



GTS 250

JOYMAX 250

SERVICE MANUAL

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This service manual contains the technical data of each component inspection and repair for the SANYANG LM25W series scooter. 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 scooter, LM25W series scooter, are different from that of the photos, pictures shown in this manual, the actual vehicle shall prevail. Specifications are subject to change without notice.

Service Department
SANYANG INDUSTRY CO., LTD.

How To Use This Manual



This service manual describes basic information of different system parts and system inspection & service for SANYANG LM25W series scooter. 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 information and special tools manual.

The third to the 11th chapters cover engine and driving systems.

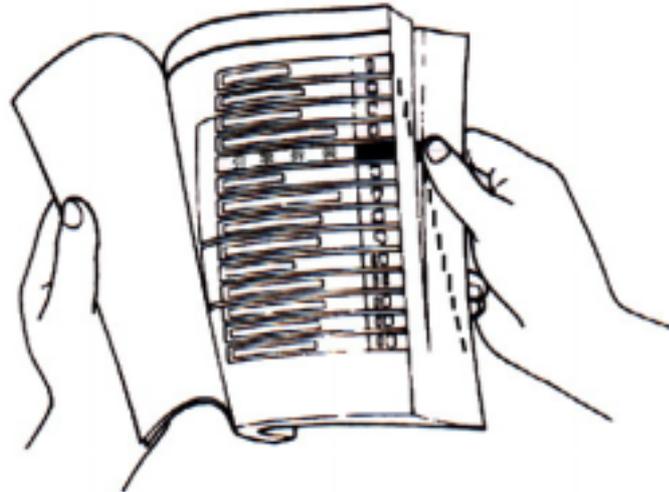
The 12th chapter is cooling system.

The 13th to the 16th chapter is contained the parts set of assembly frame body.

The 17th chapter is electrical equipment.

The 18th chapter is wiring diagram.

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

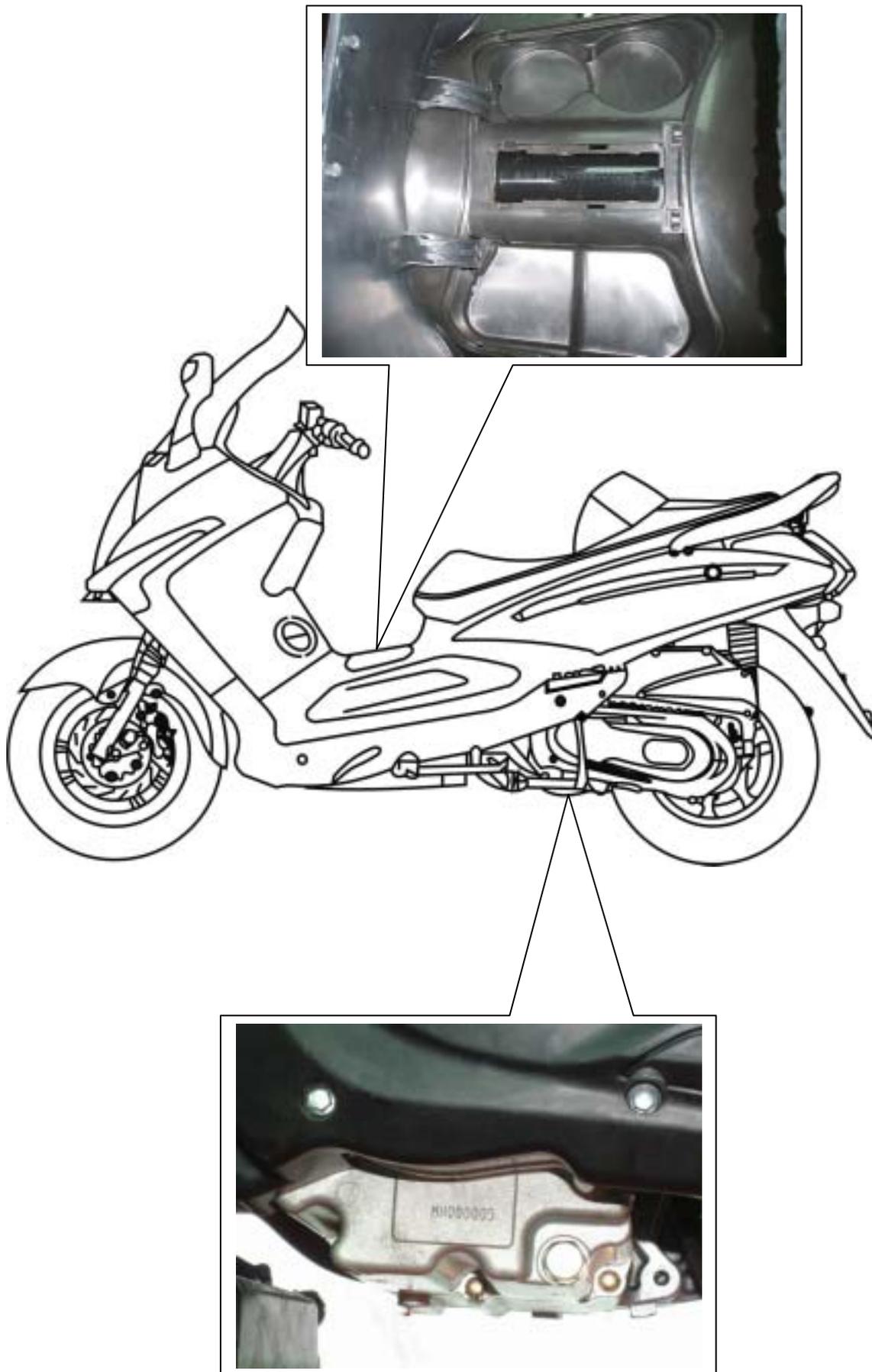


There are 4 buttons, “[Forward](#)”, “[Contents](#)”, “[How to use this manual](#)” and “[Mechanism Illustrations](#)” on the CD-R version, and can be access to these items by click the mouse.

If user wants to look for the content of each chapter, selecting the words of each chapter on the contents can reach to each chapter. There are two buttons, “Homepage and contents, onto the top line of first page of the each chapter. Thus, if the user needs to check other chapters, he can click the top buttons to back the homepage or contents. The content of each chapter can be selected too.

Therefore, when needs to checking the content inside of the chapter, click the content words of the chapter so that can back to the initial section of the content. In addition, there is a “[To this chapter contents](#)” button at the second page of each contents so that clicking the button can back to the contents of this chapter.

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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 SG class oil. Warranty will not cover the damage that caused by not apply with the limited engine oil. (Recommended oil: KING MATE G-3 oil)
	Grease	King Mate G-3 is recommended.
	Gear oil	King Mate gear oil serials are recommended. (Bramax HYPOID GEAR OIL # 140)
	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 tools
	Correct	Meaning correct installation.
	Wrong	Meaning wrong installation.
	Indication	Indication of components.
	Directions	Indicates position and operation directions
		Components assembly directions each other.
		Indicates where the bolt installation direction, --- means that bolt cross through the component (invisibility).

1. General Information

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 verified. We recommend that you wash your hands with soap and water right after contacting. Keep the used oil beyond reach of children.

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 and 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 air hose or a dry brush to clean components of the brake system; use a vacuum cleaner or the equivalent to avoid dust flying.

Caution

Inhaling brake shoe or pad ash may cause disorders and cancer of the breathing system

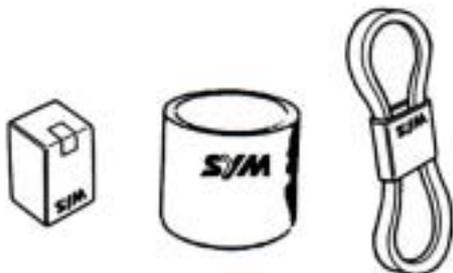
Brake fluid

Caution

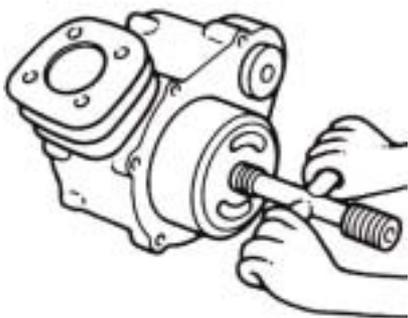
Spilling brake fluid on painted, plastic, or rubber parts may cause damage to the parts. Place a clean towel on the above-mentioned parts for protection when servicing the brake system. Keep the brake fluid beyond reach of children.

Service Precautions

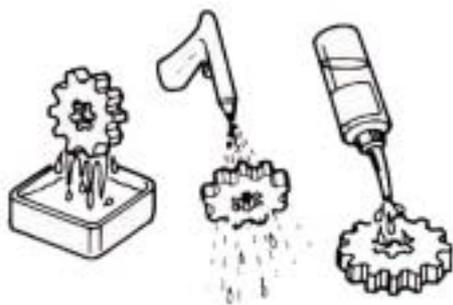
- Always use with SANYANG genuine parts and recommended oils. Using non-designed parts for SANYANG ATV may damage the ATV.



- 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.



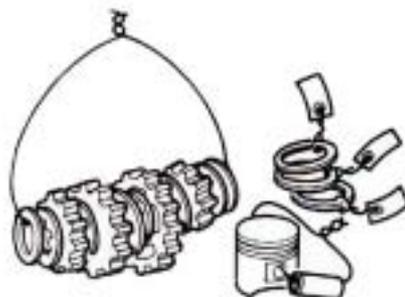
- When servicing this ATV, use only metric tools. Metric bolts, nuts, and screws are not interchangeable with the English system, using wrong tools and fasteners may damage this vehicle.
- Clean the outside of the parts or the cover before removing it from the ATV. Otherwise, dirt and deposit accumulated on the part's surface may fall into the engine, chassis, or brake system to cause 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 unsmooth 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.

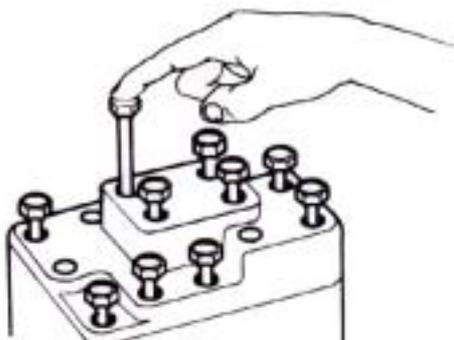


- Note the reassemble position of the important components before disassembling them to ensure they will be reassembled in correct dimensions (depth, distance or position).
- Components not to be reused should be replaced when disassembled including gaskets metal seal rings, O-rings, oil seals, snap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

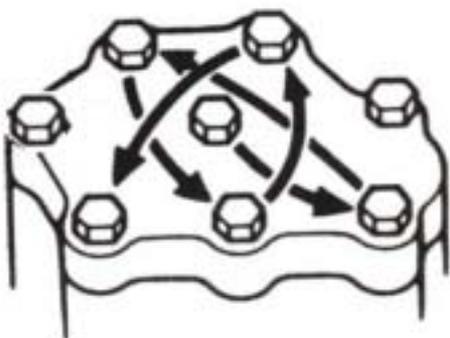


1. General Information

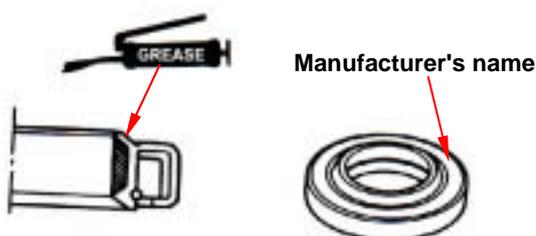
- The length of bolts and screws for assemblies, cover plates or boxes is different from one another, be sure they are correctly installed. In case of confusion, Insert the bolt into the hole to compare its length with other bolts, if its length out side the hole is the same with other bolts, it is a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



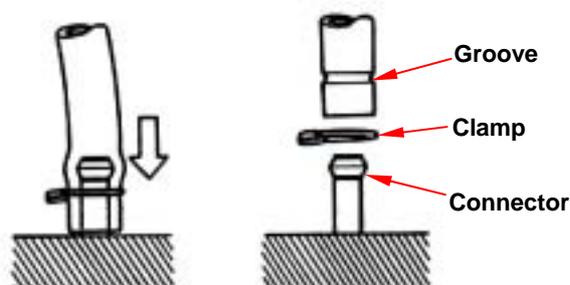
- When oil seal is installed, fill the groove with grease, install the oil seal with the name of the manufacturer facing outside, and check the shaft on which the oil seal is to be installed for smoothness and for burrs that may damage the oil seal.



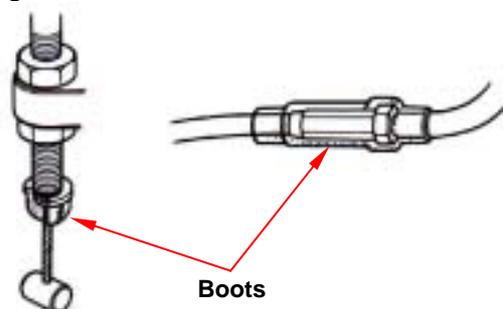
- Remove residues of the old gasket or sealant before reinstallation, grind with a grindstone if the contact surface has any damage.



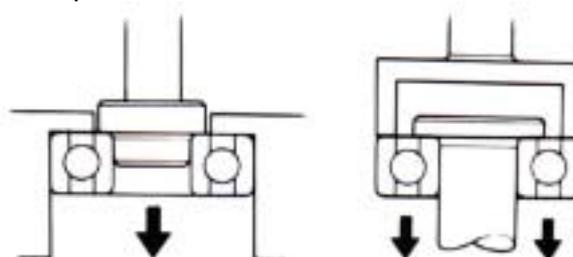
- The ends of rubber hoses (for fuel, vacuum, or coolant) should be pushed as far as they can go to their connections so that there is enough room below the enlarged ends for tightening the clamps.



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

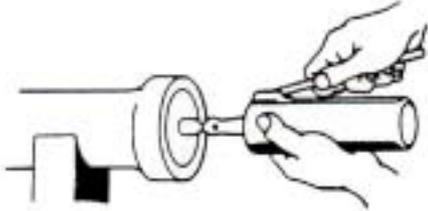


- The tool should be pressed against two (inner and outer) bearing races when removing a ball bearing. Damage may result if the tool is pressed against only one race (either inner race or outer race). In this case, the bearing should be replaced. To avoid damaging the bearing, use equal force on both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



Both of these examples can result in bearing damage.

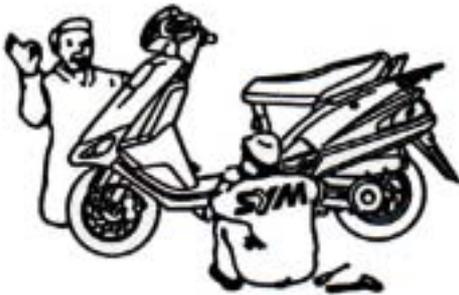
- Lubricate the rotation face with specified lubricant on the lubrication points before assembling.



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



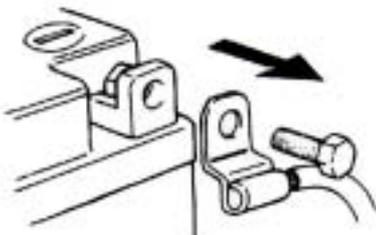
- Make sure service safety each other when conducting by two persons.



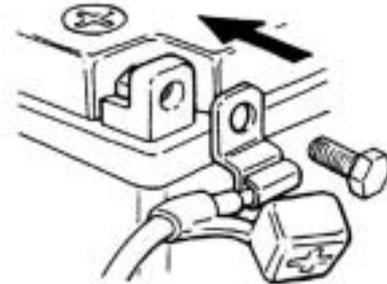
- Note that do not let parts fall down.



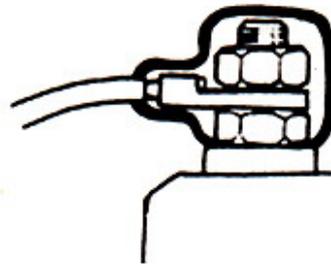
- Before battery removal operation, it has to remove the battery negative (-) cable firstly. Notre tools like open-end wrench do not contact with body to prevent from circuit short and create spark.



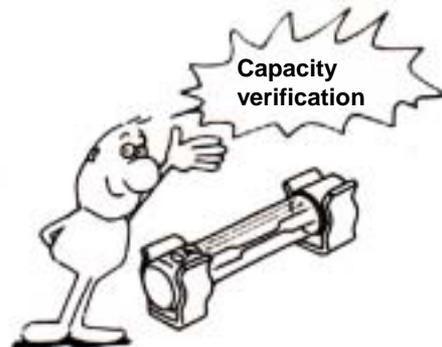
- After service completed, make sure all connection points is secured. Battery positive (+) cable should be connected firstly.
- And the two posts of battery have to be greased after connected the cables.



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

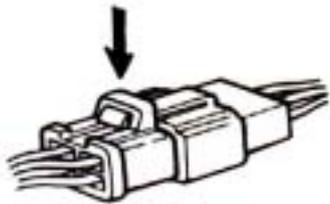


- If fuse burned, it has to find out the cause and solved it. And then replace with specified capacity fuse.



1. General Information

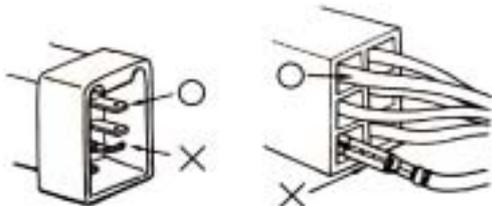
- When separating a connector, it locker has to be unlocked firstly. Then, conduct the service operation.



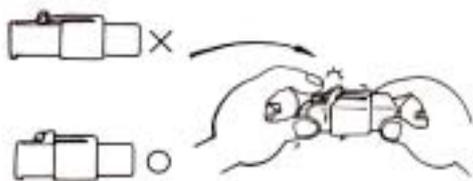
- Do not pull the wires as removing a connector or wires. Hold the connector body.



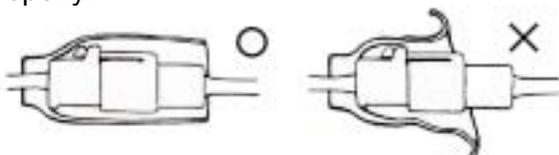
- Make sure if the connector pins are bent, extruded or loosen.



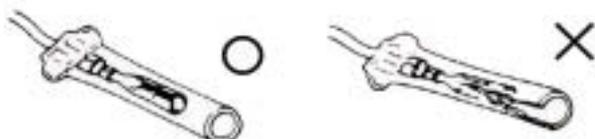
- Insert the connector completely. If there are two lockers on two connector sides, make sure the lockers are locked in properly. Check if any wire loose.



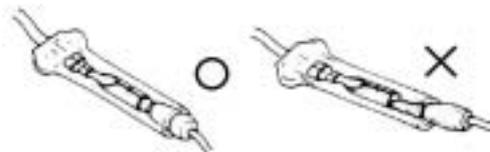
- Check if the connector is covered by the twin connector boot completely and secured properly.



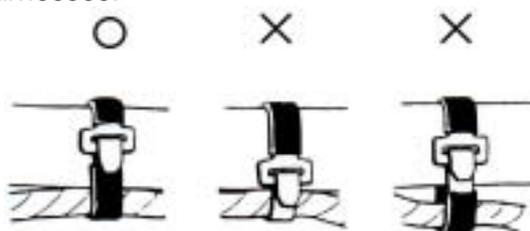
- Before terminal connection, check if the boot is crack or the terminal is loose.



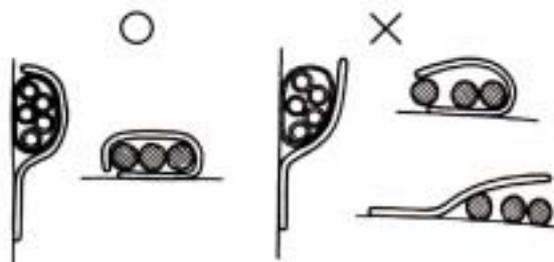
- Insert the terminal completely. Check if the terminal is covered by the boot. Do not let boot open facing up.



- 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.



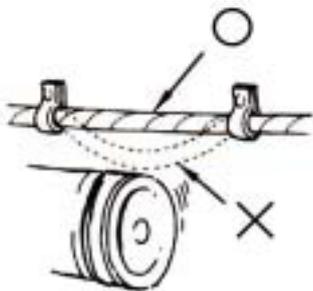
- Wire band and wire harness have to be clamped secured properly.



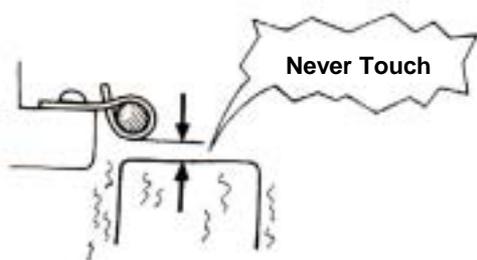
- Do not squeeze wires against the weld or its clamp.



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



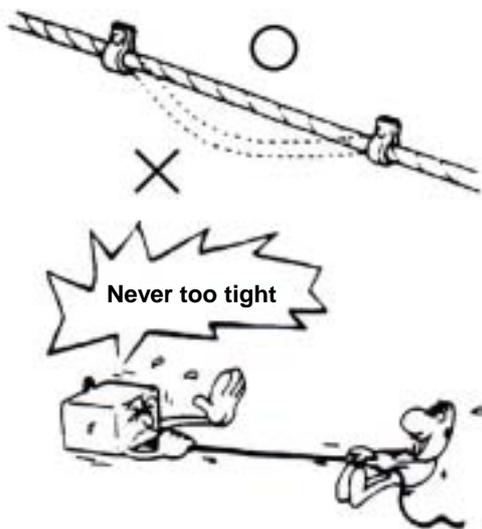
- Keep wire harnesses far away from the hot parts.



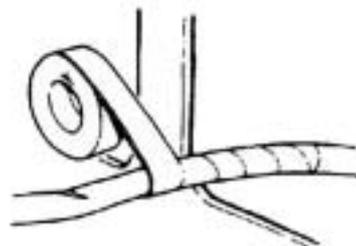
- Route wire harnesses to avoid sharp edges or corners and also avoid the projected ends of bolts and screws.



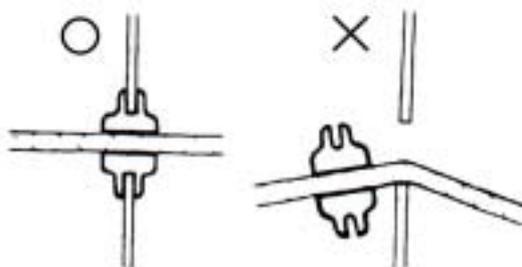
- Route harnesses so that they neither pull too tight nor have excessive slack.



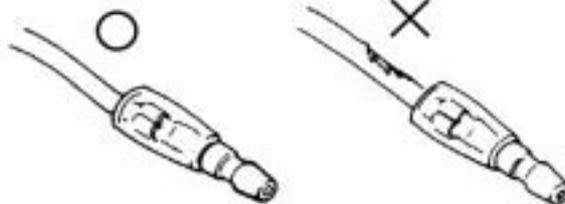
- Protect wires or wire harnesses with electrical tape or tube if they contact a sharp edge or corner. Thoroughly clean the surface where tape is to be applied.



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



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

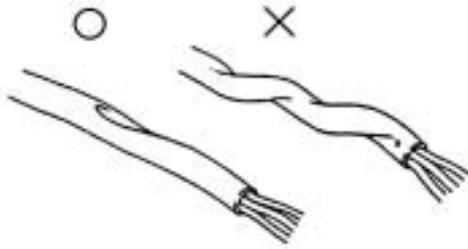


- Never clamp or squeeze the wire harness as installing other components.

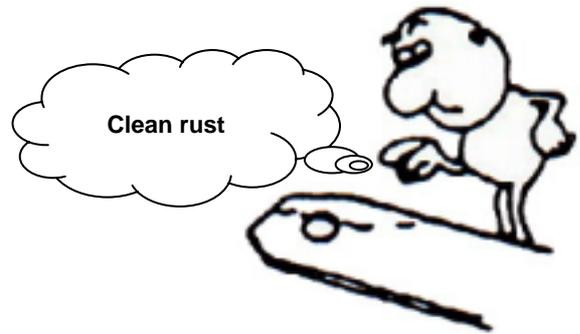


1. General Information

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



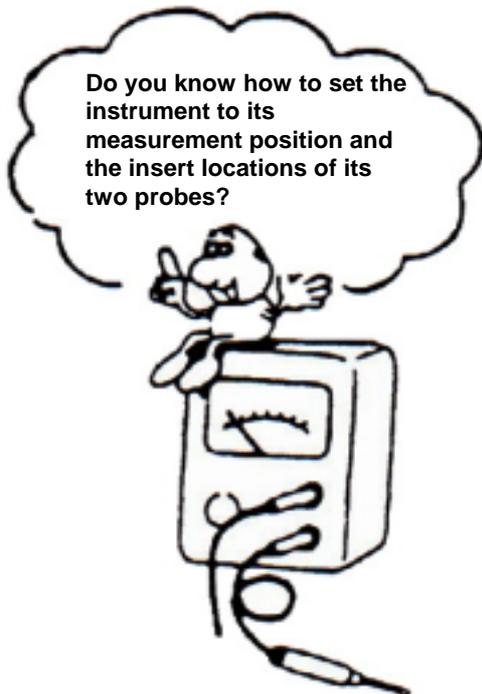
- With sand paper to clean rust on connector pins/terminals if found. And then conduct connection operation later.



- 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		LM25W		
Dimension	Overall Length	2165 mm		Suspension System	Front	TELESCOPE		
	Overall Width	870 mm			Rear	UNIT SWING		
	Overall Height	1380 mm		Tire Specifications	Front	110 / 90-13 56P		
	Wheel Base	1495 mm			Rear	130 / 70-13 57P		
Weight	Curb Weight	Front	69 kg		Brake System	Front	DISK (ø 240 mm)	
		Rear	104 kg			Rear	DISK (ø 220 mm)	
		Total	173 kg					
	Passengers/Weight		Two / 110 kg		Performance	Max. Speed	Above 115 km/hr	
	Total Weight	Front	91 kg			Climb Ability	Below 24°	
		Rear	192 kg		Reduction	Primary Reduction	Belt	
Total		283 kg		Secondary Reduction		Gear		
Type		4-STROKE ENGINE		Clutch	Centrifugal, dry type			
Installation and arrangement		Vertical, below center, incline 80°		Transmission	C.V.T., auto speed change			
Fuel Used		Above 92 unleaded		Speedometer		0 ~ 160 km/hr		
Cycle/Cooling		4-stroke/ forced air cooled		Horn		80~112 dB/A		
Engine	Cylinder	Bore	71 mm		Muffler		Expansion & Pulse Type	
		Stroke	63 mm		Exhaust Pipe Position and Direction		Right side, and Backward	
		Number/Arrangement	SINGLE CYLINDER		Lubrication System		Forced circulation & splashing	
Displacement		249.4 cc		Exhaust Concentration =	Solid Particulate		-	
Compression Ratio		10.5 : 1			CO		Below 7.0 g/km	
Max. HP		15.4kw / 7500 rpm			HC+Nox		Below 2.0 g/km	
Max. Torque		21.6 Nm / 6500 rpm		E.E.C.		√		
Ignition		Full transistor ignition		P.C.V.		√		
Starting System		Electrical starter		Catalytic reaction control system		√		

1. General Information

Torque Values

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
5 mm bolt、 nut	0.45~0.6kgf-m	5 mm screw	0.35~0.5kgf-m
6 mm bolt、 nut	0.8~1.2kgf-m	6 mm screw、 SH nut	0.7~ 1.1kgf-m
8 mm bolt、 nut	1.8~2.5kgf-m	6 mm bolt、 nut	1.0 ~1.4kgf-m
10 mm bolt、 nut	3.0~4.0kgf-m	8 mm bolt、 nut	2.4 ~3.0kgf-m
12 mm bolt、 nut	5.0~6.0kgf-m	10 mm bolt、 nut	3.5~4.5kgf-m

Engine Torque Values

Item	Q'ty	Thread Dia. (mm)	Torque Value(kgf-m)	Remarks
Cylinder stud bolt	4	10	1.0~1.4	Apply oil to thread
Cylinder head nut	4	8	3.6~4.0	
Cylinder head right bolt	2	8	2.0~2.4	
Cylinder head side cover bolt	2	6	1.0~1.4	
Cylinder head cover bolt	4	6	1.0~1.4	
Cylinder head stud bolt (inlet pipe)	2	6	1.0~1.4	
Cylinder head stud bolt (EX. pipe)	2	8	2.4~3.0	
Air inject pipe bolt	4	6	1.0~1.4	
Air inject reed valve bolt	2	3	0.07~0.09	
Tappet adjustment screw nut	4	5	0.7~1.1	
Spark plug	1	10	1.0~1.2	
Tensioner lifter bolt	2	6	1.0~1.4	
Carburetor insulator bolt	2	6	0.7~1.1	
Oil pump screw	2	3	0.1~0.3	
Water pump impeller	1	7	1.0~1.4	
Engine left cover bolt	9	6	1.1~1.5	
Engine oil draining bolt	1	12	3.5~4.5	
Engine oil strainer cap	1	30	1.3~1.7	
Mission draining bolt	1	8	0.8~1.2	
Mission filling bolt	1	10	1.0~1.4	
Clutch driving plate nut	1	28	5.0~6.0	
Clutch outer nut	1	14	5.0~6.0	
Drive face nut	1	14	8.5~10.5	
ACG. Flywheel nut	1	14	5.0~6.0	
Crankcase bolt	7	6	0.8~1.2	
Mission case bolt	7	8	2.6~3.0	
Muffler mounting bolt	3	10	3.2 ~3.8	
Muffler mounting nut	2	8	1.0 ~1.2	

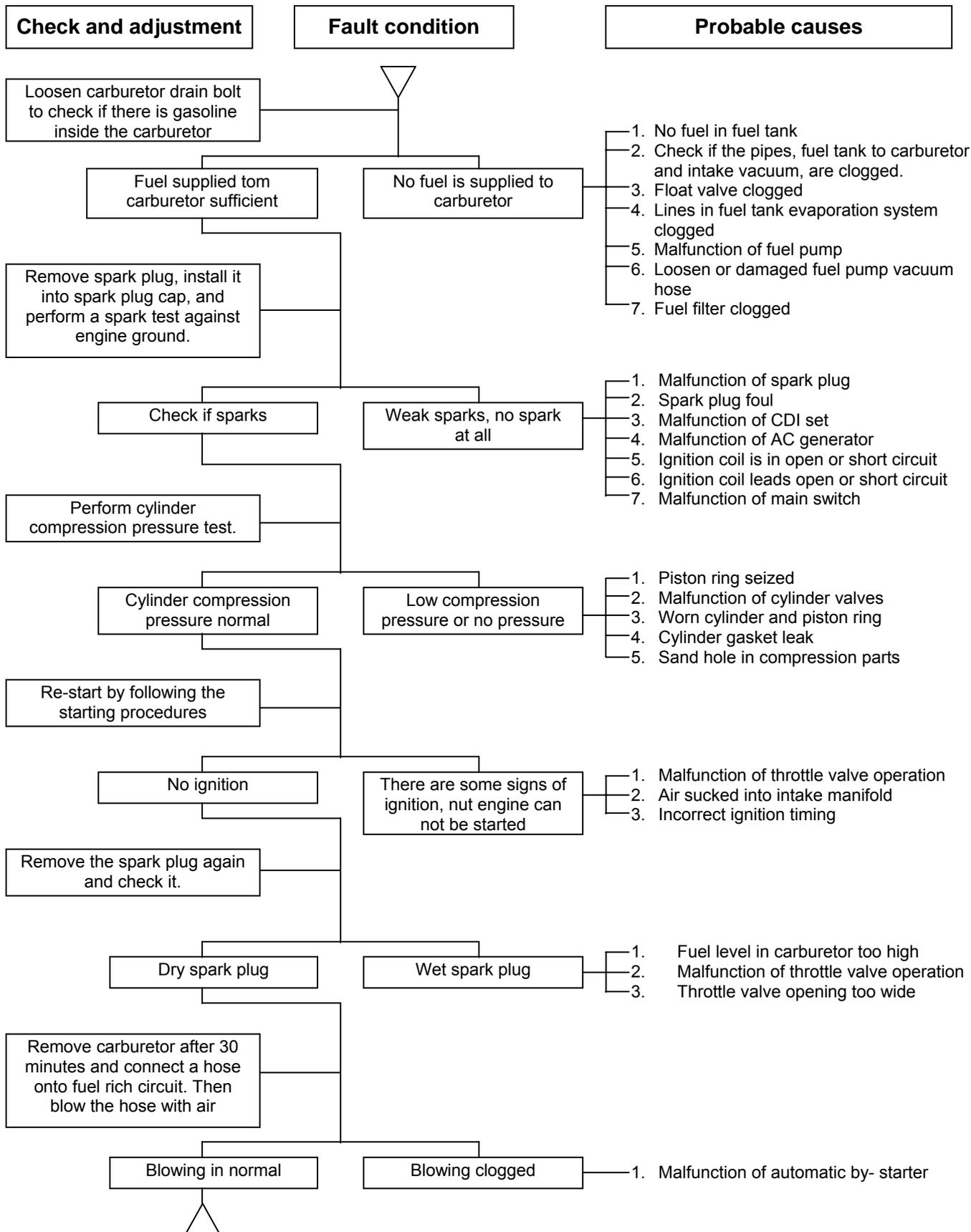
Frame Torque Values

Item	Q'ty	Thread Dia. (mm)	Torque Value (Kg-m)	Remarks
Mounting bolt for steering handle post	1	10	4.0~5.0	
Lock nut for steering stem	1	BC1	1.0~2.0	
Steering top cone race	1	BC1	2.0~3.0	
Front wheel axle nut	1	12	5.0~7.0	
Rear wheel axle nut	1	16	11.0~13.0	
Front cushion mounting bolt	4	10	3.5~4.5	
Rear cushion upper connection bolt	1	10	3.5~4.5	
Rear cushion under connection bolt	1	8	2.4~3.0	
Rear fork mounting bolt	2	10	4.0~5.0	
Brake hose bolt	2	10	3.0~4.0	
Brake air-bleeding valve	1	6	0.8~1.0	
Front brake disc mounting bolt	5	8	4.0~4.5	
Rear brake disc mounting bolt	5	8	4.0~4.5	
Brake clipper mounting bolt	2	8	2.9~3.5	
Engine hanger link bolt	2	12	7.5~9.5	On frame side
Engine hanger link nut	1	12	7.5~9.5	On engine side
Main standard nut	1	10	4.0~5.0	
Air cleaner bolts	2	6	1.0~1.4	

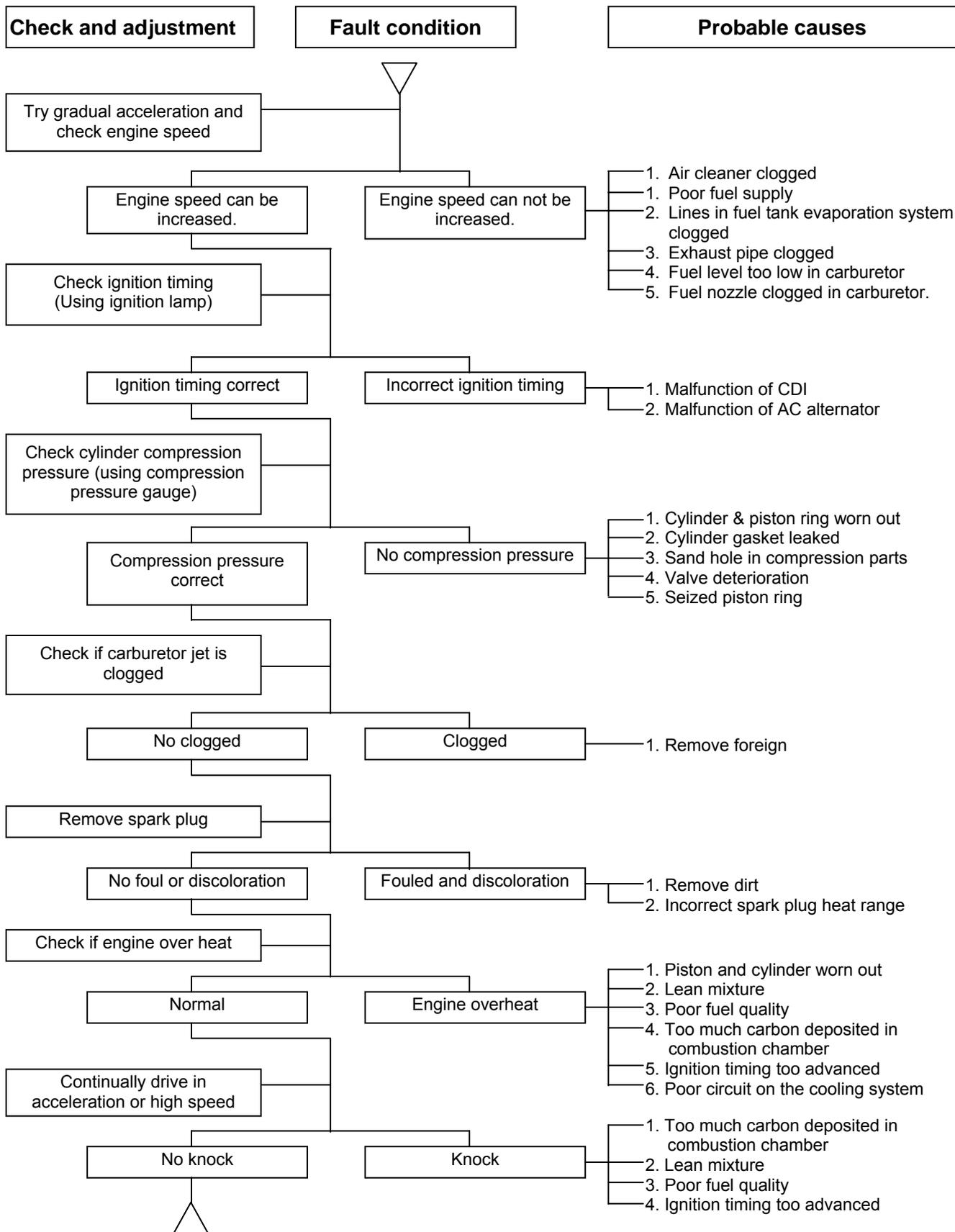
1. General Information

Troubles Diagnosis

A. Engine hard to start or can not be started

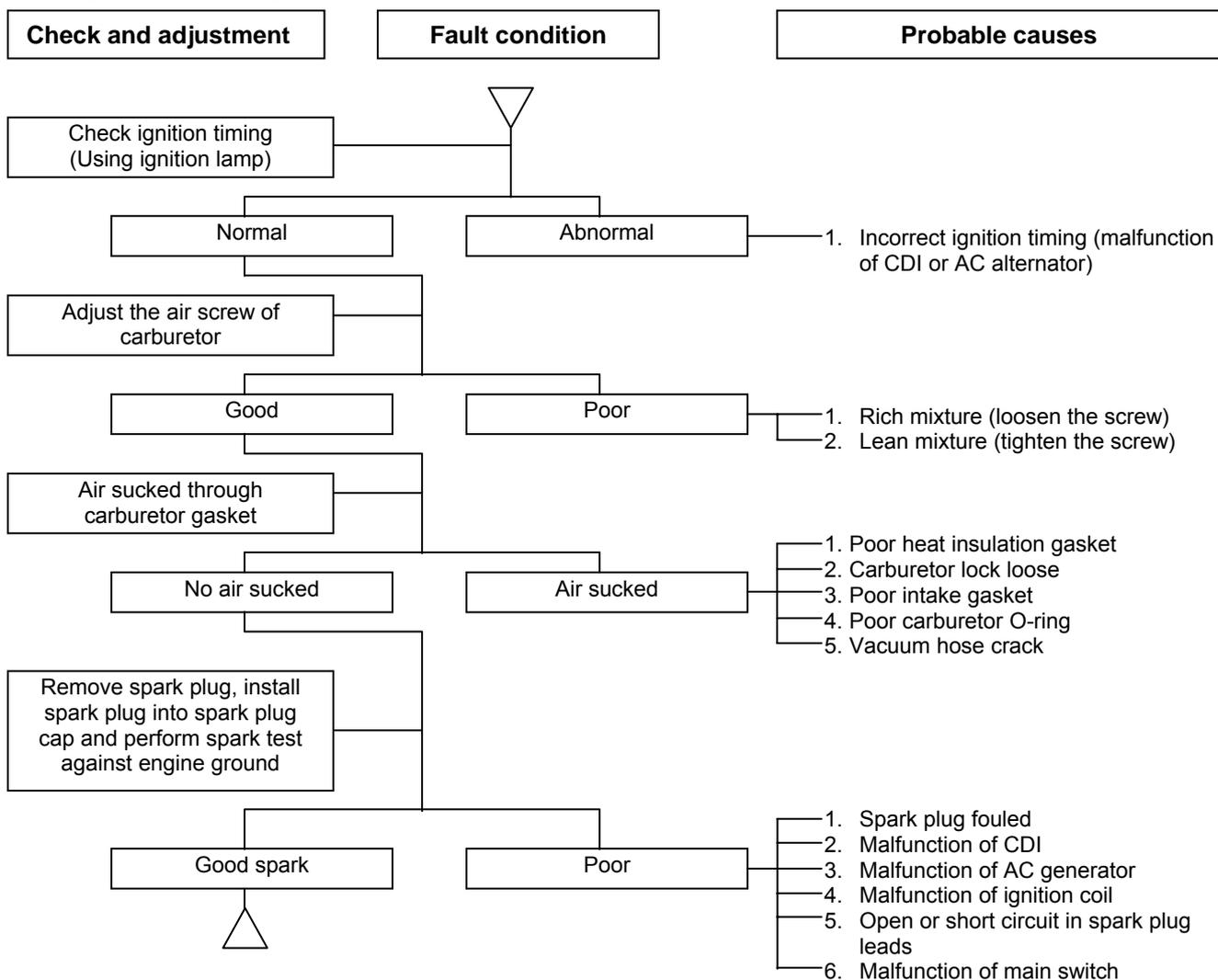


B. Engine run sluggish (Speed does not pick up, lack of power)

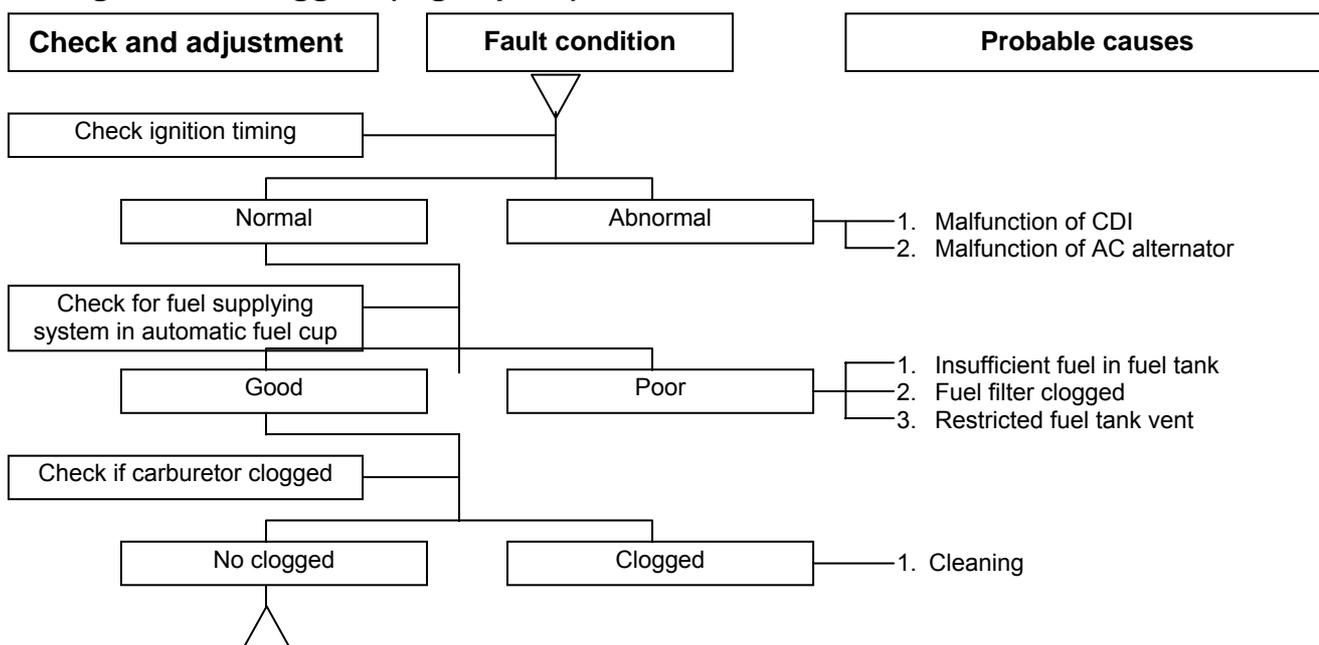


1. General Information

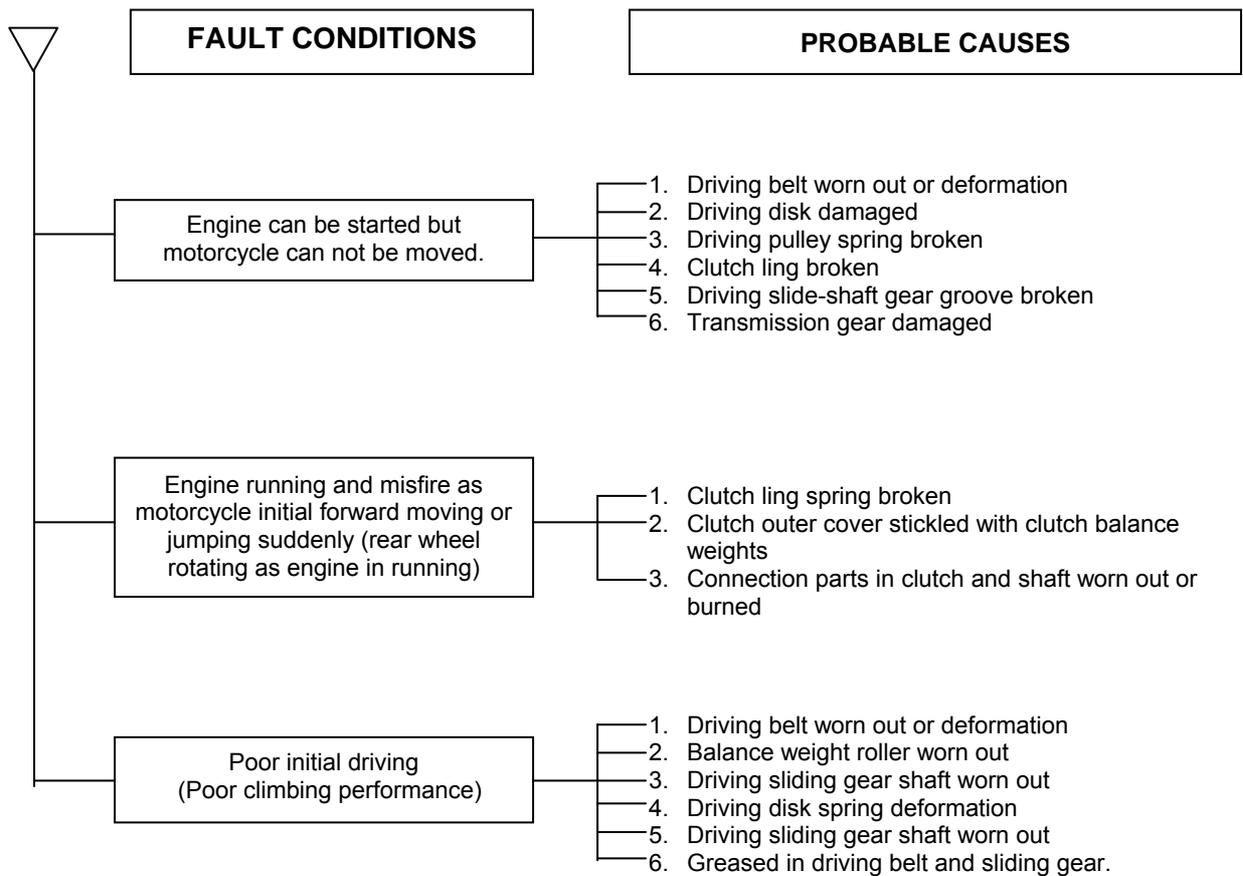
C. Engine runs sluggish (especially in low speed and idling)



D. Engine runs sluggish (High speed)

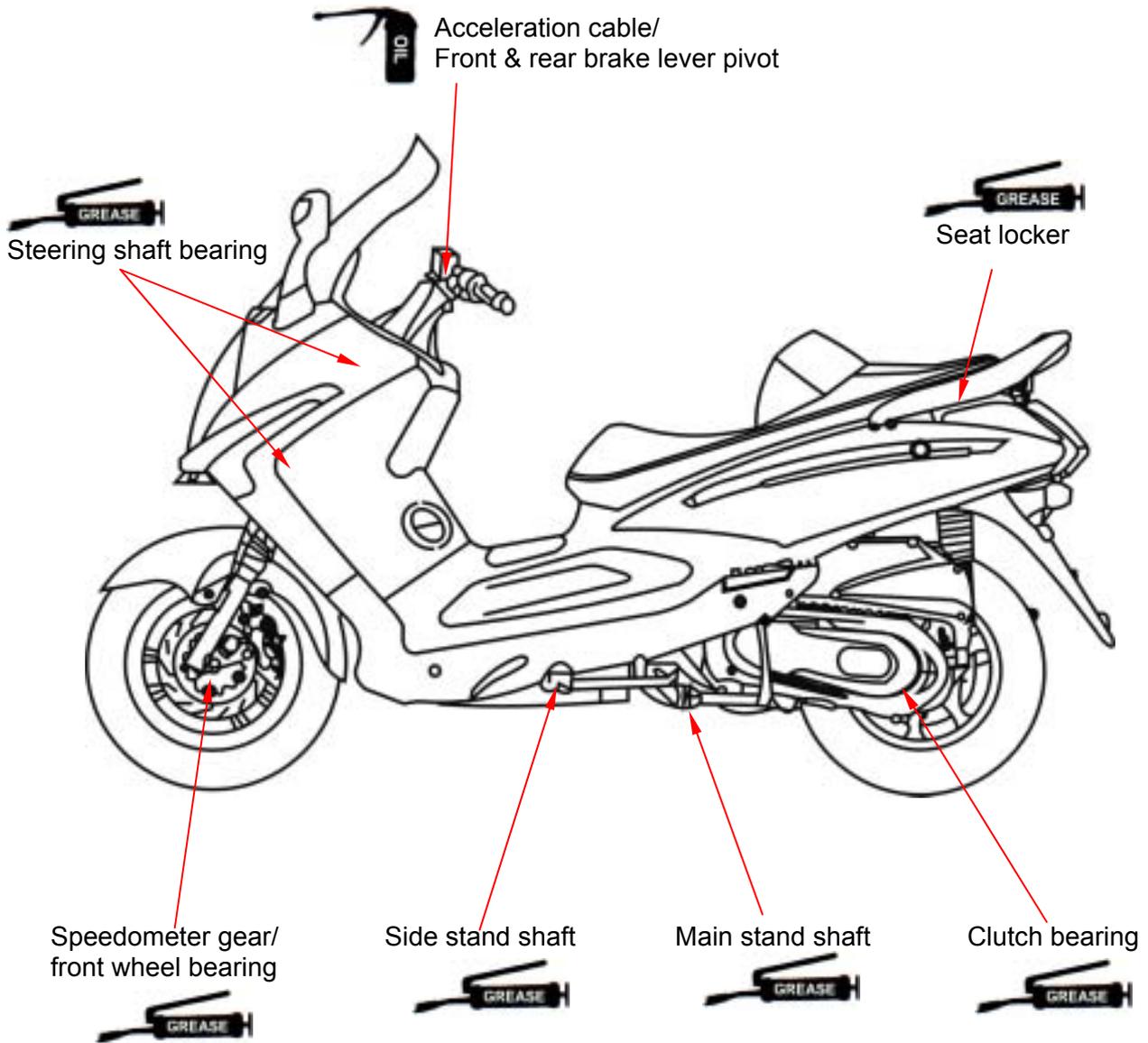


E. Clutch, Driving And Driving Pulley



1. General Information

Lubrication Points



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Precautions in Operation

Model		LM25W
Fuel Tank Capacity		12,000 c.c.
Engine Oil	capacity	1,400 c.c.
	change	1,200 c.c.
Transmission Gear oil	capacity	180 c.c.
	change	170 c.c.
Capacity of coolant	Engine + radiator	850 c.c.
	Reservoir upper	420 c.c.
Clearance of throttle valve		2~6 mm
Spark plug		CR7HSA (gap:0.6~0.7 mm)
"F" Mark in idling speed		BTDC 10° / 2,500 rpm
Full timing advanced		BTDC 30° at 6,000 rpm
Idling speed		1,500±100 rpm
Cylinder compression pressure		12 ± 2 Kg/cm ²
Valve clearance	IN	0.1±0.02 mm
	EX	0.15±0.02 mm
Tire dimension	Front	110/90-13 56P
Tire dimension	Rear	130/70-13 57P
Tire pressure (cold)	single	Front: 1.5 Kg/cm ² Rear: 2.25 Kg/cm ²
	Load 90 Kg (full load)	Front: 1.5 Kg/cm ² Rear: 2.5 Kg/cm ²
Battery		12V10Ah (MF battery)

2. Maintenance Information

Periodical Maintenance Schedule

No	item	Every 300KM	1 Month every 1,000KM	3 month every 3,000KM	6 month every 6,000KM	1 year every 12,000KM
1	Air cleaner	I		C	C	R
2	2nd air jet leaner	I		C	C	R
3	Fuel filter	I			I	R
4	Oil filter	C			C	C
5	Engine oil change	R	Replacement for every 1,000 km			
6	Tire pressure	I	I	I	I	I
7	Battery inspection	I	I	I	I	I
8	Brake & free ply check	I	I	I	I	I
9	Steering handle check	I			I	I
10	Cushion operation check	I			I	I
11	Every screw tightening check	I	I	I	I	I
12	Gear oil check for leaking	I	I	I	I	I
13	Spark plug check or change	I		I	R	R
14	Gear oil change	R	Replacement for every 5,000 km			
15	Frame lubrication				L	L
16	Exhaust pipe	I	I	I	I	I
17	Ignition timing	I	I	I	I	I
18	emission check in Idling	A	I	I	I	I
19	Throttle operation	I		I	I	I
20	Engine bolt tightening	I		I	I	I
21	CVT driving device(belt)				I	R
22	CVT driving device(roller)				C	C
23	Lights/electrical equipment/multi-meters	I	I	I	I	I
24	Main/side stands & springs	I			I	I
25	Fuel lines	I		I	I	I
26	Shock absorbers			I	I	I
27	Cam chain	I		I	I	I
28	Valve clearance	I		A	A	A
29	Crankcase evaporative control system	I		C	C	C
30	Crankcase blow-by over-flow pipe		Replacement for every 2,000 km			
31	2nd air jet system	I		I	C	C
32	Evaporative control system			I	I	I
33	Lines & connections in cooling system	I	I	I	I	I
34	Coolant reservoir	I	I	I	I	I
35	Coolant	I	Replacement for every 1 year			

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 1,000 kilometers as a reference which ever comes first.

Remarks: 1. **These marks “ A ” in the schedule are emission control items. According to EPA regulations, these items must be performed 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.

Engine Oil

Turn off engine, and park the motorcycle in flat surface with main stand.

Check oil level with oil dipstick

So not screw the dipstick into engine as checking.
If oil level is nearly low level, fill out recommended oil to upper level.

Oil Change

Caution

- Drain oil as engine warmed up so that make sure oil can be drained smoothly and completely.

Place an oil pan under the motorcycle, and remove oil drain bolt.
After drained, make sure washer can be re-used.
Install oil drain bolt.

Torque value: 3.5~4.5kgf-m

Add oil to crankcase (oil viscosity SAE 10W-30)
Recommended using King serial oil.

Engine oil capacity:

Disassembly 1400c.c.

Replacement 1200c.c.

Install dipstick, start the engine for running several minutes.

Turn off engine, and check oil level again.

Check if engine oil leaks.



Engine Oil Strainer Clean

Drain engine oil out.

Remove oil strainer and spring.

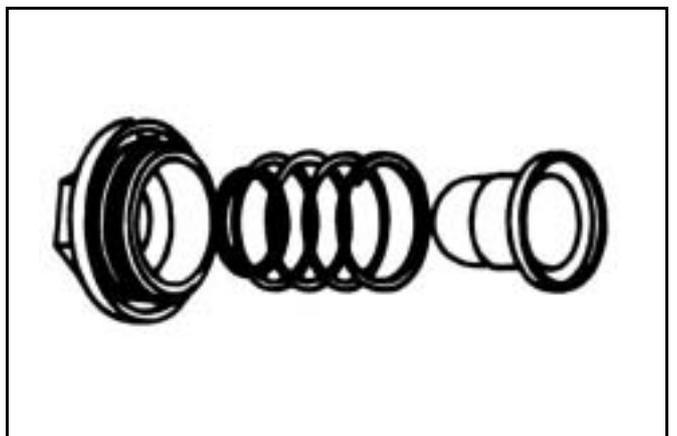
Clean oil strainer.

Check if O-ring can be re-used.

Install oil strainer and spring.

Install oil strainer cap.

Torque value : 1.3~1.7kgf-m



2. Maintenance Information

Gear Oil

Oil level inspection

Park the motorcycle on flat surface with main stand.

Turn off the engine.

Gear Oil Change

Remove oil inspection bolt.

Remove drain plug and drain oil out.

Install the drain plug after drained.

Torque value: 0.8~1.2kgf-m

Add gear oil to specified quantity from the inspection hole.

Install the inspection bolt.

Torque value: 1.0~1.4kgf-m

Gear Oil Quantity: 170 c.c. when replacing

Make sure that the bolt washer can be re-used, and install the bolt.

Start engine and run engine for 2-3 minutes.

Turn off engine and make sure that oil level is in correct level.

Make sure that no oil leaking.

Fuel Lines / Cable

Remove luggage box.

Remove rear carrier.

Remove body covers.

Check all lines, 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.

Acceleration 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 acceleration cable and replace it if deteriorated, twisted or damaged.

Lubricate the cable if operation is not smooth

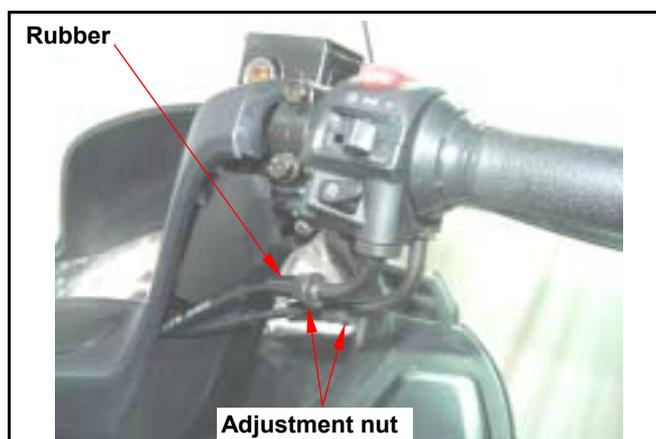
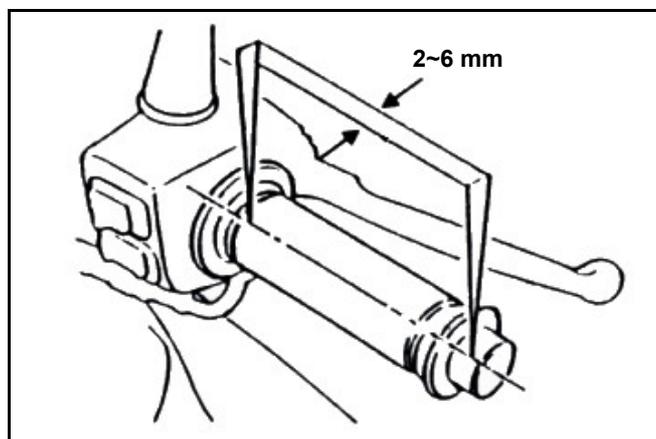
Measure handle bar free play in its flange part.

Free play: 2~6 mm.

Adjustment can be done in either end.

Secondary adjustment is conducted from top side.

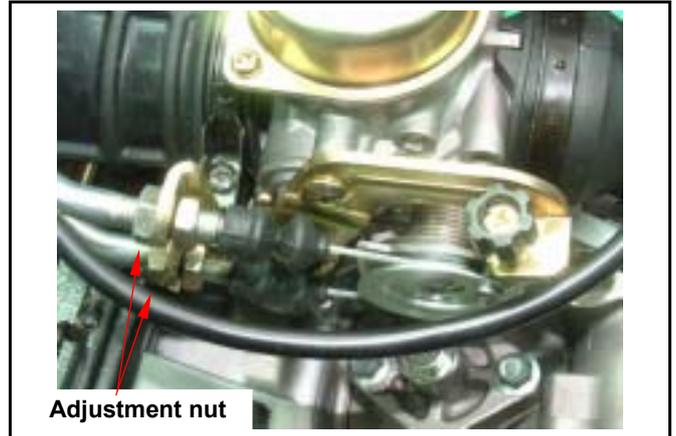
Remove rubber boot, loosen fixing nut, and then adjust it by turning the adjustment nut.



Primary adjustment is conducted from bottom side.

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

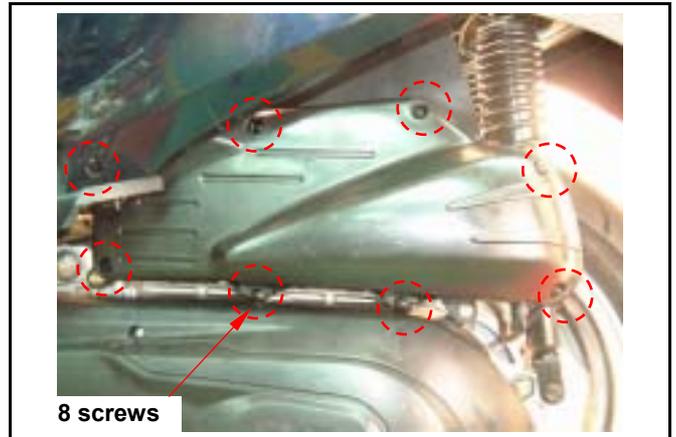
Tighten the fixing nut, and check acceleration operation condition.



Air Cleaner

Air Cleaner Element

Remove 8 screws from the air cleaner cover and then remove the cover.



Remove the body cover.

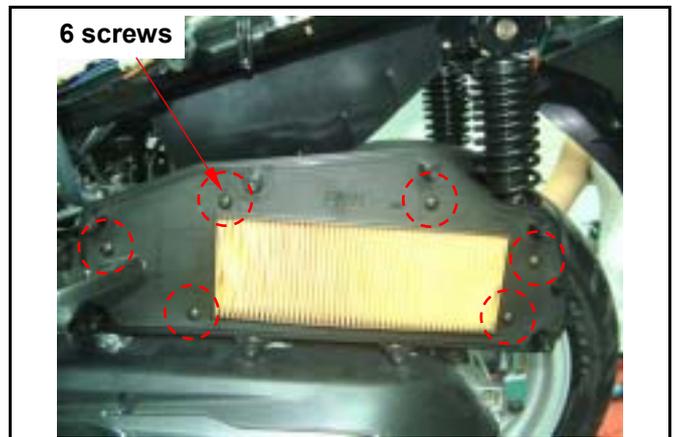
Loosen bolt from the air cleaner air hose.



Remove 6 screws, and then remove the air cleaner element.

Caution

- The air cleaner element is made of paper so do not soap it into water or wash it with water.



2. Maintenance Information

P.C.V. system

Draws out the plug from lower of the breather chamber hose.

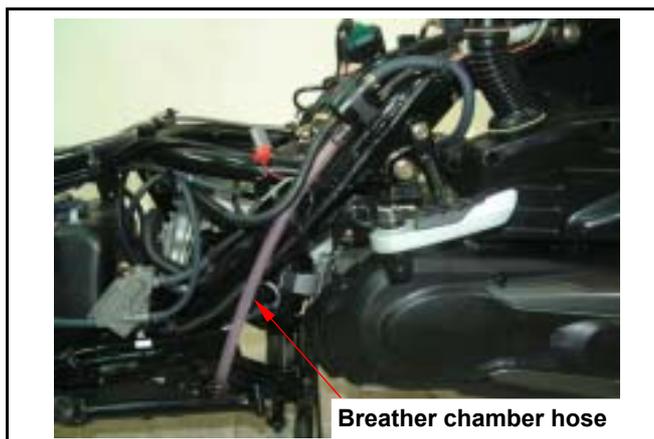
Releases the dry internal deposit.

Every 2,000 kilometers release oil

Caution

A In releases the anal fistula in the transparent section as worthy of looking at as any deposit

- In the multi- rain or the accelerator in the situation rides, must reduce the maintenance traveling schedule
- In releases the anal fistula in the transparent section as worthy of looking at as any deposit



Valve Clearance

Caution

- Checks and adjustment must be performed when the engine temperature is below 35 .

Remove luggage box.

Remove cylinder head cover & side cover.

Remove ignition timing hole cap located in front upper side of engine right cover

Turn camshaft bolt in C.W. direction and let the "T" mark on the camshaft sprocket aligns with cylinder head mark so that piston is placed at TDC position in compression stroke.

Caution

- Do not turn the bolt in C.C.W. direction to prevent from camshaft bolt looseness.

Valve clearance inspection and adjustment:

Check & adjust valve clearance with feeler gauge.

Valve clearance (IN) : 0.1 ± 0.02 mm.

Valve clearance (EX) : 0.15 ± 0.02 mm.

Loosen fixing nut and turn the adjustment nut for adjustment.

Caution

- Re-check the valve clearance after tightened the fixing nut.

Special tool: Tappet adjuster

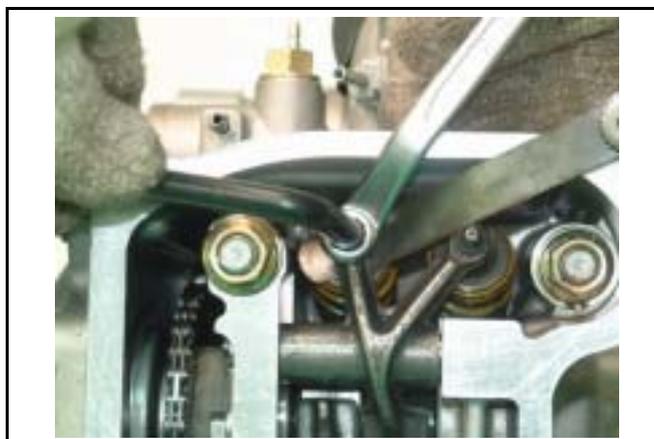
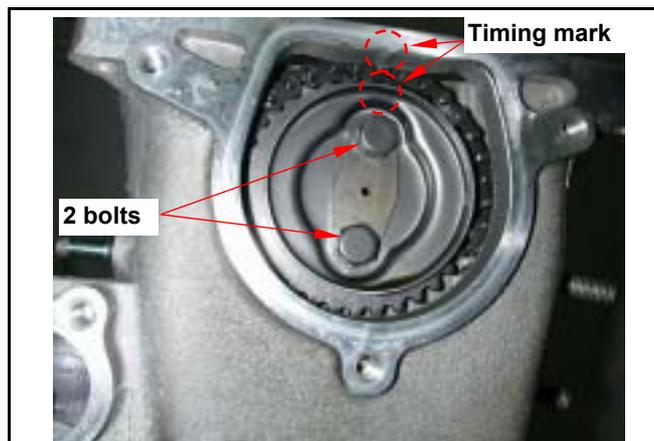
SYM-9001200-08

SYM-9001200-09

SYM-9001200-10

Special tool: Tappet adjuster wrench

SYM-9001200



Carburetor Idle Speed Adjustment

⚠ Caution

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

Park the motorcycle with main stand and warm up engine.

Connect tachometer (the wire clamp of tachometer is connected to the high tension cable).

Open carburetor cover from the luggage box.

Turn the throttle valve stopper screw to specified idle speed

Specified idle speed: 1500±100 rpm.

Emission adjustment in idle speed

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

Connect the tachometer onto engine.

Adjust the throttle valve stopper screw and let engine runs in 1500±100 rpm.

Insert the exhaust sampling pipe 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.

Slightly accelerate the throttle valve and release it immediately. Repeat this for 2~3 times.

Read engine RPM and value on the exhaust analyzer. Repeat step 2 to step 4 procedures

until measured value within standard.

Emission standard CO: 3.0 %↓

HC: 2,000 P.P.M.↓

Ignition coil cable



Throttle valve stopper screw



Mixture air adjusting screw

2. Maintenance Information

Ignition System

Caution

- C.D.I ignition system is set by manufacturer so it can not be adjusted.
- Ignition timing check procedure is for checking whether CDI function is in normal or not.

Remove right side cover.

Remove ignition timing hole cap located in front upper side of engine right cover.

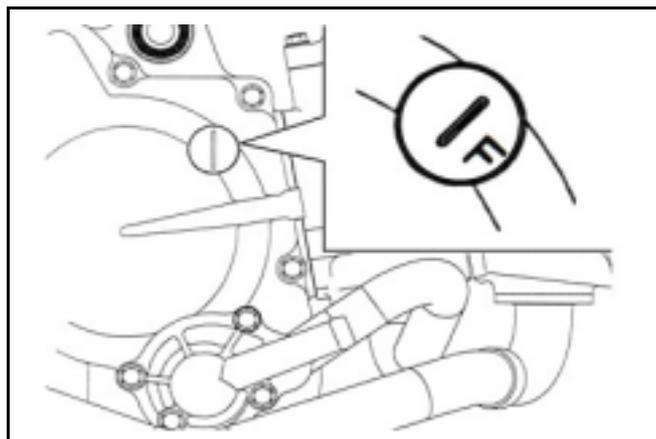
Connect tachometer and ignition lamp.

Start engine.

As engine in idle speed: 2,500 rpm, aim at the "F" mark with the ignition lamp. Then, it is means that ignition timing is correct.

Increase engine speed to 6,000 rpm to check ignition advance degree. If indent is located within the ignition advance degrees, it is means that the ignition advance degree is in normal.

If ignition timing is incorrect, check CDI set, pulse rotor and pulse generator. Replace it if malfunction of these parts is found.



Spark Plug

Recommended spark plug: CR8E

Remove luggage box

Remove central cover.

Remove spark plug cap.

Clean dirt around the spark plug hole.

Remove spark plug.

Measure spark plug gap.

Spark plug gap: 0.6~0.7 mm

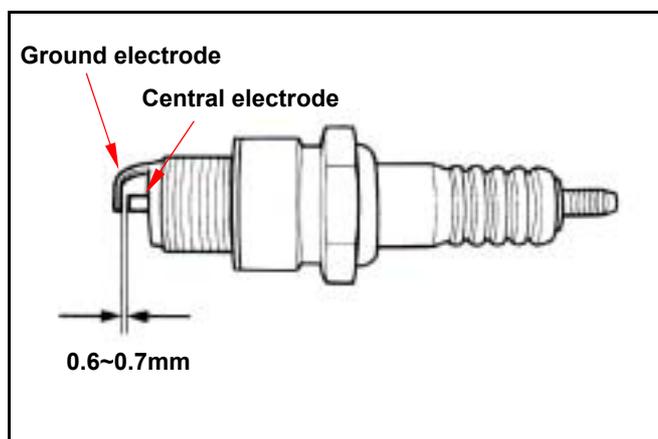
Carefully bend ground electrode of the plug to adjust the gap if necessary.

Hold spark plug washer and install the spark plug by screwing it.

Tighten the plug by turning 1/2 turn more with plug socket after installed.

Tighten torque: 1.0~1.2kgf-m

Connect spark plug cap





Cylinder Compression Pressure

Warm up engine.
 Turn off the engine.
 Remove luggage box and central cover
 Remove spark plug cap and spark plug.
 Install compression gauge.
 Full open the throttle valve, and rotate the engine by means of starter motor.

⚠ Caution

Rotate the engine until the reading in the gauge no more increasing.

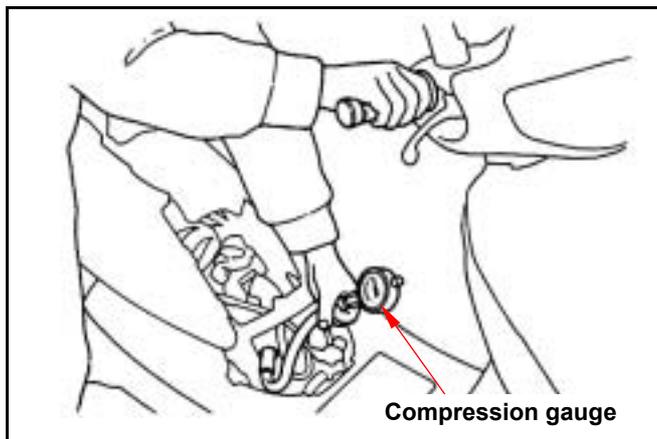
- Usually, the highest pressure reading will be obtained in 4~7 seconds.

Compression pressure : $12 \pm 2 \text{ Kg/cm}^2$

Check following items if the pressure is too low:

- Incorrect valve clearance.
- Valve leaking.
- Cylinder head leaking, piston, piston ring and cylinder worn out.

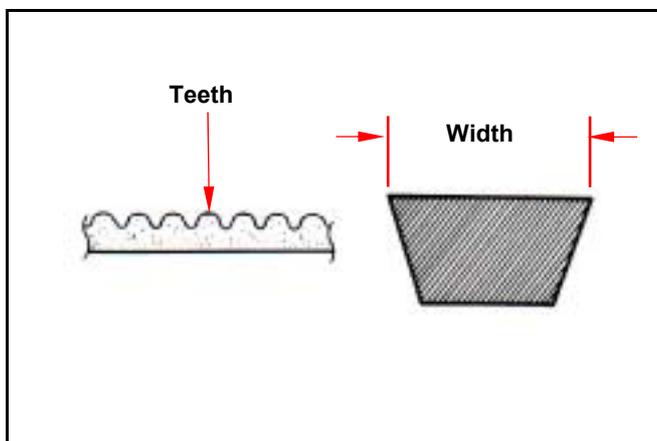
If the pressure is too high, it means carbon deposits in combustion chamber or piston head.



Drive Belt

Remove mounting bolt located under air cleaner.
 Remove the engine left side cover and the cover.
 Check if the belt is crack or worn out.
 Replace the belt if necessary or in accord with the periodical maintenance schedule to replace it.

Width limit: 22.5 mm or above



Clutch Disc Wear

Run the motorcycle and increase throttle valve opening gradually to check clutch operation.
 If the motorcycle is in forward moving and shaking, check clutch disc condition. Replace it

