TARGET 425

SERVICE MANUAL

TAIWAN GOLDEN BEE CO.,LTD.

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This service manual contains the technical data of each component inspection and repair for the TGB Target 425/400.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 Target 425/400, 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

TAIWAN GOLDEN BEE CO., LTD.

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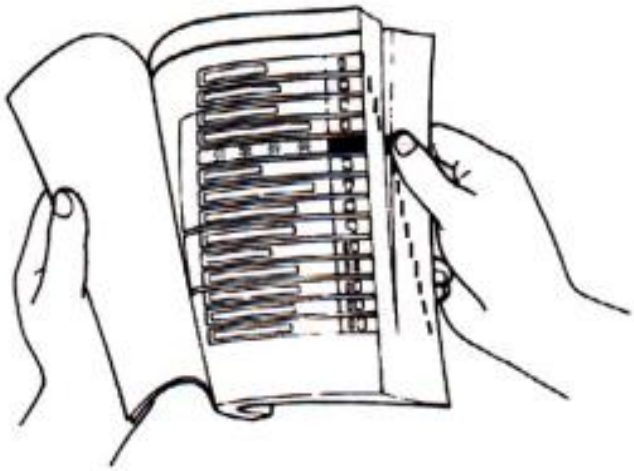
HOW TO USE THIS MANUAL

This service manual describes basic information of different system parts and system inspection & service for TGB Target 425/400.
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.



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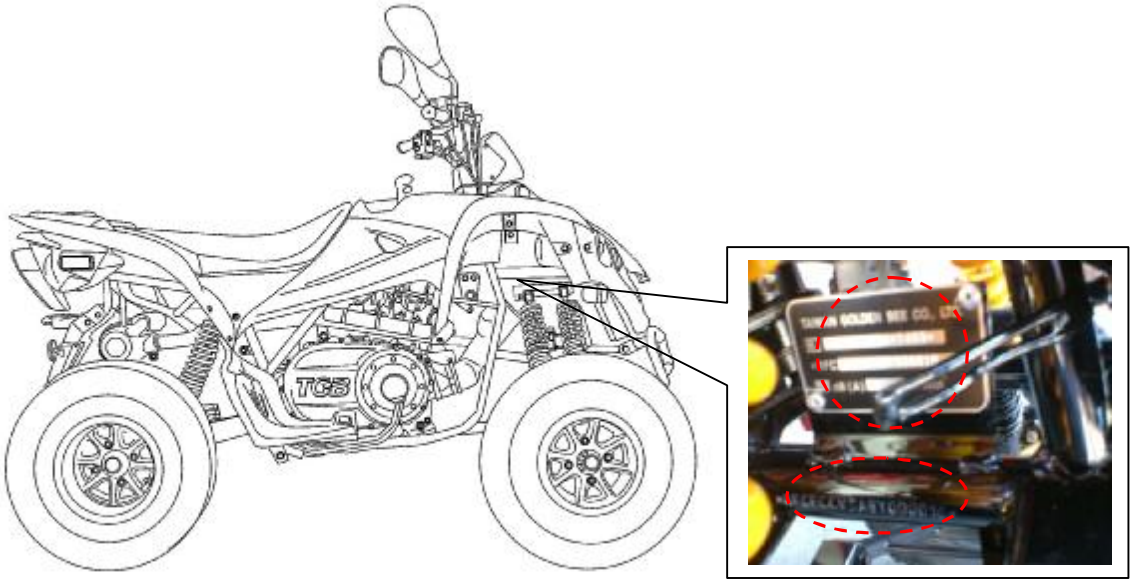
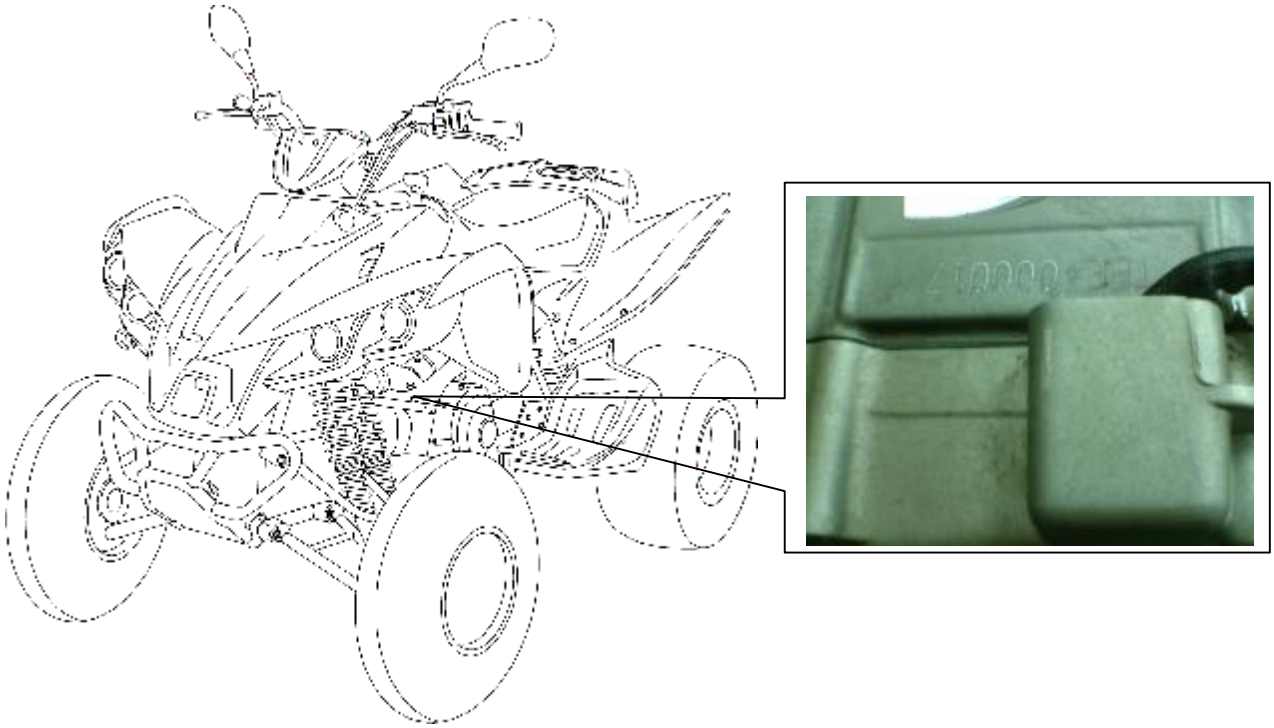
Frame number



Engine number



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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-40 API SG 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 DOT4 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)

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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. Keeps 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.

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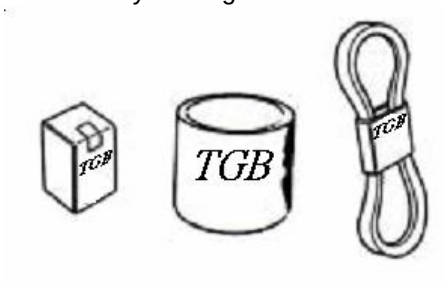
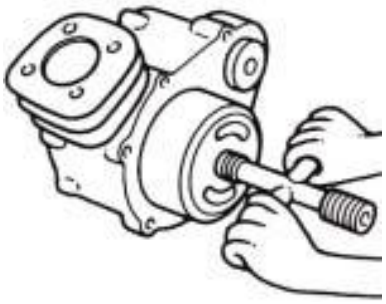
Service Precautions

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



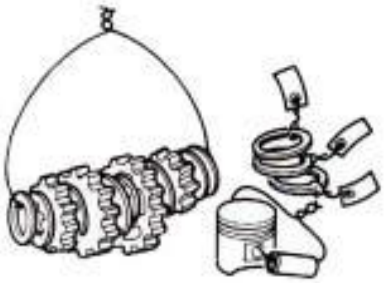
- Special tools are designed for remove and install of components without damaging the parts being worked on. Using wrong tools may result in parts damaged.



- 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.

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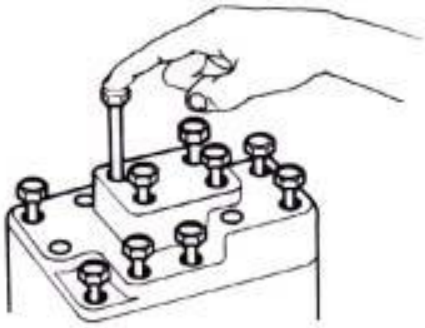
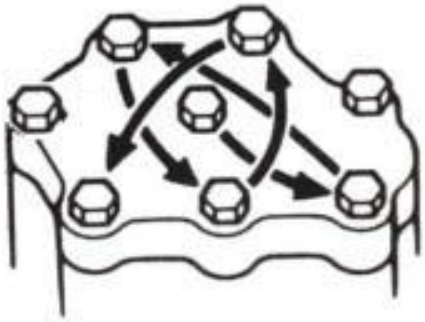
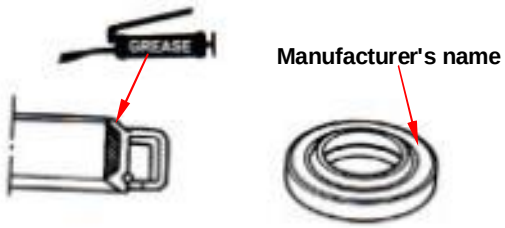
- The length of bolts and screws for assemblies, cover plates or boxes is different from one another, be sure they are correctly installed. In case of confusion, Insert the bolt into the hole to compare its length with other bolts, if its length out side the hole is the same with other bolts, it is a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

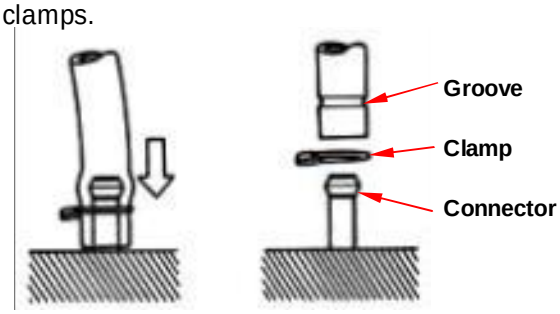


- When oil seal is installed, fill the groove with grease, install the oil seal with the name of the manufacturer facing outside, and check the shaft on which the oil seal is to be installed for smoothness and for burrs that may damage the oil seal.

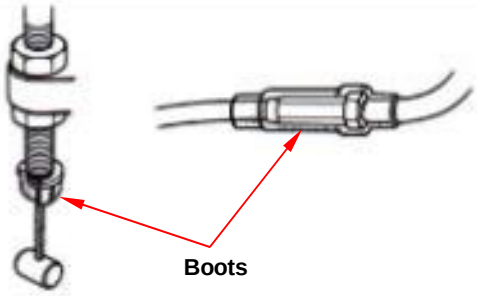


- Remove residues of the old gasket or sealant before reinstallation, grind with a grindstone if the contact surface has any damage.

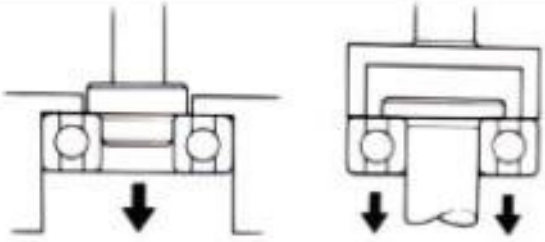
- The ends of rubber hoses (for fuel, vacuum, or coolant) should be pushed as far as they can go to their connections so that there is enough room below the enlarged ends for tightening the clamps.



- 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.

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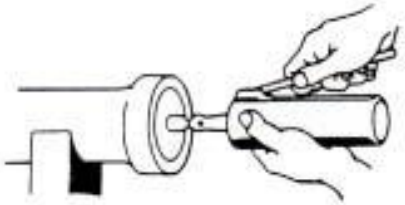
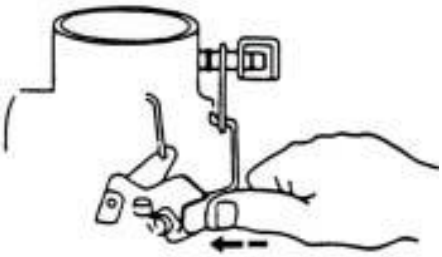
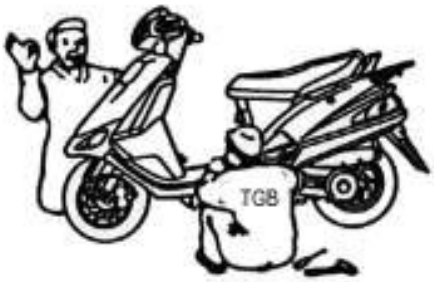
- Lubricate the rotation face with specified lubricant on the lubrication points before assembling.



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

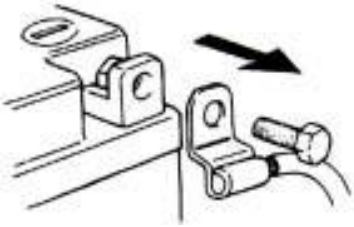


- Make sure service safety each other when conducting by two persons.

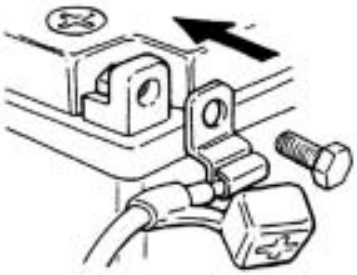


- Note that do not let parts fall down.

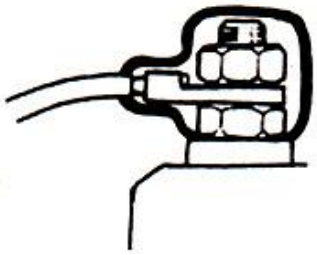
- Before battery removal operation, it has to remove the battery negative (-) cable firstly. Notre tools like open-end wrench do not contact with body to prevent from circuit short and create spark.



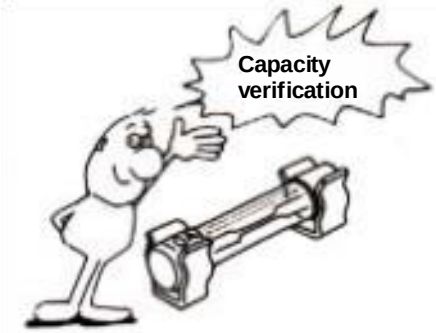
- After service completed, make sure all connection points is secured.
  Battery positive (+) cable should be connected firstly.
- And the two posts of battery have to be greased after connected the cables.



- 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.



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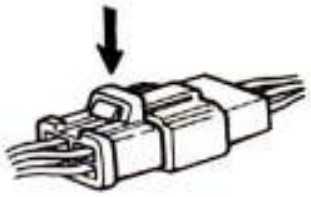
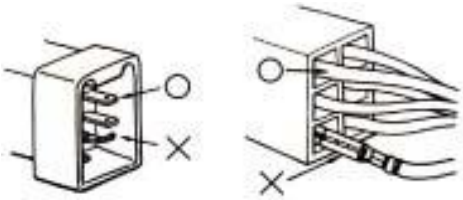
- When separating a connector, it locker has to be unlocked firstly. Then, conduct the service operation.

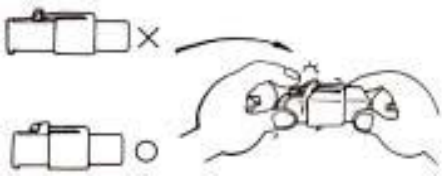


- Do not pull the wires as removing a connector or wires. Hold the connector body.

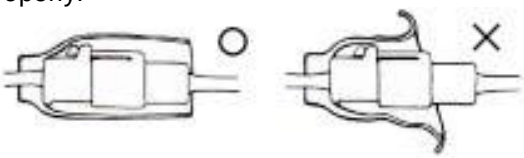
- Make sure if the connector pins are bent, extruded or loosen.



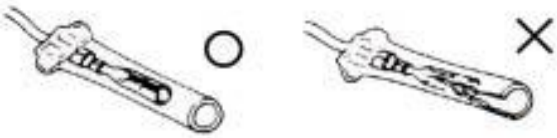
- Insert the connector completely.
  If there are two lockers on two connector sides, make sure the lockers are locked in properly.
  Check if any wire loose.



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

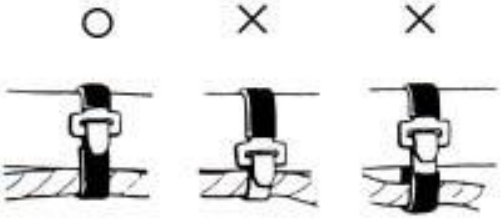


- Before terminal connection, check if the boot is crack or the terminal is loose.

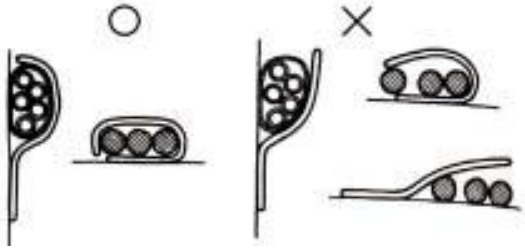


- Insert the terminal completely.
  Check if the terminal is covered by the boot.
  Do not let boot open facing up.

- 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.

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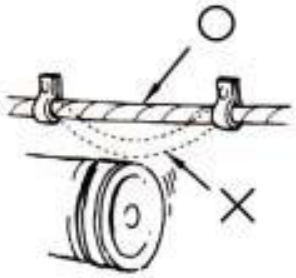
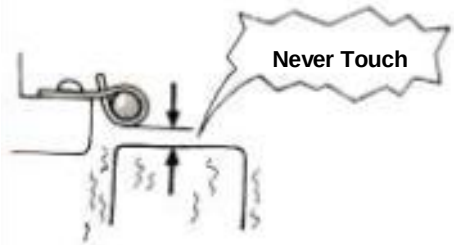
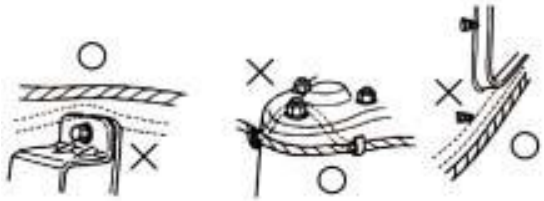
- Do not let the wire harness contact with rotating, moving or vibrating components as routing the harness.



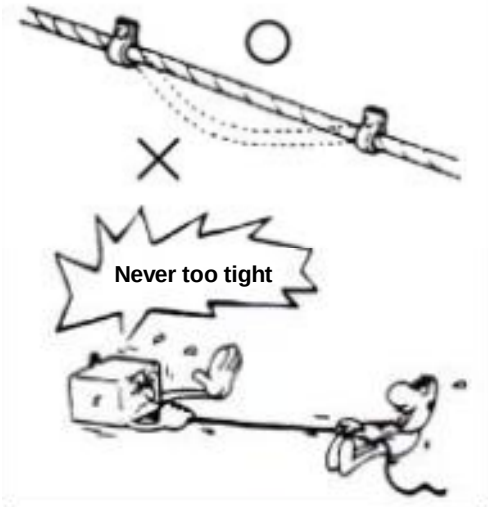
- Keep wire harnesses far away from the hot parts.



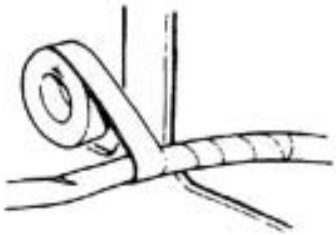
- Route wire harnesses to avoid sharp edges or corners and also avoid the projected ends of bolts and screws.



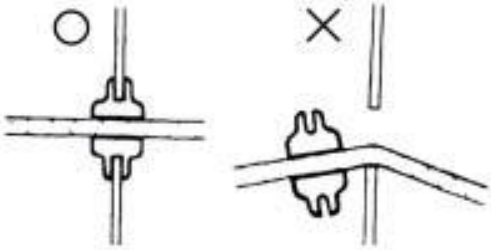
- Route harnesses so that they neither pull too tight nor have excessive slack.



- 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.

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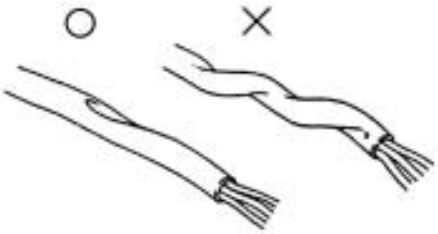
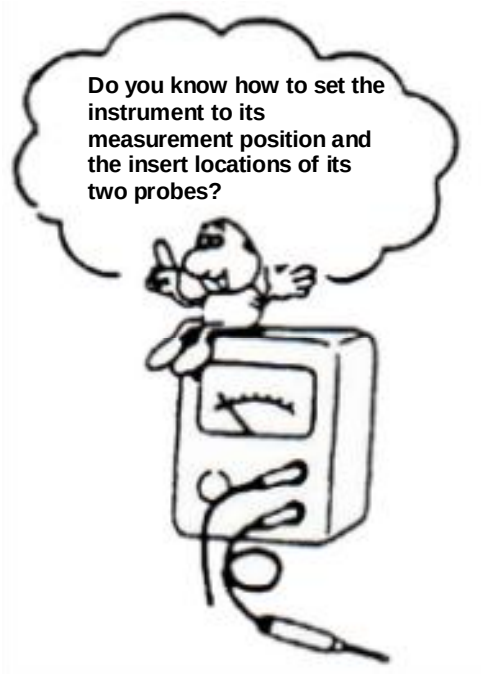
- Do not let the wire harness been twisted as installation.

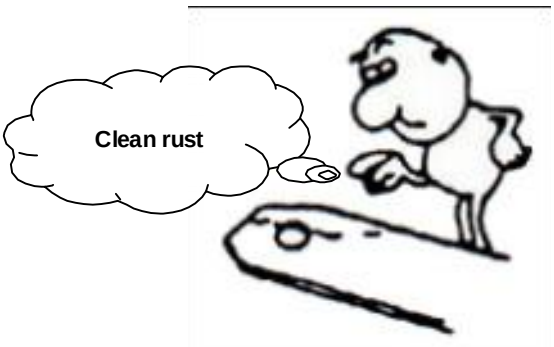


- Wire harnesses routed along the handlebar should not be pulled too tight or have excessive slack, be rubbed against or interfere with adjacent or surrounding parts in all steering positions.

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



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



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Specifications

MAKER			TGB	MODEL		VSE 400c.c.
Dimension	Overall Length		2080 mm	Suspension System	Front	Double arm
	Overall Width		1240 mm		Rear	Unit Swing
	Overall Height		1320 mm	Tire Specifications	Front	AT23X7-10
	Wheel Base		1290 mm		Rear	AT22X11-10
	Wheel tread	Front	1050 mm	Rim	Aluminum / Steel	
		Rear	975mm	Brake System	Front	Disk (Ø 180mm)
	Curb Weight	Front	154 kg		Rear	Disk (Ø 180mm)
		Rear	161 kg	Performance	Max. Speed	Above 92 km/hr
Weight	Passengers/ weight		Two / 150 kg	Transmission devices	Transfer	Shaft drive
	Total Weight	Front	197 kg			
		Rear	293 kg		Shift lever	L, H, N, R
		Total	490kg		Shift	Manual lever
Engine	Type		4-Stroke Engine		Clutch type	Wet multi-plate
	Installation and arrangement		Vertical, below center, incline		Transmission	Continuously variable
						Centrifugal type
	Fuel Used		Above 92 unleaded	Speedometer		0 ~ 300 km/hr
	Cycle/Cooling		4-stroke/Water cooled	Horn		93 ~ 112dB/A
	Cylinder	Bore	Ø86 mm	Muffler		Expansion & Pulse Type
		Stroke	69.4 mm	Exhaust Pipe Position and Direction		Left side, and Backward
		Number/ Arrangement	Single Cylinder	Lubrication System		Forced circulation & splashing
	Displacement		403.1 cc	Exhaust Concentration	Solid Particulate	
	Compression Ratio		9.2 : 1		CO	Below 7.0 g/ km
	Max. HP		14.9kw / 6500rpm		HC	Below 1.5g/ km
	Max. Torque		25.5Nm / 4000rpm		Nox	Below 0.4g/ km
	Ignition		C.D.I.	Fuel capacity		15 ± 0.3L
	Starting System		Electrical/ Recoil starter	Spark plug		NGK CR7E
	Air filtration		Sponge	Battery		12V 18AH
LAMPS	FRONT LAMPS(HI / LO)		12V 55WX2 55WX2	BRAKE LAMPS		12V 21WX1
	REAR LAMPS		12V 5WX1	TURN LAMPS		12V 10WX4

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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	
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	Apply oil to thread
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	1.1~1.5	
Mission filling bolt	1	12	3.5~4.5	
Shift drum fixing bolt	1	14	3.5~4.5	
Clutch driving plate nut	1	28	5.0~6.0	
Clutch outer nut	1	18	16~18	
Drive face nut	1	16	11.5~12	
ACG. Flywheel nut	1	18	16~18	
Crankcase bolts	7	6	0.8~1.2	
Mission case bolt	7	8	2.6~3.0	

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Frame Torque Values

Item	Q'ty	Thread Dia. (mm)	Torque Value(kgf-m)	Remarks
Handlebar upper holder bolt	4	6	2.40	
Steering shaft nut	1	10	5.00	
Steering tie-rod nut	4	10	5.00	
Knuckle nut	2	10	5.00	
Steering shaft holder bolt	2	8	3.40	
Tie rod lock nut	4	10	3.60	
Handlebar under holder nut	2	8	4.00	
Front wheel nut	8	10	2.40	
Front axle castle nut	2	14	5.00	
Rear axle castle nut	2	14	5.00	
Rear wheel nut	8	10	2.40	
Engine hanger nut	4	12	8.50	
Rear axle holder bolt	4	12	9.20	
Drive gear bolt	2	10	4.60	
Driven gear nut	4	10	4.60	
Swing arm pivot bolt	1	14	9.20	
Front suspension arm nut	4	10	5.00	
Front / Rear cushion mounting bolt	6	10	4.60	
Brake lever nut	2	6	1.00	
Brake hose bolt	13	10	3.50	
Brake caliper bolt	6	6	3.25	
Brake disk mounting bolt	11	8	4.25	
Air-bleed valve	3	5	0.50	
Exhaust muffler mounting bolt	2	8	3.00	
Exhaust muffler connection nut	2	7	1.20	

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Troubles Diagnosis

A. Engine hard to start or can not be started

Check and adjustment	Fault condition	Probable causes
Loosen carburetor drain bolt to check if there is gasoline inside the carburetor		
	Fuel supplied tom carburetor sufficient	
	No fuel is supplied to carburetor	• No fuel in fuel tank • Check if the pipes, fuel tank to carburetor and intake vacuum, are clogged. • Float valve clogged • Lines in fuel tank evaporation system clogged • Malfunction of fuel pump • Loosen or damaged fuel pump vacuum hose • Fuel filter clogged
Remove spark plug, install it into spark plug cap, and perform a spark test against engine ground.		
	Check if sparks	
	Weak sparks, no spark at all	• Malfunction of spark plug • Spark plug foul • Malfunction of CDI set • Malfunction of AC generator • Ignition coil is in open or short circuit • Ignition coil leads open or short circuit • Malfunction of main switch
Perform cylinder compression pressure test.		
	Cylinder compression pressure normal	
	Low compression pressure or no pressure	• Piston ring seized • Malfunction of cylinder valves • Worn cylinder and piston ring • Cylinder gasket leak • Sand hole in compression parts
Re-start by following the starting procedures		
	No ignition	
	There are some signs of ignition; nut engine can not be started	• Malfunction of throttle valve operation • Air sucked into intake manifold • Incorrect ignition timing
Remove the spark plug again and check it.		
	Dry spark plug	
	Wet spark plug	• Fuel level in carburetor too high • Malfunction of throttle valve operation • Throttle valve opening too wide
Remove carburetor after 30 minutes and connect a hose onto fuel rich circuit. Then blow the hose with air		
	Blowing in normal	
	Blowing clogged	• Malfunction of automatic by- starter

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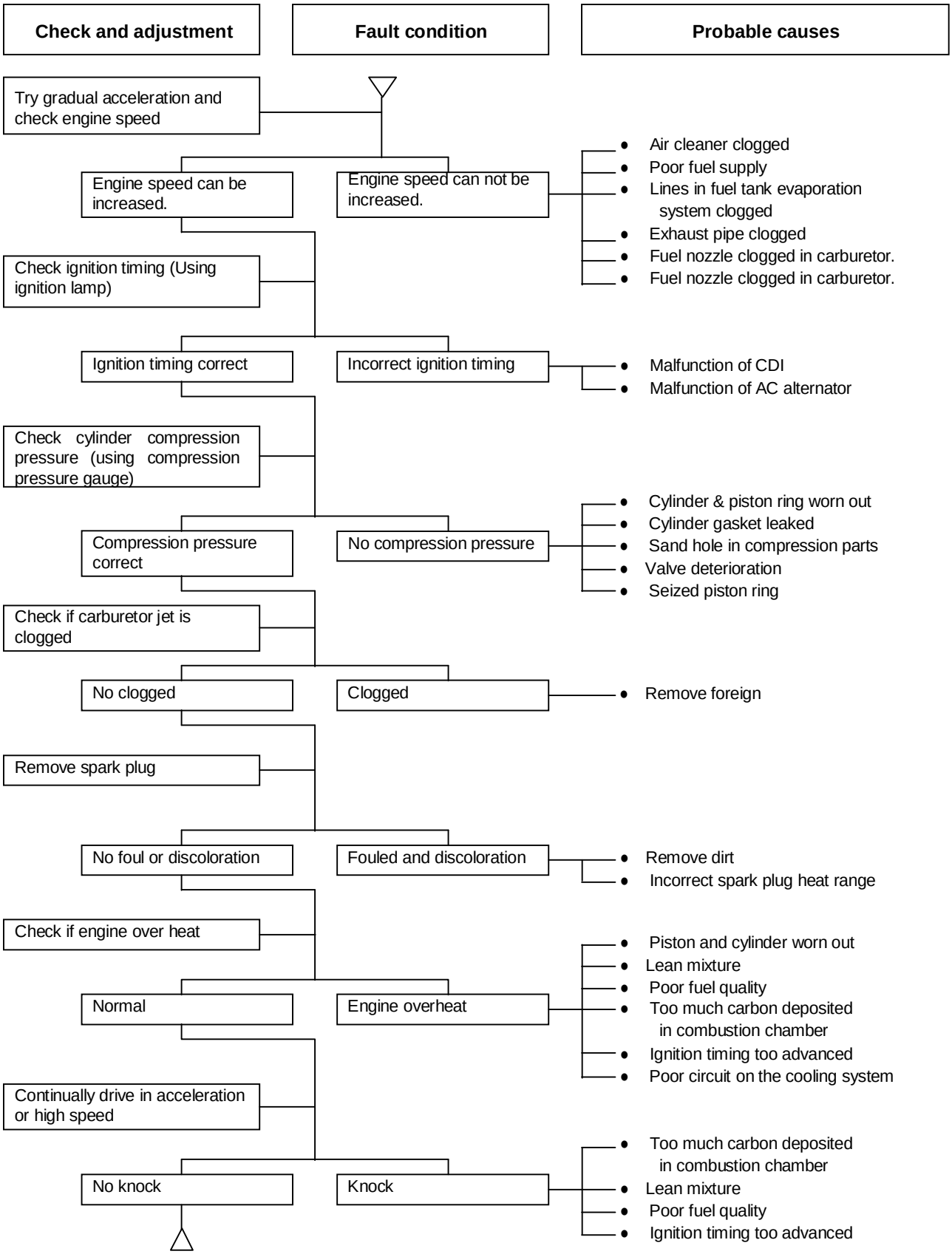
B. Engine run sluggish (Speed does not pick up, lack of power)



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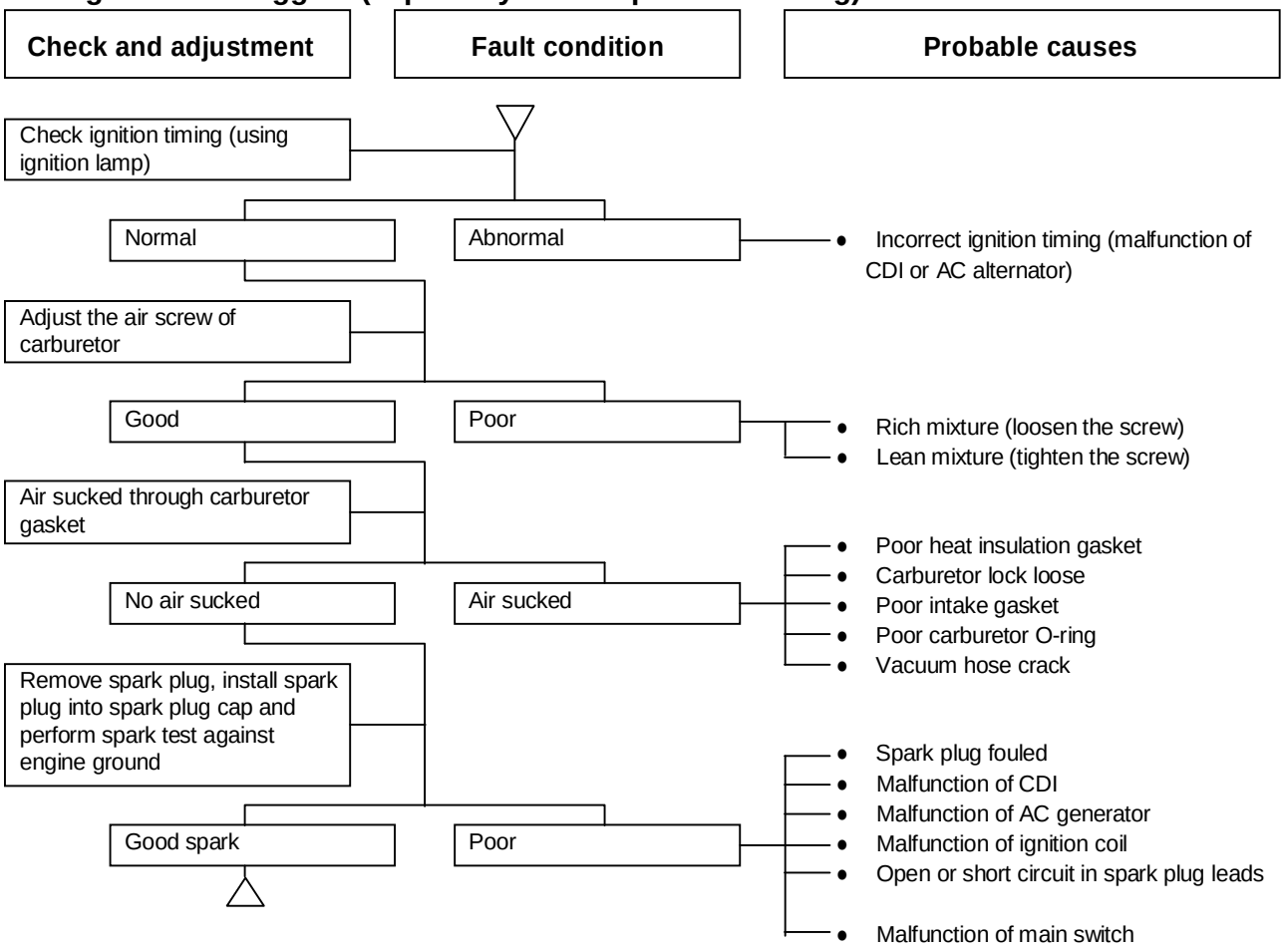
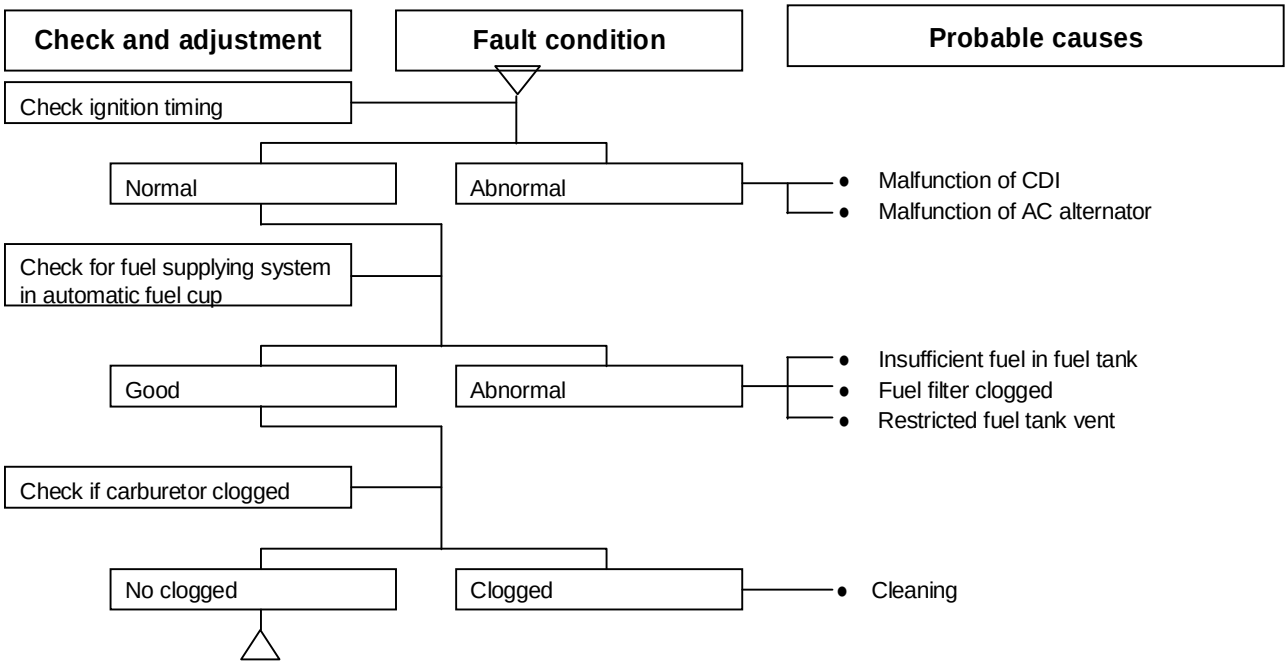
C. Engine runs sluggish (especially in low speed and idling)



D. Engine runs sluggish (High speed)



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E. Clutch, driving and driving pulley

FAULT CONDITIONS	PROBABLE CAUSES
Engine can be started but motorcycle can not be moved.	• Drive belt worn out or deformation • Ramp plate of movable drive face damaged • Driving pulley spring broken • Clutch weights broken • Drive slide-shaft gear groove broken • Transmission gear damaged
Engine running and misfire as motorcycle initial forward moving or jumping suddenly (rear wheel rotating as engine in running)	• Clutch weights spring broken • Clutch outer stuck with clutch weights • Connection parts in clutch and shaft worn out or burned
Poor initial driving (Poor climbing performance)	• Drive belt worn out or deformation • Weight roller worn out • Movable drive face shaft worn out • Driven pulley spring deformation • Driven pulley shaft worn out • Greased in drive belt and driven face.

F. Poor handling

FAULT CONDITIONS	PROBABLE CAUSES
Steering is heavy	• Damaged steering bearing • Damaged steering shaft bushing
One wheel is wobbling	• Bent rim • Improperly installed wheel hub • Excessive wheel bearing play • Bent swing arm • Bent frame • Swing arm pivot bushing excessively • Worn
Vehicle pulls to one side	• Bent tie-rod • Incorrect tie-rod adjustment • Rear tie air pressure incorrect • Improper wheel alignment • Bent frame

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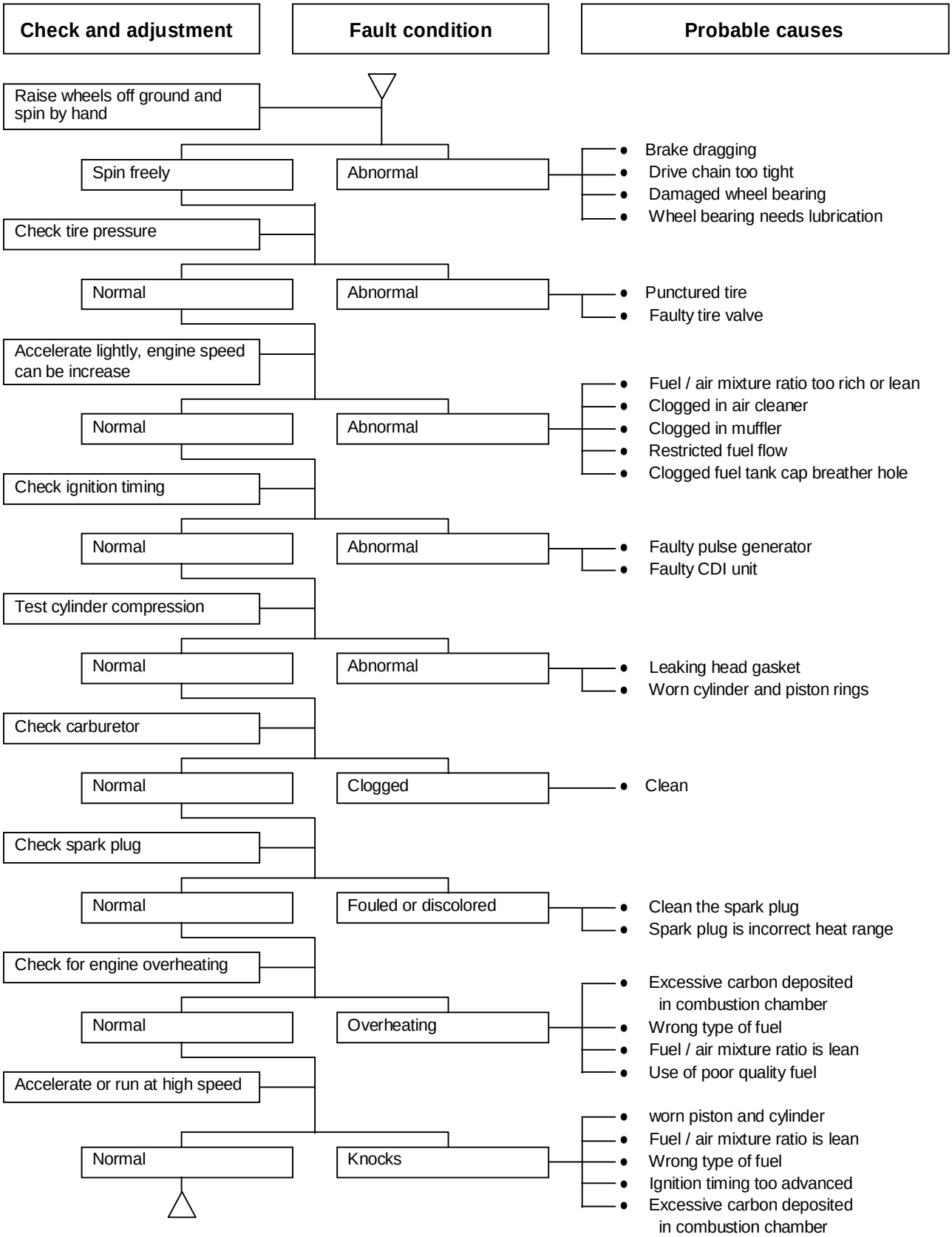
G. Loss power



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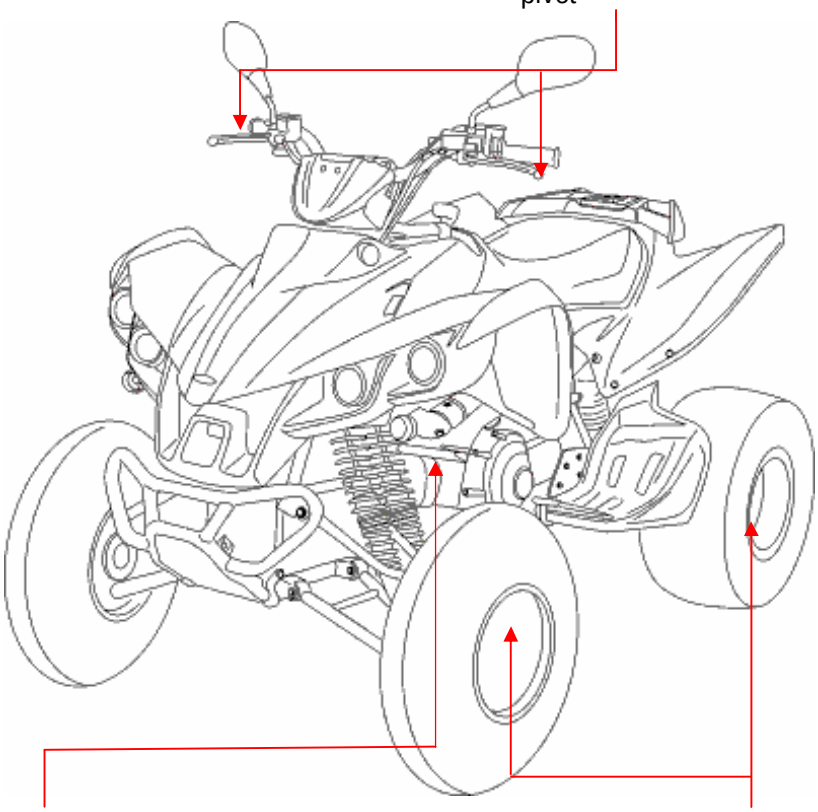
Lubrication Points

Throttle cable/ Front & rear brake lever pivot



Speedometer gear

Wheel bearing

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Note:

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Precautions in Operation

Specification

Fuel Tank Capacity		18000 c.c.
Engine Oil	Capacity	3500 c.c.
	Change	3200 c.c.
Transmission Gear oil	Capacity	350 c.c.
	Change	350 c.c.
Capacity of coolant	Engine + radiator	2200 c.c.
	Reservoir upper	1200 c.c.
Clearance of throttle valve		1~3 mm
Spark plug	Type	NGK CR7E
	Gap	0.7~0.8 mm
“F” Mark in idling speed		BTDC 20º / 1500 rpm
Full timing advanced		BTDC 51º / 6200 rpm
Idling speed		1700±100 rpm
Cylinder compression pressure		9.2 kgf/cm²
Valve clearance		IN:0.10 ± 0.02 mm EX:0.15 ± 0.02 mm
Tire dimension	Front	AT23x7-10
	Rear	AT22x11-10
Tire pressure (cold)		7 psi
Battery		12V18Ah (type : MF battery)

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Periodical Maintenance Schedule

	MONTHS	1	3	6	12
	Kms	INITIAL 200	EVERY 1000	EVERY 2000	EVERY 4000
	MILES	INITIAL 120	EVERY 600	EVERY 1200	EVERY 2400
Muffler Bolts and Exhaust Pipe Nuts		T	T	T	T
Valve Clearance		I	-	I	I
Air Cleaner		-	C	C	R
Engine Idle RPM		I	I	I	I
Spark Plus		-	-	I	I
		Replace Every 6000KM (4000 MILES)			
Engine Oil		R	-	R	R
Oil Filter		R	-	R	R
Front Differential Set Oil		-	-	I	I
		Replace Every 2 Years			
Final Gear Oil		-	-	I	I
		Replace Every 2 Years			
C.V.T Belt		-	-	I	I
Fuel Tube		-	I	I	I
		Replace Every 4 Years			
Throttle Cable Play		I	I	I	I
Brakes		I	I	I	I
Brake Hose		-	-	I	I
		Replace Every 4 Years			
Brake Fluid		-	I	I	I
		Replace Every 2 Years			
Tires		-	I	I	I
Suspensions		-	-	I	I
Steering System		I	I	I	I
Chassis Bolts and Nuts		T	T	T	T
General Lubrications		-	L	L	L

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

Have your ATV checked, adjusted, and recorded maintenance data periodically by your TGB Authorized Dealer to maintain the ATV 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. Clean or replace the air cleaner element more often when the ATV is operated on dusty roads or in the Heavily- polluted environment.
2. Maintenance should be performed more often if the ATV is frequently operated in high speed and after the ATV has accumulated a higher mileage.
3. Preventive maintenance
   a. Ignition system－Perform maintenance and check when continuous abnormal ignition, misfire, after-burn, overheating occurs.
   b. Carbon deposit removal－Remove carbon deposits in cylinder head, piston heads, exhaust system when power is obviously lower than normal.

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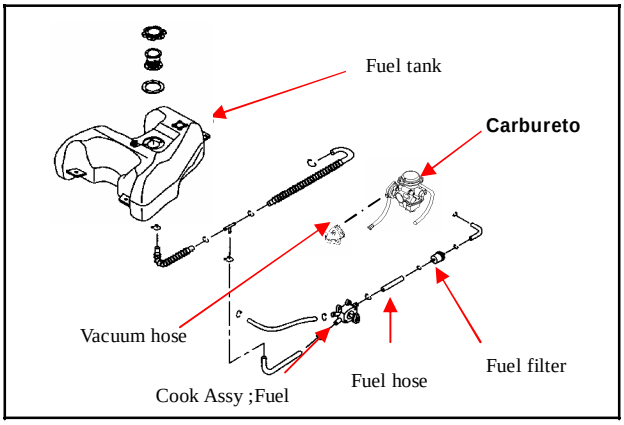
Fuel Lines

Remove the seat Loosen 2 screws and 2 bolts
Remove the tank cover
Check all lines, and replace it when they are deterioration, damage or leaking

Warning

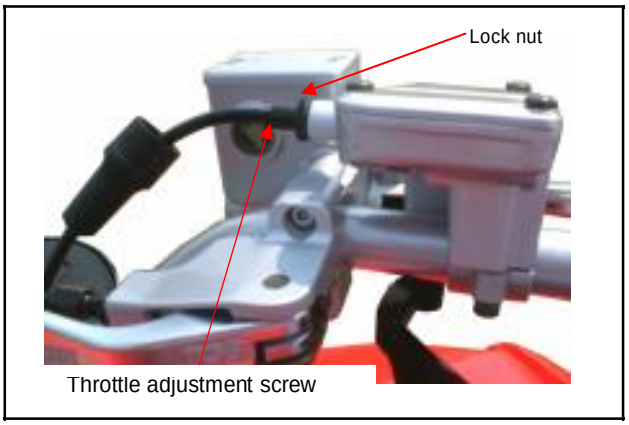
Gasoline is a low ignition material so any kind of fire is strictly prohibited as dealing it.



Acceleration Operation

Have a wide open of throttle valve as handle in any position and release it to let back original (full closed) position.
Check handle 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 the throttle lever free play in its flange part.
Remove rubber boot, loosen fixing nut, and then adjust it by turning the adjustment screw. Tighten the fixing nut, and check acceleration operation condition.

Free play: 1~3 mm.



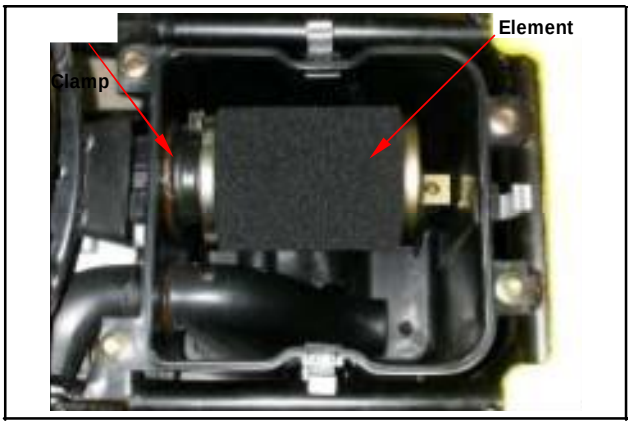
Air Cleaner

Remove seat.
loosen 4 hooks from the air cleaner cover and then remove the cover.
Loosen the clamp strip and 1 screw of air cleaner element, and then remove the air cleaner element.
Clean the element with non-flammable or high-flash point solvent and then squeeze it for dry.

Caution

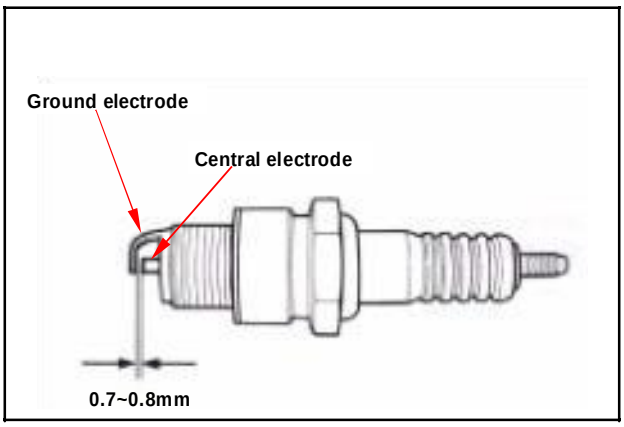
Never use gasoline or acid organized solvent to clean the element.

Soap the element into cleaning engine oil and then squeeze it out. Install the element onto the element seat and then install the air cleaner cover.



Spark Plug

Recommended spark plug: CR7E
Remove spark plug cap.
Clean dirt around the spark plug hole.
Remove spark plug.
Measure spark plug gap.
Spark plug gap：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



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Valve Clearance

Caution

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

Remove front fender, fuel tank cover and fuel tank.
Remove cylinder head cover.
Turn camshaft bolt in C.W. direction and let the "T" mark on the camshaft sprocket align 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.

Standard Value: IN 0.10 ± 0.02 mm

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.

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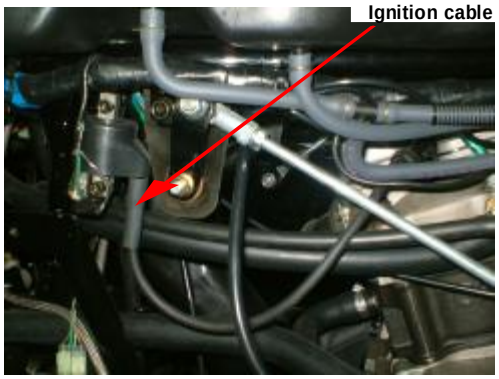
Carburetor Idle Speed Adjustment

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 ATV with onto neutral and warm up engine.
Connect tachometer (the wire clamp of tachometer is connected to the high tension cable).
Turn the throttle valve stopper screw to specified idle speed.
Specified idle speed: 1700 ± 100 rpm

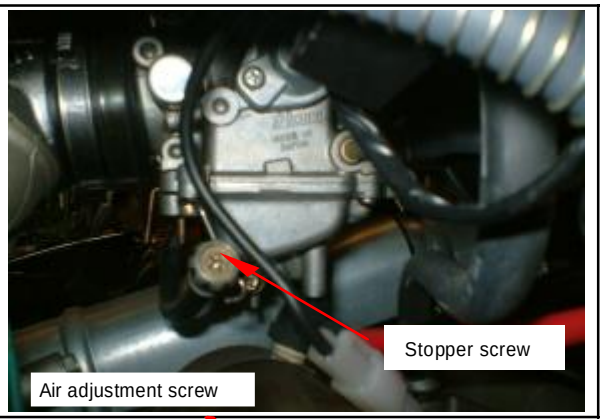


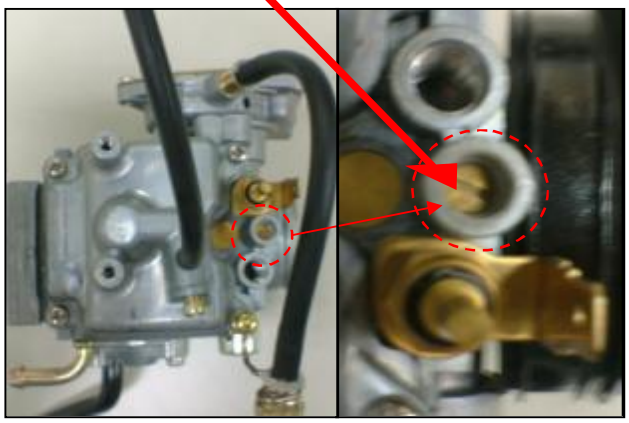
Emission adjustment in idle speed

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

1. Connect the tachometer onto engine.
2. Adjust the throttle valve stopper screw and let engine runs in 1700±100 rpm.
3. 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.
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.

Emission standard **CO: below 2.5~3.5%**
HC: below 2000ppm





Carburetor undersurface

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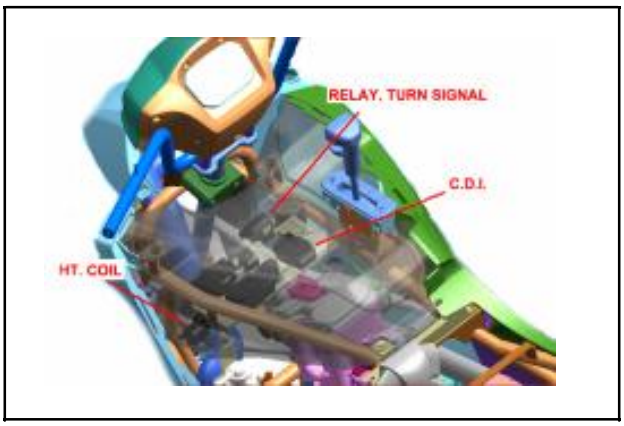
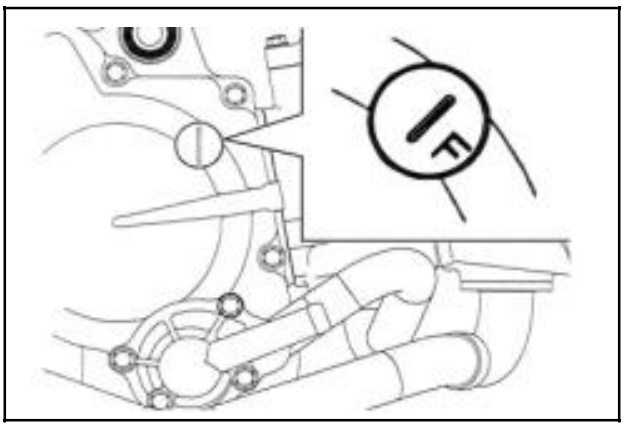
Ignition System

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.

Connect tachometer and ignition light.
Start engine.
As engine in idle speed: 1700 rpm, aim at the mark "F" with the ignition light. Then, it is means that ignition timing is correct.
Increase engine speed to 6000 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.





Cylinder Compression Pressure

Warm up engine.
Turn off the engine.
Remove the trunk.
Remove the 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: 9.2 ± 2 Kg/cm²
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.

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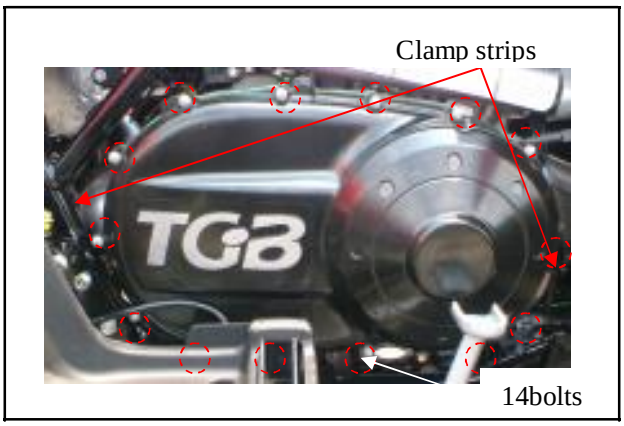
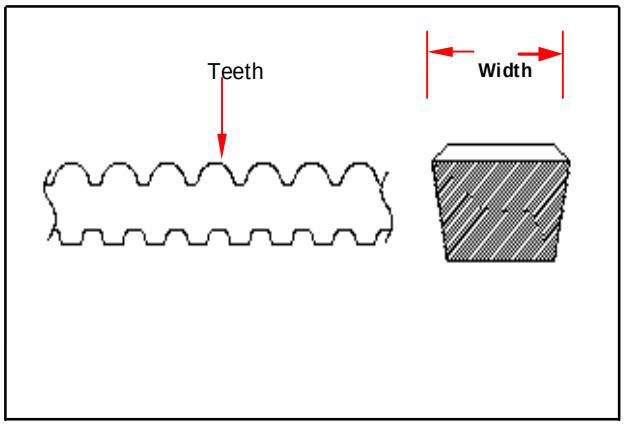
Drive Belt

Loosen the 2 clamp strips of clutch cover, and then remove the clutch cover vapor hose.
Remove 14 bolts of the clutch 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: 26.8 mm or above



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Brake System (Disk Brake)

Brake System Hose

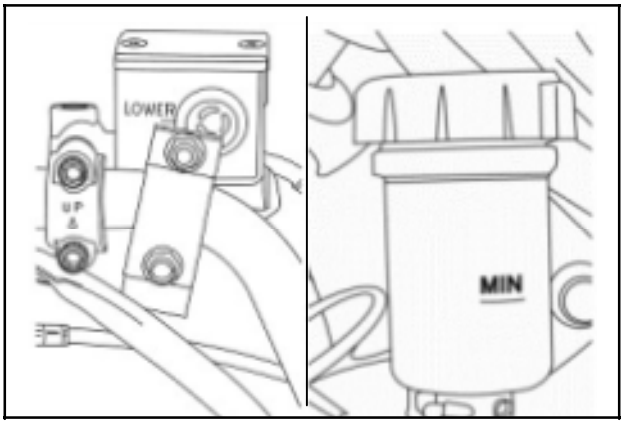
Make sure the brake hoses for corrosion or leaking oil.

Brake Fluid

Check brake fluid level in the brake fluid reservoir. If the level is lower than the LOWER limit, add brake fluid to UPPER limit. Also check brake system for leaking if low brake level found.

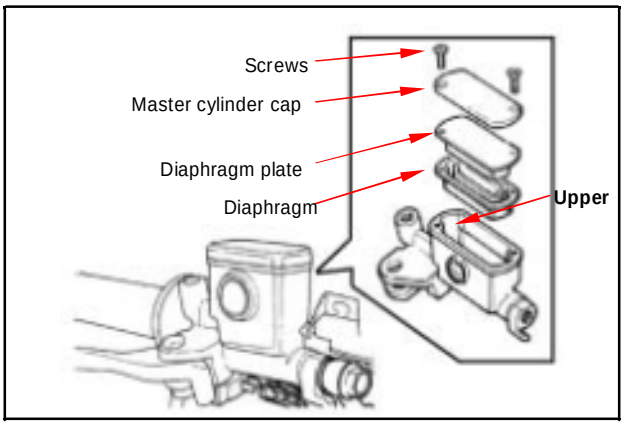
Caution

- In order to maintain brake fluid in the reservoir in horizontal position, do not remove the cap until handle stop.
- Do not operate the brake lever after the cap had been removed. Otherwise, the brake fluid will spread out if operated the lever.
- Do not mix non-compatible brake fluid together.



Filling Out Brake Fluid

Tighten the drain valve, and add brake fluid. Operate the brake lever so that brake fluid contents inside the brake system hoses.

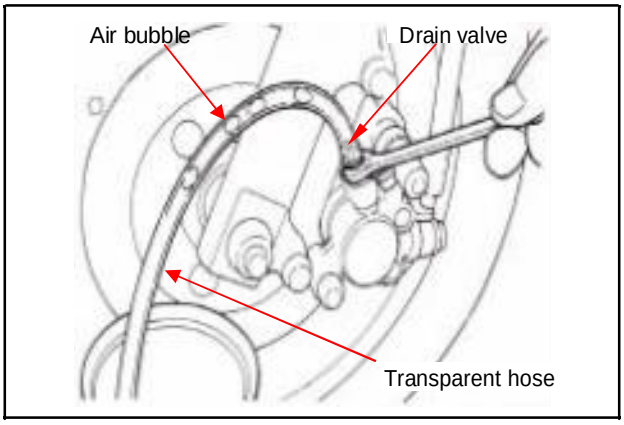


Air Bleed Operation

Connect a transparent hose to draining valve. Hold the brake lever and open air bleeding valve. Perform this operation alternative until there is no air inside the brake system hoses.

Caution

Before closing the air bleed valve, do not release the brake lever.



Added Brake Fluid

Add brake fluid to UPPER limit lever.
Recommended brake fluid: DOT3 or DOT4 WELL RUN brake fluid.

Caution

Never mix or use dirty brake fluid to prevent from damage brake system or reducing brake performance.

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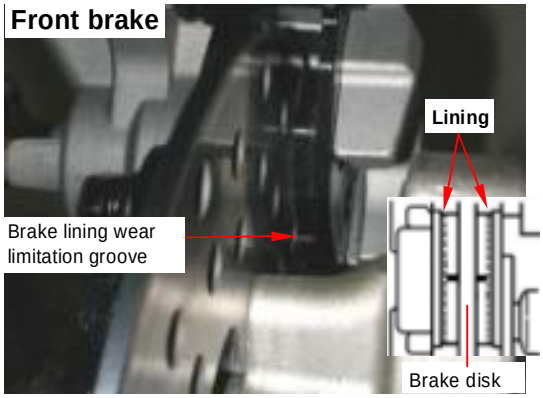
Brake Lining Wear

The indent mark on brake lining is the wear limitation.
Replace the brake lining if the wear limit mark closed to the edge of brake disc.

Caution

- To check front brake lining must be remove front wheel first.
- It is not necessary to remove brake hose when replacing the brake lining.

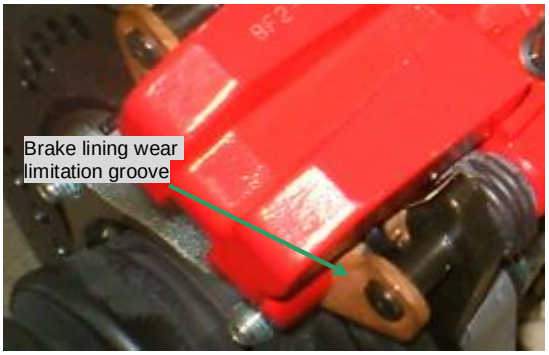


Brake Lining Replacement (refer chapter 14)

Make sure the brake lining condition.
Replace the lining if the brake lining wear limitation groove close to the brake disc.

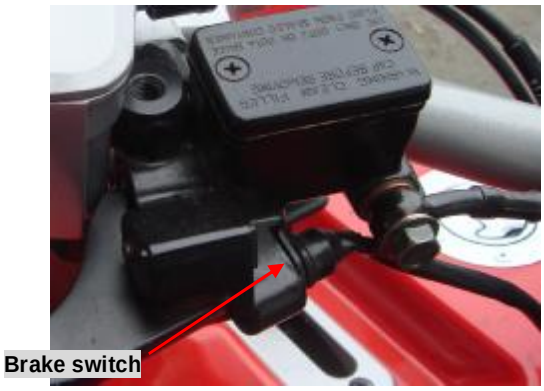
Caution

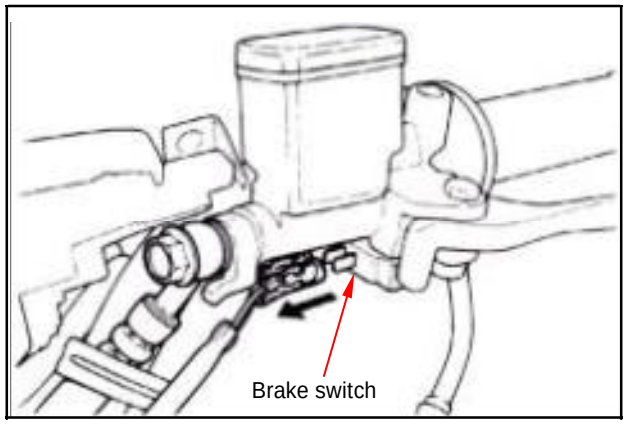
- Do not operate the brake lever after the clipper removed to avoid clipping the brake lining.
- In order to maintain brake power balance, the brake lining must be replaced with one set.



Brake Light Switch/Starting Inhibitor Switch

The brake light switch is to light up brake light as brake applied.
Make sure that electrical starter can be operated only under brake applying.





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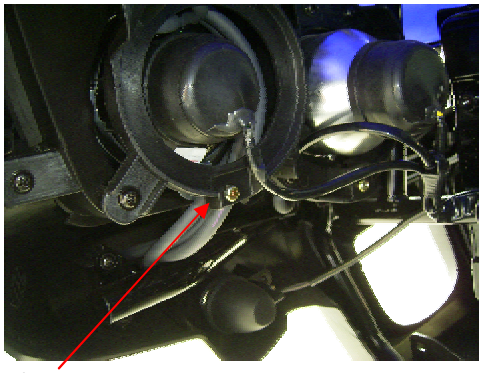
Headlight Beam Distance

Turn on main switch
Headlight beam adjustment. Turn the headlight adjustment screw to adjust headlight beam high.

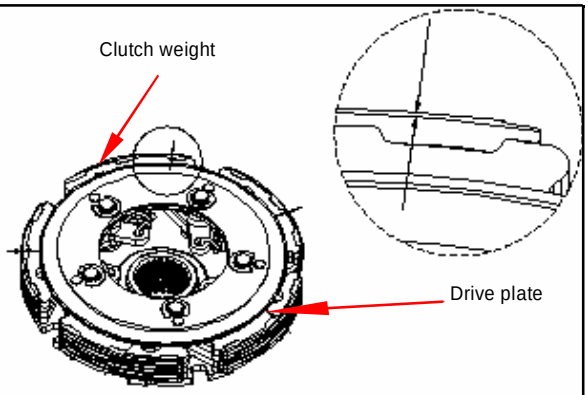
Caution

- To adjust the headlight beam follows related regulations.
- Improper headlight beam adjustment will make in coming driver dazzled or insufficient lighting.



Clutch Shoe Wear

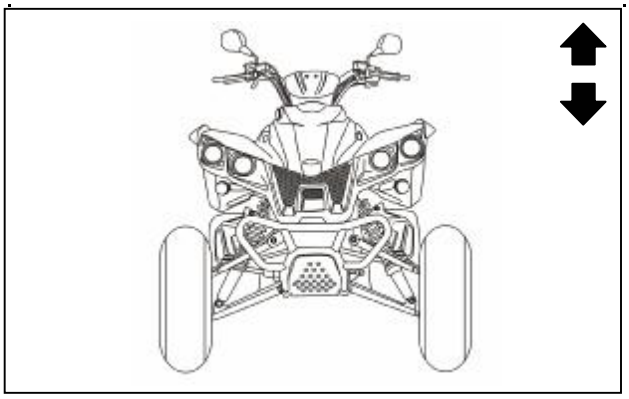
Run the ATV and increase throttle valve opening gradually to check clutch operation.
If the ATV is in forward moving and shaking, check clutch disc condition. Replace it.



Cushion

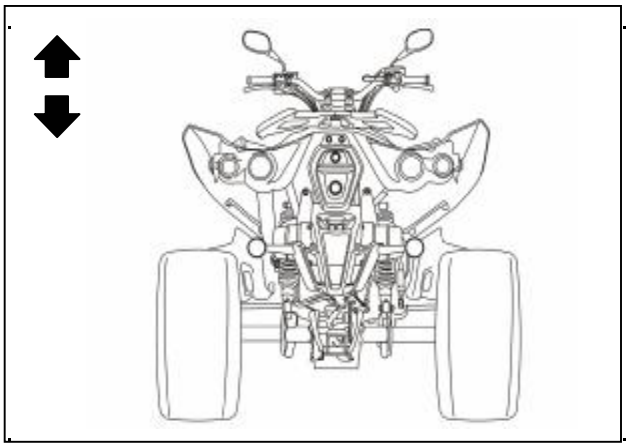
Warning

- Do not ride the ATV with poor cushion.
- Looseness, wear or damage cushion will make poor stability and drive-ability.



Front cushion

Press down the front cushion for several times to check it operation.
Check if it is damage.
Replace relative parts if damage found.
Tighten all nuts and bolts.



Rear Cushion

Press down the rear cushion for several times to check it operation.
Check if it is damage.
Replace relative parts if damage found.

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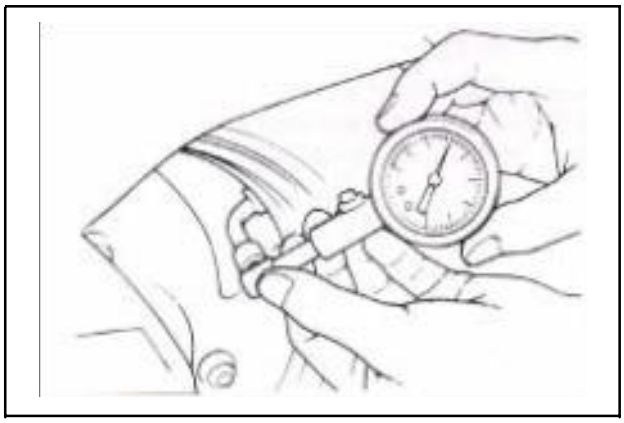
Steering Handle

Caution

Check all wires and cables if they are interfered with the rotation of steering handle bar.

Lift the front wheel out of ground.
Turn handle from right to left alternative and check if turning is smoothly.
If handle turning is uneven and bending, or the handle can be operated in vertical direction, then check the handle top bearing.

Wheel/Tire



Caution

Tire pressure check should be done as cold engine.

Check if tire surface is ticked with nails, stones or other materials.

Appointed tire pressure

Tire size	Front tire	Rear tire
Tire pressure as cold	7±1psi	

Check if front and rear tires' pressure is in normal.
Measure tire thread depth from tire central surface.
Replace the tire if the depth is not come with following specification:

Front tire: 1.5 mm
Rear tire: 2.0 mm

Nuts, Bolts Tightness

Perform periodical maintenance in accord with the Periodical Maintenance Schedule

Check if all bolts and nuts on the frame are tightened securely.

Check all fixing pins, snap rings, hose clamp, and wire holders for security.

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Special Tools List

PARTS NO. : 440649
PARTS NAME : EXTENSION PULLER / REMOVER

PARTS NO. : 440650
PARTS NAME : BUSHING(924739) REMOVER

PARTS NO. : 440651
PARTS NAME : BEARING(924384) REMOVER φ15

PARTS NO. : 440652
PARTS NAME : BEARING(924384) REMOVER φ20

PARTS NO. : 440653
PARTS NAME : BEARING(924384) REMOVER φ45

PARTS NO. : 440654
PARTS NAME : BUSHING(924739) REMOVER

PARTS NO. : 440655
PARTS NAME : R CRANK CASE OIL SEAL (924168) INSTALLER

PARTS NO. : 440656
PARTS NAME : L CRANK CASE OIL SEAL REMOVER

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PARTS NO. : 440657
PARTS NAME : CRANK SHAFT HOLDER

PARTS NO. : 440658
PARTS NAME : STARTER (924136) HOLDER

PARTS NO. : 440659
PARTS NAME : FLYWHEEL REMOVER

PARTS NO. : 440660
PARTS NAME : CHAIN WHEEL(924360) & WASHER(924718)INSTALLER

PARTS NO. : 440661
PARTS NAME : PISTON & ROD CONNECTING HOLDER

PARTS NO. : 440662
PARTS NAME : CYLINDER HEAD VALVE GAP ADJUSTER

PARTS NO. : 440663
PARTS NAME : GEAR SHAFT (924253) INSTALLER

PARTS NO. : 440664
PARTS NAME : FLYWHEEL PULLER

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PARTS NO. : 440665
PARTS NAME : IDLER GEAR (924187) PULLER

PARTS NO. : 440666
PARTS NAME : GEAR DRIVEN (924146) HOLDER

PARTS NO. : 440667
PARTS NAME : CYLINDER HEAD VALVE AND SPRING INSTALLER/REMOVER

PARTS NO. : 440668
PARTS NAME : UNIVERSAL JOINT HEAD (924646) INSTALLER

PARTS NO. : 440669
PARTS NAME : CHAIN WHEEL (924360) & WASHER (924718) REMOVER

PARTS NO. : 440670
PARTS NAME : ENGINE OIL FILTER (924153) INSTALLER / REMOVER

PARTS NO. : 440671
PARTS NAME : WET CLUTCH SCREW NUT FIXER

PARTS NO. : 924930
PARTS NAME : MAINTENANCE TOOL PACKAGE

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PARTS NO. : 552302
PARTS NAME : FINAL DRIVE NUT (N33701) INSTALLER/REMOVER

PARTS NO. :
PARTS NAME :

PARTS NO. :
PARTS NAME :

PARTS NO. :
PARTS NAME :

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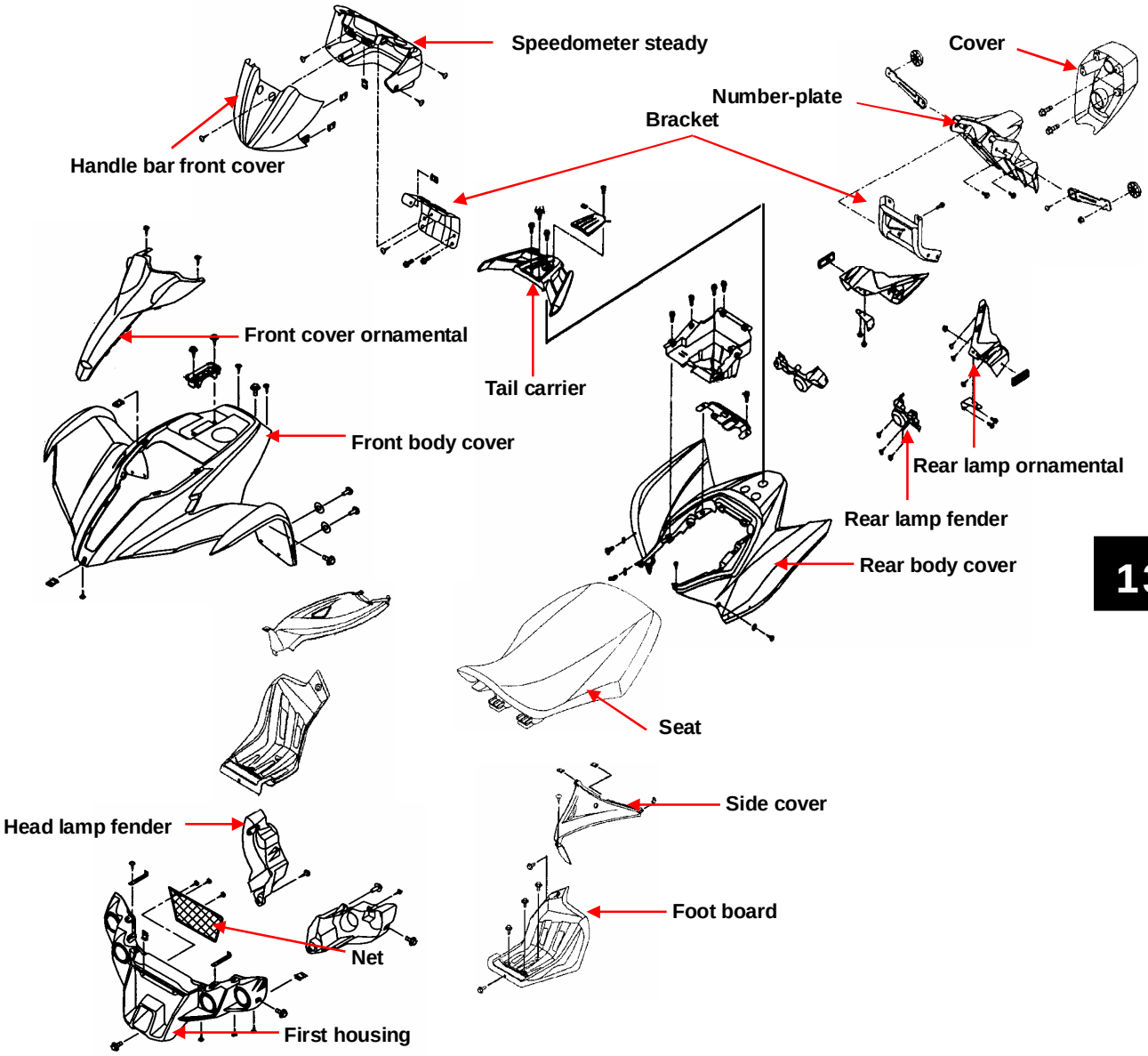
Mechanism Diagram



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Maintenance

Body covers dissemble sequence

Seat, battery fixed
↓
Fuel cup
↓
Feont body cover, front cover ornamental
↓
Right / left side cover
↓
Right / left foot board
↓
Tail carrier, Tail carrier ornamental
↓
Rear body cover
↓
Bumper, number-plate bracket, first housing
↓
Front / rear protector
↓
Handle bar front cover
↓
Upper bracket assembly

- Be careful not to damage various covers in assembly or disassembly operation.
- Never injure hooks molded on the body covers.
- Align the buckles on the guards with slot on the covers.
- Make sure that each hook is properly installed during the assembly.
- Never compact forcefully or hammer the quard and the covers during assembly.

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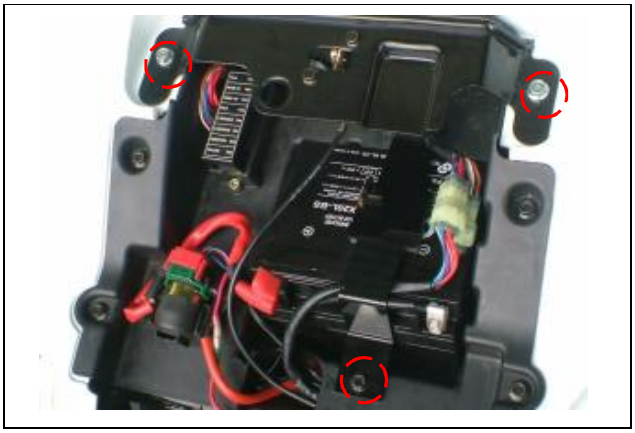
Remove seat.

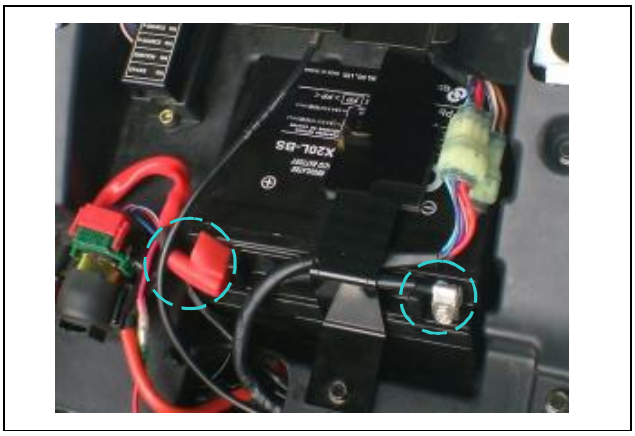
Remove 3 bolts from battery fixed.

Remove battery fixeds.



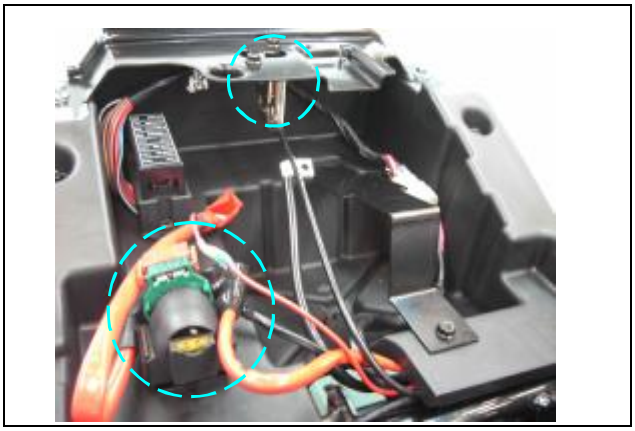
Remove 2 wire from battery.

Remove battery.



Remove 2 bolts from battery fixed.Then,remove cable.

Remove 1 couplers from starting motor relay , and then remove starting motor relay.



Remove bolts (each side 1 bolts) and 2 couplers

Remove fuse box.

Installation

Install in reverse order of removal procedures.

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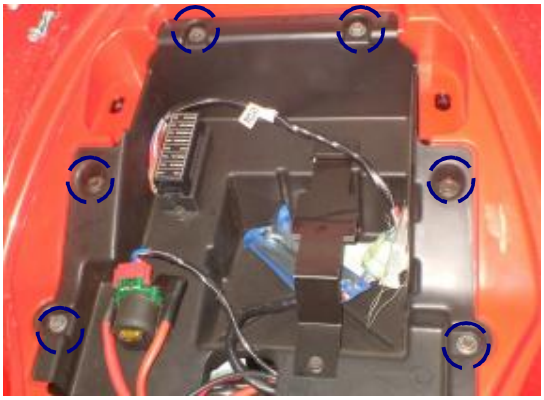
Remove 1 bolt from battery fixed.

Remove 6 bolts from battery fixed.

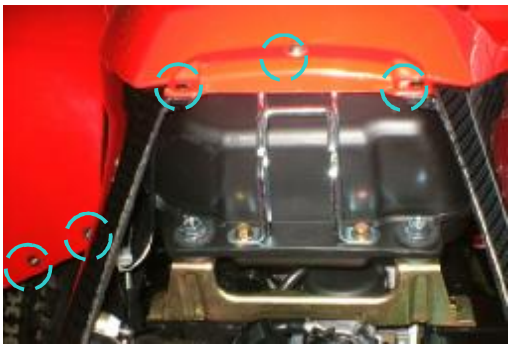
Remove battery fixed.



Remove 1 screw and take off shift lever.

Remove fuel cap.

Remove bolts (each side) from front body cover.



Installation

Install in reverse order of removal procedures.

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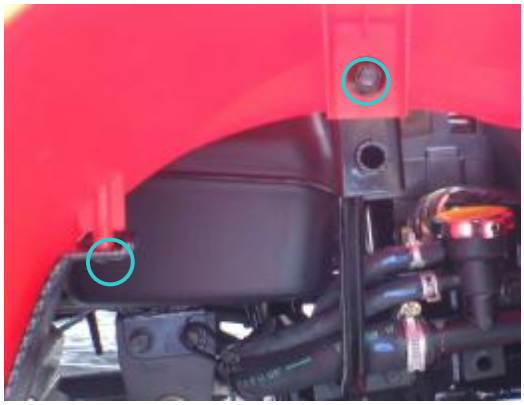
Remove screw and bolt (each side) from front body internal cover.



Remove screws (each side) from the part of front body cover,and then remove front body cover.

Remove front cover ornamental.

Remove 8 screws from right or left side cover. (each side 4 screws)

Remove right or left side cover.

Installation

Install in reverse order of removal procedures.

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Remove bolts and screws from right or left foot board.(each side)

Remove right or left foot board.

Remove screw from tail carrier.

Then,remove tail carrier ornamental.

Remove 3 bolts from tail carrier,then remove tail carrier.

Remove the bolts from rear body cover. (each side)

Installation

Install in reverse order of removal procedures.

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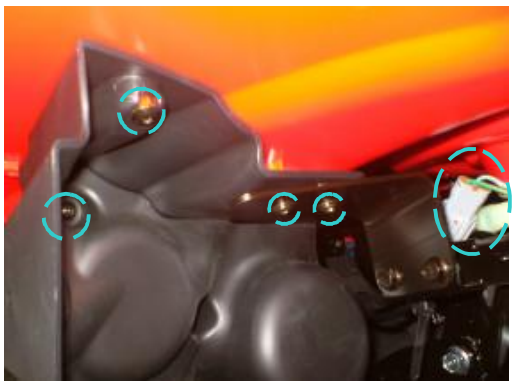
Remove the screws and rear lamp couplers under rear body cover. (each side)

Remove rear body cover.



Remove 4 bolts from frame.
(each side 2 bolts)

Remove bumper.

Remove 4 screws (each side 2 screws) from number-plate bracket.

Remove number-plate bracket.

Installation

Install in reverse order of removal procedures.

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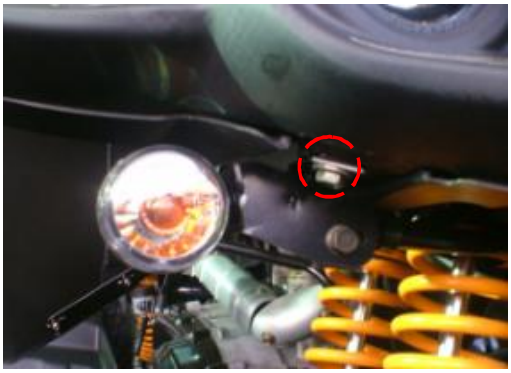
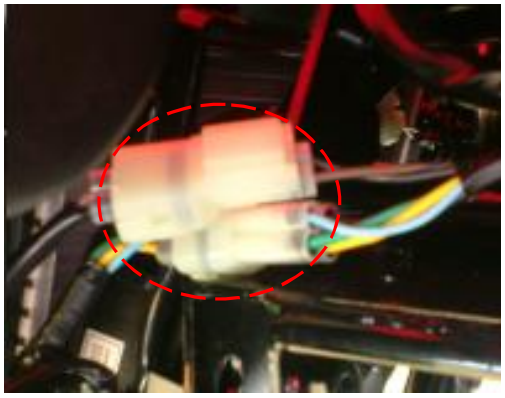
Remove 1 bolt from the front part of first housing.

Remove bolts from first housing.
(each side 1 bolt)



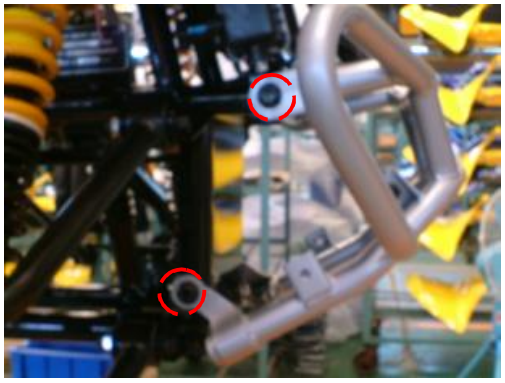
Remove right and left head lamp couplers.
(each side 2 couplers)

Then,remove first housing.



Remove 4 bolts from front bumper.
(each side 2 bolts)

Remove front bumper.



Installation

Install in reverse order of removal procedures.

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Remove 2 bolts from front protector.

Remove 2 bolts from front protector,and then remove front protector.

Remove bolts from rear protector.
(each side 1 bolts)

Remove bolts from rear protector (each side 1 bolts)，and then remove rear protector

Installation

Install in reverse order of removal procedures.

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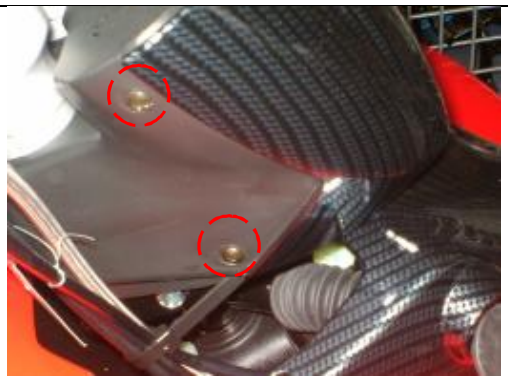
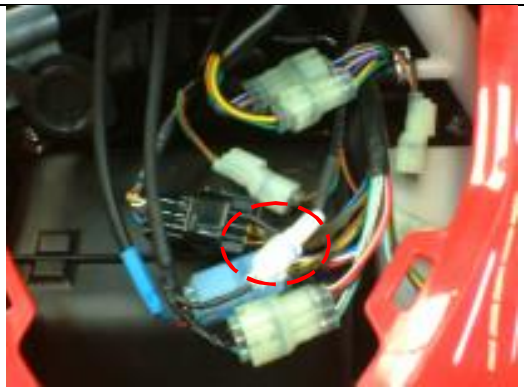
Remove 2 screws from handle bar front cover.

Remove 4 bolts from handle bar front cover.
(each side 2 bolts)
Remove handle bar front cover.



Remove bolts from upper bracket assembly.
(each side 2 bolts)

Remove speedometer assembly couplers,and then remove upper bracket assembly.



Installation

Install in reverse order of removal procedures.

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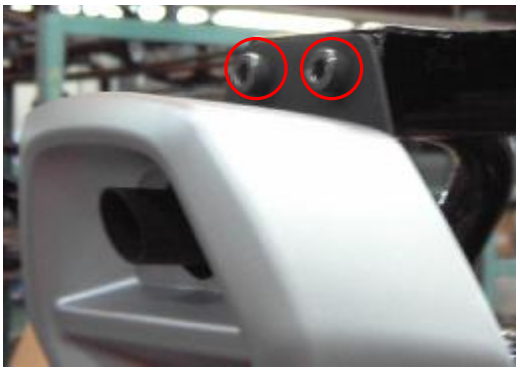
Remove 3 bolts form rear frame And 2 bolts from muffler.



Remove 4 bolts from cover.

Installation

Install in reverse order of removal procedures.

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NOTES:

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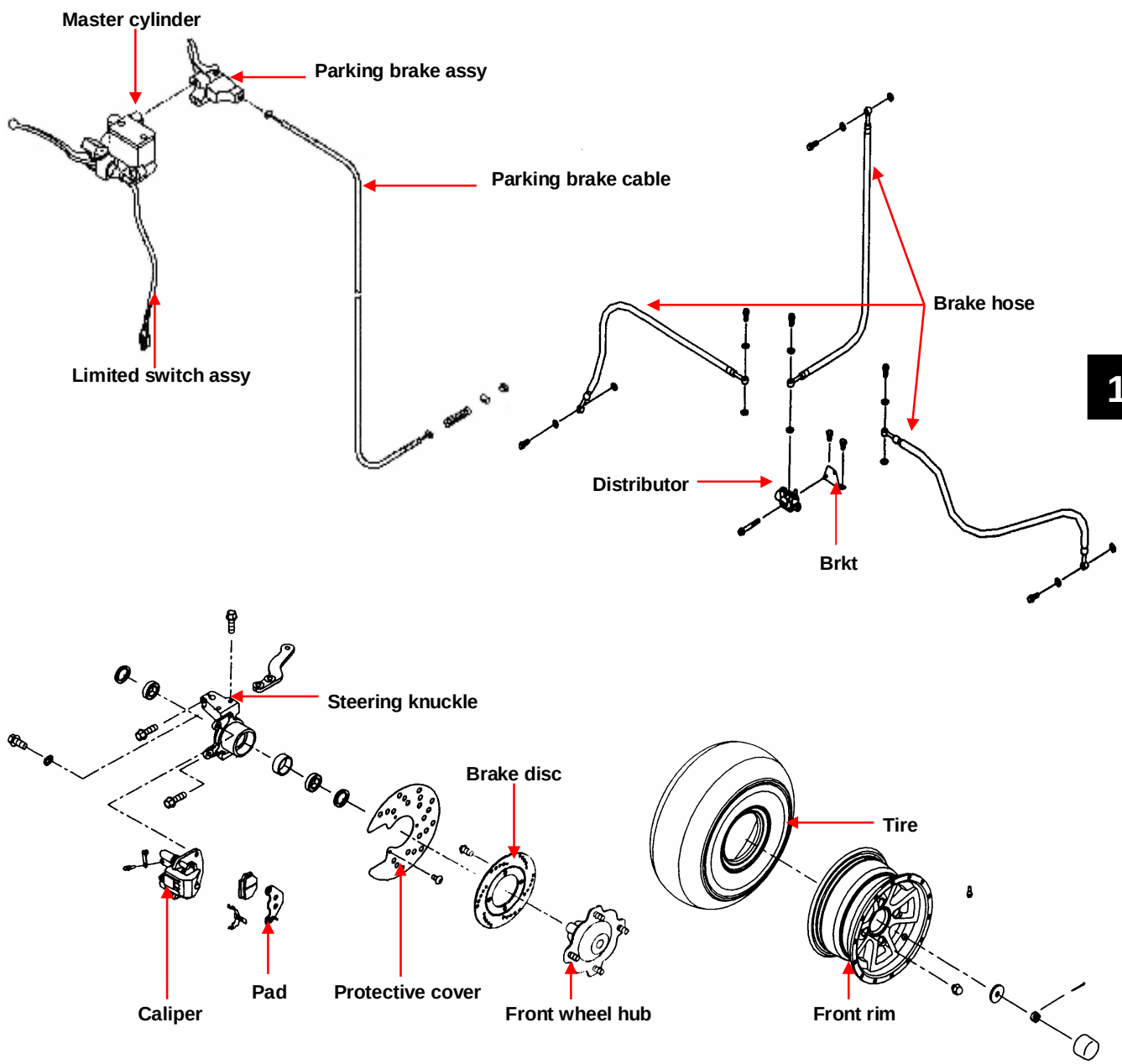
Mechanism Diagram·····14-1	Adding Brake Fluid ····· 14-8
Maintenance Description ·····14-2	Brake fluid replacement / Air-bleed·· 14-9
Trouble Diagnosis ·····14-3	Front Brake Caliper····· 14-10
Front Wheel·····14-4	Brake Disk ····· 14-11
Front Wheel Hub·····14-4	Front Brake Master Cylinder ····· 14-11
Disk Brake System Inspection ·····14-7	

Mechanism Diagram



14

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Maintenance Description

Operational precautions

Caution

Inhaling asbestos may cause disorders of respiration system or cancer, therefore, never use air hose or dry brush to clean brake parts. Use vacuum cleaner or other authorized tool instead.

- The brake caliper can be removed without removing the hydraulic system.
- After the hydraulic system is removed, or the brake system is felt to be too soft, bleed the hydraulic system.
- While refilling brake fluid, care should be taken not to let the foreign material entering into the brake system.
- Do not spill brake fluid on the painted surfaces, plastic or rubber parts to avoid damage.
- Check the operation of the brake system before riding.
- Please refer to the Maintenance Manual of tubeless tire in respect to the removal, repair and installation of the tire.

Specifications

Item	Standard (mm)	Limit (mm)
The thickness of front and rear brake disk	3.500	2.000
Front and rear brake disk eccentricity	< 0.100	0.300
Master cylinder inner diameter	14.000~14.043	14.055
Master cylinder piston outer diameter	13.957~13.984	13.945
Diameter of front disk	180.000	-
Thickness of front brake lining	5.500	2.000

Tire pressure as cold: 7psi

Torque values

Brake hose bolts	3.50kgf-m
Bolt for brake caliper	3.25kgf-m
Bolts for the brake disk	4.25kgf-m
Brake lever nut	1.00kgf-m
Air-bleed valve	0.50kgf-m
Front wheel nut	2.40kgf-m
Front axle castle nut	5.00kgf-m

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Trouble Diagnosis

Soft brake lever

1. Air inside the hydraulic system
2. Hydraulic system leaking
3. Worn master piston
4. Worn brake pad
5. Poor brake caliper
6. Worn brake lining/disk
7. Low brake fluid
8. Blocked brake hose
9. Warp/bent brake disk
10. Bent brake lever

Hard operation of brake lever

1. Blocked brake system
2. Poor brake caliper
3. Blocked brake pipe
4. Seized/worn master cylinder piston
5. Bent brake lever

Uneven brake

1. Dirty brake lining/disk
2. Poor wheel alignment
3. Clogged brake hose
4. Deformed or warped brake disk
5. Restricted brake hose and fittings

Tight brake

1. Dirty brake lining/disk
2. Poor wheel alignment
3. Deformed or warped brake disk

Brake noise

1. Dirty lining
2. Deformed brake disk
3. Poor brake caliper installation
4. Imbalance brake disk or wheel

Hard steering

1. Faulty tire
2. Insufficient tire pressure

Front wheel wobbling

1. Faulty tire
2. Worn front brake drum bearing
3. Bent rim
4. Axle nut not tightened properly

Steers to one side

1. Bent tie rods
2. Wheel installed incorrectly
3. Unequal tire pressure
4. Incorrect wheel alignment

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Front Wheel

Removal

Raise the front wheels off the ground by placing a jack or other support under the frame.

Remove the front wheel nuts, and then remove front wheels.

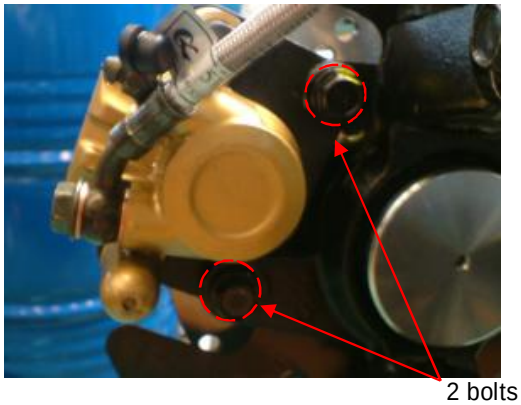
Installation

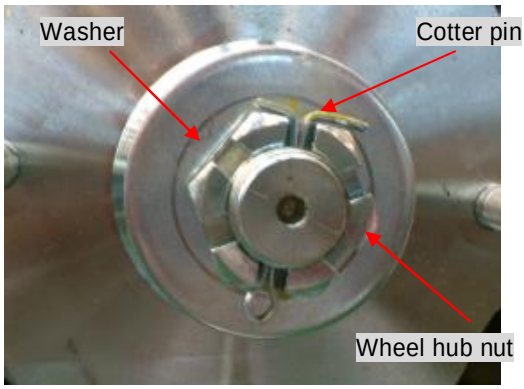
Install the front wheel and tighten the nuts.
Torque: 5.0kgf-m

Front Wheel Hub

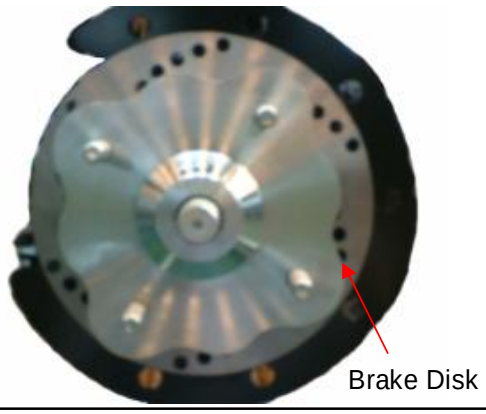
Removal

Remove front brake caliper (2 bolts).





Remove cotter pin, wheel hub nut and washer.
Remove wheel hub and brake disk.



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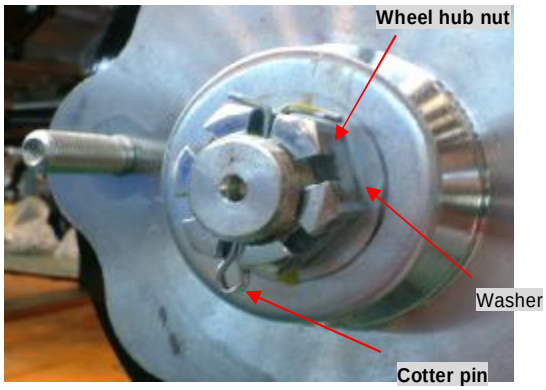
Remove 4 socket bolts, and then remove the brake disk from wheel hub.

Installation

Install the front brake disk to the wheel hub.
Install wheel hub and brake disk on to knuckle.
Install wheel hub washer and tighten the wheel hub .
.

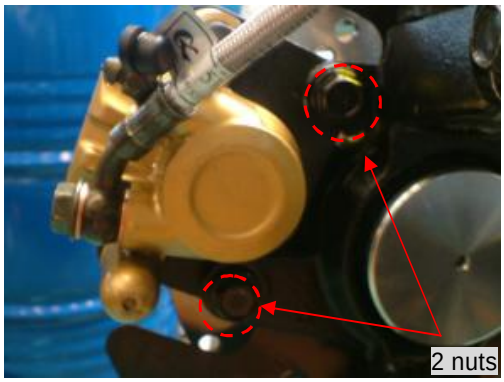
Torque: 9.0kgf-m

Install cotter pin



Install front brake caliper.

Torque: 3.5kgf-m



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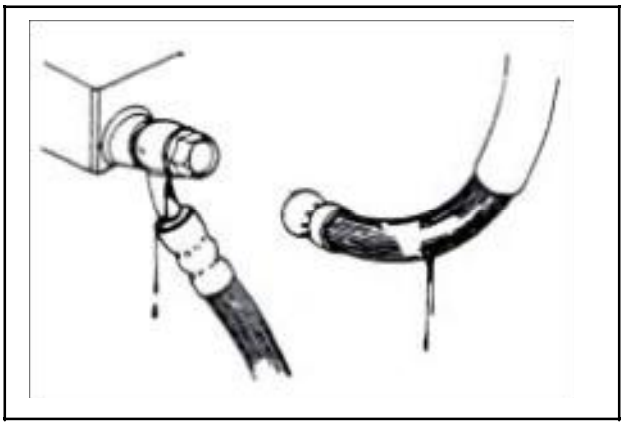
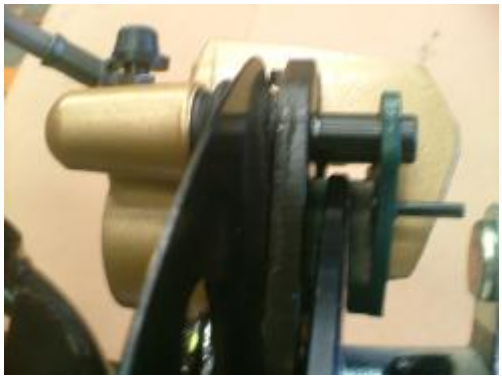
Disk Brake System Inspection

Inspection

By visual examination whether divulges or the damage, with spanner inspection brake tube seam whether becomes less crowded, and the inspection handle bar turn right or turn left, or pressure the cushion, whether besides the
pipeline protection department, whether there is interferes, contacts other parts of.



Check the brake from behind the brake caliper. The brake pad must be replaced with new lining when the brake pad wear limit reaches the brake disk.



Caution

- Check the front brake lining must be removed front wheel first.

Park the ATV on a level ground, and check if fluid level is under the “LOWER” mark.
Recommended Brake Fluid: WELL RUN BRAKE OIL (DOT 4).

Caution

- The vehicles inclined or just stop, the survey oil level could not be accurate, had to settle the
  3~5 minute.
- In order to prevent has the chemical change, please do not use counterfeiting or other unclear trade marks brake fluid.
- Uses by all means must with the trade mark brake fluid, guarantees the ghost vehicle efficiency.

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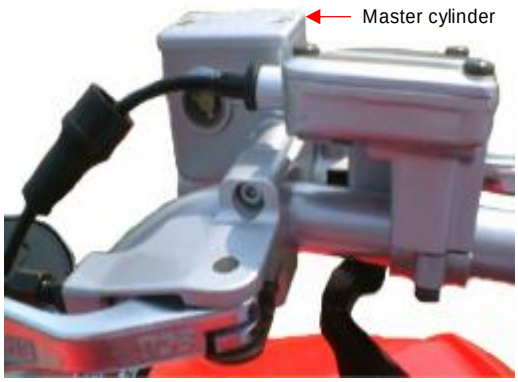
Adding Brake Fluid

Before the brake fluid reservoir is removed, turn the handle so that the brake fluid reservoir becomes horizontal, and then remove the brake fluid reservoir.
When maintenance brake system, will be supposed to paint the surface or the rubber parts catches up by the rags.

Caution

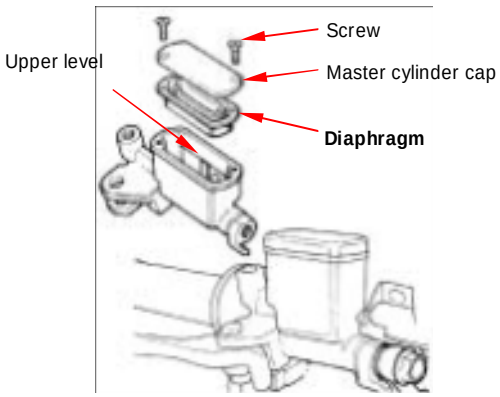
Supplement brake fluid please do not surpass the upper limit, spilled brake fluid on painted surfaces, plastic or rubber components may result in their damages.



Remove the master cylinder cap and diaphragm. Increases the high quality brake fluid, uses by all means must with the trade mark brake fluid joins in the master cylinder.
Clean the dirty brake disk.

Caution

- The dirty brake lining or disk will reduce the brake performance.
- To mixed non-compatible brake fluid will reduce brake performance.
- Foreign materials will block the system causing brake performance to be reduced or totally lost.



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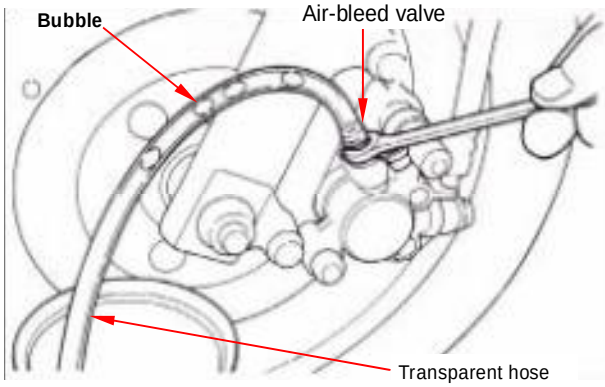
Brake fluid replacement / Air-bleed

Connect drain hose to air-bleed valve.
Open the drain valve on the caliper and operate the brake lever until the old brake fluid is entirely drained out.
Close the drain valve and add specified brake fluid into the brake master cylinder.
Recommended brake fluid: WELLRUN DOT 4 brake fluid

Air-bleed must from pressure control valve fist. Connect one end of transparent hose to the air-bleed valve, and put the other end into a container.

Open the drain valve around 1/4 turns, and at the same time hold the brake lever until the there is no air bubble in the drain hose and also feeling resistance on the brake lever.

Close the drain valve when finishing the brake system refilling fluid procedure, and operate the brake lever to check whether air bubble is in brake system or not.



If brake is still soft, please bleed the system as described below:

1. Tightly hold the brake lever and open the drain valve around 1/4 turns, and then close the valve.

Caution

- Do not release the brake lever before the drain valve is closed.
- Always check the brake fluid level when carrying out the air bleeding procedure to avoid air enters into the system.

2. Slowly release the brake lever, and wait for a few seconds until it reaches its top position.
3. Repeat the steps 1 and 2 until there is no air bubble at the end of the hose.
4. Tightly close the drain valve.
5. Make sure the brake fluid is in the UPPER level of the master cylinder, and refill the fluid if necessary.
6. Cover the cap.

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Front Brake Caliper

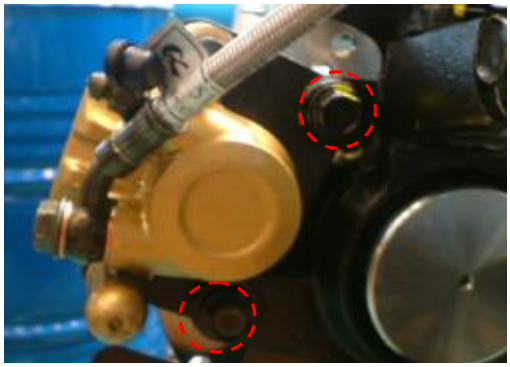
Removal

Place a container under the brake caliper, and loosen the brake hose bolt and finally remove the brake hose.

Caution

Do not spill brake fluid on painted surfaces.

Remove two caliper bolts and the caliper.



Inspection

Make sure the brake linings condition. Replace the linings if the brake linings wear limitation groove close to the brake disk.

Brake lining replacement

Remove two guide pins.
Compress caliper mounting plate, and then remove brake linings.
Install new linings, and tighten the guide pins.

Installation

Install the brake caliper and tighten the attaching bolts securely.

Torque: 3.25kgf-m

Caution

- Use M8 x 18 mm flange bolt only.
- Long bolt will impair the operation of brake disk.

Use two seal washers and hose bolts to lock the hose and brake caliper in place.
Torque: 3.5kgf-m
Refill up the brake fluid to the reservoir and make necessary air bleeding.

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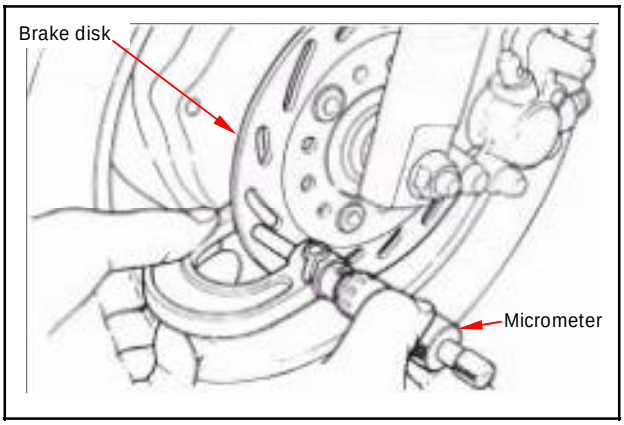
Brake Disk

Inspection

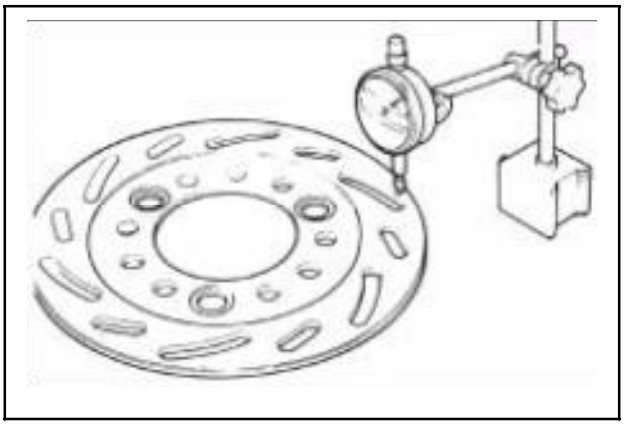
Visually check the brake disk for wear or break. Measure the thickness of the disk at several places. Replace the disk if it has exceeded the service limit.
Allowable limit: 2.5 mm



Caution

- Replace the disk should be replace new fix bolt, . or smear over fixative.

Remove the brake disk from wheel hub.
Check the disk for deformation and bend.
Allowable limit: 0.30 mm



Caution

- The dirty brake lining or disk will reduce the brake performance.
- Brake lining includes the asbestos ingredient, cannot use the air-gun to be clean, the operator should dress the mouthpiece and the glove, use vacuum cleaner clean it.

Front Brake Master Cylinder

Master Cylinder Removal

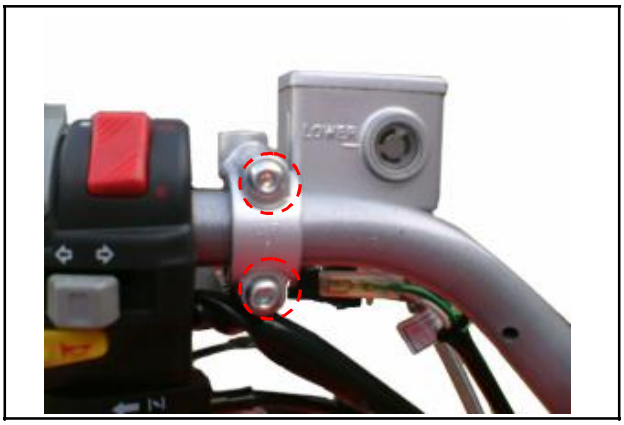
Caution

Do not let foreign materials enter into the cylinder.

Caution

The whole set of master cylinder, piston, spring, diaphragm and cir clip should be replaced as a set.

Push the lead of brake light switch, and then remove brake light switch.
Drain out the brake fluid.
Remove the brake lever from the brake master cylinder.
Remove the brake hose.
Remove the master cylinder socket bolts and the master cylinder.



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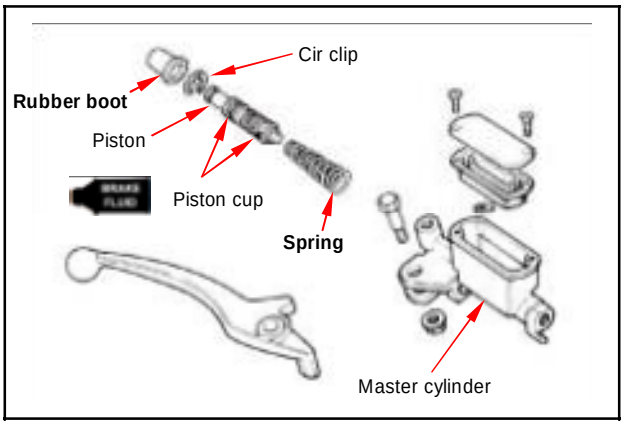
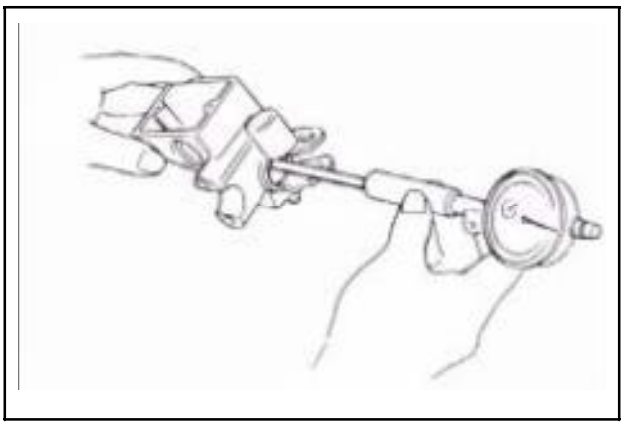
Remove the rubber boot.
Remove the cir clip.
Remove the piston and the spring.
Clean the master cylinder with recommended brake fluid.

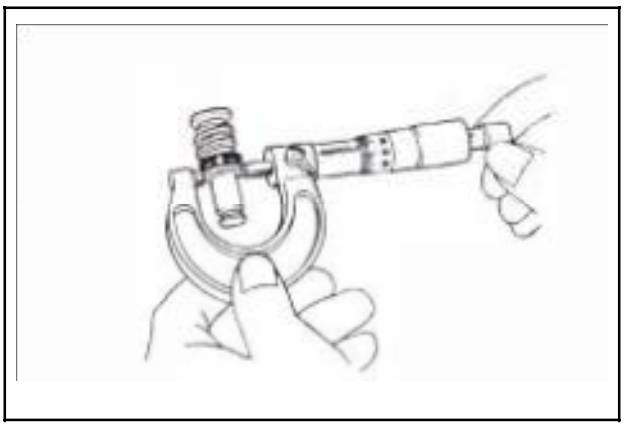


Master Cylinder Inspection

Check the master cylinder for damage or scratch. Replace it if necessary.
Measure the cylinder inner diameter at several points along both X and Y directions.
Replace the cylinder if the measured values exceed allowable limit.
Allowable limit: 14.055 mm



Measure the outer diameter of the piston. Replace the piston if its measured value exceeds allowable limit.
Allowable limit: 13.945 mm



Master Cylinder Assembly

Caution

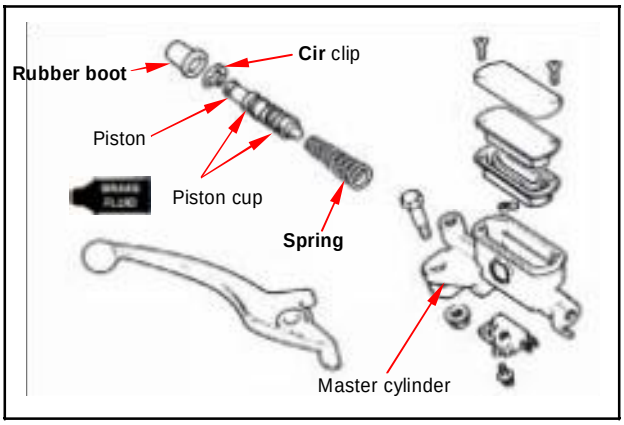
- It is necessary to replace the whole set comprising piston, spring, piston cup, and cir clip.
- Make sure there is no dust on all components before assembling.

Apply clean brake fluid to the piston cup, and then install the cup onto the piston.
Install the larger end of the spring onto the master cylinder.
The master cup's cavity should be face inside of master cylinder when installing the master cup.
Install the cir clip.

Caution

- Never install cup lip in the opposite direction.
- Make sure the cir clip is seated securely in the groove.

Install the rubber boot into groove properly.



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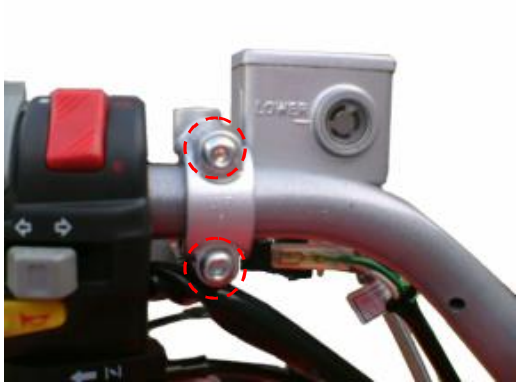
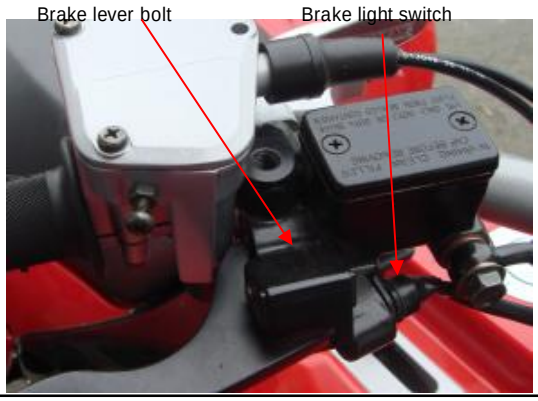
Master Cylinder Install

Install the rubber pad into the groove correctly. Place the master cylinder onto handlebar, and install the bolts.



Install the brake lever, and connect leads to brake light switch.



Connect brake hoses with 2 new washers.
Tighten the brake hose bolt to the specified torque value.
Torque: 3.2kgf-m
Make sure the hose is installed correctly.
Install all wires, hoses, and components carefully so avoid to twisting them together.

Caution

Improper routing may damage leads, hoses or pipes.

Caution

Kink of brake leads, hose or pipe may reduce brake performance.

Add specified brake fluid and bleed the system.

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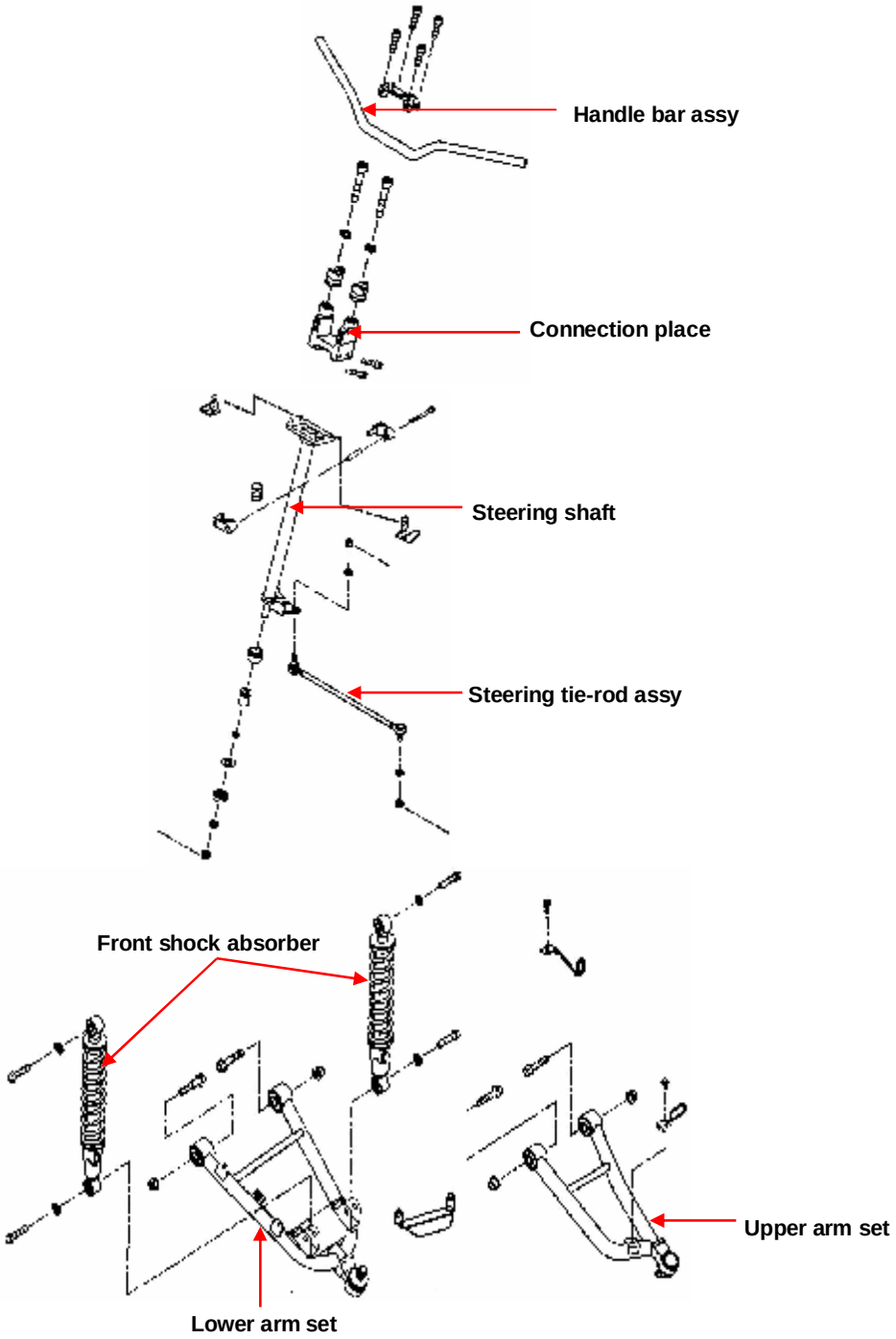
Mechanism Diagram ·····15-1	Steering Tie-Rod ····· 15-6
Operational Precautions·····15-2	Knuckle ····· 15-7
Trouble Diagnosis·····15-2	Front Cushion ····· 15-8
Steering Handle·····15-3	Suspension Arm ····· 15-9
Steering Shaft·····15-5	Toe-In ····· 15-10

Mechanism Diagram



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Operational Precautions

Torque Values

Handlebar upper holder bolt	300~350 kgf-cm
Steering shaft holder bolt	300~350 kgf-cm
Steering shaft nut	250~350 kgf-cm
Steering tie-rod nut	250~350 kgf-cm
Knuckle nut	600 kgf-cm
Tie rod lock nut	450~550 kgf-cm
Suspension arm nut	450~550 kgf-cm
Front cushion mounting nut	450~550 kgf-cm

Trouble Diagnosis

Hard to steer

- Faulty tire.
- Steering shaft holder too tight.
- Insufficient tire pressure.
- Faulty steering shaft bushing.
- Damaged steering shaft bushing.

Front wheel wobbling

- Faulty tire.
- Worn front brake drum bearing.
- Bent rim.
- Axle nut not tightened properly.

Steers to one side

- Bent tie rods.
- Wheel installed incorrectly.
- Unequal tire pressure.
- Bent frame.
- Worn swing arm pivot bushings.
- Incorrect wheel alignment.

Front suspension noise

- Loose front suspension fasteners.
- Binding suspension link.

Hard suspension

- Faulty front swing arm bushings.
- Improperly installed front swing arms.
- Bent front shock absorber swing rod.

Soft suspension

- Weak front shock absorber springs.
- Worn or damage front swing arm bushings.

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Steering Handle

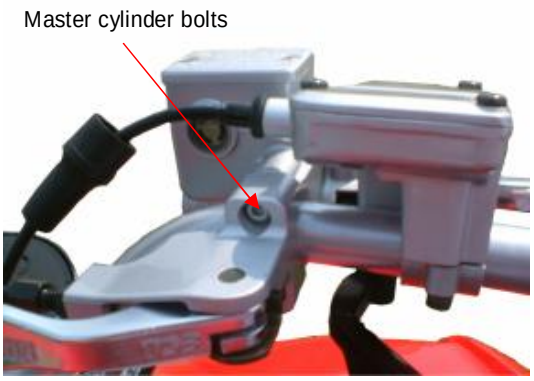
Removal

Remove the handle cover, meter set, handle protect cover and front fender. (Refer to chapter 13)

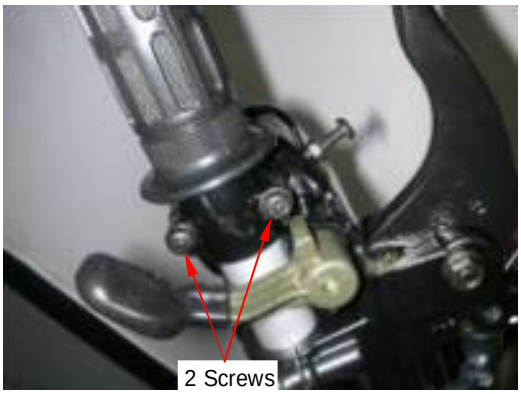
Loosen the socket bolts for the front brake master cylinder, and remove front brake master cylinder.

Caution

Do not let foreign materials enter into the cylinder.



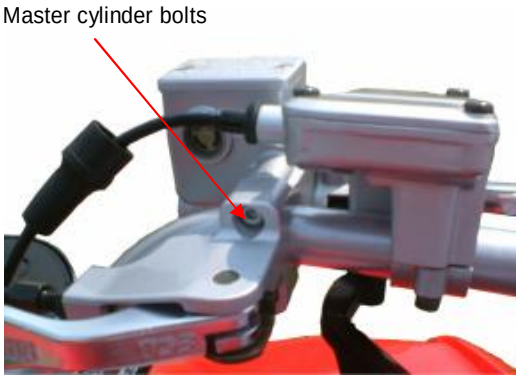
Remove 2 screws, and then remove throttle hosing holder and throttle hosing.



Loosen the socket bolts for the front brake master cylinder, and remove front brake master cylinder.

Caution

Do not let foreign materials enter into the cylinder.



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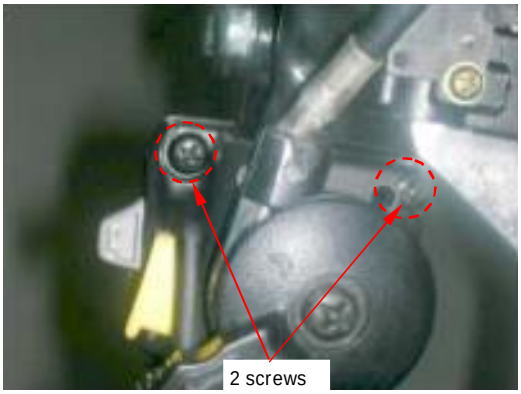
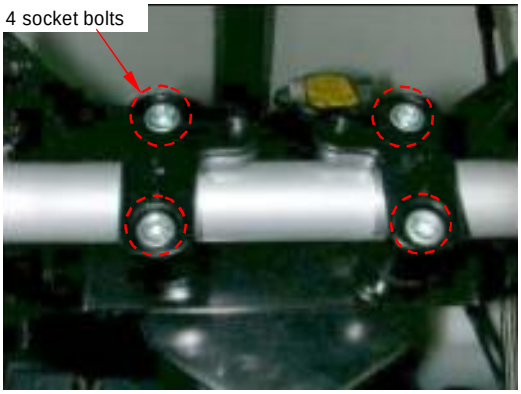
Loosen 2 screws, and then remove handle left switch and choke hosing.



Remove switch wire band.
Remove handle mounting bolt, and then remove the handle upper holder, handle.



Remove 2 nuts to remove handle under holder and meter bracket.

Installation

Install in reverse order of removal procedures.

Torque value:

Handlebar under holder nut	**4.0kgf-m**
Handlebar upper holder bolt	**2.4kgf-m**

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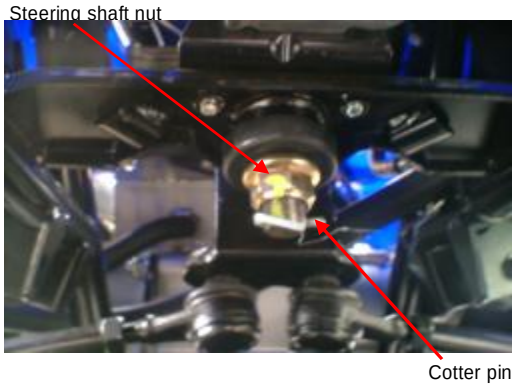
Steering Shaft

Remove

Remove cotter pins, and loosen right and left steering tie-rod nuts.
Remove tie-rod.

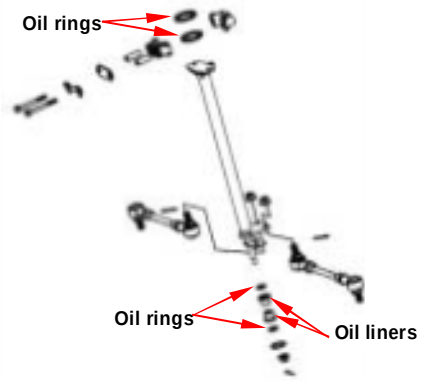
Remove the cotter pin below steering shaft, and remove steering shaft nut and washer.



Bend out the steering shaft holder nut fixed plate. Loosen 2 bolts, and then remove steering shaft holder, nut fixed plate, pressed plate and steering shaft.

Inspection

Check oil rings for wear or damage, and replace it if necessary.
Measure the holder inner diameter.
Maximum limit: Ø39.5 mm



Installation

Install in reverse order of removal procedures.
Apply with grease onto oil liner and holder.

Torque value:

Steering shaft holder bolt	**3.4kgf-m**
Steering shaft nut	**5.0kgf-m**
Steering tie-rod nut	**5.0kgf-m**

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Steering Tie-Rod

Remove

Remove cotter pin and tie-rod nut from steering shaft side.

Remove cotter pin and tie-rod nut from wheel side.

Inspection

Inspect the tie-rod for damage or bending. Inspect the ball joint rubbers for damage, wear or deterioration.
Turn the ball joints with fingers. The ball joints should turn smoothly and quietly.

Installation

Install the ball joint with “adjustment groove” on the wheel side.
Install tie-rod nuts, and tighten the nuts.
Torque value: 5.0kgf-m

After tightened the tie-rod nut, install the cotter pin.

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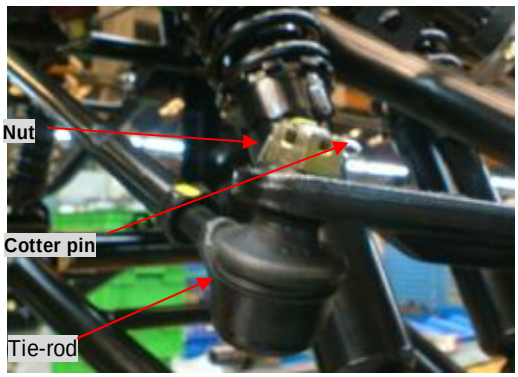
Knuckle

Remove

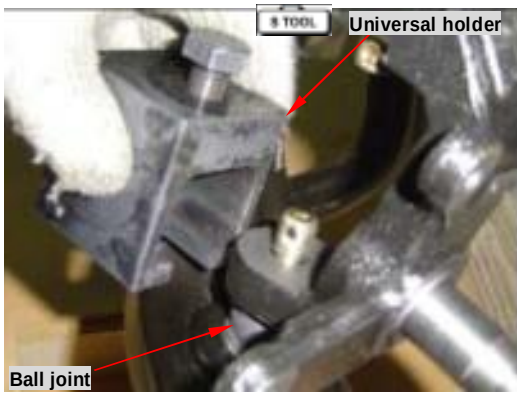
Remove front wheel, front brake caliper, front wheel hub and brake disk.

Remove cotter pin and tie-rod nut, remove tie rod.



Remove cotter pin and ball joint nut.
Remove upper and under ball joints by ball joint driver.
Remove the knuckle.

Special Tool：ball joint driver



Inspection

Inspect the upper and under ball joints and knuckle for damaging or cracking.

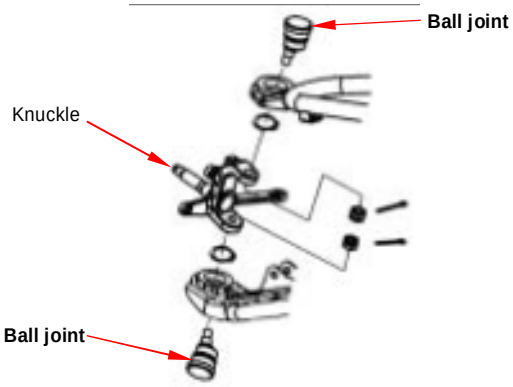
Installation

Install in reverse order of removal procedures.

Torque value:

Steering tie-rod nut	**5.0kgf-m**
Ball joint nut	**5.0kgf-m**

After tightened the nuts, install the cotter pins.



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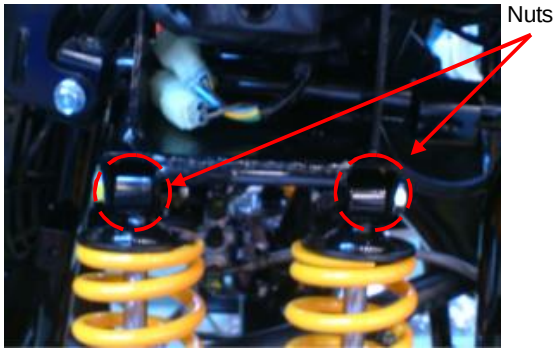
Front Cushion

Remove

Remove front cushion under bolt nuts, and remove the bolts.

Remove front cushion upper bolt nuts, and remove the bolts and cushions.



Installation

Install in reverse order of removal procedures.

Torque value:

Front cushion nut	**4.6kgf-m**

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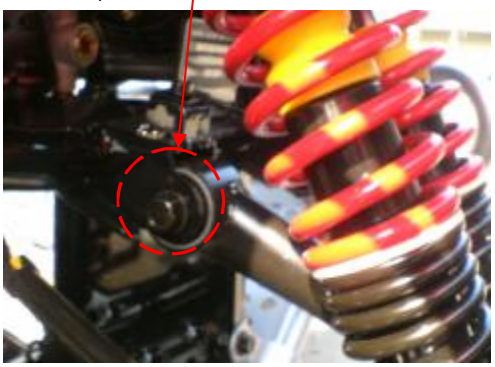
Suspension Arm

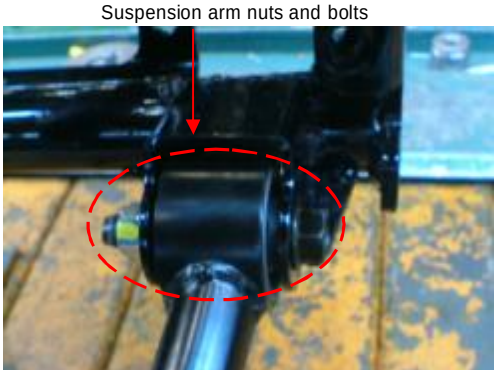
Remove

Remove front wheel, wheel hub, and brake caliper, brake disk, tie-rod, knuckle and front cushion.

Loosen upper suspension arm nuts, remove swing arm bolts.
Remove upper suspension arm.



Loosen under suspension arm nuts, remove swing arm bolts.
Remove under suspension arm.



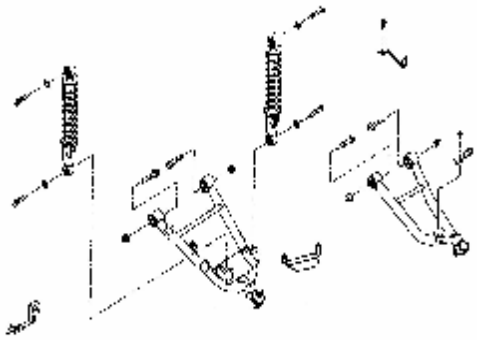
Inspection

Inspect the suspension arm, ball joint and bush for damage or bending.

Installation

Install in reverse order of removal procedures.
Torque value:
Suspension arm nut 5.0kgf-m

Lubricate with grease into suspension arm.



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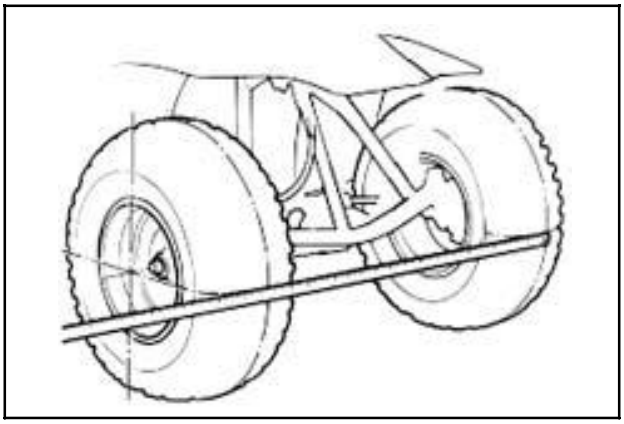
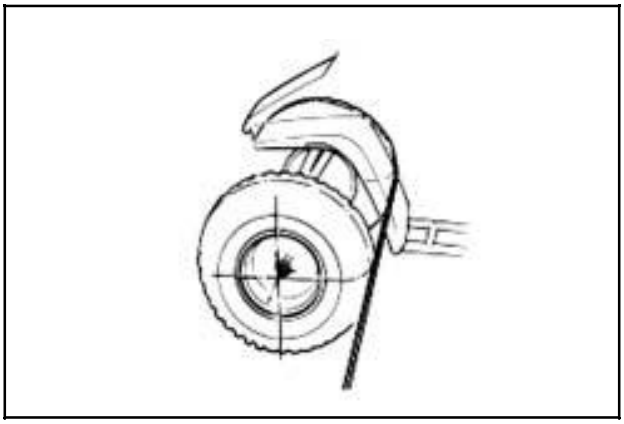
Toe-In

When repair or disassemble steering system parts, must to adjustment the toe-in.
Keep the vehicle on level ground and the front wheels facing straight ahead.
Mark the centers of the tires to indicate the axle center height.
Measure the distance between the marks.

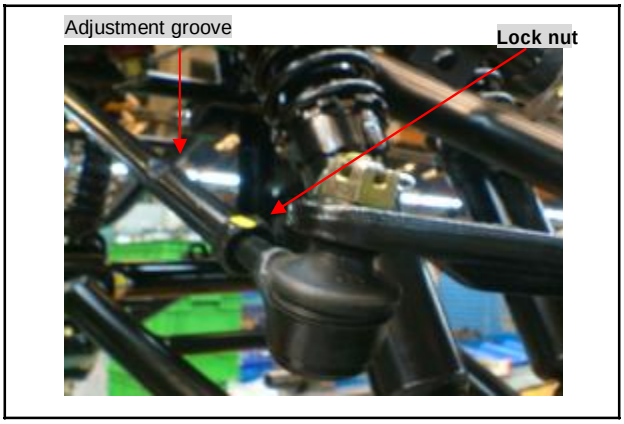


Carefully to move the vehicle back, let the wheels turn 180 degree, so the marks on the tires are aligned with the axle center height.
Measure the distance between the marks.
Calculate the difference in the front and rear measurements.

Toe-in: 10± 3mm



If the toe-in is out of standard, adjust it by hanging the length of the tie-rods equally by turning the tie-rod while holding the ball joint.
Loosen two side tie-rod lock nuts; turn the tie-rods to adjustment toe-in.
Tighten the lock nuts.
Torque value: 3.6kgf-m



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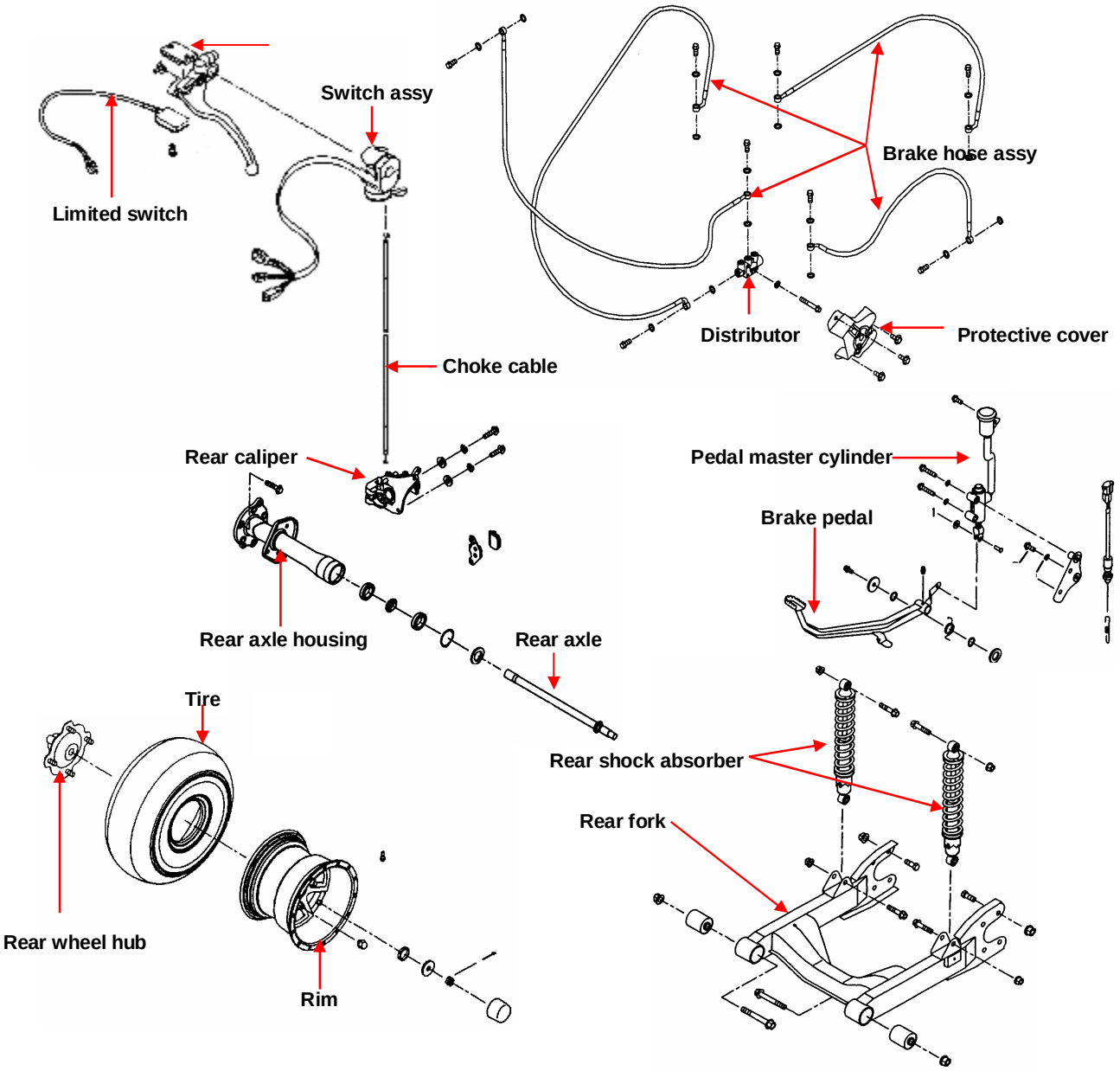
Mechanism Diagram



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Maintenance Description

Operational precautions

Caution

Inhaling asbestos may cause disorders of respiration system or cancer, therefore, never use air hose or dry brush to clean brake parts. Use vacuum cleaner or other authorized tool instead.

- The brake caliper can be removed without removing the hydraulic system.
- After the hydraulic system is removed, or the brake system is felt to be too soft, bleed the hydraulic system.
- While refilling brake fluid, care should be taken not to let the foreign material entering into the brake system.
- Do not spill brake fluid on the painted surfaces, plastic or rubber parts to avoid damage.
- Check the operation of the brake system before riding.
- Please refer to the Maintenance Manual of tubeless tire in respect to the removal, repair and installation of the tire.

Specifications

Item	Standard (mm)	Limit (mm)
The thickness of front and rear brake disk	4.000	2.500
Front and rear brake disk eccentricity	< 0.100	0.300
Master cylinder inner diameter (hand brake)	14.000 ~ 14.043	14.055
Master cylinder piston outer diameter (hand brake)	13.957 ~ 13.984	13.945
Master cylinder inner diameter (foot brake)	15.900 ~ 15.943	15.955
Master cylinder piston outer diameter (foot brake)	15.857 ~ 15.884	15.845
Diameter of rear disk	180.000	-
Thickness of rear brake lining	7.000	2.000

Tire pressure as cold: 7psi

Torque values

Brake hose bolt	3.50kgf-m	Rear axle castle nut	5.00kgf-m
Bolt for brake caliper	3.25kgf-m	Rear axle holder bolt	9.20kgf-m
Bolts for the brake disk	4.25kgf-m	Rear wheel axle nut	9.20kgf-m
Brake lever nut	1.00kgf-m	Rear cushion mounting bolt	
Air-bleed valve	0.50kgf-m	4.6kgf-m Swing arm pivot bolt	9.2kgf-m
Rear wheel nut	2.40kgf-m		

Special tools

Inner bearing puller: TGB-440645
Rear axle bearing driver (6007LLU): TGB-440640

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Trouble Diagnosis

Soft brake lever

1. Air inside the hydraulic system
2. Hydraulic system leaking
3. Worn master piston
4. Worn brake pad
5. Poor brake caliper
6. Worn brake lining/disk
7. Low brake fluid
8. Blocked brake hose
9. Warp/bent brake disk
10. Bent brake lever

Hard operation of brake lever

1. Blocked brake system
2. Poor brake caliper
3. Blocked brake pipe
4. Seized/worn master cylinder piston
5. Bent brake lever

Uneven brake

1. Dirty brake lining/disk
2. Poor wheel alignment
3. Clogged brake hose
4. Deformed or warped brake disk
5. Restricted brake hose and fittings

Tight brake

1. Dirty brake lining/disk
2. Poor wheel alignment
3. Deformed or warped brake disk

Brake noise

1. Dirty lining
2. Deformed brake disk
3. Poor brake caliper installation
4. Imbalance brake disk or wheel

Vibration or Wobble

1. Axle is not tightened well
2. Bent rim
3. Axle bearings are worn
4. Faulty tires
5. Rear axle bearing holder is faulty

Hard Suspension

1. Bent damper rod
2. Faulty swing arm pivot bushings

Soft Suspension

1. Weak shock absorber damper
2. Weak shock absorber spring

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Rear Wheel

Removal

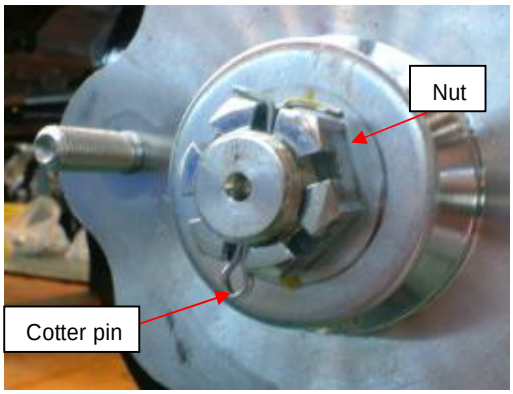
Raise the rear wheels off the ground by placing a jack or other support under the frame.

Remove the rear wheel nuts, and then remove rear wheels.

Installation

Install the rear wheel and tighten the nuts.
Torque: 2.4kgf-m

Remove cotter pin.
Remove wheel shaft connecter washer and tighten the wheel shaft connecter nut.
Remove the rear wheel shaft connecter.



Installation

Install the rear wheel shaft connecter.
Install wheel shaft connecter washer and tighten the wheel shaft connecter nut.
Torque: 2.4kgf-m
Install cotter pin.
Install the rear wheel and tighten the nuts.
Torque: 2.4kgf-m

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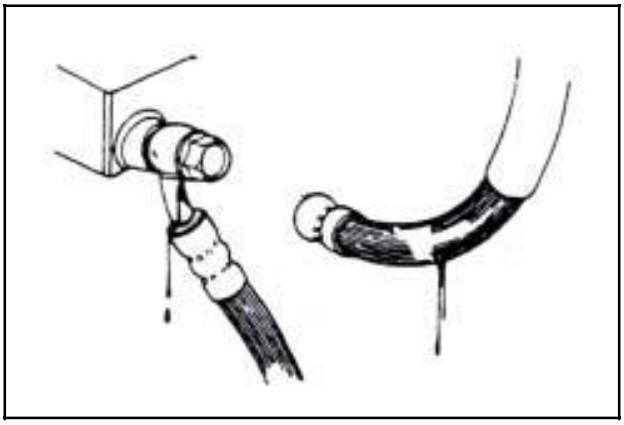
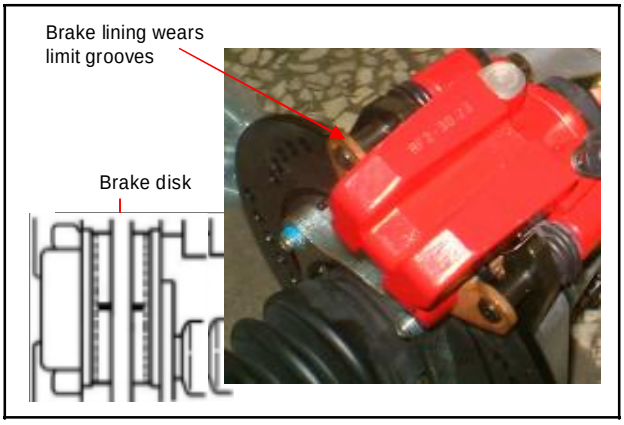
Disk Brake System Inspection

Inspection

By visual examination whether divulges or the damage, with spanner inspection brake tube seam whether becomes less crowded, and the inspection handle bar turn right or turn left, or pressure the cushion, whether besides the
pipeline protection department, whether there is interferes, contacts other parts of.



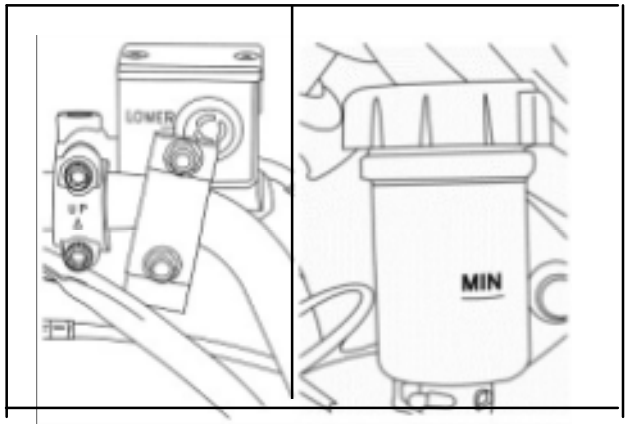
Check the brake from behind the brake caliper. The brake pad must be replaced with new lining when the brake pad wear limit reaches the brake disk.



Caution

- Check the rear brake lining must be removed rear wheel first.

Park the ATV on a level ground, and check if fluid level is under the “LOWER” mark.
Recommended Brake Fluid: WELL RUN BRAKE OIL(DOT 4)



Caution

- The vehicles inclined or just stop, the survey oil level could not be accurate, had to settle the 3~5 minute
- In order to prevent has the chemical change, please do not use counterfeiting or other unclear trade marks brake fluid.
- Uses by all means must with the trade mark brake fluid, guarantees the ghost vehicle efficiency.

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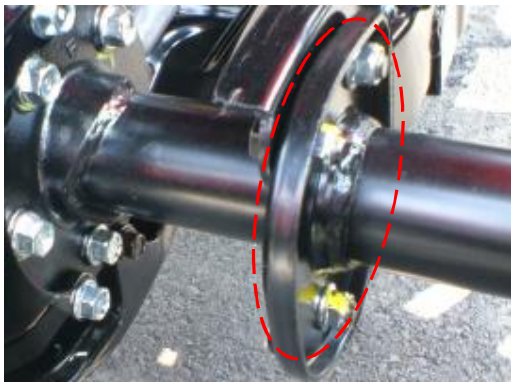
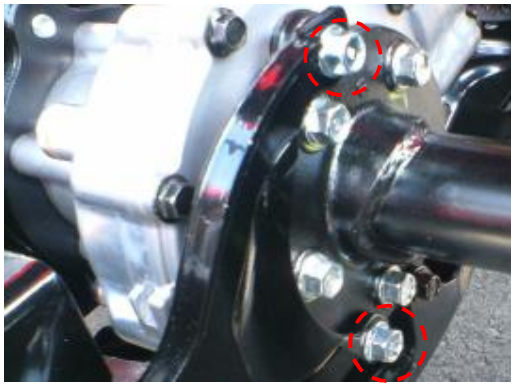
Rear Wheel Axle

Remove rear wheel housing 4 bolts.



Escape rear wheel housing from rear fork assy.

Remove tow ball mount 4 bolts (2 bolts each side)



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Remove rear axle housing 4 bolts.

Remove rear axle housing

Inspection

Check bearings on rear wheel axle bearing seat.
Rotate each bearing's inner ring with fingers.
Check if bearings can be turned in smooth and silent, and also check if bearing outer ring is mounted on bearing seat.
If bearing rotation is uneven, noising, or loose bearing mounted, then replace it.
Check oil seal for wear or damage, and replace it if necessary.

Caution

- Never install used bearings. Once bearing removed, it has to be replaced with new one.

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Adding Brake Fluid

Before the brake fluid reservoir is removed, turn the handle so that the brake fluid reservoir becomes horizontal, and then remove the brake fluid reservoir.
When maintenance brake system, will be supposed to paint the surface or the rubber parts catches up by the rags.

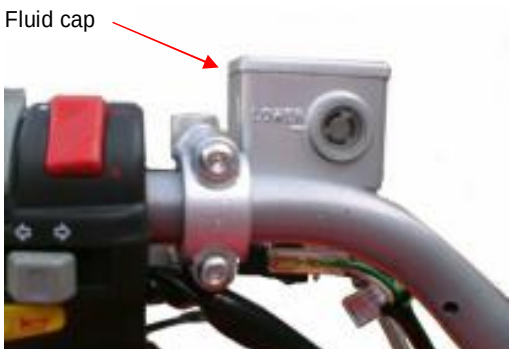
Caution

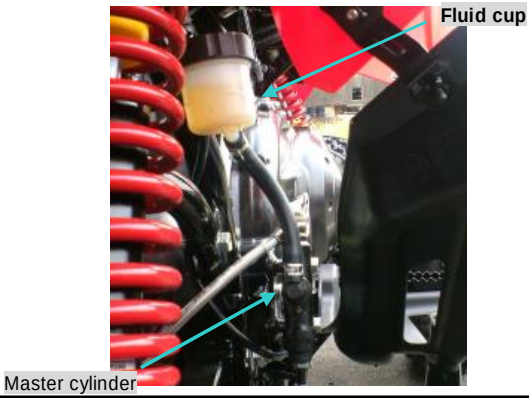
Supplement brake fluid please do not surpass the upper limit, spilled brake fluid on painted surfaces, plastic or rubber components may result in their damages.

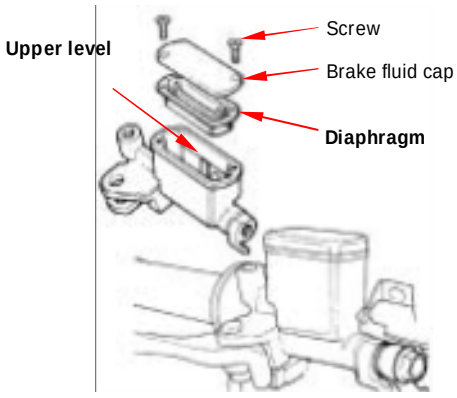
Remove the brake fluid cap and diaphragm.
Increases the high quality brake fluid, uses by all means must with the trade mark brake fluid joins in the master cylinder.
Clean the dirty brake disk.

Caution

- The dirty brake lining or disk will reduce the brake performance.
- To mixed non-compatible brake fluid will reduce brake performance.
- Foreign materials will block the system causing brake performance to be reduced or totally lost.







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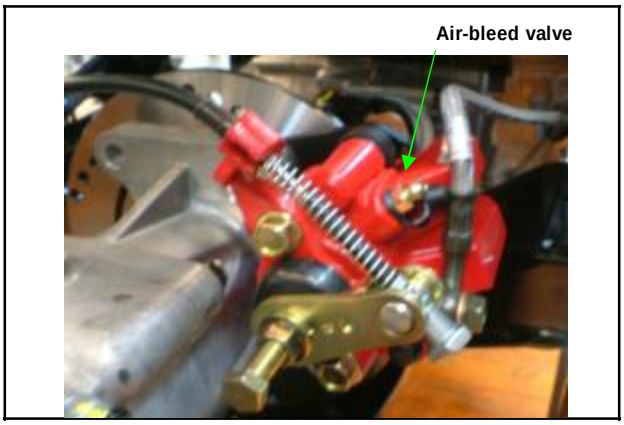
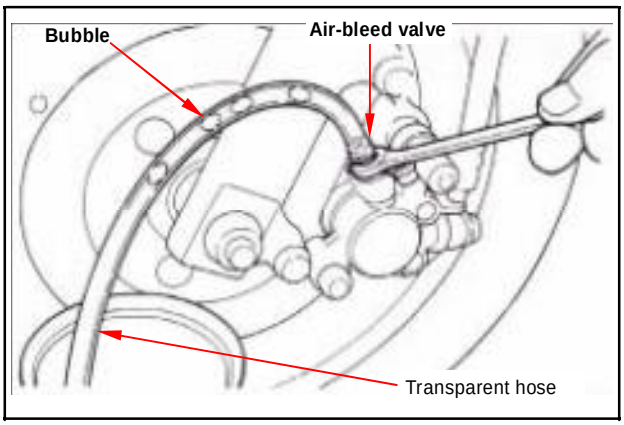
Brake fluid replacement / Air-bleed

Connect drain hose to air-bleed valve.
Open the drain valve on the caliper and operate the brake lever until the old brake fluid is entirely drained out.
Close the drain valve and add specified brake fluid into the brake master cylinder.
Recommended brake fluid: WELLRUN DOT 3 brake fluid



Connect one end of transparent hose to the drain valve, and put the other end into a container. Open the drain valve around 1/4 turns, and at the same time hold the brake lever until the there is no air bubble in the drain hose and also feeling resistance on the brake lever.
Close the drain valve when finishing the brake system refilling fluid procedure, and operate the brake lever to check whether air bubble is in brake system or not.



If brake is still soft, please bleed the system as described below:

1. Tightly hold the brake lever and open the drain valve around 1/4 turns, and then close the valve.

Caution

- Do not release the brake lever before the drain valve is closed.
- Always check the brake fluid level when carrying out the air bleeding procedure to avoid air enters into the system.

2. Slowly release the brake lever, and wait for a few seconds until it reaches its top position.
3. Repeat the steps 1 and 2 until there is no air bubble at the end of the hose.
4. Tightly close the drain valve.
5. Make sure the brake fluid is in the UPPER level of the master cylinder, and refill the fluid if necessary.
6. Cover the cap.

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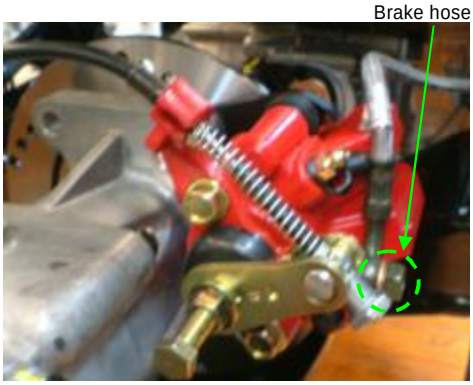
Rear Brake Caliper

Removal

Place a container under the brake caliper, and loosen the brake hose bolt and finally remove the brake hose.

Caution

Do not spill brake fluid on painted surfaces.



Remove two caliper bolts and the caliper.

Inspection

Make sure the brake linings condition. Replace the linings if the brake linings wear limitation groove close to the brake disk.

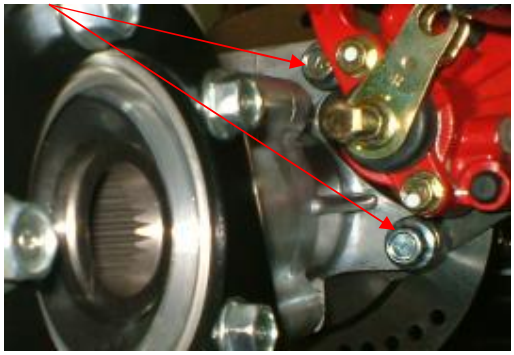
Installation

Install the brake caliper and tighten the attaching bolts securely.

Torque: 3.25kgf-m

Caution

- Use M8 x 20 mm flange bolt only.
- Long bolt will impair the operation of brake disk.



Use two seal washers and hose bolts to lock the hose and brake caliper in place.

Torque: 3.5kgf-m

Refill up the brake fluid to the reservoir and make necessary air bleeding.

Brake lining replacement

Remove two guide pins.

Remove brake caliper cylinder, and then remove brake linings.
Install new linings and brake caliper cylinder.
Tighten the guide pins.

Torque: 1.8kgf-m

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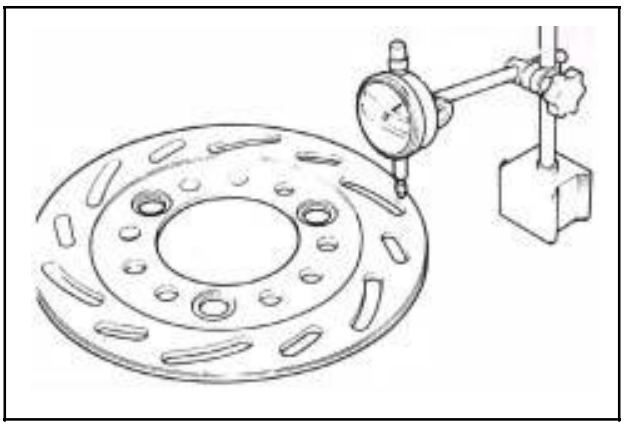
Brake Disk

Inspection

Visually check the brake disk for wear or break. Measure the thickness of the disk at several places. Replace the disk if it has exceeded the service limit.
Allowable limit: 2.5 mm

Remove the brake disk from rear wheel axle.
Check the disk for deformation and bend.
Allowable limit: 0.30 mm



Caution

- The dirty brake lining or disk will reduce the brake performance.
- Brake lining includes the asbestos ingredient, cannot use the air-gun to be clean, the operator should dress the mouthpiece and the glove, use vacuum cleaner clean it.

Rear Brake Master Cylinder

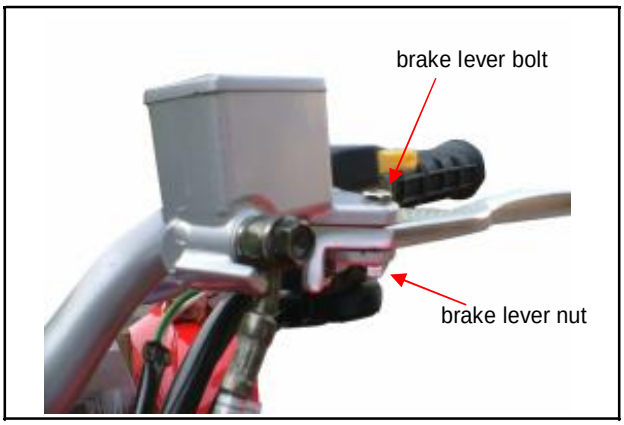
Master Cylinder Removal

Caution

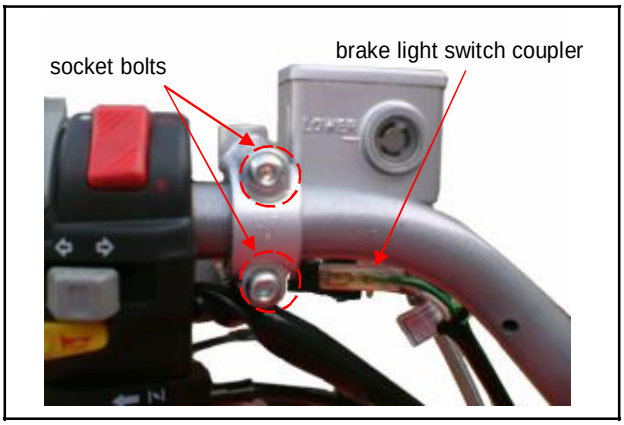
Do not let foreign materials enter into the cylinder.

Caution

The whole set of master cylinder, piston, spring, diaphragm and cir clip should be replaced as a set.



Handle left side – rear brake master cylinder A
Remove brake light switch coupler.
Drain out the brake fluid.
Remove the brake hose.
Remove the brake lever from the brake master cylinder.
Remove the master cylinder socket bolts and the master cylinder.



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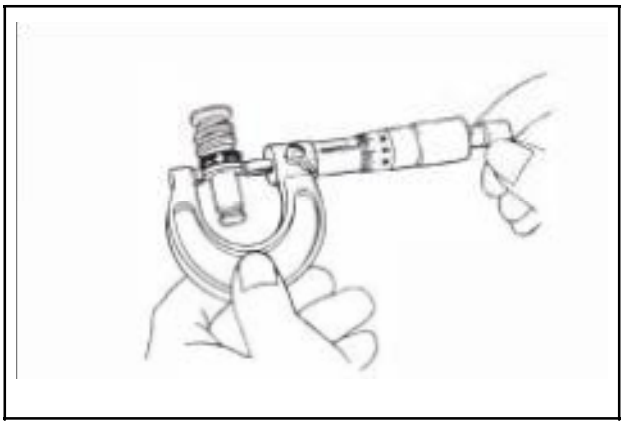
Measure the outer diameter of the piston. Replace the piston if its measured value exceeds allowable limit.

Allowable limit:

Hand brake 13.954 mm

Foot brake 15.850 mm



Master Cylinder Assembly

Caution

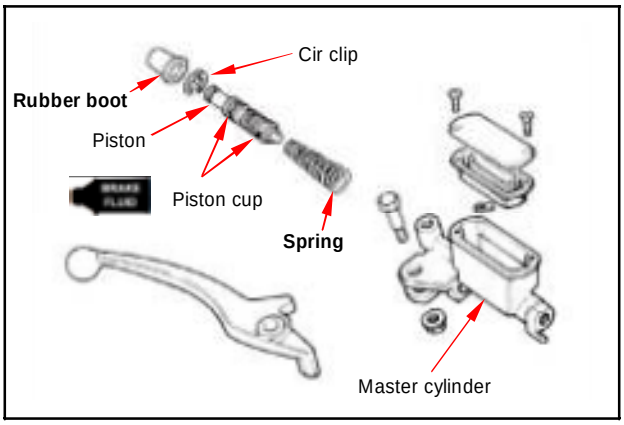
- It is necessary to replace the whole set comprising piston, spring, piston cup, and cir clip.
- Make sure there is no dust on all components before assembling.

Apply clean brake fluid to the piston cup, and then install the cup onto the piston.

Install the larger end of the spring onto the master cylinder.

The master cup's cavity should be face inside of master cylinder when installing the master cup.

Install the cir clip.



Caution

- Never install cup lip in the opposite direction.
- Make sure the cir clip is seated securely in the groove.

Install the rubber boot into groove properly.

Master Cylinder Install

Caution

Improper routing may damage leads, hoses or pipes.

Caution

Kink of brake leads, hose or pipe may reduce brake performance.

Handle left side – rear brake master cylinder A

Install the rubber pad into the groove correctly.

Place the master cylinder onto handlebar, and install the bolts.

Install the brake lever, and connect coupler to brake light switch.

Connect brake hoses with 2 new washers.

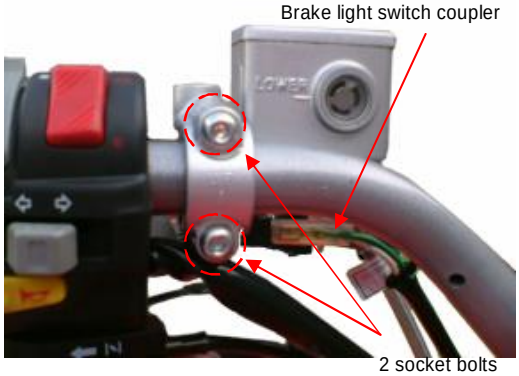
Tighten the brake hose bolt to the specified torque value.

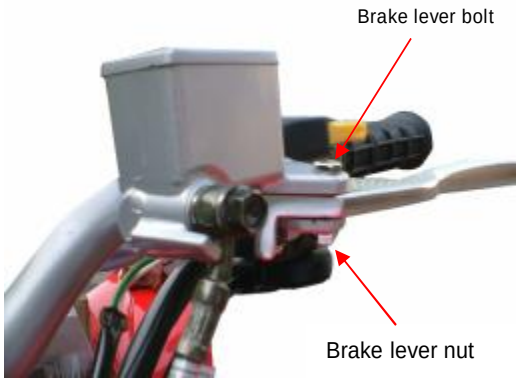
Torque: 3.5kgf-m

Make sure the hose is installed correctly.

Install all wires, hoses, and components carefully so avoid to twisting them together.

Add specified brake fluid and bleed the system.





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Right footrest side – rear brake master cylinder B

Install the master cylinder bolts and the master cylinder.

Install brake push rod to the brake pedal, and install pin and clip.

Caution

To adjustment brake pedal, you must be removed push rod pin fist.
Loosen lock nut, and turn adjustment nut and push rod bracket to adjustment brake free play.

Install fluid hose and clamp.
Connect brake hoses with 2 new washers.
Tighten the brake hose bolt to the specified torque value.
Torque: 3.5kgf-m
Make sure the hose is installed correctly.
Install all wires, hoses, and components carefully so avoid to twisting them together.
Add specified brake fluid and bleed the system.

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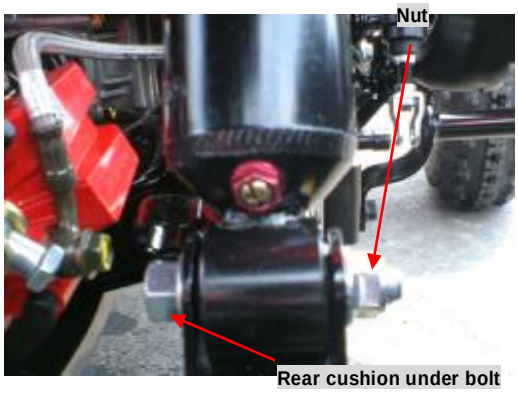
Rear Cushion

Removal

Support the frame.
Loosen rear cushion under bolt nut, and remove rear cushion under bolt.



Remove rear cushion upper bolt, and then remove rear cushion.

Installation

Install rear cushion, and install rear cushion upper bolt.
Install rear cushion under bolt, and install nut. Tighten the rear cushion upper bolt and under nut to the specified torque value.
Torque: 4.6kgf-m

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Mechanism Diagram

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Maintenance Data

Operational precaution

- When remove the battery, the disconnection sequence of cable terminals shall be strictly observed. (First disconnect the negative cable terminal, next, the positive cable terminal.)
- The model of the spark plug and the tightening torque.
- The ignition timing.
- Adjustment of headlight.
- Removal and installation of AC generator.
- The maintenance free battery requires no inspection of electrolyte level and refilling of distilled water.
- To recharge the battery, remove the battery from rack without removing ventilation caps.
- Unless in emergency, never rapid charge the battery.
- The voltage must be checked with the voltmeter while charging the battery.
- As C.D.I assembly does not require an ignition timing check. In case ignition timing is incorrect, check C.D.I and AC generator. Verify with an ignition timing light after replacement if necessary.

Technical Specification

Charging system

Description		Specification
Battery	Capacity	12V18Ah
	Charging rate	1.4A / 5 ~ 10 hours (standard) 14A / 0.5 hour (fast charging)
Leak current		< 1mA
Charging current		1.2 A / 1500rpm
Control voltage in charging		14.5 + 0.5 V / 1500rpm

Ignition system

Description		Specification
Spark plug	Model	NGK CR7E (Recommended)
	Gap	0.8mm
Ignition coil and resistance	Primary winding	2.9 ± 10%Ω
	Secondary winding	Without cap: 15. ± 10KΩ
		With cap:20 ± 10KΩ
Ignition timing "F" mark		15° TDC / 1700rpm
		46°TDC / 4200rpm

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Trouble Diagnosis

No voltage
- Battery discharged
- The cable disconnected
- The fuse is blown
- Improper operation of the main switch

Low voltage
- The battery is not fully charged
- Poor contact
- Poor charging system
- Poor voltage regulator

No spark produced by spark plug
- The spark plug is out of work
- The cable is poorly connected, open or short-circuited
  - Between AC.G. and C.D.I.
- Poor connection between C.D.I. and ignition coil
  - Poor connection between C.D.I. and the main switch
- Poor main switch
- Poor C.D.I.
- AC.G. is out of work

Starter motor does not work
- The fuse is blown
- The battery is not fully charge
- Poor main switch
- Poor starter switch
- The front and rear brake switches do not operate correctly
- Starter relay is out of work
- The ignition coil is poorly connected, open or short-circuited
- The starter motor is out of work

Intermittent power supply
- The connector of the charging system becomes loose
- Poor connection of the battery cable
- Poor connection or short-circuit of the discharging system
- Poor connection or short-circuit of the power generation system

Charging system does not operate properly
- Burnt fuse
- Poor contact, open or short circuit
- Poor regulator
- Poor ACG

Engine does not crank smoothly
- Primary winding circuit
  - Poor ignition coil
  - Poor connection of cable and connectors
  - Poor main switch
- Secondary winding circuit
  - Poor ignition coil
  - Poor spark plug
  - Poor ignition coil cable
  - Current leakage in the spark plug
- Incorrect ignition timing
  - Poor AC.G.
  - Improper installation of the pulse sensor
  - Poor C.D.I.

Weak starter motor
- Poor charging system
- The battery is not fully charged
- Poor connection in the windings
- The motor gear is jammed by foreign material

Starter motor is working, but engine does not crank
- Poor starter motor pinion
- The starter motor run in reverse direction
- Poor battery

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Battery

Removal

Remove the seat, and then you can see the battery.
Disconnect the negative cable terminal first, then the positive cable terminal.
Remove the battery clamp, and then remove battery.

Clamp

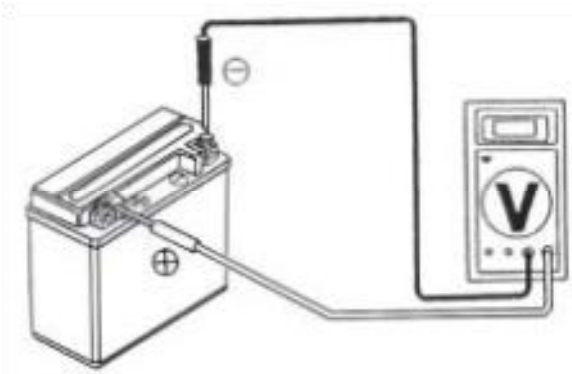
Voltage Check

Use the digital voltmeter to check the voltage of the battery.

Voltage:

Fully charged: 12.0~12.2 V at 20℃

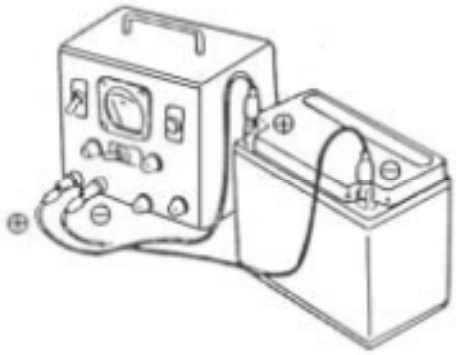
Undercharged: Below 11.3 V at 20℃



Charging

Connect the positive terminal (+) of the charger to the battery positive terminal (+).
Connect the negative terminal (-) of the charger to the battery negative terminal (-).

	Standard	Maximum
Charging current	1.8A	9.0A
Charging time	5~10H	1H



Warning

- Keep flames away while recharging.
- Charging is completely controlled by the ON/OFF switch on the charger, not by battery cables.

Caution

- Never rapid charge the battery unless in emergency.
- Verify the battery is recharged with current and duration prescribed above.
- Large current and fast time to charge will render damage to the battery.

When installing the battery, coat the cable terminal with grease.

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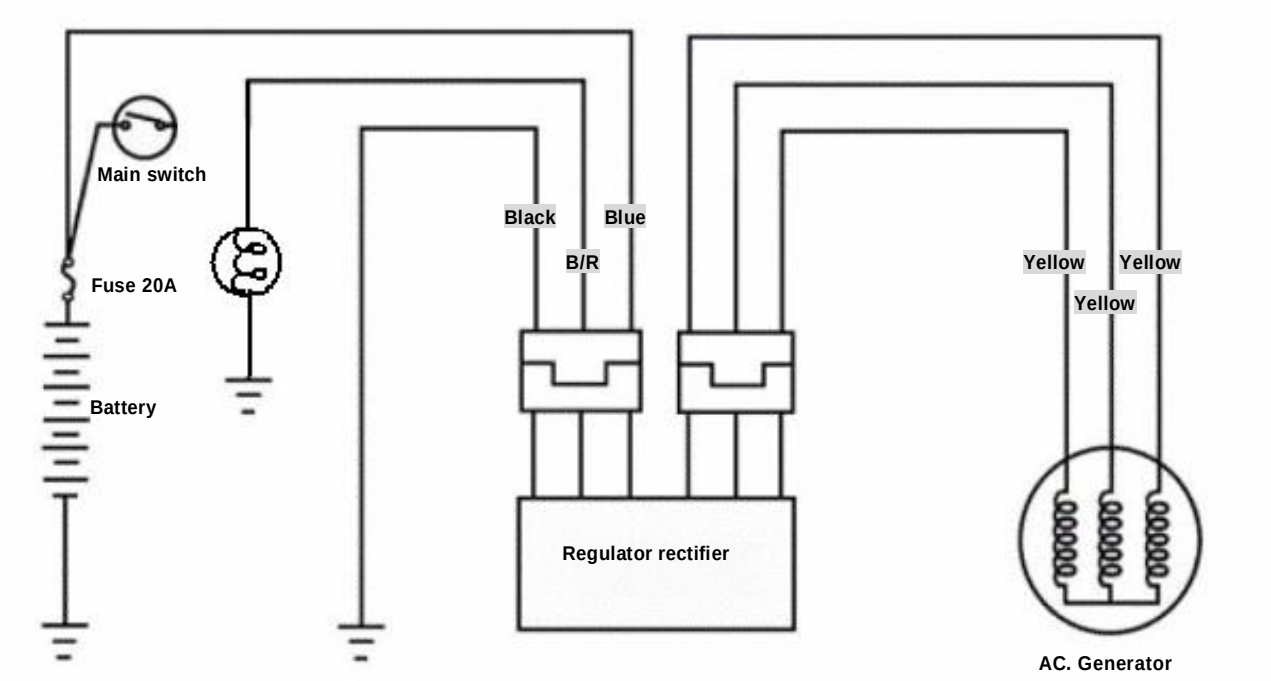
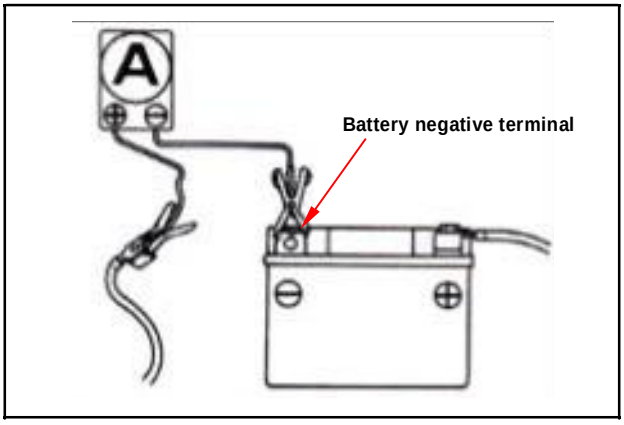
Charging System

Charging circuit



Current Leakage Inspection

Turn the main switch to OFF position, and remove the negative cable terminal (-) from the battery. Connect an ammeter between the negative cable terminal and the battery negative terminal.



Caution

- In the current leakage test, set the current range at the largest scale, then gradually decrease to the lower scale as the test process goes to avoid possible damage to the ammeter and the fuse.
- Do not turn the main switch to ON position during test.

If the leaked current exceeds the specified value, it may indicate a short circuit.

Allowable current leakage: Less than 1mA

Disconnect each cable one by one and take measurement of the current of each cable to locate the short circuit.

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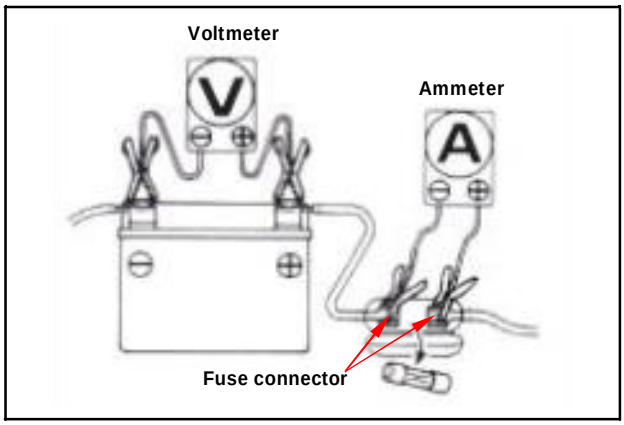
Inspection on Charging Voltage



Caution

- Before conducting the inspection, be sure that the battery is fully charged. If undercharged, the current changes dramatically.
- Use a fully charged battery having a voltage larger than 13.0 V
- While starting the engine, the starter motor draws large amount of current from the battery.

After the engine is warmed up, replace original battery with a fully charged battery.
Connect a digital voltmeter to the battery terminals.
Connect an ammeter between both ends of the main fuse.

Caution

When the probe is reversibly connected, use a voltmeter having an indication that the current flows from the positive or the negative direction and the measurement should be at zero, ammeter at one direction only.

Caution

- Does not use short-circuit cable.
- It is possible to measure the current by connecting an ammeter between the battery positive terminal and the cable position terminal, however, while the starter motor is activated, the surge current the motor draws from the battery may damage the ammeter. Use the kick starter to start the engine.
- The main switch shall be turned to OFF position during the process of inspection. Never tamper with the ammeter and the cable while there is current flowing through. It may damage the ammeter.

Connect a tachometer.
Turn on the headlight to high beam and start the engine.
Accelerate the engine to the specified revolution per minute and measure the charging voltage.

Specified Charging Current:
1.2 A / 6000 rpm
Control Charging Voltage:
14.5 + 0.5 V / 2000 rpm

Caution

To replace the old battery, use a new battery with the same current and voltage.

The following problems are related to the charging system; follow the instructions provided in the checking list to correct it if any one of the problems takes place.

(1) The charging voltage can not exceed the voltage between two battery terminals and the charging current is in the discharging direction.
(2) The charging voltage and current are too much higher than the standard values.

The following problems are not related to the charging system; correct it if any by following steps indicate in the checking list.

(1) The standard charging voltage and current can only reach when the revolution of the engine exceeds the specified rpm.
   - Bulbs used exceed their rate and consume too much power.
   - The replacement battery is aged and does not have enough capacity.
(2) The charging voltage is normal, but the current is not.
   - The replacement battery is aged and does not have enough capacity.
   - Battery used does not have enough electricity or is over charged.
   - The fuse of the ammeter is blown.
   - The ammeter is improperly connected.
(3) The charging current is normal, but the voltage is not.
   - The fuse of the voltmeter is blown.

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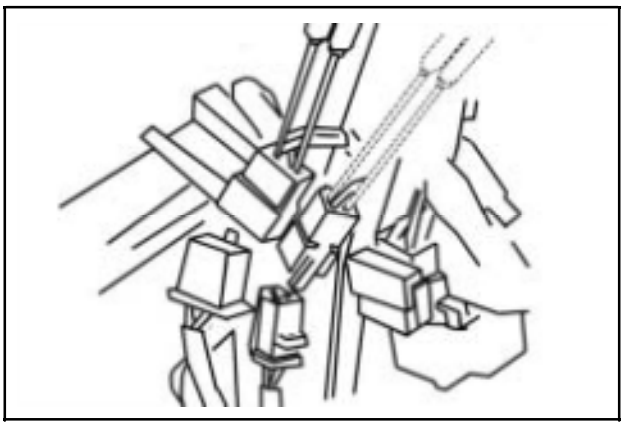
Inspection on regulator rectifier

Remove the seat, rear carrier and rear fender.
Disconnect two 3 pin couplers of the regulator rectifier.
Inspection the rectifier coupler to the wire harness passes the condition.

Item	Check Points	Standard Value
Main switch connection	Bl – B	Battery voltage (ON)
Battery connection	Bl – B	Battery voltage
Charging coil	B – B	0.1 ~ 0.5Ω

If the readings measured are not normal, check parts in the circuit.
If the parts are normal, then trouble is in the wiring. If there is nothing wrong with parts and wiring, replace the regulator rectifier.



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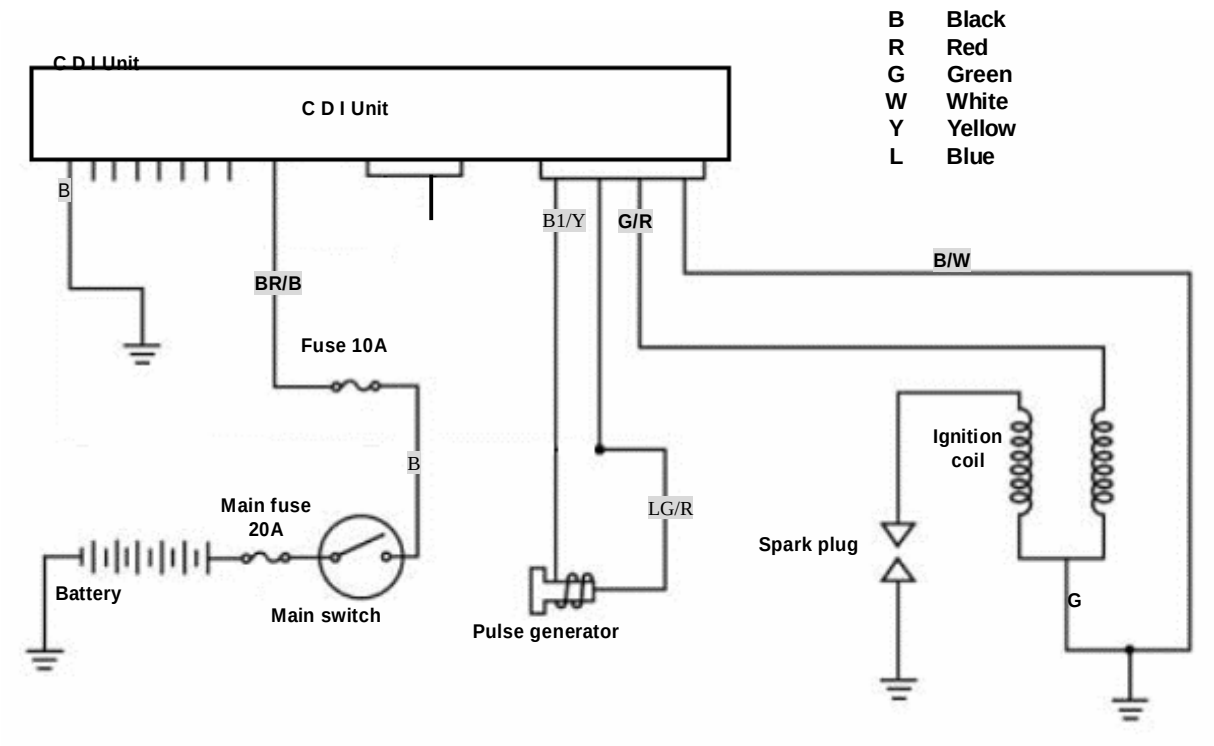
Ignition System

Ignition circuit diagram



C.D.I unit

Disconnect connectors of the C.D.I unit.
Check the following connectors as indicated in the table at the harness side.

Item		Points to check	Result
Main switch turn to “ON” position		Br/Bl ~ B	Battery voltage
Pulse generator		Bl/Y ~ G/R	50~170Ω
Ignition coil	Primary circuit	G/R ~ B	2.9±10%Ω
	Secondary circuit	TERMINAL-B ~ with no cap	15.0±10%Ω
		TERMINAL-B ~ with cap	20.0±10%KΩ

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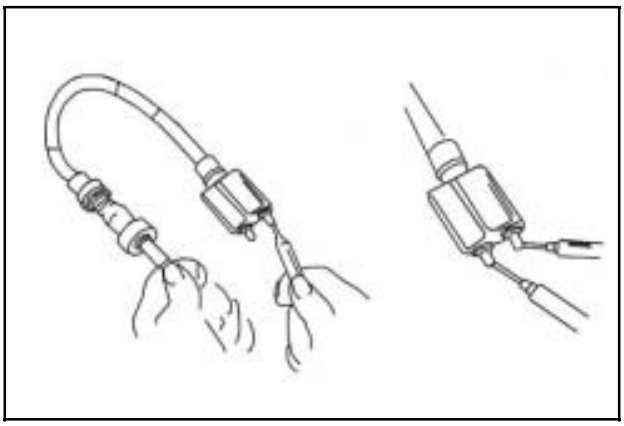
Inspection on Ignition Coil

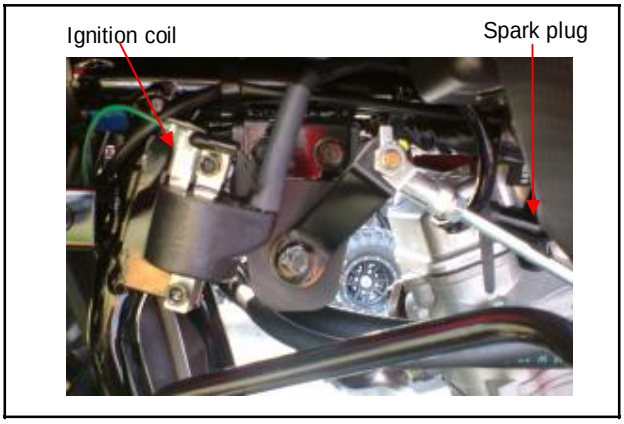
Disengage the connector of the ignition coil and the spark plug cap.
Measure the resistance between the terminals of the primary winding.
Standard resistance: 2.9Ω ± 10%
Remove the cap from the spark plug and measure the resistance between the spark plug and the primary winding.
Standard resistance:

With no cap: 15.0Ω ± 10%
With cap: 20.0±10%KΩ



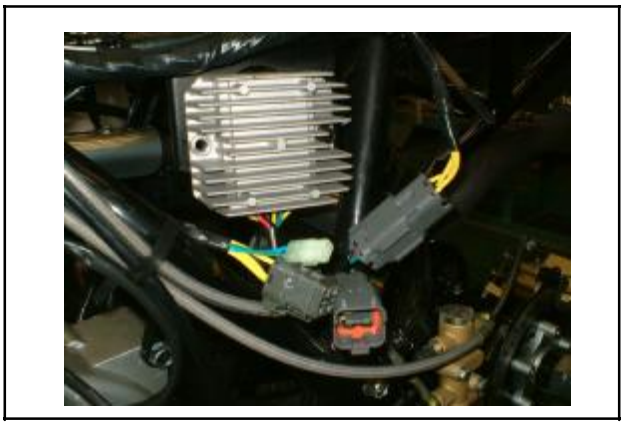
Ignition Coil Replacement

Loosen the lock bolt and replace the ignition coil if necessary.



Inspection of Pulse Generator

Disconnect the coupler of the pulse generator and measure the resistance between the terminals of green/white and blue/yellow.
Standard resistance: 50~170Ω



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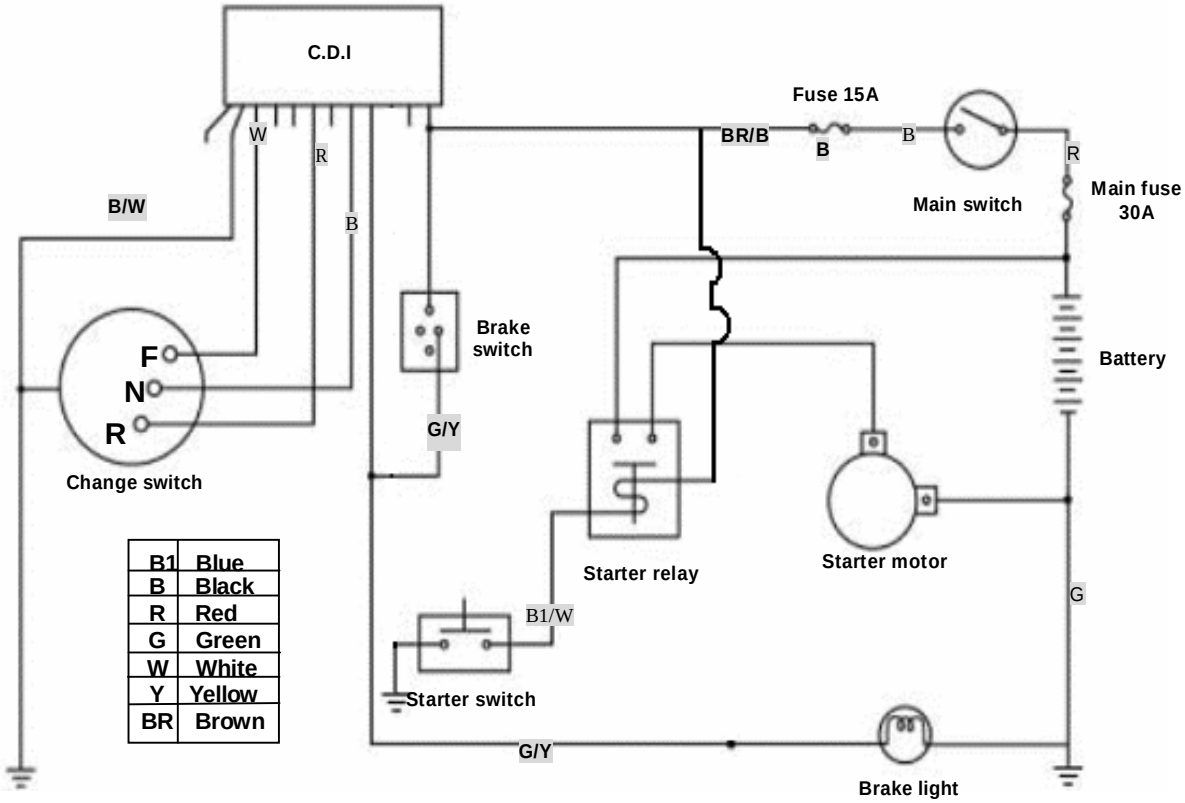
Starting System

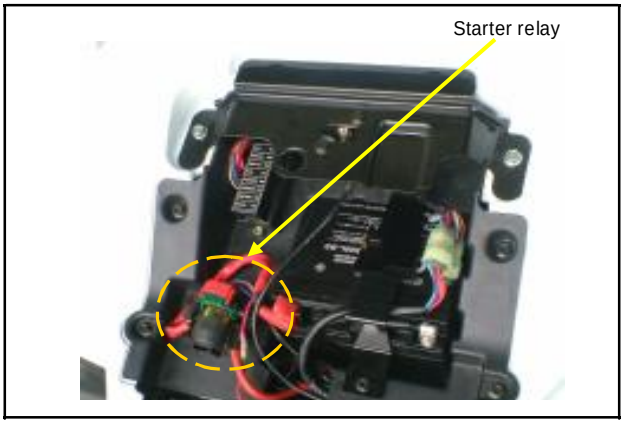
Starting circuit diagram



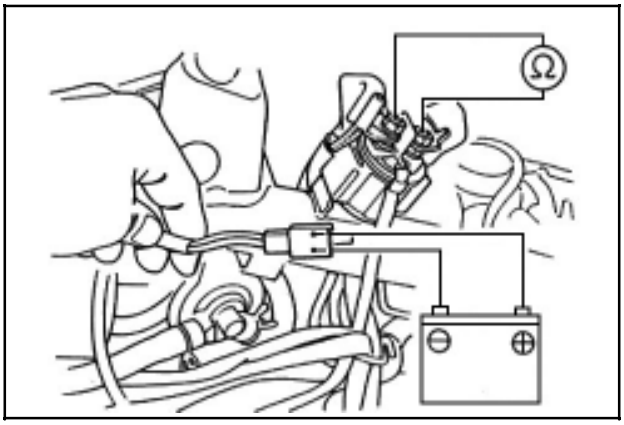
B1	Blue
B	Black
R	Red
G	Green
W	White
Y	Yellow
BR	Brown

Inspection on starter relay

Open the main switch.
Press the brake.
Push down the starter switch.
If a sound of “Looh Looh” is heard, it indicates the relay function normally.



Remove the seat.
Disconnect the negative cable terminal of the battery.
Disconnect the cable positive terminal from the relay.
Disconnect the positive cable of the starter motor.
Disconnect the coupler of the relay.
Connect an ohmmeter to the large terminal end.
Connect the yellow/red cable to the battery positive terminal and the black / blue cable to the battery negative terminal.
Check the continuity of the large terminal end. If there is no continuity, replace the relay.



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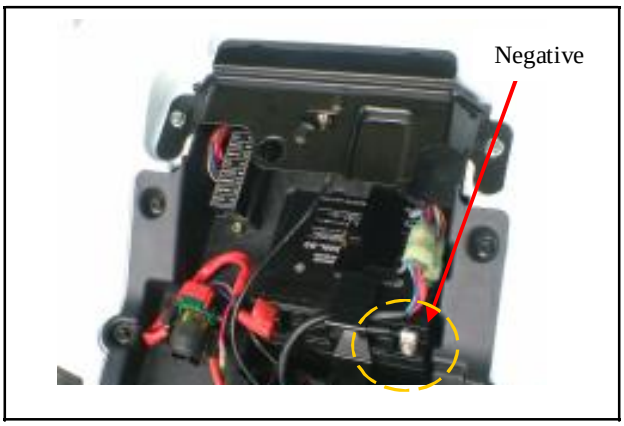
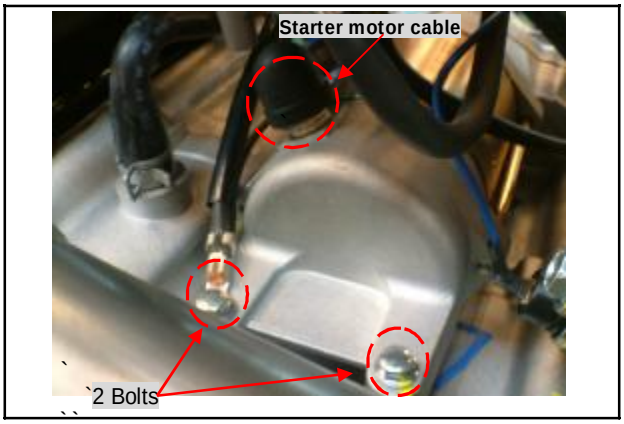
Removal of Starter motor
Remove the seat.
Disconnect the cable negative terminal (-), then the cable positive terminal (+).



Remove starter motor cable.
Loosen the lock bolts and remove the starter motor.



Installation of Starter motor
Install in reverse order of removal procedures.

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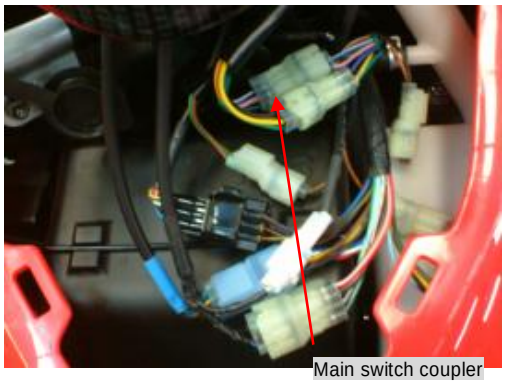
Meters

Removal

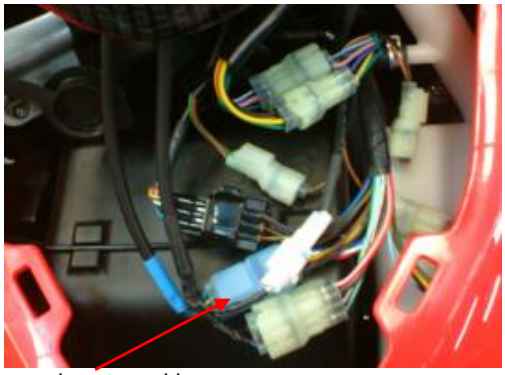
Loosen 4 bolts of the meter stay.

Each side 2 bolts

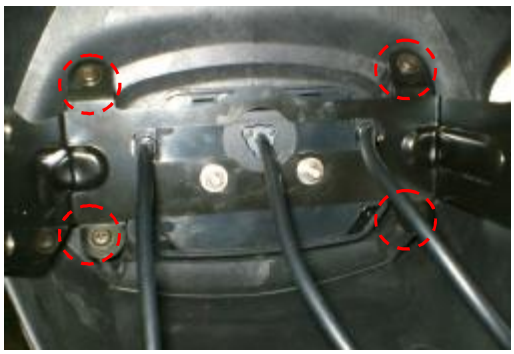
Remove the front center cover, and then remove meter couplers and main switch coupler. Remove speedometer cable.



Remove speedometer cable, and then remove meter set, main switch and handle cover



Remove 4 nuts and meter wire, and then remove speedometer and fuel meter.



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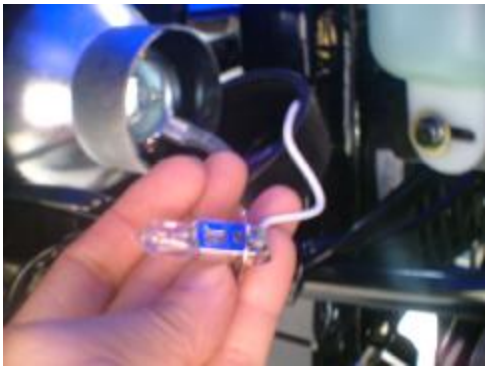
Light / Bulb

Replacing Bulb for Headlight

Remove waterproof cover for the headlight.

Remove bulb setting hook.

Take out the bulb connector and the bulb. Replace with new bulb if necessary.
(Main beam H3 12V 55W)



(Dipped 12V 55W)

Caution

- Never touch the bulb with finger, which will create a heat point.
- Clean the fingerprint left on the bulb with alcohol.

Install the bulb of the headlight in reverse order of removal.
Upon completion of replacement, turn on the main switch to ensure the headlight works well.
Adjust the beam and distance of the headlight if necessary.

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Replacing the Front winker light Bulb

Pull out the front winker light bulb seat.

Replace with new front winker light bulb.
(12V 21W)

Replacing Bulb of Position Light

Pull out the position light bulb seat.

Replace with new position light bulb.
(12V 5W)

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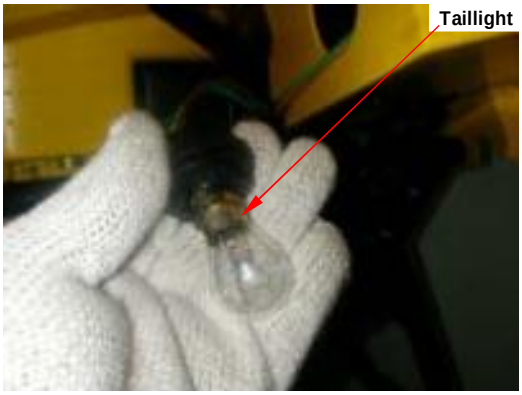
Replacing Bulb of Taillight
Turn the taillight and rear winker light bulb connectors by CCW.

Replace with new taillight bulb.
(12V 5W/21W)



Rear Winker Light
Replace with new rear winker light bulb.
(12V 21W)

Replacing Bulb of License Light
Turn the license light bulb connectors by CCW.
Replace with new license light bulb.

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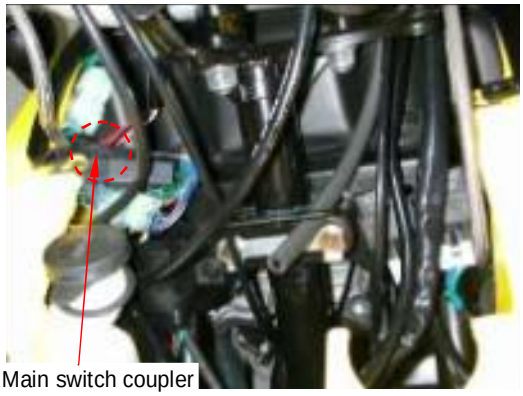
Switch / Horn

Main Switch

Inspection

Remove the front center cover.
Disconnect the main switch coupler.
Check the continuity between two points as indicted below:

Pin / Position	BAT1	BAT2
OFF		
ON	○	○
Wire Color	Red/White	Brown/Blue

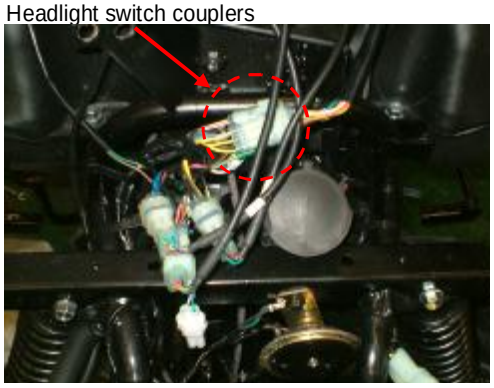


Replacement of main switch

Disconnect the coupler of the main switch.
Push out the main switch.
Align the main switch stopper with the meter cover groove, and install main switch.
Install the main switch coupler.

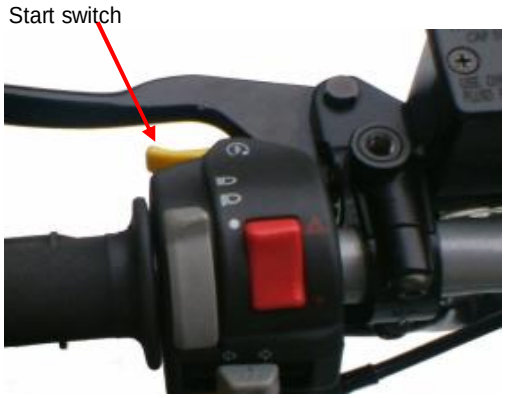
Handle switches

Disconnect the coupler of handle from front fender left side.
Check the continuity between two points as indicated in the table below.



Start Switch

Pin / Position	ST	SG
FREE		
	○	○
Wire Color	Blue / White	Black



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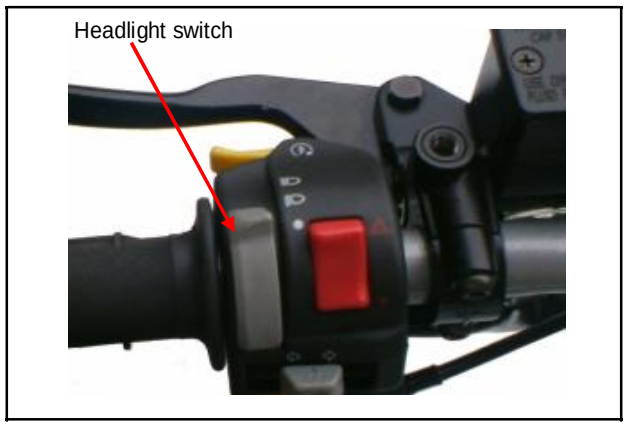
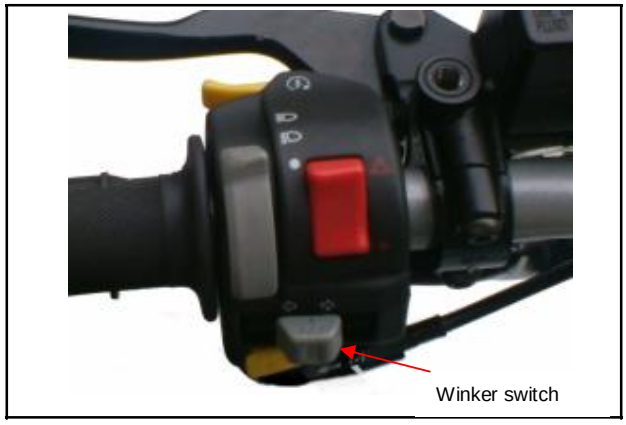
Headlight Switch

Position \ Pin	BAT3	LO	HI	PL
●				
	○	○		○
	○		○	○
Wire color	Red	Red /Green	Red /Yellow	Blue /Brown



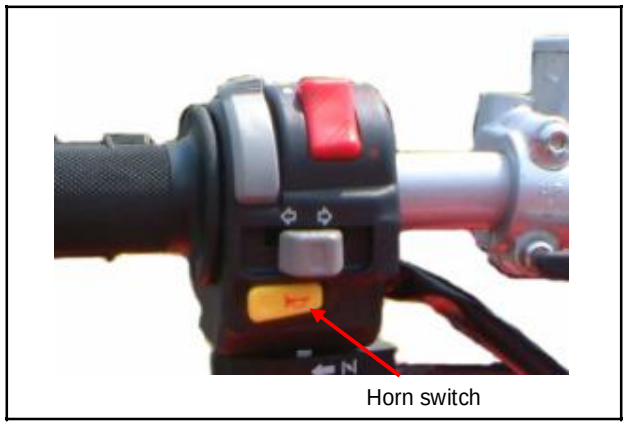
Winker switch

Position \ Pin	L	WR	R
⇦	○	○	
N PUSH OFF			
⇨		○	○
Wire color	Brown	Brown / White	Green



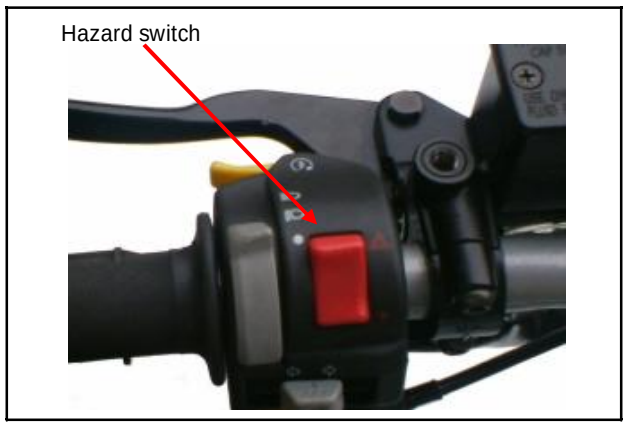
Horn switch

Position \ Pin	BAT3	HO
FREE		
	○	○
Wire Color	Brown/ White	Pink



Hazard switch

Position \ Pin	HD	E
△	○	○
●		
Wire Color	Brown / White	Black



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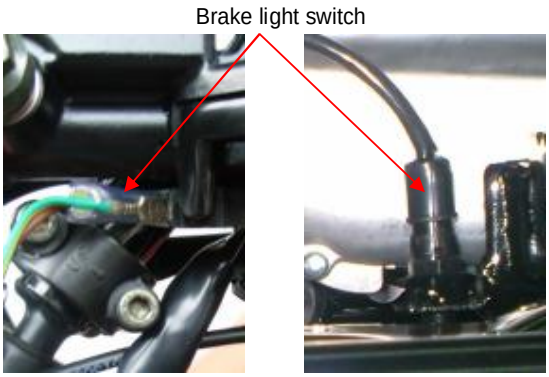
Front Brake Switch

While grasp the brake lever firmly, the terminals of brown/blue and green/yellow of the brake should have continuity.
Replace the switch if damaged.

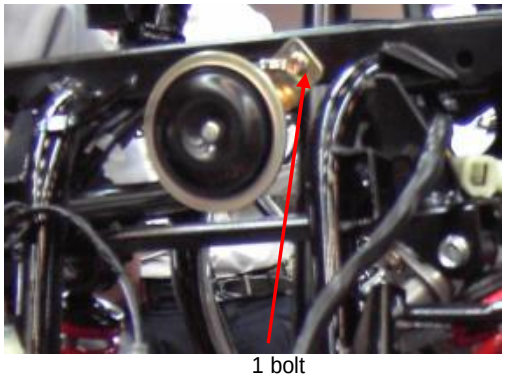
Rear Brake Switch

While grasp the brake lever firmly, the terminals of white/black and Brown/White of the brake should have continuity.
Replace the switch if damaged.

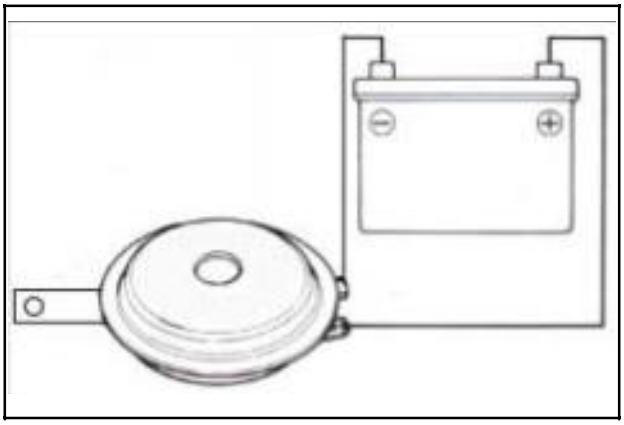


Horn

Remove the horn from front fender.



Apply 12 V power source to two terminals of the horn, the horn should sound.
Replace the horn if necessary.



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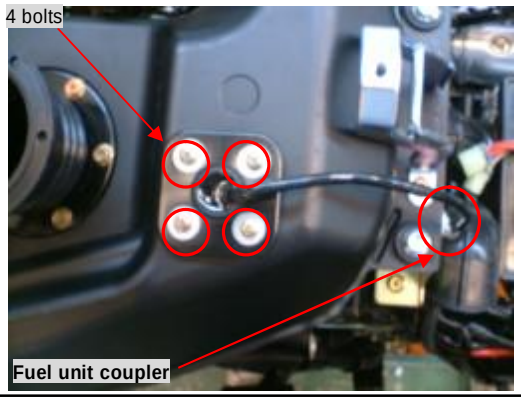
Fuel Unit

Remove the seat.
Remove the fuel tank cap.
Remove the fuel tank cover and front fender (refer chapter 13).
Disconnect the coupler of the fuel unit.
Remove the fuel unit (4 bolts).

Caution

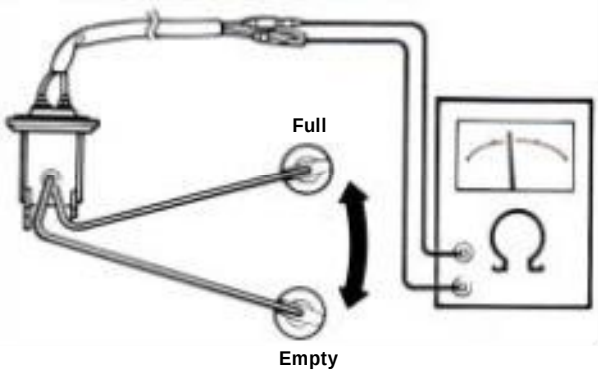
- Great care shall be taken not to damage or bend the float arm of the gauge.



When the float arm shifts to the F position or the E position, the resistance measured shall be as follows:

Position	Resistance
E (Empty)	97.5~107.5 Ω
F (Full)	4~10 Ω

Connect the wiring to the fuel unit and the ohmmeter as shown.

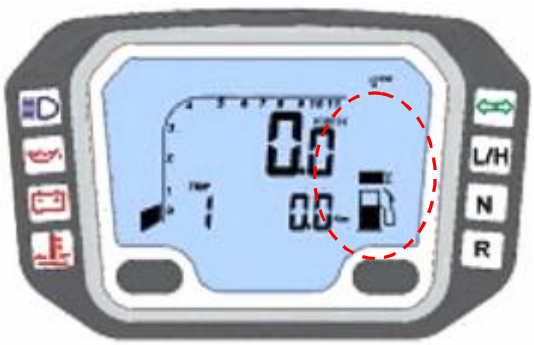


Connect the fuel unit coupler to the wire harness.
Turn on the main switch.
Move the float arm to verify the proper position the fuel gauge needle indicates.

Arm Position	Bargrahpic Position
Up (Full)	7 Bargrahpic (Full)
Down (Empty)	E (Empty)

Caution

While conducting the test, turn on the direction indication lamp to make sure that the battery is in serviceable condition.



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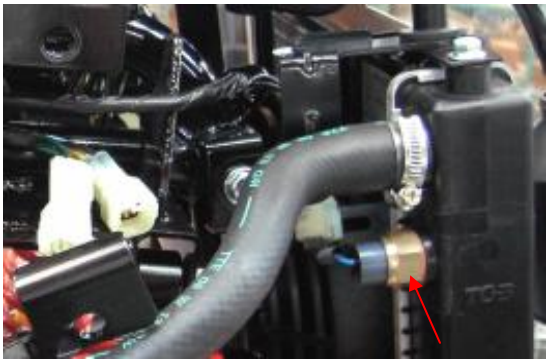
Cooling Fan Thermo Switch

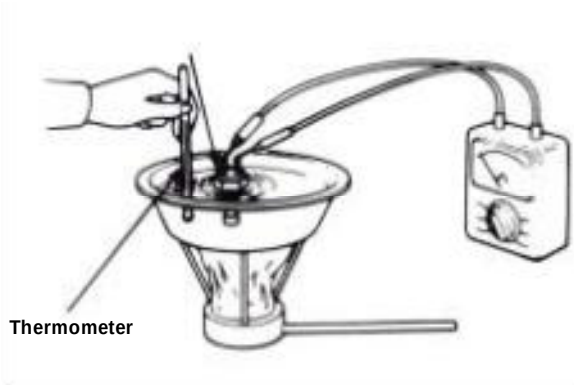
The thermo switch mounted on the radiator controls the operation of the cooling fan motor.
In case that the fan motor fails to work, disconnect the green and black/blue leads and connect jump wires to the terminals, then, turn on the main switch, the fan motor should operate.
If the fan motor still fails to run, measure battery voltage between the green and black/blue leads. If there is no voltage, check for blown fuse, loose connection or short-circuit.
If the fan motor runs, check the thermo switch in the manner as described below:
Hang the thermo switch on the bowl filled with coolant to check the switch's opening and closing temperatures, confirm the switch is open circuited at room temperature, increase the coolant temperature gradually. The switch should have continuity at 85±3℃.

Caution

- Keep the coolant at a constant temperature at least for three minutes. Sudden increase the coolant temperature will cause the thermometer and the tester to indicate wrong readings.
- Never let the thermometer and the thermo switch contact the wall of the bowl, which may result in wrong readings.
- The thermo switch shall be placed in the coolant until the teeth are completely submerged.



Thermo switch



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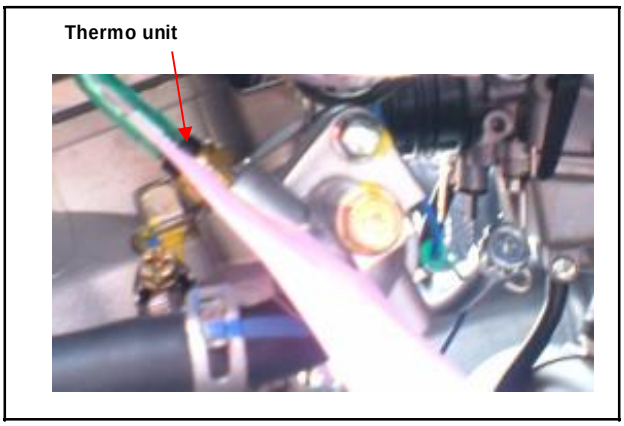
Thermo unit

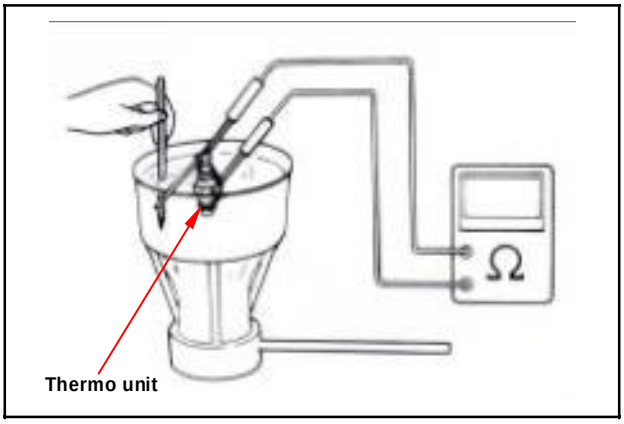
Remove the thermo unit.
Hang the thermo unit in an oil heater, heat the oil and measure the resistance at each temperature.

Temperature	50°C	80°C	100°C	120°C
Standard (Ω)	134~149	47.5~57.0	26~29	14.8~17.2



Caution

- Wear gloves and goggles when performing this test.

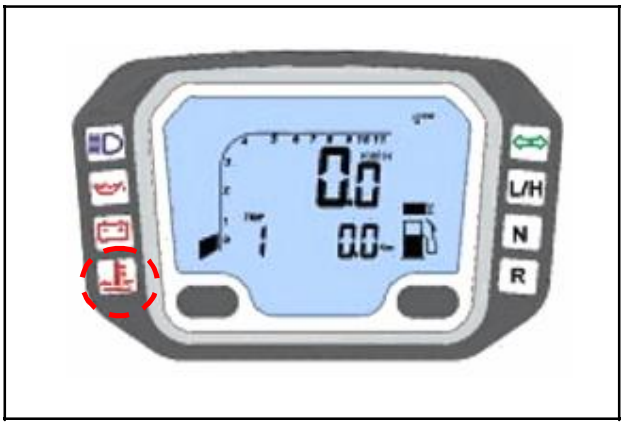


Caution

- Engine oil should be used as a heating medium as the test temperature must be higher than 100℃.
- Contacting the container wall by the thermometer and the thermo unit may result in wrong readings.

Water Temperature Indicator Light

Disconnect the water temperature meter and connect it to engine ground.
Turn on the main switch.
The indicator light of the fuel meter should be lighting.



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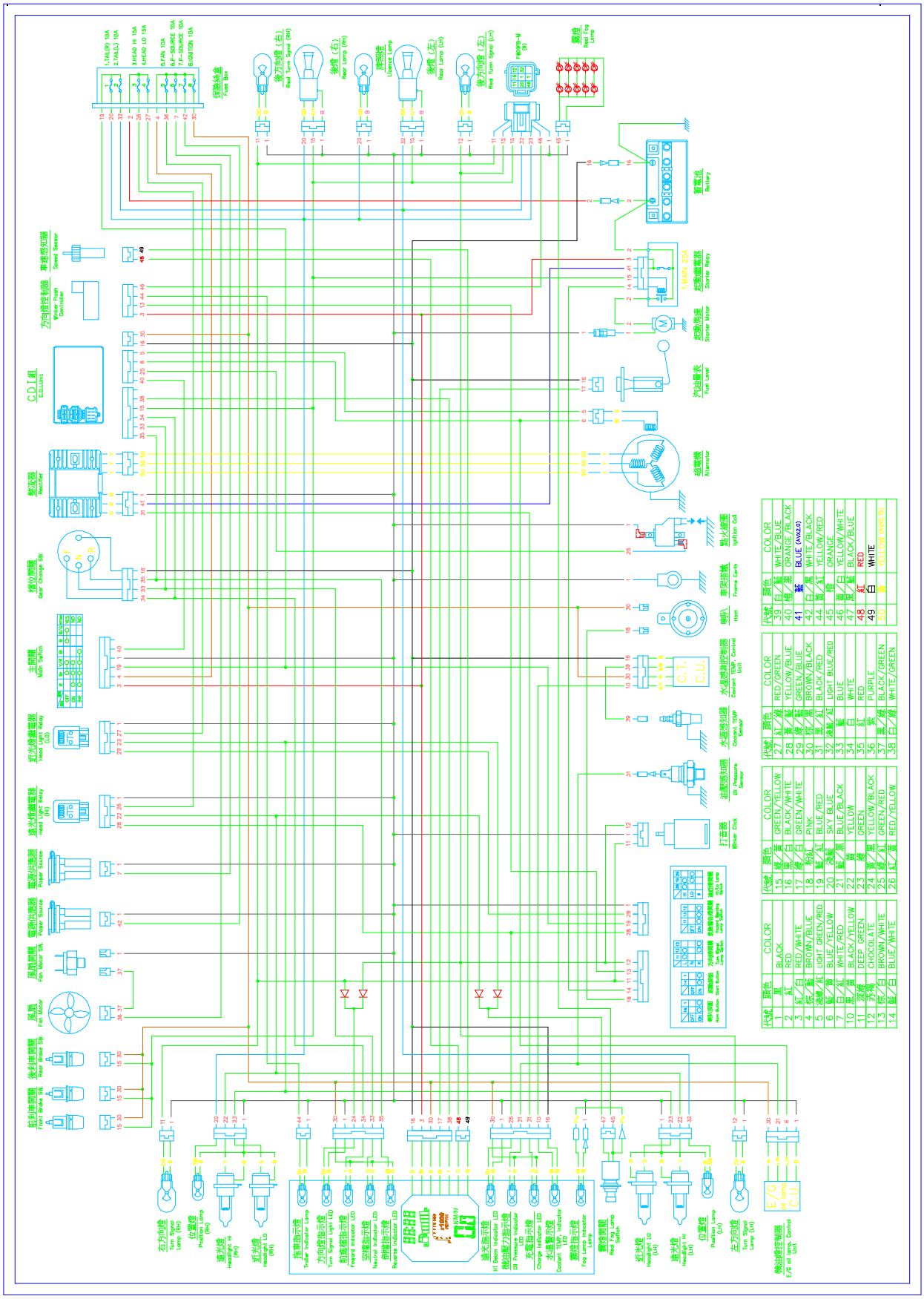

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