

1. GENERAL INFORMATION

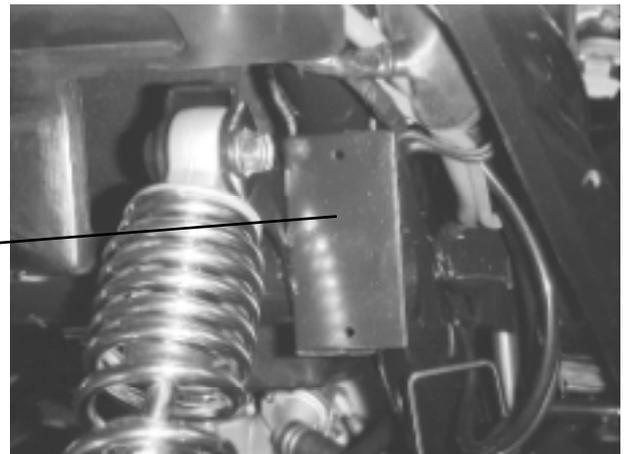
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SERIAL NUMBER



Vehicle Identification Serial Number



Location of Frame Serial Number



Location of Engine Serial Number

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SPECIFICATIONS

Cooling Type

Water cooling

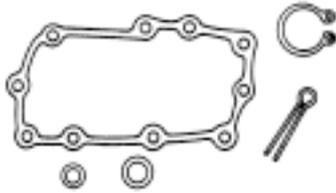
Name & Model No.		SH50CA		
Motorcycle Name & Type		B&W250		
Overall length		2000mm		
Overall width		750mm		
Overall height		1140mm		
Wheel base		1435mm		
Engine type		Water cooled 4-stroke, OHC engine		
Displacement		249.1cc		
Fuel Used		92# nonleaded gasoline		
Net weight (kg)	Front wheel	65		
	Rear wheel	93		
	Total	158		
Gross weight(kg)	Front wheel	86		
	Rear wheel	127		
	Total	213		
Tires	Front wheel	120/70-12 58P		
	Rear wheel	140/70-12 65P		
Ground clearance		135mm		
Performance	Braking distance (m)	4m/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 -rpm)		16.5±2	
	Max. output (kw/rpm)		13.82/7000	
	Max. torque (N.m/rpm)		21.75/5500	
	Port timing	Intake	BTDC	8°
			ABDC	42°
		Exhaust	BBDC	33°
			ATDC	1°
	Valve clearance (cold)	Intake	0.1	
		Exhaust	0.1	
	Idle speed (rpm)		1450±50rpm	
	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		10.5 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	
		Transmission Gear	Type	Non-stage transmission
	Reduction Gear	Operation	Automatic centrifugal Type	
		Type	Two-stage reduction	
Moving Device	Front Axle	Caster angle		
		Connecting rod		
Brake system type	Tire pressure (kg/cm ²)	Front	2.00	
		Rear	2.25	
		Turning angle	Left	45°
Right	45°			
Damping Device	Suspension type	Front	Telescope	
		Rear	Double swing	
	Shock absorber type	Front	Telescope	
		Rear	Double swing	
Frame type		Under bone		

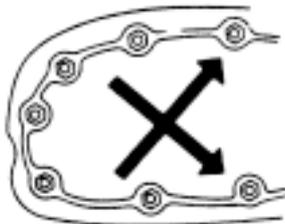
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SERVICE PRECAUTIONS

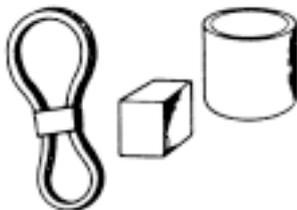
- Make sure to install new gaskets, O-rings, circlips, cotter pins, etc. when reassembling.



- 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.



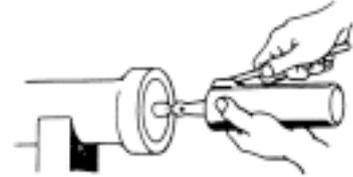
- When servicing the motorcycle, be sure to use special tools for removal and installation.



- 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.



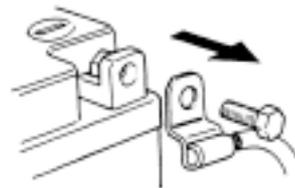
- After reassembly, check all parts for proper tightening and operation.



- 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.

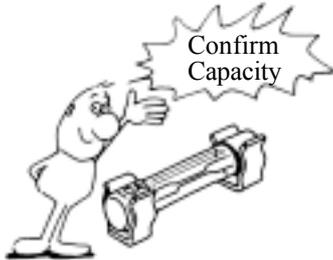


- After operation, check all connecting points, fasteners, and lines for proper connection and installation.
- When connecting the battery, the positive (+) terminal must be connected first.
- After connection, apply grease to the battery terminals.
- Terminal caps shall be installed securely.



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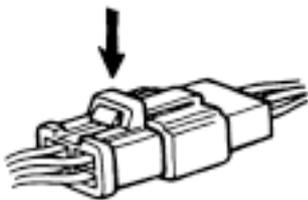
- If the fuse is burned out, find the cause and repair it. Replace it with a new one according to the specified capacity.



- After operation, terminal caps shall be installed securely.



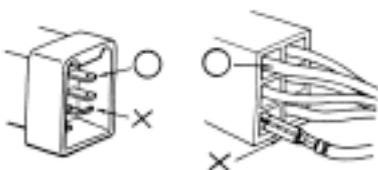
- When taking out the connector, the lock on the connector shall be released before operation.



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



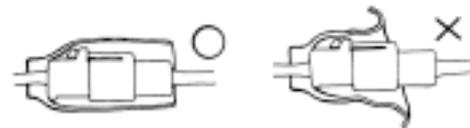
- Check if any connector terminal is bending, protruding or loose.



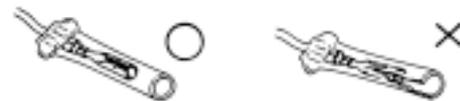
- The connector shall be inserted completely.
- If the double connector has a lock, lock it at the correct position.
- Check if there is any loose wire.



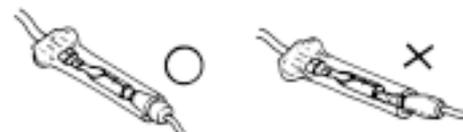
- Before connecting a terminal, check for damaged terminal cover or loose negative terminal.



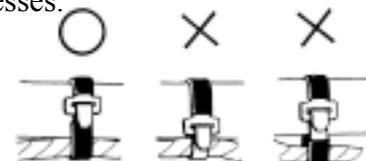
- Check the double connector cover for proper coverage and installation.



- 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.



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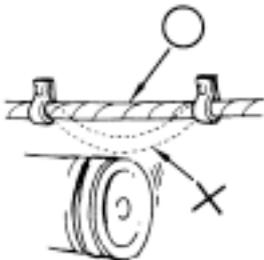
- After clamping, check each wire to make sure it is secure.



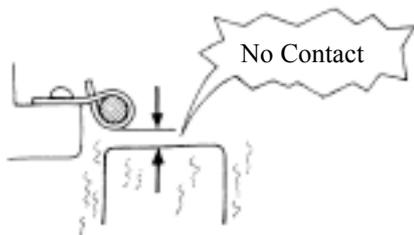
- Do not squeeze wires against the weld or its clamp.



- 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.

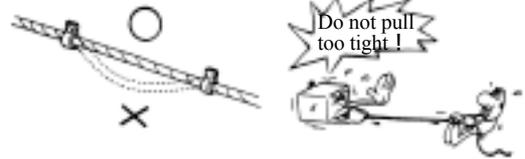


- Route wire harnesses to avoid sharp edges or corners. Avoid the projected ends of bolts and screws.

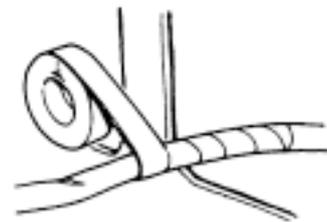
- Route wire harnesses passing through the side of bolts and screws. Avoid the projected ends of bolts and screws.



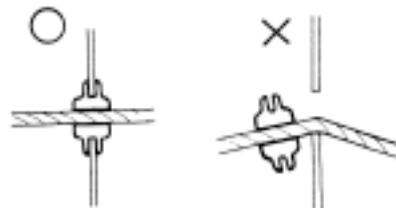
- Route harnesses so they are neither pulled tight nor have excessive slack.



- 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.

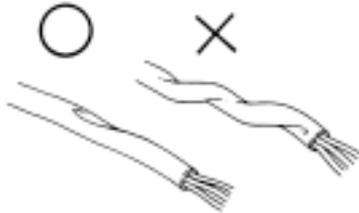


- When installing other parts, do not press or squeeze the wires.



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- 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

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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
Cylinder head bolt B	2	8	8.9	
Oil filter screen cap	1	30	14.7	Apply oil to threads
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	Left hand threads

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	

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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, 12mm	E020	Bearing removal	
Remover shaft		Bearing removal	
Remover weight		Bearing removal	
Bearing remover, 15mm	E018	Bearing removal	
Bearing driver		Bearing removal	
Clutch spring compressor	E027	Clutch disassembly	
Ball race remover extension		Ball race removal	
Ball race remover		Ball race removal	
Spring compressor		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	

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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

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FRAME

The following is the lubrication points for the frame.

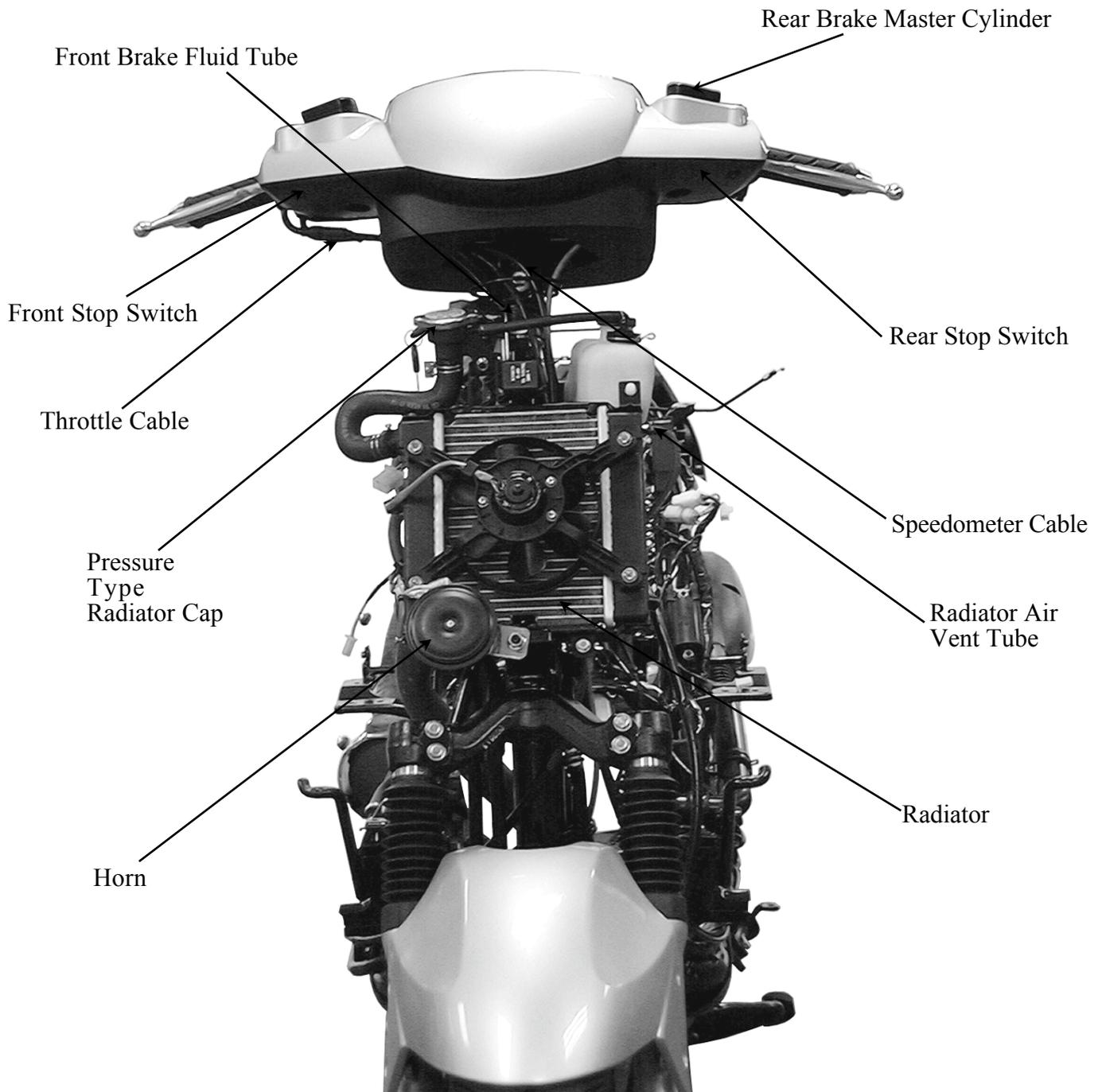
Use general purpose grease for parts not listed.

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.

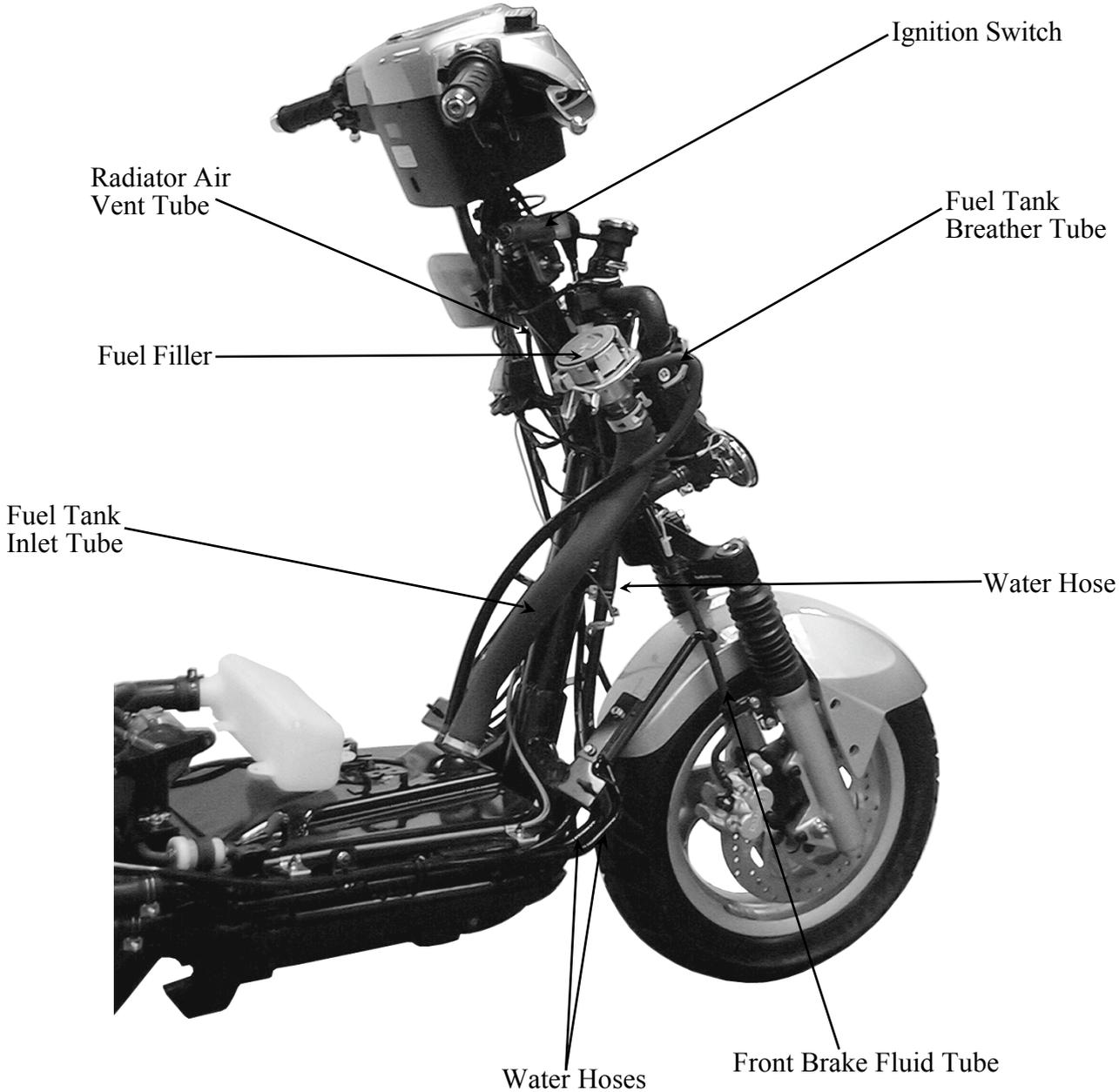


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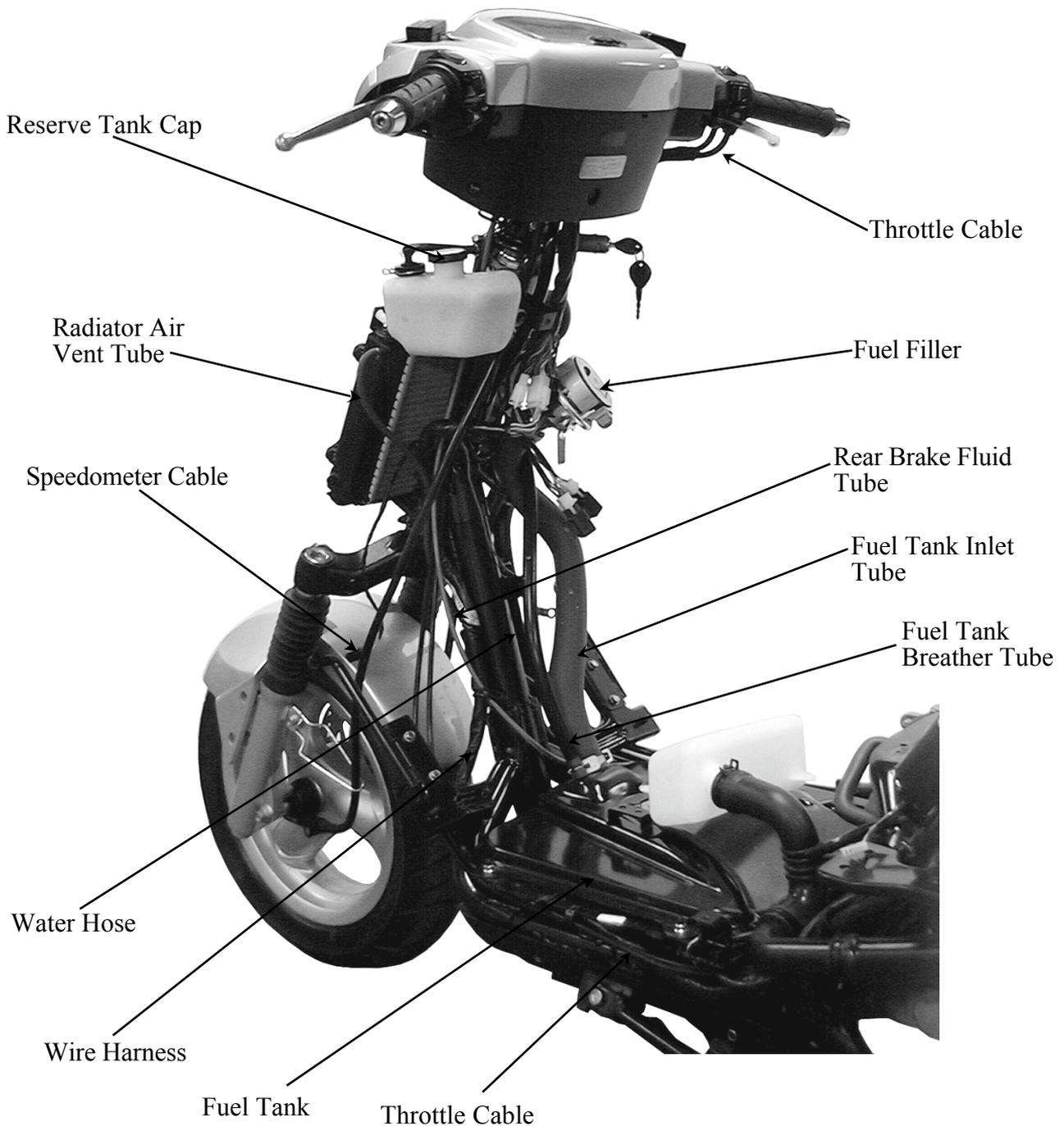
CABLE & HARNESS ROUTING



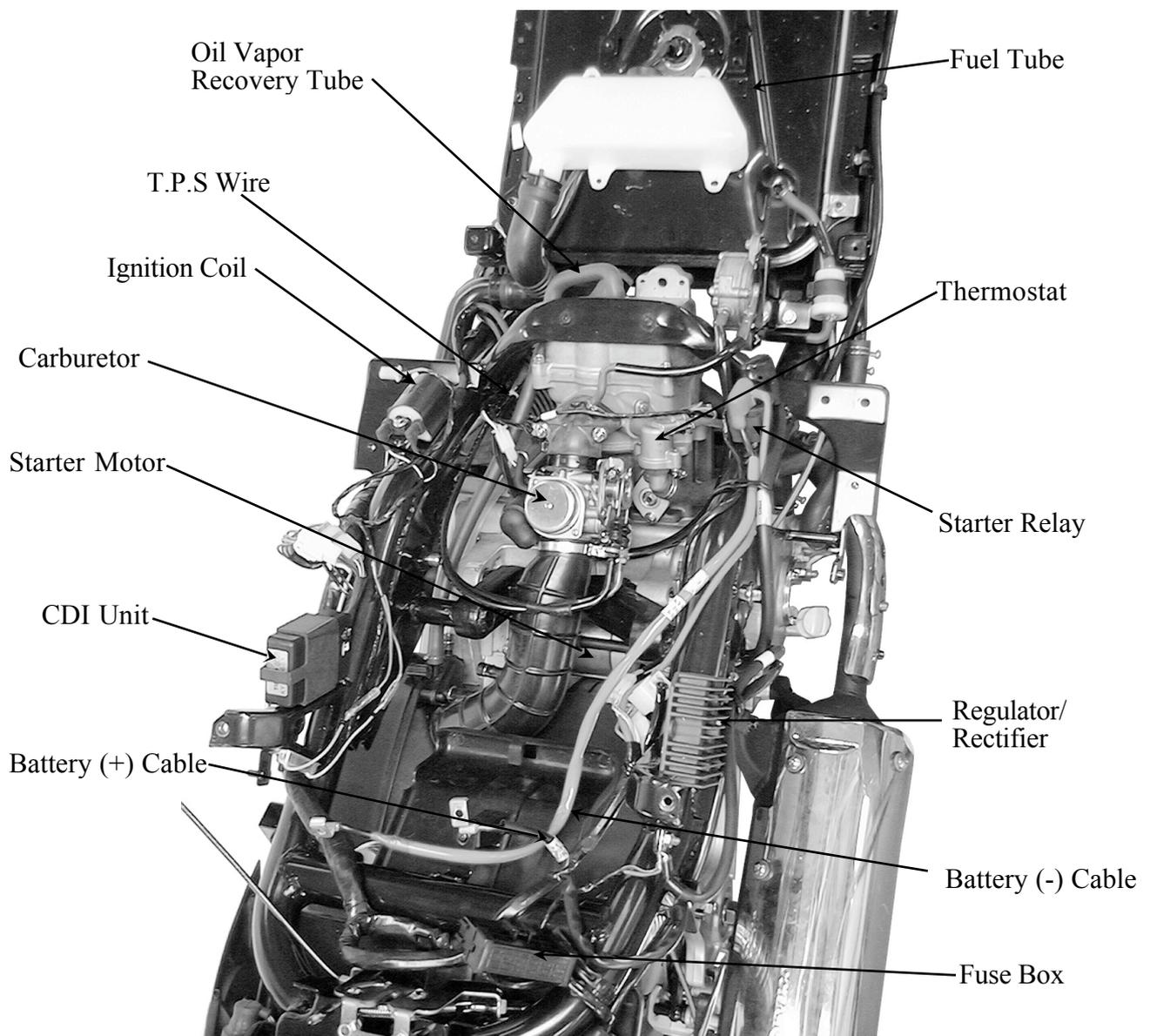
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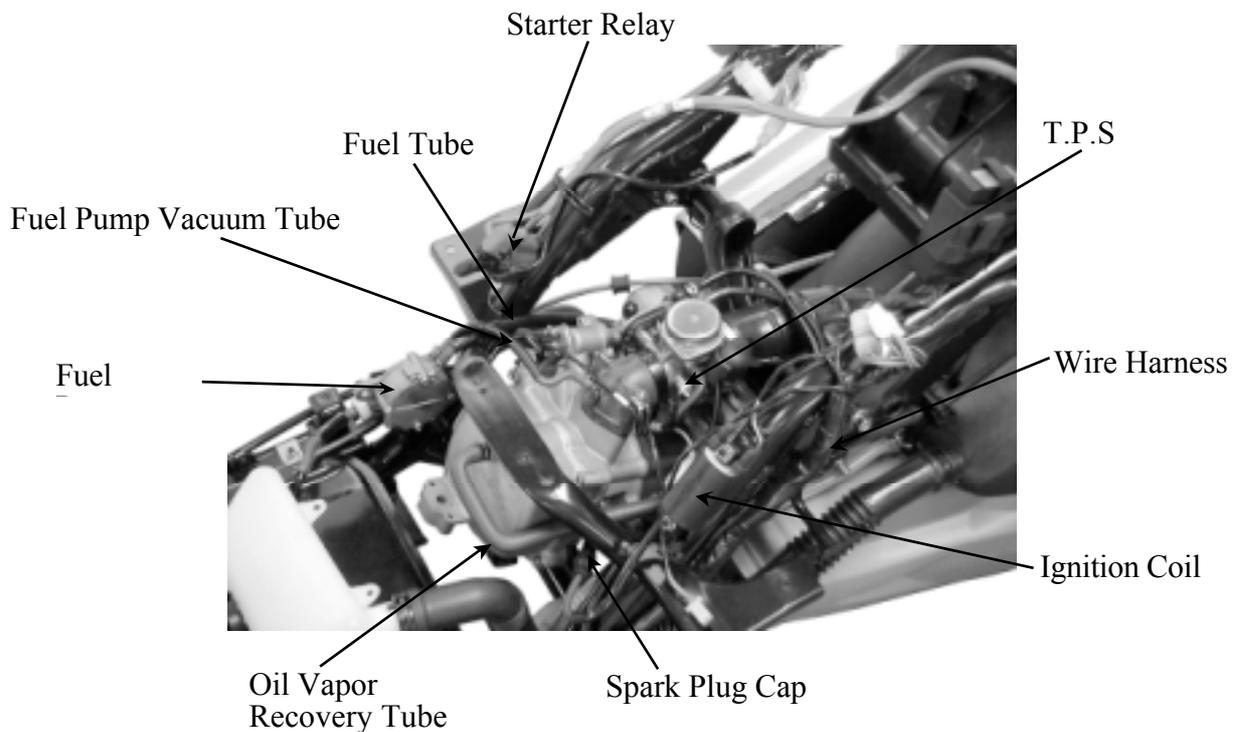
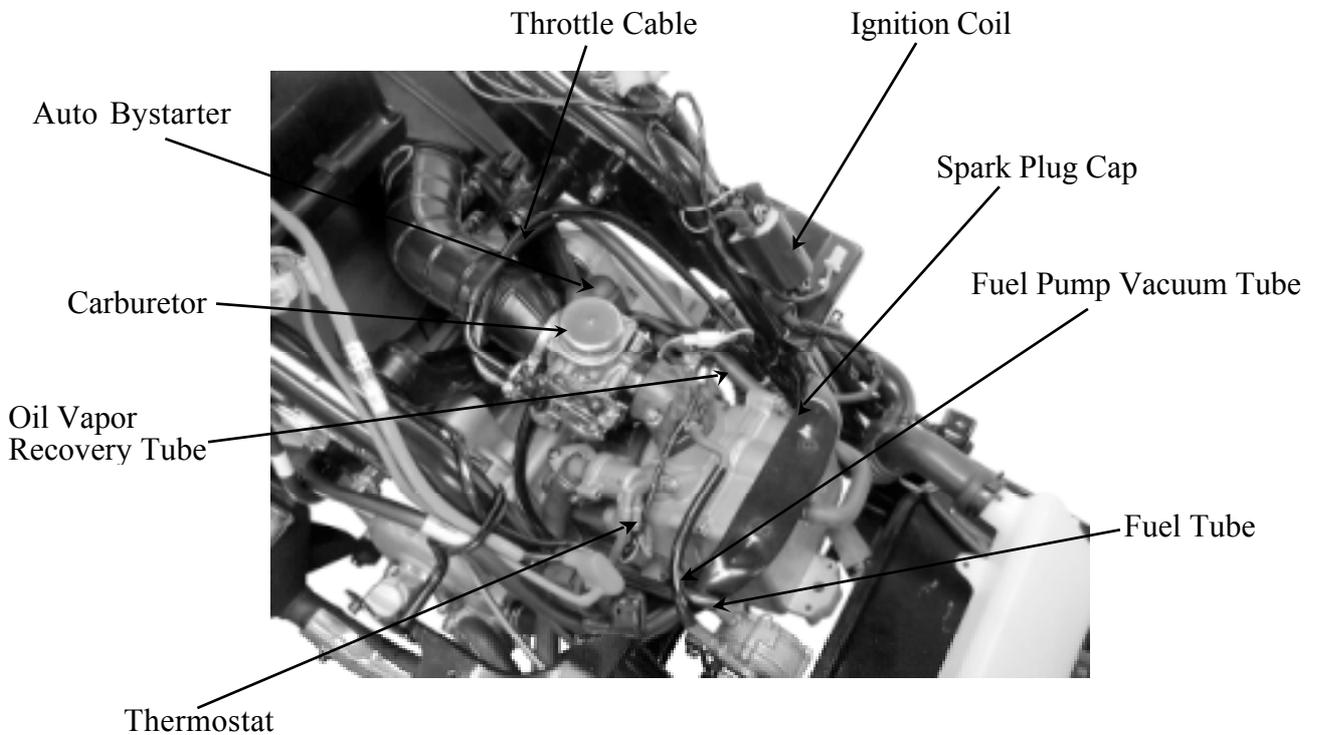
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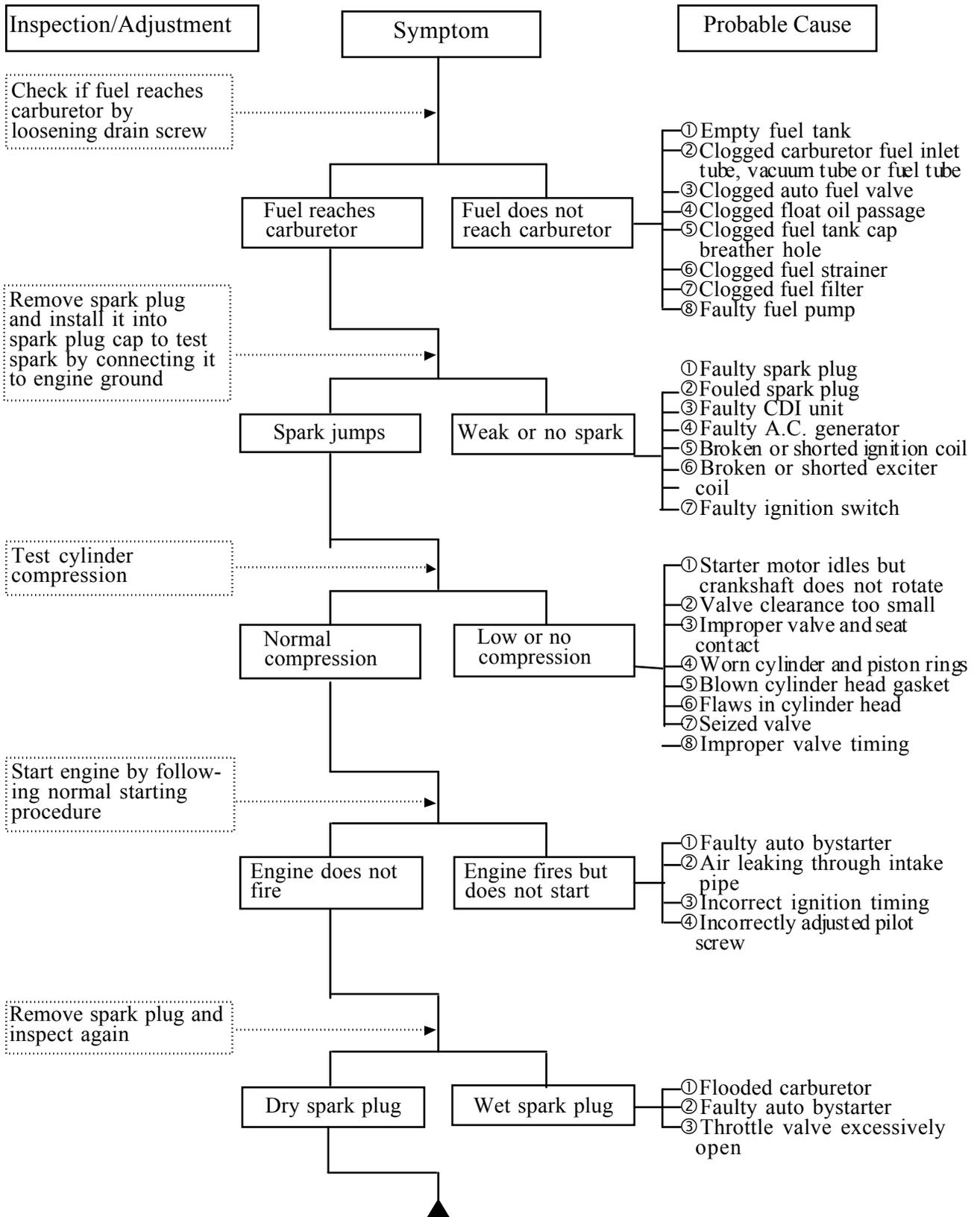
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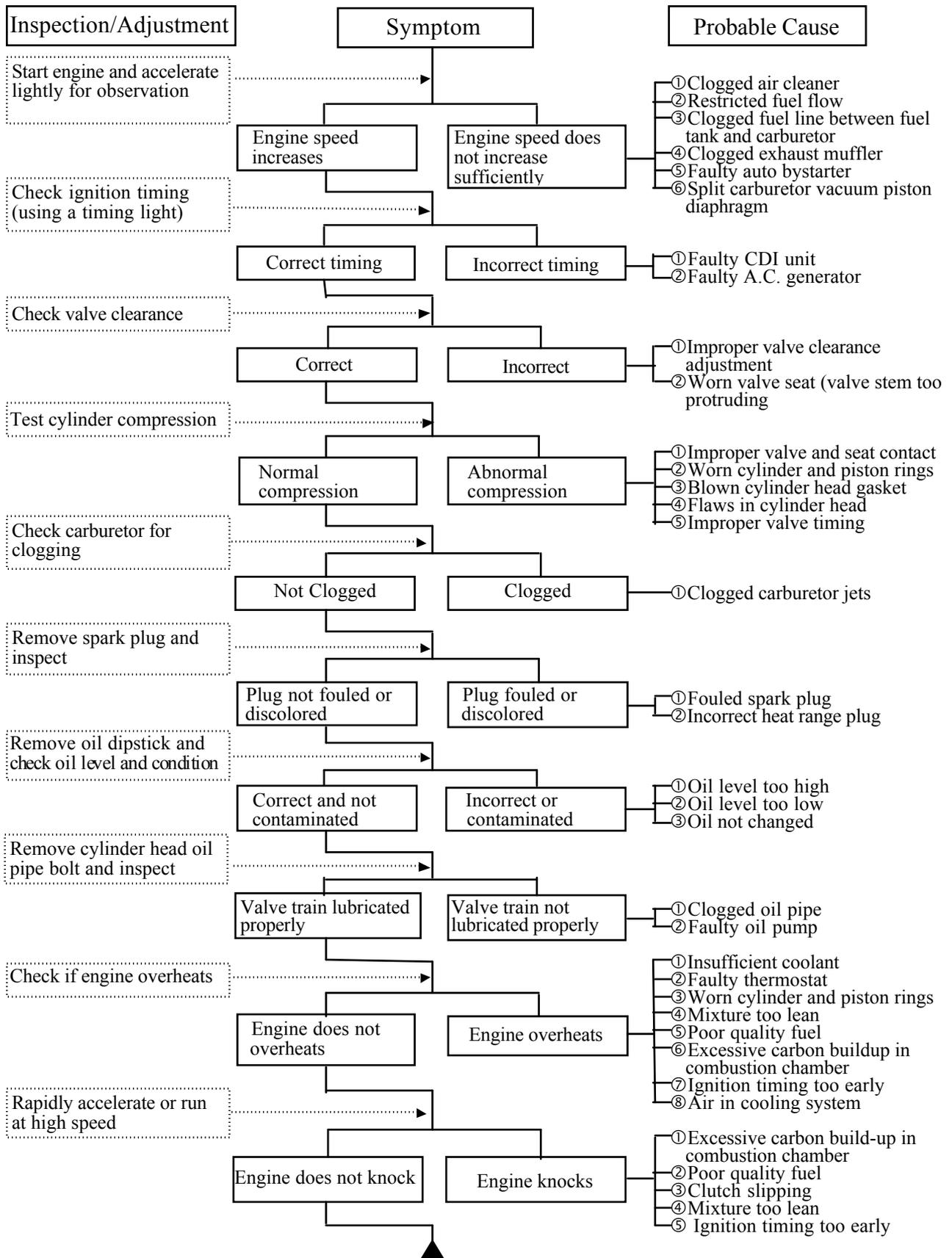
TROUBLESHOOTING

ENGINE WILL NOT START OR IS HARD TO START



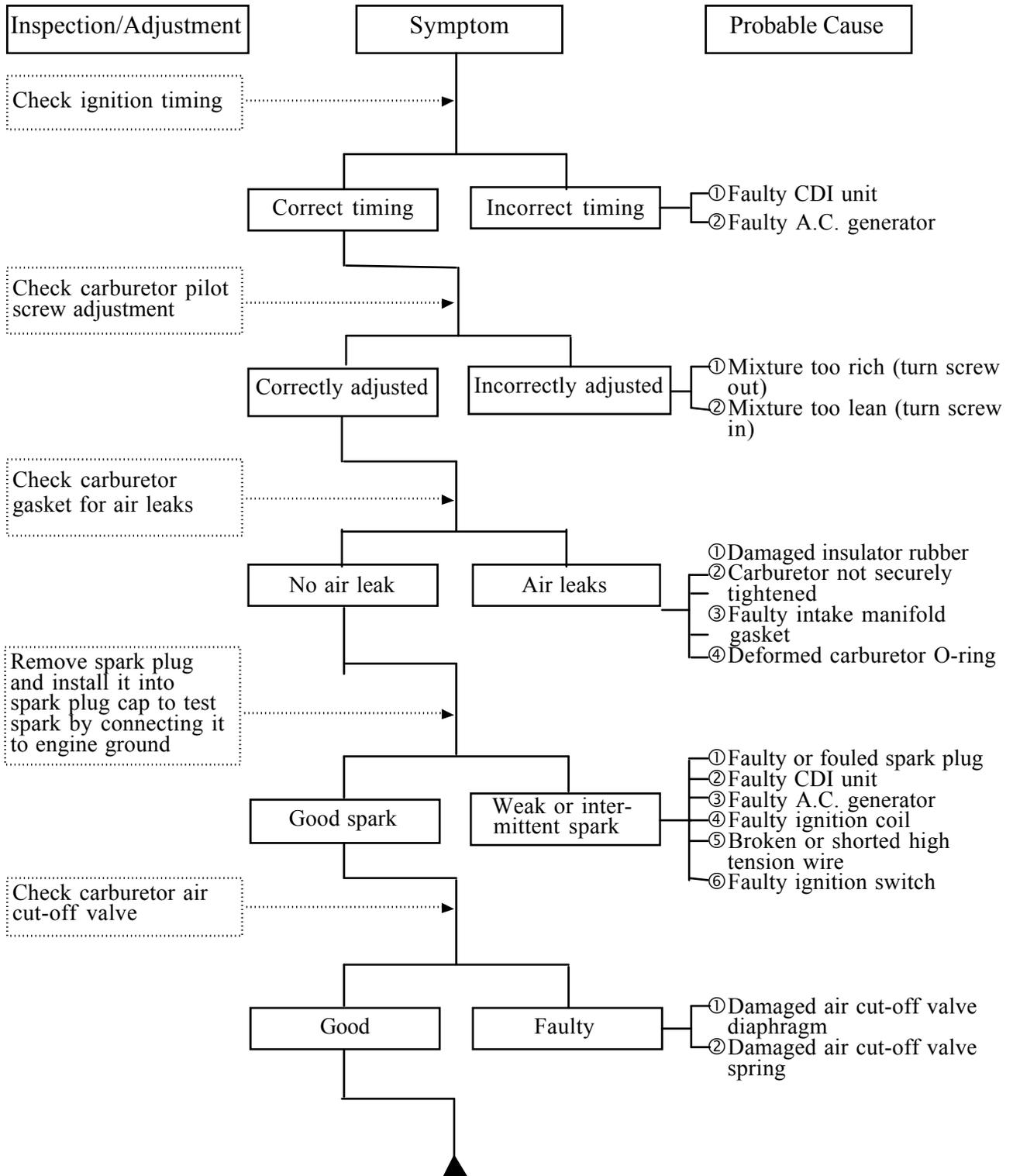
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ENGINE LACKS POWER



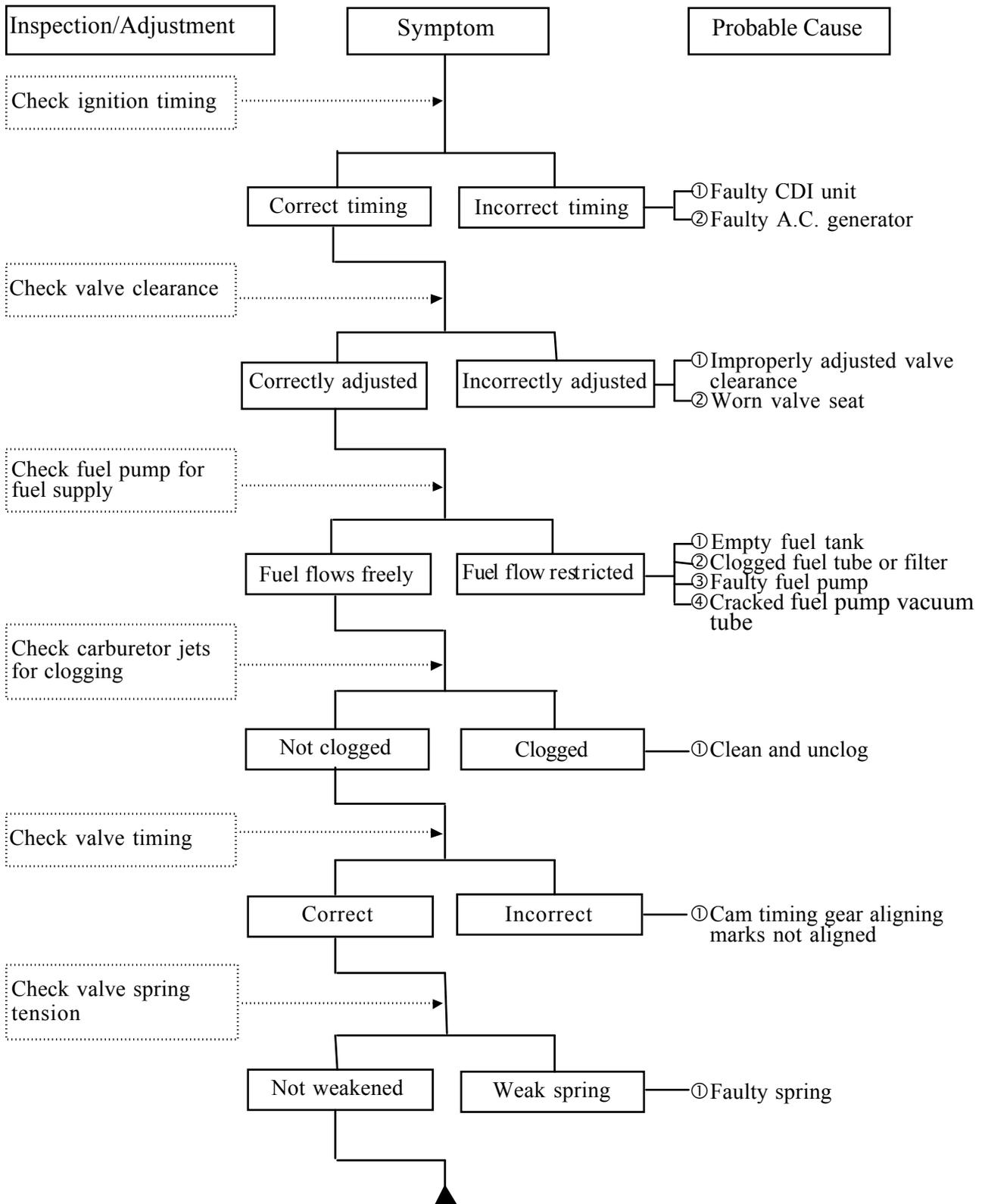
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POOR PERFORMANCE (ESPECIALLY AT IDLE AND LOW SPEEDS)



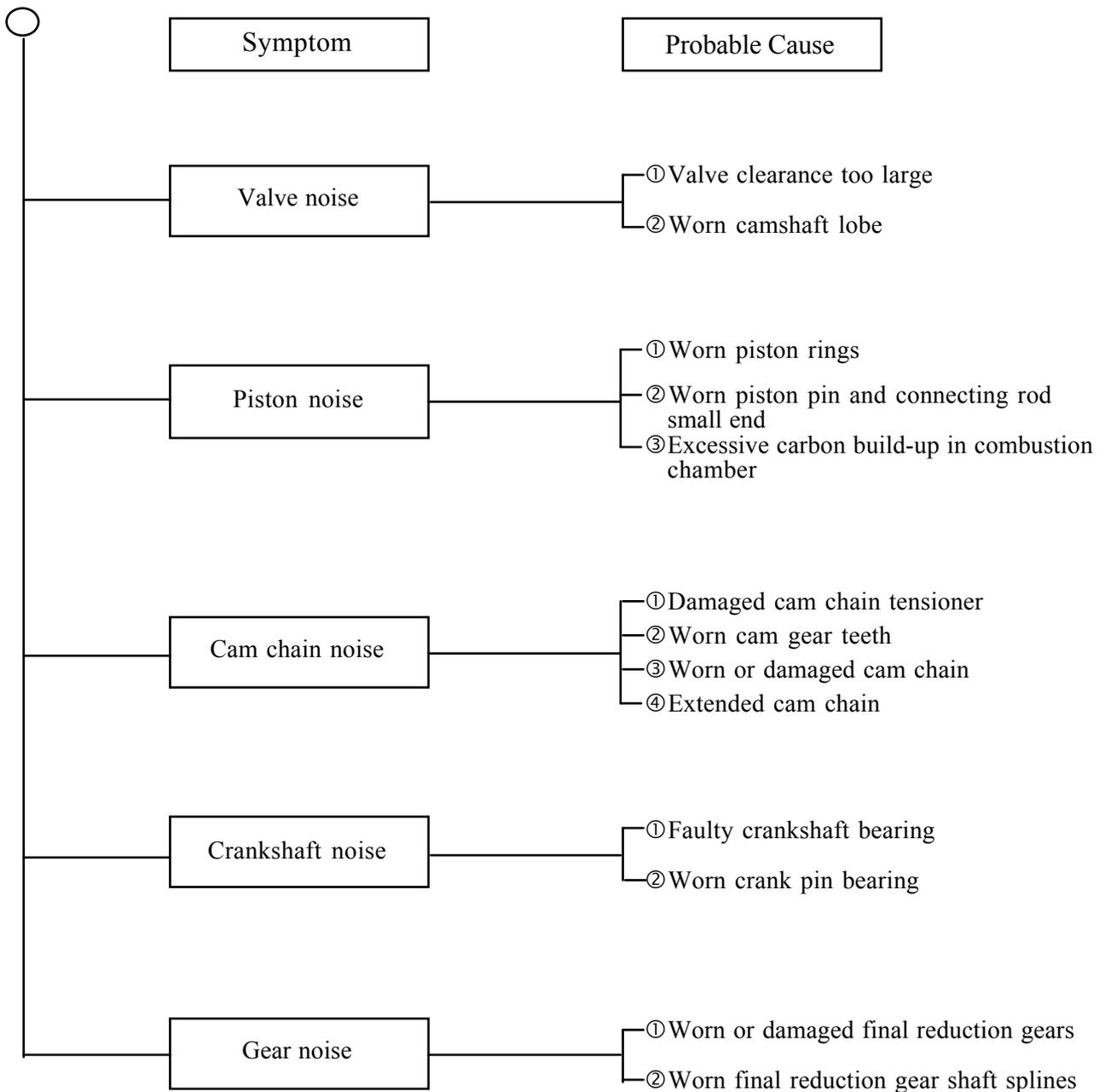
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POOR PERFORMANCE (AT HIGH SPEED)



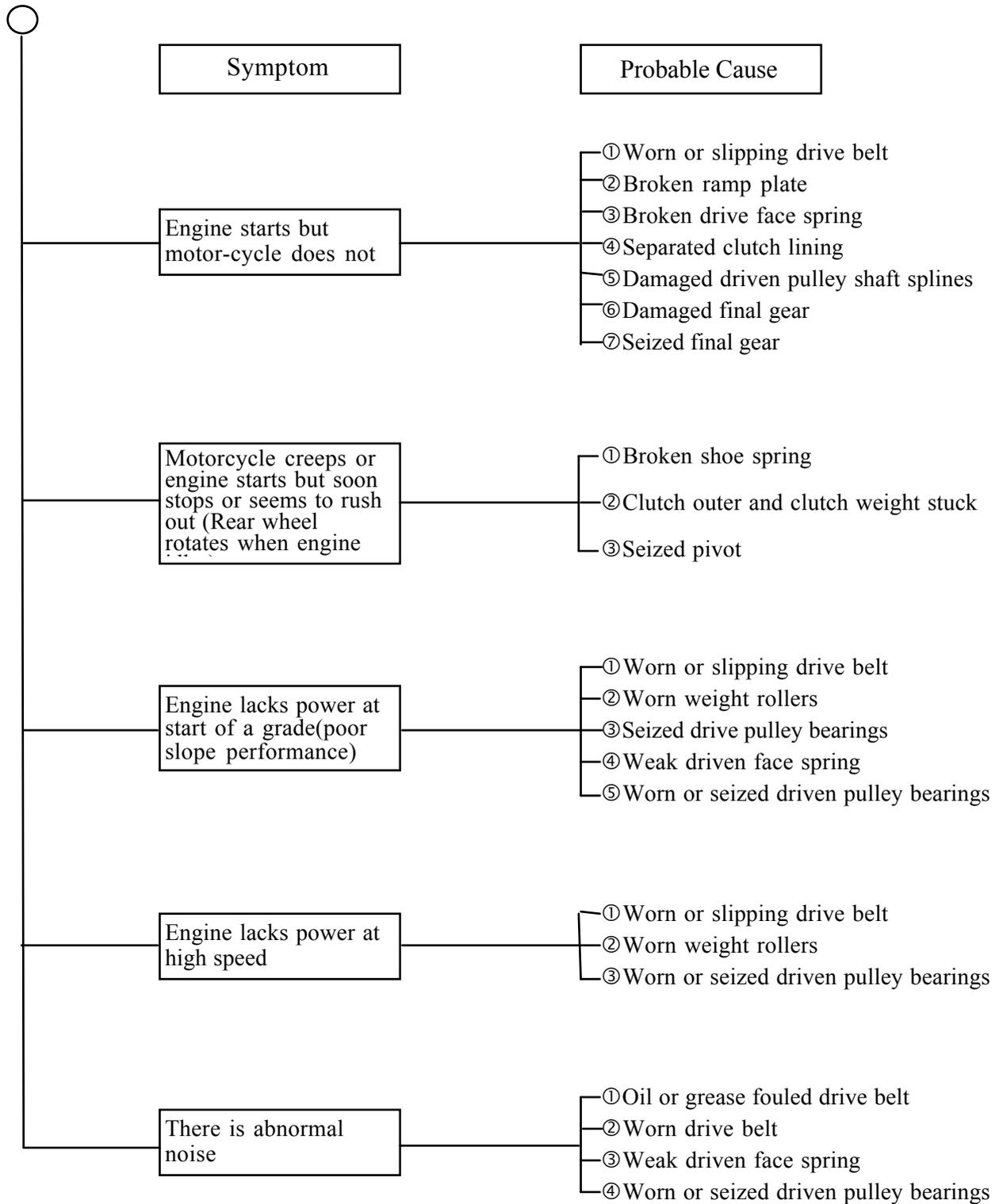
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ENGINE NOISE



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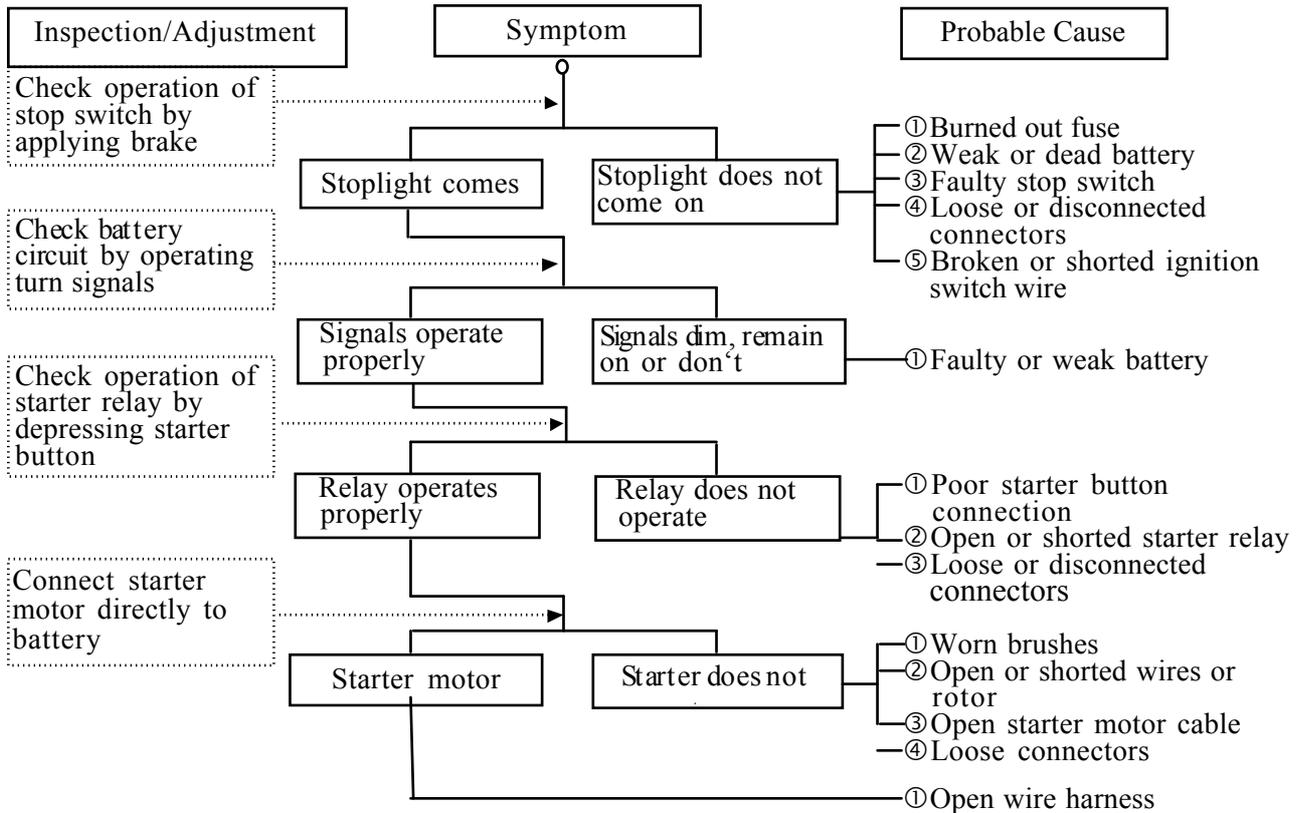
CLUTCH, DRIVE AND DRIVEN PULLEYS



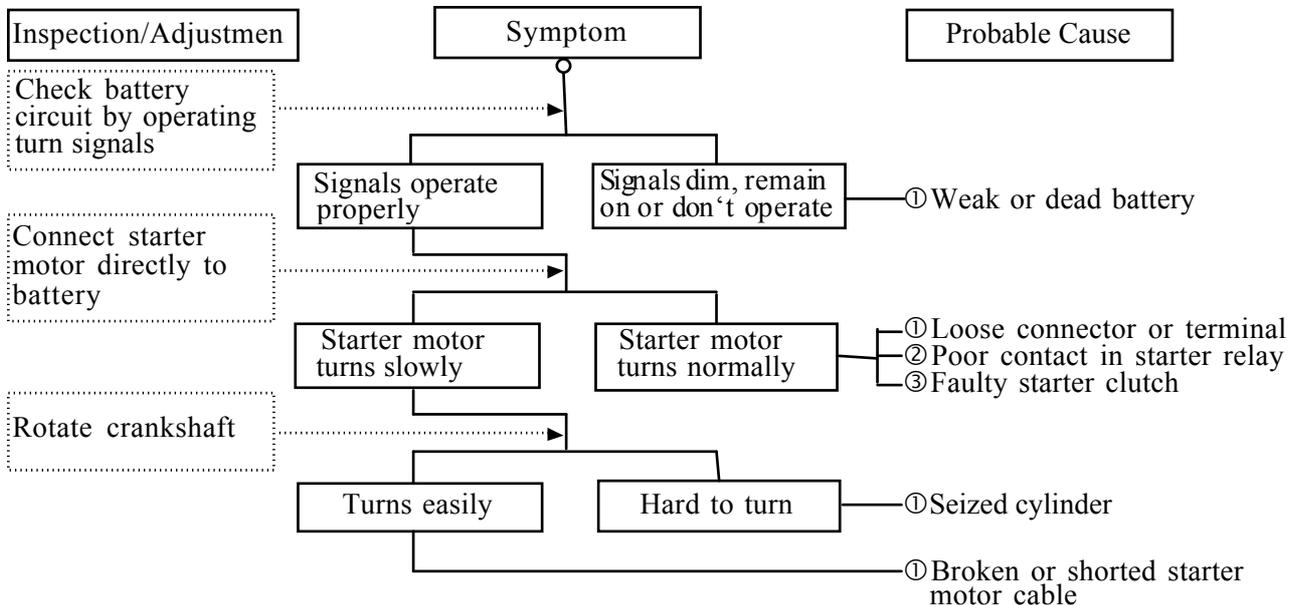
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STARTER MOTOR

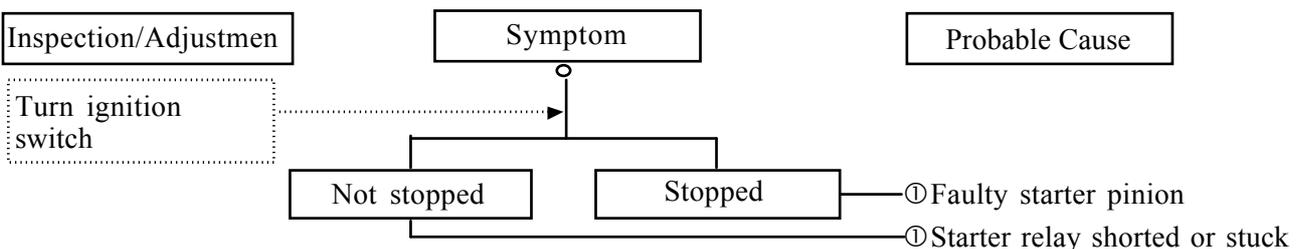
1. Starter motor won't turn



2. Starter motor turns slowly or idles



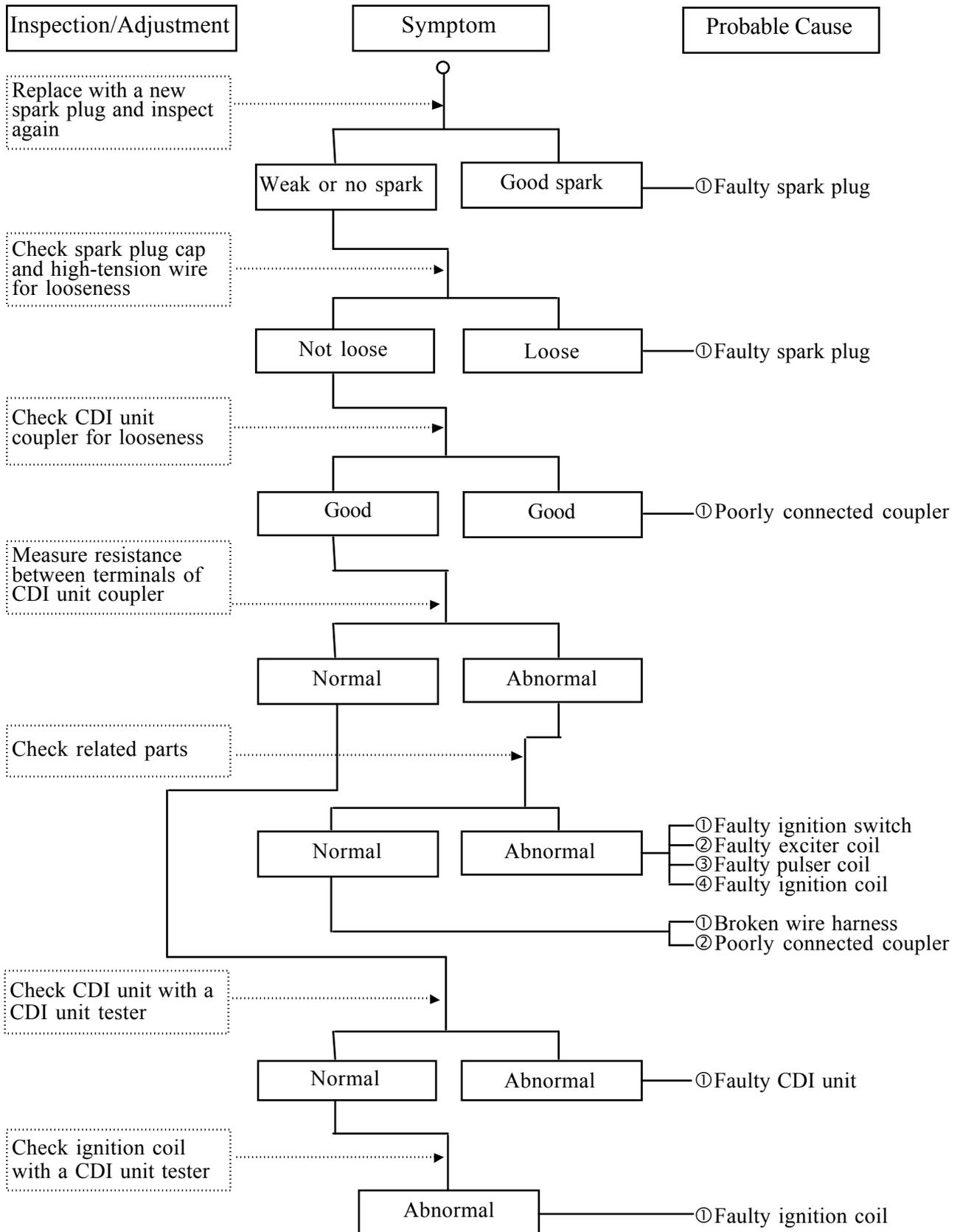
3. Starter motor does not stop turning



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closed

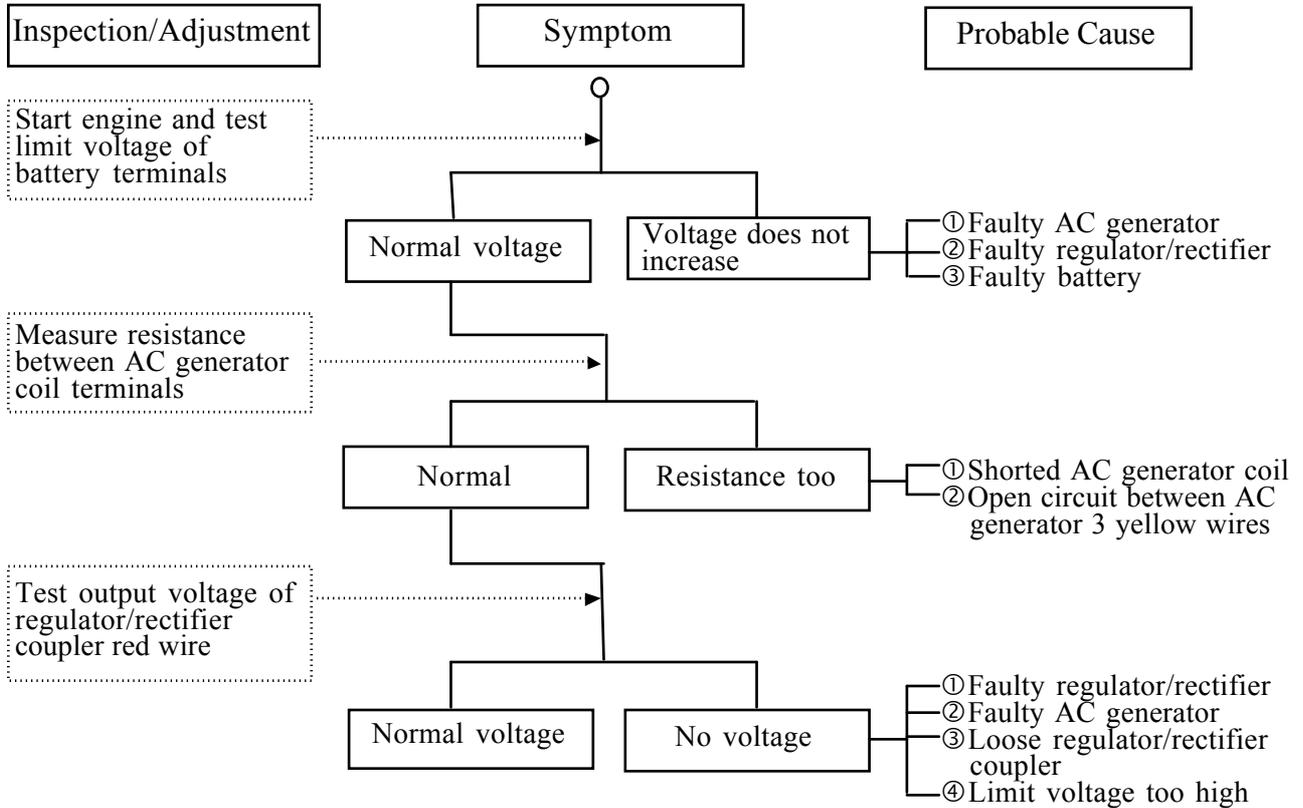
NO SPARK AT SPARK PLUG



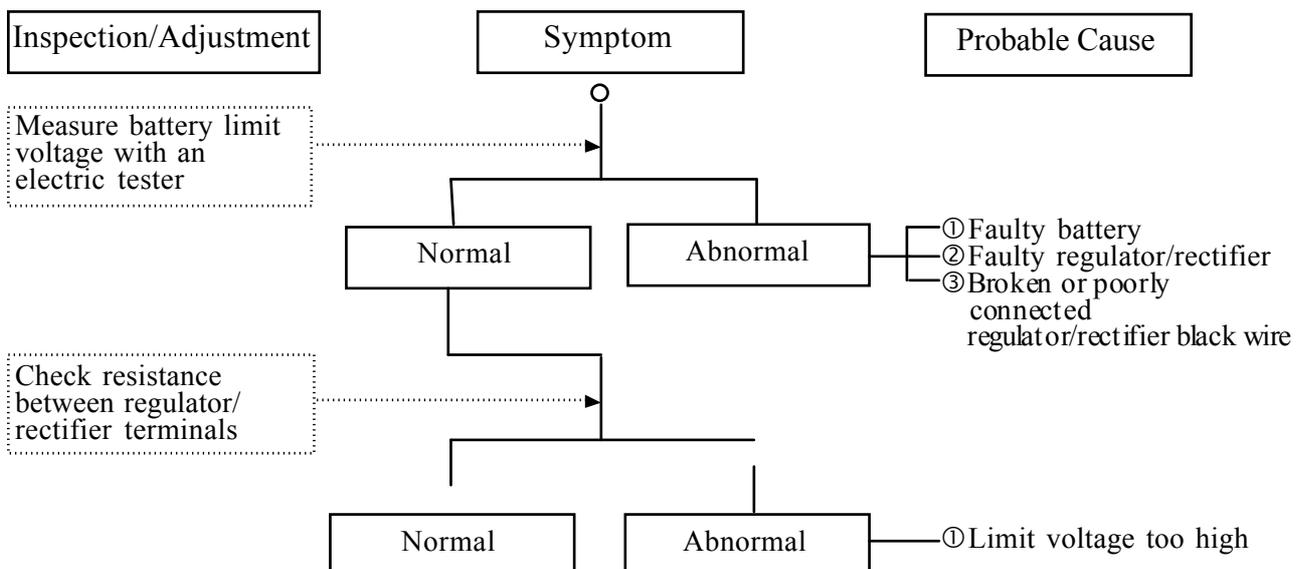
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POOR CHARGING (BATTERY OVER DISCHARGING OR OVERCHARGING)

Undercharging



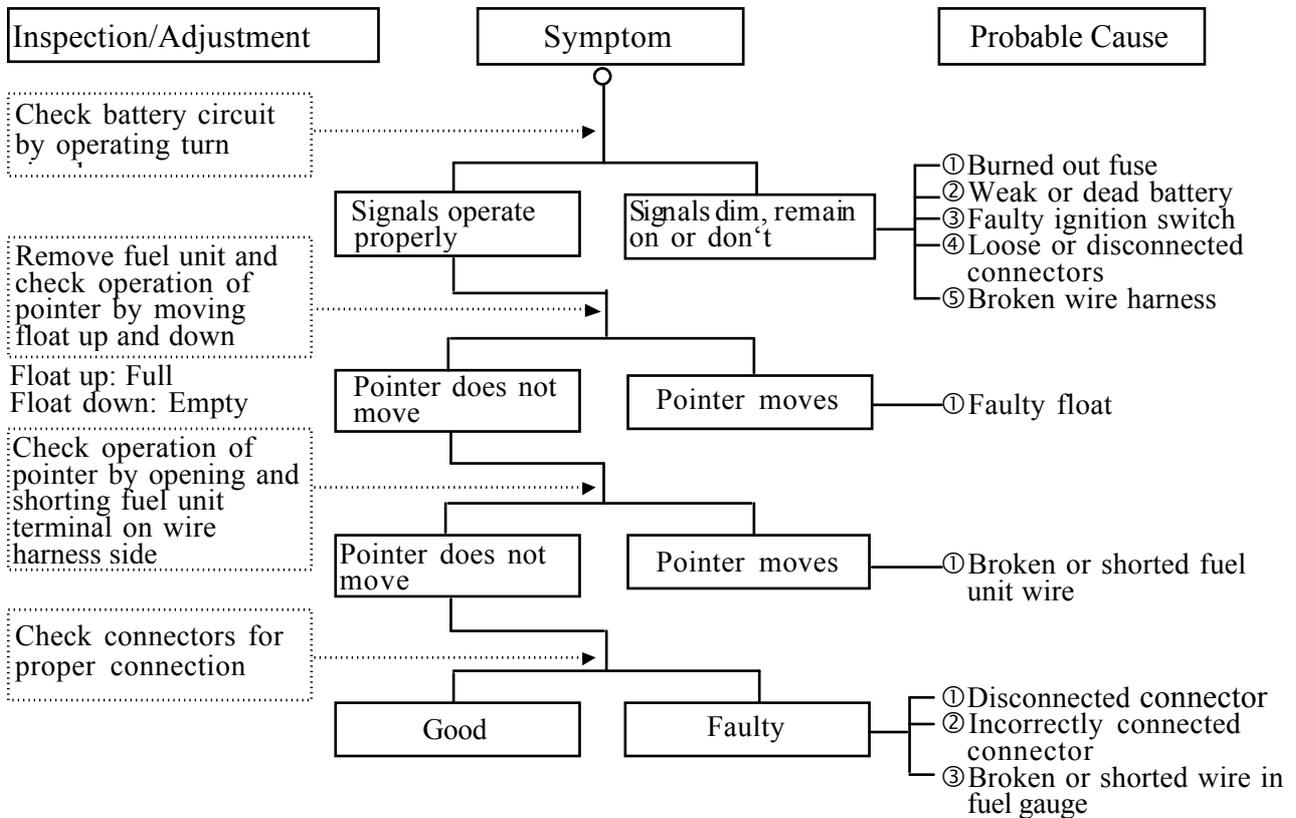
Overcharging



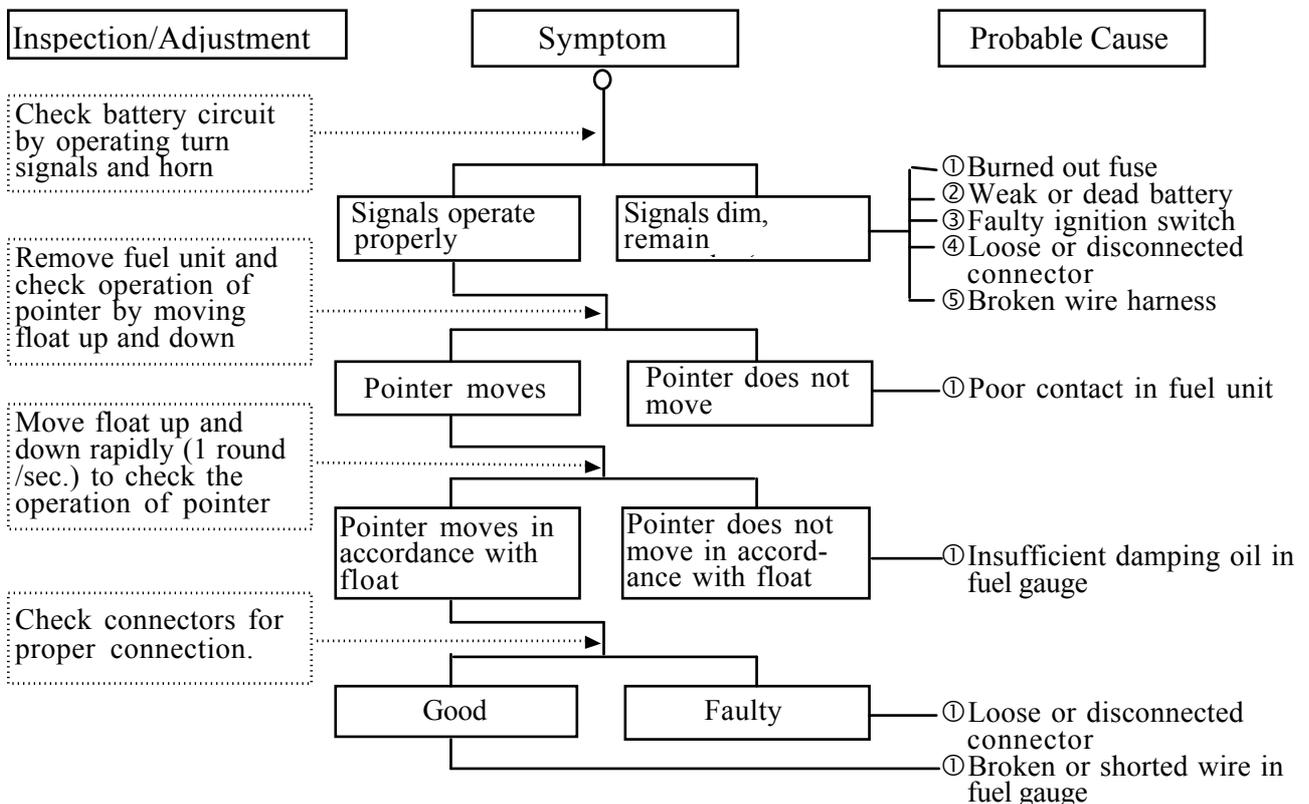
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FUEL GAUGE

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



2. Pointer fluctuates or swings (Ignition switch ON)



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STEERING HANDLEBAR DOES NOT TRACK STRAIGHT

Symptom	Probable Cause
(Front and rear tire pressures are normal)	
Steering is heavy	<ul style="list-style-type: none"> ① Steering stem nut too tight ② Broken steering steel balls
Front or rear wheel is wobbling	<ul style="list-style-type: none"> ① Excessive wheel bearing play ② Bent rim ③ Loose axle nut
Steering handlebar pulls to one side	<ul style="list-style-type: none"> ① Misaligned front and rear wheels ② Bent front fork

POOR SUSPENSION PERFORMANCE

Symptom	Probable Cause
(Front and rear tire pressures are normal)	
Suspension is too soft	<ul style="list-style-type: none"> ① Weak shock spring ② Excessive load ③ Shock damper oil leaking
Suspension is too hard	① Bent fork tube or shock rod
Suspension is noisy	<ul style="list-style-type: none"> ① Fork tube and slider binding ② Fork spring and slider binding ③ Damaged shock stopper rubber ④ Loose steering stem nut

POOR BRAKE PERFORMANCE

Symptom	Probable Cause
Soft brake lever	<ul style="list-style-type: none"> ① Worn brake linings ② Foreign matter on brake linings ③ Rough brake drum contacting area
Hard brake lever	<ul style="list-style-type: none"> ① Worn brake linings ② Foreign matter on brake linings ③ Rough brake drum contacting area
Hard to brake	<ul style="list-style-type: none"> ① Worn brake linings ② Worn brake cam contacting area on
Poor brake	<ul style="list-style-type: none"> ① Worn brake linings ② Foreign matter on brake linings
Brake squeaks	<ul style="list-style-type: none"> ① Sluggish or elongated brake cables ② Brake shoes improperly contact ③ Water and mud in brake system ④ Oil or grease on brake linings