TGB

OUTBACK ***425***

SERVICE MANUAL

This service manual contains the technical data of each component inspection and repair for the TGB ***OUTBACK*** 425 ATV.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 ATV, ***OUTBACK*** 425, are different from that of the photos, pictures shown in this manual, the actual vehicle shall prevail. Specifications are subject to change without notice.

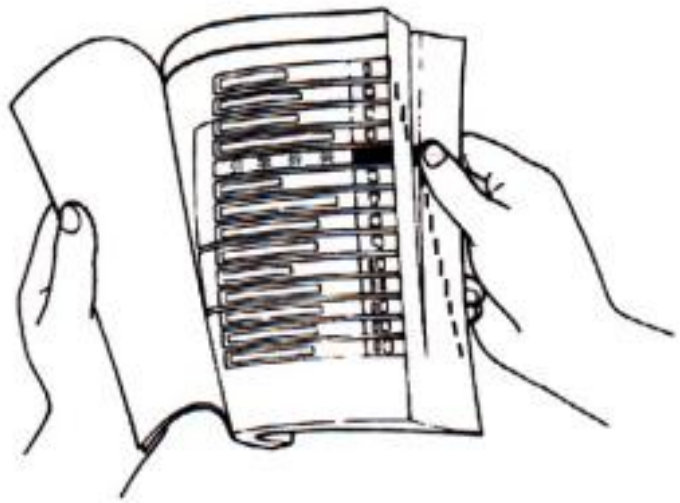
Service Department

TAIWAN GOLDEN BEE CO., LTD.

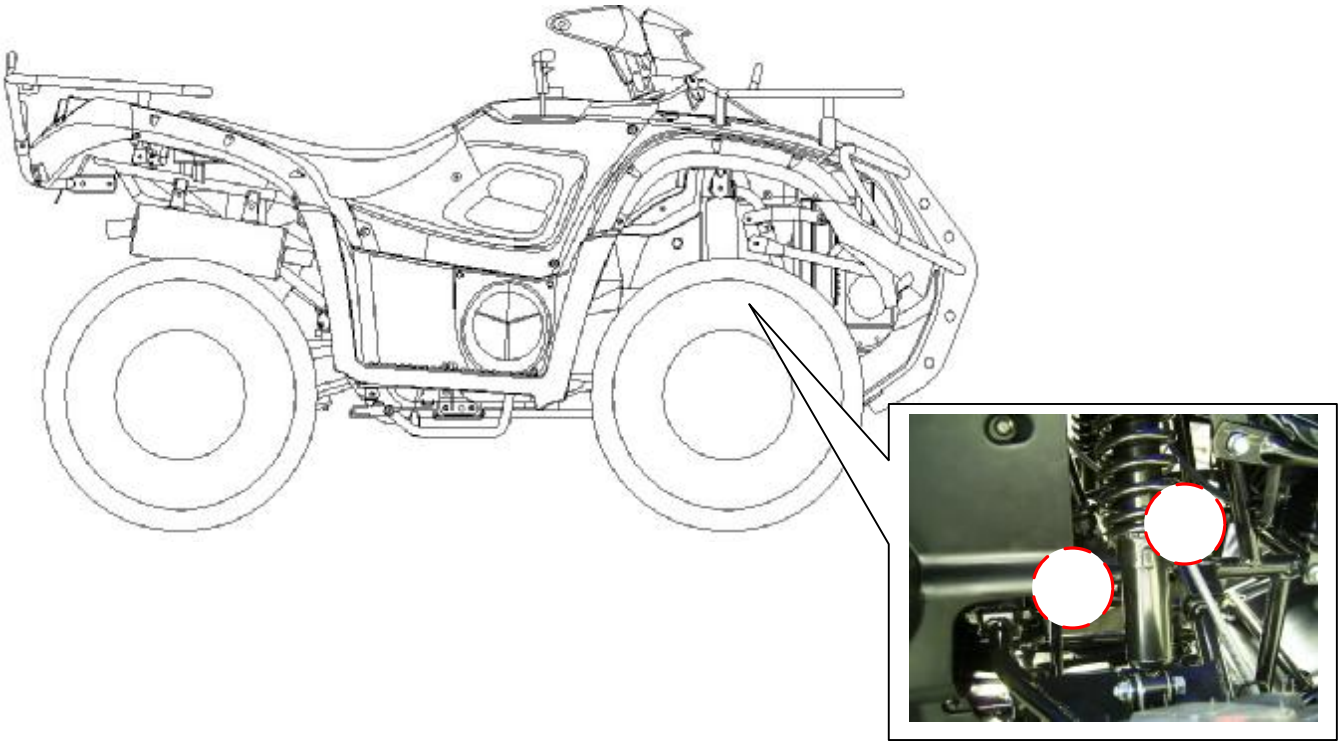
HOW TO USE THIS MANUAL

This service manual describes basic information of different system parts and system inspection & service for TGB ***OUTBACK*** 425 ATV. In addition, please refer to the manual contents in detailed for the model you serviced in inspection and adjustment.

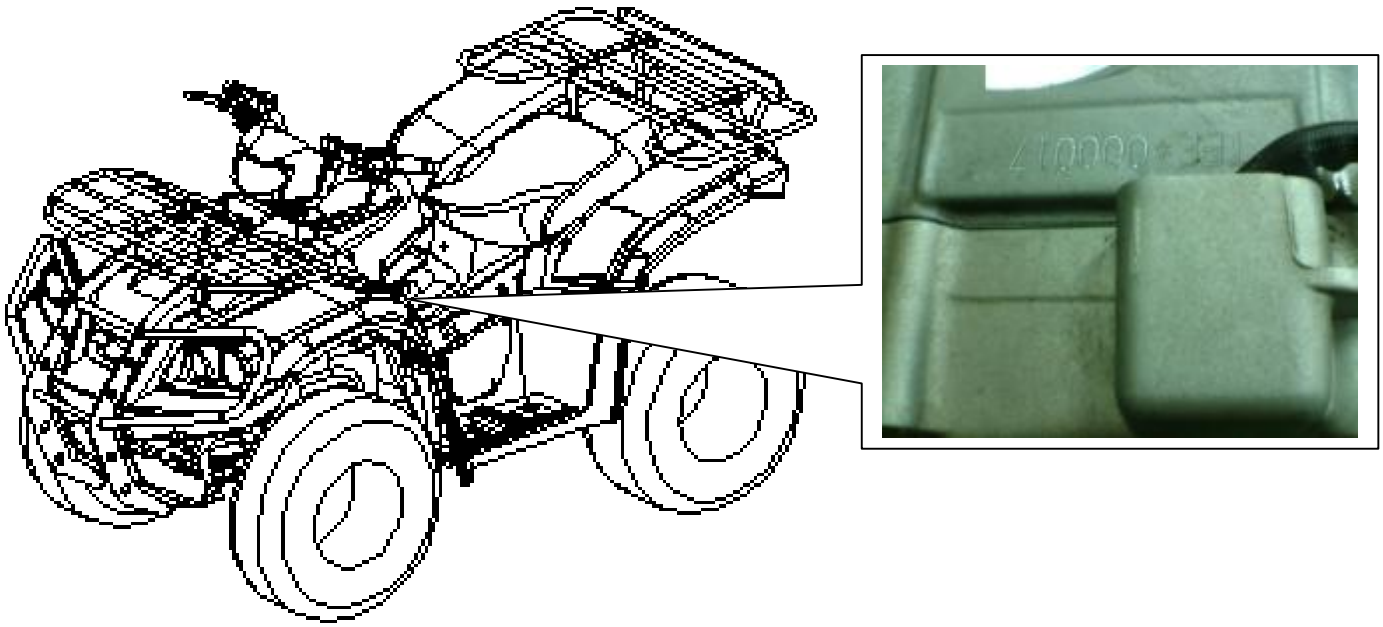
The first chapter covers general information and trouble diagnosis.
The second chapter covers service maintenance information and special tools manual.
The third to the 11th chapters cover engine and driving systems.
The 12th chapter is cooling system.
The 13th to the 16th chapter is contained the parts 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.



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)

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

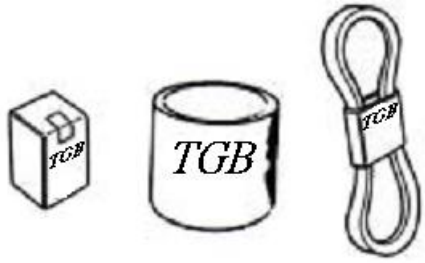
Brake fluid

Caution

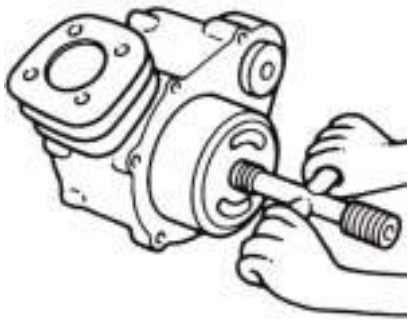
Spilling brake fluid on painted, plastic, or rubber parts may cause damage to the parts. Place a clean towel on the above-mentioned parts for protection when servicing the brake system.
Keep the brake fluid beyond reach of children.

Service Precautions

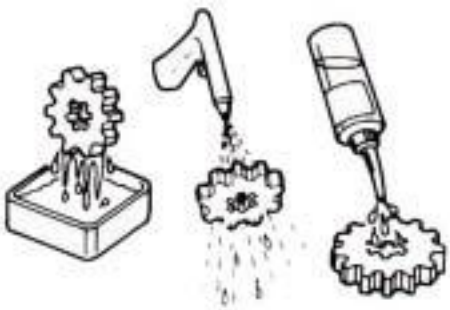
- Always use with TGB genuine parts and recommended oils. Using non-designed parts for TGB ATV may damage the ATV.



- 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.

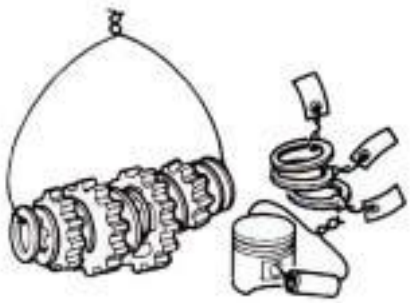


- When servicing this ATV, use only metric tools. Metric bolts, nuts, and screws are not interchangeable with the English system, using wrong tools and fasteners may damage this vehicle.
- Clean the outside of the parts or the cover before removing it from the ATV. Otherwise, dirt and deposit accumulated 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.



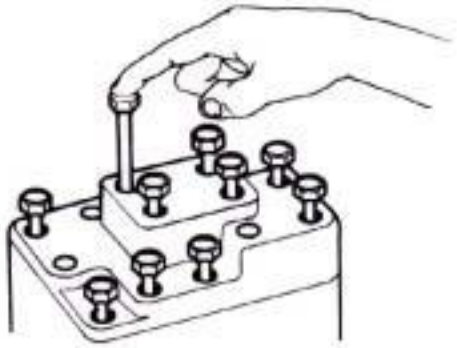
- Never bend or twist a control cable to prevent unsmooth control and premature worn out.

- 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.

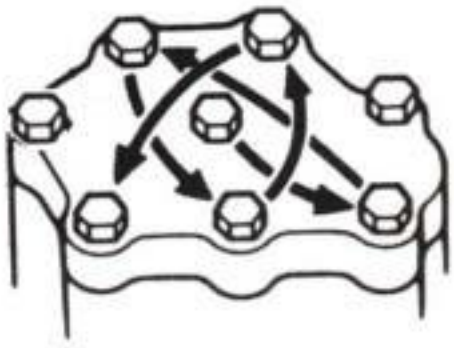


- Note the reassemble position of the important components before disassembling them to ensure they will be reassembled in correct dimensions (depth, distance or position).
- Components not to be reused should be replaced when disassembled including gaskets metal seal rings, O-rings, oil seals, snap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

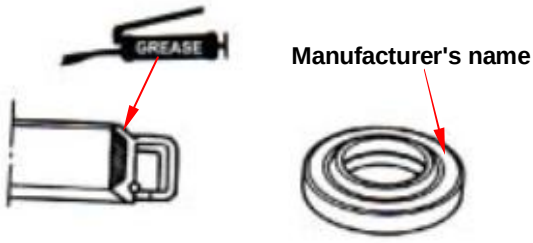
- The length of bolts and screws for assemblies, cover plates or boxes is different from one another, be sure they are correctly installed. In case of confusion, Insert the bolt into the hole to compare its length with other bolts, if its length out side the hole is the same with other bolts, it is a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



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

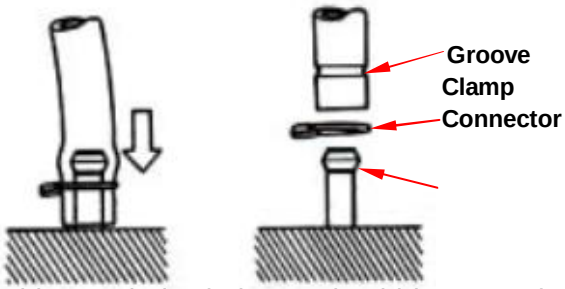


- When oil seal is installed, fill the groove with grease, install the oil seal with the name of the manufacturer facing outside, and check the shaft on which the oil seal is to be installed for smoothness and for burrs that may damage the oil seal.

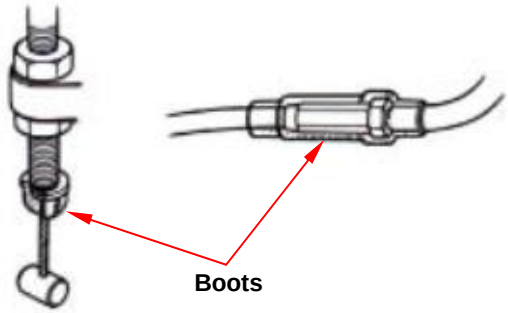


- Remove residues of the old gasket or sealant before reinstallation, grind with a grindstone if the contact surface has any damage.

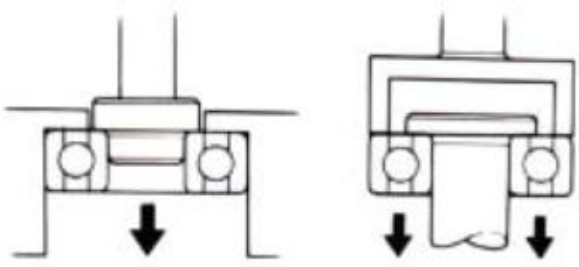
- The ends of rubber hoses (for fuel, vacuum, or coolant) should be pushed as far as they can go to their connections so that there is enough room below the enlarged ends for tightening the clamps.



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

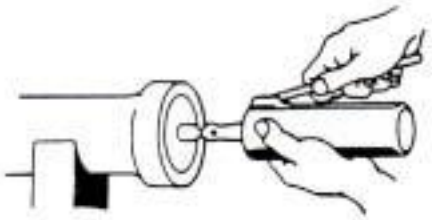


- The tool should be pressed against two (inner and outer) bearing races when removing a ball bearing. Damage may result if the tool is pressed against only one race (either inner race or outer race). In this case, the bearing should be replaced. To avoid damaging the bearing, use equal force on both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



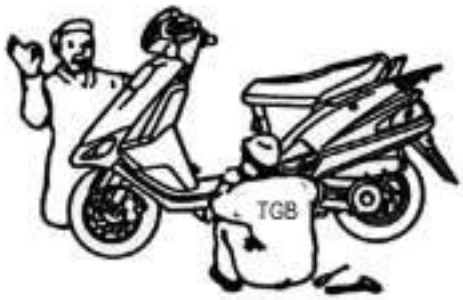
Both of these examples can result in bearing damage.

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



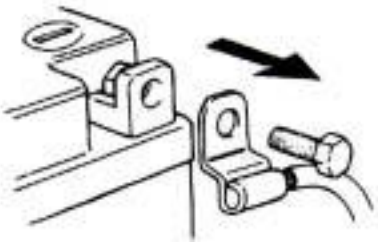
- Check if positions and operation for installed parts is in correct and properly.

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

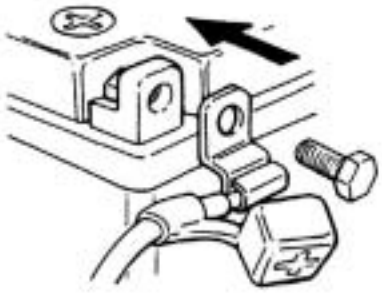


- Note that do not let parts fall down.

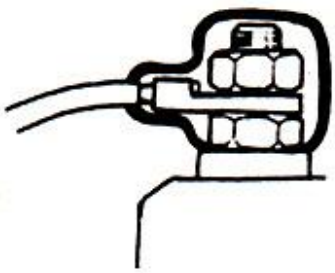
- Before battery removal operation, it has to remove the battery negative (-) cable firstly. Notre tools like open-end wrench do not contact with body to prevent from circuit short and create spark.



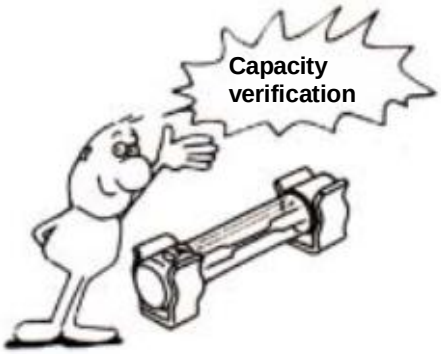
- After service completed, make sure all connection points is secured.
  Battery positive (+) cable should be connected firstly.
- And the two posts of battery have to be greased after connected the cables.



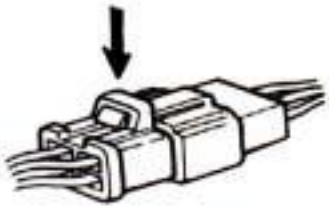
- Make sure that the battery post caps are located in properly after the battery posts had been serviced.



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

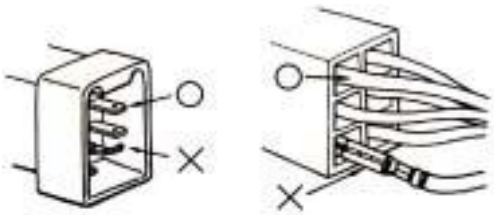


- When separating a connector, it locker has to be unlocked firstly. Then, conduct the service operation.

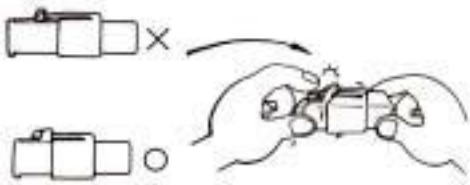


- Do not pull the wires as removing a connector or wires. Hold the connector body.

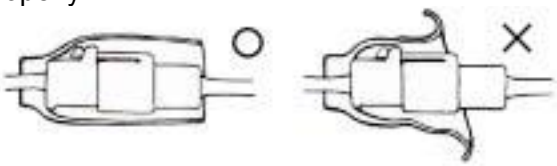
- Make sure if the connector pins are bent, extruded or loosen.



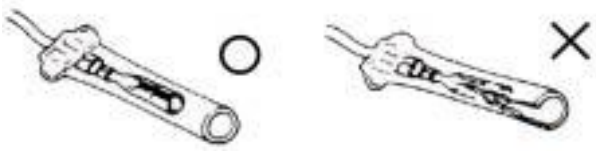
- Insert the connector completely.
  If there are two lockers on two connector sides, make sure the lockers are locked in properly.
  Check if any wire loose.



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

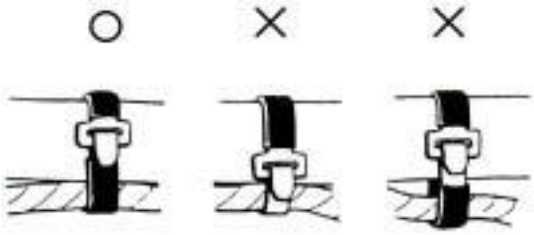


- Before terminal connection, check if the boot is crack or the terminal is loose.

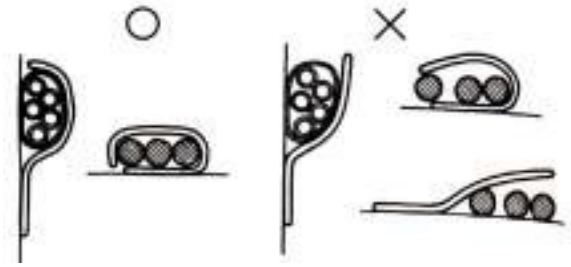


- Insert the terminal completely.
  Check if the terminal is covered by the boot.
  Do not let boot open facing up.

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

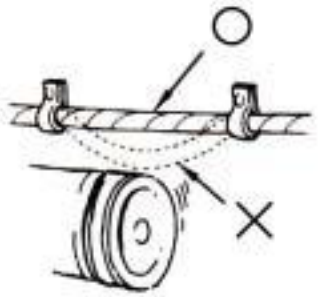


- Wire band and wire harness have to be clamped secured properly.

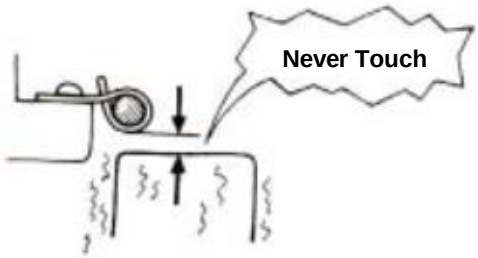


- Do not squeeze wires against the weld or its clamp.

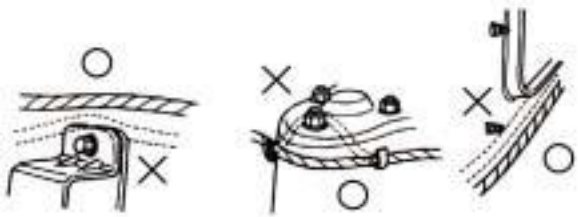
- Do not let the wire harness contact with rotating, moving or vibrating components as routing the harness.



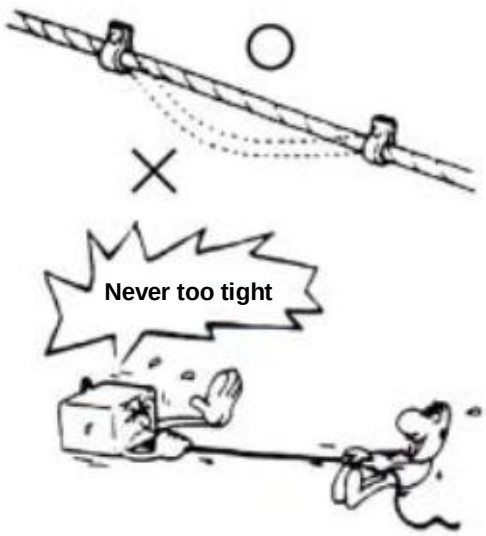
- Keep wire harnesses far away from the hot parts.



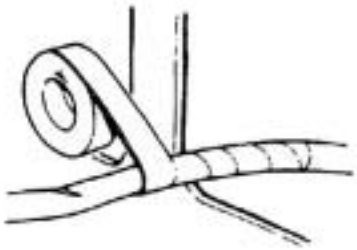
- Route wire harnesses to avoid sharp edges or corners and also avoid the projected ends of bolts and screws.



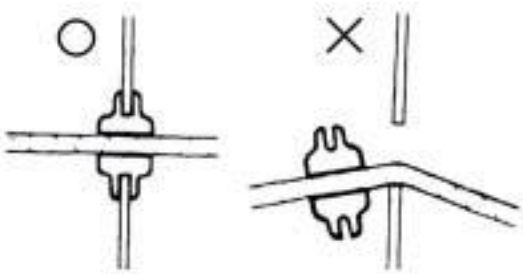
- Route harnesses so that they neither pull too tight nor have excessive slack.



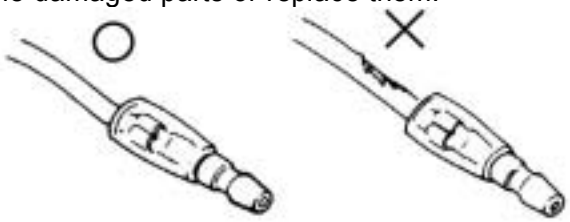
- Protect wires or wire harnesses with electrical tape or tube if they contact a sharp edge or corner. Thoroughly clean the surface where tape is to be applied.



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

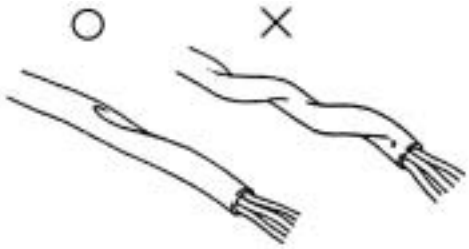


- Never use wires or harnesses which insulation has been broken. Wrap electrical tape around the damaged parts or replace them.

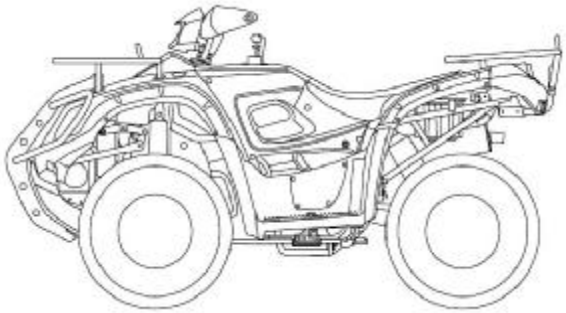


- Never clamp or squeeze the wire harness as installing other components.

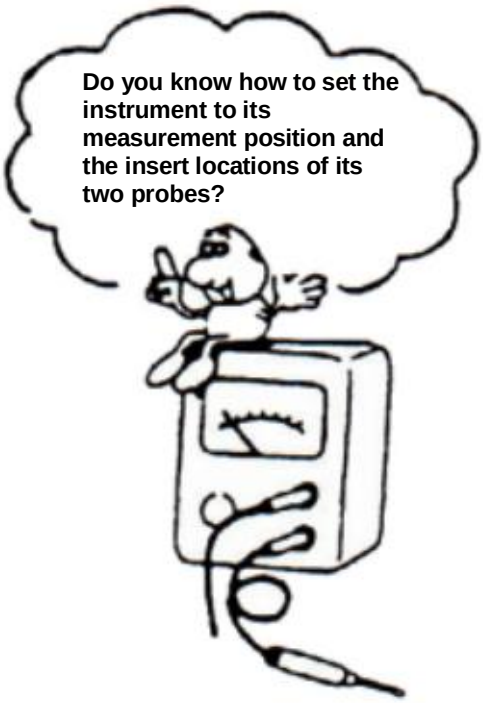
- Do not let the wire harness been twisted as installation.



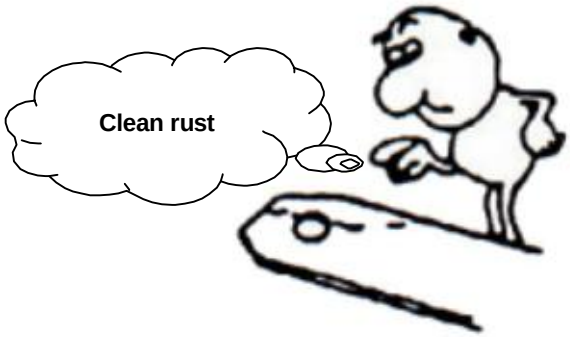
- Wire harnesses routed along the handlebar should not be pulled too tight or have excessive slack, be rubbed against or interfere with adjacent or surrounding parts in all steering positions.



- 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.



Specifications

MAKER			TGB	MODEL		FBE
Dimension / Weight	Overall Length		2290 mm	Suspension System	Front	Double arm
	Overall Width		1154 mm		Rear	Unit Swing
	Overall Height		1242 mm	Tire Specifications	Front	185/88-12
	Wheel Base		1268 mm		Rear	270/60-12
	Wheel tread	Front	940 mm	Rim	Aluminum / Steel	
		Rear	890 mm	Brake System	Front	Disk (Ø 180mm)
	Curb Weight	Front	170 kg		Rear	Disk (Ø 200mm)
		Rear	145 kg	Performance	Max. Speed	Above 92 km/hr
		Total	315 kg		Climb Ability	Below 25°
	Passengers/ weight		Two / 150 kg	Reduction	Primary Reduction	Belt
	Total Weight	Front	205 kg			
		Rear	280 kg		Secondary Reduction	Gear / Shaft
		Total	485 kg			
Engine	Type		4-Stroke Engine		Clutch	Centrifugal, wet type
	Installation and arrangement		Vertical, below center, incline		Transmission	C.V.T., auto speed change
	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.	E.E.C.		—
	Starting System		Electrical starter	P.C.V.		—
	Air filtration		Sponge	Catalytic reaction control system		—

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

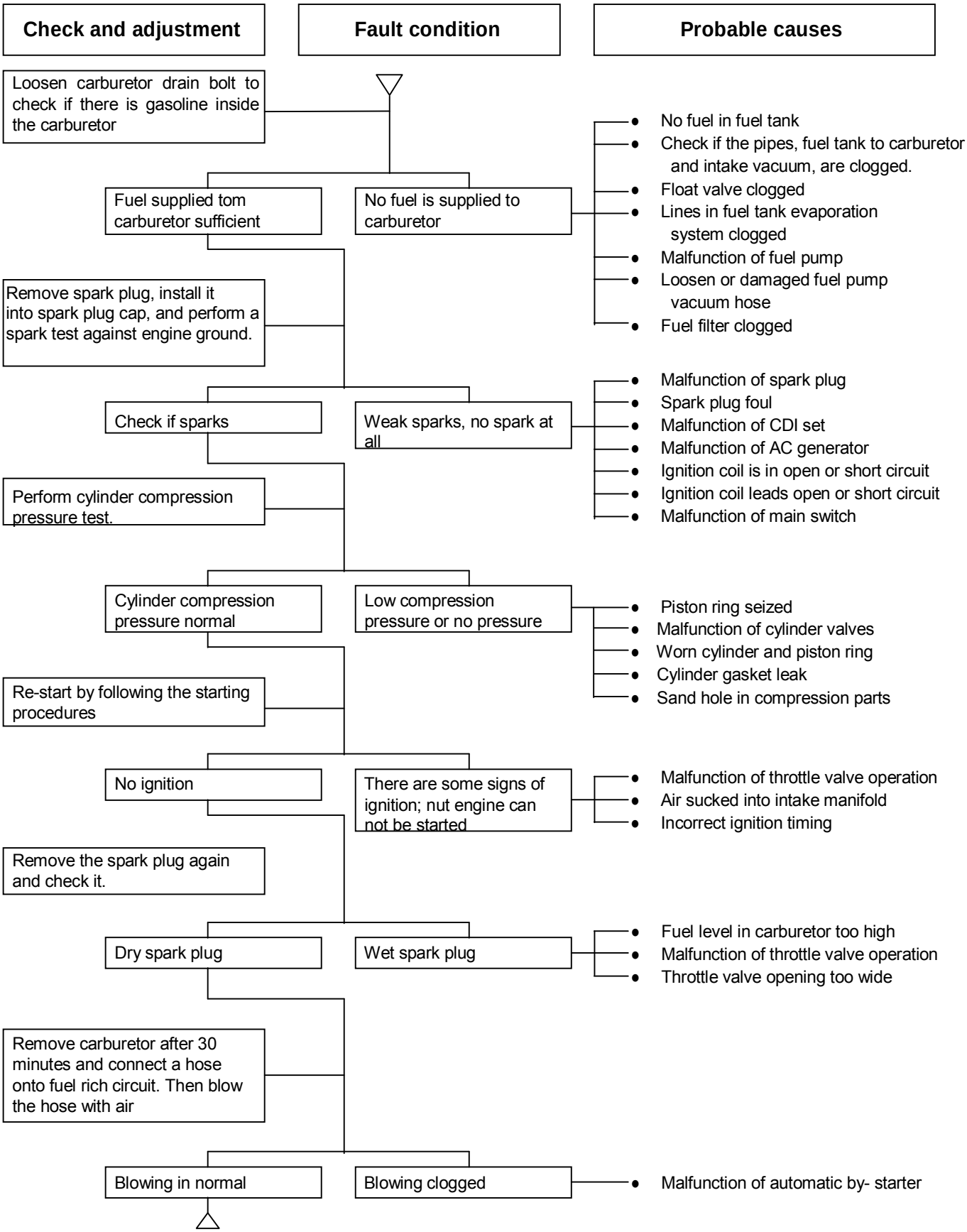
Item	Q'ty	Thread Dia. (mm)	Torque Value(kgf-m)	Remarks
Cylinder stud bolt	4	10	1.0~1.4	
Cylinder head nut	4	8	3.6~4.0	
Cylinder head right bolt	2	8	2.0~2.4	
Cylinder head side cover bolt	2	6	1.0~1.4	
Cylinder head cover bolt	4	6	1.0~1.4	
Cylinder head stud bolt (inlet pipe)	2	6	1.0~1.4	
Cylinder head 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	14	5.0~6.0	
Drive face nut	1	14	8.5~10.5	
ACG. Flywheel nut	1	14	5.0~6.0	
Crankcase bolts	7	6	0.8~1.2	
Mission case bolt	7	8	2.6~3.0	

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	4.6	
Driven gear nut	4	10	4.6	
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	

Troubles Diagnosis

A. Engine hard to start or can not be started



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