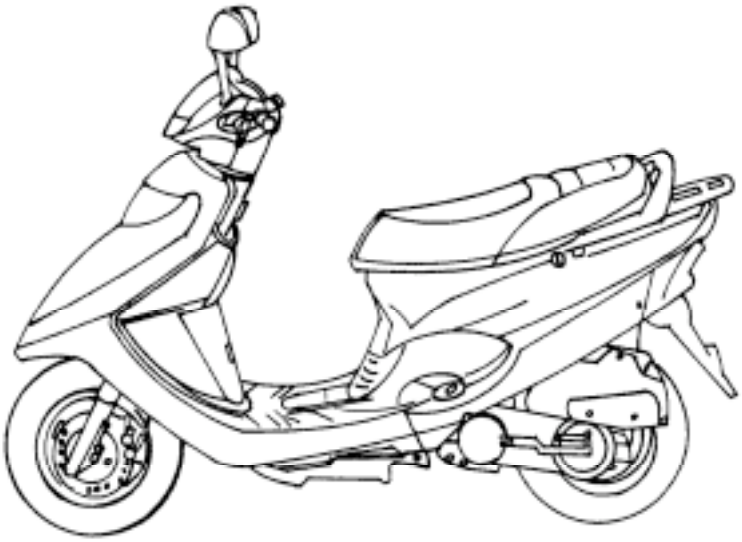
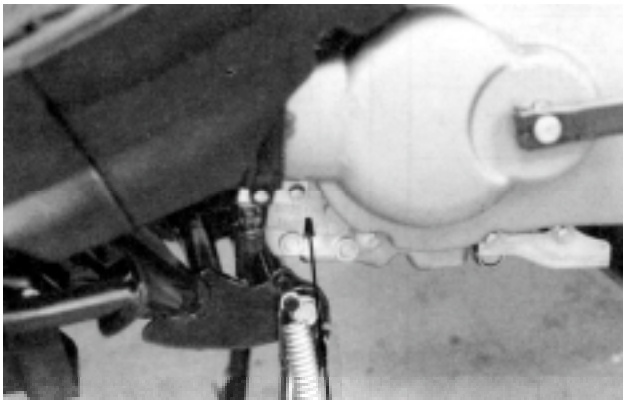
1. GENERAL INFORMATION

ENGINE SERIAL NUMBER





Location of Engine Serial Number

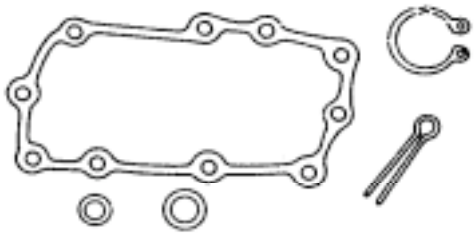
SPECIFICATIONS

Name & Model No.			SD25AA
Motorcycle Name & Type			
Overall length (mm)			1820
Overall width (mm)			685
Overall height (mm)			1095
Wheel base (mm)			1215
Engine type			O.H.C.
Displacement (cc)			124
Fuel Used			92# nonleaded gasoline
Net weight (kg)		Front wheel	38.5
		Rear wheel	63.5
		Total	102.0
Gross weight(kg)		Front wheel	67.5
		Rear wheel	158.0
		Total	225.5
Tires		Front wheel	100-90-10
		Rear wheel	100-90-10
Ground clearance (mm)			123
Perform-ance	Braking distance (m)		13 (Initial speed 20km/h 1 rider)
	Min. turning radius (m)		1.866
Engine	Starting system		Starting motor & kick starter
	Type		Gasoline, 4-stroke
	Cylinder arrangement		Single cylinder
	Combustion chamber type		Semi-sphere
	Valve arrangement		O.H.C., chain drive
	Bore x stroke (mm)		52.4 x 57.8
	Compression ratio		9.2:1
	Compression pressure (kg/cm≤-rpm)		12.8□570
	Max. output (ps/rpm)		9.34/7500
	Max. torque (kg m/rpm)		1.01/5500
	Port timing	Intake (1mm) Open	0° BTDC
		Intake (1mm) Close	25° ABDC
		Exhaust (1mm) Open	33° BBDC
		Exhaust (1mm) Close	0° TDC
	Valve clearance (cold) (mm)	Intake	0.12
		Exhaust	0.12
	Idle speed (rpm)		1700rpm
	Lubrication System	Lubrication type	Forced pressure & wet sump
		Oil pump type	Inner/outer rotor type
		Oil filter type	Full-flow filtration
		Oil capacity	0.9 liter
		Cooling Type	Forced air cooling

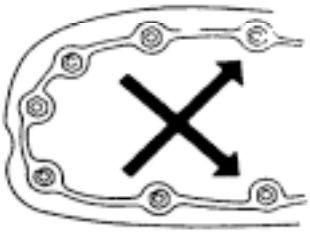
Fuel System	Air cleaner type & No			Paper element, wet
	Fuel capacity			7.8 liters
	Carburetor	Type		VE45
		Piston dia. (mm)		24
		Venturi dia.(mm)		22.1 equivalent
		Throttle type		Butterfly type
Electrical	Ignition System	Type		CDI
		Ignition timing		13±3°BTDC/1700rp
		Contact breaker		Non-contact point type
		Spark plug		NGK ND C6HSA U20FS-U C7HSA U22FS-U C8HSA U24FS-U
		Spark plug gap		0.6_ 0.7mm
	Battery	Capacity		12V9AH
Power Drive System	Clutch	Type		Dry multi-disc clutch
	Transmission Gear	Type		Non-stage transmission
		Operation		Automatic centrifugal type
	Reduction Gear	Type		Two-stage reduction
		Reduction ratio	1st	2.8
			2nd	3.076
Moving Device	Front Axle	Caster angle		27°
		Trail length		80mm
	Tire pressure (kg/cm≤)		Front	1.75
			Rear	2.00 (2.25)
	Turning angle		Left	45°
			Right	45°
Brake system type			Front	Disk brake
			Rear	Drum brake
Damping Device	Suspension type		Front	Telescope
			Rear	Swing arm
	Shock absorber type		Front	Telescope
			Rear	Swing arm
Frame type				Steel pipe

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.

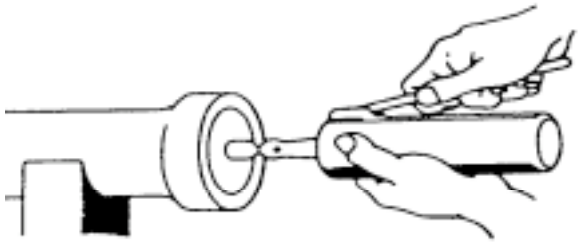


■ Use genuine parts and lubricants.

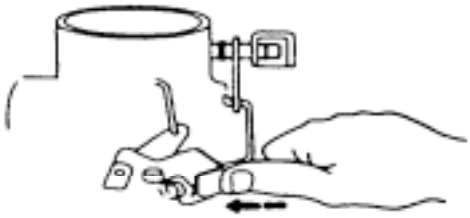
■ When servicing the motorcycle, be sure to use special tools for removal and installation.

■ 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.

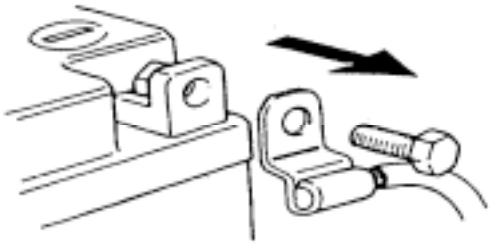


■ After reassembly, check all parts for proper tightening and operation.

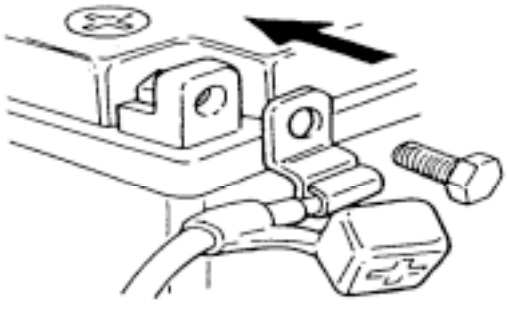


■ When two persons work together, pay attention to the mutual working safety.

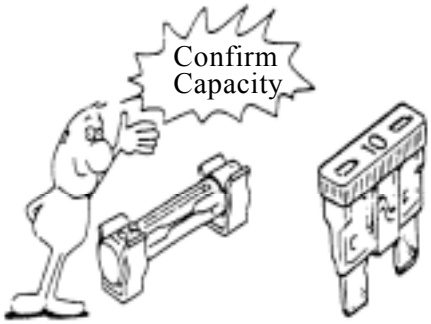
■ Disconnect the battery negative (-) terminal before operation.
■ When using a spanner or other tools, make sure not to damage the motorcycle surface.



■ 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.

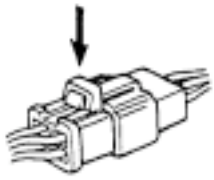


■ If the fuse is burned out, find the cause and repair it. Replace it with a new one according to the specified capacity.



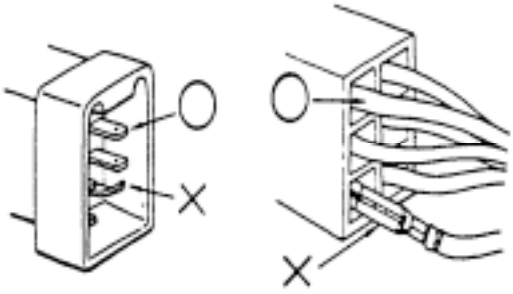
■ After operation, terminal caps shall be installed securely.

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

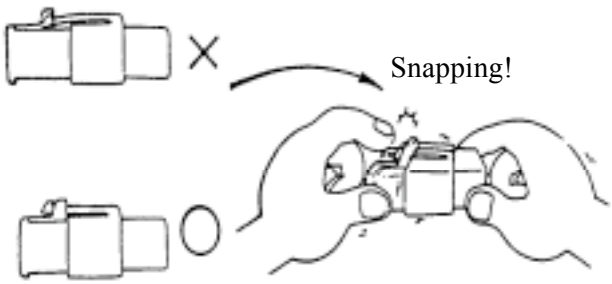


■ Hold the connector body when connecting or disconnecting it.
■ Do not pull the connector wire.

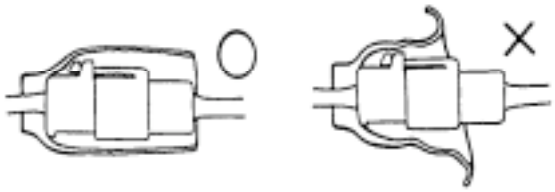
■ Check if any connector terminal is bending, protruding or loose.



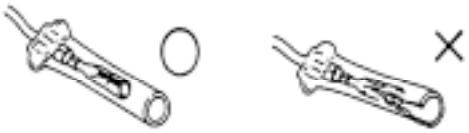
- The connector shall be inserted completely.
- If the double connector has a lock, lock it at the correct position.
- Check if there is any loose wire.



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

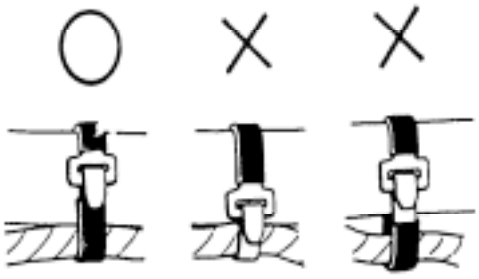


- Check the double connector cover for proper coverage and installation.

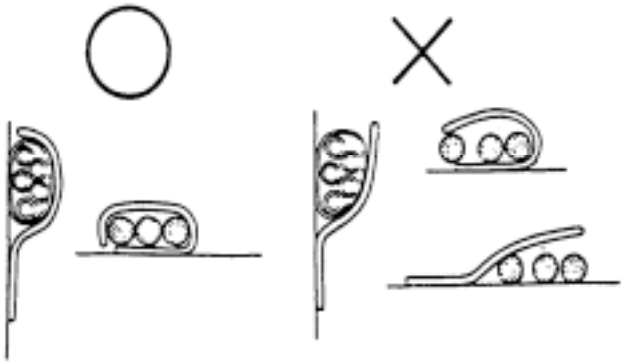


- Insert the terminal completely.
- Check the terminal cover for proper coverage.
- Do not make the terminal cover opening face up.

- 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.



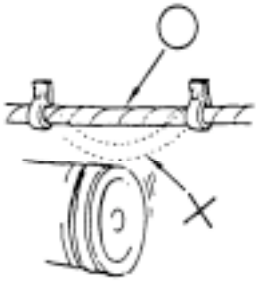
■ After clamping, check each wire to make sure it is secure.



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

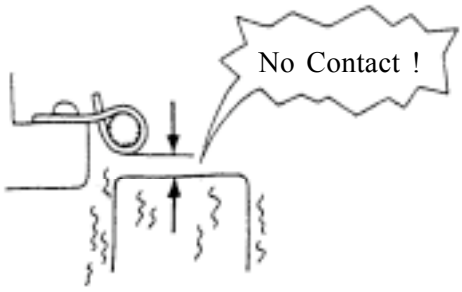
■ After clamping, check each harness to make sure that it is not interfering with any moving or sliding parts.

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

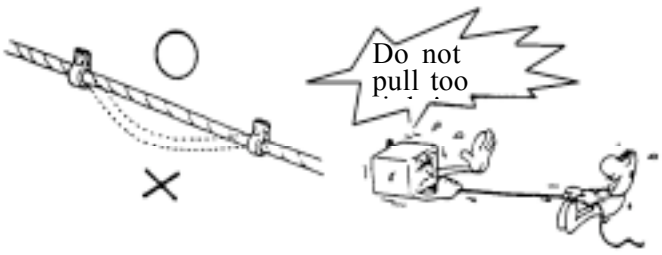


■ Route wire harnesses to avoid sharp edges or corners. Avoid the projected ends of bolts and screws.

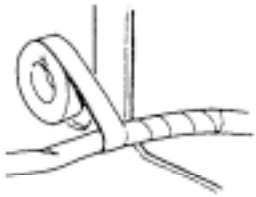
■ Route wire harnesses passing through the side of bolts and screws. Avoid the projected ends of bolts and screws.



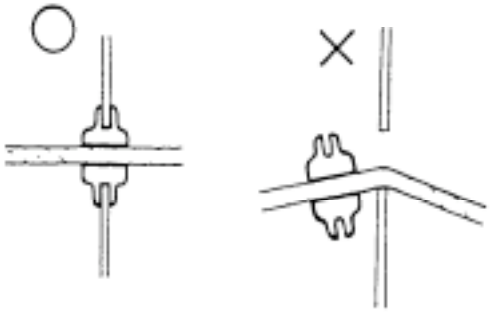
■ Route harnesses so they are neither pulled tight nor have excessive slack.



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



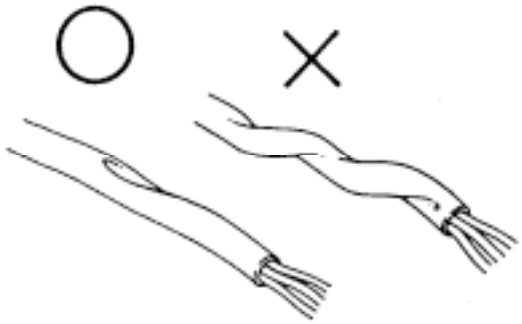
■ When rubber protecting cover is used to protect the wire harnesses, it shall be installed securely.



■ 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.

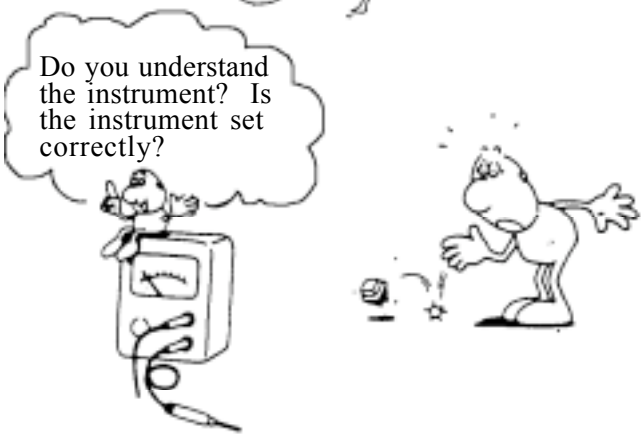
■ When installing other parts, do not press or squeeze the wires.

■ 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.

■ Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

■ 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

(⇨12-3) : Refer to page 12-3.

TORQUE VALUES

STANDARD TORQUE VALUES

Item	Torque (kg-m)	Item	Torque (kg-m)
5mm bolt, nut	0.5	5mm screw	0.4
6mm bolt, nut	1.0	6mm screw, SH bolt	0.9
8mm bolt, nut	2.2	6mm flange bolt, nut	1.2
10mm bolt, nut	3.5	8mm flange bolt, nut	2.7
12mm bolt, nut	5.5	10mm flange bolt, nut	4.0

Torque specifications listed below are for important fasteners.

ENGINE

Item	Q'ty	Thread dia.(mm)	Torque (kg-m)	Remarks
Cylinder head bolt A	2	8	0.9	Double end bolt
Cylinder head bolt B	4	8	0.9	
Oil filter screen cap	1	30	1.5	
Exhaust muffler joint lock nut	2	6	1.2	Double end bolt
Cylinder head nut	4	8	2.0	Apply oil to
Valve adjusting lock nut	2	5	0.9	threads
Cam chain tensioner slipper bolt	1	6	1.0	
Oil bolt	1	8	1.3	
Clutch outer nut	1	12	5.5	
Clutch drive plate nut	1	12	5.5	
Drive face seal cover bolt	3	4	0.3	
Starter clutch cap bolt	3	6	1.2	
Drive face nut	1	12	5.5	
Spark plug	1	10	1.2	
Starter clutch lock nut	1	22	9.5	Left hand threads
Cam chain tensioner screw	1	6	0.4	

FRAME

Item	Q'ty	Thread dia.(mm)	Torque (kg-m)	Remarks
Steering stem lock nut	1	10	12.0	U-nut
Front axle nut	1	12	6.0	U-nut
Rear axle nut	1	14	11.0	U-nut
Rear shock absorber upper mount bolt	1	10	4.0	
Rear shock absorber lower mount bolt	1	8	2.5	
Speedometer cable set screw	1	5	0.45	
Front shock absorber tube bolt	1	5	0.45	
Front shock absorber upper mount bolt	2	8	0.1	
Front shock absorber lower mount bolt	2	8	1.8	
Front shock absorber hex bolt	1	8	3.0	
Rear shock absorber lower joint lock nut	1	8	3.5	Apply lockingagent

SPECIAL TOOLS

Tool Name	Tool No.	Remarks	Ref. Page
Valve adjuster			
Valve guide driver			
Valve guide reamer			
Valve spring compressor			
Lock nut wrench, 39mm			
Bearing driver			
Bearing driver			
Bearing remover, 12mm			
Remover set, 12mm			
Remover head, 12mm			
Remover shaft			
Remover weight			
Bearing remover set, 15mm			
Driver set, 15mm			
Driver shaft, 15mm			
Driver head, 15mm			
Driver weight			
Bearing driver			
Driver handle			
Driver weight			
Clutch spring compressor			
Outer extension			
Crankshaft assembly tool			
Crankshaft assembly collar			
Crankshaft assembly shaft			
Attachment			
Lock nut wrench			
Lock nut wrench			
Ball race remover extension			
Ball race remover			
Spring compressor			
Spring compressor attachment			
Spring compressor attachment			
Spring compressor attachment			
Lock nut wrench			
Driver outer extension			
Float level gauge			
Valve spring compressor			
Valve seat cutter, 24.5mm		45° IN/EX	
Valve seat cutter, 25mm		Plane cutter 32° IN	
Valve seat cutter, 22mm		Plane cutter 32° EX	
Valve seat cutter, 26mm		Plane cutter 60° IN/EX	
Cutter clip, 5mm			
Universal holder			
Outer driver, 32x35mm			
Outer driver, 37x40mm			
Outer driver, 42x47mm			
Pilot, 12mm			
Pilot, 15mm			
Pilot, 17mm			
Pilot, 20mm			
Driver handle A			
Bearing remover shaft			
Bearing remover head, 12mm			
Flywheel puller			

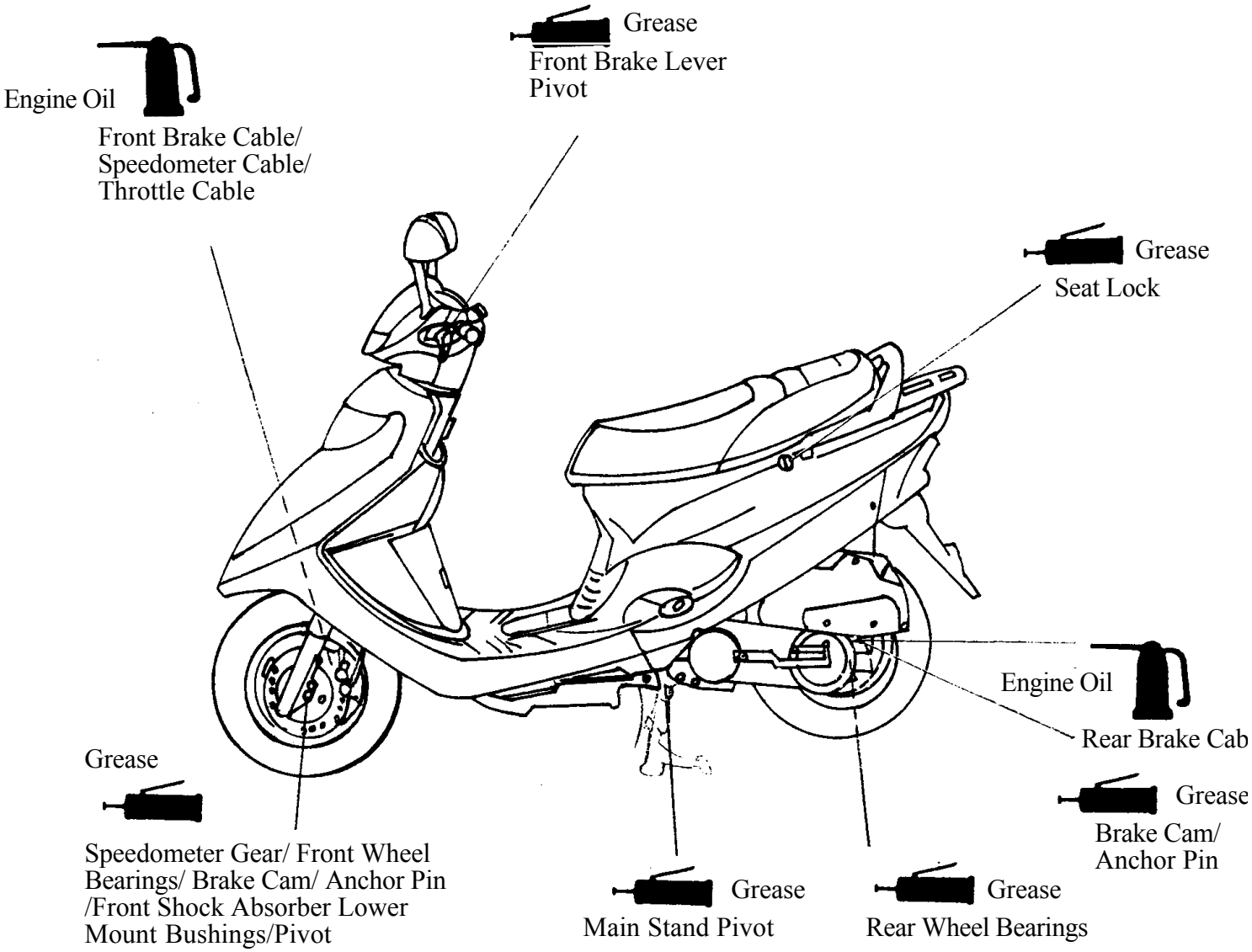
LUBRICATION POINTS

ENGINE

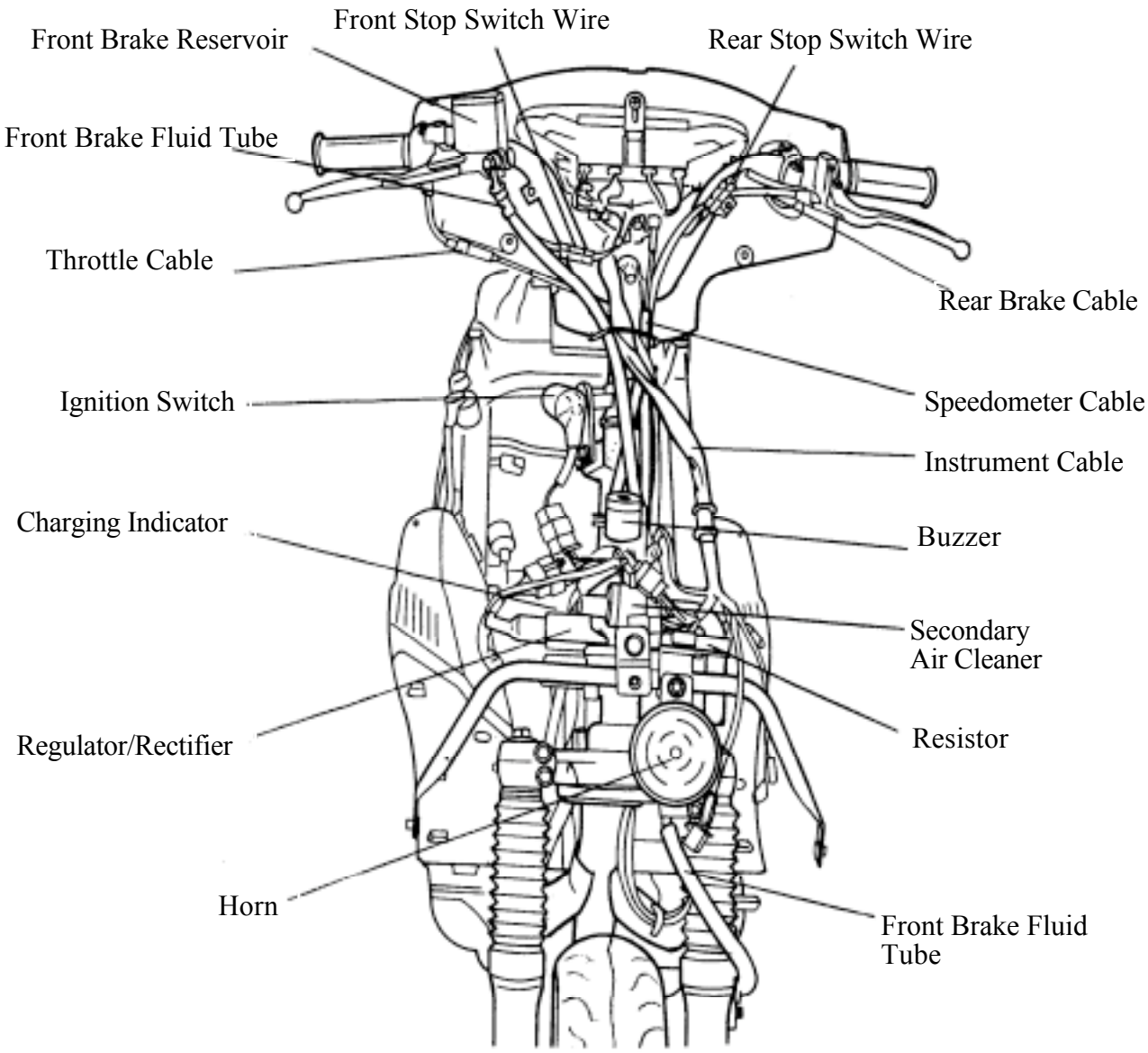
Lubrication Points	Lubricant
Valve guide/valve stem movable part Cam lobes Valve rocker arm friction surface Cam chain Cylinder lock bolt and nut Piston surroundings and piston ring grooves Piston pin surroundings Cylinder inside wall Connecting rod/piston pin hole Connecting rod big end Crankshaft right side oil seal 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	• Genuine KYMCO Engine Oil (SAE10W-30) • 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

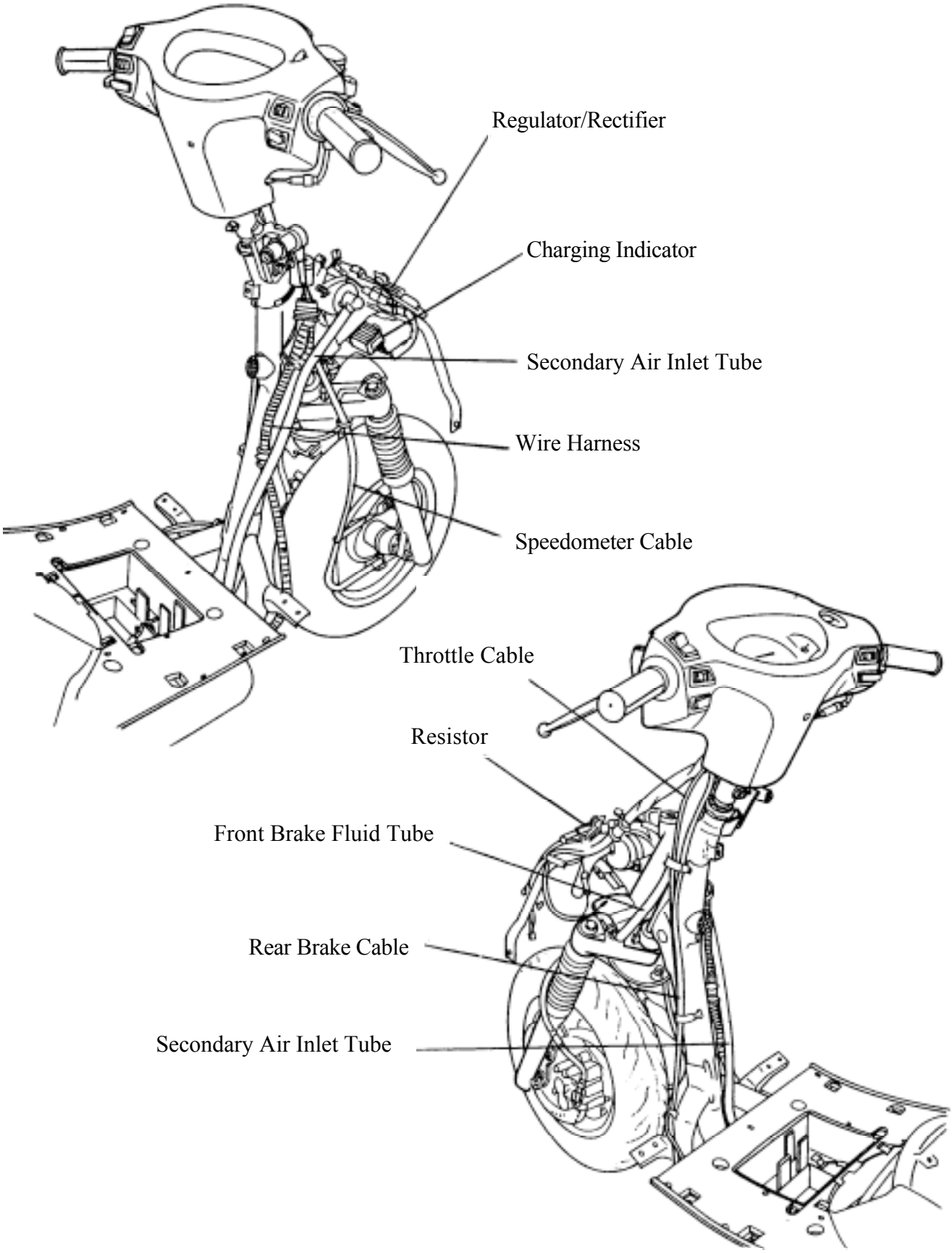
FRAME

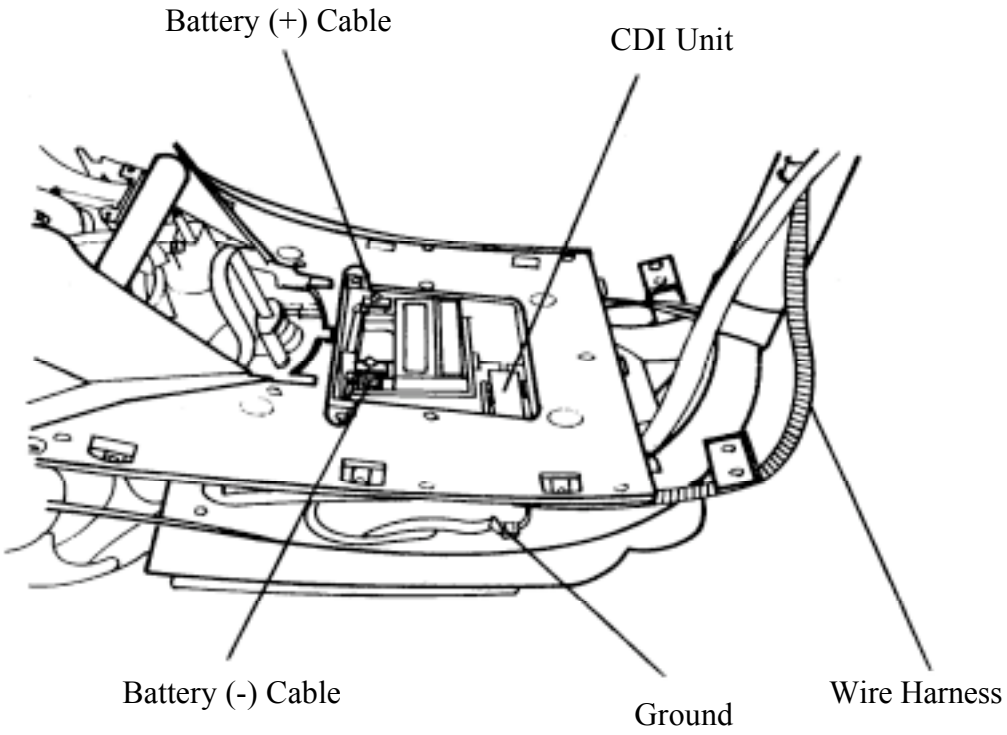
The following is the lubrication points for the frame.
Use general purpose grease for parts not listed.
Apply clean engine oil or grease to cables and movable parts not specified. This will avoid abnormal noise and rise the durability of the motorcycle.

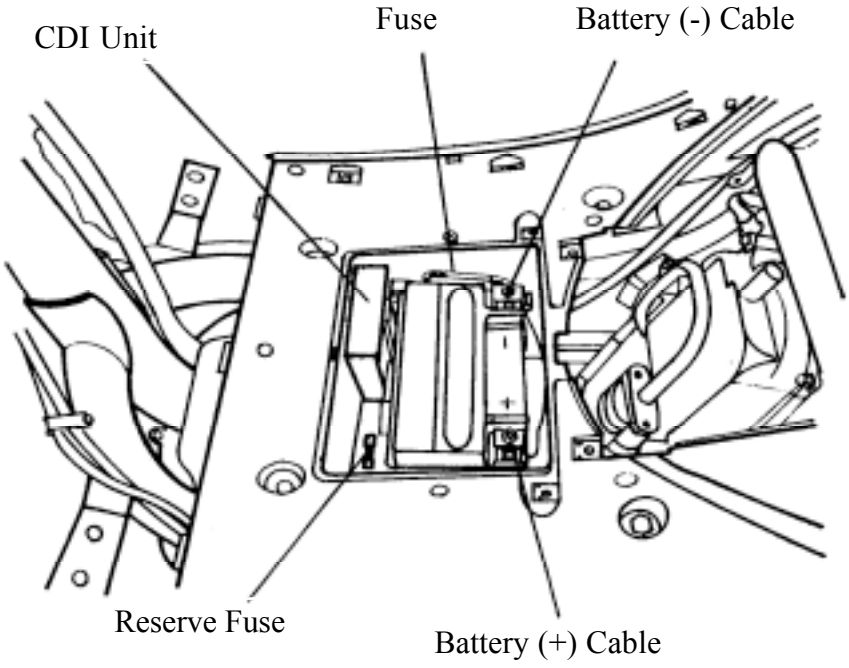


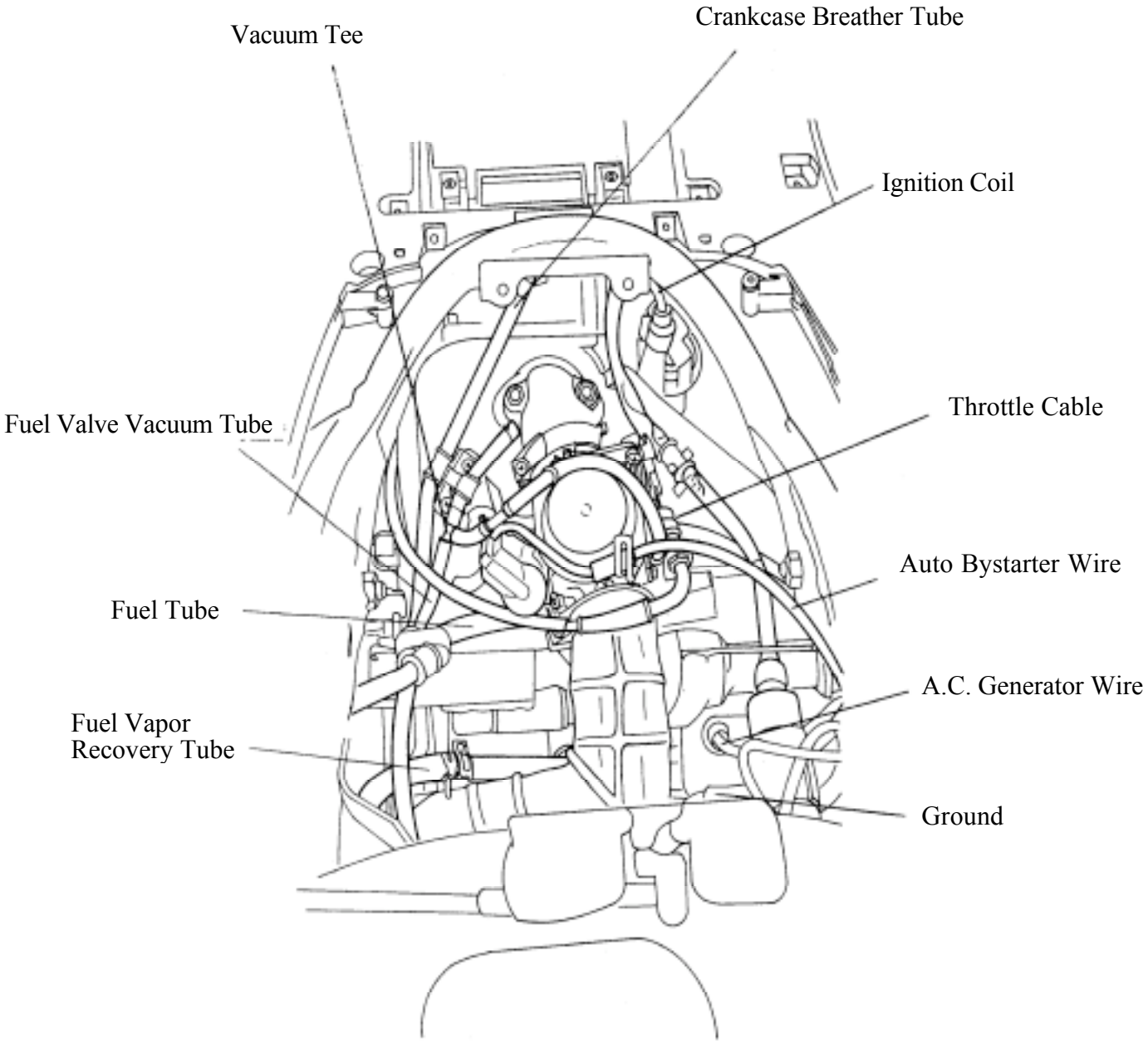
CABLE & HARNESS ROUTING

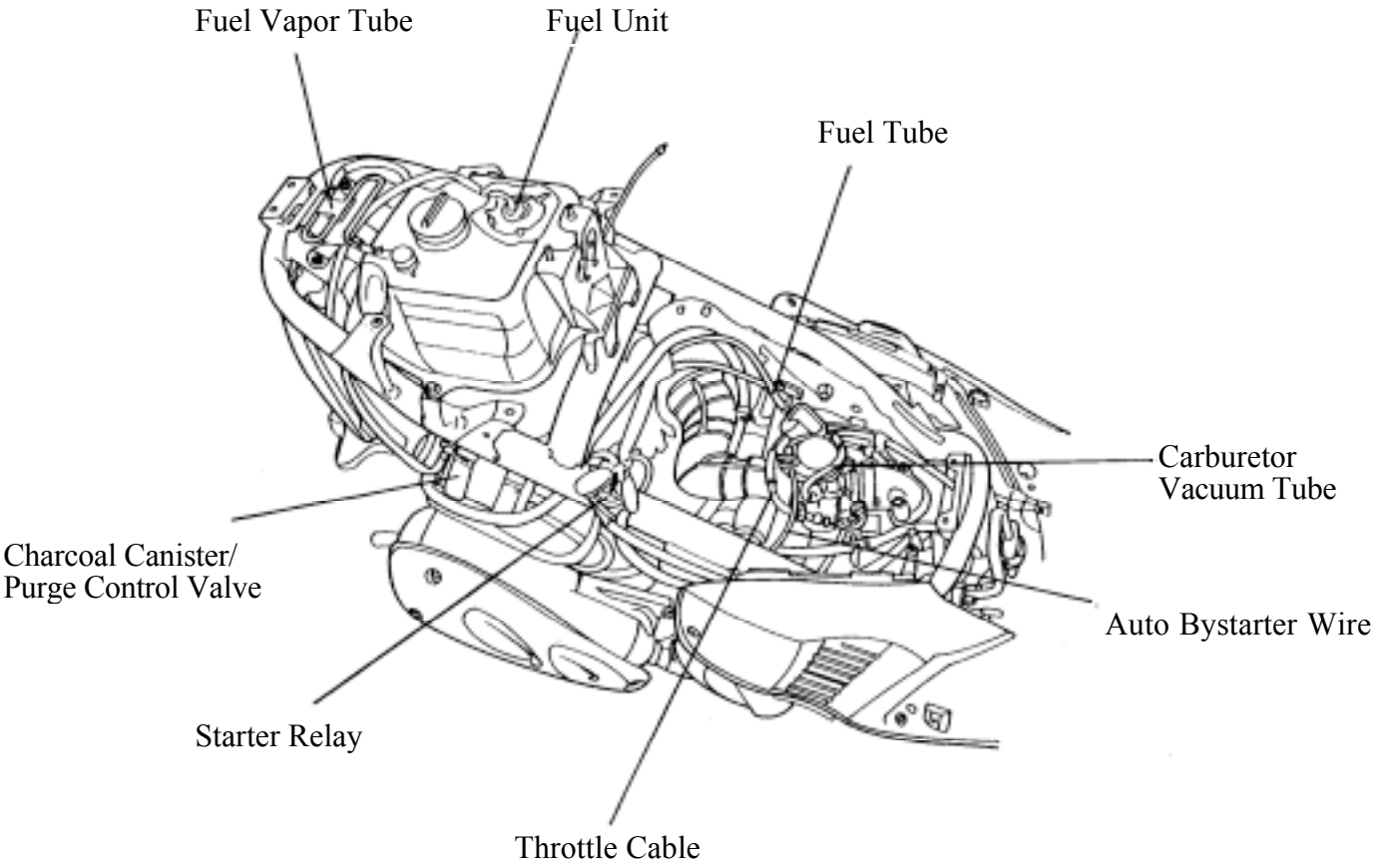


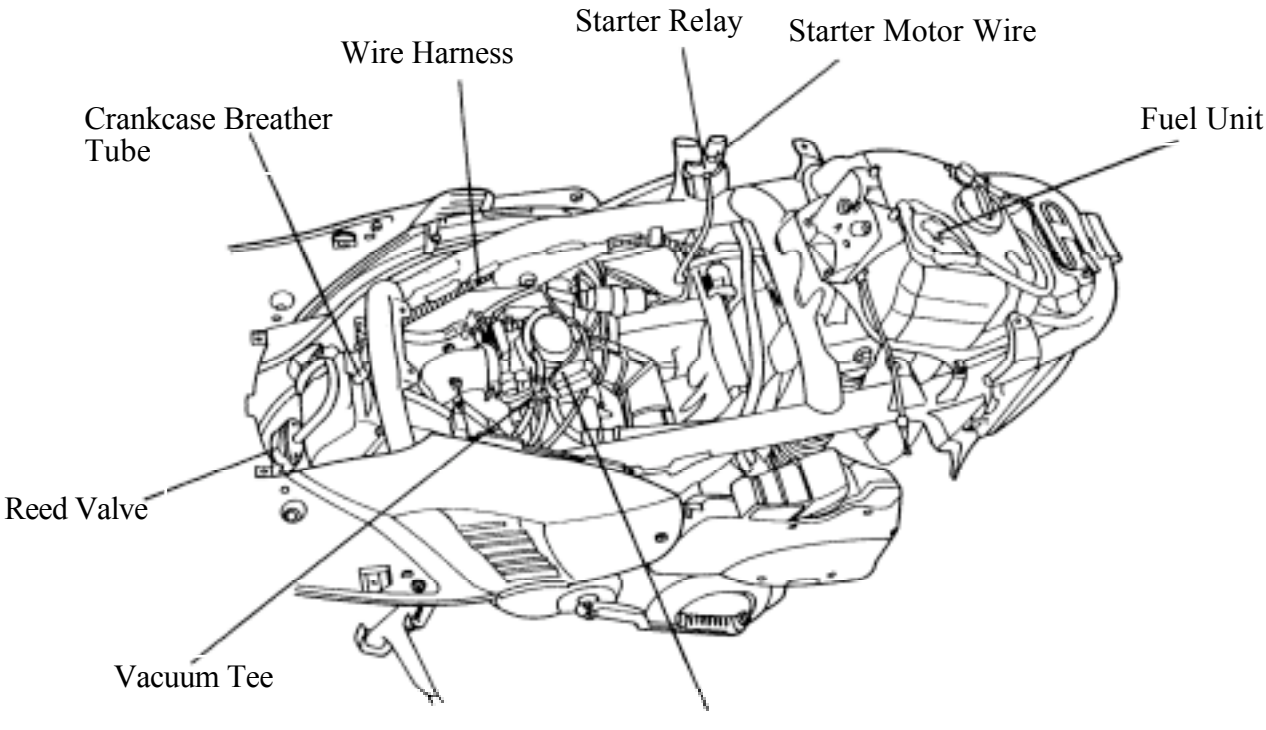

Regulator/Rectifier
Charging Indicator
Secondary Air Inlet Tube
Wire Harness
Speedometer Cable
Throttle Cable
Resistor
Front Brake Fluid Tube
Rear Brake Cable
Secondary Air Inlet Tube


Battery (+) Cable
CDI Unit
Battery (-) Cable
Ground
Wire Harness


CDI Unit
Fuse
Battery (-) Cable
Reserve Fuse
Battery (+) Cable

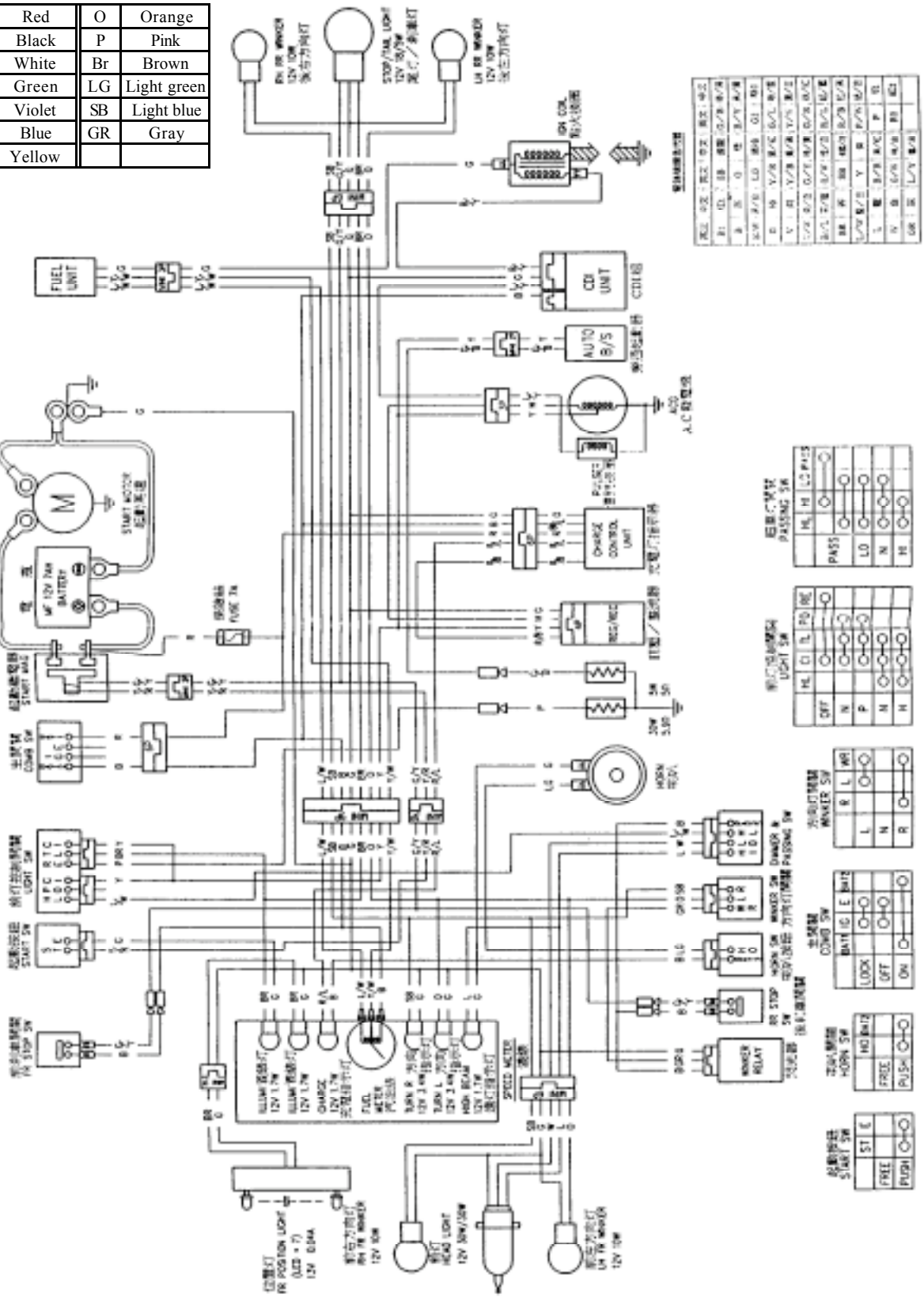

Vacuum Tee
Crankcase Breather Tube
Ignition Coil
Fuel Valve Vacuum Tube
Throttle Cable
Auto Bystarter Wire
Fuel Tube
A.C. Generator Wire
Fuel Vapor
Recovery Tube
Ground


Fuel Vapor Tube
Fuel Unit
Fuel Tube
Carburetor Vacuum Tube
Charcoal Canister/ Purge Control Valve
Auto Bystarter Wire
Starter Relay
Throttle Cable


Starter Relay
Starter Motor Wire
Wire Harness
Crankcase Breather Tube
Fuel Unit
Reed Valve
Vacuum Tee
Auto Bystarter

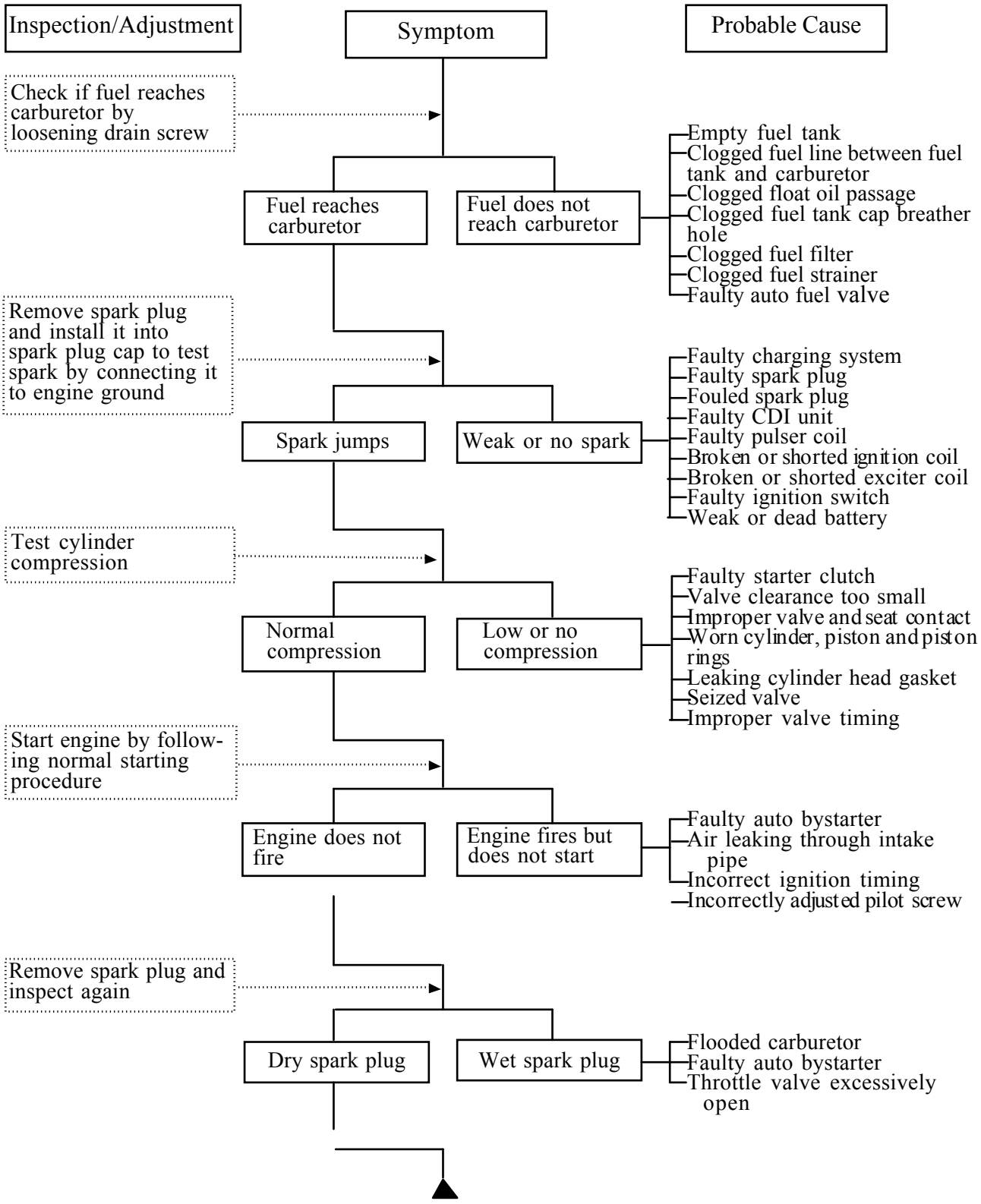
WIRING DIAGRAM

R	Red	O	Orange
B	Black	P	Pink
W	White	Br	Brown
G	Green	LG	Light green
V	Violet	SB	Light blue
L	Blue	GR	Gray
Y	Yellow		

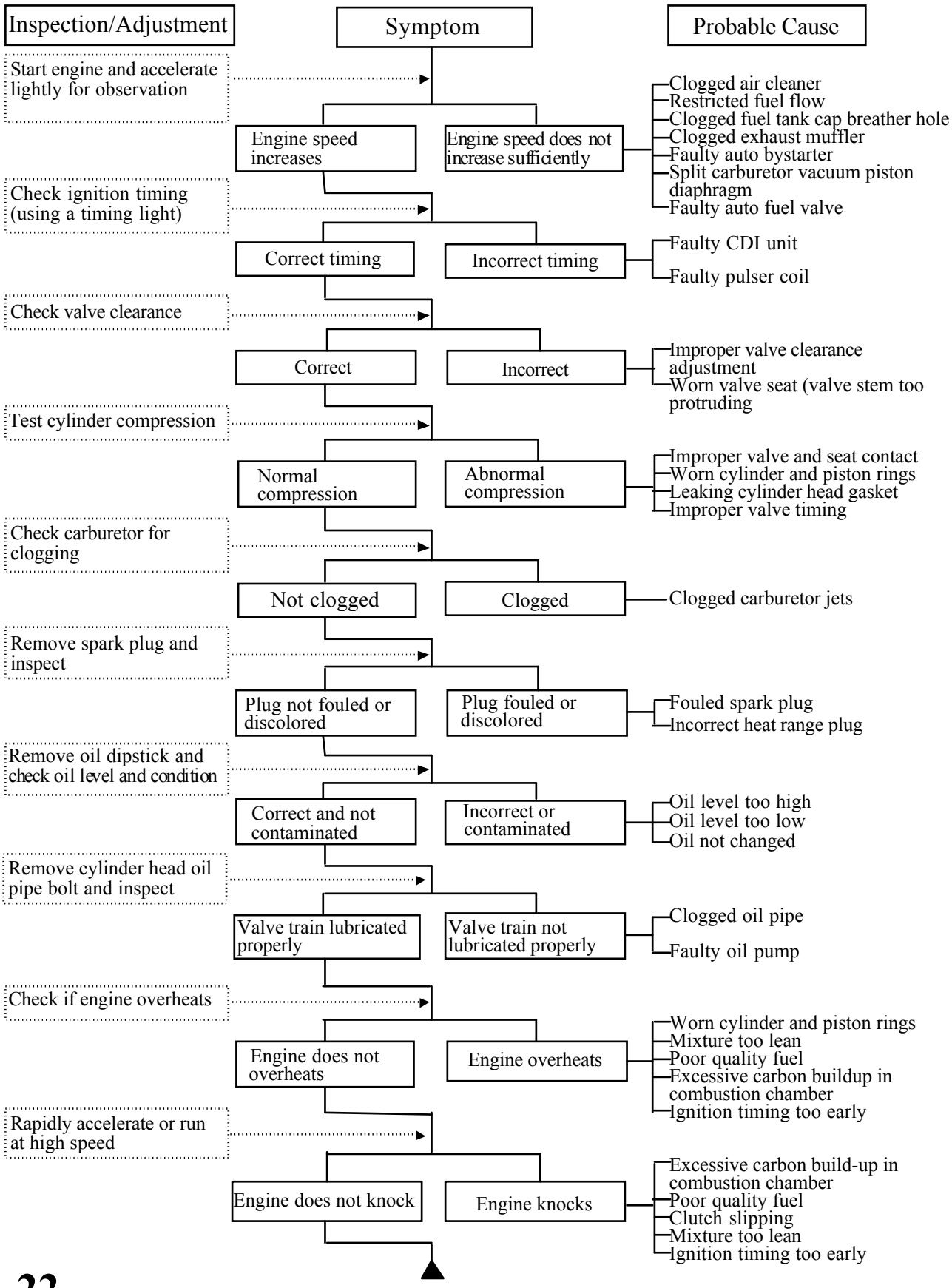


TROUBLESHOOTING

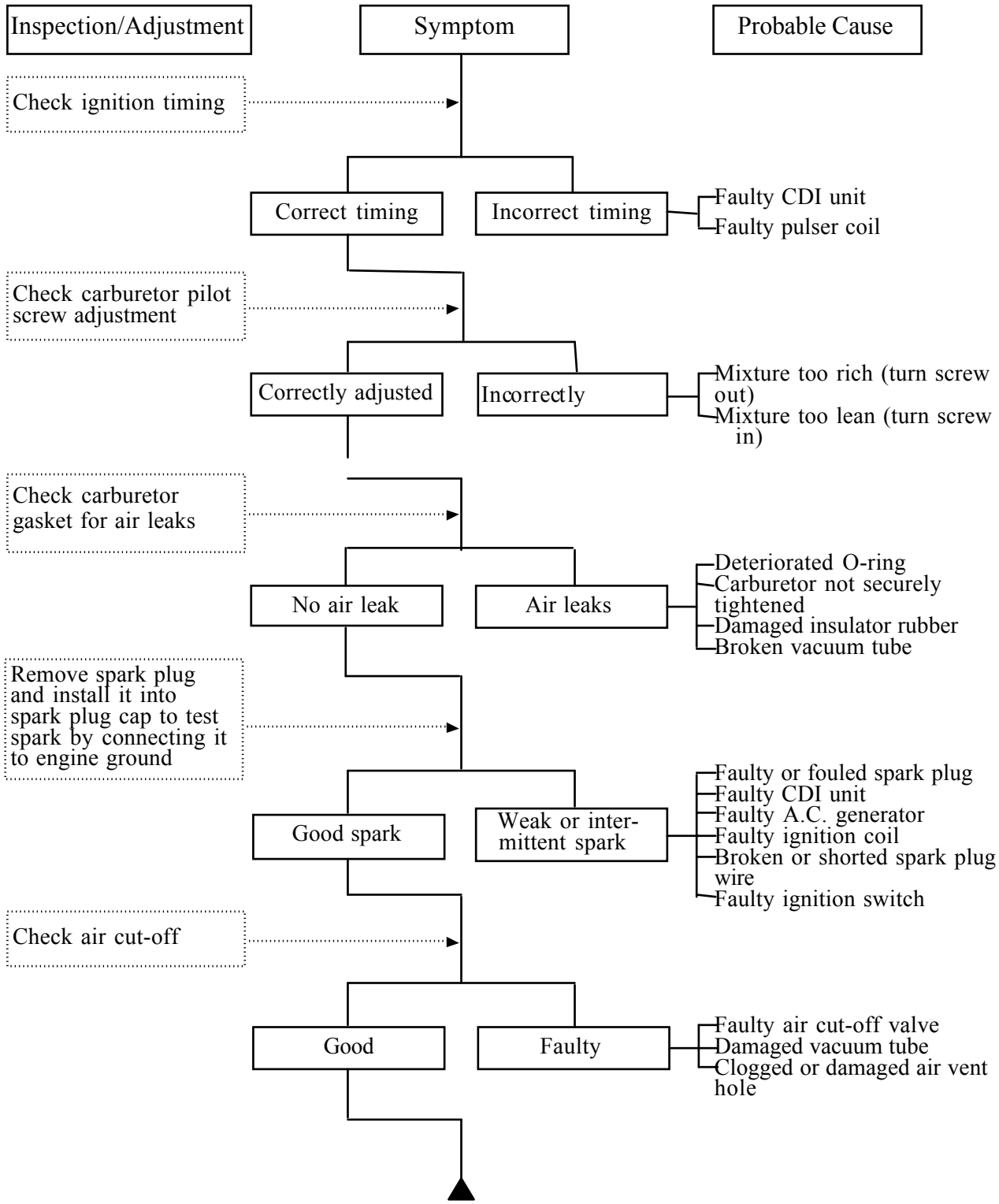
ENGINE WILL NOT START OR IS HARD TO START



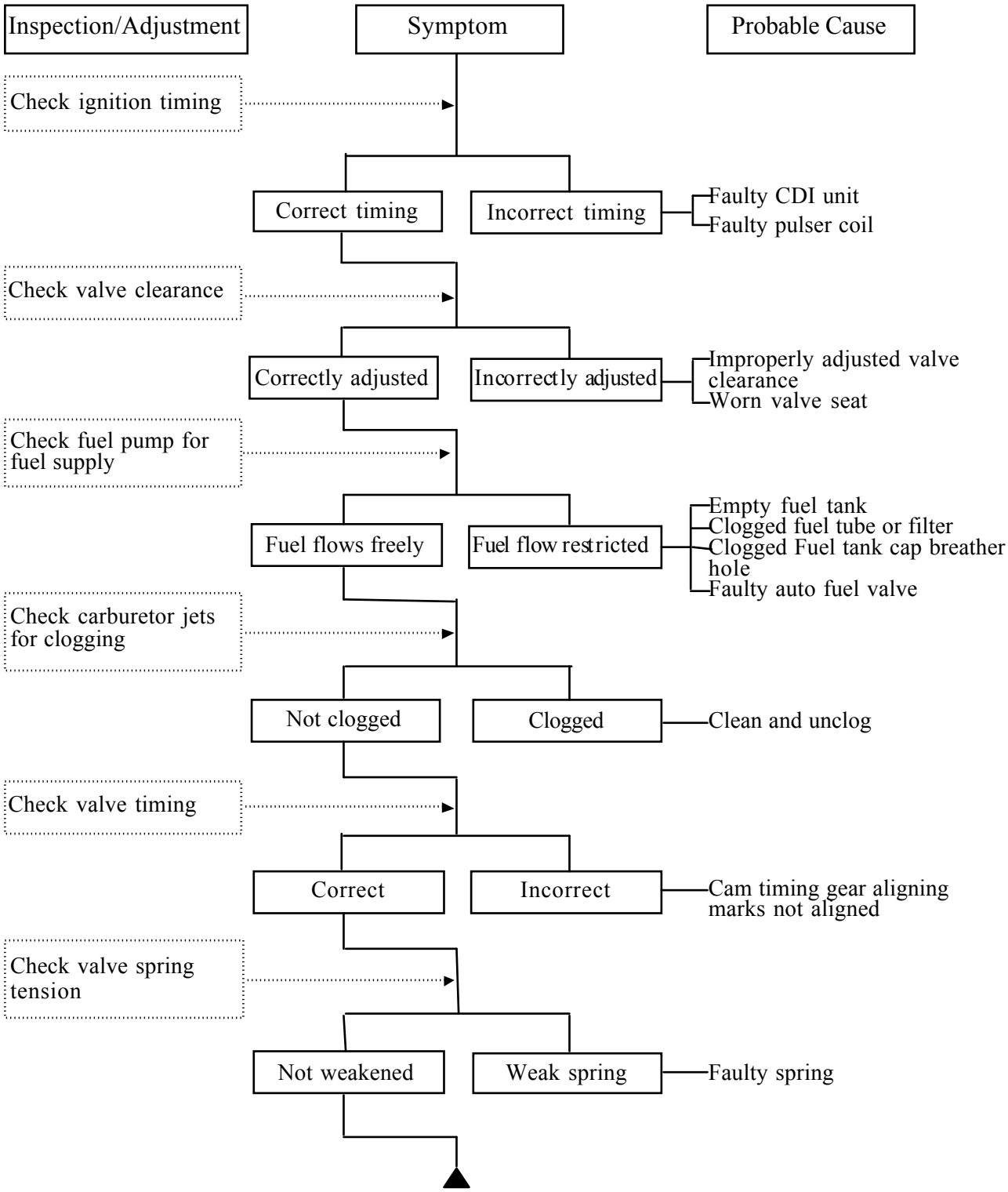
ENGINE LACKS POWER



POOR PERFORMANCE (ESPECIALLY AT IDLE AND LOW SPEEDS)

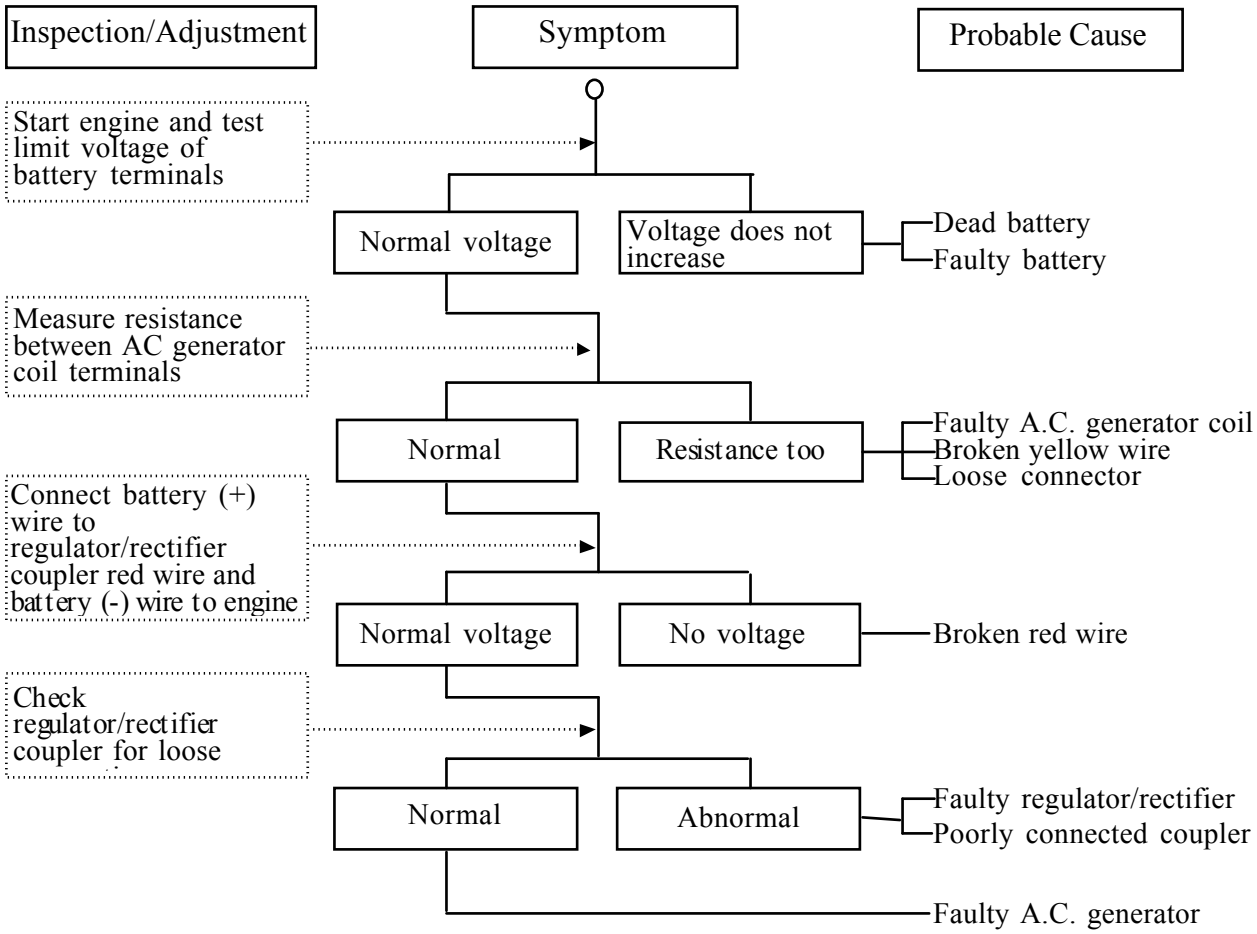


POOR PERFORMANCE (AT HIGH SPEED)

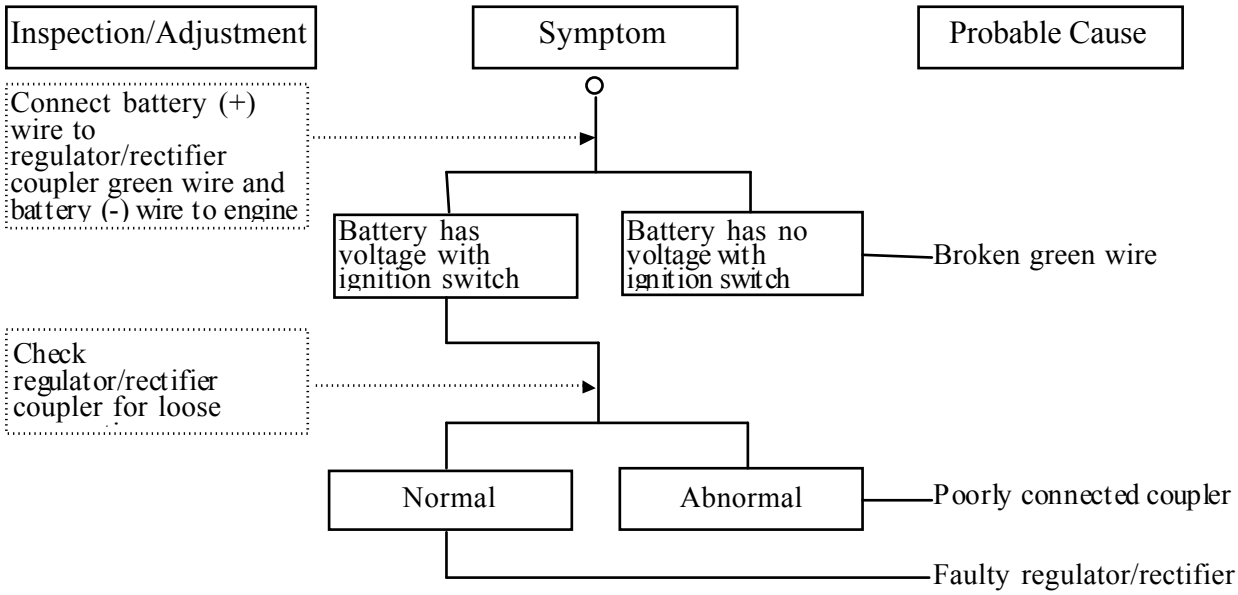


POOR CHARGING (BATTERY OVER DISCHARGING OR OVERCHARGING)

Undercharging



Overcharging



NO SPARK AT SPARK PLUG