SERIVCE MANUAL 2004

PA 100 / 125

PREFACE

This manual offers all service specialists with the technological procedures of maintenance, repairing for PA-100 / PA125 detailedly show those whom may concern how to maintain, repair, change parts, troubleshoot and reassemble, etc.

At every important section we illustrate by assembly, explosion diagrams and photographs, if necessary, please check the diagrams already shown.

Though we have tried our best, please kindly instruct us any faults found in this manual.

MOTIVE POWER INDUSTRY CO., LTD.

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1. **Specification**	**•Chassis steel pipe**
	•Suspension
•Name PA-100	**front: telescopic**
•Model PA-100	**rear: 4-bar linkage,**
•Dimension	**uni-absorber**
Overall length:**1780mm**	**•Transmission**
Overall width: 645mm	**primary reduction :direct drive**
Overall height:**1060mm**	**second reduction:43/15*42/13**
Overall base: **1210mm**	**clutch type: centrifugal dry type**
•Weight	selector : V belt ,C.V.T.
Total net weight: **98kg**	•Wheel
front: **35kg**	**front: 3.5-10**
rear: **63kg**	**rear: 3.5-10**
Carrying capacity:	•Tire
2 passengers:150kg	
Total weight:**208kg**	**front 1.50kg/cm2**
Front: **61kg**	**rear 1.75kg/cm2**
Rear: **147kg**	•Brake
•Performance	**front: 190mm hydraulic**
Fuel consumption: 45km/L	**disk brake**
	rear: drum brake
•Gradient ability:19	**•Speedometer 130km/hr**
•Engine	•Lamp
Model: **C3**	**front: 12V-35W/30W*1**
Fuel: unleaded or leaded	
Cooling system: forced air cooling	
by fan	**license plate: 12V-5WX1**
	brake lamp: 12v-21W/5W X 1
Cylinder	**signal lamp : 12V-10W X 4**
bore: 51.5mm	**•Horn AC12V**
stroke: 48.5mm	**•Silencer: diffusible absorption**
number 1	**closed type**
Arrangement: horizontal	
Displacement: 101.0cc	Trail: 71mm
Compression ration 8.7:1	Front wheel travel: 55.5 mm
Ignition: CDI	Rear wheel travel: 61 mm
Start: kick or electric start	
Lubrication: pressuring and spraying	

1. **Specification**	**•Chassis steel pipe**
	•Suspension
•Name PA-125	**front: telescopic**
•Model PA-125	**rear: 4-bar linkage,**
•Dimension	**uni-absorber**
Overall length:**1780mm**	**•Transmission**
Overall width: 645mm	**primary reduction :direct drive**
Overall height:**1060mm**	**second reduction:42/15*42/13**
Overall base: **1210mm**	**clutch type: centrifugal dry type**
•Weight	selector : V belt ,C.V.T.
Total net weight: **101kg**	•Wheel
front: **35kg**	**front: 3.5-10**
rear: **64kg**	**rear: 3.5-10**
Carrying capacity:	•Tire
2 passengers:150kg	
Total weight:**211kg**	**front 1.50kg/cm2**
Front: **62kg**	**rear 1.75kg/cm2**
Rear: **149kg**	•Brake
•Performance	**front: 190mm hydraulic**
Fuel consumption: 42km/L	**disk brake**
	rear: drum brake
•Gradient ability:22	**•Speedometer 130km/hr**
•Engine	•Lamp
Model: **C2**	**front: 12V-35W/30W*1**
Fuel: unleaded or leaded	
Cooling system: forced air cooling	
by fan	**license plate: 12V-5WX1**
	brake lamp: 12v-21W/5W X 1
Cylinder	**signal lamp : 12V-10W X 4**
bore: 51.5mm	**•Horn AC12V**
stroke: 60.0mm	**•Silencer: diffusible absorption**
number 1	**closed type**
Arrangement: horizontal	
Displacement: 124.9cc	Trail: 71mm
Compression ration 9.2:1	Front wheel travel: 55.5 mm
Ignition: CDI	Rear wheel travel: 61 mm
Start: kick or electric start	
Lubrication: pressuring and spraying	

2. Service information:

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b. For chassis
c. Others
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a. For engine
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(5)Troubleshooting
1. Hard starting or no starting
2. Not smooth rotation(weak acceleration; inefficient horse)
3. Engine running not smoothly(low speed)
4. Engine running not smoothly(high speed)
5. Charging abnormal(battery over charging or over discharging)
6. No Sparking, spark plug

(1) The operation notice:

1. Always replace gasket, O ring, cotter, pins and clip whenever reassembled.
2. When tighten screws or nuts, lock tightly as per specified locking torque, and in the sequence of cross direction.
3. Use PGO, or PGO Recommended parts.
4. After dismantling please wash all parts necessary for checking and grease all contact surface when reassembling.
5. Use grease recommended by P.G.O.
6. When removing battery, please dismantle the negative pole (-) first, when assembling please connect positive pole (+) first.
6. Before installing a new fuse, confirm the specification is correct or not.
7. After reassembling, please re-check that all connecting point, locking parts, circuits, polar characteristics are good, before selling out.

(2) TORQUE VALUE

1. Engine:

NO	Locking location	Q'TY	Thread dia. (mm)	Locking torque (kg-m)	Remark
1	Cylinder head bolt A (intake)	2	6	0.9~1.1	
2	Cylinder head bolt B (Exhaust)	2	8	2.2	
3	Cap, oil filter graze	1	30	1.5~2.0	
4	Flange nut, cam shaft base	4	8	2.2	
5	Fixing nut, air valve adjustment	2	5	0.7	Greasing on thread
6	Guiding pin bolt, inner chain adjustment	1	6	0.9~1.1	
7	Oil bolt	1	8	1.7~2.0	
8	Fixing nut, clutch outer	1	12	5.0~6.0	
9	Nut, driven plate	1	12	5.0~6.0	
10	Nut, driving plate	1	12	5.0~6.0	
11	Spark plug	1	10	1.2~1.3	
12	Nut, drive clutch	1	22	9.0~10.0	Left thread
13	Screw, inner chain adjuster	1	6	0.4~0.6	

2. Chassis:

NO	Locking location	Q'TY	Thread dia. (mm)	Locking torque (kg-m)	Remark
1	Locking nut, steering stem	1	10	4.5	
2	Front axle nut	1	12	4.5 ~ 5.5	U type nut
3	Rear axle nut	1	16	11~ 13	U type nut
4	Rear shock absorber bolt(upper)	1	10	4.0	
5	Rear shock absorber bolt(lower)	1	8	2.4 ~ 3.0	
6	Front brake caliper bolt	2	8	2.0 ~ 3.0	
7	Chassis bolt, engine hanger bracket	2	10	3.5 ~ 4.5	
8	Engine bolt, engine hanger bracket	1	10	3.0 ~ 4.0	
9	Brake hose bolt	2	10	3.0 ~ 3.5	
10	Air release valve	1	6	0.6	
11	Front drum brake arm bolt	1	6	1.0	
12	Rear drum brake arm bolt	1	6	1.0	

3.Other parts please refer the following table:

Standard torque values:

NO	Item	Torque (kgf-m)
1	5mm bolt and nut	0.45-0.6
2	6mm bolt and nut	0.8-1.2
3	8mm bolt and nut	1.8-2.5
4	10mm bolt and nut	3.4-4.0
5	12mm bolt and nut	5.0-6.0
6	5mm screw	0.35-0.5
7	6mm screw	0.7-1.1
8	6mm flange bolt and screw	1.0-1.4
9	7mm flange bolt and screw	1.0-1.4
10	8mm flange bolt and screw	2.0-3.0
11	10mm flange bolt and screw	3.0-4.0

(3)Lubrication instruction:

A. Engine

NO	Lubrication location	Oil type	Remarks
1	crankcase:rotating part, sliding part	premium 4 stroke motorcycle oil or SAE15W40	Auto-separated Lubrication Total 900 c.c. Replacement 800c.c
2	cylinder:rotating part, sliding part.		
3	drive gear box	SAE85-140	Total 110 c.c. Replacement 90c.c
4	gasket of starter shaft	clean grease	(#3)
5	start idle gear sliding parts	clean grease	(#3)

B.CHASSIS

Steel ball, steering





Front brake fluid

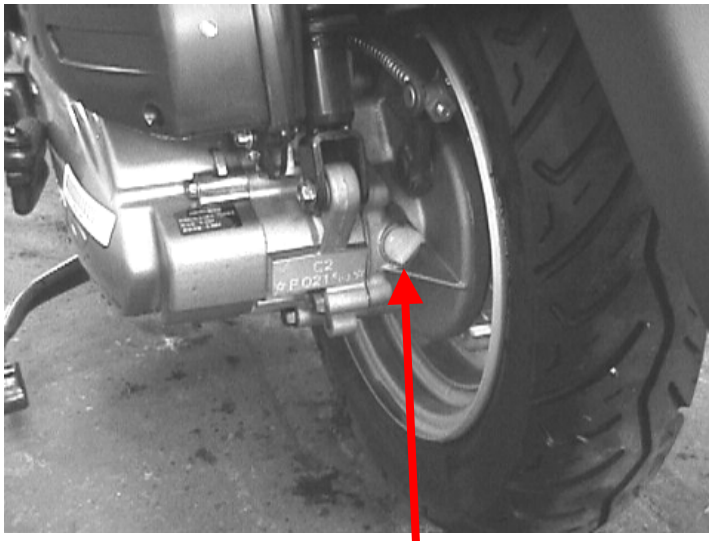


Front brake cam

C.WHEEL BEARING



Motor oil



Final transmission mechanism

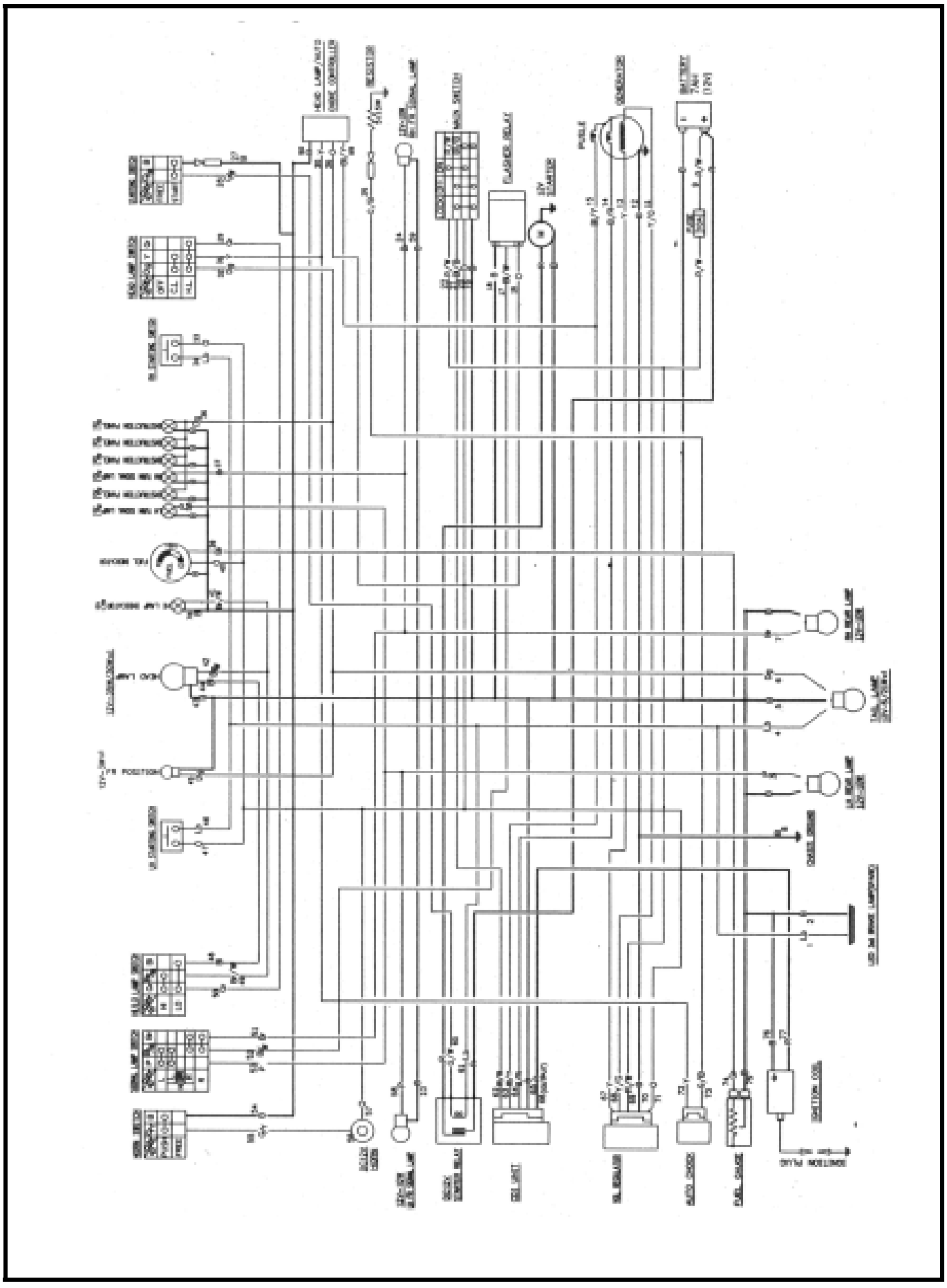
gear oil



Speedometer gear-clean grease

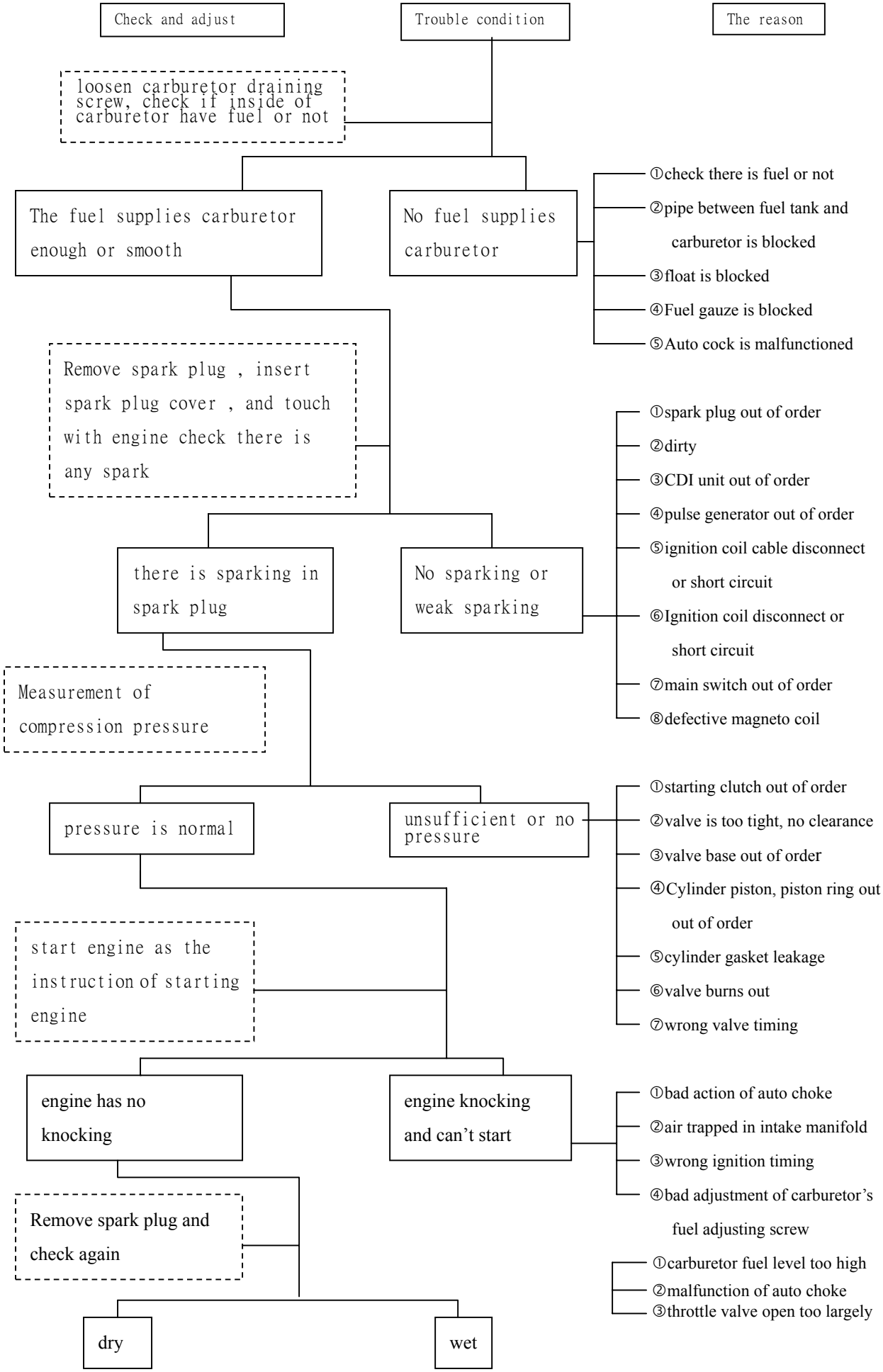
Front wheel bearing-clean grease

(4)Wiring diagram.

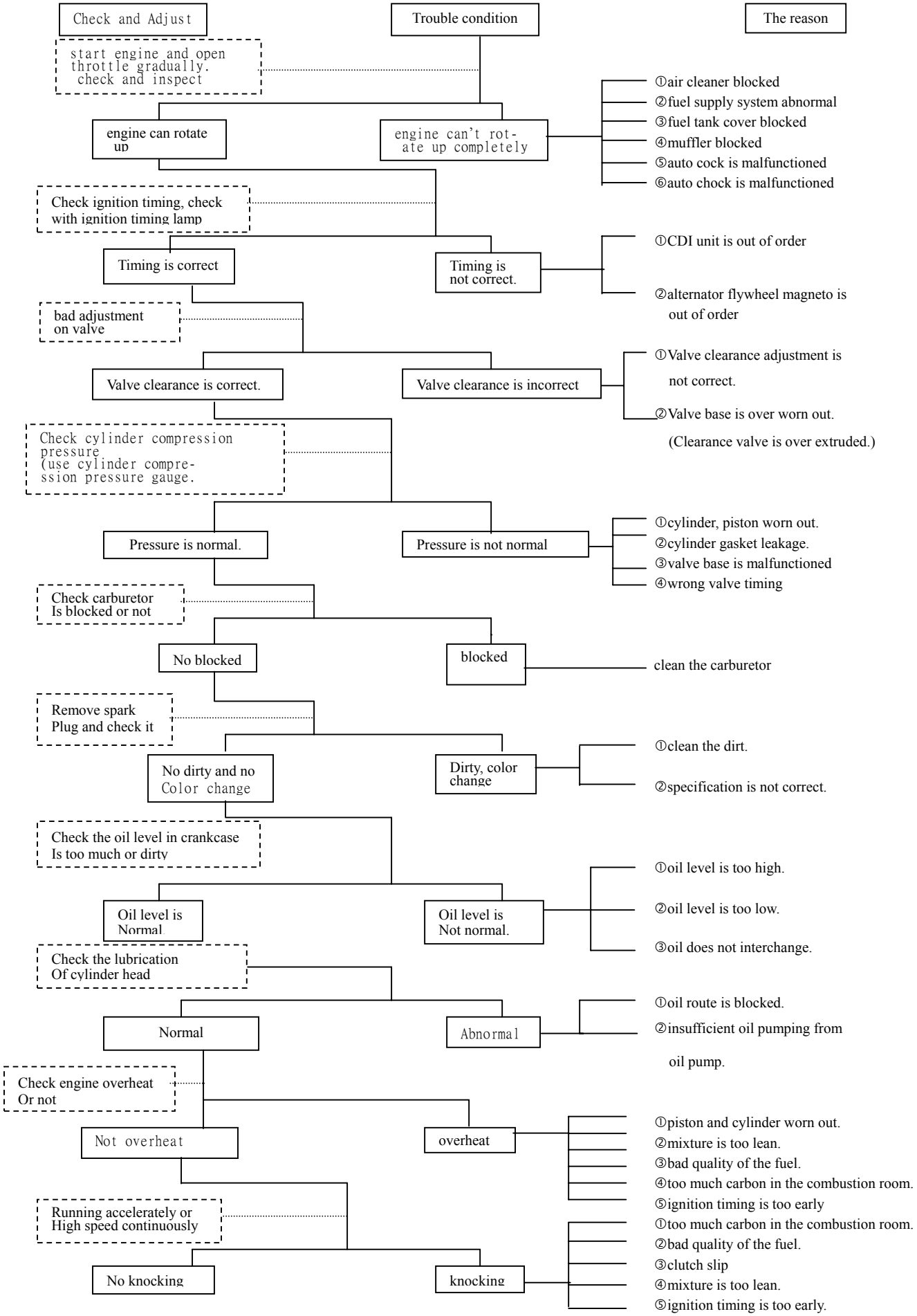


(5)Trouble shooting:

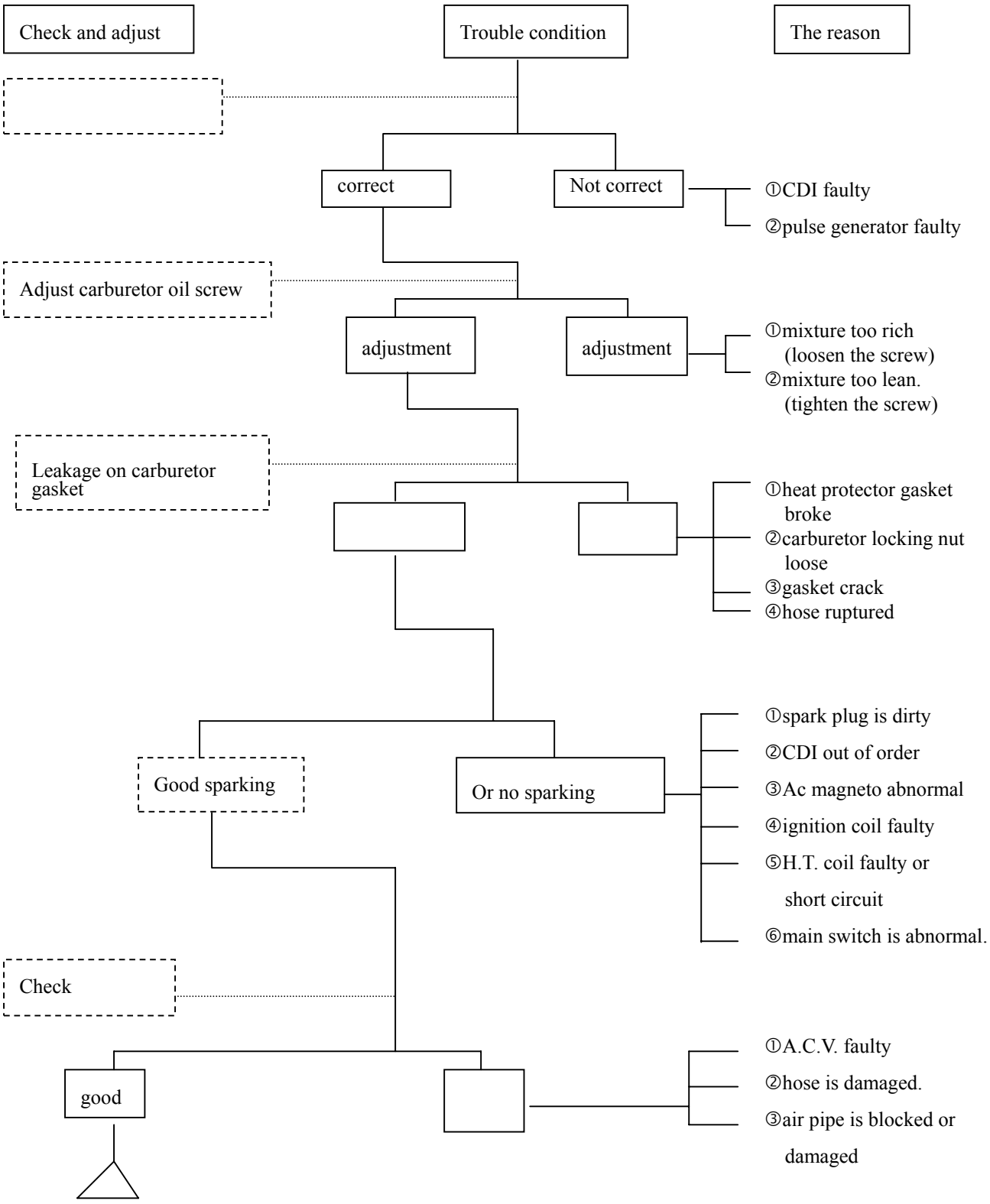
1.Hard starting or can't start:



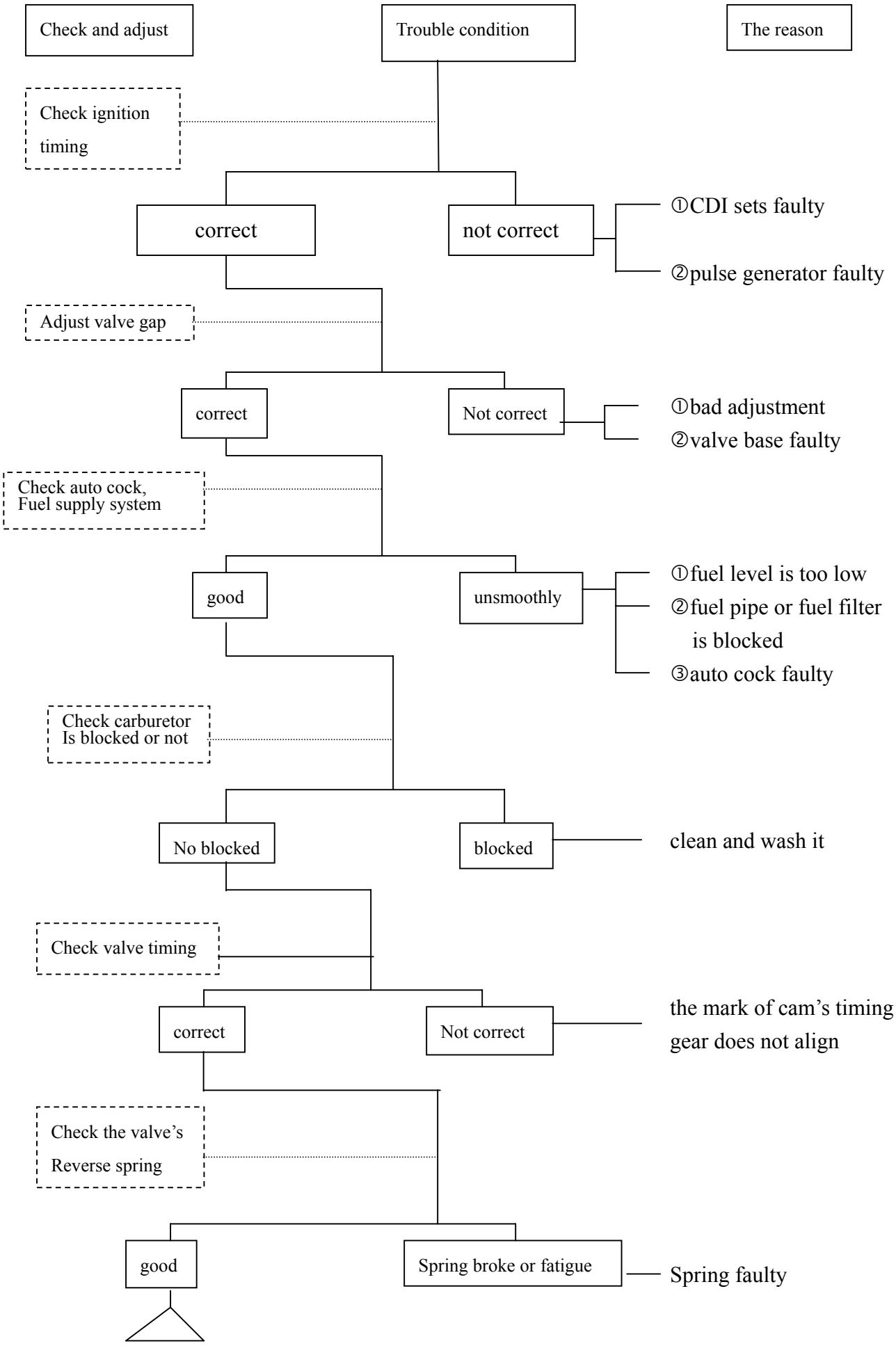
2.Unsmooth rotation(Weak acceleration ; inefficient horsepower)



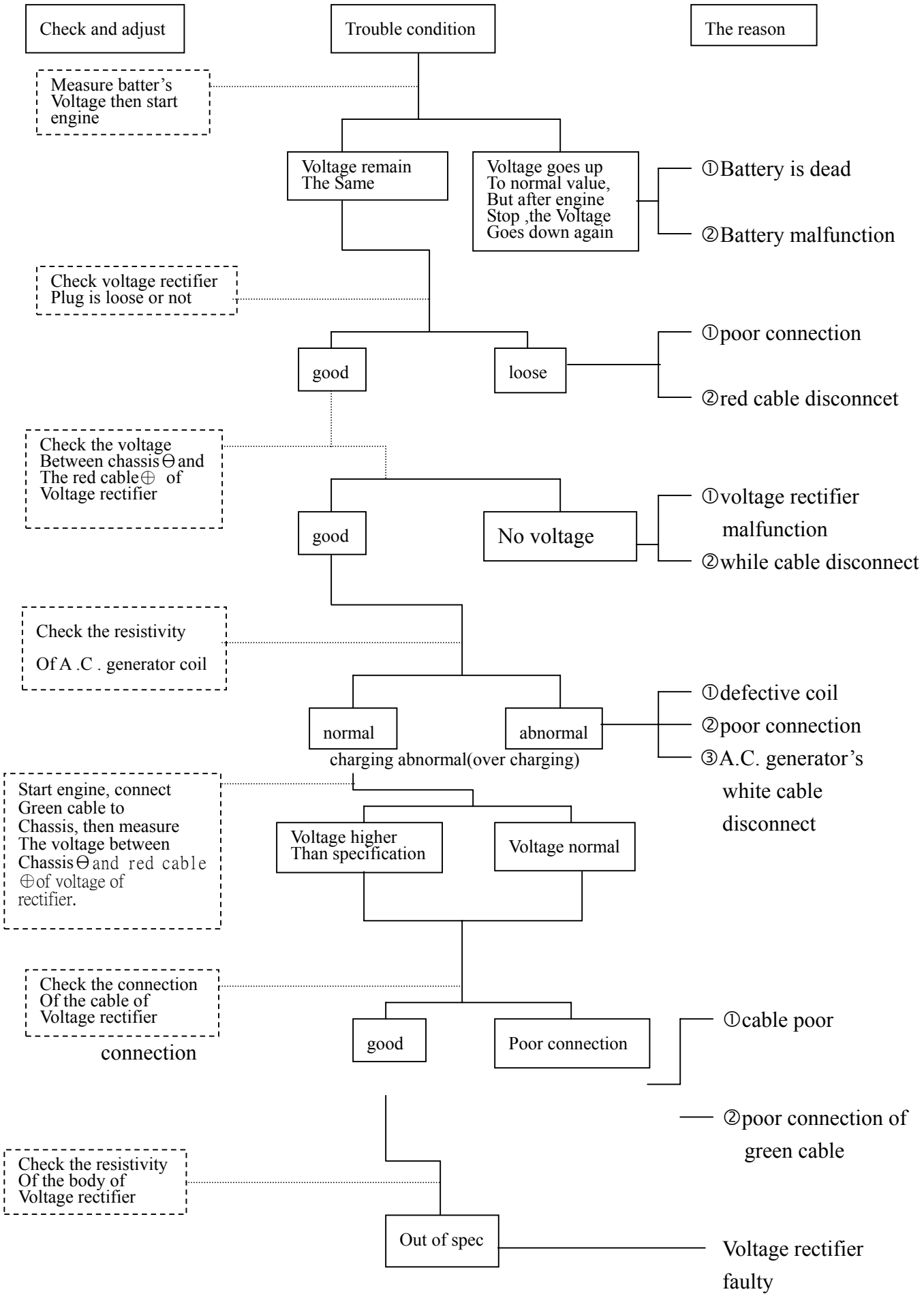
3.Engine running not smoothly(low speed and idling):



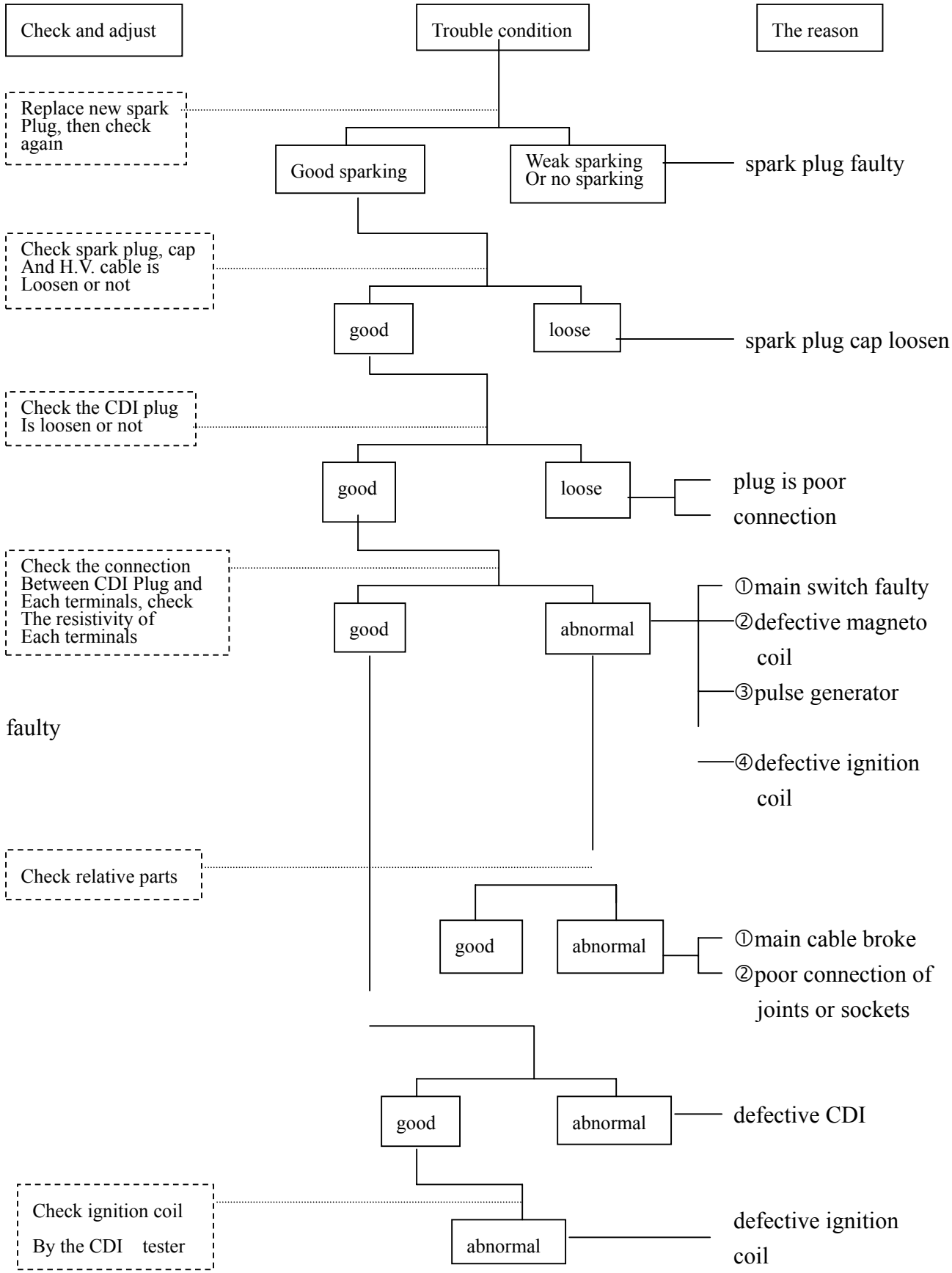
4.Engine running unsmoothly(high speed)



5.Charging abnormal(battery over charing, or over discharging)



6.No sparking, spark plug



3.Checking and Adjustment:

(1)Periodical checking table
(2)Battery
(3)Clean air cleaner
(4)Oil screen
(5)The final reduction mechanism oil
(6)Spark plug
(7)Cylinder pressure
(8)Valve clearance
(9)Ignition timing
(10)Idle adjustment
(11)Front brake adjustment
(12)Rear brake adjustment
(13)Tire
(14)Throttle cable adjustment

(1) Periodical checking table:

1.[◯] mark indicates periodical checking

2.[＊] indicates changing the parts

Check item		Checking period							Judgement standard	Remark
		Gen-eral che-cking	First Month Or Initial 500km			Office				
				Months Or 5000km	months or 1000km	Per1 Months Or 1000km	per3 months or 2500km	per12 months or 10000km		
A Suspension Steering Handlebar	Loose,swing	◯		◯	◯	◯	◯	◯		
	performance	◯		◯	◯	◯	◯	◯		
Suspension: turning angle					◯			◯		
Front fork	a.cracked			◯	◯	◯	◯	◯		
	b.shaft fixed condition			◯	◯	◯	◯	◯		From steering column
	c.shaft:loose				◯	◯		◯		
B: Brake									Clearance:	Check from Steering column
Brake lever	a.clearance	◯		◯	◯	◯	◯	◯	Front:10-20mm Rear :10-20mm	
	b.movement of brake	◯	◯	◯	◯	◯	◯	◯		
brake	Loose or damage		◯	◯	◯	◯	◯	◯		
	Brake cables change								※per 2 years	
Brake cam	Worn out							◯		
Brake drum And brake shoe	a.clearance between drum and plate			◯	◯	◯	◯	◯		
	b.brake shoe and br ake plate worn out				◯		◯	◯		
	c.brake drum worn and damage				◯			◯	Standard dia: Rear:130.0mm Limit of use: Rear:131mm	mark type
wheel	front axle:dam-age or cracked							◯		
	rear axle:worn or damage							◯		Check rear Axle
	Wheel pressure	◯	◯	◯	◯	◯	◯	◯	Unit:kg/c ㎡:ldriver U 2.0 2.0	
	Wheel cracked Or damage	◯		◯	◯	◯	◯	◯		
	Wheel gap and worn	◯		◯	◯	◯	◯	◯	Gaplimit:front wheel: 0.8mm rear wheel 0.8mm	
	Wheel surface Or other metals	◯		◯	◯	◯	◯	◯		
	Axle nut screw Pin tightness			◯	◯	◯	◯	◯	Front axle screw torque 5.6-6.0kg-m rear axle torque 11..0-13.0kg-m	Nut location
	Wheel rim swi-Ngness and da-Mage condition			◯	◯	◯	◯	◯	Swingness ofr front Rear wheel rim. Vertical swing:2mmbelow Horizpmta;":2mm b;epw	

Check item			Checking period							Judgement standard	Remark
			General checking	First Month Or Initial 500km			Office				
					Months Or 5000km	months or 1000km	Per1 Months Or 1000km	per3 months or 2500km	per12 months or 10000km		
Wheel	Front Bearing of axle, Looseness			○	○	○	○	○	○		
	Rear				○				○		
Damper	Rear damper spring cracked		○		○	○	○	○	○		
	ass' part loose or damage				○	○	○	○	○		
	Connecting part Loose					○			○		
	Bracket loose or Damage					○			○		
	Suspen-sion	Connecting Part loose				○			○		
	damper	Oil leakage				○		○	○		
		Cracked				○		○	○		
		assy's part, Loose				○		○	○		
Power Transmi-Ssion	Clutch and Change Speed mechanism				○	○	○	○	○		
					○	○	○	○	○		
	Supply grease				○	○	○	○	○	※per 2 year	
Electric Install-Ment	Ignition				○	○	○	○	○	Clearance: 0.6~0.7mm NGK:C7HSA OR SAME SPEC	
	Start mechanis m	Starting Motorpinion Meshing				○		○	○		
	wiring	Recharge Effect			○	○	○	○	○		
	battery	Electroly-Te quantit			○	○	○	○	○	Level between "UPPER" AND "LOWER"	
		Electroly-Te s. gra-vity				○		○	○	WHEN 20℃ SPECIFIC GRAVITY: 1.270-1.290	
	wire circuit	Wire conn-ecting Loose or cracked			○	○	○	○	○		

Check item			Checking period							Judgement standard	Remark
			General checking	First Month Or Initial 500km			Office				
					Months Or 5000km	months or 1000km	Per1 Months Or 1000km	per3 months or 2500km	per12 months or 10000km		
Engine	Engine parts	Performance, noise			○	○	○	○	○		
		Low speed, Accleration			○	○	○	○	○	Idling:1700± 100rpm	
		Exhaustion	○		○	○	○	○	○		Check the clolr Or exhausting -air
		Air cleaner			○	○	○	○	○		
		Cylinder, cylinder head inlet Pipe, locking Condition							○	Locking torque Cylinder head: (cold) 1.0-1.2kg/m inlet pipe⊗cp;d) 1.0-1.2kg/m	
		Compression pressure				○			○	Using stating Motor. 12kg/c ㎡(750rpm)	
	Lubricat-Ion Syst-em	Oil leakage			○	○	○	○	○		
		Oil quantity, Dirty			○	○	○	○	○	Change every 1000kml	
		Oil quantity,	○	○							
		Oil filter			○	○		○	○	Change every 5000km	
	fuel syst-em	Fuel quantity	○								
		Fuel leakage			○	○	○	○	○		
		Carburetor Parts dirty			○	○	○	○	○		
		Carburetor throttle and choke Performance			○	○	○	○	○		
		Carburetor Float height			○	○	○	○	○		
		Carburetor Adjustment			○	○	○	○	○		
		Fuel pipe Changing								※per 4 years	

Check item		Checking period							Judgement standard	Remark
		Gen-eral che-cking	First Month Or Initial 500km			Office				
				Months Or 5000km	months or 1000km	Per1 Months Or 1000km	per3 months or 2500km	per12 months or 10000km		
Lamp system	Performance	○		○	○	○	○	○		
	Dirty, cracked	○		○	○	○	○	○		
Horn turn Signal Reflector	Performance	○		○	○	○	○	○		Horn Turn signal
lock	Performance			○	○	○	○	○		
Rear view mirror	Check the illumination	○		○	○	○	○	○		
Blinker linc-Nese plate nu-Mber&mark	Dirty cracked	○								
Instrument board	performance	○		○	○	○	○	○		
Muffler silencer	Ass'y part Loose cracked			○	○	○	○	○		
	performance				○		○	○		
chassis	loose or cracked				○		○	○		
The earlier Abnormal condition	Confirm it does Not happen again	○								
others	Chassis Lubrication			○	○	○	○	○		
	Decoking mixer ,muffler, silencer				○			○		

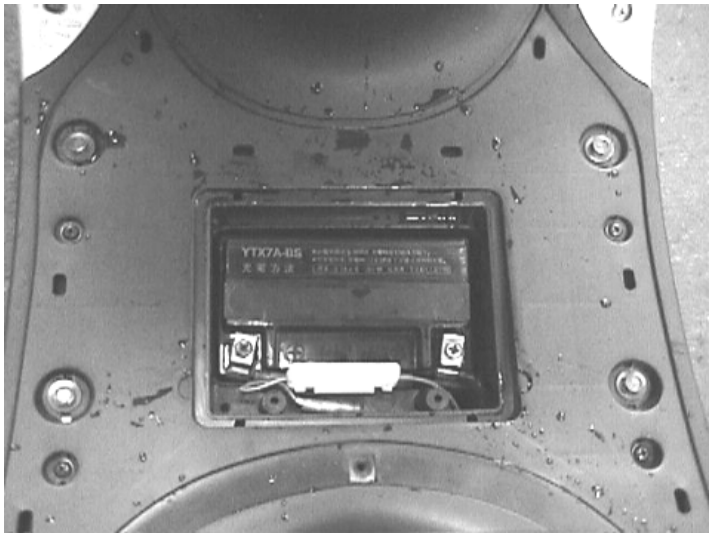
(2) Battery: Recharge when run out of it

1.Remove the floor mat.

2.Screwing out the two screws on the battery cover; remove the battery cover.

3.Remove the negative cable and then the positive cable, take out the battery to recharge.

4.Re-assembling the battery as the opposite procedure of disassembling after recharging.





Note:

A. Do not take out the sealed bolt when recharging.

B. Without refilling water for the battery.

Please recharging (12V) as the following current.

Time standard: 0.7A*5~10Hr or Rapid: 3A*1Hr

(3) Clean air cleaner

1. Remove air cleaner cover.
2. Take out the air cleaner filter.
3. Clean the filter by compressed air.
4. Assemble the air cleaner by the opposite procedure.

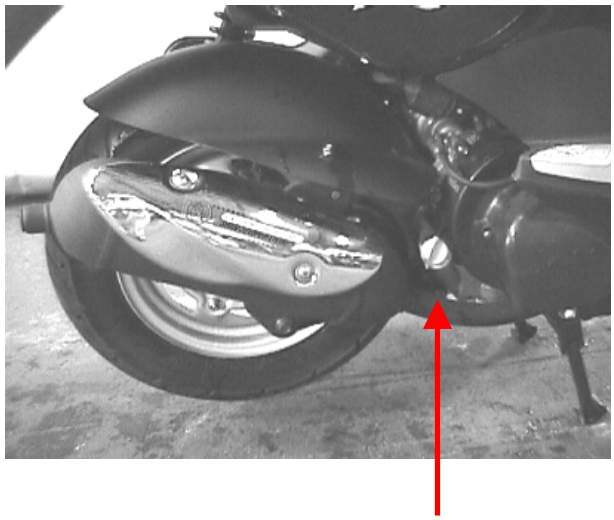


Attn: Do not start engine when air cleaner is not installed.

MOTOR OIL

Oil volume

Note:
A. The vehicle must park on the flat ground Before checking.
B. Start engine for 2-3 min., and stop engine For 2-3 min., then check the oil volume.



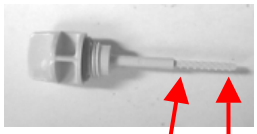
1. Take out the oil meter to check the oil Volume.
2. Refill oil to upper limit when oil volume Is below the lower limit.

Exchange Oil

Note: The oil will flow out easier when the engine is warm.

1. Turn off the engine and remove the oil meter.
2. Screw out the oil draining bolt on the bottom

Oil meter



Upper limit

Lower limit

Torque: 1.5kg-m

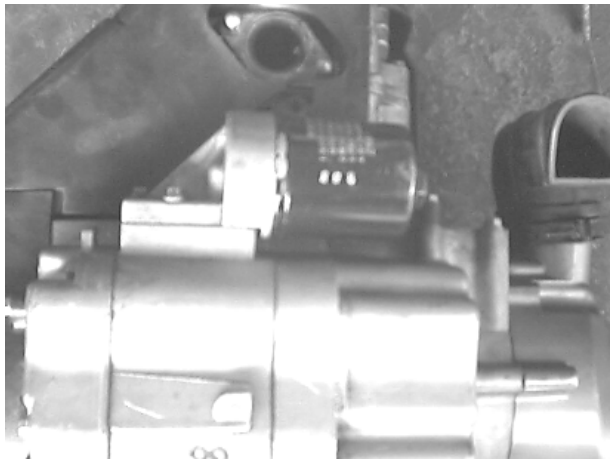
Engine oil volume : **Disassembling : 0.90 liter**

Exchanging : 0.80~0.85liter

When checking the leakage of oil, start the engine
At idling for a few minutes, then check the oil volume.

(4) Oil screen

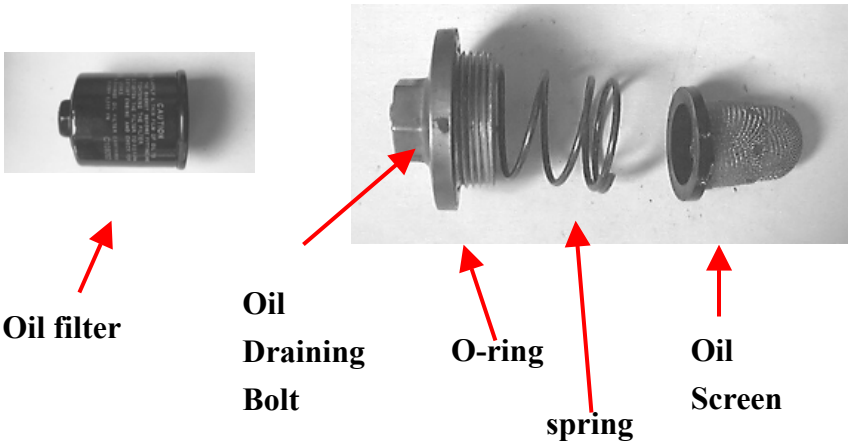
Cleaning for the oil screen



- Drain the Oil in the engine, remove the Oil draining bolt the spring and the Screen.
- If any adherent material is found, please use detergent to clean the screen.
- Check the 0-ring. If it is damaged, change a new one.
- Re-install the screen, the spring, 0 ring and the Oil draining bolt.
  Locking torgue:1.5kg-m

2.Second oil filter

- **Replace it per 5000km**
- **Torque: 8±0.2 N-M**



(5) The final reducing mechanism oil

1.Change the oil in the gear box:

a. Turn off the engine after warm up.

b. Put a bowl under the engine.

c. Remove the draining bolt and filling bolt to drain the gear oil off.

d. Lock the draining bolt before refill 110c.c. gear oil and then lock the filling bolt.

e. Locking torque:1.8kg.m



(6)Spark plug

1.Remove spark plug.

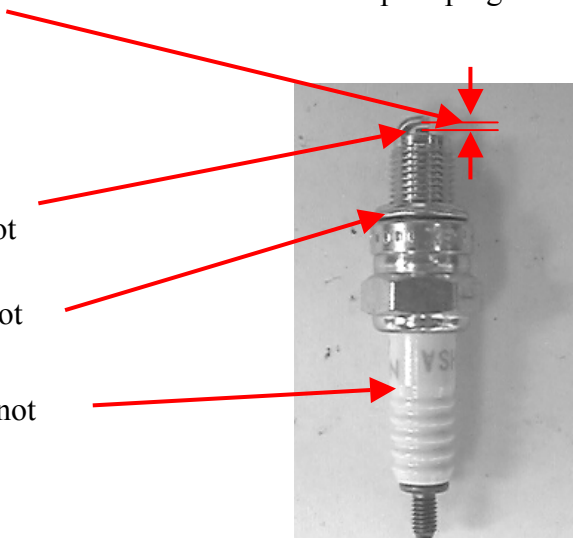
2.Check the spark plug electrode and see whether it is burnt out/ carbonized or not.

3.Clean the electrode, if it is dirty.

●Spark plug specification

NGK: C7HSA or C7HSA equivalent

Gap of spark plug:0.6~0.7mm



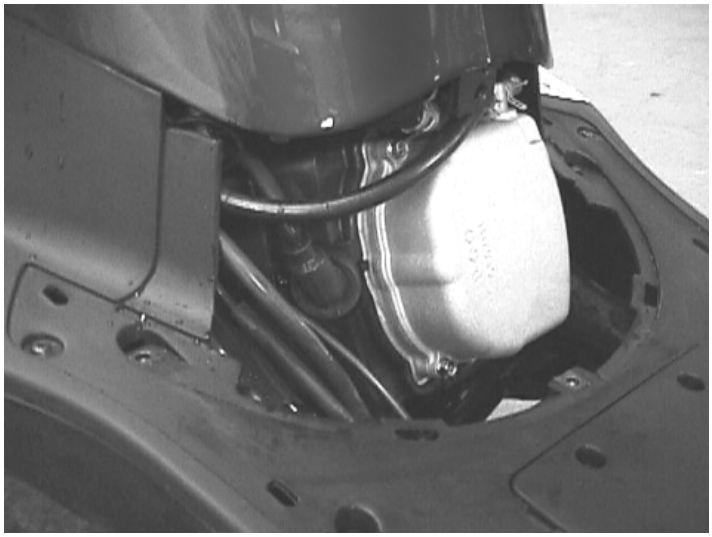
(7) Cylinder Pressure

1.Measure it when the engine is warm.

2.Remove the cover at the right hand of the step floor.

3.Remove the spark plug then place cylinder pressure gauge. Then fully open the throttle and act on the starter motor to measure the compression pressure.

Compression pressure: 12kg/cm^2 at 750 rpm



＊When the compression pressure is too low, check the following:

a. Valve leakage or not

b. Valve clearance

c. Gasket of the cylinder head is damaged.

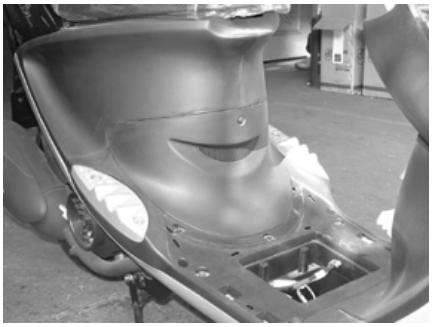
d. Piston ring worn-out

e. Piston or cylinder worn-out

＊The cylinder compression pressure is usually too high when there is too much carbonization in the combustion chamber and the piston tip.

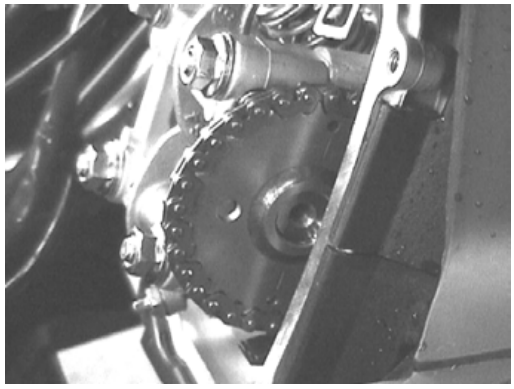
(8)Valve Clearance

Note: Checking and adjustment of valve clearance only can be done under 35°C of engine temperature.



1.Remove cylinder head cover.
2.Remove intake pipe from the cover of cylinder head.
3.Screw out the cap nut.
4.Remove cylinder head.
5.Rotate cooling fan, the mark on cam shaft gear must reach
The upper dead position, the “T” mark on generator fly must align with the crankcase mark.

Note: There is depressure reverse rotation device on cam shaft. So never rotate cam shaft reversal when adjusting, otherwise valve can not be adjusted.



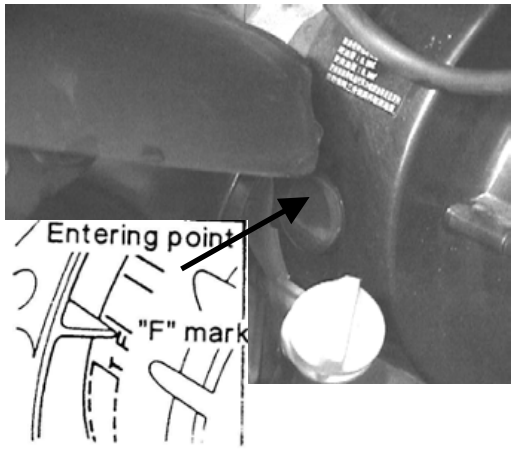
●Valve clearance:IN-0.08mm
Ex-0.08mm
●Loosen locking nut, then rotate adjusting nut to adjust the valve clearance.

Note: Re-check valve clearance after lock the nut.

(9) Ignition Timing

Note: It is no need to adjust ignition timing and CDI set. When ignition timing is not correct, just check the ignition system.

1.Remove the checking hole cover of ignition timing.
2.Using the ignition timing light to assure the ignition timing is correct.
3.Under idling, it means in good function when crankcase’s mark matches to the “F” on the flywheel.
4.Raise the engine revolution to 5000 rpm slowly, it means in good function, if the crankcase's mark matches with Entering point of the flywheel.



(10) Idling Adjustment

Note: Adjust idling only when the engine is warm.

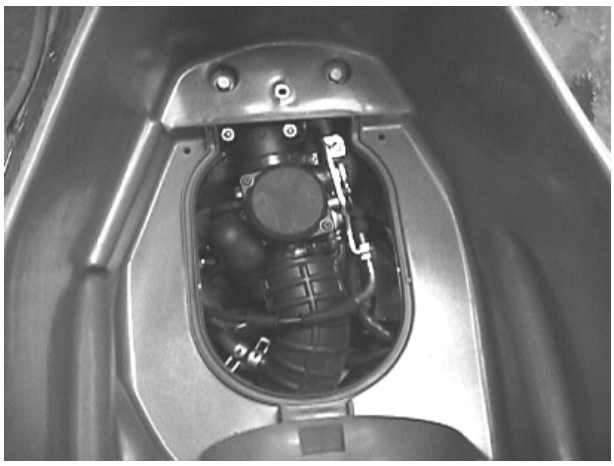
1.Remove the checking hole cover of carburetor.

2.Start the engine and connect the tachometer.

3.Adjust the throttle valve screw to the specified revolution.

4.Specified idling revolution: 1700 ± 100rpm

- If rpm is still unsteady or fuel up is not smooth, please re-adjust the fuel intake screw.



(11) Front Brake Adjustment

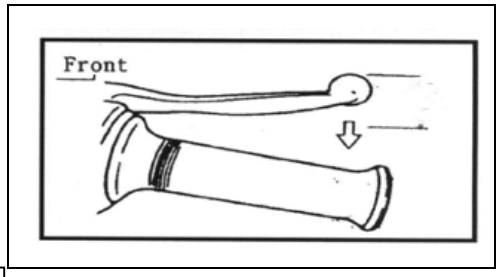
1.Check the clearance of front brake lever

Clearance: 10-20mm.

2.If the clearance is beyond standard, check whether:

a. The air mix into the pipe/caliper.

b. The oil brake system is leaking.



Note: Try brake lever to see if it's loose. Check the brake oil.once air mixed in the oil pipe, which will reduce or damage the brake efficiency or even its function.

3.Check the oil level:

a. Refill the brake oil when the level is under the LOWER line.

b. Oil specification: SAE J-1703 or DOT3 orDOT4.

Note:

a. To prevent the oil splitting onto the parts or clothes, put a piece of cloth on the bottom when refilling.

b. Be caution not to mix water or particles into the master cylinder when refilling.

c. Never use the oil that is not complied with spec.

d. In case the oil stains on the eyes, wash with water at once and then ask for medical care immediately.

(12) Rear Brake Adjustment

1.Check the clearance of rear brake lever.

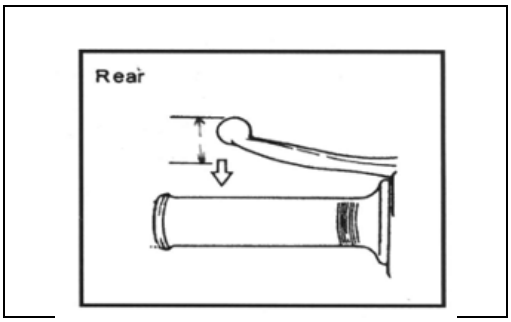
Clearance: 10~20mm

2.If the clearance is beyond the above

Standard, adjust it by rotation the screw.

a. Left-handed rotation-Enlarge the clearance.

b. Right-handed rotation-Reduce the clearance.



Note: When the arrow of rear brake indicator align with the arrow of left crankcase, change the brake lining.

(13) Tire:

1.Check Tire air pressure.

2.Tire pressure:

Front tire: 1.50kg/cm^2

Rear tire:1.75kg/cm^2



3.Tire specification:

Front tire: 3.5-10

Rear tire: 3.5-10

Note:

1.Check and adjust the tire pressure when it is too low.

The pressure is according to the carrier, driver, passenger, accessories and cruise speed

2.Proper loading is very important for steering, riding, braking, performance and safety.

Never carry any parcel unfastened.

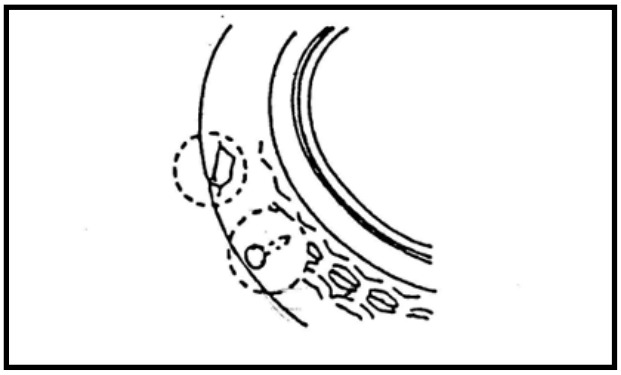
Load the heaviest parcel on the center of vehicle, balancing the weight on both sides.

Beware of the weight loaded properly and check the tire pressure. The total weight of carrier, driver, passenger, and accessories cannot exceed the approved limit. An overload vehicle is easy to cause tire damage and accident for rider

3.Check if there is any sharp object piece the tire.

4.Check the depth of wheel stripe.

●Depth (front and rear): According to the mark of tire"▲" indicating the necessity to change a new tire.



(14) Throttle cables Adjustment

1.Check the clearance of throttle

2.Normal clearance: 1.5-3.5mm

Adjust it by rotating the adjust nut. Change it if the throttle cables can't be adjusted.



1

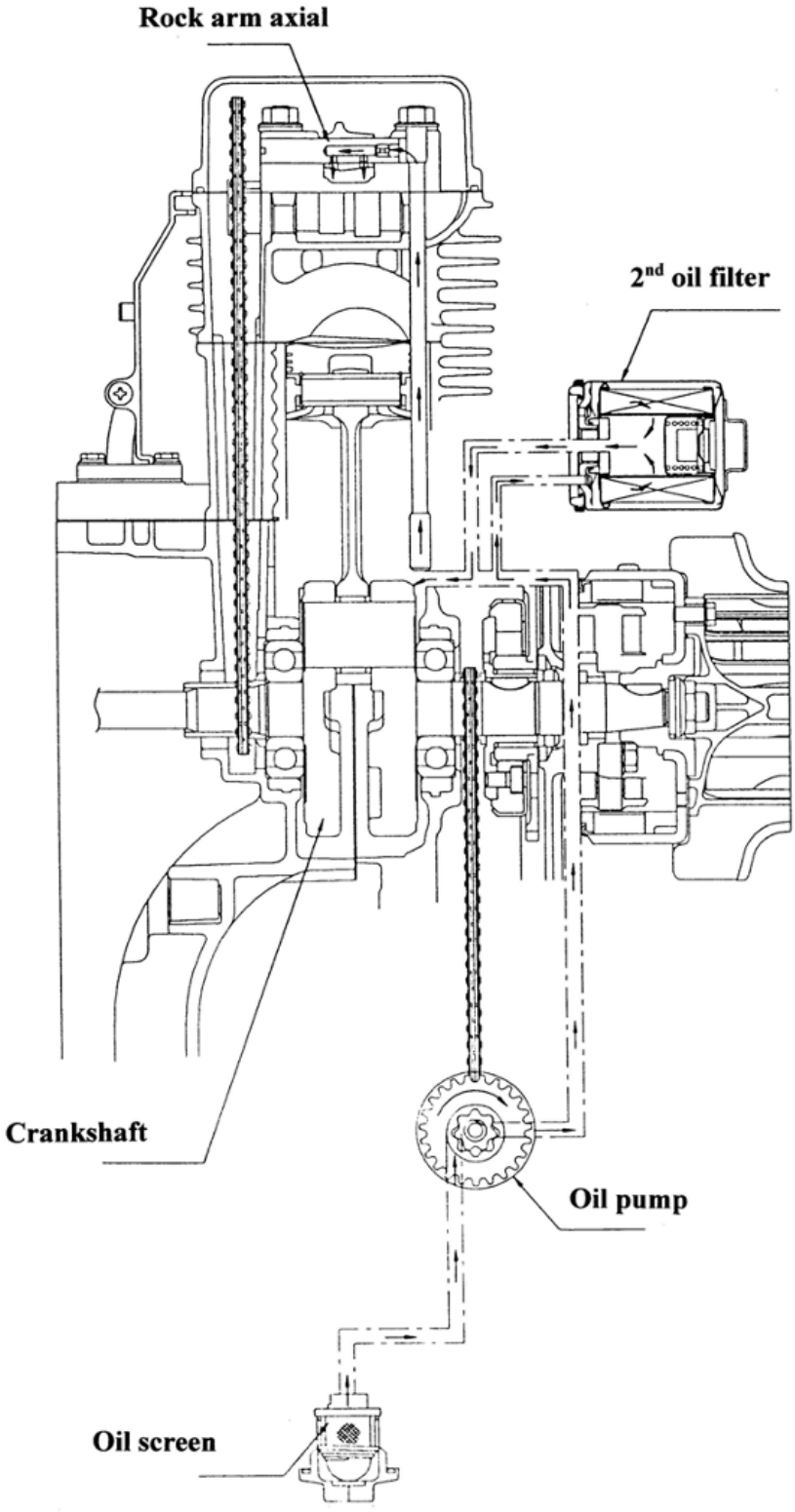
4. Dismantling, Maintaining, Repairing and assembling operation

(1) Lubrication system
(2) Plastic parts of Chassis
(3) Engine dismantling
(4) Drive pulley, starter, clutch, driven pulley
(5) Cylinder head and valve
(6) Cylinder and piston
(7) AC generator
(8) Final transmission mechanism
(9) Crankcase, crank shaft
(10) Carburetor
(11) Steering stem, front wheel, frt brake comp., frt fork
(12) Rear wheel, rear brake, rear damper
(13) Fuel tank

2

(1)Lubrication System

Lubrication System Diagram



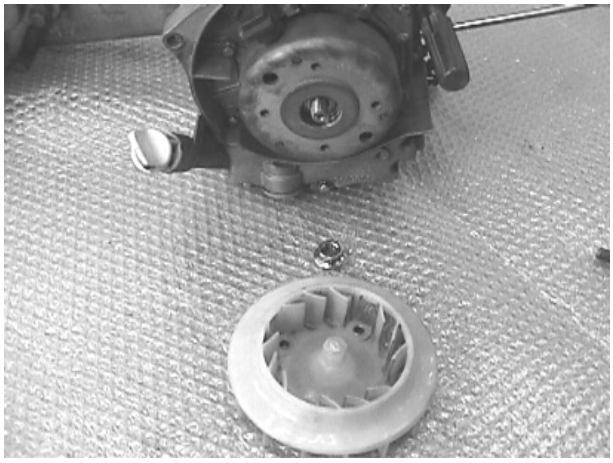
3

Oil Pump

Dismantling

1.Remove the muffler.

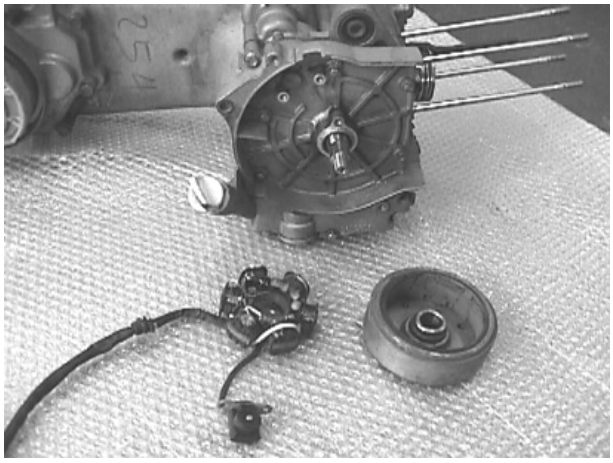
2.Remove the AC flywheel magneto.



3.Remove the AC generator coil.

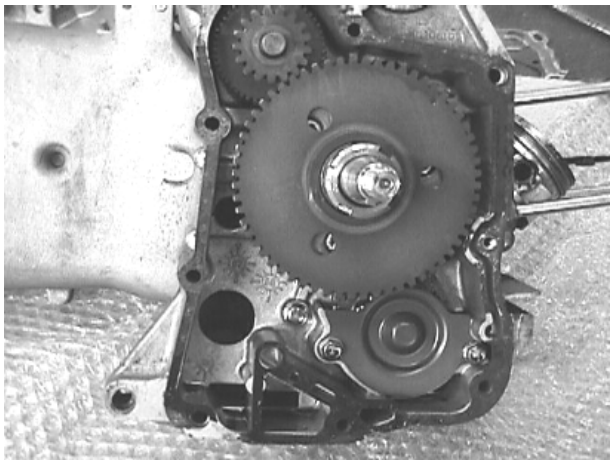
4.Tale off the locking bolts of the right crankcase cover.

5.Remove the crankcase cover



6.Remove the washer, lock pin

7.Remove starter reduction gear and the starting clutch.



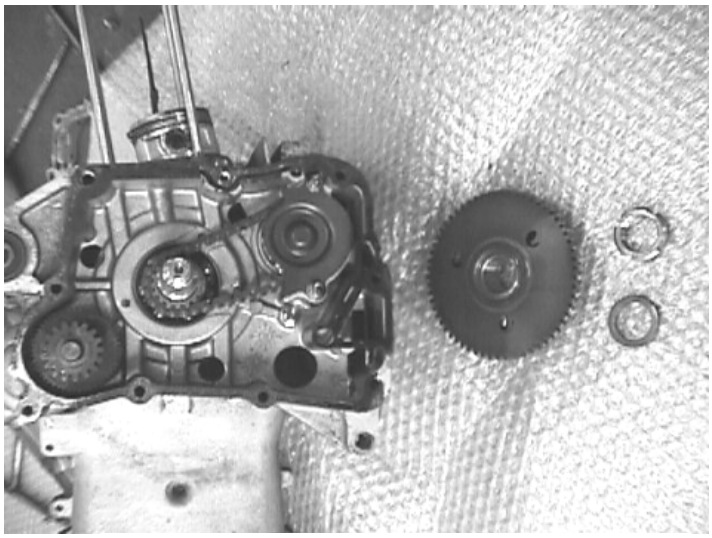
4

8.Remove oil pump separate plate by taking off the 2 bolts.

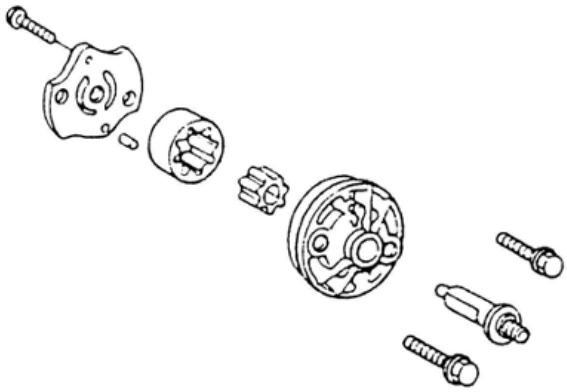
9.Remove the bolts from oil pump driving gear

10.Take off the driving gear and chain.

11.Remove the oil pump by taking off the locking bolt of the oil pump.



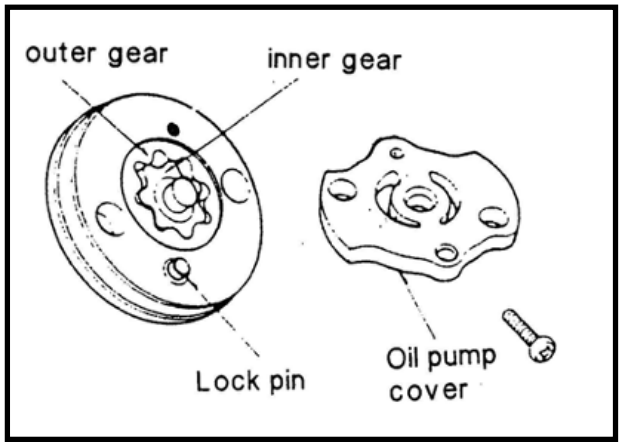
Assembly



1.Install the inner and outer of the oil pump.

2.Install the oil pump shaft.

Note:
The notch of the oil pump shaft should comply With the notch of the inner gear.



3.Install the lock pin.

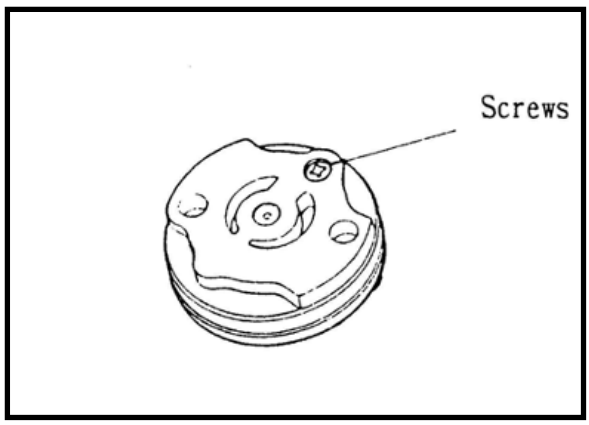
4.Match the lock pin hole to the pump cover and install the oil pump cover.

5.Put on the screws and tighten them.

6.After installing, turn the shaft lightly to assure installation.

7.Place the oil pump into the carnkcase.

Note:
When installing, the arrow on the oil pump body should be pointed upwards. Then fill in the recommended oil before the installation.



8.Tighten the oil pump after installation.

5

Measurement data

item		Standard Value (mm)	Limit of use (mm)
Oil pump	Clearance between the inner gear And outer gear	–	0.12
	Clearance between the outer gear And oil pump body	0.045-0.10	0.12
	Clearance between gear end and Oil pump body	0.045-0.10	0.12

Troubleshooting

Reduction in fuel oil volume

a.Natural consumption

b Leakage of fuel

c.Piston loop seizes, or improperly install-ation

d.Worn out of valve's oil seal

Engine burning-out

a.Zero or too low oil pressure

b.Blockage in oil route

c.Did not use the fuel oil recommended

(1)Plastic parts of Chassis

A.Dismantling the plastic parts





1.Removal of luggage compartment

● Open the seat, take off the screws of the luggage compartment.

2.Removal of fuel tank

● Open the lock cover of the fuel tank.

●Take off the fuel tank cover.

●Take off both the right and left handles by removing the screws off.

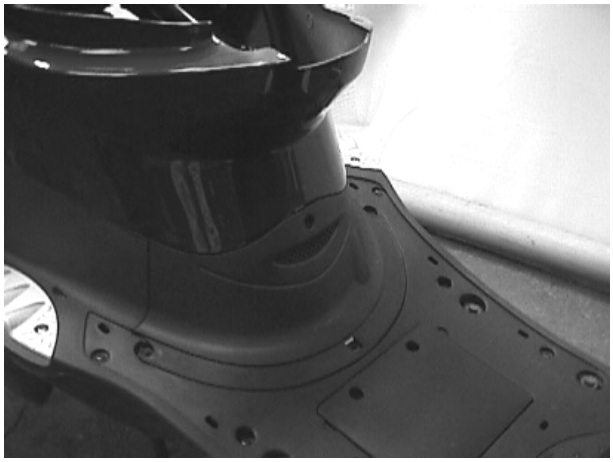


3.Removal of left and right hand Side covers.

●Take off the screws of left and right side covers.



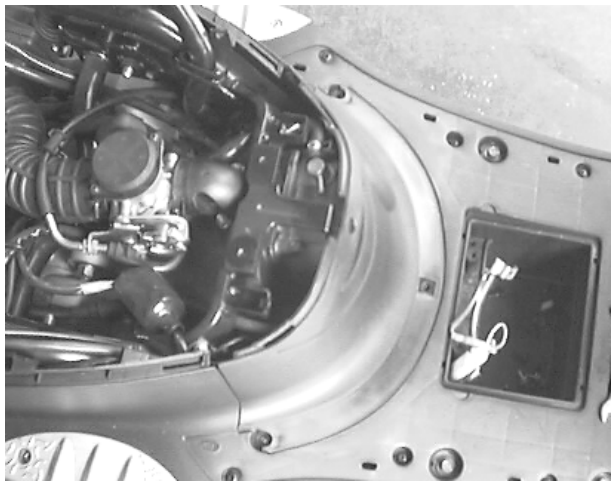
●Remove the left and right hand side cover.



4.Removal of front mudguard

●Remove the screws of front fender.

●Take off the front mudguard.



B.Dismantling the Fender

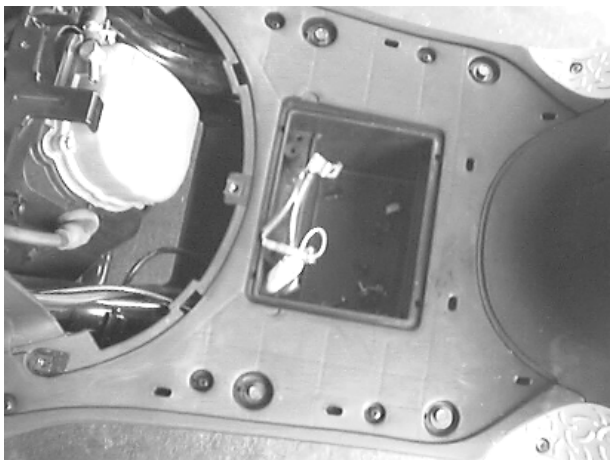
1.Take off the screws of front inner cover And fender.

2.Take off the screws between the front Fender and chassis.

3.Separate the head light and signal lamp Cable.



4.Take off the fender.



C.Dismantling the upper handle cover.

1.Remove the left and right Back mirror.

2.Remove the screws of upper And lower handle cover.

3.Unplug the speedometer cable.

4.Unplug each switch cables.



5.Remove the upper handle cover.



D.Dismantling the step plates and lower

D.Dismantling the step plates and lower

Mudguard:

1.Take off the screws of the four step plates and take off the four step plates.

2.Screwing out the screws of lower mudguard.

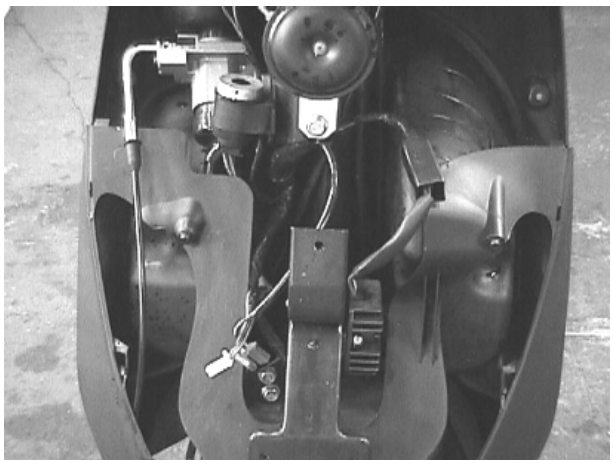


E.Dismantling the step floor and front inner cover:

1.screwing out the screws of battery cover.

2.Disconnect the negative, then positive cable.

3.Screwing out the screws between the step floor and front inner cover Take off the front inner cover.

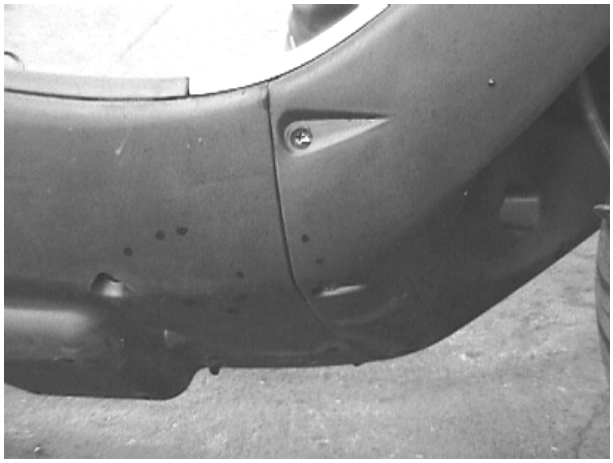


4.Pull out both the negative and Positive battery cables, Take off The step floor.

5.When assembling, the procedures Will be reversed.

M6:0.7-1.1kgf-m

M5:0.35-0.5kgf-m



Note:Avoid clamping and scraping the Cables or pipes by the plastic parts.

(2)Engine dismantling:

A.Dismantling engine

B.lnstalling engine

A.Dismantling engine

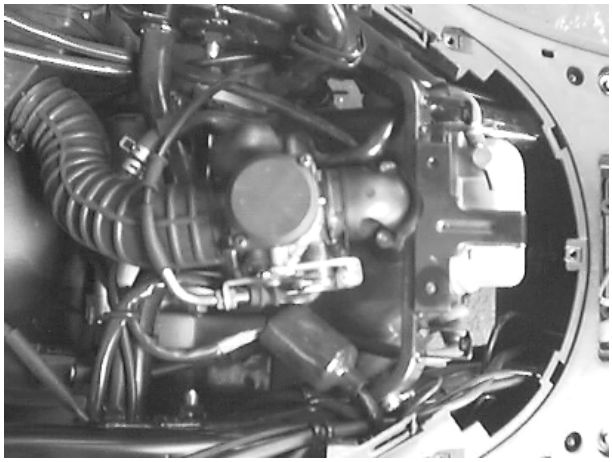
1.Take off the luggage compartment.

2.Take off the left and right body covers.

3.Take off the lower mudguard fender.



4.Remove vacuum pipe, fuel pipe ,auto choke, cap of spark plug, rear brake cable carburetor pipe, engine suspension nut, starter motor cable, flywheel plate and rear damper bolt.



5.Remove the engine.

B.Installing Engine

1.To install engine, please reverse the Above procedures.

2.Locking torque:

M8: 2.0-3.0kgf.m

M10: 3.0-4.0kgf.m

M12: 5.0-6.0kgf.m

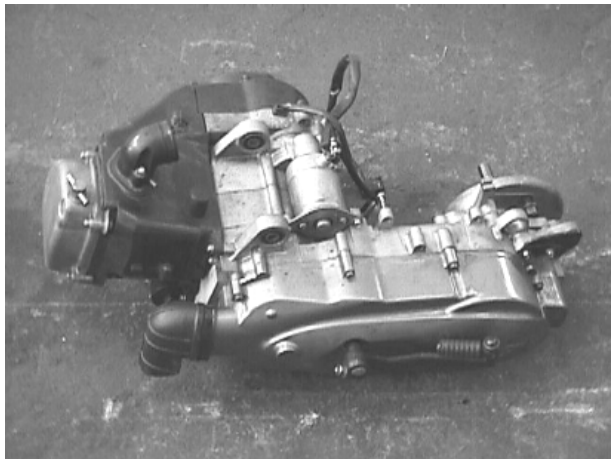
3.After installing, pleas do the following Checking and adjustment:

a.Wiring for each circuit.

b.Throttle cable

c.Rear brake adjustment

d.fuel and oil route



(1)Drive pulley, starter clutch. driven pulley

A.troubleshooting

B.Measurement data

C.Driving pulley

D.Starter

E.Clutch driven pulley

A.Troubleshooting:

a.Engine starts, but vehicle don't move.

1.driving belt worn out

2.driving plate worn out

3.clutch lining worn out

4.driving plate's spring broken

b.the vehicle stops or tremble when running.

1.clutch lining spring cracked or broken.

c.Can't reach high speed, no pick-up

1.driving belt worn out.

2.Driving plate spring distortion.

3.Weight roller worn out

4.Driving plate dirty.

Note:

No grease and oil should be distributed over driving belt and driving plate.

B1.Measurement data for PA100

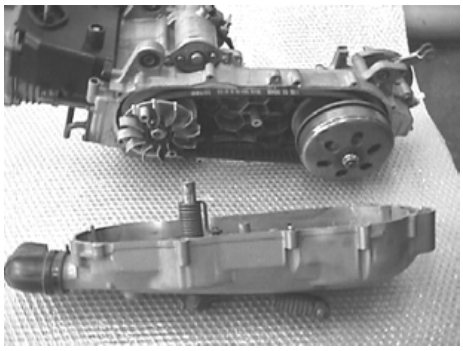
Item	Standard value (mm)	Limit of use (mm)
The inner dia. Of slide driving plate	23.990~24.052	24.10
The outer dia. Of boss, movable Driving plate	23.990.~23.974	23.94
Belt width	18.9~19.3	17.5
Clutch lining thickness	3	1.5
Driven plate spring, free length	154.6	149.3
The outer diameter of driven Plate sets	33.965~34.025	33.95
The inner diameter of slide Driven plate	34.000~34.025	34.06
The outer diameter of weight Roller set	15.992~16.008	15.50

B2..Measurement data for PA125

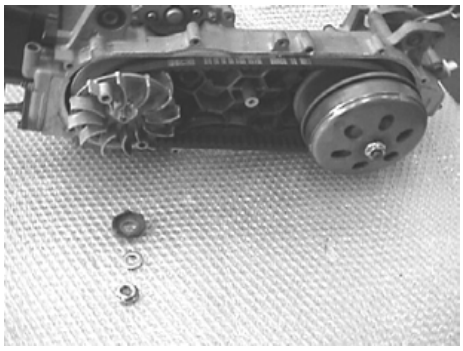
Item	Standard value (mm)	Limit of use (mm)
The inner dia. Of slide driving plate	24.011~24.052	24.10
The outer dia. Of boss, movable Driving plate	23.96.~23.974	23.94
Belt width	20.0~21.0	19.0
Clutch lining thickness	3	1.5
Clutch lining thickness	125.0~125.2	125.5
Driven plate spring, free length	151	127
The outer diameter of driven Plate sets	33.965~34.025	33.95
The inner diameter of slide Driven plate	34.000~34.025	34.06
The outer diameter of weight Roller set	17.920~18.080	17.40

(C)Driving Pulley

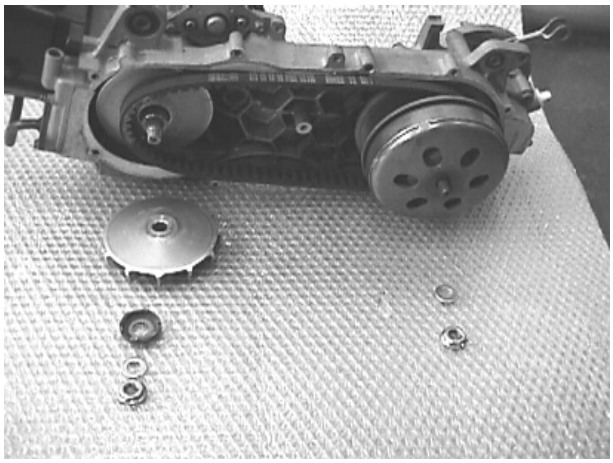
1.Take off the screws of Left cover, Remove the left cover.



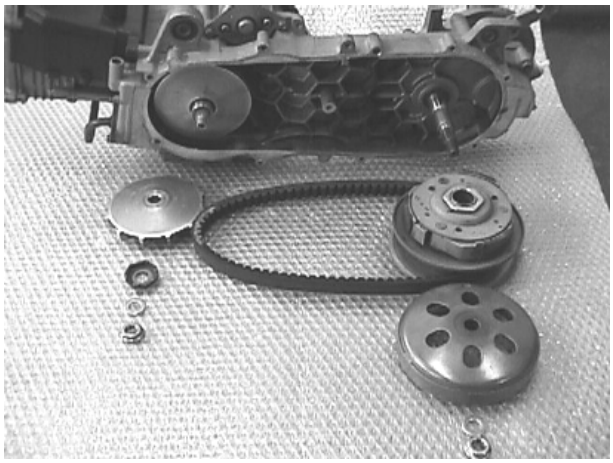
2.Remove the lock nuts of driving Plate and the nuts of Starter gear And clutch.



3.Take off the ramp plate,
Belt and clutch.



4.Take off the boss and driving plate.



4.Continuous Various Transmission engagement speed inspection

- Connect an electric tachometer.
- Seated on the motorcycle with on level ground, increase the engine's speed slowly and notice the RPM at which the motorcycle begins to move forward.

Specified Engagement RPM : 3800 ± 300 rpm

5.Clutch "LOCK-UP" inspection

- Apply the rear brake as firm as possible
- Briefly open the throttle fully and notice the maximum engine RPM sustained during the test cycle.

Specified Clutch "LOCK-UP" RPM : 5100 ± 400 rpm

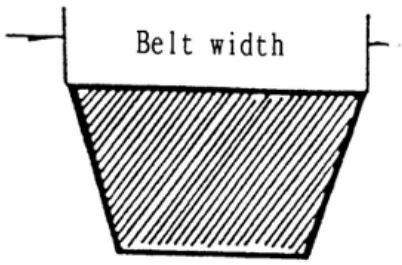
5.To assemble the driving pulley, reverse the whole procdeure.

Locking torque:
1.Nut of driving pulley M10:4.0-5.5kg/m.
2.Locking nut of clutch M10:4.0-5.5kg/m

6.Checking driving belt

(1)check driving belt is cracked or not rubber and fiber is loosened or not also check if they are extraordinary worn out.

(2)driving belt width:
change it below using limit



7.Disassemble slide driving plate set.

(1)Remove bush of slide driving plate.

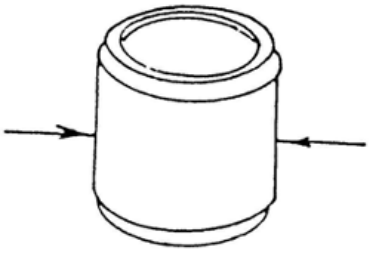
(2)Remove screw, and disassemble the cover of slide driving plate.

(3)Remove ramp plate.

(4)Remove weight roller.

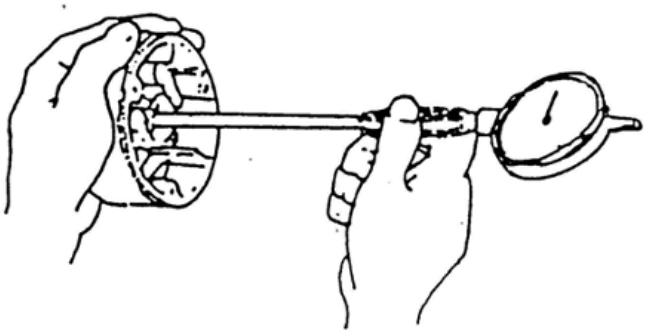
8.Checlomg

(1)Check the wearing condition of weight roller.
change it below when below using limit

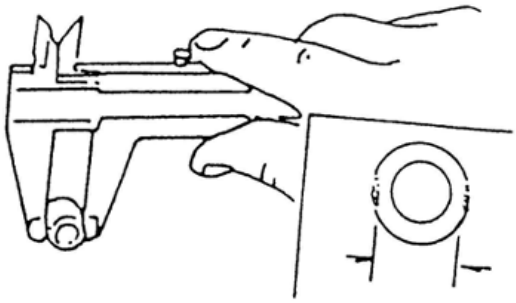


Check the wearing condition

(2)Check gasket inner dia of
slide driving plate:
change it over using limit.

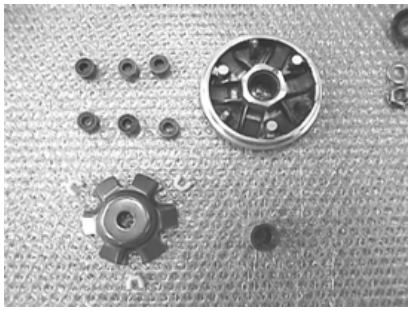


(3)Check the driving pulley
surface wearing condition.
(4)Check the outer diameter of the
contact surface of the movable
driving plate.
limit of use : change it
below using limit.



9.Assemble the slide driving plate.
(1)Clean up the inside surface of slide
driving plate, then assemble the
roller.
(2)Assemble the ramp plate.

(3)Other procedure refers to the
opposite procedure of
disassembling.



D.Starter dismantle

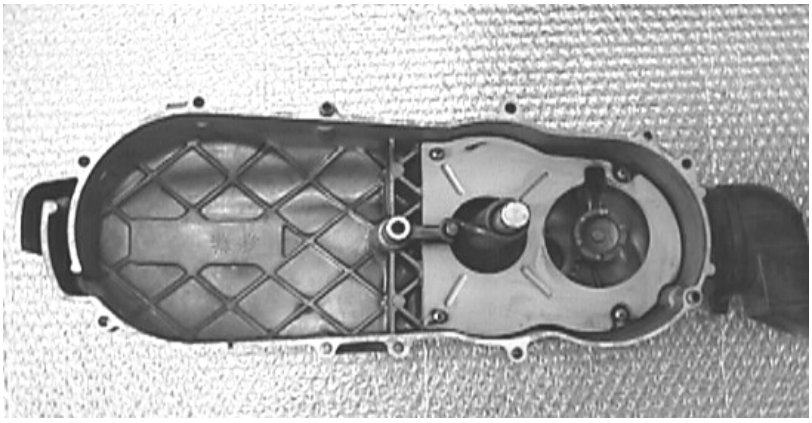
1.Dismantle left crankcase cover

2.Remove hexagon nut, then remove the starter lever.

3.Remove five screw of separated plate.

4.Remove start spring from start returning position.

5.Remove driven gear comp. of kick starter.



6.Remove the retaining C-type Ring.

7.Remove spindle comp. of kick starter.

8.Checking starter

a.Check the wearing condition of the outer diameter of spindle comp and the inner diameter of bush and gear.

b.Check the wearing condition of shaft of driven gear comp. Gear sets and ratchet.

9.Assembling the starter

Assemble the starter follows the.

Opposite procedure of dismantling.

Locking torque : M6:1.0~1.2kg/m.

Note:

①Make sure one end of the torsion spring is hooked on the groove of driven gear, and another end of torsion spring is hooked on the pole of inside of left crankcase.

②Put some grease in every shaft and gear sets before assembly.

E.Clutch driven pulley

1.Dismantling the clutch

a.Remove left crankcase cover.

b.Remove driving plate.

c.Remove driving belt.

d.Remove locking nut, then remove clutch.

2.Assemble the clutch : follows the opposite procedure of dismantling.

Locking torque:
M10:4.0~5.5kg.m

3.Checking clutch:

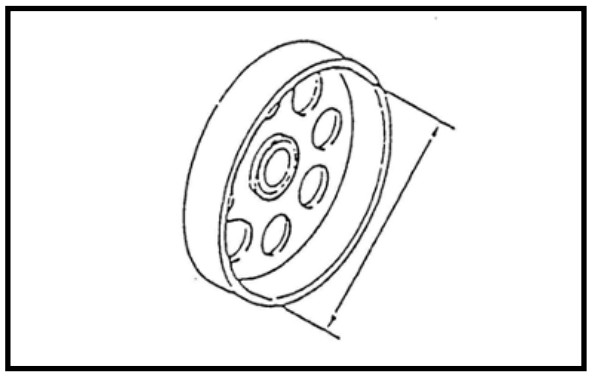
dismantling tool

a.Check clutch driving face.

Check clutch cover about its wearing condition

And inner diameter measurement.

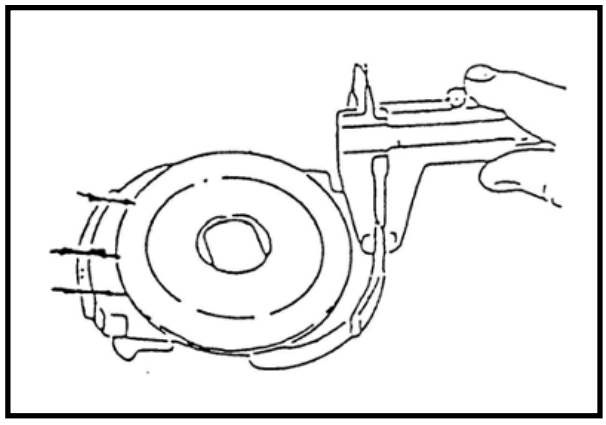
● change it above using limit



b.Check clutch lining wearing condition and

Measure the lining thickness.

●limit of use : change it below 1.5mm.

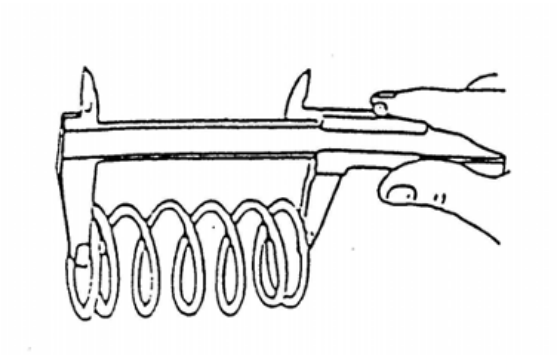


c.Check driving spring free length.

Standard: as measurement table

Limit of usage:

Change it below using limit



d. Check wearing condition of driving plate sets. And measure outer diameter.

●limit of use: change it above 33.95mm.

e.Check wearing condition of slide driven plate. And measure its Inner diameter.

●limit of use : change it above 34.00mm.

f.Check is there any wearing occur to the ditch

g.Check wearing condition of oil seal, if necessary, change a new one.

(5)Cylinder head and valve

A.Trouble shooting
B.The operation data information
C.Dismantling and installing

A.Troubleshooting.

If the cylinder head is malfunctioned, usually it can tell from the measurement of the Compression pressure or from the noise that comes from the upper part of the engine.

1.Unsmooth idle speed

-Compression pressure is too low.

2.Insufficient compression pressure.

-Poor adjustment of valve clearance

-Valve being burned out or bent

-Valve timing is not correct

-Valve spring is damaged.

-Poor sealing of valve base.

-Leakage in Cylinder head gasket.

-Cylinder head twisted or cracked.

-Spark plug is not properly installed.

3.Compression pressure is too high.

-There is too much carbon accumulated in the combustion chamber.

4.There is white fume coming out from the exhaust pipe.

-The valve stem or valve guide pipe is worn out.

-Valve stem's oil seal is damaged.

5.Abnormal noise

-Poor adjustment of valve clearance

-Valve burned or damaged spring

-Camshaft is worn out.

–Chain adjuster is worn out.

–Camshaft, valve rocker arm is worn out.

B.The operation data information

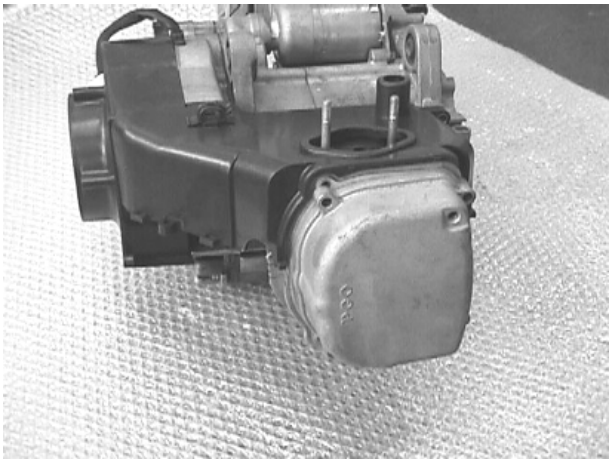
Description	IN/EX	Standard Value (mm)	Limit of use (mm)
Clearance between adjuster tapped Screw and valve stem (Before warm up)	IN	0.08	—
	EX	0.08	—
Compression pressure(throttle open full)		12kg/750rpm	
Height of the cam's convex part	IN	26.3	25.9
	EX	26.3	25.9
Inner diameter of rocker arm shaft	IN	10.00~10.015	10.10
	EX	10.00~10.015	10.10
Outer diameter of rocker arm shaft	IN	9.972~9.987	9.91
	EX	9.972~9.987	9.91
Valve base angle	IN	1.0	1.8
	EX	1.0	1.8
Outer diameter of valve stem	IN	4.975~4.900	4.90
	EX	4.955~4.970	4.90
Inner diameter of valve guide	IN	5.000~5.012	5.30
	EX	5.000~5.012	5.30
Clearance between valve stem and Valve guide	IN	0.010~0.037	0.08
	EX	0.030~0.057	0.10

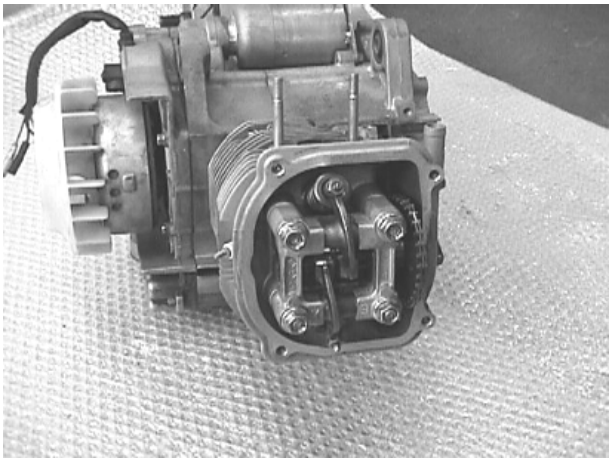
C.Dismantling and installing the Cam shaft

1.Take off the left cover.

2.Remove the intake pipe from the Cylinder head cover.

3.Take off the 4 bolts of the cylinder head cover and take off the cylinder head cover.



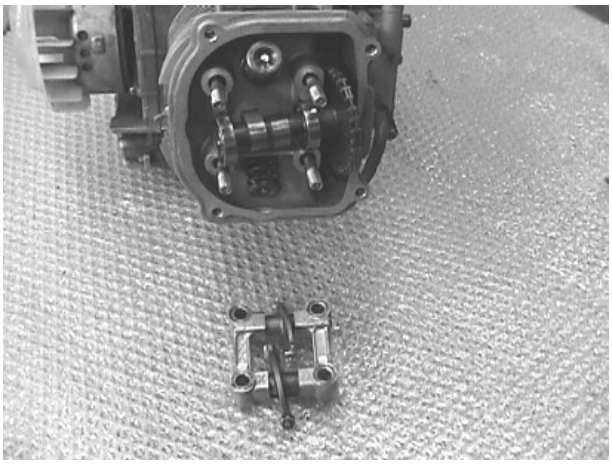


4.Turn the flywheel counterclockwise and let the ”T” mark on the flywheel point to the crankcase mark and make the round hole on the cam chain gear point upwards.
This is the upper dead point of compression.

5.Take off the cam shaft holder, the nut and the locking pin.

6.Remove the cam gear from the cam chain.

7.Remove the cam shaft.



Check cam shaft
Check the convex surface and the height and see whether it has Been damaged.

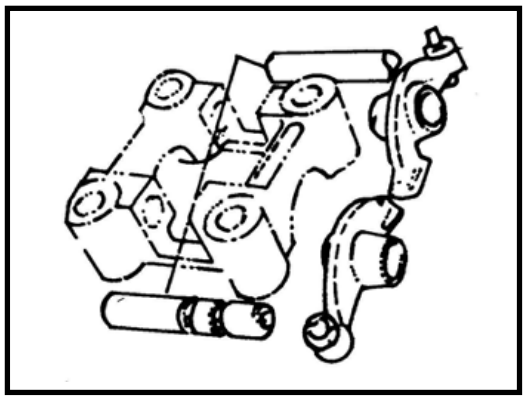


Limit of Use: IN & EX:replace it below 25.90mm

Check camshaft. If the bearing is loosen or worn out, change the whole set if necessary.

Check cam shaft holder

1.Check the cam shaft holder, cam rocker arm, and cam Rocker arm shaft and see whether it is loosen or worn out.



NOTICE: Do check if there is any damage on the cam rocker arm Sliding surface.

2.Cam shaft holder and cam rocker arm outer dia measurement:

Limit of use : replace it above 10.10mm.

3.Cam rocker arm inner dia measurement:

Limit of use : replace it above 10.10mm.

4.Cam rocker arm shaft and rocker arm outer dia measurement:

Limit of use : replace it below 9.91mm

5.Clearance between the Cam rocker arm and rocker arm shaft.

Limit of use : replace it above 0.10mm.

WHEN INSTALLING:

1.The mark “EX” on the cam shaft holder is the exhaust rocker arm, one-way stopper. Install the exhaust rocker arm, the inlet rocker arm, and the rocket arm shaft.

NOTICE: a.The tangen angle of the heat side of intake valve’s rocker arm shaft is to match with the bolt of the cam holder. b.The tangent angle of the exhaust valve’s rocker arm shaft is to match with the bolt of the cam holder.

2.Turn the flywheel to make the T mark pin correctly. The hole on the cam chain gear should point upwards. Both the left and right concave points and the cylinder head are at parallel position (convex part of cam shaft points upwards), then install the cam shaft on the cylinder head.

3.Install the cam chain onto the cam shaft gear.

4.Install the locking pin.

5.Install the camshaft holder, washer and nuts on the cylinder head.

6.Lock tightly the cylinder head nuts.

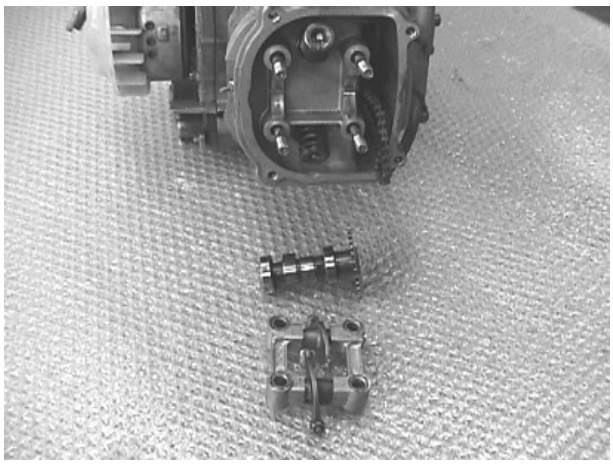
Locking torque: Cam shaft holder nuts:2.0kg-m

NOTICE: a.Put some grease on the bolt thread of cam shaft holder b.Lock the nuts of the cam shaft bracket in “cross” sequence for 2-3 times.

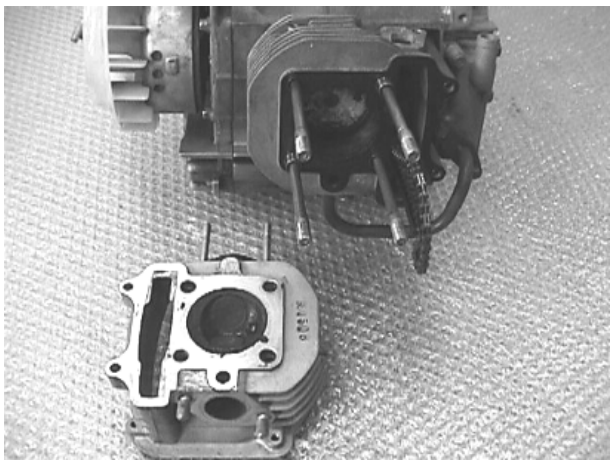
7.Adjust the valves clearance.

Dismantling the cylinder head:

1.Remove the carburetor.
2.Remove the muffler.
3.Remove the fan cover.
4.Remove the bolts on the engine cover.
5.Remove the camshaft.



6.Remove the cylinder head
7.Remove the lock pin, cylinder head gasket.
8.Remove cam chain guide



Notice:
●Not to injure the contact
Surface of the cylinder.
●Avoid any object dropping info the engine.

Further dismantling

●Use the valve contracting tool to remove valve pin, supporter, the vlave spring collar, valve spring and valve stem oil seal.

Notice:
●Valve Spring has to be operated by the valve spring contractor.
●To assemble the cylinder head, please follow the opposite procedure as above.

(6)Cylinder and piston

A.Trouble shooting

B.The Operation notice

C.Data

D.Dismaniling cylinder, piston

E.Installing cylinder, piston

A.Troubleshooting.

a.Compression pressure is too low, difficult to start engine and engine running unsmoothly.

1.Cylinder head gasket cracked
2.Spark plug is not well locked
3.Piston ring worn out or cracked
4.Cylinder, piston worn out.
5.Reed valve is out of order.

b.Compression pressure is too high; Engine overheating; abnormal noise.

1.piston tip has too much carbon accumulated.

c.Abnormal piston noise

1.Cylinder and piston worn out.
2.Piston pin hole or Piston pin worn out.
3.Connecting rod small end or bearing worn out.

d.Abnormal piston or cylinder noise

1.Piston ring worn out or cracked
2.Cylinder worn out or cracked

B.The operation notice

1.Clean before operation to avoid particles dropping into the engine.
2.The contact surface of gasket must be clean.
3.Dismantle cylinder and cylinder head by screw driver. Do not injure the contact surface.
4.Cylinder inner surface and piston outer face can't be injured. Contact Surface should lubricate by specified oil.

C.Data

Part name /description			**Standard value** (mm)	**Limit of use** (mm)
Cylinder	Bore		51.490~51.510	51.60
	Curve		-	0.05
	Cylindrility		-	0.05
	Roundness		-	0.05
Piston/ Piston ring	Clearance b/w Piston and Piston ring	lst ring	0.03~0.07	0.10
		2nd ring	0.02~0.06	0.10
	Clearance of cutting section	lst ring	0.15~0.35	0.50
		2nd ring	0.15~0.35	0.50
		side ring	0.2~0.8	-
	Piston outer diameter		51.460~51.480	51.40
	Measuring location of piston outer dia.		Down to 7mm fro the piston skirt	-
	Clearance b/w piston and cylinder		0.025~0.035	0.10
	Piston pin hole inner dia		13.022~13.013	13.045
Piston pin outer diameter			12.996~13.00	12.96
Clearance between piston and piston pin			0.02~0.017	0.025
Connecting rod small end inner dia			13.015~13.028	13.060

D.Dismantling

a.Dismantling Cylinder

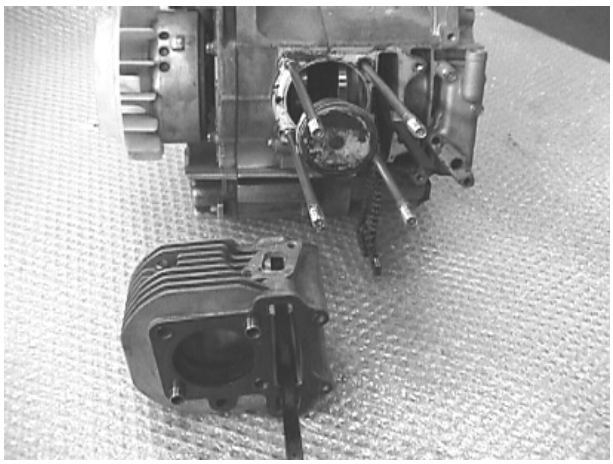
1.Remove the cylinder head.

2.Remove 2 bolts, then the camshaft chain adjuster

3.Remove CAM chain guide.

4.Remove cylinder.

5.Remove the cylinder gasket, lock pin and clean the gasket on the cylinder.



b.Dismantling piston

1.Remove the piston pin clip.

NOTICE:

Dot' drop the clip into the crankcase.

2.Remove the piston pin and take off the piston.

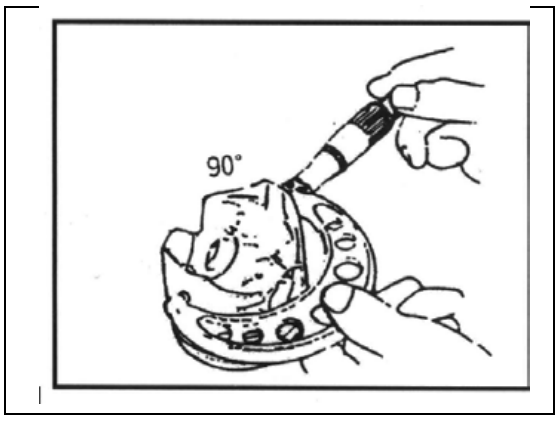
3.Check piston, piston pin, piston ring.

4.Remove the piston ring

NOTICE: NOTICE:

Don't make piston ring worn out or damaged

5.Clean the carbon in the groove of the piston ring.



c.PISTON OUTER DIA MEASUREMENT:

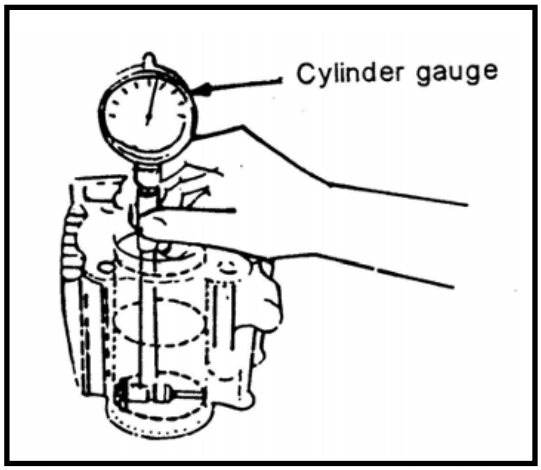
1.Measuring location:

Perpendicular to the piston pin hole, down to 7mm form the piston skirt.

Limit of use : change it when less than 51.4mm.

2.The clearance between the piston and piston pin:

Limit of use : change it when above 0.005m



3.Checking any wearing, damage inside the cylinder.

Vertical to piston pin, and in X-Y direction to measure cylinder bore from the upper, middle and lower location.

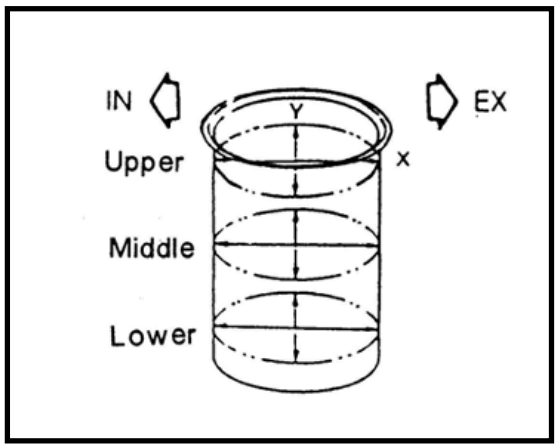
Limit of use : Change it when above 51.6mm

4.The maximum clearance between the cylinder and piston pin.

Limit of use : Change it when above 0.1mm

5.The difference between the X and y is the roundness.

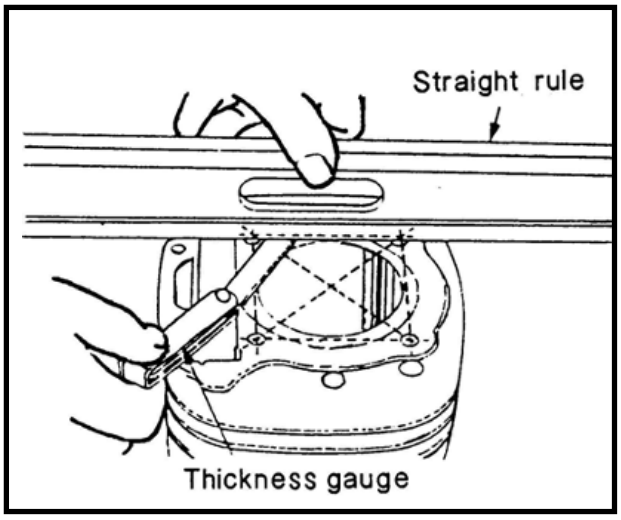
6.The cylindrility is the max value of the difference between the upper, Middlle and lower position of the inner dia in X or Y direction.



Limit of use : Roundness:change it when above 0.05mm. Cylindrility:change it when above 0.05mm.

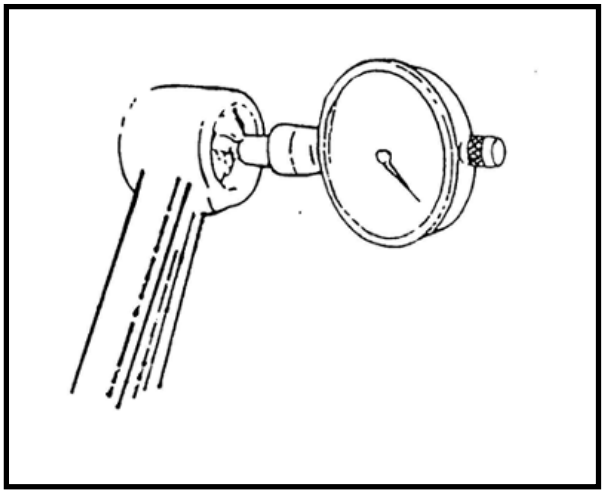
d.Checking the flatness of cylinder contact surface.

Limit of use : change it when above 0.05mm.



e.Connecting rod small end inner diameter measurement.

Limit of use : change a new one when above 13.06mm.



E.Installing Cylinder and piston

a.Installing piston and piston rings

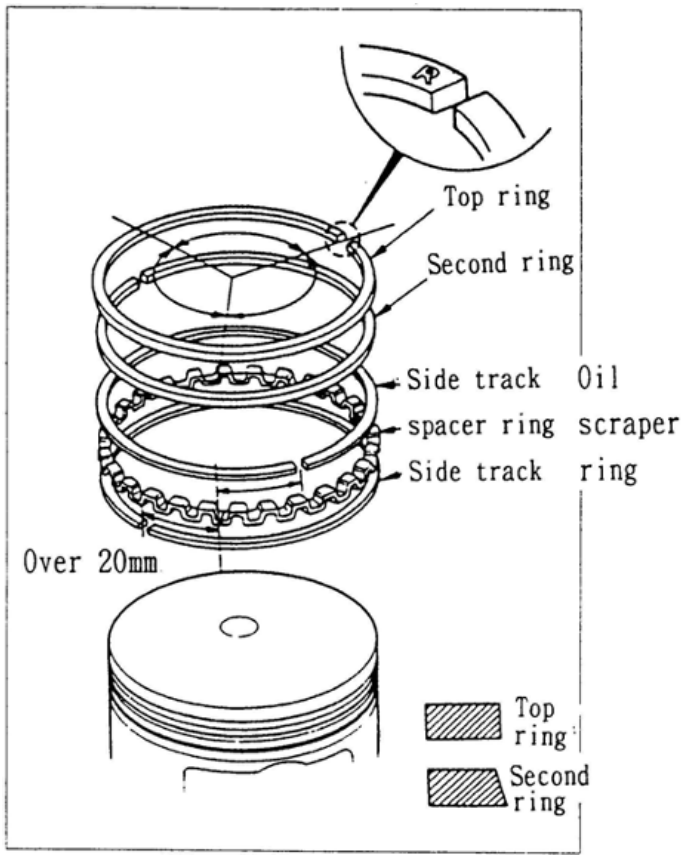
1.Lubricate the piston rings by motor oil.

NOTICE:

a.Be careful not to scratch the piston and not to break the piston ring.

b.The mark (on the ring) should be upward when installing.

c.after installing, the ring should be smoothly rotated.



2.Clean up the residual gasket on the crankcase.

NOTICE:
Do not drop other objects into the crankcase.

3.Assembly the piston, piston pin and piston pin clip.

NOTICE:
a.The mark “IN” on the piston tip should face to the INLET side.
b.Do not drop the piston pin clip into the crankcase and to clog the crankcase with rags.

b.Installing piston

1.Fix the lock pin and gasket on the crankcase.

2.Lubricate the Cylinder inner surface, piston and piston rings by Motor Oil.

3.Install the piston ring into the cylinder carefully.

NOTICE:

a.The piston ring cannot be damaged or cracked.

b.The cutting section of three rings must be arranged at intervals of 120°

(7)A.C. Generator

A.Dismantling AC generator

B.Installing AC generator

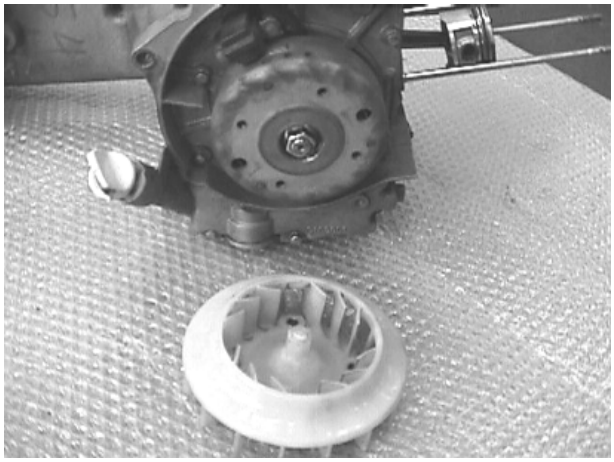
Dismantling AC generator

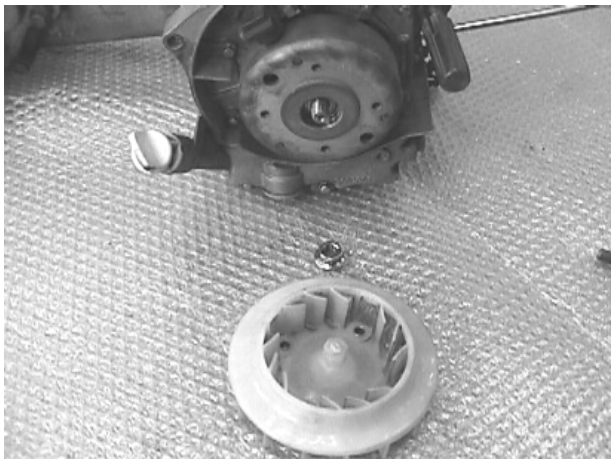
1.Rimove fan cowl.

2.Remove the M6 screws

3.Remove screws of flywheel magneto.

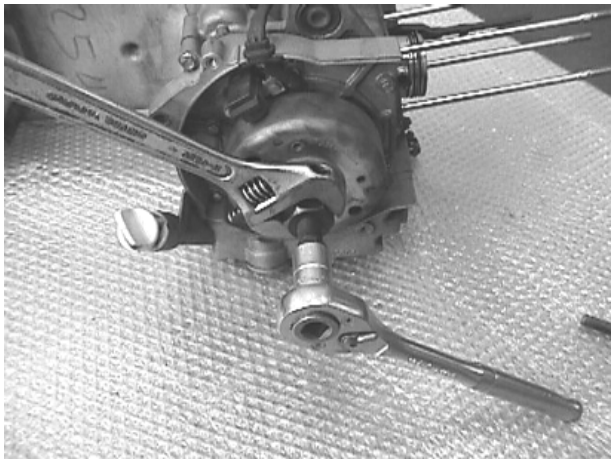
4.Remove the AC flywheel magneto by special tool.





5.Remove the flywheel.

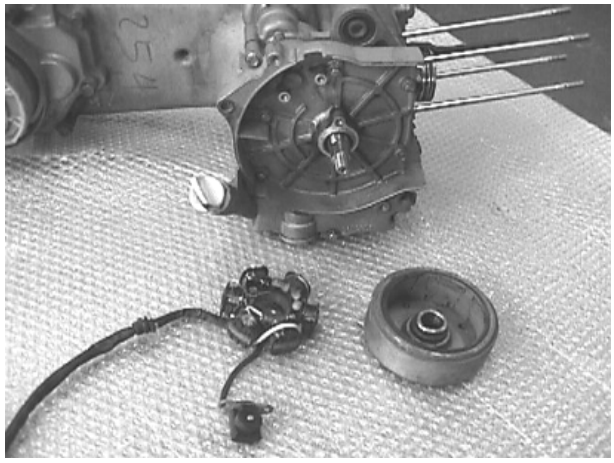
6.Remove the electric plug of AC flywheel magneto.



B.Installing AC generator

To install, please reverse the dismantling procedure.

Locking torque:
M6: 1.0~1.2kg/m
M10: 3.2~4.0kg/m



(8)Final transmission mechanism

A.Troubleshooting.

B.Disassemble the final transmission mechanism.

C.Check the final transmission mechanism.

D.Assemble the final transmission mechanism.

A.Troubleshooting

●Engine can be started, but the vehicle doesn't move.

1.Gear worn-out or cracked.

2.Gear burnt out.

●Noise occur when running.

1.Gear worn out, burnt or gear surface.

2.Bearing worn out of loosen.

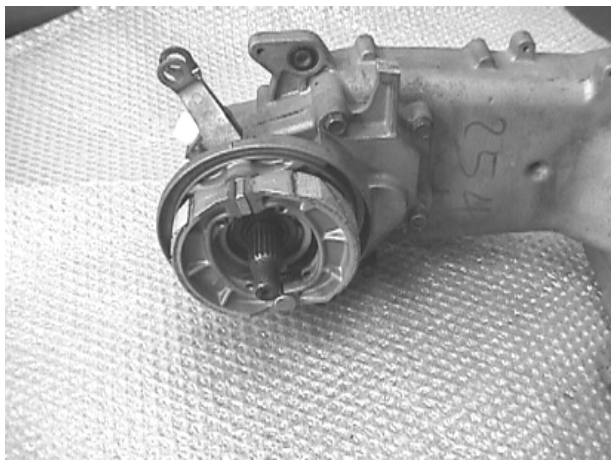
●Oil leakage

1.Too much oil

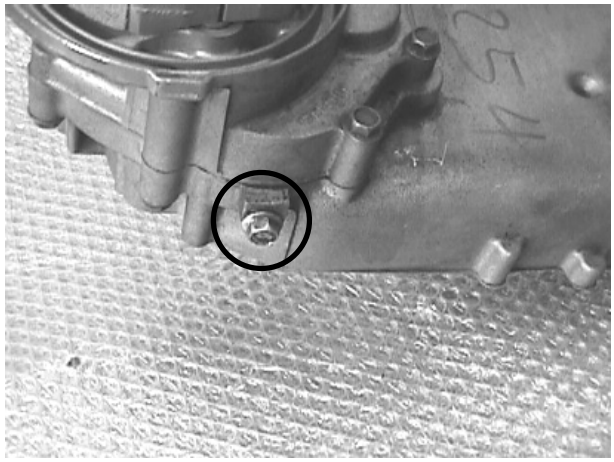
2.Seal worn out or damaged.

3.B.Disassemble the final transmission mechanism:

1.Remove the rear wheel.

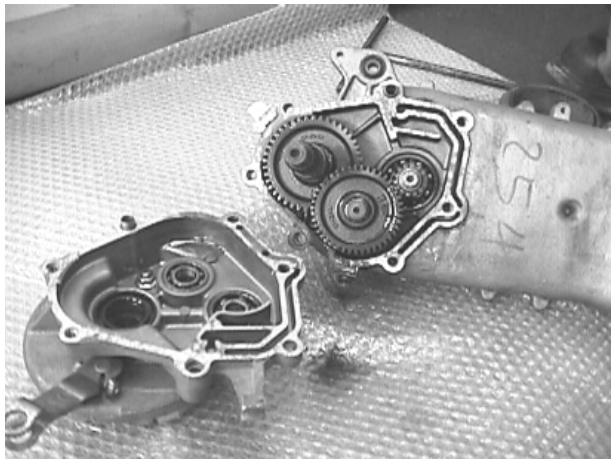


2.Drain the oil in the gear box.



3.Remove the bolt in the gear box cover.

Take off the gear box.

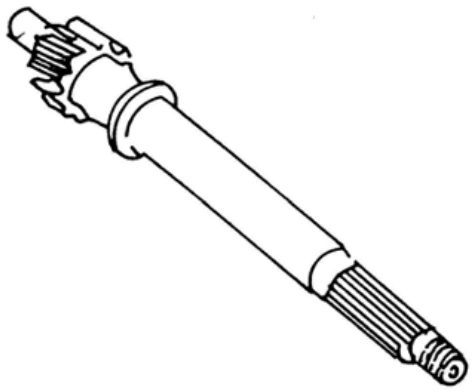


4.Remove the final reduction gear
And idle gear.

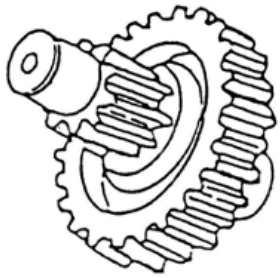
5.Clean up the gear box.

C.Check the final transmission mechanism

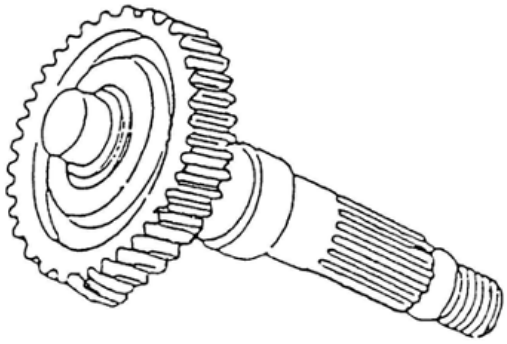
1.Check the wearing condition of driving shaft and gears.



2.Check the wearing condition of idle gear shaft
and idle gears.



3.Check the wearing condition of the final
reduction gear.



4.Check the wearing condition of the oil seal and bearing.

D.Assemble the final transmission mechanism, please follow the opposite procedure Of disassembling. After locking the drain bolt, refill 110cc of gear oil SAE90.

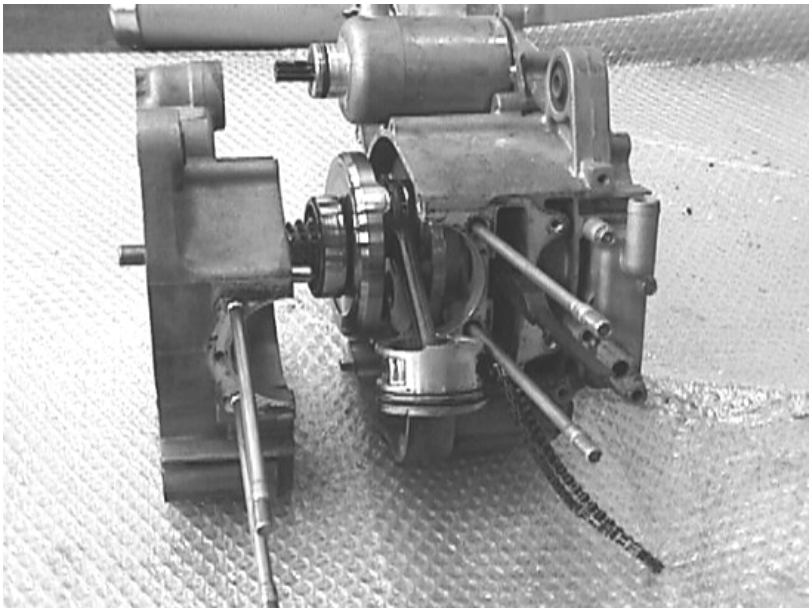
Locking torque:	M6: 1.0~1.2kg/M M10: 3.5~4.0kg/M
Drain bolt:	M8: 1.8kg/M

(9)Crankcase, Crankshaft:

A.Disassembling diagram.
B.Troubleshooting.
C.Data
D.Remove crankcase and crankshaft.
E.Check crankshaft.
F.Assemble the crankcase.

A.Disassembling diagram

Torque: 1.0~1.2kg-m



B.Troubleshooting

Engine noise:

1.The bearing of final transmission mechanism is loosen.

2.Crank pin of bearing is slack.

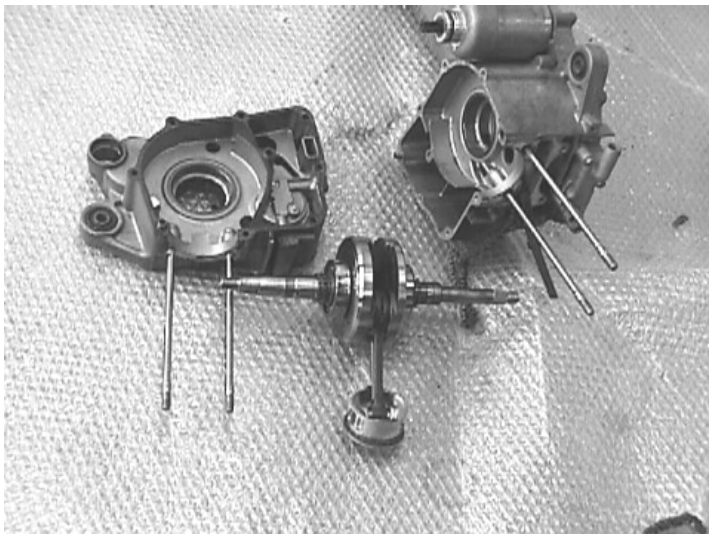
3.The bearing of gear box is loosen.

C.Data

Item	Stardard value(mm)	Limit of use.(mm)
Clearance of connecting rod big end axle direction	0.10~0.35	0.55
Clearance of connecting rod big end vertical direction.	-	0.04
Swingness of the crank shaft journal.	0.03	0.10

D.Remove the crankcase and crankshaft by the following procedures:

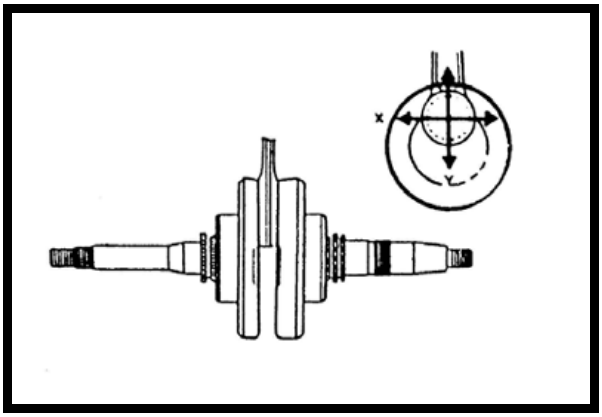
1.Remove the engine.
2.Remove the muffler.
3.The carburetor.
4.Engine corer.
5.Cylinder head.
6.Cylinder.
7.The driving plate.
8.AC flywheel magneto.
9.The starter clutch.
10.Oil pump.
11.Bolts of left/right crankcase.



E.Check crankshaft

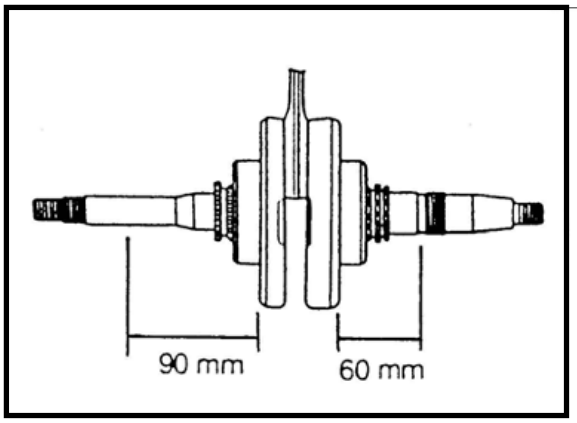
1.Measure the difference of the connecting rod big end between the X and Y

Limit of use : replace it when above 0.04mm.

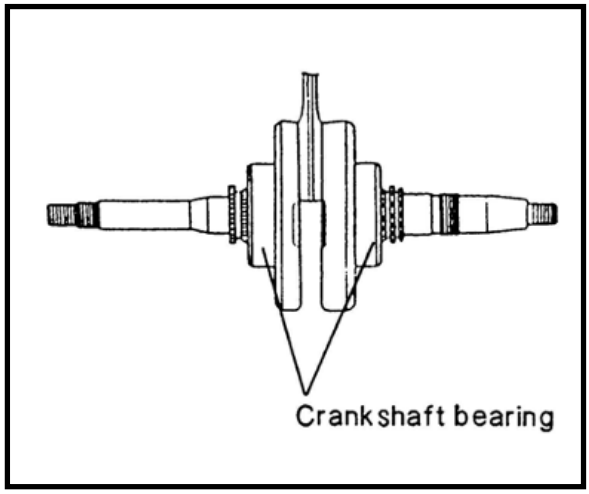


2.Measure the swing ness of the crankshaft journal.

Limit of use	
A	B
Change it when above 0.1mm	Change it when above 0.1mm



3.Check the looseness of crankshaft bearing.
If it is loosen, replace to a new one.



F.Assemble crankcase:

1.assemble crankcase according to the opposite procedure of disassembling.
2.The locking torque of bolts and nuts are described in previous chapter please refer.

(10)Carburetor:

A.Troubleshooting.
B.Dismantling the carburetor.
C.Dismantling the float and nozzle.

(A) Troubleshooting

●Difficult to start

1.No sparking in spark plug.
2.Compression pressure too low.
3.No fuel in the carburetor
-air cleaner blocked
-oil pipe blocked
-bad adjustment of the fuel level
float valve is jell

●Mixed air too dilute

1.Main jet blocked
2.Float valve blocked
3.Fuel level too low
4.Fuel system blocked
5.Second air sucked into intake system
6.Bat vacuums during piston movement
7.Throttle valve malfunction

●Too much fuel in the engine

1.Air cleaner blocked

2.Mixed air is too dilute in the idle system

●Sparking unsteady while increasing speed

1.Ignition system malfunction.

2.Air mixture is too dilute

●Difficult to start, Ignition off, Unstable idling

1.Fuel system blocked

2.Ignition system malfunction

3.Air mixture is too dilute or too thick

4.Fuel deterioration

5.Second air sucked into intake system.

6.Bad idle adjustment

7.Bad fuel volume adjustment

8.Idle system or auto chock system blocked

9.Bad adjustment of fuel level

●Mixture air too thick

1.Auto chock system malfunction

2.Float valve malfunction

3.Fuel level is too high

4.Air route blocked

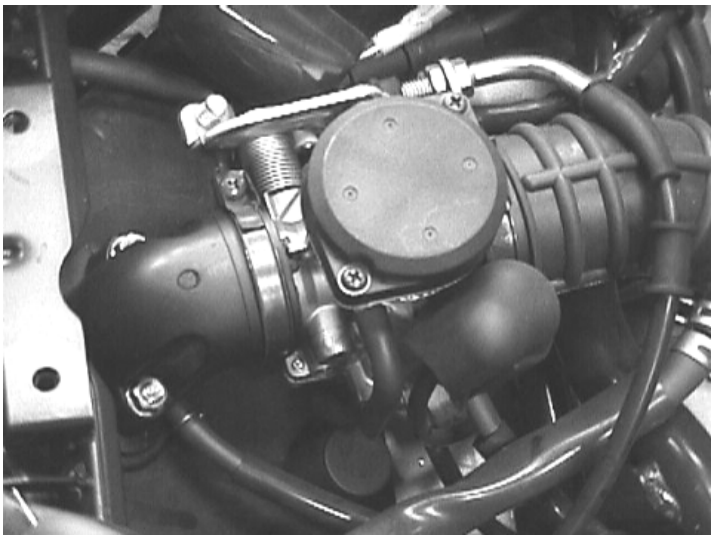
5.Dirty air cleaner

6.Fuel overwhelming in carburetor

(B)Dismantling the carburetor

1.Remove the auto starter connector.

2.Remove the throttle cable, then the fuel pipe from the carburetor.



3.Remove the screws on the intake manifold.

4.Unscrew the fixing belt on the connecting pipe.

5.Remove the carburetor.

Assembling the carburetor

To assemble the carburetor, please follow the reversed procedures of the dismantling and do the following adjustment after installation is finished:

-Adjust the throttle cable

-Idle adjustment

Adjustment of fuel volume adjusting screws

Note :Fuel volume adjusting screws have been set up properly before sale thus there is no need for self-adjustment. However, when dismantling, a record of the turning loop has to be dept for future assembling purpose. Put up the center stand while adjustment.

1.After the engine is warm up, adjust the stopping screw throttle of throttle valve to the standard rpm.
Idle rpm 1,700±100rpm

2.Adjust the fuel volume adjusting screws to the highest stable rotation.
This rotation value is the optimum setting of throttle

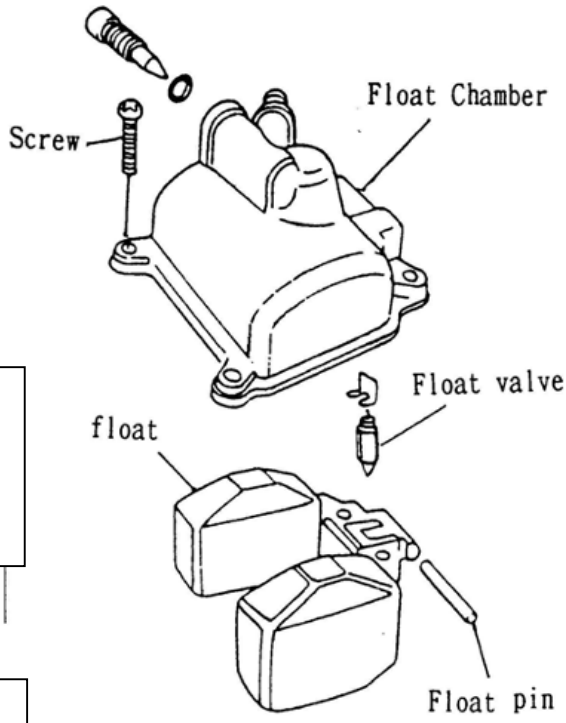
3.Fuel up for several times, make sure that the idle rpm is within the standard rpm.
Repeat the above procedure if the idle rpm is unstable.

(C)The float nozzle

1.Dismantling

●Remove the screws to take off the float chamber.

●Remove the float, the float pin, and float valve.



2.Checking

●Check the float valve, valve base to see whether it is blocked or damaged.

●Check the float valve, valve base surface if sectional worn out or dirty.

△Note:
When the valve is too dirty or severely worn-not, the Valve base will not close completely thus will result In increasing of fuel level and fuel leakage problem. A new replacement is needed.

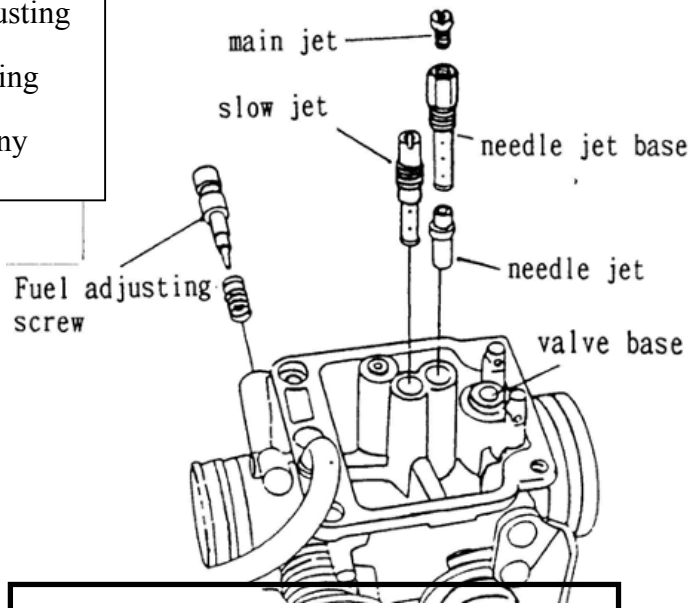
●Remove the main jet, needle jet base,needle jet, slow jet and fuel adjusting screws.

△Note:
- ●Avoid any damage on the jets and the fuel adjusting screws.
- ●Before dismantling, record the number of turning loops.
- ●No screwing-in movement by force to avoid any damages.

●Use the detergent solution to clean the jets. Fuel adjusting

After cleaning off the blockage and the dirt, screw

blow dry by compressed air.

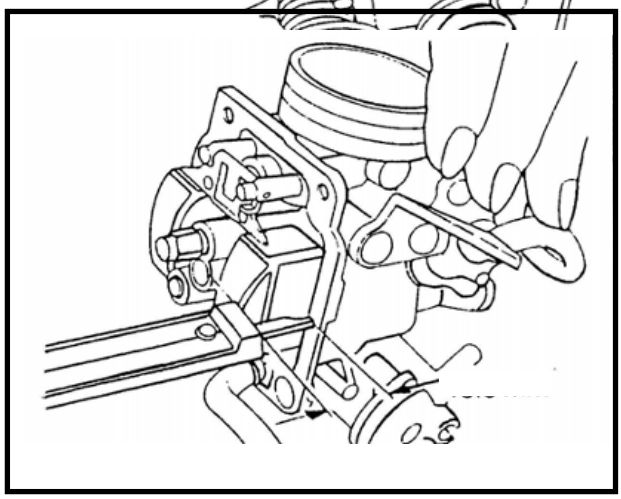


Note:
Remove the vacuum and air-interrupt valve for Cleaning.

3.Assembling

●Assemble the slow jet, needle jet, main jet and fuel adjusting screws.

●Notice
Record the number of turning loops before dismantling



●Assemble the float valve, float and float pin.

4.Checking fuel level

△Notice
- ●Check after the checking on the float valve and the float is done.
- ●Put the float gauge on the float chamber perpendicularly to the main jet for measurement.

(11)Steering stem, front wheel, frt brake comp and front fork.

A. Troubleshooting
B. Data
C. Steering handlebar
E. Front wheel
F. Front brake
G. Front fork

A.Troubleshooting

1.steering handlebar is abnormal, too tight.

a. steering mechanism; washer of conical bush locked too tightly.

b. steering mechanism; steel ball is cracked.

c. steering mechanism; steel ball base and washer of conical base is damaged.

d. wheel pressure is too low.

2.steering handlebar is aslant.

a.left and right damper is not even.

b.Front fork is crooked.

c.The axle of front fork is crooked, wheel is aslant.

3.front wheel swings.

a.wheel rim is distorted.

b.bearing of front axle too free.

c.wheel rib is distorted.

d.Wheel is not good.

e.Front wheel axle locked improperly.

4.front damper is too soft, spring fatigue.

5.noise in front damper.

a.noise comes from damper box.

b.locking screw of damper is slackness.

B.Data

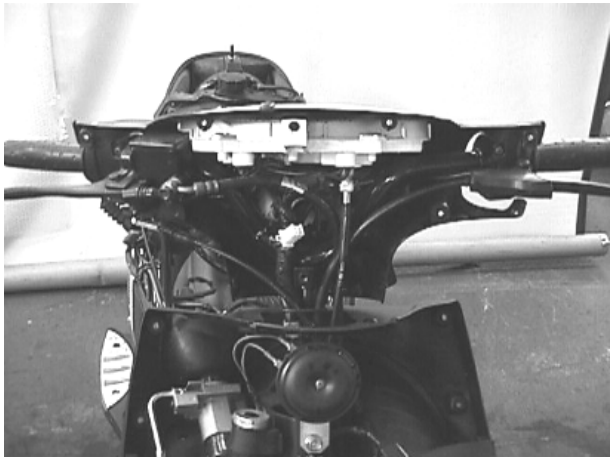
Item	Standard value (mm)	Limit of use (mm)
Lining of frt brake	4.0	2.0
Disk of frt brake	3.6	3.1
Swingness of frt/rr wheel	-	2.0

C.Changing the speedometer cable

1.Remove the fixed screws of the front cover.
2.Remove the nut of speedometer cable.
3.Remove the front handle cover.



4.Remove the fixed screws of speedometer cable on the right of front wheel.
5.Draw out the damage speedometer cable.
6.Assemble the new cable follows the opposite procedure of dismantling.
NOTE:Put the grease onto the Inner cable before Assembling.



(D)Steering handlebar

1.Remove the LH/RH back mirrors.

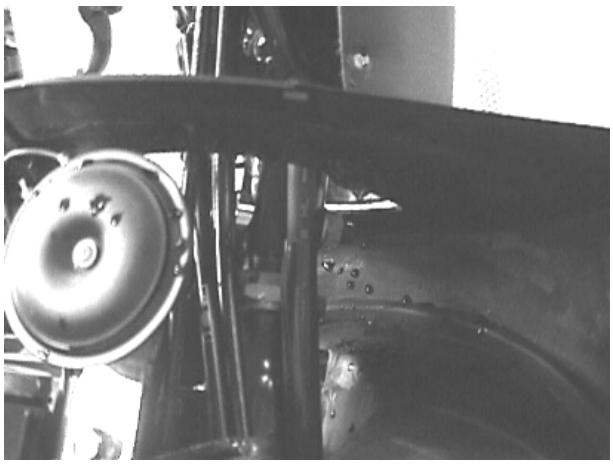
2.Remove the upper handle cover.

3.Remove the nuts on front fork and handlebar.

4.Take off the fixing bolt.

5.Remove the nut and bolt of the front fork fixed on The handlebar.

6.Take off the handle bar.



7.When assembling, please follow the opposite procedures.

Locking Torque:
M6 :1.0-1.2kg-m
M10 :3.0-4.0kg-m

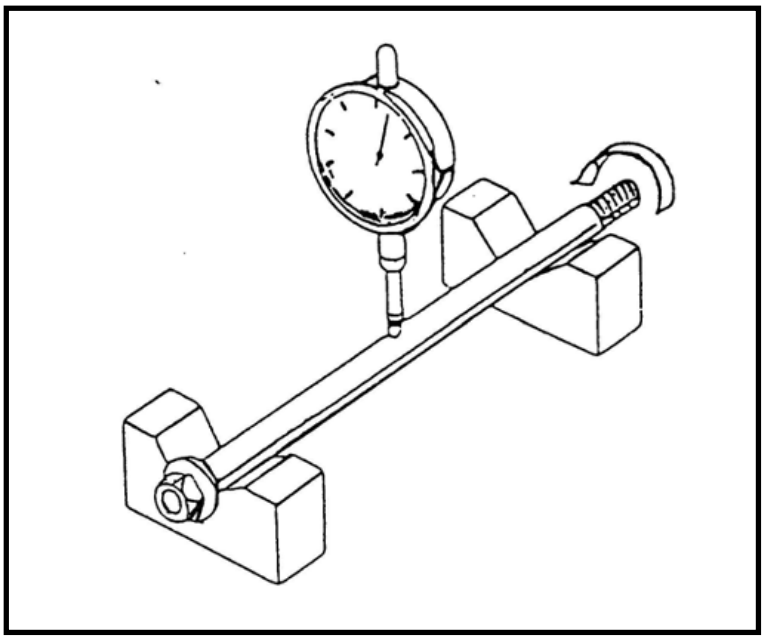
8.Before assembling, please add grease on each cable.

(E)Front wheel

1.Remove the locking nut of the front wheel on the right side.
2.Draw out the axle of front wheel, remove the ring and take off the gear sets of speedometer.
3.Remove the front wheel assy.
4.Assemble the front wheel follows the opposite procedure of dismantling.
Locking Torque:
M10: 3.0-4.0kg-m



Note:
1.Put the lock block of speedometer gear assy upon the extrusion of the front fork.
2.Put the grease onto the grease sets of speedometer before assembling.
5.Checking the front wheel axle
a. Check the bending degree of the front axle.
b. Take note of the bending degree on the middle of axle.
c. Limit of use:Change it when above 0.2mm.

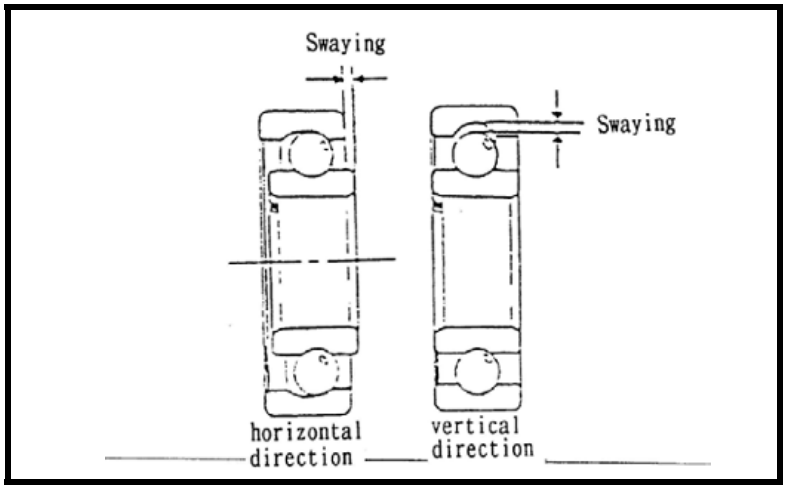


6.Front wheel bearing checking

Turn the tire. If the bearing is

Loosen or any occurrence for noise,

Please change a new one.



7.Front wheel rim checking

(1)Check the swing of the front wheel rim.

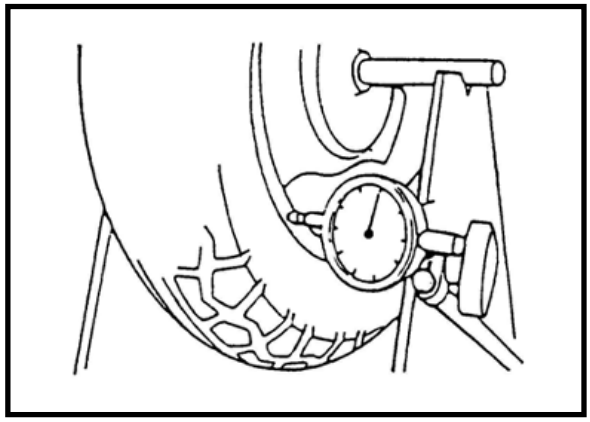
(2)Limit of use:

●Horizontal direction:

Change a new one when above 2.0mm.

●Vertical direction:

Change a new one when above2.0mm.



(F)Front brake

1. Disassembling and assembling of the front brake comp.

a.Remove two bolts fixed on the front brake comp and the front fork.

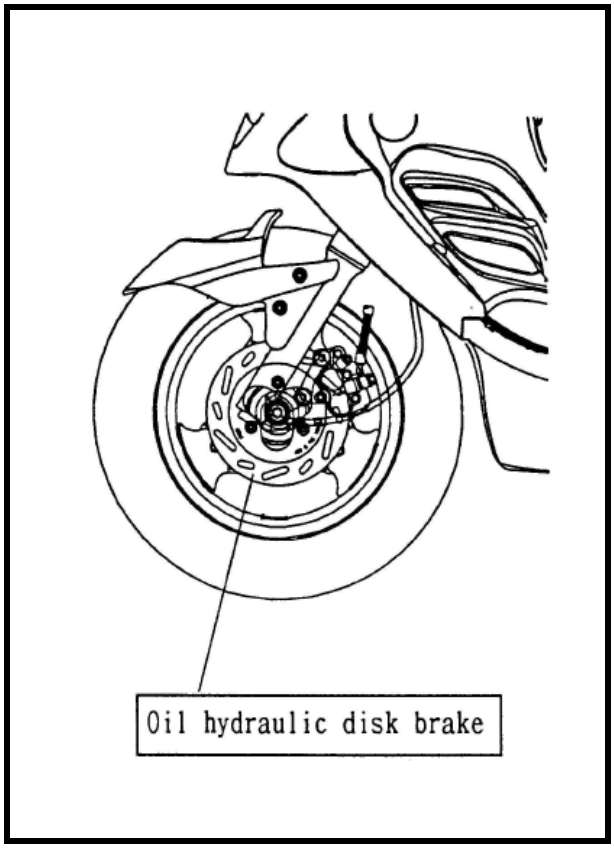
b.Remove the front brake comp.

c.Assemble the front brake comp.

Follows the opposite procedure of dismantling.

Locking Torque:

M8: 2.0~3.0kg-m



2.Air releasing of the front brake comp

The procedure of air releasing

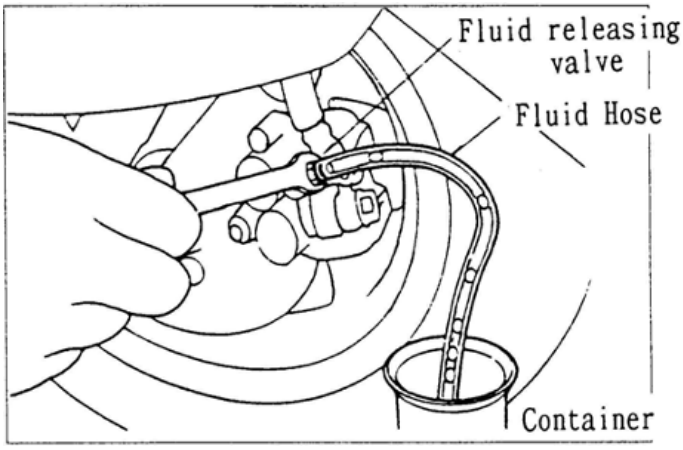
a.Fill the enough brake oil to the container

b.Do not let the brake oil overflow from the master cylinder or container when assemble the master cylinder cover.

c.Put the spanner upon the drain screw.

d. Lock and unlock the screw several times to Release the bubbles.

e. Operate slowly the brake lever several times.



f. Clamp the brake lever to the end.

g. Loose the drain screw, then open the lever completely.

h. Locking the drain screw and then loose it when the lever is opened completely.

i. Repeat above procedure until all the air in the brake system has been released Completely.

Locking torque of leaking screw: 0.6 kg-m

3.Front fork checking:

If it is bent or cracked, please replace with a new one.

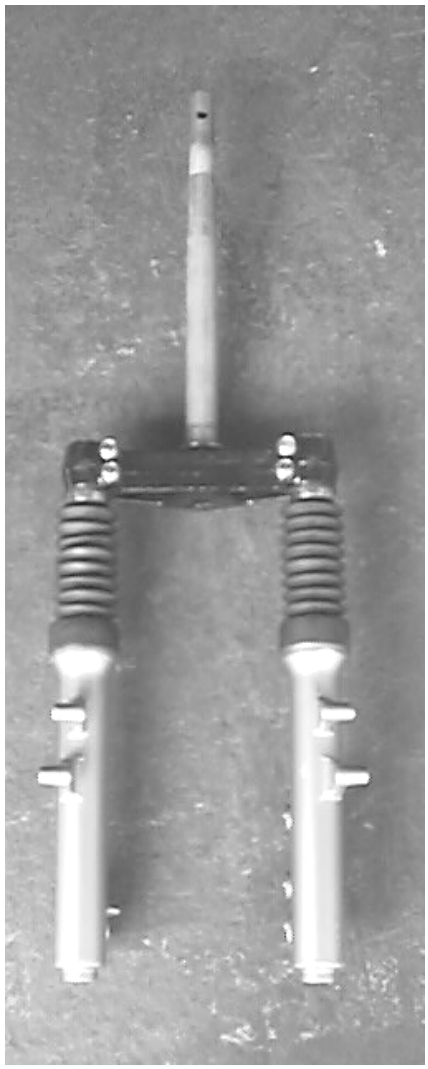
4.Front shock absorber checking

Check is there any unusual damage or worn-out condition, and whether the guide rod of the Front fork is crooked or not.

Front fork oil type: SAE 10W20

Capacity (each side): 80 CC

NOTE: If the guide rod is crooked, it should be replaced by a new one or repaired.



5.Disassembling and assembling the front brake-disk.

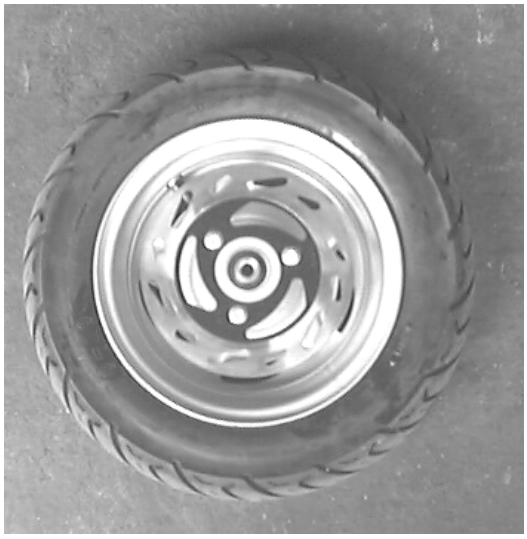
a. Remove the front wheel.

b. Remove three nuts on the disk.

c. Remove the disk.

d. Assemble the disk follows the disassembling procedure.

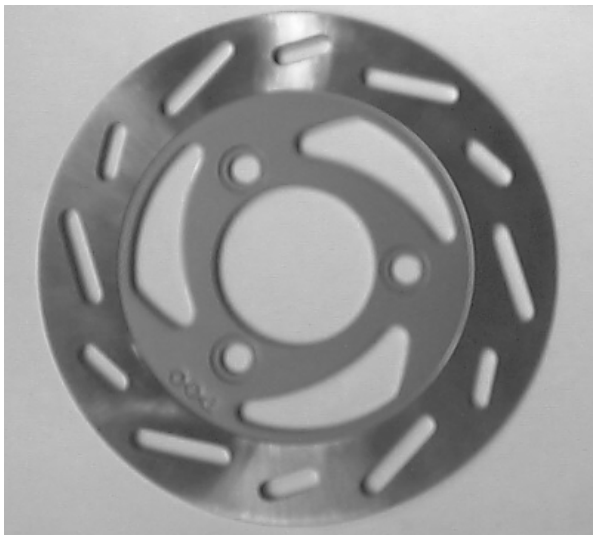
Locking torque M8: 2.0~3.0kgm



6.Checking the front brake-disk.

Standard thickness of disk: 3.6mm

Limit of usage: change it when below 3.1mm

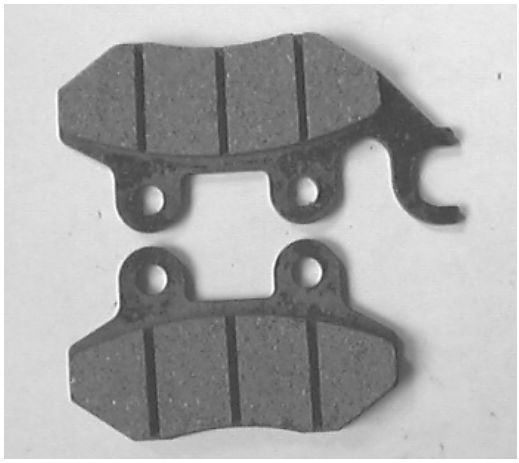


7.Checking the front brake-lining.

a.standard thickness: 4.0mm.

limit of use:As the thickness is below 2.0mm, change it.

Note:No grease on the lining.



(12)Rear wheel, rear brake, rear damper:

A.Troubleshooting.

B.Data.

C.Dismantling the rear wheel.

D.Checking the rear wheel.

E.Rear brake.

F.Rear damper.

A.Troubleshooting.

1.Rear wheel swings.

a.wheel rim is distorted.

b.wheel is abnormal.

c.improperly assemble the wheel axle.

2.Rear damper is too soft

a.rear damper spring fatigue.

3.Bad braking

a.the adjustment of brake is not good.

b.the brake lining is dirty.

c.the brake lining is worn out.

d.the cam of brake lining is worn out

e.the brake cam lever is worn out.

f.the brake hub is worn out.

g.the assembling of brake lever gear trough is not good.

B.Data

Item	Standard value(mm)	Limit of use(mm)
The swings of rear wheel	**-**	**2.0**
Brake hub inner diameter	**130**	**131.0**
Thickness of brake lining	**4.0**	**2.0**

C.Dismantling and assembling

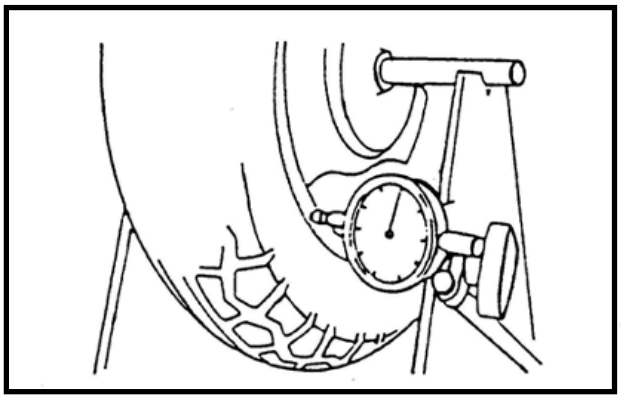
The rear wheel.



1.Remove the fixed screws and bolts of the exhaust pipe.
2.Remove the fixed screws of the rear wheel drum.
3.Remove the bolts.
4.Remove the rear wheel.
5.To assemble the rear wheel, please reverse the dismantling procedures.

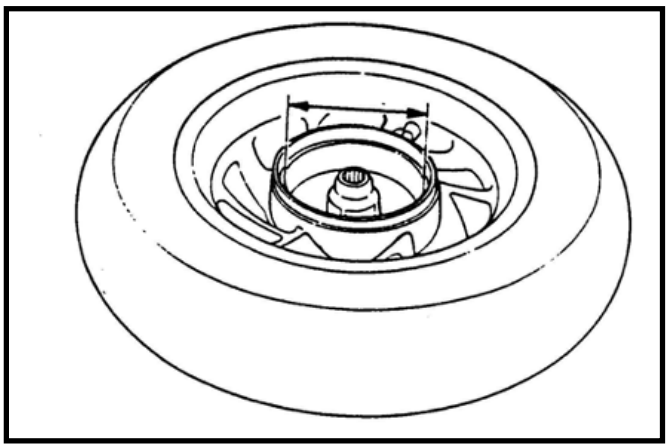
Locking torque: M6: 0.7-1.1kg.m
M14: 8.0-10.0kg.m

D.Checking the rear wheel.



●check the swings of rear wheel.
●radial direction:
change it as it is above 2.0mm
●horizontal direction:
change it as it is above 2.0mm.

E.Rear brake:

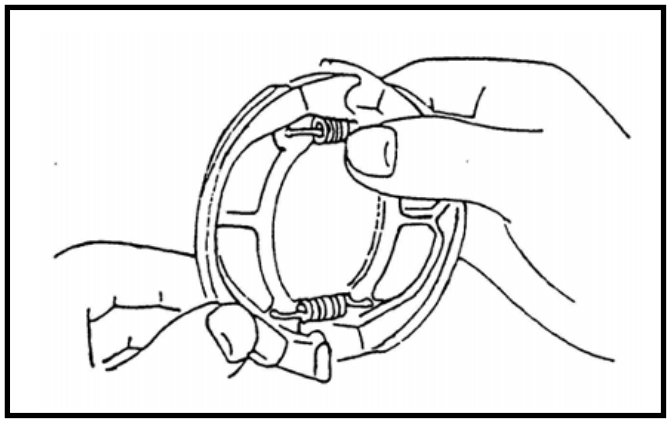


1.Rear brake disassembling diagram.

(1)Checking rear brake hub:

a.measure the inner diameter of rear brake hub.

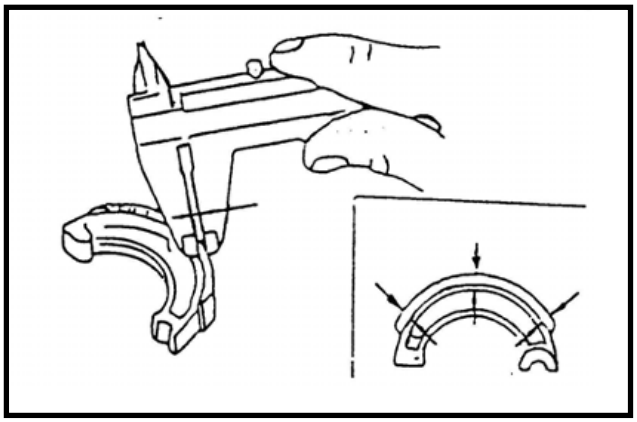
b.limit of use:change it as the diameter is above 131.0mm



(2)Checking brake lining:

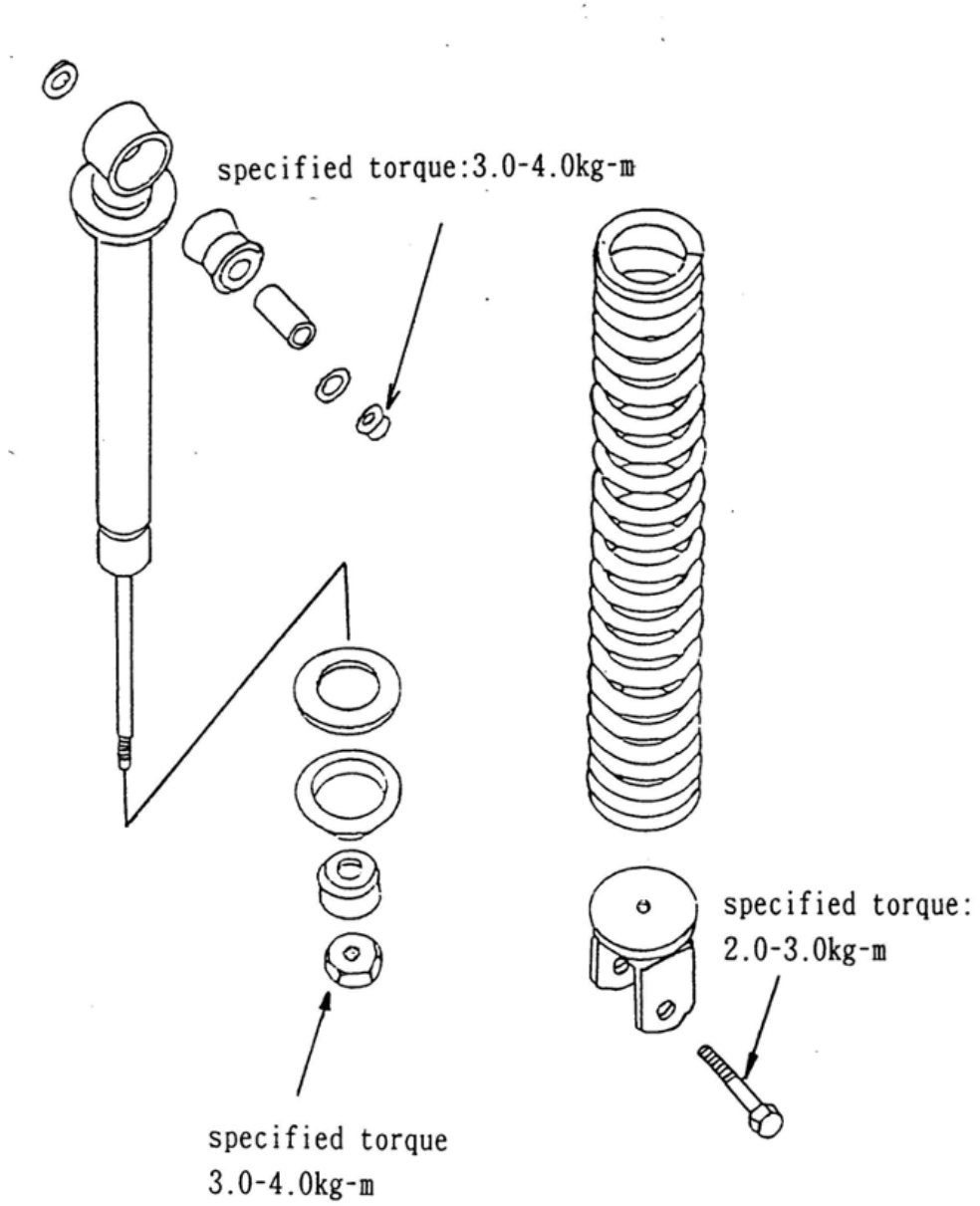
a.measure the thickness of rear brake lining.

b.Limit of use:As the thickness is less than 2mm, change it.



F.Rear damper

1.Rear damper disassembling diagram:



(13)Fuel tank

A.Troubleshooting

A. Troubleshooting:

1.Engine can’t start:

a. No fuel in fuel tank.

b. Fuel pipe is blocked.

c.. Auto cock and fuel filter is blocked.

d. The membrane of fuel cock over extended.

2.The mixture is too lean.

a. Ventilation hole is blocked.

b. Fuel pipe is crooked, squeezed, or blocked.

c. Auto cock and fuel filter is dirty.

B. Dismantling and assembling

Fuel Tank

1.Remove the luggage box.

2.Open the rear cover of the fuel Tank and take it off.

3.Remove the left and right rear handle bars.

4.Remove the left and right side covers.

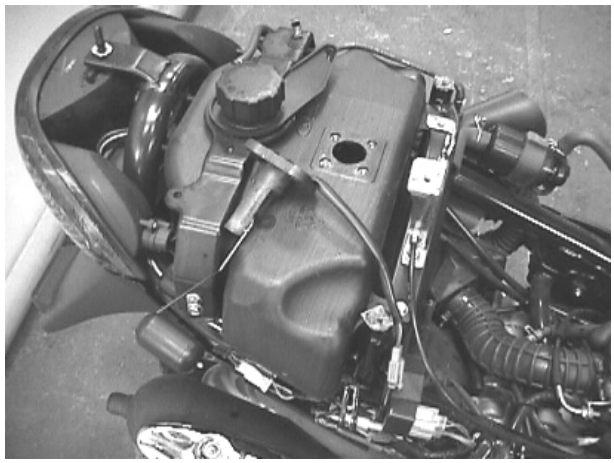




5.Remove the fuel pipe.
6.Remove the connecting terminal of the fuel gauge.



7.Remove the fuel gauge.
8.Remove the fixing blot of the fuel tank.
9.Take off the fuel tank.
10.When re-assembling, please follow the opposite procedure of disassembling.
Locking torque: M6: 1.0-1.2kgf-m



5.Electric equipment:

(1)Troubleshooting
(2)Battery
    1.check specific gravity of eletrolyte
    2.recharge
(3)Recharge system
    1.the wiring diagram of recharge system
    2.check A.C. flywheel magneto
    3.check regulator/ rectifier.
(4)Ignition system
    1.the wiring of ignition
    2.check spark plug
    3.check H.T. Cable and H.T. coil
    4.check C.D.I. set
(5)Starting system
    1.the wiring of starting
    2.checking the starter
    3.dismantling the starting motor
    4.checking the starting motor
(6)Starting clutch
(7)Handle bar switch

(1)Troubleshooting:

A.Recharge system:

●No power:

1.battery over charge

①No electrolyte in battery.

②Battery becomes white.

③Short circuit in battery.

④Regulator malfunction

2.the battery wires disconnected.

3.fuse is broken.

4.Ignition lock is abnormal.

●Voltage is too low:

1.Battery recharges insufficiently.

2.The connecting is abnormal.

3.Recharge system is abnormal.

4.Regulator malfunction.

B.Ignition system:

●The sparking of spark plug is abnormal:

1.Spark plug is abnormal.

2.Wire connects improperly, broken or short Circuit.

①between A.C. flywheel magneto and CDI sets.

②between CDI sets and H.T. coil.

③between CDI sets and main switch.

④between main switch and spark plug.

3.Main switch is out of order.

4.H.T. coil is abnormal.

5.CDI sets is out of order.

6.A.C. flywheel magneto is abnormal.

C.Starting system:

●Starting motor can't rotate:

1.The fuse is broken.

2.Battery recharges insufficiently.

3.Main switch is abnormal.

4.Switch of starting motor is out of order.

5.Switch of front. rear brake is out of order.

6.Starter relay is out of order.

7.Wire disconnects or broken.

●Currency is unstable.

1.The wiring of battery connects improperly.

2.Ignition system connects abnormally.

3.Ignition system is short circuit.

4.Lamp system connects abnormally or Short circuit.

●Abnormal recharge system:

1.The plug part connects abnormally, Wire broken or short circuit.

2.Rectifier is abnormal.

3.A.C. flywheel magneto is abnormal.

D.Engine rotate unsmoothly:

1.Ignition primary wiring

①the wire or plug of wiring connects Improperly.

②main switch disconnects.

2.Ignition secondary wiring

①Ignition coil is abnormal.

②Spark plug is abnormal.

③H.T. coil is abnormal

④Spark plug cover electricity leakage.

3.Ignition period

①A.C. magneto is abnormal.

②A.C.G. coil disconnects.

③C.D.I. set is abnormal.

8.Starting motor is out of order.

●Starting motor weak rotation:

1.battery recharges insufficiently.

2.wiring disconnect.

3.motor or gear some impure material drop in

●Starting motor can rotate, but engine Can't rotate:

1.starting pinion is abnormal.

2.starting motor is reverse rotation.

3.battery is out of order.

(2)Battery:

Always, remove the battery negative Cable(-), then remove positive cable (+). But connect the positive cable (+)first, then connect the negative cable(-) when assembling.



1.Recharging

Connection method:

Connect the positive cable(+)of the recharger to the positive cable(+)of the battery; and The negative cable(-)of the recharger to the negative cable(-)of the battery.

Recharging currency:

Please recharge(12V) according to the following currency and time.

Standard: 0.7A * 5-10HR OR Rapid: 3A * 1Hr

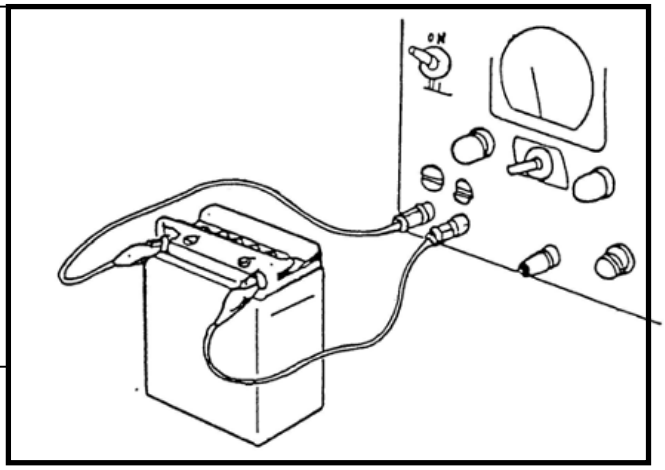
NOTICE:

1.It is not necessary to refill the battery liquid into the battery.

2.Do not take off the sealed bolt while recharging.

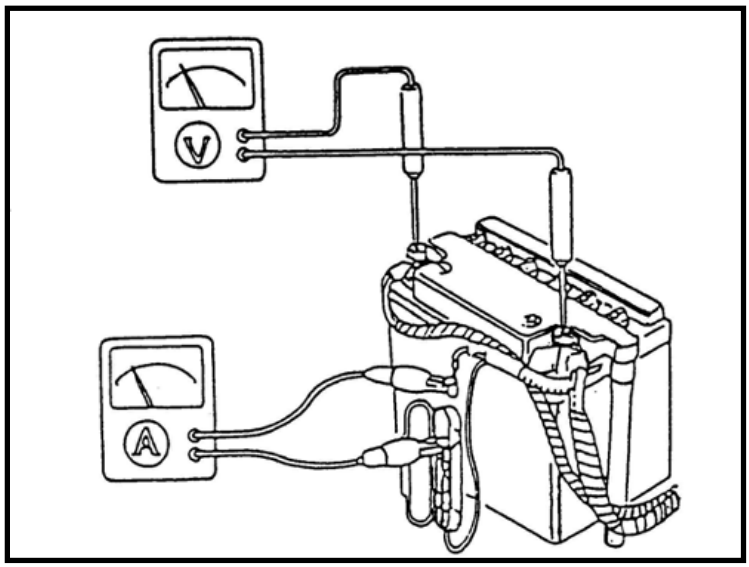
NOTE:

- No fire near battery when recharging
- The “ON” or “OFF” of recharging currency must be operated by the switch of recharger. It will cause spark or explosive if plug or unplug the cable directly.



2.Testing the recharging performance

This test needs to be done under the Battery has been recharged completely



a. This test needs to be done after engine is warm-up.
   And take off the luggage case Firstly.
b. Disconnect the orange cable of regulator.
c. Open the fuse box to remove the white cable
d. Connect currency meter between red/ white cable fuse.

While testing, the red wire cable must not touch the frame.

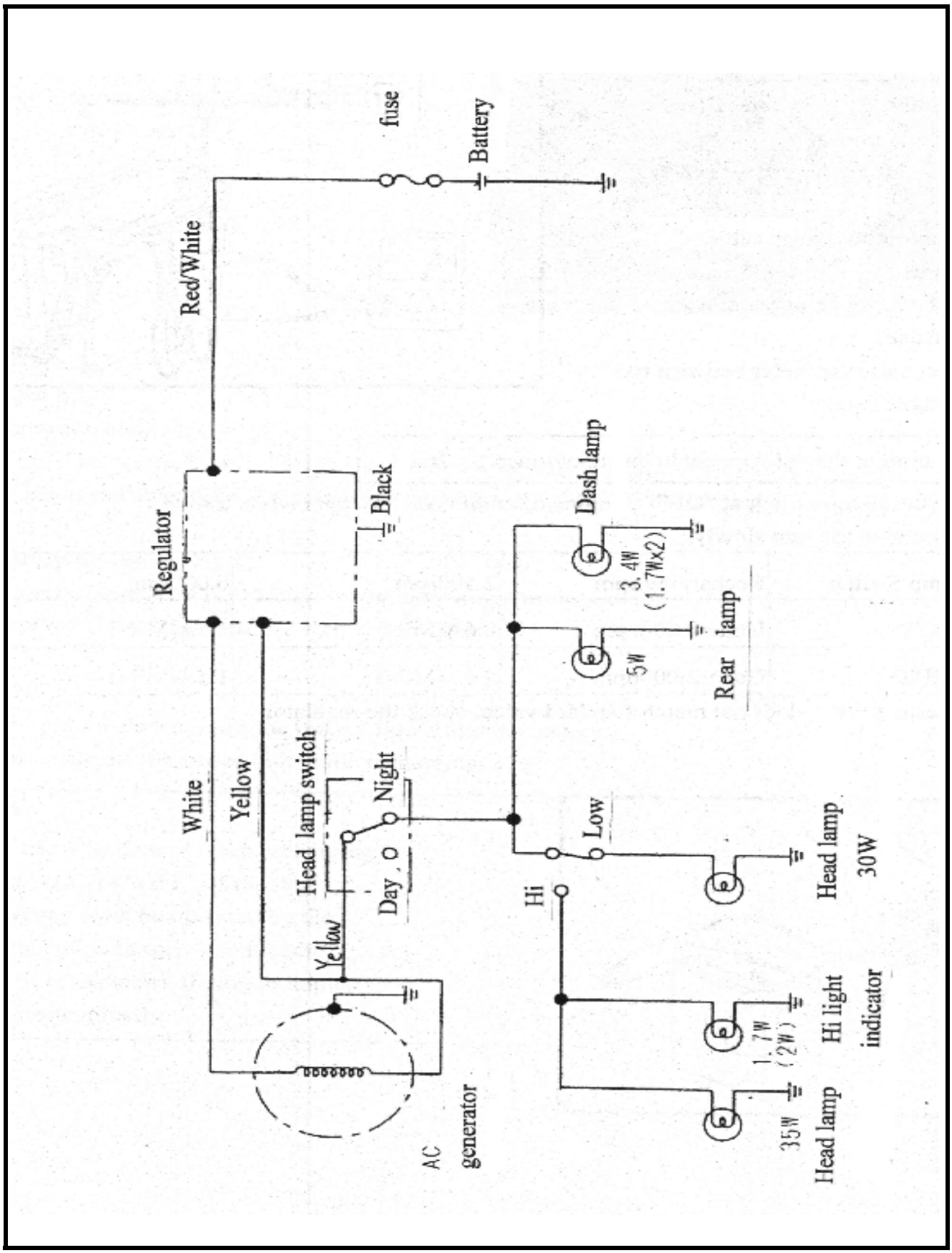
d. Set the headlamp switch at “OFF” , engine rotation is at 2000 rpm while testing.
   Then increase the rpm slowly.

Head Lamp Switch	Recharging rpm	2,500rpm	6,000rpm
OFF (DAY)	Under2,000upm	0.6A(MIN)	1.5A(MIN)
ON (NIGHT)	Under2,000upm	0.6A(MIN)	1.5A(MIN)

e. If the testing result does not match standard value, check the regulator.

(3)Recharge system

1.Recharge system diagram

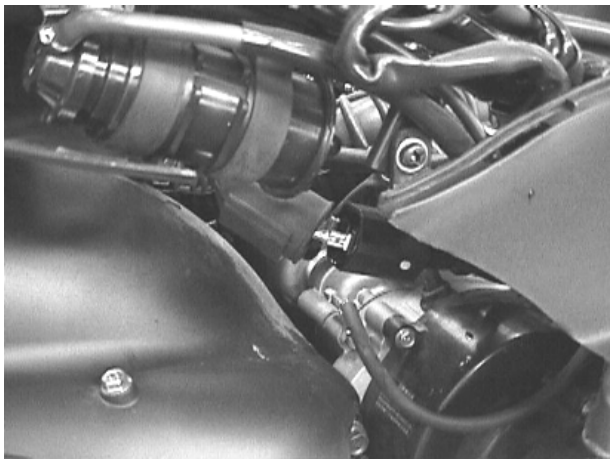


2.Check A.C. flywheel magneto.

a. Remove the LH side strip and LH body cover.

b. Measure the resistance value of terminals.

Yellow	black 0.1-1.0
White	black 0.2-2.0



3.Check regulator measure the resistance value between each terminal, it should be in specified range, otherwise change a new one.

Pocket tester range: * 1k range

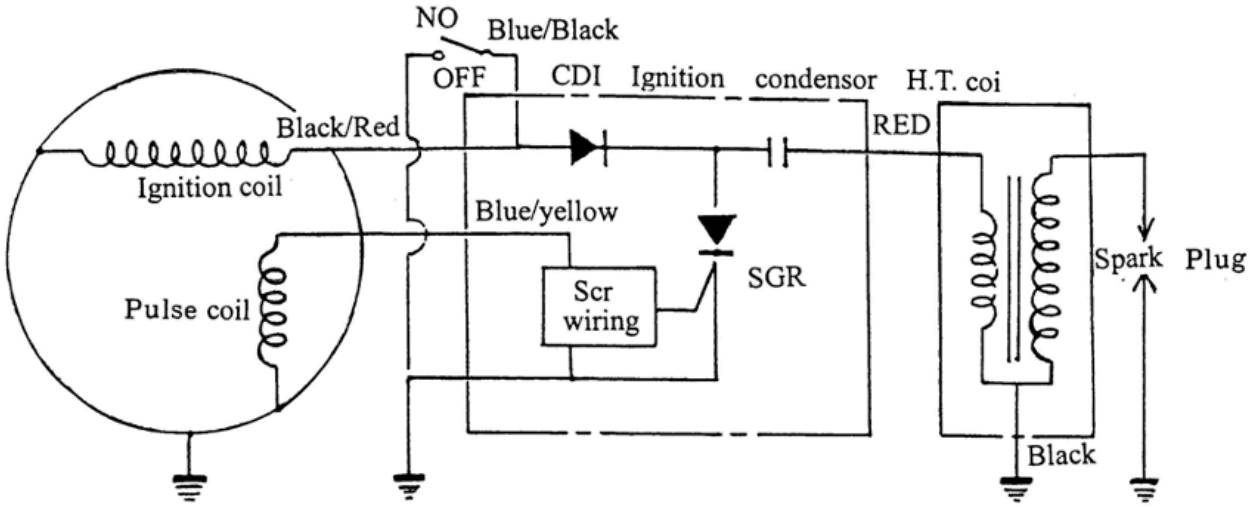
⊖ Probe of tester \ ⊕ Probe of tester	W	Y	R/W	B
W		∞	3 ~ 50	∞
Y	∞		∞	5 ~ 100
R/W	∞	∞		∞
B	∞	5 ~ 100	∞	



Regulator

(4)Ignition system:

1.the wiring of ignition

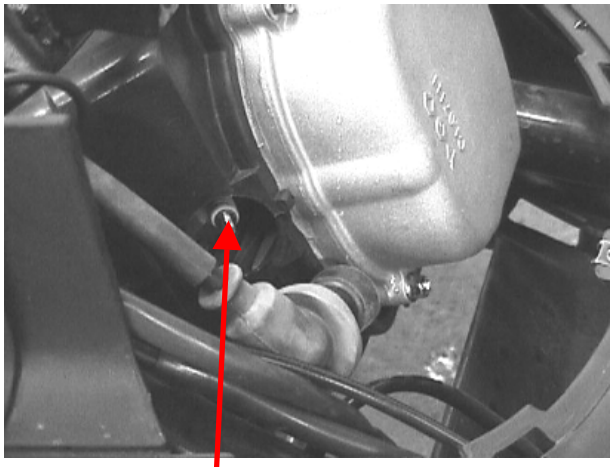


2.Resistance inspection

Pocket tester range: * 1k range

⊖ Probe of tester / ⊕ Probe of tester	Bl/B	R/B	Bl/Y	B	R
Bl/B		100k ~ ∞	100k ~ ∞	100k ~ ∞	∞
R/B	0.1k ~ 20k		∞	∞	∞
Bl/Y	20k ~ 200k	2k ~ 200k		1k ~ 100k	∞
B	1k ~ 100k	0.1k ~ 20k	100k ~ ∞		∞
R	∞	∞	∞	∞	

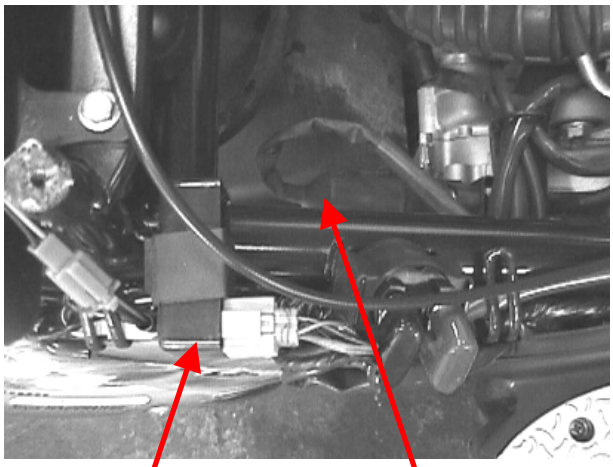
2.Check the spark plug.



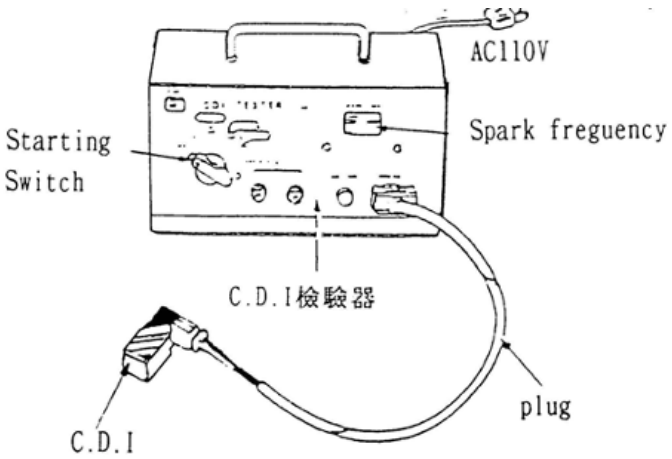
Spark Plug

3.Check the H.T. cable and H.T. coil by using the CDI tester. Please follow the instruction manual.

4.CDI sets checking.
Check with the CDI tester and Please follow the instruction Manual.
If the CDI is broken down, please Change a new one.

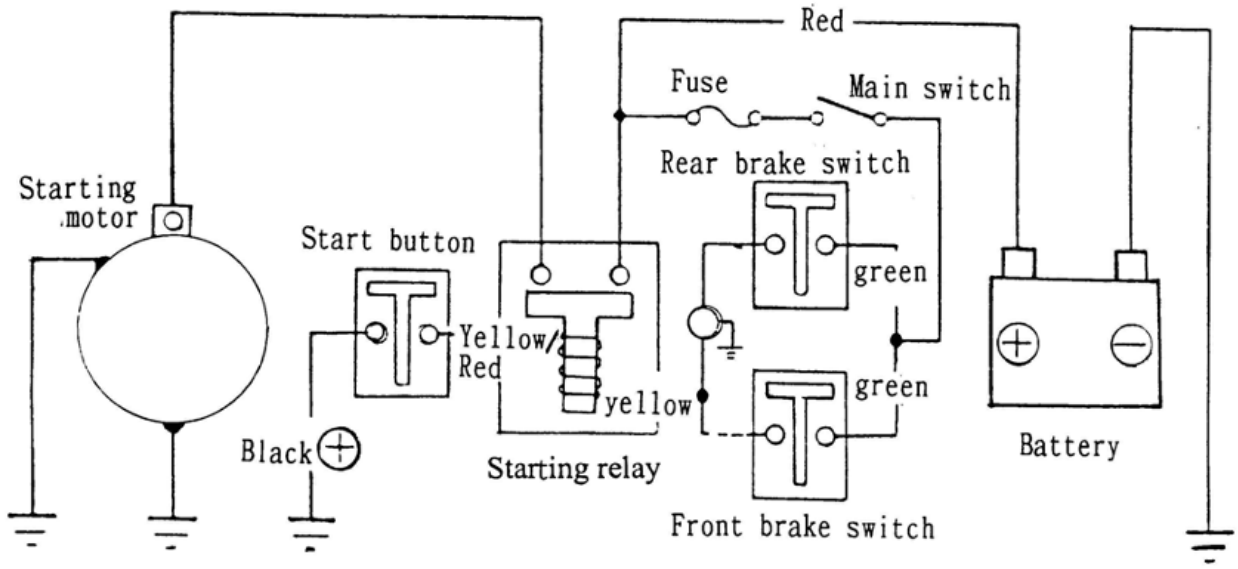


C.D.I **Coil**



(5)Starting system

1.Starting wiring



2.Checking

●Other spare parts comp. Checking.

●Change a new one when there is any scratch, damage or burnt on the surface.

●Any adherent metal powder in-between the layers of the direction exchanger should be cleaned.

●The conductivity check among each contact surfaces to other parts.

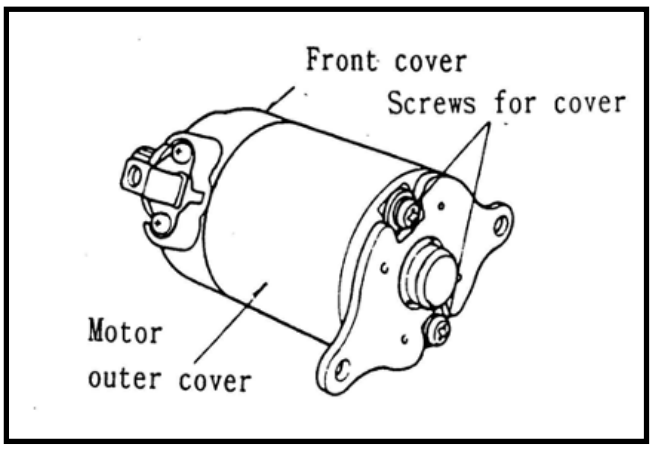
●The non-conductivity check between the armature pivot and each layer of the direction exchanger.

●The conductivity check of the outer cover of the starter motor

●The non-conductivity check between the cable ends and the outer cover of the starting motor.

●The conductivity check of the electric brush and the cable ends. If there is anything abnormal change a new one.

●The non-conductivity check of the brush bracket.
If it is conductive, change a new one.



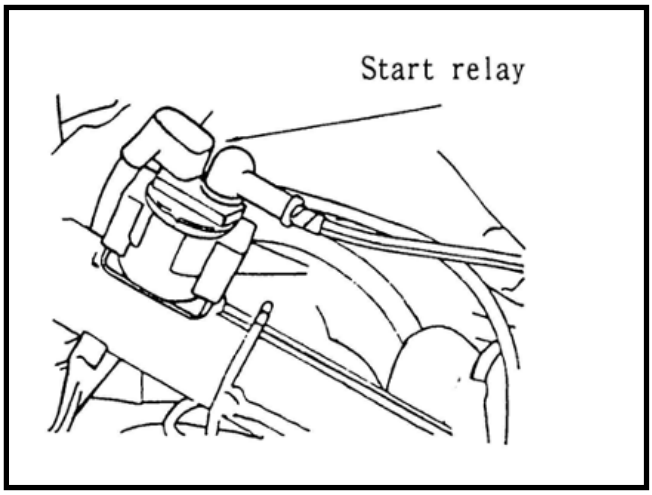
3.Start Relay

Starting check:

●Remove the body cover.

●When the main switch “ON” and press the starting motor button, there should be a “kata” sound.

●If there is not a “kata” sound:
a. Check the voltage of the start relay.
b. Check the start’s ground circuit.
c. Check the start reply starting system.

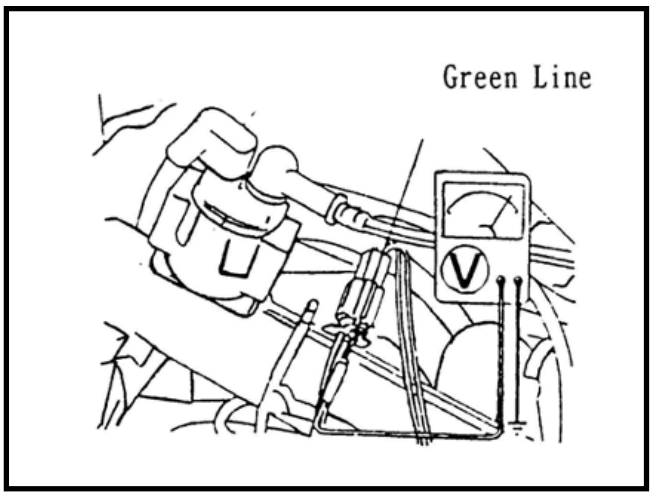


Voltage check for the start relay:

●Put on the center stand. Measure the voltage between the cable Green/Line(-) of the start relay and the body’s ground circuit.

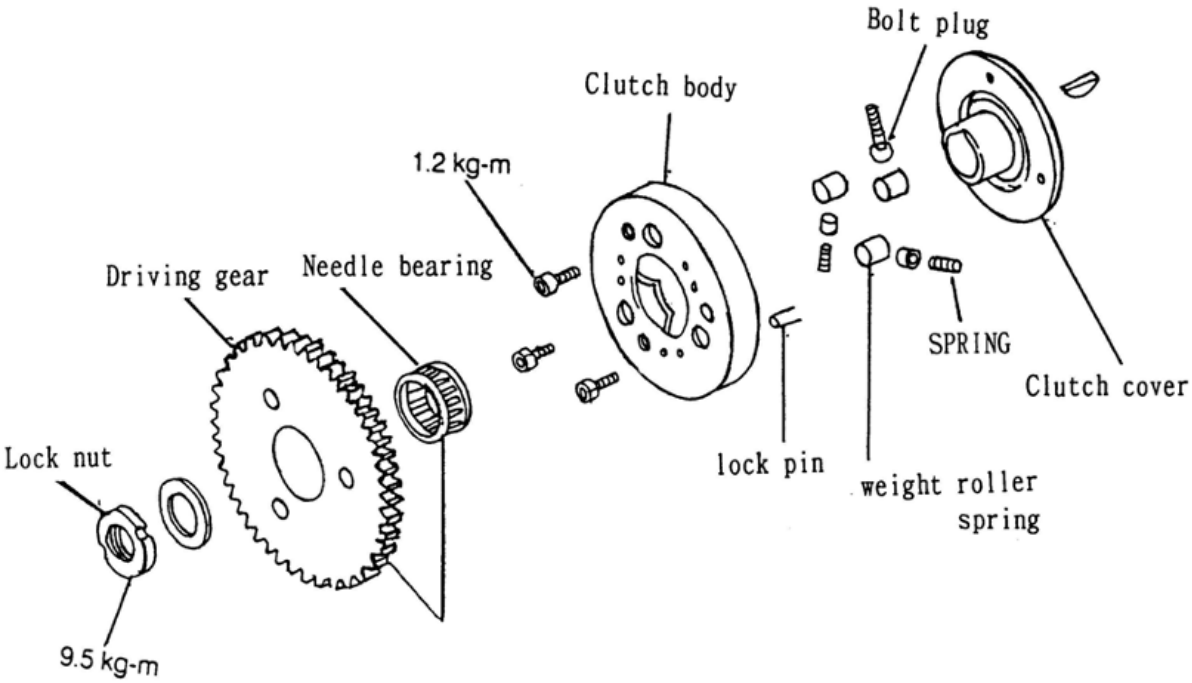
●To switch “ON” for the main switch and clamp the brake lever. The battery voltage has to meet the requirement.

●When there is no voltage at the start relay, check the brake switch conductivity and the cables.

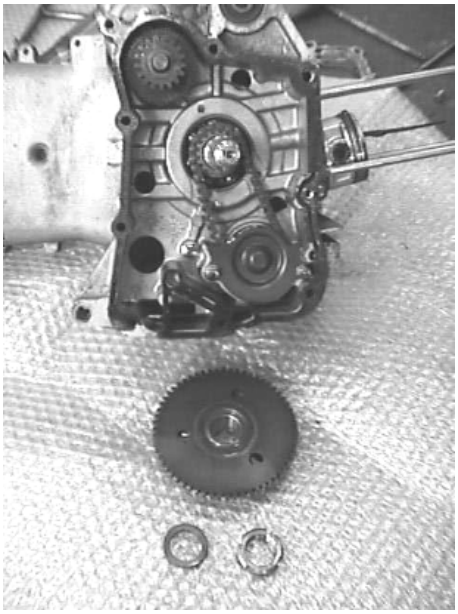


(6)Starting clutch

Explosive diagram



Dismantling



1.Remove the right crankcase Cover.

2.Remove the starting idle gear axle and take off the gear.

3.Remove the left crankcase cover.

4.Use screwing tool to fix the driving plate.

5.Remove the lock nut of the starting clutch.

NOTE: Lock nut is left thread.

6.Remove the starting clutch.

7.When assembling, please follow the opposite procedures.

8.Lock tightly lock nuts of the starting clutch.
Locking torque: 9.5kg-m

(7)Handle bar switch

The colors for each switch cables:

Head Light Switch

Operation /Color	Dark green	Yellow	Yellow/black	Blue
OFF		●	●	
ON	●	●		●

Starting Button

Operation /Color	Green/White	Black
FREE		
PUSH	●	●

HI/LO bean

Operation /Color	Blue	Brown/White	Purple/White
HI	●	●	
LOW	●		●

Horn Switch

Operation /Color	Yellow/green	Black
PUSH	●	●
FREE		

Signal Light Switch

Operation/Color		Pink	Blue/White	Brown
L		●	●	
N	To L	●	●	
	PUSH			
	To R		●	●
R			●	●

Main Switch

Lock	Off	On	
		●	Red/white
●	●		Blue/black
		●	Orange
●	●		Black



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SOCIETE COMMERCIALE EURO-TAIWANAISE
3RD FLOOR, NO.112 CHUNG SHAN N.RD.
SEC 2, TAIPEI,TAIWAN,R.O.C.
TEL:886 2 2541 3253
FAX:886 2 2536 7575
E-mail:eurotai@ms1.hinet.net

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