

# 1. GENERAL INFORMATION

---

**1**

---

## GENERAL INFORMATION

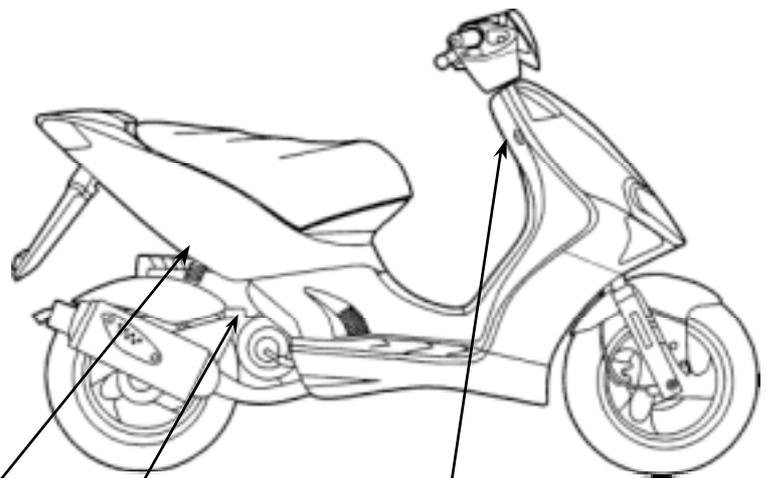
---

|                           |      |
|---------------------------|------|
| ENGINE SERIAL NUMBER----- | 1- 1 |
| SPECIFICATIONS-----       | 1- 2 |
| SERVICE PRECAUTIONS-----  | 1- 4 |
| TORQUE VALUES -----       | 1-14 |
| SPECIAL TOOLS-----        | 1-15 |
| LUBRICATION POINTS-----   | 1-16 |
| WIRING DIAGRAM -----      | 1-22 |
| TROUBLESHOOTING -----     | 1-24 |

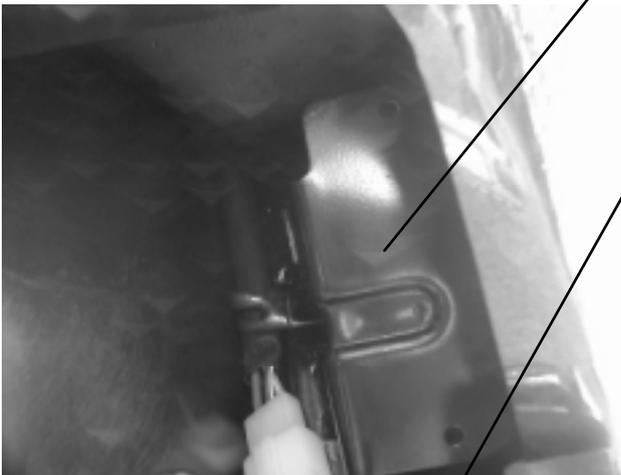
# 1. GENERAL INFORMATION

---

## ENGINE SERIAL NUMBER



Vehicle Identification Serial Number



Location of Engine Serial Number



Location of Frame Serial Number

# 1. GENERAL INFORMATION

## SPECIFICATIONS

|                     |  |                       |                               |                      |
|---------------------|--|-----------------------|-------------------------------|----------------------|
| Name & Model No.    |  | SH10DA                |                               |                      |
| Overall length      |  | 1850mm                |                               |                      |
| Overall width       |  | 700mm                 |                               |                      |
| Overall height      |  | 1190mm                |                               |                      |
| Wheel base          |  | 1295mm                |                               |                      |
| Engine type         |  | Water cooled 2-stroke |                               |                      |
| Displacement        |  | 49.4cc                |                               |                      |
| Fuel Used           |  | 92# unleaded gasoline |                               |                      |
| Net weight (kg)     | Front wheel                                    | 41                    |                               |                      |
|                     | Rear wheel                                     | 61                    |                               |                      |
|                     | Total  | 102                   |                               |                      |
| Gross weight(kg)    | Front wheel                                    | 95                    |                               |                      |
|                     | Rear wheel                                     | 138                   |                               |                      |
|                     | Total  | 233                   |                               |                      |
| Tires               | Front wheel                                    | 120/70-12             |                               |                      |
|                     | Rear wheel                                     | 130/70-12             |                               |                      |
| Ground clearance    |  | 160mm                 |                               |                      |
| Performance         | Braking distance (m)                           | 4.4m /30km/HV         |                               |                      |
|                     | Min. turning radius                            | 2150mm                |                               |                      |
| Engine              | Starting system                                |                       | Starting motor & kick starter |                      |
|                     | Type   |                       | Gasoline, 2-stroke            |                      |
|                     | Cylinder arrangement                           |                       | Single cylinder               |                      |
|                     | Combustion chamber type                        |                       | Semi-sphere                   |                      |
|                     | Bore x stroke (mm)                             |                       | 39 x 41.4                     |                      |
|                     | Compression ratio                              |                       | 7.2:1                         |                      |
|                     | Compression pressure (kg/cm <sup>2</sup> -rpm) |                       | 11.8                          |                      |
|                     | Max. output (ps/rpm)                           |                       | 3.6/6500                      |                      |
|                     | Max. torque (N-m/rpm)                          |                       | 3.92/6000                     |                      |
|                     | Port timing                                    | Intake (1mm)          | Open                          | Automatic controlled |
|                     |  |                       | Close                         | Automatic controlled |
|                     |  | Exhaust (1mm)         | Open                          |                      |
|                     | Close  |                       |                               |                      |
|                     | Valve clearance (cold)                         |                       | Intake                        |                      |
|                     |  |                       | Exhaust                       |                      |
|                     | Idle speed (rpm)                               |                       | 2000 ± 100rpm                 |                      |
|                     | Lubrication System                             | Lubrication type      |                               | Separate type        |
|                     |  | Oil pump type         |                               | Plunger type         |
|                     |  | Oil filter type       |                               | Full-flow filtration |
|                     |  | Oil capacity          |                               | 1.7 liters           |
| Exchanging capacity |  | 1.4 liters            |                               |                      |
| Cooling Type        |  | Water cooling         |                               |                      |

|                    |                                     |                   |                       |                            |
|--------------------|-------------------------------------|-------------------|-----------------------|----------------------------|
| Fuel System        | Air cleaner type & No               |                   | Sponge wet            |                            |
|                    | Gear oil capacity                   |                   | 0.12 liters           |                            |
|                    | Fuel capacity                       |                   | 6.8 liters            |                            |
|                    | Carburetor                          | Type              | <b>P B</b>            |                            |
| Piston dia.        |                                     | 13                |                       |                            |
| Venturi dia.       |                                     | 14 equivalent     |                       |                            |
| Electrical         | Ignition System                     | Type              | CDI                   |                            |
|                    |                                     | Ignition timing   | 13.5°±2°/2000rpm      |                            |
|                    | Spark plug                          | NGK BR8HSA        |                       |                            |
|                    |                                     | Spark plug gap    | 0.6_ 0.7mm            |                            |
|                    | Battery                             | Capacity          | 12V4AH                |                            |
| Power Drive System | Clutch                              | Type              | Dry multi-disc clutch |                            |
|                    |                                     | Transmission Gear | Type                  | Non-stage transmission     |
|                    | Reduction Gear                      |                   | Operation             | Automatic centrifugal type |
|                    |                                     | Reduction ratio   | 1st                   |                            |
| 2nd                |                                     |                   |                       |                            |
| Moving Device      | Front Axle                          | Caster angle      |                       |                            |
|                    |                                     | Connecting rod    |                       |                            |
|                    | Tire pressure (kg/cm <sup>2</sup> ) | Front             | 1.75                  |                            |
|                    |                                     | Rear              | 2.25                  |                            |
| Turning angle      | Left                                | 42.5°             |                       |                            |
|                    | Right                               | 42.5°             |                       |                            |
| Brake system type  |                                     | Front             | Disk brake            |                            |
|                    |                                     | Rear              | Disk brake            |                            |
| Damping Device     | Suspension type                     | Front             | Telescope             |                            |
|                    |                                     | Rear              | Unit swing            |                            |
|                    | Shock absorber type                 | Front             | Telescope             |                            |
|                    |                                     | Rear              | Double swing          |                            |
| Frame type         |                                     | Under bone        |                       |                            |

# 1. GENERAL INFORMATION

|                     |  |                        |                               |                      |
|---------------------|--|------------------------|-------------------------------|----------------------|
| Name & Model No.    |  | SF10DA                 |                               |                      |
| Overall length      |  | 1850mm                 |                               |                      |
| Overall width       |  | 700mm                  |                               |                      |
| Overall height      |  | 1190mm                 |                               |                      |
| Wheel base          |  | 1295mm                 |                               |                      |
| Engine type         |  | Air cooled 2-stroke    |                               |                      |
| Displacement        |  | 49.4cc                 |                               |                      |
| Fuel Used           |  | 92# nonleaded gasoline |                               |                      |
| Net weight (kg)     | Front wheel                                    | 41.5                   |                               |                      |
|                     | Rear wheel                                     | 64.5                   |                               |                      |
|                     | Total  | 106                    |                               |                      |
| Gross weight(kg)    | Front wheel                                    | 83.5                   |                               |                      |
|                     | Rear wheel                                     | 132.5                  |                               |                      |
|                     | Total  | 216                    |                               |                      |
| Tires               | Front wheel                                    | 120/70-12              |                               |                      |
|                     | Rear wheel                                     | 130/70-12              |                               |                      |
| Ground clearance    |  | 160mm                  |                               |                      |
| Performance         | Braking distance (m)                           | 4.4m /30km/HV          |                               |                      |
|                     | Min. turning radius                            | 2150mm                 |                               |                      |
| Engine              | Starting system                                |                        | Starting motor & kick starter |                      |
|                     | Type   |                        | Gasoline, 2-stroke            |                      |
|                     | Cylinder arrangement                           |                        | Single cylinder, flat         |                      |
|                     | Combustion chamber type                        |                        | Semi-sphere                   |                      |
|                     | Bore x stroke (mm)                             |                        | 39 x 41.4                     |                      |
|                     | Compression ratio                              |                        | 7.2:1                         |                      |
|                     | Compression pressure (kg/cm <sup>2</sup> -rpm) |                        | 11.8                          |                      |
|                     | Max. output (ps/rpm)                           |                        | 4.2/6500                      |                      |
|                     | Max. torque (N-m/rpm)                          |                        | 4.9/6000                      |                      |
|                     | Port timing                                    | Intake (1mm)           | Open                          | Automatic controlled |
|                     |  |                        | Close                         | Automatic controlled |
|                     |  | Exhaust (1mm)          | Open                          |                      |
|                     |  |                        | Close                         |                      |
|                     | Valve clearance (cold)                         | Intake                 |                               |                      |
|                     |  | Exhaust                |                               |                      |
|                     | Idle speed (rpm)                               |                        | 1900 ± 100rpm                 |                      |
|                     | Lubrication System                             | Lubrication type       |                               | Separate type        |
|                     |  | Oil pump type          |                               | Plunger type         |
|                     |  | Oil filter type        |                               | Full-flow filtration |
|                     |  | Oil capacity           |                               | 1.7 liters           |
| Exchanging capacity |  | 1.4 liters             |                               |                      |
| Cooling Type        |  | Air cooling            |                               |                      |

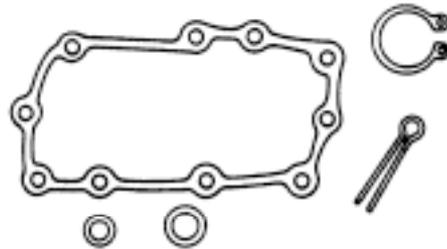
|                    |                                     |                   |                       |                            |  |
|--------------------|-------------------------------------|-------------------|-----------------------|----------------------------|--|
| Fuel System        | Air cleaner type & No               |                   | Sponge wet            |                            |  |
|                    | Gear oil capacity                   |                   | 0.12 liters           |                            |  |
|                    | Fuel capacity                       |                   | 6.8 liters            |                            |  |
|                    | Carburetor                          | Type              | P B                   |                            |  |
| Piston dia.        |                                     | 13                |                       |                            |  |
| Venturi dia.       |                                     | 14 equivalent     |                       |                            |  |
| Electrical         | Ignition System                     | Type              | CDI                   |                            |  |
|                    |                                     | Ignition timing   | 13.5° ± 2°/2000rpm    |                            |  |
|                    | Spark plug                          | NGK BR8HSA        |                       |                            |  |
|                    |                                     | Spark plug gap    | 0.6_ 0.7mm            |                            |  |
|                    | Battery                             | Capacity          | 12V4AH                |                            |  |
| 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   |                            |  |
|                    |                                     |                   | Reduction ratio       | 1st                        |  |
| Moving Device      | Front Axle                          | Caster angle      |                       |                            |  |
|                    |                                     | Connecting rod    |                       |                            |  |
|                    | Tire pressure (kg/cm <sup>2</sup> ) | Front             | 1.75                  |                            |  |
|                    |                                     | Rear              | 2.25                  |                            |  |
|                    | Turning angle                       | Left              | 42.5°                 |                            |  |
| Right              |                                     | 42.5°             |                       |                            |  |
| Brake system type  | Front                               | Disk brake        |                       |                            |  |
|                    | Rear                                | Expanding brake   |                       |                            |  |
| Damping Device     | Suspension type                     | Front             | Telescope             |                            |  |
|                    |                                     | Rear              | Unit swing            |                            |  |
|                    | Shock absorber type                 | Front             | Telescope             |                            |  |
| Rear               |                                     | Double swing      |                       |                            |  |
| Frame type         |                                     | Under bone        |                       |                            |  |

# 1. GENERAL INFORMATION

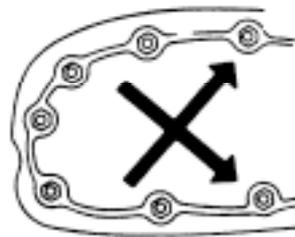
---

## SERVICE PRECAUTIONS

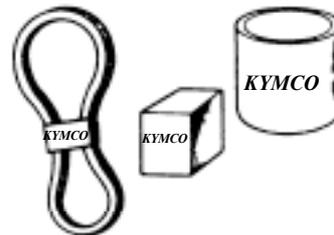
- Make sure to install new gaskets, O-rings, circlips, cotter pins, etc. when reassembling.



- 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.



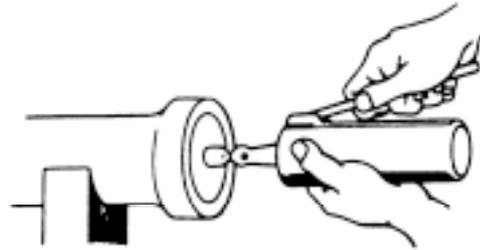
- After disassembly, clean removed parts. Lubricate sliding surfaces with engine oil before reassembly.



# 1. GENERAL INFORMATION

---

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



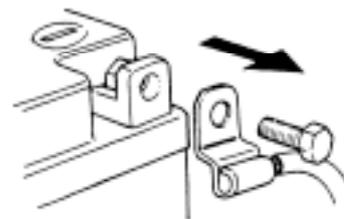
- After reassembly, check all parts for proper tightening and operation.



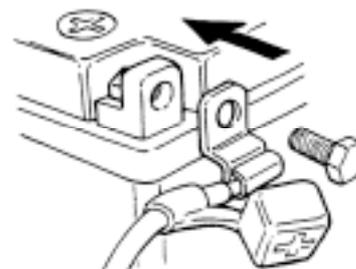
- When two persons work together, pay attention to the mutual working safety.



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



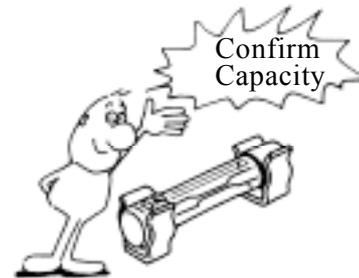
- After operation, check all connecting points, fasteners, and lines for proper connection and installation.
- When connecting the battery, the positive (+) terminal must be connected first.
- After connection, apply grease to the battery terminals.
- Terminal caps shall be installed securely.



# 1. GENERAL INFORMATION

---

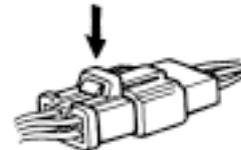
- If the fuse is burned out, find the cause and repair it. Replace it with a new one according to the specified capacity.



- After operation, terminal caps shall be installed securely.



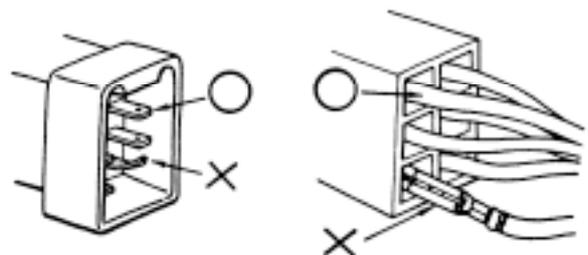
- When taking out the connector, the lock on the connector shall be released before operation.



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

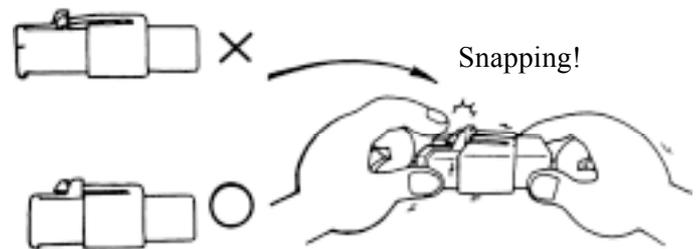


- Check if any connector terminal is bending, protruding or loose.

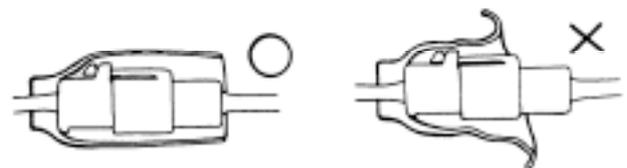


# 1. GENERAL INFORMATION

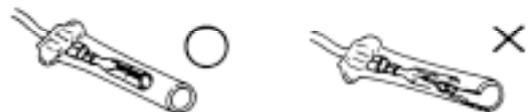
- The connector shall be inserted completely.
- If the double connector has a lock, lock it at the correct position.
- Check if there is any loose wire.



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



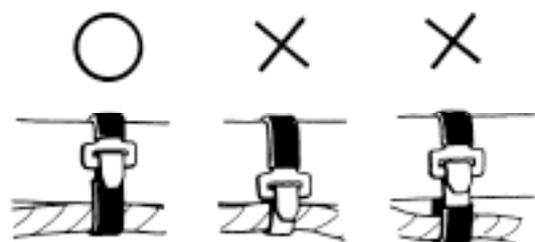
- Check the double connector cover for proper coverage and installation.



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

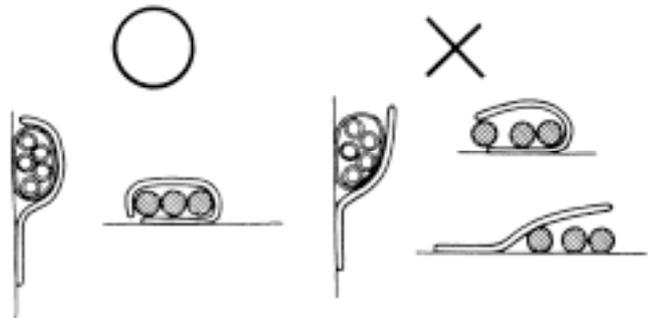


- Secure wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wire harnesses.



# 1. GENERAL INFORMATION

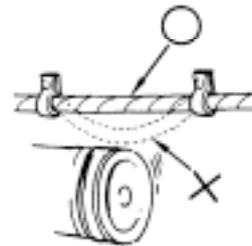
- After clamping, check each wire to make sure it is secure.



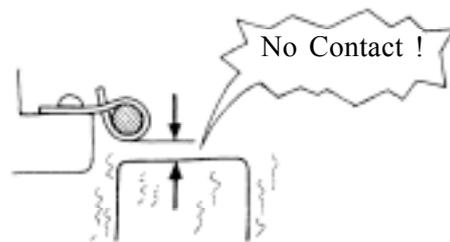
- Do not squeeze wires against the weld or its clamp.



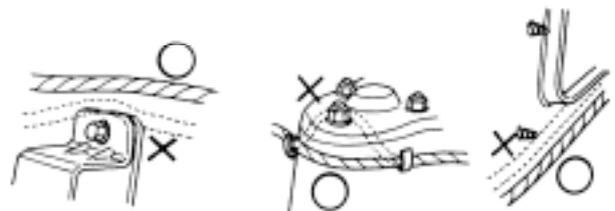
- After clamping, check each harness to make sure that it is not interfering with any moving or sliding parts.



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



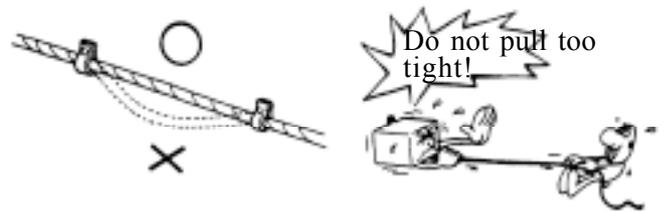
- Route wire harnesses to avoid sharp edges or corners. Avoid the projected ends of bolts and screws.
- Route wire harnesses passing through the side of bolts and screws. Avoid the projected ends of bolts and screws.



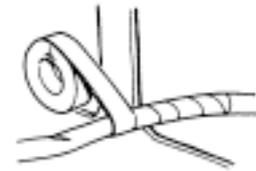
# 1. GENERAL INFORMATION

---

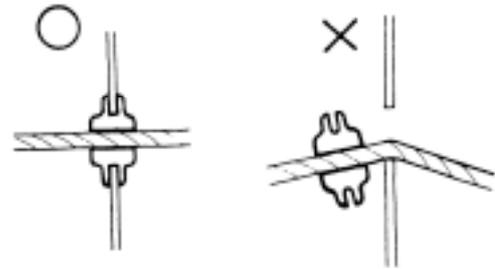
- Route harnesses so they are neither pulled tight nor have excessive slack.



- 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.

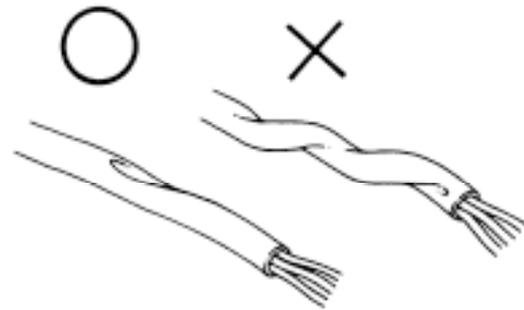


- When installing other parts, do not press or squeeze the wires.



# 1. GENERAL INFORMATION

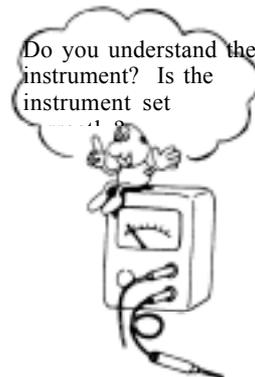
- After routing, check that the wire harnesses are not twisted or kinked.



- 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.



# 1. GENERAL INFORMATION

## ■ Symbols:

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



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



: Apply grease for lubrication.



: Transmission Gear Oil (90#)



: Use special tool.



: Caution



: Warning

# 1. GENERAL INFORMATION

## SERVICE INFORMATION

| ENGINE<br>Item                          | Standard (mm) |              | Service Limit (mm) |        |
|---|---------------|--------------|--------------------|--------|
|   | SF10DA        | SH10DA       | SF10DA             | SH10DA |
| Cylinder head warpage                   | □             | □            | 0.10               | 0.10   |
| Piston O.D.(5mm from bottom of piston)  | 38.955_ 38.9  | 38.955_ 38.9 | 38.90              | 38.90  |
| Cylinder-to- piston clearance           | 0.03_ 0.07    |              | 0.10               | 0.10   |
| Piston pin hole I.D.                    | 12.002_ 12.0  | 12.002_ 12.0 | 12.03              | 12.03  |
| Piston pin O.D.                         | 11.994_ 12.0  | 11.994_ 12.0 | 11.98              | 11.98  |
| Piston-to-piston pin clearance          | 0.002_ 0.014  | □            | 0.03               | □      |
| Piston ring end gap (top/second)        | 0.10_ 0.25    | 0.10_ 0.25   | 0.40               | 0.40   |
| Connecting rod small end I.D.           | 17.005_ 17.0  | 17.005_ 17.0 | 17.03              | 17.03  |
| Cylinder bore                           | 39.0_ 39.025  | 39.0_ 39.025 | 39.05              | 39.05  |
| Drive belt width                        | 18            | 18           | 17                 | 17     |
| Drive pulley collar O.D.                | 20.01_ 20.02  | 20.01_ 20.02 | 19.97              | 19.97  |
| Movable drive face ID.                  | 20.035_ 20.0  | 20.035_ 20.0 | 20.21              | 20.21  |
| Weight roller O.D.                      | 13.0          | 13.0         | 12.4               | 12.4   |
| Clutch outer I.D.                       | 107_ 107.2    | 107_ 107.2   | 107.5              | 107.5  |
| Driven face spring free length          | 87.9          | 87.9         | 82.6               | 82.6   |
| Driven face O.D.                        | 33.965_ 33.9  | □            | 33.94              | □      |
| Movable driven face I.D.                | 34.0_ 34.025  | □            | 34.06              | □      |
| Connecting rod big end side clearance   | □             | □            | 0.60               | □      |
| Connecting rod big end radial clearance | □             | □            | 0.04               | □      |
| Crankshaft runout A/B                   | □             | □            | L:0.15 R:0.10      | □      |

## CARBURETOR

|                                   | SF10DA                | SH10DA                |
|-----------------------------------|-----------------------|-----------------------|
| Venturi dia.                      | 14mm                  | 14mm                  |
| Identification number             | PB058 [C]             | PB093 [C]             |
| Float level                       | 8.6mm                 | 8.6mm                 |
| Main jet(Unlimited/limited speed) | #92/#78               | #92/#78               |
| Slow jet                          | #35                   | #35                   |
| Air screw opening                 | 1_ ± _                | 1_ ± _                |
| Idle speed                        | 1900 ± 100rpm         | 2000 ± 100rpm         |
| Throttle grip free play           | 2_ 6mm                | 2_ 6mm                |
| Jet needle clip notch             | 1 <sup>st</sup> notch | 1 <sup>st</sup> notch |

# 1. GENERAL INFORMATION

## FRAME

| Item                                    |            | Standard (mm) |         | Service Limit (mm) |         |
|---|------------|---------------|---------|--------------------|---------|
|   |            | SF10DA        | SH10DA  | SF10DA             | SH10DA  |
| Axle shaft runout                       |            | □             | □       | 0.2                | 0.2     |
| Front wheel rim runout                  | Radial     |               |         |                    |         |
|   | Axial      |               |         |                    |         |
| Front shock absorber spring free length |            | 221.5         | 221.5   | 204.3              | 204.3   |
| Rear wheel rim runout                   |            |               |         | 2.0                | 2.0     |
| Brake drum I.D.                         | Front/rear | 110           | 110     | 111                | 111     |
| Brake lining thickness                  | Front/rear | 4.0/4.0       | 4.0/4.0 | 2.0/2.0            | 2.0/2.0 |
| Brake disk runout                       | Front/rear | □             | □       | 0.30               | 0.30    |
| Rear shock absorber spring free length  |            | 214.7         | 214.7   | 197.7              | 197.7   |

## ELECTRICAL EQUIPMENT

|                                |                                   | SF10DA               | SH10DA               |         |
|--------------------------------|-----------------------------------|----------------------|----------------------|---------|
| Battery                        | Capacity                          | 12V4AH               | 12V4AH               |         |
|                                | Voltage                           | 13.0_ 13.2V          | 13.0_ 13.2V          |         |
|                                | Charging current                  | Standard             | 0.4A/5H              | 0.4A/5H |
|                                |                                   | Quick                | 4A/0.5H              | 4A/0.5H |
| Spark plug                     | (NGK)                             | BR8HSA               | BR8HSA               |         |
| Spark plug gap                 |                                   | 0.6_ 0.7mm           | 0.6_ 0.7mm           |         |
| Ignition coil resistance       | Primary coil                      | 0.153_ 0.187□        | 0.153_ 0.187□        |         |
|                                | Secondary coil (with plug cap)    | 6.99_ 10.21K□        | 6.99_ 10.21K□        |         |
|                                | Secondary coil (without plug cap) | 3.24_ 3.96K□         | 3.24_ 3.96K□         |         |
| Pulser coil resistance (20°C ) |                                   | 80_ 160□             | 80_ 160□             |         |
| Ignition timing                |                                   | 13.5°±2°BTDC/2000rpm | 13.5°±2°BTDC/2000rpm |         |

# 1. GENERAL INFORMATION

## TORQUE VALUES

### ENGINE

| Item                           | Thread dia. (mm) | Torque (N-m) |      | Remarks |
|--------------------------------|------------------|--------------|------|---------|
| Cylinder head bolt             | BF7x115          | 14.7_        | 16.7 | (cold)  |
| Clutch drive plate nut         | 10               | 34.3_        | 39.2 |         |
| Clutch outer nut               | NH10             | 34.3_        | 44.1 |         |
| Drive face nut                 | NH12             | 49.0_        | 58.8 |         |
| Oil check bolt                 | 10               | 9.8_         | 14.7 |         |
| Engine mounting bolt           | BF10x95          | 44.1_        | 53.9 |         |
| Engine hanger bracket bolt     | BF10x50          | 34.3_        | 44.1 |         |
| Exhaust muffler joint lock nut | NC6mm            | 9.8_         | 13.7 |         |
| Exhaust muffler lock bolt      | BF8x35           | 29.4_        | 35.3 |         |
| Spark plug                     |                  | 10.8_        | 16.7 | (cold)  |

### FRAME

| Item                   | Thread dia. (mm) | Torque (N-m) |       | Remarks             |
|------------------------|------------------|--------------|-------|---------------------|
| Handlebar lock nut     | 10               | 44.1_        | 49.0  | Flange bolt/U-nut   |
| Steering stem lock nut | 25.4             | 78.4_        | 117.6 |                     |
| Steering top cone race | 25.4             | 4.9_         | 12.7  |                     |
| Front axle nut         | 12               | 49.0_        | 68.6  | Flange U-nut        |
| Rear axle nut          | 16               | 107.8_       | 127.4 | Flange U-nut        |
| Rear brake arm bolt    |                  |              |       | Flange nut          |
| Front shock absorber:  |                  |              |       |                     |
| upper mount bolt       | 8                | 32.3         |       | Flange bolt/U-nut   |
| lower mount bolt       |                  | 32.3         |       | Cross head          |
| hex bolt               |                  | 14.7_        | 29.4  | Apply locking agent |
| Front damper nut       | 8                | 14.7_        | 29.4  |                     |
| Front pivot arm bolt   |                  |              |       | Flange screw/U-nut  |
| Rear shock absorber:   |                  |              |       |                     |
| upper mount bolt       | 10               | 34.3_        | 44.1  | Flange nut          |
| lower mount bolt       | 8                | 23.5_        | 29.4  |                     |
| lower joint nut        | 8                | 14.7_        | 24.5  |                     |

Torque specifications listed above are for important fasteners. Others should be tightened to standard torque values below.

#### STANDARD TORQUE VALUES

SH bolt: 8mm Flange 6mm bolt

| Item           | Torque (N-m) |      | Item                  | Torque (N-m) |      |
|----------------|--------------|------|-----------------------|--------------|------|
| 5mm bolt, nut  | 4.4_         | 5.9  | 5mm screw             | 3.43_        | 4.9  |
| 6mm bolt, nut  | 7.8_         | 11.8 | 6mm screw, SH bolt    | 6.86_        | 10.8 |
| 8mm bolt, nut  | 17.6_        | 24.5 | 6mm flange bolt, nut  | 9.8_         | 13.7 |
| 10mm bolt, nut | 29.4_        | 39.2 | 8mm flange bolt, nut  | 23.5_        | 29.4 |
| 12mm bolt, nut | 49.0_        | 58.8 | 10mm flange bolt, nut | 14.7_        | 44.1 |

# 1. GENERAL INFORMATION

## SPECIAL TOOLS

| Tool Name  | Tool No. | Remarks   |
|--|----------|---|
| Universal bearing puller   | E030     | Crankshaft bearing removal  |
| Lock nut socket wrench   | F001     | Top cone race holding   |
| Lock nut wrench,   | F001     | Stem lock nut tightening  |
| Crankcase puller   | E026     | Crankcase disassembly   |
| Bearing remover set, 12mm<br>(Spindle assy, 15mm)<br>(Remover weight)                              | E020     | Drive shaft bearing removal/installation  |
| Bearing remover set, 15mm<br>(Spindle assy, 15mm)<br>(Remover head, 15mm)<br>(Remover shaft, 15mm) | E018     | Drive shaft bearing removal/installation  |
| Bearing outer driver, 28x30mm  | E014     | Bearing installation  |
| Clutch spring compressor   | E027     | Driven pulley disassembly/assembly  |
| Crankcase assembly collar  | E023     | Driven shaft, crankshaft & crankcase assembly   |
| Crankcase assembly tool  | E024     | Crankshaft & crankcase assembly   |
| Ball race remover  | F005     | Steering stem bearing races   |
| Rear shock absorber compressor   | F004     | Rear shock absorber disassembly/assembly  |
| Universal holder   | E017     | Flywheel holding  |
| Flywheel puller  | E001     | Flywheel removal  |
| Pilot, 12mm  | E020     | Drive shaft bearing installation  |
| Bearing outer driver, 32x35mm  | E014     | Drive shaft bearing installation<br>Final shaft bearing installation                                    |
| Bearing outer driver, 37x40mm  | E014     | Drive shaft bearing installation<br>Final shaft bearing installation<br>Crankshaft bearing installation |
| Outer driver, 24x26mm  | E014     | Driven pulley bearing installation  |

# 1. GENERAL INFORMATION

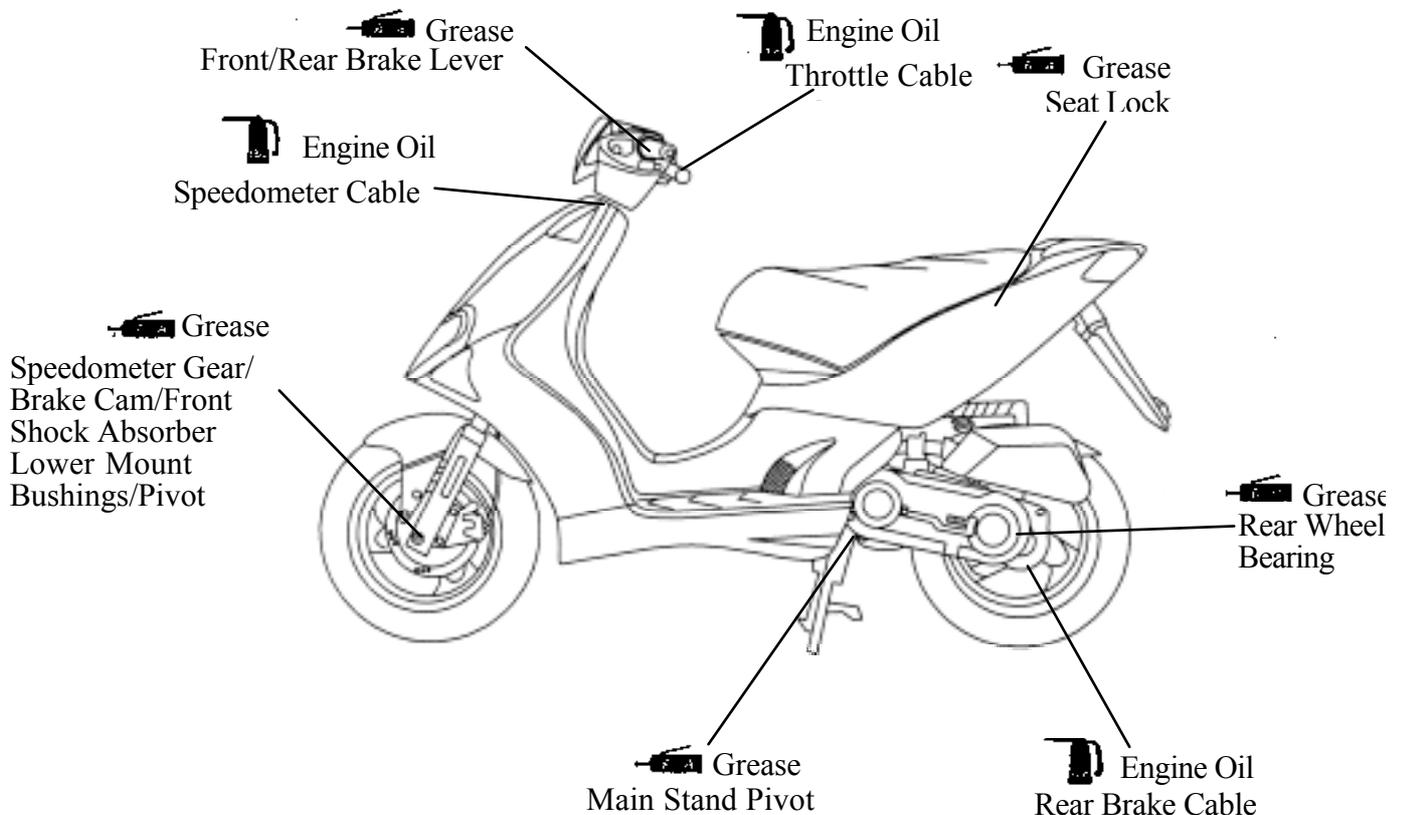
## LUBRICATION POINTS

### ENGINE

| NO. | Lubrication Points                | Lubricant         | Remarks |
|-----|-----------------------------------|-------------------|---------|
| 1   | Crankcase sliding & movable parts | JASO-FC or API-TC |         |
| 2   | Cylinder movable parts            |                   |         |
| 3   | Transmission gear (final gear)    | SAE-90#           |         |
| 4   | Kick starter spindle bushing      | Grease            |         |
| 5   | Drive pulley movable parts        | Grease            |         |
| 6   | Starter pinion movable parts      | Grease            |         |

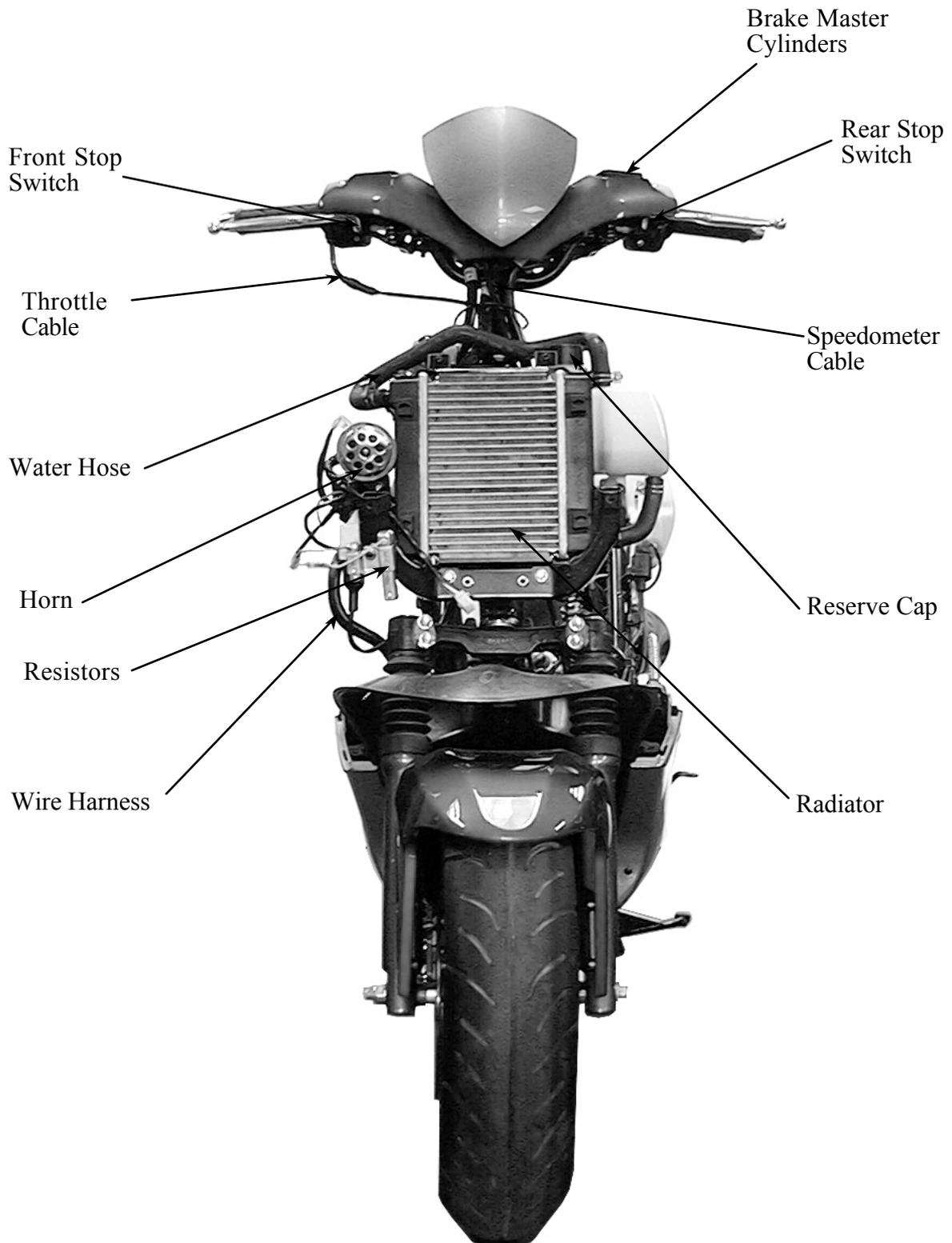
### FRAME

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.



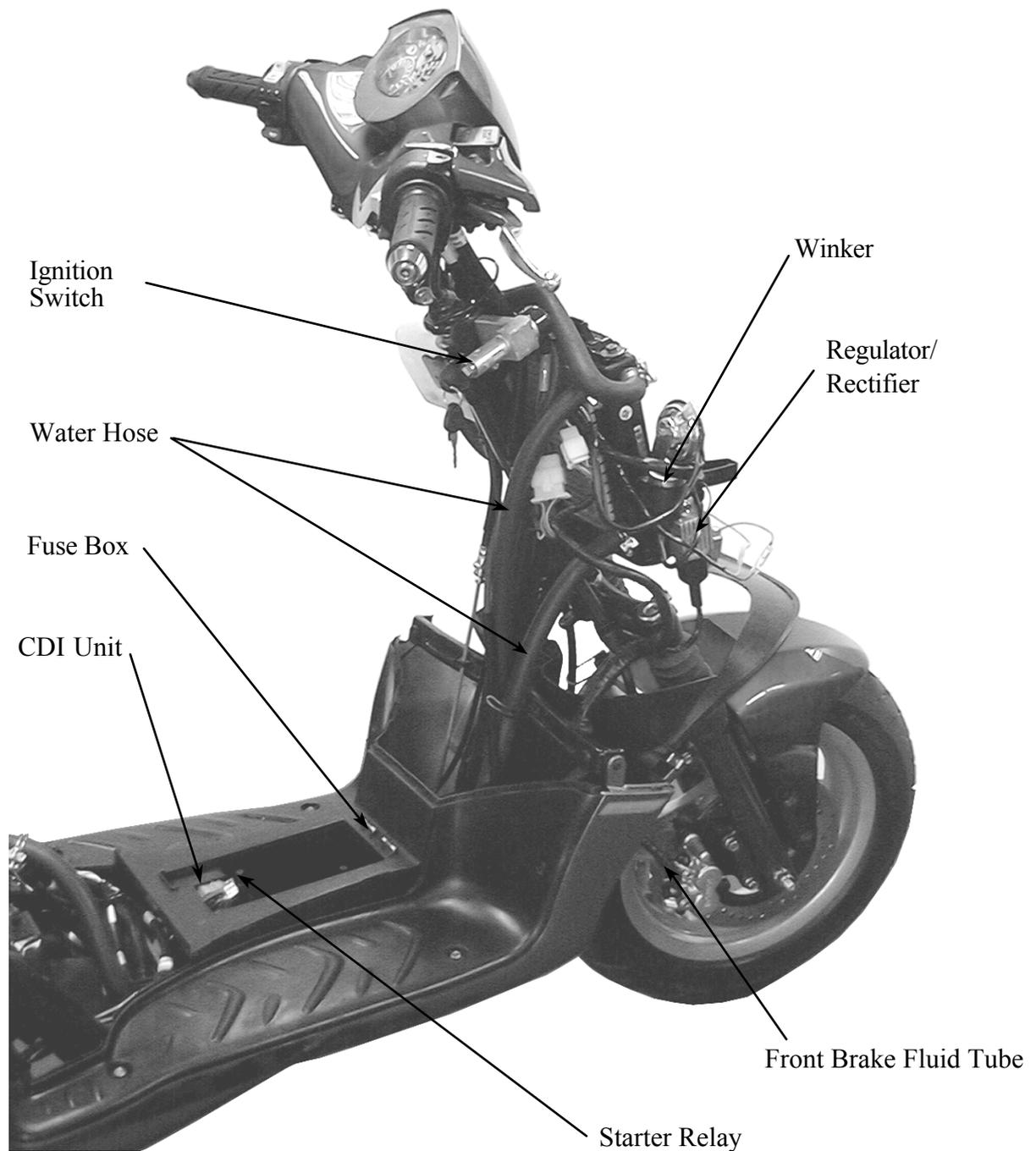
# 1. GENERAL INFORMATION

---



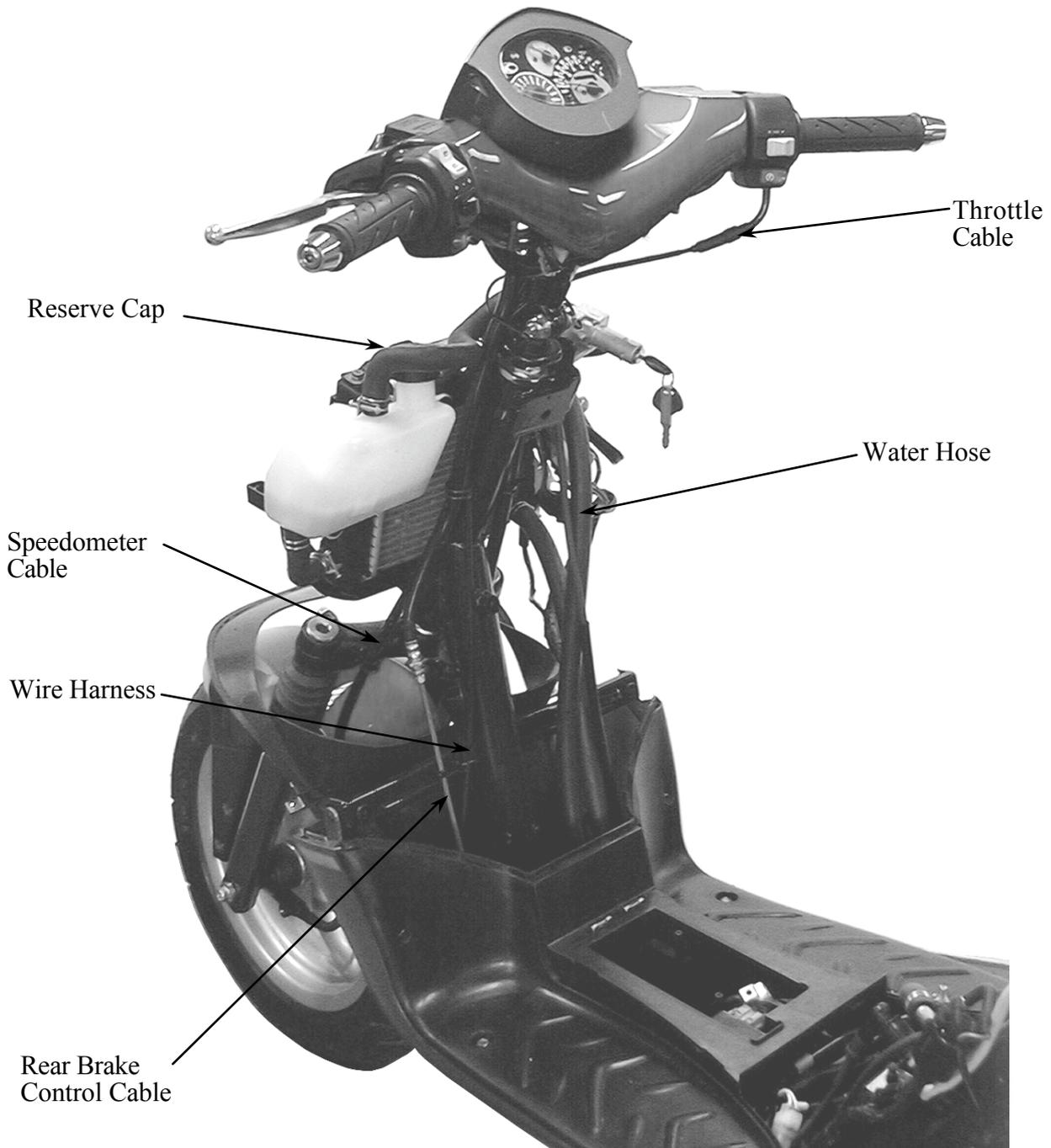
# 1. GENERAL INFORMATION

---



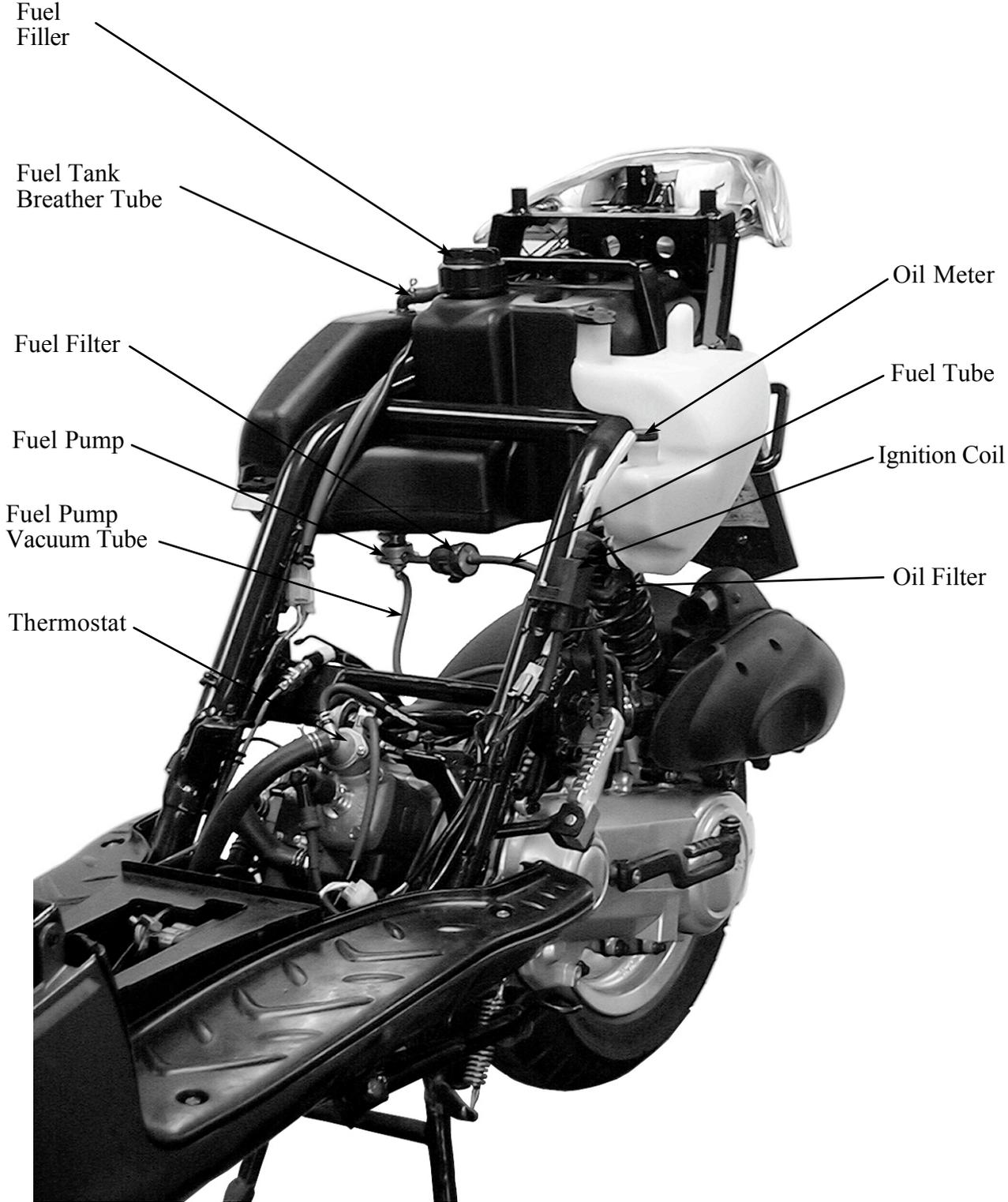
# 1. GENERAL INFORMATION

---



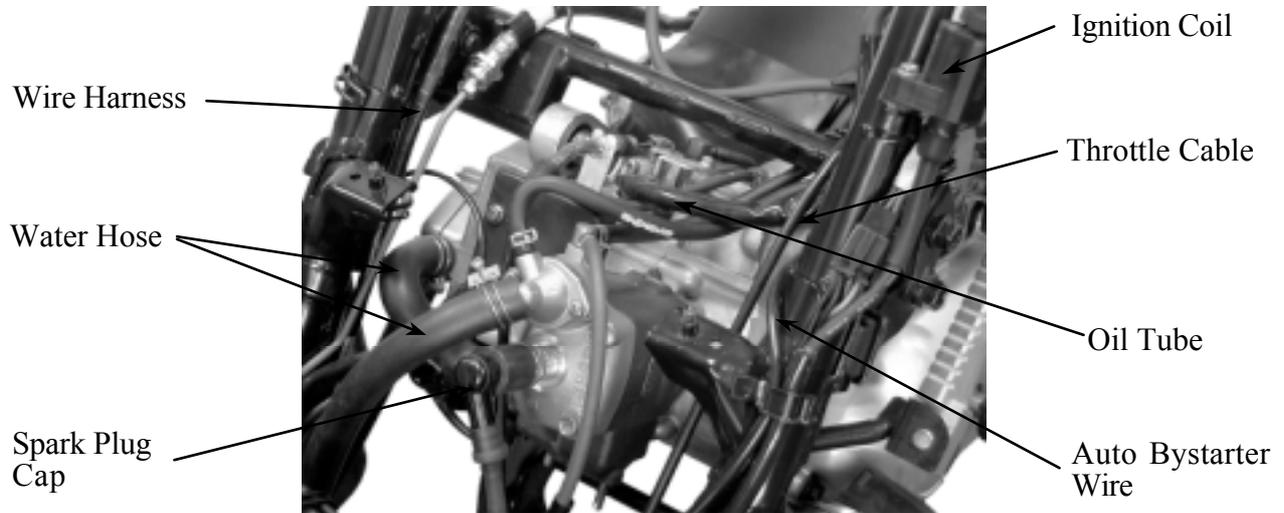
# 1. GENERAL INFORMATION

---



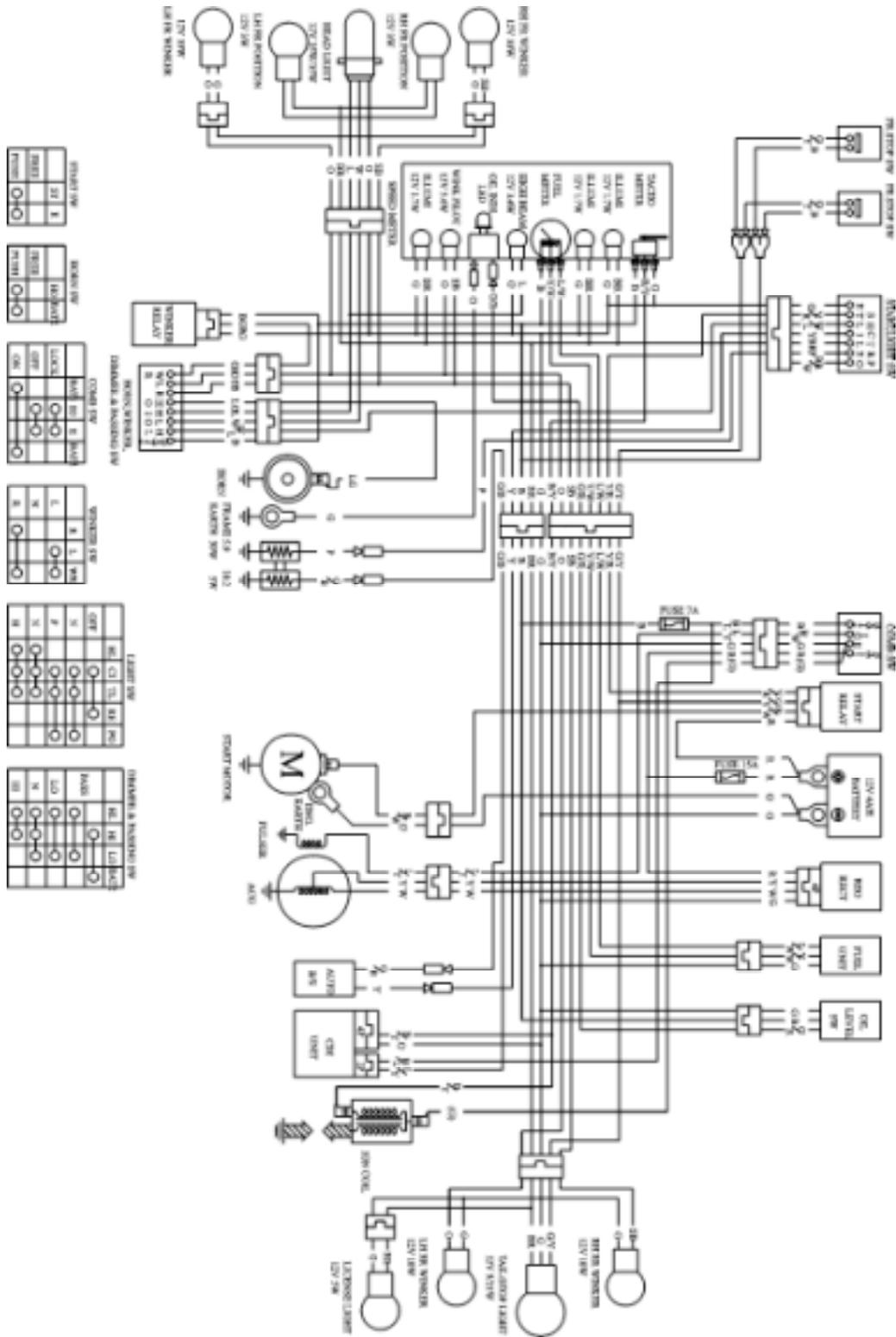
# 1. GENERAL INFORMATION

---



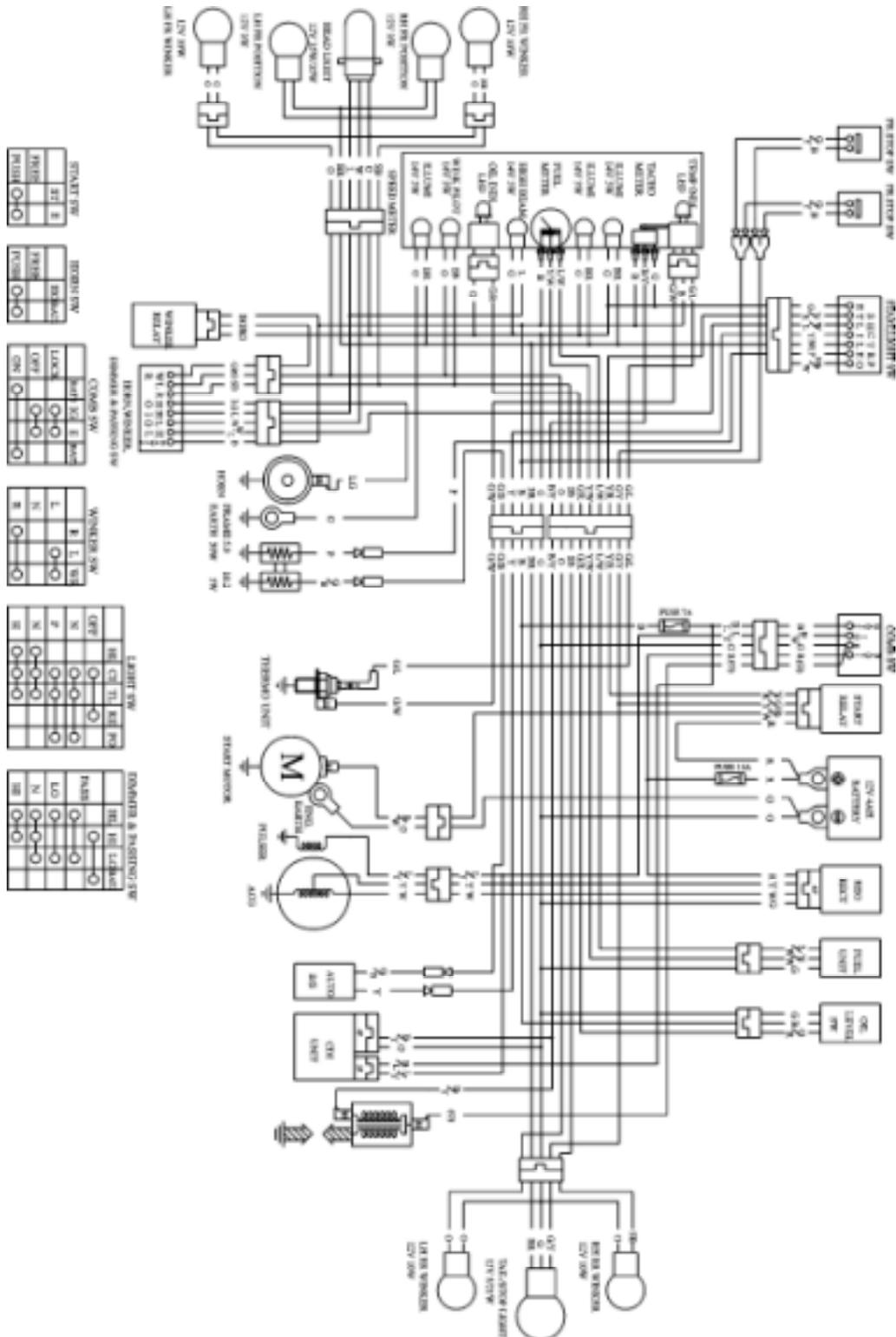
# 1. GENERAL INFORMATION

## WIRING DIAGRAM < SF10DA >



# 1. GENERAL INFORMATION

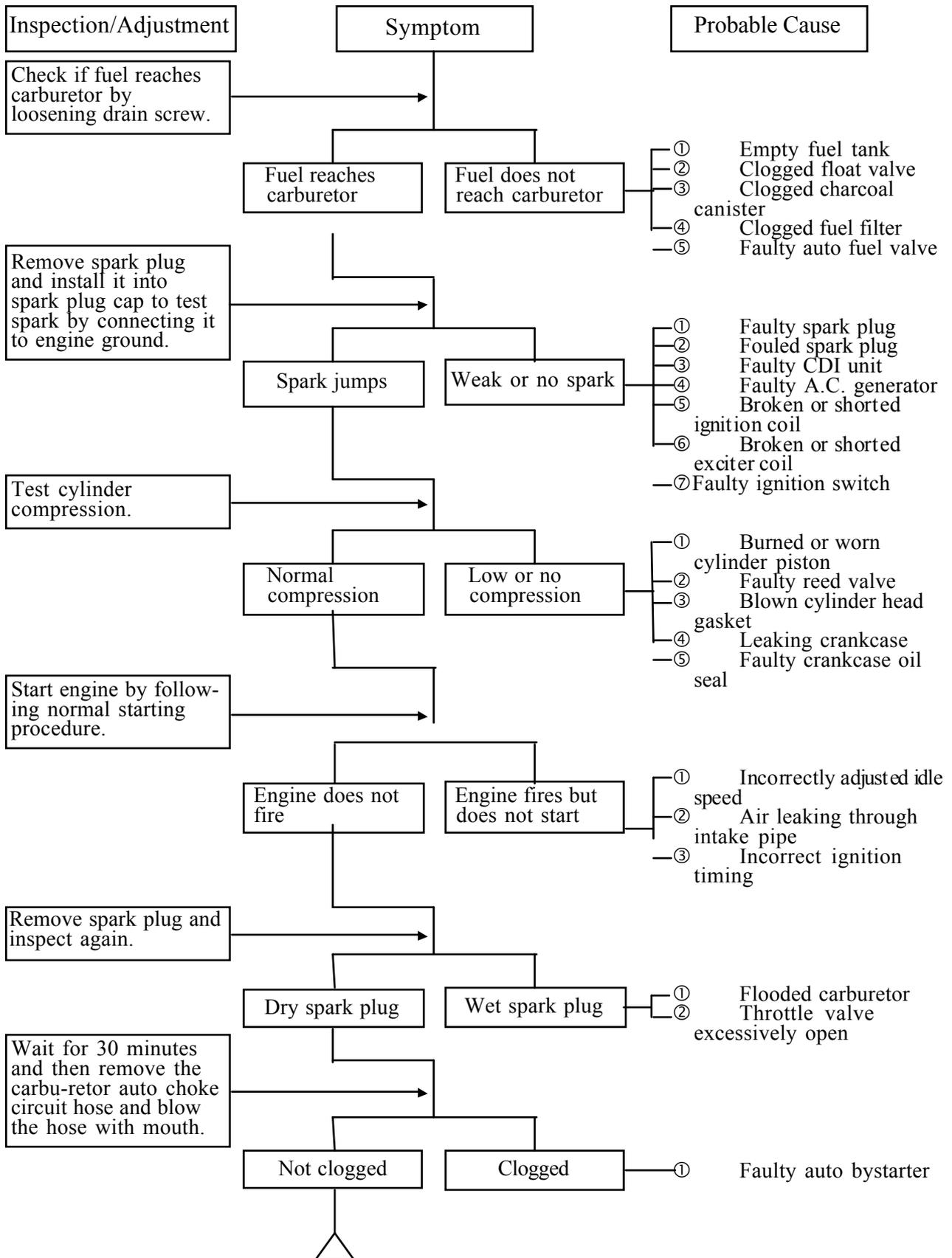
## < SH10DA >



# 1. GENERAL INFORMATION

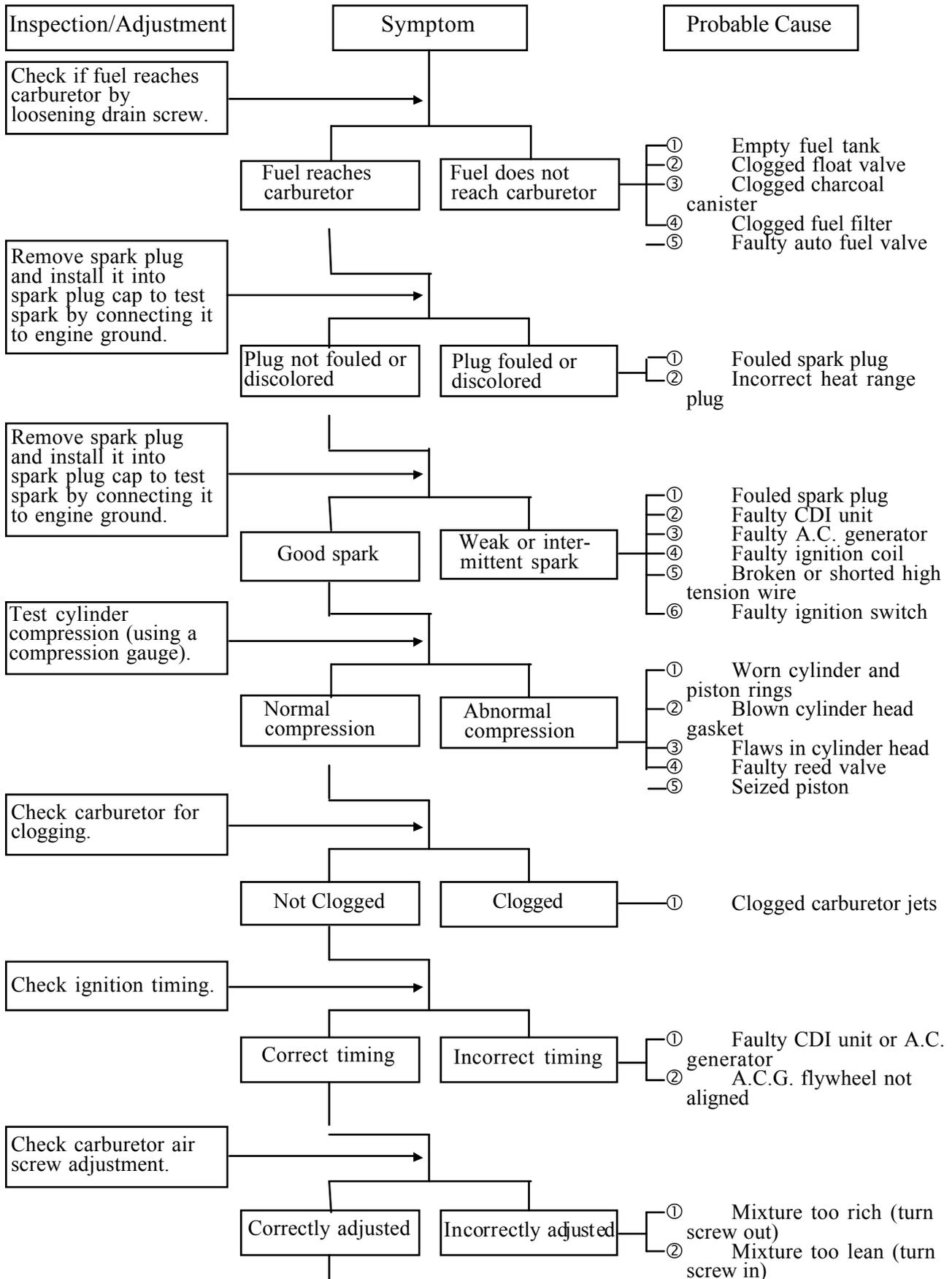
## TROUBLESHOOTING

### ENGINE WILL NOT START OR IS HARD TO START

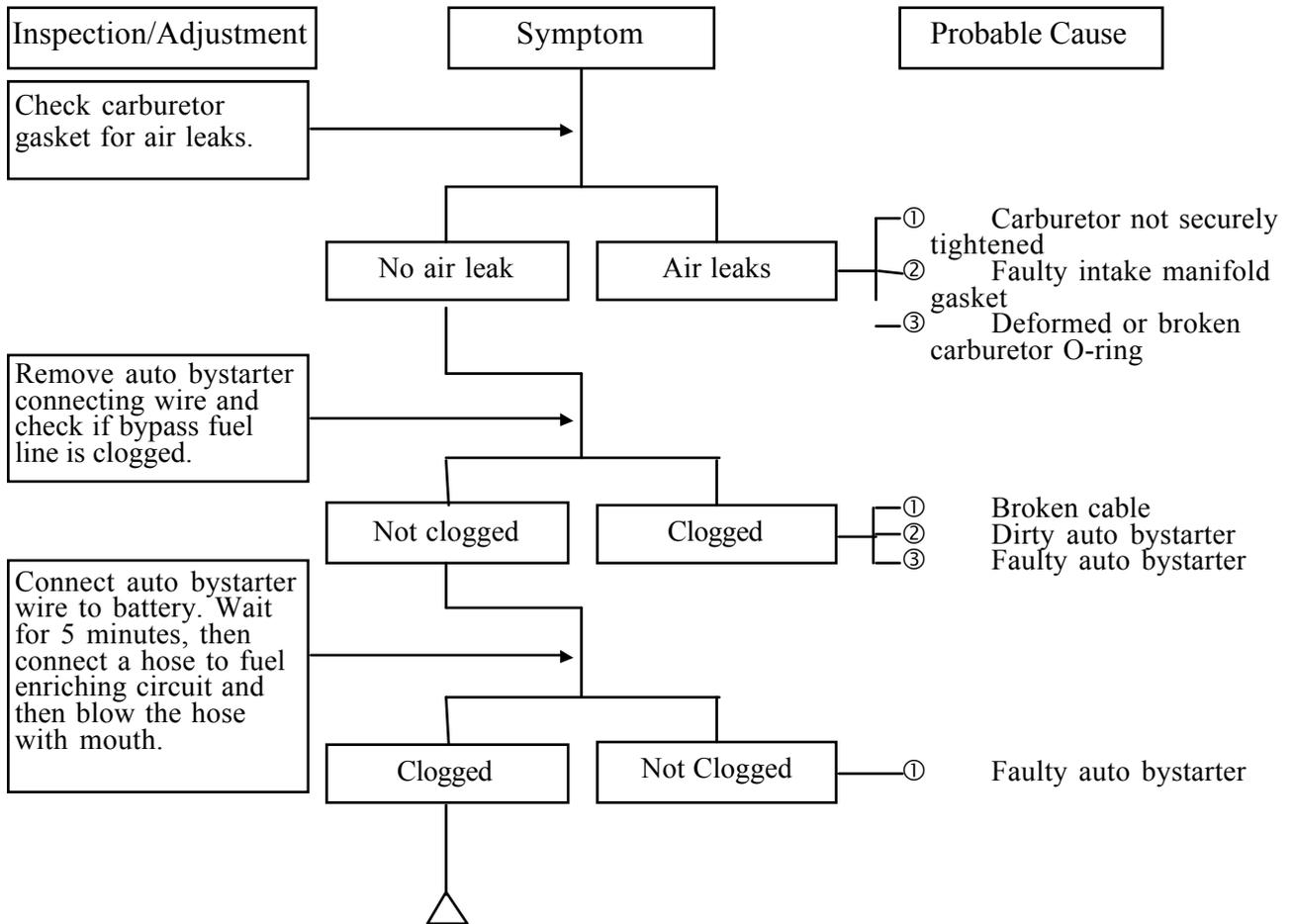


# 1. GENERAL INFORMATION

## ENGINE STOPS IMMEDIATELY AFTER IT STARTS

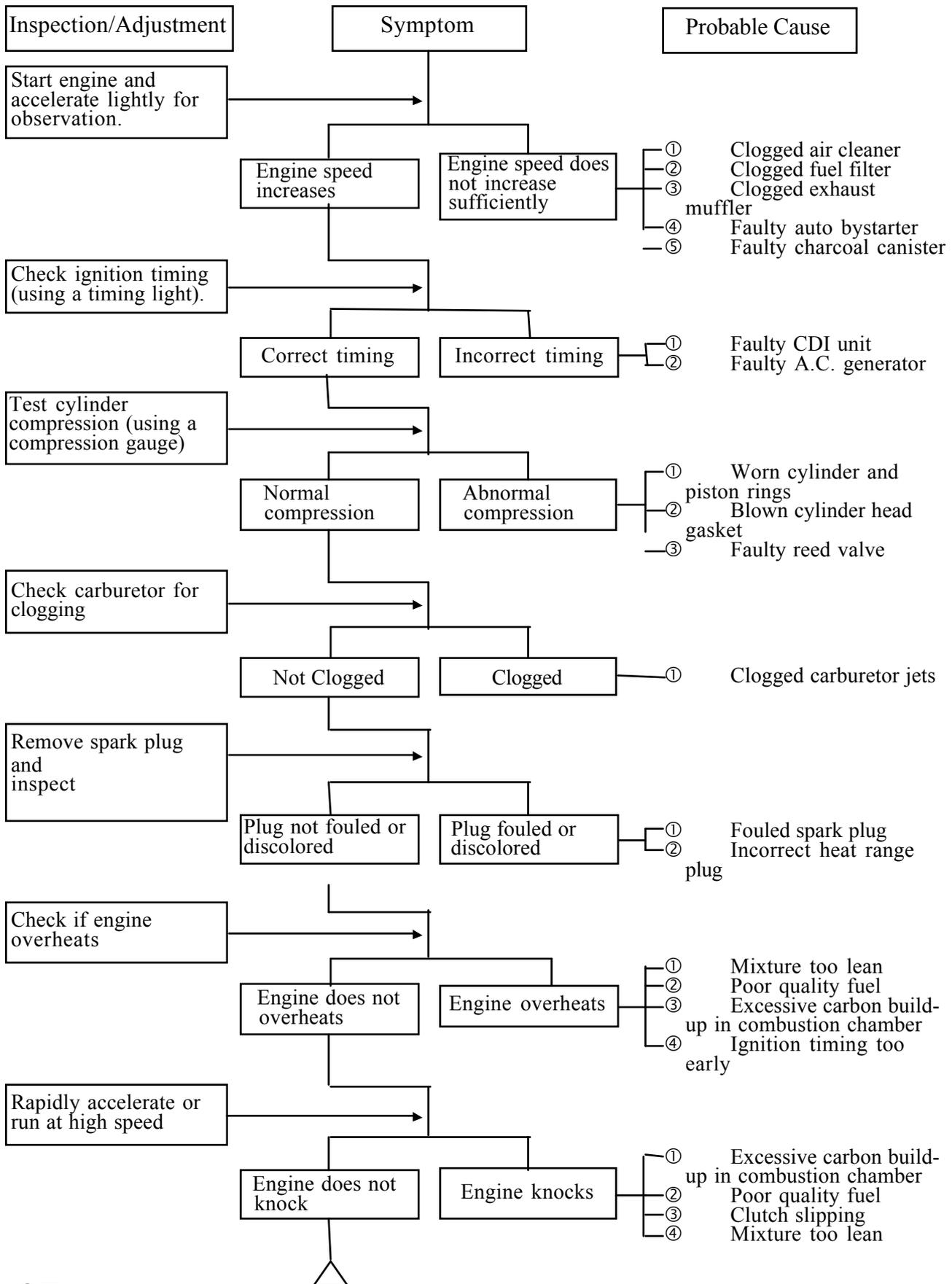


# 1. GENERAL INFORMATION



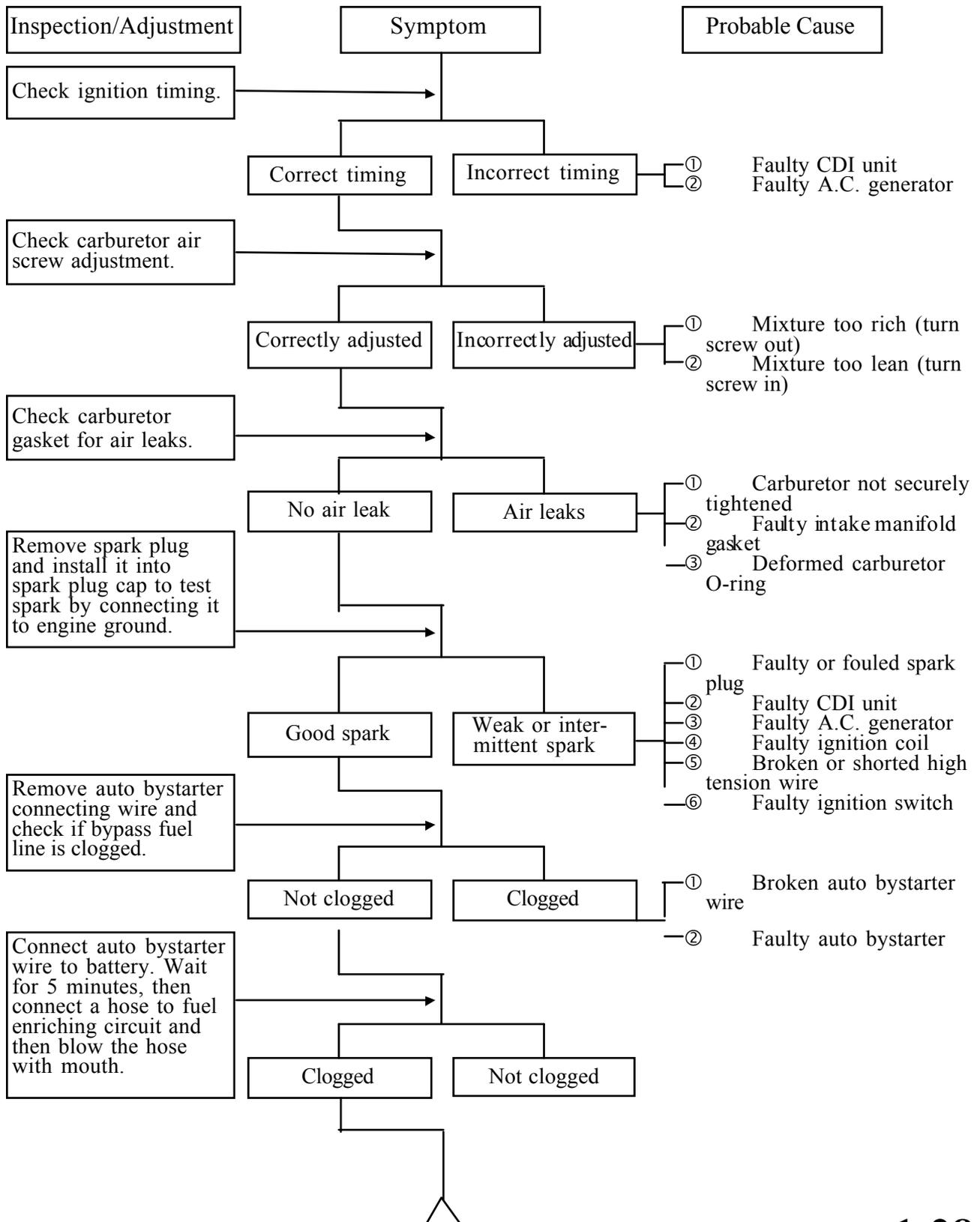
# 1. GENERAL INFORMATION

## ENGINE LACKS POWER



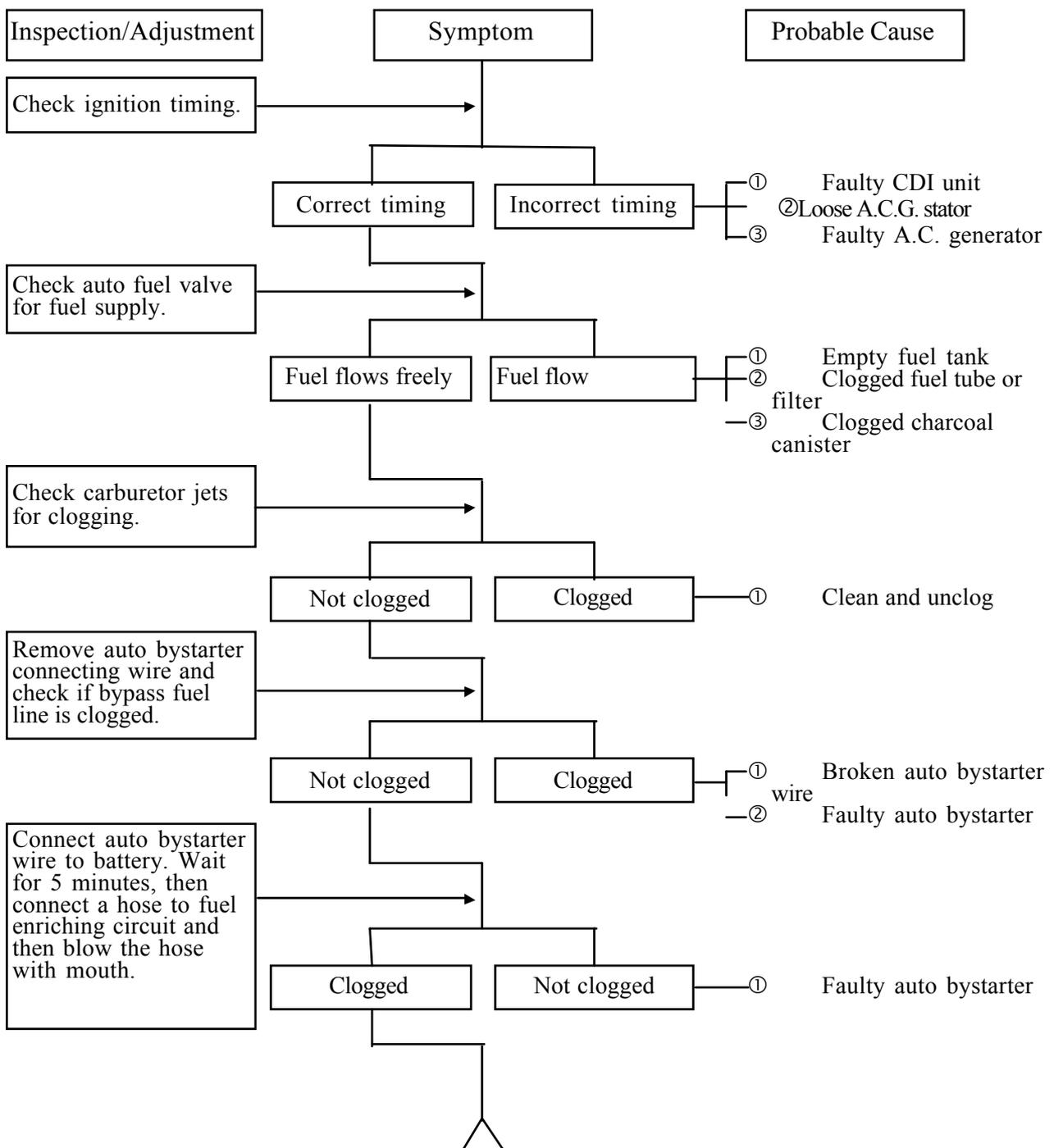
# 1. GENERAL INFORMATION

## POOR PERFORMANCE (ESPECIALLY AT IDLE AND LOW SPEEDS)



# 1. GENERAL INFORMATION

## POOR PERFORMANCE (AT HIGH SPEED)



# 1. GENERAL INFORMATION

## CLUTCH, DRIVE AND DRIVEN PULLEYS

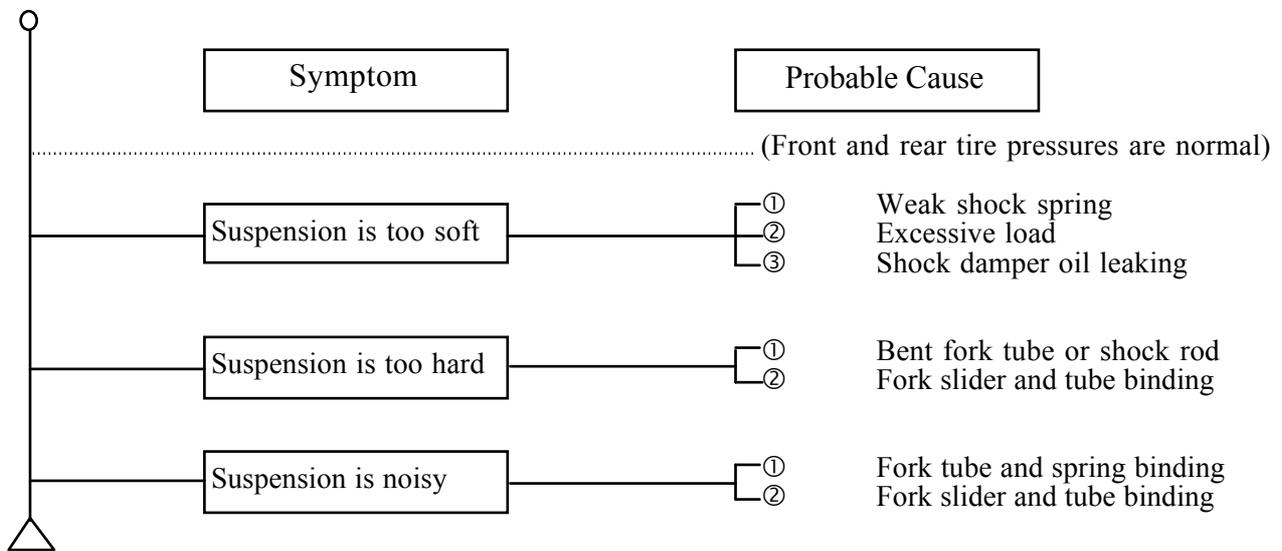
| Symptom   | Probable Cause   |
|---|--|
| Engine starts but motor-cycle does not move   | <ul style="list-style-type: none"> <li>① Worn or slipping drive belt</li> <li>② Broken ramp plate</li> <li>③ Broken driven face spring</li> <li>④ Separated clutch lining</li> <li>⑤ Damaged driven pulley shaft splines</li> <li>⑥ Damaged final gear</li> <li>⑦ Seized final gear</li> </ul> |
| Motorcycle creeps or engine starts but soon stops or seems to rush out (Rear wheel rotates when engine idles) | <ul style="list-style-type: none"> <li>① Broken shoe spring</li> <li>② Clutch outer and clutch weight stuck</li> <li>③ Seized pivot</li> </ul>   |
| Engine lacks power at start of a grade (poor slope performance)   | <ul style="list-style-type: none"> <li>① Worn or slipping drive belt</li> <li>② Worn weight rollers</li> <li>③ Seized drive pulley bearings</li> <li>④ Weak driven face spring</li> <li>⑤ Worn or seized driven pulley bearings</li> </ul>   |
| Engine lacks power at high speed  | <ul style="list-style-type: none"> <li>① Worn or slipping drive belt</li> <li>② Worn weight rollers</li> <li>③ Worn or seized driven pulley bearings</li> </ul>  |
| There is abnormal noise   | <ul style="list-style-type: none"> <li>① Oil or grease fouled drive belt</li> <li>② Worn drive belt</li> <li>③ Weak driven face spring</li> <li>④ Worn or seized driven pulley bearings</li> </ul>   |

## STEERING HANDLEBAR DOES NOT TRACK STRAIGHT

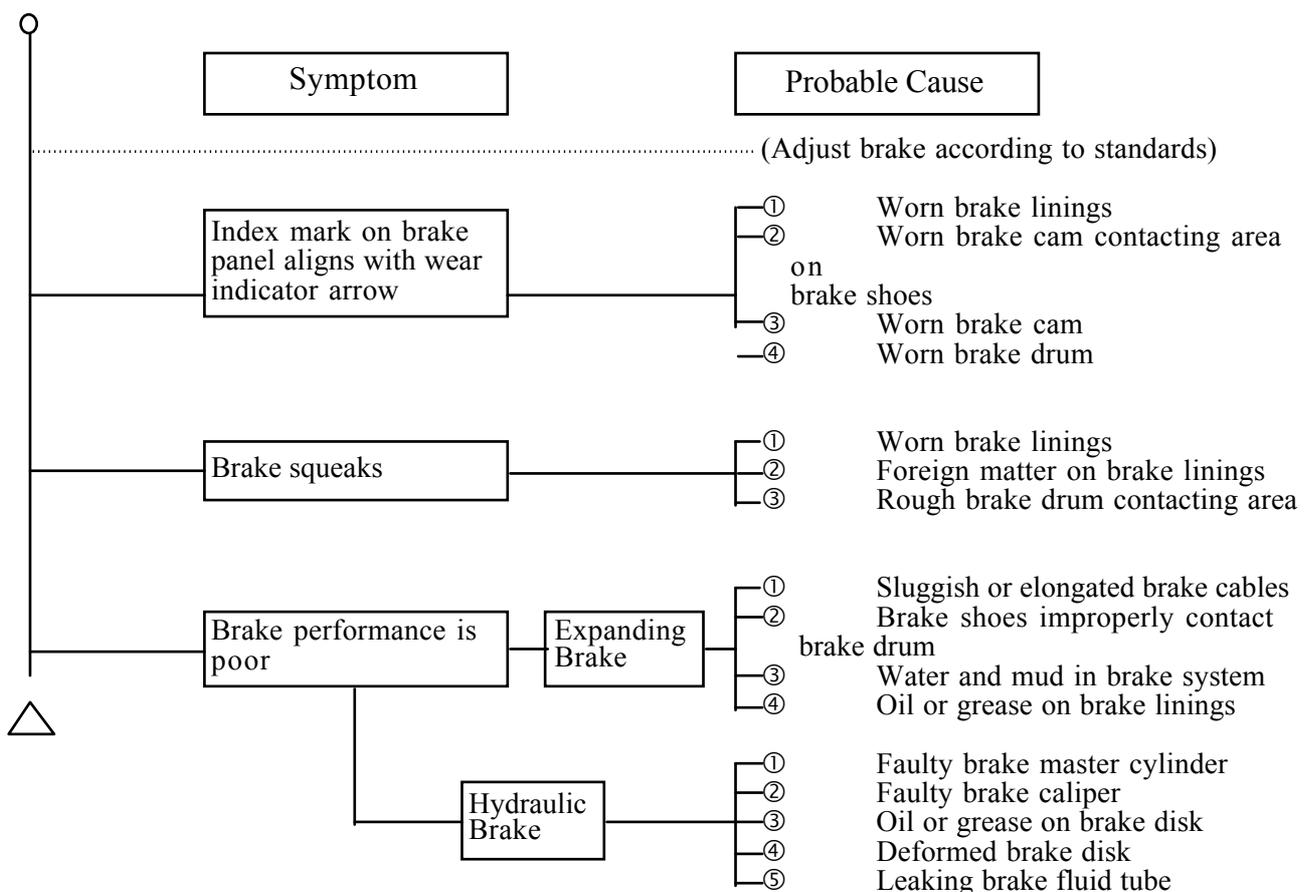
| Symptom                                    | Probable Cause   |
|--|--|
| (Front and rear tire pressures are normal) |  |
| Steering is heavy                          | <ul style="list-style-type: none"> <li>① Steering stem nut too tight</li> <li>② Broken steering steel balls</li> </ul>         |
|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

# 1. GENERAL INFORMATION

## POOR SUSPENSION PERFORMANCE



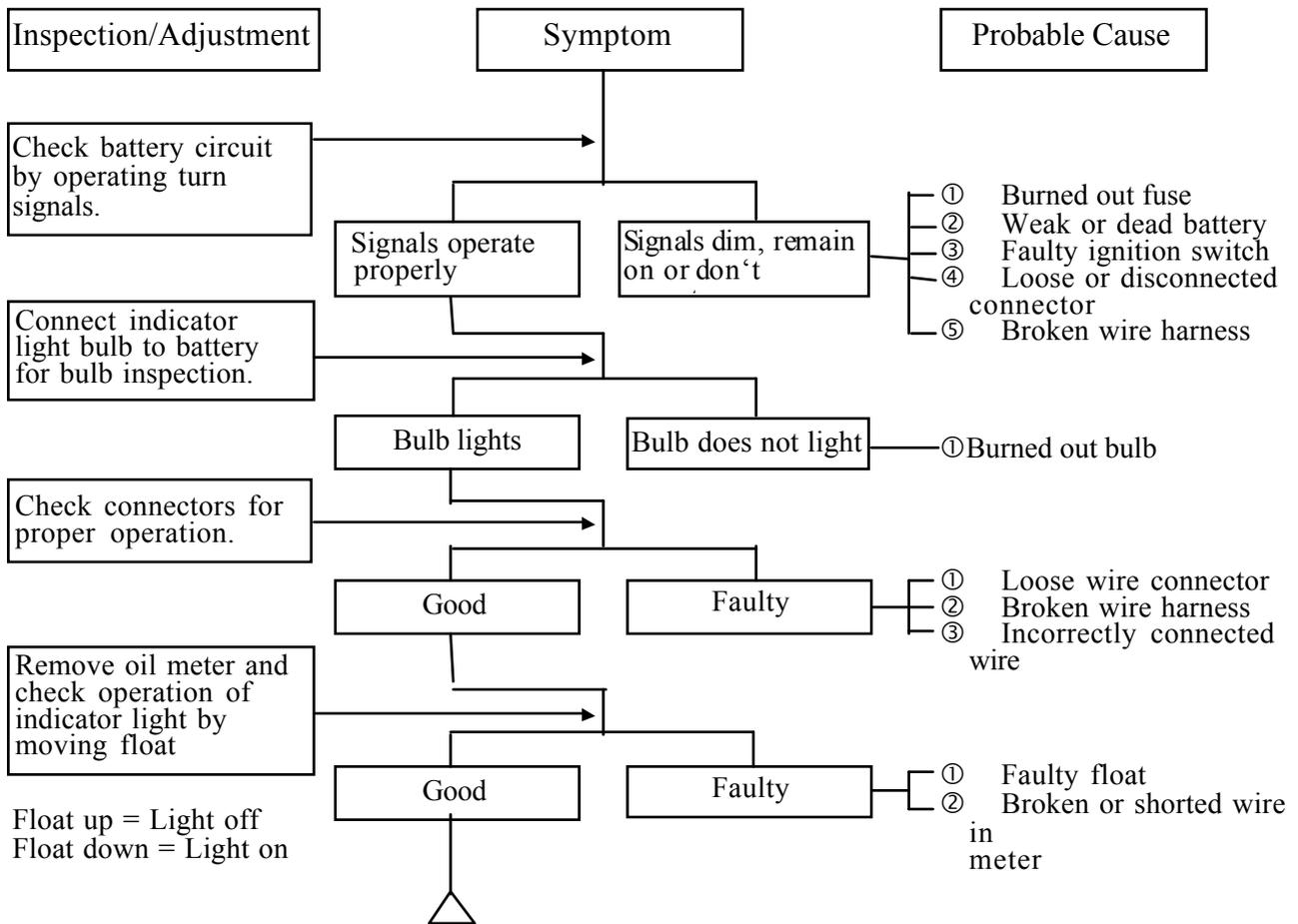
## POOR BRAKE PERFORMANCE



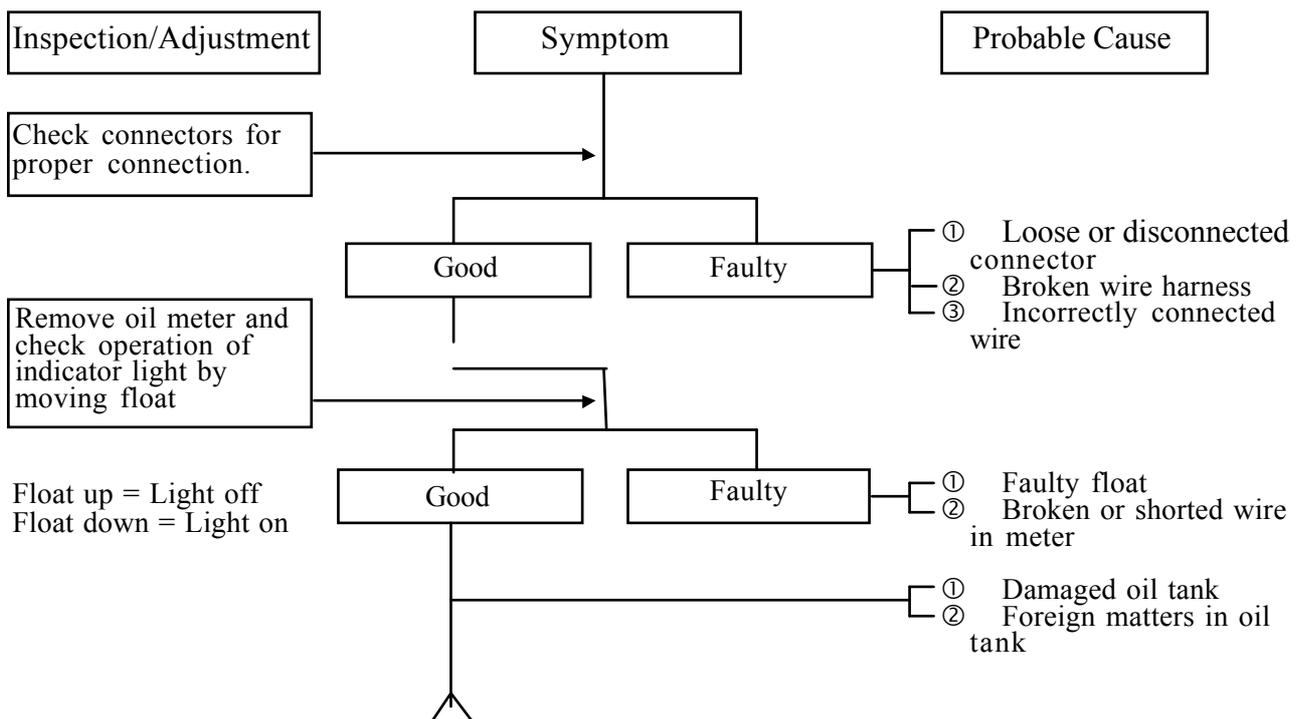
# 1. GENERAL INFORMATION

## OIL METER

1. Motor oil indicator light does not come on when there is no motor oil (Ignition switch ON)



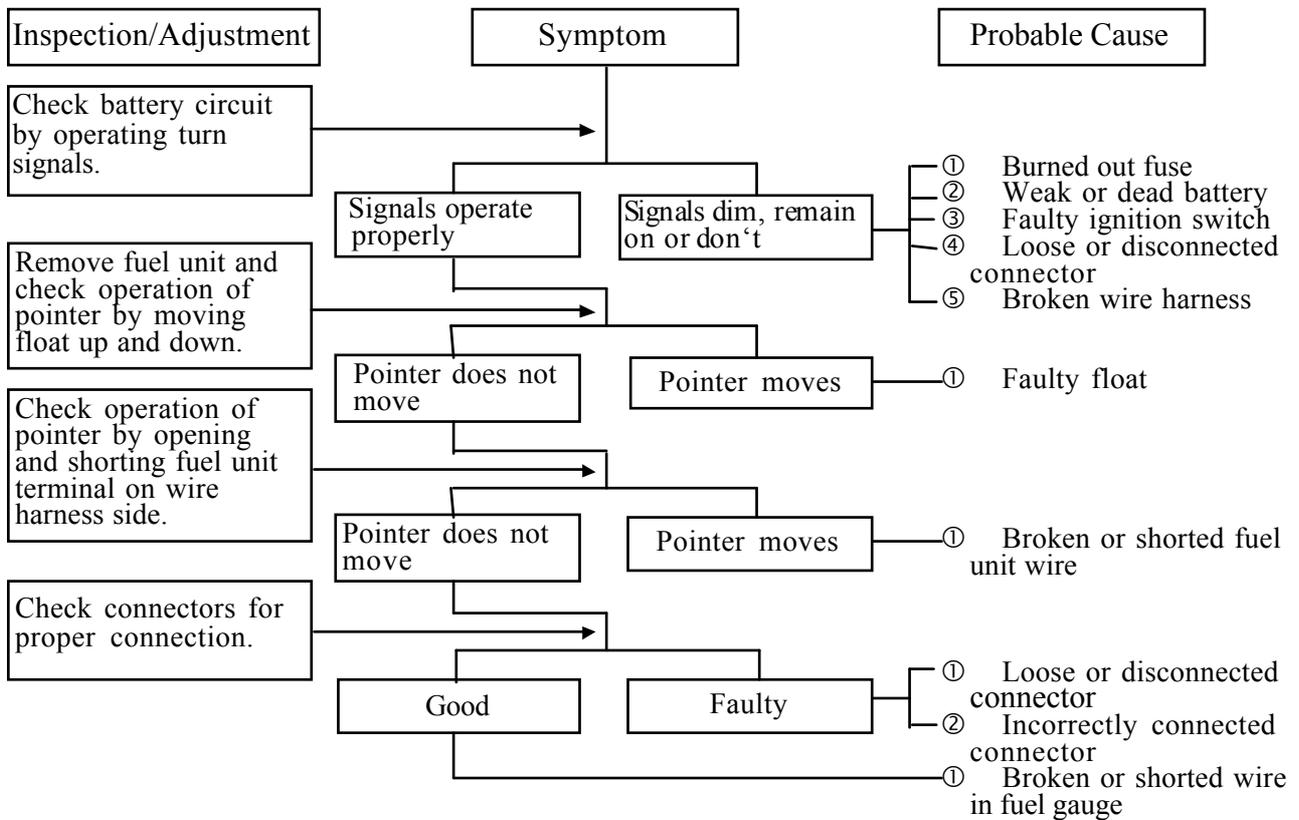
2. Motor oil is sufficient but the indicator light remains on (Ignition switch ON)



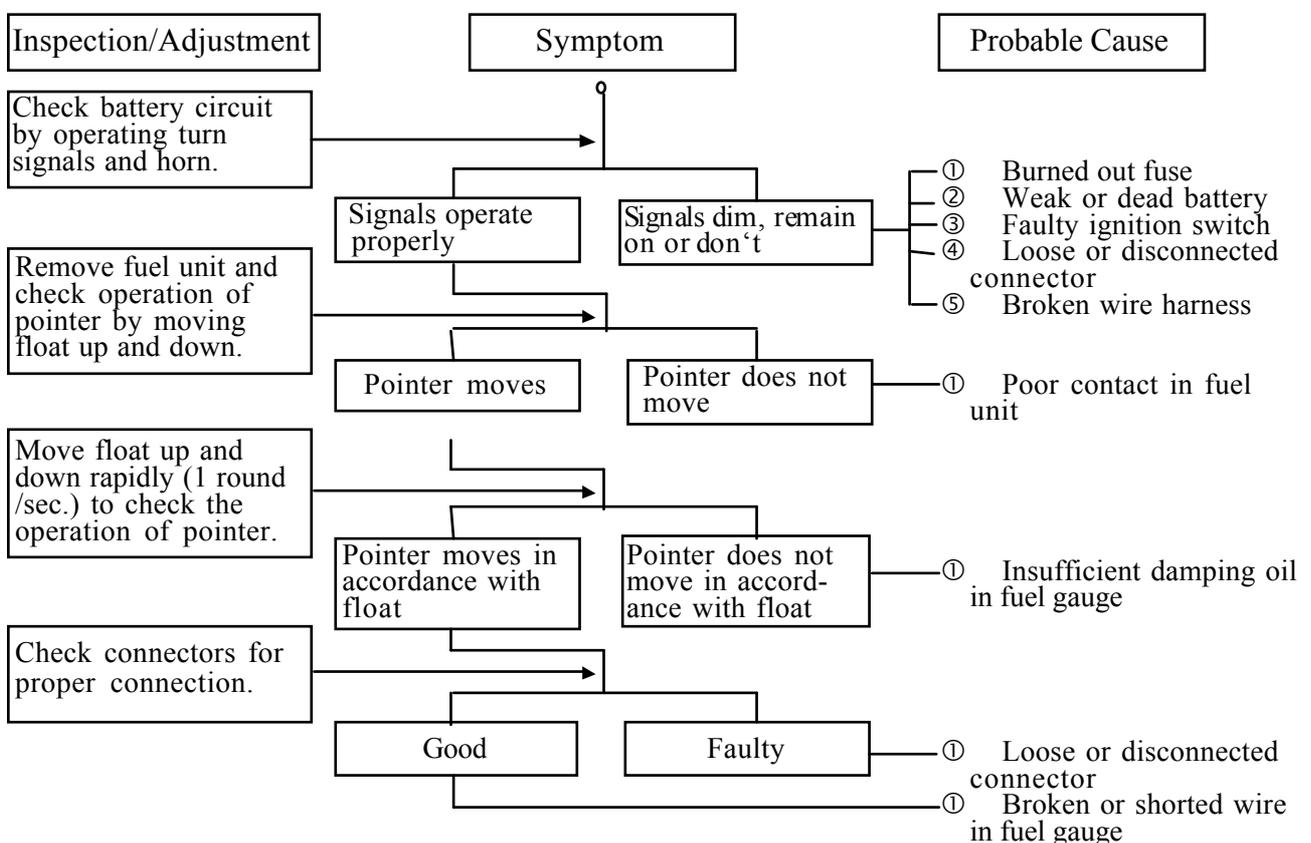
# 1. GENERAL INFORMATION

## FUEL GAUGE

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



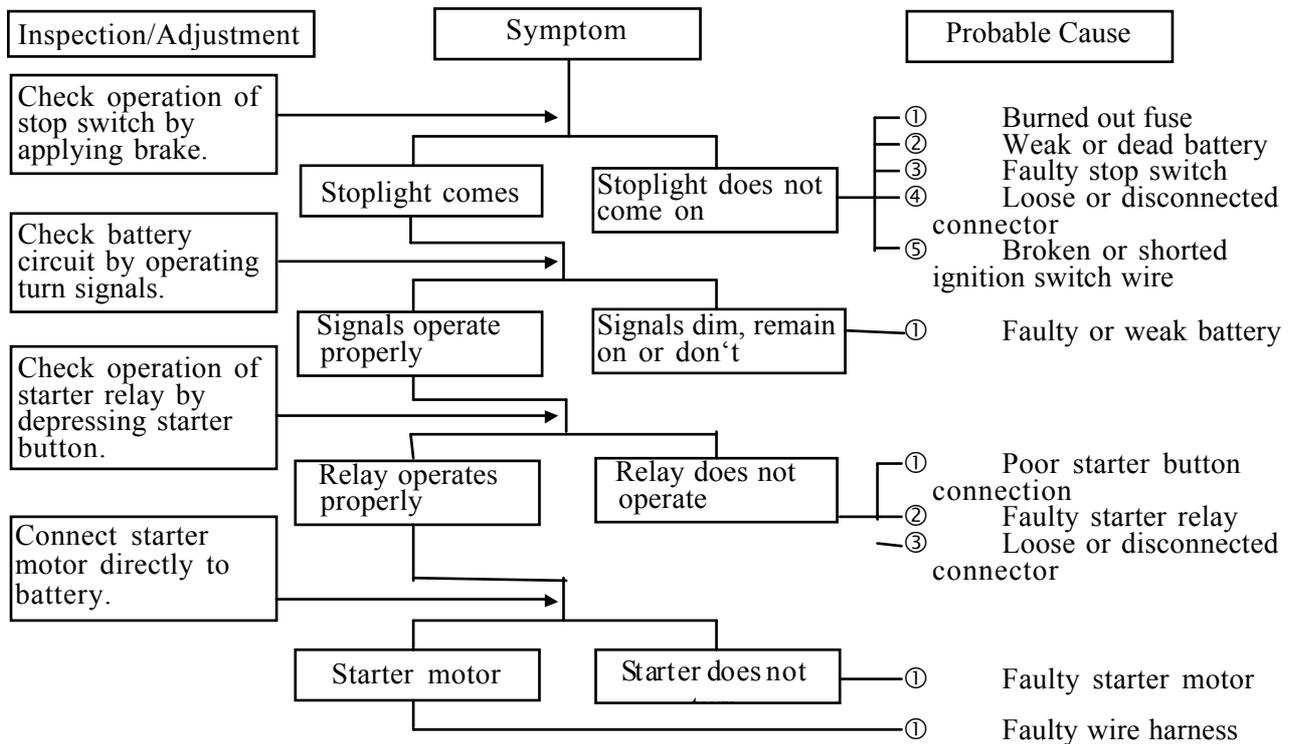
### 2. Pointer fluctuates or swings (Ignition switch ON)



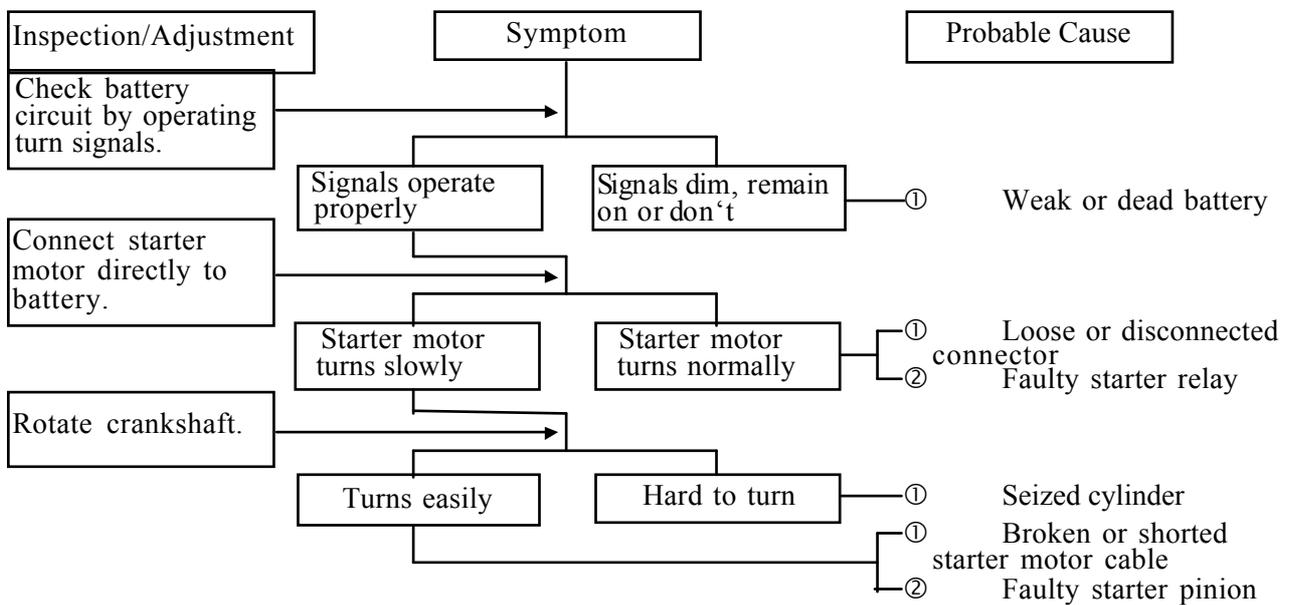
# 1. GENERAL INFORMATION

## STARTER MOTOR

### 1. Starter motor won't turn



### 2. Starter motor turns slowly or idles



### 3. Starter motor does not stop turning

