CONTENT

1. REGULAR INSPECTION ----------2
1-1 Delivery Introduction ----------2
1-2 Inspection Before Running ----------4
1-3 Regular Inspection ----------5
1-4 General Inspection ----------6

2. MAINTENANCE INFORMATION---------- ----------7
2-1 Specification Sheet ----------7
2-2 Maintenance Data ---------- ----------8
2-3 Special Tools ----------9
2-4 List of Grease & Oil Adopted ----------12
2-5 Circuit Drawings ----------13
2-6 Tighting Torque of Screws----------14
2-7 Simplified Troubleshooting ----------16
2-8 Troubleshooting ----------17

3. DESCRIPTION OF COMPONENTS AND ASSEMBLY ---25
3-1 Cover and Seat ----------26
3-2 Engine ----------27
3-3 Transmission Mechanism ----------30
3-4 Electric System ----------35
3-5 Body ----------37

4. DISASSEMBLY REPAIRMENT ---------- ----------39
4-1 Notice for Disassembly Repairment ----------40
4-2 Removal and Installation of Engine ----------41
4-3 Disassembly and Assembly of Engine ----------43
4-4 Removal and Assembly of Carburetor ----------73
4-5 Removal and Inspection and Assembly of Electric Parts --75
4-6 Removal and Inspection and Assembly of Body Parts -----80

CHAPTER I：REGULAR INSPECTION

1-1 Delivery Introduction

To inform customers of correct methods to use:
To practically and correctly ride ATV according to the Instruction of Manual and Maintenance Handbook. Customers should also try in person according to this manual.

1. Starting:

A. Turn the power switch to "ON."

B. Hold the front or rear brake and press the "START" button.

C. If ATV is not started, release the "START" button and try again after a few minutes. Each start should be less than five seconds to avoid battery consumption.

Note: This is Manual CHOKE ATV and the choke lever is in the left handle bar.
The fuel is controlled only by throttle grip.
The accelerator has to return to its original place when ATV is not in use.

D. If ATV can not be started by pressing the "START" button, try the kick starter.

2. Fuel:

Inform customers to refill the fuel to no more than 90% of the tank capacity only.

1-1 Delivery Introduction

3 . Lubricant Adopted:

A. WARNING : TGB Supper Oil GA50400002 (OR 2 STROKE OIL in accordance with JASO FC) will be adopted as two-stroke engine oil. The engine oil must be refilled when the oil warning lamp lights, otherwise the engine will be burned-out due to insufficient lubrication.

B. TGB Gear Oil GA50400004 (OR SAE 85W-90) will be adopted as gear oil to be changed on a periodical basis. Gear oil and engine oil are different in their nature. Attention should be paid to avoid mistake when used.

4. Regular Inspection and Maintenance:

Inform customers of the importance of inspection before running and regular inspection.

A. Inspection Before Running: Riders should perform inspection by themselves before running.

B. Regular Inspection: Regular inspection should be performed after the first month and the three month and every three months afterwards.

5. Description of Warranty System:

Clearly identify the content of warranty in accordance with the warranty paper.

A. Content and term of warranty.

B. Maintenance items not guaranteed.

C. Items should be followed by customers.

Instruct customers to carry the OWNER'S Manual with them when they come for regular inspection and maintenance. It is because such inspection should be recorded onto the Manual.

1-2 Inspection Before Running

Items to be Inspected Before Running by Customers:

ITEM	CONTENT	GUIDELINE
1. Starter	Is the oil volume proper?	1.Check Oil Warning Lamp to see if the oil volume is proper?
2 .Fuel	Is the fuel volume sufficient?	1.Check fuel volume to see if it is enough to the destination.
3 . Brake	Check the distance of brake handle lever and the brake effect.	1.Operate the handle lever slowly to the brake begin to effect in order to inspect the moving distance. 2.Test the brake with low speed running to see the brake effect of front and rear brakes.
4. Tire	1.Is the air pressure proper?	1.Check if the air pressure of tire is sufficient with a gauge or by sight. The recommended pressure of tire is 4 p.s.i.
	2.Groove should be deep enough.	1.Check if the groove of tires is enough.
	3.Unusual wear is not desired.	1.Check landing flat of tire to see if any unusual wear appears.
	4.Breaking and damage are not desired.	1.Check landing flat and side to see if any breaking or damage appear.
	5.Metal, stone and other articles are not desired.	1.Cneck if any cracking, stone or any other article sticks into the tire.

Note: Customers should be informed to perform inspection by themselves before running in according to this table.

1-3 Regular Inspection

The chart below lists the recommended intervals for all the returned periodic service work necessarily to keep the motorcycle operating at peak performance and utmost efficiency. Mileages are expressed in terms of months.
These intervals judged by recorded run-hours or month whichever comes first.

Km	0 km	1000 km	6000 km	12000 km	18000 km
MONTHS ITEM	0 months	2 months	12 months	24 months	36 months
Battery	I	I	I	I	I
Tire	I	I	I	I	I
Brake	I	I	I	I	I
Brake fluid	I	I	I	R	I
Bolts and nuts	I	T	T	T	T
Spark plug	-	-	R	R	R
Air cleaner	Clean every 3000 km				
Final gear oil	Replace every 5000 km				
Cylinder head nut exhaust pipe bolts	-	T	T	T	T
Steering system	I	I	I	I	I
Suspension system	I	I	I	I	I
Engine idle rpm	I	I	I	I	I
Muffler	I	I	I	I	I
Oil pump	I	-	I	I	I
Fuel Filter			R	R	R

NOTE : I=Inspect and clean, adjust, lubricate or replace, if necessary.
R=Replace
T=Tighten

1-4 General Inspection General Inspection and Adjustment

＊ means adjustable.

Note: The ignition of ATV by the use of crank-shaft which is 2 ignitions/revolution. Special attention should be paid while setting the turning speed of Engine by Tachometer.

1-5 Notes for Inspection

ITEM	INSPECTION DETAILS
1	Be aware of smoke and fire while performing maintenance.
2	New Packing, Gasket, O Ring, locking pin should be used while assembling.
3	Only designated TGB oils should be used on spare parts.
4	Clean the vehicle before maintenance to avoid dirt or mud on disconnected parts.
5	The locking sequence of Bolt and Nut should be from inside to outside, or in diagonal step. Reverse the sequence to loose.
6	Special tools should be used when necessary.
7	Attention should be paid to avoid damage or loss of disconnected parts. Clean and grease properly before the assembly. No grease on Bolt's Thread.
8	Reconfirm each function after the assembly.
9	Special attention should be paid to the battery's electrolyte and brake oil which will stam clothes.

2-1 Specification Sheet

ITEM NO.	Hornet 50	Hornet 90
Exhaust Volume	49.3c.c	82.4c.c
Stroke	2T	2T
Overall Length mm	1420	1490
Overall Width mm	870	880
Overall Height mm	905	940
ATV Weight (Empty)	112kg	120kg
Maximum Load	95kg	95kg
Tire(tubeless)	Front：16 x 8 – 7 Rear： 16 x 8 – 7	Front：19 x 7 – 8 Rear： 19 x 8 – 8
Cylinder Type	Horizontally Placed	
Max Horsepower	3.3ps/5500rpm	5.4ps/5000rpm
Gasoline	92/ 95 Unleaded Gasoline	
Lubrication Method	Oil Supplied Separately by Oil Pump	
Cooling Type for Engine	Air Cooled by Cooling Fan	
Ignition Method	C.D.I Ignition device w/o point.	
Rim comp Size	Front：7 x 5.2 Rear： 7 x 5.2	Front：8 x 5.5 Rear： 8 x 7.0
Spark Plug	BPR7HS (NGK) Clearance: 0.6- 0.7mm	BPR7HS –10(NGK) Clearance :0.9-1.0mm
Battery	12V/7Ah	12V/7Ah
flywheel magneto	Alternating Output:12V-50W	Alternating Output:12V-50W
Transmission	V-belt Continuous Variable Transmission	
Brake	Front: Drum Rear：Disc	Front: Drum Rear：Disc
Frame	Made of High Resistance Steel Pipes	
Oil warning Lamp	3.4W	
Fuel Tank	5.6 liters	5.6 liters

2.2 Maintenance Data

Cylinder +piston+Crank Shaft

ITEM	50 C.C.		90 C.C.	
	STANDARD	LIMIT	STANDARD	LIMIT
Cylinder Cover Flatness	0 0.02	0.1	0~0.02	0.1
Piston Outside Diameter (15mm above skirt)	40.935~40.95	40.89	49.94~49.955	49.90
Clearance BetweenCylinder and Piston	0.065~0.075	0.12	0.065~0.075	0.12
Bore of Piston Pin	10.002~10.01	10.04	12.004~12.015	12.05
Outside Diameter of Piston Pin	9.995~10.00	9.98	11.995~12.00	11.98
Bore of Small End of Con-Rod	14.003~14.011	14.05	14.996~15.007	15.05
Inside Diameter of Cylinder	41.005~41.020	41.07	5.005~50.020	50.07
Clearance at terminal of piston ring when assembled in Cylinder.	0.10~0.25	0.75 (1st&2nd Rings)	0.15~0.35	0.85
Radial Clearance of Big-End at Con-Rod	0.1~0.55	1.0	0.1~0.55	1.0
Runout of Crank Shaft	0~0.05	0.1	0~0.05	0.1

CVT

Free Length of Clutch Spring	23.8	25.0	23.8	25.0
Thickness of Clutch Lining	3.0	2.0	3.0	2.0
Bore of Clutch Housing	110~110.15	110.40	110~110.15	110.40

BRAKE

Bore of Brake Drum	85	85.6	85	85.6
Brake Lining O.D.	84.3	82.3	84.3	82.3
Thickness of Disc Brake Lining	4.7	3.7	4.7	3.7

Engine Oil

Capacity	0.9L	0.9L
Residual Capacity when Light on	0.23L	0.23L
Oil Used	TGB Super Engine Oil (JASO FC)	TGB Super Engine Oil (JASO FC)
Oil Capacity of Gear Box	90c.c	90c.c

Ignition

Lead	15°±3°BTDC /4000rpm		15°±3°BTDC /4000rpm	
Spark Distance	6-8mm	5mm	6-8mm	5mm
Inner Electric Resistance at Spark Plug Cap	5~7.6kΩ	3kΩ	5~7.6kΩ	3kΩ

Battery

Battery	12V/7AH	12V/7AH
Fuse	7A	7A

Brake

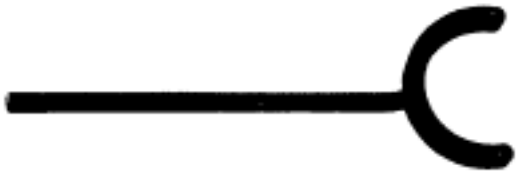
Clearance of Front Brake Lever	20-30mm	20-30mm
Clearance of Rear Brake Lever	15-35mm	15-35mm

Tire Pressure

Front (psi)	4	4
Rear (psi)	4	4

2-3 Special Tools

CVT-R Remover/GA5000051F04



To remove Driven Pulley Assy and Flywheel magneto.

Bearing Remover GA5000051F12

1. Taking Out Right Hand Bearing of Drive Shaft.
2. Applicable Scope: ϕ 12

Crank Case & Shaft Remover GA5000051F05

To divide Crank Case and to draw out Crank Shaft.

Bearing Remover/GA5000051F19

1. Taking Out RH Crank Shaft Bearing of Crank Case And Bearing of Rear Axle on Left Hand Crank Case.
2. Applicable Scope: ϕ 20

Crank Shaft & Right Hand Crank Case GA5000051F08

To Draw the Crank Shaft Into The Right Hand Crank Case.

Bearing Remover/GA5000051F20

1. Taking Out LH Bearing of Drive Shaft on Gear Box Cover.
2. Applicable Scope: ϕ 17

2-3 Special Tools

Bearing Remover/ GA5000051F21

1.Taking Out Left Hand Bearing of Crank Shaft.
2.Applicable Scope: ϕ25

Bearing Installer /GA5000051F17

1.Left Hand Crank Shaft (Left Hand Bearing of Drive Shaft.)
2.Applicable Scope: ϕ17 × ϕ47

Bearing Installer/GA5000051F15

1.For Left Hand Crank Case.
2.For Left Hand Crank Shaft Bearing.
3.Applicable Scope: ϕ25 × ϕ52

Bearing Installer /GA5000051F18

1.To press Right Hand Bearing of Drive Shaft.
2.Applicable Scope: ϕ12 × ϕ32

Bearing Installer/GA5000051F16

1.For Right Hand Crank Case.
2.For Right Hand Crank Shaft Bearing and Bearing of Rear Wheel.
3.Applicable Scope: ϕ20 × ϕ47

Flywheel Magneto Remover GA5000051F22

To remove Flywheel Magneto.

2-3 Special Tools

Oil Seal Installer/GA5000051F30

1.Oil Seal for Right Hand Crank Case and Gear Box Cover.
2.Applicable Scope: ϕ17 × ϕ27

Oil Seal Installer/GA5000051F33

1.To install Oil Seal for Rear Axle and Crank Case.
2.Applicable Scope: ϕ27 × ϕ40

Oil Seal Installer/GA5000051F31

1.Left Hand Crank Case (Oil Seal for Engine Oil Pump Gear).
2.Applicable Scope: ϕ24 × ϕ43

CVT-F Remover/GA5000051F35

1.To remove The Driving Pulley of C.V.T.
2.To remove Right Hand Kick Starter.

Oil Seal Installer/GA5000051F32

1.Left Hand Crank Case (Oil Seal for left Hand Crank Shaft).
2.Applicable Scope: ϕ25 × ϕ37

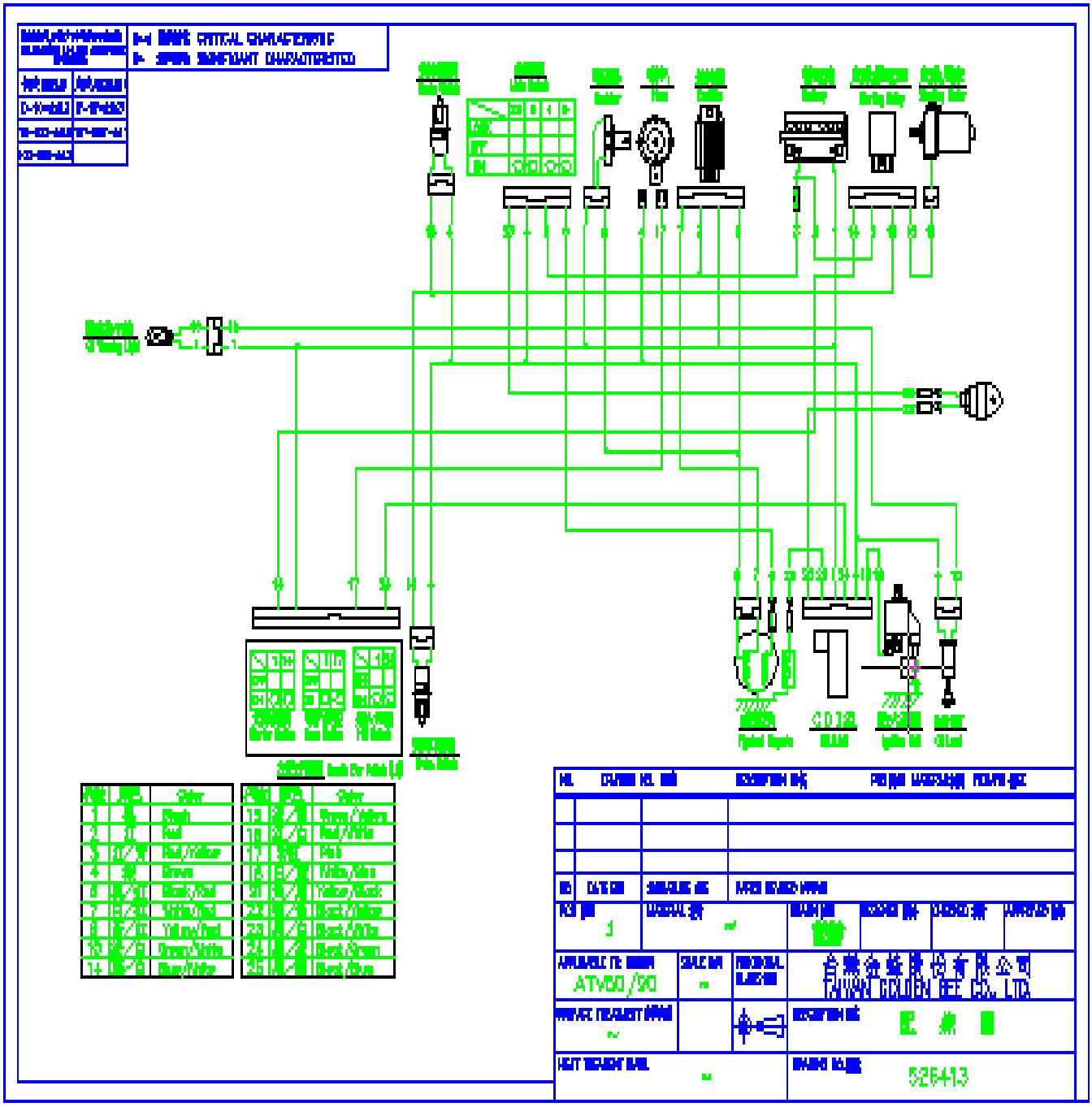
Oil Seal Assembly Tools
GA504AL06D06

Assemble Oil Seal on Crank Shaft and Avoid Oil Seal Inner Diameter Damaged by Crank Shaft Teeth.

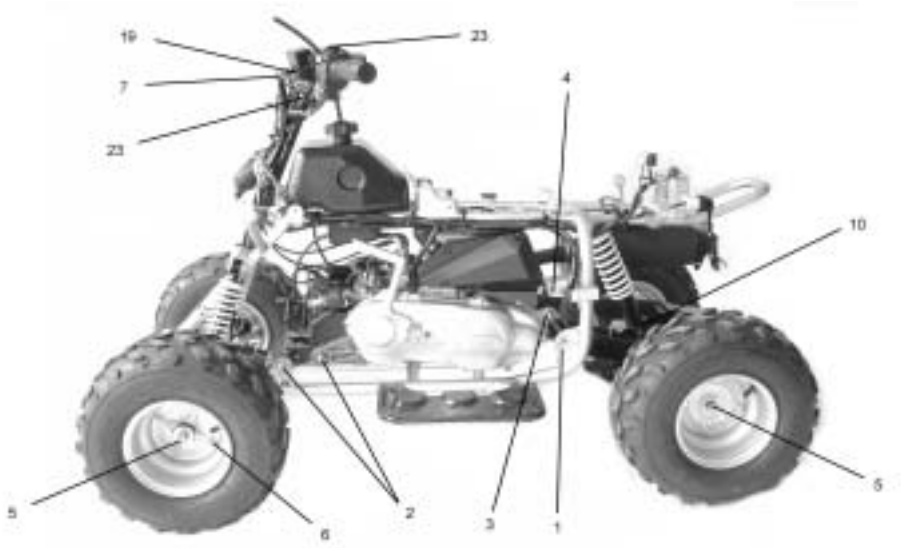
2-4 List of Grease & Oil Adopted:

GA55100001 TGB Supper Grease No.0 Apply in Oil Seal.	**GA50400003** Supper Grease No.3 Apply in Axle Shaft, inside of Oil Seal.
GA50400001 1104 Sealing Three- Bond Apply on Right Hand Crank Surface.	**GA50400004** TGB Gear Oil 85w/90 Transmission Gear Oil for Scooters.
GA50400002 TGB Supper Oil (JASO FC) Apply in oil tank	**GA55100002** Three-Bond 1322 Under M10 Screw (For medium fixing) for Flywheel Magneto.
GA50400005 TGB Supper Grease No. I Apply in Oil Seal.	**GA55100003** DOT-3 Brake Oil For Brake.
GA5040006 TGB Supper Grease No.2 Apply in Kick Starter.	**GA50400008** TGB Supper Grease No.4 For Movable Drive Face Comp.
GA50400017 Cemedine 575 Apply in Handle Grip	

2-5 Circuit Drawing



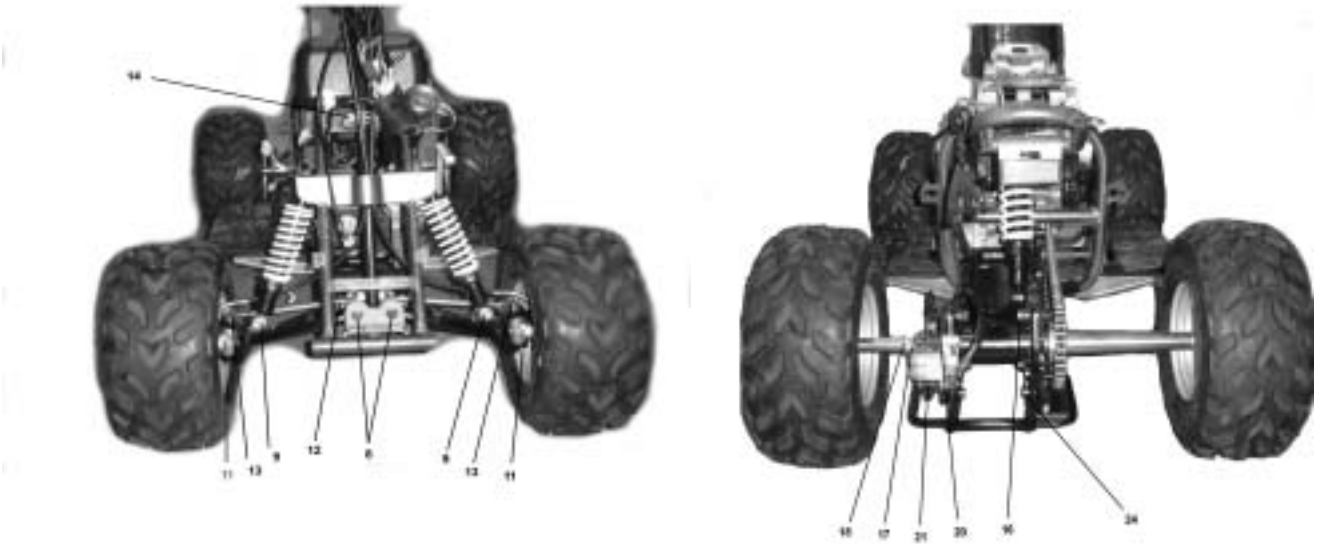
2-6 Tighting Torque of Screws



Screw Torque of Body

Item	Locking Location	Thread	pcs	Torque（kg-cm）
1	Rear Fork Nut	14	1	600-800
2	Crank Case Bracket Nut	10	2	550-600
3	Rear Swing Assy. Nut	8	2	250
4	Rear Swing Assy. Bolt	8	1	250
5	Fixed Nut for Rim	14	4	500~550
6	Self-lock Nut for Rim	10	16	400~450
7	Brake Hose pipe Bolt	10	2	250~300
8	A Arm control linkage Nut	10	4	450~550
9	Front Shock Absorber Nut	10	4	450~550
10	Rear Shock Absorber Bolt	10	2	450~550
11	Steering shaft Assy. Nut	10	2	400~450
12	Steering Linkage Nut	10	4	250
13	Steering Joint Nut	10	4	250~350
14	Steering Shaft Housing Nut	8	2	140~160
15	Steering Stem Lock Nut	14	1	700~750
16	Chain Adjustment Bolt	12	4	500~600
17	Rear Axle Nut	27	1	800
18	Raer Axle Nut	27	1	950
19	Master Cylinder Bolt	6	2	80~120
20	Brake Disc Bolt	10	3	200~250
21	Caliper Bolt	8	2	200-250
22	Right handle Lever Bolt	6		100-200
23	Handle-bar Bolt	6	4	100-200
24	Lower Bumper Bolt	8	4	200-300
25	Muffler fixed with frame Bolt	8	1	300-400
26	Chain gear Bolt	8	3	200-250

2-6 Tighting Torque of Screws



Screw Torque of Engine

Locking Location	Thread	Torque（kg.cm）
Spark Plug		**250-300**
Flywheel Magneto	10	350-450
Nut of Kick Starter, RH	12	400-600
Bolt of Kick Starter	6	80-120
Nut of Driven Pulley Assy.	28	400-600
Nut of Clutch Housing	10	400-600
Bolt of Fuel Inlet	8	90-150
Screw of Fuel Outlet	6	40-70
Bolt of Left engine case	10	550-600
Bolt of Lower left engine case	12	550-600

General Torque

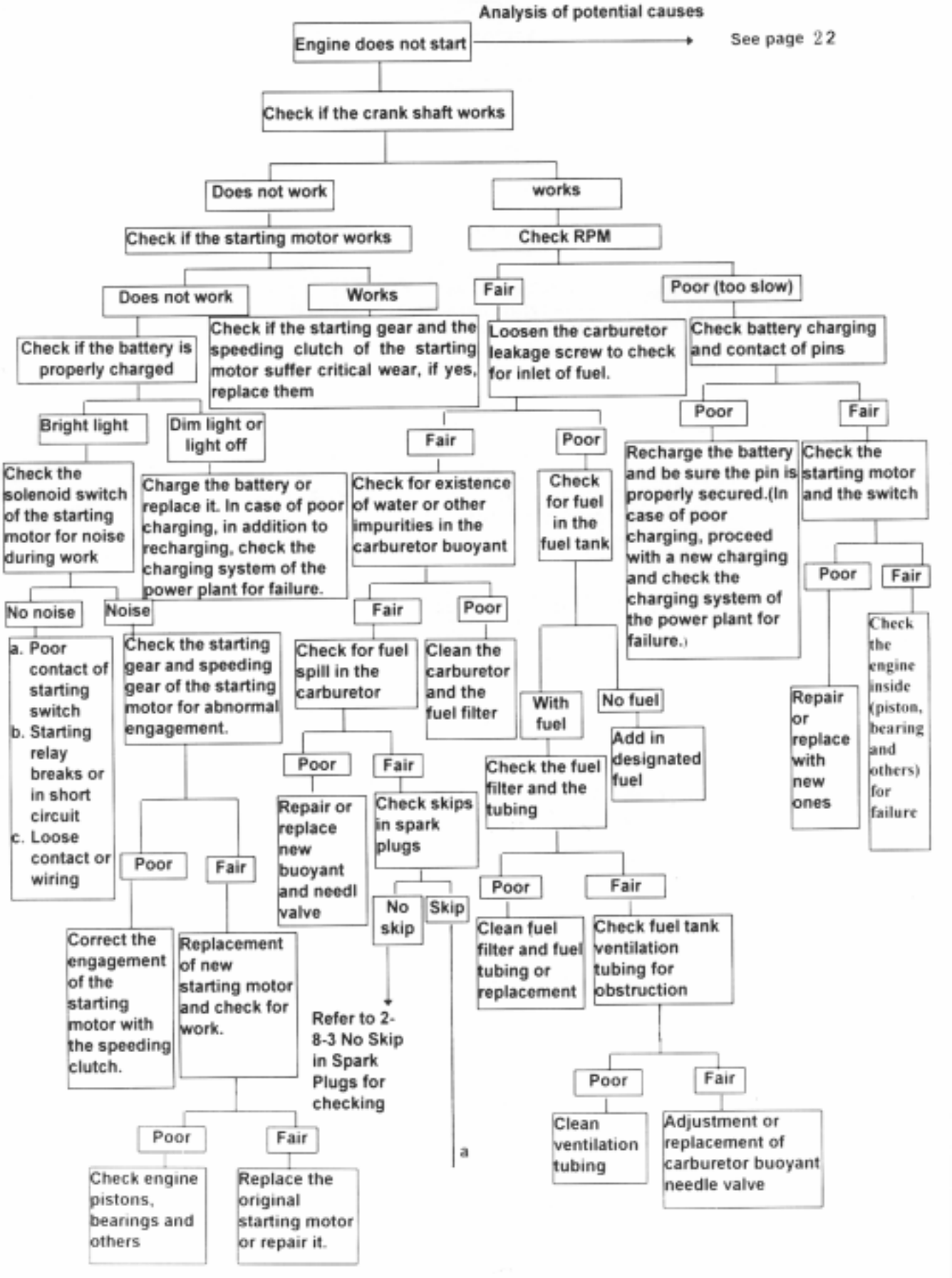
Thread	General Bolt kg-cm	Heavy Duty Bolt kg-cm
4	10~20	15~30
5	20~40	30~60
8	100~160	80~120
10	220~350	300~400
12	350~550	500~600

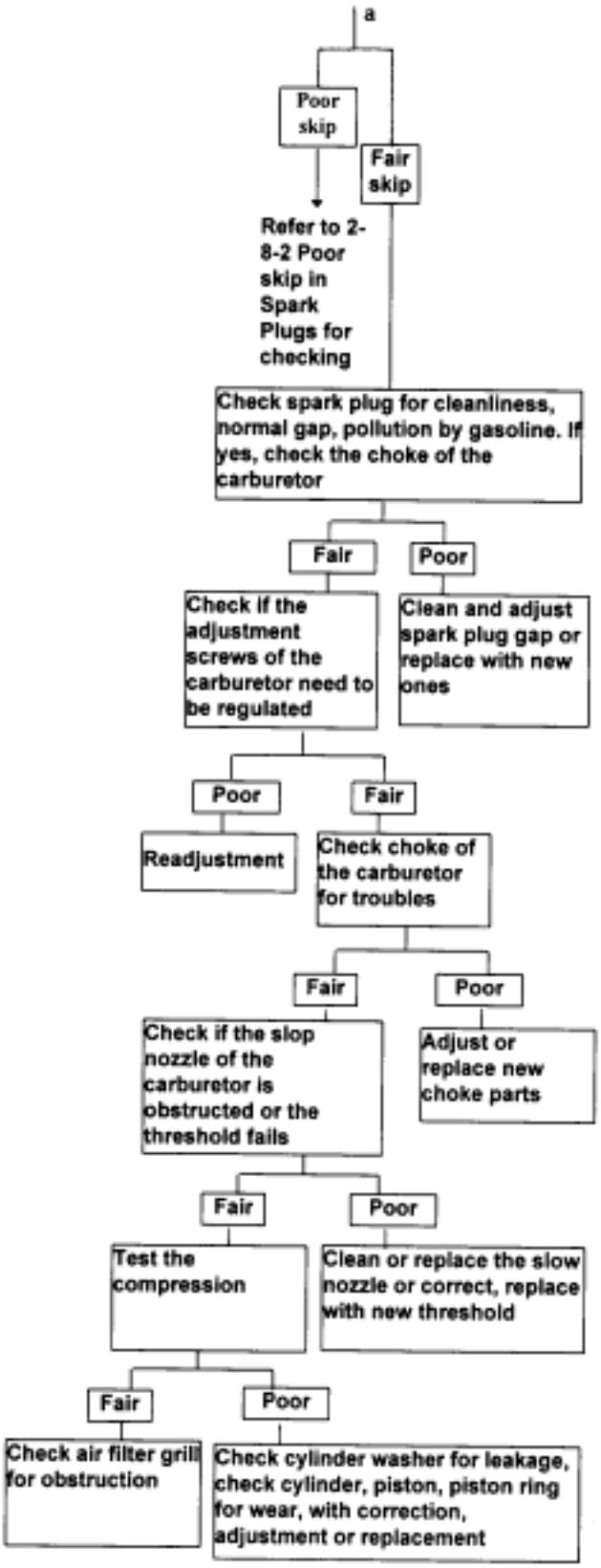
2.7 Simplified Troubleshooting

Complaint	Possible Reason	Remedy
No action for starter motor	I. Fuse breaks. 2. No power in battery. 3. Defective action of brake switch. 4 Short circuit of starter relay.	Replace Charging Replace Replace
No sparking or poor sparking	I . Defective spark plug. 2. Defective CDI & ignition coil unit. 3. Defective magneto stator coil. 4. Loose connection of lead wire.	Replace Replace Replace Connect
Unable or Difficult to start	**Plug not sparking** I. Damaged spark plug or spark plug cap. 2. Dirty or wet spark plug. 3. Defective CDI &ignition coil unit or stator coil. 4.Open or short in high-tension cord. 5. Defective ignition switch. **No fuel reaching the carburetor** I. No gasoline in fuel tank. 2.Clogged hole in the fuel tank cap. 3.Clogged or defective fuel cock. 4.Clogged fuel hose or defective vacuum hose. **Compression too low** I. Excessively worn cylinder or piston rings. 2.Spark plug too loose. 3. Broken,cracked or otherwise failed piston.	Replace Clean & dry Replace Replace Replace Replace Clean Clean or replace Clean or replace Replace Tighten Replace
Noisy engine	I . Piston or cylinder worn down. 2. Combustion chamber fouled with carbon. 3. Piston pin,bearing or piston pin worn. 4. Worn or burnt crankshaft bearings.	Replace Clean Replace Replace
Engine idles poorly	I. Stiff piston ring in place. 2. Excessively worn cylinder or piston rings. 3. Gas leaks from crankshaft oil seal. 4. Defective CDI & ignition coil unit. 5. Clogged jets in carburetor.	Replace Replace Replace Replace Clean or adjust

2-8 Troubleshooting

2-8-1 Troubleshooting for failure in starting the engine

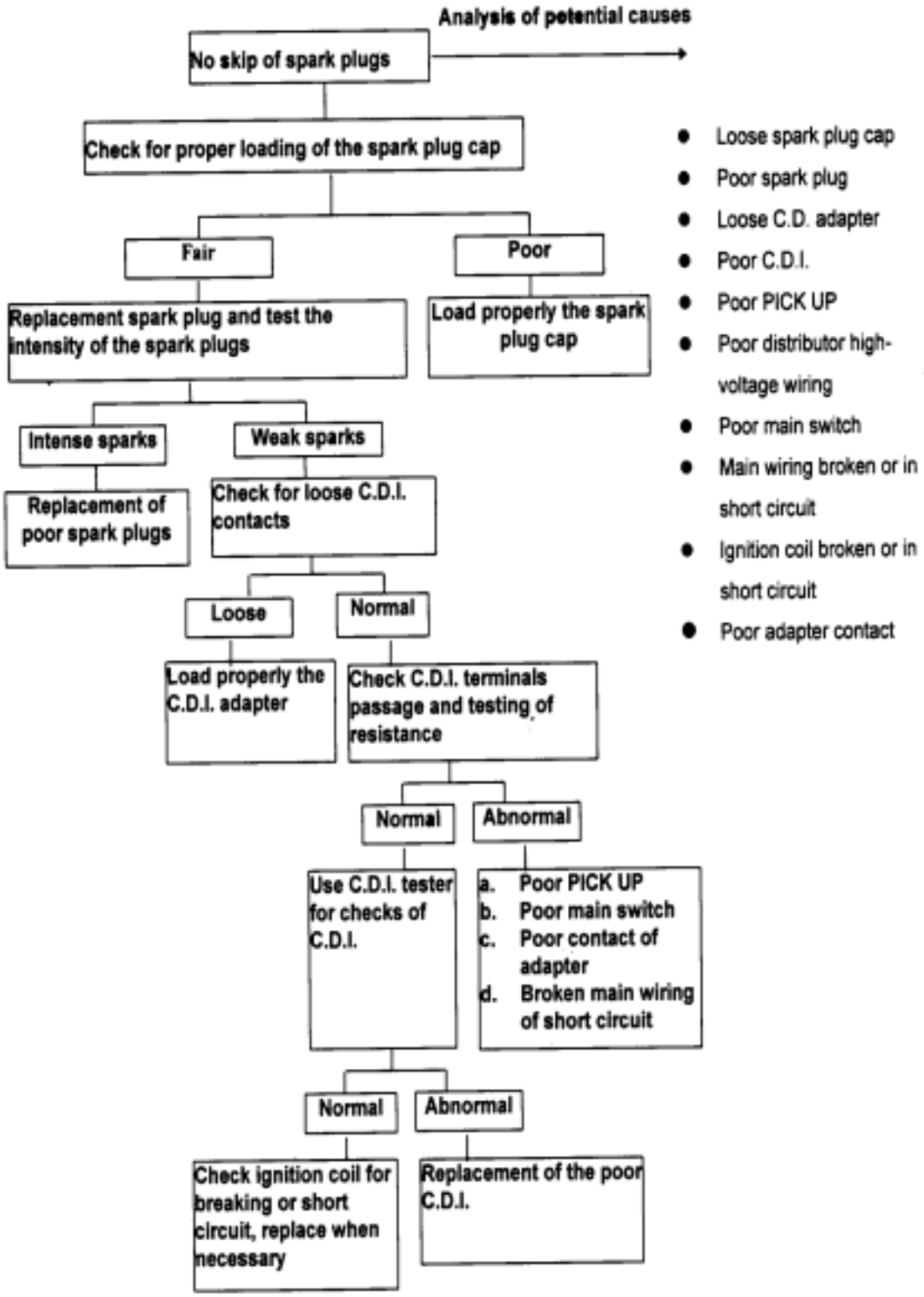



a
Poor skip
Fair skip
Refer to 2-8-2 Poor skip in Spark Plugs for checking
Check spark plug for cleanliness, normal gap, pollution by gasoline. If yes, check the choke of the carburetor
Fair
Poor
Check if the adjustment screws of the carburetor need to be regulated
Clean and adjust spark plug gap or 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

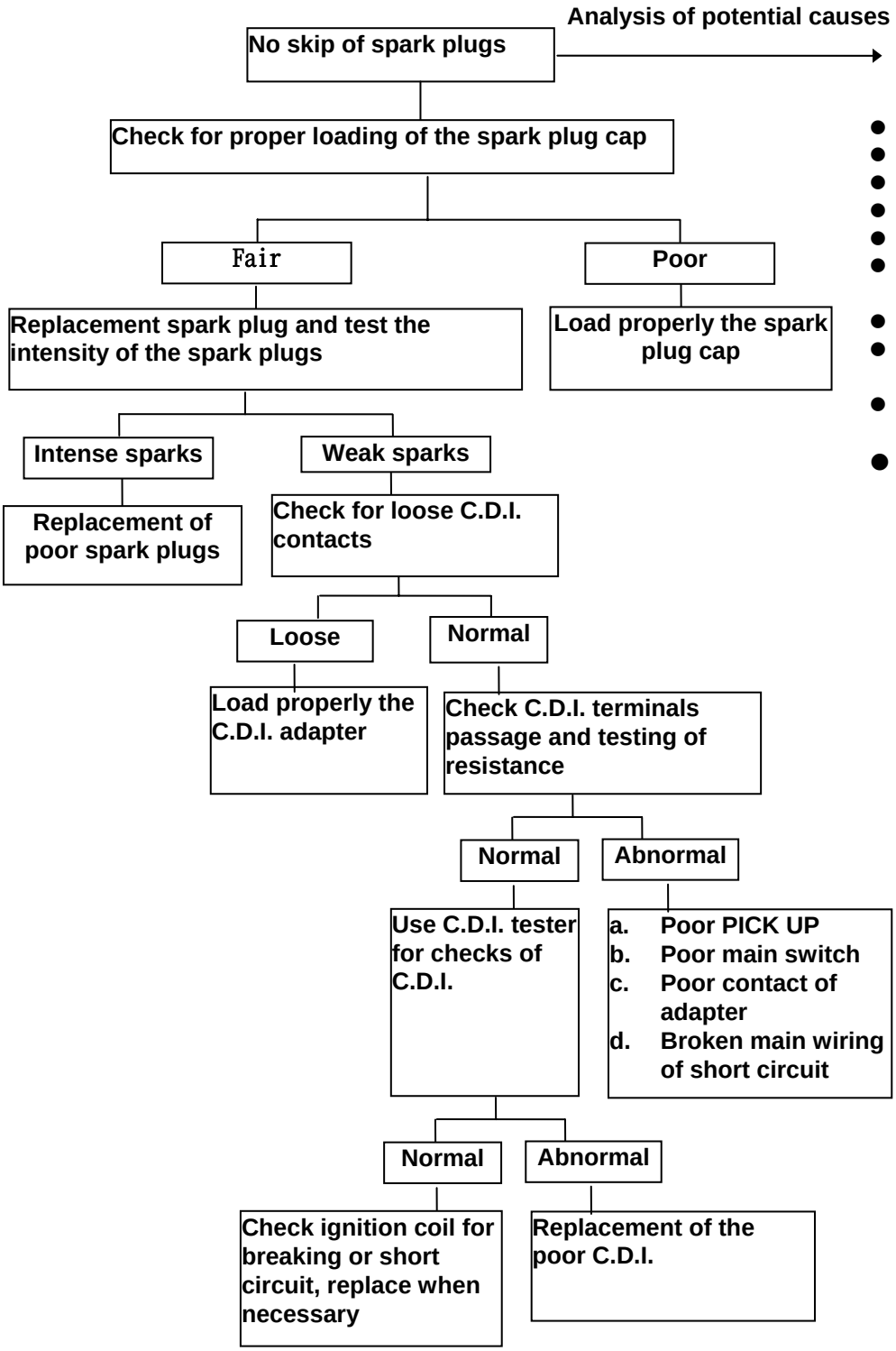
Check item：

- ○ No fuel
- ○ Dirty fuel filter
- ○ Obstructed ventilation tubing of th efuel tank
- ○ Poor carburector buoyant needle valve
- ○ Carburetor buoyant with impurities
- ○ Poor carburetor buoyant
- ○ No skip in spark plugs
- ○ Poor skip in spark plugs
- ○ Dirty spark plugs
- ○ Incorrect spark plugs gap
- ○ Dirty and wet spark plugs
- ○ Loose adjustment screws in the carburetor
- ○ Carburetor choke
- ○ Obstructed carburetor slow nozzle
- ○ Ailing carburetor threshold
- ○ Obstructed air filter grill
- ○ Leakage in cylinder washer
- ○ Seriously damaged cylinder, piston
- ○ Dead battery
- ○ Poor contact of battery pin and conductors
- ○ Starting switch with poor or failure
- ○ Starting relay with broken wire or short circuit
- ○ Loose contact and wiring
- ○ Starting gear and speeding clutch gear seriously worn
- ○ Starting gear and speeding clutch gear in poor engagement
- ○ Poor starting motor

2-8-2 Troubleshooting for poor skip of spark plugs

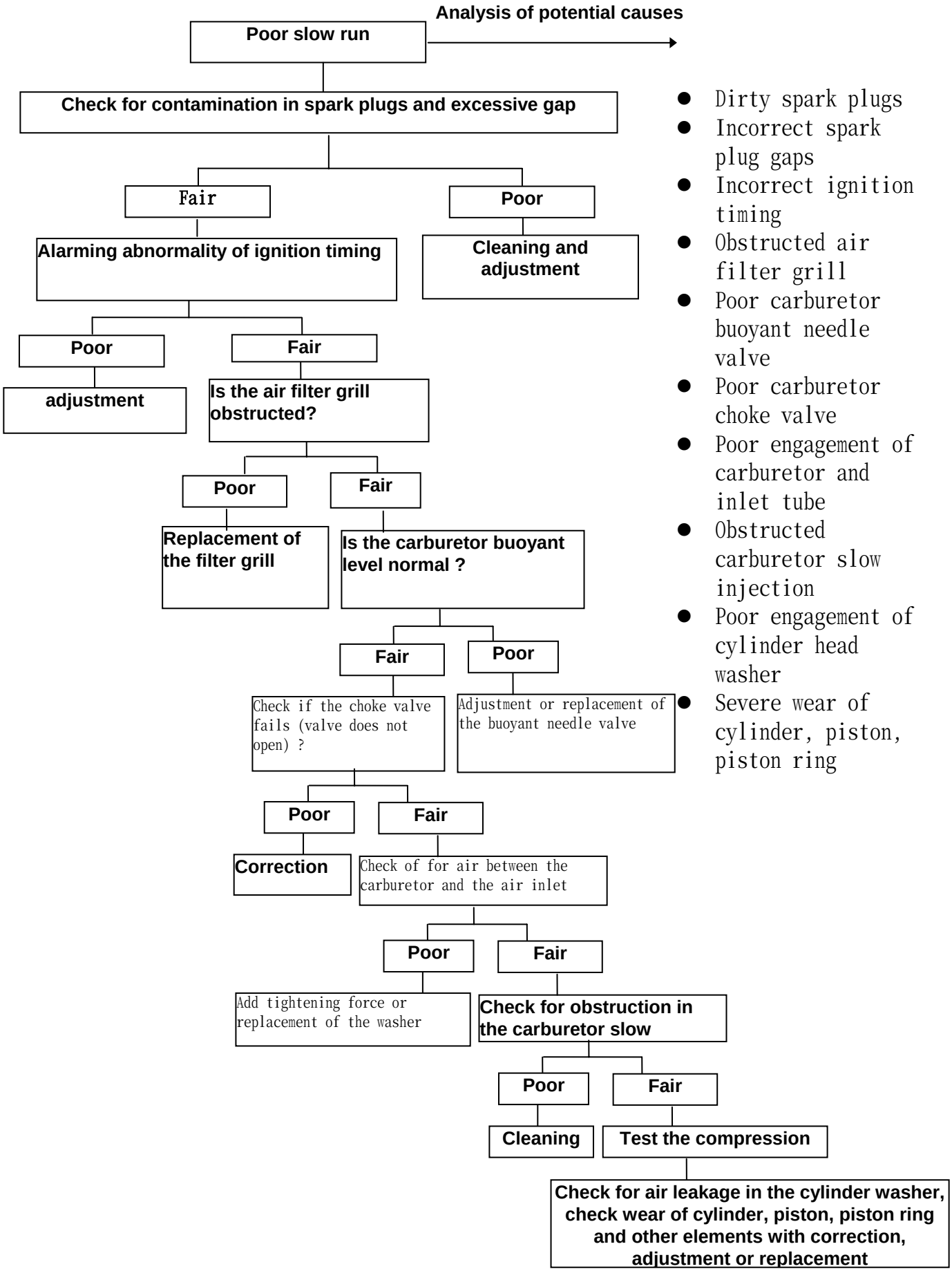


2-8-3 Troubleshooting for no-skip of spark plugs



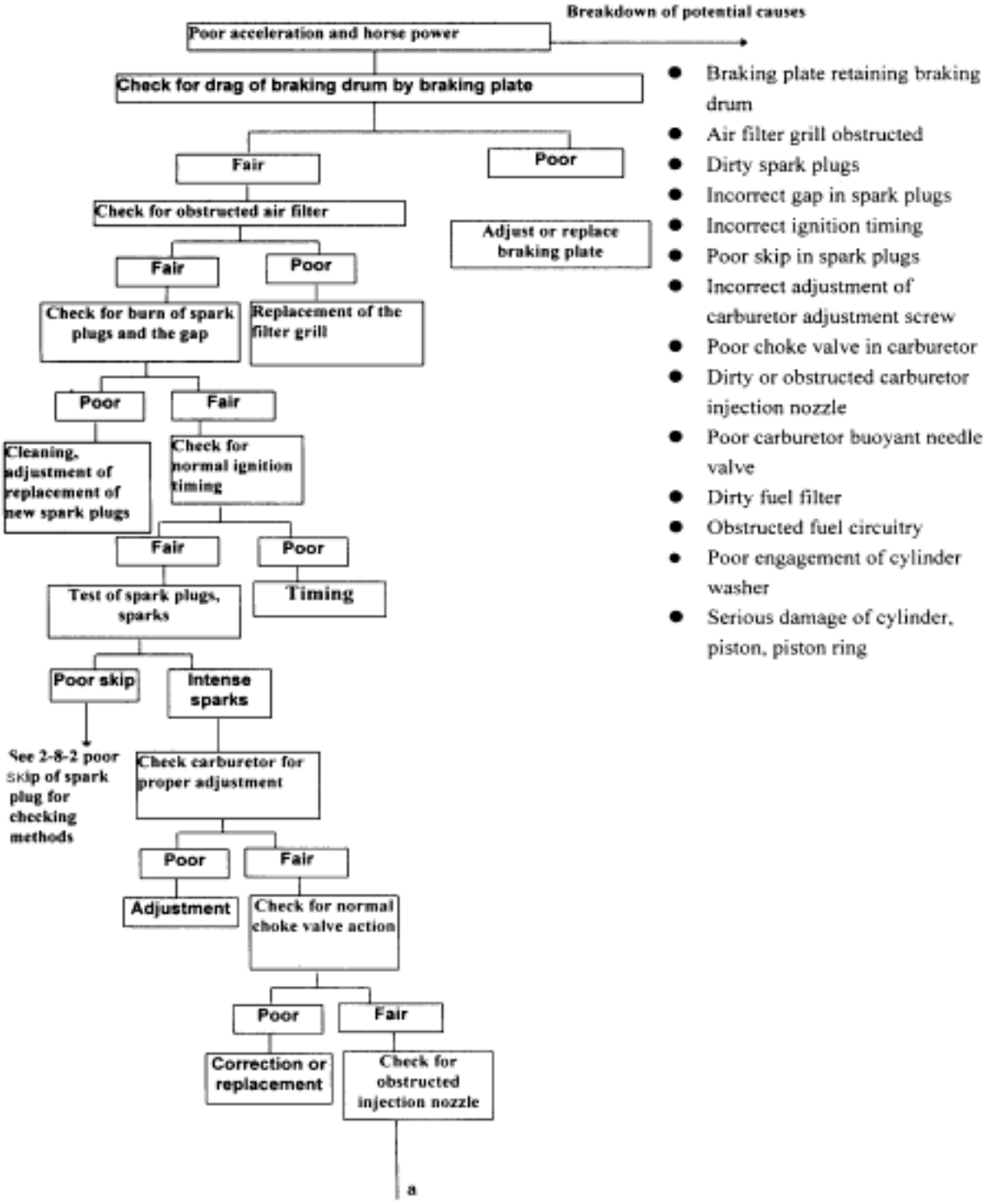
- Loose spark plug cap
- Poor spark plug
- Loose C.D. adapter
- Poor C.D.I.
- Poor PICK UP
- Poor distributor high-voltage wiring
- Poor main switch
- Main wiring broken or in short circuit
- Ignition coil broken or in short circuit
- Poor adapter contact

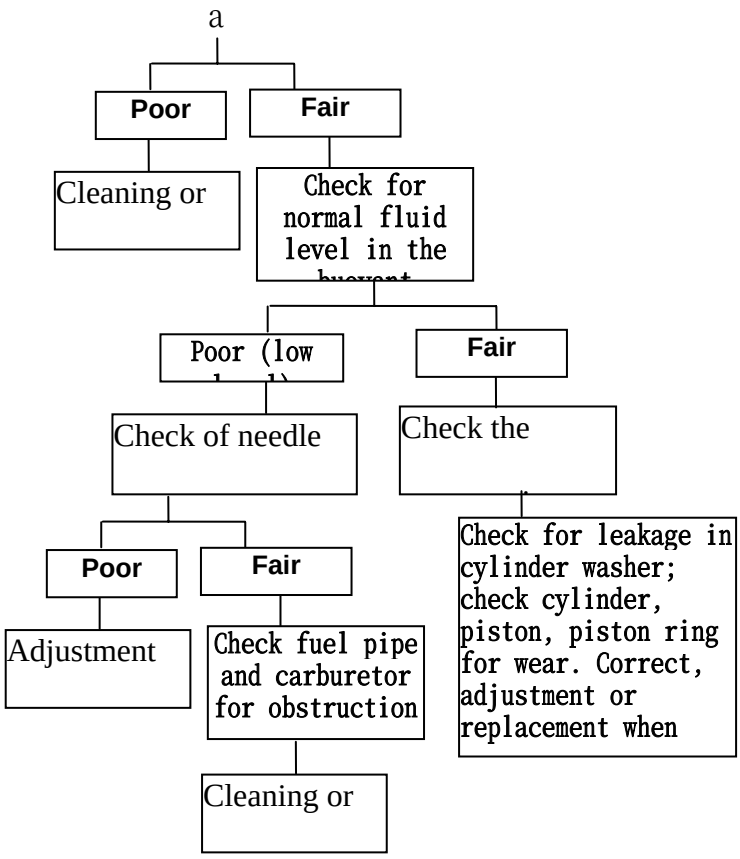
2-8-4 Troubleshooting for slow run (troubled engine)



- Dirty spark plugs
- Incorrect spark plug gaps
- Incorrect ignition timing
- Obstructed air filter grill
- Poor carburetor buoyant needle valve
- Poor carburetor choke valve
- Poor engagement of carburetor and inlet tube
- Obstructed carburetor slow injection
- Poor engagement of cylinder head washer
- Severe wear of cylinder, piston, piston ring

2-8-5 Poor acceleration and horse power




a
Poor
Fair
Cleaning or
Check for normal fluid level in the
Poor (low
Fair
Check of needle
Check the
Poor
Fair
Adjustment
Check fuel pipe and carburetor for obstruction
Check for leakage in cylinder washer; check cylinder, piston, piston ring for wear. Correct, adjustment or replacement when
Cleaning or

CHAPTER 3. DESCRIPTION OF COMPONENTS AND ASSEMBLY

3-1 COVER AND SEAT

3-1-1 Cover

3-1-2 Seat

3-2 ENGINE

3-2-1 Combustion & Air In-Take & Exhaust System

3-2-2 Carburetor

3-2-3 Lubrication & Cooling System

3-3 TRANSMISSION MECHANISM

3-3-1 Power Transmission

3-3-2 Continuous Variable Transmission

3-3-3 Reducing Gear

3-3-4 Kick Starter

3-4 ELECTRIC SYSTEM

3-4-1 Ignition & Battery Device

3-5 BODY

3-5-1 Frame, Fuel and Oil System

3-5-2 Front & Rear Suspension System

3-5-3 Brake System

3-1 COVER AND SEAT

3-1-1 COVER

A. The cover of the ATV can be cleaned with vacuum cleaner. It can also be washed and put back after dried. （please do not wash with volatile fluid, such as gasoline）

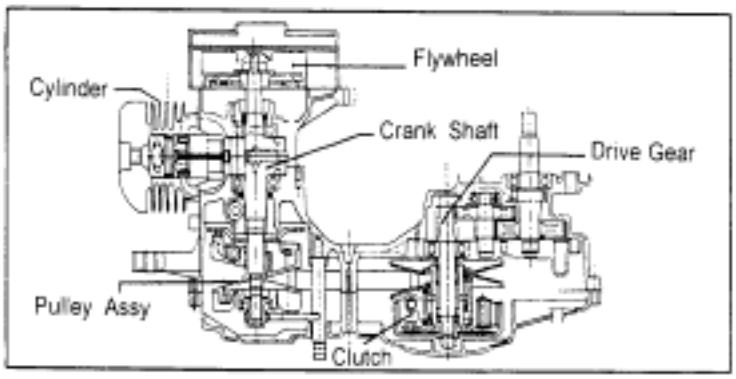
B. If thecovers were damaged, please replace the new covers. Otherwise, the covers will cause the injury.

3-1-2 SEAT

A. The seat has to be locked. If theseat is not locked during riding, it will be affect tehsafety and even cause injury.

B. The seat is controlled by the seat lock on the rear.

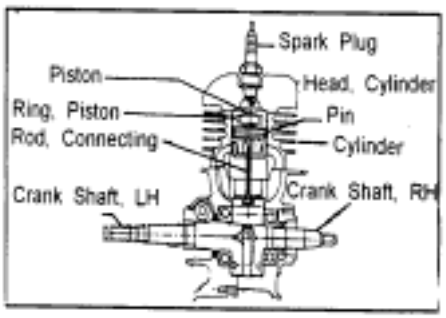
3-2 ENGINE



3-2-1 Combustion & Air Inlet-Outlet System

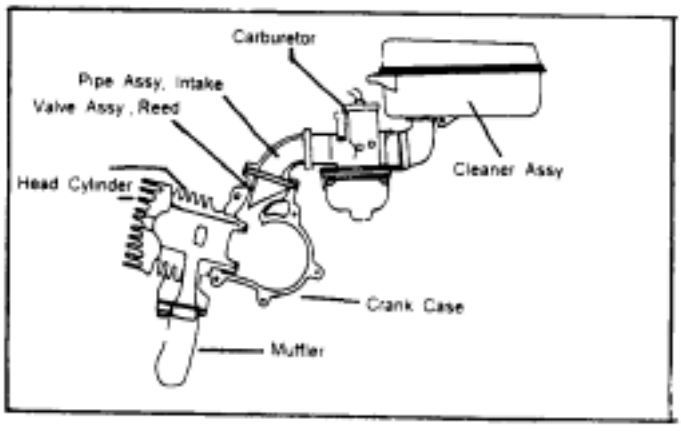
I . Combustion System

A. Cylinder Head: made of aluminum alloy.
the combustion chamber.
B. Spark Plug: NGK BPR7HS （for 50C.C.）,BPR7HS-10（for 90C.C.）.
C. Cylinder: made of cast iron, with one exhaust port and five scavenging ports.
D. Piston: made of high silicon aluminum alloy.
E. Piston Ring: including first and second rings, and the expander ring
installed in the inner side of 2nd ring. (FOR 50C.C.) Two Piston Rings (FOR 90C.C.)
F. Con-Rod: with needle bearing on both big end and small end.
G. Bearing: with a ball bearing on each left and right rand side.



2. Air In-Take & Exhaust System

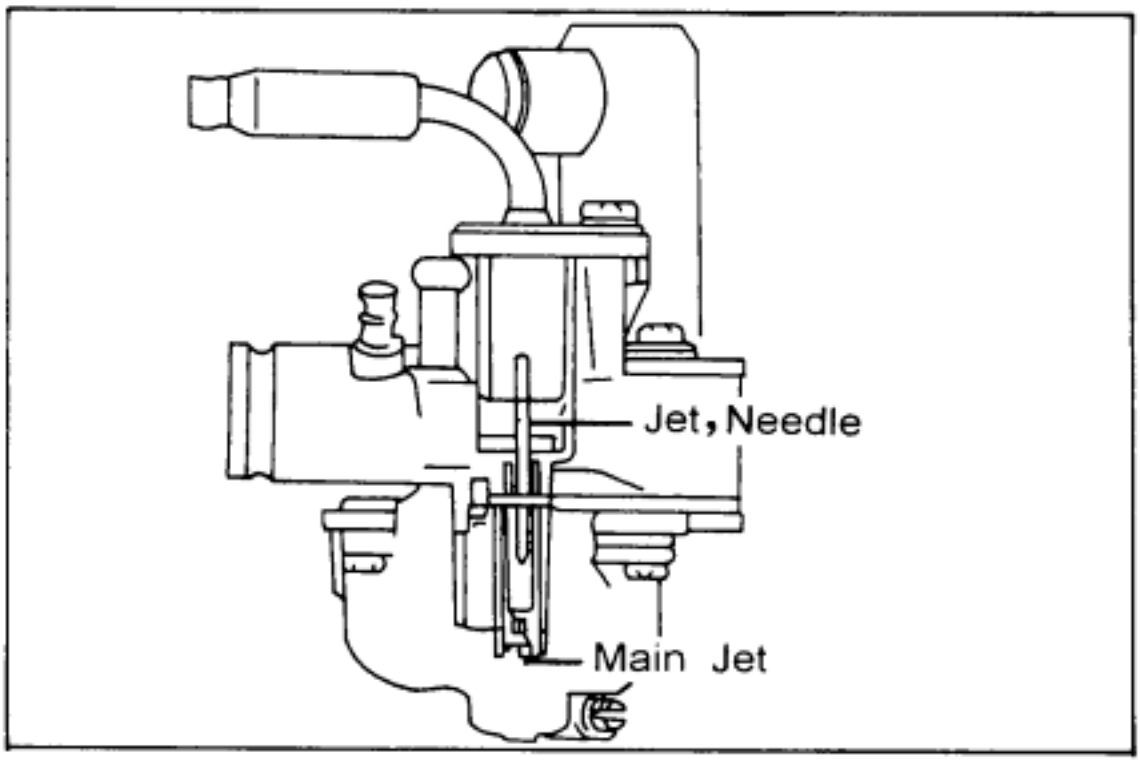
A. Air Filter: with pre-filter and filter to eliminate dust and dirt.
B. Carburetor: VM16 Auto-Choke type.
C. Reed Valve: with steel single reed and locked into the inner side of air in- take pipe.
D. Crank Case: made of aluminum alloy.
E. Muffler: with sound-absorbed fiber glass and expansion chamber.



3-2-2 Carburetor

I. idle Jet :

When ATV idling, gasoline will pass through idle jet and mix with air and go into the crank case. When the throttle handle opens, the piston valve and needle jet are elevated to let gasoline pass through the main jet and mix with air and go into the crank case



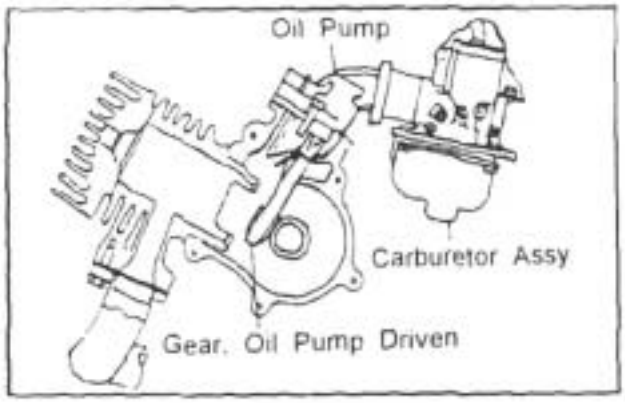
2 . Manual Choke System:

In cold condition, the path should in be close condition and the fuel will flow into engine directly. After starting ATV, ATV should remain in idle condition for 3~5 minutes. Then, Activate the Manual Choke and the path should return in open condition.

3-2-3 Lubrication & Cooling System

A. Lubrication of engine：

The Pump Gear is driven by the Screw Crank Shaft to rotate the Plunger valve of oil-Pump and send the lubricating oil into the Crank to completely mix with the carburetted air and then go into the Combustion Chamber.

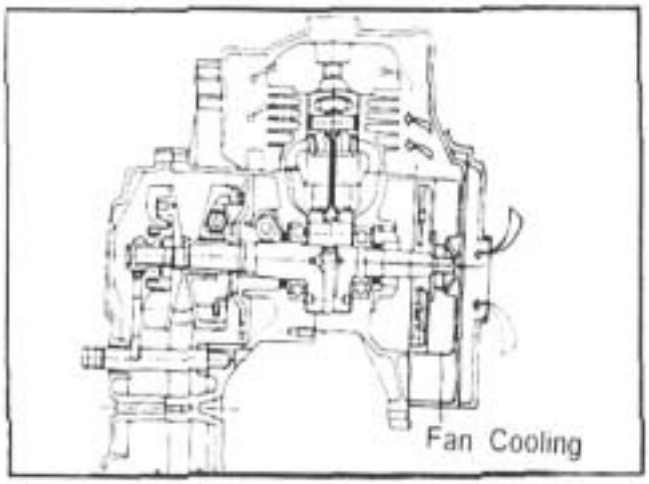


B. Oil-Pump:

Double outlets type ,
The Injection Volume Incresed by the revolutions of crankshaft and the opening of throttle.

C. Forced Air-Cooled Engine:

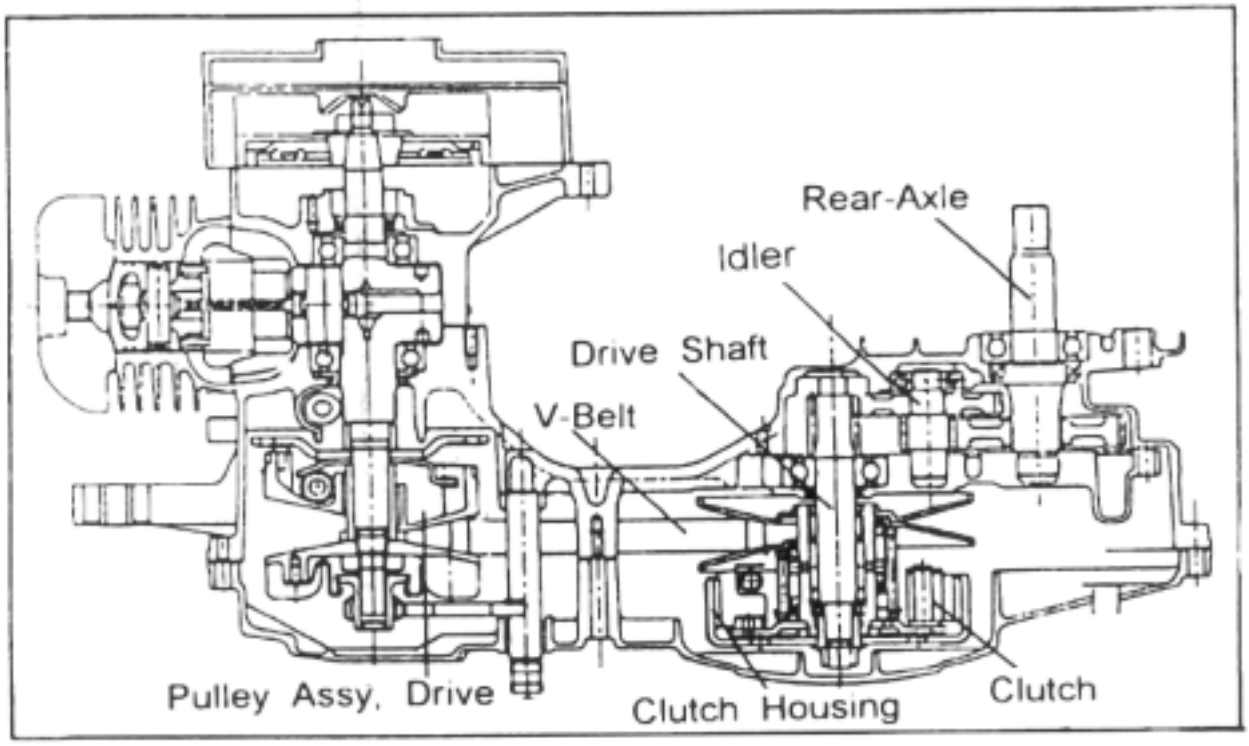
In order to achieve the stable cooling both when the vehicle is moving and parked, it is covered with air guide from the Cooling Fan to the Cylinder Head.The outside air is imported into the Cylinder-Head and Cylinder by the Cooling-Fan on the Flywheel Magneto to achieve the cooling effect.



3-3 TRANSMISSION MECHANISM

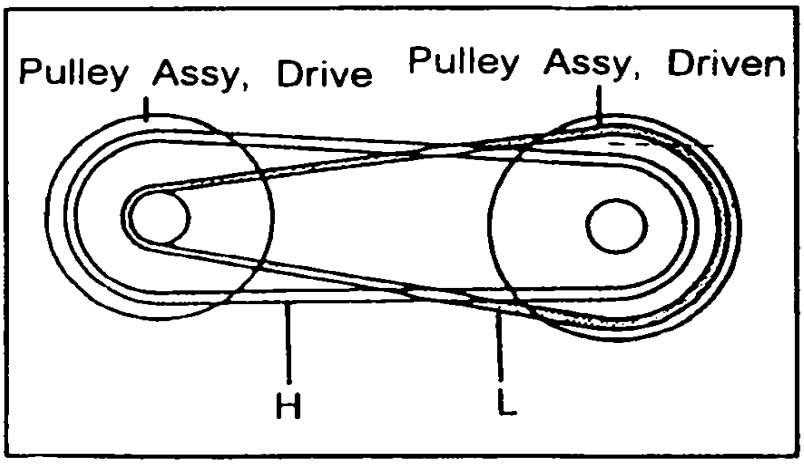
3-3-1 Path of Power Transmission:

The torque of Crank-Shaft from Drive Face to Belt→ Driven Face →Clutch Shoe→ Clutch Housing → Drive Shaft, through Idle Gear in Mission Chamber→ Turning Speed reduced by Final-Gear and Power transmitted to Rear-Axle Shaft to move Rear Wheel.



3-3-2 Belt Automatic Continuous Variable Transmission:

The Transmission is the combination of automatic centrifugal clutch and V-Belt continuous variable transmission, which makes the Pulley of both Drive Ends and Driven Ends move toward the shaft center to alter V-Belt contact pitch circle to change the transmission ratio automatically. Due to the increasing revolution speed of Engine, the pitch circle on the Drive Pulley is enlarged by centrifugal force and pushed out of the Belt to lengthen the radius of pitch circle. The Belt at Driven Pulley Face is forced to move to the center of shaft to decrease the radius of pitch circle, and pushed by the spring to transfer the power. The transmission ratio is
therefore altered by the alteration of pitch circle's radius.



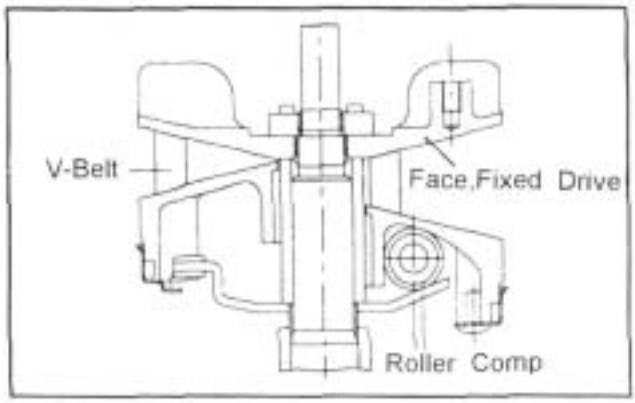
3-3-2 Continuous Variable Transmission

I . V-Belt :

Made of rubber fiber, resistant to heat, pressure and abrasion. The inner side of the Belt is toothed.

2 . Drive Pulley :

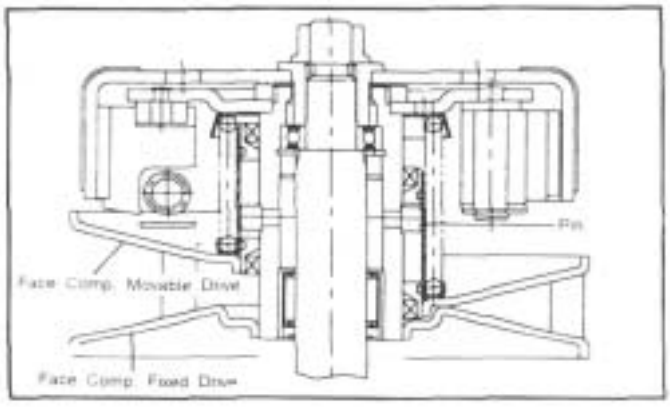
A. Due to the increasing revolution speed of Engine, the Roller in the Movable Drive Face is expanded by the centrifugal force to move the Movable Drive Face and squeeze and press V-Belt to enlarge its turning radius.



B. Fan is installed on the exterior of Fixed Drive Face to moderate the rise of temperature in the Clutch-Cover.

3 . Driven Pulley :

A. Because the revolving radius of V-Belt at the Drive End is enlarged, the Face Comp Movable Drive is squeezed out by the V-Belt at the Driven End to shorten the revolving radius.



B. There is a Torque Cam on the Movable Drive Face.

C.Torque Cam is loaded from outside. When the outside load is higher than the engine's output, the Pulley of fixed shaft and Belt slip to make the Movable Drive Face move along the inner side of Cam and compensate to increase to high torque (toward to low speed) and make the engine maintain smooth running with original revolution.

3-3-2 Continuous Variable Transmission

4. Running Curve:

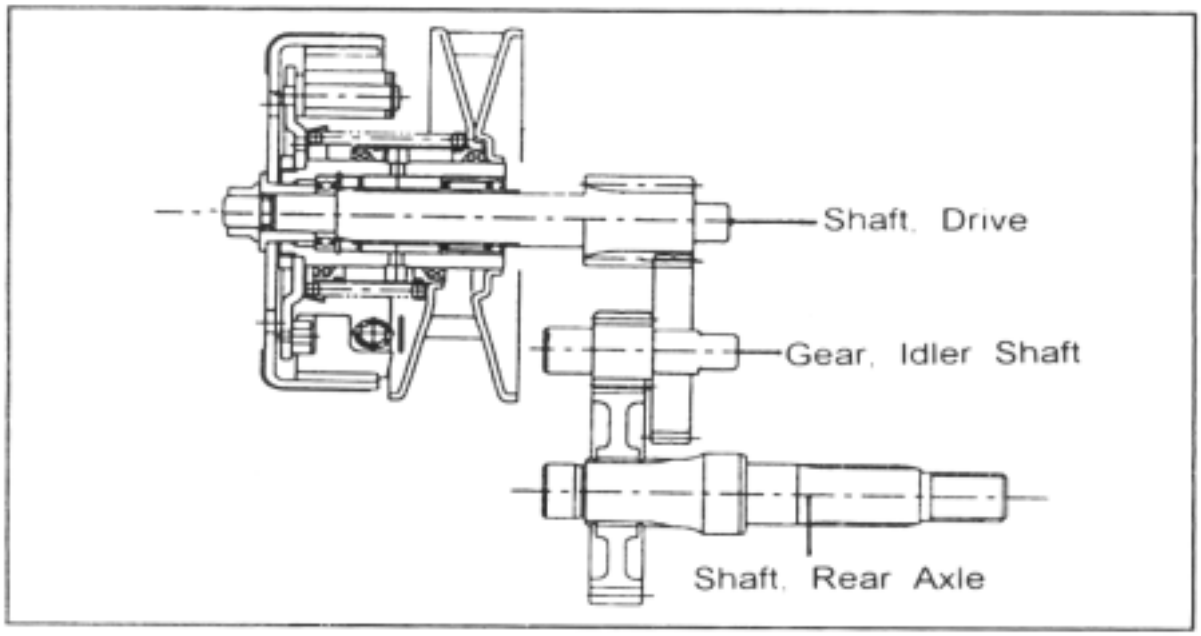
A. During general speeding, continuous variable transmission is achieved smoothly along with its speed.

B. During quick speeding, because the torque cam begins to act,the quick transformation can be achieved in high speed.

C. After the transmission, ATV speed can also rise according to the ratio with the rise of revolving speed of Engine.

3-3-3 Reducing Gear

The power received by the Drive Shaft will be transmitted by the speed reduction of two sets of Gear to Rear Axle Shaft.



3-3-4 Starting Mechanism:

The starting mechanism includes

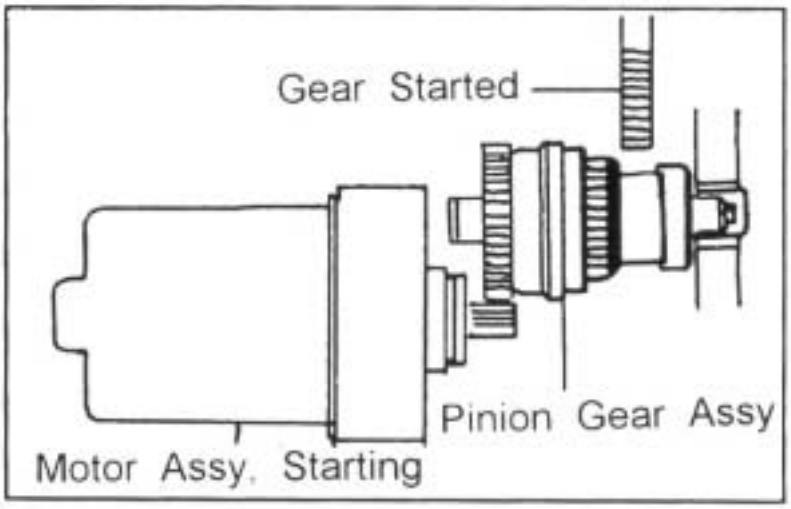
I. Electric Self-Starter :

A. Starting Motor of BENDIX type.With Safety Starting Mechanism.

B. The Starting Motor can act only when the Front-Brake or Rear-Brake is applied.

C. Starting Motor is installed at the bottom of Flywheel Magneto.

D. Starter Switch is installed on the Left-Hand Handle. Starter Motor revolves to activate Pinion Gear Assy. to fly out of the Pinion-Gear and connect with the Starter Gear.



3-3-4 Starting Mechanism:

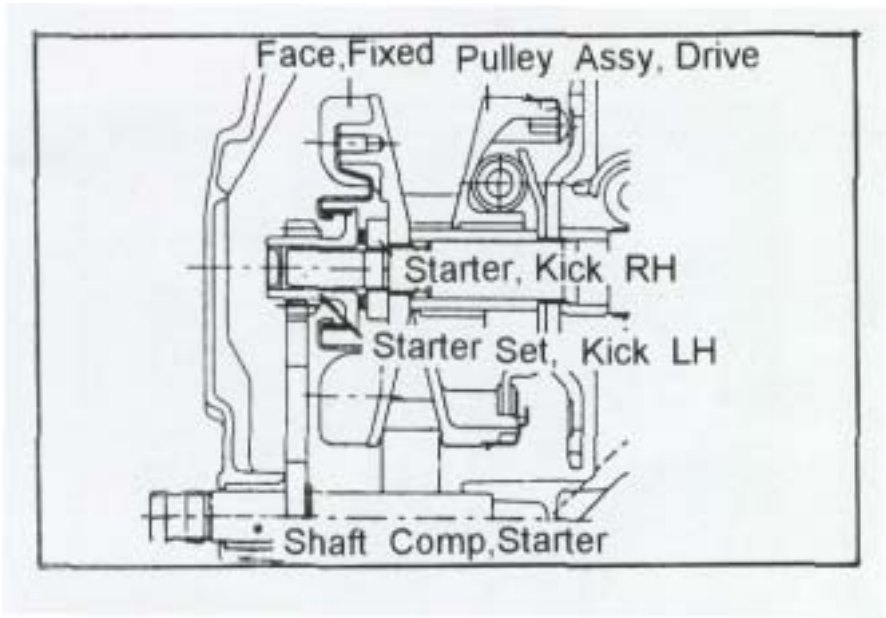
2 . Kick starter :

A. To start ATV by kicking, and the Brake-Lever has to be under brake condition.

B. When the Kick-Starter Lever is kicked, the umbrella type gear of Starter Shaft will drive the right hand kick starter to revolve the crank shaft to start the engine.

C. After the Engine is started, the Ratchet of the Left-kick Starter will stop the power transmission to the Kick-Starter Driven Gear.

D. When the Kick-Starter Lever is released, the Kick Starter Gear will remove from Kick-Starter Driven Gear and go back to its original place.



3-4 ELECTRIC SYSTEM

3-4-1 Ignition & Charging Device

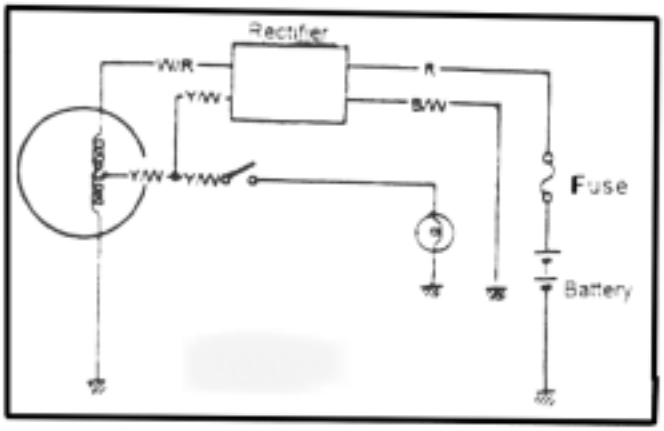
1. Ignition Device:

CDI Unit of two ignitions per revolution is adopted.

The ignition Lead is 15°±3°/4,000rpm

2. Charging Device:

Power is given by flywheel magneto. The voltage is controlled by voltage regulator. Power is charged to battery.



A. Flywheel Magneto:

Flywheel (rotor) includes four poles, crossed N poles and S poles. The stator consists of one high-tension ignition coil and three low-tension coils for charging and lighting to create change of magnetic field by rotating the flywheel to generate electricity.

3-4-1 IGNITION CHARGING DEVICE FOR THE IGNITION

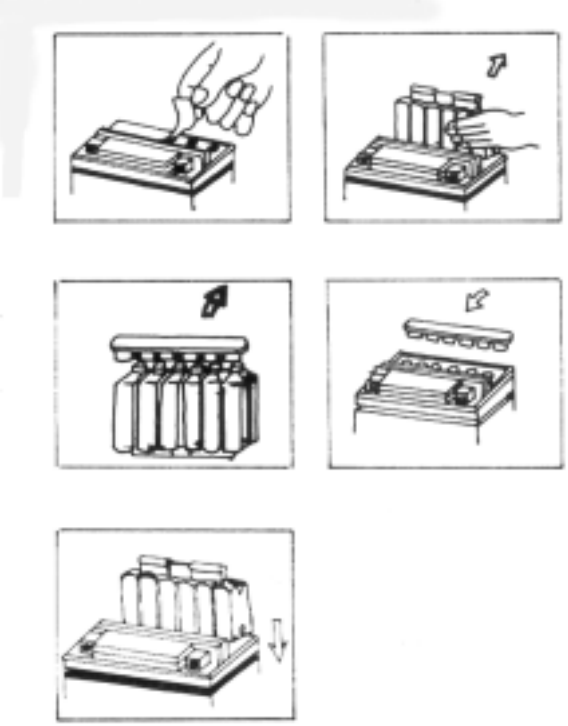
B. Battery : The Battery is the type of Water-Adding Free.

1. Battery Caution:

1. The electrolyte contains sulphuric acid is poisonous. avoid to contact with eye, skin and clothes. Immediately wash with abundant water and call a doctor at once in case of contact with the eyes or skin. Immediately drink beaten eggs or vegetable oil, call a doctor at once in case of drink.
2. batteries release explosive gases, prohibit to closed to sparks,flames or cigarettes.
3. When charging or using the battery in a closed location, make sure that ventilation is good.
4. Keep off children hands.

2. Instruction for Filling Electrolyte (For Water-adding Free Battery)

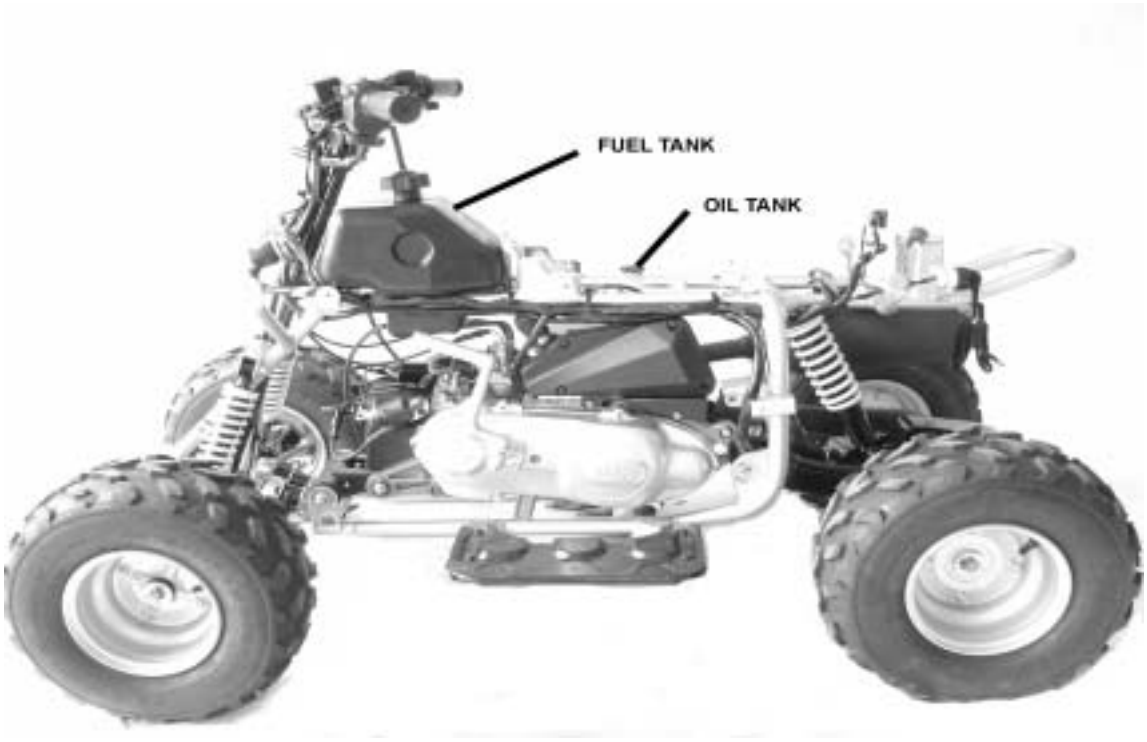
1. **Remove the Aluminum Seal on the filling hole of battery.**
2. Remove the cover bar and battery sealing bolt.
3. Insert the filling hole of electrolyte container into the filling hole of battery. Try not to spillage it.
4. There are three pipes on each side. Tap the bottom of container lightly when the electrolyte bubbles. Pulling it out will be unnecessary.
5. Remove the container from the battery after all electrolyte is filled into battery.
6. Insert the fixing plug in the filling hole of battery and press the fixing plug until it is not higher than the top of cover.



Note : The Battery is completely ready to use, thus do not remove the Aluminum Seal on the closed filling hole until it is to be used. Electrolyte, except those specified, is absolutely forbidden. While filling the electrolyte, only regulated volume of electrolyte can be adopted. The seal plug should not be removed after the electrolyte is added.

3-5 BODY

3-5-1 Frame & Fuel and Oil System



I . Frame :

A. steel pipe and steel sheet
are adopted to compose
reinforced frame.

2 . Fuel Tank

Fuel Tank is made of plastic with the capacity of 5.6L. The fuel tank is able to disassemble only after the removal of the steering shaft assy.

3 . Manual fuel shutoff control :

"On" means the fuel valve can supply fuel flowing into carburetor.
"Off" means the fuel valve stop the fuel flow into carburetor.
"Res" means the fuel valve supply the fuel from the reserve supply to the engine.

4 . Oil-Tank:

Oil Tank is made of plastic with the capacity of 0.9L. When the red indicating lamp of Oil Level is lit, there is about 220 c.c. preserved oil.

3-5-2 Front & Rear Suspension System

1. Front-Suspension :

A. The Type OF Front Suspension is A-Arm control linkageType.

B. The function of Front Suspension is to connect the frame and front wheel.

C. Each Front Fork includs an absorber with compression spring and hydraulic buffer on right hand and left hand side each.

D. The turning linkage bar controls th ewheel's turning.

2 . Rear-Suspension :

A. Swing-Arm Suspension Mechanism is composed of single telescopic absorber between the crank case and ATV body.

B. Rear Axle Movable by telescopic shock absorber.

3-5-3 Brake System：

I . Front Brake: (Drum Brake)

Front brake include two brake cables. Upper cable is to control the front right side brake and lower cable is to control the front left brake. Drum brake includes the drum, lining, pad and shoe. It is operated manually by pulling the front brake on the right hand handle-lever.

2 . Rear Brake: (Disc Brake)

Hydraulic disc brake includes disc brake disc, brake caliper, brake oil hose, and master cylinder with oil level manhole. It is operated manually by pulling the rear brake on the left hand handle-lever.

CHAPTER 4 . DISASSEMBLY REPAIRMENT

4-1 NOTICE FOR DISASSEMBLY REPAIRMENT

4-2 REMOVAL AND INSTALLATION OF ENGINE

4-2-1 Removal of Engine

4-2-2 Installation of Engine

4-3 DISASSEMBLY AND ASSEMBLY OF ENGINE

4-3-1 Disassembly of Engine

4-3-2 Inspection of Engine Parts

4-3-3 Assembly of Engine

4-4 REMOVAL AND ASSEMBLY OF CARBURETOR

4-4-1 Removal of Carburetor

4-4-2 Inspection of Carburetor

4-4-3 Assembly of Carburetor

4-5 REMOVAL AND INSPECTION OF ELECTRIC ITEMS

4-5-1 Removal and Inspection of Ignition and Charging System

4-5-2 Removal and Inspection of Starter Mechanism

4-5-3 Removal and Inspection of Fuel Tank

4-5-4 Removal and Inspection of Oil Indicator lamp

4-6 REMOVAL AND INSPECTION OF BODY PARTS

4-6-1 Removal & Inspection of Steering shaft Assy.

4-6-2 Removal & Inspection of Rear Axle

4-6-3 Removal and Inspection of Brake and Wheel

4-1 NOTICE FOR DISASSEMBLY INSPECTION

1. In order to avoid mixing and loss of disassembled parts before reassembling, the disassembled parts have to be arranged according to their function during the process.

2. The damage to Cover and Frame should be avoided while disassembling and assembling.

3. Remove the negative (-) terminal of Battery before working.

4. While reassembling, make sure that all parts are normal.

5. Specified oil should be adopted on turning and sliding parts.
   Specified grease should also be applied on specified positions.

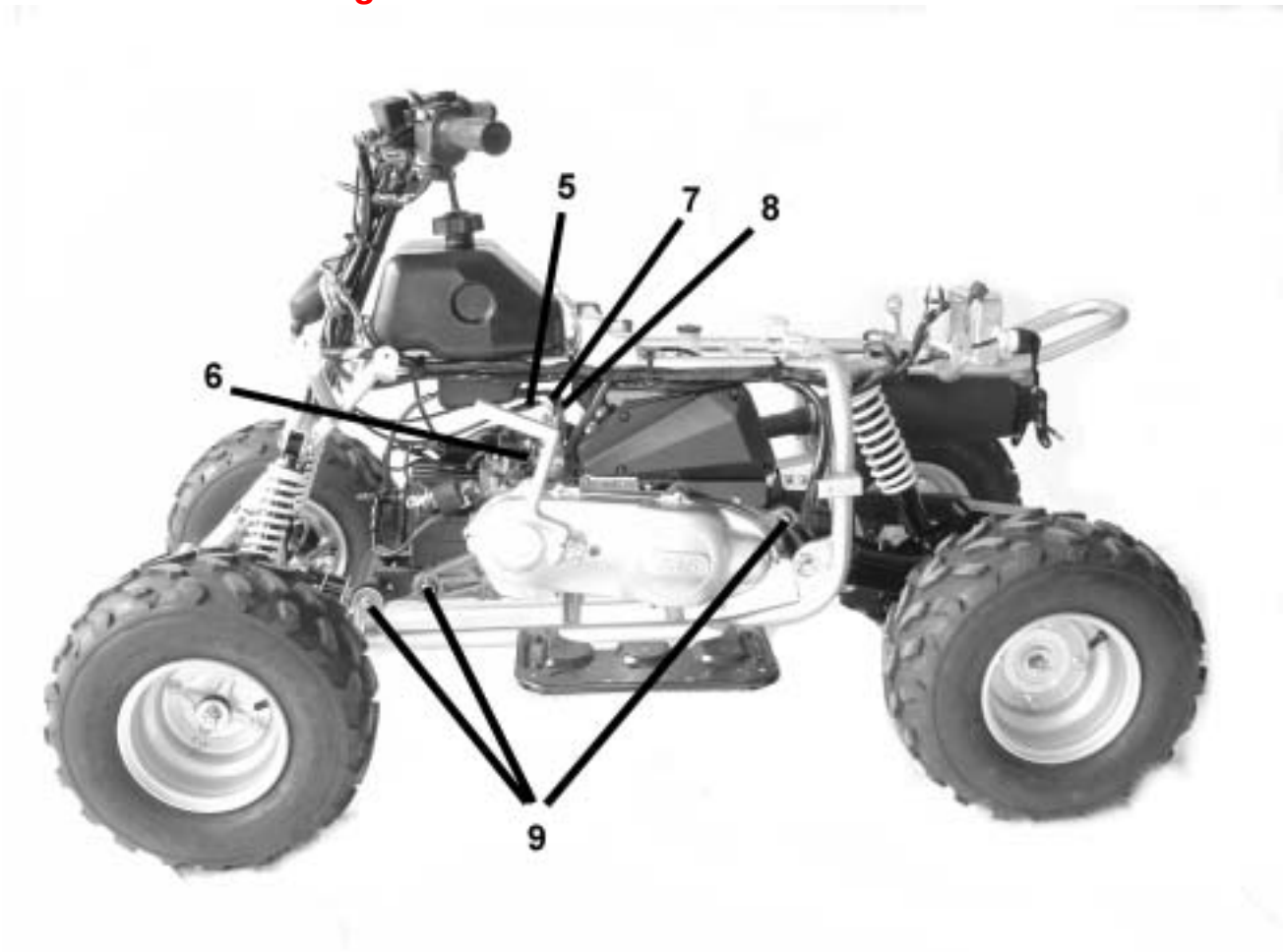
6. Dust, dirt and unusual particles should be avoided while reassembling.

7. When important revolving and reciprocating parts, such as Cylinder Head, Cylinder, Piston, Piston-Ring, and Crank, have been replaced, the vehicle can not go for full speed running immediately. Preliminary running should be applied below 4000 rpm within 20hour.

8 . While assembling, the main lip of oil seal should face inwards (oil chamber) and the antidust sub-lip should face outwards.
   Apply an even layer of specified grease onto the lip before it is pressed to its location with balanced force by specified jigs.

9 . While pressing the bearing into the hole, apply balanced force to the outer ring of bearing by specified jigs.
   While pressing the bearing into the main shaft, apply balanced force to the inner ring of bearing by specified jigs.

4-2-1 Removal of Engine



A. Remove Ignition Coil Lead(I) Flywheel Magneto Lead(2)
Engine Earth Ground Lead(3) Auto-Choke cable (4) .

B. Remove the Throttle Cable on Carburetor Piston(5).

C. Remove Oil Hose(6).

D. Remove Negative Pressure Hose (7) and Remove Fuel Hose(8).

E. Remove Front & Rear Engine Mounting Shaft (9).

F. Lift Body

4-2-2 Installation of Engine

A. Lift the body and point the bottom end hole of crank case bracket to the two front holes of engine crank case. Install Engine Mounting Shaft and lock.

B. Install Ignition Coil , Flywheel Magneto , Engine, Earth , and Auto-Choke Cable .

C. Install Oil Hose. Release the bubble by releasing Bolt on the Oil Pump to let the oil flow . Relock the Bolt until no bubble appears.

D. Install Carburetor negative pressure hose (I), fuel hose(2).
Make sure to lock the circlip.

4-3-1 Disassembly Sequence of Engine

I . Remove the Muffler.
2. Remove the Kick Starter.
Remove the Clutch.
Remove the Spring of Kick Starter Rod.
Remove the Kick Starter Shaft Comp.
3. Remove the Spring Seat.
Remove the Washer.
Remove the Left Hand Starter.
◎Remove the Right Hand Starter.
Remove the Drive Face.
Remove the V-Belt.
Remove the Movable Drive Face Comp.
Remove the Spacer.

Detailed Disassembly:
Remove the Cover.
Remove the Movable Drive Plate.
Remove the Rotor Assembly.
Remove the Guide Block.
Remove the O-Ring.
4.◎Remove the Nut of Clutch Housing.
Remove the Clutch Housing.
Remove the Driven Belt Pulley.

Detailed Disassembly:
◎Remove Nut of Driven Pulley Assy.
Remove Clutch Assy.
Remove the Spring.
Remove the Spring Sheet.
Remove the Roller Pin.
Remove the Fixed Shaft Assy.
Remove the Needle Roller Bearing.
Remove the C Type Circlip.
Remove the Ball Bearing.
Remove the O-Ring.
Remove the Oil Seal.
5. Remove the Fan Cover.
Remove the Cooling Fan.
Remove the Fan Case.
Remove the Air Filter.
◎Remove the Nut of Flywheel Magneto.
◎Remove the Flywheel Magneto.
Remove the Coil Assy.
6. Remove the Starting Motor.
Remove the Cap of Starter Idler Gear.
Remove the Starting Gear.
Remove the Pinion Gear Assy.
7. Remove the In-take Pipe Assy.
Remove the Reed Valve.
8. Remove the Oil Pump Assy.
Remove the Oil Pump Driven Gear.

4-3-1 Disassembly Sequence of Engine

9. Remove the Ignition Coil.
   Remove the Spark Plug.
   Remove the Cylinder Cover.
   Remove the Cylinder Head.
   Remove the Cylinder.

10. Remove the Snap Ring of Piston Pin.
    Remove the Piston Pin.
    Remove the Piston.
    Remove the Piston Ring.
    Remove the Needle Bearing.

11. Drain the Gear oil.
    Remove the Cover of Gear Box.
    Remove the Drive Shaft.
    Remove the Snap Ring of Rear Axle Gear.
    Remove the Washer of Idle Shaft.
    Remove the Rear Axle Gear.
    Remove the Idling Shaft.
    Remove the Washer.
    Remove the Snap Ring.
    ◎Remove the RH and LH Bearings and
    Oil Seal of Main Shaft.

12. Remove the Nut of Rear Wheel.
    Remove the Rear Wheel.
    Remove the Lining of Rear Brake.
    Remove the Rear Wheel Shaft.
    Remove the Cam Con-Rod of Rear Brake.
    Remove the Cam of Rear Brake.
    ◎Remove the oil seal, Bearing of Rear Shaft.
13. ◎Remove the Right Hand Crank Case.
    ◎Remove the Crank Shaft Assy.
    Remove the Oil Seal of Right Hand Crank Case.
    ◎Remove the Bearing of Right Hand Crank Case.
    Remove the Bush Comp.
    Remove the Oil Seal of Left Hand Crank Case.
    ◎Remove the Bearing of Left Hand Crank Case.

Remark: "◎" means that special tools are needed.

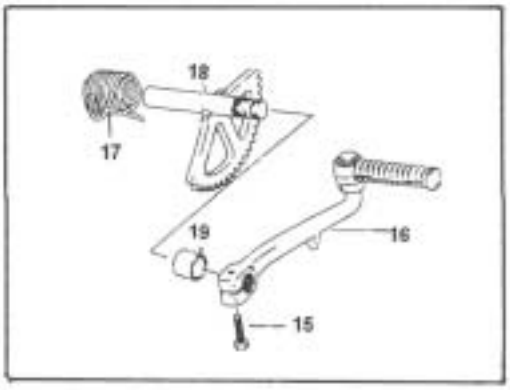
4-3-1 Dis-assembly of Engine:
(Muffler, Kick Starter Lever Assy , Drive Pulley Assy .)

1. Removal of Muffler

A. Hold the brake cable and lift the body until the rear carry bar touch the ground.

B. Remove two bolts connected with the engine.

C. Removel one bolt connected with the rear frame.



2. Removal of Kick Starter Lever Assy:

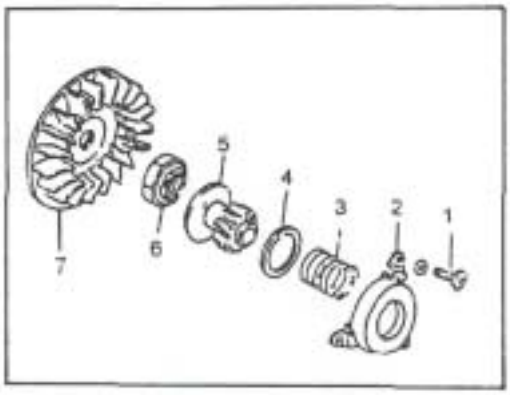
A. Remove the hexagon bolt (15)of kick starter lever assy (16) and remove the kick starter lever assy.

B. Remove the fixed screw of clutch cover.

C. Remove the Spring (17) of kick starter shaft.

D. Remove the kick starter shaft (18).

E. Remove the bush (19) of kick starter shaft



3. Removal of Drive Pulley:

A. Remove screw (1).

B. Remove spring seat (2).

C. Remove spring (3).

D. Remove washer (4).

E. Remove the left hand starter assy (5).

F. Remove the RH starter (6).

WARNING：Because it is LH thread inside the RH starter, it is necessary to use deep bush while removing (to avoid contact with the crank shaft), and remove the RH starter by using pneumatic wrench turns to right hand. If it turns to left hand, the wrong direction, it will damage the crank shaft easily. Special Tool: GA5000051F36.

◎ If manual wrench, instead of pneumatic wrench, is adopted, stop tool will be needed.

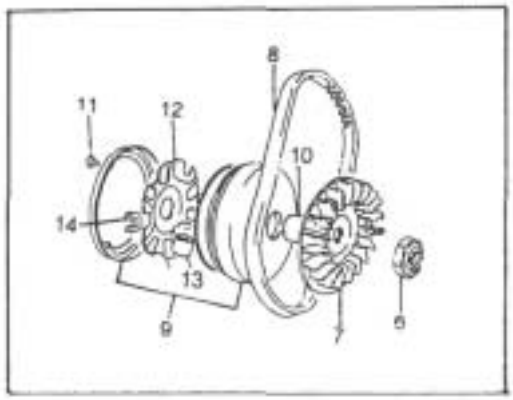
Special Tool: GA5000051F35.

A. Remove Movable Drive Face (7).

B. Remove V-Belt (8).

C. Remove Drive Pulley Assy (9) and Spacer (10)

◎Press the Movable Drive Plate and Drive Pulley Face while removing the Drive Pulley Face Assy in order to avoid the roller to stand up.



D. Disassembly of Driven Pulley Face Assy: Remove screw (11), Movable Drive Plate (12), roller (13) and guide block (14).

4-3-I Disassembly of Engine: (Removal of Driven Pulley Assy)

4. Removal of Driven Pulley Assy:

A. Remove Nut of Clutch Housing with pneumatic wrench or stop tool as shown. **special Tool: GA5000051F04.**

B. Remove the Clutch Housing.

C. Remove the Driven Pulley Assy.

D. Apply Special tool to prohibit the rotation of Clutch Assy.

Warning

◎ It is not allowed to release the nut quickly because the components will fly out and cause injury. Release lightly will be enough.
special Tool: GA5000051F04.

E. Press tightly the both sides of Clutch, unscrew and remove the Nut.

Warning

◎Press tightly the Clutch Assy while unscrewing the Nut, so that the spring will not jump out. Release slowly after the nut is removed.

F. Remove the Clutch Assy.

G. Remove the Spring.

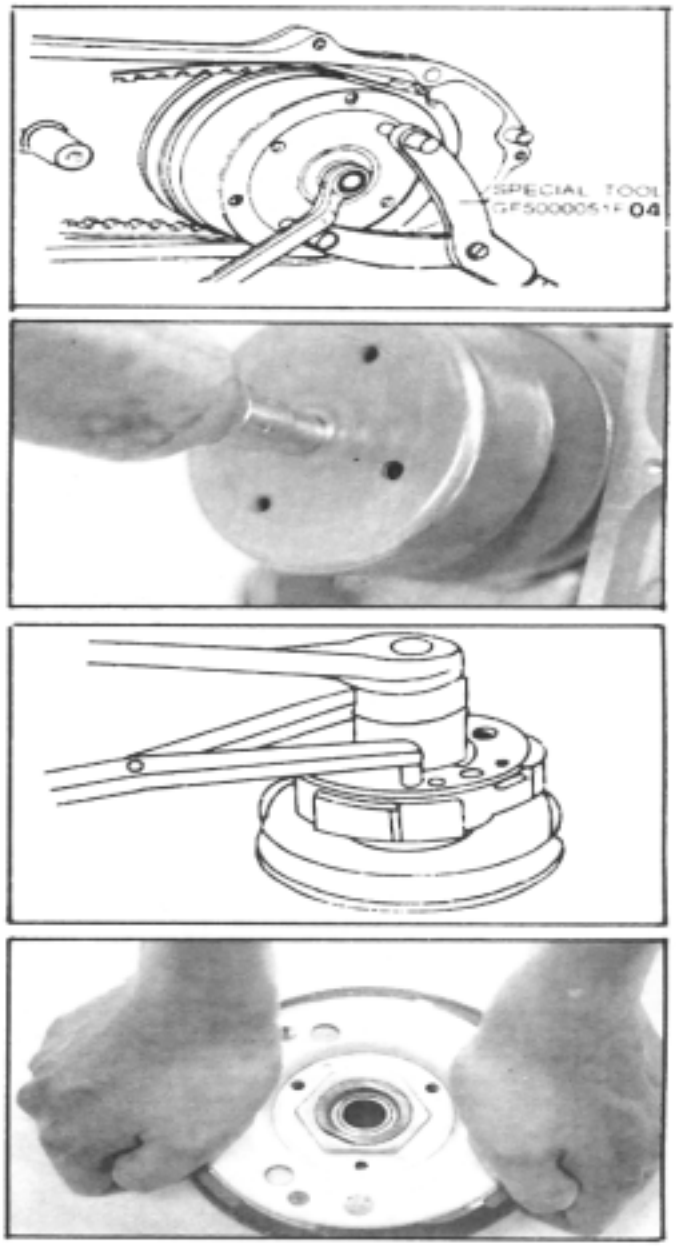
H. Remove the Spring Sheet by screw driver or by hand.

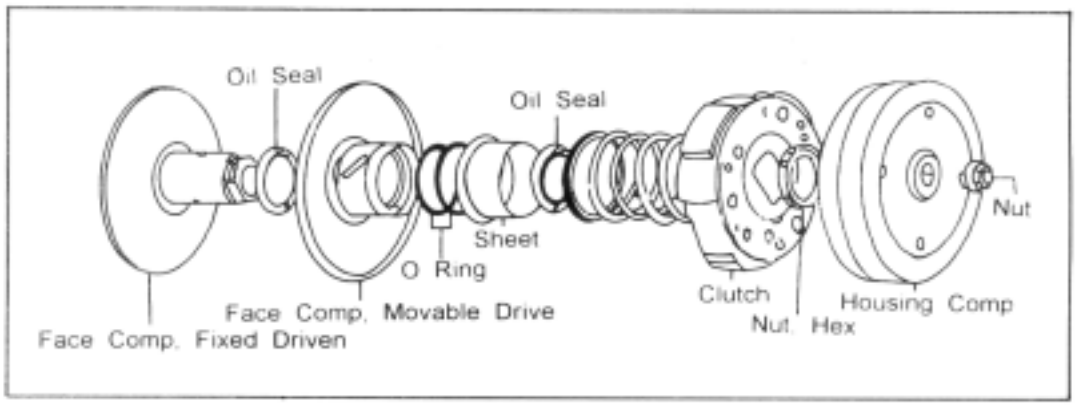
I. Remove the Guide Pin.

J. Remove the Fixed Driven Face Assy.

K. Remove the Needle Bearing.

L. Remove the C-type Snap Ring.





4-3-1 Disassembly of Engine:

(Removal of Flywheel Magneto and Starter Motor)

5. Removal of Flywheel Magneto:

A. Remove the Screw of Air Filter and remove the air filter.

B. Remove the Screw of Fan-Cowling and remove Fan-Cowling.

C. Remove the Screw of Cooling Fan and remove the Cooling-Fan and Fan Case.

D.Tools should be adopted to prevent the rotation of Flywheel Magneto.

Remove Flange Nut of Flywheel Housing.

Special Tools: GA5000051F04

E. Apply tools to lock on the thread hole of Flywheel Housing, hook the end of Crank Shaft and remove the Flywheel Housing

Special Tool: GA5000051F22

F. Remove Key.

G. Disassemble Screw of Coil and remove the coil.

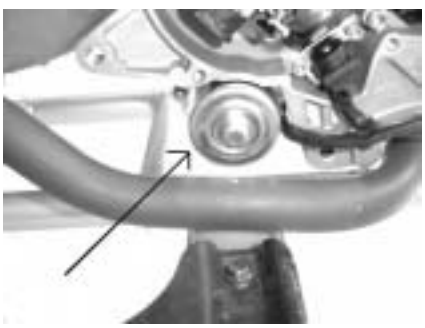
6. Removal of Starter Motor:

A. Remove the Screw (1) of Starter. Motor and remove the Starter Motor.

B. Remove the Drive Gear

C. Remove the Screw (2) of Idling Gear Cover.

D. Remove the Idling Gear Cover (3) and Speed clutch (4).



4-3-1 Disassembly of Engine:

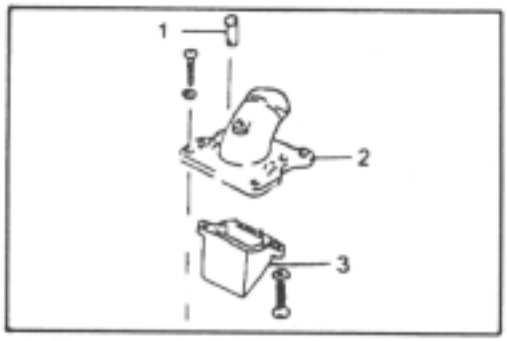
(Removal of In-Take Pipe, Oil-Pump and Cylinder)

7. Removal of In-take Pipe:

A. Remove the Fixed Plate of Fender (1).

B. Remove the In-take Pipe (2).

C. Remove the Reed Valve (3).



8 . Removal of Oil-Pump:

A. Remove Oil Pump (4).

B. Remove Oil Pump Driven Gear (5).

9. Cylinder

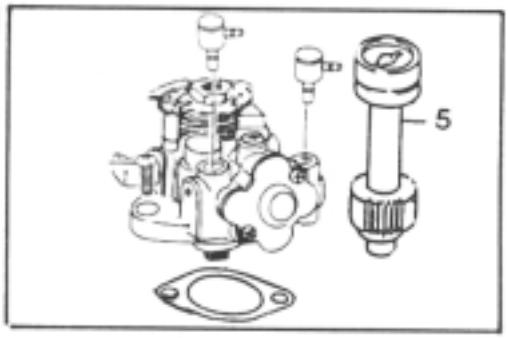
A. Remove the Ignition Coil.

B. Remove the Spark Plug.

C, Remove Cylinder Cowling.

D. Unscrew the Cylinder Screw by diagonal step.

E. Remove Cylinder Head, Cylinder Gasket and Cylinder.



10. Piston

A. Remove Piston Pin Cir-clip (6).

※ The used Circlip must be discarded and never to use again, otherwise it will be barred between piston and cylinder for looseness, and the engine is broken.

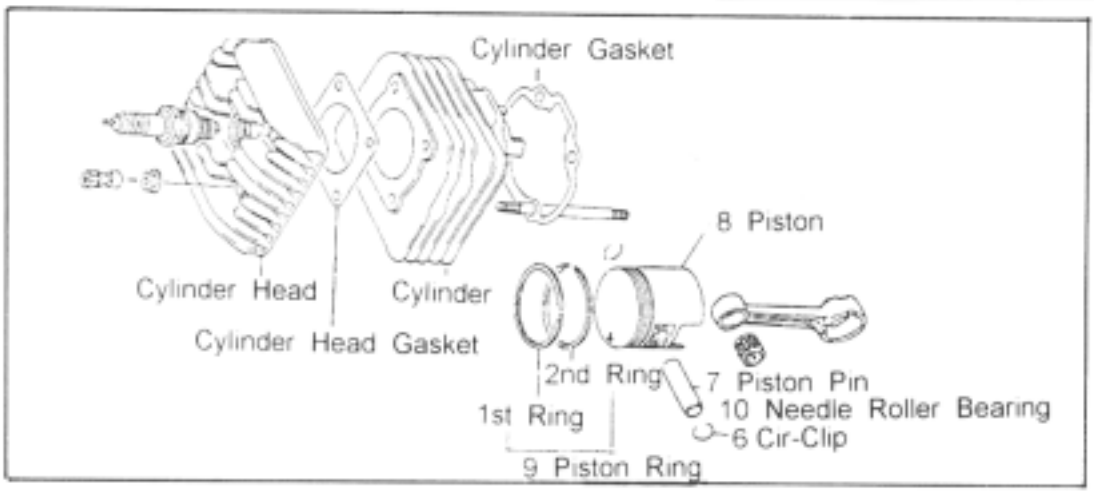
B. Remove Piston Pin (7).

C. Remove Piston (8)

D. Remove Piston Ring (9).

※ Overexpanding is not allowed while removing Piston Ring, otherwise the Piston Ring will break or crack.

E. Remove Piston Pin Bearing (10).



4-3-1 Disassembly of Engine: (Removal of Reducing Gear)

11. Removal of Reducing Gear:

A. Drain the oil in the reducing gear box.

◎ The Drain Screw of Engine has two designs, in the clutch cover or under the crank case.

B. Unscrew the Fixed Screw lightly and evenly by diagonal step.

C. Remove Gear Box Cover. Tap with plastic hammer if it can not be removed.

D. Remove the Drive Shaft (1) from the Gear Box Cover.

E. Remove the Cir-clip (2) of Rear Shaft.

F. Remove the Left Hand Washer (3) of Idling Shaft.

G. Remove the Gear (4) of Rear Shaft.

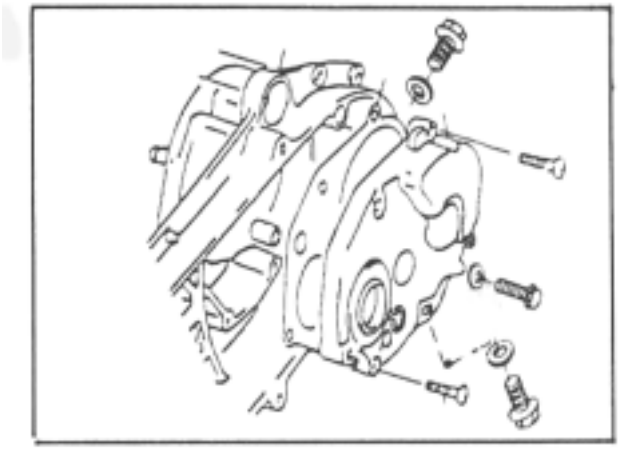
H. Remove the Gear (5) of Idling Shaft.

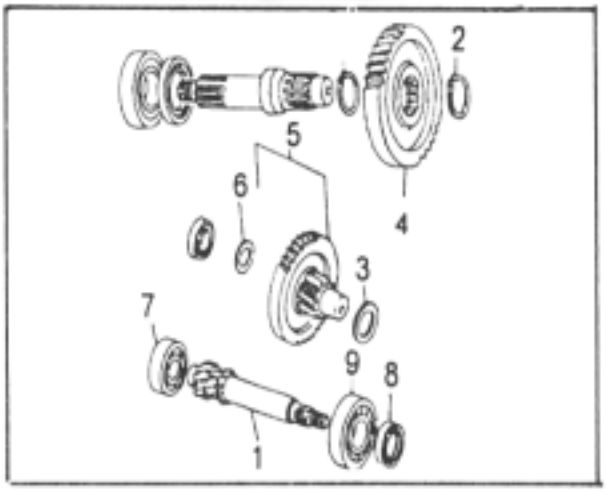
I. Remove the Right Hand Washer (6) of Idling Shaft .

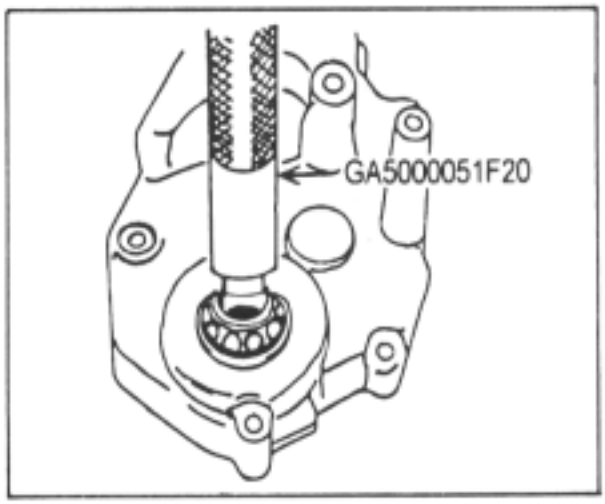
J. Hook the Right Hand Bearing (7) of Drive Shaft with special tool and remove the Bearing.
special Tool: GA5000051F12.

K. Remove the Oil Seal (8) of Drive Shaft on the Gear Box Cover with screw driver.

L. Remove the Left Hand Bearing (9) of Drive Shaft on the Gear Box Cover with special tool.
special Tool: GA5000051F20.



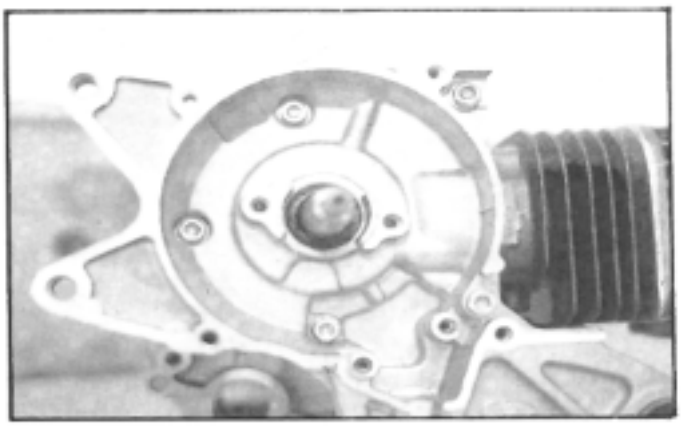




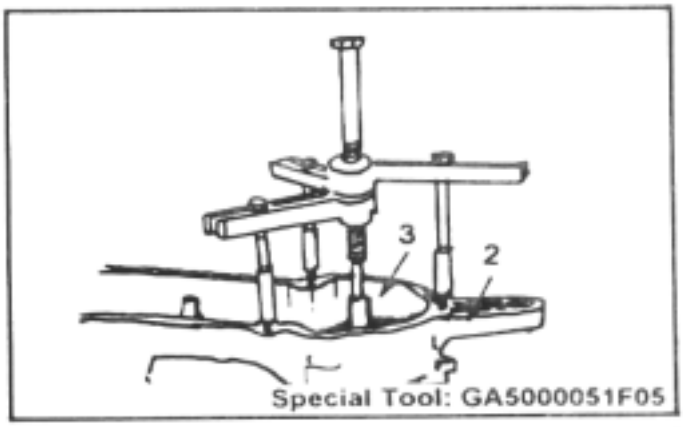
4-3-1 Disassembly of Engine: (Removal of Crank Case)

12. Removal of Crank Case :

A. Release Fixing Screw(1) by diagonal step.



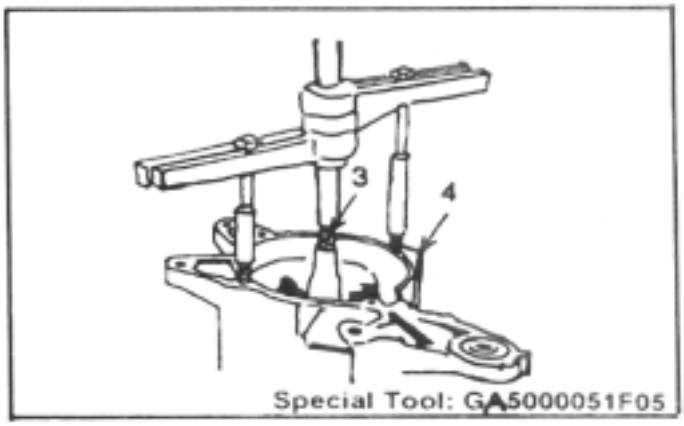
B. Use a special tool to lock Crank Case (2) and Crank Shaft (3) to remove RH Crank Case.
Special Tool: GA5000051F05

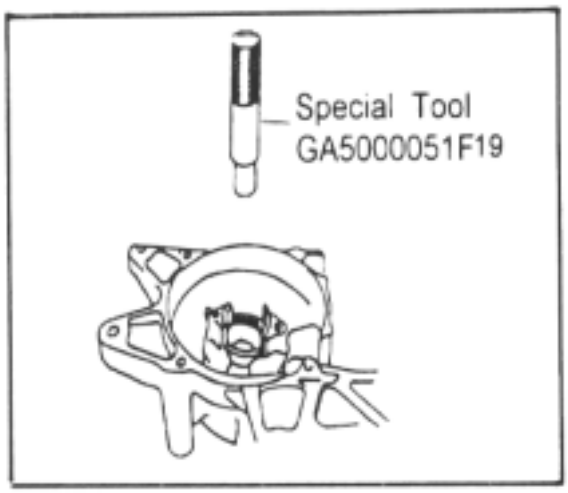


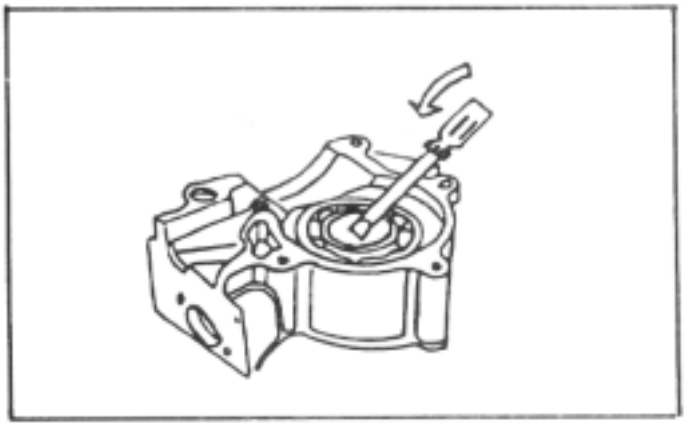
C. Use a special tool to lock LH Crank Case(4) and Crank Shaft (3) to push out the Crank Shaft.
Special Tool: GA5000051F05

D. Dig out the Oil Seal of RH Crank Shaft with a screw driver.

E. Remove the bearing of RH Crank Shaft with a special tool.
Special Tool: GA5000051F19.

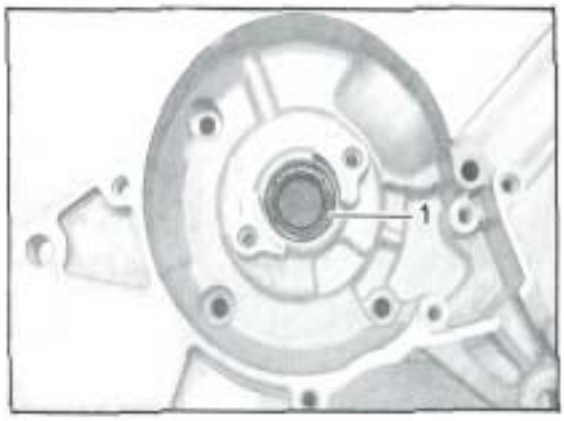






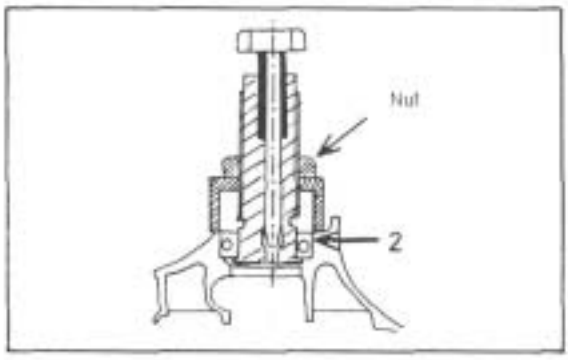
4-3-1 Disassembly of Engine:
（Removal of Crank Case）

F. Pull the Oil Seal (1) of LH crank Shaft with a screw driver and remove the oil seal by tapping.



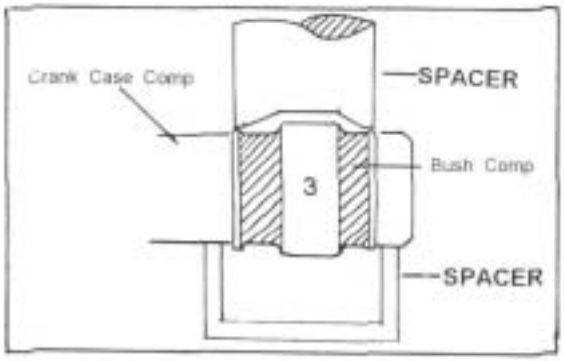
G. Remove the bearing (2) of LH crank shaft by tighting the nut of the special tool.

Special Tool: GA5000051F21



H. Put the crank case on the spacer shown. Push the outer ring of the bush with another spacer. And press the bush out with a vice.

Reassembly : Assemble with the reverse sequence of disassembly.

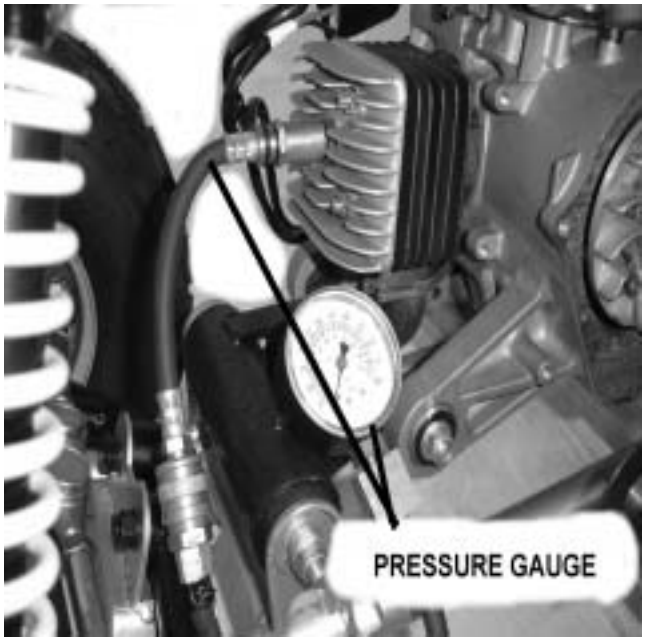


4-3-2 Inspection of Engine Components

I. Measurement of Compression Pressure of Engine :

A. start the engine to warm running up with a full-charged battery.
B. Remove the spark plug and install the pressure gauge.

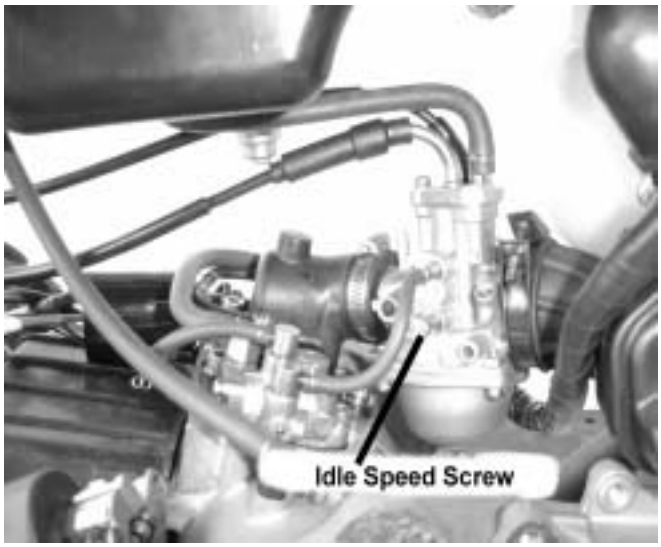
C. Fully open the throttle lever and start the starter motor.
Read the indicator value on the pressure gauge.



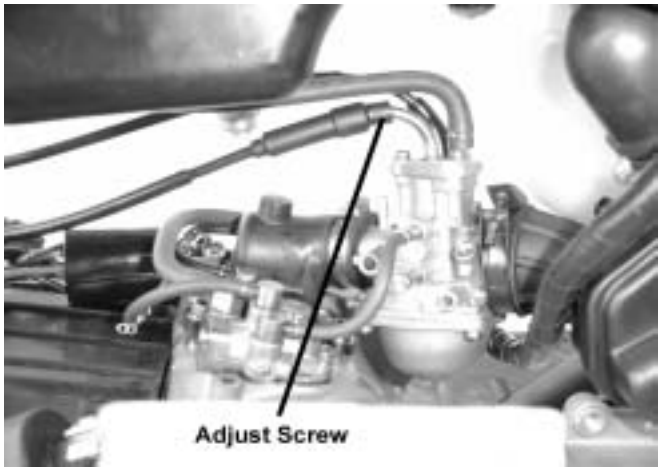
Compression Pressure :
Standard 6 .8kg/cm^2/500rpm

Limit 5.0gk/cm^2

2. Turn the throttle stopping screw(1)
and adjust to the revolution of 1800±100rpm



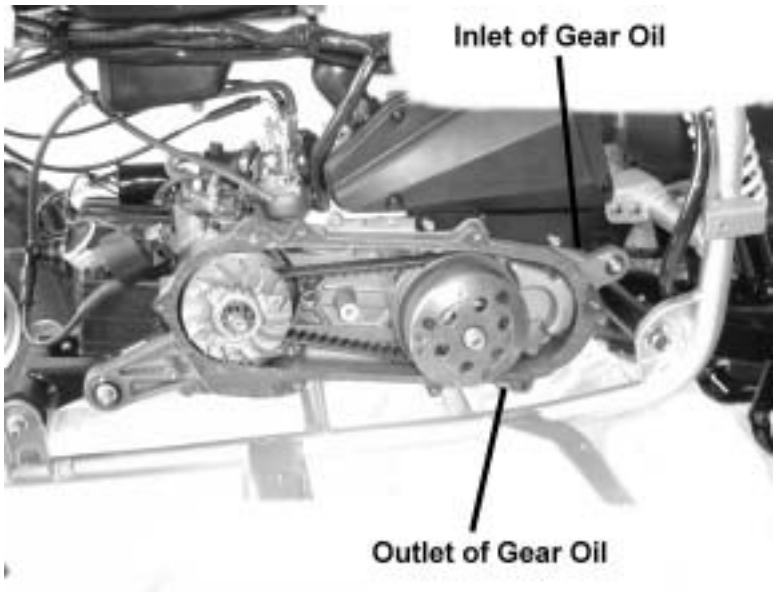
3. **Turn the adjusting screw (2)**
of throttle cable and keep the clearance of steel cable in the throttle cable in 2~4mm (counted by outside diameter of throttle lever) .



4-3-2 Inspection of Engine Components

4. Inspection and Replacement of Reducing Gear oil:

A. Remove the bolt of inlet on the LH crankcase. Make sure if the gear oil reaches the bottom of refilling bolt.



B. Remove the bolt and drain bolt of outlet to drain the gear oil.

C. Relock the outlet screw.
Screw Torque: 40 ~ 70kg.cm

D. Refill 90cc of TGB gear oil from the oil inlet.

E. Tighten the oil inlet bolt.
Screw Torque: 90 ~150kg . cm

4-3-2 Inspection of Engine Components

5. Inspection of Cylinder:
   A. Check if any damage appears on the bore.
   B. Check if any damage or crack appear on surface.
   C. Excessive carbon deposit in the air outlet has to be cleaned.
   D. Replace if the cylinder bore exceeds **41.07mm**. (50C.C) **, 50.07 mm** (90 C.C)
   E. Repair will be needed if the flatness exceeds **0.1mm.**

6. Inspection of Cylinder Head:
   A. Inspect any crack or damage on surface.
   B. Excessive carbon deposit in the combustion chamber has to be cleaned.
   C. Repair will be needed if the flatness exceeds **0.1mm.**

7. Inspection of Piston Pin:
   A. Check for unusual damage, abrasion or color.
   B. Replaced when the exterior diamemter is less than **9.98mm (50C.C),**
      11.98mm (90 C.C).

8. Inspection of Piston:
   A. Check for unusual damage, crack or abrasion.
   B. Measure the exterior diameter at **15m/m** (50C.C), **20m/m** (90C.C.)
      height above the piston bottom and the perpendicular to the pin hole.
      Replaced if it is less than **40.89mm**. (50 C.C.) ,**49.89** (90 C.C.)
   C. Replaced when the piston pin hole exceeds **10.04mm** (50.C.C),
      12.04 mm (90 C.C.)

9. Inspection of Piston Ring:
   A. Check for unusual abrasion, damage or carbon deposit.
   B. Put the piston ring into the cylinder and measure the clearance of opening by
      thickness gauge. Replaced if it exceeds **0.8mm**.
   C. Put the piston ring into the piston, press tightly and measure the clearance
      between piston ring and the groove with thickness gage.
      Replaced if it exceeds the limit of **0.02 0.07mm.**

10. Inspection of Crank Shaft:
    A. Check for unusual abrasion and damage from the appearance.
    B. Support the two bearings of crank shaft with V-shaped blocks and measure
       the deflection of two ends by indicator guage. Replaced if it exceeds **0.08mm.**

4-3-2 Inspection of Engine Components

11. Inspection of Reed Valve:

A. There should be no clearance between the reed and the reed valve seat.

B. Check for any break from the appearance. Replaced if the flatness of contact suface exceeds **0.08mm.**

12. Inspection of V-Belt:

A. There should be no oil stain, crack and unusual damage from the appearance.

B. Replaced if the belt width is less than **15.0mm.**

13. Inspection of Clutch Housing:

A. Inspect for any unusual damage and color change.

B. Replaced if the inside diameter exceeds**110.40nm.**

14. Inspection of Clutch Spring:

A. Inspect crack and damage from the appearance.

B. Replaced when the free length at curved hook is above **25.5mm.**

15. Inspection of CVT Spring:

Replaced if the free length of spring is less than **100mm.**

16. Inspection of Clutch Lining:

A. Check for oil stain, crack and unusual damage from the appearance.

B. Replaced if the thickness of lining is less than **2.0mm.**

17. Inspection and Cleaning of Air Cleaner:

A. Remove the two slided hooks on Air Cleaner Cover.

B. Remove Screw and Filter.

C. Check for any damage and foreign material in the air cleaner. Clean the inside of the air cleaner.

D. Clean the Filter with cleaning oil or diesel fuel.

E. Dry the Filter and soak in 10g of TGB Supper Oil **No. GA50400002.**

4-3-3 Assembly Sequence of Engine

I. Assemble the Bearing of LH Crankcase.
Assemble the Oil Seal of LH Crankcase.
Assemble the Bush.
Assemble the Bearing of RH Crankcase.
Assemble the Oil Seal of RH Crankcase.
Assemble the Crank Shaft.
Assemble the RH Crankcase.

2. ◎ Assemble the Oil Seal
◎ Assemble the Bearing.
Assemble the Rear Wheel Axle.
Assemble the Lining of Rear Brake.
Assemble the Rear Wheel.
◎ Assemble the Washer.
Assemble the Nut of Rear Wheel.

3. ◎ Assemble the RH Bearing of Rear Axle.
Assemble the Cir-clip of Rear Axle.
Assemble the Washer.
Assemble the Idling Shaft.
Assemble the Rear Axle Gear.
Assemble the Cir-clip of Rear Axle Gear.
◎ Assemble the Oil Seal of Drive Shaft.
◎ Assemble the LH Bearings of Drive Shaft.
Assemble the Drive Shaft.
Assemble the Cover of Gear Box.
Refill the Gear Oil.

4. Assemble the Needle Roller Bearing of Con-Rod.
Assemble the Piston Ring.
Assemble the Piston.
Assemble the Piston Pin.
Assemble the Cir-clip of Piston Pin.
5. Assemble the Cylinder.
Assemble the Cylinder Head.
Assemble the Cylinder Cowling.
Assemble the Spark Plug.
Assemble the Ignition Coil.

6. Assemble the Oil Pump Driven Gear.
Assemble the Oil Pump Assy.
7. Assemble the Reed Valve.
Assemble the In-take Pipe Assy.

4-3-3 Assembly Sequence of Engine

8. Assemble the Pinion Gear Assy.
   Assemble the Starting Gear.
   Assemble the Cap Set of Starter Idler Gear.
   Assemble the Starting Motor.

9. Assemble the Coil Assy.
   Assemble the Flywheel Magneto.
◎ Tighten the Nut of Flywheel Magneto.

10. Assemble the Fan Case.
   Assemble the Air Cleaner.
   Assemble the Cooling Fan.
   Assemble the Fan Cowling.
   Assemble the Muffler.

11. Assemble the Oil Seal of Movable Driven Face Comp.
   Assemble the O-Ring.
   Assemble the Ball Bearing of Fixed Driven Face Comp.
   Assemble the C Type Cir-clip.
   Assemble the Needle Roller Bearing.
   Assemble the Fixed Driven Face Comp.
   Assemble the Roller Pin.
   Assemble the Spring Sheet.
   Assemble the Spring.
   Assemble Clutch Assy.
◎ Tighten Nut of Driven Pulley Assy.
   Assemble the Driven Pulley Assy.
   Assemble the Clutch Housing.
   Assemble the Nut of Clutch Housing Comp.

12. Assemble the O-Ring of Movable Drive Face Comp.
   Assemble the Guide Block.
   Assemble the Roller Set.
   Assemble the Movable Drive Plate.
   Assemble the Cover
   Assemble the Spacer.
   Assemble the Movable Drive Face Comp.
◎ Aemble the Kick RH Starter.
   Assemble the Kick LH Starter.
   Assemble the Washer.
   Assemble the Spring Holder.

13. Assemble the Kick Starter Shaft Assy.
   Assemble the Spring.
   Assemble the Clutch Cover.
   Assemble the Kick Starter Lever Assy.

Remark:"◎"means that special tools are needed.

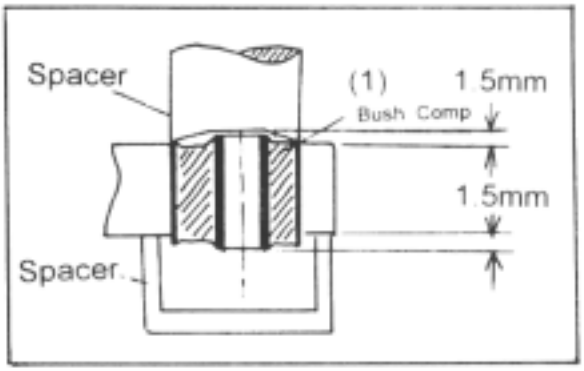
4-3-3 Assembly of Engine:

1.Assembly of Crank Case

A. Assemble the front Bush (1) of crank case with a vice.

◎The knurled side of Bush should face inwards when installing the buffer into the LH and RH crank cases.

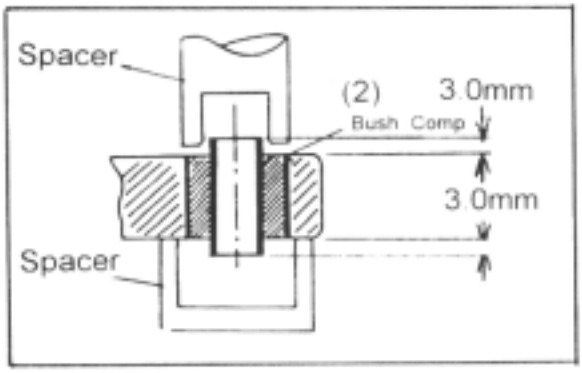
◎ Extrude **1.5mm** to both sides when installing the Bush into the lug of crank case.



B. Assemble the Bush (2) of rear shock absorber of left crank case with sleeve and vice.

◎ Extrude **3.0mm** to both sides when installing the bush into the rear lug of crank case.

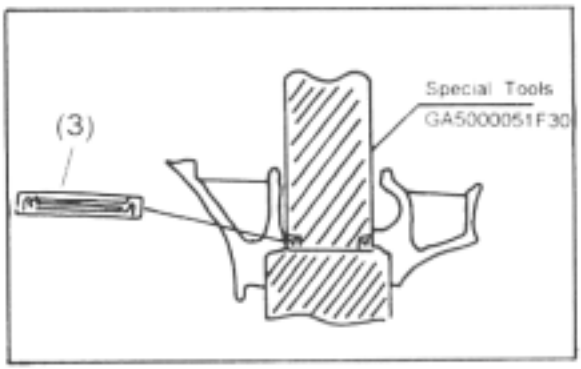
◎ The size of Spacer pressed into the Bush should be a little less the exterior diameter of outer ring of Bush. The Spacer must be pressed onto the outer ring, not the inner ring.



C. Apply a thin layer of grease GA50400005 onto the lip of oil seal of the right hand crank case and install the oil seal (3) with special tool.

Special Tool: GA5000051F30

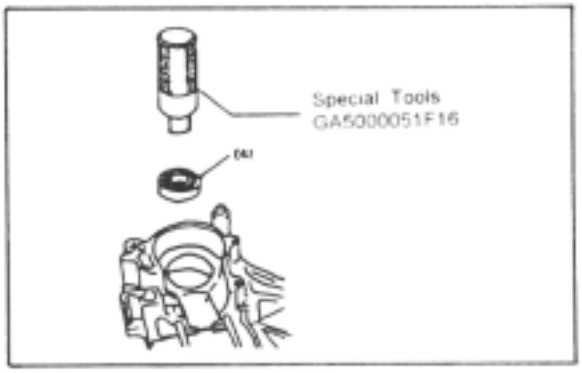
◎ Slanting of oil seal and damage to the lip when press fitted shall not be allowed.



D. Add about 0.3cc of engine oil (JASO FC)

(GA50400002) into the bearing(4) of right hand crank shaft and press the bearing into the right hand crank case with special tool.

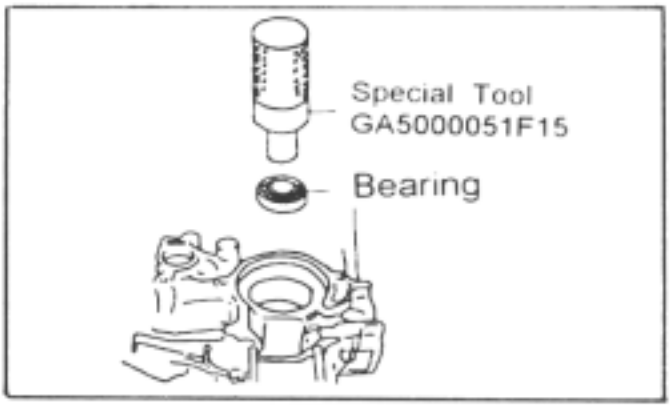
Special Tool: GA5000051F16



4-3-3 Assembly of Engine:

E. Apply a thin layer of grease GA50400005 onto the lip of oil seal of the left hand crank case and install the oil seal with special tool.
Special Tool: GA5000051F32
Slanting of oil seal and damage to the lip shall not be allowed.

F. Add about 0.3cc of engine oil **(GA50400002)** into the bearing(I) of left hand crank shaft and press the bearing into the left hand crank case with special tool.
Special Tool: GA5000051F15



G. Apply about 0.3cc of engine oil on the bigger end of Con-Rod of Crank Shaft, Draw the Crank Shaft(2) into the Right Hand Crankcase (3) with special tool.
Special Tool: GA5000051F08

◎ Avoid damage to the Lip of Oil Seal while drawing in. Knocking on the crank shaft is not allowed and dust and dirt into the crank chamber should be avoided.

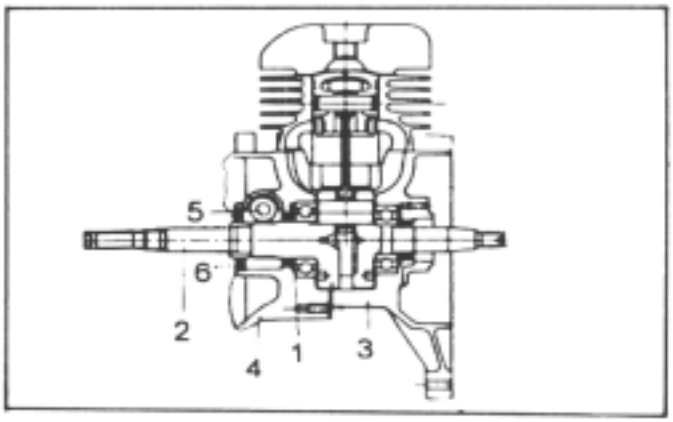
H. Apply seal agent **(GA50400001)** evenly to the contact surface of RH and LH crank cases.

◎ Do not apply too thick. Avoid entering of seal agent into joints and the crank chamber.

I. Install knock-pin.

J. Assemble RH crank case (3) and LH crank case(4).

◎ Avoid damage and overturning of the Lip of oil Seal.



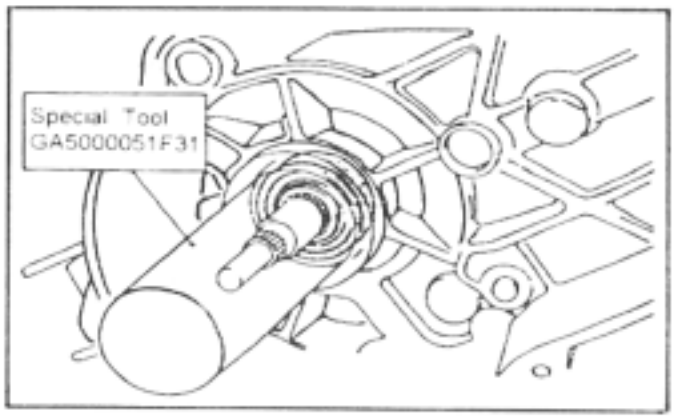
K. Tighten the crank case screw.
Screw Torque: 50~80 kg-cm

◎ Try to see if the operation of crank shaft is smooth.

L. Apply about 10cc of grease **(GA50400005)** onto the oil-pump driven gear's chamber of crank case.

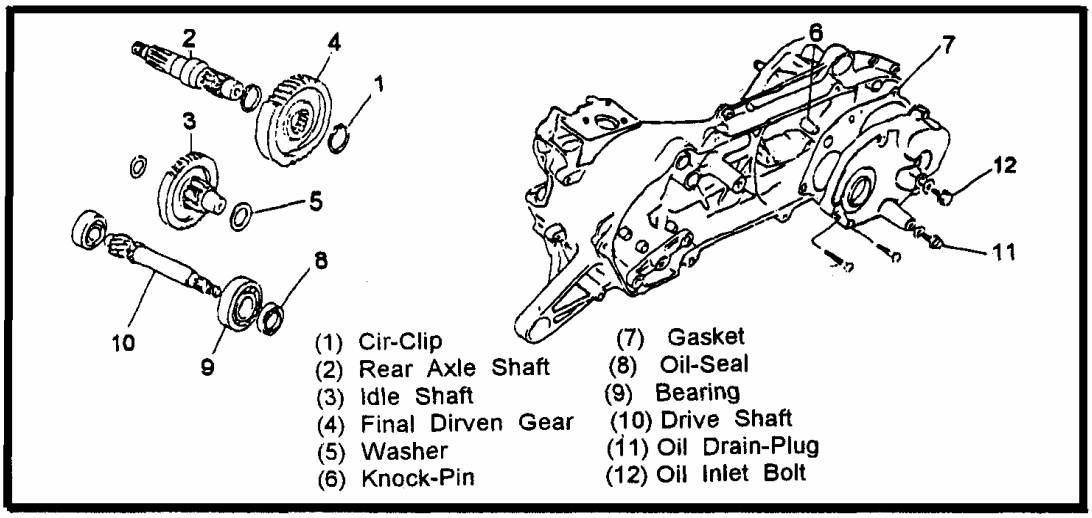
M. Insert the oil-pump driven gear(5).

N. Press in the oil seal (6)of oil-pump driven gear with special tool.
Special Tool: GA5000051F31



4-3-3 Assembly of Engine:

2.Assembly of Reducing Gear



A. Apply a little gear oil (GA50400004) on the right hand bearing of rear axle, and then evenly press into the reducing gear chamber. with fixture.
Special Tool: GA5000051F18.

B . Mount cir-clip (1) on the rear axle(2).

C. Install idle shaft washer(5).

D. Apply a little gear oil (GA50400004) on the bearing contact surface of idle shaft.

E. Install the final driven gear(4). Install cir-clip of rear axle.

F. Install idle shaft washer(5). Install idle shaft (3)

G. Assemble knock-pin(6) .

H. Install the gasket(7) of gear box cover.

I. Apply grease (GA50400005) on the lip of oil seal(8) of drive shaft and then press into the gear box cover with special tool.
Avoid damage to the lip of oil seal. Install horizontally and slanting is not allowed.
Special Tool: GA5000051F30

J. Press in the LH bearing (9)of drive shaft with special tool.
Special Tool: GA5000051F17

K. Press the drive shaft(10) evenly into the gear box cover. .

L. Install the gear box cover and lock the bolt in sequence by diagonal step.

M. Lock the drain bolt(11).
Screw Torque : 90 - 150 kg cm

◎ The drain hole for engine is located on the gear box cover or outside the crank case, for we have two designs.

N. Fill 90cc of TGB gear oil (GA50400004)

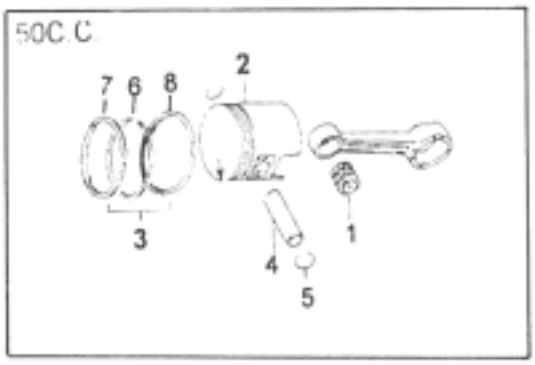
Q. Tighten the refilling bolt(12).
Screw Torque : 90 kg cm

◎ The refilling hole for engine is located on the gear box cover or outside the crank case, for we have two designs.

4-3-3 Assembly of Engine

3. Assembly of Piston

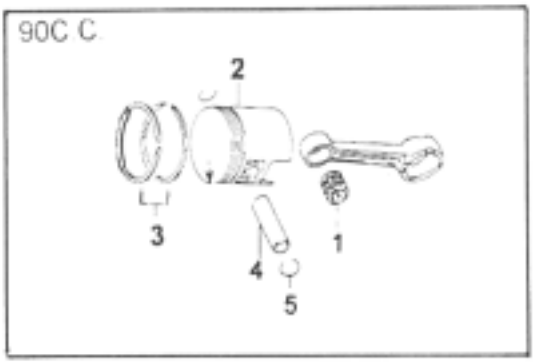
A. Apply TGB oil (GA50400002) on the needle roller bearing at the small end of con-rod.



B. Install the piston ring (3) on the piston (2). (FOR 50C.C.)

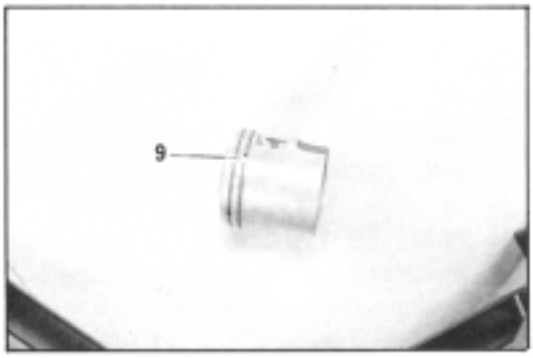
a. The 2nd ring (6) is engraved 2R mark which should face upwards while installing. Put the expansion ring (8) insert into the piston first, and then install the 2nd ring.

b. There is a cone surface on the 1st ring (7), place the engraved surface with R mark upwards while installing.



◎ The opening of piston ring should point to the knock-pin(9)of piston while installing.

◎ Do not put too much force while open to let the piston through, so that the piston ring will not be damaged.



※ For 90C.C. engine, there are two cone piston Rings without expansion ring.

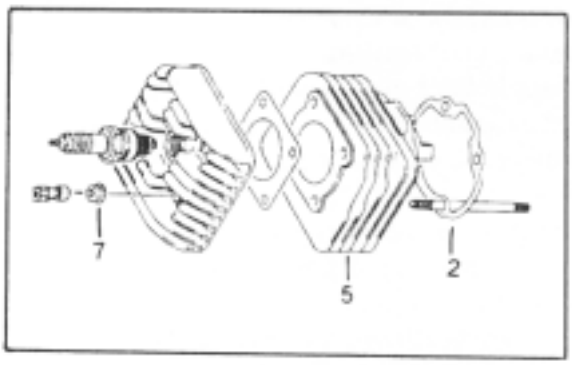
C. Install the cir-clip (5) of piston pin into the cir-clip groove of piston.

◎ The cir-clip has to be actually installed into the groove,or it will cause cylinder jam during operation.

4-3-3 Assembly of Engine:

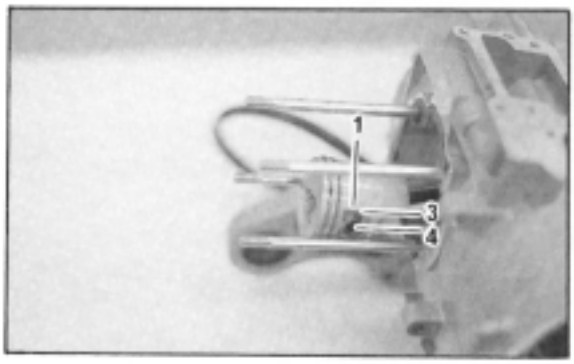
4. Assembly of Cylinder:

A. Apply a little TGB oil. (GA50400002) to piston pin (3) and then insert into the piston hole.



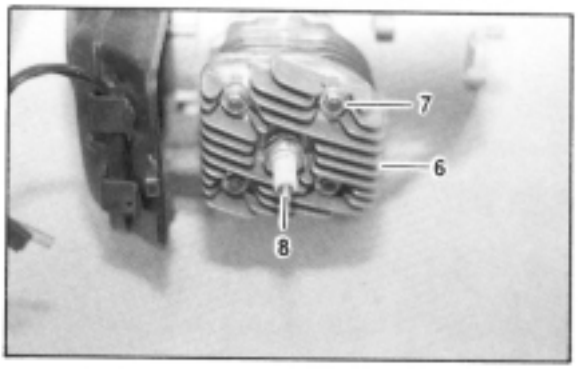
B. Install the cir-clip (4) of piston pin and make sure to rotate the opening of the circlip to be kept away from the concave area of the piston.

◎The cir-clip has to be actually installed to its position, or it will cause cylinder jam during operation.



C.Apply more than 3cc of TGB oil (GA50400002)evenly on the inside of the cylinder and the outside of the piston.

D.Install cylinder gasket (2).

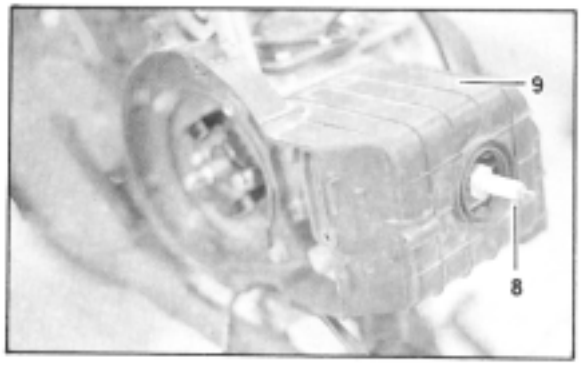


E.Install piston (1) into cylinder.
◎The arrow mark on the piston has to be install toward the exhaust port.

F. Install cylinder head gasket .

G. Install cylinder head (6).

H.Screw the flanged nut (7) of cylinder head by diagonal step.
Screw Torque: 120 130 kg · cm



I. Install the cylinder cowling (9).

J. Tighten the spark plug (8).
Screw Torque: 250 300 kg · cm

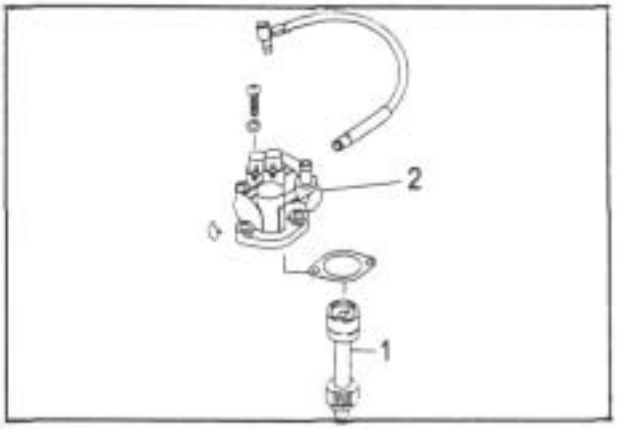
K.Point the extruded part of ignition coil to the groove of cylinder cowling and then tighten the screw.

4-3-3 Assembly of Engine:

5. Assembly of Oil-Pump:

A. Apply a layer of grease (GA50400005) on the sliding part and gear tooth of oil-pump driven gear (1) and then insert into the crank case.

B. Install the oil-pump (2).

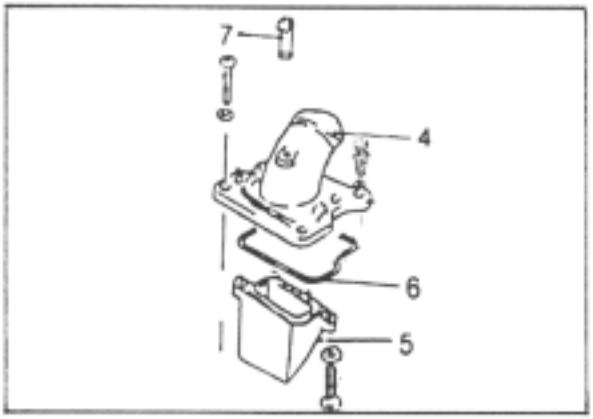


6. Assembly of Reed Valve:

A. Install the reed valve (5) on the in-take pipe.

B. Install the gasket (6) and the in-take pipe (4) into the crank case.

C. Screw the fender bracket (7) on the in-take pipe.

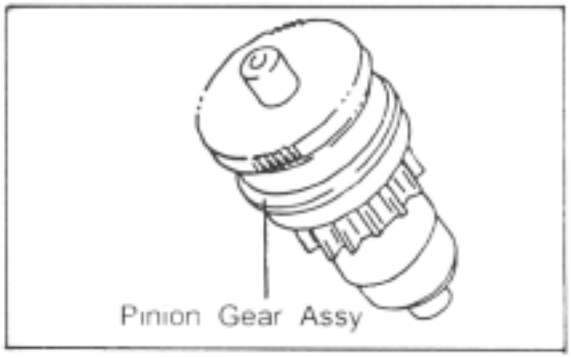


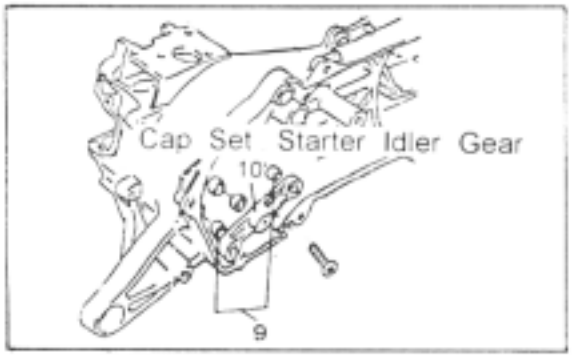
7. Assembly of Starter Motor:

A. Apply a thin layer of grease (GA50400004) on the shaft of pinion gear assy and then install into the crank case.

B. Install two knock-pins (9).

C. Install starter idle gear cap (10) and screw (3)

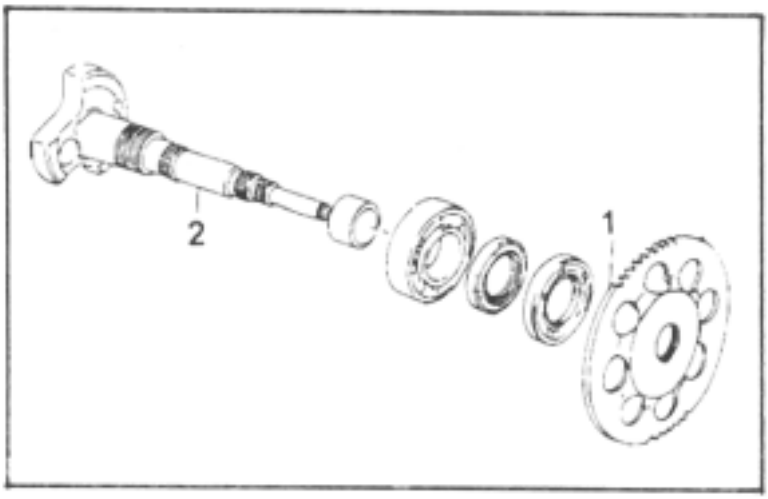




4-3-3 Assembly of Engine:

D. Install the starter gear(I) into the left hand crank shaft(2).

E. Install the starter motor and tight the bolt with cable clamp.



4-3-3 Assembly of Engine:

8. Assembly of Flywheel Magneto

A. Screw the coil.

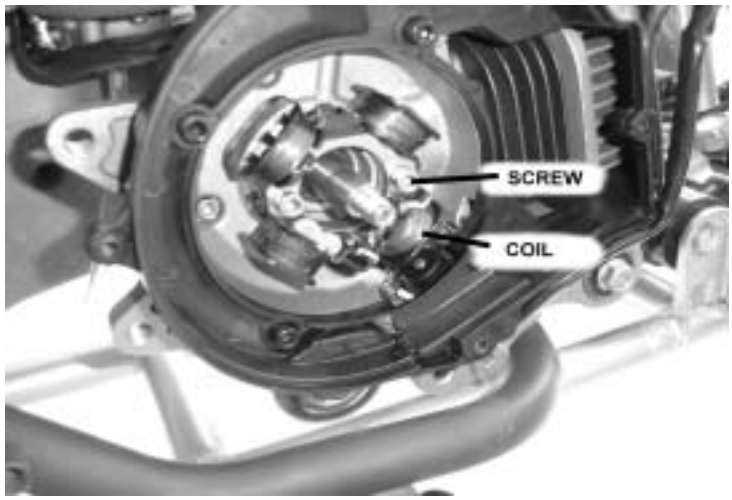
B. Let the coil lead go through
the opening of Crank Case.

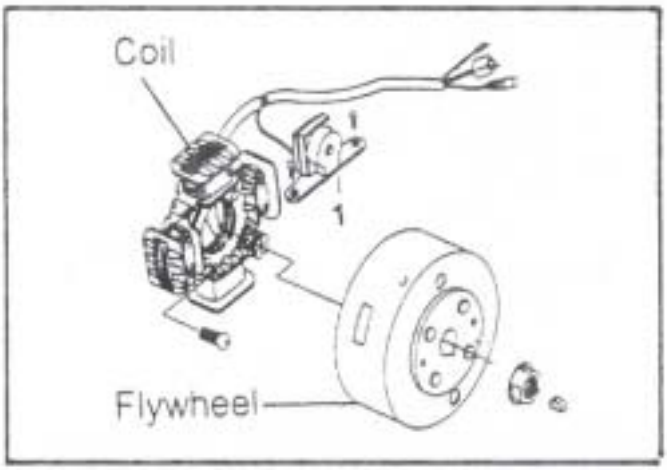
C. Clean the taper of crank shaft
and install the key .
Tap lightly to its position.

D. Install the flywheel magneto.
◎ Avoid the drop of key and make
sure to the position of the
flywheel magneto.

E. Use tool to avoid the turning
of flywheel magneto.
Special Tool: GA5000051F04
Screw Torque:350~450 kg.cm

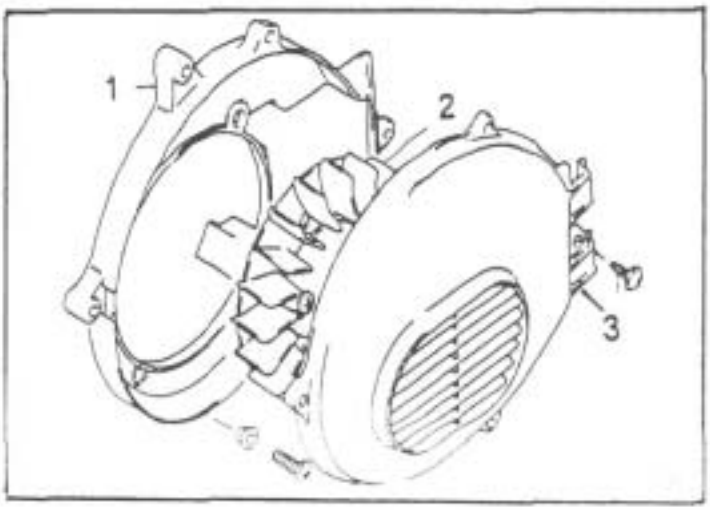
F. Install pick-up (1)





4-3-3 Assembly of Engine:

9. Assembly of Cooling Fan:



A. Install fan case(1) .

◎ The lead has to go through the groove of right hand crank case and damage should be avoided.

B. Install cooling fan(2).

C. Install fan cowling(3) .

◎ The starter motor and flywheel magneto lead (4) have to be installed into the lead groove, as shown.

4-3-3 Assembly of Engine :

10. Assembly of Movable Driven Pulley Assy :

A. Install the ball bearing(I) into the fixed driven face comp(2).

◎ The outer diameter of bearing press fitted with the hole of face comp.
Pay attention to press to the outer ring by special tool.

B. Install C-type cir-clip(3).

C. Install the needle roller bearing(4) .

D. Apply grease (GA50400003) on the lip of oil seal (5) and press in the movable driven face comp (6), one for top and bottom each.

E. Install the fixed driven face comp(2).into the movable driven face comp(6).
◎ Avoid damage to the lip of oil seal.

F. Install three roller guide pins(7).

G. Install two O-rings (8) .

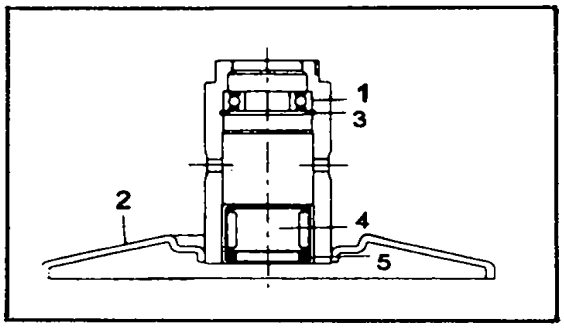
H. Apply about 5g of grease (GA50400005) to the groove of the Cam.

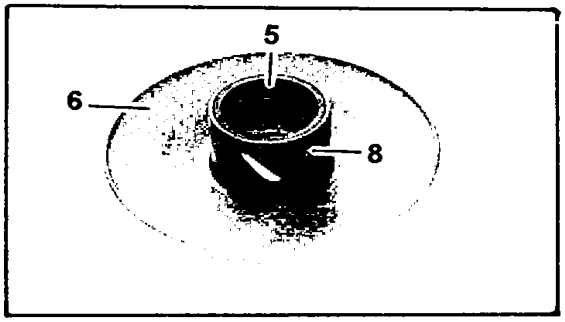
I. Apply a little grease (GA50400005) to the inside of spring sheet and manually push the spring sheet in lightly.

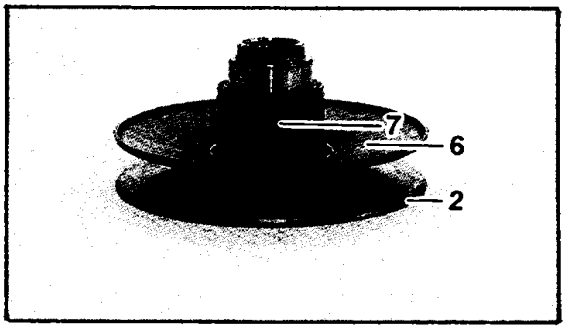
J. Install the spring .

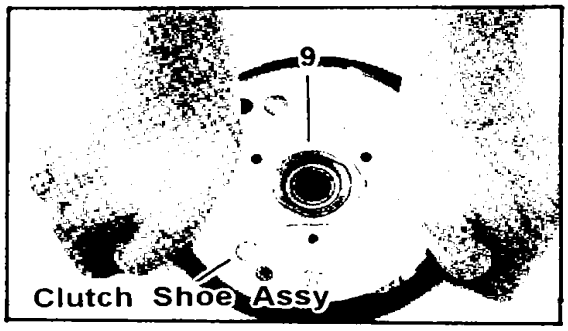
K Press the clutch shoe assy with both hands, and then screwing the nut (9) with one hand still pressing the clutch shoe assy .

L .Use tool to tighten the nut of clutch shoe assy.
Screw Torque: **400~600 kg . cm**
Special Tool: GA5000051F04







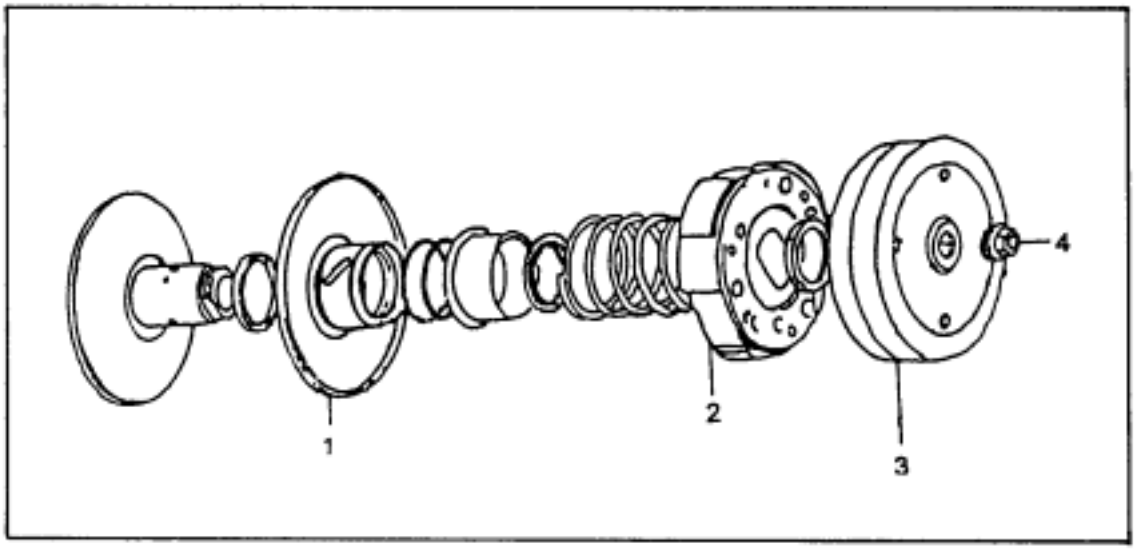


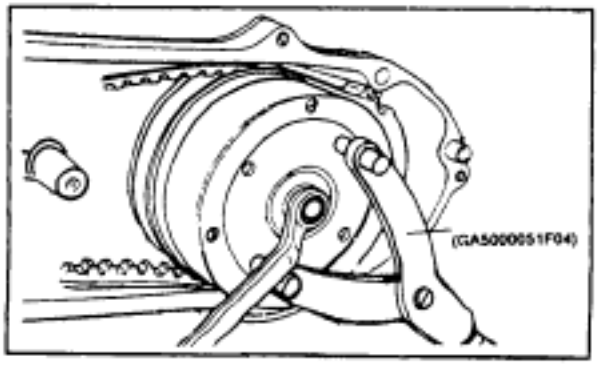
4-3-3 Assembly of Engine:
(Assembly of Movable Driven Pulley Assy)

M. Move the movable driven face (1) of movable driven pulley assy towards the clutch (2) by hand. Install V-belt and then install to the drive shaft.
◎Wipe cleanly the grease on belt surface and the pulley surface.

N. Install the clutch housing(3).
◎ Remove all grease inside the clutch housing and lining surface.

O. Screw the nut (4) of clutch housing with tool to stop turning or use pneumatic wrench.
screw Torque:400~600 kg . cm
special Tool: GA5000051F04

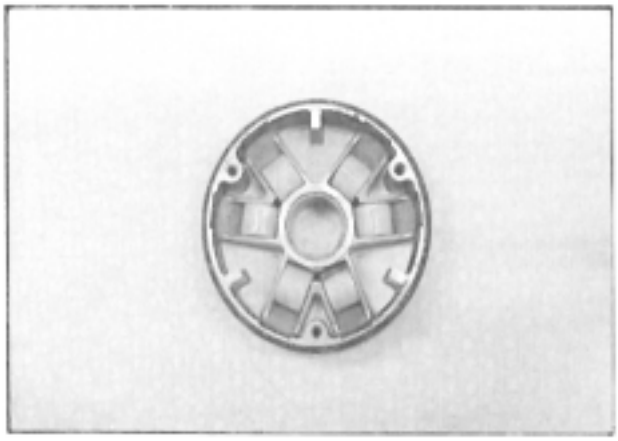




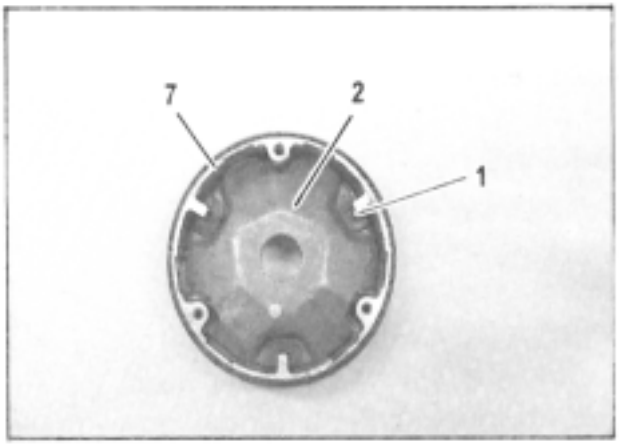
4-3-3 Assembly of Engine:

11. Assembly of Drive Pulley Assy

A. Apply about 3 ~ 4g of grease (GA50400008) to the roller groove of drive pulley and then install the roller assy into the groove.



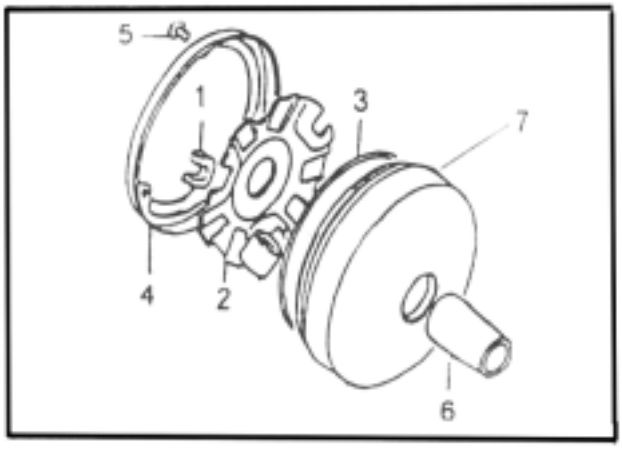
B. Inlay the guide block (1) into the movable drive plate(2) and then install the movable drive plate(2) into the movable drive face comp(7) .



C. Install the O-ring (3) and the cover (4).

D. Tighten the screw (5).
◎ Press the movable drive plate all the time while installing, or the roller will turn to stand up and requiring re-adjustment .

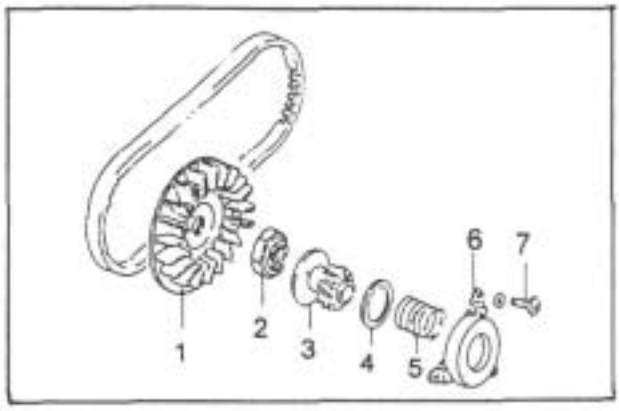
E. Apply a thin layer of grease (GA50400008) to the hole of movable drive face comp and then inserted by the spacer (6).



4-3-3 Assembly of Engine:
(Assembly of Movable Driven Pulley Assy)

F. Clean the grease on the surface of drive pulley and then install into the left hand crank shaft.

◎Press the movable drive plate with fingers all the time while installing, or the roller will stand up.



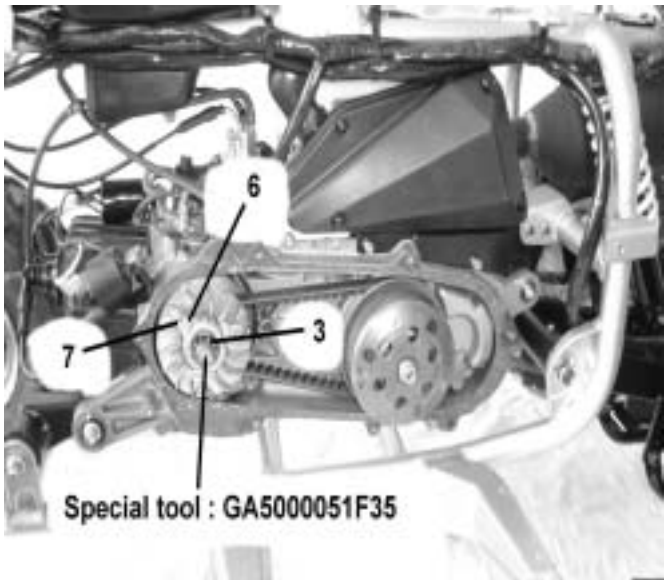
G. Install the fixed drive face(1).

H. Tighten the right hand starter(2).

screw Torque:400~600 kg. cm

*** WARNING ***

Special deep socket sleeve should be adopted while screwing.



*** WARNING ***

This component is left hand threaded, thus turning counterclockwise to screw will be necessary when assemble. Use general sleeve or trying too hard to tighten will cause damage to the thread of left hand crank shaft which will cause to the replacement of crank shaft assy.

special Tool: GA5000051F36

I . Install the left hand starter (3) .

J . Install the washer(4) .

K. Install the spring (5).

L. Install the spring holder(6).

M. Tighten the screw(7).

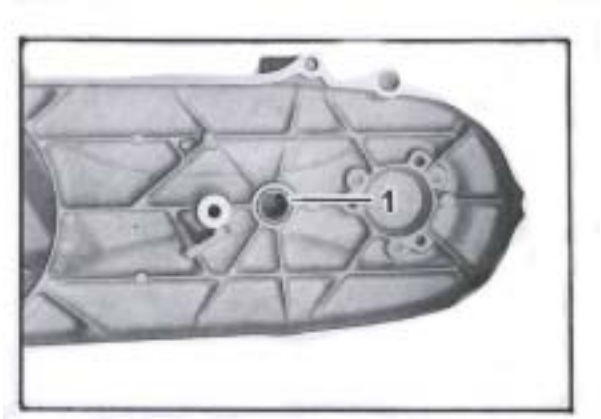
N. Rotate the fixed drive face lightly to ensure a smooth joint for V-belt.

4.3.3 Assembly of Engine:

12. Assembly Kick starter Lever Assy.

A. Apply a layer of grease(GA50400005) inside the bush(1) and then press into the clutch cover.

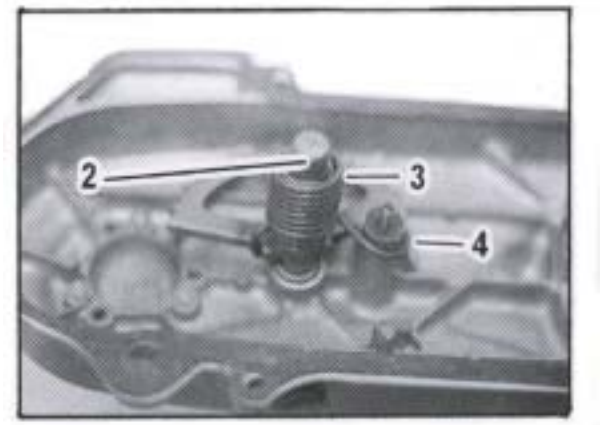
B. Apply a thin layer of grease(GA50400005) to the kick starter shaft(2) and then install the spring (3).



C. Hook the claw of spring to the hook (4) of clutch cover.

D. Install two knock-pins.

E. Install gasket and washer of clutch cover.



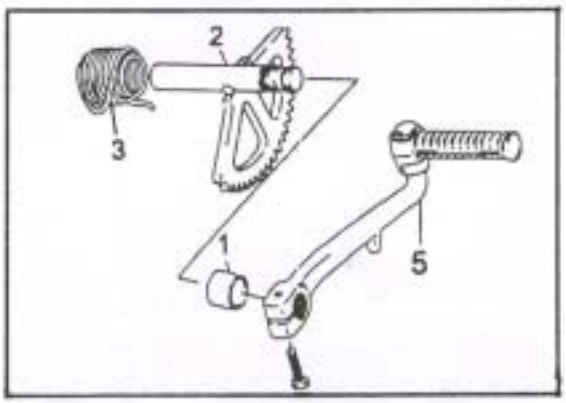
◎ The gasket and washer are made into two sizes: **0.5mm** and **1.5mm** thick-Choose according to the original thickness.

F. Install the clutch cover and screw the mounting screw by diagonal step.

G. Install the kick starter lever (5) and screw the bolt .

screw Torque: 80~120 kg . cm

◎ The kick starter lever and the horizontal line of clutch cover should form an angle of 15 degrees downward.



4.3.3 Assembly of Engine:

13. Assembly of Muffler

A. Install the muffler ,Put on the bolt and nut first.

B. Screw the bracket bolt of Exhaust pipe.

screw Torque: 80~120 kg.cm

C. Tighten the bolt with the bracket of frame

screw Torque: 300~400 kg . cm

4-4 REMOVAL AND ASSEMBLY OF CARBURETOR :

Removal of Carburetor :

I. Removal of Carburetor :

A. Remove the right hand side cover.

B. Remove the air cleaner.

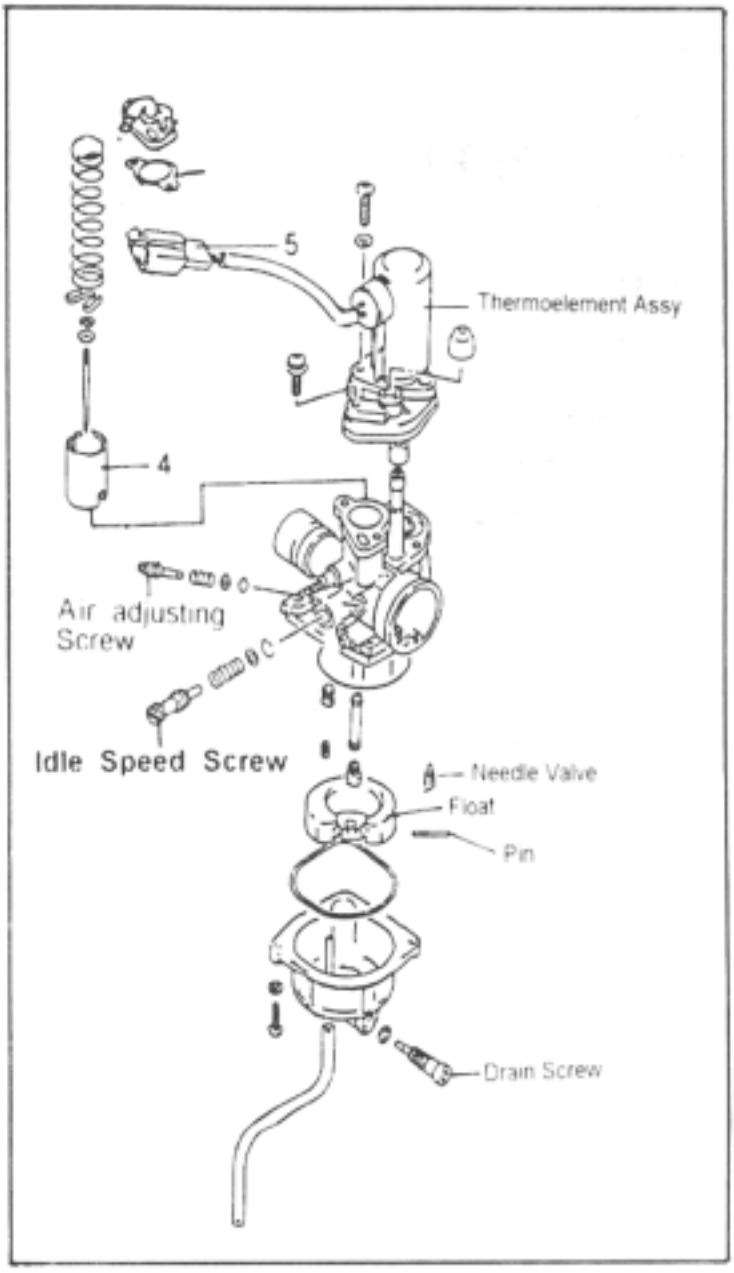
C. Remove the fuel-hose (I).

D. Remove the negative pressure hose (2).

E. Remove the carburetor cap(3) and piston valve(4).

F. Remove the auto-choke terminal (5) .

H. Remove the carburetor.



4-4 REMOVAL AND ASSEMBLY OF CARBURETOR:
Inspection and Assembly of Carburetor

2. Inspection of Carburetor:

A. Inspect and clean the jets and airway of the carburetor. Cleaning by compressed air.

B. Check if the float operates normally to its position.

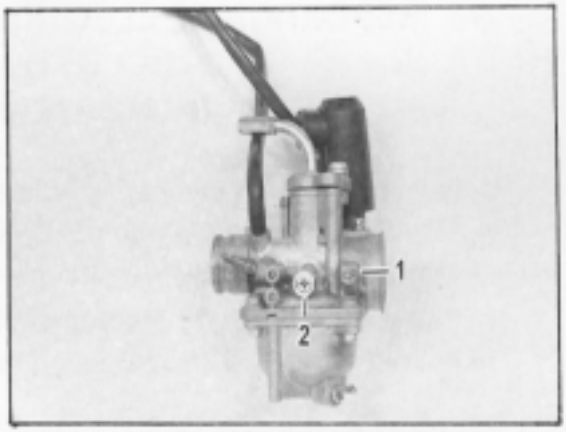
C. It is forbidden to use metal to remove dirt appearing on the surface, or it will cause damage to the surface. Blow the dirt off by compressed air. Replace it if necessary .

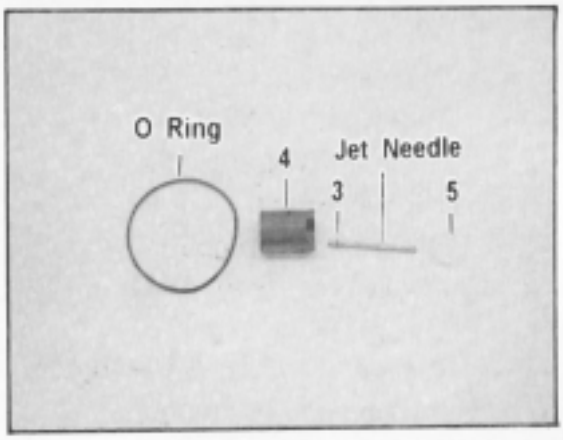
D. Idle Setting With An Air-Adjusting Screw

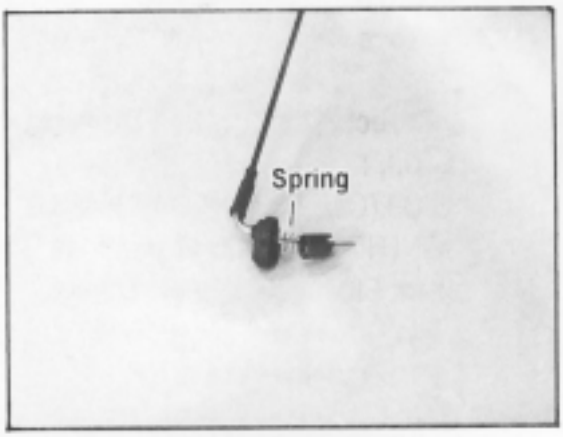
Check that the throttle cable has about 1mm free play when the position valve (4) is fully closed. Always adjust the idle setting with the engine fully warm.

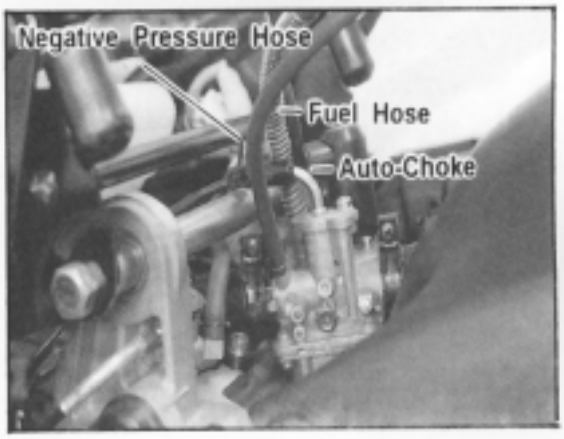
Screw in the idle-speed screw (2) to obtain a slightly-higher idling speed than normal ; then adjust the air-adjusting screw (1) to obtain the most even running.

Then unscrew the idle-speed screw again until you obtain the normal idling speed. Finally, to obtain the best engine running, it is worth rechecking by very carefully readjusting the air-adjusting screw.









3. Assembly of Carburetor :

A. Install o-ring, washer and spring.

B. Install the idle speed screw (2)and spring .

C. Install the auto-choke.

D. Place the needle clip(3) at the 3rd groove of jet needle. Put into the piston valve (4) with clamp (5), and press into their positions.

E. Install the throttle cable and spring.

F. Install the piston valve into the carburetor according to the position of groove and fix the cap.

G. Install the carburetor into the engine.

H. Connect the negative pressure hose and fuel-hose.

I. Insert the terminal of auto- choke to the cable connector.

4-5 INSPECTION OF ELECTRIC ITEMS

◎ Notice for Inspection and Arrangement of Electric Components:

A. Use pocket tester for inspection and testing of electric parts.
B. The battery for Testing should be of full charging.
C. The setting of the position of Tester Range has to be performed accurately.
D. **The value of electric testing will vary in accordance with the Tester and the temperature, thus it should be an estimate value only.**

4-5-l Removal and Inspection of Ignition and Charging System

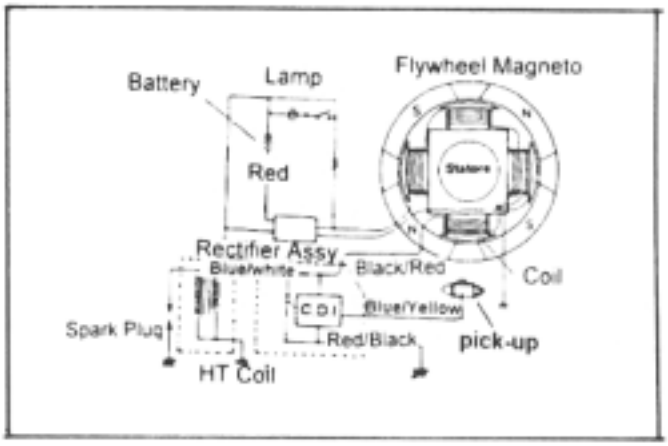
1. Ignition and Charging Circuit:

A. Figure 1 Circuit Description:

With regard to the generation of the flywheel magneto :

a. CDI and HTcoil (ignition coil) are adopted to control the ignition and angle for high voltage parts :

b. Regulating rectifier is adopted to supply and control lamp and charging voltage for low voltage parts.

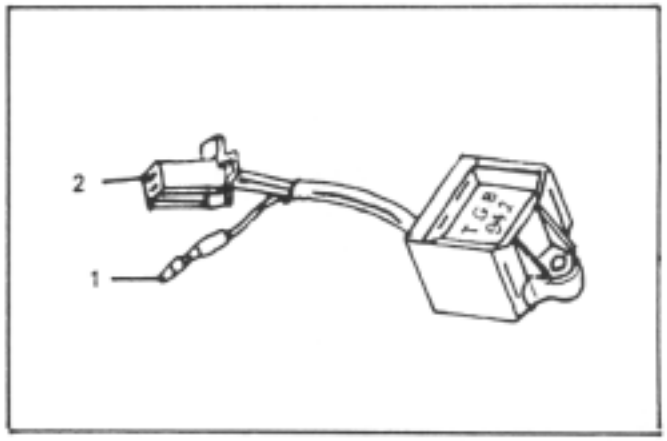


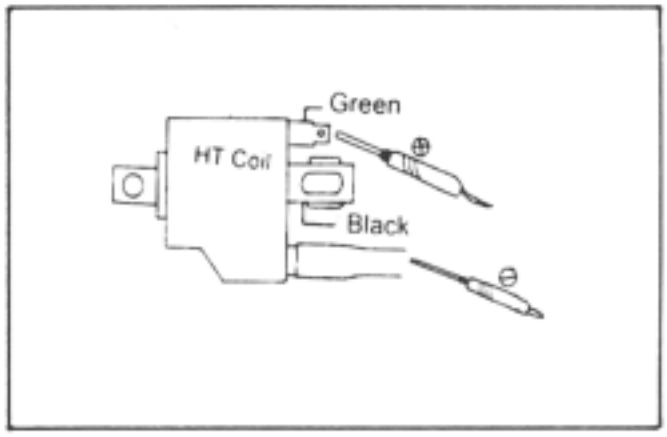
B. Inspection of Ignition Coil and C.D.I. :

a. C.D.I.(CAPACITOR DISCHARGE IGNITION) bullet type terminal(1) is for Flywheel Magneto's input, red/black Wire is for ground and white/blue Wire is for output at terminal(2). Ignition angle's standard is **15°/4000 RPM**

Ignition coil (Fig. 3) testing range **X 1 KΩ**

Use electric tester to check resistance value (Fig.3),must fit to **" 8KΩ±10%"**

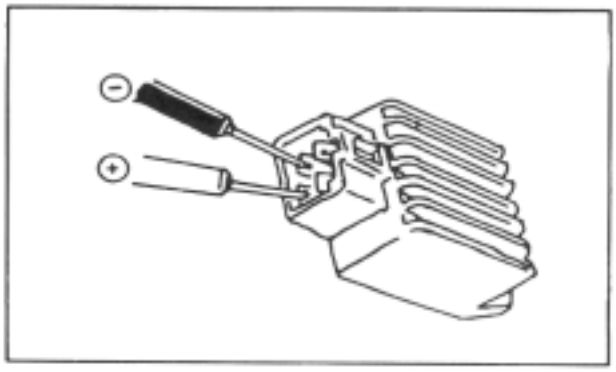




4-5-1 Removal and Inspection of Ignition and Charging System

C. Inspection of Rectifier

a. Testing Range - X 1 KΩ
b. Terminals shall not connect with the rectifier surface.
c. Check the electric resistance value between each wire.

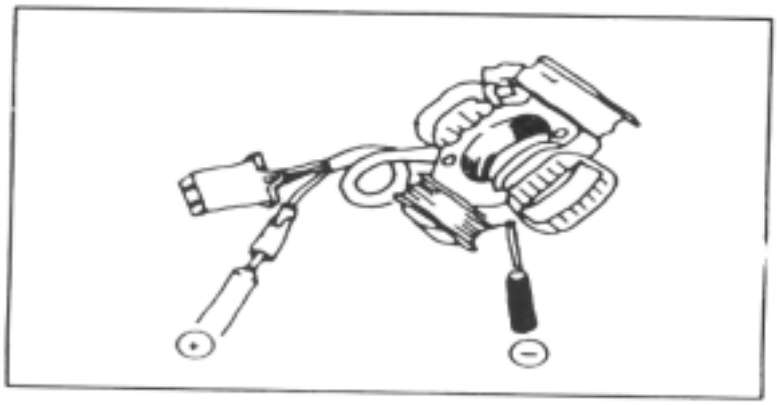


Electric Resistance of Rectifier				
Red / Black	White/Red	Yellow/White	Red	Black/White
White/Red		∞	∞	∞
Yellow/White	∞		∞	5~100K
Red	∞	∞		
Black/White	∞	5~100K	∞	

D. Inspection of Coil Assy.

a. Test the electric resistance value between each wire.
b. Testing Range - X I KΩ

Electric Resistance of Coil Assy			
Tester Connect to Wire		Electric Resistance	
Red ⊗	Black		
Yellow/White	Ground	Lamp	0.76Ω±20%
White/Red	Ground	Charge	0.97Ω±20%
Black/Red	Ground	High Voltage	224Ω±20%



4-5-1 Removal and Inspection of Ignition and Charging System

E. Inspection of the Spark Plug

a. Remove the spark plug cap.

b. Remove the spark plug.

c. Check for any dirt and damage of electrode with eyes.

d. Clean with special tool or wire brush if it is dirty.

e. Replace spark plug if complete recovery is impossible.

f. The gap between electrode and ground electrode should be correctly adjusted and kept between

0.6~0.7mm（for 50C.C.）

0. 9~1.0mm（for 90C.C.）

F. Assembly of the Spark Plug

a. assemble the spark plug

Torque : 250~300kg.cm

b. assembl the cap of spark plug.

4-5-2 Removal and Inspection of Starter Mechanism

A. Circuit of Starter Mechanism:

a. Circuit Description:

Ignition Switch ON → Brake Switch ON → Starter Relay → Starter Switch ON → Starter Motor started.

B. Inspection of Starter Relay:

a. Test the Ohmic value between each terminal of the coil. (see Figure 2)

b. Set up the range as x10Ω.

c. The value of electric resistance of the starter relay must be 50 70 Ω, replace when value out of this range.

C. Connect the coil end with 12V

Power supply (as Figure 2), a beep sound means they are connected.

D. Inspection of Starter Motor:

a. Inspect wearness and roughness of contact surface on carbon brush (1).

b. Inspect the surface wearness and burning of the commutator (2).

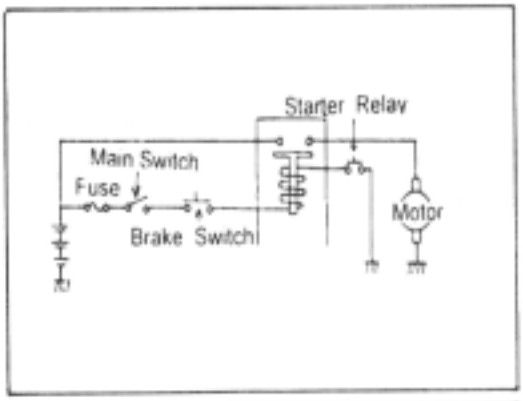
c. Measure the outside diameter of the Commutator (2).

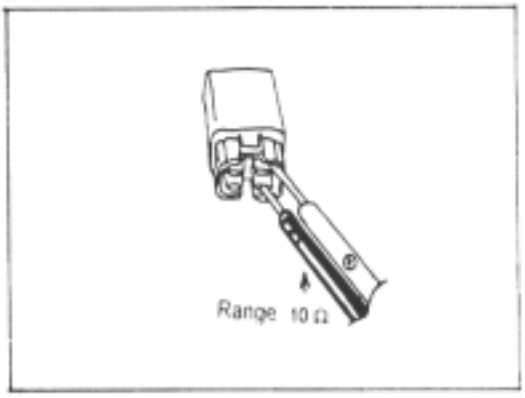
d. The commutator and the armature core (3) or shaft (4) should not be passed through between.

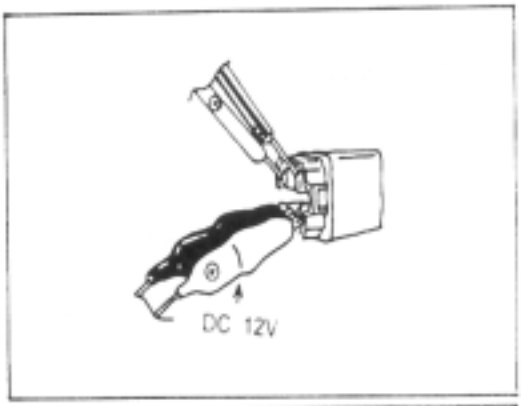
e. Each segment and the commutator should be passed through.

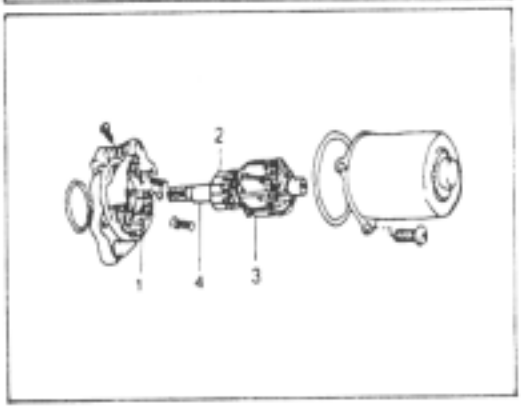
f. The standard length of carbon brush should be 5.5mm. Replace if it is under 3.0mm.

g.The standard outside diameter of commutator should be16mm. Replace if it is under 15.5mm.









4-5-3 Removal and Inspection of Fuel tank

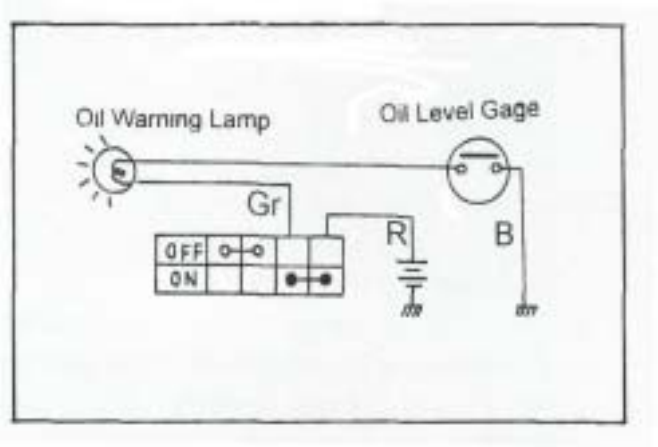
A. Inspection of Fuel tank：Take off the cover and Check whether the tank is in leankage or not? If it does, change the fuel tank.

B. Removal the fuel tank: dis-assemble the front steering system, then it can take out the fuel tank. Otherwise, it can not take off the fuel tank.

4-5-4 Removal and Inspection of Oil Warning Indicator

A. Inspection of Oil Warning indicator:

a. When the ignition switch is at the position of " **.** " between "**on**" and "**off** ", the oil warning indicator must be lit .



b. When the "**start** " button is pressed, the oil warning indicator must be lit also.

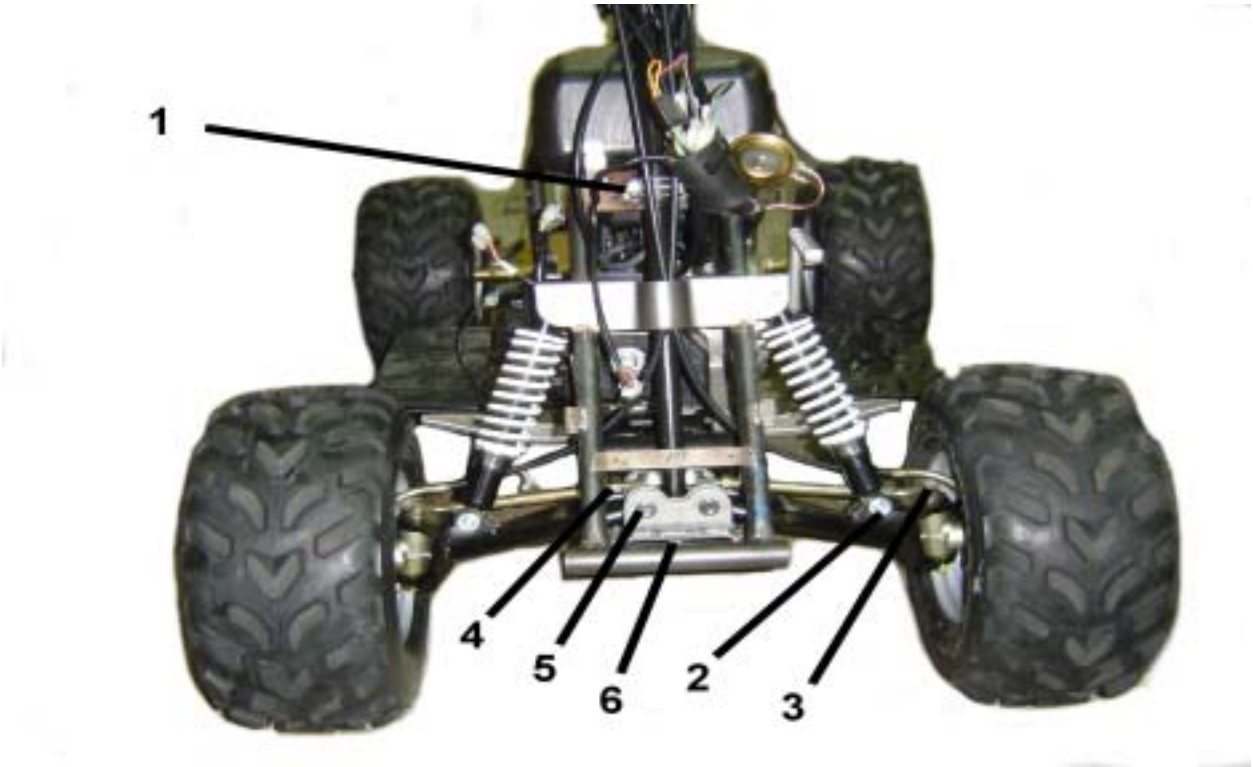
c. The indicator must be lit when the gray and brown wires are connected ; Disengage the connector of oil level gage (Figure), The indicator must be off.

4-6 REMOVAL AND INSPECTION AND ASSEMBLY OF BODY PARTS

4-6-1Removal and Inspection and assembly of Steering Shaft Assy.

4-6-1.1 Removal of Steering shaft Assy.

A. Lift the Front Wheel
B. Remove the upper and lower brake cable and throttle cable in the right handle bar.
C. Remove the rear brake cable in the left handle bar.
D. Remove the handle bar.
E. Release the the housing nut.（1）
F. Remove the shock absorber.（2）
G. Remove the front wheel.
H. Remove the brake drum.
I. Remove the turning linkage bar（3）
J. Remove the turning joint.（4）
J. Remove the A Arm control Linkage Assy.（5）
K. Remove the steering stem lock nut.（6）



4-6-1 Removal and Inspection and assembly of steering shaft assy.

4-6-1.2 Inspection of Steering shaft Assy.:

A. Check for any unusual wear of the sliding spacer.
B. Check for any damage in the welding part.
C. Check for any unusual wear of tube.
D. Check for any unusual wear of brake con-rod bush.
E. Check for any unusual wear of spacer.
F. Check for any damage to the oil seal lip of cover and if the grease inside is dried up or lost.
G. Check for any unusual wear of the spacer of brake lining bracket.
H. Check if the shock absorber spring is decayed or leaking oil and check for any unusual wear of between the upper and lower connecting seats.
I. Check for any unusual wear of the steering race.

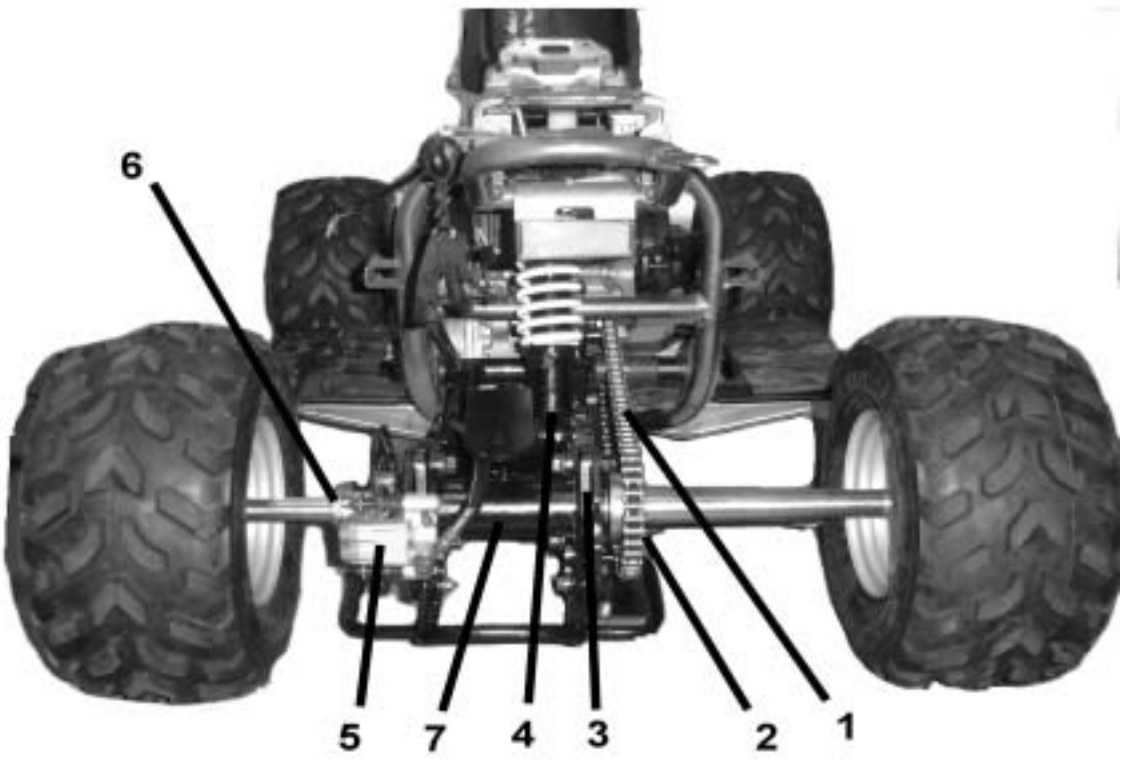
4-6-1.3 Assembly of Steering shaft Assy.:

A. Assemble the steering shaft with the frame
Nut torque: 800~900kg.cm
B. Assemble the A-Arm control linkage assy.
Nut torque: 450~550kg.cme in the welding part.
C. Assemble the turning joint.
Nut torque: 250~350kg.cm
D. Assemble the turning linkage bar
Nut torgue: 250kg.cm
E. Assemble the Brake drum.
F. Assemble the front wheel.
G. Assemble the Shock absorber.
Nut torque: 450~550kg.cm
H. Assemble the Steering shaft housing.
Nut torque: 200~250kg.cm
I. Assemble the handle bar.
Bolt torque: 100~200kg.cm
J. Assemble the front and rear brake cable.

4-6-2 REMOVAL AND INSPECTION AND ASSEMBLY OF REAR AXLE

4-6-2.1 Removal of Rear Axle

A. Lift the Rear Wheel
B. Remove the rear brake cable in the left handle bar.
C. Remove the left handle bar.
D. Remove the chain from the engine case.（1）
E. Release the chain gear.（2）
F. Remove the rear axle bracket.（3）
G. Remove the shock absorber.（4）
H. Remove the brake disc.（5）
I. Release the axle nut.（6）
J. Remove the rear swing assy.（7）
K. Remove the Housing of Rear Axle.



4-6-2 Removal and Inspection and Assembly of Rear Axle

4-6-2.2 Inspection of Rear Axle:

A. Check for any unusual wear of the sliding spacer.
B. Check for any damage in the welding part.
C. Check for any unusual wear of tube.
D. Check for any unusual wear of brake disc.
E. Check for any unusual wear of spacer.
F. Check for any damage to the oil seal lip of cover and if the grease inside is dried up or lost.
G. Check for any unusual wear of the spacer of brake lining bracket.
H. Check for any unusual wear of the Swing arm.
I. Check if the shock absorber spring is decayed or leaking oil and check for any unusual wear of between the upper and lower connecting seats.

4-6-2.3 Assembly of Rear Axle:

A. Assemble the housing of rear axle
Nut torque: 600~800kg.cm
B. Assemble the rear swing assy.
Nut torque: 250kg.cm.
C. Assemble the rear axle
Nut torque: 800 & 950kg.cm
D. Assemble the brake disc
Nut torgue: 250kg.cm
E. Assemble the caliper.
Bolt torque: 200~250kg.cm
F. Assemble the shock absorber.
Bolt torque:450~550kg.cm
G. Assemble the rear axle bracket.
Nut torque: 450~550kg.cm
H. Assemble the chain gear.
Nut torque: 200~250kg.cm
I. Assemble the chain.
J. Assemble the rear brake cable.
Bolt torque:80~120kg.cm
K. Assemble the rear wheel.

4-6-3 REMOVAL AND INSPECTION AND ASSEMBLY OF BRAKE WHEEL

4-6-3.1 Removal of Front and Rear Wheel

A. Remove the Pin.
B. Release the Fixed Nut and Self-lock Nut.
C. Remove the Wheel.
D. Remove the Front Brake drum.
E. Remove the Rear Brake disc.

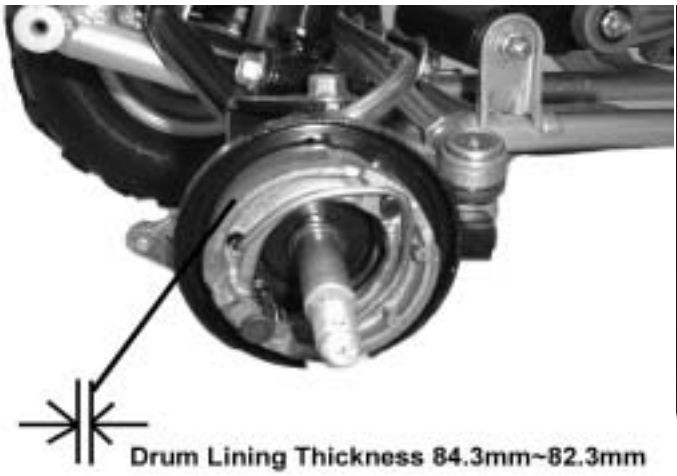
4-6-3-2 Inspection of Brake Parts:(FOR Front and Rear Brake)

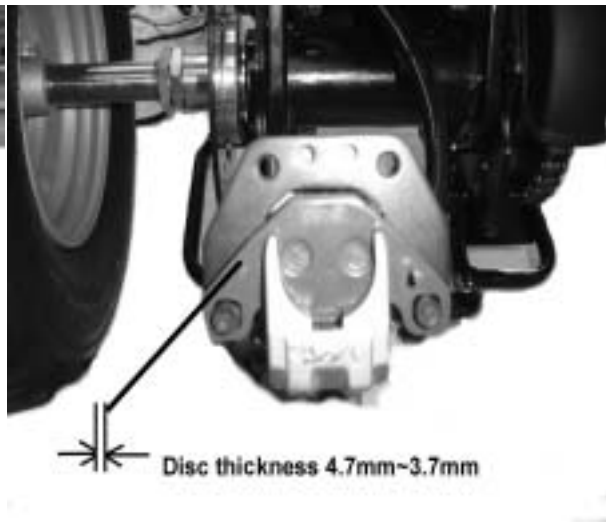
A. Inspection of Brake Drum:
  a. Testing the inner diameter of brake.
  b. Check for any unusual wear mark on the drum.

Inner Diameter of Brake Drum
Standard 85mm. Replaced over Limit 85.6mm

B. Inspection of Brake and Disc Lining :
  a. Measure the outside diameter perpendicular to the brake cam and anchor-pin on the brake lining.
  ◎Confirm if the assembly of the brake lining is correct and if the brake cam completely returns to the original place.
  b. Check for any crack or damage on each part.
  c. Check for any grease stain on the lining.

Dimension of Brake Lining (mm)
Standard 84.3mm. Replaced over Limit 82.3mm.
Dimension of Disc Lining (mm)
Standard 4.7mm. Replaced over Limit 3.7mm.





4-6-3 Removal and Inspection and Assembly of Brake and wheel

4-6-3.3 Assembly of Brake and wheel

A. Assemble the Brake drum and disc.

B. Assemble the wheel.

C. Assemble the Slf-lock nut.

Nut torque: 400~450kg.cm

D. Assemble the Fixed nut.

Nut torque: 500~550kg.cm

E. Install the new Pin in each assembly.

F. Check the pressure of tire if it is in the normal 4.0 PSI. If not, please inflat the tire until the pressure is in the normal.

UNPACK & ASSEMBLE ATV

Remark： ATV was fixed and packaged by a iron box due to shipment.
After unpacking the box, it can be found that several parts were dis-assembled, including with wheel, battery, handle bar and caliper. Please follow the steps to assemble ATV.

Step 1：Dis-assemble the upper and front and rear screws between ATV with iron box. Take out the iron box. Be careful that iron box is sharp and could be injured.

Step 2：Assemble the wheel according to page 85.

Step 3：Assemble the handle bar.

（a） Insert the handle bar into the groove and make sure that the handle bar is in the center position.

（b） Check the rotating angle of handle bar. There is a small circle mark on the handle bar for reference. The circle should be parallel with the hole of fixed board.

（c） Lock 4 screws and torque is 150-200 kg-cm.（shown in Fig 1）

Step 4：Assemble the caliper.

（a） Unlock the screws of caliper and connect the caliper with handle bar.

（b） Check the angle of brake lever. The angle should be same as right side lever.

（c） Check the distance of brake lever with handle bar.（shown in Fig 2）. When the lever close to handle bar, the ends of lever should not be over the ends of grip. And, the distance is 3-5mm.

（d） Lock 2 screws of caliper and torque is 150-200kg-cm.（shown in Fig 3）

Step 5：Assemble the battery.

Fig. 1	Fig. 2	Fig. 3