ZHEJIANG KAYO MOTOR CO., LTD.

Model AU180

Service Manual

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Instruction

This manual contains detailed information for Kayo BULL180 /AU180 (ATV), maintenance, adjustments, disassembly, installation, inspection points and specifications.

Please read the manual carefully and follow the instructions closely when performing inspections and repairs, this will increase the reliability, performance and overall lifespan of the vehicle.

All contents in this manual are subject to improvements and update without notice.

Contents

Conversion table

Item	Unit conversion
pressure	1kgf/cm =98.0665kPa；1kPa=1000Pa
	1PSI=6.8948kPa
Torque	1kgf·m=9.80665N·m
volume	1mL=1cm^3=1cc
	1L=1000cm^3
Moment	1kgf=9.80665N
Length	1in=25.4mm

Danger/warning/attention

Take the following warnings seriously, it's important for regular maintenance, especially important during engine maintenance.

Danger: Be on high alert for danger.

Warning: Be on alert for moderate danger.

Attention: Be on alert for minor danger.

This manual may contain some potential risks when performing engine work and maintenance, please pay close attention to the above explanations, Service technician or mechanics should have basic mechanical knowledge before performing any service, maintenance, or inspection.

1. Service Information

1.1 Safety precautions

Safety first

1. Wearing work clothes (coveralls), hat and safety boots suitable for the operation. In some condition's safety glasses, dust masks, gloves and other safety protective supplies are needed to protect you from injury.

2. Do not run the engine in unventilated areas.

3. To prevent burns, do not touch the engine or exhaust until cooled.

4. Battery solution (dilute sulfuric acid) is a strong corrosive agent; contact with the skin, contact with eyes may cause blindness. If the battery solution accidentally touches clothes or skin, rinse immediately with clean cold water. If the battery solution is touches eyes, please flush immediately with plenty clean cold water and get medical treatment as soon as possible. Battery and battery solution should be kept out of reach of children. Battery charging will produce flammable and explosive gases, if exposed to a source of fire or spark there is a risk of explosion or fire. Please charge in well-ventilated places.

5. As gasoline is flammable and explosive. Pay attention to sparks as well as open flames. Vaporized gasoline may explode if exposed to open flame or sparks, please choose well-ventilated areas away from these hazards when refueling.

6. Attention, the rear wheel, clutch or sprockets and other rotating parts and movable parts as hands and clothes may be caught during maintenance.

Disassembly and installation precautions

1. All Parts, lubricants oils and fluids must be Kayo brand parts or Kayo recommends.

2. During disassembly, please sort and separate out the parts and fasteners of each system to ensure that everything is put back together properly.

3. Clean the vehicle or parts to be serviced before inspection.

4. Gaskets, O-rings, piston pin, piston ring, cotter pin and other one-time use parts must be replaced after disassembling.

5. Snap rings can be deformed if opened too much during disassembly. DO NOT re-use deformed snap rings.

6. After disassembly and inspection, clean parts and blow the cleaning agents away with compressed air before measuring. Grease the moving surfaces before assembly.

7. During disassembly, check all the necessary specifications and measure according to directions in this manual. Make sure measurements and conditions are within specification.

8. Bolts, nuts, screws and other fasteners shall be pre-tightened and then tightened in accordance with the specified torque in a diagonal sequence. From large to small, and from inside to outside.

9. Inspect all rubber parts during disassembly and replace if necessary. In addition, as some rubber pieces are not resistant to corrosive materials, please keep them from contacting volatile oils, grease, or liquids.

10. Pack or inject recommended grease in specific places as stated in service manual.

11. Use special tools when needed for disassembly and installation.

12. Ball bearings can be rotated with finger to confirm whether the rotation is flexible and smooth.

- Bearing axial and radial clearance is oversized.
- Clean and grease bearings with a tight spot when rotated. If the bearings still feel stuck after cleaning, replace. If the bearings can't be cleaned, replace.
- If the bearing is a press fit, and becomes deformed after disassembling, replace it.

13. Bearings should be lubricated or packed with grease before assembly. Take note of the direction of installation when assembling. When installing open or double-sided dustproof bearing, make the manufacturer's logo and dimensions outwards.

14. Let the chamfered side towards force direction when install the Snap-ring. Do not use the rings without elasticity. After assembly, rotate the snap-ring to confirm that it is firmly installed in the slot.

15. It's important to check that all fastening parts are tightened and that functions are normal after assembling.

16. Brake fluid and coolant can damage surfaces, painted parts, plastic parts, rubber parts, etc., do not let brake fluid contact to these parts, if brake fluid contacts these parts rinse and dilute with water immediately.

17. When installing oil seals manufacturer's mark and sizes face outward.

- Check the oil seal before using.
- Grease the oil seal lip before assembly.

18. When installing rubber hose parts, insert the rubber pipe into the fitting. If there is a hose clamp, install the hose clamp in the hose indentation. Replace rubber hoses if dried, cracked, or deformed

19. Clean all gasket material from surfaces of before installing new parts or reassembling.

20. Do not bend cables excessively. Kinked or damaged cables may cause poor response and inner cables to fray and eventually break.

21. When assembling any protective caps, covers or boots make sure they are seated correctly in the respective grooves.

Engine Break-in

Proper Engine break in is necessary on new engines and newly rebuilt engines to help ensure that longevity and reliability of the engine components.

Recommended break-in time is 20 hours, as follows:

0~10 hours: Operate at no more than ½ throttle, keep gear changes and speed variances to a minimum. Do not operate for extended amounts of time with a fixed throttle position. Let the engine cool for 5 to 10 minutes after each hour of operation. Avoid quick acceleration.

0~20 hours: Operate at no more than 3/4 throttle, do not operate for extended amounts of time with a fixed throttle position. Change gears and vary speeds as necessary. Let the engine cool for 5 to 10 minutes after each hour of operation. Avoid quick acceleration.

Note:

- During break-in period, inspect for noises and wear and follow maintenance schedule.
- After Break-in period is complete schedule the unit for an inspection and service

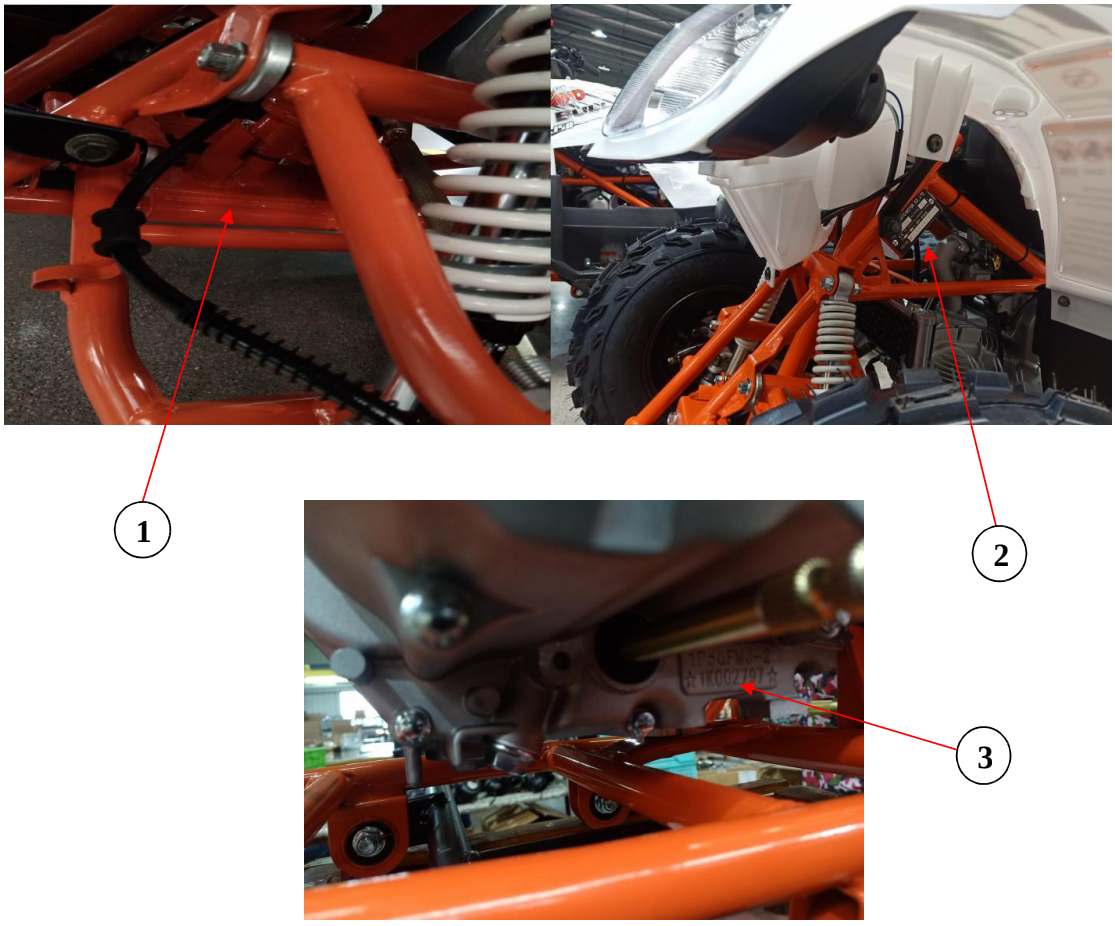
1.2 VIN Number

Model	**AU180**
VIN number	
Engine number	

1 VIN number frame stamp

2 VIN plate

3 Engine number



1.3 Main parameters list

Item		Parameters
Model		AU180
L（mm）		1710
W（mm）		975
H（mm）		1030
Wheelbase（mm）		1100
Engine model		1P63QML
Displacement（ml）		177
Fuel type		No.92 gasoline and higher grade
Kerb weight（kg）		160
passengers		1 person（Driver）
Max. Loading weight		1 person＋ 80kg = 140kg
Tire size	Front wheel	AT23×7-10
	Rear wheel	AT22×10-10
Min. Ground clearance		160mm
Turning radius (min. Turning radius of the closest point)		2400mm
Engine	Starting mode	Electric
	Type	Single cylinder, four stroke, oil cooling
	Distribution way	CHOHO/chain transmission
	Cylinder diameter × mileage（mm）	62.5×57.8
	Compression ratio	10.0:1
	Lubrication mode	Combination splash and pressure feed
	Oil pump type	Rotor
	Lubricating oil filter type	Full flow filter rotary type
	Oil trademark	SF MA 15W-40
	Cooling type	Oil cooling

Item	Parameters
Air filter type	sponger filtering core

Throttle body	\	\	
	\	\	
Tank volume		5.6L	
Drive system	Clutch type	Automatic clutch	
	Gearshift method	CVT	
	Gear range	F-N-R	
	Shift type	Manual/F-N-R	
	Output mode	Rear axle output	
	Rotate direction of engine output shaft	Forward gear, viewed from the rear of the vehicle, the front is clockwise.	
Steering gear	Maximum steering Angle	45°±1°	
Brake type		Front	Hydraulic disc
		Rear	Hydraulic disc
Buffering mode	Suspension mode	Front wheel double rocker arm independent suspension, rear wheel independent suspension	
Frame type		Steel tube and steel plate welded type	

1.4 Maintenance parameters list

●Lubrication system

Item		Standard	Limitation
Engine oil capacity	Change oil	800ml（No oil filter element replaced）	—
	Change oil	850ml（replace the oil filter element）	
	Full capacity	900ml	—
Recommended engine oil		Please choose SF MA 15W-40, or it may cause engine damage	
Oil pump rotor	Radial clearance of inner and outer rotors	—	0.12mm
	Radial clearance between outer rotor and pump body	—	0.12mm
	Axial clearance between rotor surface and pump body	0.05~0.1	0.2mm

●Air intake system（see engine section）

Item		Standard	Limitation
Rim jump	Vertical	0.8mm	2.0mm
	Horizontal	0.8mm	2.0mm
Tire	Residual groove	—	3mm
	Air pressure	35kPa（0.35kgf/cm^2）	—

●Brake system

Item		Standard	Limitation
Front brake	disc thickness	3.5mm	3.0mm
Rear brake	Brake handle stroke	10~20mm	—
	disc thickness	4.0mm	3.5mm

●Storage battery / Charging device / Trigger coil

Item			Standard
Magneto	Type		permanent magnet alternator
	Output		three-phase full-wave
	Magneto trigger coil resistance		150
	Magneto no-load voltage (engine in cold state)		None
	Maximum output		180w
	Stable voltage		14.5 ± 0.5V
	Peak voltage of trigger coil		≥1V，200r/min；≥8.5V，2000r/min
Rectifier type			Full-wave rectification
Storage battery	Ca		12V 7Ah
	Voltage between terminals	Full charge	14.4V
		Insufficient	Less than 11.8V

●Ignition device

Item				Standard
Ignition method				CDI electric ignition
Item		Item		
Ignition method		Ignition method		A7TC
Sparking plug	Type	Sparking plug	Type	0.6~0.7mm
	Standard		Standard	Blue-white light
	Gap		Gap	0.3 Ω
	Spark character		Spark character	3.8 kΩ
Peak voltage		Primary ignition coil		300~450V
		Pulser		20kV~30kV
Starter relay coil resistance				3.5 Ω

●Light / Instrument / Switch

Item		Standard
Accessory inline fuse		10A
Light	Headlight	12V—35W
	Taillight/brake light	12V—2.8W

●Valve mechanism + cylinder cover（see engine section）

●Cylinder + piston + piston ring + crank connecting link（see engine section）

1.5 Fastener Torque Specifications

Note: Apply anti-rust grease to the thread and joint surface before installation.

Torque Specifications chart

No.	Item	Fastener code	Qty.	Moment（N·m
1	Lower rocker bolts of	GB5789 M10×1.25×70	4	45~59
2	Front brake bolts	GB5787 M10×1.25×40	4	45~59
3	Rear brake bolts	GB5787 M10×1.25×50	1	45~59
4	Rear brake bolts	GB5787 M10×1.25×45	1	45~59
5	Slotted nut for front hub	GB9457 M14×1.5×H18	2	126~218
6	Slotted nut steering link	GB9457 M10×1.25	4	33~45
7	Cover screw of handlebar	GB70-85 M8×30	4	22~30
8	Front brake clamp bolt	GB5789 M8×25	4	22~30
9	Front brake disc bolt	M8×1.25×20	8	22~30
10	Rear brake clamp bolt	GB5789 M8×25	2	22-30
11	Rear brake disc bolt	GB70-85 M8×16	4	22~30
12	Pressing erection bolt of	GB5783 M10×1.5×30	2	45~59
13	Oil cooler mounting bolts	GB5789 M6×25	4	9~12
14	Mounting screw of trailer ball fixing plate	GB70-85 M10×1.5×30	4	45~59
15	Slotted nut of rear hub	GB9457 M16×1.5	2	199~311
16	Slotted nut of steering	GB9457 M10×1.25	1	110~130
17	Bolt for steering column	GB5787 M8×60	2	22~30

18	Mounting bolt in front of	GB5789 M6×25	2	9~12
19	Mounting bolt behind tank	GB5789 M6×30	2	9~12
20	Mounting bolt of	GB5787 M6×16	1	9~12
21	Bolt of negative	GB5787 M6×16	1	9~12
22	Mounting bolt of engine	GB5787 M10×1.25×160	1	45~59
23	Mounting screw of chain	GB70-85 M8×20	4	38~51
24	Mounting screw of plastic	GB70-85 M6×45	4	13~16
25	self-tapping screw Pan	GB845-85 ST4.2	—	—
26	Cross recessed pan head	GB828-88 M5×16	2	—
27	Cross recessed flat head	TM6	—	—
28	Mounting nut of wheel rim	GB6187-86 M10×1.25	16	45~59

- **Tightening moment at specified position - engine（see engine section）**
- **Tightening moment at unspecified position**

Type	Torque N·m	Type	Torque N·m
5mm bolt, nut	4.5~6	5mm screw	3.5~5
6mm bolt, nut	8~12	6mm screw	7~11
8mm bolt, nut	18~25	6mm flange bolt	10~14
10mm bolt, nut	30~40	8mm flange bolt, nut	20~30
12mm bolt, nut	35~50	10mm flange bolt, nut	30~40

- **Engine service tool（see engine section）**
- **Engine special tool（see engine section）**

1.6 lubricating grease and sealant

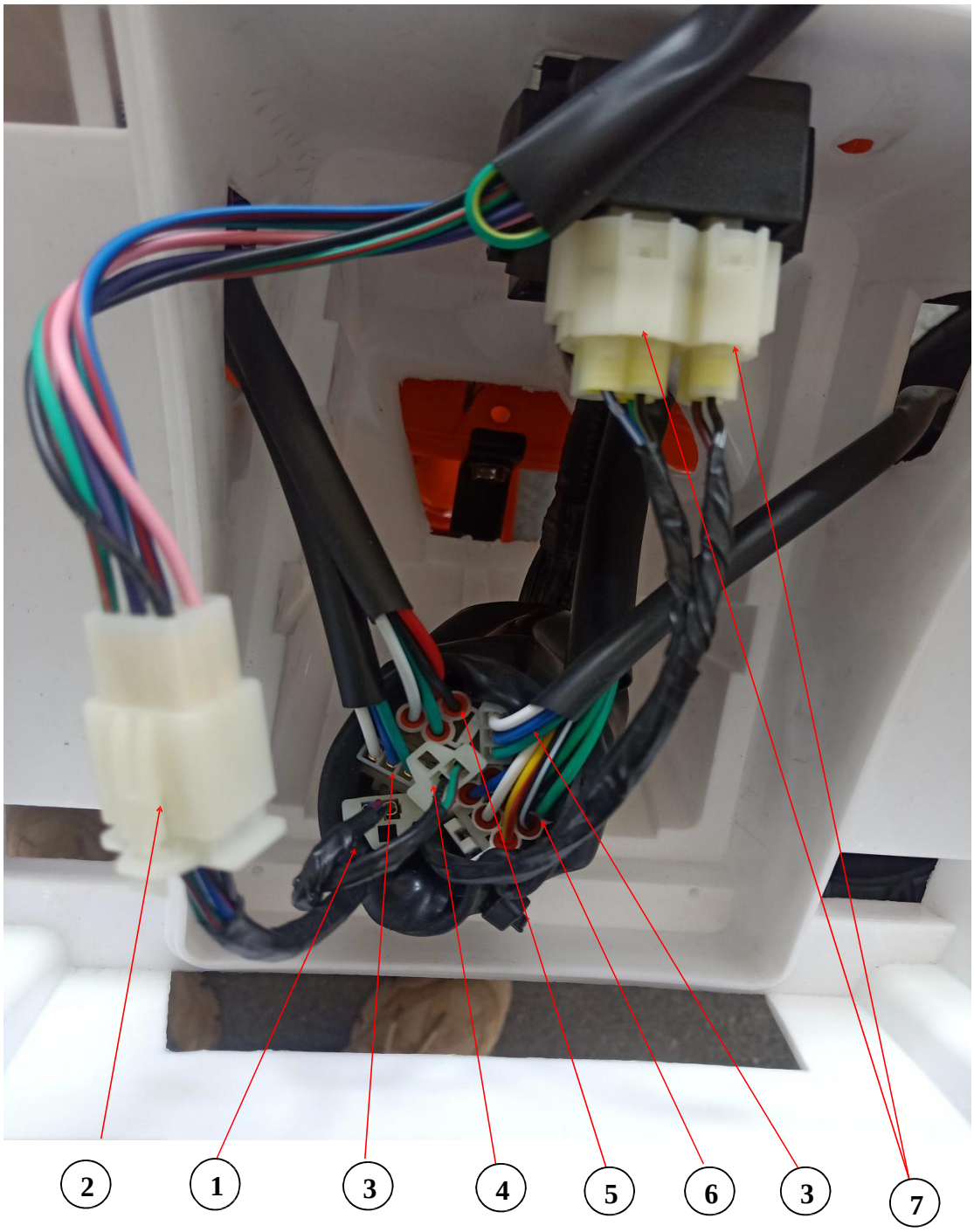
Position	Note	Grease
Steering bearing		Light lithium base grease
Connection of throttle and cable		
Movable part of rocker arm		
Inner of steering column		
Movable parts of seat lock		
Movable parts of gearshift		

- **Lubrication of control cable, bearing and other movable parts**

Position	Content	Grease
Spherical bushing for steering	lubrication	General Purpose Lithium Lubricating Grease for Automobile GB/T5671
Rear axle support		
Joints of front and rear brake		
Throttle handle shaft and cable		
Left and right brake handle rotors		
Parking cable connection		

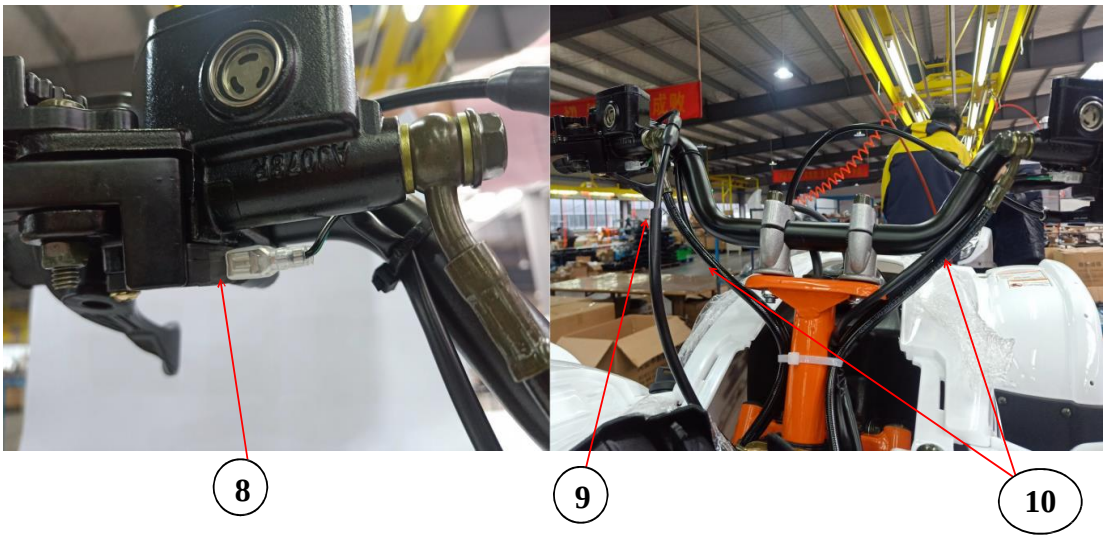
Engine operating materials and installation accessories (see engine section) Engine operating materials include lubricating oil (engine oil), Grease and may require thread sealant or thread lock.

1.7 Wiring and Cable Routing Diagrams

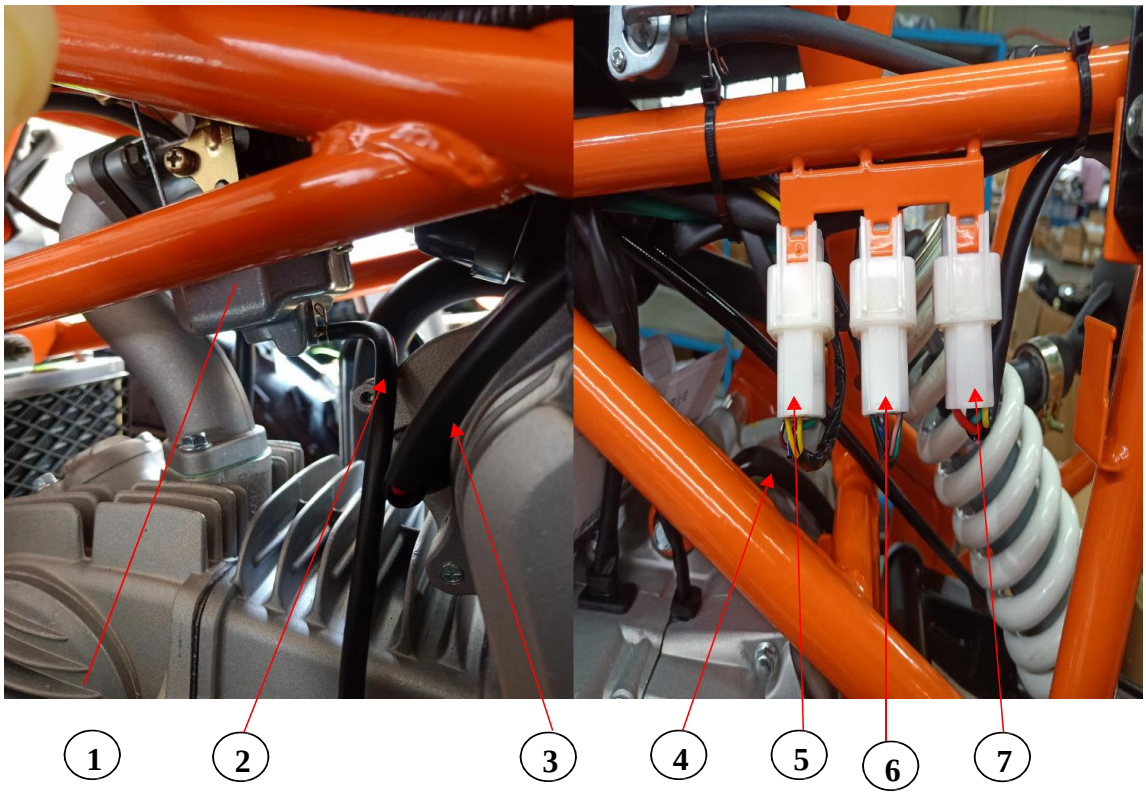


1. Alternate reverse gear display connector
2. Instrument connector
3. Headlight connector
4. Alternate neutral display connector
5. Electric door lock switch connector
6. Multifunctional switch connector of left handlebar
7. Ignite connector

Note: Removing the front panel before inspection and repair for above parts. For details, please refer to chapter 2, plastic cover.

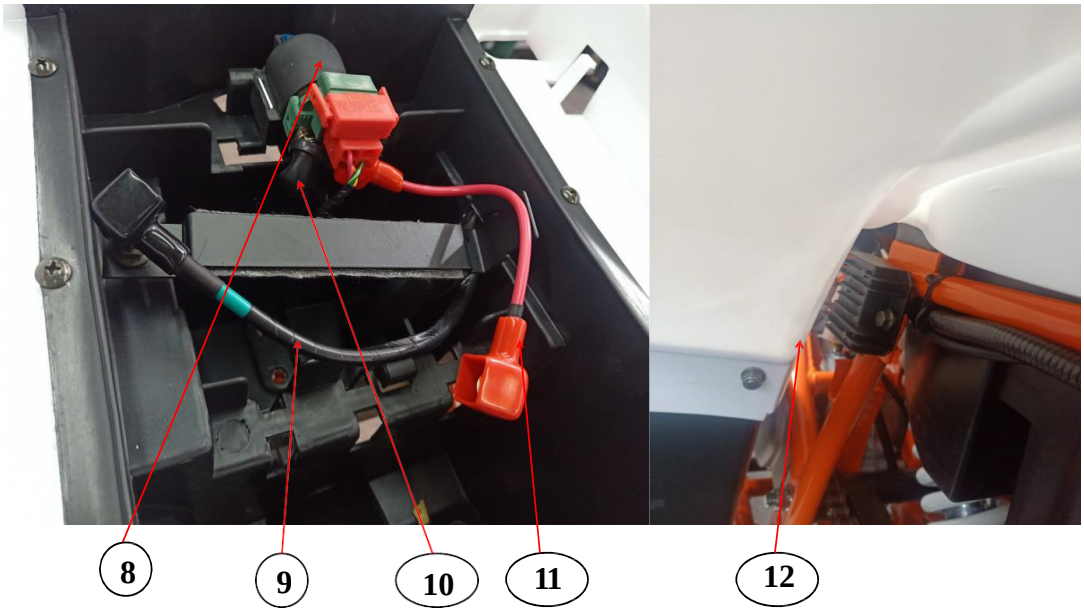


8.Brake sensor (left, right) 9. Throttle cable 10. Brake lines

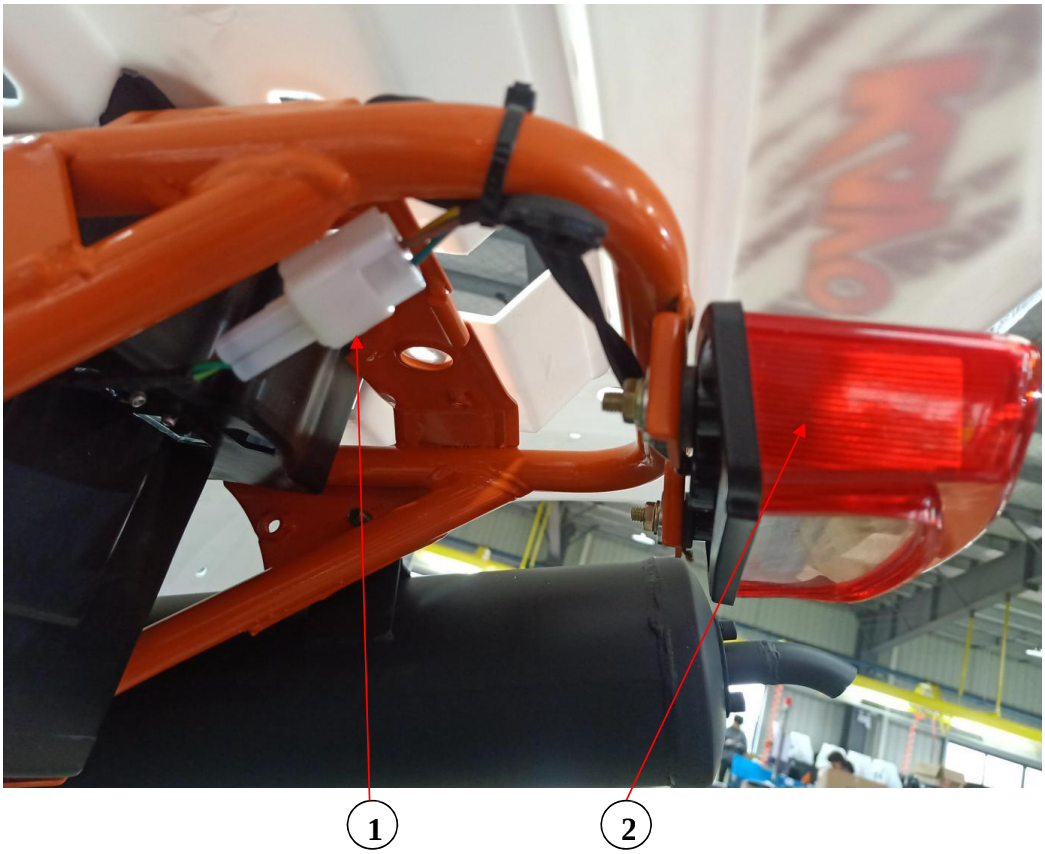


1. Carburetor 2. outlet pipe for carburetor 3. Starter motor cable
4. Engine exhaust pipe 5. Magneto trigger connector
6. Gear display connector 7. Regulated rectifier connector

Note: please disassemble the gear lever and pedal before inspection and repair for above parts. For details, please refer to chapter 2, plastic cover.



8. Starter Relay 9. Battery negative wire 10. Starting motor wire
11. Battery positive wire 12. Voltage regulator rectifier



1.

1. Tail light connector 2. rear light

2 Plastics and Body parts

2.1 Maintenance warnings

Operation cautions

1. When replacing plastics parts, please install new warning labels, stickers and riveted tags to the new plastics.

2. This chapter is about the dismounting the body plastics.

2.2 Installation torques

M8 bolt	21（2.1）	Torque N·m (kgf·m)
M6 bolt	10（1.0）	Torque N·m (kgf·m)
M5 bolt	5（0.5）	Torque N·m (kgf·m)
Self-threading pin	4（0.4）	Torque N·m (kgf·m)

2.3 Seat and carrier

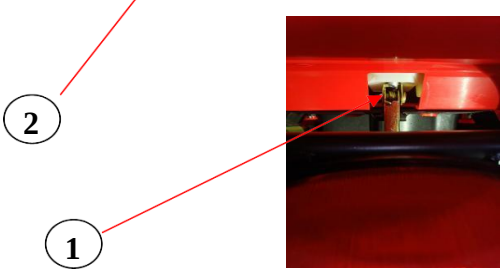
2.3.1 Seat

Locate the seat latch under the seat

Pull the latch to release, then pull and lift to remove the seat.

Installation

To install line the front hook up with the corresponding post. then simultaneously push down and forward until the latch locks into place.



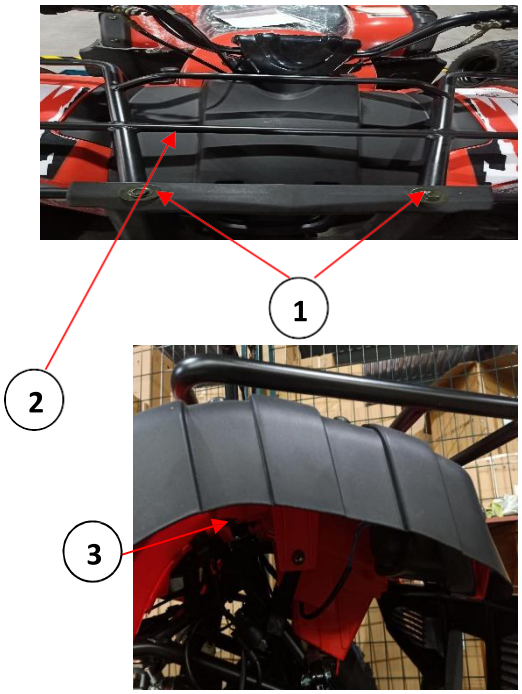
2.3.2 Front rack

Disassembly

Disassemble the mounting screw from front rack 3(left and right）

Remove mounting bolts 1

Remove front rack 2



Installation

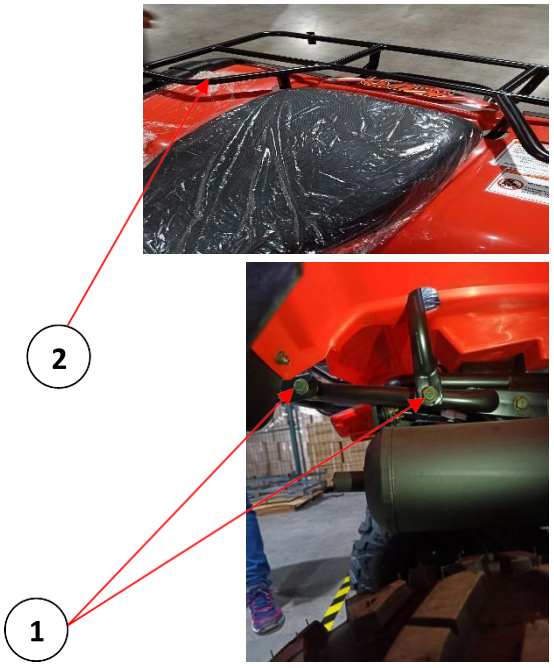
in reverse order of disassembly.

2.3.3 Rear rack

Disassembly

Disassemble the mounting bolts from rear rack 1（left, right）

Remove rear rack 2



Installation

in reverse order of disassembly.

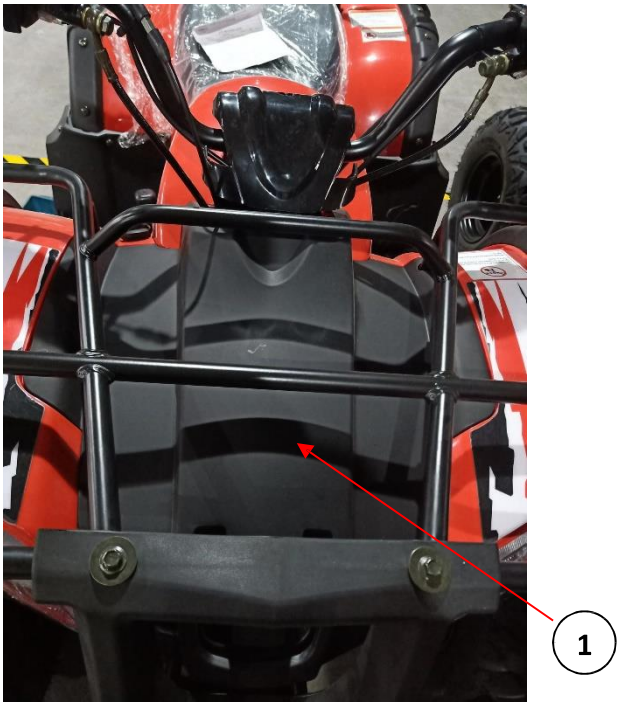
2.4 Front guard of gear indicator, gear display and gear lever

2.4.1 Front panel

Disassembly

Remove front rack（→ 2.3.2）

Remove front panel 1



Installation

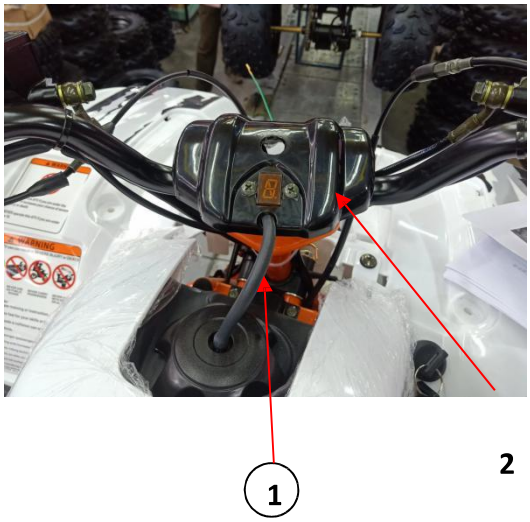
in reverse order of disassembly

2.4.2 Front cover of gear indicator

Disassembly

Pull out air tube from fuel tank if equipped 1

Remove front cover of indicator 2



Installation

in reverse order of disassembly

2.4.3 Gear display

Disassembly

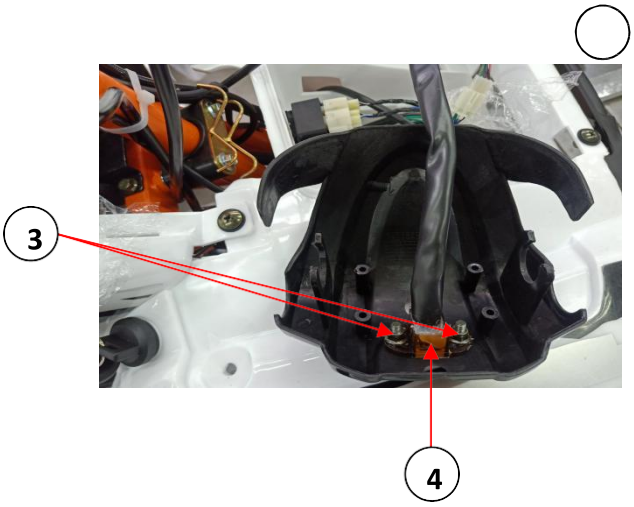
Remove instrument cover（→ 2.4.2）

Take the 2 nuts out 3

Remove gear display 4

Installation

in reverse order of disassembly.



2.4.4 Gear lever

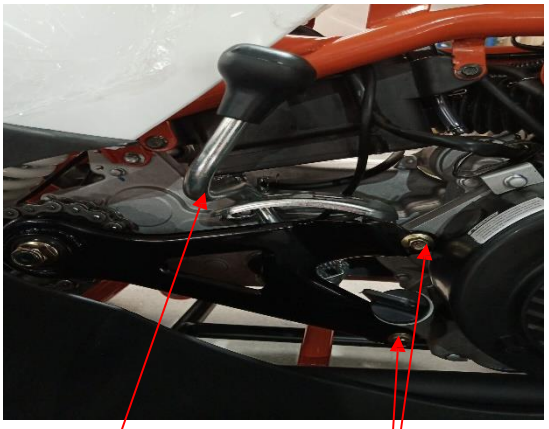
Disassembly

Remove mounting bolt from gear lever 6

Detach gear lever 5

Installation

in reverse order of disassembly.



2.5 Dismounting of footpegs

2.5.1 Left footpeg

Disassembly

Detach gear lever（→ 2.4.4）3

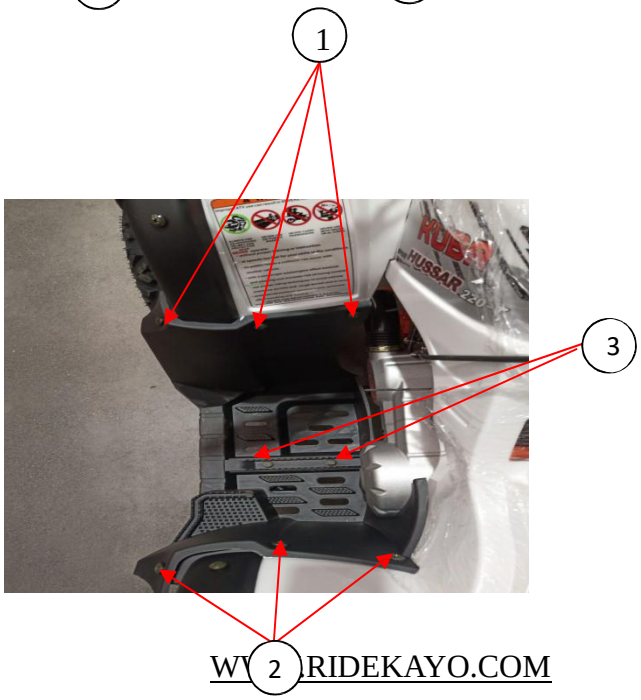
Remove fastening screws 1

Remove retaining screws 2

Detach left footpeg downwards 3

Installation

in reverse order of disassembly



2.5.2 Right footpeg

Disassembly

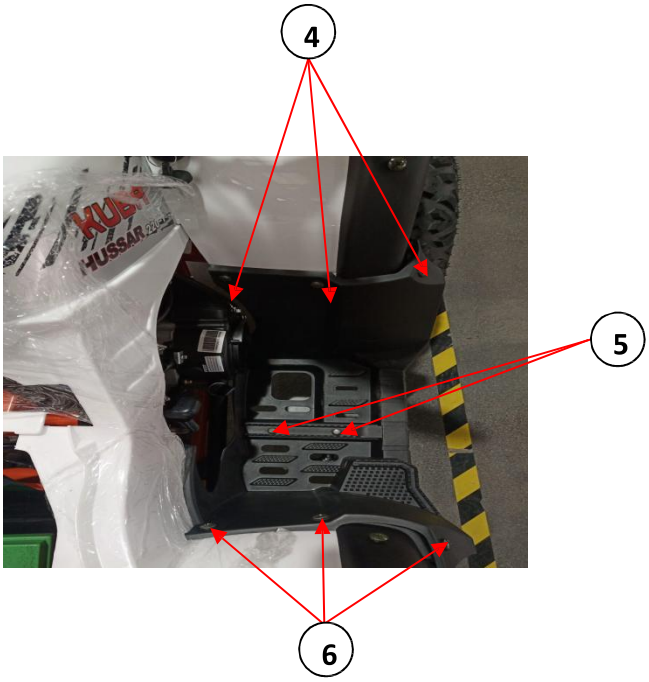
Remove fastening screws 4

Remove retaining screws 5

Detach left footpeg downwards 6

Installation

in reverse order of disassembly.



2.6 Dismounting of front ventilating boardand bumper

2.6.1 Front ventilating board

Disassembly

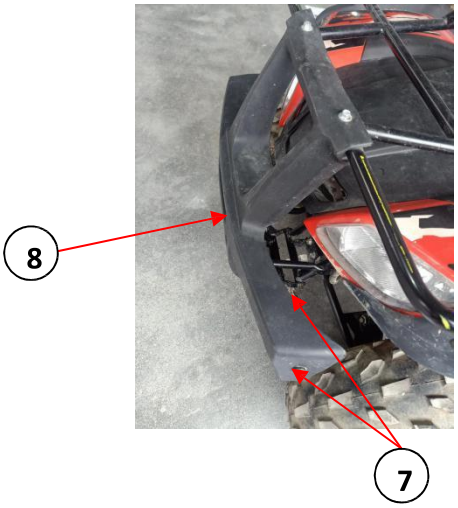
Remove front rack（→2.3.2）

Remove mounting bolt 7（left, right, each 2）

Remove front ventilating board 8

Installation

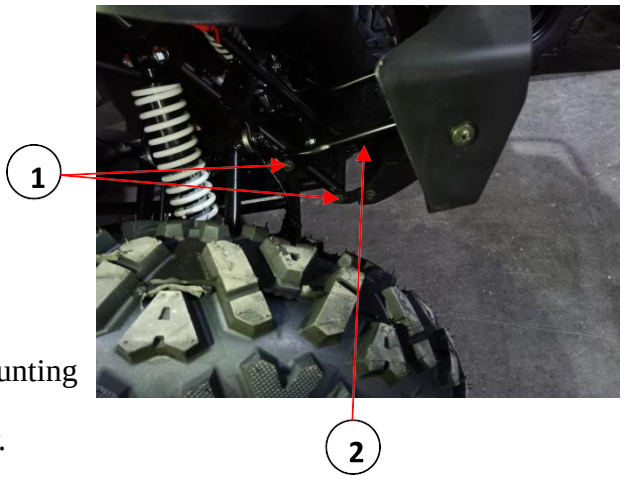
in reverse order of disassembly.



2.6.2 Bumper

Disassembly

1. The mounting bolts in order.
Then remove the front bumper



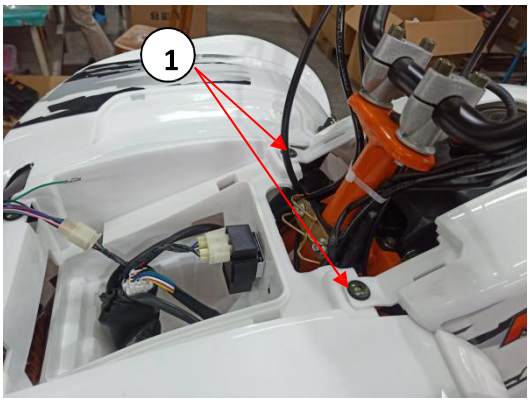
Installation

position the front bumper lining up mounting holes install the mounting bolts loosely.

Then adjust bumper into position and tighten bolts.

2.7 Dismounting of front assembly plate and rear assembly plate

2.7.1 Front assembly plate



Disassembly

Remove front cover of gear display（→2.4.2）

Remove front rack（→2.3.2）

Remove front plate（→ 2.4.1）

Remove gear lever（→2.4.4）

Remove left pedal（→ 2.5.3）

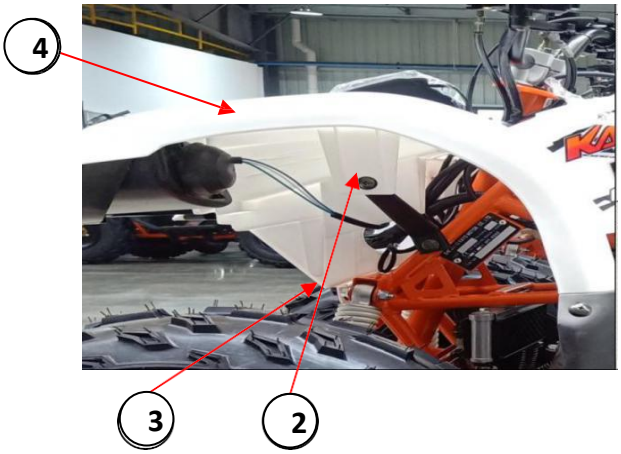
Remove right pedal（→ 2.5.4）

Remove mounting screw of front assembly plate 1

Detach screws 2（left and right, each2）

Detach screws 3

Remove front assembly plate 4



Installation

in reverse order of disassembly.

Note:

Dismantling all cables from front assembly plate before disassembly, and please also checks after installation.

2.7.2 Rear assembly plate

Disassembly

Remove front panel

Detach mounting screw of front assembly

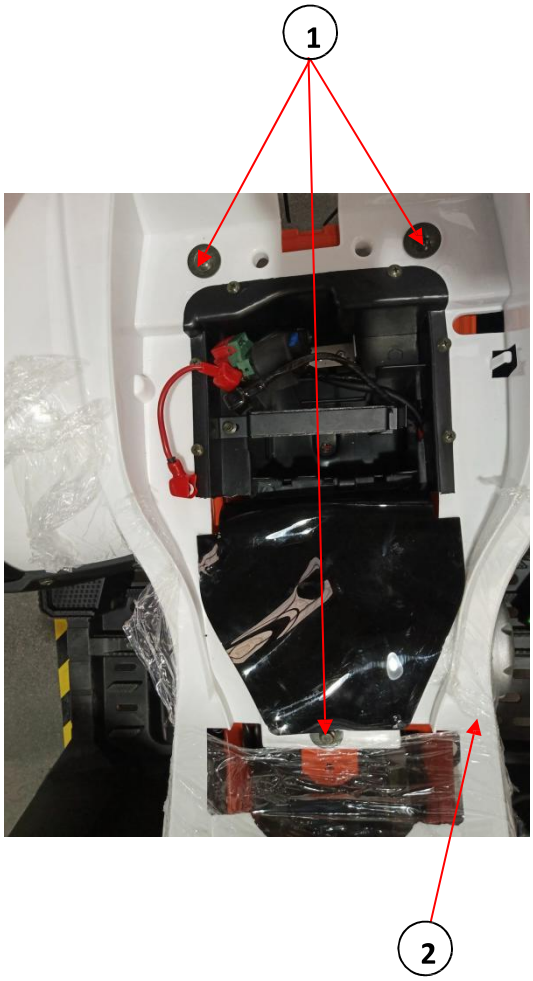
Remove gear lever

Remove left pedal

Remove right pedal

Remove mounting screw 1

Remove rear assembly plate 2



Installation

in reverse order of disassembly.

Note:

Before disassembly, disconnect cables between taillight and turning signal. When dismantle storage battery, dismantle battery negative first, assemble battery positive first during installation. Check all appliances to split after installation, cable etc., at last.

3.Regular maintenance and adjustment

3.1 Maintenance information

Warnings

Note:

- Do not run the engine in unventilated places, because the exhaust contains carbon monoxide (CO) and other toxic components.
- To prevent burns, don't touch the engine or exhaust until it has cooled down., please wear long sleeves work clothes and gloves.
- Gasoline is flammable and explosive. Pay attention to sparks as well as open flames. Vaporized gasoline may explode if exposed to open flame or sparks, please refuel in well-ventilated areas.
- Being careful of drive system and rotating parts, keep fingers, loose clothing and hair away from these parts

3.2 Maintenance period

Engine maintenance is a regular periodic work, due at certain time intervals for engine maintenance, keeping up on standard maintenance will increase the lifespan and reliability of the components, the following is the AU180 engine maintenance period table.

Note: the contents in the table is based on normal conditions, if bike is ridden in dusty muddy or wet areas maintenance should be performed more often and as needed.

Maintenance item	Item	Odometer km				
	Period	1000km	4000km	8000km	12000k	Remark
Fuel transit system			I	I	I	
Fuel filter		C	C	C	C	
Damper of carburetor						
Air filter element	Note ①					
Sparking plug		I	I	I	I	
Valve clearance		I	I	I	I	
engine lubricating oil	Annual	R	R	R	R	
lubricating oil strainer	Annual R			C		
Clutch		I	I	I	I	
Carburetor idle		I	I	I	I	

The meanings of code in the table as follows：

C：clean

R：replace

A：adjustment

L：lubrication

I：inspection

Note①：clean vehicle frequently when drive in dusty areas.

3.3 Inspection ways

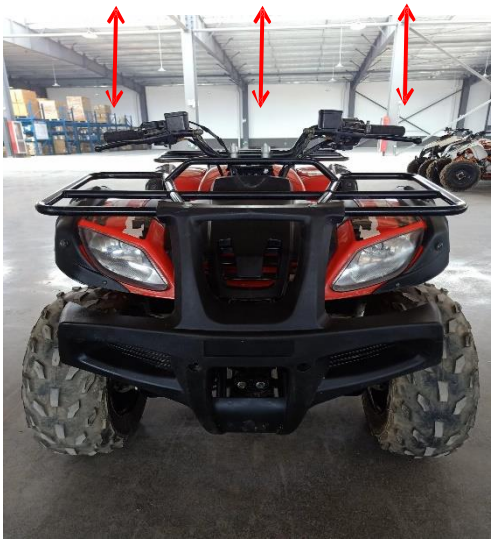
Inspection and maintenance items			Period			Criterion
Checkpoints		Inspection item	Daily	Half year	One year	
Steering device	Steering wheel	Operating flexibility	○			
	Steering system	Damage	○			
		Installation status of	○			
		Ball pin shaking	○			
Braking device	Brake pedal	Pedal travel	○	○		
		Braking effect	○	○		
	Connecting rod and oil	Slackness, looseness and damage	○		○	
	Hydraulic brake and brake disc	Brake fluid	○	○		Above the brake fluid
		Tear and damage of brake disc	○	○		Replace the disc in time, when front or rear brake working disc's thickness is less than 3mm.
	Brake pad	Tear and damage of brake pad	○	○		The minimum brake pad（friction plate）thickness≥1mm；less than 1mm, replace
Driving device	Wheel	Tire pressure				Front wheel: 35kPa（0.35kgf/cm^2）(5PSI)
		Crack and damage of wheel	○		○	
		Tyre groove depth and abnormal wear	○		○	If there's no tear indicator on the wheel, the residual groove depth should greater than3mm
		Loose of wheel nut and axle	○	○		
		Front wheel bearing vibration	○		○	
		Rear wheel bearing	○		○	

Buffer device	Suspension arm	Shaking of connection part and damage of rocker arm	○		○	
	Damper	Leakage and damage	○		○	
		Function			○	
Transmission	Front axle	Transmission and lubrication	○		○	
	Rear axle	Transmission and lubrication	○		○	
	Gear box	Leakage and oil volume	○		○	Loosen fuel bolt hole, and the fuel volume be at opening mouth.

Inspection and maintenance items			Period			
Checkpoints		Inspection item	Daily	Half year	One year	
Transmission	Output shaft （transmission shaft ）	Connector is loose	○	○		
		Spline is loose			○	
Electrical device	Ignition device	State of spark plug		○		
		Ignition period		○		
	Battery	Terminal connection			○	
	Spark plug gap：0.6mm~0.7mm	Looseness and damage of joints			○	
Fuel device	Fuel leak	Fuel device		○		
	Throttle condition				○	
Lighting device and	Function	Lighting device and steering indicator	○	○		
Alarm and locking	Function	Alarm and locking device			○	
Instrument	Function	Instrument			○	
Exhaust pipe and muffler	Whether the installation is loose or damaged	Exhaust pipe and muffler			○	
	Function of muffler				○	
Frame	Looseness and damage	Frame			○	
Other	state of grease in frame each part	Other			○	
Exception can be	Make sure relevant parts are normal.	Exception can be identified in	○			

3.4 Steering column and brake system

Keep vehicle in steady place and hold handlebar firmly as it shown in the picture to check if it's shaking.



If there is a shaking, check it's caused by steering column, linkages, ball joints, or fastening hardware then repair.

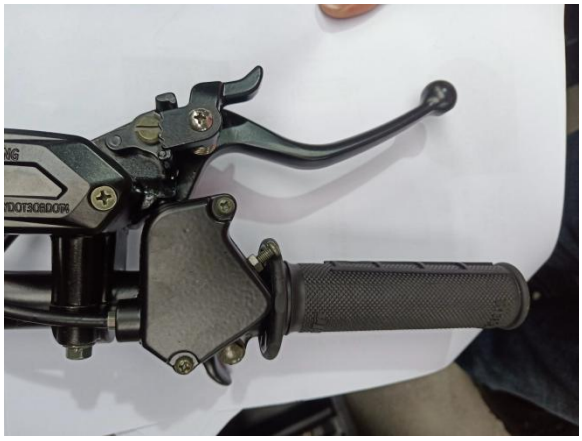
If it's caused by steering column, tighten the bottom lock nut on steering column, or you can also disassemble the steering column to check bearing and clamps.

Keep vehicle in steady place and turn the handlebars slowly making sure movement is smooth.

If it is hard to turn, check cable, hose and wire routing, if there is no problem, check steering rods and connecting points for damage.

Note: the steering must be smooth, and move freely between left locked position to right locked position.

Clearance of front brake lever: Check the effect and movement before operation. Check the clearance of front brake lever.



Brake pump assembly

〈 liquid volume 〉

Check the liquid volume

Look at the liquid volume through the observation hole 3.

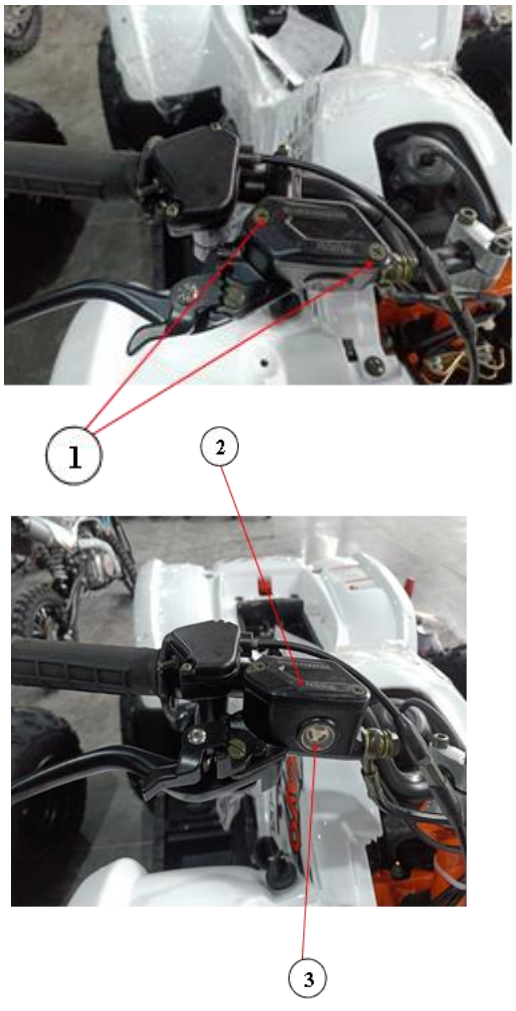
When the brake fluid volume decreases to the lower limit of

hole 3, stop using the vehicle. It is necessary to check the leakage of the brake pump, brake tube and all connections, if they are all normal, then check brake pad and brake disc, if there is damage or wear below the limit of use, please replace. Inspection of these items every time before operation is necessary.

Remove 2 air vent screws 1

Take off the oil cup lid 2

Replenish the brake fluid recommended by KAYO to the upper limit.



Note

- When adding brake fluid, do not mix with dust and water.
- In order to prevent chemical changes, please choose the specified brand of brake fluid.
- As brake fluid will damage the plastic and rubber surfaces, please do not splash it on the parts.
- Turn the handlebar slowly until the brake pump assembly in a stable state, takeoff the oil lid.

1. Lower limit

2. Observation hole

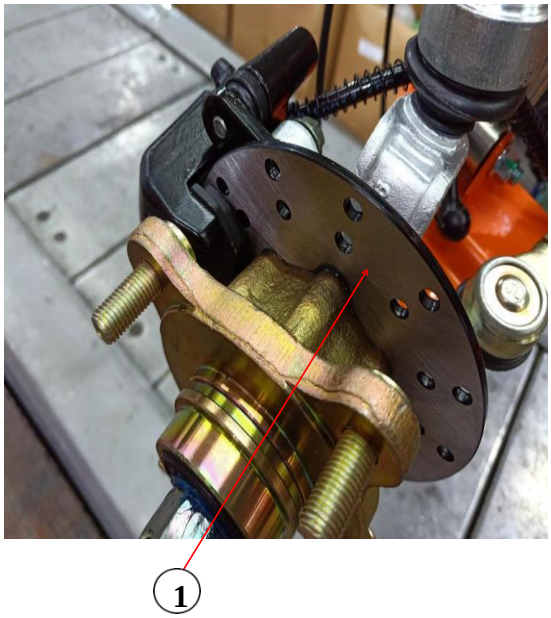
Front brake disc and brake pads

〈wear of brake pads〉

The brake pads, caliper and disc are normal wear and tear items

Note

The brake pads should be replaced by a full set.



Check or replace the brake disc

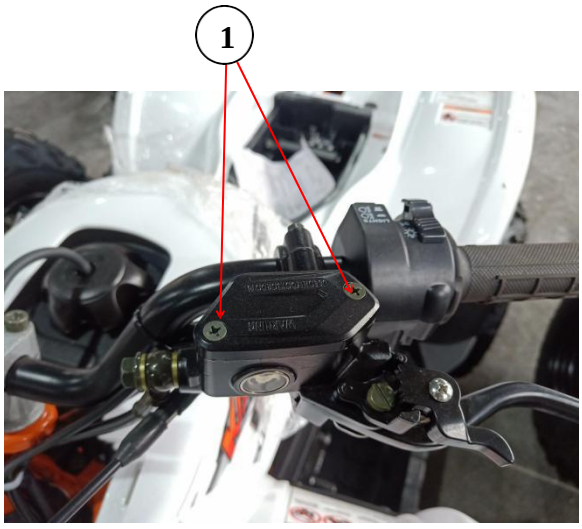
- Check the surface of brake disc, if it is worn, damaged, bent, or grooved replace.
- If the disc thickness is less than 3.0mm, replace.

Check or replace brake pads

- Check thickness of pads, If it's less than 1mm, replace.
- Check for damage, cracks, and uneven wear. Replace pad set if out of specification

Rear brake pump assembly

〈 liquid volume〉



Check the liquid volume

Look at the liquid volume through the observation hole 3. When the brake fluid volume decreases to the lower limit of hole 3, stop using the vehicle. It is necessary to check the leakage of the brake pump, brake tube and all connections, if they are all normal, then check brake pad and brake disc, if there is damage or wear below the limit of use, please replace.

Inspection of these items every time before operation is necessary.

Remove 2 air vent screws. 1

Take off the oil cup lid 2

Replenish the brake fluid recommended by KAYO to the upper limit.

Note

- When adding brake fluid, do not mix with dust and water.
- In order to prevent chemical changes, please choose the specified brand of brake fluid.
- As brake fluid will damage the plastic and rubber surfaces, please do not splash it on the parts.
- Turn the handlebar slowly until the brake pump assembly in a stable state, takeoff the oil lid.

Note: please check the position of brake liquid frequently to keep it in a safety position. Check the oil circuit and connection points for damage, if there is, replace it in time. Check if the main pump and caliber are in good condition, if not replace them.

Note: don’t make brake liquid cup opened for a long time.

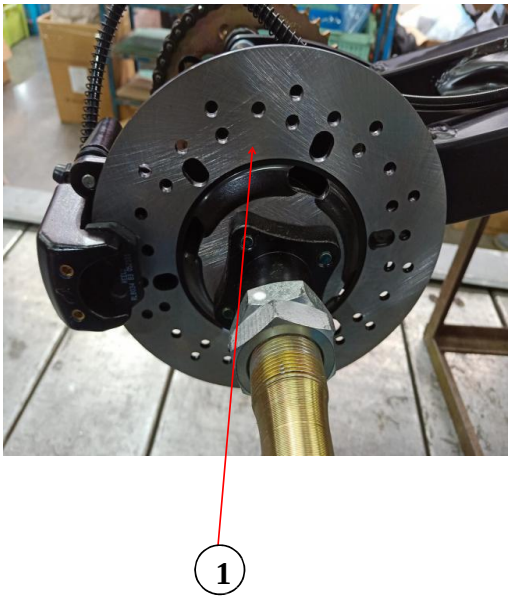
Rear brake disc and brake pads

<wear of brake pads>

The brake pads, caliper and disc are normal wear and tear items

Note

The brake pads should be replaced by a full set.



Check or replace the brake disc.

Check if the surface of brake disc (1) is wearied or damage. If the disc thickness is less than 3.0mm, replace it.

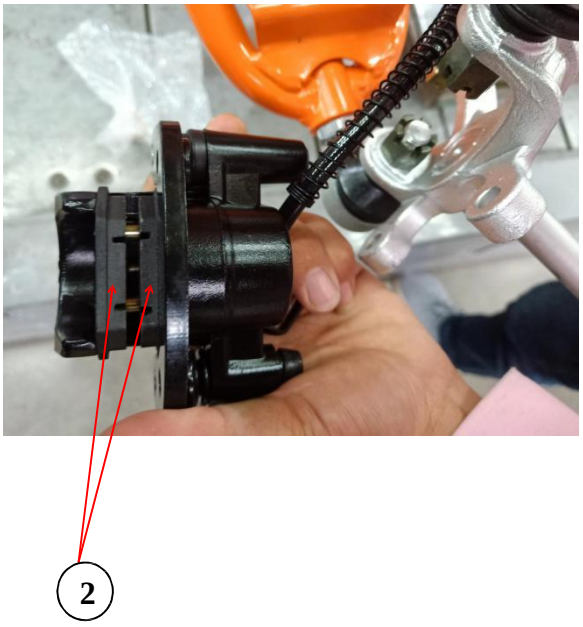
Limit thickness of front brake disc：3.0mm

Check the minimum thickness of brake pads

Thickness of minimum brake pads≥1 mm

If it's less than 1mm, replace it.

Check it there is damage or crack, if it has, replaces a new one.



3.5 Wheel

With the atv on a jack of atv lift. Lift the front wheels off the ground. Push and pull the wheel in and out as shown in the diagram.

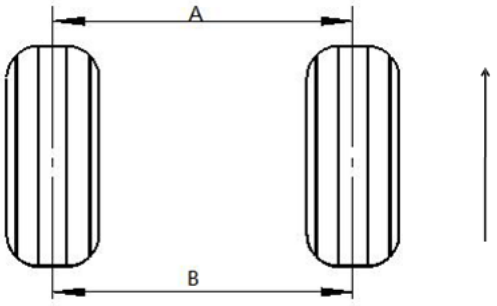
If there is movement, check torques on hub, steering shafts, spindles.

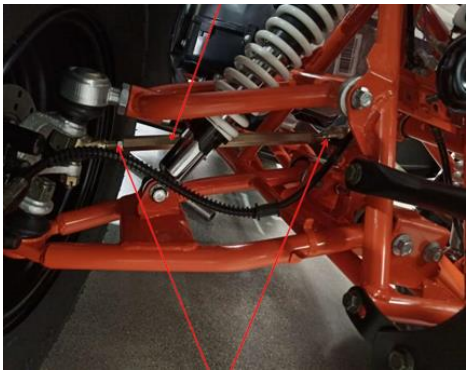
If there is still movement, check the bearings, ball joints, a-arm bushings. Replace if worn or damaged.

Front wheel size

On a level surface with handle bars straight check the front wheel toe-in. The front wheel relative to the forward direction of the vehicle is: A in front and B behind the wheel

Toe-in specification： A-B=1.5 ~ 2.5mm





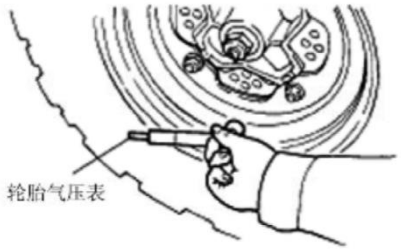
If not in this range, adjust steering rods, adjust the wheel toe-in to within 4~10mm, and lock into place.

Note: after the adjustment of front toe-in, drive the vehicle slowly and make sure vehicle tracks straight and true. After test ride check measurement again to make sure toe in is locked into place.

Tire pressure

Check the tire pressure with a tire pressure gauge.

Note: Check the tire pressures while the tire is cool. If tire pressure is out of specification please adjust to within range specified. Riding with tires out of specified range will affect vehicle handling and may cause premature wear and or damage to tire tread.

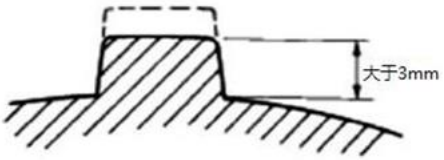


Specific air pressu

	Front wheel	Rear wheel
Air pressure	35kPa（0 .35kgf/cm2）	35kPa（0.35kgf/cm2）
Tire size	See chapter 1	See chapter 1

Tire tread

Check Tire tread, if tread is less than 3mm, replace it.



Wheel nuts and axle

Check the latches and nuts (1) on front and rear axles to see if there is looseness.

Tighten according to the specified torque when there is looseness.

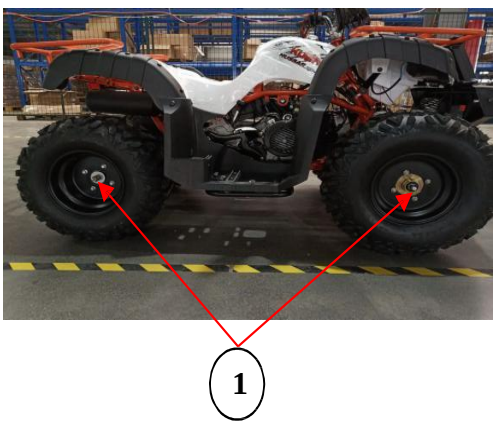
Torque:

Front axle nut：126N·mm～218N·mm

（12.6kgf·mm ～ 22kgf·mm）

Rear axle nut：199N·mm～311N·mm

（20kgf·mm ～ 31kgf·mm）



Shake of front wheel hub

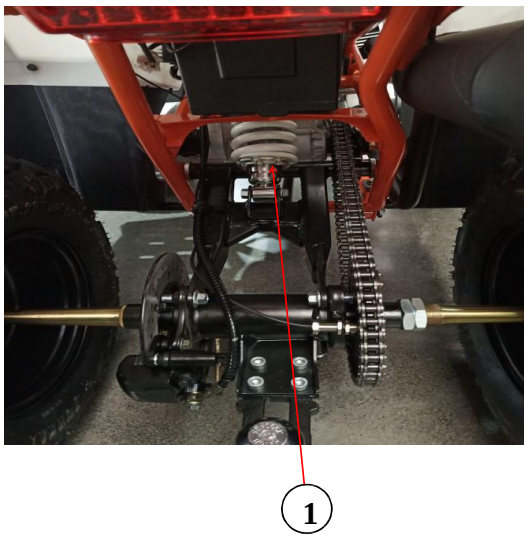
Lift the front wheel with tools. Make sure there is no force on the front wheels. Shake the wheel axially to check if there is any shaking.

If there is a shaking, remove the front wheel and check hub.

3.6 Suspension system

Keep vehicle in a horizontal position and compress up and down several times according to the pictures. If there is shaking or abnormal sounds, check whether there is oil leakage in the shock absorber, or check for damage or loosening in the fastening parts.

Use special tools to adjust the shock absorber CAM (1) according to the load. Clockwise rotation is from high to low, counterclockwise rotation is from low to high two-way adjustable.

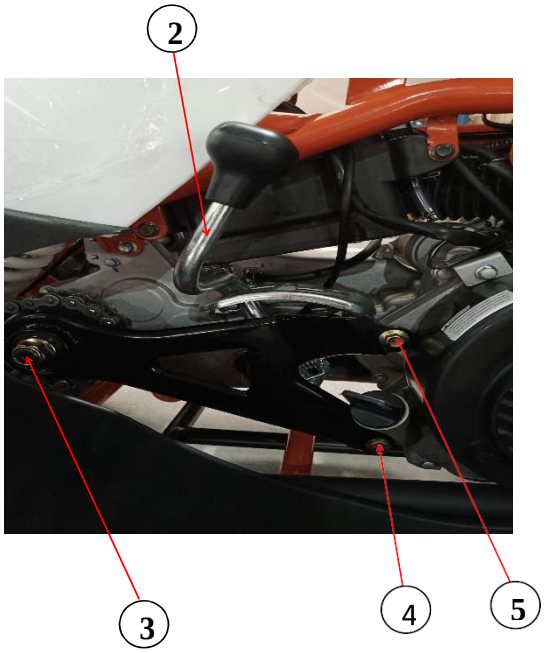


3.7 Gear shifter and fuel system

Gear box

Change gear, check if the gear box (2) is flexible and if it in shift position. If it's inflexible, adjust the angel of gear box rod (2).

Loosen lock nuts 3, 4, 5 and remove gear lever to adjust angel of gear box rod.



Fuel device

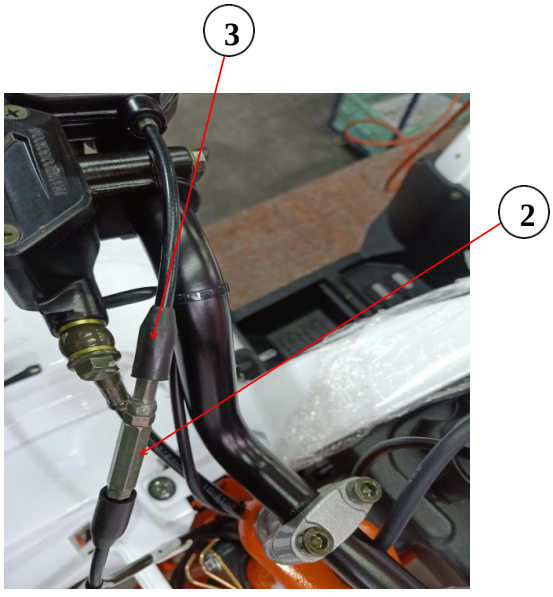
Remove the plastic parts first.

Check fuel vacuum and vent lines for aging, dry rot cracks and damage. Replace if any damages are found or if more than 2 years old.

3.8 Throttle check

Check the free stroke of accelerator button (1)

Clearance: 2 ~ 6 mm



When the clearance is not within the range, it shall be adjusted. Remove cover 3

Loosen lock nut (2) of throttle inhaul cable.

Turn the regulator to adjust the free stroke of the throttle button, after that tight lock nut (2), assemble throttle inhaul cable cover at last.

If the above methods don't work, replace a new throttle inhaul cable.

Speed limiting device adjustment

Speed limit device used to restrict throttle opening.

Inspect the thread length limit of speed limit screw (4).

Thread length limit: a=12mm

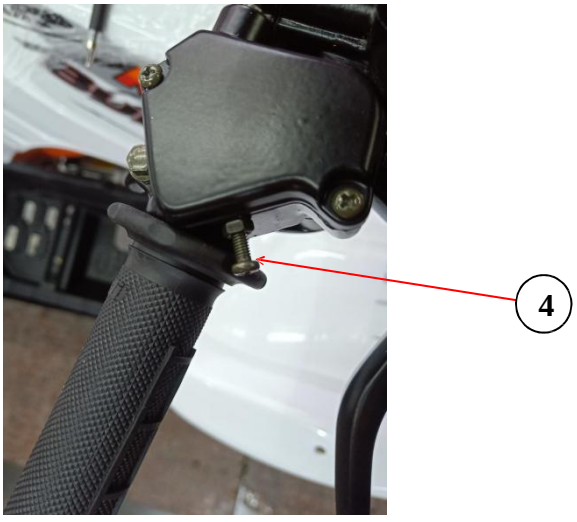
Adjustment

Loosen the lock nut

Note: For beginners, the speed limiter should be in a tight position and until the technology has reached a certain level it can be changed.

Besides, the thread length limit is 12mm.

The length range is 3mm~5mm in normal condition.



Hold on the brake bar, and check taillight, if it doesn't work, check the cable connector, it if work well, please replace the taillight in time

Horn

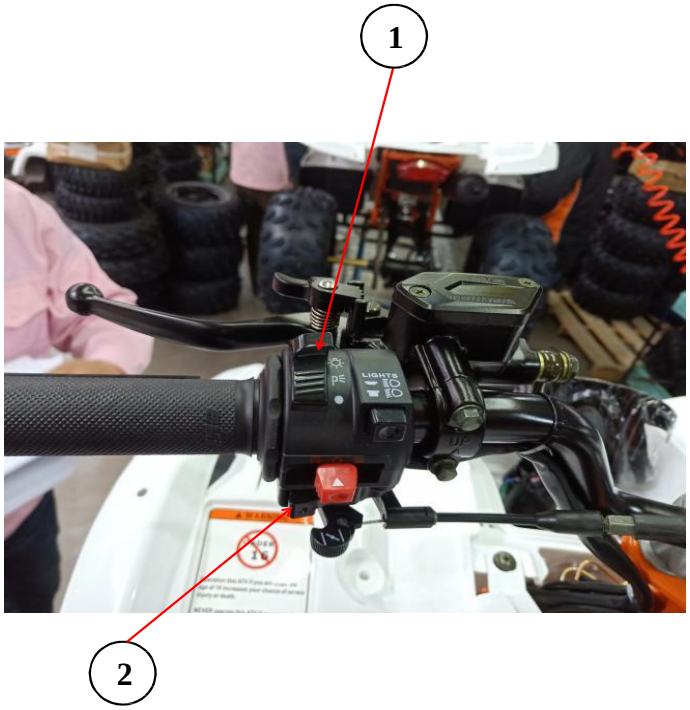
Press the horn switch, if it doesn't work or the sound volume is light, check the cable, if there is no problem, replace horn.

3.8 Speedometer

Check the display meter
When the whole vehicle system is powered on for the first time (or after changing the gear display meter for the first time), plug in the power and start the engine. Check if the gear is consistent with the display meter in drive process. If not, timely maintenance shall be carried out.

3.9 Light installation

Note: Electrify the vehicle before light installation checking.
Inspect headlight
Move the headlight switch (1) forward to the first gear, observe whether the front fog proof light is on, if not, please check whether the line joint is loose and falls off, if the wiring is normal, please replace the fog proof light in time. Move on to the second gear and observe whether the headlight is on. If not, please check whether the connection is loose and falls off. If the wiring is normal, please replace the headlight in time.



4 Engine systems

4.1 Maintenance information

Precautions

- Before performing maintenance, please make sure that the engine is not running, battery is disconnected and that the heated parts have cooled, to avoid injury.
- To protect finishes, please wrap the frame, plastics or any vulnerable finishes before removing engine parts or performing maintenance on engine.
- Please dispose of liquid such as oils and coolants properly. Use drain pans to prevent spills.
- The engine does not need to be removed for the following operations.

－oil pump

－carburetor, air filter

－cylinder head cover, start motor, cylinder head, cylinder block, camshaft

－left cover, AC magneto

－piston, piston ring, piston pin

- Remove the engine in following operations.

－Crankshaft, main and counter shaft

Tightening torque

Mounting bolts of engine bracket	GB5787	M10×1.25×160	45~59N·m

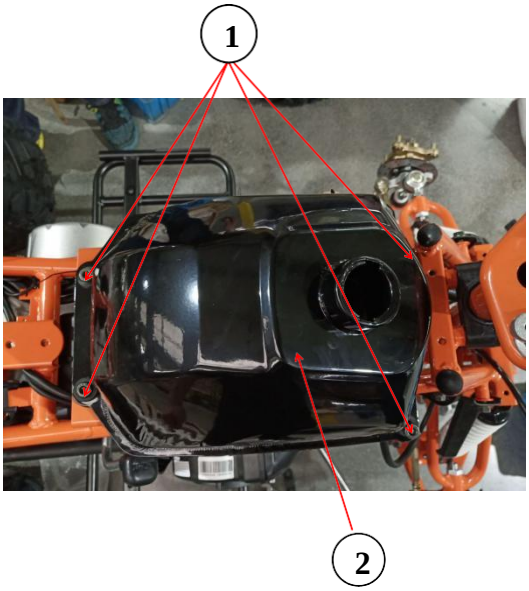
4.2 Fuel system

Gasoline is flammable and explosive. Pay attention to sparks and open flame. Vaporized gasoline may explode if exposed to open flame or sparks , please choose well-ventilated areas away from these hazards when refueling or working on the fuel system and its related components.

Fuel tank removal

Remove the plastic body parts, remove fuel lines from tank and fuel valve, then remove tank mounting bolts and tank.

*Fuel tank pictures may differ from tanks on U.S. models



Installation

Install tank in reverse order from disassembly.

*Check for aged, worn, dried or cracked hoses replace before installing when necessary

4.3 Air filter system

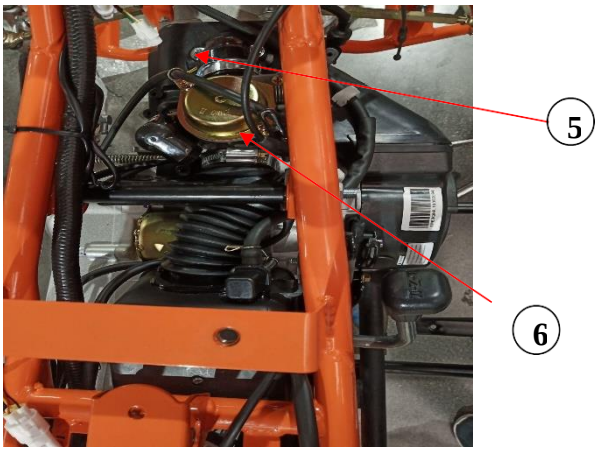
Disassembly

Remove seat and rear assemble plate

（→Chapter 2 body covering）

Remove mounting bolts(5)（left and right, each 1）

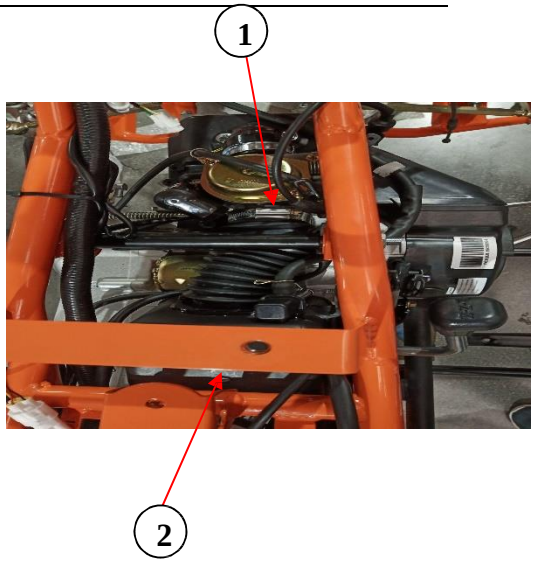
Remove electronic injection 6



Remove fuel tank

Loosen clamp 1

Remove air filter 2



Installation

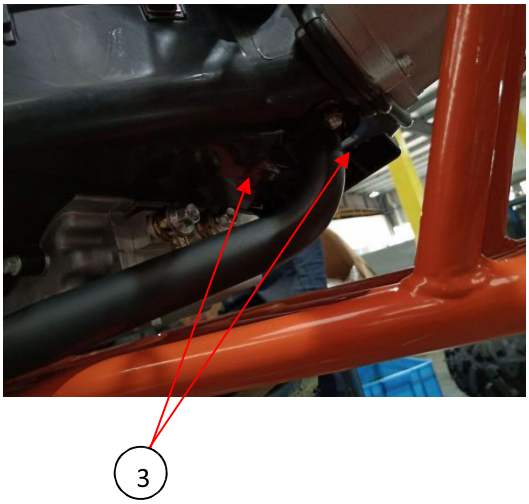
Installation shall be in the reverse order of removal.

Make hose clamp is in the groove and any vacuum lines are hooked up correctly.

4.4 Exhaust system

Disassembly

Disassemble the clamp between muffler and exhaust head pipe, then remove the muffler mounting bolt to remove muffler.



Assembly

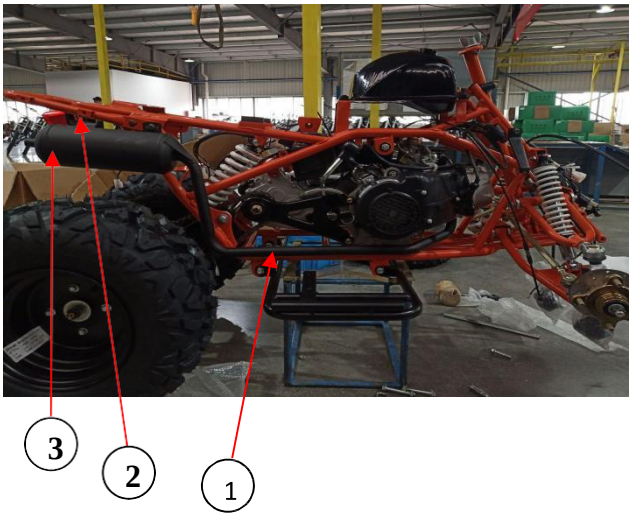
Installation shall be in the reverse order of removal. Do not reuse exhaust head pipe gasket always replace, replace muffler gasket and any hardware for exhaust if damaged or deformed.

Disassembly

Remove the mounting screw from muffler 1

Remove the mounting screw from muffler 2

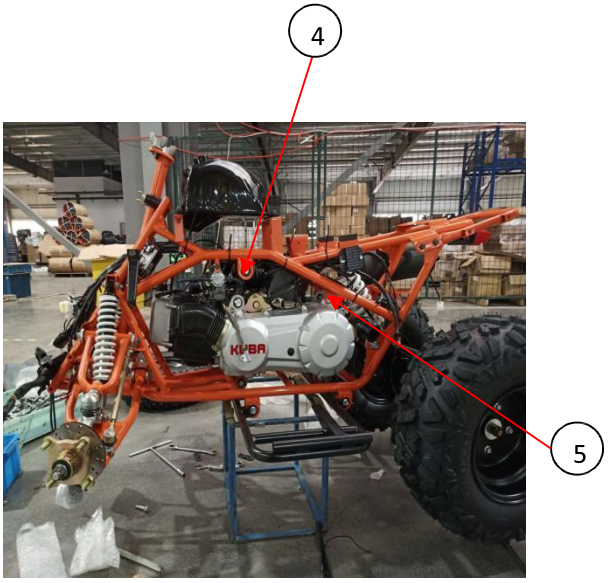
Remove the muffler. 3



4.5 Disassembly and installation of engine

Disassembly (Note: Remove floorboards/ pegs, carburetor, intake manifold and oil cooler first)

Disassembly



Remove gear lever, seat, gear display meter, left pedal, right pedal and rear assembly body. (Chapter 2 body covering).

Remove fuel tank（→ 4.2 fuel system）

Remove air filter and electronic injection （→ 4.3 air intake system）

Remove exhaust pipe assembly （→ 4.4 exhaust system）

Remove bolt 4

Remove bolt 5

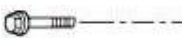
Remove chain 6

Installation

Installation shall be in the reverse order of removal

5. Engine

5.1 General information

Warn	Be on high alert for danger.
Precautions	To be alert to moderate danger.
Oil	SF MA 15W-40
Grease	KING MATE G-3。
Gear oil	85W/90 GL-5。
Fixation	Smear fixative
Oil seal	Smear fluid glue
Update	Replace before installing
Specific tool	Use specific tool
Correct	Correct assembly
	Wrong assembly
	Parts indicate
	Force direction
	Parts assembly
	Bolts assembly, get through

This manual may doesn't contain some potential risks in engine work and

maintenance; the service operator should also have basic mechanical knowledge.

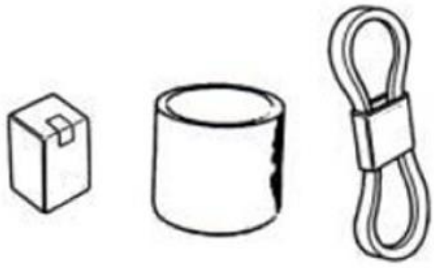
5.1.1 Precautions

Warning: Proper maintenance is very important to engine reliability vehicle lifespan and safety.

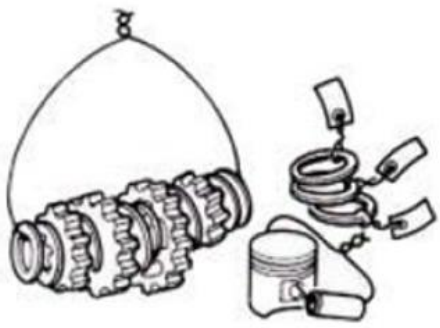
- When starting the engine indoors, be sure to vent the exhaust outside.
- If toxic or flammable substances are used, handle that in accordance with the manufacturer's instructions strictly and make sure workplace must be well ventilated.
- Don't use gasoline as a cleaning fluid.
- To avoid burns, do not touch uncooled engine oil, exhaust system parts
- If the fuel, lubrication and exhaust systems are serviced, please check for leaks
- In order to protect the environment, Dispose of used oil, coolants, acids and another toxic chemical prop

Warning:

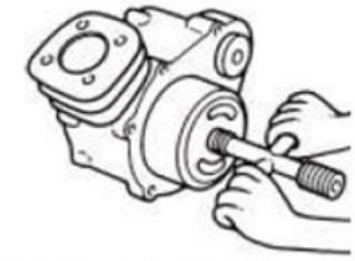
- If parts need to be replaced during maintenance, please use parts recommended or provided by Kayo**.**



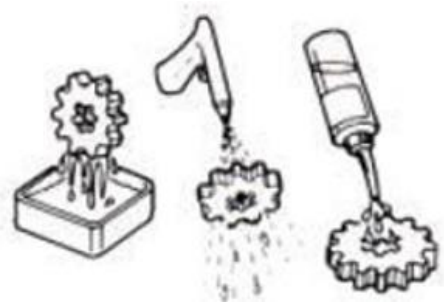
- Disassembled parts that need to be reused should be arranged in order, to aid in re assembly**.**



- Choose special tools as specified in the maintenance manual.



- Ensure that parts used in assembly are clean and lubricated where required.



- Use special lubricants, binders and sealants.

- When fastening bolts, screws and nuts, tighten from large to small, and tighten from inside to outside according to the specified torque.

- Use a torque wrench to tighten the torque required bolts, Always clean grease and oil from threads. Used thread locker where necessary

- Clean the disassembled parts before inspection and measurement.

- After assembly, check the fastening torque and running status of components.

- Do not re-use any removed oil seals, O-rings, gaskets, locking nuts, lock washers, cotter pins, elastic baffle and other parts.

5.1.2 Torque

Item	Quantity	Dimension	Torque kgf-m	Remark
Cylinder head bolt	4	6	1.0-1.4	
Cylinder head nut	4	8	1.8-2.2	Smear oil
Two heads bolt	4	8	0.7-1.0	Crankcase
Cylinder head left bolt	4	6	1.0-1.4	
Nut for valve adjustment	4	5	0.7-1.4	Smear oil
Spark	1	10	1.0-1.4	
Nut for carburetor connect	2	6	0.7-1.1	Smear oil
Engine bolt	1	12	3.5-4.5	
Filter screen	1	30	1.3-1.7	
Gear bolt	1	8	0.8-1.2	
Gear inject bolt	1	10	1.0-1.4	
Oil pump screw	3	3	0.1-0.3	
Left crankcase bolt	7	6	1.0-1.5	With gasket
Tension bolt	1	6	0.8-1.2	Allen bolt
Chain adjustment bolt	2	6	1.0-1.4	
Clutch plate nut	1	28	5.0-6.0	
Driven plate nut	1	12	5.0-6.0	
Fly wheel bolt	1	12	5.0-6.0	
Clutch bolt	3	6	1.0-1.4	Smear fixative
Crankcase bolt	7	8	1.5-2.0	
Gear box bolt	7	8	2.0-2.4	
Exhaust pipe fixed bolt	2	8	3.0-3.6	

Exhaust pipe connect bolt	2	6	1.0-1.4	

Above are the torques for important parts, others refer to standard value

Item	Torque	Item	Torque
5mm bolt, nut	0.45-0.60 kgf-m	3mm screw	0.05-0.08 kgf-m
6mm bolt, nut	0.80-1.20 kgf-m	4mm screw	0.10-0.15 kgf-m
8mm bolt, nut	1.80-2.50 kgf-m	5mm screw	0.35-0.50 kgf-m
10mm bolt, nut	3.00-4.00 kgf-m	6mm screw, SH nut	0.70-1.10 kgf-m
12mm bolt, nut	5.00-6.00 kgf-m	6mm flange screw, nut	1.00-1.40 kgf-m
		8mm flange screw, nut	2.40-3.00 kgf-m
		10mm flange screw, nut	3.50-4.50 kgf-m

5.1.3 Troubleshooting

Engine doesn't work or start hard

Item	Check/adjust	Trouble	Reason
Carburetor	Remove screw	Full oil	
		No oil	Oil tank, oil pipe and air intake pipe, vapor system pipe, oil pump, pressure pipe damaged or worn, oil filter
Spark	Touch with engine	With flame	
		No flame	Spark worn or damaged, CDI, generator, ignition coil shortcut, spark high voltage wire, main switch
		Normal	

Compressive force		Abnormal	Piston ring, gas valve, cylinder or piston ring, washer, sand hole
Engine	Start	Ignition	
		No ignition with spark	Gas valve, air intake pipe, ignition time
Spark	Remove	Dry	
		Wet	Much gas mixture, gas valve, larger valve opening
Carburetor pipe	Blow	Smoothly	
		Blocked	Automatic side starter worn

Low speed and weak power

Check as the sequences of below form

Item	Check/adjust	Trouble	Reason
Valve	Turn slowly	Speed up	
		No speed change	Filter blocked, bad fuel offer, carburetor, exhaust pipe, fuel tank vapor control route
Ignition time	By timing light	Correct time	
		Incorrect time	CDI; AC
		Normal	

Compressive force	With cylinder pressure gauge	Abnormal	Cylinder and piston ring worn, cylinder washer; sand hole on compressive position, air valve, piston ring stuck
Carb mouth		Smooth	
		Stuck	Clean
Spark		Good condition	
		Worn, discolor	Clean
Engine		Normal	
		Overheated	Cylinder and piston worn, low gas mixture, fuel poor quality, carbon deposit, ignition advance, cool water system
Speed up		Normal	
		Instable knock	Carbon deposit, low gas mixture, fuel poor quality, ignition advance

Engine failure (low speed and idling)

Check as the sequences of below form

Item	Check/adjust	Trouble	Reason
Ignition time	Timing light	Correct	
		Incorrect	CDI problem
Air screw	On carburetor	Normal	
		Abnormal	High gas mixture (release), low gas mixture (tight)
		No air	

Carburetor washer		Air intake	Washer, carb lock, O-ring, pressure pipe broken
Spark	Touch with engine	Flame out normal	
		Abnormal	Spark, CDI, generator, ignition coil, spark high voltage wire, main switch

Engine failure (high speed)

Check as the sequences of below form

Item	Check/adjust	Trouble	Reason
Ignition time		Correct	
		Incorrect	CDI, generator
Oil cup		Normal	
		Abnormal	Little fuel, filter stuck, air hole stuck
Carburetor mouth		Normal	
		Abnormal	Clean

Clutch, driven and transmission

Trouble	Reason
Engine start, bike doesn't move	Driven belt worn or broken, driven plate worn, spring broken, clutch piece drop, gear axle groove damaged, transmission gear broken
Engine flame out or runout when moving,	Lining spring broken, clutch cover and lining touch, junction of clutch and axle is worn or burned.
Bad climbing capacity	Driven belt worn or deformed, hammer roller broken, transmission axle groove damaged, oil on driven belt and pulley.

5.2 Maintenance information

No	Item	First 300km	Once a month per1000km	Three months per 3000km	Six months per 6000km	One year per 12000km
1	Air filter	I		C	C	R
2	Second air	I		C	C	R
3	Fuel filter	I			I	R
4	Oil filter	C			C	c
5	Oil replace	R	Per 1000 km			
6	Bolt locking	I	I			
7	Crankcase leakage	I	I			
8	Spark check and	I	I			
9	Gear oil replace	I	Per 1000 km			
10	Ignition time	I	I			
11	Carburetor	I		I		
12	Engine screw	I		I		
13	CVT driven belt				I	R
14	CVT driven				C	
15	Fuel pipe	I		I		
16	Cam chain	I		I		
17	Valve	I		A		
18	Crankcase oil	I		C		
19	Crankcase pipe	I	Per 2000 km			

I: check A: adjust R: replace C: clean

Lubricating system

Oil volume

Keep the volume between upper and lower limitation.

Oil replacement

Replace oil gauge and oil bolt below crankcase,

Then flow out oil, clean washer and bolt, if they

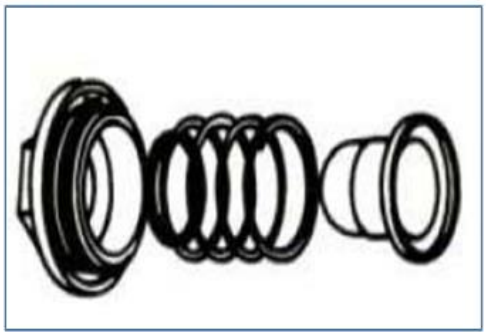
damaged, replace.

Torque: 3.5-4.5 kgf-m

Oil specification: SF MA 15W-40

Oil volume: work:900cc

Replace: 850cc



Clean filter screen

Flow out oil, remove it our from engine right

bottom. Clean it, replace damaged washer.

Torque: 1.3-1.7 kgf-m

Gear oil

Check if the crankcases leakages. Stop engine then

take off gear oil bolt and flow the oil with a cup

below.

Replace

Remove oil bolts, flow oil out, then install bolt.

Torque: 0.8-1.2 kgf-m

Inject oil and install bolts back.

Torque: 1.0-1.4 kgf-m

Oil specification: 85W/90 GL-5 (volume: 450cc)

Crankcase blowout system

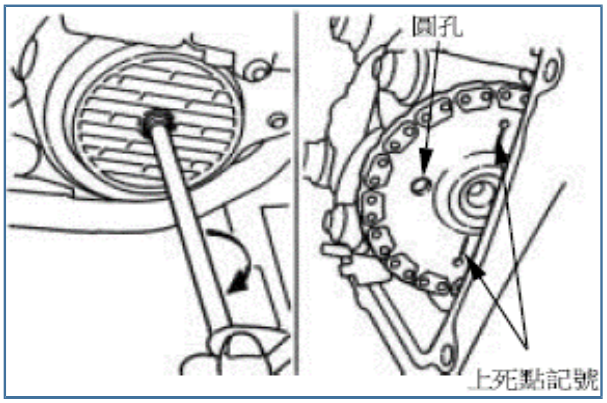
Remove block from pipe bottom to let deposit out**.**

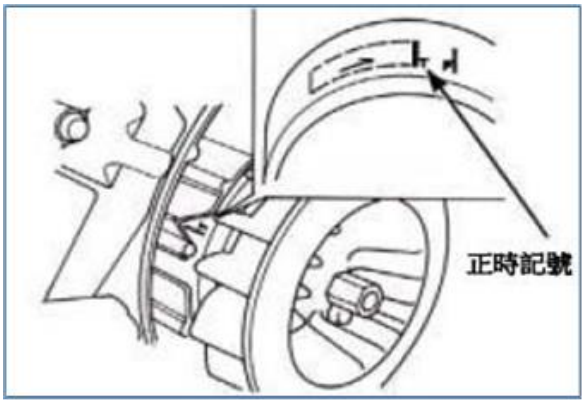
Keep maintenance when use in rind or full throttle

condition.

Valve clearance adjustment

After engine cooled (below 35℃)



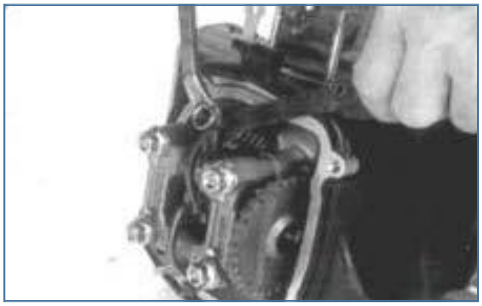


Remove cylinder head and timing cap on cooling fan. Use T type wrench to turn crank axle until the T mark is faced with crankcase mark, as picture shows.

Note: clockwise rotation.

Valve clearance :0.03-0.05mm.

Adjustment: release nut, then adjust bolt.



Carburetor idle speed adjustment

Note: After all engine parts checked and adjusted, and note the best time is warm bile (about 10 minutes)

Idle speed: 1700±100 rpm

Adjustment:

1. Install engine tachometer.
2. Adjust idle screw until engine speed to 1700±100 rpm.
3. Adjust screw which is related to air volume, make sure air volume valve is standard.
4. Add throttle slight, for 2-3 times.

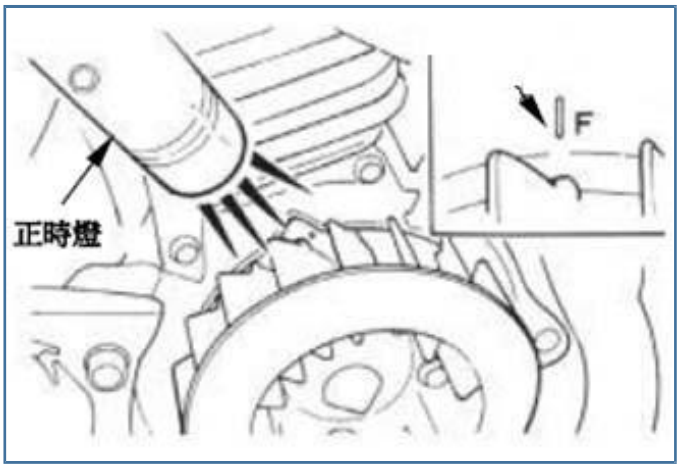
Standard value: CO: below 4.5% HC: below 9000 P.P.M

Ignition system

Ignition timing

Note: 1) the CDI can't adjust. 2.) This procedure is for confirming CDI.

1. Remove right cover of bike and cooling fan cap.
2. Check ignition timing with timing light.
3. Start engine and let speed to 1700 rpm, if the F mark is faced to timing, means it's normal.
4. Add engine speed to 5000 rpm, if the mark faces to π mark, it's normal, if not, check CDI.



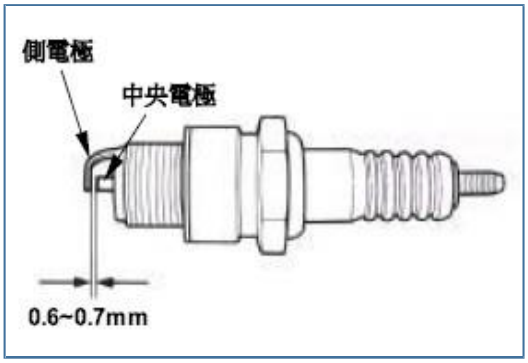
Spark

Specific spark (A7TC, A7RTC)

1. Dismantle spark cap.
2. Clean the spark and remove it.
3. Measure the spark clearance, (clearance: 0.6-0.7mm)
4. Adjust clearance by adjust side generator slightly.

   Then install spark to hole, locked by wrench at last.

   Torque: 1.0-1.2 kgf-m
5. Install spark cap back.



Cylinder compressive force

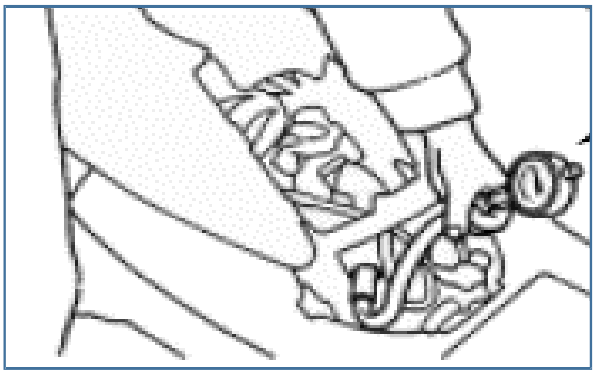
Remove spark first, then put pressure gauge into spark hole. Last start engine and turn it.

Note: turn engine until the gauge value stable, about 4-7 seconds.

Compressive pressure: 10 ±1kg/cm^2

Check below items when compressive force low:

1. Wrong valve clearance
2. Valve leakage
3. Cylinder head, piston, piston ring and cylinder worn. If the compressive force high, please clean carbon deposit.

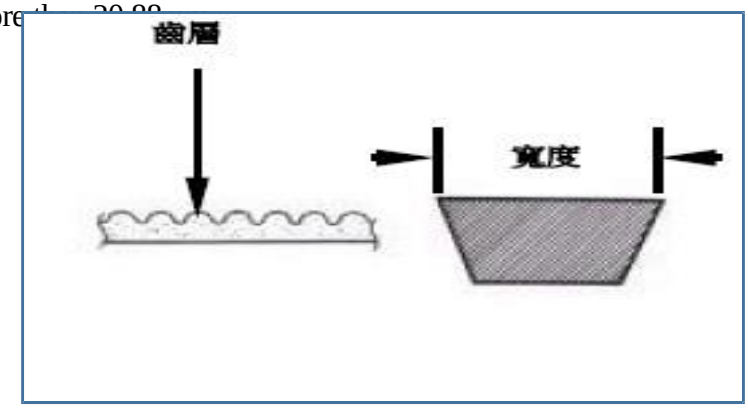


Drive system

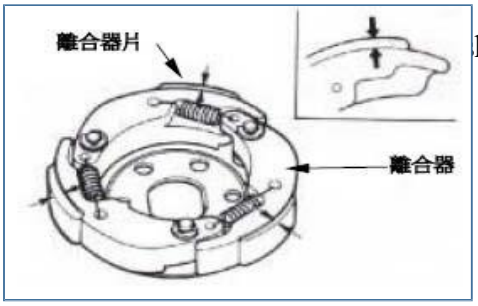
Driving belt

Remove 9 bolts from left guard cap and cap of engine to check if the belt damaged or worn.

Width: more



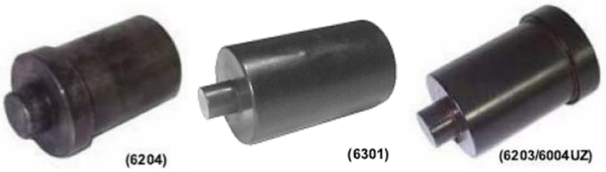
Clutch disc

Check the clutch 

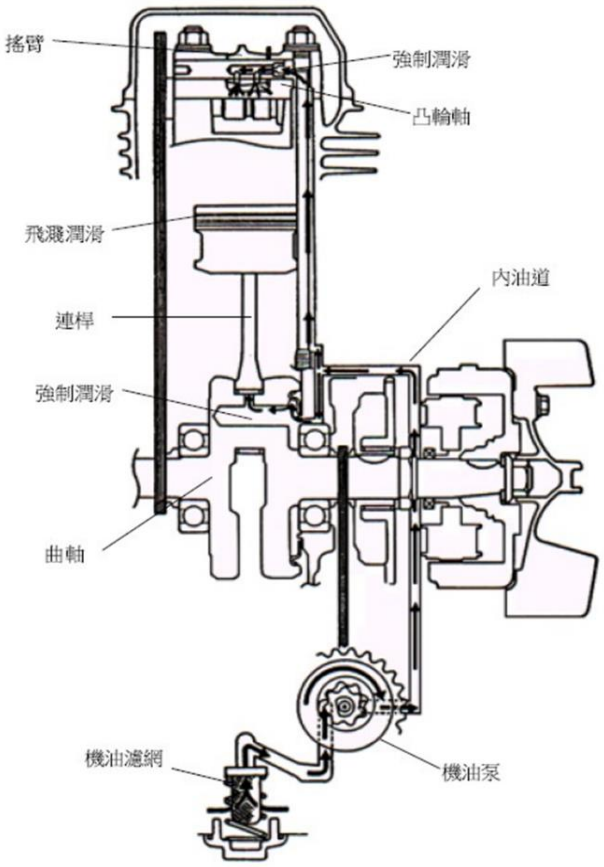
hakes, check the clutch disc.

Specific tools

Item	Picture
For crankcase	
For valve spring	
For valve clearance adjustment	

For oil seal insert	
For bearing install	 
For clutch spring	
For clutch	
Universal fixer	
For generator	

5.3 Lubricating system maintenance



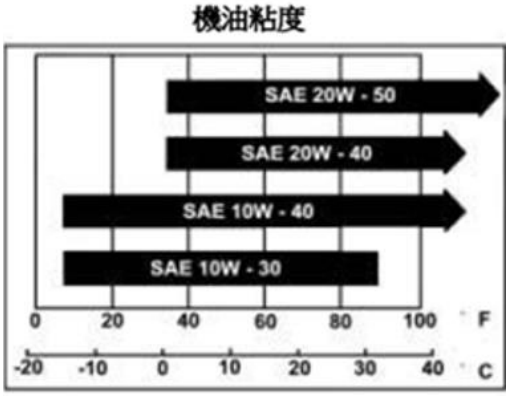
Specification

Engine oil volume: resolve: 900cc replace: 850cc

Oil viscosity: SF MA 15W-40

Gear oil: resolve: add 400cc replace: add 350cc

Gear oil viscosity: 85W/90 GL-5



Item		Standard	Limitation
	Inner and outer rotors clearance		0.12

Oil pump	Outer rotors and body clearance		0.12
	Rotor end face and body clearance	0.05-0,10	0.20

Torque

- Oil drain bolt 3.5-4.5 kgf-m
- Oil filter screen 1.3-1.7 kgf-m
- Gear oil drain bolt 0.8-1.2 kgf-m
- Gear oil inject bolt 1.0-1.4 kgf-m
- Oil pump connect bolt 0.1-0.3 kgf-m

Troubleshooting

- Low oil level： oil leakage, valve sleeve or oil seal worn, piston ring worn
- Oil pollution: replace oil regularly, cylinder head gasket worn, piston ring worn
- Oil pressure lack: low oil level; filter screen, oil pipe and pipe wire blocked; oil pump worn

Engine oil

Stop engine for 3-5 minutes, then check oil level with dipstick.

replace

Remove the drain bolt to drain oil with a cup under engine, if the gasket worn replace it.

Torque: 3.5-4.5 kgf-m

Clean filter screen

Remove screen cap, then take out screen and spring to clean the screen.

If the gasket worn, replace it. Install screen, spring and cap back after cleaning.

Torque: 1.3-1.7 kgf-m

Inject oil (SF MA 15W-40) into oil hole, install dipstick.

Stop engine for 3-5 minutes to check if the oil level is standard and if there is leakage.

If the oil volume is low, add it. (standard: 900cc, replace: 850cc)

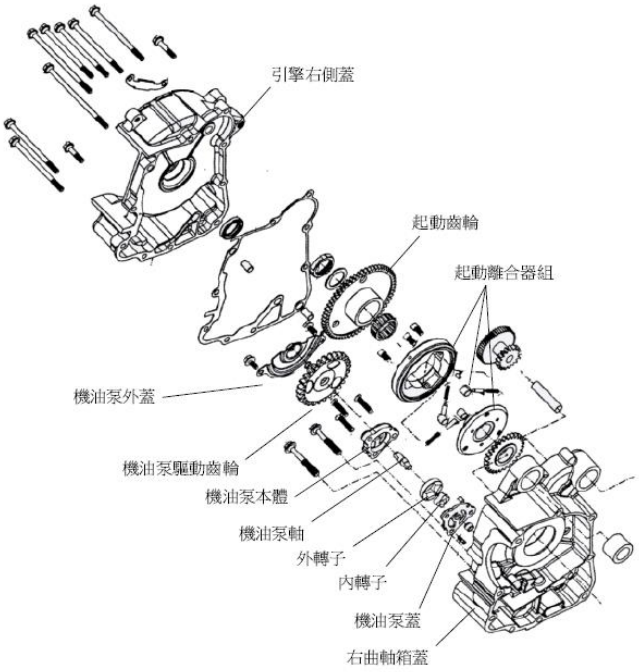
Oil pump disassembly

Remove generator and left engine cover, then take clutch and start gear out.

If the engine pump turns smoothly, remove the pump cap (2 bolts), then remove pump driving gear, remove fixed clip and gear last to take oil pump out.

Oil pump dismantle

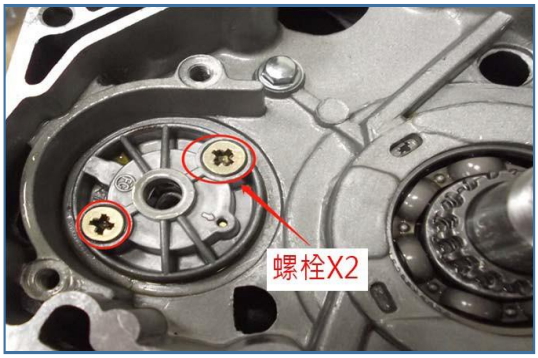
Remove oil pump cap (1 screw), as picture shows

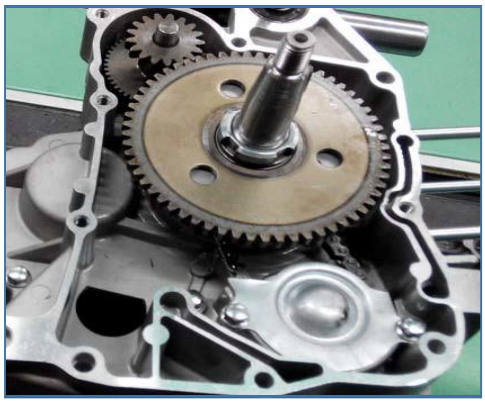


Install driving gear and clip, make sure the oil pump works smoothly.

Oil pump installation

Install oil pump (2 bolts), pump chain, lock and cover (2 bolts). Install start gear and generator at last.





Gear oil check

Stop engine and remove inject and drain bolts. Drain out oil to a cup, check if the oil meets standard value, or add it.

Gear oil viscosity　standard volume；400cc, replace volume: 350cc

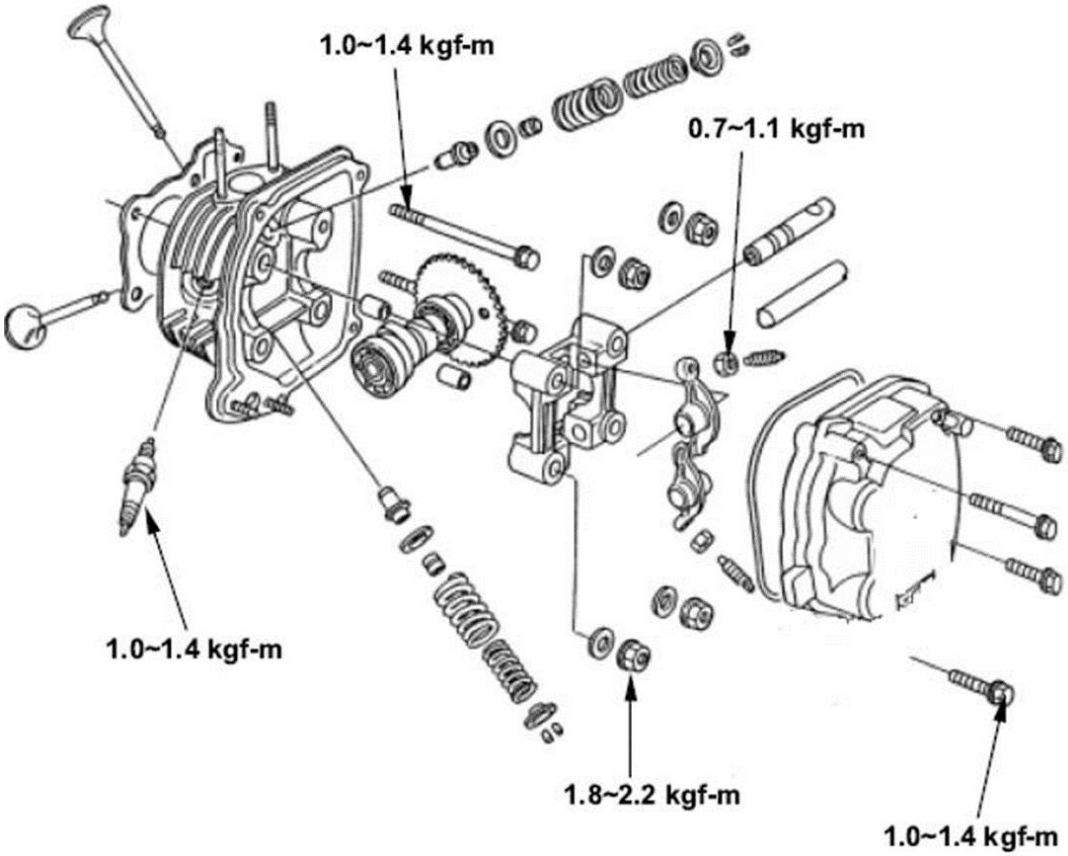
Gear oil replace

Remove inject and drain bolts to drain oil out.

Install drain bolts and tights it. Torque: 0.8-1.2 kgf-m

Start engine for 2-3 minutes to check if it leaking after installation.

5.4 Cylinder head and gas valve



Precautions

Specification (unit: mm)

Item			Standard	Limitation
Compressive force			10±1 kg/cm^2	-
Cam	Height	Air intake	29.810	29.440
		Air exhaust	29.530	29.160
Rocket arm	Inner diameter		10.000-10.015	10.100
	Axle outer diameter		9.966-9.984	9.910
Gas valve	Lever outer diameter	Air intake	4.975-4.990	4.900
		Air exhaust	4.950-4.975	4.900
	Guide sleeve		5.000-5.012	5.030
	Lever and sleeve clearance	Air intake	0.010-0.037	0.080
		Air exhaust	0.025-0.062	0.100

	Spring free length (out spring)	37.000	33.500
	Spring free length (inner spring)	35.000	31.500
Connect surface flatness of cylinder head		-	0.050

Torque

- Cylinder head cap bolt 1.0-1.4 kgf-m
- Left cylinder head bolt 1.0-1.4 kgf-m
- Cylinder head nut 1.8-2.2 kgf-m
- Timing chain tensioner seal bolt 0.8-1.2 kgf-m
- Timing chain tensioner bolt 1.0-1.4 kgf-m
- Valve adjust fixed nut 0.7-1.1 kgf-m
- Spark 1.0-1.4 kgf-m

Specific tools

Gas valve stem reamer 5.0mm gas valve driver 5.0mm compressor

Troubleshooting

Bad idle: low compressive force

Low compressive force:

1. Gas valve

● Wrong valve clearance

● Valve damaged or bent

● Incorrect timing valve

● Valve carbon deposit

● Valve poorly sealed

● Incorrect spark installation

2. Cylinder head

- Gasket worn or leaked
- Cylinder surface worn or sloped

3.Piston

- Piston ring worn

High compressive force:

Too much carbon deposit

Abnormal sound

- incorrect valve clearance
- valve worn or spring damaged
- cam shaft worn or damaged
- cam chain worn or loosen
- tensioner worn or damaged
- cam chain gear worn
- rocket arm or arm axle worn

Exhaust pipe with white smoke

- valve pipe or lever worn
- lever oil seal worn

Cam shaft disassembly

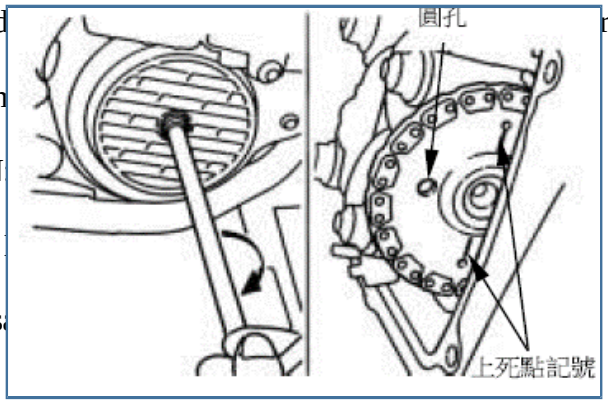
Remove fan cover first, then remove the assembly parts from A and B cover. Remove crankcase pipe and cylinder head bolts, last remove cylinder head cover (4 bolts)

Remove O-ring from cam chain regulator. Lock cam regulator bolt to release regulator.

Turn fly wheel with wrench, to let the T mark face the crankcase mark and make sure chain hole to compressive mark, refer to picture.

Remove cam

Remove fixed remove cam last.



Check the can

Limitation IN

If the cam ass

Fixe

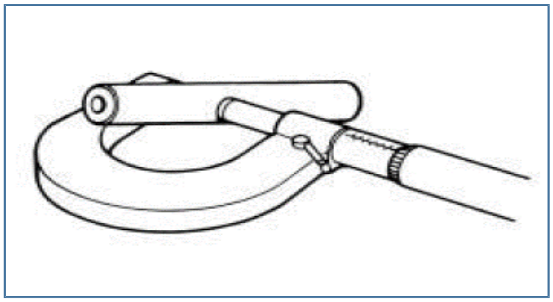
Rem remove rocket arm.

Check fixed seat, valve rocket arm and rocket arm axle, especially sliding surface of rocket arm and fixed surface of cam shaft.

Rocket arm axle inner diameter: greater than 10.1mm, replace it.

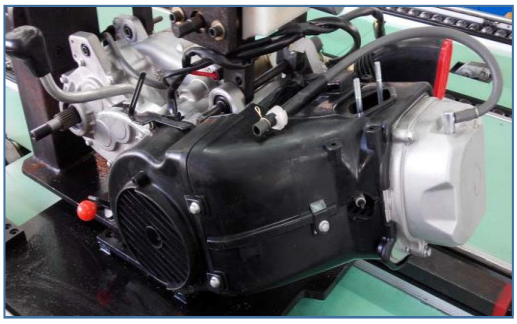
Outer dia er than 9.910

Clearance 0.10



Cylinder head disassembly

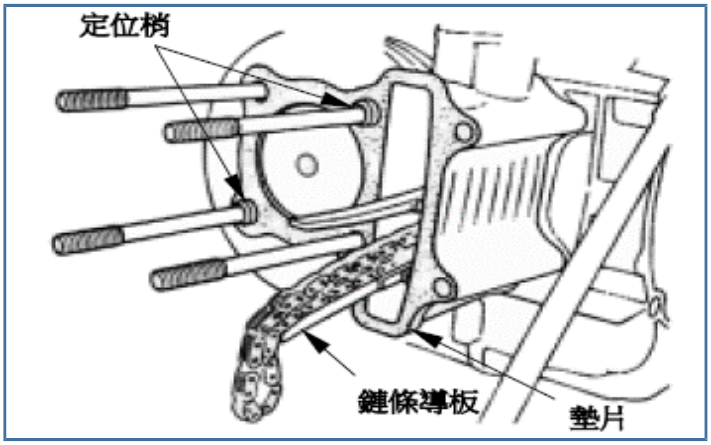
First remove fan cover and cover (4 bolts).



Second remove cam shaft

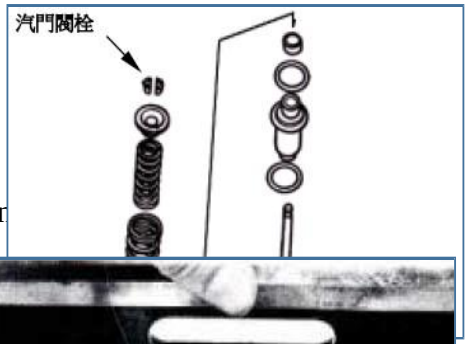
Third rem gasket, 2 located pins and guide plate, clean surfaces last.

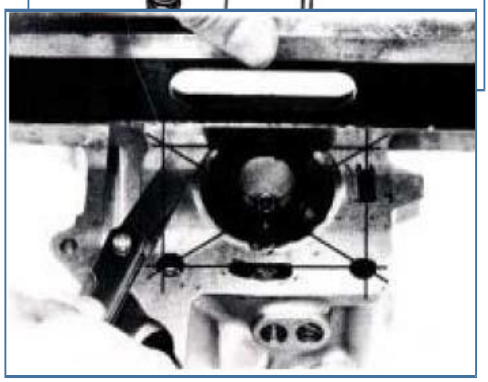
Note: do not damage the surface of cylinder and cylinder head; keep the crankcase clean.



Remove valve spring by spring compressor. Remove valve bolt, spring and valve.

Remove guide lever oil seal, clean carbon deposit ar





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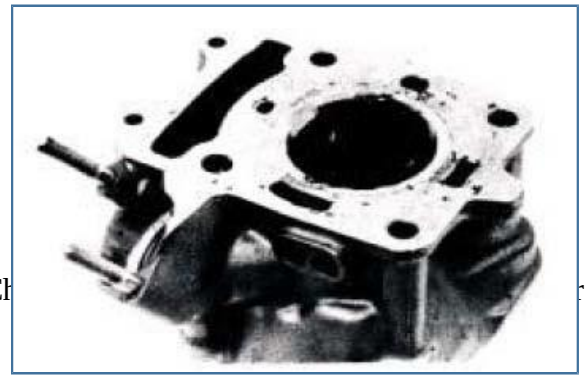
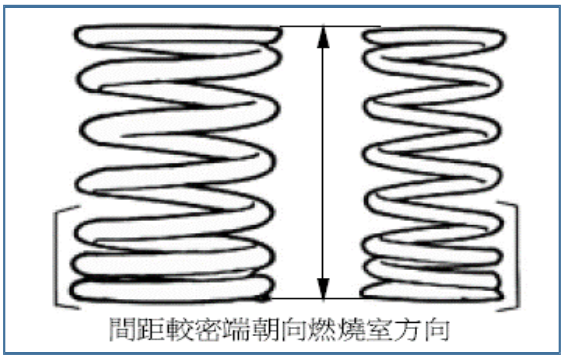


head flatness. Limitation: 0.5mm

Free length of valve spring

Limitation； big spring: 33.5mm small spring: 31.5mm

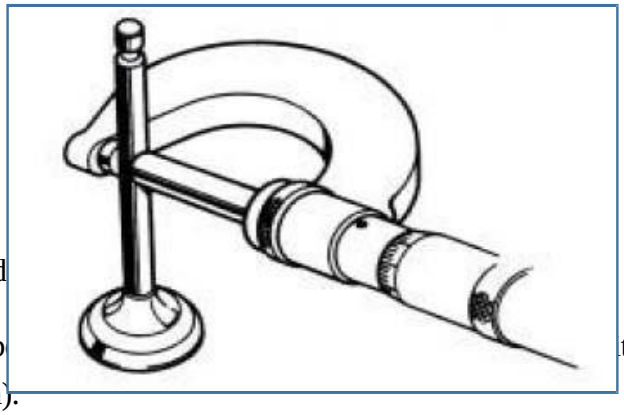


Valve stem

If stem worn, bent or damaged, replace.

Measure outer diameter. Air intake 4.9mm exhaust 4.9mm

Valve guid

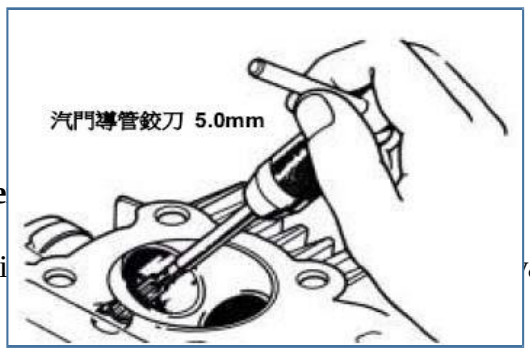


Clean carb th a reamer (5mm, limitation is 5.03mm).

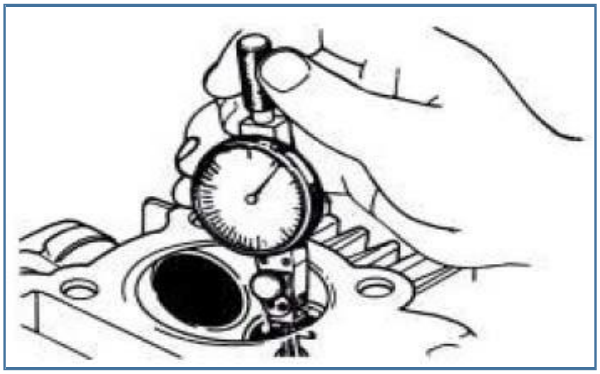
Clearance between valve stem and pipe：

Limitation: air intake 0.08mm exhaust 0.10mm

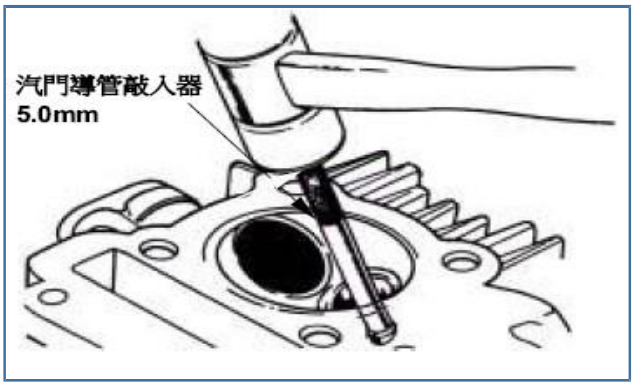
Adjustme



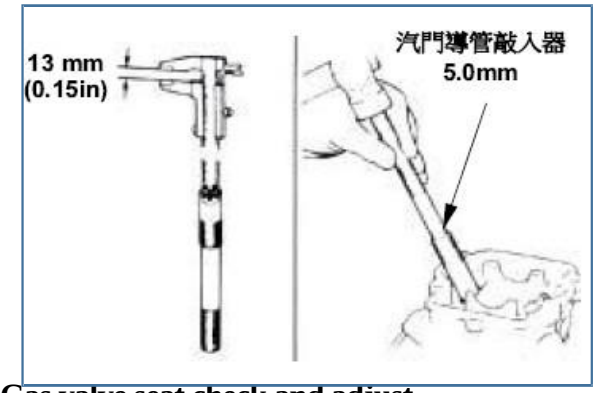
Replace pi valve.

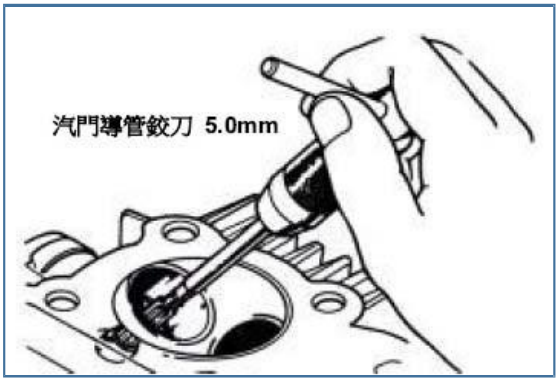


When replace guide pipe, heating cylinder head to 100-150℃ by heating plate or oven. Remove pipe with specific tool.



Install new guide pipe with a driver (5mm) at 100-150℃, make guide pipe height at 13mm, insert from arm side. After cooling, trim the pipe with reamer.

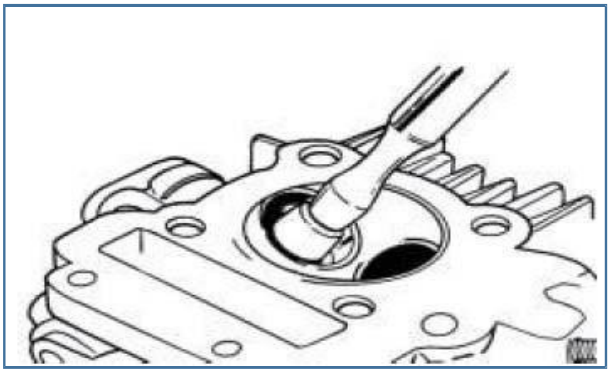




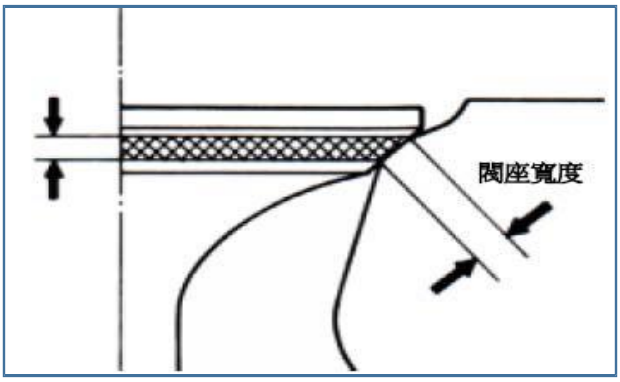
Gas valve seat check and adjust

Clean carbon deposit. Smear emery on surface between valve seat and valve, clean it after

running in.



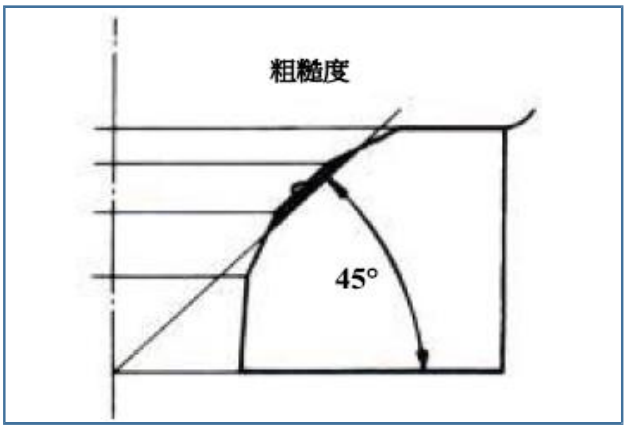
Remove gas valve and check the sealing of contract area. If the valve face worn, rough or damaged, replace it. The contract area still doesn't seal after running in, replace.



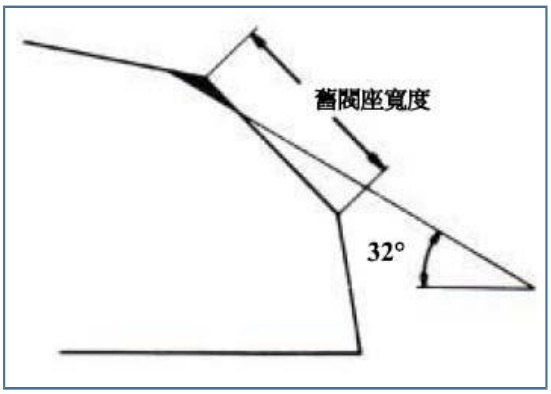
Check valve seat

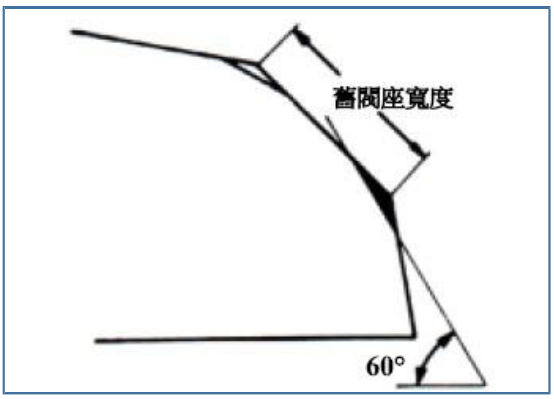
Valve seat width: 1.6mm.

If not in this range, adjust valve seat with specific tool (45° Adjustor).

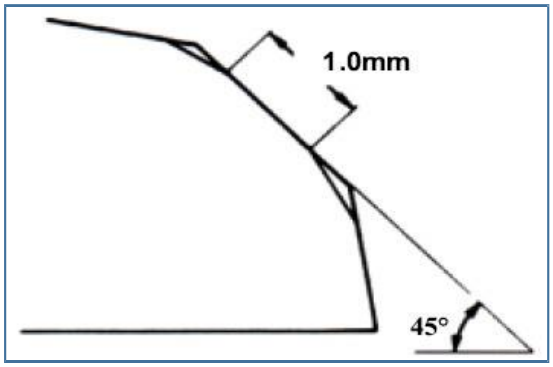


Cut 1/4 upper seat surface with 32° cutting machine and 1/4 lower seat surface with 60° cutting machine.





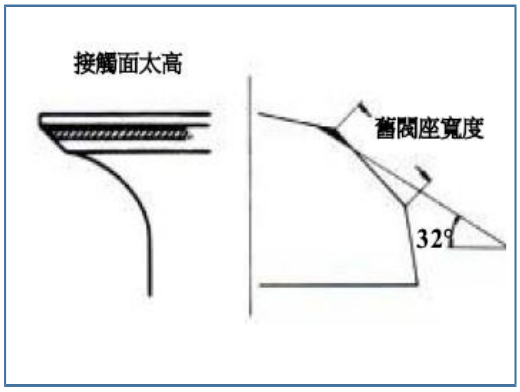
Cut seat surface to certain width with 45° cutting machine and make sure it smoothly.

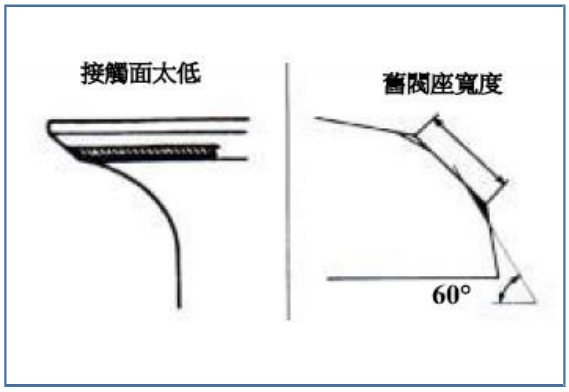


Valve face adjust

Smear Prussian-blue or red lead.

If the contact area high, cut seat with 32° cutting machine, then cut seat surface to certain width with 45° cutting machine; If the contact area low, cut inner seat face with 60° cutting machine, then cut seat surface to certain width with 45° cutting machine.

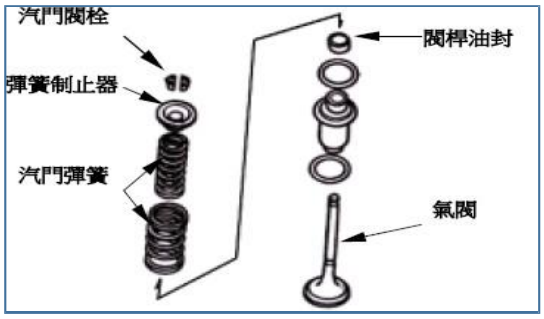




Running in the surface after seat adjust with emery.

Cylinder head assembly

Install valve into guide pipe after lubricating. Install new oil seal, valve spring and braking.

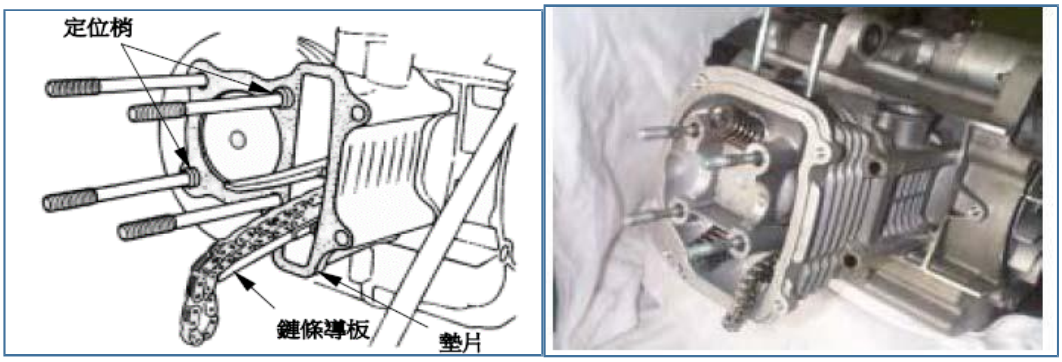


Press spring down by compressor to install valve bolt.

Knock valve stem with rubber rob to keep sealing.

Cylinder head installation

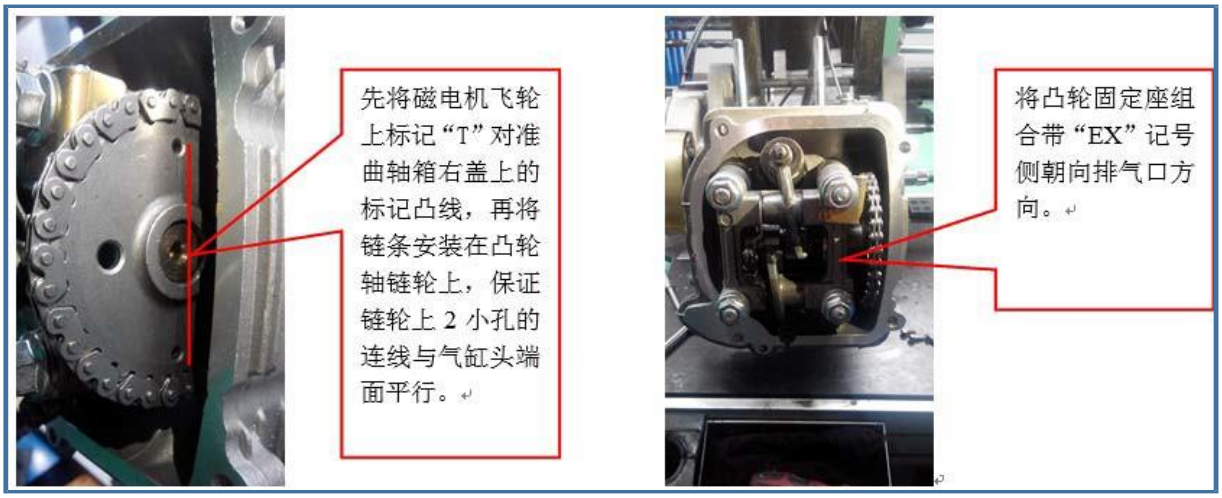
Install located pin, gasket and cam chain guide block in sequence.



Cam shaft installation

Install rocket arm on the EX mark side of fixed seat, then rocket arm and rocket arm axle.

Turn the crank shaft with T type wrench and let the T mark face the crankcase mark. Make the cylinder head tip in line with cam chain mark. The hole on the other side up, install cam chain on cam gear.



Fixed pin installation

Install fixed seat, gasket and nut on cylinder head.

Lock cylinder head nuts (4 nuts), then lock the 2 fixed bolts on cylinder head.

Torque: 1.8-2.2 kgf-m

Install spark with torque: 1.0-1.2 kgf-m

Valve clearance adjust

Loose nuts and bolts on rocket arm, adjust clearance to standard value and fix bolts and nuts.

Standard value: 0.03-0.05mm

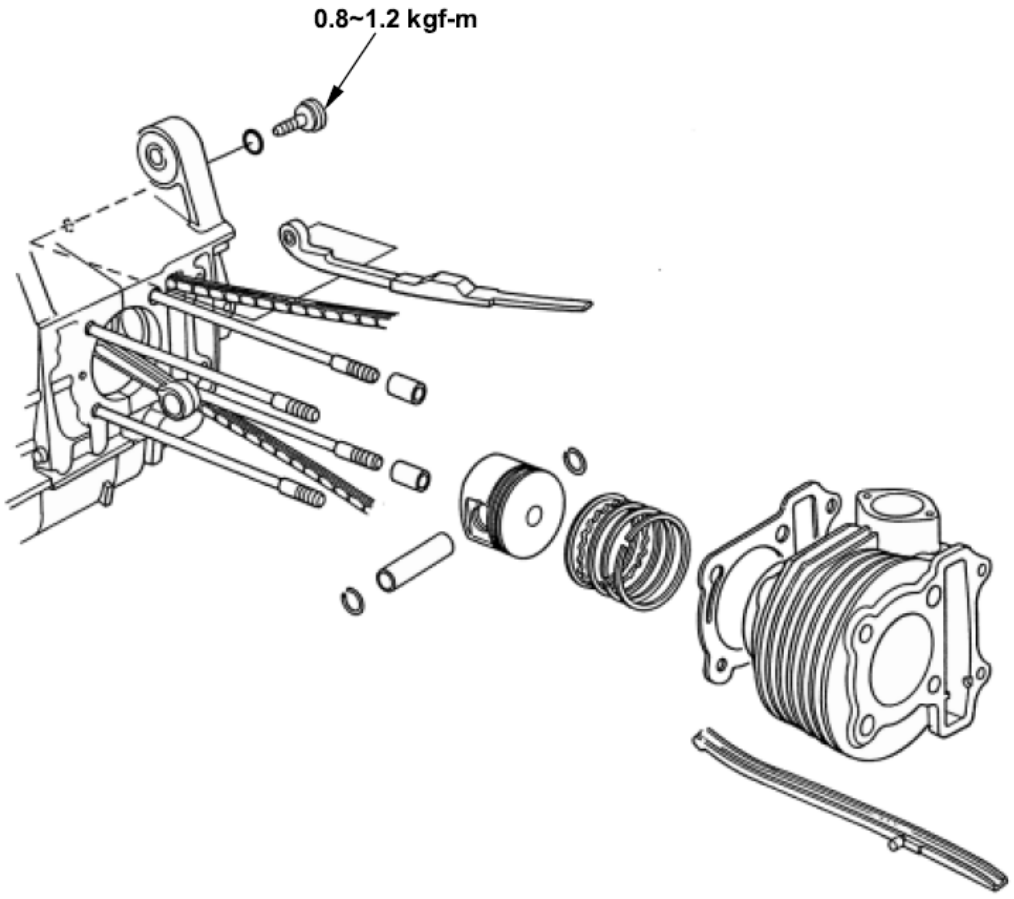
Adjust tensioner to touch guide plate closely. Install smeared O-ring on tensioner hole, lock the tensioner nut.

Keep the ring in groove.

Install cylinder head cover, tight the fixed bolt, then connect the guide pipe with cylinder

head cover.

5.5 cylinder and piston



Precautions

Remove engine from bike before maintenance.

Specification

Item			Standard	Limitation
Cylinder	Inner diameter		62.450-62.550	62.650
	Top parallelism		-	0.050
	Deviations		-	0.050
	Roundness		-	0.050
Piston and piston ring	Clearance	Top ring	0.025-0.060	0.090
		Second ring	0.015-0.050	0.090
	Clearance of piston opening	Top ring	0.100-0.250	0.500
		Second ring	0.250-0.400	0.650
		Scraping ring	0.200-0.800	-
	Outer diameter		62.450-62.500	62.410
	Measure position of outer diameter		End 9mm	-
	Piston and cylinder clearance		0.050-0.100	0.200
	Inner diameter of piston pin hole		15.002-15.008	15.040
Piston pin outer diameter			14.994-15.000	14.960
Piston and piston pin clearance			0.002-0.014	0.020
Inner diameter of connected rod			15.016-15.034	15.060

Troubleshooting

Low or unstable compressive force: cylinder or piston ring worn.

High compressive force: piston or carbon deposit.

Knocking or abnormal sound: piston or cylinder worn; carbon deposit in piston head; piston pin and pin hole worn.

Exhaust pipe with smoke: piston or piston ring worn; incorrect piston ring; cylinder or piston worn.

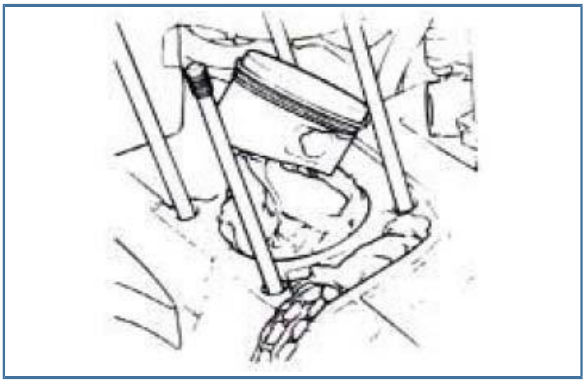
Engine overheating: carbon deposit in piston head.

Cylinder head disassembly

Remove 2 bolts and cam chain adjustor from cylinder head, then remove guide plate and cylinder.

Remove cylinder gasket and fixed pin, clean contact face of crankcase and cylinder.

Block crankcase and cam chain holes with clean cloth, clean contact face of cylinder and crankcase.



Check

Check cylinder inner diameter.

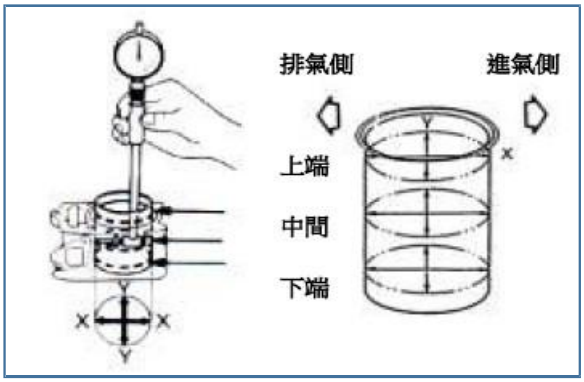
There are three divided position in cylinder, measure the inner diameter based on X and Y directions separately.

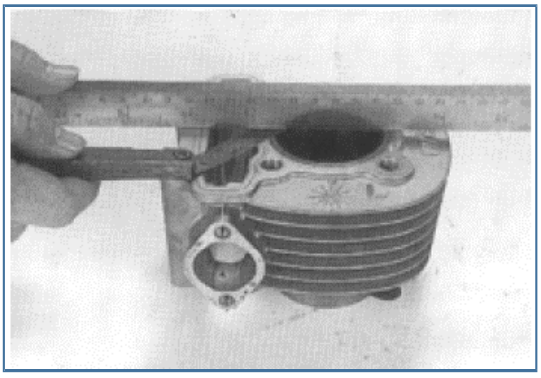
Limitation: 62.650mm

Count the roundness (X-Y) and deviations (the max value among X or Y the three positions differences).

Limitation: roundness: greater than 0.05mm, revise or replace.

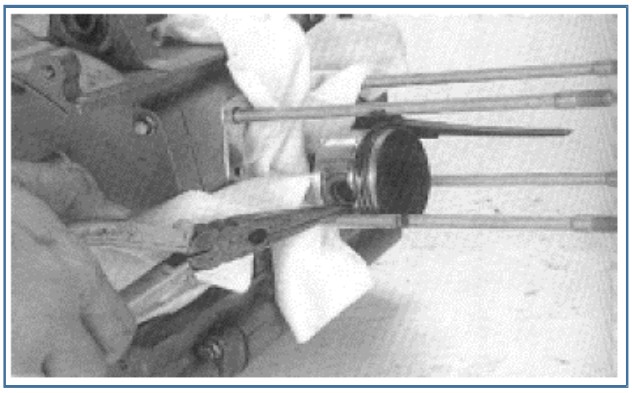
Deviations: greater than 0.05mm, revise or replace.





Piston disassembly

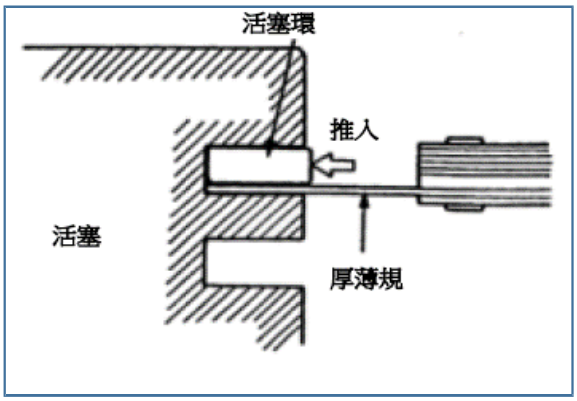
Block the crankcase and cam chain holes to remove piston pin by a pliers.



Remove piston ring and check if it worn or damaged, clean it. Install piston ring and measure clearance.

Limitation: top ring: greater than 0.09mm replace

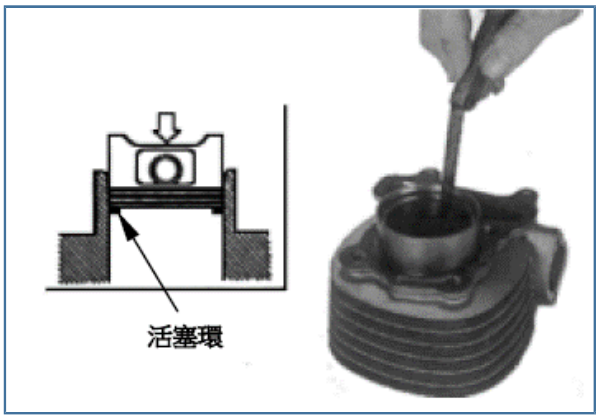
second ring: greater than 0.09mm replace



Install piston rings on the engine bottom, then push piston ring to the 20mm height of cylinder top end, measure all the clearance.

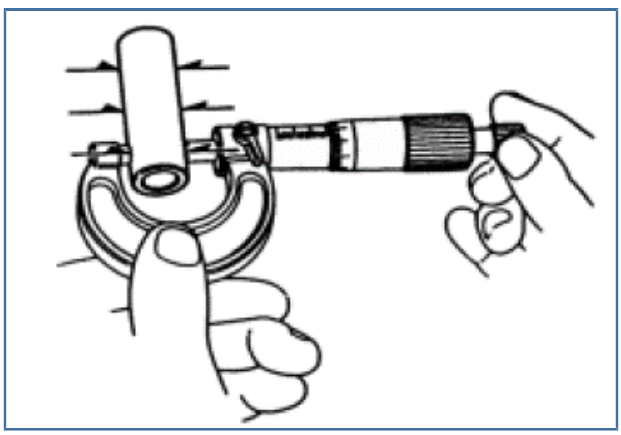
Limitation: top ring: greater than 0.5mm, replace

Second ring: greater than 0.65mm, replace



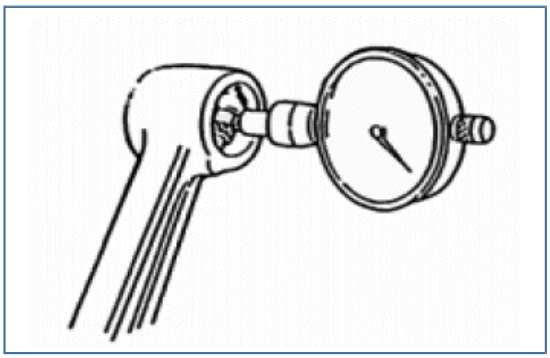
Measure piston pin outer diameter

Limitation: 14.96mm



Measure inner diameter of connected rod

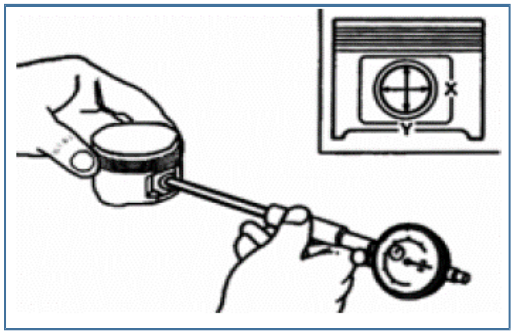
Limitation； 15.06mm



Measure inner diameter of piston pin

Limitation: 15.04mm

Count the clearance of piston pin and pin hole, limitation is 0.02mm

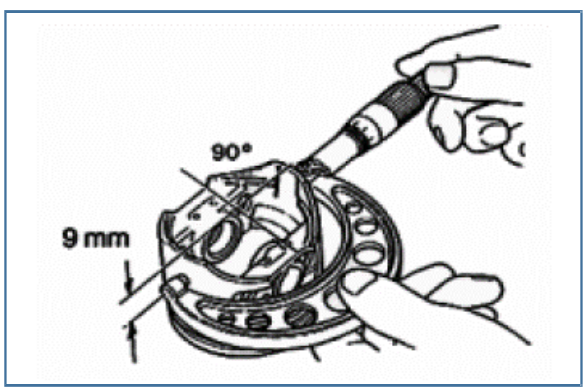


Measure piston outer diameter

From 9mm bottom height to piston 90° position.

Limitation； 62.410mm

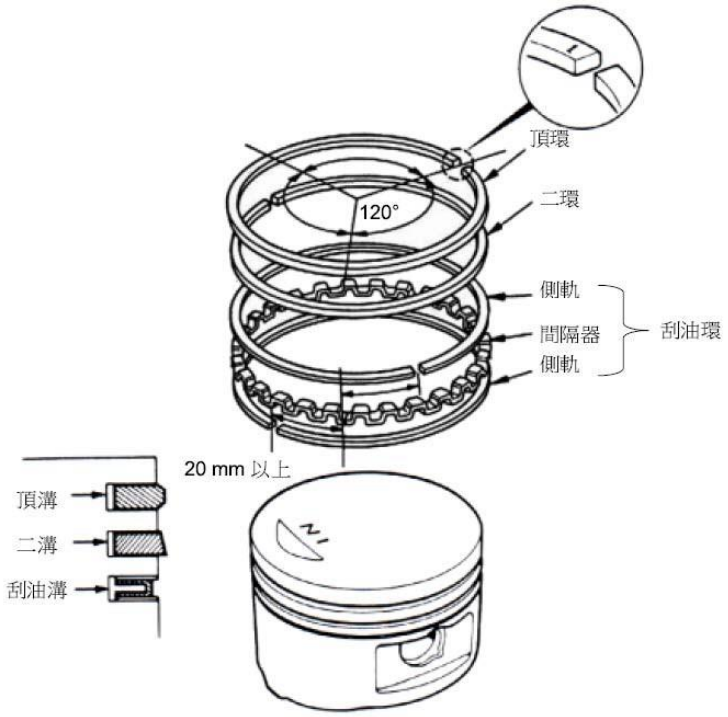
Compare the two values, and count the clearance of cylinder and piston.



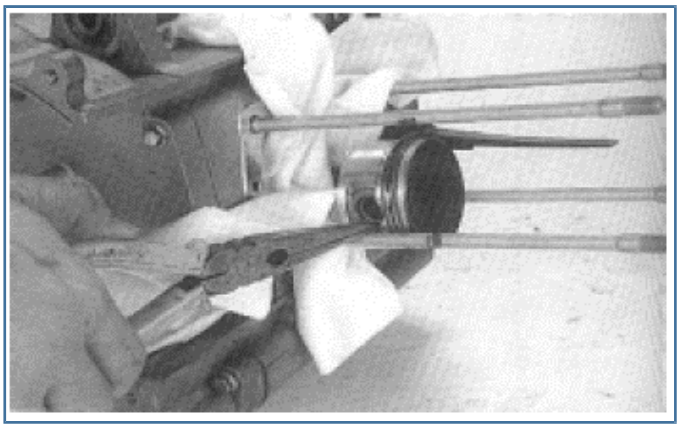
Piston installation

Clean piston head, ring and piston bottom. Install ring to piston as picture shows.

Note: do not damage rings and piston; all the marks up; keep all rings smoothly after installation.



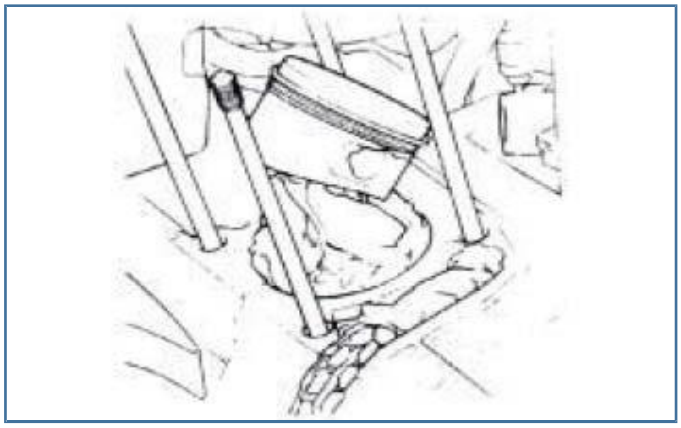
Install piston and pin, the IN-mark faces air intake side. Install a new piston pin at last.



Cylinder installation

Clean crankcase contact face and keep it clean from dust or other waste.

Install 2 located pins and new gaskets.



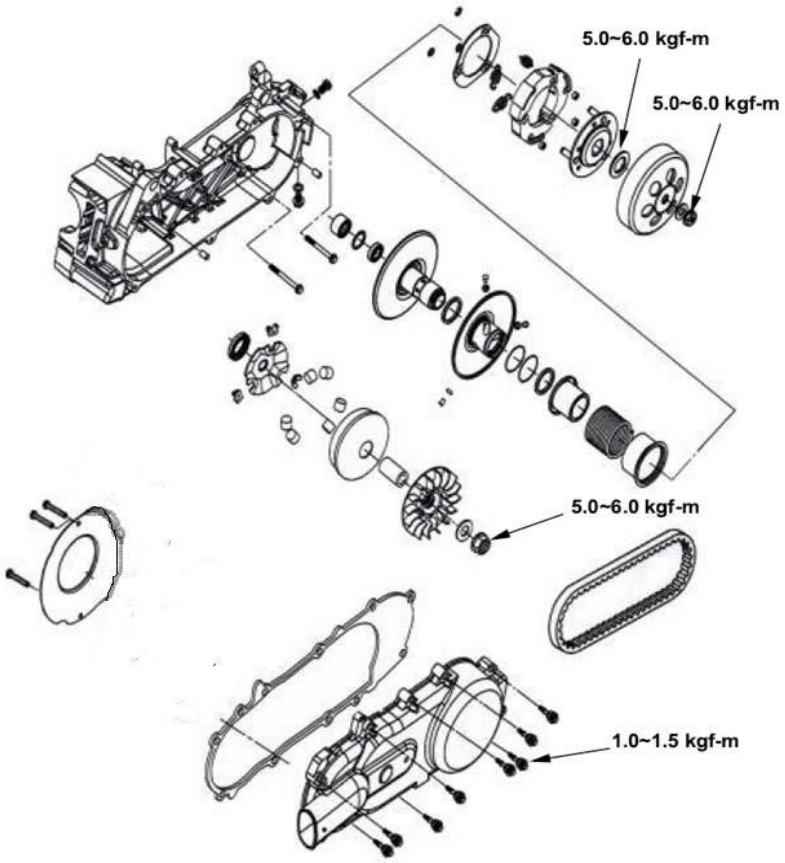
Smear oil on inner cylinder, piston and piston ring.

Install cylinder to piston carefully, press piston ring at the same time, ring by ring.

Install cam chain guide plate, cylinder head gasket and located pin.

Install cylinder head and cam chain adjustor (2 bolts).

5.6V type belt drive system



Precautions

Drive plate, clutch and transmission plate can repair on the bike.

There is no grease on drive belt and drive plate.

Specification

Item	Standard	Limitation
Drive belt width	22.30mm	20.8mm
Inner diameter of sliding drive belt wheel	23.989-24.052mm	24.060mm
Outer diameter of sliding drive belt hub	23.960-23.974mm	23.940mm
Hammer rotors outer diameter	19.950-20.050mm	19.450mm
Inner diameter of clutch cover	134.90-135.10mm	135.40mm

Clutch pad thickness	2.500	1.500
Spring length	130.00	125.00
Wheel set outer diameter	33.965-33.985	33.940
Wheel inner diameter	34.000-34.025	34.060

Torque

Nut of sliding drive belt plate: 5.0-6.0 kgf-m

Nut of clutch cover: 5.0-6.0 kgf-m

Nut of drive belt plate: 5.0-6.0 kgf-m

Tool

Spring compressor, bearing extractor, fixed bolt wrench and general fixed clamp.

Troubleshooting

Engine works but wheel doesn't work: drive belt broken; inclined plate worn; clutch pad damaged or worn; spring broken.

Flame in moving or knocking: spring broken; clutch pad worn.

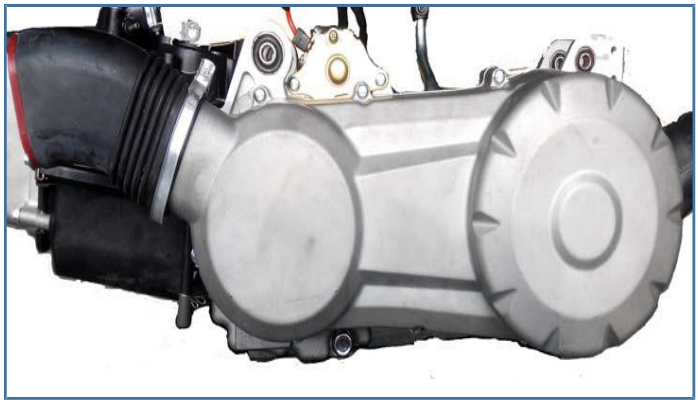
High performance and power poorly: drive belt worn; weak spring; hammer rotor worn; bad drive movements.

Left crankcase disassembly

Remove crankcase cover (9 bolts)

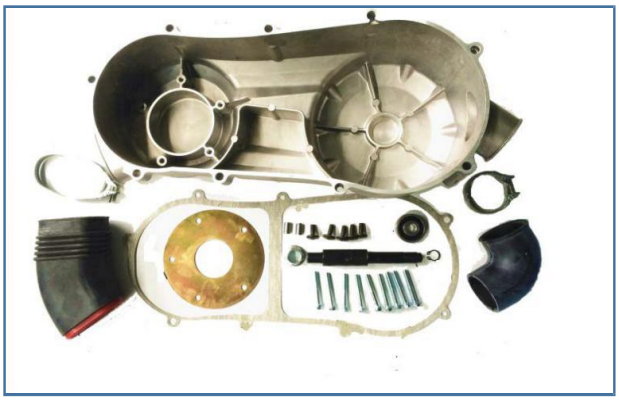
Check

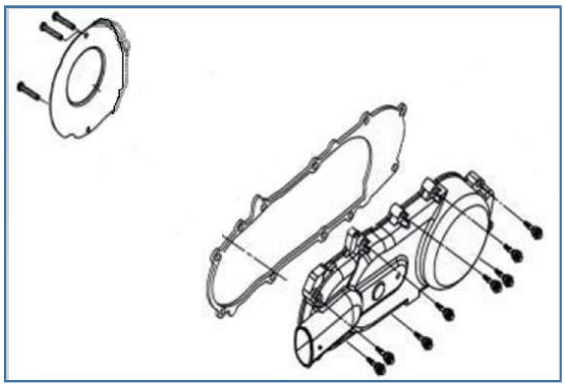
Clean the left cover. If the cover or bearing hole worn or damaged, replace.



Assembly

In reverse order of disassembly.

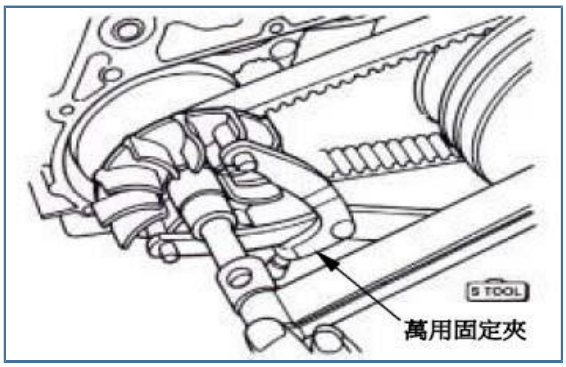




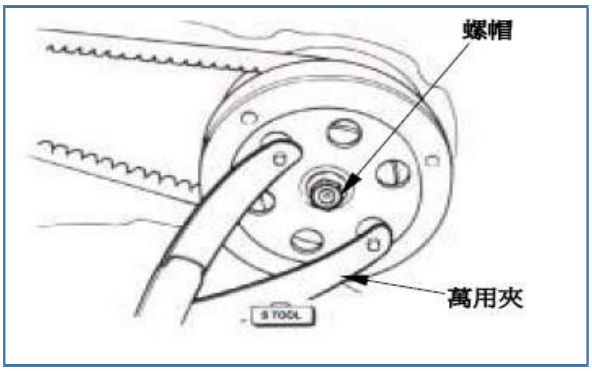
Drive belt

Disassembly

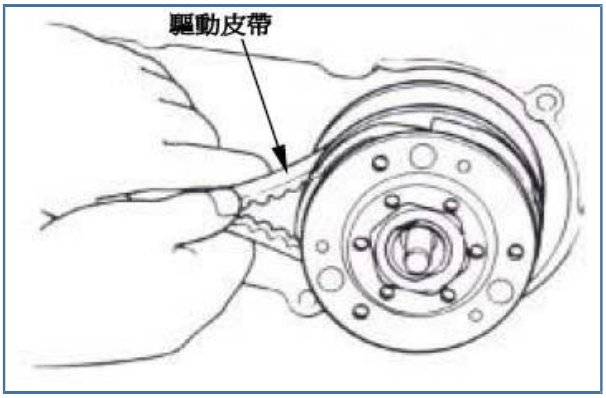
Remove left crankcase, bolts and drive plate.



Remove nuts and clutch cover with specific tool.

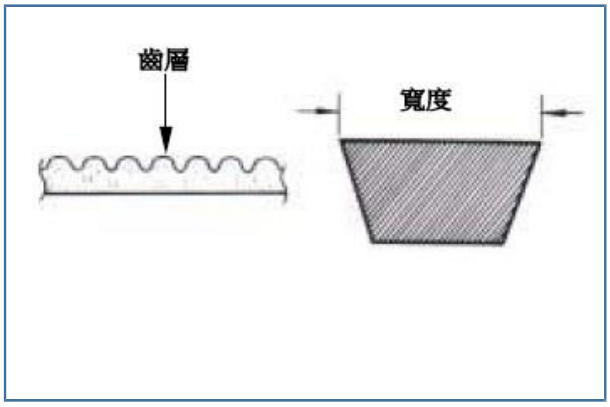


Make drive belt into wheel groove, then take out with clutch.



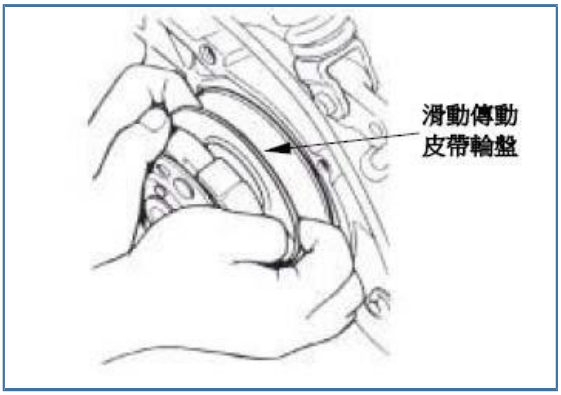
If the drive belt has cranks or worn, replace. Measure thickness, if it less than 20.88mm, replace it.

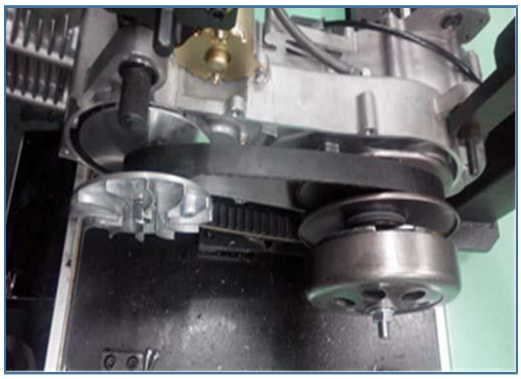
Note: drive belt brand should be recommended by kayo; keep the belt clean before installation.



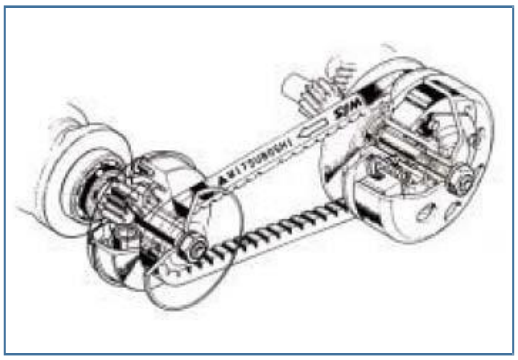
Assembly

Pull drive belt plate first, then insert the belt on the plate. Install the clutch which has drive belt on it to drive axle, the other side of belt to sliding belt plate. At last, install clutch cover.





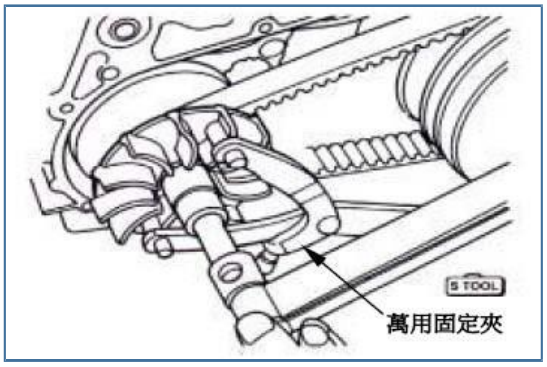
Note: the belt side with arrow mark faces to turn direction. If there is no mark, the words side of belt faces to assembly direction.

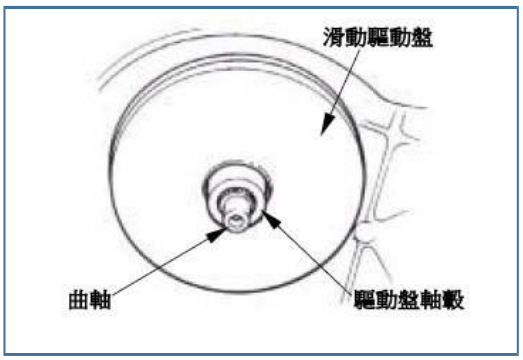


Sliding drive plate

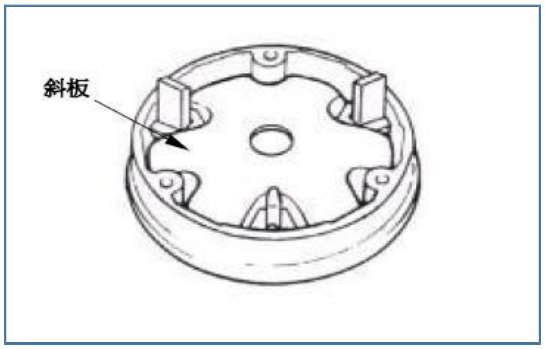
Disassembly

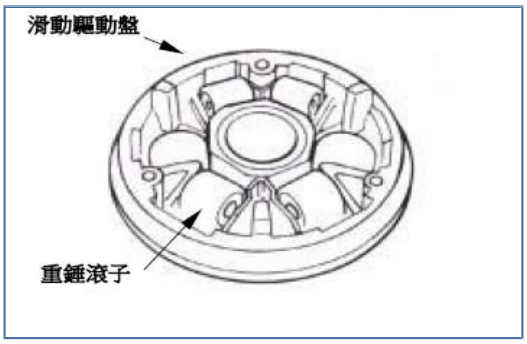
Remove left crankcase first. Then fix the drive plate with fixed clamp to remove nuts and drive plate. Take out drive belt, sliding drive plate and drive belt axle hub at last.





Remove the sliding plate and hammer rotors of sliding drive plate.

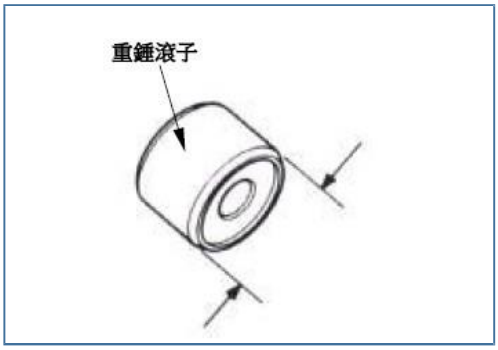


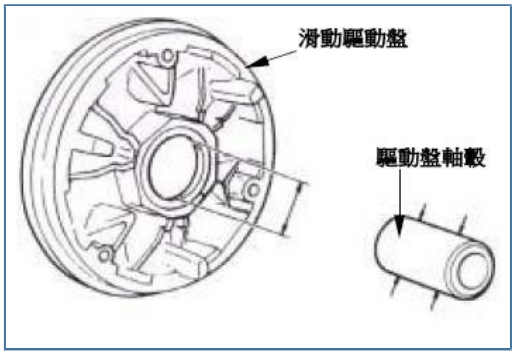


Check

If the hammer rotors worn or damaged, replace it. Then measure the outer diameter, if it less than 19.45mm, replace.

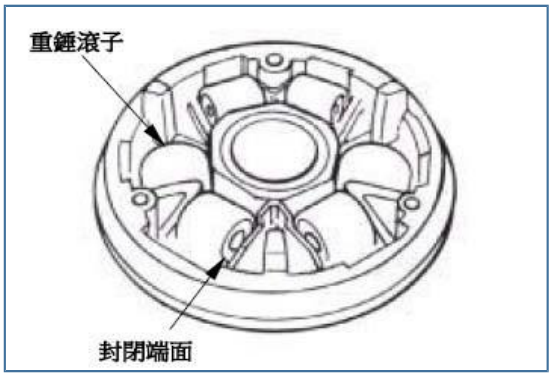
If the hub of axle worn or damaged badly, replace. Measure its outer diameter, if it's less than 23.94mm, replace. Measure if the drive plate inner diameter is greater than 24.06mm, replace.

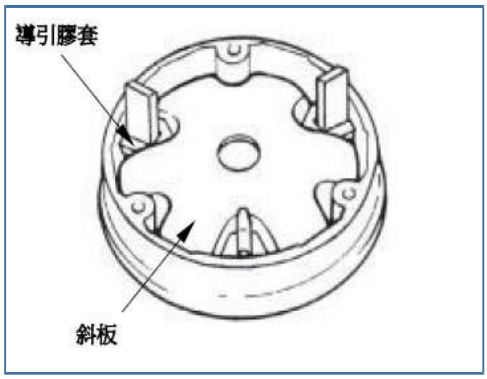




Hammer rotor assembly

Install the closed side on sliding drive belt counter clockwise. Install 3 pieces guiding sleeves on sliding plate.

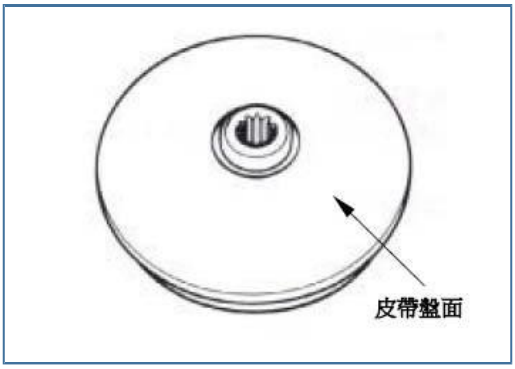


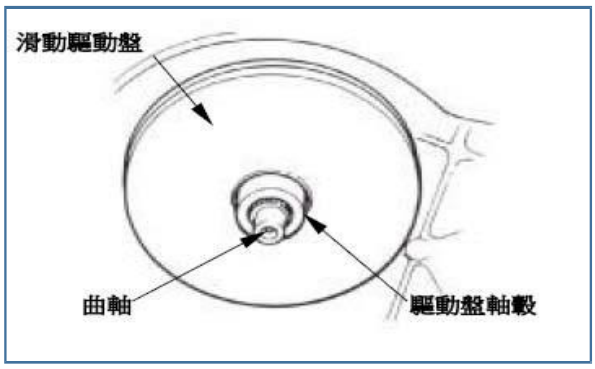


Smear the drive plate axle hole with 4-5kg button before install axle hub.

Note: no grease on belt face.

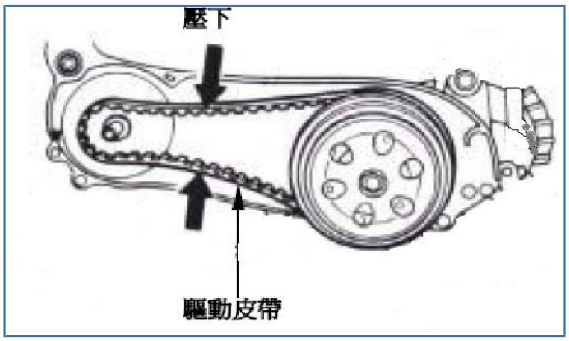
Install sliding drive plate on crank shaft.





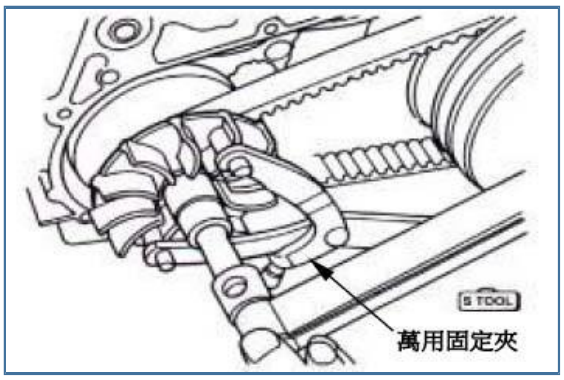
Drive plate assembly

Install drive belt on sliding drive plate, then press the up and down sides to make the belt and drive plate separately.

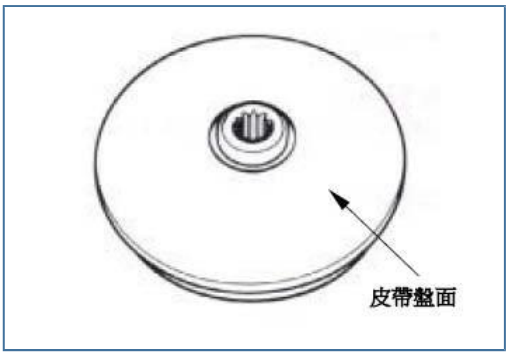


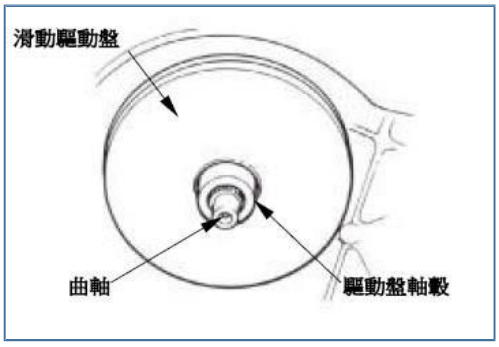
Install drive plate, gasket and nut. Make the belt clean. Knap the drive plate with clamp, then tight nut. Torque: 5.0-6.0 kgf-m

Install left crankcase cover.



Smear the axle hole, then install axle hub. Install the sliding drive plate on crank shaft.



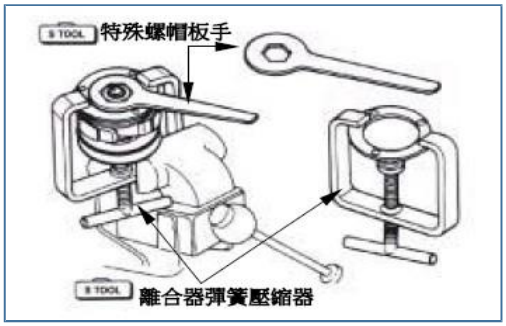


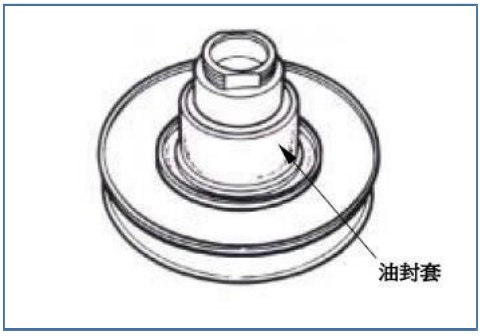
The installation is as same as sliding drive plate.

Clutch/ transmission belt plate

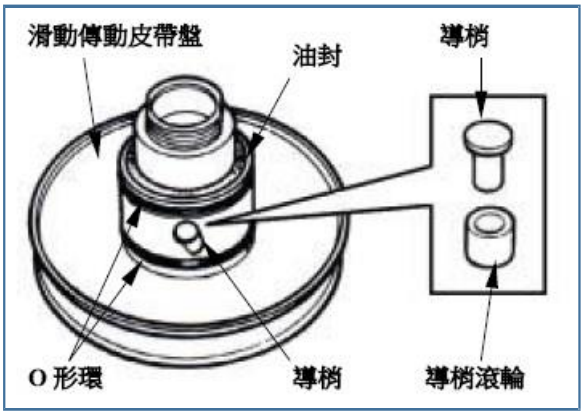
Disassembly

Remove drive plate, clutch/transmission belt. Install spring compressor on clutch, turn compressor moderately. Knap the compressor on jaw vice, use wrench to remove nut. Release clutch compressor, then remove clutch and spring from drive belt. At last, remove oil seal cover from drive belt.



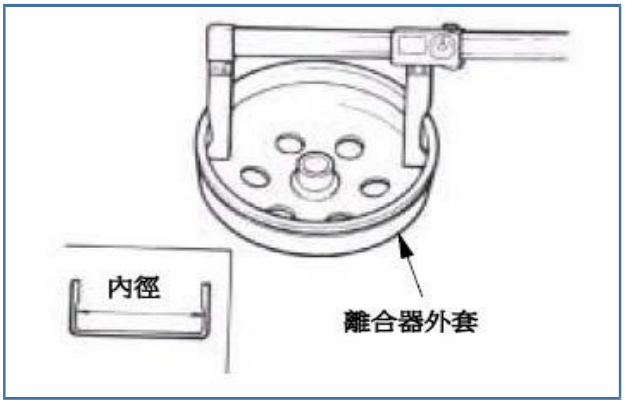


Remove pin, rotate wheel and drive belt plate, then O-ring and oil seal gasket.



Check clutch cover

Measure inner diameter of clutch cover surface. If the limitation is greater than 135.40mm, replace.

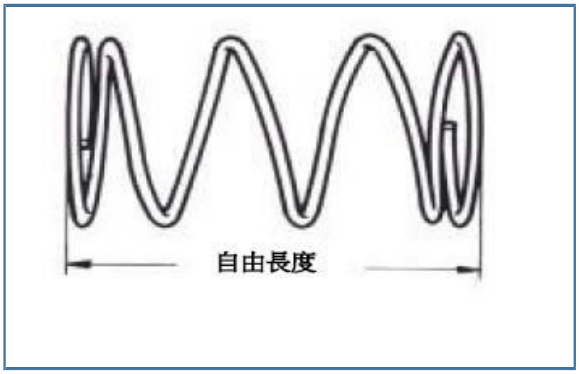


Clutch disc

Measure thickness of each disc, if less than 1.5mm, replace.

Drive pully spring

Measure its length, if the free length is greater than 125mm, replace.



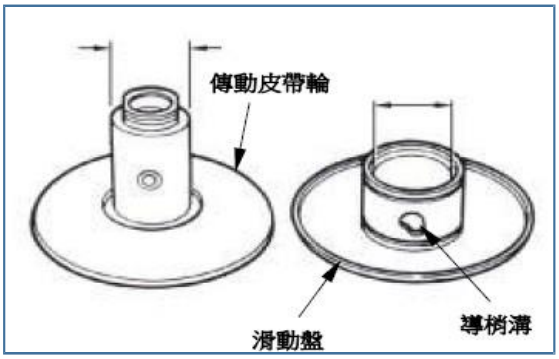
Transmission disc

Check the disc surfaces, if its worn or damaged, replace.

Check the groove to see if its deformed or damaged.

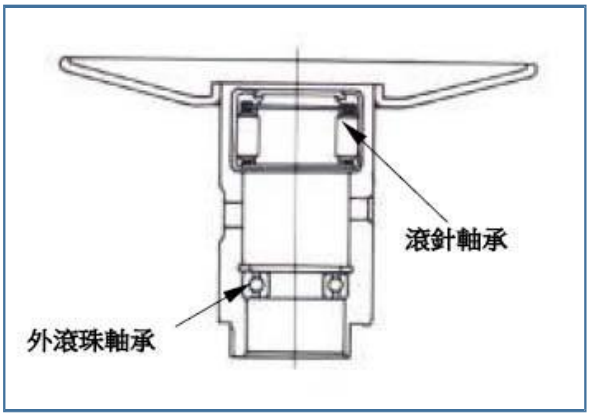
Measure the outer diameter of drive belt axle, and the inner diameter of transmission plate axle hole.

Limitation: outer diameter: 33.94mm inner diameter: 34.06mm



Check bearing of transmission plate

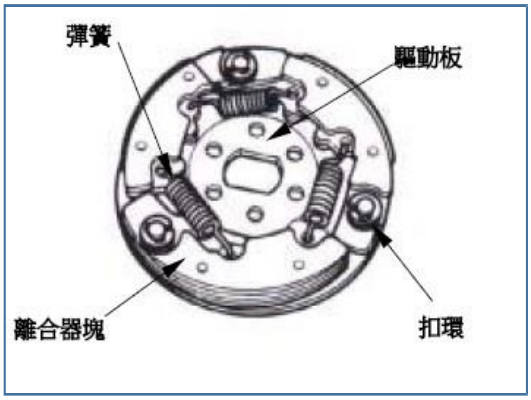
Check the bearing oil seal. If the needle bearing clearance is large or damaged, replace.

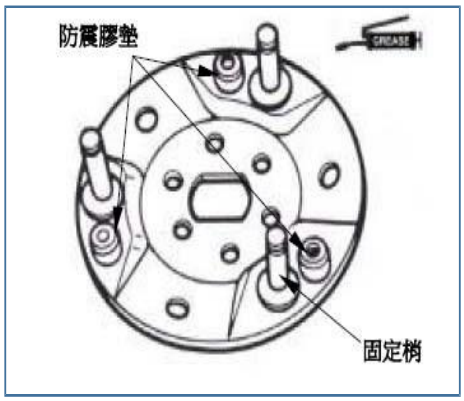


Clutch pad replaces

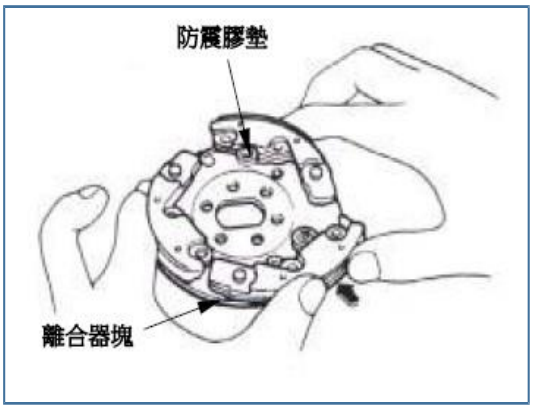
Remove ring and gasket, then remove clutch pad and spring to check the spring condition.

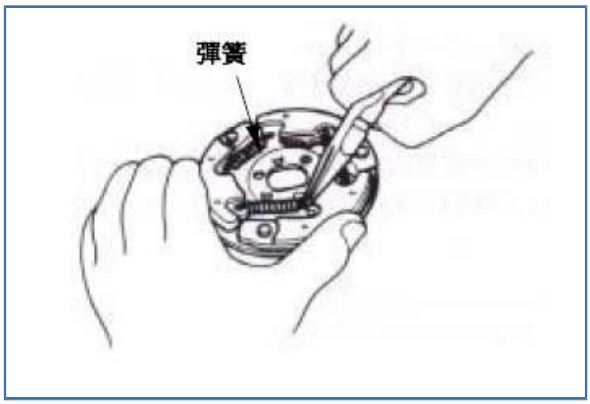
Check if the rubber, if its damaged or deformed, replace.

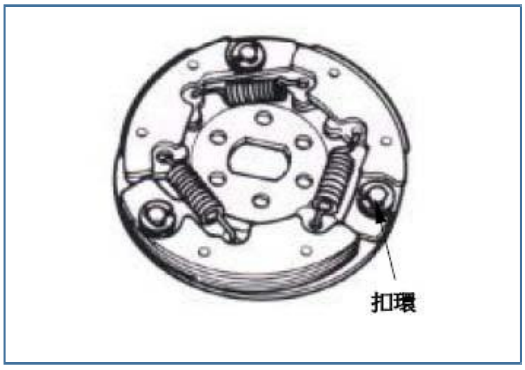




Smear fixed pin, make sure clutch pad clean. Install clutch pad on fixed pin. Insert the spring with vice. At last install ring on fixed pin.



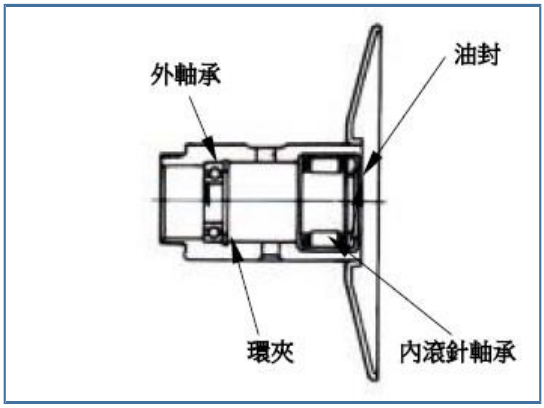


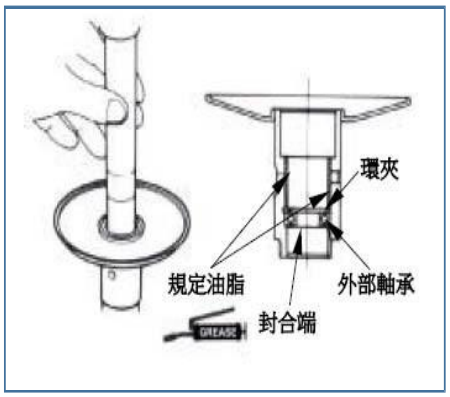


Replace transmission belt bearing

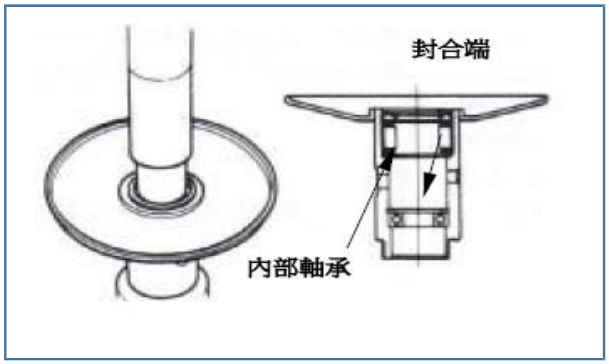
Remove oil seal and inner bearing.

Replace the clamp from outer bearing, then push it to the side of inner bearing. Install new bearing, smear G-3 grease at last.





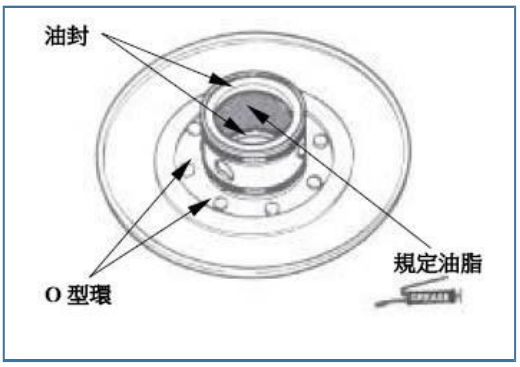
Install a new inner bearing. The seal end faces out; install needle bearing and ball bearing with oil press. Install new oil seal.

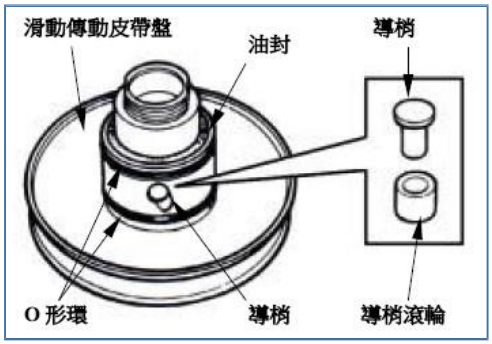


Clutch/ drive pulley assembly

Install new oil seal and O-ring on sliding drive plate. Smear inner plate with specific grease.

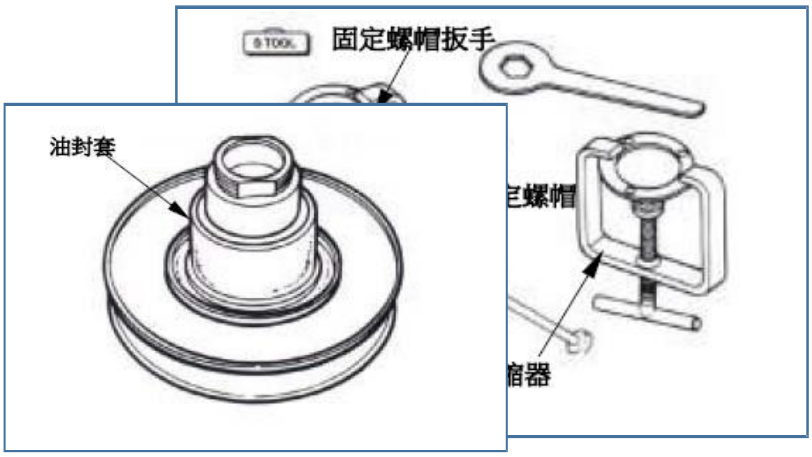
Install sliding drive plate on drive belt plate, then guide pin, roller and oil seal.



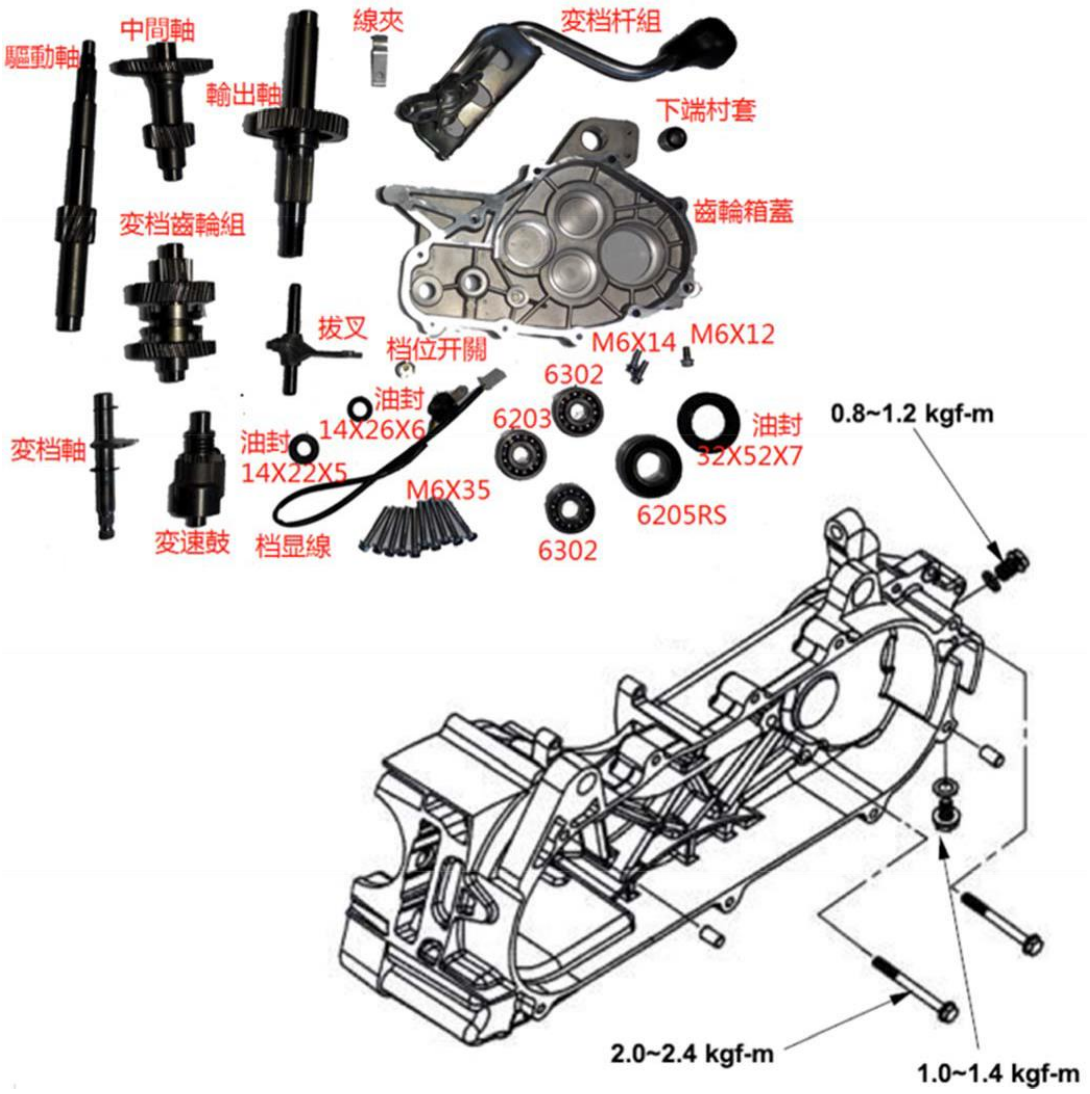


Install transmission belt plate, spring and clutch into spring compressor, turn compressor handlebar until the bolt installed. Torque: 5.0-6.0 kgf-m

Install clutch/ transmission belt plate and transmission belt on transmission shaft.



5.7 Reducing gear and reverse gear mechanism



Precautions

Specification:

Gear oil: 4 stroke lubricating oil. Volume: 400cc (replace:350cc)

Toque:

Gear cover: 2.0-2.4 kgf-m drain bolt: 1.0-1.4 kgf-m inject bolt: 0.8-1.2 kgf-m

Troubleshooting

1. Start engine, car doesn't move.

   Transmission gear damaged; transmission gear short out; drive belt broken

2. Gear oil leakage

   High oil level; oil seal worn or damaged

3. Abnormal noise

   Gear worn, short out or damaged; bearing worn

Reducing gear

Disassembly

Drain gear oil and remove clutch.

Remove gearbox cover bolts (10 pcs M6*35), gearbox cover and transmission shaft. At last remove gaskets and located pin.

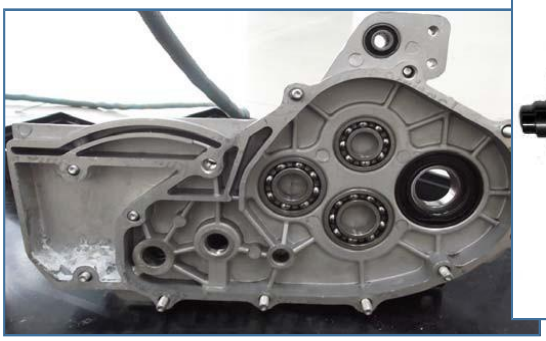
Remove driven shaft, middle shaft, output shaft, gearshift wheel, gear shaft, variable drum and fork.

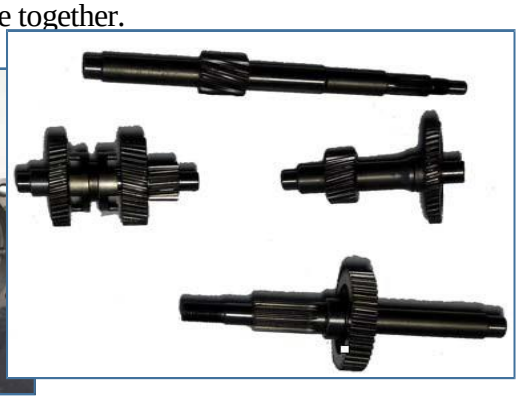
Check the gear shaft, gear and other parts of reverse gear mechanism and gear shaft assembly.

Check gearbox and bearing on crankcase cover

Use finger to turn the inner side of bearing and check the outer side condition. If the bearing turns not smoothly, with abnormal noise or doesn't connect well with gearbox and cover, replace it.

Once remove driven shaft, its bearing should replace together.

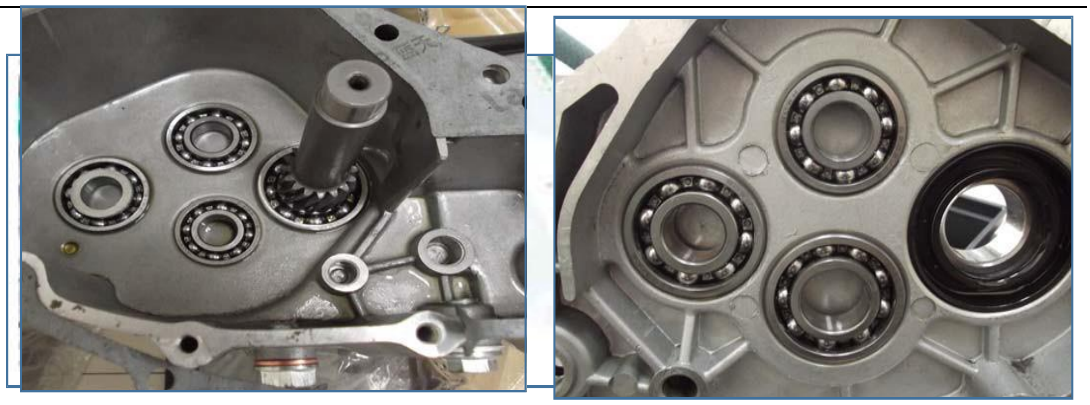




Bearing replaces

Once bearing is removed, replace it. Use specific tool to replace bearing.

Install new bearing to gearbox or cover with C type press machine.



Pull out drive shaft from gearbox, then remove oil seal from gearbox, remove transmission shaft bearing with specific tool.

If the bearing still connects with transmission shaft after pulling out drive shaft, use bearing extractor to remove.

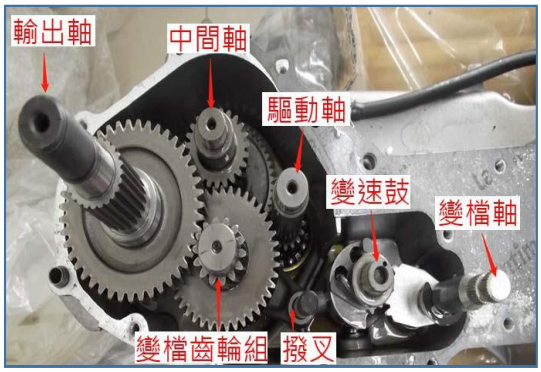
Install new bearing first and drive shaft later. Install new bearing on gearbox cover.

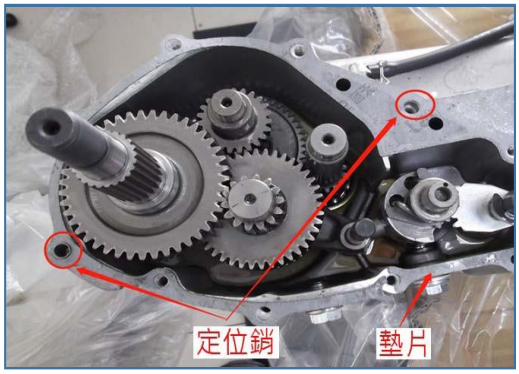
Use C type press machine, at last install a new oil seal with grease.

Assembly

Install drive shaft, middle shaft, output shaft, gearshift wheel, gearshift shaft, variable

drum and fork. Then install 2 located pins and new gasket.



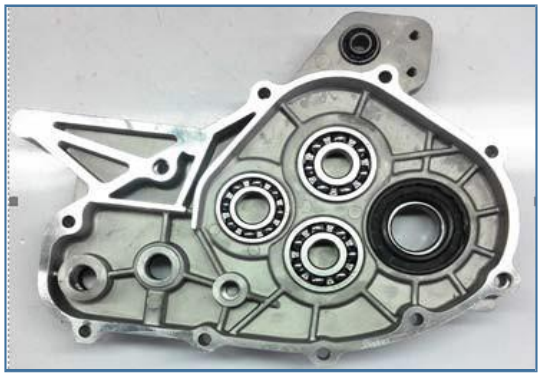


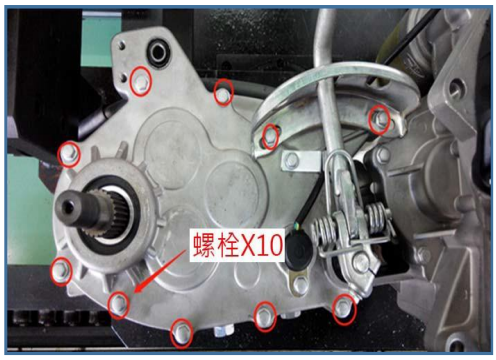
Smear grease on oil seal of drive shaft, output shaft and gearshift shaft, then install them on gearbox cover, tight with 10 bolts.

Torque: 2.0-2.4 kgf-m

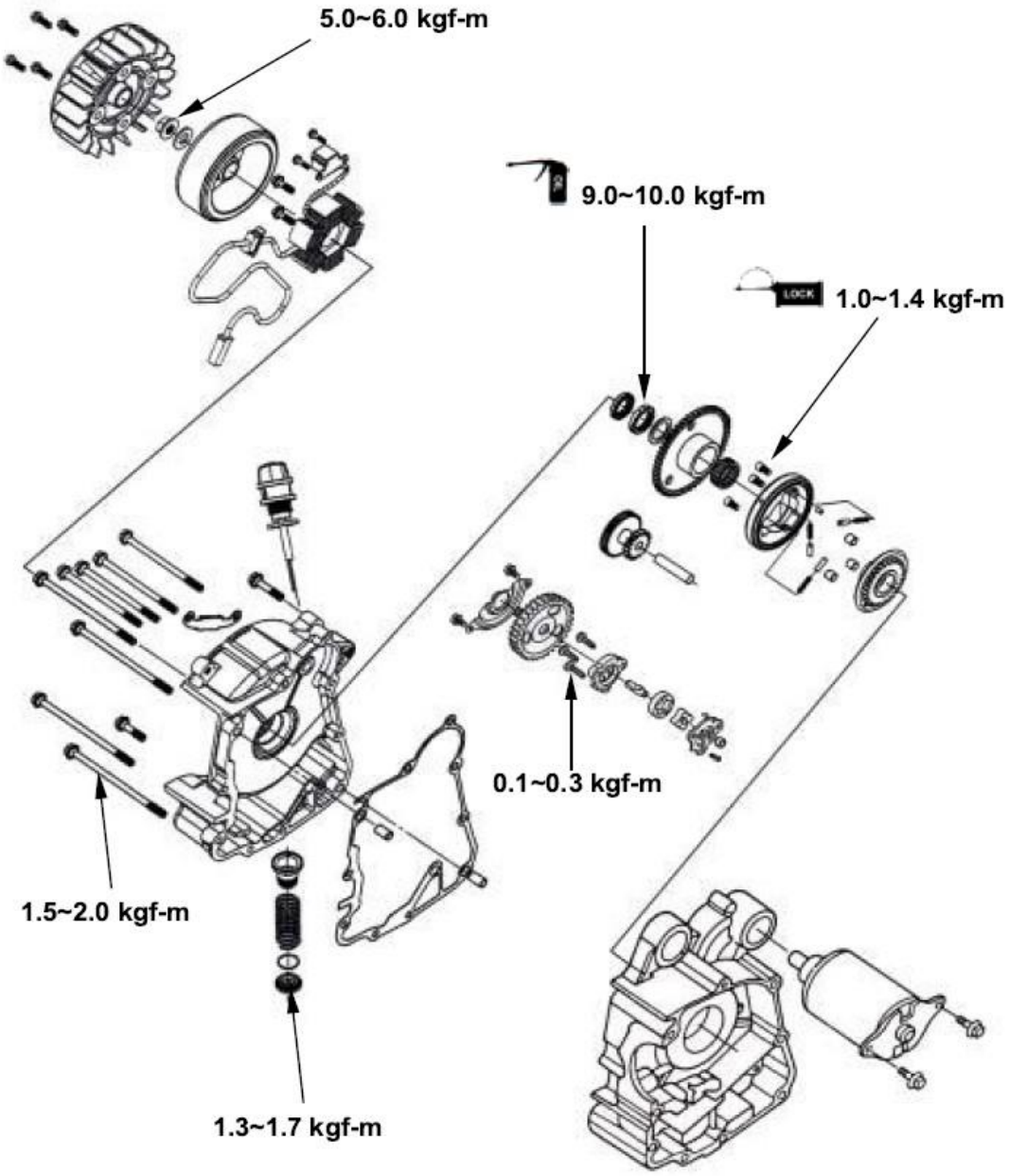
Install clutch, belt and left crankcase cover, inject gear oil (85W/90 GL-5).

Standard volume: 400cc replace volume: 350cc





5.8 Alternator and starting motor



Specification

Limitation of gear inner diameter: 22.1mm

Torque:

Fly wheel nut: 5.0-6.0 kgf-m

Bolt 8mm: 1.5-2.0 kgf-m

Oil filter screen cover: 1.3-1.7 kgf-m

Fixed bolt of starting clutch: 9.0-10.0 kgf-m inject oil on thread

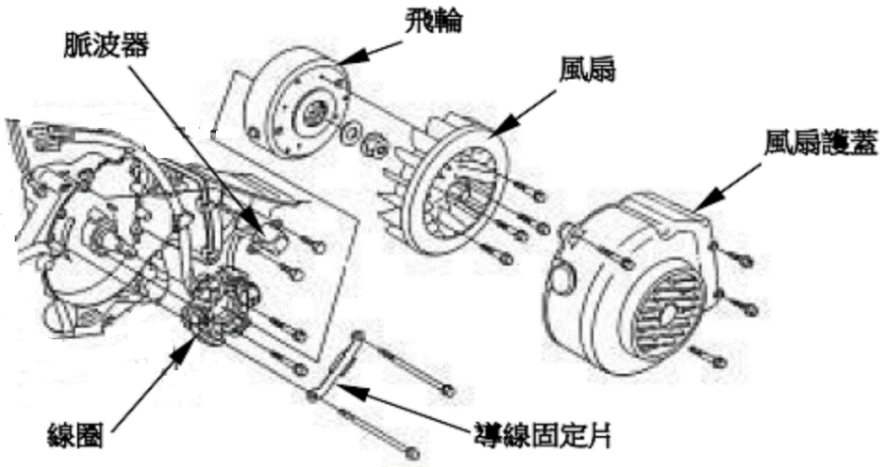
Allen bolt of staring clutch: 1.0-1.4 kgf-m add binder,

Specific tools:

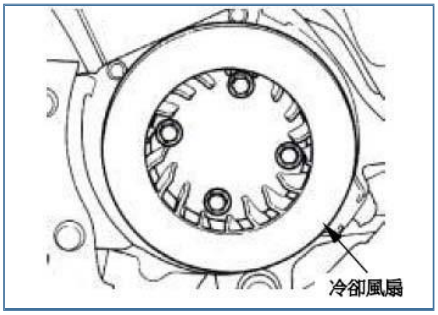
Fly wheel extractor, general fixer

Alternator

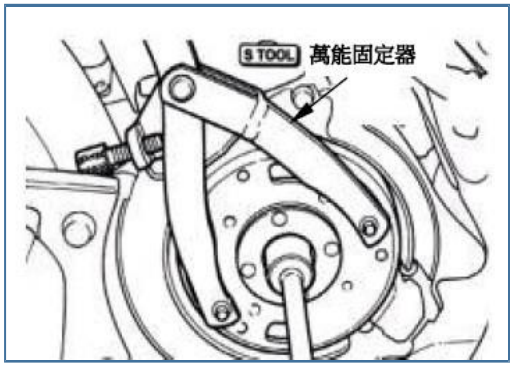
Disassembly

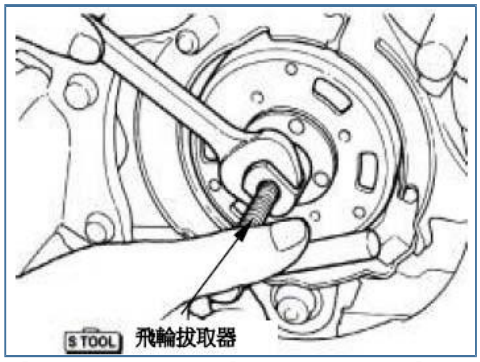


Remove fly wheel: drain out engine oil, remove cooling fan cover (4 bolts).

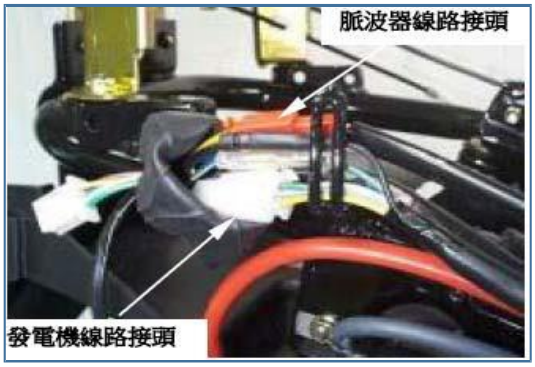


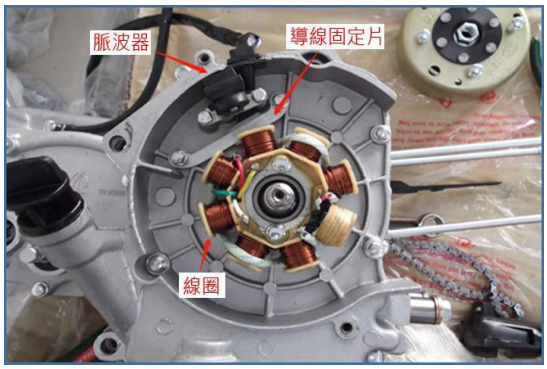
Hold the fly wheel with general fixer and remove the 10mm bolt. Then remove fly wheel with extractor. Note use protector to keep crank shaft safety.





Remove coil assembly: take out coil joint and pulser connector. Then remove pulser, coil and 6 bolts on fixed plate, pull out coil assembly at last.



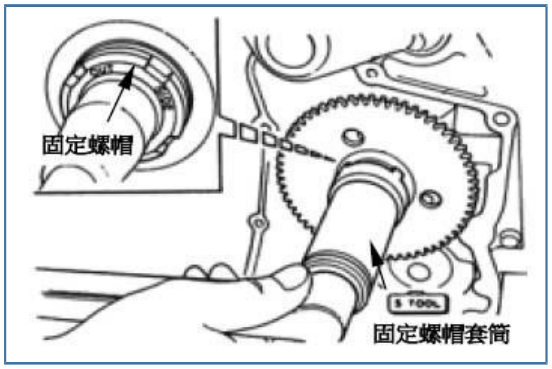


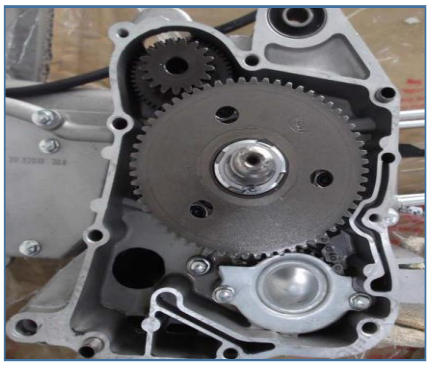
Remove right crankcase cover: remove 9 bolts, located pin and gasket. Clean the connecting surface, do not damage it.

Starting motor

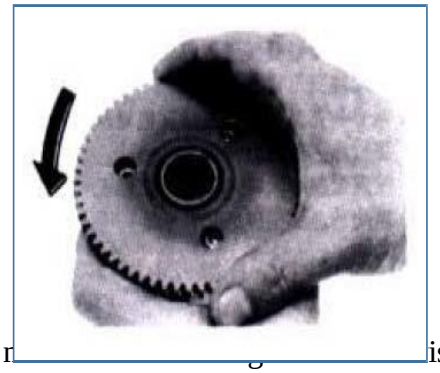
Disassembly

Hold gear by general fixer to remove 22mm bolt and gasket. Remove gear.





Remove clutch and idle gear.



Check

Install idle gear on starting motor, then fix the r ise at the same time.

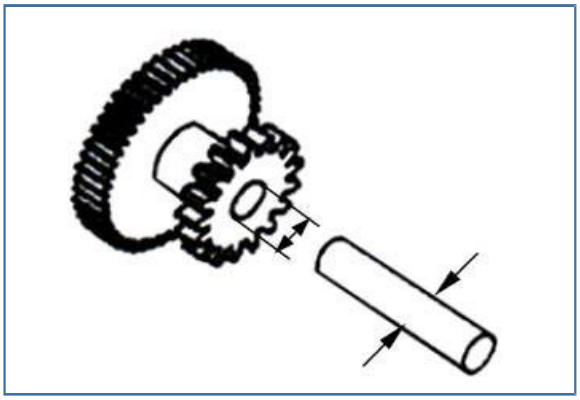
Check starting motor condition and measure inner diameter.

Limitation: less than 22.1mm

Check and measure inner and outer diameters of idle gear.

Inner diameter limitation: less than 10.05mm

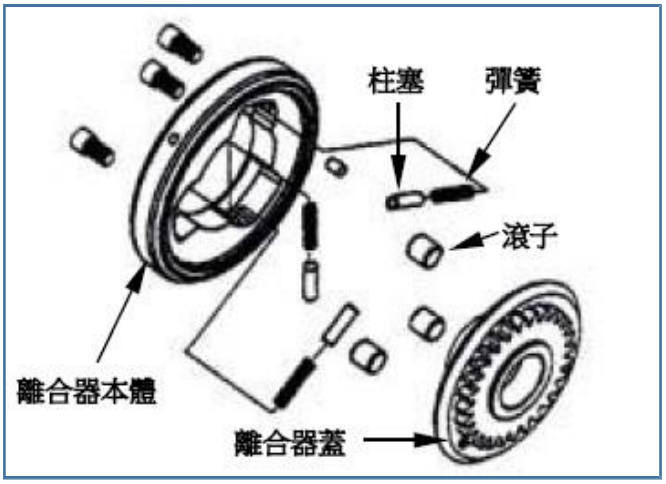
Outer diameter limitation: greater than 9.94mm



Disassembly

Remove 3 allen bolts on clutch, separate cover and clutch body. Then remove rotors, plunger and spring, check the rotors and plunger.

Install rotors, plunge and spring.

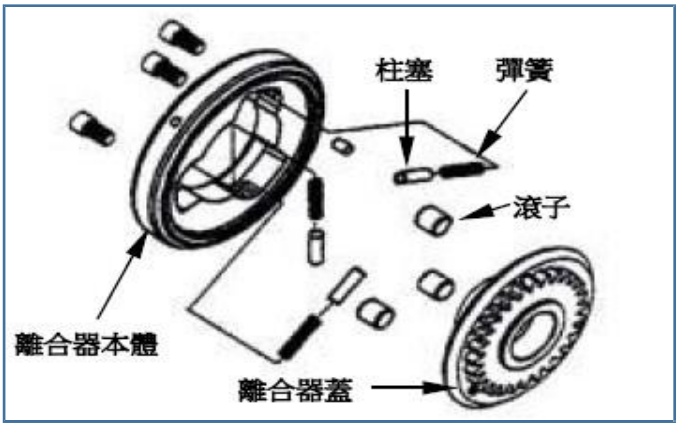


Assembly

In reverse order of disassembly.

Note: add binder on thread.

Torque: 1.0-1.4 kgf-m

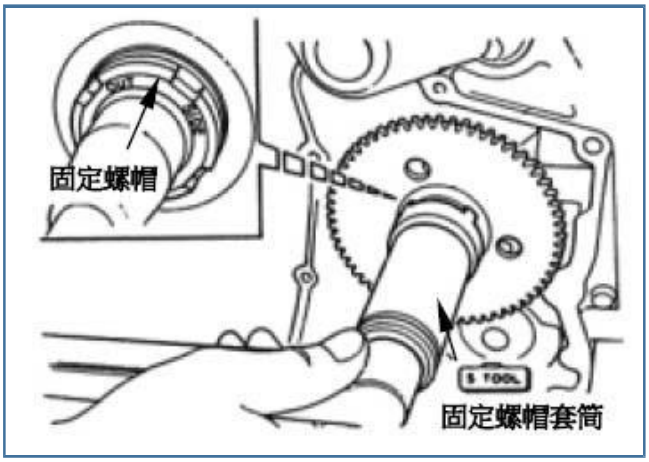


Install idle gear shaft, idle gear and starting clutch. Install drive and drive gears on starting clutch.

Fix drive and driven gear with general fixer, tight 22mm and gasket.

Note: smear grease on threads.

Torque: 9.0-10.0 kgf-m



Right crankcase cover assembly

Install located pin and new gasket.

Replace the smeared oil seal on the right of crankshaft.

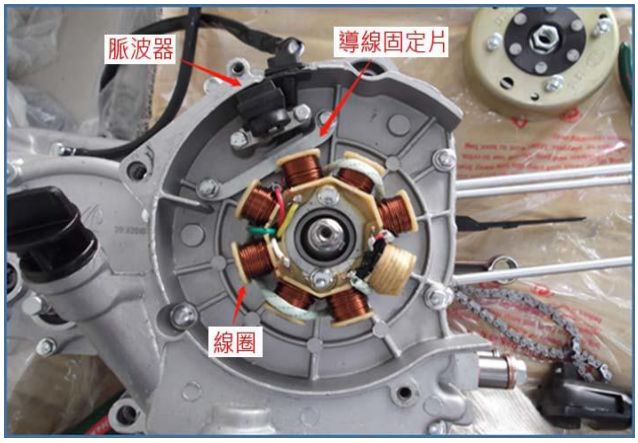
Install right crankshaft cover on crankcase (9 bolts).

Torque: 1.5-2.0 kgf-m

Alternator oil assembly

Install coil on right crankcase cover (2 screws), then install the pulser (2 screws) and fixed plate. Install the coil sleeve on the opening of crankcase cover at last.

Note: the coil is under the pulser.



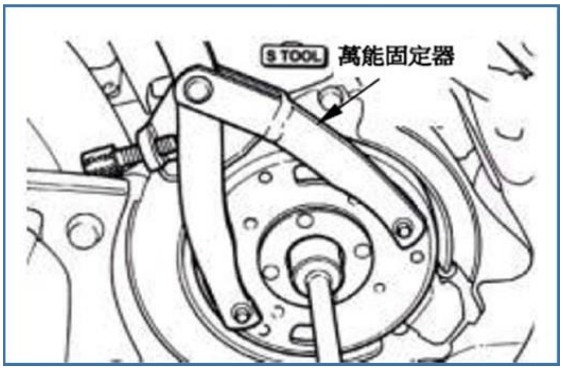
Install alternator connector and pulser connector.

Fly wheel assembly

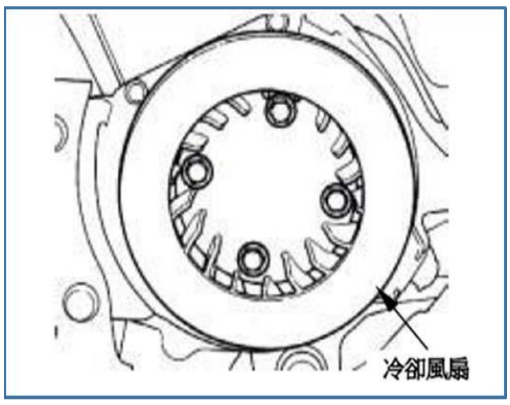
Keep the fly wheel clean.

Let crankshaft key in right position to fly wheel and assemble the fly wheel. Fixed the fly wheel with a general fixer, tight nut at last.

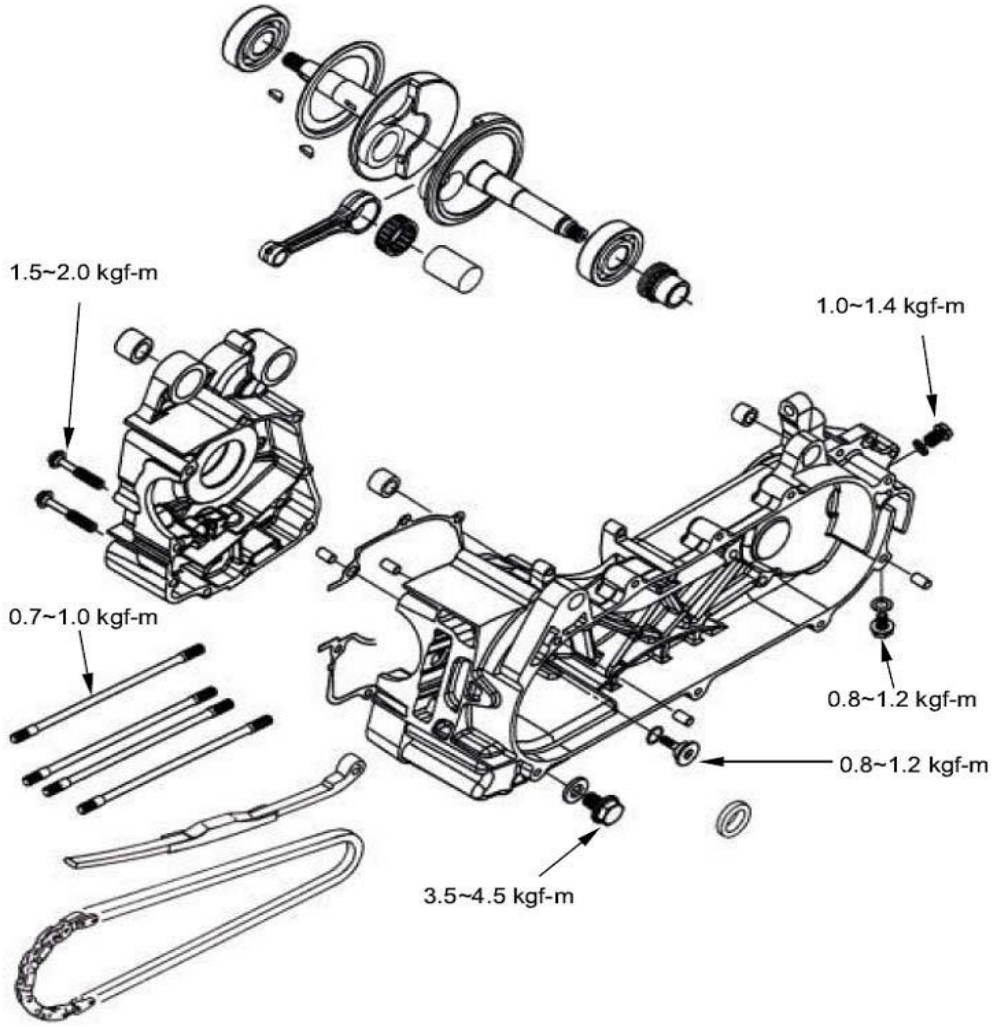
Torque: 5.0-6.0 kgf-m



Install cooling fan (4 bolts), remove its cover (4 bolts) to add engine oil.



5.9 Crankcase/crankshaft / balance shaft



Precautions

●Before disassemble crankcase, remove cylinder head, piston, cylinder, V type belt, alternator and staring clutch first.

●Once replace crankshaft bearing or timing chain, the whole crankshaft should be replace together.

Specifications

Item	Standard	Limitation
Connecting rod tip clearance	0.100-0.350mm	0.550mm
Radial clearance of connecting rod tip	0.006-0.016mm	0.050mm
Crankshaft vibration	-	0.100mm

Torque

Crankcase bolt	1.5-2.0 kfg-m
Cylinder/cylinder head double-head bolt	0.7-1.0 kgf-m
Engine drain bolt	3.5-4.5 kgf-m
Tensioner bolt of cam chain	0.8-1.2 kgf-m

Specific tool

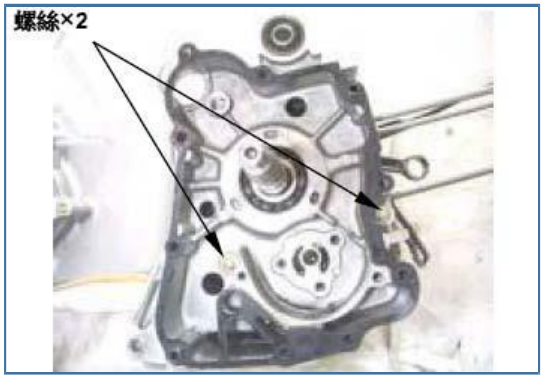
Inner plug-in bearing; extractor; outer extractor; bearing press machine; oil press machine.

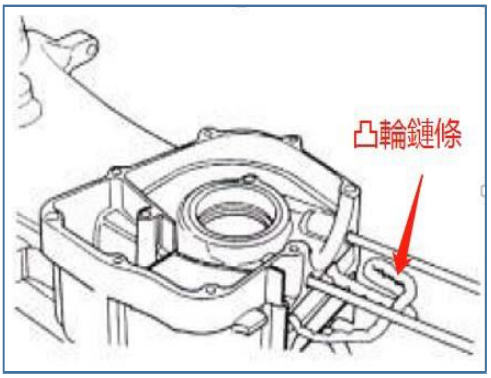
Troubleshooting

Abnormal noise: large bearing clearance; large clearance of crankshaft pin bearing; piston pin or piston worn; large balance shaft clearance.

Crankcase disassembly

Remove 2 bolts from right side of crankcase, then take 5 balance shaft cover bolts from left crankcase, last remove 3 pull rod bolts.

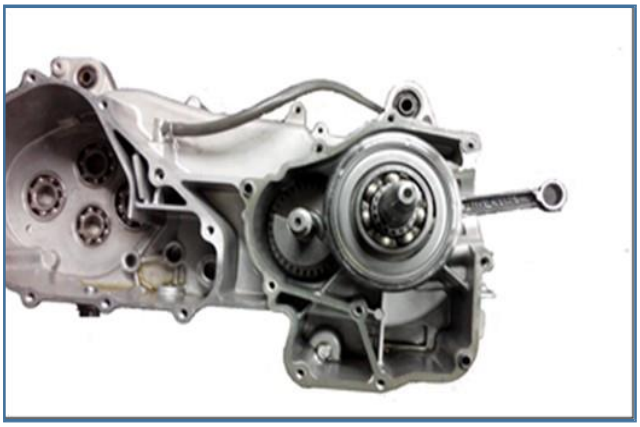




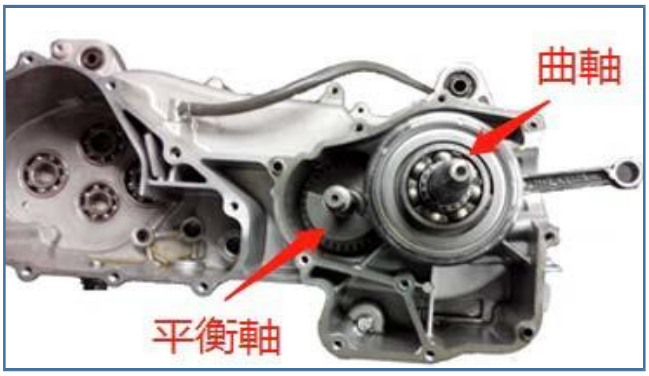
Disassemble right crankcase and separate left and right crankcases. Remove cam chain.

Note: don’t separate by hitting surface, it may cause oil leakage.

Take out cam chain before separate crankcases.

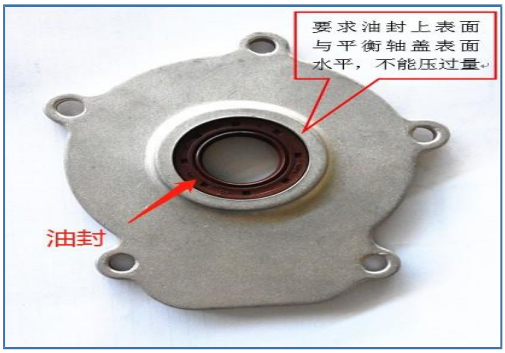


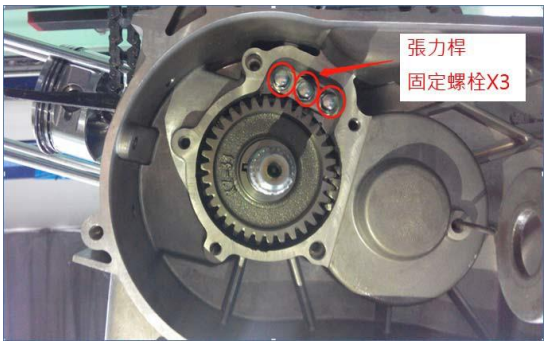
Remove crankshaft and balance shaft from left crankcase.



Remove gasket and 2 located pins, clean up the crankcase surface with gasket.

Remove balance cover oil seal, chain tension rod and 3 lock fixed bolts.

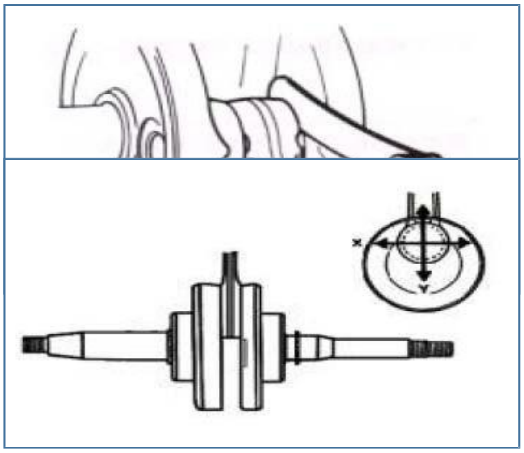




Crankshaft check

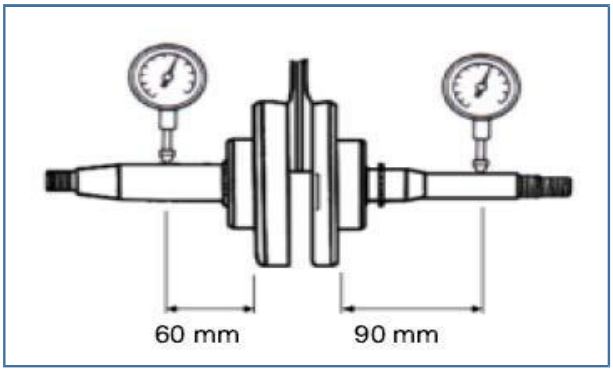
Measure the radial clearance of connecting rod.

If it greater than 0.55mm, replace.



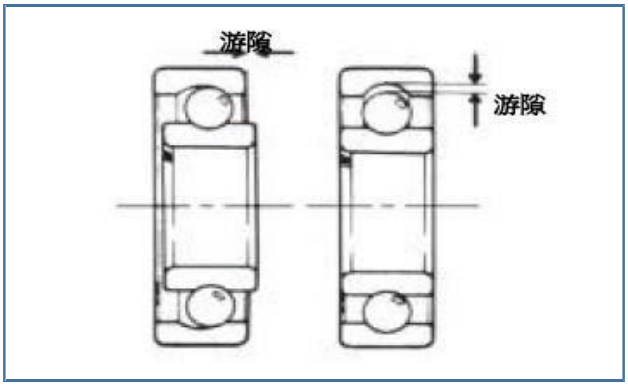
Put crankshaft on V groove pad, measure its vibration as pictures shows.

Limitation: 0.10mm



Bearing check

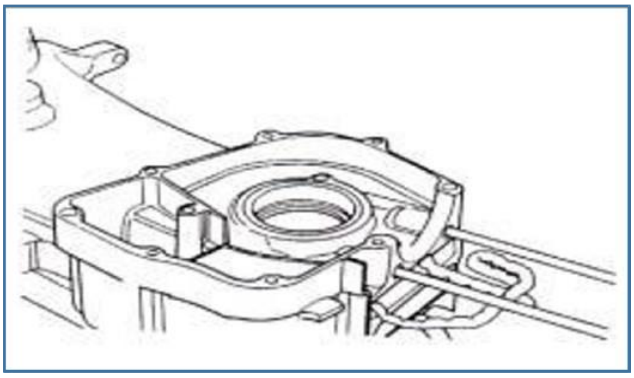
Turn bearing with finger, check its movement and inner connect condition. If there is noise or bad connect, replace the full crankshaft.



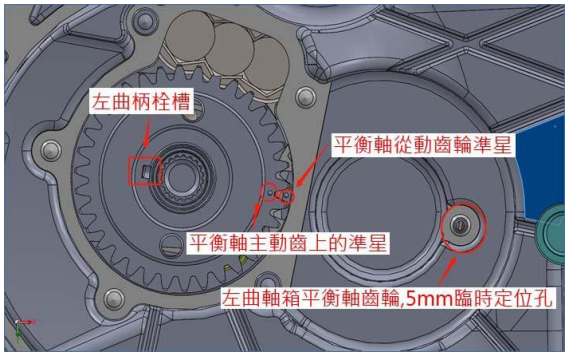
Crankcase assembly

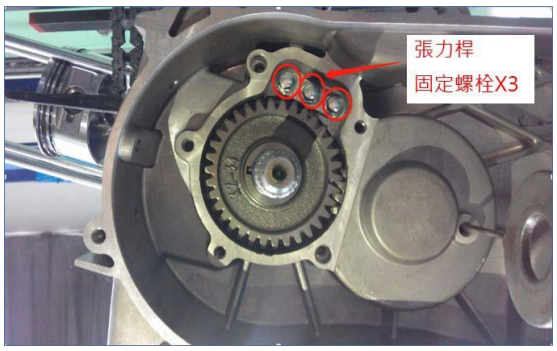
Install cam chain into the chain hole of right crankcase, enlarge chain at the same time.

Note: do not damage the chain when install crankshaft.



Fix the driven gear of balance shaft with a 5mm located needle temporary when install balance shaft driving gear. Make the driven gear mark faces to drive gear mark and bolt groove of left crank handle, install it.



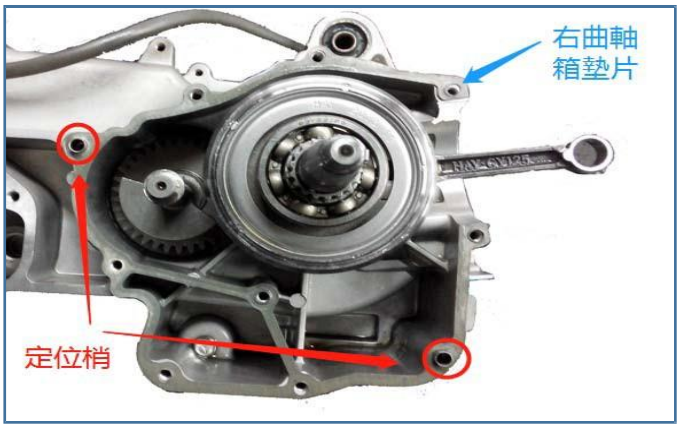


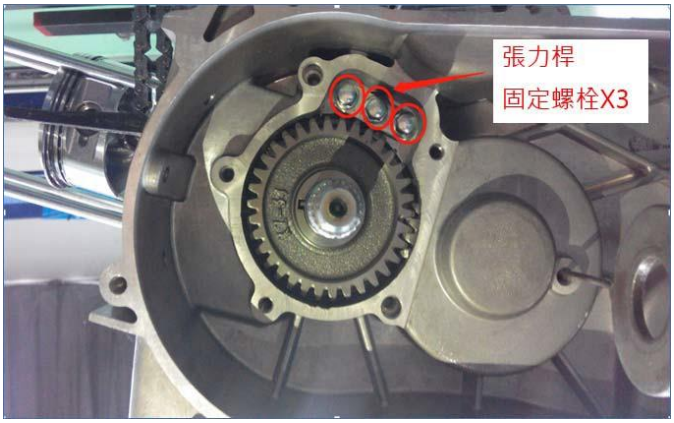
Install 2 located pins and new gaskets.

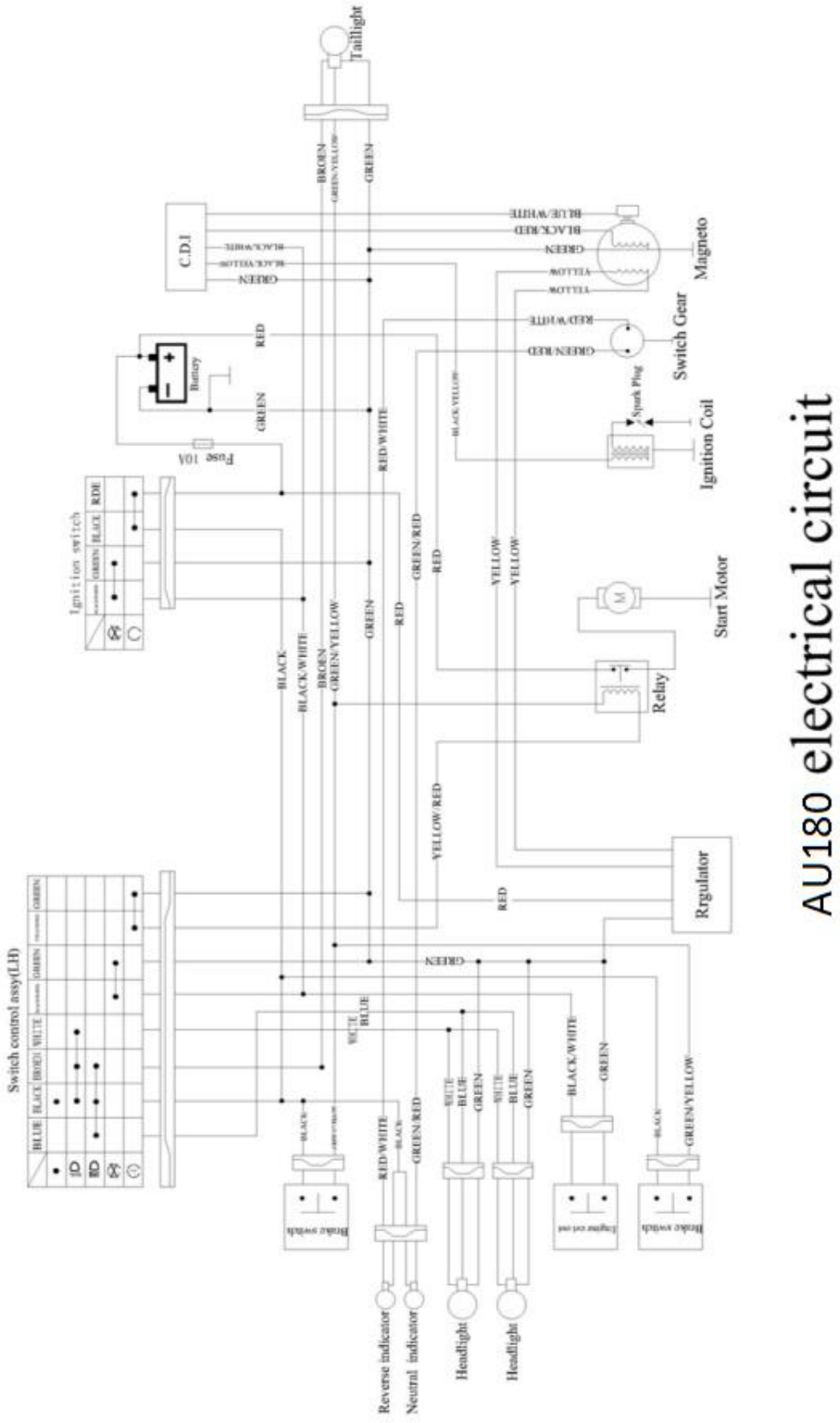
Install right crankcase and tight the 2 crankcase bolts.

Torque: 1.5-2.0 kgf-m

Install the tension rod of cam chain, tight with 3 lock fixed bolts.






AU180 electrical circuit
Taillight
C.D.I
Magneto
Switch Gear
Battery
Spark Plug
Ignition Coil
Fuse 10A
Ignition switch
Start Motor
Relay
Rrgulator
Switch control assy(LH)
Reverse indicator
Neutral indicator
Headlight
Headlight
BROWN
GREEN/YELLOW
GREEN
BLUE/WHITE
BLACK/RED
YELLOW
RED/WHITE
GREEN/RED
BLACK/YELLOW
RED
BLACK
BLACK/WHITE
YELLOW/RED
WHITE
BLUE