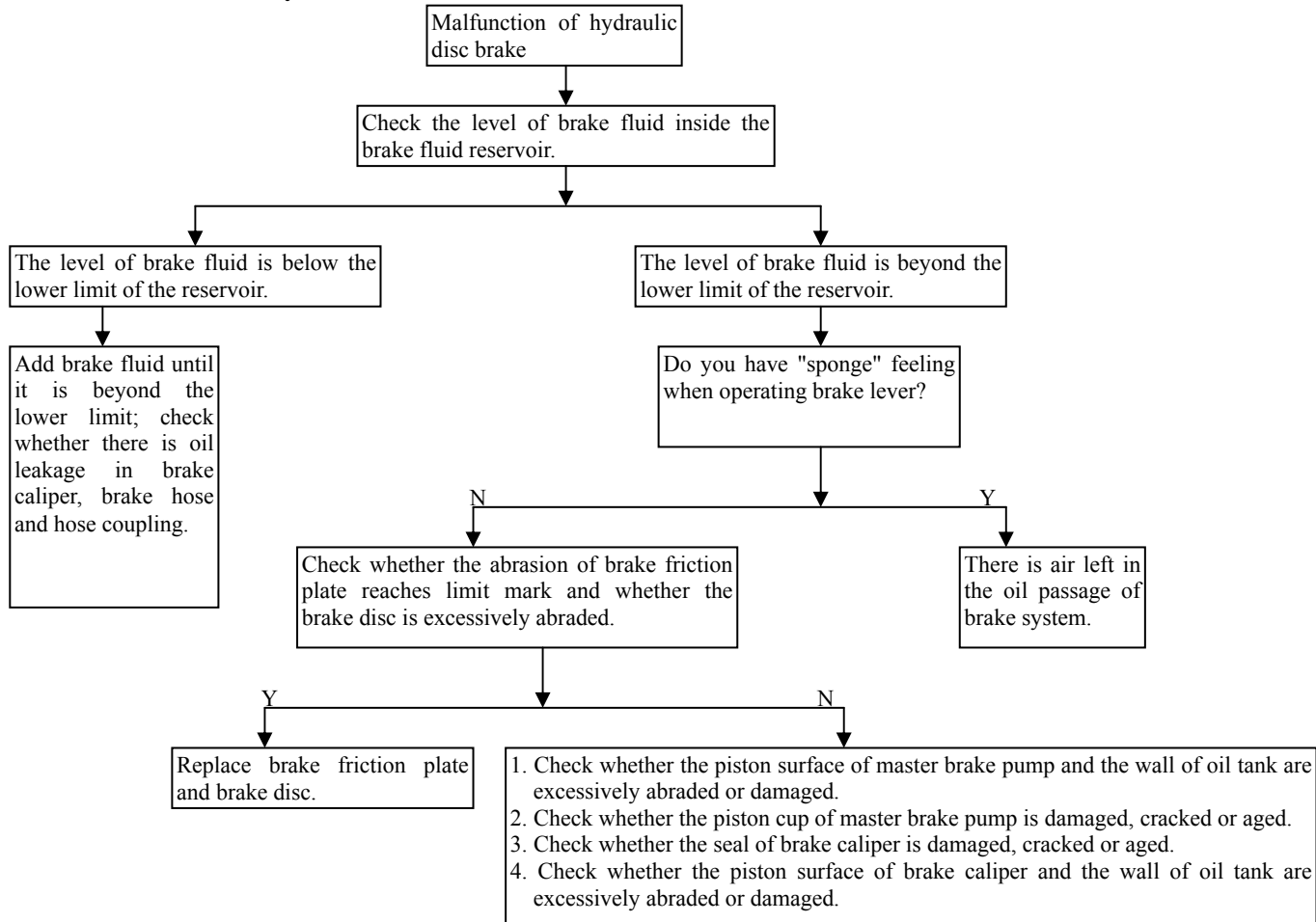
Diagnosis on clutch slipping



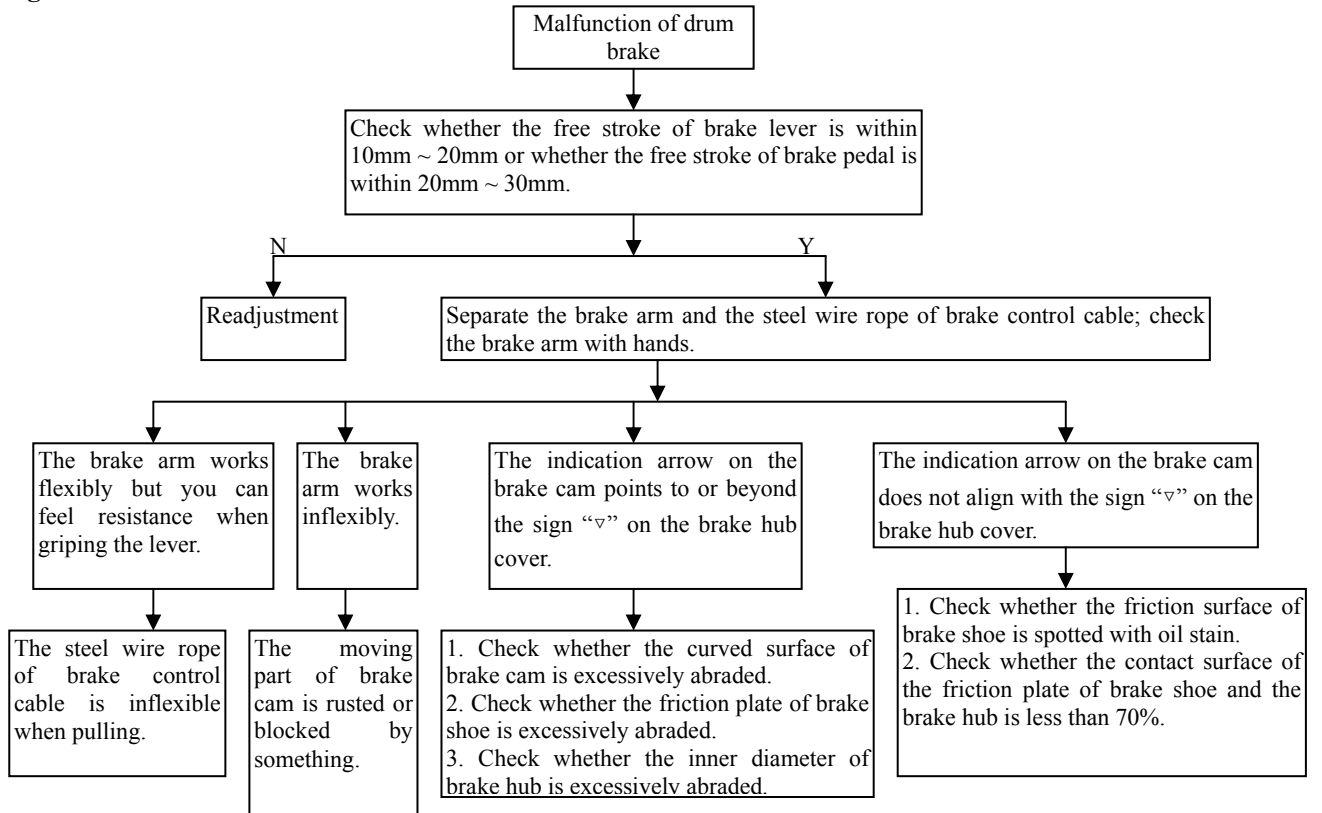
Diagnosis on transmission gear skip shift



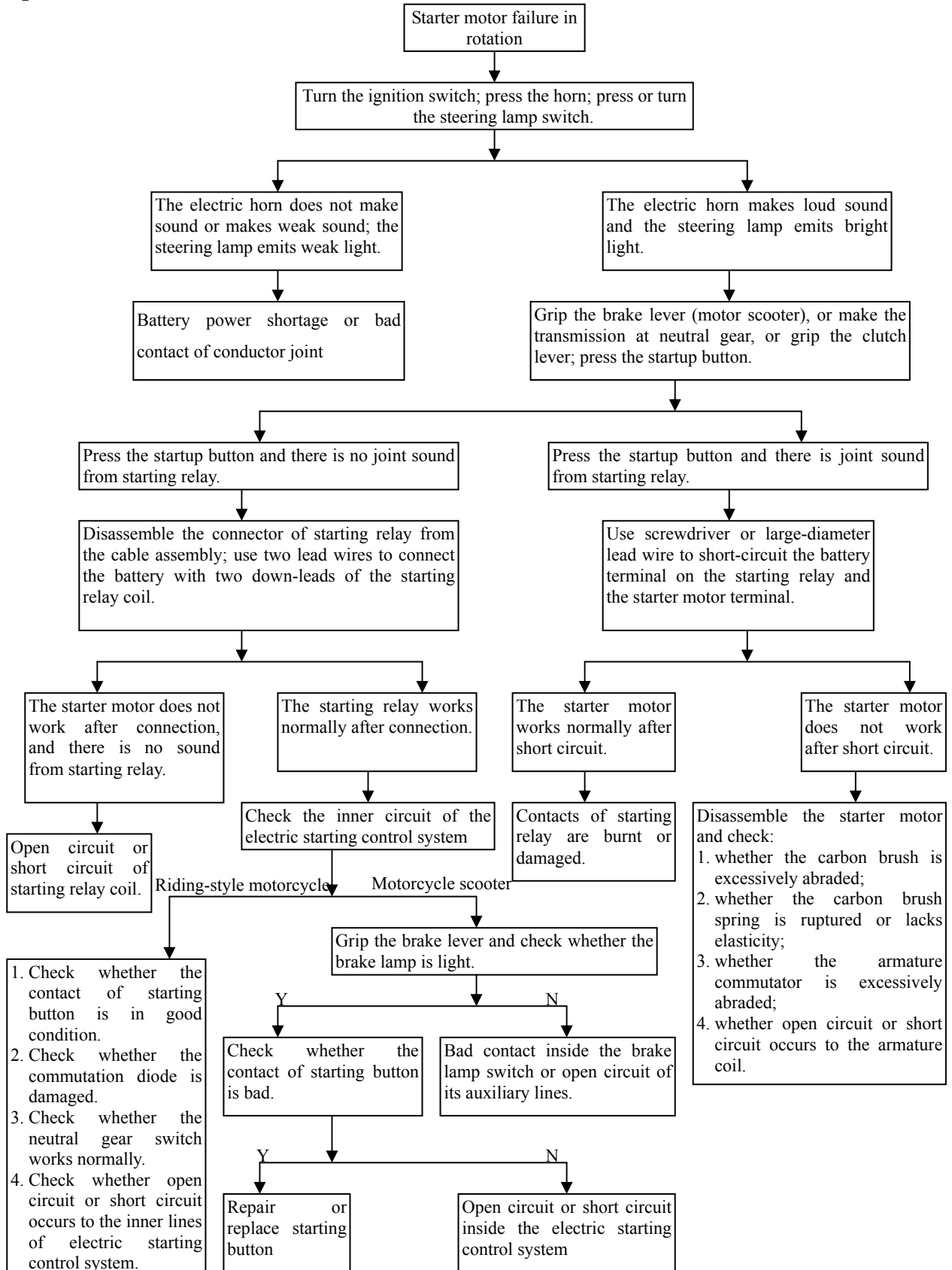
Diagnosis on malfunction of hydraulic disc brake



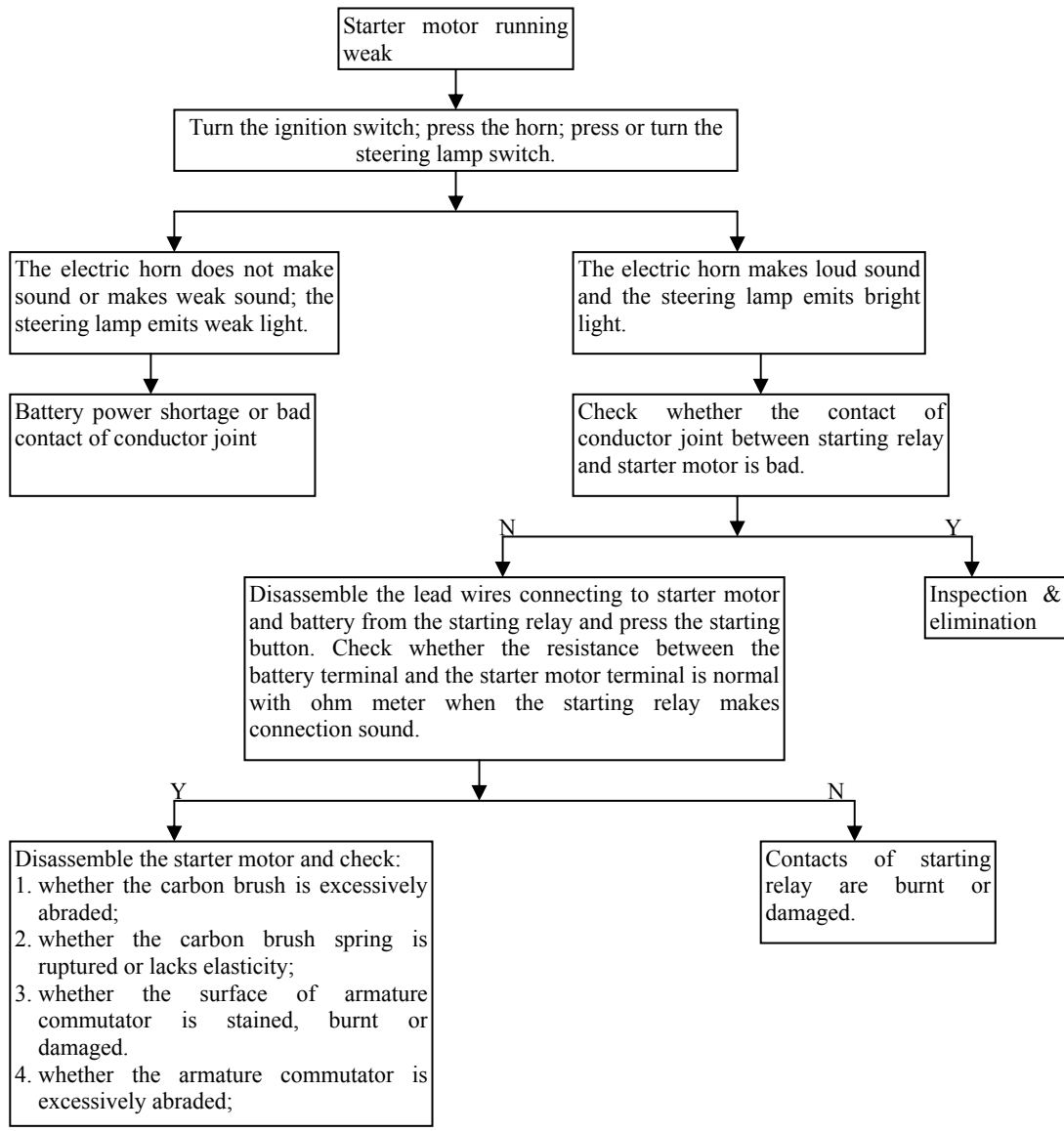
Diagnosis on malfunction of drum brake



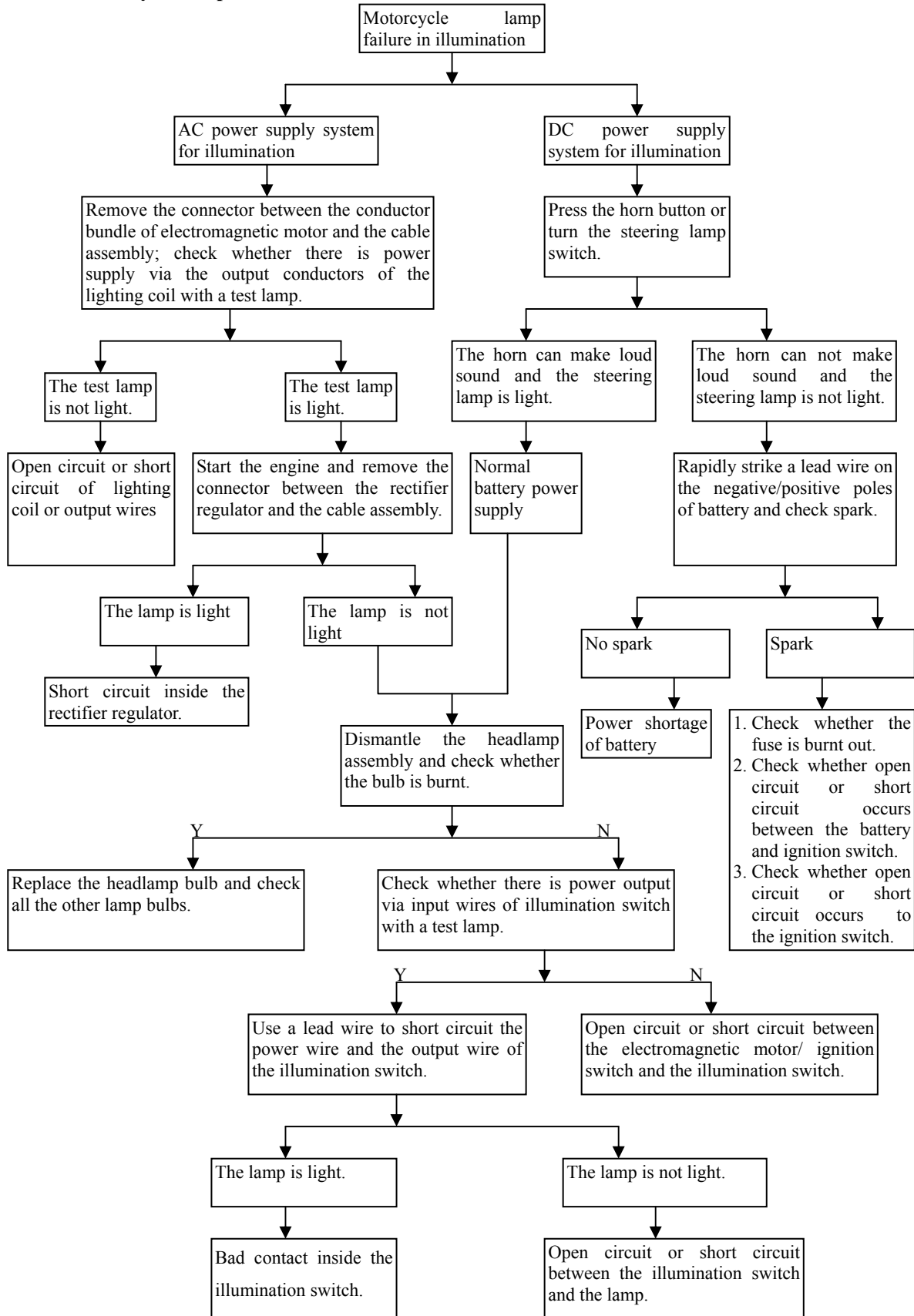
Diagnosis on starter motor failure in rotation



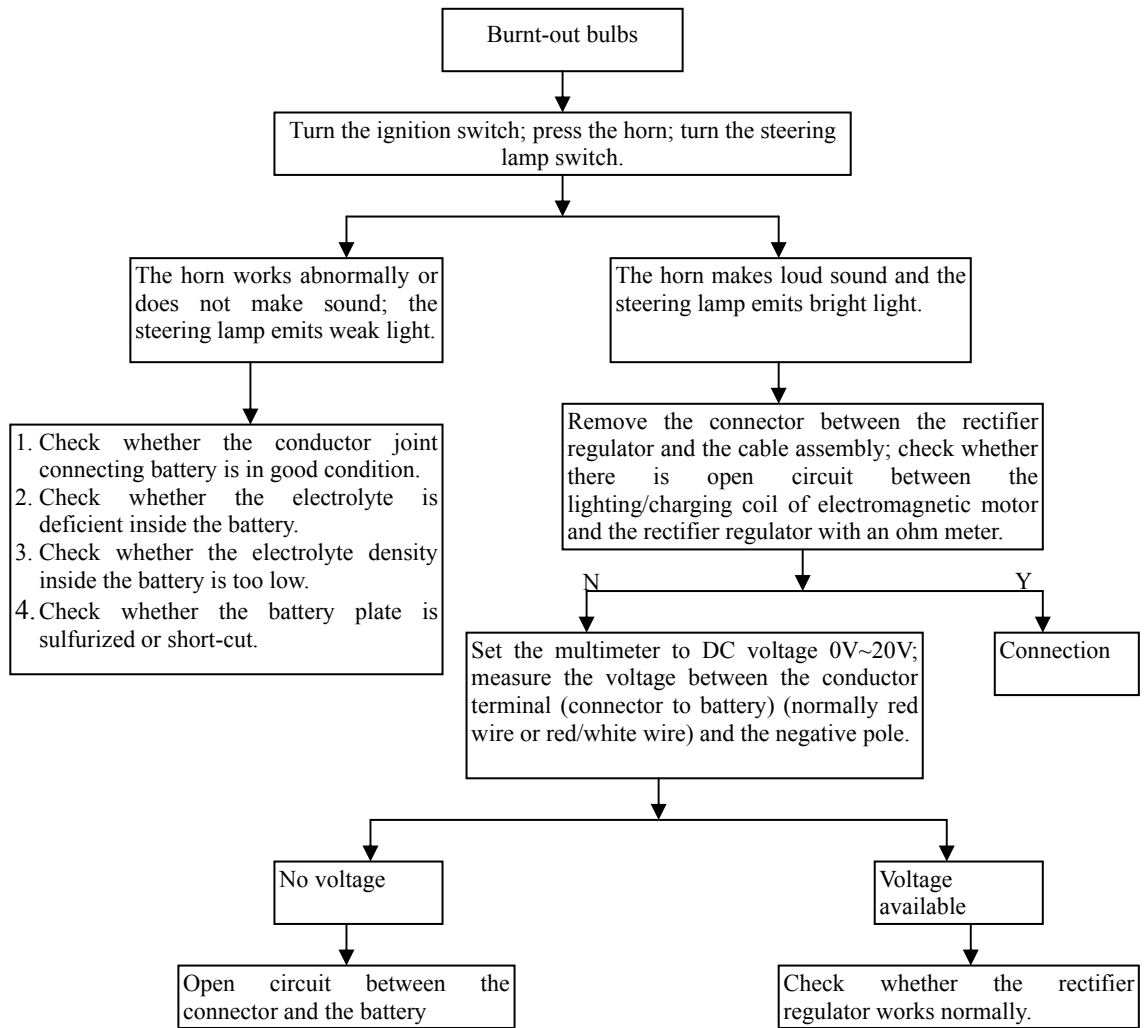
Diagnosis on starter motor running weak



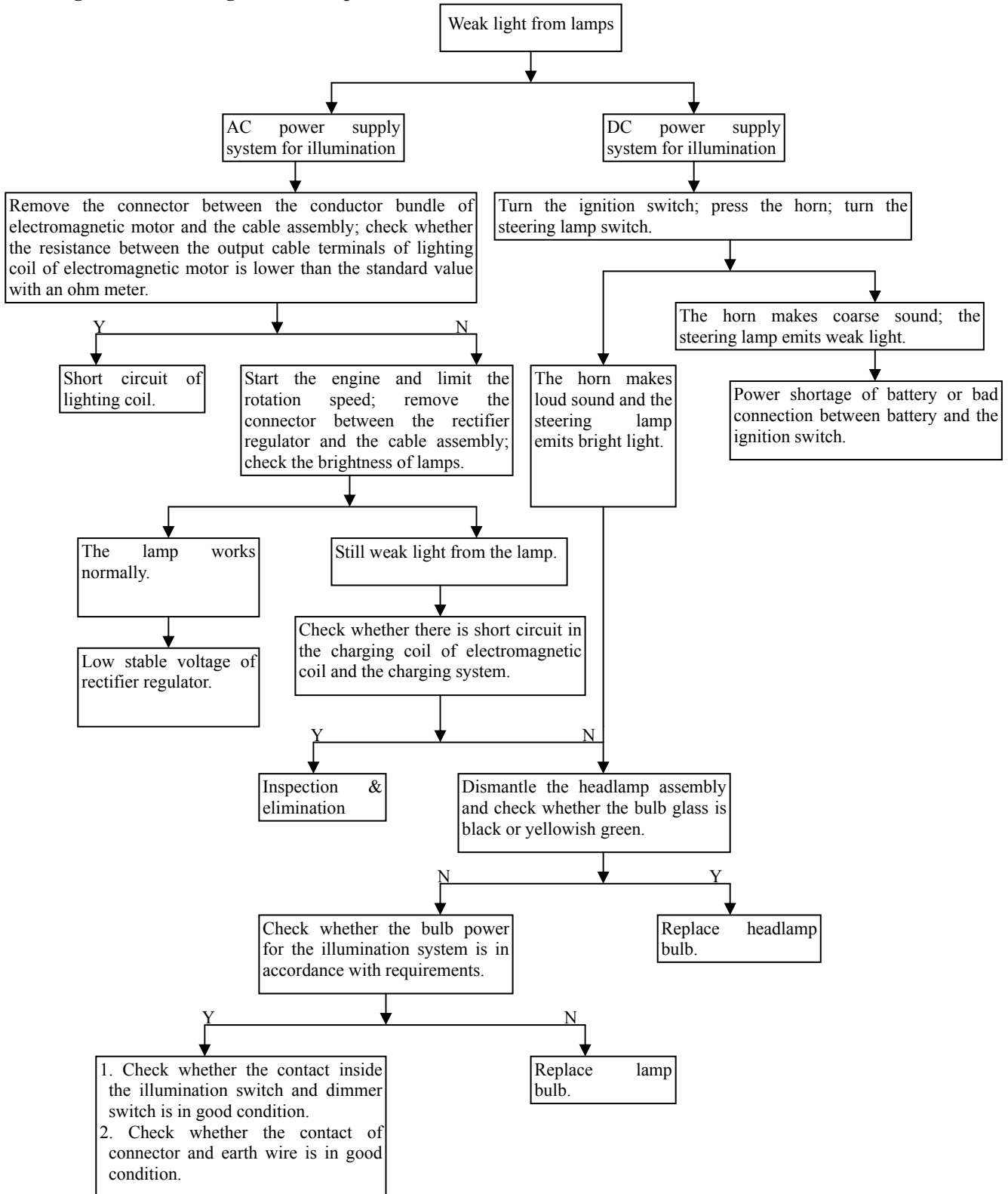
Diagnosis on motorcycle lamp failure in illumination



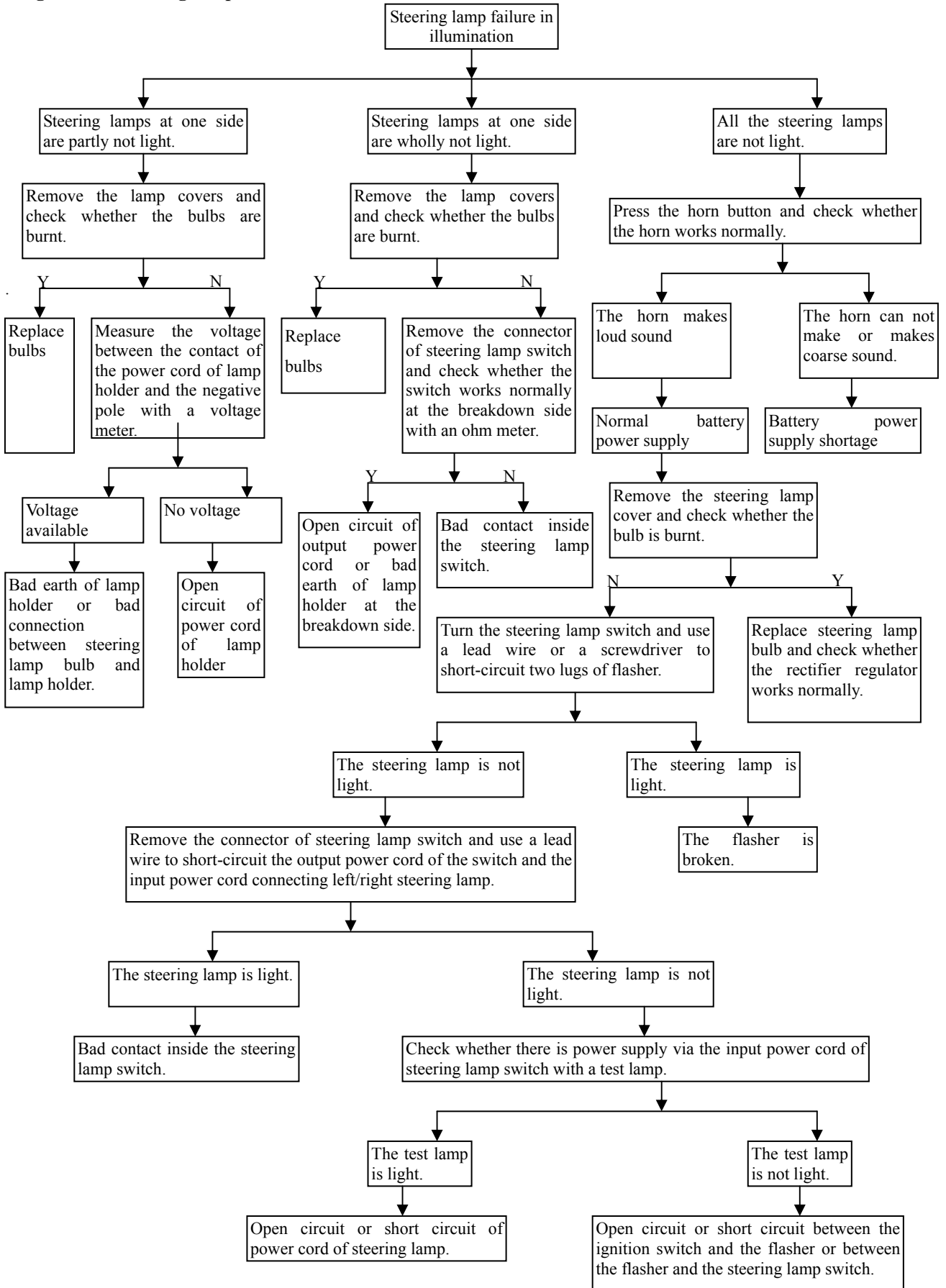
Diagnosis on burnt-out bulbs



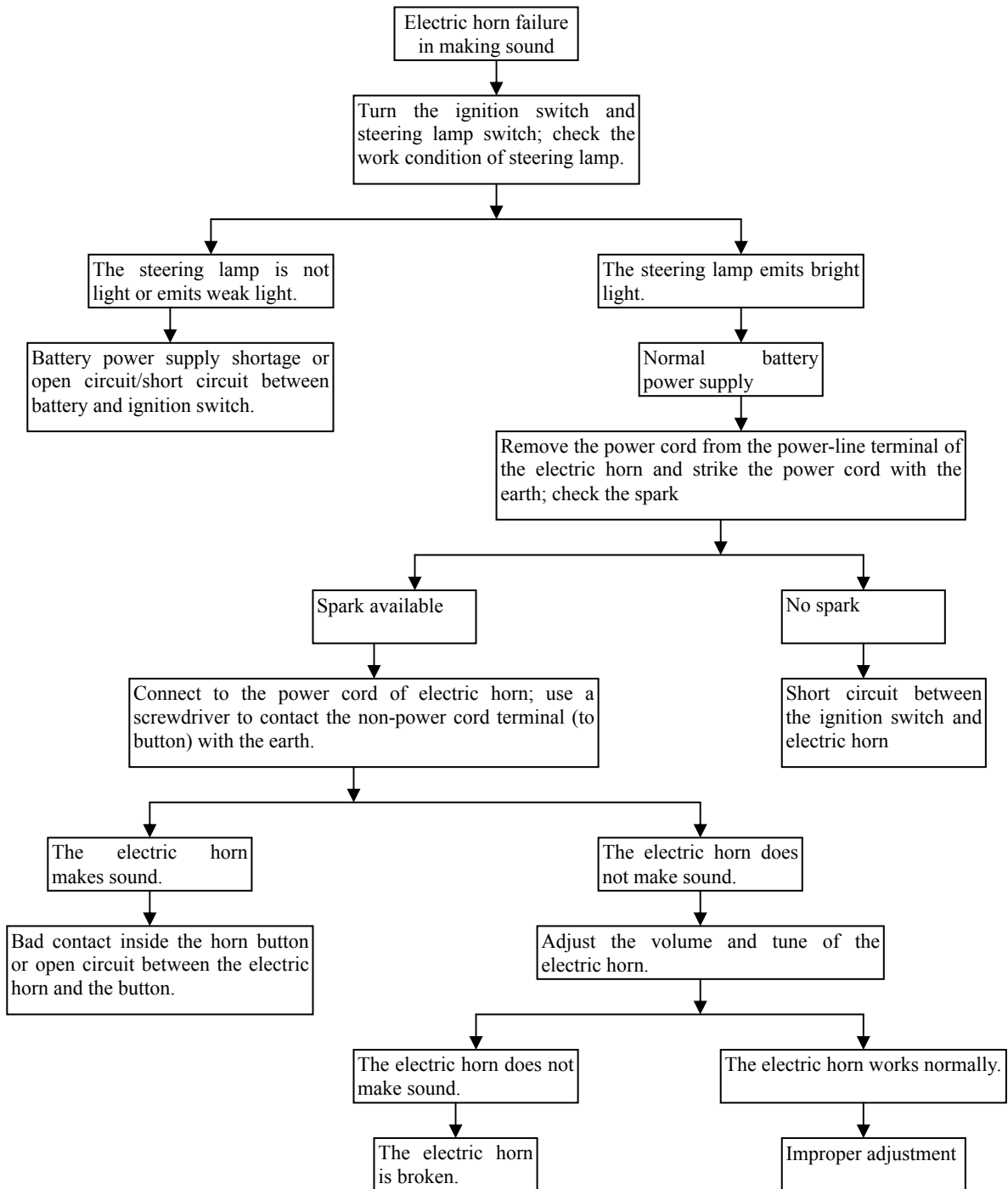
Diagnosis on weak light from lamps



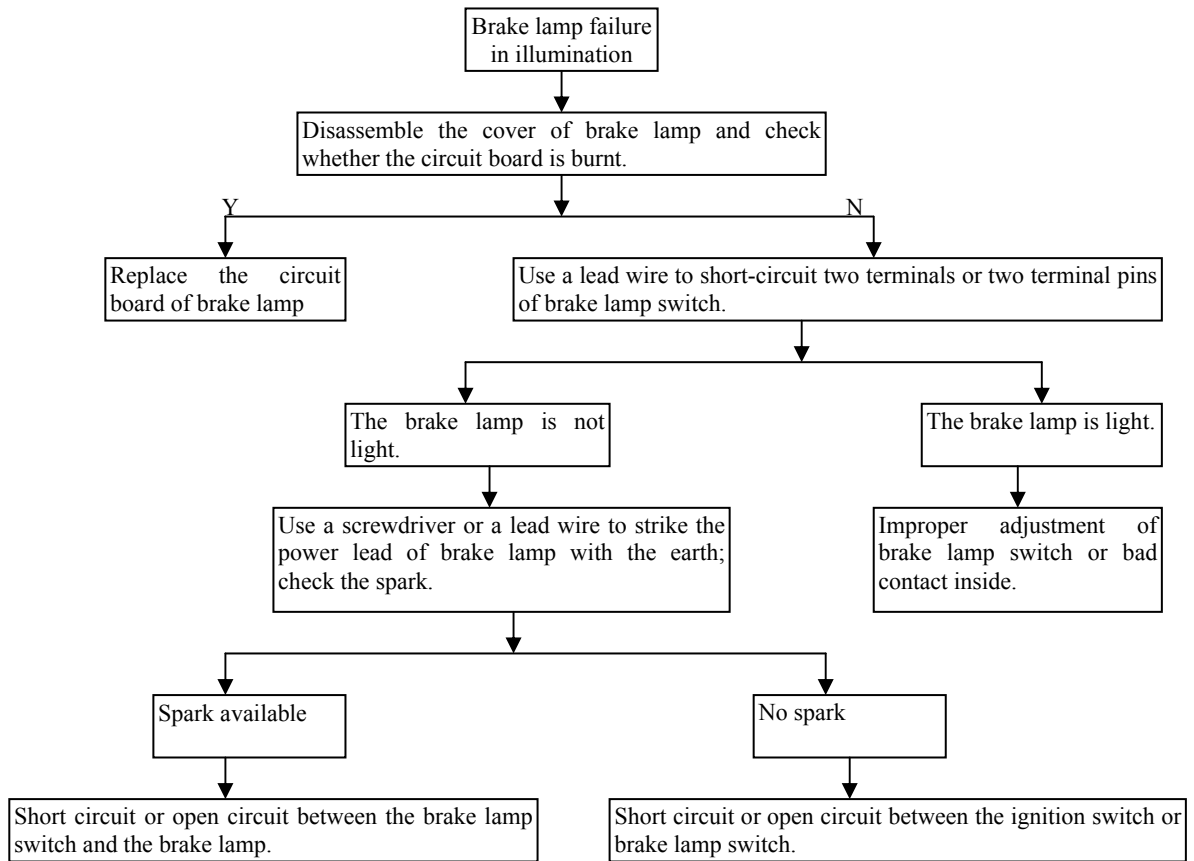
Diagnosis on steering lamp failure in illumination



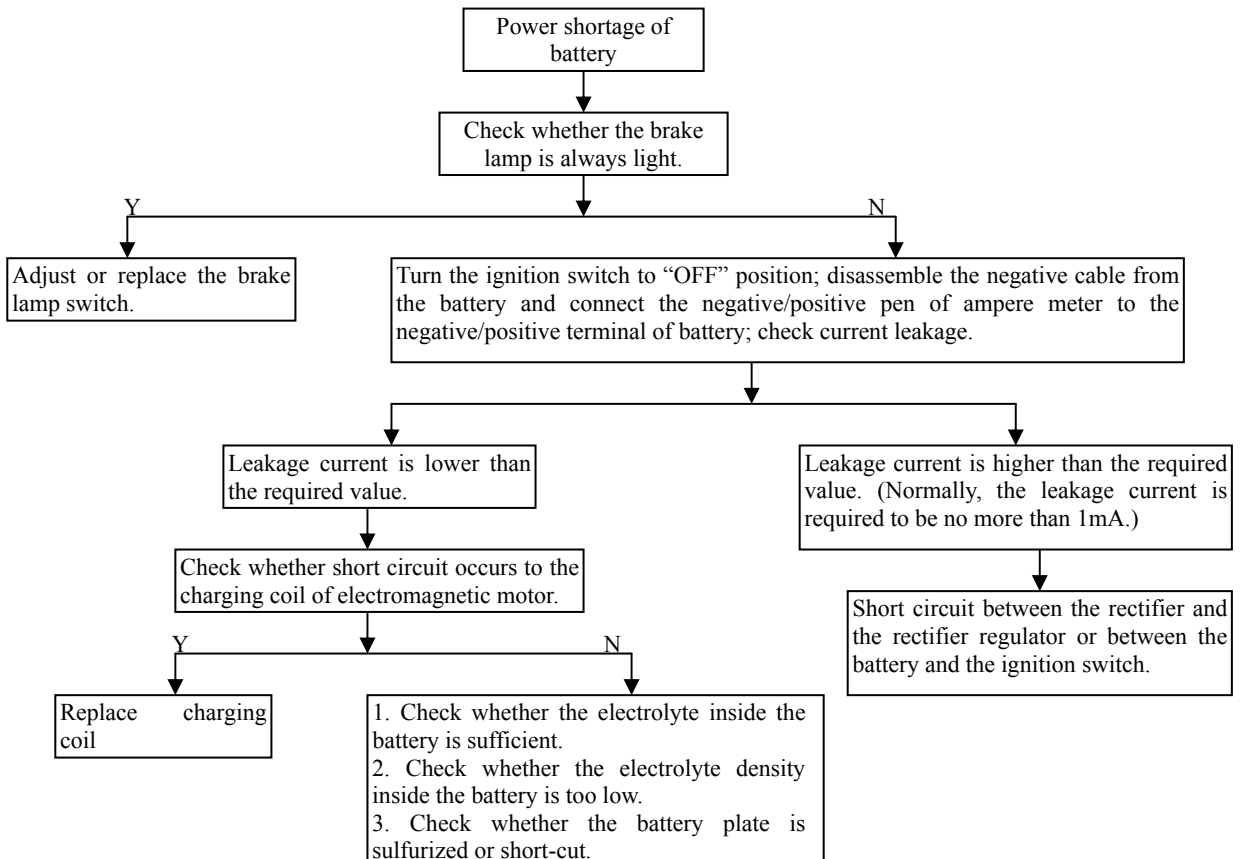
Diagnosis on electric horn failure in making sound



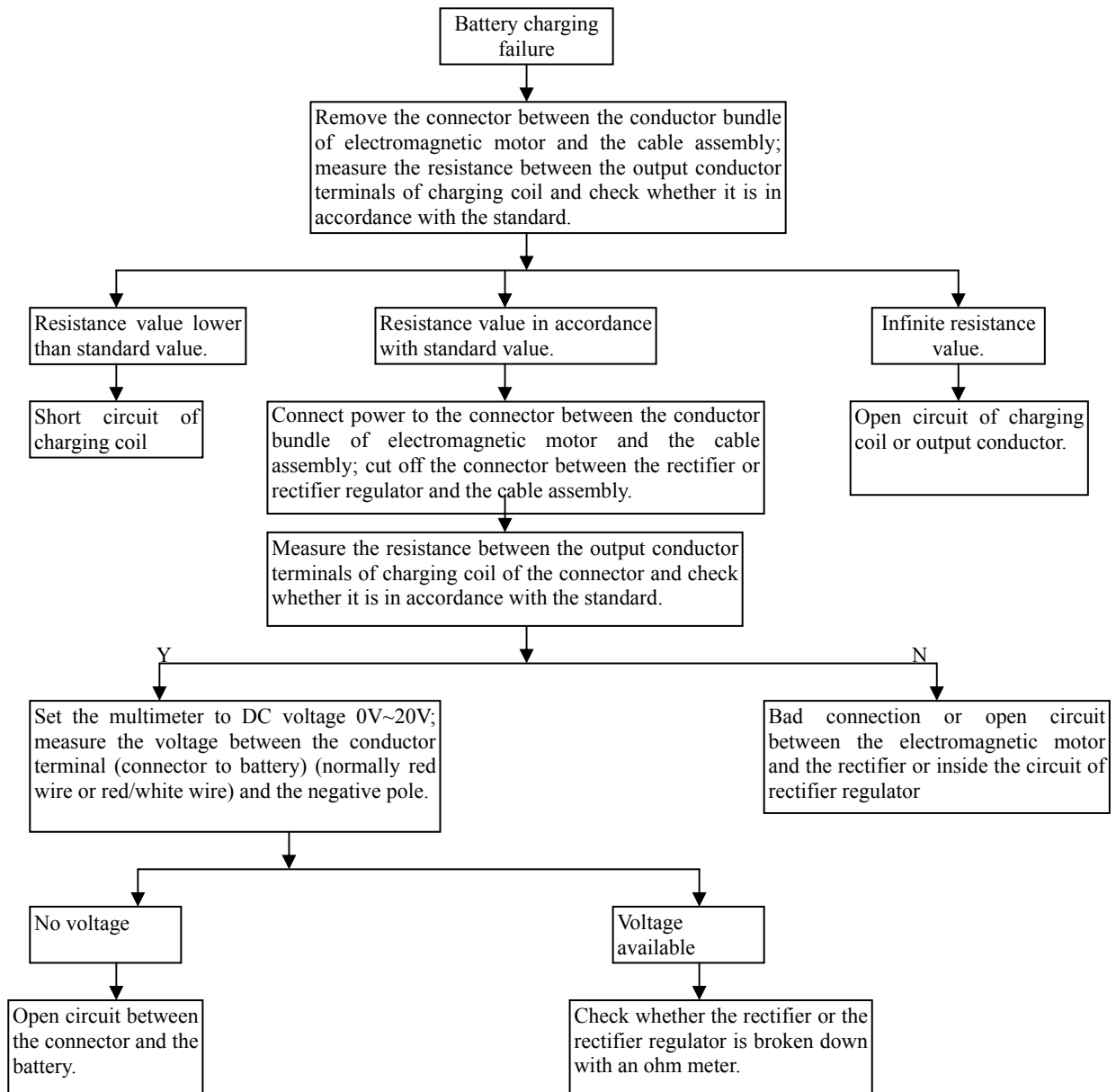
Diagnosis on brake lamp failure in illumination



Diagnosis on power shortage of battery



Diagnosis on battery charging failure



Inspection/Adjustment

Preparing information	Cylinder pressure
Periodic Maintenance & Inspection List	Gear oil
Engine oil/ Oil filter	Replacement of gear oil
Fixing steering stem bearing & handlebar	Driving belt
Inspection & adjustment of throttle cable	Free stroke of front/rear brake
Air filter	Inspection of brake fluid
Spark plug	Headlight
Battery	Clutch
Carburetor	Front/rear suspension system
Ignition timing	Bolt/nut/fastener
Rim/tyre	Tyre specification

Preparing principles

General

Warning 1

- Make sure that it is well ventilated before starting the engine. It is forbidden to start it in a closed area. Exhaust gas, which contains monoxide, may cause unconsciousness or even death of human being.
- The petrol is liable to volatile or explode under certain condition. The working area or the oil storage area shall be kept ventilated and fire is strictly forbidden.

Specification

Engine

Idle speed	1900±100rpm/min
Clearance of spark plug	0.6-0.7mm
Spec. of spark plug	BR8HSA(NGK)
Max. power (KW/r)	2.60kW/6500rpm
Max. torque (N.m/r)	4.36N.m/5250rpm

Frame

Free stroke of front brake lever	10-20mm		
Free stroke of rear brake lever	10-20mm		
Tyre pressure unit: Kpa	Tyre Specification		
	QJ50QT-22D	Front wheel	80/80-16
		Rear wheel	90/80-16
Torque value	Front wheel spindle	55-62 N·m	
	Fixing nut for rear wheel	100-113 N·m	

Certification for Related Parts

Type	Name	Certificate No.
Tyre	Front outer tyre	E11 75R-001062
	Rear outer tyre	E11 75R-001063
Lamps	Front lamp	E9-00 1555
	Position lamp	E9 50R-001555
	Tail lamp	E9 50R-001556
	Front steering lamp	E9 50R-001557
	Rear steering lamp	E9 50R-001558
	Rear registration plate lamp	E11 50R-000066
Rear-view mirror	Rear-view mirror	E3 001002
Horn	Horn	e9 1026
Reflector	Reflector installed at two side of rear mudguard	E11 020614
	The rear reflector is combined with the rear registration plate lamp	E11 023584

Periodic Maintenance & Inspection List

Inspection item	Mileage between services and time	Per 300 KM	Per 1000 KM	Per 3000 KM	Per 6000 KM	Per 12000 KM	Per 14500 KM	Applicable tools
		New vehicle	One month	Three months	Six months	Twelve months	Fifteen months	
*	Air filter	I		C	C	R	C	Ordinary tools
*	Petrol filter	I			I	R		Ordinary tools
*	Oil filter	C			C	C		Ordinary tools
	Replacement of engine oil	R	Replacement every 1000KM					Ordinary tools
	Tyre pressure	I	I	I	I	I	I	Tyre pressure gauge, inflator
	Battery inspection	I	I	I	I	I	I	Densimeter, multimeter
	Actuation gap inspection	I	I	I	I	I	I	Ordinary tools
	Inspection of steering handle fastening	I			I	I		Ordinary tools
	Absorber working inspection	I			I	I		Ordinary tools
	Screw fastening inspection	I	I	I	I	I	I	Torque spanner
	Oil leakage inspection for gearbox	I	I	I	I	I	I	Ordinary tools
*	Inspection or replacement of spark plug	I		I	R	R	I	Ordinary tools
*	Replacement of gearbox oil	I	Replacement every 5000KM					Ordinary tools
	Lubrication of each part				L	L		Lubricator
	Muffler	I	I	I	I	I	I	Ordinary tools
*	Ignition timing	I	I	I	I	I	I	Timing lamp
*	Carburetor	A	I	A	A	A	A	Tachometer, CO HC analyzer
*	Exhaust gas inspection at idle speed	A	I	A	A	A	A	
*	Accelerator inspection	I		I	I	I	I	Ordinary tools

	Fuel pipeline inspection	I		I	I	I	I	Ordinary tools
	Lighting/metering/electric devices	I	I	I	I	I	I	Visual multimeter
	Main stand bracket	I			I	I		Ordinary tools
	Absorber			I	I	I	I	Ordinary tools
*	Torque force of engine bolt	I		I	I	I	I	Torque spanner

Anticipated inspection

1	Ignition system—obviously continuous ignition abnormality, engine fire or overheating, which requires inspection and maintenance.
2	Carbon fouling elimination—obviously insufficient horsepower, which requires carbon fouling removal from cylinder cover, piston head and exhaust system.
3	Piston & cylinder—excessive abrasion; replace cylinder if it is blocked.

Please have your motorcycle inspected and adjusted periodically at Generic distributors for being in best condition.

The above table is established under the presupposition of 1000 km/month.

I—Inspection A—Adjustment R—Replacement C—Cleaning L—Lubrication

- Note:** 1. “*” Regulations on exhaust emission made by the State Environmental Protection Agency shall be complied with. Maintenance must be carried out in accordance with the instruction manual supplied by the company. We are not responsible for any loss rising from private adjustment or maintenance.
2. Increase frequency of washing air filter if your motorcycle runs on the sandy/gravel road or under heavily polluted environment so as to extend its service life.
3. Motorcycles which often run at high speed or with high mileage shall be maintained frequently.

Engine oil/filter

Oil level

*Note

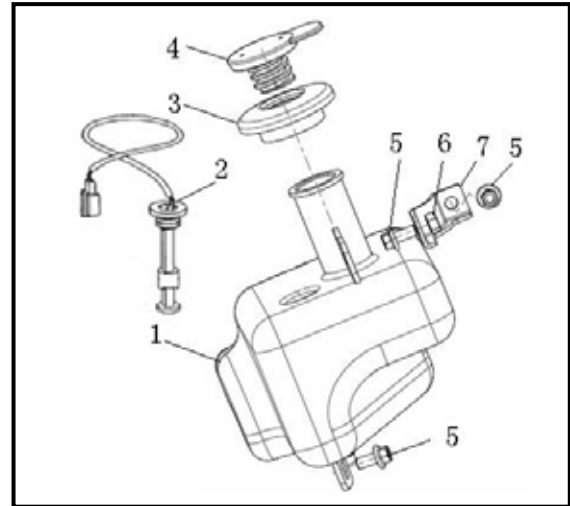
- The motorcycle should be parked on a flat ground when checking its oil level
- 2-3 minutes after the engine running, stop for about 2-3 minutes and then check the oil level.

Check the oil level.

Check the oil level.

Add oil to the upper limit when alarm is made by sensor at the oil level.

1. Sump
2. Oil Sensor
3. Rubber mat at the sump mouth
4. Sump cover.
5. Bolt M6×12
6. Nut M6
7. Fixing plate of sump



Oil replacement

*Note

It will be easier to change the oil when the engine is warming up.

Turn off the engine.

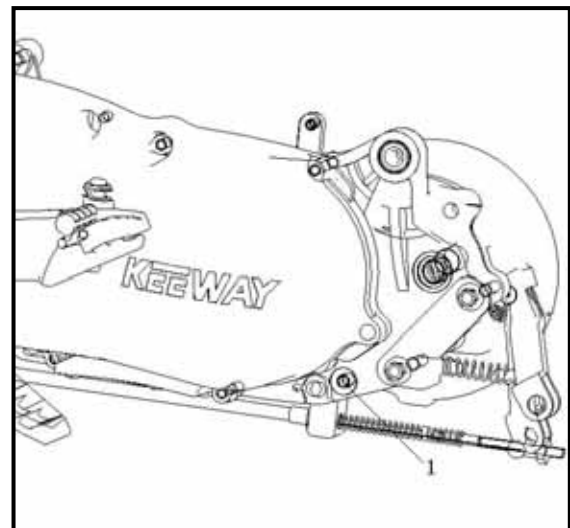
Remove the bolt at the bottom of the crankcase and release oil.

When the oil leaks completely, you can install the bolt and packing washer after they are cleaned.

Add oil to proper level.

Check the oil leakage when the engine operates at its idling speed.

Check the oil capacity again.



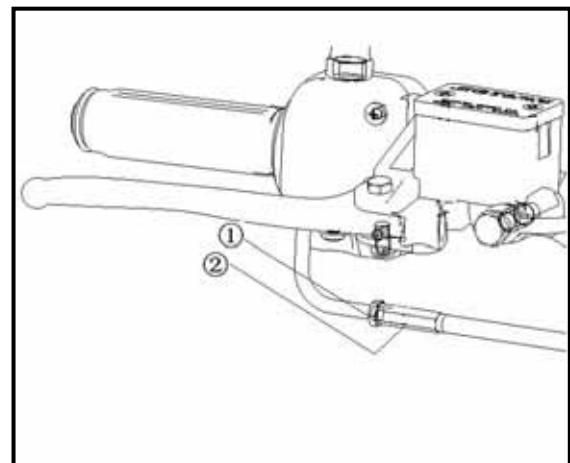
Cable accelerator inspection/adjustment

Check whether the cable accelerator is smooth or not.

Check the free travel of accelerator

Free travel: 5-10mm

Adjustment shall be made when imperperness exist.



Adjust the free travel of accelerator. First loosen the locked nut ①,

Fix or loosen the adjusting device ②,

Until the free travel meet the standard value,

Then fix the locking nut ①.

Air filter

Filter replacement

Remove the body shield,

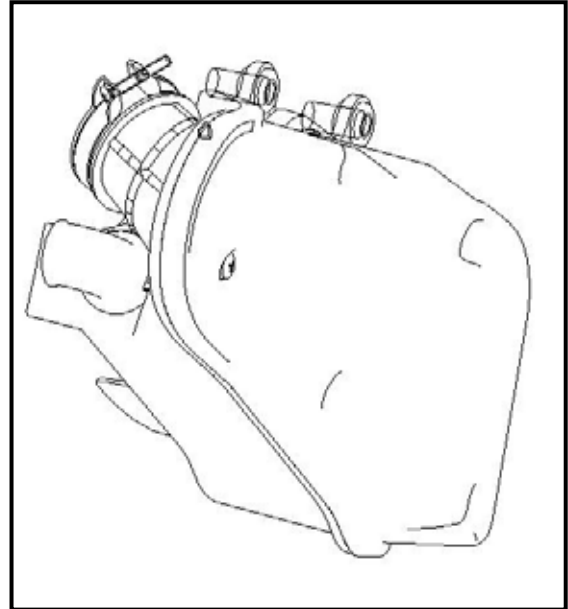
Remove the set bolt (13) on the air filter,

Remove the fixing component,

Remove the air filter

Remove the the set bolt (12) on the upper cover of air filter,

Remove the filter element (4) on the filter.



Check weather the filter element is polluted or damaged.

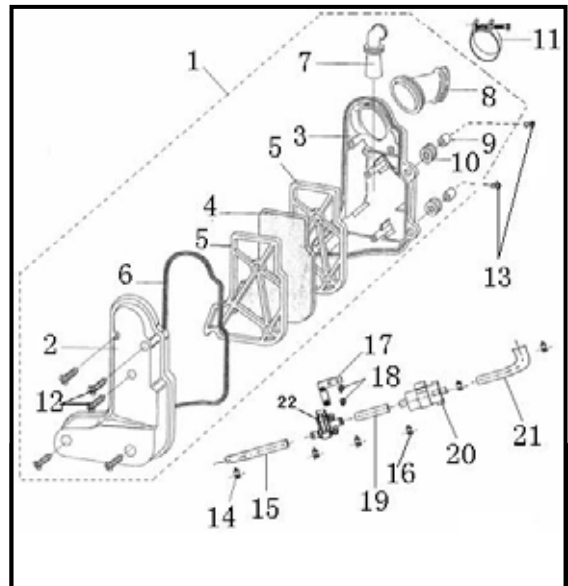
And replace it with a new element if necessary

Remove the pipe clip.

Remove the filter.

Check weather the filter is polluted or damaged.

And replace it with a new one if necessary.



Replacement time

Replace at an early time if the motorcycle is always running on rainy days.

***Note**

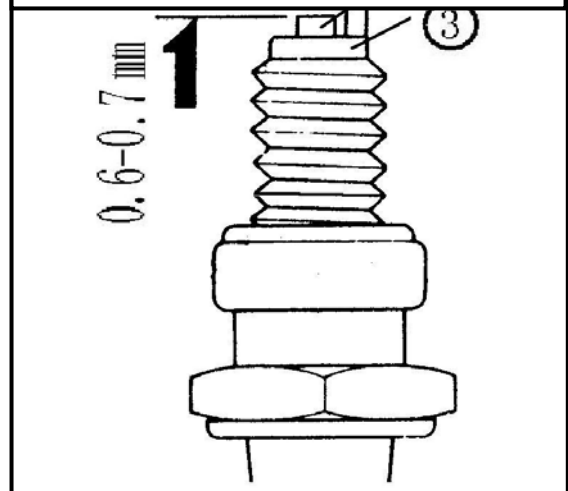
•Make sure the air filter cap is well installed before installing the filter

Spark plug

Disconnect the connecting wire of plug cap

①Lateral electrode ②Central electrode ③Insulator

***Note:**



Clean the spark plug by compressed air, thus to guarantee that no shatter is exist in the firebox.
Remove the spark plug by special spanner or other tools.

(1) Inspection:

Carry out the following inspection, and make replacement when necessary:

- . whether the insulator is damaged
- . whether the electrode is worn
- . Burning condition and color
 - Light grey indicates a good burning condition.
 - Paleness indicates any error in ignition system, or any diluted air mixture.
 - Humidity or black indicates carbon distribution or over rich air mixture.

Visual inspection of spark plug

Replace the spark plug if and crack or wearing is detected.

The following spark plug is recommended:

Standard	C5HSA(NGK)
Heat Type	C6HSA(NGK)
Cold Type	C7HSA(NGK)

(2) Reuse of spark plug:

Clean the electrode of spark plug by scratch brush or special tools.

Check the distance between the central electrode and lateral electrode of spark plug by steel feeler gauge.

If necessary, carefully bend the lateral electrode to adjust the distance.

Distance of spark plugs : 0.60 ~ 0.70mm

Installed the spark plug onto the cylinder, and fix it to specified torque.

Torque: 18 N·m

Note: Fix the spark plug by hand, and then by special spanner, thus to protect the cylinder cover.

(3) Replacement of spark plug

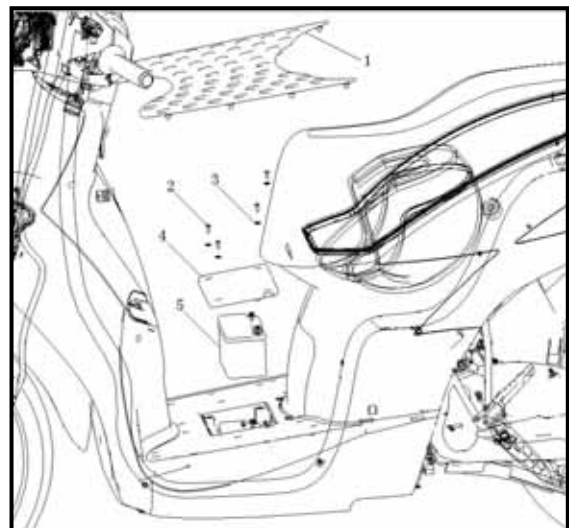
Adjust the spark plug distance by steel feeler gauge, until it meets the specified value.

Note: Do not fix the spark plug too light.

Install the new spark and sealing cushion, and fix them by hand.

After contact the spark plug hole, continue fixing by 1/2 circle.

Battery



Battery removal

Remove the rubber pad (1) of pedal.

Remove the clamp bolt and clamp of battery.

First remove the negative wire and then

remove the positive wire.

Take the battery (5) from the battery container.

Warning !

The tools for removing the positive electrode should not contact the flame, otherwise it will be very dangerous that the damaged battery will cause fire.

Install the battery following the opposite sequence.

Do not disconnect the battery during the adjustment of motorcycle, otherwise inner component of the motorcycle may be damaged.

Warning!

First positive and then negative to prevent short circuit

Charging state (closed circuit voltage) inspection

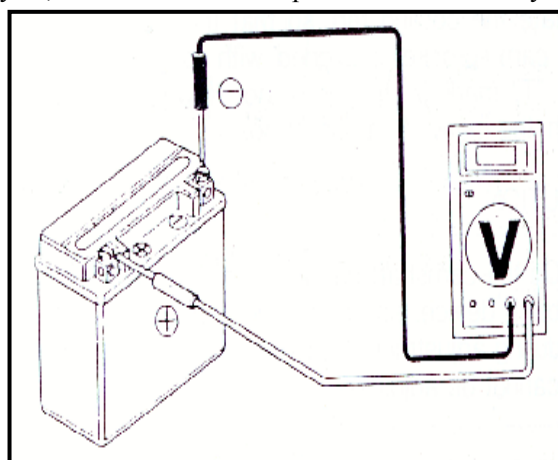
Open the cushion

Remove the cover of battery container. ◦

First remove the negative wire and then

remove the positive wire.

Take out the battery.



Measure the voltage between battery terminals.

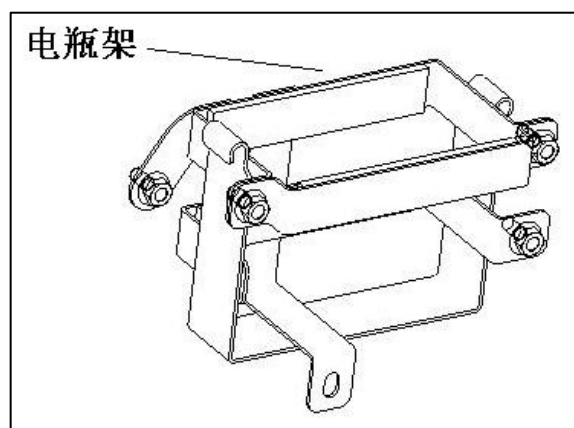
Full charge : 13.1V

Under charge : 12.3V (Keep the battery idle for 1 hour)

* Note

Charge state examination must use a voltmeter operation.

电瓶架 : battery bracket 伏特表 : voltmeter



Charge

Connection method :

Connect the battery charger positive pole and battery positive pole together.

Connect the battery charger negative pole and battery



negative pole together.

Warning:

- Battery should be far away from fire source
- Turn off the charger switches when starting or completing charging in order to prevent spark of the connections resulting in explosion.
- You must follow the required current time when charging.

***Note**

- Except emergencies, you should not use emergency charge.
- Measure the voltage for every other 30 minutes.

Charging current : standard : 0.4A

Rapid : 4.0A

Charging time : standard : 10-15 hours

Rapid : 30 minutes

Charging complete : closed circuit voltage : Above 12.8V

Do not disconnect the battery during the adjustment of motorcycle, otherwise inner component of the motorcycle may be damaged.

Carburetor

Idle speed adjustment

***Note**

Idle adjustment was made in the implementation of the engine warm-up state.

① and ② refer to adjusting bolts.

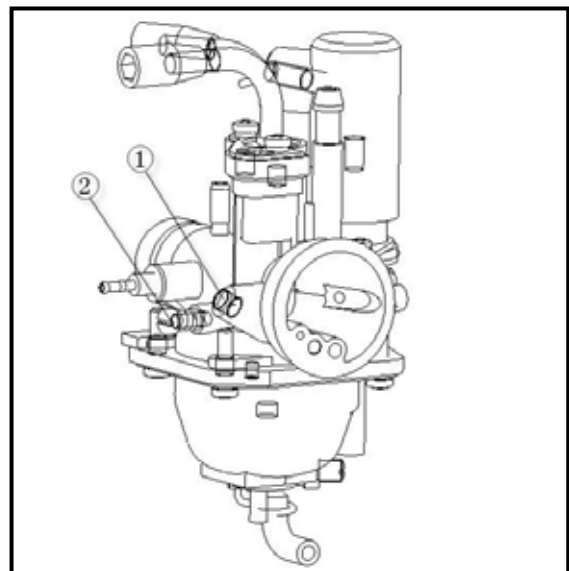
Implement after warm-up of the engine.

Connect the engine rotation meter after running the engine.

Adjust the screw of the cable accelerator to rotating velocity.

Idle speed : 1900±100rpm/min

Adjust the idling adjusting screw when idle speed is unstable or unsmooth after oiling lightly.



Ignition timing inspection

Warm up the engine for 3-5 minutes.

Connect the timing light to the lead of spark plug after the engine is off.

***Note:** carefully read the instruction of timing light before carry out any operation.

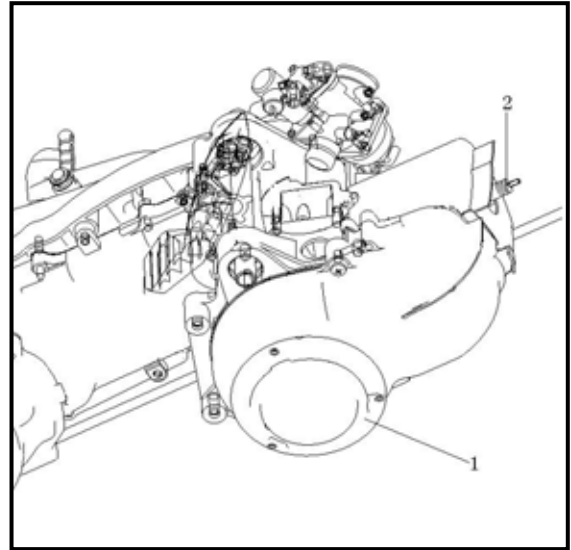
Remove the body shield.

Start the engine and it idle running.

Inspect the ignite timing.

In case the "F" mark and the mark on the right cover of crank case is in a line, the ignition time is correct.

Speed up the engine, and check out if the "F" mark start to move.



Idle Speed : 1900±100rpm/min

Cylinder pressure

Operate when the engine warm up.

Remove the cushion and body shield.

Remove the spark plug.

Install the cylinder pressure gauge.

At full throttle, measure the cylinder pressure by starting the engine.

The following items shall be check in case of a low pressure:

- Whether the gasket of cylinder cover is damaged;
- whether piston ring is damaged;
- whether the air inlet and piston ring is worn;
- whether the piston and cylinder is worn

When compression pressure is too high, please check the combustion chamber and carbon distribution at piston head.

测气缸压力 : cylinder pressure measuring

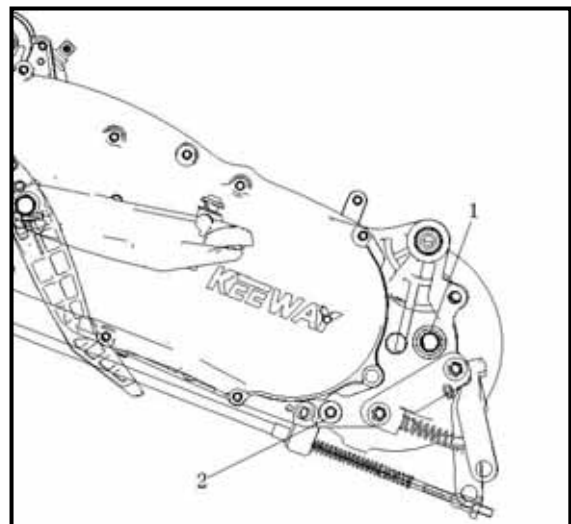


Gear oil

Inspection

***Note**

Set the middle kickstand on a smooth surface, and keep the motorcycle upright.



Remove the oil level gauge (1) after the engine stopped.
 The oil level between the upper limit and lower limit of oil level gauge is all right.
 Add gear oil when the oil level is below the lower limit.
 Install the oil level gauge.

Gear oil replacement

Warm-up the engine

A lacquer tray shall be placed under the engine to hold the oil.

Remove the release bolt (2) and oil level gauge (1).

Recoil starting the engine for several times, and discharge the engine oil completely.

Check the oil level gauge when the engine oil is discharged.

Ensure the oil level gauge and O-shape ring is all right, and then carry out the installation.

Tighten the release bolt.

Fill the crank case with recommended engine oil.

Install the oil level gauge, start the engine, and keep it idle running for 2-3 minutes.

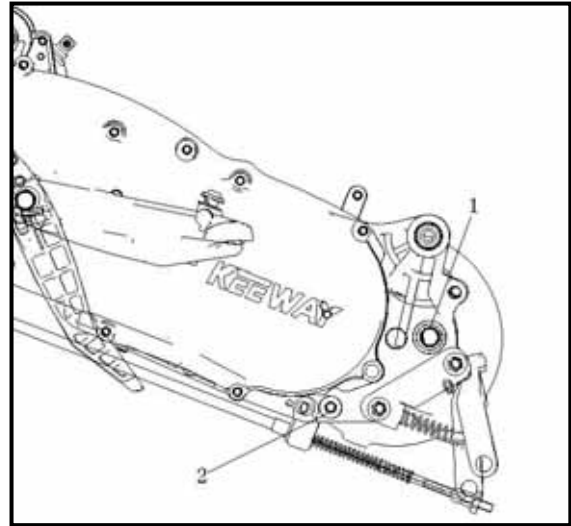
Stop the engine, and check out whether the oil level is at the upper limit of oil level gauge after several minutes.

The engine shall be kept upright during inspection.

Guarantee that there's no leakage exist.

*Note:

Confirm whether the bolts wear or not.



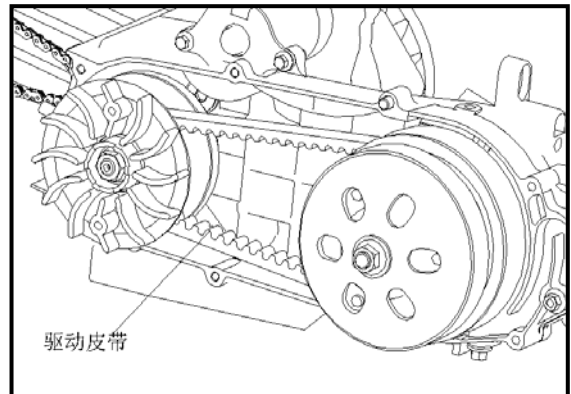
Drive belt

Remove the cover of left crank case.

Check whether the drive belt is work or damaged.

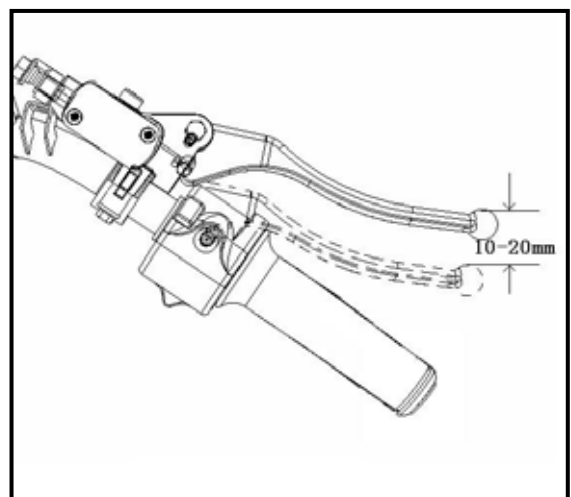
Periodically maintenance shall be guaranteed, and replace the drive belt with a new one if necessary.

驱动皮带:driver belt



Free path of front/rear brake

Free path of front brake



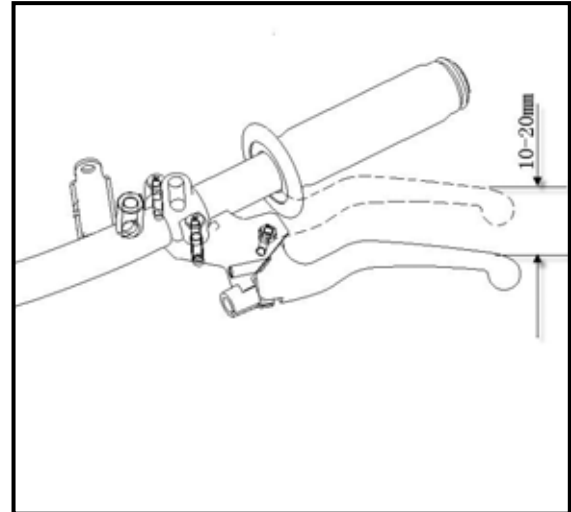
Measure the free path of front brake at the point of the brake lever.

Free path: 10-20mm

Free path of rear brake

Measure the free path of rear brake at the point of the brake pedal.

Free path: 10-20mm



Inspection of brake fluid level

Use the front brake to the upper limit, and check the oil level through the oil indicator. In case the brake fluid level is at or below the arrow in the picture, certain brake fluid (DOT3 or DOT4) shall be added until it reach upper limit.

Note:

The oil pump component shall be paralleled with the ground during the inspection.

Front light

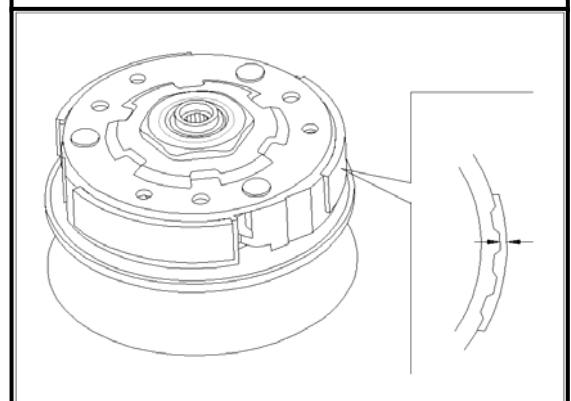
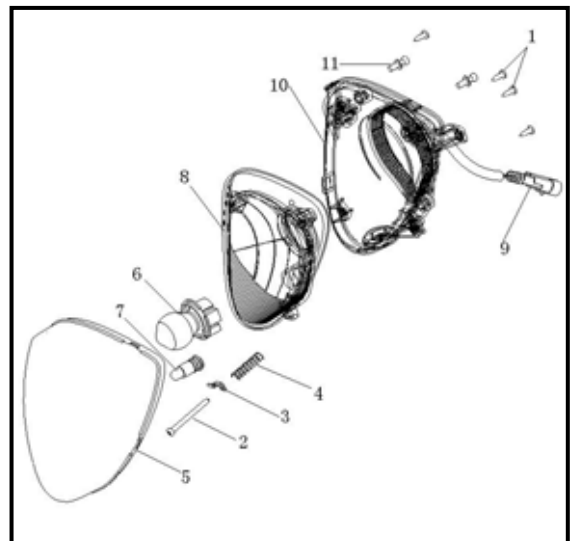
Remove the left and right rearview mirror components.

Remove the front shield.

Disconnect the lead of front light.

Fix the front light, and rotate the bulb counterclockwise.

Remove the bulb.

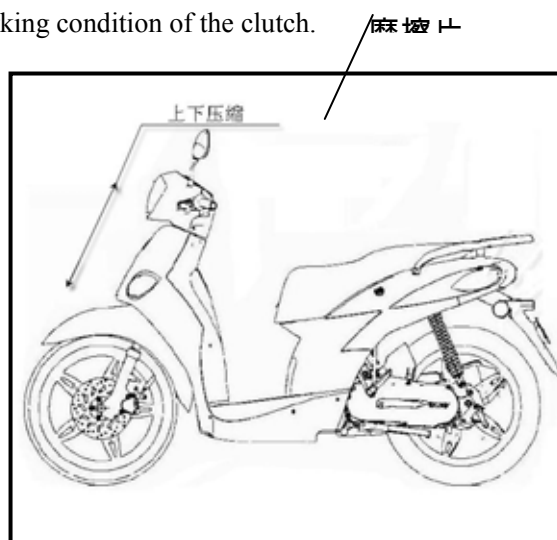


Clutch

Start the engine and increase its speed gradually to check the working condition of the clutch.

If the motorcycle fails to go and the engine stops, you should check the clutch block. If necessary, change a new one.

摩擦片：friction piece



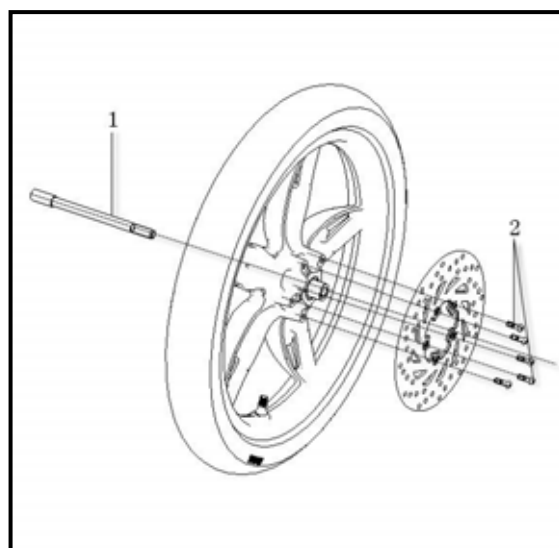
Front/rear suspension system

Front

Pull the front brake tight and check the absorber.
Check whether the absorber has leakage or loose.

Rear

Check the rear absorber when operating.
Check whether part of the absorber is loose or wear.
Suspend the rear wheel and check it movingly.
Check whether the suspension bushing of the engine is loose or not.

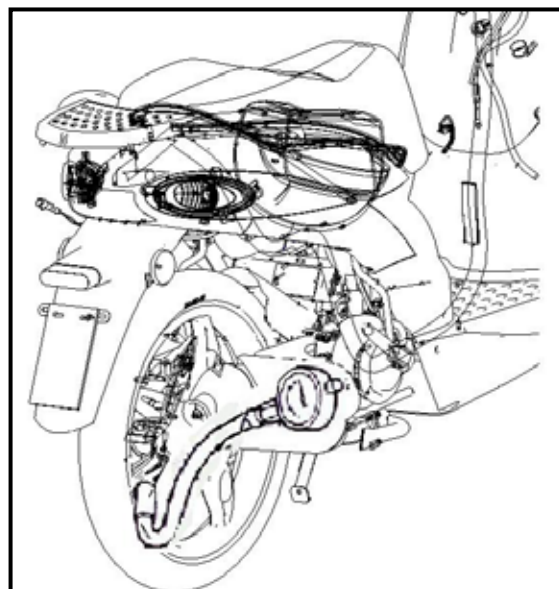


Nuts/bolts/fixd parts

Check whether nuts, bolts, fixed parts are loose or not.

If any, tightening them according to their torque force.

Rim/Tyre



Check whether the tyre or rim has crack, screw or any other damage.
 Check the tyre pressure.

***Note**

Check the tyre air pressure when it is cold.

Specification:

Tyre specification		
QJ50QT-22D	Front Wheel	80/80-16
	Rear Wheel	90/80-16

Tyre specification

Specification

QJ50QT-22D	Front Wheel	80/80-16
	Rear Wheel	90/80-16

Check whether the front wheel axle is loose or not.
 Check whether the rear wheel nut is loose or not.
 In case there is any loosening, tightening them according to the required torque force value.

Torque force value:

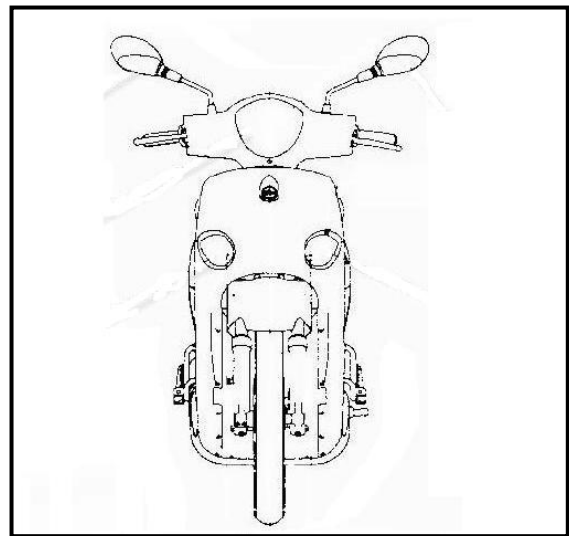
Front wheel axle **55-62 N·m**
Rear wheel nut **100-113 N·m**

Steering column bearings and handle fix

Swing the handle in order to confirm there is no interference with wire.

Confirm the handle turn freely when the front wheel turns.

If the handle is loose or unsmooth, you should check the steering column bearings.

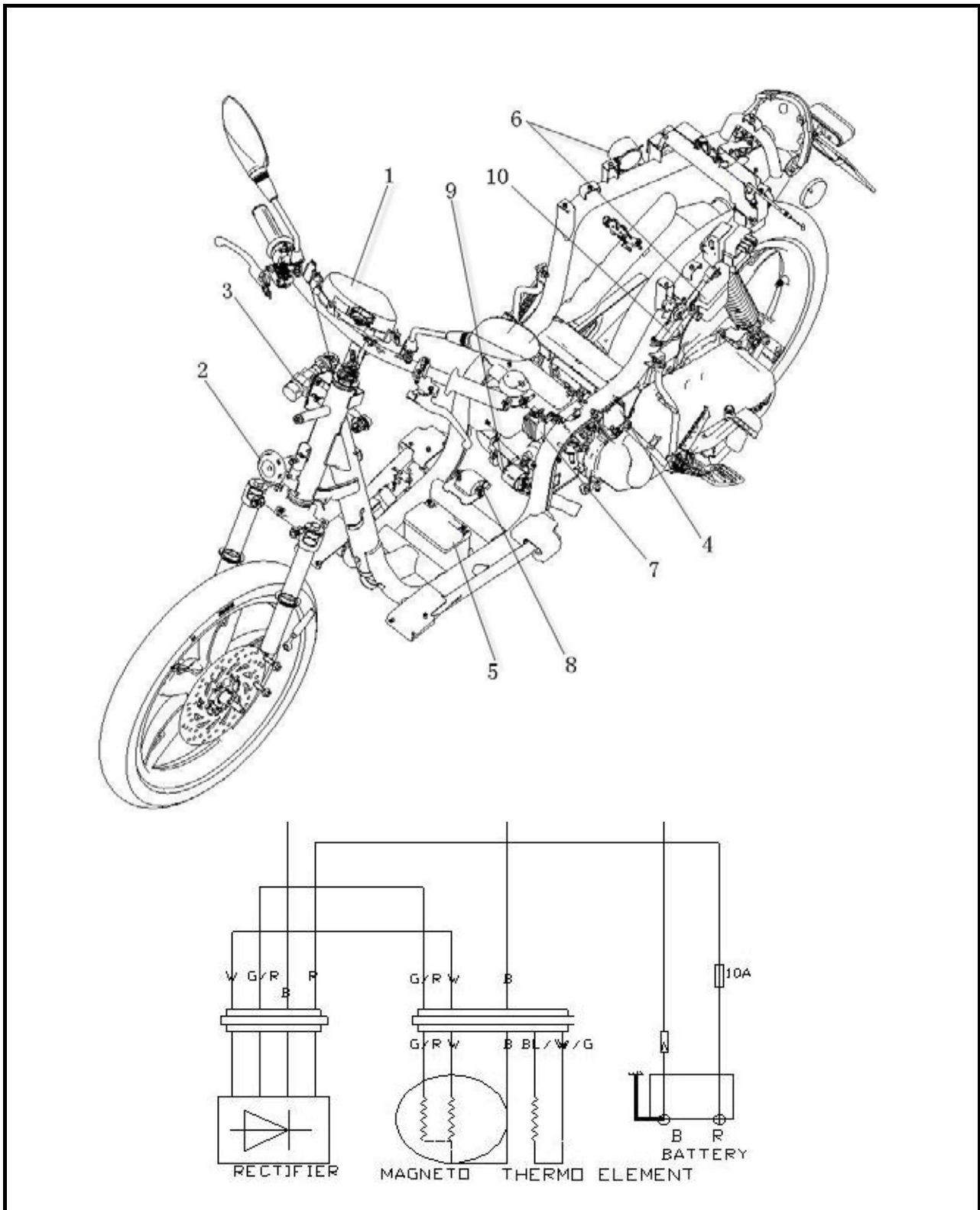


Inspection and maintenance of electrical system

Torque force list of fixing parts in electrical system

Position and name of fixing componen	Torque of fixing (N·m)
Rectifier bolt	5.0
High tension coil fixing bolt	9.0
Flywheel Fixing bolt	5.0
Body Shield Bolt	9.0
Clutch cover bolt of starting motors	12
Set screw nut of clutch cover of starting motors	95

Charging System



1 Meters assembly 2 Horn 3 Power locking components 4 Frequency conversion flash apparatus
 5 Battery 6 Temperature controlled 7 Pressure adjuster 8 Ignition coil

1. Battery/charging system

Preparing documents -----1.1	Failure diagnosis -----1.2
Battery-----1.3	Charging system -----1.4
Voltage current adjustor -----1.5	Magnetor charging coil -----1.6
Removal of magnetor -----1.7	

1.1 Preparing documents

Note of work:

***Note**

1. Battery charge and discharge can be repeated use, its life span can be shortened and performance decreases after discharging. Usually its performance decreases 2-3 years later. Battery with performance degradation, the voltage will resume but sharply drops with load.
2. Battery overcharge : Generally we can judge its overcharge from its body. If the inside of the battery is short-circuit, it is hard to detect the voltage between its terminals. Adjustment failure: the battery voltage is too high; battery life span will be shortened.
3. If the battery has been place without using for a long time, it will be self-discharged and its capacity will drop. Under this condition, it should be charged every 3 months.
4. Check the charging system following the sequence listed on the table.
5. Don't remove the connector with current flowing through the electrical parts, otherwise the voltage will be too high and these parts will be broken down. Switch off the main switch and operate.
6. Maintenance free battery (dry cell type) doesn't have to be checked and added electrolyte and distilled water.
7. Check total electricity load.
8. Emergency charging can only be used in emergent situation.
9. Remove the battery from the motorcycle for emergency charging.
10. Add liquid battery cannot be used when changing the battery.
11. Use the voltage meter for measuring the voltage when charging.
12. Do not disconnect the battery during the adjustment of motorcycle, otherwise inner component of the motorcycle may be damaged.

Preparing standards

Item		Specifications	
Battery	Capacity/Type		12V-4AH/dry cell
	Voltage (20°C)	Full charge	13.1V
		Obligatory charge	12.3V(not working for 1h)
	Charging current		standard : 0.4A , rapid : 4A
	Charging time		standard : 10-15h , rapid : 30min
Magnetor	capacity		90W/8000rpm
	Lighting coil impedance(20°C)		Green/Red - Black 2.0-2.5Ω
	Charging coil impedance(20°C)		White – Black 1.5-2Ω
Voltage adjuster	Type		Single-phase semi-wave charge under short circuit
	Voltage limit	Lighting Limit	14.0V±0.4V/5000rpm
			13.5V/5000rpm
		Charging limit	14.8V±0.4V/5000rpm

Tightening torque force value

Rectifier bolt	5.0 N·m
High tension coil fixing bolt	9.0 N·m
Flywheel Fixing bolt	5.0 N·m
Body Shield Bolt	9.0 N·m

Tool

Multiple fixing spanner
Flywheel remover
Testing instrument
Multimeter

1.2 Failure diagnosis

Power supply dead

Battery overcharge
 Battery wire isn't connected
 Fuse blow
 Bad power switch

interrupted electric current

Poor contact of the charging wire
 Poor contact of the charging system
 Poor contact or short circuit of lighting system

Low voltage

Bad battery charging
 Poor contact
 Bad charging system

Bad charging system

Poor contact of the wire, short or open circuit
 Bad voltage current adjustor
 Bad magnetor

Bad voltage current adjustor

1.3 Battery

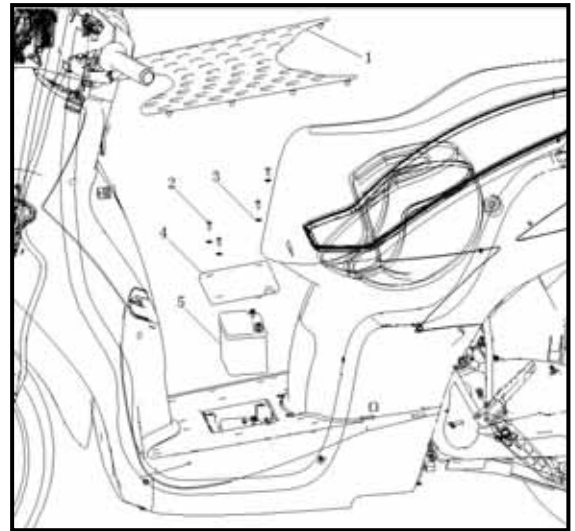
1.3.1 Battery removing

Remove the rubber pad of pedal
Remove the clamp bolt and clamp of battery.
First remove the negative wire and then
remove the positive wire.
Take the battery from the battery container.

Warning !

When removing the positive terminal, the tools should not be contacted with the bracket. It is dangerous that spark caused by short circuit will spark the petrol and break the battery.

Do not disconnect the battery during the adjustment of motorcycle, otherwise inner component of the motorcycle may be damaged.



Install the battery in an opposite order.

* Note

First positive terminal then negative terminal to prevent short circuit.

Check the charging situation.

Open the battery cover, and remove the clamp component of battery.

Remove the lead of battery.

Measure the voltage of the terminals

Full charge : 13.1V

Insufficient charge : 12.3V (not working for 1h)

*** Note**

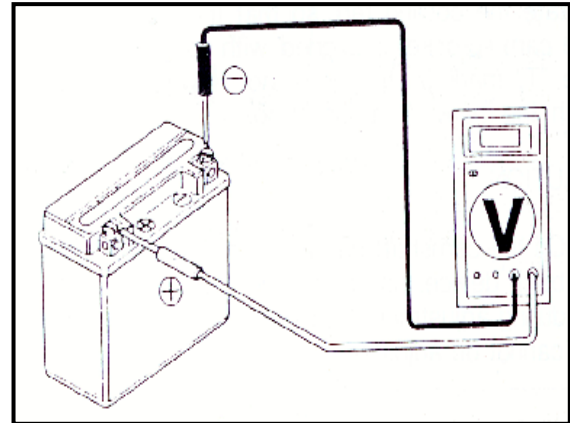
Use voltmeter when charging.

1.3.2 Charging

Connection method :

Connect the positive terminal of the battery charge and the battery

Connect the negative terminal of the battery charge and the battery



Warning !

- The battery should be far away from fire source.
- Turn off the charger when starting charging or completing charging
- Take the marked current time as a standard when charging

***Note**

- Except emergencies, you should not use emergency charge
- Measure the voltage for every other 30 minutes

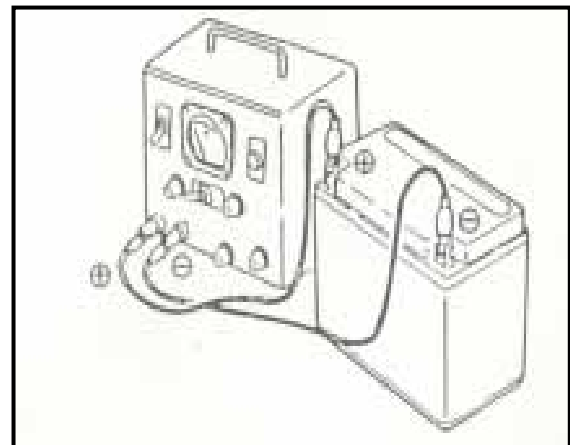
Charging current : standard 0.4A

emergency : 4.0A

Charging time : standard : 10-15h

emergency : 30min

Charging completes : open-circuit voltage : above 12.8V



1.4 Charging system

1.4.1 Charging system

Remove the battery ground wire, and connect the voltmeter between the negative terminal and ground wire. Turn off the switch and check whether it is short circuit.

*** Note**

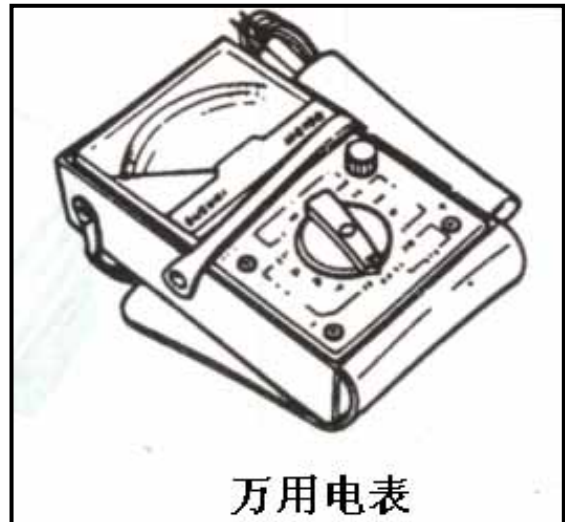
Connect the positive terminal of the multimeter and the negative terminal of the battery together

Check whether the main switch and main wire are short circuit under abnormal conditions.

1.4.2 Charging inspection

Use the multimeter to checking the fully charged battery.
 Mount the battery after the engine warming up.
 Connect the voltmeter between terminals
 Remove the fuse and connect the ammeter between its terminals.
 Start the engine slowly and measure the limiting voltage and current.

万用电表 : multimeter



Limiting voltage/rotating speed : 14-15V (2500rpm)

If the limiting voltage is not within the required range, check the voltage adjustor.
 Check the limiting voltage of the lighting system

*** Note**

Choose AC voltage of the multimeter

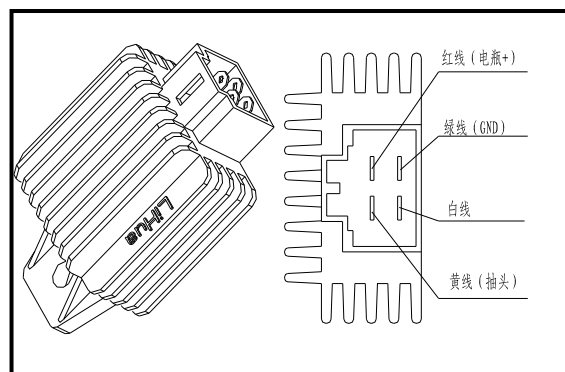
Limiting voltage : 13.1(+/-)0.5V/2500rpm

If the limiting voltage is not within the required range, check the current adjustor.

1.5 Rectifier

1.5.1 Main wiring inspection

Remove the 6p plug of the rectifier.
 Check the conducting state of the terminals of the main wiring.



Item (wiring color)	Judgments
Between Battery	With battery voltage

(red) and GND of the body	
Between GND wire (black) and GND of the body	With wiring
Between charging coil(white) and the GND of the body	There is resistance in the magnetor coil
Between light wire (green/red) and the GND (plug of resistor, auto side starter plug, inspect at OFF position after the removing of lighting switch	There is resistance in the magnetor coil

N \ P	White (A)	Green/Red (L)	Red (B)	Black (E)
	Unit : MΩ			
White (A)		0	6.5	19~21
Green/Red (L)	1~10		24~25	19~23
Red (B)	10~50	0		19~21
Black (E)	5~15	0	0	

1.5.2 Voltage and current adjustor inspection

When the main wiring is completely normal, check the contact of the adjustor's plug, and measure the resistance value between the terminals of the adjustor.

* Note

- When checking the metal parts, your finger should not contact test bar of the multimeter.
- Different multimeter will show differently, so use the same multimeter while checking.

Replace the voltage adjustor when the resistance value between the terminals is abnormal.

1.6 Magnetor charging coil

*Note

Check the magnetor charging coil on the engine.

Inspection

Remove the 6p connector of the magnetor
Measure resistance value between the white coils of magnetor with multimeter

Standard value : 0.5-10Ω (20□)

Replace the magnetor coil when the measured value exceeds the standard value

1.6.1 Magnetor lighting coil

***Note**

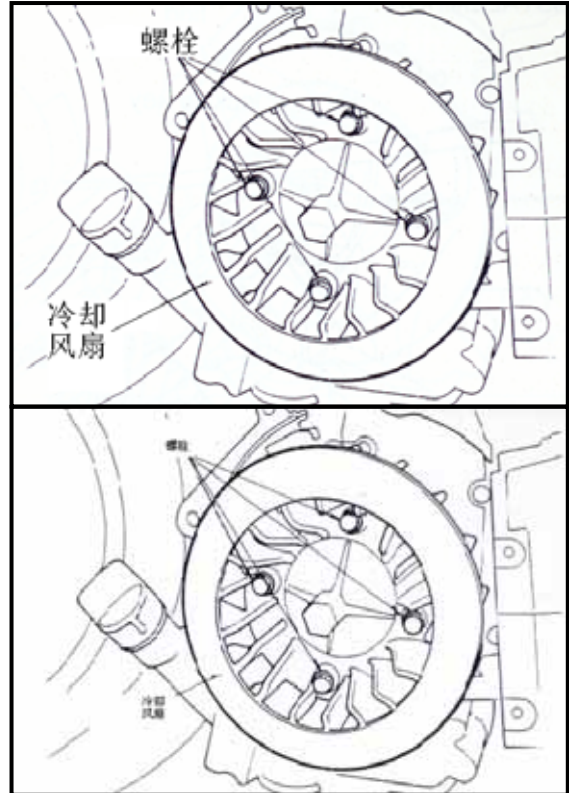
Check the magnetor lighting coil on the engine.

Inspection

Remove the 3p connector of the magnetor
Measure resistance value between the green/red coils of magnetor and the body GND with multimeter

Standard value : 2.0-2.5Ω (20□)

Replace the magnetor coil when the measured value exceeds the standard value. 冷却风扇 : cooling fan 螺栓 : bolt



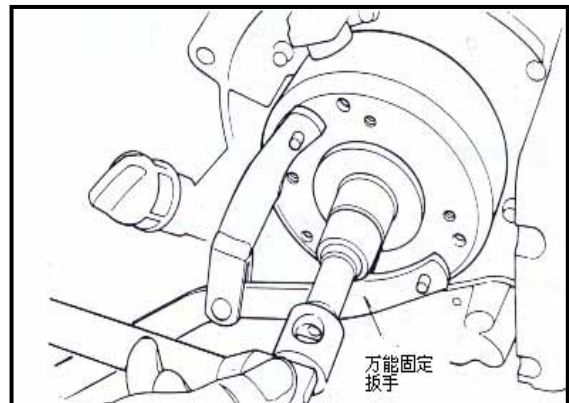
1.7 Replacement of magnetor

1.7.1 Replacement

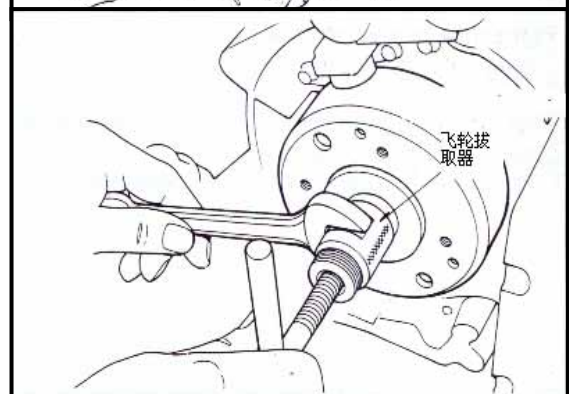
Remove the body shield.
Remove the right body cover.
Remove the 2 fixing bolts and 2 screw, and remove the fan cover.
Remove the four fixing bolts of cooling fan, and remove the cooling fan then.

Fix the flywheel using the universal spanner.
Remove the fixing bolt of the flywheel.

万能固定扳手 : universal spanner



Remove the flywheel using the flywheel remover.
Remove the solid key.
Remove the connector of the alternator wiring.



Remove the alternator stator.

飞轮拔取器 : flywheel remover

1.7.2 Installation

Install the stator on the body of the engine.

Connect the magnetor terminator.

Clean up the taper part of the bent axle and flywheel.

Install the solid key of the flywheel into the bent axle.

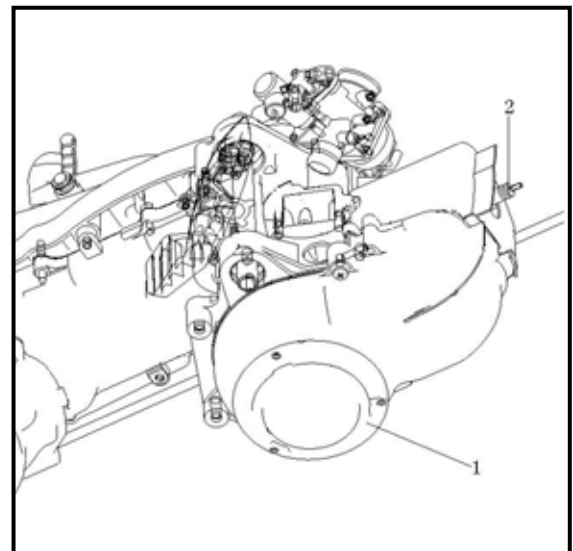
Aim the flywheel groove at the solid key on the axle.

* Note

Ensure the inside of the flywheel do not have bolts.

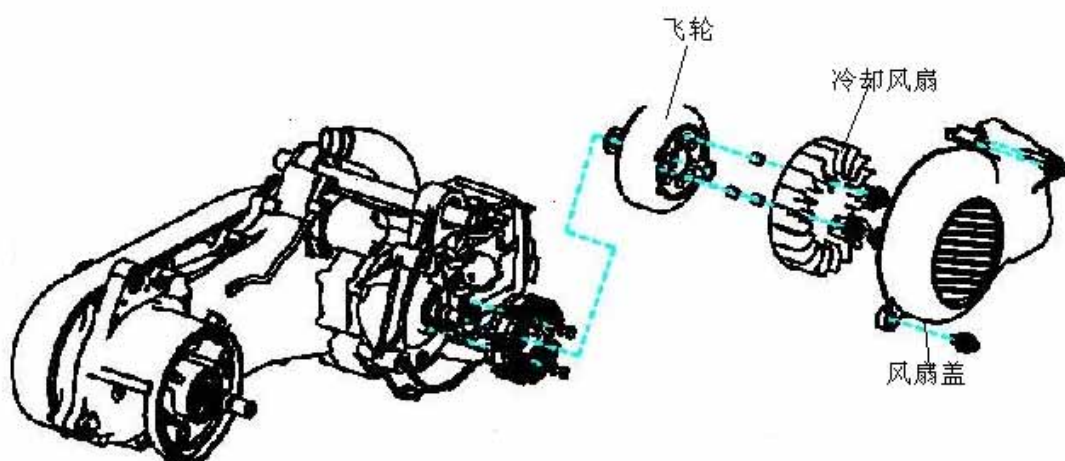
Fix the flywheel with the universal spanner and tighten the fixing screw.

Torque force value : 9.0 N·m

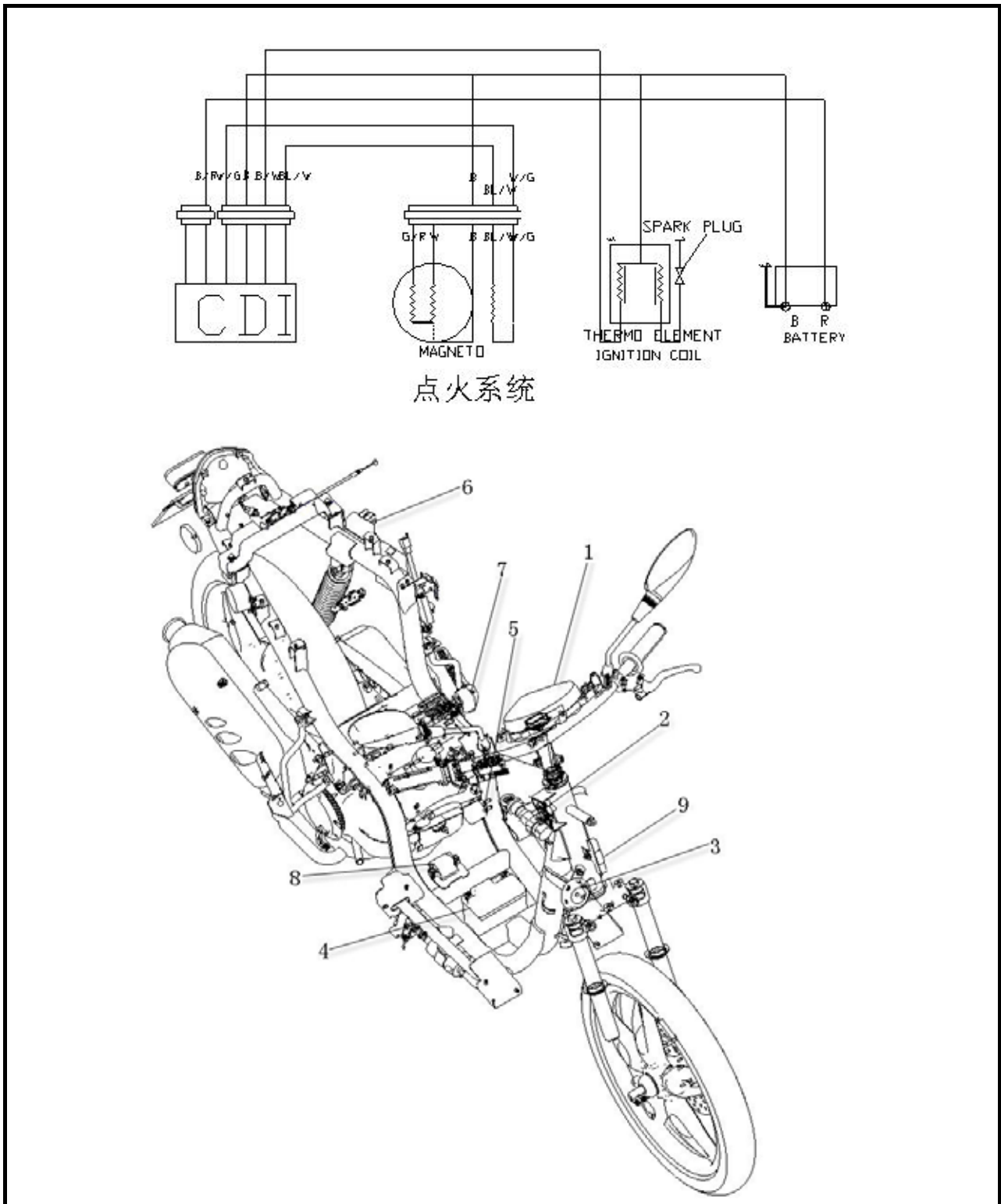


Install the right body fender

飞轮 : flywheel 冷却风扇 : cooling fan 风扇盖 : fan cover



Ignition system



- 1 Meters assembly 2 Power locking components 3 Horn 4 Battery 5 Starting relay
- 6 CID DC igniter 7 Frequency conversion flash apparatus 8 Ignition coil
- 9 Release resistances

2. Ignition system

Preparation system -----	2.1	CDI Group-----	2.4
Failure diagnosis -----	2.2	Ignition coil -----	2.5
Ignition system checking -----	2.3	Trigger-----	2.6

2.1 Preparing documents

Note of work:

1. Checking the ignition system following the sequence listed in the table of failure diagnosis.
2. The ignition system is solidified in the CDI group and you don't have to adjust the ignition time.
3. Checking the ignition system following the sequence listed in the table of failure diagnosis.
4. CDI ignition system cannot subject to strong percussion (which is the main reason for failure), so you need to pay great attention to that.
5. Check whether the connection is bad or not, because usually the reason for failure is poor contact socket.
6. The heat value of the spark plug should be appropriate. Improper spark plug will cause the engine running unsmooth and even the spark plug will be burn-out.
7. Inspection in this chapter is based mainly on the maximum voltage , also inspection of the ignition coil impedance is introduced.
8. Check the main switch according to the table.
9. Remove the alternator and stator according to the instructions.

Preparing standards

Items		Standard value	
Spark plug recommended	Standard	C5HSA(NGK)	
	Hot type	C6HSA(NGK)	
	Cold type	C7HSA(NGK)	
Spark gap		0.6-0.7mm	
Ignition coil impedance (20□)	Primary coil		0.6Ω±10%
	Secondary coil	With plug cap	5-11KΩ
		Without plug cap	0.5-5.5KΩ
Resistance of trigger (20□)		100-500Ω	
Measure the maximum voltage after ignition coil rotates once		95-400V	

Trigger voltage	Above 1.7V
Charging coil voltage	95-400V

Tools

Voltmeter

Multimeter

2.2 Failure diagnosis

Spark plug unable to jump

	Error	Reason (identify according to the following order)
Ignition coil	Low voltage	<input type="checkbox"/> The inner resistance is too small and it should be tested by required tester <input type="checkbox"/> Low rotation speed of the bent axle. <input type="checkbox"/> Tester is interfered. (It is normal that several measured voltage is above the basic standard.) <input type="checkbox"/> Poor contact wire for the ignition system. <input type="checkbox"/> Bad ignition coil. <input type="checkbox"/> Bad charging coils (measure at maximum voltage).
Secondary Side voltage	No or interrupted high voltage electricity	<input type="checkbox"/> Wrong connection with the tester. <input type="checkbox"/> Bad main switch <input type="checkbox"/> Bad connector of the CDI group <input type="checkbox"/> Poor contact of the CDI group or GND of the CDI group is short-circuit. <input type="checkbox"/> Bad charging coil (measure at maximum voltage) <input type="checkbox"/> Bad trigger (measure at maximum voltage) <input type="checkbox"/> Bad high tension electricity connector <input type="checkbox"/> Bad CDI group (when there is no spark for the plug or $\square-\square$ is abnormal).
	Normal high voltage electricity/no spark for the plug	<input type="checkbox"/> Bad plug or secondary ignition coil leakage <input type="checkbox"/> Bad ignition coil
Charging coil	No high voltage electricity	<input type="checkbox"/> <input type="checkbox"/> The inner resistance is too small and should be tested by required tester. <input type="checkbox"/> <input type="checkbox"/> Low rotation speed of the bent axle <input type="checkbox"/> <input type="checkbox"/> Tester is interfered. (It is normal that several measured voltage is above the basic standard.) <input type="checkbox"/> <input type="checkbox"/> Bad charging coil ($\square-\square$ are normal)
	No or interrupted high tension electricity	<input type="checkbox"/> Bad ignition coil <input type="checkbox"/> Bad charging coil

Trigger	Low high voltage electricity	<input type="checkbox"/> The inner resistance is too small and should be tested by required tester. <input type="checkbox"/> Low rotation speed of the bent axle (It is normal that several measured voltage is above the basic standard.) <input type="checkbox"/> Tester is interfered. <input type="checkbox"/> Bad trigger (<input type="checkbox"/> - <input type="checkbox"/> are normal)
	No or interrupted high voltage electricity	<input type="checkbox"/> Bad ignition coil <input type="checkbox"/> Bad trigger

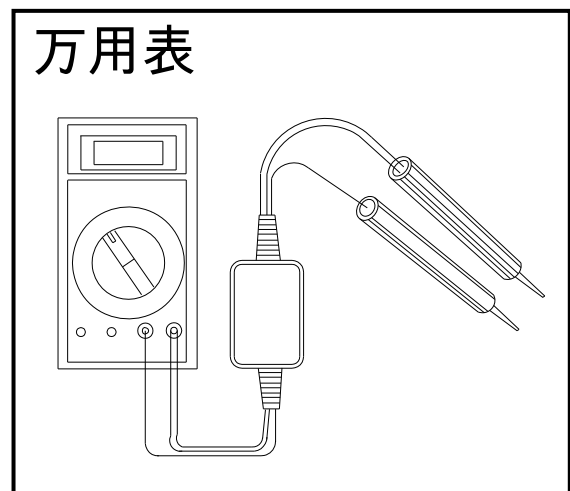
2.3 Checking the ignition system

*Note

When there is no spark on the spark plug, check whether there is loose wiring or poor contact of all components, and make sure all voltage values are normal.

- There are various kinds of multimeters with different internal impedances and different test values.

Connect a high-pressure shunt or an ammeter with an input impedance above $10M\Omega/10CV$ to the multimeter.



万用表 : multimeter

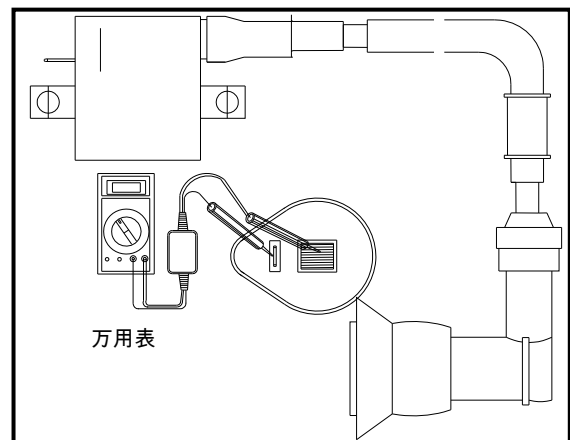
2.3.1 Voltage of the ignition

If you replace the original spark plug with a better one, make ground connection with the engine.

*Note

Make sure the wire connection is correct before testing.

Cylinder compression pressure normally refers to the test value when the spark plug is installed in the cylinder head.



Remove the intermediate cap.
 Connect the wires of ignition coils.
 Ground connect the two ends (black/white)
 of the primary coil to the car body to
 create current divider.
 Press the starting motor or step on the
 actuating lever to measure the voltage of
 the ignition coil at a time.

Minimum voltage : Above 95V.

***Note**

Never touch the metal of test prod when
 measuring the voltage in case of electric
 shock.

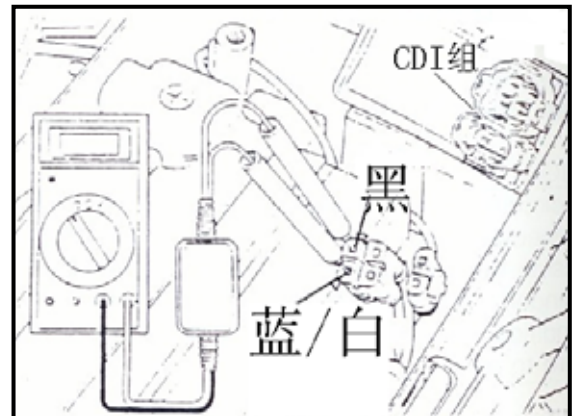
2.3.2 Trigger

***Note**

Install the spark plug in the cylinder head
 and carry out the measuring when the
 compression pressure is normal.

Remove the 4p and 2P joints of CDI group,
 connect the peak-voltage magnetor
 between the trigger with wiring 2p end
 (blue / white end) and 4p end (black end).
 Press the starting motor or step on the
 actuating lever to measuring the peak

voltage of the trigger.



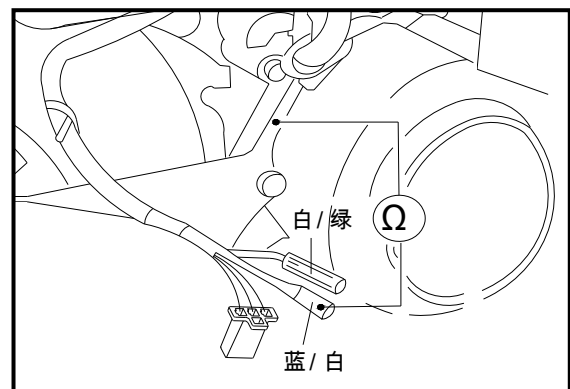
CDI 组 : CDI group 黑 : black 蓝 : blue 白 : white

Method of attachment: Blue/white end to
 the positive pole and black end to the
 negative pole.

Minimum voltage : Above 1.7V.

***Note**

Never touch the metal of test prod when
 measuring the voltage in case of electric
 shock.



Remove the adaptor of the alternator when

the peak voltage of the adaptor of CDI

Group is abnormal.

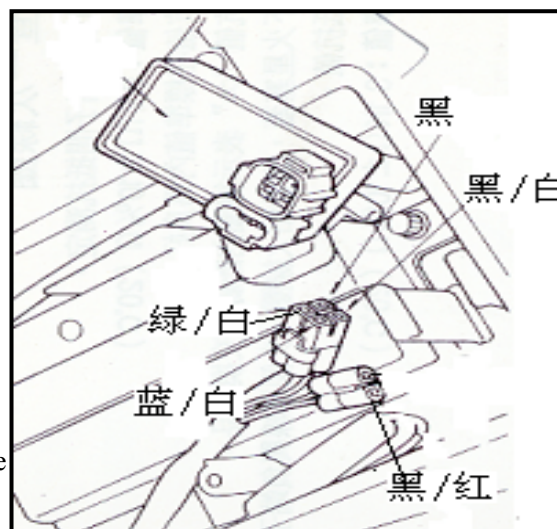
Connect the magnetor of and the trigger (blue/white).

·If the obtained voltage of the end of CDI Group is abnormal while the one of the end of the alternator is normal, the problem should be poor contact or wire break.

·If both ends are abnormal, the trigger may be broken, please refer to the checking method in the failure diagnosis table.

黑 : black 绿 : green 蓝 : blue 红 : red 白 : white

白 : white 绿 : green 蓝 : blue



2.4 CDI Group

2.4.1 System check

Check the system.

Remove the CDI Group, check the components concerning the ignition system at the wiring end.

2.4.2 Check

Remove CDI Group, check whether there is loose or corrosion in the adaptor.

Checking item	Testing end	Standard value (20℃)
Main switch	Red--red/white	Breakover when the main switch is "OFF"
Trigger	Blue/white – white/green	100-200Ω
Primary coil of the ignition coil	Black/white--black	0.6Ω±10%
Secondary coil of the ignition coil	Black--spark plug cap(without the spark plug)	0.5-5.5KΩ±10%

2.5 Ignition coil

2.5.1 Unload

Unload the body shield.

Unload the spark plug cap.

Unload the primary wire of the ignition coil.

Unload the fixed bolt of the ignition coil, remove the ignition coil.

Carry out the operations in the opposite order of unloading during installation.

***Note:**

Use the black/white end of primary coil during installation.

2.5.2 Check the primary coil

Impedance measuring between the ends of the primary coil

Standard value : 0.6Ω (+/-) 10% (20□)

If the impedance value is within the range of the standard value, it is fine.

If the impedance is “∞”, there is wire break in the coil, replace it with a new one.

2.5.3 Secondary coil

With a spark plug attached. Measure the impedance value between the wire side and the end of the spark plug cap.

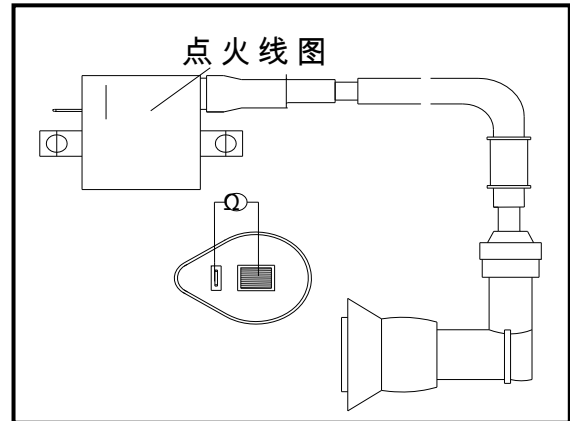
Standard value : 5-11K Ω (20□)

If the impedance value is within the range of the standard value, it is fine.

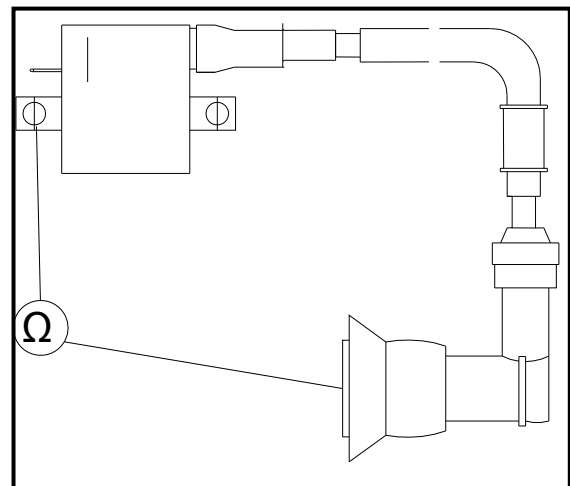
If the impedance is “∞”, there is wire break in the coil.

Remove the spark plug cap, measure the impedance value between a side wire and the negative end.

Standard value : 0.5-5.5K Ω (+/-) 10% (20□)



点火线图 : Diagram of ignition wire



2.6 Trigger

***Note:**

Check of the trigger could be carried out on the engine.

Check

Remove the body shield.

Remove the wire adaptor of the trigger.。

Measure the impedance value between the blue/white end of the wire at the engine side and the ground strap connection of the body..

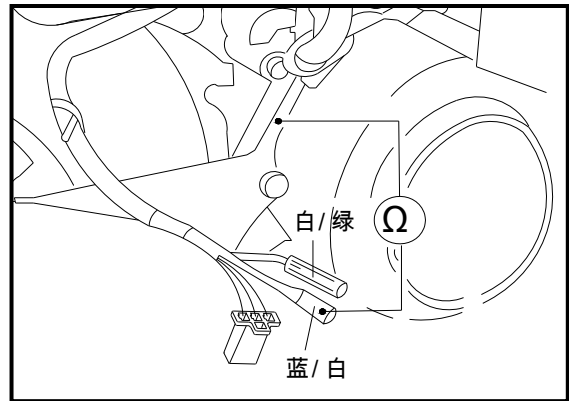
磁电机接口 : magnetor interface

黑 : black 绿/红: green/red 白 : white

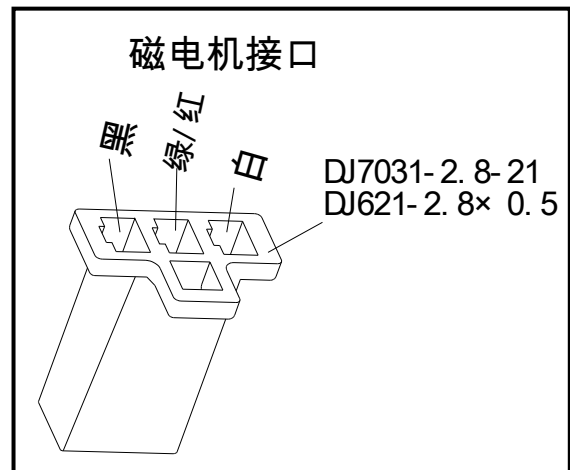
Standard value : 100-500Ω (20□)

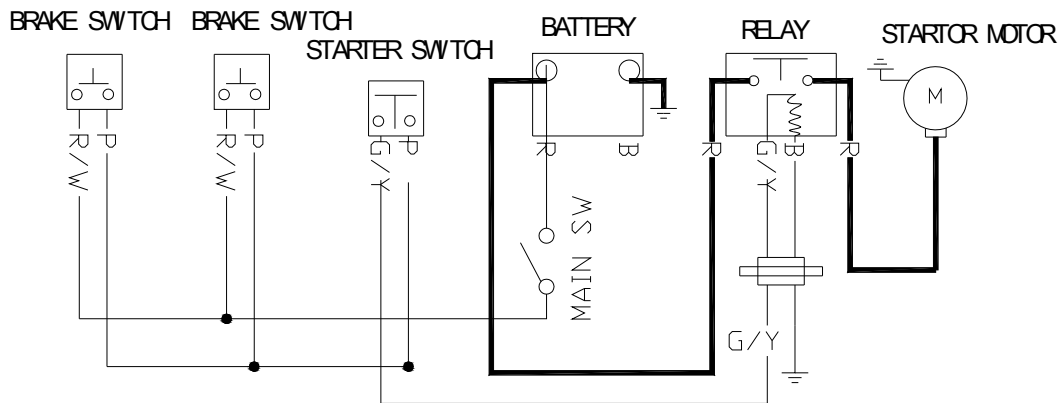
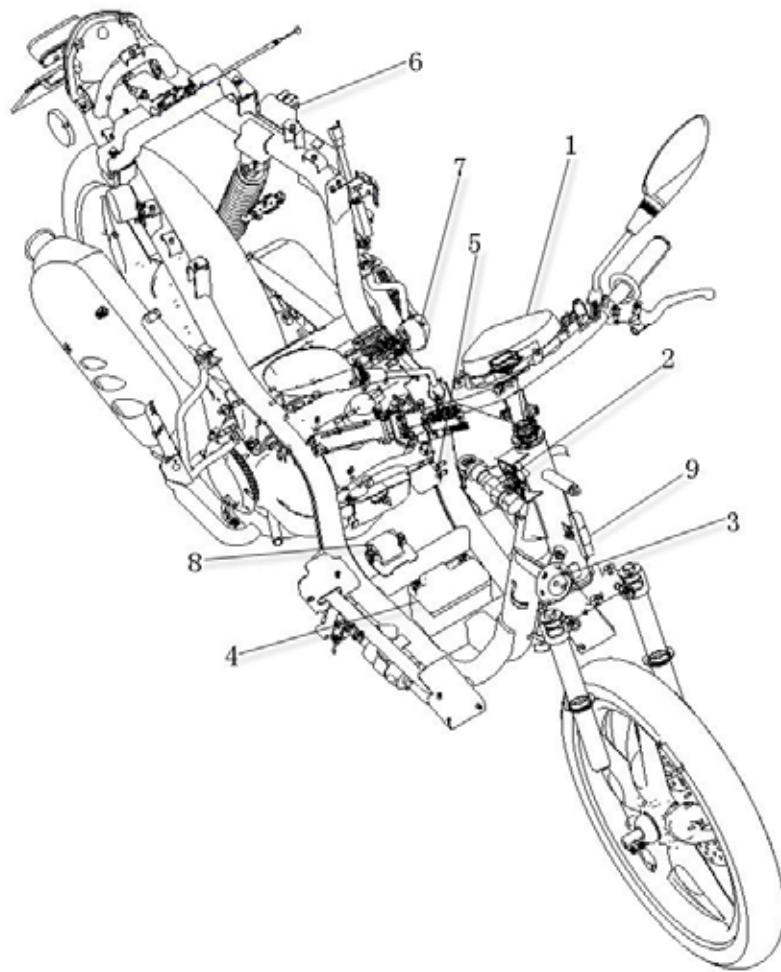
Change the alternator when the value is beyond the range of the standard value.

Activation system



白/绿 : white/green 蓝/白 : blue/white





启动示意图

- 1 Meters assembly 2 Power locking components 3 Horn 4 Battery 5 Starting relay
 6 CID DC igniter 7 Frequency conversion flash apparatus 8 Ignition coil

3. Activation system

Preparation -----3.1

Failure diagnosis -----3.2

Starting motor -----3.3

Starting relay -----3.4

3.1 Preparing documents

Notes of working

The unloading of the starting engine could be carried out on the engine.
Refer to the method of unloading when unloading the engine.

Preparation standards

Item	Standard value	Service limits
Length of the motor brush of the starting motor	6.2mm	3.0mm
Liner of the starting idler shaft		8.3mm
External diameter of the starting idler shaft		7.94mm

Torque tightening value

Clutch cover bolt of starting motors **12 N·m**
Set screw nut of the clutch cover of starting motors **95 N·m**

Instrument

Set screw nut wrench
Universal fixed wrench

3.2 Failure diagnosis

Activation failure

Weak rotating force
of the starting motor

Starting motor is rotating
well while the engine is not

- Burnt out fuse
- Low storage battery
- Broken main switch
- Broken starting clutch
- Broken brake switch
- Broken starting relay
- poor contact of connecting line
- Broken starting motor

- Low storage battery
- Poor contact of connecting line
- The gear of the starting motor is
Blocked by foreign matters.

- Broken starting clutch
- anticlockwise revolution of the starting motor
- Low storage battery

3.3 Starting motor

3.3.1 Unloading

* Attention

Before unloading the starting motor, turn the main switch to “OFF” first; remove the bond strap of the storage battery, then turn the power source on the see if the starting motor is working to ensure the security.

Remove the wire clip of the starting motor first.
Remove the fixed bolt of the starting motor and
unload the motor.

Roll up the rubber overshoe and pull down the
adaptor of the starting motor.

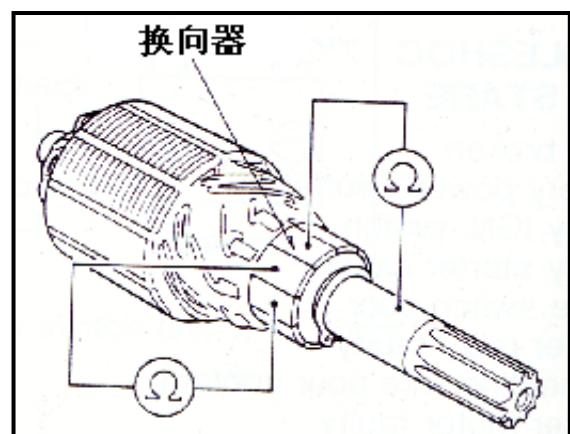
3.3.2 Breaking down

Unload the screws in the outer cover, the front cover, the
motor cover and other parts.

转向器 : commutator

3.3.3 Check

Check other component assembling.
Replace for a new one when there is wear,



fragment or burning loss in the surface.
Clean the metal powder on the surface of the commutators.

Conduction check between all interfaces of other components

Make sure armature shafts of all interfaces could not turn on.

Conduction check of the outer cover of the starting motor

Make sure the conduction terminator and the outer cover of the starting motor could not turn on.

Conduction check between conduction terminators and electric brushes

Change for a new one if there is anything abnormal.

Conduction measuring of the electric brush bracket

Change for a new one if it turns on.

Measuring of the length of electric brushes

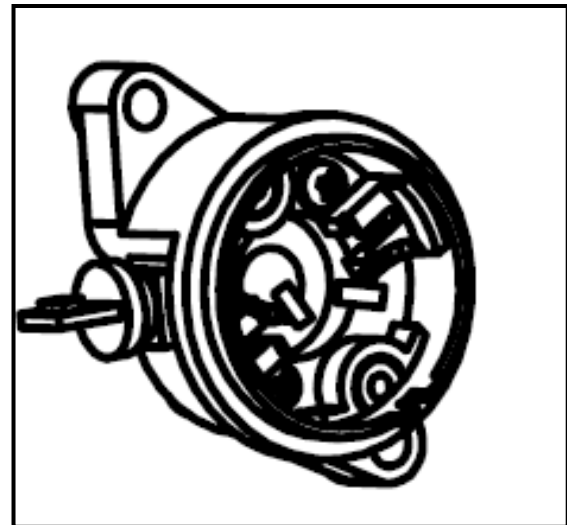
Available credit: Change for a new one if the length value is less than 3.0mm

Check whether the needle bearing in the front

Cover is rotating smoothly and whether there is any loose when pressed in.

Change for a new one if there is anything abnormal.

Check whether there is any wear or damage of the oil seal.



3.3.4 Assembling

Oil seal and greasing coating in the front cover.

Install the electric brush on the

Electric brush bracket

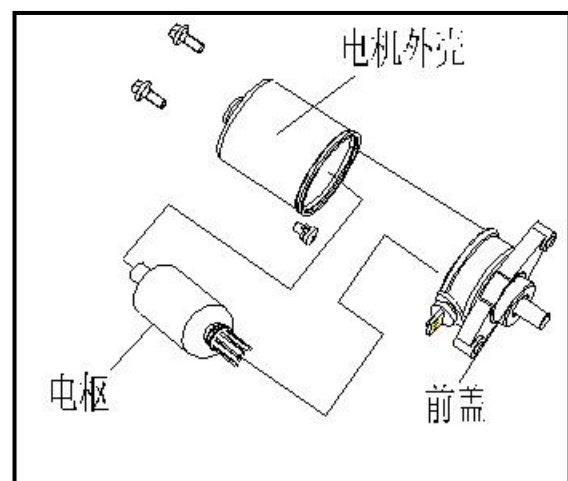
Grease coating on movable parts of the two ends of electric brush.

Press all the electric brushes into the bracket,

then fit on the front cover of the electric motor.

电机外壳 :motor shell 电枢 :armature 前盖 :front cover

***Note**



• Damage is not allowed in the interface between the electric brush and the armature, pay attention please.

The labial part of the oil seal should not be damaged by the installation shaft, pay attention please.

Install new O-shape rings on the front cover.

Pair the screw of the motor shell with the one of the front cover during installation.

Screw up the screw in the outer shell.

***Note**

In the assembling of the outer shell and the front cover, use the magnet to draw the front cover to make it easy to pull out the armature, and then press it down softly.

3.3.5 Installation

Install wires of the starting motor; make sure the soldering cup is properly installed.

Check whether the O-shape ring is damage, and replaced it with a new one when necessary.

Cover the O-shape ring with engine oil, and install it onto the starting motor.

Install the wire clip of the rear brake.

3.4 Starting relay

3.4.1 Actuation examination

Remove the fender of the body.

Ensure there is a “click” when turning on the starting motor with the main switch remaining “on”.

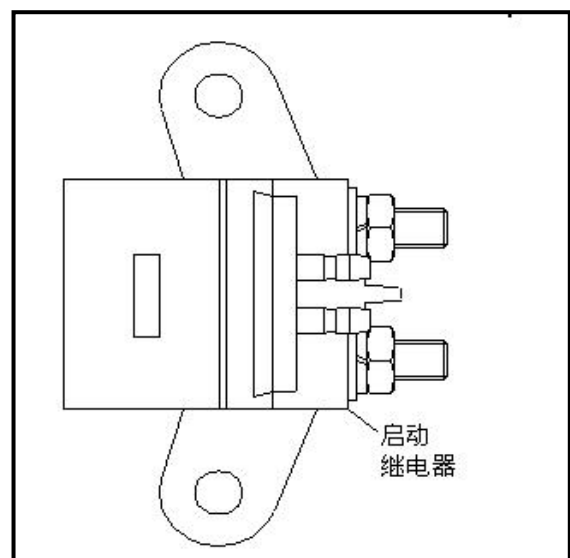
If there is sound, it is ok.

If no sound appears: ·check the voltage of the starting relay.

·Check the ground loop of the starting relay.

·Actuation examination of the starting relay.

启动继电器 : start the relay



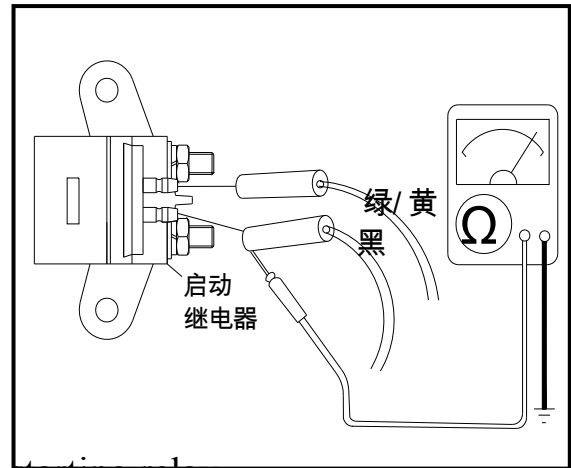
3.4.2 Voltage examination of the starting relay

Set up the main stand, measure the voltage between the negative pole of the green/yellow wire in the adaptor of the starting motor and the ground strap connection of the body.

Hold on the brake tension rod with the main switch remaining “on”, the voltage of the storage battery must be in accordance with specification.

Continuity check and examination of the wires when the voltage between the ends of the starting motor is zero.

绿/黄/黑 green/yellow/black



3.4.3 Examination of the ground loop of the starting relay

Remove the adaptor of the starting relay.

Conduction examination between the grey wire at the end of conductor joint and the ground strap connection of the body.

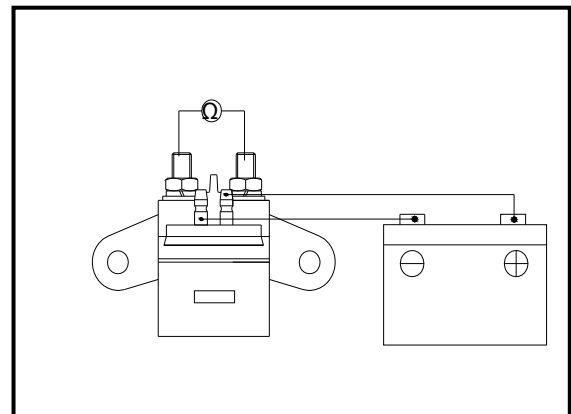
When pressing on the starting button, the conduction between the grey wire and the ground strap connection of the body must be fine.

Examination of the conduction of the starting button and wires when there is no conduction.

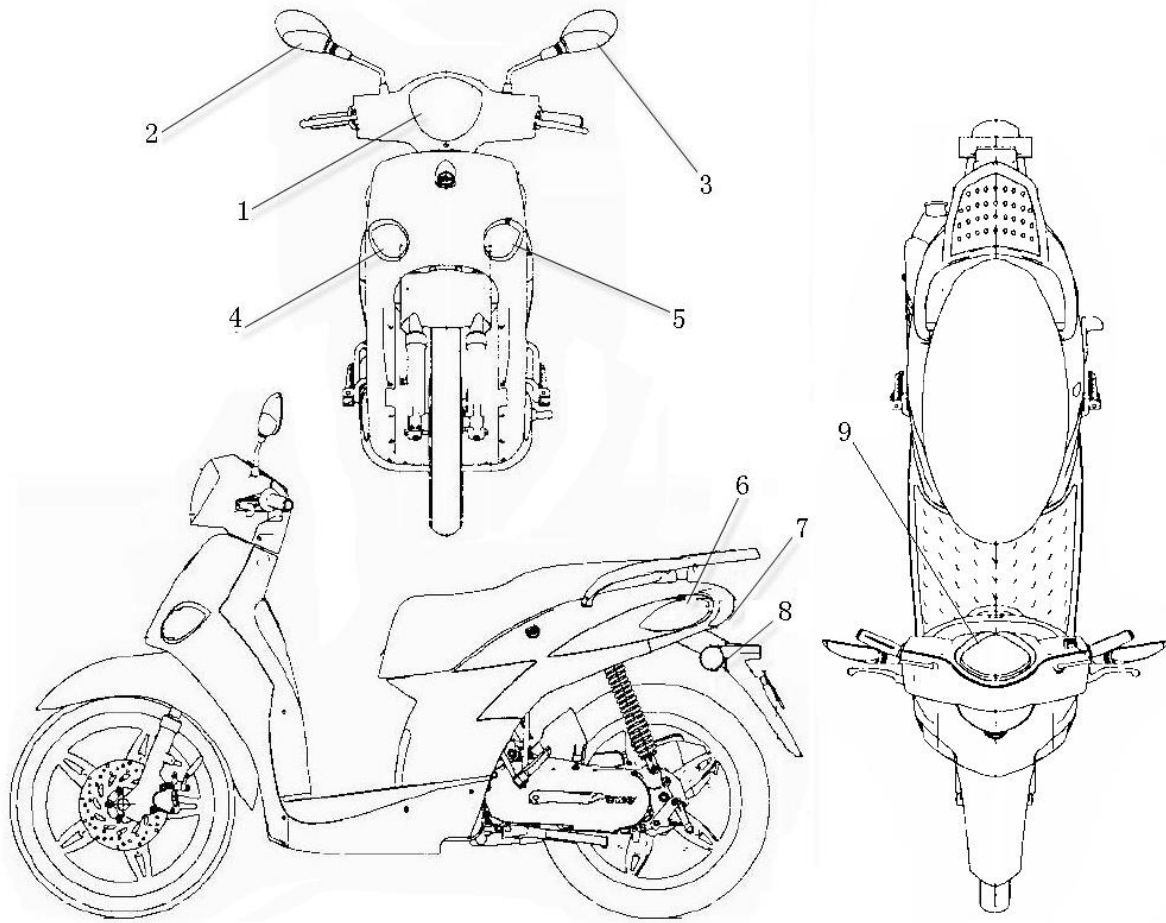
3.4.4 Actuation examination

Remove the storage battery out of the starting relay, and connect the end of the starting relay with a multimeter.

Connect the fully charged storage battery between the black wire and the green/yellow wire of the relay. The relay will utter a “click” and the electric impedance the multimeter shows is “zero”.



Bulbs/Switches/Meters



A	Certificate No. of front lamp: E9-00 1555
B	Certificate No. of front position lamp:E9 50R-001555
C	Certificate No. of rear lamp: E9 50R-001556
	Certificate No. of front turn light:

1 Front signal lamp 2 Right rearview mirror 3 Left rearview mirror 4 Front right turn signal lamp
5 Front left turn signal lamp 6 Rear left turn signal lamp 7 Taillight 8 Rear reflector 9 Meters assembly

4. Bulbs/Switches/Meters

Preparation -----4.1

Meters -----4.6

Failure diagnosis -----4.2

Main switches -----4.7

Headlight bulb replacement -----4.3

Speaker-----4.8

Front turn signal lamp replacement-----4.4

Combined switch-----4.9

Replacement of taillight, rear left/right turn signal lamp -----4.5

4.1 Preparing documents

Notice of work

Conduct examination of the switch (The switch could be removed from the motorcar before being examined)

4.2 Failure diagnosis

The main switch can not be turned "On"

- The bulb is broken
- The switch is broken.
- Poor contact at the adaptor or wire break.

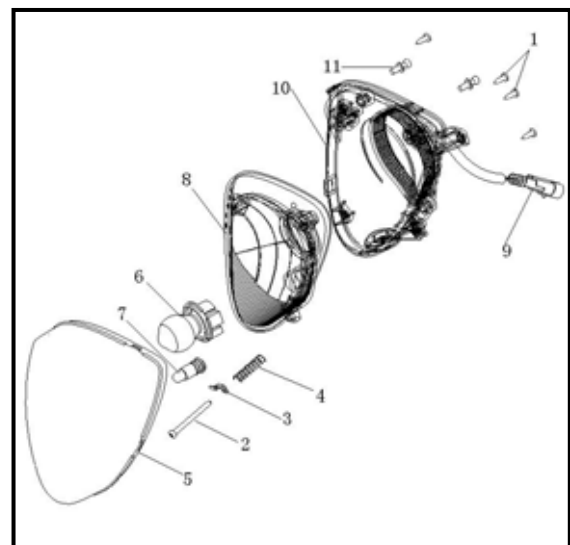
Dim light

- generator failure
- manostat failure
- rectifier failure

4.3 Headlight bulb replacement

4.3.1 Unloading

Remove the right/left rearview mirror;
Remove the front shield;
Disconnect the wire of headlight bulb.
Remove the glass lens of the headlight
Keep the headlight in place; rotate the outlet
clockwise to remove the bulb.



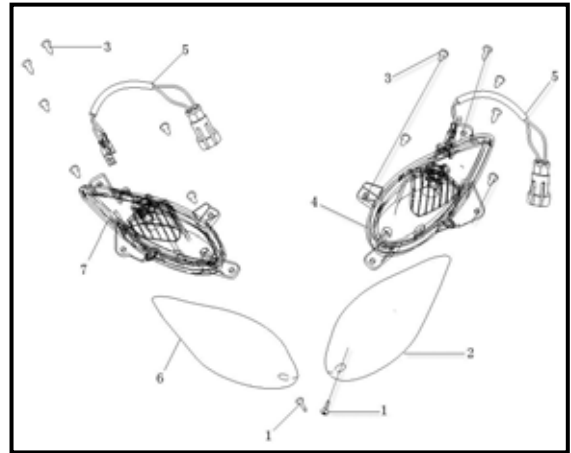
4.3.2 Installation

Install the bulb in the opposite order of removal.

4.4 Front turn signal lamp bulb replacement

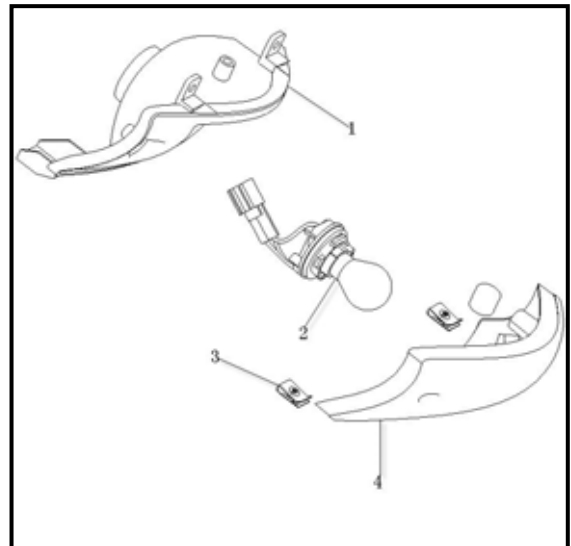
4.4.1 Unloading

Unscrew the setscrew of the turn light.
Remove the front turn signal lamp bulb



4.4.2 Installation

Install the bulb in the opposite order of removal.



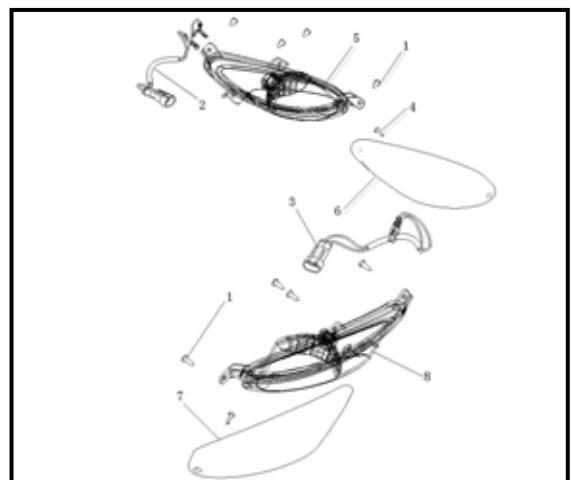
4.5 Taillight/Rear turn signal lamp replacement

4.5.1 Unloading

Remove the set screw of taillight to remove the taillight;
Remove the set screw of rear turn signal lamp;
Disconnect the wire of taillight;
Disconnect the wire of turn signal lamp bulb
Remove the taillight and rear turn signal lamp bulb.

4.5.2 Installation

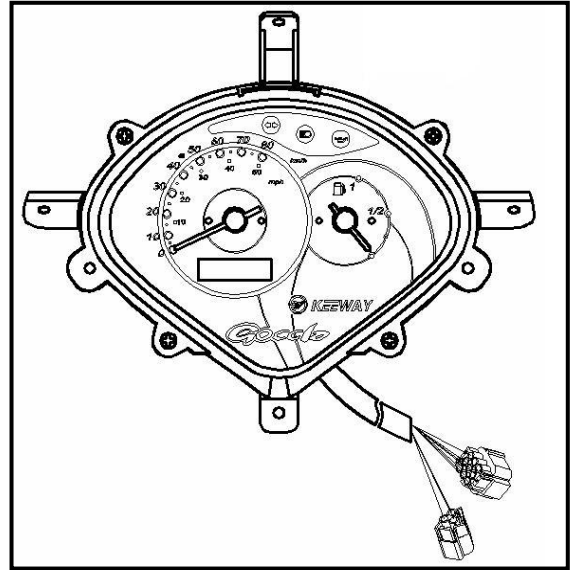
Install the bulb in the opposite order of removal.



4.6 Meters

Remove the decorative parts of meters
 Remove the back protective guard of the handlebar,
 Disconnect the wire of meters
 Remove the meters

Install the speedometer in the opposite order of removal.



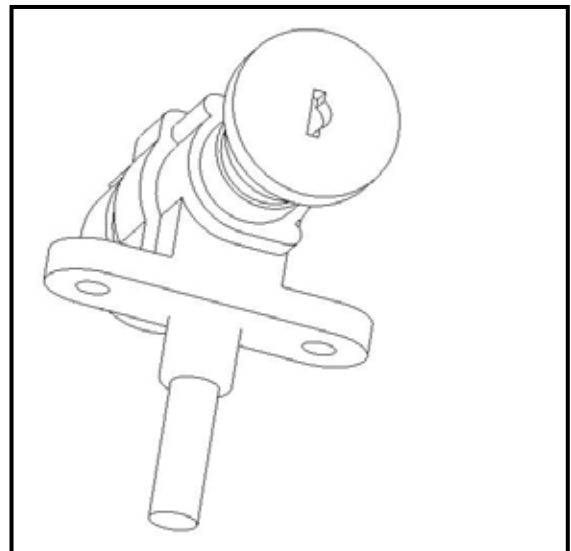
4.7 Main switches

4.7.1 Check

Remove the helmet hook, front basket and rear board.
 Remove the added board and foot protective plate of front basket and rear board.
 Remove the conductor joint of the main switch
 Conduction examination of the ends of the adaptor

电路逻辑图

	N/W	R	R/W

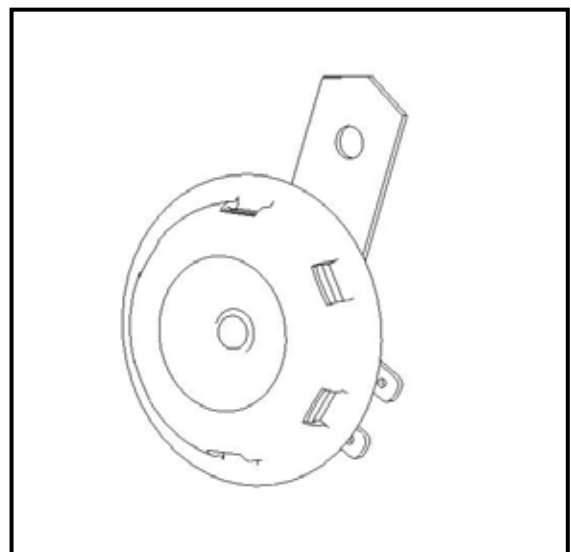


4.7.2 Main switch replacement

Remove the helmet hook, front basket and rear board.
 Remove the added board and foot protective plate of front basket and rear board.
 Remove the standing bolt; unload the permanent seat of the main switch.
 Remove the standing bolt to replace the main switch.

4.8 Speakers

Examination



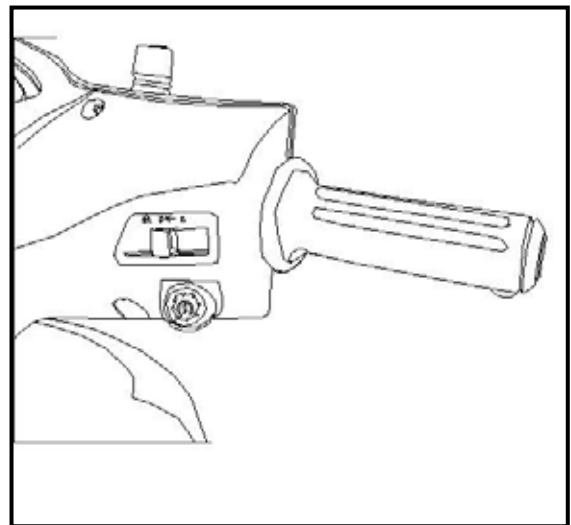
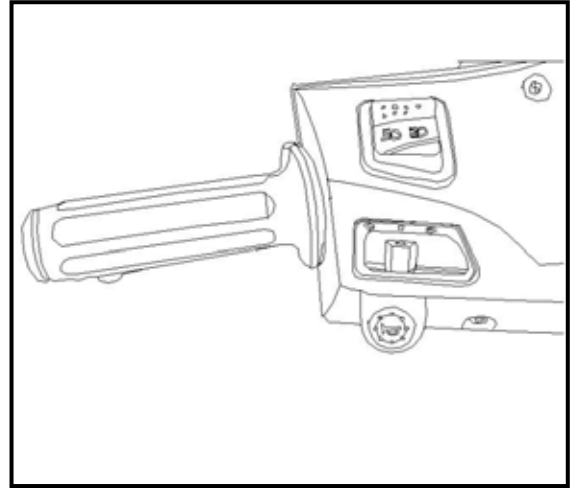
Remove the wires of the speaker.
Connect the speaker to the storage battery.
If there is sound, it is working.

4.9 Combined switch

Displacement and installation

Remove the rearview mirror component.
Remove the decorative screw of meter.
Remove the meters and back protective guard of the handlebar.
Remove the set screw of left and right combined switches.
Unscrew the left and right combined switches.
Remove the components of right handle and left handle.
Remove the right and left combined switch.

Install the combined switch in the opposite order of removal.



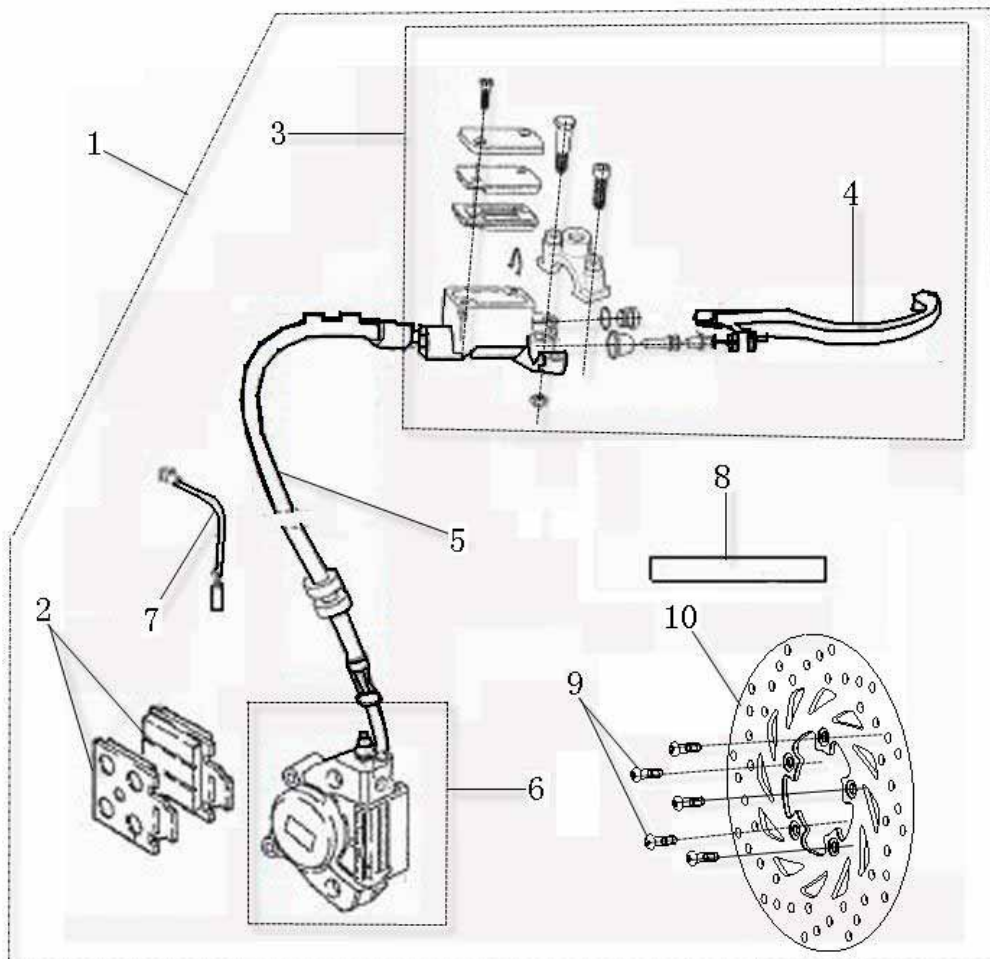
Examination and maintenance of chassis

Torque force list of set parts on chassis

Position and name of fixing part	Fixing torque (N·m)
Installing bolt of front fluid brake disc	5-9 N·m
Bolt component of front absorber	37-44 N·m
Set bolt of rear brake rocker	5-9 N·m
Set bolt for welding of handlebar	40-60 N·m
Front wheel axis	55-62 N·m
Set bolt of front absorber	37-44 N·m
Set nut of rear wheel	100-113 N·m
Top bolt of rear absorber	37-44 N·m
Bottom bolt of rear absorber	22-29 N·m
Set bolt of fuel tank	5-9 N·m
Set bolt of helmet container	5-9 N·m
Set bolt of fulcrum shaft of motor	55-62 N·m

Front Fluid Brake

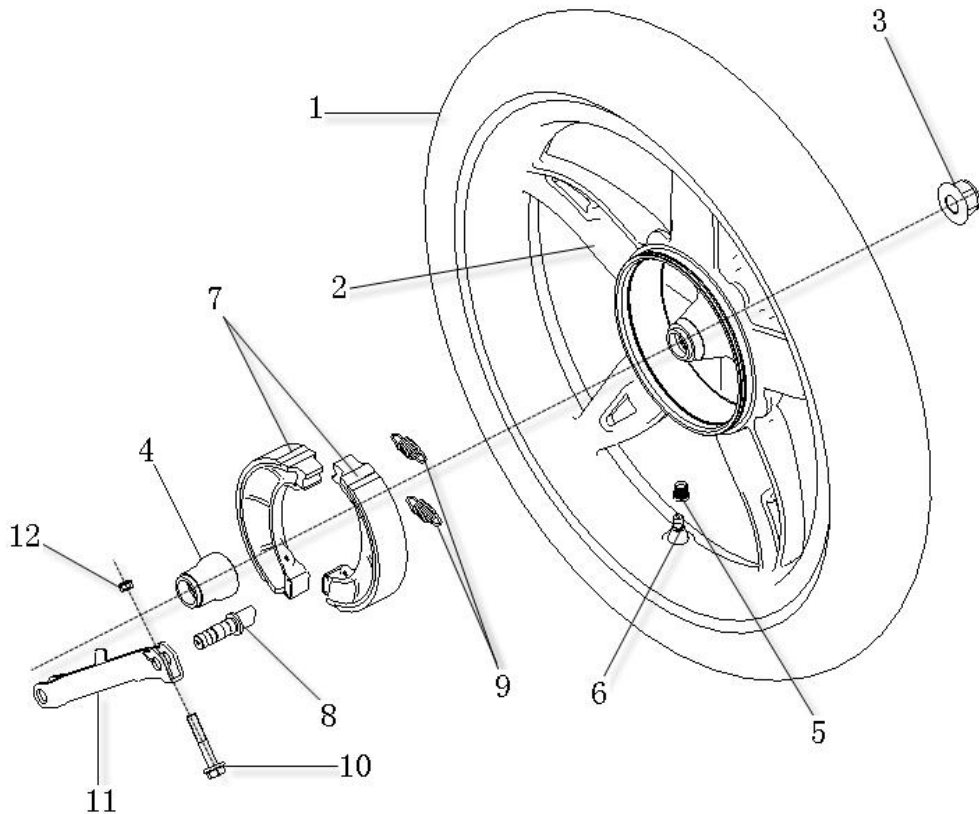
A	Dia of front brake disc: φ220mm
B	Thickness of front brake disc: 4.0mm Limit: 3.0
C	Thickness of front brake disc: 4.0mm Limit: 3.0
D	Installing torque of bolt 9 in the picture: 5-9 N·m
E	Free path of brake handle: 10-20mm



- 1 Front brake component 2 Friction piece component 3 Oil pump component 4 Liquid brake handle
 5 Brake tube assembly 6 Brake cylinder component 7 Switch assembly 8 Shield 9 Bolt M6×20
 10 Front brake plate

Rear Drum Brake

A	Torque of bolt 3 in the picture: 100-113 N·m
B	Inner dia. Of rear drum brake φ140mm Wearing limit: φ141mm
C	Thickness of friction piece of rear brake: 4.0mm Limit: 3.0mm
D	Torque of bolt 10 in the picture: 5-9 N·m



1 Vacuum tyre 90/80-16 2 Rear wheel component 16×1.85 3 Bolt M16X1.5 4 Dust cover 5 nozzle cap
 6 nozzle 7 Brake pad component 8 Rear brake camshaft 9 Drag spring of brake pad
 10 Bolt M6X30 11 Rear brake rocker component 12 Bolt M6

5. Brake

Maintenance instruction -----5.1

Failure diagnosis -----5.2

Front fluid brake -----5.3

Rear fluid brake -----5.4

5.1 Maintenance instruction

Note of work

*** Note**

- Parts of the braking system should not be polluted when installing or removing.
- Use the required cleaner to prevent affecting the function of the braking system.

* Check the brake before riding*

5.1.1 Specification

Items	Standard value(mm)	Available limits (mm)
front brake disc diameter	φ220mm	-
front brake disc thickness	4.0	3.0
Thickness of friction piece in front liquid brake	4.0	3.0
Inner diameter of rear drum brake	φ140mm	-
Thickness of friction piece in rear brake pad	4.0	3.0

5.1.2 Torque

Installing bolt of front liquid brake plate 5-9 N·m Set bolt of rear brake rocker 5-9 N·m
Set bolt of rear wheel 100-113 N·m

5.2 Failure Diagnosis

Brake

Poor performance of the braking system

1. Improper adjustments for the brake
2. Brake shoe or brake plate wears
3. Improper installation for the brake shoe
4. Polluted brake plate of brake shoe

Slow reaction and tight lever

1. Improper adjustments for the brake
2. Brake shoe or brake plate wears
3. Improper installation for the brake shoe

Abnormal noise

1. Brake shoe or brake plate wears
2. Polluted brake plate of brake shoe

5.3 Front fluid brake

5.3.1 Remove

* Note

- Replacement of the brake shoe assembly
- Mark the replaced shoe for the next use

Remove the following parts from the right grip and front absorber

1. Oil pump component (3)
2. Front brake component (10)
3. Brake cylinder component (6)
4. Friction piece component (2)
5. Brake tube assembly (5)
6. Switch (7)

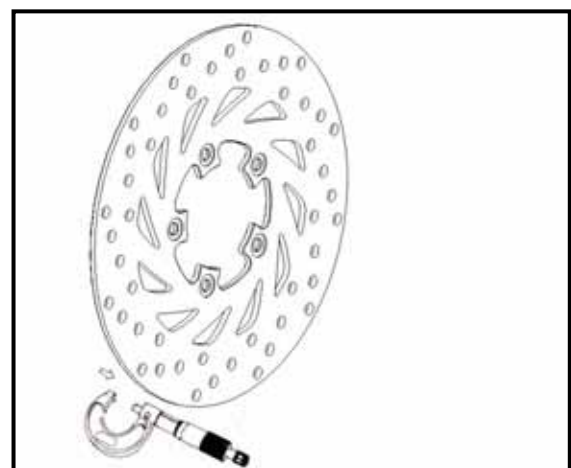
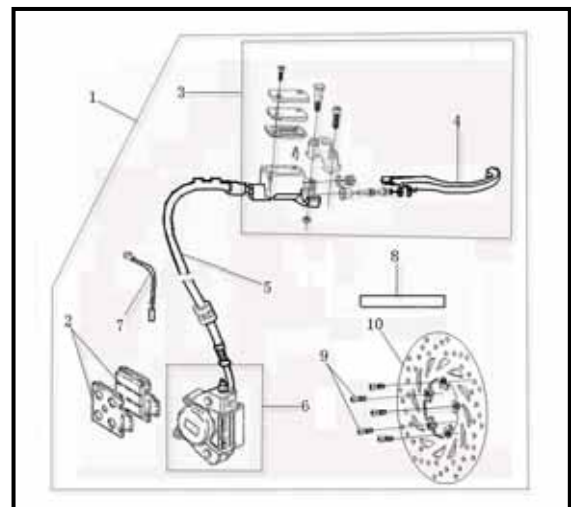
Note: See Fig. 76 for details

*Note

- Oil should not be allowed to pollute the brake shoe during installing and removing.
- Use the required cleaner to prevent affecting the function of the braking system.

Loosen the fixed bolt of the brake cylinder.

Remove the brake cylinder from the front absorber.



Remove the front wheel axis, and dismantle the front wheel.

Remove the brake plate from front wheel.

5.3.2 Check

Check whether the friction piece of front fluid brake is worn ,

Replace the shoe when necessary.

Measure the thickness of friction piece of front fluid brake ,

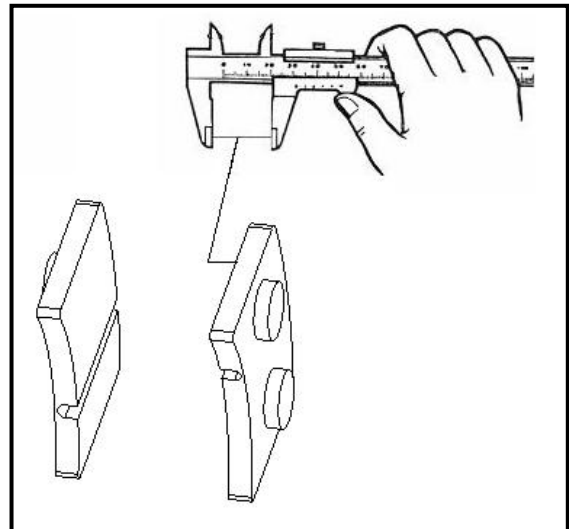
Measure the front brake disc and write down the maximum value

Specification:

QJ50QT-22D Dia. O front brake plate $\phi 220\text{mm}$
Thickness of front brake plate 4.0mm
Thickness of friction piece of front fluid brake 4.0mm

*Note

- Use inside micrometer or caliper only to measure.
- Measure the thickness of friction piece of front fluid brake
If the thickness of the brake disc and friction piece is smaller than the maintenance value or polluted by oil, they should be replaced.



Available limits

Friction piece of front liquid brake 3.0mm

Front brake plate 3.0mm

Note:

The friction piece of front liquid brake shall be replaced in pair.

The brake plate can be measured on the motorcycle without being dismantled.

5.3.3 Installation

Install the front brake plate and front wheel components.

Install the friction piece of front liquid brake.

Install the tube assembly and brake cylinder assembly of front brake.

Install the oil pump component and switch component.

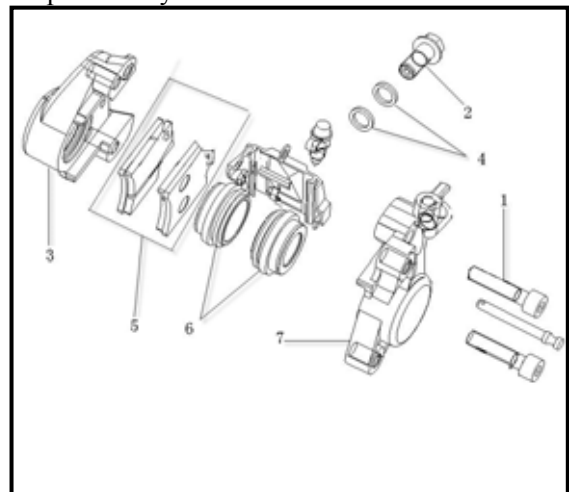
The friction piece of front liquid brake and brake plate shall not be polluted by oil stains.

*Note

Any oil stains in the friction piece of front liquid brake may reduce the performance of brake

Tighten the nuts and bolts according to their torque force value.

Torque value:



Installing bolt of front liquid brake: 5-9 N·m

Don't let oil stains pollute the friction piece of front liquid brake.

If the friction piece of front liquid brake is polluted by oil stains, you should use special cleaner to clean it up.

***Note**

Any oil stains in the friction piece of front liquid brake may reduce the performance of brake.

5. 4 Rear drum brake

5.4.1 Remove

Remove the muffler.

Remove the set bolt (3) of rear wheel.

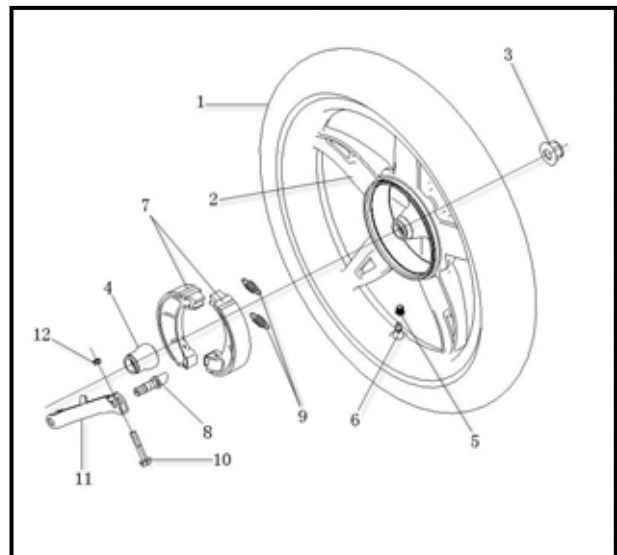
Remove the rear wheel assembly.

Remove the brake pad component (7).

***Note**

- Brake shoe replacement.
 - Mark the replaced shoe for the next use
- Remove the following parts from the rear wheel
Rear brake:

1. Bolt M6X30 (10)
2. Rear brake rocker part (11)
3. Nut M6 (12)
4. Rear wheel component 16×1.85 (2)
5. Set nut of rear wheel (3)
6. Camshaft of rear brake (8)
7. Brake pad part (4)
8. Brake pad spring (5)
9. Vacuum tyre 80/80-16 (1)



Note: See Fig. P77 for details

5.4.2 Check

Check if the brake drum and brake pad are worn.

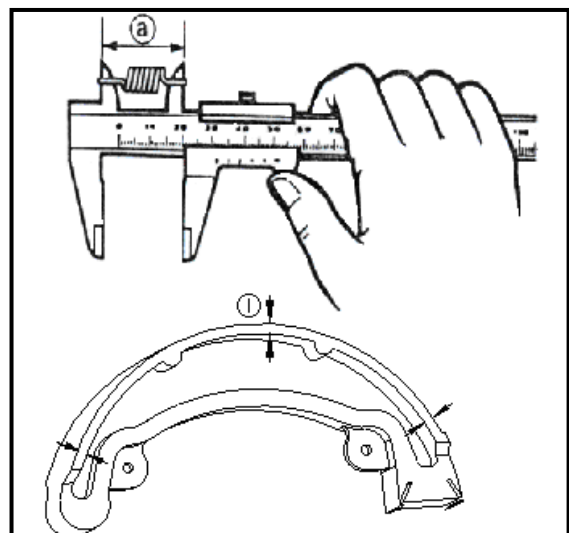
Replacement shall be made if necessary.

Measure the thickness of friction piece of brake pad.

Measure the inner diameter of brake drum and write down the maximum value.

***Note**

- Use micrometer only to measure.



Measure the inner diameter of brake drum, as well as friction piece of brake shoe.

If the thickness of the brake shoe is smaller than the maintenance value or polluted by oil, they should be replaced.

Note: the brake shoes shall be replaced in pairs.

Inner diameter of rear brake drum $\phi 140\text{ mm}$

Thickness of friction piece in rear brake shoe 4.0mm

Available limit:

Inner diameter of brake drum $\phi 141\text{mm}$

Friction piece of brake shoe 3.0mm

5.4.3 Installation

Install the brake shoe component.

Install the rear wheel component.

Install the muffler.

*** Note**

Any oil stains in the friction piece of brake shoe may reduce the performance of brake.

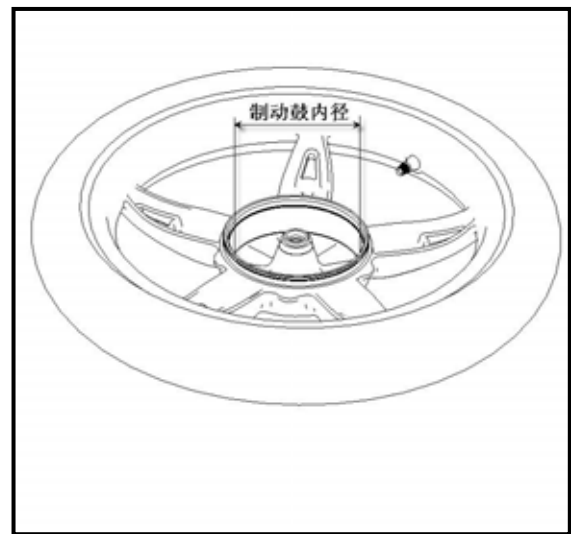
Tighten the nuts and bolts according to their torque force value.

Torque value:

Set nut of rear wheel: 100-113N·m

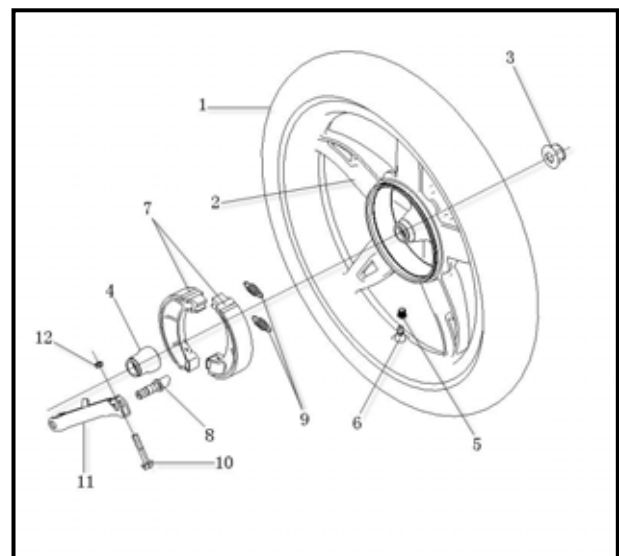
Don't let oil stains pollute the friction piece of brake shoe.

If the friction piece of brake shoes polluted by oil stains, you should use special cleaner to clean it up.



Rear brake:

- | | |
|---------------------------------------|-------------------------------|
| 1. Bolt M6X30 (10) | 7. Brake shoe component (4) |
| 2. Rear brake rocker party (11) | 8. Brake shoe spring (5) |
| 3. NutM6 (12) | 9. Vacuum 80/80-16 (1) |
| 4. Rear wheel component 16×1.85 (2) | |
| 5. Set bolt of rear wheel (3) | |
| 6. Camshaft of rear brake (8) | |



***Note**

Any oil stains in the friction piece of brake shoe may reduce the performance of brake.

Note: See Fig. P77 for details

Body Panel

***Note**

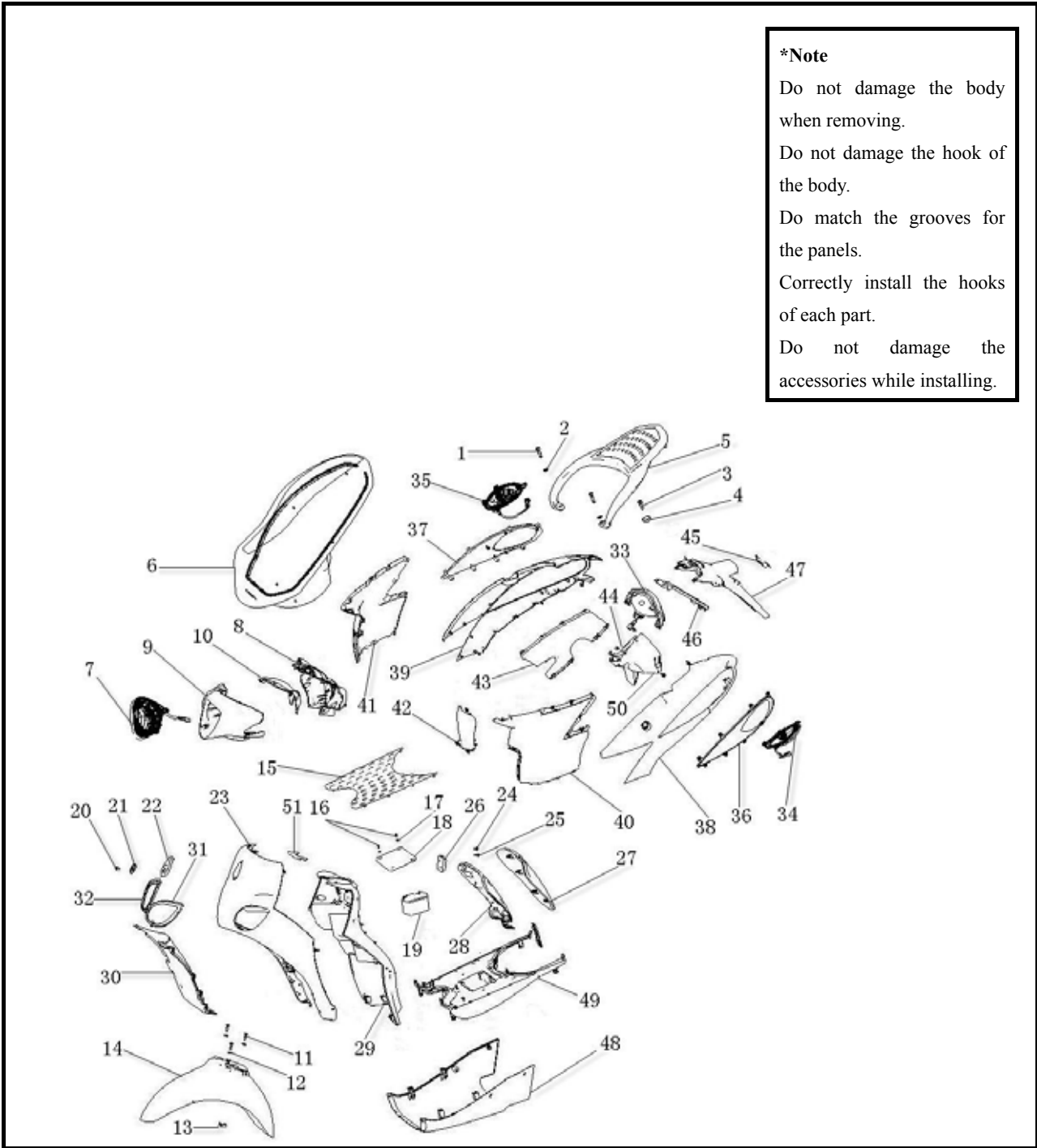
Do not damage the body when removing.

Do not damage the hook of the body.

Do match the grooves for the panels.

Correctly install the hooks of each part.

Do not damage the accessories while installing.



1 Socket head cap screw M8×25 2 gasket 8 3 bolt M8×25 4 rubber cover 5 rear rack assembly 6 cushion assembly 7 headlamp 8 instrument decorative part 9 front handle bar shield 10 rear handle bar shield 11 bolt M6×25 12 gasket Φ6 13 odometer wire clip 14 front mudguard 15 rubber pedal 16 self tapping screw ST4.2×13 17 gasket Φ5 18 battery cover 19 battery 20 bolt M6×14 21 Black bird crystal 22 Label base 23 Front shield panel 24 Bolt M6×12 25 Bolt M6×16 26 Helmet hook 27 Rear cover of front box 28 Reinforced board for rear cover of front box 29 Foot protective board 30 lower junction plate I 31 Left decorative plate of front cover 32 Right decorative plate of front cover 33 taillight 34 rear left turn signal lamp 35 rear right turn signal lamp 36 left decorative part of fender 37 right decorative part of fender 38 left fender 39 right fender 40 front left fender 41 front left fender 42 spark plug cover 43 rear mudguard 44 rear mudguard rack part 45 bracket for rear license plate 46 reinforced part of rear mudguard

47 rear mudguard 48 lower junction plate II 49 panel 50 secondary rear mudguard 51 upper cover of front shield

6. Body panel

Follows the sequence below to tear down the body

Instrument decorative part → Front shield of handle bar → Rear shield of handle bar → Front lamp → Cushion assembly → Rear rack assembly → Rear left signal lamp → Rear right signal lamp → Taillight → Left decorative part of fender → Right decorative part of fender → Rubber pedal → Battery cover → Battery → Helmet hook → Rear cover of front box → Reinforced board for rear cover of front box → Foot protective board → Left decorative plate of front cover → Right decorative plate of front cover → lower junction plate I → lower junction plate II → Front shield panel → Front mudguard → Front left fender → Front right fender → Left fender → Right fender → Spark plug cover → bracket for rear license plate → Reinforced part of rear mudguard → rear mudguard → bracket part of secondary rear mudguard → Rear secondary mudguard → Rear mudguard

*Note

Do not damage the body when removing.

Do not damage the hook of the body.

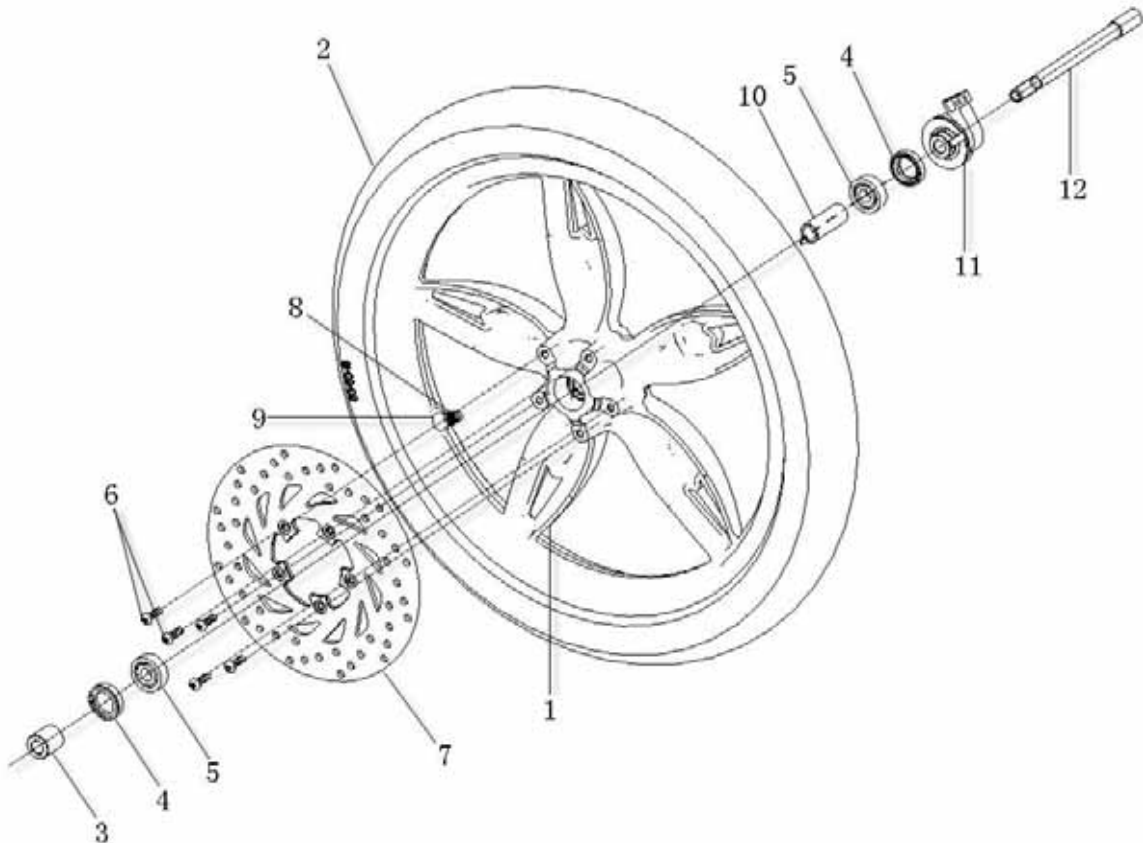
Do match the grooves for the panels.

Correctly install the hooks of each part.

Do not damage the accessories while installing.

Front wheel

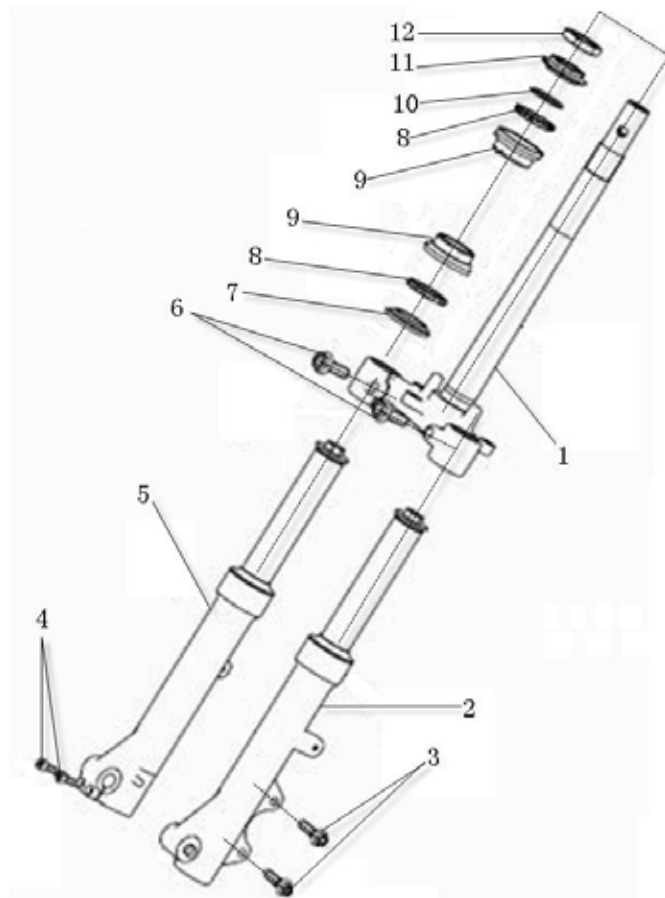
A	Front wheel tyre specification: Outer tyre 80/80-16
B	Item 12(front axle)mounting torque force: 55-62 N·m
C	Rim tilt limit: Vertical: 2.0mm Horizontal: 2.0mm
D	Front wheel axle bend limit: 0.2mm
E	Front outer tyre certificate No.: E11 75R-001062



1 front rim 16×1.6 2 vacuum tyre 80/80-16 3 front outer bushing 4 front axle oil seal 5 bearing 6201-2RS
 6 screw M6×20 7 front brake disc 8 valve cap 9 valve 10 front wheel middle bushing 11 pinion stand
 assembly 12 front wheel axle M12×1.5×153.7

Front suspension

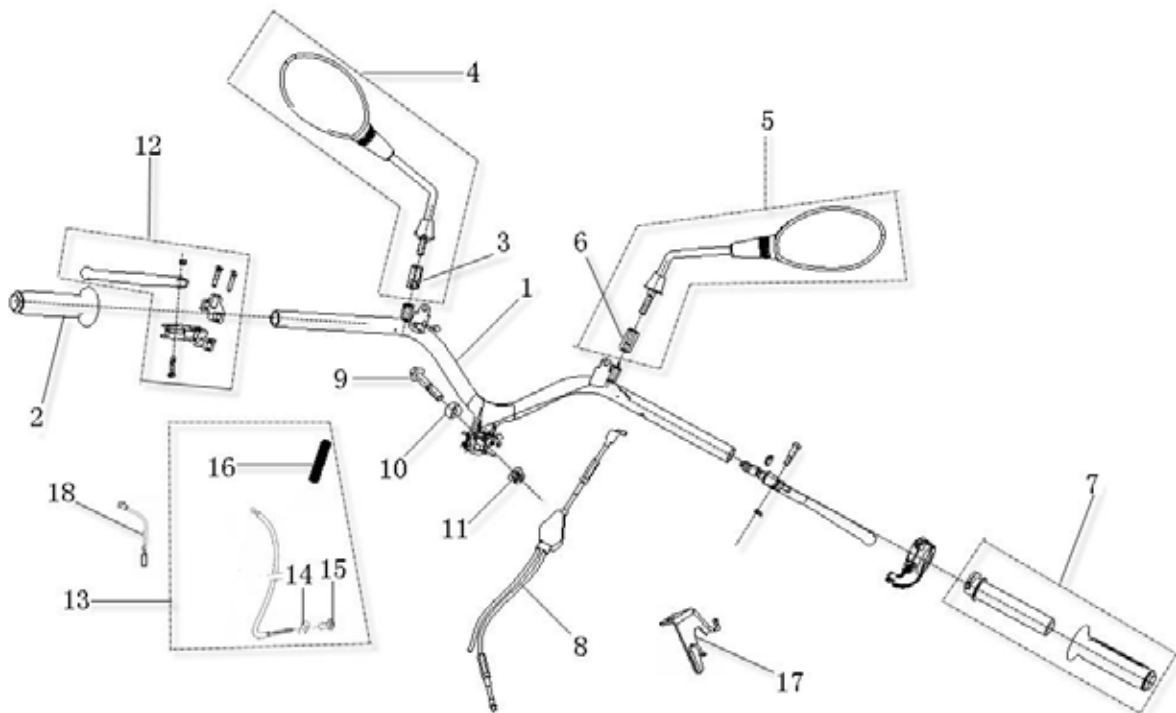
A	Bolt 3 mounting torque force:22-29 N·m
B	Bolt 6 mounting torque force: 37-44 N·m
C	Ball upper quantity: 21 pcs
	Ball lower quantity: 21 pcs



1 lower connection board welding assembly 2 front left shock absorber assembly 3 bolt M8×30 4 socket head screw M6×20 5 front right shock absorber assembly 6 bolt M10×1.25×30 7 lower bearing lower steel bow 8 steel ball assembly 9 upper bearing lower steel bowl 10 upper bearing upper steel bowl 11 gasket 12 compression nut

Steering handle

A	Bolt 9 (steering handle standing bolt) mounting torque force: 40-60 N·m
B	Front brake handle free travel: 10-20mm
C	Rear brake handle free travel: 10-20mm
D	Throttle operation handle(fig 3) free travel: 5-10mm
E	Rearview mirror 4、5 certificate No.: E3 001002



1 steering handle welding assembly 2 left handle gloves 3 left nut 4 left rearview mirror assembly 5 right rearview mirror assembly 6 right nut 7 right handle assembly 8 throttle line assembly 9 bolt M10X1.25X50 10 handle stand compression block 11 nut M10X1.25 12 left rocker arm support 13 rear brake cable assembly 14 pin 12 X22 15 regulating nut CM6-12X15 16 rear brake spring 17 cable clamp assembly 18 front brake switch assembly

7. Front wheel/front suspension

Preparation documents-----7.1

Failure diagnosis-----7.2

Front wheel-----7.3

Steering handle-----7.4

Front fork-----7.5

7.1 Preparation documents

Notes

Before removing the front wheel, you should use jack to let it float above the ground and it cannot be rotated. Pay attention that no oil stains sticking to the brake shoe, brake shoe assembly and brake disc while operating.

Entire motorcycle standards

Measuring position	Item		Standard value(mm)	Available limits(mm)
Front wheel axle	Bow			0.2
Front wheel	Rim shimmy	vertical		2.0
		horizontal	Within 1.0	2.0

Torque force

Standing bolt for steering handle welding assembly 40-60 N·m
 Front wheel axle 55-62 N·m
 Standing bolt of front shock absorber assembly 37-44 N·m

Tools

bearing replacing bar
 standing bolt spanner

7.2 Failure diagnosis

7.2.1 Difficulty of steering

The steering handle bearing has problems

Steering handle bearing is damaged

Low gas pressure for the tyre

Gas leakage of tyre

7.2.2 Unsteady steering

Bearing of the steering handle is broken

Not enough tire gas pressure

Bent front fork and front wheel axle

Deformed or tilting front tyre

7.2.3 Shimmy of front wheel

Deformed tyre

Loose front wheel bearing

Bad tyre

7.2.4 Difficulty of rolling wheel

Trouble of the wheel axle, pinion stand or brake

7.2.5 Abnormal noise of front shock absorber

Friction noise of shock absorber guard plate

Loose bolts of absorber parts

7.3 Front wheel

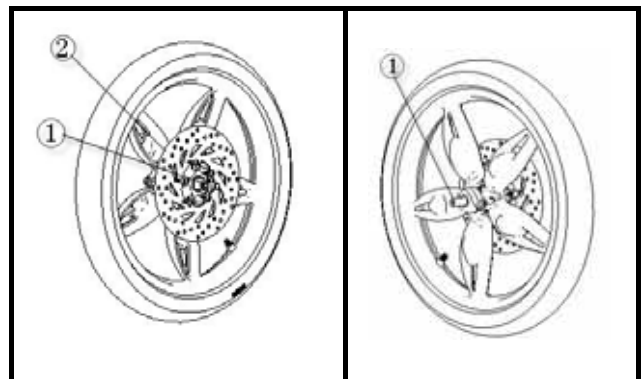
7.3.1 Removal

Attention :

Prop up motorcycle firmly.

Loose brake cylinder assemble to install bolt④.

Remove brake cylinder assembly ②。



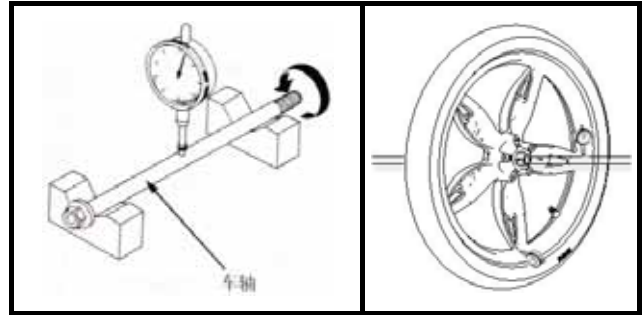
Put a support under the driver to raise front wheel.

Loose front wheel axle① and remove front wheel assembly.

Remove pinion stand assembly.

Remove front brake disc ②.

Remove front wheel oil seal, front wheel outer bushing, Bearing 6201-2RS and front wheel middle bushing.



*** Note : QJ50QT-22D front wheel removal diagram is available in P85 of the instruction.**

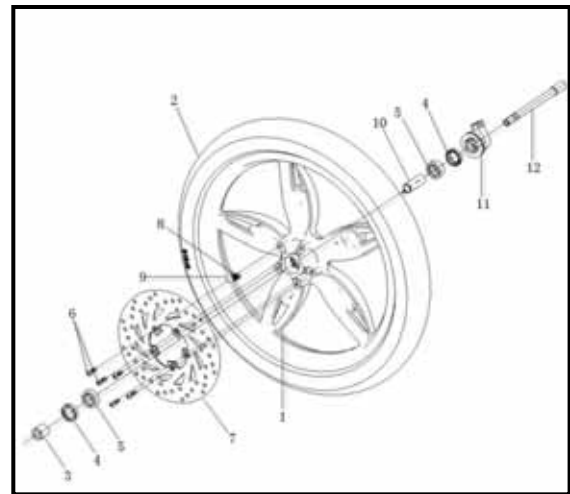
7.3.2 Check

7.3.2.1 Axle bent inspection

Put the axle on the V-pedestal and measure the eccentricity ratio with dial indicator

车轴 shaft

Available limits : Replace if it is above 0.2mm



7.3.2.2 Rim swinging inspection

Put the rim on a precise support and inspect swinging value of rim.
Turn wheel by hand and read the swinging value.

Available limits :

Vertical : Replace if it is above 2mm.

Horizontal : Replace if it is above 2mm.

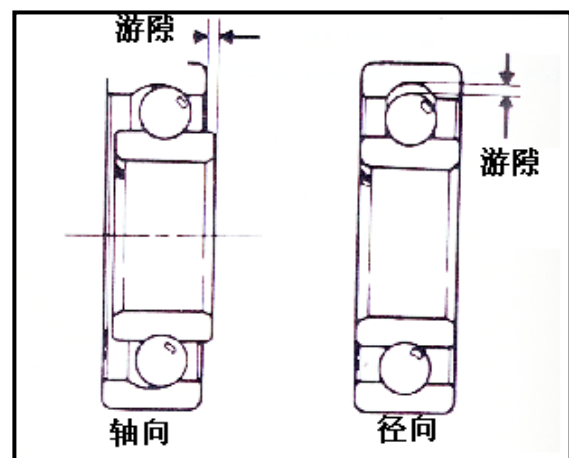
7.3.2.3 Front wheel bearing inspection

Remove the front wheel axle and front brake disc.
Remove front wheel outer bushing and front wheel oil seal.
Remove bearing.
Remove middle bushing.

Check rolling of bearing.

If it is not rolling, the bearing would have been damaged or loose, thus requiring replacement.

游隙 clearance 轴向 axial 径向 radial



7.3.3 Bearing replacement

Remove front wheel axle, front wheel brake disc and front wheel outer bushing.

Remove front wheel middle bushing and then remove oil seal and bearing by oil seal remover and bearing remover.

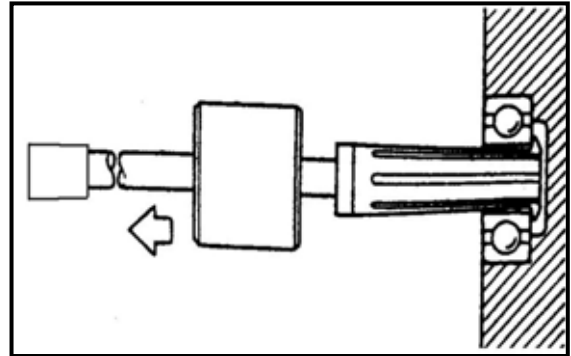
Note: removed bearing shall be replaced by new bearing.

Lay grease on bearing in installation.

Press bearing with bearing installation tools.

***Note**

- The bearing must be pressed parallelly.



7.3.4 Installation

Install according to reversed procedures of "removal". Pay attention to the following items:

Grease front wheel axle, pinion stand assembly, oil seal (open), bearing 6201-2RS, front wheel middle axle bushing and front wheel outer bushing.

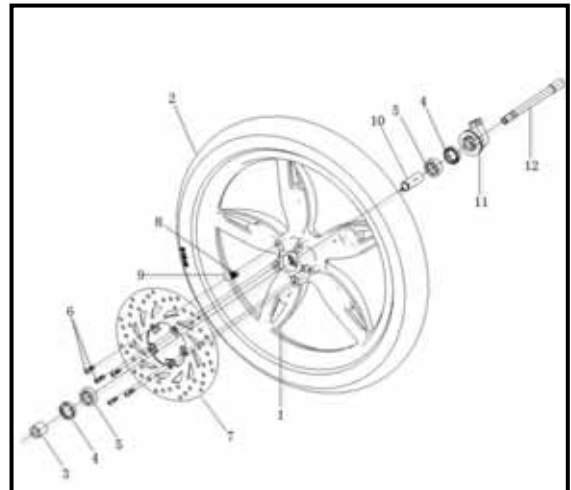
Calcium base grease is recommended.

Install front wheel, front wheel axle and pinion stand assembly. In installing pinion stand assembly, pay attention to match parts well. If pinion stand assembly of odometer is not matched and locked well, the pinion assembly of front axle odometer will be deformed.

Install brake cylinder assemble on front wheel rim.

Tighten front wheel axle.

***Note : QJ50QT-22D front wheel removal diagram is available in P85 of the instruction.**



Torque force

Front wheel axle 55-62 N·m

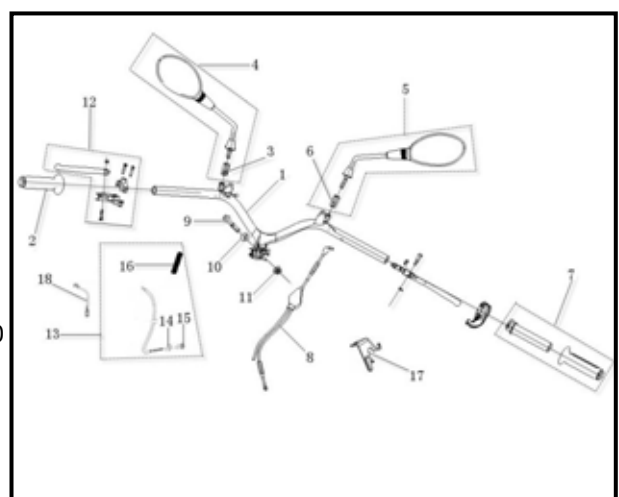
7.4 Steering handle

7.4.1 Removal

Remove left, right and rearview mirror assembly

(4) and (5) .

Remove left handle assembly (2) and right handle



assembly (7) .

Remove throttle line assembly (8) .

Remove front brake switch assembly (18) .

Remove cable clamp assembly (17) .

Remove rear brake cable assembly (13) .

Remove steering handle welding assembly (1) .

7.4.2 Installation

***Note: QJ50QT-22D steering handle is available in P87 of the instruction.**

Do the installation according to reversed procedures of removal.

Standing screw of steering handle

Torque force: 40-60 N·m

7.5 Front fork

7.5.1 Removal

Remove guard plate, pedal and front cover plate.

Remove lower connecting plate I, front mudguard assembly and front wheel.

Remove instrument, instrument decoration and front lamp.

Remove front and rear protective guard of handlebar, brake tube, and odometer cable.

Remove steering handle welding assembly.

Remove the following in order:

Compression nut(12), upper bearing upper steel bowl(11),

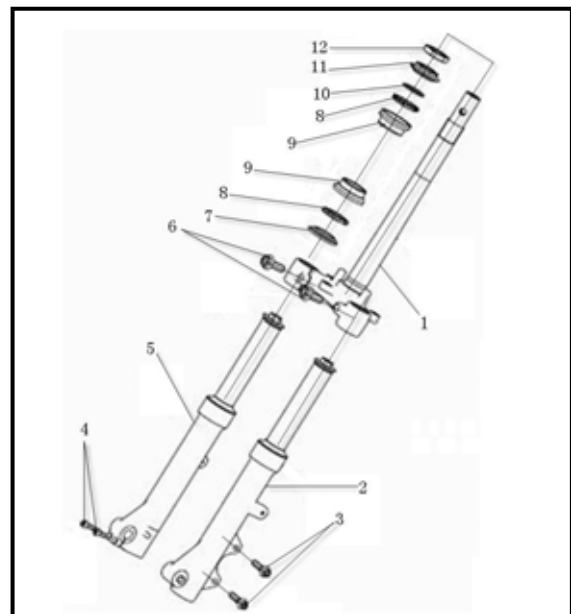
gasket (10), steel ball assembly (8), upper bearing lower steel bowl (9), and front fork.

Remove lower bearing lower steel bowl (7) and steel ball assembly (8) .

Remove front shock absorber standing bolt (6) .

Remove front left/right shock absorber (2) and (5) .

Tools:



Steering handle standing bolt spanner

Bearing steel bowl removing tool

***Note:**

Clean open part of motorcycle guard plate with rag.

Use bearing steel ball removing tool for upper and lower bearing steel bowl.

7.5.3 Installation

Grease bearing steel bowl at the bottom

Confirm steel ball quantity (21pcs).

Do not move steering handle (in case steel ball falls), and then install steering pole.

Prop steering handle, grease bearing steel bowl on the top and confirm steel ball quantity (21pcs).

Turn steering handle leftwards and rightwards to make steel ball match tightly.

Tools:

Standing nut spanner

Turn front fork leftwards and rightwards to confirm it is smooth. No loose condition is permitted.

Procedures:

Install front shock absorber assembly.

Installation of steering handle, large lamp, brake tube, odometer cable and instrument

Installation of motorcycle guard plate

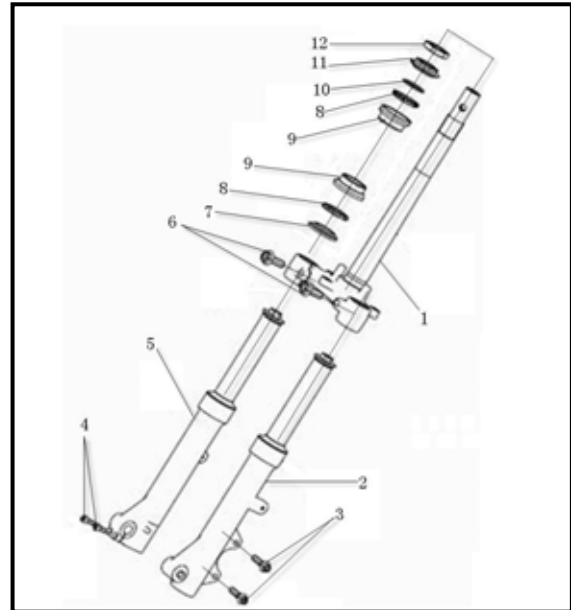
Installation of front wheel

Front shock absorber assembly standing bolt

Torque force: 37-44 N·m

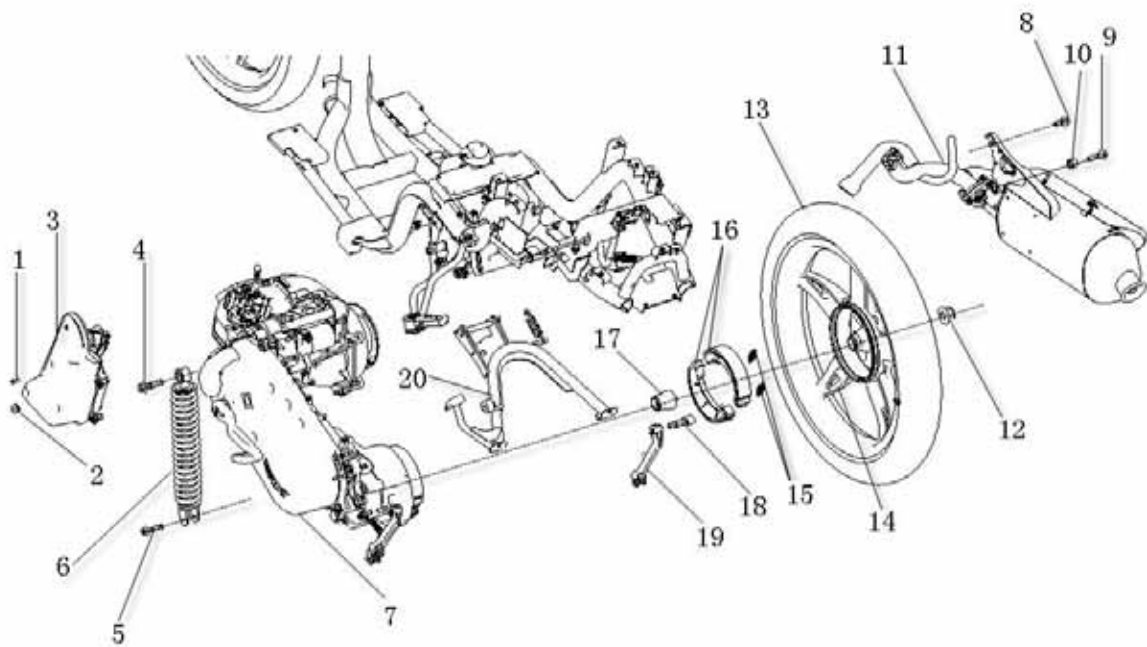
Onyx 50 front fork oil volume: 80ml - Castrol SAE 10W

***Note: QJ50QT-22D front fork removing diagram is available in P86 of the instruction.**



Rear wheel/rear suspension

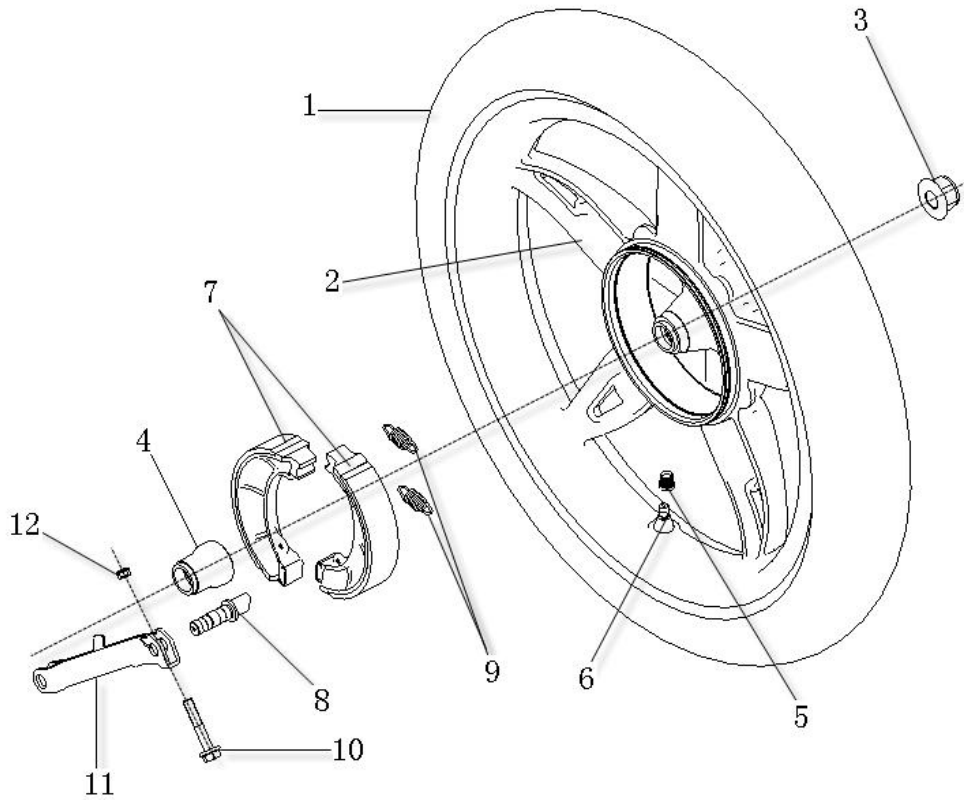
A	Item 12 rear wheel standing nut torque force: 100-113 N·m
B	Bolt 4 mounting torque force: 37-44 N·m
C	Bolt 5 mounting torque force: 22-29 N·m
D	Brake ID: \varnothing 140 mm Abrasion limit: \varnothing 141 mm
E	Brake shoe thickness: 6.9 mm Abrasion limit: 5.9 mm



1 self-tapping screw ST4.8X16 2 gas filter standing rubber sleeve 3 gas filter assembly 4 bolt M10×1.25×40 5 bolt M8×35 6 rear shock absorber assembly 7 motor assembly 8 bolt M8×20 9 bolt M8×30 10 muffler bushing 11 muffler 12 nut M16X1.5 13 vacuum tyre 90/80-16 14 rear tyre rim assembly 16×1.85 15 brake shoe spring 16 brake shoe assembly 17 dustproof cover 18 rear brake camshaft 19 rear brake rocker arm assembly

Rear wheel

A	Wheel dimension: 90/80-16
B	Wheel rim tilt limit: Vertical: 2.0mm
	Horizontal: 2.0mm
C	Item 10 rear wheel standing nut torque force: 100-113 N·m
D	Rear wheel certificate No.:E11 75R-001063



1 vacuum tyre 90/80-16 2 rear tyre rim assembly 16×1.85 3 nut M16X1.5 4 dustproof cover 5 valve cap
6 valve 7 brake shoe assembly 8 rear brake camshaft 9 brake shoe spring 10 bolt M6X30
11 rear brake rocker assembly

8.Rearwheel/rear suspension

Preparing documents -----8.1

Failure diagnosis -----8.2

Rear wheel -----8.3

Rear shock absorber-----8.4

8.1 Preparing documents

Notes

No oil stains sticking to the brake shoe and disc.

Preparing standards

Item		Standard value (mm)	Available limits (mm)
Amplitude of fluctuation of the rear wheel	Vertical		2.0
	Horizontal		2.0

Locking torque force:

Rear wheel standing nut **100 - 113 N·m**
Rear shock absorber bolt on the top **37 - 44 N·m**
Rear shock absorber bolt at the bottom **22 - 29 N·m**

8.2 Failure diagnosis

8.2.1 Swinging rear wheel

Deformed rim
 Failed tyre
 Untight rear wheel
 Pressure shortage of tyre

8.2.2 Too soft shock absorber

Elastic fatigue of the spring

8.3 Rear wheel

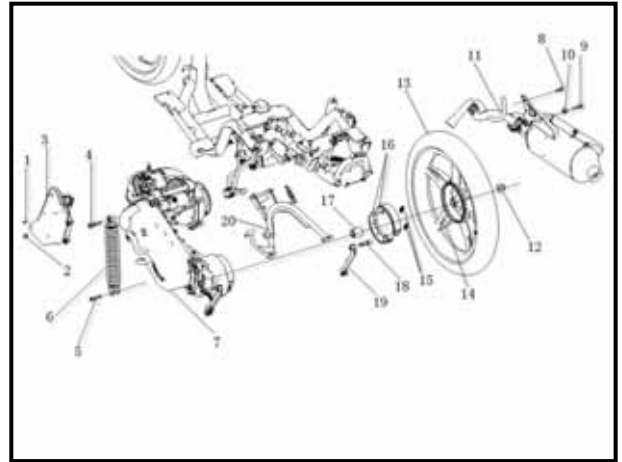
8.3.1 Removal

Remove the muffler (11) and gas filter assembly (3) .

Remove rear mudguard and rear small mudguard assembly.
Remove the rear mudguard assembly and rear license plate support assembly.

Remove the rear wheel axle standing nut (12) .

Remove the rear wheel assembly.



8.3.2 Inspection

8.3.2.1 Rim swinging inspection

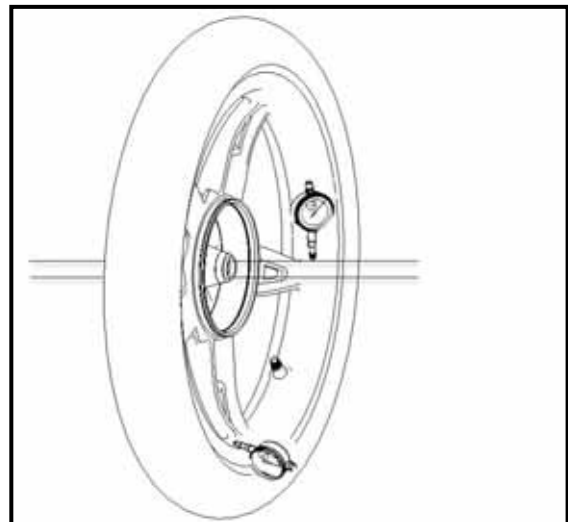
Rotate the wheel and measure eccentricity ratio using Dial indicator

Available limits :

vertical : Replace if it is above 2.0mm

horizontal : Replace if it is above 2.0mm

When the amplitude of fluctuation of the rear wheel outweighs the available limits and the bearings is loose resulting in swinging rear wheel. Replace new rear bearing.◦



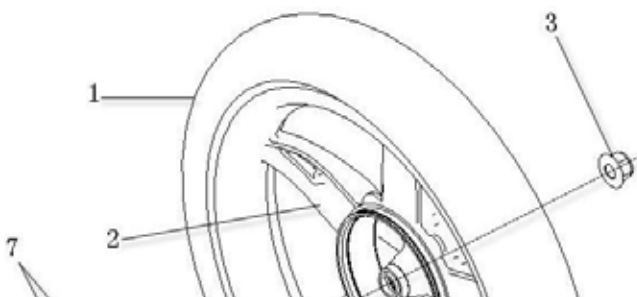
8.3.3 Installation

Install the rear wheel in the opposite sequence of removing and tighten the locking nut.

Rear wheel locking nut

Torque force : 100-113 N·m

QJ50QT-22D Rear wheel



8.4 Rear shock absorber

8.4.1 Removal

- Remove the seat assembly and left body guard plate.
- Loose the upper standing bolt of absorber.
- Loose the lower standing bolt of absorber.
- Remove the standing bolt of rear absorber.
- Remove the rear absorber.

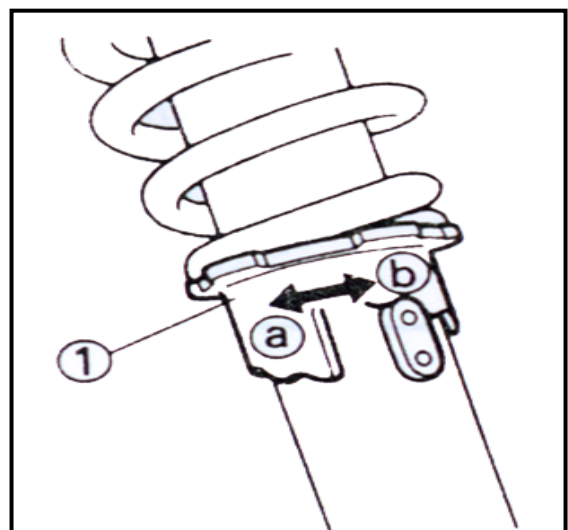
8.4.2 Inspection and adjustment

Note:

- Set the same preload value for each shock absorber.
- Uneven adjustment may worsen operational performance and make it unsteady.

Adjust spring preload. Adjust the device by rotating towards orientation of \circ ,a or \circ ,b.

Rotate towards \circ ,a to increase spring preload value; rotate towards \circ ,b to decrease preload value.



Adjust device location: standard location of 2; minimum location of 1; maximum location of 5.

8.4.3 Installation

Install rear shock absorber.

Torque force:

Upper standing bolt: 37-44 N·m

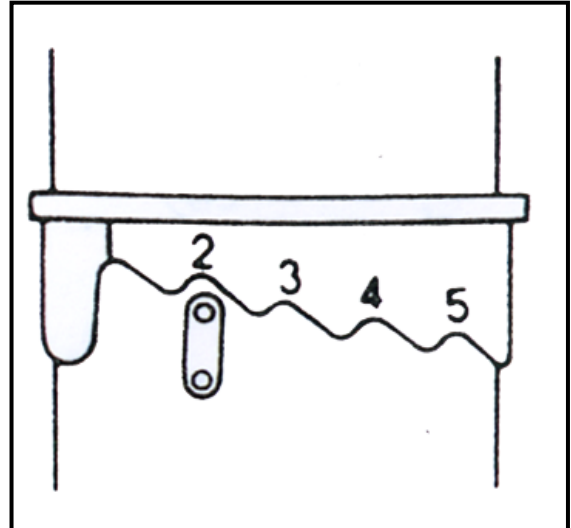
Lower standing bolt: 22-29 N·m

Install rear shock absorber.

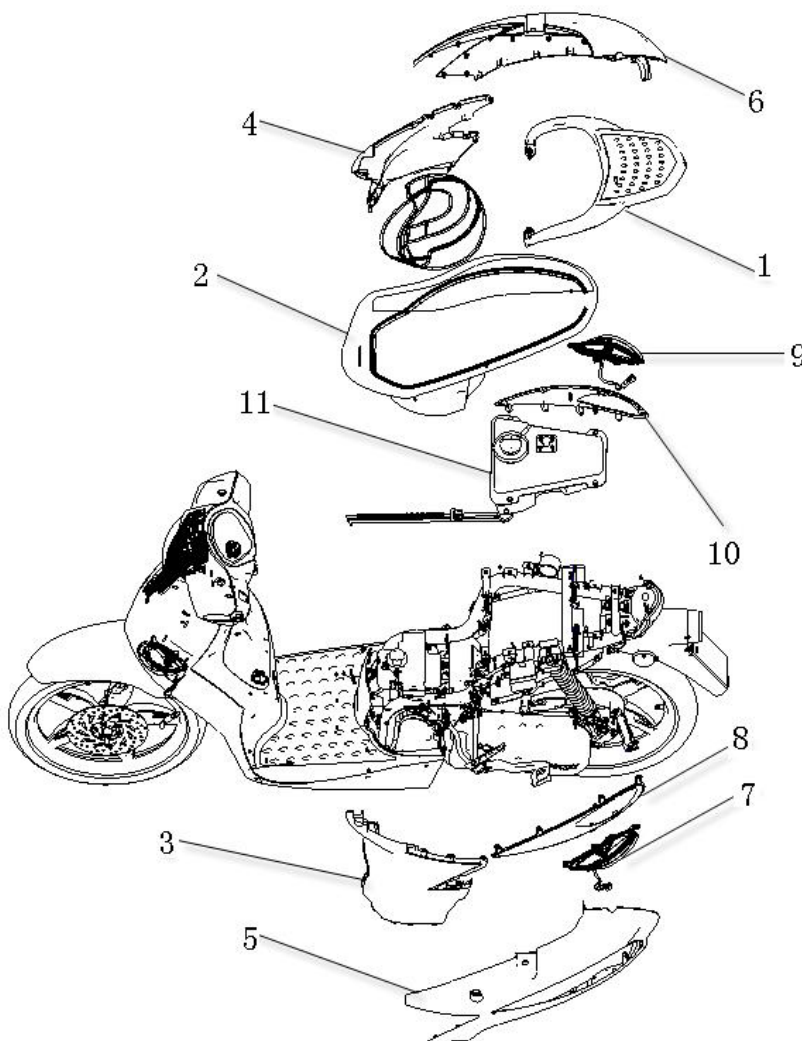
Install rear mudguard, rear small mudguard and rear mudguard plate.

Install seat assembly, left and right guard plate.

Fuel tank/seat

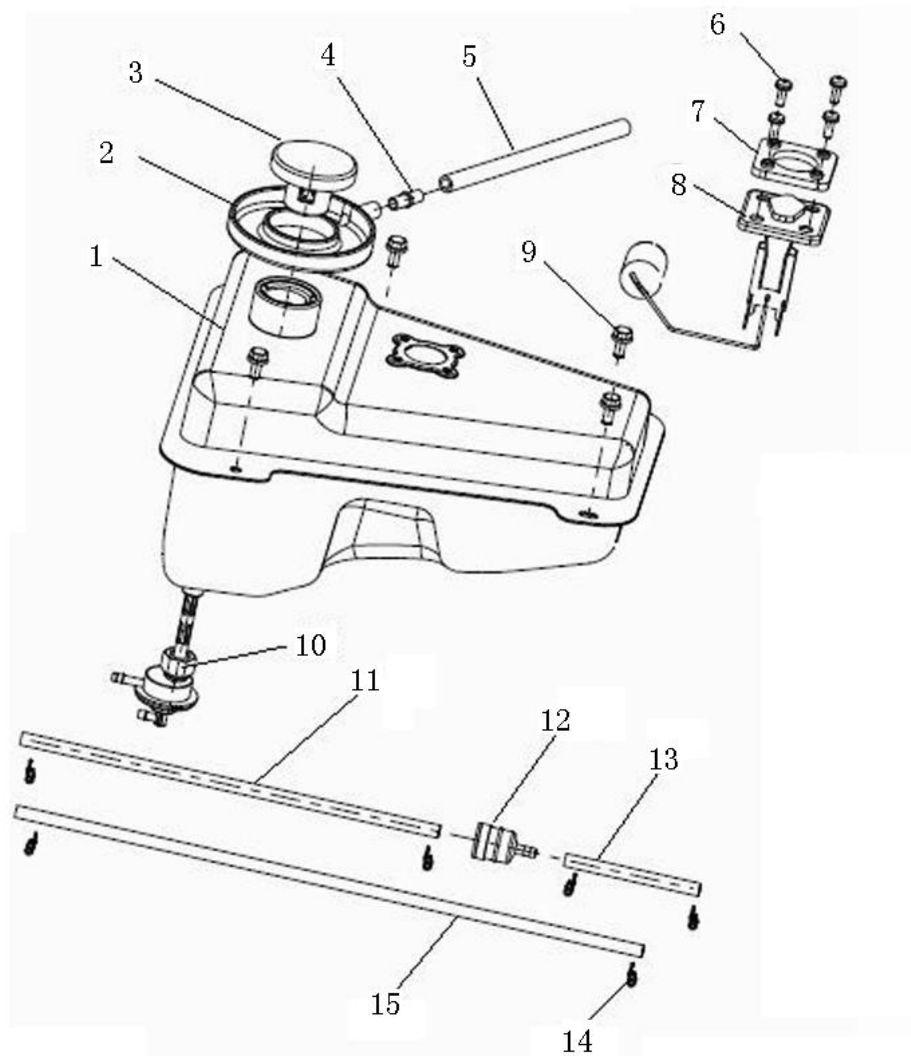


A	Note: in removing fuel tank, turn fuel switch to "OFF".
B	do not damage body cover in removal and installation. Do not damage hook on cover. Match panel and cover plate of body cover with the slot respectively. Location of hook of each part shall be right in installation.



1 rear storage rack assembly 2 seat assembly 3 left front guard plate 4 right front guard plate 5 left guard plate 6 right guard plate 7 rear left steering lamp assembly 8 left decoration plate of guard plate
 9 rear right steering lamp assembly 10 right decoration plate of guard plate 11 fuel tank assembly

Fuel tank

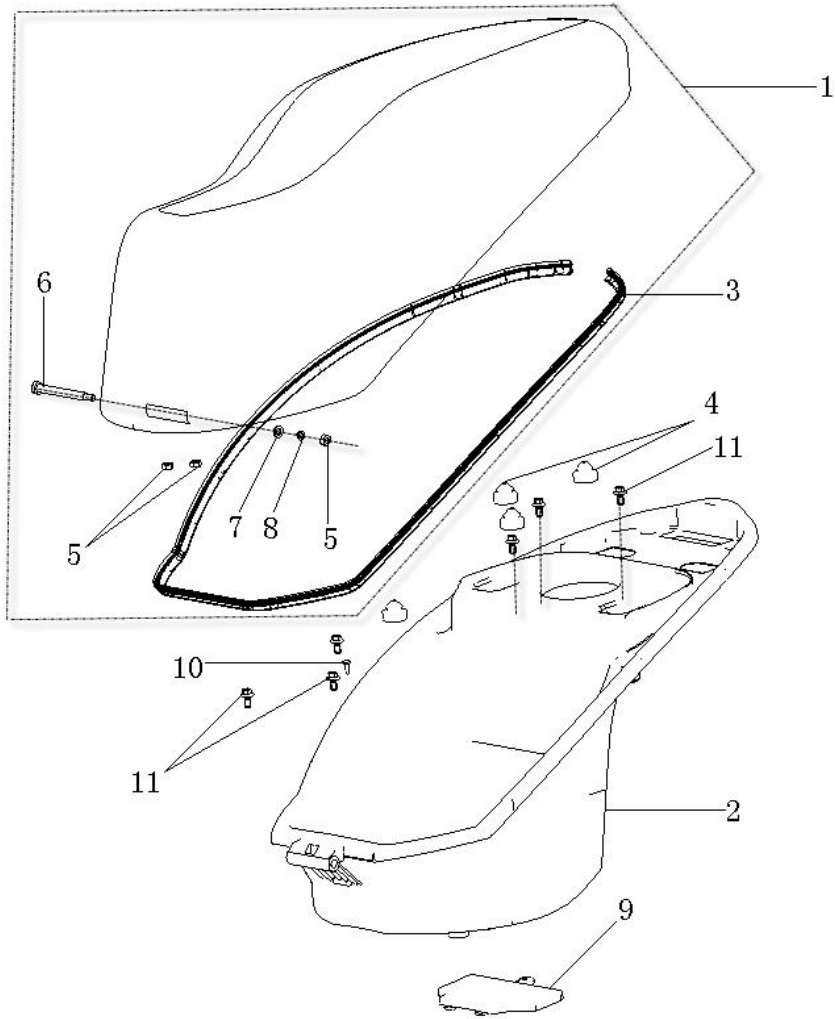


A	Fuel tank capacity: 5.5 L±0.2L
B	Bolt 9(standing bolt of oil tank) torque force: 5-9 N·m
C	Note: in removing fuel tank, turn fuel switch to "OFF".

1 oil tank assembly 2 waterproof gasket 3 fuel tank assembly 4 connecting tube 5 fuel tube 6 assembled screw M5×14 7 fuel level sensor cushion 8 fuel sensor assembly 9 bolt M6×12 10 fuel tank switch assembly 11 fuel tube 12 filter assembly 13 fuel tube 14 steel wire clamp φ8 15 fuel tube

Seat

A	Bolt 11 torque force: 5-9 N·m
B	Exclusive for seat



1 seat assembly 2 helmet case 3 sealing strip 4 rubber cushion 5 nut M6 6 pin roll 7 gasket
 8 elastic gasket 9 helmet bottom cap 10 self-tapping screw ST4.2×13 11 bolt M6×16

9. Fuel tank/seat

Preparation documents-----9.1

Failure diagnosis-----9.2

Fuel tank/seat-----9.3

9.1 Preparation documents

Note:

The removing site shall be ventilated and away from fire.

Before removing fuel tank, shut motor and turn fuel switch to "OFF".

In installation tighten the bolt nut to defined torque force.

After installation, check and see whether all parts and operation are right.

Preparation standard

Item	Standard	Available usage limit
Gasoline tank capacity	5.5 L±0.2L	/

Locking torque force

Fuel tank standing bolt **5 - 9 N·m**

Helmet barrel standing bolt **5 - 9 N·m**

9.2 Failure diagnosis

Decreasing gasoline

Natural consumption of gasoline

Leakage of gasoline

9.3 Fuel tank/seat

9.3.1 Removal

Remove rear storage rack assembly.

Open seat.

Remove sparking-plug cover and machine oil pot cap.

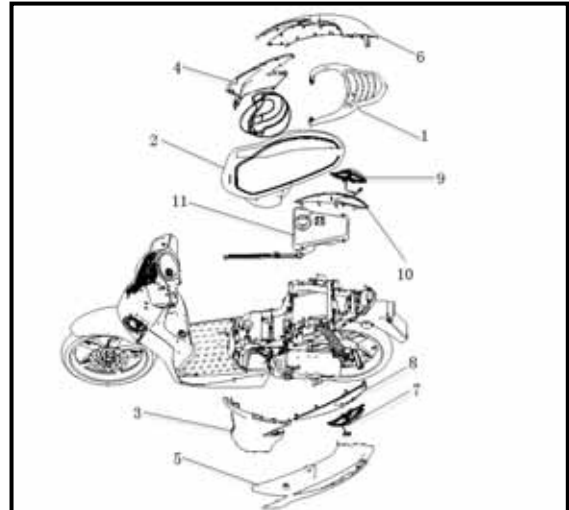
Remove pedal rubber mat.

Open storage battery case cap.

Remove storage battery.

Remove seat assembly and helmet case standing bolt.

Remove seat assembly and helmet case.



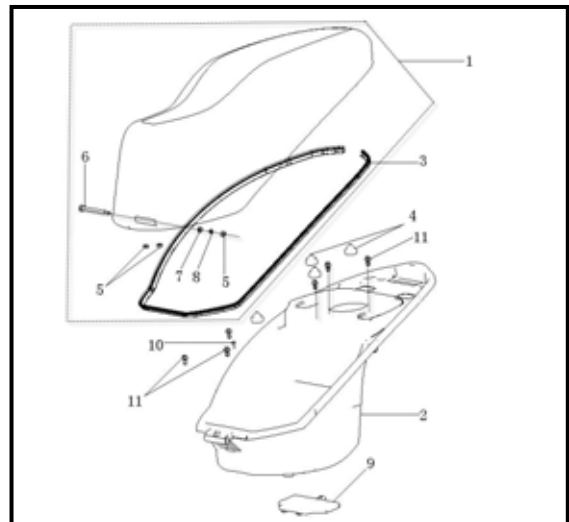
Remove left/right front guard plate assembly.

Remove foot guard plate and left and right guard plate.

Remove left and right steering lamps and left and right decoration articles for guard plate.

Remove fuel tank standing bolt.

Remove fuel tank.



Turn fuel switch to "OFF".

Disconnect fuel tube.

Remove fuel tank from the frame.

Note:

Detail removing diagram see P98, 99 and 100.

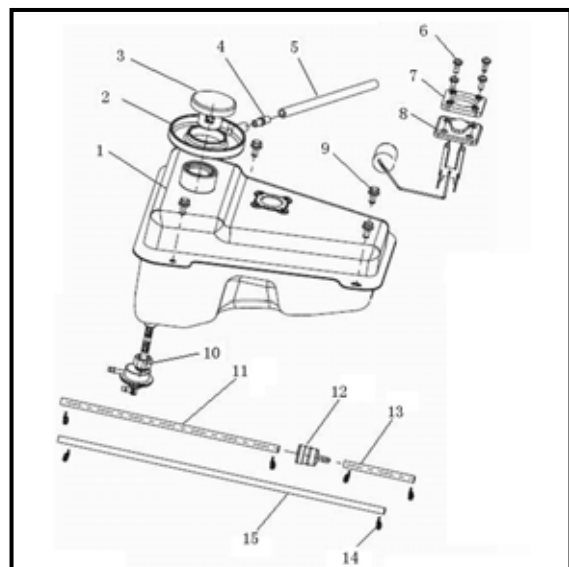
9.3.1 Installation

Install according to reversed sequence of removal.

Torque force of installation:

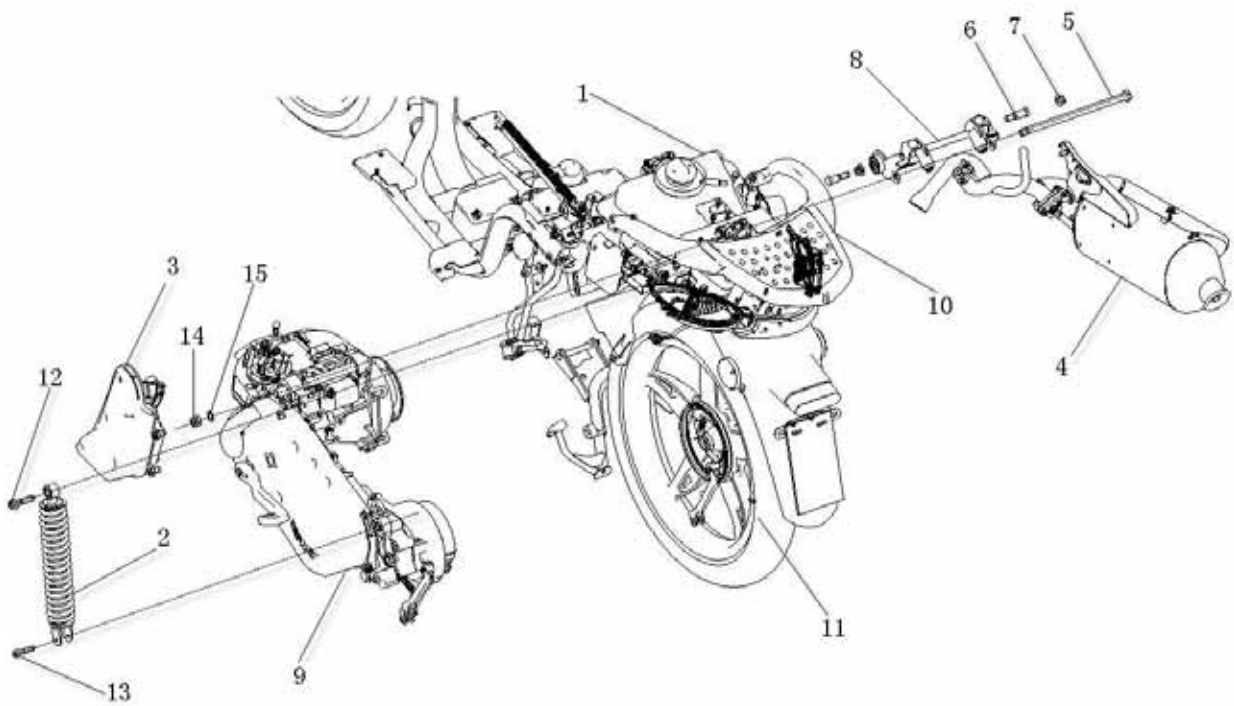
Fuel tank standing bolt 5 - 9 N·m

Helmet barrel standing bolt 5 - 9 N·m



Removal and installation of motor

A	Kinetic force hanger support fulcrum axle standing nut 14 torque force: 55-62N·m
B	Square bolt 6 torque force: 37-44N·m
C	Bolt 12 torque force: 37-44N·m



1 fuel tank 2 rear shock absorber assembly 3 gas filter assembly 4 muffler 5 fulcrum axle 6 square bolt M10X1.25X41 7 locking nut M10X1.25 8 kinetic force hanger assembly 9 motor assembly 10 rear storage rack assembly 11 rear wheel assembly 12 bolt M10×1.25×40 13 bolt M8×35 14 nut M12×1.25 15 teeth serrated lock gasket 12

10. Removal / installation of motor

Preparation documents-----	10.1
Failure diagnosis -----	10.2
Removal of motor/suspension standing clamp-----	10.3
Installation of motor-----	10.4

10.1 Preparation documents

Note

Make motorcycle not tilt in removing motor.

Remove motor when maintain crankshaft and final drive shaft.

When maintaining magnetogenerator, camshaft, carburetor, driving wheel, clutch, driven wheel and oil pump, the motor can stay at the frame and needs not to be removed.

Preparation standard

Motor is not only kinetic resource of motorcycle, but also driving part and main rear suspension device. On one hand, the motor with rotating action output by crankshaft, getting slowed by clutch and V shape tape stepless speed variator, can drive rear wheel directly; on the other hand, the motor acts as girder rocker arm.

Locking torque force:

Motor hanger support fulcrum axle standing nut	55-62 N·m
Rear shock absorber standing bolt (upper)	37-44 N·m
Rear shock absorber standing bolt (lower)	22-29 N·m

10.2 Failure diagnosis

Swinging motor

Swinging or bended of girder rocker arm

Loose motor driving device

Loose motor suspension bolt

10.3 Removal of motor

10.3.1 Removal

Remove bolt and left crankcase ventilated tube.

Removal procedures:

- remove frame cover.
- remove gas filter.
- remove primary cable of ignition coil.
- remove starter motor cable.
- remove fuel tube and vacuum tube.
- remove starter valve 2P connector.
- remove magnetogenerator/ pulser 3P connector.

Remove bolt and underground cable of motorcycle.

Remove rear shock absorber standing bolt (upper).

Remove nut and gasket of motor kinetic force hanger support.

Remove bolt of motor kinetic force hanger support.

Remove motor from the frame.

10.3.2 Motor suspension standing clamp

10.3.2.1 Removal

Remove spark plug cap.

Remove fuel tube and vacuum tube from carburetor.

Remove motor suspension bolt/nut and motor assembly.

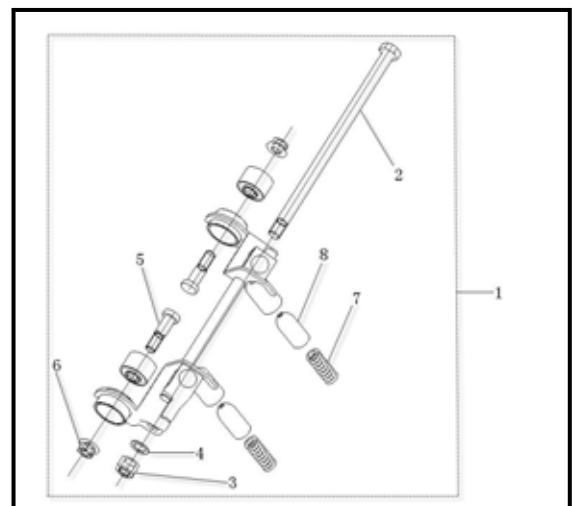
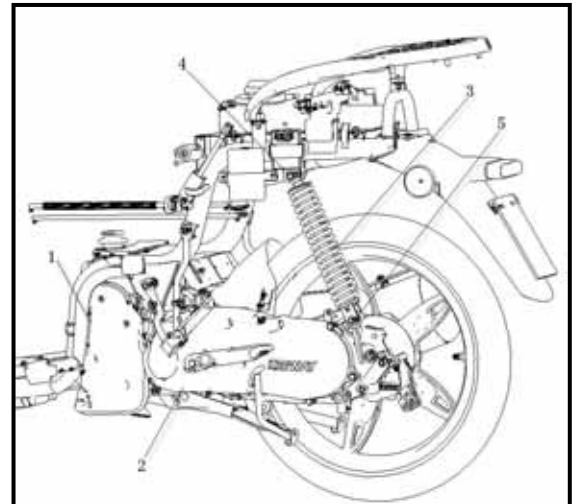
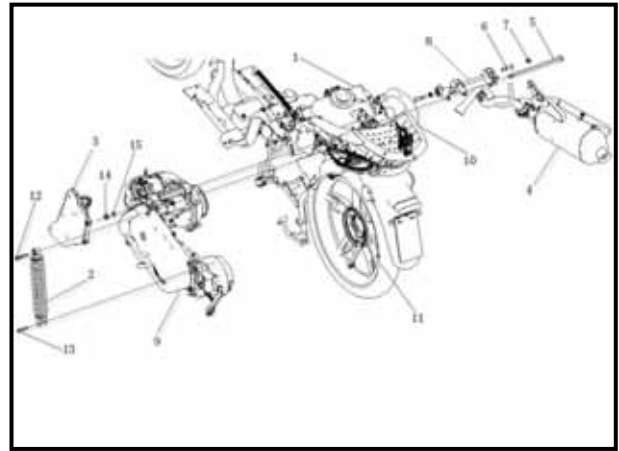
Remove bolt and ignition coil.

Remove bolt, fuel tube and vacuum tube.

10.3.2.2 Inspection

Check whether shock absorber of motor kinetic force hanger support is abraded or damaged.

Check whether rubber ring of shock absorber is abraded or damaged.



10.3.2.3 Installation

Install bolt and ignition coil.

Install fuel tube, vacuum tube and bolt.

Install spark plug cap.

Connect carburetor fuel tube and vacuum tube.

Connect motor kinetic force hanger support to motor assembly.

Install temporarily bolt and nut of motor kinetic force hanger support.

10.4 Installation of motor

Install according to reversed procedures of "removal".

Note:

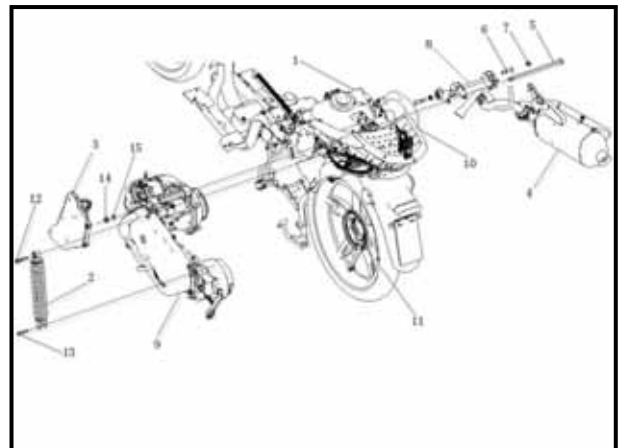
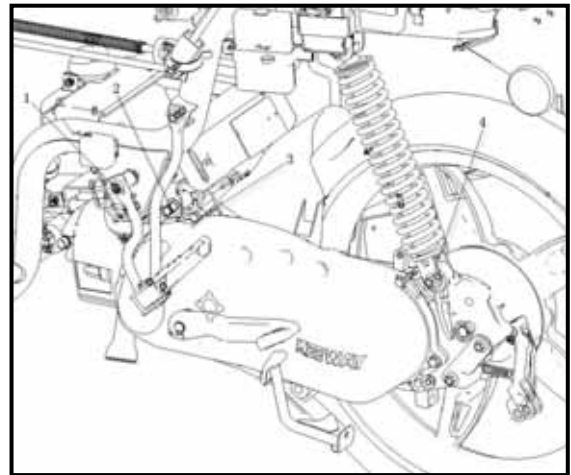
Detailed removal diagram is available in P102.

Torsion value of installation:

Motor standing axle 55-62 N·m

rear shock absorber standing bolt(upper): 37-44 N·m

rear shock absorber standing bolt(lower): 22-29 N·m

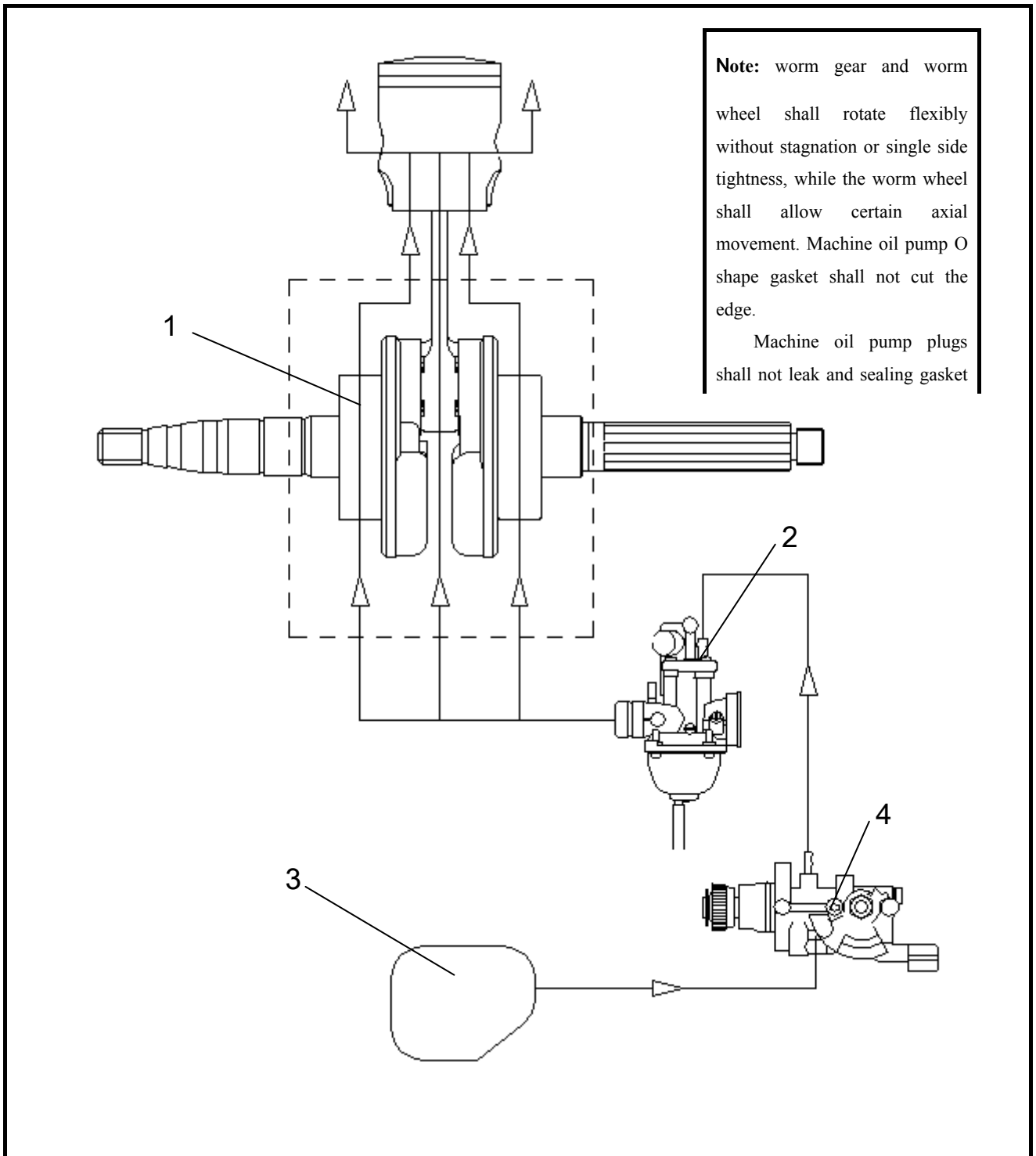


Inspection and maintenance of motor

Motor fastener torque force table

Fastening parts and fasteners Name	Torque force (N·m)
cylinder head nut	25 ~ 28
oil drain nut	22 ~ 35
Spark plug	10 ~ 15
Assemble mould bolt	10 ~ 12
Speed shift case cap bolt	10 ~ 12
Motor standing bolt	10 ~ 12
Machine oil pump standing bolt	10 ~ 12
Machine oil pump chain wheel standing bolt	10 ~ 12
Flywheel locking nut	10 ~ 12
Right cap stud	10 ~ 12
Impeller standing screw	50 ~ 60
Double-end bolt	10 ~ 12
Chain adjuster standing bolt	10 ~ 12
	18 ~ 22
	10 ~ 12

Lubrication system



1 crankcase 2 carburetor 3 machine oil tank 4 machine oil pump

11.Lubricaiton system

Preparation documents-----11.1

Failure diagnosis -----11.2

Machine oil pump -----11.3

11.1 Preparation documents

Note:

Worm gear and worm wheel shall rotate flexibly without stagnation or single side tightness, while the worm wheel shall allow certain axial movement. Machine oil pump O shape gasket shall not cut the edge.

Machine oil pump plugs shall not leak and sealing gasket shall be normal.

After installation, remove bolt 3 in trial running motor, and lock it when machine oil runs out continuously.

Use of the lubrication system :

Function of the engine lubrication system is to supply lubricant to component surface, transforming the dry friction on the surface to liquid friction among the lubricant particles, in order to reduce wear of the components; cooling components with higher heat load; absorbing the shock of bearings and other machine components to reducing noises; increasing leak tightness between the piston ring and the cylinder wall; clean and wash away the impurity on the surfaces of components.

Preparation standard

Item		Standard	Usage limit
Machine oil capacity	During oil change	0.1L	/
	During removing	0.11L	/

11.2 Failure diagnosis

Decreasing machine oil

Burnt motor

Natural consumption of oil
 Oil leakage
 Abraded or badly installed piston ring

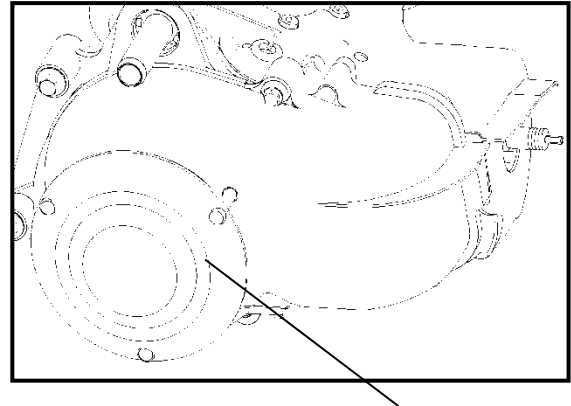
No oil or low oil pressure
 Oil line block
 No machine oil is used

11.3 Machine oil pump

11.3.1 Removal

Loose the bolt and remove gas director assembly.

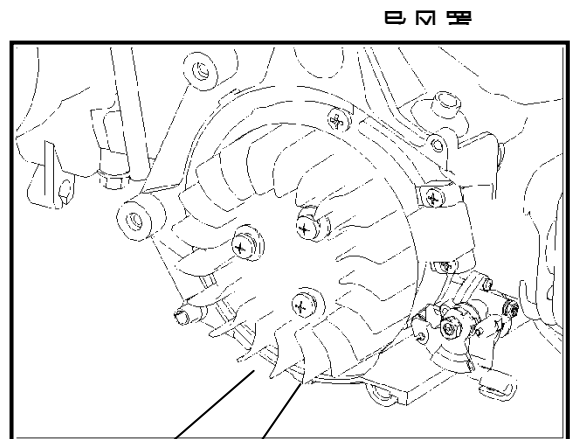
导风罩 gas director



Loose screws on fan and remove fan.

风扇 fan

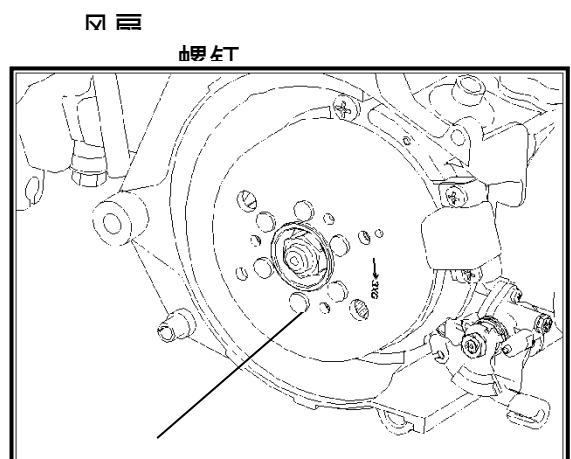
螺钉 screw



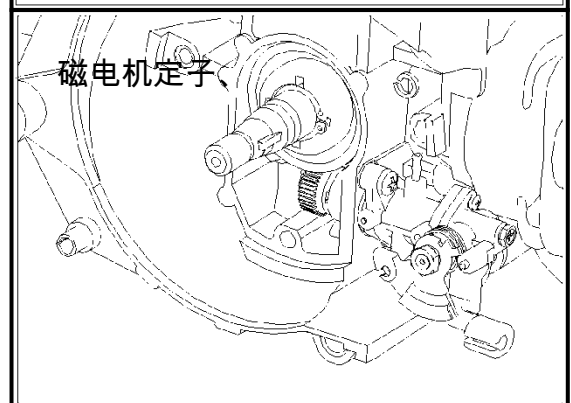
Remove magnetogenerator stator, rotor and support.

磁电机定子、转子、支架

Magnetogenerator stator, rotor and support




Remove worm wheel from crankshaft and remove machine



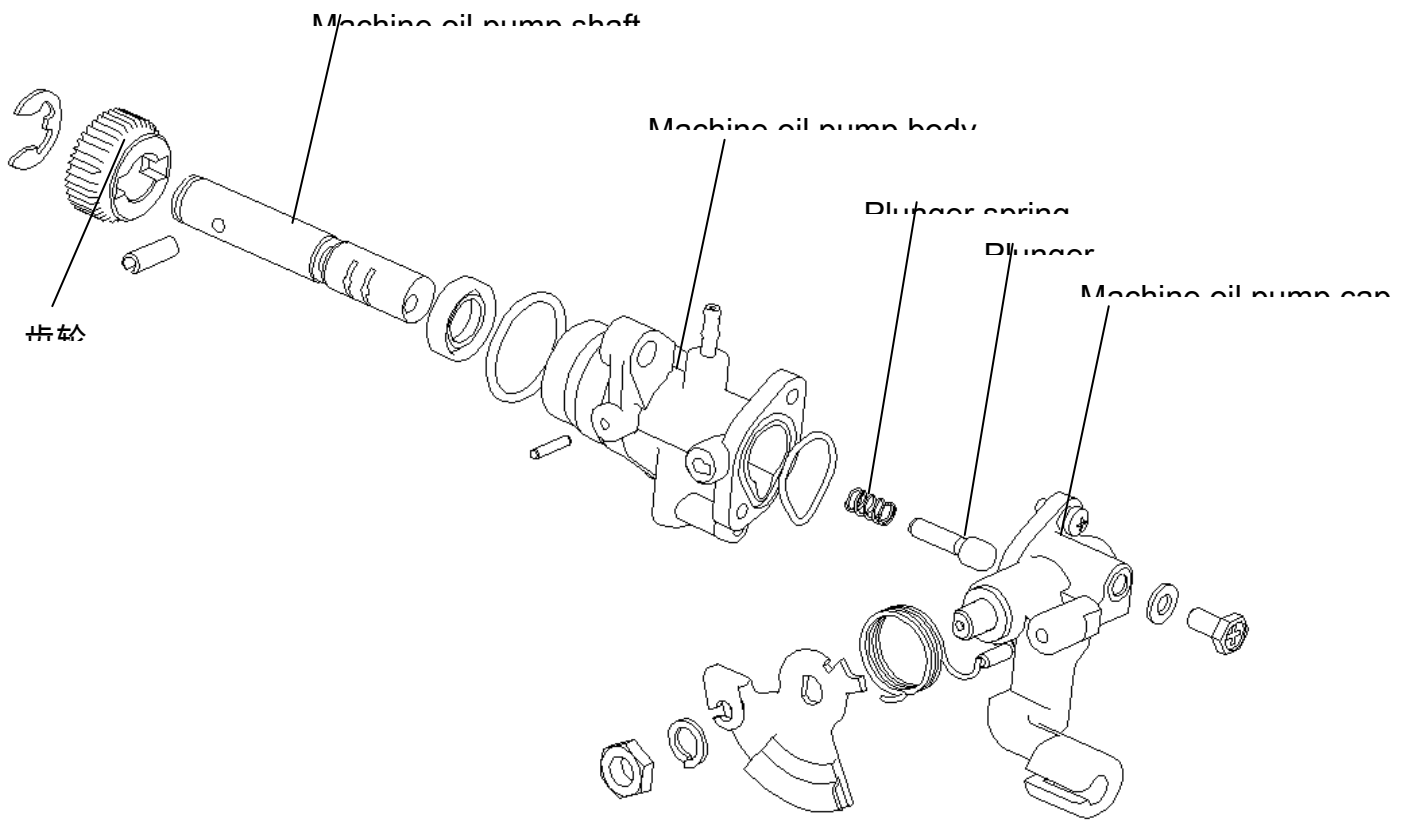
oil pump assembly.

机油泵组件 machine oil pump assembly



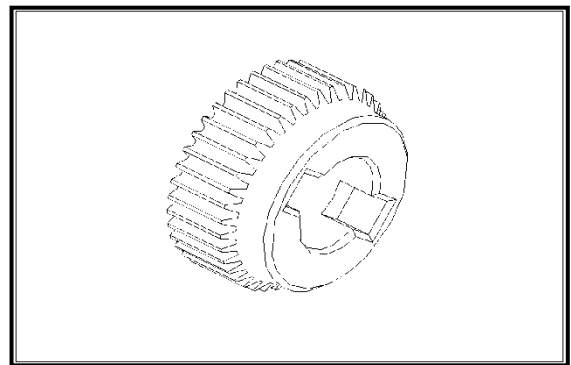
机油泵组件

Installation of machine oil pump
as follows



11.3.2 Installation

Install according to reversed procedures of removal.

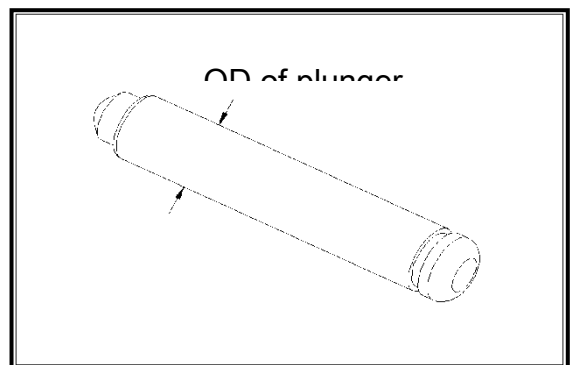


11.3.3 Inspection

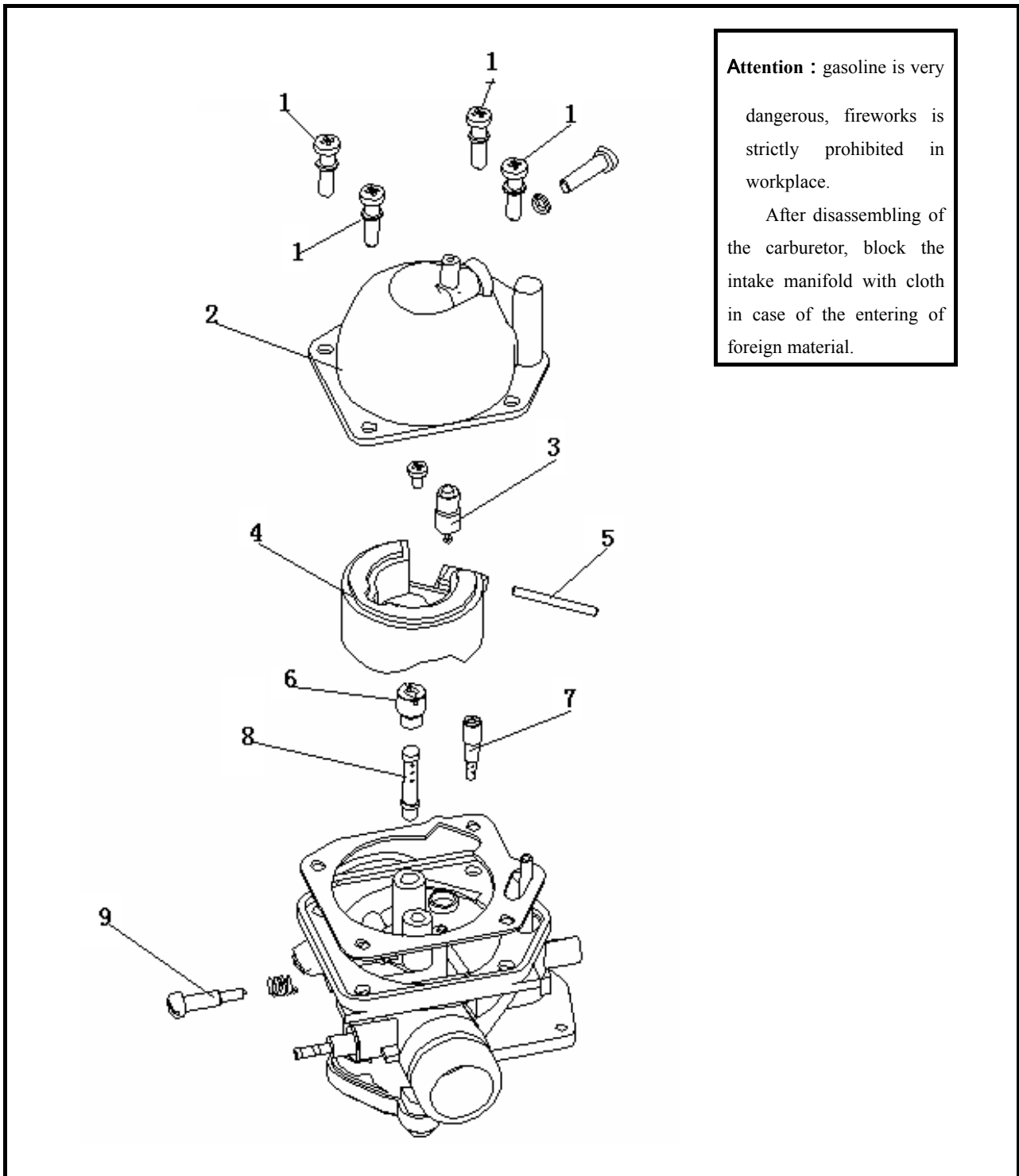
Check whether worm wheel teeth are damaged, or whether key slot is damaged.

Measure plunger OD.

Permitted limit: 2.61mm.



Carburetor



Attention : gasoline is very

dangerous, fireworks is strictly prohibited in workplace.

After disassembling of the carburetor, block the intake manifold with cloth in case of the entering of foreign material.

- 1 screw 2 float room 3 needle valve part 4 float part 5 float pin 6 main metering hole 7 idle spray nozzle 8 main bubble tube 9 idle adjusting screw

12. Carburetor

Preparation documents-----12.1

Failure diagnosis -----12.2

Removal of carburetor-----12.3

Installation of carburetor-----12.4

Adjustment of carburetor-----12.5

12.1 Preparation documents

Note

Gasoline is very dangerous, fireworks is strictly prohibited in workplace.

·Pay special attention to sparks.

·Forcibly pulling and bending of wires is not allowed. Distortion and damage will affect the wires.

·After disassembling of the carburetor, block the intake manifold with cloth in case of the entering of foreign matter.

·Unused for more than a month, the gas in carburetors of displacer type should be let out, as the gas in the displacer type may go bad, blocking the idling jet to make idle speed not safe.

Use of carburetor : Carburetor is a critical component in the fuel feed system of the engine; its working directly affects the stability of the engine and dynamic, economic indicators. Certain amount of gasoline is atomized into little oil drops in it, and mixed with different quantities of gas homogeneously, forming vaporific fuel mixture of different thickness according to needs of different working condition of the engine and supplied to the engine to ensure continuous and normal operation of the engine.

Preparation standard

unit : mm

Item	Standard value
Main spray nozzle	47.5
Main metering hole	50#
Idle metering hole	22.5#
Oil needle	B05-2

12.2 Failure diagnosis

Starting disorder	hard starting	Flameout after starting	unstable idling speed
No fuel in the carburetor			Carburetor blockage
Gas filter blockage		too thick or too thin gas mixture	
Gas pipe blockage		secondary gas suction in the inspiration system	
Needle valve ankylosis		idle speed maladjustment	
Oil level maladjustment		oil volume maladjustment	
		Blockage in the idling system or the electric enrichment valve	

Excessive fuel in the engine too thin gas mixture

Outflow due to excessive oil		oil jet blockage
Secondary gas suction in the inspiration system		needle valve blockage
Fuel deteriorate		low oil level
Enrichment valve disorder		fuel system blockage
Blockage in the idling system or the choke system		secondary gas suction in the inspiration system

Over thick gas mixture flashover interruption on acceleration

Enrichment valve disorder		too thin gas mixture
Needle valve disorder		
Over high oil level		
Carburetor outflow		
Gas channel blockage		
Dirty gas cleaner		

12.3 Removal of carburetor

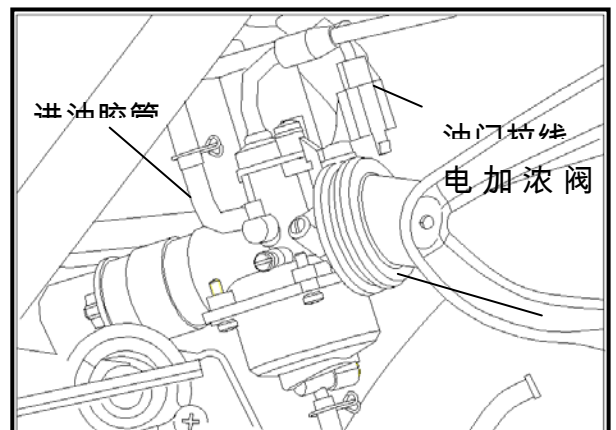
12.3.1 Removal

Turn fuel switch to "OFF".
 Remove feeding rubber tube. Loose throttle cable.
 Remove end plug of oil drain tube and put fuel of float component room into another box.
 Remove plug of electronic enrichment valve.
 Loose carburetor plug with motor and the screw of gas filter plug, and remove carburetor from the two interfaces.

进油胶管 oil feeding rubber tube

油门拉线 throttle cable

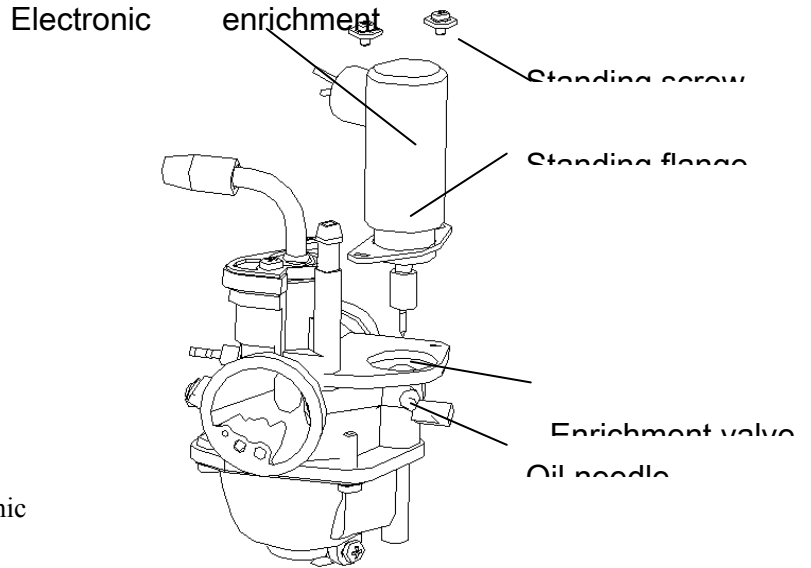
电加浓阀 electronic enrichment valve



接口 interface

12.3.2 Disassembly of carburetor

Loose screws of electronic enrichment valve and remove electronic enrichment valve components.



Check abrasion condition of electronic enrichment valve and oil needle.

If the abrasion is severe, change the electronic enrichment valve component.

Loose screw and remove upper cover.

Remove spring and plunger component.

Oil needle

Check abrasion of plunger.

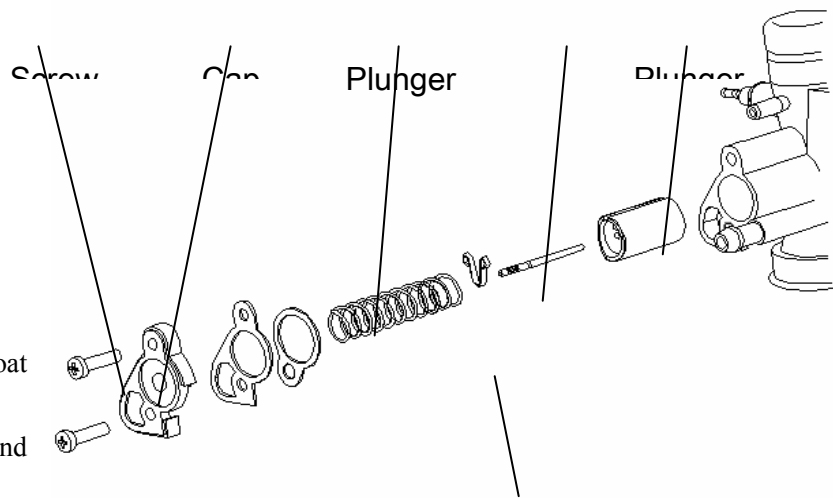
Change it if abrasion exists.

Check abrasion of oil needle.

Change it if abrasion exists.

Loose screw and remove float component room.

Remove float component, float pin and needle valve component.



Oil needle compression cap

12.3.3 Inspection

Check whether abrasion or damage of needle valve components, needle valve and float component exists.

Change abraded or damaged needle valve core.

If needle valve seat is abraded, change main body of carburetor.

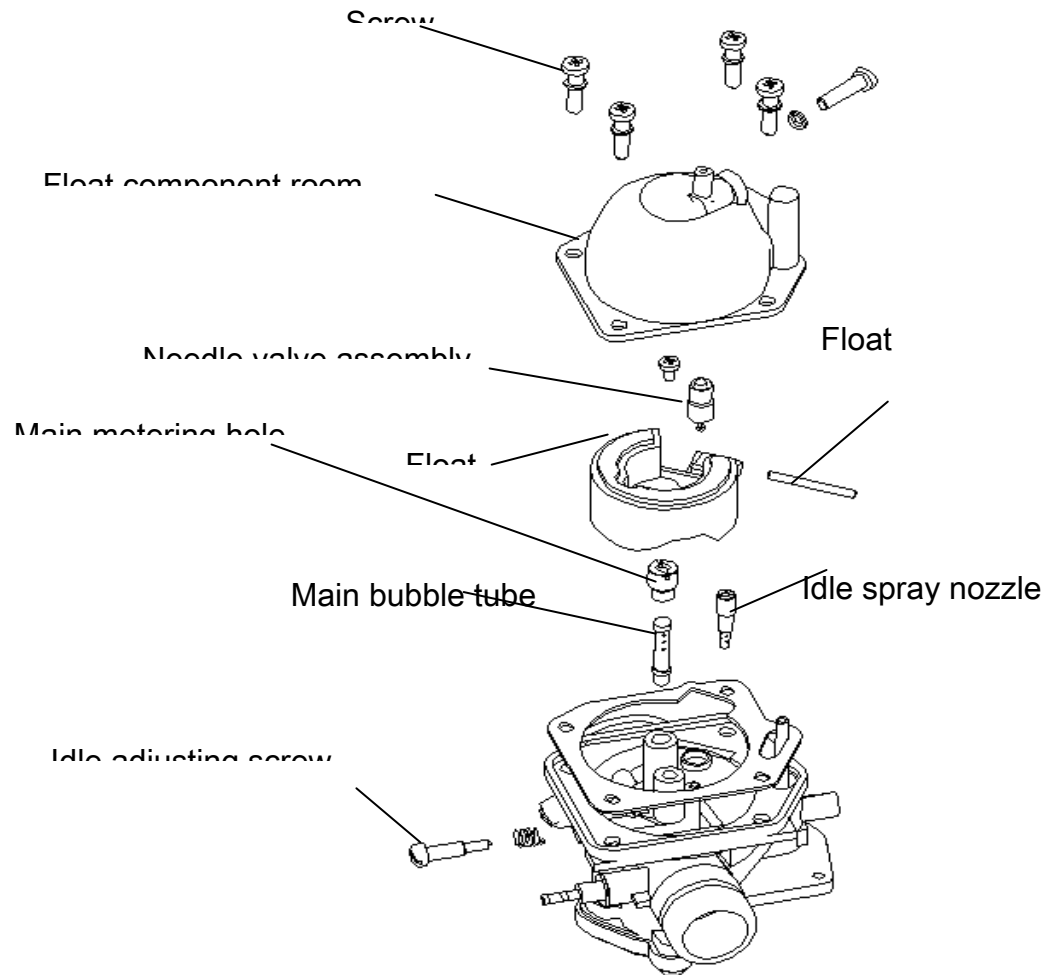
Change abraded float component tongue.

Check oil needle of carburetor, and change abraded or damaged one, if any, meanwhile replace main nozzle.

Check and change abraded, dirt or damaged metering hole, main metering hole and main nozzle.

Check and change abraded plunger.

Check main body of carburetor and fuel tube, if dirty, clean them according to instruction.



12.4 Installation and adjustment

Assemble and install it according to reversed sequence of removal.

Adjustment of carburetor

Note: the idle adjustment screw has been adjusted in factory, which needs no adjustment usually. In disassembly, record the rev number for installation.

Start and warm machine up for about 3 minutes to let motor run at normal driving temperature.

Adjust idle adjustment screw to make motor rev reach 1800rpm;

Spin mixture adjustment screw inwards to the bottom with moderate force;

Then the motor will switch off (if not, check whether gas filter interface is leaked, or screw is tight or gas filter inlet is blocked);

Retreat mixture adjustment screw for one circle;

Restart, and adjust idle adjustment screw to make the rev reach 2000-2500rpm;

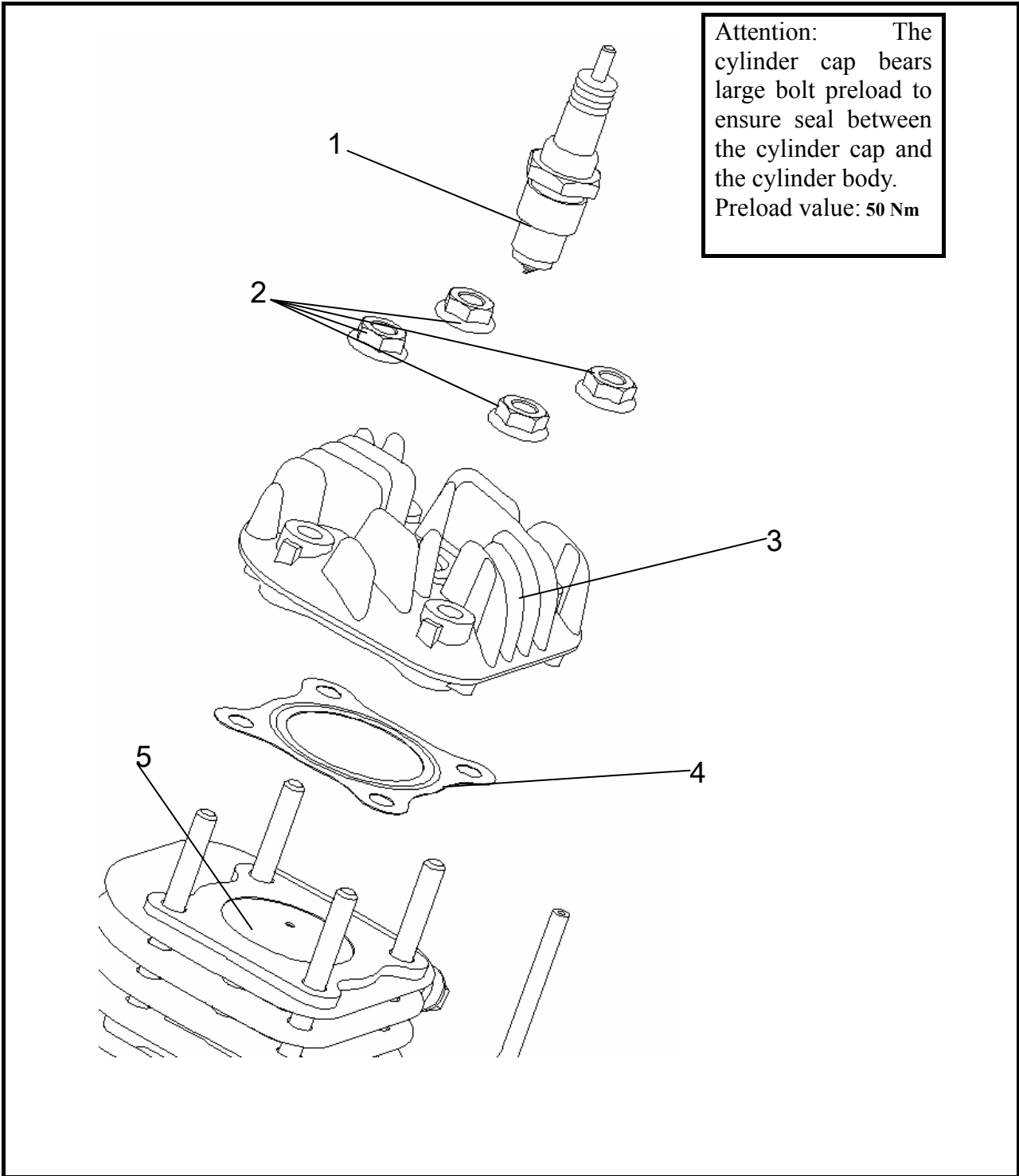
Adjust mixture screw counter-clockwise slowly until the motor rev reaches the maximum (mixture screw shall be retreat 2 circles at most);

Readjust idle adjustment screw to make motor rev decrease to 1900 ± 100 rpm;

Stir throttle to speed for several times to check whether idle rev is steady;

Test outlet and compare it with defined standard.

Cylinder cap



1 spark plug

2 cylinder cap standing bolt

3 cylinder cap

4 cylinder gasket

5 Cylinder

13.Cylinder cap

Preparation documents-----13.1
Failure diagnosis -----13.2
Cylinder cap -----13.3
Cylinder cap inspection-----13.4
Installation of cylinder cap-----13.5

13.1 Preparation documents

Note

For gas tightness between the cylinder cap and the cylinder body, the cap bears tremendous bolt pre-tightening force. Pre-tightening force value: 50 Nm.

All components must be cleaned and dried with high-pressure gas before examination.

Function of the cylinder cap: The cylinder cap is used to seal the cylinder and form the combustion chamber with the piston. It bears HPHT fuel gas, and carries out gas entering and exhaust distribution devices.

13.2 Failure diagnosis

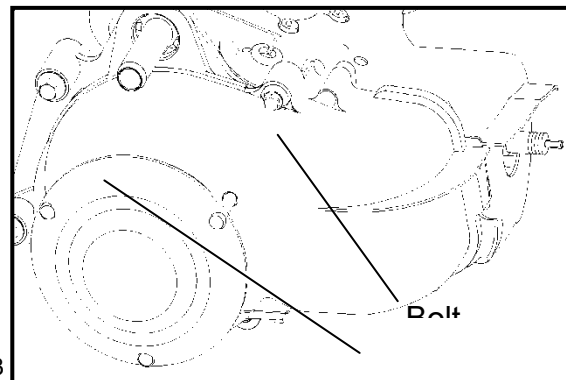
In running, there is gas leakage or too high combustion pressure between cylinder cap and cylinder body

- Cylinder cap gasket is broken
- Curve bottom surface of cylinder
- Too much carbon is combustion room

13.3 Cylinder cap

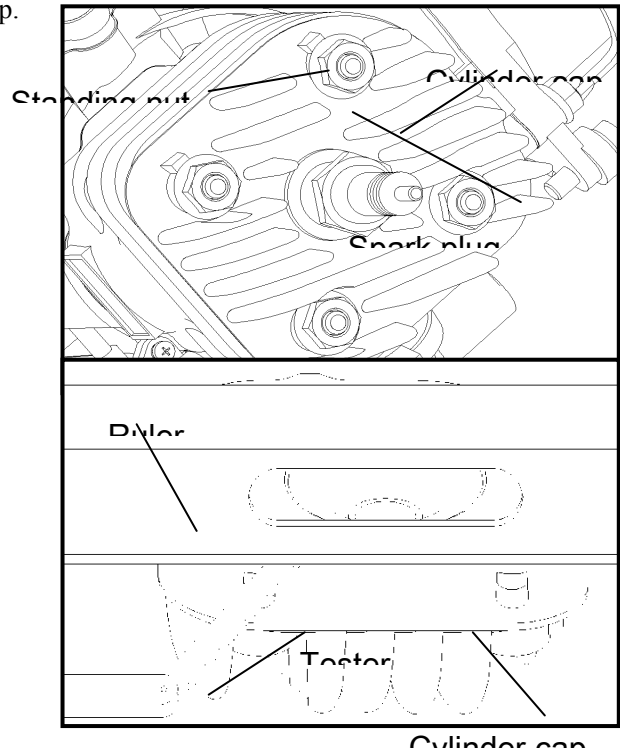
13.3.1 Removal

- Loose gas director standing bolt.
- Remove gas director.



Air director

Loose standing nut and spark plug and remove cylinder cap.



13.4 Cylinder cap inspection

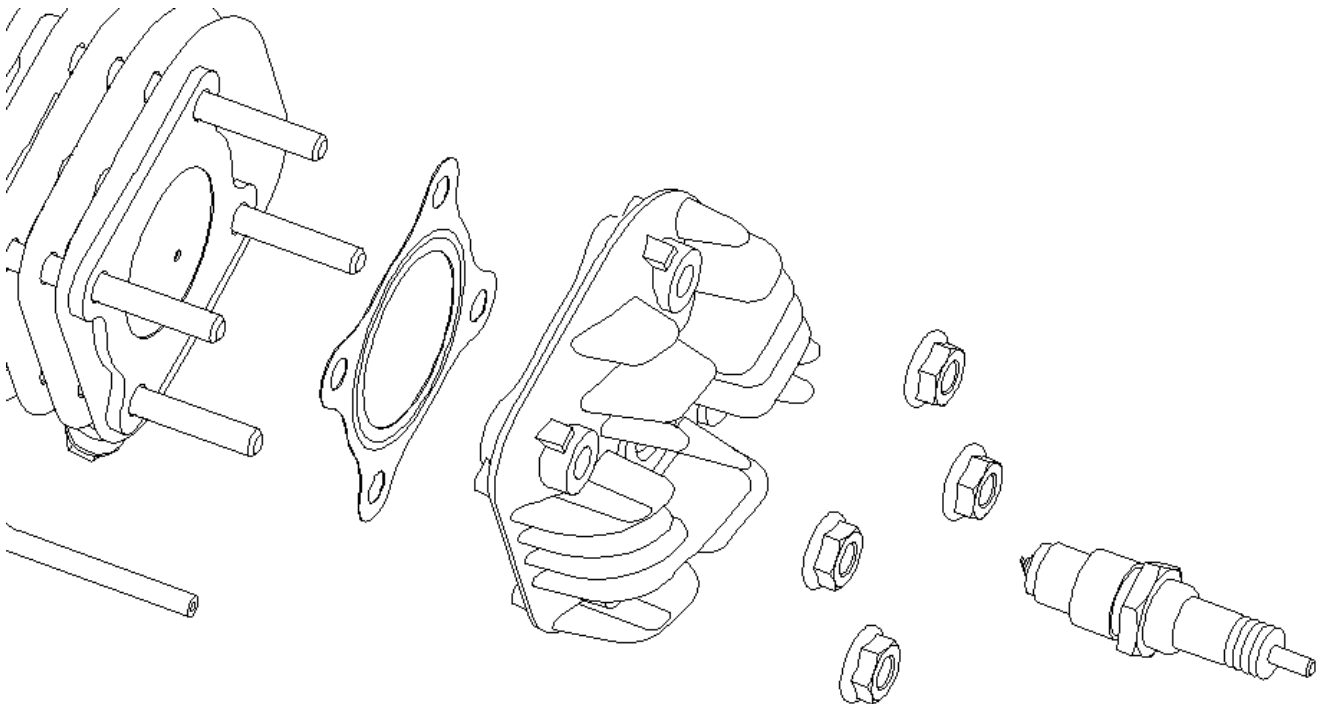
Check whether cylinder cap is broken.

Check flatness of cylinder cap bottom surface.

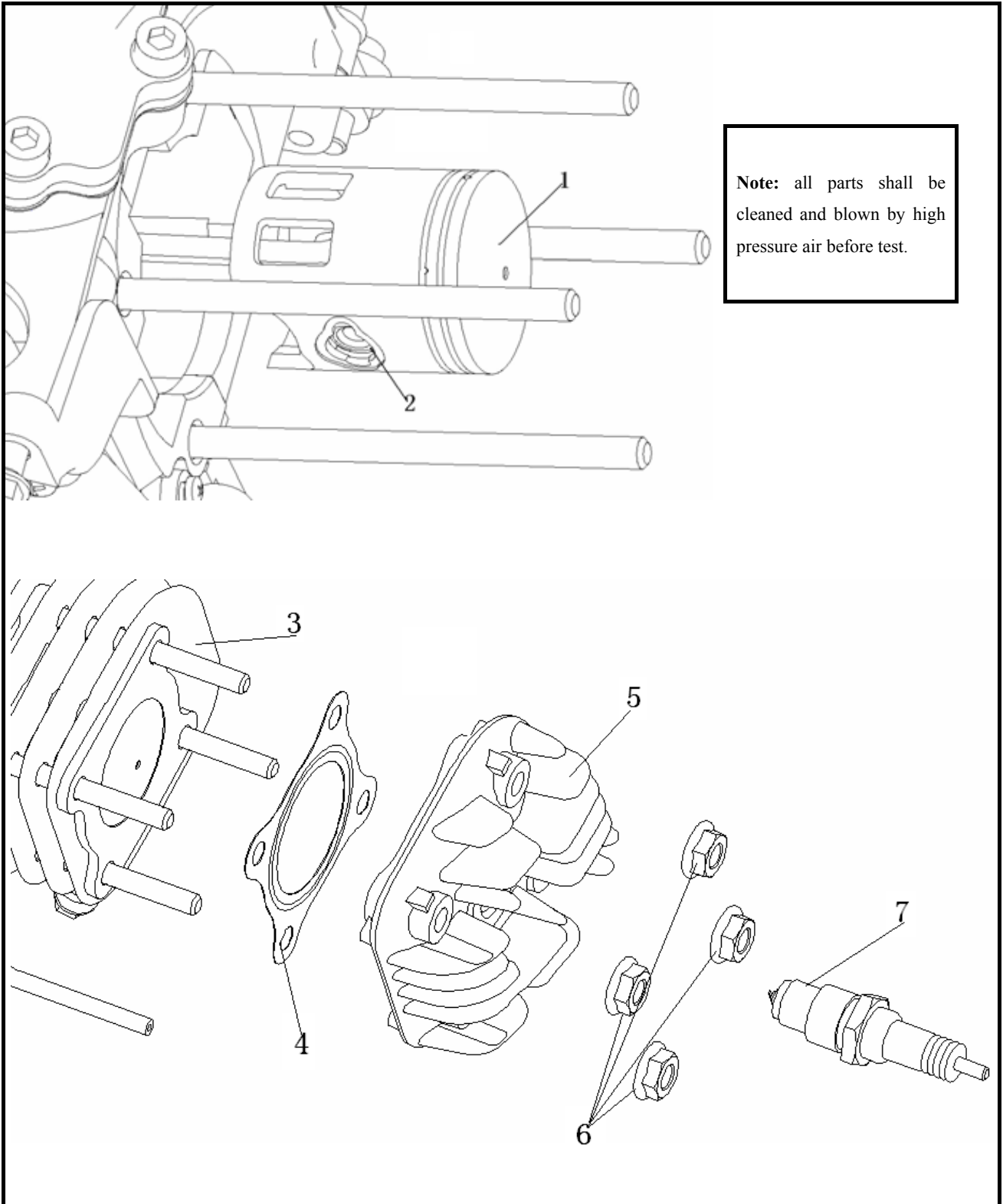
Usage limit: 0.04mm.

13.5 Installation of cylinder cap

Install according to reversed sequence of removal.



Cylinder body and piston



1 piston 2 piston pin 3 cylinder body 4 cylinder gasket 5 cylinder cap 6 nut 7 spark plug

14.Cylinder body and piston

Preparation documents-----14.1

Piston-----14.4

Failure diagnosis-----14.2 Installation of piston-----14.5

Cylinder body-----14.3

14.1 Preparation documents

Note

All parts shall be cleaned and blown by high pressure gas before test.

Function of cylinder body: cylinder body provides space for gas compression, combustion and expansion.

It also transfer part of heat energy of cylinder to cooling medium around.

Function of piston:

Piston bear pressure arising from mixture gas combustion inside cylinder and transfer the pressure to connecting rod to make crankshaft revolve.

It forms combustion room along with cylinder cap.

It acts as slide valve for airport, compresses fresh mixed gas of crankcase into cylinder and discharge deposed gas from cylinder.

Preparation standard

unit: mm

Item	Standard value	Usage value
------	----------------	-------------

Cylinder	ID		39.995-40.015	40.05
	Curvature		-	0.05
	Cylindricity		0.006	0.05
	Flatness		0.03	0.05
	Circular degree		-	0.05
Piston ring	Clearance between piston ring and ring groove	first ring	0.015 - 0.05	0.09
		second ring	0.015 - 0.05	0.09
	Clearance of the mouth of piston ring	first ring	0.1-0.25	0.5
		second ring	0.1-0.25	0.5
	OD of piston		39.97-39.99	39.9
	Clearance between piston and cylinder		0.005-0.015	0.1
	ID of piston pin hole		12.002-12.008	12.04
OD of piston pin		11.994-12	11.96	
Clearance between piston pin hole and piston pin		0.002-0.014	0.02	
ID of wrist-pin end of connecting rod		14.016-14.034	14.06	

14.2 Failure diagnosis

Low compression pressure

wear, burning or snap in the piston
wear or damage in the cylinder or the piston

damaged gasket , gas leak between the crankcase and the gas

Higher compression pressure
Excessive carbon deposit in the combustion chamber

white smoke from the vent pipe

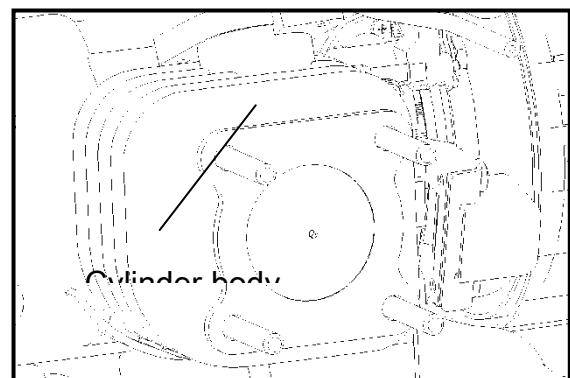
wear and damage in the piston ring
wear and damage in the piston or the cylinder

abnormal sound from the piston
damage in the cylinder, the piston or the piston ring

14.3 Cylinder body

14.3.1 Removal of cylinder body

Remove cylinder body after removing cylinder cap.



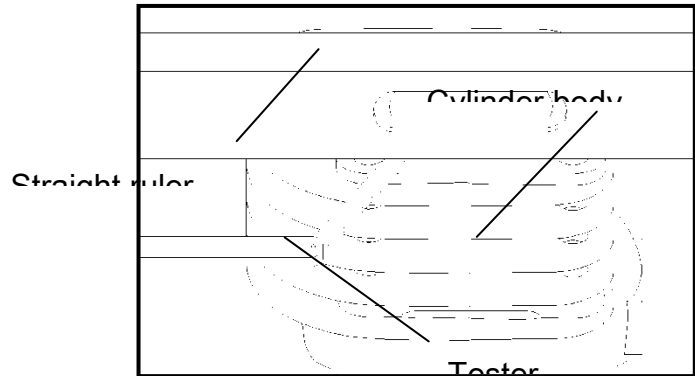
14.3.2 Cylinder body inspection

Check abrasion of inner wall of cylinder.

Change it if abrasion is severe.

Check flatness of cylinder face.

Usage limit: 0.05

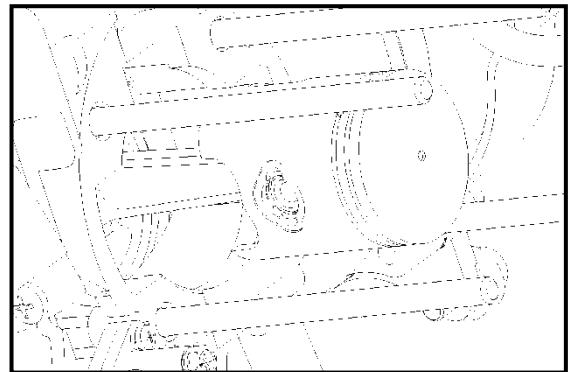


14.4 Piston

14.4.1 Removal

Remove retaining ring of piston pin.

Note: don't allow the retaining ring fall into the crankcase during unloading. Remove the piston pin and unload the piston.

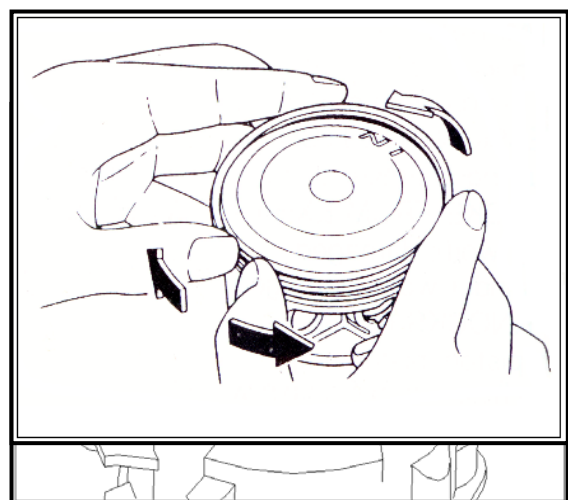


Piston pin and retaining ring

Examine the piston, the piston pin and the piston ring.

Remove the piston ring.

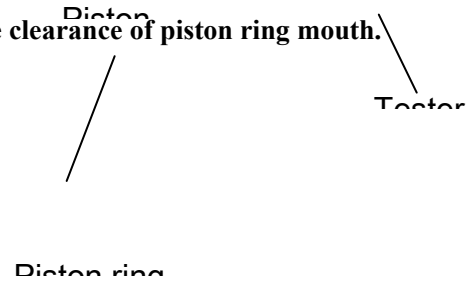
Note : don't break off or damage the piston ring. Clear the carbon deposit in the piston ring groove.



Remove piston ring and install piston ring at the bottom of cylinder.

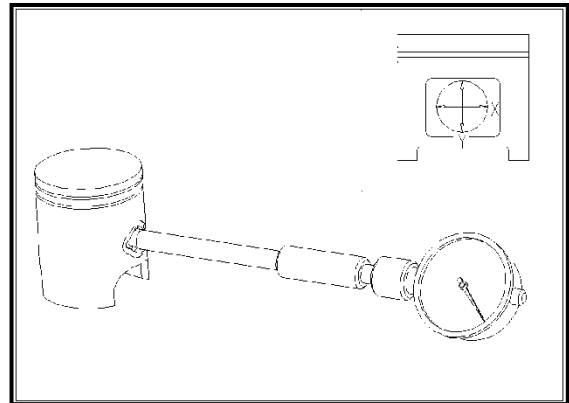
Note: press piston ring into cylinder with piston head. Measure clearance of piston ring mouth.

Usage limit: 0.5mm.



Measure ID of piston pin hole.

Usage limit : 12.04mm.

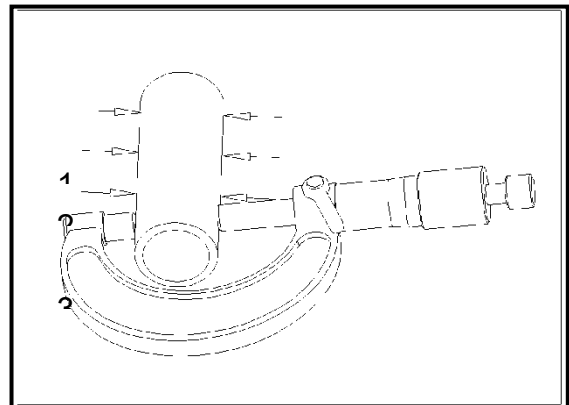


Measure OD of piston pin.

Usage limit: 11.96mm.

Clearance between piston pin hole and piston pin.

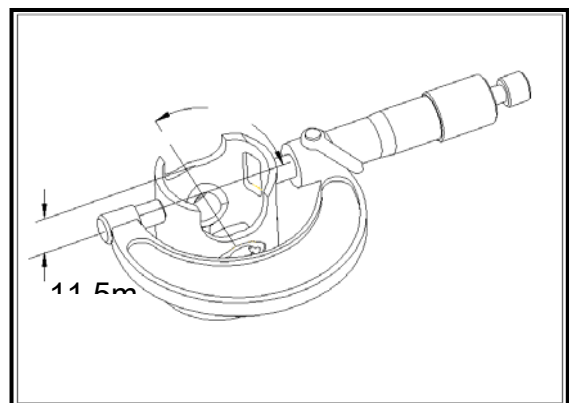
usage limit: 0.02mm.



Measure OD of piston.

Note : measured place shall be perpendicular to piston pin, at about 11.5mm bellow piston skirt.

Usage limit: 39.9mm.



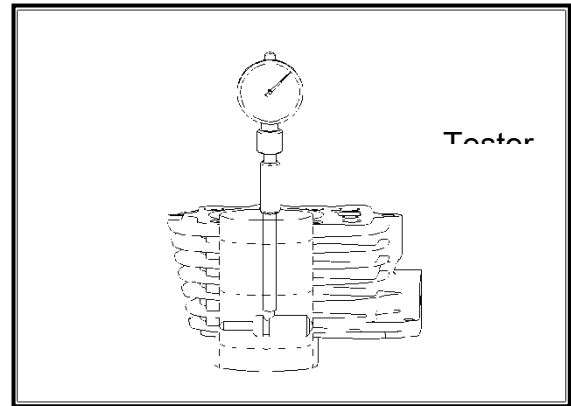
Check scratch and abrasion of inner wall of cylinder.

Note: it shall be perpendicular to piston pin, and the cylinder ID shall be measured at upper, middle and lower locations.

Usage limit: 40.05mm.

Measure clearance between cylinder and piston. Take the maximum value.

Usage limit: 0.1mm.



Measure circular degree of inner wall of cylinder (difference in ID between X orientation and Y orientation) .

Usage limit: 0.05mm.

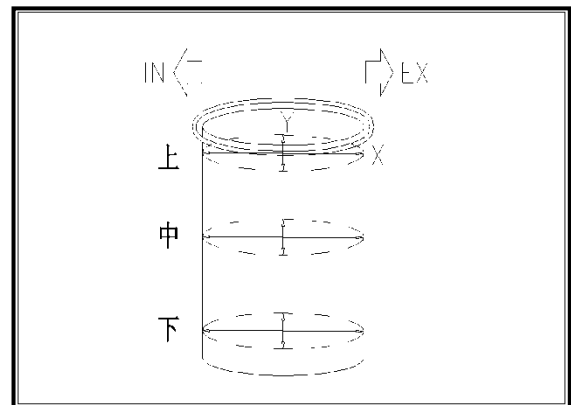
Measure circular degree of inner wall of cylinder (difference in ID among upper, middle and lower locations between X orientation and Y orientation)

Usage limit: 0.05mm.

上 upper

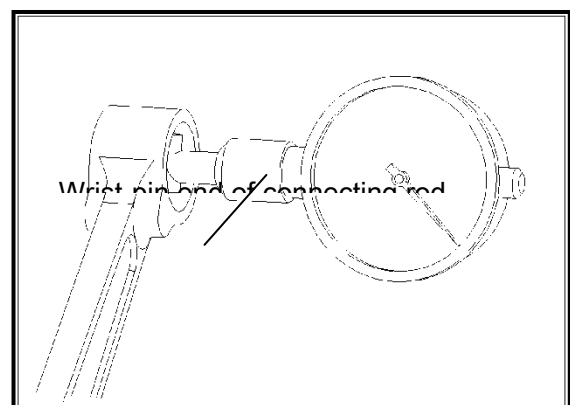
中 middle

下 lower



Measure wrist-pin end of connecting rod.

Usage limit: 14.06mm.



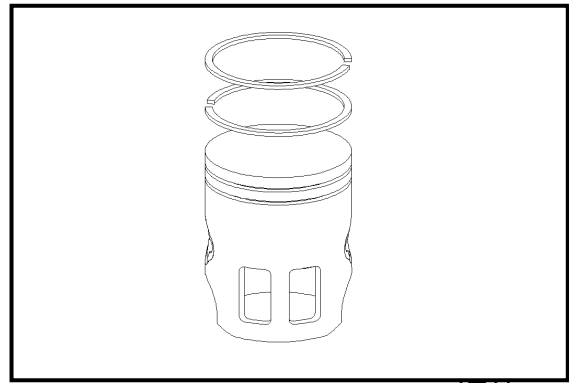
14.4.2 Installation of piston

Install location pin.

Lubricate piston ring and piston with machine oil and install the slope upwards.

Note:

Piston shall not be scratched and piston ring shall not break. After installation of piston ring, it shall revolve easily inside piston ring groove.



Clean gasket on crankcase.

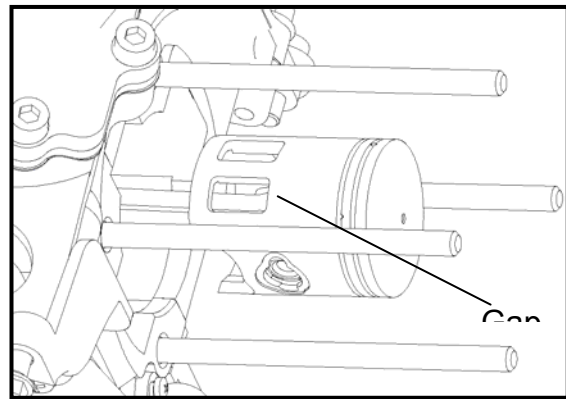
Note:

There should be no foreign material inside crankcase.

Install piston, piston pin, and piston pin retaining ring.

Note:

Install piston skirt tube with the gap face towards gas inlet.



14.5 Installation of piston

Install gasket on crankcase.

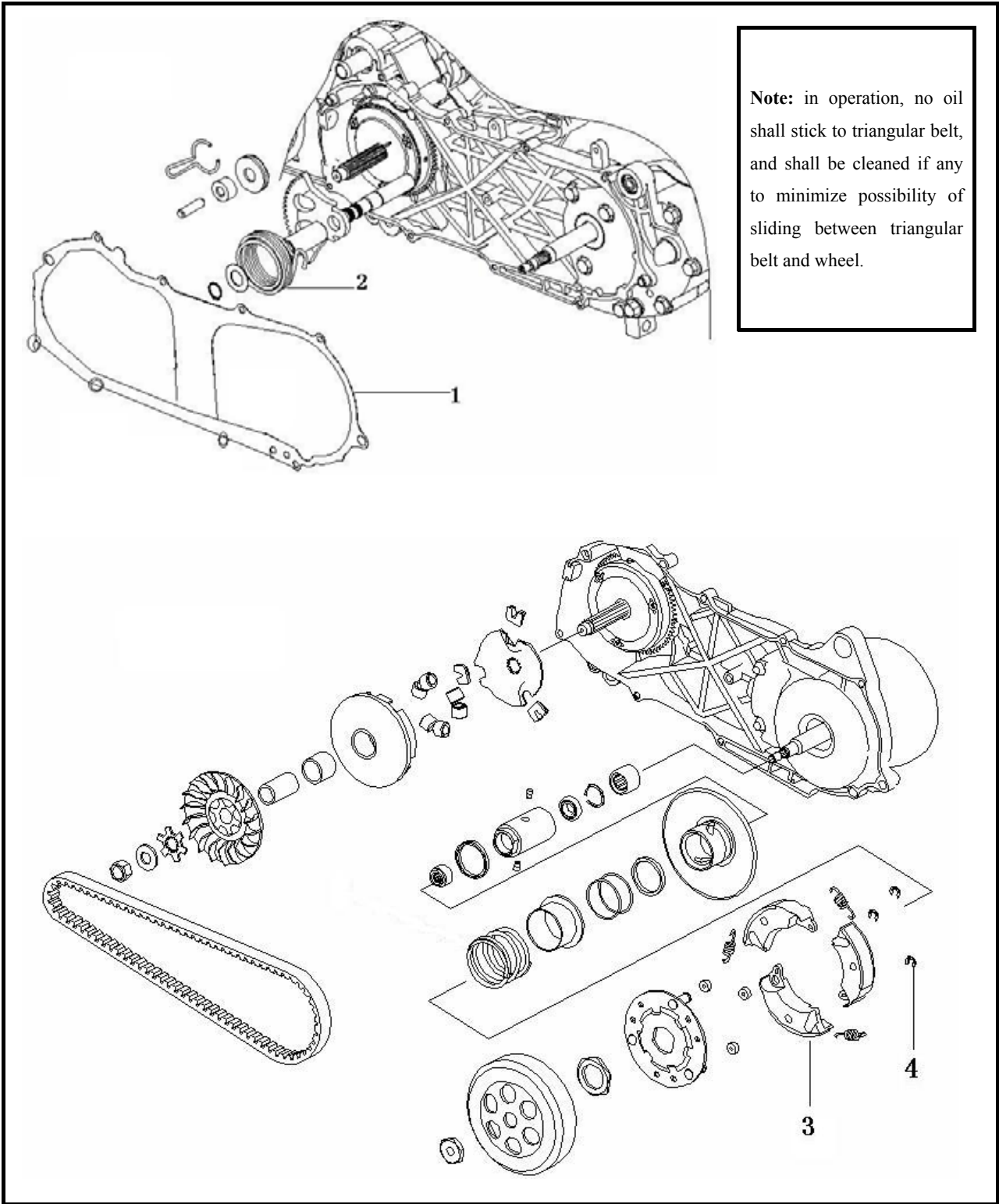
Lubricate machine oil on inner wall of cylinder, piston and piston ring.

Be careful in installing piston ring into cylinder.

Note:

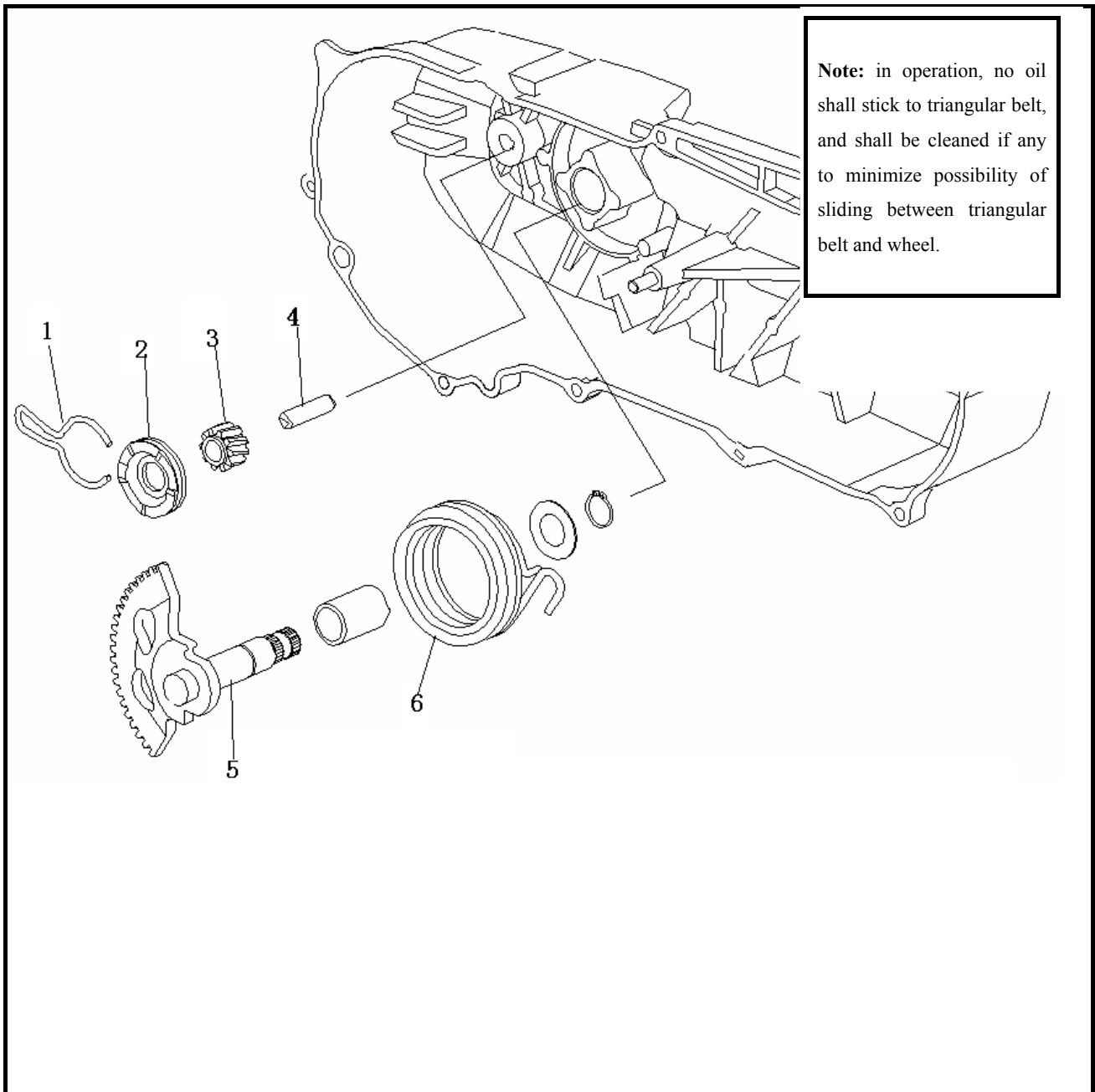
Do not damage piston ring.

Driving disc/clutch/driven wheel



1 gasket 2 spring 3 abrasion piece 4 retaining ring

Foot starting device



1 snap spring 2 starting claw 3 dile gear 4 idle shaft 5 starting shaft component 6 foot starting spring

15. Driving /clutch/driven wheel/foot driving device

Preparation documents-----15.1 Clutch/driven wheel----15.5
 Failure diagnosis -15.2 Disassemble clutch and driven wheel --15.6
 Left crankcase cover---15.3 Installation-----15.7
 Driven disc-----15.4 Foot starting device---15.8

15.1 Preparation documents

Note

in operation, no 油 shall stick to triangular belt, and shall be cleaned if any to minimize possibility of sliding between triangular belt and wheel.

Function: driving disc/clutch/driven wheel form stepless speed variator. Driving disc 从 and driven wheel transfer torsion through triangular belt.

Preparation standard

unit: mm

Item	Standard value	Usage limit
Right semi-diameter of driving wheel	25.989-26.052	26.06
OD of slid bushing	25.96-25.974	25.94
Width of triangular belt	17	16
Thickness of clutch abrasion piece	1.8	1.5
ID of clutch outer bushing	118-118.3	118.5
Free length of clutch compression spring	68-70	68
OD of driven wheel right semi-shaft	32.95-32.975	32.94
ID of driven wheel left semi slid bushing	33-33.025	33.06
OD of boll bearing	14.92-15.08	14.4

15.2 Failure diagnosis

Motor fails not make cycle run low horsepower shaking driving

Worn triangular belt Worn triangular belt broken clutch abrasion piece spring

Broken driven wheel

deformed clutch compression spring

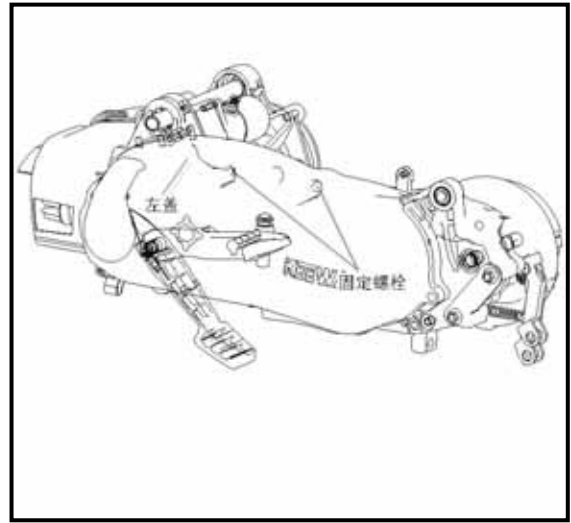
Broken or damaged clutch abrasion piece worn ball bearing

Broken clutch compression spring dirty main belt wheel surface

15.3 Left crankcase cover

Removal

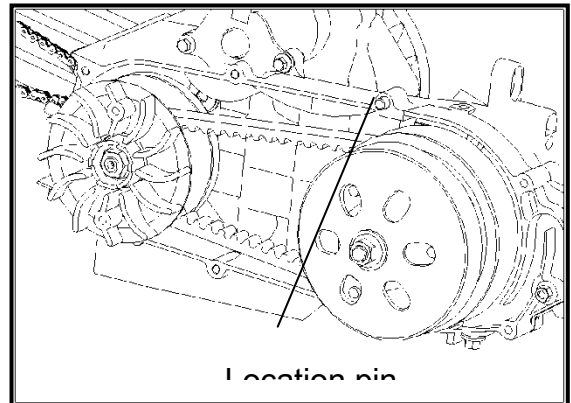
Remove cover standing bolt and remove gasket as well as standing pin.



Note:

Remove standing bolt and loose in cross type.

Remove location pin.

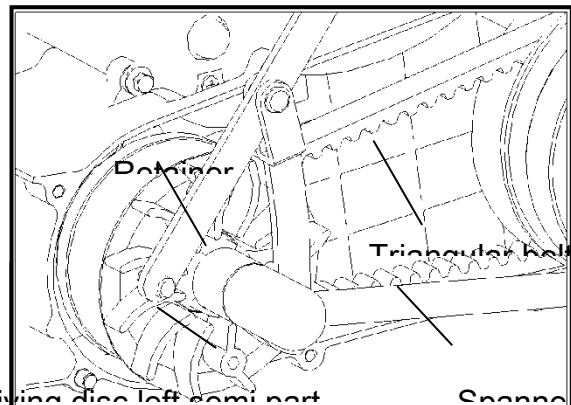


15.4 Driving disc

15.4.1 Removal

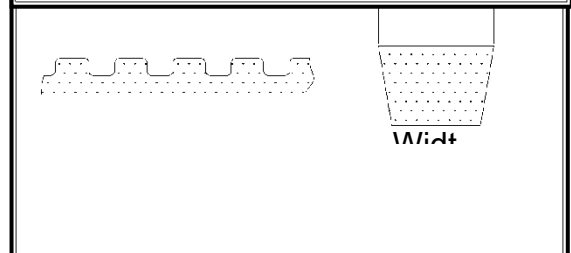
Remove driving disc standing nut and remove left semi part of driving disc.

Remove triangular belt from driving disc.



Check whether the triangular belt has crack, or whether rubber or cotton yarn has fallen or be worn.

Measure width of triangular belt.

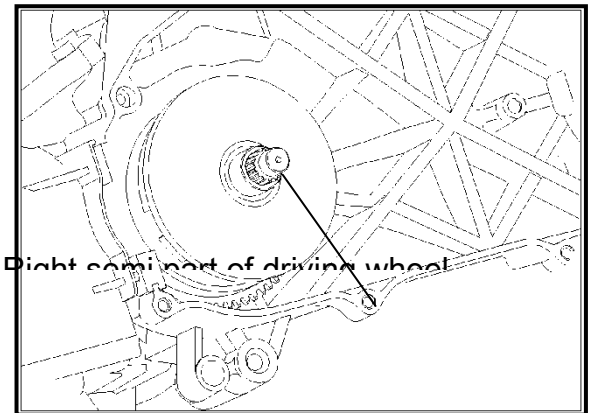


Usage limit: 16mm.

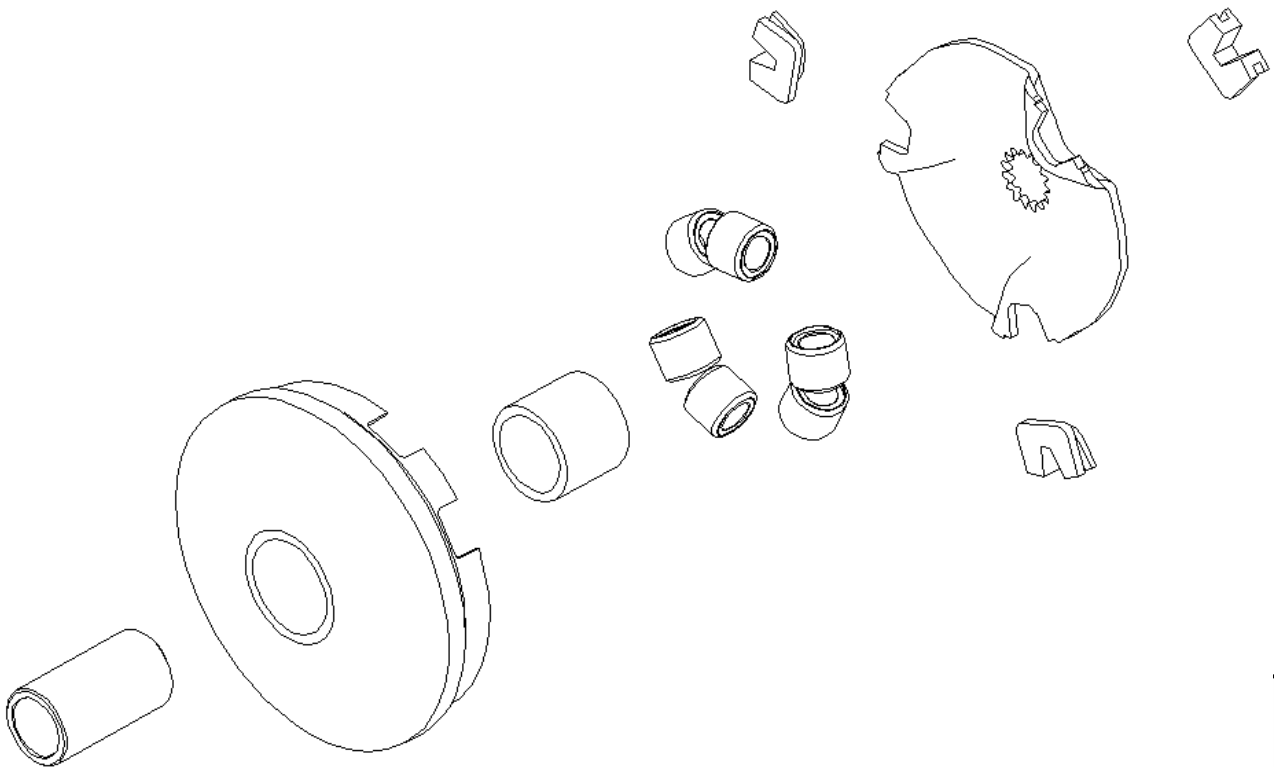
Note:

Choose original factory parts in changing.

Remove driving wheel right semi part.

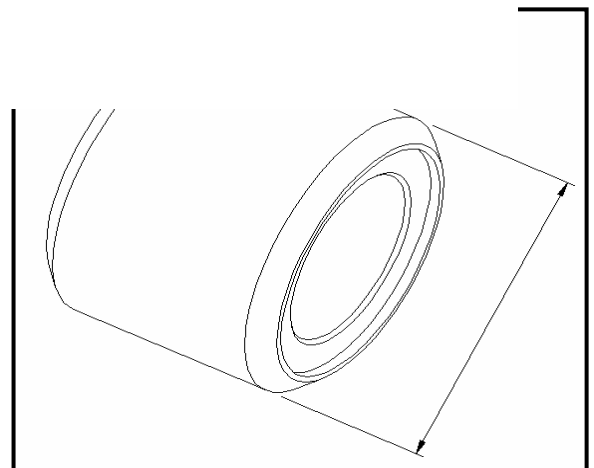


15.4.2 Disassemble driving wheel right semi part



Check abrasion of ball bearing.
Measure OD of ball bearing.

Usage limit: 14.4mm.



Measure right semi ID of driving wheel.

Usage limit: 26.06mm.

Measure OD of slide bushing.

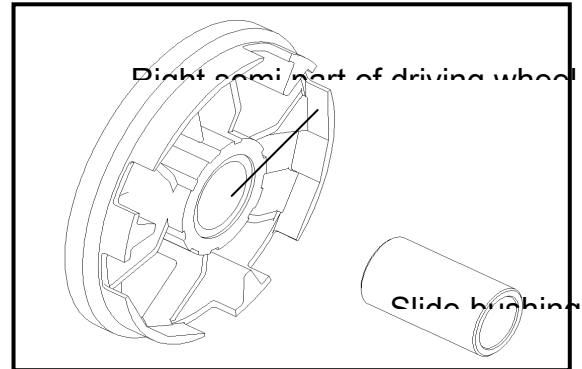
Usage limit: 25.94mm.

从动轮 driven wheel

固定器 retainer

离合器外套 clutch bushing

套筒扳手 sleeve spanner



15.5 Clutch/driven wheel

15.5.1 Removal

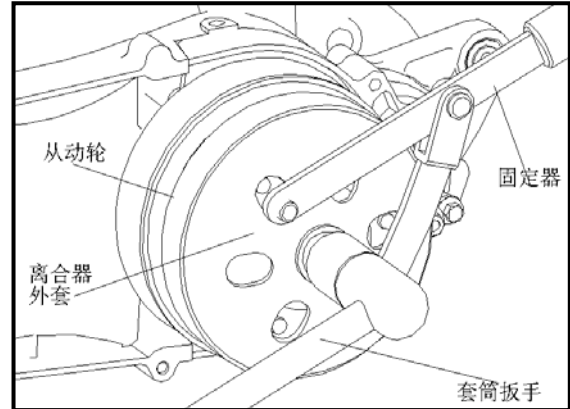
Use retainer to fix clutch bushing and remove standing nut.
Remove clutch bushing and clutch/driven wheel.

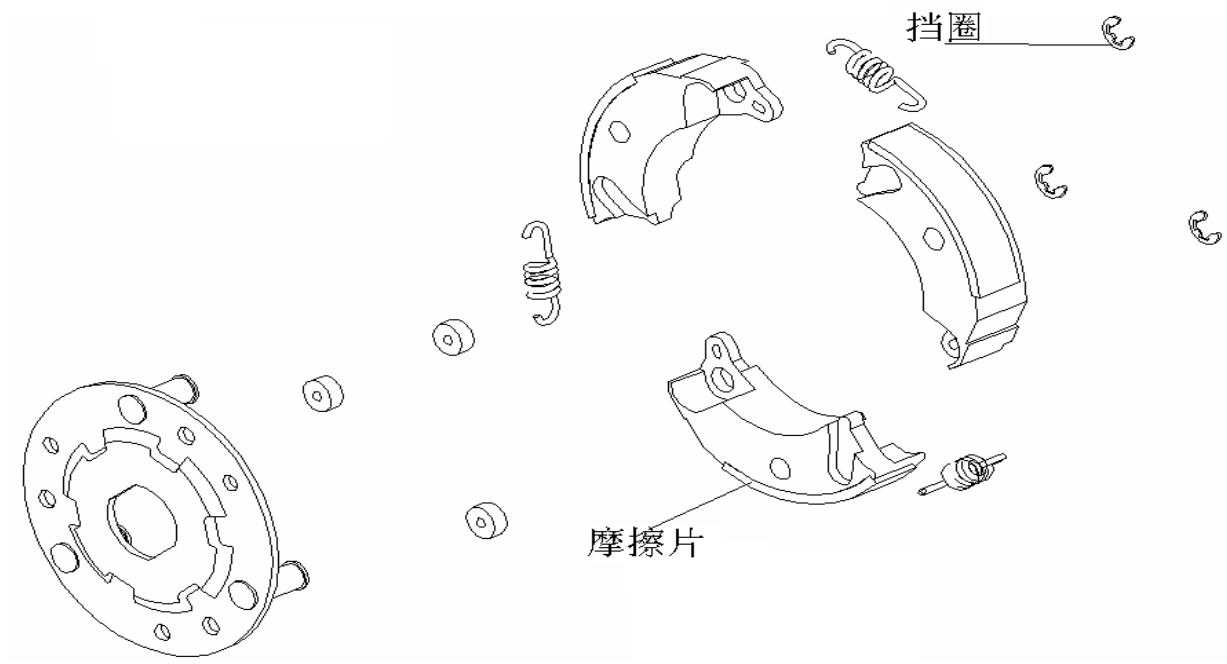
15.5.2 Disassemble clutch

Remove retaining ring and disassemble clutch.

Note:

In disassembly, not oil shall stick to clutch abrasion piece.

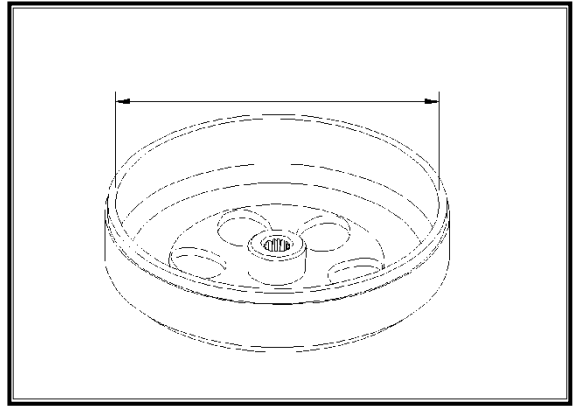




挡圈 retaining ring 摩擦片 abrasion piece

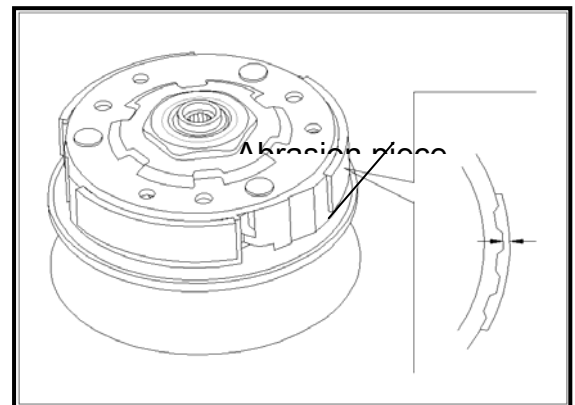
Check abrasion of clutch bushing.
Measure ID of clutch bushing.

Usage limit: 118.5mm.



Check abrasion of clutch abrasion piece.
Measure thickness of abrasion piece.

Usage limit: 1.5mm.



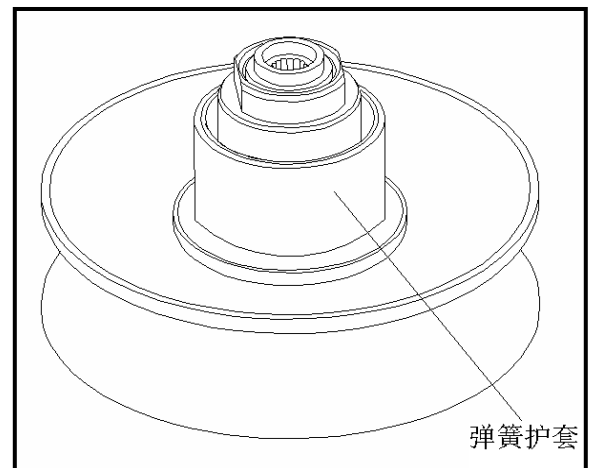
15.6 Detach clutch and driven wheel

Use clutch spring compressor in disassembling clutch.

Note:

Use spring compressor in removal in case spring is damaged.
Fix spring compressor, and remove clutch standing nut.
Loose compressor, and detach clutch and driven wheel.

扳手 spanner



离合器弹簧压缩器 clutch spring compressor

弹簧护套 spring sleeve

Remove spring bushing.

Remove directing pin.

Remove left

Remove oil s

Check free length of clutch spring.

Usage limit: 68mm.

自由长度 free length

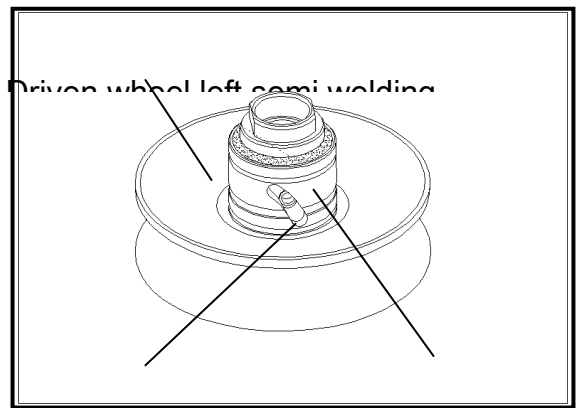
从动轮右半 right semi part of driven wheel

从动轮左半 left semi part of driven wheel

Check abrasion of driven wheel.

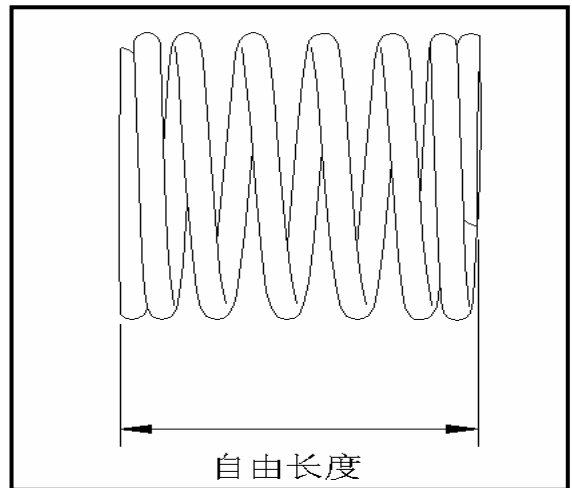
Measure right semi bushing OD of driven wheel.

Usage limit: 32.94mm.



Guiding pin

Oil seal



自由长度

从动轮右半

从动轮右半

Measure left semi slide bushing ID of driven wheel.

Usage limit: 33.06mm.

15.6.1 Change right semi bearing of driven wheel

Remove needle bearing from right semi driven wheel.

Remove elastic retaining ring and outer rolling bearing.

Note:

Disassembled bearing is unusable.

滚针轴承 needle bearing

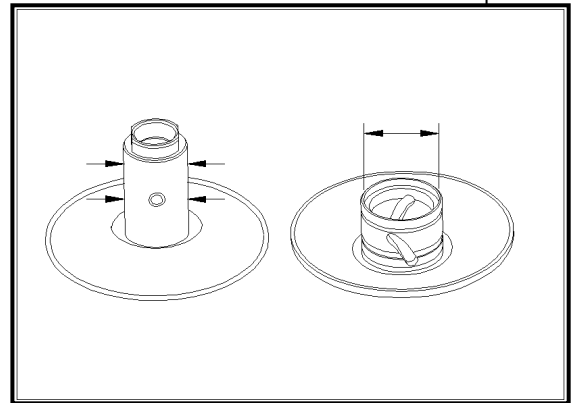
滚动轴承 rolling bearing

弹性挡圈 elastic retaining ring

Grease outer rolling bearing and put it into bushing.

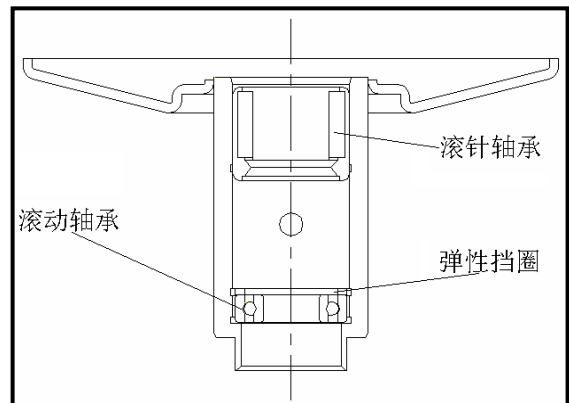
Note :

Press outer rolling bearing into bushing, face the marked side outward, and then fill the shaft cavity with 8-9g grease. Install elastic retaining ring.

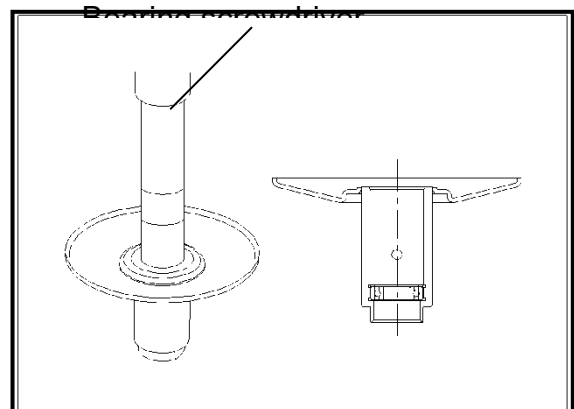


Install needle bearing.

Press needle bearing with the tool in the figure.



15.6.2 Assemble clutch/driven wheel



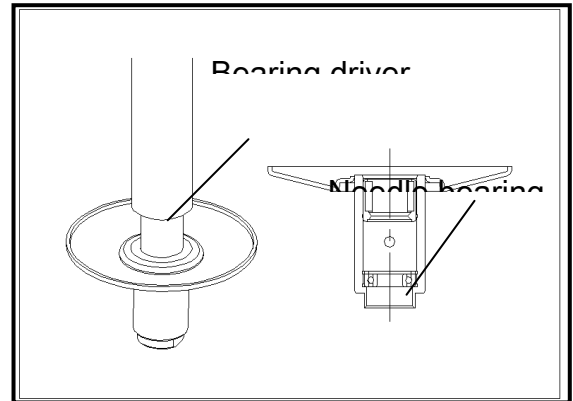
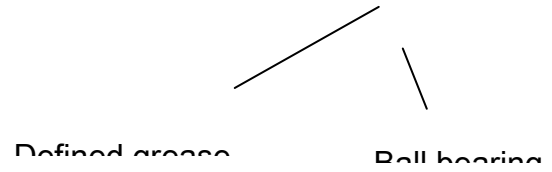
Clean grease on the driven wheel surface.
 Install oil seal of driven left semi slide bushing.

Install greased O shape ring in driven left semi part.

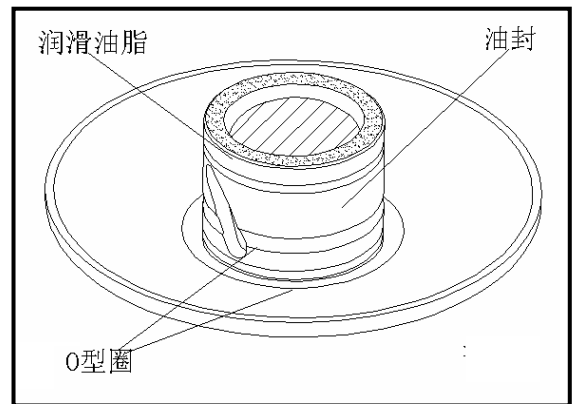
润滑油脂 Lubricating grease

油封 Oil seal

O 型圈 O shape ring



Assemble left and right parts of driven wheel together.
 Install greased directing pin into directing groove.



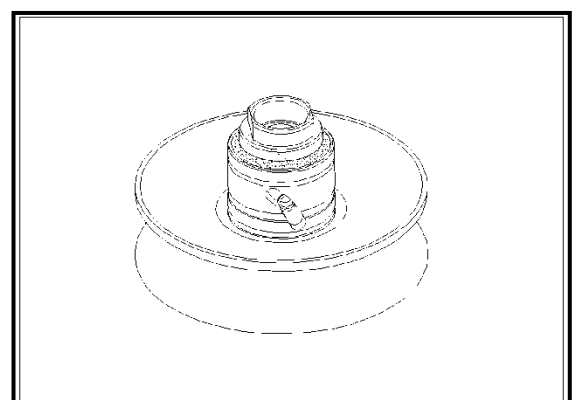
Install spring bushing. ◦

Clean leaked grease.

弹簧护套 spring bushing

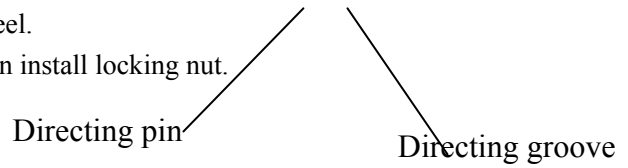
扳手 spanner (locking nut)

离合器弹簧压缩器 clutch spring compressor



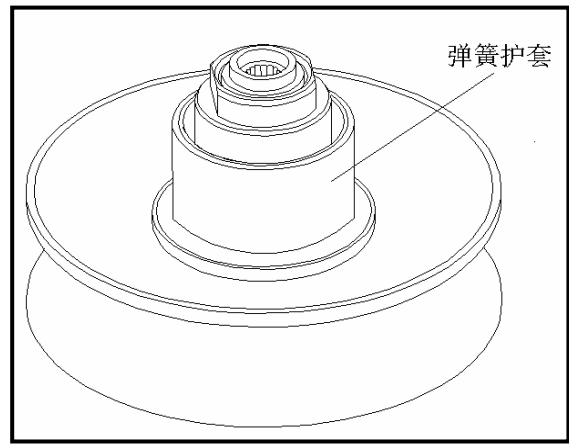
Install clutch compression spring and clutch on driven wheel.
 Use clutch spring compression assembly, after compression install locking nut.

Note:
 Compress spring moderately. Do not damage it.



15.7 Install

Install driven disc/clutch/driven wheel in reversed sequence of removal.

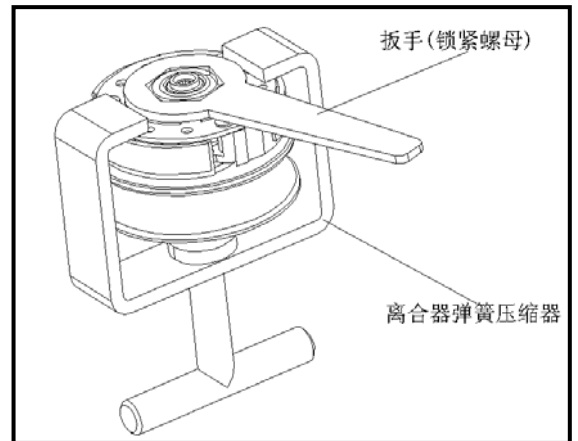


15.8 Foot starting device

Removal/inspection

Remove left crankcase cover.
 Loose screw and remove guard plate.
 Remove starting claws assembly.
 Remove starting shaft assembly.

Check abrasion of starting shaft.
 Check starting shaft bushing, abrasion of force received part of idle shaft.
 Check abrasion of idle gear.
 Measure clamping force of snap spring.



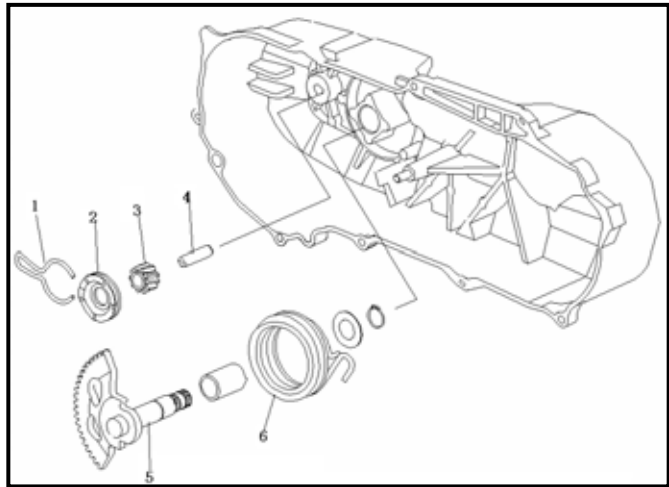
General standard value: 8-12N。

Note: 1 snap spring 2 starting claws 3 idle gear 4 idle shaft 5 starting shaft assembly 6 foot starting shaft spring

弹簧护套 spring sleeve

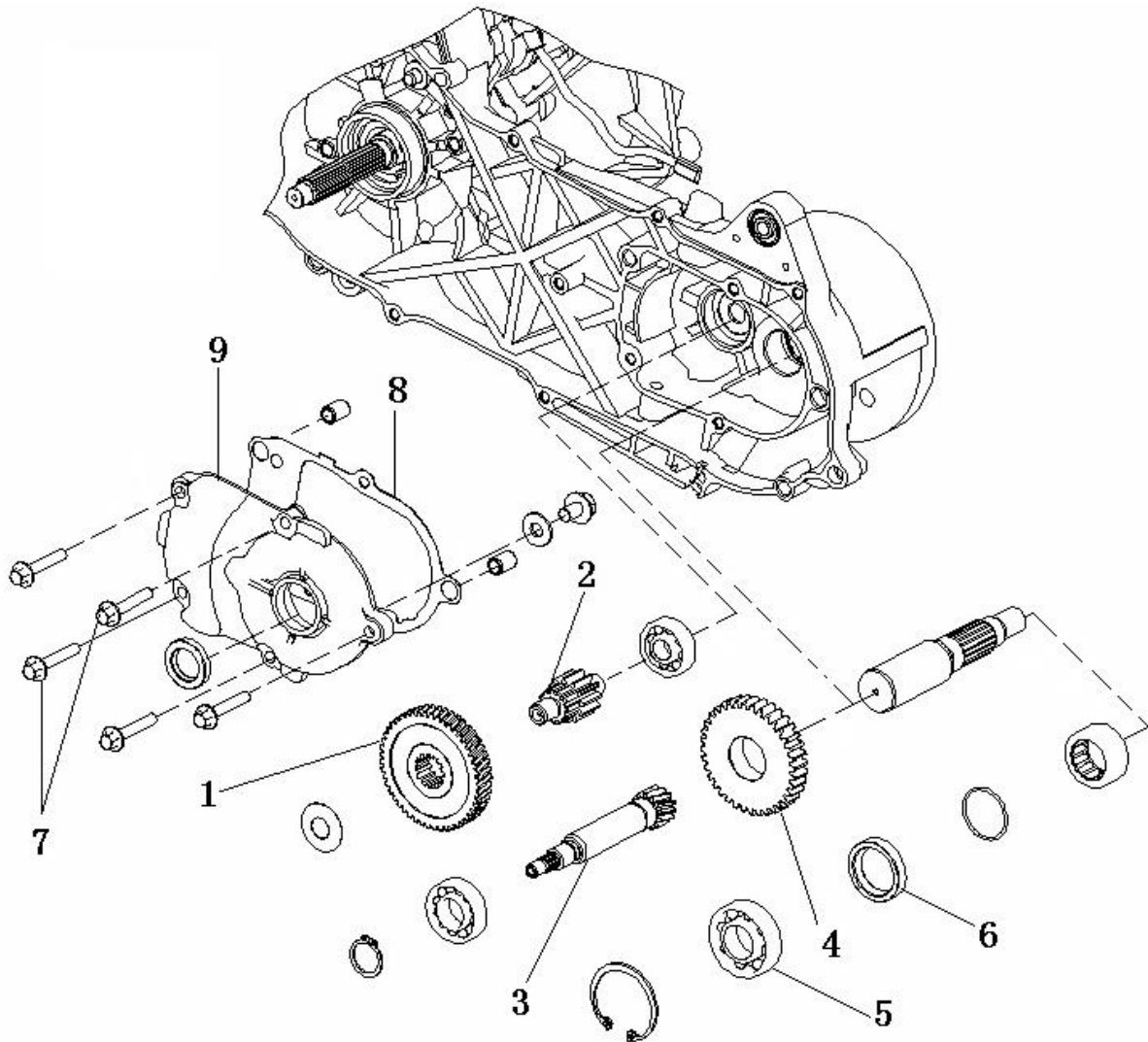
扳手 spanner (locking nut)

离合器弹簧压缩器 spring compressor of clutch



Decelerator device

Function: transfer torsion
and decide final output
torsion and rev.



- 1 middle gear 2 middle shaft 3 main shaft of clutch 4 output shaft gear 5 bearing 6 oil seal 7 bolt
8 gasket 9 gear room cover

16. Decelerator device

Preparation documents-----16.1

Failure diagnosis-----16.2

Gear box-----16.3

Installation -----16.4

16.1 Preparation documents

Function: transfer torsion and decide final output torsion and rev.

16.2 Failure diagnosis

Motor fails to make motorcycle run

Broken driving gear

Burnt driving gear

Leaked gear oil

Too much gear oil

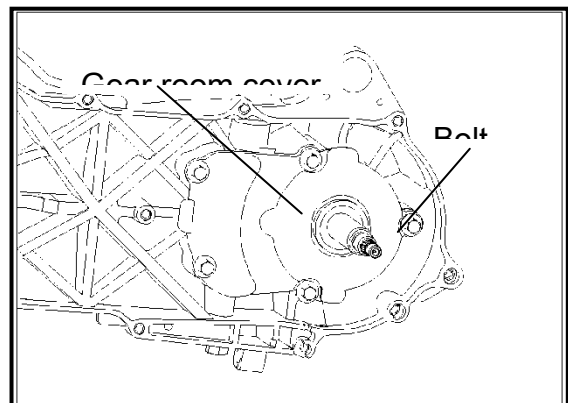
Damaged oil seal

16.3 Gear box

15.3.1 Removal

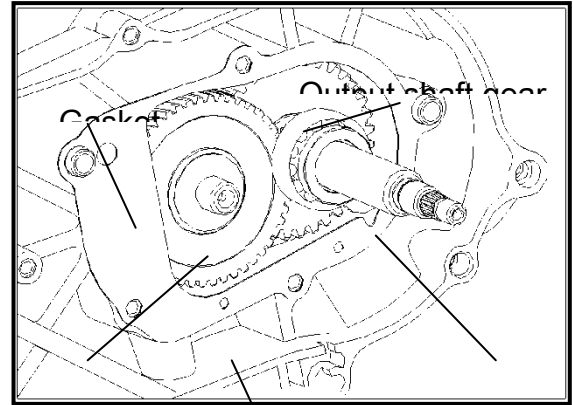
Remove oil drain nut, and discharge gear oil from gear box.

Loose bolt and remove gear room cover.



Remove gasket and location pin.

Remove clutch main shaft and output shaft gear.
Remove middle shaft and middle gear.



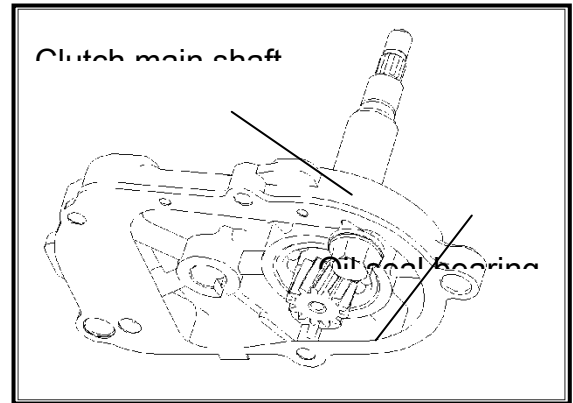
Middle shaft Middle gear Clutch main

16.3.2 Output gear box cover inspection

Check abrasion and damage condition of clutch main shaft, gear and bearing.
Change gear room cover bearing.
Press clutch main shaft in changing clutch main shaft bearing, remove it from gear room.

Note:

Bearing knocked out shall not be used any more, and should be replaced by new one.
Use special tools to disassemble bearing and oil seal.



Remove oil seal of gear box and remove bearing.

Note:

Bearing knocked out shall not be used any more, and should be replaced by new one.
Use special tools to disassemble bearing and oil seal.

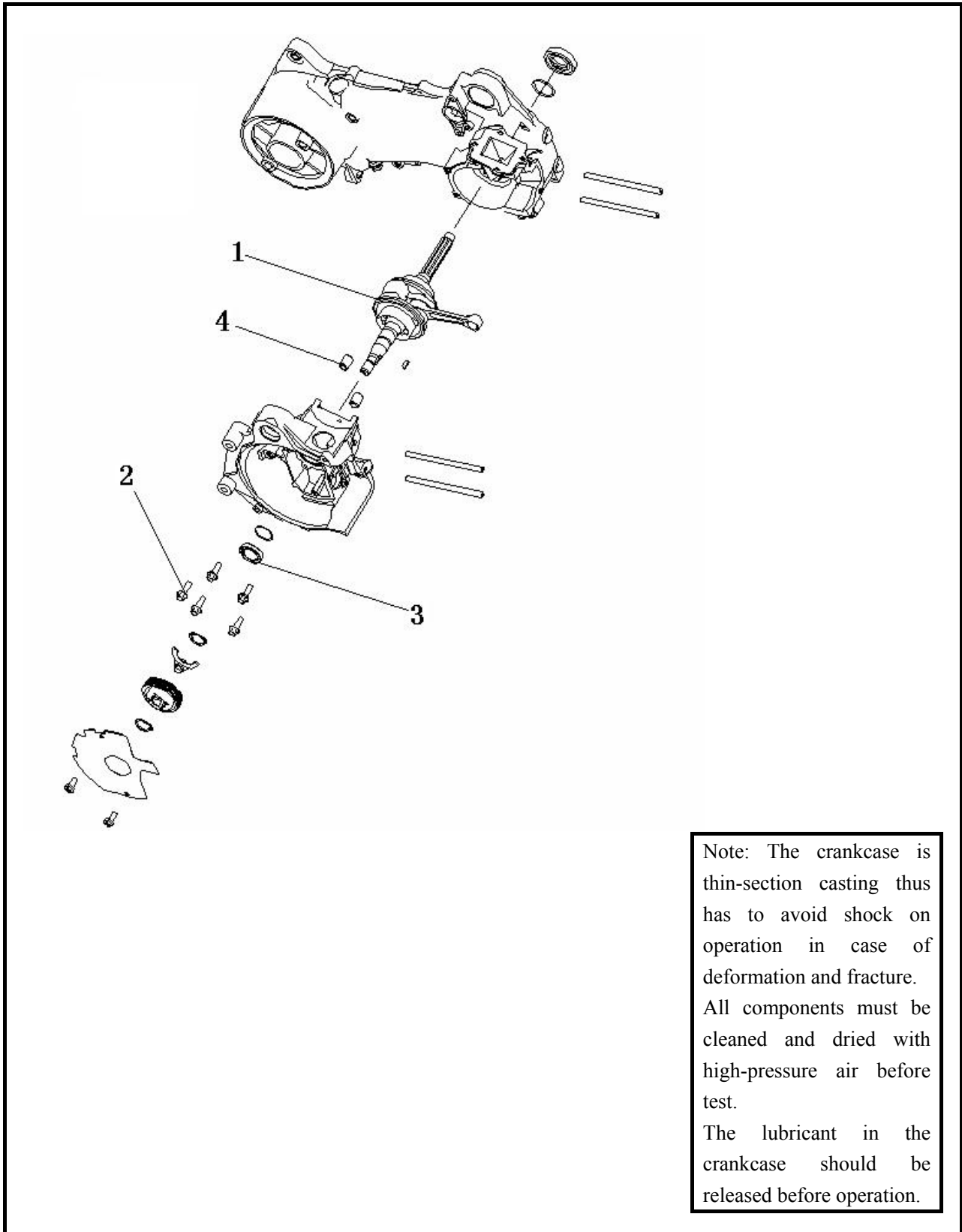
16.4 Installation

Install according in reversed sequence of removal.

Note:

Use special tools to install bearing and oil seal in case they are damaged.

Crankcase



Note: The crankcase is thin-section casting thus has to avoid shock on operation in case of deformation and fracture. All components must be cleaned and dried with high-pressure air before test. The lubricant in the crankcase should be released before operation.

1 crankshaft 2 bolt 3 oil seal 4 location pin

17 . Crankcase

Preparation documents-----17.1

Failure diagnosis-----17.2

Crankcase-----17.3

Installation-----17.4

17.1 Preparation documents

Note

The crankcase is thin-section casting thus has to avoid shock on operation in case of deformation and fracture.

All components must be cleaned and dried with high-pressure gas before test.

The lubricant in the crankcase should be released before operation.

Function of the crankcase : The crankcase is the force-bearing part of the engine. Its main function is bearing crankshaft, clutch, transmission case, cylinder body and cylinder head, bearing the inertia force from combustion shock and the movement of crankshaft connecting rod system, and forming a closed space(oil sealing, gas sealing)

There are suspension holes in the crankcase, connecting the engine to other parts of the body through the connection with suspension holes in the car circuit.

Preparation standard

unit : mm

Item		Standard value	Usage limit
Crankshaft	Left-right clearance of rod big end	0.25-0.40	0.55
	Radial clearance of rod big end	0.015-0.025	0.05

Tools

Universal holder spring compressor of the clutch

Screwdriver lever sleeve spanner

Guide rod bearing driver

17.2 Failure diagnosis

Noise in crankcase

Loose or broken parts inside crankcase
Loose crankshaft pink bearing

loose crankshaft bearing
blocked clutch

17.3 Crankcase

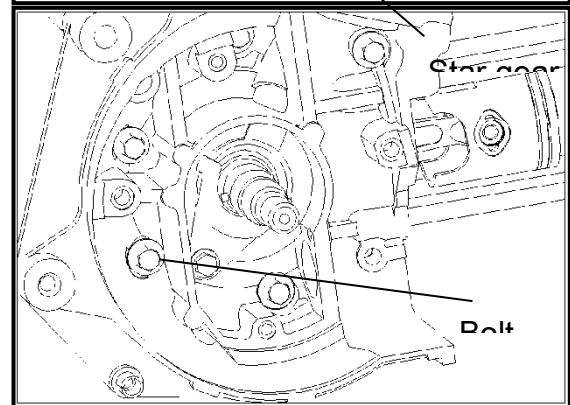
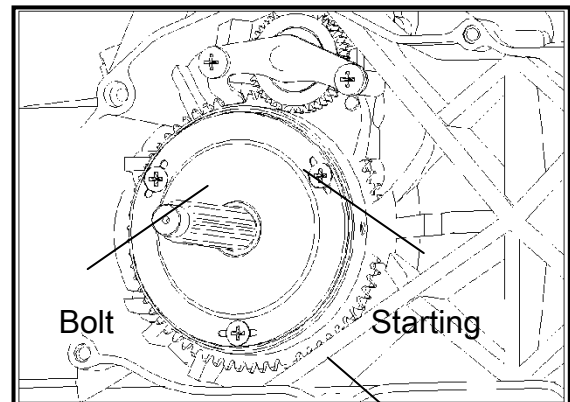
17.3.1 Removal of crankcase

Loose bolt, remove starting driving gear.
Remove star gear.

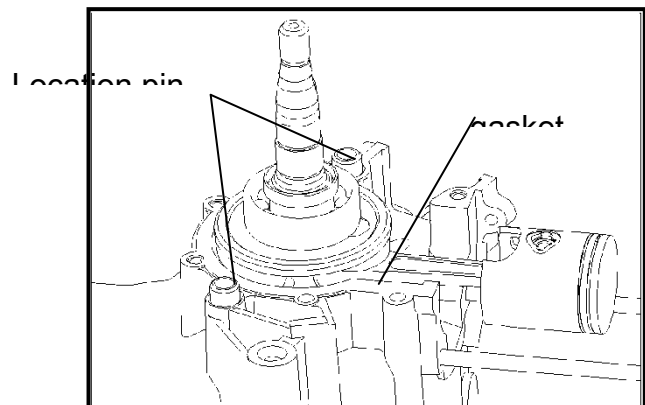
Remove crankcase standing bolt
Remove left and right crankcase.

Note:

Gasket shall not be damaged.



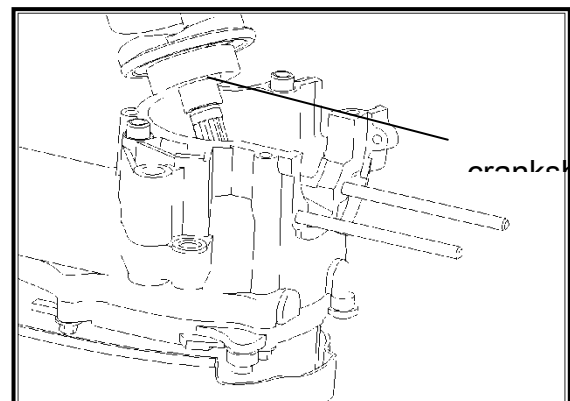
Remove gasket, location pin.



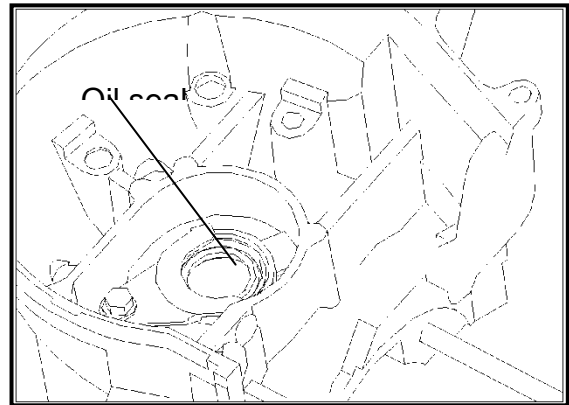
Remove crankshaft from crankcase.
Clean gasket from crankcase matching face.

Note:

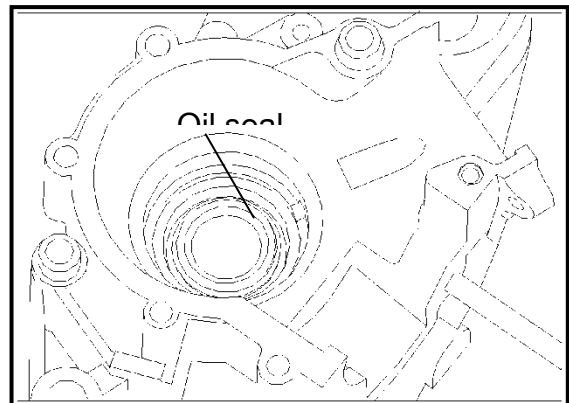
Crankcase matching face shall not be damaged.



Remove oil seal from left crankcase.



Remove oil seal from right crankcase.



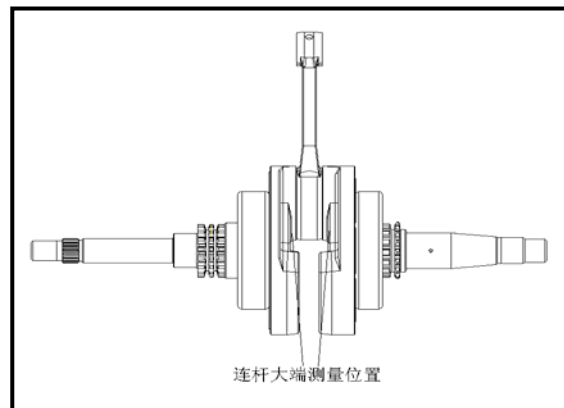
17.3.2 Inspection

Right-left clearance of connecting rod big end.

Usage limit : 0.6mm.

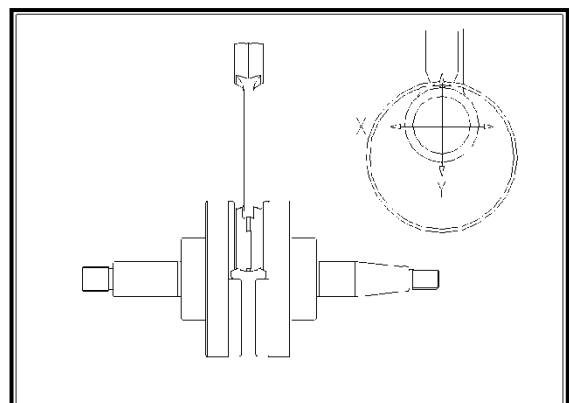
连杆大端测量位置

Measuring location of connecting rod



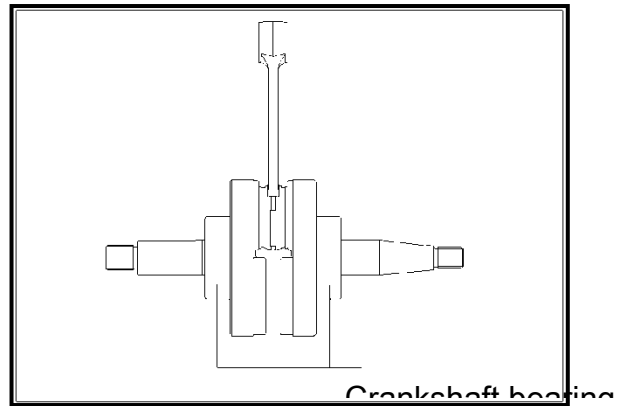
Clearance between X-Y orientation of connecting rod big end.

Usage limit: 0.05mm.



Check whether crankshaft bearing revolution has noise or loose condition.

If there is noise or loose condition, replace the crankshaft component.



Note:

Oil seal disassembled shall not be used again.

Use special tools to remove oil seal.

17.4 Installation

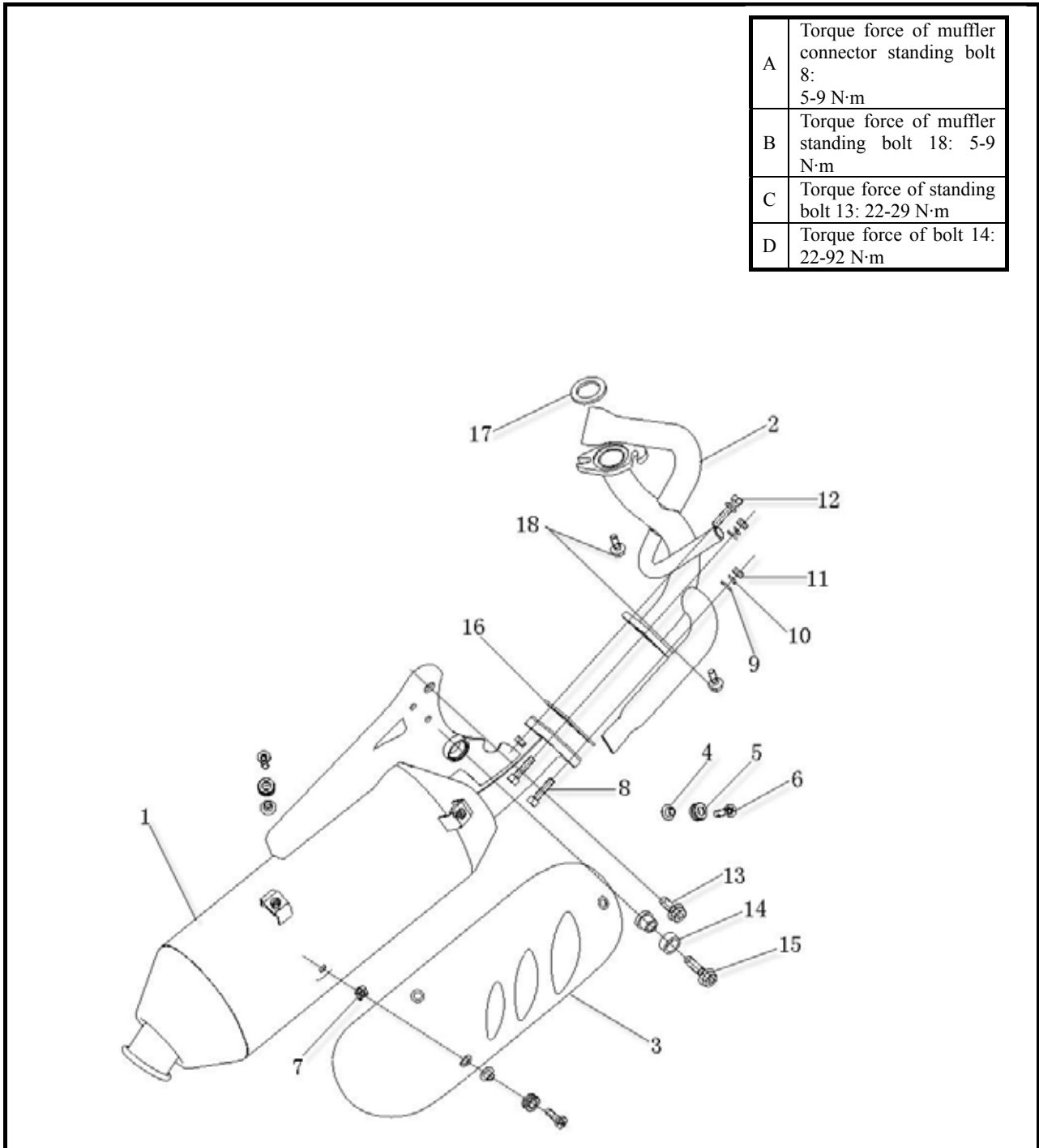
Assemble crankcase according to reversed sequence of removal.

Note:

Install oil seal with special tools, in case the oil seal is damaged.

Inspection and maintenance of exhaust gas discharge control system

Muffler



1 muffler shell component 2 gas discharge component 3 muffler decoration plate 4 standing spacer 5 rubber spacer 6 bolt 7 card nut 8 screw M6×25 9 gasket Φ6 10 elastic gasket Φ6 11 nut M6

12 topless bolt M6×25 13 bolt M8×20 14 bolt M8×30 15 muffler bushing 16 connecting flange seal gasket
 17 graphite wound gasket 18 bolt M6×16

18.Exhaust gas discharge control system

Exhaust gas discharge control system recognizance-----18.1
 Regular maintenance notes/guarantee of discharge standard-----18.2
 Mechanical function of exhaust gas control system-----18.3
 Catalytic transfer system-----18.4
 Measures for idle discharge value over defined value-----18.5

18.1 Exhaust gas discharge control system recognizance

1. The exhaust gas discharge system of this motorcycle is in conformity with the revision of EC/97/24/5/1 and 2002/81/EC B stage by EU. We can assure you the quality under absolute normal use and proper maintenance according to the provision within effective service life.
2. New motorcycle of our company has been inspected for noise with a result in conformity with EC 97/24/9 by EU.

18.2 Regular maintenance notes

- The state gives provisions for motor vehicles to conform gas pollutant emission standards to all manufacturers to ensure that the environmental pollution doesn't get worse. Apart from keeping with the gas pollutant emission standard in our production, our company makes great effort in gas purification and gas pollutant reduction.
- This motorcycle undergoes strict examination before leaving the factory with all qualities in conformity with gas pollutant emission standards. We formulate the regular check list concerning gas emission as follows in consideration of different use condition by customers. The use is requested to carry out regular check, adjustment or maintenance according to the scheduled time to ensure normal emission.
- If other problems occur, please contact Generic distributors or Generic service center for help.
- Relevant discharge provisions are shown as follows:

Discharge provision	CO	HC+ NO _x
Discharge standard	≤1.0g/km	≤1.2g/km

Please pay attention to the following to make discharge meet standard:

- 1) use of fuel: please use 92# or 95 lead-free gasoline, or catalytic device (two-stroke) may be damaged. 。
- 2) Please use defined machine oil. Since the disorder of ignition system, the charging system, and the fuel system has great influence on the catalytic system, please come to designated distributors or service center of our company for examination, adjustment or maintenance if any disorder of the above ones occurs.
- 3) Maintain the vehicle according to the regular maintenance table. The exhaust gas emission control system of the vehicle is in line with relevant provision of our country, make sure to use the quality components of our factory if needed, and receive service from designated distributors and service centers.
- 4) As to the exhaust gas emission control system, arbitrary adjustment or replacement is forbidden (including the adjustment on the use of spark plug, idle speed, ignition timing, carburetor, etc).

18.3 Mechanic function of exhaust gas discharge control system

In general

Solution for exhaust gas is base on two-stroke single-cylinder motor and carburetor, which adopts gasintaking device to maintain qualified exhaust gas standard, meanwhile the fuel evaporative exhaust gas adopts active carbon canister.

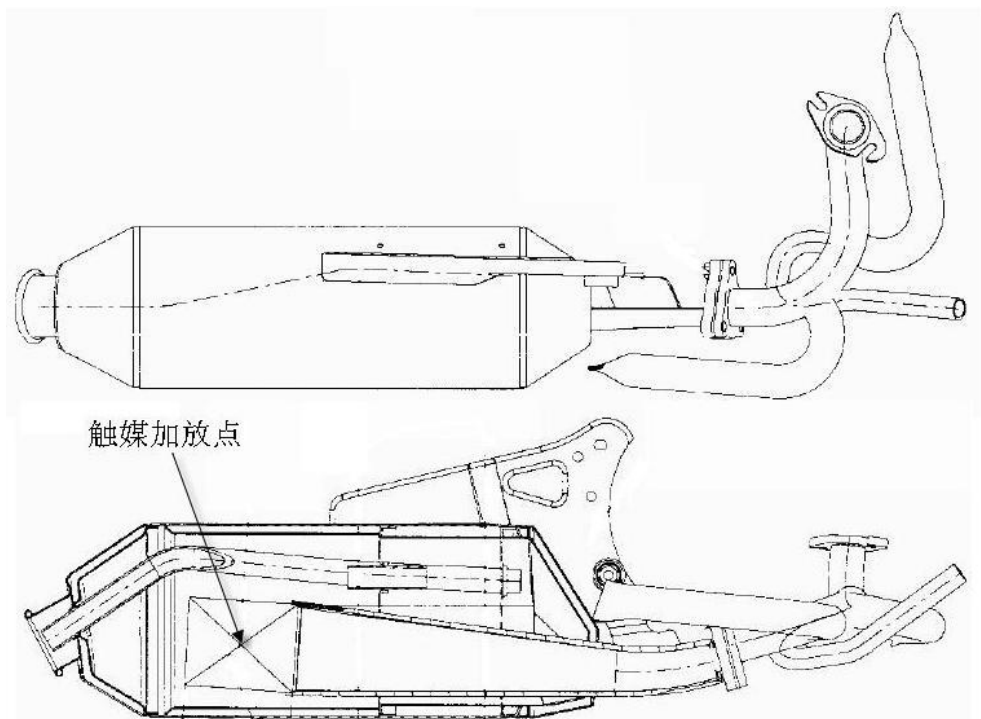
※ Gasintaking device

Intake gas into gas discharge tube, make incompletely burnt CO and HC react to form harmless gas.

Division	Device	Component	Purpose
Exhaust system	Catalytic device	Catalytic transfer	Canister oxidation catalyst in the center of gas discharge tube actualizes oxidation of CO, HC and NO _x .

18.4 Catalytic transfer system

18.4.1 Structure:



触媒加放点 catalyst location

18.4.2 Instruction :

1. Function of transfer catalyst is to transfer completely burnt HC, CO and NO_x to harmless gas such as H₂O, CO₂, and N₂ for discharge.

2. Transfer catalyst includes rare metal such as platinum and rhodium. Only lead-free gasoline can be used.

□ Note that lead gasoline may invalidate catalyst.

• **Notes in maintaining motorcycles (gas discharge tube) with catalytic transfer:**

1) for motorcycles with transfer catalyst, when the motor is running or just shut, it shall not be touched because of high temperature.

2) motorcycle with transfer catalyst shall not be near flammable material.

3) there is CO inside gas discharge tyre, which is harmful to health. So do not run the motor in closed space.

4) motorcycle with transfer catalyst shall not use lead gasoline. (prevention for catalytic poison) .

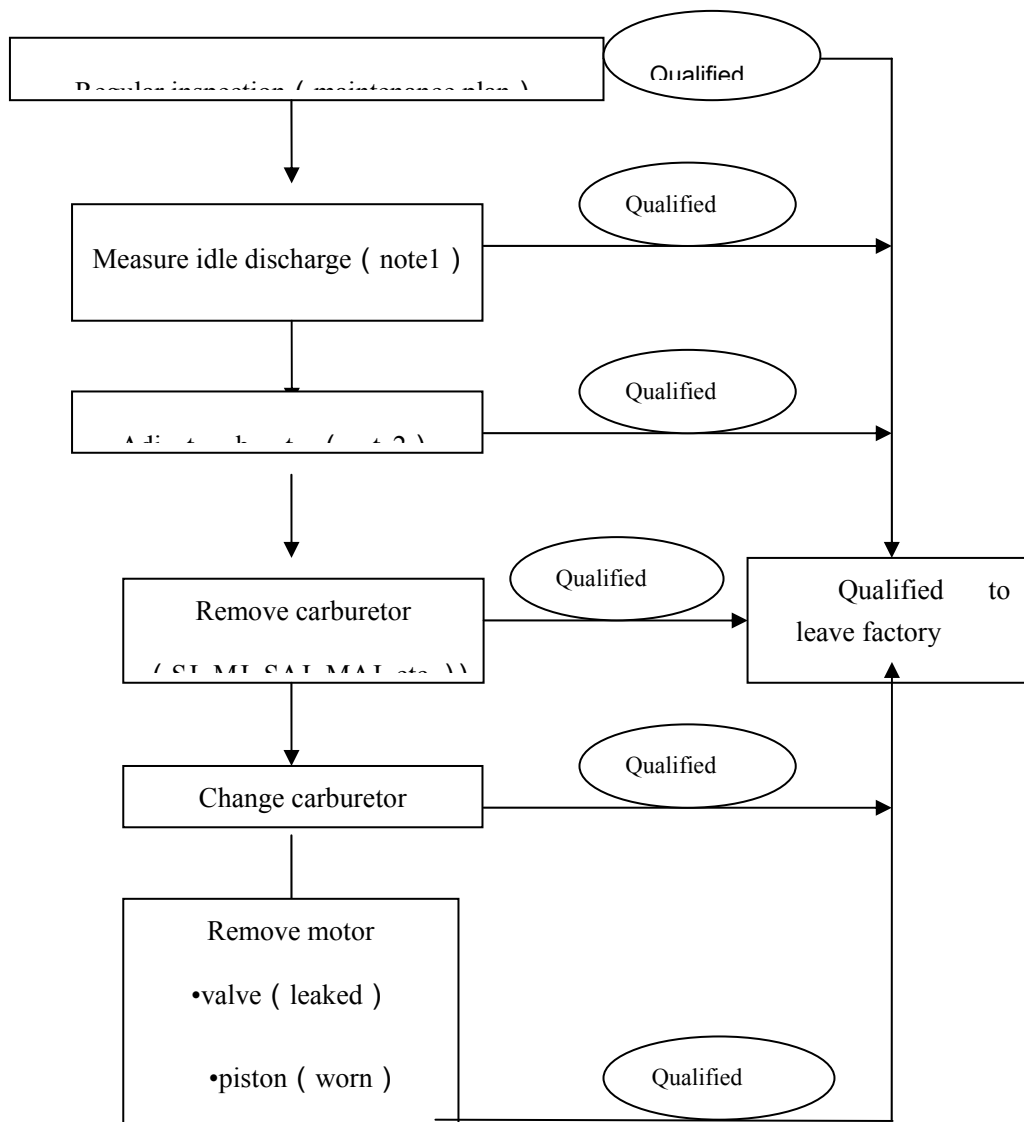
5) do not push motorcycle to run motor. If it is necessary, you must stop for temperature of motor and catalyst to lower down.

6) do not shut the motor with gear up when running downward.

7) do not drive motorcycle with bad ignition.

8) do not remove spark plug and run motor to see whether there is spark in maintain motor ignition system. If necessary, the time shall be short.

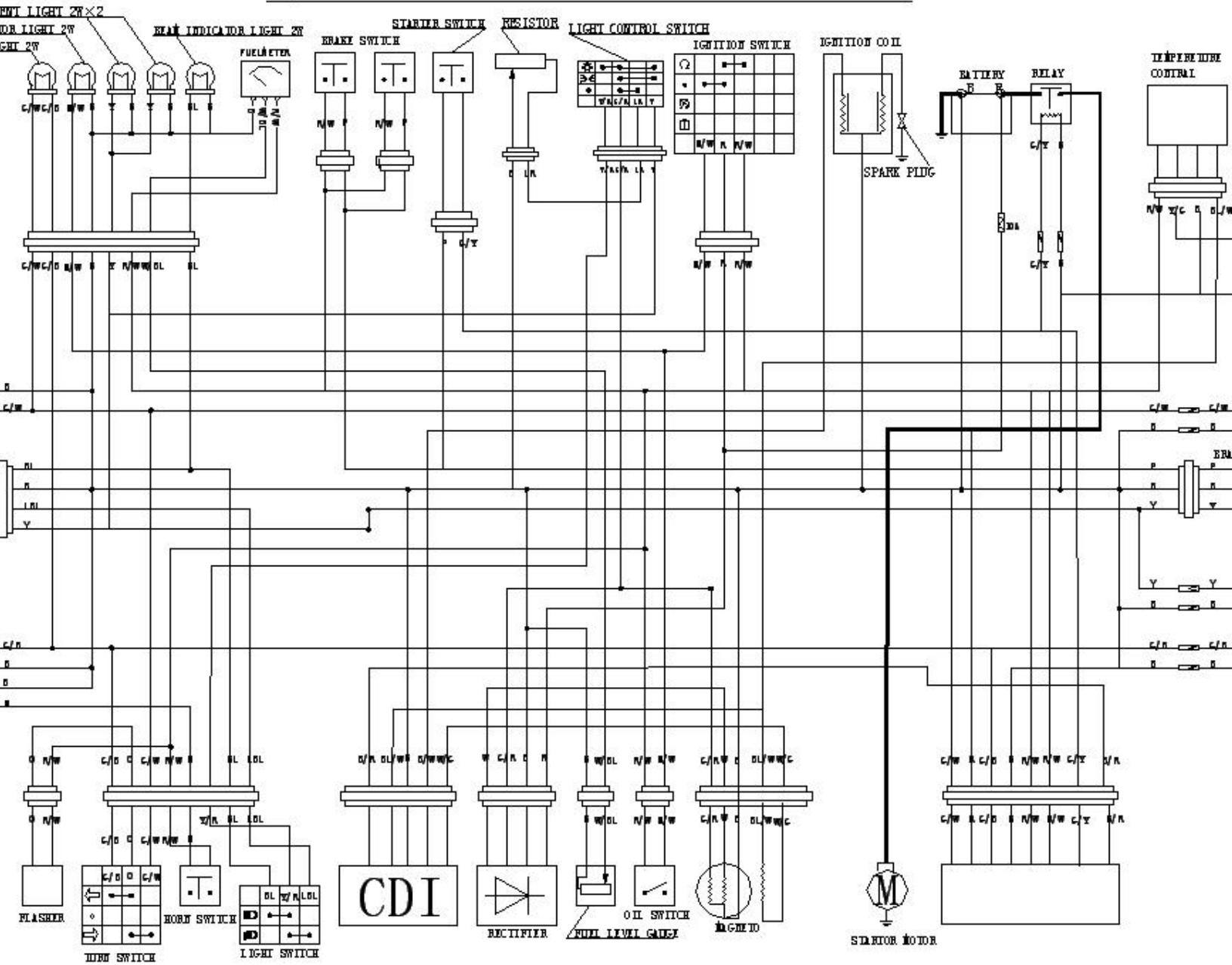
18.5 Solution for idle discharge value exceeding defined value (two-stroke)



Note 1: test with idle test programme.

Note2: adjust motor rev with check screw to be qualified, and test idle CO/HC.

QJ50T-22D ELECTRICITY PRINCIPLE DIAGRAM



R	W	EL	G	O	Y	P	N	LEL	D _r	G/Y	G/W	G/B	G/R	R/W	W/EL	B/W	N/W	Y/R	BL
RED	WHITE	BLUE	GREEN	ORANGE	YELLOW	PURPLE	BROWN	LIGHT BLUE	DARK GREEN	GREEN YELLOW	GREEN WHITE	GREEN BLACK	GREEN RED	RED WHITE	WHITE BLUE	BLACK WHITE	BROWN WHITE	YELLOW RED	BLUE