

1. GENERAL INFORMATION



GENERAL INFORMATION

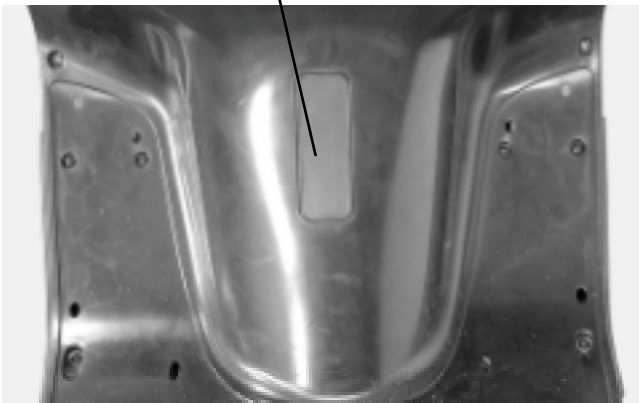
ENGINE SERIAL NUMBER-----	1-1
SPECIFICATION-----	1-2
SERVICE PRECAUTIONS-----	1-3
TORQUE VALUES -----	1-7
TOOLS -----	1-8
LUBRICATION POINTS-----	1-9
CABLE & HARNESS ROUTING-----	1-11
WIRING DIAGRAM-----	1-16
TROUBLESHOOTING -----	1-17

1. GENERAL INFORMATION

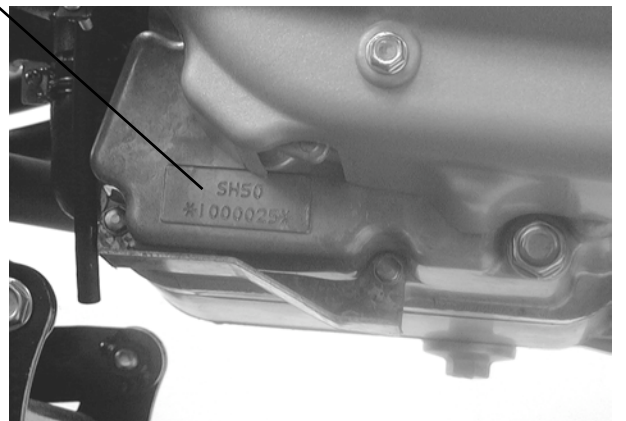
SERIAL NUMBER



Vehicle Identification Serial Number



Location of Frame Serial Number



Location of Engine Serial Number

1. GENERAL INFORMATION

SPECIFICATIONS

Cooling Type

Water cooling

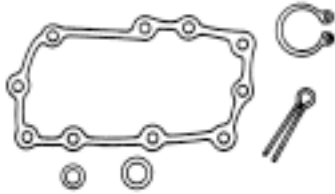
Name & Model No.		SH50DA		
Motorcycle Name & Type		GRAND DINK 250		
Overall length		2060mm		
Overall width		770mm		
Overall height		1360mm		
Wheel base		1435mm		
Engine type		Water cooled 4-stroke, OHC engine		
Displacement		249cc		
Fuel Used		92# nonleaded gasoline		
Net weight (kg)	Front wheel	58		
	Rear wheel	92		
	Total	150		
Gross weight(kg)	Front wheel	63.5		
	Rear wheel	99.5		
	Total	163		
Tires	Front wheel	120/70-12		
	Rear wheel	140/70-12		
Ground clearance		140mm		
Performance	Braking distance (m)	7.0m/30km/hr		
	Min. turning radius	2350mm		
Engine	Starting system		Starting motor	
	Type		Gasoline, 4-stroke	
	Cylinder arrangement		Single cylinder	
	Combustion chamber type		Semi-sphere	
	Valve arrangement		O.H.C.	
	Bore x stroke (mm)		72.7 x 60	
	Compression ratio		10.3:1	
	Compression pressure (kg/cm ₂)		15±2	
	Max. output (kw/rpm)		13.4/7000	
	Max. torque (N.m/rpm)		19.6/5500	
	Port timing	Intake	BTDC	8°
			ABDC	42°
		Exhaust	BBDC	33°
			ATDC	1°
	Valve clearance (cold)	Intake	0.1	
		Exhaust	0.1	
	Idle speed (rpm)		1700±100rpm	
	Lubrication System	Lubrication type		Forced pressure & wet sump
		Oil pump type		Inner/outer rotor type
		Oil filter type		Full-flow filtration
Oil capacity		1.1 liters		

Fuel System	Air cleaner type & No		Paper element, wet	
	Fuel capacity		9.1 liters	
	Carburetor	Type		CVK
		Piston dia.		30
		Venturi dia.		30 equivalent
Throttle type		Butterfly type		
Electrical	Ignition System	Type		CDI
		Ignition timing		repeatedly
		Contact breaker		Non-contact point type
		Spark plug		NGK DPR7EA-9
		Spark plug gap		0.9mm
	Battery	Capacity		12V10AH
Power Drive System	Clutch	Type		Dry multi-disc clutch
		Type		Non-stage transmission
	Transmission Gear	Operation		Automatic centrifugal Type
		Reduction Gear	Type	
Reduction ratio	1st		0.83~2.2	
	2nd	6.98		
Moving Device	Front Axle	Caster angle		27°
		Connecting rod		
	Tire pressure (kg/cm ₂)	Front	2.00	
		Rear	2.25	
Turning angle	Left	45°		
	Right	45°		
Brake system type		Front	Disk brake	
		Rear	Disk brake	
Damping Device	Suspension type	Front	Telescope	
		Rear	Double swing	
	Shock absorber type	Front	Telescope	
Rear		Double swing		
Frame type		Under bone		

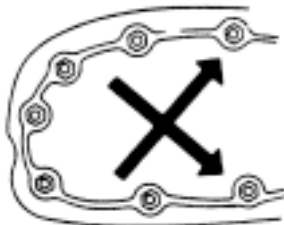
1. GENERAL INFORMATION

SERVICE PRECAUTIONS

- Make sure to install new gaskets, O-rings, circlips, cotter pins, etc. when reassembling.



- When tightening bolts or nuts, begin with larger-diameter to smaller ones at several times, and tighten to the specified torque diagonally.



- Use genuine parts and lubricants.



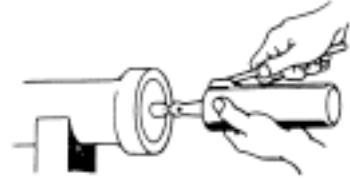
- When servicing the motorcycle, be sure to use special tools for removal and installation.



- After disassembly, clean removed parts. Lubricate sliding surfaces with engine oil before reassembly.



- Apply or add designated greases and lubricants to the specified lubrication points.



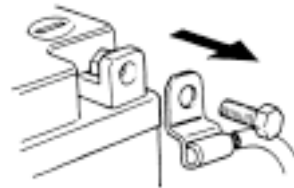
- After reassembly, check all parts for proper tightening and operation.



- When two persons work together, pay attention to the mutual working safety.



- Disconnect the battery negative (-) terminal before operation.
- When using a spanner or other tools, make sure not to damage the motorcycle surface.

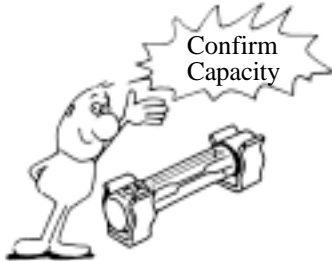


- After operation, check all connecting points, fasteners, and lines for proper connection and installation.
- When connecting the battery, the positive (+) terminal must be connected first.
- After connection, apply grease to the battery terminals.
- Terminal caps shall be installed securely.



1. GENERAL INFORMATION

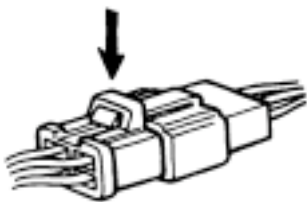
- If the fuse is burned out, find the cause and repair it. Replace it with a new one according to the specified capacity.



- After operation, terminal caps shall be installed securely.



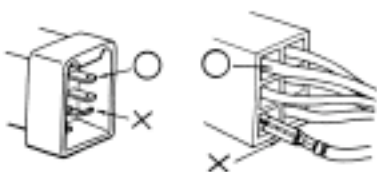
- When taking out the connector, the lock on the connector shall be released before operation.



- Hold the connector body when connecting or disconnecting it.
- Do not pull the connector wire.



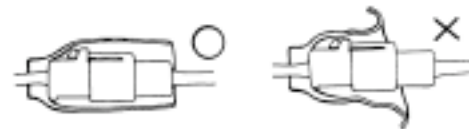
- Check if any connector terminal is bending, protruding or loose.



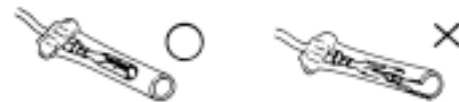
- The connector shall be inserted completely.
- If the double connector has a lock, lock it at the correct position.
- Check if there is any loose wire.



- Before connecting a terminal, check for damaged terminal cover or loose negative terminal.



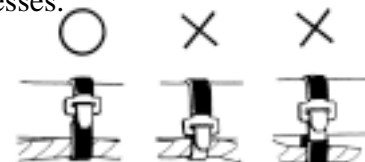
- Check the double connector cover for proper coverage and installation.



- Insert the terminal completely.
- Check the terminal cover for proper coverage.
- Do not make the terminal cover opening face up.



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

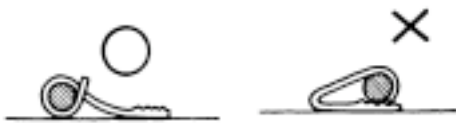


1. GENERAL INFORMATION

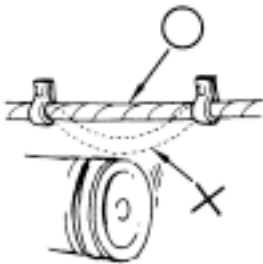
- After clamping, check each wire to make sure it is secure.



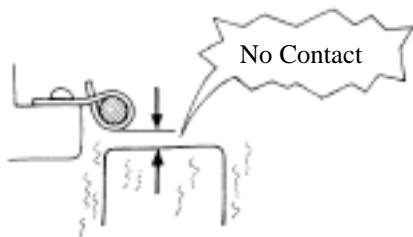
- Do not squeeze wires against the weld or its clamp.



- After clamping, check each harness to make sure that it is not interfering with any moving or sliding parts.



- When fixing the wire harnesses, do not make it contact the parts which will generate high heat.

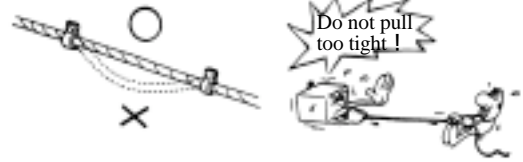


- Route wire harnesses to avoid sharp edges or corners. Avoid the projected ends of bolts and screws.

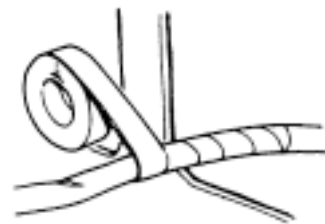
- Route wire harnesses passing through the side of bolts and screws. Avoid the projected ends of bolts and screws.



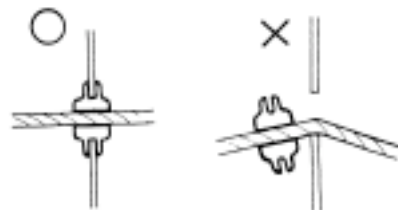
- Route harnesses so they are neither pulled tight nor have excessive slack.



- Protect wires and harnesses with electrical tape or tube if they contact a sharp edge or corner.



- When rubber protecting cover is used to protect the wire harnesses, it shall be installed securely.



- Do not break the sheath of wire.
- If a wire or harness is with a broken sheath, repair by wrapping it with protective tape or replace it.

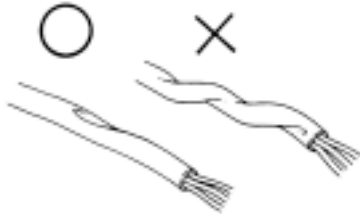


- When installing other parts, do not press or squeeze the wires.



1. GENERAL INFORMATION

- After routing, check that the wire harnesses are not twisted or kinked.



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



- When a testing device is used, make sure to understand the operating methods thoroughly and operate according to the operating instructions.



- Be careful not to drop any parts.



- When rust is found on a terminal, remove the rust with sand paper or equivalent before connecting.



- Symbols:

The following symbols represent the servicing methods and cautions included in this service manual.



Engine Oil

: Apply engine oil to the specified points. (Use designated engine oil for lubrication.)



Grease

: Apply grease for lubrication.



Gear Oil

: Transmission Gear Oil (90#)



Special

: Use special tool.



: Caution



: Warning

1. GENERAL INFORMATION

TORQUE VALUES

STANDARD TORQUE VALUES

Item	Torque (N-m)	Item	Torque (N-m)
5mm bolt, nut	4.9	5mm screw	3.9
6mm bolt, nut	9.8	6mm screw, SH bolt	8.8
8mm bolt, nut	21.6	6mm flange bolt, nut	11.8
10mm bolt, nut	34.3	8mm flange bolt, nut	26.5
12mm bolt, nut	53.9	10mm flange bolt, nut	39.2

Torque specifications listed below are for important fasteners.

ENGINE

Item	Q'ty	Thread dia.(mm)	Torque (N-m)	Remarks
Cylinder head bolt A	2	8	8.9	Double end bolt Double end bolt Apply oil to threads Left hand threads
Cylinder head bolt B	2	8	8.9	
Oil filter screen cap	1	30	14.7	
Exhaust muffler joint lock nut	2	8	8.8	
Cylinder head cap nut	4	8	24.5	
Valve adjusting lock nut	2	5	8.8	
Cam chain tensioner slipper bolt	1	6	8.8	
Oil bolt	1	12	12.7	
Clutch outer nut	1	12	53.9	
Clutch drive plate nut	1	12	53.9	
Flywheel nut	1	14	58.8	
Oil pump bolt	2	5	3.9	
Cylinder head cover bolt	4	6	11.8	
Spark plug	1	10	17.2	
Cam chain tensioner bolt	1	6	11.8	
Water pump impeller	1	8	11.8	

FRAME

Item	Q'ty	Thread dia.(mm)	Torque (N-m)	Remarks
Steering stem lock nut	1	10	44.1	U-nut
Front axle nut	1	12	68.6	U-nut
Rear axle nut	1	14	127.4	U-nut
Rear shock absorber upper bolt	2	10	29.4	
Rear shock absorber lower bolt	2	8	29.4	
Front shock absorber lock bolt	4	10	24.5	
Engine hanger bolt	1	12	53.9	

1. GENERAL INFORMATION

SPECIAL TOOLS

Tool Name	Tool No.	Remarks	Ref. Page
Valve guide driver		Valve guide removal/installation	
Valve guide reamer		Valve guide grinding	
Valve spring compressor		Valve removal	
Lock nut wrench, 39mm	E027	Clutch disassembly	
Bearing driver		Bearing removal	
Bearing remover, 10,12,15,18mm	E037	Bearing removal	
Clutch spring compressor	E027	Clutch disassembly	
Ball race remover extension		Ball race removal	
Ball race remover		Ball race removal	
Spring compressor	E038	Spring removal	
Mechanical seal driver	E014	Water pump mechanical seal removal/installation	
Kick starter spring remover		Kick starter spring removal	
Gear remover		Starter gear removal	
Valve adjuster	E012	Tapper adjustment	
Float level gauge		Carburetor fuel level check	
Valve seat cutter 45°		Valve seat refacing	
Valve seat cutter 32°		Valve seat refacing	
Valve seat cutter 60°		Valve seat refacing	
Cutter clip, 5mm			
Universal holder	E017	Holding clutch for removal	
Bearing driver (32x35mm)	E014	Bearing installation	
Pilot, 12mm	E014	Bearing installation	
Pilot, 15mm	E014	Bearing installation	
Pilot, 17mm	E014	Bearing installation	
Flywheel puller	E003	A.C. generator flywheel removal	
Rear shock absorber compressor	F004	Rear shock absorber disassembly	
Steering head bearing remover	F005	Steering head bearing removal	
Flywheel holder	E021	A.C. generator flywheel holding	
Reamer clip			
Fuel unit wrench		Fuel unit removal	

1. GENERAL INFORMATION

LUBRICATION POINTS

ENGINE

Lubrication Points	Lubricant
Valve guide/valve stem movable part Camshaft protruding surface Valve rocker arm friction surface Camshaft drive chain Cylinder lock bolt and nut Piston surroundings and piston ring grooves Piston pin surroundings Cylinder inside wall Connecting rod/piston pin hole Connecting rod big end Crankshaft Crankshaft one-way clutch movable part Oil pump drive chain Starter reduction gear engaging part Countershaft gear engaging part Final gear engaging part Bearing movable part O-ring face Oil seal lip	<ul style="list-style-type: none"> •Genuine KYMCO Engine Oil (SAE15W-40) •API SE, SF or SG Engine Oil
Starter idle gear Friction spring movable part/shaft movable part Shaft movable grooved part Starter spindle movable part	High-temperature resistant grease
Starter one-way clutch threads	Thread locking agent
A.C. generator connector Transmission case breather tube	Adhesive

1. GENERAL INFORMATION

FRAME

The following is the lubrication points for the frame.

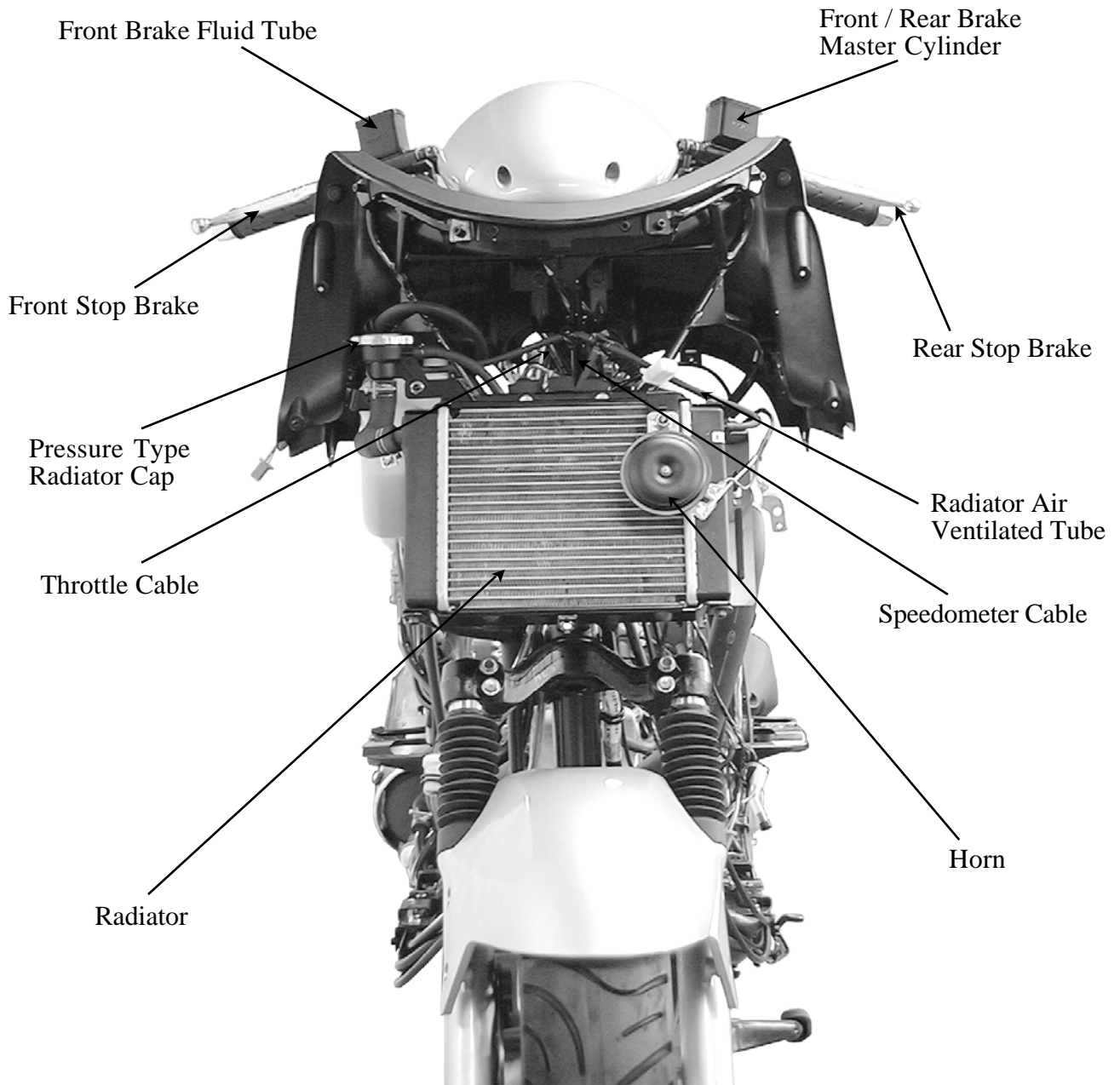
Use general purpose grease for parts not listed.

Apply clean engine oil or grease to cables and movable parts not specified. This will avoid abnormal noise and rise the durability of the motorcycle.

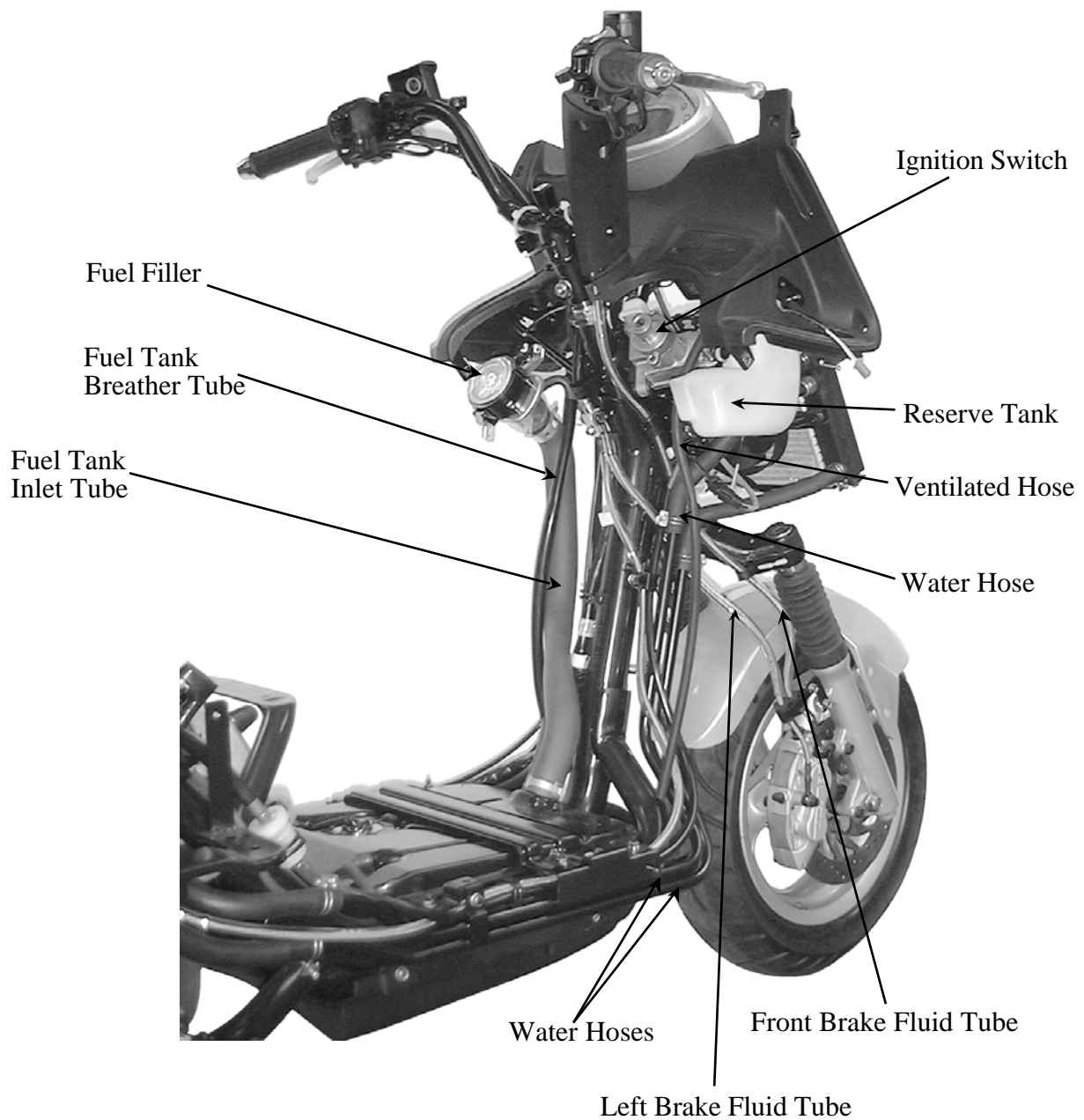


1. GENERAL INFORMATION

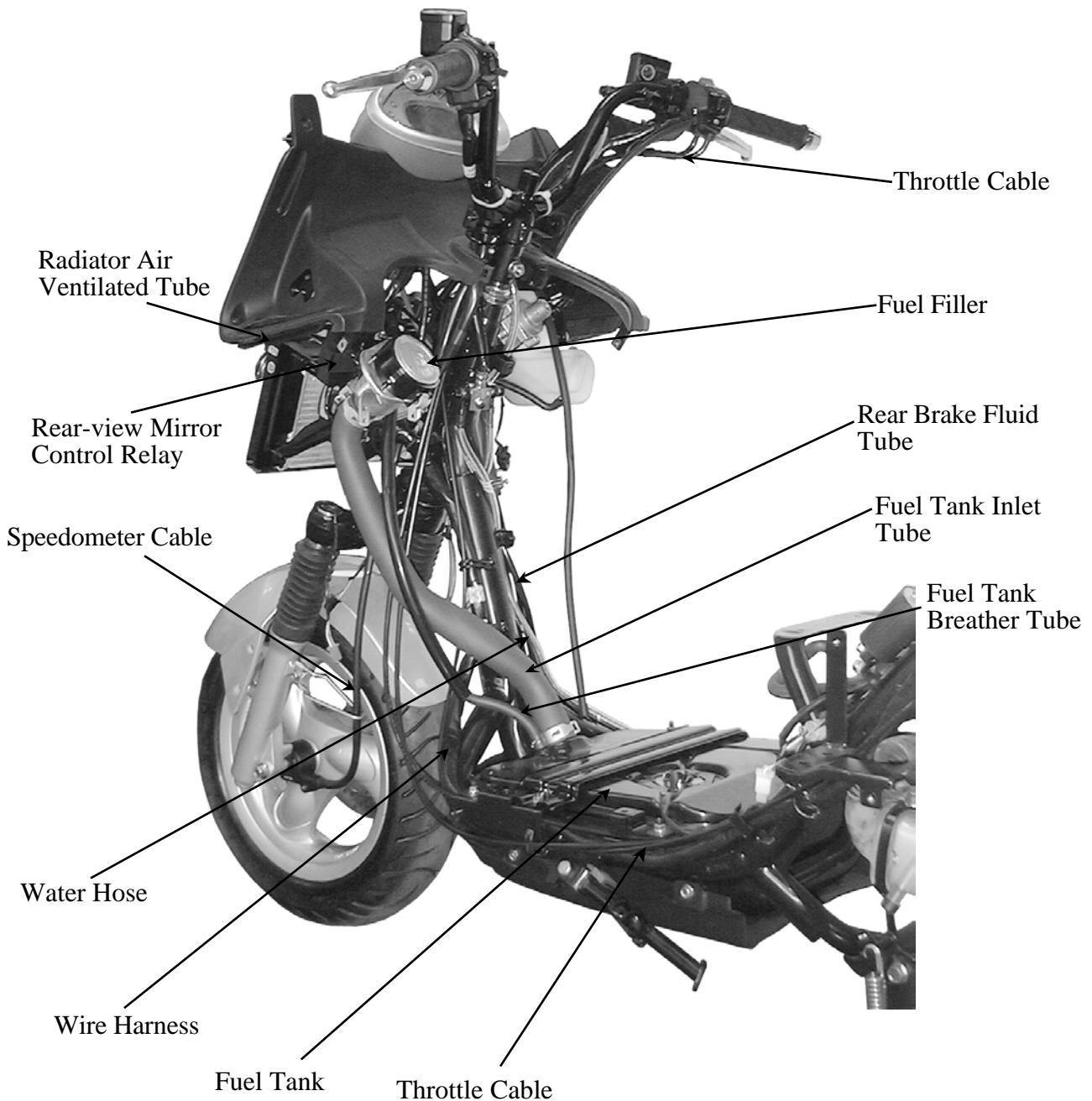
CABLE & HARNESS ROUTING



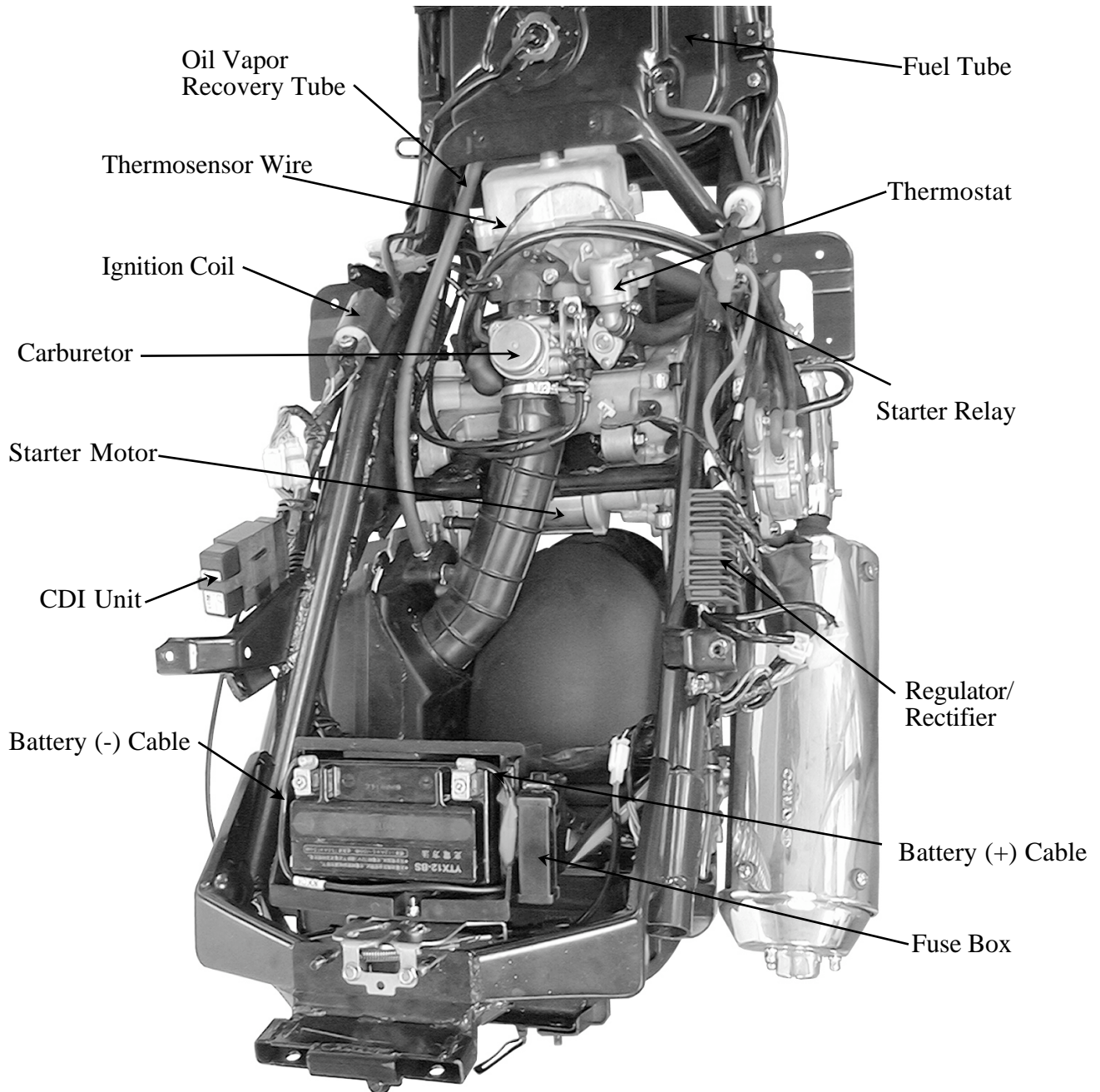
1. GENERAL INFORMATION



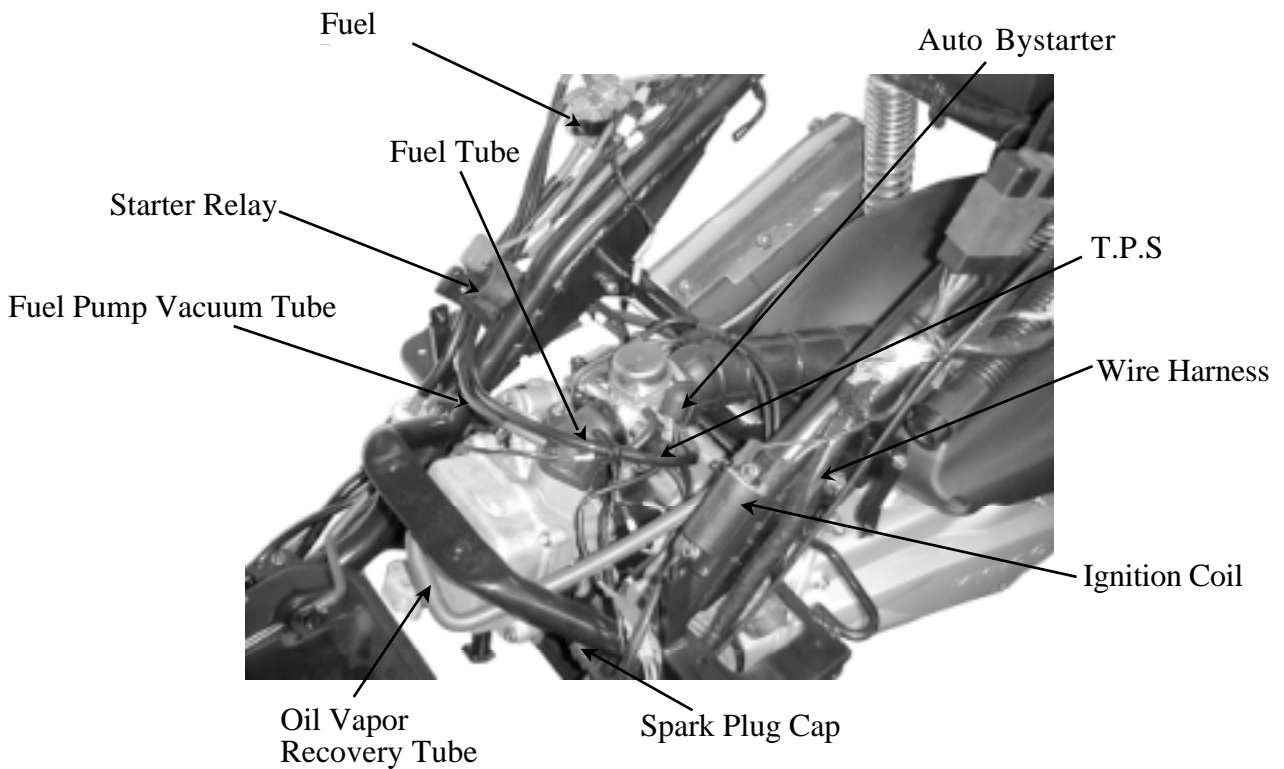
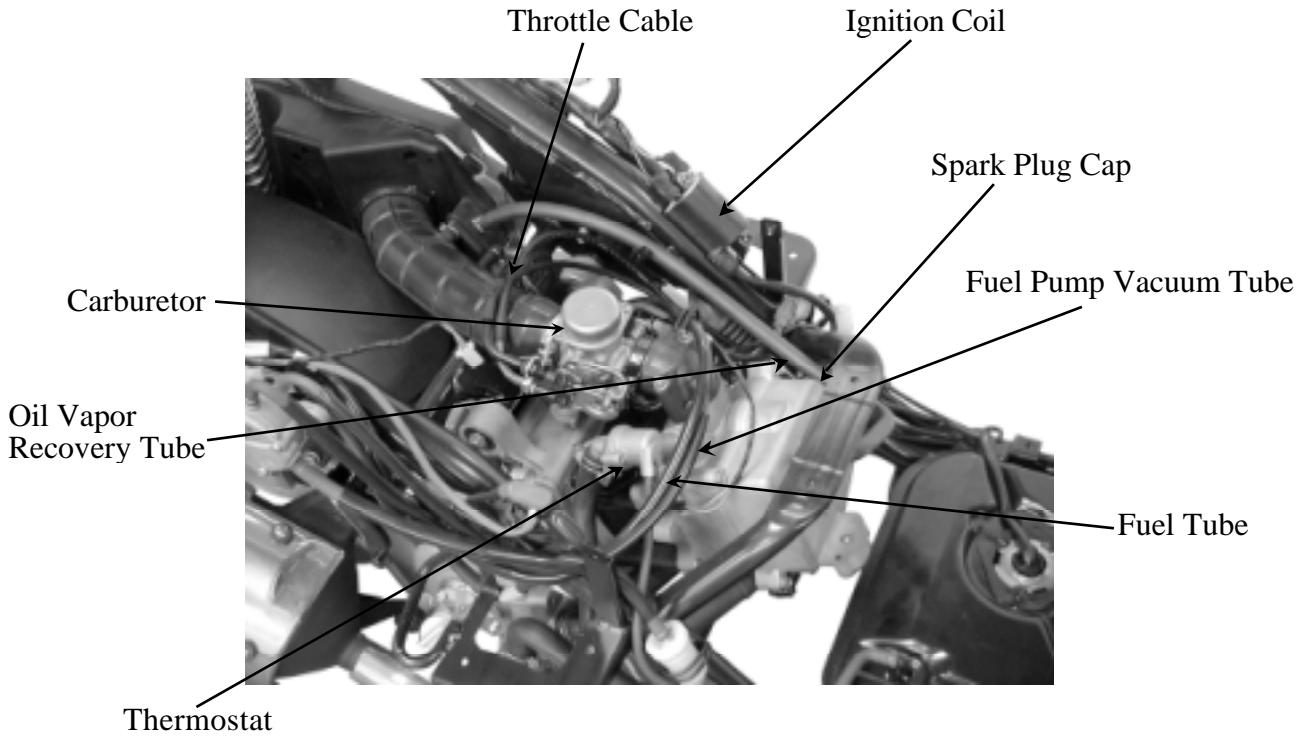
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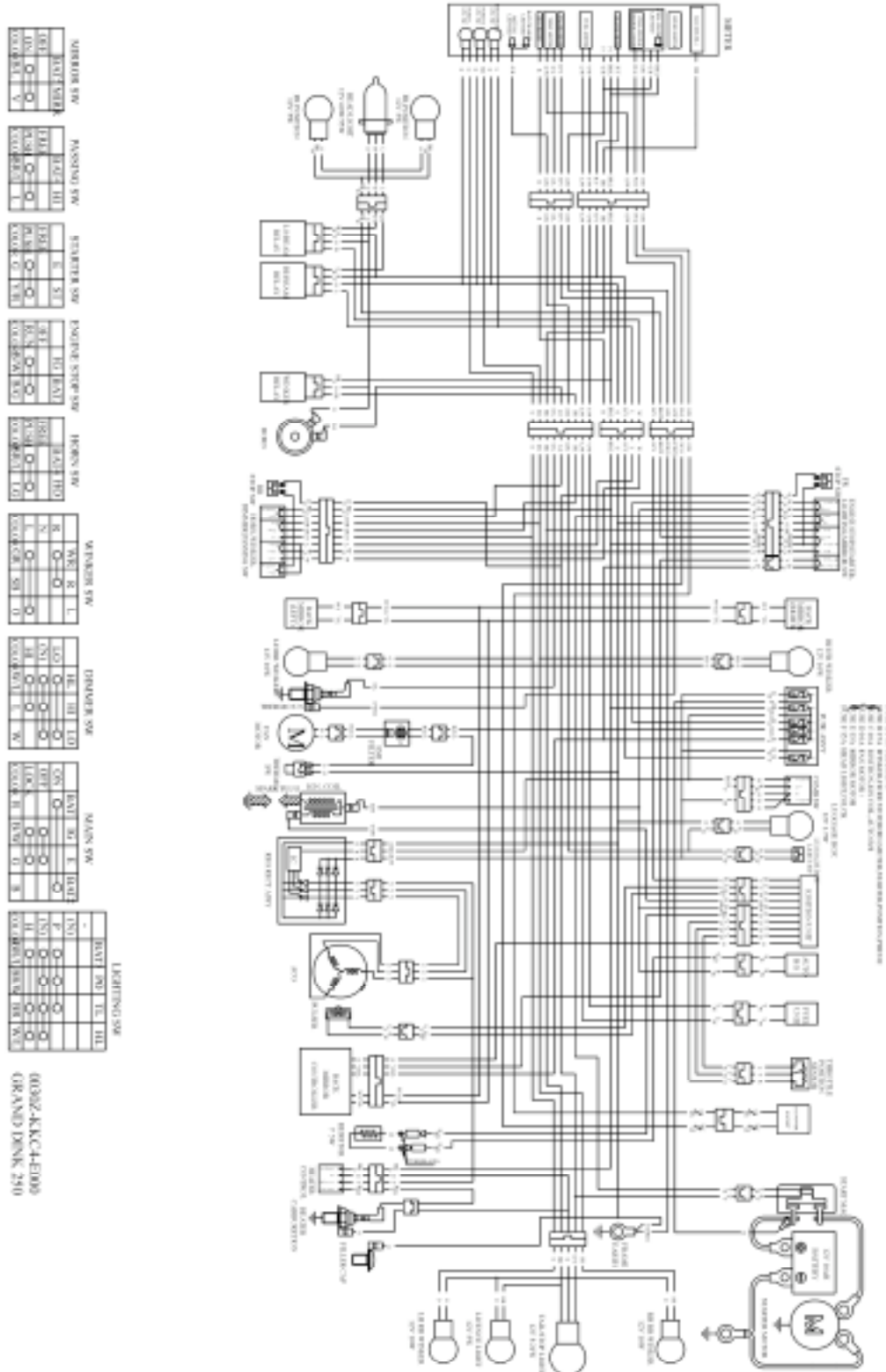


1. GENERAL INFORMATION



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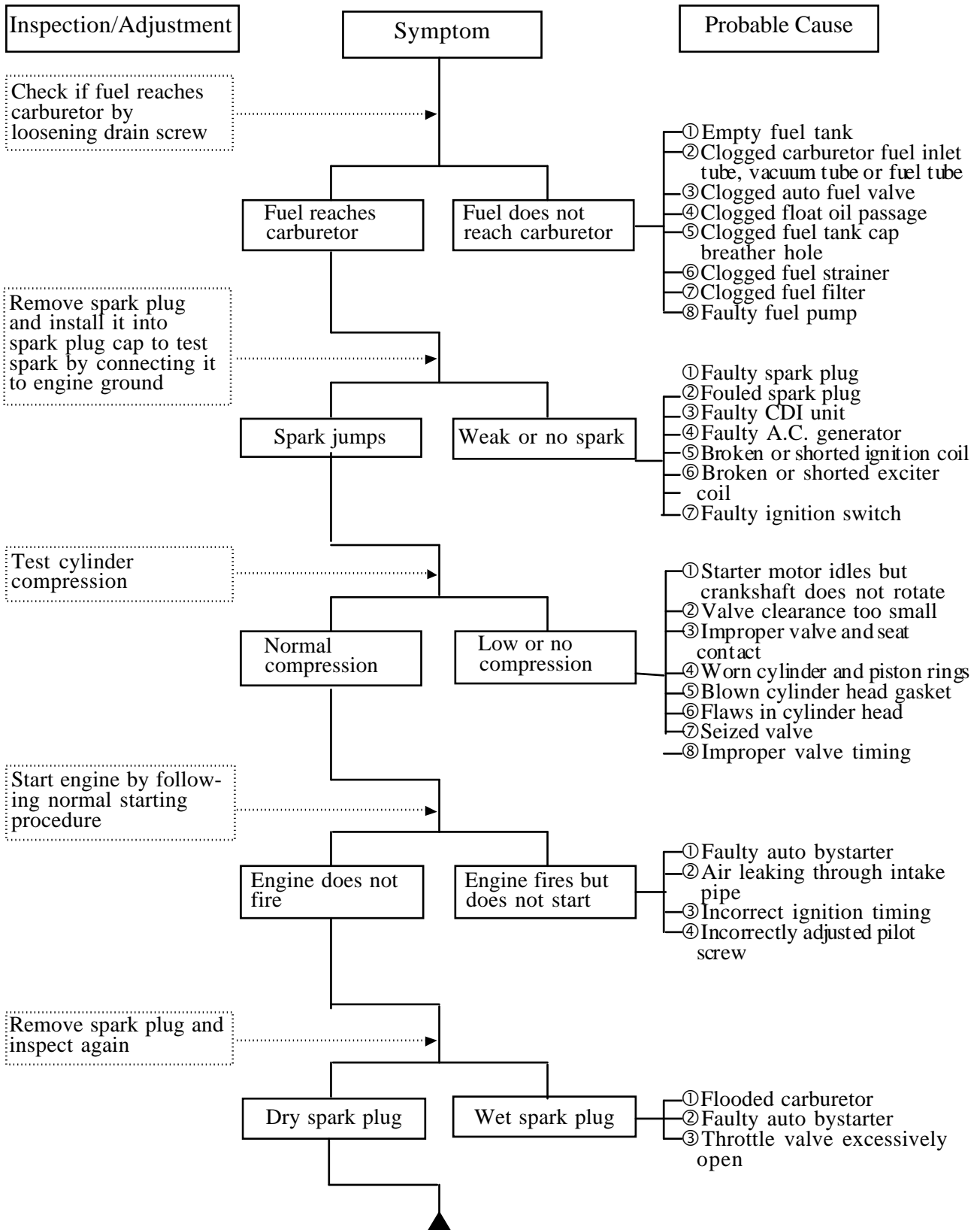
WIRING DIAGRAM



1. GENERAL INFORMATION

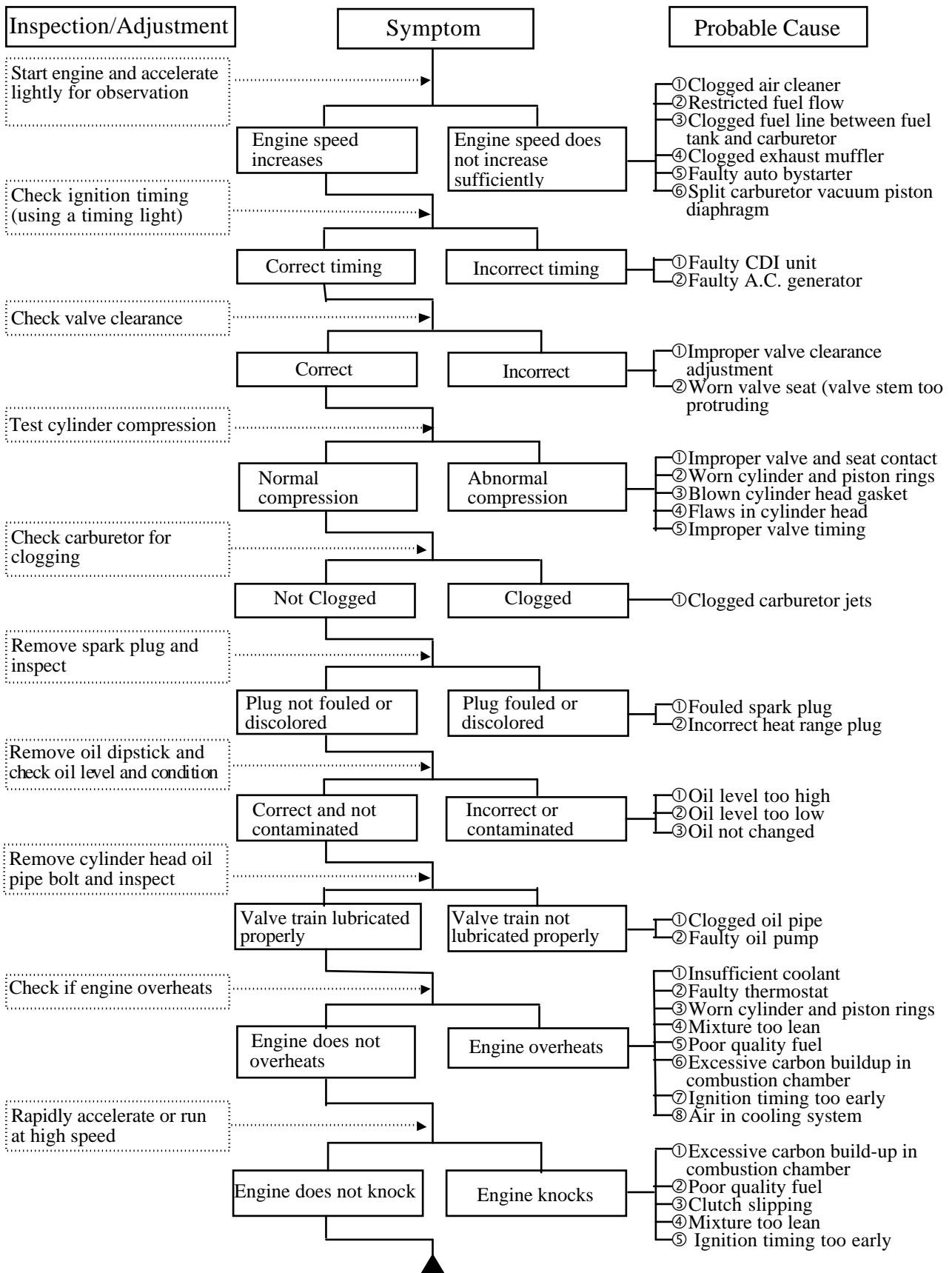
TROUBLESHOOTING

ENGINE WILL NOT START OR IS HARD TO START



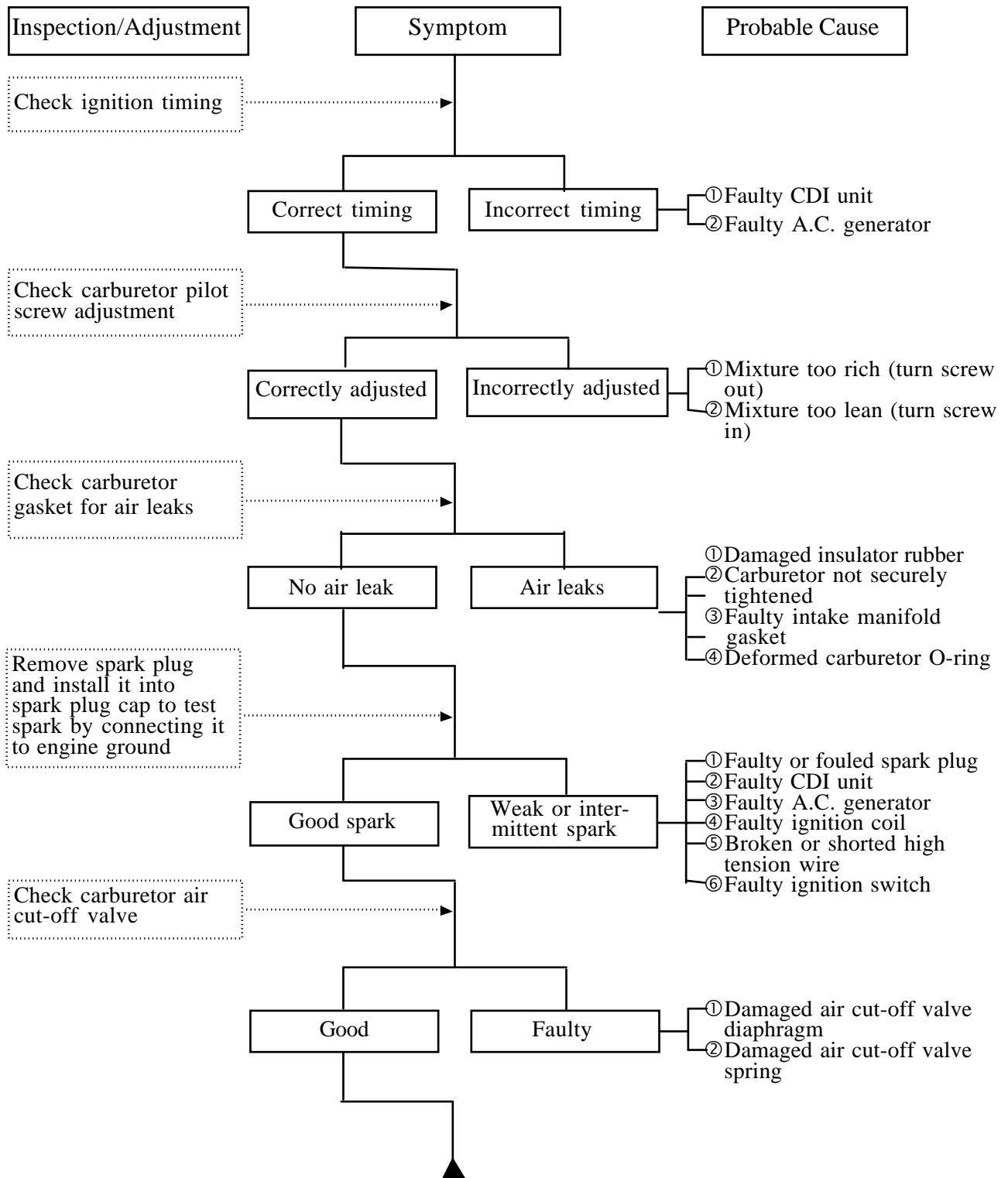
1. GENERAL INFORMATION

ENGINE LACKS POWER



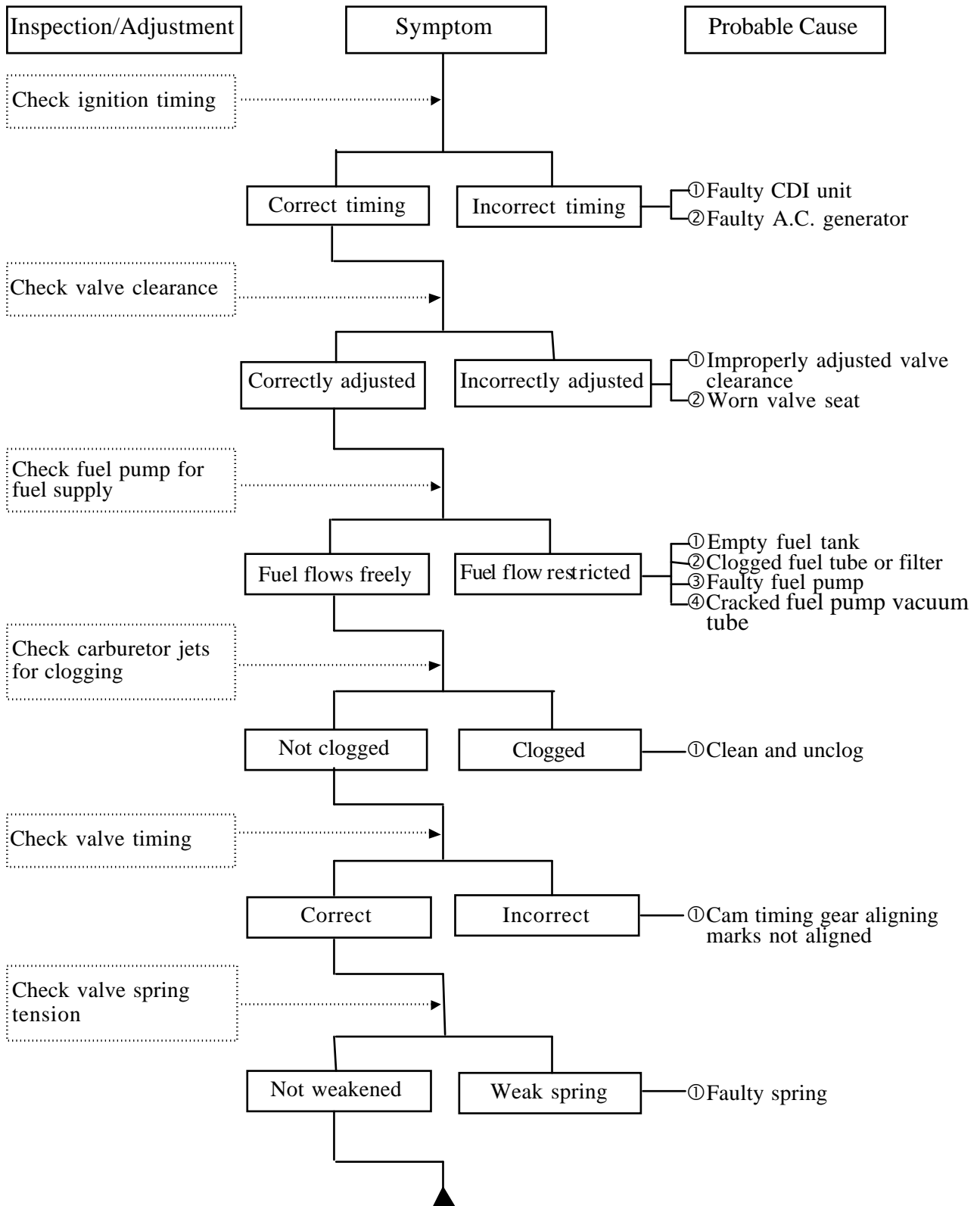
1. GENERAL INFORMATION

POOR PERFORMANCE (ESPECIALLY AT IDLE AND LOW SPEEDS)



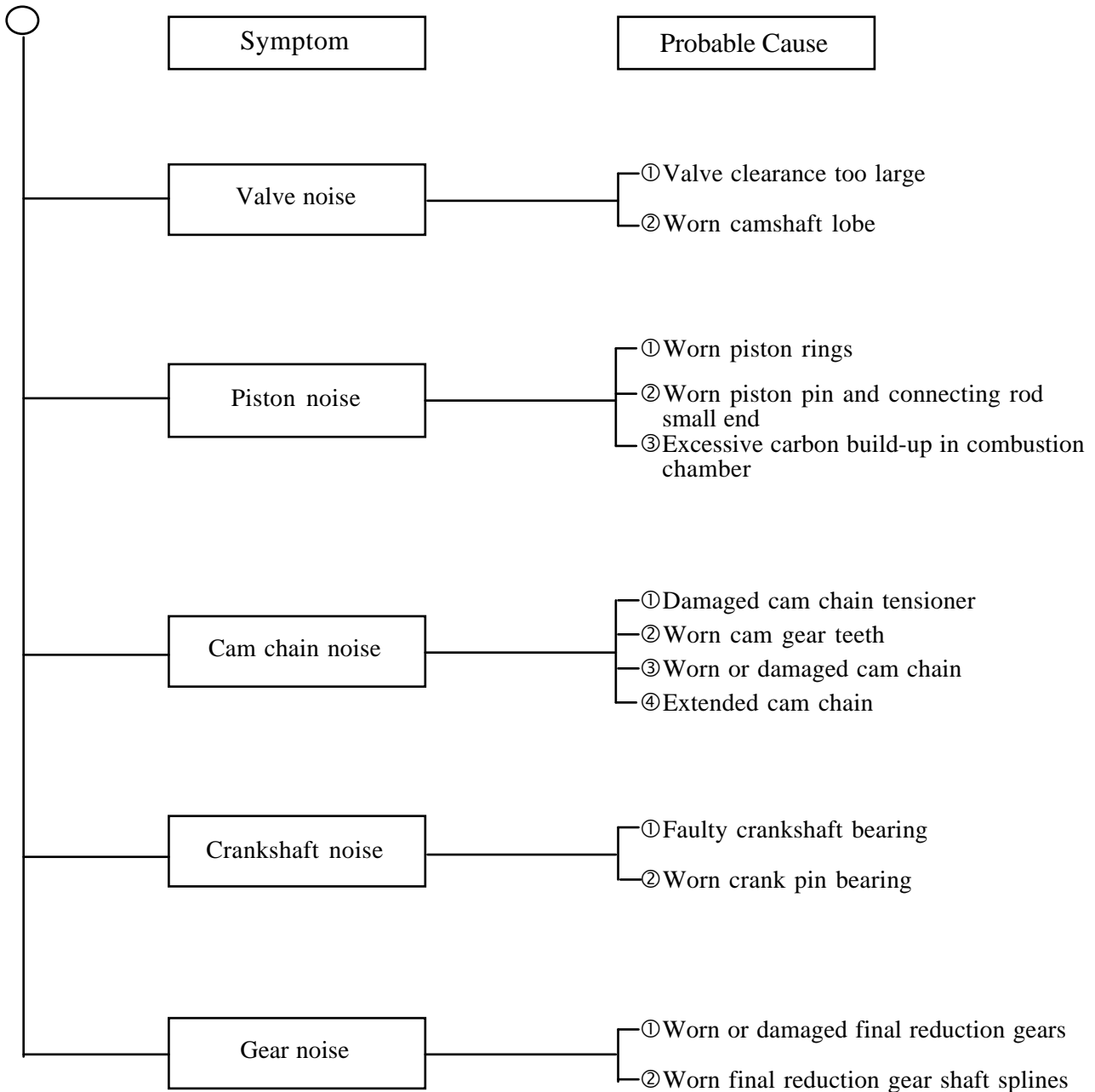
1. GENERAL INFORMATION

POOR PERFORMANCE (AT HIGH SPEED)



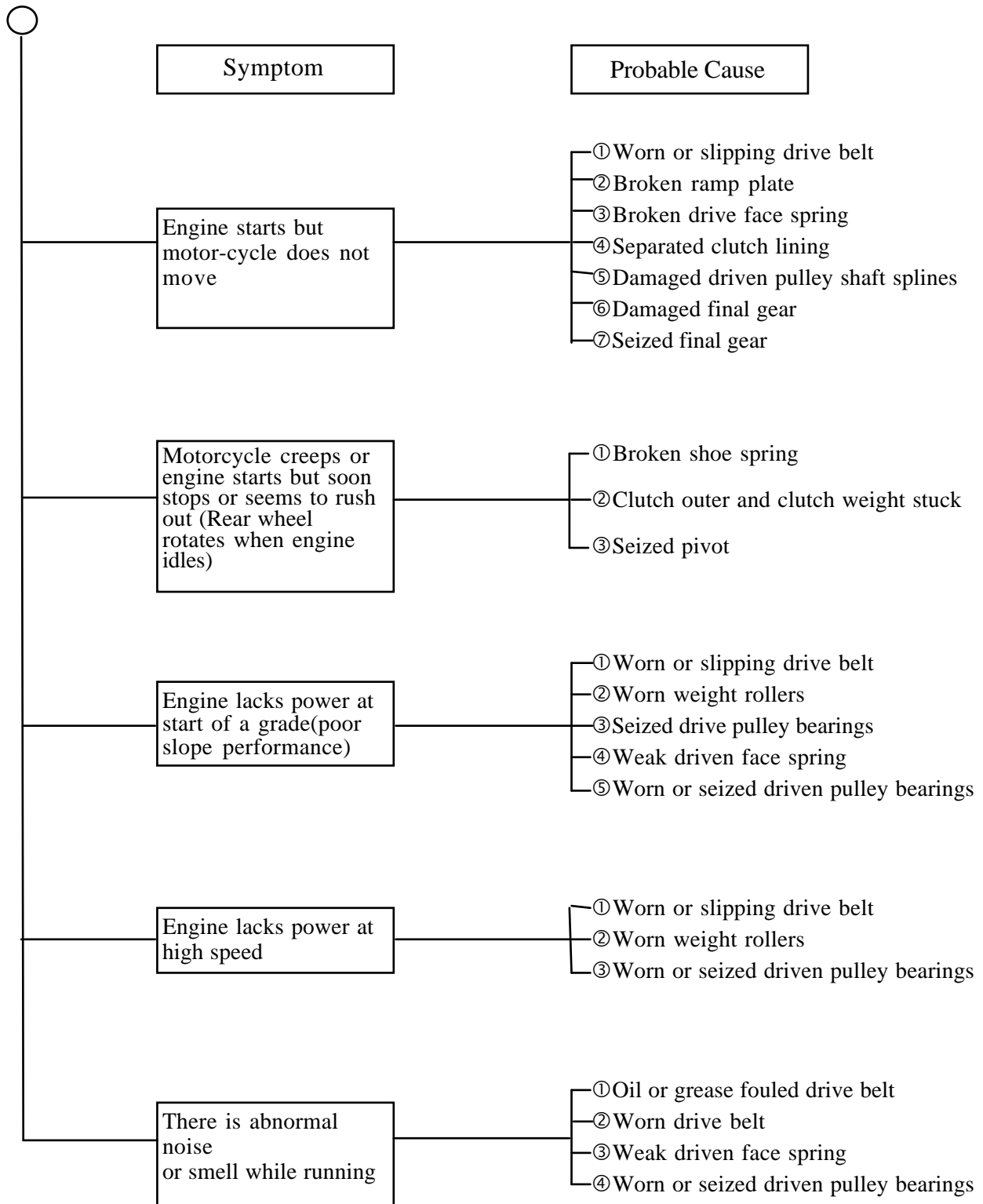
1. GENERAL INFORMATION

ENGINE NOISE



1. GENERAL INFORMATION

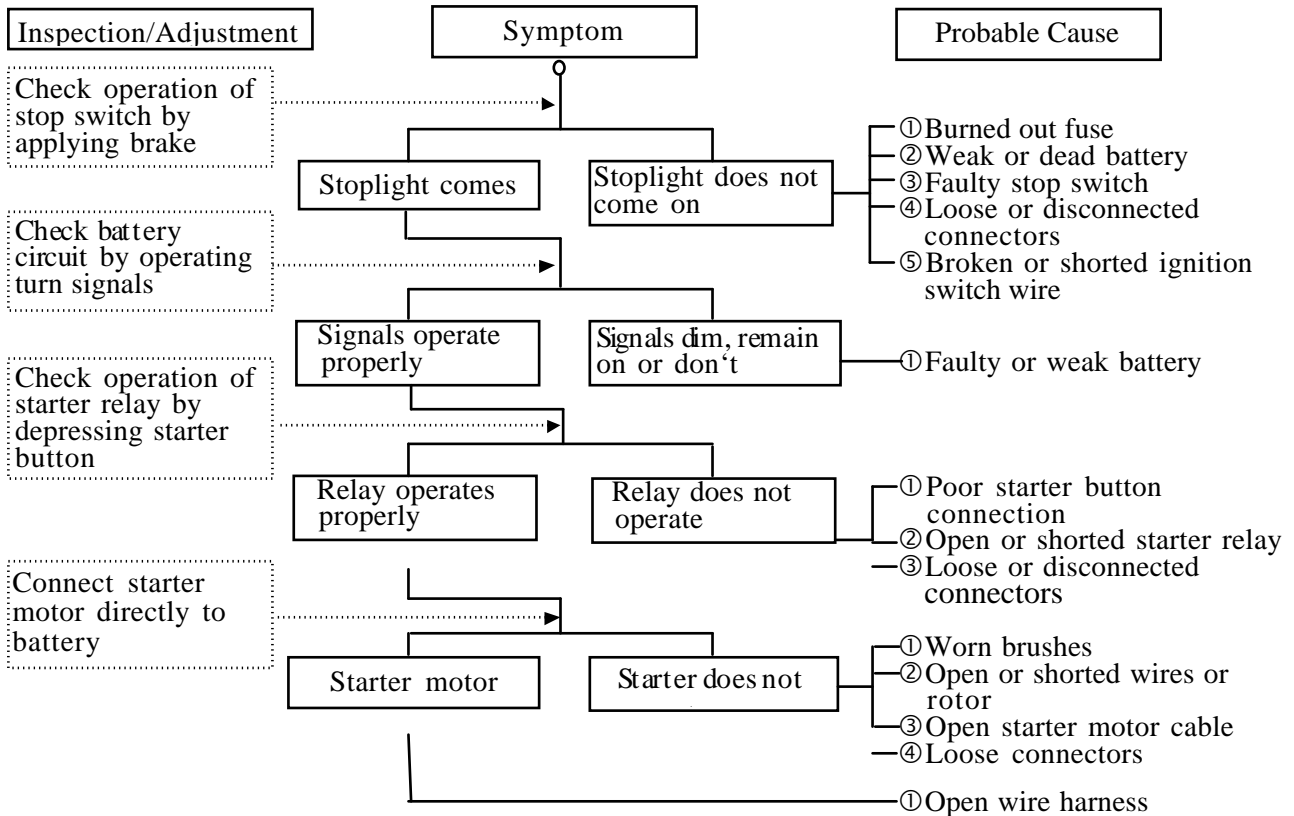
CLUTCH, DRIVE AND DRIVEN PULLEYS



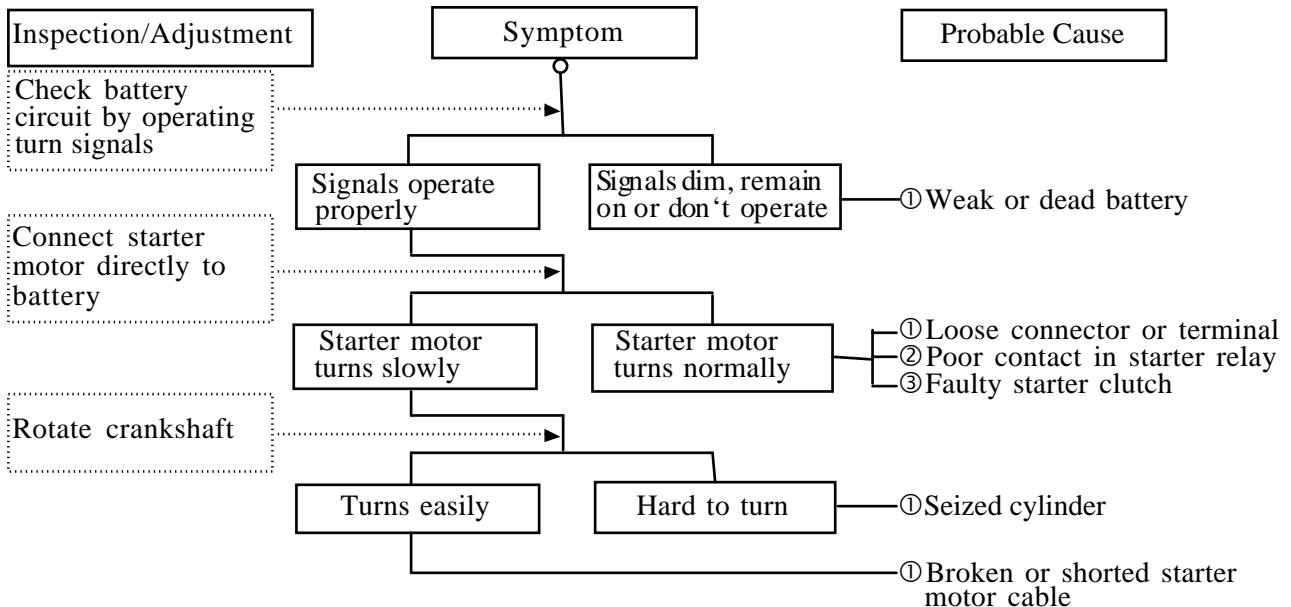
1. GENERAL INFORMATION

STARTER MOTOR

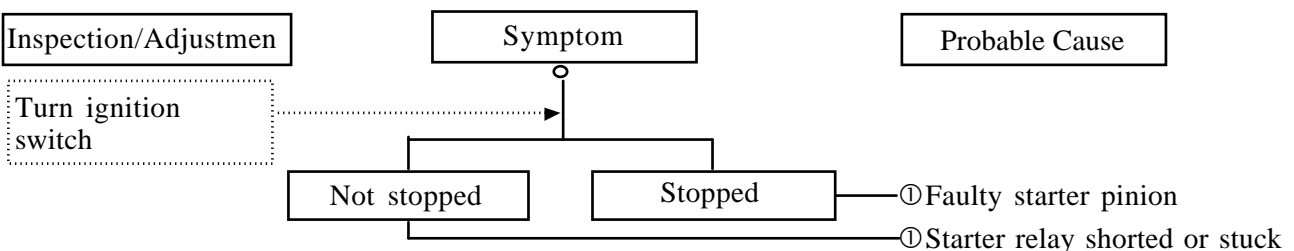
1. Starter motor won't turn



2. Starter motor turns slowly or idles



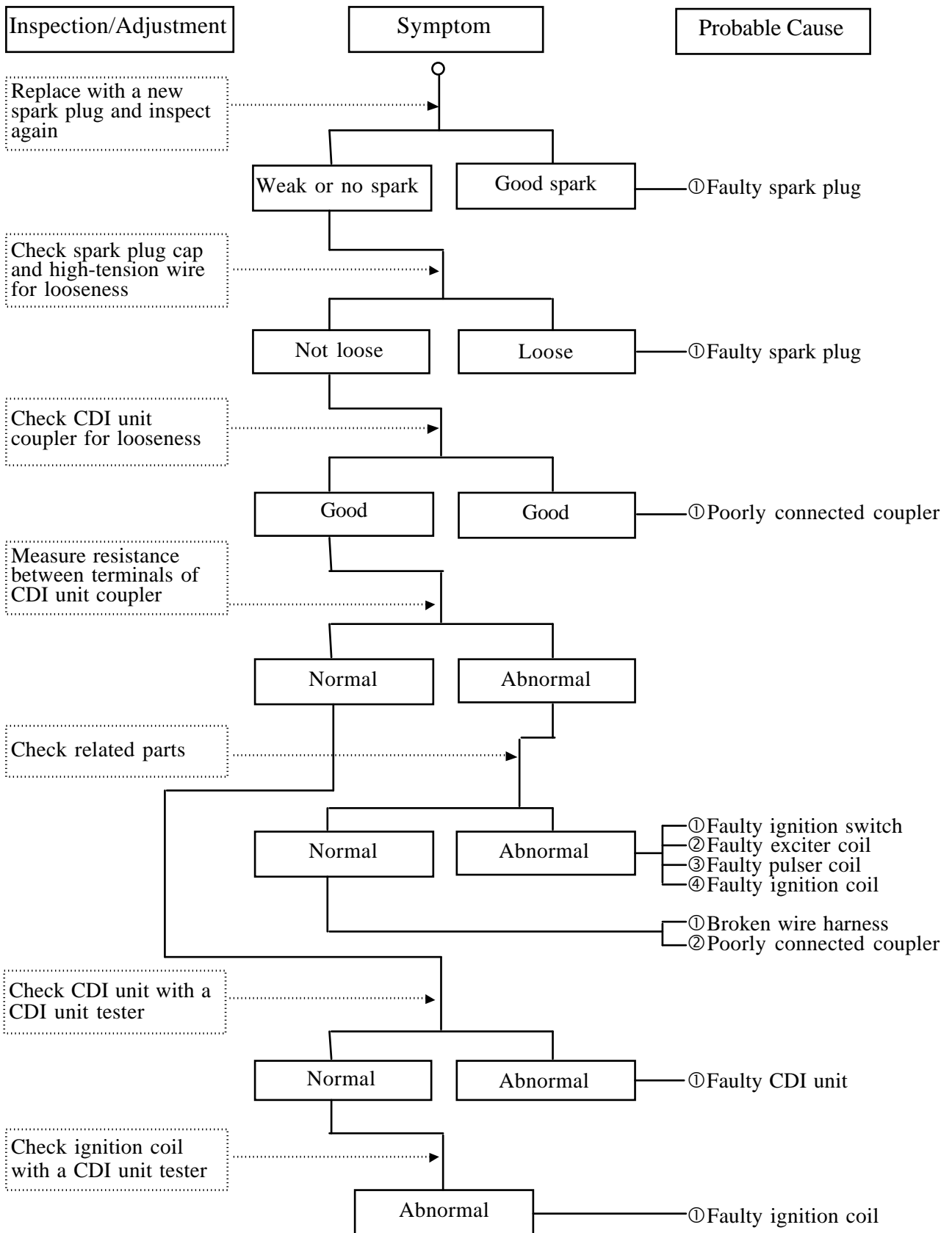
3. Starter motor does not stop turning



1. GENERAL INFORMATION

closed

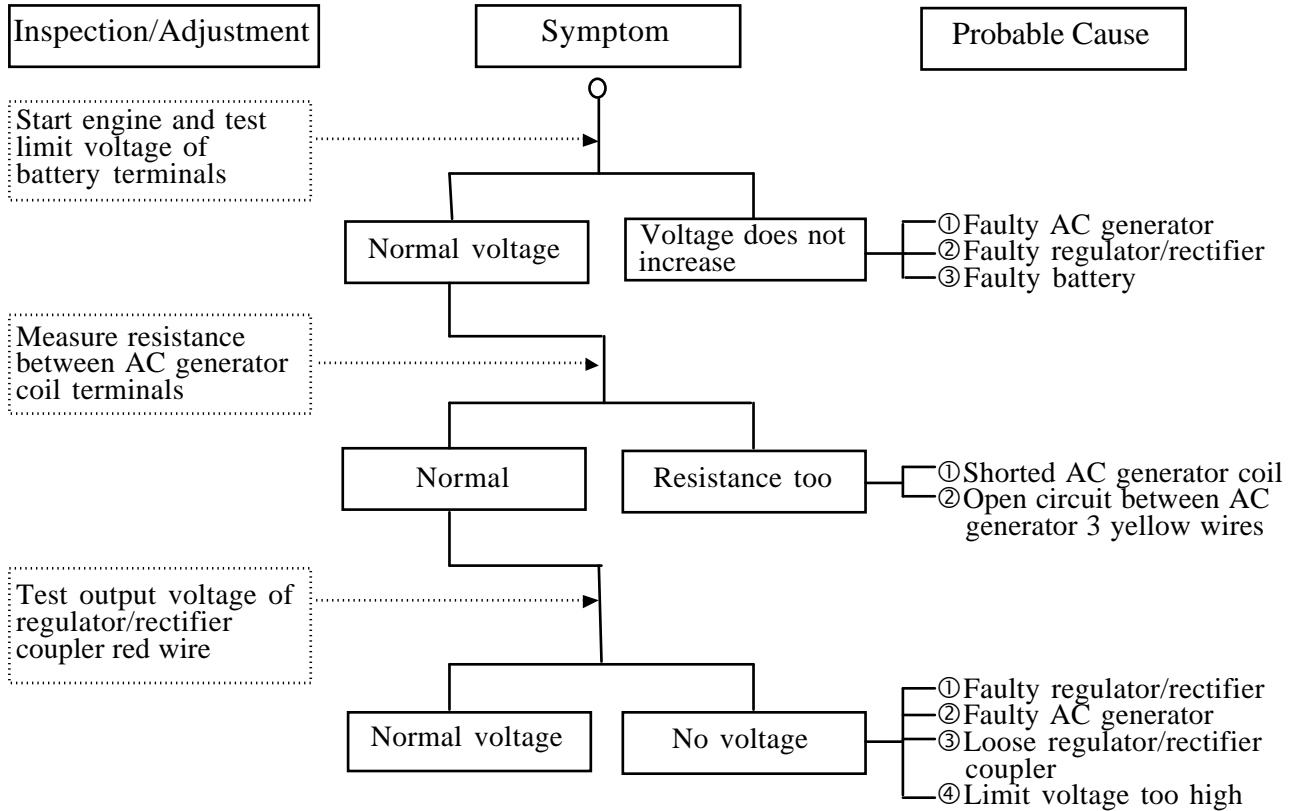
NO SPARK AT SPARK PLUG



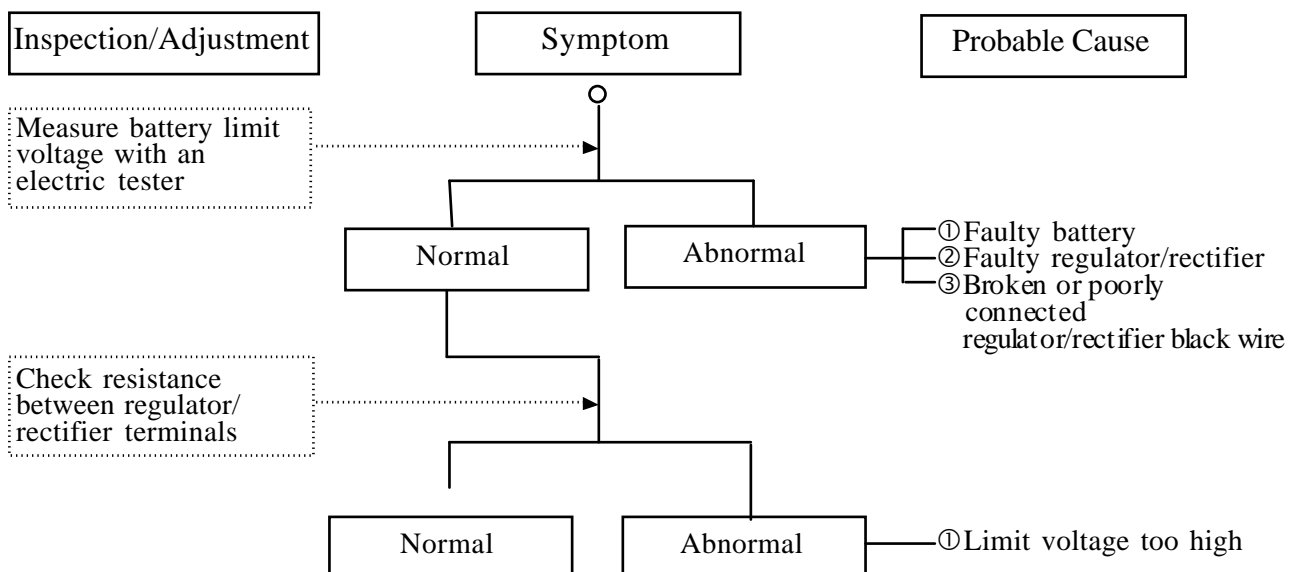
1. GENERAL INFORMATION

POOR CHARGING (BATTERY OVER DISCHARGING OR OVERCHARGING)

Undercharging



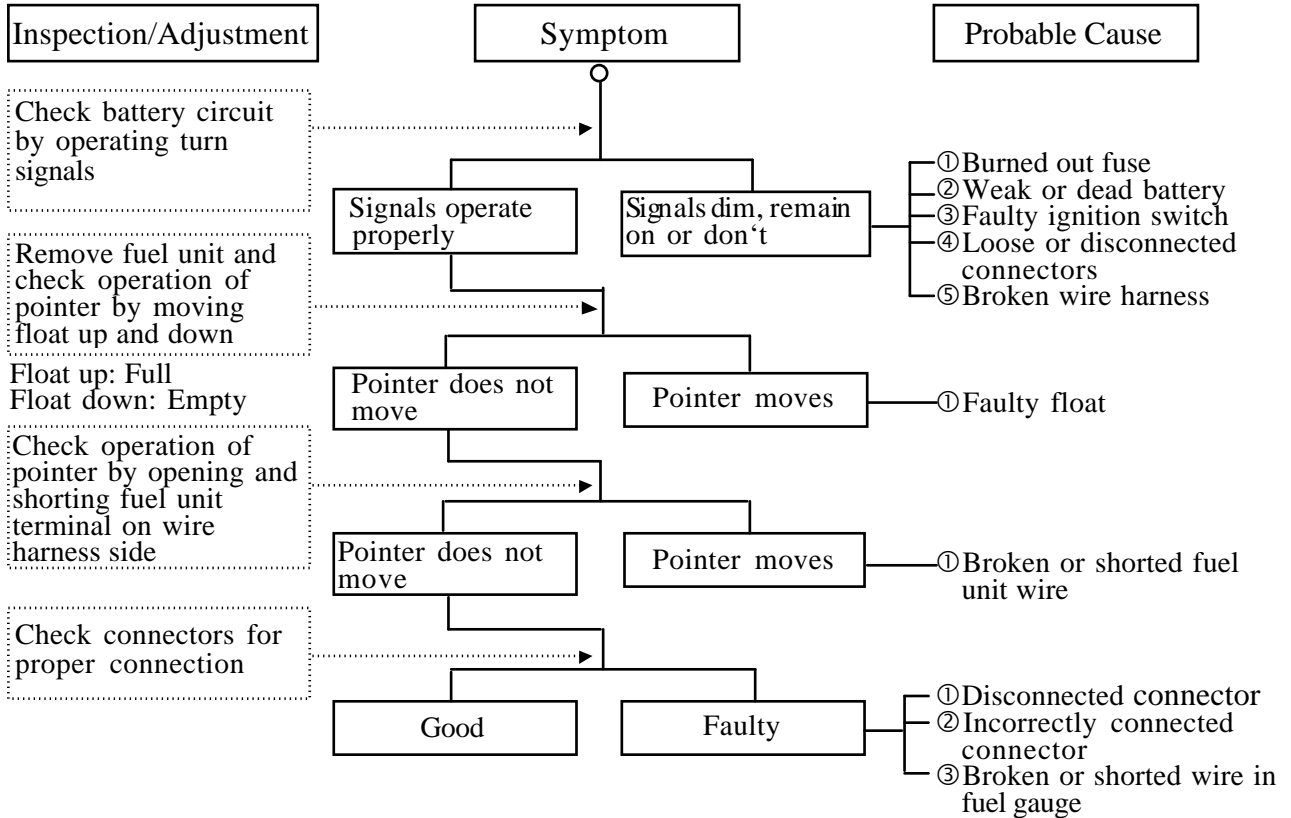
Overcharging



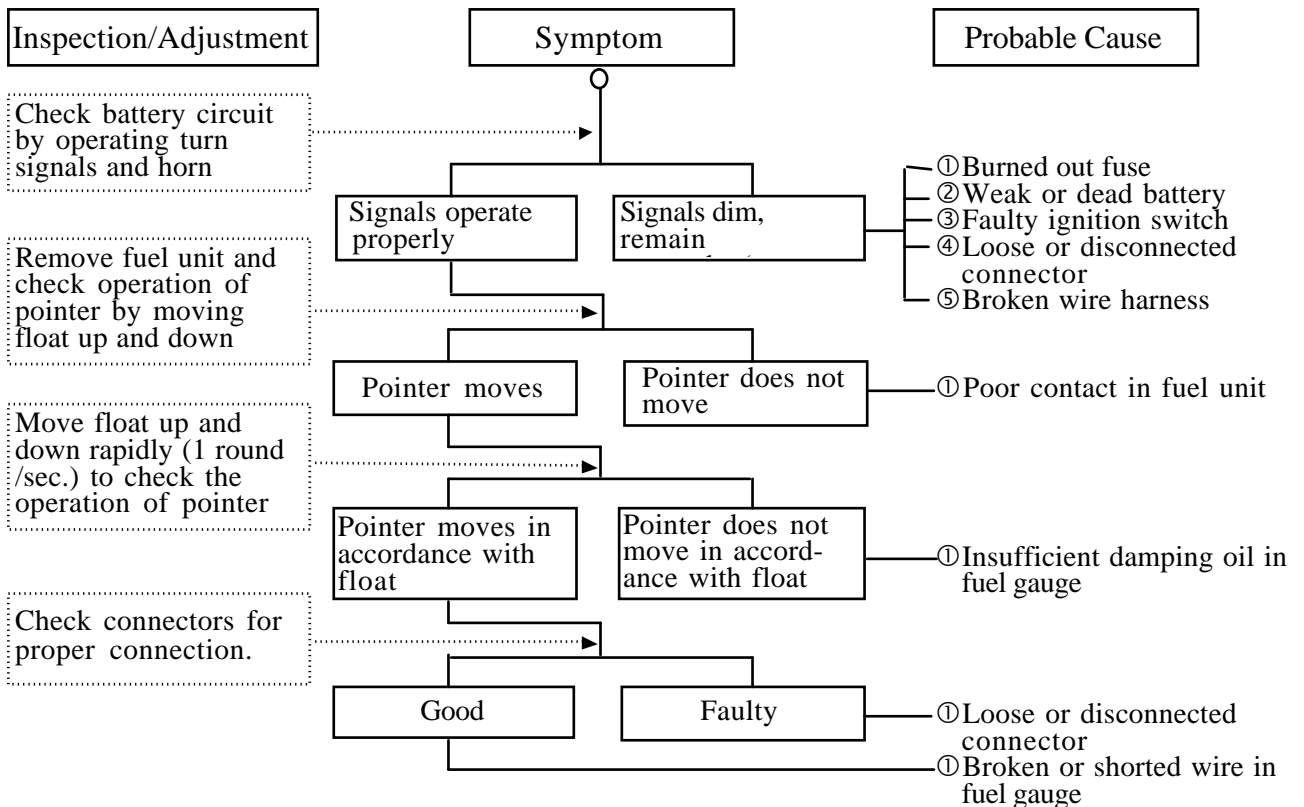
1. GENERAL INFORMATION

FUEL GAUGE

1. Pointer does not register correctly (Ignition switch ON)

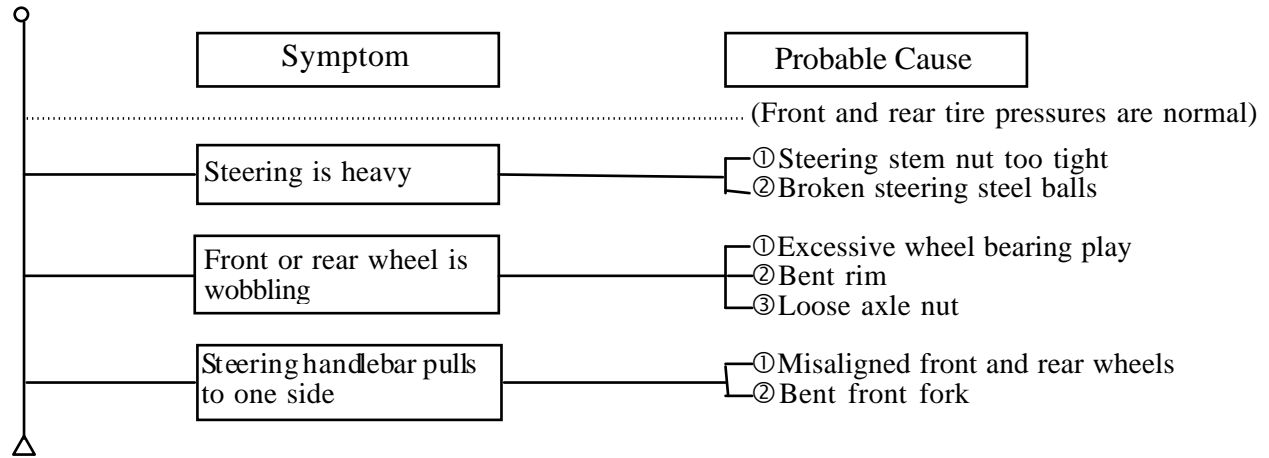


2. Pointer fluctuates or swings (Ignition switch ON)

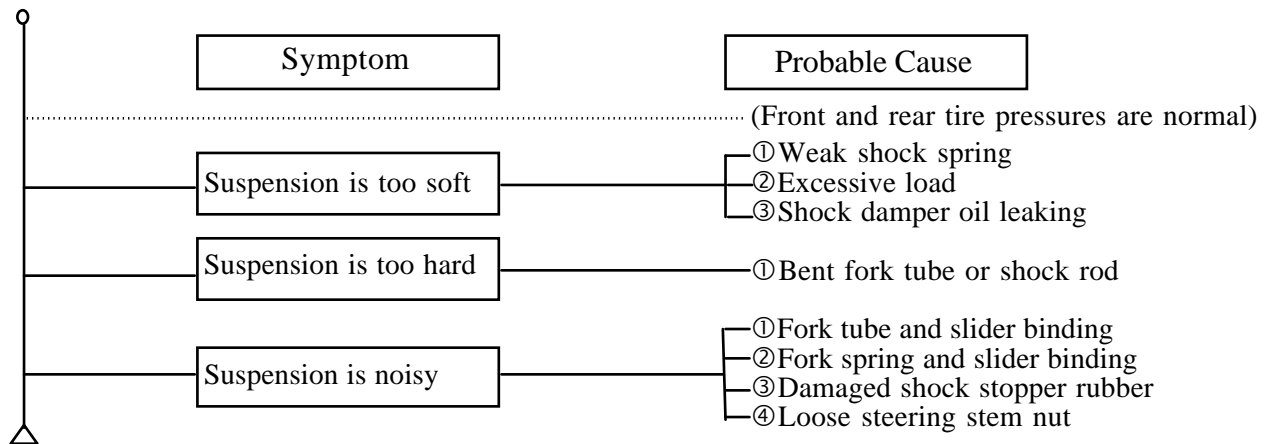


1. GENERAL INFORMATION

STEERING HANDLEBAR DOES NOT TRACK STRAIGHT



POOR SUSPENSION PERFORMANCE



POOR BRAKE PERFORMANCE

