CBR250FOUR (MC14)

NH-138
NO.1

NH-1
NO.2

CBR250FG (MC14-1000014~1015467)

PB-1270-U
NO.3

CBR250FG-YA (MC14-1000060~1015767)

CBR250R(H) (MC17) 1987

NH-206-M
NO.4

NH-196
NO.5

CBR250RH (MC17-1000006~1025449)

NH-196
NO.6

CBR250R(J) (MC19) 1988

PB-184M-U
NO.7

PB-190
NO.8

CBR250RJ (MC19-1000006~1023630)

NH-193P
NO.9

CBR250RJ (MC19-1011439~1023630)

CBR250R(K) (MC19) 1989

PB-184M-U
NO.10

NH-193P
NO.11

CBR250RK (MC19-1050006~1067954)

NH-193P
NO.12

CBR250RR(L) (MC22) 1990-1991

NH-193P
NO.1

PB-184M
NO.2

PB-193P
NO.3

PB-184M
NO.4

CBR250RRL (MC22-1000001~1020576)

CBR250RR(N) (MC22)

NH-193P
NO.5

NH-237P
NO.6

CBR250RRN (MC22-1050001~1056770)

1992-1993

CBR250RR(R) (MC22)

NH-196
NO.7

R-210C
NO.8

CBR250RRR (MC22-1100001~)

1994-1996*

*Any CBR250RR(R) Bought new after 1996 was actually built in 96 and labelled the CBR250RR(R-II)

CBR250R,RR

INDEX

CBR250R,RR

- **Preface**

This service manual includes the service information for HondaCBR250FOUR and CBR25OR. However, only the part which differs from 250FOUR is described for 25OR. Amended points from CBR25OR(H) are described for CBR25OR(J), so for CBR25OR(K). Differences such as the outlook are not mentioned as they do not affect the maintenance.

Section 1 - includes general cautions for maintenance work. Please use this manual after reading the section.

Section 2 - describes about procedures for inspection and adjustments. Please conduct regular inspection by following the procedure.

Section 3 - and onwards describes procedures for inspection and assembly/disassembly of individual parts.

In the first pages of each sections, you find the figures, maintenance information, troubleshooting charts for your convenience.

Please note:
The contents may change without prior notice due to modifications of the model.

- **SERVICE INFORMATION**

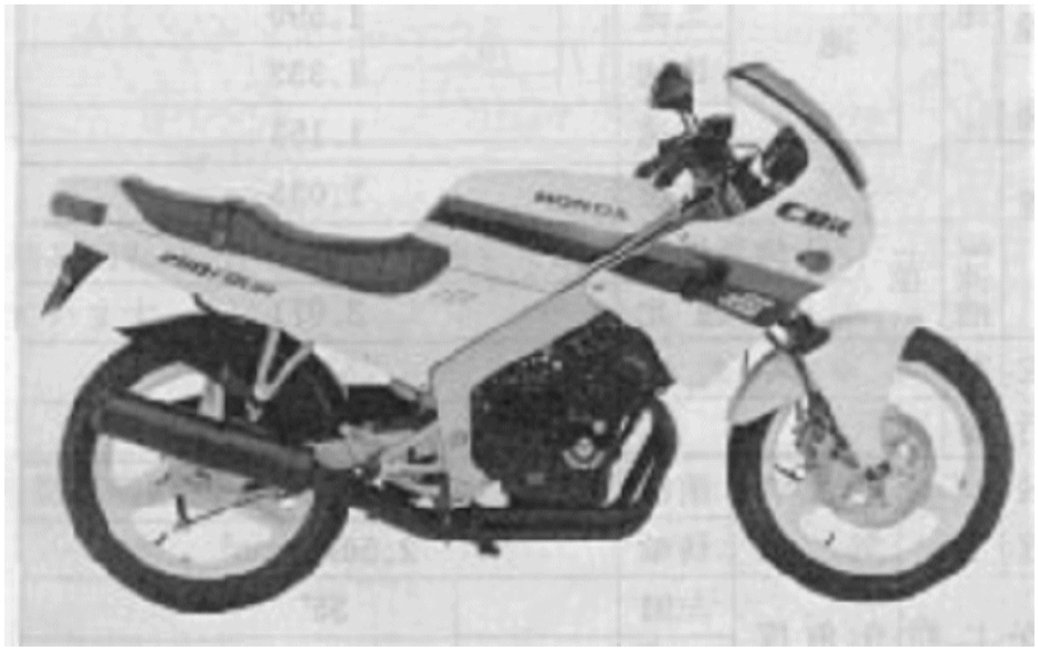
- **LOCATION OF SERIAL NUMBER AND COLOR LABLES**

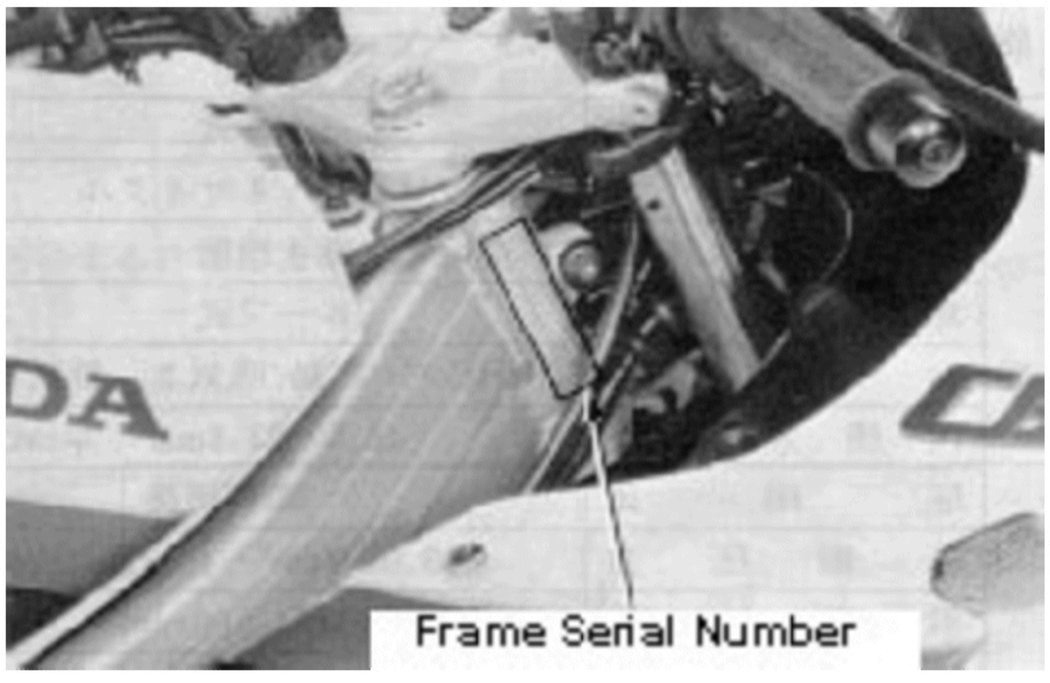
Top right figure:---------- Frame Serial Number Label

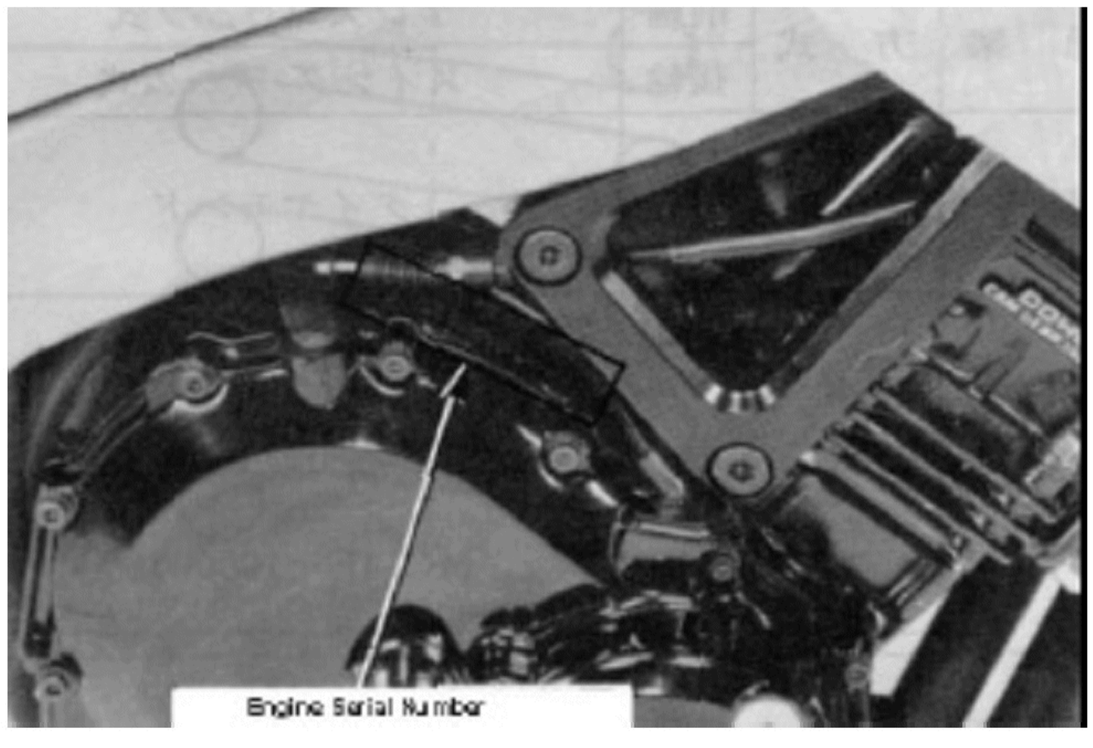
Bottom left figure:----------.Engine Serial Number Label

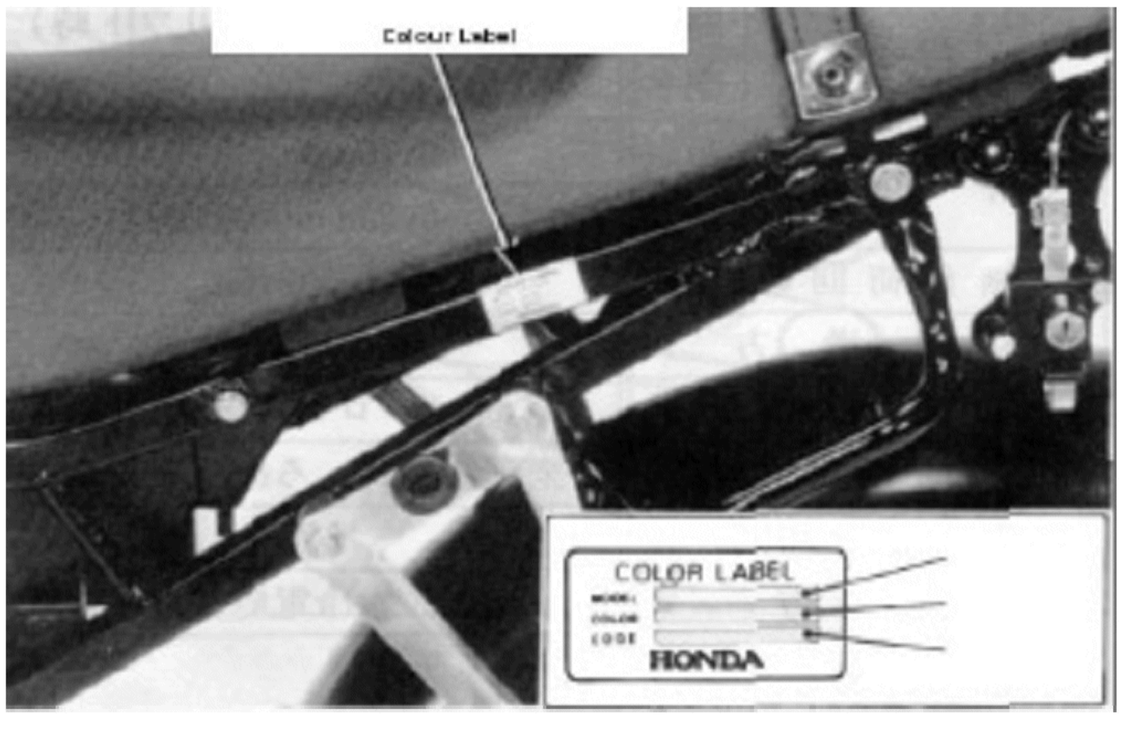
Bottom right figure:---------- Colour label

When ordering the colored part, use the model name and the color code.









● Specifications

Item			Specification
Model Code			Honda MC14
Length			2.000mm
Width			0.685m
Height			1.120m
Wheel-base			1.370m
Power-plant model			MC14E
Total displacement			0.249 litres
Fuel type			Petrol
Vehicle empty weight	Front Axle		77 kg
	Rear Axle		76 kg
	Total		153 kg
Maximum capacity			2 people
Vehicle gross weight	Front Axle		97 kg
	Rear Axle		166 kg
	Total		263 kg
Tyre	Front		100/80 – 17 52H
	Rear		130/70 – 17 62H
Minimum clearance			0.140m
Braking Distance			14.0m (50km/h)
Minimum turning radius			2.6m
Powerplant	Starter type		Electric
	Type of engine		Petrol 4 Stroke
	Cylinders		2 abreast
	Configuration		Inline 4 cylinder
	Valve operation		DOHC
	Bore X Stroke		48.5 x 33.8mm
	Compression ratio		11.0
	Compression Pressure		13.0kg/cm^2 - 400rpm
	Maximum output		45 PS / 14,500 rpm
	Maximum torque		2.5 kg-m / 10,500 rpm
	Valve operation time	Intake Valve Open	10° BTDC (1mm lifted)
		Intake Valve Close	40° ABDC (1mm lifted)
		Exhaust Valve Open	30° BBDC (1mm lifted)
		Exhaust Valve Close	10° BTDC (1mm lifted)
	Valve Clearance	In	0.16mm (cold)
		Out	0.23mm (cold)
	Idle Speed		1,500rpm
	Lubrication		Forced Pressure
	Oil filter		Total flow
	Oil pump		Trochoid Rotor
	Oil capacity		2.7 litres
	Cooling System		Liquid cooled

● Specifications

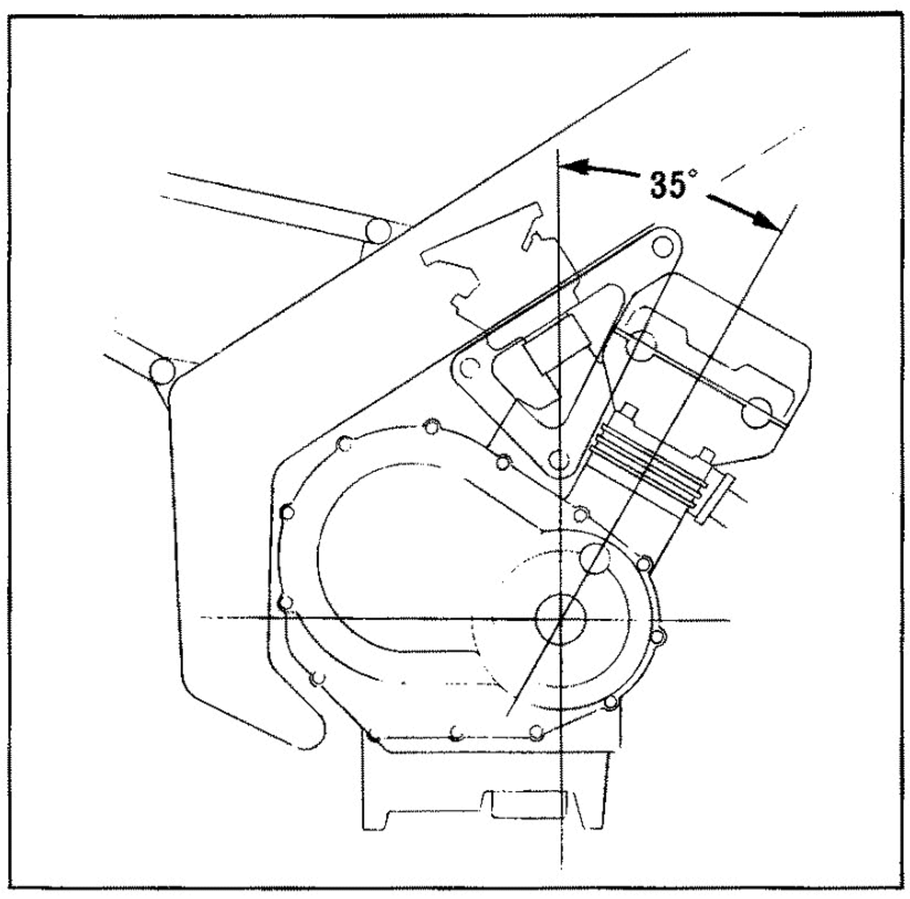
Item				Specification
Fuel system	Air filter	Type		Viscous Paper
	Carburetor	Fuel Capacity		14.0 litres
		Carburettor		VG01
		Piston size		28mm
		Venturi diameter		25mm
		Ignition Timing		20^0 BTDC / 1,500 rpm
		Spark Plug	NGK	C8EH – 9, C9EH - 9
			ND	U24FE 9, U27FE 9
		Plug Gap		0.8 – 0.9 mm
		Battery		12V 8AH
	Clutch	Type		Multi-wet plate
		Operation		Mechanical
	Transmission	Primary Reduction		2.966
		Type		Constant Mesh
		Gear ratio	1st	2.733
			2nd	2.000
			3rd	1.590
			4th	1.333
			5th	1.153
			6th	1.035
	Reduction : First	Gear type		Chain
		Reduction ratio		3.071
	Tyre Pressure	Front		26° 00’
		Rear		97mm
Steering system	Steering stem angle	Left		35°
		Right		35°
Braking system		Front		Hydraulic Disc
		Rear		Hydraulic Disc
Shock absorbing system	Suspension	Front wheel		Telescopic fork
		Rear wheel		Swing arm
Frame		Type		Diamond

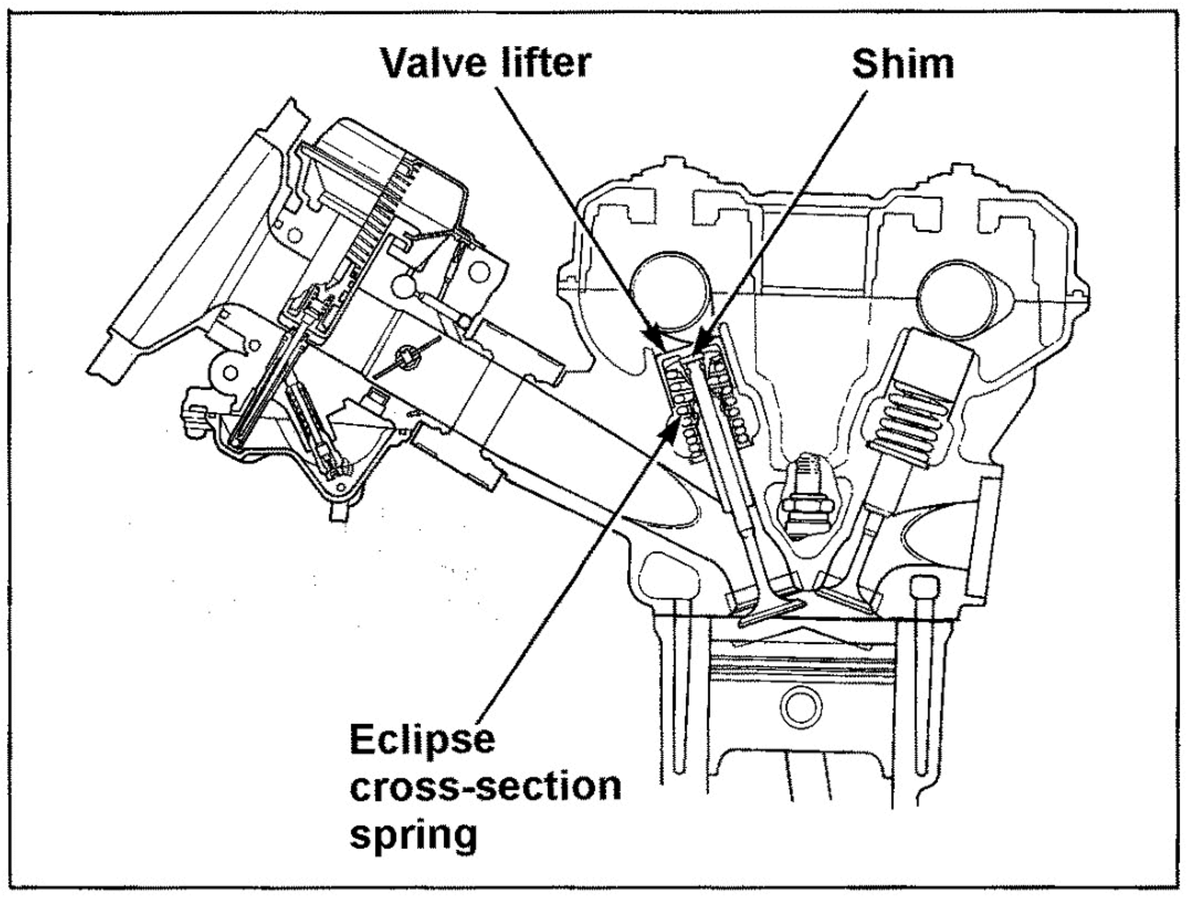
Structure Description

Engine

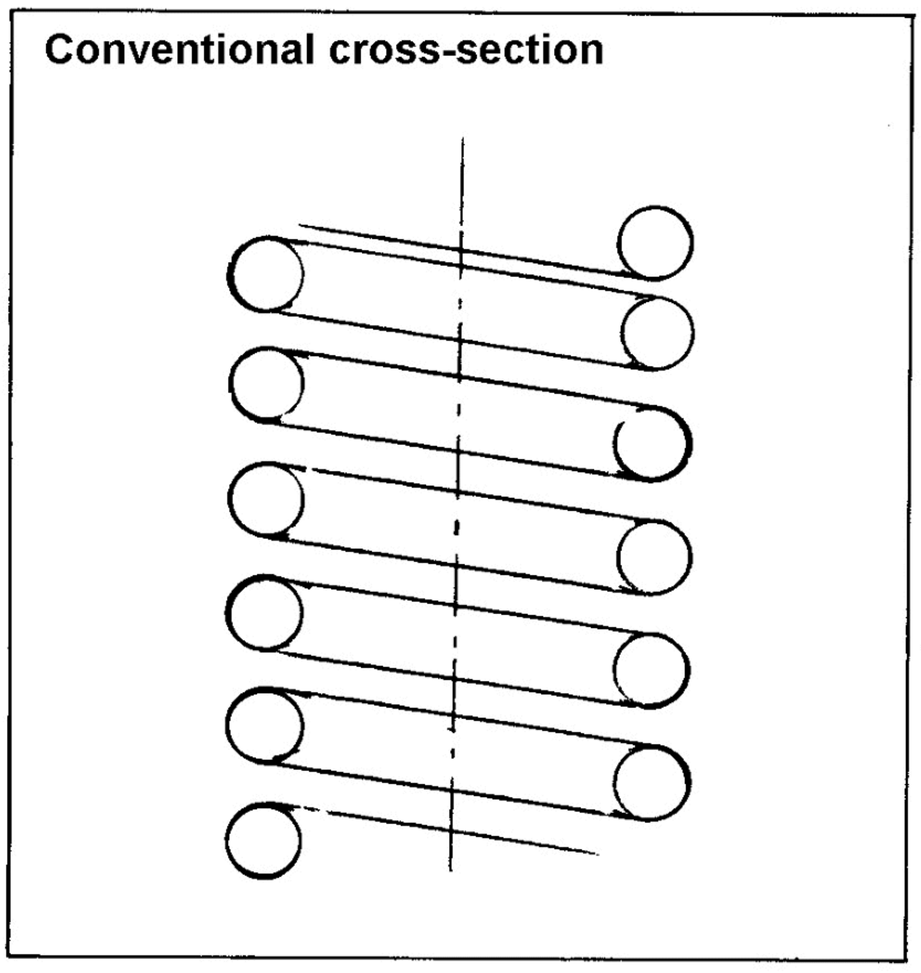
The vehicle is equipped with a water cooled inline 4 cylinder engine. The engine is inclined forward- 35° This inclination enables an improved straight intake manifold port, which allows smooth flow of air-fuel mixture gas.

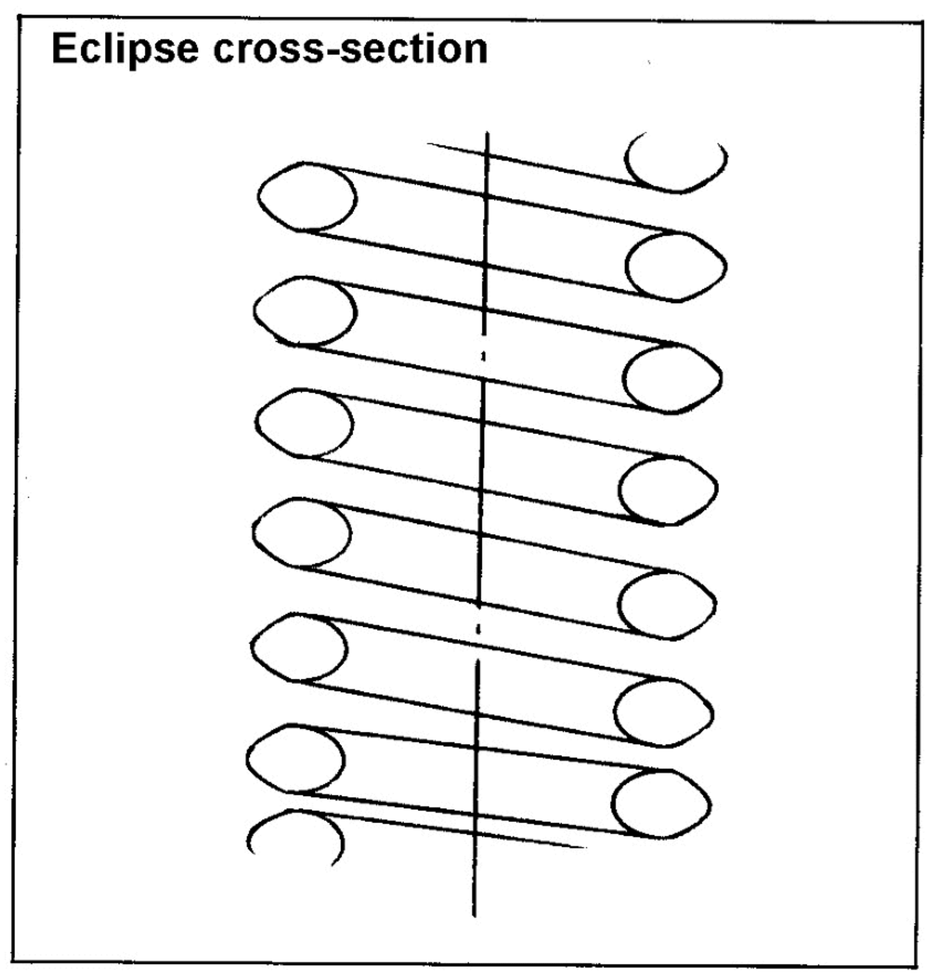
Gear drive system was applied to the cam shaft instead of chain drive system. The gear system is optimised for high speed operation.
In order to provide smooth valve operation at high speed, the engine has lower shim design. Also, carbon hardened connecting rods used to reduce friction loss.



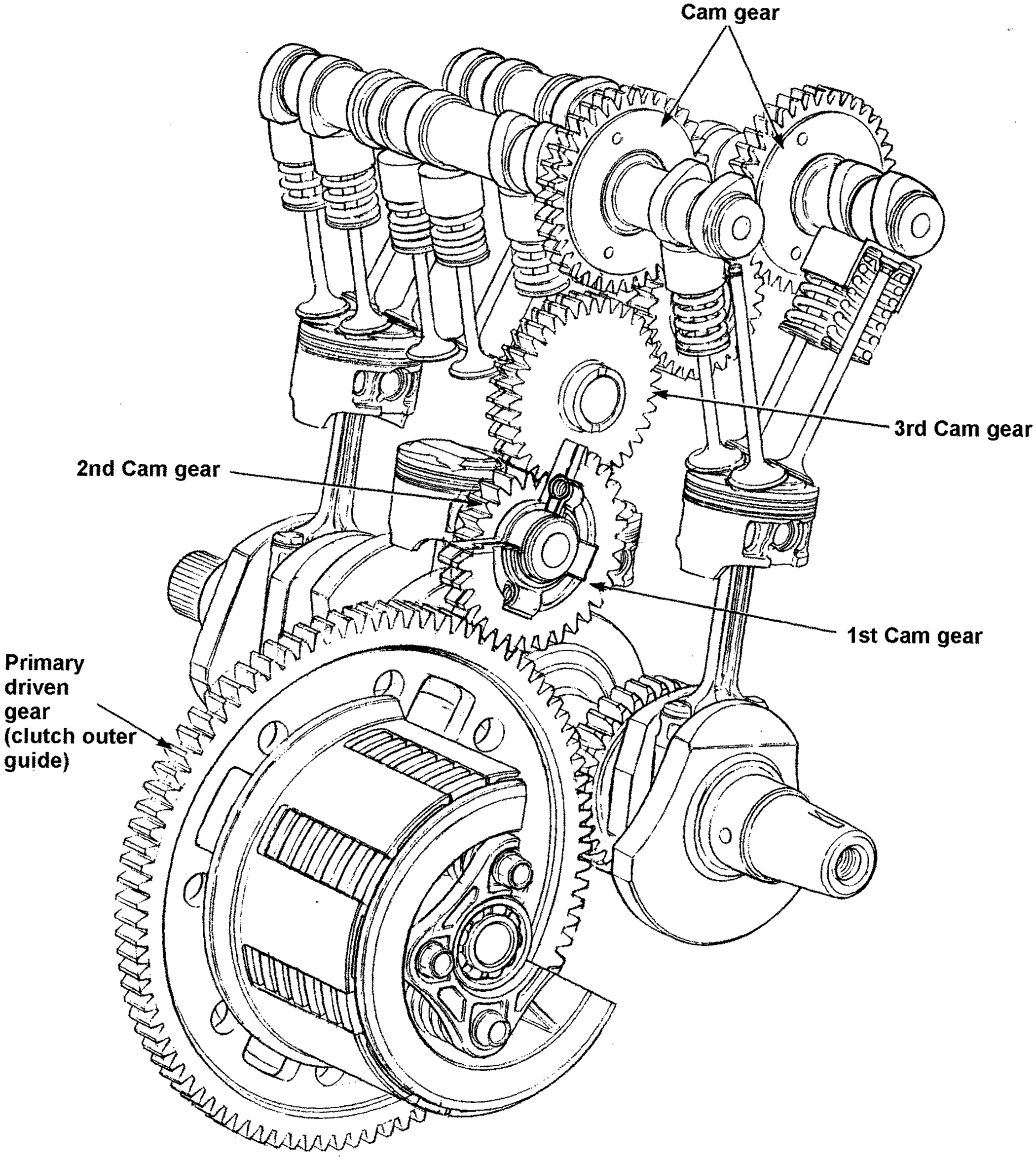


To provide smooth valve operation in high speed, the valve spring was computer designed to endure higher stress.



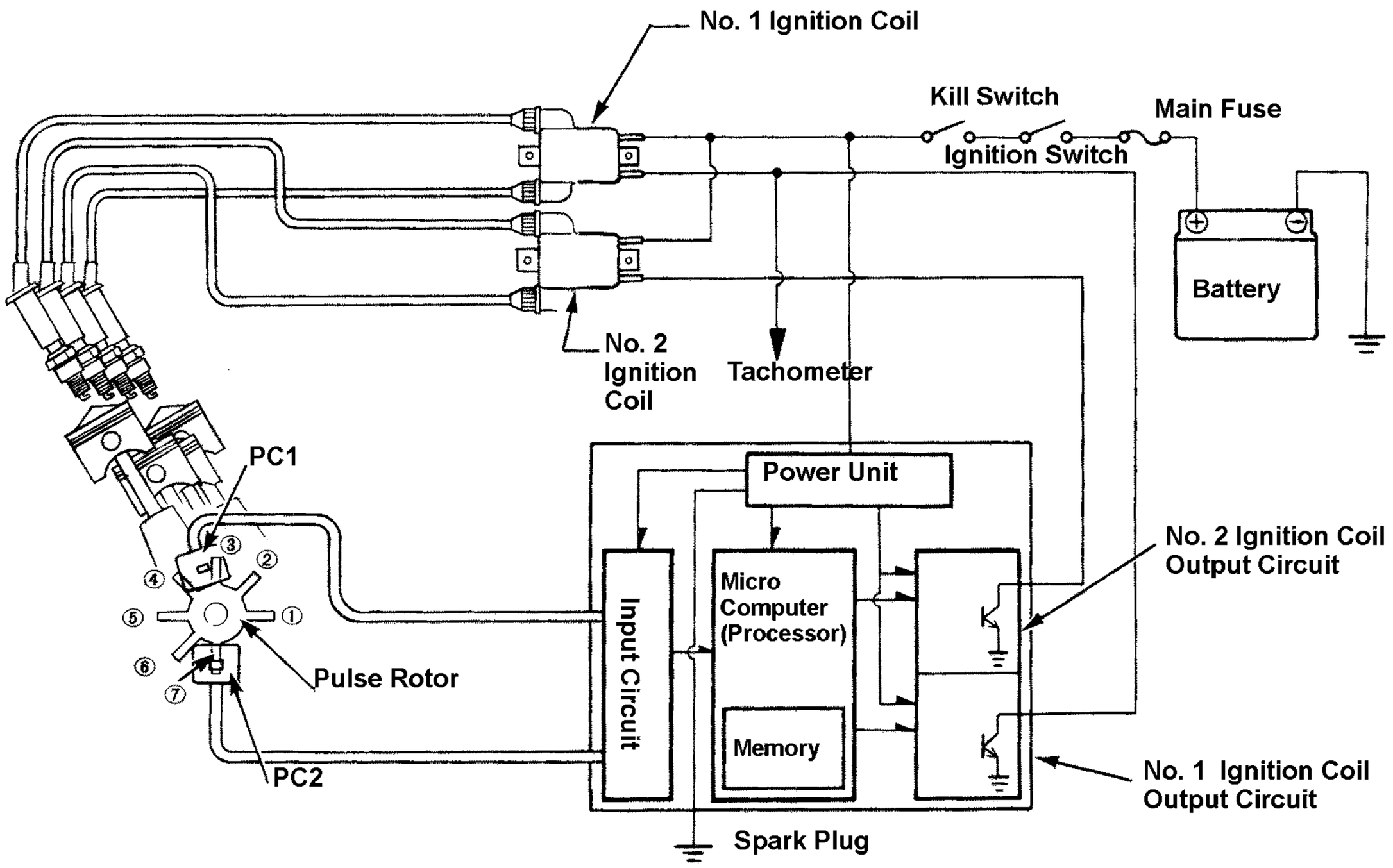


In order to reduce friction loss and to operate valves in accurate timing, gear driven cam system is applied.
The figure below shows the linkage between the crankshaft and the cam gears.
The crankshaft power is transmitted to the cam gear through the primary driven gear (clutch outer gear), which is on the same axle for the transmission main shaft.
This mechanism is quite different from the V-gear drive system, which the crankshaft directly drives cam gears.



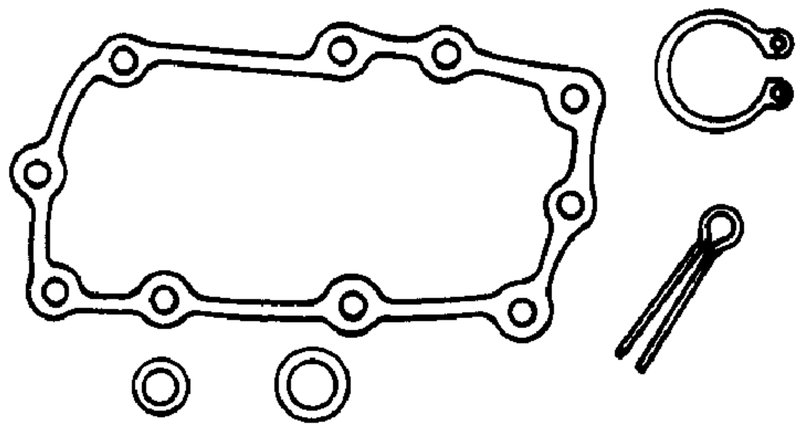
Ignition System

A newly designed digital ignition unit with a built-in micro computer provides best ignition throughout its operating speed range.
A pulse rotor has seven projections. From (1) – (7) have 45°separation and 90°for (7) to (1). The engine rpm and crank position for each cylinder are detected from the relative position of the seven projections and two pulser coils. The two pulser coils are installed so as to have 15° inclination from level line for PC2 end, compared to PC1. This angular offset is to detect crank positions.
The time when the pulse rotor's projection passes the PC1 pulser coil is referred as "O-reference". By detecting the time required to have the projection at the pulser coil again, the engine rpm is determined and the micro computer determines ignition timing.

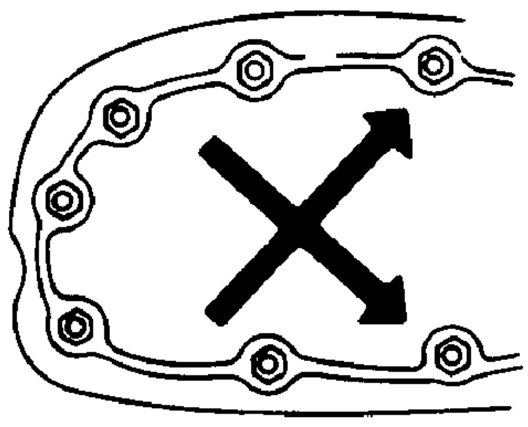


General Caution

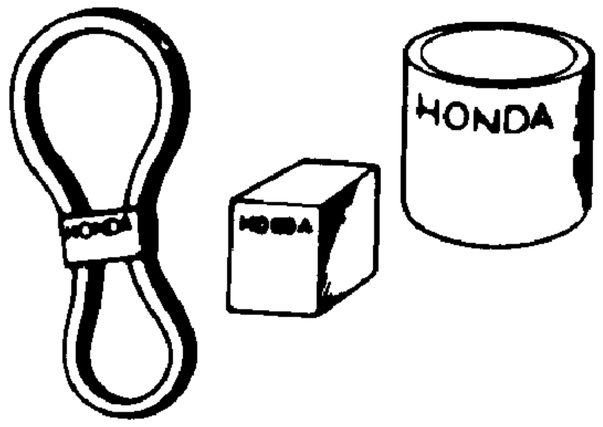
- Replace gaskets, O-Rings, circlips and cotter pins when they are removed.



- When screwing, temporarily tighten screws/bolts.
  Screw bigger diameter first, then smaller diameter.
  Inner ones first, then outer ones. Tighten in criss-cross way whenever possible.
  Apply designated torque.

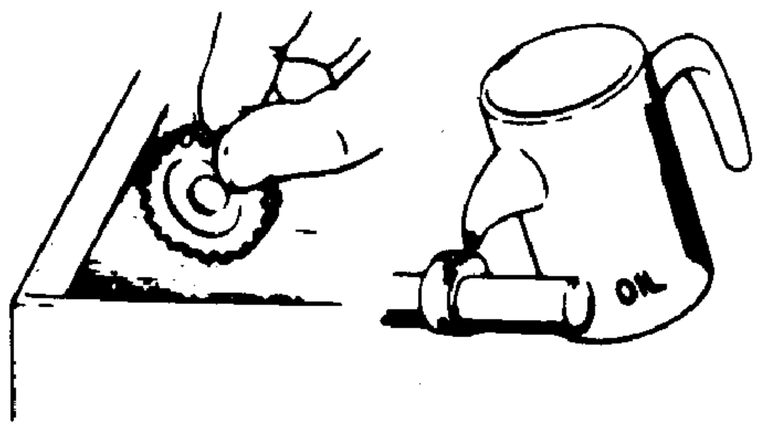


- Use genuine Honda or recommended parts, lubricants, and other products.

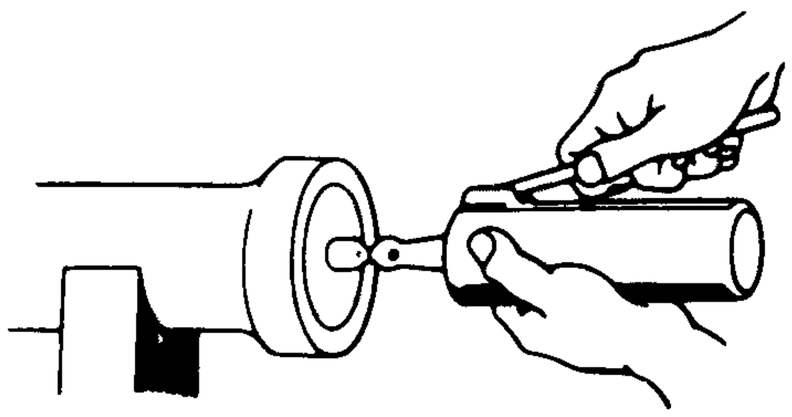


- Use special / common tools as instructed.

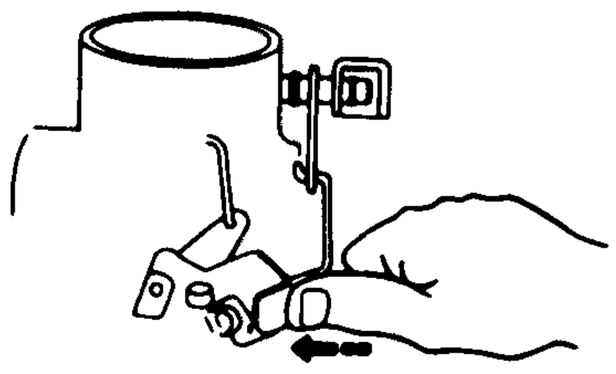
- Disassembled parts are to be cleaned before the inspection/measurement.
  Apply oil to contact area when installing them.



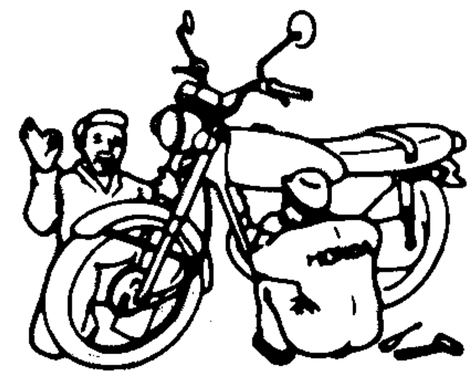
- Apply grease or equivalent to designated parts.



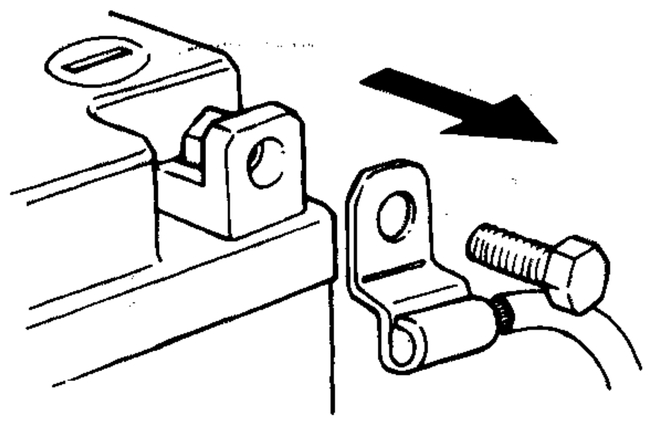
- After assembling, check the operation and fittings.



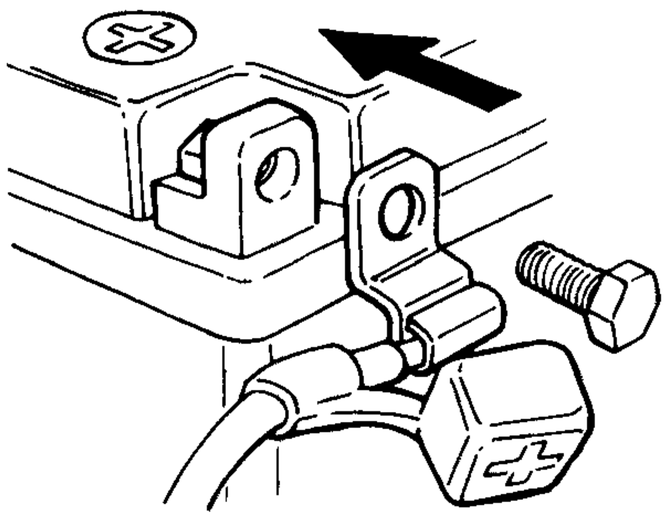
- When multiple people are working at the same time, always confirm each other's safety.



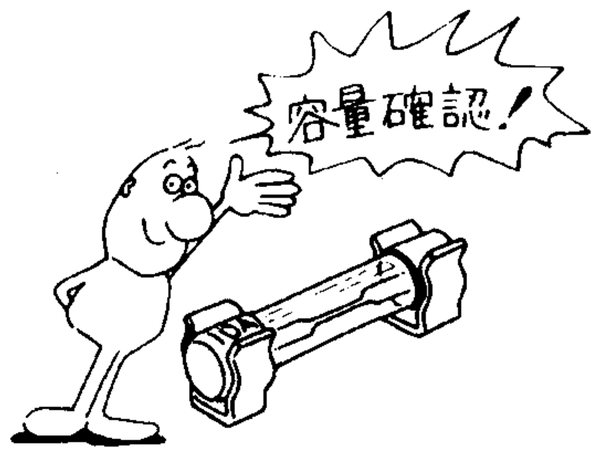
- Disconnect (-) lead from the battery prior to servicing the vehicle.
- Do not touch the frame with a wrench or any other metal tools.



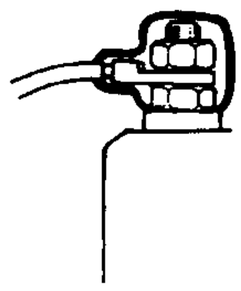
- After servicing the vehicle, check each connection, fittings and routing.
- If the battery has been disconnected, connect (+) lead first.
- Apply grease to the terminals after connecting leads.
- Attach covers to the terminals.



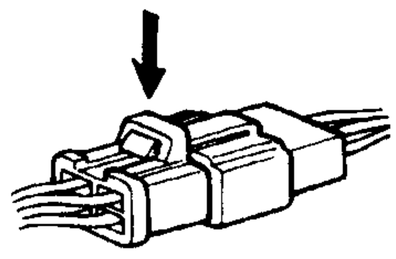
- If a fuse has blown, inspect and fix the cause and install the new fuse with the correct capacity.



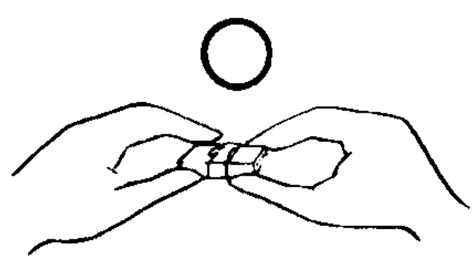
- Apply covers to terminals after servicing.

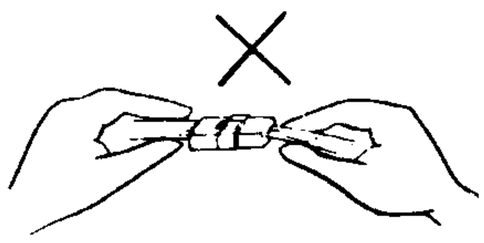


- When disconnecting locked couplers, unlock before disconnecting.

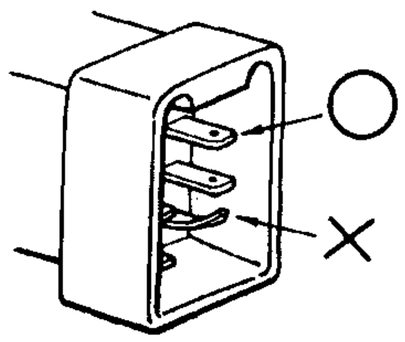


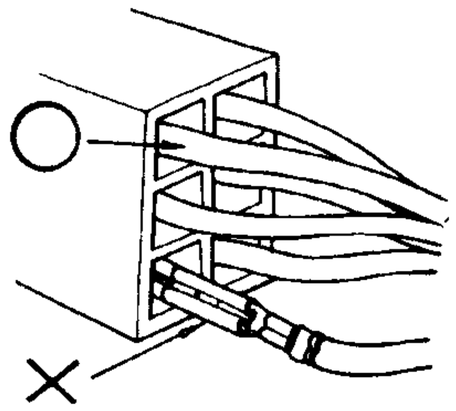
- When disconnecting couplers, hold the coupler body.
  Do not pull the wire harness.



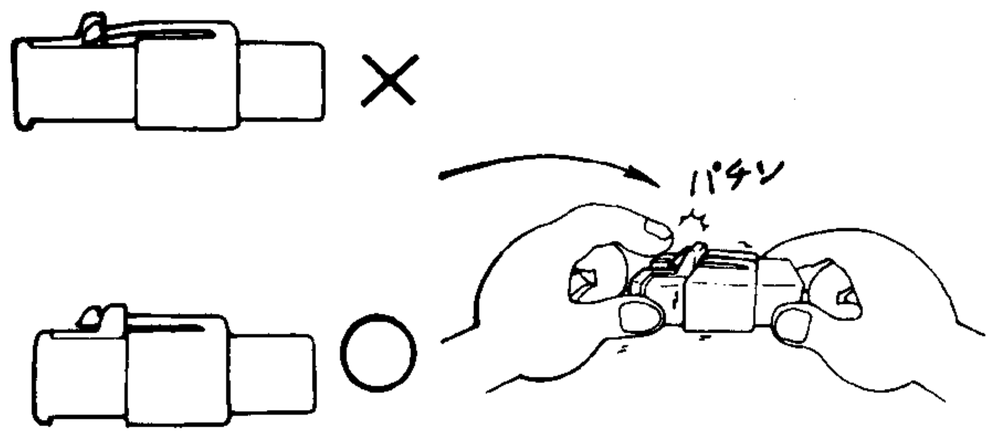


- Before connecting couplers, make sure there is no damage or any abnormalities on the terminals.

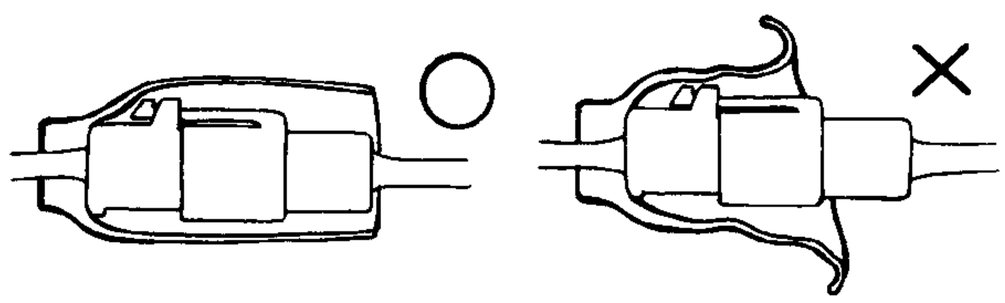




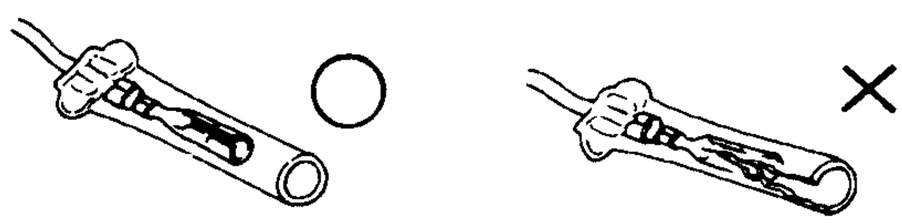
- Firmly insert couplers.
- Check couplers are locked if the couplers have locks.
- Check all harnesses are connected.



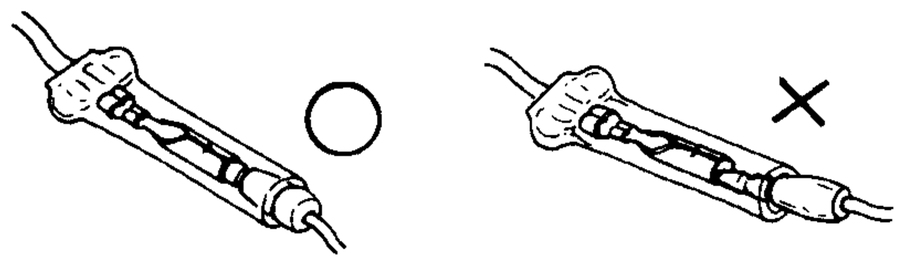
- Coupler covers should cover whole coupler unit without any peels.



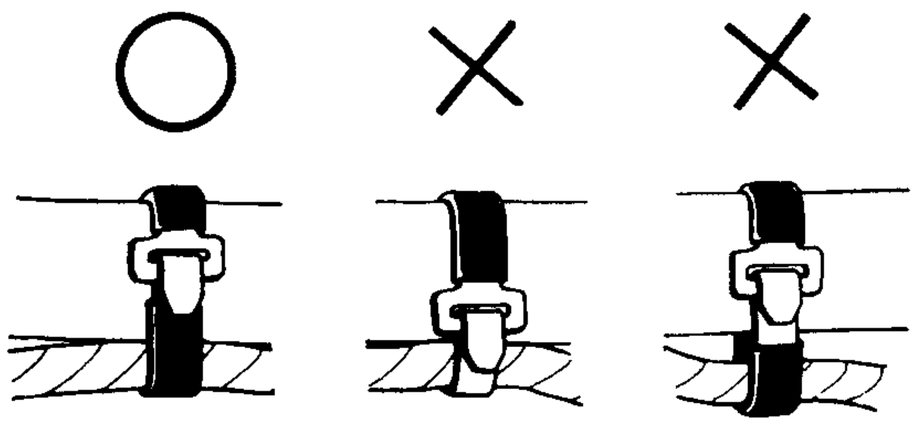
- Connector covers should not be damaged and female terminals should not be loose.



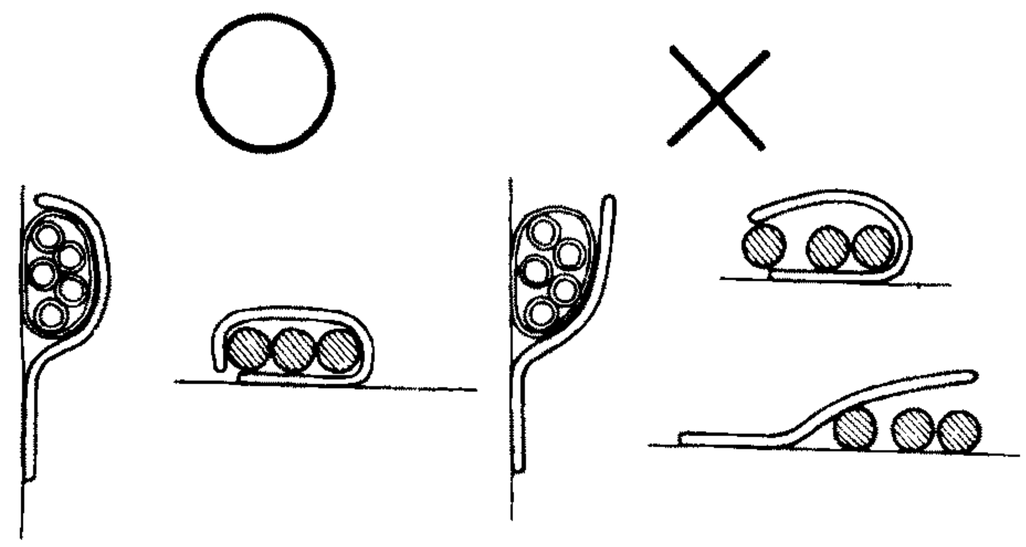
- Firmly secure the connectors.
- Covers should wrap whole terminals.
- Open end of the covers should not face upwards.



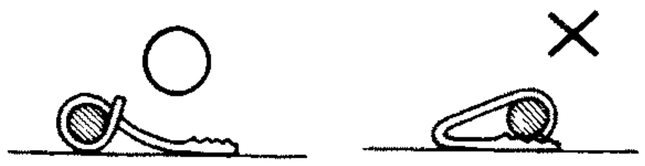
- Fix wire steps to designated position on the frame.
- Clamp wire harnesses at the coated area when aluminium straps are used.



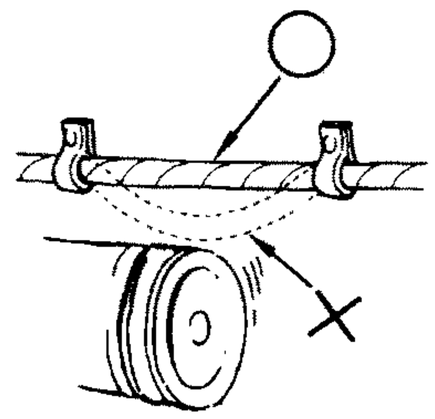
- Make sure wire harnesses are properly clamped.



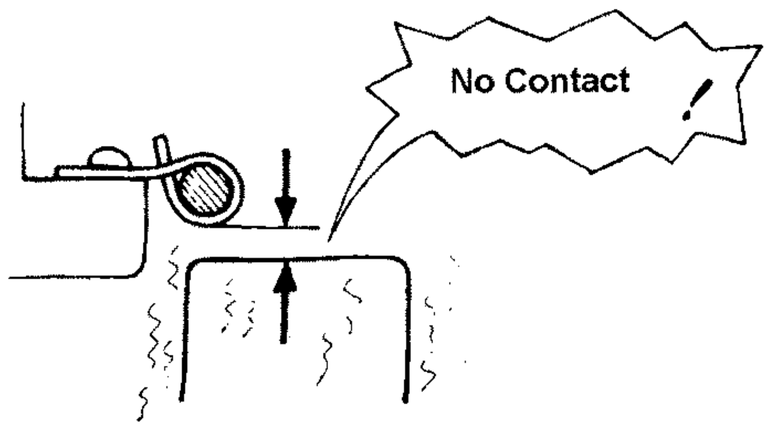
- Do not clamp to the welded side when weld-clamping.



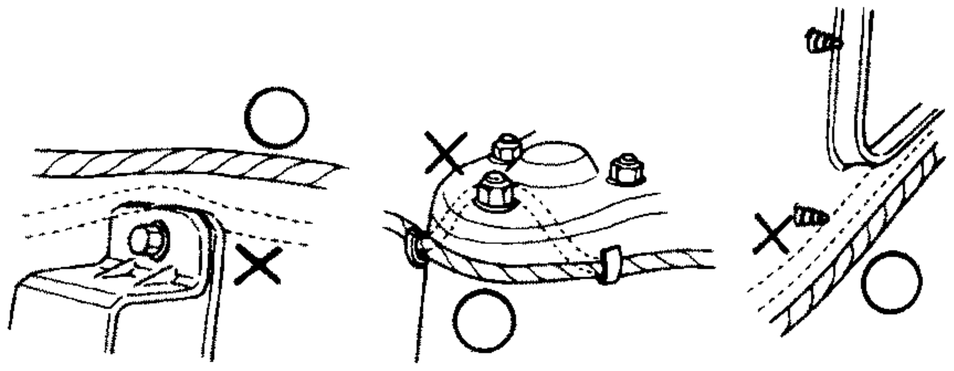
- Clamp wire harnesses so as to keep them away from moving parts.



- Clamp wire harnesses so as to keep them away from heated parts.

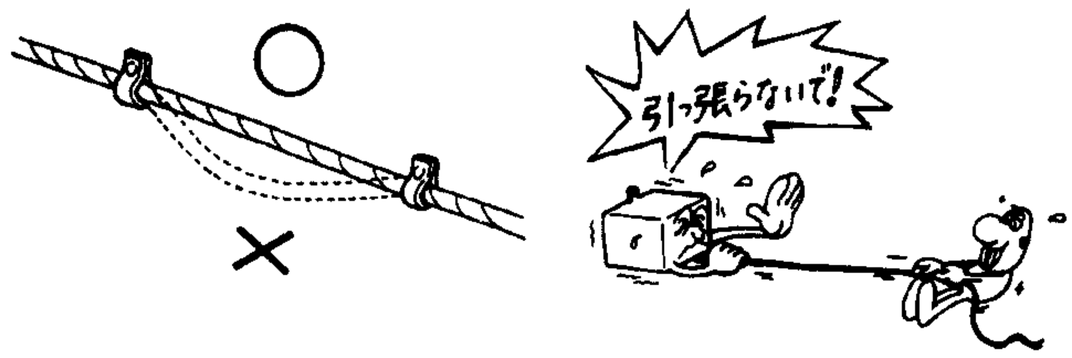


- Wire harnesses are to be routed to avoid body edges or sharp edges.

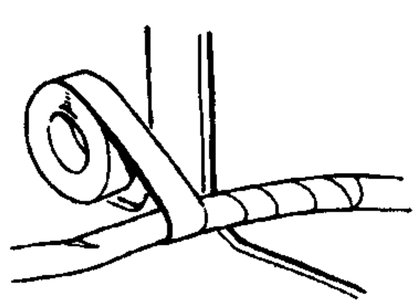


- Do not let wire harnesses to touch bolt/screw heads and their ends.

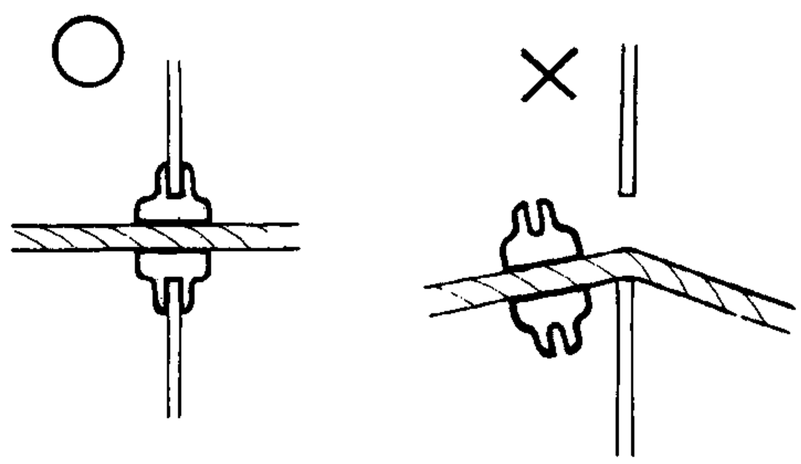
- Do not apply excessive tension / slack to the wire harnesses.



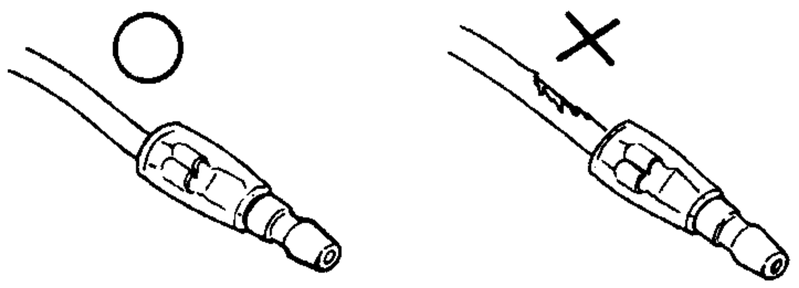
- If there is no other alternatives but to route wire harnesses through sharp edges, protect the part with tubes or tape.



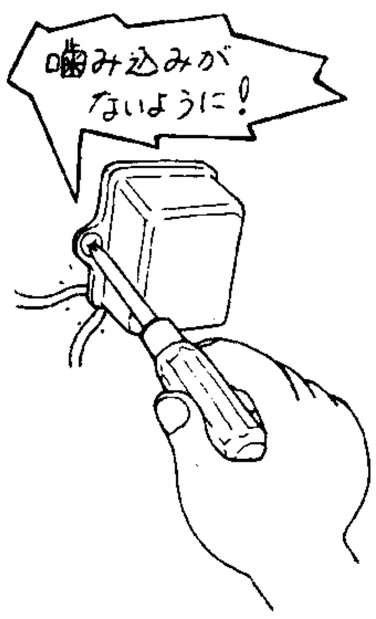
- Firmly set grommets if available.



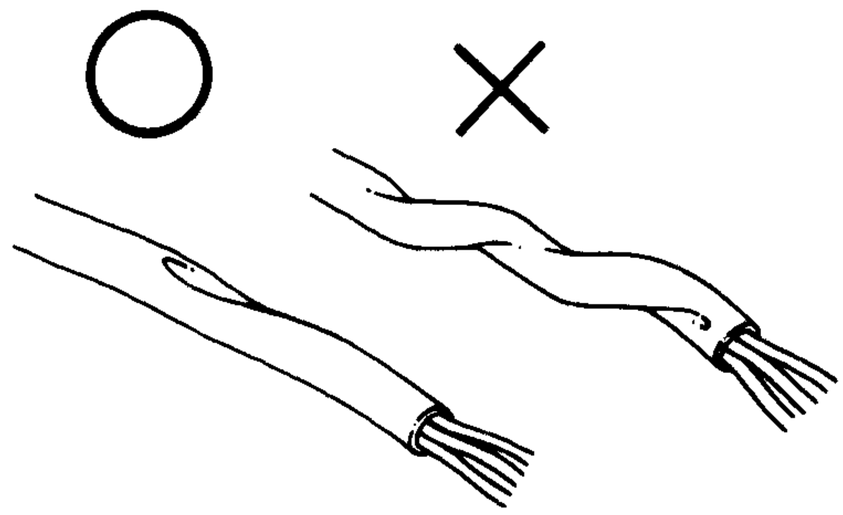
- Do not unwrap wire harnesses.
- Wrap the wire harness with adhesive vinyl tape if it is unwrapped.



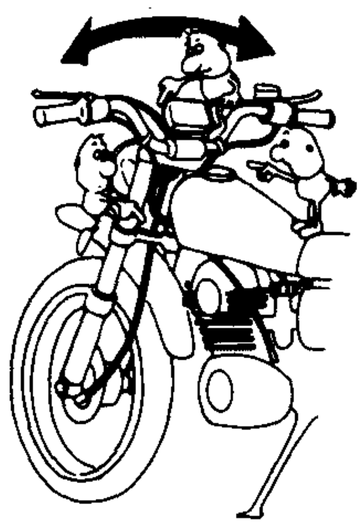
- Do not catch wire harnesses when installing parts.



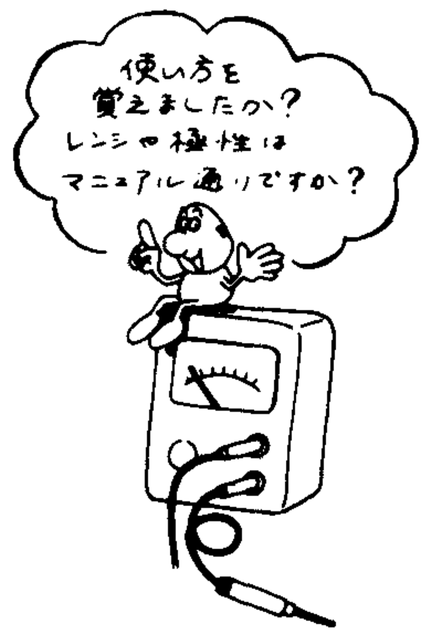
- Do not twist wire harnesses.



- Make sure wire harnesses are not over-tensioned or over-slack when the handlebar is fully turned to either side. Also, they should not have any sharp bending, catching or contact with sharp edges.



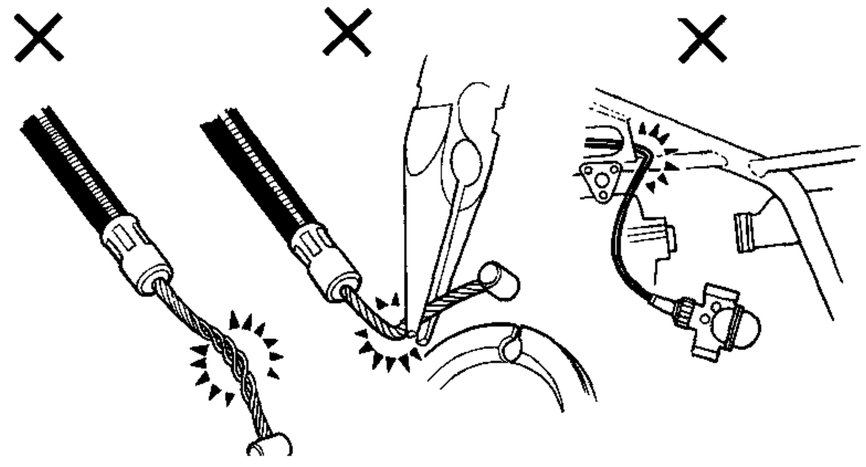
- Read instructions when using a multi meter, and follow the instruction on the service manual.



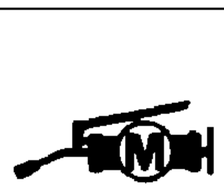
- Do not drop or throw parts.

- If rust is forming on the terminal, remove with sandpaper before re-connecting.

- Do not twist or sharply bend cables. Such deformations or damages may cause failure.



Symbol	Meaning	Symbol	Meaning
	Danger: Its neglect may lead to serious injuries.		Important: Its neglect may lead to minor injury or damaging the parts.
			General caution: Tips of the work

Symbol	Meaning	Symbol	Meaning
	Apply oil: Unless specified, use designated or recommended oil.		Apply sealant
	Apply Molybdenum solution: The solution is a mixture of engine oil and Molybdenum grease at		Replace with new parts whenever disassembled.
	Apply multi-purpose grease. (Lithium soap based NLG #2 equivalent. Example: SHELL Albania EP-2		Apply brake fluid. Use recommended grade (DOT4)
	Apply Molybdenum grease (3% or more Molybdenum, NLGI#2 equivalent) Mitsubishi multi purpose M2 Dow Corning Molycoat BR – 2 PLUS		Apply recommended cushion oil.
	Apply Molybdenum paste. (40% or more Disulphide Molybdenum. NLGI#2 equivalent). Local paste Molycote G-n Paste (Dow Corning)		Use exclusive tools
	Apply silicone grease Silicone grease G40M (ShinEtsu)		O.P. (Option) tool. Refer to parts list as these tools are considered to be parts.
	Apply screw locker. Use medium class unless specified.	-> 3-1	Reference pages.

Tightening Torque

- **Engine**

Part Name	Qty	Screw Dia	Tightening Torque kg-m	Notes
Cylinder head cover (special bolt)	6	6	0.8 - 1.2	
Cam shaft holder (flange bolt)	16	6	1.2 - 1.6	
Cylinder head (flange bolt)	12	7	1.7 - 2.1	Apply oil
Spark Plug	4	10	1.0 - 1.2	
Con rod (con rod bolt/nut)	8	-	1.5 - 1.9	Apply oil
Gear train holder nut	2	8	1.8 - 2.2	
AC generator fly wheel	1	10	8.0 - 9.0	UBS
Starter Clutch	1	10	7.0 - 8.0	UBS
Clutch Centre	1	20	6.0 - 7.0	
Oil pump driven sprocket (flange bolt)	1	6	1.3 - 1.7	Apply screw lock
Oil Pressure Switch	1	-	1.0 - 1.4	Apply screw lock
Neutral Switch	1	10	1.0 - 1.4	
Oil filter centre bolt	1	20	1.5 - 2.0	
Drain plug bolt	1	14	3.5 - 4.0	
Crankcase attachment bolt (6mm) (8mm)	16 11	6 8	1.0 - 1.4 2.1 - 2.5	Apply oil Apply oil
Cover attachment bolt (6mm)	25	6	0.8 - 1.2	
Shift drum center (Shifter pin)	1	-	2.1 - 2.5	Apply screw lock

- **Frame**

Part Name	Qty	Screw Dia	Tightening Torque kg-m	Notes
Handle attachment Bolt	2	8	2.5 - 3.0	
Brake Disc Bolt	12	8	3.7 - 4.3	
Front accelerator nut	1	14	5.5 - 6.5	
Front accelerator holder nut	4	8	1.8 - 2.5	U-Nut
Caliper bracket bolt	4	8	2.4 - 3.0	
Master cylinder holder nut	2	6	1.0 - 1.4	
Front folk socket bolt	2	8	1.5 - 2.0	
Bottom bridge bolt	2	10	3.0 - 4.0	
Top bridge bolt	2	7	0.9 - 1.3	
Front Folk bolt	2	31	1.5 - 3.0	
Steering adjusting bolt	1	26	2.0 - 2.4	
Steering stem bolt	1	24	9.0 - 12.0	
Driven sprocket nut	6	8	2.8 - 3.4	
Rear accelerator bolt	1	16	8.0 - 10.0	U-Nut
Rear cushion lower joint locking nut	1	12	3.8 - 6.0	Apply screw locker
Rear cushion upper bolt	1	10	5.0 - 6.0	U-Nut
Rear cushion lower bolt	1	10	5.0 - 6.0	U-Nut
5.0 - 6.0	1	10	5.0 - 6.0	U-Nut
Con rod bolt (Custom arm side) (Frame side)	1 1	10 10	5.0 - 6.0 5.0 - 6.0	U-Nut U-Nut
Rear folk pivot adjusting bolt	1	26	1.0 - 2.0	
Rear folk pivot locking nut	1	26	6.0 - 7.0	
Rear folk pivot nut	1	14	6.0 - 7.0	U-Nut

Part Name	Qty	Screw Dia.	Tigtening Torque kg-m	Notes
Hanger pin	4	10	1.5 - 2.0	
Hanger pin plug	4	10	0.1 - 0.2	
Brake hose attachment bolt	4	10	2.5 - 3.5	
Brake hose tightening bolt	1	10	3.0 - 4.0	Right side under a bottom bridge
Exhaust pipe joint nut	8	6	0.8 - 1.2	
Muffler attachment bolt	1	8	2.4 - 3.0	
Change pedal	1	6	1.0 - 1.4	
Engine mount bolt	8	10	4.5 - 5.5	
Engine hanger bracket	4	10	3.5 - 4.5	
Sub frame	4	10	4.5 - 5.5	
Side stand bracket	2	8	2.5 - 3.0	
Step holder	4	8	2.5 - 3.0	
Tandem step holder	4	8	2.5 - 3.0	
Ignition switch	2	8	2.5 - 3.0	
Thermostat case	2	6	1.0 - 1.4	
Radiator upper stay	2	6	1.0 - 1.4	
Radiator grill	2	6	0.8 - 1.2	
Fuel cock	1	22	2.0 - 2.5	
Fuel tank attachment nut	1	6	0.8 - 1.2	
Fuel tank attachment bolt	1	8	1.8 - 2.5	
Air cleaner case (step bolt)	6	5	0.6 - 1.0	
Air cleaner duct	1	6	0.5 - 0.8	
Sub air cleaner	1	6	0.5 - 0.8	
Fairing	6	6	0.7 - 1.1	
Fairing inside cover	4	6	0.6 - 1.0	
Head light	4	6	0.3 - 0.5	
Fairing stay	2	10	3.0 - 4.0	
Meter	2	6	0.8 - 1.2	
Cooling fan switch	1	16	2.4 - 3.2	Apply sealer
Front fender (6mm bolt) (6mm bis)	4 2	6 6	0.8 - 1.2 0.7 - 1.1	
Read fender A	4	6	0.7 - 1.1	
Rear fender B	5	6	0.8 - 1.2	
Tail light	2	6	0.8 - 1.2	
Starter motor terminal cable	1	6	0.8 - 1.2	
Front direction indicator	2	5	0.35 - 0.50	
Horn stay	1	6	0.8 - 1.2	

- For the parts not specified in the above tables, use the following standards.

- **Standard Tightening Torque** SH (Small Head) Bolt: 8mm flange head 6mm bolt

Type of bolt/nut	Torque kg-m	Type of bolt/screw/nut	Torque kg-m
5mm bolt/nut	0.45 - 0.6	5mm screw	0.35 - 0.5
6mm bolt/nut	0.8 - 1.2	6mm screw, 6mm flange bolt	0.7 - 1.1
8mm bolt/nut	1.8 - 2.5	6mm flange bolt/nut	1.0 - 1.4
10mm bolt/nut	3.0 - 4.0	8mm flange bolt/nut	2.4 - 3.0
12mm bolt/nut	5.0 - 6.0	10mm flange bolt/nut	3.5 - 4.5

- **Exclusive / Common Tools**

- **New Exclusive tools**

Name of the tool	Tool Number	Application	Section in the Manual
Compression gauge attachment	07GMJ-KT70100	Cylinder compression meas.	2
Clutch center holder	07GMB-KT70100	Clutch assembly/disassembly	10
Valve spring compressor attachment	07GME-KT70200	Valve assembly/disassembly	7
Tappet hole protector	07GME-KT70200	Valve assembly/disassembly	7
Valve guide remover (4mm)	07GMD-KT70100	Valve guide assembly/disassembly	7
Socket wrench (Dodecagon)	07GMA-KT70100	Cylinder head 7mm bold (dodecagon) attach/detachment	7
Needle bearing remover	07GMA-KT70200	Rear fork L-bearing detachment	14
Lock nut wrench	07GMA-KT70200	Rear fork attach/detachment	14

- **Existing exclusive tools**

Name of the tool	Tool number	Application	Section in the manual
Oil pressure gauge attachment	07510-4220100	Oil pressure measurement	3
Steering stem attachment	07916-3710100	Adjust nut attach/detachment	13
Bearing remover - Remover handle - remover sliding weight	07936-3710300 07936-3710100 07741-00110201	Detachment of needle bearings of rear fork and suspension linkage, main shaft L-bearing	14 8
Driver attachment (28X30mm)	07946-1870100	Attachment of rear fork L-bearing	14
Steering stem driver	07946-MB00000	Inner race attachment	13
Driver shaft	07946-MJ00100	Rear fork bearing detachment	14
Fork seal driver attachment	07947-KA20200	Front fork assembly	13
Ball race remover set - driver shaft assy(incl. nut) - assembly base - driver attachment A - driver attachment B - bearing remover A - bearing remover B	07946-KM90000 07946-KM90300 07946-KM90600 07946-KM90100 07946-KM90200 07946-KM90400 07946-KM90500	Ball race attach/detachment	13
Rear cushion compressor attachment	07959-MB10000	Rear cushion Assembly/disassembly	14
Valve guide reamer	07964-8840000	Valve guide clean/finish	7
Snap ring pliers	07914-3230001	Snap ring attach/detachment	15
Piston ring compressor	07955-ZG00000	Piston assembly	9

- **Common Tools**

Name of the tool	Tool number	Application	Section in the manual
Float level gauge	07401-0010000	Carburettor float level measurement	4
Lock nut wrench (26x30mm)	07716-0020203	Clutch lock nut attach/detachment	10
Extension bar	07716-0020500	Attach to the lock nut wrench	10,13
Lock nut wrench (30x32mm)	07716-0020400	Steering stem nut attach/detachment	13
Fly wheel holder	07725-0040000	Fly wheel attach/detachment	10
Rotor puller	07733-0020001	Fly wheel detachment	10
Outer driver (32x35mm)	07746-0010100	Front wheel R-bearing, Rear fork R-bearing attachment	13 14
Outer driver (37x40mm)	07746-0010200	Rear wheel bearing, main shaft, L-bearing attachment	14 8
Outer driver (42x47mm)	07746-0010300	Front wheel L-bearing driven flange bearing attachment	13 14
Outer driver (24x26mm)	07746-0010700	Suspension linkage needle bearing attachment	14
Pilot (15mm)	07746-0040300	Front wheel bearing, rear fork R-bearing attachment	13 14
Pilot (17mm)	07746-0040400	Rear wheel, suspension linkage, driven sprocket, main shaft L-bearing attachment	8 14
Pilot (22mm)	07746-0041000	Rear fork L-bearing	14
Bearing remover head (15mm)	07746-0050400	Front wheel bearing removal	13
Bearing remover shaft	07746-0050100	Wheel bearing removal	13,14
Bearing remover head (17mm)	07746-0050500	Rear wheel bearing removal	14
Fork seal driver	07747-0010100	Front fork assembly	13
Driver handle A	07749-0010000	Bearing attachment	8,13,14
Valve spring compressor	07959-3290001	Rear cushion assembly/disassembly	14

- **Measurement tools**

Name of the tool	Tool number	Application	Section in the manual
Digital circuit multimeter (KOWA)	07411-002000	Kowa circuit multimeter (TH-5H) Or Sanwa's 07309-0020000 ***Use the multimeter to check the charge of MF battery.**	17,18,19, 20
Oil pressure gauge	07506-3000000	Oil pressure measurement	3
Vacuum gauge	07404-0030000	Carburettor synchronizing adjust	4
Compression gauge	07305-0010000	Cylinder compression meas.	2

Valve seat cutting tools

Name of the tool	Tool number	Application	Section in the manual
Sheet surface cutter (20.5mm)	07780-0011000	45°IN) valve sheet adjustment	7
Sheet surface cutter (17mm)*	07GMH-KT70500	(45°EX) valve sheet adjustment	7
Plane cutter (17mm)*	07GMH-KT70100	(32°IN) valve sheet adjustment	7
Plane cutter (17mm)*	07GMH-KT70200	(32°EX) valve sheet adjustment	7
Inner surface cutter (20.5mm)	07780-0014300	(60°IN) valve sheet adjustment	7
Inner surface cutter (17mm)*	07GMH-KT70400	(60°EX) valve sheet adjustment	7
Cutter holder (4mm)*	07GMH-KT70300	Attach the cutter	7

*Newly-organized tools

- **Lubrication**

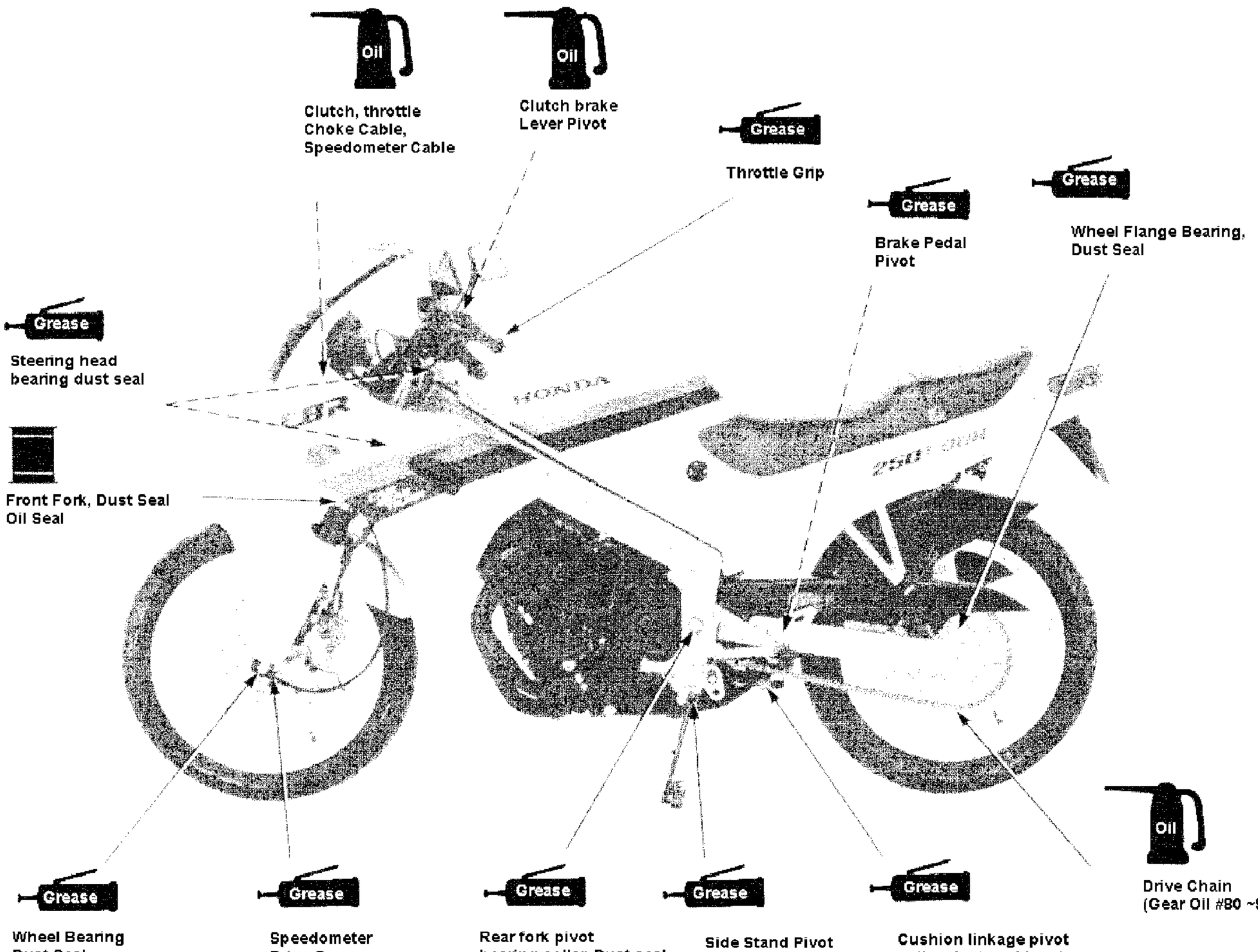
Engine Components

Part	Recommended Oil Grade
Inside cylinder head rev. part and contact surface Inside crankcase rev. part and contact surface.	SAE10W-40 or 20W-50.

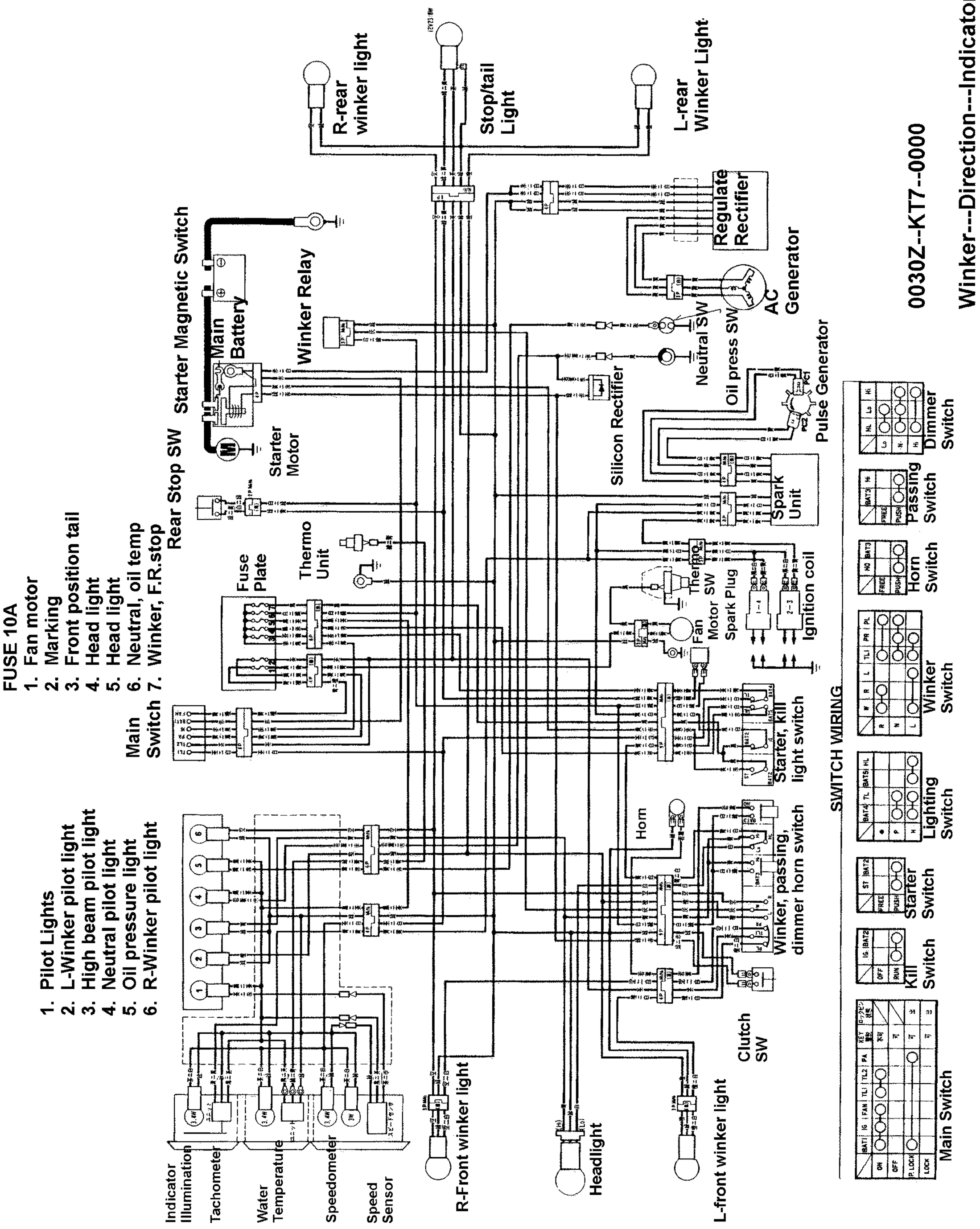
Frame

Unless specified, use multi-purpose grease for greasing symbol.

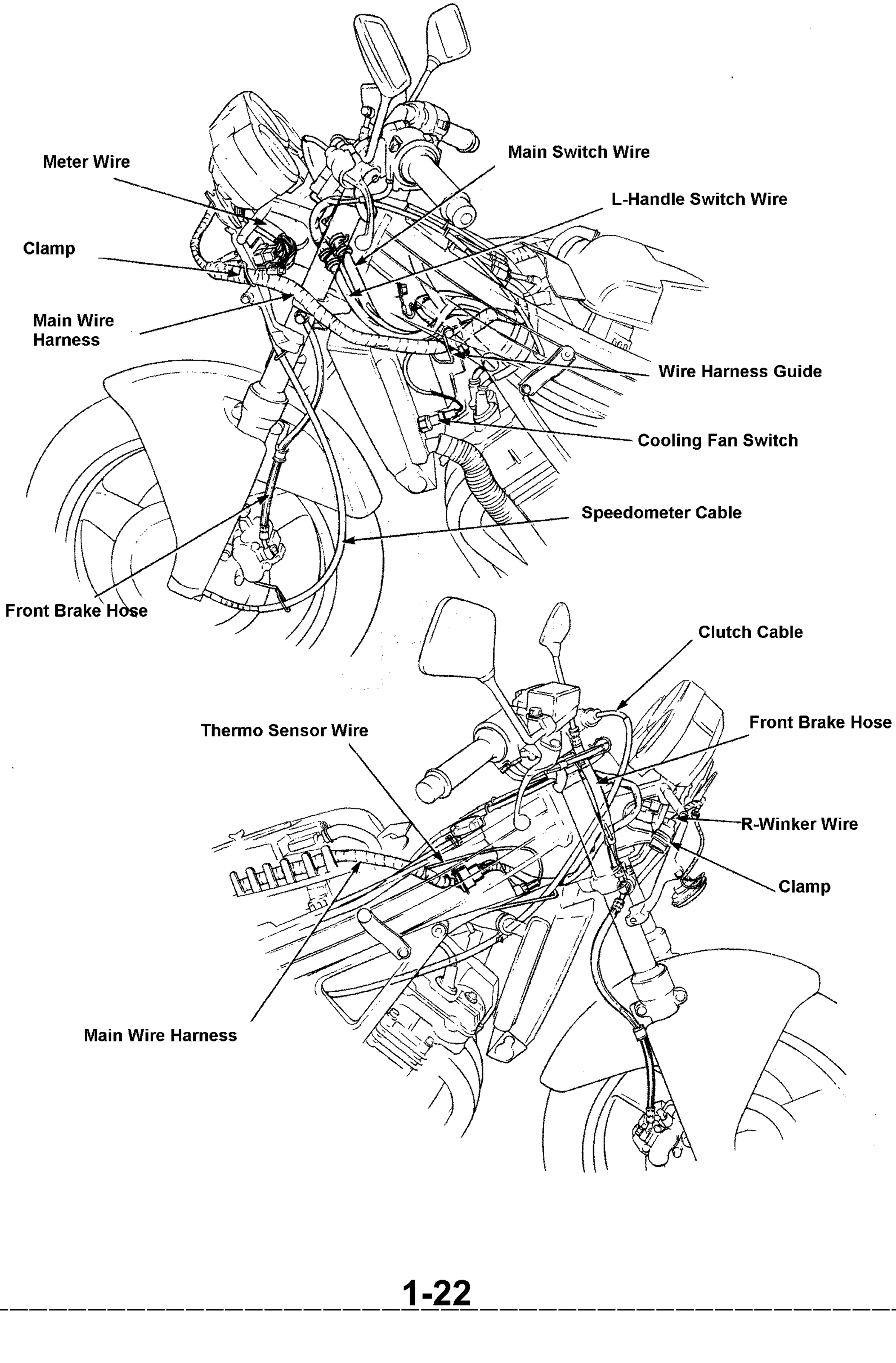
Apply oil or grease to any other moving parts not specified here to prevent noise and extend and endurance.



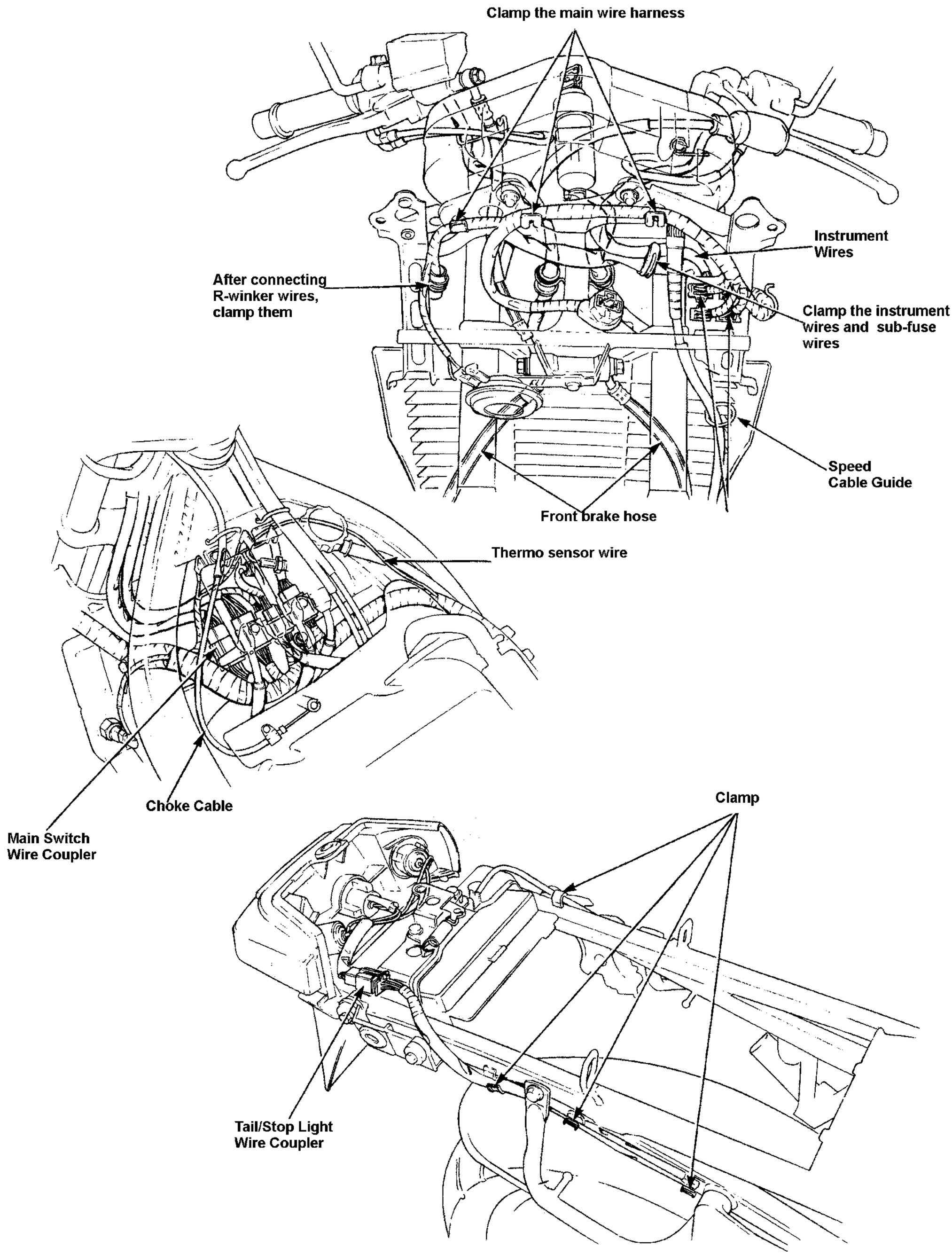
- **Electrical Circuits**



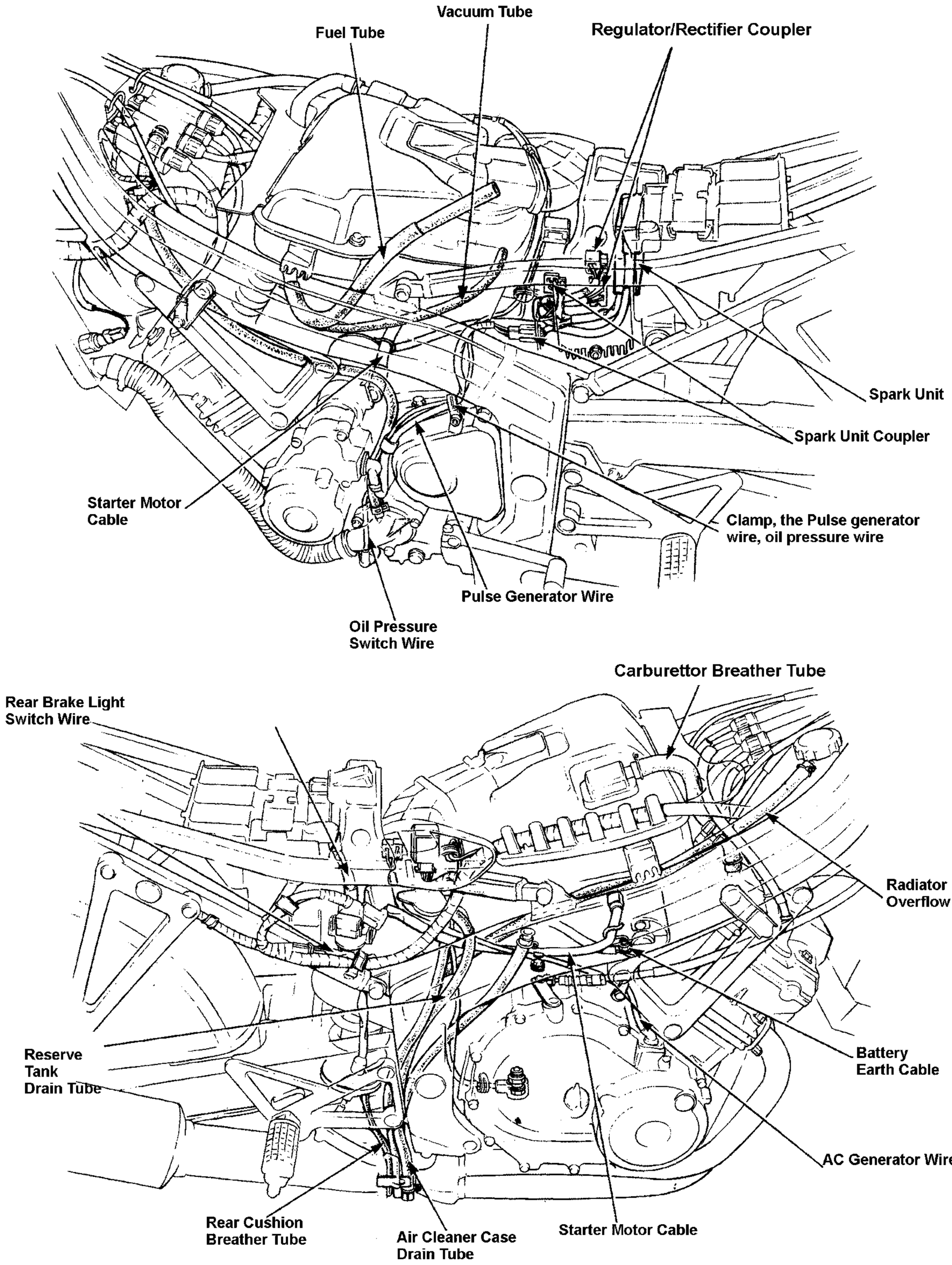
- **Wiring**


Meter Wire
Main Switch Wire
L-Handle Switch Wire
Clamp
Main Wire Harness
Wire Harness Guide
Cooling Fan Switch
Speedometer Cable
Front Brake Hose
Clutch Cable
Front Brake Hose
Thermo Sensor Wire
R-Winker Wire
Clamp
Main Wire Harness
Main Wire Harness

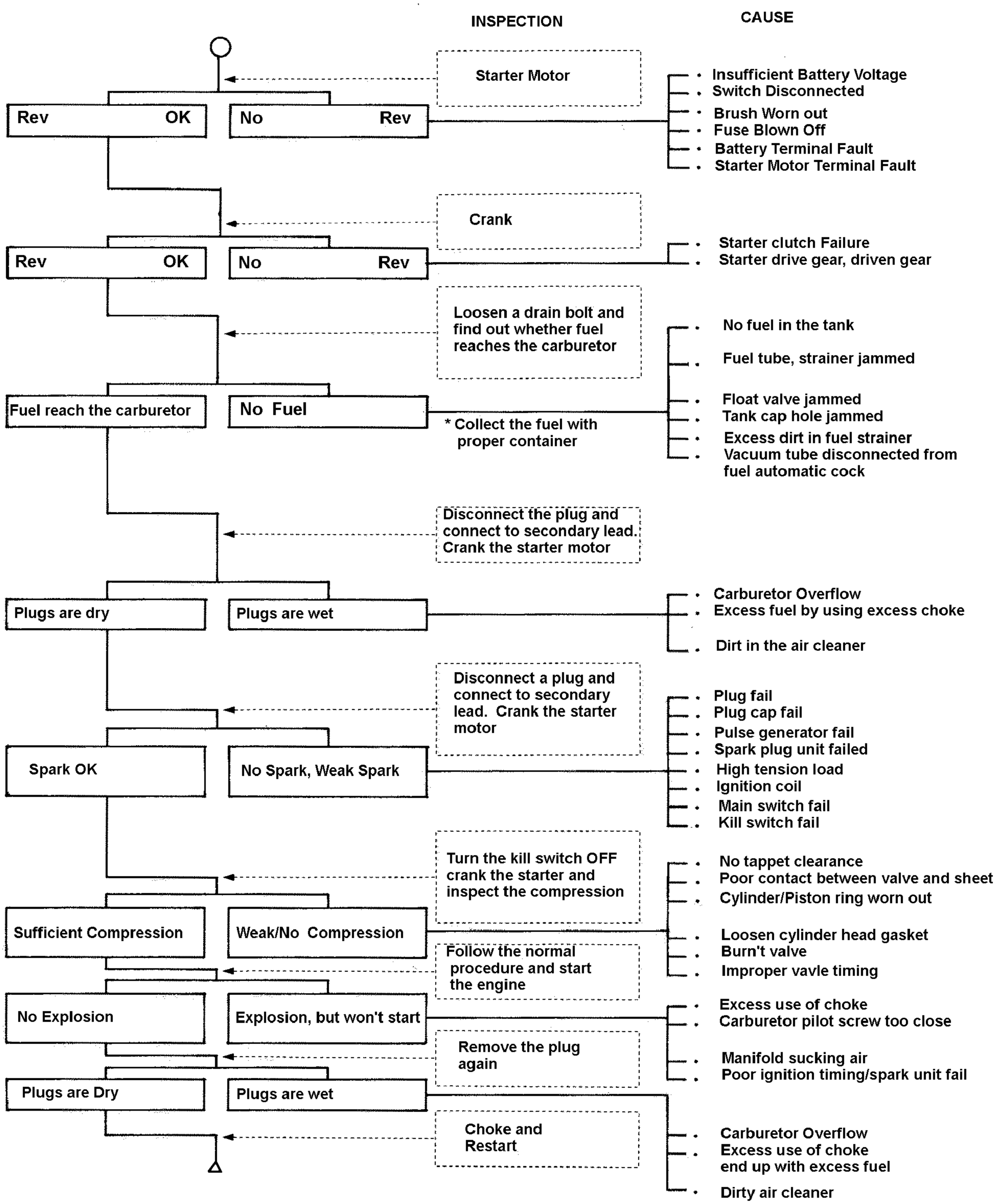
- **Wiring**

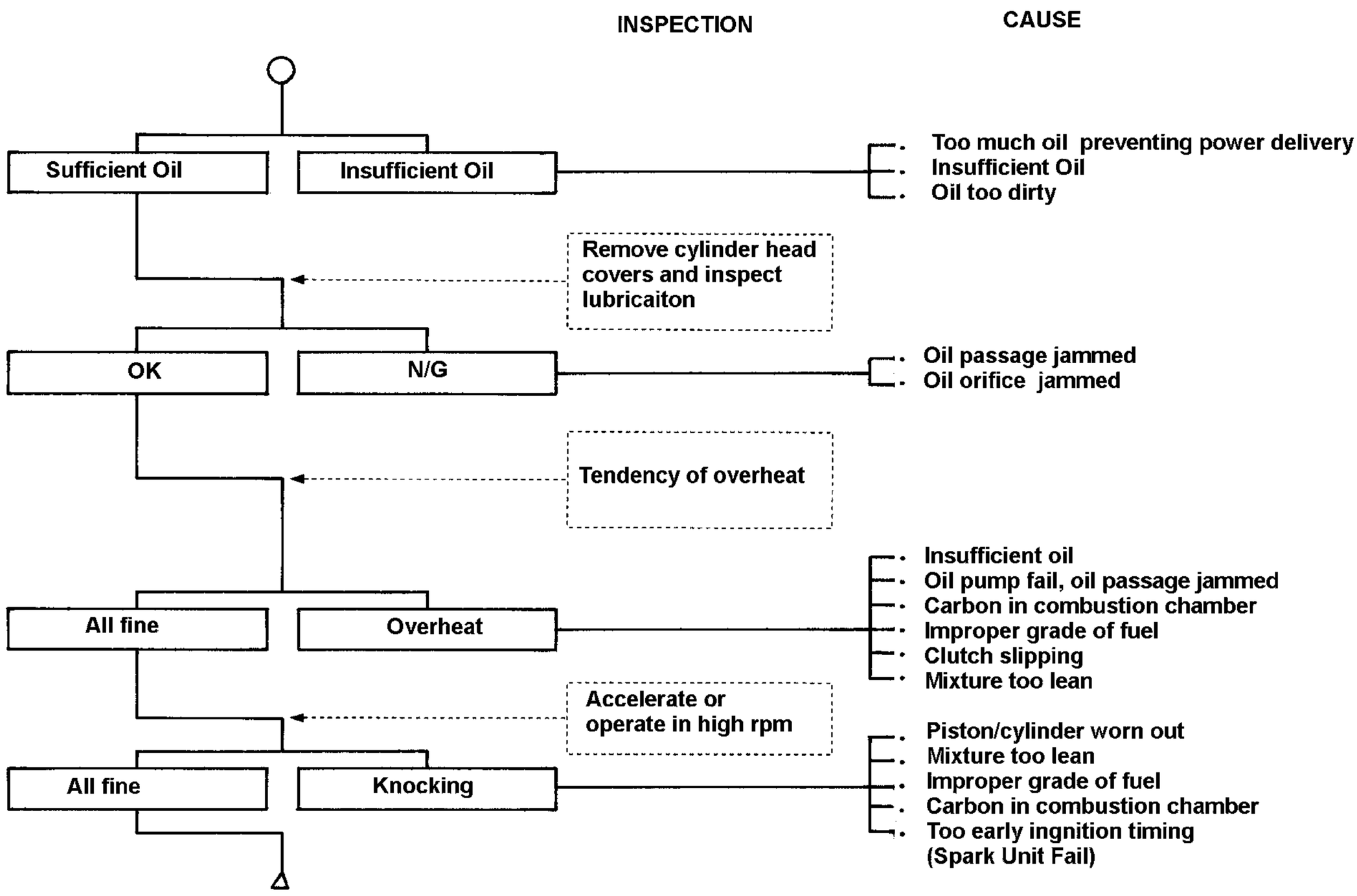

Clamp the main wire harness
Instrument Wires
After connecting R-winker wires, clamp them
Clamp the instrument wires and sub-fuse wires
Speed Cable Guide
Front brake hose
Thermo sensor wire
Choke Cable
Main Switch Wire Coupler
Clamp
Tail/Stop Light Wire Coupler

- **Wiring**

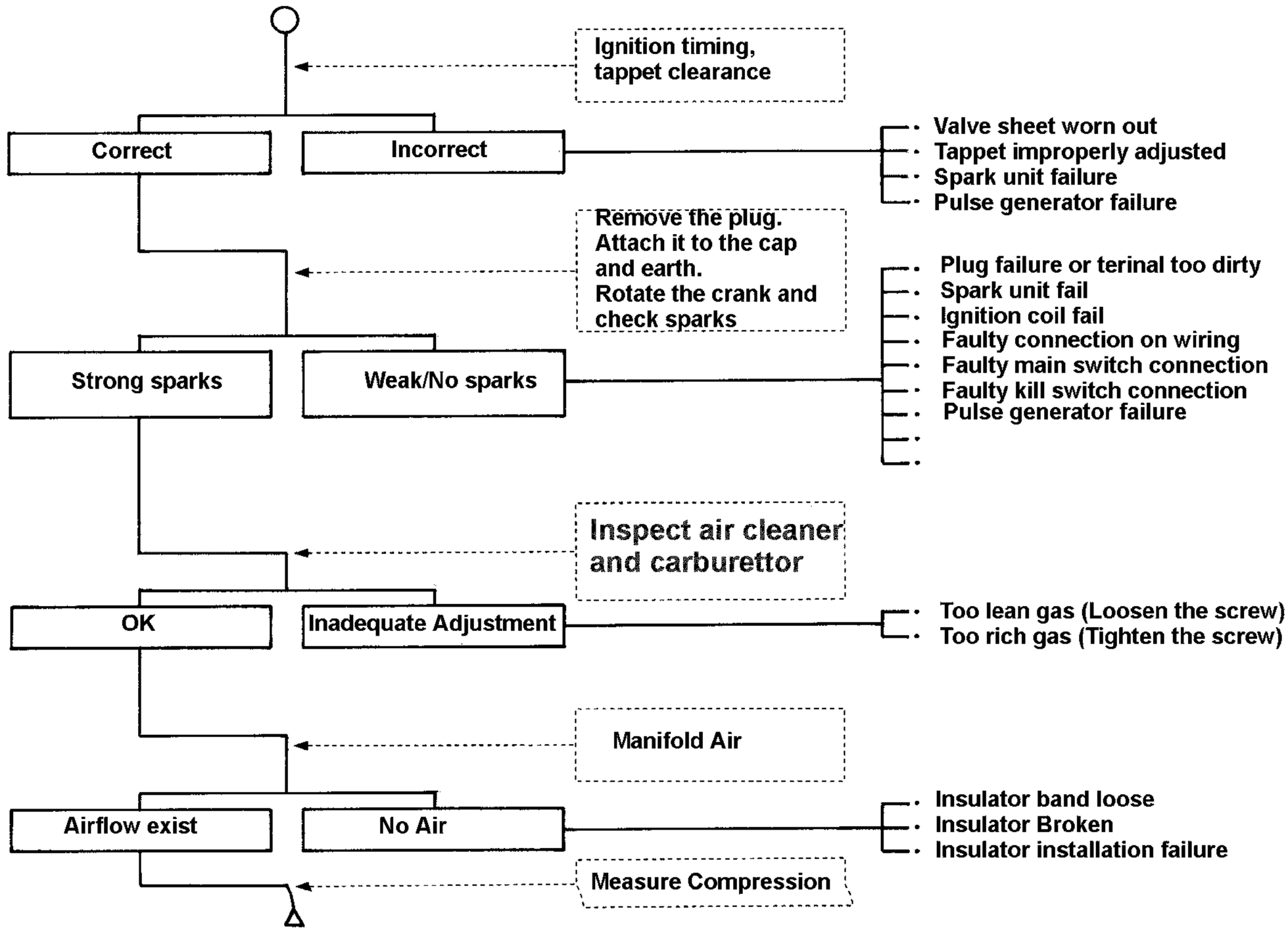

Vacuum Tube
Fuel Tube
Regulator/Rectifier Coupler
Spark Unit
Spark Unit Coupler
Starter Motor Cable
Clamp, the Pulse generator wire, oil pressure wire
Pulse Generator Wire
Oil Pressure Switch Wire
Carburettor Breather Tube
Rear Brake Light Switch Wire
Radiator Overflow Tube
Reserve Tank Drain Tube
Battery Earth Cable
AC Generator Wire
Rear Cushion Breather Tube
Air Cleaner Case Drain Tube
Starter Motor Cable

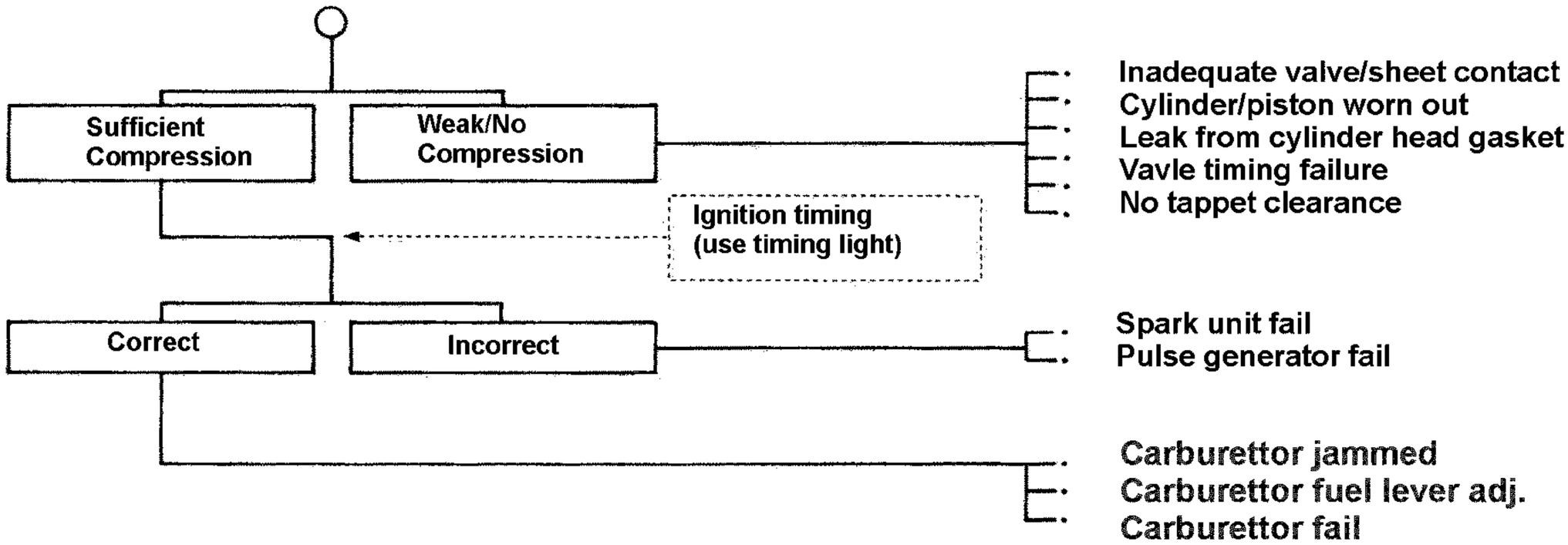
- **Troubleshooting**
- Failure/Difficult to Start





ROUGH RPM (MAINLY LOW AND IDLING RPM)





ROUGH RPM (HIGH RPM)