DAZON

SERVICE MANUAL

Raider Pro 250S/D

(Single/Double Seat)

EEC APPROVED ON ROAD

FOREWORD

This service manual has been specially prepared to provide all the necessary information for the proper maintenance and repair of the **RAIDER PRO 250 (EEC-approved for on-road use).**

The **Buggy** fits the needs of a wide variety of buggy users above 16 years old. Those who will service this **Buggy** should carefully review this manual before performing any repair or service.

All information, illustrations, photographs and specifications contained in this manual are based on the latest product information available at the time of publication. Due to the improvements or other changes, there may be some discrepancies in this manual. Therefore, if the newest information is requested in future, please contact the local distributor.

Distributors reverse the right to make production changes at any time, without prior notice or incurring any obligation to make the same or similar changes for the vehicles previously built or sold.

CONTENTS

1. General Information

1.1 Model Identification

1.1.1 Frame Number

The frame number or VIN is stamped under the seat on the vehicle frame and is stuck behind the seat.

1.1.2Engine Number

The engine number is located on the upper right rear engine case.

1.2 Fuel and Oil Recommendations

Be sure to use the specified fuel and oil

1.2.1 Fuel

Please use the gasoline of SAE 90# or above.

Also we recommend you to use the unleaded gasoline.

1.2.2 Engine Oil

Please use the high-quality engine oil of SAE 10w/30SF.

1.3 Break-in Procedure

For your first 2 hours of riding, don't exceed 2/3 throttles.

Vary the engine speed for the first 5 hours.

Never hold the engine at full throttle for long periods of time.

1.4 Specifications

DIMENSIONS	**SINGLE-SEAT / DOUBLE-SEAT**
Overall Length	2250mm / 2270mm
Overall Width	1360mm / 1610mm
Overall Height	1550mm / 1533mm

Wheelbase	1700mm
Ground Clearance	250mm
VIN	accord with GMVR A01-01
Statutory Plate& Safety Labels	accord with GB 7258-1997

ENGINE

Model	PMI172MM
Type	Forced Water-cooled, Single Cylinder, 4-stroke
Engine Capacity	250cc
Displacement	244.3ml
Bore×Stroke	72mm×60mm
Max. Power	12.5kw or 6500rpm
Max. Torque	17.6N.m or 6000 rpm
Idle Speed	1500±100rpm
CO Emission	7.0g/km
HC Emission	1.5g/km
Fuel Type	SAE 90# or Above (Unleaded)
Min. Fuel Consumption	354g/KW.h
Lubricate Oil Type	SAE 10W / 30
Lubrication	Pressure & Splash
Cooling Fluid	SHELL (Antifreeze)
Antifreeze Temperature of Cooling Fluid	-45^0C
Mixing Ratio (Cooling Fluid : Water)	1:1
Cooling	Water-cooled, Electric
Ignition	C.D.I.
Starting	Electric
Spark Plug	D7
Spark Plug Gap	0.6-0.7mm
Transmission	Chain Transmission
Transmission Ratio	F 1:1, B 1:1.758
Primary Transmission Ratio	2.2-0.9
Compression Ratio	10.0：1
Reduction Ratio	6.6
Clutch	Automatic, Centrifugal, Dry, Shoe Type
Generator	Outer Rotor, Flywheel
Carburetor	Vacuum Film Type
Absorber	Normal (in 10^6 X10^4 times of experiments)
Air Cleaner	Paper Element, Filtration Type
Gear-Shifting	Automatic, Centrifugal

CAPACITIES

Front/Rear Tire Load Coefficient	77
Front/Rear Tire Speed Level	M

Fuel Tank	9.5L, 130kpa (no leakage in experiments)
Starting Time	≤15s
Climbing	≥20%
Top speed	70kph
Tachometer	33-40kph
Turning Radius	6m / 5m
Acceleration Noise Level	≤80dB (A)
Horn	12V 3A 105dB, 93<db (A) <112
Headlight	12V 35W/35W
Headlight High Beam Intensity	regulations/law-oriented
Taillight	12V 5W /21W
Turning Light	12V 10W
License Light	12V 5W
Battery	12V 9A
Anti-theft Lock	≥200N.m
Rearview Mirror	accord with EEC standards

CHASSIS

Front/Rear Brake	Hydraulic Disc, Foot Control
Front Wheel Brake Force	≥923N / ≥1258N
Rear Wheel Brake Force	≥1288N / ≥1488N
Braking Distance	≤ 7 m@30kmph
Parking Brake	Hydraulic Disc, Hand Control
Front Tire	20.5 X 8.0 –10
Rear Tire	20.5 X 8.0 –10

TIRE PRESSURE

Front	175kpa
Rear	200kpa

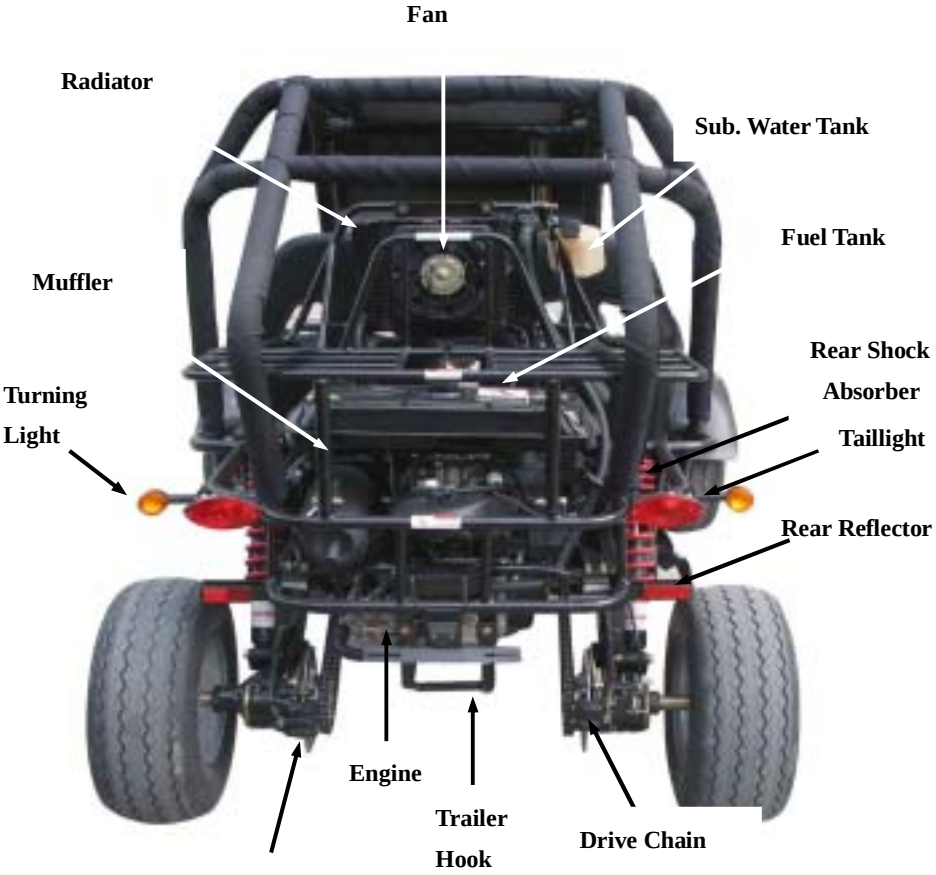
WEIGHT

Net Weight	295kg / 320kg

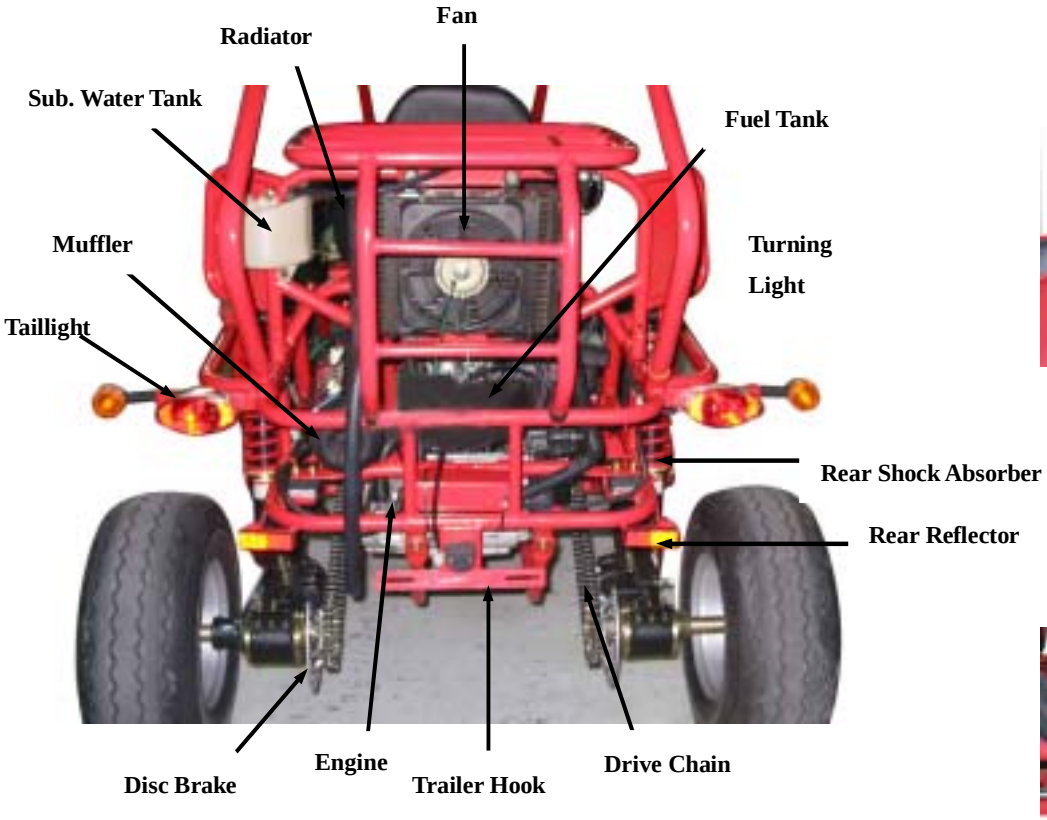
* The specifications are subject to change without prior notice.

1.5 Location of Parts

Double-seat



Single-seat



* Please demand for a copy of the Parts Book from your dealer and locate each component location.

2. Periodic Maintenance and Tune-up Procedures

2.1 Periodical Checks and Services

The maintenance intervals in the following table are based upon average riding conditions. Riding in unusually dusty areas requires more frequent services.

Time of Service / Items	Initial Service (First Week)	Monthly	Quarterly	Yearly
Tire Pressure/Wear	I	I		
Brake Performance	I	I		
Bolt Tightness	I	I		
Air Cleaner		C	C	I
Carburetor	I	A		C
Spark Plug			C, A	
Drive Chain	I	I	C, A, L	
Brake Fluid			I	
Replacement Of Gearbox Oil		I	R	
Chassis		C, I	L	
Fuel Switch/Fuel Tank				C
Chassis	I		I	
Engine Oil		R		
Valve Clearance Of Engine			A	

Notes: A: Adjust; C: clean; I: inspect, clean or replace if necessary; L: lubricate; R: replace.

2.2 Maintenance and Tune-up Procedures

This section describes the servicing procedures of every item in the Periodic Maintenance Intervals Table above.

2.2.1 Spark Plug

Clear up the carbon around the spark plug to prevent it from dripping into the cylinder when removing the spark plug.

Removing steps:

In general, it should be carried out after the engine has become cold.

a. If the spark plug is too tight to remove, spray some rust inhibiter on the spark plug washer and the thread part; after the inhibiter has

soaked the washer and thread part, rotate the spark plug;

b. Clear up the filth and carbon accumulation on the spark plug with a steel brush or a blade;

c. Inspect the spark plug gap (in general it should be about 0.6 - 0.7 mm.);

d. If the carbon accumulation or the wear of the spark plug is too serious, replace the spark plug with a new one of the same specification.

2.2.2 Tire Pressure / Wear

Check the tire pressure before each of your driving.

The tire pressure is very important for the riding stability.

Specifications: Front Tire: 175kpa

Rear Tire: 200kpa

2.2.3 Brake Performance

a. Always check if there is plenty of brake fluid in the brake fluid reservoir;

b. Check if the front/rear brake pad is in good condition;

c. Check the brake rotor for abnormal wear.

2.2.4 Air Cleaner

Clean the air cleaner quarterly, or more often when driving in dusty conditions.

If the air cleaner is clogged with dust, its performance will be severely decreased, even the engine damages will probably be caused.

Inspection and Cleaning of Filters

- **Paper Filter**

a. Remove the filter from its housing;

b. Lightly tap the filter on an object to knock out the dust;

c. Replace the filter element if it is wrinkled or torn.

- **Foam Filter**

a. Remove the filter out of its steel cage;

b. Wash the filter in non-flammable cleaning solvent;

c. Submerge the filter in oil and squeeze it to remove excess oil;

d. Install the filter element back into the air box.

CAUTION

1. Before and during the cleaning, inspect the element for tears; replace it if it's torn.
2. Make sure that the element is seated properly and no foreign material can pass by it

2.2.5 Nuts and Bolts in Chassis

Inspect the nuts and bolts in the chassis during the first week and every month thereafter.

The nuts and bolts become loose normally after use, please check for the looseness regularly.

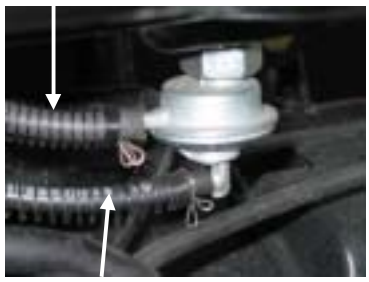
2.2.5 Tightening Torque Table

Bolt Diameter (mm)	Conventionally Marked Bolt			8.8 Marked Bolt		
	N•m	Kg•m	lb-ft	N•m	Kg•m	lb-ft
4	1-2	0.1-0.2	0.7-1.5	1.5-3	0.15-0.3	1.0-2.0
5	1-4	0.2-0.4	1.5-3.0	3-6	0.3-0.6	2.0-4.5
6	4-7	0.4-0.7	3.0-5.0	8-12	0.8-1.2	6.0-8.5
8	10-16	1.0-1.6	7.0-11.5	18-28	1.8-2.8	13.0-20.0
10	22-35	2.2-3.5	16.0-25.5	40-60	4.0-6.0	29.0-43.5
12	35-55	3.5-5.5	25.5-40.0	70-100	7.0-10.0	50.5-72.5
14	50-80	5.0-8.0	36.5-58.0	110-160	11.0-16.0	79.5-115.5
16	80-130	8.0-13.0	58.0-94.0	170-250	17.0-25.0	123.0-181.0
18	130-190	13.0-19.0	94.0-137.5	200-280	20.0-28.0	144.5-202.5

2.2.6 Fuel Pipe &Pressurized Pipe

- Fuel Pipe------connects with the carburetor.
- Pressurized Pipe------connects with the engine air-inlet pipe, and controls the fuel outlet. When the pipe is pressurized, the fuel valve is open , then the fuel runs out of the fuel pipe; but if there is no pressure in the pipe, the fuel valve is closed, so the fuel cannot run of the fuel pipe.

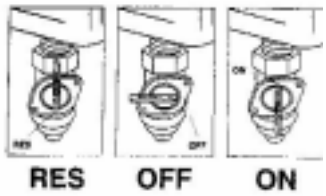
Fuel Pipe



Pressurized Pipe

- **Fuel Valve Lever**

On this vehicle, there is a manually-operated fuel valve lever with three positions:



a. "**ON**" position: It's the normal operating position where the fuel flows into the carburetor;

b. "**RES**" position: If the fuel lever is in the "ON" position and it is too low for the engine to operate, turn the fuel lever to the "RES" position to use the reserved fuel supply, and refuel as soon as possible;

b. "**OFF**" position: It's the closing position. When the vehicle is not in use, always make sure that the petcock is in the "OFF" position

2.2.7 Final Gear Oil

Inspect the final gear oil monthly and replace it quarterly.

a. Check the oil level: remove the oil level screw on the left rear engine case;

b. Drain out the oil: remove the drain plug at the rear bottom of the engine case;
Recommendation: before draining the final gear oil, please warm the engine for at least 10 minutes.

Notes: We recommend the Mobile 85w/90 gear oil for the final drive case. However, in extreme cold weather conditions, the vehicle may become hard to start, so we advise some lighter viscous oil, such as 75 wt or the equivalent motorcycle transmission fluid.

Gear Oil Capacity	0.2L 85w/90

2.2.8 Engine Oil

Inspect the engine oil before every riding and replace it monthly.

a. Remove the drain plug from the left side bottom of the engine, and drain out the left oil into an oil pan for disposal;
b. Remove the large cap on the left bottom of the engine ,and remove the screen;
c. Wash the screen with some cleaning solvent and reassemble it; make sure that the O-ring is still in good conditions;
d. Refill the engine with the SAE10W/30SF engine oil and run the engine for 5 minutes;
e. Check the oil level on the filler cap stick to assure that it's proper;
f. Screw back the large cap.

2.2.9 Chassis

Inspect, clean or replace it monthly if necessary and lubricate it quarterly.

a. Grease the chassis bushings and bearings with some grease quarterly to make sure that they can operate smoothly and enjoy an extended life;
b. If it's used in extremely wet, muddy or dusty conditions, we recommend you to service it more often.

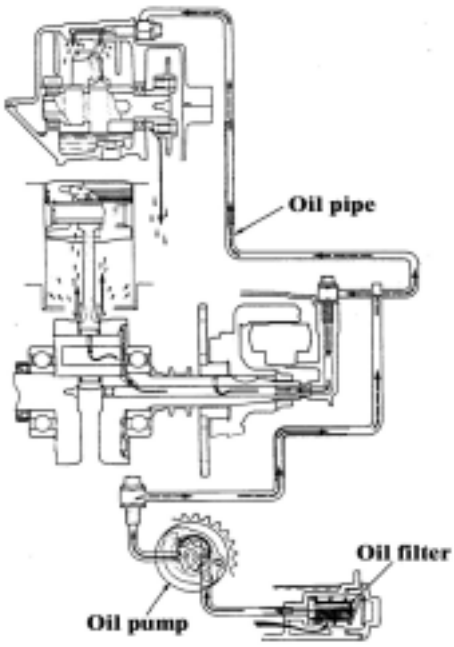
2.2.10 Reverser Adjustment

a) Press down the reverse lever to the "FW" position so that the units can move forward;
Pull back the lever to "BW" so that the units can move backward.
b) Adjusting Nut #1 on the top of the reverse cable can adjust the mesh status inside the reverse gear box. In the forward position there should be about 1/4 inch play in the cable for the correct adjustment.

3. ENGINE

3.1 Lubrication System

3.1.1 Lubrication Diagram



3.1.2 Specifications

Engine Oil Capacity	1.0L (Disassembling) 0.8L (Replacing)
Engine Oil Type	SAE 10W/30SF

3.1.3 Engine Oil Services

- Engine Oil Level Inspection
  a. Stop the engine;
  b. Stay the vehicle on the flat ground for 2-3 minutes;
  c. Inspect the engine oil level.

Notes: The engine oil level gauge shouldn't be screwed in.

- Engine Oil Replacement
  a. Remove the engine oil filler cover;
  Drain out the engine oil when the engine is warm;

Reassemble the filler cover (Torque: 18-20 N.m.);

b. Check if the O-rings are damaged; replace them if necessary;

c. Fill in the new engine oil;

Engine oil capacity: 1.0 L (Disassembling)

0.8L (Replacing)

Engine oil type: SAE 10W/30SF

d. Start the engine to check if there is any leakage;.

Stop the engine and check the oil level again.

- Engine Oil Screen Replacement

a. Drain out the engine oil, and take out the filter cap and spring;

b.. Replace the engine oil screen;

c. Reassemble the spring and filter cap;

d. Add the specified engine oil into the engine;

e. Recheck the engine oil level.

3.1.4 Trouble Shooting

- The engine oil level is too low.

a. The engine oil has been consumed naturally;

b. The engine oil has leaked;

c. The piston rings are worn.

- The engine oil is dirty.

a. The engine oil hasn't been replaced in time;

b. The cylinder head gasket is damaged.

- The lubrication isn't good.

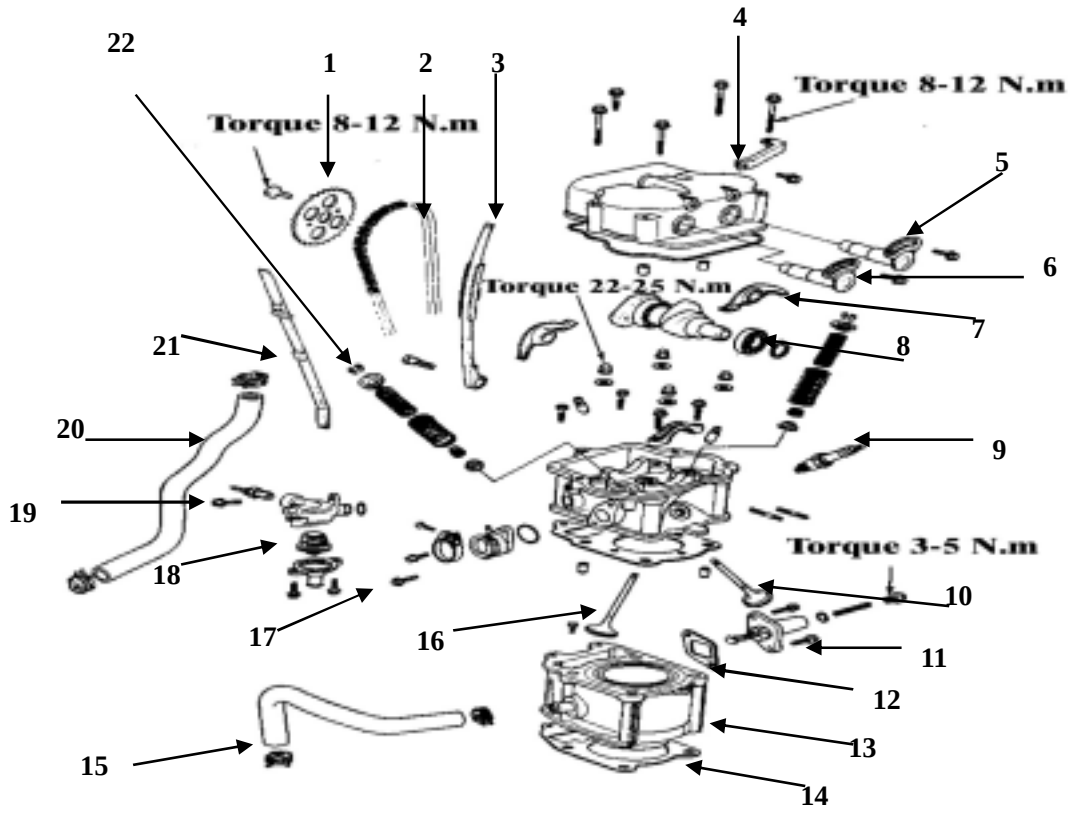
a. The engine oil level is too low;

b. The oil filter or oil pipe is clogged;

c. The oil pump is damaged.

3.2 Cylinder head & Valve

3.2.1 Disassembly Diagram



1. Timing Sprocket
2. Timing Chain
3. Tension Bar
4.Air Cleaner Bracket
5. Rocker Arm, Air Exhaust
6. Rocker Arm, Air Intake
7.Rocker Arm, Valve
8.Cam Shaft Comp.
9. Spark Plug
10. Exhaust Valve
11.Tensioner
12. Gasket, Tensioner
13. Cylinder
14. Gasket, Cylinder
15.Rubber Pipe, Water Inlet
16.Intake Valve
17.Intake Pipe Comp.
18.Thermostat Comp.
19. Temperature Sensor
20.Rubber Pipe, Water Return
21.Guide Bar
22.Valve Comp.

3.2.2 Trouble Shooting

- The compression is too low or not stable.
  a. Valve
  The lifter hasn't been adjusted well;
  The valve is burnt or deformed;
  The valve spring is damaged;
  The valve timing is faulty;
  The valve seat seal is faulty.

  b. Cylinder Head
  The cylinder head gasket leaks air;
  The cylinder head is deformed or cracked.

  c. Cylinder Piston is faulty.

- The compression is too high.
  a. There is a carbon accumulation on the piston or in the combustion chamber.

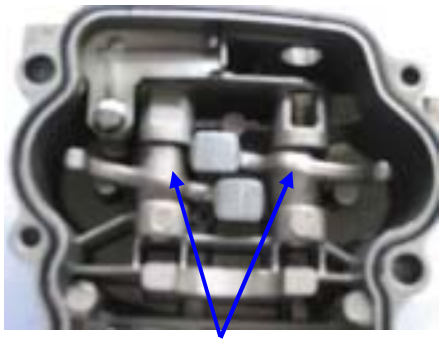
- Noise
  a. The lifter hasn't been adjusted well;
  b. The valve is burnt, or the valve spring is damaged or worn;
  d. The rocker or the rocker shaft is damaged or worn.

3.2.3 Assemble Valve Rocker Arms & Shafts

a) Check if the seals on the valve rocker arm shafts are in good condition; if damaged, replace them;
Put some engine oil on the surface of the rocker arm shafts and the seals.

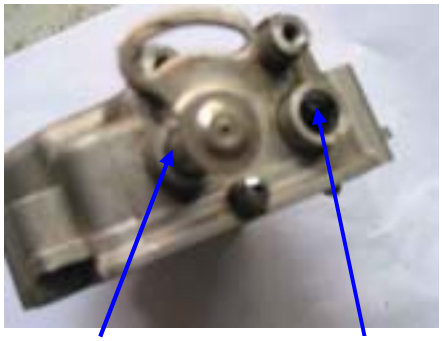
Seal

b) Assemble the two valve rocker arms (exchangeable) in the place as shown in the picture;



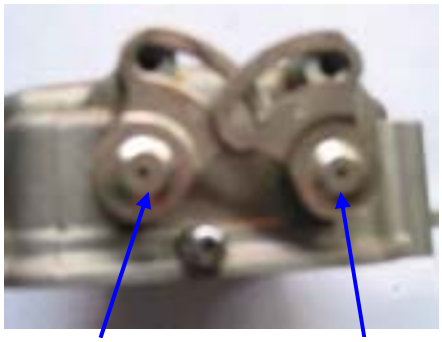
Valve Rocker Arm

c) Insert the rocker arm shaft with the mark “IN” into the hole on the left side of the cylinder head cover and the hole of the rocker arm;
At the same time, insert the rocker arm shaft with the mark “EX” into the holes on the right side of the cylinder in the same way;



Hole on Left Side of Cylinder **Hole on Right Side of Cylinder**

d) Turn the dials of the two rocker arms to the position as shown in the picture;
Fasten the two dials.



Rocker Arm of In. Valve **Rocker Arm of Ex. Valve**

3.2.4. Adjust Valve Clearance

a) Open the engine peephole cap;
Adjust the flywheel “ T ” to the maximum reading, while the engine piston reaches the top dead point;

Flywheel

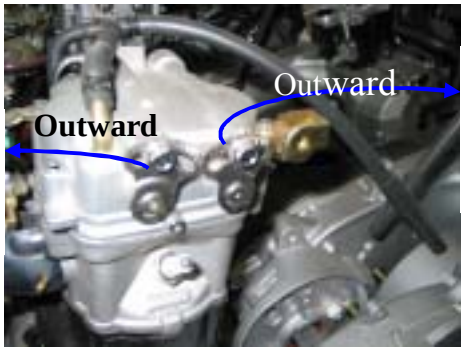
Engine

b) Loosen the lock bolts at the intake / exhaust valve dials;
;

Ex. Valve Dial **Lock Bolt**

Lock Bolt **In. Valve Dial**

c) Turn fully outward the intake / exhaust valve dials until the dials can't be turned any more;

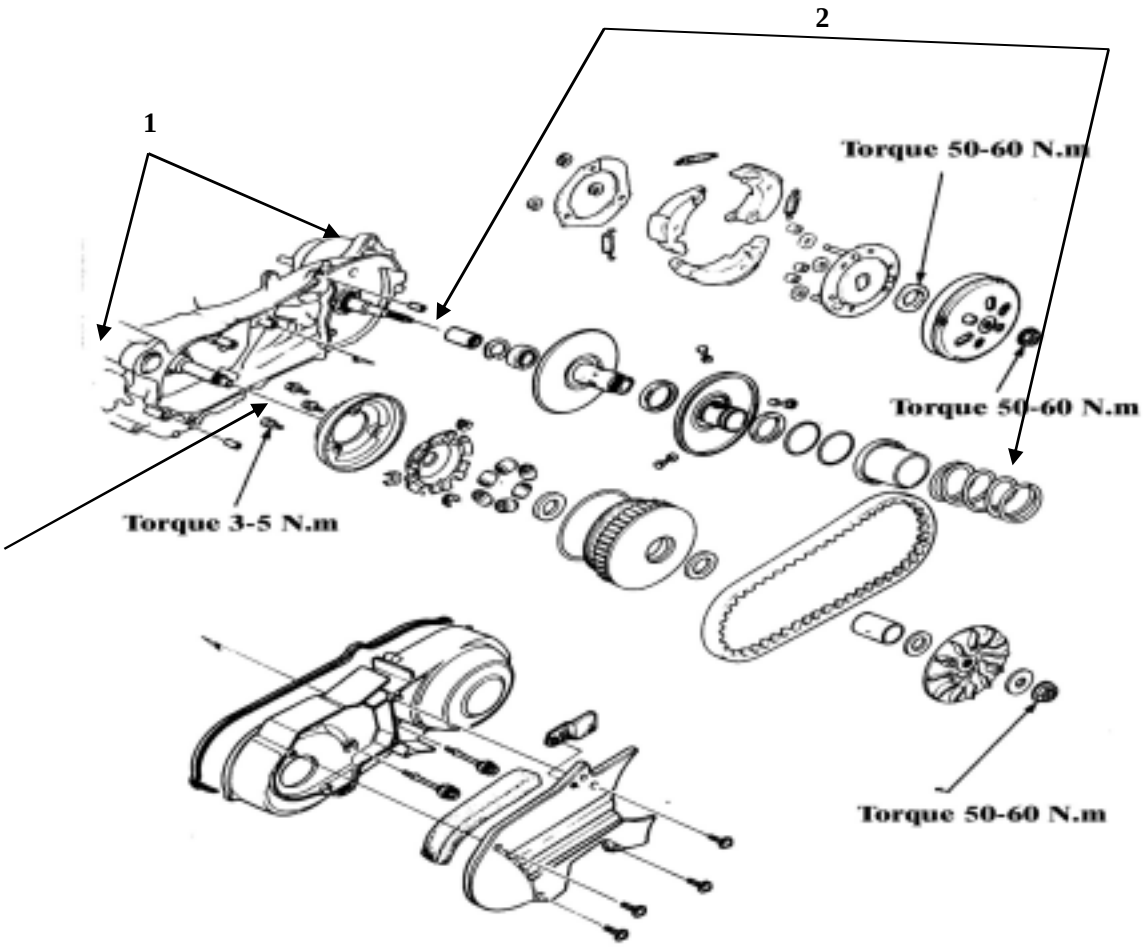


d) Turn inward the intake / exhaust valve dials for 1.5~ 2.0 scales (at this moment, the valve clearance should be 0.08mm~0.1mm);

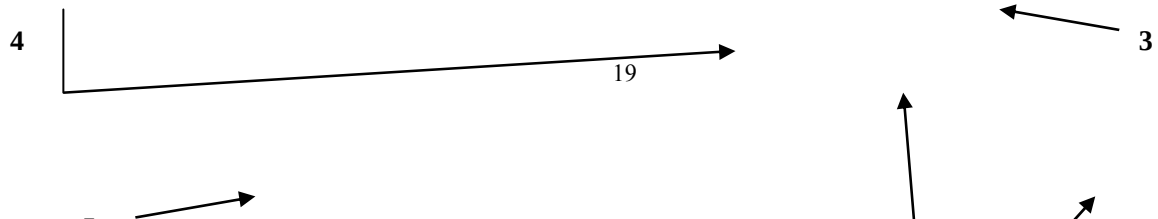
e) Fasten the lock bolts at the intake / exhaust valve dials.

3.3 Drive Pulley, Clutch & Driven Pulley

3.3.1 Disassembly Diagram

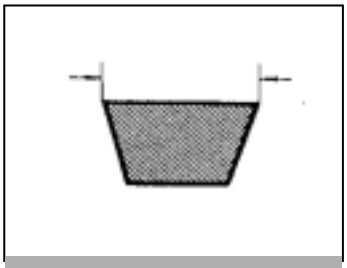


1.Crankecase, Right
2.Driven Pulley Comp.
3.Belt
4. Drive Pulley Comp.
5.Gasket, Left Crankcase
6. Crankcase, Left
7.Special Screw Set
8.Shroud (Left Crankcase Cover)



3.3.2 Inspection of Drive Belt.

a) Check if the belt is cracked and check if there is abnormal worn.
b) Measure the width of the drive belt;
Replace the belt if its width is below 17.5 mm

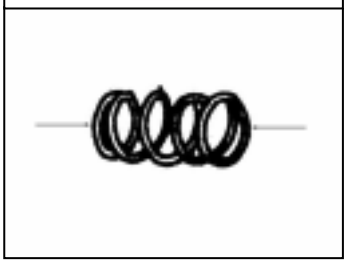


3.3.3 Inspection of Clutch. Drive Surface

a) Check if the clutch cover is worn or damaged;
Measure the inner diameter;
Replace the clutch if its inner diameter is above 130.5 mm.

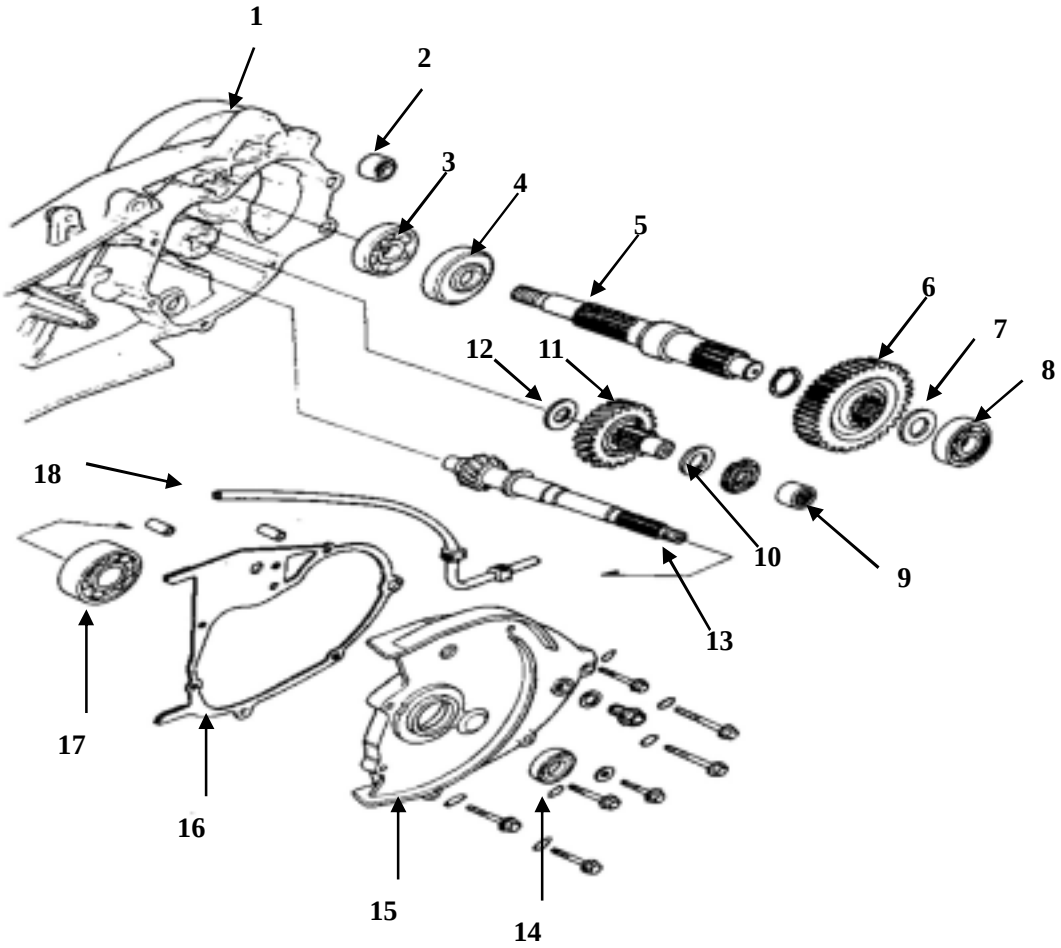
b) Check if the clutch shoes are worn or damaged;
Measure the thickness.
Replace the clutch shoes if the thickness is below 2.0 mm.

c) Check the free length of the drive spring;
Replace the spring if its free length is below 83.2 mm.



3.4 Final Transmission Box

3.4.1 Disassembly Diagram



1.Crankcase, Left
2.Shock Absorber Sleeve, Rear
3.Bearing 6004LU
4.Oil Seal 27*42*7
5.Final Shaft
6.Gear, Final Shaft
7. Washer 17.2*25*1
8. Bearing 6203
9.Needle Bearing NK 1412
9.Washer 14.5*28*1
11. Transmission Shaft, Counter
12.Washer 14.5*32*1
13. Transmission Shaft, Main
14.Oil Seal 20*32*6
15.Gearbox
16.Gasket, Gearbox
17.Bearing 6204
18.Breather Pipe, Gearbox

3.4.2 Inspection and Replacement of Gearbox Oil

- Inspection of Gearbox Oil level

  a. Stay the vehicle on the flat ground;

  b. Stop the engine and remove the oil level bolt;

  c. Inspect the gearbox oil level;

  If the oil level parallels with the oil level bolt hole, it's normal.

- Replacement of Gearbox Oil

  a. Replace the gearbox oil with the specified type;

  Gearbox Oil Capacity: 0.2 L

  Specified Gearbox Oil: Mobil 85w/90

  Gearbox Oil Level Bolt Torque: 14-18 N.m

  b. Check if there is any oil leakage after running the engine;

  Check the oil level again;

  c. Check if the gearbox oil seal is damaged, and replace it if necessary.

3.4.3 Trouble Shooting

- The engine can be started, but the vehicle can't run.

  a. The gears are damaged;

  b. The gears are burnt.

- Noise

  a .The gears are worn or burnt ,or the gear surface is damaged;

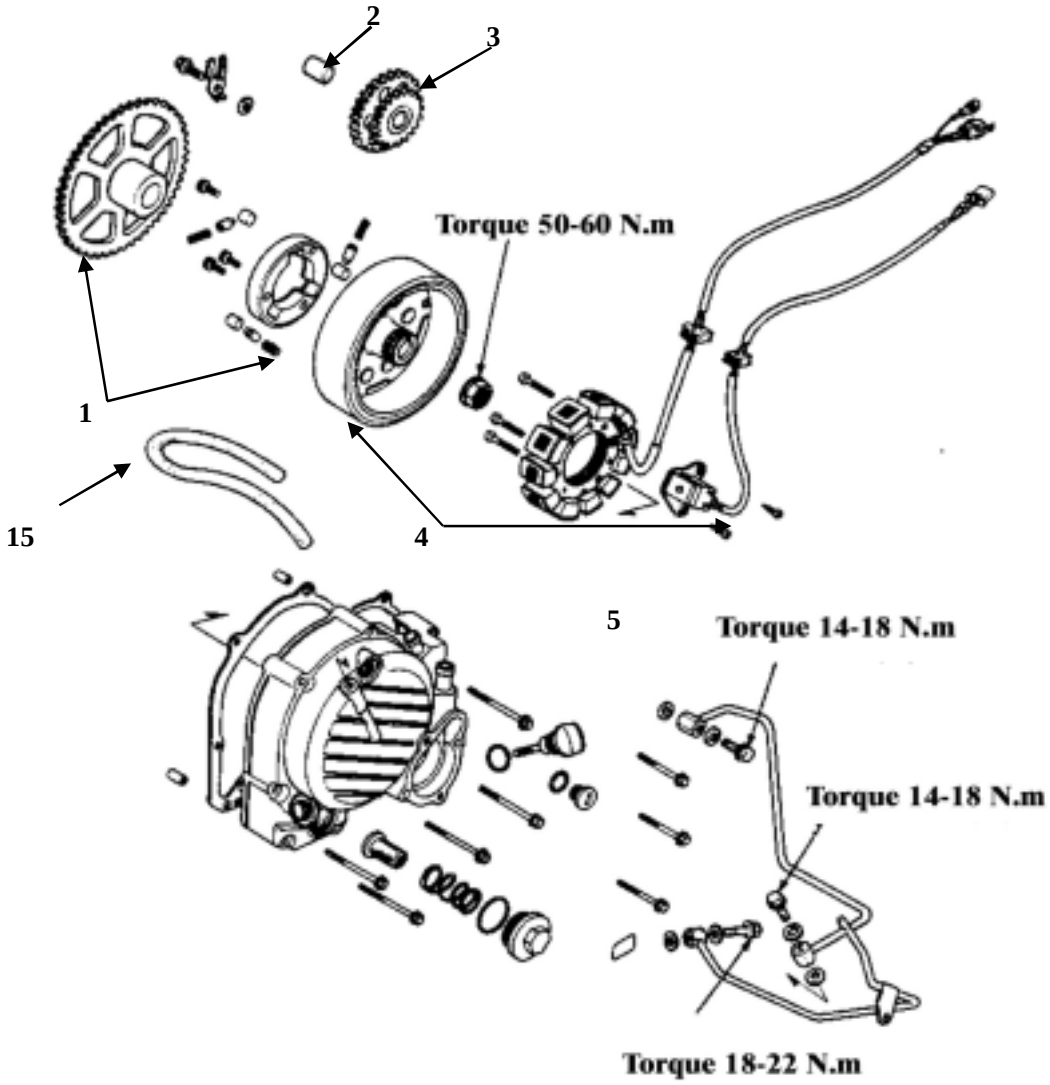
  b. The bearing is worn or shaking.

- Oil Leakage

  a. There is too much oil in the gearbox;

  b. The oil seal is damaged or worn.

3.5 AC Generator & Starter Clutch



3.5.1 Disassembly Diagram

1.Clutch,Starting
2.Reduction Gear Shaft, Starting
3. Reduction Gear, Starting
4.Magneto
5.Oil Level Dip Stick
6. Oil-Pass Bolt A
7. Oil-Pass Bolt B
8. Oil Pipe
9. Oil-Pass Bolt C
10.Cap, Oil Filter Screen
11.Spring, Oil Filter Screen
12.Oil Filter Screen
13.Crankcase Cover, Right
14.Gasket, Right Crankcase Cover
15.Breather Pipe, Right Crankcase Cover

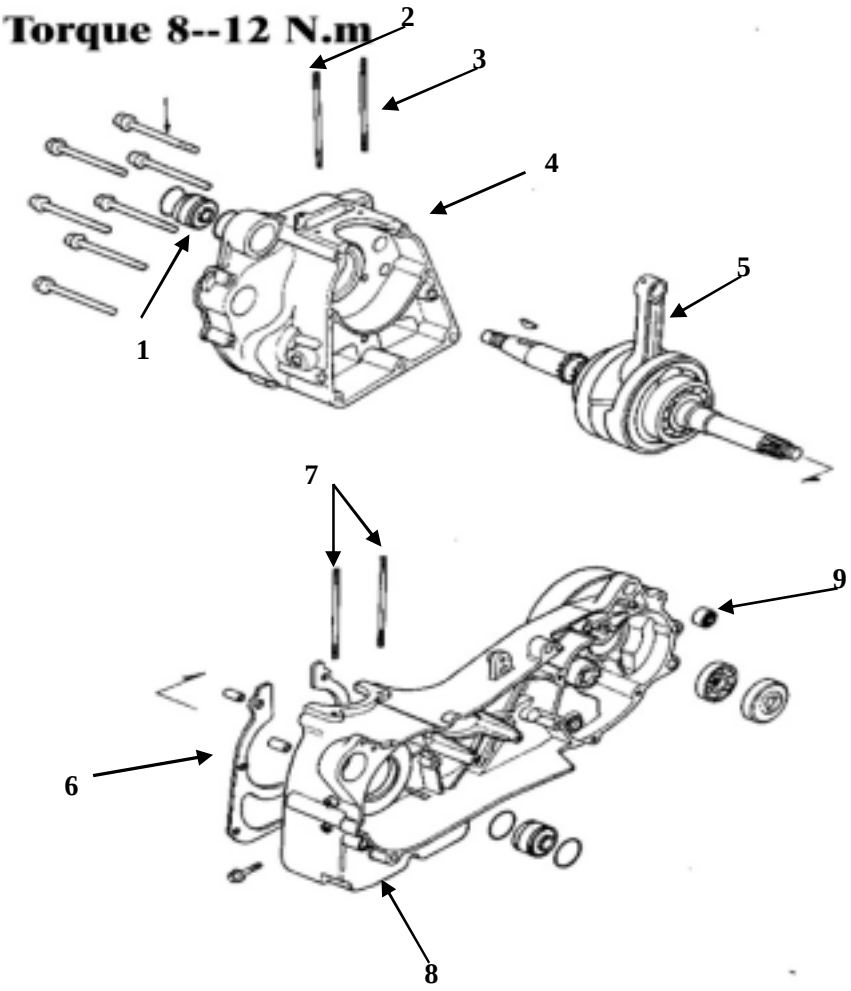
3.5.2 Trouble Shooting

- The AC generator is faulty.

a) The starter reduction gear is faulty.
b) The starter motor revolves conversely.
c) The wires haven't been connected well.
d) The starter clutch spring is broken, dirty or locked.

3.6 Crankcase & Crankshaft

3.6.1 Disassembly Diagram



1.Shock Absorber Sleeve, Front
2.Stud Bolt M8*172
3.Stud Bolt M8*162
4.Crankcase ,Right
5.Connecting Rod, Crankshaft
6.Gasket, Left Crankcase
7. Stud Bolt M8*162
8. Crankcase, Left
9. Shock Absorber Sleeve, Rear

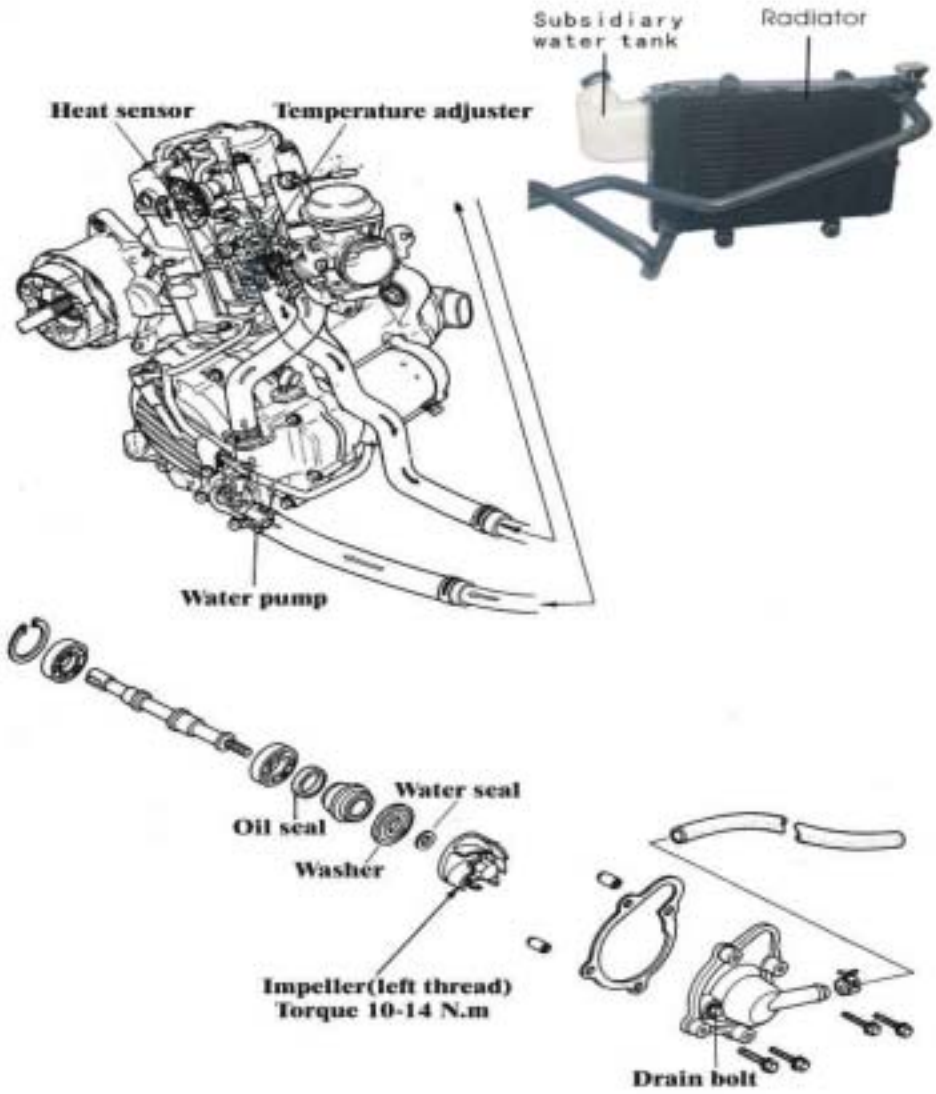
3.6.2 Trouble Shooting

- Engine noise

a) The bearing is loose.
b) The crankshaft pin bearing is loose.
c) The piston pin and the piston pinhole are loose.

3.7 Cooling System

3.7.1 Disassembly Diagram



3.7.2 Points for Attention

- The water pump repair and other operations of the cooling system can be carried out on the vehicle;
- Carry out the operations when the engine has cooled down;
- Don't open the water tank cover when the water temperature is above 100℃;
- Don't spread the water tank fluid onto the tank surface paint; if the fluid spreads out, clean up the fluid with water;
- After the inspections and repairs, use a water tank pressure tester to check all the joints and oil

seals for leakage.

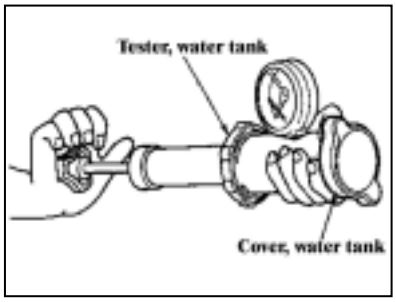
3.7.3 Specifications

Pressure of Water Tank Cover Petcock		0.9+/-0.15 kg/cm2	
Temperature of Adjuster Cock	at Beginning of Opening	72+/- 2℃	
	Full Opening	90℃	
	Full Opening Volume	3.5-4.5 mm	
Volume Of Cooling Fluid		about 1190cc	Water Tank: 750 cc Sub. Water Tank: 420-300 cc

Notes: a. Use the specified water tank fluid;
b .Don't mix the fluid of different brands;
c. The water tank fluid is poisonous, so don't drink it.

3.7.4 Water Tank

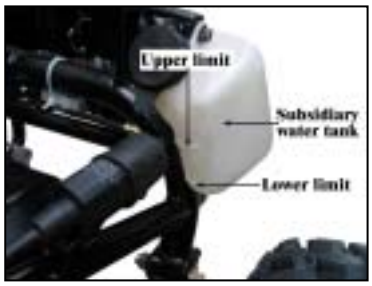
- Inspection of Water Tank Cover------**Cooling System Pressure Test**



a. Apply some water on the surface of the water tank cover oil seal;
b. Install the water tank cover on the water tank tester;
c. Use the tester to apply the standard pressure on the water tank cover for about 6 seconds to check its stability;
Cover Cock Opening and Closing Pressure: 0.9+/- 0.15kg/cm2.
d. Check the water pipe joints for leakage.

Notes: The pressure shouldn't exceed 1.05kg/cm2. Otherwise the joints of the water pipe may be damaged.

- Inspection of Water Tank Fluid Level



a. Check the water tank fluid level;
b. .If the fluid level is lower than "F" (the upper limit), add the specified water tank fluid (standard concentration: 30%) up to "F" (the upper limit).

Notes: the engine temperature doesn't affect the water tank fluid level.

- Replacement of Water Tank Fluid

a. When the engine has become cold, replace the water tank fluid;
Specifications: Water Tank Capacity: about 800cc
Sub. Water Tank Capacity: about 350cc

- Inspection of Radiator

a. Check if the welding seam of the radiator is damaged or leaking;
b. Clean the radiator plates if they are clogged or dirty;
c. Repair the radiator plates if they are deformed.

Radiator

3.7.5 Water pump

- Inspection of Water Pump Water Seal

a. Check if the drain hole under the right crankcase cover leaks; If it leaks, the water seal of the water pump is faulty and needs to be replaced;

b. Remove the right crankcase cover and replace with a new water seal.

- Replacement of Water Pump Water Seal

a. Take out the water seal from the inside of the right crankcase cover;

b.Assemble a new water seal into the right crankcase cover.

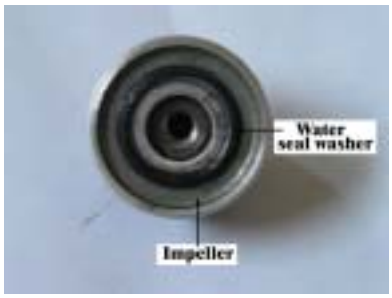
Notes: Before the assembly, apply some water seal agent on the mating surface of the water seal and the right crankcase cover.

- Inspection of Water Pump

a. Remove the water pump impeller;

b. Check the impeller water seal and water seal washer for damages and wears;

Replace the impeller water seal together with the water seal washer if necessary;



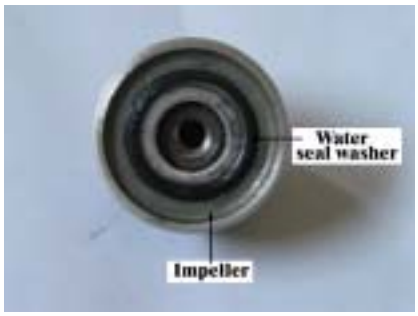
c. Assemble the water pump shaft and the inner bearing into the right crankcase;

Lock the bearing with the clip;

d. Assemble the right crankcase cover;

e. Assemble the water pump impeller;

f. Replace the water pump water seal together with the impeller water seal if necessary;



g. Assemble the impeller pin on the shaft;
Torque: 10 N.m

Notes: Fasten the impeller with the left thread.

Assemble the water pump shaft;

h. Assemble a new outer bearing of the water pump shaft inside the right crankcase cover.

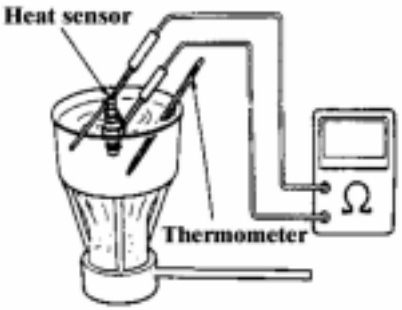
3.7.6 Heat sensor

● Disassembly of Heat Sensor

a. Remove the rear side cover on the right;
b. Drain out the water tank fluid;
c. Disconnect the heat sensor wires;
d. Remove the heat sensor.

● Inspection of Heat Sensor

a. Put the heat sensor into the testing container;
b. Raise the water temperature slowly;
c. Measure the resistance value of the heat sensor;

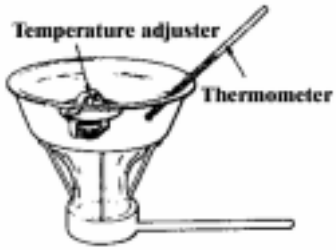


Resistance Value of Heat Sensor:

Temperature (℃)	50	80	100	120
Resistance value (Ω)	154	52	27	16

● Inspection of Temperature Adjuster

a. Put the temperature adjuster into the testing container;
b. Raise the water temperature slowly;
c. Measure the temperature of the opening valve.



Valve Specifications:

Temperature of Opening Valve	72+/- 2 ℃
Temperature of Full-opening Valve	90℃
Rising Volume of Full-opening Valve	3.5-4.5mm

Notes: a. The heat adjuster shouldn't touch the testing container directly;
b. If the heat sensor opens at the normal temperature, replace it with a new one;
c. When the temperature adjuster has been open for 5 minutes at the temperature of 70℃, measure again the temperature of the opening valve.

3.7.7Trouble Shooting

● The water temperature rises.

a. The heat sensor of the thermometer is faulty;
b. The water tank cover is faulty;
c. The temperature petcock is faulty;
d. The tank fluid is insufficient;
e. The water pipe and water sleeve are clogged;
f. The radiator is clogged;
g. The inner part of the water tank is clogged;

h. The water pump is faulty.

- The thermometer doesn't show any signs of rising, but the water temperature rises.

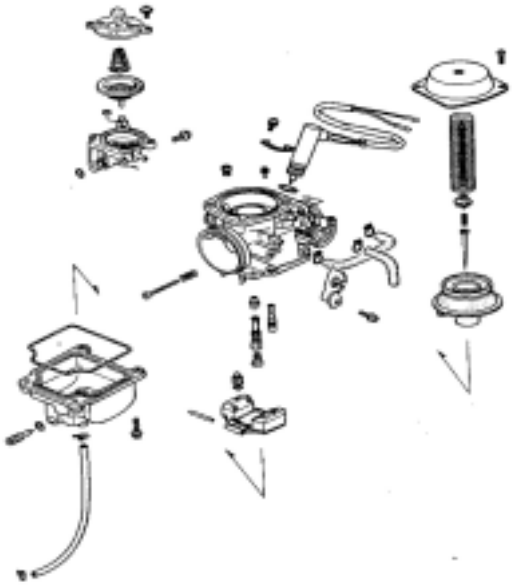
a. The heat sensor of the thermometer is faulty;
b. The temperature petcock is faulty.

- Overheating.

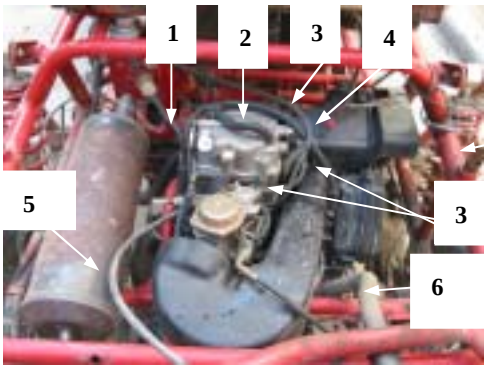
a. The water in the water tank is not enough. Please fill the water tank at 2~3 times.
b. The water hoses are not correctly connected, or not properly connected.
c. The fan is out of order.

3.8 Carburetor

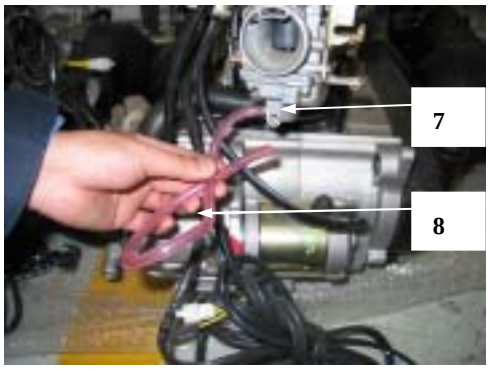
3.8.1 Disassembly Diagram



Carburetor Hoses Positioning



Picture 1.



Picture 2.

1. Fuel Hose
2. Breather Hose, Engine
3. Pressurized Hose (connecting with Air Intake Hose)
4. Three-Way Hose and Clamp
5. Thin Water Hose (connecting with Thermostat and Thin Water-Inlet Hose of Water Tank);
6. Thick Water Hose
7. Oil Drainage Screw; Carburetor
8. Rubber Hose, Oil Drainage

3.8.2 Points for Attentions

- No smokes or fires in the working places;
- Assemble the O-rings correctly and replace them with new ones if necessary;
- Drain out the fuel in the float chamber before disassembly;
- Don't disassemble the automatic choke by yourself.

3.8.3 Specifications

Pipe Diameter	22mm	Main Jet	100
Body Mark	BS26-1245	Low Speed Jet	# 35
Fuel Level	18.5+/-1.0mm	Idle Speed	1500+/-100rpm
Air Adjusting Screw	1 3/4		

3.8.4 Automatic Fuel Cup

No smokes or fires!

- Inspection of Automatic Fuel Cup

a. Stop the engine and pull out the fuel tube from the carburetor;

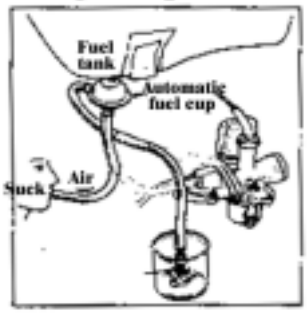
b Drain out all the remaining fuel in the fuel cup and tube (5-10cc);

c. .If the fuel stops flowing, the fuel cup is normal; If the fuel continues to flow out, the negative pressure tube is clogged.

- Inspection of Negative Pressure Tube

a. Pull out the negative pressure tube from the air intake pipe and suck with mouth to produce the negative pressure on the vacuum film;

b. If when the vacuum film produces the negative pressure, the fuel flows out of the fuel tube; and when the negative pressure stops, the fuel stops flowing, the automatic fuel cup is normal; otherwise, it is abnormal;



c. If the automatic fuel cup is abnormal, firstly check if the negative pressure tube is clogged, and clean it at once; then blow the film from the air intake pipe of the automatic fuel cup.

3.8.5 Automatic Side-circuit Starter

- Inspection of Automatic Side-circuit Starter

a. Check the conduction of all the automatic side-circuit starter wires;
Standard Resistance Value: below 10Ω (10 minutes after the engine stops)

b. Replace the automatic choke if the resistance value exceeds the standard value;

- Inspection of Automatic Choke

a. Connect a tube with the fuel-adding line of the carburetor;
b. Connect the yellow wire of the choke with the battery + electrode;
Connect the green wire of the choke with the battery – electrode;
Blow the choke with mouth 5 minutes later;
If the air doesn't go smoothly, it is normal;
c. Remove the automatic choke wire from the battery;
Blow the choke with mouth 30 minutes later;
If the air goes smoothly, it is normal.

3.8.6 Inspection of Fuel Level

a. Check the fuel level of the main jet;
Standard Fuel Level: 18.5+/-1.0mm
b. Check the float and assemble the float fuel tube.

3.8.7 Adjustment of Idle Speed

a. Start the engine and warm up for several minutes;
b. Fasten the fuel adjusting screw fully and turn back the standard 1~ 3/4 turns;
c. Adjust the fuel adjusting screw to the specified idle speed;
d. Turn the fuel adjusting screw left and right slightly;
e. Repeat steps c, d;
f. Adjust the throttle adjusting screw to the idle speed position (1,500+/-100rpm);
g. Run the engine from low speed to high speed;
Run the engine at the idle speed for 10~ 15 seconds to see if the idle speed is stable;
h. If the idle speed changes, repeat steps c~f.

3.8.8 Inspection of Air Cleaner

a. Check if the air cleaner is damaged;
b. Replace it with a new one if necessary;
c. Clean the air cleaner every 1,000 km. of running;
d. Replace the air cleaner every 5,000km of running.

3.8.9 Ignition Timing

- Adjustment of Ignition Timing

The C.D.I. is used, so there is no need to adjust the ignition timing. If the ignition timing isn't normal, check the C.D.I. and AC generator.

- Inspection of Ignition Timing

a. Turn on the ignition timing lamp;

b. Align the mark "F" within the range of +/-3º at the rotation of 1,700rpm;

Ignition Timing: B.T.D.C 13º+/-3 1700rpm.

c. If the rotation is above 3,000rpm, the aligning mark should be located before the advanced ignition mark.

3.8.10 Inspection of Spark Plug

a. Check if the spark plug is burnt or has become dirty. Check if there is any carbon on the spark plug;
b. Clean the spark plug if necessary;
Specifications: Spark Plug: D7
Spark Plug Gap: 0.6-0.7mm

3.8.11 Compression

Specification: 11.0-15.0kg/cm2 (400rpm).

Trouble Shooting

- The compression is too low.

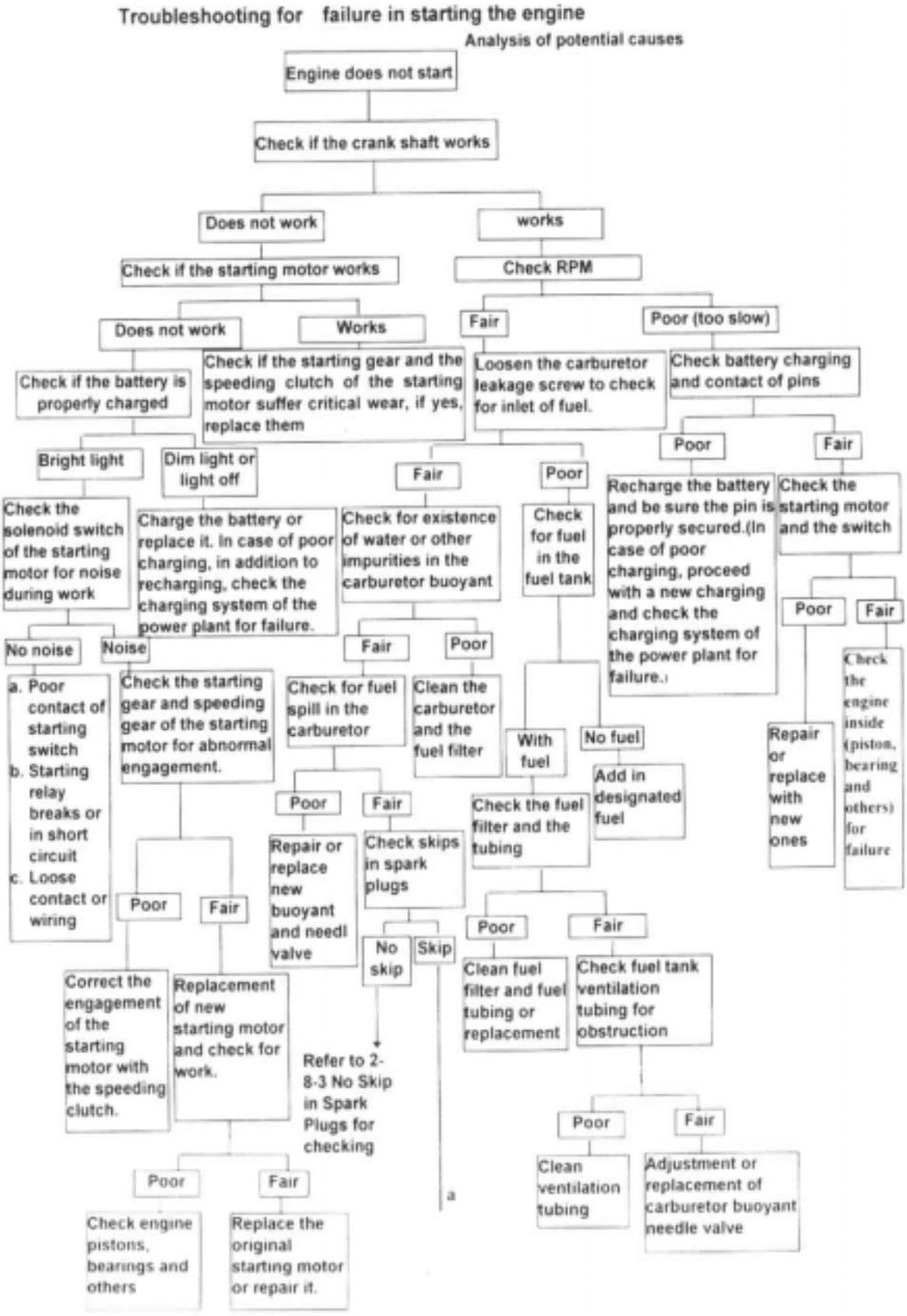
a. The valve leaks;
b. The valve clearance is too big;
c. The cylinder head gasket is damaged;
d. The piston rings are worn;
d. The piston rings and the cylinder are worn.

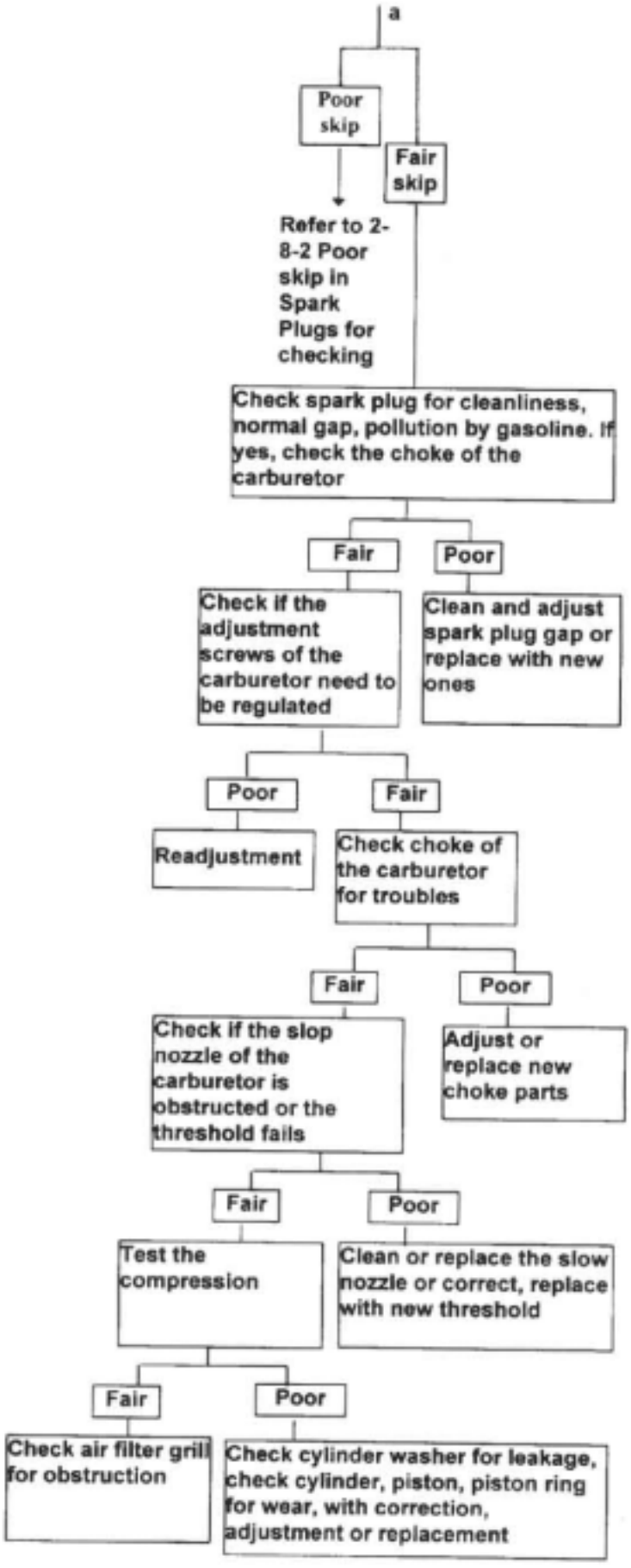
- The compression is too high.

a. There is too much carbon in the combustion chamber and on the piston head.

3.8.12 Trouble Shooting

- The engine can't start well.




a
Poor skip
Fair skip
Refer to 2-8-2 Poor skip in Spark Plugs for checking
Check spark plug for cleanliness, normal gap, pollution by gasoline. If yes, check the choke of the carburetor
Fair
Poor
Check if the adjustment screws of the carburetor need to be regulated
Clean and adjust spark plug gap or replace with new ones
Poor
Fair
Readjustment
Check choke of the carburetor for troubles
Fair
Poor
Check if the slop nozzle of the carburetor is obstructed or the threshold fails
Adjust or replace new choke parts
Fair
Poor
Test the compression
Clean or replace the slow nozzle or correct, replace with new threshold
Fair
Poor
Check air filter grill for obstruction
Check cylinder washer for leakage, check cylinder, piston, piston ring for wear, with correction, adjustment or replacement

- The engine can't run stably or smoothly at the idle speed.

a. The idle speed hasn't been adjusted well;
b. The gas mixture in the carburetor is too dense;
c. The gas mixture in the carburetor is too lean.
d. The air cleaner is clogged;
e. Some air has been inhaled into the air suction system;
f. The fuel has deteriorated;
g. The air valve doesn't work well;
h. The negative pressure tube is damaged;
i. The connecting pipe of the carburetor is damaged.

- The engine stalls when the throttle is fully open.

a. The negative pressure piston film is damaged;
b. The negative pressure tube is clogged.

- The gas mixture is too lean.

a. The fuel jet is clogged;
b. The air hole of the fuel tank cover is clogged;
c. The fuel filter is clogged;
d. The fuel tube is clogged;
e. The float valve doesn't work well;
f. The fuel level is too low.

- The gas mixture is too dense.

a. The automatic choke is opened too widely;
b. The float valve doesn't work well;
c. The fuel level is too high;
d. The air cleaner is clogged;
e. The automatic chock hasn't been assembled correctly.

- The carburetor can't start, or becomes difficult to start.

Reason Analysis: After the tryout, the carburetor has been exposed in the air for a long period, so that a layer of mucous membrane has formed and blocked the main jet. As a result, the oil can't flow smoothly and the engine starting becomes difficult, or the engine stops soon after starting.

Solvent

a. Check if there is any damage or leakage on the pressurized tube of oil cock;

Pressurized Tube

b. Clean the carburetor and readjust the idle speed according to the steps below:

a) Open the connecting tube between the air cleaner and carburetor.

Connecting Tube

b) Spray a little carburetor cleanser into the carburetor.

Spray Cleanser

c) Start the engine and run for a while, then quickly step on the throttle pedal for several times .If the engine works well, assemble the connecting tube; otherwise, repeat the steps above several times.

Readjust the idle speed if it is unstable.

4. Reverse Gearbox

4.1 Check and Service

a) Every time before driving, check if the forward gear and backward gear/reverse gear can work agilely and smoothly;
b) For the safety of traveling, the vehicle must be in the parking state when the reverse gear is working.
c) In order to maintain the excellent performance and long service time of the reverse gear, please don't shift gear when traveling at high speed;
d) Service the reverse gear periodically. Replace the lubricant every 5000km or 6-month of running.
Lubricant: Lithium base grease.
Capacity 250ml

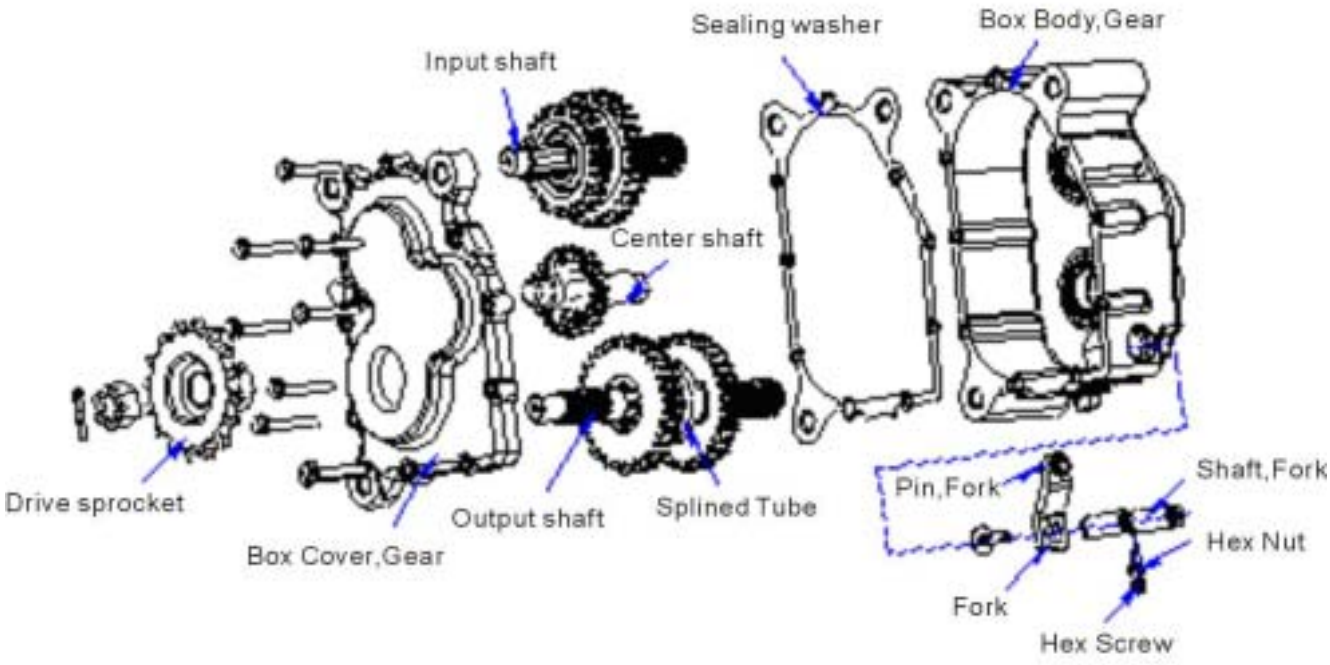
4.2 Precautions

a) Before servicing or maintaining., remove the reverse gear from the vehicle frame;
b) When assembling,make sure to insert the pin into the splined tube grooves, and meanwhile lock the bolt in the corresponding positioning grooves of the fork shaft ,

Note: Close the bolt fully, turn back the standard 1/2 turning, and tighten the lock nut.

4.3 Removal and Assembly

The picture below is the disassembly diagram of the reverse gearbox.



4.3.1 Removal Sequence

Drive sprocket—Gearbox cover—Input shaft—Center shaft—Lock bolt—Output shaft—Fork—Fork shaft

4.3.2 Assembly Sequence

Reverse the removal sequence.

4.4 Troubleshooting

- **Gearshift is out of order.**
  - a The adjustment of shifting lever is improper.
  - b The swing angle of the pin on the gearshift fork is too big.
  - c The brake is out of order, the lock bolt isn't locked in the positioning grooves of the fork shaft, and the fork shaft is caused to fall off the gearbox.
  - d The circlip on the input shaft or output shaft is fallen off, and the gear shaft is caused to move axially.
  - e The splined tube is damaged.
  - f The output gear is damaged.

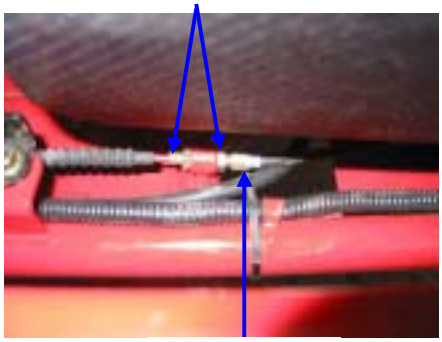
- **Abnormal noise in gearbox.**
  - a. The circlip on the input shaft or output shaft is fallen off, and the gear shaft is caused to move axially.
  - b. The splined tube is damaged.
  - c. The output gear is damaged.
  - d. The lubricant loses efficacy, and the lubricating effect isn't good.

5. Brake System

5.1. Parking Brake System

Adjust Hand Brake Cable

a) Loosen the 2 lock nuts at the front end of the hand brake cable;
If the cable is too loose, turn the follow-up coil counterclockwise;
If the cable is too tight, turn the follow-up coil clockwise;
If the cable is still too loose/tight after the follow-up coil is turned to the last thread, fasten the 2 lock nuts and go on with the next step.



Follow-up Coil

Lock Nuts **Follow-up Coil**

b) Loosen the 2 lock nuts at the rear end of the hand brake cable;
If the cable is too loose, turn the follow-up coil clockwise;
If the cable is too tight, turn the follow-up coil counterclockwise;
If the cable is still too loose/tight after the follow-up coil is turned to the last thread, fasten the 2 lock nuts and go on with the next step.

Lock Nut

c) Loosen the lock nut at the adjust bolt of the rear brake chamber;
If the cable is too loose, turn the adjust bolt counterclockwise;
If the cable is too tight, turn the adjust bolt clockwise;
Fasten the lock nut.

Hand Brake Handle

Note: The adjust bolt adjusts the gap (1~2mm) between the brake pad and brake disc. If the adjust bolt is too tight, the rear brake will get blocked, and the parking brake system will not function.

If after the hand brake handle is pulled 4~7 scales, the brake system starts functioning, and the vehicle is locked in the original position without any moving, the brake system is in good condition.

5.2.Traveling Brake System

5.2.1 Check Brake Fluid

a) Look through the peephole of the brake pump assy.;
Observe if the surface of the brake fluid is at the 1/2~2/3 of the peephole;

b) If it is, the brake fluid is enough;
If it is below the 1/2~2/3 of the peephole, the brake fluid is not enough, and needs adding.

Peephole

5.2.2 Check Sealing of Brake System

a) The brake system need good sealing;
Replace or repair at once if the brake hose is damaged, or there is any leakage on the brake pump.

Note: Before replacing or repairing, exhaust the air in the brake system; otherwise, the brake system will not function**.**

5.2.3 Check Brake Pad

a) Loosen the 4 lock nuts of the front tire;
Remove the tire.

Lock Nuts **Lock Nuts**

b) Loosen the 2 lock nuts of the front brake chamber.

Front Brake Chamber

c) Remove the front brake chamber;
Take out the brake pad;
Inspect for the wear condition on the surface of the brake pad;
If there are deep dents on the surface of the brake pad, or the thickness of the brake pad surface is less than 2.0mm, replace

Brake Pad

the brake pad.

Note: When disassembling the rear brake chamber, only need to remove the 2 lock nuts on it.

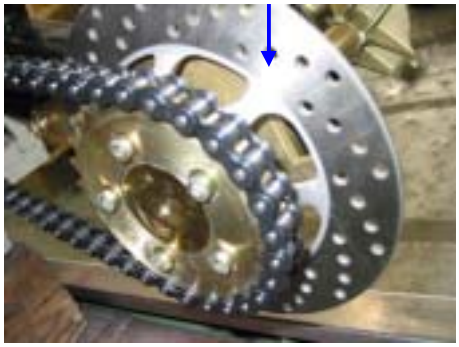
Rear Brake Chamber

Lock Nuts

5.2.4 Check Brake Disc

a) Check for the wear condition on the surface of the brake disc; If there are deep dents or burn scars on the surface, replace the brake disc.

Brake Disc



5.2.5 Check Brake Chamber

a) Check if there is any leakage on the piston of the brake chamber; Check if the movable brake caliper can move swiftly; If there is any leakage ,or the brake caliper can't move, replace the brake chamber.

Movable Brake Caliper

Piston

5.2.6 Check Brake Pump

a) Check if there is any leakage on the piston of the brake pump;
b) Press hard on the brake pedal; Inspect if the piston can return to its original position automatically;
c) If there is any leakage, or the piston can't return automatically, the brake pump is damaged, and need replacing.

Brake Pump

5.3. Troubleshooting

5.3.1 The brake system is out of order, and can't function at all.

a) Check if the brake fluid is enough;
If it isn't, add some;
If it is, go on with the next step.

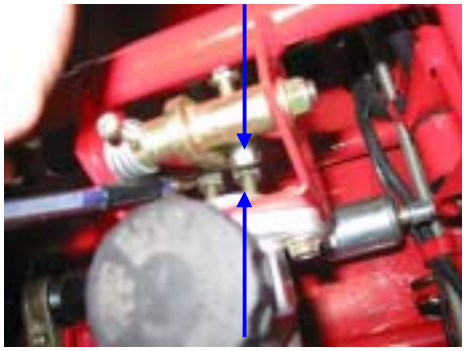
b) Check if the brake pump, brake chamber and fuel pipes are damaged, and if there is any leakage;
If damaged, need repairing.

c) After the repair, remove all the left air out of the brake system;
Otherwise the brake system will not work.

5.3.2 The front and rear brake forces are not even.

a) Loosen the lock nut at the roof bar of the brake pump;
Adjust the bar;
If the front brake works well but the rear brake doesn't, turn the right roof bar clockwise;
If the rear brake works well but the front brake doesn't, turn the left roof bar clockwise;
If the front /rear brake is blocked, turn respectively the right/left roof bar counterclockwise.

Lock Nut



Right Roof Bar

b) Fasten the lock nut.

5.3.3 How to exhaust the air in the brake system?

a) Check if the brake fluid is enough;
If it isn't, add some.

b) Quickly press down the brake pedal and release it;
Repeat the action for over ten times.

c) Step on the brake pedal again;
Meanwhile loosen the exhaust lock nut on the left front brake cham

d) After the air is vented out of the brake system, fasten the exhaust lo

Exhaust Nut

e) Repeat the steps above until no air runs out of the brake chamber;
Exhaust the air out of the right front/rear brake chamber in the same way.

Wiring Diagram