

BUGGY
RAIDER MINI 90S/D
(Single/Double Seat)
OFF ROAD BUGGY



SERVICE

MANUAL



FOREWORD

This service manual has been specially prepared to provide all the necessary information for the proper maintenance and repair of the **Raider Mini 90**.

The **Raider Mini 90** fits the needs of a wide variety of users. Those who will be servicing this **Raider Mini 90** 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 the future, please contact us.

We reserve the right to make production changes at any time, without notice and without incurring any obligation to make same or similar changes for vehicles previously built or sold.

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1. INFORMATION

SAFETY

- Gasoline is extremely flammable and is explosive under certain conditions.
- Do not smoke or allow sparks of flames in your work area.
- Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.
- The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. If you contact it, flush thoroughly with water and call a doctor if electrolyte gets in your eyes

1.2 NOTE

All information, illustrations, directions and specifications included in this publication are based on the latest product information available at the time of approval for printing.

We reserve the right to make changes at any time without notice and without incurring any obligation whatever.

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1.3 SERIAL NUMBERS

- **Frame Serial Number**

The frame serial number is stamped under the seat on the frame cross member and stuck behind the seat.



Frame serial number

- **Vehicle Identification Number (VIN)**

The VIN is stamped on the nameplate that is stuck on the left front of the vehicle frame.



VIN

- **Engine Serial Number**

The engine serial number is stamped on the lower front left side of the engine crankcase.



1.4 SPECIFICATIONS

DIMENSIONS

	SINGLE-SEAT / DOUBLE-SEAT
Overall Length	1550mm / 1550mm
Overall Width	1000mm / 1100mm
Overall Height	1200mm / 1200mm
Wheelbase	1100mm / 1100mm
Ground Clearance	100mm / 100mm
VIN	Accord with GMVR A01-01
Statutory Plate & Safety Labels	Accord with GB 7258-1997

ENGINE

Model	DZIP47FMF
Type	Air-cooled, single cylinder, 4-stroke
Engine Capacity	90cc
Displacement	85.8 ml
Bore×Stroke	47mm×49.5mm
Standard Power	3.8/7500 Kw/rpm
Max. Power	4.0 /8000 Kw/rpm
Max. Torque	5.7/5500 N.m /rpm
Idle Speed	1500±100rpm
Idle Speed CO Pollutant	≤3.8%
Idle Speed HC Pollutant	≤800 ppm
Fuel Type	SAE 90# or above (unleaded)
Min. Fuel Consumption	367g/kW.h
Lubricate Oil Type	SAE 15W / 40SF
Lubrication	Pressure & splash
Cooling	Air-cooled
Ignition	C.D.I.
Starting	Electric
Spark Plug	A7RTC
Spark Plug Gap	0.6~0.7mm
Transmission	OHC chain drive
1 st Forward Gear Transmission Ratio	3.182
2 nd Forward Gear Transmission Ratio	1.238
Backward Gear Transmission Ratio	2.583
Compression Ratio	8.8: 1
Primary Reduction Ratio	3.416
Clutch	Wet, multi-plate, friction (automatic)
Air Cleaner	Filter sponge element
Gear-Shifting	Four gears, hand control
Valve Gap	0.05±0.02mm
Engine Size (Length×Width×Height)	430mm×320mm×270mm
Engine Net Weight	20.5 kg

CAPACITIES

Fuel Tank	4.5L
Engine Oil	0.7~0.9L
Acceleration	≤15s
Climbing	>18°
Top Speed	25km/h
Turning Radius	1.7m
Noise Level	≤80dB
Battery	12V 8Ah

CHASSIS

Brake System	Rear disk, foot control
Front Suspension	Single A-arm 30 Travel
Rear Suspension	Swing arm 30 Travel
Front Tire	145/70-6
Rear Tire	16X8-7

TIRE PRESSURE

Front	28 Kpa
Rear	50 Kpa

WEIGHT

Net Weight	125kg / 130kg
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***THE SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

1.5 RECOMMENDATIONS

- **Fuel**

Please use the gasoline of SAE 90# or above.

Also we recommend you to use the unleaded gasoline.

- **Engine Oil**

Please use the high-quality engine oil of SAE 10w/40SF.

1.2.3 Gear oil

Please use 130# gear oil for reverser gear.

- **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.

1.6 PARTS LOCATION

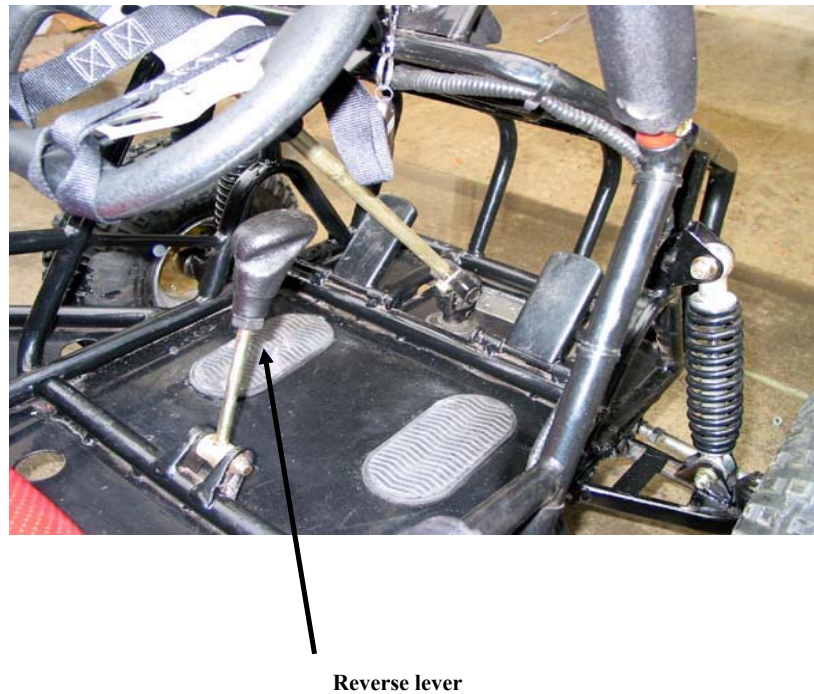
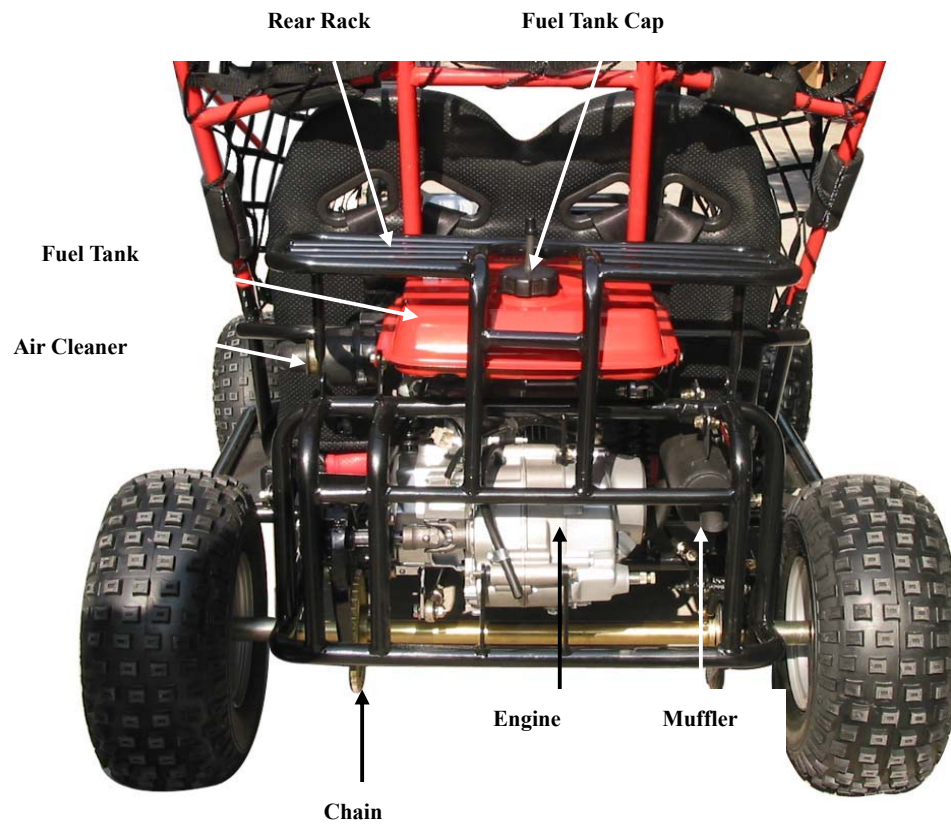
Double-seat



Single-seat



Rear View



2. MAINTENANCE

2.1 MAINTENANCE SCHEDULE

The maintenance interval in the follow table is based upon average riding conditions.

Riding in unusually dusty areas requires more frequent servicing.

Interval Items	1st Service in 1st Week	Daily	Monthly	Quarterly	Yearly
Air cleaner	X	X	C	R	R
Spark plug	X		C, A	R	R
Carburetor	A		A	A	C
Gearbox oil	X		X	R	R
Engine oil	X	X	R	R	R
Tire pressure/wear	X	X	X	X	R
Brake pad	X	X	X	R	R
Drive chain	CAL	CAL	CAL	CAL	CAL
Brake cable	A		A	A	A
Chassis	X		X	X	X
Fuel switch/fuel tank	X			X	X
Battery	X		X	X	R
Valve clearance of engine			A	A	A
Throttle cable	A		A	A	A
Absorber	X		X	X	R

NOTE: X: inspect, clean or replace if necessary ; A: adjust;
C: clean; 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.

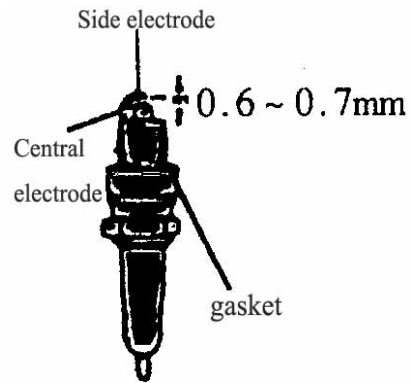
2.2.1 Spark Plug

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

Remove the spark plug:

- In general, it should be carried on after the engine has cooled down;
- If the spark plug is too tight to remove, spray some rust inhibitor on the spark plug washer and the thread part; after the inhibitor has soaked the washer and thread part, rotate the spark plug;

- c) Clear up the filth and carbon accumulation on the spark plug with a steel brush or a blade;
- d) Inspect the spark plug gap (in general, it should be about 0.6 - 0.7 mm.);
- e) When the carbon accumulation and wear of the spark plug are 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: 28 Kpa

Rear Tire: 50 Kpa

2.2.3 Brake Performance

- a) Check if the brake pad is in good condition;
- b) Check the brake rotor for abnormal wear.

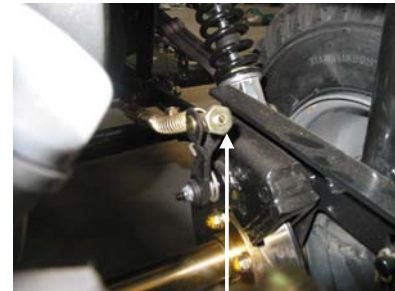
Brake Rotor



● Brake Cable Adjustment

- a) If the brake cable is too loose, adjust the adjust nut of the brake cable clockwise;
- If the brake cable is too tight, adjust the adjust nut of the brake cable counterclockwise;

If the adjustment doesn't work, go on with the next step;



Adjust Nut

- b) Loosen the nut M6 at the adjust bolt of the brake caliper;
- If the brake cable is too loose, adjust the adjust bolt clockwise;
- If the brake cable is too tight, adjust the adjust bolt counterclockwise;
- Fasten the nut M6.



Adjust Bolt

Nut M6

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**

- Remove the filter from its housing;
- Lightly tap the filter on an object to knock out the dust;
- Replace the filter element if it is wrinkled or torn.

- **Foam Filter**

- Remove the filter out of its steel cage;
- Wash the filter in non-flammable cleaning solvent;
- Submerge the filter in oil and squeeze it to remove excess oil;
- Install the filter element back into the air box.



Remove Air Cleaner Cover



**Air Cleaner
Cover**

**Air Cleaner
Element**

**Air Cleaner
Screen**



CAUTION

- Before and during the cleaning, inspect the element for tears; replace it if it's torn.
- 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.

2.2.6 Tightening Torque Table

Bolt Diameter (mm)	Conventional 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

2.2.7 Fuel Switch (Petcock)

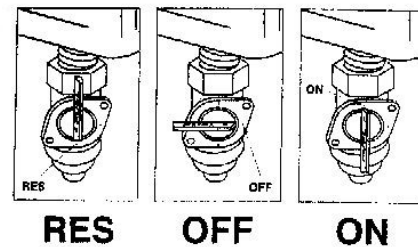
● Fuel Switch Service

- Periodically clean the petcock outside with the grease remover and water;
- Check for any leak or seeping fuel;
- Replace the petcock if there is any leakage.

● Fuel Valve Lever

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

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



2.2.8 Engine Oil

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

- 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/40SF 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. A-arm Lubrication

Lubricate the left/right front A-arm periodically.

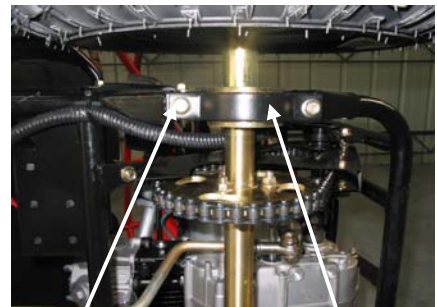


Left A-arm

Grease Nipple

2.2.11 Chain Adjustment

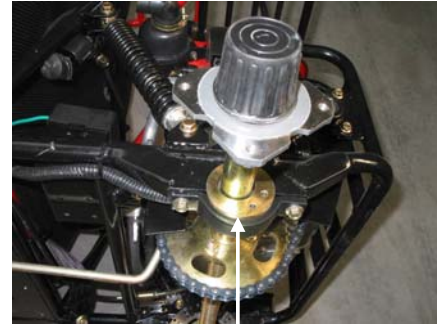
- a) Loosen the 4 bolts M8*16 on the rear wheel axle holder, and lift up the engine support so as to raise the rear wheel above the ground;



Bolt M8*16

Rear Wheel Axle Holder

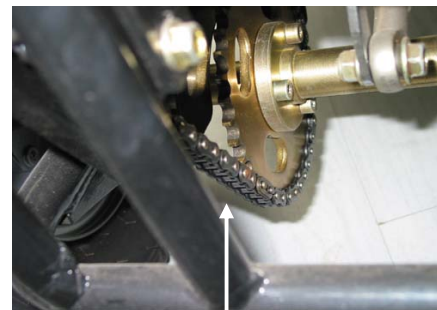
- b) If the chain is too loose, adjust the left and right rear wheel bearing holders counterclockwise at the same time;
If the chain is too tight, adjust the left and right rear wheel bearing holders clockwise at the same time;

**Bearing Holder**

- c) Fasten the 4 bolts M8*16 on the rear wheel axle holder.

2.2.12 Brake Shoe Replacement

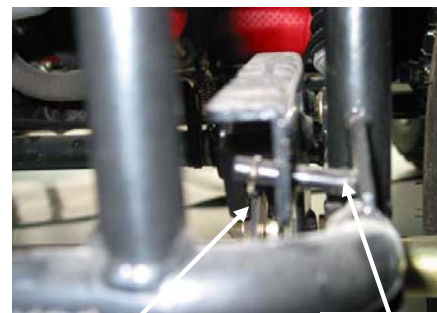
- a) Loosen the connecting clip on the chain;
Remove the chain;

**Chain**

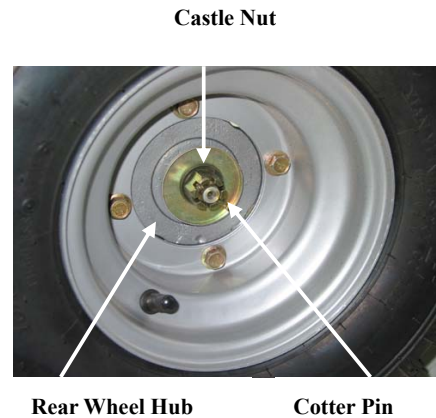
- b) Loosen the adjust nut on the brake cable;
Take out the brake cable;

**Brake Cable****Adjust Nut**

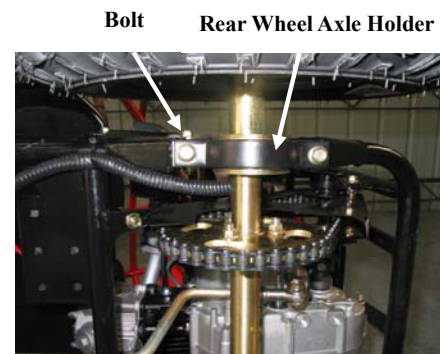
- c) Remove the cotter pin on the bracket of the rake caliper;

**Cotter Pin****Bracket**

- d) Remove the cotter pin, castle nut, left rear tire, right rear tire and rear wheel hub in order;



- e) Loosen the 4 bolts on the left/right holder of the rear wheel axle;
Remove the left/right holder of the rear wheel axle;
Remove the rear wheel axle together with the brake caliper assy.;



- f) Remove the lower right connecting bush, bearing seat of the right rear wheel axle and bearing;
Remove the brake caliper bracket ;
Replace the brake shoe;



- g) Assemble in the reversed order of removal.

2.2.13 Idle Speed Adjustment

If the rotate speed of the engine is not stable (either too low or too high) after the engine has started, adjust the idle speed adjust screw on the carburetor.

If the engine rotate speed is too high, turn the adjust screw counterclockwise;

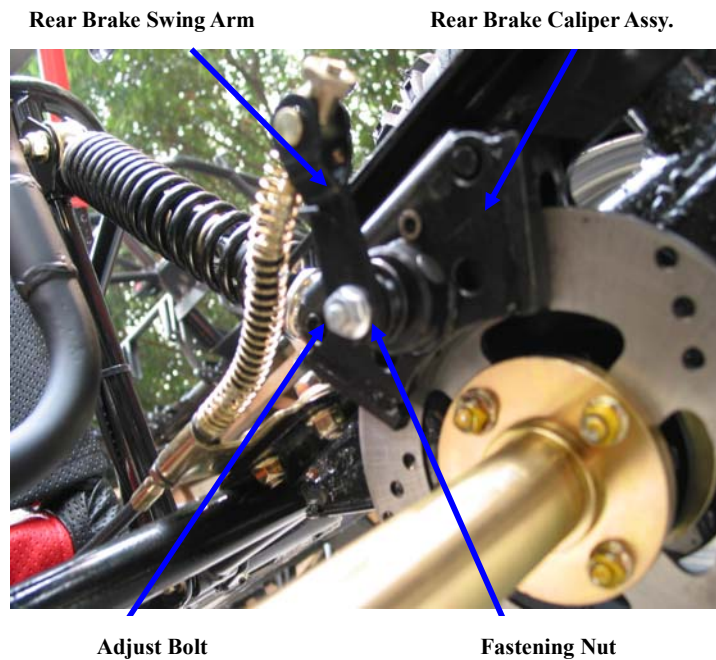
If the engine rotate speed is too low, turn the adjust screw clockwise;

NOTE: Idle Speed: 1500 ± 100 r/M



2.2.14 Rear Brake Swing Arm Solution & Replacement

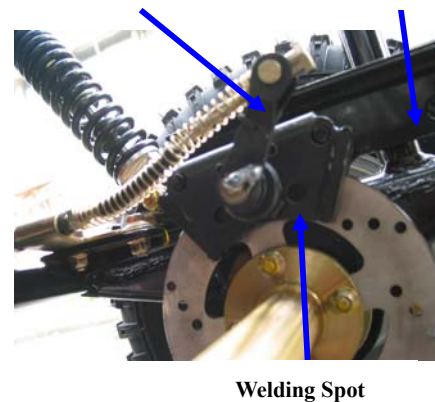
Problem: Rear brake swing arm becomes loose, and is hard to fix when vehicle brakes in suddenly.



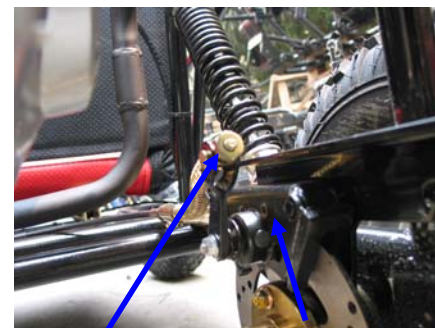
Solution:

- a) Weld the rear brake swing arm, adjust bolt, and fastening nut together ;

Rear Brake Swing Arm Rear Brake Caliper Assy.

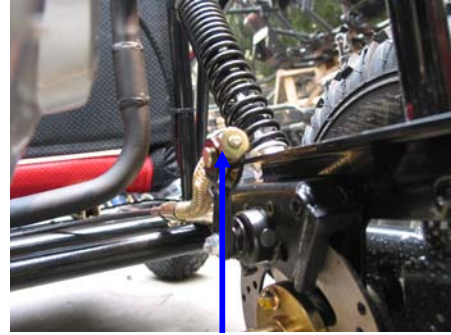


- b) When adjusting the brake, only need adjust the adjust nut of brake cable .



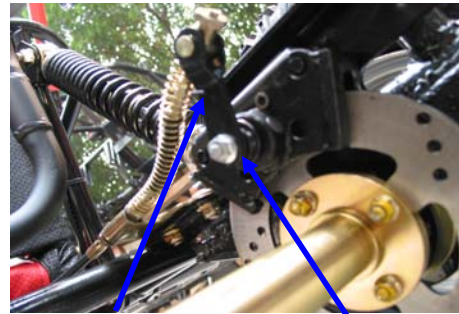
2. Replacement

- a) Remove the adjust nut of brake cable;



Adjust Nut of Brake Cable

- b) Remove the fastening nut of rear brake swing arm ;



Rear Brake Swing Arm

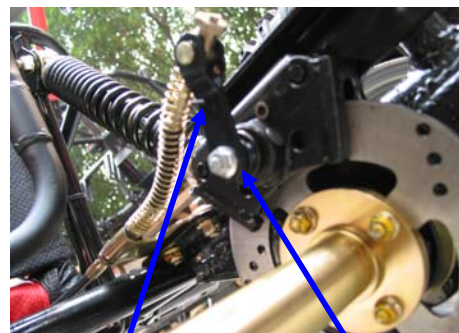
Fastening Nut

- c) Remove the rear brake swing arm;



Rear Brake Swing Arm

- d) Assemble the new rear brake swing arm and fastening nut;



Rear Brake Swing Arm

Fastening Nut

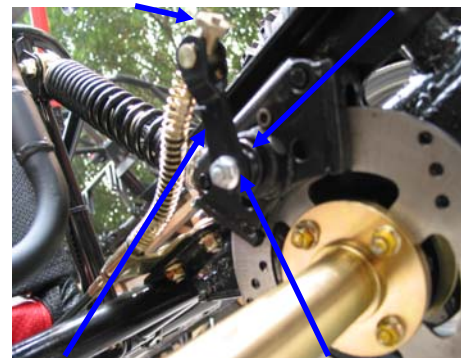
e) Reassemble the adjust nut of brake cable.



Adjust Nut of Brake Cable

Notice: The return spring of brake should be assembled in the exact direction as shown in the picture.

Adjust Nut of Brake Cable Return Spring



Rear Brake Swing Arm Fastening Nut

2.1.15 Storage

In the event your vehicle isn't be operated for periods in excess of 30 days or at the end of each driving season, prepare for the storage as follows:

- 1) Drain (or use a fuel stabilizer) all the fuel out of the fuel tank and carburetor;
- 2) Remove the spark plug; pour one ounce of clean cylinder lubricating oil through the spark plug hole into the cylinder, and crank the engine slowly to spread the oil so as to lubricate the cylinder better; replace the spark plug;
- 3) Don't save or store gasoline over winter, because the old gasoline has deteriorated in the winter storage, and will cause hard starting and affect the engine performance.

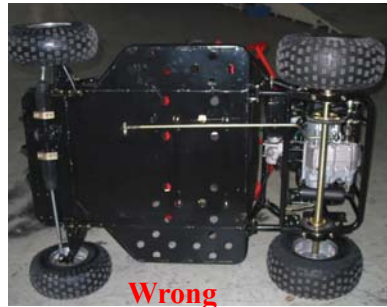
WARNING

- Don't drain the fuel while the engine is hot.
- Be sure to move your BUGGY outside before draining the fuel.

Notice: In storage and during service, please put your buggy with its four wheels on the ground.



All the other ways are wrong, and should be forbidden.



Wrong way to set your buggy during storage and service may cause the problems below:

- a) Carburetor gas flows into the engine, which makes starting very difficult;
- b) Gas flows out through carburetor drain tube, which may cause a potential safety problem;
- c) In very cold weather, engine oil runs in the wrong direction and stays on one side of engine, not on engine bottom; if you start the buggy immediately after taking it out, engine oil won't have enough time to flow back to the engine bottom, which may cause starting failure and improper engine lubrication.

3 ENGINE

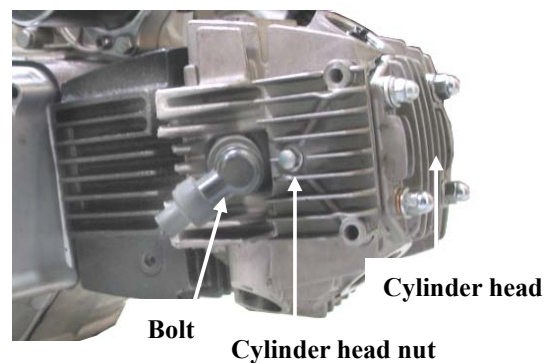
3.1 ENGINE COMBUSTION SYSTEM

3.1.1 Troubleshooting

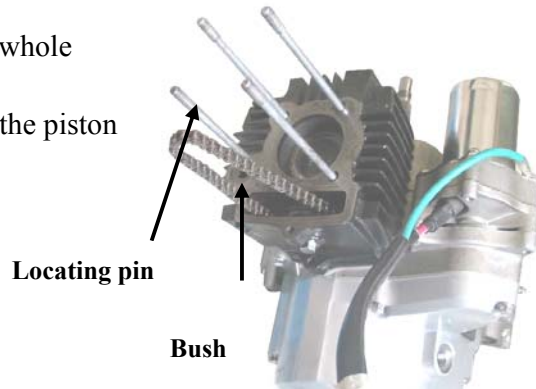
LOW COMPRESSION	<ul style="list-style-type: none"> ● CYLINDER HEAD ● LEAKAGE OR DAMAGE OF HEAD GASKET ● WARPED OR CRACKED CYLINDER HEAD ● WORN-OUT CYLINDER OR PISTON RINGS
HIGH COMPRESSION	<ul style="list-style-type: none"> ● EXCESSIVE CARBON ACCUMULATION ON PISTON HEAD OR IN COMBUSTION CHAMBER
EXCESSIVE NOISE	<ul style="list-style-type: none"> ● WORN OUT PISTON AND CYLINDER ● EXCESSIVE CARBON ACCUMULATION
EXCESSIVE SMOKE	<ul style="list-style-type: none"> ● WORN OUT CYLINDER OR PISTON RINGS ● IMPROPER INSTALLATION OF PISTON RINGS ● SCORED OR CRATCHED PISTON OR CYLINDER WALL
OVERHEATING	<ul style="list-style-type: none"> ● EXCESSIVE CARBON ACCUMULATION ON PISTON OR IN COMBUSTION CHAMBER ● BLOCKAGE OF AIR TO THE ENGINE COOLING SYSTEM (FAN, CYLINDER COVER...) ● IMPROPER OIL SUPPLY ● INCORRECT IGNITION TIMING

3.1.2 Cylinder and Piston Removal

- a) Remove the engine;
 Disassemble the air cleaner and carburetor;
 Remove the intake pipe mounting bolts;
 Remove the cylinder head cover;



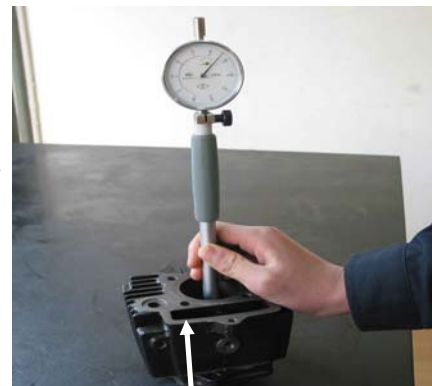
- b) Remove the cylinder head;
 Remove the cylinder carefully to see the whole piston;
 Remove one piston pin clip, and remove the piston and piston pin;
 Spread and remove each piston ring.



NOTE: Don't let the clip drop into the engine crankcase.

3.1.3 Cylinder and Piston Inspection

- a) Inspect the cylinder bore for wear or damage;
 Measure the cylinder inner diameter at three levels in X and Y-Axis;
 Taper **limit: 0.05 mm**
 Out of round **limit: 0.05 mm**



Cylinder Body

- b) Check the cylinder head mating surface for warp with a straight edge and feeler gauge;
Service limit: 0.05 mm



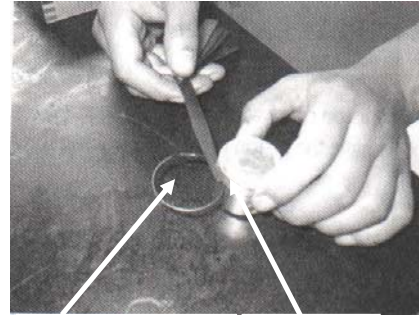
Cylinder Head Mating Surface

- c) Insert each piston ring into the cylinder;
 Measure the end gap;
Service limit: 0.45 mm

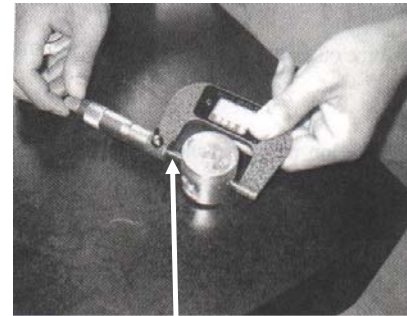


End Gap

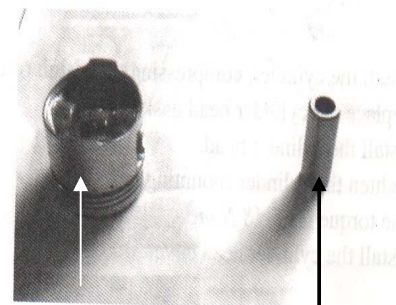
- d) Measure the clearance between the ring and groove;
Service limit: 0.12 mm

**Piston Ring****Piston**

- e) Measure the piston outer diameter at 10 mm high from the skirts bottom;
Service limit: 49.90 mm

**Piston Outer Diameter Measurement**

- f) Measure the piston pin bore, and the piston pin outer diameter;
Pin outer diameter: **Service limit: 12.98 mm**
Pin bore: **Service limit: 13.055mm**

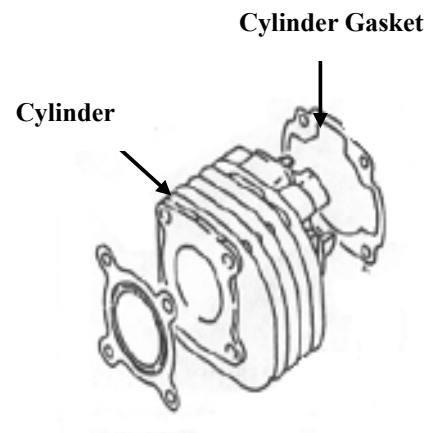
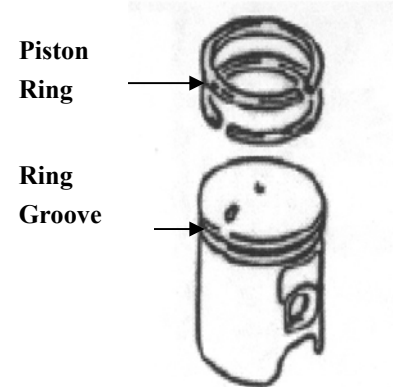
**Piston****Piston Pin**

- g) Measure the connecting rod small end inner diameter with a small hole-gauge.
Service limit: 13.10 mm

**Connecting Rod**

3.1.4 Installation

- a) Install the piston rings with the marks facing up;
NOTE: Do not damage the piston rings by spreading the ends too far.
The piston ring gap must align with the ring pin in the ring groove of piston.
- b) Clean the cylinder gasket surface;
NOTE: Be careful. Do not drop any gasket material into the crankcase.
- c) Apply some oil to the inside of the connecting rod small end;
- d) Install the piston, piston pin and clip;
Install the piston with the arrow mark facing the exhaust pipe;
NOTE: Do not align the piston pin clip end gap with the piston cutout
- e) Install a new cylinder gasket;
Apply a thin coat of engine oil to the piston rings and cylinder wall;
- f) Compress the piston rings and install the cylinder;
- g) Replace the cylinder head gasket;
Install the cylinder head;
Tighten the cylinder-mounting bolt;
Torque Value: 15-18 N. m.
- h) Install the cylinder head cover.



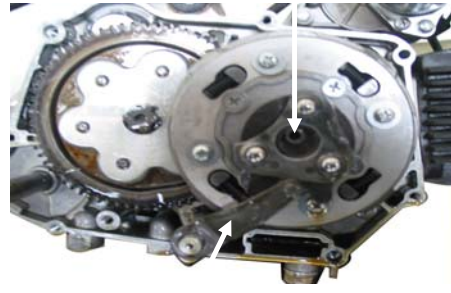
3.2 CLUTCH

3.2.1 Dismantle

a) Dismantle the following parts:

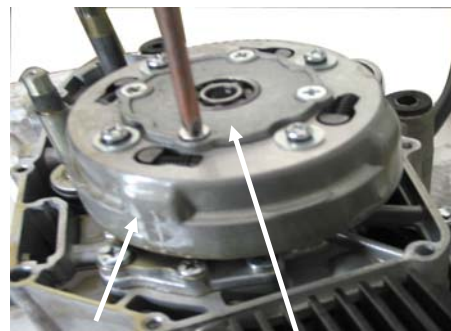
- Lever Comp., Clutch
- Plate Comp. , Clutch Lifter Cam
- Plank Comp., Limited
- Spring, Plate Side
- Through, Oil
- Spring, Oil Through

Plank Cover, Limited



Lever Comp., Clutch

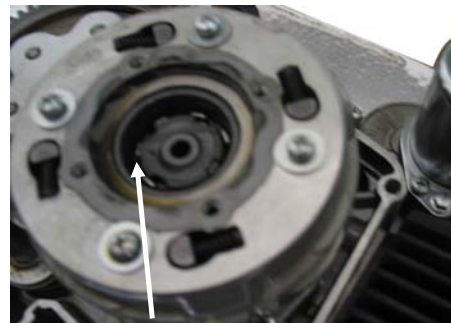
b) Remove the four screws, cover and gasket;



Clutch

Clutch Cover, Outer

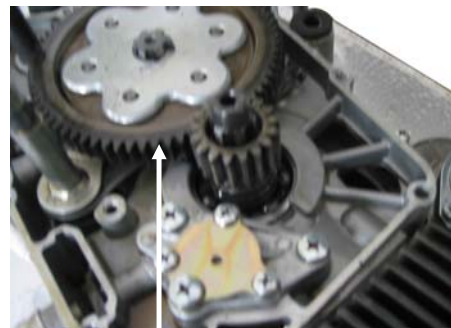
c) Lift the connecting tongue of the locking bush;
Detach the centrifugal clutch locking nut by using a special tool ;
Detach the clutch;



Locking Nut

d) Dismantle the following parts:

- Gear, Primary Drive
- Guide, Clutch Center
- Collar

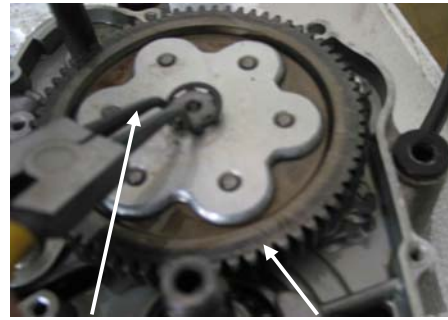


Gear

e) Dismantle the following parts:

---Circlip, External

---Gear, Primary Drive



Circlip

Gear

3.2.2 Troubleshooting

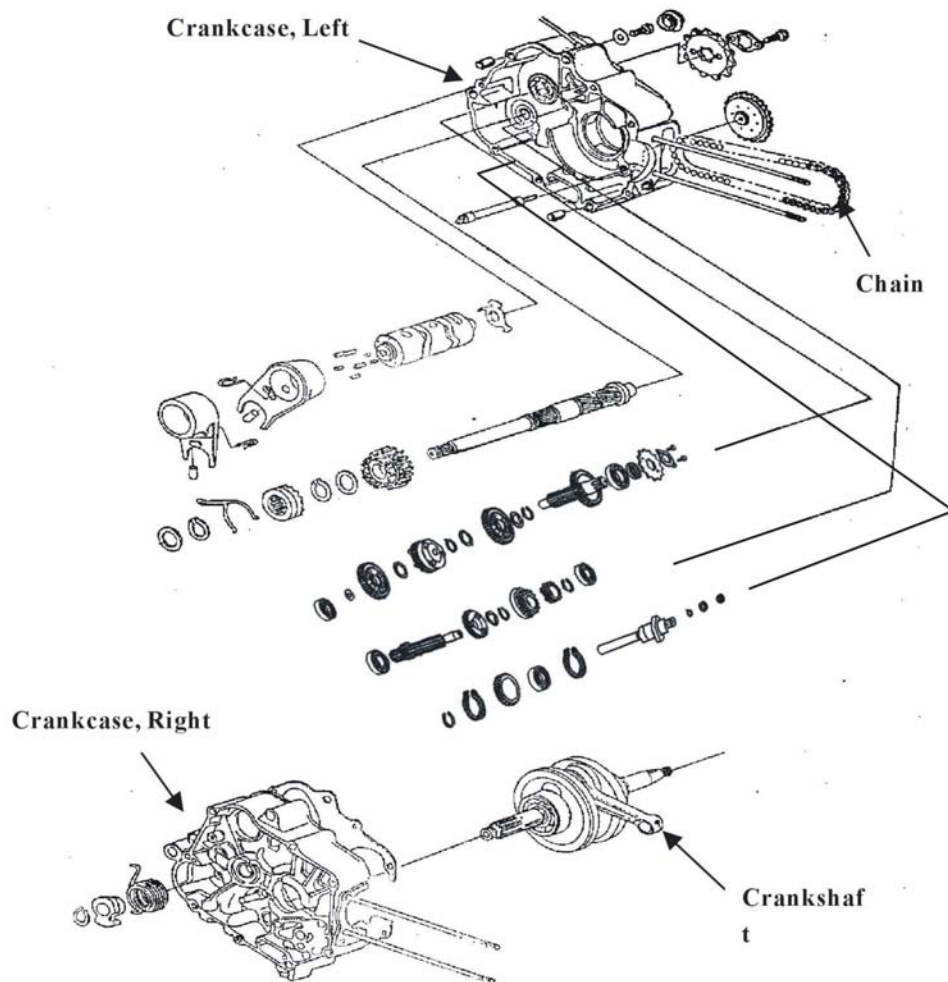
When the engine works at the idle speed, the vehicle moves slowly.

- The clutch has not been adjusted properly;
- The clutch disc is warped;
- The clutch lock nut is loose;
- There is too much oil in the crankcase;
- The clutch rod has not been installed correctly.

When accelerating, the clutch slips.

- The clutch has not been adjusted properly;
- The clutch disc is worn out;
- The clutch spring is loose;
- The gearshift oil is mixed with copper or graphite additive.

3.3 TRANSMISSION /CRANKCASE



3.3.1 Trouble Shooting

Difficulty in gearshift:

- The clutch was not adjusted properly;
- The gear shifter is bent;
- The guide pin is broken;
- The gear guard is worn out.

Transmission dislocation:

- The guide pin is worn out;
- The gear shifter is bent.

Too much noise:

- The shaft neck bearing is worn out;
- The transmission bearing is worn out.

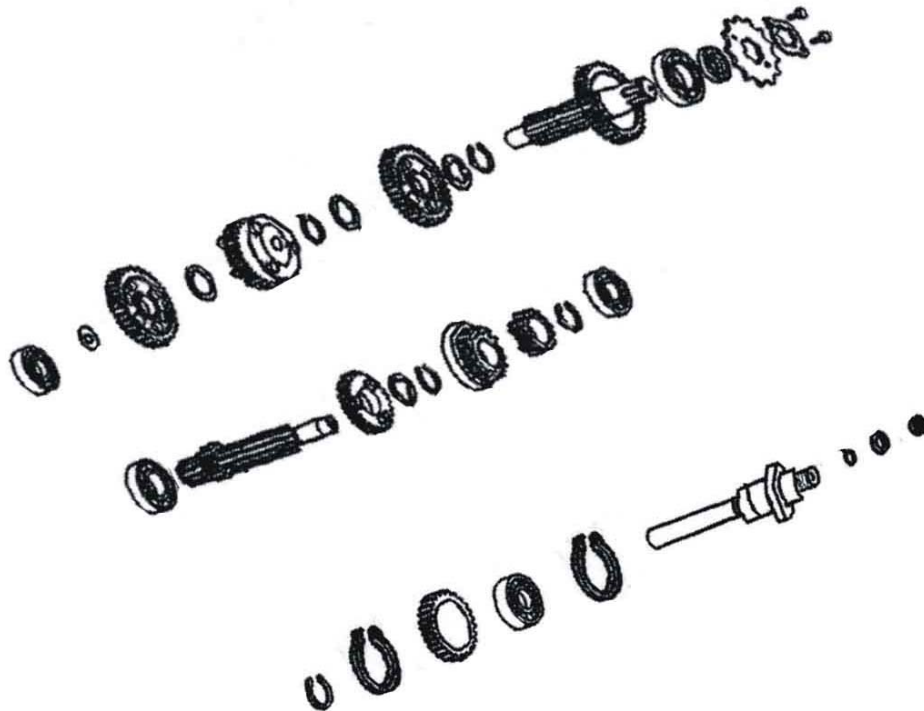
Engine vibration:

- The crankshaft radial run-out is too great.

3.3.2 Transmission Device Assembly

Assemble the transmission device by reversing the disassembly procedure.

NOTE: Align the head of the snap ring with the center of the key slot as shown in the picture.



3.3.3 Path of Power Transmission

- The torque of crankshaft drives the clutch.
- The torque of clutch transmits the main shaft by gear.
- The torque of main shaft transmits the counter shaft by gear.
- The counter shaft drives the small sprocket.
- The small sprocket drives the rear sprocket by chain, and transmits the rear-axle shaft to move the rear wheel.

3.4 FUEL SYSTEM

3.4.1 Trouble Shooting

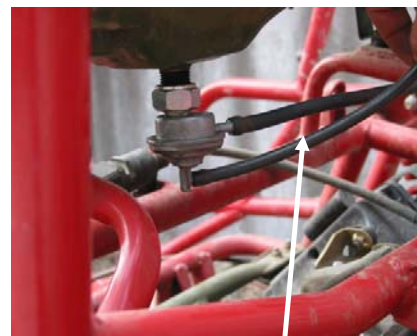
ENGINE STARTING DIFFICULTY	<ul style="list-style-type: none"> ● NO FUEL IN TANK ● NO FUEL TO CYLINDER ● TOO MUCH FUEL IN CYLINDER ● NO SPARK AT SPARK PLUG ● CLOGGED AIR CLEANER FILTER
UNSTEADY, STALLING OR POORLY-RUNNING ENGINE IDLES	<ul style="list-style-type: none"> ● IMPROPER ADJUSTMENT OF IDLE SPEED SCREW AT CARBURETOR ● IGNITION MALFUNCTION ● TOO LEAN OR TOO RICH FUEL/AIR MIXTURE ● DIRTY AIR CLEANER ● INSULATOR LEAKAGE ● CLOGGED BREATHING HOLE OF FUEL TANK CAP
LEAN MIXTURE	<ul style="list-style-type: none"> ● CLOGGED FUEL JET OF CARBURETOR ● CLOGGED TREATHING HOLE OF FUEL TANK CAP ● CLOGGED FUEL FILTER ● UNSMOOTH FLOWING OF FUEL IN THE TUBE ● TOO LOW FLOAT LEVEL IN CARBURETOR
RICH MIXTURE	<ul style="list-style-type: none"> ● FAULTY FLOAT NEEDLE VALVE IN CARBURETOR ● TOO HIGH FLOAT LEVEL ● CLOGGED AIR DUCT IN CARBURETOR ● DIRTY AIR CLEANER

- **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.

Solution

- 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:
Open the connecting tube between the air cleaner and carburetor.

**Air Cleaner**

- c) Spray a little carburetor cleanser into the carburetor.

**Spray Cleanser**

- d) 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.

3.4.2 Carburetor

● Removal

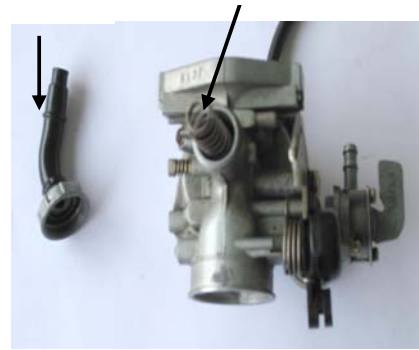
- a) Remove the air cleaner;
Disconnect the fuel line;
Unscrew the intake pipe mounting bolts at the carburetor, and then remove the carburetor;

Intake Tube Carburetor



- b) Remove the carburetor cap;
Remove the throttle cable from the throttle valve while depressing the throttle valve spring;

Throttle Cable **Throttle Valve Spring**



- c) Remove the needle clip retainer, the jet needle and needle clip;
Inspect the throttle valve and the jet needle surface for wear, scratches or dirt.



Jet Needle

● **Disassembly**

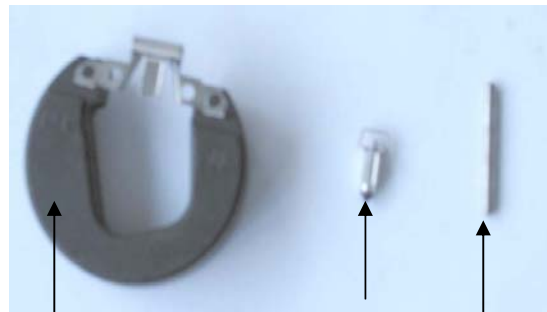
- a) Unscrew the float chamber screws and remove the float chamber:



Float Chamber

Carburetor

- b) Disassemble the float arm pin, float and float needle valve. Inspect the seat of the float needle valve for wear or damage:
Disassemble the idle jet, main jet, idle speed;
Adjust screw and idle mixture adjustment screw:

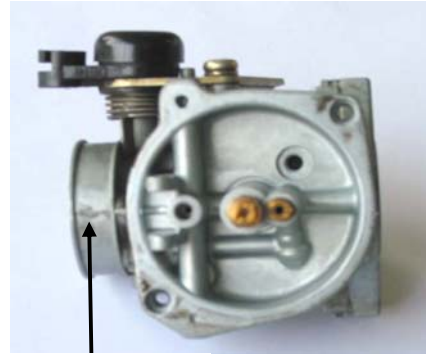


Float

Float Needle

Pin

- c) Inspect all the jets and screws for wear or damage;
Clean the passages and jets with compressed air.



Carburetor

- **Assembly**

Clean all parts in solvent and blow it dry with compressed air.
Assembly is essentially the reverse order of disassembly.

3.4.3 Throttle Valve Assembly

- a) Install the needle clip on the jet needle;
- b) Install the jet needle into the throttle valve;
- c) Assemble the throttle cable, spring and the throttle valve;
- d) Align the throttle valve groove with the idle speed;
- e) Adjust screw and install the carburetor cap to the carburetor.

3.5. ENGINE LUBRICATION & COOLING SYSTEM

3.5.1 Troubleshooting

INSUFFICIENT OIL SUPPLY TO ENGINE	<ul style="list-style-type: none"> ● TOO LOW OIL LEVEL IN OIL TANK ● IMPROPER FIXED OIL TUBES ● OIL LEAKAGE FROM TUBE ENDS ● DAMAGED OIL TUBES ● CLOGGED OIL TUBES ● BROKEN-DOWN OIL PUMP
ALWAYS INSUFFICIENT OIL LEVEL	<ul style="list-style-type: none"> ● EXTERNAL OIL LEAKAGE ● WORN CYLINDER HEAD GASKET ● WORN PISTON RINGS
ENGINE ALWAYS RUNS HOT	<ul style="list-style-type: none"> ● IMPROPER ADJUSTMENT OF OIL PUMP ● POOR OIL QUALITY

3.5.2 Caution

Supplying enough oil to the engine is very important. If the oil quantity is not enough, the engine will be severely scored and will most likely seize the motor.

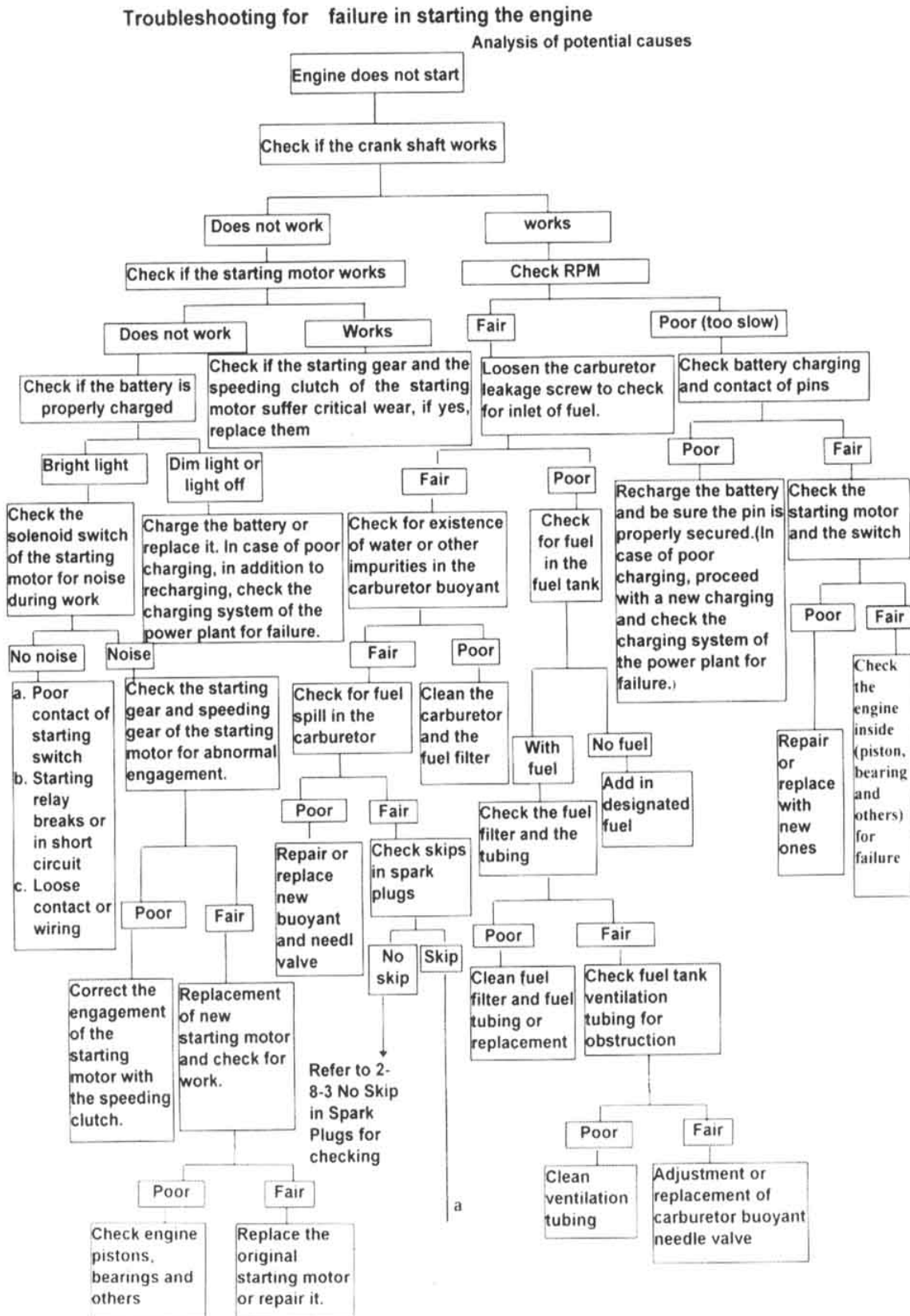
When the upper end of the engine is in need of replacement, change the piston, piston rings, piston pin clips, and the cylinder all at the same time.

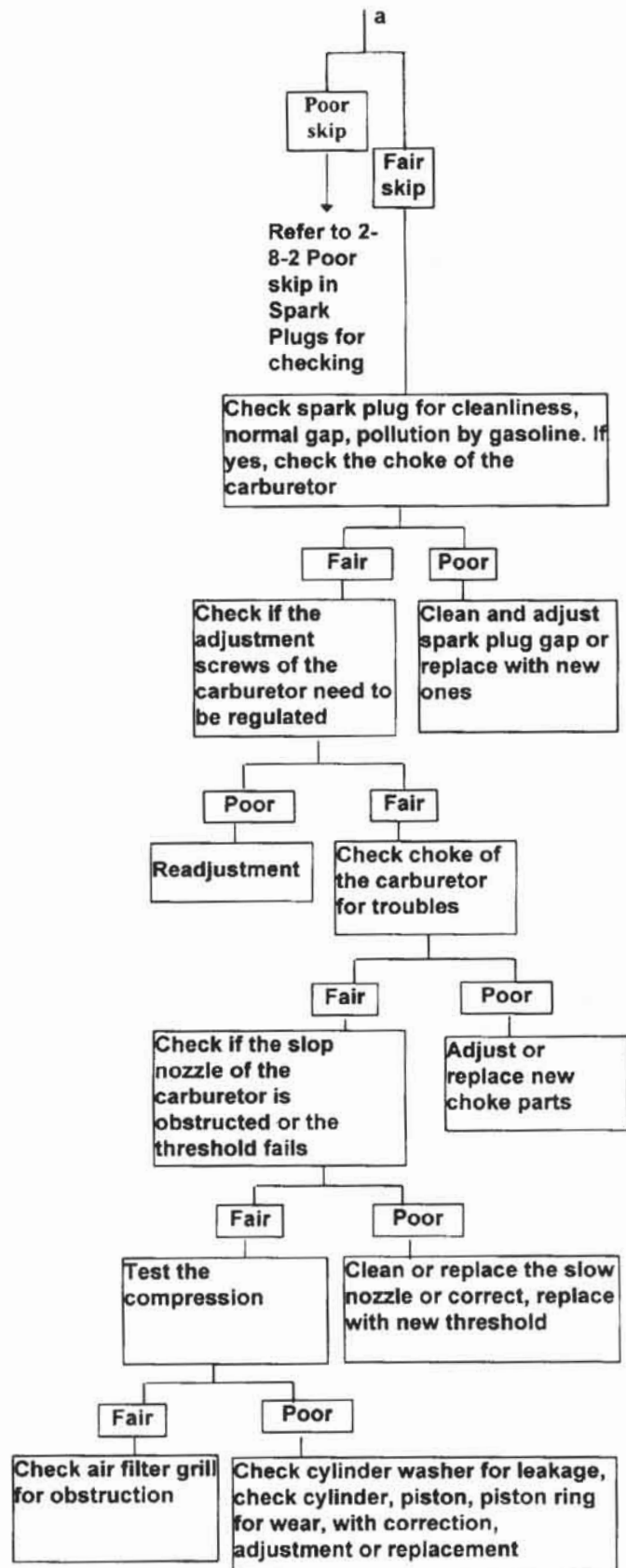
3.5.3 Cooling System

When the buggy is running, the wind blowing towards it will cool down the cylinder head and cylinder body through the cooling fins. So, the cylinder and piston will not overheat.

The cooling fins should be kept clean.

3.6 Starting Failure





4. ELECTRIC SYSTEM

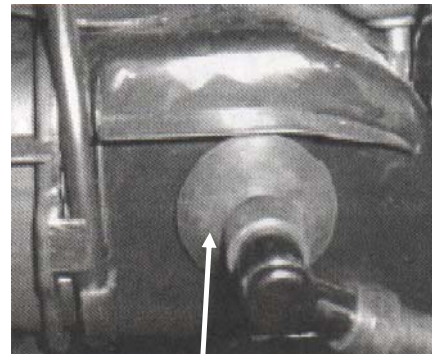
4.1 Troubleshooting

ENGINE STOPPING AFTER STARTING	<ul style="list-style-type: none"> ● IMPROPER IGNITION TIMING ● FAULTY SPARK PLUG
NO SPARK AT PLUG	<ul style="list-style-type: none"> ● ENGINE STOP SWITCH AT “OFF” ● FAULTY IGNITION COIL ● FAULTY GENERATOR ● FAULTY CDI UNIT ● POOR CONNECTION: Between CDI and Ignition Coil Between Alternator and CDI Unit Between CDI and Engine Stop Switch Between Ignition Coil and Spark Plug Between Generator and CDI Unit
POOR RUNNING OF ENGINE AFTER STARTING	<ul style="list-style-type: none"> ● PRIMARY IGNITION CIRCUIT TROUBLE: Faulty Generator Faulty CDI Unit Faulty Alternator Exciter Coil Loose Connection between Terminals Faulty Ignition Coil ● SECONDARY IGNITION CIRCUIT TROUBLE: Faulty Plug Loose Connection at Spark Plug Wires ● IMPROPER IGNITION TIMING: Faulty Generator Faulty CDI Unit
CHARGING SYSTEM FAILURE	<ul style="list-style-type: none"> ● LOOSE, BROKEN OR SHORT WIRES ● FAULTY ALTERNATOR ● FAULTY IGNITION SWITCH
INTERMITTENT ENGINE POWER	<ul style="list-style-type: none"> ● LOOSE BATTERY CONNECTION ● LOOSE CHARGING SYSTEM CONNECTION
STARTER MOTOR TURNING FAILURE	<ul style="list-style-type: none"> ● DEAD BATTERY ● FAULTY IGNITION SWITCH ● LOOSE OR DISCONNECTED WIRES

<p>(When Starter Motor And Engine Can Turn) ENGINE STARTING FAILURE</p> <p>SLOW MOVEMENT OF STARTER</p>	<ul style="list-style-type: none"> ● FAULTY IGNITION SYSTEM ● ● ENGINE PROBLEMS <ul style="list-style-type: none"> ● FAULTY ENGINE STOP SWITCH ● OVERLOW ELECTROLYTE SPECIFIC GRAVITY IN BATTERY or USED UP BATTERY ● POOR CONTACT BETWEEN CONNECTING TERMINALS OF BATTERY WIRES ● BROKEN STARTING RELAY ● POOR GROUNDING OF BATTERY ● BROKEN STARTER BRUSH
<p>(When the starter runs,) ENGINE FAILURE</p>	<ul style="list-style-type: none"> ● ELECTRIC STARTER RUNNING IN AN INVERTED ORDER: Improper Assembly Of Starter Case Improper Connection Of Terminal ● BROKEN STARTING RELAY ● BROKEN DRIVE CHAIN OF STARTER
<p>KATA SOUNDS FROM STARTING RELAY SWITCH & ENGINE FAILURE</p>	<p>(DUE TO ENGINE PROBLEM) FAILURE OF CRANKSHAFT MOVEMENT</p>

4.2 Ignition Coil

- a) Remove the spark plug cap from the spark plug;
Disconnect the primary ignition coil wire;



Ignition Coil

- b) Measure the primary coil resistance;
Standard: 0.1-1.0 Ω



Ignition Coil

- c) Measure the secondary coil resistance with the spark plug cap in place.

Standard: 7-9 K Ω

4.3 Ignition Timing

The ignition advance is **15°± 1° B.T.D.C /1700rpm.**

The Capacitive Discharge Ignition (CDI) system is factory pre-set and does not require adjustment.

4.4 Starter Motor

● Remove

- a) Remove the left crankcase cover;
Remove the snap ring from the follower gear of the electric starter;
- b) Pull off the wire connector of the electric starter;
Remove the 3 bolts; remove the electric starter;
Remove the O-ring.

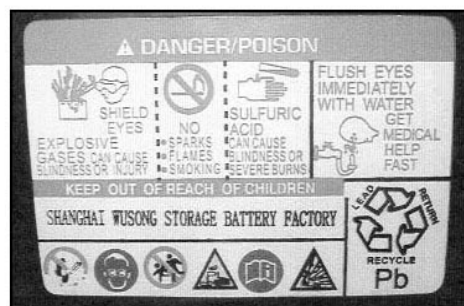
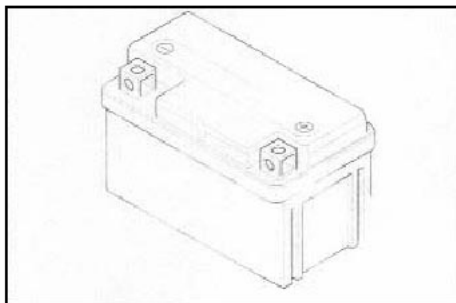
● Disassembly

- a) Remove all the bolts;
b) Disassemble the electric starter.

NOTE: Assemble the starter back with the same amount of washers.

4.5 Battery

● Initial Service



WARNING

- The following procedure is very dangerous and should be performed with utmost care and attention. Wear protective eyewear, rubber gloves, and have water available should electrolyte come in contact with skin or eyes.

**WARNING**

KEEP ALL CHILDREN AWAY FROM THE AREA WHILE THIS PROCEDURE IS BEING PERFORMED.

- **POISON – CAUSES SEVERE BURNS**

Contains sulfuric acid.

Avoid contact with skin, eyes, or clothing

TO prevent accidents, rinse empty container with water.

- **ANTIDOTE:**

External – flush with water;

Internal – call physician immediately. Drink large quantities of water or milk.

Follow with milk of magnesia, beaten eggs or vegetable.

Eyes – Flush with water for 15 minutes and get prompt medical attention.

- **KEEP OUT OF THE REACH OF CHILDREN**

- **Battery Installation**

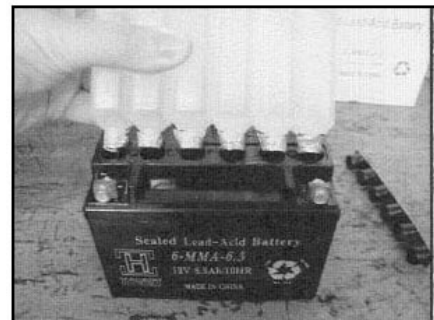
NOTE: The following page is for vehicles with battery's containing separate electrolyte pack. Most battery's will come with the electrolyte already sealed into the battery.

- a) Place battery on level surface;
Remove sealing tape from top;

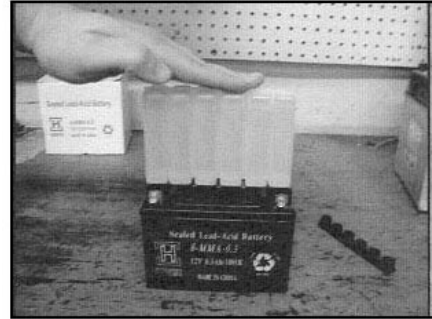


- b) Take the electrolyte container out of the plastic bag;

- c) Place electrolyte container upside down with the sealed silver mouths of the electrolyte bottles in line with the six filler holes of the battery;



- d) Push the container down strongly enough to break the silver seals;



- e) As electrolyte starts flowing into battery, air bubbles will come up from the mouths of the plastic electrolyte bottles;

- f) Leave bottles upside down in battery holes until electrolyte is completely drained;
NOTE: Never leave children unattended around battery.

- g) If air bubbles cease to float to the top of the electrolyte bottles, tap lightly on top;
NOTE: DO NOT remove container from battery while it is draining.

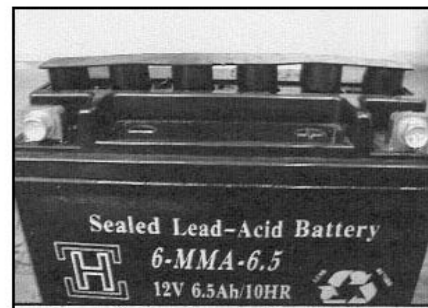
. Never cut or pierce electrolyte container.

- h) After all the electrolyte has drained from the bottles into the battery, pull plastic electrolyte bottles gently out of the battery;

- i) Discard empty electrolyte bottles in a waste area that is inaccessible to children and animals;

- j) After filling, let battery stand for at least 30 minutes before charging (This allows the electrolyte to penetrate plates for optimum performance and ensures longer battery life);

- k) After 30 minutes the battery is ready for its initial charge, place cap strip loosely over the filling holes as shown in the picture.

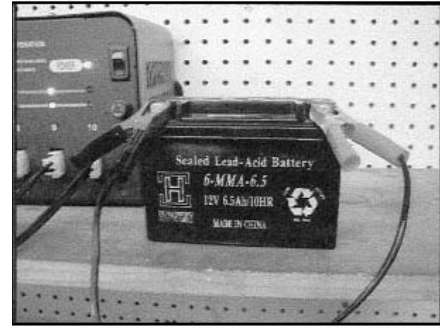


● Initial Charge

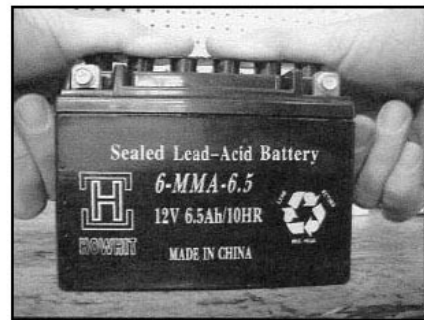
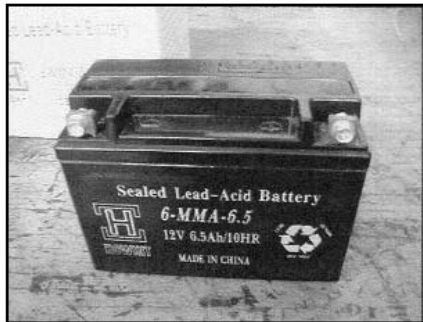
- a) Connect the red positive (+) cable to the red positive (+) pole of the battery;



- b) Connect the black negative (-) cable to the black negative (-) pole of the battery;
NOTE: The red positive (+) cable has a larger diameter than the black negative y cable.



- c) Charging rate: Charge battery @ 0.7 Amps for 5 ~ 10 hours;
- d) After charging is complete, press down firmly with both hands to seat the caps.
Do not pound or hammer.
The battery is now sealed;

**WARNING**

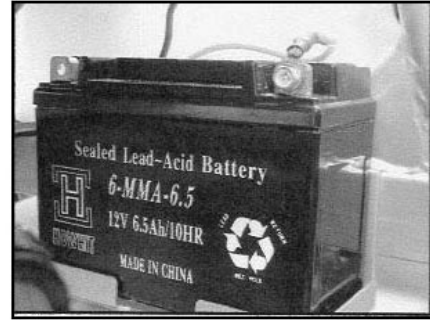
NEVER REMOVE THE STRIP OF CAPS NOR ADD ANY WATER OR ELECTROLYTE.

- e) Install battery into battery tray making sure that the rubber mat is in place;

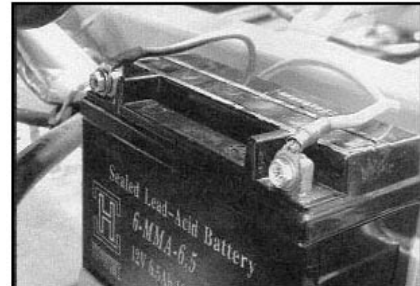
NOTE: The warning label on the battery should be facing the warning label on the gray tray.



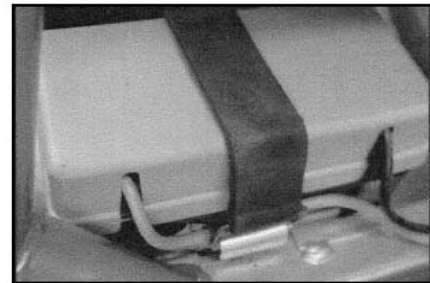
- f) Once battery is firmly seated in gray tray with rubber mat under it, attach the red positive wire to the red positive terminal on the battery;



- g) Then attach the black negative wire to the black negative terminal on the battery;



- h) Place grey plastic battery cover on top of the battery and thread wires through the cover cuts – outs.



Finally, secure the battery with the wide black rubber strap using the hooks on both ends.



WARNING

- **DO NOT** open sealed caps to add water to battery.
- Always wear safety glasses and charge in a ventilated area.
- If battery gets hot to the touch, discontinue charging and allow battery to cool down.
- Do not use fast charging unless it is an emergency.
- At the beginning or end of charging, turn off the charger first, in order to prevent electric spark and explosion.



- **Charge in a well ventilated area.**
- **DO NOT smoke around batteries and keep away from open flame.**

● **Battery Replacement:**

a) Remove old battery;

Mark which cable is connected to the positive terminal (+) and which cable is connected to the negative (-) terminal;

b) Clean cable connectors with wire brush or sandpaper to remove oxidation;

c) After charging, install new battery;

Put dielectric grease on the battery terminals to avoid corrosion;

d) Connect cables to the proper terminals: positive cable to positive terminal, and negative cable to negative terminal;

NOTE: Positive (+) cable is red and larger in diameter; Negative y cable is black and smaller of the two in diameter.

CONNECT NEGATIVE CABLE LAST.

e) Torque terminal bolts to 40 in. / lbs;

f) Place rubber pad in bottom of battery tray;

. Securely fasten battery to the vehicle using cover and strap.



- **To avoid possibility of explosion, always connect battery cable in the order specified:
RED first; BLACK last. An exploding battery can cause serious injury or death.**
- **Batteries contain sulfuric acid.**
- **Always shield eyes with protective eyewear when working around battery acid.**
- **Battery acid is poisonous and can cause severe burns.**
- **DO NOT smoke around batteries and keep away from open flame.**

● Trouble Shooting

Battery Short Circuit Solution

Problem: battery short circuit

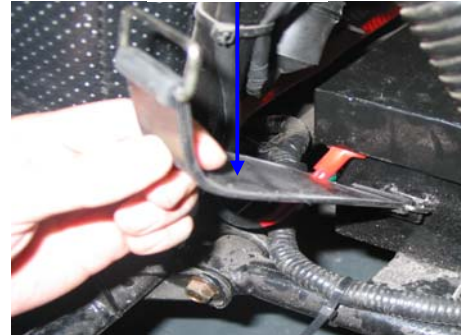
Purpose: to prevent battery electrodes touch battery box cover and cause battery short circuit

Solution:

1. Inspect Battery

a) Remove the battery band;

Battery Band



b) Remove the steel battery box cover;

Steel Battery Box Cover



c) Inspect if the rubber pad in the battery box cover is in good condition;
Replace the rubber pad if necessary;

Rubber Pad



e) Suggest to replace the steel battery box cover with a plastic one
(part no. 50320-BDD0-0000).

Plastic Battery Box Cover



2. Replace Battery Box Cover

a) Assemble the battery + / — electrode;

+ Electrode — Electrode



b) Put the battery into the battery box;

Battery



Battery Box

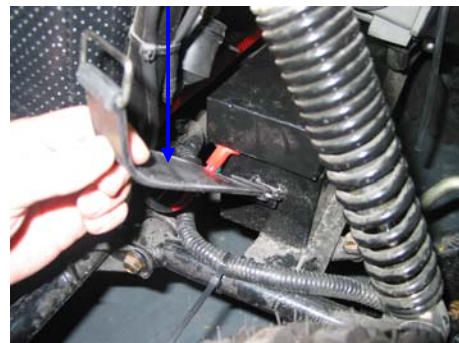
c) Put on the plastic battery box cover (part no. 50320-BDD0-0000), or add one rubber pad in the steel battery box cover;

Plastic Battery Box Cover



Battery Band

f) Put the battery band on the battery, and fasten the band;

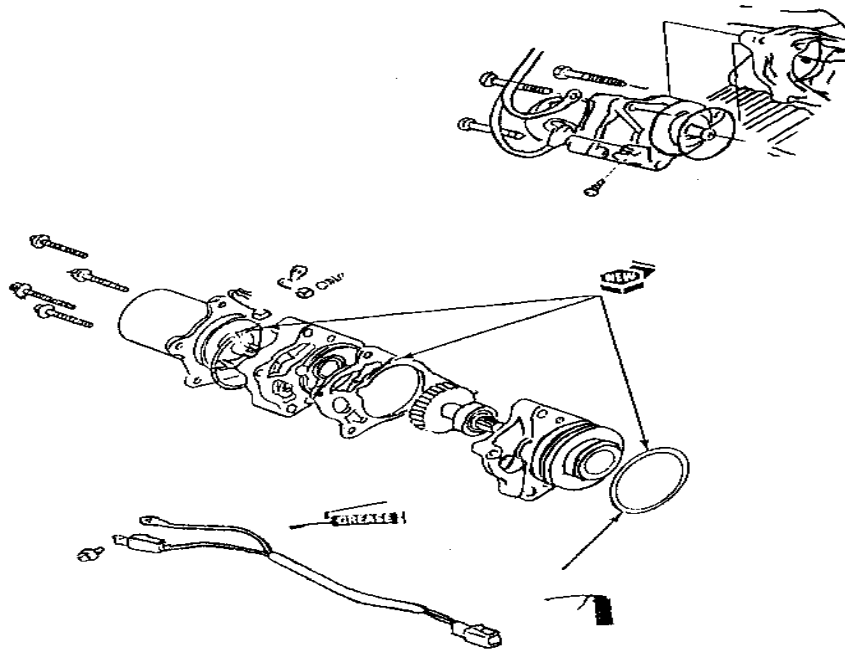


e) The replacement is finished.

Replaced Battery Box Cover



4.6 Starter Motor / Starting Clutch



4.6.1 Starter Motor

● Maintenance Warning

Turn off the ignition switch before maintaining the electric starter. The sudden starting of the electric starter could cause severe injuries or death.

- a) If the battery can't provide enough electric charges, the electric starter can't run fast enough, or the provided ignition currents are not enough.
- b) If the electric starter is started continually when the engine can't work, the electric starter will be damaged.

● Spec.

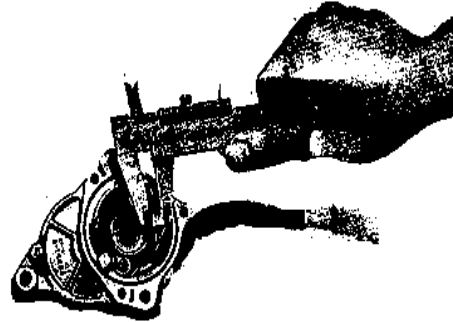
Unit: mm (in)

Item	Standard value	Limit value
Length of electric starter carbon brush	12.0mm	4.0mm

● Trouble Shooting

NOTE: Check the following items before looking for the system failure:

- If the main fuse has been burned (10A);
- If the wire of the battery or electric starter has got loose;
- If the battery is leaking.



The electric starter doesn't work

Undercharged: Below 12.0 V

● Check

- Check the carbon brush and measure the length of the brush;

Limit value: 4.0mm

- Check if the rectifier bar has depigmentized;

The depigmentation of couples of rectifier bars shows the armature coil has earthed;

NOTE: The rectifier bar can't be burnished by emery cloth or sand paper.

- Check the connectivity between couples of rectifier bars;

Check the connectivity between the rectifier bar and the armature shaft;

Rectifier bars: connected;

Armature ---shaft: disconnected;

- Check the connectivity between the cable terminal and the black wire brush;

Check the connectivity between the cable terminal and the electric starter shell;

If the connecting wire is broken or disconnected with the starter shell, the wire needs repairing.

Cable terminal --- starter shell: disconnected;

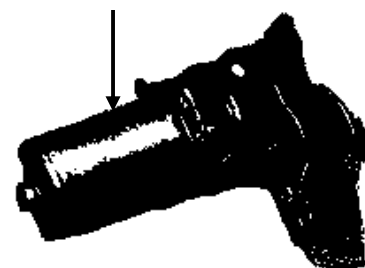
Cable terminal ---brush: connected.

● Assembly

- Assemble the electric starter;

Align the carbon brush pin with the shell groove;

Electric Starter

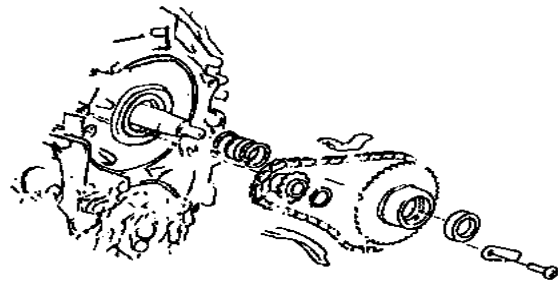


- b) Align the rear shell groove with the carbon brush pin;
Install the rear shell;
- c) Check if the O-ring is in good condition; replace it if it is defective.
Lubricate the O-ring;
Install the electric starter and fasten the bolt;
Connect the connector of the electric starter;
- d) Install the snap ring into the shaft groove;
Install the left crankcase cover.

4.6.2 Starting Clutch

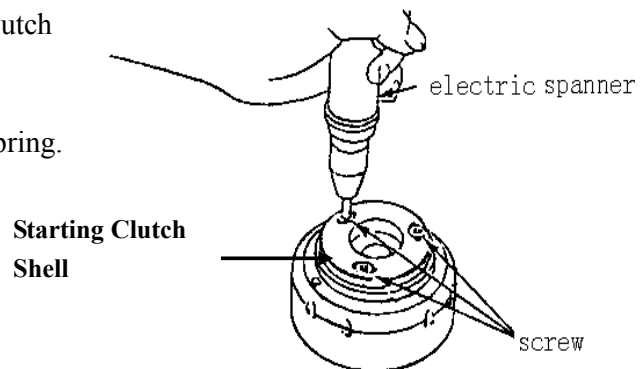
● Remove Main/Follower Sprocket

- a) Remove the following parts:
 - Flywheel;
 - Drive chain slide plate
 - Screw and locating plate;
 - Snap ring;
- b) Remove the starting chain and sprocket Assembly;
- c) Install by reversing the dismantling procedure.



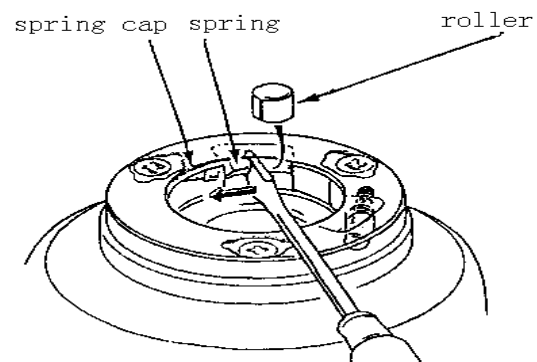
● Remove Starting Clutch

- a) Remove the 3 screws and starting clutch shell;
- b) Remove the roller, spring cap and spring.

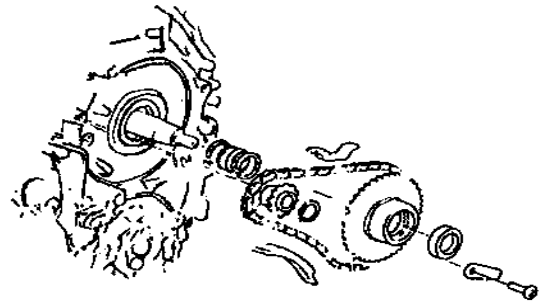


● Check

- a) Check if the roller runs smoothly;
Check if the roller has been over abraded;

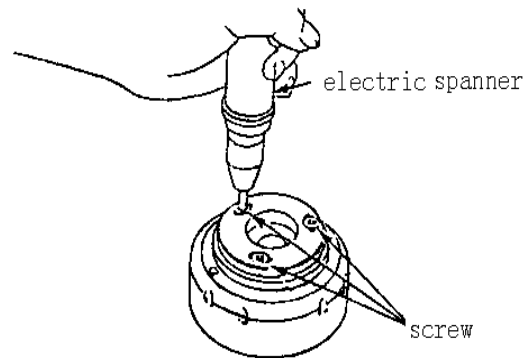


- b) Check the abrasion and damage of the Main/follower sprocket and chain:
Measure the outer diameter of the main Sprocket.

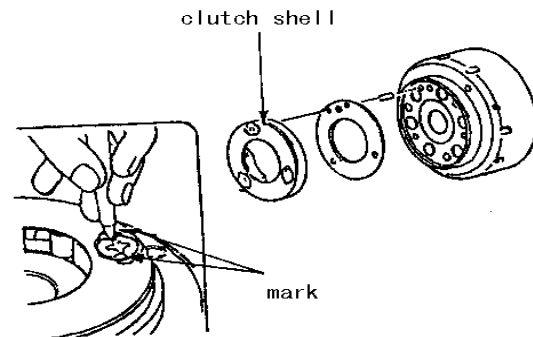


● Assembly

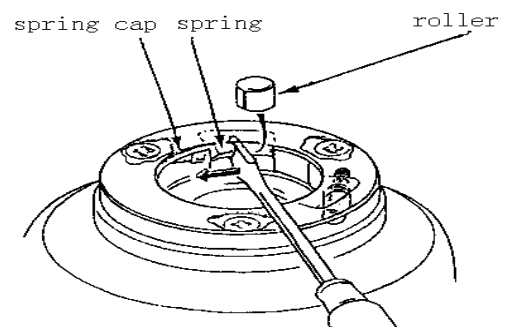
- a) Install the starting clutch shell;
Apply the locking agent to the screw threads of the starting clutch shell;
Install the screws and fasten them;



- b) Put a mark on every screw of the clutch shell;



- c) Install the spring, spring cap and roller;

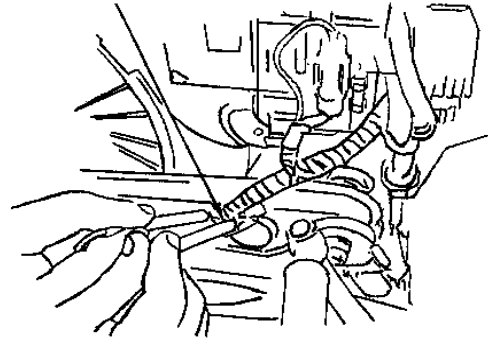


4.6.3 Starting Relay

● System Check

- a) Turn on the ignition switch;
Press the starting switch;
It is normal if the starting relay makes
“Kata” Sounds.
- b) Pull out the connector from the starting
relay;
Measure the voltage of the connection
terminal;
Check the connectivity of the connection
terminal;

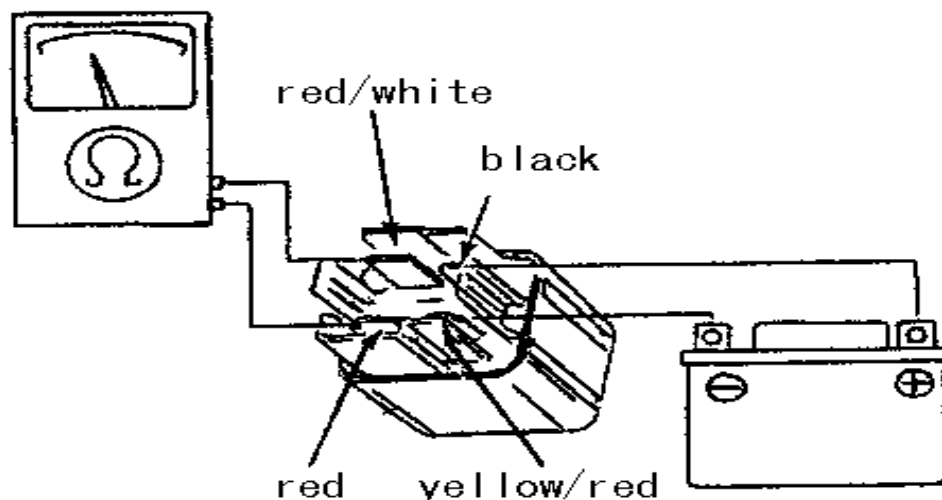
Starter relay connector



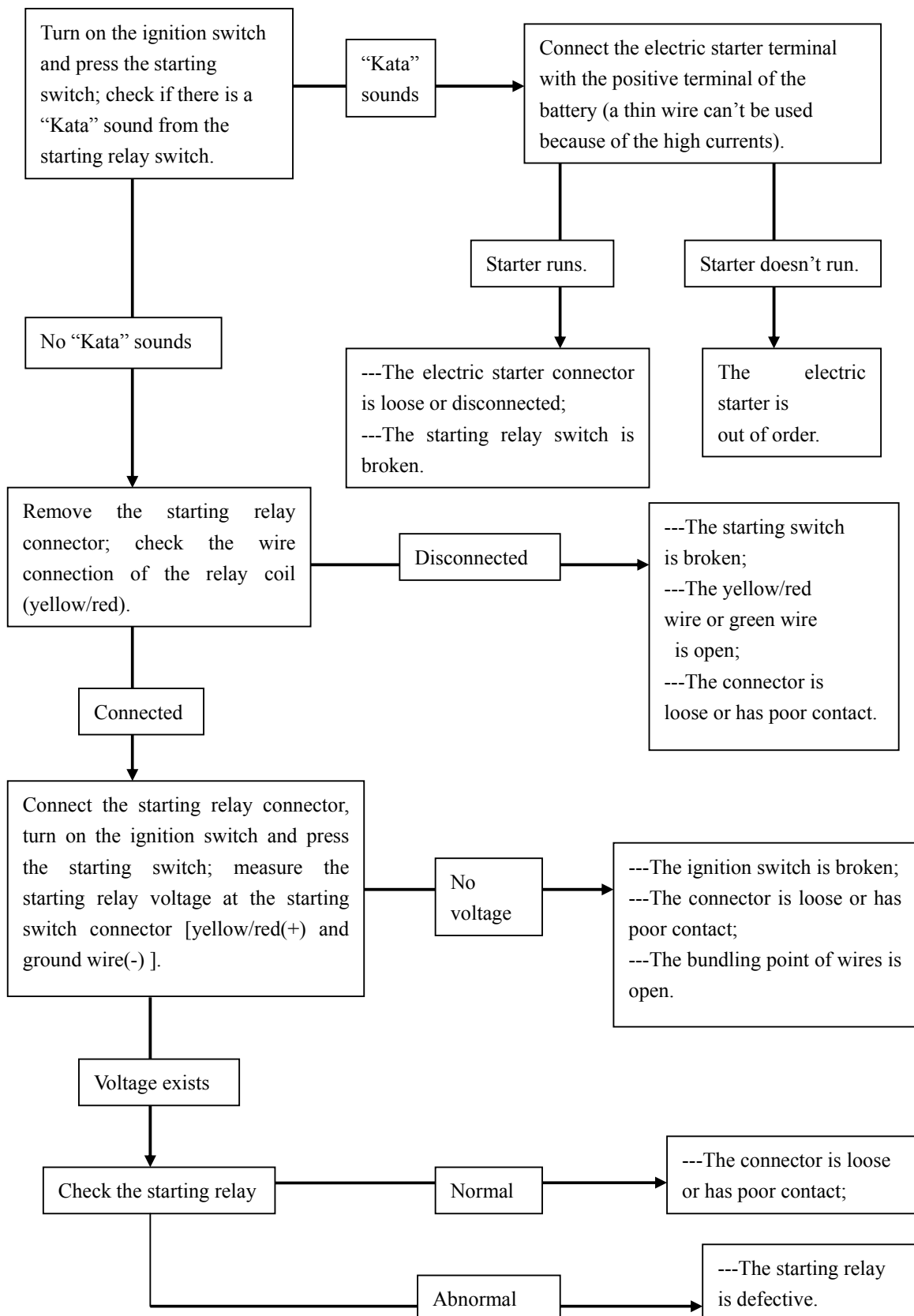
Item	Connection Terminal	Technical Criterion
Starting relay coil	Yellow/red wire and ground wire	Turn on the starting switch: it should be connected.
Battery voltage input wire	Black wire(+)and ground wire(-)	Turn on the ignition switch: the battery should be connected.
Electric starter input wire	Red wire (+)and ground wire(-)	The battery should be connected.

● Elements Check

- a) Connect a DC12V battery between the black wire and yellow/red wire;
- b) Connect an ohmmeter between the red wire and red/white wire of the starting relay; at this time, the circuit should be connected;
- c) If the circuit is disconnected, replace the starting relay.



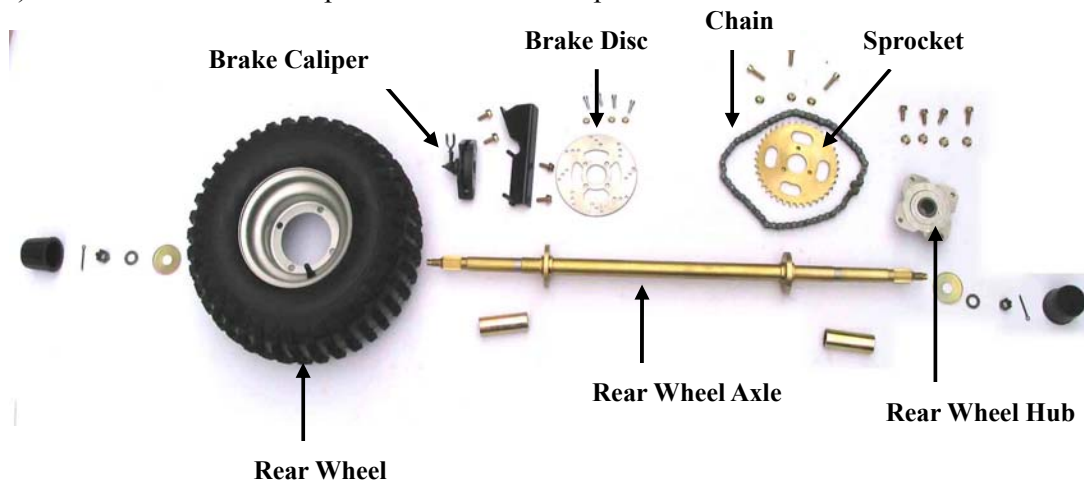
● Troubleshooting



5. CHASSIS

5.1 Rear Axle Removal

- a) Disassemble the rear Wheel.
- b) Remove the cotter pins on the rear wheel axle nut.
- c) Remove the axle nut.
- d) Block up the rear end of the machine.
- e) Remove the rear wheel and hub assembly by sliding off splines of the axle.
- f) Remove the chain.
- g) Loosen the nuts on the bearing carrier, and remove the bolts.
- h) Remove the axle and bearing carriers as a unit.
- i) Remove the brake caliper bolt and brake caliper/

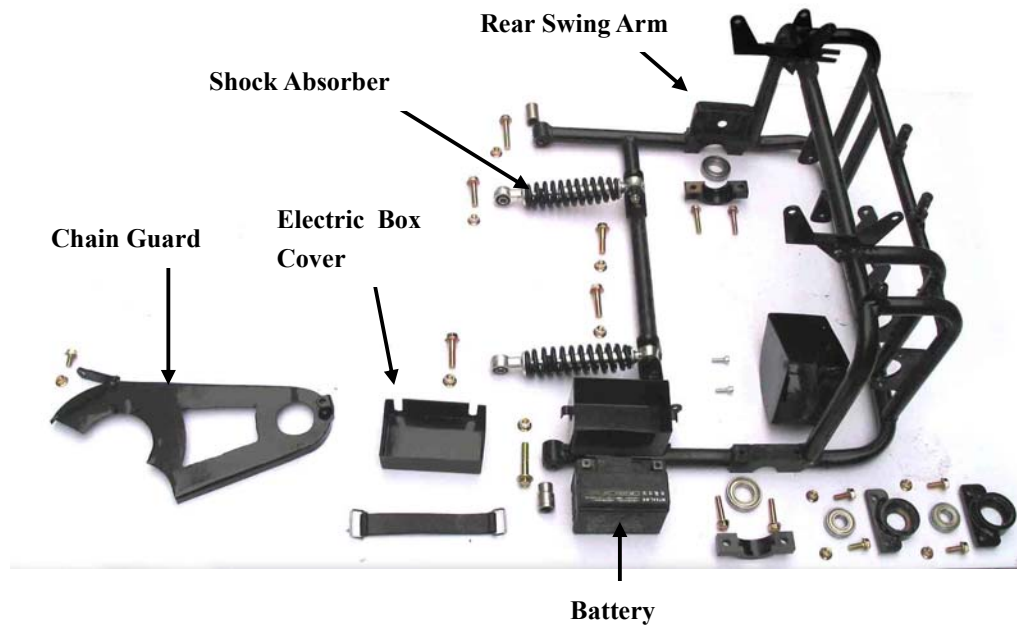


5.2 Rear Swing Arm Removal

- Please operate properly according to the instructions.

NOTE: The swing arm, axle and motor can be removed as a unit if needed.

- a) Remove the rear. shock.
- b) Remove the rear brake caliper, and set it aside.
- c) Unplug the brake light wiring from the electrical box.
- d) Remove the throttle cable.
- e) Remove the bolts from the swing arm pivot
- f) Check the buffer rubber bushing for wear;
If there is any wear on the bushing, it should be replaced.



5.3 Front & Rear Shocks

The front and rear shocks are oil dampened units.

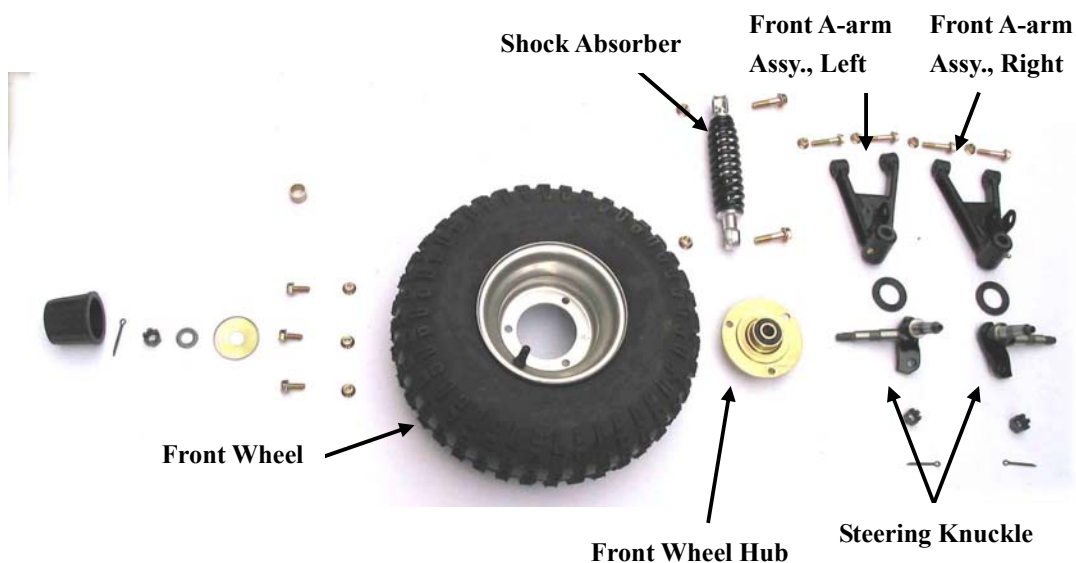
They are non-re-build able.

If any oil seepage is noticed, the shock should be replaced.

5.4 Front Wheel Replacement

Don't disassemble the castle nuts when you replace the front wheels.

It is only necessary to tighten the nuts so that the wheel turns freely on the axle with the minimum end play. Please tighten the nuts after replacing the wheels.



5.5 Front Hubs

- a) Check the seals for rips or tears, and replace them if any exist.
- b) Remove the bearings with a punch from the opposite side.
- c) Inspect the bearings for easy movements;
If any dirt or mud has gotten into them, wash them in the cleaning solvent and spin with your finger.

NOTE: Never spin them with the compressed air.

- d) Apply an ample amount of grease to the bearing and reinstall it with a bearing tool, making sure that they go in straight;
If the bearing isn't straight, damages to the hubs can occur.
- e) Install the seals into the hubs;
It is recommended to apply a small amount of grease to the lip of the seal;
If the retention spring is in bad shape, replace the seal with a new one.



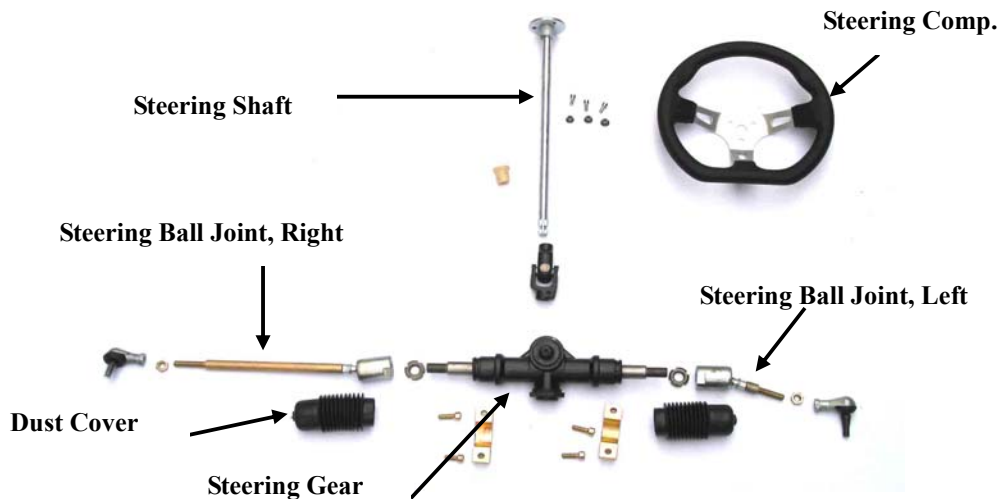
5.6 Seat

- a) Remove all the nuts and bolts underneath the seat rail.
- b) Remove the seat.



5.7 Steering Shaft

- a) Remove the nuts on the steering block, and grease the inside of the steering block periodically.
- b) Loosen the steering shaft and clamp nut on the steering gear box.
- c) Remove the steering shaft.

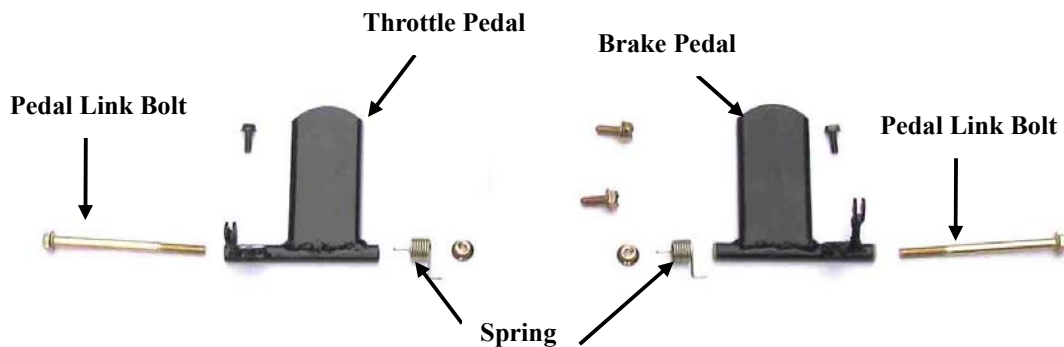


5.8 Steering Gear Box and Ball Head

- Remove the four bolts of the LH&RH clamp nuts on the steering gear box.
- Remove and check the ball head dust cover on the steering gear box for wear.
- Check the steering cover on both sides of the steering gear box and grease the ball head.
- Fill the steering gear box with Grease after cleaning the dust; It is recommended to replace the ball joint if it is loose or not smooth.

5.9 Throttle & Brake Pedal

- Remove the throttle, throttle pedal and axle nut.
- Check the throttle and brake pedal for signs of wear;
Replace if any wear is present.
- Before installation, apply enough grease on the throttle and brake pedal in order to make them swing more flexibly.

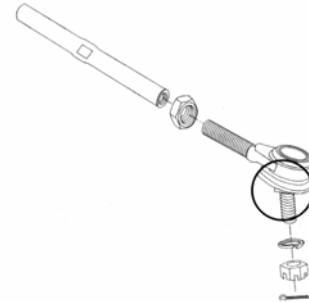


5.10 Steering Knuckle Support

- Remove the rubber dust cover of the knuckle support.
- Check the grease of the ball joint;
Clean it if it's dirty and fill with grease.
- Replace the steering knuckle support if the ball joint is loose or the steering isn't flexible

5.11 Tie Rod

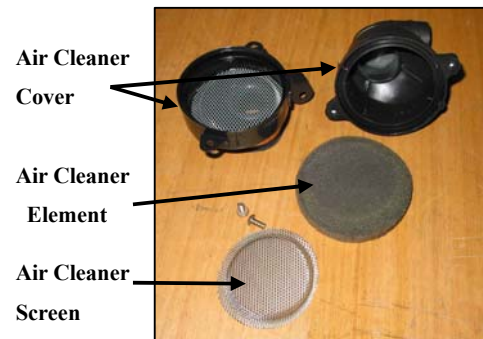
- The tie rods should be checked for the ease of movement in their full rotation.
- Remove the protective boot and apply some grease.
- Check the tie rod ends periodically for tightness at their adjusting nuts.
- Always use a new cotter pin after the removal.



5.12 Service Air Cleaner

Service the air cleaner every 100 hours.

- Remove the air cleaner cover;
- Remove the air cleaner element;
- Fill the non-flammable cleaning agent into a basin and dip the element in it;
- Dry it after cleaning, and dip it into the engine oil
- specified by the manufacturer, then dry it again.



Remove Air Cleaner Cover



NOTE: Service more often when driving in dusty conditions.

● Service Foam Filter / Paper Filter

- Clean the foam filter with the no-flammable cleaner;
If the filter is paper, tap it on an object to knock out the dust, or replace it with a new one.

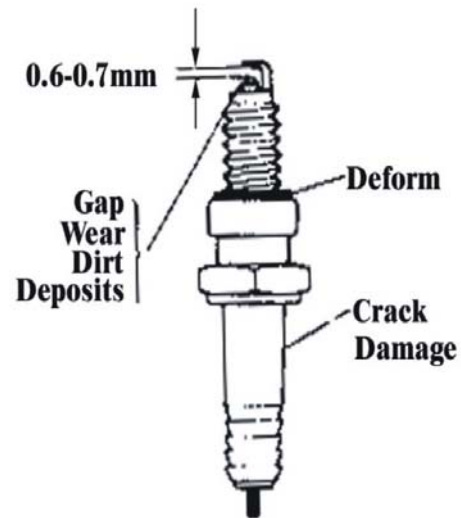
- b) Dry the filter after cleaning, dip it into the engine oil specified by the manufacturer and wring the excess oil out of the filter.

5.13 Spark Plug

- a) Remove the spark plug and inspect it with a spark plug wrench each time you change the oil;

If possible, check the spark plug gap (the area between the two electrodes) with a wire feeler gauge, and this specification should be 0.6-0.7mm.

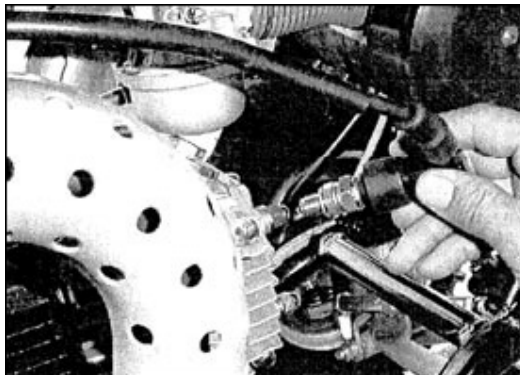
NOTE: The electrodes should be kept clean and free of carbon. The presence of carbon or excess oil will greatly deter the proper engine performance.



- b) Before installing the spark plug, apply some graphite grease on the threads if possible to ensure the easy removal next time when the spark plug needs inspection.
- c) It is advisable to replace the spark plug at least once a year to insure the easy starting and good engine performance.

5.14 Ignition System Check

1. Remove the spark plug and reattach it to the spark plug lead.



2. Push the electric button "START" (Yellow button). Apply the rear brake lever to make sure the rear wheels are locked. If the ignition system is operating properly, a blue mark should jump across the spark plug gap. If there is no spark, take your machine to your service center.

⚠ WARNING

Performing the spark test improperly could be hazardous.

You could get a higher voltage electrical shock if you are not familiar with this procedure.

Do not perform this check if you are not familiar with the procedure. Do not point the spark plug near the spark plug hole during this test. Do not do this test if you have a heart condition or wear a pacemaker. Do not perform this test is any near any open fuel containers for near fuel which has spilled on the ground, on the engine, or any part of the ATV.

COMPLAINT: Engine stalls

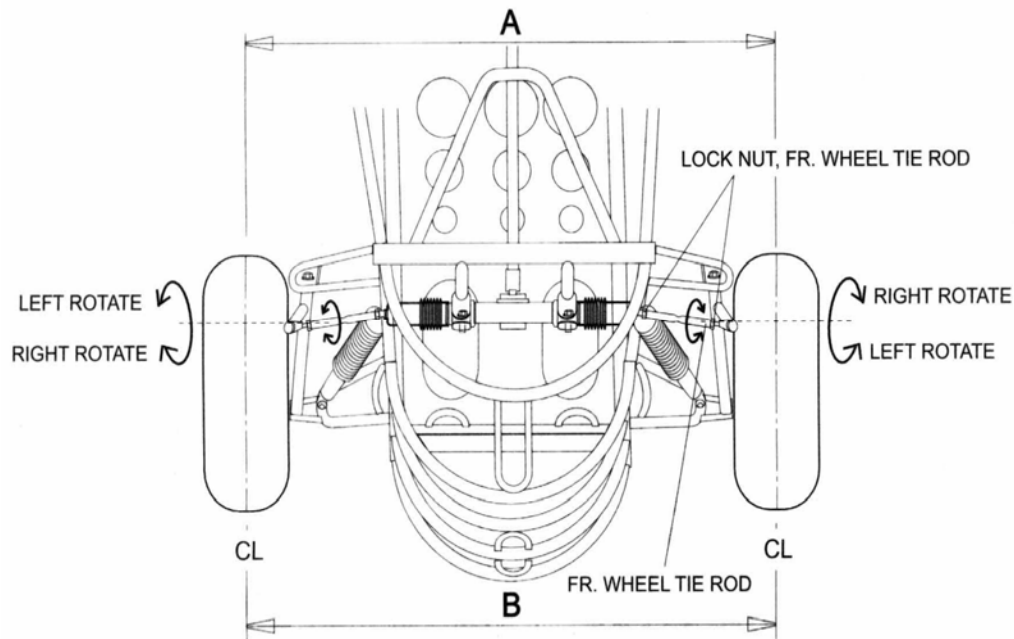
1. Make sure there is enough fuel in the fuel tank.
2. Check to see that the spark plug is not fouled. Removed the spark plug and clean it. Replace it, if necessary.
3. Make sure the fuel valve is not clogged, and the fuel tank is not clogged, either.
4. Check the idle speed. If necessary, adjust it using a tachometer. The correct idle speed is 1400~1600r/min.

5.15 Front Wheel Alignment

- a) The front wheels should be "toed-in" from 1/8" to 1/4"; for the proper toe-in dimension, Dimension A should be 1/8"-1/4" longer than Dimension B.
- b) Check the alignment measure distance from A /B to the centerline (CL) of the tires with the wheels pointed straight ahead.
- c) Loosen the lock nuts on both sides of the front tie rods;

To make Dimension B shorter, screw the rod left; if Dimension B needs to be longer, screw the rod right;

Tighten the jam nut tightly against the rod end, recheck the distance and repeat the above steps until the Dimensions are the same as the required.



5.16 Gearshift Lever

Caution: Proper operation of this vehicle requires that the driver shift from 1st into 2nd gear. When the engine reaches a high RPM in 1st gear, the driver should release the accelerator pedal and push the shift lever forward into 2nd gear. Then, press back down on the accelerator pedal to continue driving forward. Failure to properly shift may result in engine overheating, which may damage the engine and poses a fire hazard.

How to shift from 1st into 2nd gear:

- 1) When the vehicle is running, stepping on the accelerator pedal provides acceleration...UNTIL the limit of speed in 1st gear has been reached. At this point the vehicle will no longer accelerate in speed, and the engine will be very loud.
- 2) To change gears:
 - a. Release the accelerator pedal;
 - b. Press the shift lever forward until it engages 2nd gear;
 - c. Press back down on the accelerator pedal to resume driving.

Wiring diagram:

