

CFMOTO

CF125T-19

SERVICE MANUAL

CF150T

VERSION A

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ZHEJIANG HONGQIAO POWER MANUFACTURING CO.,LTD.
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FOREWORD

This manual contains an introductory description of procedures for inspection, maintenance, overhaul, disassembly & assembly, removal and installation of components and parts, troubleshooting and service data together with illustrations of our scooters CF125T-19/150t.

Chapter 1: general service information, tools, vehicle structure and technical data.

Chapter 2: inspection and adjusting key points, service guideline.

Chapter 3: and later: disassembly of parts and components, installation, overhaul and troubleshooting.

The manufacturer reserves the right to make improvements or modifications to the products without prior notice. Overhaul and maintenance should be done according to the actual state and condition of the scooters.

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Conversion Table

Item	Example	Conversion
Pressure	200Kpa (2.00l _{gf} /cm ²) 33kpa(250mmHg)	1kgf/cm ² =98.0665kpa 1kpa=1000pa 1mmHg=133.322Pa=0.133322Kps
Torque	18 • N(1.8kgf-m)	1kgf • m=9.80665N • m
Volume	419ml	1ml=1cm ³ =1cc 1l=1000cm ³
Force	12N (1.2kgf)	1kgf=9.80665N

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Cautions for Operation Safety Cautions

Warning: Hazardous components in exhaust.
Do not run the engine in a enclosed or poorly ventilated place for long time.



Caution: Battery liquid(dilute sulfuric acid) is highly caustic and may cause burns to skin and eyes. Flush with water if splashed to skin and get immediate medical attention. Flush with water if splashed to clothes to avoid burns. Keep battery and liquid away from reach of children



Caution: Wear proper work clothes, cap and boots. If necessary, wear dust-glass, gloves and mask if necessary.



Warning: Do not touch the engine or muffler with bare hands after the engine has just stopped to avoid scalding. Wear long-sleeve work clothes and gloves for operation.



Warning: Coolant is poisonous. Do not drink or splash to skin, eyes or clothes. Flush with plenty of soap water if splashed to skin. Flush with water and consult the doctor. If drinking the coolant, induce vomiting and consult doctor. Keep coolant away from reach of children.



Warning: Gasoline is highly flammable. No smoking or fire. Also keep against sparks. Vaporized gasoline is also explosive. Operate in a well-ventilated place.



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Caution: When charged, Battery may generate hydrogen which is explosive. Charge the battery in a well-ventilated place.



Warning: Be careful not to get clamped by the turning parts like wheels and clutch.



Warning: The asbestos dust on the brake drum is carcinogenic is breathed in.
Do not clean off the dust with compressed air.
Use cleaning detergent to avoid dust proliferation.



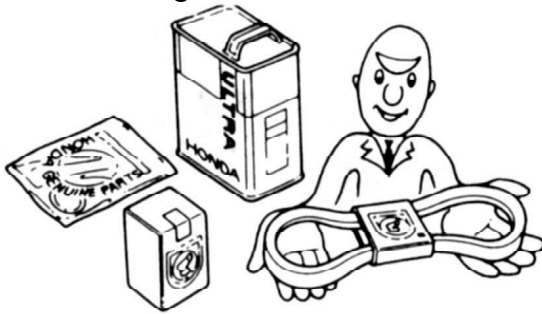
Warning: When more than two people are operating, keep reminding each other for safety purpose.



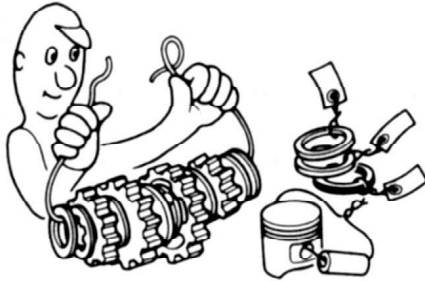
Cautions for Disassembling and Assembling

- Use genuine CFMOTO parts, lubricants and grease
- Clean the mud, dust before over hauling

1



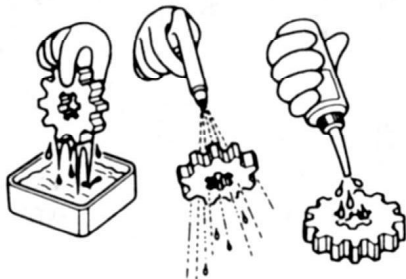
- Place and store the disassembled parts Separately in order for correct assemble.



- Replace the disassembled washers, o-rings, Piston pin circlip, cotter pin with new ones. Elastic circlips might get distorted after Disassembled. Do not use the loosed circlips.



- Clean and blow off the detergent after disassembling the parts. Apply lubricants on the surface of moving parts.

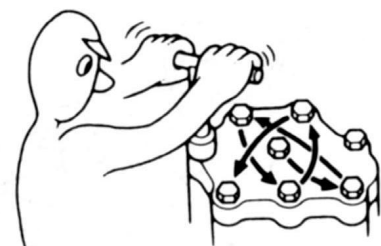
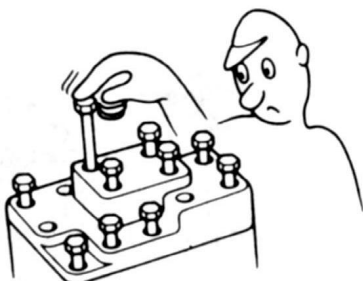


- Measure the data during disassembly for correct assembling.



- If not knowing the length of screws, install the screws one by one and tighten with same torque.

- Pre-tighten the bolts, nuts and screws, then tighten according to the specified torque, From big to small and from inner side to outer side.

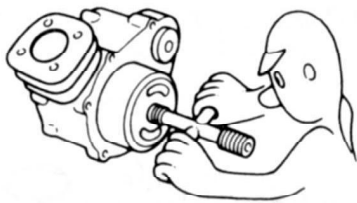


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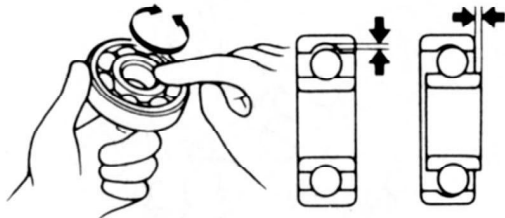
■ Check if the disassembled rubber parts are aged and replace if necessary. Keep the rubber parts away from grease.



■ Use special tools wherever necessary



■ Turn the ball bearing with hands to make sure the bearing will turn smoothly. Replace if the axial or radial play is too big. If the surface is uneven, clean with oil and replace if the cleaning does not help. When pressing the bearing into the machine or to the shaft, replace the bearing if it could not be pressed tight.



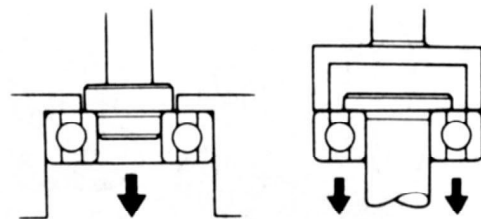
■ Keep the bearing block still when blowing dry the bearing after washing clean. Apply oil or lubricant before assembling.



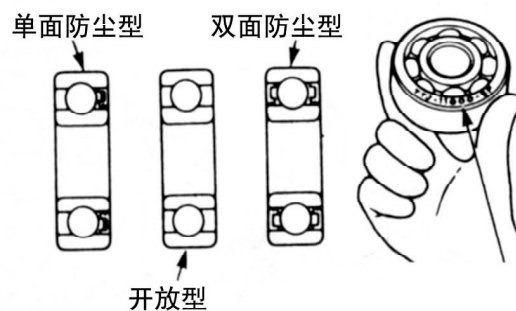
■ Apply or inject recommended lubricant to the specified parts.



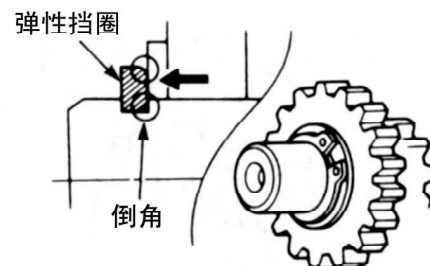
■ If the disassembling of pressed ball bearing is done by pressing the balls, do not use the disassembled bearing.



■ Install the one-side dust-proof bearing in The right direction. When assembling the open type or double-side dustproof bearing, install with manufacturer's mark outward.



■ Install the elastic circlip properly. Turn the circlip after assembling to make Sure is has been installed into the slot.



■ After assembling, check if all the tightened parts are properly tightened and can move smoothly.

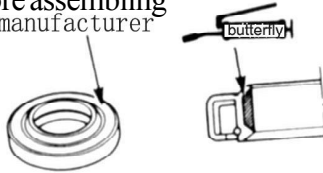


■ Brake fluid and coolant may damage coating, plastic and rubber parts. Flush these parts with water if splashed.

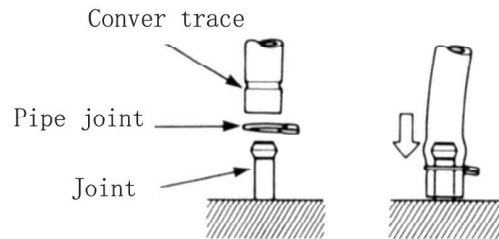


■ Install oil seal with the side of manufacturer's mark outward.
do not fold or scratch the oil seal lip
apply grease to the oil seal lip

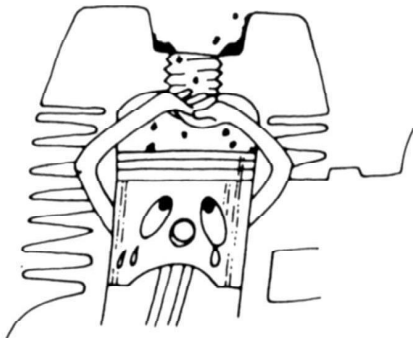
Identification of
before assembling
manufacturer



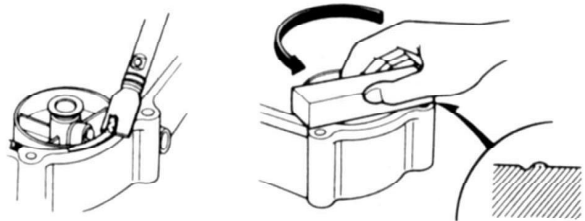
■ When installing pipes, insert the pipe till the end. Fit the pipe clip, if any, into the groove. Replace the pipes that cannot be tightened.



■ Do not mix mud or dust into engine or the hydraulic brake system.



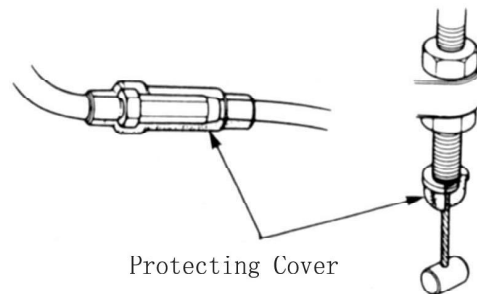
■ Clean the gaskets and washers of the engine cases before assembling. Remove the scratches on the contact surfaces by polishing evenly with an oilstone.



■ Do not twist or bend the cables too much. Distorted or damaged cables may cause poor operation.



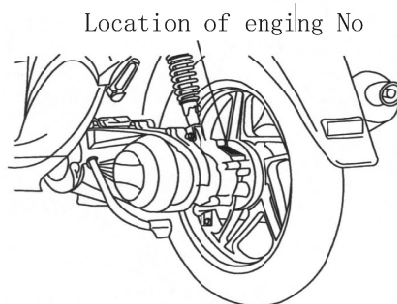
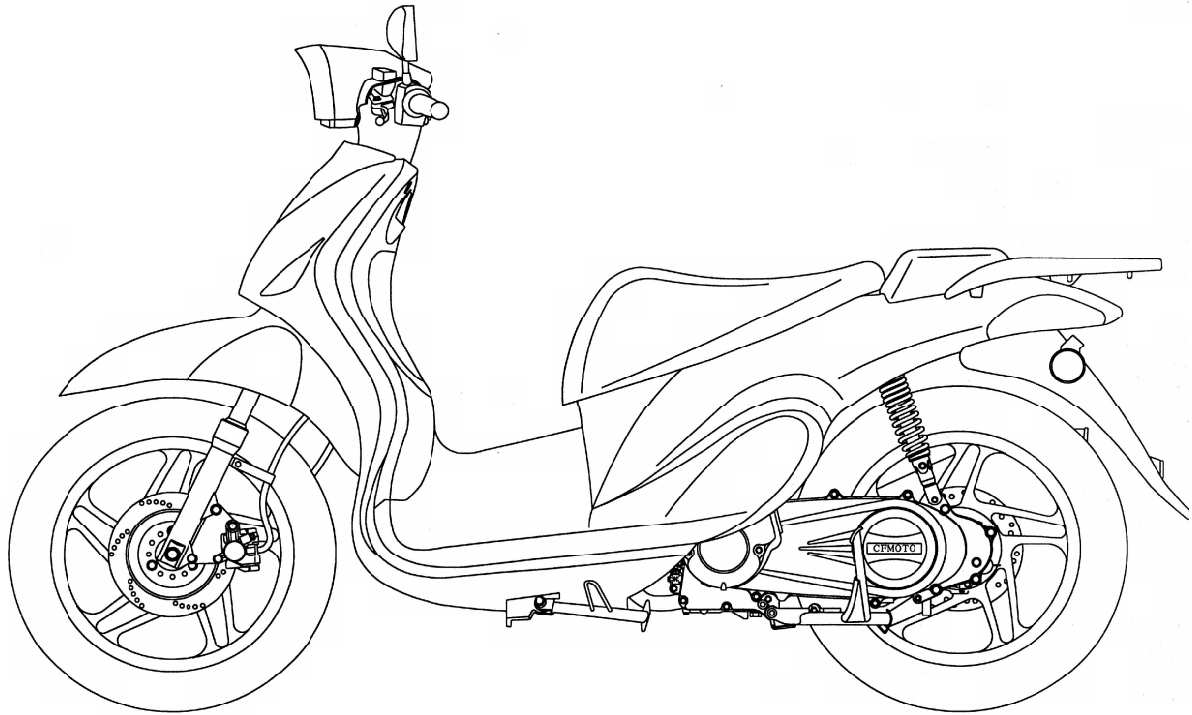
■ When assembling the parts of caps, insert the caps to the grooves, if any.



Location of serial No

CF125T-19
V. I. N: LCETDJPk~
Engine No: 1P52MI-A ~

CF150T
LCETDKP1~
1P58MJ~



Main Technical Parameter

1

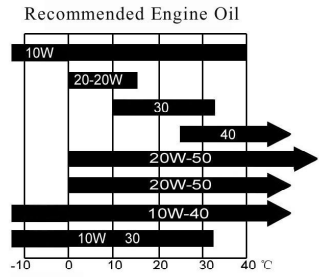
Item			Parameters		
Models			CF125T-19	CF150T	
Length			2034mm		
Width			700mm		
Height			1186mm		
Wheel Base			1353mm		
Engine Model			1P52MI-A	1P58MJ	
Displacement			124.6ml	152.7ml	
Fuel			90 Octane or above		
Dry Weight			126kg		
Number of Passengers			2 人(Inl. Driver)		
Max. Load			150kg		
Tyre		Front	100/80—16		
		Rear	110/80—16		
Min. Ground Clearance			140mm		
Turning Radius			4.0m		
Engine	Starting		Electric Start		
	Engine Type		4 Stroke Gasoline Engine		
	Cylinder Arrangement		Single Cylinder, Horizontal		
	Combustion Chamber		Semi-spherical		
	Valve Drive		OHC Chain Drive		
	Bore×Stroke		52.4×57.8mm	58×57.8mm	
	Compression Ration		10.3：1		
	Max. Power		6.5kw / 7500r/min	7.0kw/7500r/min	
	Max. Torque		8.8N·m / 6000r/min	9N·m/6000r/min	
	Valve Train	Inlet	Open	0° (1mm)BTDC	
			Close	30° ABDC	
		Outlet	Open	35° BTDC	
			Close	5° TDC	
	Lubrication Type		Pressure & Splash		
	Oil Pump Type		Rotor type		
	Oil Filter Type		Full flow filter		
	Cooling Type		Forced Water Cooling		

Item			Parameter	
Fuel device	Air Filter type		Paper filter element	
	Carburetor	Type	Vacuum Diaphragm	
		Diameter of valve	26mm	
Gearing	Clutch	Type	Dry, auto-centrifugal	
		Starting mode	Auto-centrifugal	
	Initial Transmission	Gear type	Bevel	
		Reduction ratio	3.7700/3.13	
	Secondary transmission	Gear type	Vertical	
		Reduction ratio	3.21	
	Gearbox	Type	V type teeth belt	
		Starting mode	Auto CVT	
		Transmission ratio	2.500~0.800	
Steering device	Steering angle	Right	38°	
		Left	38°	
Brake type		Front	Disk	
		Rear	Drum	Disk
Buffer gear	Suspension	Front wheel	Cylinder	
		Rear wheel	Swing arm	
Frame type			Welded steel tube and plate	

Troubleshooting Datasheet

Lubricating device

1

Item		Standard	Service Limit
Oil Capacity	Replacing	0.8l	—
	Full Capacity	1.0 l	—
		<ul style="list-style-type: none"> Special for 4-stroke Motorcycle SAE-10W-40、20W-50 Use substitute oil only within the following category。 API Category: SE or SF Engine oil SAE Category: Select from the left table according to the temperature 	
Oil Pump Rotor	Clearance of Inner & Outer rotor	0.15mm	0.20mm
	Body Clearance	0.15 ~ 0.23mm	0.25mm
	Surface Clearance	0.05 ~ 0.10mm	0.12mm

Item		Standard
Fuel Tank Capacity	Full Capacity	7.0l
Carburetor	Mark	BS26
	Main Jet	97.5
	Low Speed jet	15
	Float Chamber level	30 ± 0.5mm
	Idle Speed	1600 ± 150r/min

Cooling Device

Item		Standard
Coolant capacity	Full volume	0.88l
	Volume of secondary water tank	0.11l
	Standard density	30% (rate when using original solution)
Opening pressure of water inlet cap		108kPa(1.1kgf/cm ²)
Thermostat	Temperature / valve open	72 ± 2C [°]
	Temperature/valve full open	88 C [°]
Overall open displacement		3.5-4.5mm

Cylinder head、valve

Item			Standard	Service limit
Compression pressure of cylinder			700kpa(7.0kgf/cm ²)-260r/min	—
Valve clearance		IN	0.05mm	—
		EX	0.20mm	—
Deflection degree of cylinder head			—	0.05mm
Camshaft	Height of cam tip	IN	30.74-30.86mm	30.69mm
		EX	30.33-30.45mm	30.28mm
Valve rocker	Inner diameter of rocker	IN/EX	10.000-10.015mm	10.10mm
	Outer diameter of rocker	IN/EX	9.978-9.987mm	9.91mm
Valve guide cover	External diameter of valve rod	IN	4.975-4.99mm	4.965mm
		EX	4.955-4.97mm	4.945mm
	Inner diameter of valve guide	IN	5-5.012mm	5.04mm
		EX	5.012mm	5.04mm
	Clearance between valve rod and guide	IN	0.01-0.037mm	0.075mm
		EX	0.03-0.057mm	0.095mm
	Thrown height of guide	IN/EX	11.9-12.1mm	—
	Contact width of valve seat	IN/EX	0.9-1.1mm	1.8mm
Valve spring	Dead length (external/inner)	IN/EX	35.0/32.3mm	33.5/30.8mm

Auto CVT

Item		Standard	Service limit
Transmission Driving Wheel	Movable driven face comp.	24.007-24.028mm	24.07mm
	Outer diameter of driving face comp.	23.959-23.98mm	23.92mm
	Weight roller comp.	19.95-20.05mm	19.45mm
Belt width		21.7-23.3mm	20.7mm
Clutch driven face	Thickness of friction disc	—	2.75mm
	Inner diameter of clutch outer comp.	124.5-124.2mm	125mm
	Dead length of clutch spring	144-146mm	140mm
	Outer diameter of driven face	33.95-33.975	33.92mm
	Inner diameter of movable driven face	34.000-34.025mm	34.06mm

Deceleration Device

Item		Standard
Engine oil	Replacement	0.15L
	Disassembly	0.15L
Recommended deceleration engine oil		SAE15W-40/SF

Starting motor

Item		Standard	Limit
Starting motor	Brush length	10mm	7mm

Crankshaft 、Piston、Cylinder

Item			Standard (mm)		Limit (mm)	
			CF125T	CF150		
Crankshaft	Shaft big end side	Axial clearance	0.16-0.304		0.5	
		Radial clearance	0.005-0.017		0.05	
	Play of crankshaft		--		0.10	
Piston	Piston installing direction		The seal “in” toward inlet side		--	
	Outer diameter of Piston		52.37-52.39	57.97-57.99	52.32	57.92
	Piston pin inner diameter		15.002-15.008		15.04	
	Piston pin outer diameter		14.994-15.000		14.98	
	Shaft small end side inner diameter		15.016-15.034		15.05	
	Clearance of cylinder& piston		0.02-0.04		0.08	
	Clearance of piston & pin		0.002-0.014		0.04	
	Clearance of pin & shaft		0.016-0.040		0.06	
	Clearance between Piston ring & groove	Piston ring (一)	0.02-0.044		0.07	
		Piston ring (二)	0.02-0.044		0.07	
	Piston ring end gap	Piston ring (一)	0.15-0.30		0.45	
		Piston ring (二)	0.10-0.25		0.45	
		Oil ring	0.2-0.7		0.9	
	Installing direction, piston ring		Upper seal		--	
Cylinder	Inner diameter		52.4-52.419	58-58.019	52.449	58.049
	Upper distortion		--		0.05	
	Roundness		--		--	
	Column		--		0.05	

Front wheel

Item			Standard	Limit
Front wheel	Bending, front wheel shaft		--	0.2mm
	Play of wheel rim	Vertical	0.8mm	2.0mm
		Horizontal	0.8mm	2.0mm
	Tire	Groove	--	1.6mm
		Air pressure	250kpa(2.5kgf/cm ³)	--

Rear wheel

Item			Standard	Limit
Rear wheel	Play of wheel rim	Vertical	0.8mm	2.0mm
		Horizontal	0.8mm	2.0mm
	Tire	Groove	--	1.6mm
		Air pressure	300kpa(3.0kgf/cm ³)	--

Brake system

Item		Standard	Limit
Front brake	Brake handle free travel	10-30mm	--
	Brake disc thickness	4mm	3mm
Rear brake	Brake handle free travel	10-30mm	--
	Brake disc thickness	4mm	3mm

Battery、 Charging system

Item				Standard
A C magneto Motor	Model			Permanent magnet A C type
	Output			3- phase A C
	Charging coil Resistance (20℃)			0.2-0.3Ω
Rectifier				Three-phase annular rectification Silicon controlled parallel-connection regulated voltage
Battery	Capacity			12V 8A h
	Term inal point voltage	Fully charged		12.8V
		Insufficient charge		<11.8V
	Charging current/time	Standard		0.9A /5~10H
		Quick		4A /1H

Ignition system

Item		Standard
Ignition		CDI ignition
Spark plug	Type	NGK
	Standard	DPR7EA-9
	Option	
	Spark plug clearance	0.7-0.8mm
Ignition timing	Max. advanced angle	33° BTDC
Peak voltage	Ignition coil	≥ 150V
	Pulse generator	≥ 0.8V

Light 、 Panel 、 Switch、 Pickup coil

Item		Standard
Fuse	Main	20A
	Auxiliary	10Ax2 5Ax2
Light, Bulb	Head light (Hi/Lo)	12V-35/35W
	Brake light/tail light	12V-21/5W
	Turning light	12V-10Wx4
	Odometer indicator light	12V-1.7W
	Fuel level illumination light	12V-1.7W
	Turning indicator light	3.4W-12Vx2
	High beam indicator light	3.4W-12Vx1

Tightening torque

Item	Torque N·m(kgf·m)	Item	Torque N·m(kgf·m)
Bolt, nut 5mm	5(0.5)	Screw 5mm	4(0.4)
Bolt, nut 6mm	10(1.0)	Screw 6mm	9(0.9)
Bolt, nut 8mm	22(2.2)	Bolt with flange, 6mmSH	10(1.0)
Bolt, nut 10mm	34(3.5)	Bolt with flange, nut 6mm	12(1.2)
Bolt, nut 12mm	54(5.5)	Bolt with flange, nut 8mm	26(2.7)
		Bolt with flange, nut 10mm	39(4.0)

Notes: R O

Type	No. of Bolt & Nut	Thread diameter	Torque N·m(kgf·m)	Remarks
Checking、adjusting				
Check Gearbox oil /drain Bolt	1	8	22(2.2)	
Engine oil filter cover	1	36	20(2.0)	
Drain oil, bolt	1	12	25(2.5)	
Spark plug	1	12	12(1.2)	
Lubricating system				
Oil plump and mounting bolt	2	6	10(1.0)	
Screw, oil pump plate	1	3	2(0.2)	
Coolant system				
Water drain bolt	1	6	8(0.8)	
Water temperature indicator	1	R1/8	10(1.0)	
Impeller, water pump	1	7	10(1.0)	
Cylinder head/head cover				
Cylinder head cover bolt	2	6	10(1.0)	
Cylinder compound bolt	S2&L2	8	30(3.0)&30(3.0)	
Timing sprocket bolt	2	5	9(0.9)	
Tensioner spring holder bolt	1	8	10(1.0)	
Shaft, tensioner set thread pin	1	8	13(1.3)	
Belt CVT system				
Left side cover bolt	5	6	10(1.0)	
Gearbox nut	1	14	59(6.0)	
Clutch special nut	1	28	59(6.0)	
Clutch nut	1	12	53(5.3)	
AC Magneto motor				
AC Magneto motor nut	1	14	59(6.0)	
Flange bolt for casing	8	6	12(1.2)	
Overriding clutch inner hex bolt	3	6	12(1.2)	

Frame body**1**

Type	No. of Bolt & Nut	Diameter (mm)	Tightening torque N·m(kgf·m)	Remarks
Engine disassembly				
Engine suspension mounting bolt	2	10	55(5.6)	
Engine suspension shaft nut	1	10	55(5.6)	
Front wheel, Front suspension, Steering system				
Handlebar lock nut	1	25	68(7.0)	
Steering handle mounting nut	1	10	55(5.6)	
Front wheel axle nut	1	12	80(8.1)	
Absorber mounting bolt (upper)	4	8	40(4.1)	
Rear wheel ,Rear suspension				
Rear wheel axle nut	1	16	140(14.3)	
Absorber mounting bolt(upper)	2	10	55(5.6)	
Absorber mounting bolt(lower)	2	8	30(3.1)	
Rear fork mounting bolt	2	10	55(5.6)	
Brake system				
Front brake disc mounting bolt	5	6	12(1.2)	
Rear brake disc mounting screw	3	8	26(2.7)	
Front brake caliper mounting bolt	2	8	30(3.1)	
Rear brake caliper mounting bolt	2	8	30(3.1)	
Muffler				
Mounting nut (Front elbow)	2	8	26(2.7)	
Mounting bolt(Muffler barrel)	2	10	55(5.6)	
Other				
Screw (Taillight/brake light comp.)	6	4.2	1.8(0.18)	
Screw (Rear turning indicator light comp.)	2	4.2	1.8(0.18)	

Special tools

Tool name	Tool No.	Usage
Fuel system		
Adjusting tool for mixed gas screw		Adjusting mixed gas screw
Cylinder cover comp, Valve		
Valve assembly clipper	1P52MI-A-922-020000	Disassemble valve system
Valve guide reamer 5mm	152MI-234-022300-34B	Repair/clean the valve guide
Valve seat cutter		Amend the valve seat
Valve lapper 27mm(45° IN)	152MI-236-022301-27	
Valve lapper 27mm(45° EX)	152MI-236-022301-27	
Belt CVT system		
Multipurpose bracket	1P52MI-A-922-040000 152MI-922-070000	Disassemble nuts, Drive face/clutch cover Disassemble nut, driven face
Clutch spring press tool		
Deceleration system		
Drive shaft press device	152MI-921-070000	Press the drive shaft
Roller Bearing 6202	1P39MB-921-110001	Press driven shaft bearing
Roller Bearing 6201	1P39MB-921-080001	
Bearing removing combination set	1P52MI-A-922-050000 1P52MI-A-922-060000 1P52MI-A-922-080000	Disassemble bearing
Roller Bearing 22x50x14	172MM-921-030000	Install drive shaft bearing
Roller Bearing 6301	1P52MI-A-921-020000	
Roller Bearing 6004	1P52MI-A-921-010000	Install final shaft bearing
Roller Bearing 6205	1P52MI-A-921-030000	
Ac generator/starting motor		
Rotor puller	152MI-922-030000	Disassemble stator
Front wheel, Front suspension		
Steering system		
Bearing remover shaft	519-922-070001	Disassemble wheel bearing
Bearing remover head 12mm	519-922-070002	
Press tool handle A	519-922-070003	Install wheel bearing
Press tool sleeve 28X32	519-922-070004	
Guide tool 12mm	519-922-070005	
Locknut wrench	519-922-050001	Disassemble handlebar locknut /bearing adjusting nut
Handlebar bearing adjusting wrench	519-922-050002	
Bearing removing combination set	519-922-050000	Disassemble handlebar bearing outer ring
Rotor puller	519-922-050010	
Remover shaft	519-922-050003	
Remover hammer	519-922-050004	
Handlebar bearing retainer installer A 27x40mm	519-922-050005	Install top ball retainer
Installing shaft	519-922-050006	Install bottom retainer
Handlebar bearing retainer installer B 30x50mm	519-922-050007	Install inner ring
Installing shaft	519-922-050008	
Front fork cover, press tool	519-922-050009	
Charging, Ignition system		
Peak voltage regulator	519-922-150000	Measure peak voltage

Lubricant, Sealant

1

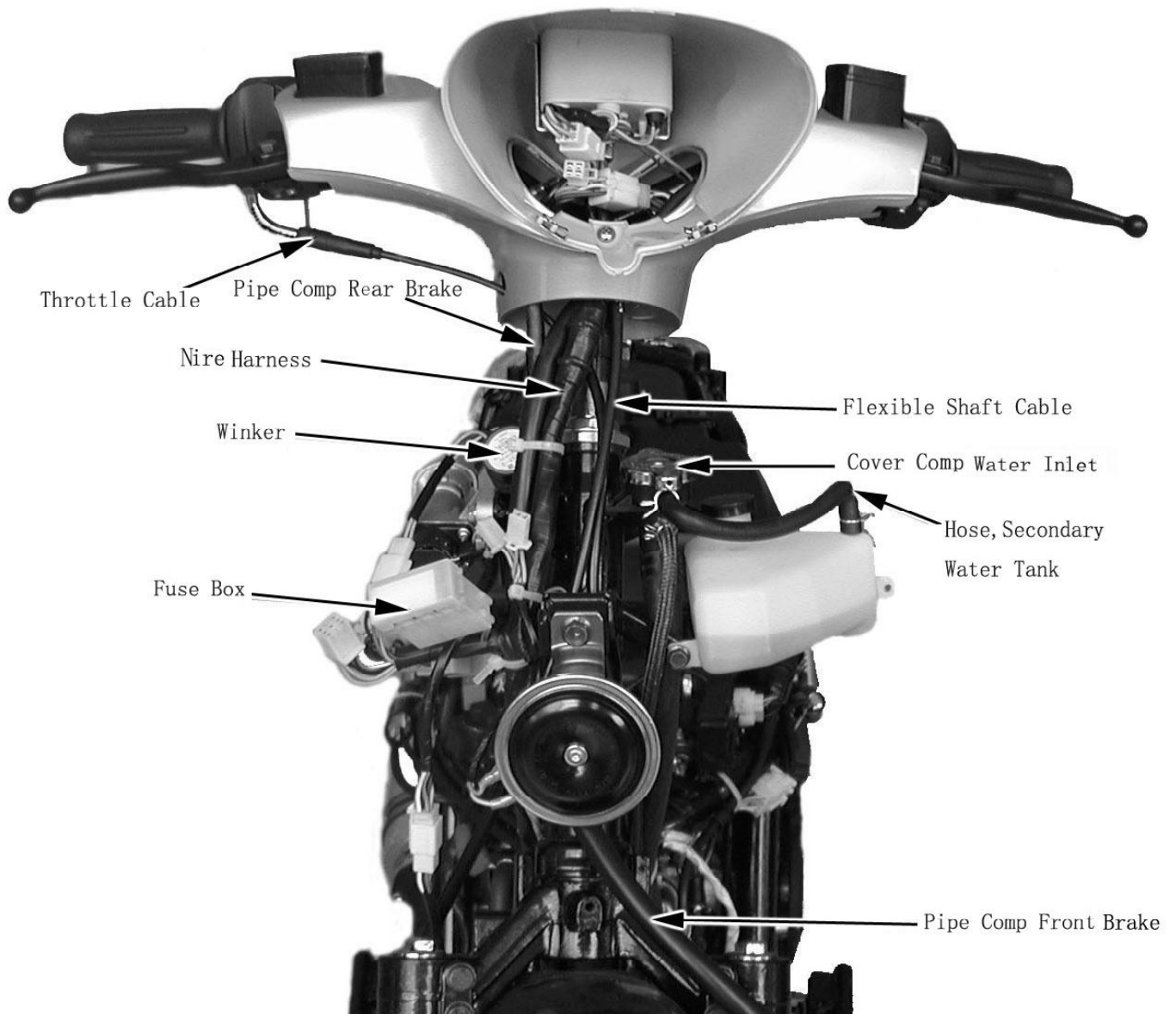
Application Areas	Notes	Grease type
Inner surface, cylinder cover Joint cone of installation, AC generator rotor Bearing/side, connection rod big end Inner side, connection rod small end Drive bearing surface, crankshaft Timing sprocket gear surface, crankshaft Driven gear teeth surface, oil pump Piston pin outside surrounding surface Piston ring groove Piston pin surface Piston ring Camshaft bearing rotating surface Timing sprocket gear surface Valve rock arm shaft surface Sprocket gear surface, oil pump Oil pump comp. Thread/joint surface, drive wheel nut Outside surrounding, oil seal and press Gear surface and shaft part, gear and gear shaft Camshaft surface and surrounding Inner surface, valve arm rock Valve rod		The special SAE standard of 4 cylinder motor: classify of 10w-40 API: SE or SF engine oil
Alarming switch, water temperature Screw thread part, timing sprocket mounting nut		Tightening agent for screw thread
Ball bearing, driven wheel (6901uu) Needle bearing, driven wheel Movable driven groove wheel running surface, driven wheel	5.0-5.5g (do not apply on driving belt)	Multi-functional Lubrication
Sealing surface, all o-rings Tightening bolt, cylinder body	Do not apply on the sharp point	Sealant

Lubricant, Sealant

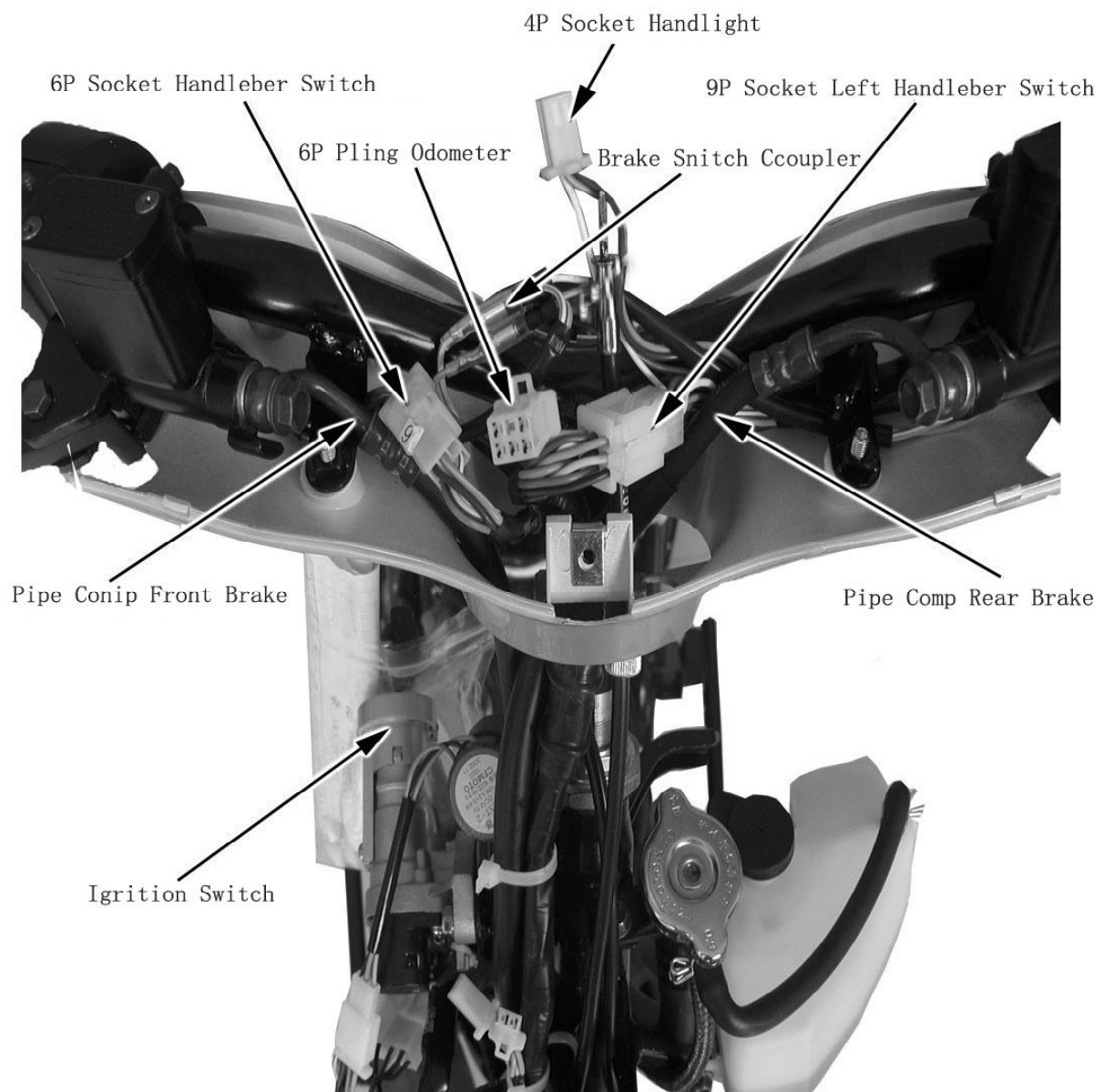
Application areas	Notes	Types
Bearing seat, motor head pipe Lip part, front wheel dust-proof seal Running part and camp part, rear brake comp. Joint, meter flexible cable Joint, throttle cable Throttle handlebar part Pivot, back bracket(L) Pivot, back bracket(R) Pivot, side stand Oil seal lip, rear fork Gear surface and running part, counter gear/small gear Axle part, main stand		Multi-purpose lubrication oil
Nut screw, rear wheel axle Sealing gasket, rear brake cam		Engine oil
Lip, dust-proof seal, lower part of front shock-absorber		No. 5 absorber oil
Inner surrounding, handle bar		Engine oil

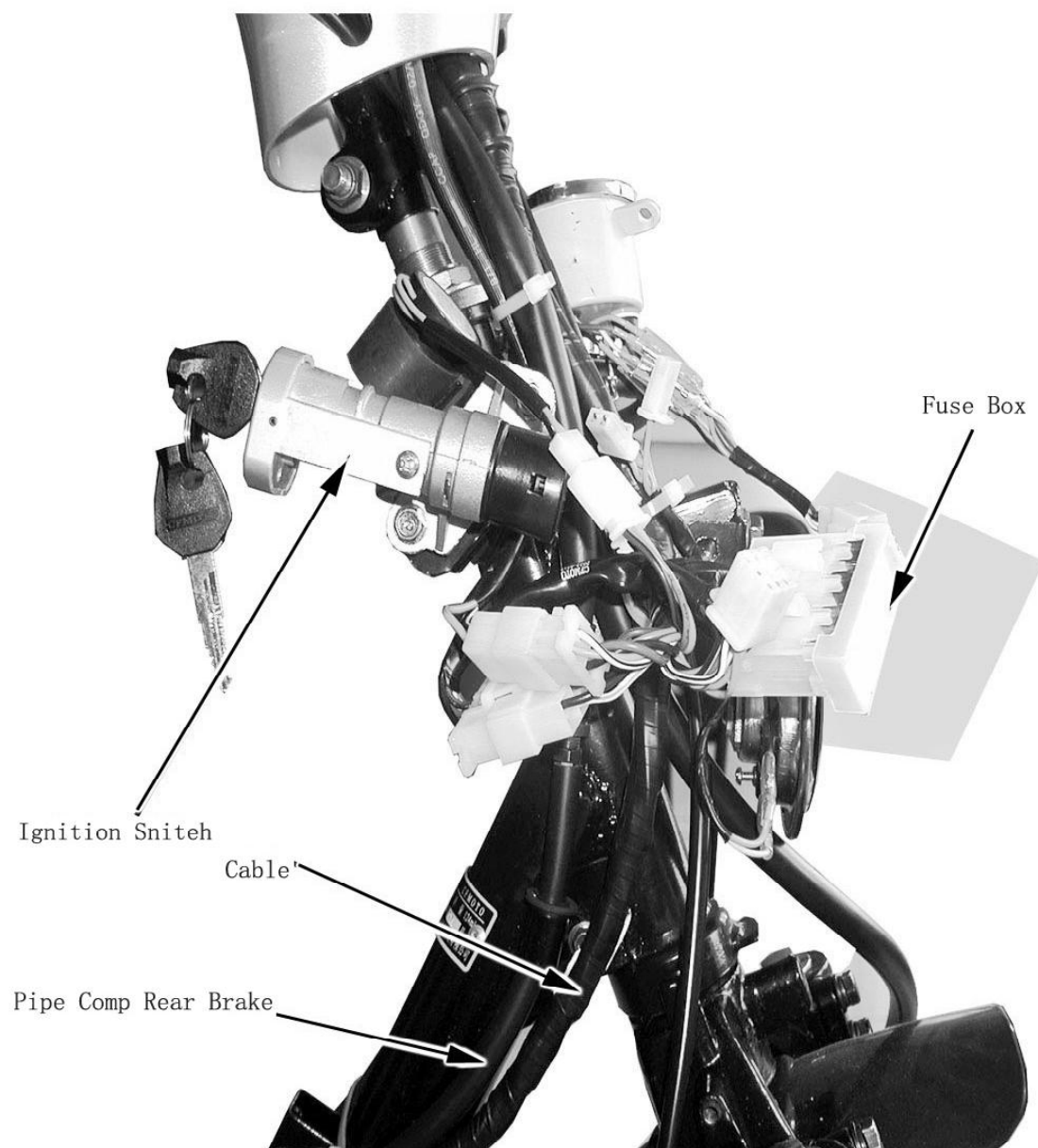
Wiring, Piping Diagram

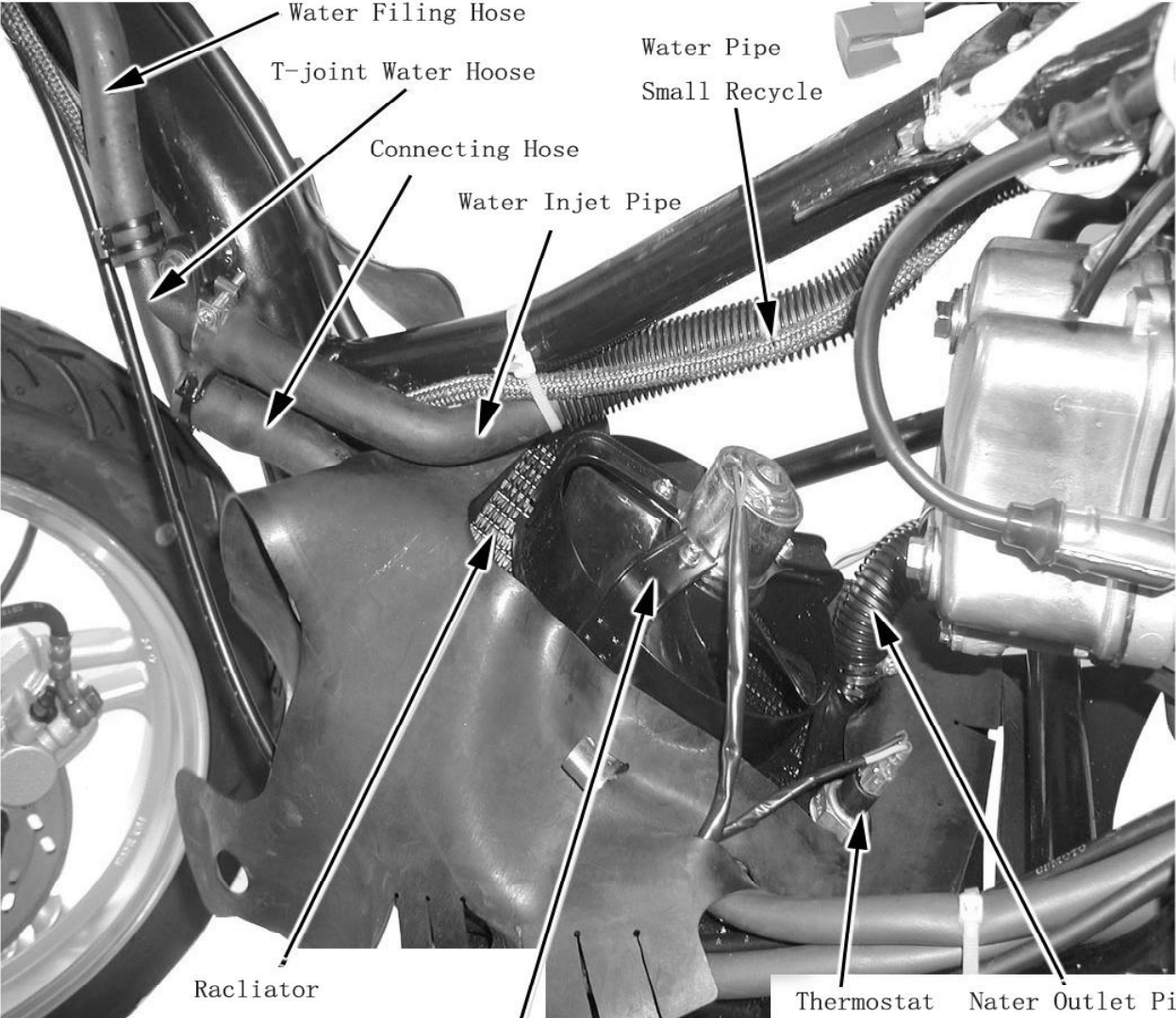
1

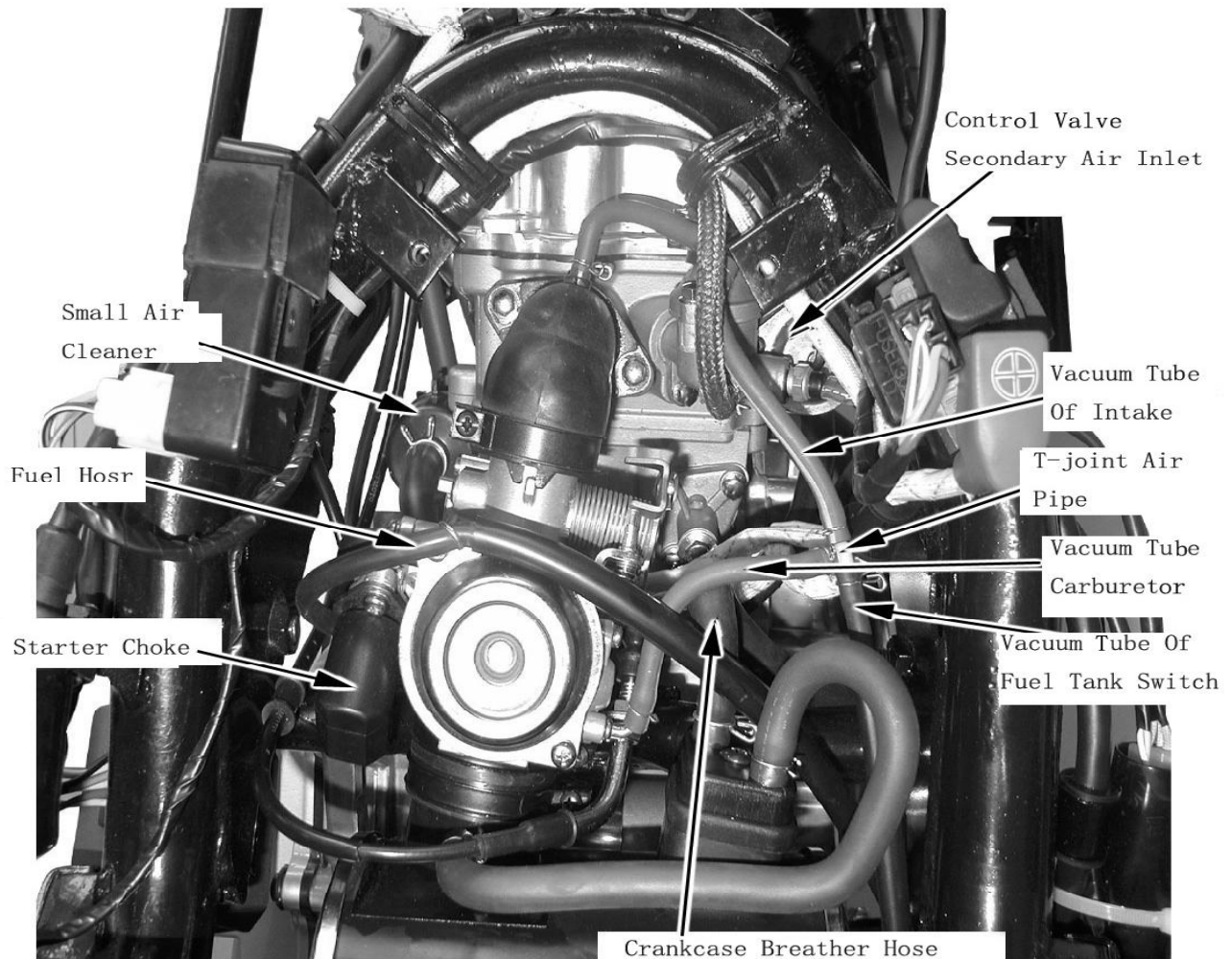


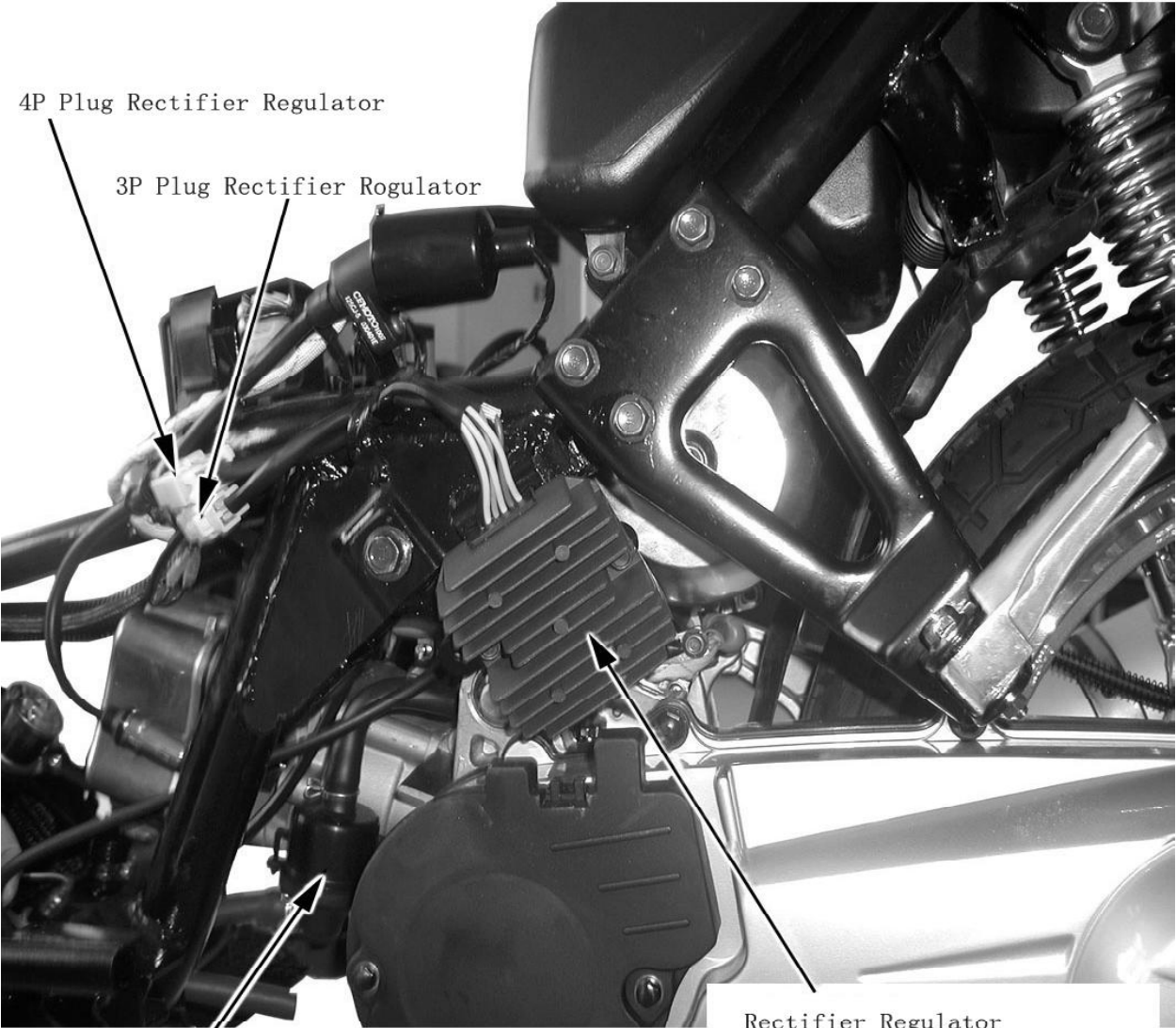
CFMOTO





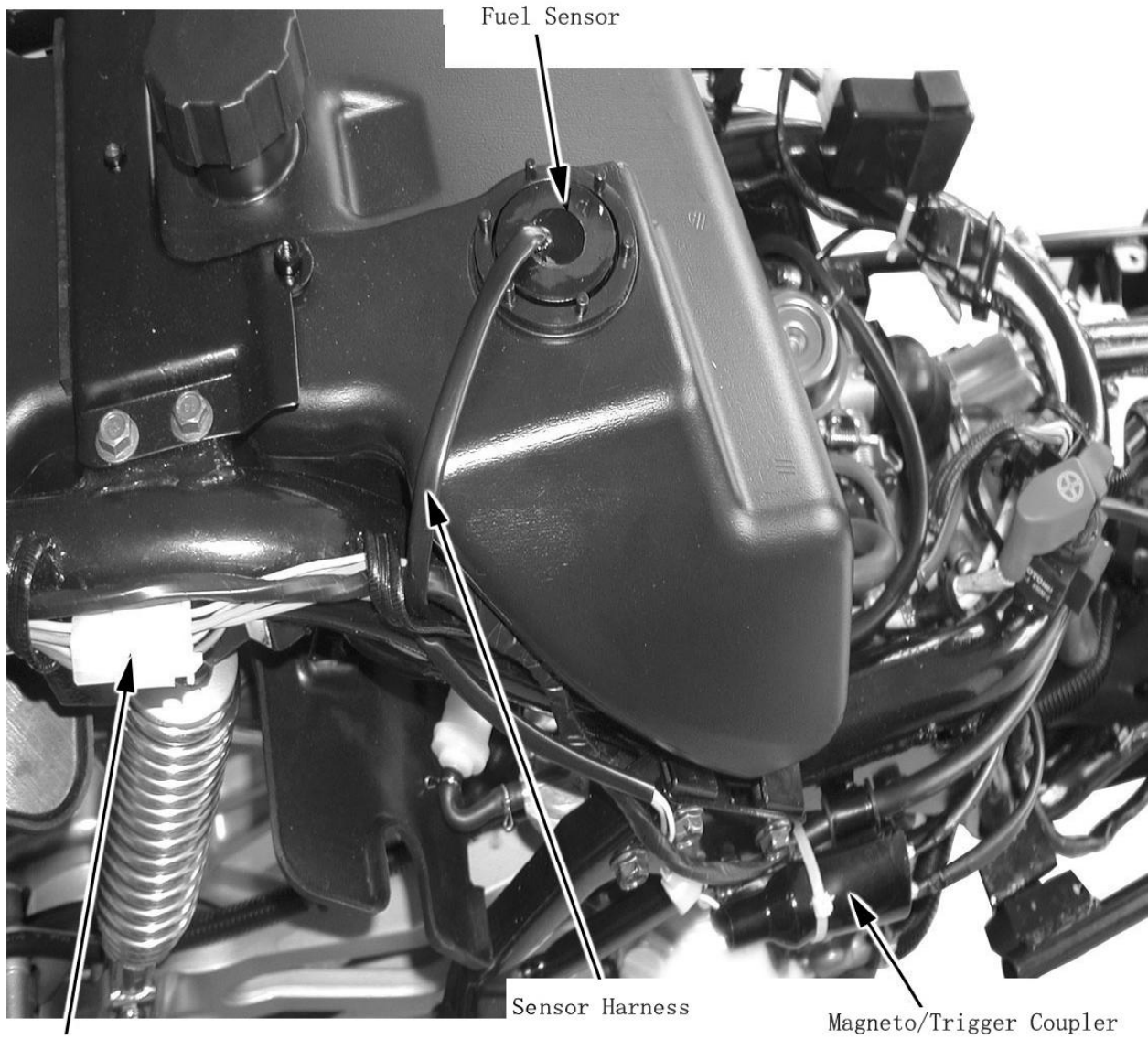






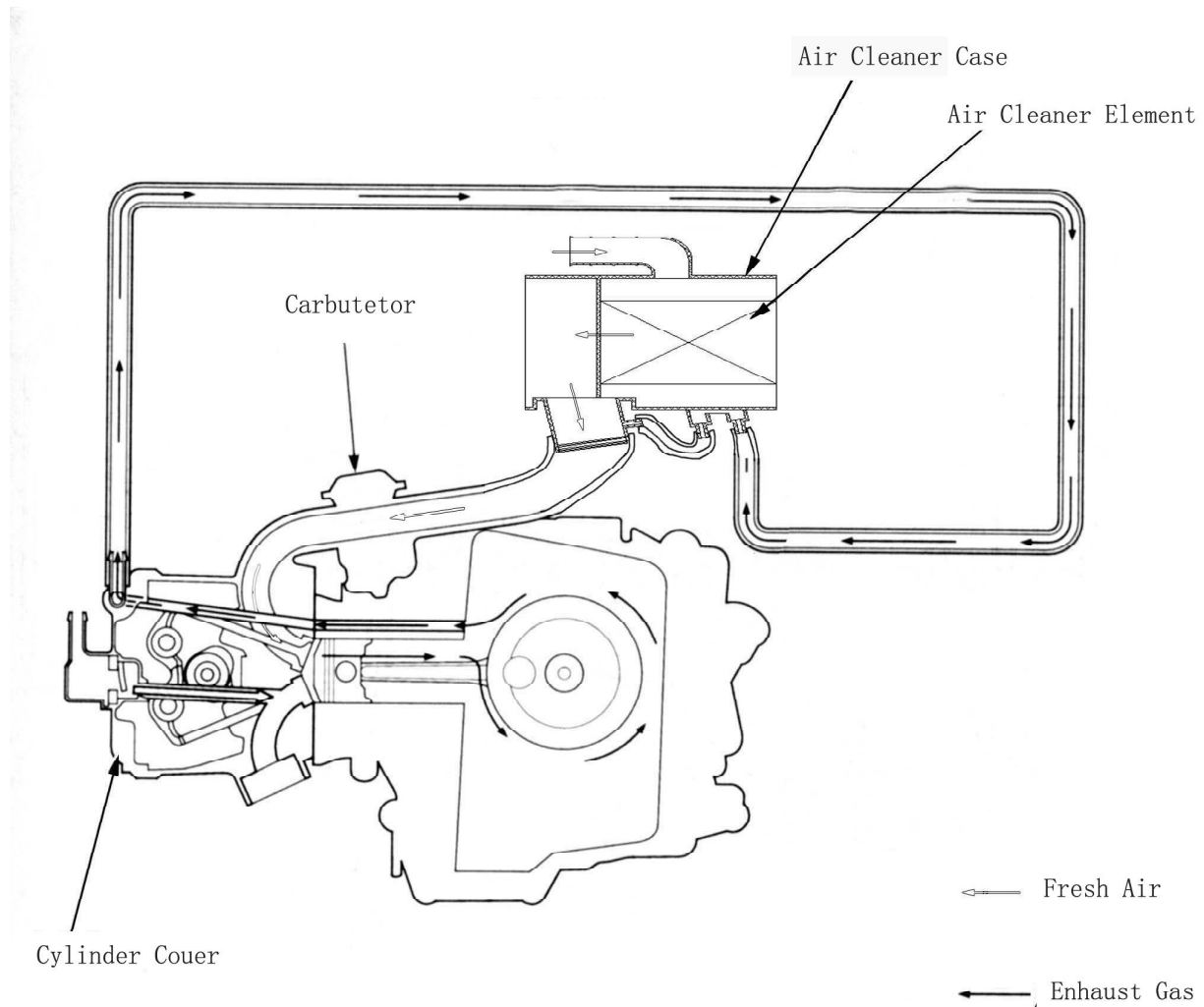
Secondary Air Cleaner

Rectifier Regulator



Anti-pervasion device for poisonous gas

The device is to lead the poisonous emission from the crankcase through air cleaner and carburetor to the combustion chamber for burning so as to avoid the direct emission to the air.



Secondary air inlet supplying device

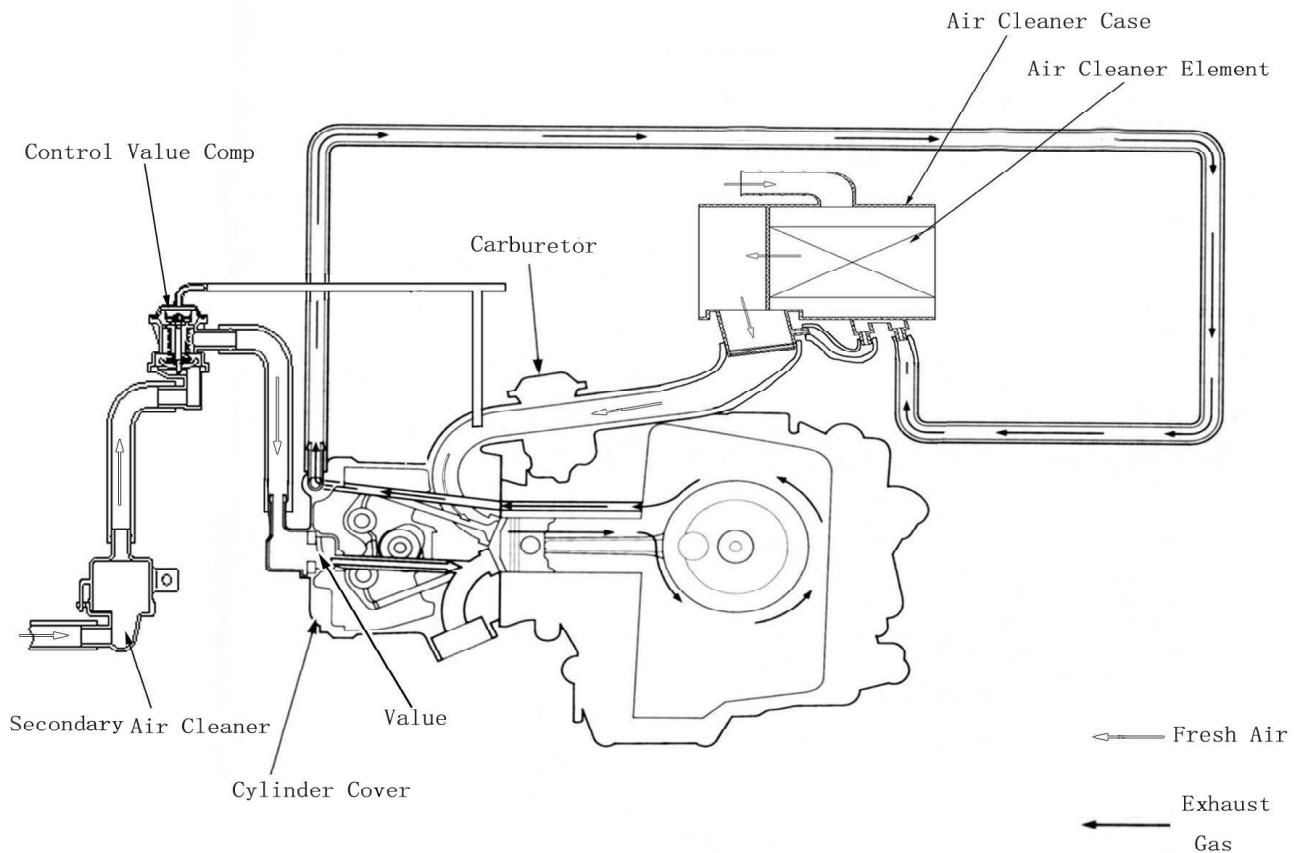
1

Secondary air inlet supplying device sends the fresh air from the secondary air filter to the exhaust pipe, where the not-fully-combusted mixed-gas in the exhaust gas can continue to burn. In this way the main contents of HC , CO and NO_x of the exhaust gas will be turned into harmless carbon dioxide and water.

To keep the exhaust gas in the exhaust pipe from flowing backwards, a one-way tongue valve is set in the Secondary air inlet gateway (inner cylinder head cover).

The switch of Secondary air inlet gateway is controlled by Secondary air inlet control valve; The pin valve on/off is controlled by the diaphragm through the engine suction vacuum.

Though this system does not need regular check, it is very important to do maintenance of the internal parts periodically (once in one year).



Overhaul info.....	2-1	front fender, front decoration plate.....	2-8
Trouble shooting.....	2-1	front top cover	2-9
Seat	2-2	front trunk.....	2-10
Central trunk.....	2-3	footrest deck, service cover.....	2-12
middle protecting plate, rear carrier...	2-4	rear fender ,tail light.....	2-13
left protecting plate.....	2-5	fuel tank.....	2-15
right protecting plate.....	2-6	muffler.....	2-16
left and right middle protecting skirt.....	2-7	Outer parts.....	2-17

Overhaul info

Operation notice

Caution

Gasoline is highly flammable, therefore smoke and fire are strictly forbidden in the work place. Special attention should also be paid to sparks. Gasoline may also be explosive when it is vaporized, so operation should be done in a well-ventilated place.

Muffler can't be disassembled and installed until it is fully cooled.

- This chapter is on the disassembly and installation of outer parts; exhaust pipe and muffler.
- Hoses and cables should be laid from the correct positions as per the wiring drawing of cable; hose and bracing cable.
- When remove and install muffler, replace the gasket with a new one.
- When muffler is installed, check if there is air leakage.

Tightening torque

Tail light/brake light screw	1.8 N.m(0.18kgf.m)
Screw ,Rear turning indicator cover	1.8 N.m(0.18kgf.m)
Screw, Rear tail light cover	1.8 N.m(0.18kgf.m)

Trouble shooting

High exhaust noise

- Muffler worn out
- 1 Air leakage

Insufficient power

- Muffler distorted
- Air leakage
- 1 Muffler clogged

Seat

Small seat

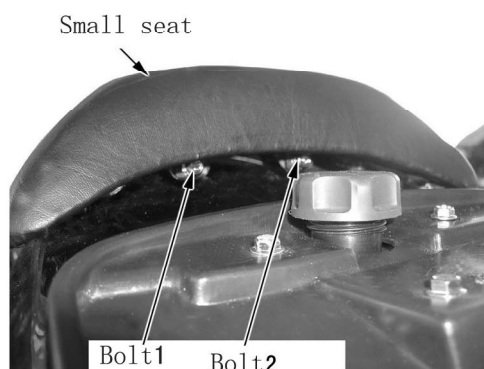
Disassembly

Open up the big seat with ignition switch lock.

Remove bolt1 and bolt2, and remove the small seat

Mounting

Install the small seat in the reverse order of disassembly



Big seat

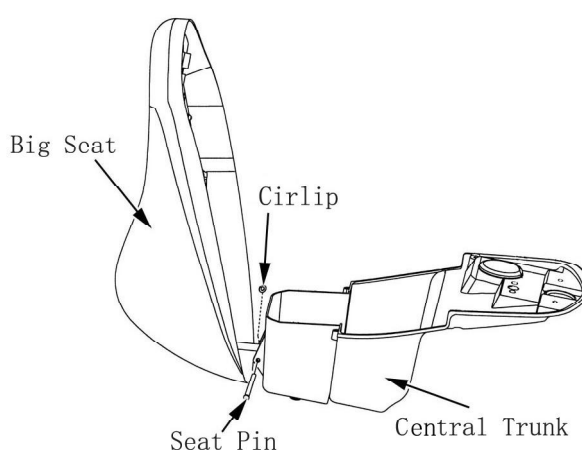
Disassembly

Remove the central trunk/big seat assembly (2-3)

Remove circlip; pull out seat pin and remove big seat.

Mounting

Install the big seat in the reverse order of disassembly



Note

After installation of the big seat, rock it up and down, back and forward to make sure the seat is not deviated.

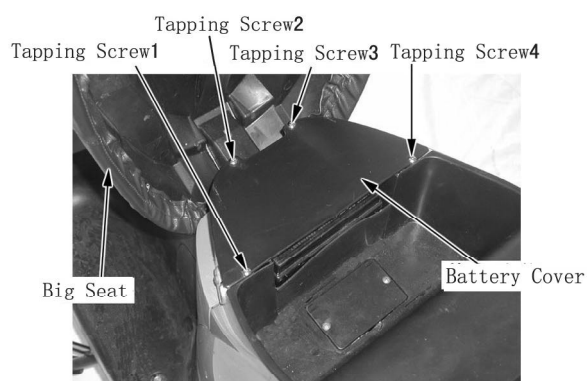
Battery cover

Disassembly

Open the big seat with ignition key.

Remove tapping screw1, tapping screw2, tapping screw3 and tapping screw4

Remove battery cover



Mounting

Install the battery cover in the reverse order of disassembly

Central Trunk

Disassembly

Open up the big seat with ignition key.

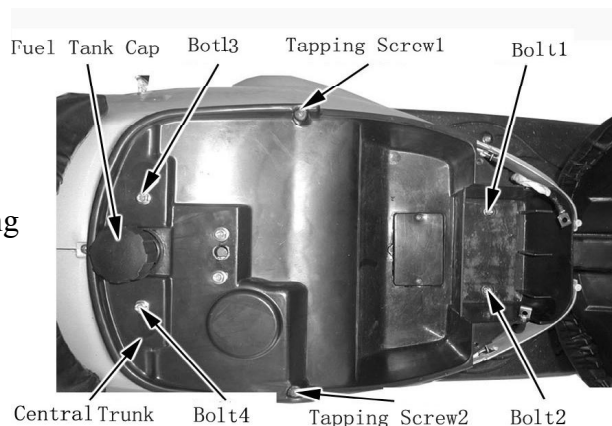
Remove battery cover(2-2)

Remove battery(15-4)

Remove bolt1, bolt2, bolt3, bolt4 and tapping screw1, tapping screw2

Screw out fuel tank cover

Lift central trunk/big seat assembly.



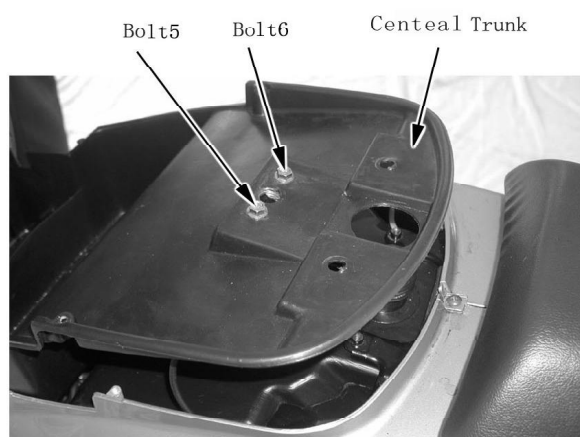
2

Remove bolt5, bolt6 and nut1, nut2

Remove seat lock and cable seat comp.

Take down seat box big seat comp.

Disconnect seat box big seat comp. (2-2) take down seat box.



Mounting

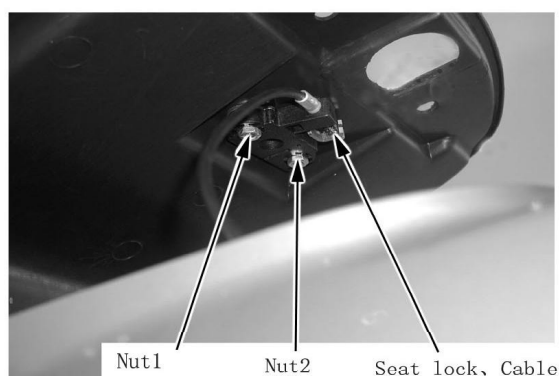
Install the seat box in the reverse order of disassembly

Seat socket

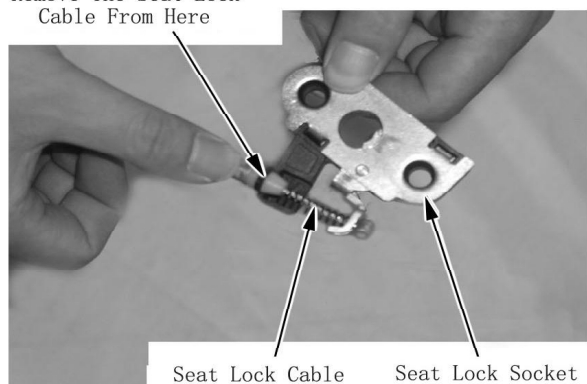
Disassembly

Remove central trunk/big seat assembly. (2-3)

Take off seat cable from seat lock socket



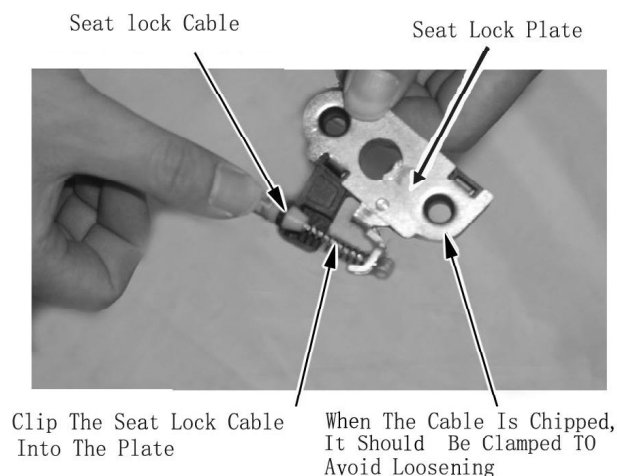
Remove The Seat Lock Cable From Here



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Mounting

Install seat lock cable as indicated in the drawing.



Middle protecting plate

Disassembly

Remove central trunk/big seat assembly. (2-3)

Remove tapping screw1

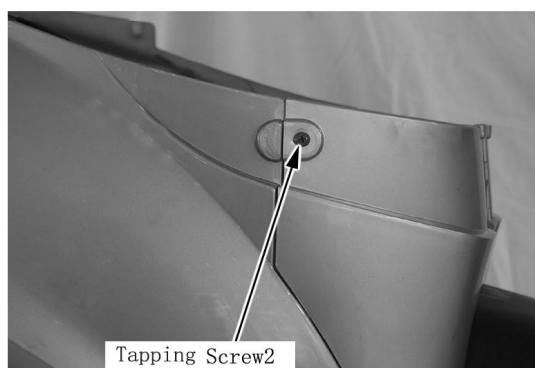


Remove tapping screw2

Remove Middle protecting plate

Mounting

Install the middle protecting plate in the reverse order of disassembly



Rear carrier

Disassembly

Remove small seat(2-2)

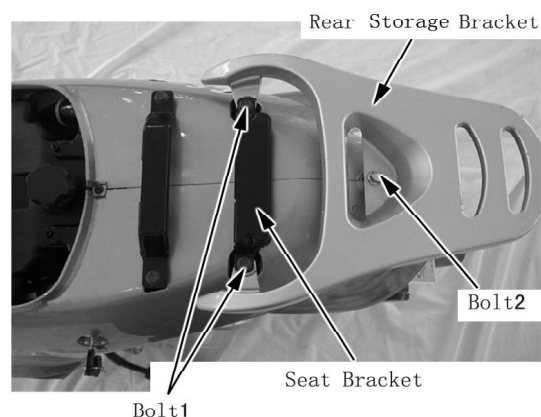
Remove bolt1 and seat bracket

Remove bolt2

Remove Rear carrier

Mounting

Install the rear carrier in the reverse order of disassembly



Left protecting plate

Disassembly

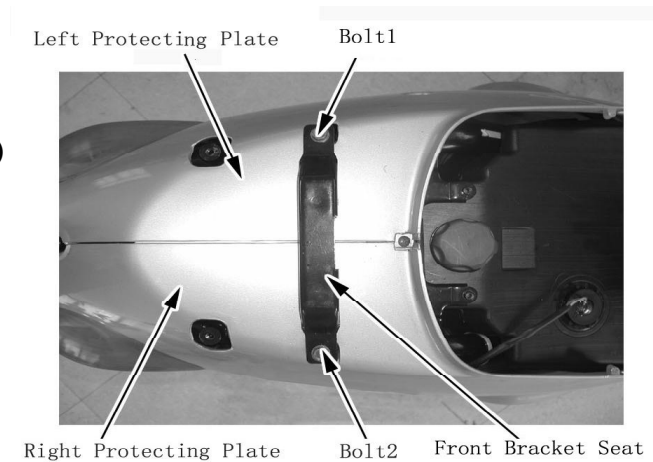
Remove Small seat(2-2)

Remove central trunk/big seat assembly (2-3)

Remove Middle protecting plate(2-4)

Remove Rear carrier(2-4)

Remove bolt1, bolt2, and seat front bracket

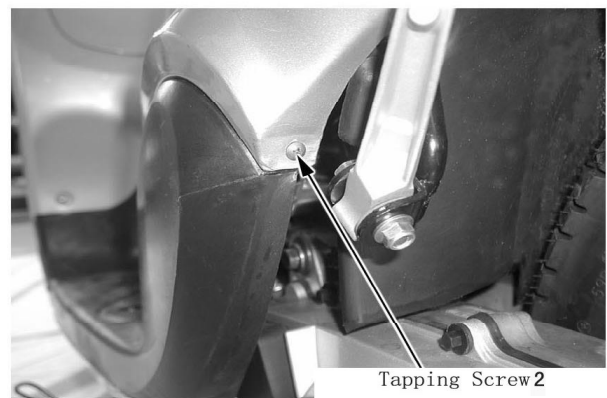


2

Remove tapping screw1

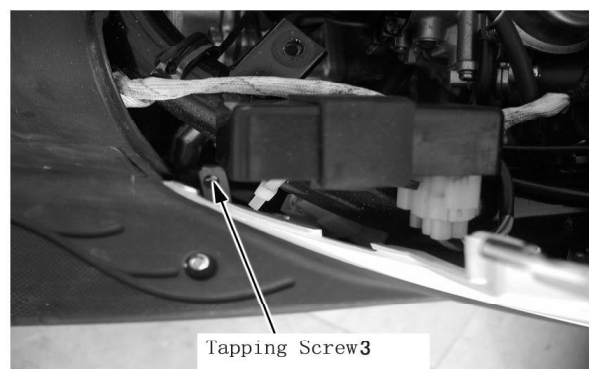


Remove tapping screw2



Remove tapping screw3

Take off Left protecting plate and seat lock cable comp.



CFMOTO

Mounting

Install seat cable, seat lock plate and seat lock to the left protecting plate

Install the left protecting plate assembled with seat lock comp. In symmetry with right protecting plate; fender and rear fender .

Tighten the tapping screw

Install front seat bracket

Install rear carrier and small seat

Right protecting plate

Disassembly

Remove small seat(2-2)

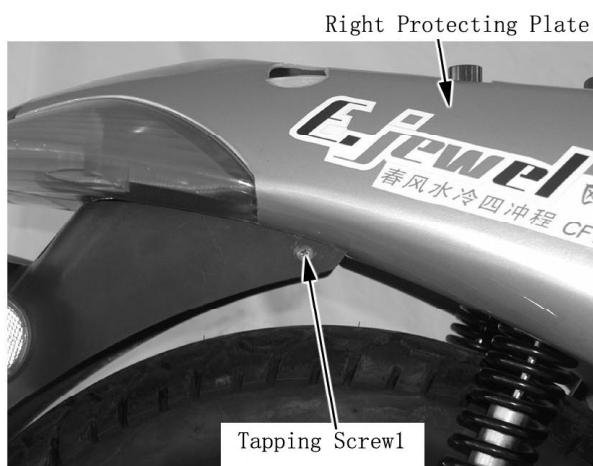
Remove seat box big seat comp. (2-3)

Remove middle protecting plate(2-4)

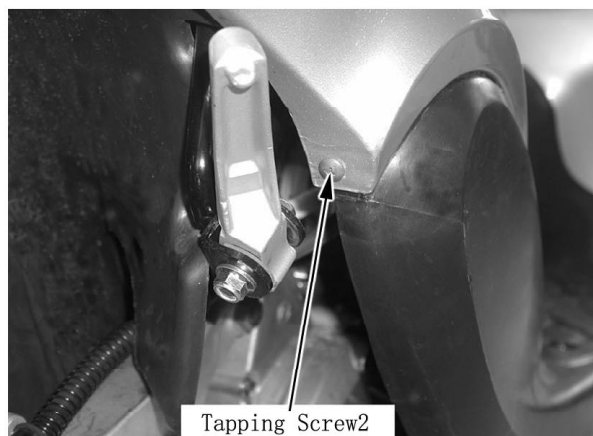
Remove rear carrier(2-4)

Remove left protecting plate(2-5)

Remove tapping screw1



Remove tapping screw2



Remove tapping screw3

Remove right protecting plate



Mounting

Reverse the disassembly procedure for installation.

Middle protecting skirt(R)

Disassembly

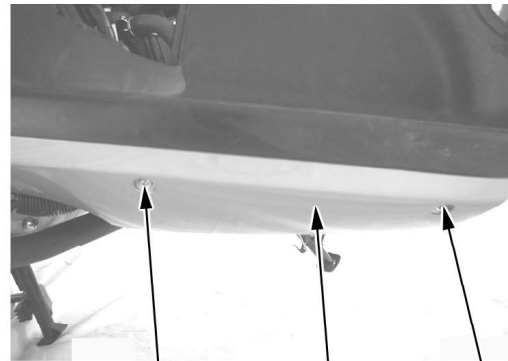
Remove tapping screw



Tapping Screw Middle Protecting Skirt(R)

Remove screw1, screw2

Remove Middle protecting skirt (R)



Screw1 Middle Protecting Skirt(R) Screw2

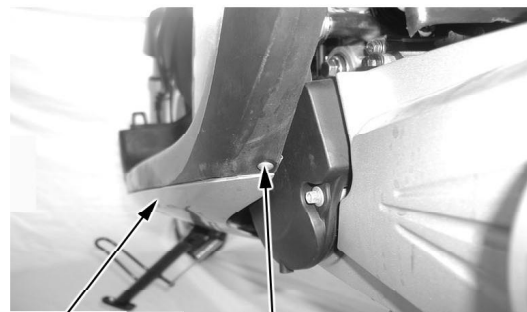
Mounting

Reverse the disassembly procedure of Middle protecting skirt (R) for installation.

Middle protecting skirt (L)

Disassembly

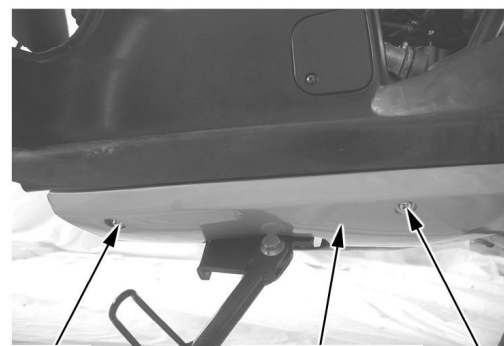
Remove tapping screw



Middle Protecting Skirt(L) Tapping Screw

Remove screw1, screw2

Remove middle protecting skirt(L)



Screw1 Middle Protecting Skirt(L) Screw2

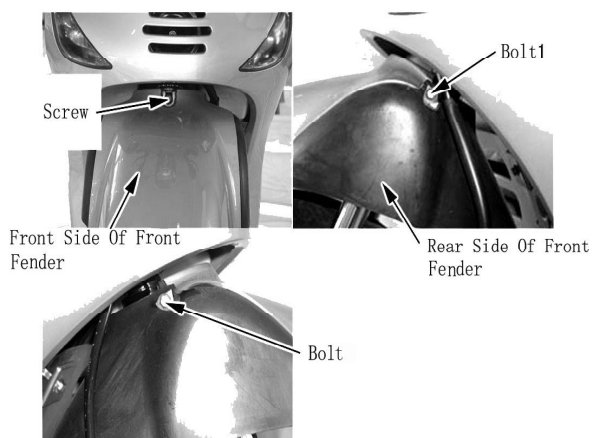
Mounting

Install the middle protecting plate (L) in the reverse order of disassembly

Front Fender

Disassembly

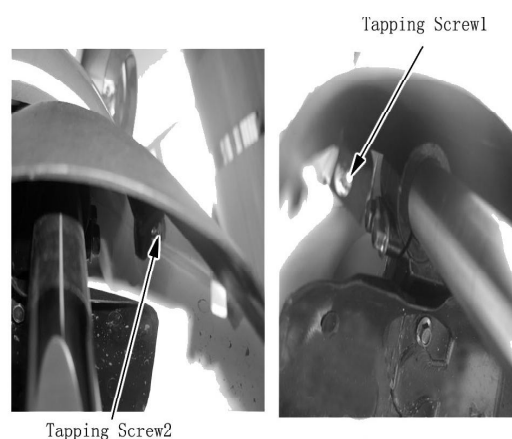
Remove screw, bolt1, and bolt2



Remove screw1, screw2

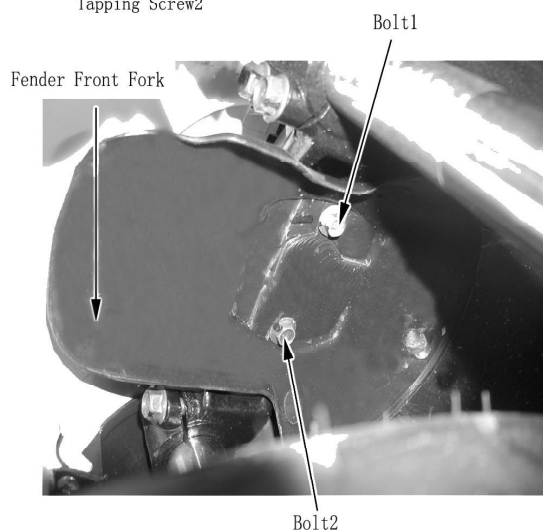
Loosen clip of front side, front fender from the trough of rear side.

Remove front and rear parts of front fender.



Loosen bolt1 and bolt2

Remove fender, front fork



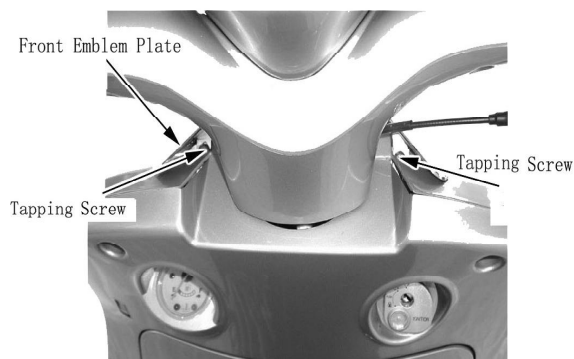
Mounting

Install front fender in the reverse order of disassembly

Front emblem plate

Disassembly

Remove two tapping screws, and remove Front emblem plate



Mounting

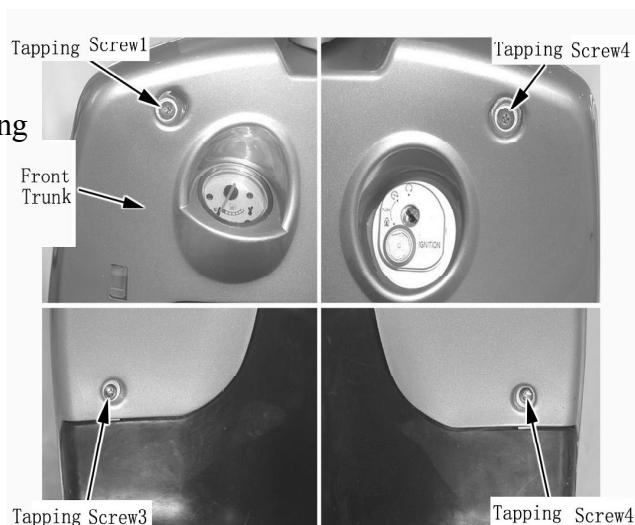
Install front emblem plate in the reverse order of disassembly

Front top cover

Disassembly

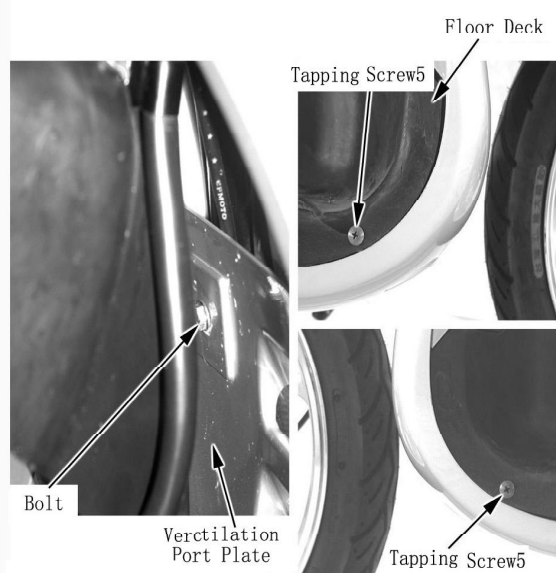
Remove front emblem plate (2-8)

Remove tapping screw1, tapping screw2, tapping screw3 and tapping screw4

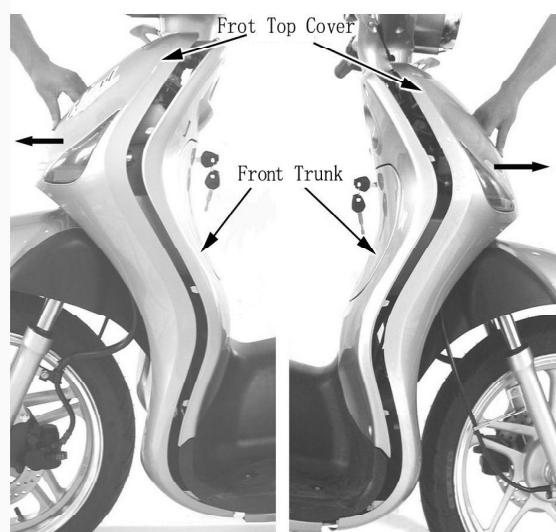


Remove the bolt on the ventilation port plate

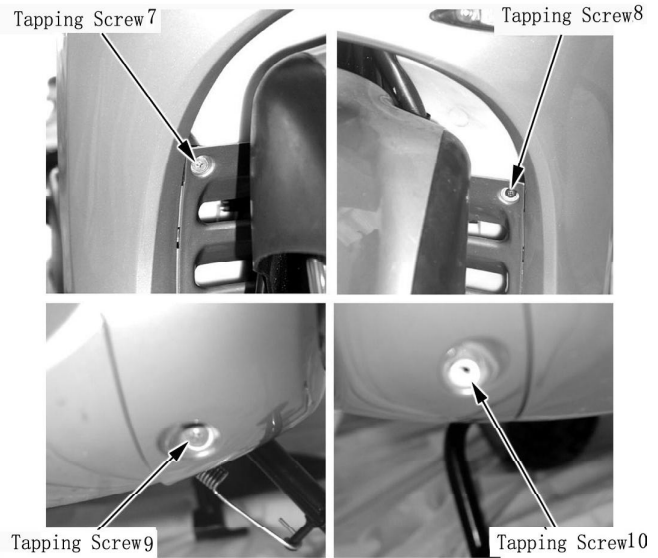
Remove tapping screw5 and tapping screw6 which joint front top cover and footrest deck



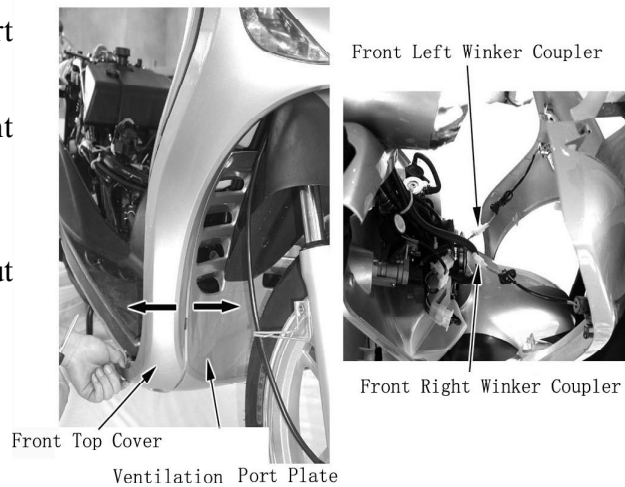
Separate front top cover with front trunk



Remove the four tapping screws (tapping screw7, tapping screw8, tapping screw9, tapping screw10) which joint front top cover and ventilation port plate



Separate front top cover with ventilation port plate, and take down ventilation port plate
 Separate front winker left coupler with front winker right coupler
 Take down winker front top cover comp.
 Remove front left and right winker, and take out front top cover



Mounting

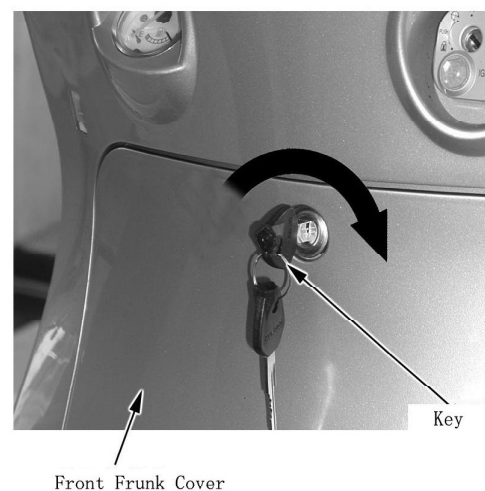
Install the front left and right winker in the reverse order of disassembly

Front trunk

Disassembly

Remove front top cover (2-9)

Open the front trunk cover with ignition key.



Take down the front trunk cover,



2

Pull down the dowel plate; lock cover and the mounting screw of ignition switch lock



Disassemble the mounting screw of front trunk and frame

Remove front trunk



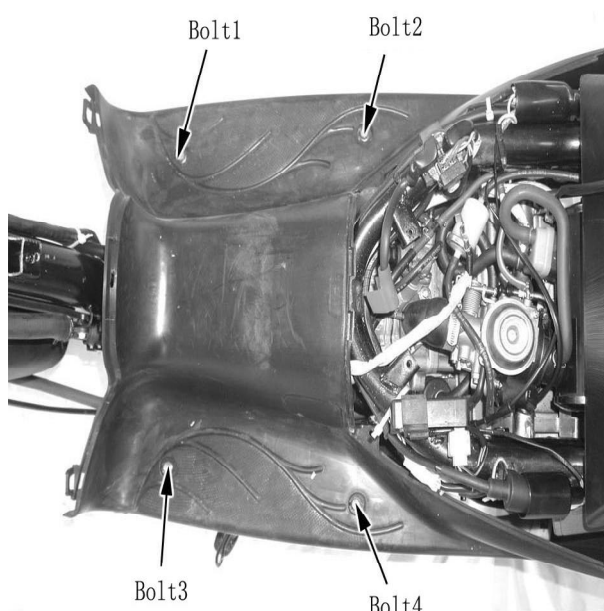
Mounting

Install front trunk in the reverse order of disassembly

Footrest deck

Disassembly

- Remove small seat(2-2)
- Remove seat box big seat comp. (2-3)
- Remove middle protecting plate(2-4)
- Remove rear carrier(2-4)
- Remove left protecting plate(2-5)
- Remove right protecting plate(2-6)
- Remove middle protecting skirt (L&R)(2-7)
- Remove front top cover(2-9)
- Remove front trunk(2-10)
- Remove bolt1, bolt2, bolt3 and bolt4
- Take down footrest deck



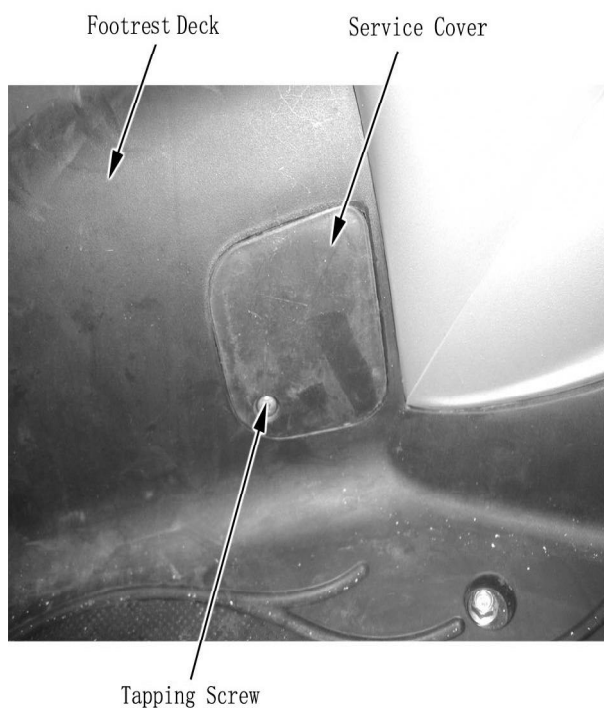
Mounting

Install footrest deck in the reverse order of removal

Service cover

Disassembly

- Remove tapping screw
- Pull down service cover



Mounting

Install service cover in the reverse order of removal

Rear fender; tail light

Disassembly

Remove small seat(2-2)

Remove seat box big seat comp. (2-3)

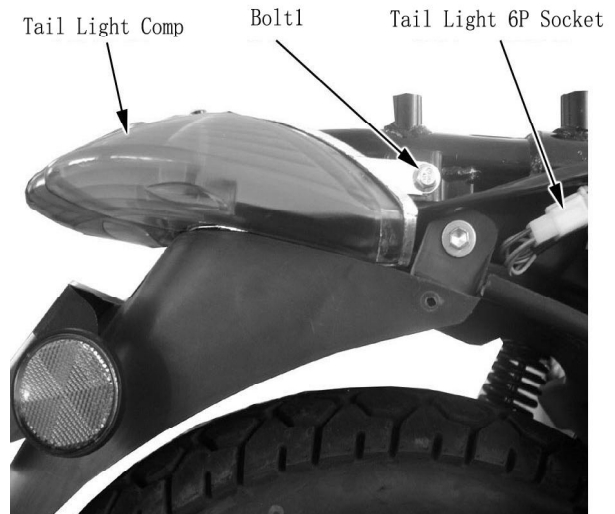
Remove middle protecting plate(2-4)

Remove rear carrier(2-4)

Remove left protecting plate (2-5)

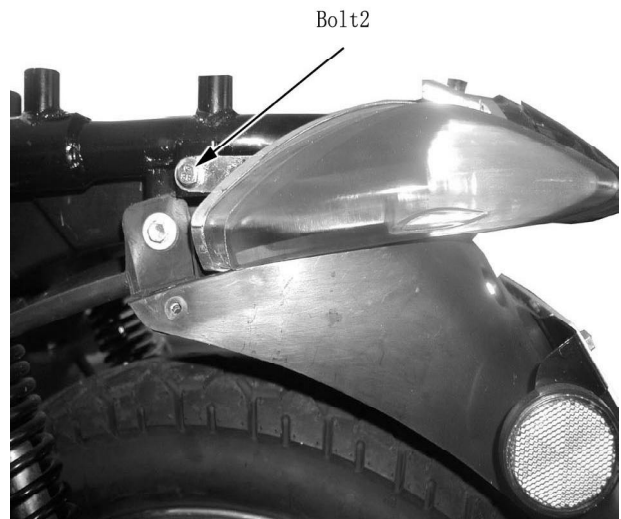
Remove right protecting plate(2-6)

Remove bolt1, and disconnect tail light 6p socket



2

Remove bolt2

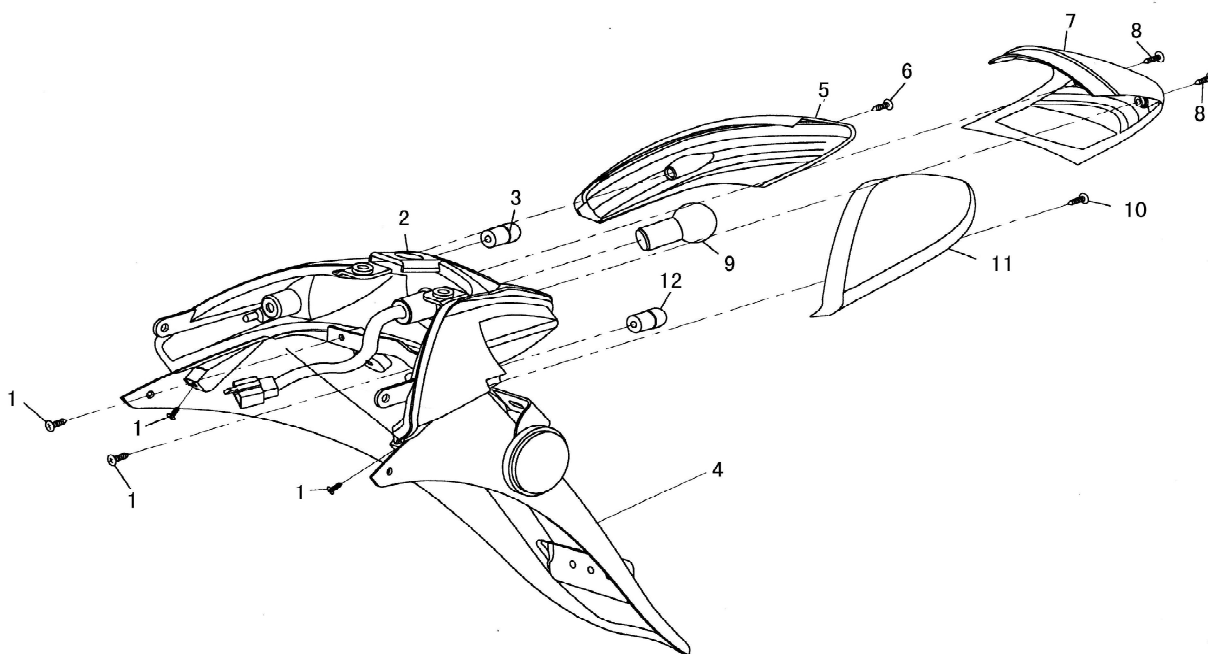


Remove bolt3 and bolt4

Take down rear fender tail light comp.



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Dismantle of tail light comp., rear fender

Remove screw1; disconnect tail light2 and rear fender4

Remove screw8, take down cover7, tail light, take out bulb9,
Remove screw6, take down cover5, and take out bulb3;

Remove screw10, take down cover11, and take out bulb12

Mounting

Install rear fender and tail light in the reverse order of disassembly

Fuel tank

Disassembly

Warning

Gasoline is highly flammable, smoking is strictly forbidden in the work place. Keep alert on the electrical sparks. Besides, vaporized gasoline is highly explosive, so work should be done in a well-ventilated place.

Remove small seat(2-2)

Remove seat box big seat comp. (2-3)

Remove middle protecting plate (2-4)

Remove rear carrier(2-4)

Remove left protecting plate(2-5)

Remove right protecting plate(2-6)

Remove bolt1

Remove bolt2, bolt3, bolt4, and bolt5; take down trunk rear mounting plate and mat

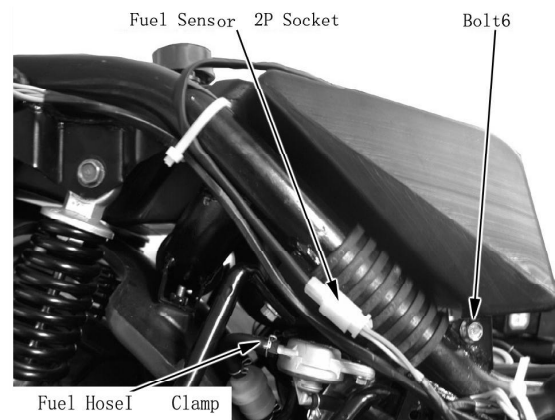
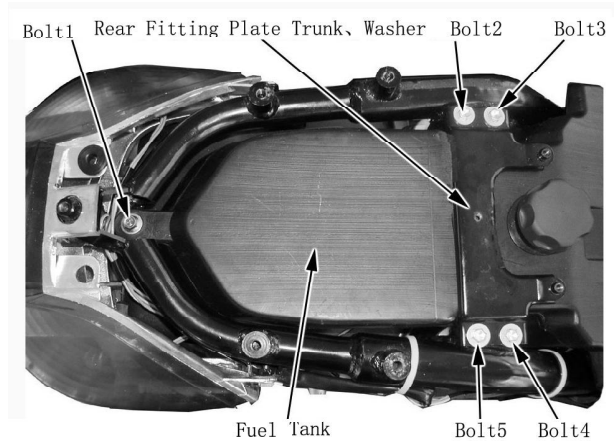
Remove fuel sensor 2p Socket

Remove fuel pipe and clamp(Φ 8)

Remove bolt6

Remove bolt7

Take down fuel tank



Mounting

Install fuel tank in the reverse order of disassembly

Warning

Be sure not to damage main cable assy and hose. Main cable assy and bracing cable should pass from proper position according to the wiring drawing of cable; hose and bracing cable.

Be aware not to let out fuel when removing fuel pipe I



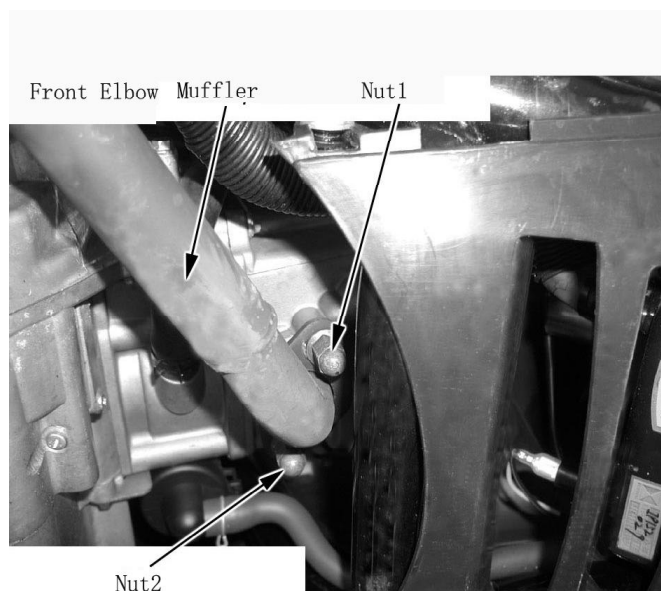
Muffler

Disassembly

Warning

The dismantling and installation work of muffler can only be done when it is cooled down!

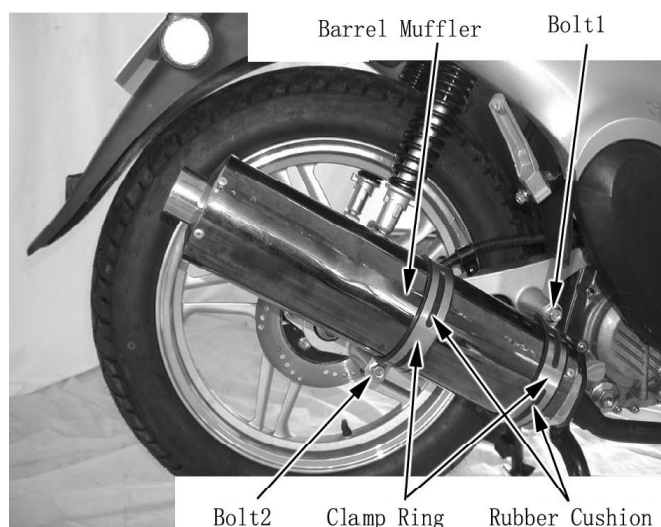
Remove joint nut1 and nut2 of muffler front elbow



Remove bolt1, bolt2, take down clamp ring, muffler and rubber cushion.

Mounting

Install muffler in the reverse order of disassembly.



Torque: Front elbow nut: 30 N.m (3.0kgf.m)

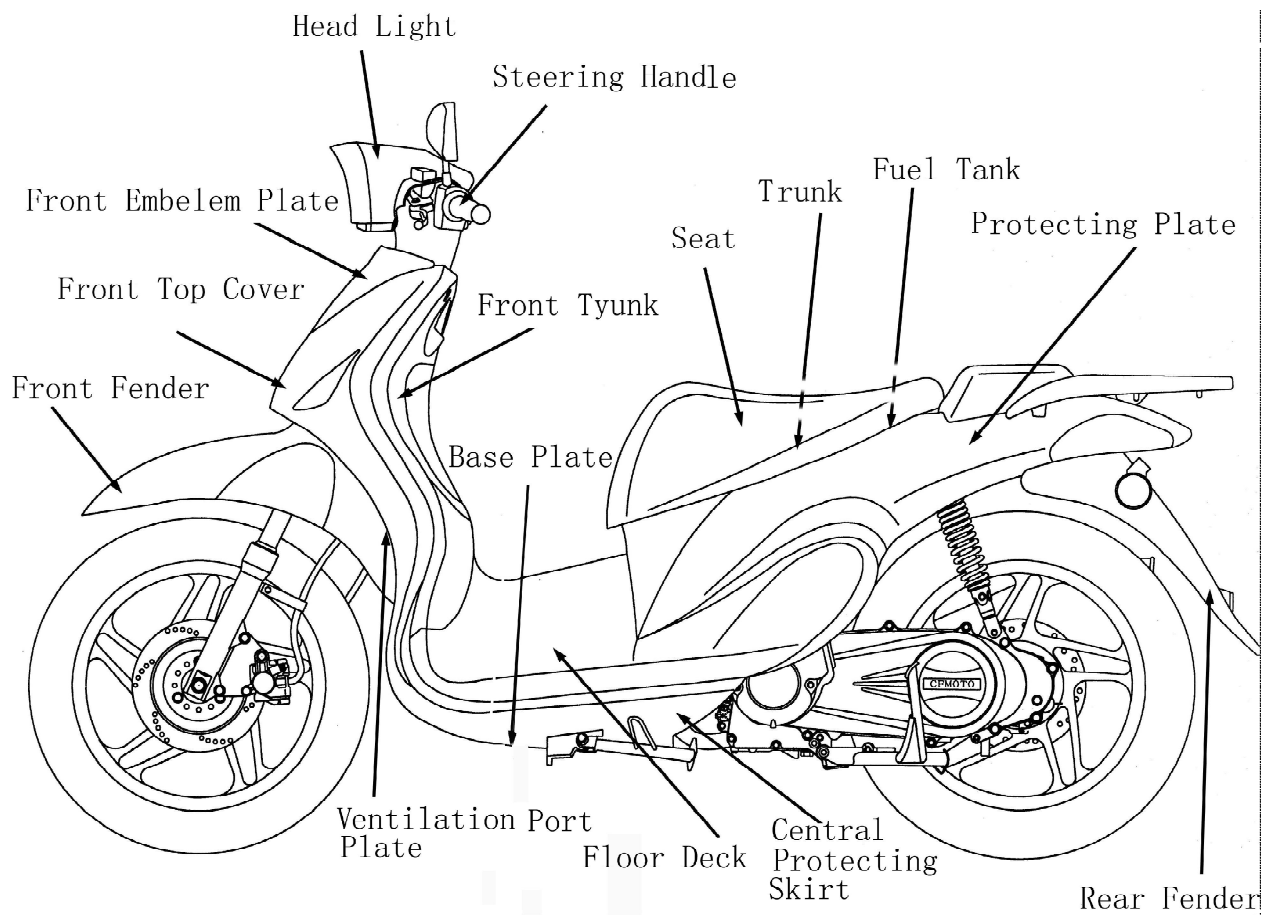
Muffler bolt: 40 N.m(40.5 kgf.m)

Note

Gasket on exhaust port must be replaced with a new one when mounting.

Outer Components

2



CFMOTO

Overhaul info	3-1	Ignition device.....	3-11
Replacement of parts	3-1	Lubricating device.....	3-13
Inspection Instruction.....	3-2	Fuel device.....	3-14
Steering column.....	3-7	Cooling device.....	3-18
Brake system.....	3-7	Exhaust gas recycling device.....	3-20
Wheel.....	3-9	Anti-diffusion device for CO. etc.....	3-20
Suspension system.....	3-10	Lighting device.....	3-21
Gearbox.....	3-11	Others.....	3-22

Overhaul info

Operation Cautions

Caution

- DO NOT keep the engine running for long time in a poorly ventilated or enclosed place because of the harmful components like CO, etc, in the exhaust gas.
- The muffler and engine are still very hot when the engine is just stopped. Careless contact may cause serious burn. Be sure to wear fatigue dress with and gloves if the work has to be done when the engine is just stopped.
- Gasoline is highly flammable, smoking is strictly forbidden in the work place. Keep alert on the electrical sparks. Besides, vaporized gasoline is highly explosive, so work should be done in a well-ventilated place.
- Be careful that your hands or clothes not get nipped by the turning or movable parts of the driving system.

Note

The vehicle should be parked on hard and level ground and supported with the main stand or a service bracket.

Periodic Replacement of Parts

Replacement intervals are dependent on year or driving distance, whichever occurs first:

Item	Interval	Memo
Air filter element	Clean or replace every 2000-3000km	
Engine oil	Initial: 1000km or a month Replace every 6000km	
Coolant	Replace every year	
Gearbox oil	Replace every year	

CFMOTO

C h e c k & M a i n t e n a n c e M o d e			O : i n t e r v a l			J u d g i n g S t a n d a r d
C h e c k & m a i n t e n a n c e i t e m			I n t e r v a l s			
P a r t		I t e m	d a i l y	H a l f y e a r	E v e r y y e a r	
S t e e r i n g d e v i c e	s t e e r i n g h a n d l e	O p e r a t i o n a g i l i t y			○	
	F r o n t f o r k	D a m a g e			○	
		I n s t a l l a t i o n s t a t u s o f s t e e r i n g c o l u m n			○	
		S w a y o f s t e e r i n g s t u d b e a r i n g			○	
B r a k e d e v i c e	B r a k e h a n d l e	c l e a r a n c e	○	○	○	F r o n t w h e e l: h a n d l e e n d 1 0 - 3 0 m m R e a r w h e e l: h a n d l e e n d 1 0 - 3 0 m m
		B r a k e e f f i c i e n c y	○	○	○	
	J o i n t l e v e r a n d o i l p i p e	L o o s e n e s s , s l a c k a n d d a m a g e			○	
	H y d r a u l i c p r e s s u r e b r a k e a n d b r a k e d i s k	F r o n t a n d r e a r b r a k e f l u i d l e v e l	○	○	○	B r a k e f l u i d a b o v e l o w e r
		b r a k e d i s k D a m a g e a n d w e a r			○	R e p l a c e w h e n t h e t h i c k n e s s o f b r a k e d i s k i s l e s s t h a n 3 m m .
D r i v i n g d e v i c e	T i r e	T i r e p r e s s u r e	○	○	○	F r o n t t i r e : 2 5 0 k P a (2 . 5 0 k g f / c m ²) R e a r t i r e : 3 0 0 k P a (3 . 0 0 k g f / c m ²)
		C h a p a n d d a m a g e	○		○	
		G r o o v e d e p t h a n d a b n o r m a l w e a r	○		○	N o w e a r i n d i c a t i o n o n t h e s u r f a c e o f t i r e (t h e r e m a i n e d d e p t h o f g r o o v e s h o u l d n o t b e l e s s t h a n 1 . 6 m m)
		S l a c k o f w h e e l N u t a n d s h a f t		○	○	
		S h a k e o f b e a r i n g , f r o n t w h e e l			○	
		S w a y o f b e a r i n g , r e a r w h e e l a n d w h e e l n u t			○	
B u f f e r d e v i c e	S u s p e n s i o n a r m	S w a y o f J o i n t p a r t s a n d r o c k e r a r m d a m a g e			○	
	S h o c k a b s o r b e r	O i l l e a k a g e a n d d a m a g e			○	
		F u n c t i o n			○	
T r a n s m i s s i o n s y s t e m	G e a r s h i f t	O i l l e a k a g e a n d o i l l e v e l				S c r e w o u t f i l l i n g b o l t , F i l l t i l l o i l l e v e l r e a c h e s h o l e p o r t

3 Inspection, Adjustment

Check & Maintenance mode

O : intervals

Check & Maintenance item			intervals			Judging standard
part		item	daily	Half year	Every year	
Transmission device	Output shaft (Transmission shaft)	Slack of joint parts		○	○	
		Sway of spline			○	
Electrical device	Ignition device	Status of spark plug		○	○	Spark plug clearance: 0.8-0.9 mm
		Ignition timing		○	○	
	Battery	Joint status of terminals			○	
	Electric wiring	Slack and damage of joints			○	
Engine	Body	Starting status and abnormal noise	○		○	
		timing Chain adjustment		○	○	
		Low-speed and accelerating status	○		○	
		Idle rotation speed		○	○	1600 ± 150 r/min
		Exhausting status		○	○	
		filter element, air filter		○	○	
	Lubrication	Oil leakage		○	○	
	Cooling device	Water level	○	○	○	
		Water leakage			○	
Anti-diffusion device for black smoke And other harmful gas	Exhaust gas reverting device	Damage of pipe			○	
		Cleaning of air inlet port		○	○	
	Anti-diffusion device for CO, etc.	Function of secondary air inlet device			○	
		Damage and installation status of Pipes			○	

3

CFMOTO

CFMOTO

Check & maintenance item		intervals			Judging standard
part	item	daily	Half year	Every year	
Lighting device and indicators	function	○	○	○	
Alarm and lock device	function			○	
instruments	function			○	
Exhaust pipe and muffler	Slack or damage when installing			○	
	Function of muffler				
frame	Slack and damage			○	
Others	Lubrication grease status of frame parts			○	
Abnormal parts which can be determined when driving	Make sure if there are any abnormality with relative parts.	○			

Steering Column

Park the scooter with main stand, lift front tire, hold the lower part of shock-absorber and shake back and forth to see if there is sway.

In case of a sway, determine if it is the problem of the steering column or other parts and then do the maintenance accordingly.

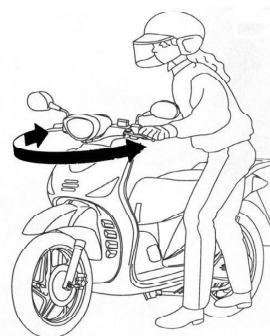
In case of sway of the steering column, tighten the locknut or dismantle the steering column for further check.

Lift the front wheel, slowly turn the handle bar left and right to see if it can turn freely.

In case there is any hindrance, check if it is from the main cable assembly or other cables. Otherwise dismantle the steering column and check if the steering column bearing bracket is damaged.



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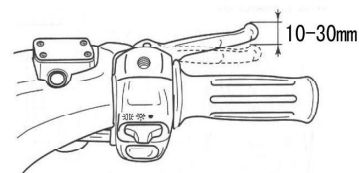


Brake system

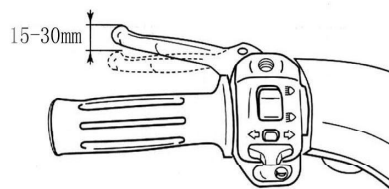
Brake handle clearance

Operate front and rear brake handles, check brake efficiency and status of the handles

Check clearance of handle ends.



Clearance: 10-30mm



Brake pump comp.

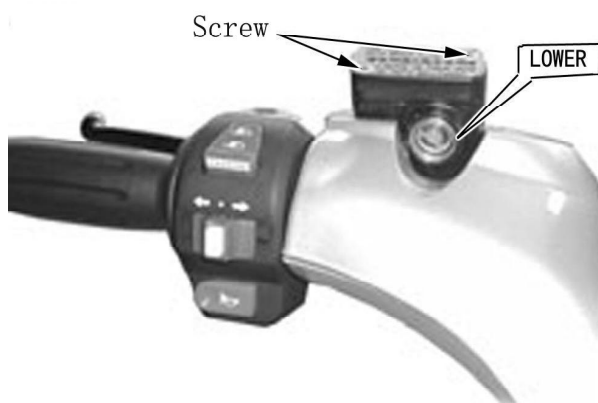
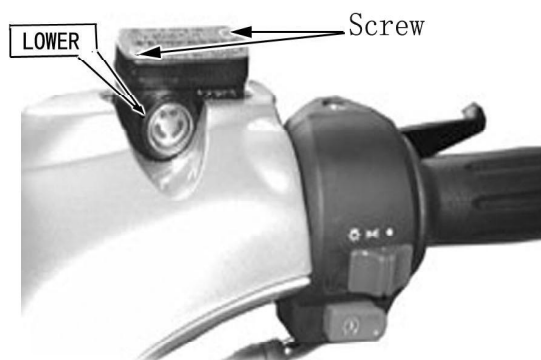
<Fluid level>

Check the brake fluid level

When the brake fluid level is near to the lower limit line, check brake pump, brake hoses and leakages at the joints.

Remove the two mounting screws on oil cup cap, take down the cap, add DOT3 or DOT4 brake liquid till the upper limit line.

- Do not mix with dust or water when adding brake fluid.
- Use only the recommended brand of brake fluid to avoid chemical changes.
- Brake fluid may cause damages to the surface of the plastic and rubber parts. Keep the fluid away from these parts.
- Slightly turn the handlebar left and right till the brake pump comp. Is in the horizontal status, then remove the oil cup cap.



Brake disk, Brake flake

< Wear of brake flake >

Check the brake flake r from the mark as indicated. Replace the brake flake If the wear has reached position of wear limit trough.

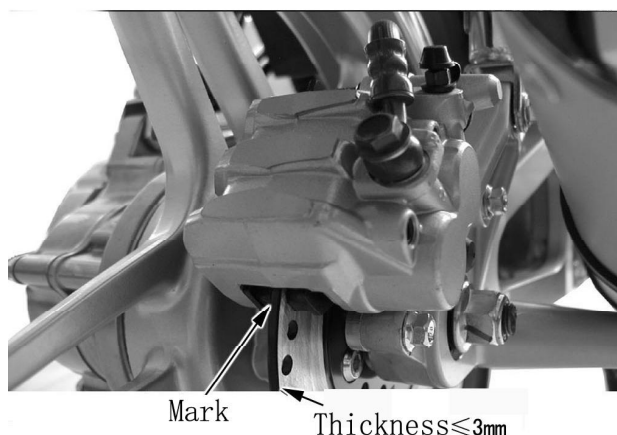
Note

The brake flake must be replaced with a whole set.

Check and replacement of the brake disk.

Check is there is any were or damage on the disk, when the brake disk thickness is ≤ 3 mm, replaced in the brake disk.

Min. limited thickness of the brake disk: 3mm



Replacement of Oil

< Replacement of brake liquid>

Replace the brake liquid once every year.

Tire

Tire pressure

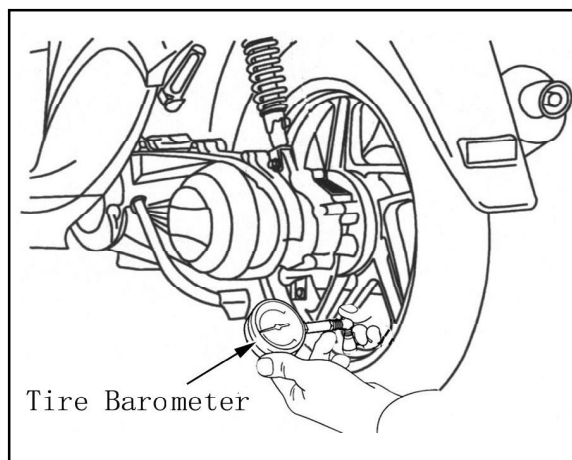
Check the pressure of the tires with a pressure gauge.

Note

Check tire pressure when tires are cooled.

Driving under improper tire pressure will reduce the comfort of operation and riding, and may cause deflected wear of the tires.

Tire pressure parameter:



3

Front wheel	Rear wheel	
Pressure	250kPa(2.50kgf/cm ²)	300kPa(2.50kgf/cm ²)
Tire specification	100/80-16	110/80-16

Slacking of wheel nut and wheel shaft

Check slacking of front wheel shaft and rear wheel shaft nuts.

Tighten the nuts in case of any slacking according to the specified torques.

Tightening torque:

Front wheel shaft nut: 80N.m(8.2kgf.m)

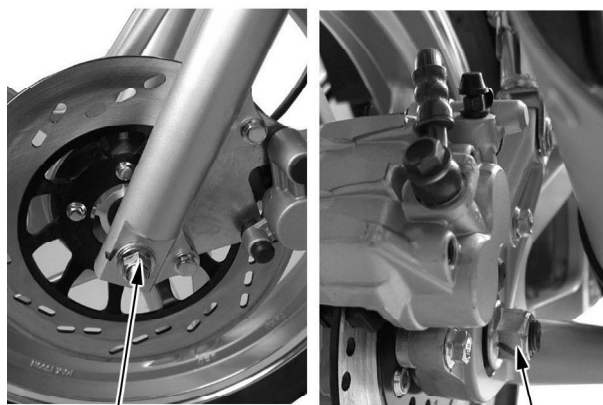
Rear wheel shaft nut: 140N.m(14.3kgf.m)

Rocking of wheel bearing

Park the scooter with the main stand, and lift the front wheel.

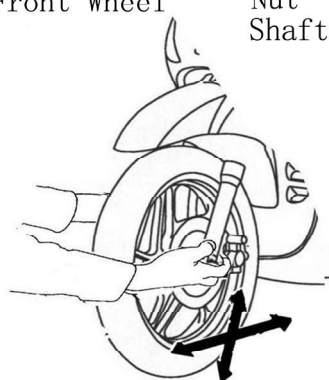
Turn steering handle right or left to the max position, and wave the wheel axial to check if there is any rocking.

In case of any rocking, dismantle the front wheel and check the bearing.



Nut Front Wheel Shaft

Nut Rear Wheel Shaft



Suspension system

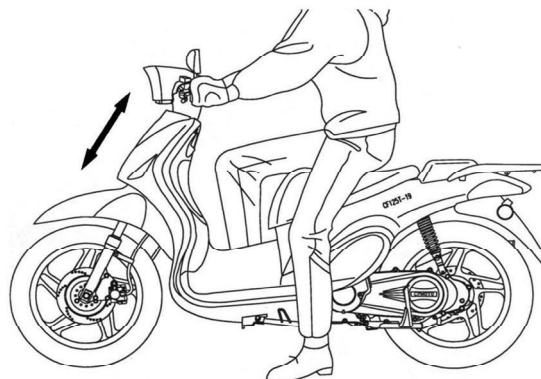
Checking method

Front suspension

Hold tight the front brake handle, press the front suspension up and down several times.

In case of any rocking or abnormal noise, check the front shock absorber and the steering column.

Check if there is oil leakage from front shock absorber or any damage or slacking in the tightening parts.

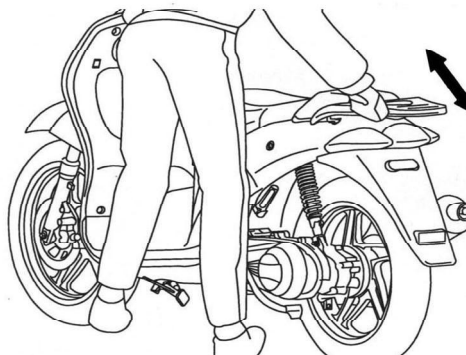


Rear suspension

Press the rear suspension up and down several times.

In case of any rocking or abnormal noise, check the rear shock absorber and the hanging pivot part.

Check if there is oil leakage from rear shock absorber or any damage or slacking in the tightening parts.



Rocking of the joining part

Park the scooter with main stand and wave engine left and right to check if there is damage or rocking with the hanging cushion. In case of any, replace it with a new one.



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Gearbox

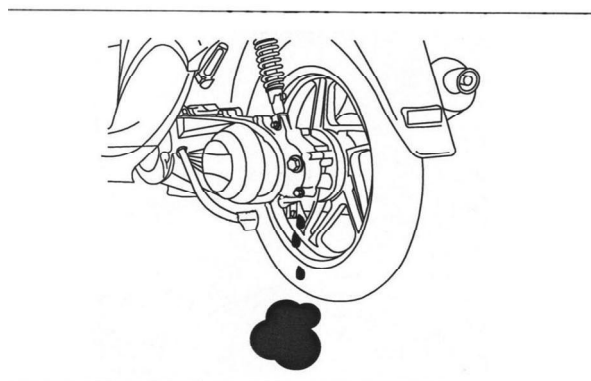
Check the lubrication oil in the gearbox

Check if there is any oil leakage around the gearbox.

Park the scooter with main stand and.

Stop the engine, take out the oil check bolt and check if the oil level is by the screw hole.

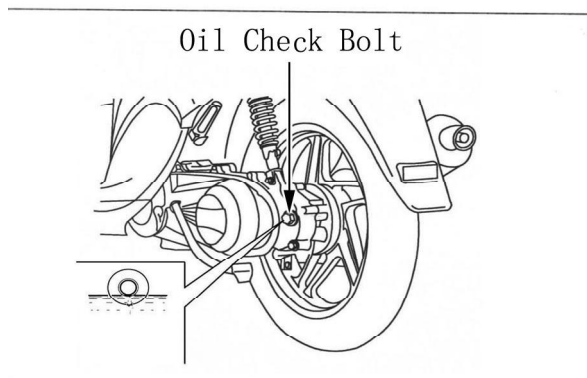
In case of lower oil level, fill oil till the lower line of the screw hole.



Recommended oil: Hyperbolic gear oil #90

Check the sealing gasket, install the oil check bolt and tighten it.

Torque: 22N.m(2.2kgf.m)



Ignition device

Spark plug

Take off the spark plug service cover.

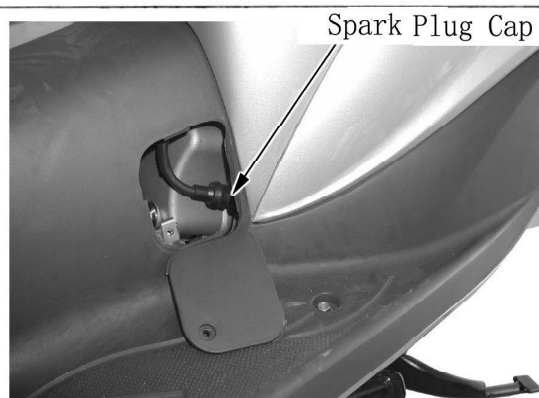


Service Cover

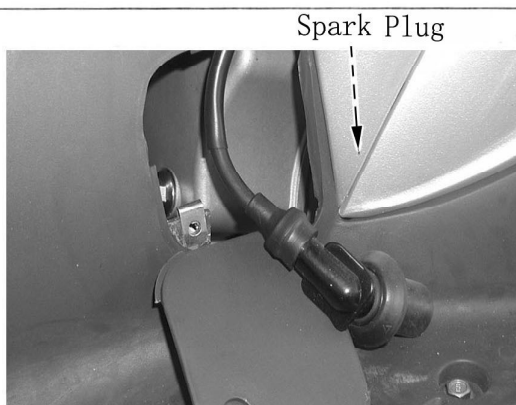
CFMOTO

Remove the spark plug cap.

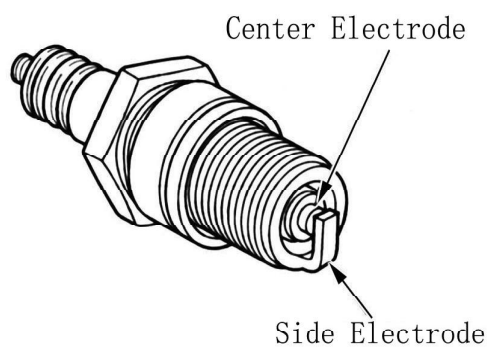
When removing the spark plug, clean the joint face of spark plug with compressed air to prevent dust from entering the combustion chamber.



Remove the spark plug.



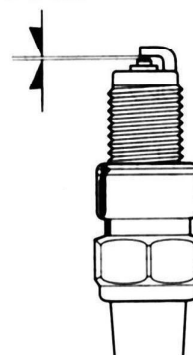
Check the central and side electrodes of the spark plug to see if there is any erosion, burning or damage of the insulate electromagnet. Replace the spark plug if there is burning.



Recommended spark plug:

	NGK
standard	DPR7EA-9
option	
Electrode gap	0.8—0.9mm

0.8-0.9mm



Install the spark plug.

Note

To avoid damage to the thread of spark plug hole, when installing the spark plug, revolve it into cylinder head with hand and then tighten it with a spanner.

If the spark plug is a new one, screw by one-quarter after the sealing gasket contacts the joint face.

If the spark plug is a used one, tighten it according to the recommended torque.

Torque: 12N.m(1.2kgf.m)

Install the spark plug cap.

Lubrication device

Inspection of the engine oil

Warm up the engine.

Stop the engine and remove the oil dip rod and clean it.

Park the scooter in the horizontal position.

Insert the oil dip rod (DO NOT screw in) and check engine oil level 2~3 minutes after the engine stopped.

If oil is between the upper and lower limit, oil is sufficient.

If oil is close to the lower limit, add oil till the upper limit.

Recommended engine oil:

Special-purpose oil for 4-stroke motorcycle:
SAE10W-40, 20 W - 50,

In case of using substitutes, select from following ranges:

API classification: SE or SF type engine oil.

Note

Choose engine oil according to the viscosity-temperature chart on the right.

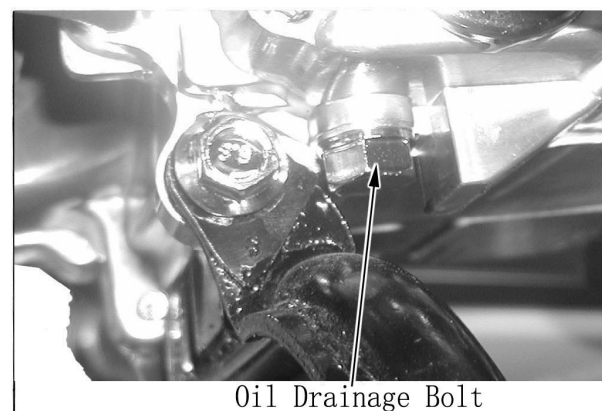
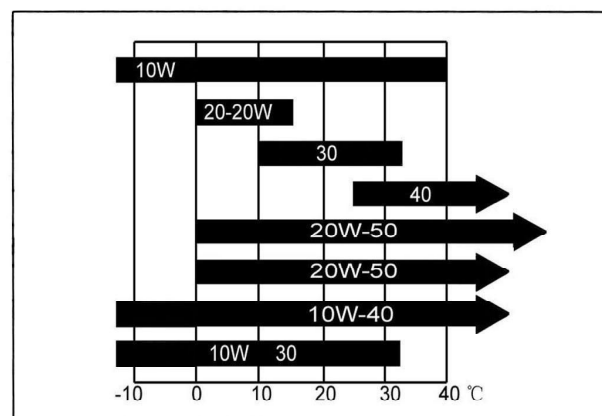
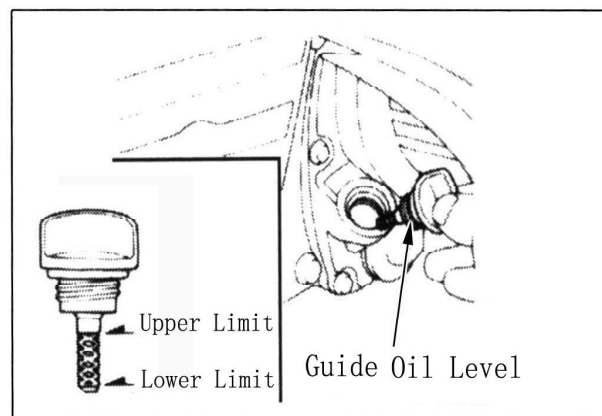
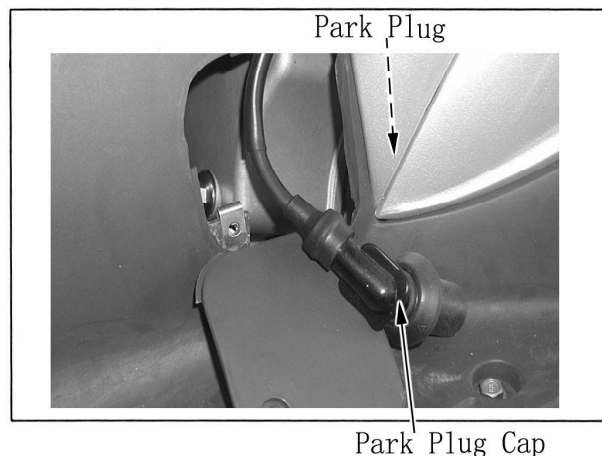
Install the oil leveler, and tighten it.

Replacing engine oil

Park the scooter with main stand.

Start engine to warm up.

Stop the engine, Remove the oil dip rod, oil drain bolt and sealing gasket, drain the oil. Keep the scooter a bit left-side inclined and press the start button 2~3times.



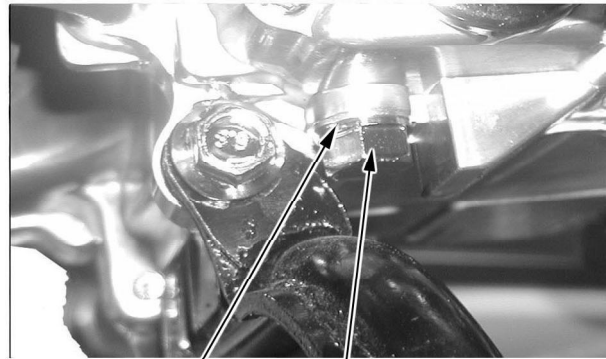
Install the cleaned drain bolt and new sealing gasket, and tighten it according to the recommended torque.

Torque: 25N.m(2.5kgf.m)

Add the recommended engine oil.

Engine oil capacity: 0.8L(for replacing)

1.0L(for disassembling)

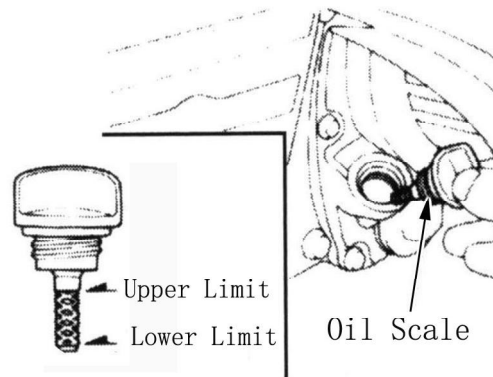


Seal Gasket Oil Drainage Bolt

Check the oil level with the dip rod while adding till the oil level reached the upper limit.

Install the oil dip rod, start the engine, and check if there is any oil leakage.

Stop the engine, and check oil level again.



Washing of the oil filter

Drain the engine oil.

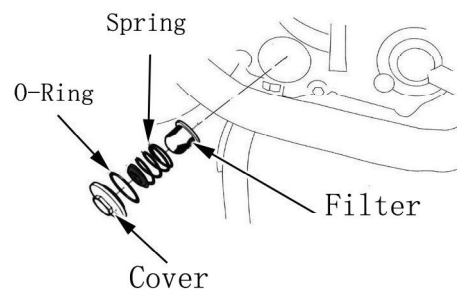
Remove the engine oil filter cover.

Remove the spring, filter, and wash the filter net.

Check O-ring of filter cover, if necessary, replace with a new one.

Install filter net and spring, tighten the engine oil filter net cover to appointed torque

Torque: 20N.m(2.0kgf.m)



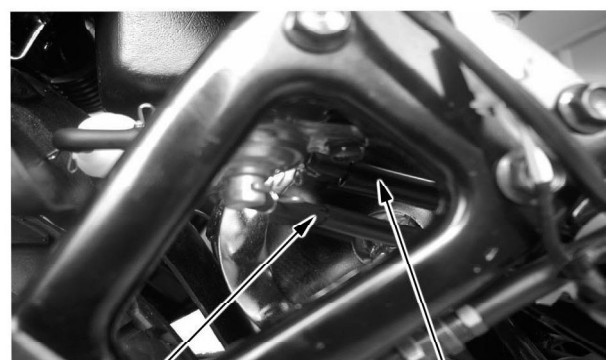
Fuel device

Status of the fuel system

Check the oil pipe for any aging or damage.

In case of any aging or damage with the fuel pipes, replace with new ones.

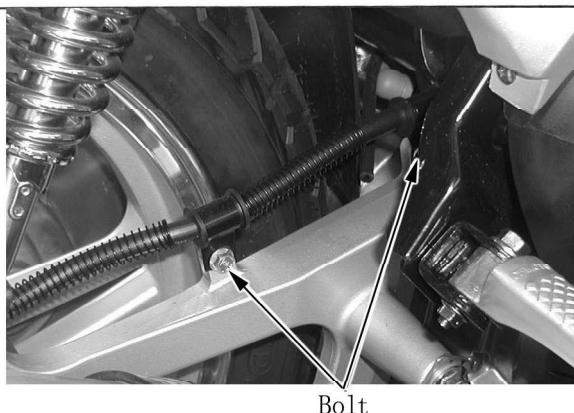
Check if there is cracks or bending with the vacuum tube. Replace with a new one, if any.



Vacuum Tube Fuel Pipe

Replacing air filter element

Remove the two bolts and rear brake oil pipe.

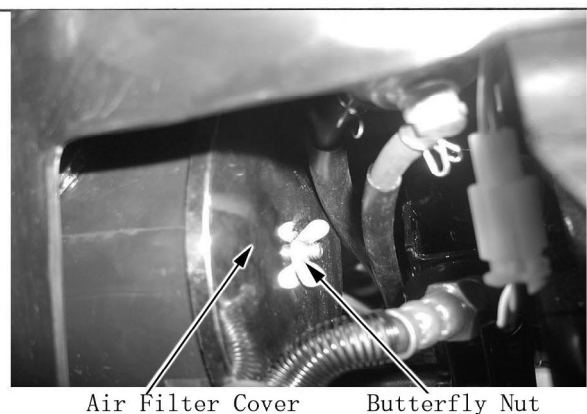


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Loosen the butterfly nut on the right side of air filter and remove the right side cover of air filter.

Remove air filter element and replace with a new one.

Assemble the removed parts in the reverse order.



Idle speed inspection

Caution

Check and adjust the following items before inspection:

1. Status of the air filter and small air filter filter
2. Status of spark plug

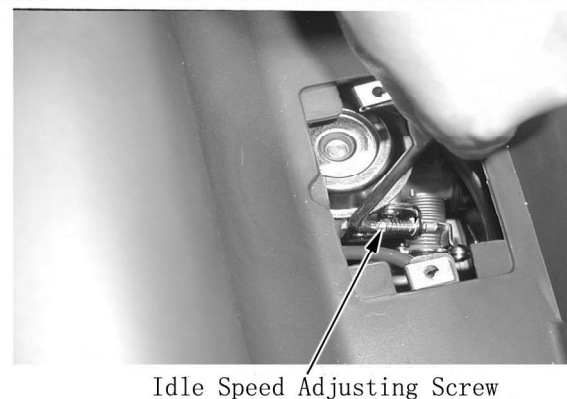
Use an engine tachometer, which can read error of 50r/min, and install properly according to operation manual.

Any incline of the vehicle body will cause change of the idle speed, so the vehicle should be parked with the main stand on the flat ground and kept vertical.

Start the engine and keep it running unloaded at 6000rpm for about 5~6 minutes to warm up. (Outdoor temperature: 25°C)

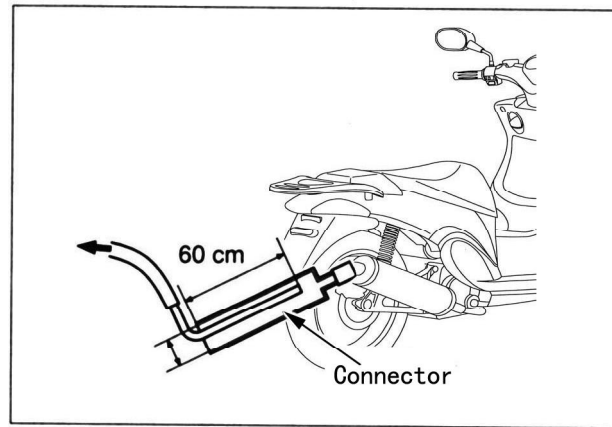
Check if the idle speed is normal. If necessary, turn the idle speed adjusting screw, and adjust to the required idle speed.

Idle speed: 1600 ± 150 rpm



Checking the exhaust

To ensure the required insert depth of the sensor (60cm), Use a connector and connect it to the muffler.



After strictly adjusting the idle speed, measure the density of CO (CO%) and HC (HC%).

CO% at Idle speed: below 4.5%

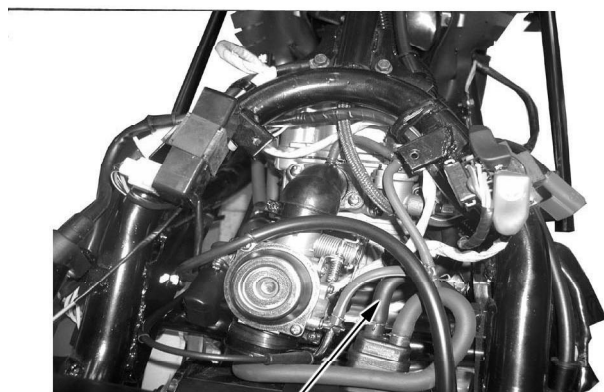
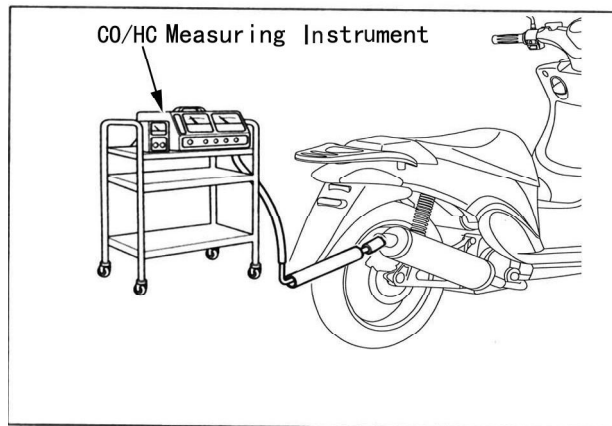
HC% at idle speed: below 1200ppm

If the density of CO/HC exceeds the rated value, readjust according to following steps:

Clip the secondary air supplying hose with clamp to cut the supply of secondary air.

Start the engine and adjust idle speed if necessary

Idle speed: 1600;±150r/min



Secondary Air Inlet Pipe

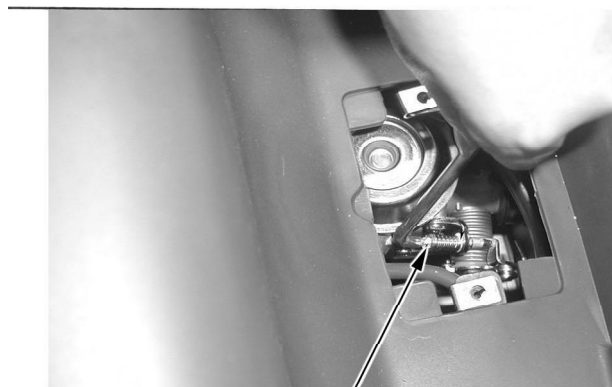
Note

When secondary air inlet is stopped, the idle speed will change. When the idle speed is more than datum value, adjust when the state of secondary air inlet is cut.

After strictly adjusting the idle speed, measure the density of CO (CO%) and HC (HC%).

CO% at Idle speed: below 4.5%

HC% at idle speed: below 1200ppm



Idle Speed Adjusting Screw

3 Inspection, Adjustment

In case the density of CO/HC is more than the rated value, turn the adjust screw and check the density of CO/HC till the value is under the rated standard.

Special tool

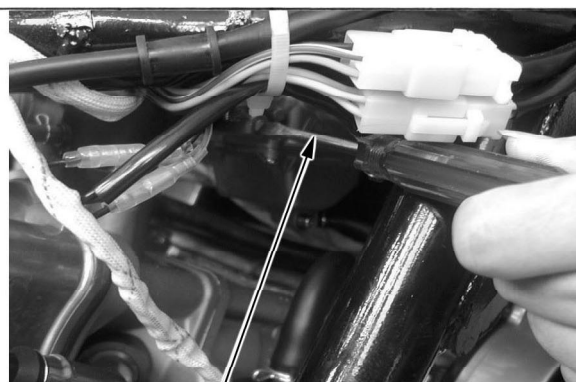
Mixture screw adjusting tool: 07KMA-MS60101

Target value of CO density at idle speed: <4.5%

Remove the clamp of secondary air inlet pipe.

Check the idle speed and adjust if necessary.

Idle speed: 1600 ± 150 r/min



Mixed Ratio Screw Adjusting Tool

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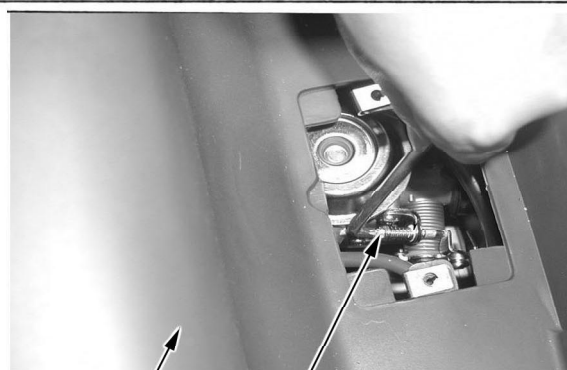
Checking the throttle handle

Turn the throttle handle, and check if it can turn smoothly. In case the turning of the throttle handle is not smooth enough, Check if there is damage with the throttle cable, or rust with the steel wire or any stickness with the throttle handle.

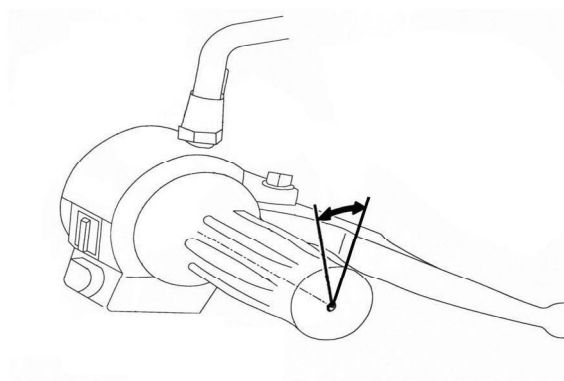
Check the outer clearance of throttle handle.

Clearance: 2-6mm

Adjust the clearance when it is not in the rated range.



Central Trunk Idle Speed Adjusting Screw

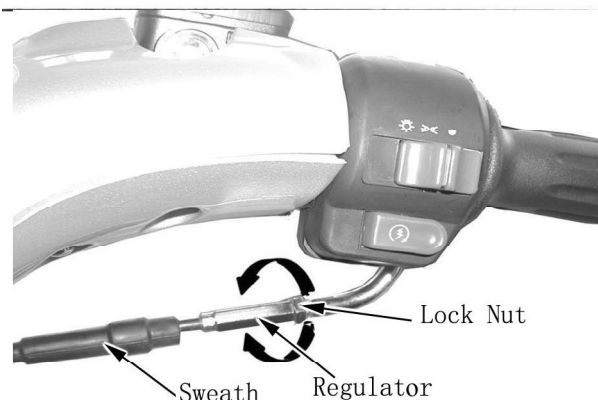


Remove the shield of the cable of throttle.

Loosen locknut of throttle cable, turn the regulator and adjust clearance of throttle handle.

After adjusting, tighten locknuts and install throttle cable shield.

Replace with a new throttle cable if the rated clearance could not be reached by adjusting the regulator or if there is still stickness with the throttle handle.



Cooling device

Caution

Check of liquid level should be done on the secondary water tank instead of the radiator. If the radiator cover is opened while the engine is hot (over 100;æ), the pressure of the cooling system will come down and the coolant will become boiled rapidly. **DO NOT** open the radiator cover until the coolant temperature drops down.

•Coolant is poisonous, **DO NOT** drink or splash it skin, eyes, and clothes.

•Coolant is poisonous, **DO NOT** drink or splash it skin, eyes, and clothes.

–In case the coolant gets to the skin and clothes, wash with the soap immediately.

–In case the coolant gets into eyes, rinse with plenty of water and go to see the doctor

—In case of drinking the coolant, induce vomit and got to see the doctor.

Keep the coolant in a safe place and away from the reach of the children.

Coolant level

Coolant might get less due to natural evaporation, check the coolant level regularly.

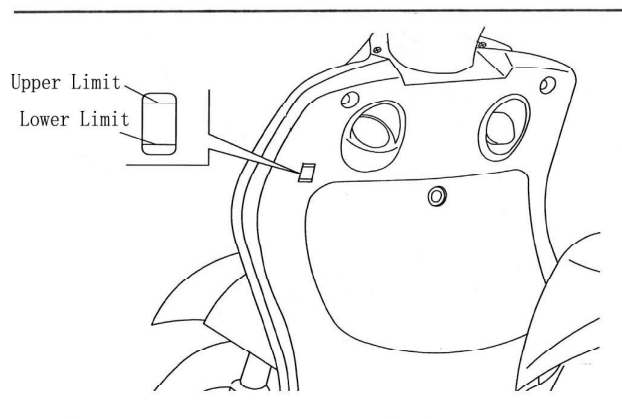
Caution

- Coolant can prevent rust and resist freeze. Ordinary water may cause engine rust or cracks in winter due to freezing. So coolant must be used.
- Park the vehicle properly for checking of the coolant. Inclined vehicle body will cause incorrect judging of the coolant level.
- Check the coolant after the engine is warmed up.

Start and warm up engine.

Stop the engine, park the vehicle with main stand on the plain ground.

Check if the coolant level is between the upper and lower limit.



3 Inspection, Adjustment

When the coolant level is below the lower limit, remove the two tapping screws of the front emblem plate, and then the front emblem plate. Remove secondary water tank's cover, add coolant till the upper limit (coolant or diluted original liquid).

Recommended coolant: CFMOTO coolant
Standard density: 30% (Freezing temperature of coolant varies according to the different mixture ratio. Adjust the mixture ratio according to the lowest temperature in the place where the vehicle is used.)

If the coolant reduces very fast, check if there is any leakage

The cooling system may be mixed with air when there is no coolant in the

secondary water tank and the air should be let out before filling coolant.

Coolant Leakage

Check radiator pipeline, water pump, water pipes and joints for leakage.

In case of any leakage, dismantle and do further check. (Refer to Part 6)

Check the radiator pipeline for aging, damages or cracks;

The rubber hose will naturally get aged after a period of service time and frequently being heated. As the aging goes on, the hose may get cracked when the cooling system is heated. Nip the hose with fingers and check if there are any tiny cracks.

In case of any abnormal, replace with a new hose.

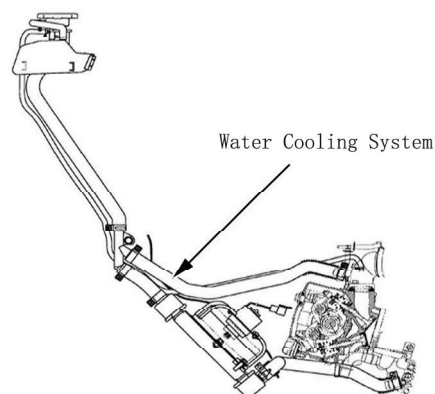
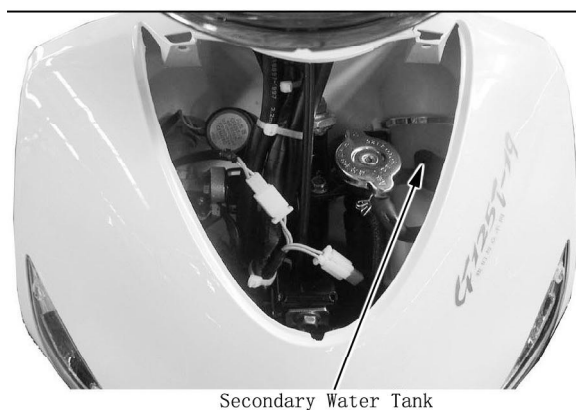
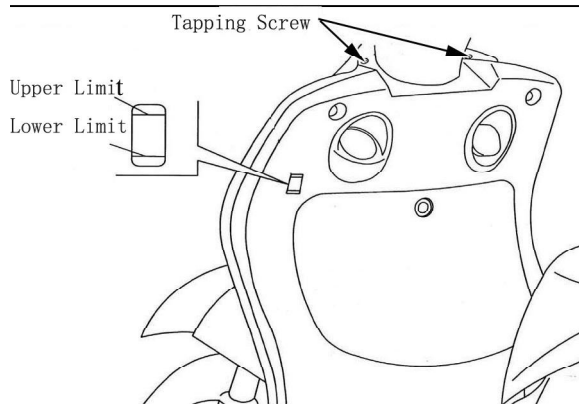
Check the clamps of the coolant pipes. Tighten properly in case of any slacking.

For dismantling of radiator, please refer to (6-8).

Check on the radiator fins for mud and dust or damage. Correct the bending of fins; clean the mud with water and compressed air.

When the damaged area of the radiator fin is over 20% of the whole area, replace with a new radiator. (6-8)

Refer to P. 6-4 for replacing the coolant.



Exhaust gas recycling device

Check if there's any deposit in the discharge duct for exhaust gas/mist separation. (at right bottom of air filter).

If there's deposit, remove the discharge plug; drain the deposit in pipe. Install the discharge plug and fix it with the clamp.



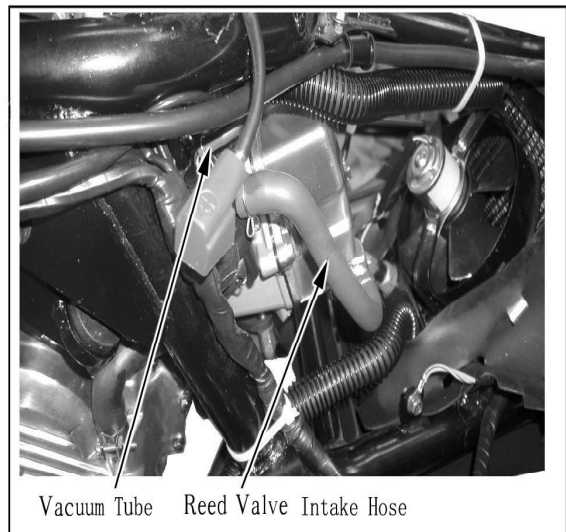
Anti-diffusion device for CO

Remove the right and left protecting plates(2-3).

Check the reed valve inlet hose between control valve of secondary air inlet and cylinder head cover to see if there is drop, aging or damage. Replace in case of any abnormal.

Check the control valve vacuum tube to see if there is drop, aging or damage. Replace in case of any abnormal.

Check the hose between secondary air inlet control valve and air filter body to see if there is drop, aging or damage. Replace in case of any abnormal.



Enginery Checking

Start and warm-up engine.

Remove the hose between secondary air inlet control valve and air filter body.

Check the outlet of secondary air intake on the air filter body for any carbon laydown or deposit.

Replace control valve of secondary air intake in case of any carbon laydown or deposit.



Remove the joint hose between air filter body and control valve of secondary air intake.

Remove the vacuum tube of control valve of secondary air inlet from the T joint.

Install block on T joint.

Connect vacuum tube of control valve of secondary air intake to vacuum pump.

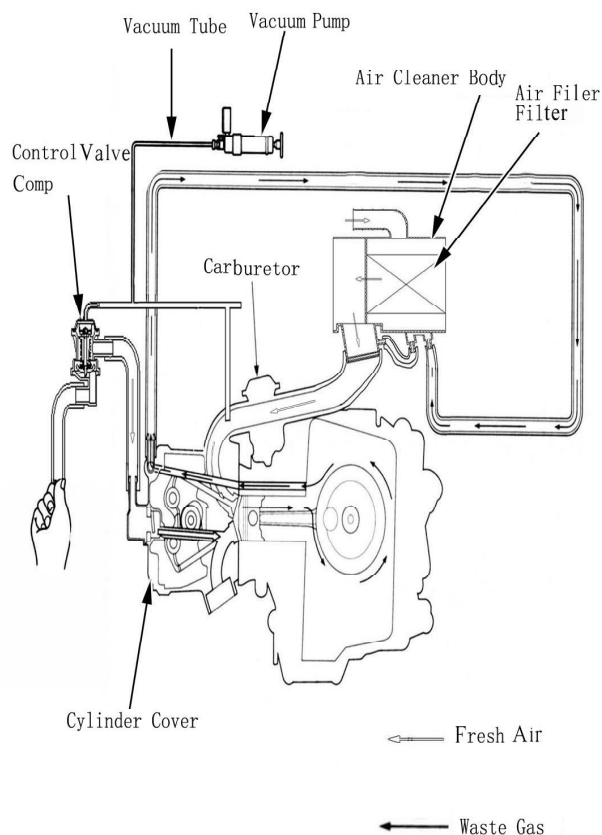
Start the engine and slightly increase the throttle.

Under the above state, check is secondary air is sucked into the tube between air filter body and secondary air control valve.

If now air is sucked, check if there is blockage in the tube between air filter body and secondary air control valve.

Input 450mmHg vacuum pressure to the vacuum tube of secondary air control valve and check if the hose between air filter body and secondary air control valve stops breathing in the secondary air.

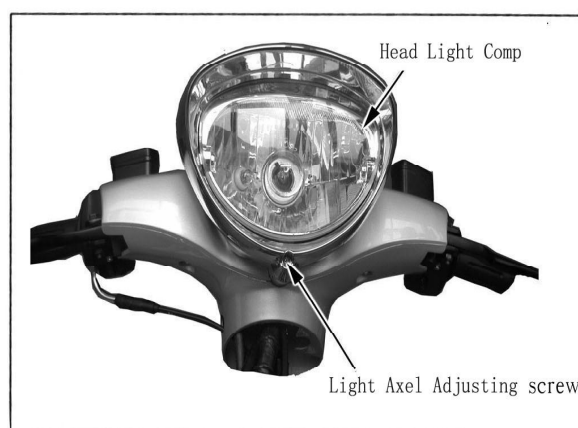
If intake of secondary air is not stopped or the 450mmHg vacuum pressure could not be maintained, replace with a new secondary air control valve.



Lighting device

Adjusting the screw for headlight beam

Adjust the screw with a “+” type screwdriver and adjust the high/low beam.

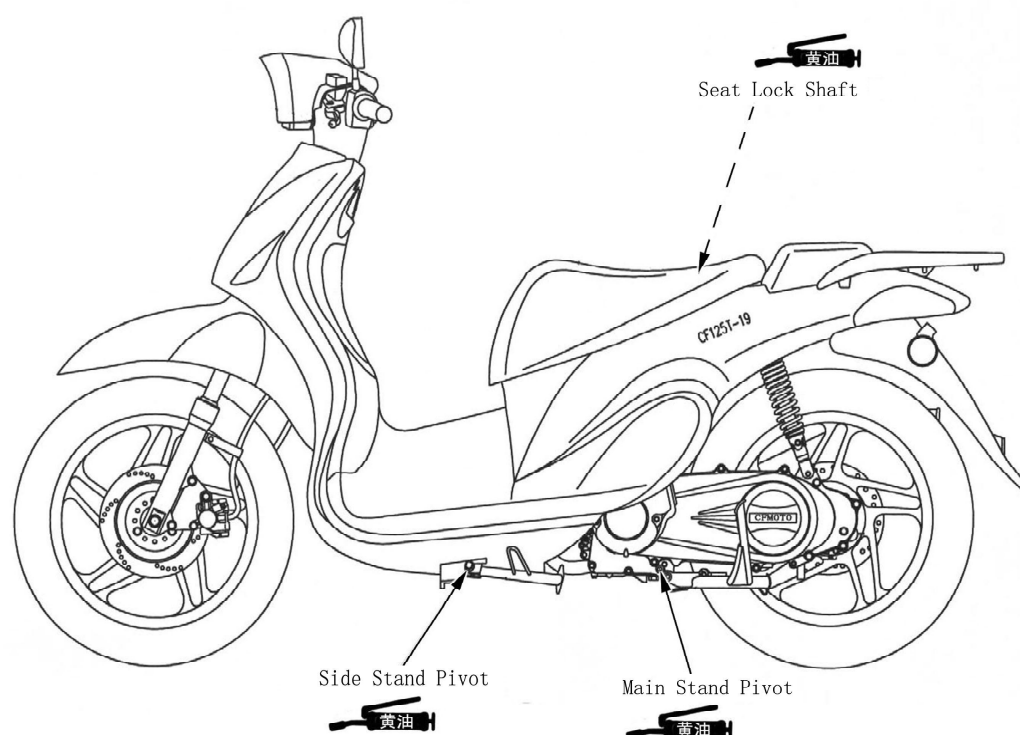


Others

Lubrication state of frame parts

Turn the movable parts of vehicle body, and check the lubrication condition.

In case of any stickiness, apply recommended lubrication oil or grease to the parts.



Overhaul info.....	4-1	Failure diagnosis.....	4-1
oil pump.....	4-2		

Overhaul info

Caution

- The maintenance of the oil pump shall be done after dismantling the right side cover. (→ 11)
- When the measured values exceed the service limit, replace the oil pump.
- Do not let any impurities into the inside of the engine while dismantling the oil pump.
- Check if there is any oil leakage after installing the oil pump.

4

Standard

Item		Standard	Service limit
Oil capacity	When replacing	1.1L	—
	Full Capacity	1.15L	—
Recommended oil		SAE10W-40、20W-50 Special for 4-stroke motorcycle When using substitutes, select from following range. API: SE or SF type engine oil SAE: select from left table according to external temperature.	
Oil pump rotor	Clearance of inner and outer rotors	0.15mm	0.20mm
	Body clearance	0.15-0.23mm	0.25mm
	Terminal surface clearance	0.05-0.10mm	0.12mm

Tightening torque

Mounting bolt, oil pump body	10N.m(1.0kgf.m)
Screw, plate oil pump cover	2N.m(0.2kgf.m)
Separate plate comp, B	10N.m(1.0kgf.m)
Separate plate A	10N.m(1.0kgf.m)

Failure diagnosis

Low oil level

- Natural consuming of oil
- Leakage
- Wearing or incorrect installation of piston ring or
- Wearing of valve guide or valve stem
- Wear of oil seal, valve stem
- Wearing of cylinder, piston and piston ring

Smutted oil

- Oil is not replaced in time
- wearing of piston ring
- Oil mixed with coolant
- Poor sealing of water seal comp
- Poor sealing of cylinder gasket

Oil pump

Caution

Do not let impurities into the inside of the engine when dismantling and installing the oil pump.

Dismantling

Remove right side cover(11-2)

Remove the rotor comp, driven gear comp. (11-3)

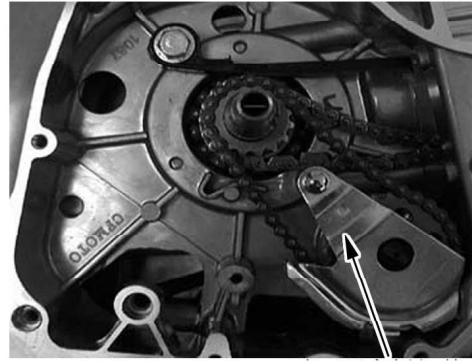
Remove separate plate, oil pump comp B.

Remove shaft circlip.

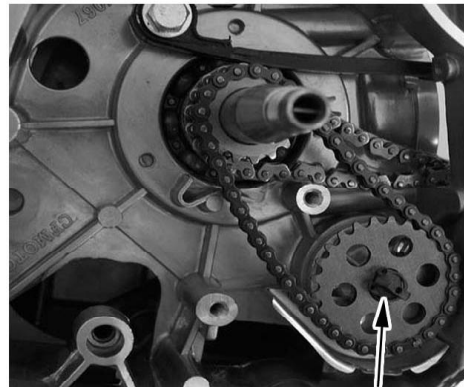
Remove sprocket and chain.

Check if there is any wear or damage with the chain.

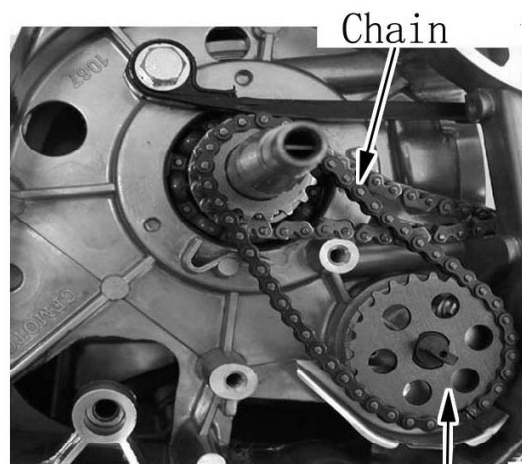
Remove separate plate A



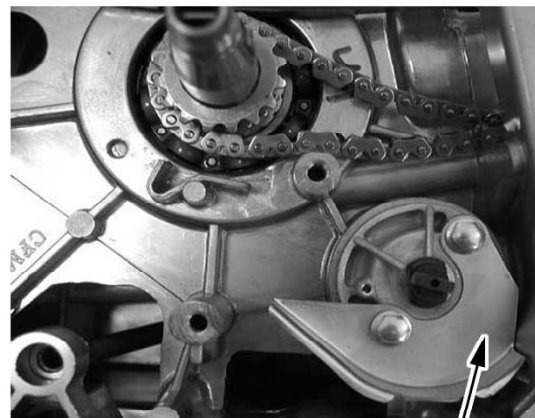
Separate Plate Oil Pump Comp B



Shaft Circlip

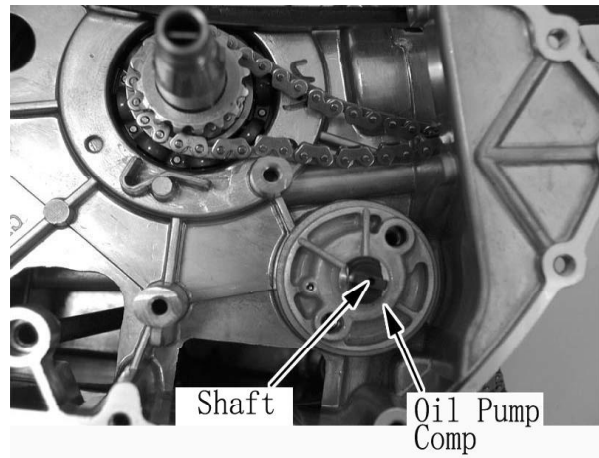


Sprocket



Separate Plate A

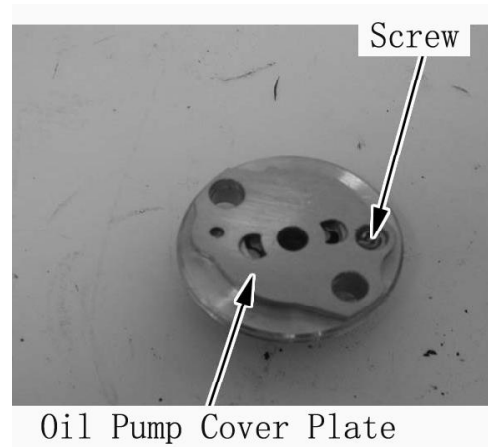
Remove oil pump comp., and the oil pump shaft.
Check oil pump comp. for any damage or wear.



4

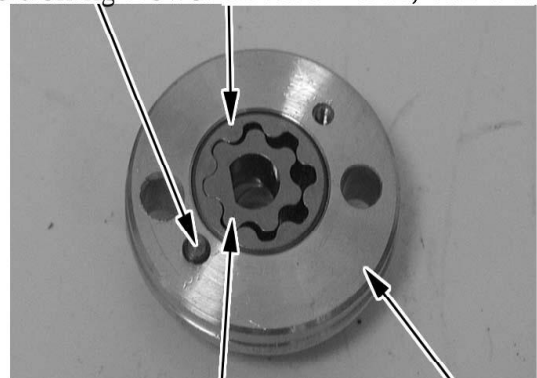
Dismantling

Remove screw and oil pump cover plate.



Remove inner rotor and outer rotor of oil pump.

Positioning Dowel Outer Rotor, Oil Pump



Note

Measurement should be done multi spots and choose the max measured value.
Replace the oil pump assy. If the measured values exceed the service limit

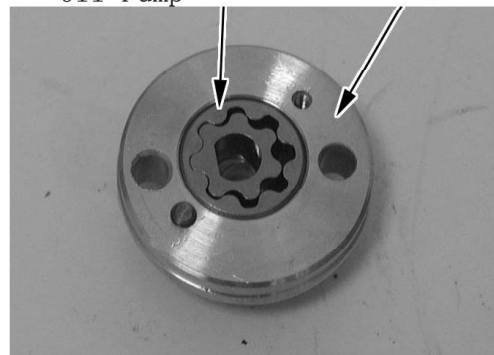
Body clearance

Measure the out diameter of oil pump outer rotor and inner diameter of pump body with a vernier caliper; the difference between the two is the clearance value.

Service limit: 0.25mm

Outer Rotor Oil Pump

Oil Pump Body



CFMOTO

Clearance between inner rotor and outer rotor of oil pump

Install inner rotor and outer rotor on the oil pump body, measure the clearance between inner rotor and outer rotor with a plug ruler. .

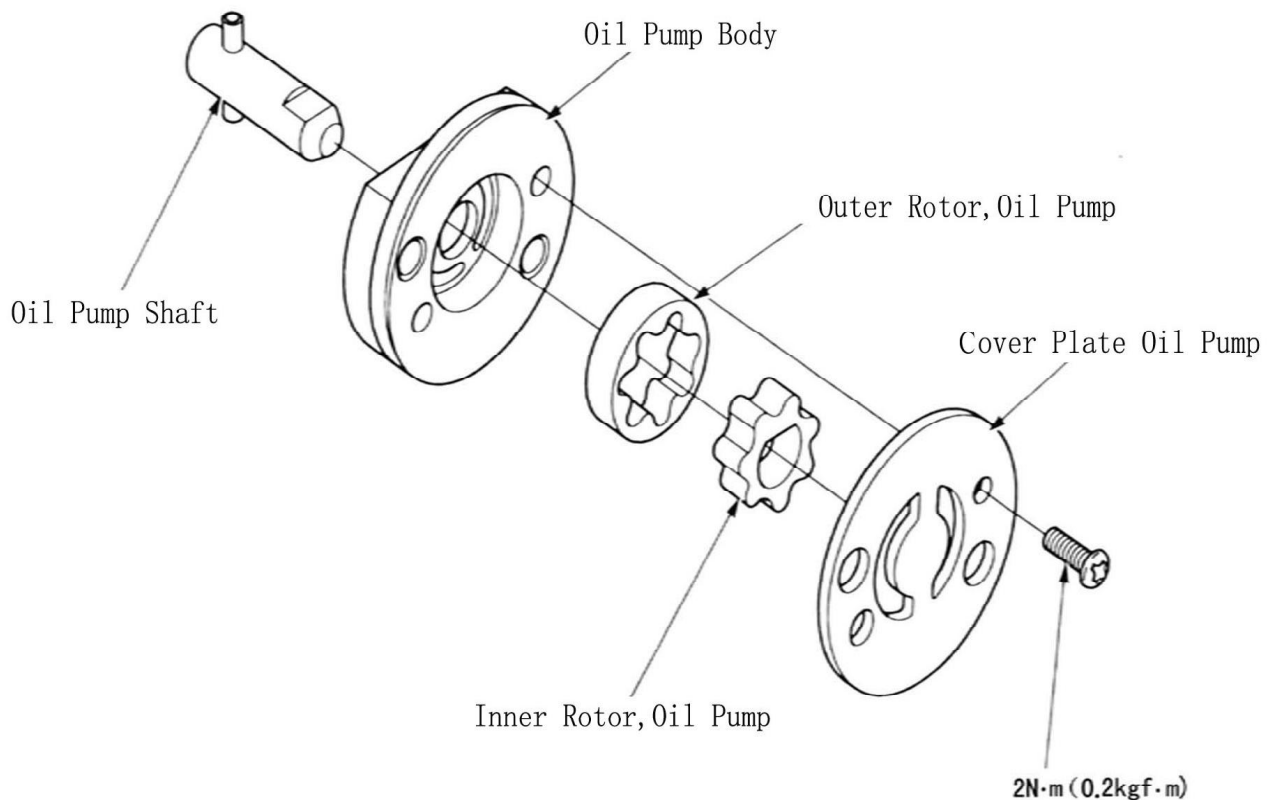
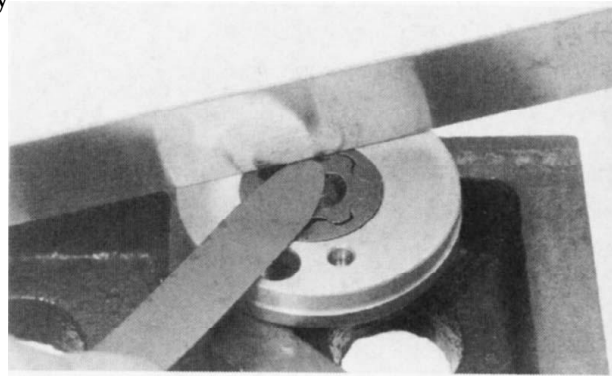


Service limit: 0.20mm

Terminal surface clearance

Install inner rotor and outer rotor to the oil pump body, measure the clearance between rotor and oil pump body with a plug ruler.

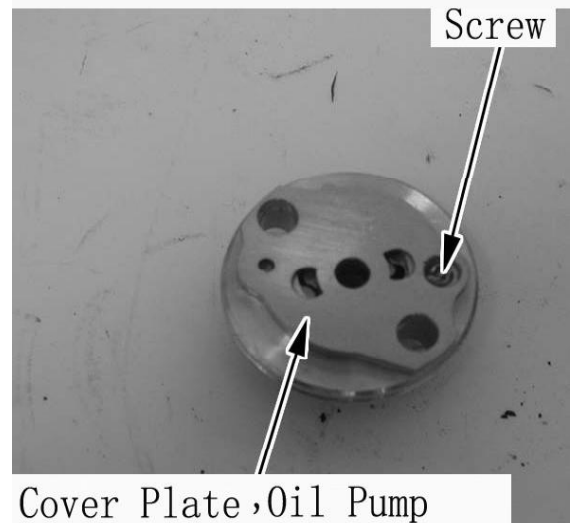
Service limit: 0.12mm



Caution

Wash and clean each part with clean kerosene before assembly.

Assemble inner rotor and outer rotor to oil pump body.

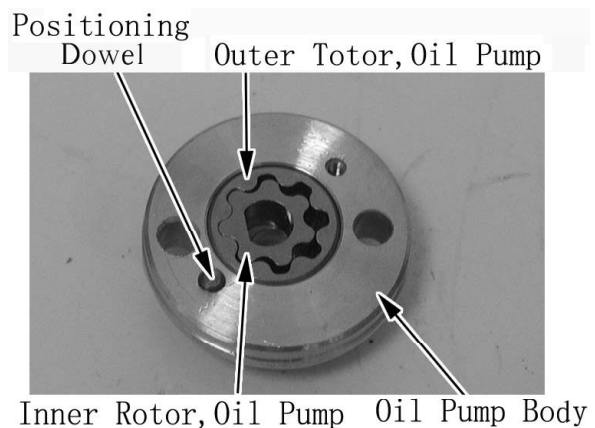


4

Install cover plate oil pump, tighten the screw according to the stated torque.

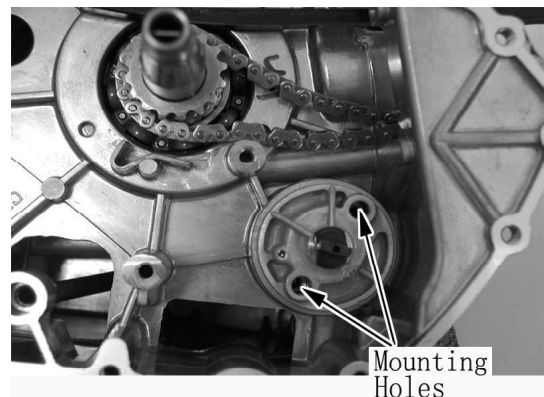
Torque: 2N.m(0.2kgf.m)

Pre-tighten cover plate after assembly, install oil pump shaft, and make sure the shaft can turn smoothly.



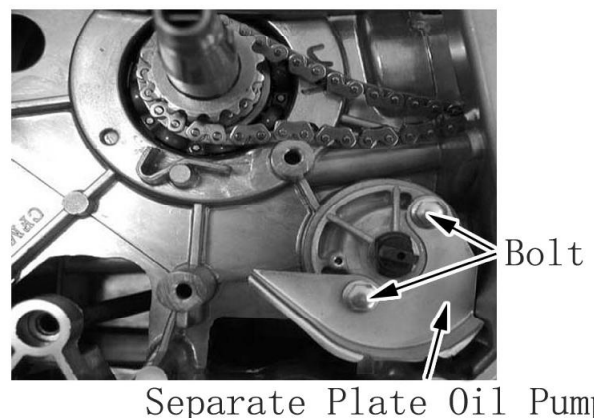
Installation

Make sure that the two mounting holes of the oil pump comp are in line with the mounting holes on the right trunk. Or the mounting bolts won't be tightened. Install and tighten two bolts



for oil pump comp. and separate plate A, and tighten according to the stated torque.

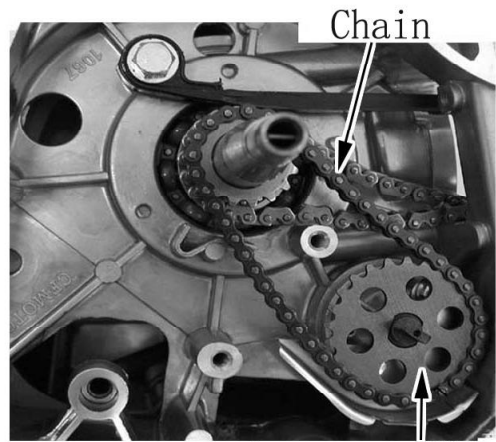
Torque: 10N.m(1.0kgf.m)



CFMOTO

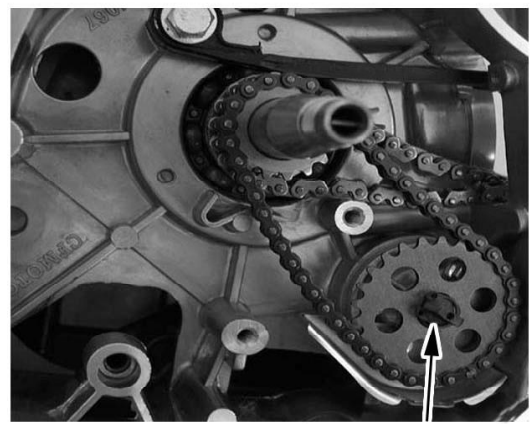
Install oil pump sprocket and chain.

Note: Sprocket and chain should be properly installed



Separate Plate
Comoart Pump

Install shaft circlip into the shaft groove.
Check if the circlip is properly installed



Shaft Cirelip

Fold separate plate oil pump B with separate oil pump A, and tighten with bolt.

Install rotor comp, driven gear comp. (11-6)
Install right side cover. (11-7)



Separate Platecompotl
Pump B

Overhaul info5-1	air filter assembly.....5-12
Failure diagnosis.....5-2	air filter installation.....5-13
Carburetor disassembly.....5-3	control valve disassembly.....5-14
Carburetor dismantling.....5-4	small air filter disassembly.....5-15
Carburetor assembly.....5-7	small air filter dismantling5-15
Carburetor installation.....5-9	small air filter assembly..... 5-15
Air filter disassembly..... 5-10	small air filter installation.....5-16
Air filter dismantling.....5-11	control valve installation.....5-16

Overhaul info

Caution

Note

Gasoline is highly flammable, therefore smoke and fire are strictly forbidden in the work place. Special attention should also be paid to sparks. Gasoline may also be explosive when it is vaporized, so operation should be done in a well-ventilated place.

- Do not over twist or bend the cables. The twisted cables may cause poor operation.
- Check the installation position of o-rings, replace if necessary.
- Remove the drainage screw of the float bowl before dismantling and discharge the gasoline in the carburetor with a container.
- To prevent impurities from entering into the engine from the intake side after the carburetor is disassembled, cover the intake opening with a piece of cloth or adhesive tape.
- In case the carburetor is stored over a month, be sure to discharge the gasoline in the float bowl. Otherwise the gasoline in the float bowl will get aged and form the glue component which may block the slow speed jet and cause unsteady idle speed.
- For checking of the starting enriching device, please refer to Chapter 18.

Maintenance Norm

Item		Norm
Fuel tank Capacity	Full capacity	7.0L
Carburetor	Designated Mark	BS26
	Main jet	#97.5
	Slow speed jet	#15
	Mixture screw opening	turning 1-1/2 r
	Float bowl fuel level	30 ± 0.5mm
	Idle speed	1600 ± 100rpm

Failure diagnosis

Engine can't be started

- Too much fuel in the engine
 - air filter blockage
 - carburetor overflowAir leakage between carburetor and joint plate
- Deteriorated fuel
- No fuel in carburetor
 - fuel cleaner blockage
 - fuel pipe blockage
 - fuel tap is closed
 - fuel level is not well adjusted
 - hole of fuel tank cap is blocked

Poor mixture

- Fuel jet blocked
- Float valve is not functioning
- Fuel level too low
- Fuel system blocked
- Carburetor air duct blocked
- Air leakage between carburetor and joint plate
- Air valve is not working normally

Over concentrated mixture

- Float valve is functioning
- Air nozzle is not functioning
- Filter element is not functioning
- Carburetor overflow
- **Difficult to start or engine stops after starting; unstable idle speed**
- Fuel system blocked
- Ignition system is not functioning
- Poor or over concentrated mixture
- Deteriorated fuel
- Air leakage between carburetor and joint plate
- Idle speed not well adjusted
- Screw for mixture ratio is not well adjusted
- Low-speed system blocked
- Fuel level is not well adjusted
- Hole of fuel tank cap is blocked

Delayed burning when braked

- Poor mixture in the low speed system

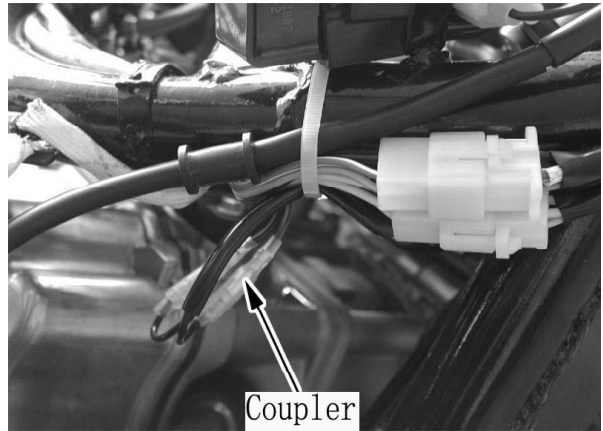
Backfiring, no firing when accelerating

- Ignition system is not functioning
- Poor mixture

Disassembly of carburetor

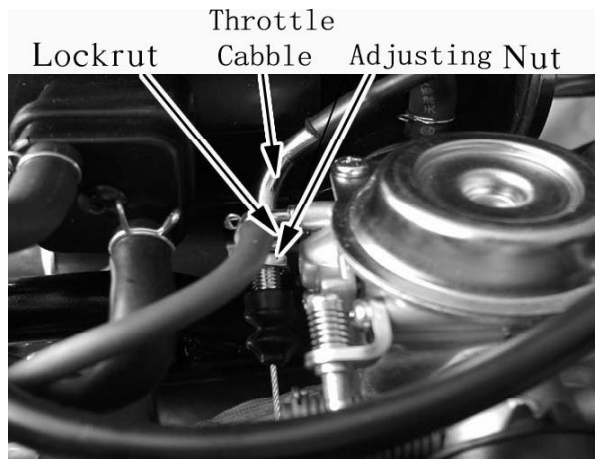
Remove seat box(2-3)

Remove coupler of starting enriching valve.

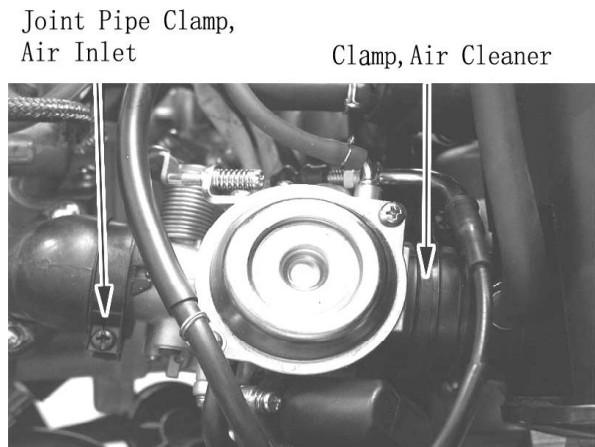


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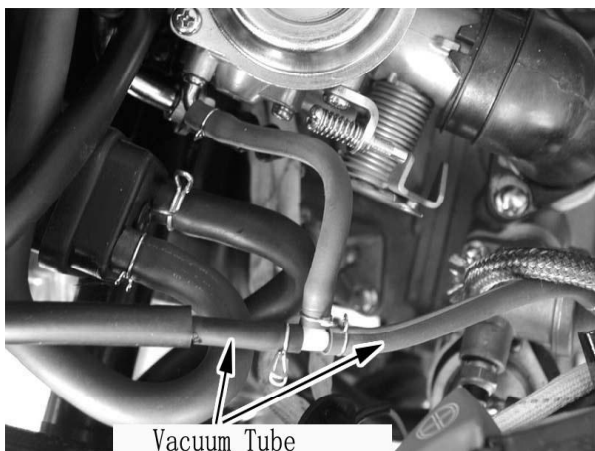
Loosen locknut, remove adjusting nut, and remove the cable from throttle.



Loosen clamp of air intake pipe and air filter, remove carburetor.



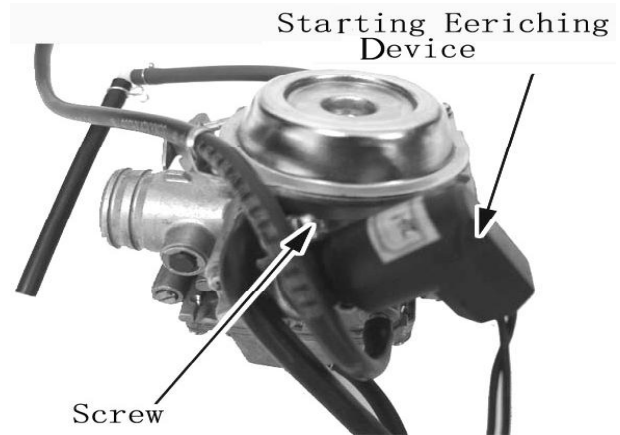
Remove the vacuum tube connected with carburetor.



Dismantling of carburetor

Starting enriching device

Remove screw and retainer, and the starting enriching device.

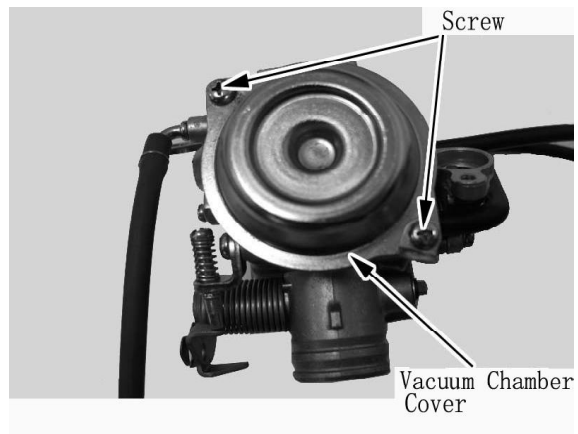


Check the starting enriching device for damage, and float needle valve and O-ring for wear.

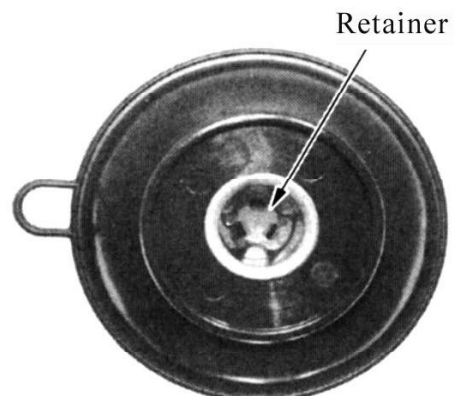


Vacuum chamber

Remove screw, vacuum chamber cover, spring, septum and vacuum piston.

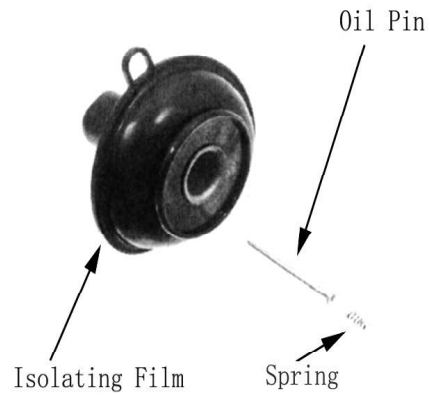


Turn the oil pin retainer counter clockwise, remove retainer, spring and float needle.



5 carburetor air filter secondary air inlet

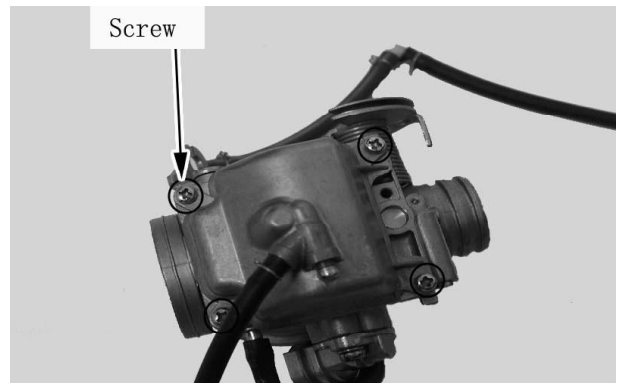
Check septum, vacuum piston and float needle for any damage.



5

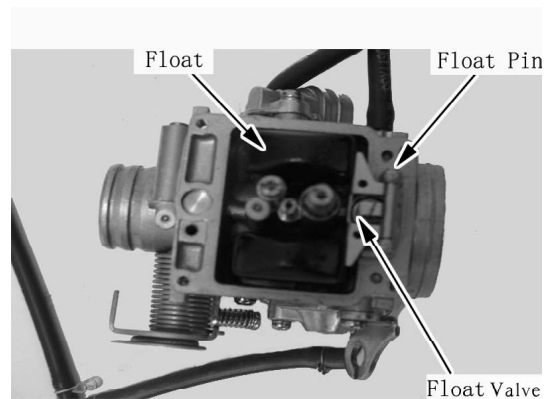
Float chamber

Remove the four screws; remove float chamber and O-ring.

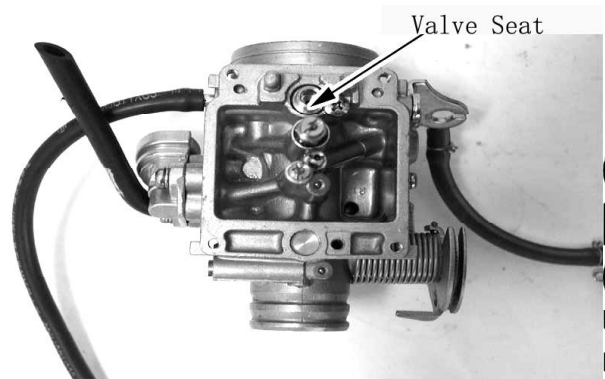


Take out float pin, remove float and float valve.

Check the float for distortion and damage, if necessary, replace the float.



Check the float valve and valve base for wear and damage.



CFMOTO

CFMOTO

Dismantling following parts

- main jet
- main nozzle
- low-speed jet
- mixture ratio screw/O-ring/washer/spring

Caution

Before removing the mixture ratio screw, turn the mixture ratio screw till it contacts valve base slightly and write down the turns.

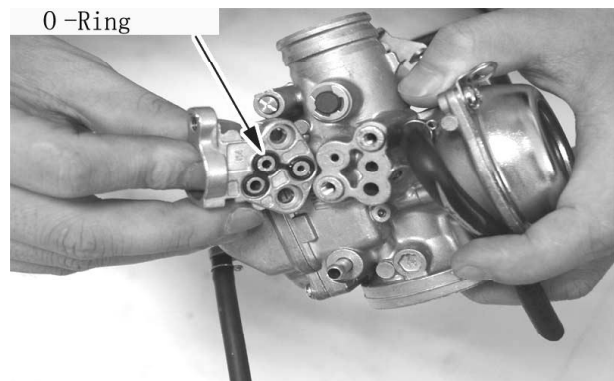
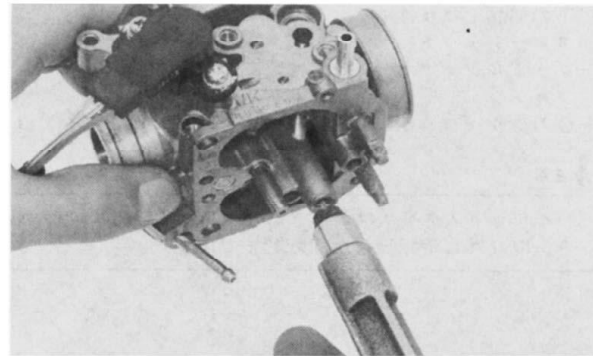
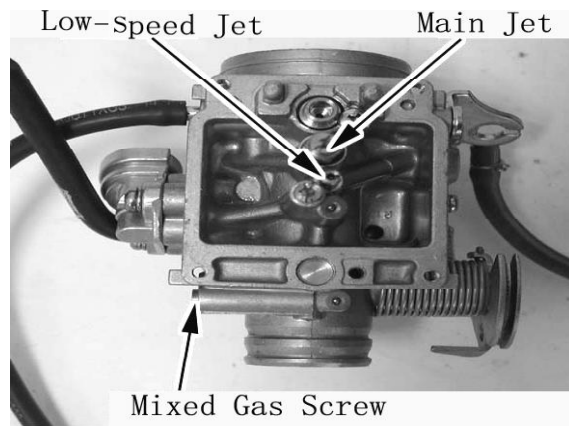
Caution

Don't screw in too hard to avoid damage of valve base surface.

Clean carburetor body with compressed air, and check the vent of each gateway.

Replace with a new O-ring on the starting enriching device.

Install starting enriching device to carburetor body and screw tightly.



5 carburetor air filter secondary air inlet

Assembly of carburetor

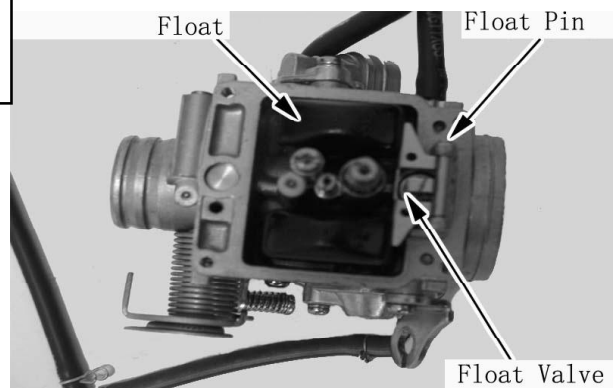
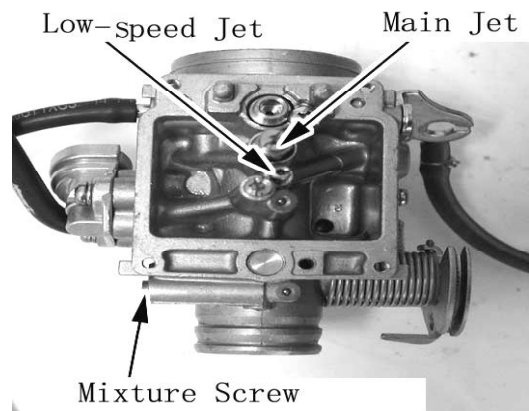
Assemble following parts

- Low-speed jet
- main noain jet
- o-ring/washer/spring /mixture ratio screw

Note

Screw the mixture ratio screw to till it slightly contacts valve base, screw back according to the turns of disassembly.

Assemble float valve, float and float pin.



Checking the oil level

Note

Fuel level gauge should be vertical against the float chamber mounting surface, and measure the distance to main measuring hole.

Incline carburetor so that the top end of float valve slightly contacts the float arm lip.

The float valve should be united tightly with valve socket.

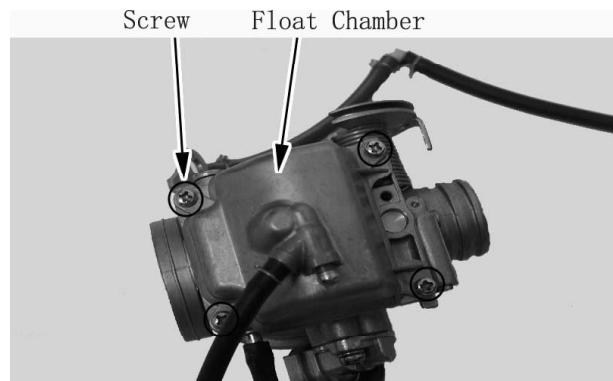
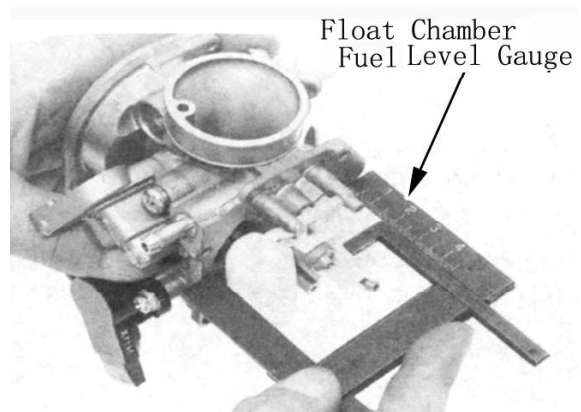
Measure oil level with fuel level gauge.

Required oil level: $30 \pm 0.5\text{mm}$

Replace float when the oil level is above the required level.

Check O-ring and assemble float chamber.

Tighten float chamber with four screws.

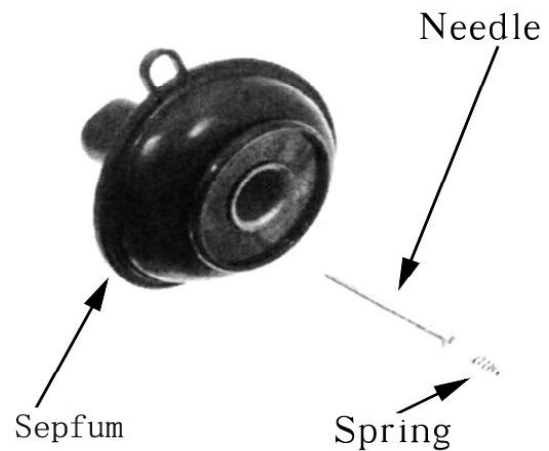


CFMOTO

Assemble oil pin, spring and retainer to the throttle.

Rotate oil pin retainer clockwise and fix it.

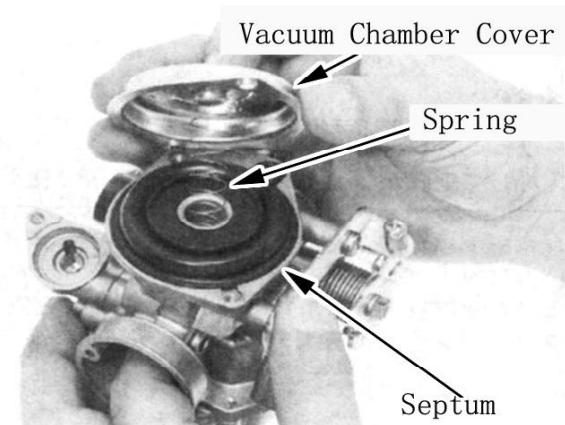
Assemble vacuum piston/septum,



spring to carburetor body.

Caution

Unite the protruding part of septum with groove of carburetor body.

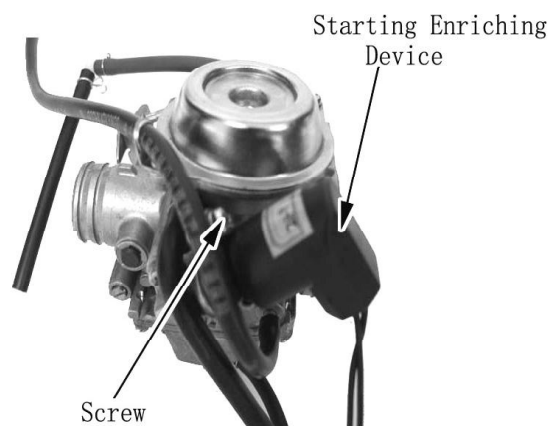


To avoid the septum being clipped, install the vacuum chamber cover while maintaining the status of the vacuum piston with fingers.

Tighten vacuum chamber cover with two screws.



Assemble starting enriching device, retainer to carburetor body and fix with screws.



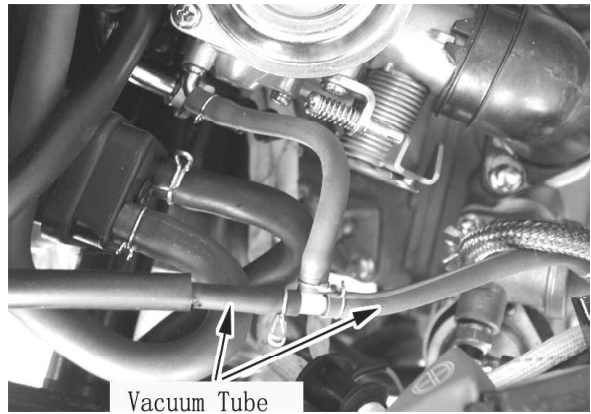
Assembly of carburetor

Install carburetor between air inlet connection pipe and air filter; tighten clamps on both sides of the carburetor.



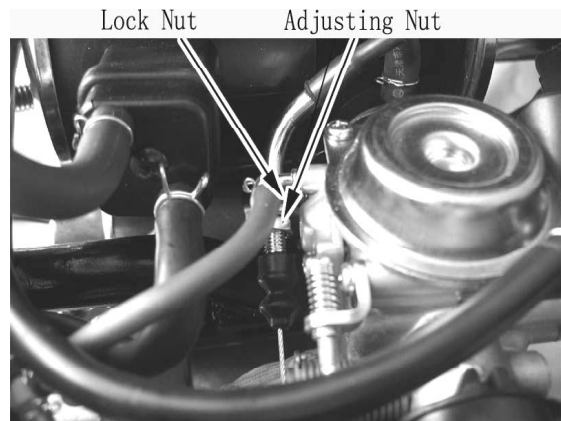
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Install vacuum tube.



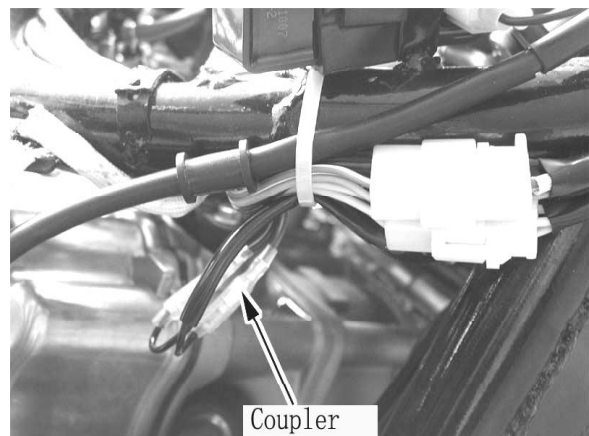
Connect cable rear end to throttle and fit the cable into the bracket.

Adjust clearance of throttle cable with adjusting nut, lock with locknut.



Install starting enriching valve coupler.

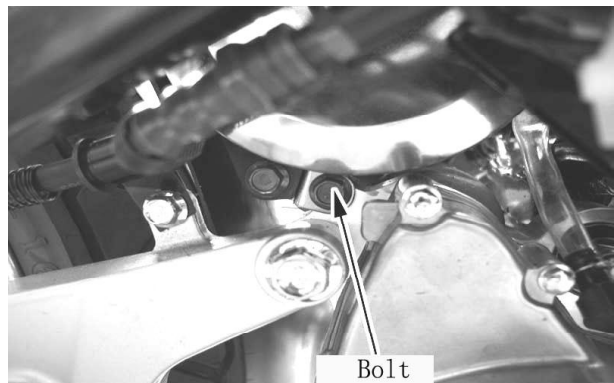
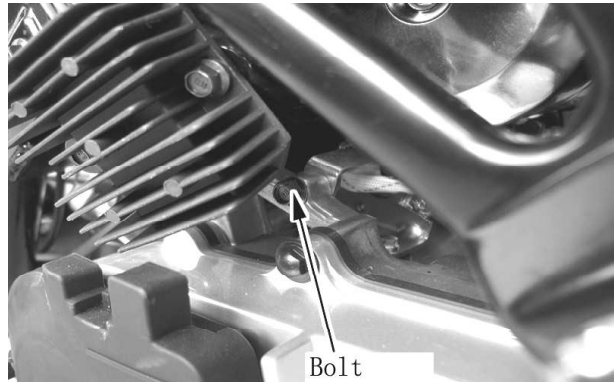
Install seat box. (2-3)



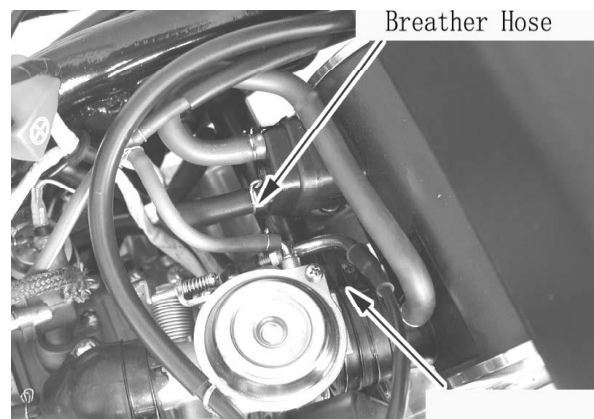
CFMOTO

Air filter removal

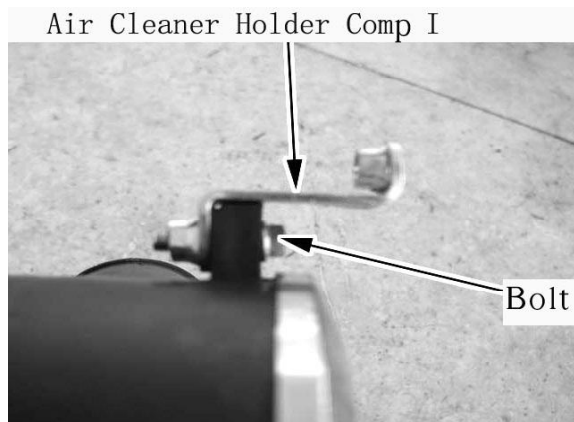
Remove
left shield(2-5)
right shield(2-6)
carburetor(5-3)
left side bolt



right side bolt
air intake pipe
Loosen clamp



Loosen bolt; remove air filter bracket



Loosen bolt; remove air filter bracket

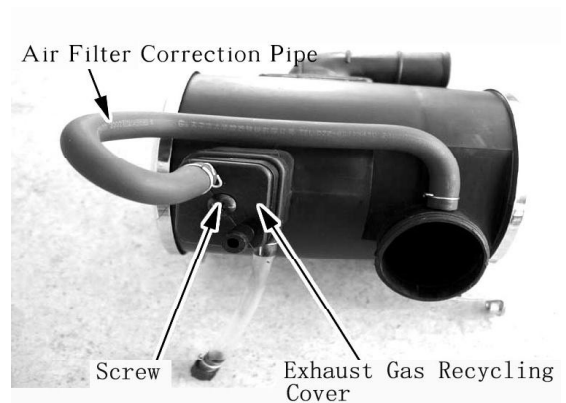


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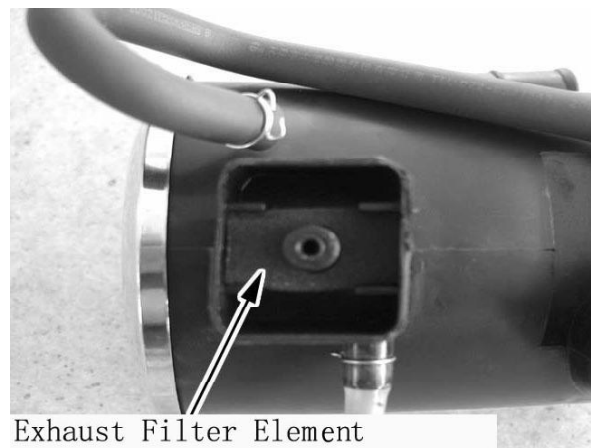
Dismantling of air filter

Loosen screw; remove air filter connection pipe.

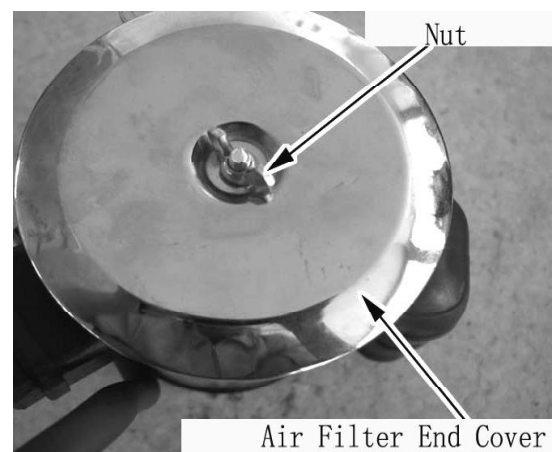
Remove exhaust gas recycling cover.



Remove exhaust filter element.



Remove nut and air filter end cover.



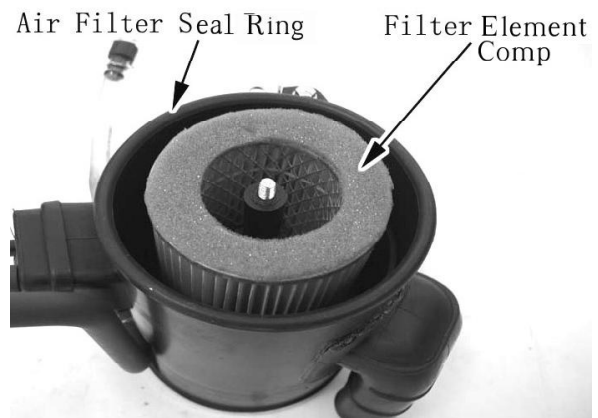
CFMOTO

remove filter element comp. and air filter seal ring.
Blow off the dust on the filter element with compressed air. Replace in case there is damage or serious stains on the filling.

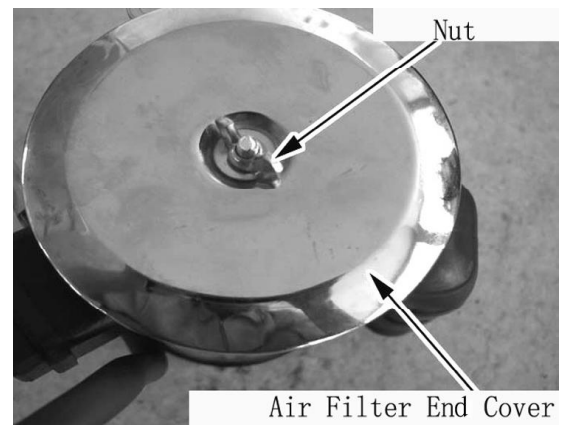


Assembly of air filter

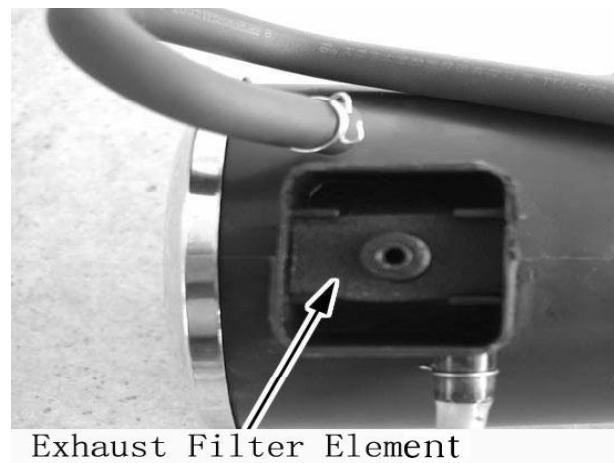
Install filter element comp. and air filter seal ring.



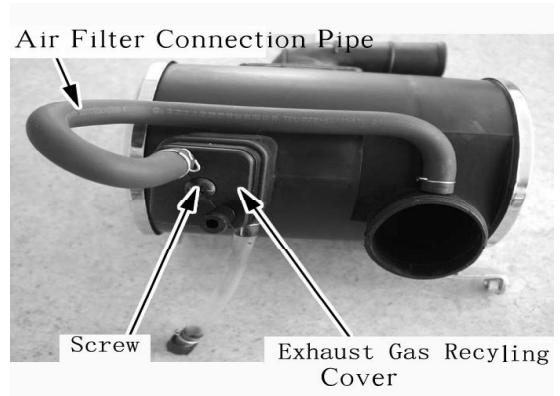
Cover the air filter end cover and lock with the nut.



Install exhaust gas filter element..



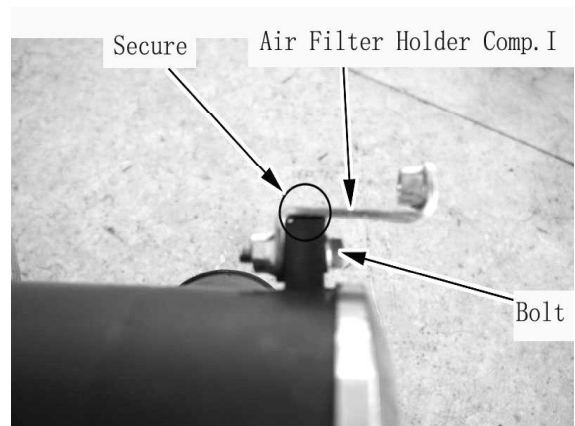
Cover exhaust gas recycling cover, tighten with screw and connect air filter joint pipe.



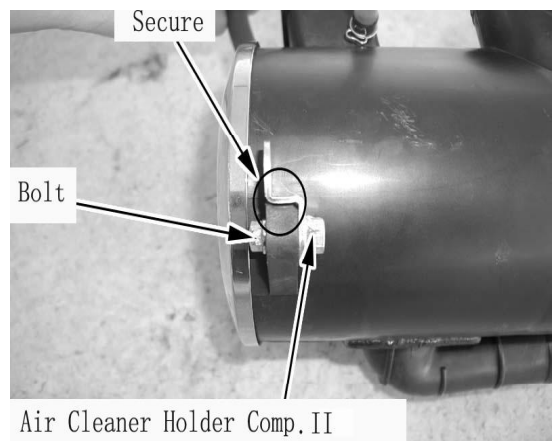
5

Air filter installation

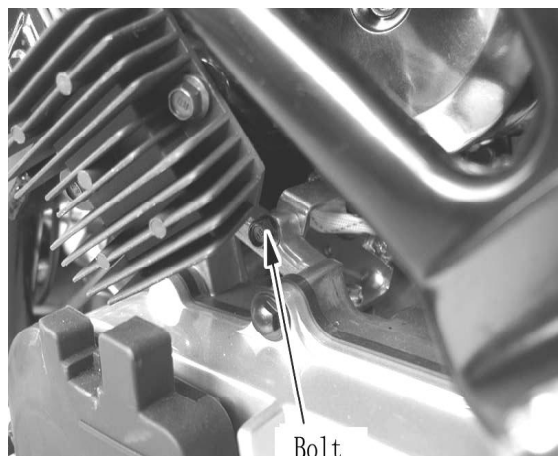
Secure the filter bracket I to the installation surface of carburetor body and tighten with bolt.



Secure the filter bracket II to the installation surface of carburetor body and tighten with bolt.

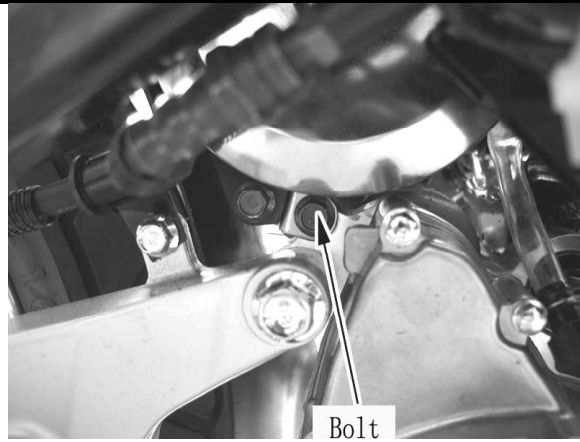


Install the assembled air filter on the engine, and tighten left side bolt.



CFMOTO

Tighten right side bolt.

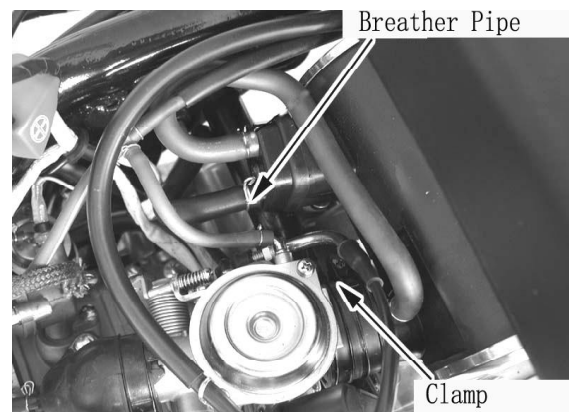


Install breather hose.

Tighten clamp.

Install carburetor. (5-9)

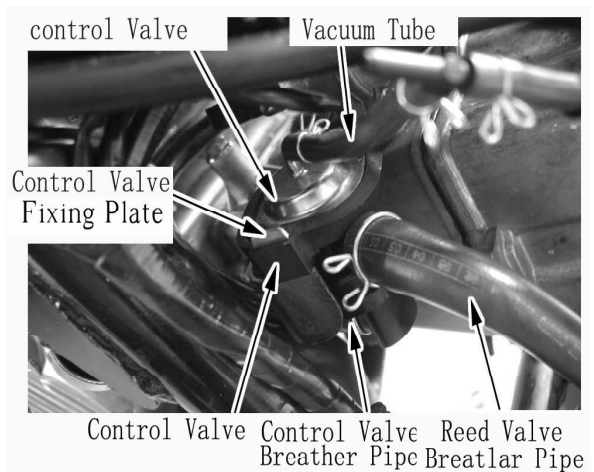
Install left and right shields. (2)



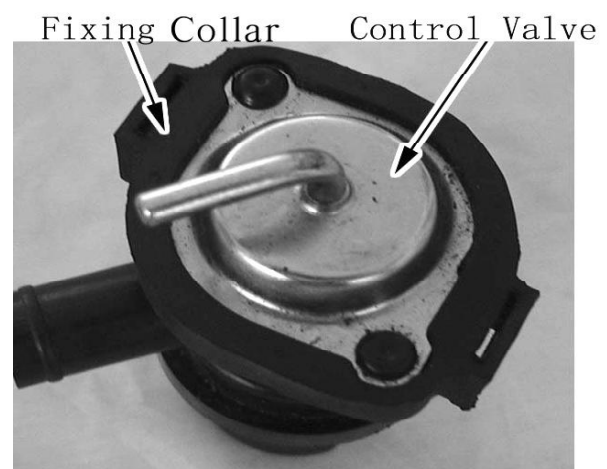
Disassembly of control valve

Remove footrest deck(2-12)

Remove control valve breather pipe, reed valve breather pipe and vacuum tube from control valve. remove control valve fixing collar with control valve from fixing plate.



Remove control valve from control valve fixing collar.



Removal of Small air filter comp.

Remove small air filter breather hose and bolt; Remove Small air filter from bracket.



5

Dismantling of small air filter comp.

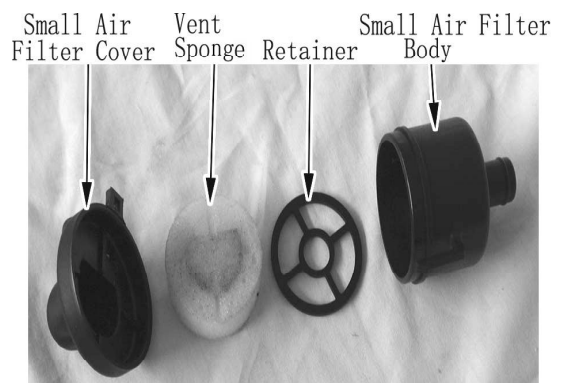
Open the clip place of small air filter comp., before dismantling.



Refer to the right picture for the dismantled small air filter. Assemble order is from left to right.

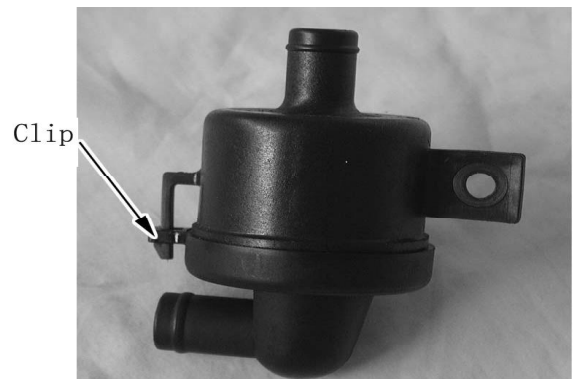
Caution:

Blow off the dust on the vent sponge with compressed air. Replace the filling if it is damaged or seriously stained.



Assembly of small air filter comp.

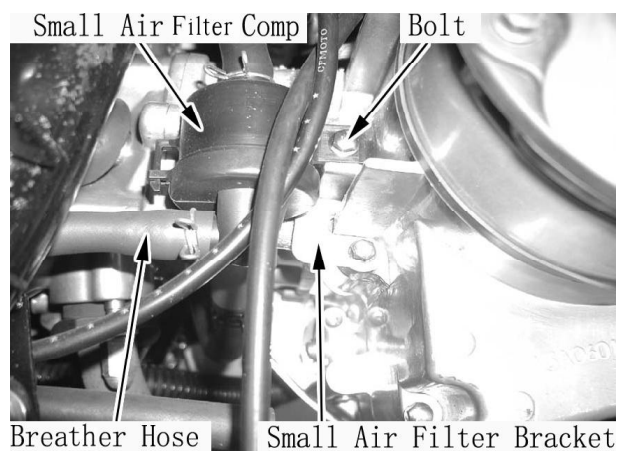
Reverse the order of dismantling for assembly. Fix the clip tightly.



CFMOTO

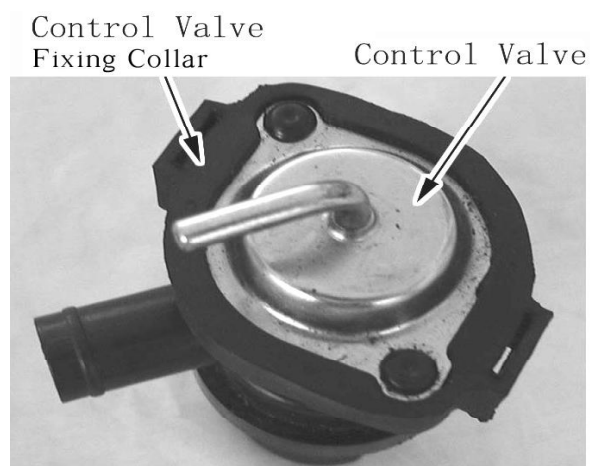
Installation of small air filter

Install the assembled small air filter comp. to the bracket with bolt, and connect the breather hose.

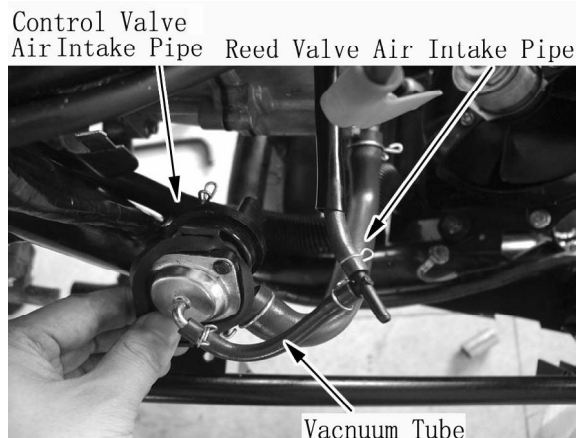


Installation of control valve

Set control valve on the control valve comp..

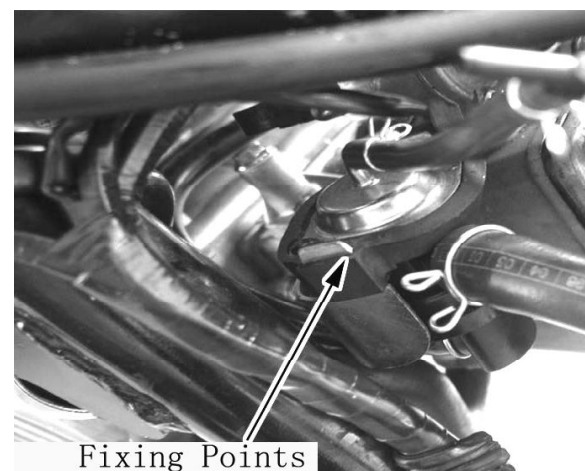


Connect control valve air intake pipe, reed valve air intake pipe, vacuum tube to the control valve and fix.

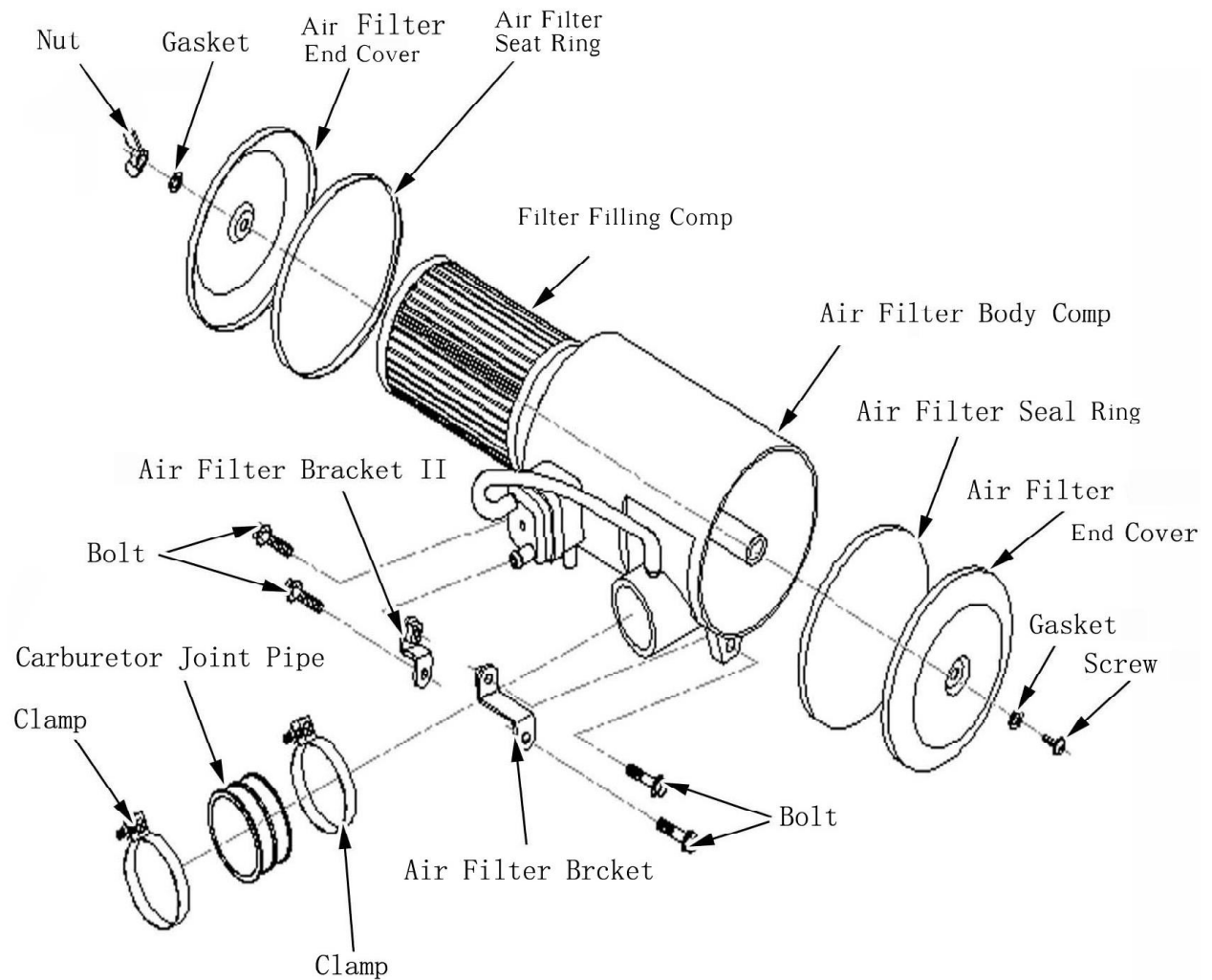


Fix the assembled control valve and control valve fixing collar to installation plate (total two “fixing points”)

Install footrest deck(2 chapter)



Air cleaner Assembly



Overhauling info.....6-1	thermostat.....6-7
Trouble shooting..... 6-2	radiator..... 6-8
Performance overhauling.....-6-3	oil pump.....6-8
Secondary water tank.....6-5	cooling system drawingj.....6-9

Caution

Do not remove the radiator cap when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, open the radiator cap as follows:

Place a thick rag or a towel over the radiator cap. Slowly turn open the cap.

Check the coolant after it is cooled completely.

The coolant is poisonous, DO NOT drink or splash it to skin, eyes, and clothes.

—If coolant splashes in your eyes, thoroughly wash your eyes with water and consult a doctor.

—If coolant splashes on your clothes, quickly wash it away with water and then with soap and water.

—If coolant is swallowed, vomit immediately and see a physician.

—Store the coolant properly and keep it away from reach of children.

The overhauling of the water pump can done without removing the engine.

Coolant filling is carried through secondary water tank. Do not open the radiator cap except when dismantling the cooling system for filling or drainage of coolant.

Don't stain the painting parts with coolant. In case of any coolant stains, wash with water immediately.

After dismantling of the cooling system, check the joints for leakage with a radiator cap tester(available in the market).

Refer to Chapter 18 for overhauling of temperature transducer.

Inspection standard

Item		Standard
Coolant capacity	Full capacity	0.88L
	Secondary water tank capacity	0.11L
	Standard density	30%
Opening pressure of radiator cap		108kpa(1.1kgf/cm ²)
Thermostat	Open valve action temperature	72 ± 2 °C
	Full open Temperature	88 °C
	Full open rising height	3.5-4.5mm

Tightening torque

Draining bolt, water pump:	8N.m(0.8kgf.m)
Water temperature transducer:	10N.m(1.0kgf.m)
Water pump impeller:	10N.m(1.0kgf.m)left thread

Trouble shooting

Water temperature rises too fast

- Radiator cap is not good
- Air mixes into cooling system pipe
- Malfunction of water pump
- Malfunction of thermostat (thermostat is closed)
- Blockage of radiator pipe or cooling pipe
- Coolant is not enough

No rise or slow rise of water temperature.

Malfunction of thermostat (thermostat isn't closed)

Water leakage

- Water pump seal is not good
- O-rings are worn or damaged or improperly sealed.
- Washers are worn or damaged or improperly sealed.
- Pipes are improperly installed.
- Pipes are worn or damaged or improperly sealed.

Function check

Inspection of coolant density

Caution

Open the radiator cap after coolant is cooled down.

Remove front emblem plate(2-8)

Remove radiator cap

Check with a densimeter if the density of coolant fits the temperature of using place

Check coolant for stains

Inspection of radiator cap

Caution

Open the radiator cap after the coolant is cooled down.

Remove front emblem plate(2-8)

Remove radiator cap(refer to previous item)

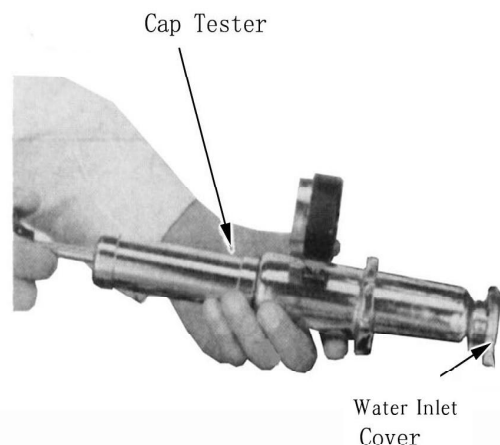
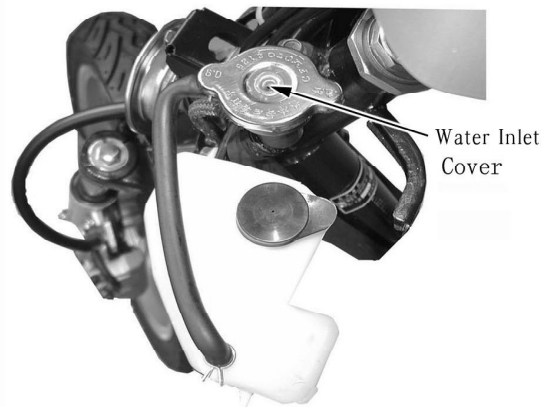
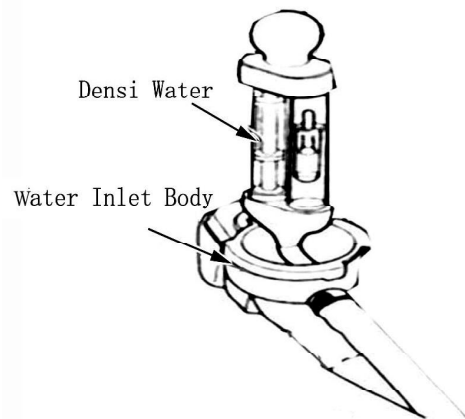
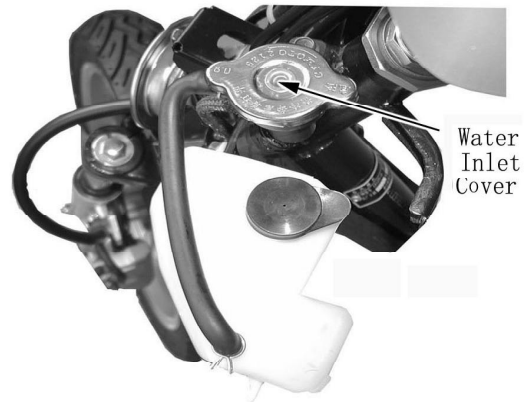
Caution

Apply water on the sealing surface of radiator cap when attaching the tester to the radiator cap.

Apply the specified pressure for 6 seconds and make sure there is no pressure drop.

Opening pressure of radiator cap:

108kpa(1.1kgf/cm²)



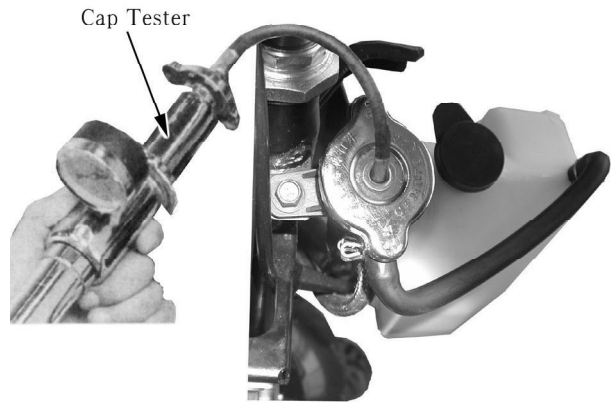
Pressure test of radiator

Apply the specified pressure and make sure there is no pressure drop for 6 seconds.

Caution

Do not apply pressure over the specified pressure [108kpa(1.1kgf/cm²)], or the cooling system may be damaged.

In case there is any pressure leakage, check the pipe, joint parts, joints of water pump and water drainage leakage(6-8).



Replacement of coolant air removal

Preparation of coolant

The coolant is poisonous, **DO NOT** drink or splash it to skin, eyes, and clothes.

—**if** coolant splashes in your eyes, thoroughly wash your eyes with water and consult a doctor.

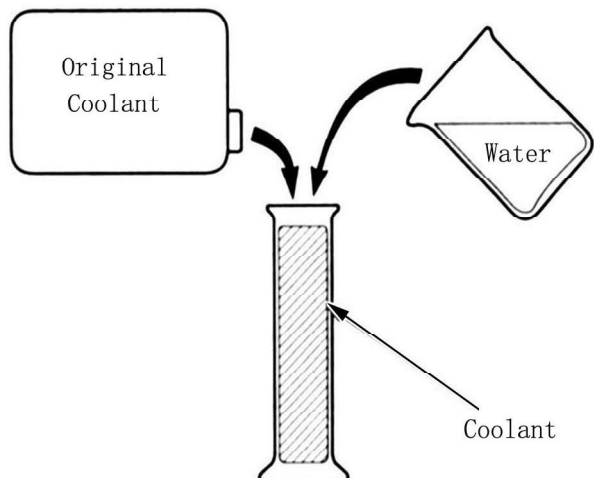
—If coolant splashes on your clothes, quickly wash it away with water and then with soap and water.

—If coolant is swallowed, vomit immediately and see a physician.

—Store the coolant properly and keep it away from reach of children.

Caution

Mix the coolant(original) with soft water according to the temperature which is 5;æ lower than the lowest temperature in the operation area.



Coolant made by diluting the original liquid with soft water

Standard density of coolant: 30%

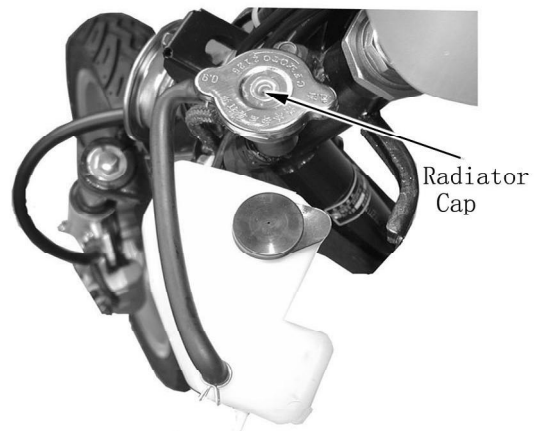
Recommended coolant: CFmoto coolant (Direct application without having to be diluted)

Drainage of coolant

Remove the radiator cap

Caution

Open the radiator cap after the coolant is cooled down.



Remove front emblem plate(2-8)

Remove radiator cap.

Remove drain bolt

Remove drain bolt and seal washer of the water pump, and drain coolant

After draining the coolant, assemble new seal washer and drain bolt and tighten.



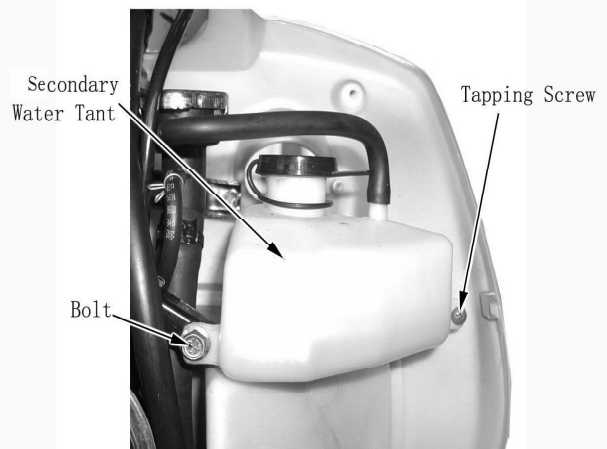
Drain Bolt+ Seal Washer

6

Secondary water tank

Remove front top cover(2-9)

Remove the bolt and tapping screw of secondary water tank.



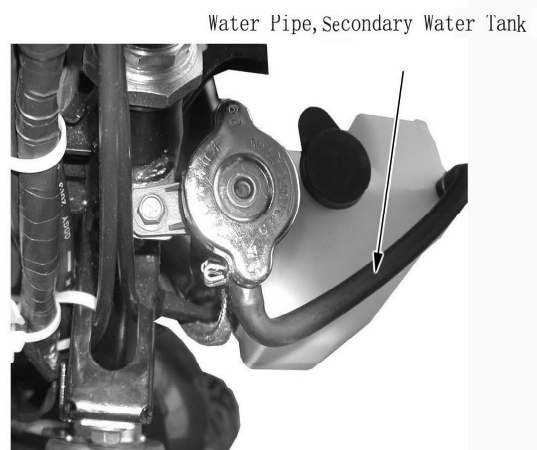
Remove water pipe of secondary water tank.

Remove secondary water tank; drain the coolant in the secondary water tank.

Wash secondary water tank with water

Install secondary water tank.

Install water pipe, secondary water tank.



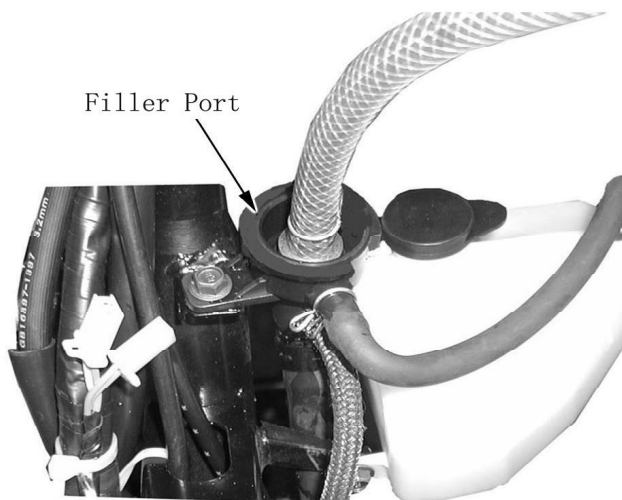
Coolant filling

Fill coolant to filler port.

Start engine; and remove air from the cooling system

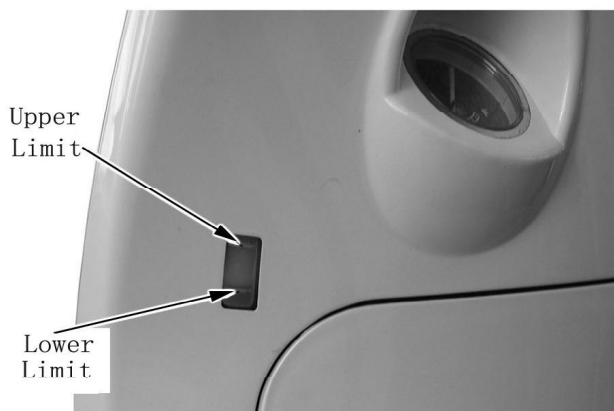
Check from filler port and see if air in the cooling system has been completely removed and then install radiator cap.

Remove secondary water tank cap, fill coolant to the upper limit .



Note:

Place the scooter upright on a flat surface when checking the coolant level.



Air removal

Remove the air by the following steps

1. Start engine, run for a few minutes at idle speed
2. Turn the throttle 3-4 times slightly and quickly to remove the air in the cooling system
3. Fill coolant till the port again and install radiator cap.
4. Check liquid level of secondary water tank. In case coolant is not enough, fill coolant till the upper limit and then put on the secondary water tank cover.

Thermostat

Disassembly and installation

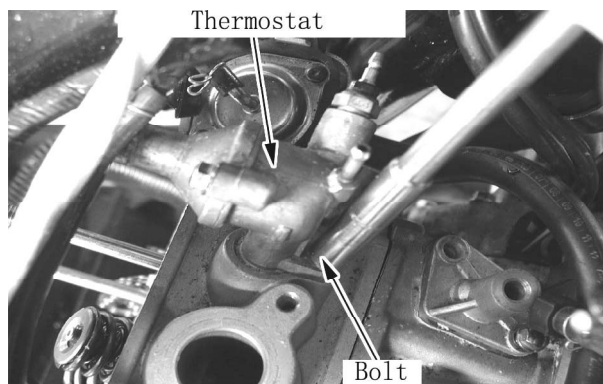
Note

Open the radiator cap after the coolant is cooled down.

Remove footrest deck. (2-12)

Drain coolant. (6-4)

Remove carburetor. (5-3)



6

Remove bolt, lower and upper cases of thermostat.

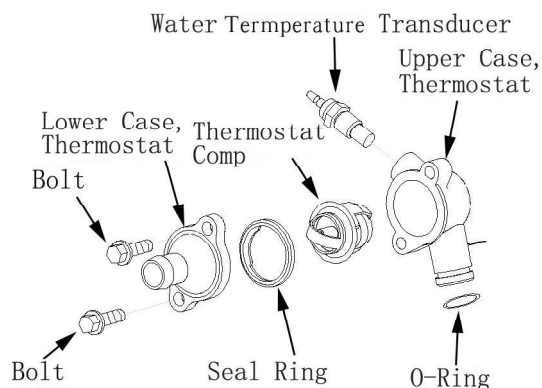
Remove the thermostat.

Reverse the removal procedure for installation.

Install footrest deck. (2-8)

Fill coolant, and remove air. (6-4)

Install carburetor. (5-13)



Overhauling

Note

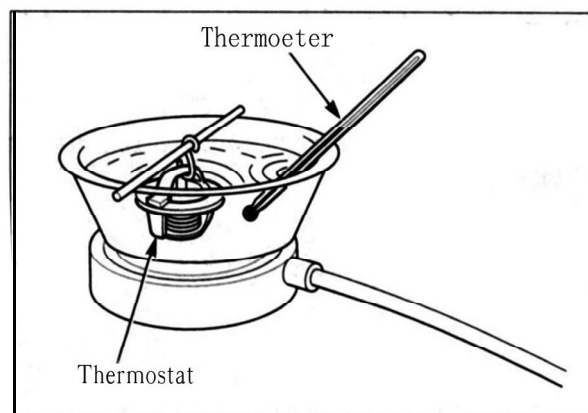
- The thermostat must be replaced even if it is a bit open at normal temperature.
- There is time lag due to the small temperature sensing area of the thermostat. So check the rising of the opening valve after the full open temperature is kept for about 5 minutes.
- Keep the thermostat and thermometer suspended from the bottom of the vessel.

Put thermostat into water, keep water temperature rising slowly, and check the opening temperature of thermostatic valve.

Opening temperature of thermostatic valve: $72 \pm 2^\circ\text{C}$

Full open rising height/ Temperature: 3.5-4.5mm/ 88°C

Install thermostat.



CFMOTO

Radiator

Note

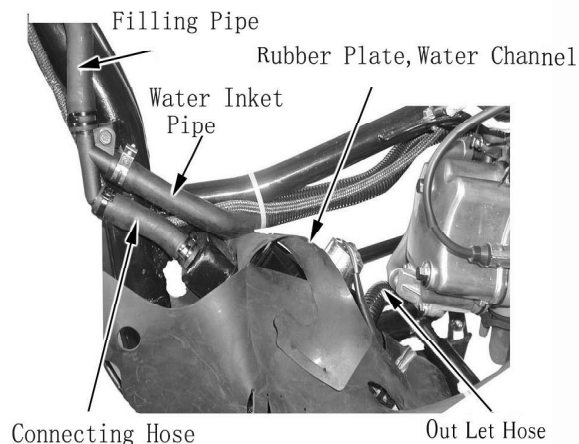
Don't damage radiator fins

Remove plastic parts. (2chapter)

Drain coolant(6-4)

Remove rubber plate, wind channel.

Loosen clamp, remove water inlet and outlet hoses under radiator.

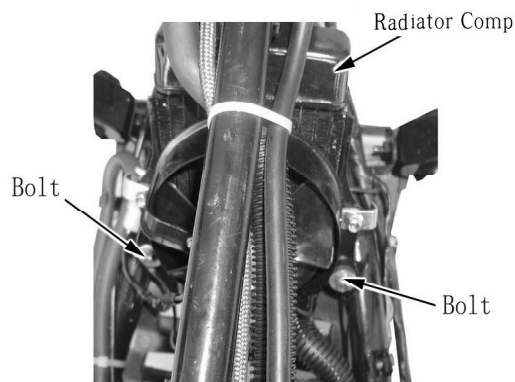


Remove bolt and radiator.

Reverse the removal procedure for installation.

Install plastic parts. (2chapter)

Fill coolant and remove air. (6-4)

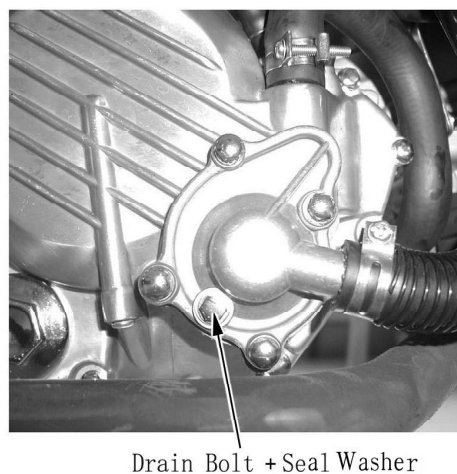


Water pump(11-4)

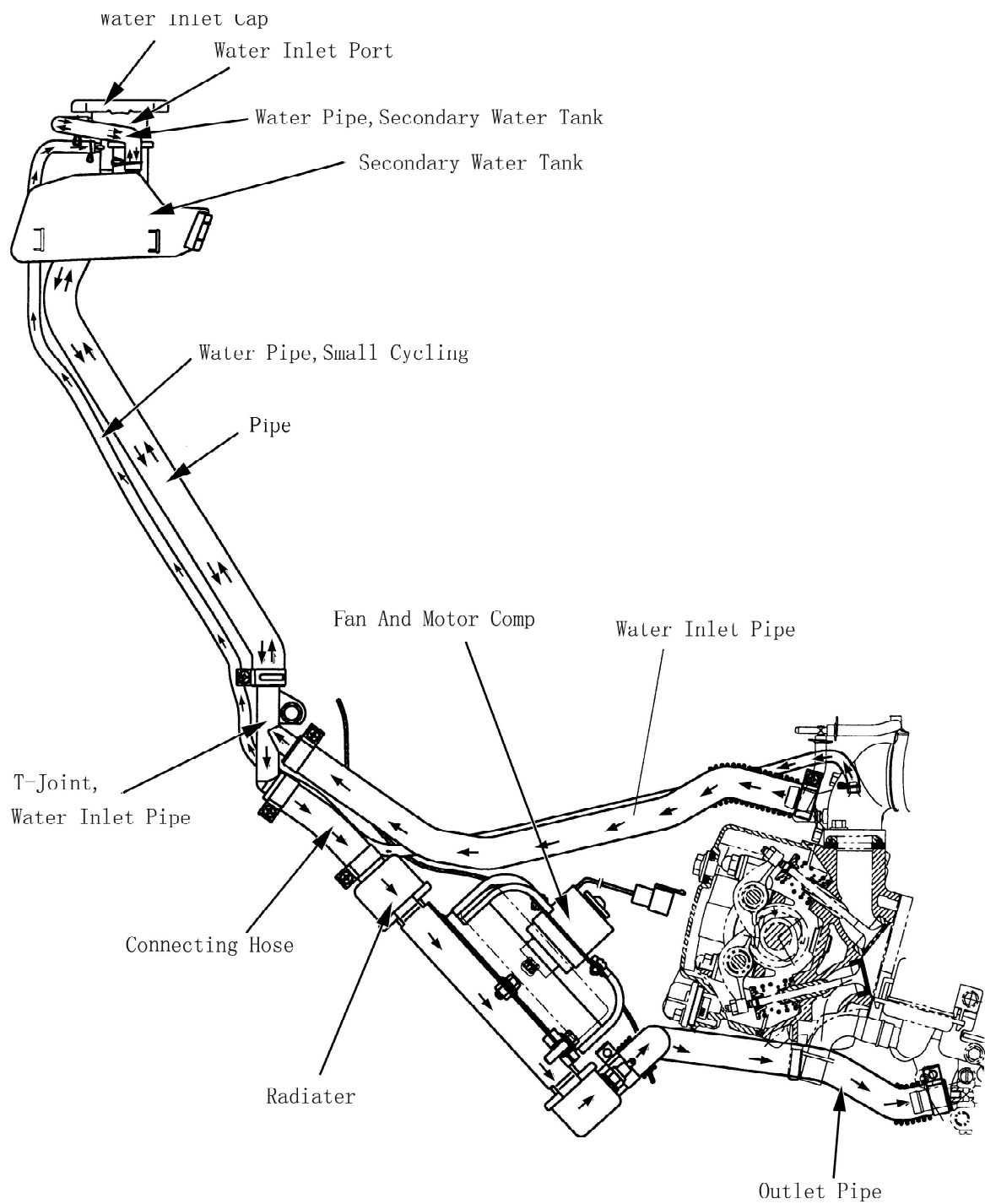
Overhauling

Check from drain hole under the water pump for coolant leakage.

Coolant leakage, if any, means the damage of water seal. Replace the damaged water seal.



Cooling System



Overhauling info.....	7-1	mounting of engine.....	7-4
Disassembly of engine.....	7-2		

Overhauling info

Operation cautions

Securely support the scooter with jack when installing and disassembling engine.

Do not damage frame, engine body, bolts and cables.

Wrap the frame to avoid any possible damage when installing and disassembling the engine.

Following operation doesn't require that the engine removed from the vehicle.

-oil pump(→ 4chapter)

-carburetor, air filter, secondary air inlet(→ 5chapter)

-cylinder head cover, cylinder head, cylinder body, camshaft(→ 8chapter)

-CVT system, left side cover(→ 9chapter)

-gearbox(→ 10chapter)

-right side cover, AC magneto, water pump(→ 11chapter)

-piston, piston ring, piston pin(→ 12chapter)

Following operation require that the engine removed from the vehicle.

-crankshaft(→ 12 chapter)

Tightening torque:

Engine suspension bracket bolt:	55N • m(5.6kgf • m)
Engine suspension shaft nut:	55N • m(5.6kgf • m)
Rear shock absorber mounting bolt(up):	55N • m(5.6kgf • m)
Rear shock absorber mounting bolt (down):	30N • m(3.1kgf • m)
Rear fork bolt:	55N • m(5.6kgf • m)

Disassembly of engine

Remove

—Plastic parts. **(2chapter)**

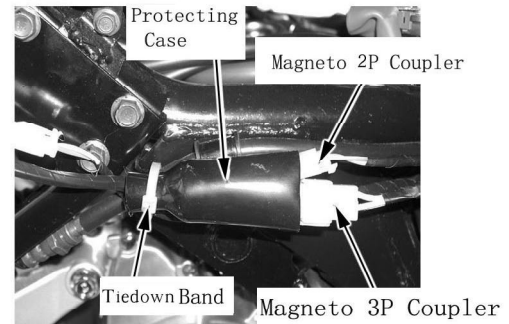
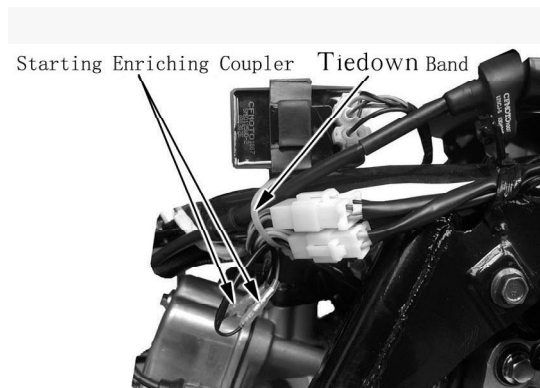
—carburetor. **(5-3)**

—air filter. **(5-10)**

Drain coolant. **(6-4)**

Remove starting enriching coupler

Remove starting enriching valve wire from tiedown band

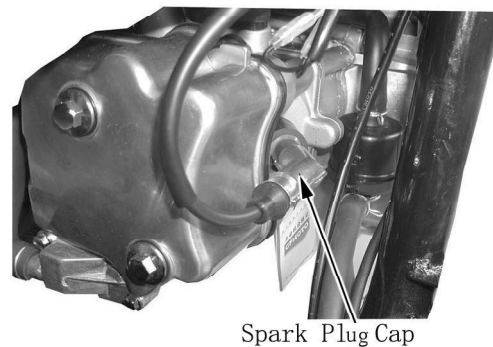


Remove AC magneto 3P、2P coupler

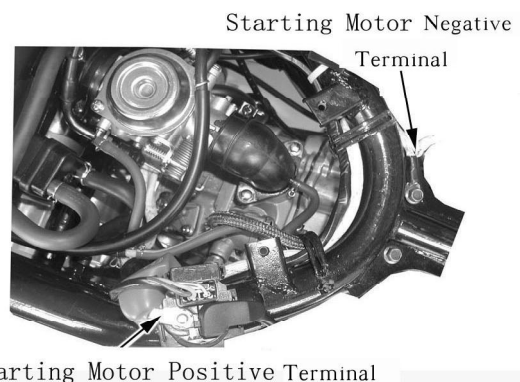
Remove water temperature alarm coupler



Remove spark plug cap

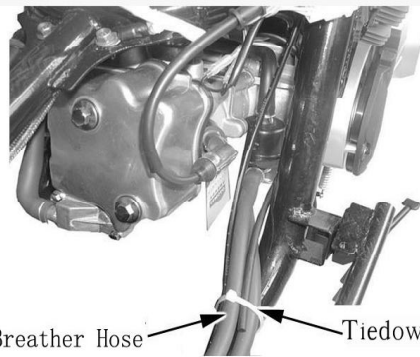


Loosen starting motor positive terminal and negative terminal.



7 disassembly and mounting of engine

Remove tiedown band and breather hose for secondary air inlet system.



Breather Hose Tiedown Band

Loosen locknut,

Remove

—throttle cable.

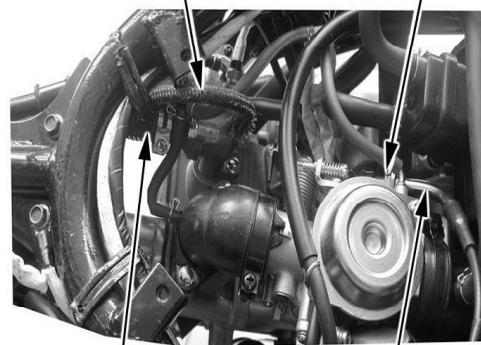
—clamp and small cycling water pipe.

—clamp and water inlet pipe.

Remove clamp and water outer pipe.

Remove exhausting muffler comp..

Water Pipe, Small Recycle Clamp Locknut

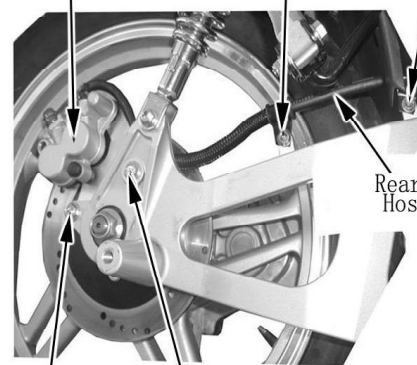


Water Inlet Pipe/Clamp Throttle Cable

Remove bolt1, bolt2, and rear brake caliper ;

Remove bolt3, bolt4, loosen rear brake hose.

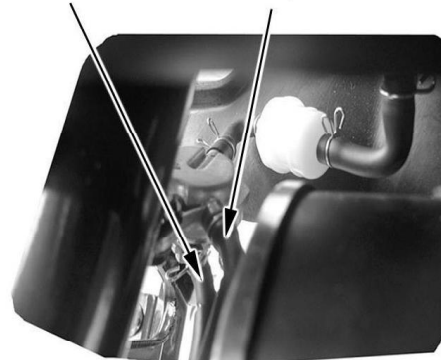
Rear Brake Caliper Bolt3 Bolt4



Bolt1 Bolt2

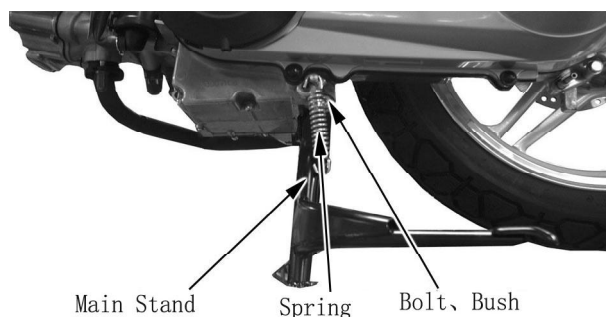
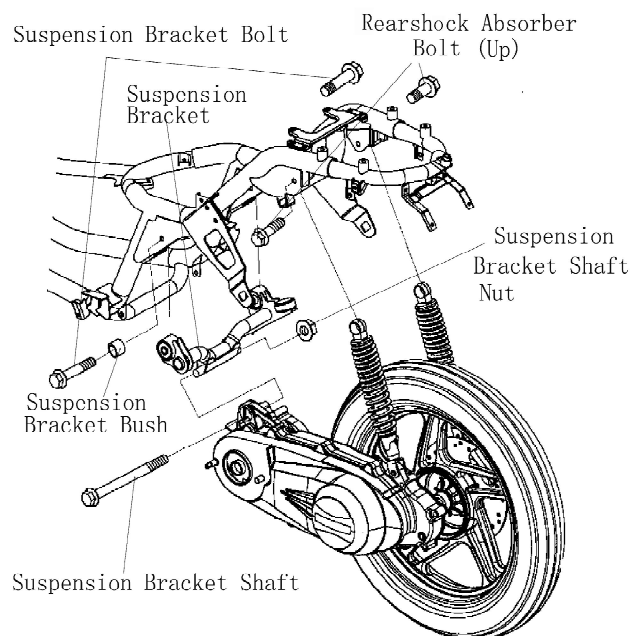
Remove fuel pipe and vacuum tube.

Vacuum Tube Fuel Pipe



Remove engine from frame in the following procedure.

1. Remove rear shock absorber
2. Remove suspension bracket bolt and bush, and remove engine.
3. Remove engine suspension bracket shaft nut , pull out bracket shaft, and take down suspension bracket
4. Remove rear fork (14-4)
5. Remove rear wheel(14-3)
6. Remove main stand spring, main stand bolt and bush, Remove main stand



Engine Installation

Note

Cables and electrical wires and cables should be fitted properly according to the wiring diagram. (→ 1-20)

Install main stand to engine

Install bush, bolt, and tighten according to the specified torque.

Torque: 26N • m(2.7kgf • m)

Install main stand spring.

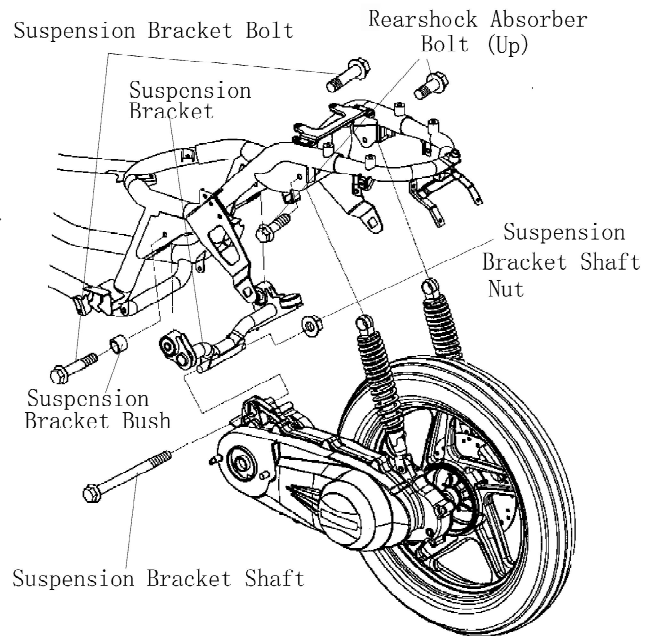
Note

Apply lubricating grease to the outer surface of right and left bush of main stand.

7 disassembly and mounting of engine

Install engine to the frame in the following procedure:

1. Install rear wheel to the engine
2. Install rear fork to the engine, and assemble rear shaft nut and rear fork bolt and tighten according to the specified torque.
3. Install engine suspension bracket on the engine, and tighten the nut.
4. Install engine suspension bracket bolt and bush; install the engine on the frame.
5. Install rear shock absorber
6. Tighten following bolts and nuts according to the specified torque:



suspension bracket bolt:

55N • m(5.6kgf • m)

Rear shock absorber bolt(up):

55N • m(5.6kgf • m)

Rear shock absorber (down):

30N • m(3.1kgf • m)

suspension shaft nut:

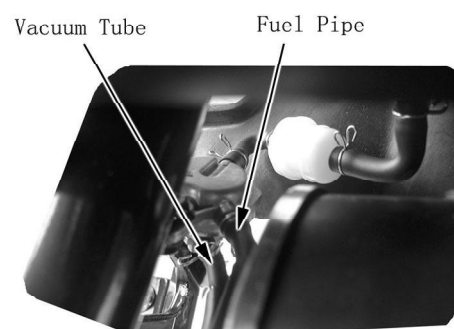
55N • m(5.6kgf • m)

Rear fork bolt:

55N • m(5.6kgf • m)

Rear wheel axle nut:

140N • m(14.3kgf • m)



Connect the fuel pipe, vacuum tube and install clamp.

Install rear brake caliper comp., and tighten bolt1 and bolt2 to the specified torque.

Torque: 30N • m (3.1kgf • m)

Install rear brake hose comp., tighten bolt3 and bolt4.

Note

Rear brake hose should be fitted properly, and it should not be intervened with rear wheel, rear brake disk and other parts.

Install water outlet pipe, water inlet pipe and small cycling water pipe, and tighten with clamp accordingly.

Note

There should not be any cracks or other damages with each water pipe.

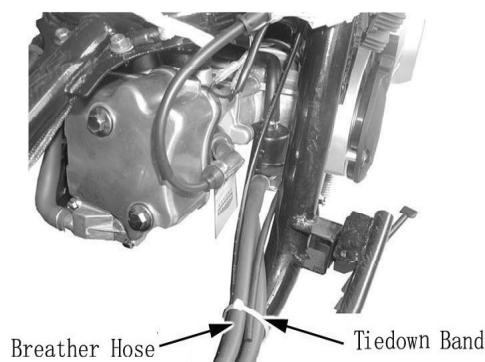
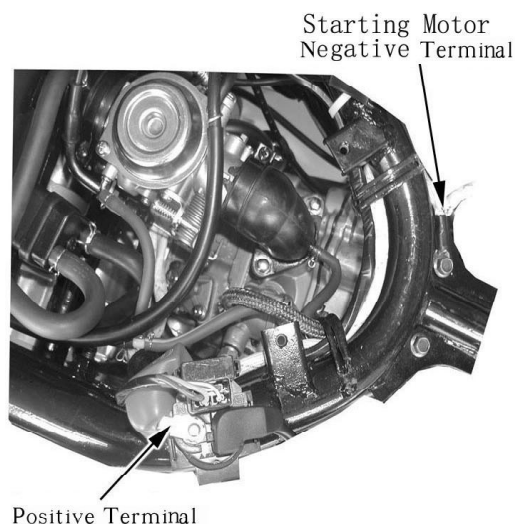
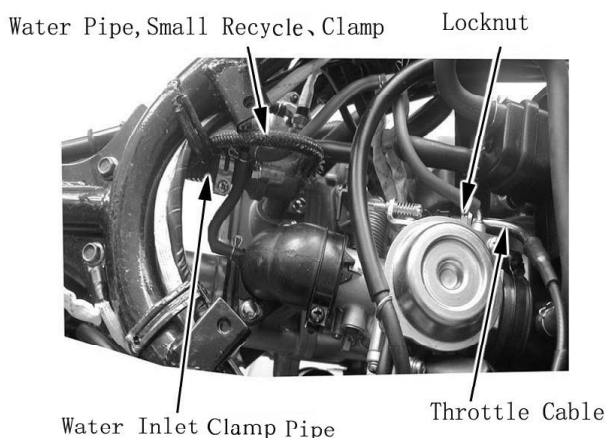
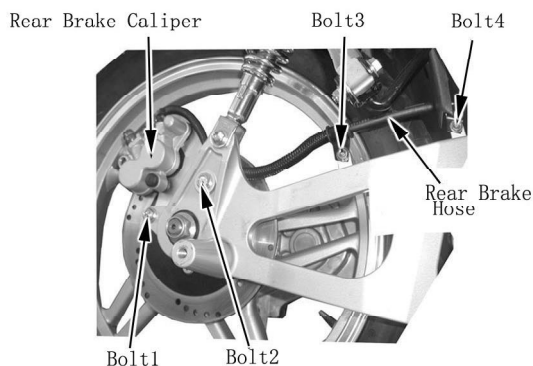
There should be no leakage or seepage with the joint parts of the water pipes and hoses.

Connect throttle cable, and adjust throttle handle gap. (3-15)

Lock the locknut after adjusting the gap.

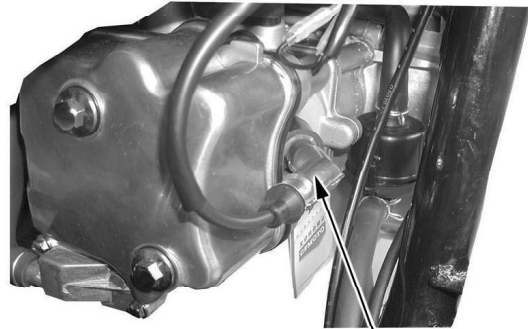
Install starting motor positive terminal and negative terminal.

Install breather hose of secondary air inlet system, and tie it with tiedown band.



7 disassembly and mounting of engine

Install spark plug cap.



Spark Plug Cap

Install water temperature alarm coupler.

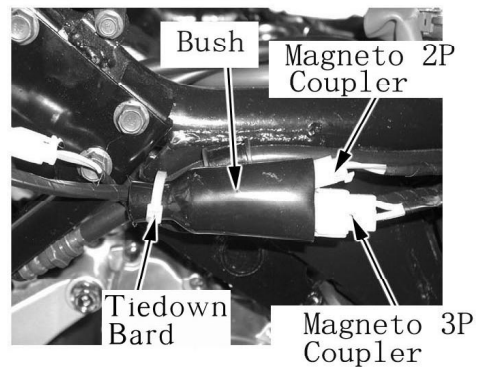
Temperature Alarm Coupler

Install magneto 2P and 3P coupler; fill into shield, and tie with tiedown band.



Install starting enriching coupler, tie the starting enriching valve wire with tiedown band.

Install



Starting Thickener
Valve Couder

Tiedownr Bard



—exhausting muffler comp.. (2-16)

—air filter. (5-13)

—carburetor. (5-9)

Fill coolant and remove air. (6-4)

Install plastic parts. (2 chapter)

8 Cylinder cover Cylinder head Cylinder body valving system

Overhauling info.....	8-1	Dismantling of cylinder head.....	8-11
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Cylinder compression pressure	8-4	Inspection & Correction of valve-seat ring	8-15
Valve clearance adjustment	8-5	Assembly of cylinder head	8-17
Disassembly of reed valve comp.....	8-6	Inspection of cylinder body	8-18
Disassembly of cylinder cover.....	8-7	Installation of cylinder body	8-19
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Disassembly of cylinder head.....	8-9	Installation of camshaft bracket comp.....	8-21
Disassembly of cylinder body	8-10	Installation of cylinder cover	8-23

Overhauling info

Operating cautions

- The cylinder cover、camshaft comp.、camshaft bracket comp.、rocker arm、cylinder head comp. and cylinder body comp. can be overhauled under the state of locomotive vehicle.
- Do not damage joint face when disassembling cylinder cover、cylinder head comp. and cylinder comp..
- When removing the spare parts, make marks so as to install to the original places.
- After dismantling, wash clean and blow dry with compressed air the spare parts before checking and measuring.
- Apply lubricating oil to the camshaft comp neck、cam surface、rocker arm shaft and inner hole of rocker arm before assembling.
- The lubricating oil to the camshaft assembly is supplied through the oil channels in cylinder body comp.、cylinder head comp. and cylinder cover.
- Lubricating channels of the cylinder head cover、cylinder head comp. and cylinder body comp must be cleaned before assembling of these parts.

8

Overhauling standard

Item		Standard		Service limit	
		CF125	CF150T		
Cylinder compression pressure		700 kPa (7 kgf/cm ²) @ 260 r/min		—	
Valve clearance	IN	0.05 mm		—	
	EX	0.20 mm		—	
Cylinder head plane surface		—		0.05 mm	
Cam-shaft	Cam top height	IN	30.74-30.86 mm	30.69 mm	
		EX	30.33-30.45 mm	30.28 mm	
Valve rocker arm	Inner diameter of rocker Arm hole	IN/EX	10.000-10.015 mm	10.10 mm	
	Outer diameter of Rocker arm shaft	IN/EX	9.978-9.987 mm	9.91 mm	
Valve guide	Outer diameter of Valve stem	IN	4.975-4.990 mm	4.965 mm	
		EX	4.955-4.970 mm	4.945 mm	
	Inner diameter of Valve guide collar	IN	5-5.012 mm	5.04 mm	
		EX	5-5.012 mm	5.04 mm	
	Clearance between valve stem and guide	IN	0.010-0.037 mm	0.075 mm	
		EX	0.030-0.057 mm	0.095 mm	
	Driving height of valve guide	IN/EX	11.9-12.1 mm	—	
	Contacting width of valve-seat ring	IN/EX	0.9-1.1 mm	1.8 mm	
Valve spring	Free length (External spring /internal spring)	IN/EX	35.0/32.3 mm	33.5/30.8 mm	
Cylinder	Inner diameter	52.4-52.419 mm	58-58.019 mm	52.449 mm	58.04
	Upper surface distortion	—		0.05 mm	
	Roundness	—		—	
	Columen	—		0.05 mm	

CFMOTO

Tightening torque

Cylinder cover bolt	10N • m(1.0kgf • m)
Cylinder head nut	35N • m(3.5kgf • m)
Timing chain bolt	9N • m(0.9kgf • m)
Tensioner spring bolt	10N • m(1.0kgf • m)
Cylinder head bolt	10N • m(1.0kgf • m)
Tensioner bolt	10N • m(1.0kgf • m)
Cylinder body cover bolt	10N • m(1.0kgf • m)

Troubleshooting

Poor sealing around cylinder cover can be examined by measuring the cylinder compression pressure or judging the noise from the sealing part of cylinder cover.

In case of poor starting or unsteady low-speed running, check if there is smoke from ventilation pipe of crankcase. If there is smoke, it is because the piston rings are worn, broken or jammed.

Unstable idle speed

Low compression pressure
Air Leakage at carburetor joint
Bad fuel supply of fuel system

Lower compression pressure

Improper adjustment of valve clearance
Chain is elongated
Valve burnt or worn tensioner.
Improper valve timing
Poor strength of valve spring
Poor sealing of valve seat
Air leakage of cylinder head seal washer
Distortion or cracks of cylinder head
Improper installation of spark plug

Over-high compression pressure

Carbon deposit on piston or in combustion chamber

Blue smoke in muffler

Valve guide or valve stem is worn
Damaged or worn seal ring of valve stem

Abnormal noise

Damage or wear with Cam surface of camshaft comp.
Improper adjustment of valve clearance
Burned valve or damaged valve spring
Damaged rocker arm or rocker arm shaft
Improper action of chain

Cylinder compression pressure

Note

Measuring must be done after the engine is warmed up

Remove spark plug cap, spark plug.

Select proper compression pressure gauge; install it to cylinder head spark plug.

Full throttle

Measure compression pressure of cylinder by using electrical starting.

Note

Compression pressure gauge and its accessories must be properly installed, there should not be pressure leakage in the joint

Electrical starting will cause overflow of battery. Do not run the starting motor for over 5 seconds continuously.



8

Compression pressure:

700kPa(7kgf/cm²) @260r/min

In case the compression pressure is too high, check the piston head and combustion chamber for carbon deposit.

In case the compression pressure is too low, add a bit oil into the spark plug hole and measure again.

Compare the measured values, if the pressure goes up, measure the cylinder, piston and piston ring. If there is no change, check the cylinder head and valves.

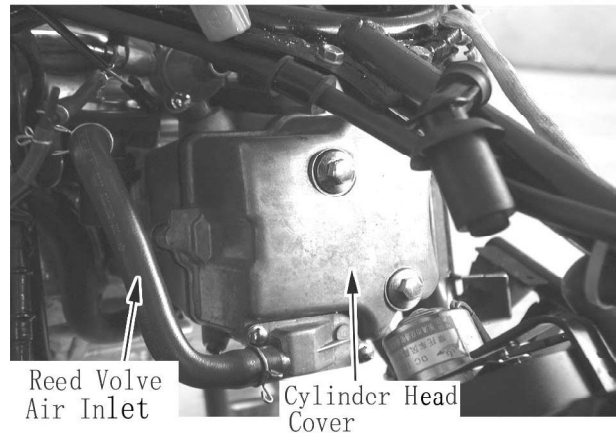
- Valve leakage
- Improper adjustment of valve clearance

Adjustment of valve clearance

Inspection

Note

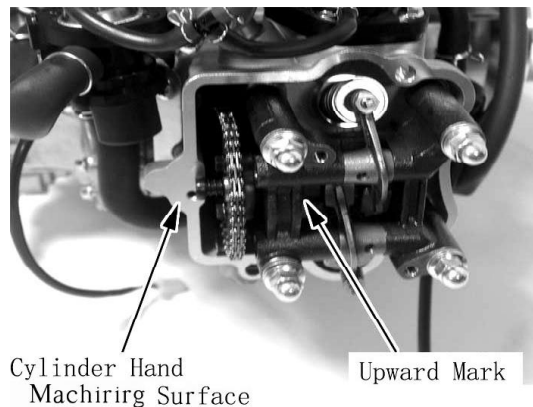
The inspection and adjustment of valve clearance should be done when the engine is in cold condition.



Remove

- cylinder head cover(8-6)
- left side cover (9-3)

Rotate gearbox driving gear and keep the two parallel mark lines on the camshaft sprocket in parallel with the cylinder head machining surface and the trough of camshaft neck upwards.

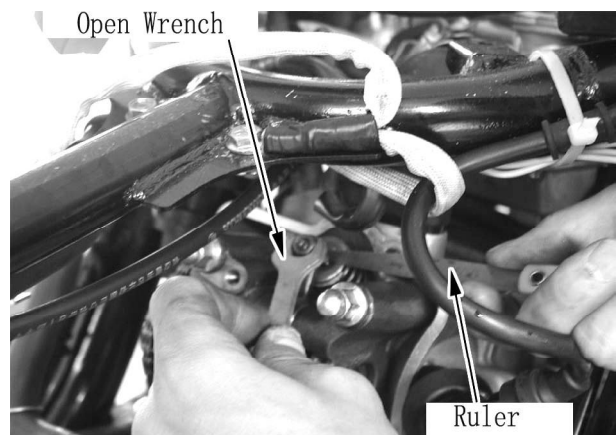


Insert ruler between rocker arm and valve, and inspect valve clearance.

Valve clearance (when engine is in cold condition)

IN: 0.05mm

EX: 0.15-0.20mm

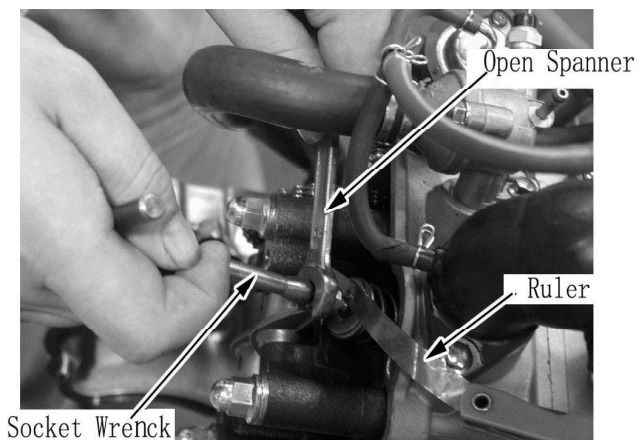


Adjustment

Loosen locknut with open wrench, and loosen valve clearance adjusting screw.

Insert ruler of desired thickness between rocker arm and valve.

Rotate valve clearance adjusting screw till it contacts the ruler with a socket wrench, keep the socket wrench still and tighten the locknut with open spanner.



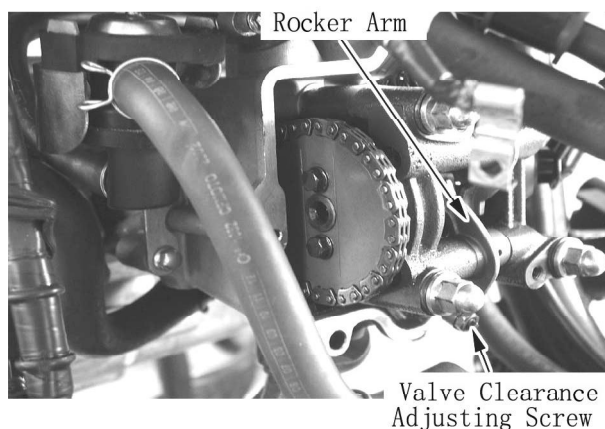
8 Cylinder cover Cylinder head Cylinder body valving system

Apply lubricating oil to the contact surface of rocker arm and make the rocker arm return.

Rotate gearbox driving gear by two rounds and check again whether the valve clearance is in conformity with the specified standard.

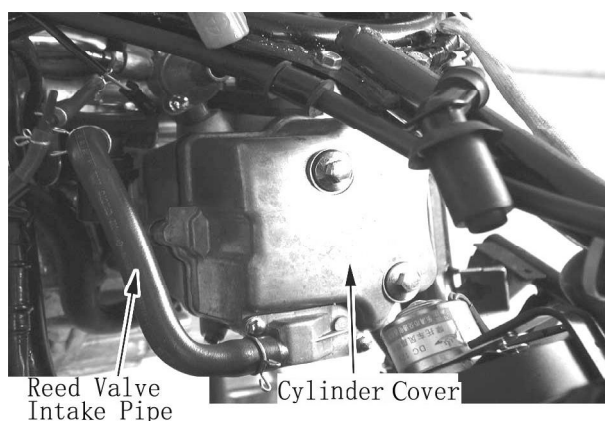
Install left side cover.

Install cylinder head cover.

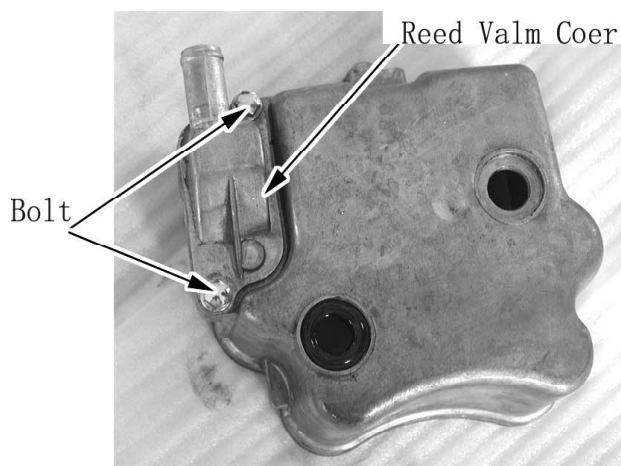


Disassembly of reed valve comp.

Remove cylinder head cover.



Remove bolt, and reed valve cover.



Remove reed valve comp.

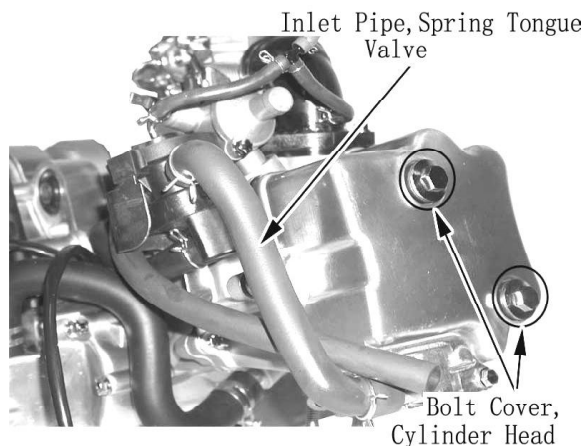
Check reed valve comp., replace in case of any damage or wear.



Disassembly of cylinder cover

Note

Operation will be easy when removing the middle protecting plate.



Remove:

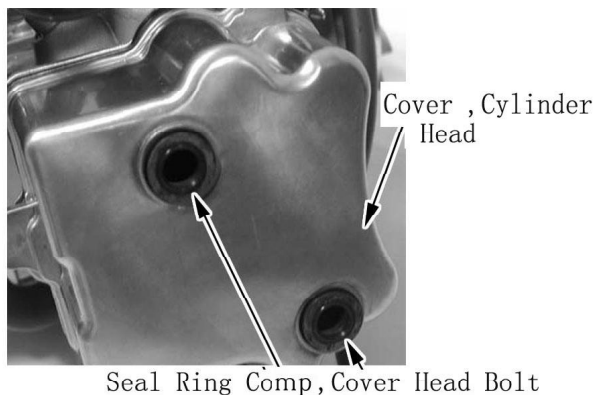
—left and right protecting plate, footrest deck.

—Reed valve inlet pipe and cylinder cover bolt.

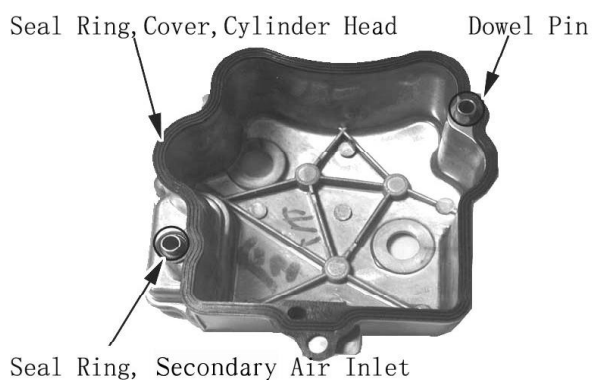
—seal ring comp. and cylinder cover.

Note

Be careful not to damage the joint face when disassembling the cylinder cover.



Remove secondary air inlet seal ring, dowel pin and cylinder head cover seal ring.



Disassembly of camshaft bracket comp.

Remove:

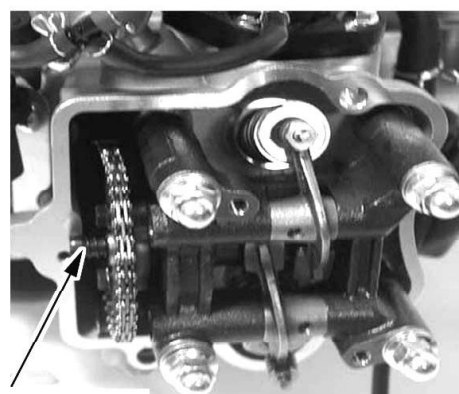
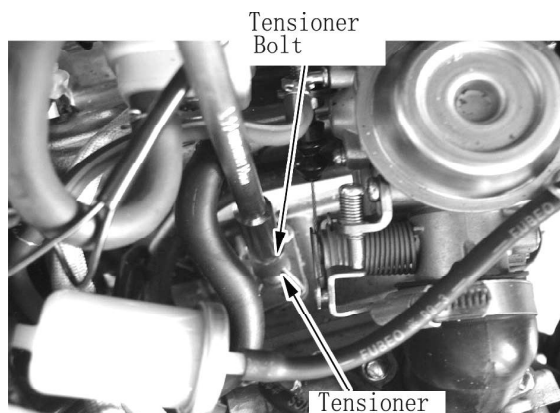
- left side cover (9-3)
- cylinder head cover(8-6)

Rotate gearbox driving gear anti-clockwise and keep the mark lines on the camshaft sprocket in parallel with the machining surface of cylinder head, and the trough of camshaft neck upwards.

Remove:

- tensioner spring seat bolt, washer and spring.
- tensioner bolt, tensioner and gasket.

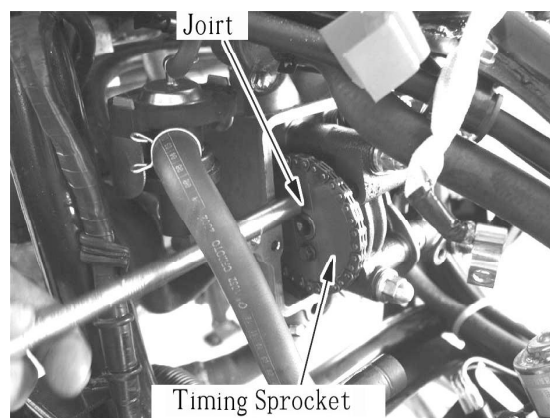
Remove oil channel joint and spring.



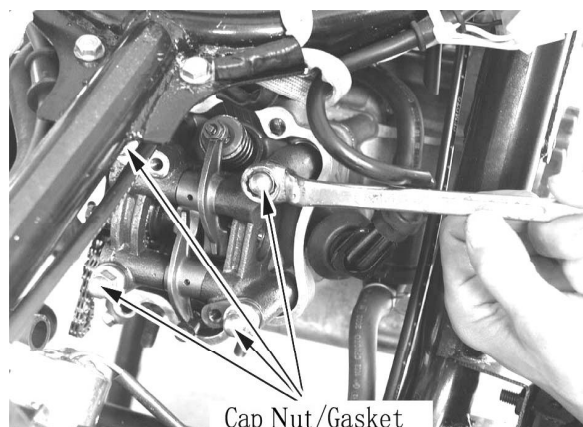
Oil Channel Joint/Spring

Loosen bolt of timing sprocket.

Remove timing sprocket.



Remove cap nut and gasket.



Cap Nut/Gasket

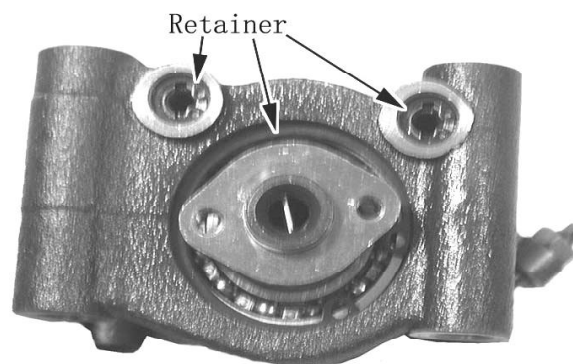
Remove:

—camshaft bracket comp..

Camshaft Bracket. Comp



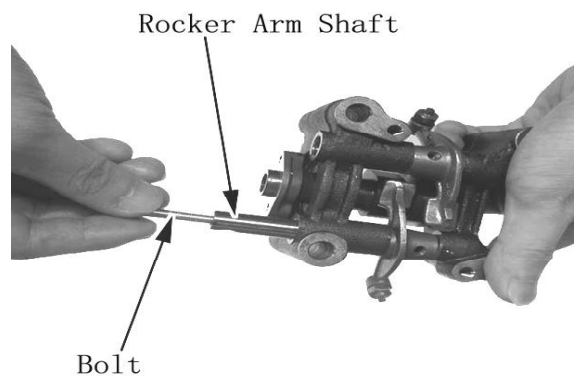
—three retainers in the rocker arm shaft hole and camshaft hole.



—valve rocker arm.

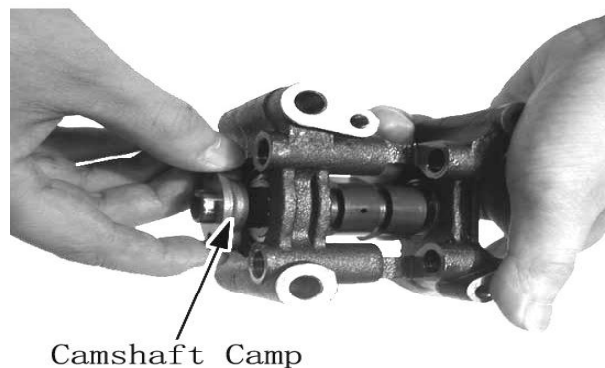
Note:

Pull out rocker arm shaft with a M5 bolt.



Disassembly of camshaft

Remove camshaft comp.

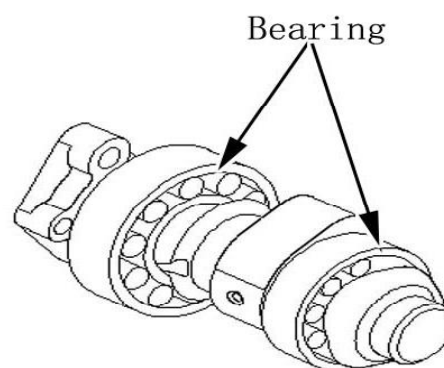


Inspection

Camshaft

Rotate outer circle of bearing with finger; check whether it can turn freely.

Replace the camshaft in case of rocking or blocked turning.

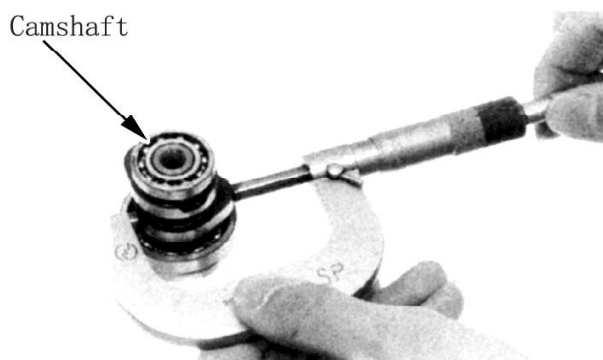


Check the cam surface for any damage or strips.
Measure cam top height with micrometer.

Service limit: IN: 30.69mm
EX: 30.28mm

Note:

Check rocker arm when there is damage or wear with cam surface.



8

Rocker arm, rocker arm shaft

Check sliding part of rocker arm and contact surface of valve stem for damage or wear.

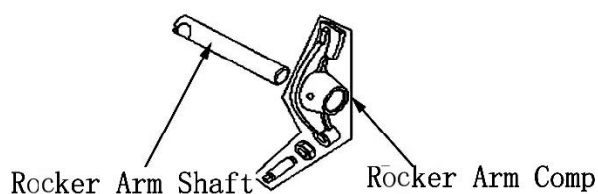
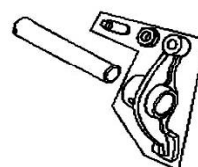
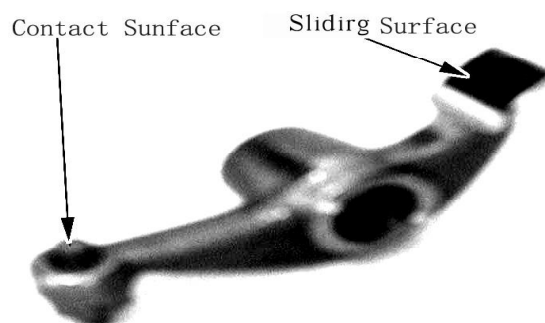
In case there is damage or wear with the sliding surface of rocker arm, check cam top of camshaft.

Measure inner diameter of each rocker arm hole.

Service limit: 10.10mm

Measure outer diameter of each rocker arm hole.

Service limit: 9.91mm



Disassembly of cylinder head

Note

Hook the chain with a steel wire in case it drops into cylinder body, and securely support the scooter.

Remove muffler. (2-15)

Drain coolant. (6-4)

Remove

—carburetor.(5-3)

—cylinder head cover. (8-6)

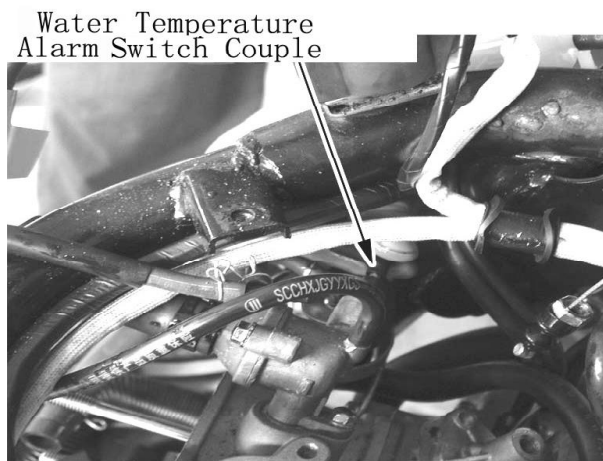
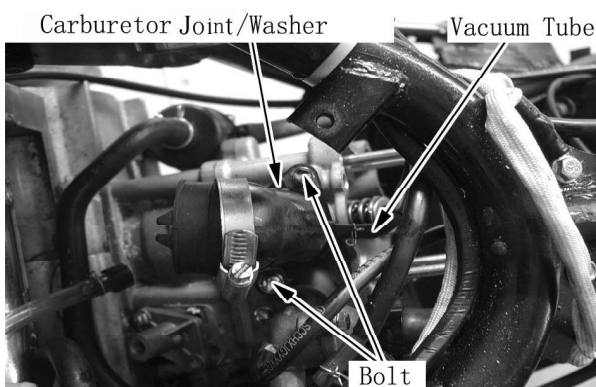
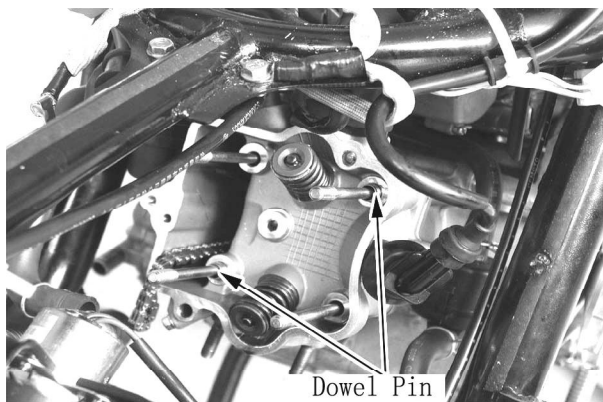
—camshaft bracket comp..(8-7)

—dowel pin.

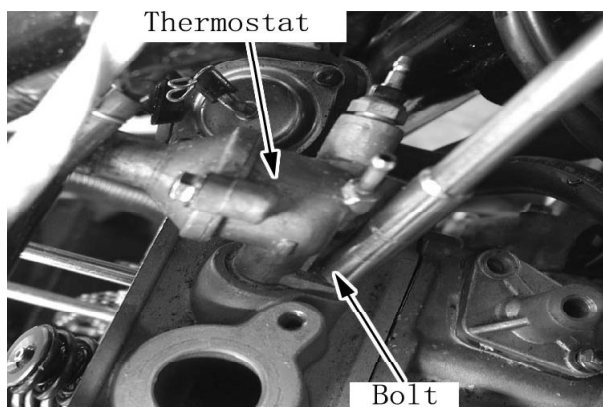
Remove vacuum tube.

Loosen bolt, remove carburetor joint comp..

Remove carburetor joint washer.



Remove water temperature alarm switch coupler.



Loosen bolt, thermostat comp.

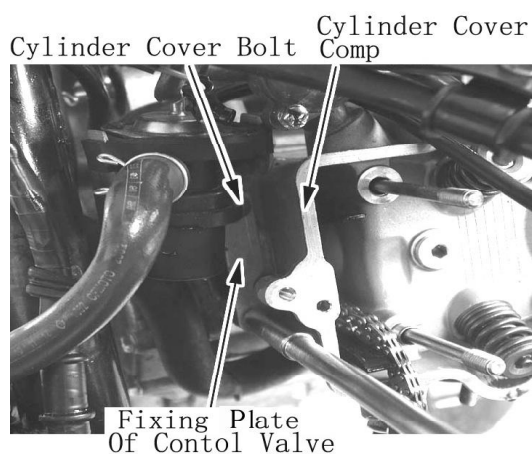
8 Cylinder cover Cylinder head Cylinder body valving system

Remove cylinder head bolt, and fixing plate of control valve.

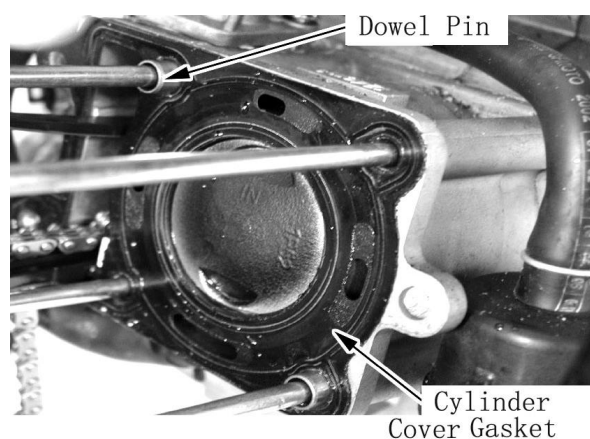
Remove cylinder head comp.

Note

Support scooter with main stand, press rear vehicle downwards, and remove cylinder head.

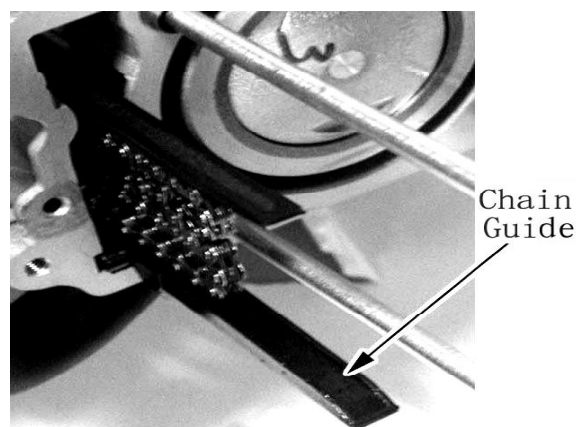


Remove cylinder head gasket and dowel pin.

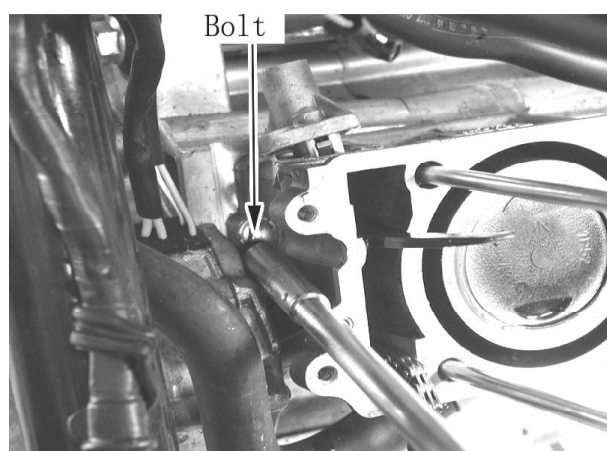


Disassembly of cylinder body

Remove guide chain.



Remove bolt and washer.



CFMOTO

Remove water inlet hose and cylinder body comp..

Dismantling of cylinder head.

Note

The dismantled parts should be stored separately and installed to the original places.
Take out the valve lock clip with valve spring press tool.

Caution

To protect the valve spring, just press the valve spring down to the length enough for removal of the valve lock clip.

Special tool:

Valve assembling tool:

1P52MI-A-922-020000

Remove valve spring press tool, take out valve spring seat, valve spring, valve, valve stem sealing set and valve spring retainer.

The removed valve stem sealing set should not be reused.

Removal of carbon deposit in combustion chamber and valves

Note

Dip in the gasoline will help to remove the carbon deposit.

Warning

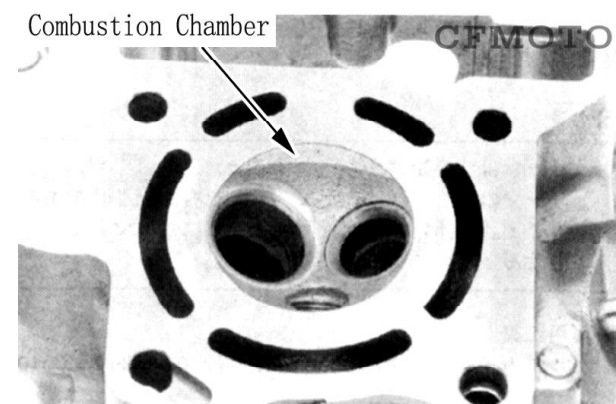
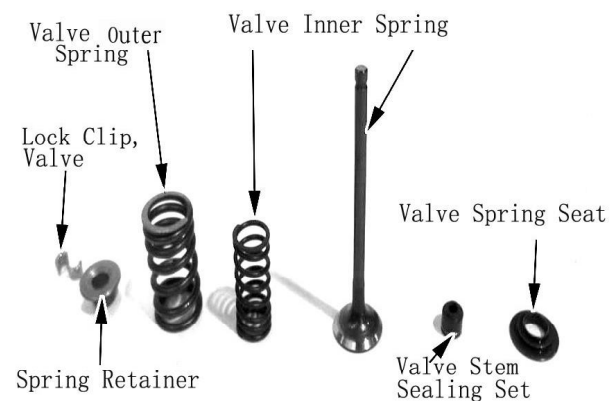
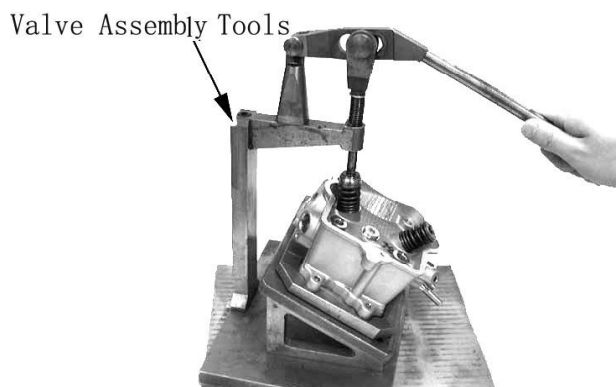
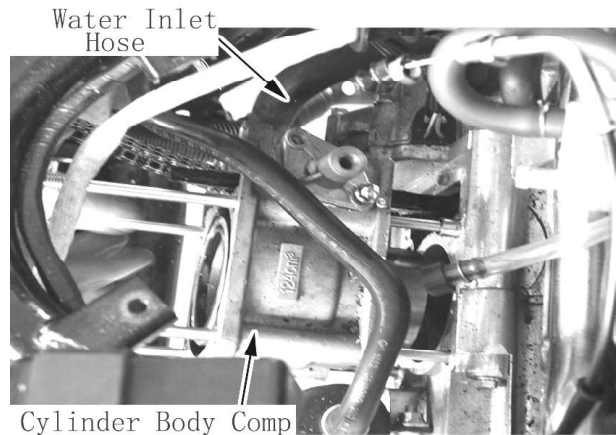
Gasoline is highly flammable, the job should be done in a well-ventilated place.

Warning

Do not damage the joint surface of cylinder and valve seat retainer.

Check if there are cracks near the spark plug hole and valve seat retainer.

Clean the cylinder joint surface.



8 Cylinder cover Cylinder head Cylinder body valving system

Valve spring

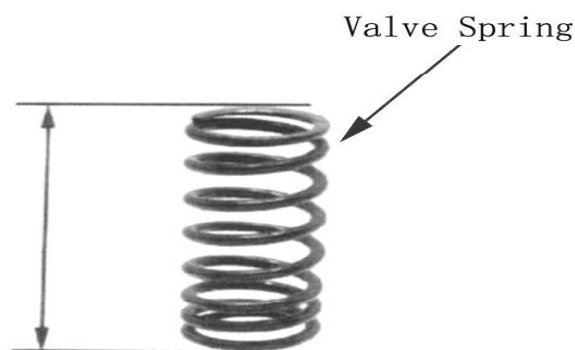
Check the valve spring for weakening and damage.

Measure the free length of outer valve spring.

Service limit: 33.5mm

Measure the free length of inner valve spring.

Service limit: 30.8mm



Valve stem

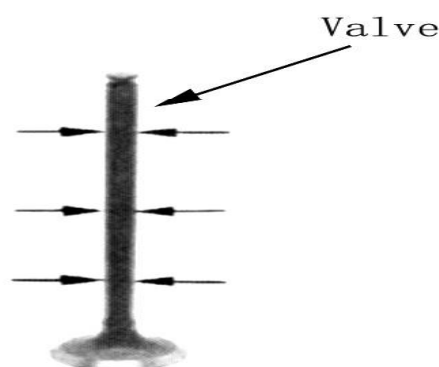
Check the valve for distortion (valve deflection), damage and burn, and the end of valve stem for deflected wear.

Put the valve into valve guide, and check the movement of valve.

Measure the outer diameter of valve stem that is corresponding to the valve guide moving part.

Service limit: IN: 4.965mm

EX: 4.945mm



Remove the carbon deposit with reamer before measuring the inner diameter of valve guide.

Caution

Insert the reamer from the combustion chamber.

Keep the reamer turning clockwise and while pulling it in and out. Counter clockwise might cause damage to the inner surface of valve guide.

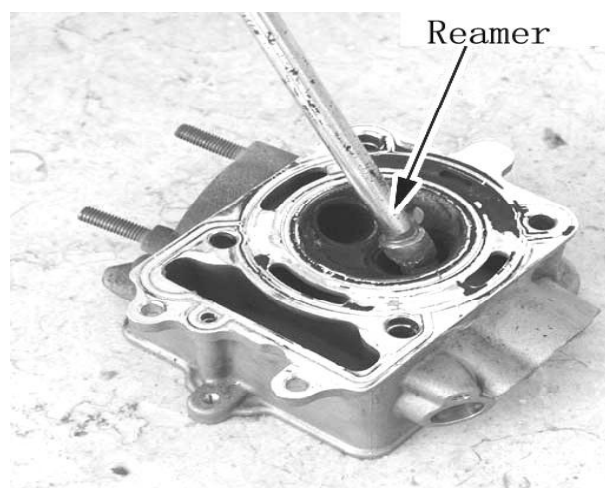
Special tool:

Valve guide reamer: 152MI-234-022300-34B

Measure inner diameter of valve guide.

Service limit: IN: 5.04mm

EX: 5.04mm



Calculate the clearance between valve stem and valve guide.

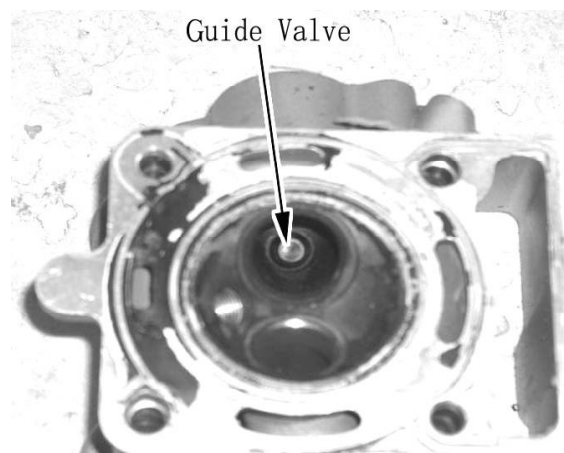
Service limit: IN: 0.075mm

EX: 0.095mm

Replace the valve stem when the clearance exceeds the service limit.

Measure valve guide inner diameter; calculate if the clearance is within the service limit.

Replace the valve if the clearance is out of the service limit.

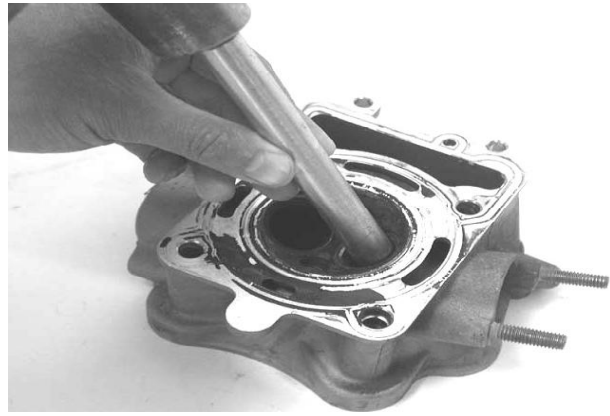


Replacement of valve guide

Caution

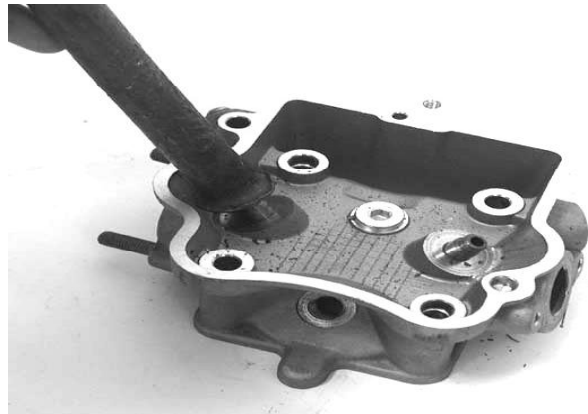
The valve works with valve guide as axis. Replacement of valve guide may cause poor sealing between valve and valve seat. So the valve seat should also be adjusted after replacement.

Heat up the cylinder head homogeneously to 100-150°C. Do not heat up part of the cylinder head with gas nozzle to avoid distortion. Don't operate with undressed hand to avoid burn.



Drive the valve guide outward from one side of the combustion chamber. Do not damage cylinder joint face.

Drive new valve guide from one side of the camshaft while the cylinder head still remains warm. After the cylinder head is cooled, insert the reamer from combustion chamber side, and ream valve guide accurately.



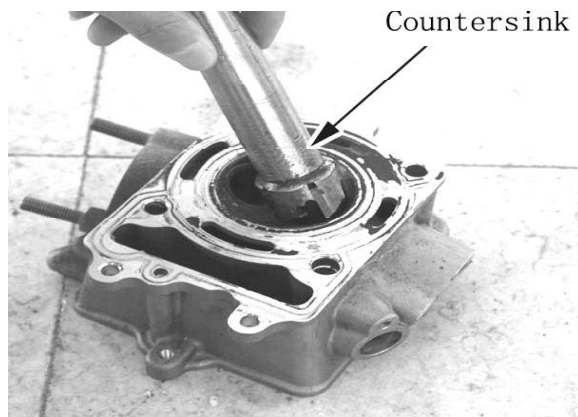
Caution

- Insert reamer from the combustion chamber.
- Do not deflect the reamer so as to avoid leakage of valve stem sealing or deviation from valve seat.

Wash clean the cylinder head, clean off the scraps. Check and correct the contact surface of valve seat.

Special tool:

Countersink: 152MI-236-022301-27



inspection and correction of valve-seat ring

Inspection

Clean the carbon deposit on the valve.

Replace in case there are cracks or deflected wear with valve surface.

Apply a thin layer of red lead oil to valve seat. Keep valve still, and knock valve lightly with a hammer to check the sealing condition.

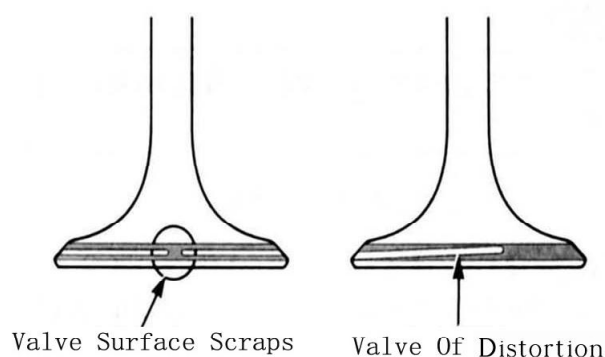
Note

Valve can't be corrected. When there are cracks, damages or non-contacts with valve seat, replace the valve.



8 Cylinder cover Cylinder head Cylinder body valving system

Remove valve; check valve seat sealing face through the attached red lead oil on the valve face.
Correct the valve seat in case of any scraps.
If valve inclines, check clearance between valve guide and valve stem, if the clearance is not proper, replace it with a new valve guide.



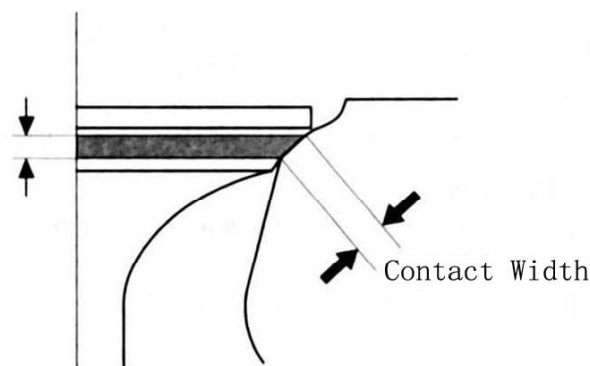
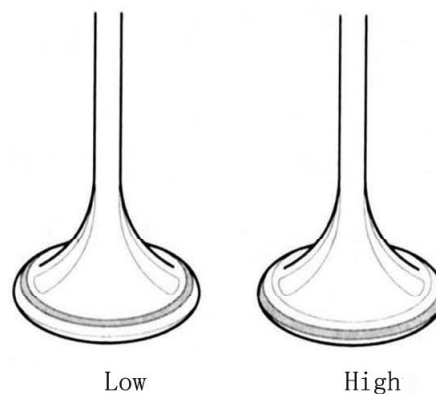
When the contact surface is on the higher side or lower side, correct the valve seat with a milling cutter.

Measure seal width of valve face.

Standard: 0.9-1.1mm

Service limit: 1.8mm

In case the seal width is uneven, too wide or too narrow, correct valve seat with milling cutter.



Correction

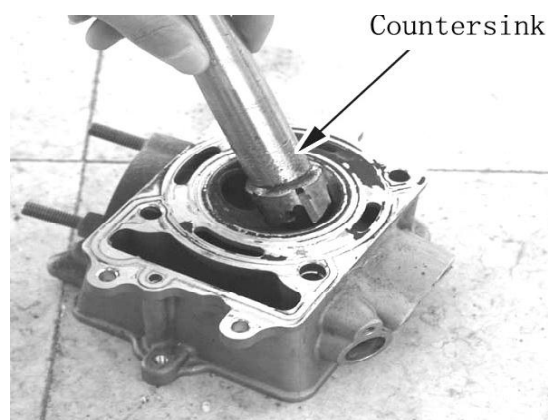
Correct valve seat ring with milling cutter.

Refer to operation manual of milling cutter for valve seat ring.

Correction shall be operated with hand with a pressure of 4~5Kg while cutting and turning in the same direction.

Caution

Apply lubricating oil to milling cutter and remove scraps while cutting.



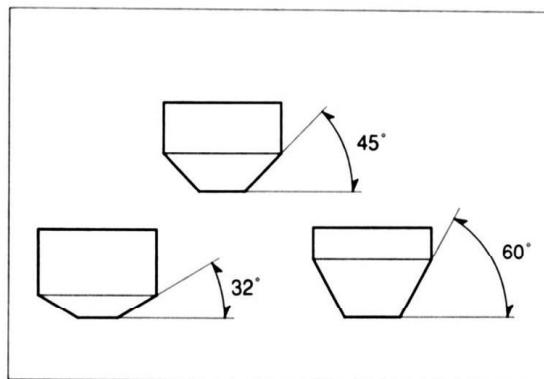
CFMOTO

In case there are scrapes or cracks on the valve seat surface, use a 45° milling cutter to remove the scrapes or cracks.

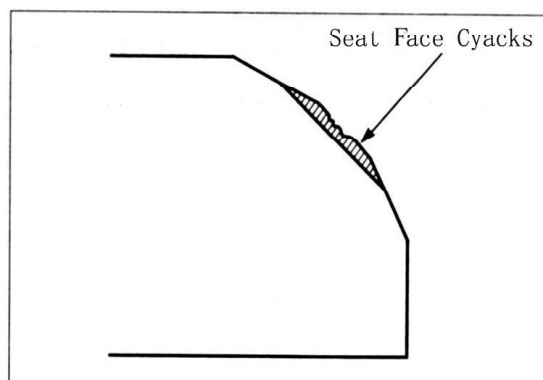
Caution

Lapper the valve seat face when replace with valve guide.

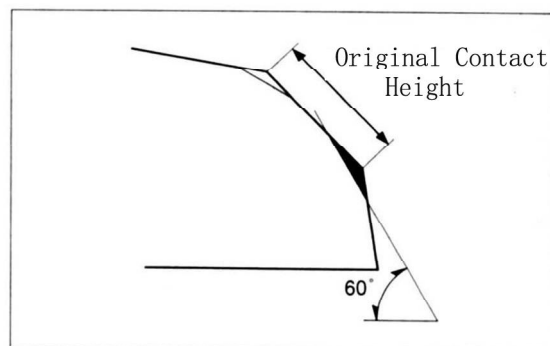
Be careful not to lapper excessively.



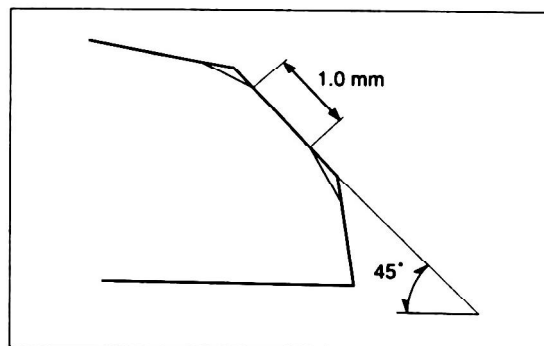
Use 32° milling cutter to correct out side face slowly.



Use 60° milling cutter to correct side face slowly.



Use 45° milling cutter to correct seal face to the specified width.



8 Cylinder cover Cylinder head Cylinder body valving system

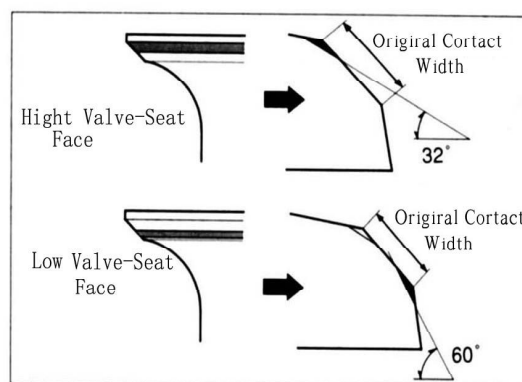
Check again the valve-seat face.

In case the valve-seat face is higher, grinds and pares with 32° milling

cutter first, and then correct to the specified width with 45° milling cutter.

In case the valve-seat face is lower, grinds and pares with 60°

milling cutter, and then correct to the specified width with 45° milling cutter.



After correction, apply grinding paste evenly on the valve seat and use a hammer to adjust the valve.

Note

- Slightly strike the hammer while adjusting. Do not over press or turn to avoid damage to the valve seat.

- Turn the valve slightly while adjusting. Do not adjust at the same position to avoid deflected wear.

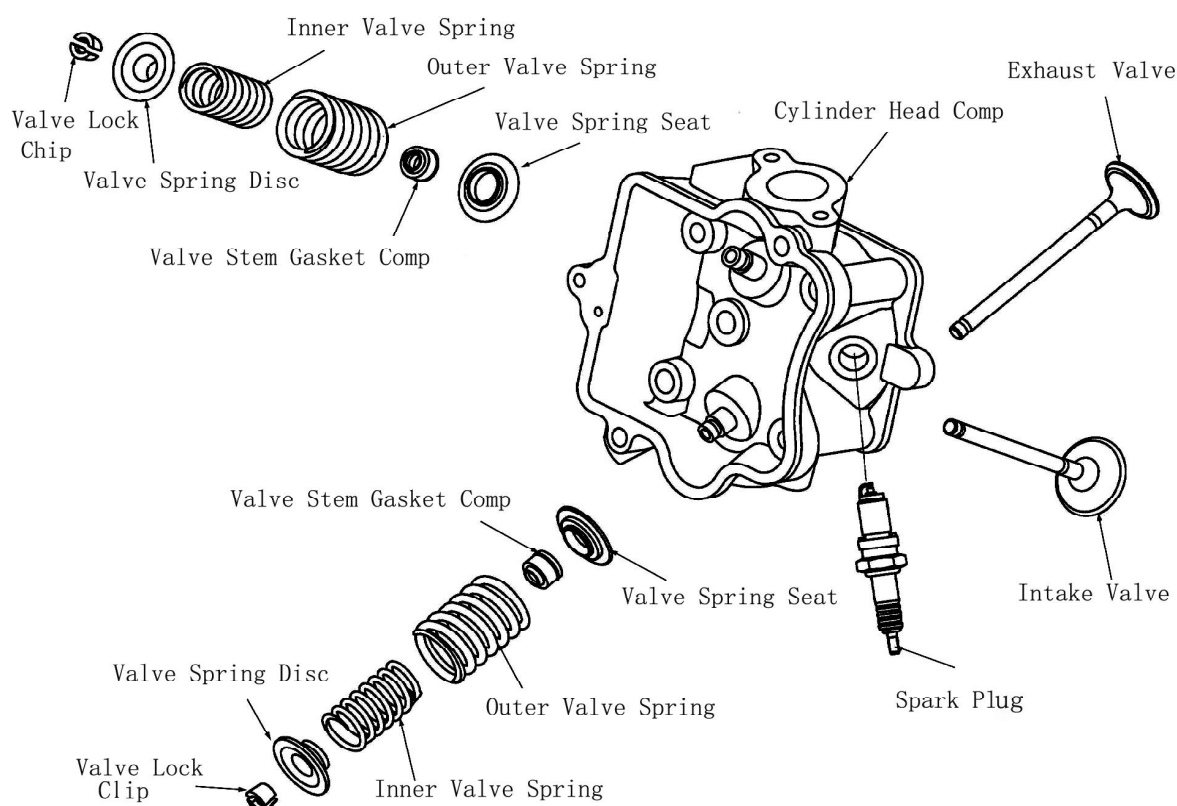
- Keep the grinding paste from entering into the clearance between valve guide and stem.

After adjusting, clean up cylinder head and valve. After correction, check again the contact of the valve seat.



8

Assembly of cylinder head

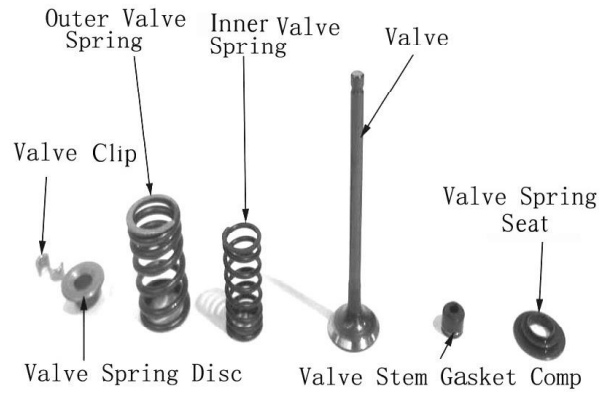


CFMOTO

CFMOTO

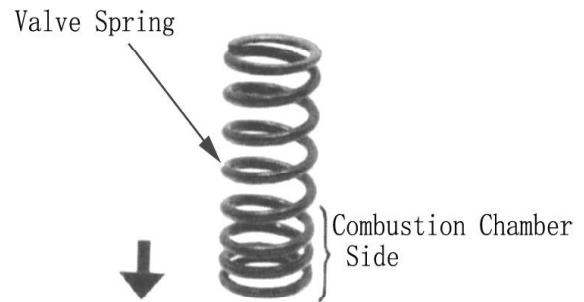
Set the lower spring seat and the new valve stem gasket to the valve guide.

Apply lubricant to valve stem and inner guide valve. Turn the valve slowly into the valve guide. Be careful not to damage the valve stem sealing comp.



Install the inner/outer springs with the small ends towards the combustion chamber.

Install the valve spring seat.



Press the valve springs with press tools and install the valve lock clip.

Warning

To prevent weakening of the spring, do not press the spring more than the required length.



Inspection of cylinder body

Check the damage and wear of inner cylinder.

Measure the inner radius of cylinder respectively at the place of upper, medium and

Bottom (6 points), along the directions of the piston pin and its vertical place,

(X-Y direction), record all the values of inner radius and take the max. value as the the cylinder inner radius.

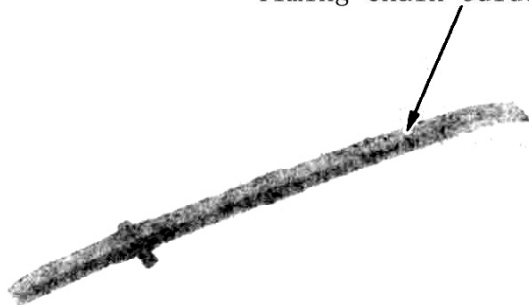


Service limit: 52.449/58.049mm

Installation of cylinder

Check the chain guide for scrapes, damages or deflected wear.

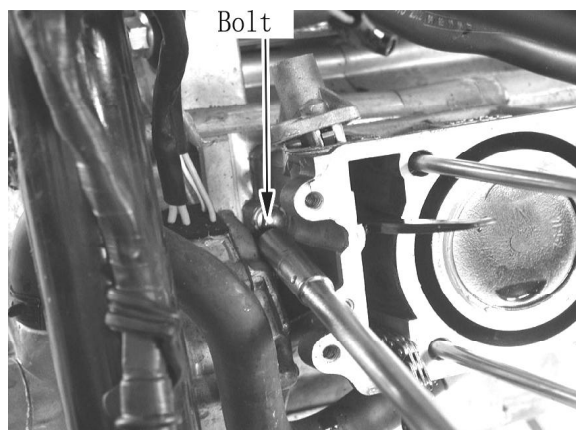
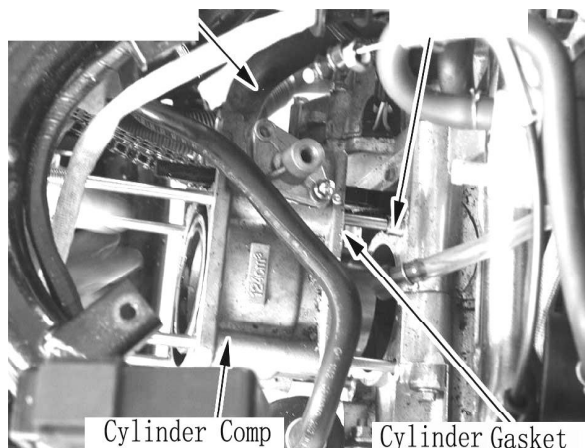
Timing Chain Guide



Clean the stains and impurities on the joint surface. Check the cooling pipe system, oil channels and bolt holes for impurities.

Install cylinder gasket, cylinder, water inlet hose, dowel pin..

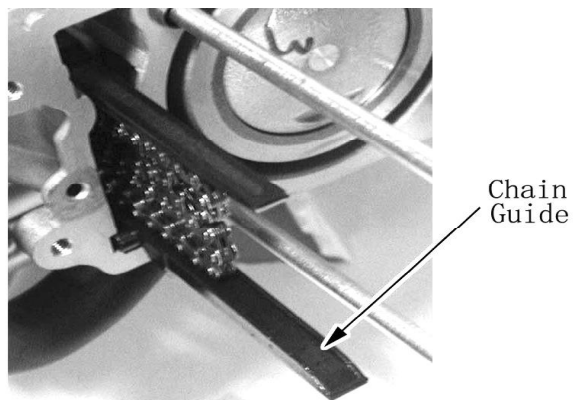
Note: The opening angle of piston ring should be 120° .



Set the washer to the cylinder bolt, and screw it but do not tighten it.

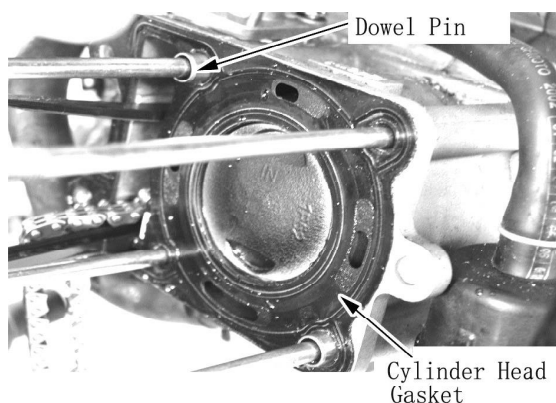
Install the chain guide

Turn the crankshaft (gearbox driving gear), till piston till piston reaches the upper dead point. (till piston surface is in parallel with the cylinder joint face)



Caution:

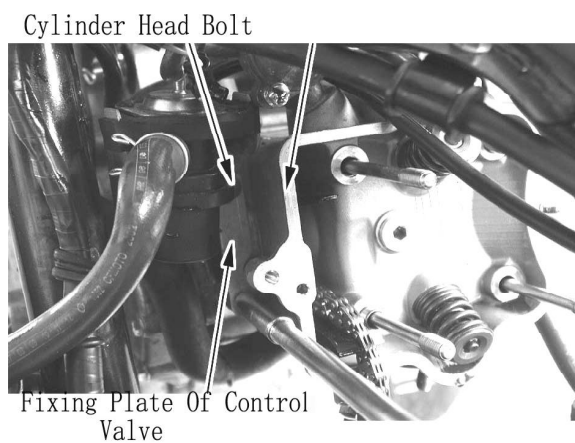
Installation of cylinder head gasket and dowel pin.



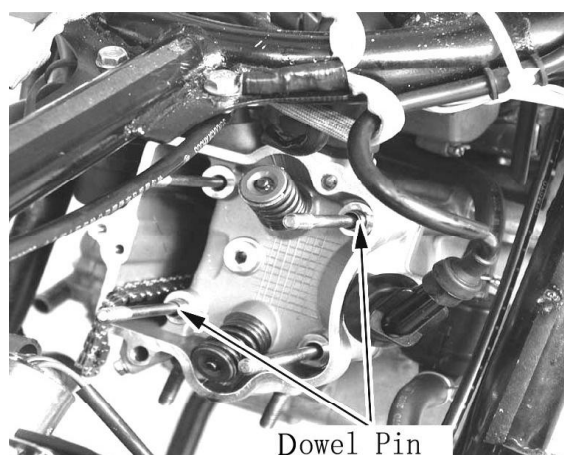
Installation of cylinder head

Install cylinder head comp.

Install the fixing plate of control valve, cylinder head bolt, screw it but do not tighten it.



Install the dowel pin.

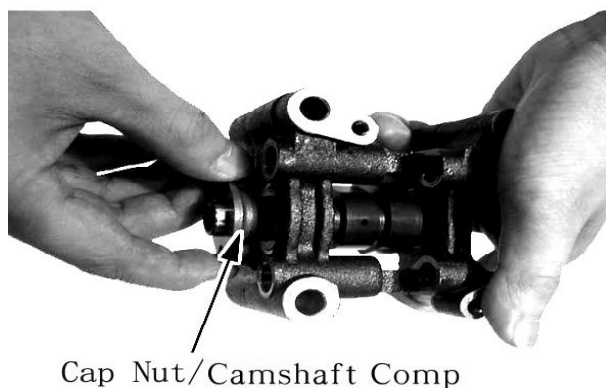


8 Cylinder cover Cylinder head Cylinder body valving system

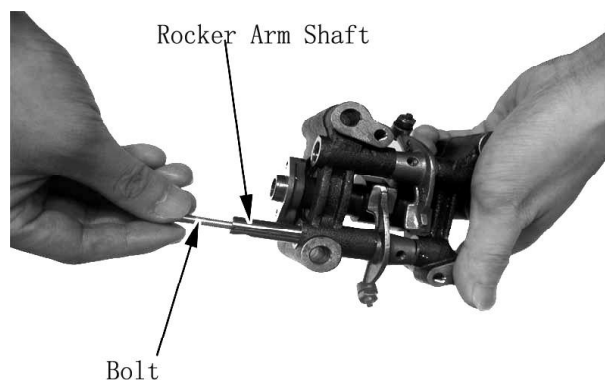
Installation of camshaft bracket comp.

Installation of camshaft comp

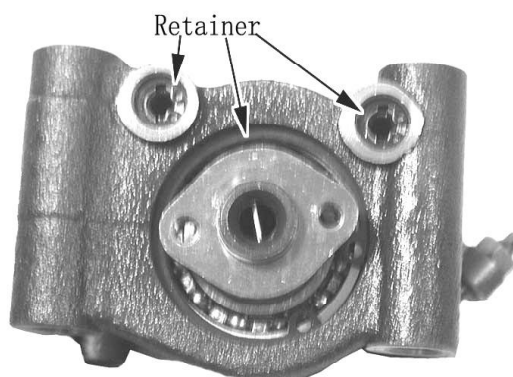
Install the camshaft into the hole in camshaft in camshaft bracket.



Apply some lubricating oil to rocker arm shaft end and insert it into rocker arm hole and rocker arm as well.



Install retainer to rocker arm shaft hole and camshaft retainer groove.



Apply lubricating oil to cam surface.

Install camshaft with cam top towards the side of crankcase.

Press tight with the four cap nuts and washer.

Tighten the cap nuts 2 or 3 times according to the specified torque.

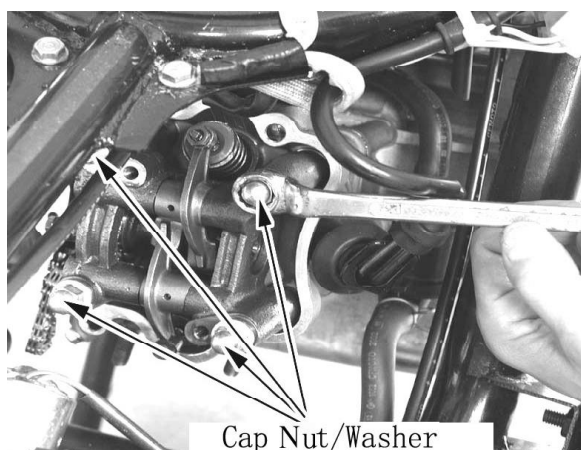
Torque: **30N.m(3.0kgf.m)**

Tighten the cylinder bolt according to the specified torque.

Torque: **10N.m(1.0kgf.m)**

Tighten the cylinder head bolt according to the specified torque

Torque: **10N.m(1.0kgf.m)**



CFMOTO

Install the sprocket to camshaft, keep the mark on sprocket in parallel with cylinder head surface.

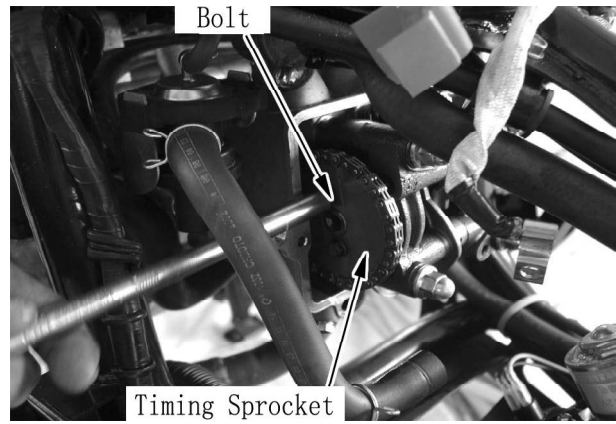
Install timing chain to the sprocket.

Install tightening bolt for camshaft sprocket.

Torque: 9 N. m (0.9kgf.m)

Caution

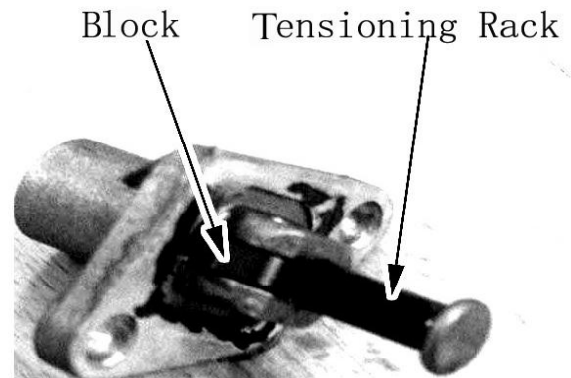
Before adjusting the valve clearance, check if the mark on the sprocket is in parallel with cylinder head surface and the groove opening of camshaft neck is upwards.



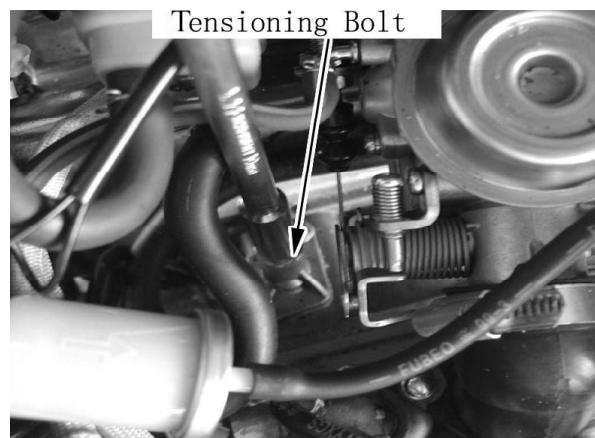
Press the block on the tensioner, and push the tensioning rack back into the tensioner. Tighten the bolt according to the specified torque.

Torque: 10 N. m (1.0kgf.m)

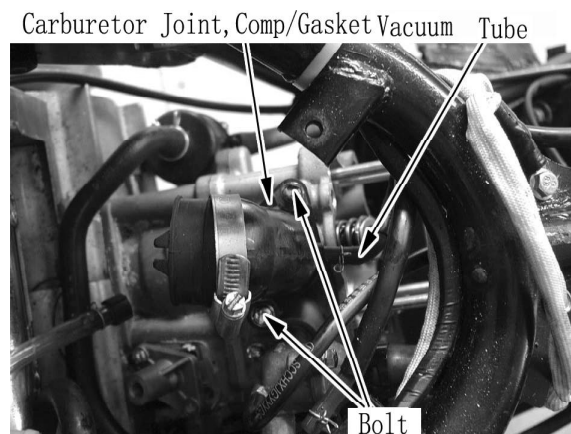
Install the tensioner bolt and tighten it. (8-7)



Install carburetor joint gasket, carburetor joint and tighten with bolt.

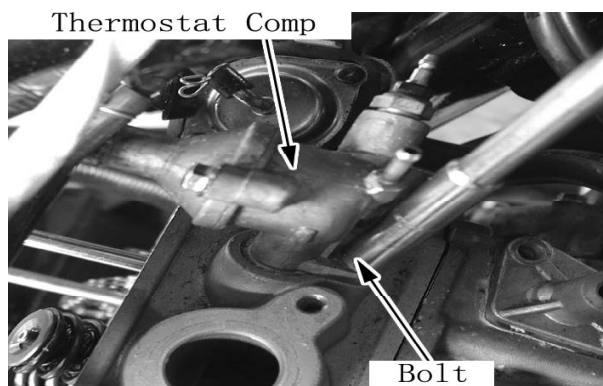


Install vacuum tube..



8 Cylinder cover Cylinder head Cylinder body valving system

Install thermostat comp.



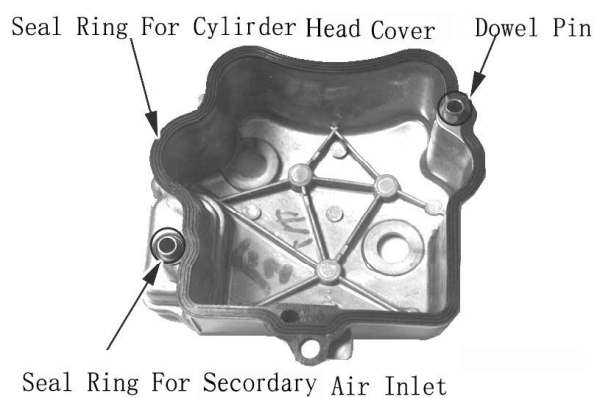
Install water temperature alarm coupler.



8

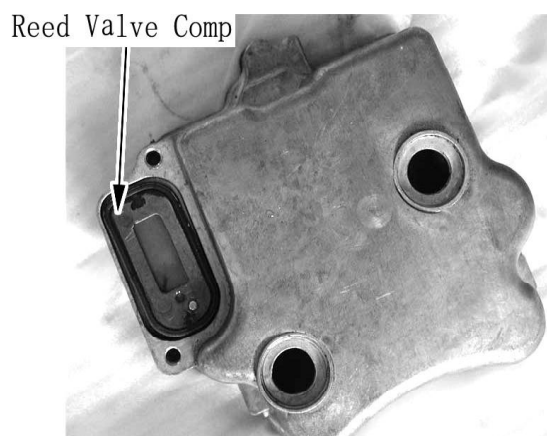
Installation of cylinder head cover

Assemble seal ring, dowel pin, seal ring for secondary air inlet to the cylinder head cover.



Install reed valve comp.

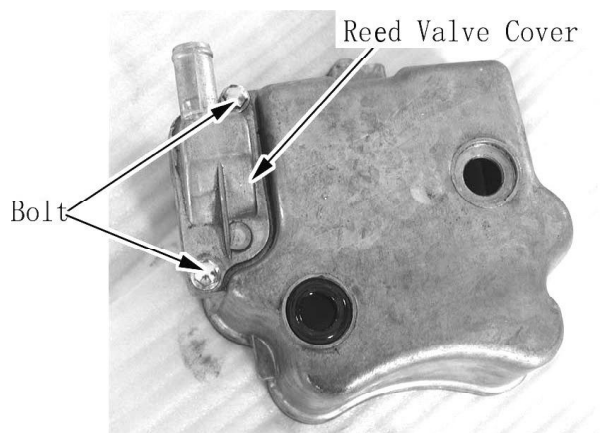
Install the R & L protecting plate and footrest deck.(chapter 2)



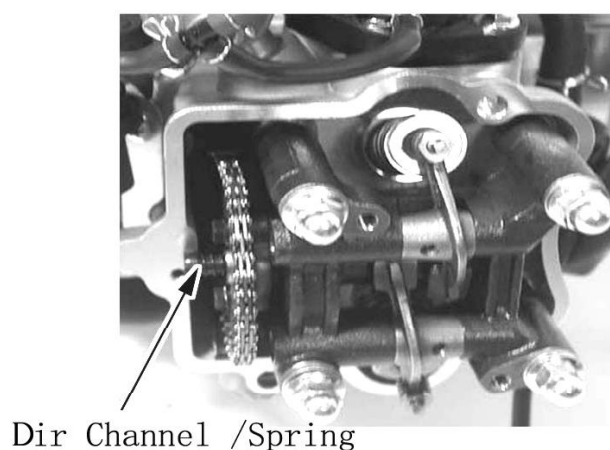
CFMOTO

Install reed valve cover and tighten.

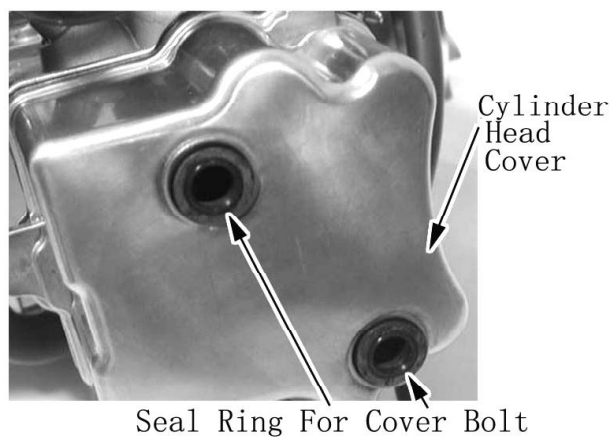
Torque: 10 N. m (1.0kgf.m)



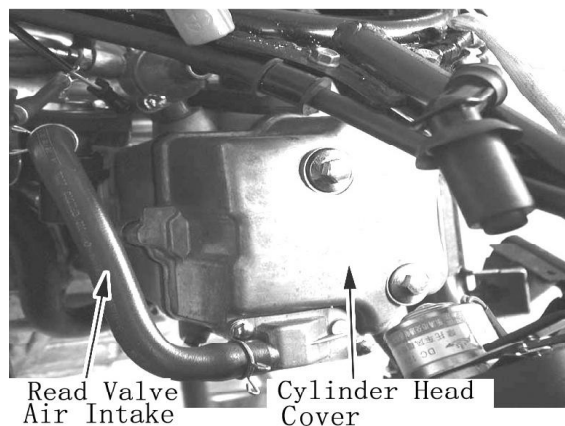
Set the spring to the oil channel joint then insert it to the pin in the camshaft hole.



Install the assembled cylinder head cover.
Install the seal ring of cover bolt.



Install the reed valve air intake.
Fill coolant and remove air. (6-5)
Install muffler. (2-8)
Install carburetor(5-9)
Install left side cover(9-18)



Overhaul information.....	9-1	Removal of clutch.....	9-9
Troubleshooting.....	9-2	Dismantling of clutch	9-9
Disassembly of left side cover.....	9-3	Assembly of clutch.....	9-14
Assembly & disassembly of air inlet cover.....	9-4	Installation of clutch.....	9-18
Removal of gearbox.....	9-5	Installation of left side cover.....	9-18
Dismantling of gearbox.....	9-5	Installation of air inlet.....	9-18

Overhaul information

Operation caution

- Do not smear grease to the V-belt or sheave.?
- Do not smear any lubricant grease to the primary sliding sheave and weights.
- The CVT system can be overhauled without being removed from the scooter.
- Do not damage the joint faces.
- Keep the impurities, mud and sand from entering the engine.

9

Overhaul standard

Item		Standard	Service limit
Gearbox primary sheave	Inner diameter of sliding sheave	24.007-24.028 mm	24.07 mm
	Outer diameter of collar	23.959-23.98	23.92 mm
	Outer diameter of weights comp.	19.95-20.05	19.45 mm
Width V-belt		21.7-23.3 mm	20.7 mm
Clutch secondary sheave	Clutch shoe thickness	—	2.75 mm
	Inner diameter of clutch outer sheave	124.5-124.2 mm	125 mm
	Free length of clutch spring	144-146 mm	140 mm
	Outer diameter of secondary sheave	33.95-33.975 mm	33.92 mm
	Inner diameter of secondary sliding sheave	34-34.025 mm	34.06 mm

Tightening torque

Left side cover bolt	10 N. m (1.0kgf.m)
Gearbox nut	59 N. m (6.0kgf.m)
Clutch nut	53 N. m (5.3kgf.m)
Special nut	59 N. m (6.0kgf.m)

Troubleshooting

When engine is running, scooter does not run

V.-belt

- worn

Slider, Cam

- Worn/damaged

Clutch shoe

- Worn/damaged

Clutch spring

- Damaged

Engine stops or beats when the scooter starts to run

Clutch return spring

- damaged

Poor speed performance

V-belt

- worn/damaged

Clutch spring

- Weakened

Roller weight

- worn/damaged

Primary sliding sheave surface

- stained

Removal of left side cover

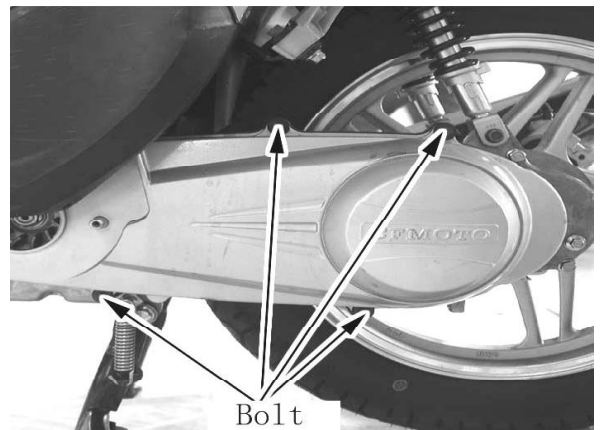
***Caution**

Do not damage the joint faces

Remove the cap bolt and the air inlet port cover.



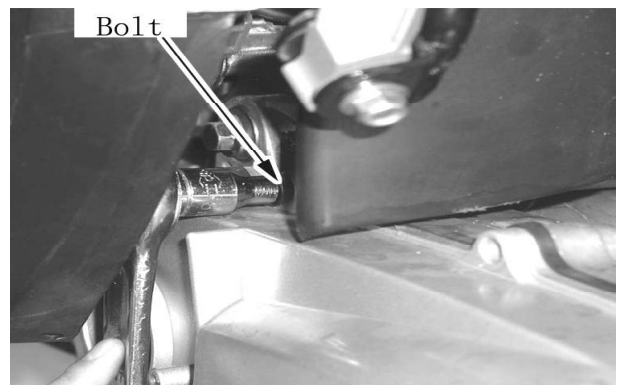
Remove the four of the five tightening bolts from the left side cover.



9

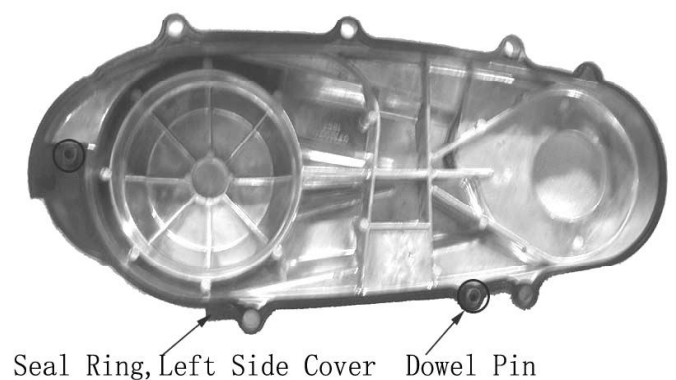
Remove the rest bolt with the socket wrench.

Remove left side cover.



Remove left side cover seal ring.

Remove dowel pin.

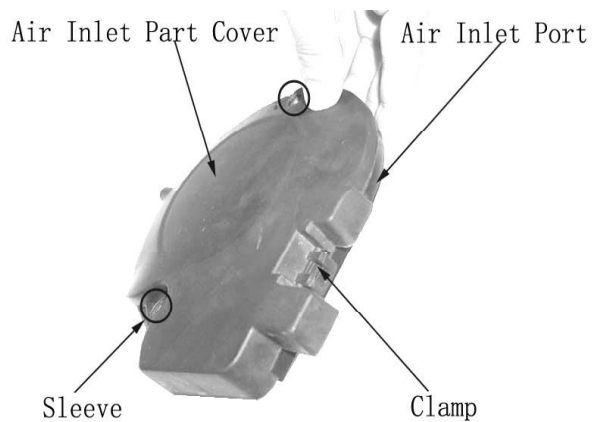


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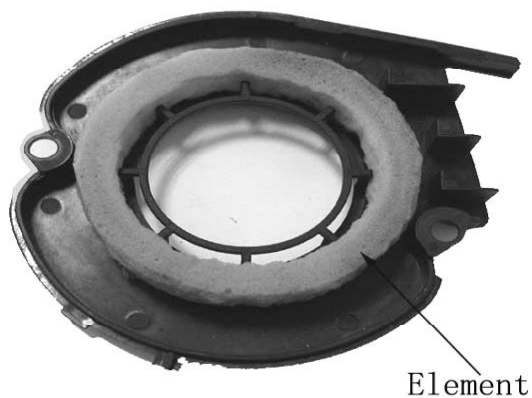
Removal and assembly of air inlet port cover

Remove the sleeve.

Break open the clamp and separate the air inlet port cover from air inlet port.



Remove the element, wipe off the dust and impurities.



For assembly, install the element first, keep right the insert position and reverse the procedure of removal for installation.



Gearbox assy.

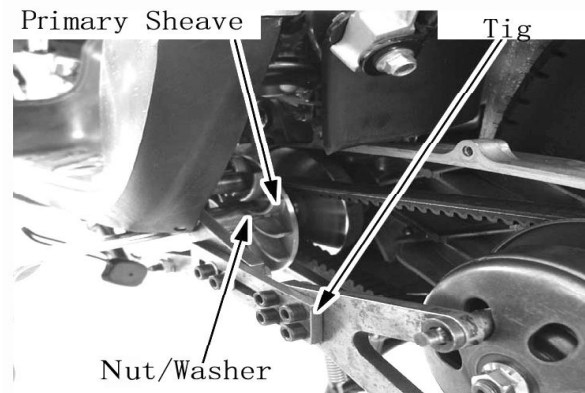
Disassembly

Remove left side cover.(9-3)

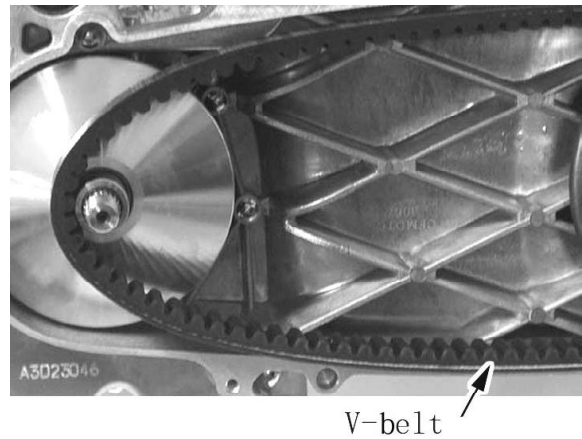
Fix the gearbox and clutch well with jig, loosen the tightening nut and washer for gearbox with socket wrench..

Special tools:

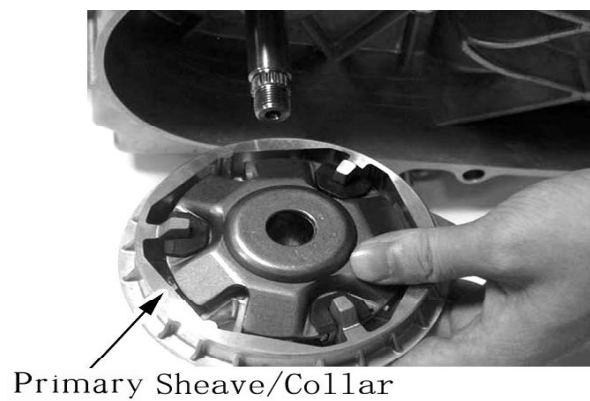
Special jig: 1P52MI-A-922-040000



Remove primary sheave and V-belt.

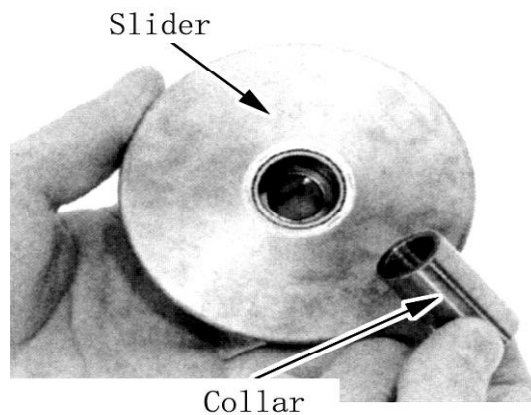


Hold the inner side of primary sliding sheave, remove the collar for slider

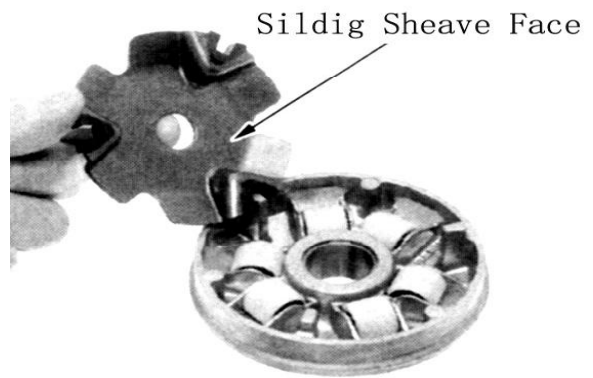


Dismantling

Remove the collar for slider.

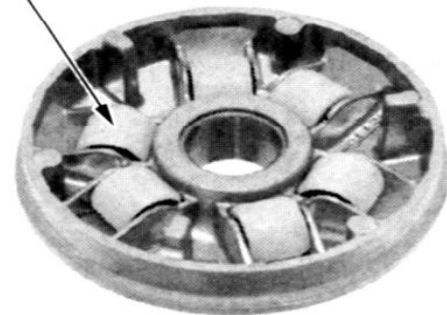


Remove sliding sheave face



Remove roller weight.

Roller Weight



Check

V-belt

Cracks/wear/scaling/chipping

Measure the V-belt width.

Service limit: 20.7 mm

V-belt



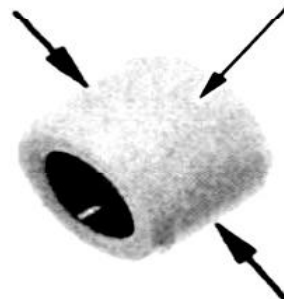
Roller weight

Wear/damage

Measure the outer diameter of roller weight.

Service limit: 19.45 mm

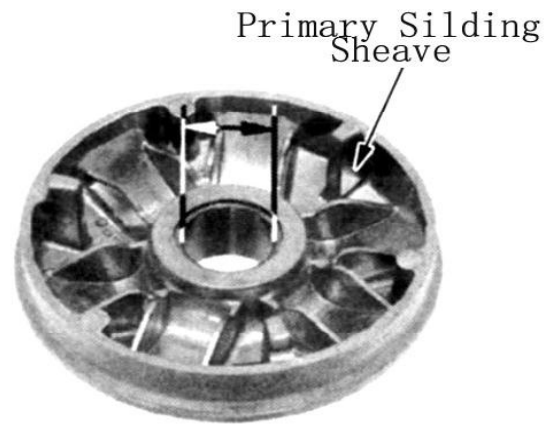
Roller Weight



Primary sliding sheave

Measure inner diameter of sliding sheave.

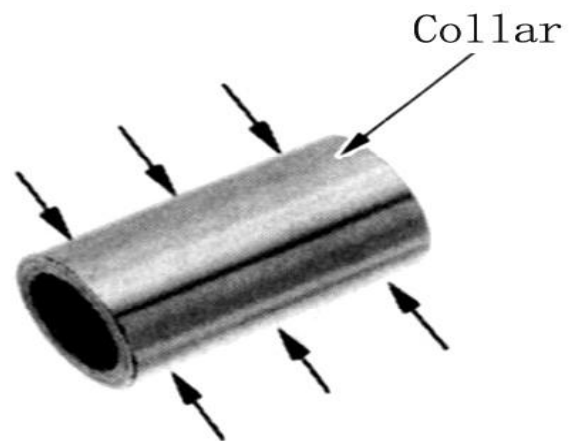
Service limit: 24.07 mm



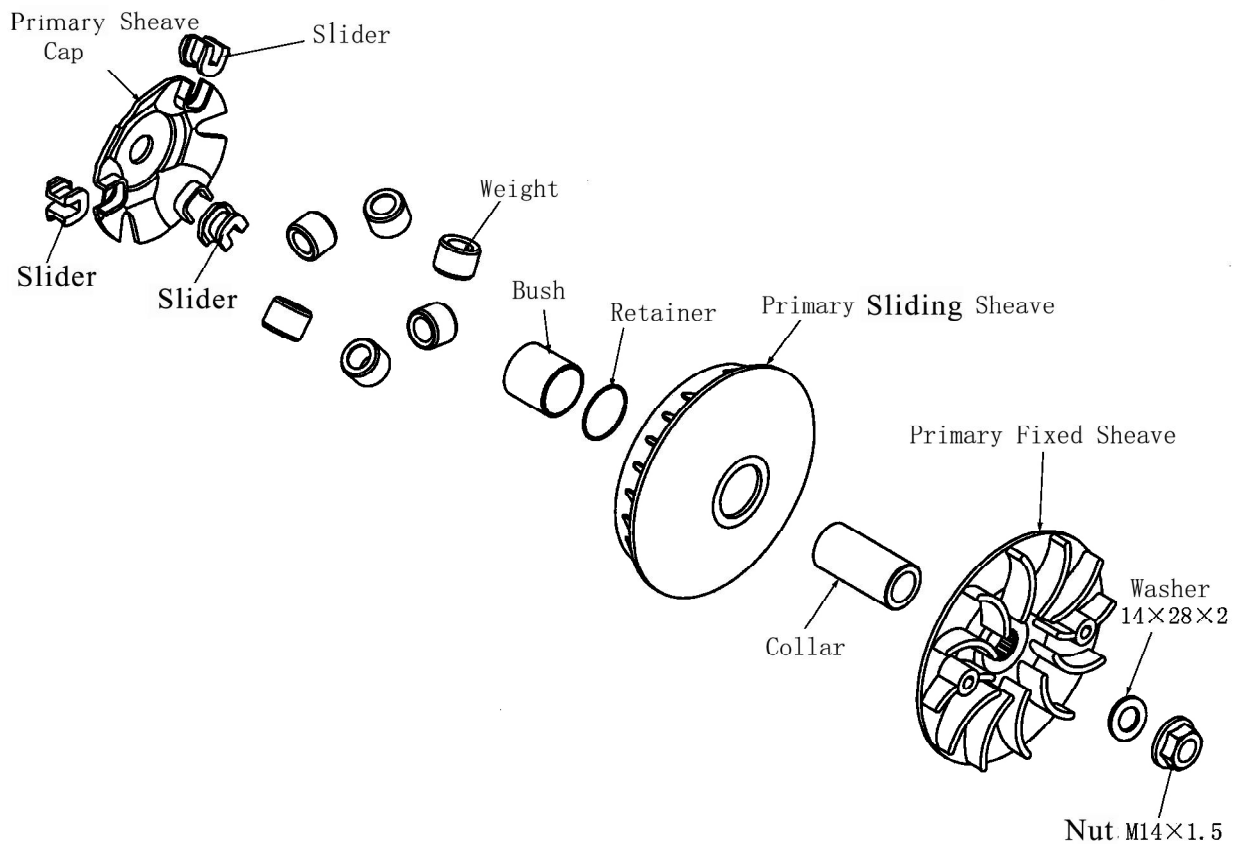
Check collar for any wear or damage.

Measure the outer diameter of collar.

Service limit: 23.92 mm

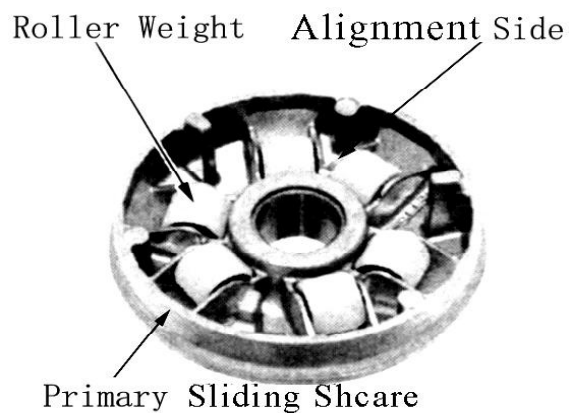


9

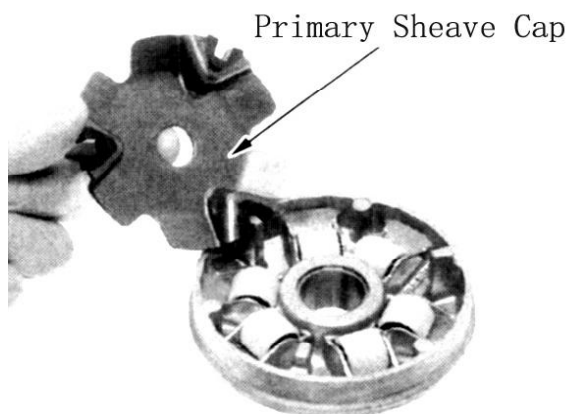


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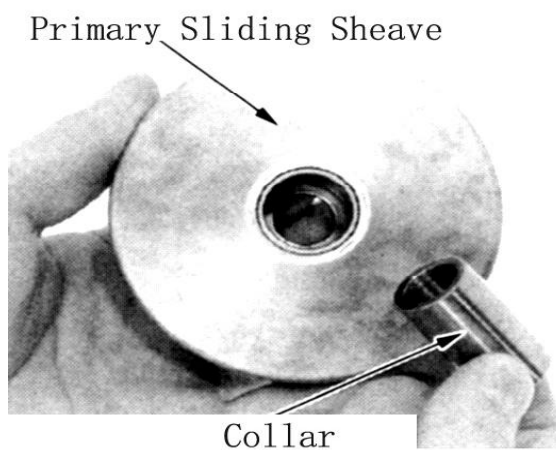
Install the roller weight comp. to the sliding groove of the primary sliding sheave. Keep the roller weight terminal surface alignment in the direction as shown in the picture.



Install primary sheave cap.



Install collar into the bush hole of primary sliding sheave.

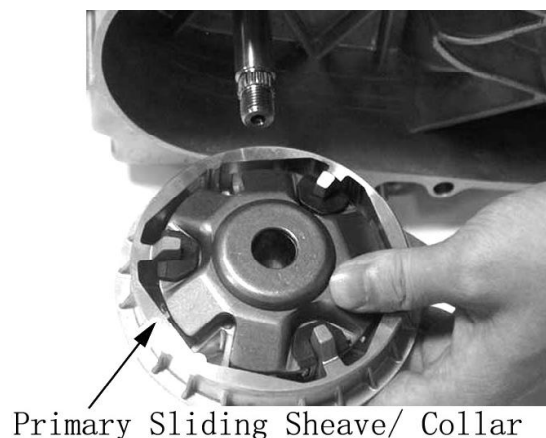


Installation caution:

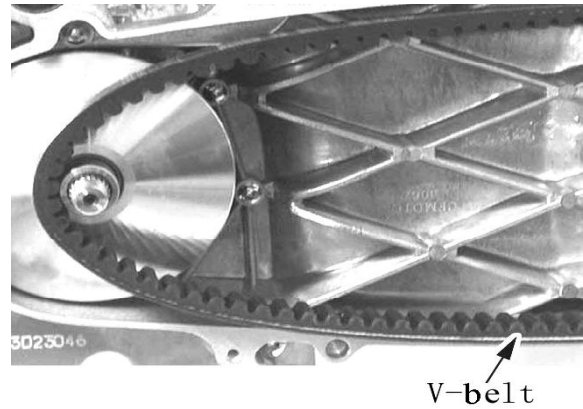
Never

smear grease to the V-belt or secondary sheave.

Hold secondary sheave and install primary sliding sheave and collar.



Install V-belt.

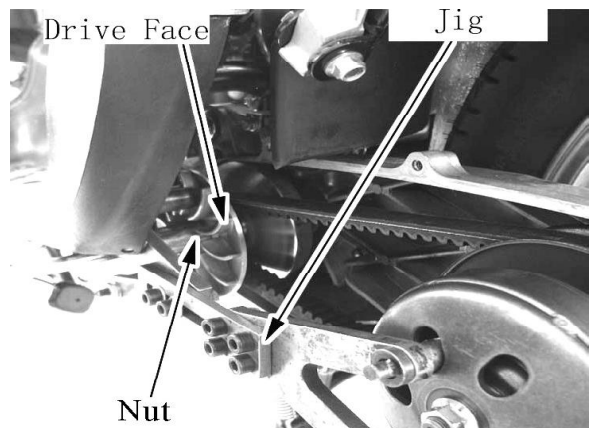


Install primary sheave, washer, nut.

Apply glue to the nut screw part, install the nut and tighten it.

Tighten the primary sheave nut with pneumatic wrench according to the specified torque.

Torque: 59 N. m (6.0kgf.m)



9

Clutch

Disassembly

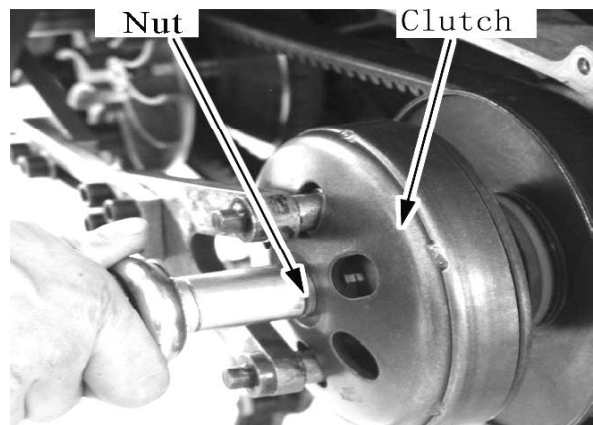
Remove:

— left side cover. (9-3)

— drive face. (9-5)

Hold the clutch with the jig and remove the lock nut.

Remove Clutch



Dismantling

Attach the protruding part of clutch spring compressor to the hole of the secondary fixed sheave.

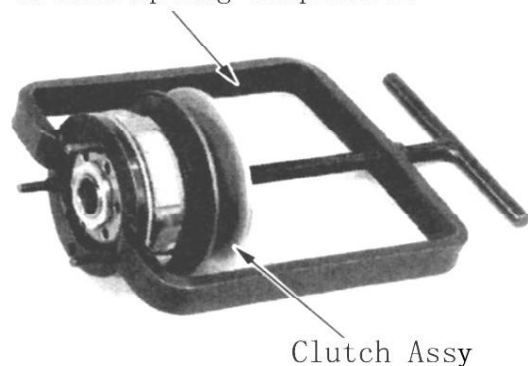
Caution

Do not tighten the clutch spring compressor more than the specified torque.

Special tools:

Clutch spring compressor: 152MI-922-070000

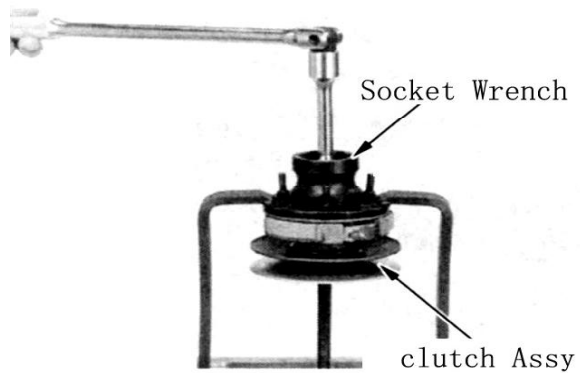
Clutch Spring Compressor



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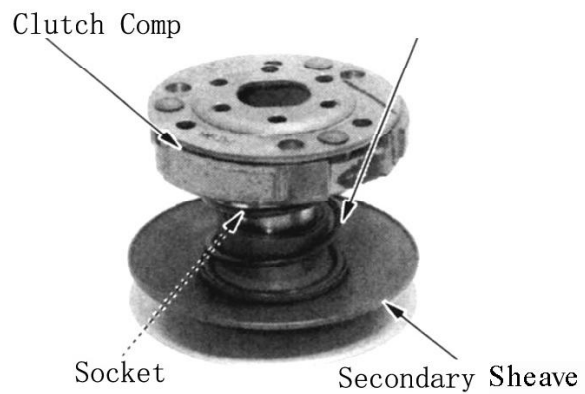
Fix the clutch spring compressor with a pliers or the like.

Remove the nut from clutch with socket wrench.



Remove the following parts from clutch spring compressor:

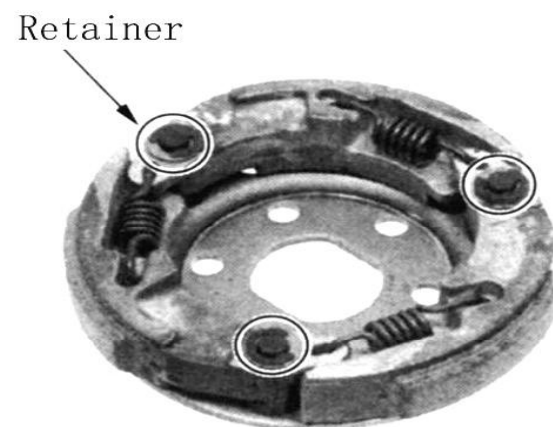
- Clutch comp.
- Secondary fixed sheave
- Clutch spring
- Socket
- Buffer washer
- Plastic washer



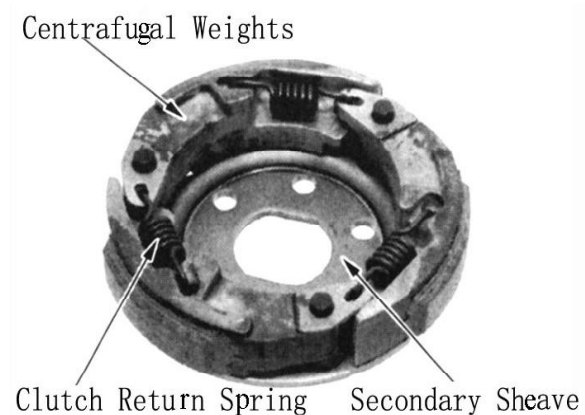
Dismantle clutch comp. and secondary fixed sheave separately.

Dismantling of clutch comp.

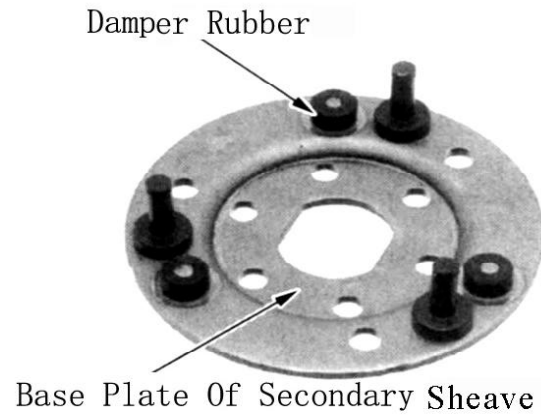
Remove retainer.



Remove clutch return spring, remove centrifugal weights from secondary fixed sheave

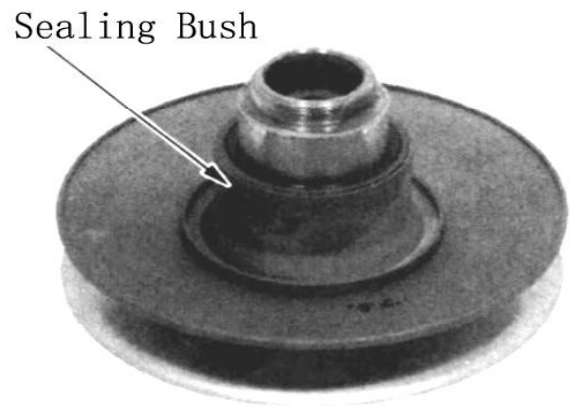


Remove damper rubber.



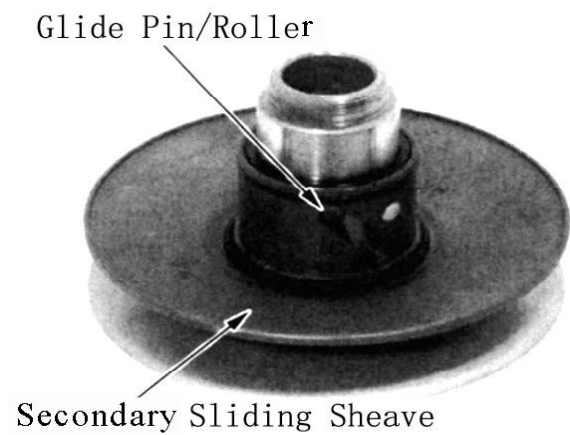
Dismantling of secondary fixed sheave

Remove sealing bush.



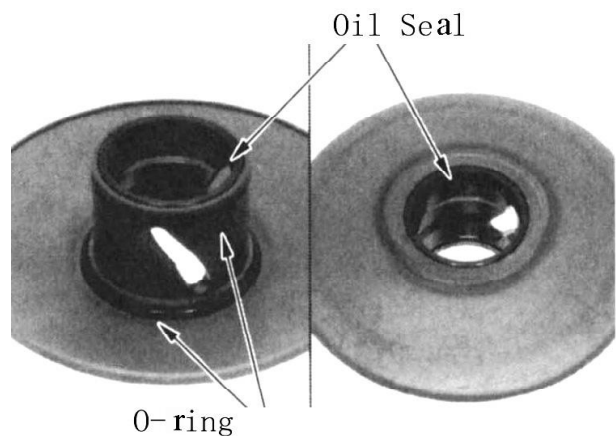
Remove guide pin, roller, remove secondary fixed sheave

Check guide pin and roller for damage or wear.



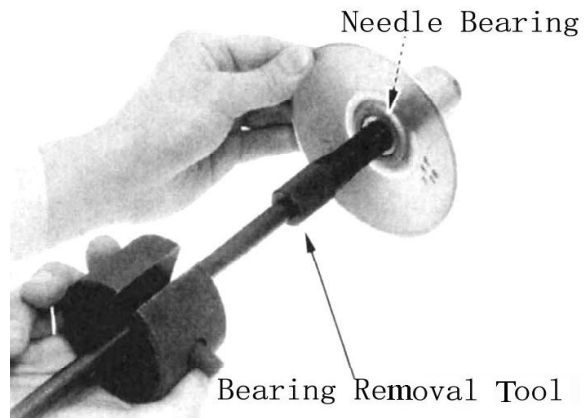
Remove oil seal and O-ring from secondary fixed sheave (Replace with new ones for installation)

Check the needle bearing and ball bearing of secondary fixed sheave Replace in case of poor rotating or jam.

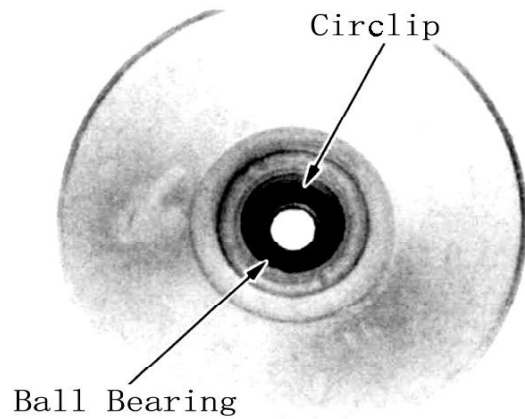


Replacement of bearing for secondary sliding sheave..

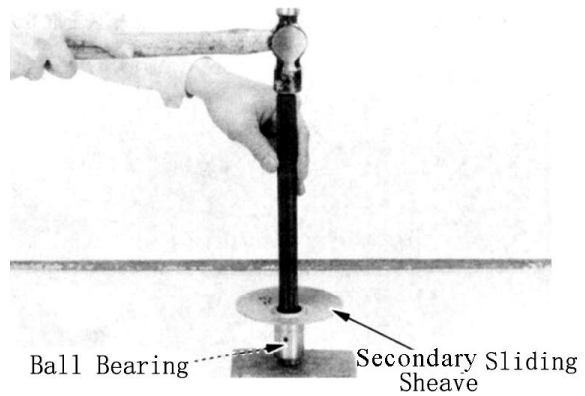
Remove the needle bearing with bearing removal tool.



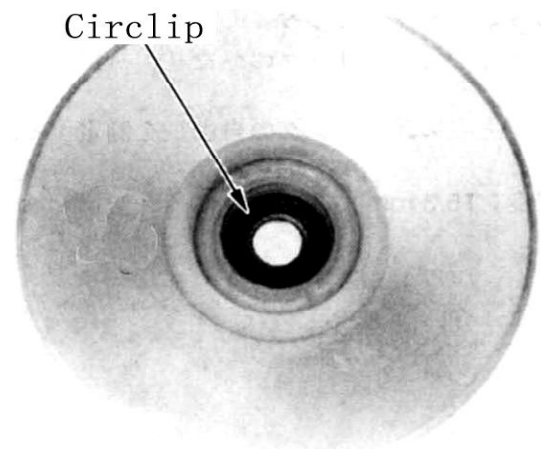
Remove circlip, and take out the ball bearing.



Apply lubricant to the new ball bearing.
Strike the ball bearing with its countermark upward into the secondary fixed sheave.



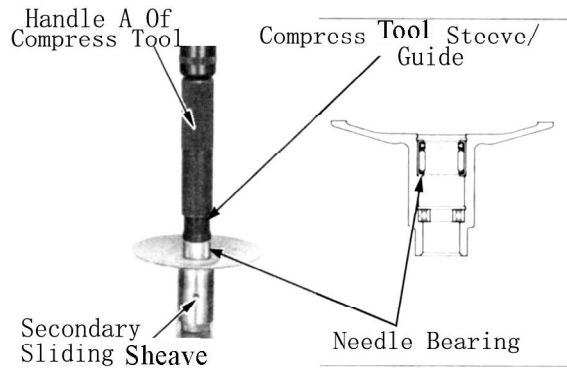
Install circlip.



Apply lubricant to the inner side of the secondary fixed sheave.

Apply lubricant to the new needle bearing.

Press the needle bearing with its countermark upwards into the secondary fixed sheave.



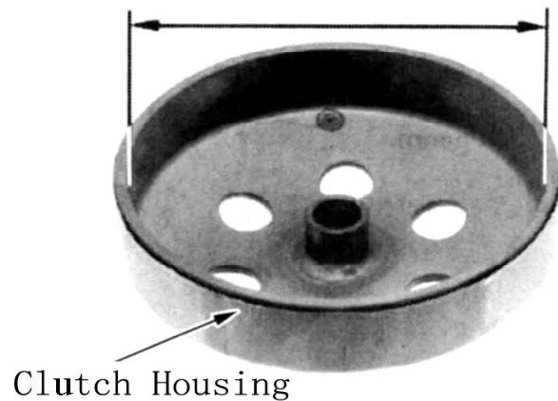
Check

Clutch housing

Check the clutch housing for wear and damage

Measure inner diameter of clutch housing

Service limit: 125 mm



Clutch Housing

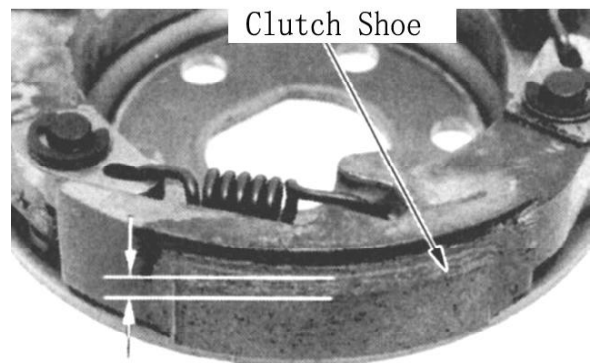
9

Clutch shoe

Check clutch shoe for wear and damage.

Measure the thickness of clutch shoe

Service limit: 2.75 mm



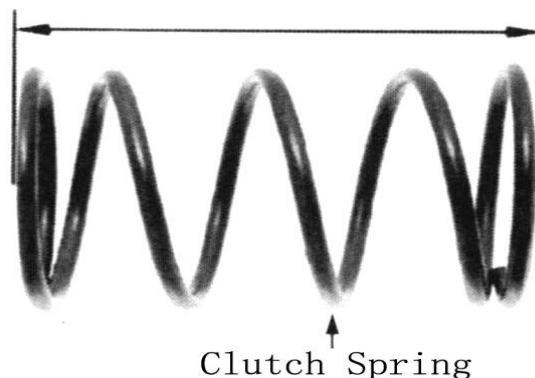
Clutch Shoe

Clutch spring

Check the clutch spring for weakening or break.

Measure the free length of spring.

Service limit: 140 mm



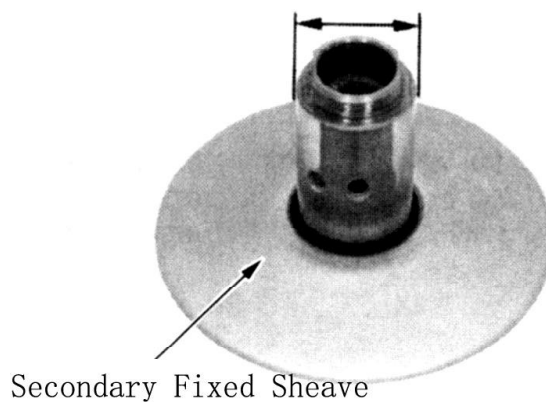
Clutch Spring

Secondary fixed sheave

Check for wear and damage.

Measure the outer diameter

Service limit: 33.92 mm

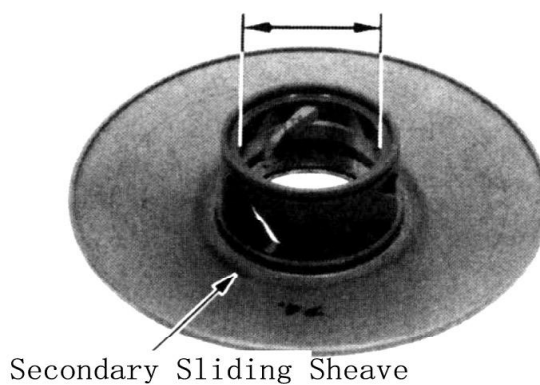


Secondary sliding sheave

Check for wear and damage.

Measure the inner diameter.

Service limit: 34.06 mm

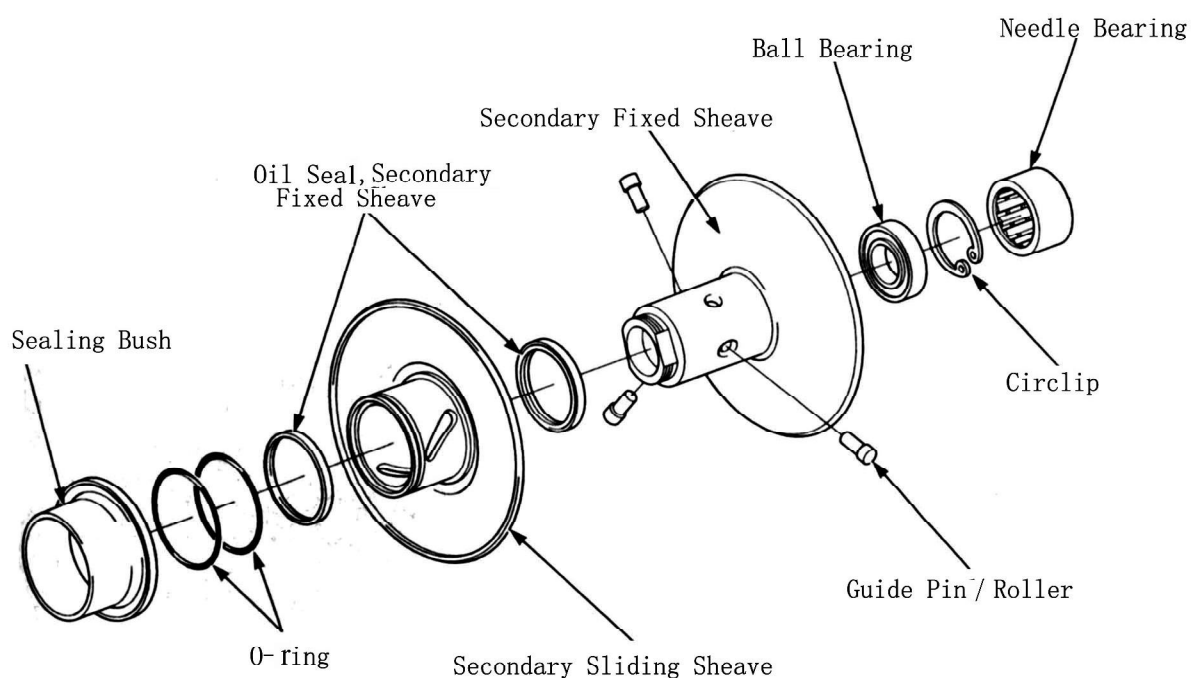


Assembly of clutch

Caution

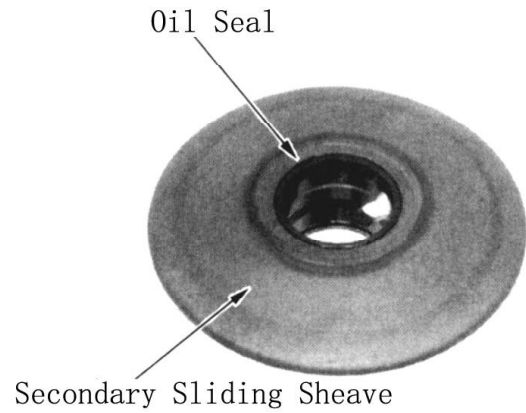
While assembling, cleaning and degreasing from sliding surface and inner secondary fixed sheave must be performed.

Assemble secondary fixed sheave



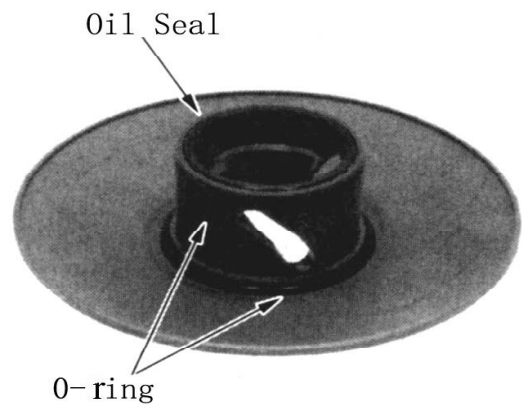
Degrease and clean the belt sliding surface of secondary fixed sheave

Apply lubricating grease to the lip of oil seal and install the oil seal with the lip facing the inner side of secondary sliding sheave



Apply lubricant grease to the O-ring and install it to secondary fixed sheave

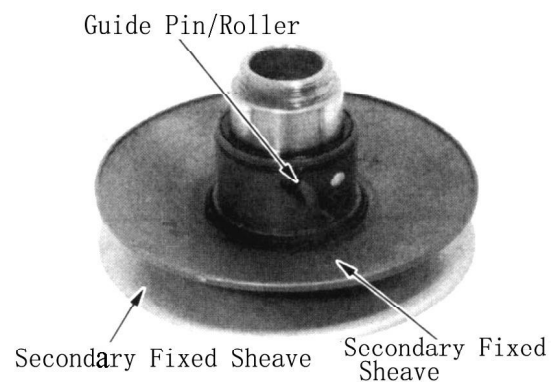
Apply lubricant grease to the oil seal lip and install the oil seal with the lip facing the secondary sliding sheave..



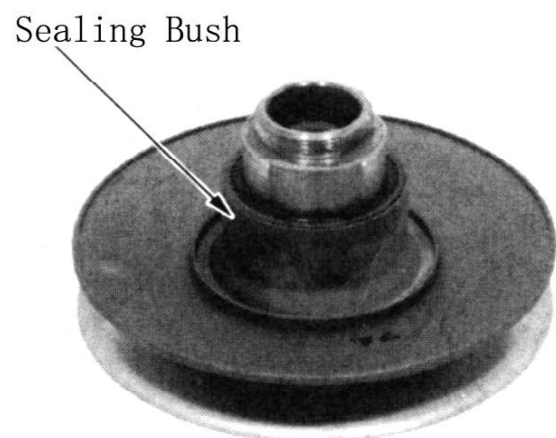
9

Fill adequate lithium lubricant into $\Phi 34$ hole, guide pin groove, needle bearing and ball bearing.

Install the secondary sliding sheave to secondary fixed sheave.

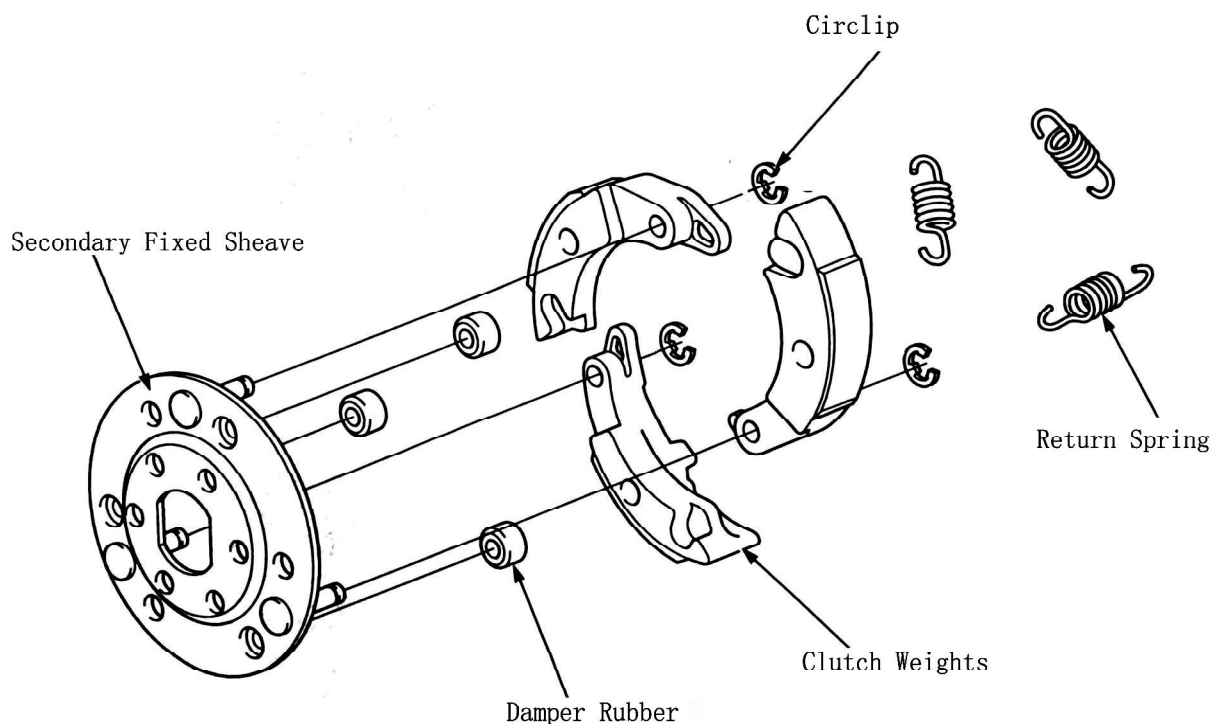


Assemble airtight bush.

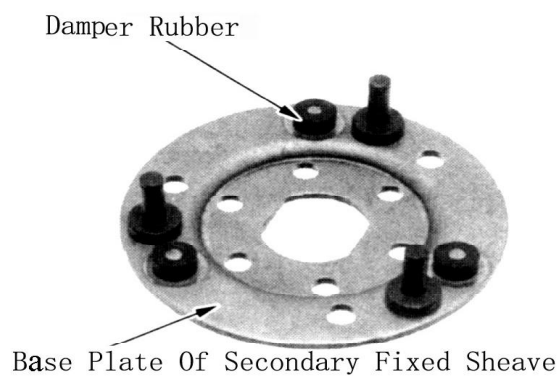


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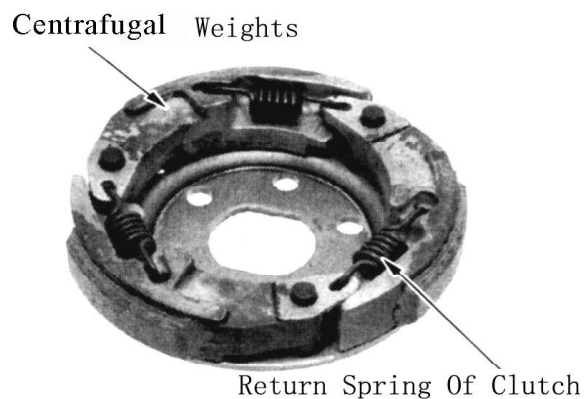
Assemble clutch comp.



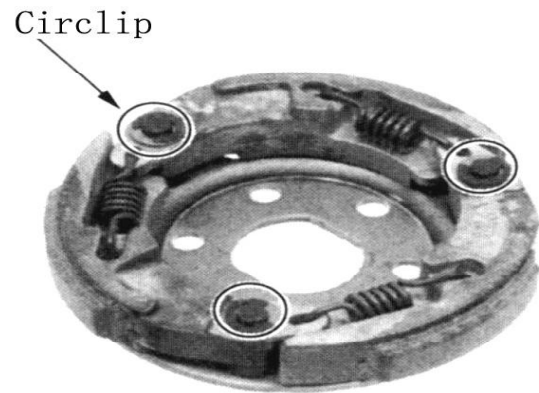
Install damper rubber to the base plate of secondary fixed sheave.



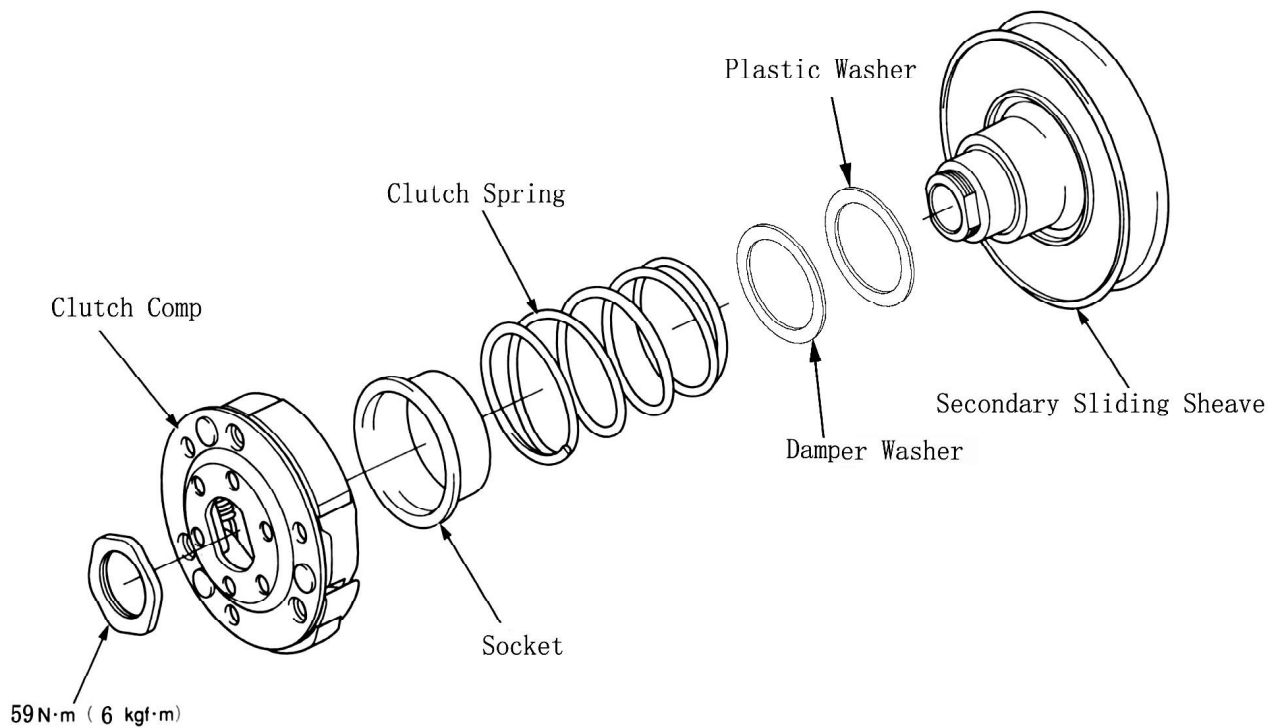
Pay attention to the mounting direction of return spring.
Install centrifugal weights and return spring.



Install circlip

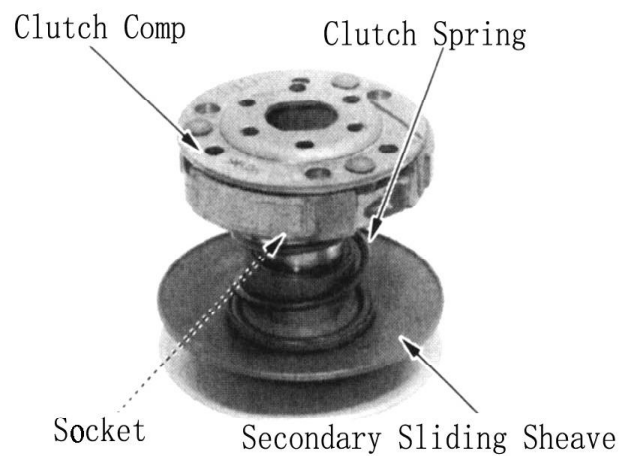


Assembly



Assemble the following parts

- Clutch comp.
- Socket
- Clutch spring
- Damper washer
- Plastic washer
- Secondary sliding sheave.

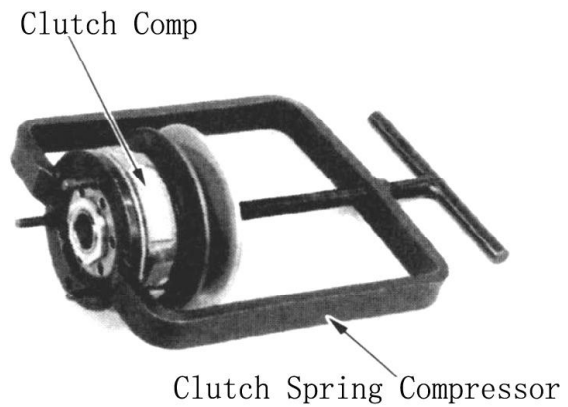


Install with the hole of secondary fixed sheave facing the protruding part of clutch spring compressor.

Caution

Do not tighten the clutch spring compressor more than the specified torque.

Fix the clutch spring compressor with pliers or the like.

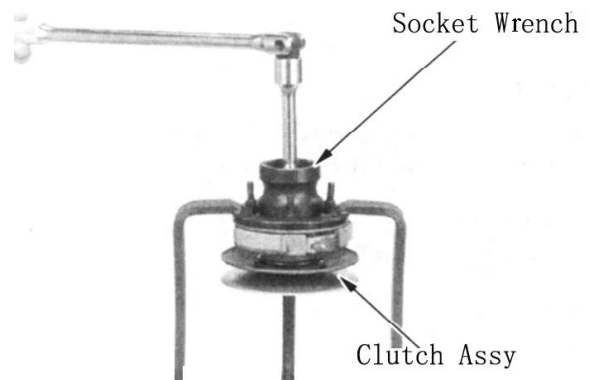


Install nut for secondary fixed sheave.

Tighten the clutch lock nut according to the specified torque with socket wrench.

Torque: 59 N. m (6.0kgf.m)

Remove clutch spring compressor.



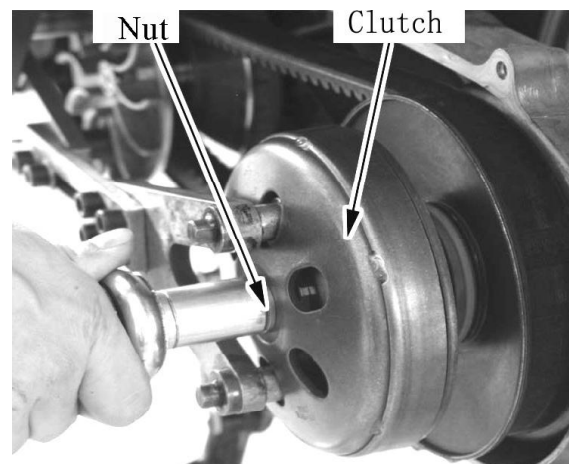
Installation of clutch

Install clutch and tighten the nut according to the specified torque.

Torque: 53 N. m (5.3kgf.m)

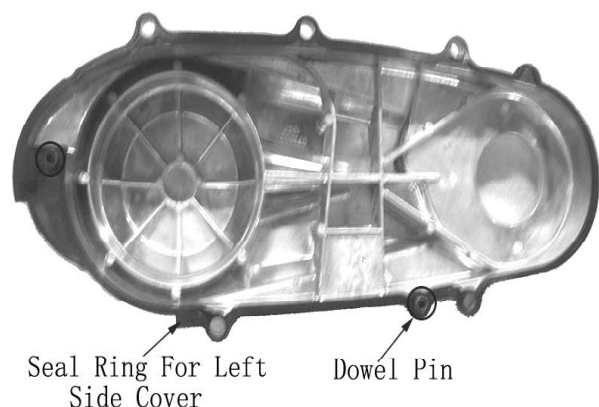
Install secondary sheave (→9-12)

Install left side cover (→9-3)



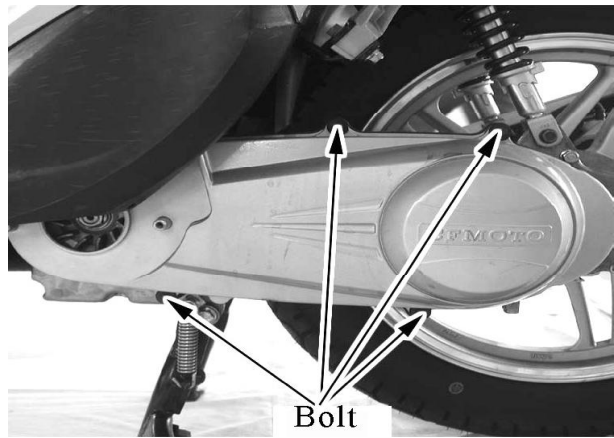
Installation of left side cover

Install left side cover seal ring and dowel pin.

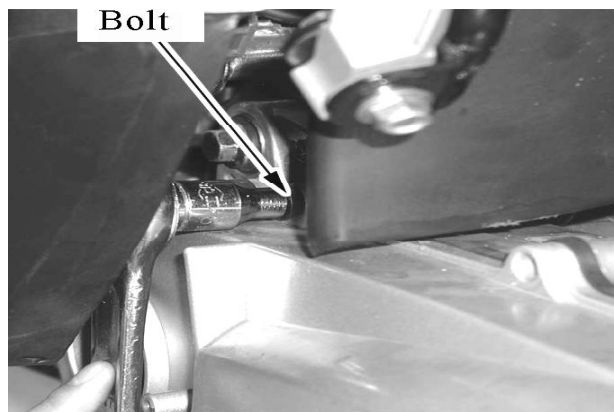


Install left side cover, tighten according to the specified torque.

Torque: 10 N. m (1.0kgf.m)



Reverse the removal procedure for installation



Install air inlet cover comp.

Tighten the bolt according to the specified torque.



Overhaul information.....	10-1	Bearing arrangement.....	10-4
Troubleshooting.....	10-1	Disassembly and assembly of gearbox bearing and oil seal.....	10-4
Disassembly of gearbox.....	10-2	Disassembly and assembly of left crankcase bearing	
Assembly of gearbox	10-7	oil seal.....	10-6

Overhaul information

Operation caution

- Overhaul of gearbox can be done without removing the gearbox from scooter.
- Install the main shaft with special tools. Fix the inner side of bearing and press it into the drive shaft.

Troubleshooting standard

Item		Standard
Oil capacity	For replacing	0.15l
	For dismantling	0.15l
Recommended oil		SAE15W-40/SF grade

10

Tightening torque

Oil check/drain bolt	22 N. m(2.2kgf. m)
Gearbox bolt	22 N. m(2.2kgf. m)

Troubleshooting

When engine is running, scooter does not run.

- Gearbox system damaged
- Gearbox system burnt
- V-belt CVT system is not engaged(chapter 9)

Abnormal noise during running

- Wearing of gear, gear surface damaged
- Worn or loosen bearing

Oil leakage

- Too much oil
- Worn or damaged oil seal
- Damaged gearbox sealing gasket

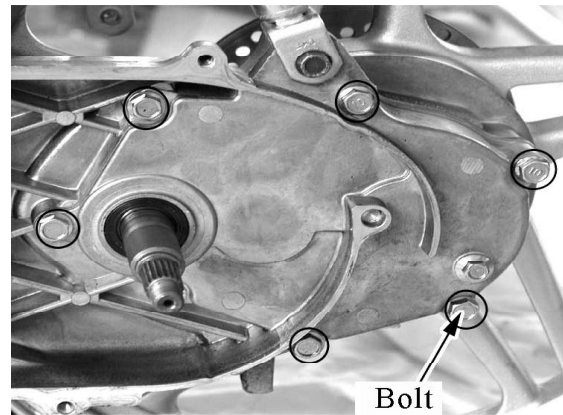
Disassembly of gearbox

Drain lubricant from gearbox.(→3-10)

Remove:

- Rear wheel(4-3)
- Clutch assy.(9-9)

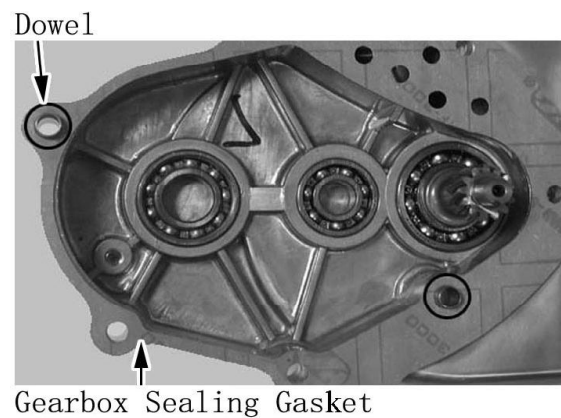
Remove bolt



Remove gearbox.

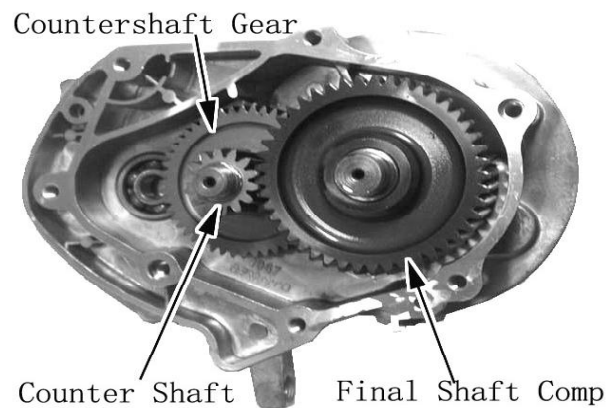
Remove dowel pin and gearbox sealing gasket

Wipe off the attached sealant on the joint face.

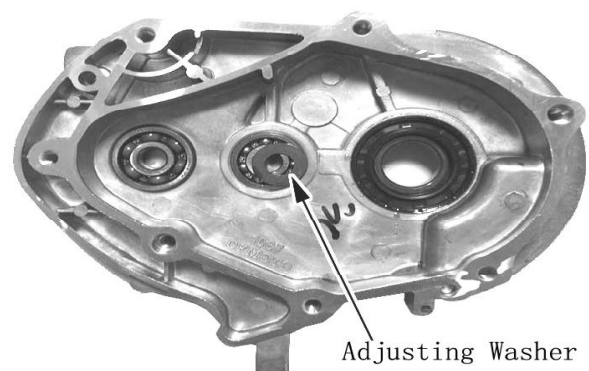


Remove final shaft comp.

Remove countershaft and gear.

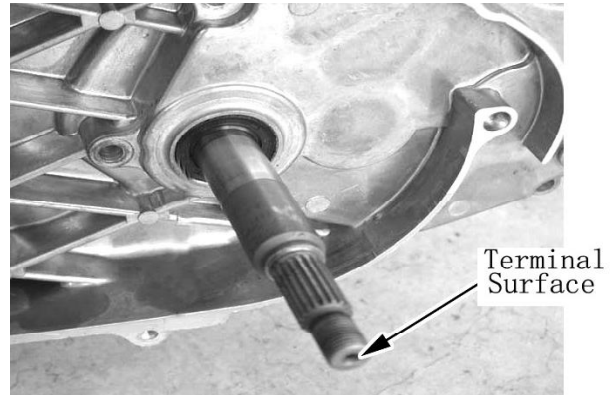


Remove adjusting washer.



Disassembly of drive shaft

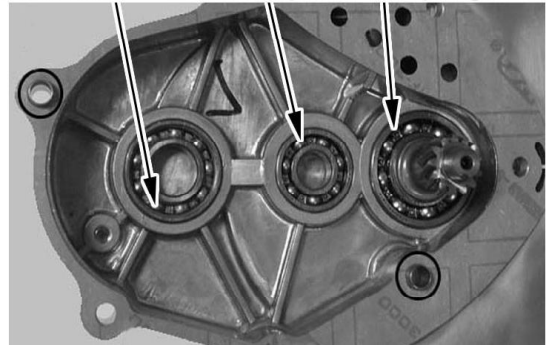
Strike the terminal shaft with wooden hammer, and remove drive shaft



Inspection of gearbox

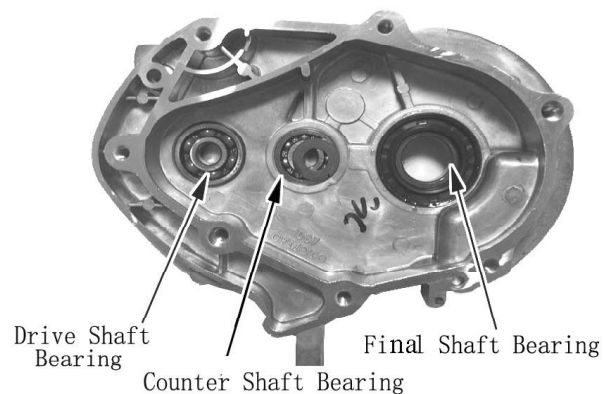
Turn inner circles of bearings in the gearbox and left crankcase with fingers, check whether they turn smoothly without block or not. Replace the old, if not, with new ones.

Final Shaft Bearing Counter Shaft Bearing Drive-Shaft Beaying



10

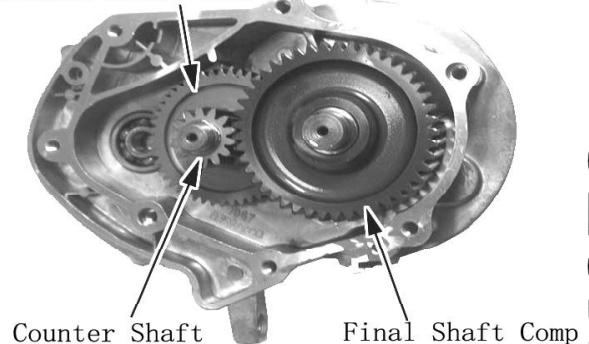
Check if there are damages or scrapes with the bearings in the gearbox and left crankcase.



Check final shaft and bearing for wear or damage. Replace with new ones in case of any damage or wear.

Check drive shaft and bearing for wear or damage. Replace with new ones in case of any damage or wear.

Counter Shaft Gear

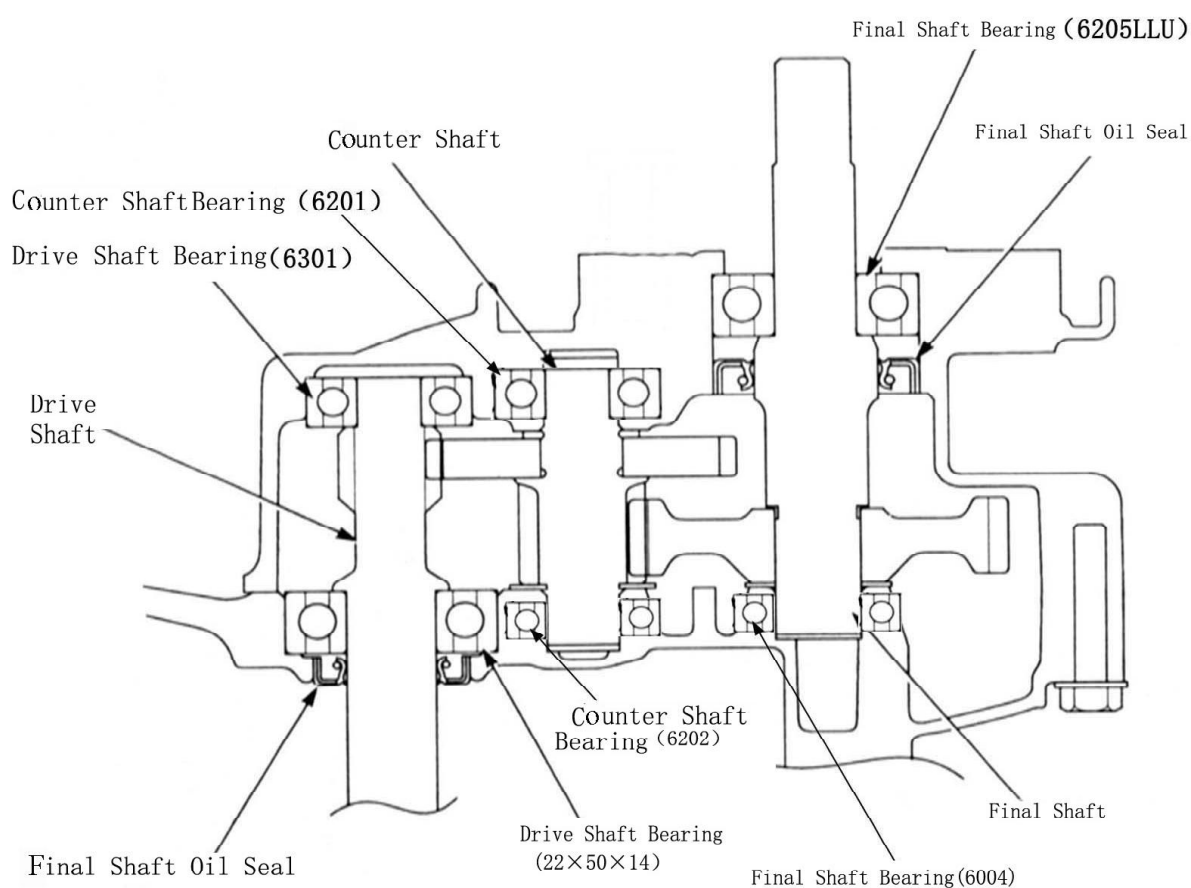
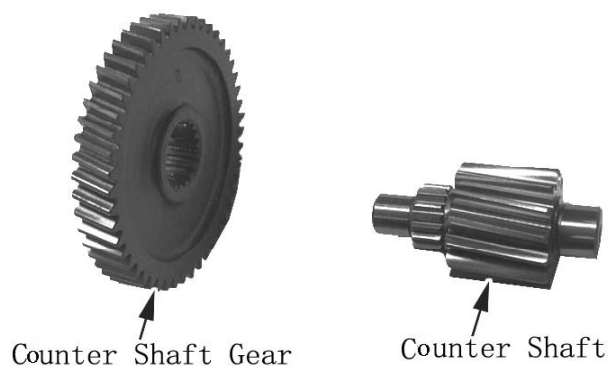


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Check countershaft and bearing for wear or damage.

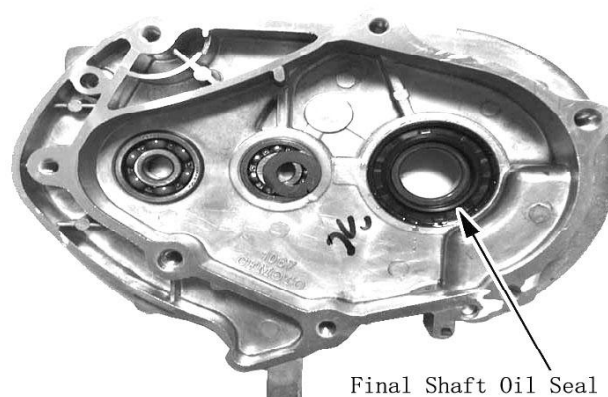
Replace with new ones in case of any damage or wear.

Bearing arrangement



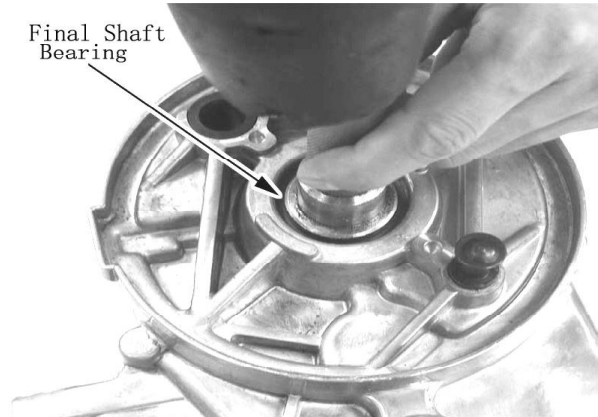
Removal and installation of gearbox bearing and oil seal

Remove the final shaft oil seal from gearbox.



Remove final shaft bearing with special tools.

Use the same tools and reverse the removal procedure for installation.



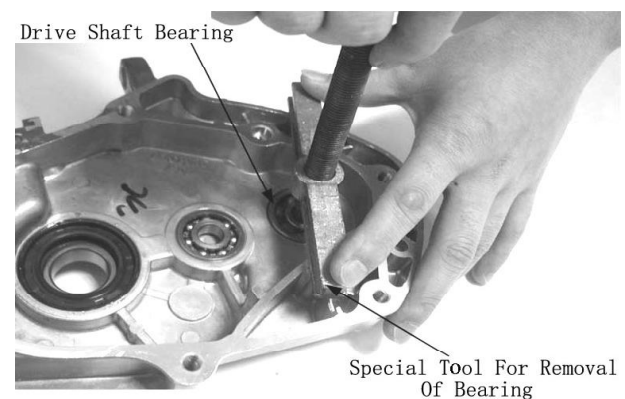
Remove the drive shaft bearing and countershaft bearing at the gearbox's side, with the same special tool.

Special tools:

Disassembly tools for bearing: 1P52MI-A-922-050000

-060000

-080000



10

Press a new drive shaft bearing vertically, with its countermark side upwards, into the gearbox housing till it is stopped by the bottom sidestep of bearing hole.

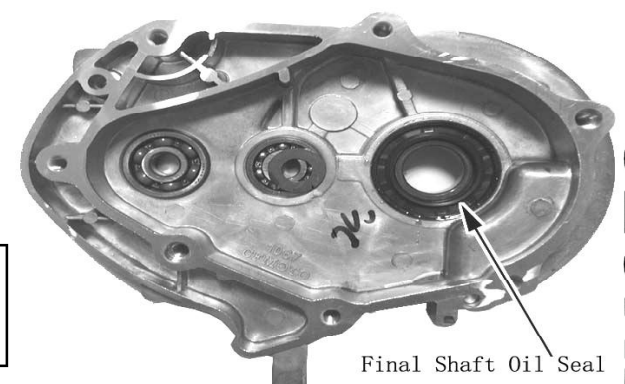
Repeat the above step for installation of countershaft bearing.



Apply lubricant to the new final shaft oil seal, and install the oil seal with its lip side facing the gearbox side.

Caution

Keep the oil seal in parallel with surface,
Do not block the leakage hole.

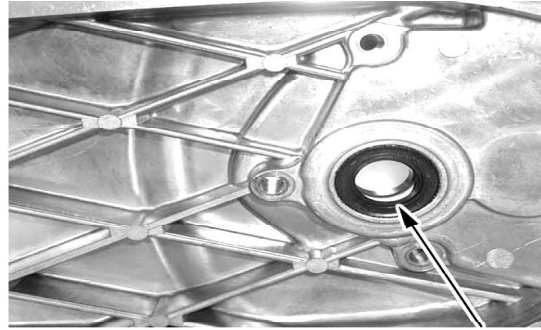


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Removal and installation of left crankcase.

Remove drive shaft oil seal.

Refer to 10-5 for removal for removal of left crankcase drive shaft bearing, countershaft bearing and final shaft bearing.



Drive Shaft Oil Seal

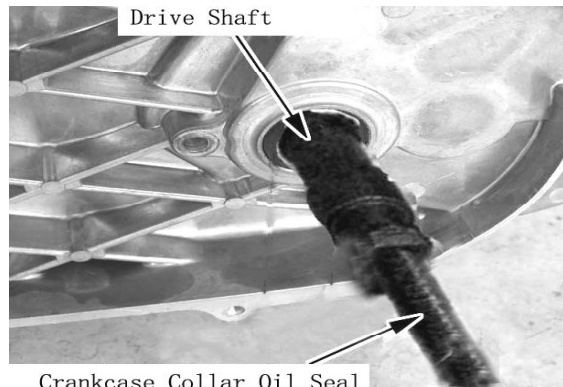
Press a new bearing vertically, with its countermark side upwards, into the left crankcase until it is stopped.

Repeat above step for installation of bearings of drive shaft, countershaft and final shaft.



Installation of drive shaft

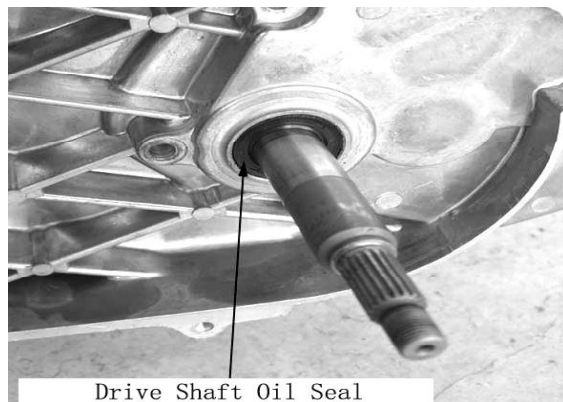
Pull the drive shaft into left crankcase with crankcase combination sets.



Crankcase Collar Oil Seal

Apply lubricant to the new oil seal lip of drive shaft.

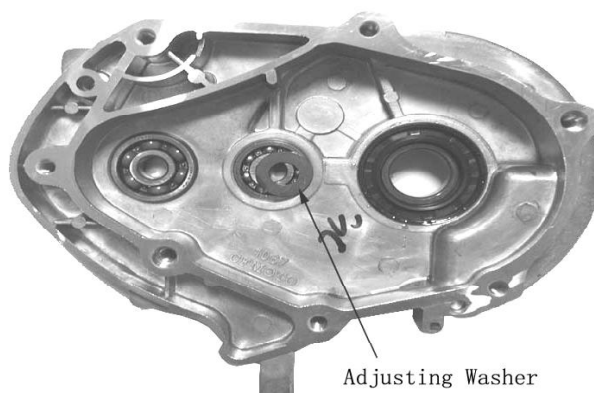
Install the oil seal with its lip facing the gearbox side..



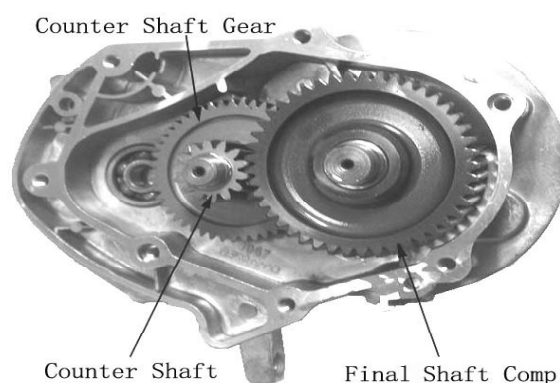
Drive Shaft Oil Seal

Gearbox assembly

Install adjusting washer



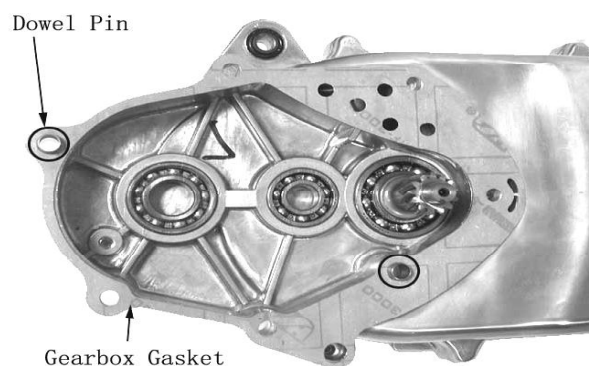
Install countershaft gear and countershaft to gearbox, make sure that adjusting washer is on the shaft.
Install final shaft.



10

Install dowel pin.

Dip the gearbox gasket into kerosene, install it onto the joint face of left crankcase.



Install gearbox

Install the bolt and tighten it.

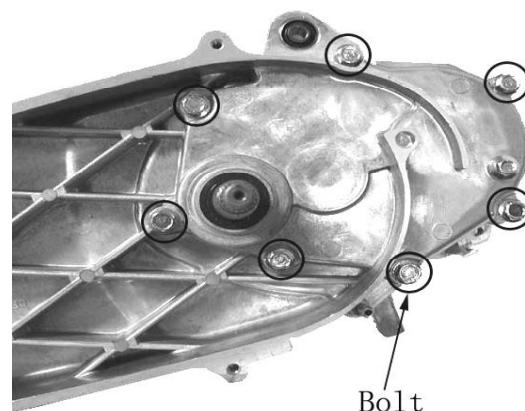
Tightening torque: 22 N. m(2.2 kgf. m)

Install the following parts:

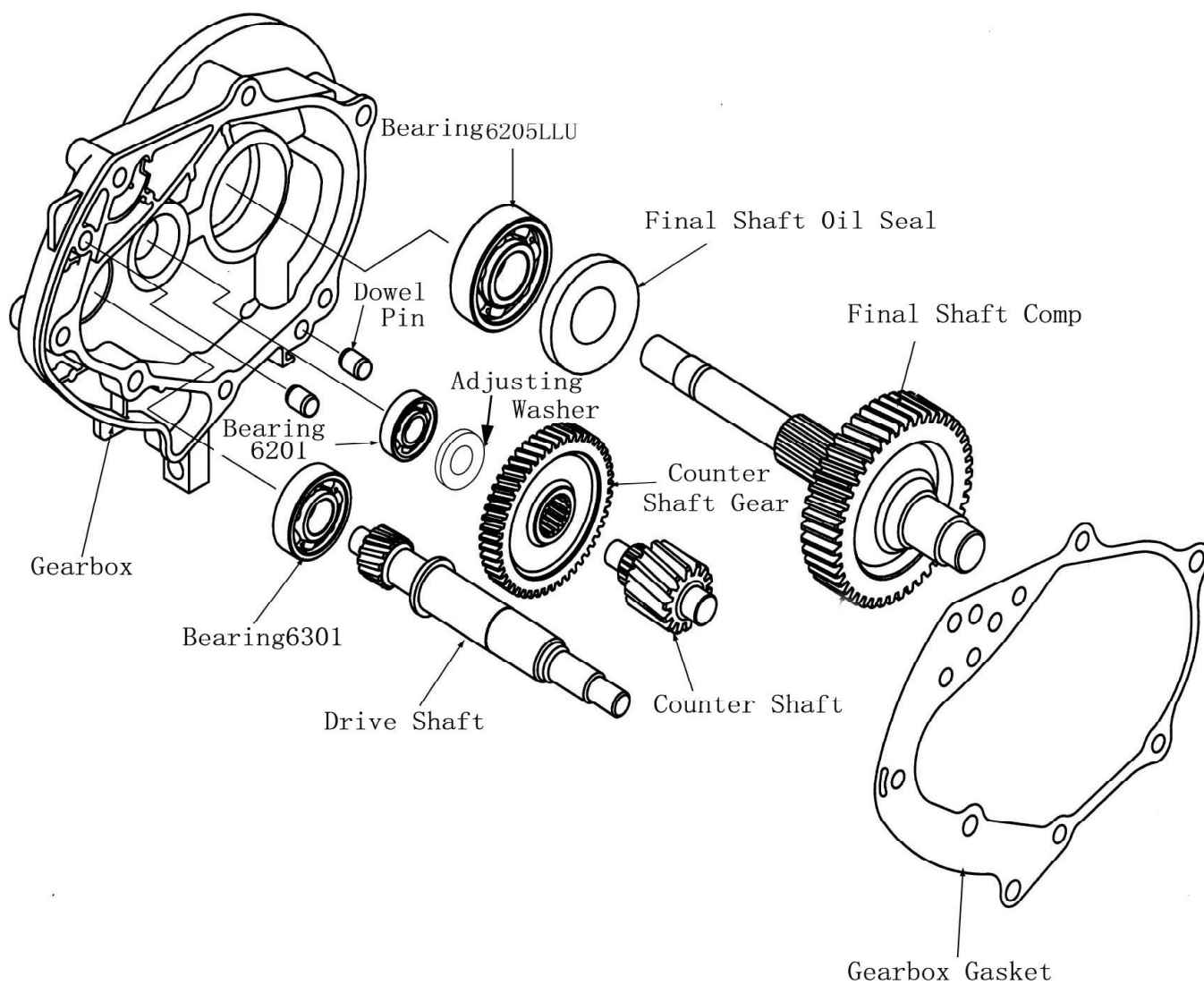
–Clutch assy.(9-19)

–Rear wheel(14-3)

Fill gearbox lubricant. (3-10)



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Overhaul information.....	11-1	Installation of water pump.....	11-4
Disassembly of right side cover.....	11-2	Assembly of right side cover.....	11-5
Disassembly of flywheel	11-2	Assembly of statot assy.	11-6
Disassembly of driven gear.....	11-3	Installation of driven gear.....	11-6
Stator assy.	11-3	Installation of right side cover.....	11-7

Overhaul information

Operation caution

! Note

Disassembly of right side cover, stator assy. and flywheel should be done when the engine is cool.

- Overhaul of right side cover could be done without removing from the scooter.
- Overhaul of AC magneto could be done without removing from the scooter.
- Refer to chapter 15 for inspection of AC magneto.

Tightening torque

Tightening nut for flywheel comp.	59 N. m (6.0kgf. m)
Right side cover bolt	12 N. m (1.2kgf.m)
Water pump cover bolt	12 N. m (1.2kgf.m)

Troubleshooting

- Troubleshooting of magneto(chapter 15)

Removal of right side cover

Remove plastic parts(2)

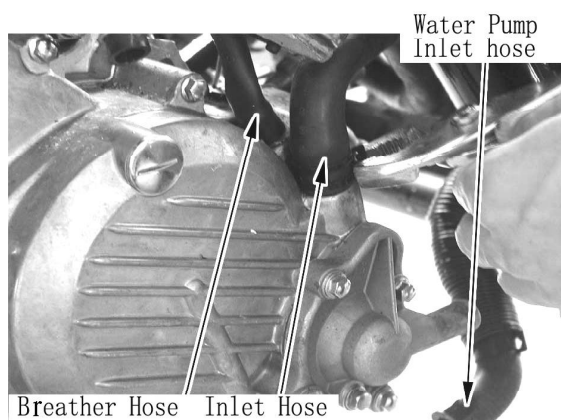
Drain coolant(6-4)

Drain crankcase lubricant.(3-11)

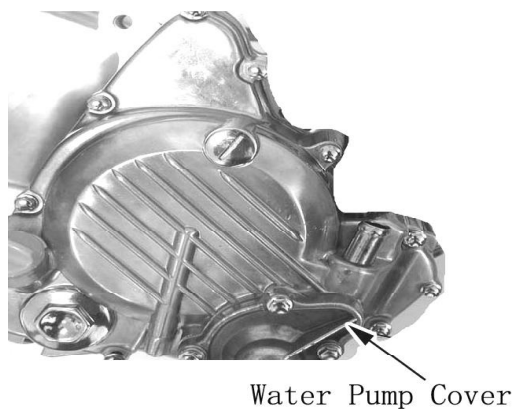
Caution

Removal of right side cover should be done when the engine is cold.

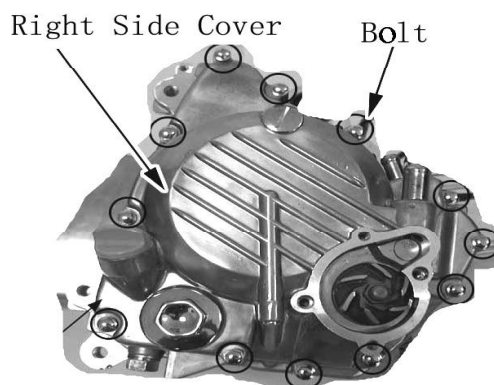
Remove water inlet hose and breather hose.



Remove water pump cover, dowel pin and water pump gasket.



Remove right side cover.



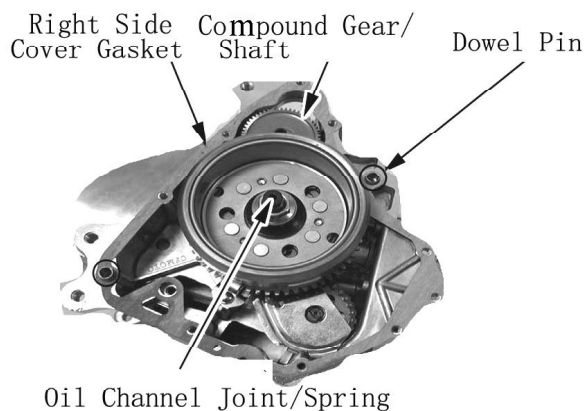
Disassembly of flywheel

Remove:

—oil channel joint and joint spring.

—dowel pin and right side cover gasket.

—compound gear and shaft.



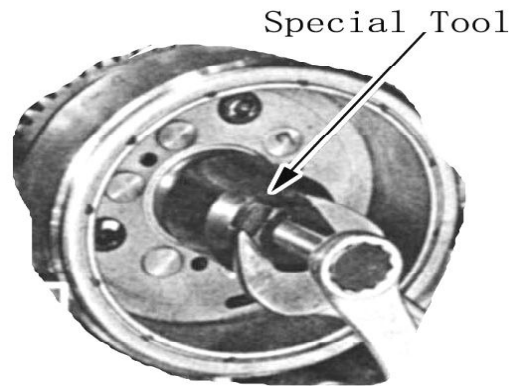
11 Right side cover magneto water pump

Fix flywheel comp. with special tool and remove fly-wheel comp with spanner.

Special tool:

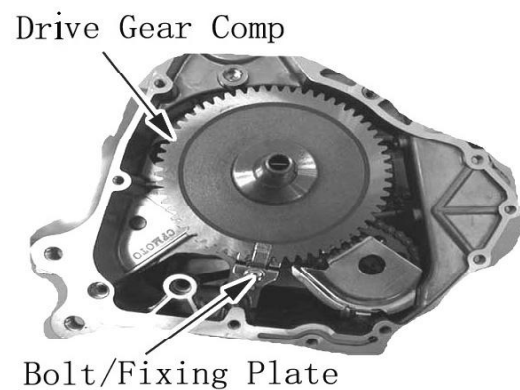
Special tools for disassembly of flywheel comp.:

152MI-922-030000



Disassembly of driven gear

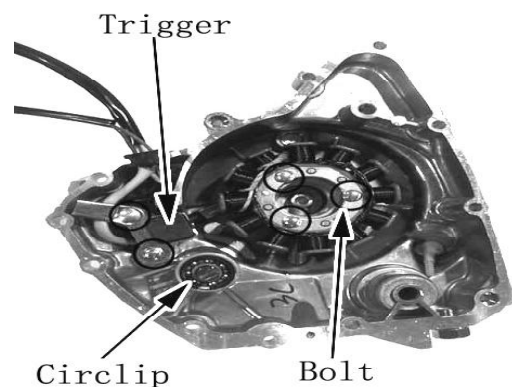
Remove bolt, fixing plate and driven gear comp.



Disassembly of stator assy.

Remove stator comp and trigger.

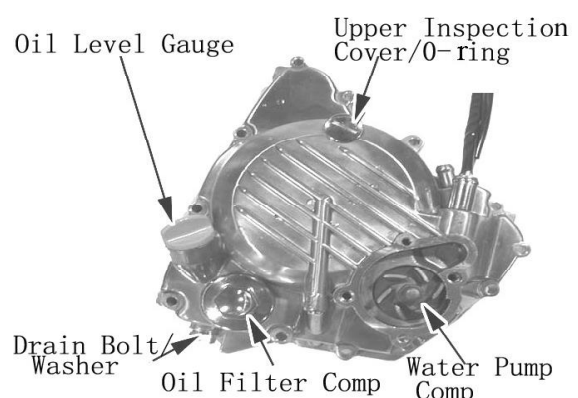
Remove circlip.



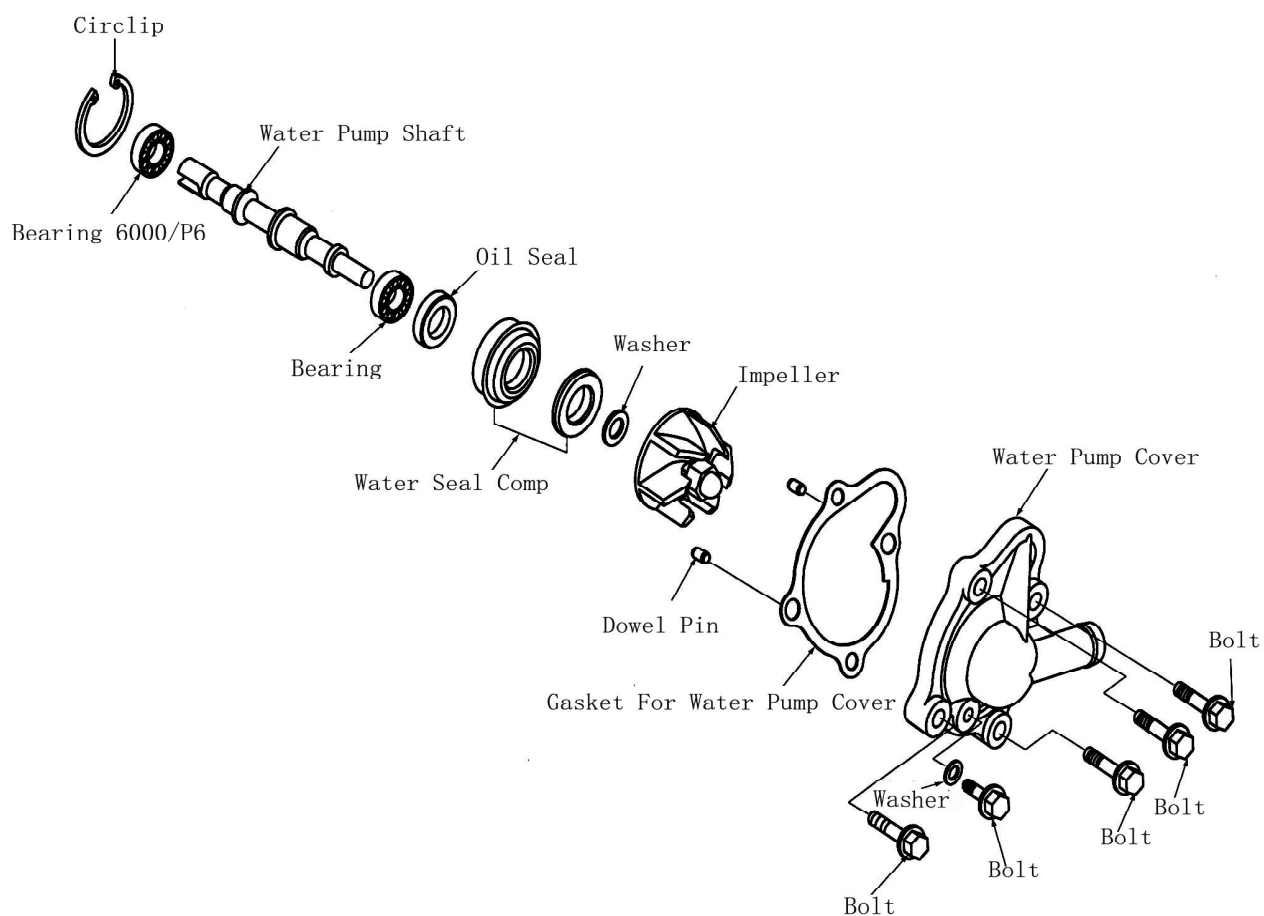
Remove water pump with open-end spanner clockwise.

Remove:

- Oil level gauge, upper inspection cover and seal ring
- Drain bolt, washer
- Oil filter comp.



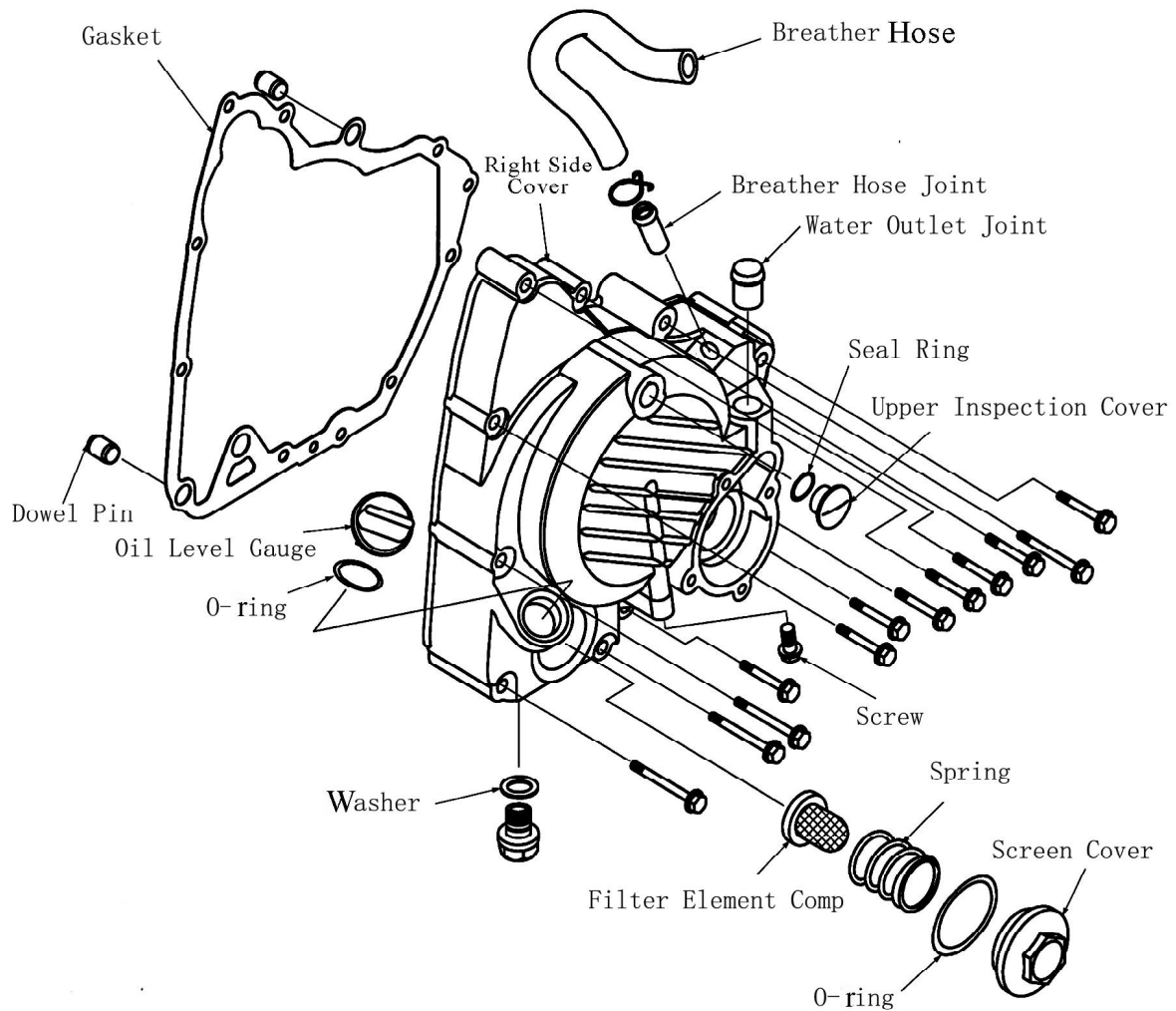
Assembly of water pump



Assembly steps

1. Install bearing 6901/P6 to water pump shaft, and then install the shaft into shaft hole of right side cover.
2. Install bearing 6000/P6 to water pump shaft, and clip with circlip;
Apply sealant to outer surface of oil seal install it into right side cover.
3. Install water seal assy. into right side cover and press tight.
4. Set washer on the water pump shaft, tighten impeller onto shaft.

Assembly of right side cover

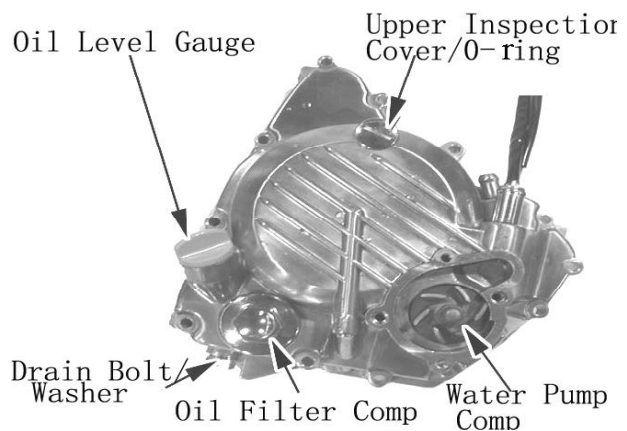


11

Install water pump comp. as indicated.

Install:

- upper inspection cover and seal ring.
- oil level gauge.
- oil filter comp.
- oil bolt and washer.



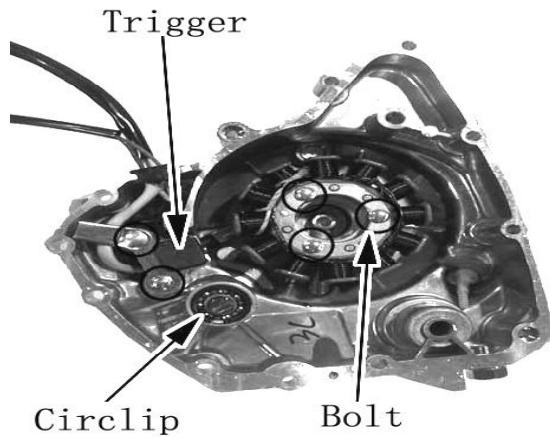
CFMOTO

Installation of stator comp.

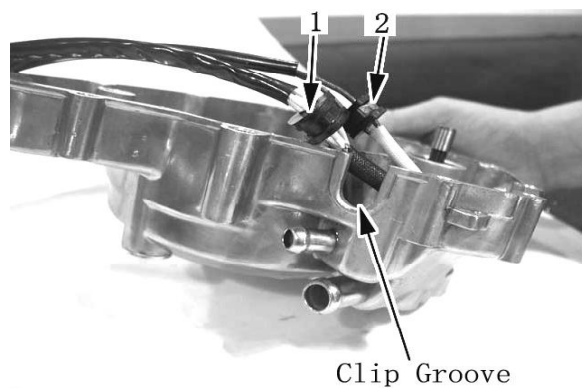
Install stator comp. , trigger, and tighten with bolt.

Caution:

Fix wires for stator comp and trigger with clamp. Apply tightening glue to the tightened bolt.



Install the two wires seal block into clip groove in the order of 1 and 2.

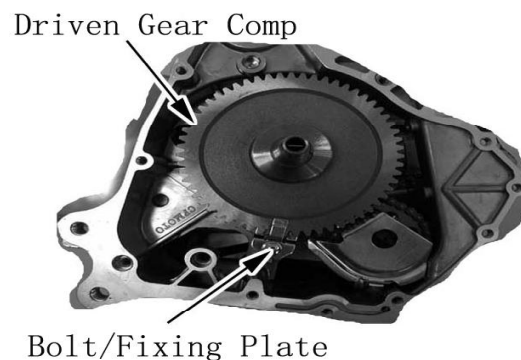


Caution:

Apply sealant.

Assembly of driven gear comp..

Install driven gear comp. onto crankshaft, set the fixing plate to driven gear and tighten it. Adjust fixing plate so that it does not conflict or have friction with driven gear surface.

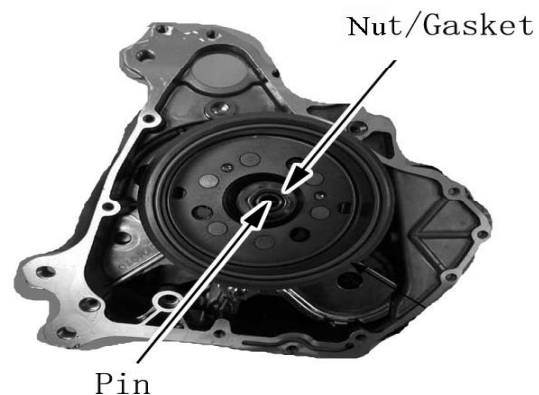


Install flywheel comp., set pin into crankshaft hole and tighten nut according to specified torque.

Caution:

Check if the pin is installed.

Install the flywheel comp in line with the semispherical spline of crankshaft.

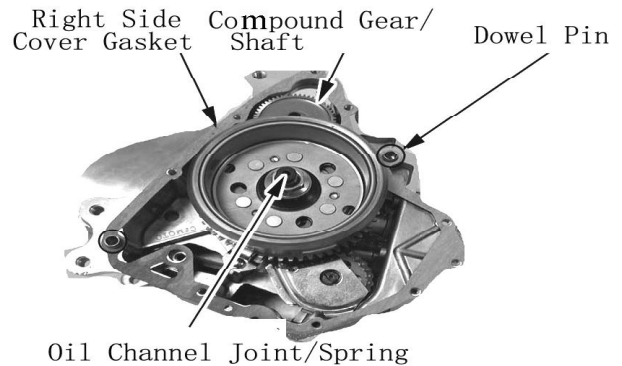


Torque: 59 N. m (6.0kgf. m)

11 Right side cover magneto water pump

Install compound gear, compound gear shaft, oil channel joint and joint spring.

Install dowel pin, right side cover gasket.



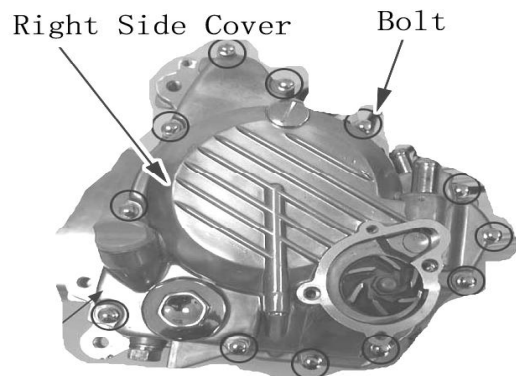
Installation of right side cover

Install right side cover, tighten the bolt by 2 or 3 times in the opposite angles.

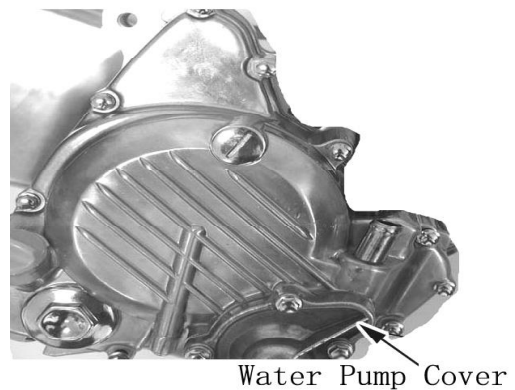
Torque: 12 N. m (1.2kgf.m)

Caution:

Water pump shaft opening must be in butt joint with oil pump shaft, otherwise, otherwise there will be installation failure.



Install dowel pin, water pump cover gasket, water pump cover and tighten the screw.



Caution:

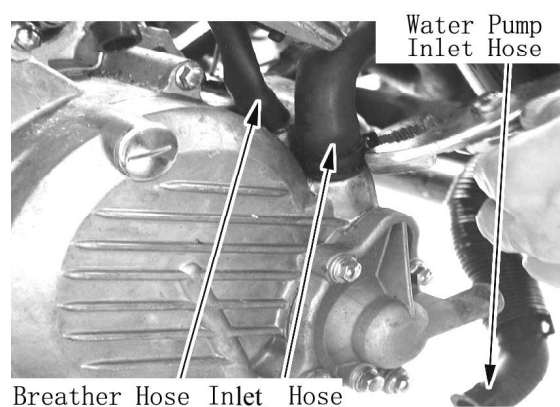
Tighten the bolt by 2 or 3 times in the opposite angles.

Install inlet hose and breather hose.

Fill coolant(6-6)

Fill lubricant into crankcase(3-11)

Install plastic parts(2)



12 Crankcase crankshaft piston

Overhaul information.....	12-1
Troubleshooting.....	12-2
Dismantling of crankcase	12-3

Crankshaft/piston.....	12-4
Assembly of crankcase	12-11

Overhaul information

Operation caution

- Inspection of crankshaft and crankcase must be done after the crankcase is dismantled. Installation of these parts can only be done after removal of engine from scooter..(→chapter 7)
- Following steps are required when dismantling the crankcase. Dismantle in the order shown in different chapters.
 - Engine removal(→chapter 7)
 - Cylinder cover、cylinder head、cylinder body(→ chapter 8)
 - Left side cover、CVT system(chapter 9)
 - Right side cover(→chapter 11)
 - Electrical starting system(→chapter 17)
 - Lubricating system(→chapter 4)
- For inspection of piston and piston ring, just remove Cylinder cover、cylinder head、cylinder body (→chapter 8)
- Do not damage the crankcase mating surfaces during inspection.
- Do not damage the inner surface of cylinder, piston.

Overhaul standard

Item			Standard		Service lim
			CF125T 19	CF150T	
Crank -shaft	Big end of connecting rod	Axial gap	0.16-0.304 mm		0.50 mm
		Radial gap	0.005-0.017 mm		0.05 mm
	Vibration of crankshaft		—		0.10 mm
Piston	Installation direction		“IN” mark towards breather side		—
	Outer diameter of piston		52.37-52.39/57.97-57.99 mm		52.32/57.92 mm
	Inner diameter of piston pin hole		15.002-15.008 mm		15.04 mm
	Outer diameter of piston pin		14.994-15 mm		14.98 mm
	Inner diameter of small end hole fo connecting rod		15.016-15.034 mm		15.05 mm
	Clearance between cylinder and piston		0.02-0.04 mm		0.08 mm
	Clearance between piston and piston pin		0.002-0.014 mm		0.04 mm
	Clearance between piston pin and connecting rod.		0.016-0.040 mm		0.06 mm
	Clearance between piston ring and piston groove	Piston ring (1)	0.02-0.044 mm		0.07 mm
		Piston ring (2)	0.02-0.044 mm		0.07 mm
	Piston ring gap	Piston ring (1)	0.15-0.30 mm		0.45 mm
		Piston ring (2)	0.10-0.25 mm		0.45 mm
		Oil ring	0.2-0.7 mm		0.9 mm
	Installation direction of piston ring		Mark upside		—

Tightening torque

Bolt for crankcase flange	12 N. m(1.2kgf.m)
Thread pin for chain tensioning plate	13 N. m(1.3kgf.m)

Troubleshooting

Compression pressure is too low

- Wearing and damages of piston ring
- Wearing of cylinder and piston
- Poor sealing of cylinder and valve.
- Burnt, broken or jamed piston ring.

Compression pressure is too high

- Carbon deposit at piston end or in combustion chamber

Blue smoke from exhaust muffler

- Wearing of connecting rod's small end.
- wearing of cylinder, piston ring or piston

Abnormal knocking

- Wearing of cylinder and piston
- Improper assembly of piston ring
- Damages to outside of piston or inner surface of cylinder
- Wearing or damage of crankshaft bearing.

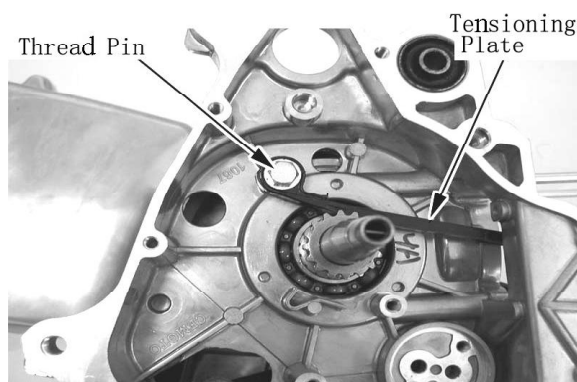
12 Crankcase crankshaft piston

Dismantling of crankcase.

Remove engine from scooter.(chapter 7)

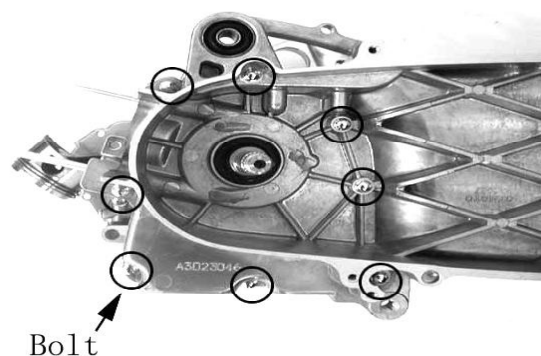
Refer to 12-1 for removing the relevant parts before crankcase dismantling.

Remove thread pin and tensioning plate comp.



Remove crankcase bolt.

Keep the right crankcase downwards and remove left crankcase.



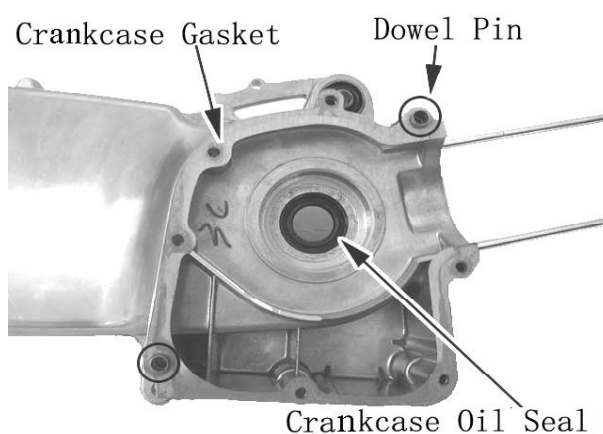
Remove crankcase gasket and dowel pin.

Remove crankshaft oil seal.

Caution

Do not pry crankcase mating surface with screwdrivers.

In case it is difficult to remove right crankcase, Slightly strike convex of crankcase with plastic hammer, and smoothly and slowly lift left crankcase.



12

Check tensioning plate for scrapes, damage or wear.

CFMOTO

Crankcase/piston

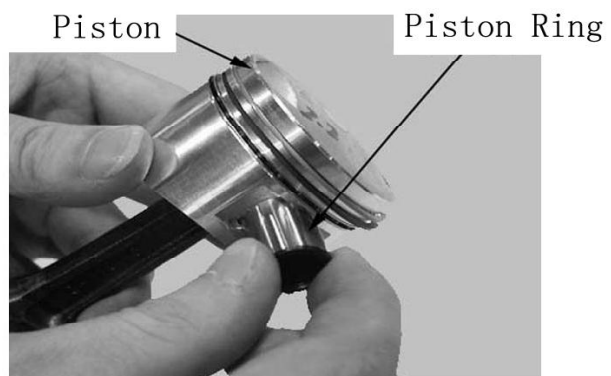
Dismantling of crankcase and piston

Refer to 12-1 for removal of relevant parts from engine.

Remove piston pin retainer.



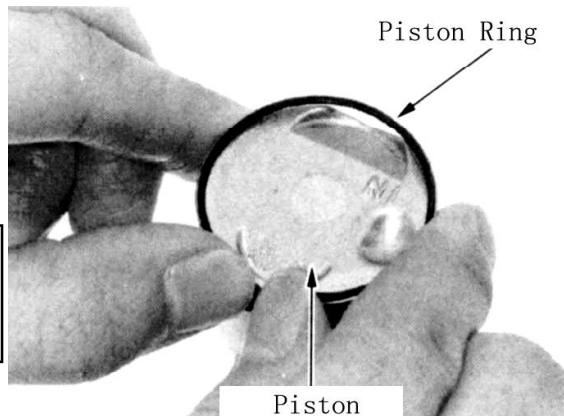
Remove piston pin and piston.



Expand piston ring gap and remove piston ring.

Caution

- **Piston ring is easy to be broken. Do not expand gap too wide.**
- **Keep piston ring from scraping the piston.**

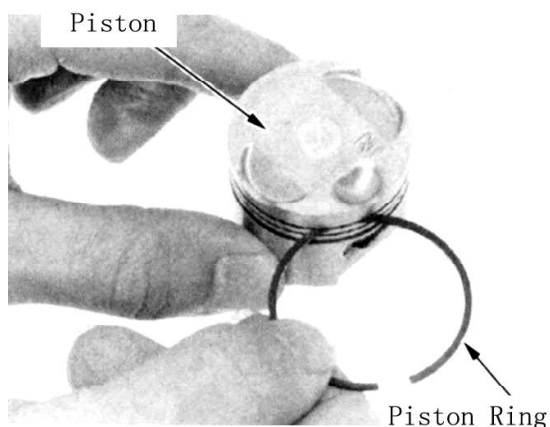


Scrape off carbon deposit from piston.

Remove carbon deposit from piston ring groove with a used piston ring.

Caution

- **Do not damage to piston ring groove.**
- **Steel wire brush may damage piston ring groove, do not use it.**



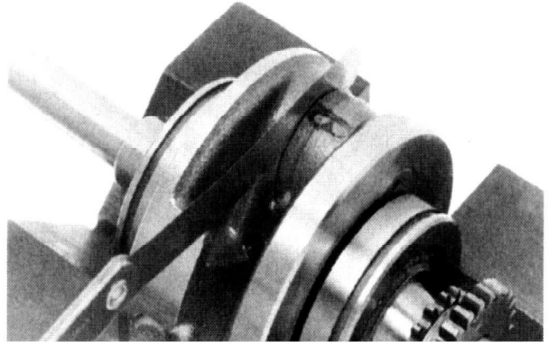
12 Crankcase crankshaft piston

Inspection

Crankshaft

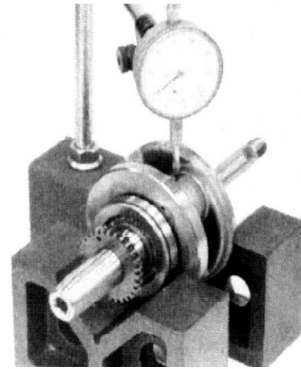
Measure side gap of big end of connecting rod.

Service limit: 0.5mm

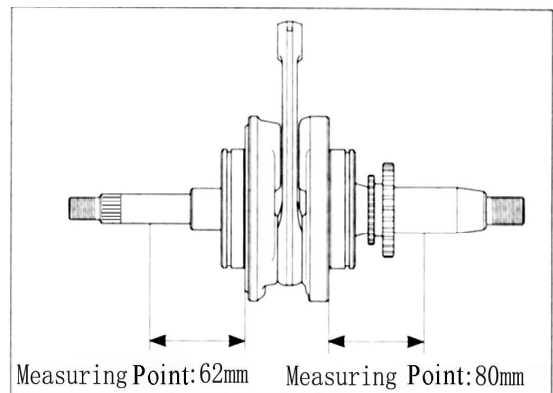


Measure radial gap of big end of connecting rod.

Service limit: 0.05mm



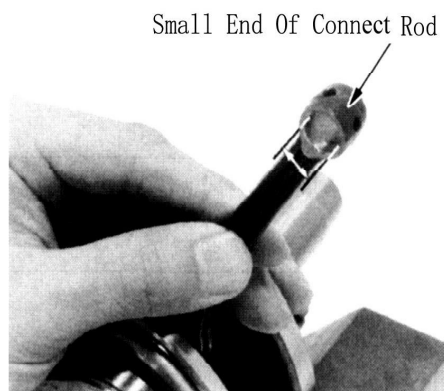
Measure vibration of crankshaft.



12

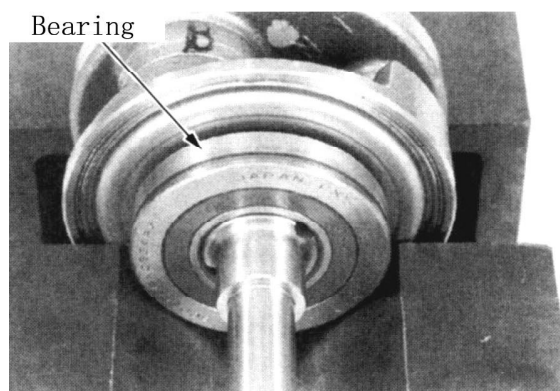
Measure inner diameter of small end of connecting rod.

Service limit: 15.05mm



CFMOTO

Turn crankshaft bearing, check if there is any abnormal knocking or rocking. In case of any, replace it with a new one.



Piston、cylinder

Check the outer surface for scrapes.

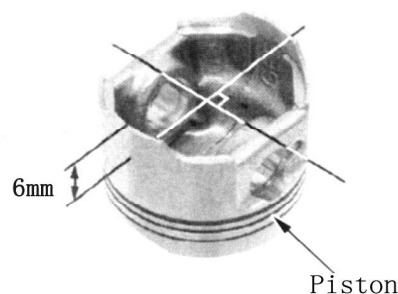
Check piston groove for wear or blockage of oil hole.

Measure outer diameter of piston at 6mm above piston bottom, and at the angle of 90° (right-angle) against piston pin hole.

Service limit: 52.32/57.92 mm

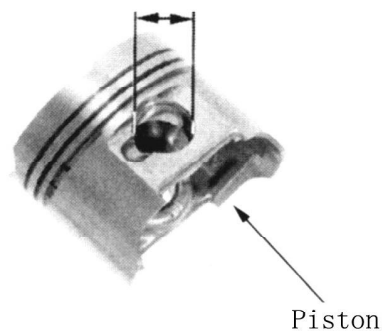
Calculate clearance between piston and cylinder.(inner diameter of cylinder: 8-12)

Service limit: 0.08 mm



Measure the inner diameter of the piston pin hole in the direction of X and Y respectively and take the max. value as final inner diameter of piston pin hole.

Service limit: 15.04 mm



Measure outer diameter of piston pin at the sliding parts of piston pin and sliding part of small end of connecting rod.(total 3 points)

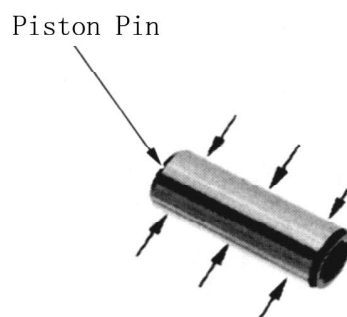
Service limit: 14.98 mm

Calculate clearance between piston pin and its hole.

Service limit: 0.04 mm

Calculate clearance between piston pin and small end of connecting rod.

Service limit: 0.06 mm



12 Crankcase crankshaft piston

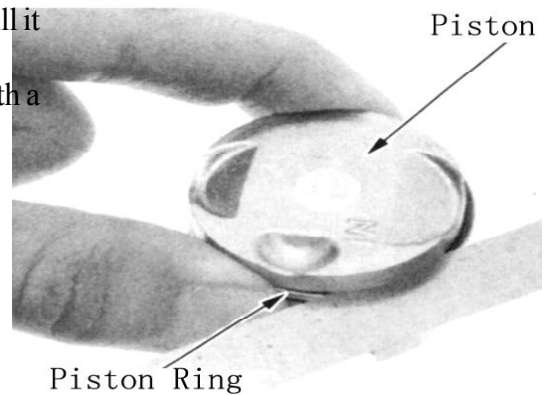
Check piston ring for wear or scrapes.

Assemble piston ring into the right groove, and then press till it reaches the position close to the side surface of piston.

Measure the clearance between piston ring and groove with a plug ruler.

Service limit: Top ring: 0.07 mm

2nd ring: 0.07mm



Place piston ring horizontally into bottom of cylinder in the direction of piston top.

Measure piston ring gap with plug ruler.

Service Limit: Top ring: 0.45 mm

2nd ring: 0.45mm

Oil ring (side rails):0.9mm



Assemble piston

Caution

Do not damage piston ring or piston when assembling piston.

Assemble piston ring onto piston, with marks upwards.

Caution

- **Top ring and 2nd cannot be interchanged.**
- **Make sure to install piston rings so that the manufacturer's marks or numbers are located on the upper side of the rings.**
- **Keep the piston ring gaps staggered at the interval of 120°**

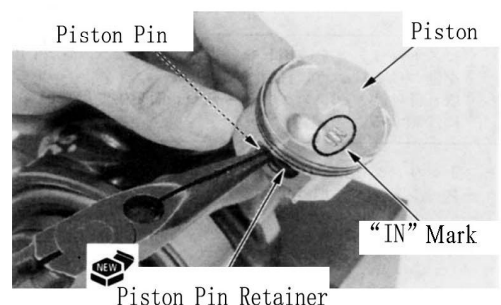
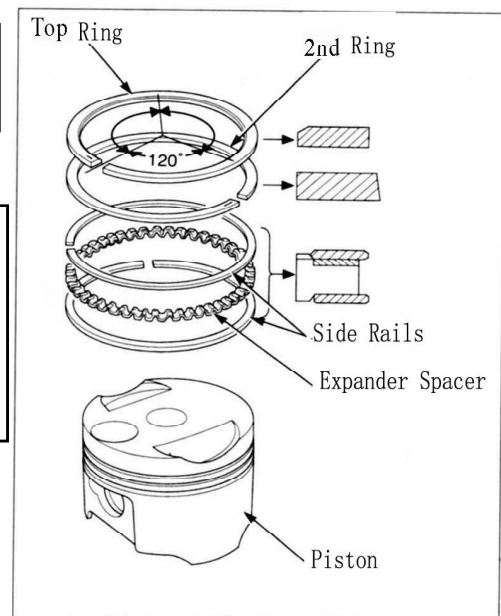
After assembly, confirm piston rings can turn smoothly in groove.

Apply engine oil to small end of connecting rod, piston pin and its hole. Install piston and make sure that the "IN" mark on piston is in the direction of the air inlet side when installing the crankshaft to the engine.

Install new piston pin retainer.

*Caution

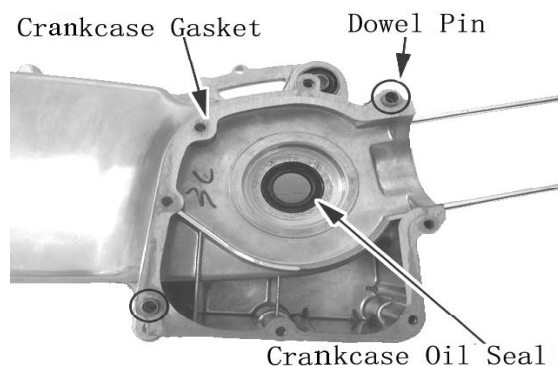
- **Piston pin retainer must be firmly mounted into groove.**
- **Retainer end gap should be avoid from the cut of piston.**



Installation of crankcase

Apply lubricating grease to the inner lip of the new oil seal and sealant to the outer lip, install it to the left crankcase.

Install dowel pin and crankcase gasket.



Install crankcase and piston.

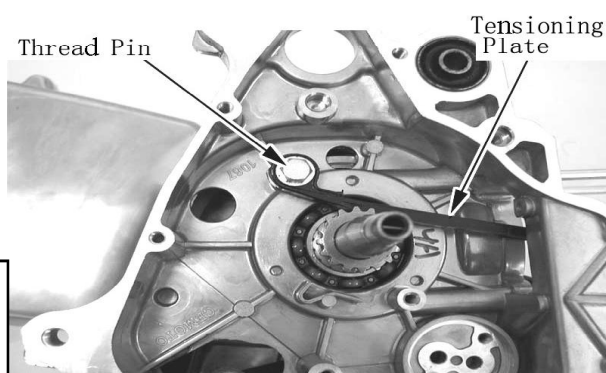
Install tensioning plate and thread pin, tighten according to specified torque.

Specified torque: 13 N. m (1.3kgf.m)

Caution

Make sure not to damage piston or piston rings.

Do not damage crankcase mating surface while installing.

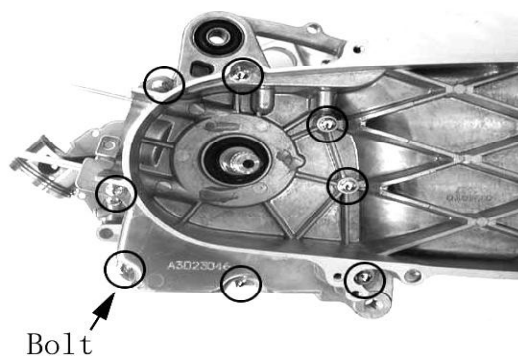


Match left and right crankcase, tighten the bolt according to the specified torque.

Specified torque: 12 N. m (1.2kgf.m)

Caution

Tighten bolts in the flange face crossly in two or three times.



Lead the chain through the cylinder body and install crankshaft.

Reverse the order of 12-1 for installation of engine.

13 Front wheel, Brake, Suspension ,Steering system

Overhaul information	13-1	Front shock absorber	13-9
Troubleshooting	13-2	Steering bar	13-10
Front wheel	13-3	Front fork	13-15

Overhaul information

Operating notes

Notes

- Securely support the scooter when overhauling the front wheel and suspension systems.
- Refer to chapter 18 for overhaul and inspection of lights, instruments and switches.
- Do not overexert on the wheel. Avoid any damage to the wheels.
- When removing tire, use the special tire lever and rim protector.

Overhaul standard

Item			Standard	Service Limit
Front wheel	Front wheel axle bend		--	0.2mm
	Vibration of Wheel rim	Longitudinal	0.8mm	2.0mm
		Horizontal	0.8mm	2.0mm
	Tire	Remained tire thread	--	1.6mm
		Air pressure	250kpa(2.5kgf/cm ²)	--
Front brake		Free play (brake lever)	15-30mm	--

13

Tightening torque

Mounting nut, steering bar	55N•m (5.6kgf•m)
Nut, front wheel bearing	80N•m (8.1kgf•m)
Fixing bolt/nut, shock absorber	40N•m (4.1kgf•m)

Special tools

Shaft, bearing remover	07746-0050100
Remover head 10mm, bearing remover	07746-0050100
Handle A , press tool	00749-0010000
Press tool outer sleeve	07946-1870100
Guide tool 10mm	07746-0040100
Locknut spanner	07916-KM10000
Bearing adjusting spanner, steering column	07SMA-GBC0100
Bearing remover set,	07JAC-PH80000
Rotor puller	07JAC-PH80100
Remover shaft	07JAC-PH80200
Remover hammer	07741-0010201
Bearing seat mounting tool A 27x47mm, steering column	07YMF-GEE0100
Bearing seat mounting tool B 30x47mm, steering column	07YMF-GEE0200
Assembling tool shaft	07VMF-KZ30200

Troubleshooting

Heavy steering

- Upper thread is over tightened.
- Steering bearing is damaged or worn out.
- Inner & outer bearing seats are damaged, worn out or stepped.
- Steering column is distorted
- Tire pressure is too low.
- Worn tire

Loosened Handlebar

- Steering bearing is damaged, or not well tightened.
- Right and left shock absorbers are not matched.
- Front wheel axle is distorted,
- Frame is deformed
- Worn tire
- Rocking of wheel bearing
- Engine fixing part is rocking. (refer to chapter 7)

Front wheel wobbles

- Deformed rim
- Faulty wheel bearing
- Faulty tire
- Improper balance of wheel
- Improper tightening of wheel axle

Wheel cannot turn freely

- Wheel bearing is faulty.
- Front wheel axle is bended.
- Brake drag

Too soft front suspension.

- Weakened front shock absorber
- Low tire pressure

Front suspension is too hard.

- Front shock absorber is bended.
- Tire pressure too high.

Abnormal noise with Front absorber

- Faulty front shock absorber
- Loosening of tightening parts of front shock absorber

Poor brake

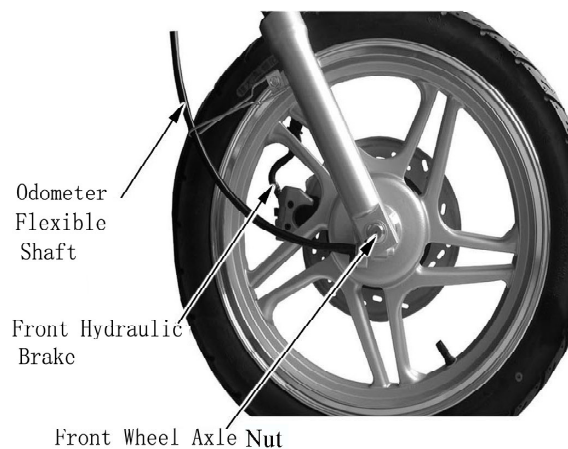
- Improper brake adjustment
- Stained or damaged brake disc.
- worn brake shoe.

13 Front wheel, Brake, Suspension ,Steering system

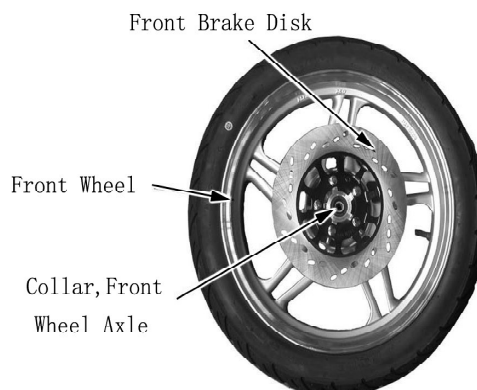
Front wheel

Removal

Support the frame with jack, raise the front wheel, remove front wheel axle nut.



Remove front wheel axle, remove brake disk from brake calipers, remove front wheel.



13

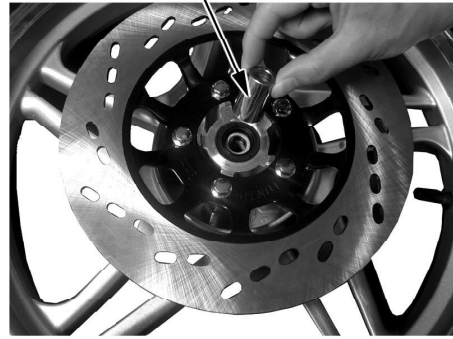
Remove counter.



CFMOTO

Remove axle collar from front wheel left side.

Collar, Front Wheel Axle

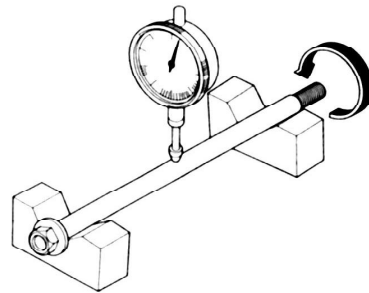


Inspection

Wheel axle

Set axle on a V block, measure axle wobble with centesimal gauge.

Service Limit: 0.2mm

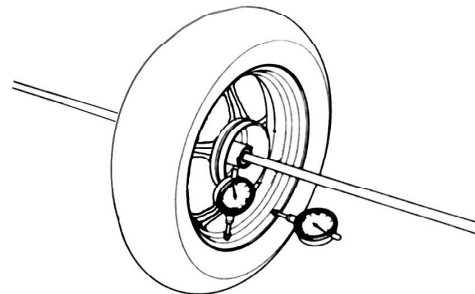


Inspection

Wheel axle

Set axle on a V block, measure axle wobble with centesimal gauge.

Service Limit: 0.2mm



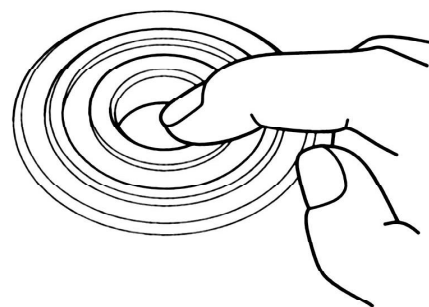
Wheel bearing

Turn the inner ring of the bearing with finger to check if it can turn smoothly, Check if there is any loose when installed on the hub.

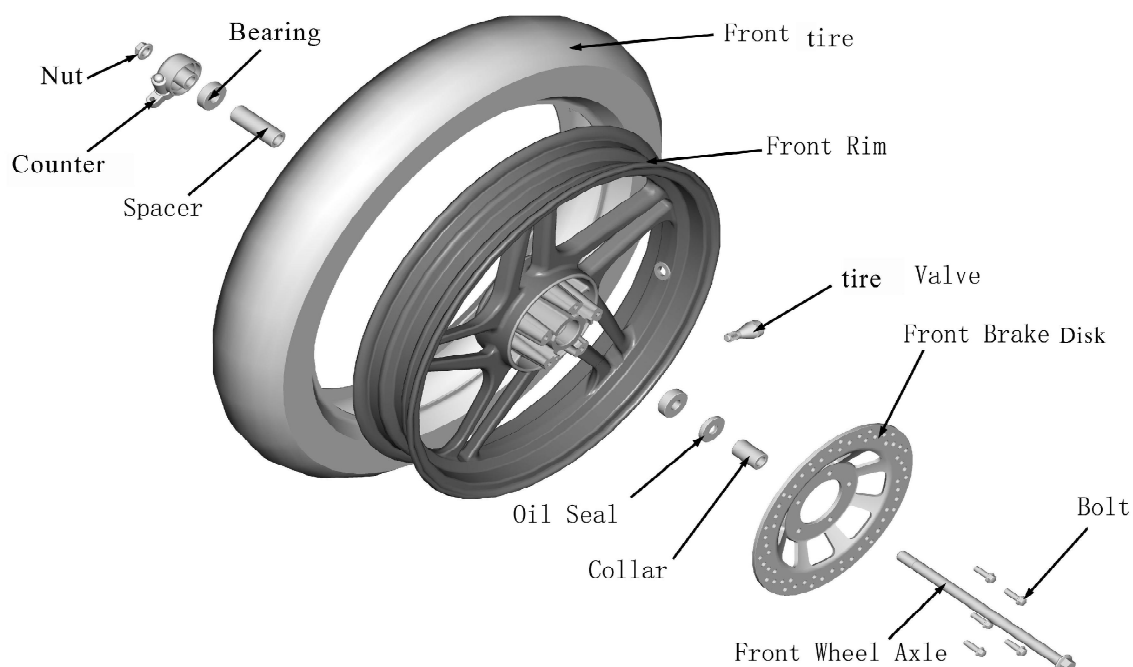
Replace with a new one in case it cannot turn smoothly, or with abnormal noise or any rocking.

Note:

Replace the whole set of bearings (L&R).



13 Front wheel, Brake, Suspension ,Steering system



Dismantling

Remove the oil seal.

Install the tool head on the rim

Install the bearing remover shaft on the tool head from the reserve side, strike in and remove the bearing

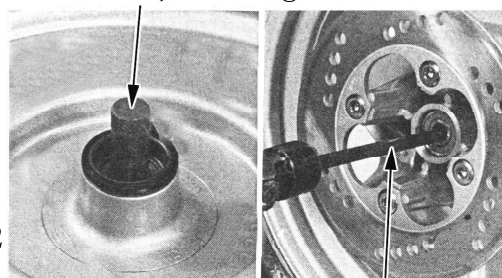
Remove spacer.

Special tool:

Bearing remover shaft 519-922-070001

Bearing remover tool head 12mm 519-922-070002

Tool Head, Bearing Remcover



Bearing Remover Shaft

Note:

Replace the bearing by set. Do not use the disassembled bearings.

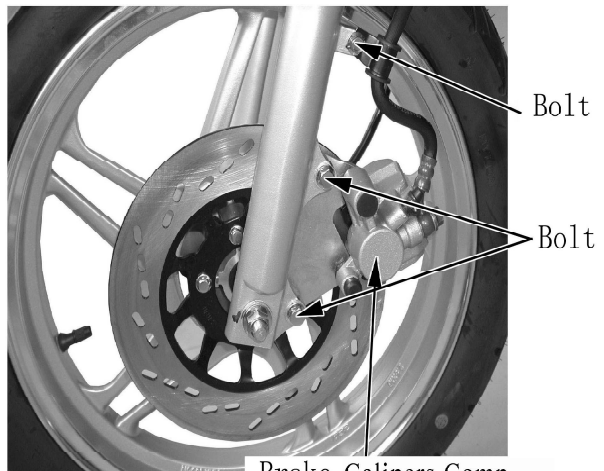
Remove five bolts of brake face, and remove brake face.



Brake Disk Bolt

Inspection

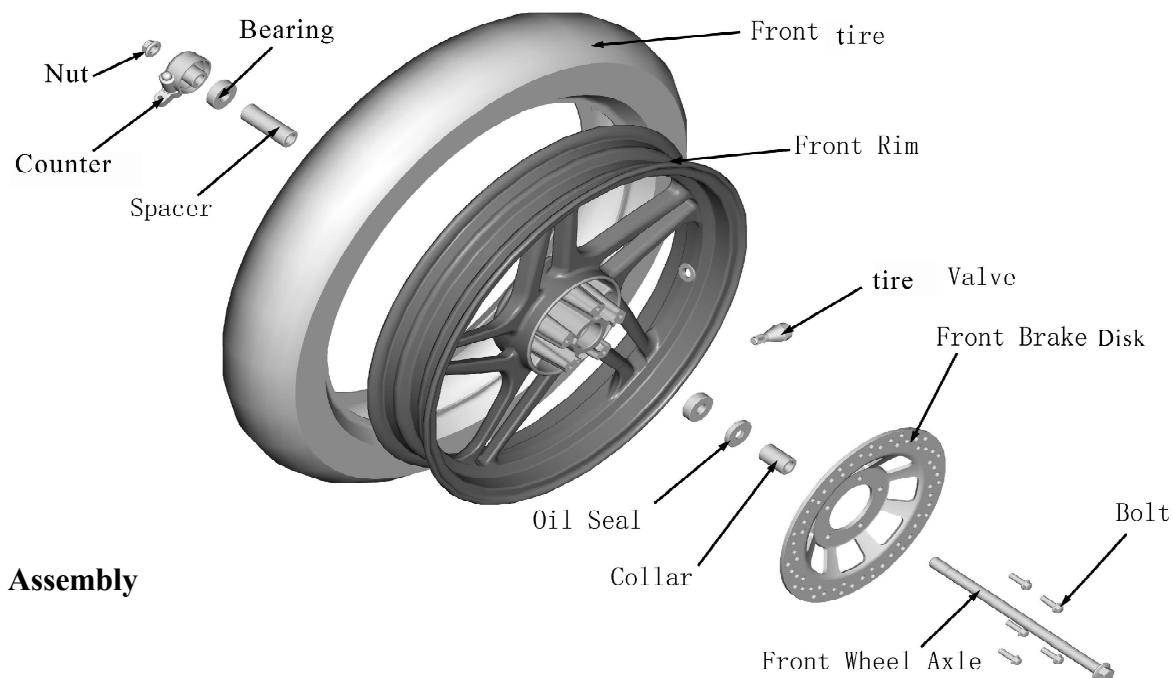
Check thickness of brake disk. Replace with a new one in case the thickness is less than 3mm.



Remove bolt and brake calipers comp.

Inspection

Brake clipper: check brake calipers for cracks or oil leakage from the tightening parts. Replace, if any.



Assembly

Assemble spacer

Apply lubrication grease on the running part of new bearings, press into the left side first.

Install spacer.

Install right side bearing.

Special tools:

Handle A, press tool A 519-922-070003

Press tool outer sleeve 28x30 519-922-070004

Guide tool 12mm 519-922-070005

Note:

Press the bearing horizontally.



Apply grease to the protruding part of odometer gear guard ring.

Apply grease to the gearing and sliding parts of odometer gear

Install with the groove part of odometer gear in line with the protruding part of guard ring.



Installation

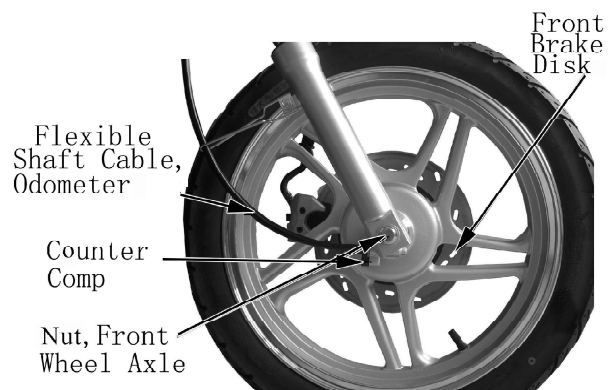
Install with the brake disk in line with brake bracket.

Note

Make sure counter comp is in line with front fork block.

Install front wheel axle and tighten with nut.

Tightening Torque: 50-60N·m (5.0-6.0kgf·m)



Install odometer flexible shaft cable to the counter comp, and tighten the small screw.

Tightening Torque: 3.0-5N·m (0.35-0.5kgf·m)

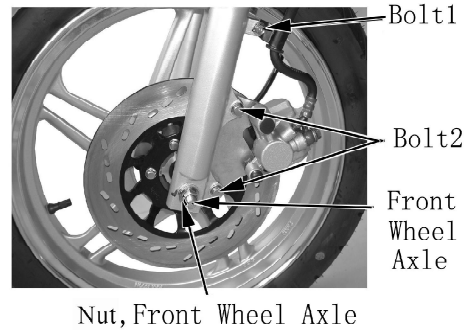
Front shock absorber

Disassembly

Remove front fender? (2-8)

Remove front wheel? (13-3)

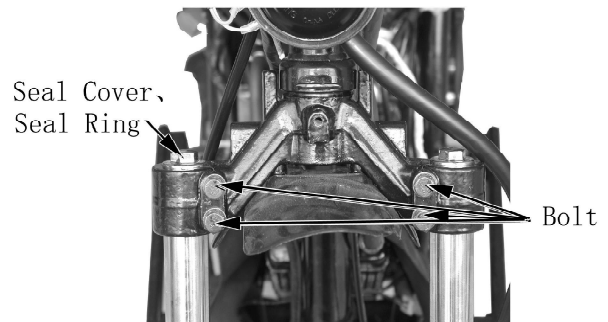
Remove bolt1 and bolt2



Remove the four upper fixed bolts, seal cover and seal ring

Note

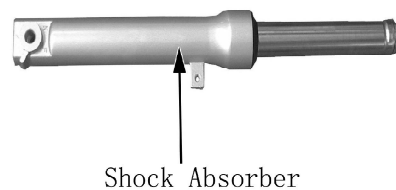
There should be no damage with seal ring



Remove shock absorber

Note

Do not put the shock absorber upside down in case oil leakage from inner absorber.



Inspection

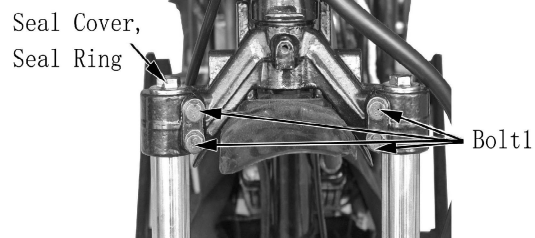
Check shock absorber for oil leakage, oil seal aging or damage. Replace, if any.

Installation

Install the shock absorber.

Install the seal cover and seal ring of shock absorber.
Tighten it according to the specified torque.

Tightening Torque: $50\text{N}\cdot\text{m}$ ($5.1\text{kgf}\cdot\text{m}$)



Install the tightening bolt 1 of absorber, and tighten it according specified torque.

Tightening Torque: $40\text{N}\cdot\text{m}$ ($4.1\text{kgf}\cdot\text{m}$)

Install front wheel. (13-3)

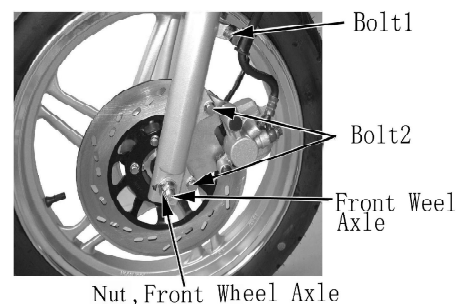
Install brake caliper comp:

Set the brake clipper on the brake disk, install bolt 2, and tighten brake clipper comp according to the specified torque.

Tightening Torque: $30\text{N}\cdot\text{m}$ ($3.1\text{kgf}\cdot\text{m}$)

Install bolt 1, and fix front brake hose comp.

Install front fender. (2-8)



Handlebar

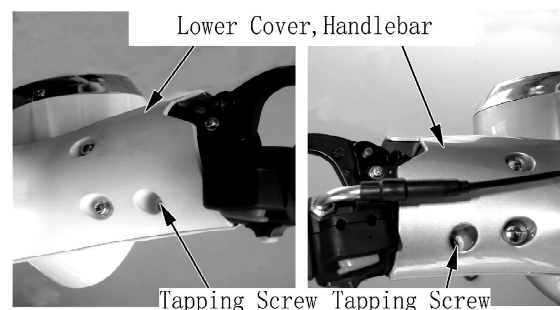
Handlebar upper cover

Disassembly

Remove head light comp (18-5)

Remove odometer (18-9)

Remove two tapping screws on the lower handlebar lower cover.



Remove tapping screw 1

Remove handle bar upper cover together with head light rear cover

Remove bolt, tapping screw 2 and tapping screw 3
Separate handle bar upper cover from head light rear cover

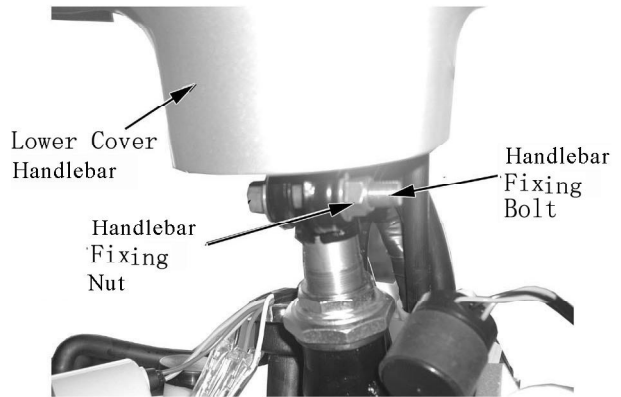
Installation

Reverse the removal procedure for installation.

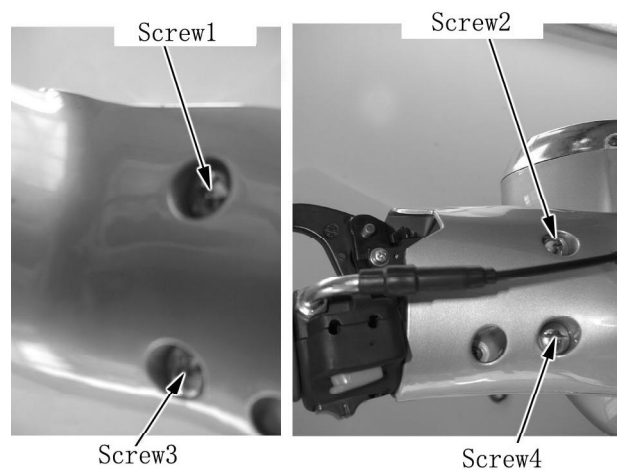
Handle bar lower cover

Disassembly

Remove head light comp (18-5)
Remove handlebar upper cover (13-10)
Loosen handlebar fixing bolt and nut,
remove handlebar comp.



Remove bolt 1, bolt 2, bolt 3, and bolt 4 of
handle bar lower cover
Loosen throttle cable.
Pull out throttle cable from handle bar lower cover
Remove handlebar lower cover.



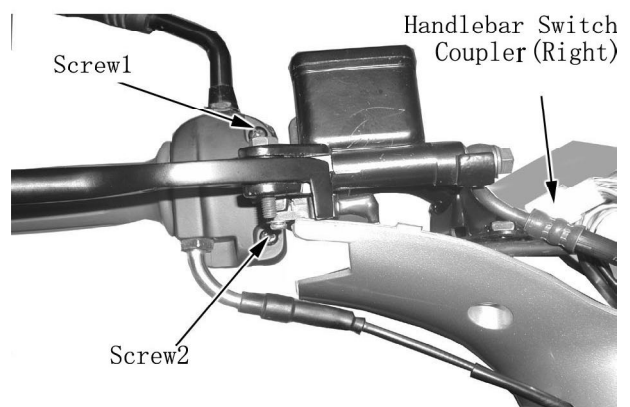
Installation

Install throttle cable (13-14)
Install handlebar lower cover (?13-14)

Handlebar switch (Right)

Disassembly

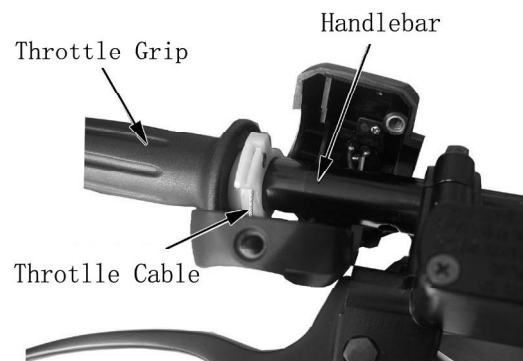
Remove headlight comp (18-5)
Remove handlebar upper cover (13-10)
Loosen the four screws fixing handlebar lower cover and frame, loosen handlebar lower cover. No need to remove handlebar lower cover from vehicle.
Remove screw1 and screw 2. Remove connection with right handlebar switch coupler..



Loosen right handlebar switch, remove
throttle cable from throttle grip.
Remove right handlebar switch

Installation

Install right handlebar switch (13-14)



Left handle bar switch

Disassembly

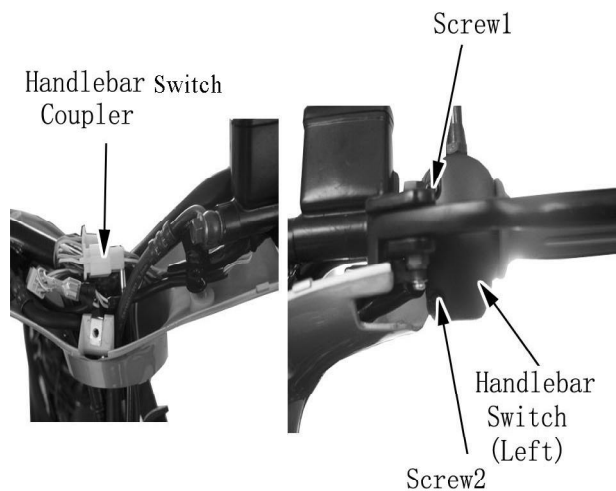
Remove head light comp (18-5)

Remove handlebar upper cover (13-10)

Loosen the four screws fixing handlebar lower cover and frame, loosen handle bar lower cover. No need to remove handle bar lower cover from vehicle.

Remove screw1 and screw 2. Remove connection with left handlebar switch coupler.

Remove left handlebar switch



Installation

Install left handle bar switch (13-14)

Rear mirror

Disassembly

Remove nut counterclockwise, and turn left rear mirror counterclockwise to remove left rear mirror



Remove nut clockwise, and turn right rear mirror clockwise to remove right rear mirror



Installation

Reverse the removal procedure for installation.

Master Cylinder

Disassembly

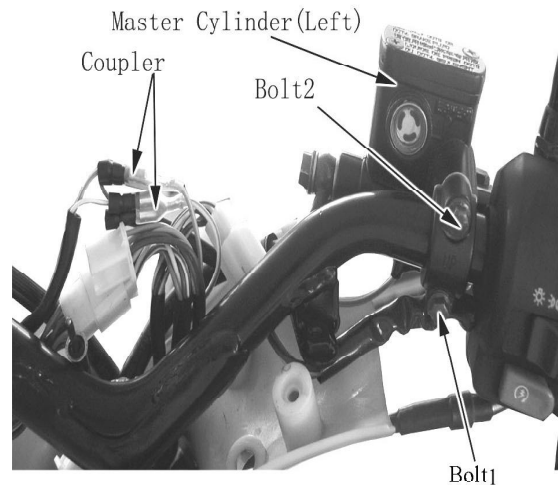
Remove head light comp (18-5)

Remove handle bar upper cover (13-10)

Loosen the four screws fixing handlebar lower cover and frame, loosen handle bar lower cover. No need to remove handle bar lower cover from vehicle. (13-11)

Remove bolt1 and bolt 2. Remove the coupler.

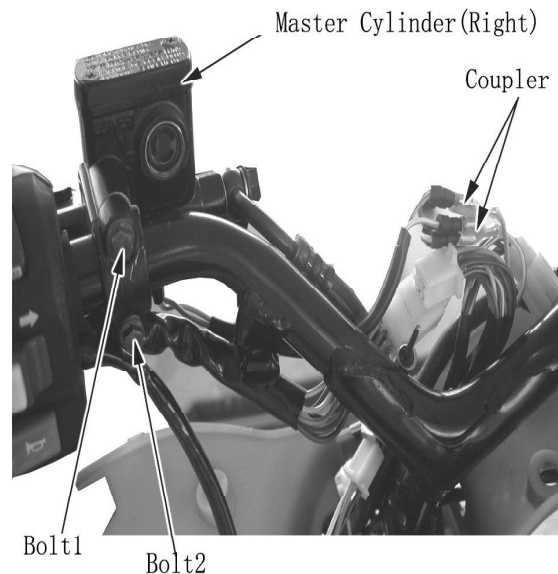
Remove left master cylinder.



Remove right master cylinder in the above steps.

Note

1. Do not hang the master cylinders with brake hoses.
2. Maintain the master cylinders in the installation position and fix them onto the handlebar. Placing the master cylinders upside down may cause entrance of air into the hydraulic system.



Installation

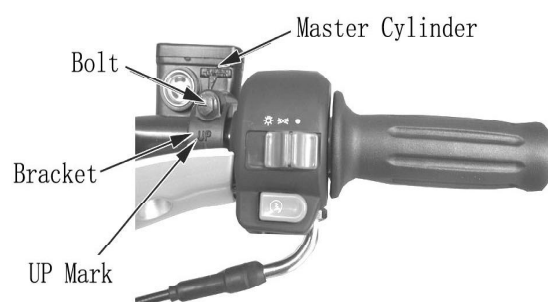
Install master cylinders (13-13)

Install handlebar comp

Install master cylinders

Keep the UP mark of bracket upward, and install master cylinder.

Fit the bracket positioner with handlebar position hole and install bolt.



Note

Main cable comp, throttle cable, brake hose, cable wiring should be corrected routed.

Install handlebar lower cover

Install handlebar lower cover to the handlebar, tighten the four screws.

Install handlebar

Install handlebar with lower cover onto the scooter. Tighten fixing bolt and nut according to the specified torque and direction.

Tightening Torque: 50-69N•m (5.0-6.0kgf•m)

Install throttle grip and throttle cable

Apply lubricant grease to inner part of throttle grip, sliding surface between handlebar and throttle grip. Install throttle grip to the steering bar.

Install throttle cable on the front part of right handlebar switch.

Apply lubrication grease on throttle mounting part of throttle grip and end of throttle cable.

Connect throttle to throttle grip.

Install right handlebar switch

Set right handlebar switch positioner with positioning hole of handlebar. Tighten it with screw from front side.

Install left handle bar switch

Set left handlebar switch positioner with positioning hole of handlebar.

Tighten with screw from the front side.

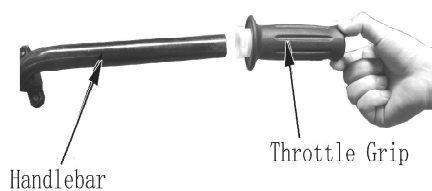
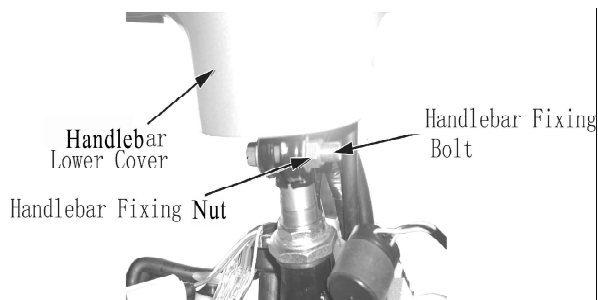
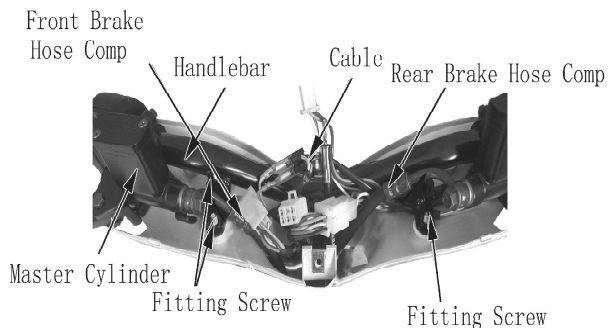
Install left grip

Clean grease and stains between left grip and handlebar adhesive side dry it.

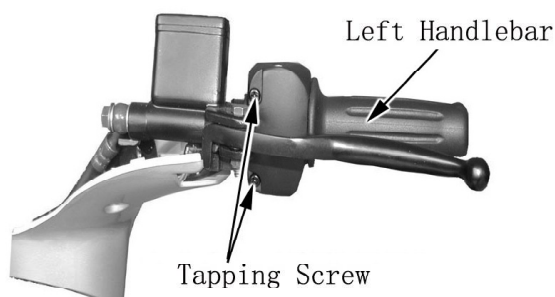
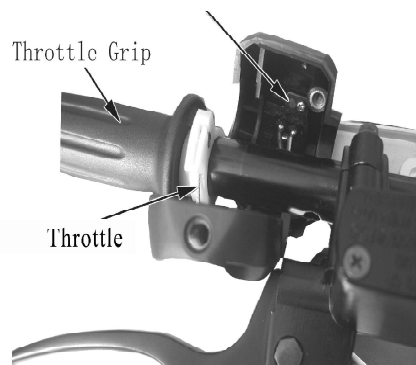
Apply adhesive to the joint of left grip and handlebar, install the left grip

Note

Leave the installed grip for drying of adhesive for several hours.



Switch Bracket, Right Handlebar



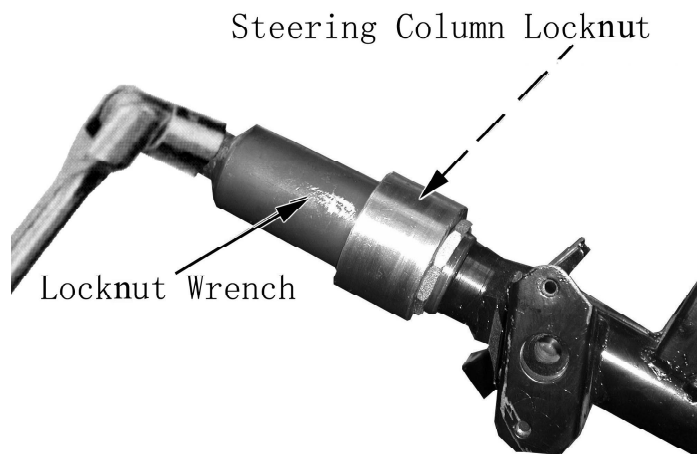
- Install rear view mirror (13-12)
- Install handlebar upper cover (13-10)
- Install head light lower cover (13-10)
- Install odometer (?18-9)
- Install headlight comp. (18-5)

Front fork

Disassembly

Remove:

- front fender (2-8)
- front decorative plate (2-8)
- cowling plate (2-9)
- front wheel (13-3)
- shock absorber (13-9)
- handlebar (13-10)



13

Remove steering column locknut

Special tool

Lock nut wrench 519-922-050002

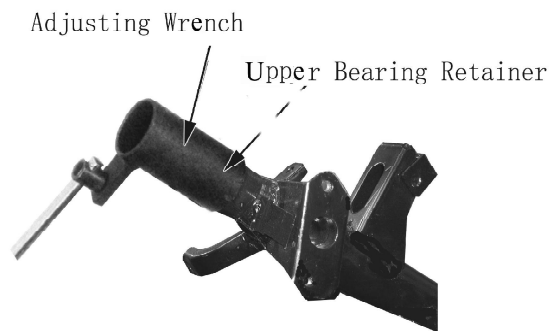
CFMOTO

Remove thrust washer

Remove steering column bearing retainer

Special tool

**Adjusting wrench, Steering column bearing
519-922-050002**

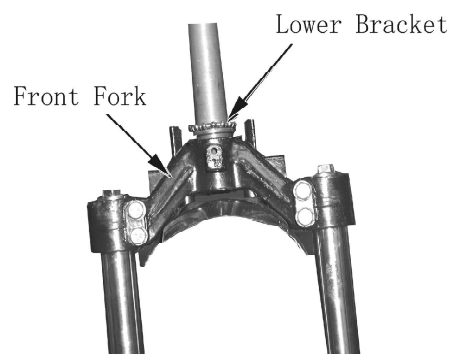


Remove:

—upper bracket

—front fork

—lower bracket



Install special tool on the frame body standpipe

Remove lower ball race

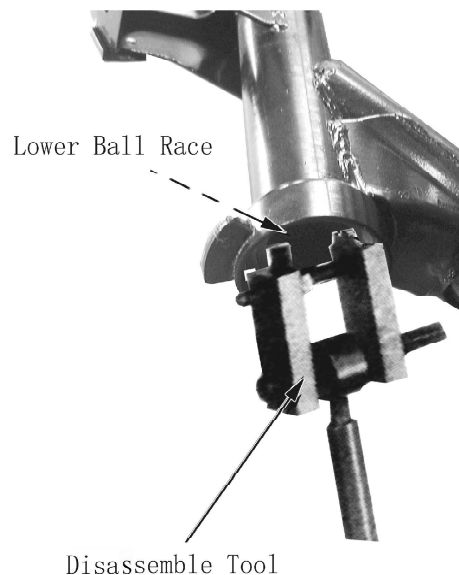
Special tool

Bearing remover comp 519-922-050000

Rotor puller 519-922-050010

Remover shaft 519-922-050003

Remover hammer 519-922-050004



13 Front wheel, Brake, Suspension ,Steering system

Install special tool on the rectangular tube of the stand
and remove upper ball race.

Special tool

Bearing remover comp

519-922-050000

Rotor puller 519-922-050010

Remover shaft 519-922-050003

Remover hammer 519-922-050004

Installation

Install new lower ball race and special tools as listed
below to the steering column.

Special tools

Tool A, steering column bearing bracket

519-922-050005

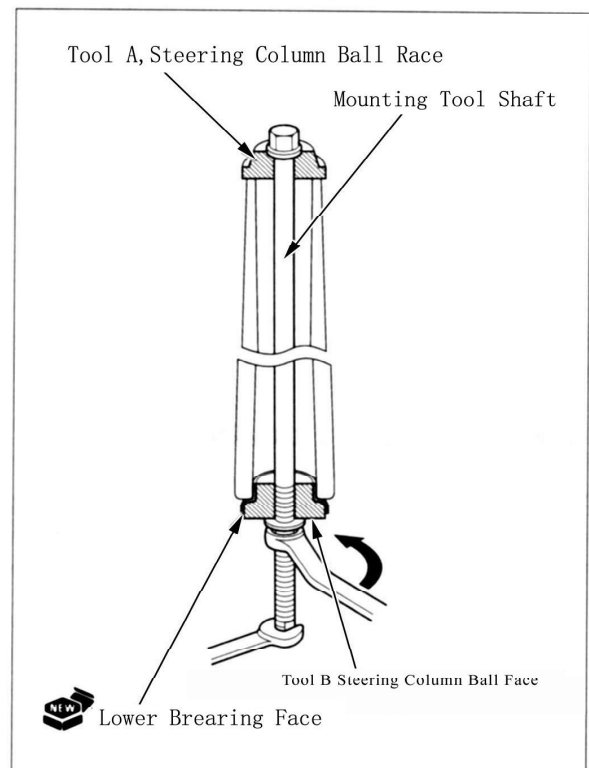
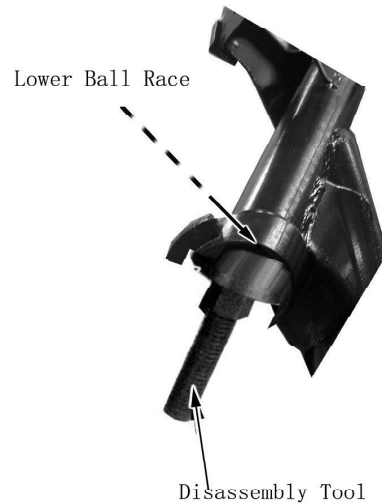
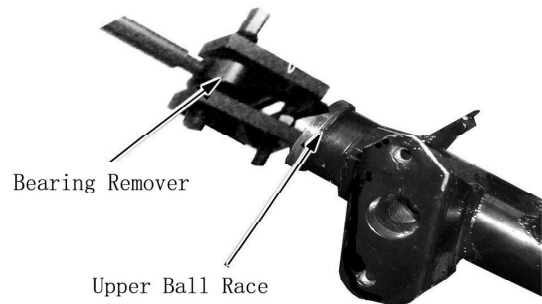
Tool shaft 519-922-050006

Tool B, steering column bearing bracket

519-922-050007

Tool shaft 519-922-050008

Hold installation tool shaft, tighten the locknut while
pressing the lower ball race into steering column.



Install new upper ball race on the steering column with tools listed below:

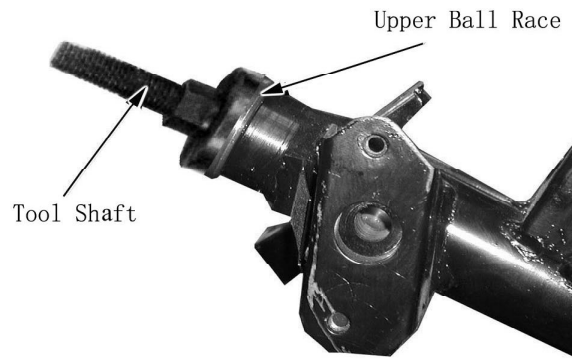
Special tools

Tool A, steering column bearing bracket
519-922-050005

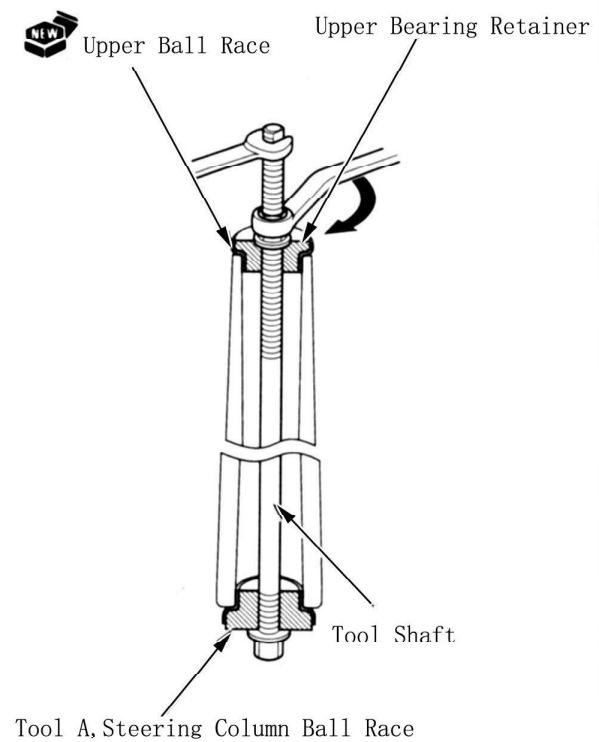
Tool shaft 519-922-050006

Tool B, steering column bearing bracket
519-922-050007

Tool shaft 519-922-050008

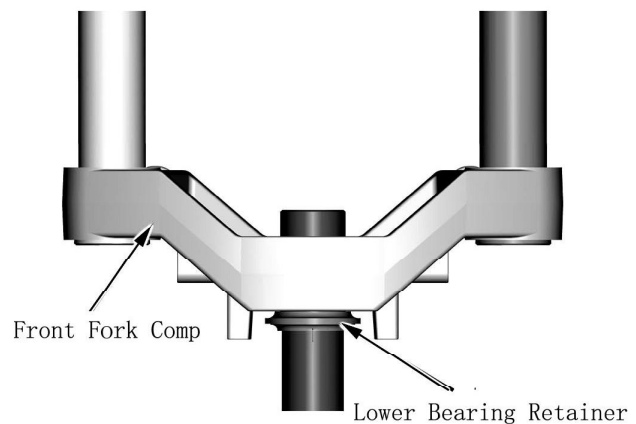


Hold installation tool shaft, tighten the locknut while pressing the upper ball race into steering column.



Replacement of lower bearing retainer

Remove lower bearing retainer.

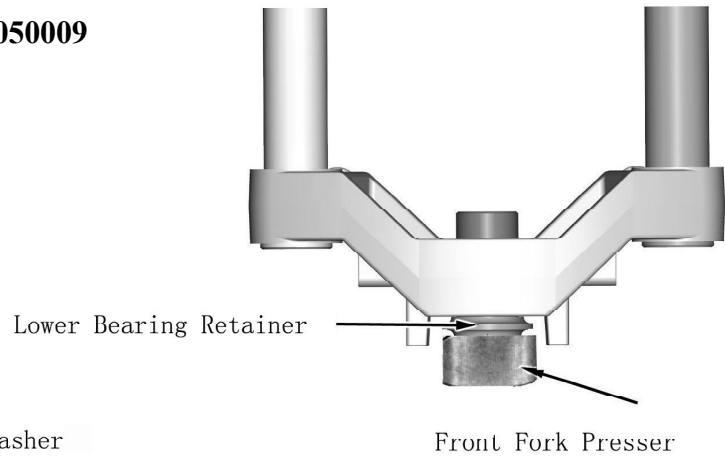


13 Front wheel, Brake, Suspension ,Steering system

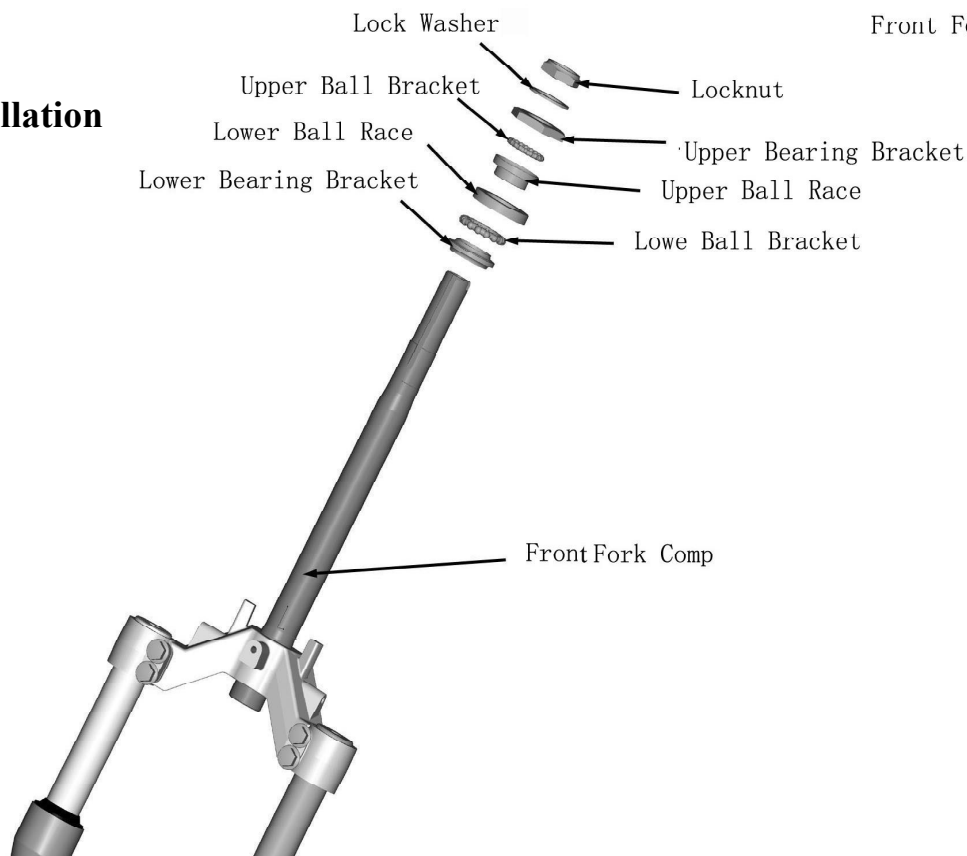
Press new lower bearing retainer on to front fork
with special tool and press machine.

Special tool

Front fork cover, press tool 519-922-050009

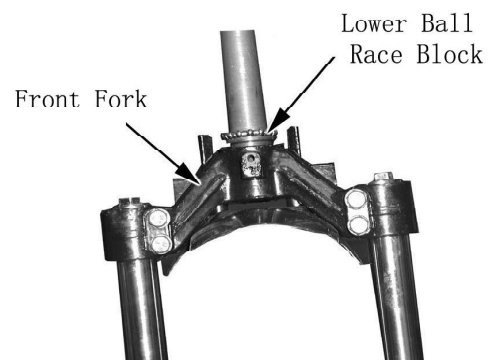


Installation



Apply lubrication grease on new lower bearing, and
then install front fork

Install after applying lubrication grease on new up-
per bearing



Install upper bearing retainer,
Tighten it according to the specified torque

Special tool

Adjusting wrench, steering column bearing: 519-922-050002

Torque: 10N•m (1.0kgf •m)

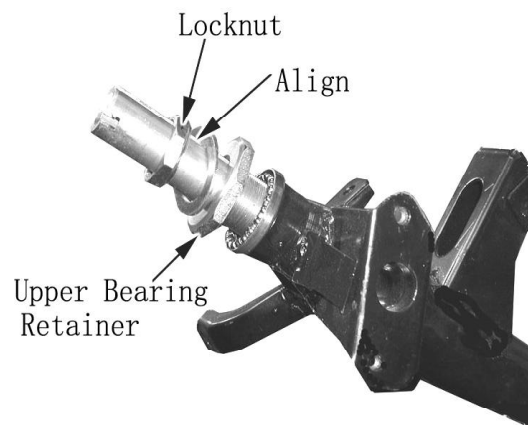
Turn front fork left and right several times to the blocks (limit position), and make block and bearing match well.

Loosen steering column upper bearing retainer.
Tighten upper bearing retainer with hand, then loosen (turn back) by 1/8 circle.



Set lock washer claw with front fork groove and install lock washer.

Install steering column locknut.



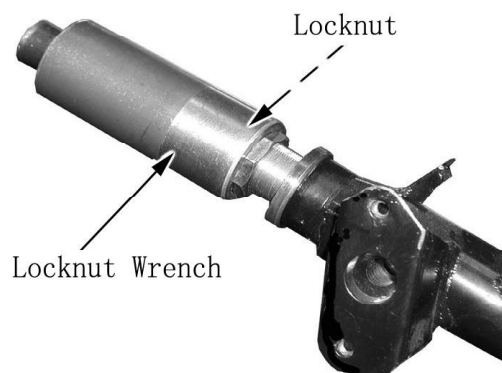
Special tool

Locknut wrench 07916-KM10000

Tighten Torque: 68N•m (7.0kgf •m)

Turn front fork left and right several times and make sure there is no vertical rocking motion and the front fork can turn smoothly.

Install following spares
—handlebar (13-10)
—Shock absorber (13-9)
—Front wheel (13-3)
—Front fender (2-8)



14 Rear wheel Brake Suspension

Overhaul information	14-1	Rear fork	14-4
Troubleshooting	14-2	Rear shock absorber	14-5
Rear wheel	14-3		

Overhaul information

Operating notes

Notes

- Securely support the scooter when overhauling the rear wheel and suspension system.
- Use genuine parts of bolts and nuts for rear shock absorber.
- Do not overexert on the wheels and do not damage the wheels.
- When removing tire from tube, use special tire lever and rim protector to avoid damage to the rim.

Overhaul standard

Item			Standard	Limit
Rear wheel	Vibration of Wheel rim	Vertical	—	2.0mm
		Horizontal	—	2.0mm
	Tire	Remained tire thread	—	1.6mm
		Air pressure	30kgf (3.0kgf/cm ²)	—
Rear brake	Free play (brake lever)		10—30mm	—

14

Tightening torque

Rear wheel axle nut	140N•m (14.3kgf•m)
Shock absorber upper mounting bolt	55N•m (5.6kgf•m)
Shock absorber lower mounting bolt	30N•m (3.1kgf•m)
Rear fork mounting bolt	55N•m (5.6kgf•m)

CFMOTO

Troubleshooting

Rear Wheel wobbles

- deformed rim.
- faulty tire.
- lower tire air pressure
- improper wheel balance
- faulty tightening of wheel axle nut.

Rear shock absorber is too soft

- weakened spring.
- oil leakage with rear shock absorber

Rear shock absorber is too hard.

- bended rear shock absorber
- higher tire air pressure

Poor brake effect

- faulty brake adjustment
- Stained brake shoe or brake disk
- worn or damaged brake shoe.

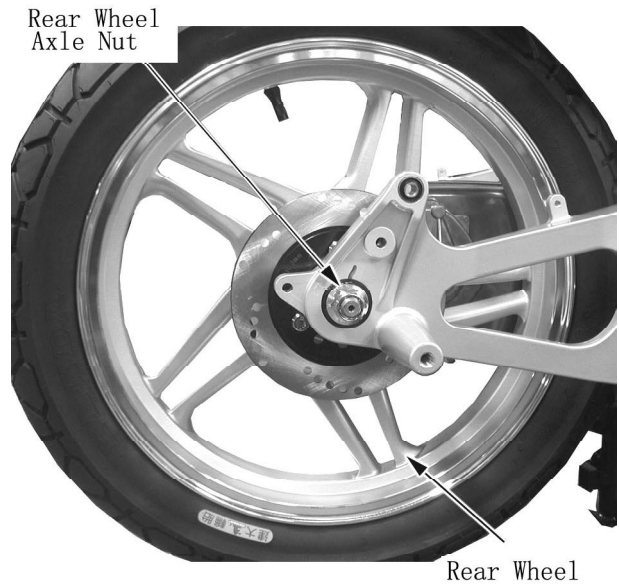
Rear wheel

Disassembly

Securely support the vehicle with main stand.

Remove:

- muffler (2-16)
- rear shock absorber (right) (14-5)
- rear brake caliper (14-6)
- rear fork (14-4)



Remove rear fork inner collar

Remove rear wheel

Inspect

Rim

Check rim for damage, deform or scrapes.
Refer to page 13 — 4, and measure the play of wheel ring by centesimal meter.
Replace rim in case of any damage, deform or scrapes.

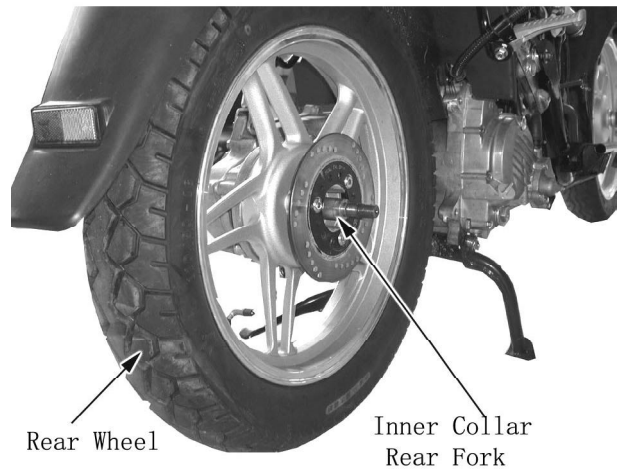
Service Limit: Axial: 2.0mm

Radial: 2.0mm

Installation

Reverse the removal procedure for installation.
Apply thread glue on the thread and joint part of rear wheel nut
Tighten it according to specified torque.

Tightening Torque: 140N•m (14.3kgf•m)



Rear fork

Disassembly

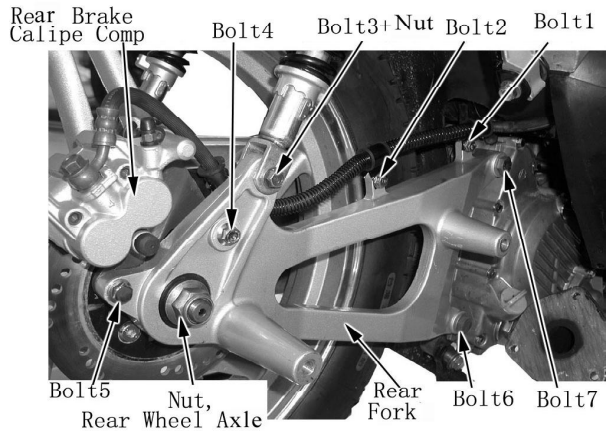
Remove muffler (2 — 16)

Remove bolt 1、bolt 2、bolt 3 and nut, and then loosen rear brake hose and lower end of right rear shock absorber

Remove bolt 4 and bolt 5, and remove rear brake caliper comp.

Remove rear wheel axle nut、bolt 6、and bolt 7 。

Remove rear fork comp.

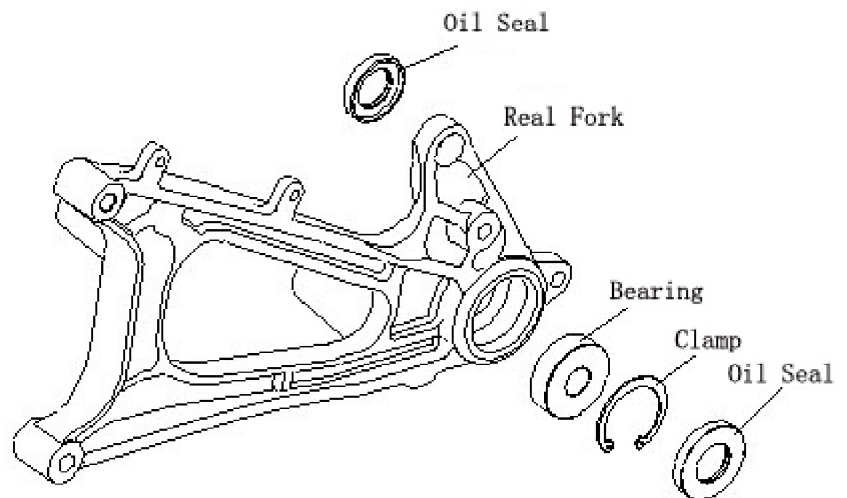


Disassemble rear fork

Remove front and rear oil seal

Remove clamp

Remove bearing with special tool



Inspection

Check if bearing can turn smoothly, if balls are damaged. Replace in case of any damage.

Installation

Press the bearing with special tool

Install the clamp

Install the oil seal

Reverse the removal order for installation

Tighten each bolt (nut) according to specified torque。

Rear shock absorber

Rear shock absorber (L)

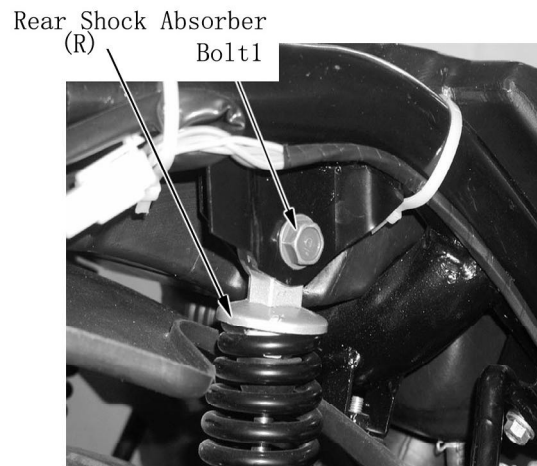
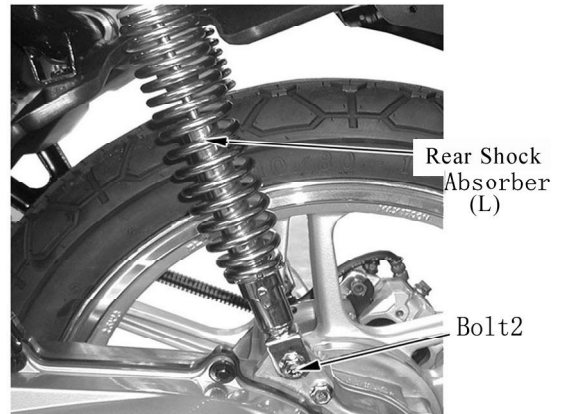
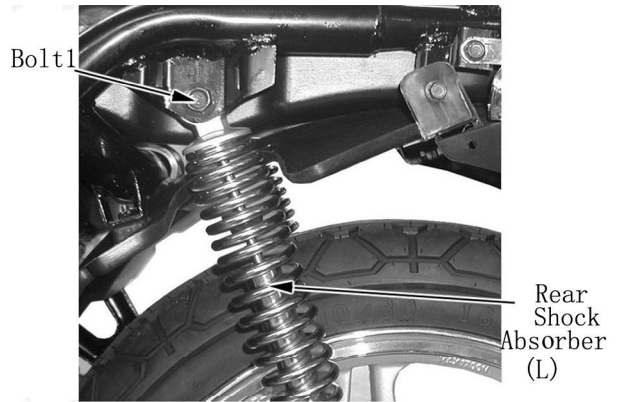
Disassembly

Securely support the vehicle with main stand.

Remove :

- small seat (2-2)
 - trunk & big seat assembly comp (2-3)
 - middle protection plate (2-4)
 - rear bracket (2-4)
 - left protection plate (2-5)
 - right protectione plate (2-6)
- Remove upper fixing bolt 1 for left shock absorbers

Remove lower fixing bolt 2 for left shock absorbers.
Remove rear shock absorber (L).



Rear shock absorber (R)

Disassembly

Remove upper fixing bolt 1 for rear shock absorber (R)

Remove lower fixing bolt 1 for rear shock absorber (R)
Remove Rear shock absorber (R)



CFMOTO

Inspection

Inspect shock absorbers for oil leakage, aging of rubber spacer or damage.
Replace in case of any.

Installation

Install absorber upper fixing bolt, and tighten according to specified torque.

Torque: 55N•m (5.6kgf•m)

Install absorber lower fixing bolt, and tighten according to specified torque.

Torque: 30N•m (3.1kgf•m)

Install:

- right protection plate (2-6)
- left protection plate (2-5)
- middle protection plate (2-4)
- rear bracket (2-4)
- trunk big seat washer assembly comp (2-3)
- small seat (2-2)

Rear brake

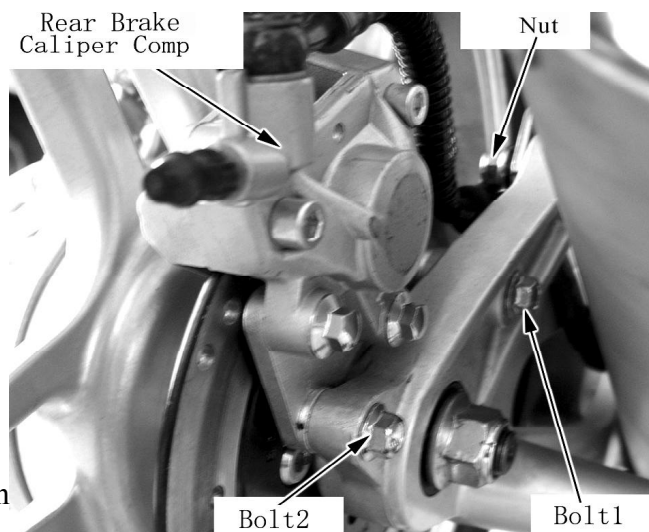
Rear brake caliper

Disassembly

- Remove bolt 1
- Remove bolt 2
- Remove nut
- Remove rear brake caliper comp

Inspection

Check rear brake caliper for cracks, oil leakage with tightening parts.
Replace, if any.
Check brake pad for wearing and damage (3-6)



Rear brake disk

Inspection

Inspect the sliding face of brake disk for wear and damage..
Replace when the disk thickness is $\leq 3\text{mm}$

Replacement

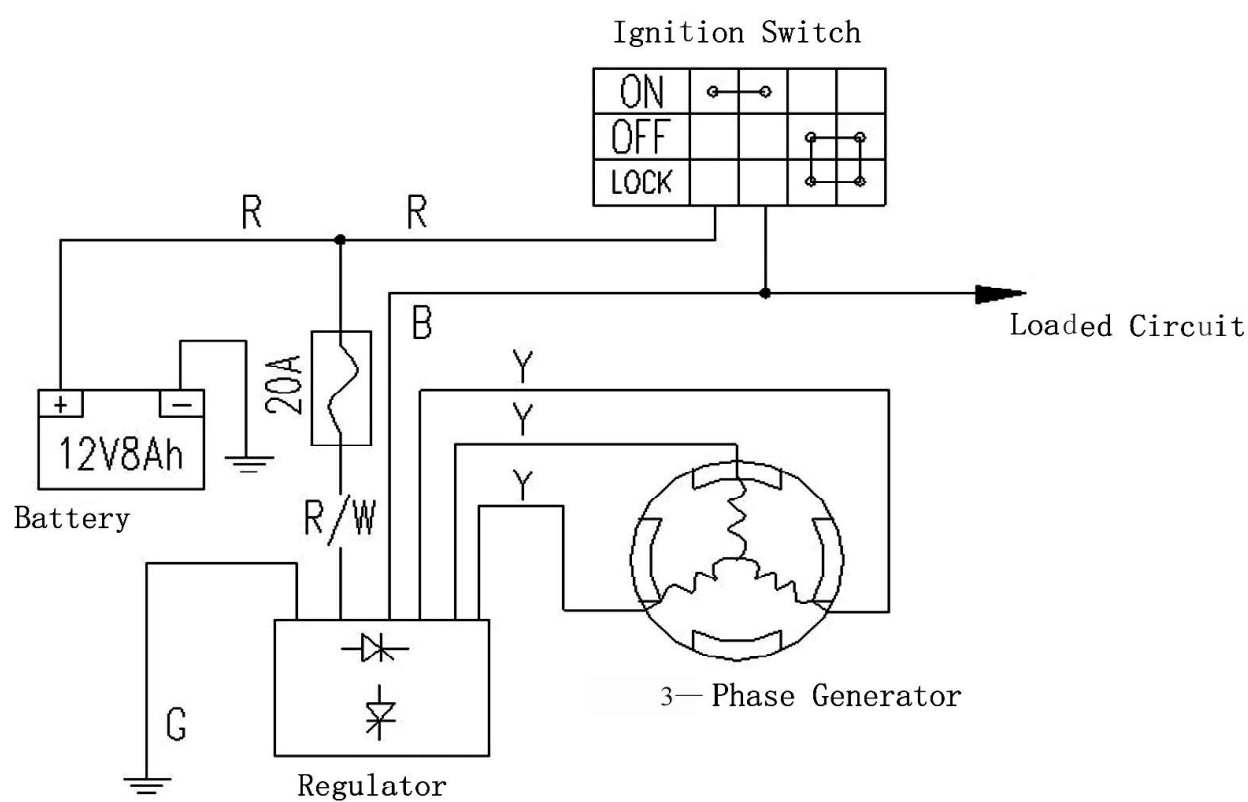
Remove:

- muffler (2-15)
 - rear fork (14-4)
 - rear brake disk mounting screw, and remove rear brakedisk
- Replace with a new brake disk.



15 Battery Charging system

Charging system	15-1	Charging system inspection	15-5
Overhaul information	15-2	Rectifier	15-6
Troubleshooting	15-3	AC magneto inspection	15-8
Battery	15-4		



Overhaul information

Operation notes

Warning

- Usually no hydrogen will be generated during charging except when overcharged. Do not smoke when charging.
- Electrolyte is highly corrosive, splash to clothes, skin or eyes will cause burn or loss of sight. Wash with plenty of water if splashed. In case of splash into eyes, wash with plenty of water and consult the doctor.

Notes

- Spark arc may be generated when removing or joining the electrical parts with switch on and will damage the rectifier. Operation should be done with ignition switch OFF.
- Remove battery from vehicle for charging and do not open the electrolyte cover.

Notes

Replace if the battery service life expired..

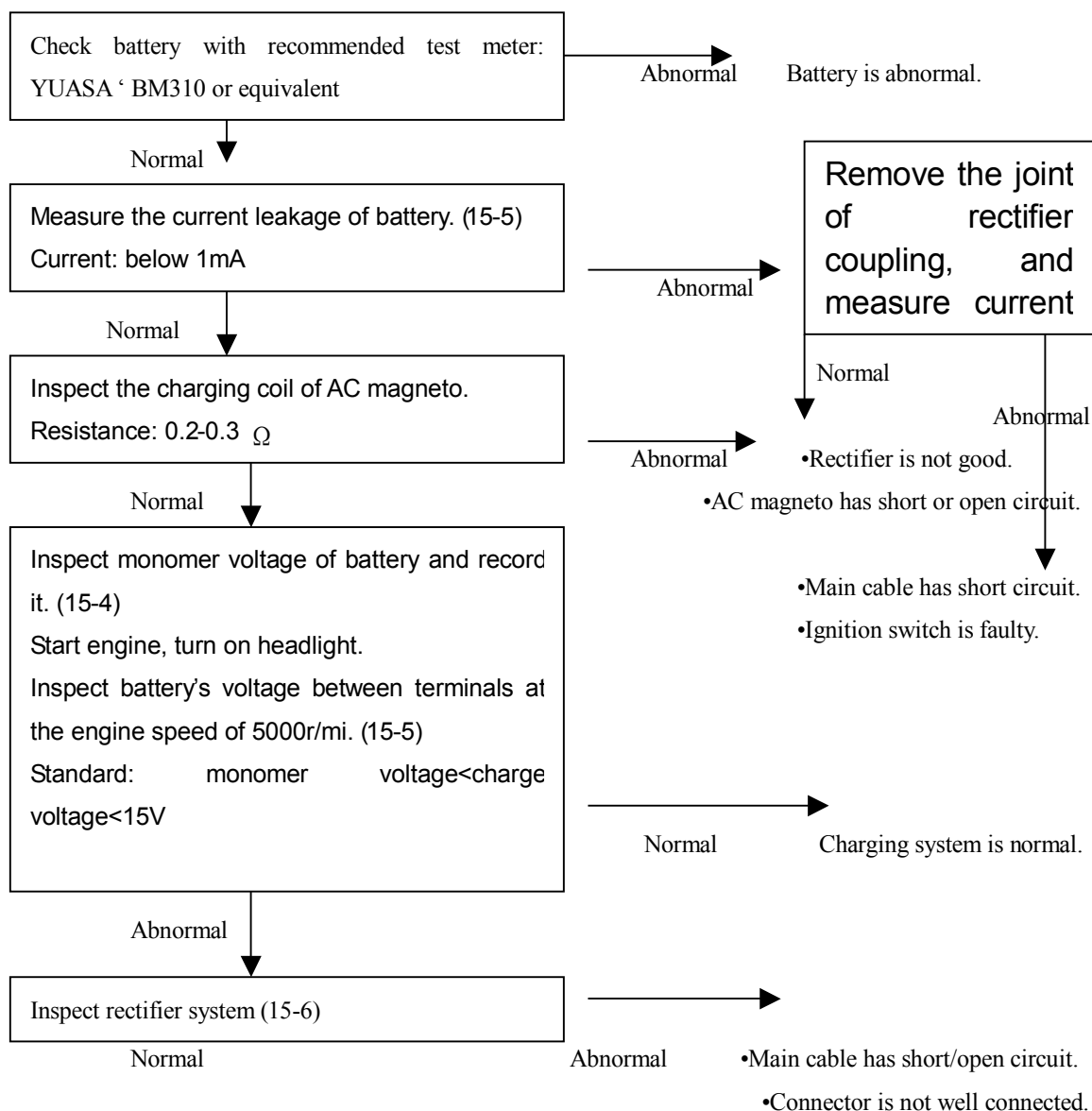
- Keep the ignition switch OFF when disassembling electrical parts.
- Remove negative connecting harness of battery, when storing the battery on the vehicle.
- Fast charging is not recommended as it may reduce the life of battery.
- If battery is repeatedly charged and discharged deeply (fully-charge and fully-discharge), it may cause damage to the battery or shorten the service life or lower the storage of battery. In addition, the capacity of battery will also lower in 2~3 years even under normal use. So the battery should also be replaced.
- If the terminal voltage is less than 12.4V, charge the battery normally.
- The inspection of charging system should be done in the procedure of troubleshooting table. (15-3)
- Refer to illustration on page 15-9 for deployment of charging system parts.
- Refer to chapter 11 for disassembly of AC magneto.
- The inspection of battery should be done following the operation manual of battery test.

Overhaul standard

Item			Standard
AC magneto	Model		Permanent magnet alternator
	Output		3-phase AC
	Resistance of charging coil (20℃)		0.2-0.3 Ω
Rectifier			3-phase circular rectification, controllable parallel connection, regulated voltage
Battery	Capacity		12V8Ah
	current Leakage		Less than1mA
	Voltage between terminals	Fully-charged	12.8V
		Insufficient charge	Less than 11.8V
	Charging current/time	Standard	0.9A/5-10hours
		Fast charge	4A/60minutes

Troubleshooting

Battery overflow



Battery

Disassembly

Notes

Keep switch OFF before operation.

Open the seat with ignition key.

Remove battery cover. (2-2)

Loosen terminal screws, and remove battery's negative harness joint.

Remove terminal cover and screw.

Remove battery's positive harness joint.

Installation

Reverse the removal procedure for installation.

Notes

- **Apply clean lubricant grease on the terminal after installation.**

- **Install cover firmly on the positive terminal after installation.**

Inspection

Measure voltage between battery's terminals, and inspect test situation.

Complete test: 12.8V

Insufficient test: less than 11.8V

Recharge when charge is not sufficient.

Note

When recharging after charge, measure the voltage between terminals after thirty minutes. Measuring immediately after charging will not gain the correct test due to the voltage changes between the terminals.

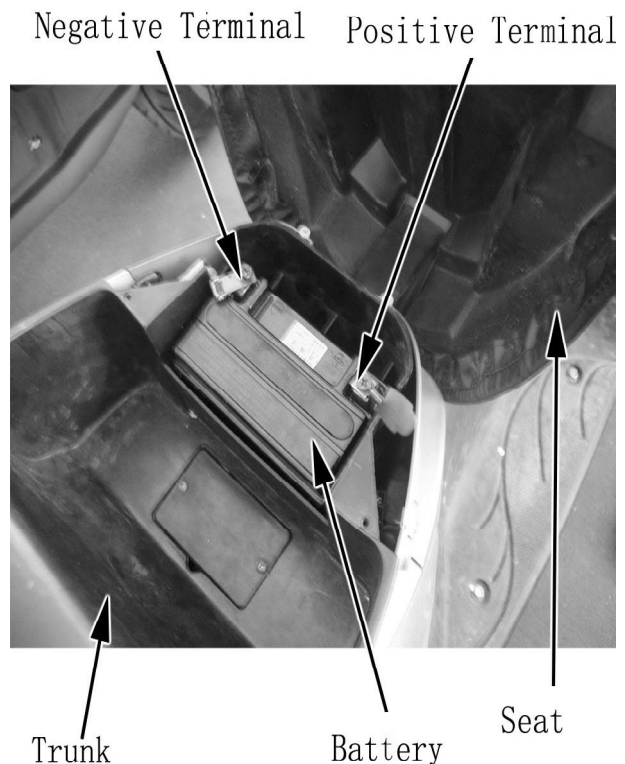
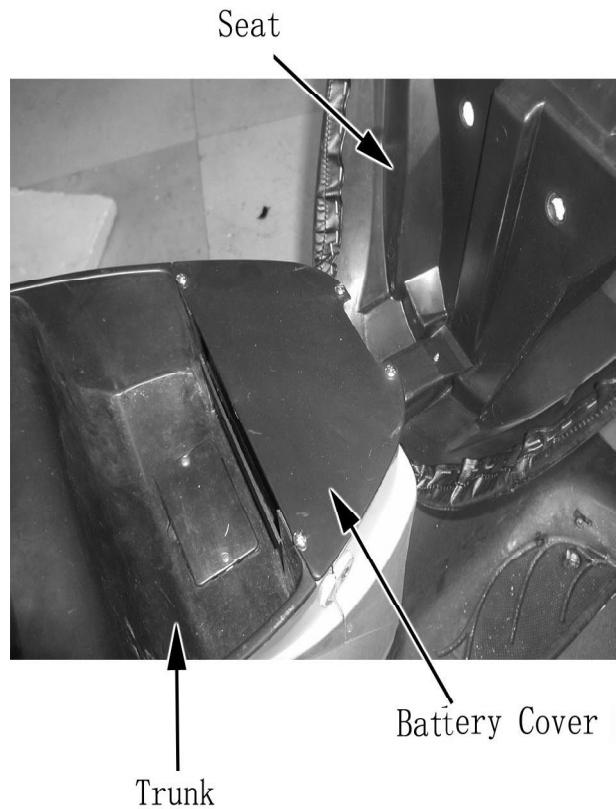
Charging

Note

Usually no hydrogen will be generated during charging. But overcharging may generate hydrogen. No smoking during charging.

Charge according to the current and time specified on the label of battery.

Remove battery from vehicle. (Refer to above content)



15 Battery Charging system

Connect charger' positive harness with battery's positiveterminal.

Connect charger' negative harness with battery's negativeterminal.

Charging current/time: standard: 0.9A/5-10hours

Fast charge: 4A/60mins

Notes

- Keep the battery's liquid temperature under than 45°C. Reduce current to adjust the temperature if it is too high.

- Fast charge will reduce battery's life of use and damage the battery. Do not use fast charge except for emergency case.

Inspect charging system

Inspect charging situation

Remove battery (15-4) and install a fully charged battery.

Keep ignition switch in the "OFF" position.

Connect voltmeter between battery's terminals after engine is started and warmed up.

Notes

- Do not cause short circuit when measuring.
- Keep ignition switch at the "OFF" position.
- Use a fully charged battery for inspection.

Start engine and turn on high beam.

Increase engine speed slowly. Inspect voltage of battery's terminals which is usually between 13.5-15V, when the speed reaches specified speed (5000r/min),.

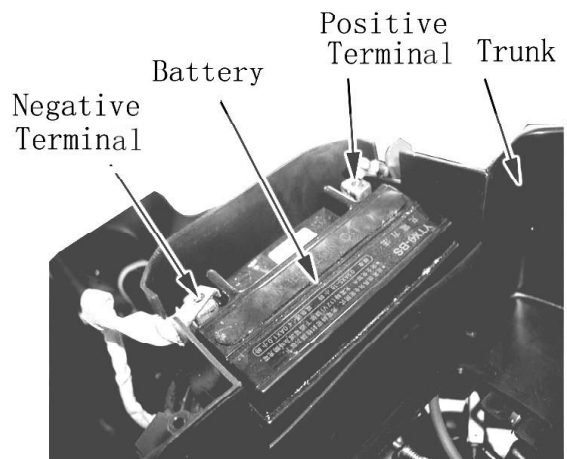
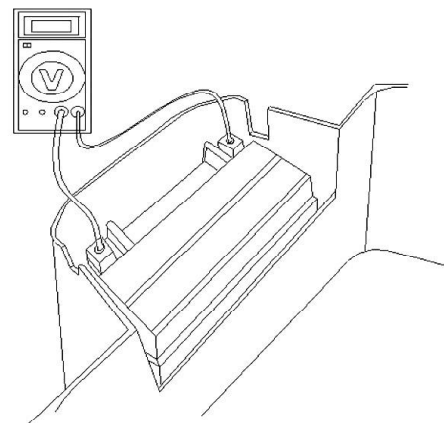
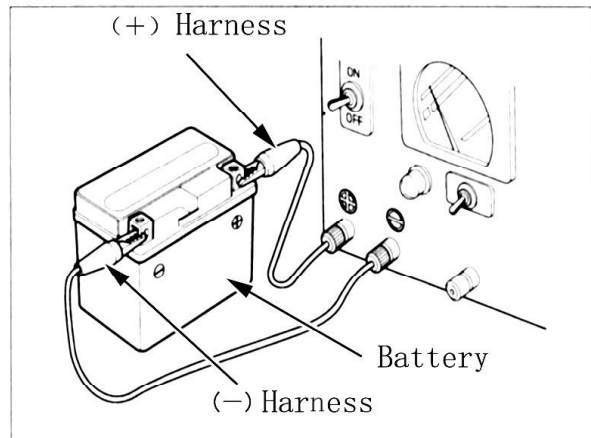
Standard:

Battery's monomer voltage<charging voltage <15V (5000rpm)

Electric leakage test

Remove battery cover (2-2)

Keep ignition switch at the "OFF" position, and remove negative harness from battery.



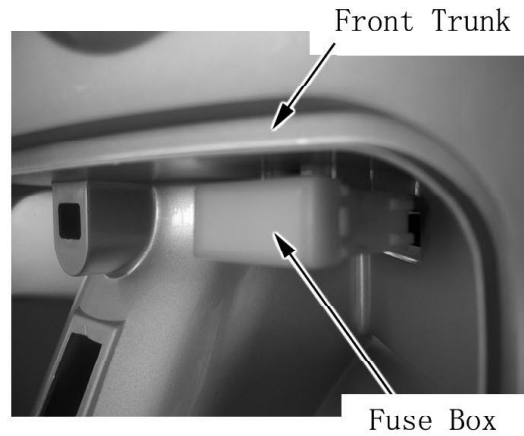
15

CFMOTO

Remove fuse.

Connect ammeter between negative terminals and negative harness of battery.

Measure current leakage with ignition switch in the “OFF” position.

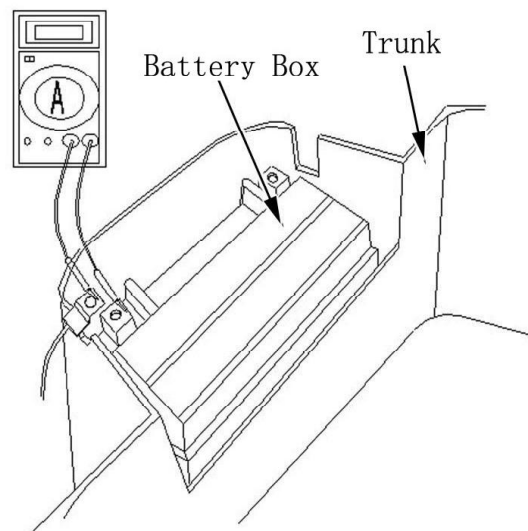


Notes

- If the measured current is higher than the limit, the fuse of multimeter will be burnt. Therefore, measure the current by shifting from the large to the small measurement.
- Do not turn on the ignition switch when measuring the current.

Current Leakage: less than 3mA

When leakage current is higher than specified limit, there is fault with the return circuit. Measure current, and at the same time disconnect terminals and couplers to check out the faults.



Rectifier

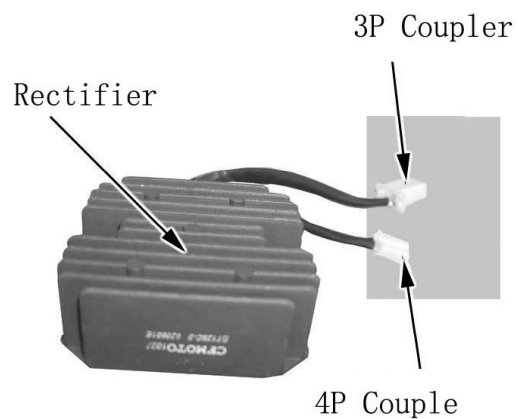
System inspection

Notes

Inspection can be done without removing the AC magneto from vehicle.

Remove footrest deck. (2-10)
Remove rectifier. (15-7)

Disconnect the 2 rectifier coupler.

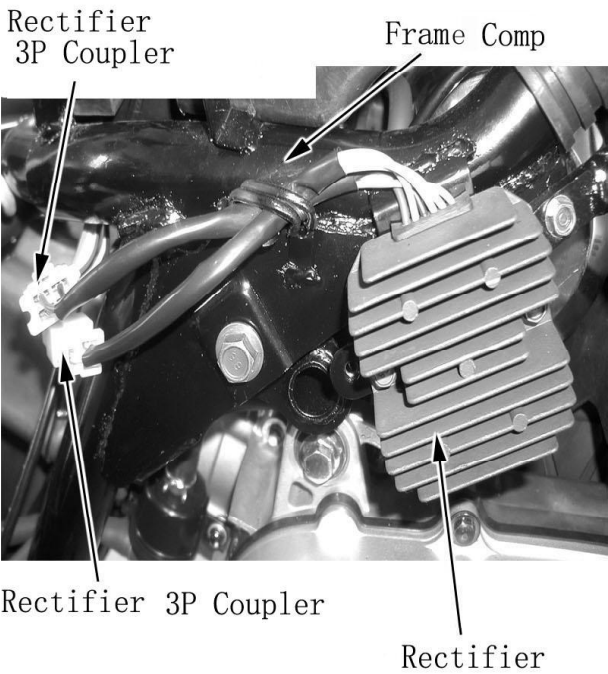


15 Battery Charging system

Check the coupling terminals for loosening, bending, rust break.

Check the following items of the main cable terminals of the two rectifier couplers:

Item	Result
Battery wire (red)	Voltage between red terminal(+) and frame body earthing wire
Earthing wire (green)	Green terminal must be connected with frame body earthing wire
Charge coil (yellow, yellow, yellow)	Resistance between yellow terminals is: 0.2-0.3Ω (20℃)
Ignition switch lead wire (black)	Black lead wire must be connected with black terminal.



Remove coupler of carburetor starting enriching device when checking the above items.

Disassembly

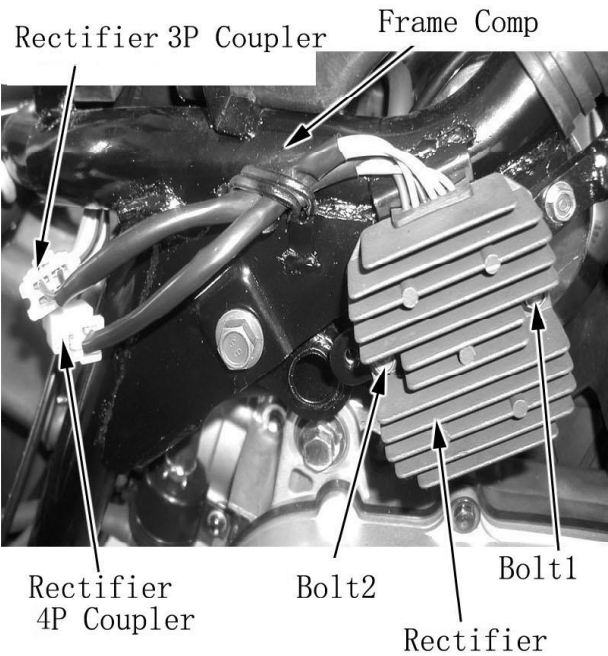
Remove footrest deck. (2-10)
Remove bolt1 and bolt2.

Disconnect the two rectifier couplers
Remove voltage rectifier

Reverse the removal procedure for installation

Notes

• Routing of wires, hoses, cables should pass properly (1-20)

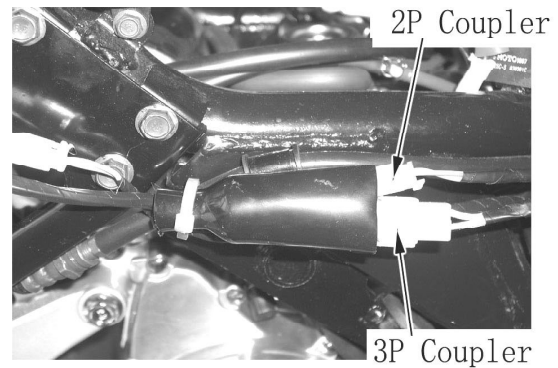


Inspection of AC magneto

Remove left protection plate (2-5)

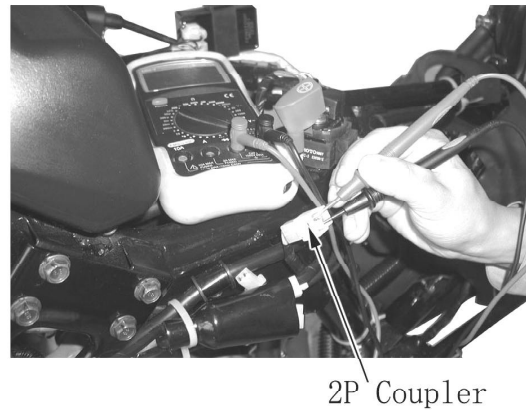
Remove right protection plate (2-6)

Disconnect couplers of AC magneto (yellow, yellow, yellow), and trigger coil (black/white/green).



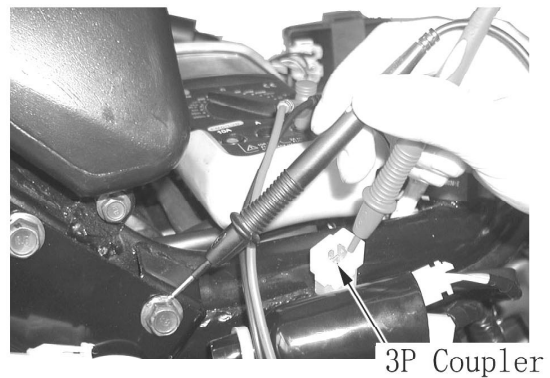
Measure the resistance between the yellow terminals of the AC magneto 3P coupler.

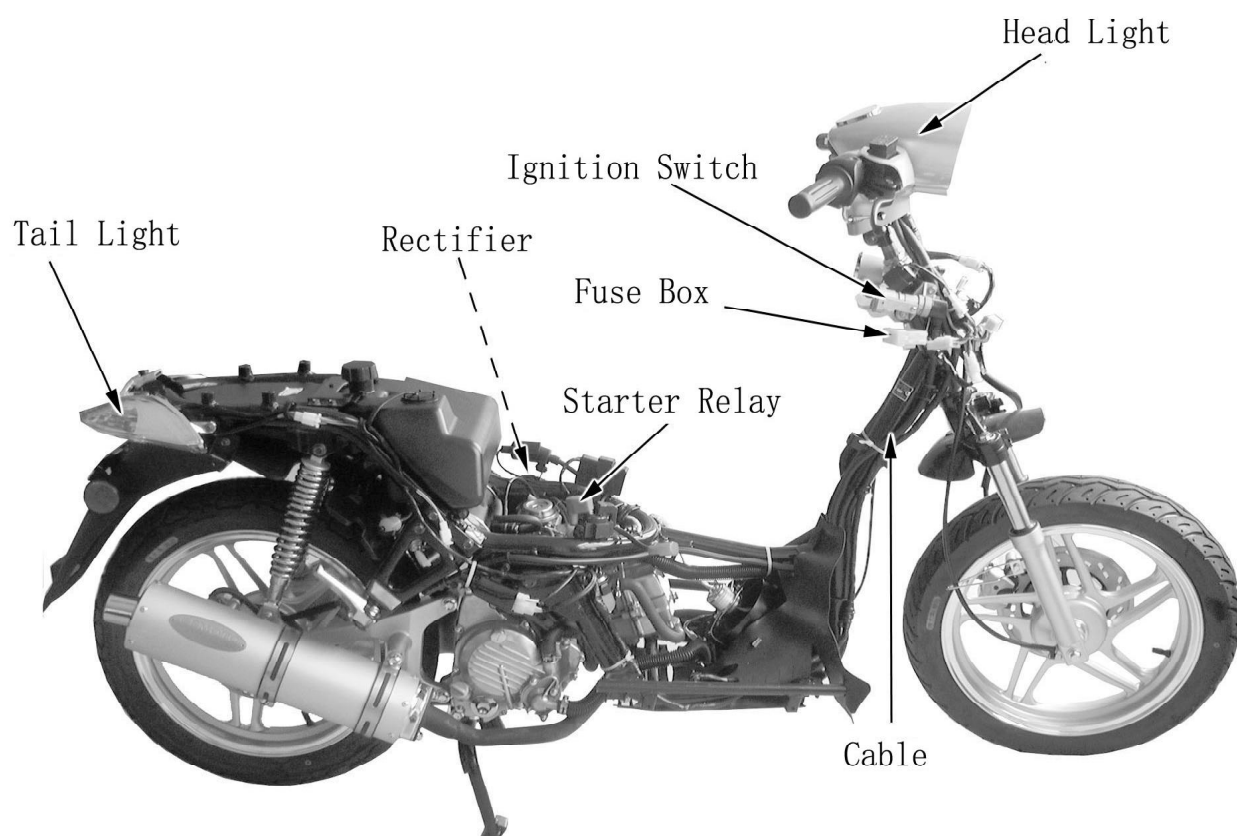
Resistance: 0.2-0.3 Ω (20°C)



Make sure the yellow terminal of AC magneto 3P coupler is not connected with frame body earth wire.

Replace with a new AC magneto in case of any faults found in above check. (11-3)





Overhaul information	16-1	Trigger coil	16-6
Trouble shooting	16-3	Ignition coil	16-6
Inspect ignition system	16-4	Ignition system disposition	16-7

Overhaul information

Operating notes

Notes

Exhaust contains toxicant, DO NOT keep the engine run for a long time in a closed or poorly ventilated place.

- Inspect ignition system in the order of the content in troubleshooting table.
- Refer to (16-7) for disposition of ignition system parts.
- Ignition advancer is placed in the CDI, so the ignition system will automatically adjust ignition time.
- Be careful with CDI overhaul. Dropping or strong impact may cause damage to CDI. Always shut the ignition switch when overhauling.
- Most of the failures of ignition system are caused by faulty contacts between couplers and terminals. Check all the joints for any faults before overhauling.
- Select spark plug of proper heat value. Improper spark plug may cause malfunction or damage of engine.
- Refer to chapter 18 for inspection of switches.

Overhaul standard

Item		Standard
Ignition		CDI battery ignition
Spark plug		NGK
	Standard	DPR7EA-9
	Optional	
	Spark plug gap	0.8-0.9mm
Ignition timing	Maximum advance angle	33°BTDC
Peak voltage	Ignition coil	≥ 150V
	Impulse generator	≥ 0.8V

Special tool

Peak voltage oscillograph 07HGJ-0020100

(Use it together with digital multimeter available in the market with input resistance over 10M/DCV)

Troubleshooting

•Engine cannot be started.

Check fuel and air gateways for any faults; If the fuel and air gateways are normal, check the ignition system.

•Inspect of ignition system for the following items:

1. Spark inspection:

Check in the following steps:

Take off spark plug

Remove spark plug cap

Set high tension flexible cable end to earthing

Check spark arc

It is normal if spark arc is more than 8mm, while it is weak if it is less than 5 mm.

If the spark is normal, check the spark plug.

A faulty spark plug may be caused by the following reasons:

- (1) Spark plug is too wet and drowned. This is because the mixture is too thick. Cut the fuel and start the engine several times..
- (2) Carbon deposit on spark plug—Mixture too thick or oil burnt in the combustion chamber. Clean and burnish the spark plug.
- (3) Cracks with spark plug insulator.
- (4) Two poles of spark plug have short circuit or it is obstructed between negative pole and thread or positive pole and input end.

2. Faulty spark includes: no spark and weak spark.

Inspect the following aspects if there is no spark.

(1). Inspect ignition coil in substitution way with multimeter or measurement.

1) Measure primary bobbin resistance, usually it is about 1Ω .

2) Measure secondary bobbin resistance, usually it is about $4.2K\Omega$.

3) Measure damp resistance, usually it is about $5K\Omega$.

(2). Check CDI in the substitution way to check if it is out of service.

(3). Check ignition circuit. Usually the voltage between blue/black wire and earthing wire (green) should be 12V. If there is no voltage, check from the battery positive terminal to the end of blue/black wire.

(4). Check the cable: check if there are any faults from the input of trigger signal (output of magneto trigger) to output (CDI terminal) and ignition output wire (black/yellow).

(5). Check stop switch. When switch is at the stop position, black/white wire should be disconnected with green wire.

In case of weak spark, check the following:

(1). Check CDI in the substitution way.

(2). Check ignition coil and secondary coil whether there is short circuit, or fault with the damp resistance.

Inspection of ignition system

Notes

- If the spark plug generates no spark, check first if there is break, loosening or poor contact with the wiring, then measure the peak voltage.
- Different universal meter has different input resistance and shows different readings. Thus it is impossible to obtain the correct reading. Measure with digital universal meter with input impedance over $10\text{M } \Omega / \text{DCV}$).

Connect peak voltage oscillograph with digital universal meter.

Special tools

Peak voltage oscillograph 519-922-150000

(Use it together with digital universal meter available from the market with input impedance over $10\text{M } \Omega / \text{DCV}$)

Ignition coil primary voltage

Notes

- Measurement should be done after all the wires are correctly connected.

- Inspection should be done when the spark plug and spark plug cap are properly installed. If the spark plug is removed, the peak voltage will rise. Remove footrest deck. (2-10)

Leave spark plug in the cylinder head, install qualified spark plug on the spark plug cap and earth the engine.

Open rubber cover of ignition coil, keep the ignition wire connected, and connect peak voltage oscillograph between primary wire terminal and frame body earthing wire.

Special tool

Peak voltage oscillograph

(Use it together with digital universal meter available from the market with input impedance over $10\text{M } \Omega / \text{DCV}$)

Connecting terminals: black/yellow (+)–frame body earth wire (-)

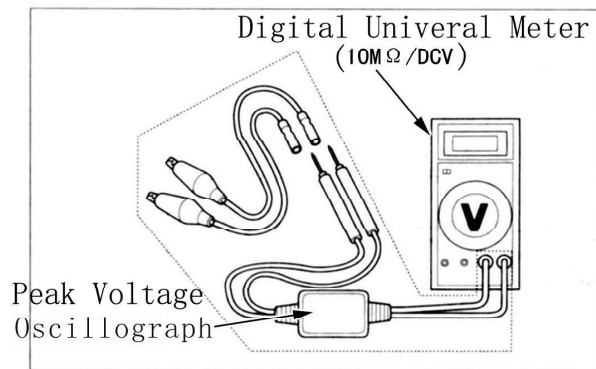
Turn ignition switch to the ON position, and start engine.

Peak voltage: above 150V

Note

When measuring the voltage, do not touch the terminal with finger to avoid electric shock.

Refer to Troubleshooting and check all the items when the measured value is lower than the specified value.



Qualified Spark Plug



Peak Voltage Oscillograph

Ignition Coil



Trigger coil

Notes

- Measurement should be done after all the wires are correctly connected.
- Inspect with compression pressure in the cylinder, spark plug and spark plug cap are properly installed. If the spark plug is removed and then do the measurement, the peak voltage will rise.

Remove cowling body.. (2-3)

Disconnect CDI unit connector.

Connect peak voltage oscillograph terminal with the following terminal of main cable.

Special tools

Peak voltage oscillograph 07HGJ-0020100

(Use it together with digital universal meter available from the market with input impedance over 10M Ω /DCV)

Connecting terminal: black/white (+) –green (-)

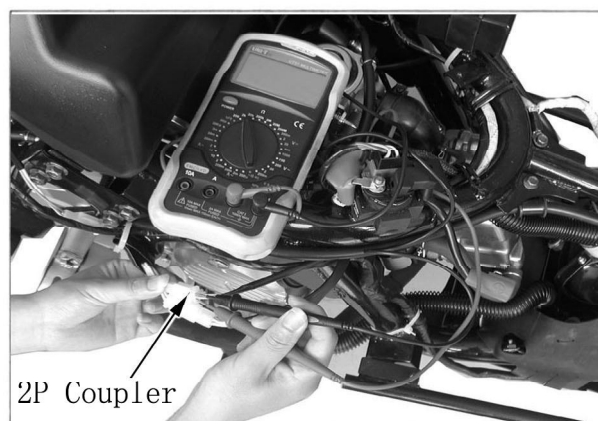
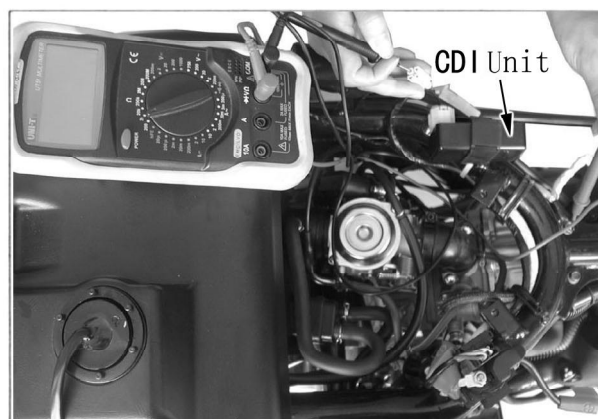
Keep ignition switch in the ON position, and start engine.

Peak voltage: over 0.8V

Notes

When measuring the voltage, do not touch the terminal with finger to avoid electric shock.

If peak voltage obtained from CDI connector is improper, measure again the peak voltage on the magneto 2P coupler.

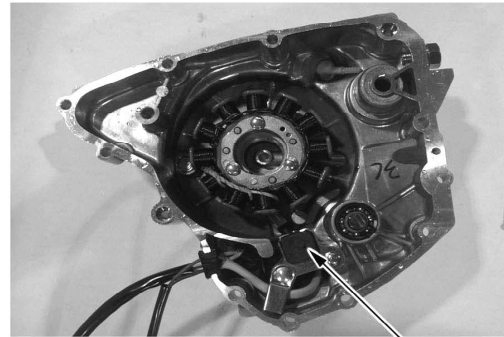


Trigger

Disassembly

Remove:

- AC magneto coupler
- water pump inlet hose and outlet hose, and drain coolant water. (Chapter 6)
- crankcase breather hose. (Chapter 11)
- exhaust muffler. (Chapter 2)
- right side cover. (Chapter 11)

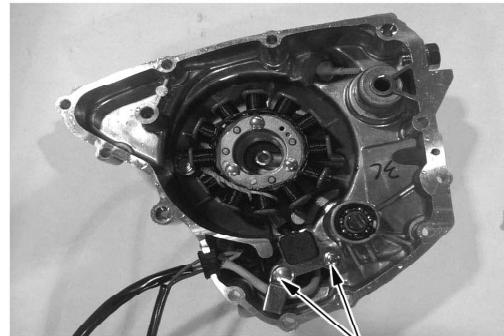


Trigger

Notes

Stator is installed on the right side cover and is attached by the magnet of rotor. Be careful not to hurt the fingers when removing.

Loosen bolt, remove AC magneto stator and trigger.



Bolt

Installation

Reverse the removal procedure for installation.

Ignition coil

Disassembly

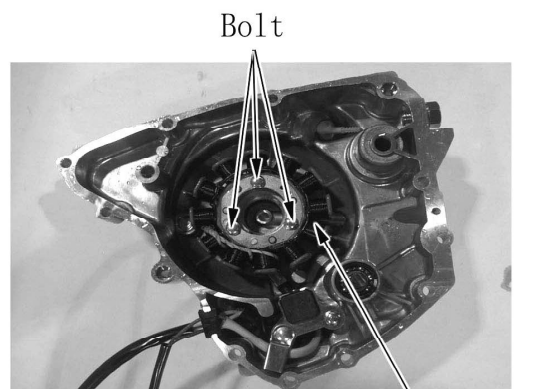
Removal

Remove

- seat (2-2)
- trunk (2-3)
- left and right protection plates. (3-9)
- spark plug cap from spark plug (3-9)

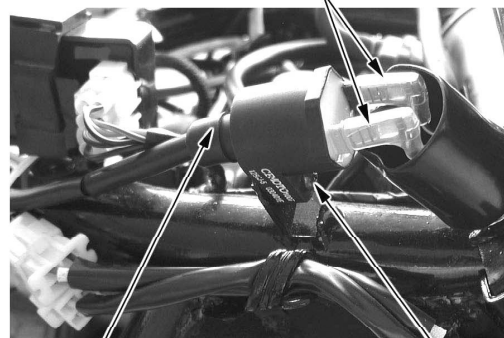
Disconnect primary terminal of ignition coil.

Loosen bolt, and remove ignition coil.



Bolt

Plug AC Magneto Stator



Ignition Coil

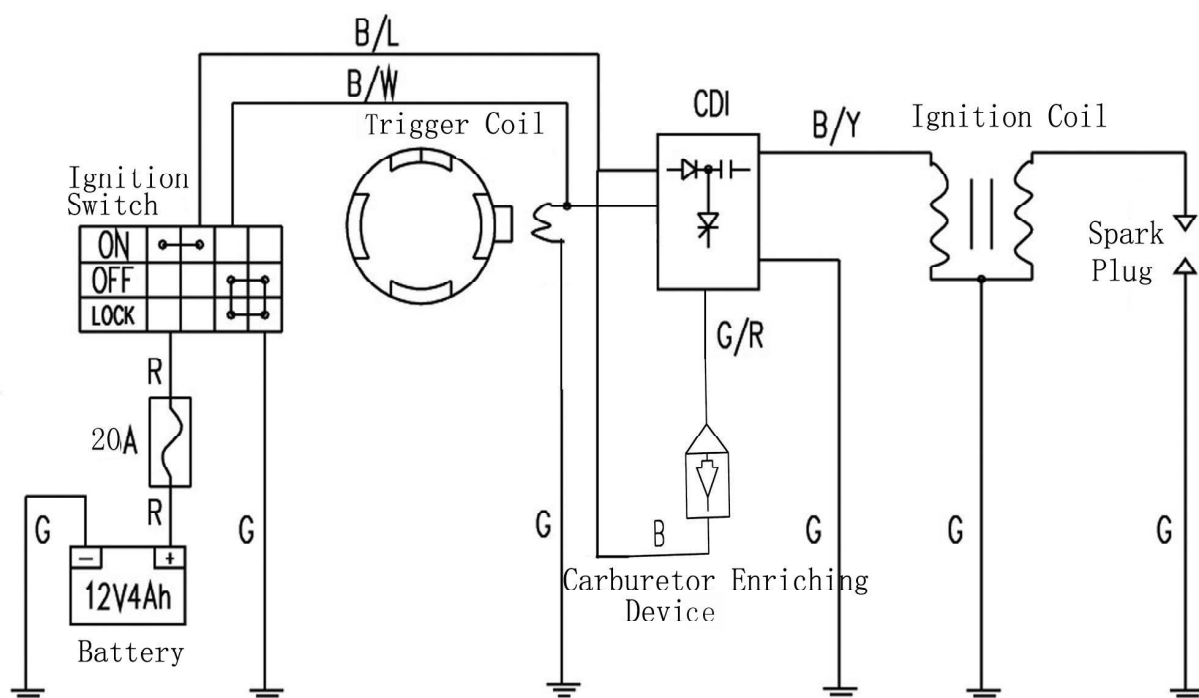
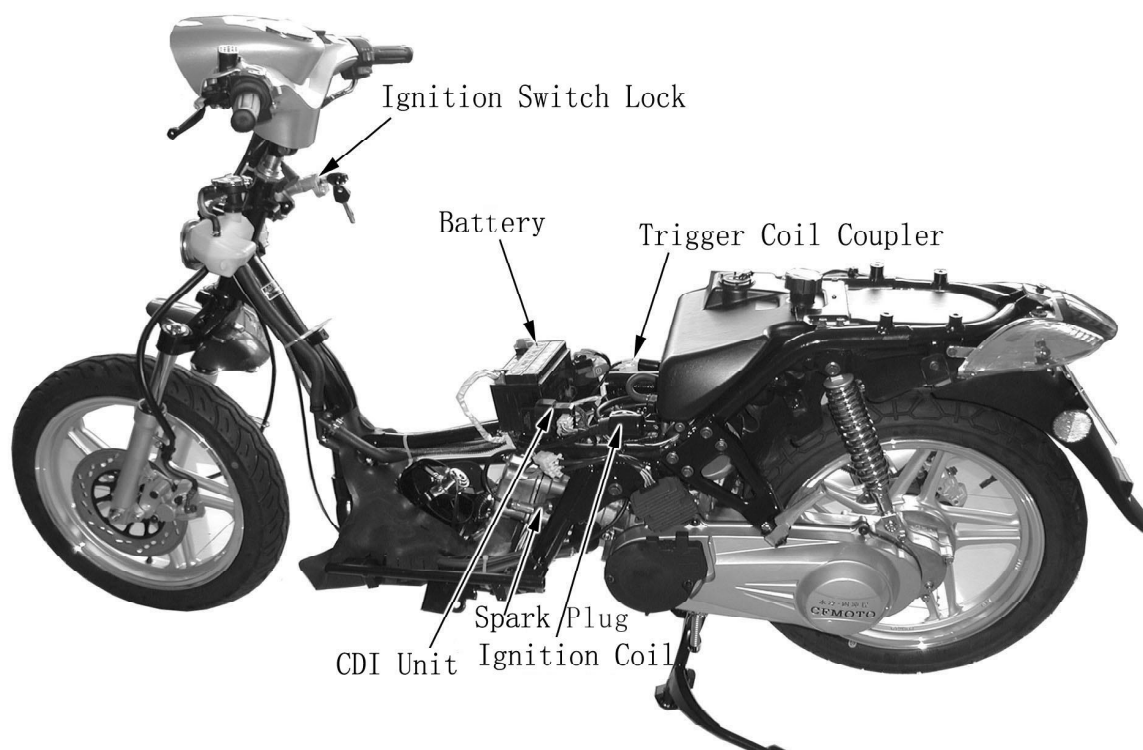
Screw

Installation

Reverse the removal procedure for installation.

Notes

Routing of wires, pipes and cables should pass properly (1-20).



7 Electrical start ignition Overriding clutch

Maintenance information	17-1	Starter relay	17-2
Troubleshooting	17-1	Starting motor comp	17-2
		Overriding clutch	17-5

Maintenance information

Notice:

- Bundle the wires of the same color. Wires of different colors should be connected with the wires of the same color. Set colored sleeve at the connection part. Connectors should be connected with couplers of the same colors.

Maintenance Standard

Item	Standard	Service Limit
Brush length	10mm	7mm

Troubleshooting

Starting motor does not run

- Insufficient charging of battery
- Faulty contact of main switch
- Faulty contact of starting switch
- Faulty starter relay
- Faulty contact of wire sleeves, couplers and terminators, and short circuit or open circuit.
- Faulty starting motor
- Melted fuse

Starting motor is too weak.

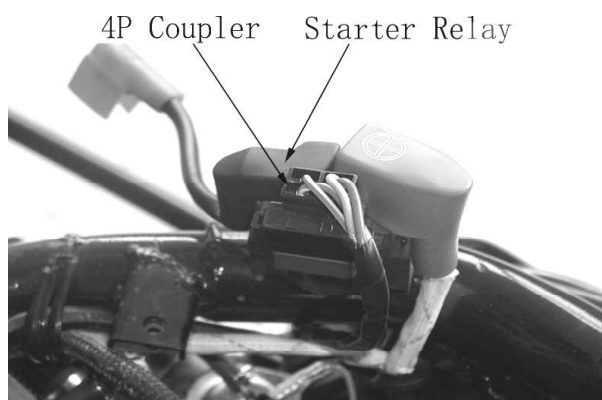
- Battery Voltage is insufficient.
- Faulty contact of wire sleeves, couplers and terminators;
- Foreign matters in the motor or starting gear.

Starter relay

Notes

- Check and confirm battery is in good status before inspection.
- In case of poor starting, check each brake switch and starter relay. (Chapter 16)

Disconnect 4P coupler of starter relay and remove starter relay.

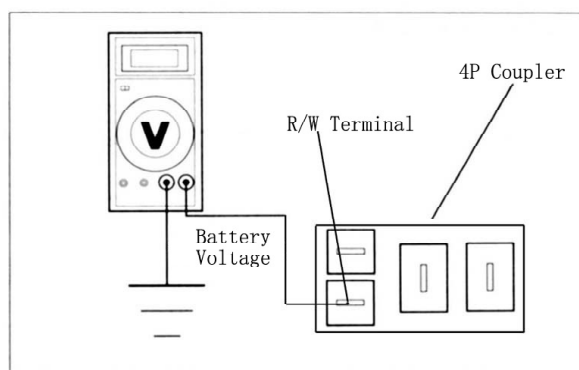


Input voltage

Keep ignition switch in the ON position.

When holding front brake or rear brake, make sure there is battery voltage between red/white (+) and frame body earthing wire.

If there are any abnormalities in the above inspection, check ignition switch, brake switch, main fuse (15A), secondary fuse (10A). If all these items are OK, replace starter relay.

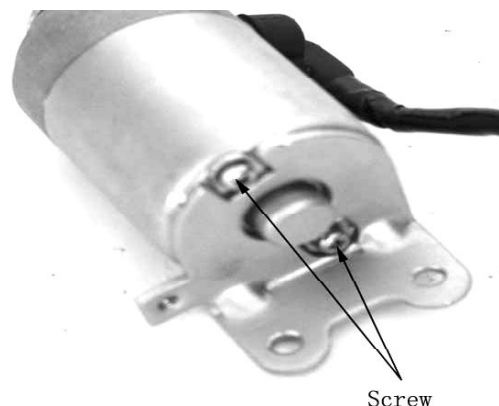
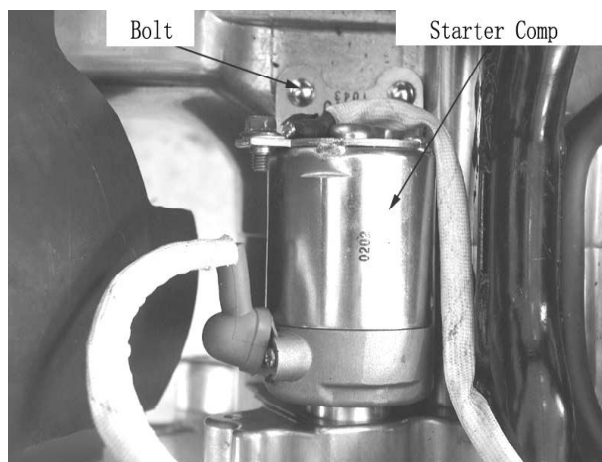


Earthing wire return circuit

Disconnect 4P coupler of starter relay and remove starter relay.

Press down starter switch to check if the green terminal of starter relay 4P coupler is well connected with frame body earth wire.

If not, check the main cable for any break or short circuit.

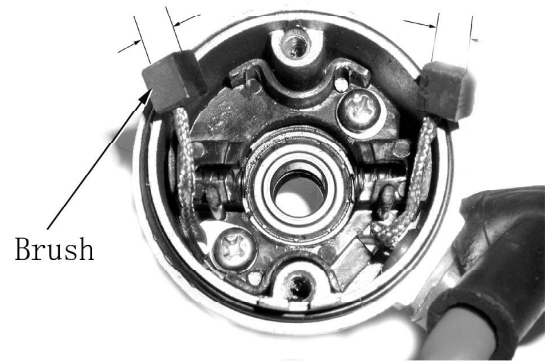


7 Electrical start ignition Overriding clutch

Inspection

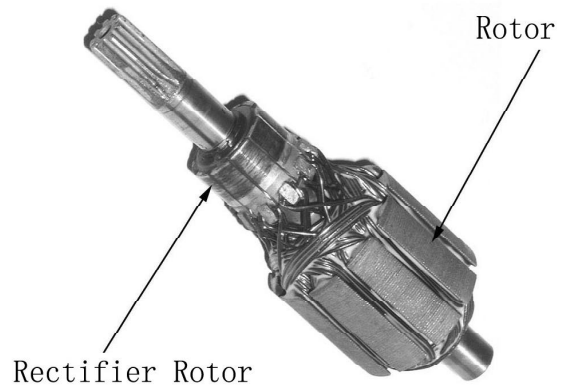
Measure length of each brush

Service Limit°Replace if the brush less than 6.5mm



Check color of rectifier rotor;£

If more than two rectifier rotors have changed color£short circuit will be caused;£Replace them;£



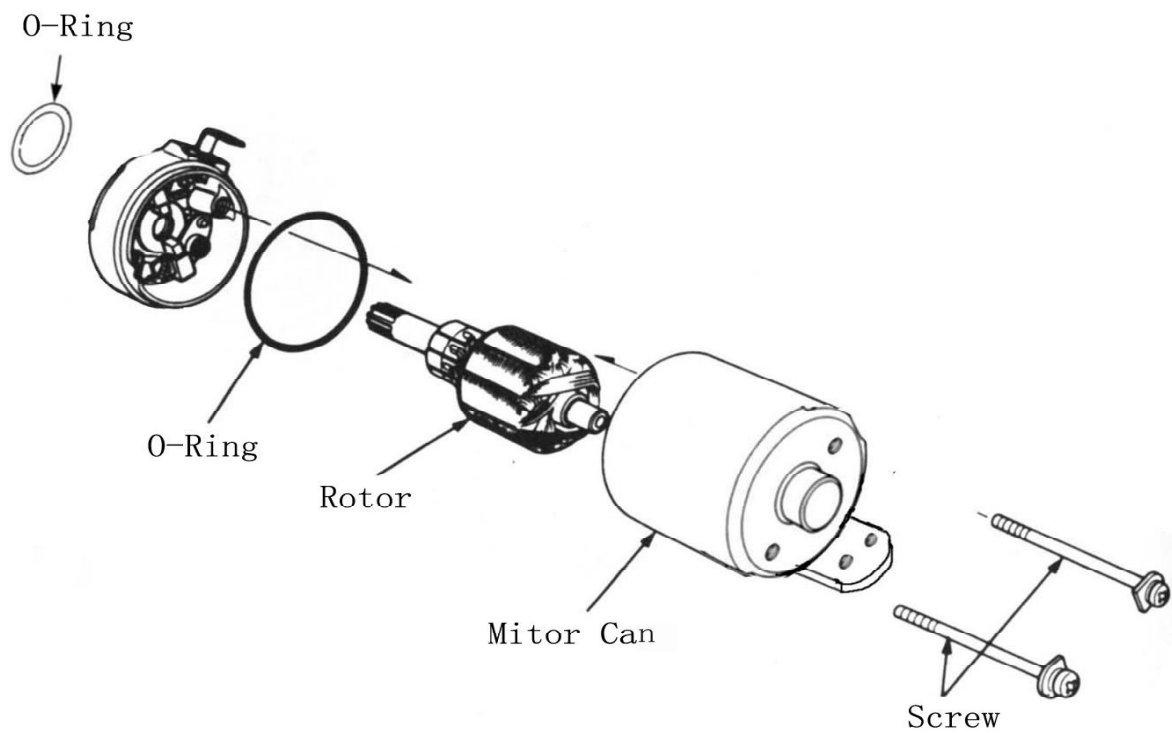
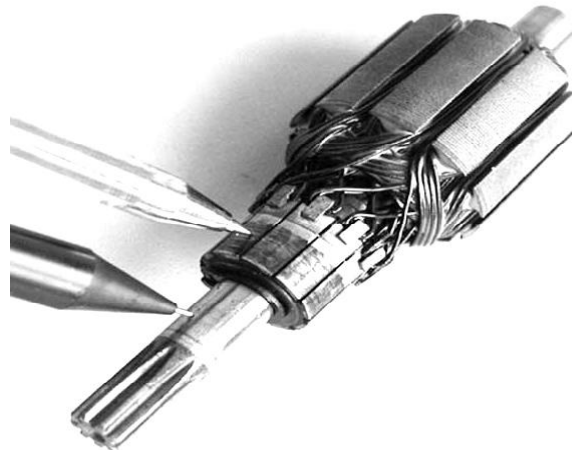
Make sure rectifier rotors are well connected.



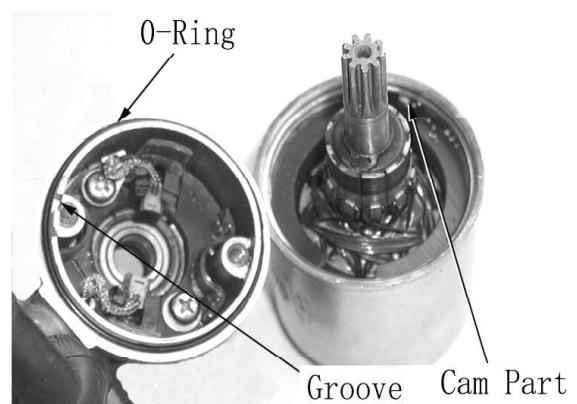
CFMOTO

Make sure the rotor shaft is not conducted with each rectifier rotor.

Installation



Set O-ring in the groove of starter motor
Apply some grease on the O-ring.



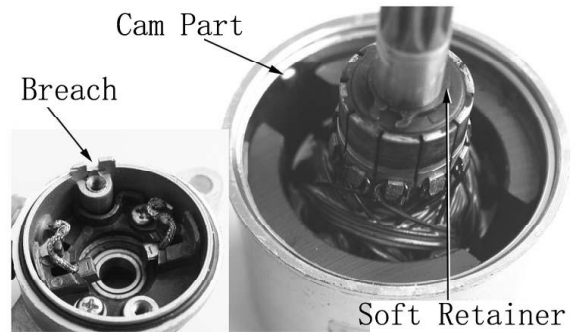
7 Electrical start ignition Overriding clutch

Apply some lubricant on bearing part of rotor' two ends. Install rotor into case of starter motor.

Press brush into the brush holder, while install brush holder on the rectifier.

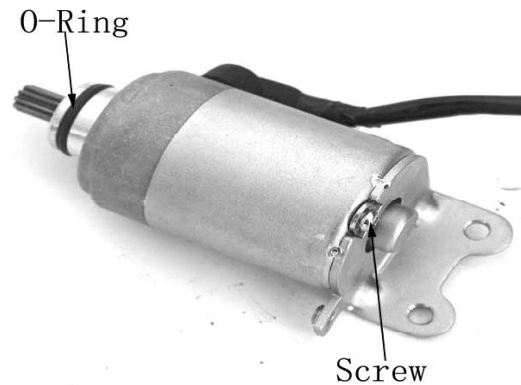
Align the cam part of motor case with groove of motor holder.

Install motor holder in the case.



Tighten the bolt.

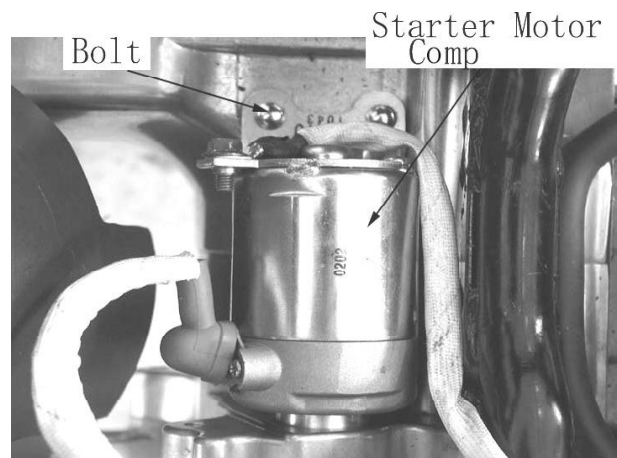
Set O-ring seal into the groove of motor positioning cam shoulder.



Installation

Notes

Connect the wire and confirm the rotating direction before installing the starter motor on the engine. Reverse the removal procedure for installation.



17

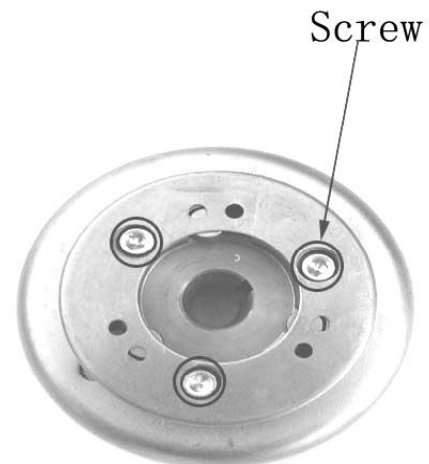
Overriding clutch

Disassembly

Remove

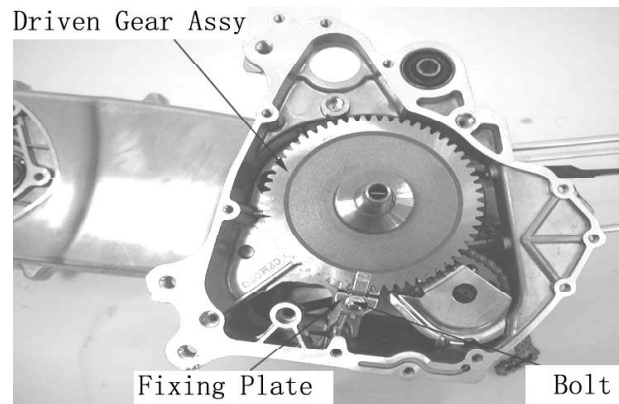
- right side cover (11-2)
- gear compound and gear compound shaft. (11-2)
- flywheel comp. (11-3)

Remove inner hex screw used for tightening of overriding clutch.



CFMOTO

Loosen bolt, remove fixing plate and driven gear comp.



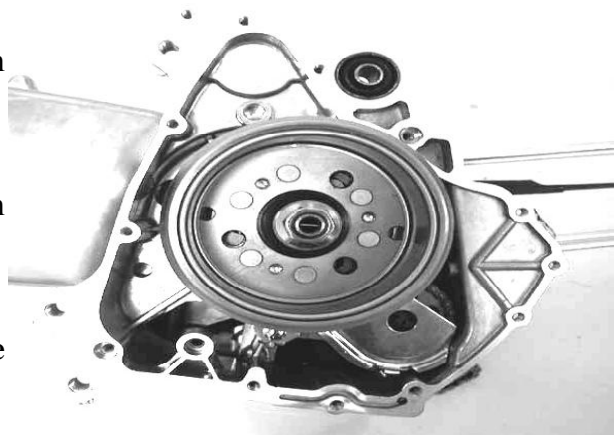
Installation

Reverse the disassembly procedure for assembly.

Apply some lubricant on the gear compound shaft in the right case.

Tighten the three inner hex bolts of overriding clutch according to the specified torque.

Tightening Torque: 12-14N•m (apply some thread tightening glue)



Overhaul information	18-1	Brake light switch	18-8
Troubleshooting	18-2	Electrical horn	18-8
Bulb replacement	18-3	Odometer	18-9
Head light	18-5	Fuel sensor	18-10
Ignition switch lock	18-6	Water temperature sensor	18-12
Handlebar switch	18-7	Starting enriching device	18-13

Overhaul information

Notes on operation

Note:

- Headlight bulb has larger power and the temperature is very high when it is turned on. Do not touch it after it is just turned off. Operation should be done when the bulb is cooled down.
- Inspection of water temperature alarm indicator may use fire source and liquid of high temperature. Do not put flammable matters nearby and take care not to get burnt.
- The temperature of headlight is quite high when turned on. Replacing with bare hand or stained glove on will cause oil stains on the glass cover which may form heat points and cause deformation of glass and damage to bulb.
- Pay attention to the following points when replacing the bulb.
 - Do not replace the bulb when it is turned on. Keep ignition switch in the OFF position, and replace after the bulb is cooled down.
 - Replace the bulb with hands in clean gloves.
 - Clean the glass with a piece of clean cloth dipped in alcohol in case of any oil stains on the surface.
- If the inspection has to use battery, check first if the battery is normal.
- Test of switches can be done without removing the switches from the vehicle.
- After the inspecting and overhauling of each part, routing of cables and wires should pass through the proper positions.
- For removal and installation of taillight and rear turning lights, refer to chapter 2.

Overhaul standard

Item		Standard
Fuse	Main	20A
	secondary	2x5A 2X10A
Light, bulb	Headlight (Hi/Lo)	12V-35/35W
	Taillight/brake light	12V-21/5W
	Turning light	12V-10Wx4
	Odometer indicator	12V-1.7W
	Indicators	12V-3.4W

Troubleshooting

Head light cannot turn on

- Fuse break
- Open circuit with main cable
- Bulb burnt
- Night switch is damaged

Replacement of bulb

Head light bulb

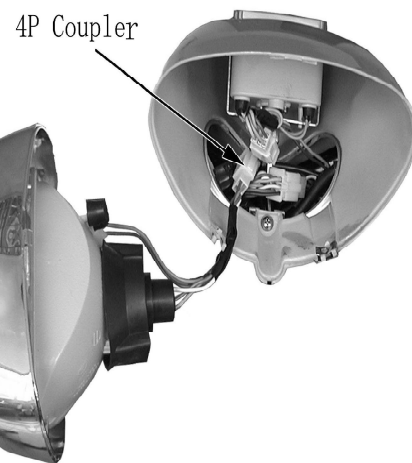
Note

Headlight bulb has larger power and the temperature is very high when it is turned on. Do not touch it after it is just turned off. Operation should be done when the bulb is cooled down.

Remove head light comp. (18-5)



Disconnect headlight 4p coupler.



Remove dust-proof cap, head light clamp, and pull out socket and replace with a new bulb.

Note

Wear clean gloves when replacing bulb. Oil stains on the glass surface may cause break of bulb. Clean the stained surface with alcohol.

Make sure that the three positioning pins of the bulb should be in line with the three positioning holes in the socket when replacing the bulb.

Bulb specification: 12V-35/35W

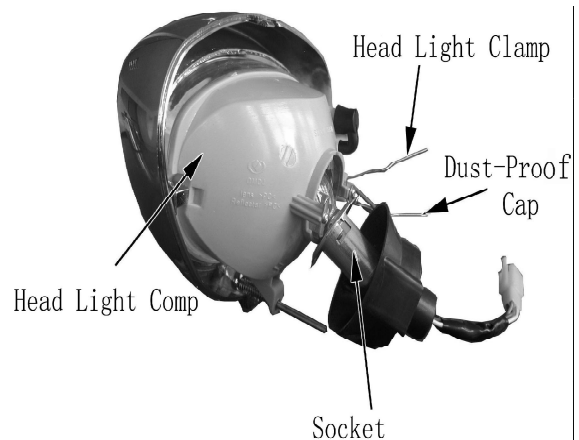
Reverse the removal procedure for installation. After replacing the bulb, adjust head light beam. (3-19)

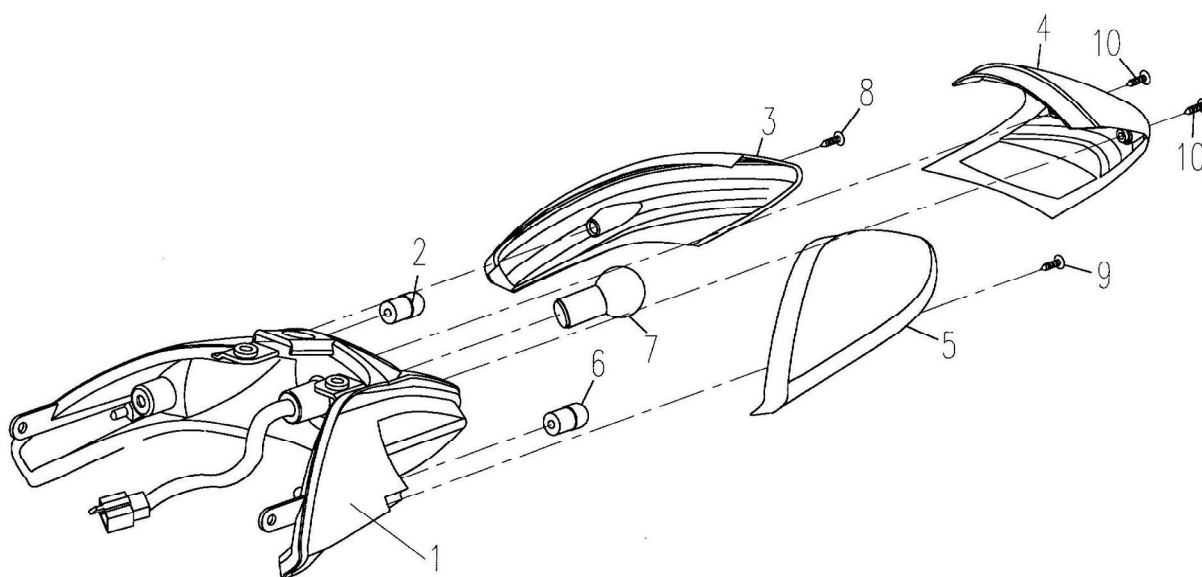
Inspection of headlight

Turn the ignition switch to ON position, turn light switch to the illuminating position and check if the headlight is on.

—ON: Normal

—Still off: Breaking or short circuit of main cable.





Brake/tail light bulb

Remove screw 10, and tail light cover 4

Rotate brake/tail light bulb 7 counterclockwise and remove it.

Replace the brake/tail light bulb.

Bulb specification: 12V-21/5W

Reverse the removal procedure for installation.

Rear turning light bulb

Remove

— screw 10

—red brake/tail light cover 4

—screw 8

—rear turning indicator (right) cover 3

Replace rear turning indicator (right) 2.

Bulb specification: 12V-10W

Replace rear turning indicator (left) 6 in the above procedure.

Bulb specification: 12V-10W

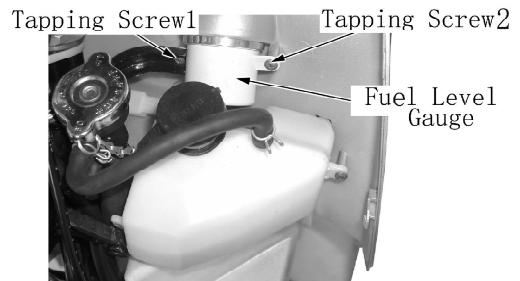
Reverse the removal procedure for installation.

Fuel level gauge illuminator light

Remove front top cover(2-9)

Remove tapping screw1 and tapping screw2
Remove fuel level gauge

Pull out socket from fuel level gauge and replace with a new bulb.

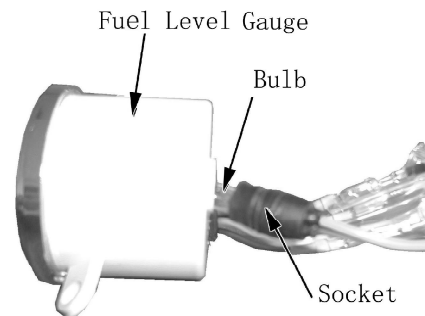


Bulb specification: 12V-1.7W

Note

Routing of wires, cables and hoses should pass properly(¡ú1-20).

Reverse the removal procedure for installation.



Odometer bulb

Remove odometer(18-9)

Remove high beam socket and replace with a new bulb.

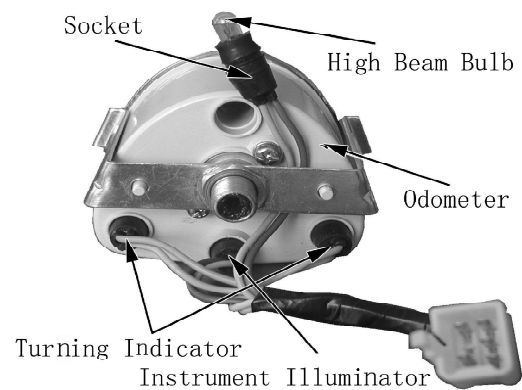
Bulb specification: 12V-3.4W

Replace the instrument illuminator light bulb and turning indicator bulbs in the same way.

Instrument illuminator light bulb specification: 12V-1.7W

Turning indicator bulb specification: 12V-3.4W

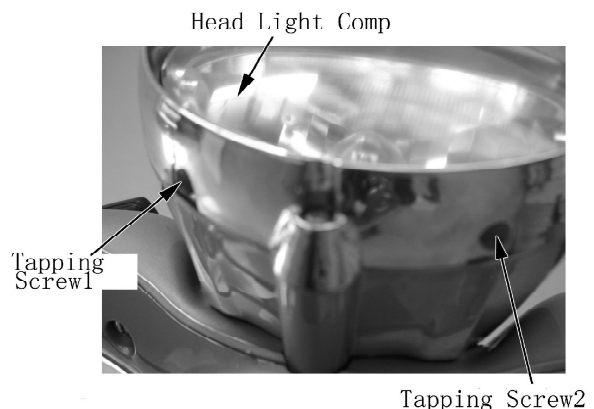
Reverse the removal procedure for installation.



Head light

Head light comp.

Remove the two tapping screws on the headlight cover and remove headlight comp.



Disconnect head light 4p coupler

Reverse the removal procedure for installation.

Note

Be careful not to damage main cable when mounting.

After replacing, adjust the headlight beam. (3-19)



Note

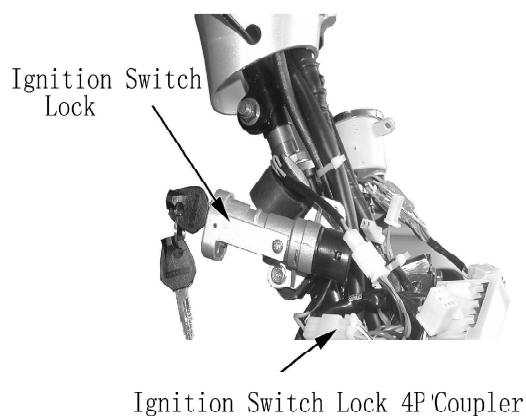
Routing of wires, cables and hoses should pass properly(1-20)

Ignition switch lock

Inspection

Remove front top cover(2-9)

Disconnect ignition switch 4p coupler.



Check the terminals between ignition switch coupler for conducting according to following table.

●-● means normal.

ON	●-●		
OFF		●-●	●-●
LOCK		●-●	●-●
	R	B	G B/W

Ignition Switch Lock



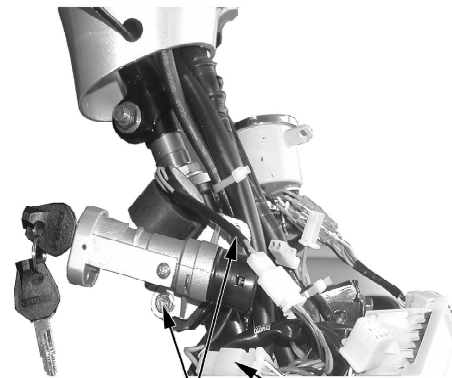
Disassembly and mounting

Remove front top cover comp. (2-9)

Disconnect ignition switch 4p coupler

Loosen bolt and remove ignition switch lock.

Reverse the removal procedure for installation.



Bolt Ignition Switch 4P Coupler

Handlebar switch

Remove head light comp. (18-5)

Remove handlebar upper cover(13-10)

Disconnect left and right handlebar switch couplers;

Check the terminals between control switch coupler for conducting according to following tables.

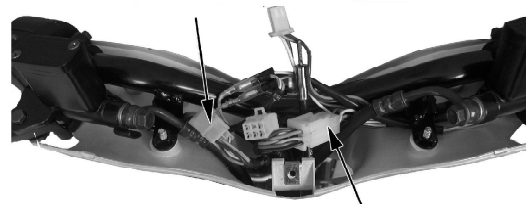
Means normal

Illuminating switch

●	●-●	●-●	●-●
●	●-●		
●			
	W/L		



Left Handlebar Switch Coupler

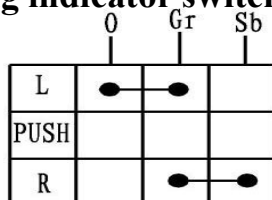


Right Handlebar Switch Coupler

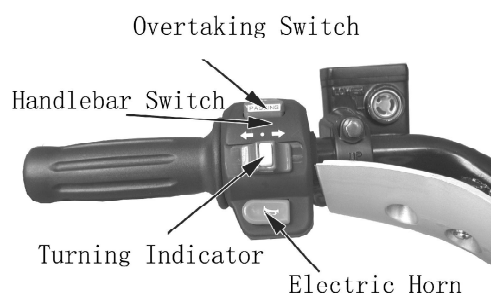
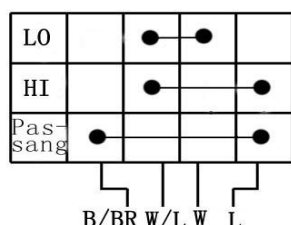
Electrical starting switch

OFF		
ON	●-●	
	Y/R	G/Y

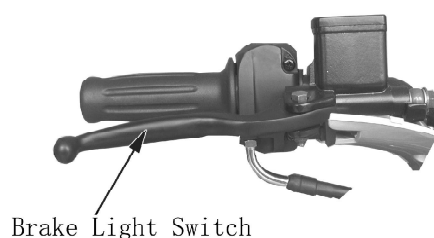
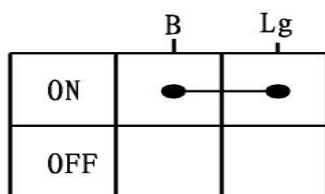
Turning indicator switch



Overtaking switch



Electric horn switch



If inspection of above items have any problems, replace the handlebar switch.

Brake light switch

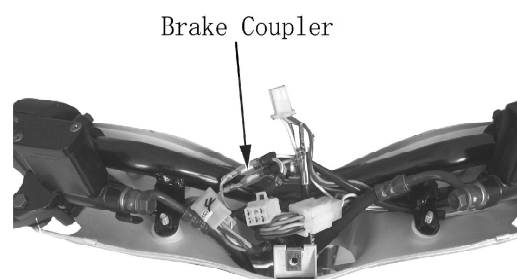
Remove head light comp. (18-5)

Remove handlebar upper cover(13-10)

Disconnect brake light switch coupler and check coupler terminals for conducting.

Check if the brake light is connected when holding the brake handle and the brake light is not connected when releasing brake handle.

In case of any problems found, replace with a new brake light switch.



Electric horn

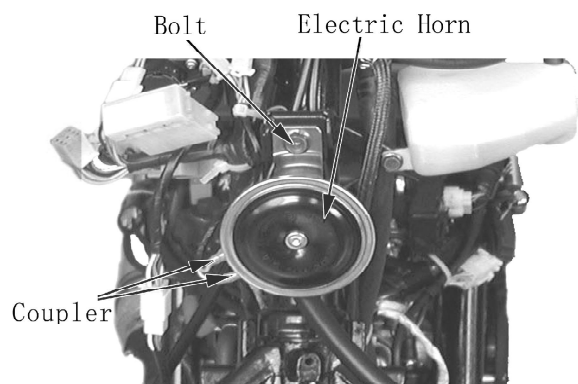
Inspection

Remove front top cover.(2-8)

Disconnect electric horn

Connect fully charged 12V battery and check if the horn sounds.

Replace with a new one if the horn does not work.

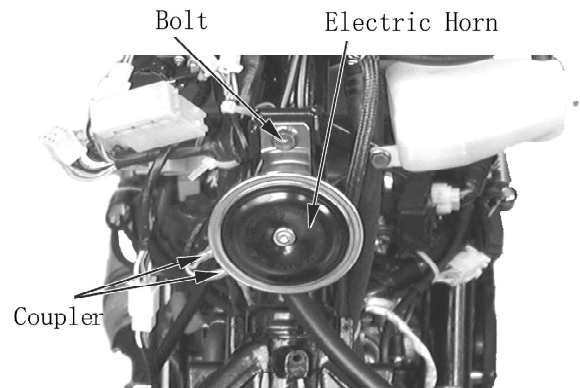


Removal and installation

Disconnect electronic horn coupler.

Remove mounting bolt horn.

Reverse the removal procedure for installation.



Odometer

Note

Check if odometer flexible shaft is broken or loosen.

Securely lift the front wheel with repairing bracket.

Rotate front wheel quickly and check if the odometer pointer turns.

Replace with a new one in case of any problems.

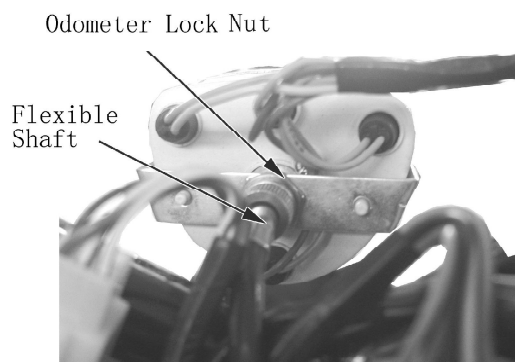
Removal and installation

Remove head light comp. (18-5)

Disconnect odometer cable coupler and remove flexible shaft.

Remove odometer locknut, and remove odometer from head light rear cover.

Reverse the removal procedure for installation.



Note

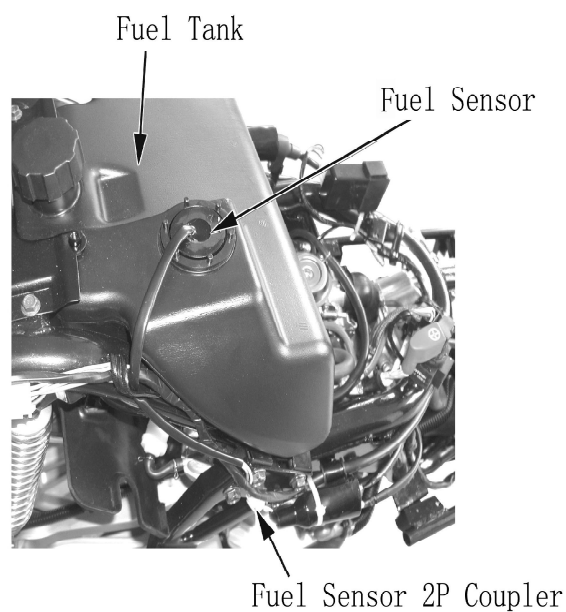
Routing of wires, cables and hoses should pass properly.

Fuel sensorDisassembly

Remove:

- small seat(2-2)
- middle side panel(2-4)
- rear carrier(2-4)
- left side panel(2-5)
- right side panel(2-6)
- seat box with big seat comp(2-3)

Disconnect fuel sensor 2p coupler.



Pry fuel sensor from fuel tank with a flat screwdriver.

Inspection

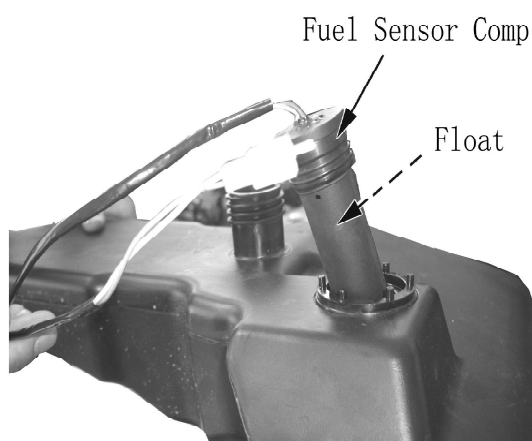
Remove fuel sensor (refer to above steps)

Connect fuel sensor 2p coupler

Turn ignition switch to ON

Rock the fuel sensor float, check if the float position conforms to the scale on the fuel level gauge.

If the float position does not conform to the scale, check main cable for breaking or short circuit, if the main cable is normal, check fuel sensor and fuel level gauge.



Remove fuel sensor 2p coupler

Connect universal meter between fuel sensor 2p coupler terminals.

Rock fuel sensor float with hand, and measure resistance of each position.

Connection terminal: yellow/white-green

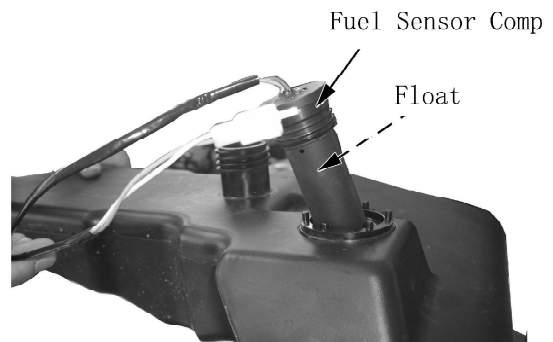
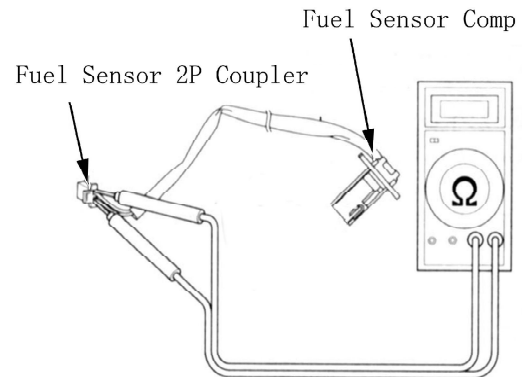
Float position: up: $10 \pm 2 \Omega$ (20°C)

Down: $90 \pm 4 \Omega$ below(20°C)

Replace the fuel sensor in case of any problems found.

Installation

Press fuel sensor into fuel tank installation hole, install it properly and there should be no fuel leakage or seepage.

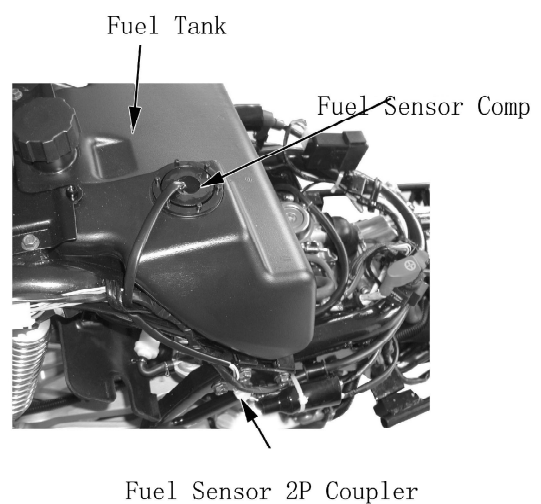


Connect fuel sensor 2p coupler.

Inspection of fuel level gauge

Switch on power supply, check if fuel level gauge performs normally.

If fuel level gauge works normally, reverse the removal procedure for installation of plastic parts and seats.



Water temperature sensor

Warning:

Be careful not to get scalded and do not place flammables nearby.

Note

Coolant must reach the switch thread, and the depth from vessel bottom to sensor top should be over 40mm.

Keep liquid temperature for three minutes before measuring, and do not raise temperature sharply. The thermometer should not contact the vessel bottom.

Disassembly

- small seat(2-2)
- seat box with big seat comp(2-3)
- middle panel(2-4)
- rear carrier(2-4)
- left side panel(2-5)
- right side panel(2-6)

Drain coolant(6-4)

Disconnect water temperature sensor coupler and remove water temperature sensor.

Put the sensor into vessel with coolant, and raise coolant temperature slowly, and check the thermostatic valve for opening or close.

$118^{\circ}\text{C} \pm 2^{\circ}\text{C}$ open

$\geq 112^{\circ}\text{C}$ close

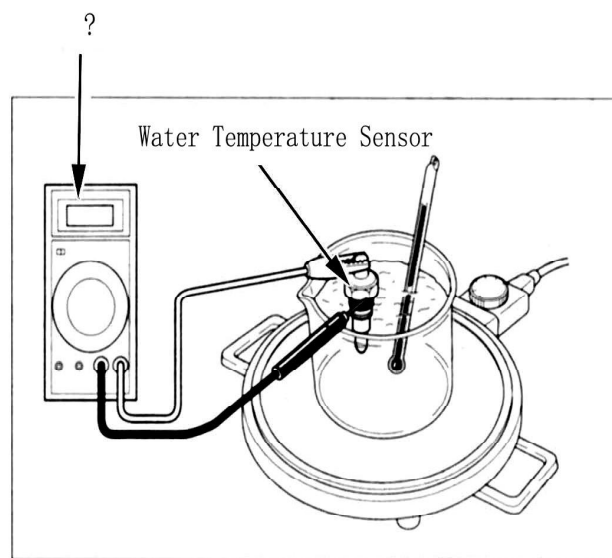
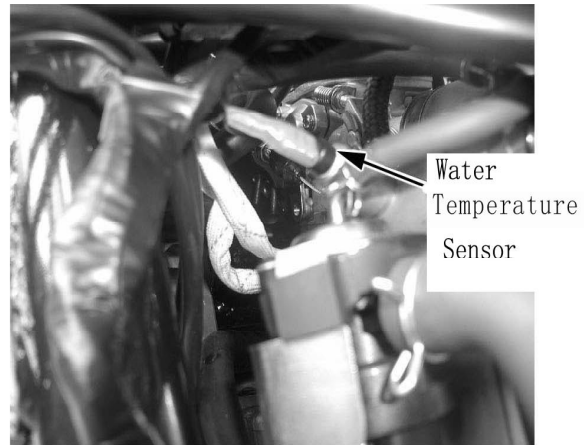
Replace water temperature sensor if it is out of specification.

Install water temperature sensor

Connect water temperature sensor coupler

Fill coolant and remove air.

Reverse the removal procedure for installation of plastic parts and seats.



Starting enriching device

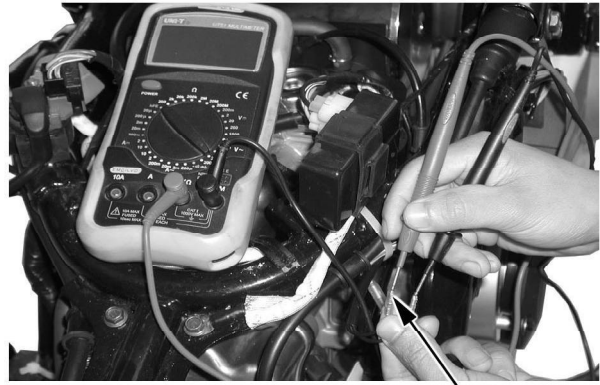
System inspection

Note

Exhaust contains toxic contents. Do not run the engine for a long time in a closed or poorly ventilated place.

Note

Inspection should be done after the engine is cooled down.



2P Coupler Loop

Unit inspection

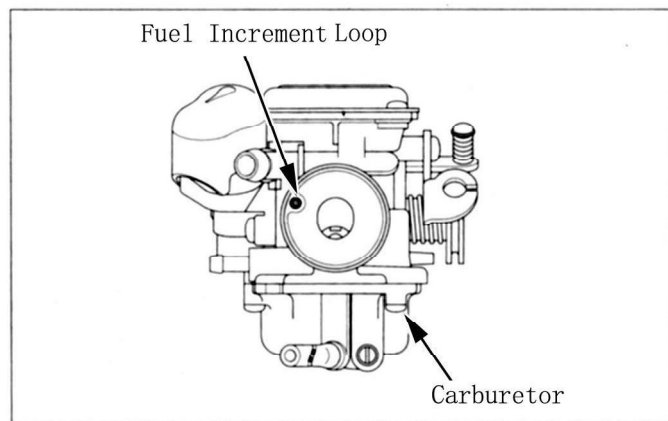
Inspection of Resistance

The inspection of resistance can be done without removing the carburetor.

Disconnect 2P coupler of starting enriching device.

Measure resistance between coupler terminals

Standard value: 19.5-21.5 Ω (20°C)



Inspection

Remove carburetor(5-3)

Connect ethylene pipe etc. to fuel increment loop

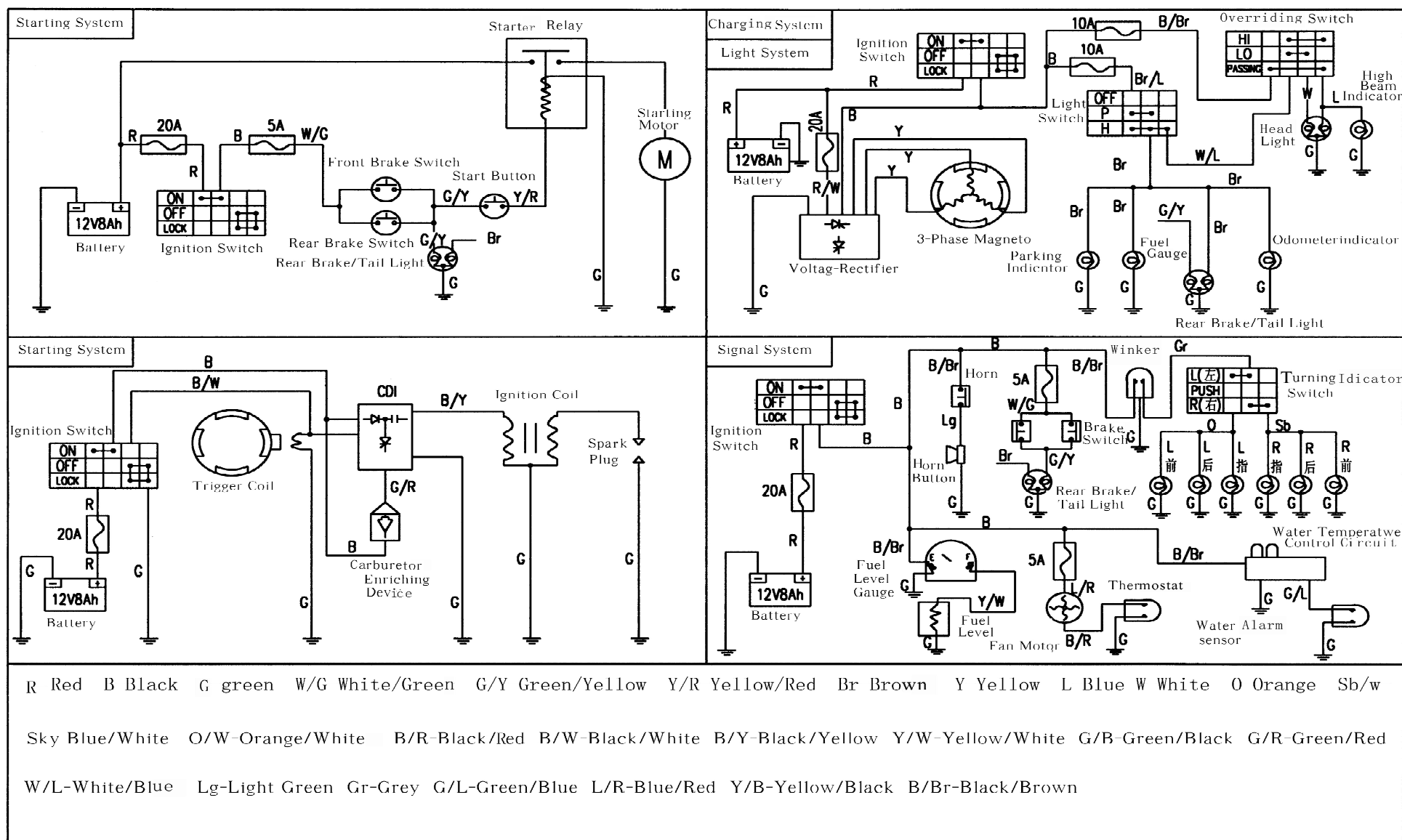
Check that when the carburetor is cold, there is air current in the carburetor when blowing. The fuel increment loop is fully open.

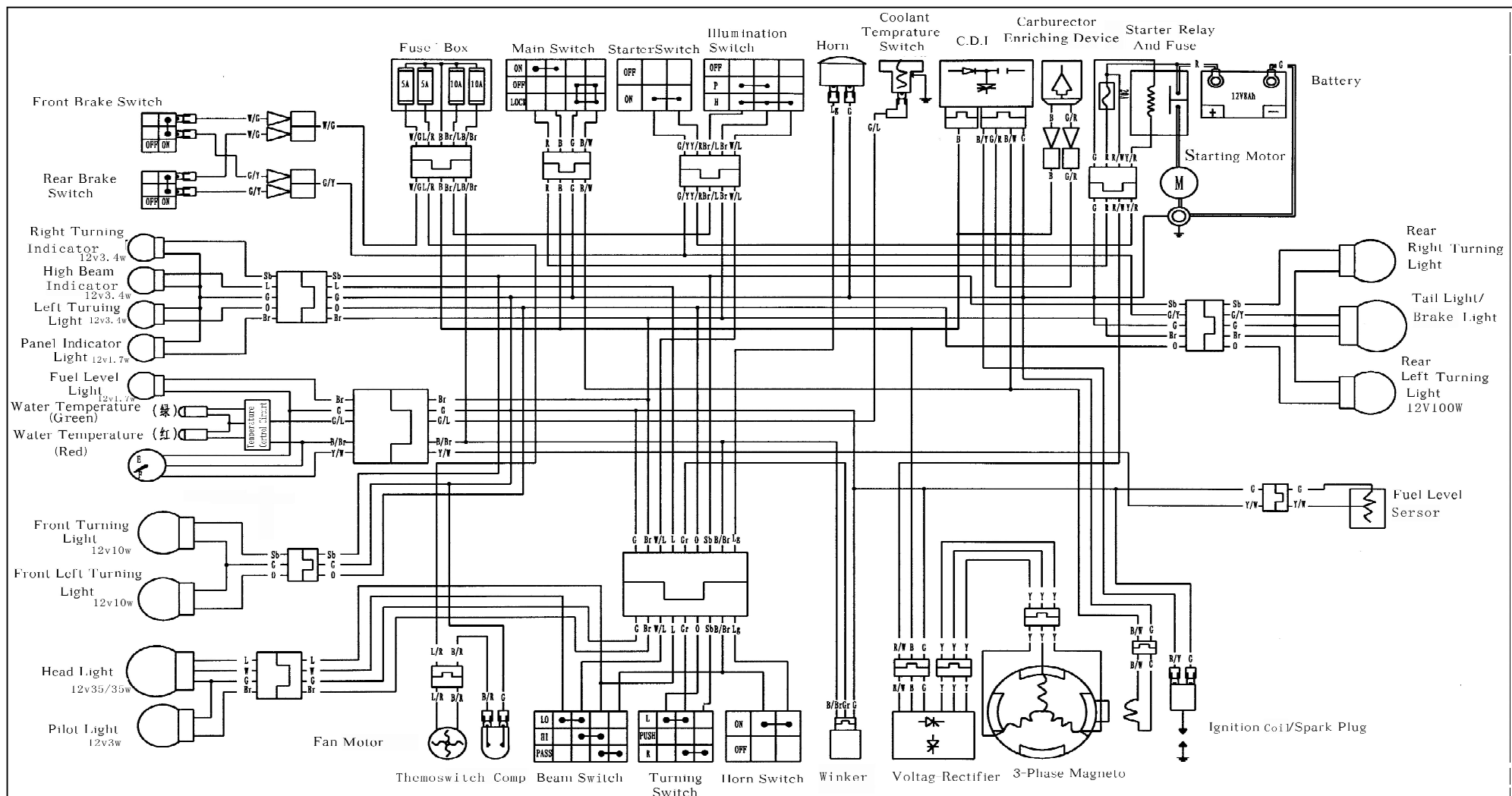
Connect the fully charged battery between coupler terminals for 5 minutes.

There isn't air current in the carburetor when blowing

The fuel increment loop is fully closed.

If any fault found in the above inspection, replace the starting enriching device or check the carburetor for blockage. (5-4)





R-Red B-Black G-green W/G-White/Green G/Y-Green/Yellow Y/R-Yellow/Red Br-Bronwr Y-Yellow L-Blue W-White O-Orange Sb/w-

Sky Blue/White O/W-Orange/White B/R-Black/Red B/W-Black/White B/Y-Black/Yellow Y/W-Yellow/White G/B-Green/Black G/R-Green/Red

W/L-White/Blue Lg-Light Green Gr-Grey G/L-Green/Blue L/R-Blue/Red Y/B-Yellow/Black B/Br-Black/Brown

Operation notice.....	20-1
Starting failure/Hard starting.....	20-1
Unstable engine running or engine stops.....	20-3
Poor engine performance in high-speed range.....	20-4
Poor idle speed performance.....	20-5
Poor engine performance at middle or high speed.....	20-7

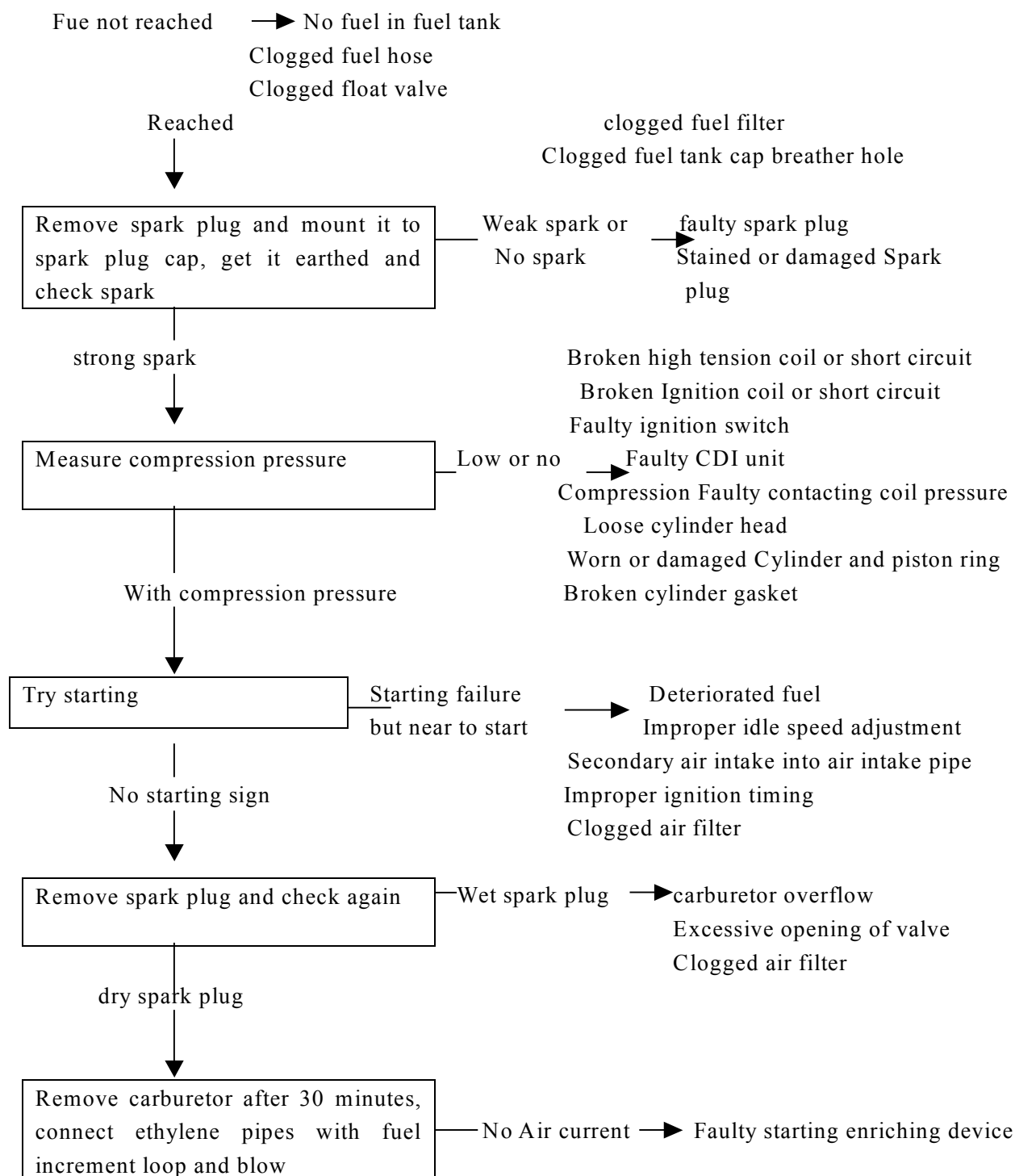
Operating notice

This chapter is a general explanation of major troubleshooting of the whole engine.

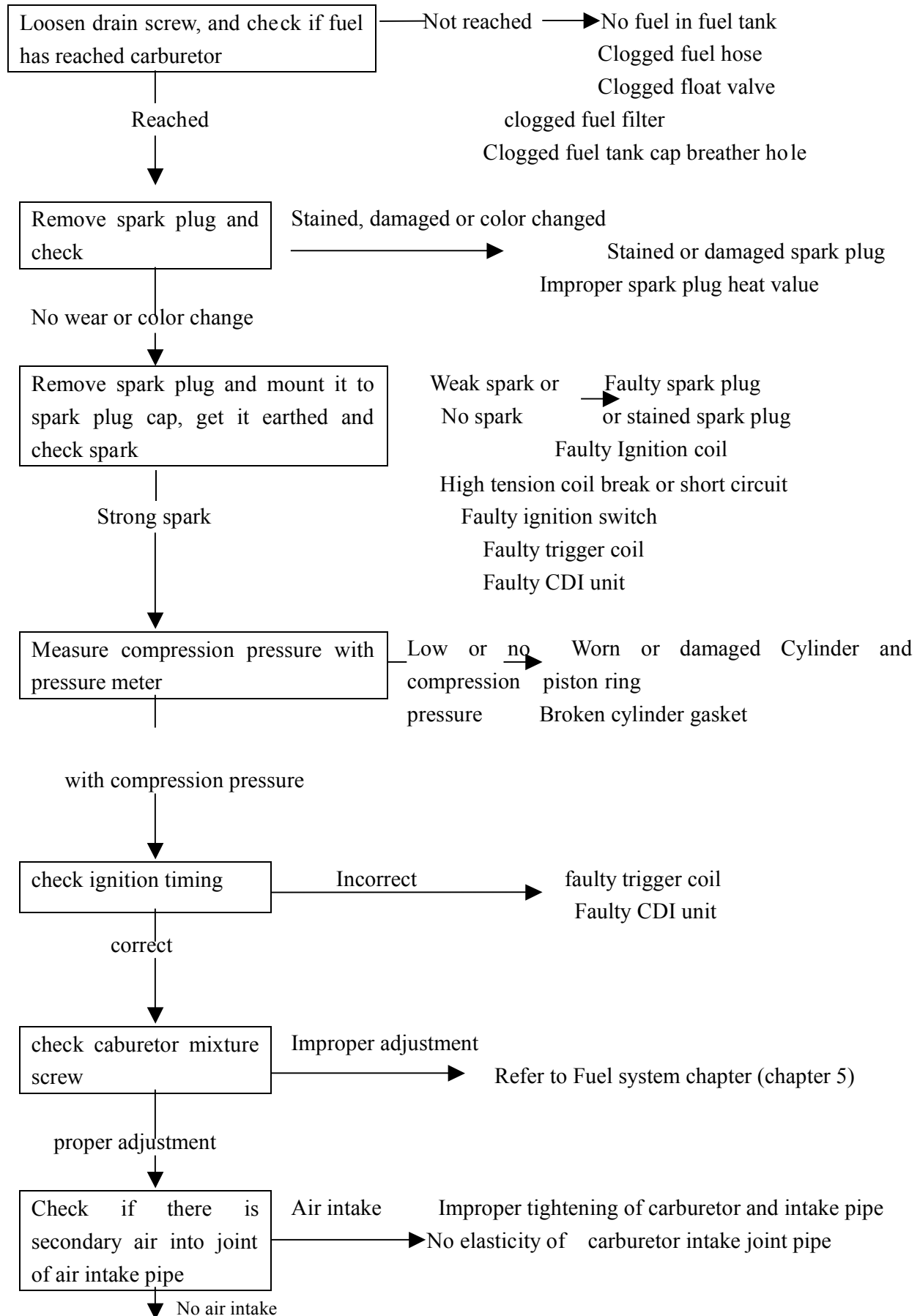
Refer to the relevant chapters for troubleshooting not listed in this chapter.

Starting failure/hard starting

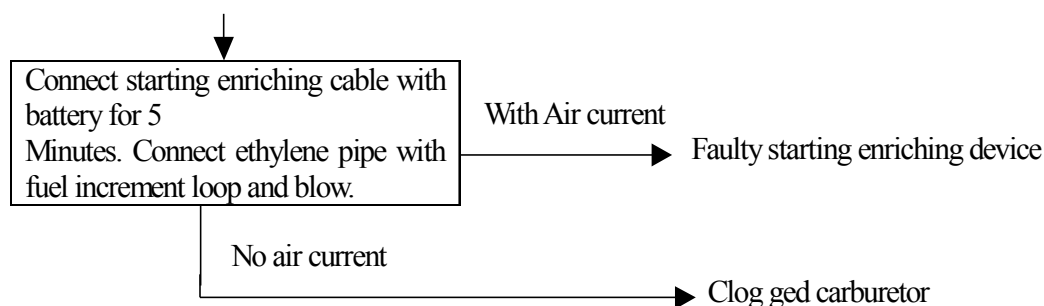
In case of starting failure or hard starting, refer to chapter 17 and check the starting system.



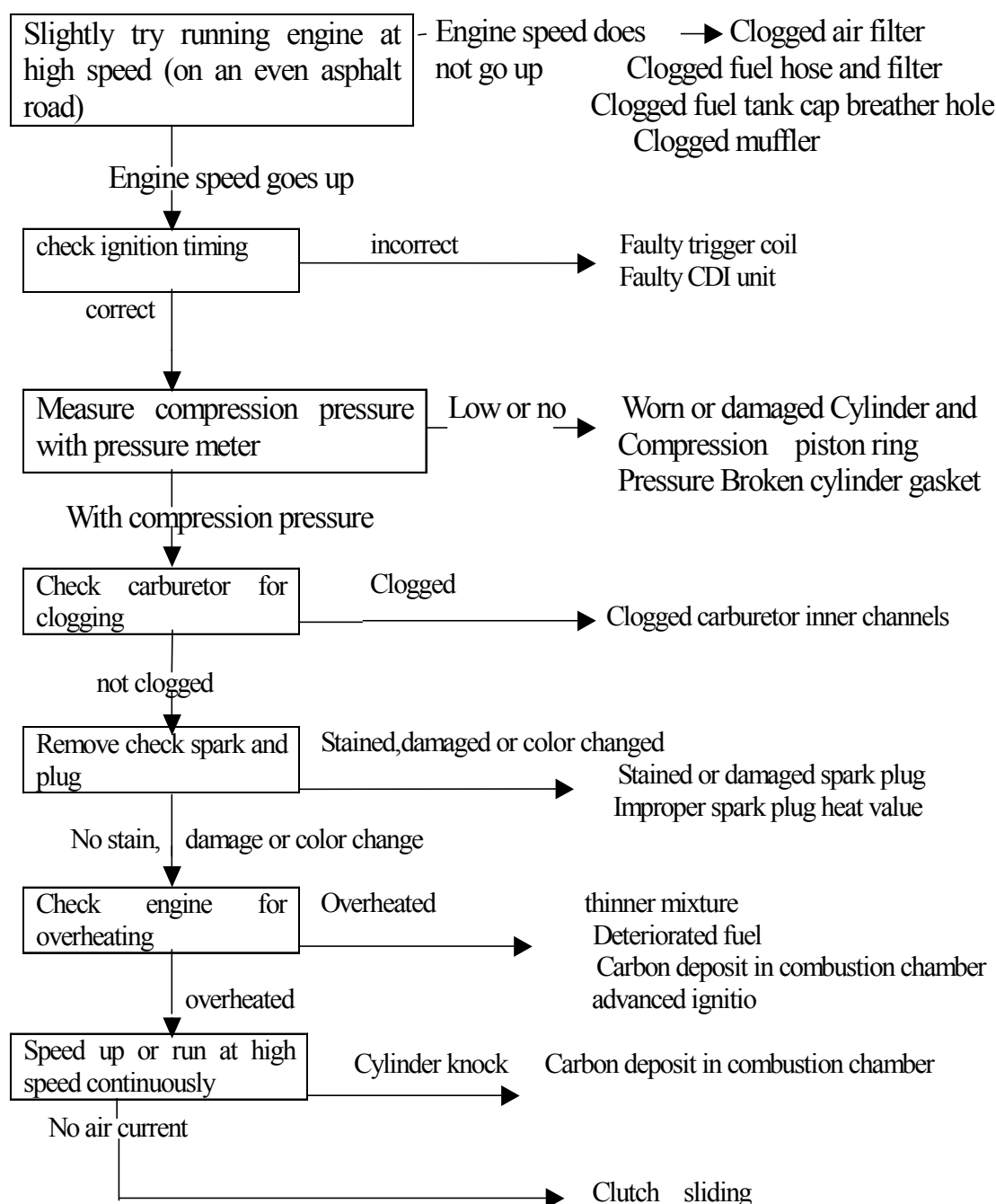
Unstable engine running or engine stops



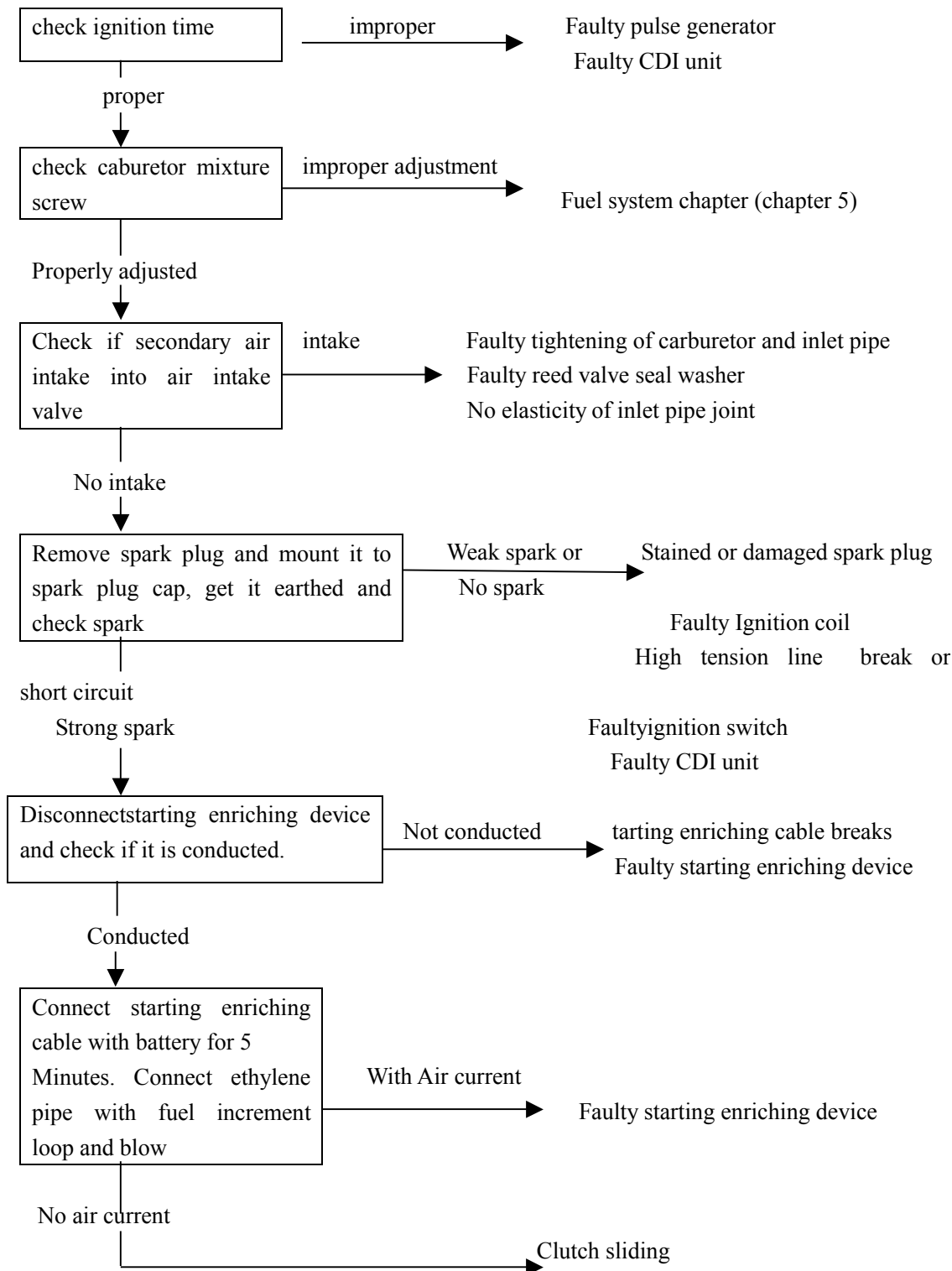
(20 — 2)



Poor engine performance in high-speed range



Idle speed performance



Poor engine performance at middle or high speed

