49X Maintenance Manual

Contents

Preface

This manual is an introduction to the maintenance of 49X.

Preparing Documents include all the contents needed, so read it carefully before operation.

Inspections introduce how to check and maintain your motorcycle, which needs to be done regularly.

After the first chapter, the manual will explain parts of the engine, entire motorcycle, electrical parts, and how to disassemble and reassemble these parts.

Each chapter has decomposition map and system diagrams, failure diagnosis and maintenance instructions.

This manual does not separate the two motorcycles when they are described in common parts. The pictures and content are just for your reference. Please be subject to the actual products if anything is different or updated. Please forgive me for not informing you in advance.

Preparing Documents

General safety Maintenance rules

Specification table Failure diagnosis

General Safety

Carbon monoxide

Start the engine in a well ventilated place, not a confined one.

Note

Exhausted gas contains poisonous carbon monoxide, which may cause people unconscious and even death.

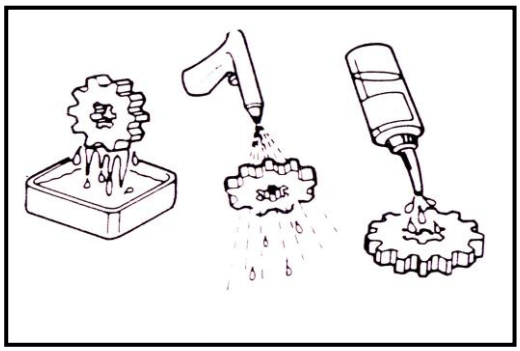
Do use the exhaust removal system when starting the engine in a confined place.

Petrol

Work in a well ventilated place. Open flames are prohibited at places for storing oil and its workplace.

Maintenance rules

In the maintenance of this bike, metric tools should be used as much as possible; otherwise, the bike will be damaged using the improper tools.

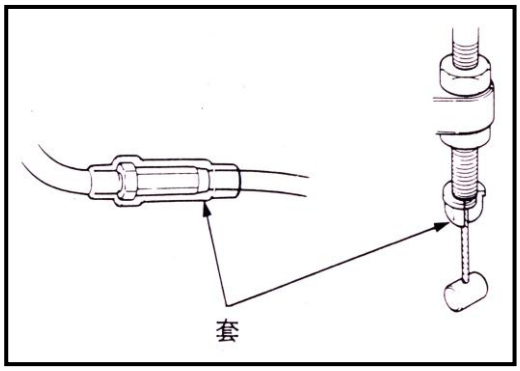


Clean up the dirt of the parts or the assembly parts before removing or opening the motorcycle shield in the maintenance work to prevent dirt falling into the engine, chassis or braking system.

After dismounting the parts, wash and blow the parts with compressed air machines, at last measure wear values.

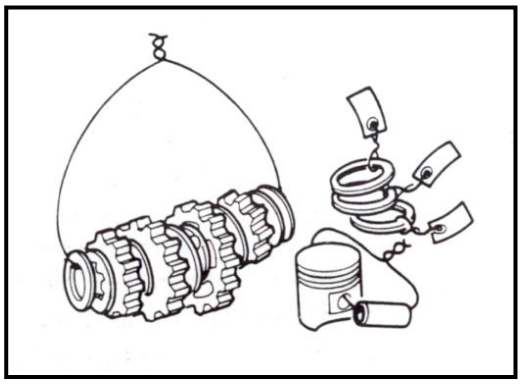
Solvent or oil can easily damage aging rubber articles.

Check rubber before reassembly and replace rubber if necessary.

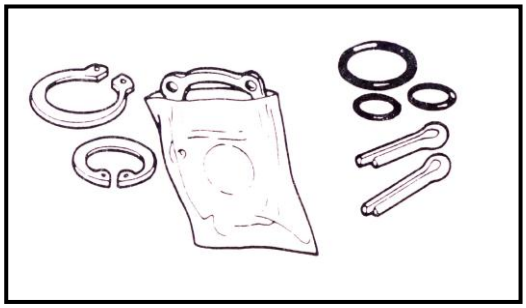


When loosening assembly parts, please start from outside to inside. Small assembly parts shall be loosened first.

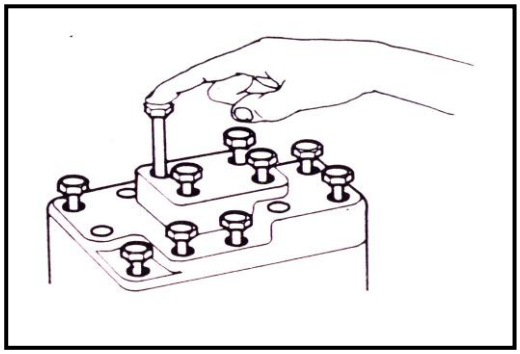
Complex assembly parts, such as gearbox, shall be stored in proper order for facilitating installation in the future.



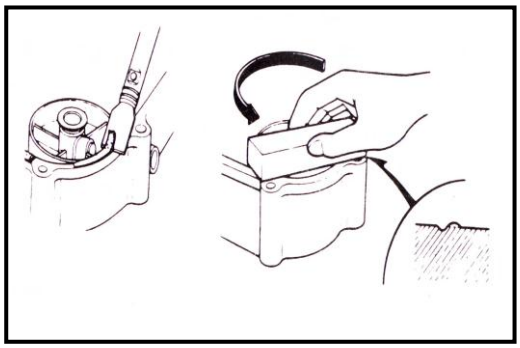
Please specially note important connections before disassembly Replace parts which will not be in use before disassembly.



Bolts and screws with different length shall be separately used for different 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.

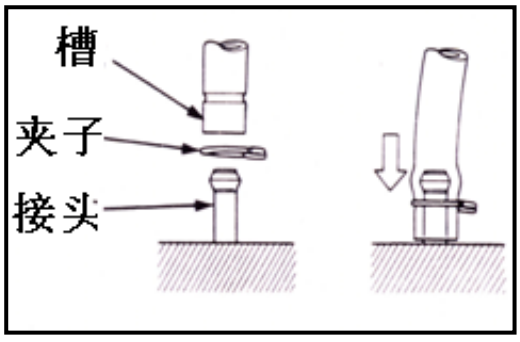


Fill the groove with grease before mounting an oil seal. Check whether the oil seal is smooth or damaged during assembly.



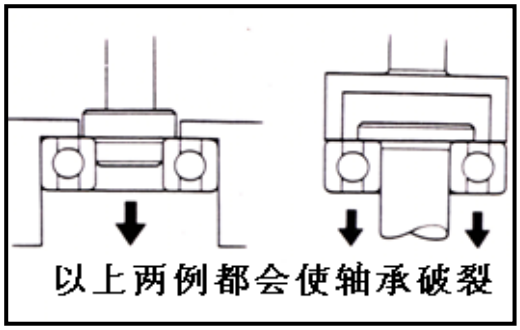
When installing a hose (fuel, vacuum or cooling agent), insert its end into the bottom of the connector so that the hose clip can properly fix the connector. Rubber or plastic dirt-proof boot shall be mounted at the original design position.

槽：groove　夹子：clip　接头：connector



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

以上两例都会使轴承破裂：Bearings will be broken under either occasion as mentioned.



Loose cables threaten electrical safety. Check each cable after it is clamped to another for 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;

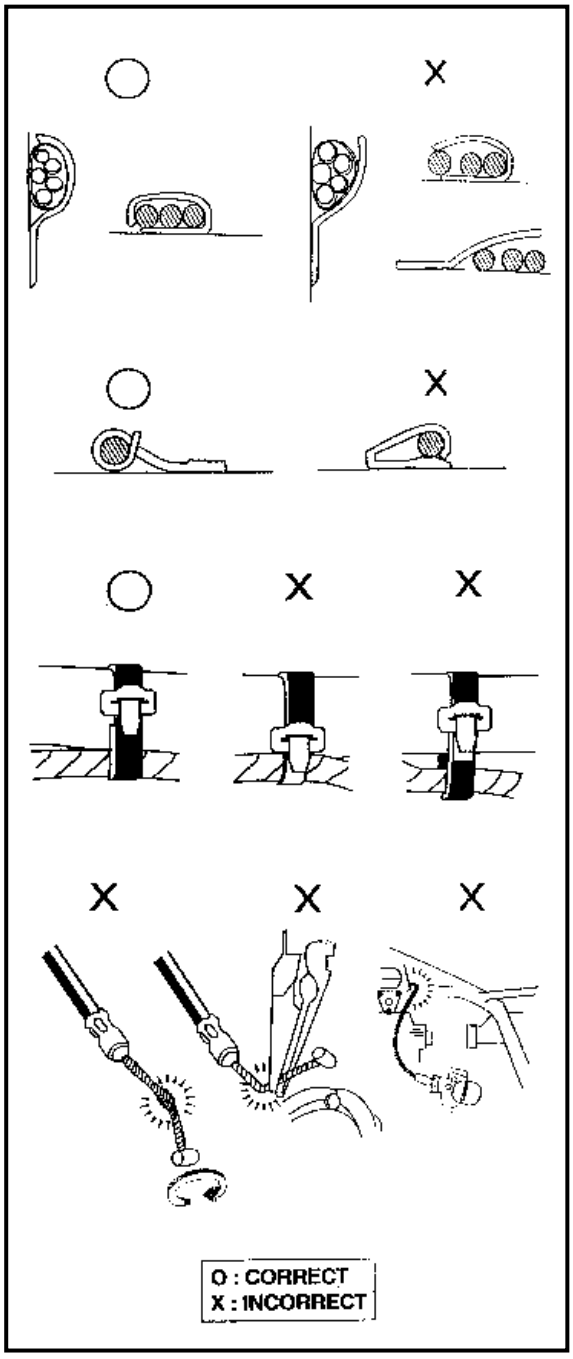
Cables shall be properly deployed without twist or knot;

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

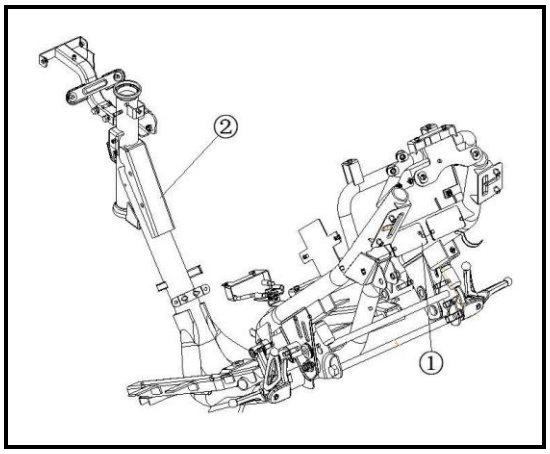


Figure 1-1

1. The identification number of motorcycle frame is marked at ①:。The motorcycle code, indicated as *ZBNXJ000???1?????*, is available in position 2 。The 9th, 10th digital and 11th digital respectively indicate test code, year code and factory code.

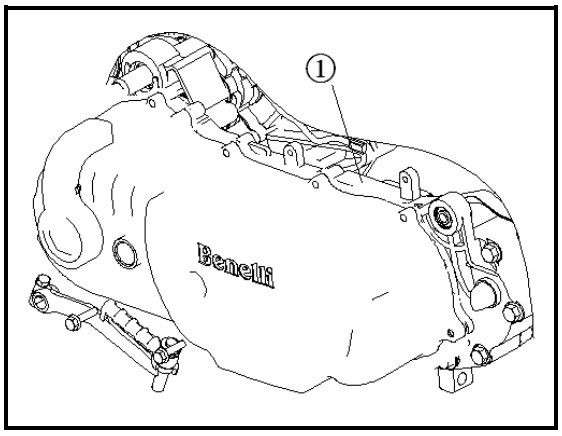


Figure1-2

2. The engine serial number① is printed on the shell of crankcase:
QJ1E40QMB-4*□□□□□□□□□*， See Figure 1-2。

Significant Notes

1. Please apply valid Qianjiang parts and accessories. Any part or accessory not in accordance with the design specification of Qianjiang 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 the engine

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

Table 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 indicator	Measuring the inner diameter of piston pin, Fig. 1-16

Table 1-2 (continued)

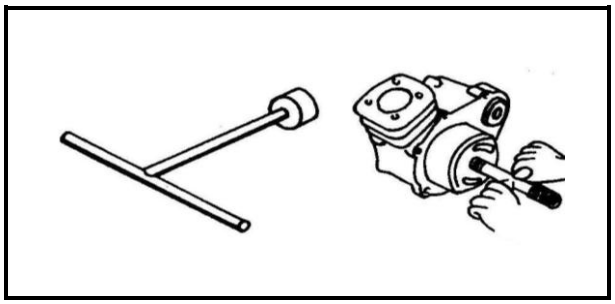


Fig.1-3

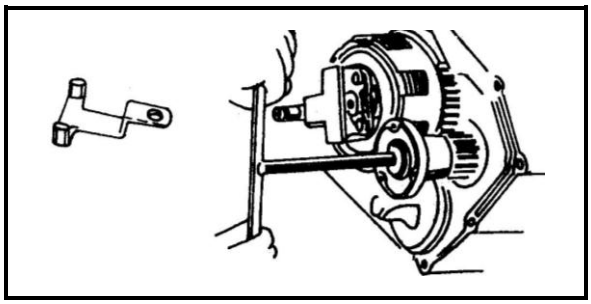


Fig 1-4

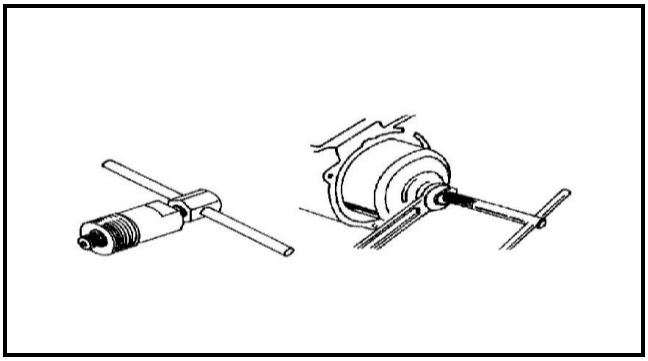


Fig 1-5

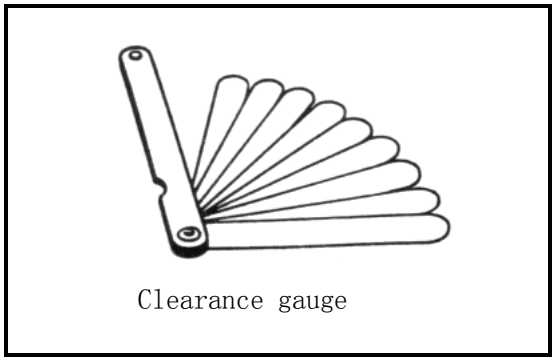


Fig 1-6

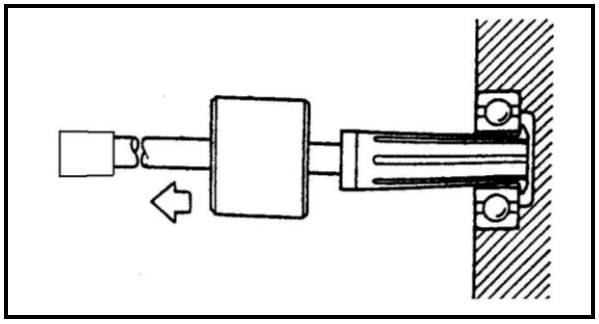


Fig 1-7

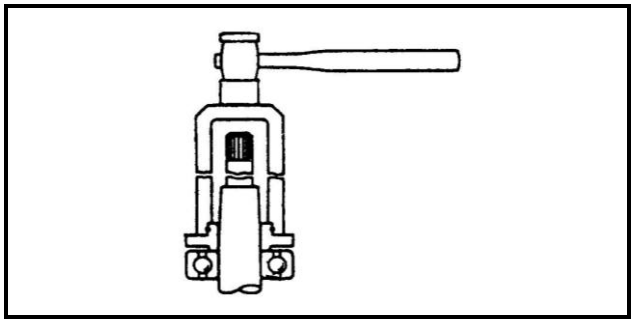


Fig 1-8

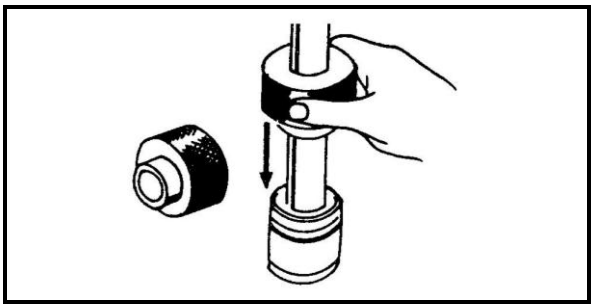


Fig 1-9

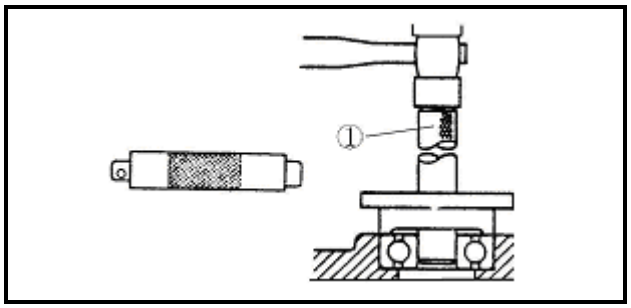


Fig 1-10

①Handle

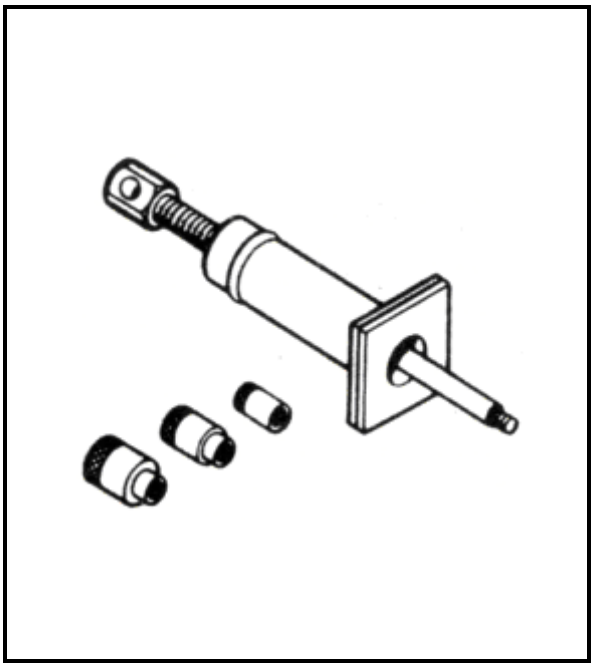


Fig 1-11

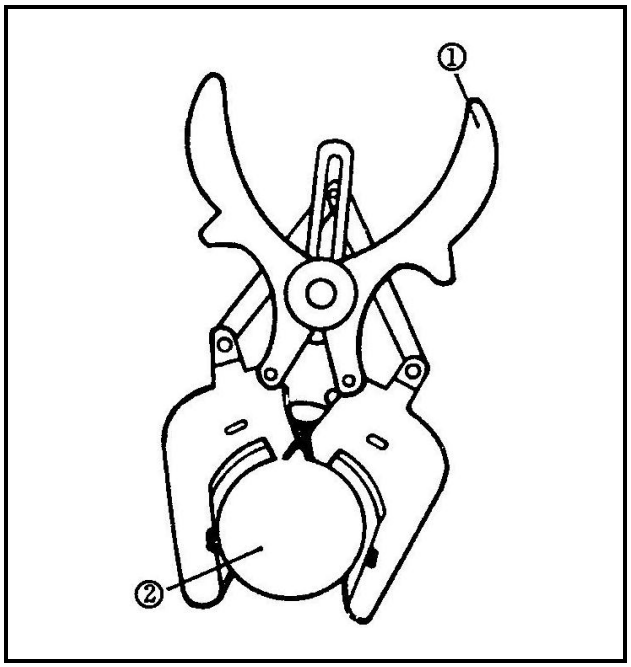


Fig 1-12

① pliers ② piston

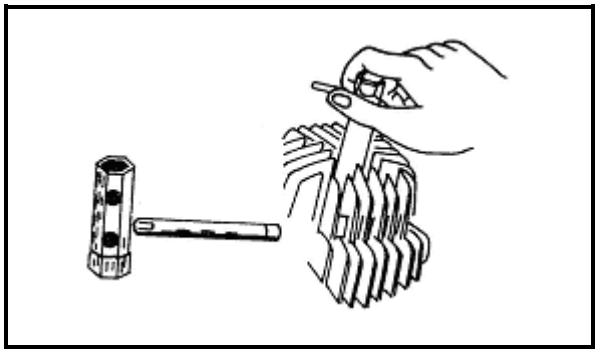


Fig 1-13

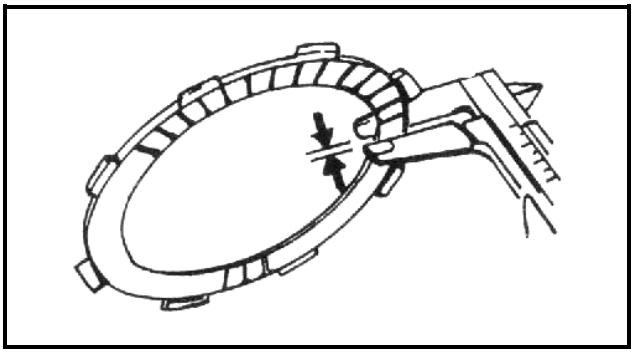


Fig 1-14

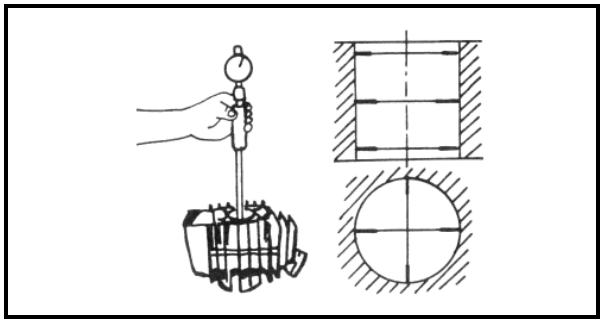


Fig 1-15

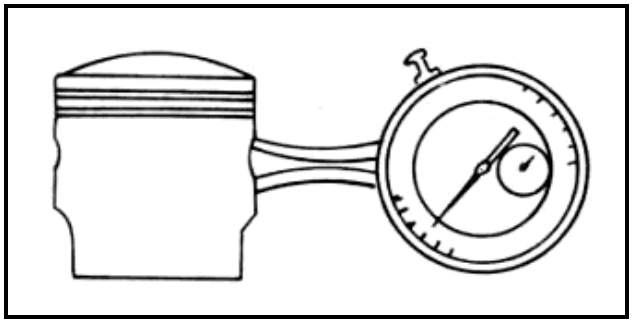


Fig 1-16

2．Tools for repairing the chassis

Table 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
Micrometer	Fig. 1-22
Magnetic rack, V-block	Fig. 1-23
Dial indicator	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 the chassis

Table 1-18 (continued)

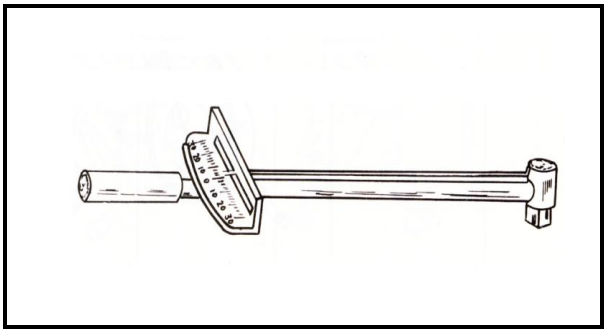


Fig 1-19

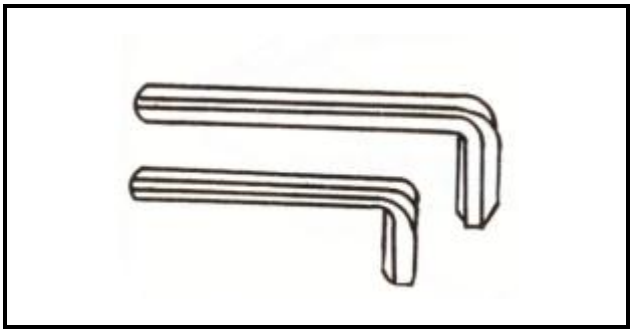
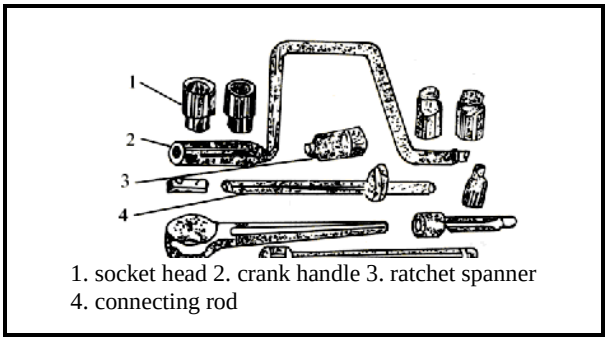


Fig 1-20



1. socket head 2. crank handle 3. ratchet spanner
4. connecting rod

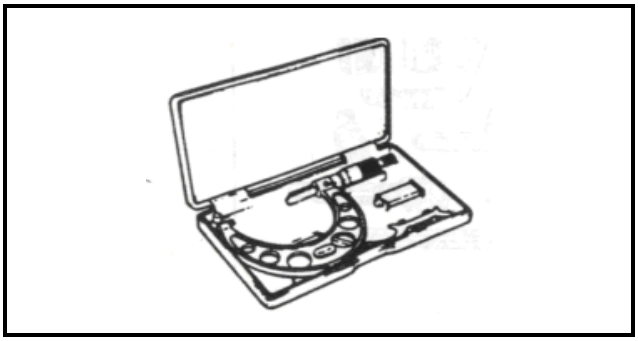


Fig 1-21

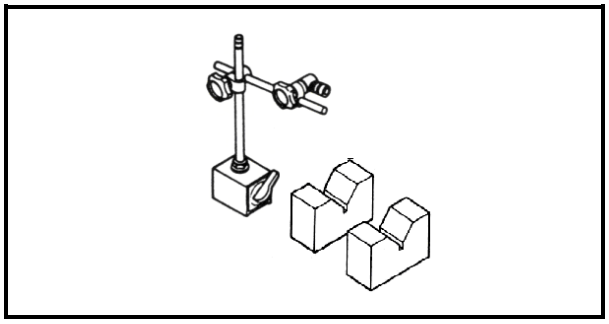


Fig 1-22

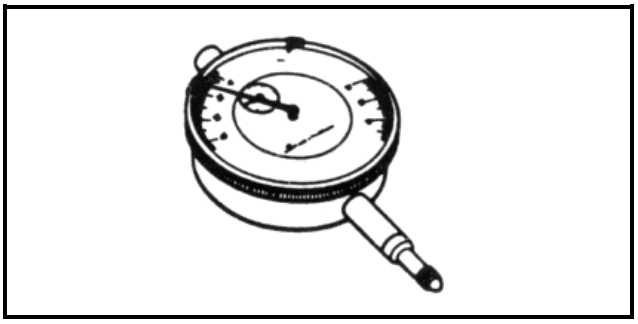


Fig 1-23

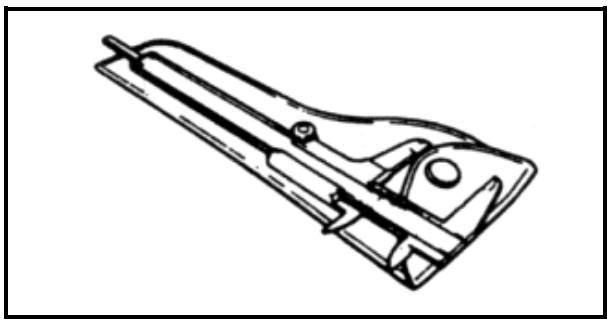


Fig 1-24

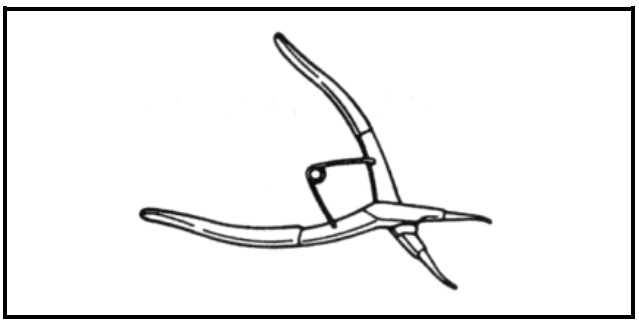


Fig 1-25

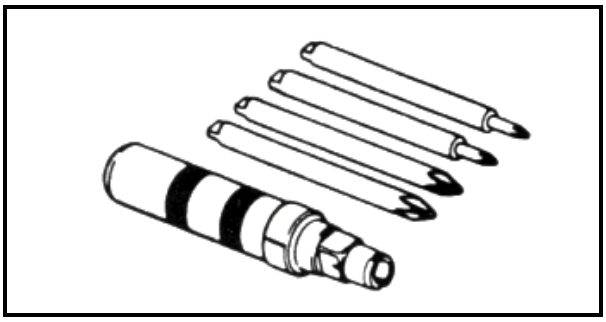


Fig 1-26

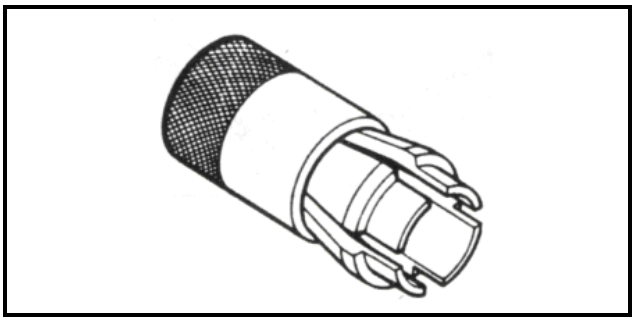
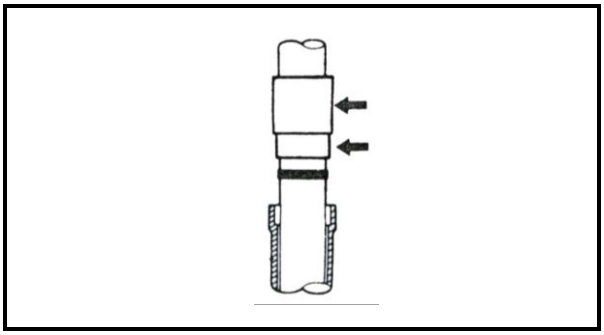


Fig 1-27

Fig 1-28

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



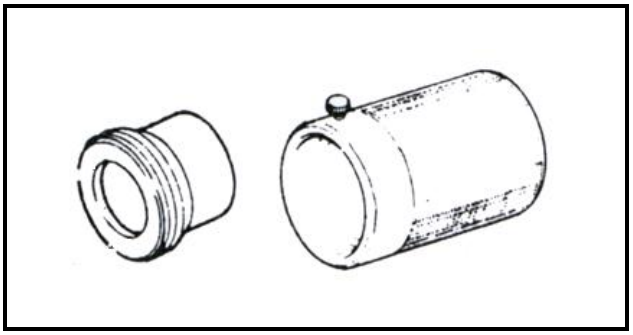
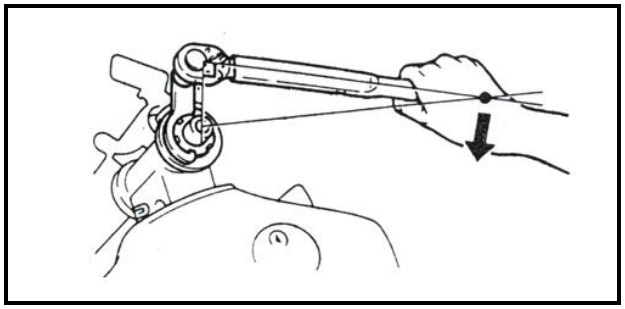


Fig 1-29

（3）Steering nut spanner



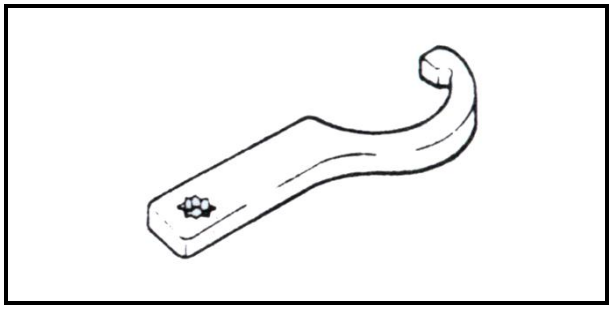


Fig 1-30

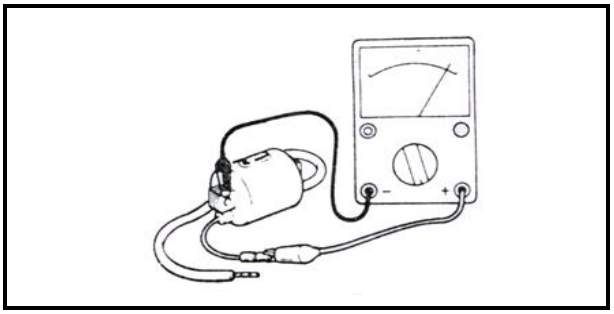
3. Tools for electric parts

Table 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)



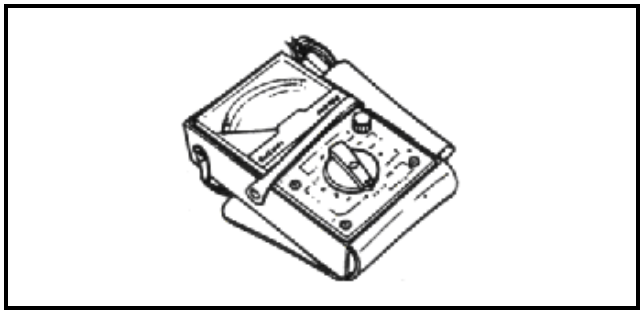


Fig 1-33

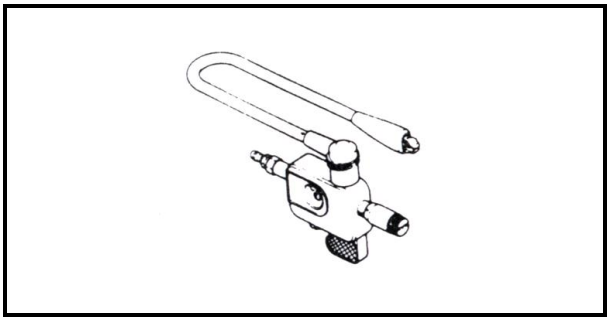


Fig 1-34

Specification (49XHighway Model)

Model		**49X**		**Engine**	**Engine type**	QJ1E40QMB-4
Length mm		1780			Fuel type	Unleaded petrol（92/95）
Width mm		710			No. of cylinder	1
Height mm		1090			ID × stroke	40×39.2
Wheelbase mm		1275			Total displacement	49.2
Weight kg (Curb weight)		**Forward shaft**	45		Startup	Electric/kick
		Backshaft	55		Cooling	Air cooling
		Total	100		Lubrication	Splash lubrication
Tyre Size		Front outer tyre	120/70-12		Air filter	3XG
		Front rim	3.50×12		Capacity of gasoline tank	6±0.5L
		Rear outer tyre	130/70-12		Carburetor type	JB-2G
		Rear rim	3.50×12			
Transmission gear	Clutch	Dry centrifugal clutch		**Performance**	Idle speed -rpm	1800±100rpm/min
	Variable speed gear	Stepless			Max. torque	3.0N.m/4250rpm
	Transmission	Belt transmission			Max. Hp	1.90kW/6500 rpm
Electric devices	Battery capacity/type	12V-4AH/ dry-charged			Compression ratio	6.9：1
	Magnetor capacity	90W/8000rpm			Max. speed	45km/h
	Spark plug	NGK，BR7ES		**Braking system**	Front brake disk Dia.（mm）	ϕ190mm
	Spark plug gap	0.6-0.7mm				
	Ignition	CDI				

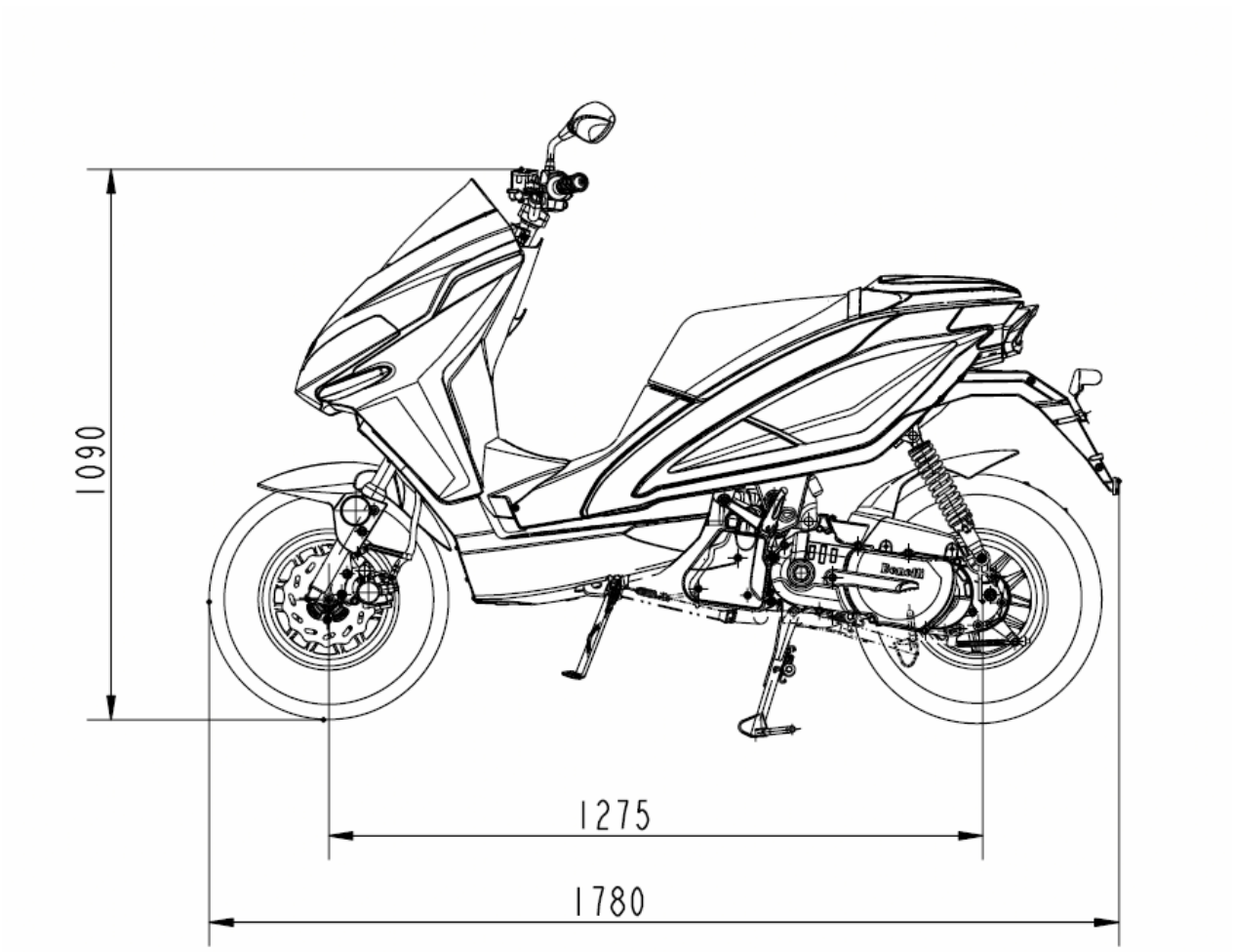
				Rear brake disk Dia.（mm）	ϕ180mm

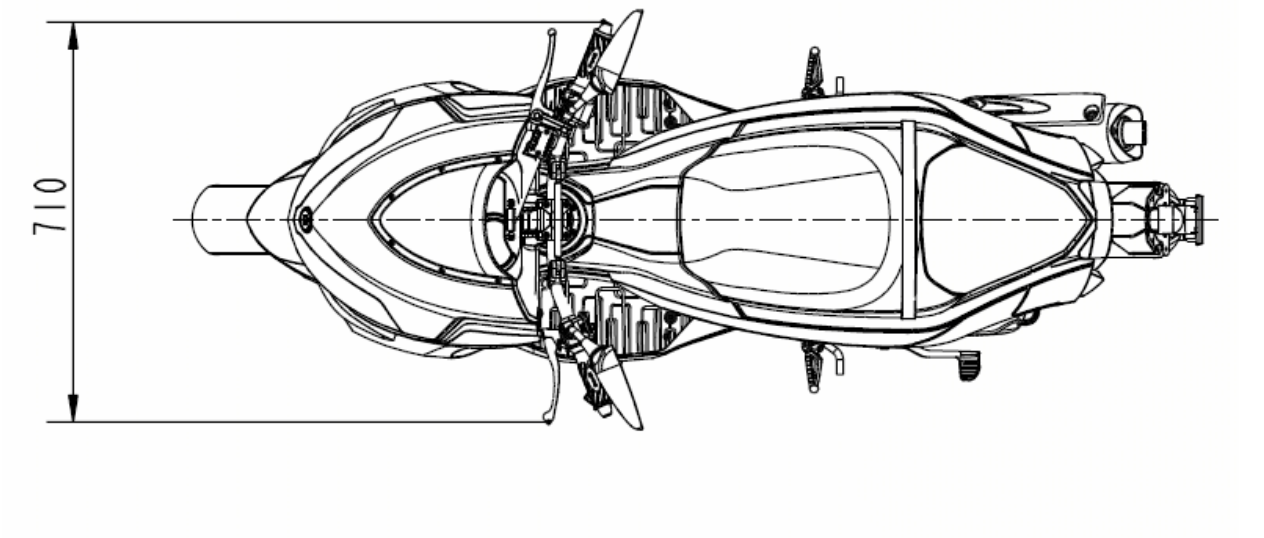
Specification (49X Cross-country Model)

Model		**49X**		**Engine**	**Engine type**	QJ1E40QMB-4
Length mm		1780			Fuel type	Unleaded petrol（92/95）
Width mm		710			No. of cylinder	1
Height mm		1090			ID × stroke	40×39.2
Wheelbase mm		1275			Total displacement	49.2
Weight kg (Curb weight)		**Forward shaft**	45		Startup	Electric/kick
		Backshaft	55		Cooling	Air cooling
		Total	100		Lubrication	Splash lubrication
Tyre Size		Front outer tyre	120/90-10			
		Front rim	2.75×10		Air filter	3XG
		Rear outer tyre	130/90-10			
		Rear rim	3.0×10		Capacity of gasoline tank	6±0.5L
Transmission gear	Clutch	Dry centrifugal clutch			Carburetor type	JB-2G
	Variable speed gear	Stepless		**Performance**	Idle speed -rpm	1800±100rpm/min
	Transmission	Belt transmission			Max. torque	3.0N.m/4250rpm
Electric devices	Battery capacity/type	12V-4AH/ dry-charged			Max. Hp	1.90kW/6500 rpm
	Magnetor capacity	90W/8000rpm			Compression ratio	6.9：1
	Spark plug	NGK，BR7ES			Max. speed	45km/h
	Spark plug gap	0.6-0.7mm		**Braking system**	Front brake disk Dia.（mm）	ϕ190mm
	Ignition	CDI				

				Rear brake disk Dia.（mm）	ϕ180mm

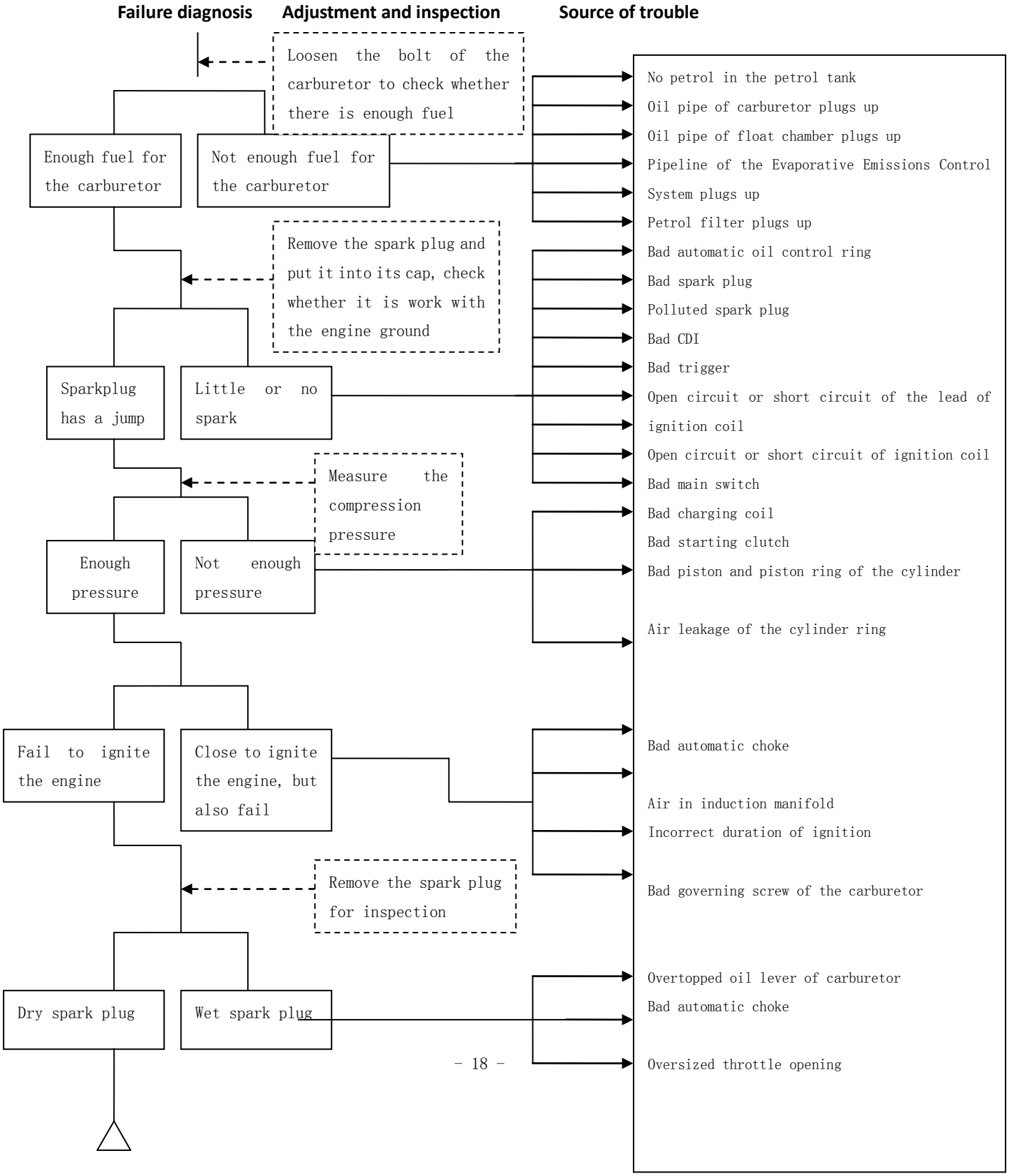
49X





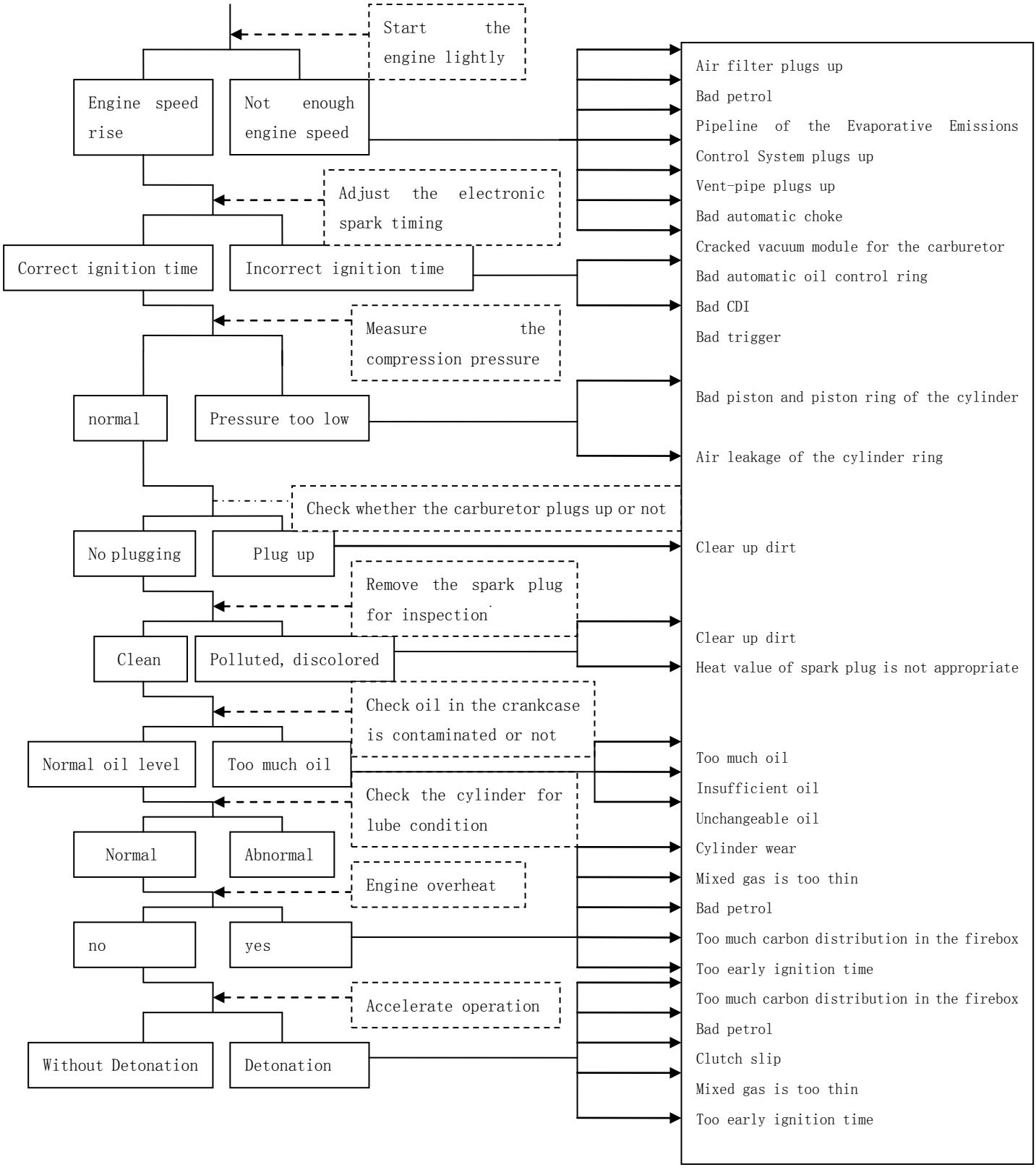
Failure diagnosis

Hard to start hard or can not start



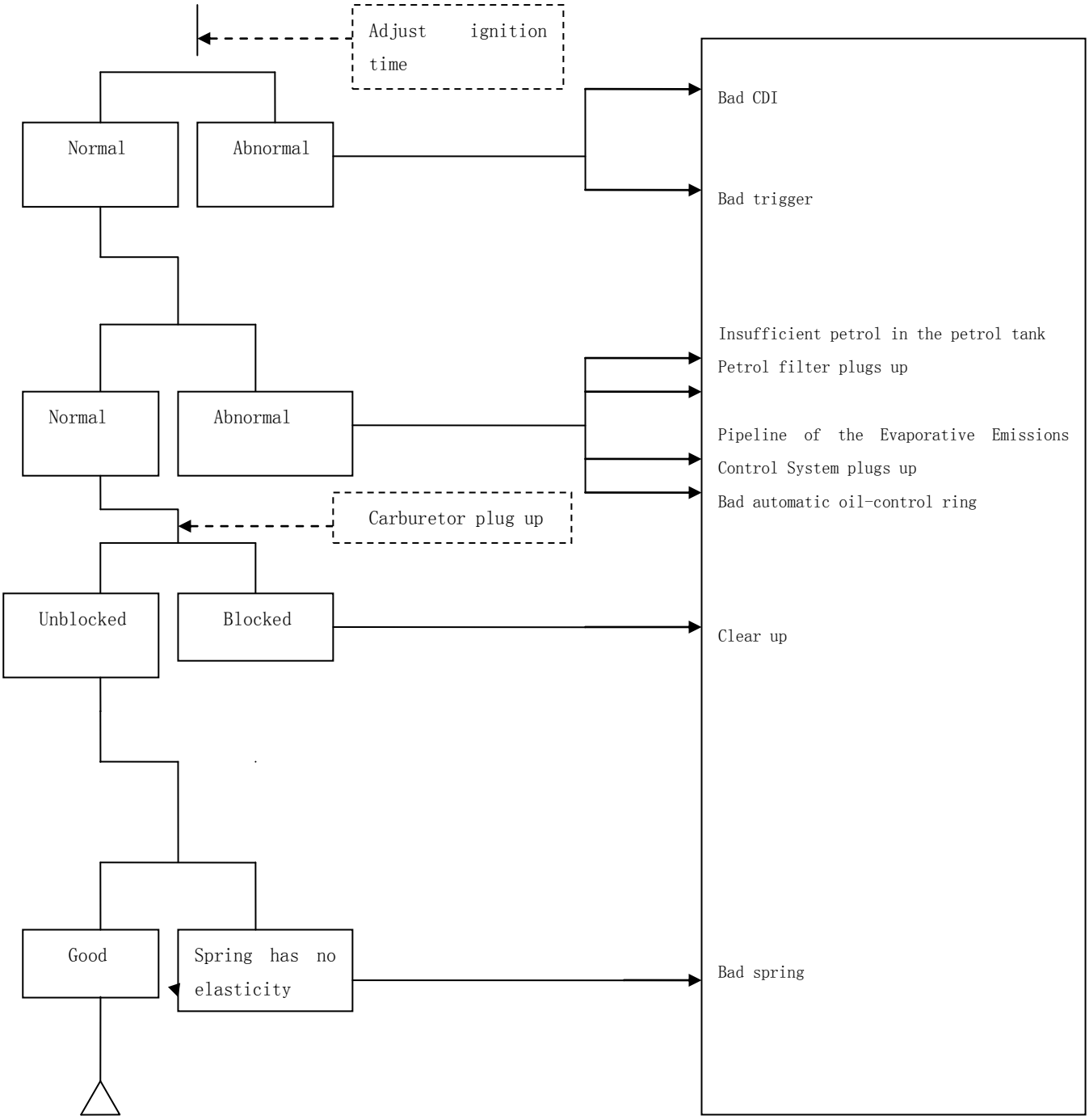
Unsmooth rotation（under speed）

Failure diagnosis	Adjustment and inspection	Source of trouble



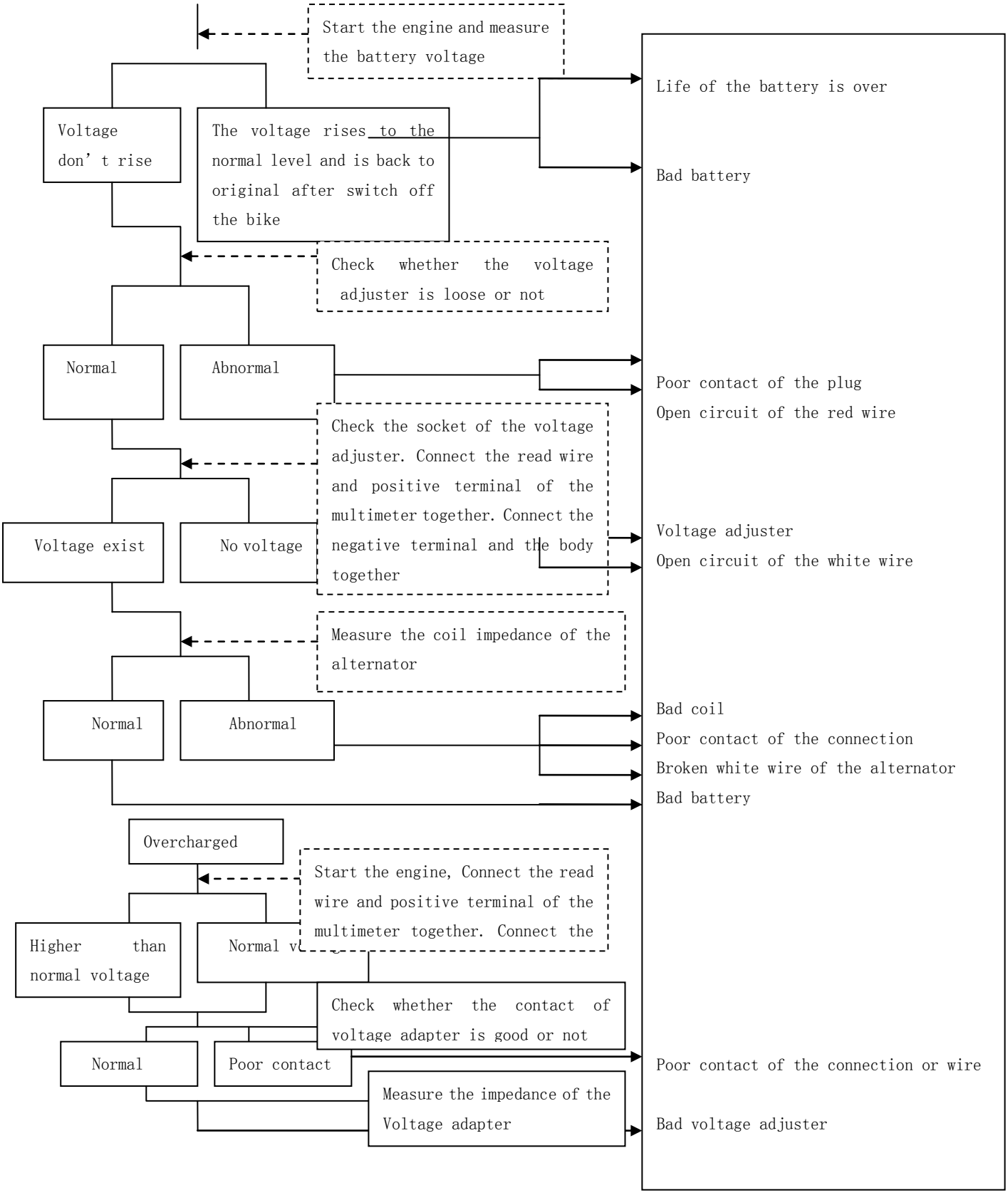
Unsmooth rotation（especially high speed）

Failure diagnosis adjustment and inspection Source of trouble



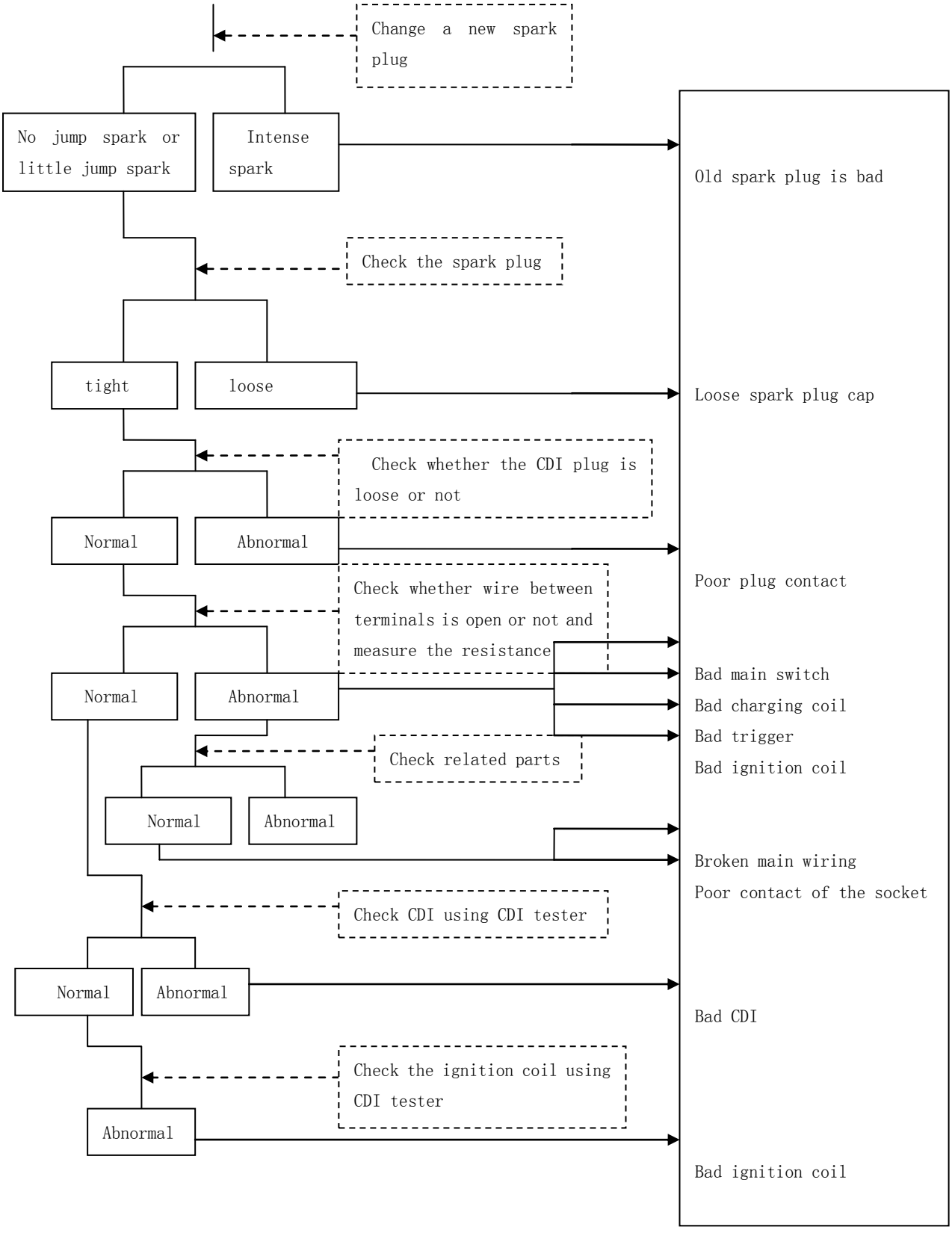
Bad battery（over discharged or overcharged）

Failure diagnosis Adjustment and inspection Source of trouble



Spark plug cannot jump

Failure diagnosis **Adjustment and inspection** **Source of trouble**


Change a new spark plug
No jump spark or little jump spark
Intense spark
Old spark plug is bad
Check the spark plug
tight
loose
Loose spark plug cap
Check whether the CDI plug is loose or not
Normal
Abnormal
Poor plug contact
Check whether wire between terminals is open or not and measure the resistance
Normal
Abnormal
Bad main switch
Bad charging coil
Bad trigger
Check related parts
Bad ignition coil
Normal
Abnormal
Broken main wiring
Poor contact of the socket
Check CDI using CDI tester
Normal
Abnormal
Bad CDI
Check the ignition coil using CDI tester
Abnormal
Bad ignition coil

Inspection/Adjustment

Preparing information

Check list for periodical maintenance

Engine oil/Oil filter screen

Petrol filter

Cable accelerator inspection/adjustment

Air cleaner

Spark plug

Battery

Carburetor

Electronic spark timing

Rim/tire

Cylinder pressure

Gear oil

Gear oil change

Drive chain

Front/Rear travel clearance

Front brake shoe wear

Headlight

Clutch

Front/Rear suspension system

bolt/nut/mounting block

tire type

Preparation Principles

In a general way

Warning！

•Start the engine in a well ventilated place, not a confined one. Exhausted gas contains poisonous carbon monoxide, which may cause people unconscious and even death.

•Under certain condition, petrol is easy to volatile and explode, so its workplace should be ventilated and it should be stopped. Flames are prohibitive in its workplace and fuel storage place.

Specification

Engine

Idling speed	1800±100rpm/min
Plug gap gauge	0.6-0.7mm
Spark plug type	BR7ES(NGK)

Frame

Front brake lever free stroke		10-20mm			
Rear brake pedal free play		10-20mm			
Tire pressure unit: Kpa		Specification			Tire pressure
		49X Highway type	Front wheel	120/70-12	170
			Rear wheel	130/70-12	195
		49X cross-country type	Front wheel	120/90-10	170
			Rear wheel	130/90-10	195
Torque force value	Front axle nut	55-62 N·m			
	Rear axle nut	100-113 N·m			

Certification for Related Parts

Type	Name		Certificate No.	Remark
Tyre	Highway Model	Front outer tyre	E4-75R-0001095	Marked with DOT
		Rear outer tyre	E4-75R-0001096	
	Cross-country Model	Front outer tyre	E4-75R-000487	Marked with DOT
		Rear outer tyre	E4-75R-000488	
Lamps	Tail lamp		E9 50R-001498	Double lens
	Front steering lamp		E9 50R-001499	LED
	Rear steering lamp		E9 50R-001500	LED
	Front position lamp		E9 50R-001501	LED
	Tail lamp		E9 50R-001498	—
	Rear number-plate lamp		E9 50R-001493	
Rearview mirror	rearview mirror		L E4 005	—
Reflector	Side reflector		E11 020614	—
	Rear reflector		E4 023272	—
Muffle	Vent-pipe		e9 BENELLI EX-M2P	—
	Body hanging board		e9 BENELLI EX-M2	—

Periodic Maintenance & Inspection Table

	Service cycle and time / Inspection item	Per 300 KM	Per 1000 KM	Per 3000 KM	Per 6000 KM	Per 12000 KM	Per 14500 KM	Tools
		New	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
*	Fuel filter	C			C	C		Ordinary tools
	Replacement of engine fuel	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	
*	Throttle 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 bolts	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 head, 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 Qianjiang 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**

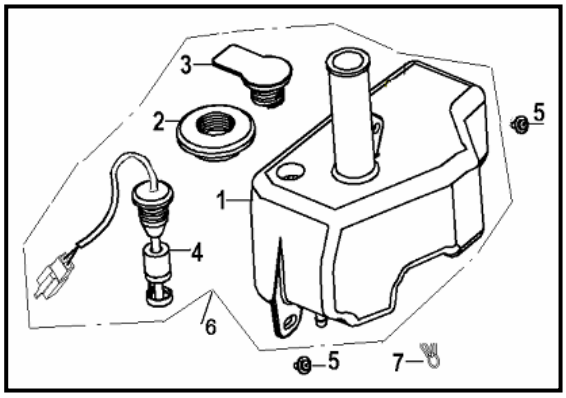
• The motorcycle should be parked on a flat ground when checking its oil level.

• After the engine runs for 2-3 minutes or stops running for about 2-3 minutes, check the oil level.

Check the oil level

Check the oil level

Add oil to the upper limit when there is an alarm from the oil level sensor.



1Oil Tank 2 Rubber Cushion at Oil Tank

3 Oil Tank Cover Component

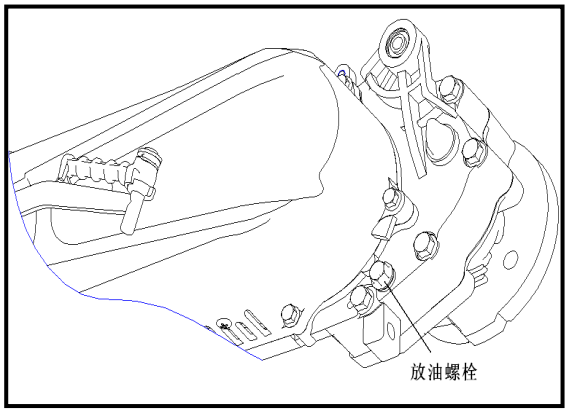
4 Oil Sensor Assembly 5Bolt M6×16 6Oil Tank Assembly

7Clamping Bnad

Oil replacement

*** Note**

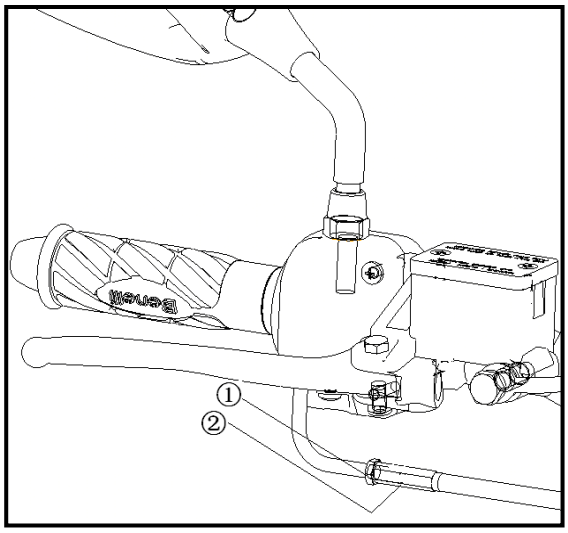
It will be easier to change oil when the engine is warming up



放油螺栓：Oil bolt
Turn off the engine.
Remove the drain bolt at the bottom of the crankcase and discharge oil.
When oil is discharged completely, you can install
the drain bolt and packing washer after they are cleaned.

Add oil to the required level
Check oil leakage when the engine operates at its idle speed for minutes.
Check the oil level again.

Throttle cable inspection/adjustment

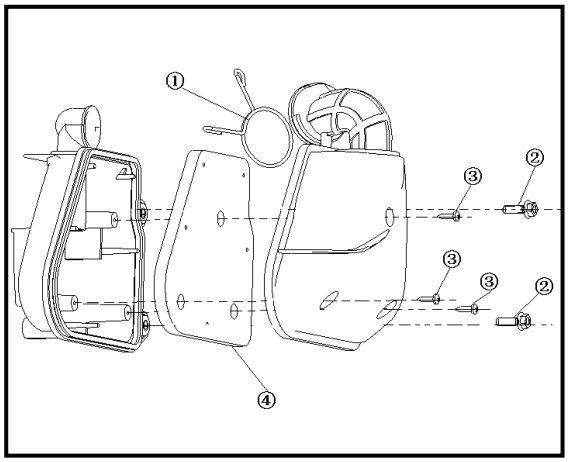


Check whether the throttle cable works smoothly.
Check the free stroke of the throttle cable.
Free stroke: 5-10mm

Adjustment shall be made when improperness exist.
Adjust the free tavel of accelerator. Fisrt loosen the locked nut ①, fix or loosen the adjusting device ②, util the free travel meet the standard value,
Then fix the locking nut ①.

Air filter

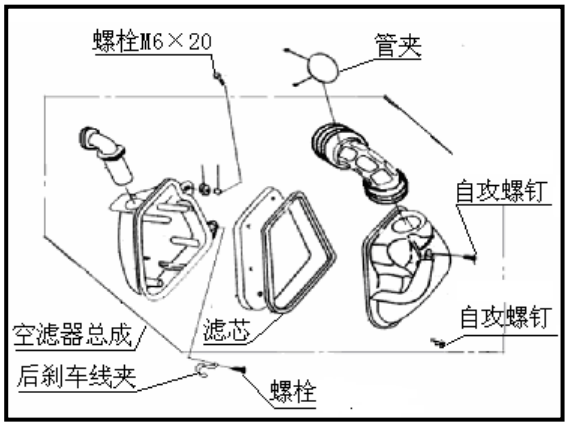
Filter replacement
Remove the body shield,
Remove the set bolt ② on the air filter,
Remove the pipe clip ①,
Remove the air filter
Remove the the set bolt ③ on the upper cover of air filter
Remove the filter element ④ on the filter.



Check weather the filter element is polluted or damaged.
And replace it with a new element if necessary
Remove the pipe clip ①
Remove the filter.
Check weather the filter is polluted or damaged.
And replace it with a new one if necessary.

Replacement time

Replace it as early as possible if the motorcycle is always running on rainy days or on rugged road.



*** Note**

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

螺栓：bolt 管夹：pipe clip 自攻螺钉：tapping screw
空滤器总成：air filter assembly 滤芯：filter element
后刹车线夹：rear brake line clip 螺栓：bolt

Spark plug

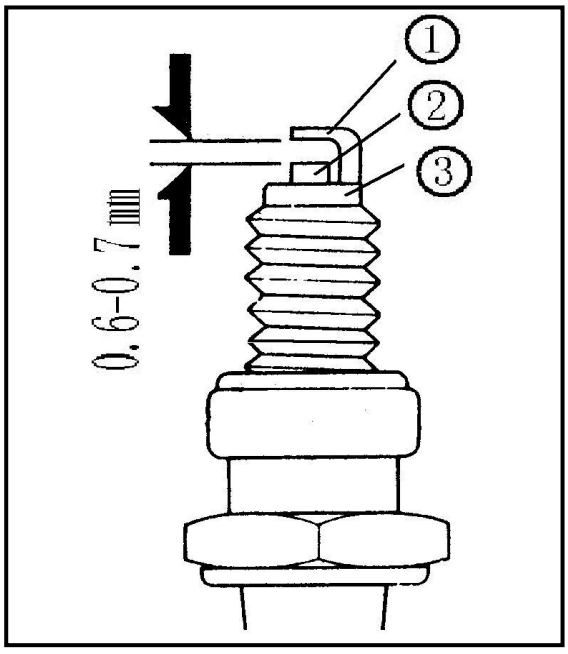
Disconnect the connecting wire of plug cap

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) C6HSA(NGK) 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

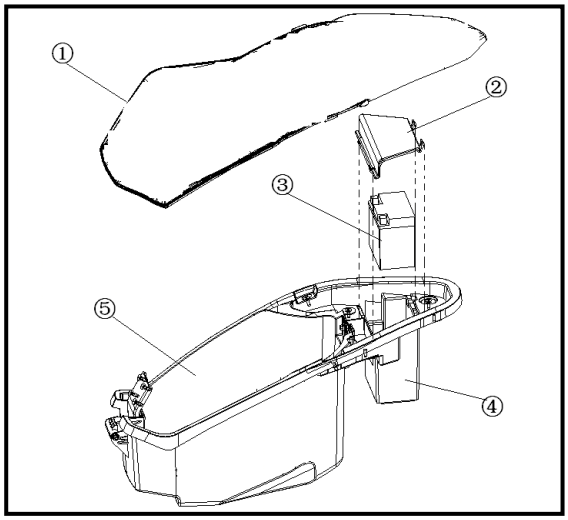
Note: Fix the spark plug by hand, and then by special spanner, thus to protect the cylinder cover.

（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 disassembly

Open the seat cusion,

Remove the battery box cover.

Remove the negative wire and then the positive wire.

Remove the battery.

Warning！

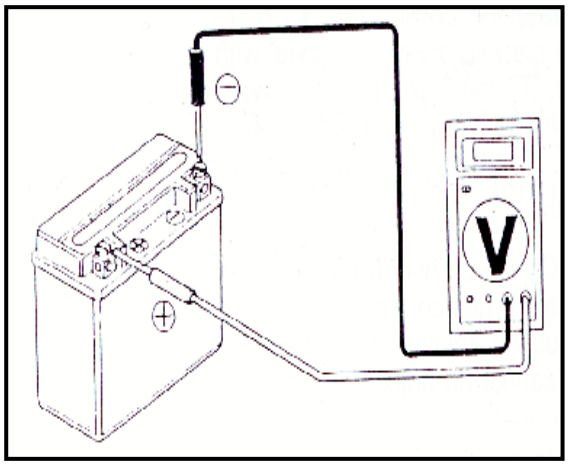
The tools for removing the positive electrode should not contact the flame, otherwise it will be very dangerous that the damaged battery will cause fire.

Install the battery following the opposite sequence.

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.

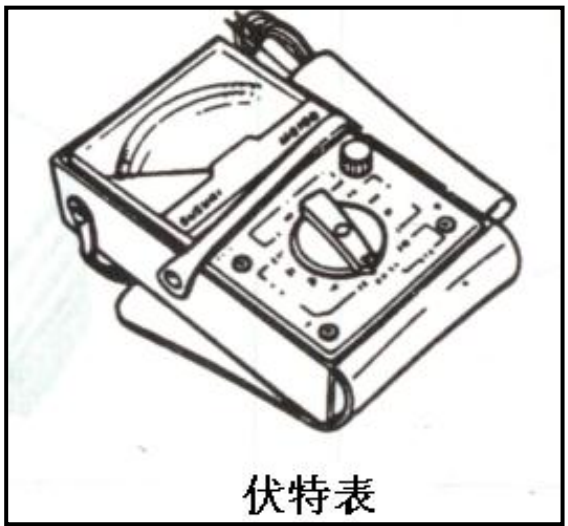
Measure the voltage between battery terminals.

Full charge：13.1V

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

*** Not**

Charge state examination must use a voltmeter operation.



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.

伏特表：voltage meter

***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

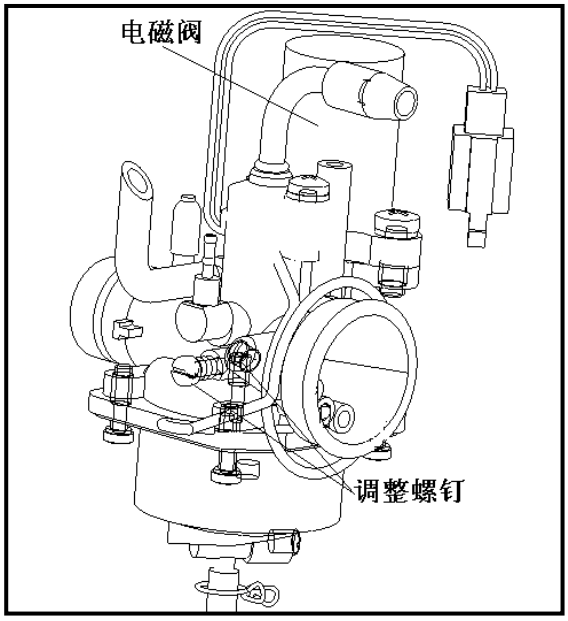
Charging time：standard：10-15 hours

Rapid：30 minutes

Charging complete：closed circuit voltage：Above 12.8V

Carburetor

Idle speed adjustment



调整螺钉：adjusting screw

* **Note**

Idle speed adjustment is carried out when the engines warms up.

电磁阀：solenoid valve

It is carried out when the engines warms up.

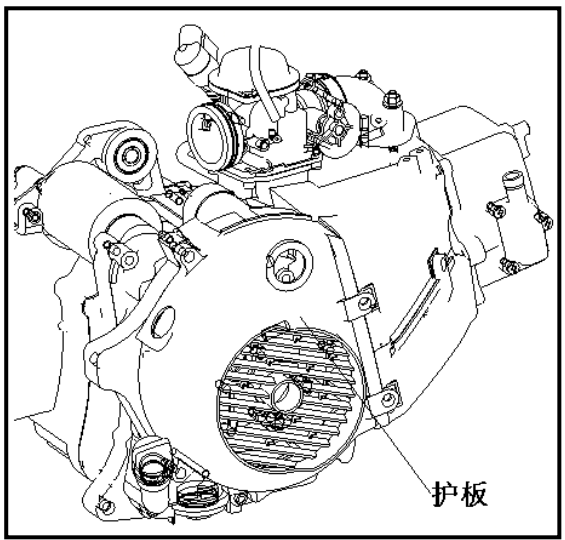
Operate the engine and connect the engine rotary meter.

Adjust the adjusting screws of the throttle cable.

Idle speed: 1800±100rpm/min

When it rotates unstably at idle speed or it is unsmooth during oil filling slightly, adjust the idle speed adjusting screw.

Ignition timing



Warm up the engine for 3-5 minutes.

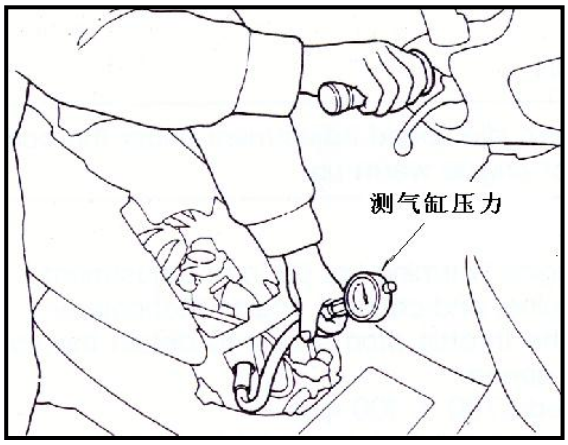
Connect the timing light to the lead of spark plug after the engine is off.

***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：1800±100rpm/min
护板：shield

Cylinder pressure

Operate it when the engine warms up.
Remove the seat the body guard.
Remove the spark plug.
Install the cylinder pressure gauge.
At full throttle, measure the cylinder pressure by starting the engine.

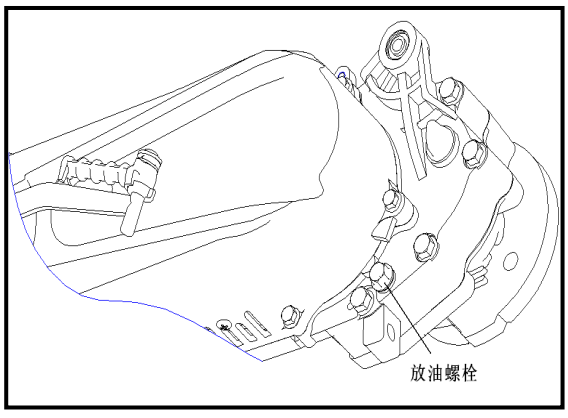


Following items shall be checked in case of extra-low pressure:
—whether the spacer of cylinder cover is damaged;
—whether piston ring is damaged;
—whether piston ring is worn;
—whether the piston or the cylinder is worn.
（测气缸压力：measure the cylinder pressure）
When compression pressure is too high, please check whether there is too much carbon fouling inside the combustion chamber and at piston head.

Gear oil

Inspection

*** Note**
Set the middle kickstand on the flat ground and keep the motorcycle upright for checking the oil level.



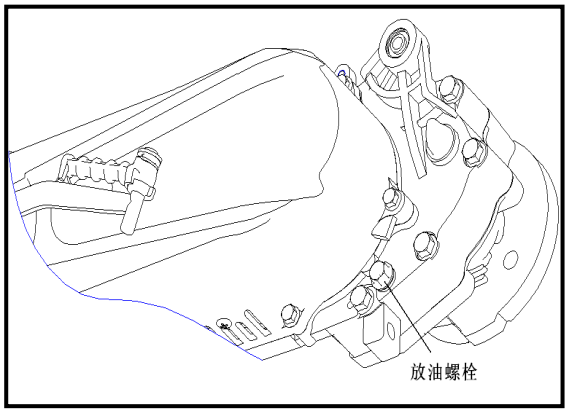
Disassemble the dipstick after the engine stops.
It is good if the oil level at the lower limit of the dipstick.
Add gear oil when the oil level is too low.
Install the dipstick.
（放油螺栓：drain bolt）

*** Note**

Make sure whether the bolt is well sealed, slippery or damaged.

Gear oil replacement

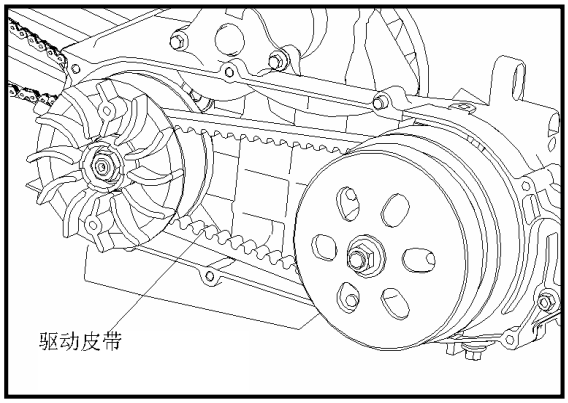
Remove the dipstick.
Remove the drain bolt and gear oil is drained.
Install the drain bolt.



*** Note**
Make sure whether the bolt is well sealed, slippery or damaged.

Add gear oil.
Check whether there is oil leakage in any part.
Install the dipstick.
（放油螺栓：drain bolt）

Drive belt

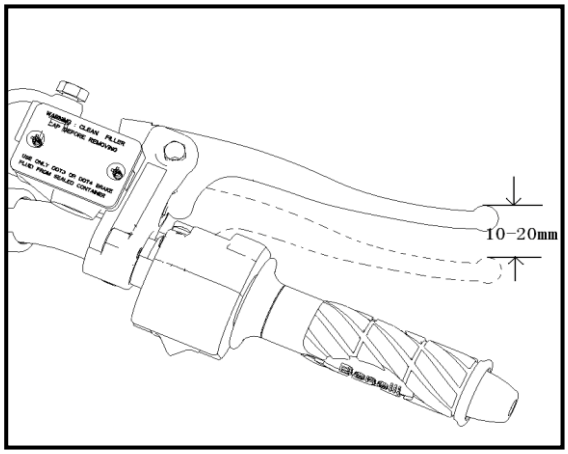


Remove the cover of left crankcase.
Check whether the drive belt is ruptured or abraded.
Periodically maintenance shall be guaranteed, and replace the drive belt if necessary.

（驱动皮带：drive belt）

Free stroke of front/rear brake

Free stroke of front brake

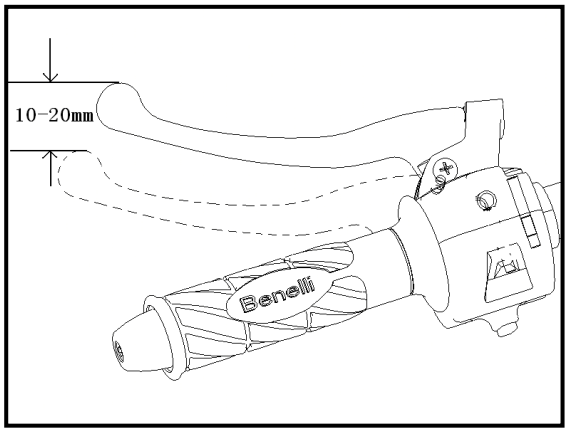


Measure the free stroke of front brake at the tip of the brake lever.
Free stroke: 10-20mm

Free stroke of rear brake

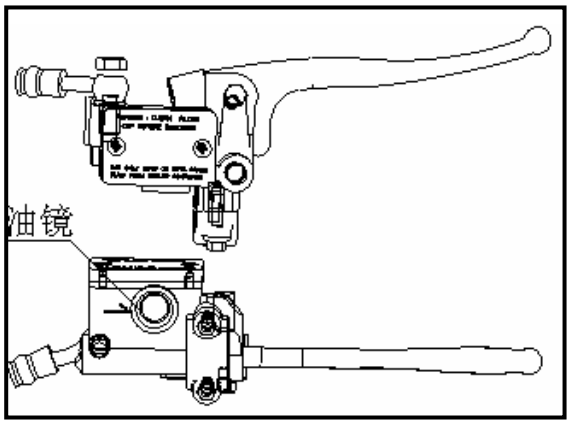
Measure the free stroke of rear brake at the tip of the rear brake lever.

Free stroke: 10-20mm



Inspection of brake fluid level

Brake to the maximum and check the oil level through the oil sight glass. In case the brake fluid level is at or below the arrow in the picture, certain brake fluid（DOT3 或 DOT4）shall be added until it reaches the upper limit.



Note:

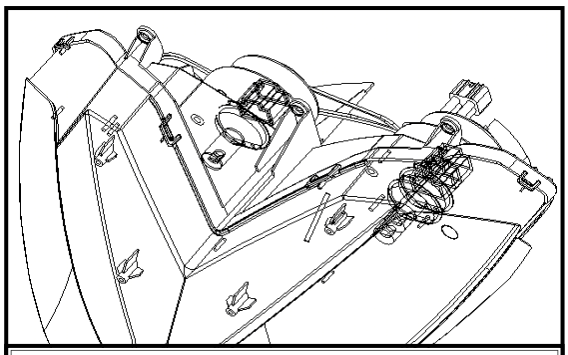
The fuel pump assembly shall be parallel with the ground during inspection.

Headlamp

Remove the front shield.

Disconnect the connector of the headlamp.

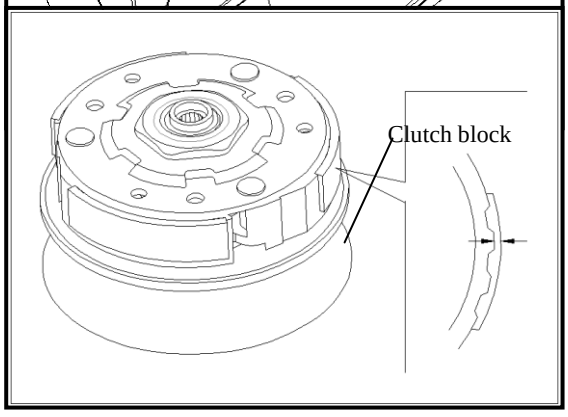
Remove the headlamp.



Clutch

Start the engine and increase its speed gradually to check the

work condition of the clutch. If the motorcycle fails to run or the engine flames out, you should check the clutch block.

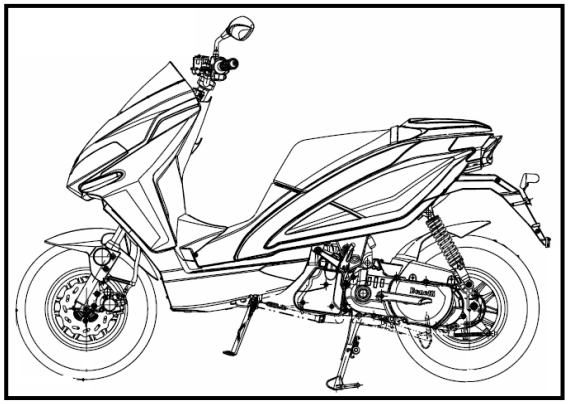


Replace it if necessary.

Front/rear suspension system

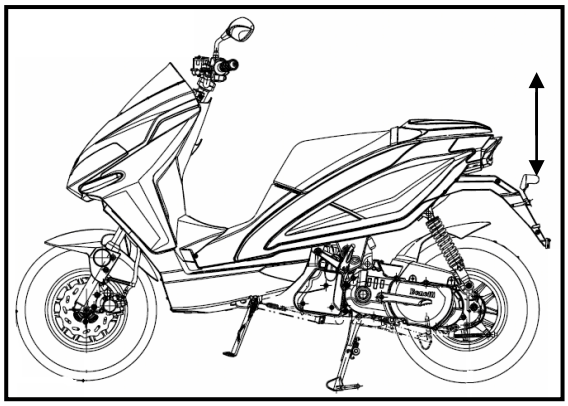
Front

Pull the front brake tight; compress the front absorber upwards or downwards for check.
Check whether there is oil leakage in the front absorber and whether any component is damaged or loosened.



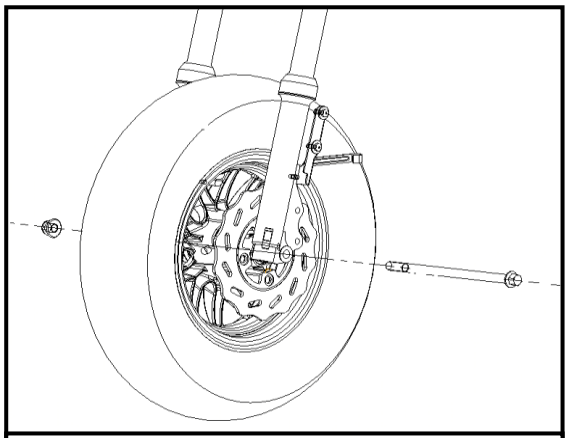
Rear

Compress the rear absorber upwards or downwards for check.
Check whether each part of the rear absorber is damaged or loosened.
Suspend the rear wheel and check shimmy.
Check whether the suspension bushing of the engine is loose or not.



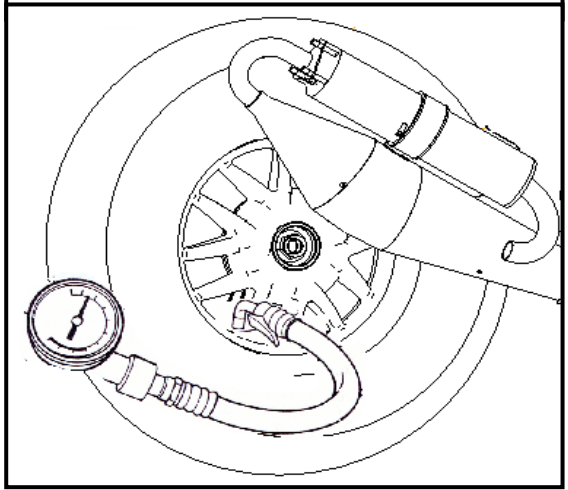
Bolt/nut/fastener

Check whether each bolt, nut and fastener is loose.
If yes, tighten it to required torque.



Rim/tyre

Check whether tyres or rims have any crack, nail or any other damage.
Check tyre pressure.



***Note**

Check tyre pressure when it is cold.

Required pressure Unit: Kpa

Specification			Tyre pressure
49X Road	Front tyre	120/70-12	170
	Rear tyre	130/70-12	195
49X SUV	Front tyre	120/90-10	170
	Rear tyre	130/90-10	195

Tyre specification

Specification

49X Road	Front tyre	120/70-12
	Rear tyre	130/70-12
49X SUV	Front tyre	120/90-10
	Rear tyre	130/90-10

Check whether the locking nut of the front wheel spindle is loose.

Check whether the fixing nut of the rear wheel is loose.

Tighten it to the required torque value if it is loose.

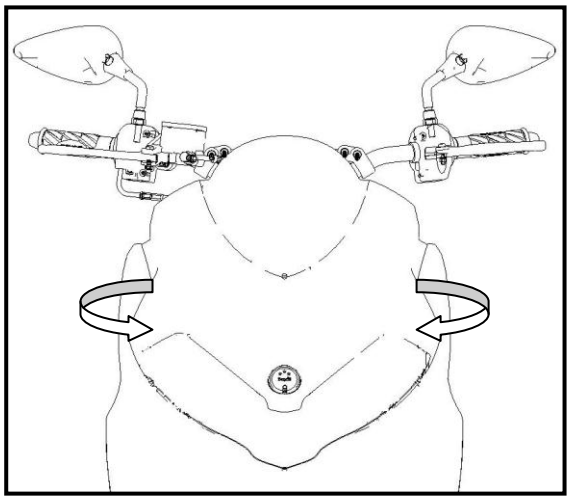
Torque value: locking nut of the front wheel spindle 55 - 62 N·m

fixing nut of the rear wheel 100-113 N·m

Fixing steering stem bearing and handlebar

Move the handlebar to confirm there is no wire interference. Rotate the front wheel and move the handlebar freely for check.

If the handlebar moves difficultly, release it and then check the bearing of the fixing steering stem.

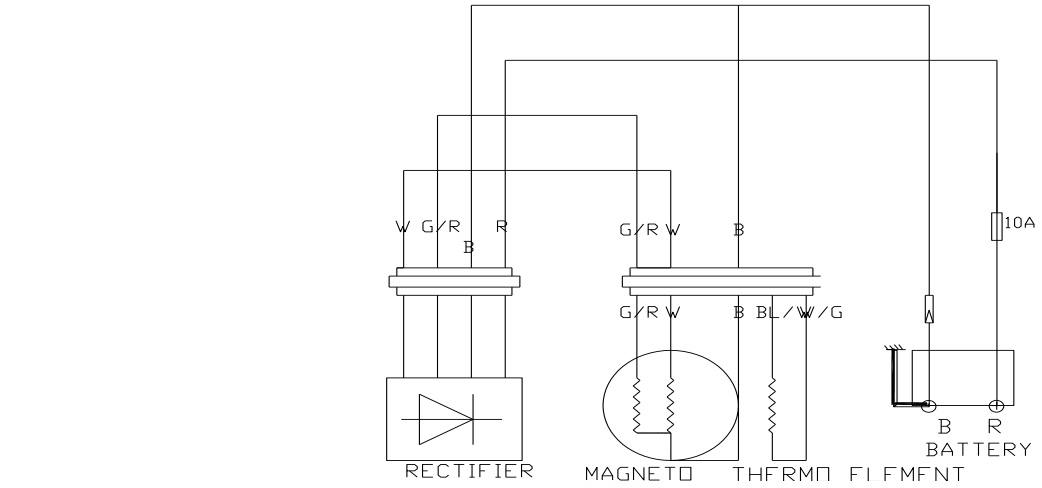


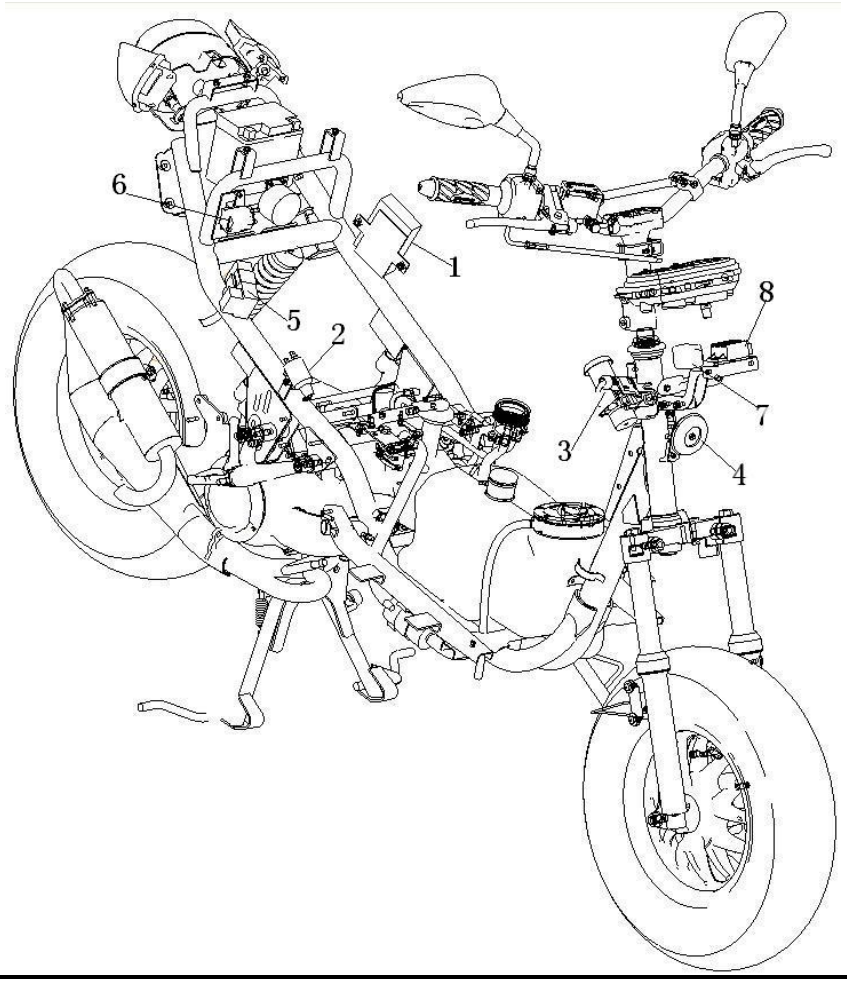
Inspection and maintenance of electrical system

Torque force list of fixing parts in electrical system

Position and name of fixing component	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 Announciator 2 Ignition coil assembly 3 Power locking assembly 4 horn 5 C.D.I. igniter 6 relay 7 Flasher 8 Rectifier

1. Battery/Charging System

1.1 Preparing documents

Work Instructions

***Note**

1. Battery can be charged or discharged repeatedly. If it is placed after discharge, its service life will be shortened and performance is undermined. Normally, the battery performance will be degraded after two or three years. For battery with performance degradation (reduced capacity), voltage will recover temporarily after charging but decrease sharply when loading.
2. Battery overcharge: normally, overcharge can be judged upon the battery. In the case of short circuit inside the battery, its terminal is unable to detect voltage or the detected voltage is very low. Regulator failure: overvoltage inside the battery will shorten its service life.
3. The battery will be self-discharged if being stored for a long time, which reduces its capacity. It shall be charged about every three months.
4. Check the charging system following the sequence listed on the failure diagnosis table.
5. Do not remove the connector when there is current through electrical parts, otherwise it will cause overvoltage and damage to electrical parts inside the voltage regulator. Please operate it after the main switch turns off.
6. It is unnecessary to check the maintenance-free battery and add electrolyte and distilled water.
7. Check all the electric load.
8. Emergency charging can only be used under emergency situation.
9. Remove the battery from the motorcycle for emergency charging.
10. Do not use electrolyte-added batteries when interchanging batteries.
11. Use a voltmeter to check charging condition of the battery.

Preparing principles

Item			Specifications
Battery	Capacity/Type		12V-4AH/ dry-charged
	Voltage（20℃）	Fully charged	13.1V
		Necessary charging	12.3V(not working for 1h)
	Charging current		Standard: 0.4A，quick: 4A
	Charging time		Standard: 10-15 hours，quick: 30 mins
Magnetor	Capacity		90W/8000rpm
	Impedance of lighting coil（20℃）		Between green/red-black 2.0-2.5Ω
	Impedance of charging coil（20℃）		Between white-black 1.5-2.0Ω
Voltage regulator	Type		Single-phase semiwave SCR charging SCR semiwave short-circuit
	Limited voltage	Lighting limit	14.0V±0.4V/5000rpm
			13.5V/5000rpm
		Charging limit	14.8V±0.4V/5000rpm

Tightening torque force

Rectifier bolt **5.0 N·m**
High-voltage coil fixing bolt **9.0 N·m**
Flywheel fixing nut **5.0 N·m**
Body guard bolt **9.0 N·m**

Tools

Universal fixing spanner
Flywheel remover
Test instrument
Multimeter

1.2 Failure diagnosis

Power supply dead

Battery overdischarge
Unconnected battery wiring
Fuse blow
Poor switch

Interrupted current

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

Low voltage

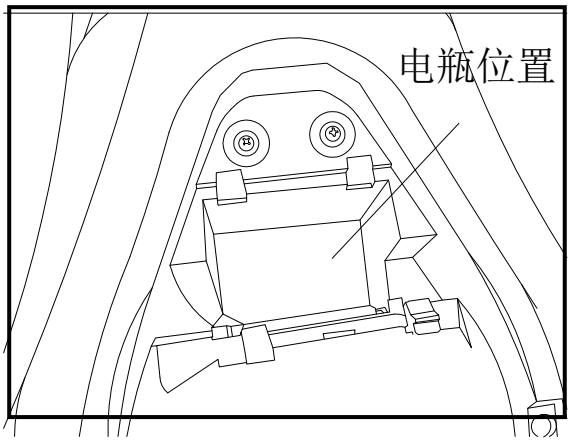
Poor battery charging
Poor contact
Poor charging system
Poor voltage/current regulator

Poor charging system

Poor contact, short circuit or open circuit of wire terminals
Poor voltage/current regulator
Poor magnetor

1.3 Battery

1.3.1 Battery disassembly



Remove the storage battery lid.
Remove the platen assembly of the storage battery.
Remove the negative wire and then the positive wire.
Remove the battery.
电瓶位置：location of the storage battery
Warning!

When the positive wire is disassembled, do not make the tool contact with the frame. Otherwise, it may cause short-circuit spark, which may ignite gasoline and damage the battery. It is dangerous.

Install it in reverse order.

*** Note**

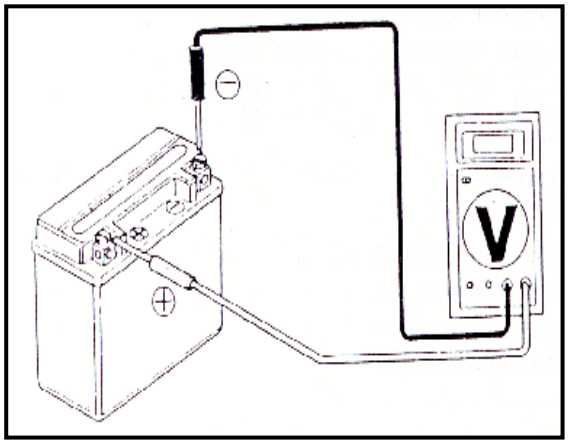
To prevent short circuit, connect the positive wire first and then the negative wire.

Check the charging condition (open circuit).
Open the lid of the storage battery and remove the platen assembly of the storage battery.
Remove the connector wire of the storage battery.

Measure voltage between battery terminals.
Fully charged: 13.1V
Insufficient charging: 12.3V（storage battery is off working for 1 hour）

*** Note**

Use a voltmeter to check the charging condition.



1.3.2 Charging

Connection: the positive pole of the charger to the positive pole of the battery.
The negative pole of the charger to the negative pole of the battery.

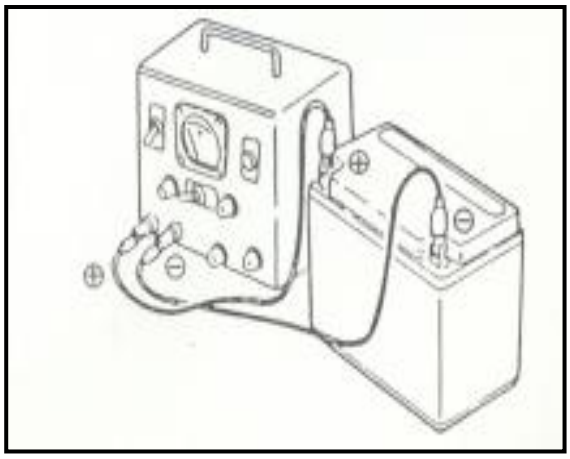
Warning！

• The battery should be far away from fire source. • Turn off the charger before or after charging to avoid explosive danger caused by spark which may exist in any connection. • Comply with the current and time requirements for charging as stated on the battery.

*** Note**

• Except emergencies, you should not use emergency charging. • Measure voltage in 30 minutes after the battery is charged.

Charging current: standard:0.4A
quick: 4.0A
Charging time: standard: 10-15 hours
quick: 30 minutes
Charging completed: open circuit voltage: above 12.8V



1.4 Charging system

1.4.1 Short circuit test

Remove the batter 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.　万用电表：avometer

Start the engine slowly and measure the limiting voltage and current.

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

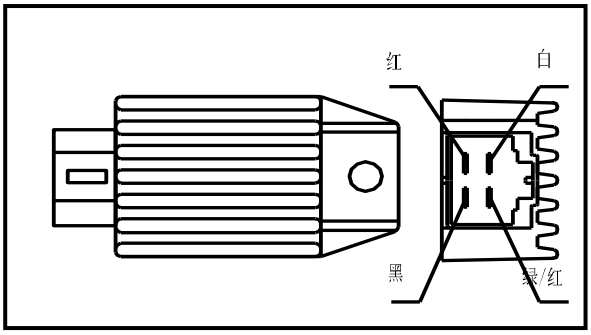
Limiting voltage：13.1±0.5V/2500rpm

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

1.5 Voltage and current adjustor

1.5.1Main wiring inspection

Remove the adjustor's 4p plug.



Check the conducting state of the terminals of the main wiring.

Item (wire color)	Judgment
Between Battery(red) and GND of the body	With battery voltage
Between GND wire (black) and GND of the body	With lead
Between charging coil (white) and the GND of the body	Resistance in the coil of the magnetor.
Between lighting cable (green/red) and the GND of the body (resistor plug; automatic side starter plug; remove the lighting switch and check it at the "OFF" position)	Resistance in the coil of the magnetor.

Multimeter Positive / Negative	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-current regulator check

When the main cable is inspected to be normal, check whether the plug of the voltage/current regulator is in good contact. Measure impedance between terminals of the voltage/current regulator.

*** Note**

• Do not touch any metal part of the test rod of the multimeter with your finger for check. • Check with multimeter. Different multimeters show different impedance and different results.

Replace the voltage-current regulator when the impedance between terminals is abnormal.

1.6 Magnetor charging coil

*** Note**

Check the magnetor charging coil on the engine.

Check

Remove the 6p connector of the magnetor.
Measure impedance between the white coil of the magnetor and the body with multimeter.
Standard: 1.5-2Ω（20℃）
Replace the magnetor coil when the measured value exceeds the standard value.

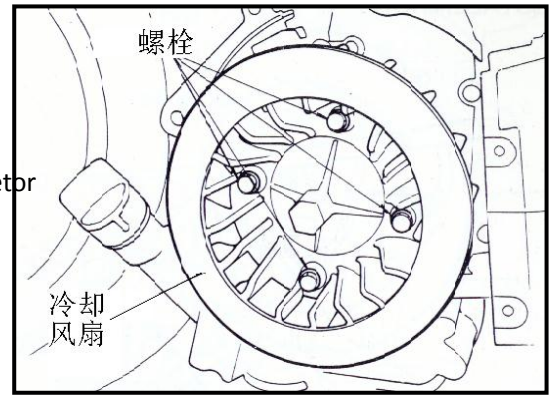
1.7 Magnetor lighting coil

*** Note**

Check the magnetor lighting coil on the engine.

Check

Remove the 3p connector of the magnetor.
Measure impedance between the green/red coil of the magnetor and the body with multimeter.
Standard: 2.0-2.5Ω（20℃）



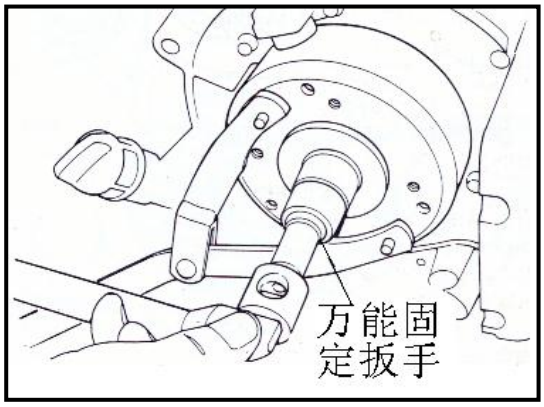
Replace the magnetor coil when the measured value exceeds the standard value. （螺栓：bolt 冷却风扇：cooling fan）

1.8 Disassembly of magnetor

1.8.1 Disassembly

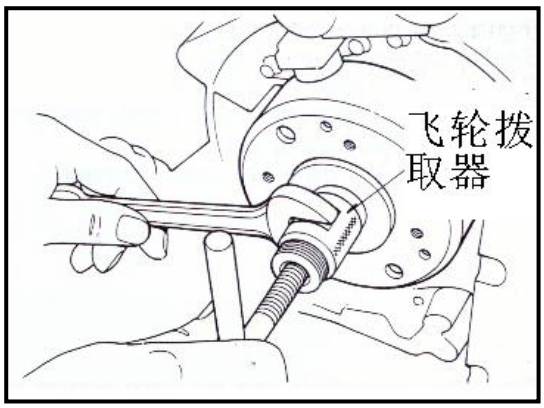
Remove the body guard.

Remove the right body guard.
Remove the fixing bolts and screws; dismantle the fan cover.
（万能固定板手：universal fixing spanner）

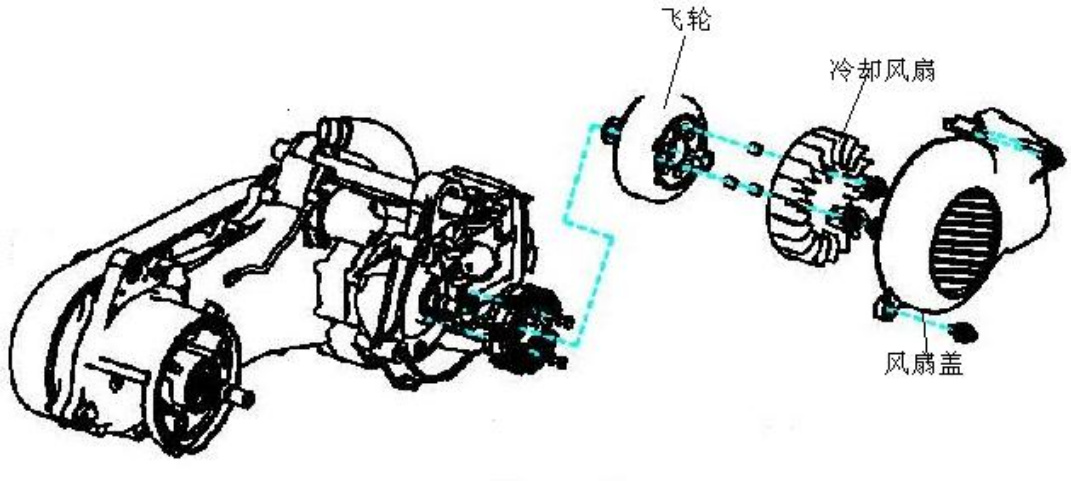


Remove four fixing bolts of the cooling fan; dismantle the cooling fan.

Fix the flywheel using the universal spanner.
Remove fixing bolts of the flywheel.
Remove the flywheel using the flywheel remover.
Remove the solid key.
Remove the conductor joint.
Remove the stator.
（飞轮拔取器：flywheel remover）



1.8.2 Installation

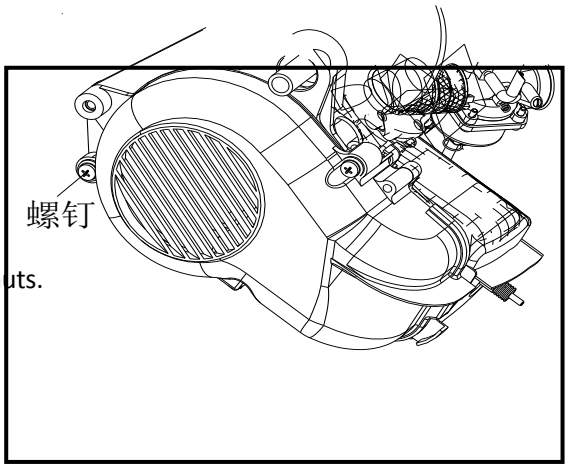


飞轮：flywheel 冷却风扇：cooling fan 风扇盖：fan cover
Install the stator on the body of the engine.
Connect the magnetor joint.

Clean up the crankshaft and the taper part of the flywheel.
Install the solid key into the groove above the upper crankshaft key and confirm it.
Aim the groove in the flywheel at the solid key on the shaft.

*** Note**

Ensure there is no any bolt in the inner magnetic side of the flywheel.



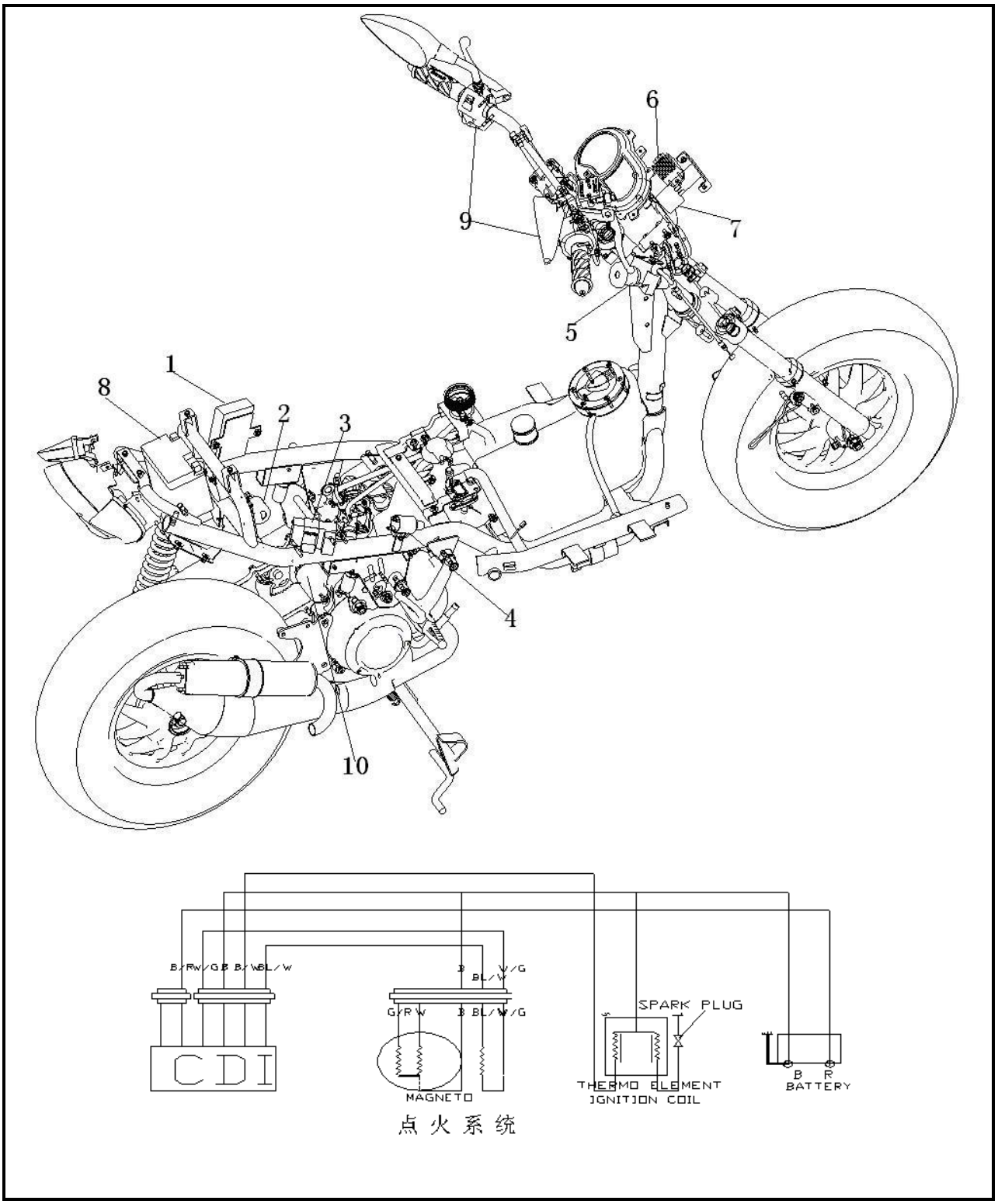
（螺钉：screw）

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

Torque force: 9.0 N·m

Install the left body guard.

Ignition System



1 Annunciator 2 Relay 3 C.D.I. igniter 4 Ignition coil 5 power lock assembly 6 rectifier 7flasher 8 battery 9 right & left combination switch 10 start motor

2. Ignition System

2.1 Preparing documents

Work Instructions

1. Check the ignition system following the sequence listed in the table of failure diagnosis.
2. This ignition system is an electronically and automatically angling device. It is solidified in the CDI group and you don't have to adjust the ignition time.
3. Check the ignition system following the sequence listed in the table of failure diagnosis.
4. Do not make CDI of the ignition system fall down or hang down or hammer it with strong force (primary causes for failure). Pay special attention during disassembly.
5. Failure of the ignition system is mostly caused by poor contact of the socket. Check whether each connector is in good condition.
6. Check whether the heat value used for the spark plug is proper. If not, the engine may work abnormally or the spark plug may be burnt.
7. Check in this chapter is based on the maximum voltage. It also refers to check on the impedance of the ignition coil.
8. Check the main switch according to the conduction table.
9. Remove the magnetor and the stator according to instructions.

Preparing principles

Item			Standard value
Spark plug recommended	Standard		C5HSA(NGK)
	Hot type		C6HSA(NGK)
	Cold type		C7HSA(NGK)
Spark plug 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
Impedance of trigger （20℃）			100-500Ω
Measure the maximum primary voltage of the ignition coil			95-400V
Trigger voltage			1.7V 以上
Charging coil voltage			95-400V

Tools

Attachments to the Maximum Voltage Table

Multimeter

2.2 Failure diagnosis

Non-sparking of spark plug

	Abnormality	Cause (confirm it sequentially as follows)
Ignition coil	Too low high-voltage	①The inner resistance is too small and it should be tested by required tester. ②Low speed of the crankshaft. ③Interfered tester (It is normal that voltage is always beyond the required value upon several measurements.) ④Poor wiring contact of the ignition system. ⑤Poor ignition coil. ⑥Poor charging coil (measured at the maximum voltage).
Side voltage	No or interrupted high voltage	①Incorrect connection of the tester. ②Poor main switch. ③Poor contact of CDI terminal. ④Short circuit or poor contact of the GND of CDI. ⑤Poor contact of charging coil (measured at the maximum voltage). ⑥Poor trigger (measured at the maximum voltage). ⑦Poor terminal of high-voltage wires. ⑧Poor CDI group (when item ①-⑦ is checked to be abnormal or there is no spark for spark plug.)
	Normal high voltage, but no spark	①Poor spark plug or secondary leakage of the ignition coil. ②Poor ignition coil.
Charging coil	No high voltage	①The inner resistance is too small and it should be tested by required tester. ②Low speed of the crankshaft. ③Interfered tester (It is normal that voltage is always beyond the required value upon several measurements.) ④Poor charging coil (Item ①-③ is checked to be normal.)
	No or interrupted high voltage	①Poor ignition coil. ②Poor charging coil.

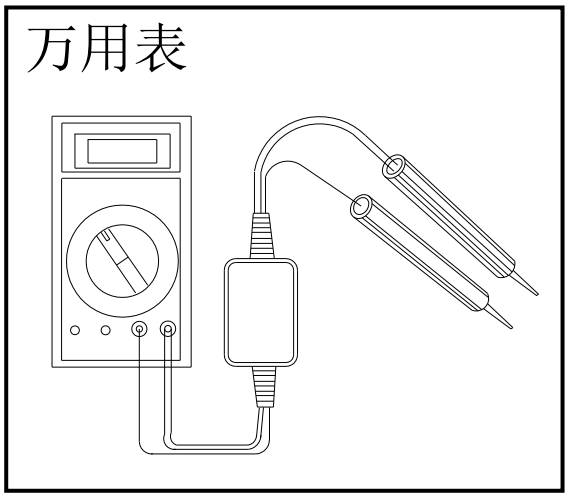
Trigger	Too low high-voltage	①The inner resistance is too small and it should be tested by required tester. ②Low speed of the crankshaft. ③Interfered tester (It is normal that voltage is always beyond the required value upon several measurements.) ④Poor trigger (Item ①-③ is checked to be normal.)
	No or interrupted high voltage	①Poor ignition coil. ②Poor trigger.

2.3 Ignition system check

*** Note**

•When there is no spark, check whether there is loose wiring or poor contact, and make sure all voltage values are normal.
•There are kinds of multimeters with different impedances and different test values.

Connect a high-pressure shunt or an ammeter with an input impedance above 10MΩ10CV to the multimeter.



(万用表：multimeter)

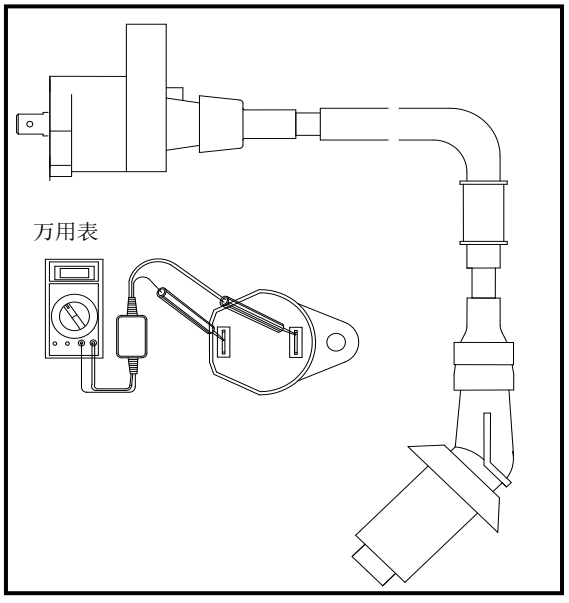
2.3.1 Primary voltage of the ignition coil

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

*** Note**

Make sure all wiring is correct before test.
Cylinder compression pressure normally refers to the test value when the spark plug is installed on the cylinder head.

Connect the lead of the ignition coil and also the shunt between the primary coil terminal (black/white) and the GND.



Press the startup motor, or step the actuating lever to measure the maximum primary voltage of the ignition coil.
Minimum voltage: above 95V.

(万用表：multimeter)

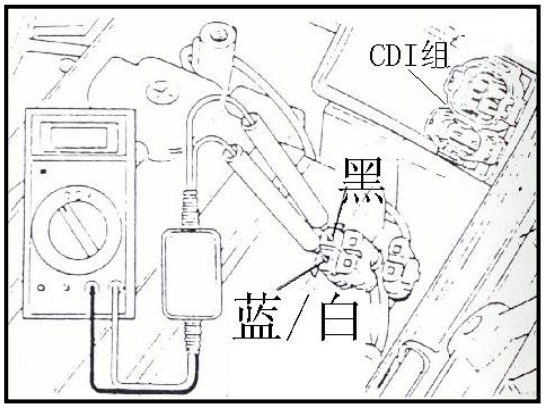
*** Note**

Never touch any metal part of the test rod with your finger to avoid electric shock.

2.3.2 Trigger

*** Note**

Install the spark plug on the cylinder head and carry out measurement when the compression pressure is normal.



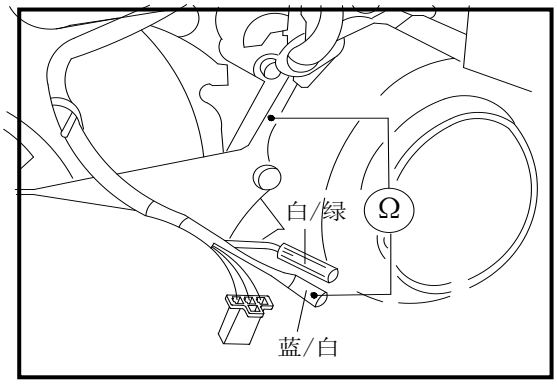
Remove 4P and 2P connectors of CDI group. Connect the peak-voltage shunt between the trigger (blue/white) with 2P connector and the 4P connector (black terminal). Press the startup motor or step the actuacting lever to measure the maximum voltage of the trigger.

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

Connection: positive pole to blue/white, negative pole to GND.
Minimum voltage: above 1.7V.

*** Note**

Never touch any metal part of the test rod with your finger to avoid electric shock.



When the maximum voltage measured at the terminal of CDI Group is abnormal, dismantale the right body guard and the magnetor connector.
Connect th trigger (blue/white) to the shunt.

- If the voltage of CDI is measured to be abnormal while the voltage at the magnetor terminal is normal, it is caused by poor contact or disconnected wiring.
- If the voltage at both CDI and magnetor terminal appears to be abnormal, it is caused by poor trigger. Please refer to the table of failure diagnosis.

白:white 绿：green 蓝：blue

2.4 CDI group

2.4.1 System check

Check the system.
Remove the CDI Group, andcheck componentys of the ignition system at the terminal.
(黑：black 黑/白：black/red 绿/白：green/white 蓝/白：blue/white 黑/红：black/red)

2.4.2 Check

Remove CDI Group and check whether the terminal is loose or corrosive.

Item	Test terminal	Standard（20℃）
Main switch	Red--red/white	Conduction when the main switch is "OFF"
Trigger	Blue/white – white/green	100-500Ω
Primary coil of the ignition coil	Black/white--black	0.6Ω±10％
Secondary coil of the ignition coil	Black--spark plug cap（excluding the spark plug）	0.5-5.5KΩ

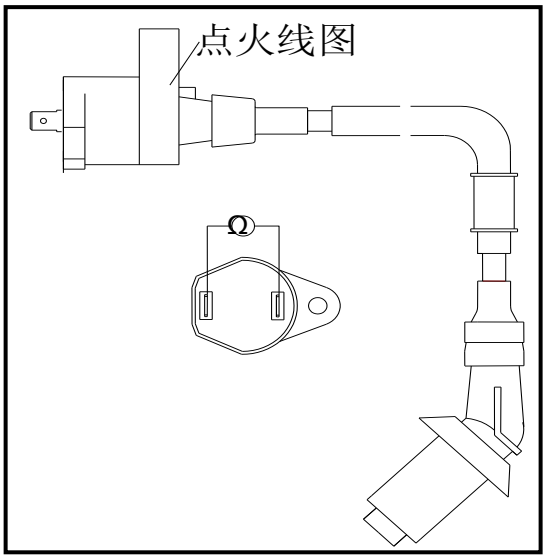
2.5 Ignitin coil

2.5.1 Disassembly

Remove the body guard.
Remove the spark plug cap.
Remove the primary lead of the ignition coil.
Remove the fixing bolts and then the ignition coil.
Install the ignition coil in reverse order.

*** Note**

Install the primary coil with black/white terminal.



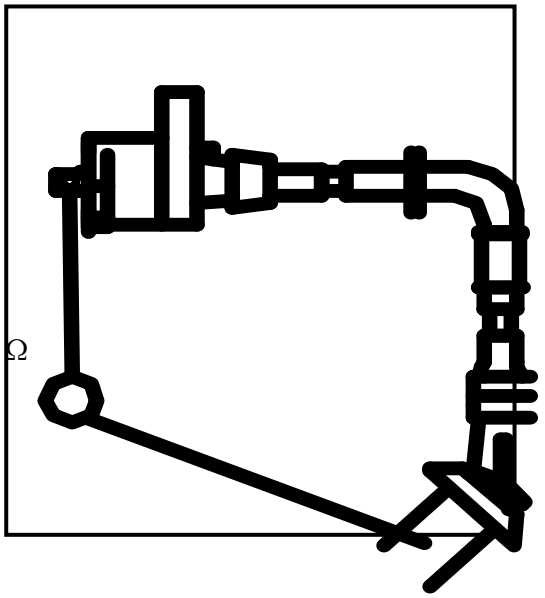
2.5.2 Check the primary coil

Measure impedance between terminals of the primary coil.

Standard:0.6Ω±10％（20℃） (点火线图：Ignition Coil Drawing)

It shows good if the impedance is within the range of standard values.

Relplace the primary coil if the impedance shows “∞” which indicates that the coil breaks.



2.5.3 Secondary coil

Attached with spark plug. Measure the impedance between the wiring side of the spark plug cap and the terminals.

Standard: 5-11KΩ（20℃）

It shows good if the impedance is within the range of standard values.

The impedance “∞” indicates that the coil breaks.

Remove the spark plug cap. Measure the impedance between the primary side wire of the ignition coil and the negative terminal.

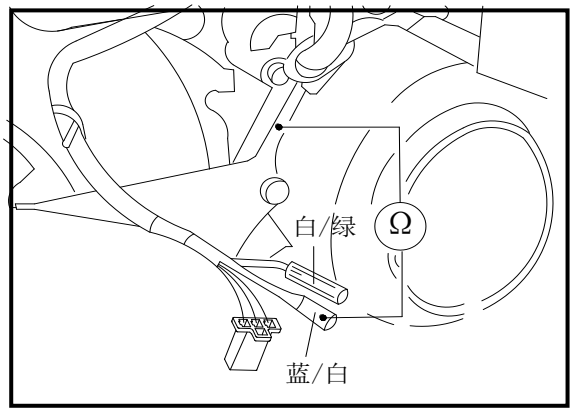
Standard: 0.5-5.5KΩ（20℃）

2.6 Trigger

*** Note**

Check the trigger on the engine.

Check



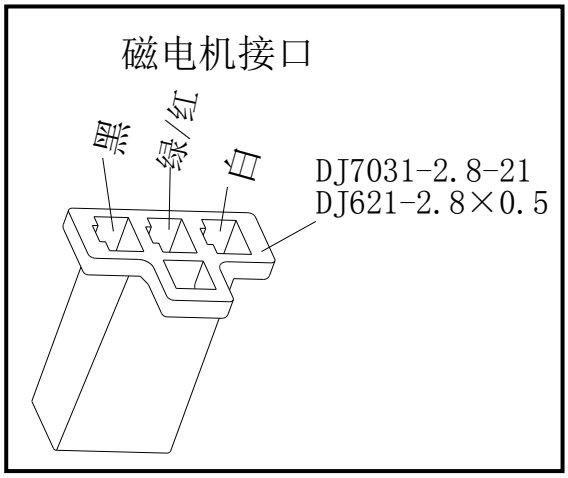
Remove the body guard.

Remove the trigger terminal.

Measure the impedance between the blue/white terminals of the side wire of the engine and the body GND.

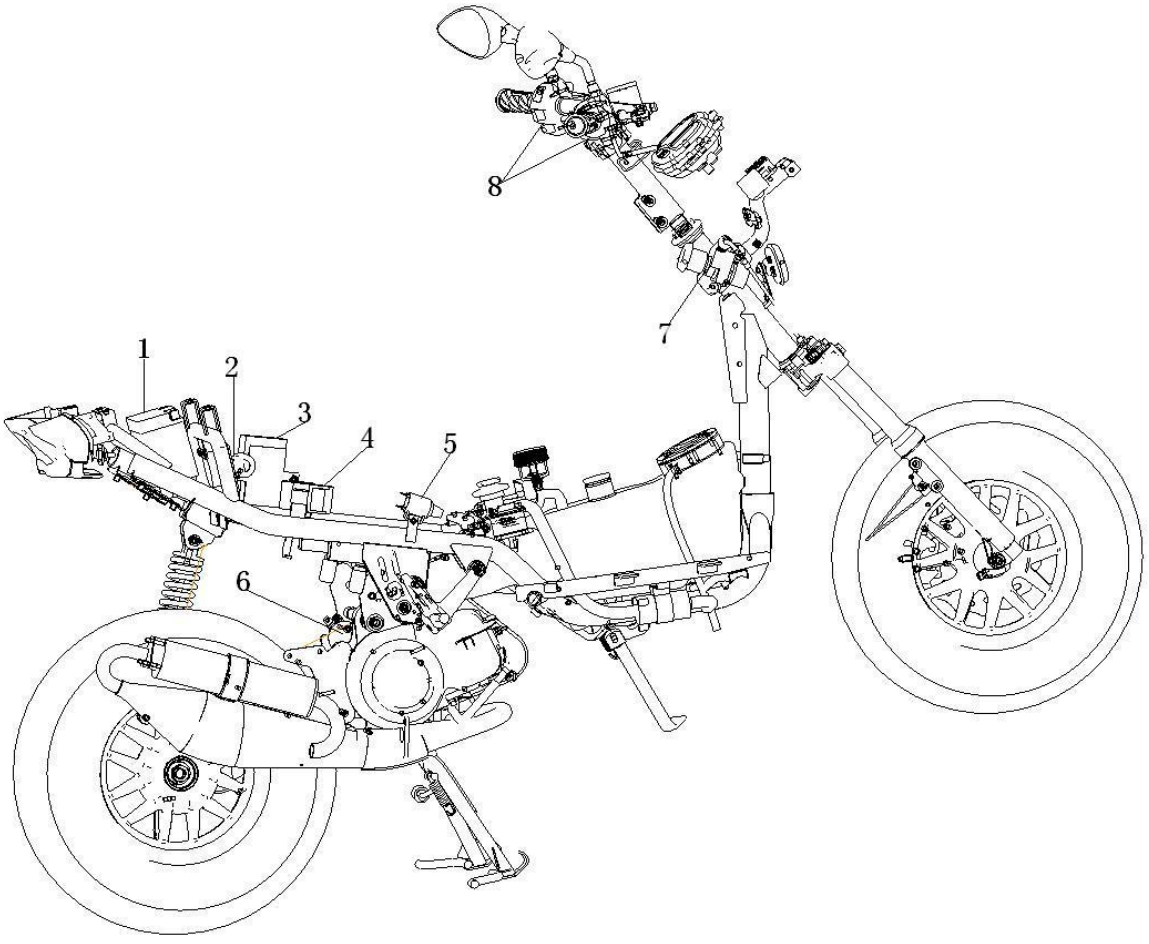
Standard: 100-500Ω（20℃） (白/绿：white/green 蓝/白：blue/white)

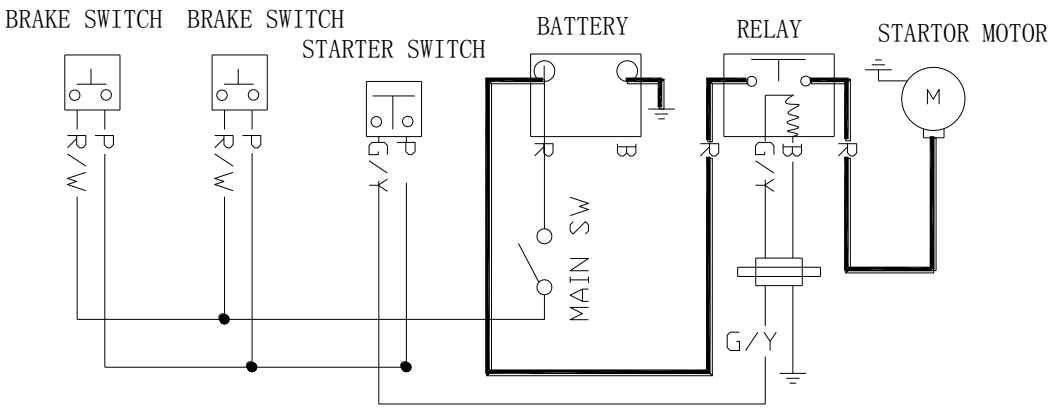
Replace the magnetor if the measured value exceeds the standard value.



(磁电机接口：magnetor interface 黑：black
绿/红：green/red 白：white)

Startup System





启动示意图

1 storage battery 2 relay 3 alarm 4 C.D.I. igniter 5 ignition coil 6 startup motor 7 power lock assembly 8 right/left combination switch　　启动示意图：Startup Schematic Diagram

3. Startup System

3.1 Preparing documents

Work Instructions

Disassemble the startup motor on the engine.
For the disassembly of the startup clutch, please comply with related regulations

Preparing principles

Item	Standard	Limit for use
Length of the brush of the startup motor	6.2mm	3mm
Bushing of the startup idler shaft		8.3mm
Outer diameter of the startup idler shaft		7.94mm

Tightening torque force

Bolts for the clutch cover of the startup motor 12 N·m
Retaining nut for the clutch of the startup motor 95 N·m

Tools
Spanner for retaining nuts
Universal fixing spanner

3.2 Failure diagnosis

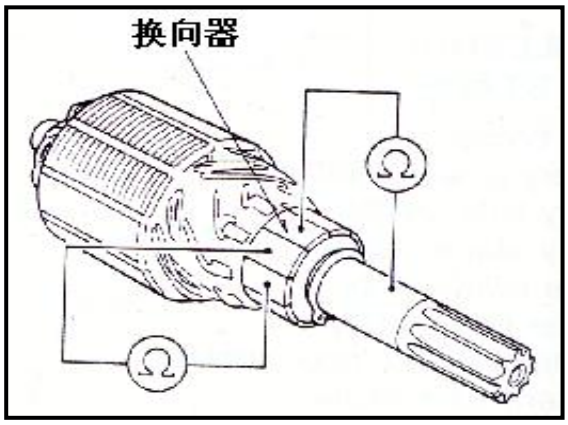
Startup failure	Weak in rotation of the startup motor	No rotation of RE rotary engine of the startup motor
• Fuse blow	• Low battery	• Poor startup clutch
• Low battery	• Poor wiring contact	• Reversal rotation of the startup motor
• Poor main switch	• Gear seized	• Low battery
• Poor startup clutch		
• Poor brake switch		
• Poor starter relay		
• Poor wiring contact		
• Poor startup motor		

3.3 Startup motor

3.3.1 Disassembly

*** Note**

Before the startup motor is disassembled, turn off the main switch, remove the GND wire of the battery, and then power on to check whether the startup motor works for ensuring safety.

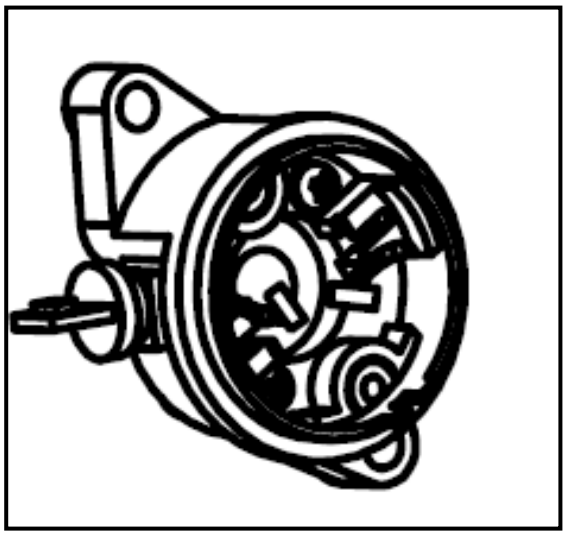


(换向器：commutator)

Remove the wire clip of the startup motor.
Remove the fixing bolts of the startup motor, and dismantle the startup motor.
Roll the waterproof rubber case and dismantle the connector of the startup motor.

3.3.2 Breakdown

Remove screws in the shell, front cover, motor housing and other parts.



3.3.3 Check

Check other components.
Replace any part with abraded, damaged or burnt sureface.
Clean the commucator sureface if there is metal power

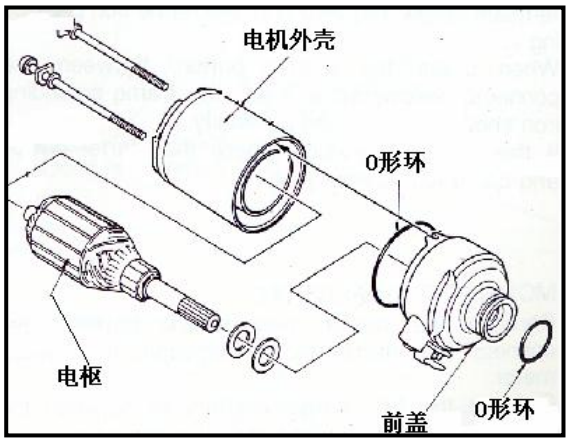
attached to it.
Check conduction between the surfaces of other components.
Ensure non-conduction between armature shafts of the commutator.
Check the conduction of the shell of the startup motor.
Ensure non-conduction between the conduction terminal and the startup motor shell.
Check conduction between the conduction terminal and the brush.
Replace any abnormal part.
Check conduction of the brush bracket. Replace it when there is conduction.
Measure the length of the brush.
Limit for use: replace it if lower than 3mm
Check smooth rotation of the needle bearing inside the front cover and whether it is loose when press-in.
Replace it if there is any abnormality.
Check whether the oil seal is abraded or damaged.

3.3.4 Assembly

Lubricate the oil seal inside the front cover with grease.
Install the brush on the bracket.
Lubricate moving parts at two ends of the brush shaft with grease.
Press each brush into the bracket and install the electrode front cover.

*** Note**

• Pay special attention that the contact surface between the brush and the armature shall not be damaged. •Pay attention that the armature shaft shall not damage lips of the oil seal.



(电机外壳：motor shell O 型环：o-ring
电枢：armature 前盖：front cover)

Install the new o-ring into the front cover.
Aim the screw hole of the motor shell at the screw hole of the front cover for installation.
Lock screws in the shell.

*** Note**

When the shell and the front cover are assembled, it is easy to pull the front cover with magnet to attract the armature. Press it gently for assembly.

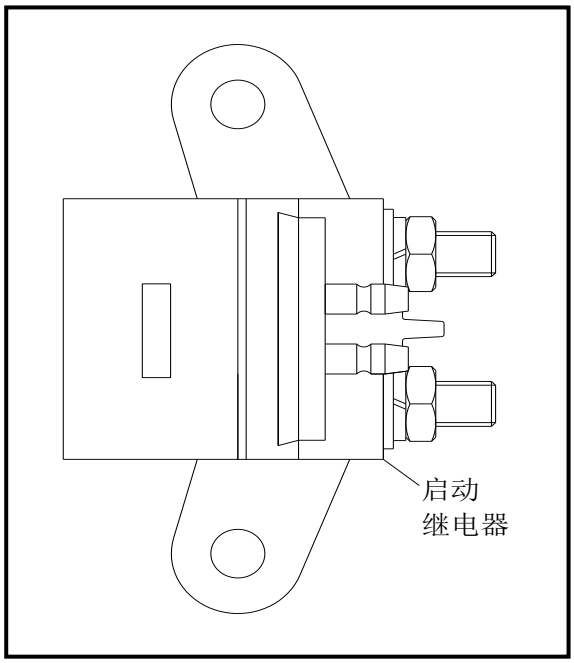
3.3.5 Installation

Install the lead of the startup motor and the dustproof boot.
Replace any damaged or abnormal o-ring.
Lubricate o-ring with fuel and then install it on the startup motor.
Install the wire clip for rear brake.

3.4 Starter relay

3.4.1 Check

Remvoe the body guard.
When the main switch is “ON”, check there is “click” sound at the time of pressing the startup motor.
With click sound, it is normal.
Without click sound: •check voltage of the starter relay.
• check the GND loop of the starter relay,
• check the movement of the starter relay.



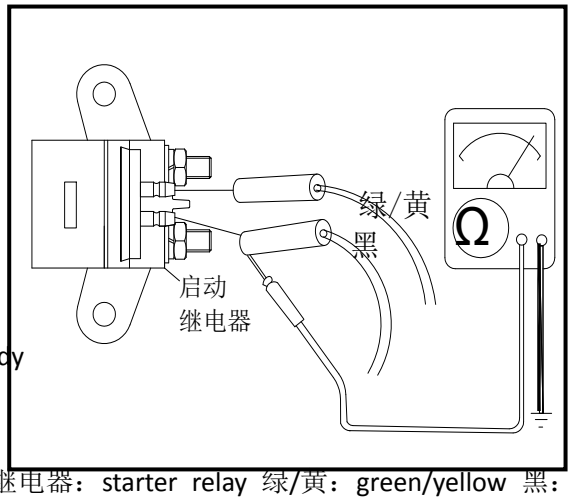
(启动继电器：starter relay)

3.4.2 Check voltage of the starter relay

Set up the main stand, and measure voltage between the negative pole of the green/yellow wire of the starter relay terminal and the body groung connection.
When the main switch is “ON”, hold the brake lever.
The battery voltage shall comply with regualtiosn.
When there is no voltage at the starter relay terminal, check the conductin of the brake switch and leads.

3.4.3 Check GND loop of the starter relay

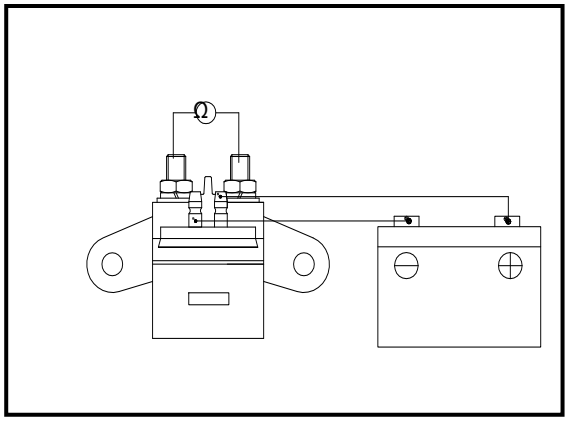
Remove the starter relay connector.
Check conduction between the black wire of the lead terminal and the body ground connection.
When the startup button is pressed, it shall show good conduction between the black wire of the terminal and the body ground connection.
Check conduction of the startup button and leads when it is not conducted.



(启动继电器：starter relay 绿/黄：green/yellow 黑：black)

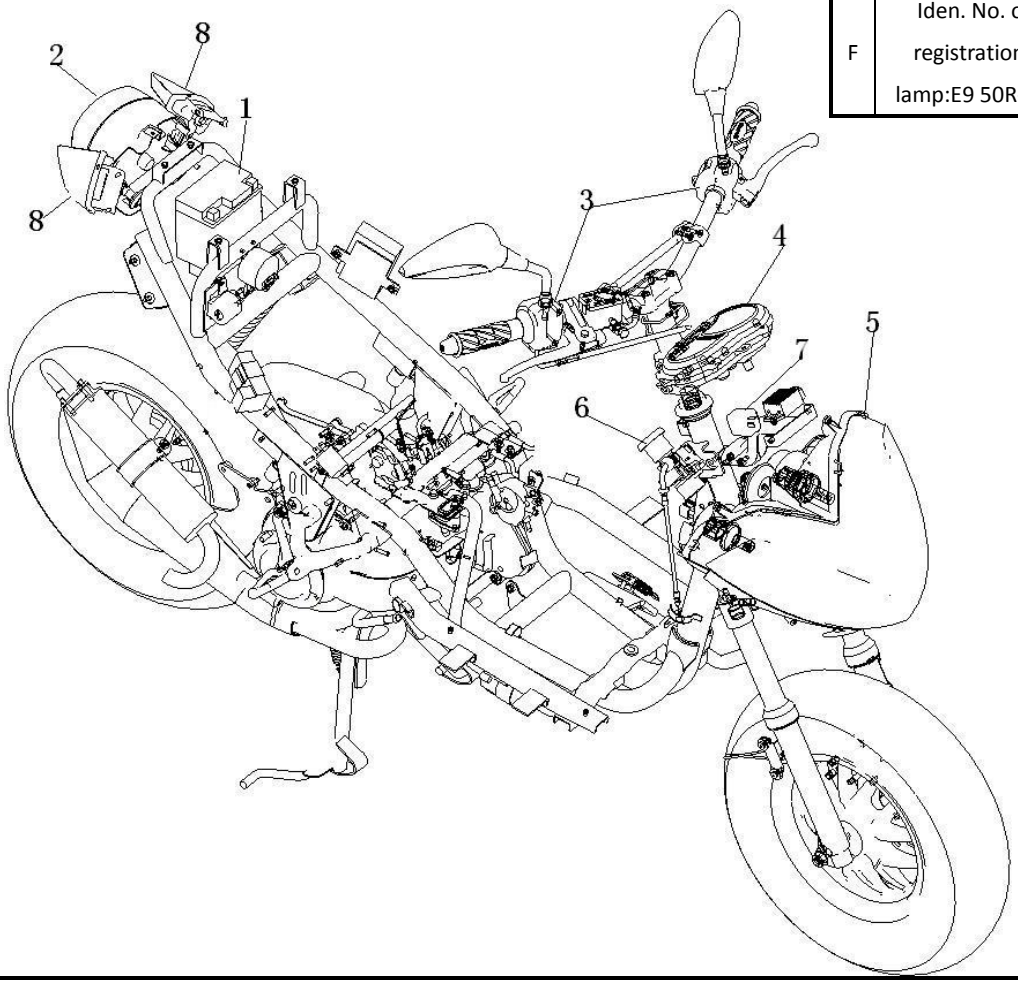
3.4.4 Check

Connect the starter relay to the battery, and the terminal of the startup motor to the multimeter.
Connect the fully charged battery between the black wire and the green/yellow wire of the relay. The relay shall sound “click” and the multimeter shall indicate resistance of “zero”.



Bulbs/switches/meters

A	Iden. No. of headlamp: E9 50R-001498	double lens
B	Iden. No. of front position lamp: E9 50R-001498	—
C	Iden. No. of front steering lamp: E9 50R-001500	LED
D	Iden. No. of rear steering lamp: E9 50R-001501	LED
E	Iden. No. of tail lamp/ rear position lamp: E9 50R-001499	LED
F	Iden. No. of rear registration plate lamp:E9 50R-001493	—



1 storage battery 2 tail lamp assembly 3 right/left combination switch 4 meter 5 headlamp assembly 6 power lock assembly 7 flasher 8 rear steering lamp assembly

4. Bulbs/Switches/Meters

4.1 Preparing documents

Work Instructions

Remove the switch from the vehicle to measure its conduction

4.2 Failure diagnosis

Main switch “ON” not light

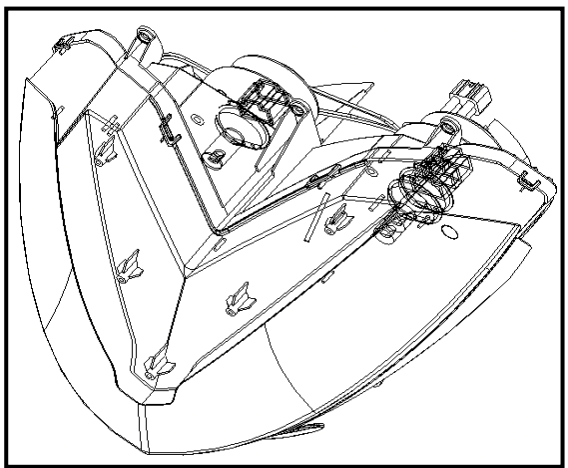
- Poor bulbs
- Poor switch
- Bad contact or broken wires

Dim light of the headlamp

- Generator failure
- Voltage stabilizer failure
- Commutator failure

4.3 Replacement of headlamp bulbs

4.3.1 Disassembly

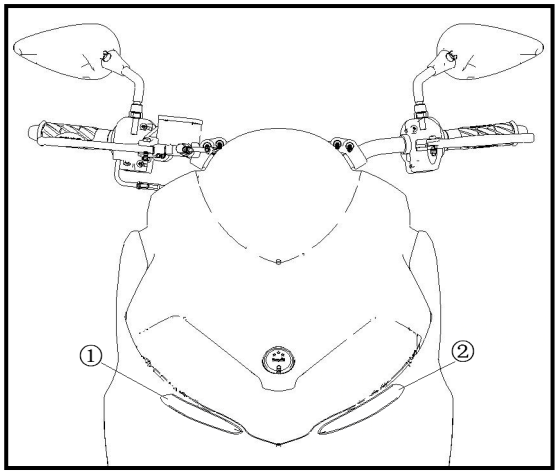


Remove the odometer shade and the panel of front shield.
Remove fixing screws for dismantling the headlamp.
Disconnect the headlamp connector.
Remove the headlamp.
Remove the glass of the headlamp.
Fix the headlamp and rotate the socket clockwise to remove the bulb.

4.3.2 Installation

Install the bulb in reverse order.

4.4 Replacement of front steering lamp



4.4.1 Disassembly

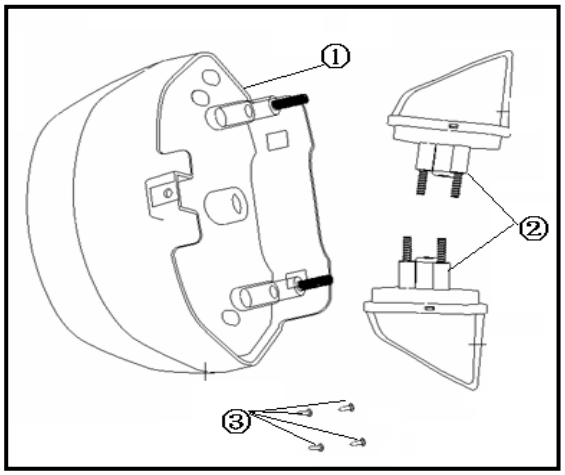
Remove the left/right side guard of the front shield.
Loosen the fixing screws of the steering lamp.
Remove the left/right steering lamp (①, ②).

Note:
The front steering lamp is LED lamp. Change the whole lamp if replacement is required.

4.4.2 Installation

Install the left/right steering lamp in reverse order.

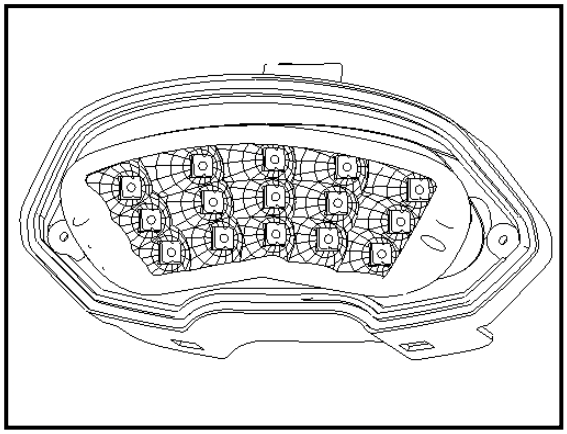
4.5 Disassembly/Replacement of tail lamp and rear left/rignt steering lamp



4.5.1 Disassembly

Remove the seat and body guard.
Remove the fixing screw ③ to dismantle the tail lamp① and the rear left/right steering lamp②.
Disconnect the tail lamp and rear left/right steering lamp connector.

Remove the tail lamp and the rear left/right steering lamp.



4.5.2 Installation

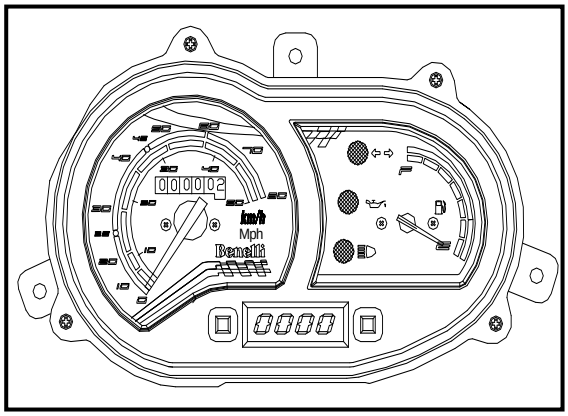
Install the tail lamp and the rear left/right steering lamp in reverse order.

Note:
Both the tail lamp and rear left/right steering lamp are LED lamps. Change the whole lamp if the replacemen is required.

4.6 Meter

Remove the odometer shade.
Remove the left and right side boards of the front shield.
Remove the panel of the front shield.
Remove the meter.

Install the meter in reverse order.



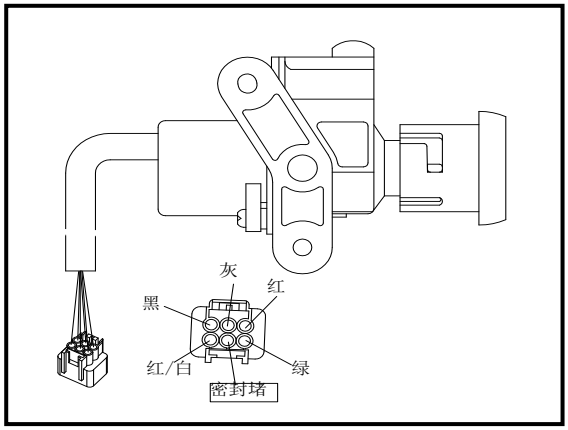
4.7 Main switch

4.7.1 Check

Remove the front body guard.
Remove the main switch lead terminal.
Check conduction of the terminal.

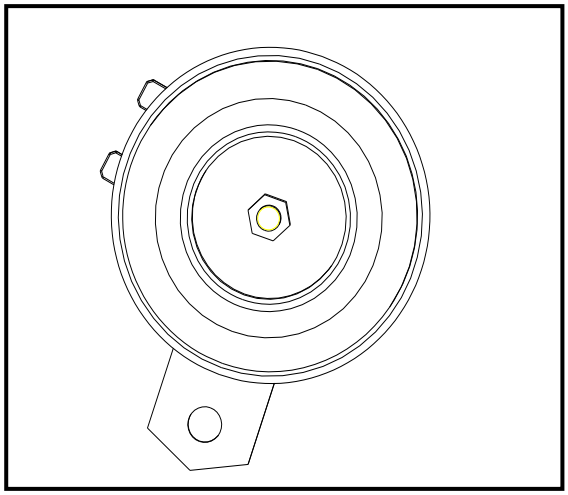
电器逻辑图

线色 / 档位	红 0.75mm²	红白 0.75mm²	黑 0.5mm²	绿 0.5mm²	灰 0.5mm²	钥匙插拔
						不能
						不能
						能
						能



电器逻辑图：electrical logic diagram 档位：gears 线色：color of wire 红：red 红白：red/white 黑：black 绿：green 灰：grey 钥匙插拔：key insert 不能：no 能：yes 密封堵：wire seal

4.7.2 Replacement of main switch



Remove the front body guard.

Remove the fixing bolts and the fixing seat of the main switch.

Remove the fixing bolts and relace the main switch.

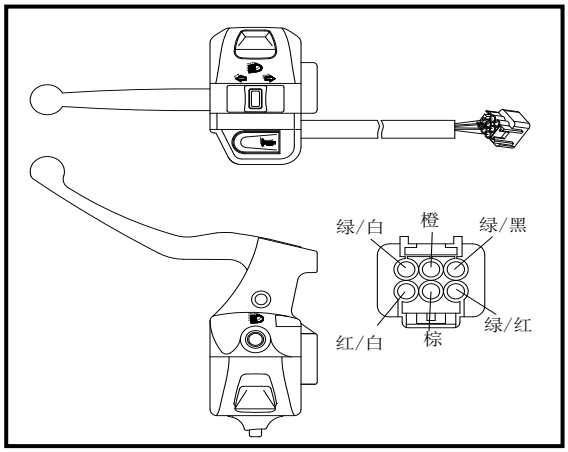
4.8 Horn

Check

Remove horn wires.

It shows good when the horn sounds after connecting the wires to the battery.

4.9 Combination switch



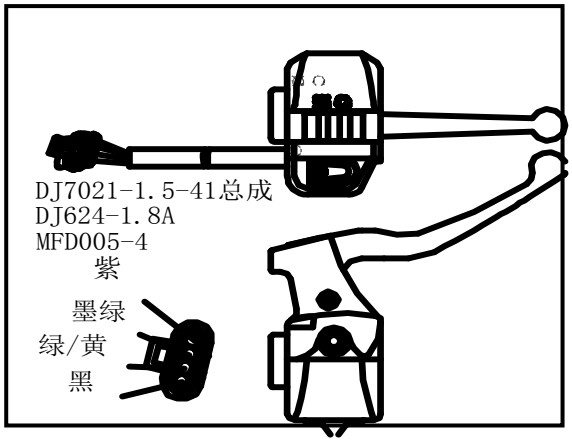
Remove the left/right rearview mirrors.

Revome the fixing screws of the left/right combination switch.

Loosen the left/right combination switch.

Remove the right grip assembly and the left steering grip.

(绿/白：green/white 橙：orange 绿/黑：green/black
红/白：red/white 棕：brown 绿/红：green/red)



Remove the left/right combination switch.

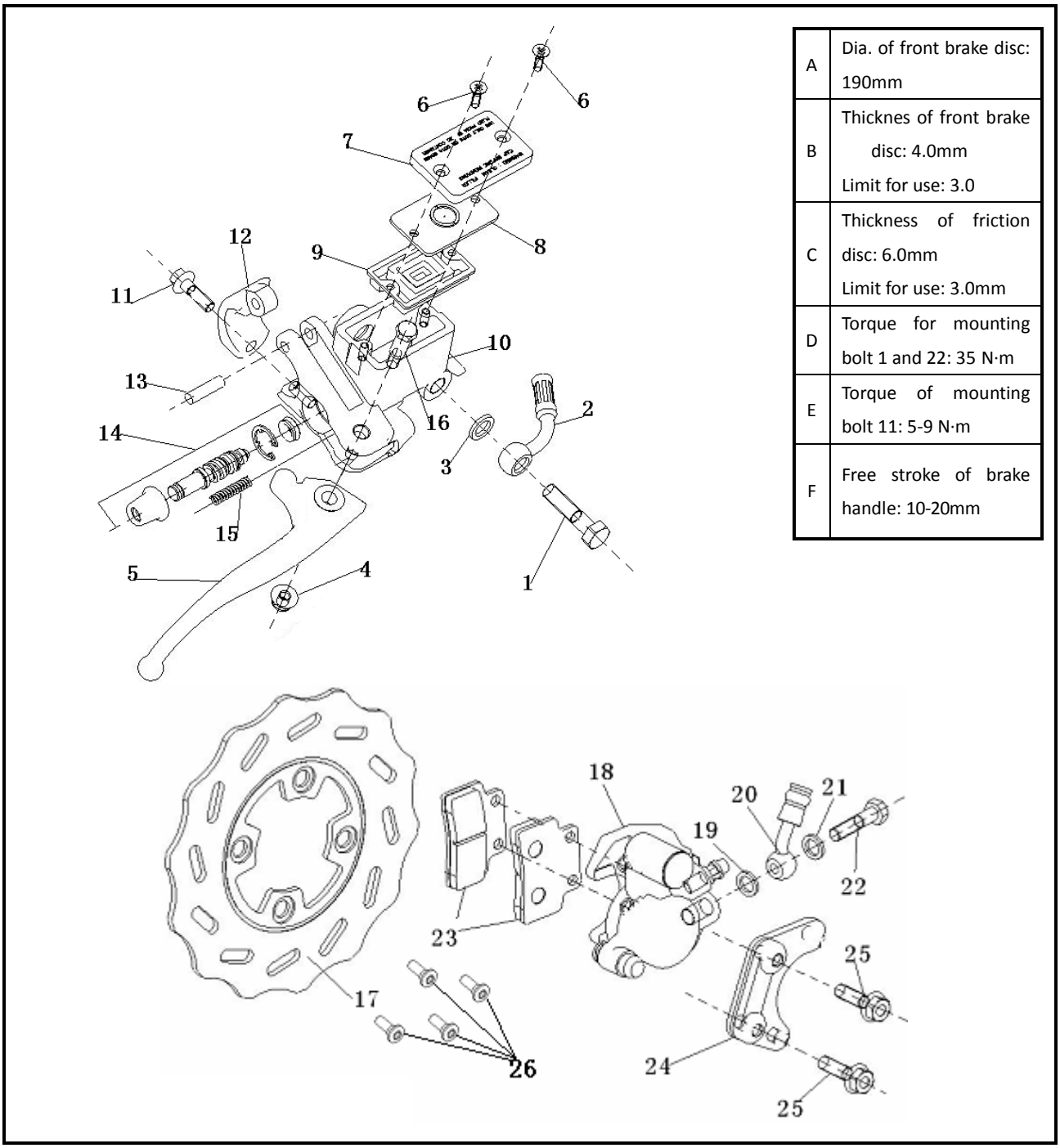
（总成：assembly 紫：purple 墨绿：dark green
绿/黄：green/yellow 黑：black）

Inspection and maintenance of the chassis

Torque Force Table of Chassis Fasteners

Name of fastening parts and fasteners	Tightening torque（N·m）
Fuel pump assembly fixing bolt	5-9 N·m
Mounting bolt of front brake cylinder assembly	22-29 N·m
Rear brake rocker arm bolt	5-9 N·m
Handlebar fixing screw	40-60 N·m
Front wheel spindle locking nut	55-62 N·m
Front absorber fixing bolt	40-60 N·m
Rear wheel fixing nut	85-98 N·m
Rear absorber top nut	37-44 N·m
Rear absorber bottom nut	22-29 N·m
Exhaust pipe joint bolt	22-29 N·m
Exhaust pipe fixing bolt	22-29 N·m

Front disc brake

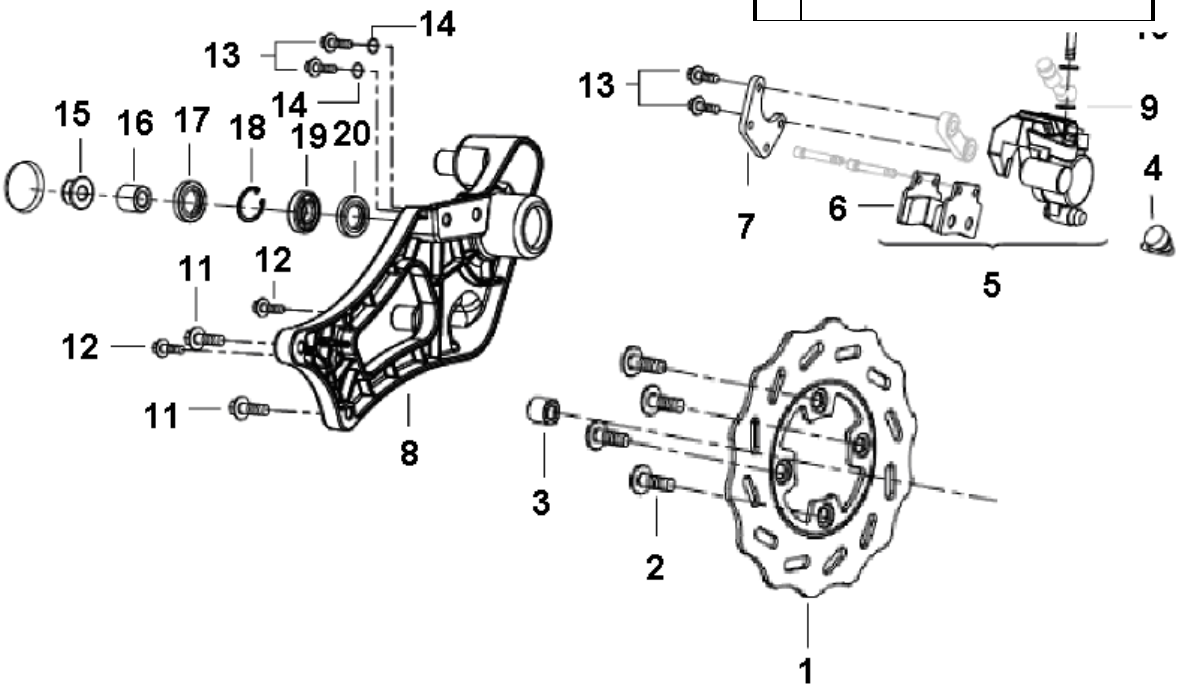


A	Dia. of front brake disc: 190mm
B	Thicknes of front brake disc: 4.0mm Limit for use: 3.0
C	Thickness of friction disc: 6.0mm Limit for use: 3.0mm
D	Torque for mounting bolt 1 and 22: 35 N·m
E	Torque of mounting bolt 11: 5-9 N·m
F	Free stroke of brake handle: 10-20mm

1 connecting bolt 2 front brake clip 3 gasket 4 nut M6 5 brake handle 6 screw M4×12 7 oil cup cap 8 fuel pump gasket 9 oil cup pad 10 fuel pump 11 bolt M6×23 12 retaining cap of handle seat 13 round pin 14 plunger assembly 15 handle return spring 16 handle screw M6 17 front brake 18 brake cylinder 19 gasket 20 front brake clip 21 gasket 22 connecting bolt 23 friction plate assembly 24 link plate 25 bolt M8×32 26 front brake disc mounting bolt

Rear disc brake

A	Dia. of rear brake disc：180mm
B	Thicknes of rear brake：4.0mm Limit for us：3.0
C	Thickness of friction disc：6.0mm Limit for us：3.0mm
D	Torque for mounting bolt 15：85-98 N m
E	Free stroke of rear brake handle：10-20mm
F	Torque of mounting bolt 2：22-29 N m



1. rear brake disc　2. mounting bolt M8X20 for brake disc (color-zinc）　3. left bushing for rear wheel 4. cycle valve 5. rear brake cylinder assembly 6. friction disc assembly 7. rear fender bracket　8. muffler clevis 9. gasket 10. coupling bolt 11. bolt M8X40　12. bolt M8×16 13. bolt M8X20 14. gasket 8　15. nut M14×1.5　16. outer bushing guide pin　18. check ring 19. deep groove ball bearing 6302-2RS

5. Brake

5.1 Maintenance instruction

Work Instructions

*** Note**

- Do not stain the brake assembly with oil spots during installation or disassembly.
- Clean it with required cleaning agent to maintain the brake performance.

Check the brake before riding.

5.1.1 Specification

Item		Standard (mm)	Limit for use(mm)
Brake fluid		DOT3 or DOT4	-
Thickness of front brake disc		4.0	3.0
Thickness of front friction disc		6.0	3.0
On-road	Dia. of front brake disc	190	-
	Dia. of rear brake disc	180	-
Off-road	Dia. of front brake disc	190	-
	Dia. of rear brake disc	180	-

5.1.2 Torque force

Fixing bolts for fuel pump assembly 5-9N·m **Mounting boltsfor front brake cylinder assembly 22-29 N·m**

Rear brake rocker arm bolt 5-9N·m **Fixing nuts for rear wheel 85-98N·m**

5.2 Failure diagnosis

Brake

Poor brake performance Slow reaction or tight lever

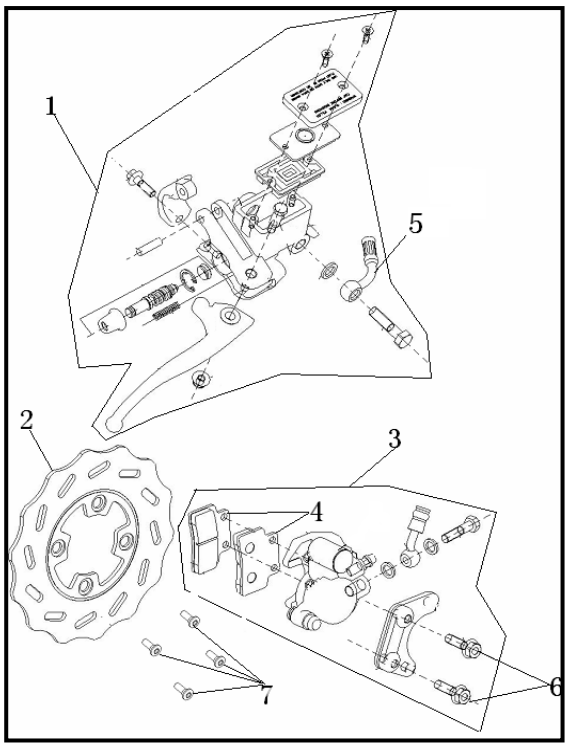
1. Improper adjustment of the brake
2. Abraded brake shoe, friction disc or brake drum
3. Improper installation of brake shoe or friction disc assembly
4. Stained brake shoe or friction disc assembly of the brake disc

1. Improper adjustment of the brake
2. Abraded brake shoee, friction disc or brake drum
3. Improper installation of brake shoe or friction disc assembly

Abnormal noise

1. Abraded brake shoe, friction disc or brake drum
2. Stained brake shoe or friction disc assembly of the brake disc

5.3 Front disc brake



5.3.1 Disassembly

*** Note**

• Replace the friction disc assembly.

• If the friction disc will be used again, mark it before disassembly so as to reinstall it at the original place.

Remove the following assemblies from the right grip and the front absorber.

Front brake:

1. fuel pump assembly
2. front brake disc
3. brake cylinder assembly
4. friction disc assembly
5. brake hose

Note: for breakdown details, see P63

*** Note**

• Do not stain the brake assembly with oil spots during installation or disassembly.

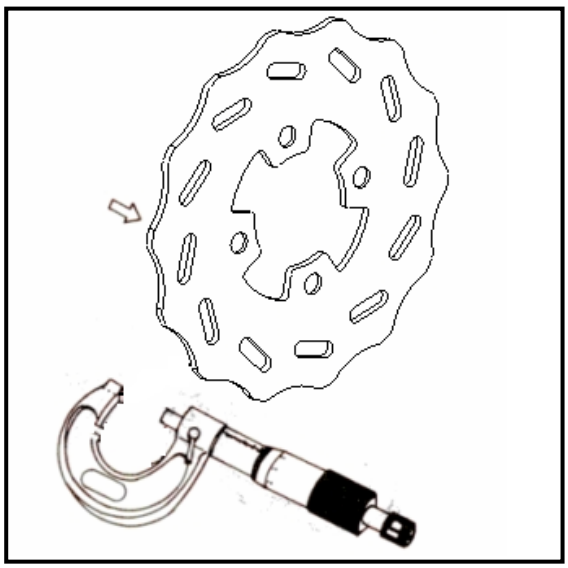
• Clean it with required cleaning agent to maintain the brake performance.

Loosen fixing bolts for the brake cylinder assembly.

Remove the brake cylinder assembly from the front absorber.

Remove the front wheel spindle and take down the front wheel.

Remove the brake disc from the front wheel.



5.3.2 Check

Check whether the friction disc assembly is abraded. Replace friction disc if necessary.

Measure the friction disc assembly and the brake disc. Record maximum values.

Specification

49X（on-road/off-road）

Diameter of the front brake disc ϕ190mm

Thickness of the front brake disc 4.0mm

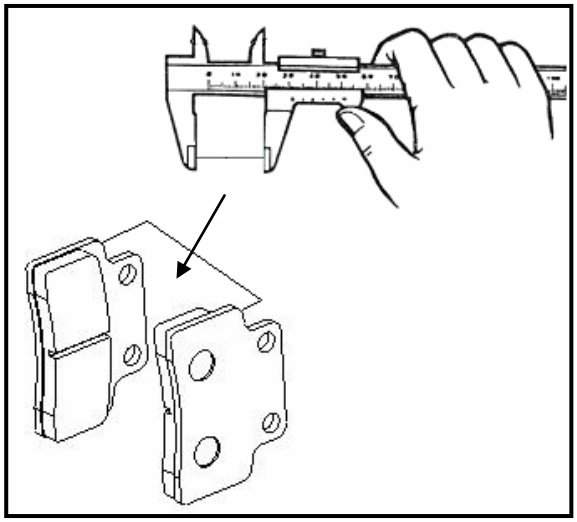
Thickness of the friction disc 6.0mm

*** Note**

• Measure with micrometer.

Measure the thickness of the friction disc assembly.

If the thickness of the front brake disc or the friction disc assembly is below the required value for maintenance or it is stained with grease, please replace it.



Limit for use: friction disc 3.0mm

Brake disc 3.0mm

Note:

Replace friction disc in pair.

5.3.3 Installation

Install the brake disc and the front wheel.

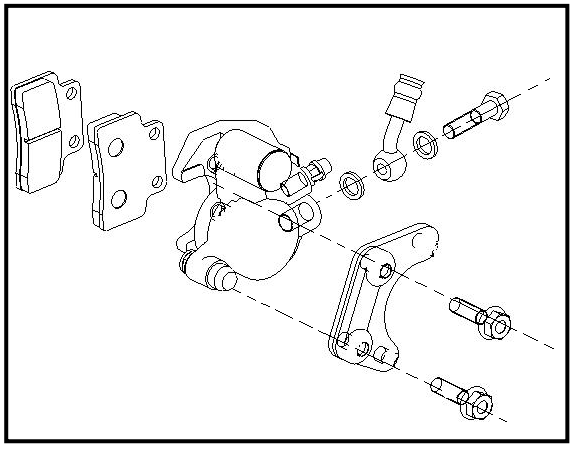
Install the front brake hose assembly and the brake cylinder assembly.

Do not stain the friction discs and the front brake disc with grease.

*** Note**

Any grease on friction discs will reduce the brake performance and even lead to failure.

Tighten bolts and nuts to the required torque force.



Torque force:

Fixing bolts for fuel pump assembly 5-9 N·m

Mounting bolts for front brake cylinder assembly

22-29 N·m

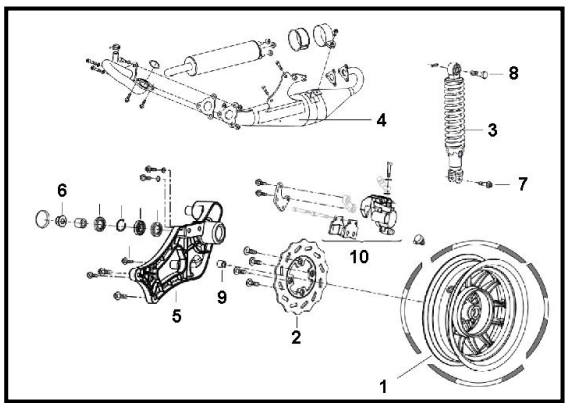
Do not stain friction discs with oil spots

Use brake cleaning agent to clean friction discs with oil spots.

*** Note**

Any oil spot on frictin discs witll reduce brake performance.

5.4 Rear disc brake



5.4.1 Disassembly

Remove the muffler 4.

Remove the fixing nut 6 of the rear wheel and fixing nuts 7 and 8 of rear absorber.

Remove the rear right absorber 3 and the clevis.

Remove the brake cylinder assembly 10.

*** Note**

• Replace the friction disc assembly.

• It the friction discs will be usd again, mark it before disassembly so as to reinstall it at the original place.

Remove following assemblies from the rear wheel

Rear brake:

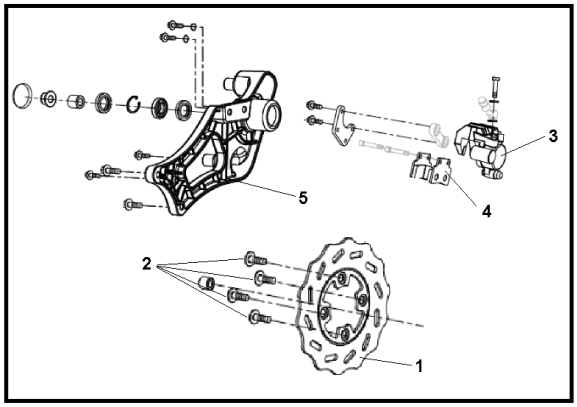
1.front brake disc

2.mounting bolts for brake disc

3.rear brake cylinder assembly

4.friction disc assembly

5.muffler clevis



Note: for breakdown details, see P64.

5.4.2 Check

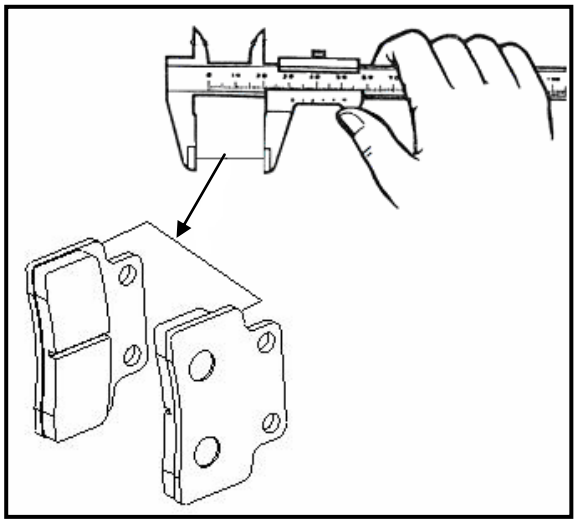
Check whether the friction disc assembly is abraded. Replace it if necessary.

Measure the friction disc assembly and brake disc. Record the maximum values.

Specification

49X（on-road/off-road）

Diameter of rear brake disc	**ϕ180mm**
Thickness of rear brake disc	**4.0mm**
Thickness of friction disc	**6.0mm**



*** Note**

• Measure with micrometer.

Measure the thickness of friction disc assembly.

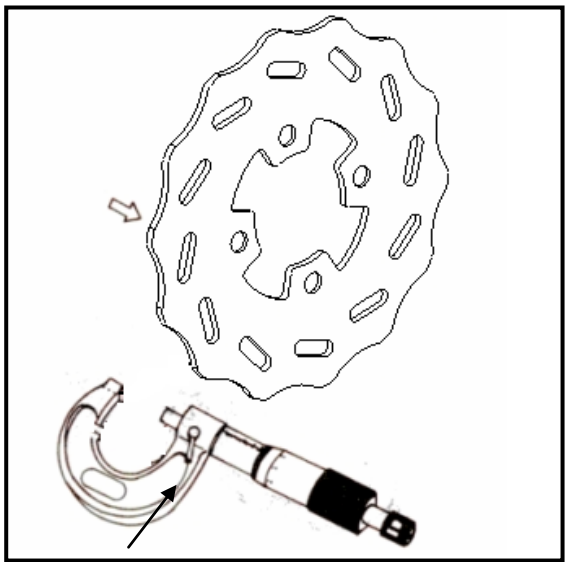
If the thickness of the brake disc and the friction assembly is below the required value for maintenance or it is stained with grease, please replace it.

Limit for use: friction disc 3.0mm

brake disc 3.0mm

Note:

Replace the friction discs in pair.



5.4.3 Installation

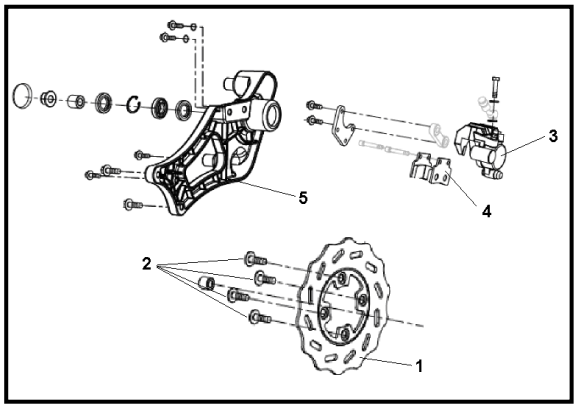
Install in the reverse order.

*** Note**

Install the brake disc and the rear wheel.

Install the rear brake hose assembly and the brake cylinder assembly.

Do not stain the friction disc or brake disc with grease.



*** Note**

Any oil spot on friction disc will reduce the brake performance and even lead to failure.

Tighten bolts and nuts to the required torque force.

Torque force:

Fixing nuts for rear wheel: 85-98 N·m

Do not stain friction discs with oil spots.

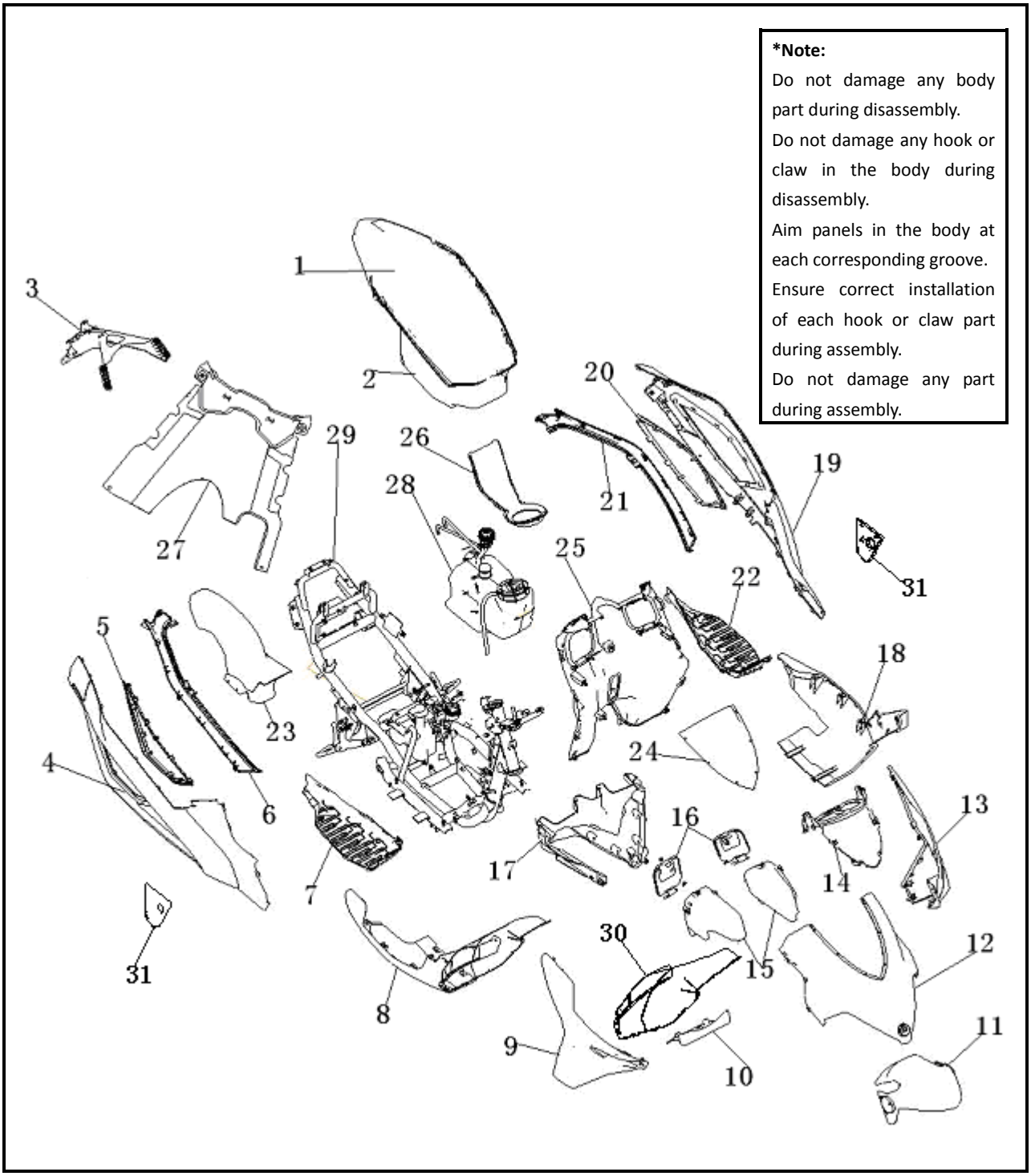
Use brake cleaning agent to clean the friction discs with oil spots.

*** Note**

Any oil spot on friction disc will reduce the brake performance.

Note: for breakdown details, see P64.

Covering parts



1 seat assembly 2 helmet box 3 rear fender assembly 4 right guard 5 decorating panel of right guard 6 connecting bracket of right guard 7 right foot pedal 8 shield of right foot pedal 9 right guard of front shield 10 bottom board of front shield 11 front fender 12 front shield 13 left guard of front shield 14 odometer shade 15 left/right storage box 16 left/right storage box assembly 17 front cover 18 shield of left foot pedal 19 left guard 20 decorating panel of left guard 21 connecting bracket of left guard 22 left foot pedal 23 rear fender 24 odometer shade 25 foot protection board 26 fuel tank cover plate 27 rear fender 28 fuel tank 29 frame 30 front fender II 31 left/right guard

6. Body

Disassemble the car according to the following order

Speed indicator sun shield→front cover panel→front cover left/right plate→front cover bracket cup（headlamp）→

↓

Seat assembly→storage cell→left/right rear pedal assembly→rear mudguard assembly→rear lower mudguard→right plate,

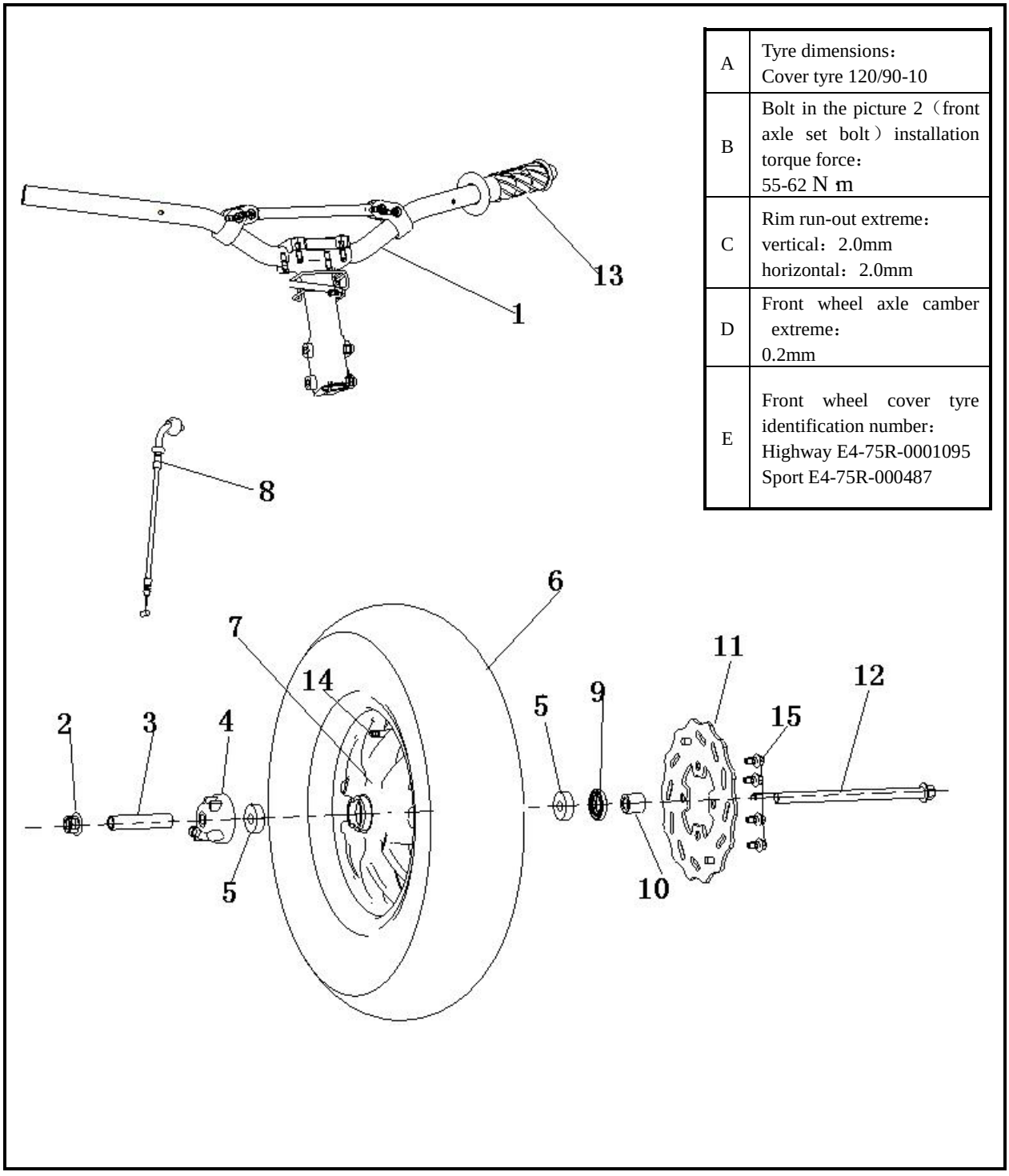
↓

Right plate decorating plate, right plate gusset plate, left plate, left plate decorating plate, left plate gusset plate→foot plate, left/right foot pedal→oil tank cover

***note**

The body cover must not be damaged when disassembling.
The hook claw upon the body cover must not be damaged.
Align the panel and cover plate and respective slots upon the body cover.
Correctly install the hook claw of respective parts when assembling.
The accessories must not be damaged when installing the cover parts.

Front Wheel

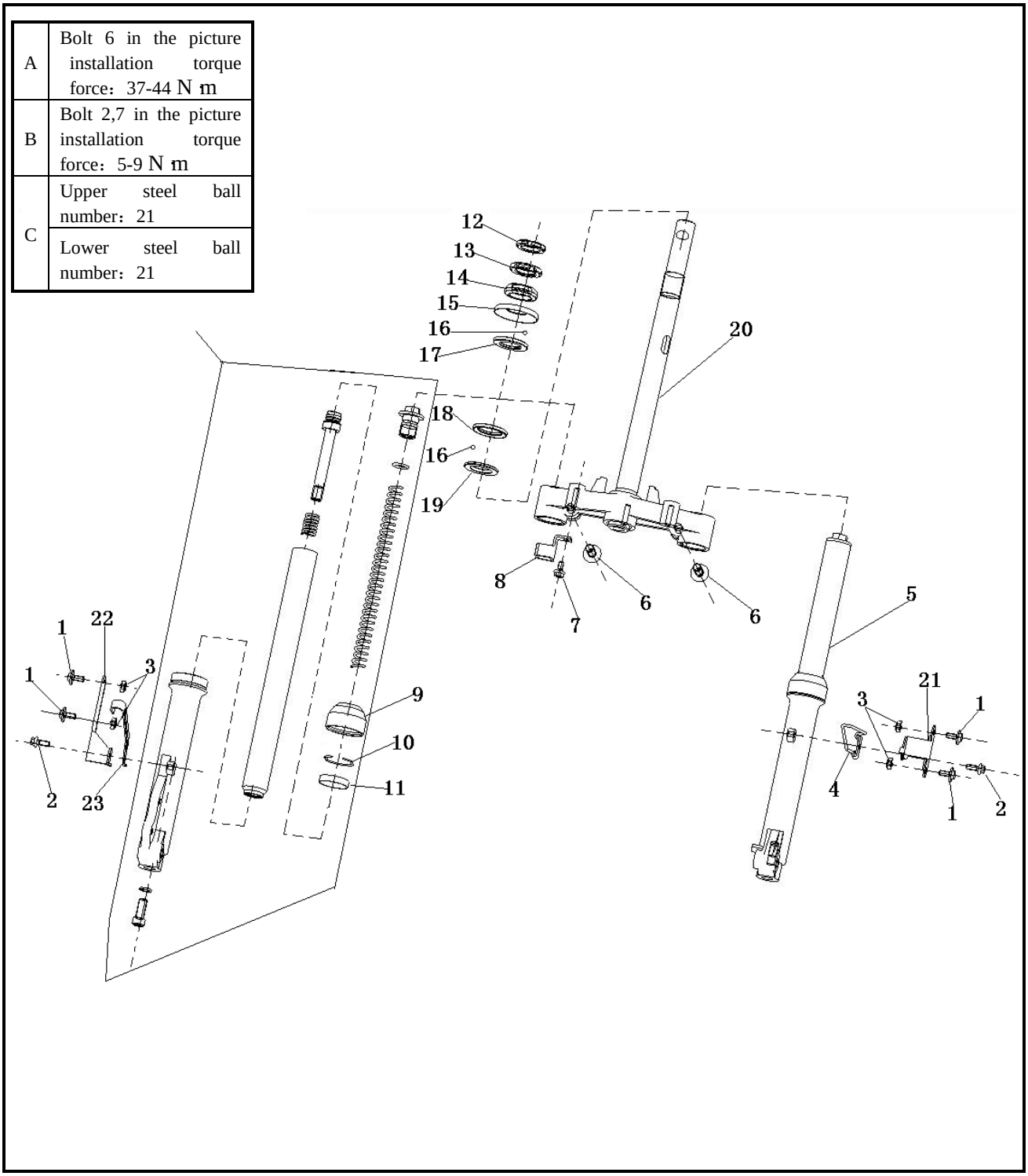


A	Tyre dimensions： Cover tyre 120/90-10
B	Bolt in the picture 2（front axle set bolt）installation torque force： 55-62 N m
C	Rim run-out extreme： vertical：2.0mm horizontal：2.0mm
D	Front wheel axle camber extreme： 0.2mm
E	Front wheel cover tyre identification number： Highway E4-75R-0001095 Sport E4-75R-000487

1 handle bar 2 nutM12×1.25 3 front wheel middle axle sleeve 4 pinion stand assembly 5axle bearing 6201-2RS 6 tyre 120/90-10 7 front wheels 8 inhaul cable assembly 9 front wheel grease seal assembly 10 front wheel left axle sleeve 11 front brake disc 12 front axle

Front Suspension

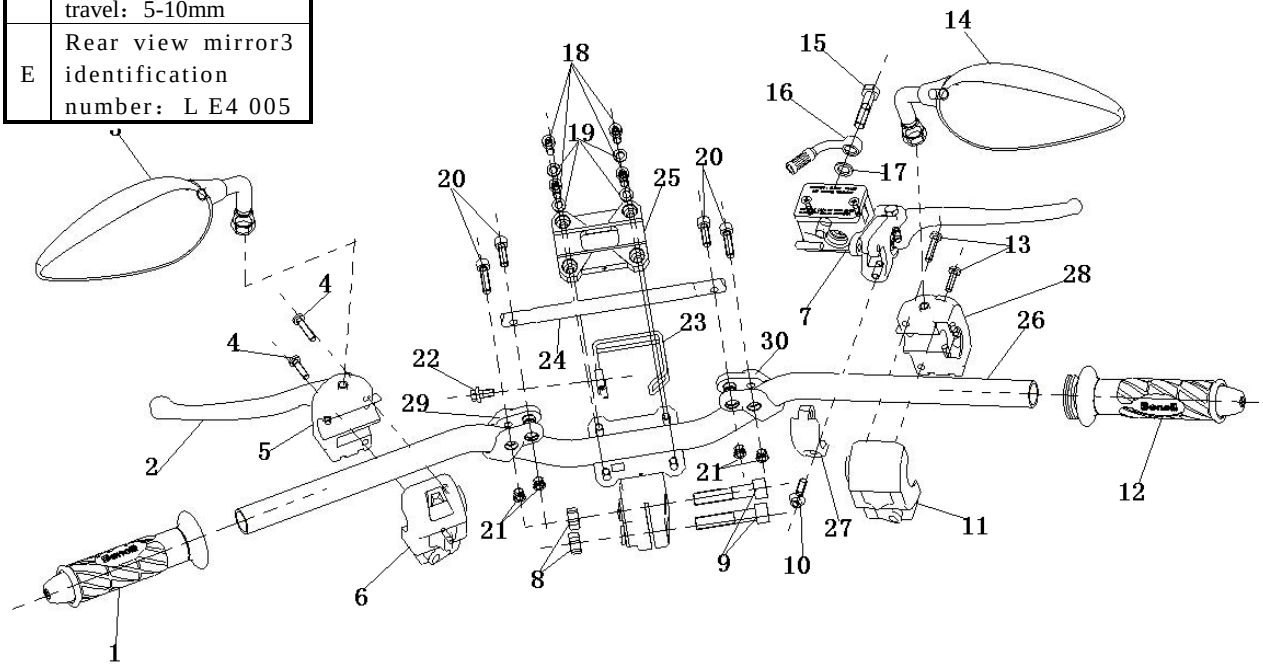
A	Bolt 6 in the picture installation torque force：37-44 N m
B	Bolt 2,7 in the picture installation torque force：5-9 N m
C	Upper steel ball number：21
	Lower steel ball number：21



1 bolt 2 bolt M6×16 3 nut 4 odometer cable clamp 5 front right shock absorber assembly 6 bolt M10×1.25×30 7 bolt M6×12 8 fluid brake cable clamp 2 9 dust ring 10 steel cable baffle ring 11 grease seal assembly 12 compression nut 13 compression nut 14 coupling steel bowl 15 dust-proof cover 16 steel balls 3/16 17 lower axle bearing and upper steel bowl 18 lower axle bearing and upper steel bowl 19 lower axle bearing and upper steel bowl 20 lower yoke plate welding assembly 21 front mudguard bracket 2 22 front mudguard bracket 1 23 fluid brake cable clamp 1 24 front left shock absorber assembly

Handlebar

A	Bolt 9 in the picture （handling bar set bolt）installation torque force： 40-60 N m
B	Front brake handle free travel： 10-20mm
C	Rear brake handle free travel： 10-20mm
D	Throttle operating handle（picture 12）free travel：5-10mm
E	Rear view mirror3 identification number：L E4 005



1 left handle cover 2 left handle 3 left rear view mirror assembly 4 nut bolt M5×20 5 left combination switch mounting base 6 left combination switch 7oil pump body 8 nut M10×1.25 9 screw M10×1.25×50 10 bolt M6×23 11 right combination switch 12 right handle assembly 13 screw M5×25 14 tight rear view mirror assembly 15 coupling bolt 16 fluid brake cable clamp 17 carrier ring 18 screw M6×20 19 carrier ring 20 screw M6 21 nut bushing 22 nut M6×12 23 cable clamp assembly 24 crash bar 25 steering column bushing 26 handle bar 27 handle bar cover 28 right combination switch mounting base 29 right crash bar mounting base 30 left crash bar mounting base

7. Front wheel/Front suspension

7.1 Preparing documents

Work Instructions

Before disassembling the front wheel, use lifting jack to support the chassis and see to it that the front wheels must not rotate reversely.

In operation, see to it that no fat sticks to the stop brake, friction disc and fluid brake plate.

Motorcycle Standards

Measurement points	**Item**		**Standard (mm)**	Limit for use (mm)
Front wheel spindle	Bending			0.2
Front wheel	Rim shimmy	Vertically		2.0
		Horizontally	Within 1.0	2.0

Motorcycle type	**Name**	**Specification**
49X road	Front wheel	120/70-12
	Front wheel rim	3.50×12
	Rear wheel rim	130/70-12
	Rear wheel rim	3.50×12
49X SUV	Front wheels	120/90-10
	Front wheel rim	2.75×10
	Rear wheels	130/90-10
	Rear wheel rim	3.00×10

Torque force

Handle bar set screw	**40-60**	**N·m**
Front wheel axle locknut	**55-62**	**N·m**
Front shock absorber set bolt	**40-60**	**N·m**

tools

axle bearing disconnect rod

grip nut wrench

7.2 Failure diagnosis

7.2.1 Difficulty in turning the handle bar

Handle bar axle failure.
Handle bar axle breakdown.
Low tyre pressure.
Tyre blowing.

7.2.2 unsteady steering

Dandle bar axle breakdown.
Insufficient tyre pressure.
Front fork winding, front wheel axle winding.
Front wheel tyre deformation, oblique.

7.2.3 Shimmy of front wheels

Rim deformation.
Front wheel axle bearing loosened.
Bad tyre.

7.2.4 Difficulty in turning the wheels

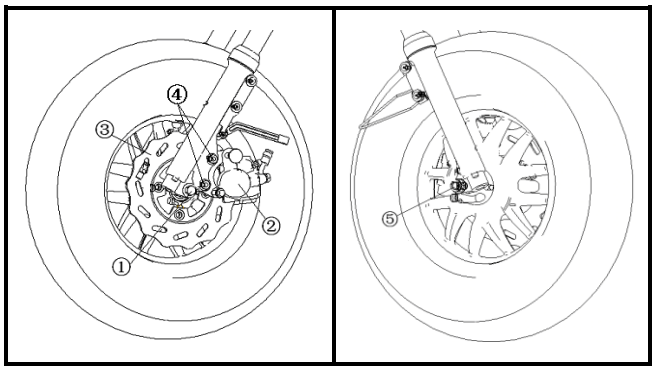
Wheel axle bearing failure or pinion stand failure.

7.2.5 Front shock absorber abnormal sound

Shock absorber plate fricative.
Bolts of various parts of shock absorber loosened.

7.3 Front wheels

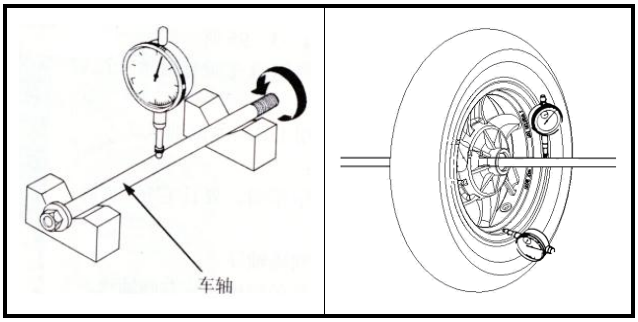
7.3.1 Disassembly



Note:
The monocycle must be supported firmly.
Loosen the brake cylinder assembly assembling bolt④.
Take down the brake cylinder assembly②.
Place a suitable pedestal under the engine so as to lift the front wheels.
Loosen the front wheel axle grip nut⑤, take down front wheel axle①, front wheels.
Take down the pinion stand assembly.
Dismantle the fluid brake plate③.
Dismantle the front wheels oil seal assembly, front wheel left axle bushing, axle bearing 6201-2RS, front wheel middle axle sleeve.
***note: 49X front wheel assemble and disassemble picture is seen in P72 in the manual.**

7.3.2 Inspection

7.3.2.1 Axle bending inspection



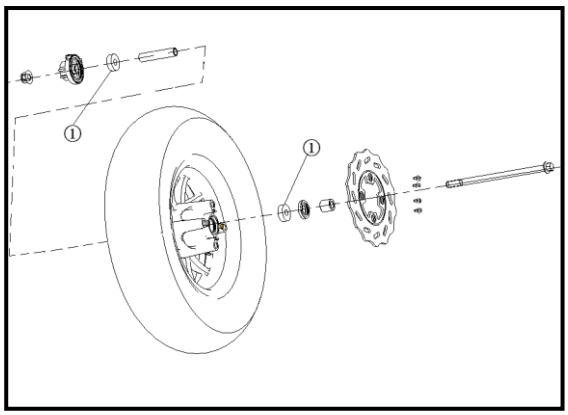
Place the axle upon the V-shape seat and use dial gauge to measure the eccentricity.

Available limit: change when above 0.2mm

7.3.2.2 Inspection of rim shimmy

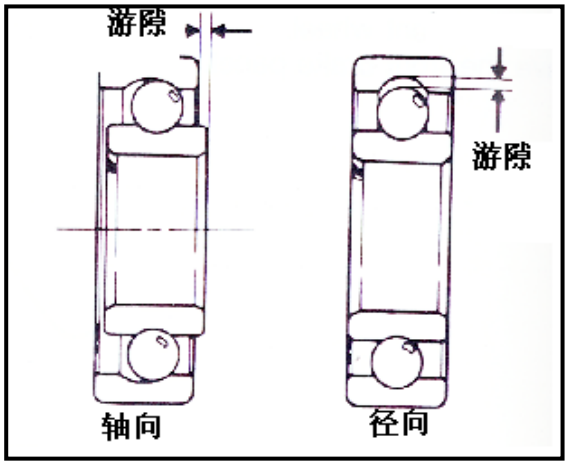
Place the rim upon a precise pedestal and inspect the rim wobble.
Use hands to turn the wheels and read the value of wobble.
available limit:
Vertical: change when above 2.0mm.
Horizontal: change when above 2.0mm.

7.3.2.3 Front wheels axle bearing inspection



Disassemble the front wheel axle, fluid brake plate.
Take down the front wheel left axle sleeve and disassemble the front wheel oil seal assembly.
Disassemble axle bearing①.

Inspect the rolling of axle bearing.
If rolling is absent, axle wearing or loosened, replace with new products.
（游隙 clearance　　轴向 axially　　径向 radially）

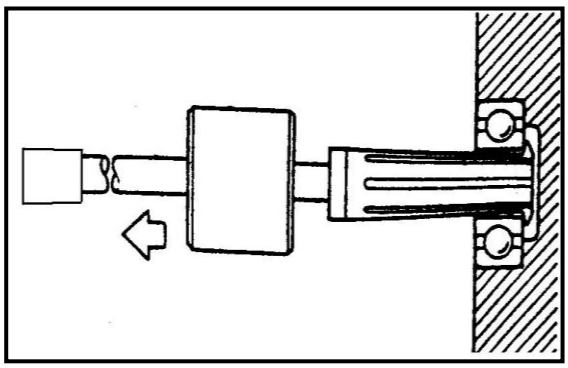


7.3.3 Axle bearing replacement

Disassemble the front wheel axle, front wheel and front wheel left axle sleeve, front wheel middle axle sleeve.
Use oil seal puller and axle puller to respectively disassemble the oil seal and axle.

Note:
The disassembled axle shall be replaced with new axles.
The axle shall be smeared with grease when installing.
Then use the axel installation tool to press in the axle.

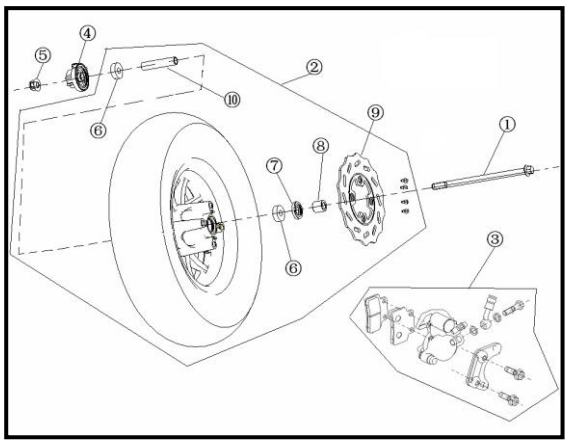
***note**
•the axle must be pressed in parallelly.



7.3.4 Installation

To be operated according to the reverse order of disassemble. The following are to be noted:
Lubricate the front wheel axle①, pinion stand assembly④, oil seal⑦（mouth）, axle 6201-2RS⑥, front wheel middle axle sleeve⑩, front wheel left axle sleeve⑧.
Calcium soap base grease is recommended as a lubricant

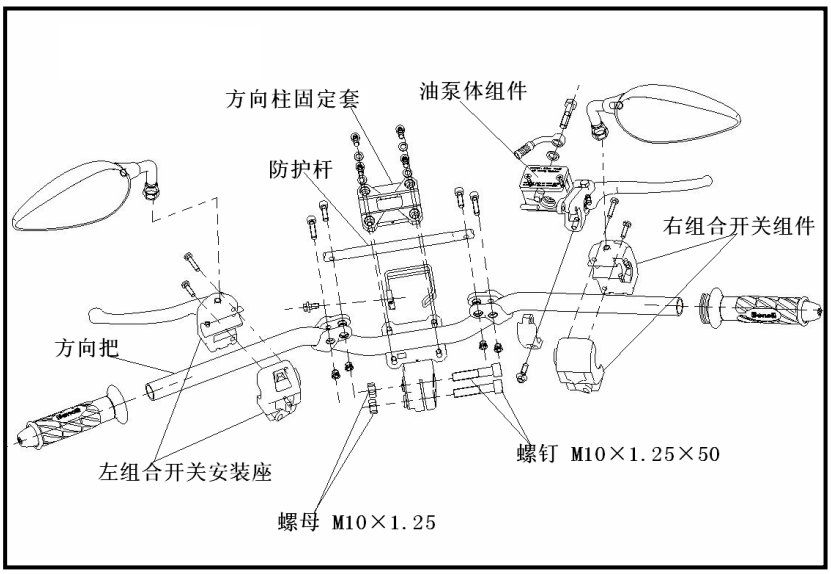
Install front wheels②, front wheel axle①, pinion stand assembly④, nut M12X1.25⑤.
When installing pinion stand assembly④, attentions must be paid to ensure it is well folded, if the odometer pinion stand assembly has not folded and locked the front wheel axle odometer, the pinion stand assembly will deform.
Install brake cylinder assembly③ upon the front wheel hub.
Screw up the front wheel axle（seen in the right-hand picture）.
***note: 49X front wheel assemble and disassemble picture is seen in P72 in the manual.**
Torque force
Front wheel axle locknut 55-62 N·m



7.4 Handlebar

7.4.1 Disassemble

Disassemble rear view mirror assembly.
Disassemble left/right combination switch assembly.
Disassemble oil pump assembly.
Take down the left handle bar, throttle operation handle assembly.
Loosen steering column bushing and set screw.
Disassemble steering column fixed sleeve.
Take down the handle bar.



方向柱固定套 steering column fixed sleeve 油泵体组件 oil pump assembly
防护杆 crash bar 右组合开关组件 right combination switch assembly
方向把 steering bar 左组合开关安装座 left combination switch mounting base
螺母 nut 螺钉 screw

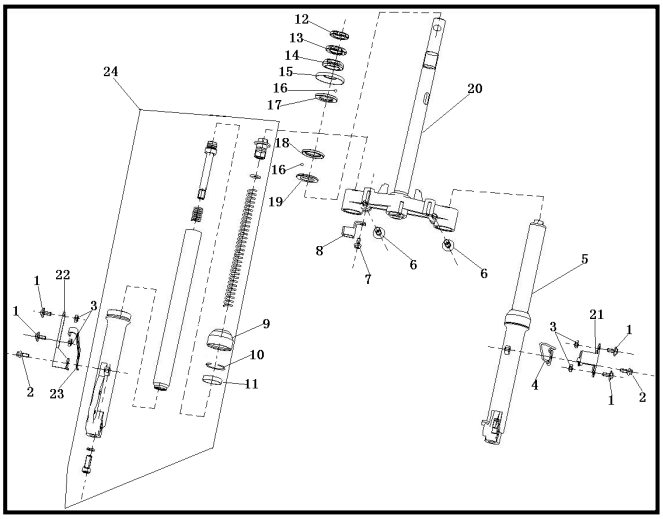
7.4.2 Installation

***note: 49X steering bar disassemble and assemble picture is seen in P74 in the manual.**
Install according to the reverse order of disassemble.
Steering bar set screw
Torque force: 40-60 N·m

7.5 Front fork

7.5.1 Disassemble

Disassemble body plate.
Disassemble front wheels.
Disassemble meter, headlamp, braking flexible tube, odometer conductor.
Disassemble steering bar.
Disassemble compression nut in order（12）, dust proof cover（15）, compression nut（13）, connecting steel bowl（14）,steel balls（16）,lower axle, upper steel ball（17）.
Take down front fork.
Disassemble lower axle and upper steel bowl（18, 19）and steel balls（16）.
Disassemble front shock absorber set bolt（6）.
Disassemble front shock absorber assembly （10）.

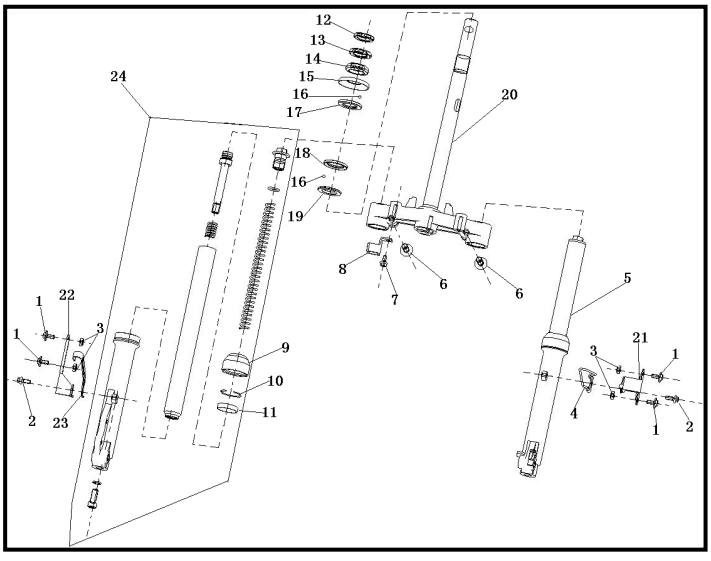


Tools:
Steering bar set bolt wrench.
Extracting tools reserved for axle steel bowl.
***note:**
Use rag to clean the peristome of body plate.
Use extracting tools reserved for axle and steel bowl to disassemble the upper, lower axle steel bowl.

7.5.3 Installation

Smear the bottom axle steel bowl with grease and confirm the steel ball numbers.（21）
Handle bar is irreversible (to prevent the steel balls from falling) and install the steering bar.

Support the steering bar and smear the top axle steel bowl with grease and confirm the steel ball number (21).

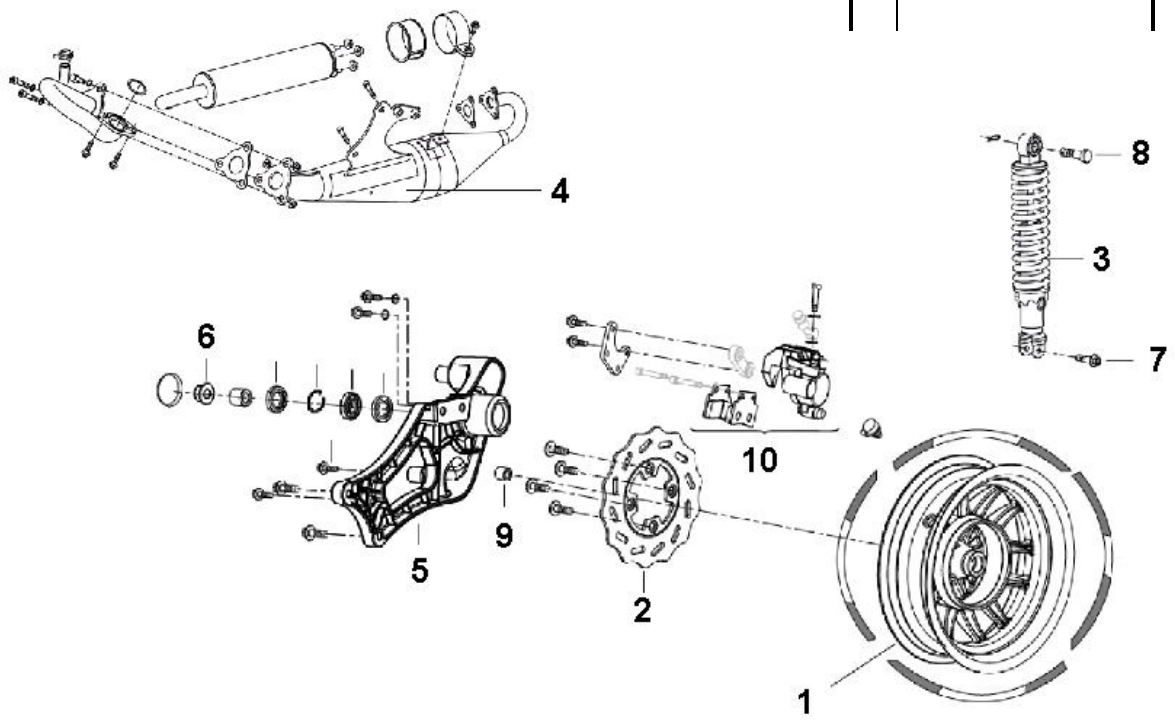


Turn the handle bar right and left to press the steel balls tightly together.

Tool:
Set nut spanner.
Turn the front fork right and left to confirm it is smooth and not loosened.
steps：
Front shock absorber assembly installation.
Handle bar, headlamp, braking flexible tube, odometer conductor, meter installation.
Body plate installation.
Front wheel installation.
Front shock absorber set bolt
Torque force： 40-60 N·m
***note：49X front fork disassemble picture is seen in P73 in this manual.**

Rear wheel/rear suspension

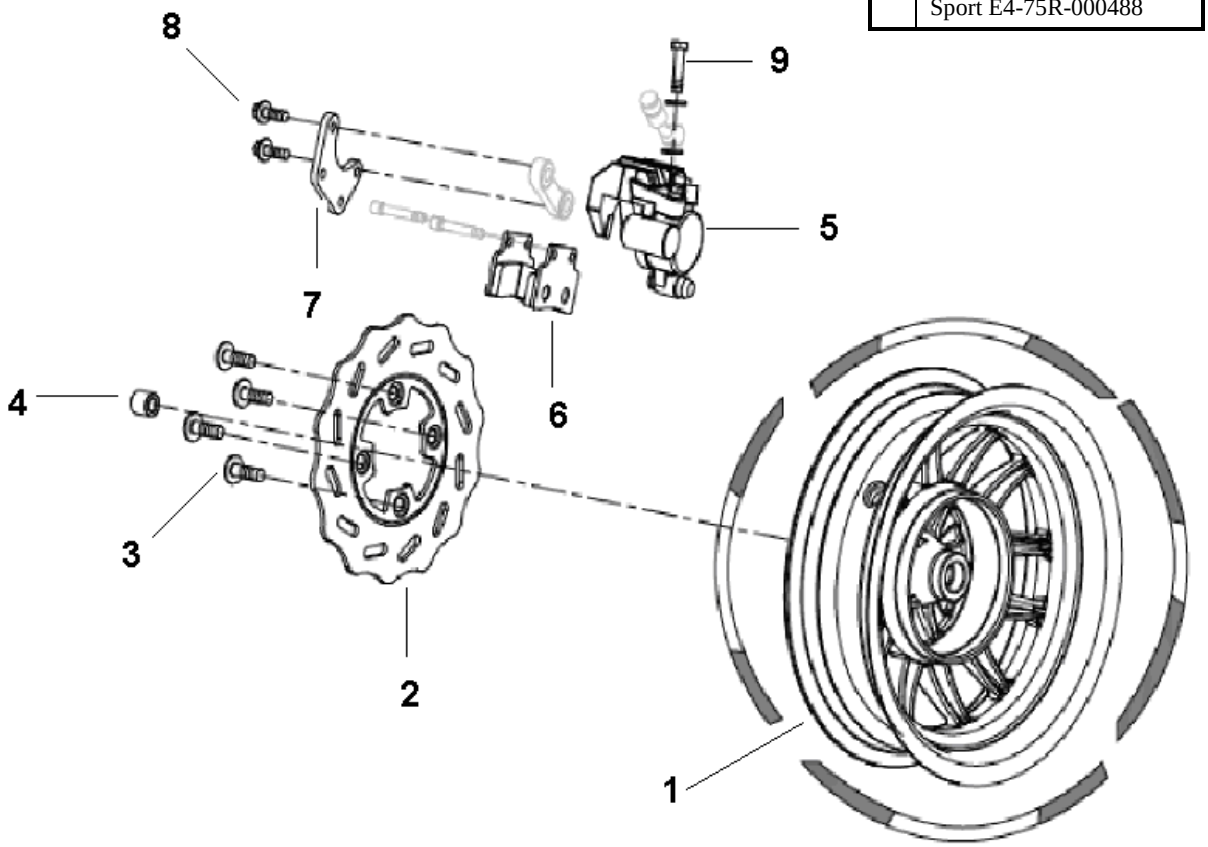
A	In the picture, 6 back wheel grip nut torque force: 85-98 N·m
B	In the picture, bolt8 installation torque force：37-44 N·m
C	In the picture, bolt7 installation torque force: 22-29 N·m



1back rim assembly 2back braking plate 3back shock absorber 4silencer assembly 5silencer hanging board 6nut M14×1.5 7bolt M8×40 8bolt M10×1.25×40 9back wheel left axle sleeve 10back fluid braking cylinder assembly

Rear wheel

A	Tyre dimension: 130/90-10
B	In the picture, 8bolt torque force：22-29 N m
C	In the picture, 3bolt torque force: 22-29 N m
E	Back wheel outer tyre ID No.: Highway E4-75R-0001096 Sport E4-75R-000488



1back rim assembly 2back braking plate 3fluid braking plate installation bolt M8X20 (coloring zinc) 4back wheel left axle sleeve 5back fluid braking cylinder assembly 6friction disc assembly 7back mud guard support 8bolt M8X20 9coupling bolt

8. Rear wheel/rear suspension

8.1 Preparing documents

Work Instructions

The surface of the brake drum and brake shoes shall not be stained with oil spots.

Preparing Principles

Item		Standard (mm)	Limit for use (mm)
Rear wheel shimmy	Vertically		2.0
	Horizontally		2.0

Locking torque force

Rear wheel grip nut	**85 - 98 N·m**
Rear shock absorber top bolt	**37 - 44 N·m**
Rear shock absorber bottom bolt	**22 - 29 N·m**

8.2Failure diagnosis

8.2.1 Rear wheel swing

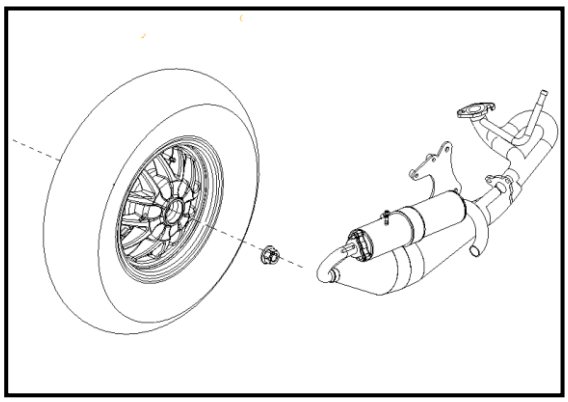
Rim deformation
Tyre failure
Back wheel not gripped
Tyre low pressure

8.2.2shock absorber over soft

Spring elastic fatigue

8.3 Rear wheel

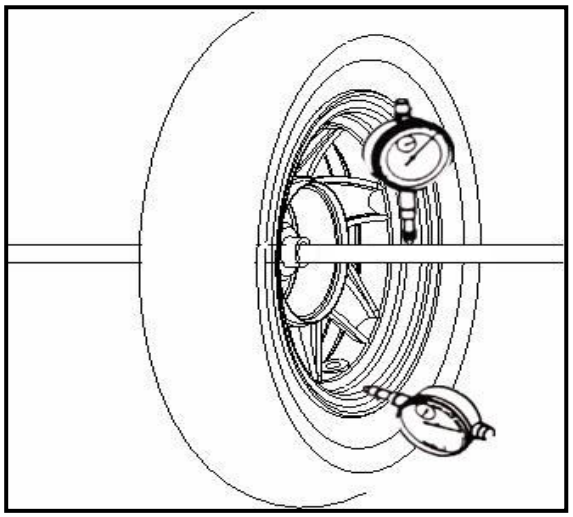
8.3.1 Disassemble



Disassemble the silencer assembly.
Disassemble back inner mud guard plate
Disassemble the rear wheel axle grip nut.
Take down the rear wheel.

8.3.2 Inspection

8.3.2.1 Rim swing test



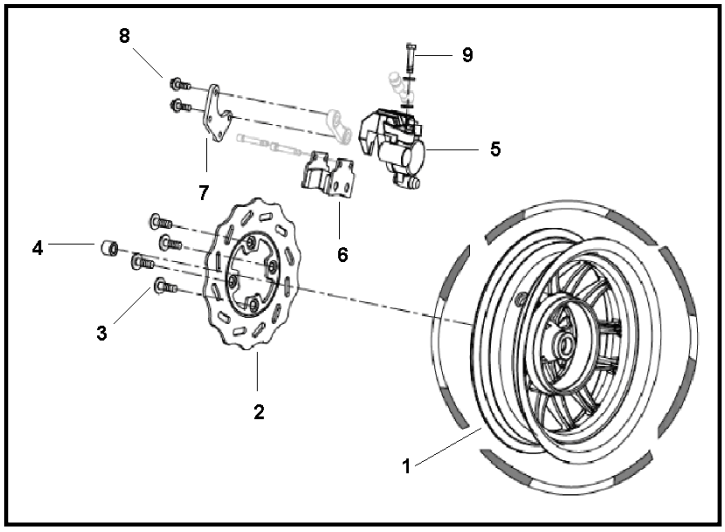
Use hands to turn the wheels and measure the eccentricity with dial gauge.
Allowed extreme:
Vertical: change when above 2.0mm.
Horizontal: change when above 2.0mm.
When the back wheel wobble goes beyond the available extreme, the loosening of back wheel will lead to the swing of back wheel. Change the back wheel axle after inspection.

8.3.3 Installation

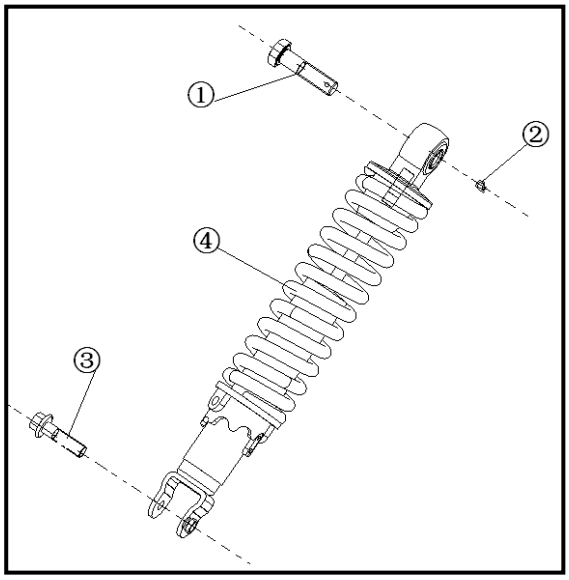
Install the back wheel according to the reverse order of disassembling and grip the nut.

Back wheel grip nut
Torque force: 100-113 N·m
***note: 49X back wheel disassembling picture is seen in P80-81**

49X Rear wheel



8.4 Rear shock absorber

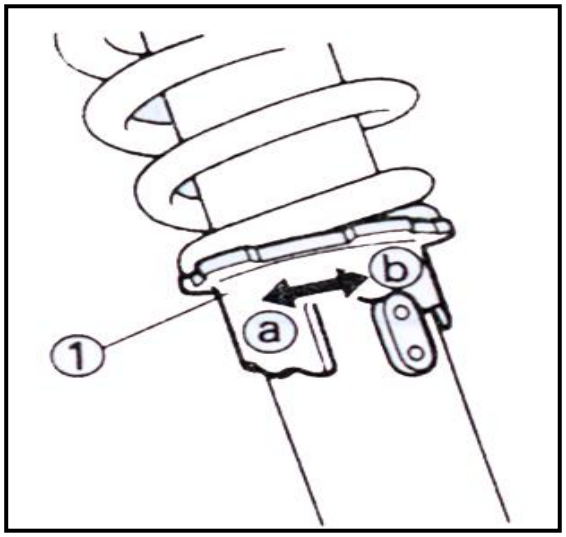


8.4.1 Disassembling

Disassemble cotter pin②.
After loosening, grip the nut upon the top of the shock absorber.
After loosening, grip the nut upon the bottom of the shock absorber.
Disassemble the back shock absorber set bolt①, ③.
Take down back shock absorber④.

8.4.2Inspection and adjustment

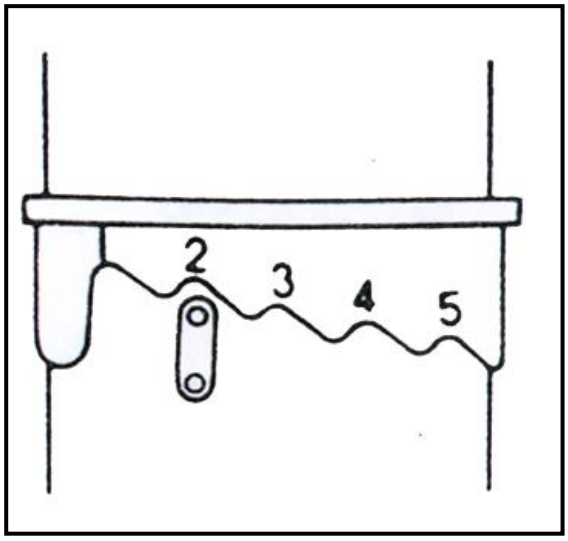
Note:
The preload value of every shock absorber shall always be adjusted to the same set value.
No uniform adjustment will worsen the operating performance and thus the stability is lost.



Adjust spring preload, turn the adjustment device to ⓐ direction or ⓑdirection.

To ⓐdirection turn to spring and increase preload; to ⓑ direction turn to and preload value decreases.

Adjust device position: standard position is 2; minimal position is 1, maximal position is 5.



8.4.3 Installation

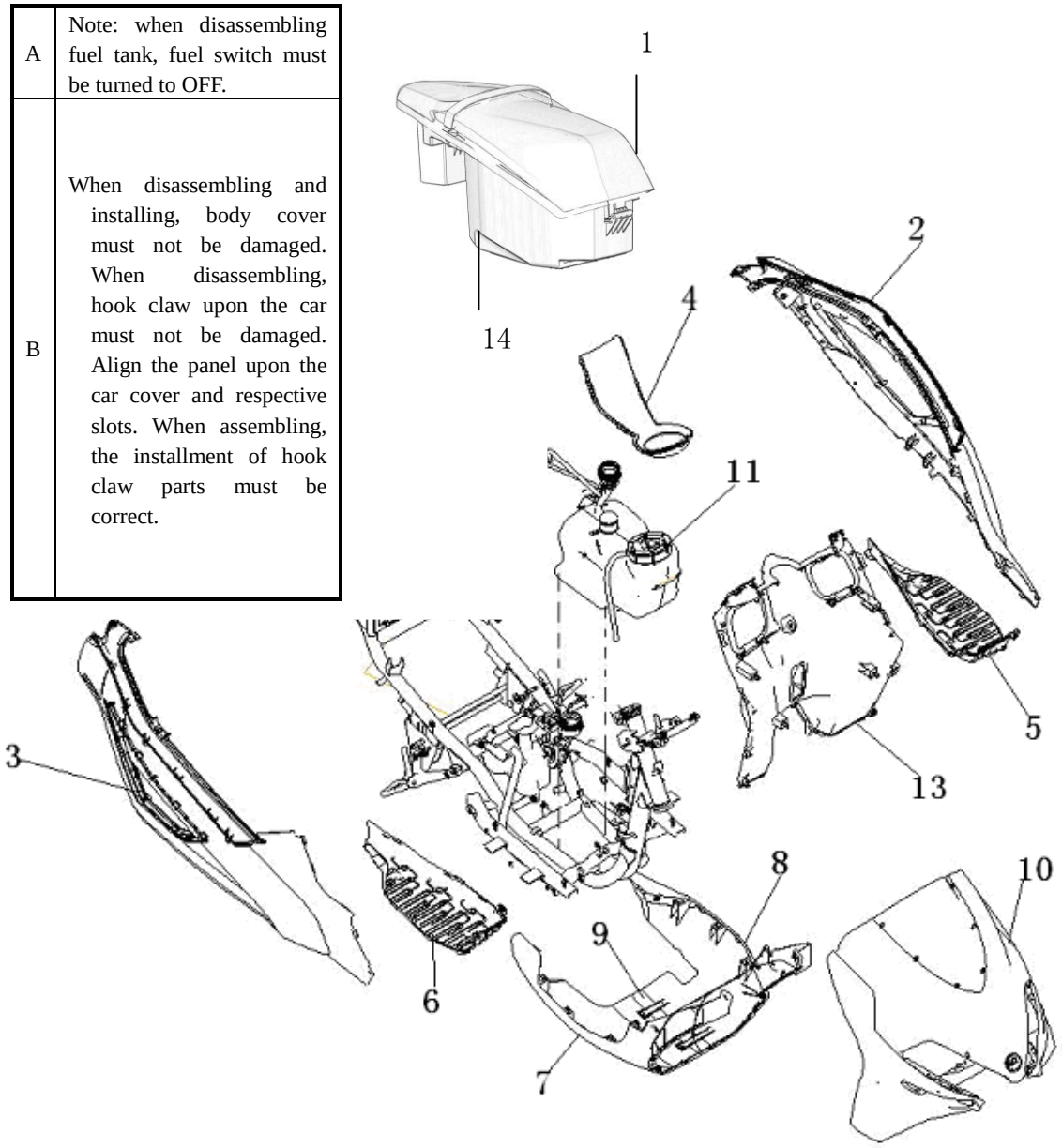
Install rear shock absorber.
Torque force:
Upper set bolt: 37-44 N·m
Lower set bolt: 22-29 N·m

Installation of rear shock absorber.
Install back handrail, back mud guard plate.

Install cushion, left/right protective plate.

Fuel tank/cushion

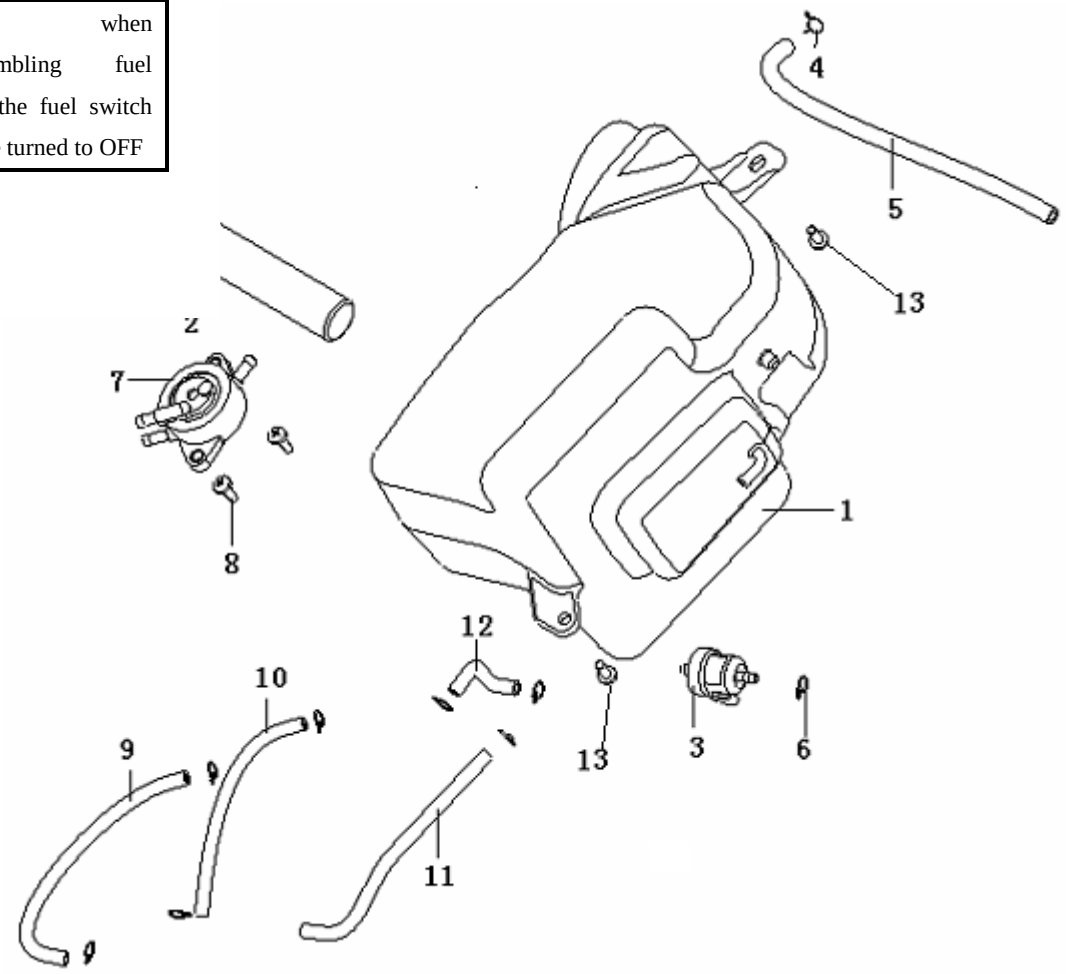
A	Note: when disassembling fuel tank, fuel switch must be turned to OFF.
B	When disassembling and installing, body cover must not be damaged. When disassembling, hook claw upon the car must not be damaged. Align the panel upon the car cover and respective slots. When assembling, the installment of hook claw parts must be correct.



1cushion assembly 2left protective plate 3right protective plate 4fuel tank cover 5leftpedal 6rightpedal 7right foot protective plate
8left foot protective plate 9frontmud guard plate II 10front cover 11fuel tank 12frame 13foot protective plate 14helmet bucket

Fuel tank

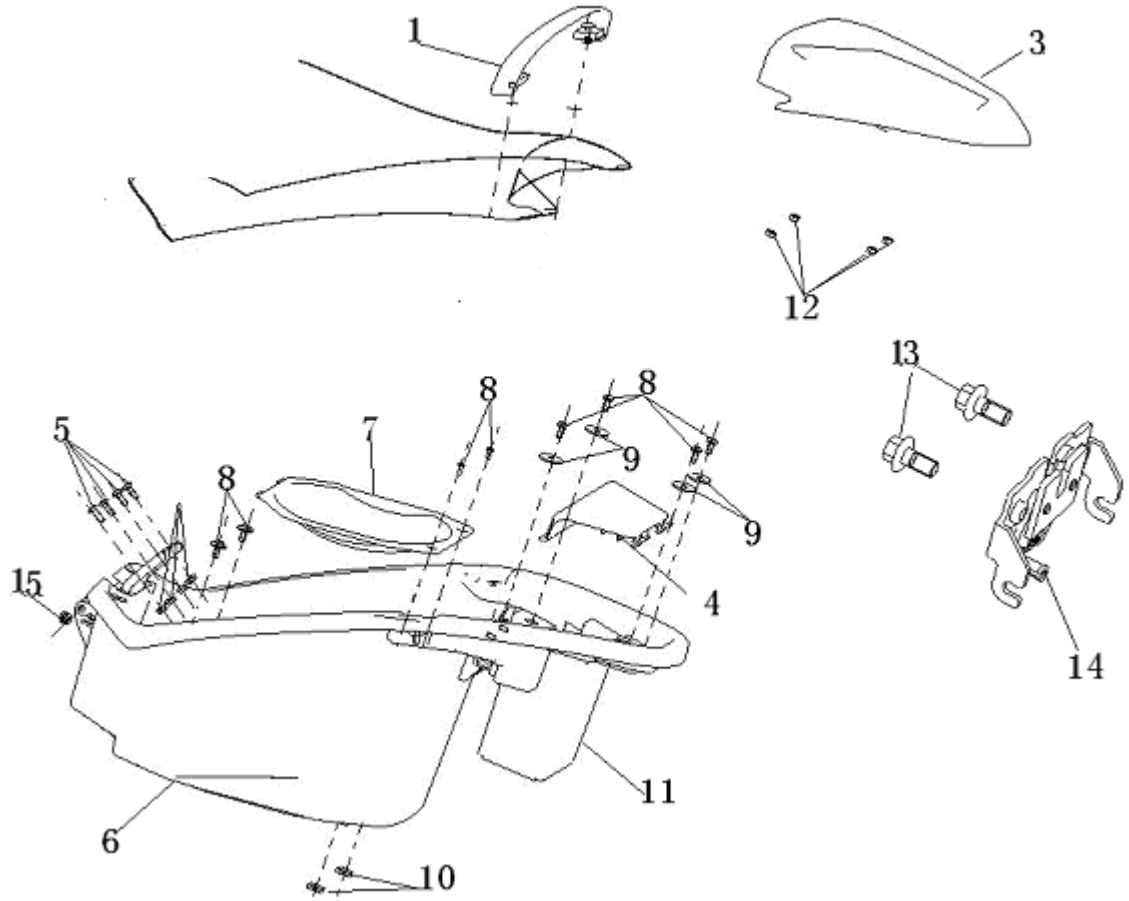
A	fuel tank gasoline volume： 6±0.5L
B	In the picture, bolt13（fuel tank set bolt）torque force： 5-9 N m
C	Note: when disassembling fuel tank, the fuel switch must be turned to OFF



1fuel tank assembly 2oil level sensor assembly 3filter assembly 4steel wire hoops ø9 5oil pipe Ⅴ ø11×2×270 6steel wire hoops ø8 7oil pump 8screw M6×16 9oil pipe Ⅲ ø9×2×190 10oil pipe Ⅳ ø8.5×2×163 11oil pipe Ⅰ ø9×2×192 12oil pipe Ⅱ ø9×2×80 13fuel tank set bolt

Cushion

A	In the picture, bolt5 torque force: 5-9 N·m
B	In the picture, bolt13 torque force: 5-9 N·m



1strap assembly 2main cushion assembly 3side cushion assembly 4storage battery box cover 5screw M6×16 6helmet bucket 7helmet bucket bottom cover 8screw 9pad 10card 11storage battery box 12nut inserts M6 13cushion lock assembly set bolt 14cushionlockassembly 15nut

9. Fuel tank/cushion

9.1 Preparing documents

Work Instructions

It shall be dismantled far from fire sources.
Turn the fuel switch to “OFF” when the fuel tank is dismantled.
Tighten all the bolts and screws to the required torque value for assembly.
After assembly, check whether all the parts are correctly installed and operated.

Preparing Principles

Item	Standard	Limit for use
Gasoline tank capacity	6±0.5L	/

Lock torque force

Fuel tank set bolt **5 - 9 N·m**
Helmet barrow set bolt **5 - 9 N·m**

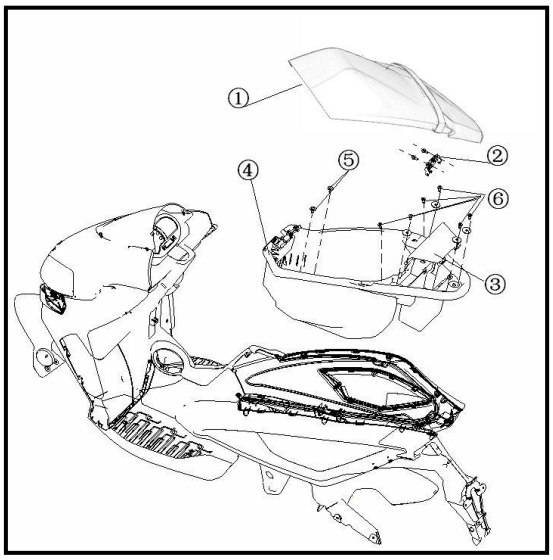
9.2 Failure diagnosis

Gasoline reduction

Natural gasoline consumption
Gasoline leaking

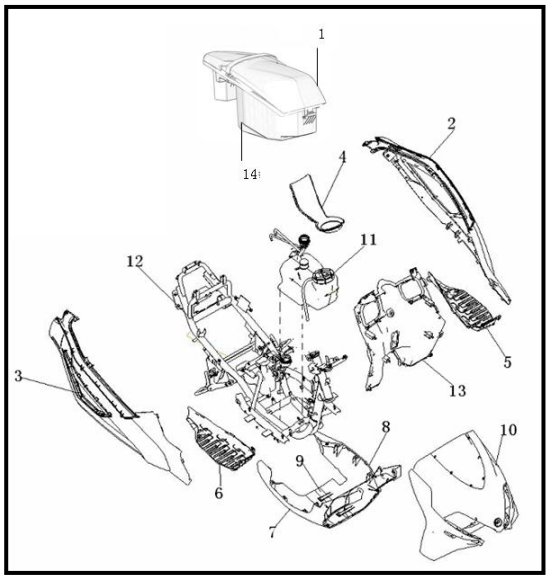
9.3 Fuel tank/cushion

9.3.1 Disassemble



Open the cushion①.
Disassemble the machine oil pot cover.
Open the storage battery cover.
Disassemble the storage battery.
Disassemble the cushion, helmet bucket set screw.
Disassemble the cushion and helmet bucket.

Disassemble the plate assembly（2, 3）.
Disassemble the foot plate protective cover（7,8）, left and right pedal（5, 6）.
Disassemble the fuel tank set screw.
Take down fuel tank.



Turn the fuel switch to 'OFF'.
Disrupt the fuel flexible tube.
Take down the fuel tank from the car shelf.

Note:
Disassemble and assemble in detail are seen in P85, 86, 87

9.3.1 Installation

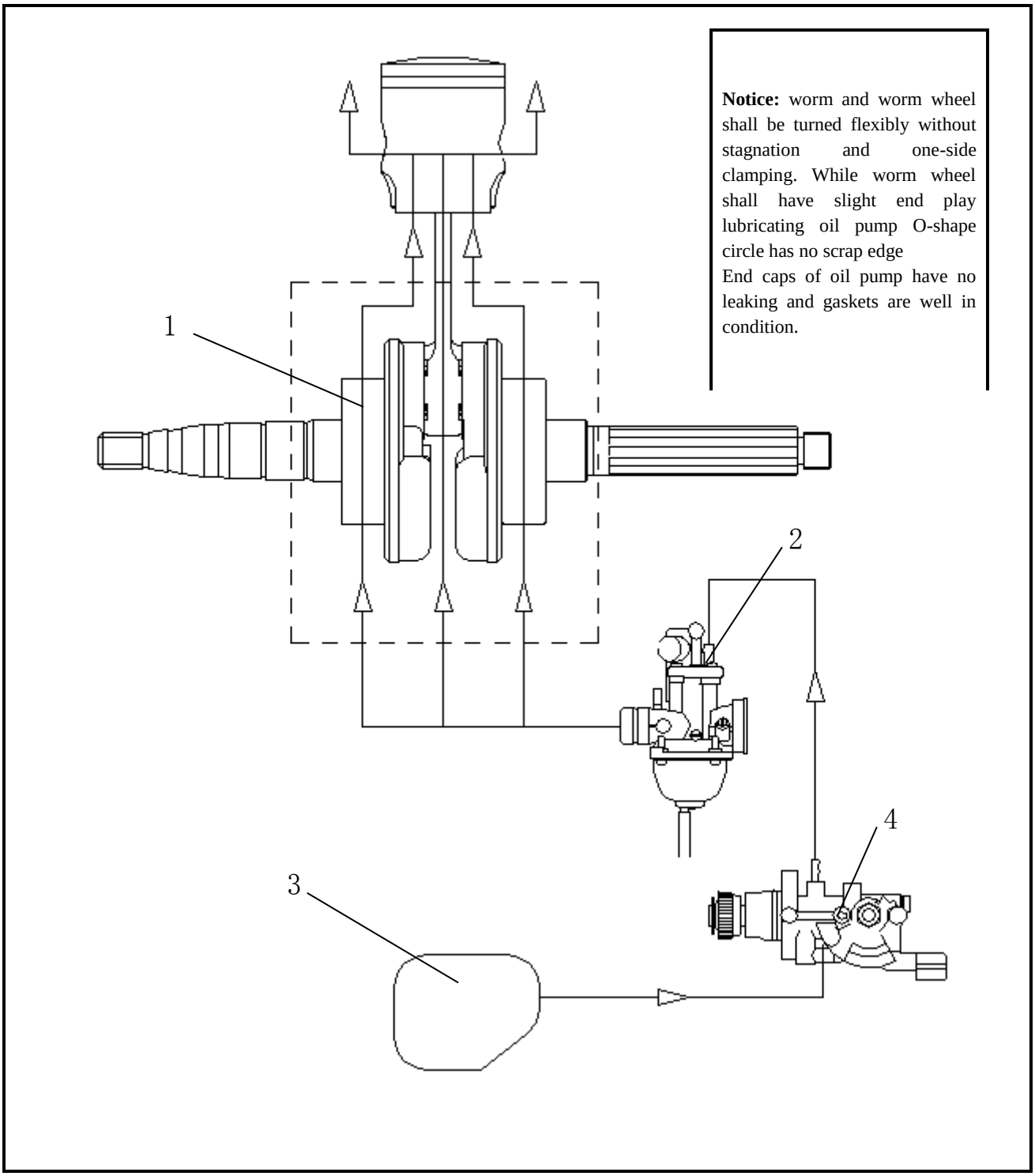
To be operated according to the reverse order of disassemble.
Installation torque force:
Fuel tank set bolt **5 - 9 N·m**
Helmet bucket set bolt **5 - 9 N·m**

Inspection and Maintenance of Engine

Table of Torque Force of Engine Fasteners

Name of fastening parts and fasteners	Tightening torque（N·m）
Fan cowl locking bolt	10-12
Cylinder cover locking nut	15-18
Spark plug	22-25
Air intake pipe locking bolt	10-12
Cooling fan blade locking screw	10-12
Flywheel locking bolt	45-50
Locking screw for the magnetor stator coil	10-12
Right crankcase locking bolt	10-12
Bearing plate locking bolt	10-12
Double-end stud for cylinder double-head	15-18
Motor fixing bolt	10-12
Locking screw for the crankcase left cover shade	10-12
Locking bolt for the crankcase left cover	10-12
Locking nut for the drive wheel	40-45
Locking nut for the driven wheel	40-45
Locking nut for the driven wheel clutch	55-60
Locking screw for the overrunning clutch outer ring	10-12
Locking screw for the electric starter idler plate	10-12
Locking bolt for the gearbox cover	10-12
Locking bolt for the oil drain hole of the left crankcase	18-22
Locking nut for the locating pin shaft of left crankcase	18-22

Lubrication system



Notice: worm and worm wheel shall be turned flexibly without stagnation and one-side clamping. While worm wheel shall have slight end play lubricating oil pump O-shape circle has no scrap edge
End caps of oil pump have no leaking and gaskets are well in condition.

1crankcase 2carbureter 3fuel tank 4lubricating oil pump

10. Lubrication system

10.1 Preparing documents

Work Instructions

Worm gears and worm wheels shall rotate flexibly without being seized or imbalanced tightening. A little axial movement shall be allowed for worm wheels. Fuel pump O-ring shall not cut the edge.
Machine oil pump plugs shall not leak and sealing gaskets shall be in good condition.
After installation, remove bolt 3 during engine trial running, and lock it when machine oil runs out continuously.

Function of the lubricating system: the lubricating system of the engine is to provide lubricating oil to the frictional surface of each part, which transforms dry friction into liquid friction between lubricating oil particles and also reduces abrasion of parts. It also cools components with high thermal load, absorbs shock from bearings and other parts, reduces noise, increases sealing between piston ring and cylinder wall, and cleans and removes particles in the surface.

Preparation criteria

Item		Criteria	Allowed extreme
Fuel volume	When changing oil	0.1L	/
	When disassembling	0.11L	/

10.2 Failure diagnosis

Fuel decreasing

Lube natural consumption
Lube leaking
Piston ring worn-out, bad installation

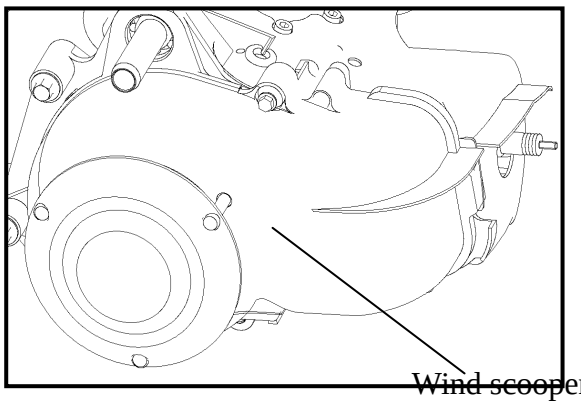
Engine burning

no lube or lube pressure too low
lube passage blocking
absence of lube utilization

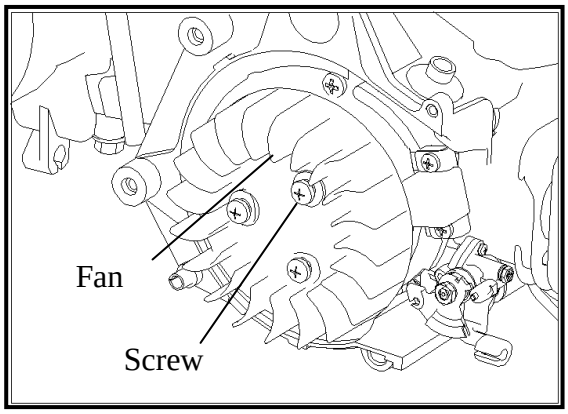
10.3 Fuel pump

10.3.1 Disassembly

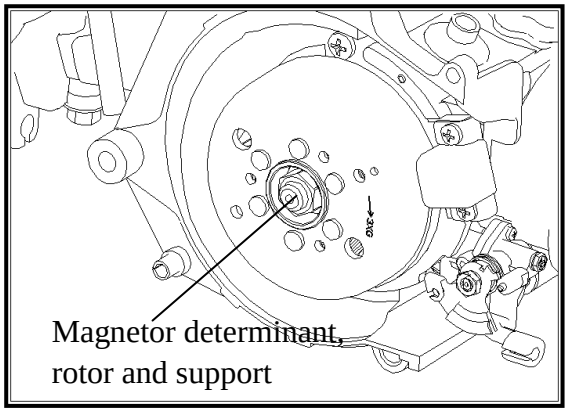
Loosen the bolt, and disassemble the wind scooper assembly.



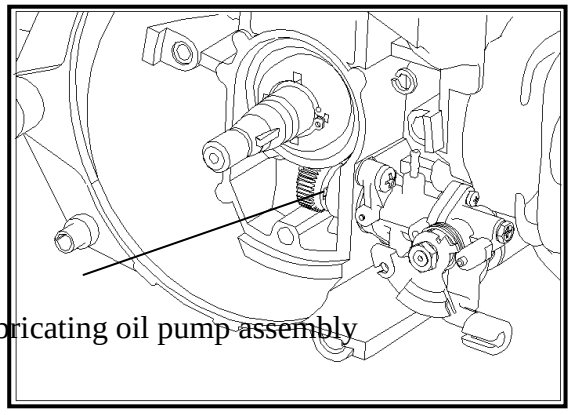
Loosen the screw on the fan, take down the fan.



Take down magnetor determinant and rotor and support.

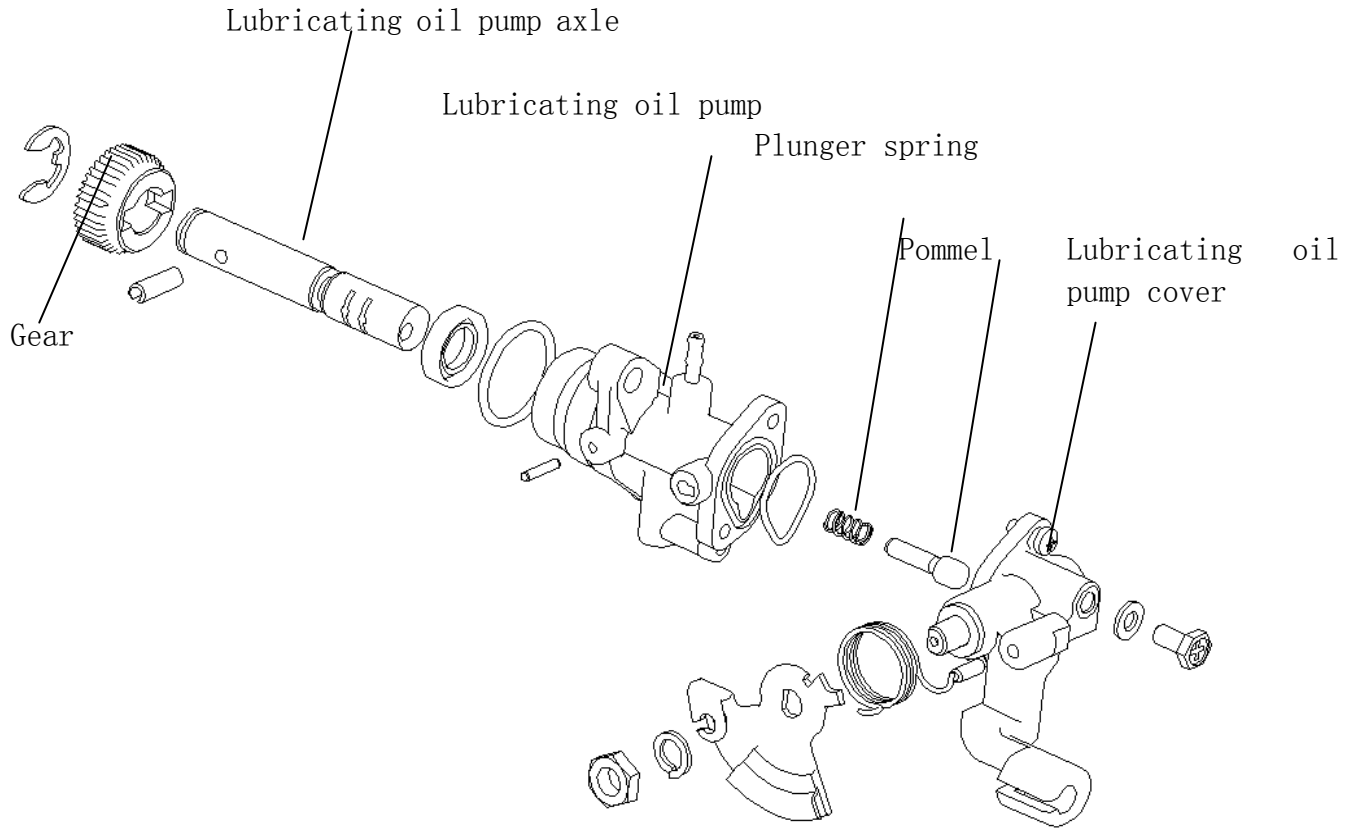


Take down the worm wheel from crank axle and take down lubricating oil pump assembly.



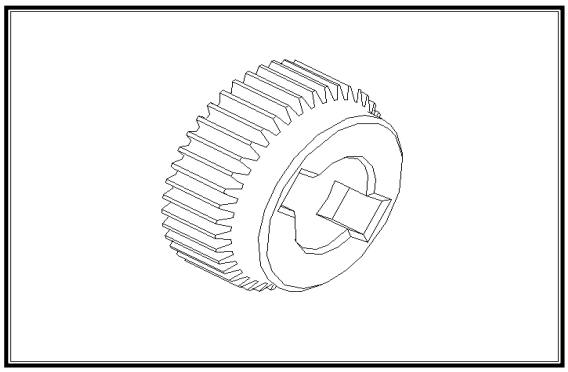
Assemble lubricating oil pump

Seen in the following chart



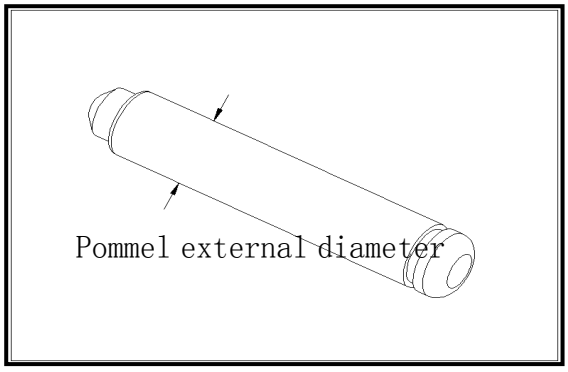
10.3.2 Installation

To be operated according to the reverse order of disassemble.



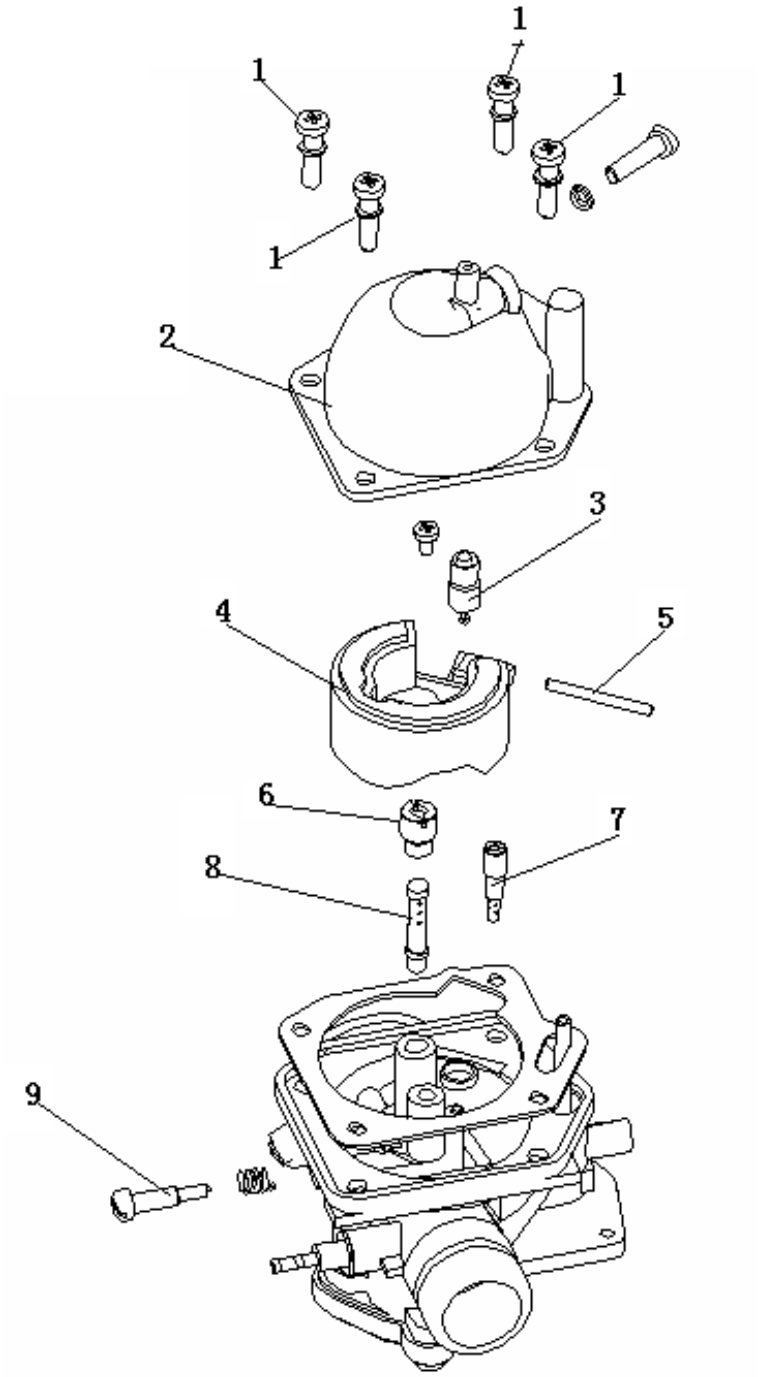
10.3.3 Inspection

Does the tooth flank of worm wheel have damage?
Does his key seat have damage?



Measure pommel external diameter.
allowed extreme 2.61mm.

Carburetor



Note: gasoline is very dangerous and open flame is forbidden is .working sites.

After disassembling the carburetor, stuff the induction manifold with clothing, to prevent the introduction of foreign matter.

1 screw 2 float chamber 3 needle valve assembly 4 floater 5 floater sheath 6 main jet
7 idling let 8 main foam tube 9 idling adjusting screw

11. Carburetor

11.1 Preparing documents

Work Instructions

·Gasoline is very dangerous. Fire is strictly forbidden in workplace.
·Pay special attention to spark.
·Forcibly pulling and bending of wires is not allowed. Distortion and damage will affect their function.
·After the carburetor is disassembled, block the intake manifold with cloth in case that any foreign matter enters.
·If not used for more than one month, gasoline in the float chamber of the carburetor shall be drained out since it may block the idling jet after deterioration, which affects idle speed.

Carburetor functions: Carburetor is a critical component in the fuel supply system of the engine; its work condition directly affects the stability as well as the dynamic and economic indicators of the engine. It atomizes certain amount of gasoline into small oil drops, and evenly mixes it with different quantities of air to form combustible vaporific mixed gas of different concentration upon different working conditions of the engine. The mixed gas will be supplied to the engine to ensure continuous and normal operation.

Preparing Principles

Unit: mm

Item	Standard value
Main jet	47.5
Main metering jet	80#
Idle metering jet	15#
Oil needle	B05-2

11.2 Failure diagnosis

Abnormal startup	Difficulty in startup, flameout after

startup,

unstable idle speed

No fuel in the carburetor
Blocked oil filter
Blocked oil pipe
Adhesive needle valve
Oil level maladjustment

Blocked carburetor
Too dense or dilute mixed gas
Secondary air suction into the air intake system
Idle speed maladjustment
Oil volume maladjustment
Blocked idle speed system or electric enrichment valve

Too much fuel in the engine

Oil spilling
Secondary air suction into the fuel system
Fuel deterioration
Abnormal enrichment valve
Blocked idle speed system or choke system

Too dilute mixed gas

Blocked oil jet
Blocked needle valve
Low oil level
Blocked fuel system
Abnormal plunger
Secondary air suction into the air intake system

Too dense mixed gas

Abnormal enrichment valve
Abnormal needle valve
Over high oil level
Oil spilling from the carburetor
Blocked air channel
Dirty air filter

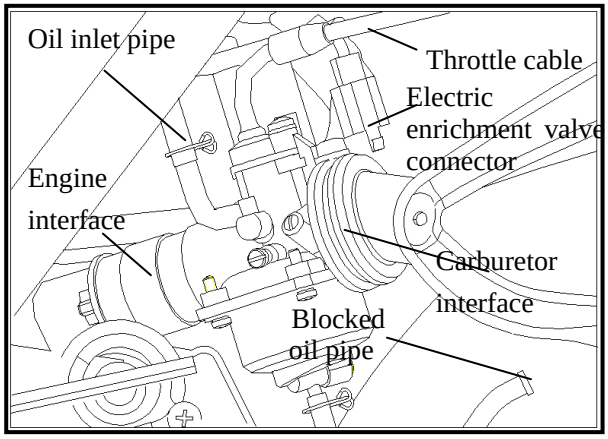
Interrupted spark at acceleration

Too dilute mixed gas

11.3 Carburetor disassembly

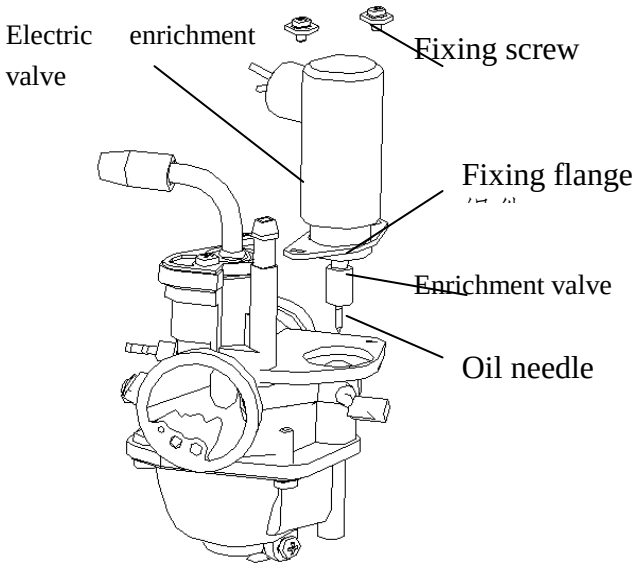
11.3.1 Disassembly

Turn fuel switch to "OFF".
Remove the oil inlet pipe and loosen the throttle cable.
Remove the plug of the oil drain pipe and discharge fuel in the float chamber into another box.
Remove the connector of electric enrichment valve.
Loosen the screws of carburetor to the engine connector and the air filter connector; remove the carburetor between two connectors.



11.3.2 Carburetor breakdown

Loose screws of the electric enrichment valve and remove the electric enrichment valve assembly.

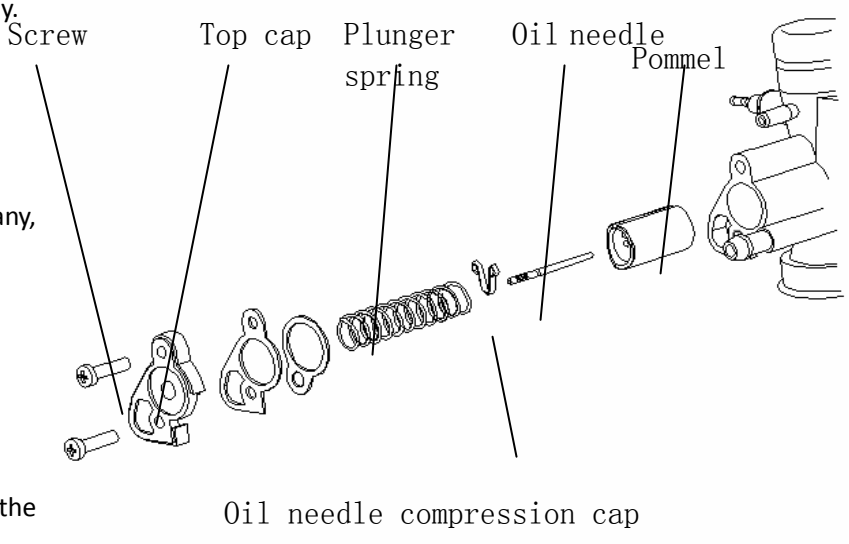


Check abrasion of electric enrichment valve and oil needle.
If it is severe, replace the electric enrichment valve assembly.

Loosen the screw, and disassemble the top cap.
Take out spring and pommel assembly.

Check the wearing of pommel.
If any, change.

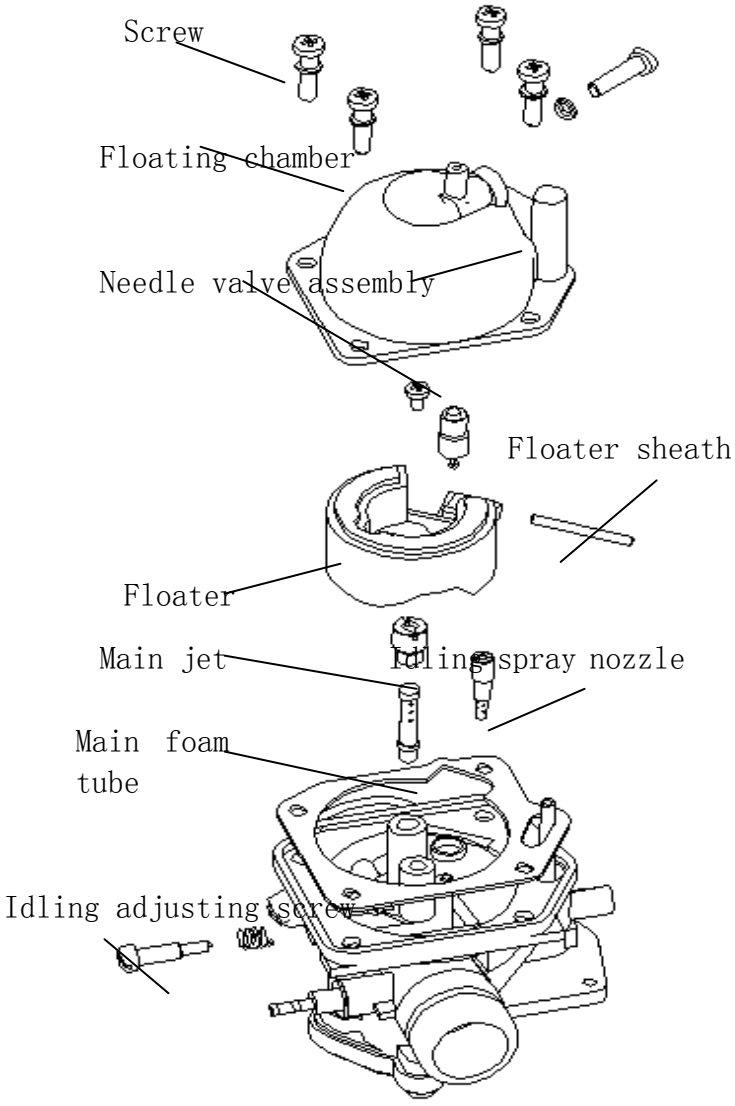
Check the wearing of oil needle. If any, change



Loosen the screw and take down the floating chamber.
Disassemble the floating assembly, floater sheath and needle valve assembly.

11.3.3Inspection

To inspect the damage of needle valve assembly, needle seating and floater assembly



If needle valves rush pith is worn or damaged, change.

If needle seating is worn, change the carburetor body.

If the floater tongue piece is worn, change.

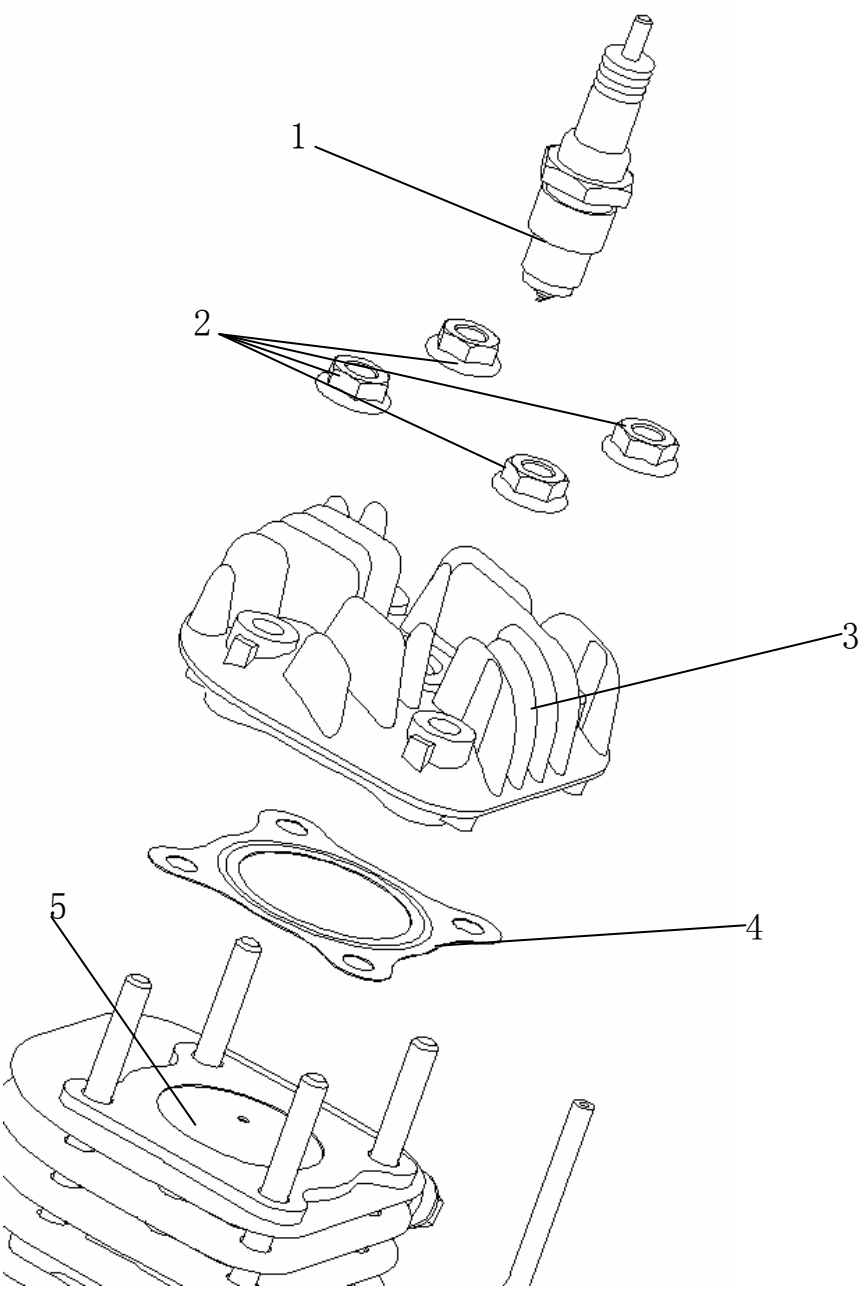
Inspect whether the carburetor oil needle is worn out, if any, change the main spray nozzle.

Inspect if the idling orifice, main orifice and main spray nozzle are worn or dirty, if any, change.

Inspect if the pommel is worn, if any, change.

Inspect if the carburetor and oil tube are dirty, and clean according to the instructor.

Cylinder cover



1 spark 2 cylindercover set bolt 3 culinder cover 4 cylinder cushion 5 cylinder

12. Cylinder Cover

12.1 Preparing documents

Work Instructions

The cylinder cover bears large bolt pretension to ensure sealing between the cylinder cover and the cylinder body. Pretension: 50Nm.

All components must be cleaned and dried with high-pressure air before check.

Function of the cylinder cover: the cylinder cover is used to seal the cylinder and form the combustion chamber with the piston. It bears HPHT gas, and achieves air intake and exhaust through distribution mechanism.

12.2 Failure diagnosis

When the vehicle is running, there is gas leakage or too high combustion pressure between the cylinder cover and the cylinder body

Cylinder cover gasket is broken.

Bent bottom surface of the cylinder cover.

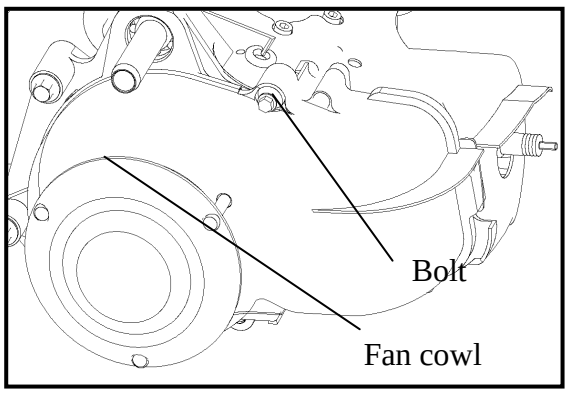
Too much carbon fouling in the combustion chamber.

12.3 Cylinder cover

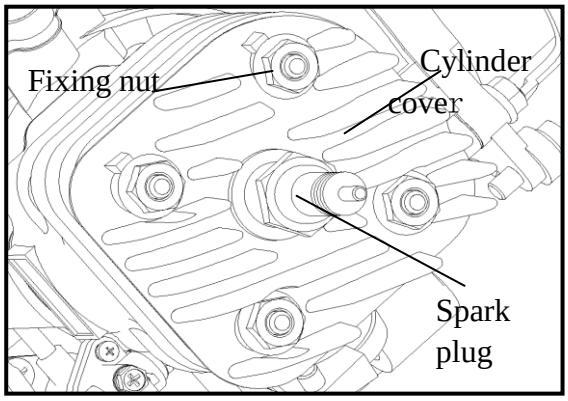
12.3.1 Disassembly

Loosen fixing bolts for the fan cowl.

Remove the fan cowl.



Loosen fixing nuts and spark plug, remove the cylinder cover

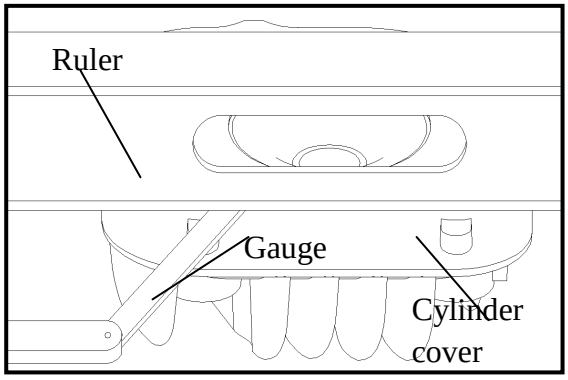


12.4 Cylinder cover check

Check whether cylinder cover is broken.

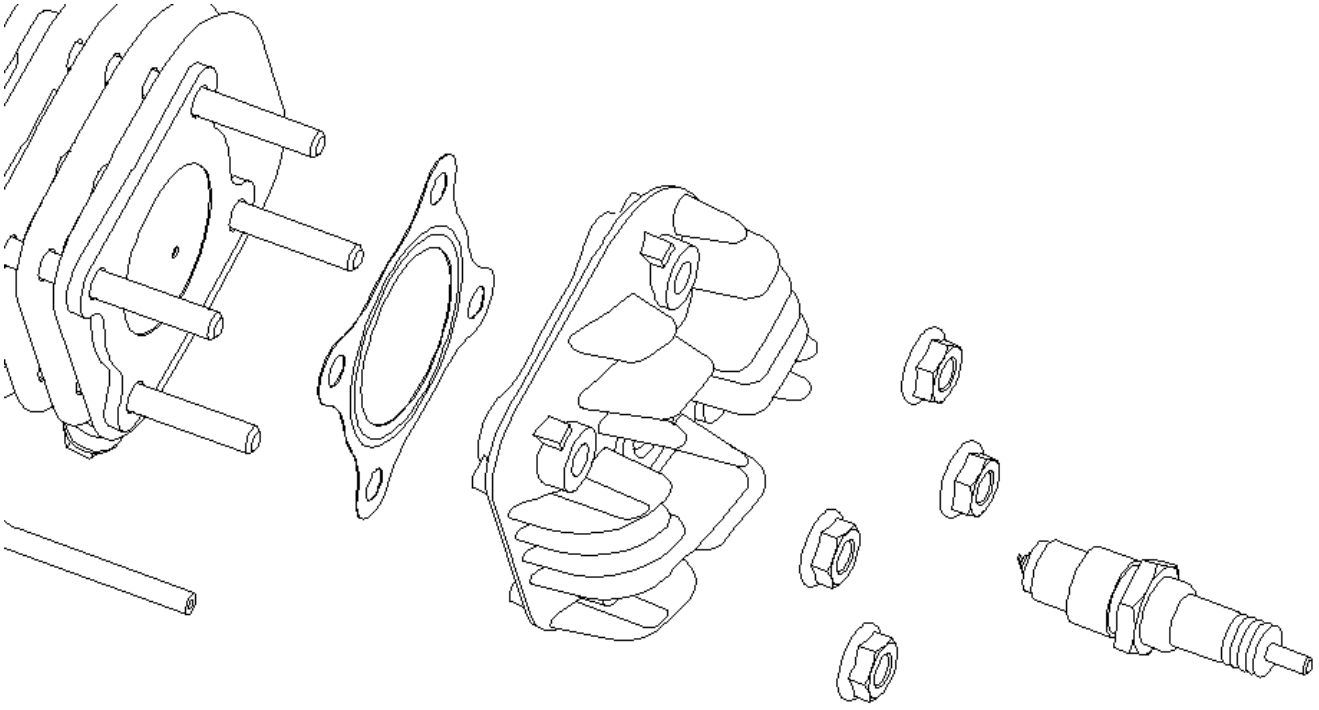
Check flarness of cylinder cover bottom surface.

Limit for use: 0.04mm.

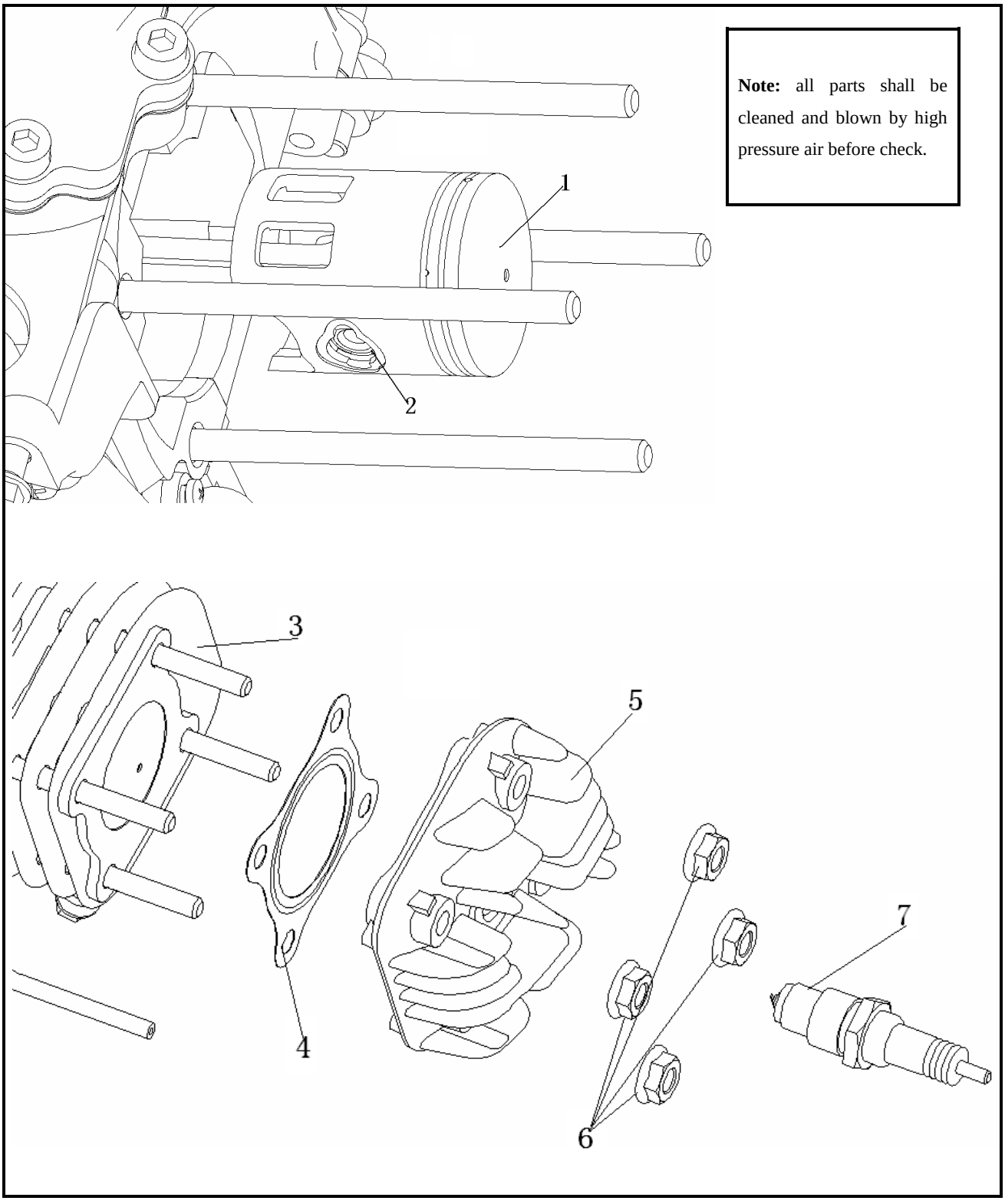


12.5 Installation of cylinder cover

Install it in reverse order.



Cylinder block and piston



Note: all parts shall be cleaned and blown by high pressure air before check.

1. piston 2. piston pin 3. cylinder block 4. cylinder gasket 5. cylinder cover 6. nut 7. spark plug

13. Cylinder Block and Piston

13.1 Preparing documents

Work Instructions

All parts shall be cleaned and blown by high pressure air before check.

Function of the cylinder block: cylinder block provides space for gas compression, combustion and expansion, and also guides piston movement.

It also transfers part of heat energy in the cylinder to cooling medium around.

Function of the piston:

Piston bears pressure arising from mixed gas combustion inside the cylinder and transfers such pressure to the connecting rod for driving the crankshaft.

It forms combustion chamber along with the cylinder cover.

It acts as slide valve for air inlet/stop, periodically compresses fresh mixed gas from the crankcase into the cylinder and discharges exhaust gas after combustion in the cylinder.

Preparing Principles

Unit: mm

Item			Standard	Limit for use
Cylinder	Inner diameter		39.995-40.015	40.05
	Bending		-	0.05
	Cylindricity		0.006	0.05
	Flatness		0.03	0.05
	Roundness		-	0.05
Piston Piston ring	Piston ring groove gap	Top ring	0.015－0.05	0.09
		Ring 2	0.015－0.05	0.09
	Joint gap	Top ring	0.1-0.25	0.5
		Ring 2	0.1-0.25	0.5
	Outer diameter of piston		39.97-39.99	39.9
	Clearance between piston and cylinder		0.005-0.015	0.1
	Inner diameter of piston pin hole		12.002-12.008	12.04
Outer diameter of piston ring			11.994-12	11.96
Clearance between piston pin hole and piston pin			0.002-0.014	0.02
Inner diameter of the smaller end of the connecting rod			14.016-14.034	14.06

13.2 Failure diagnosis

Low compression pressure

Abrasive, burnt or ruptured piston
Abrasive or damaged cylinder or piston
Damaged spacer or crankcase leakage

White smoke from the exhaust pipe

Abrasive or damaged piston ring
Abrasive or damaged cylinder or piston

Over-high compression pressure

Too much carbon deposit in the combustion chamber

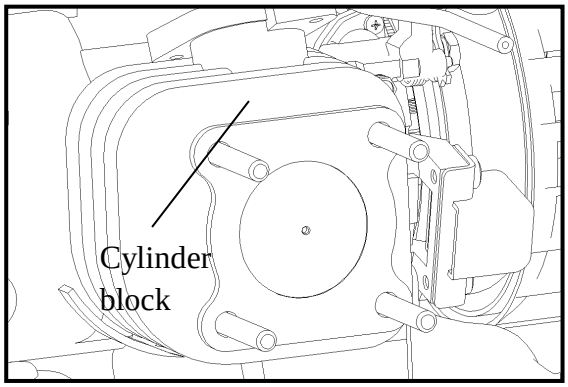
Abnormal noise of the piston

Damaged cylinder, piston or piston ring
Abrasive piston pin hole and piston pin

13.3 Cylinder block

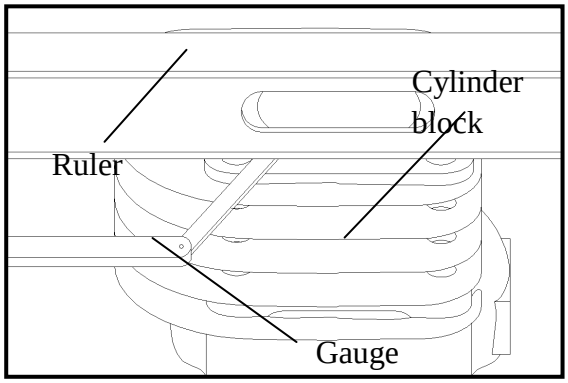
13.3.1 Disassembly of the cylinder block

Remove the cylinder cover and then the cylinder block.



13.3.2 Cylinder block check

Check the abrasion of the inner wall of the cylinder.
If it is serious, replace it.
Check the flatness of the cylinder block.
Limit for use: 0.05



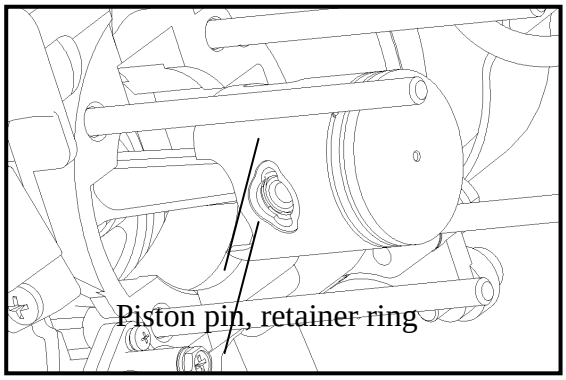
13.4 Piston

13.4.1 Disassembly

Remove the retainer ring of the piston.

Note: during disassembly, do not make the retainer ring fall into the crankcase.

Remove the piston pin and the piston.

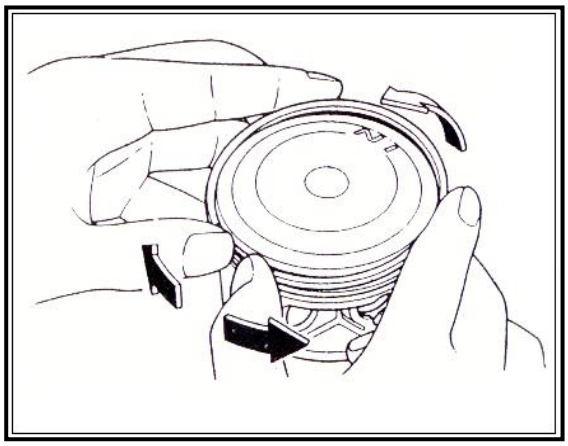


Check the piston, piston pin and piston ring.

Remove the piston ring.

Note: Do not rupture or damage the piston ring.

Eliminate carbon deposit in the groove of the piston ring.

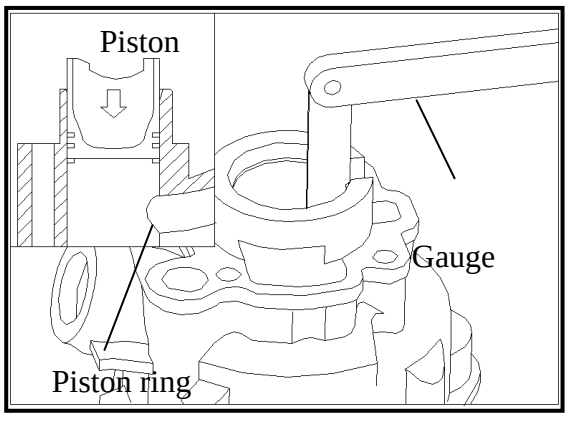


Remove the piston ring, and install each piston ring on the cylinder bottom.

Note: Press the piston ring into the cylinder with piston head.

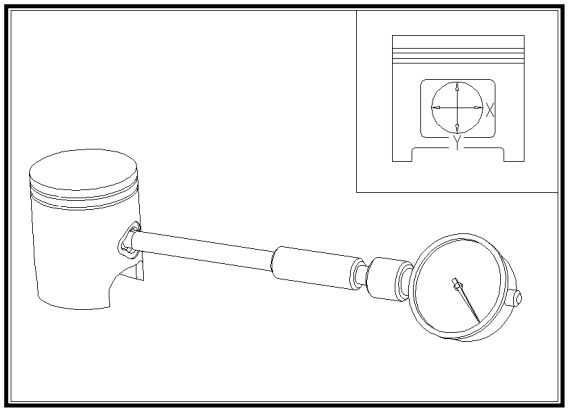
Measure the joint gap of the piston ring.

Limit for use: 0.5mm.



Measure the inner diameter of the piston pin hole.

Limit for use: 12.04mm.

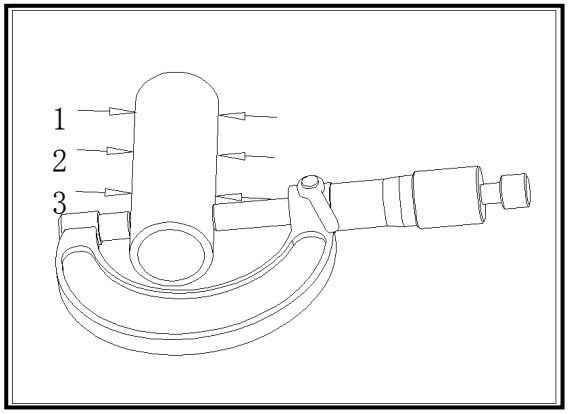


Measure the outer diameter of the piston pin.

Limit for use: 11.96mm.

Clearance between the piston pin holr an the piston pin.

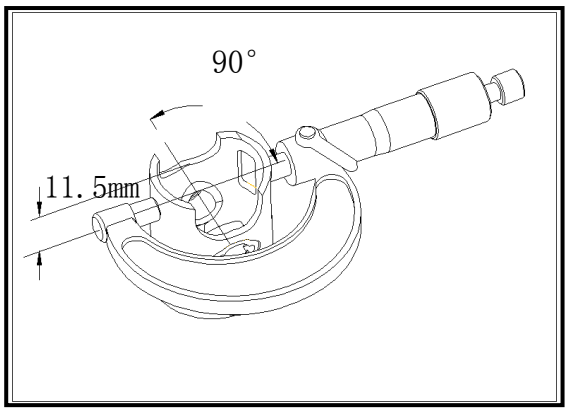
Limit for use: 0.02mm.



Measure the outer diameter of the piston.

Note: The measuring point shall be at 90°with the piston pin, and at 11.5mm below the piston skirt..

Limit for use: 39.9mm.



Check whether cylinder inner wall is scratched or abraded.

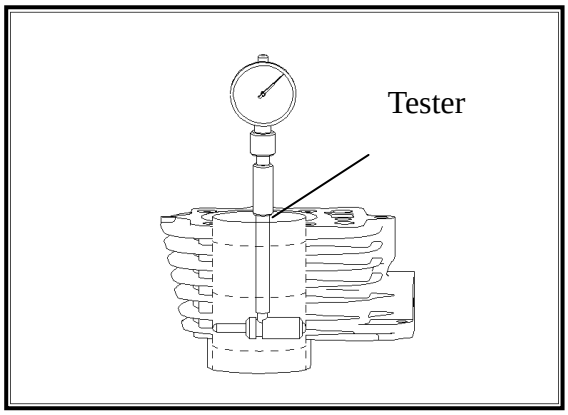
Note: It is at 90 degree with the piston pin. Measure the inner

diameter of the cylinder at the top, middle and bottom points

Limit for use: 40.05mm.

Measure the maximum clearance between the cylinder and the piston.

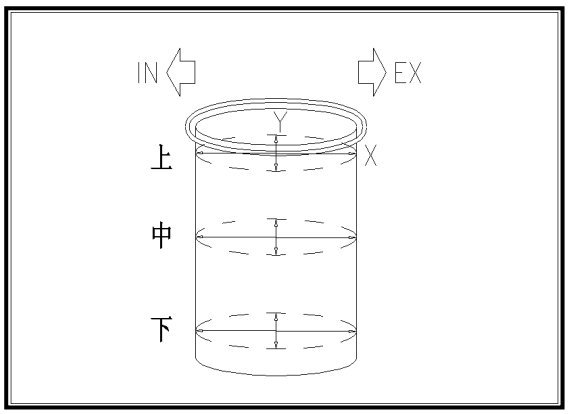
Limit for use: 0.1mm.



Measure the roundness of the inner wall of the cylinder (inner diameter difference at X direction and Ydirection).

Limit for use: 0.05mm.

Measure the cylindricity of the inner wall of the cylinder (inner diameter difference at the top, middle and bottom

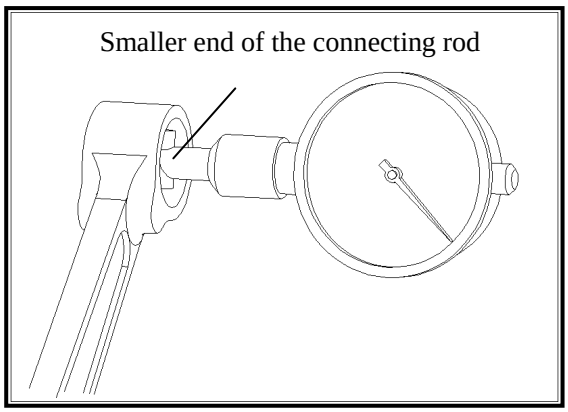


points of X direction and Y direction).

Limit for use: 0.05mm.

Measure the inner diameter of the smaller end of the connecting rod.

Limit for use: 14.06mm.



13.4.2 Piston Installation

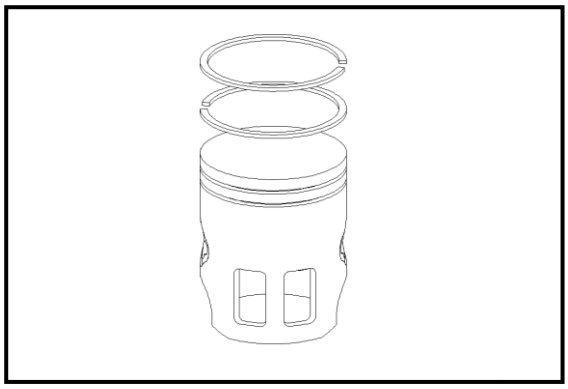
Install the locating pin.

Apply fuel to each piston ring and pistion. Install the piston ring with inclined side upward.

Note:

Do not scratch the piston or break the piston ring.

After the piston ring is installed, it shall be able to rotate freely in the piston ring groove.



Remove any residual spacer attached to the crankcase.

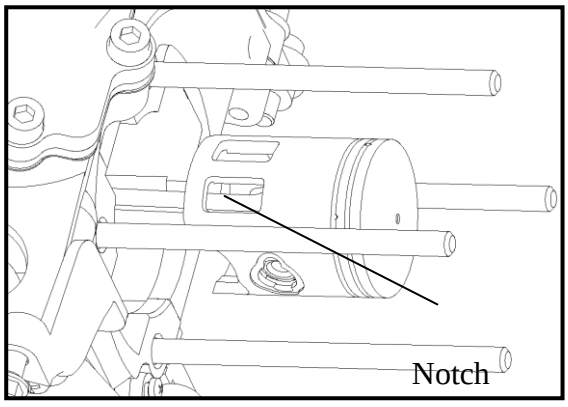
Note:

Do not make any object fall into the crankcase.

Install the piston, piston pin and retainer ring.

Note:

The notch side of the piston skirt shall face the air intake channel for installation.



13.5 Piston installation

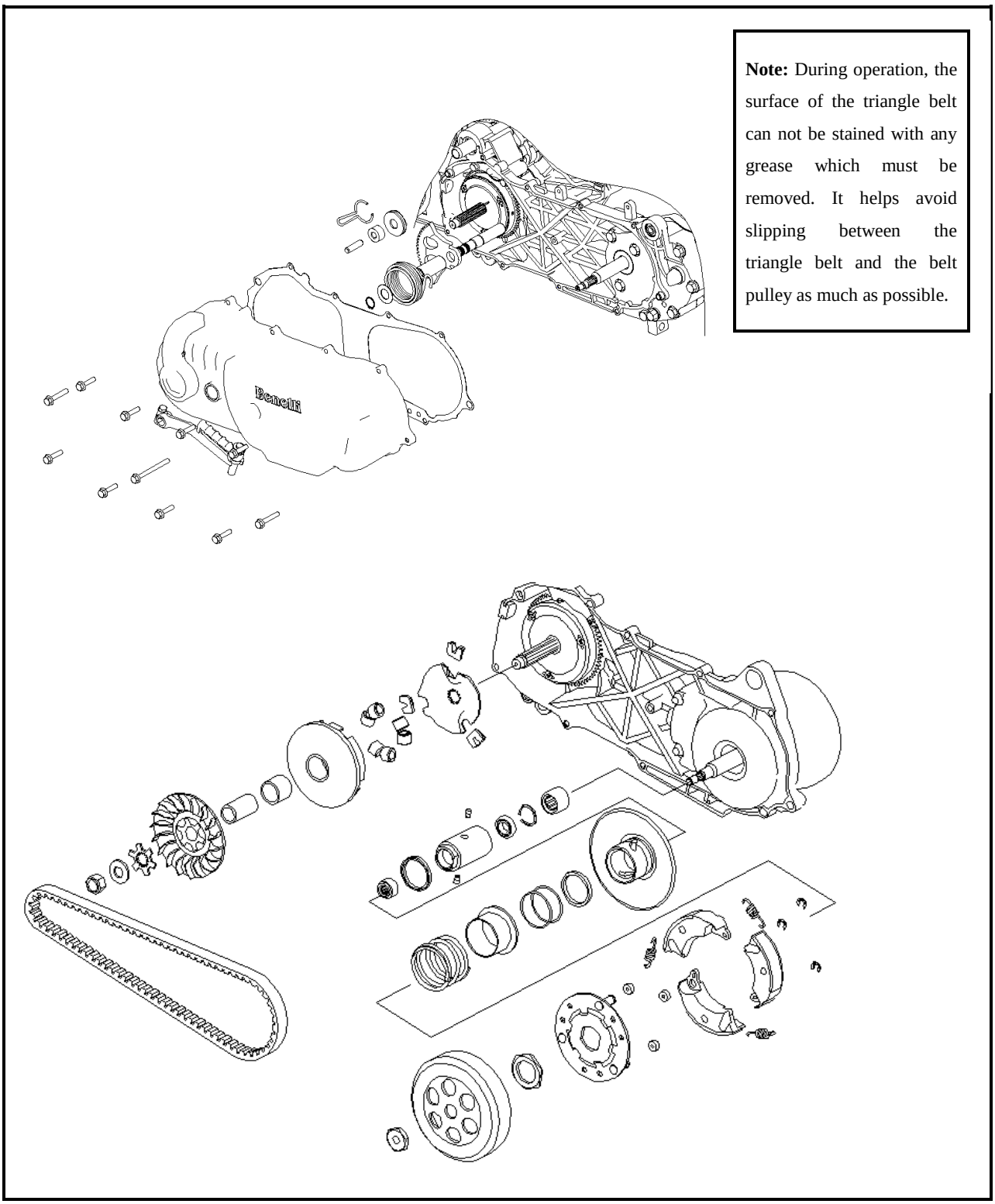
Install the spacer on the crankcase.

Apply fuel to the inner wall of the cylinder, piston and piston ring.

Carefully install the piston ring into the cylinder.

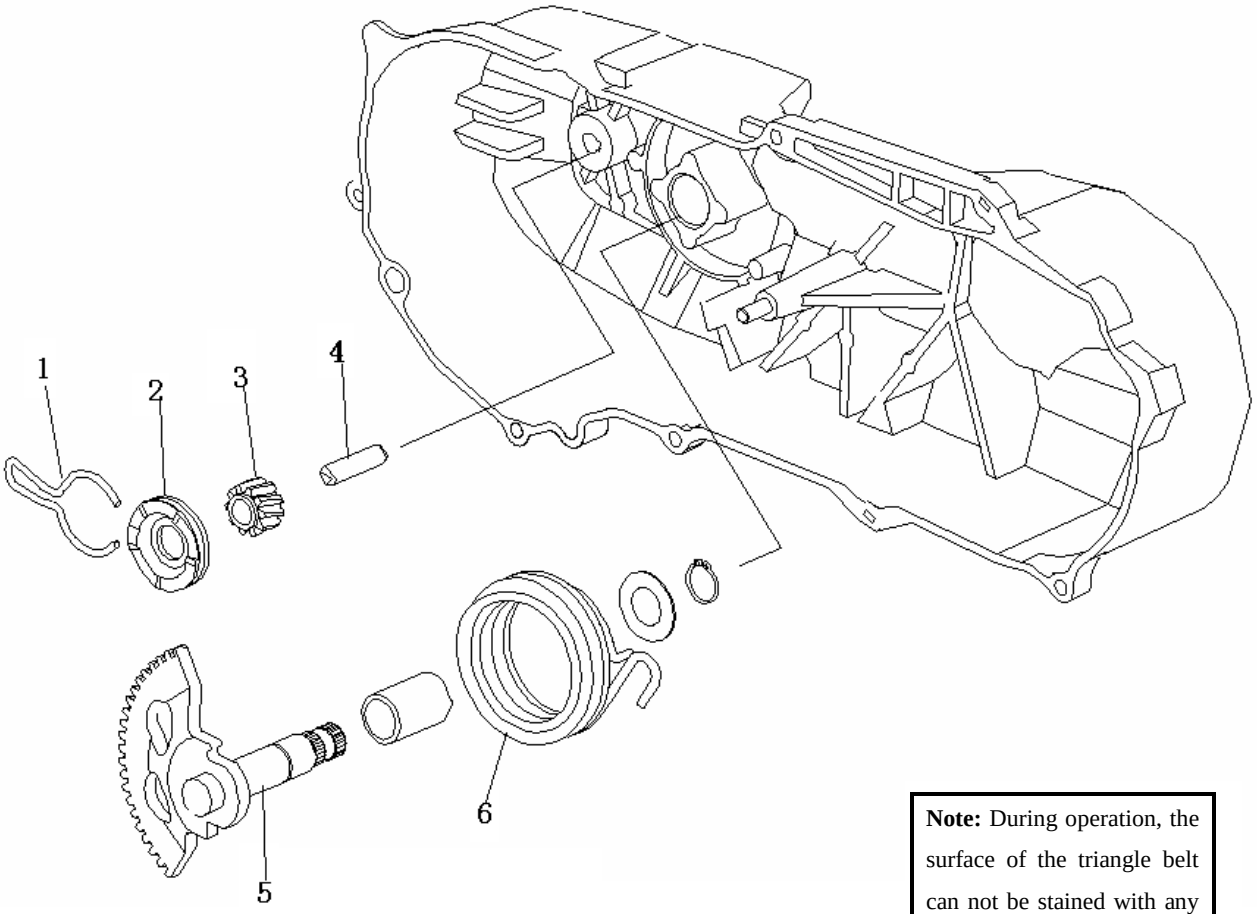
Note:
Do not damage the piston ring.

Drive face/clutch/driven wheel



Note: During operation, the surface of the triangle belt can not be stained with any grease which must be removed. It helps avoid slipping between the triangle belt and the belt pulley as much as possible.

Kickstart Mechanism



Note: During operation, the surface of the triangle belt can not be stained with any grease which must be removed. It helps avoid slipping between the triangle belt and the belt pulley as much as possible

1. snap spring 2. start claw 3. idle gear 4. idler shaft 5. start shaft assembly 6. kickstart shaft spring

14. Drive Face/Clutch/Driven Wheel/Kickstart Mechanism

14.1 Preparing documents

Work Instructions

During operation, the surface of the triangle belt cannot be stained with any grease that must be removed. It helps avoid slipping between the triangle belt and the belt pulley as much as possible.

Function: Drive face, clutch and driven wheel constitute stepless transmission. The triangle belt transfers torque between the drive face and the driven wheel.

Preparing Principles

Unit: mm

Item	Standard	Limit for use
Inner diameter of right half-driven wheel	25.989-26.052	26.06
Outer diameter of the sliding sleeve	25.96-25.974	25.94
Width of the triangle belt	17	16
Thickness of the clutch facing	1.8	1.5
Inner diameter of the clutch sleeve	118-118.3	118.5
Free length of the clutch spring	68-70	68
Outer diameter of the bushing on the right half driven wheel	32.95-32.975	32.94
Outer diameter of the sliding sleeve on the left half driven wheel	33-33.025	33.06
Outer diameter of the ball	14.92-15.08	14.4

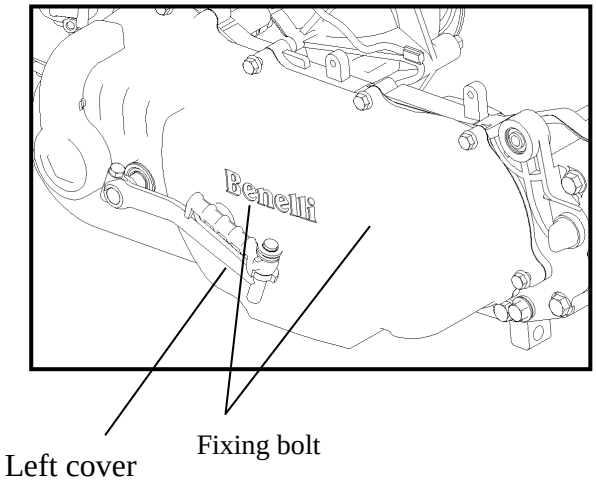
14.2 Failure diagnosis

No run after engine startup	Insufficient horsepower	Vibration during driving
Abrasive triangle belt	Abrasive triangle belt	Ruptured clutch facing spring
Damaged driven wheel	Distorted clutch spring	
Broken or damaged clutch facing	Abrasive ball	
Ruptured clutch spring	Stained surface of the driving pulley	

14.3 Left crankcase cover

Disassembly

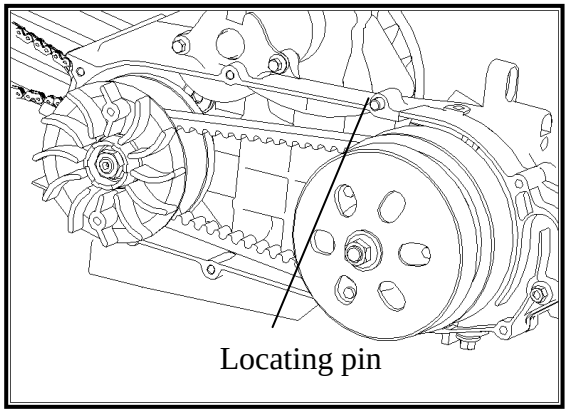
Remove fixing bolts, spacer and locating pin



Note:

Fixing bolts should be removed in staggered sequence.

Remove the locating pin.

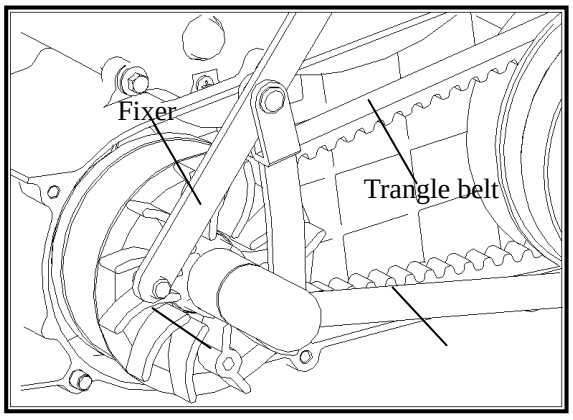


14.4 Drive face

14.4.1 Disassembly

Remove fixing nuts for drive face and the left half-drive face.

Remove the triangle belt from the drive face.



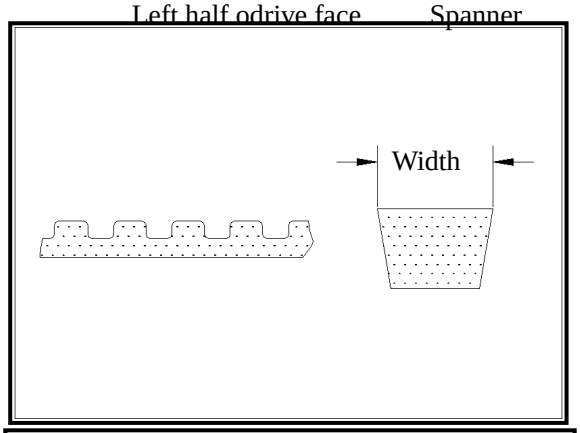
Left half odrive face Spanner

Check whether the triangle belt is cracked and whether rubber or cotton yarn falls down or is abnormally abrasive Measure the width of the triangle belt..

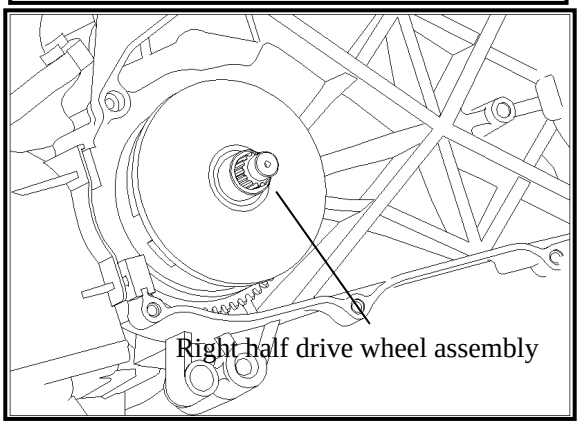
Limit for use: 16mm.

Note:

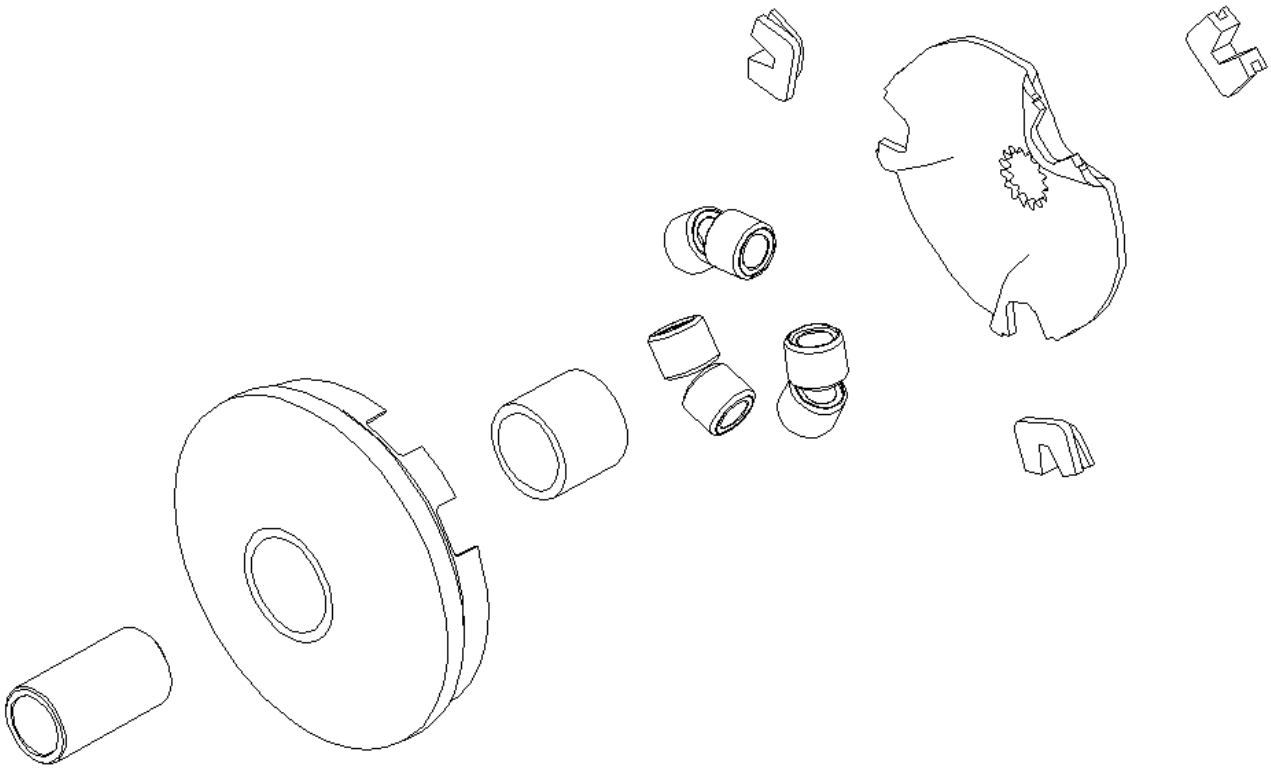
Apply original parts from our company for replacement.

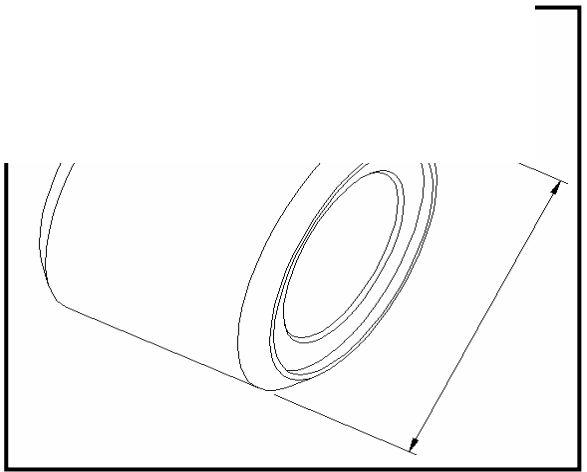


Remove the right half drive wheel assembly.



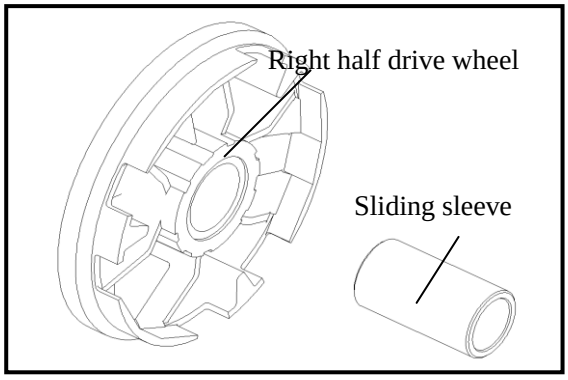
14.4.2 Breakdown of right half driving wheel assembly





Check abrasion of the ball.
Measure the outer diameter of the ball.
Limit for use: 14.4mm.

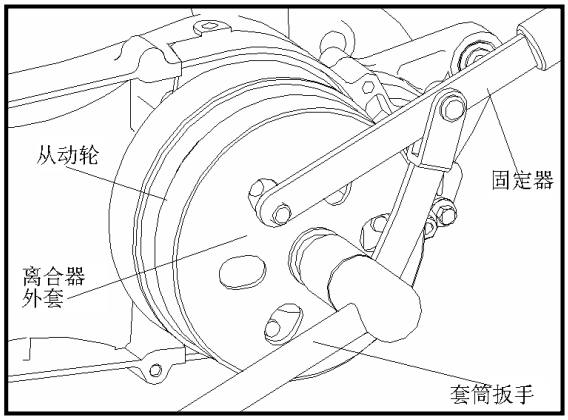
Measure the inner diameter of the right half driving wheel.
Limit for use: 26.06mm.
Measure the outer diameter of the sliding sleeve.
Limit for use: 25.94mm.



14.5 Clutch/driven wheel

14.5.1 Disassembly

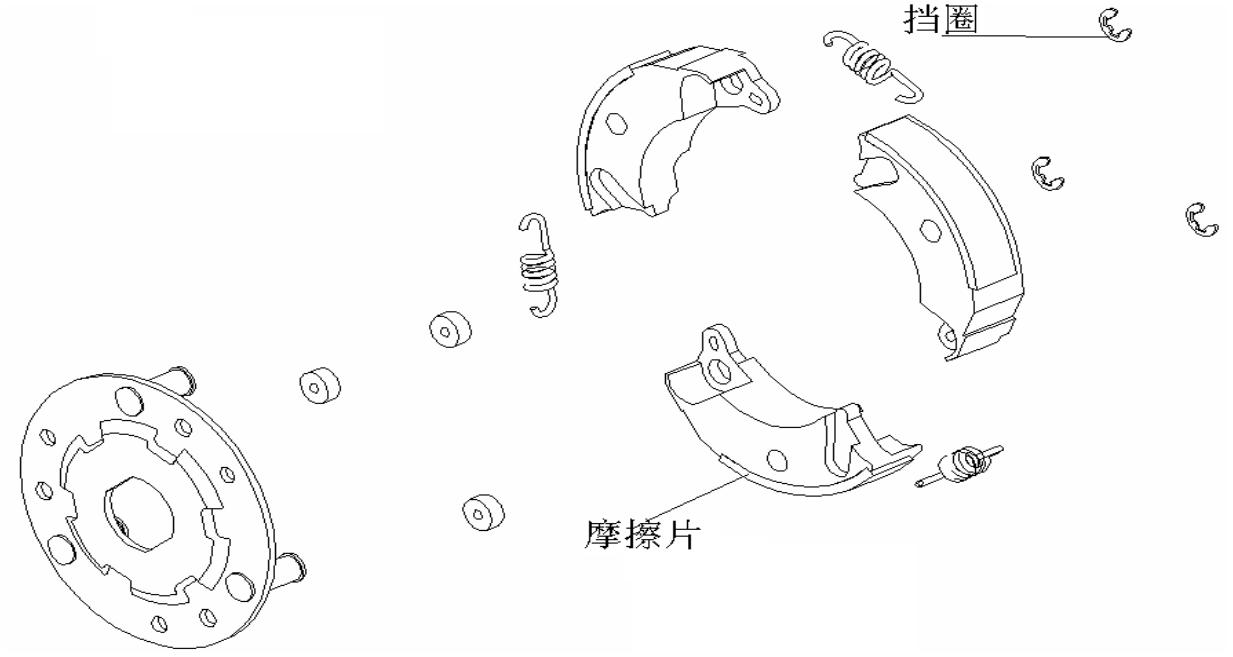
Install the clutch sleeve with the fixer and remove fixing nuts.
Remove the clutch sleeve, clutch/ driven wheel.



（从动轮：driven wheel　离合器外套：clutch sleeve
固定器：fixer　　套筒扳手：socket spanner）

14.5.2 Breakdown of clutch

Remove the retainer ring and break down the clutch.
Note:
Do not stain the clutch facing with any grease during breakdown.

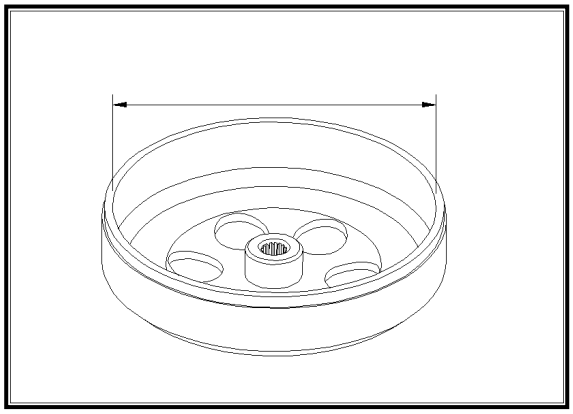


（挡圈：retainer ring　　磨擦片：clutch facing）

Check abrasion of the clutch sleeve.

Measure the inner diameter of the clutch sleeve

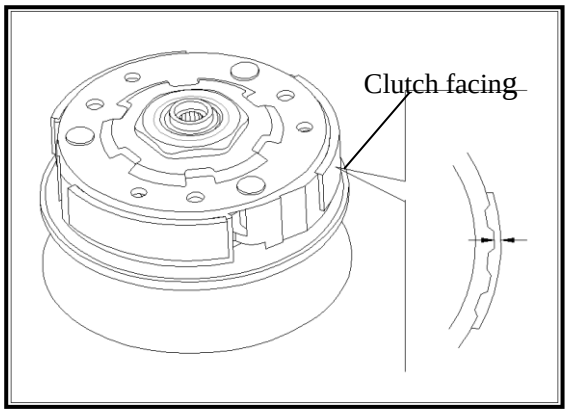
Limit for use: 118.5mm.



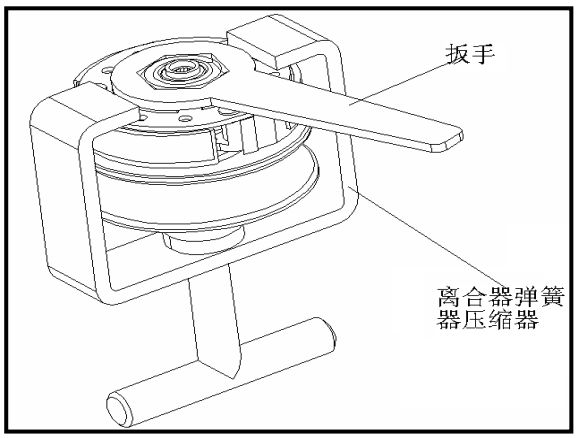
Check abrasion of the clutch facing.

Measure the thickness of the clutch facing

Limit for use: 1.5mm.



14.6 Breakdown of clutch and driven wheel



Clutch spring compressor must be used for disassembling the clutch spring.

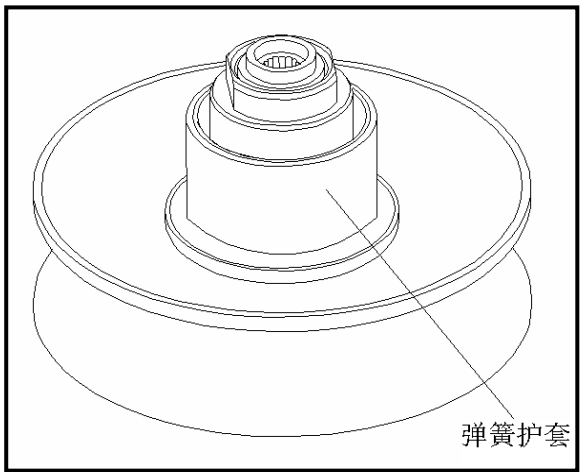
Note:

Spring compressor must be used for disassembly to avoid damage to spring.

Fix the spring compressor, and remove fixing nuts of the clutch.

Loosen the compressor, and disassemble the clutch and the driven wheel.

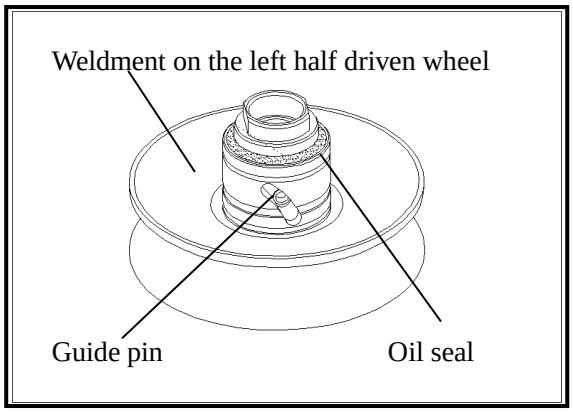
（扳手：spanner　离合器弹簧器压缩器：clutch spring compressor）



Remove the spring guard.

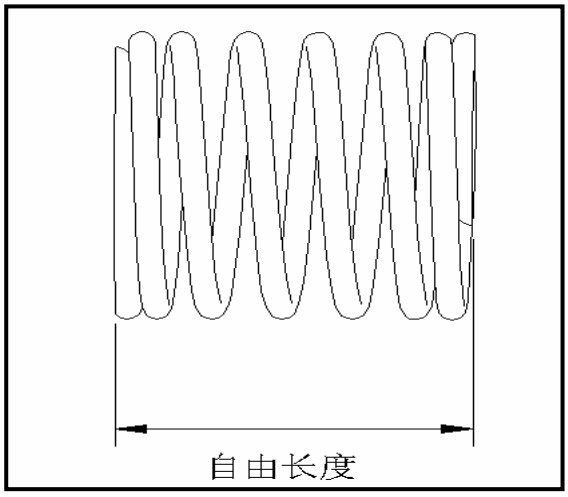
（弹簧护套：spring guard）

Remove the guide pin.
Remove the weldment on the left half driven wheel
Remove the oil seal on the left half driven wheel.



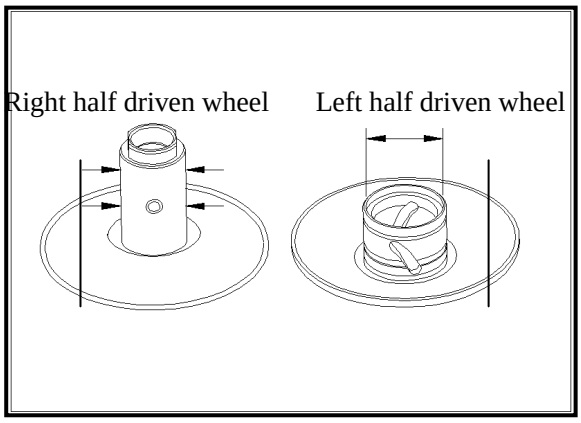
Check the free length of the clutch spring.
Limit for use: 68mm.

（自由长度：free length）



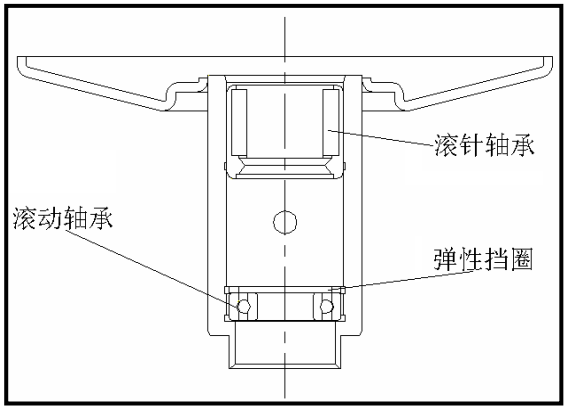
Check abrasion of the driven wheel.
Measure the outer diameter of the bushing on the right half driven wheel.
Limit for use: 32.94mm.

Measure the inner diameter of the sliding sleeve on the left half driven wheel.
Limit for use: 33.06mm.



14.6.1 Replacement of the bearing on the right half driven wheel

Remove the needle bearing from the right half driven wheel.
Remove the elastic retainer ring and the outer rolling bearing.



Note:
Removed bearing cannot be used any more
（滚针轴承：needle bearing 弹性

挡圈：elastic retainer ring 滚动轴承：rolling bearing）

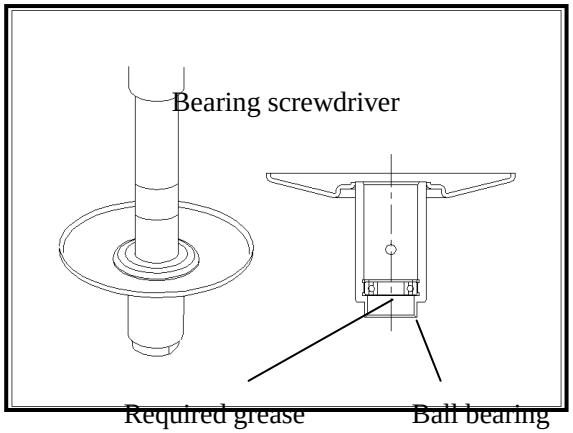
Apply grease evenly to the outer rolling bearing and then place it into the sleeve.

Note:

Place the outer rolling bearing into the sleeve with its marked

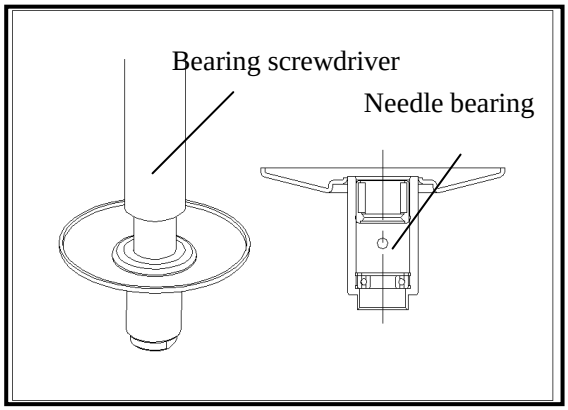
side outwards. Then fill the sleeve with 8-9g grease.

Install the elastic retainer ring.



Install the needle bearing.

Press the needle bearing in with the equipment shown in the picture



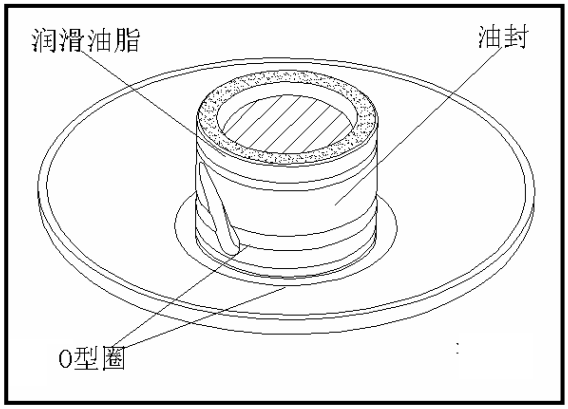
14.6.2 Combination of clutch and driven wheel

Eliminate any grease on the surface of the driven wheel.

Install the oil seal in the sliding sleeve of the left half driven wheel.

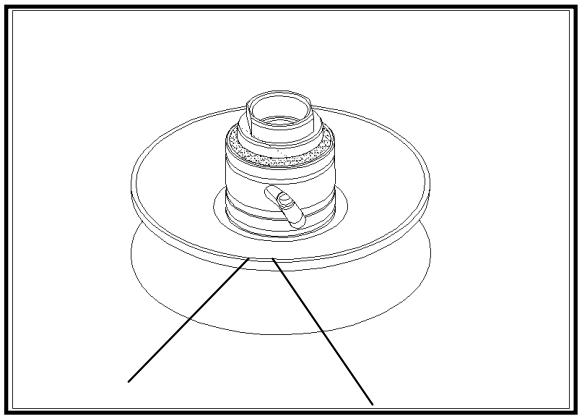
Apply grease evenly on the O-ring and install it on the sliding sleeve of the left half driven wheel

(润滑油脂：lubricating grease 油封：oil seal O 型圈：o-ring)



Combine the left half and the right half-driven wheel.

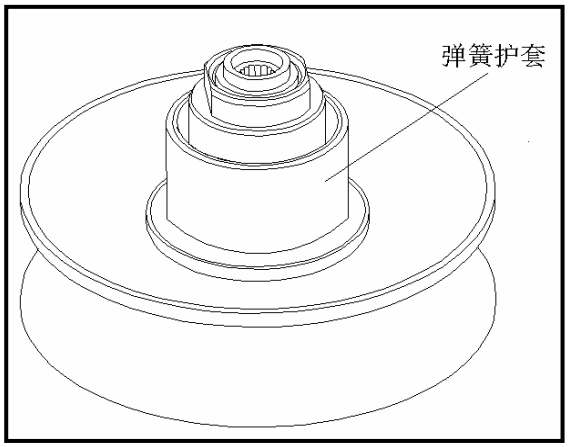
Apply grease evenly to the guide pin and then install it into the guide groove.



Guide pin Guide groove

Install the spring guard.
Eliminate the leaked grease.

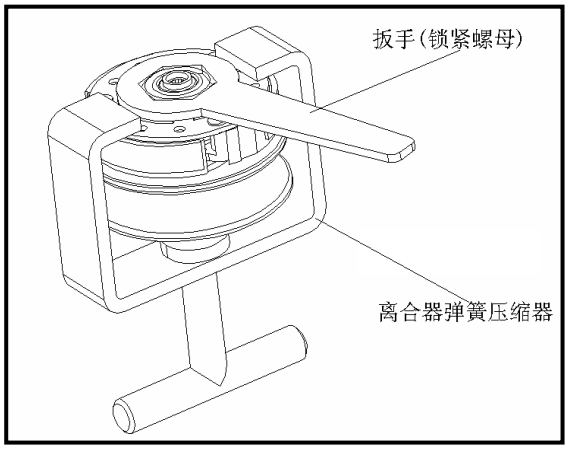
(弹簧护套：spring guard)



Install the clutch spring and the clutch on the driven wheel. Compress the set with the clutch spring. Install locking nuts after compression.

Note:
Properly compress the spring to avoid damage to the spring.

扳手（锁紧螺母）：spanner (locking nut)
离合器弹簧压缩器：clutch spring compressor



14.7 Installation

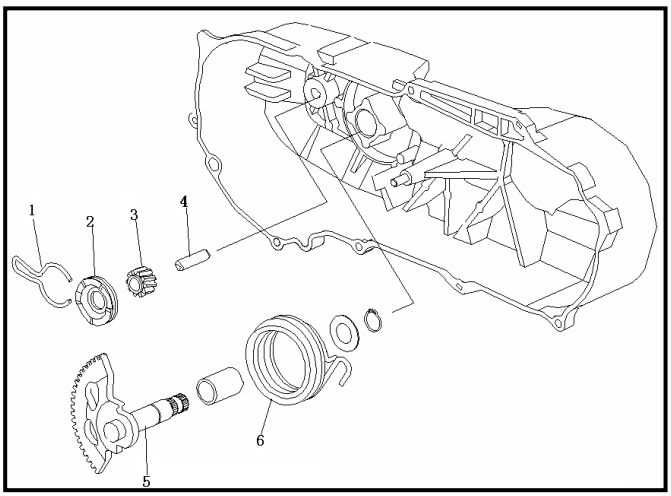
Install the drive face/ clutch/ driven wheel in reverse order

14.8 Kickstart mechanism

Disassembly/Check

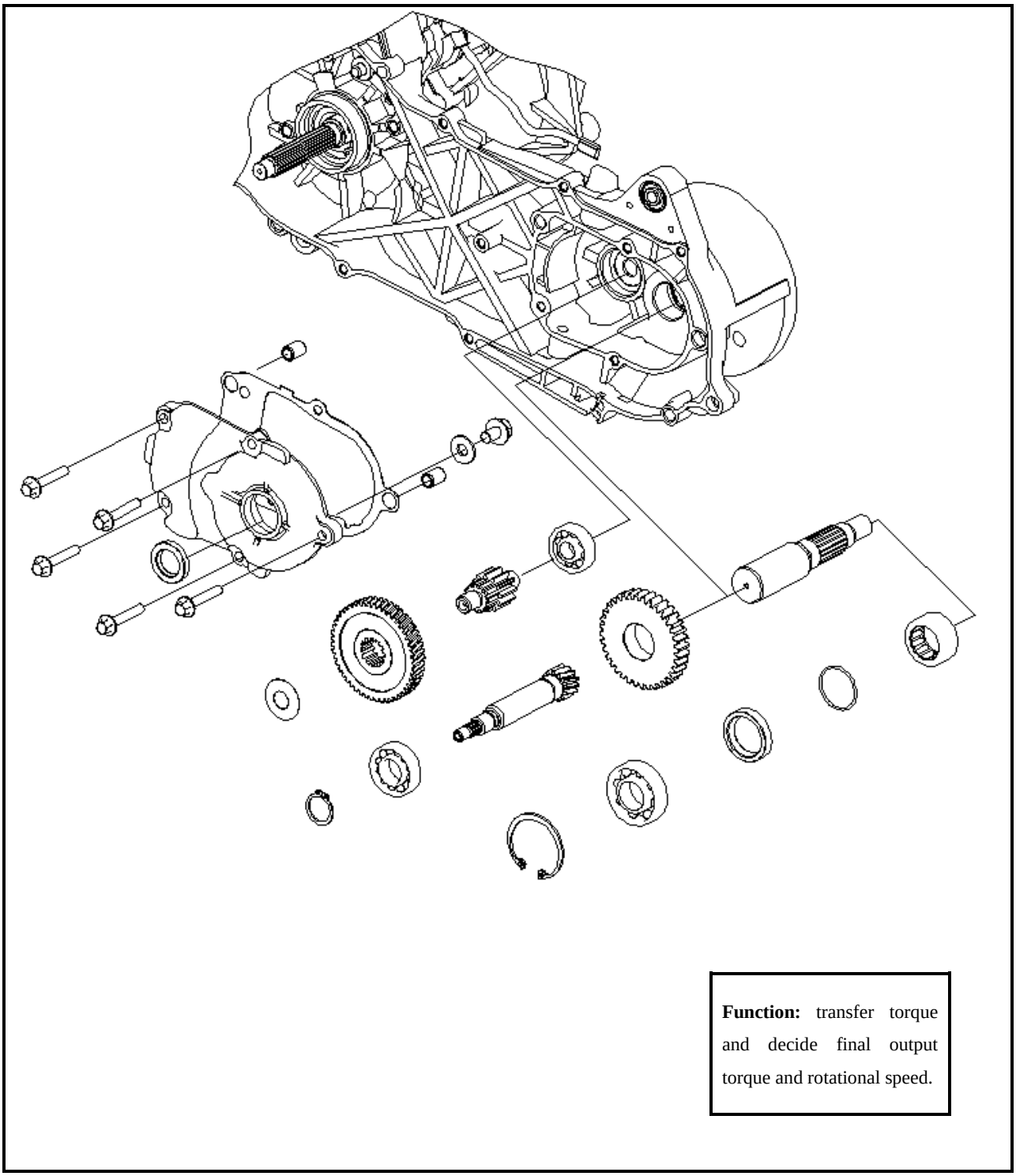
Remove the left crankcase cover.
Loosen the screw and remove the guard.
Remove the start claw assembly.
Remove the start shaft assembly.

Check abrasion of the start shaft.
Check abrasion of stress area of the start shaft sleeve and the idler shaft.
Check abrasion of idle gear.
Measure clamping force of the snap spring.
Normal standard: 8-12N.



Note: 1. snap spring 2. start claw 3. idle gear 4. idler shaft 5. start shaft assembly 6. kickstart shaft spring

Decelerator



Function: transfer torque and decide final output torque and rotational speed.

15. Decelerator

15.1 Preparing documents

Function: transfer torque and decide final output torque and rotational speed.

15.2 Failure diagnosis

No run after engine startup

Broken driving gear
Burnt driving gear

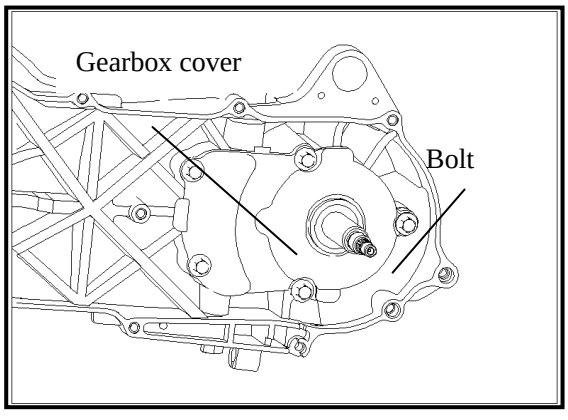
Leaked gear oil

Too much gear oil
Damaged oil seal

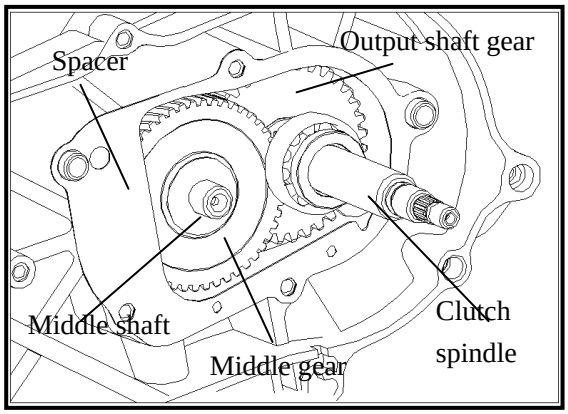
15.3 Gearbox

15.3.1 Disassembly

Remove the drain bolt and drain out gear oil inside the gearbox.
Loosen the bolt and remove the gearbox cover.

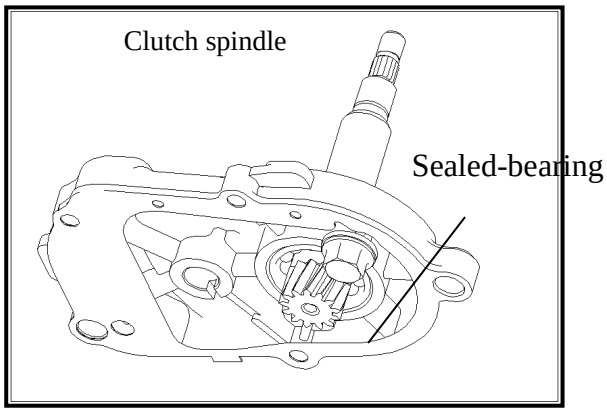


Remove the spacer and the locating pin..
Remove the clutch spindle and gear of output shaft.
Remove the middle shaft and the middle gear.



15.3.2 Check the Output Gearbox Cover

Check abrasion and damage of the clutch spindle, gear and bearing.
Exchange gearbox cover bearings.
Press the clutch spindle when the clutch spindle bearings are exchanged; remove it from the gearbox cover



Note:
Removed bearing cannot be used any more. It shall be replaced.
Use special tools to dismantle the bearing and the oil seal.

Remove the oil seal from the gearbox and knock the bearing out.

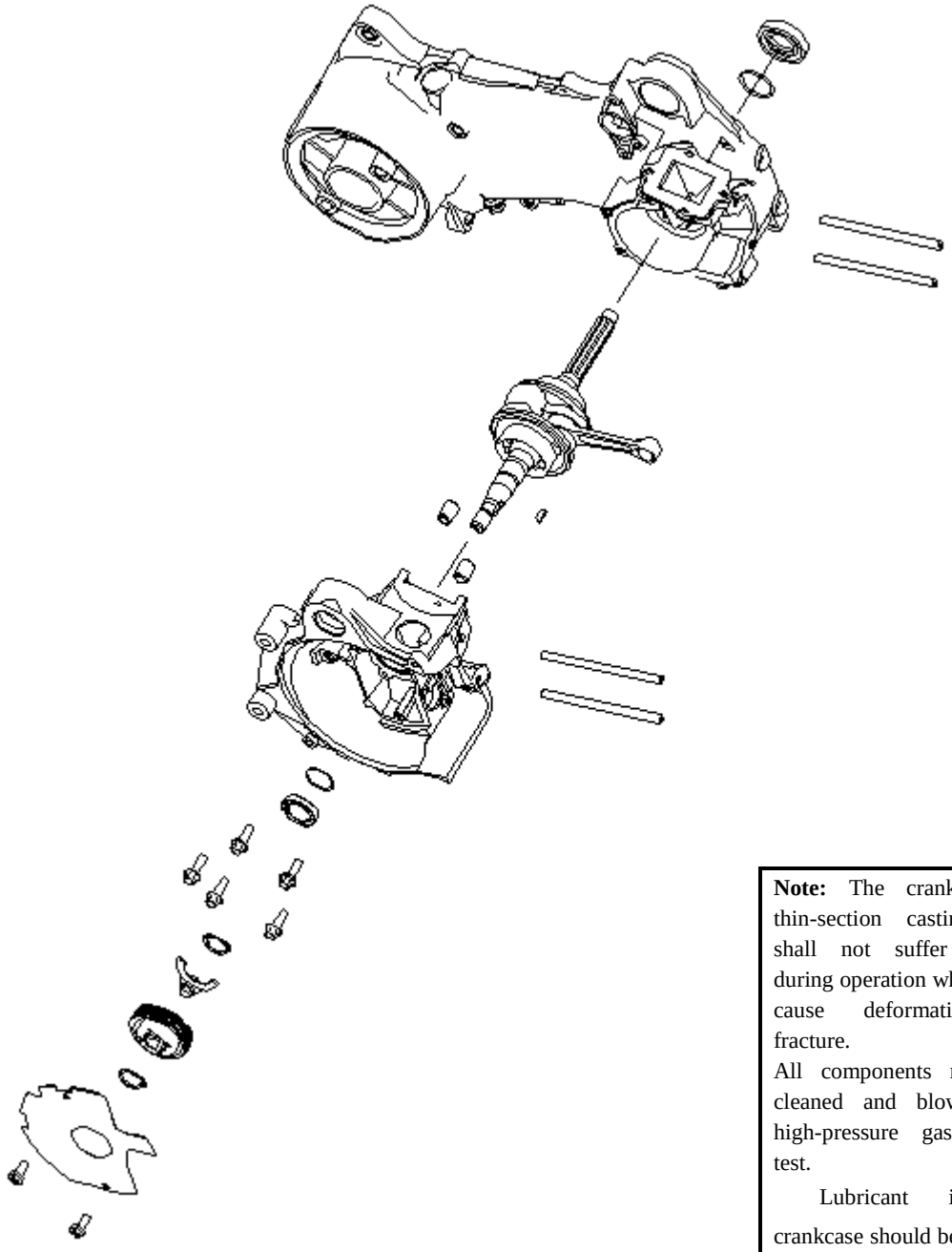
Note:
Removed bearing cannot be used any more. It shall be replaced.
Use special tools to dismantle the bearing and the oil seal.

15.4 Assembly

Assemble it in reverse order.

Note:
Use special tools to assemble the bearing and the oil seal to avoid any damage.

Crankcase



Note: The crankcase is thin-section casting thus shall not suffer impact during operation which may cause deformation or fracture.

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

Lubricant in the crankcase should be drained out before operation.

16 Crankcase

16.1 Preparing documents

Work instructions

The crankcase is thin-section casting thus shall not suffer impact during operation which may cause deformation or fracture.

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

Lubricant in the crankcase should be drained out before operation.

Function of the crankcase： The crankcase is the load-bearing part of the engine. Its main function is to support the crankshaft, clutch, gearbox, cylinder block and cylinder cover, sustain combustion shock and inertia force from the movement of the connecting rod, and form part of closed space (oil sealing, gas sealing).

Suspension holes in the crankcase are linked with suspension holes in the body, which connects the engine to the frame and other parts.

Preparing Principles

Unit: mm

Item		Standard	Limit for use
Crankshaft	Left-right clearance of the larger end of the connecting rod	0.25-0.40	0.55
	Radial clearance of the larger end of the connecting rod	0.015-0.025	0.05
	Shimmy	-	0.1

Tools

Universal holder **Clutch spring compressor**

Screwdriver lever **Socket spanner**

Guide rod **Bearing screwdriver**

16.2 Failure diagnosis

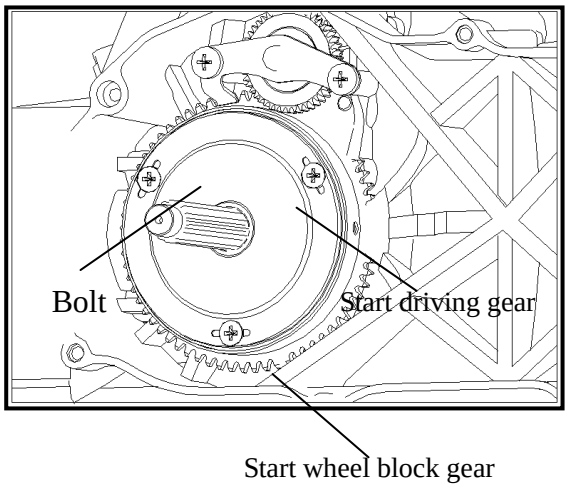
Noise in crankcase

Loose or broken parts inside the crankcase
Loose crankshaft bearing
Loose crankpin bearing
Seized clutch

16.3 Crankcase

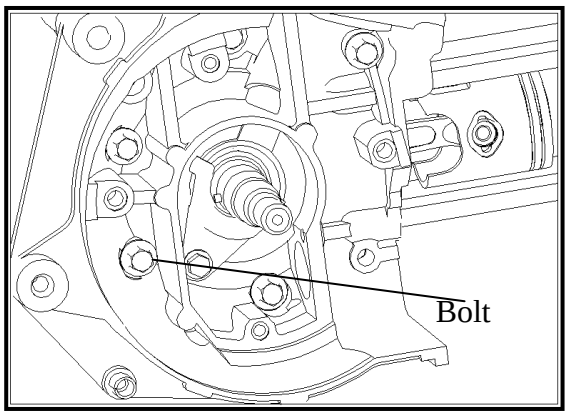
16.3.1 Crankcase disassembly

Loosen the bolts and remove the start driving gear.
Remove the start wheel block gear.

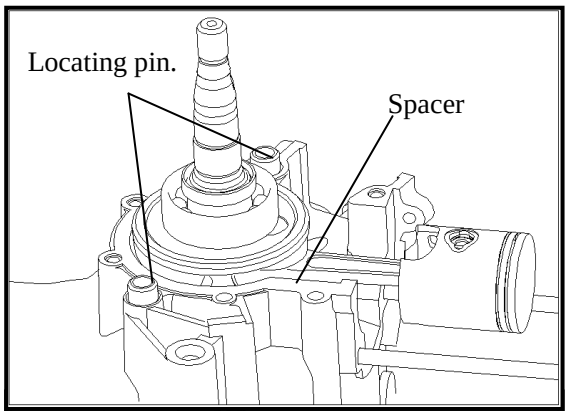


Remove the fixing bolts of the crankcase
Remove the left and right crankcase.

Note:
Do not damage the spacer.

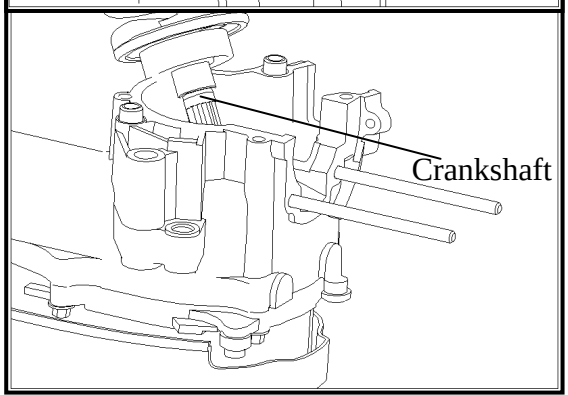


Remove the spacer and the locating pin.

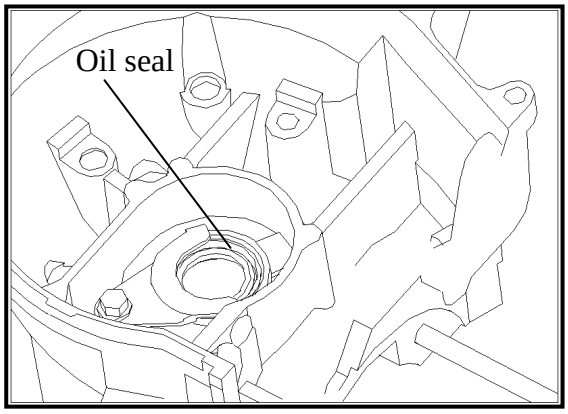


Remove the crankshaft from the crankcase
Remove any spacer on the joint surface of the crankcase.

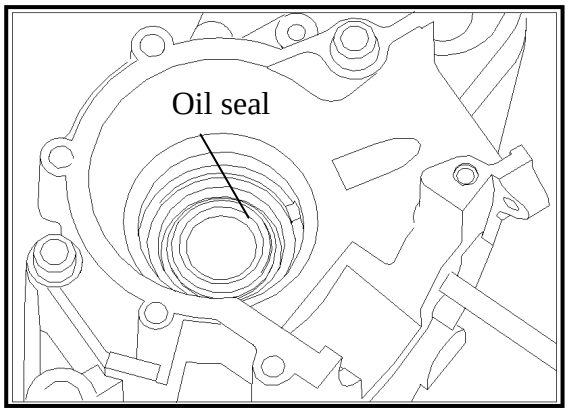
Note:
Do not damage the joint surface of the crankcase



Remove the oil seal from the left crankcase.



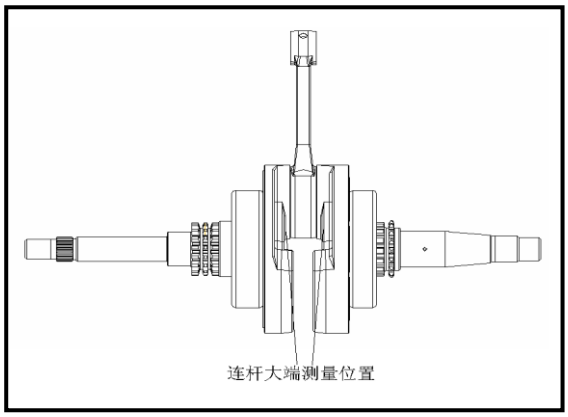
Remove the oil seal from the right crankcase.



16.3.2 Check

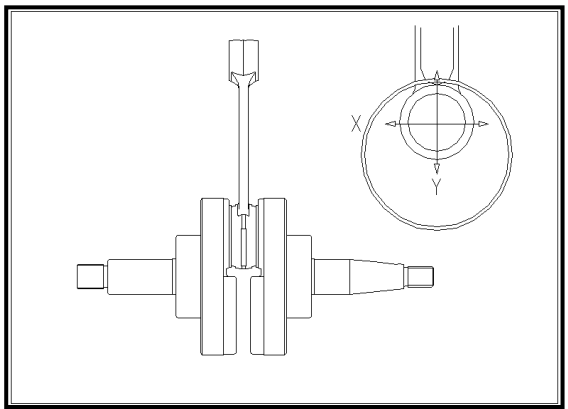
Measure the left-right clearance of the larger end of the connecting rod.

Limit for use: 0.6mm.



（连杆大端测量位置：measuring point at the larger end of the connecting rod）

Measure the clearance of the larger end of the connecting

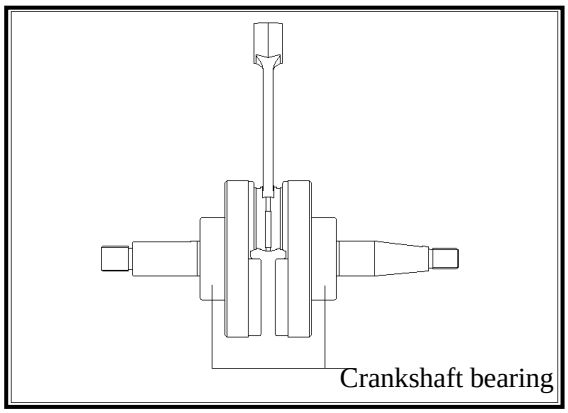


rod (X-Y direction).

Limit for use: 0.05mm.

Check whether crankshaft bearing makes noises or is loosen when it rotates.

If yes, replace the crankshaft assembly.



Crankshaft bearing

Note:

Removed oil seal cannot be used any more.

Special tool should be used when removing the oil seal.

16.4 Assembly

Assemble the crankcase in reverse order.

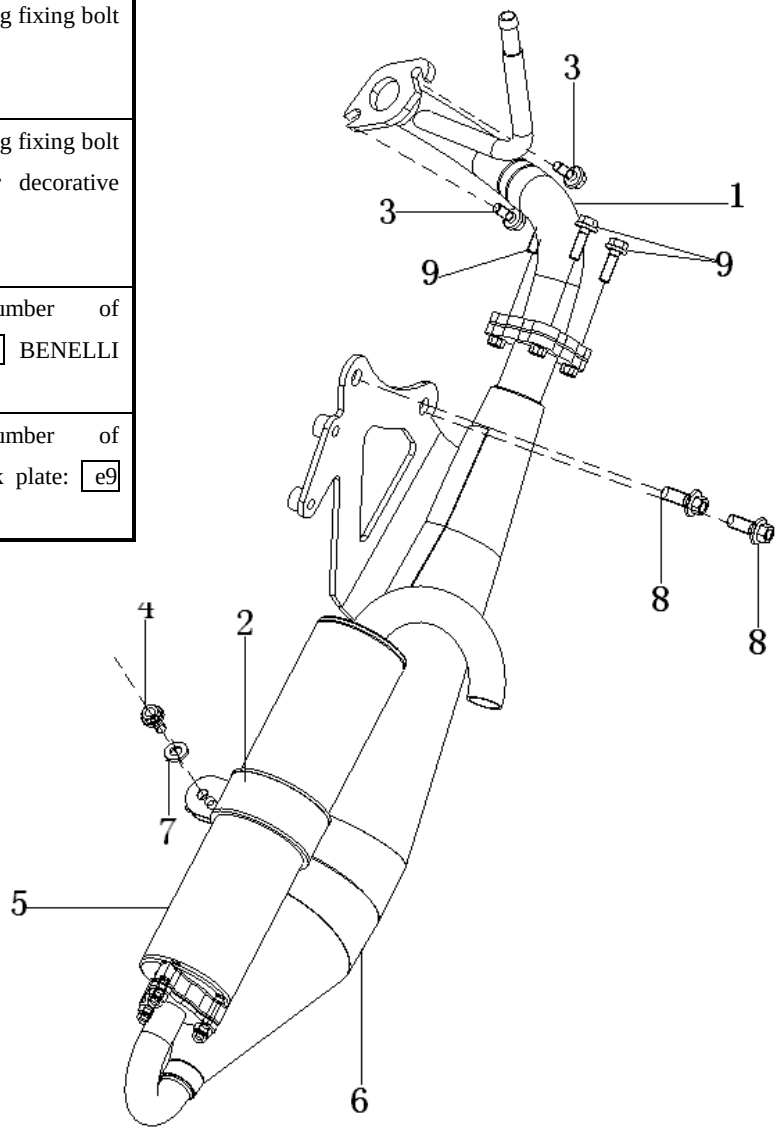
Note:

Install the oil seal with special tools to avoid any damage to it.

Inspection and Maintenance of Exhaust Emission System

Muffler

A	Torque for fastening fixing screw 15 of the muffler connecter: 5-9 N·m
B	Torque for fastening fixing bolt 3 of the muffler: 22-99 N·m
C	Torque for fastening fixing bolt 8 of the muffler decorative board assembly: 22-99 N·m
E	Certification number of exhaust pipe: e9 BENELLI EX-M2P
F	Certification number of cylinder body link plate: e9 BENELLI EX-M2



1 exhaust pipe assembly (45KM) 2 muffler hoop 3 bolt M6×16 4 bolt M6×16 5 muffler tube assembly 6 tube assembly 7 gasket 8 screw M6×20 9 screw M6×25

17. Exhaust Emission & Control System

17.1 Warranty on the exhaust emission & control system

1. The exhaust emission & control system of this motorcycle is in conformity with the revision of EC/97/24/5/I and 2002/81/EC B issued by the EU. We warrant that the exhaust emission & control system works normally during its effective period provided that users completely comply with all operation and maintenance requirements.

2. Warranty range

1〉 Function warranty of the exhaust emission & control system

We warrant that it satisfies all periodic or non-periodic exhaust emission inspection by the related government authorities within riding of (15000 kilometers).

3. This provision is not applicable under any following condition. However, our distributor or service store would like to provide maintenance or repair services at reasonable prices.

1〉 Users fail in periodic maintenance within the required period or kilometers.

2〉 Periodic maintenance, adjustment or repair is not carried out at our distributor or service center, or there is no evidence of maintenance record.

3〉 Overload or improper operation.

4〉 Refit the motorcycle, remove original parts or replace with other devices in private.

5〉 Ride the motorcycle on race tracks or on any non-motorized vehicle lane frequently.

6〉 Damage to the motorcycle due to extreme weather such as typhoon or flood, or damage or failure due to negligence, crash or impact.

7〉 Users fail in periodic maintenance since it is out of service for a long time.

8〉 The odometer is not repaired immediately after being damaged, or it is refit, stopped, or replaced in private.

9〉 Users fail in periodic exhaust inspection at the station every three months.

·All new motorcycles delivered by our company have satisfied the noise test and comply with EC 97/24/9 implemented by the EU.

17.2 Instructions on periodic maintenance

·It is the national requirement that all motorcycles produced domestically shall comply with exhaust emission standards to lessen environmental pollution. We strictly accord with these exhaust emission standards and also make great effort in purifying air and reducing pollution.

·This motorcycle has been strictly examined before delivery and is in conformity with all exhaust emission standards. We provide the following periodic inspection table for exhaust emission in consideration of different

use by customers. Users shall carry out periodic inspection, adjustment or maintenance according to the schedule to ensure normal emission.

·For any problem, please contact Qianjiang distributors or Qianjiang service center.

·Relevant emission provisions are shown as follows

Emission regulation	CO	HC+ NOX
Emission standard	≤1.0g/km	≤1.2g/km

※The latest national regulation shall prevail if there is any change.

·We are not responsible for any problem due to failure in periodic maintenance at our distributor or service center. Please carry out necessary inspection to ensure its best condition.

Note: ①Clean the air filter frequently if the motorcycle runs in sandy road or under seriously polluted condition to extend the service life of the engine.

②Increase maintenance if the motorcycle often runs at high speed or frequently.

Pay attention to following items to ensure compliance with emission standards:

1〉 Please use lead-free gasoline #92 or #95.

2〉 Please use fuel with stipulated specification.

3〉 Please comply with periodic maintenance requirements.

4> For the exhaust control system, it is forbidden to make any adjustment or replacement at random (including use of spark plug, adjustment of idle speed, ignition timing, carburetor adjustment, etc.)

5〉 Notes:

·Since any problem in the ignition system, the charging system or the fuel system has significant effect on the catalytic device, please go to our designated distributor or service center for inspection, adjustment or repair immediately when there is any problem found in the engine.

·Please use lead-free gasoline #92 or #95. Otherwise, the catalytic conversion device (two-stroke system) will be affected.

6〉 The exhaust control system of this motorcycle is in accordance with the national regulation. For replacement of any component, please use our original parts and have our designated distributor or service center carry out such replacement.

17.3 Mechanical function of the exhaust control system

General

This system adopts two-stroke single-cylinder engine, carburetor and air conduction device to maintain qualified exhaust gas. Meanwhile, active carbon canister is used for exhaust gas evaporated from fuel

※ Engine improvement

※ As the semicircle combustion chamber with spark plug inside, compression ratio, ignition time, exhaust system and other engine components are improved, as well as the intake/exhaust efficiency is enhanced, the combustion efficiency is raised.

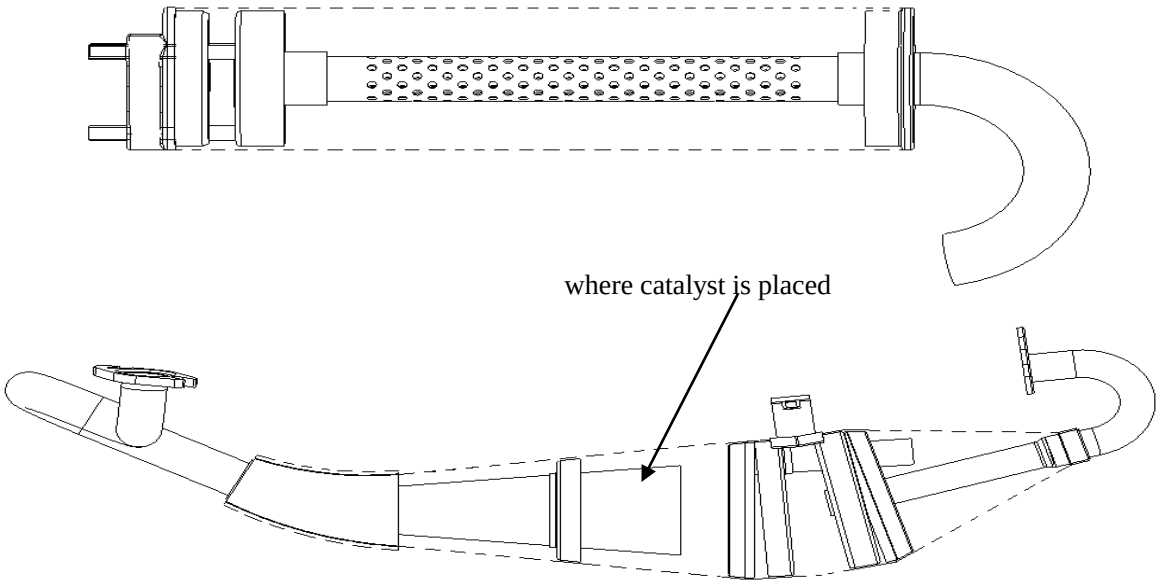
※ **Air induction device**

Induce air into the exhaust pipe to react incompletely combusted CO and HC into harmless gas.

Division	Device	Constitution	Function
Exhaust system	Catalytic device	Catalytic converter	Canned oxidized catalyst installed in the center of the exhaust pipe is able to oxidize CO, HC and NO_X.

17.4 Catalytic conversion system

17.4.1 Structure:



17.4.2 Instruction:

1. The function of convertible catalyst is to converse exhaust gas HC, CO and NO_X after complete combustion to harmless gas such as H_2O, CO_2、and、N_2 before emission.

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

※Note that lead gasoline may invalidate catalyst.

- **General instructions for maintaining motorcycles (exhaust pipe) with catalytic converter:**

1〉For motorcycles with catalytic converter, when the engine is running or just closes down, it shall not be touched for a while because of high temperature.

2〉Motorcycles with catalytic converter shall not be near flammable material.

3〉There is CO inside the exhaust pipe, which is harmful to health. So do not run the engine in closed space.

4〉Lead gasoline can not be used for motorcycles with catalytic converter (to prevent catalytic poisoning).

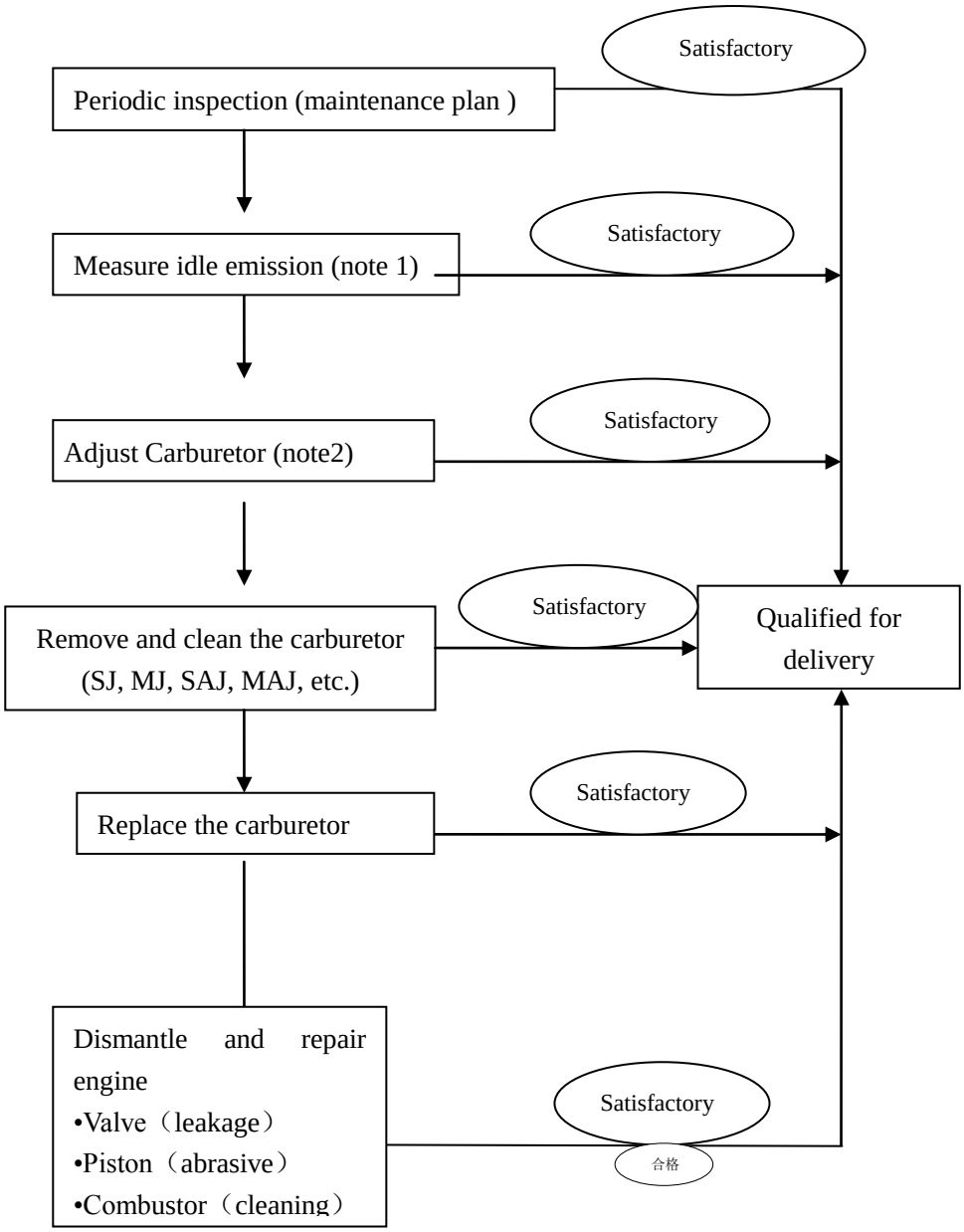
5〉Do not push the motorcycle to start the engine. If it is necessary, please wait until the temperature of the engine and the catalytic converter lower down.

6〉Do not make gear up or flame out when descending.

7〉Do not drive the motorcycle with bad ignition

8〉Do not remove spark plug and start the engine to see whether there is spark when repairing the ignition system of the engine. If it is necessary, it shall be finished in a short time.

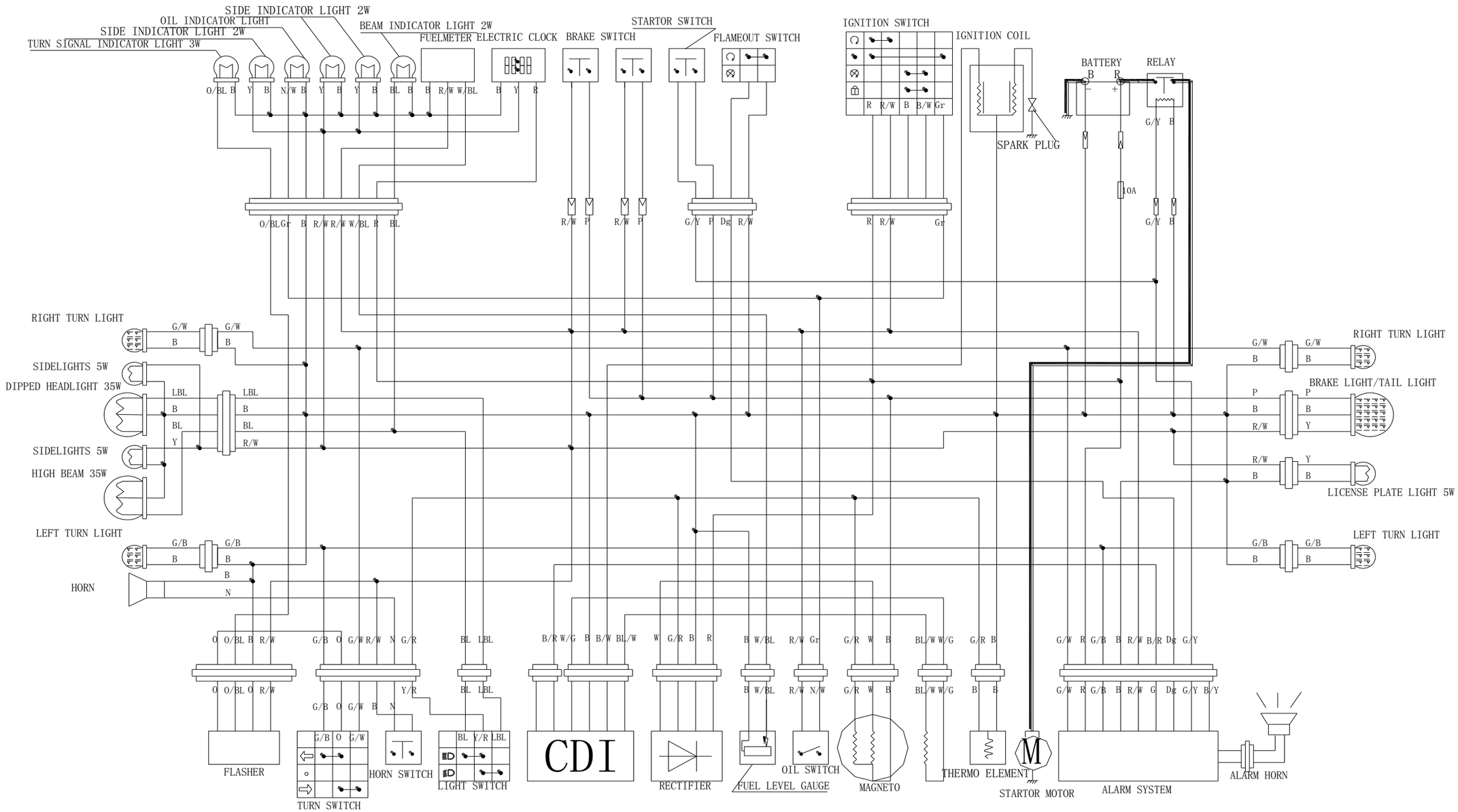
17.5 Measures when the idle speed emission value exceeds the standard (Two-Stroke)



Note 1: measure it with the idle speed measurement program.

Note 2: adjust the engine speed with stop screws to live up to requirements and measure CO/HC at the idle speed

QJ50QT-29D ELECTRICITY PRINCIPLE DIAGRAM



SYMBOL	B	R	W	BL	G	O	Y	P	N	LBL	Dg	G/Y	G/W	G/B	G/R	R/W	W/BL	B/W	N/W	Y/G	B/Y
COLOR	BLACK	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 GREEN	BLACK YELLOW