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SERVICE MANUAL

Fiddle II 50



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This service manual contains the technical data of each component inspection and repair for the SYM series motorcycle. The manual is shown with illustrations and focused on 「 Service Procedures 」, 「 Operation Key Points 」, and 「 Inspection Adjustment 」 so that provides technician with service guidelines.

If the style and construction of the motorcycle are different from that of the photos, pictures shown in this manual, the actual vehicle shall prevail. Specifications are subject to change without notice.

This manual that contains all data, illustration, indication and specifications is based on current production information. SYM reserves the right to make changes at any time without notice and without incurring any obligation whatever. No part of this manual can be duplicated by any means without written permission of SANYANG.

**SERVICE DEPARTMENT
SAN YANG INDUSTRY CO., LTD.**

This service manual describes basic information of different system parts and system inspection & service for SYM series motorcycles. In addition, please refer to the manual contents in detailed for the model you serviced in inspection and adjustment.

The first chapter covers general information and trouble diagnosis.

The second chapter covers service maintenance.

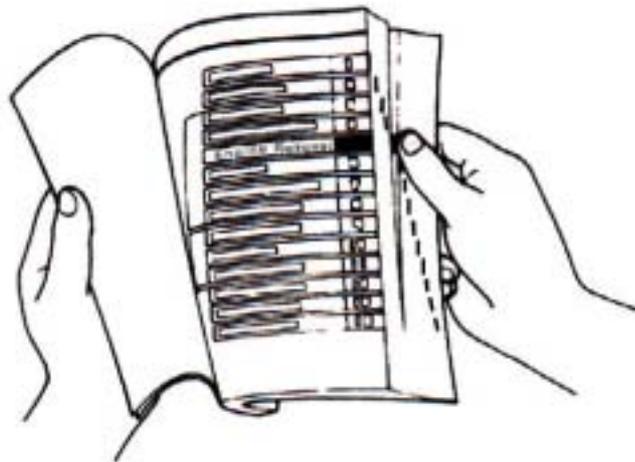
The third to the eleventh chapters cover engine and driving systems.

The twelfth to fifteenth chapters are contained the parts set of assembly body.

The sixteenth chapter is electrical equipment.

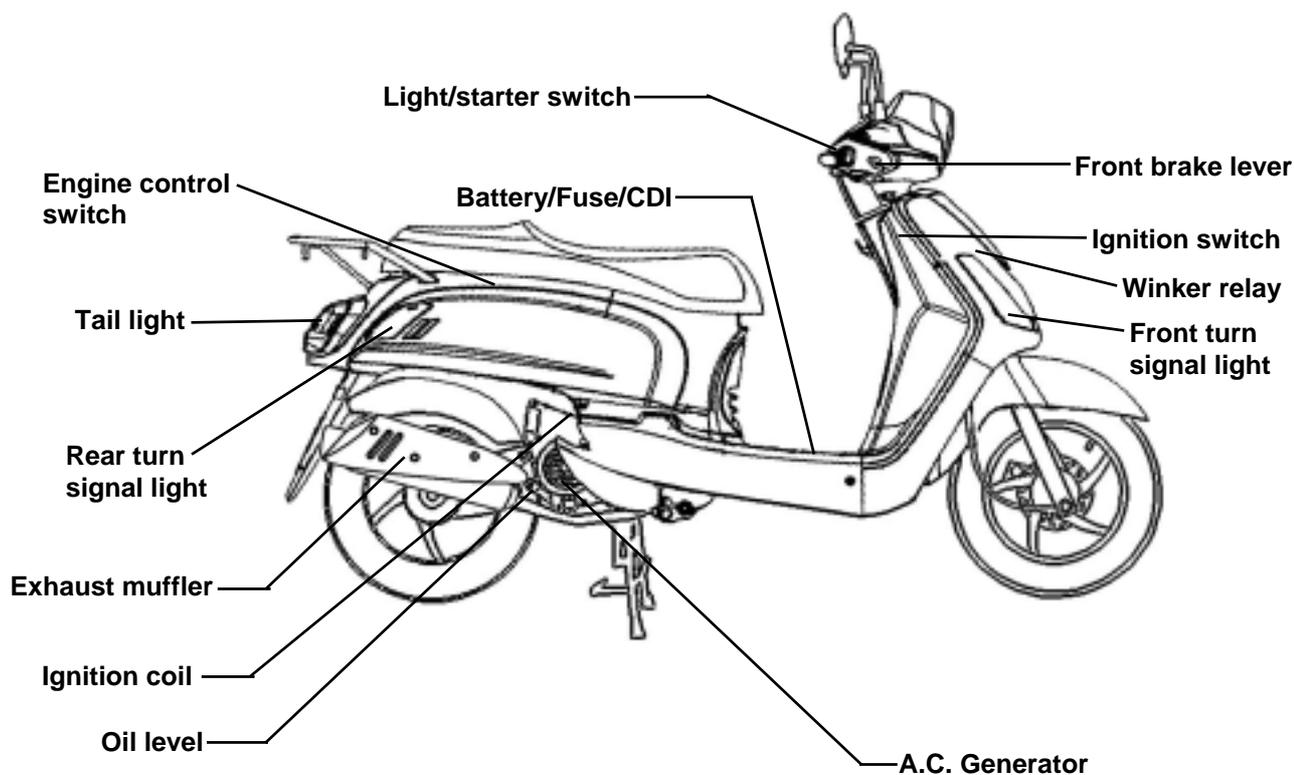
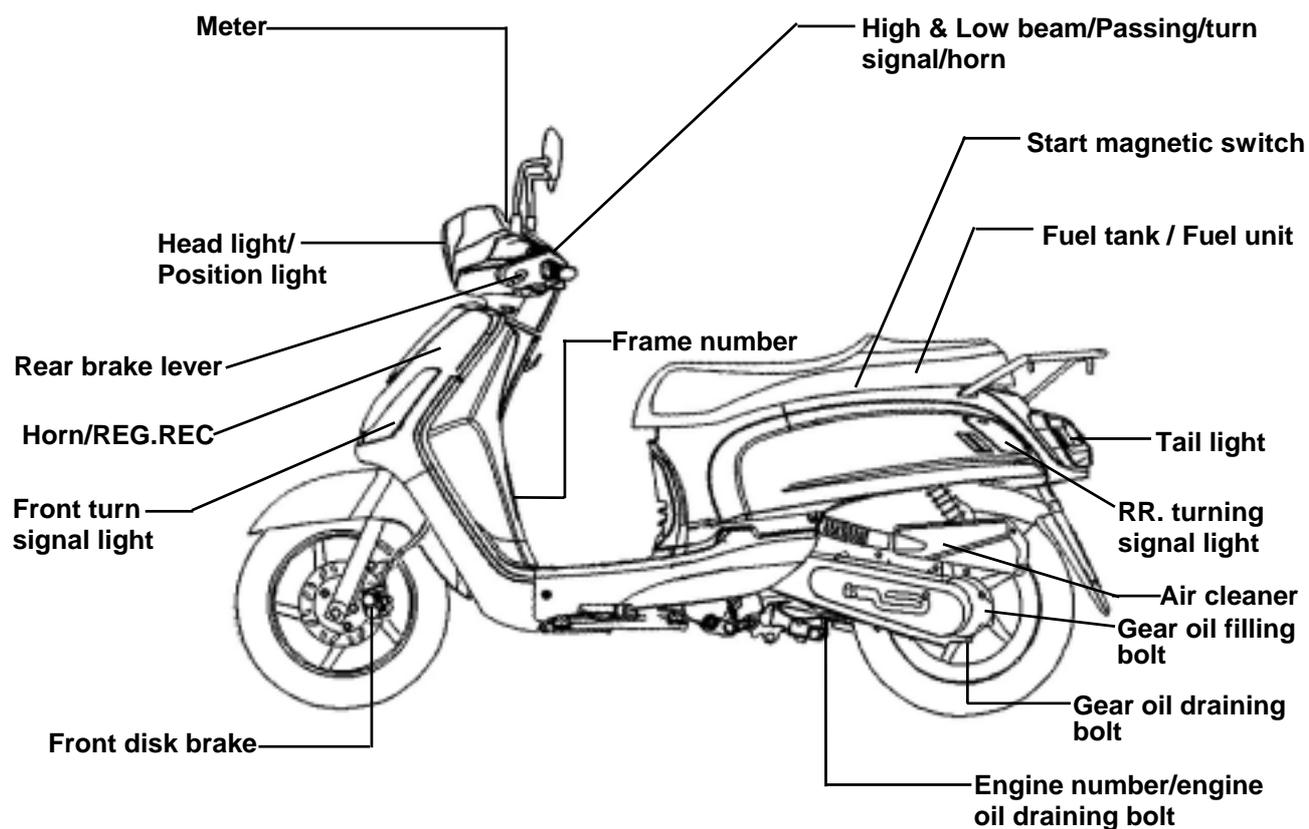
The seventh chapter is for wiring diagram.

Please see index of content for quick having the special parts and system information.



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SPECIAL TOOL

SYM

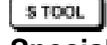
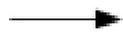
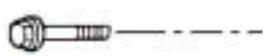
<p>ITEM: OUTER BEARING PULLER NO : SYM-6204010 PURPOSE: REMOVE THE BEARING</p>	<p>ITEM: ACG FLYWHEEL PULLER NO : SYM-3110A00 PURPOSE: REMOVE ACG FLYWHEEL</p>
 A set of brass-colored tools for removing an outer bearing, including a central shaft, several pins, and a clamping mechanism.	 A dark grey cylindrical tool with a central shaft and a flange, used for pulling the ACG flywheel.
<p>ITEM: LOCK NUT PULLER NO : SYM-9020100 PURPOSE: REMOVE THE LOCK NUT</p>	<p>ITEM: UNIVERSAL HOLDER NO : SYM-2210100 PURPOSE:HOLD THE MDF/CLUTCH OUTER</p>
 A dark grey cylindrical tool with a central shaft and a flange, used for removing a lock nut.	 A tool with a red handle and a black adjustable frame, used to hold the MDF or clutch outer.
<p>ITEM: CLUTCHSPRING COMPRESSOR NO : SYM-2301000 PURPOSE:DISASSEMBLE THE CLUTCH</p>	<p>ITEM: CLUTCH NUT WRENCH NO : SYM-9020200 PURPOSE:LOOSE THE CLUTCH NUT</p>
 A black metal tool with a central shaft and a handle, used to compress the clutch spring.	 A black metal wrench with a hexagonal opening at one end, used to loosen the clutch nut.

<p>ITEM: GY6 STARTER GEAR PULLER NO : SYM-2822100-GY6 PURPOSE:REMOVE THE STARTER GEAR</p>	
 <p>The image shows the components of the GY6 Starter Gear Puller. It consists of a central black shaft with a small ball joint at the top and a threaded section at the bottom. Two green metal sleeves are designed to fit over the shaft. A separate green metal cap is shown above the shaft, which would be used to secure the assembly against the starter gear.</p>	

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SYMBOLS AND MARKS

Symbols and marks are used in this manual to indicate what and where the special service are needed, in case supplemental information is procedures needed for these symbols and marks, explanations will be added to the text instead of using the symbols or marks.

 Warning	Means that serious injury or even death may result if procedures are not followed.
 Caution	Means that equipment damages may result if procedures are not followed.
 Engine oil	Limits to use SAE 10W-30 API SH/CD class oil. Warranty will not cover the damage that caused by not apply with the limited engine oil.
 Grease	King Mate G-3 is recommended.
 Locking sealant	Apply sealant, medium strength sealant should be used unless otherwise specified.
 Oil seal	Apply with lubricant.
 Renew	Replace with a new part before installation.
 Brake fluid	Use recommended brake fluid DOT3 or WELLRUN brake fluid.
 Special tools	Special service tools.
 Correct	Meaning correct installation.
 Wrong	Meaning wrong installation.
 Indication	Indication of components.
 Directions	Indicates position and operation directions.
 Assembly directions	Components assembly directions each other.
 Bolt installation	Indicates where the bolt installation direction, --- means that bolt cross through the component (invisibility).

GENERAL SAFETY

Carbon monoxide

If you must run your engine, ensure the place is well ventilated. Never run your engine in a closed area. Run your engine in an open area, if you have to run your engine in a closed area, be sure to use an extractor.

 **Caution**

Exhaust contains toxic gas which may cause one to lose consciousness and even result in death.

Gasoline

Gasoline is a low ignition point and explosive material. Work in a well-ventilated place, no flame or spark should be allowed in the work place or where gasoline is being stored.

 **Caution**

Gasoline is highly flammable, and may explode under some conditions, keep it away from children.

Used engine oil

 **Caution**

Prolonged contact with used engine oil (or transmission oil) may cause skin cancer although it might not be verdict.

Hot components

 **Caution**

Components of the engine and exhaust system can become extremely hot after engine running. They remain very hot even after the engine has been stopped for some time. When performing service work on these parts, wear insulated gloves and wait until cooling off.

Battery

 **Caution**

- Battery emits explosive gases; flame is strictly prohibited. Keep the place well ventilated when charging the battery.
- Battery contains sulfuric acid (electrolyte) which can cause serious burns so be careful do not be spray on your eyes or skin. If you get battery acid on your skin, flush it off immediately with water. If you get battery acid in your eyes, flush it off immediately with water, then go to hospital to see an ophthalmologist.
- If you swallow it by mistake, drink a lot of water or milk, and take some laxative such as castor oil or vegetable oil, and then go to see a doctor.
- Keep electrolyte beyond reach of children.

Brake shoe

Do not use an compressed air or a dry brush to clean components of the brake system, use a vacuum cleaner or the equivalent to avoid asbestos dust flying.

 **Caution**

Inhaling asbestos dust may cause disorders and cancer of the breathing system.

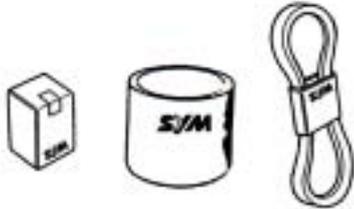
Brake fluid

 **Caution**

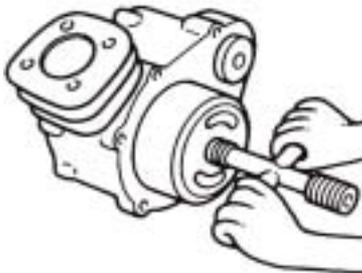
Spilling brake fluid on painted, plastic, or rubber parts may cause damage to the parts. Place a clean towel on the above-mentioned parts for protection when servicing the brake system. Keep brake fluid beyond reach of children.

SERVICE PRECAUTIONS

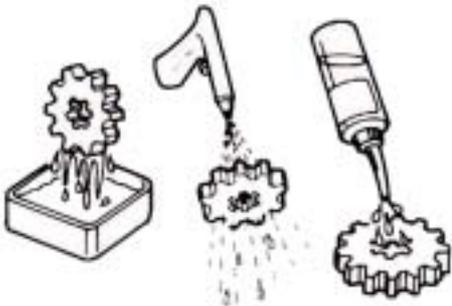
- Always use with SANYANG genuine parts and recommended oils. Using non-designed parts for SANYANG motorcycle may damage the motorcycle.



- Special tools are designed for remove and install of components without damaging the parts being worked on. Using wrong tools may result in parts damaged.



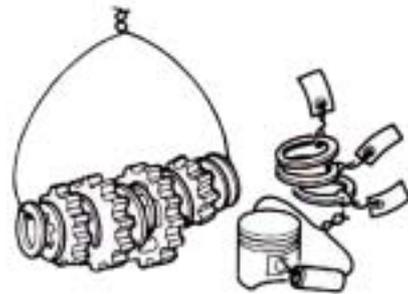
- When servicing this motorcycle, use only metric tools. Metric bolts, nuts, and screws are not interchangeable with the English system, using wrong tools and fasteners may damage this vehicle.
- Clean the outside of the parts or the cover before removing it from the motorcycle. Otherwise, dirt and deposit accumulated on the part's surface may fall into the engine, chassis, or brake system to cause a damage.
- Wash and clean parts with high ignition point solvent, and blow dry with compressed air. Pay special attention to O-rings or oil seals because most cleaning agents have an adverse effect on them.



- Never bend or twist a control cable to prevent stiff control and premature worn out.



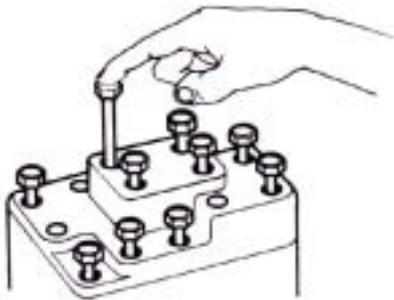
- Rubber parts may become deteriorated when old, and prone to be damaged by solvent and oil. Check these parts before installation to make sure that they are in good condition, replace if necessary.
- When loosening a component which has different sized fasteners, operate with a diagonal pattern and work from inside out. Loosen the small fasteners first. If the bigger ones are loosen first, small fasteners may receive too much stress.
- Store complex components such as transmission parts in the proper assemble order and tie them together with a wire for ease of installation later.



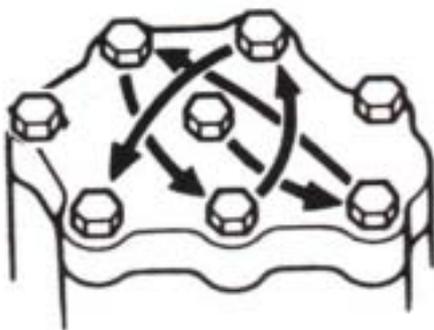
- Note the reassemble position of the important components before disassembling them to ensure they will be reassembled in correct dimensions (depth, distance or position).
- Components not to be reused should be replaced when disassembled including gaskets metal seal rings, O-rings, oil seals, snap rings, and split pins.



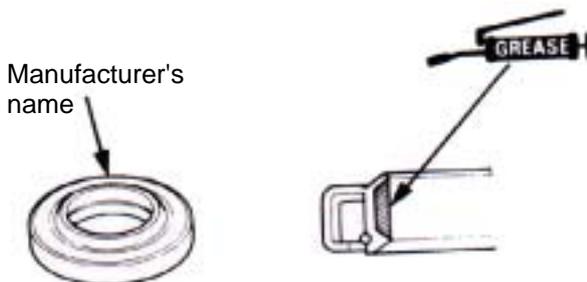
- The length of bolts and screws for assemblies, cover plates or boxes is different from one another, be sure they are correctly installed. In case of confusion, Insert the bolt into the hole to compare its length with other bolts, if its length out side the hole is the same with other bolts, it is a correct bolt. Bolts for the same assembly should have the same length.



- Tighten assemblies with different dimension fasteners as follows:
- Tighten all the fasteners with fingers, then tighten the big ones with special tool first diagonally from inside toward outside, important components should be tightened 2 to 3 times with appropriate increments to avoid warp unless otherwise indicated. Bolts and fasteners should be kept clean and dry. Do not apply oil to the threads.



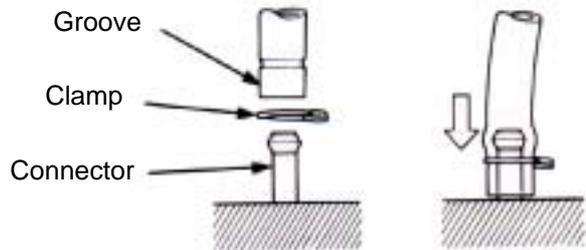
- When oil seal is installed, fill the groove with grease, install the oil seal with the name of the manufacturer facing outside, check the shaft on which the oil seal is to be installed for smoothness and for burrs that may damage the oil seal.



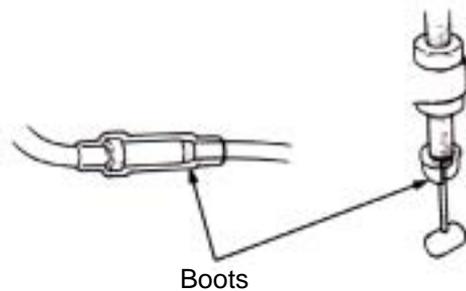
- Remove residues of the old gasket or sealant before reinstallation, grind with a grindstone if the contact surface has any damage.



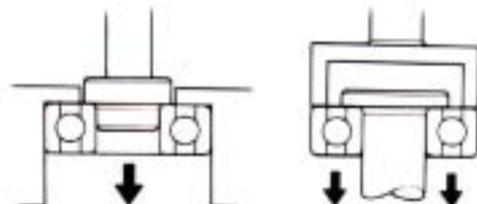
- The ends of rubber hoses (for fuel, vacuum, or coolant) should be pushed as far as they can go to their connections so that there is enough room below the enlarged ends for tightening the clamps.



- Rubber and plastic boots should be properly reinstalled to the original correct positions as designed.

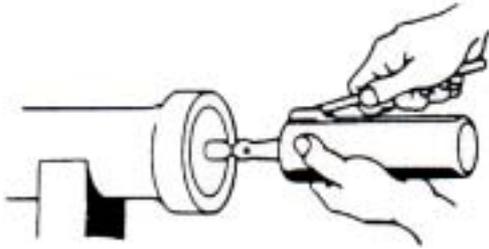


- The tool should be pressed against two (inner and outer) bearing races when removing a ball bearing. Damage may result if the tool is pressed against only one race (either inner race or outer race). In this case, the bearing should be replaced. To avoid damaging the bearing, use equal force on both races.

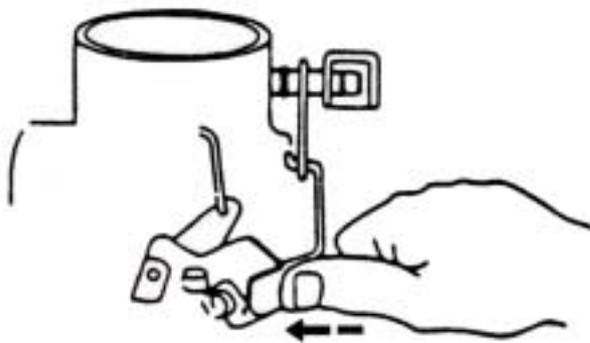


Both of these examples can result in bearing damage.

- Lubricate the rotation face with specified lubricant on the lubrication points before assembling.



- Check if positions and operation for installed parts is in correct and properly.



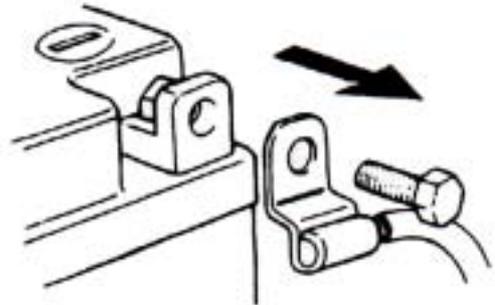
- Make sure service safety each other when conducting by two persons.



- Note that do not let parts fall down



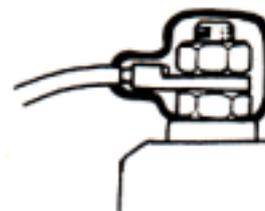
- Before battery removal operation, it has to remove the battery negative (-) cable firstly. Notre tools like open-end wrench do not contact with body to prevent from circuit short and create spark.



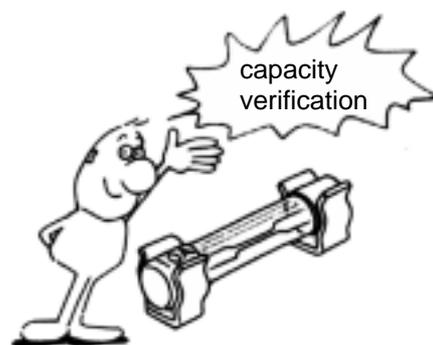
- After service completed, make sure all connection points is secured. Battery positive (+) cable should be connected firstly. And the two posts of battery have to be greased after connected the cables.



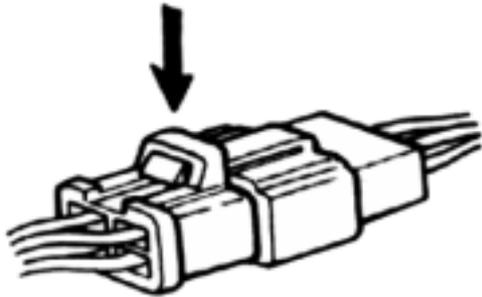
- Make sure that the battery post caps are located in properly after the battery posts had been serviced.



- If fuse burned, it has to find out the cause and solved it. And then replace with specified capacity fuse.



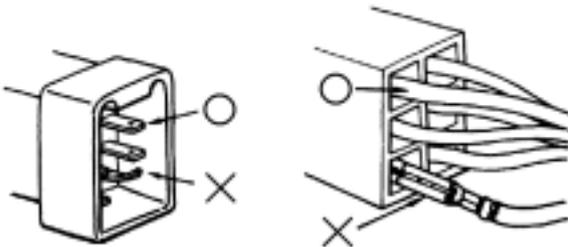
- When separating a connector, it locker has to be unlocked firstly. Then, conduct the service operation.



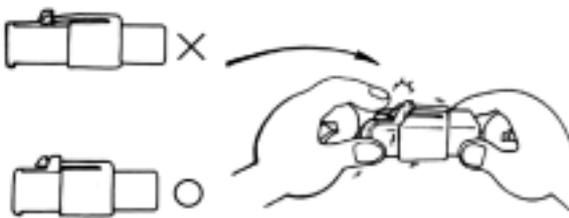
- Do not pull the wires as removing a connector or wires. Hold the connector body.



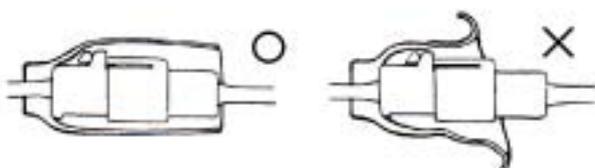
- Make sure if the connector pins are bent, extruded or loosen.



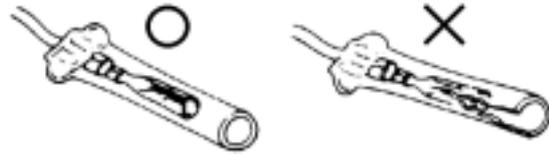
- Insert the connector completely. If there are two lockers on two connector sides, make sure the lockers are locked in properly. Check if any wire loose.



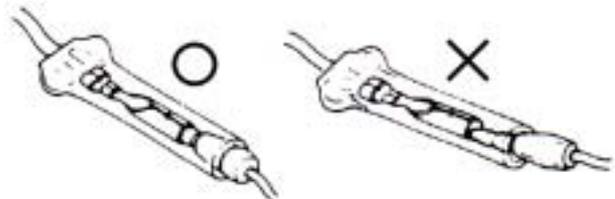
- Check if the connector is covered by the twin connector boot completely and secured properly.



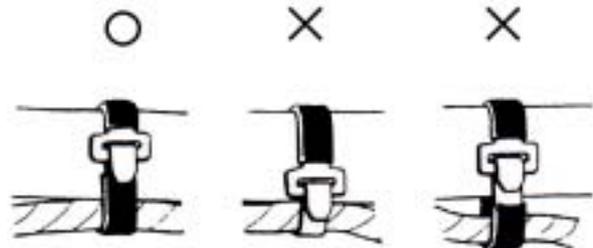
- Before terminal connection, check if the boot is crack or the terminal is loose.



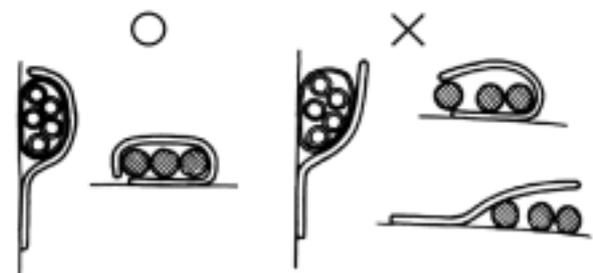
- Insert the terminal completely. Check if the terminal is covered by the boot. Do not let boot open facing up.



- Secure wires and wire harnesses to the frame with respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.



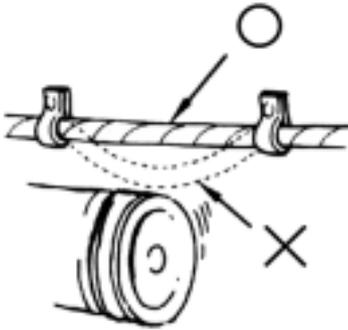
- Wire band and wire harness have to be clamped secured properly.



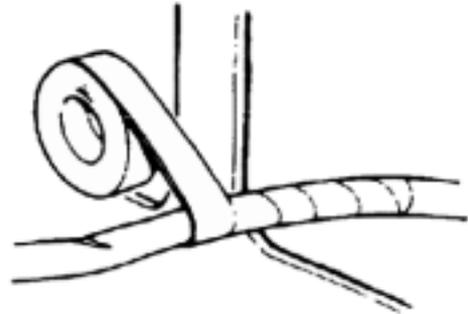
- Do not squeeze wires against the weld or its clamp.



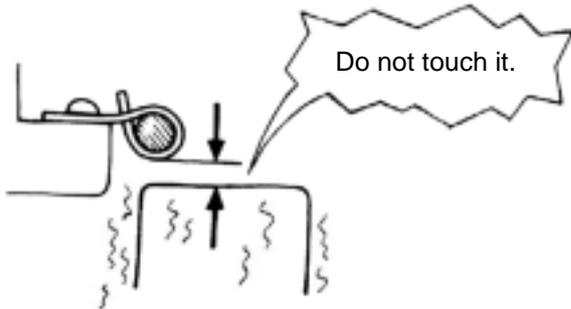
- Do not let the wire harness contact with rotating, moving or vibrating components as routing the harness.



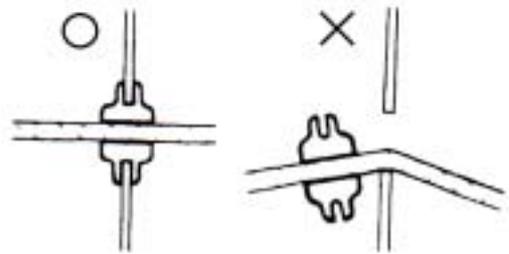
- Protect wires or wire harnesses with electrical tape or tube if they contact a sharp edge or corner. Thoroughly clean the surface where tape is to be applied.



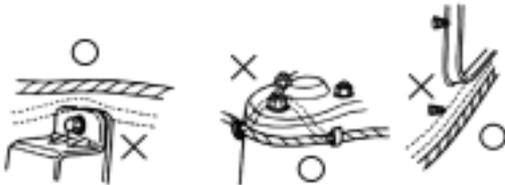
- Keep wire harnesses far away from the hot parts.



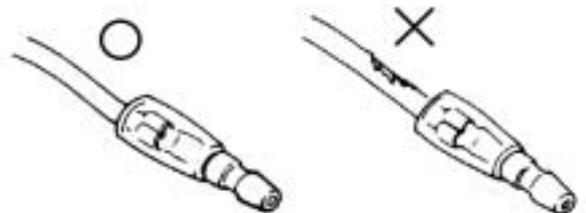
- Secure the rubber boot firmly as applying it on wire harness.



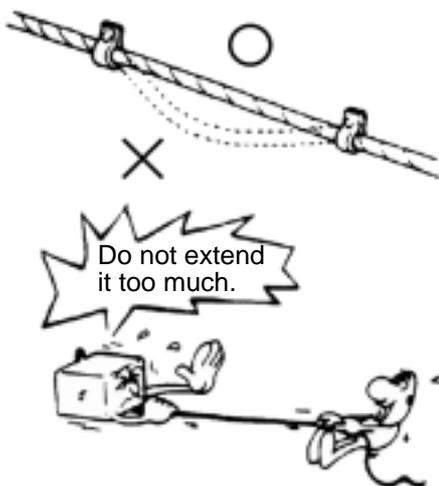
- Route wire harness to avoid sharp edges or corners and also avoid the projected ends of bolts and screws.



- Never use wires or harnesses which insulation has been broken. Wrap electrical tape around the damaged parts or replace them.



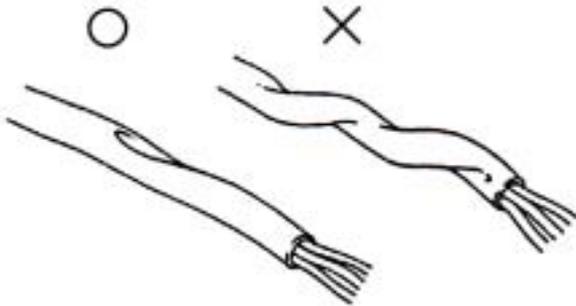
- Route harnesses so that they neither pull too tight nor have excessive slack.



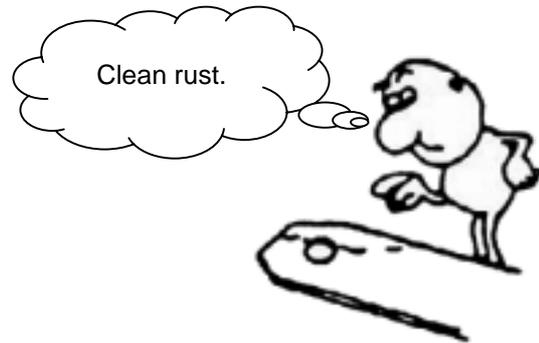
- Never clamp or squeeze the wire harness as installing other components.



- Do not let the wire harness been twisted as installation.



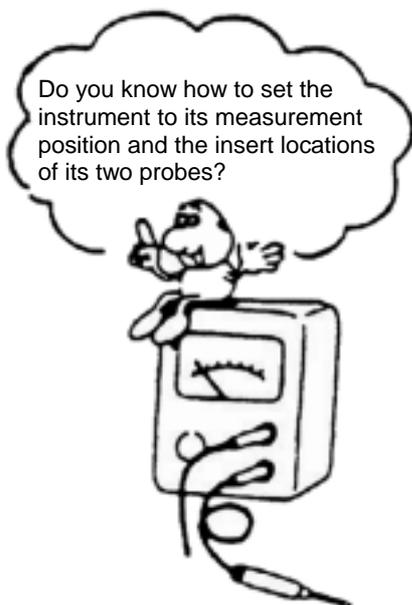
- With sand paper to clean rust on connector pins/terminals if found. And then conduct connection operation later.



- Wire harnesses routed along the handlebar should not be pulled too tight or have excessive slack, be rubbed against or interfere with adjacent or surrounding parts in all steering positions.



- Before operating a test instrument, operator should read the operation manual of the instrument. And then, conduct test in accordance with the instruction.



SPECIFICATIONS

MAKER		SANYANG		MODEL		AKA(AW05W-6)		
DIMENSION	Overall Length	1870mm		Suspension System	Front	Telescopic fork		
	Overall Width	698 mm			Rear	unit swing		
	Overall Height	1140 mm		Tire Specifications	Front	110/70-12(47J)		
	Wheel Base	1325mm			Rear	120/70-12(51J)		
WEIGHT	Curb Weight	Front	40kg		Brake System	Front	DISK (∅ 190 mm)	
		Rear	59kg			Rear	DRUM (∅ 110 mm)	
		Total	99kg					
	Passengers/Weight		Two men/110 kg		Performance	Max. Speed	<45km/h	
	Total Weight	Front	84kg			Climb Ability	26° Below	
		Rear	125kg		Deceleration equipment	Primary Reduction	BELT	
Total		209kg		Final Reduction		GEAR		
ENGINE	Type		4-STROKE ENGINE		Deceleration equipment	Clutch	Auto centrifugal clutch	
	Installation and arrangement		Vertical, below center, incline 80°			Transmission	C.V.T.	
	Fuel Used		Unleaded gasoline		Speedometer		0 ~ 80 km/hr	
	Cycle/Cooling		4-stroke/forced air cooled		Horn		75~112dB(A)	
	Cylinder	Bore	39.0 mm		Muffler		Expansion & Pulse Type	
		Stroke	41.35 mm		Exhaust Pipe Position and Direction		Right side, and Backward	
		Number/Arrangement	Single Cylinder/horizontal		Lubrication System		Forced-circulation& splashing	
	Displacement		49.4 cc		Exhaust Emission	CO	<12.0 g/km	
	Compression Ratio		11.8:1			HC	<1.0 g/km	
	Max. HP		2.35KW/8500 rpm			NOx	<1.2 g/km	
	Max. Torque		2.91N.m /6500 rpm		Air Filtration		Paper filter	
	Ignition		C.D.I.		Noise Emission		< 71dB	
	Starting System		Kick & electrical starter		Engine Weight(dry weight)		23kg	

TORQUE VALUES (ENGINE)

ITEM	Q'TY	THREAD DIA (mm)	TORQUE VALUE(Kg-m)	REMARKS
Cylinder head bolts	4	6	0.8~1.2	
Cylinder head nuts	4	8	1.8~2.2	Apply oil to thread
Cylinder/cylinder head two-ends bolts	4	7	0.7~1.1	Tighten to crankcase
Cam holder nut	4	7	1.0~1.4	
Right crank case cover bolts	10	6	0.8~1.2	
Pulse generator bolts	2	5	0.35~0.5	
Valve adjustment fixing nuts	2	5	0.7~1.1	Apply oil to thread
Spark plug	1	10	1.0~1.4	
Engine oil strainer cap	1	30	1.0~2.0	
Gear oil draining plug	1	8	1.0~1.5	
Gear oil filling bolt	1	8	1.0~1.5	
Oil pump bolts	3	6	0.8~1.2	
Oil pump drive sprocket nuts	1	6	0.8~1.2	
Left crankcase cover bolts	10	6	0.8~1.2	
Cylinder head cover bolts	4	6	0.8~1.2	
Camshaft chain tensioner pivot	1	6	0.8~1.2	Hex socket bolt
Camshaft chain adjuster bolts	2	6	1.0~1.4	
Cooling fan bolts	4	6	0.8~1.2	
Shroud A/B	2	6	0.8~1.2	
RR. brake fixing nut	1	8	1.5~2.0	
Flywheel nut	1	10	3.5~4.5	
Transmission(Gear box) bolts	7	8	2.6~3.0	
RR. brake arm bolt	1	6	0.7~1.1	
Drive face nut	1	12	5.0~6.0	
Drive pulley nut	1	10	3.5~4.5	
A.C. generator flange bolt	2	6	0.8~1.2	
Air/C connect bracket bolts	2	6	0.8~1.2	
Start motor bolts	2	6	0.8~1.2	
Brake arm bolt	1	6	0.7~1.1	
Kick starter arm bolt	1	6	0.8~1.2	
Carburetor nut	2	6	0.8~1.2	
A.I. fixing hex cap nut	2	6	0.8~1.2	
Crankcase bolts	1	6	0.8~1.2	
Exhaust pipe bolts	2	8	3.0~3.6	
Exhaust pipe connecting nuts	2	6	1.0~1.4	

TORQUE VALUES (FRAME)

ITEM	Q'TY	THREAD DIA (mm)	TORQUE VALUE(Kg-m)	REMARKS
Mounting bolt for steering handlebar	1	10	4.0~5.0	
Mounting nut for steering rod	1	25.4	1.0~2.0	
Cone seat for steering rod	1	25.4	0.2~0.3	
Front wheel shaft nut	1	12	5.0~7.0	
Rear wheel shaft nut	1	16	11.0~13.0	
Wheel hub/rim mounting nuts	8	8	2.8~3.2	
Speedometer cable locking screw	1	5	0.15~0.3	
Front shock absorber mounting bolts	4	8	2.4~3.0	
Rear shock absorber upper connection bolt	1	10	3.5~4.5	
Rear shock absorber upper connection bolt	1	8	2.4~3.0	
Brake lever bolts	2	6	0.8~1.2	
Front brake hose bolts	2	10	3.3~3.7	
Front brake air-bleeding valve	1	6	0.8~1.0	
Front brake disc mounting bolts	4	10	4.0~4.5	
Front brake clipper mounting bolts	2	10	3.1~3.5	
Drum brake arm bolts (front/rear)	2	6	0.8~1.2	
Engine suspension bracket bolts	2	10	4.5~5.5	On frame side
Engine connection bolt	1	10	4.5~5.5	On engine side
Main standard nut	1	10	3.5~4.5	
Foot-starting lever bolt	1	6	1.6~1.8	
Air cleaner bolts	2	6	1.0~1.4	

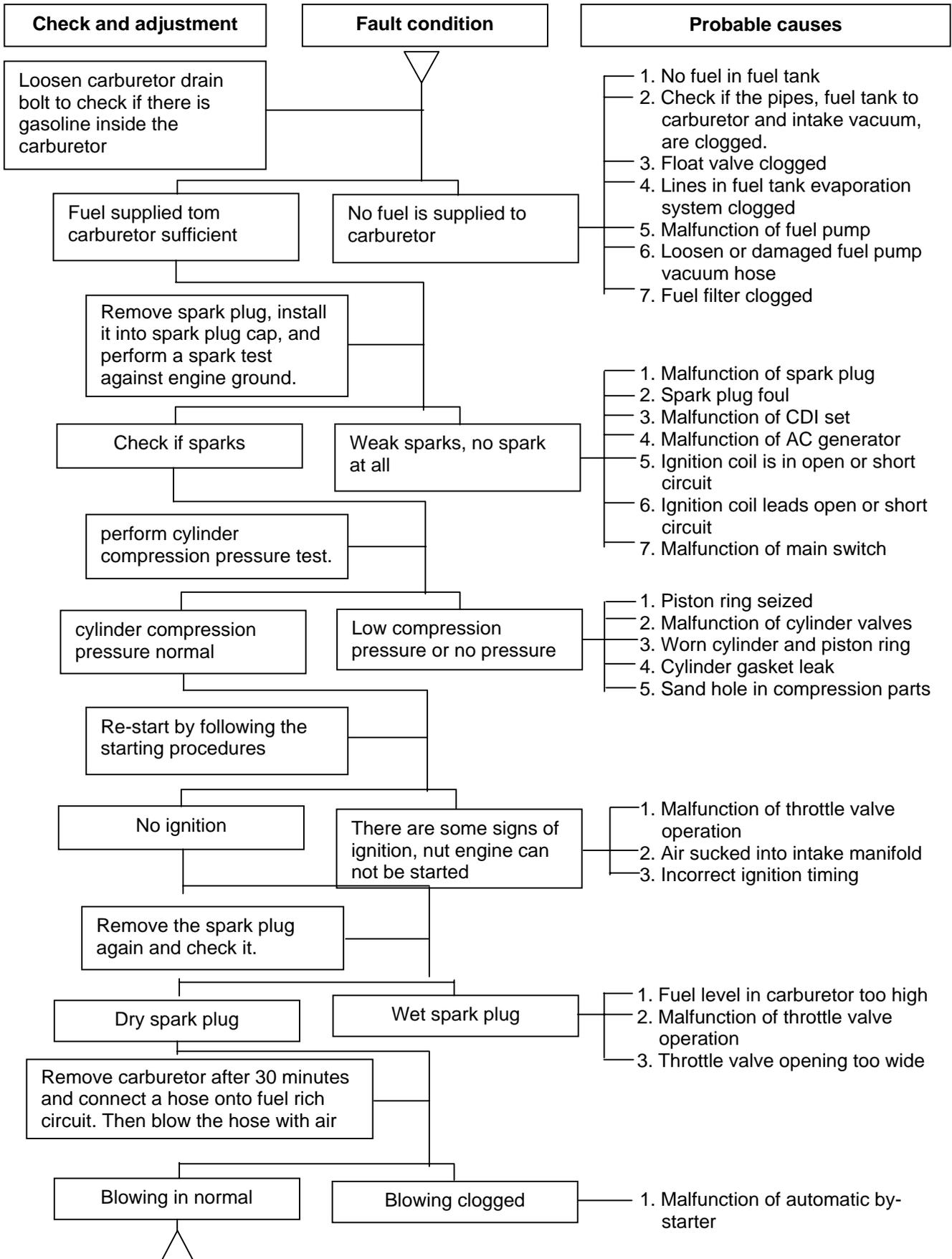
The torque values listed in above table are for more important tighten torque values. Please see standard values for not listed in the table.

Standard Torque Values for Reference

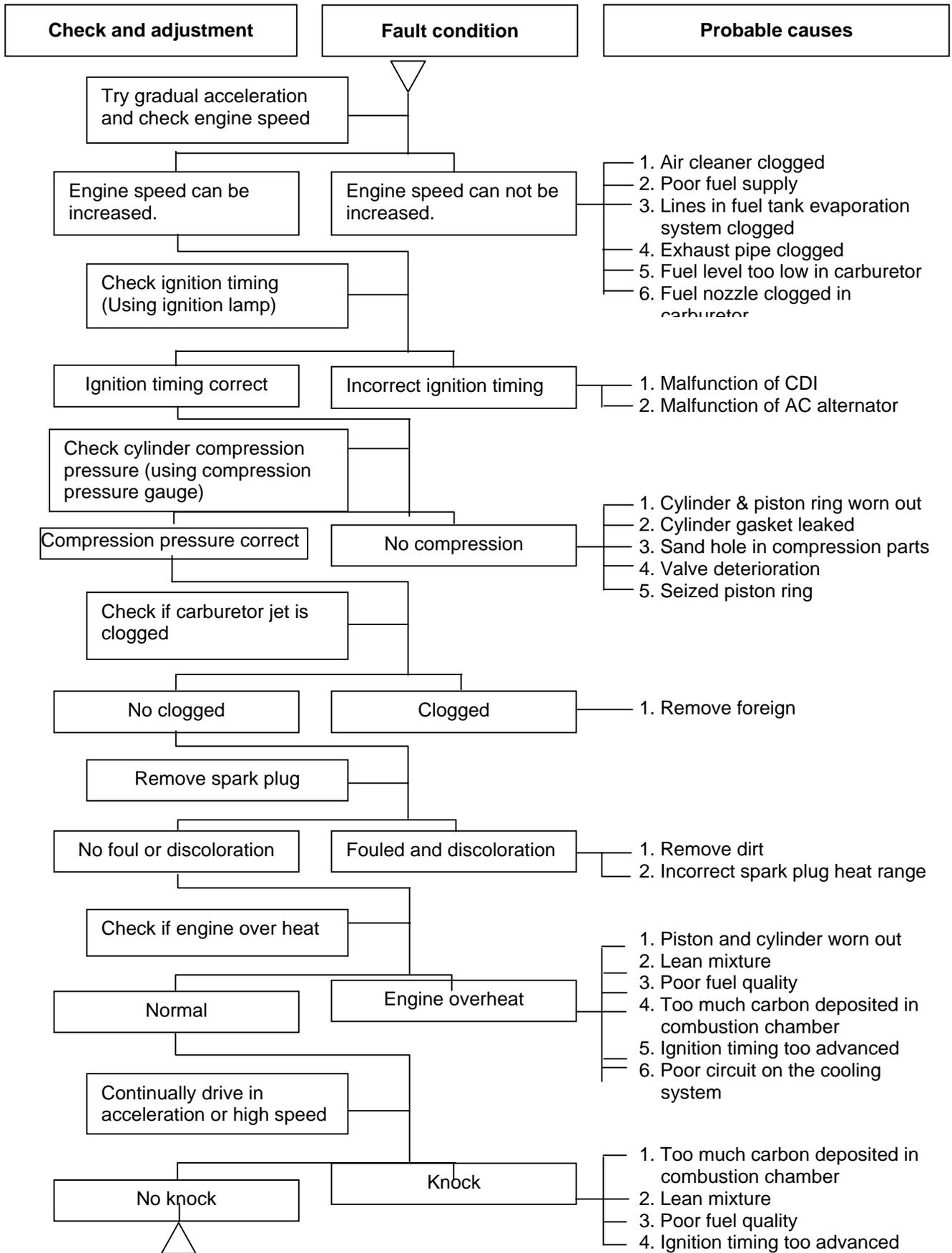
TYPE	TIGHTEN TORQUE	TYPE	TIGHTEN TORQUE
5mm bolt, nut	0.45~0.60kgf-m	3mm screw	0.05~0.08kgf-m
6mm bolt, nut	0.80~1.20kgf-m	4mm screw	0.10~0.15kgf-m
8mm bolt, nut	1.80~2.50kgf-m	5mm screw	0.35~0.50kgf-m
10mm bolt, nut	3.00~4.00kgf-m	6mm screw, SH nut	0.70~1.10kgf-m
12mm bolt, nut	5.00~6.00kgf-m	6mm bolt, nut	1.00~1.40kgf-m
		8mm bolt, nut	2.40~3.00kgf-m
		10mm bolt, nut	3.50~4.50kgf-m

TROUBLES DIAGNOSIS

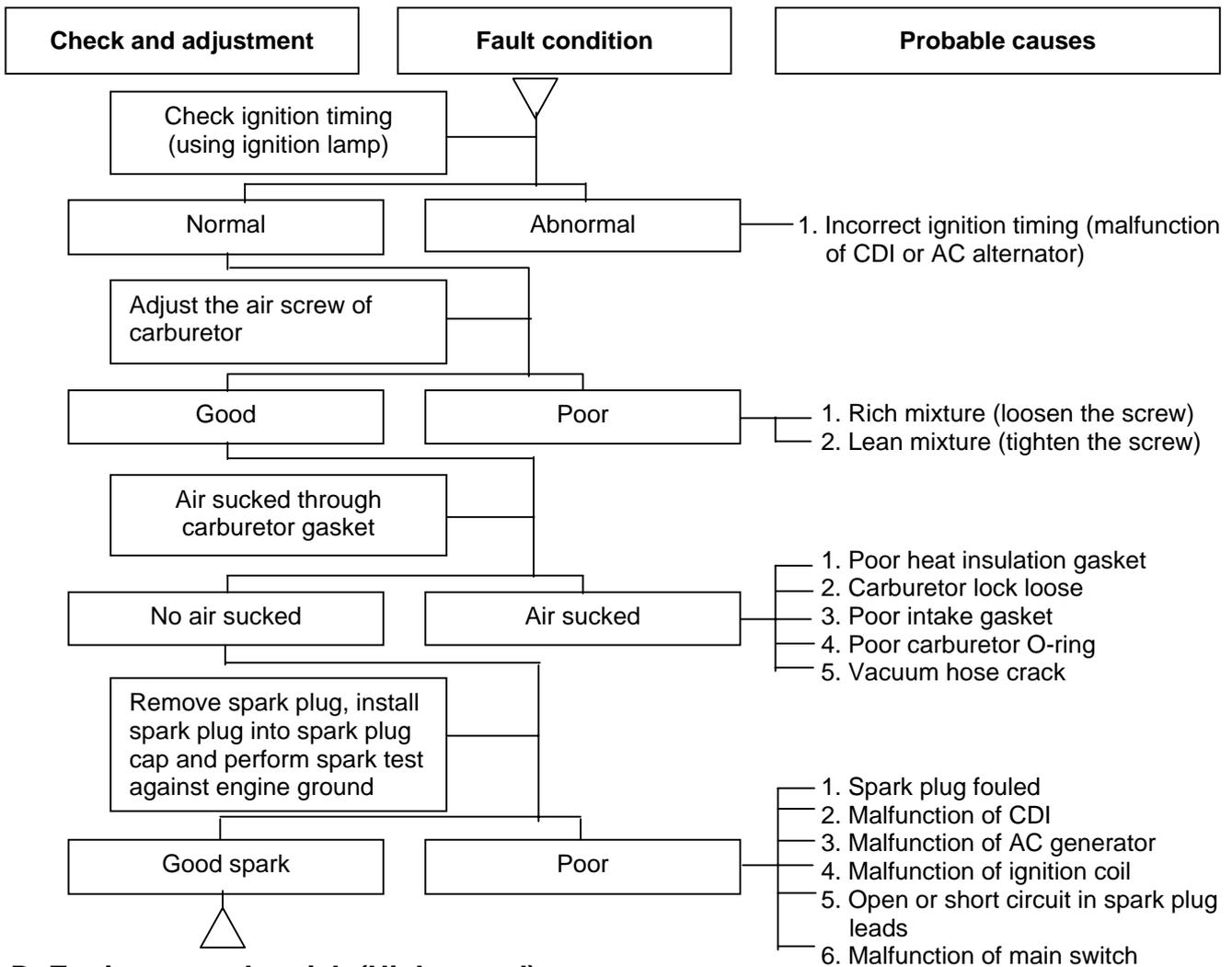
A. Engine hard to start or can not be started



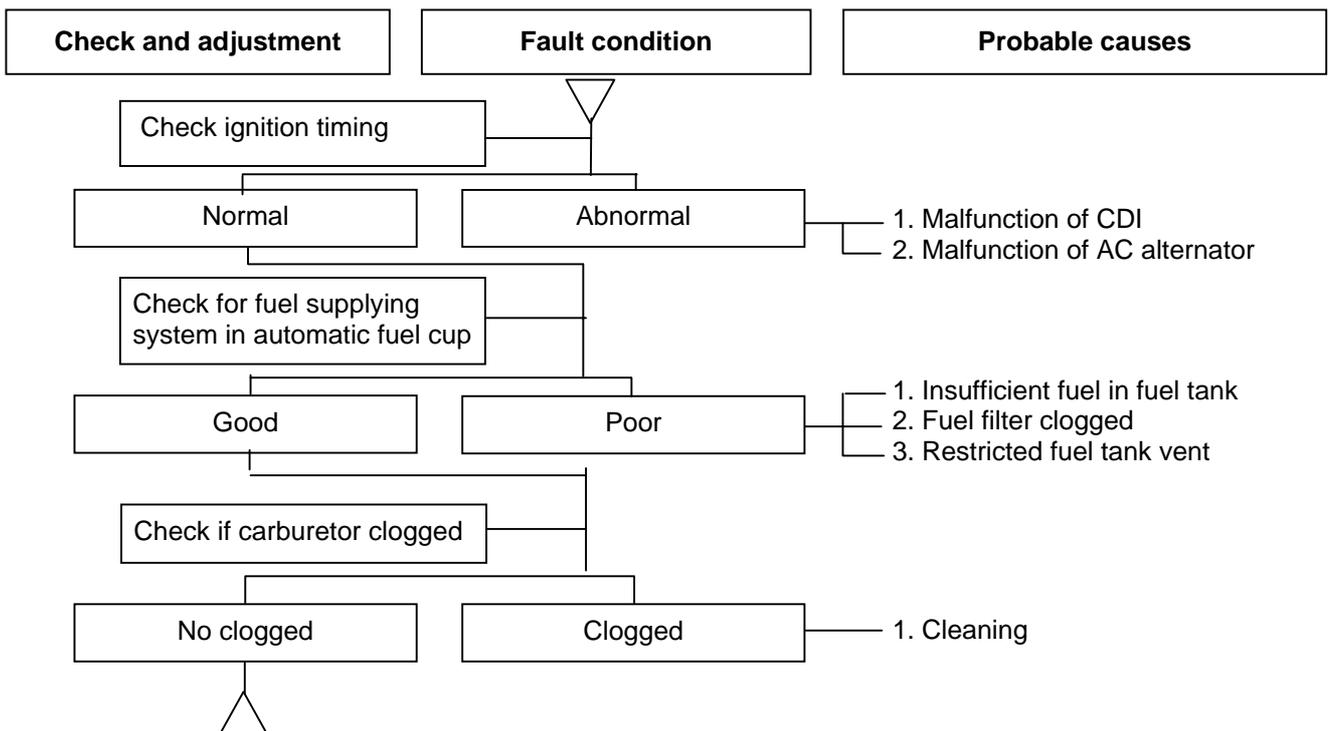
B. Engine run sluggish (Speed does not pick up, lack of power)



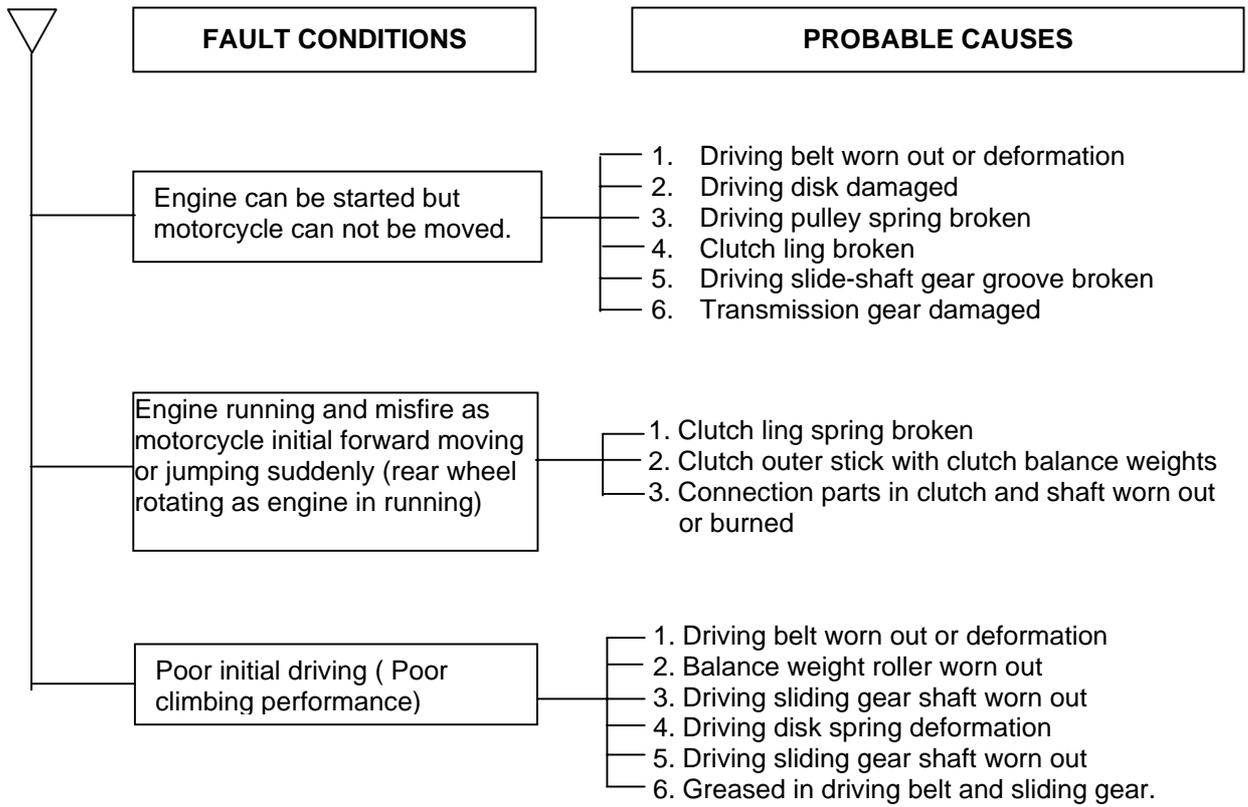
C. Engine runs sluggish (especially in low speed and idling)



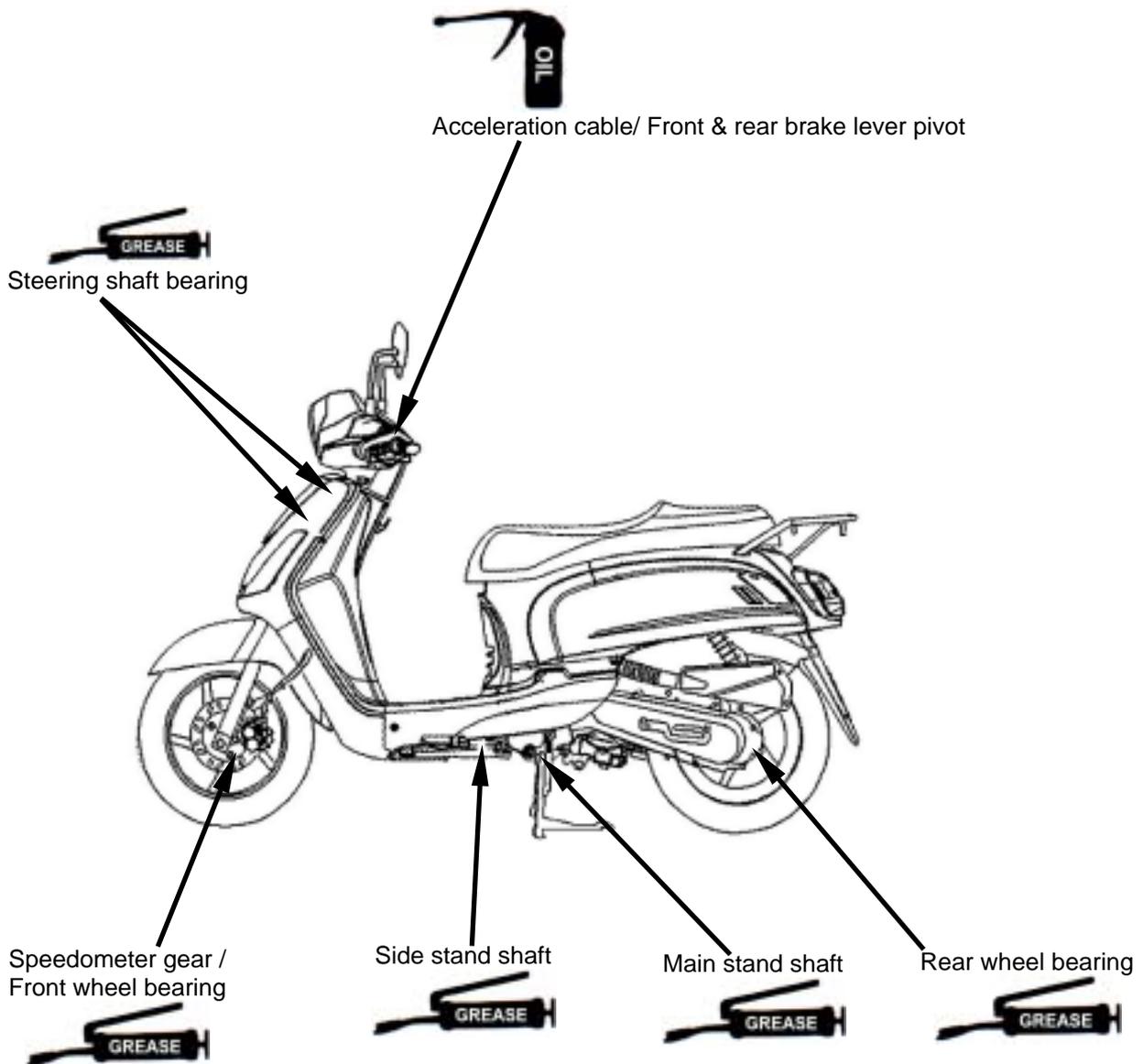
D. Engine runs sluggish (High speed)



E. CLUTCH, DRIVING AND DRIVING PULLEY



LUBRICATION POINTS



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PRECAUTIONS IN OPERATION

Specification

Fuel Tank Capacity	Main	5000 c.c.
	auxiliary	1500 c.c.
Engine Oil	capacity	800 c.c.
	change	750 c.c.
Transmission Gear oil	capacity	110 c.c.
	change	100 c.c.
Clearance of throttle valve		2~6 mm
Spark plug		TORCH A7RC Gap: 0.6~0.7 mm
“F” Mark in idling speed		Before TDC 13° / 2200 rpm
Full timing advanced		Before TDC 26° / 8000 rpm
Idling speed		2100±100 rpm
Cylinder compression pressure		11.8±0.4:1 kg/cm ²
Valve clearance: IN/EX		0.06±0.02 mm
Tire dimension	front / rear	110/70-12(47J) /120/70-12(51J)
Tire pressure (cold)	single	Front: 1.75 kg/cm ² rear: 2.00 kg/cm ²
	Two persons	Front: 1.75 kg/cm ² rear: 2.25 kg/cm ²
Battery Capacity		YTX7A-BS 12V6Ah (MF battery)
Play of drum brake lever		10~20 mm

PERIODICAL MAINTENANCE SCHEDULE

Maintenance Code	Item	Initial 300KM	1 Month Every1000KM	3 month Every3000KM	6 month Every6000KM	1 year Every12000KM
1	Air cleaner	I		C		R
2	2nd air jet leaner	I		C	C	R
3	Fuel filter	I			I	R
4	Oil filter	C			C	
5	Engine oil change	R			I	
6	Tire pressure	I	I			
7	Battery inspection	I	I			
8	Brake & free play check	I	I			
9	Steering handle check	I	I			
10	Cushion operation check	I	I			
11	Every screw tightening check	I	I			
12	Gear oil check for leaking	I	I			
13	Spark plug check or change	I		I		R
14	Gear oil change	R	Replacement for every 5000km(5 months)			
15	Frame lubrication				L	
16	Exhaust pipe	I	I			
17	Ignition timing	I	I			
18	Emission check in Idling	A	I			
19	Throttle operation	I		I		
20	Engine bolt tightening	I		I		
21	CVT driving device (belt)				I	R
22	CVT driving device (roller)				C	
23	Lights/electrical equipment/multi-meters	I	I			
24	Main/side stands & springs	I			I	
25	Fuel pipes	I		I		
27	Cam chain	I		I		
28	Valve clearance	I		A		
29	Crankcase vapor control System	I		C		
30	Crankcase blow-by over-flow pipe	I	Replacement for every 2000km			
31	2nd air jet system	I		I	C	
32	vapor control system			I		

Code: I ~ Inspection, cleaning, and adjustment R ~ Replacement C ~ Cleaning (replaced if necessary) L ~ Lubrication

Have your motorcycle checked, adjusted, and recorded maintenance data periodically by your SYM Authorized Dealer to maintain the motorcycle at the optimum condition

The above maintenance schedule is established by taking the monthly 1000 kilometers as a reference which ever comes first.

Remarks:

1. These marks “ ” in the schedule are emission control items. According to EPA regulations, these items must be perform normally periodical maintenance following the use r manual instructions. They are prohibited to be adjusted or repaired by unauthorized people. Otherwise, SYM is no responsible for the charge.
2. Clean or replace the air cleaner element more often when the motorcycle is operated on dusty roads or in the Heavily- polluted environment.
3. Maintenance should be performed more often if the motorcycle is frequently operated in high speed and after the motorcycle has accumulated a higher mileage.
4. Preventive maintenance
 - a. Ignition system - Perform maintenance and check when continuous abnormal ignition, misfire, after-burn, overheating occur.
 - b. Carbon deposit removal - Remove carbon deposits in cylinder head, piston heads, exhaust system when power is obvious lower than ever.
 - c. Replace worn out pistons, cylinder head.

LUBRICATION SYSTEM

Engine Oil Capacity

⚠ Caution

- The vehicle must be parked on a level ground when checking oil capacity.
- Run the engine for 2-3 minutes then stop, wait about 2-3 more minutes allowing engine oil to settle before checking the oil level.

Remove dipstick to check the oil level. If oil level is below the lower limit mark, add oil to the specified upper limit mark.

Oil change

Shut off the engine and remove dipstick.

Remove the oil drain plug on the bottom-left of crankcase to drain oil.

After draining out oil, clean oil plug and its +-gasket and reinstall. Replace the gasket if it is damaged.

Torque value: 1.0~1.5 kgf-m

⚠ Caution

Warm up the engine. This will make the oil flow out easily.

Add oil to the specified capacity.

Oil Viscosity: SAE 10W-30, recommended using King-Mate serial oil.

Engine oil capacity:

Disassembly: 850cc`

Change: 750cc

When checking for oil leak, run the engine at idle speed for a few minutes, then check oil capacity with dipstick.

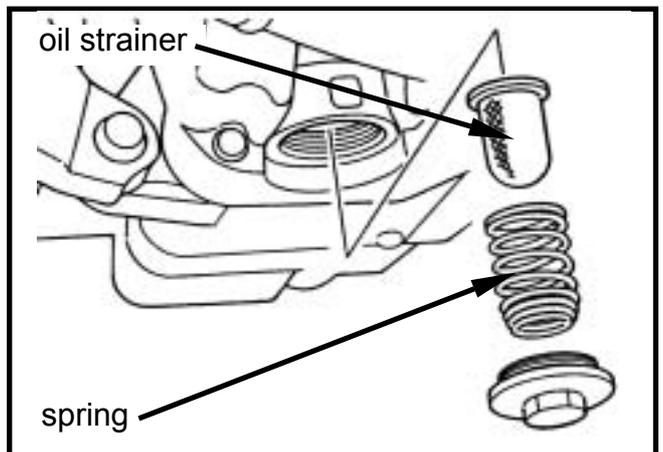
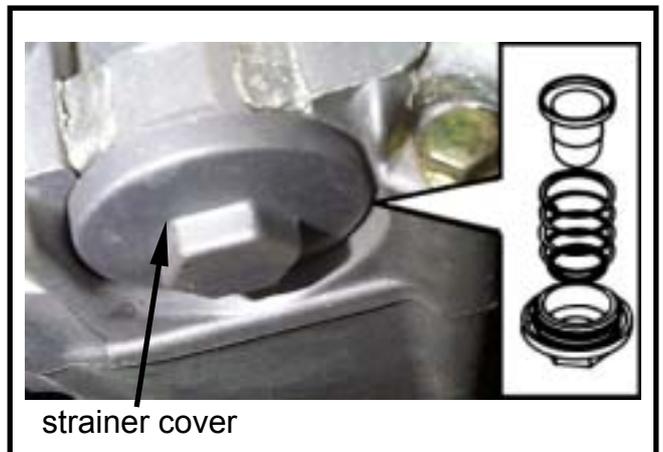
Cleaning the oil strainer

Drain oil from engine, remove the strainer cover, spring and strainer.

If there is an accumulation on the screen, wash it off with suitable solvent (recommended using compressed air). Check O-ring for damage, replace if necessary.

Reinstall strainer, spring, O-ring and strainer cover.

Torque value: 1.0~2.0 kgf-m



Gear Oil

Inspection

Check gear oil if leaking.

Park the motorcycle with main stand on flat level place.

Turn off engine and remove the gear oil draining plug.

Place a measurement cup under the draining hole.

Remove the oil drain plug and drain gear oil into a measurement cup.

Check gear oil if enough.

Replacement

At first, remove the gear oil refilling bolt, and then remove the draining plug.

Install the draining plug after drained oil out.

Torque value: 1.0~1.5 kgf-m

Caution

Inspect if washer is in good condition. Replace it with new one if it was deformed or damaged.

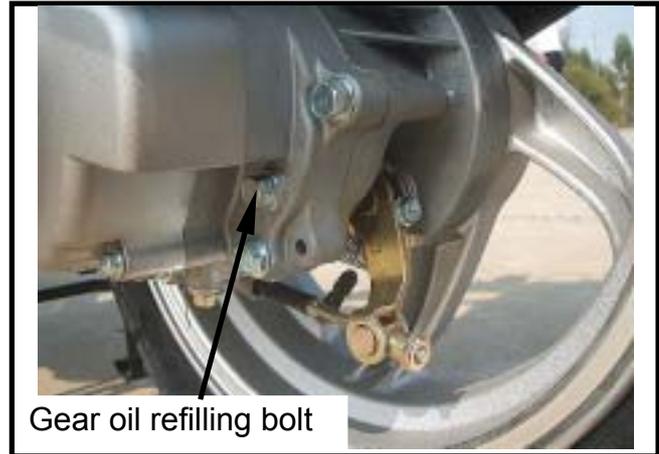
Fill out gear oil to specified quantity from the engine oil filling hole.

Install the oil filling bolt.

Torque value: 1.0~1.5 kgf-m

Quantity: 90 c.c.

Recommended: SAE 85W-140.



Gear oil refilling bolt



Gear oil draining plug

Fuel System

Fuel Pipe

Remove luggage box, rear center cover, body cover, and rear fender, as well as front inner box.

Check all pipes, and replace it when they are deterioration, damage or leaking.

Warning

Gasoline is a low ignition material so any kind of fire is strictly prohibited as dealing it.

Fuel filter

Remove the fuel tank.

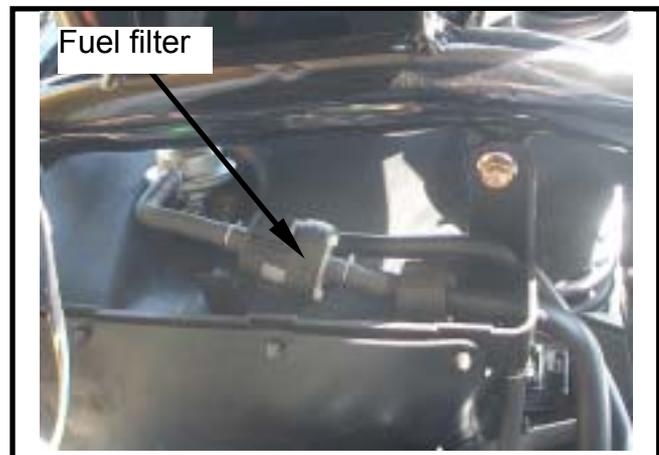
Remove fuel pipe from the fuel filter.

Replace the fuel filter with new one.

Install the fuel filter.

Caution

The arrow on the fuel filter means the flow direction of fuel and check it if leaking after installation.

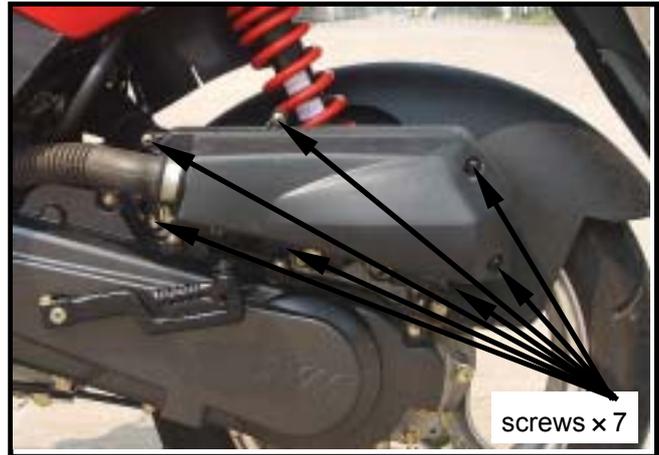


Fuel filter

AIR CLEANER

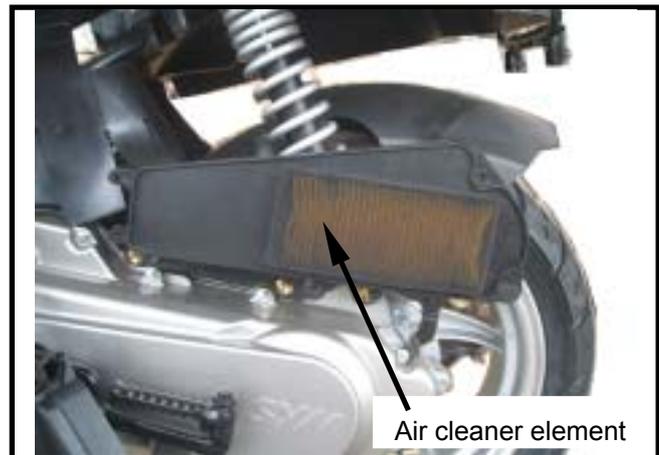
Element

Remove 7 screws from the air cleaner cover.
Remove element of air cleaner (2 screws).
Check the element if dirt or damaged.
Replace it with new one if dirt or damaged.



⚠ Caution

- Air cleaner element contains a paper made filter so do not try to clean it.
- Make sure that the air cleaner cover had been installed properly after installation.



THROTTLE VALVE OPERATION

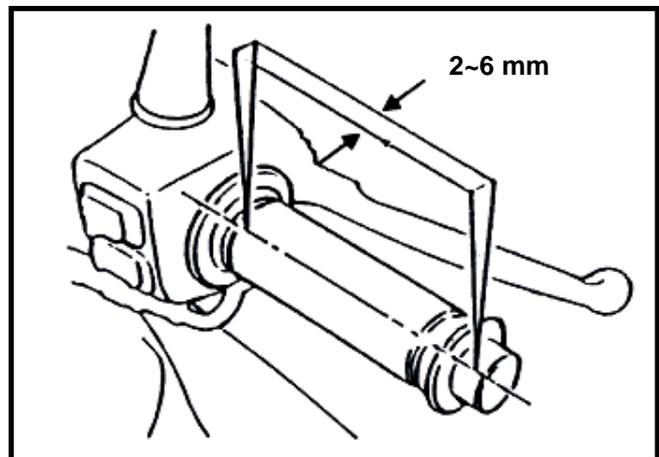
Have a wide open of throttle valve as handle bar in any position and release it to let back original (full closed) position.

Check handle bar if its operation is smooth.
Check throttle valve cable and replace it if deteriorated, twisted or damaged.

Lubricate the cable if operation is not smooth.

Measure handle bar free play in its flange part.

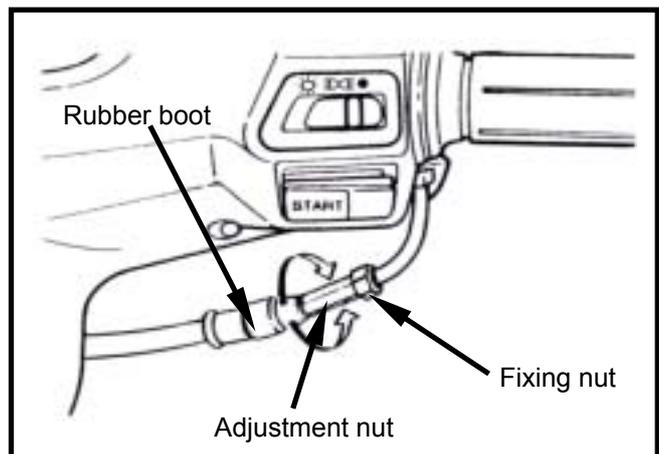
Free play : 2~6 mm



Adjustment can be done in either ends.

Secondary adjustment is conducted from top side.

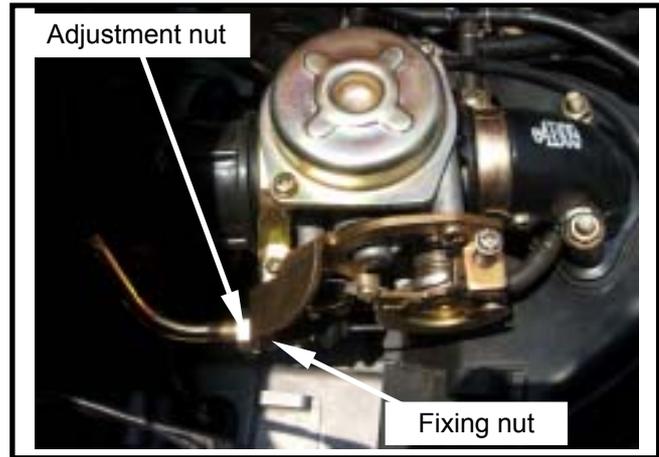
Remove rubber boot, loosen fixing nut, and then adjust it by turning the adjustment nut.



Primary adjustment is conducted from button side.

Loosen fixing nut, and adjust by turning the adjustment nut.

Tighten the fixing nut, and check acceleration operation condition.



Caution

When always riding in rainy area or full throttle position, maintenance period must be shorted. The deposits can be seen in the transparent section of draining hose.

VALVE CLEARANCE ADJUSTMENT

Caution

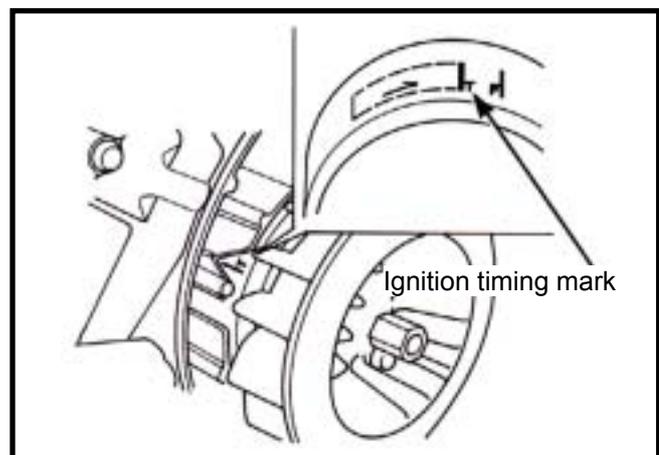
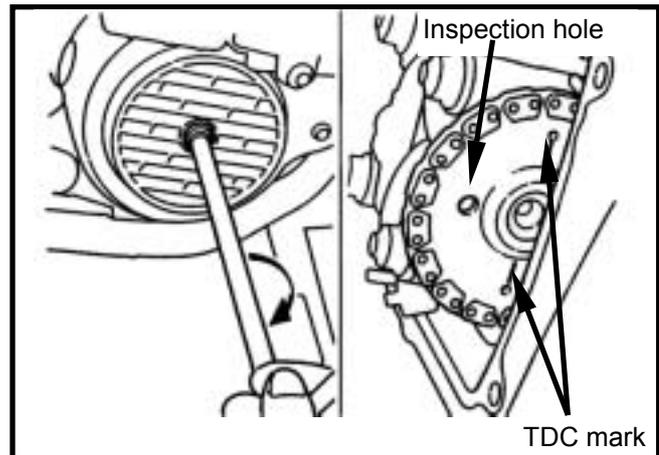
Checks and adjustment must be performed when engine is cold (below 35 °C).

Remove luggage box and front center cover.
Remove the left body cover & left side cover.
Remove cylinder head cap.
Remove the ignition timing check hole on the cooling fan cover.

With "T" type wrench, turn crankshaft in clockwise motion so that mark ("T") on the generator flywheel aligns with the mark on the crankshaft, and camshaft is at TDC position also as same as level of cylinder head top-end. A single hole on camshaft sprocket is forward to up. (Piston is at TDC position in the compression stroke.)

Caution

The crankshaft can not be rotated in counter-clockwise to prevent from damage so that valve clearance can not be measured.



VALVE CLEARANCE INSPECTION AND ADJUSTMENT

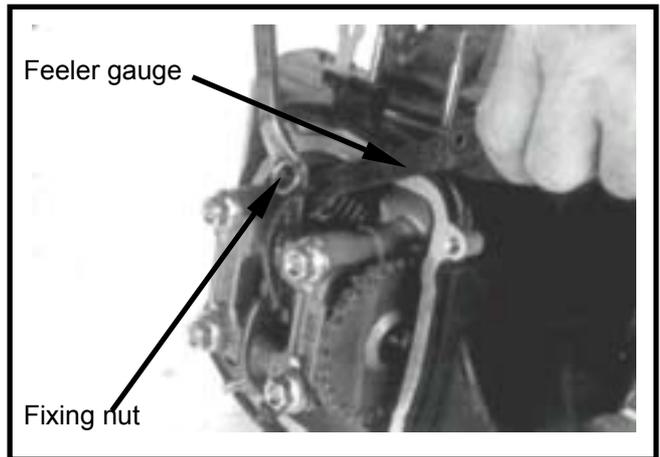
Check & adjust valve clearance with feeler gauge.

Valve clearance (IN/EX): 0.06 ± 0.02 mm

Loosen fixing nut and turn the adjustment nut for adjustment.

Caution

It has to make sure that valve-rocker arm is be adjusted to standard level when adjusting it, and re-check the valve clearance after tightened the fixing nut.



CARBURETOR IDLE SPEED ADJUSTMENT

Caution

- Inspection & adjustment for idle speed have to be performed after all other parts in engine that needed adjustment have been adjusted.
- Idle speed check and adjustment have to be done after engine is being warm up (around 10 minutes).

Park the motorcycle with main stand and warm up engine.
Open the carburetor cover from the luggage box.
Turn the throttle valve stopper screw to specified idle speed.

Specified idle speed: 2100 ± 100 rpm

Emission adjustment in Idle speed

Warm up the engine for around 10 minutes and then conduct this adjustment.

1. Connect the tachometer onto engine.
2. Adjust the idle speed adjustment screw and let engine runs in 2100 ± 100 rpm.
3. Insert the exhaust sampling muffler of exhaust analyzer into the front section of exhaust pipe. Adjust the air adjustment screw so that emission value in idle speed is within standard.
4. Slightly accelerate the throttle valve and release it immediately. Repeat this for 2~3 times.
5. Read engine RPM and value on the exhaust analyzer. Repeat step 2 to step 4 procedures until measured value within standard.

Exhaust Emission:

CO: $< 12.0\text{g/km}$

HC: $< 1.0\text{g/km}$

