1. SPECIFICATIONS

DIMENSIONS & WEIGHT

Overall length	2,160 mm (85.0 in)
Overall width	850 mm (33.5 in)
Overall height	1,100 mm (43.3 in)
Wheel base	1,405 mm (55.3 in)
Road clearance	150 mm (5.9 in)
Tires, front	3.25–19 4PR
rear	4.00–18 4PR
Dry weight	187 kg (412 lb)

PERFORMANCE

Maximum speed	176 – 184 kph (110 – 115 mph)
Acceleration	13.5 sec (SS 1/4 mile)
Climbing ability	26° (tan θ = 0.48)

ENGINE

Type	2 stroke, air cooled, gasoline
Piston displacement	543 cc (33.2 cu-in)
Bore X Stroke	61 X 62 mm (2.40 X 2.44 in)
Cylinders	Three in line, aluminium
Corrected compression ratio	6.8 : 1
Maximum horsepower	50 hp/6,500 rpm
Maximum torque	6.1 kg-m (44.1 ft-lb)/5,000 rpm
Starter	Electric & kick

FUEL SYSTEM

Carburetors	Three, Mikuni VM28SC
Air cleaner	Wet polyurethane filter
Fuel tank capacity	15 ltr(4.0/3.3 gal, US/Imp) including reserve 4.6 ltr(1.2/1.0 gal, US/Imp)

LUBRICATION SYSTEM

Engine	Suzuki CCI
Gear box	1,500 cc (3.17/2.64 pt, US/Imp)
Engine oil tank capacity	1.5 ltr (3.2/2.6 pt, US/Imp)

IGNITION SYSTEM

Type	Battery ignition
Ignition timing	24° (3.37 in piston stroke) BTDC
Spark plug	NGK B-7ES or Nippon Denso W-22ES

POWER TRANSMISSION

Clutch	Wet, multi-disc
Gear box	5-speed, constant mesh
Gear shifting	Left foot operated
Primary reduction ratio	2.242 (74/33)
Final reduction ratio	2.500 (40/16)
Gear ratios (Overall reduction ratios)	
1 st	2.864 : 1 = 37/13 (16.07)
2nd	1.736 : 1 = 33/19 (9.74)
3rd	1.363 : 1 = 30/22 (7.65)
4th	1.125 : 1 = 27/24 (6.31)
5th	0.923 : 1 = 24/26 (5.18)

SUSPENSION

Front suspension	Telescopic forks with hydraulic damper
Rear suspension	Swinging arm with hydraulic damper

STEERING

Steering angle	42° (right & left)
Castor	61°
Trail	118 mm (4.6 in)
Turning radius	2.5 m (8.2 ft)

BRAKES

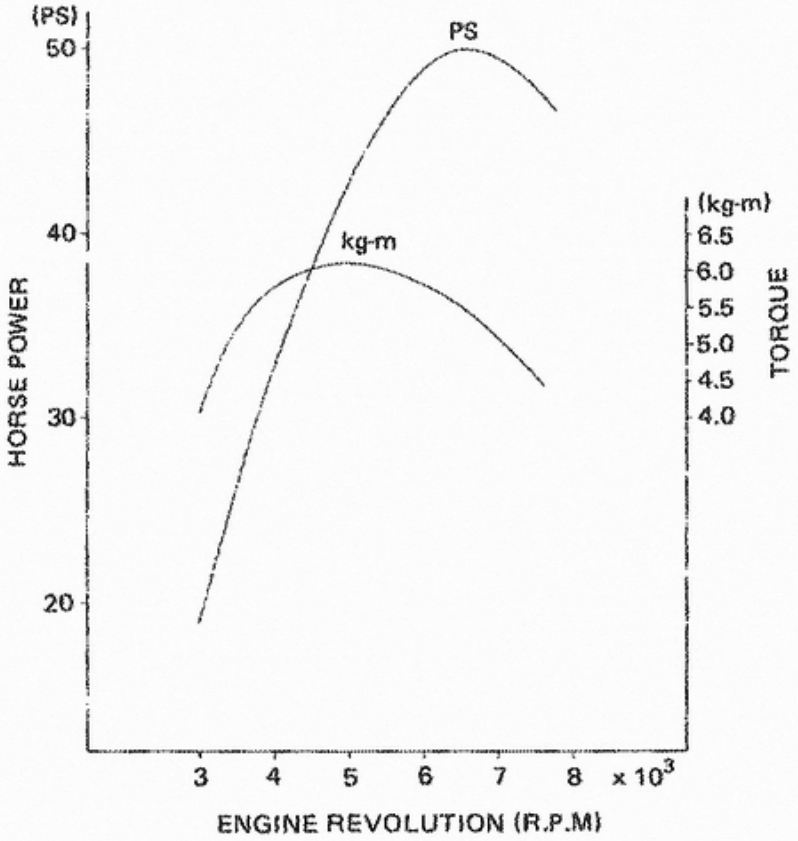
Front brake	Right hand, two leading shoes, dual panel
Rear brake	Right foot, leading trailing shoes

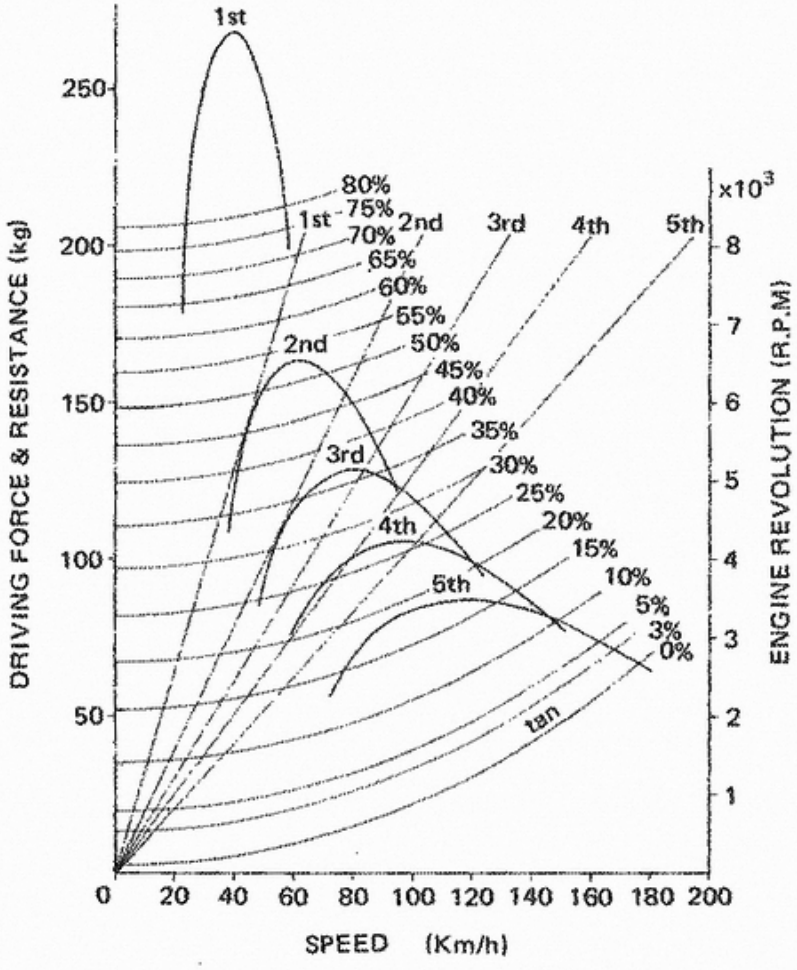
ELECTRICAL EQUIPMENT

Generator	Alternator 12V 210W
Starter motor	12V 500W
Battery	12V 11AH
Fuse	20A
Head lamp	12V 50/40W
Tail/Brake lamp	12V 8/23W (3/32 cp)
Neutral indicator lamp	12V 3.4W
Speedometer lamp	12V 3.4W
Tachometer lamp	12V 3.4W
High beam indicator lamp	12V 3.4W
Turn signal indicator lamp	12V 1.7W
Turn signal lamp	12V 23W (32 cp)

* The specifications subject to change without notice.

2. PERFORMANCE CURVES





3. GENERAL INSTRUCTION

To keep the motorcycle in peak condition, advise your customers to follow these instructions and this will give top performance at all times.

3–1. BREAKING-IN

The life of the motorcycle depends on the breaking-in of the engine and the way in which the motorcycle is treated. Therefore, breaking-in with the best care is much important to prevent excessive wear of the parts and noise and to prolong the engine life. During the breaking-in period, do not operate the motorcycle at high speed nor allow the engine to run wide open. Keep to specified breaking-in engine speed limit. Gradually raise the speed as covered mileage increases.

First 500 miles (800 km) ..... below 4,000 rpm
Up to 1,000 miles (1,600 km) ..... below 5,000 rpm

3–2. FUEL AND OIL

The engine's moving parts such as crankshaft, crankshaft brearings, con-rod, piston and cylinder wall are lubricated by fresh oil pressure-delivered by Suzuki CCI system separately from the fuel supply. Put gasoline only in the fuel tank and engine oil in the oil tank.

FUEL ..... GASOLINE OF 85 – 95 OCTANE IN RESEARCH METHOD
ENGINE OIL .... SUZUKI CCI OIL

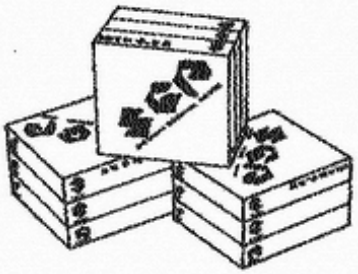
* If Suzuki CCI oil is not available, non-diluent (non-self mixing type) two stroke oil with around SAE No.30 may be used instead.

TRANSMISSION OIL ..... MOTOR OIL OF SAE 20W/40, 1,500 cc (3.17/2.64 pt, US/IMP) CHANGE FIRST 1,000 KM (750 MILES) AND 3,000 KM (2,000 MILES) THEREAFTER.

* At the time of the first supply of oil after the transmission is overhauled, fill with 1,600 cc of oil.

3–3. GENUINE PARTS

When replacing parts, always use Suzuki genuine parts, which are precision-made under severe quality control. If imitation parts (not genuine parts) are used, good performance cannot be expected from the motorcycle and in the worst case, they may cause a breakdown.



3–4. PERIODICAL INSPECTION

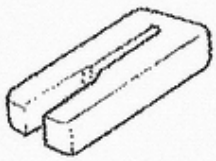
To prolong the life of the motorcycle and avoid unforeseen occurrence of serious troubles, the periodical inspection is indispensable. Be sure to check the motorcycle periodically according to the list given at the end of this manual.

4. SPECIAL TOOLS

Special tools listed below are used to disassemble, assemble and to perform maintenance and service. These special tools make works easy which can not be done simply with ordinary tools and prevent the parts from damage. It is recommended to provide these special tools as shop equipment.

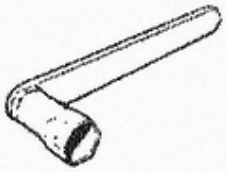
Ref. No.	Tool No.	Use for
1	09910-20113	Locking crankshaft
2	09930-10111	Removing or installing spark plug
3	09914-25810	Tightening or loosening crankcase bolt
4	09913-70122	Installing bearing and oil seal
5	09913-80111	Installing bearing and oil seal
6	09913-50110	Removing oil seal
7	09920-70111	Removing snap ring
8	09900-06103	Disassembling and assembling front fork
9	09940-10122	Tightening or loosening steering stem nut
10	09940-60112	Adjusting spoke tension
11	09930-20111	Adjusting contact point gap
12	09930-33310	Removing alternator rotor of KOKUSAN make
13	09930-50951	Removing alternator rotor of DENSO make
14	09920-51510	Locking clutch sleeve hub
15	09920-60310	Locking clutch sleeve hub
16	09900-09002	Tightening or loosening cross-head screw
17	09900-21802	Connecting or disconnecting drive chain
18	09900-25001	Checking electrical equipment
19	09900-27002	Checking or adjusting ignition timing
20	09900-28103	Checking electrical equipment
21	09931-00112	Checking or adjusting ignition timing
22	09900-28401	Checking battery capacity
23	09940-53110	Installing front fork oil seal

Piston holder



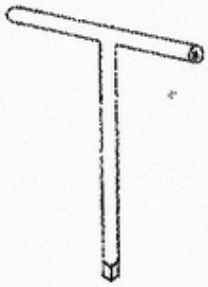
①

Spark plug wrench



②

Hexagon socket bolt wrench



③

Bearing and oil seal installing tool

④

Bearing and oil seal installing tool

⑤

Oil seal remover

⑥

Snap ring opener (small)

⑦

Snap ring remover

⑧

Steering stem lock nut wrench

⑨

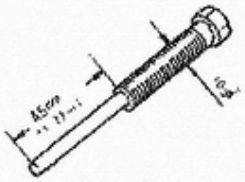
Spoke nipple wrench

⑩

Point wrench with 0.35mm gauge

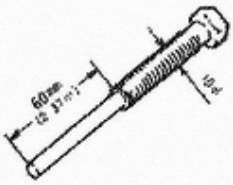
⑪

Rotor remover



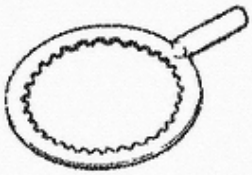
⑫

Rotor remover



⑬

Clutch sleeve hub holder

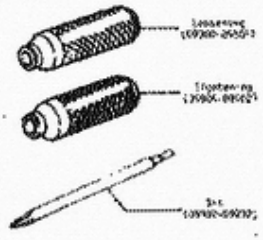


⑭

Clutch sleeve hub holder handle

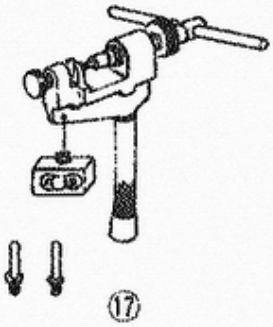
⑮

Shock driver set



⑯

Chain joint tool



⑰

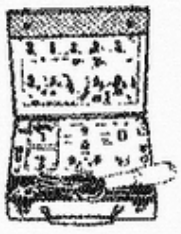
Pocket tester

⑱

Timing tester

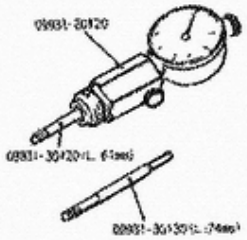
⑲

Electro tester



⑳

Timing gauge



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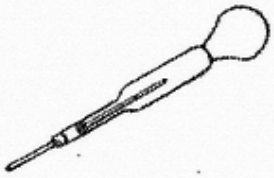
Hydromter



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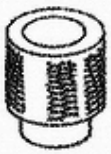
Front fork oil seal installing tool



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5. NECESSARY MATERIALS

GT550 necessitates the following materials in addition to the general service equipment, tools and other materials like lubricant, cleaning solvent, emery cloth and so forth. For further details, refer to the pertinent items in this manual.

5–1. THREAD CEMENT

Fig. 5-1-1 Optional part No.99000-32040

This cement is applied to the thread of screws to be secured, such as the fitting screws for the starter clutch hub, gear shifting cam guide, kick starter guide and gear shifting arm stopper.

Fig. 5-1-2 Optional part No.99000-32030

This cement is only used for securing the 2nd drive gear press-fitted over the counter-shaft end. Apply the cement to the inside surface of the gear when pressing it in.

5–2. LIQUID GASKET

This liquid is applied to the meeting surface of the crankcase being split into two halves and is to seal the crank chamber and the transmission box.

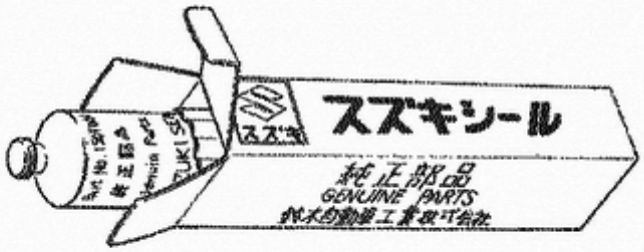


Fig. 5-1-3 Optional part No.99000-31010

5–3. EXHAUST COUPLER SEAL

This material is packed at the joint of exhaust coupler tube in order to prevent it from exhaust gas leakage.

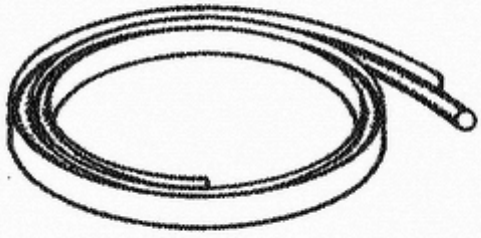


Fig. 5-1-4 Optional part No.99000-31020

5–4. GREASE

Suzuki Super Grease "A" or "C"

One of these two types should be used for lubrication of the crank and other oil seals. These grease are applied to the inside of oil seal where it meets with a shaft.

A type Optional part No.99000-25010

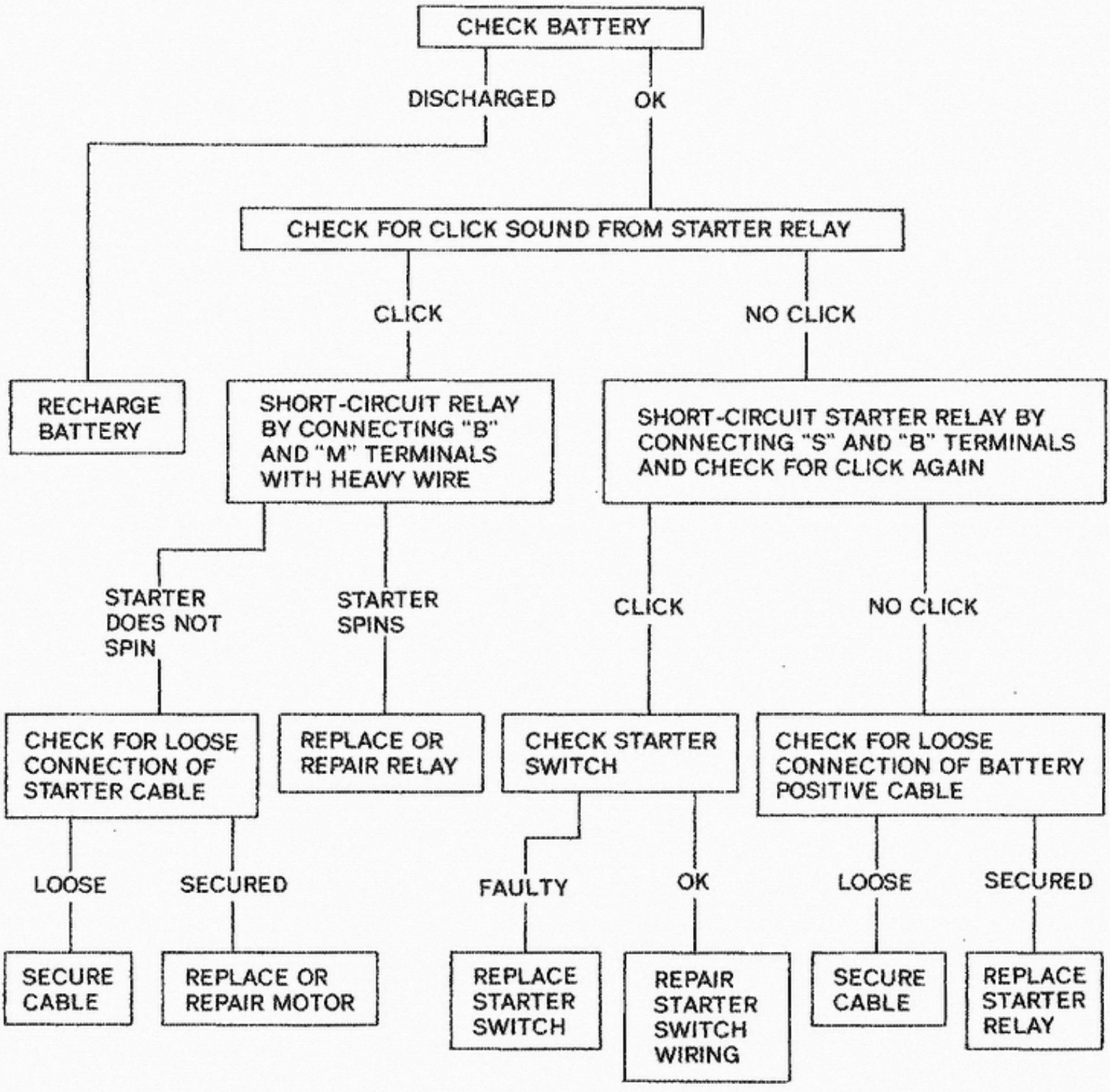
C type Optional part No.99000-25030

Fig. 5-1-5

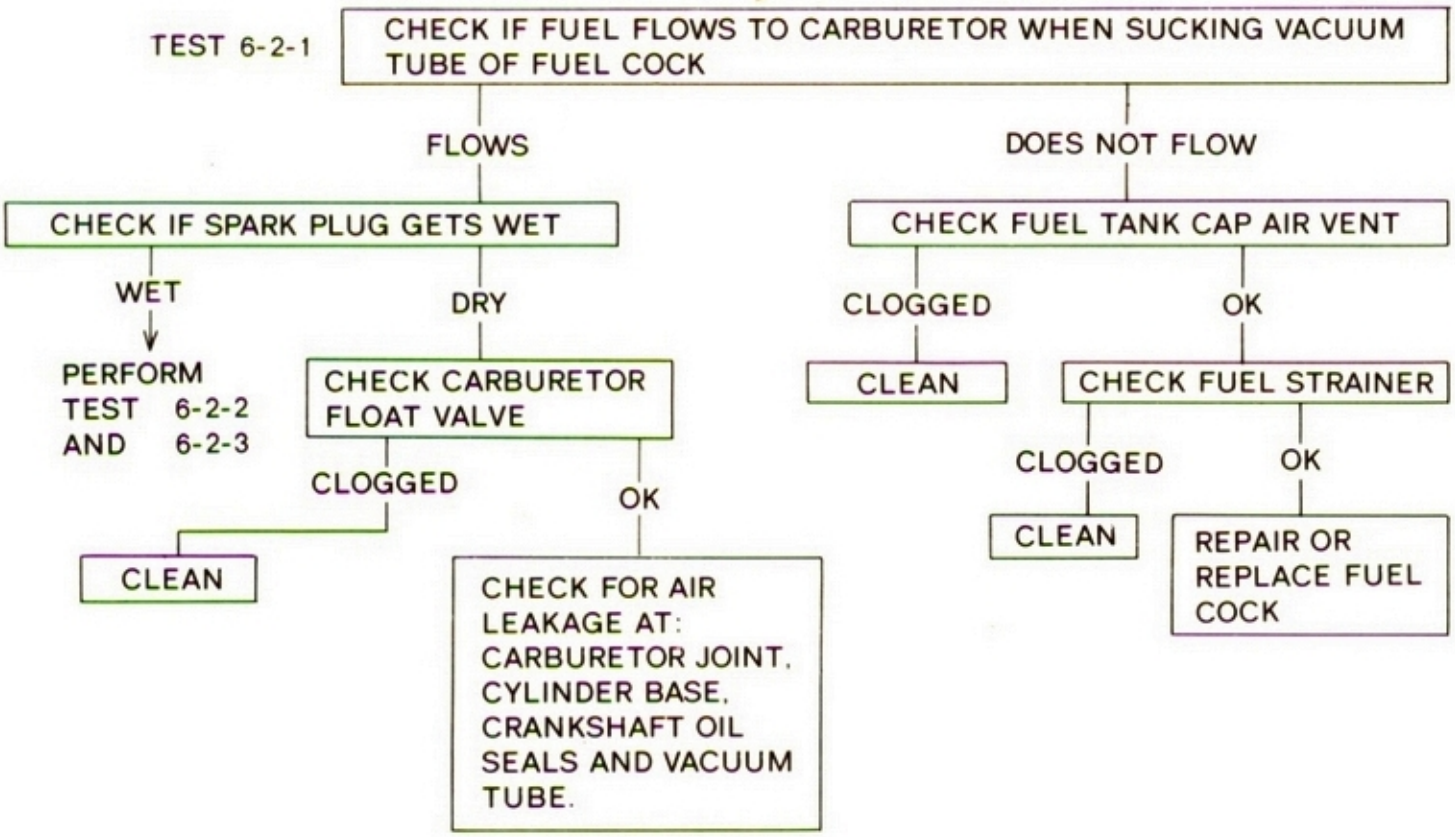
6. TROUBLE SHOOTING

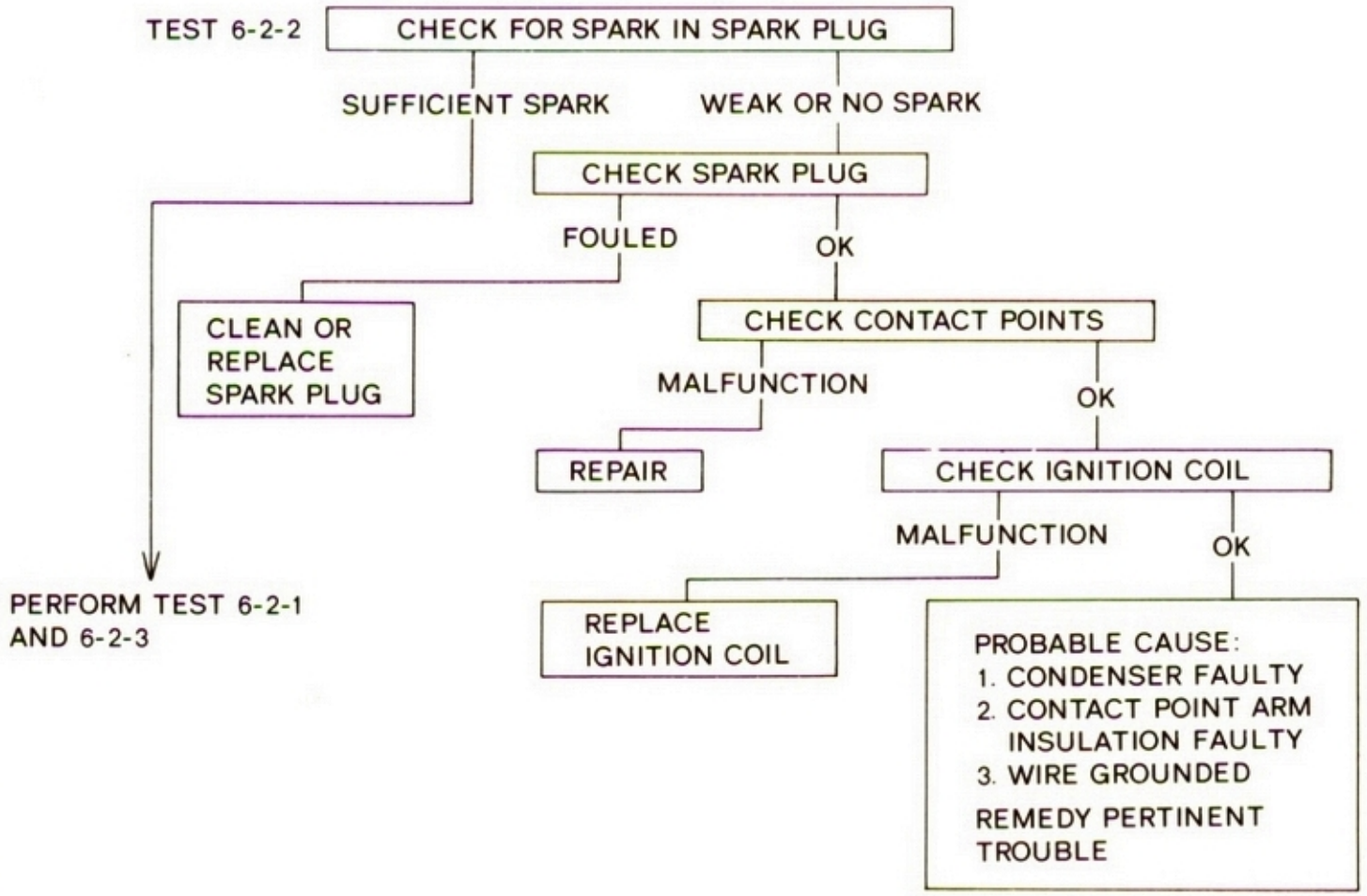
When a trouble occurs with a motorcycle, it is important to find the source of the trouble as rapidly as possible tracing it in the systematic procedure without bothering with parts which are functioning properly. This section dispences with the explanations about troubles, the cause of which may easily be found and explains only about the troubles necessitating systematic job to trace the causes.

6–1. STARTER MOTOR WILL NOT SPIN



6–2. ENGINE WILL NOT START





TEST 6-2-3 — CHECK FOR ENGINE COMPRESSION

- SUFFICIENT COMPRESSION → CHECK FOR VACUUM AT CARBURETOR INLET BY FEELING IT WITH HAND
  - VACUUM → PERFORM TEST 6-2-1 AND 6-2-2
  - NO VACUUM → PROBABLE CAUSE:
    1. CRANKSHAFT OIL SEAL DAMAGE
    2. CARBURETOR JOINT DAMAGED
    3. CYLINDER BASE GASKET DAMAGED

    REPLACE PERTINENT PART
- NO COMPRESSION → CHECK FOR COMPRESSION LEAKAGE AT CYLINDER HEAD GASKET
  - LEAKAGE → REPLACE GASKET
  - OK → PROVABLE CAUSE:
    1. CYLINDER WORN
    2. PISTON DAMAGED
    3. PISTON RING STUCK

    REPLACE OR RECTIFY PERTINENT PART

6–3. BATTERY TENDS TO DISCHARGE

CHECK CHARGING VOLTAGE (FIG. 6-3-1)

- MORE THAN 14.5V → CHECK FOR ELECTRICAL LEAK
  - LEAK → REPAIR
  - NO LEAK → REPLACE BATTERY
- LESS THAN 13.5V → CHECK ALTERNATOR VOLTAGE (FIG. 6-3-2)
  - TOO LOW → CHECK WIRING
    - FAULTY → REPAIR
    - OK → REPLACE ALTERNATOR
  - OK → CHECK RECTIFIER
    - FAULTY → REPLACE
    - OK → REPLACE OR ADJUST REGULATOR

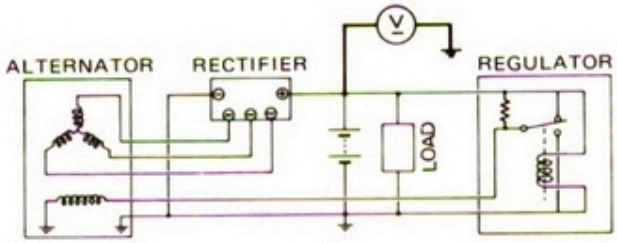


Fig. 6-3-1

VOLTAGE TO BE 13.5 – 14.5V

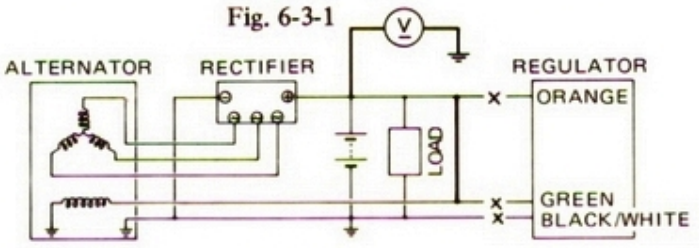


Fig. 6-3-2

VOLTAGE TO BE:

	DENSO	KOKUSAN
1,500 RPM	18V	22V
2,500 RPM	31V	40V

NOTE : Figures are applicable under the condition that alternator is not heated.

7. ENGINE

7–1. REMOVAL

Prior to the removal operation, throughly clean the engine with a steam cleaner or cleaning solvent to remove road dirt. The removal procedure is as follow.

Fig. 7-1-1 Disconnecting fuel pipe

Required tool:

small size screw driver

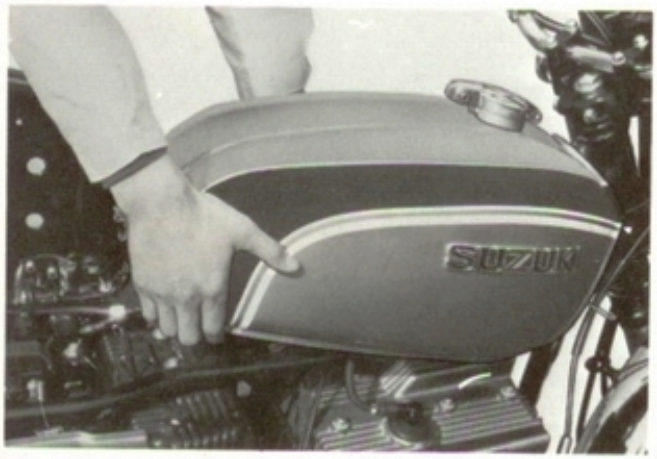


Fig. 7-1-2 Removing fuel tank

Required tool: non

Remove the rubber band supporting the fuel tank at its rear end and lift up the rear part of the tank.

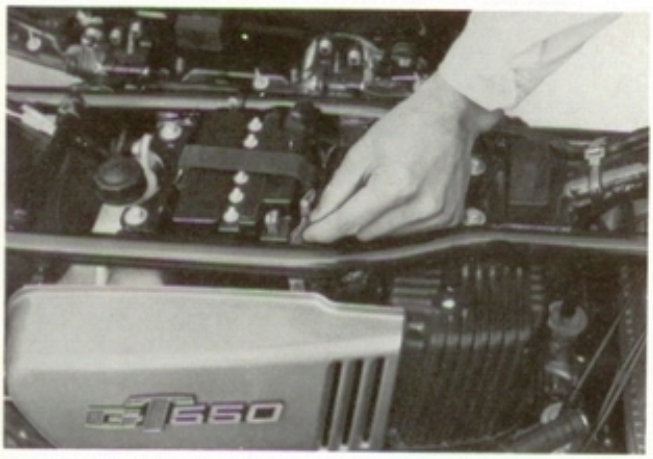


Fig. 7-1-3 Disconnecting battery ground cord

Required tool:

10mm or

Tightening torque:
40 – 70 kg-cm (2.9 – 5.1 lb-ft)

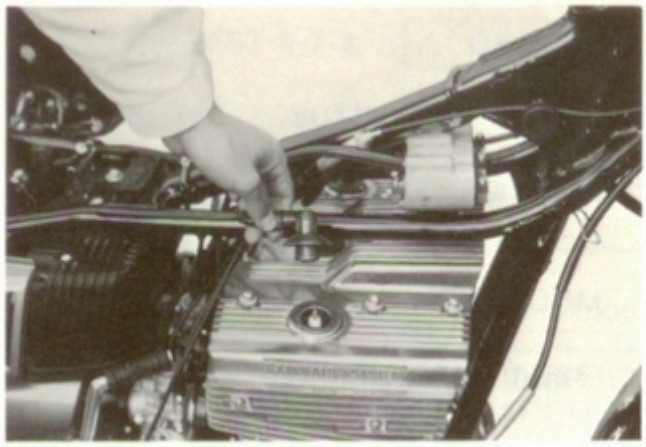


Fig. 7-1-4 Removing spark plug cap

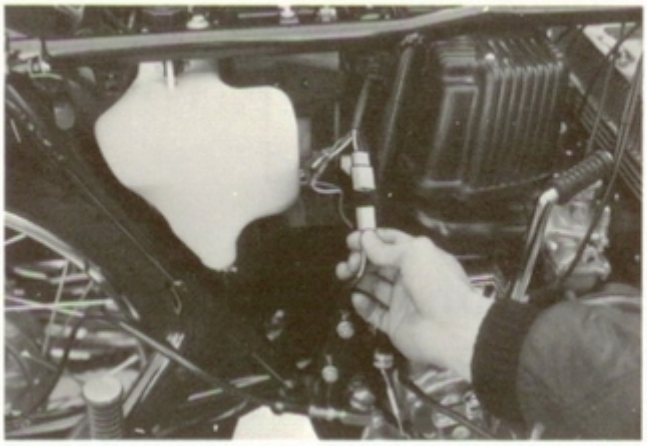


Fig. 7-1-5 Disconnecting contact breaker lead wire

Disconnect the contact breaker lead wires at the coupler located behind the air cleaner box.

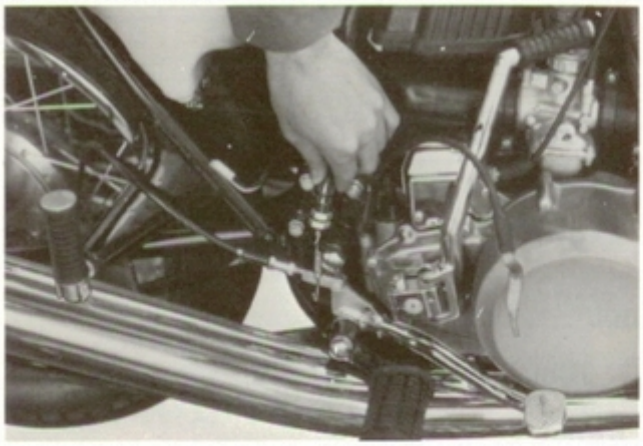


Fig. 7-1-6 Removing brake lamp switch

Required tool:

17 mm

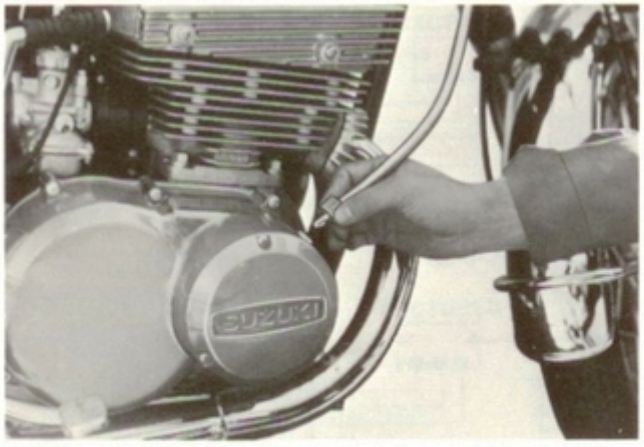


Fig. 7-1-7 Disconnecting tachometer cable

Required tool:

Be sure not to lose the oil seal installed at the joint when removing the cable

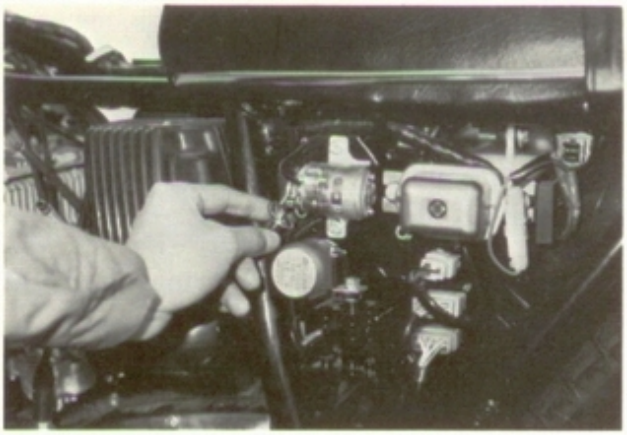


Fig. 7-1-8 Disconnecting starter motor lead wire

Required tool:

10 mm

Tightening torque:
40 – 60 kg-cm (2.9 – 4.4 lb-ft)

Disconnect the starter motor lead wire at the starter relay "M" terminal.

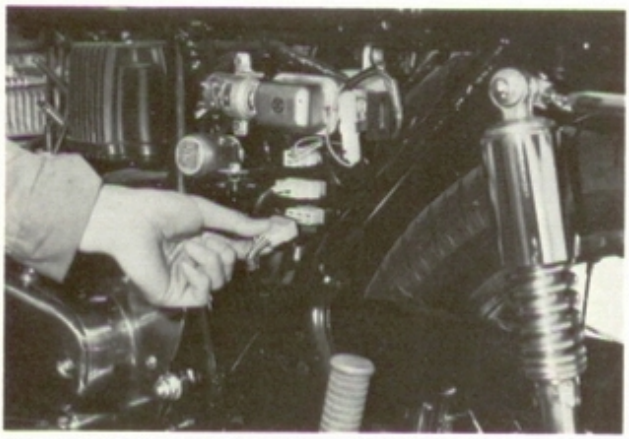


Fig. 7-1-9 Disconnecting alternator lead wire

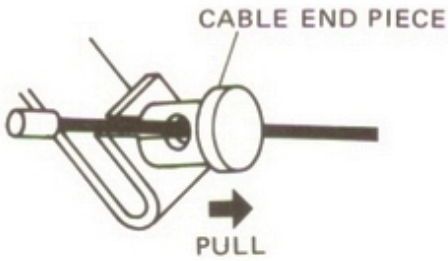
Disconnect the alternator lead wire at the coupler shown in Fig.7-1-9. Since there are two similar couplers to each other, refer to each symbol drawn by the couplers so as to avoid misconnection.

denotes rectifier coupler.

denotes alternator coupler.

Fig. 7-1-10 Disconnecting oil pump control cable

Disconnect the oil pump control cable at the oil pump by removing the cable end piece as shown in the illustration.



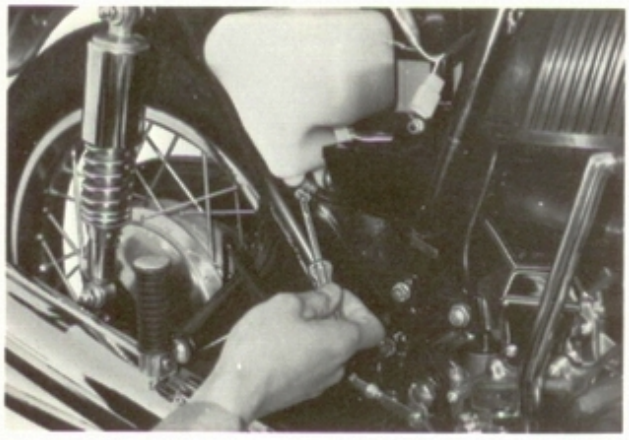


Fig. 7-1-11 Disconnecting oil inlet pipe

Required tool:

small size

Disconnect the oil pump inlet pipe at the oil tank outlet and block the outlet hole by the rubber cap of wheel inner tube inflator valve.

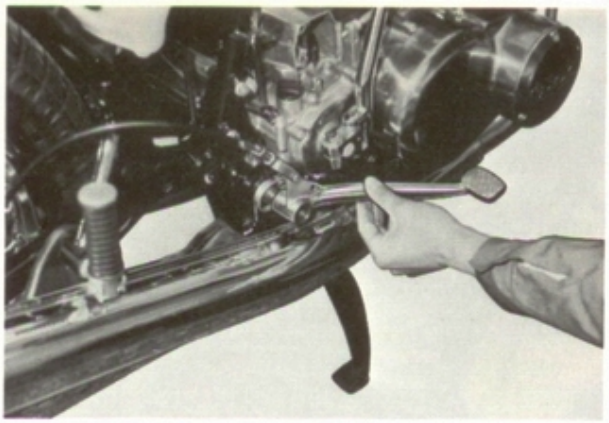


Fig. 7-1-12 Removing brake pedal

Required tool:

Tightening torque:
300 – 450 kg-cm (22 – 33 lb-ft)

Remove the brake pedal after removing the right footrest bar and loosening the rear brake cable.

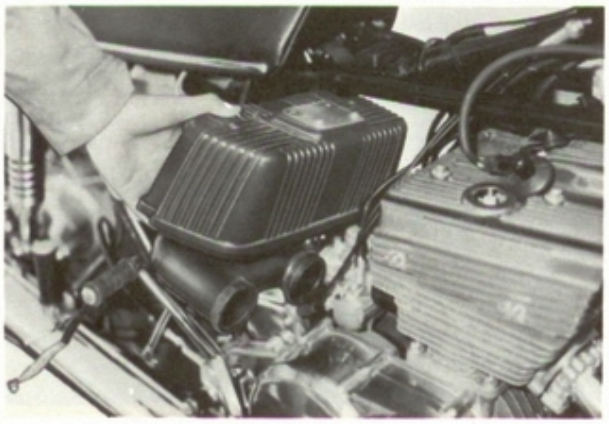
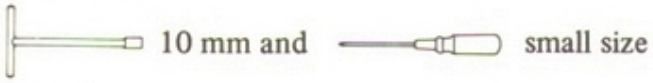


Fig. 7-1-13 Removing air cleaner

Required tool:



Tightening torque:
60 – 100 kg-cm (4.4 – 7.3 lb-ft)

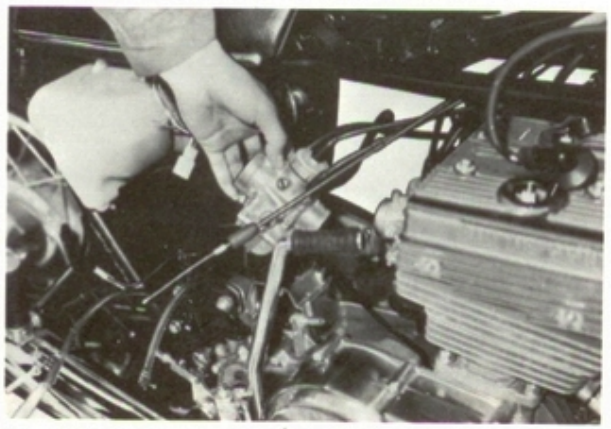


Fig. 7-1-14 Removing carburetors

Required tool:

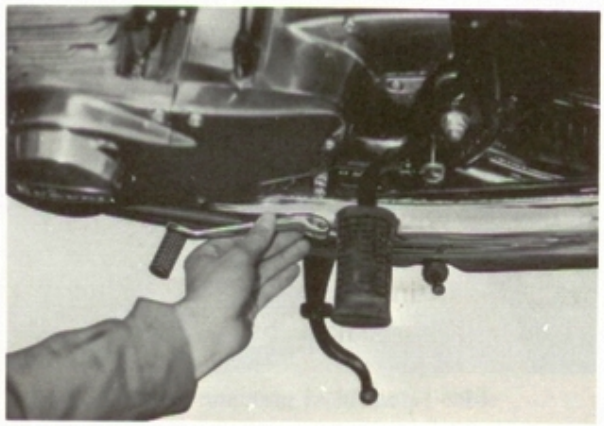


Fig. 7-1-15 Removing gear shifting lever

Required tool:

Tightening torque:
130 – 230 kg-cm (9.5 – 17 lb-ft)

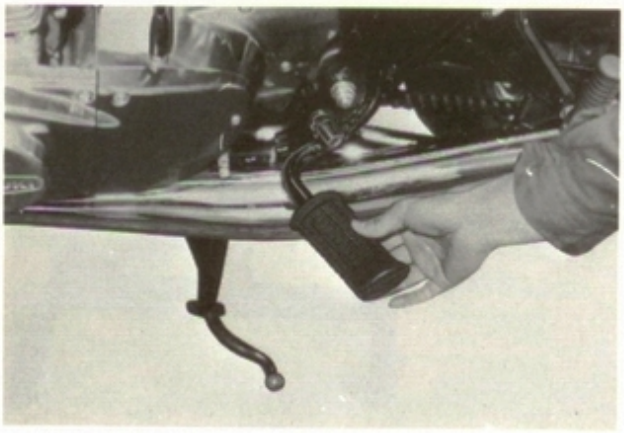


Fig. 7-1-16 Removing left footrest

Required tool:

19 mm

Tightening torque:
300 – 450 kg-cm (22 – 33 lb-ft)

Fig. 7-1-17 Removing clutch release cover

Required tool:

big size

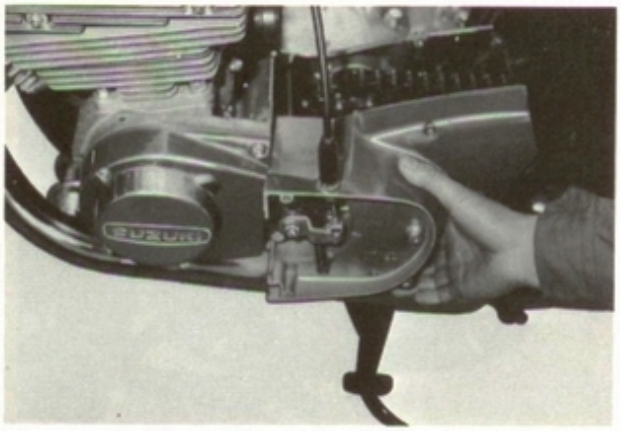


Fig. 7-1-18 Removing engine sprocket cover

Required tool:

big size

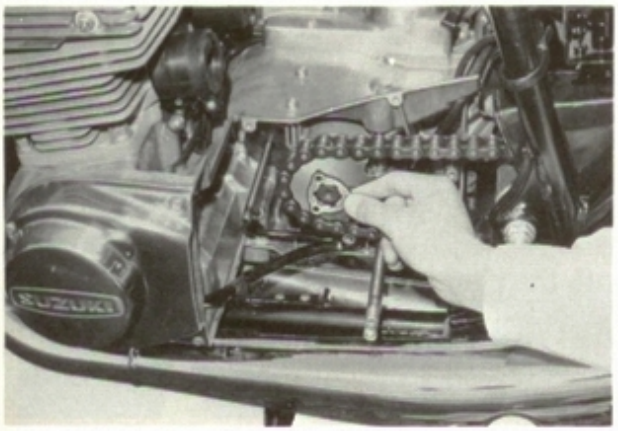


Fig. 7-1-19 Removing sprocket fitting plate

Required tool:

10 mm

Tightening torque:
40 – 70 kg-cm (2.9 – 5.1 lb-ft)

After removing the fitting bolts, turn the fitting plate half pitch of the spline and take it off.

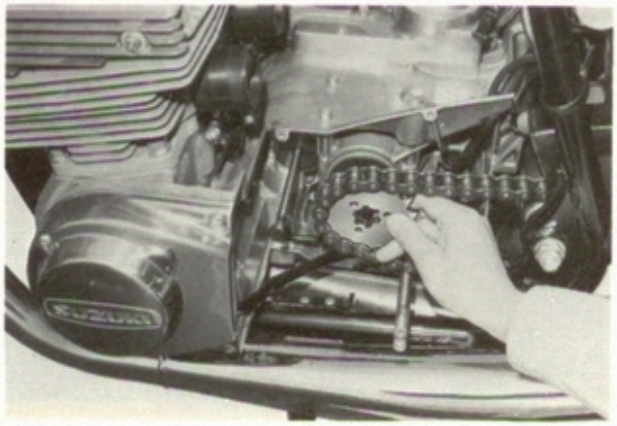


Fig. 7-1-20 Removing drive sprocket

Pull out the drive sprocket from the drive shaft.

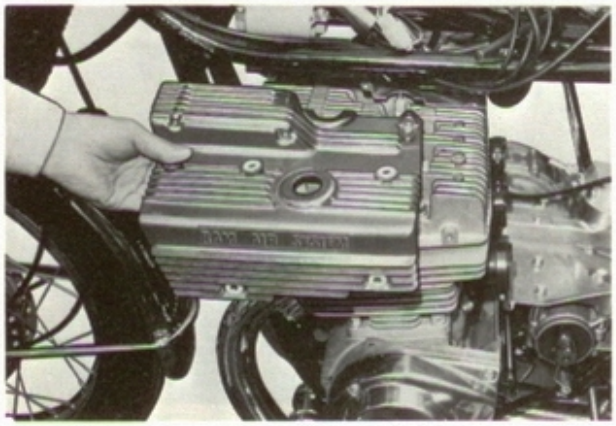


Fig. 7-1-21 Removing cylinder head covers

Required tool:

 10 mm and  big size

Remove the left and right cylinder head covers in order that these do not hinder when dismounting engine.

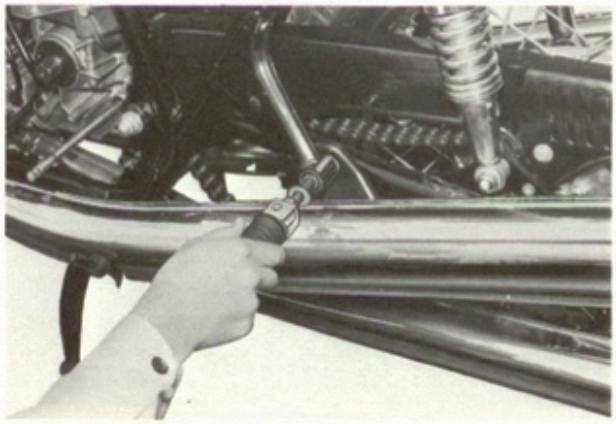


Fig. 7-1-22 Removing rear footrest

Required tool:

 14 mm

Tightening torque:
180 – 280 kg-cm (13 – 20 lb-ft)

Remove both the right and left footrests.

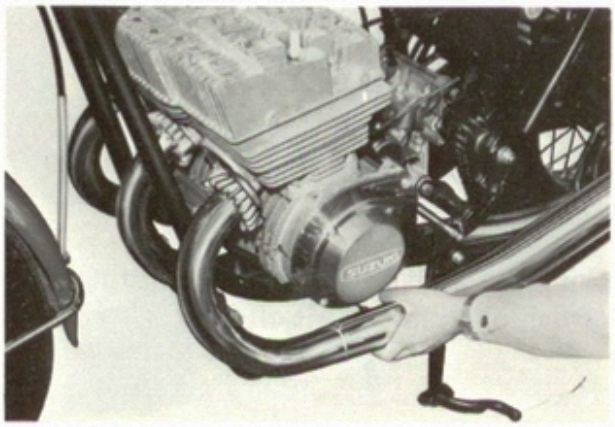


Fig. 7-1-23 Removing muffler

Required tool:

 12 mm or  12 mm

Tightening torque:
90 – 140 kg-cm (6.6 – 10 lb-ft)

Remove both the right and left side mufflers.

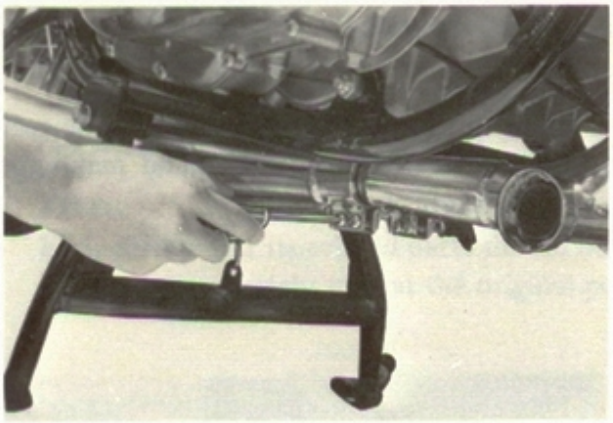


Fig. 7-1-24 Disconnecting muffler joint

Required tool:

 big size

After loosening two joints, pull out backward the inside two mufflers.

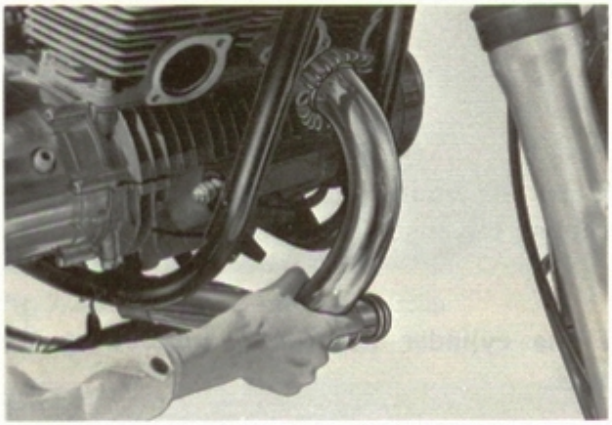


Fig. 7-1-25 Removing center exhaust pipe

Required tool:

 or  12 mm

Tightening torque:
90 – 140 kg-cm (6.6 – 10 lb-ft)

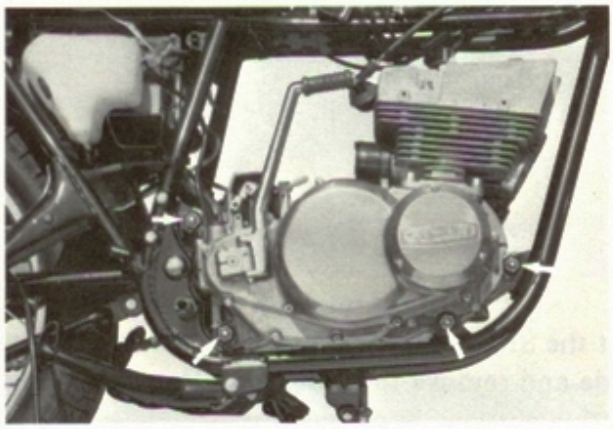


Fig. 7-1-26 Removing engine mounting bolts

Required tool:

 17 mm and 

Tightening torque:
250 – 400 kg-cm (18 – 29 lb-ft)

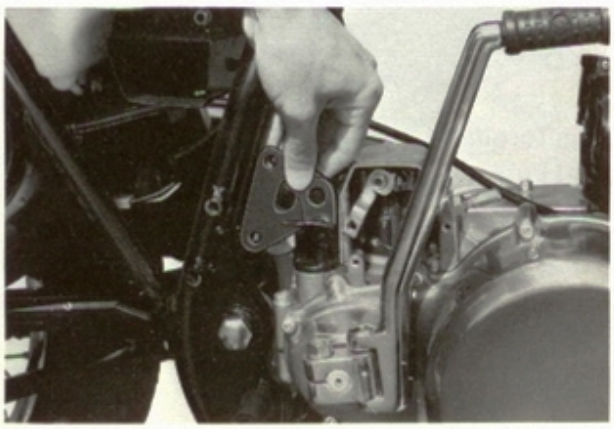


Fig. 7-1-27 Removing engine mounting plate

Required tool:

 12 mm

Tightening torque:
130 – 230 kg-cm (9.5 – 17 lb-ft)

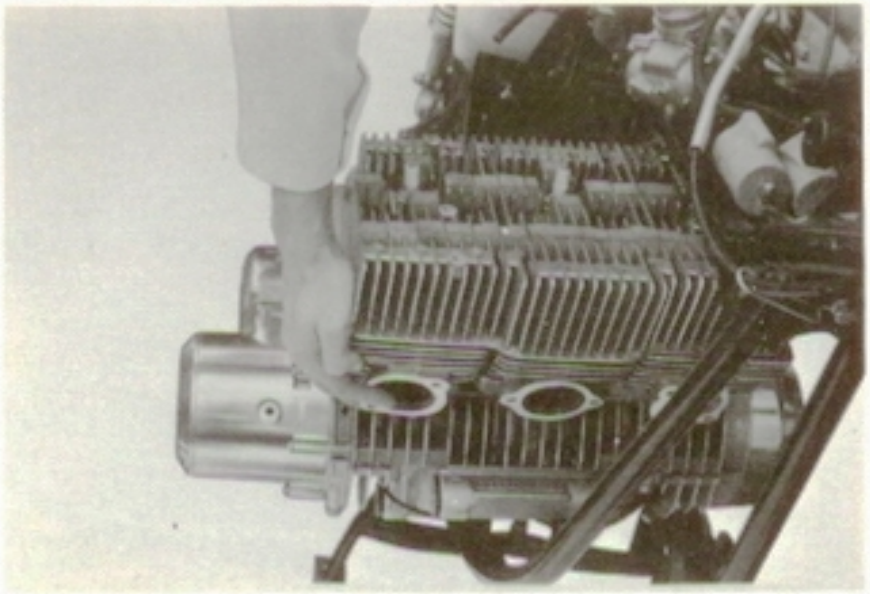


Fig. 7-1-28 Dismounting engine

Lift up the engine and move it to the right side.

CAUTION:
Do not pull up or move the engine by holding the gear shifting shaft otherwise the shaft may bend making it difficult to pull the shaft out.

7–2. DISASSEMBLY AND ASSEMBLY

This section gives an explanation of all the jobs necessary for separating the crankcase. When disassembling the engine, take the following steps. For reassembling the engine after necessary inspections or repairs, follow the reverse order of the disassembly.

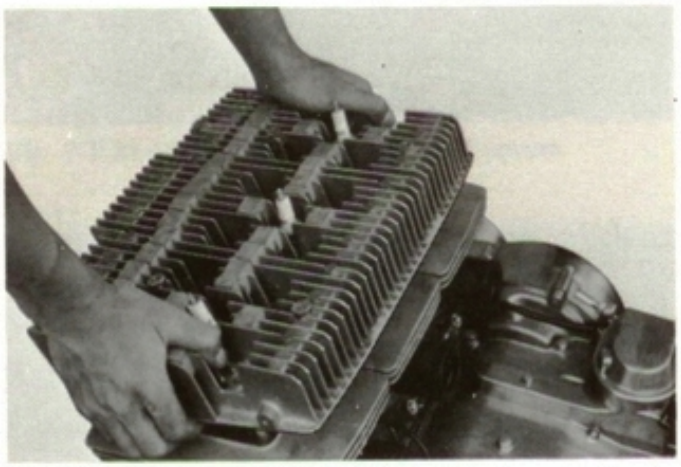


Fig. 7-2-1 Removing cylinder head

1. Remove the cylinder head after unscrewing the fitting nuts.

   Required tool:

    14 mm

   Tightening torque:
   250 – 400 kg-cm (18 – 29 lb-ft)

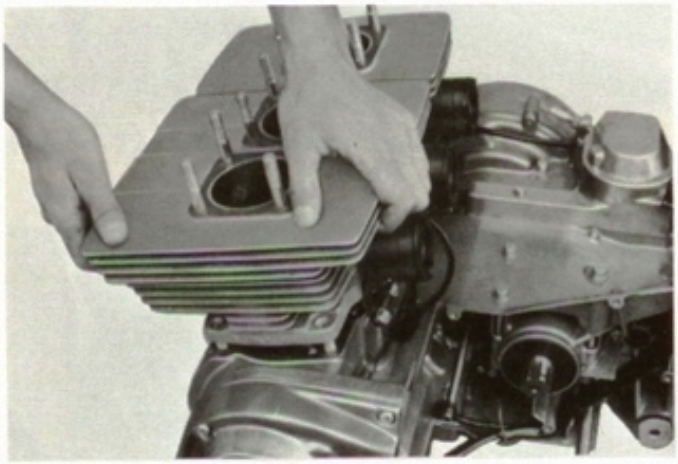


Fig. 7-2-2 Removing cylinder

2. Pull out the SRIS rubber hoses connected to cylinder inlet side and remove the cylinders after unscrewing their fitting nuts.

   Required tool:

    or  14 mm

   Tightening torque:
   250 – 400 kg-cm (18 – 29 lb-ft)

3. After removing the cylinders, cover the crank chamber with clean rag to prevent a piston pin circlip or a foreign substance from dropping into it. Remove one piston pin circlip from the piston with a small screw driver or nose pliers. Now, the piston pin can be easily removed by pushing the other end of the pin with a rod. Fig. 7-2-3 & 7-2-4.

NOTE:
Each piston and its related parts should be installed in the original place when the assembly. Therefore, keep them separately so that the original position of each part may be identified.

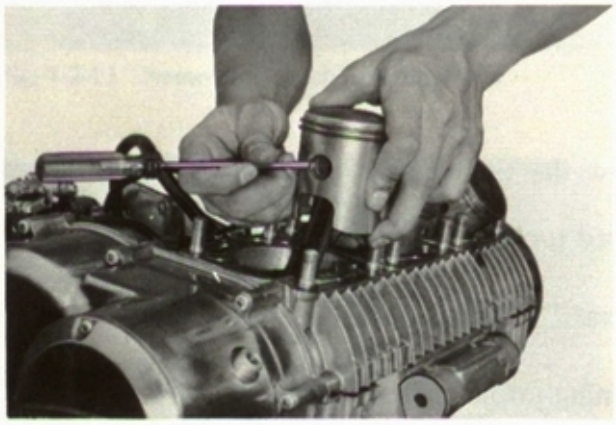


Fig. 7-2-3 Removing piston pin circlip

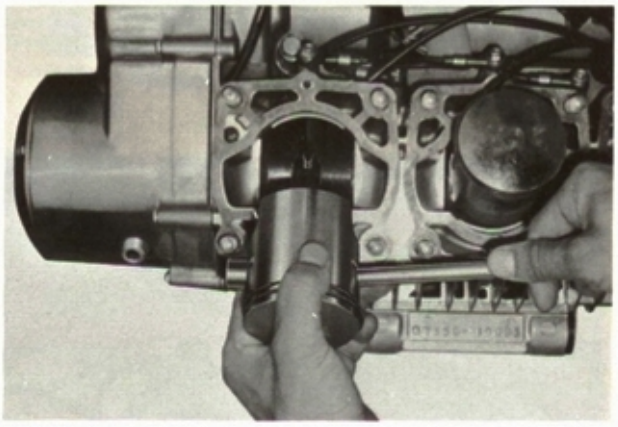


Fig. 7-2-4 Removing piston pin

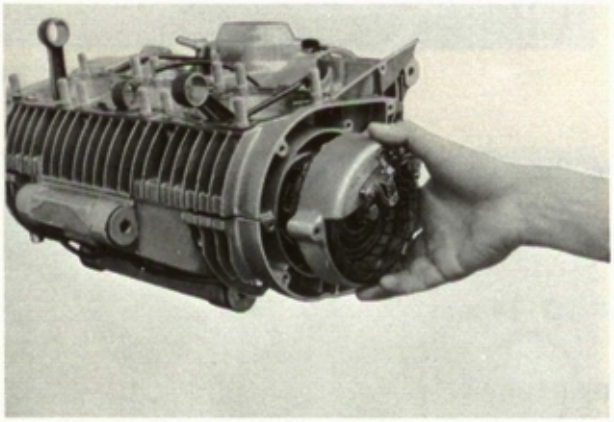


Fig. 7-2-5 Removing alternator stator

4. After disconnecting the neutral indicator lead wire at the switch, remove 3 pcs of alternator stator fitting screw and take off the stator.

Required tool:

large and small size

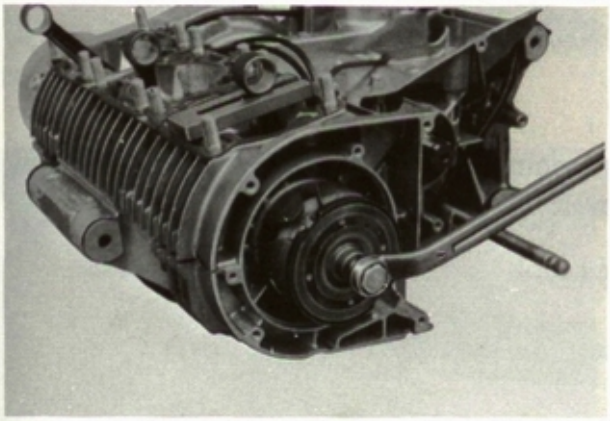


Fig. 7-2-6 Removing alternator rotor

5. Place the piston holder between the connecting rod and the crankcase in order to lock the crankshaft and after removing the rotor fitting bolt, screw-in the rotor remover and torque it firmly.

Required tool:

or 12 mm

special tool 09910-20111

special tool, either 09930-50951 or 09930-33310

Tightening torque:
90 – 140 kg-cm (6.6 – 10 lb-ft)

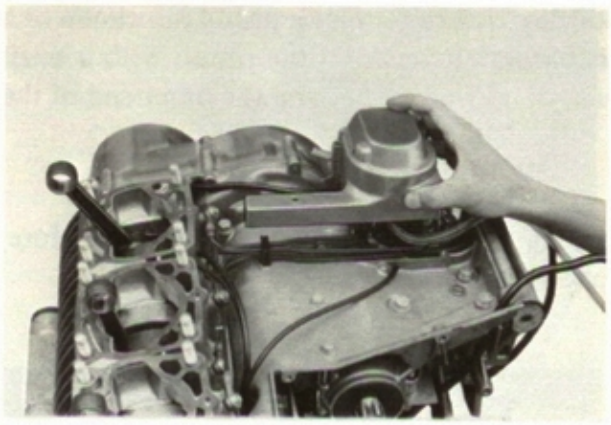


Fig. 7-2-7 Removing oil pump cover

6. Remove the oil pump cover.

Required tool:

8 mm

small size

Tightening torque:
20 – 40 kg-cm (1.5 – 2.9 lb-ft)

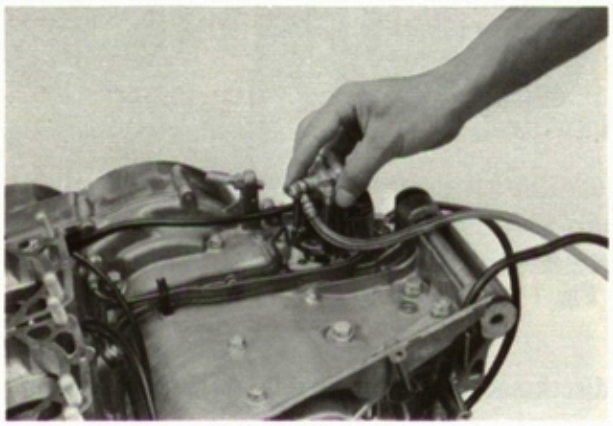


Fig. 7-2-8 Removing oil pump

7. Unscrew the fitting bolts and remove the oil pump.

Required tool:

small size

Tightening torque:
20 – 40 kg-cm (1.5 – 2.9 lb-ft)

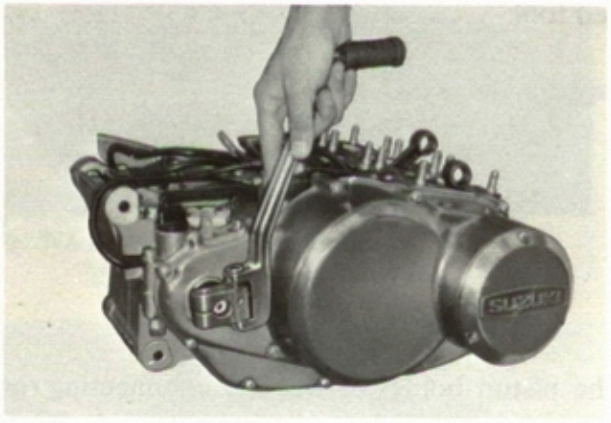


Fig. 7-2-9 Removing kick starter lever

8. Remove the kick starter lever from the kick shaft.

Required tool:

14 mm

Tightening torque:
250 – 400 kg-cm (18 – 29 lb-ft)

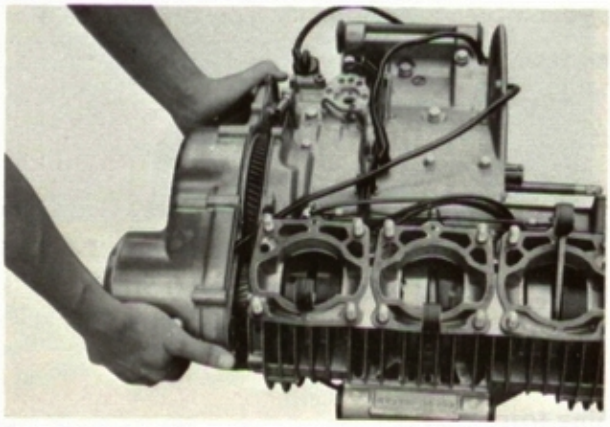


Fig. 7-2-10 Removing engine right cover

9. After loosening the fitting screws, remove the engine right cover.

Required tool:

large size or impact driver

The contact breaker is installed in the cover and the job in this item can be done without removing it.

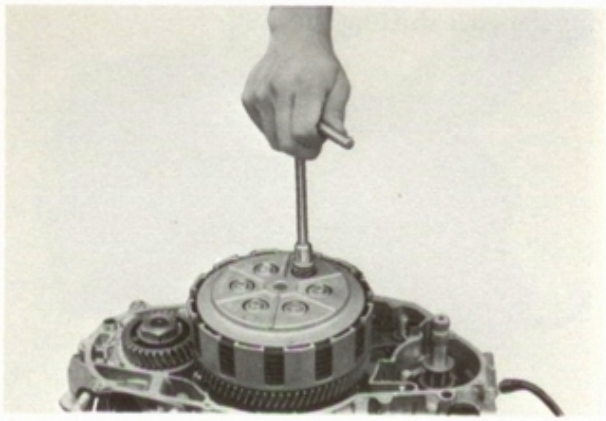


Fig. 7-2-11 Removing clutch pressure plate

10. Unscrew 6 pcs of the screws and remove the clutch pressure plate.

Required tool:

10 mm

Tightening torque:
40 – 70 kg-cm (2.9 – 5.1 lb-ft)

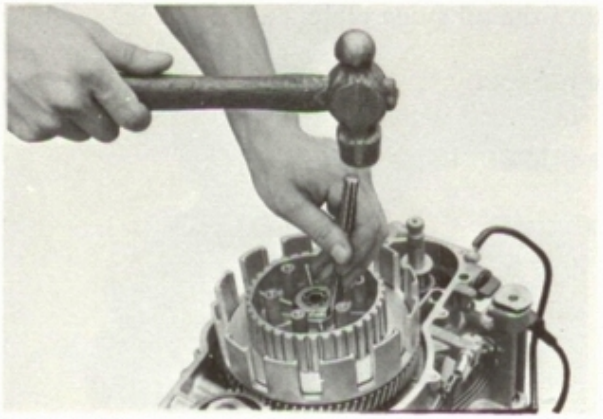


Fig. 7-2-12 Flattening lock washer

11. After removing the clutch plates and the push piece fitted on the end of the shaft by hand, flatten the clutch sleeve hub washer with a chisel and a hammer.

Required tool:

and

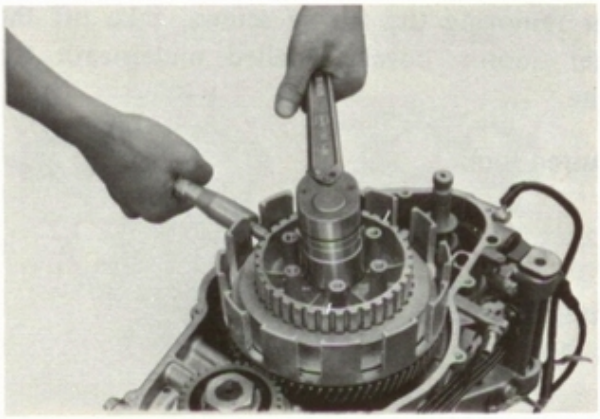


Fig. 7-2-13 Loosening clutch sleeve hub nut

12. Loosen the clutch sleeve hub nut by holding the hub with the special tools.

Required tool:

32 mm

special tool 09920-51510

special tool 09920-60310

Tightening torque:
500 – 600 kg-cm (36 – 43 lb-ft)

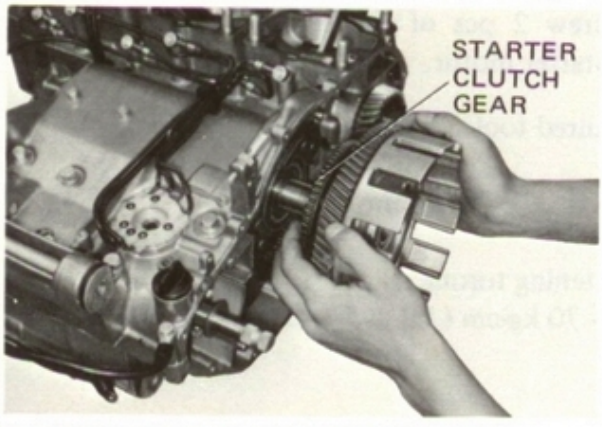


Fig. 7-2-14 Removing clutch housing and starter one-way clutch

13. Remove the clutch housing together with the starter clutch gear.

NOTE:
The starter one-way clutch is equipped behind the clutch housing. If the clutch housing is removed leaving the starter clutch gear on the shaft, the component parts of the starter clutch may come off the housing, which may give an inconvenience of repositioning them.

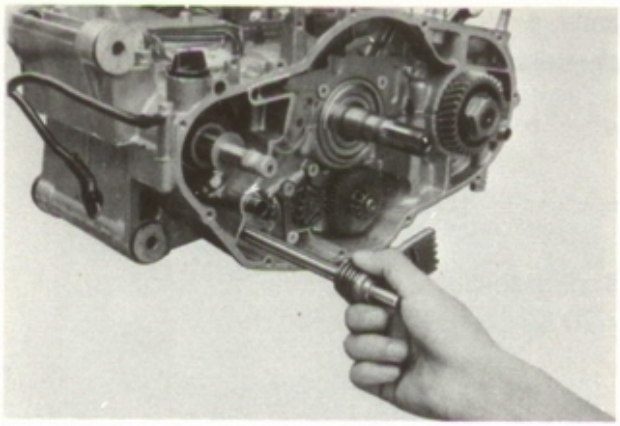


Fig. 7-2-15 Removing gear shifting shaft

14. Pull out the gear shifting shaft.

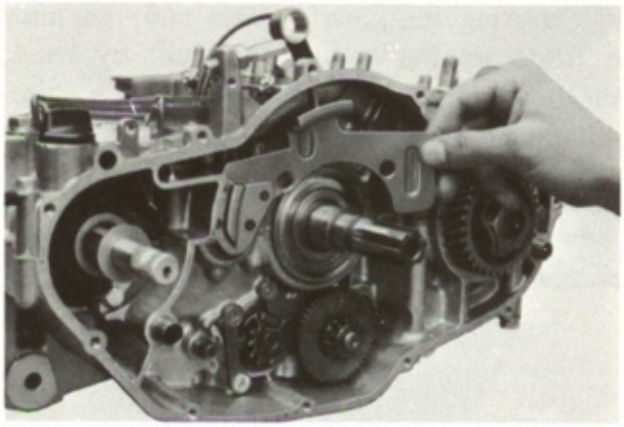


Fig. 7-2-16 Removing oil guide plate

15. Remove the oil guide plate.

Required tool:

 impact driver

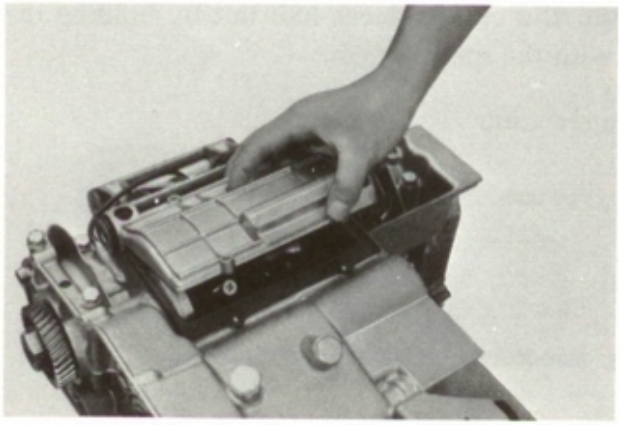


Fig. 7-2-17 Removing starter motor cover

16. After removing the fitting screws, take off the starter motor cover installed underneath the engine.

Required tool:

 8 mm

Tightening torque:
20 – 40 kg-cm (1.5 – 2.9 lb-ft)

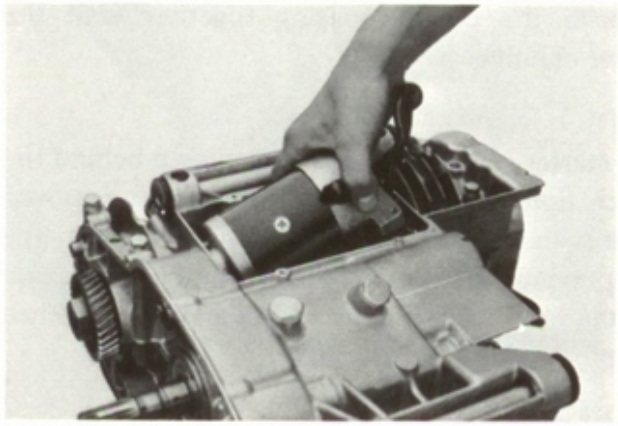


Fig. 7-2-18 Removing starter motor

17. Unscrew 2 pcs of the fitting screw and remove the starter motor.

Required tool:

 10 mm

Tightening torque:
40 – 70 kg-cm (2.9 – 5.1 lb-ft)

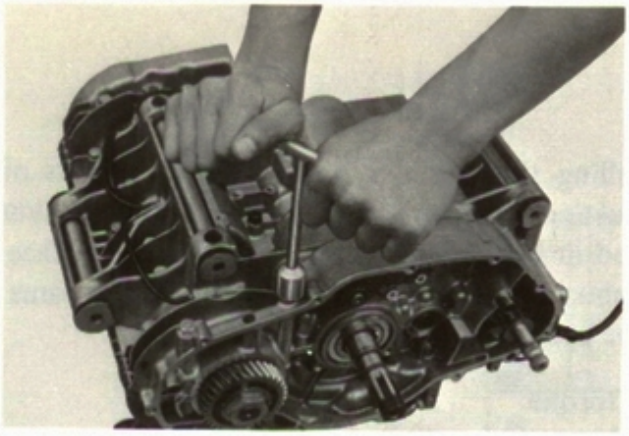


Fig. 7-2-19 Loosening crankcase bolts

18. Loosen all the crankcase joining bolts on the lower crankcase half.

Required tool:

12 mm

special tool 09914-25810

Tightening torque:
130 – 230 kg-cm (9.5 – 17 lb-ft)

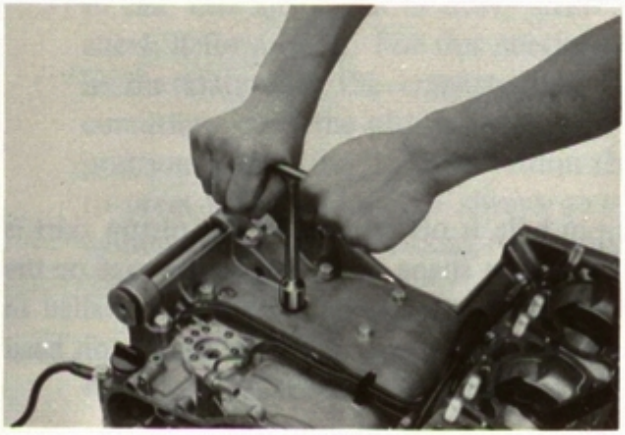


Fig. 7-2-20 Loosening crankcase bolts

19. Loosen all the crankcase joining bolts on the upper crankcase half.

Required tool:

12 mm and 10 mm

Tightening torque:
6 mm bolt. . . 60 – 100 kg-cm(4.4 – 7.3 lb-ft)
8 mm bolt. . . 130 – 230 kg-cm(9.5 – 17 lb-ft)

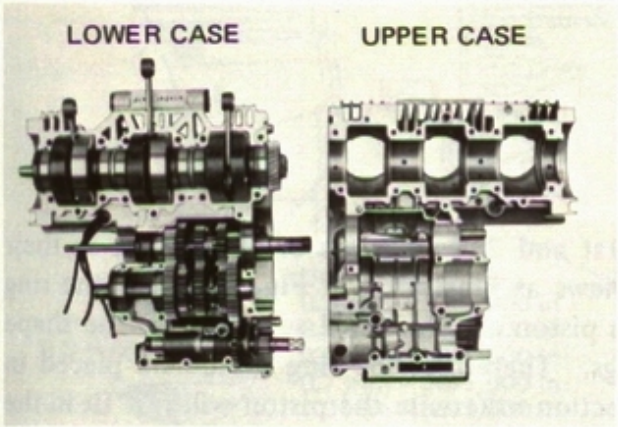


Fig. 7-2-21 Separated crankcase

20. Hit the crankcase with a mallet or a soft hammer and separate it into upper and lower halves leaving inside parts on lower half of the case.

Required tool:

Mallet or soft hammer

7–3. NECESSARY POINTS ON ASSEMBLY

7–3–1. CYLINDER HEAD

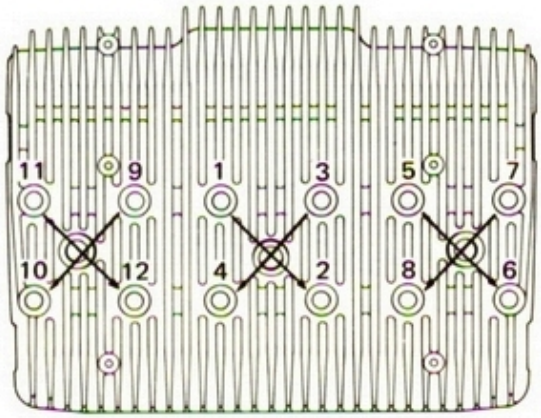


Fig. 7-3-1

When installing the cylinder head, tighten 4 bolts of each combustion chamber evenly in a crisscross fashion as illustrated in Fig. 7-3-1 so that each meeting surface of the combustion chamber may properly fit the same of respective cylinder.

Tightening torque:
250 – 400 kg-cm (18 – 29 lb-ft)

7–3–2. PISTON

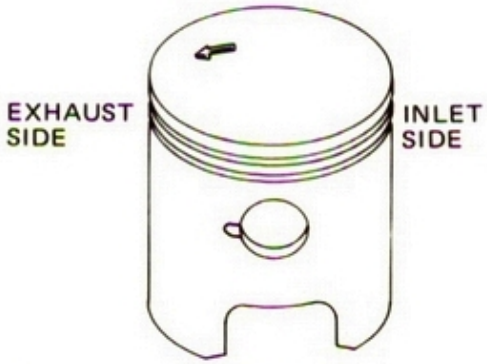


Fig. 7-3-2

The piston pin hole is off-center and the piston skirt is cut according to the shape of scavenging passage on the crankcase, therefore, the piston should be installed in proper direction. The arrow mark on the piston head indicates the exhaust side.

7–3–3. PISTON RING

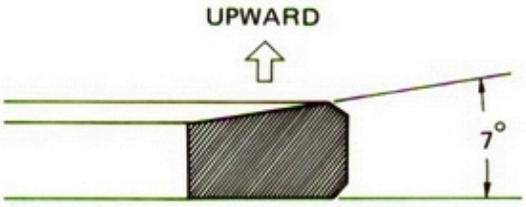


Fig. 7-3-3

Both the 1st and 2nd rings are of wedge type in their sectional views as illustrated in Fig. 7-3-3 and the ring grooves on piston are machined according to the shape of the rings. Therefore, the ring should be placed in proper direction otherwise the piston will not fit in the cylinder. For identifying upside, a stamped letter is put on the inclined surface.

7–3–4. CRANKSHAFT

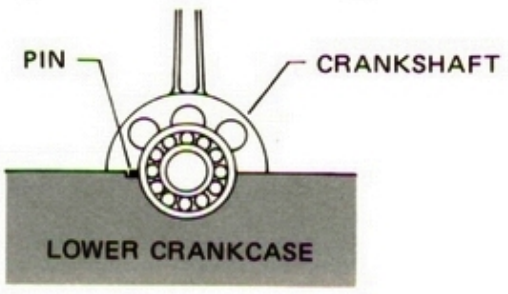


Fig. 7-3-4

When installing the crankshaft, pay attention to following point.

1) The pins on the crankshaft bearings should be placed in the grooves on the lower crankcase. Fig. 7-3-4.

2) All the movable oil seals on the crankshaft should be put to bearing side. Fig. 7-3-5.

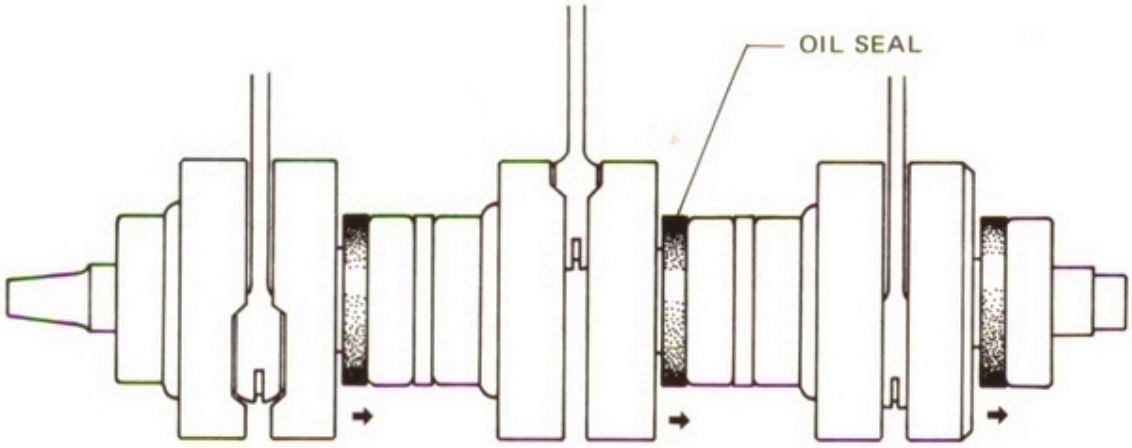


Fig. 7-3-5

3) In case that an impact or heavy stress is given to the connecting rod by any chance, it is necessary to check it for a bent. For this check, install the piston on the connecting rod without the piston ring in the state that the crankshaft is assembled on the crankcase and install the cylinder. In this condition, push the piston head at TDC to left and right. The piston should return to the neutral position or stay free position within the clearance when the pressure is released. If the piston tends to press the cylinder wall always to one side, that is, the piston is not positioned in center of the cylinder bore, the connecting rod is judged to be bent.

NOTE:
In case disassembly or assembly of the crankshaft is required, use the special jigs designed by the factory to get the proper alignment.

7–3–5. CYLINDER

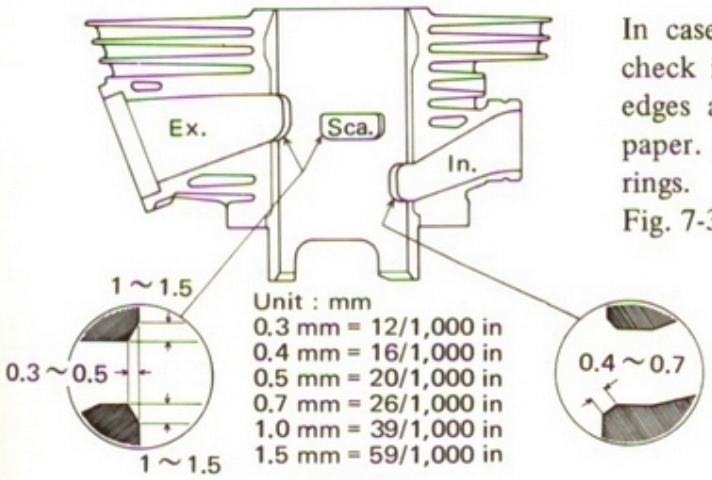


Fig. 7-3-6

In case of installing the rebored cylinder, be sure to check if the edges of the ports are chamfered. If the edges are sharp, chamfer them by a scraper or emery paper. This will prolong the life of piston and piston rings. The designed chamfer is as illustrated in Fig. 7-3-6.

7–3–6. INTAKE PIPE

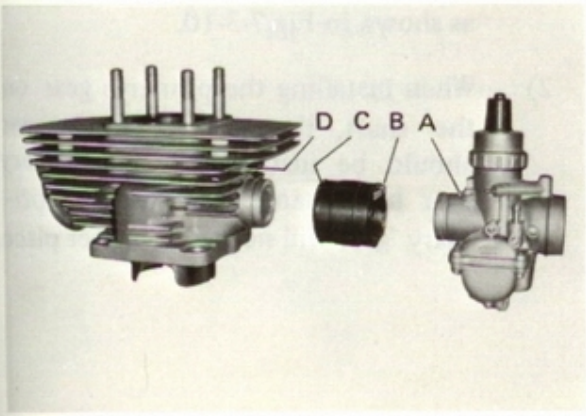


Fig. 7-3-7 Intake pipe installing position

When installing the intake pipe on the cylinder, align the notch "C" on the intake pipe with the rib on the cylinder "D" as illustrated in Fig. 7-3-7 so that the carburetor may be placed in proper position with engagement of "A" and "B".

7–3–7. SRIS HOSES

Two grommets are provided on the upper and lower crankcases respectively in order to hold the SRIS hoses and guide them to proper piping. Therefore, if only the hoses are set according to the indications on the grommets in the condition of proper grommet installation, the hoses will be set in the designed proper places. However, in case that the grommets are improperly installed on the crankcase, the proper piping will not be obtained resulting in malfunctioning of the system.

The installation of the grommets and the piping of SRIS hoses should be done as shown in Fig. 7-3-8.

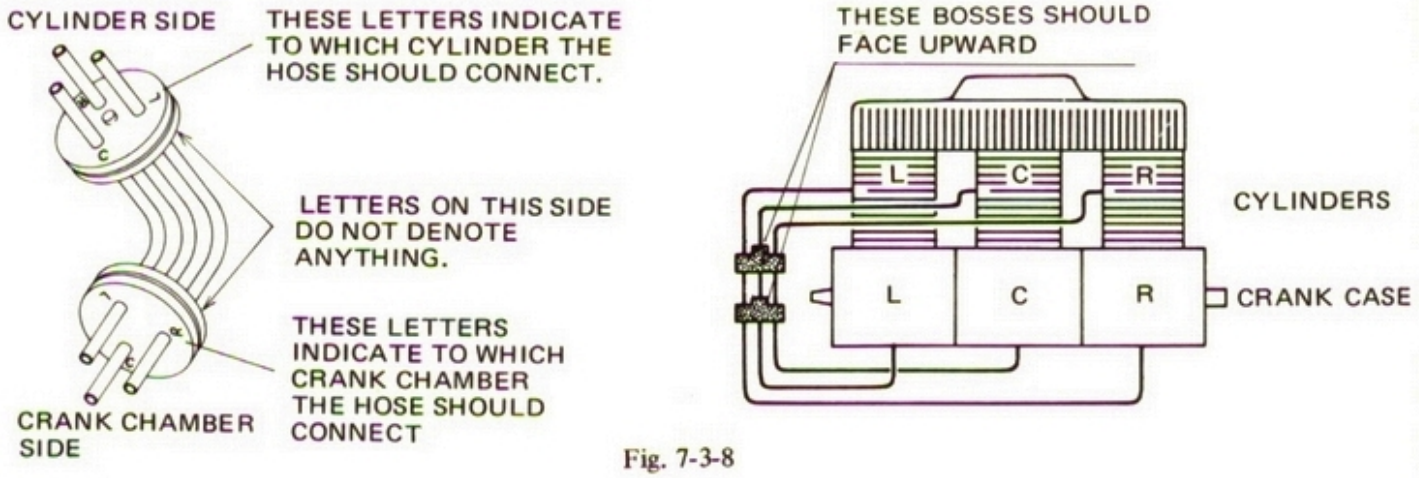


Fig. 7-3-8

7–3–8. ENGINE OIL PIPE

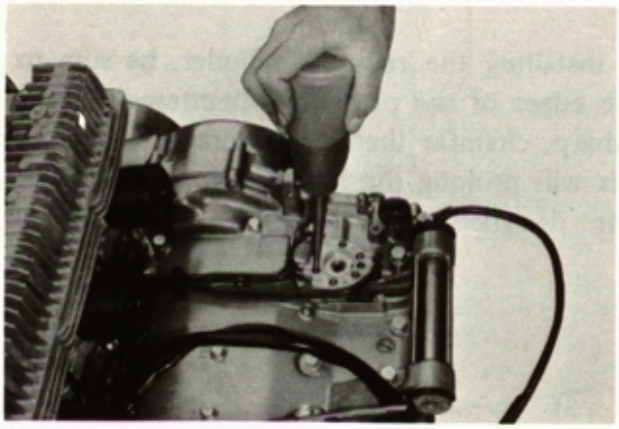


Fig. 7-3-9 Initial oil supply

At the time when the engine assembly is completed, the oil passages has not yet been filled with oil. If the engine is started and kept on running in this condition, the engine may suffer lack of lubrication causing a bearing noise or piston seizure. Therefore, be sure to supply CCI oil from the end of the oil pipes with a oil filler as shown in Fig. 7-3-9.

7–3–9. CLUTCH

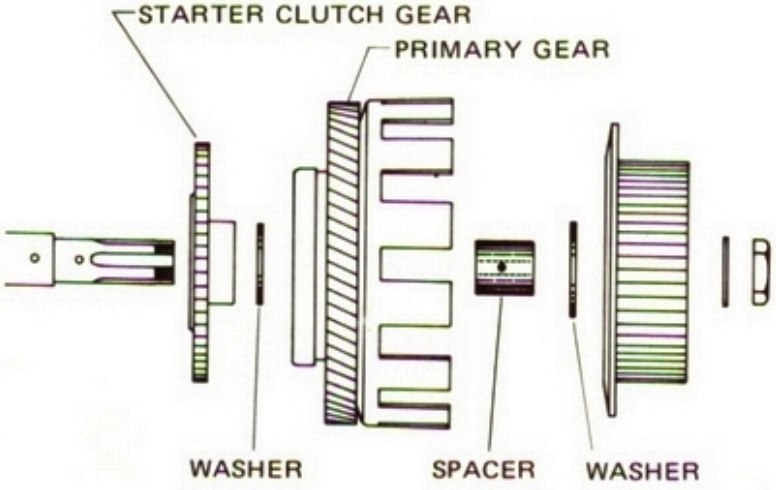


Fig. 7-3-10

1) On assembling the clutch, place the washer and the spacer in right position as shown in Fig.7-3-10.

2) When installing the primary gear on the shaft, the starter clutch gear should be installed to the primary gear beforehand otherwise the primary gear will not fit in proper place.

7–3–10. CLUTCH RELEASE

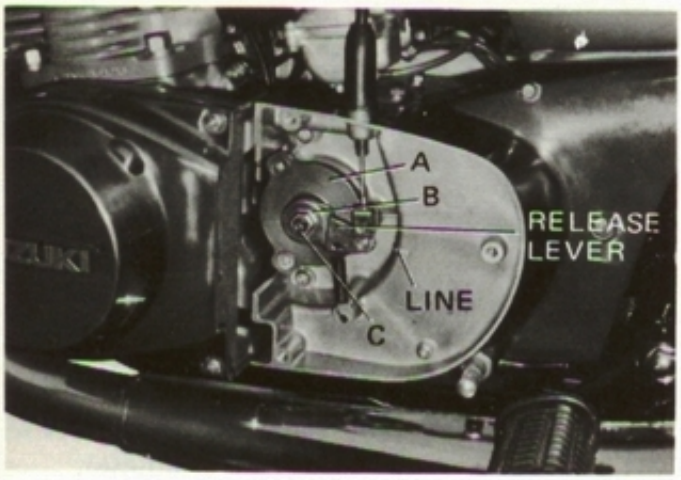


Fig. 7-3-11 Clutch release lever

1) The clutch release lever should be installed so that its end aligns with the embossed line provided on the engine left cover when the lever is fully returned. If the lever is found to be in improper position when assembling this mechanism, correct its position by changing the position of the plate "A" after removing the release lever and screws on the plate shown in Fig. 6-3-11.

Before tightening the nut "B", the screw "C" should be adjusted by the following procedure.

1. Turn the screw "C" clockwise until it becomes stiff.
2. Unscrew it by 1/2 turn from this position.
3. Keeping the screw in this state, tighten the nut "B".

2.) Two pieces of the clutch release rods are placed in the center hole of the countershaft. Each of the rod should be positioned with its round shape end facing clutch side.

7–3–11. GEAR SHIFTING FORKS

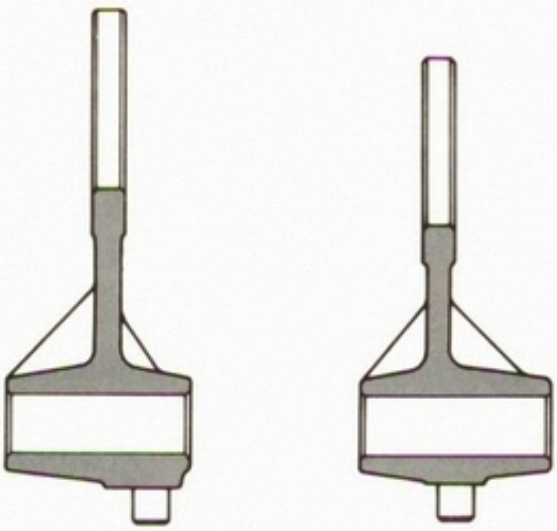
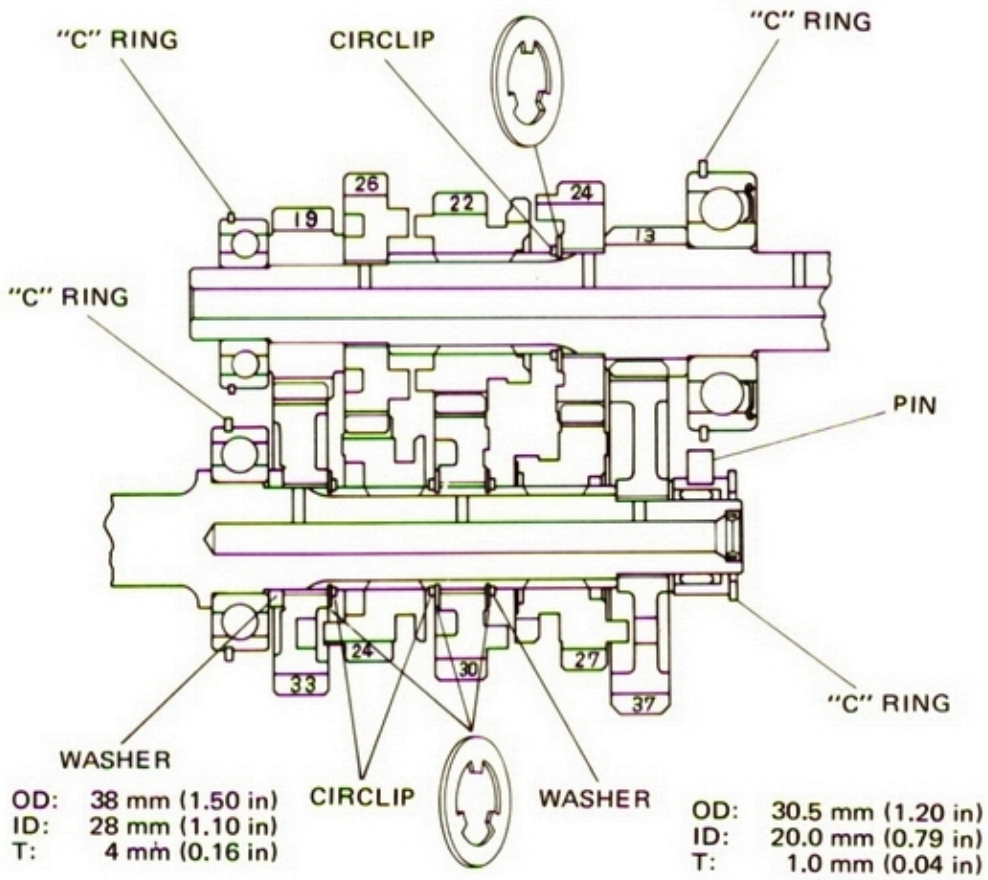


Fig. 7-3-12

There are 3 pcs of the gear shifting forks in the transmission. 2 forks out of 3 are identical and used for the 4th and 5th driven gears on the drive shaft. The rest has a different shape and is used for the 3rd drive gear on the countershaft. These shapes are drawn in Fig. 7-3-12.

7–3–12. TRANSMISSION

For the installation of gears. washers, circlips and bearings, refer to the illustration Fig. 7-3-13.



OD: Outside Diameter
ID: Inside Diameter
T : Thickness

The figure on the gears in this illustration denotes the number of the teeth.

Fig. 7-3-13

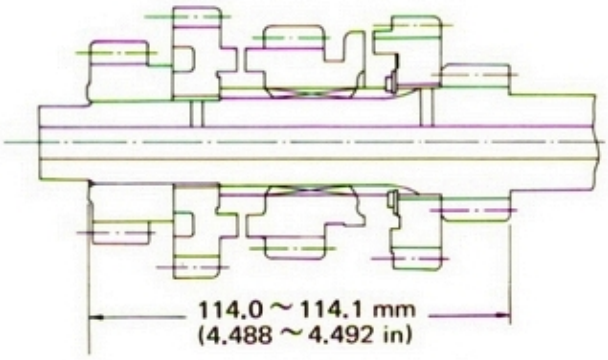


Fig. 7-3-14

The job of replacing the gears on the countershaft may scarcely be required. However, in case that this job is necessarily done, the 2nd gear installed by press-fit should be removed.

When installing the 2nd gear on the countershaft, the following points should be observed.

1) Since the 2nd gear must transmit large torque of the countershaft, enough capacity in frictional force is required at the joint surface of the 2nd gear and countershaft. Suzuki Lock Super 103K (available as the genuine part) is cement applied to a joint of two materials to increase the frictional force to a great extent. When installing the second gear by press-fit, apply this cement to inside surface of the 2nd gear.

2) The press-fit should be made so as to have 114.0 – 114.1 mm (4.488 – 4.492 in) from the low gear end to the end of 2nd gear as shown in Fig. 7-3-14.

3) Removal of the 2nd gear from the countershaft is allowable only twice. At the third removal, replace with a new countershaft.

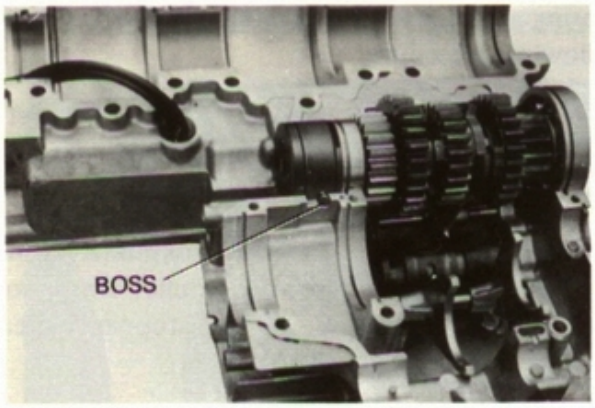


Fig. 7-3-15 Countershaft oil reservoir

When installing the countershaft oil reservoir, fit the boss in the groove on the case. This will locate the oil passage in a right position.

7–3–13. KICK STARTER

The component parts of the kick starter mechanism should be assembled as illustrated in Fig. 7-3-16.

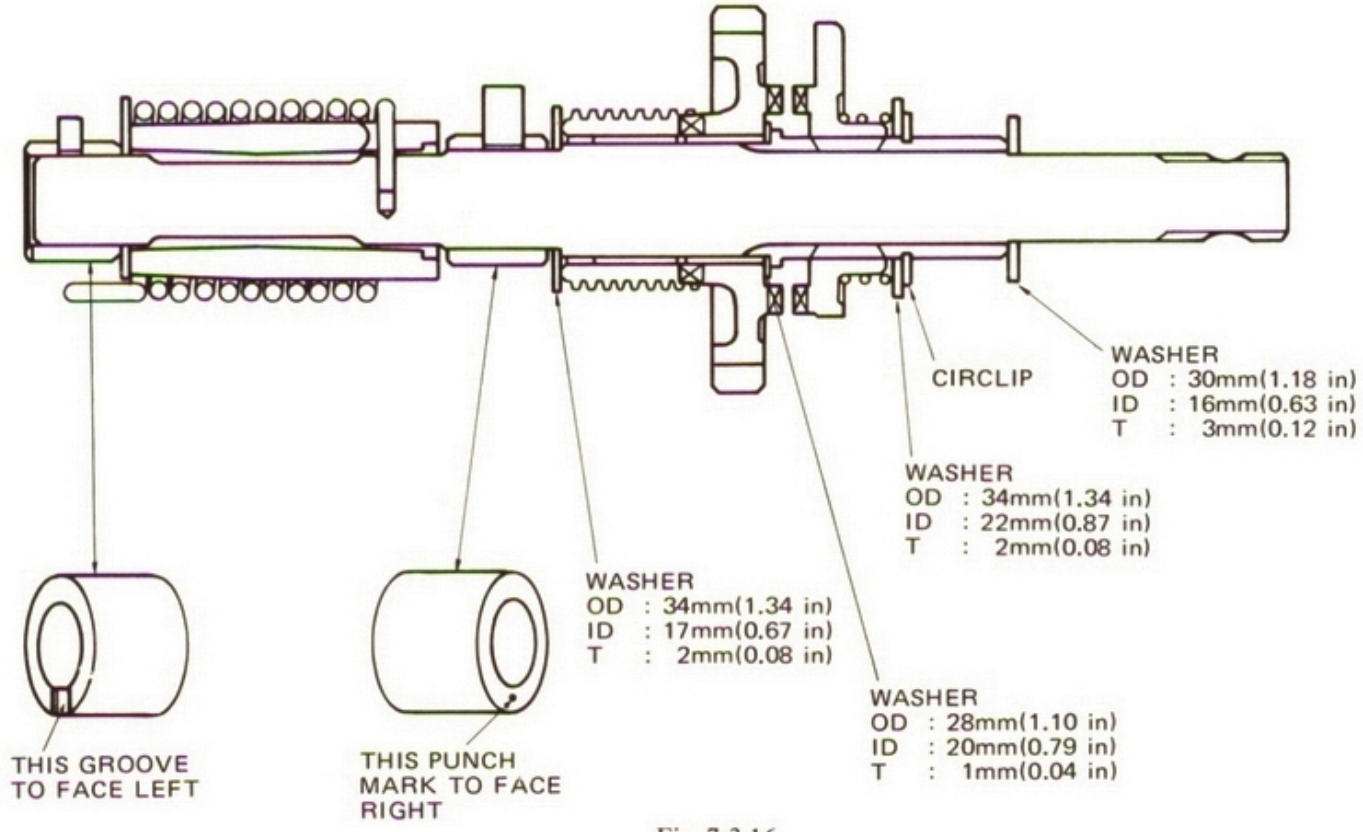


Fig. 7-3-16

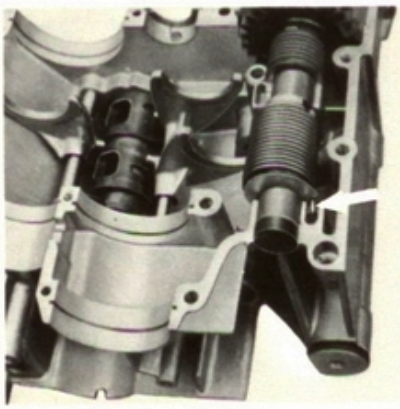


Fig. 7-3-17 Assembling kick starter shaft

When the upper and lower crankcase are joined, be sure to check if the end of the kick starter spring is in the hole of the case as indicated by arrow mark in Fig. 7-3-17.

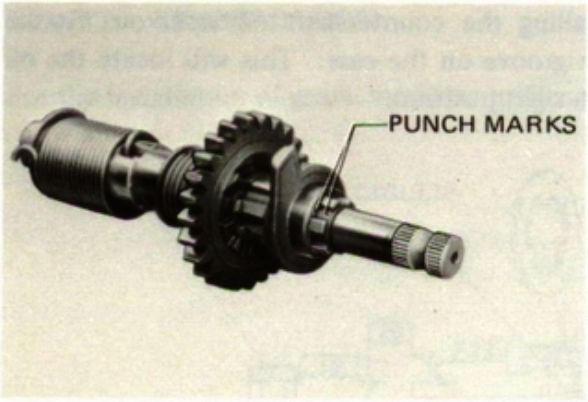


Fig. 7-3-18 Positioning ratchet wheel

To give spring tension to the kick starter shaft, carry out the following procedure.

1) Install the ratchet wheel over the kick starter shaft so that the two punch marks align as shown in Fig. 7-3-18.

2) Twist the kick starter shaft approximately 3/4 turn anticlockwise and set the ratchet wheel so that its boss is caught in the stopper plate.

7–3–14. CRANKCASE

1) Before joining the upper and lower crankcases, clean their meeting surfaces and coat the upper case surface with Suzuki liquid gasket 99000-31010 evenly and after drying it for approximately 5 minutes, take the assembly procedure of the engine.
2) The crankcase tightening bolts and clamps fixed together with them should be used in the positions shown in Fig. 7-3-19.

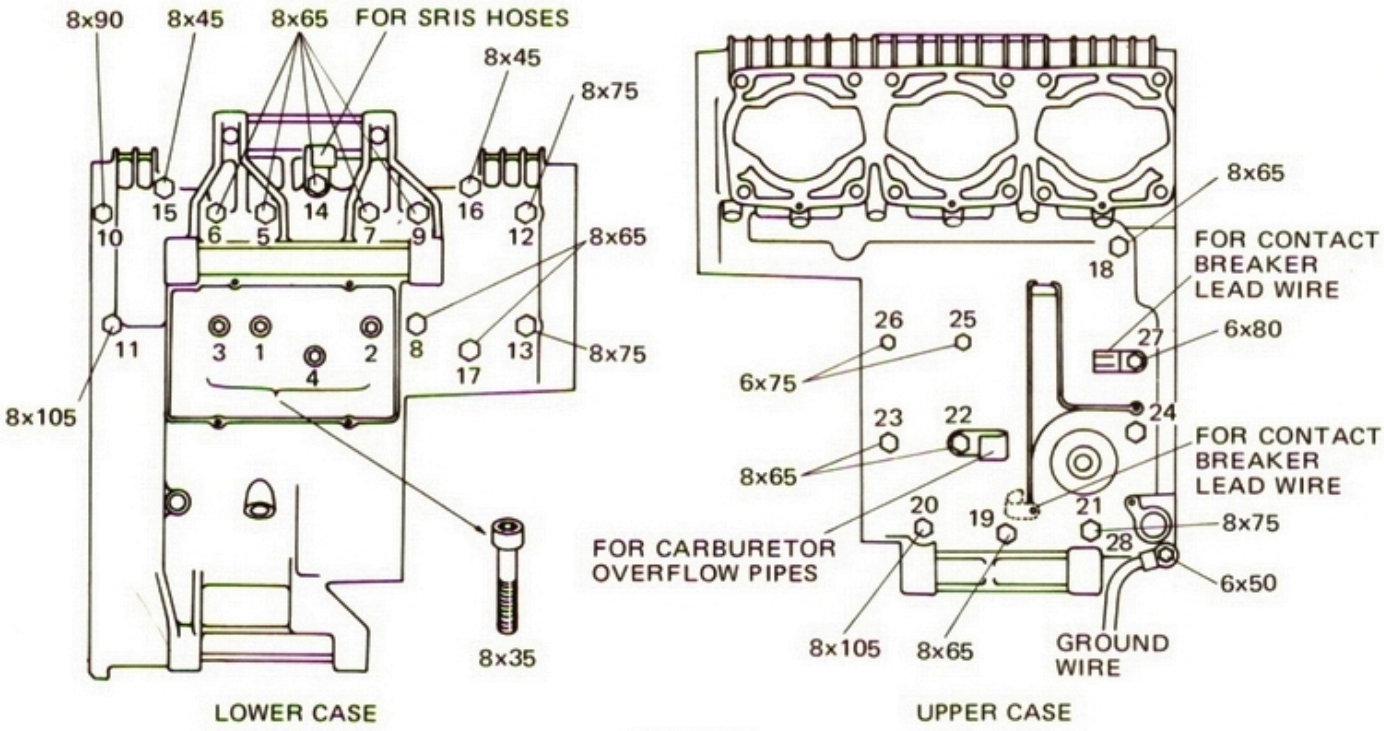
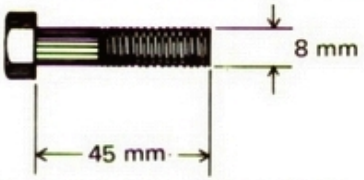


Fig. 7-3-19

* The figures on the case indicate the tightening order.
* The figures written like 8 X 45 denote the size of the bolt:



Bolt diameter X Bolt length

* Tightening torque: 6 mm bolt = 60 – 100 kg-cm (4.4 – 7.3 lb-ft)
  8 mm bolt = 130 – 230 kg-cm (9.5 – 17 lb-ft)

7–3–15. EXHAUST PIPE AND MUFFLER

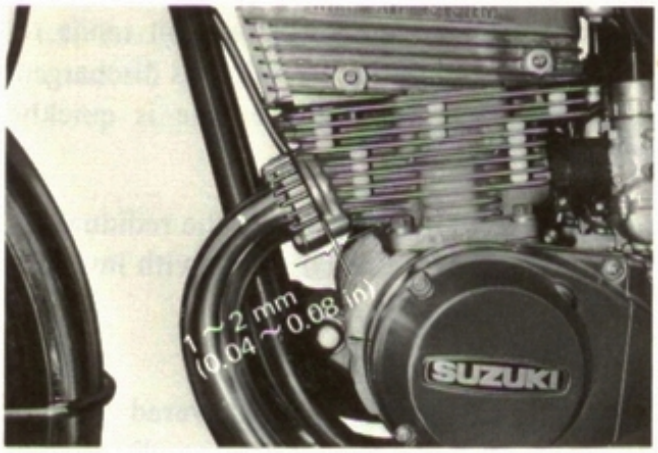


Fig. 7-3-20 Exhaust pipe position

Before tightening the exhaust pipe clamp bolts, check to see if there is enough clearance between the cylinder and the exhaust pipe clamp. The designed clearance is 1 – 2 mm (0.04 – 0.08 in).
This clearance can be adjusted by turning the clamp since it is screw-coupled with the exhaust pipe.

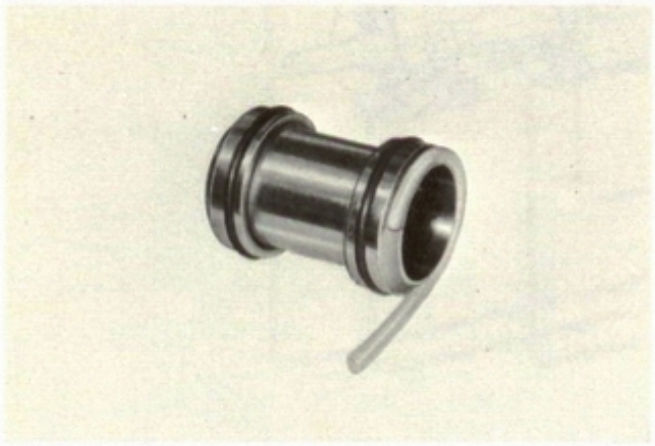


Fig. 7-3-21 Exhaust coupler seal

In order to seal thoroughly the joint of the exhaust coupler tube, put exhaust coupler seal (Suzuki genuine part 99000-31020) around both ends of the coupler tube.

NOTE:
Original thickness of the coupler seal is a little too large for the groove on the muffler in which the coupler seal and the end of the coupler tube are placed together. Therefore, it is necessary to lengthen beforehand the coupler seal by approximately 10% to make it thinner.

7–4. SUZUKI RECYCLE INJECTION SYSTEM (SRIS)

After the moving parts are lubricated with engine oil fed through CCI system, this used oil tends to accumulate in the bottom of crank chamber though it does little by little. Oil thus stored-up is discharged to the combustion chamber through the transfer port (scavenging port) when the engine is quickly accelerated causing as a result excessive smoke emission from the exhaust silencer.

SRIS has been designed in order to eradicate this undesirable phenomenon by transferring the redidual oil into the cylinder without accumulating in the crank chamber and exhausting it little by little with invisible smoke.

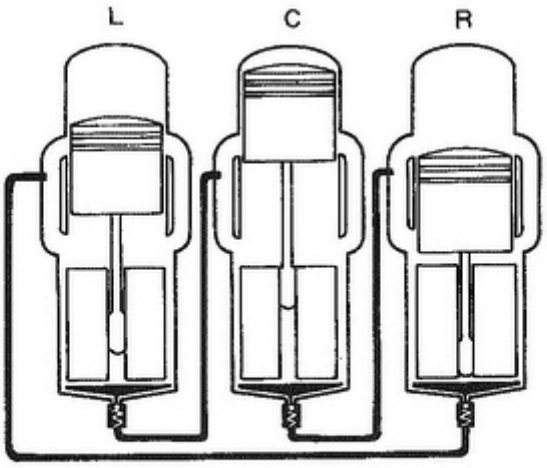


Fig. 7-4-1 SRIS

Oil from the crank chambers is delivered to the cylinders through the tubes connecting the crank chamber and the transfer port in the way shown in Fig. 7-4-1.

One-way valves are installed at the oil outlet of the crank chambers in order to check the reverse flow of oil. Pressure at each end of the tube always changes to positive and negative reciprocally while the engine is running and oil is sent to the cylinder whenever the crank chamber pressure is higher than that of the transfer port in excess of the one-way valve working pressure.

This action takes place in each crank chamber notwithstanding engine speed and load, which burns oil continuously and thoroughly resulting in no accumulation of oil in the crank chambers.

7–4–1. INSPECTION

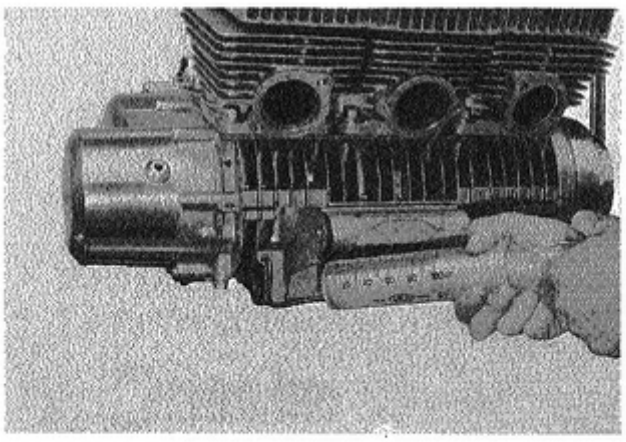


Fig. 7-4-2 Checking one-way valve

For checking the one-way valve on the crankcase, use a syringe to apply pressure or vacuum to it. In case the valve functions properly, air can be drawn by syringe but not be sent.

7–5. ENGINE LUBRICATION SYSTEM

7–5–1. CONSTRUCTION

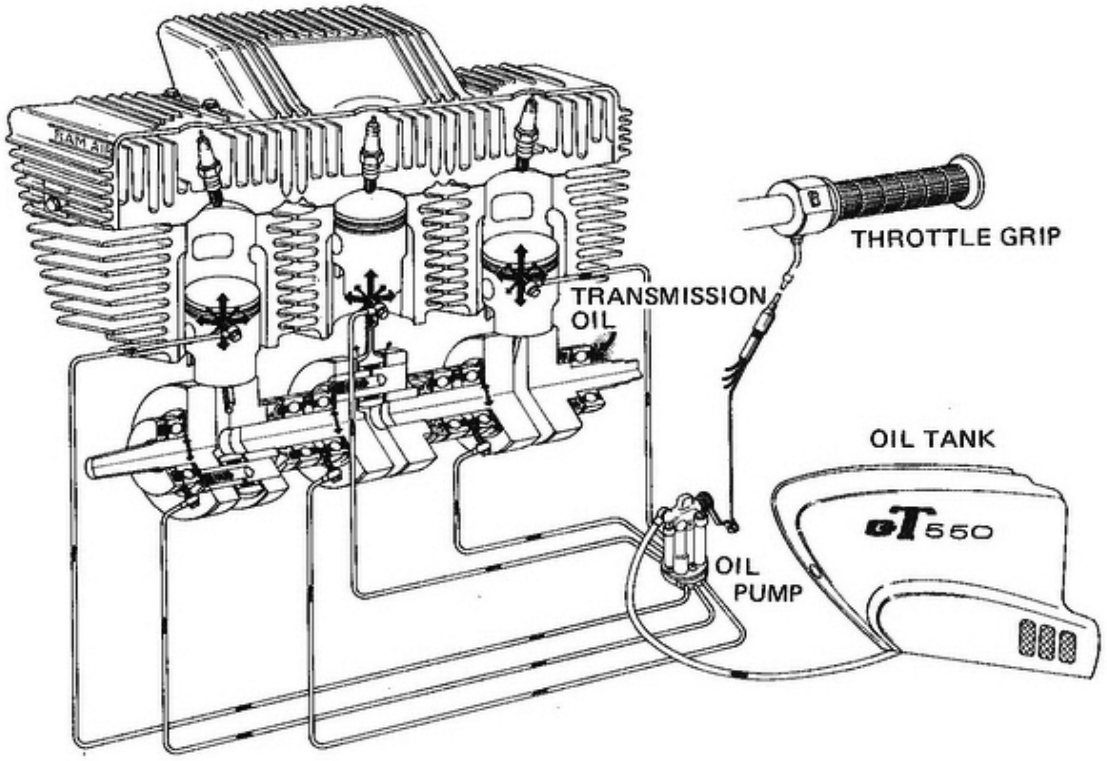


Fig. 7-5-1 Suzuki CCI lubrication system

The engine lubrication is of Suzuki CCI system same as other Suzuki models. The oil pump has 6 outlets connecting with respective oil feeding pipes and lubricate all the moving parts of the engine except the crankshaft right end bearing which is lubricated by transmission oil. The oil pump is driven by a warm gear engaging with the same on kick starter shaft and the driving power is transmitted from the engine through the clutch, the low gears and the kick starter gear.

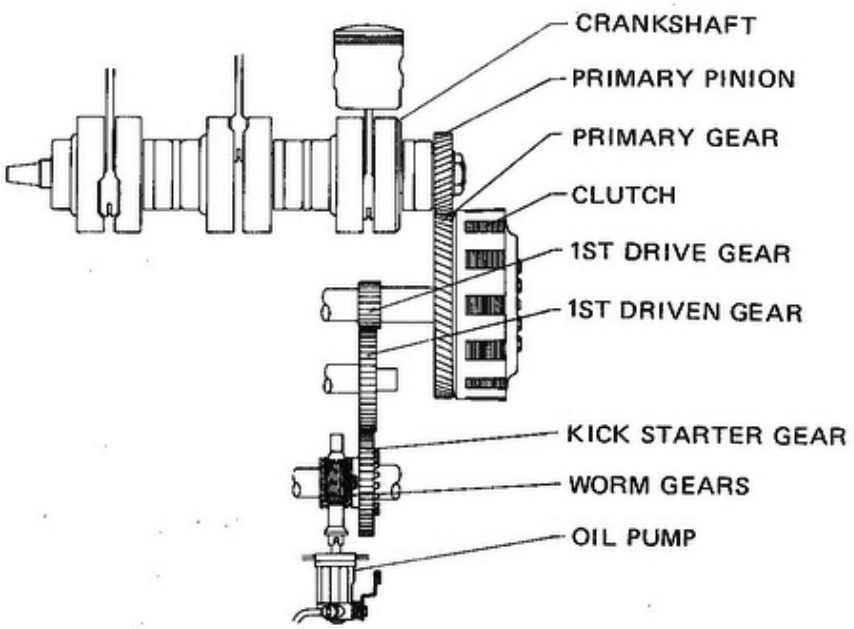


Fig. 7-5-2 Oil pump driving system

Fig. 7-5-2 and 7-5-3 show the oil pump driving system and the construction of the oil pump respectively.

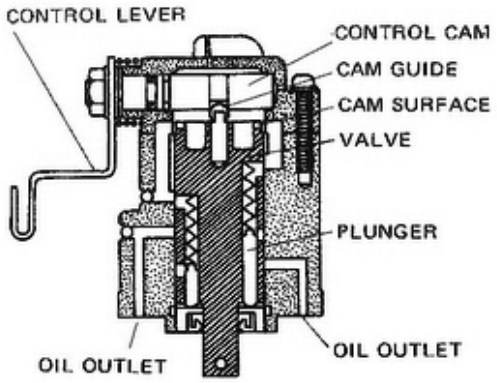


Fig. 7-5-3

In Fig. 7-5-3, the valve is always pressed upwards by the springs and its movement to upside is restricted by the control cam or the cam guide stationarily fitted on the pump body. The valve moves up and down according to the cam shape machined on its upper end as the valve rotates.

The discharge and suction of oil in the pump take place by the variation of inside volume of the valve resulting from the change of relative position of the plunger to the valve.

The control cam fitted on the control body is connected with the oil pump control lever and is to change the travel of the valve by limiting its maximum upward movement.

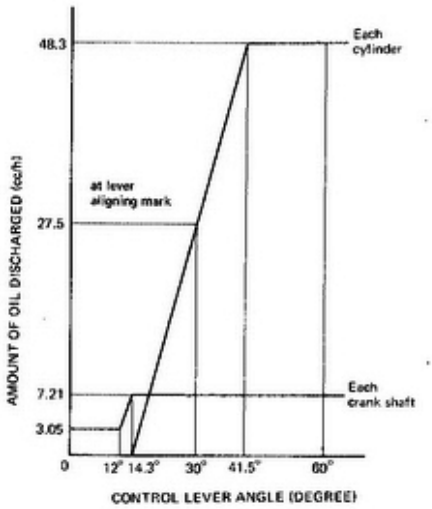


Fig. 7-5-4

The discharging amount of oil is regulated by the prescribed valve travel and engine speed. Therefore, more oil is fed to the engine as the throttle grip is more opened and the engine speed increases.

The oil pump performance is shown in Fig. 7-5-4.

* The discharging amount is measured when the valve speed is kept at 30 rpm which corresponds to the engine speed of 2,300 rpm.

7–5–1. ADJUSTMENT

Since the oil discharging amount of the oil pump is regulated in relation to the throttle opening by connecting the throttle wire to the control lever on the oil pump, the throttle wire adjustment must be considered to be very important factor for affecting engine lubricating condition.

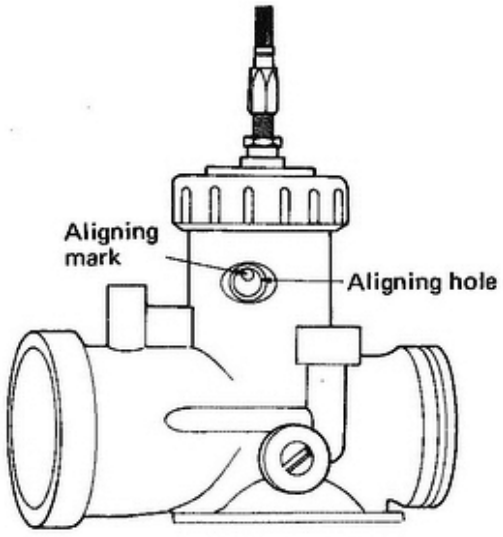


Fig. 7-5-5 Carburetor aligning marks

To adjust the oil pump by the throttle cable, perform the following procedure.

1) Remove the aligning hole plug on the right carburetor.

2) Wind up the throttle grip gradually and stop moving the grip just when an aligning mark on the side of throttle valve comes on upper end of the hole. Fig. 7-5-5.

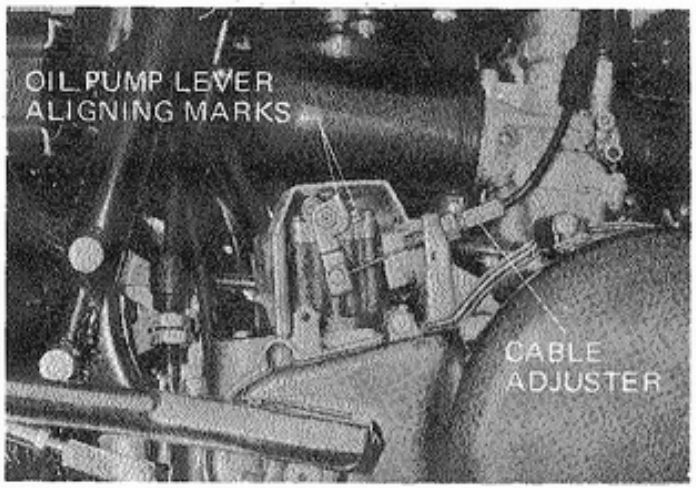


Fig. 7-5-6 Adjusting oil pump

3) Holding the grip in the position mentioned in the previous item, adjust the cable adjuster so that a score on the oil pump lever align with the marking on the body Fig. 7-5-6.

NOTE:
The adjustment in this section should be done after the throttle wire adjustment for the carburetor has been made. The reverse procedure may cause the mal-adjustment of oil pump.

7–5–2. BLEEDING OF OIL LINES

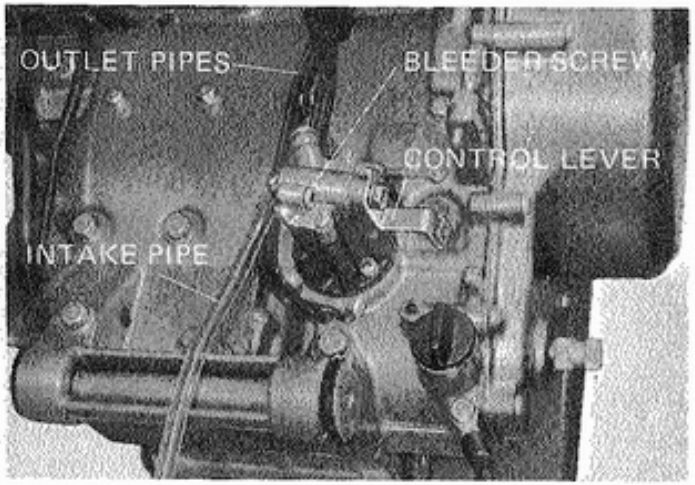


Fig. 7-5-7 Bleeding oil lines

In case air is found in the oil inlet pipe, bleed the line by loosening the bleeder screw. If air is in the outlet pipes, carry out either the method 1) or 2) written below depending on amount of air.

1) Much air:
Remove the oil pump and send oil with a oil filler to expel air as already explained in the section 7-3-8.

2) A little air:
Start the engine with the oil control lever fully turned and keep the engine running at about 2,000 rpm tili all air is expelled.

7–6. CARBURETOR

7–6–1. SPECIFICATION

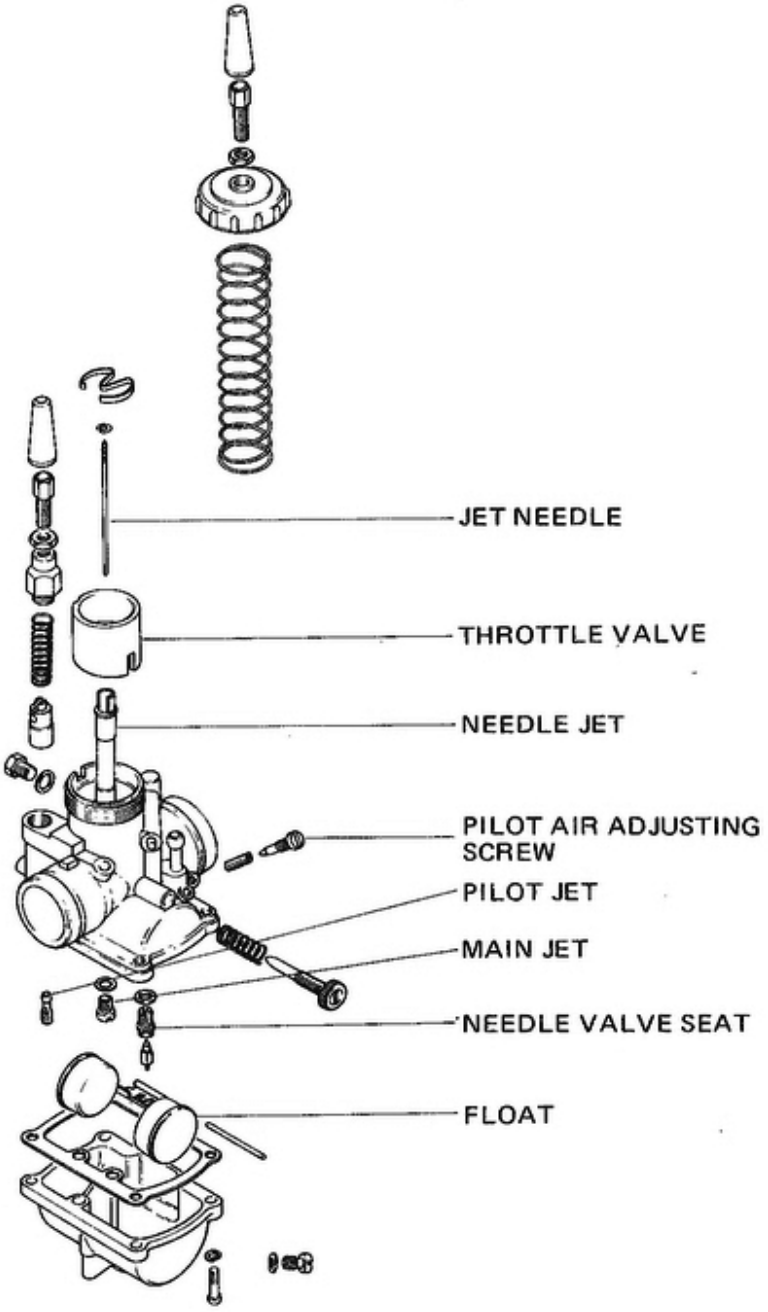


Fig. 7-6-1

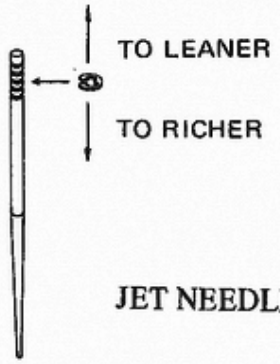
Type	VM 28 SC
Main Jet (right & left carburetors)	No.95
(center carburetor)	No.92.5
Jet Needle	5DH21-3
Needle Jet	0-5
Throttle Valve Cut-away	2.5
Pilot Jet	27.5
By-pass	1.4
Pilot Outlet	0.5
Pilot Air Adjusting Screw	1-1/4 turns back
Needle Valve Seat	2.0
Starter Jet	60
Float Level	24.25 mm

7–6–2. ADJUSTMENT

I. CARBURETION

The adequate carburetion is determined according to the result of various tests mainly in consideration of engine power, fuel consumption and fuel cooling effect to the engine and jets settings are done so as to satisfy and balance all these conditions. Therefore, it is not recommended to replace the jet with the other size than original or to change the setting position of adjustable parts except when compensating the mixture ratio due to the different altitude or climate conditions. When the adjustment is necessarily required, carry out the job referring to the following points.

1) Fuel-air mixture ratio can be changed by following manners.

THROTTLE OPENING	METHOD TO CHANGE THE RATIO	STANDARD SETTING
SLIGHT	PILOT AIR ADJUSTING SCREW 	1-1/4
MEDIUM		3RD POSITION FROM TOP GROOVE
HIGH	 MAIN JET Larger number : Richer mixture Smaller number: Leaner mixture	NUMBER: R & L CARB. 95 C CARB. 92.5

2) The fuel level inside the float chamber should also be set in proper position. To adjust the fuel level, measure the height of the float from the mixing chamber body in the way explained as follow.

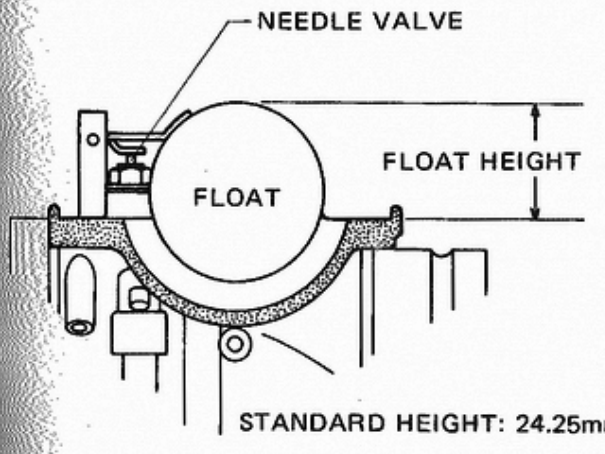


Fig. 7–6–2

* Remove the float chamber.
* Hold the carburetor upside down with the float fitted to the mixing chamber body.
* Lower the float gradually and stop it just when the float tongue touches the upper end of the needle valve.
* Measure the distance between the float chamber fitted surface and bottom of the float as shown in Fig. 7-6-2.

II. IDLING ADJUSTMENT

This section explains the procedure to balance the working conditions of the carburetors in engine idling speed. Two methods for balancing the carburetors are described hereunder, each of which gives the same result. On taking either method, following jobs should be practiced beforehand.

* Warm up the engine for about 5 minutes.
* Replace the spark plug with of hotter type in order to avoid the plug fouling trouble which may take place when killing ignition during the adjusting procedure.
* The ignition timing should be properly adjusted since improper ignition timing may bring the unsuccessful result even though the procedure is carried out properly.
* Have enough throttle wire play on each carburetor so that the wire may not limit the throttle valve movement when adjusting.
* Set each pilot air screw to the specified turns (1¼).

1) METHOD 1

* Screw in the 3 throttle stop screws fully and unscrew them by about same turns so as to have the engine speed of approximate 1,500 rpm. In this state, the turning-back will roughly be 3-1/2.
* While the engine runs, kill ignition on one cylinder out of 3 either by grounding the corresponding contact point or by removing the spark plug cap of the same and adjust engine speed in this condition by the throttle stop screws as shown in Fig. 7-6-2.

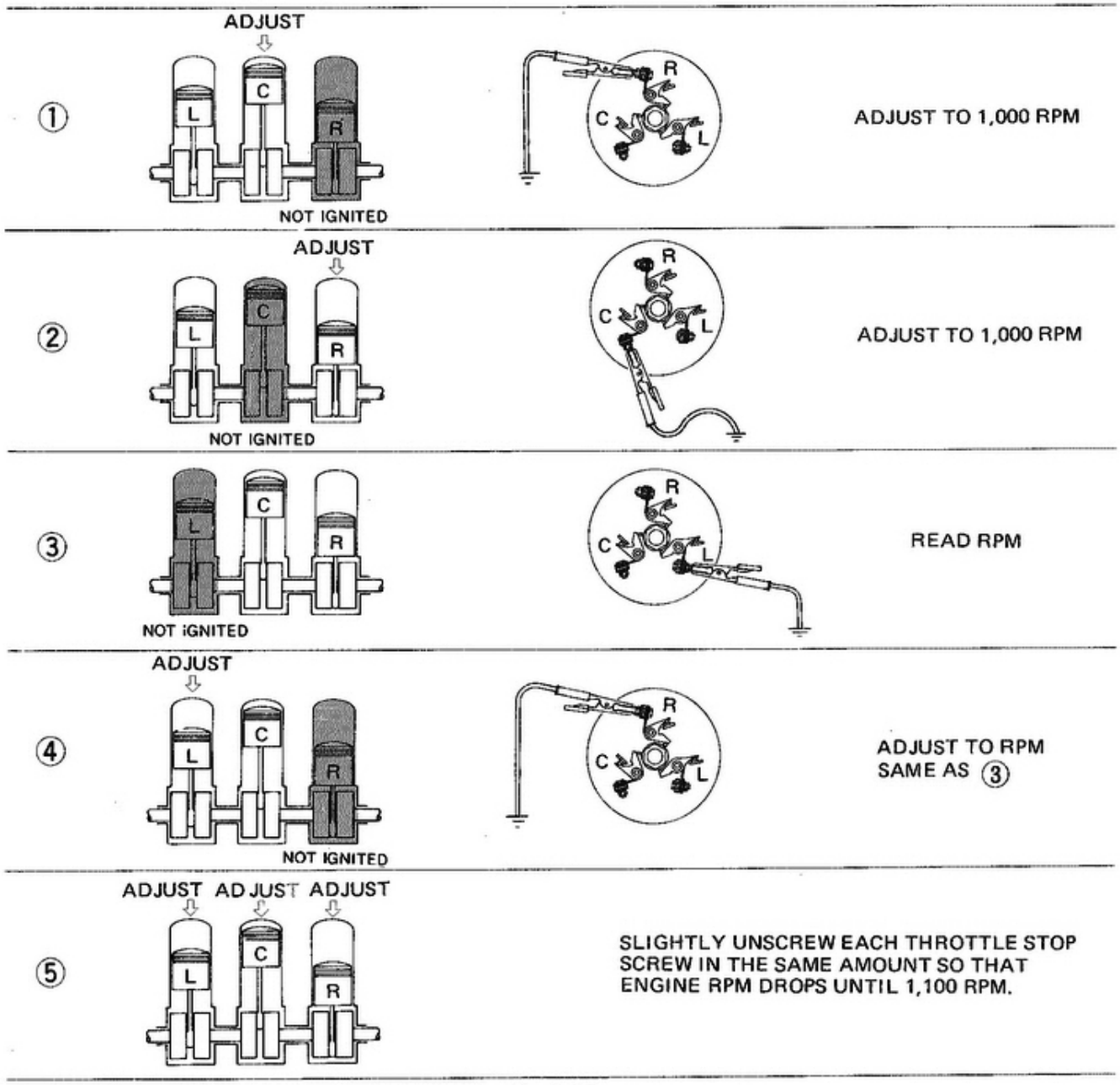


Fig. 7-6-3

2) METHOD 2

In the method 2, the adjustment is made on the carburetor fitted on a cylinder which is not ignited unlike the method 1.

① Perform the ground connection "A", "B" and "C" individually as shown in Fig. 7-6-4 and read the drop in engine rpm from that in the state without grounding.

* If the carburetors are balanced, the drop in rpm should be the same in each case.

* In the case that each drop of rpm varies among those in above three groundings:

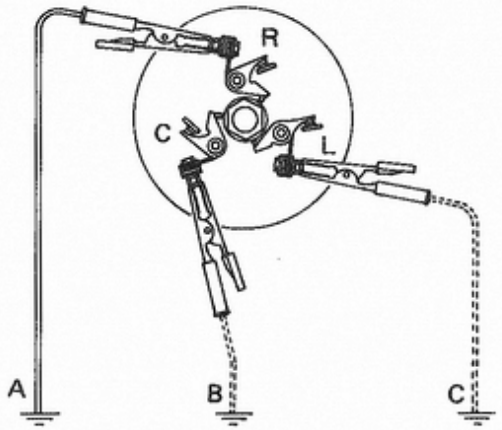


Fig. 7-6-4

If having a certain cylinder not ignited causes remarkable rpm drop as compared with the case done same for other cylinders respectively, unscrew the related throttle stop screw to the cylinder being not ignited, and if causes no or less rpm drop, screw-in the related throttle stop screw to the cylinder being not ignited.

② If the idling rpm with all the cylinders ignited is too high after the balance is properly made, unscrew 3 throttle screws by same turn respectively so as to have specified idling speed of 1,100 rpm.

③ After compensating the idling speed as described above, check the balance again by the procedure ① since this compensation may unbalance the carburetors to a certain extent.

NOTE:
If the relative position of the throttle stop screws or throttle wires is entirely changed, adopt the method 1 and in case of periodic inspection, simple idling speed adjustment, etc., carry out the method 2 for quicker job.

III. BALANCE OF THROTTLE VALVES AT HALF A WAY OPENING

This adjustment should be made under the condition that the 3 carburetors are properly balanced in the idling speed.

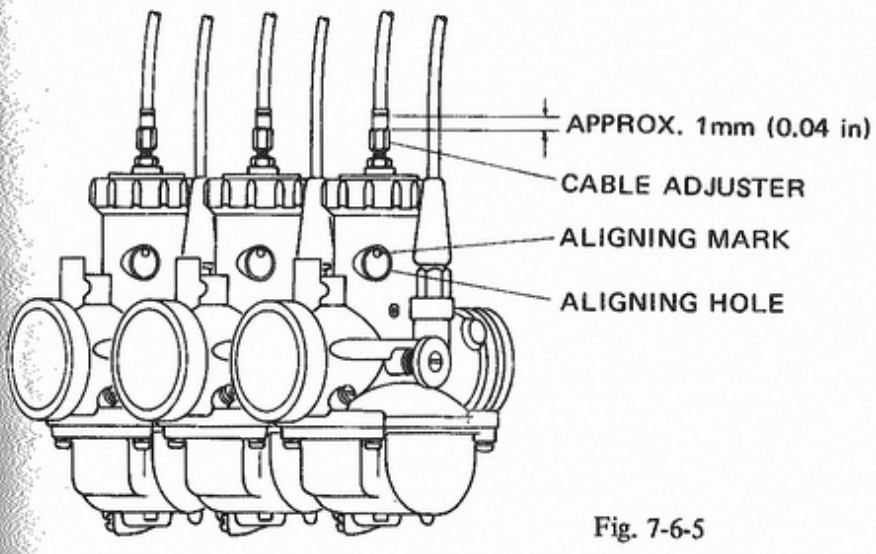


Fig. 7-6-5

Adjust all the 3 cable adjusters so that the aligning mark on side of each throttle valve comes to upper surface of the hole on respective carburetors when the throttle grip is twisted half a way and that all the 3 wires have play of approximately 1.0 mm (0.04 in) when the grip is fully returned.

7–7. STARTER SYSTEM

7–7–1. ELECTRIC STARTER

This section deals with the power transmission mechanism of the starter system and dispence with the explanation of the starter motor since it is described in the section 7-11.

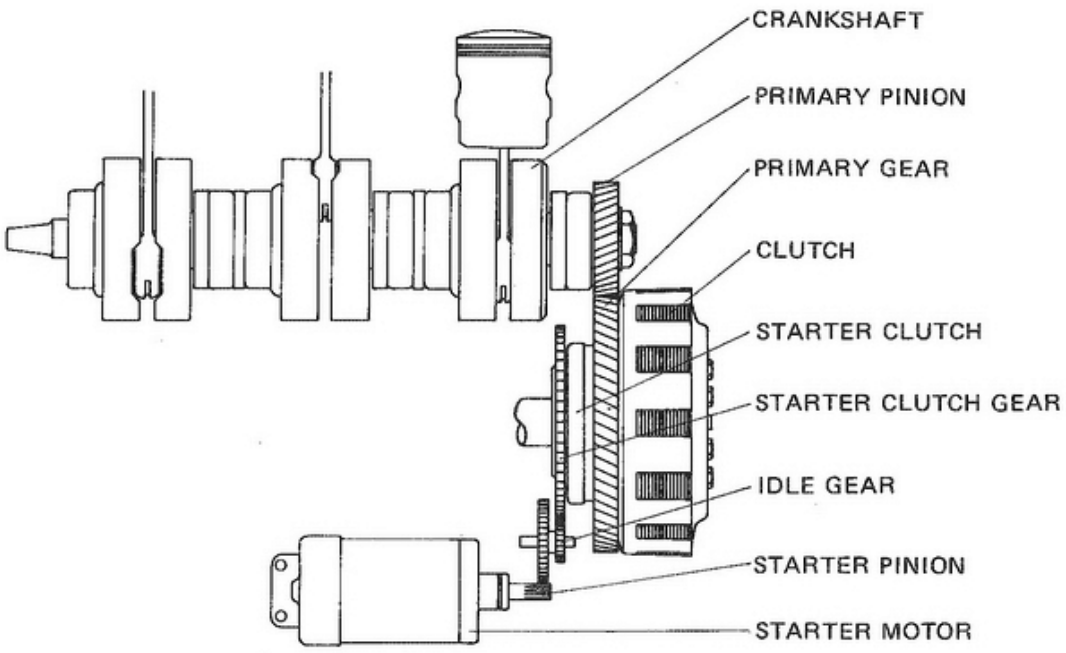


Fig. 7-7-1

Above illustration shows the electric starter system. The starting torque is transmitted to the crankshaft through the idle gear, the starter clutch gear, the starter clutch, the primary gear and the primary pinion. The starter clutch includes overrunning clutch mechanism inside and it only allows the torque to be transmitted from starter motor side to engine side. Therefore, the starter clutch slips as soon as the engine starts resulting in loading no engine power to the starter motor. Even when the transmission is in gear, needless to say, the engine starting can be done with releasing clutch.

The construction of the starter clutch (overrunning clutch) is as shown in Fig. 7-7-2.

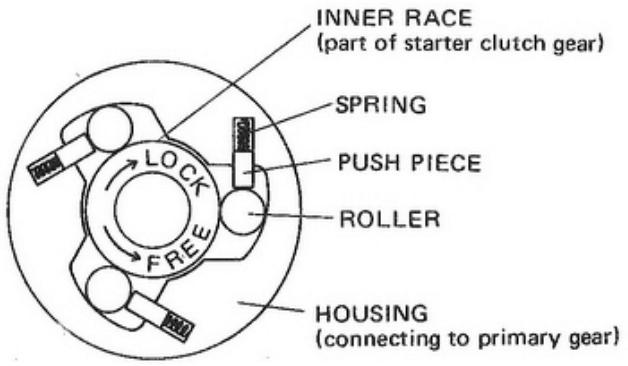


Fig. 7-7-2

NOTE ON ASSEMBLING STARTER CLUTCH

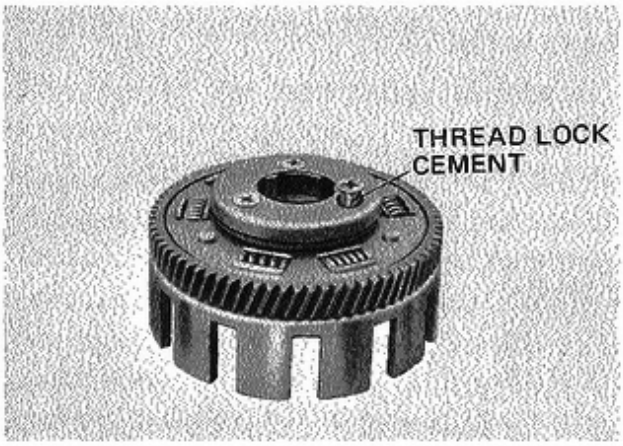


Fig. 7-7-3 Starter clutch screws

When assembling the starter clutch parts on the primary gear, apply thread lock cement (Suzuki genuine part 99000-32010) to the 3 screws shown in Fig. 7-7-3 in order to prevent the screws from coming loose.

7–7–2. KICK STARTER

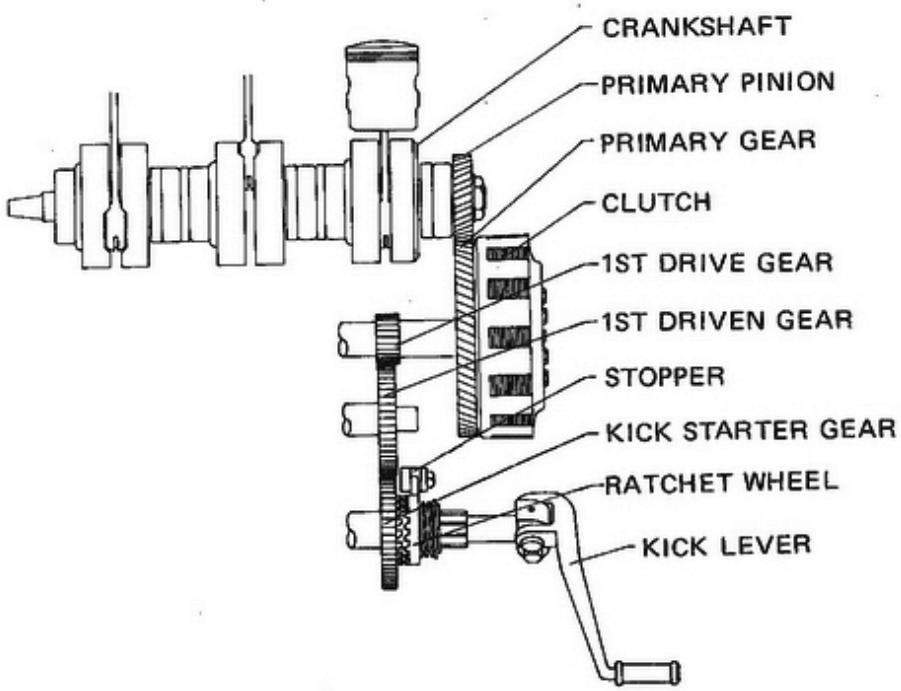


Fig. 7-7-4

Fig. 7-7-4 shows the kick starter system. The kick starting torque is transmitted to the crankshaft after the ratchet wheel is released from the stopper and engages with the kick starter gear, through the 1st driven gear, the 1st drive gear on the counter shaft, the clutch, the primary gear and the primary pinion. The movement of the ratchet wheel in axial direction is limited by the stopper when the kick lever is fully returned and it stays away from the kick starter gear, which allows the kick starter gear to turn freely together with the other gears being engaged or connected.

NOTE:
For the assembly job of the kick starter, refer to the section 7-3-13.

7–8. CLUTCH

The clutch is of wet multi-disc type and its construction is as shown in Fig. 7-8-1.

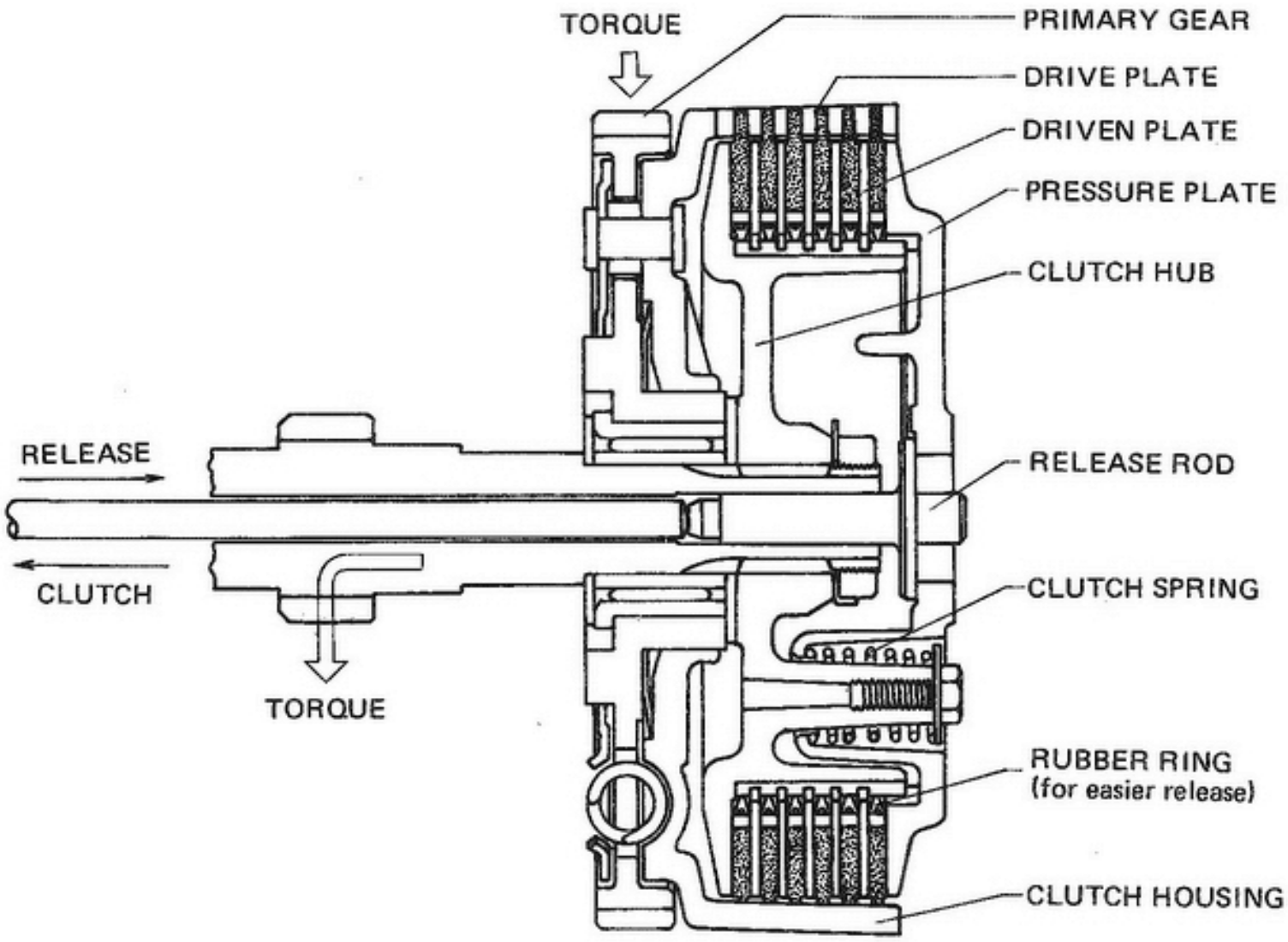


Fig. 7-8-1

7–9. TRANSMISSION

7–9–1. CONSTRUCTION

The type of the transmission is constant mesh 5 speed. The construction and working principle are explained in this section.

Engine power is transmitted to the drive shaft through the clutch, countershaft, gears on the countershaft and gears on the drive shaft. From the drive shaft to the rear wheel, the power is further transmitted through the drive sprocket, drive chain and driven sprocket. Each one set of drive and driven gears is used for each speed and these two gears are always paired so that one gear is free and the other gear is fixed on the related shaft in its turning direction. The sliding gears shown in the illustration can move axially and clutch their facing free gears with dogs, which enable the free gears to be fixed with the shaft. This movement is done by the gear shifting forks.

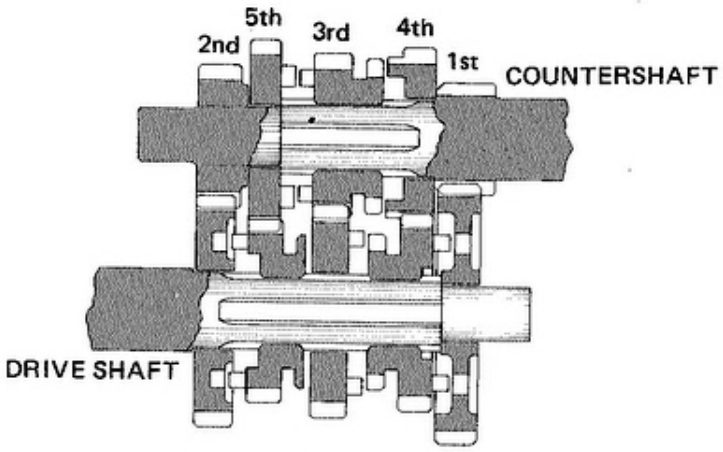


Fig. 7-9-1 Neutral position

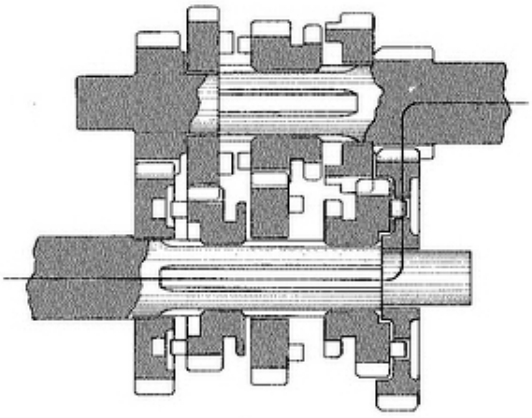


Fig. 7-9-2 1st position

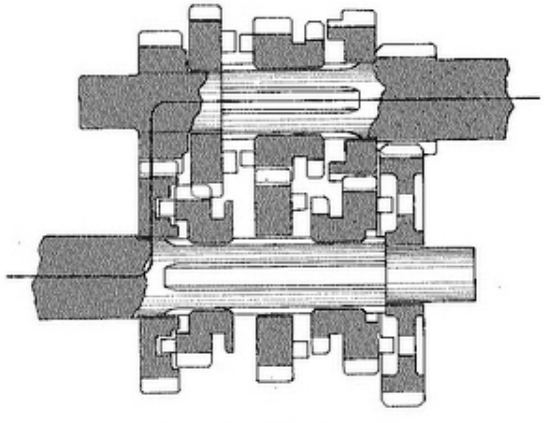


Fig. 7-9-3 2nd position

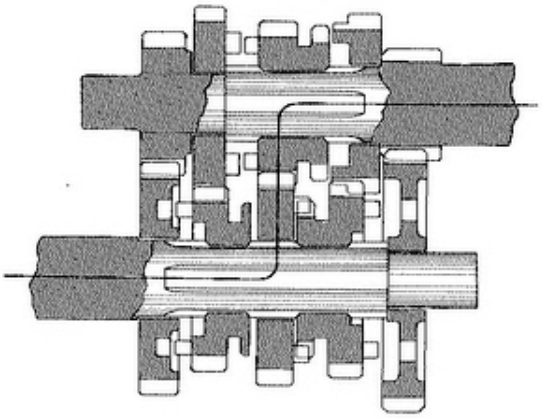


Fig. 7-9-4 3rd position

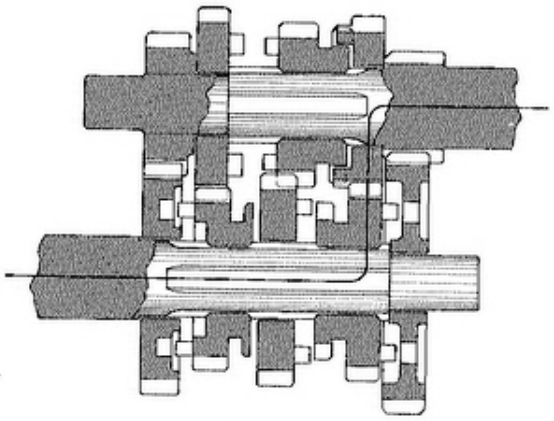


Fig. 7-9-5 4th position

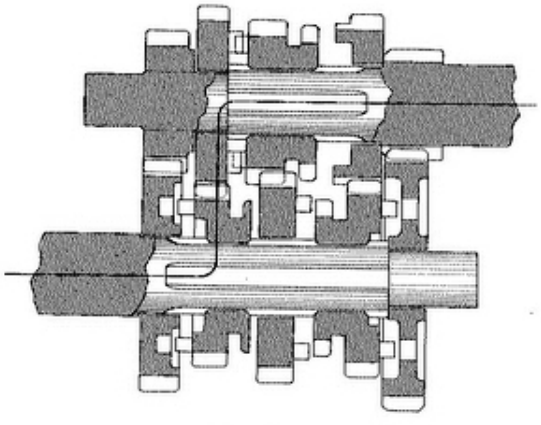


Fig. 7-9-6 5th position

7–9–2. TRANSMISSION OIL

In order to have better clutch releasing effect and reduce the oil resistance when it is stirred by the primary gear, the transmission case is so designed as to make different oil levels in the transmission and clutch chamber.

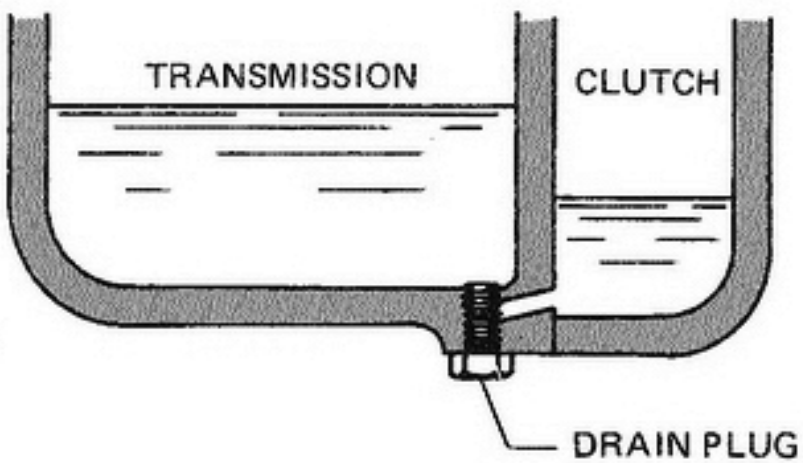


Fig. 7-9-7

Both the transmission and clutch chamber can be drained at the same time as shown in Fig. 7-9-7. However, if a shorter drain plug is used instead of original, the oil level may become the same in the two chambers. Therefore, be sure not to use the other plug than the one designed for this model.

NOTE:
At the time of the first supply of oil after the transmission is overhauled, fill with 1,600 cc of oil and with 1,500 cc whenever changed.

7–10. AIR CLEANER

7–10–1. CONSTRUCTION

The element is made of washable spongy plastics and contains oil in it so as to further prevent the dust from penetration. The construction is shown in Fig. 7-10-1.

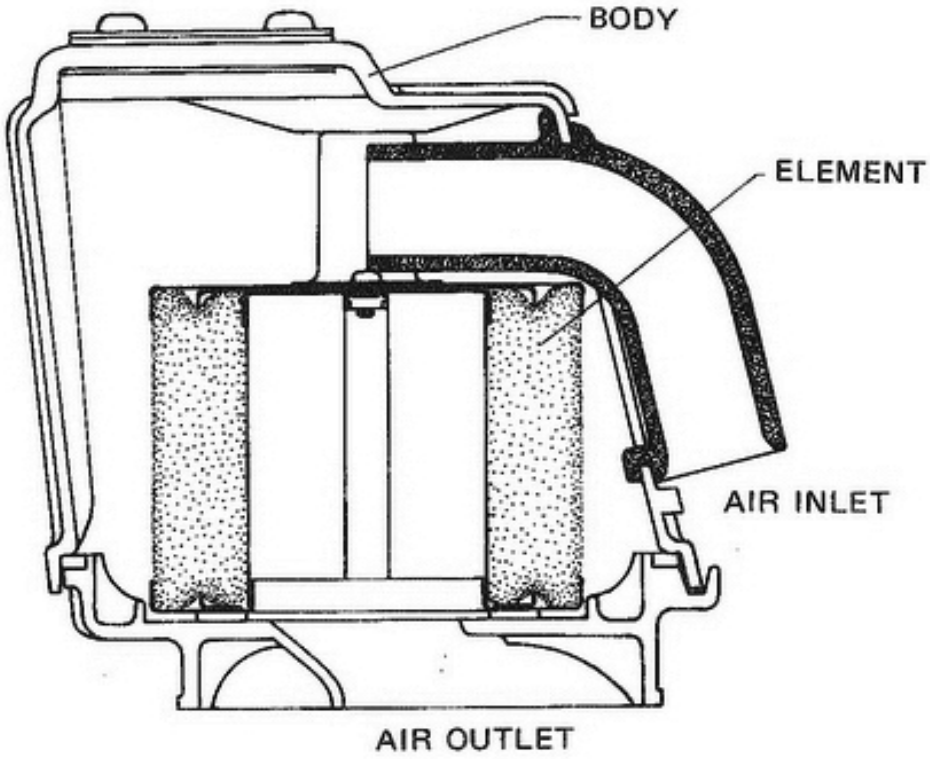


Fig. 7-10-1

7–10–2. MAINTENANCE

When cleaning the element, pull it off and wash with clean petrol. After draining the element, soak it into Suzuki CCI oil or other two-stroke oil of around SAE No.30 and squeeze oil from the element.

7–11. ENGINE ELECTRICAL

7–11–1. ELECTRIC STARTER

Since the mechanism of starting torque transmission has been explained in the section 7-7, this section only deals with the starter motor and its wirings.

I. WIRING

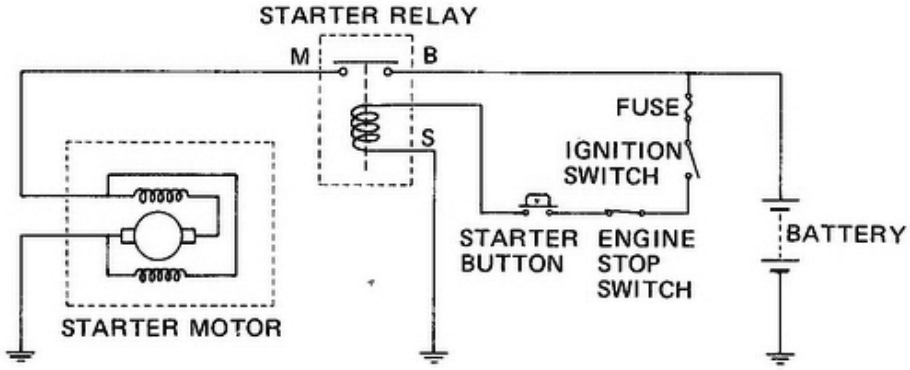


Fig. 7-11-1

II. CONSTRUCTION

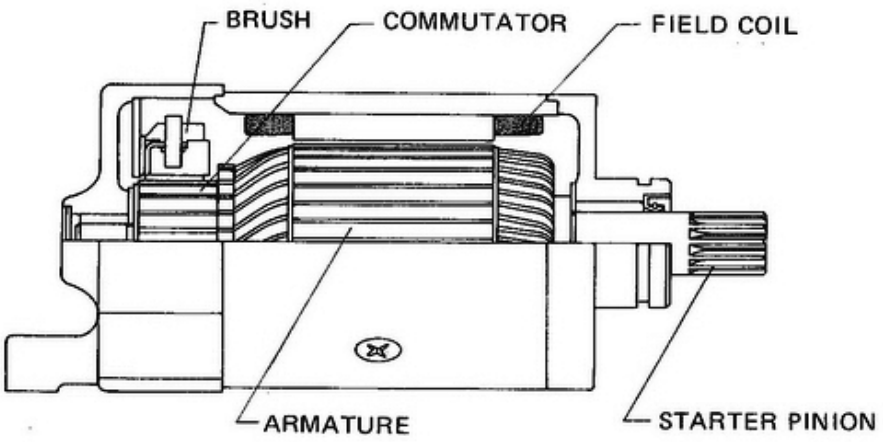


Fig. 7-11-2

The starter motor is of cumulative compound type, which has a characteristic that the motor generates large torque when loaded and limits the speed by its self-control work when the motor is released from load so as not to cause over-revolution.

III. OVERHAUL

1) ARMATURE

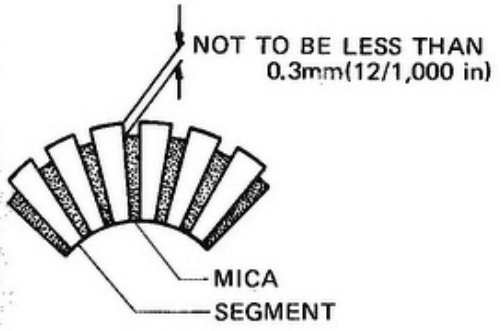


Fig. 7-11-3

* If the undercut is found to be less than 0.3 mm (12/1,000 in), increase it to 0.5 – 0.8 mm (20 – 31/1,000 in).
* Clean the undercut part whenever the motor is disassembled.

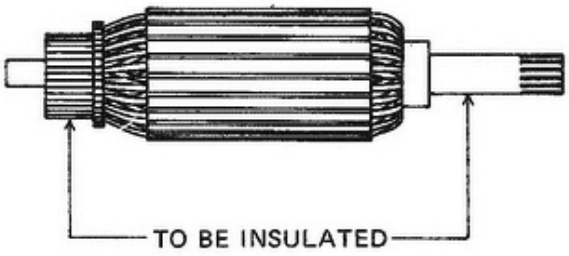


Fig. 7-11-4

* Check for the ground by a testlight or a circuit tester. If continuity is found in this test, replace the armature.

2) FIELD COILS

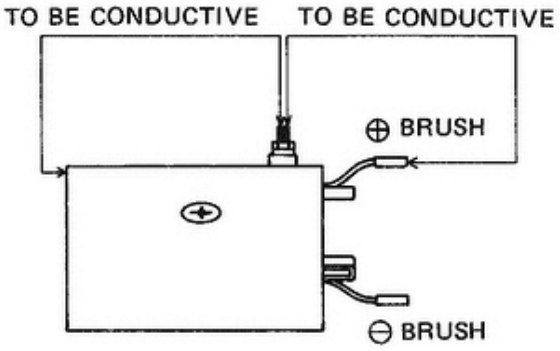


Fig. 7-11-5

Check the series and shunt coils for continuity in the state with the brushes not connected to the armature. In either test, continuity should be indicated in case these two coils are in proper condition.

3) BRUSHES

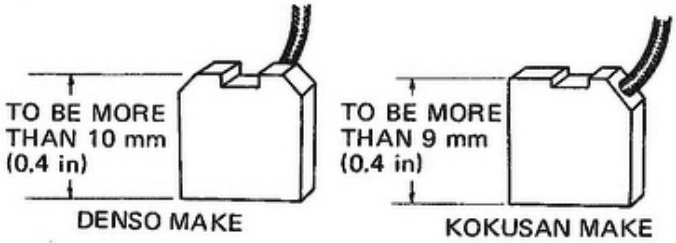


Fig. 7-11-6

Replace the brushes when the length comes to the limit shown left.

NEW BRUSH LENGTH:
DENSO MAKE – 14mm (0.55 in)
KOKUSAN MAKE – 13.5 mm (0.53 in)

7–11–2. IGNITION SYSTEM

I. WIRING

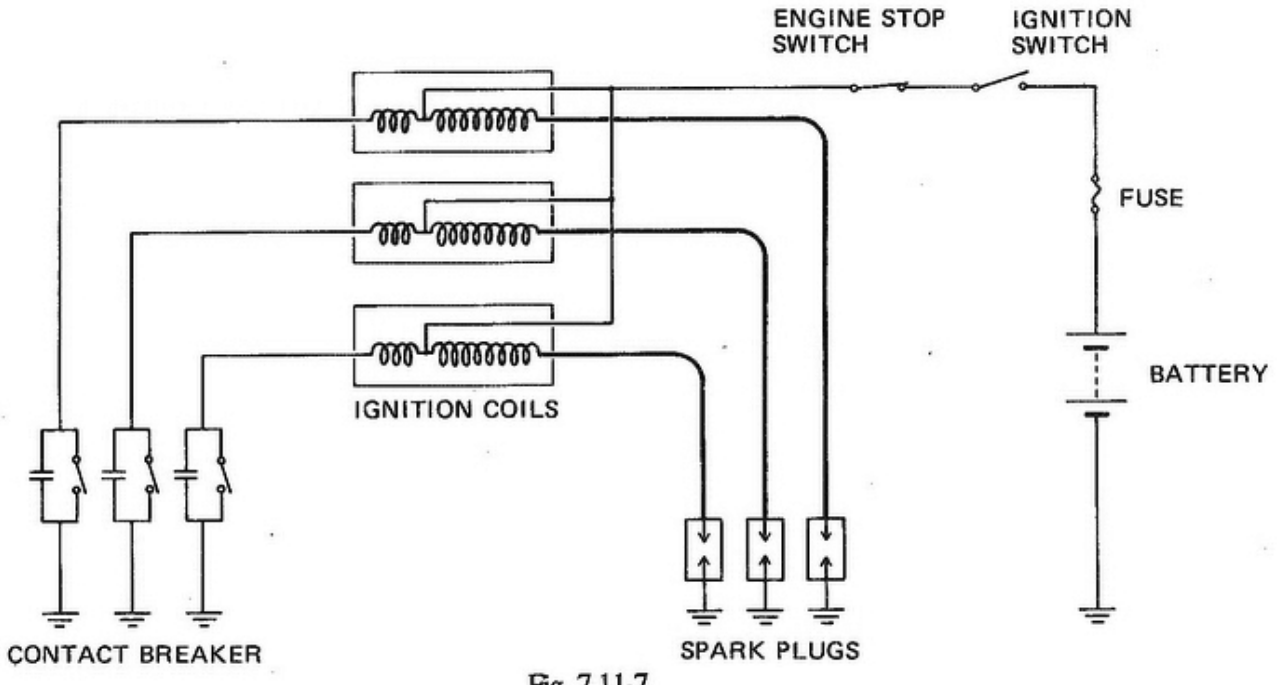


Fig. 7-11-7

II. ADJUSTING IGNITION TIMING

* When checking or adjusting the ignition timing, it is necessary that the contact point gap be checked beforehand if it is within 0.3 – 0.4 mm (12 – 16/1,000 in).
* Ignition timing for each cylinder should individually be adjusted since 3 contact points are independent and individually movable.
* Use the timing dial gauge (special tool 09931-00112) and the timing tester (special tool 09900-27002). Do not check or adjust the timing by the alignment marks on the ignition timing plate fitted at the contact breaker cam. This plate is provided for an emergency purpose.
* If the timing adjustment is to be carried out, first begin setting it with the contact point for left cylinder since this point is fitted directly on the contact breaker base on which the adjuster plates of the other two points are mounted.
* The following explains the procedure when adjusting the ignition timing.

1) Remove the spark plugs from the cylinder head and install the timing dial gauge on a spark plug hole of the left cylinder.
2) Connect one end of lead wire of the timing tester to the left contact point and the other lead wire to the ground.

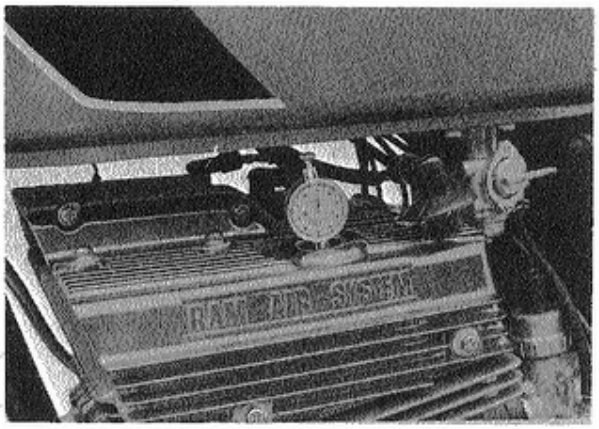


Fig. 7-11-8 Attaching timing dial gauge

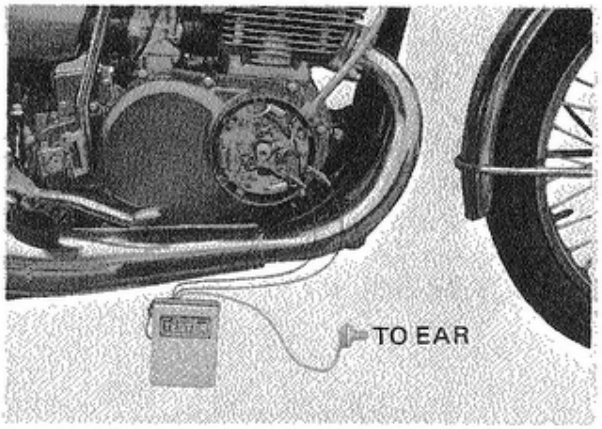


Fig. 7-11-9 Connecting timing tester

3) Search TDC in the dial gauge by turning the crankshaft slowly and there, set the dial to 0 position.
4) Turn the crankshaft slowly anticlockwise, that is, reverse direction of engine rotation, and stop turning the crankshaft where the sound of the timing tester just dies away.
5) Read the indication of dial gauge. This reading shows the ignition timing in piston travel from TDC.

STANDARD IGNITION TIMING: 3.37 mm (24°) $^{+3^\circ}_{-2^\circ}$

Allowance 2.85 – 4.24 mm

6) To adjust the ignition timing, move the contact breaker base or the adjuster plate as shown in Fig. 7-11-10.

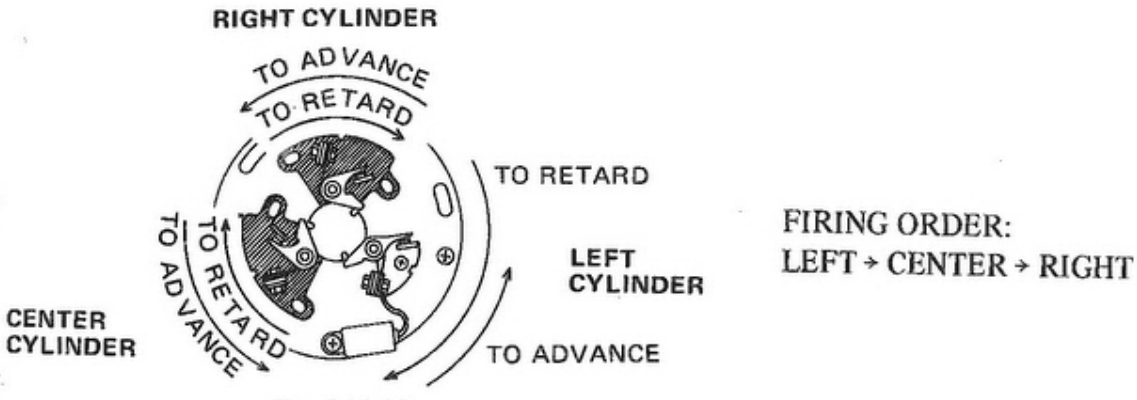


Fig. 7-11-10

7) After checking or adjusting the ignition timing on the left cylinder, apply the same procedure to the other cylinders.

III. INTERCHANGEABILITY OF PARTS IN CONTACT BREAKER

Parts of DENSO and KOKUSAN makes are used in the contact breaker mechanism and there is interchangeability between them in case that the whole mechanism including the cam is replaced. However, as the component parts such as contact point, condenser, contact breaker base and cam can not be interchanged, particular attention should be paid to the difference in their shape when the parts are replaced.

1) CONTACT BREAKER

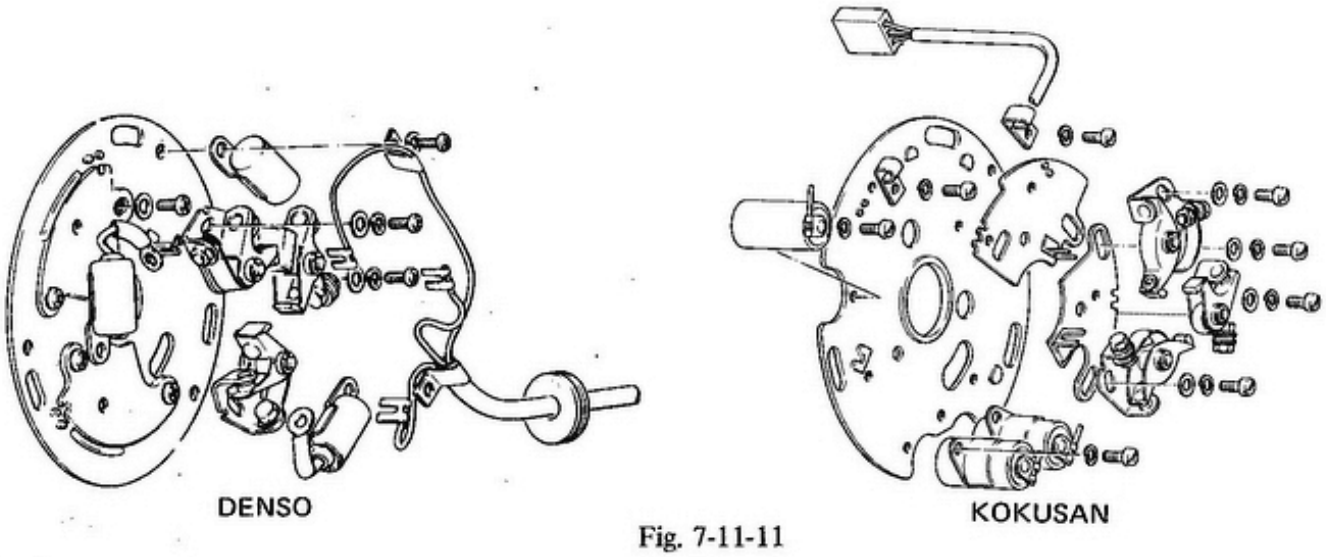


Fig. 7-11-11

2) CONTACT BREAKER CAM

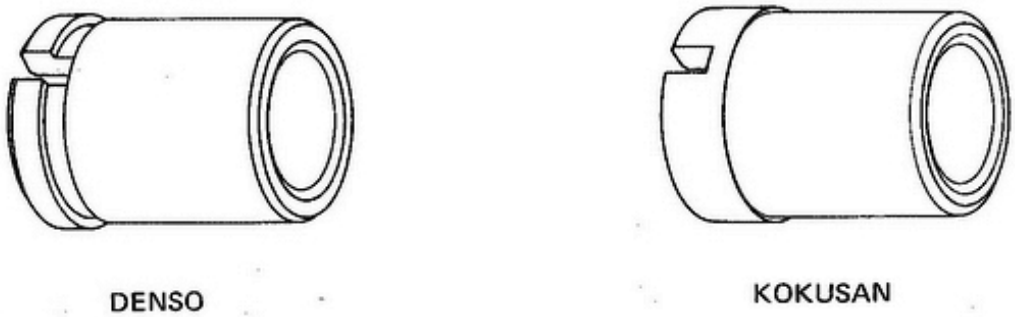


Fig. 7-11-12

7–11-3. CHARGING SYSTEM

I. WIRING

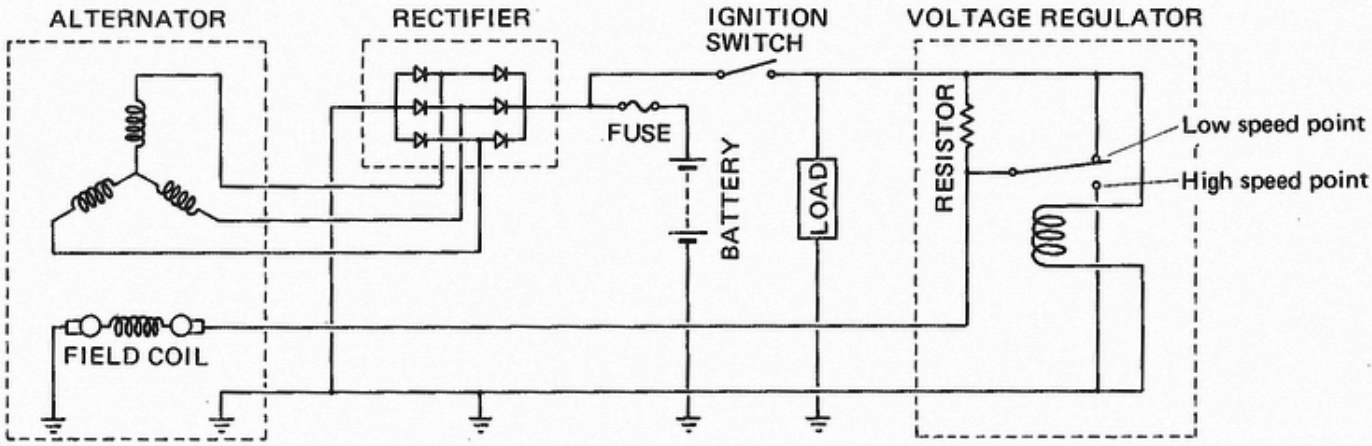


Fig. 7-11-13

Three phase AC current generated by the alternator is converted into DC current when passing through the rectifier and charges the battery through the fuse.

Voltage generated in the alternator varies according as the engine speed and as field current. Therefore, decreasing the field current when engine speed is high and increasing it when low speed, the generated voltage can be maintained regardless of any engine speed at almost constant level which a battery requires. The voltage regulator has been designed and provided in order to conform to the above condition.

The following explains the working principle of the voltage regulator.

* AT LOW SPEED

Contact point is either in contact with low speed side or making an on-and-off contact with the low speed point with vibration. When the contact point is at low speed side, the field current freely flows out from the battery through the point, and this large current consequently enables the alternator to generate the specified voltage notwithstanding at low speed. When the contact point is making an on-off contact with the low speed point with vibration, the field current flows through the point or the resistor resulting in forming a flactuating current. As the average of current formed thus is smaller than that when the point stays on low speed side, the generated voltage is slightly limited to be specified level.

* AT HIGH SPEED

Contact point vibrates on high speed side. As the field current flows intermittently, the average current becomes even smaller and the generated voltage is further limited accordingly.

II. CHECKING CHARGING SYSTEM

For checking the function of charging system, first measure the maximum terminal voltage of the battery with all the wirings properly connected when engine speed is gradually raised, that is, the regulated voltage with charging load.

STANDARD VOLTAGE: 13.5 – 14.5 with fully charged battery

If the measured voltage is not within this range, further check for the faulty carrying out the procedure explained in the next page.

* VOLTAGE OVER 14.5V

Adjust or replace the voltage regulator. For the detail, refer to the item IV in this section.

* VOLTAGE UNDER 13.5V

There may be two factors for the voltage to be under the specified level that is:

1) Voltage regulator limits the generated voltage at too low level in spite of proper function of the alternator.

2) Alternator is not able to produce specified voltage.

Therefore, it is necessary to check the system and know that the faulty falls under which case of the above. Fig. 7-11-15 shows the method to check the generated voltage of alternator separate from the work of the voltage regulator. The result will indicates where the cause lies, that is, the alternator is judged to be faulty if the voltage measured is considerably less than the figures mentioned below.

STANDARD VOLTAGE (NOT RESTRICTED) :

	DENSO make	KOKUSAN make
1,500 rpm	18V	22V
2,500 rpm	31V	40V

Under the condition: with fully charged battery, alternator not heated.

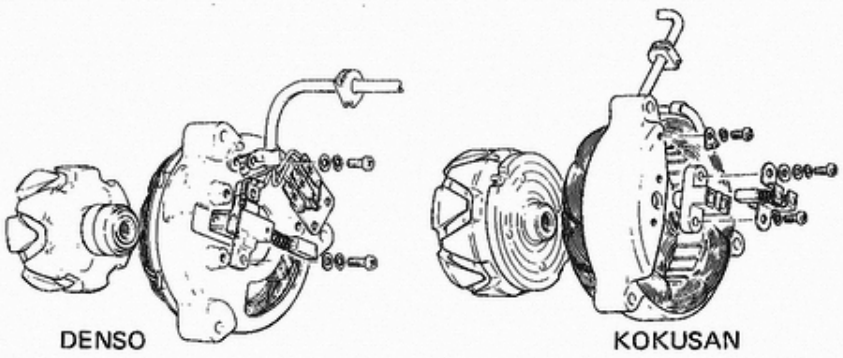


Fig. 7-11-14

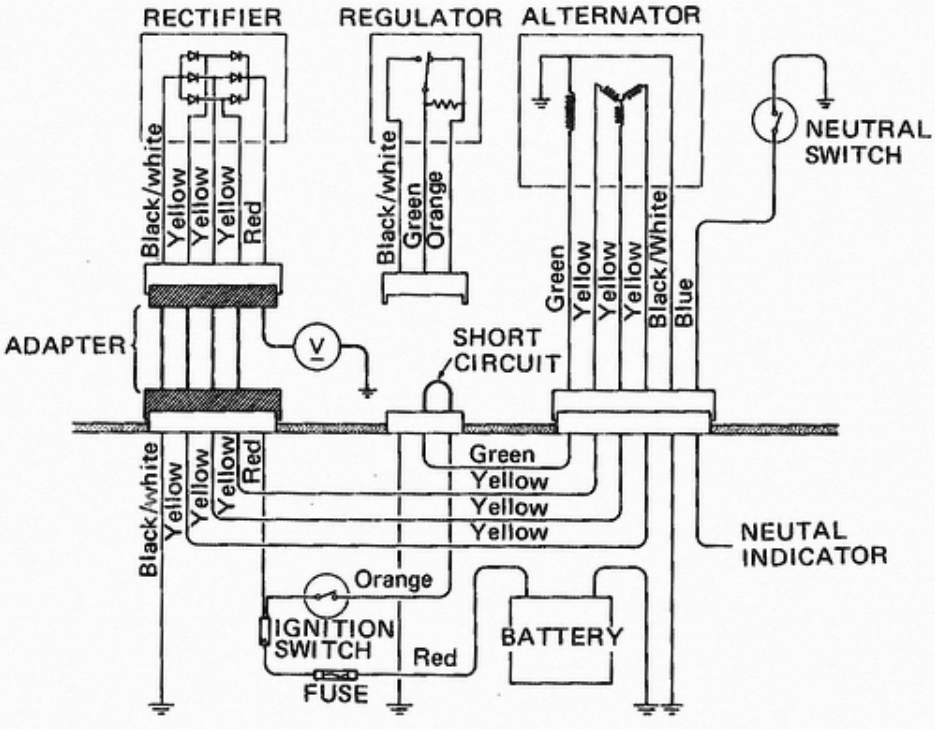


Fig. 7-11-15

III. CHECKING PARTS

1) ALTERNATOR STATOR COIL

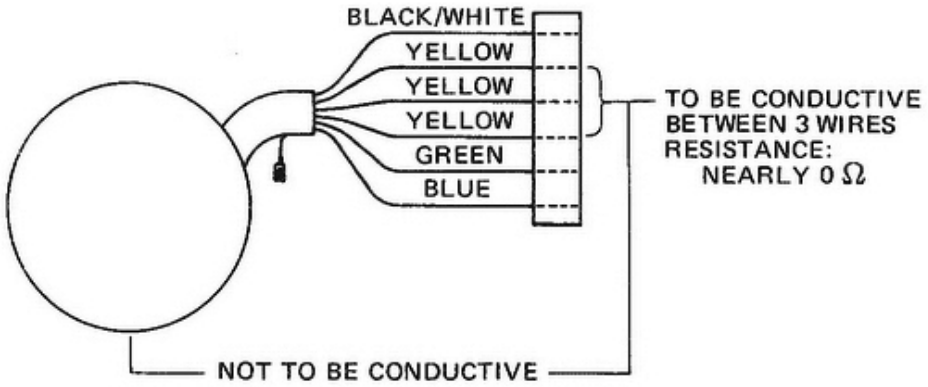
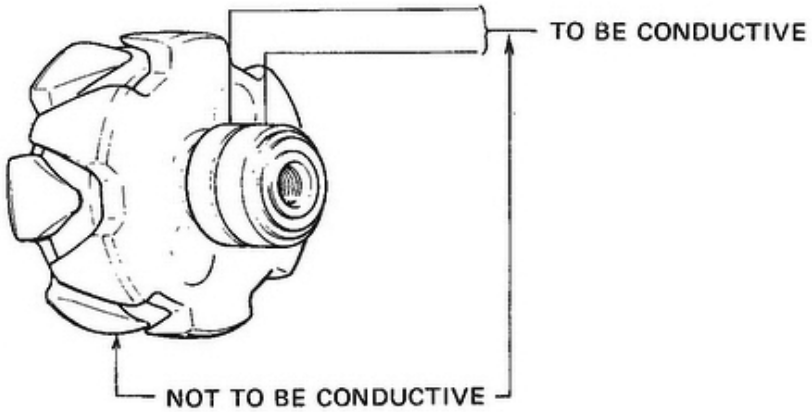


Fig. 7-11-16

2) ALTERNATOR ROTOR COIL



RESISTANCE:

DENSO MAKE	approx. 10 Ω
KOKUSAN MAKE	approx. 5 Ω

Fig. 7-11-17

3) BRUSHES

Replace the brushes when the length comes to the limit shown below.

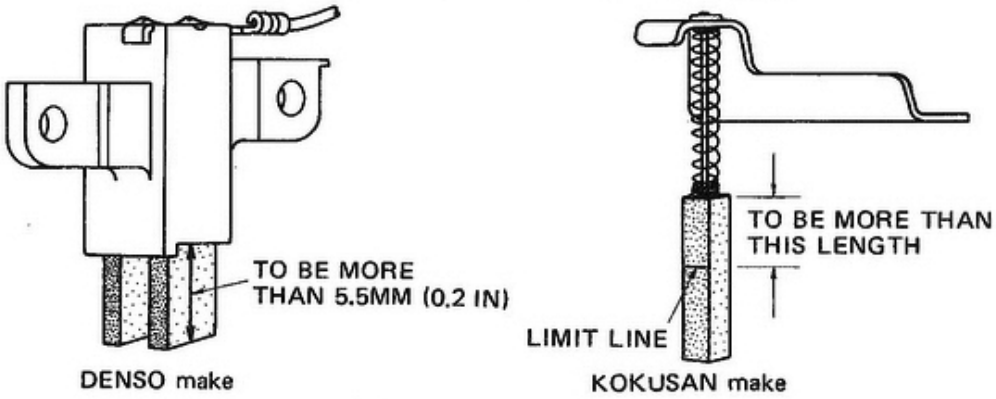


Fig. 7-11-18

4) RECTIFIER

The rectifier includes six silicon diodes and they are connected as shown in Fig. 7-11-19. Each diode has native polarity, that is, it allows current to flow only in one direction, which is the most important characteristic as a rectifier.

Check the rectifier with an ohm meter connecting its two measuring cords as shown in Fig. 7-11-19. In each connection, also do the reverse connection in order to check if there is polarity.

In case that the rectifier is in normal condition, the ohm meter indicates being conductive and not conductive respectively in all the procedure of ① to ⑥ when the meter connection is made in one way and the other way to each diode.

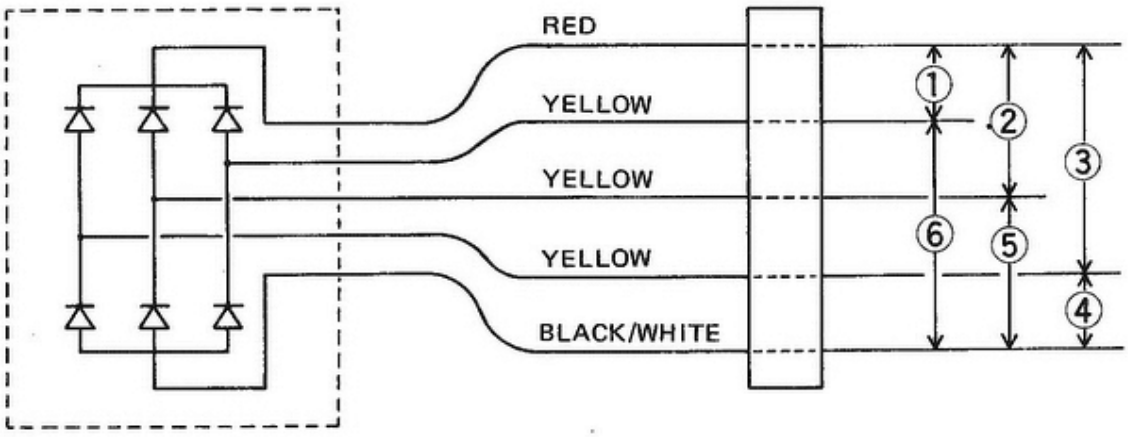


Fig. 7-11-19

Even if one of the diode is found to be defective, the whole unit should be replaced. The symptom of a damaged diode is either being or not being conductive in both directions.

NOTE:
The rectifying direction never changes from specified original state, therefore, the function can be tested by only checking if it has polarity notwithstanding its direction.

5) VOLTAGE REGULATOR

Use an ohm meter and connect it to the regulator as shown in Fig. 7-11-20.

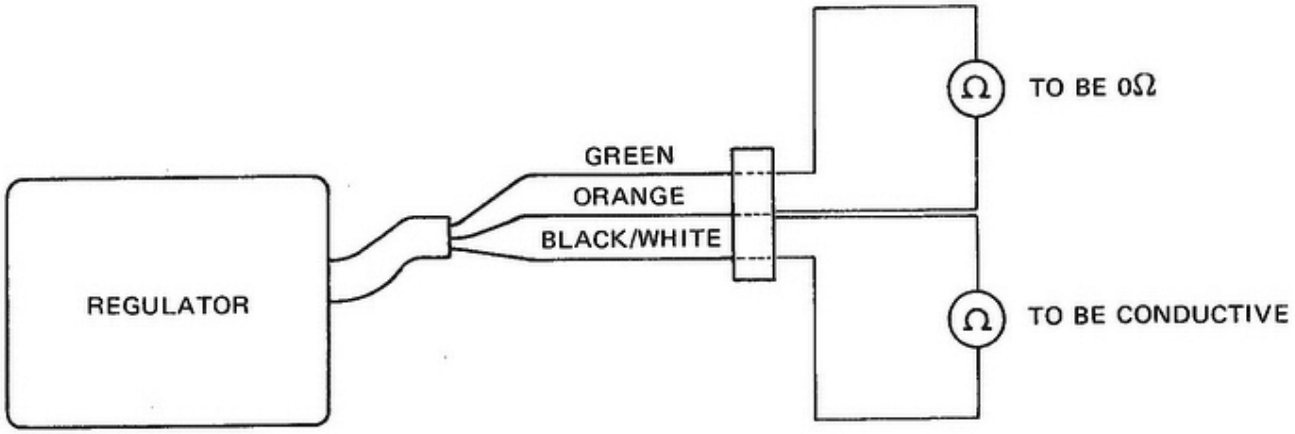


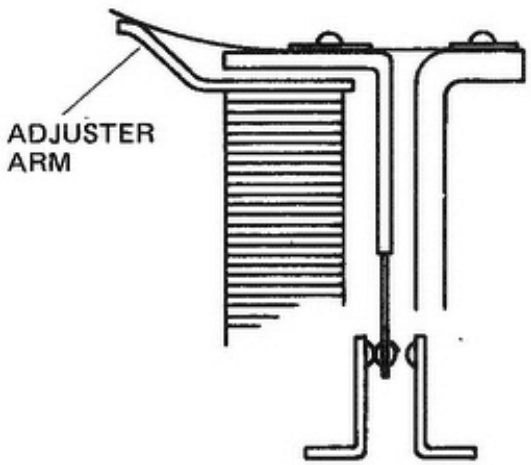
Fig. 7-11-20

IV. ADJUSTING VOLTAGE REGULATOR

When adjusting the voltage regulator, be sure to check if the following points are satisfiable.

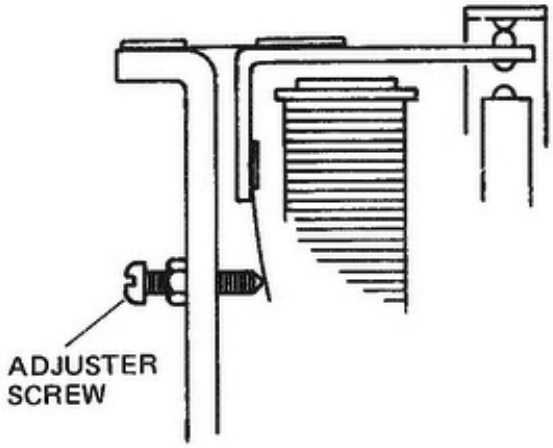
* The alternator is generating enough voltage.
* The wirings are in proper condition.
* The battery is fully charged.
* There should not be any electrical leak being abnormal.

In case that the terminal voltage of the battery being charged by the system is not within the specified allowance. Adjust the regulator by either bending the adjuster arm or turning the adjuster screw depending on the type of the regulator.



DENSO make

BENDING UP: VOLTAGE RISES
DOWN: VOLTAGE LOWERS



KOKUSAN make

SCREWING IN: VOLTAGE RISES
OUT: VOLTAGE LOWERS

Fig. 7-11-21

NOTE:
The cover of voltage regulator is sealed in order to show that it is non-overhauled part as the readjustment may scarcely be required within the guaranty period. Therefore, breaking the seal without warrant may invalidate the warranty.

V. INTERCHANGEABILITY OF PARTS IN CHARGING SYSTEM

Parts of both DENSO and KOKUSAN makes are used in the charging system. Therefore, when replacing the parts, particular attention should be paid to the interchangeability between them.

* ALTERNATOR

  The whole sets of DENSO and KOKUSAN parts may be interchanged at the time of the assembly, however, these component parts (such as brush, rotor, stator, etc.) are not to be interchanged.

* VOLTAGE REGULATOR

  DENSO and KOKUSAN regulators are interchangeable.

8. BODY

8–1. FRONT FORK

8–1–1. CONSTRUCTION

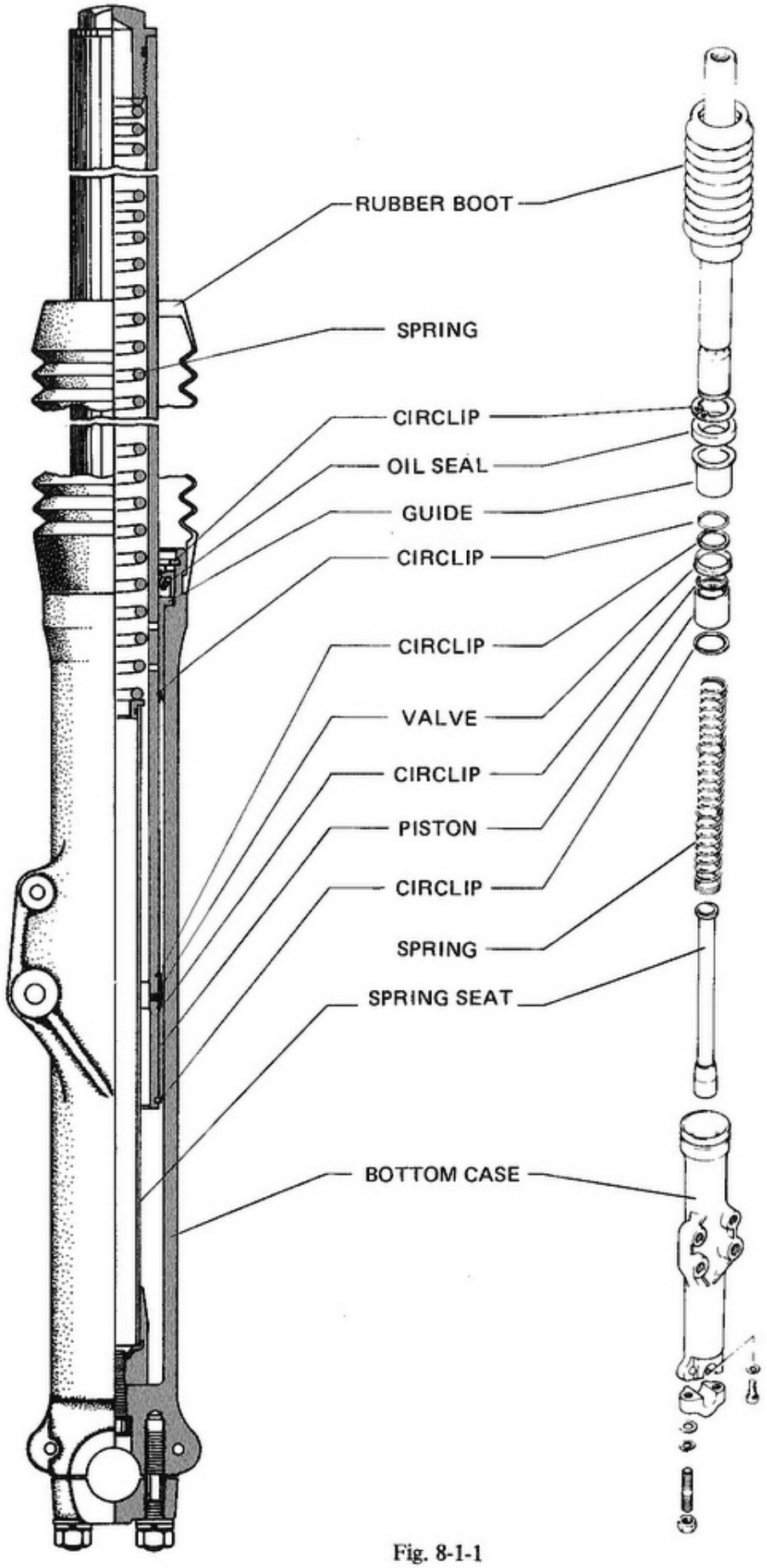


Fig. 8-1-1

8–1–2 DISASSEMBLY

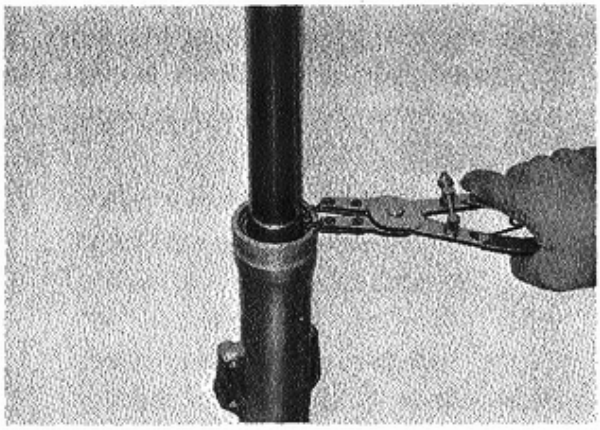


Fig. 8-1-2 Disassembling front fork

After removing the front wheel and draining the front fork by the drain plug fitted on outside of the outer tube near the front axle, take off the circlip by the circlip remover (special tool 09900-06103) and the front fork outer tube can be pulled out.

8–1–3. ASSEMBLY

1) Once the bolt shown in Fig. 8-1-3 has been removed, tighten it under the condition that the front fork is completely bottomed without installing the spring, otherwise the wrong positioning of the inner part may cause an abnormal noise when operating due to collision with the end of inner tube.

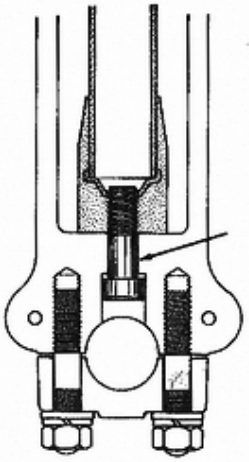


Fig. 8-1-3

2) When installing the front fork oil seal, hit it with the special tool (09940-53110) as shown in Fig. 8-1-4.

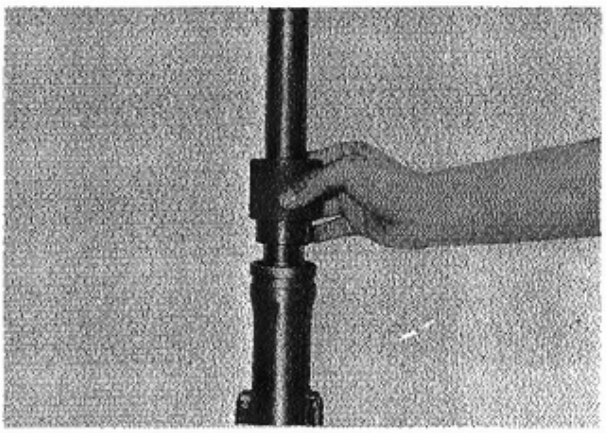


Fig. 8-1-4 Installing oil seal

3) DAMPER OIL

CAPACITY:	230 – 240 cc in each fork
VISCOSITY:	SAE 10W/30

NOTE:
If damper oil is to be drained, be sure to pump the fork in order to throughly dry it up. Damper oil tends to remain inside the fork in the draining procedure and this may bring about excessive oil level in refilling the fork even if oil is measured to the specified amount.

4) FRONT FORK SPRING

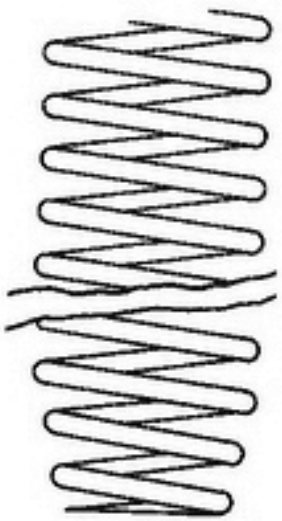


Fig. 8-1-5

When installing the front fork spring, place it with its tapered side facing down so that the spring may not block the orifice for oil passage.

8–2. REAR SHOCK ABSORBER

8–2–1. CONSTRUCTION

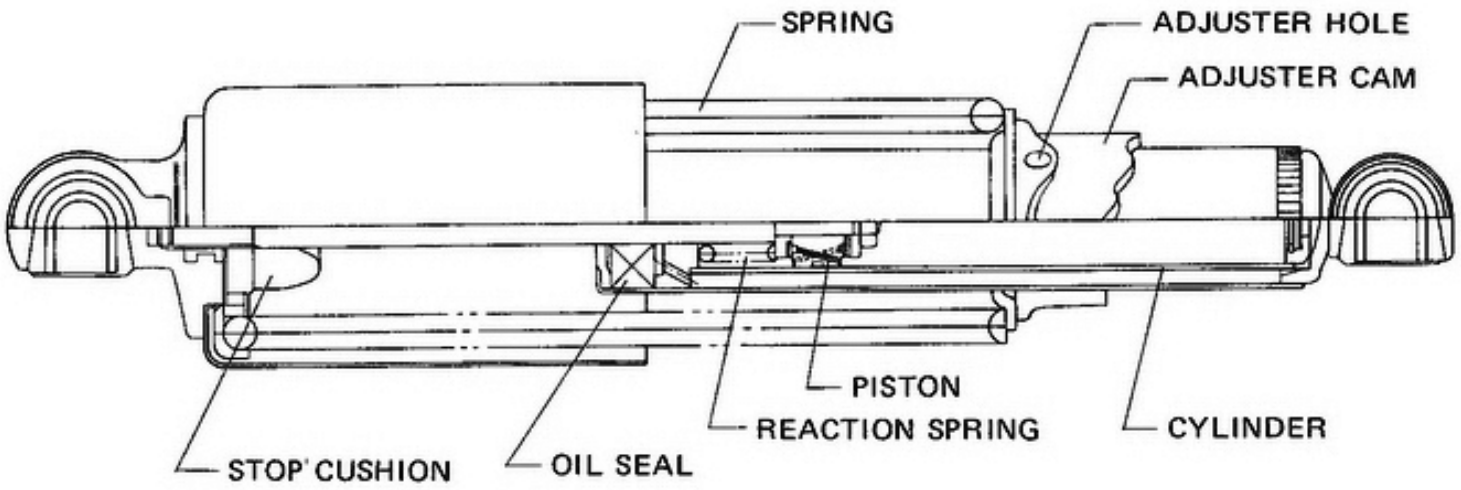


Fig. 8-2-1

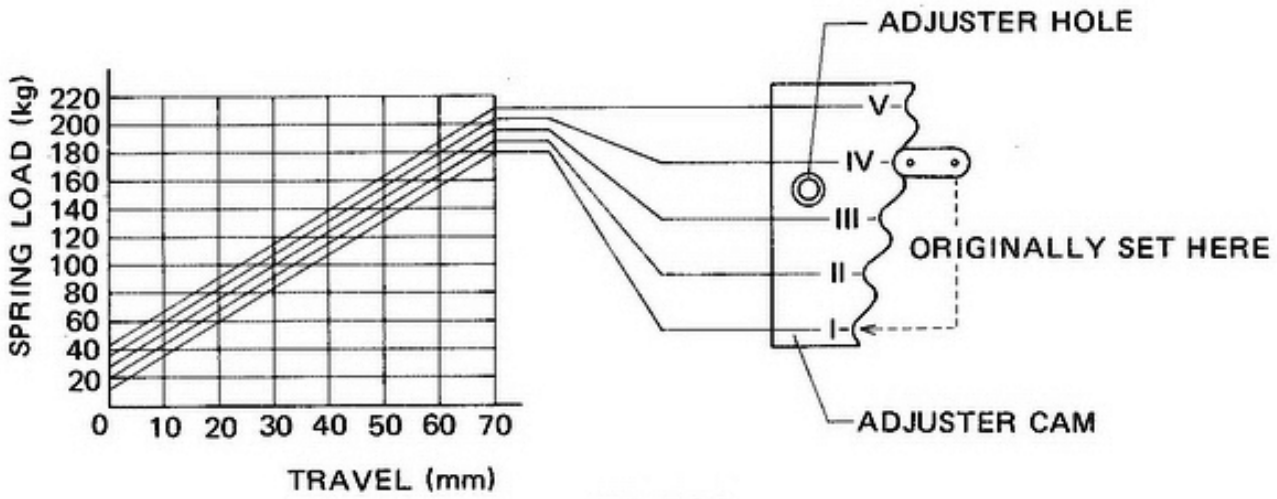


Fig. 8-2-2

The hydraulic damper is of sealed construction and works with the damping resistance of 210 and 10 kg/0.5 m/sec in its tension and compression strokes respectively.

Fig. 8-2-2 shows the spring specification and the difference of tension when the adjuster is set in its respective notches.

8–3. BRAKES

8–3–1. FRONT BRAKE

I. ADJUSTMENT

1) After loosening the lock nut, shorten the distance between two levers linked by the connecting rod so that the brake shoe operated by the lever "A" touches with the brake drum before the other brake shoe operated by the lever "B" touches with the drum as the cable is stretched.

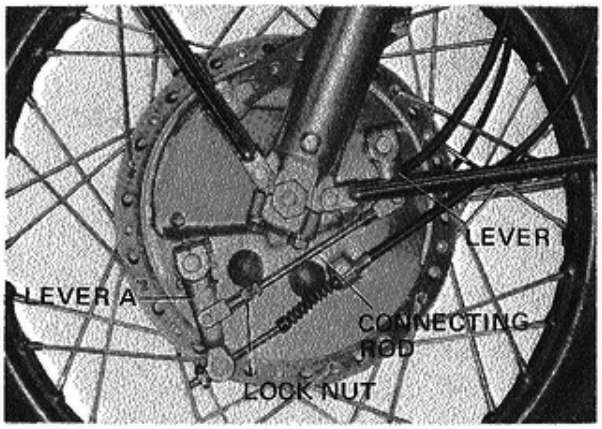


Fig. 8-3-1 Adjusting connecting rod

2) Keeping the lever "A" pushed fully toward the lever "B", extend the distance between the levers "A" and "B" by turning the connecting rod and stop turning the rod just when the lever "B" does not move any more.

3) Tighten the lock nut.

4) Adjust the other side connecting rod of the front brake in the same procedure described above.

5) Adjust the cables for both the right and left side brake pannels so that the gap between the brake lever and the throttle grip may be 20 – 30 mm (around 1 inch) and also that the equalizer may position perpendicularly to the brake lever when it is fully pulled.

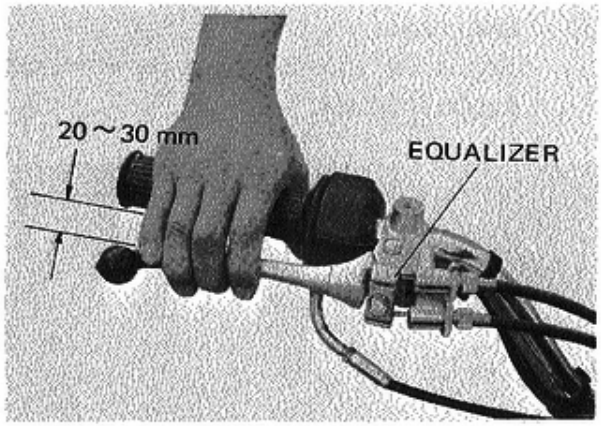


Fig. 8-3-2 Adjusting brake cable

II. INSPECTION

1) Brake shoe
Check the outside diameter of the brake shoes as shown in Fig. 8-3-3. If the measurement is less than 194 mm (7.64 in), replace both the brake shoes.

2) Brake drum
If the inside diameter of the brake drum exceeds 200.7 mm (7.90 in) due to the wear, replace with new brake drum.

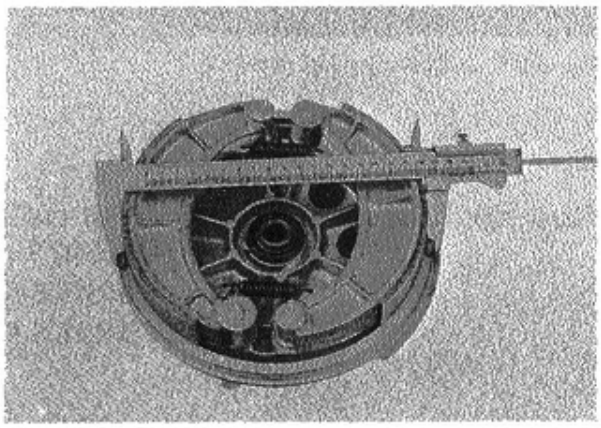


Fig. 8-3-3 Checking wear

III. VENTILATION

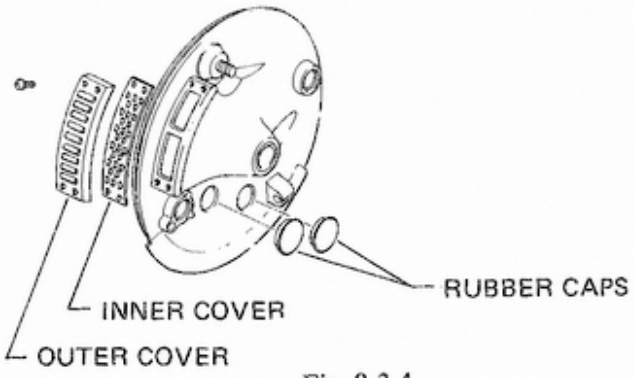


Fig. 8-3-4

For better cooling effect on the front brake, the air ventilation is provided and its air intake and outlet holes are originally closed by the covers in order to avoid the penetration of dust or other foreign substances. The air ventilation is not required in normal use for the brake is so designed as to cool itself by only heat radiation.

In case that the further cooling is necessarily required, the brake may be modified as follows.

1) Remove the outer cover and fit the inner cover by 4 screws which have fixed the outer cover.

2) Remove two rubber caps to make the air outlet passage.

8–3–2. REAR BRAKE

I. ADJUSTMENT

1) Brake pedal position
Set the adjuster shown in Fig. 8-3-5 so that the brake pedal stays at proper position when it is not pressed.

2) Brake wire
Adjust the wire length at its wheel side end as shown in Fig. 8-3-6 so that the proper pedal travel can be obtained.

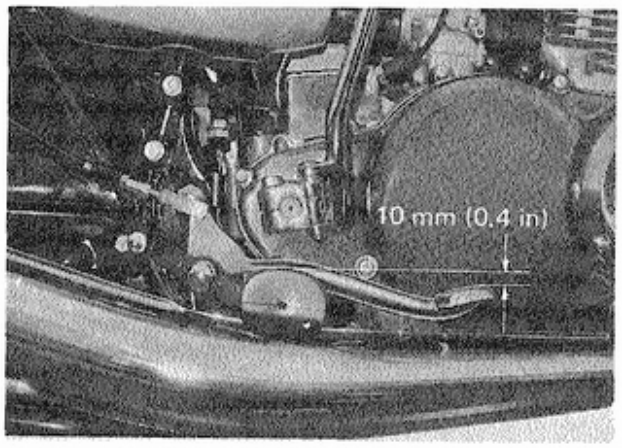


Fig. 8-3-5 Adjusting pedal position

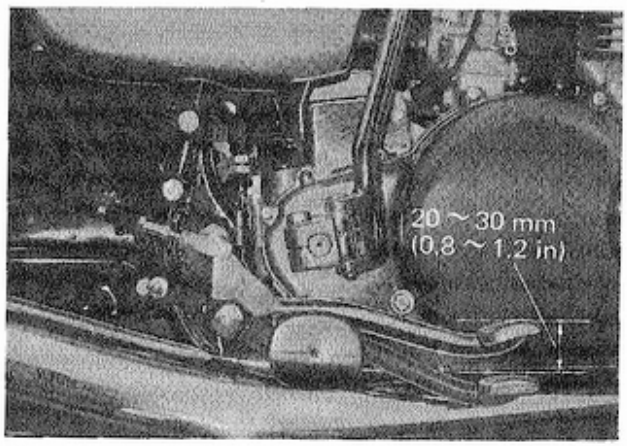


Fig. 8-3-6 Adjusting pedal travel

II. INSPECTION

Check the wear of the brake shoes and the brake drum in the same manner as that in the section 8-3-1.

WEAR LIMIT:	IN BRAKE SHOE DIAMETER	176 mm (6.93 in)
	IN BRAKE DRUM INSIDE DIAMETER	180.7 mm (7.11 in)

8–4. WHEELS

8–4–1. CONSTRUCTION

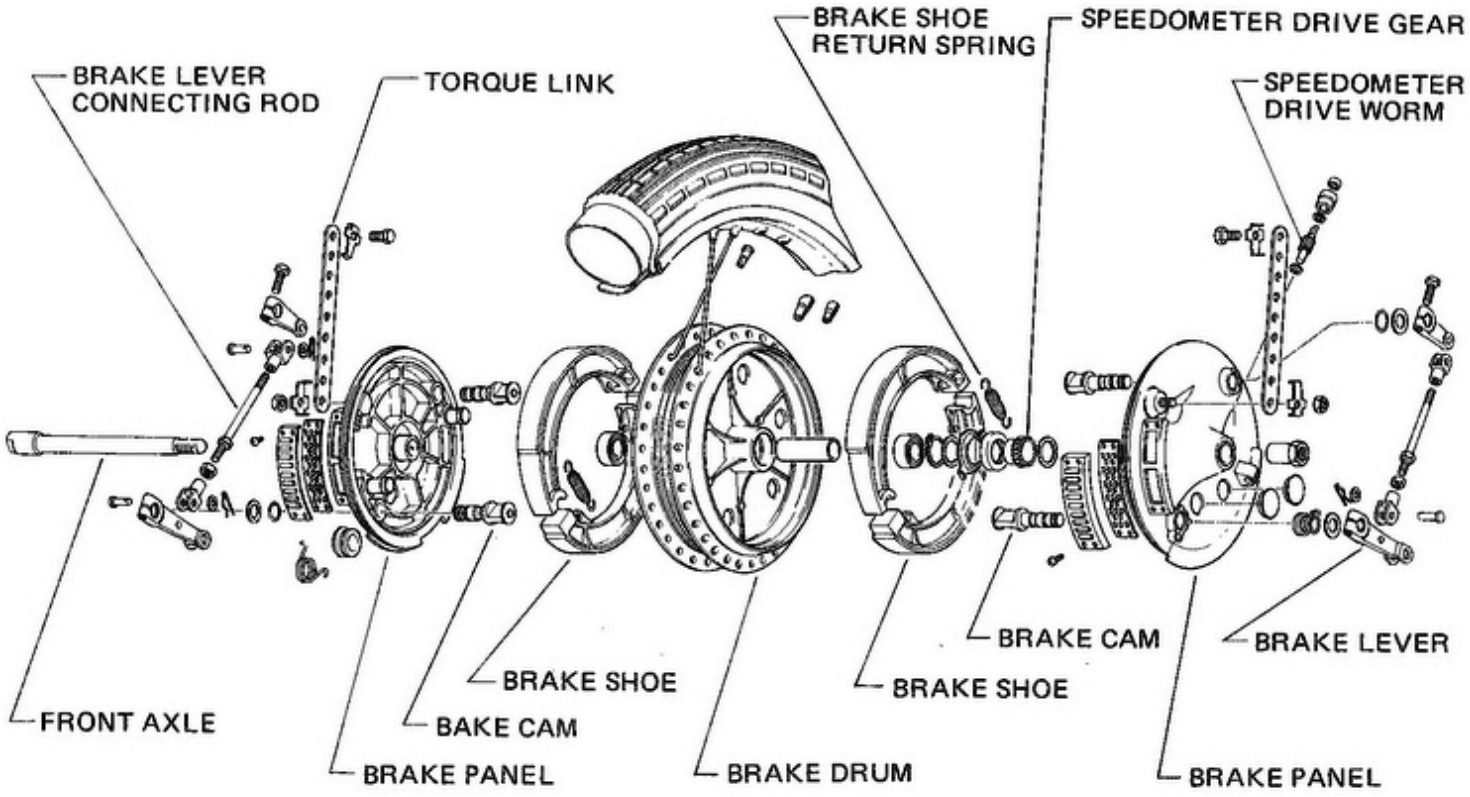


Fig. 8-4-1 Front wheel

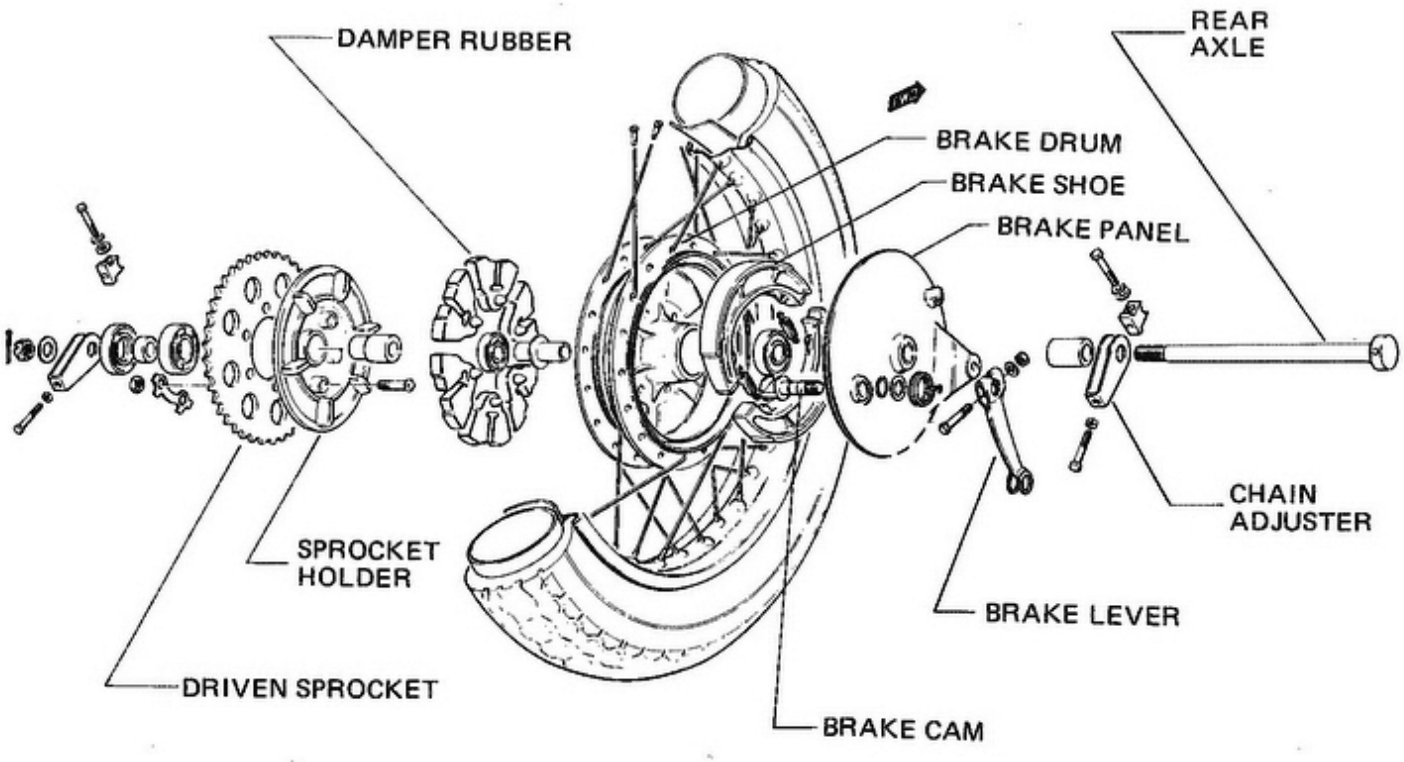


Fig. 8-4-2 Rear wheel

8–4–2. REMOVAL AND INSTALLATION

I. FRONT WHEEL

1) REMOVAL

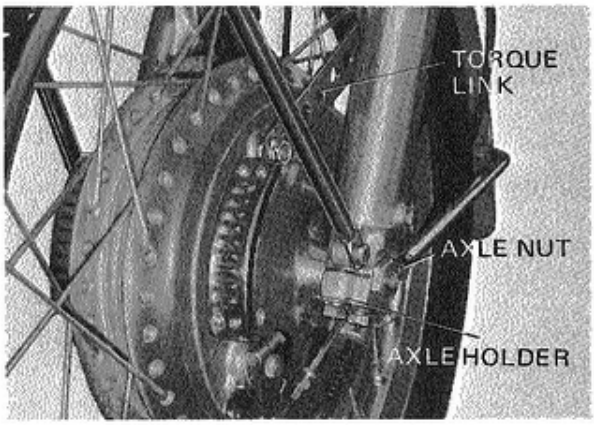


Fig. 8-4-3

Required tool:

12, 14 and 17 mm

24 mm,

and

The wheel can be easily stripped off by removing the axle holders after disconnecting the torque links, brake cables and speedometer cable. The brake pannel can be removed from the brake drum by unscrewing the axle nut.

2) INSTALLATION

When installing the front wheel, pay attention to the following points.

① To identify the installing direction of the brake drum, refer to the shapes of both the right and left bosses at center part. Cut-way on the boss indicates the left side which engages with the speedometer driving gear.

② The axle shaft should be inserted from right side. The reverse insertion is undesirable since it may cause improper positioning of the wheel bearings.

③ When installing the torque links, tighten their fitting nut under the condition that the axle is not tightened firmly and that the brake is kept working.

④ The axle nut may be tightened in only case the axle holders are not secured.

TIGHTENING TORQUE:

Front axle shaft	360 – 520 kg-cm (26 – 38 lb-ft)
Axle holder	150 – 250 kg-cm (11 – 18 lb-ft)
Torque link bolt and nut	200 – 300 kg-cm (14 – 22 lb-ft)

II. REAR WHEEL

1) REMOVAL

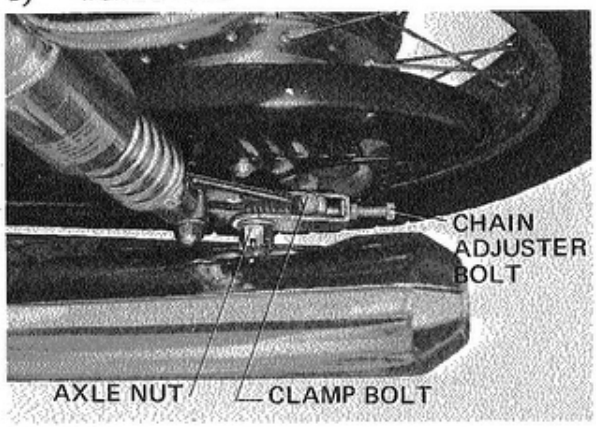


Fig. 8-4-4

Required tool:

22 and 12 mm

10, 12 and 17 mm

When removing the rear wheel, carry out the job according to the following procedure.

① Remove the brake wire.
② Disconnect the torque link.
③ Loosen the axle nut after removing the cotter pin.
④ Remove the chain cover for easier job.
⑤ Loosen the chain adjuster bolts to its end.
⑥ Remove the clamp bolts
⑦ Move the wheel forward to its end.
⑧ Remove the drive chain from the driven sprocket. It is not necessary to disconnect the chain link.
⑨ Pull the wheel backward.

2) INSTALLATION

To install the rear wheel, follow the reverse procedure of the removal. When tightening the axle, the drive chain slack and the wheel alignment should be adjusted at the same time.

TIGHTENING TORQUE:

Axle	500 – 800 kg-cm (36 – 58 lb-ft)
Clamp bolts	130 – 230 kg-cm (9.5 – 17 lb-ft)
Chain adjuster lock nut	90 – 140 kg-cm (6.6 – 10 lb-ft)
Torque link nut	200 – 300 kg-cm (14 – 18 lb-ft)

* DRIVE CHAIN SLACK

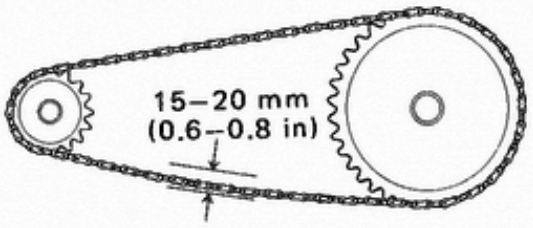


Fig. 8-4-5

Slack of the drive chain should be within 15 – 20 mm (0.6 – 0.8 in) as shown in Fig. 8-4-5 when the axle is firmly tightened.

* WHEEL ALIGNMENT

For adjusting the rear wheel alignment with the front wheel, carry out the job according to the following procedure.

NOTE:
The notched lines are provided on both the left and right swinging arm ends which indicate that the axle is to be set perpendicularly to the straight running direction if the center of the axle is set at the same notched line on both the left and right sides. However, due to slight inaccuracy made by the mechanical play in this mechanism and by the designed construction itself, the exact alignment may not be obtained by this method. Therefore, to get the accurate alignment, adopt the method explained hereunder and do not use the notched lines except when the adjustment is made on the user's level or for an emergency purpose.

VISUAL CHECK

Fig. 8-4-6

To check the alignment visually, first set the front wheel so that the center line of the front wheel faces that of the rear tire surface, that is, in Fig. 8-4-6, points "A" and "A′ " positioned by the visual axes "a" and "a′ " when seen along the front tire side surfaces leave the same width of the visible areas on left and right side respectively on the rear tire surface.

Keeping the front wheel in this state, view one side of the rear tire from forward so that the visual axis is along the side surface and do the same to the other side. The visual axes "b" and "b′ " in Fig. 8-4-6 are thus made.

If the alignment is properly adjusted, the distance between "a" and "b" must be the same as that between "a′ " and "b′ ". In case of Fig. 8-4-6, the rear wheel should be adjusted so that the axle may turn the wheel slightly to the right since the distance of "a – b" is smaller than that of "a′ – b′ ".

MECHANICAL CHECK

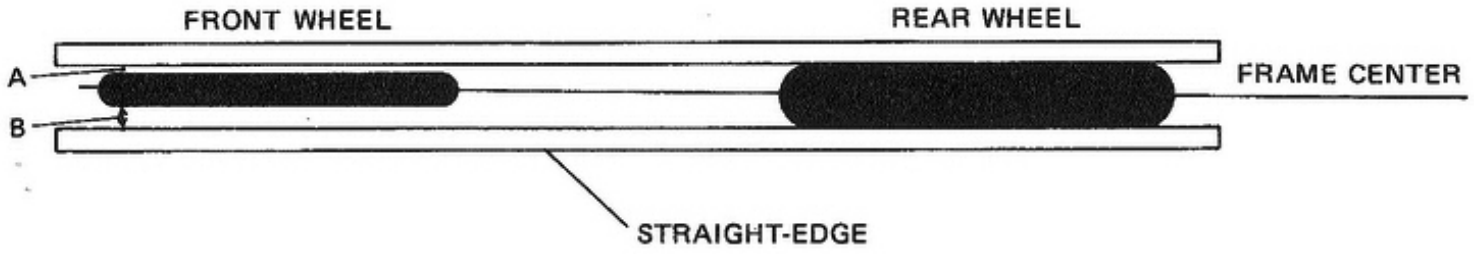


Fig. 8-4-7

Put a straight-edge to the side of the rear wheel evenly and setting the front wheel in parallel with the straight-edge, measure the clearance "A" shown in Fig. 8-4-7. Measure the clearance "B" in the same way and compare it with "A".

If the alignment is properly adjusted, A and B thus measured must be the same. In case of Fig. 8-4-7, the rear wheel is to be turned slightly to the right in order to have both the front and rear wheel being in line.

8–4–3. CHECKING WHEEL

I. RIM RUNOUT

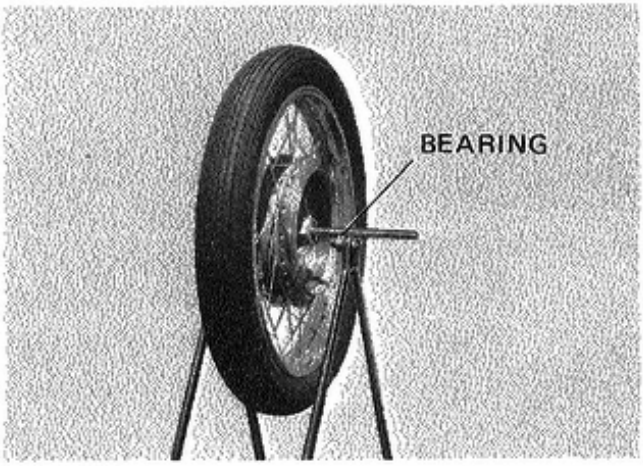


Fig. 8-4-8

Measure the lateral and radial runout by a dial gauge or a surface gauge using a wheel stand as shown in Fig. 8-4-8. If the either lateral or radial runout exceeds 2 mm (0.08 in), correct or replace the rim.

II. WHEEL BALANCE

Put the wheel on the stand as shown in Fig. 8-4-8 and leave it free. If the wheel always stops at a certain particular position, install the balancer weight on the spokes located at around the highest position in this state. Two kind of the balancers are provided as genuine parts and these weight are written as follow.

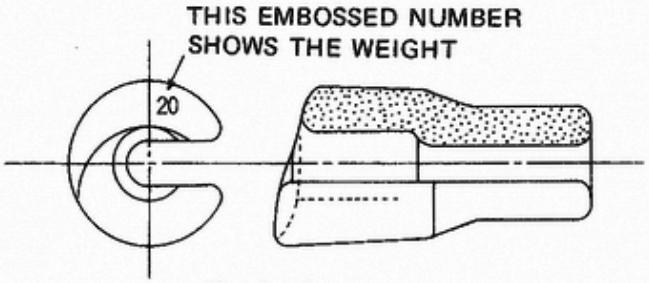


Fig. 8-4-9 Balancer weight

PART NUMBER	WEIGHT
55411-11000	20 g
55412-11000	30 g

If the weight other than 20 or 30 g is required, the balancer may be adjusted in weight by cutting it.

8–4–4. TIRES

I. WEAR LIMIT

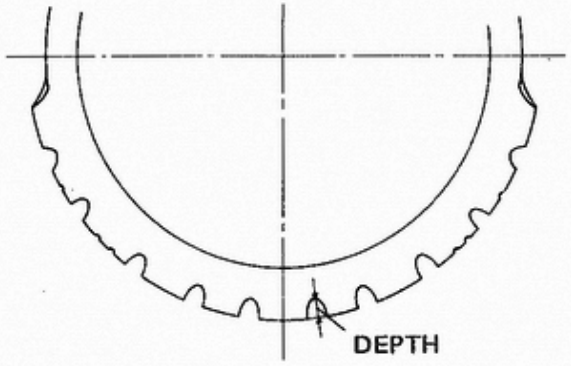


Fig. 8-4-10

To ensure the braking effect and the stability at high speed, the tire should keep enough depth in the grooves shaped on the tread surface.

When the depth of the tire shown in Fig. 8-4-10 reaches the wear limit given below, replace with new tire.

WEAR LIMIT IN DEPTH:

Front	1.6 mm (0.06 in)
Rear	2.0 mm (0.08 in)

TIRE USED ON THIS MODEL:

Front ..... BRIDGESTONE SUPER SPEED-21FS
Rear ..... BRIDGESTONE SUPER SPEED-21R2 CA

II. RECOMMENDED TIRE PRESSURE

Since tire pressure affects the durability and safety in driving to a great extent, it is necessary that the pressure be always kept properly. The following list shows the recommended tire pressure for this model.

DRIVING CONDITION	FRONT				REAR			
	SOLO RIDING		DUAL RIDING		SOLO RIDING		DUAL RIDING	
	kg/cm^2	lb/in^2	kg/cm^2	lb/in^2	kg/cm^2	lb/in^2	kg/cm^2	lb/in^2
NORMAL RIDING	1.6	23	1.6	23	1.8	26	2.0	28
HIGH SPEED CRUISING	1.8	26	1.8	26	2.0	28	2.0	28

In order to have the tire properly settled in the rim, first inflate it with the pressure of 5 kg/cm^2 (71 lb/in^2) and then adjust the pressure by deflating it.

NOTE:
When mounting the rear tire on the rim, be sure to observe the specified installing direction. The embossed arrow on the side surface of the tire shown in Fig. 8-4-11 indicates that the tire should be driven toward the arrow, in other words, the rotational direction.

Fig. 8-4-11

8–5. DRIVE CHAIN

In order to secure the chain from disconnection which might take place by any chance when it is given a heavy load or an impact during the acceleration or the gear shifting procedure, the chain used on this model is constructed as an endless type unlike those equipped on small capacity motorcycles. Because of this particularity, it is necessary on servicing the drive chain that special attention be paid to the point explained in this section.

8–5–1. MAINTENANCE

The drive chain must be checked and serviced at the time of every 800 km (500 miles) and lubrication is indispensable at this time of the service. In case the motorcycle is used at sustained high speed or under the condition of frequent rapid acceleration, it is recommended to shorten the service interval to 500 km (300 miles).

For adjusting procedure of the drive chain, refer to the section 8-4-2.

8–5–2. INSPECTION

Check the drive chain for any of the following conditions. The sprockets should also be checked at the same time since the wear of the sprockets are subsequent to that of the chain.

DRIVE CHAIN
* Damaged rollers
* Loose pins
* Dry or rusted links
* Kinked or bent links
* Excessive wear
* Improper adjustment

SPROCKETS
* Excessive wear
* Broken or damaged teeth
* Loose sprocket nuts

For checking the wear, measure the distance between a span of 20 pins, from pin center to pin center, with the chain held taut and any stiff joints straightened in order to determine if the chain is worn beyond its service limit. The distance of the new drive chain is 11-7/8 in (301.6 mm), and if the distance exceeds 12-1/8 in (308.0 mm), the chain ends its service life and must be replaced.

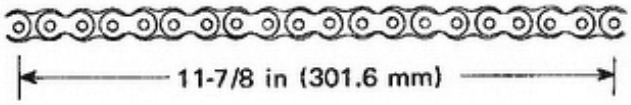


Fig. 8-4-12

8–5–2. DISJOINING AND REJOINING CHAIN

These jobs may be required if the optional sprockets larger than STD size are to be used since these sprockets may need longer drive chain. Following sprockets are provided for this model as optional parts.

DRIVE SPROCKET		DRIVEN SPROCKET	
Number of teeth	Part number	Number of teeth	Part number
		38	64511-33760
15	27511-33600	(40) STD	64511-33751
		42	64511-33741
(16) STD	27511-34000	44	64511-33770
		46	64511-33001

To extend the length of the drive chain, use following genuine parts.

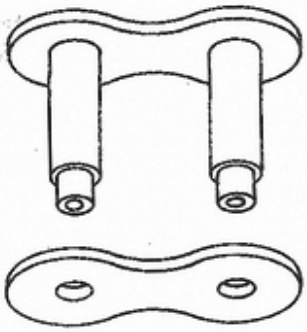


Fig. 8-4-13 Chain joint

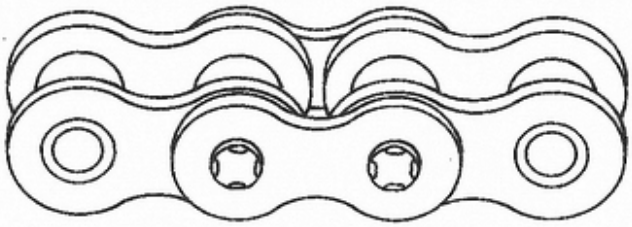


Fig. 8-4-14 Chain extension

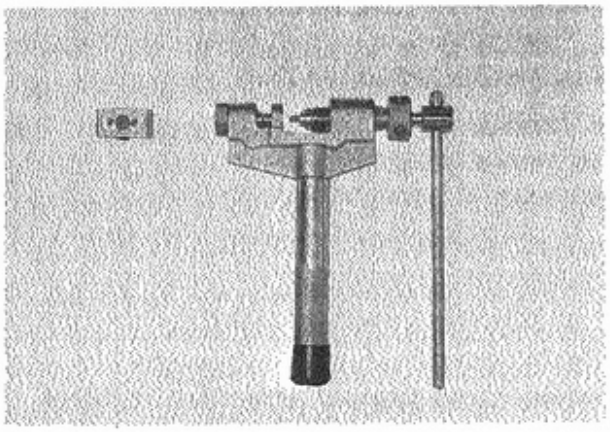


Fig. 8-4-15 Drive chain joint tool

The chain extension includes 3 links while its required length depends on the choice of the sprocket size and also on the wear of the drive chain being serviced. Therefore, adjust the length of the extension by cutting it so that the proper chain length is obtained for the changed sprocket size. When connecting the chain extension to the drive chain, use two sets of the chain joints shown in Fig. 8-4-13 on the both ends of the extension and caulk the pins by the special tool shown in Fig. 8-4-15. For the usage of the special tool, follow the instruction supplied with the tool.

NOTE:

1) If the connection is made on the chain with the chain joint as explained above, this particular part may not easily be disjointed because of wide flare of the pins. Therefore, in case of this chain, disjoint at any other part.

2) From the safety point of view, the snap type joint widely used for small motorcycles should not be used on this model.

3) The sprocket of 15 teeth is the smallest possible size for this motorcycle in strength point of view of the chain, therefore, do not use the sprocket of less than 14 teeth though it is available as optional for other models.

8–6. BODY ELECTRICAL

8–6–1. SWITCHES

This section explains the inside wiring of the switches. When checking their functions, connect a circuit tester to the switches referring to the inside wiring given below.

I. IGNITION SWITCH

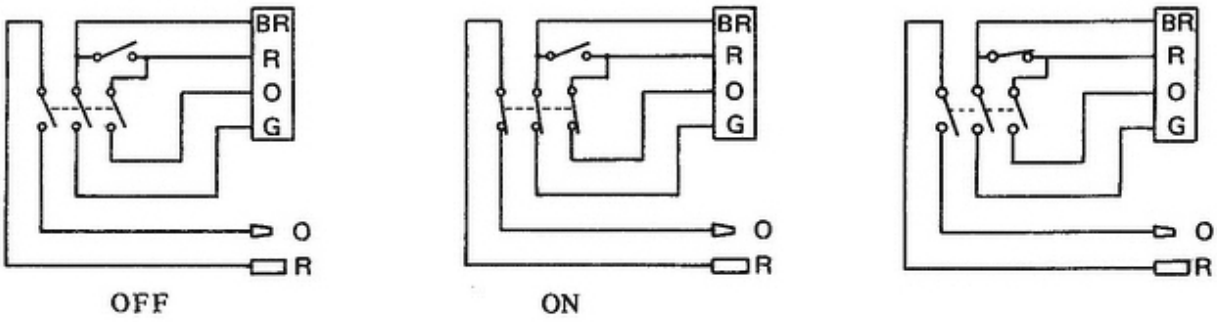


Fig. 8-6-1

II. HANDLE RIGHT SWITCH BOX

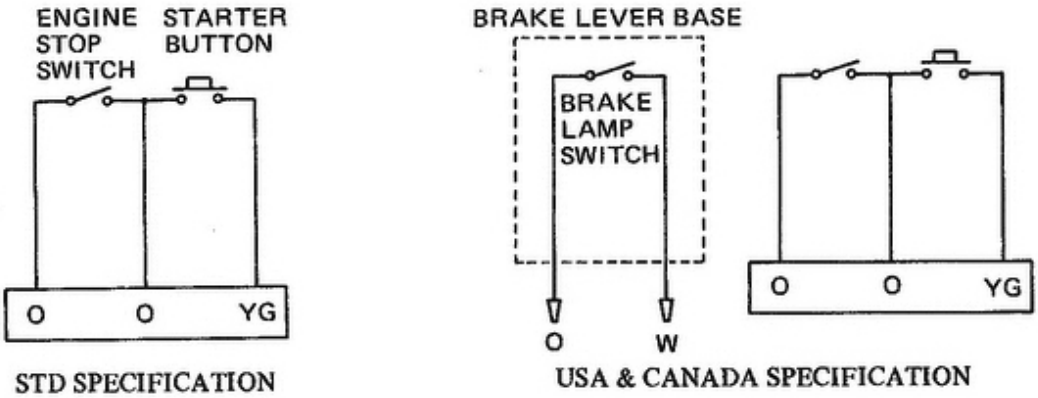


Fig. 8-6-2

III. HANDLE LEFT SWITCH BOX

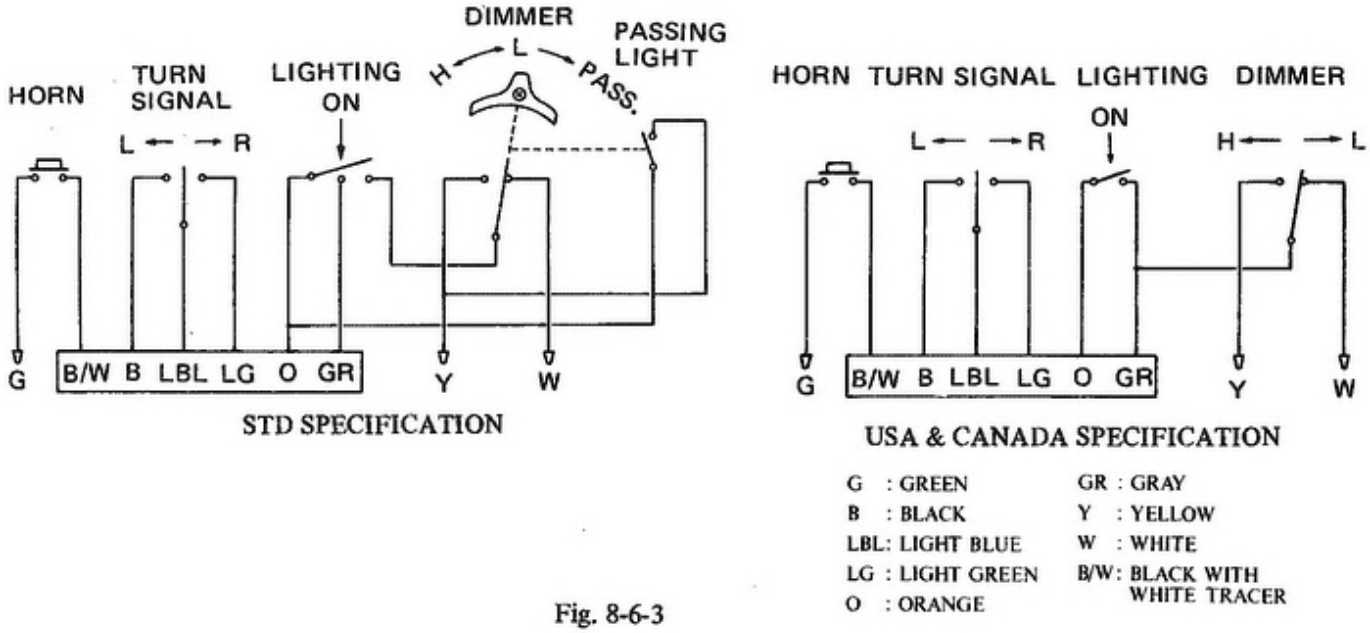


Fig. 8-6-3

8–6–2. TURN SIGNAL RELAY

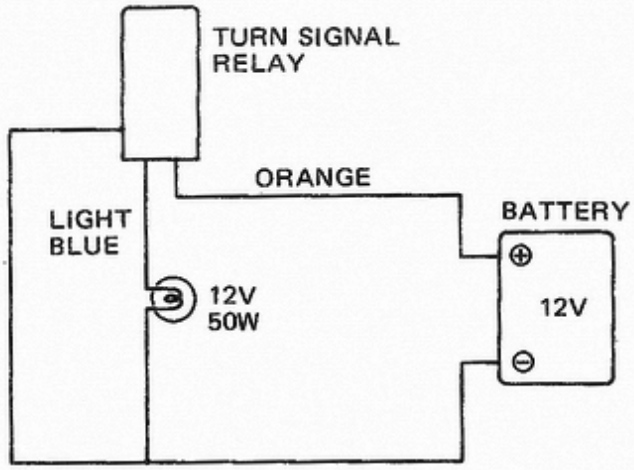


Fig. 8-6-4

If the turn signal relay is to be checked separately from the original wiring, connect a bulb of 12V 50W as shown in Fig. 8-6-4. If the turn signal relay functions properly, the bulb must blink continuously with constant frequency.

8–6–3. BATTERY

The battery used on this model is either of YUASA or FURUKAWA make. Both of them are of same type, 12V, 11AH, 12N11-3A-1, and there is interchangeability between them.

I. INITIAL CHARGE

The battery is of dry-charged type unlike that of a large capacity battery, however, it necessitates the initial charging with the specified rate before the battery is put in use since the plates may be oxidized to a certain extent during the storage.

* INITIAL CHARGING RATE : 1.1A 15 – 20 Hours
* SPECIFIC GRAVITY OF ELECTROLYTE : 1.280 at 20°C (68°F)

II. RECHARGE

To check the battery condition in capacity, measure the specific gravity of electrolyte by means of hydrometer and refer to the following list.

SPECIFIC GRAVITY at 20°C (68°F)	CONDITION	NECESSARY MEASURE
1.250 – 1.280	OK	
1.220 – 1.250	Under charged	Recharge
Below 1.220	Run down	Replace or recharge

Recharging rate: 1.1A 12 – 15 Hours

NOTE:
When recharging the battery, be sure to remove it from the motorcycle in order to prevent the rectifier from being damaged due to excessive voltage given by any chance.

III. BATTERY EXHAUST PIPE

Since the battery exhaust pipe is fixed on the motorcycle body by a clamp, the battery should be dismounted disconnecting the pipe at the joint and leaving the pipe on the body.

If the piping is to be required, place the exhaust pipe as shown in Fig. 8-6-5.

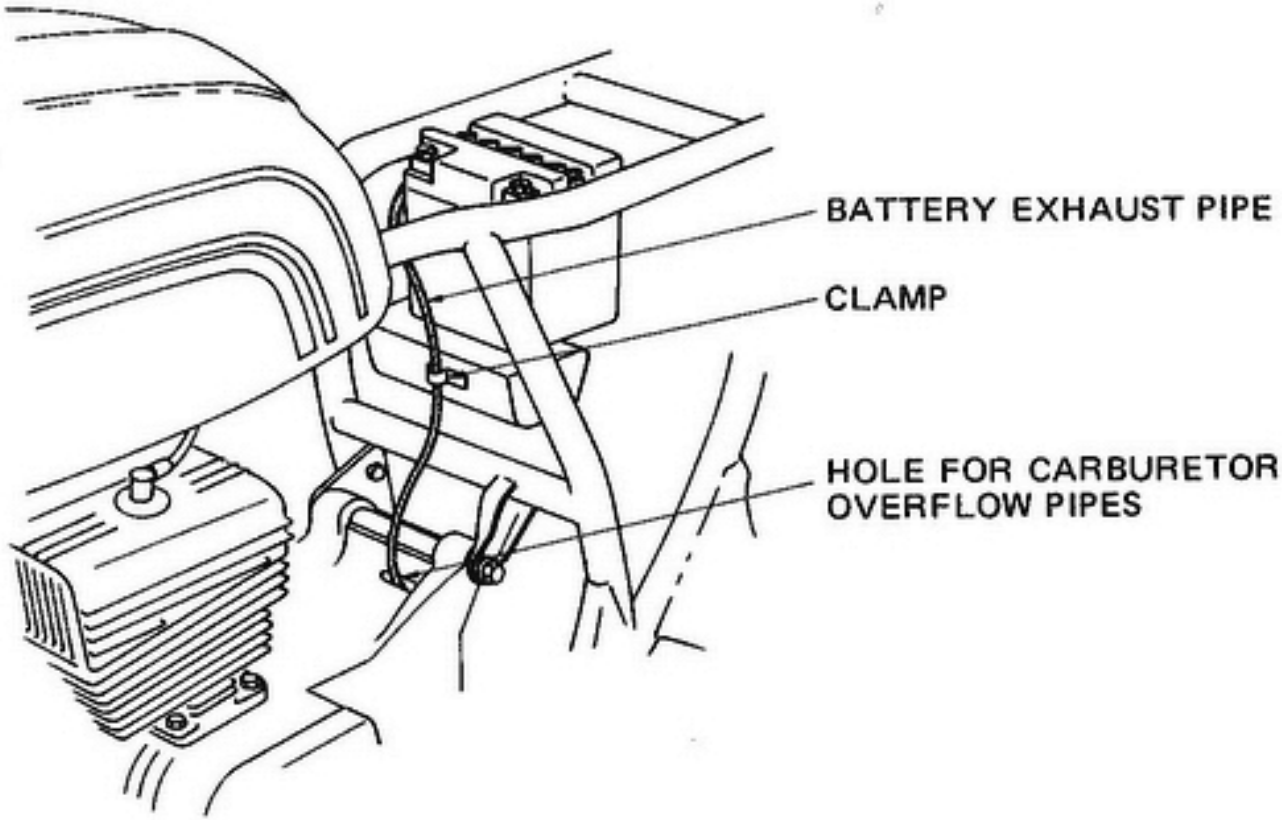


Fig. 8-6-5

NOTE:
If the battery acid is put to the drive chain, the chain may break when loaded. Therefore, set the outlet of the pipe so as not to face the drive chain.

9. SPECIFICATIONS FOR INSPECTION AND REPAIR

9–1. ENGINE

PART	CHECK ITEM	STANDARD	LIMIT	OPERATION	REMARKS
CYLINDER	Wear		0.1 mm (4/1,000 in)	Rebore	Measurement is the difference between largest and smallest diameter of the bore.
	Cylinder-piston clearance	0.045 mm (1.8/1,000 in)			Measure the piston diameter at 26 mm (1.02 in) above the piston skirt in the direction perpendicular to the piston pin hole. MEASUREMENT BY THICKNESS GAUGE SHOWS ENTIRELY DIFFERENT FIGURE.
PISTON RING	End gap	0.15 – 0.35 mm (6 – 14/1,000 in)	0.7 mm (28/1,000 in)	Replace	Measure with a thickness gauge when the ring is inserted into the lower part of the cylinder.
CRANK-SHAFT	Con-rod small end shake		3 mm (0.12 in)	Repair or replace	Check the shake at at TDC with a dial gauge.
	Radial Runout	Below 0.05 mm (2/1,000 in)			Measure with a dial gauge when both the ends are held.
CLUTCH DRIVE PLATE	Thickness	3.5 mm (0.138 in)	3.2 mm (0.126 in)	Replace	
CLUTCH DRIVEN PLATE	Warp		0.4 mm (16/1,000 in)	Replace	Measure with a thickness gauge placing the plate on the surface plate.

9–2. ELECTRICAL

PART	CHECK ITEM	STANDARD	LIMIT	OPERATION	REMARKS
CONTACT BREAKER	Contact Point gap	0.3 – 0.4 mm (12–16/1,000 in)	Under or over STD.	Adjust	
	Ignition Timing	3.37 mm (24 degree)	Under or over 2.85–4.24 mm (22° – 27°)	Adjust	In piston travel from TDC.
	Firing Order	L→C →R			
	Condenser capacity	0.16 – 0.20 μF			
IGNITION COIL	Continuity in Primary coil		If 0 or ∞ Ω	Replace	Resistance: approx. 4 – 6Ω
	Continuity in secondary coil		If 0 or ∞ Ω	Replace	Resistance: approx. 15 – 25kΩ
ALTER-NATOR	Continuity in stator coils		If ∞ Ω	Replace	Refer to page 55.
	Ground in stator coils		If grounded	Replace	Refer to page 55.
	Continuity in field coil		If 0 or ∞ Ω	Replace	Approx. resistance: Denso 10Ω Kokusan 5Ω
	Wear of brushes	DENSO: 14 mm (0.6 in) from holder	5.5 mm (0.22 in)	Replace	Refer to page 55.
		KOKUSAN: 5 mm (0.2 in) from end to limit line	Until the limit line		
VOLTAGE REGULATOR	Regulated voltage	13.5 – 14.5 V	Under or over STD.	Adjust or replace	With fully charged battery. Refer to page 53, 56 and 57.
STATER MOTOR	Mica undercut	0.5 – 0.8 mm (20–30/1,000 in)	0.3 mm (12/1,000 in)	Rectify	
	Brushes	DENSO: 14 mm (0.55 in)	10 mm (0.4 in)	Replace	
		KOKUSAN: 13.5 mm (0.53 in)	9 mm (0.4 in)	Replace	
BATTERY	Specific Gravity	1.280 when 20°C (68°F)	Below 1.250	Recharge	

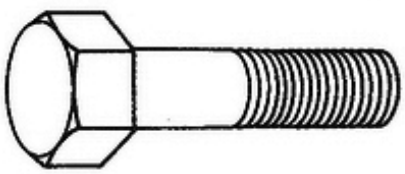
PART	CHECK ITEM	STANDARD	LIMIT	OPER-ATION	REMARKS
FRONT FORK	Damper oil	SAE 10W/30 230 – 240 cc in each fork			
BRAKE SHOE	Wear		Front: 194 mm (7.64 in)	Replace	Measure the diameter when the shoes are installed on the pannel.
			Rear: 176 mm (6.93 in)		
BRAKE DRUM	Wear	Front: 200 mm (7.87 in)	Front: 200.7 mm (7.90 in)	Replace	
		Rear: 180 mm (7.09 in)	Rear: 180.7 mm (7.11 in)		
DRIVE CHAIN	Slack	15 – 20 mm (0.6–0.8 in)			
	Wear	11-7/8 in (301.6 mm)	12-1/8 in (308.0 mm)	Replace	Distance between 20 pins.
TIRE	Wear in Depth		Front: 1.6 mm (0.06 in) Rear : 2.0 mm (0.08 in)		

10. TIGHTENING TORQUE

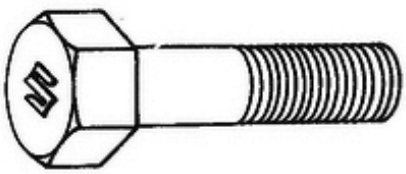
PART	TIGHTENING TORQUE	
	kg-cm	lb-ft
Front axle nut	360 – 520	26 – 38
Front axle holder nut	150 – 250	11 – 18
Front torque link bolt & nut	200 – 300	14 – 22
Handlebars clamp bolt	120 – 200	9 – 14
Front fork lower bracket bolt	200 – 300	14 – 22
Steering stem nut	600 – 1000	43 – 72
Front fork upper bracket bolt (R & L)	200 – 300	14 – 22
Front fork upper bracket bolt (center)	150 – 250	11 – 18
Brake cam lever fitting nut	50 – 80	4 – 6
Engine mounting nut	250 – 400	18 – 29
Rear swinging arm pivot shaft nut	500 – 750	36 – 54
Front footrest bolt	300 – 450	22 – 33
Rear torque link nut	200 – 300	14 – 18
Rear shock absorber nut	200 – 300	14 – 18
Rear axle	500 – 800	36 – 58

TIGHTENING TORQUE FOR GENERAL BOLTS

BOLT DIAMETER (mm)	TIGHTENING TORQUE			
	Usual bolt		"S" marked bolt	
	kg-cm	lb-ft	kg-cm	lb-ft
5	20 – 40	1.5 – 2.9	30 – 60	2.2 – 4.4
6	40 – 70	2.9 – 5.1	60 – 100	4.4 – 7.3
8	90 – 140	6.6 – 10	130 – 230	9.5 – 17
10	180 – 280	13 – 20	250 – 400	18 – 29



USUAL BOLT



"S" MARKED BOLT

11. IMPORTANT FUNCTIONAL PARTS

For safety driving of motorcycle, it is highly requested to check up the important items in accordance with following check list at the time of the periodical inspection.

Check list of important functional parts for safety driving.

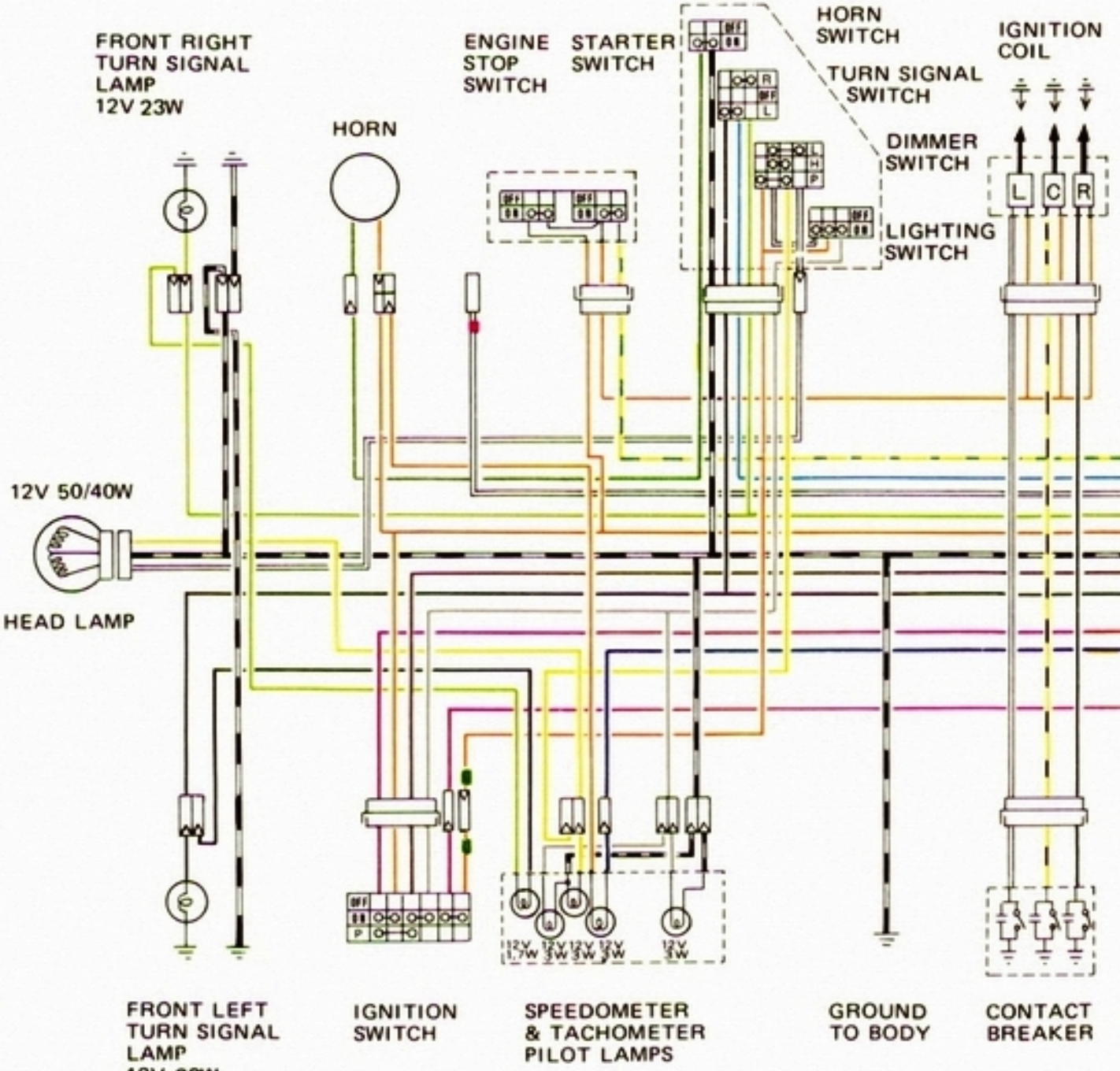
SYSTEM	ITEM	CHECK FOR
FUEL SUPPLY	Carburetor	Uneven movement of throttle valve, Fuel leakage
	Fuel hose Fuel tank Fuel cock	Fuel leakage
SUSPENSION	Front fork	Crack, Welding faulty of parts
	Front fork lower and upper bracket	Crack, Welding faulty
	Front and rear axle	Crack
	Rear swinging arm	Crack, Welding faulty
STEERING	Handlebars Handlebar clamp	Crack
BRAKES	Front hub drum Rear hub drum Front hub panel Rear hub panel	Crack
	Front torque link Rear torque link	Crack
	Front brake shoe Rear brake shoe	Crack, Peeling off of lining
	Front brake cam shaft Rear brake cam shaft	Crack, Deformation of serration
	Rear brake cable	Insecure connection of cable end
	Brake pedal	Crack, Welding faulty
	Brake lever	Crack
	Front brake cable	Insecure connection of cable end
FRAME	Frame	Crack, Welding faulty

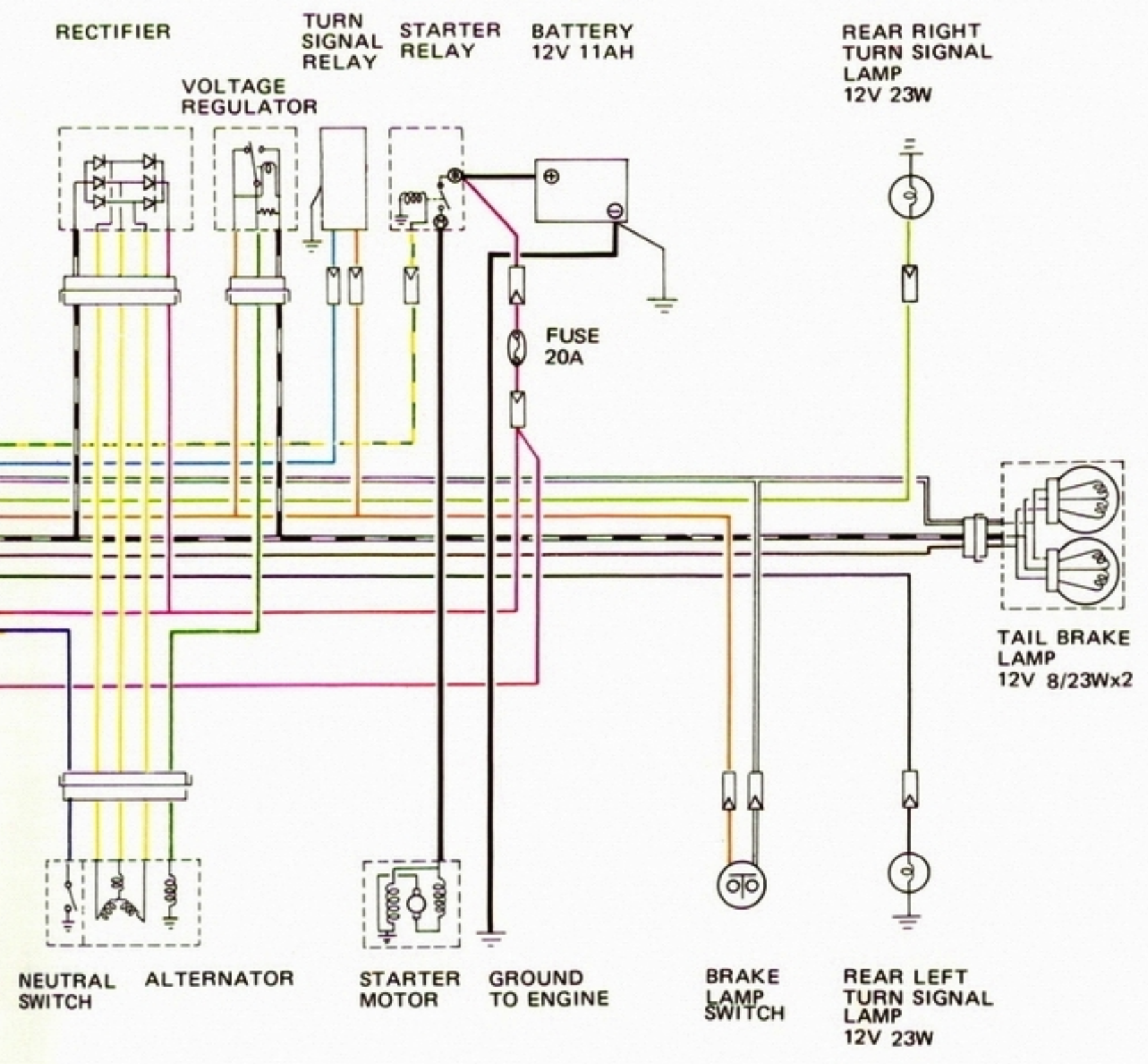
PERIODICAL INSPECTION LIST

The chart below indicates time when inspections, adjustments and maintenance are required based 1,000 km (750 mi), and every 3,000 km (2,000 mi), 6,000 km (4,000 mi) and 12,000 km (8,000 mi to have the motorcycle checked and serviced at your shop. See the appropriate section for instructio

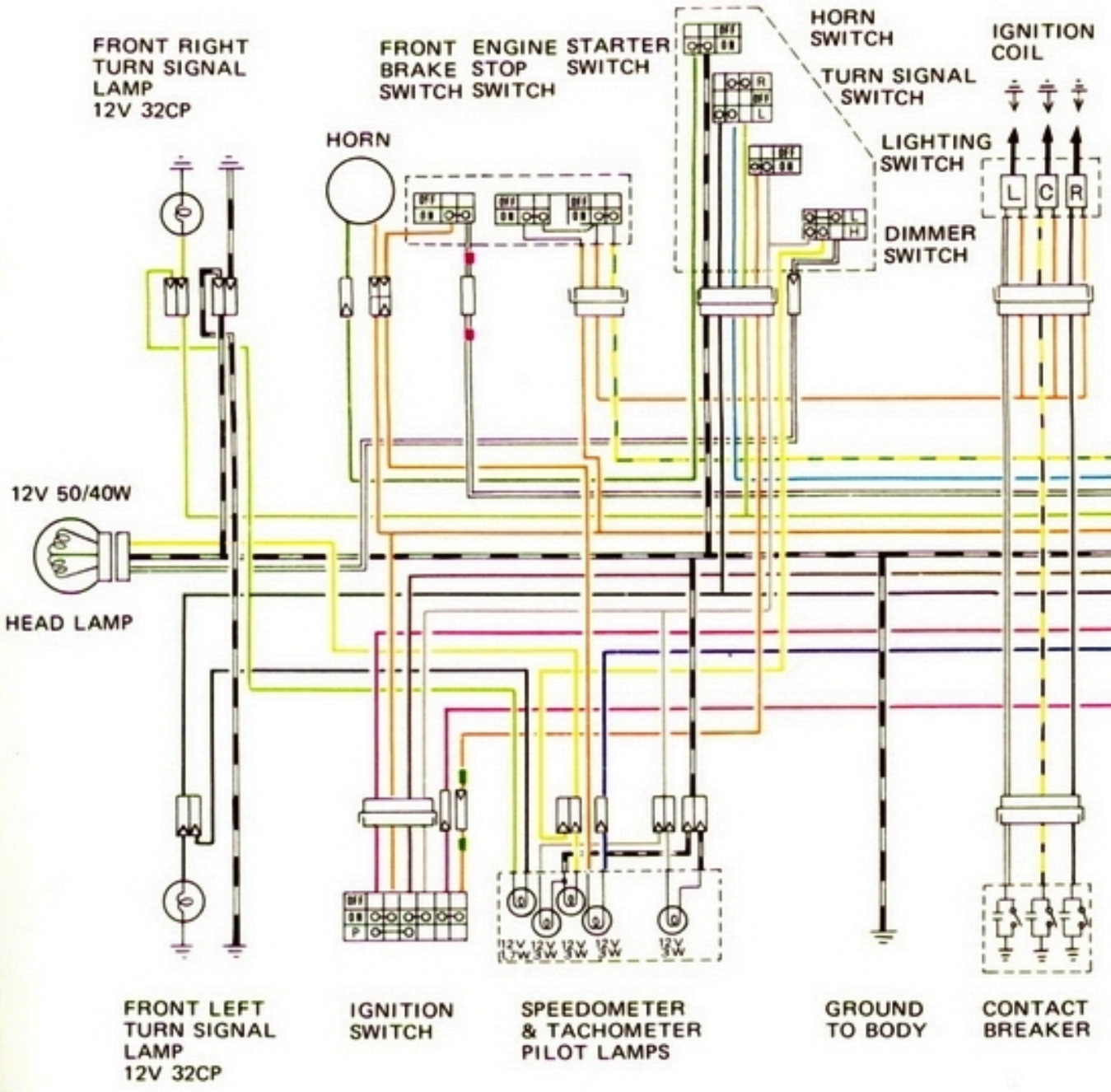
Distance (km) / Distance (mi) / Service	1,000 km 750 mi	Every 3,000 km Every 2,000 mi
Oil pump	Check operation, adjust control lever aligning marks	Check operation, adjust control lever aligning marks
Spark plug	Clean	Clean and adjust gap
Gearbox oil	Change	Change
Throttle and brake cables	Adjust play	Adjust play
Carburetor	Adjust with throttle valve screw and pilot air screw	Adjust with throttle valve screw and pilot air screw
Contact breaker	Check contact point gap and ignition timing	Check contact point gap and ignition timing, Lubricate contact breaker cam oil felt
Cylinder head and cylinder	Retighten cylinder and cylinder head nuts	Retighten cylinder and cylinder head nuts
Battery	Check and service electrolyte	Check and service electrolyte
Fuel cock	Claen fuel strainer	
Drive chain	Adjust	Adjust and lubricate
Brakes	Adjust play	Adjust play
Air cleaner		Clean
Throttle grip		
Exhaust pipe and Muffler	Retighten exhaust pipe flange fitting screw	Retighten exhaust pipe flange fitting screw
Steering stem	Check play Retighten stem nut	
Bolts, Nuts and Spokes	Retighten	

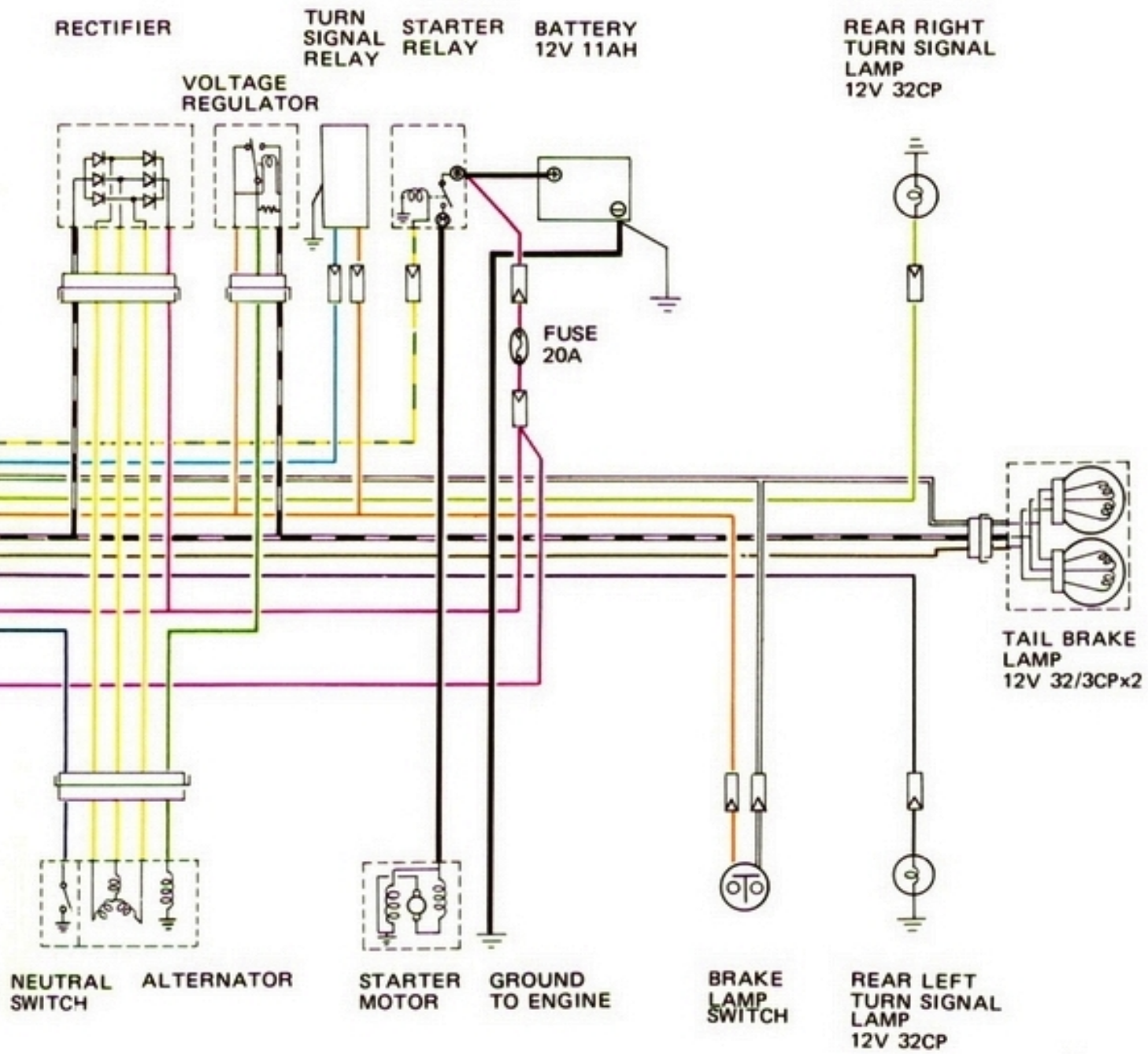
WIRING DIAGRAM (Standard specification)



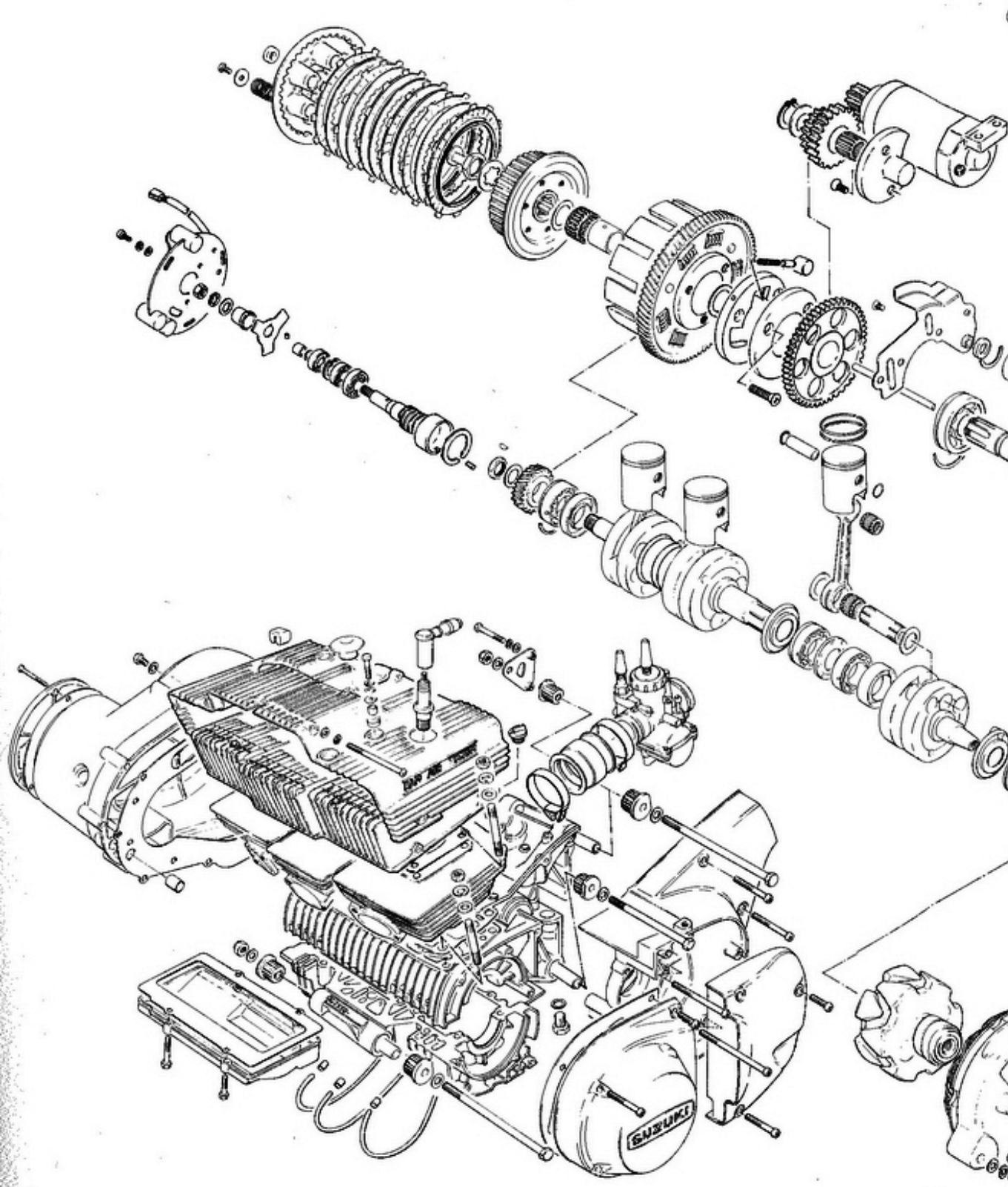

RECTIFIER
TURN SIGNAL RELAY
STARTER RELAY
BATTERY 12V 11AH
REAR RIGHT TURN SIGNAL LAMP 12V 23W
VOLTAGE REGULATOR
FUSE 20A
TAIL BRAKE LAMP 12V 8/23Wx2
NEUTRAL SWITCH
ALTERNATOR
STARTER MOTOR
GROUND TO ENGINE
BRAKE LAMP SWITCH
REAR LEFT TURN SIGNAL LAMP 12V 23W

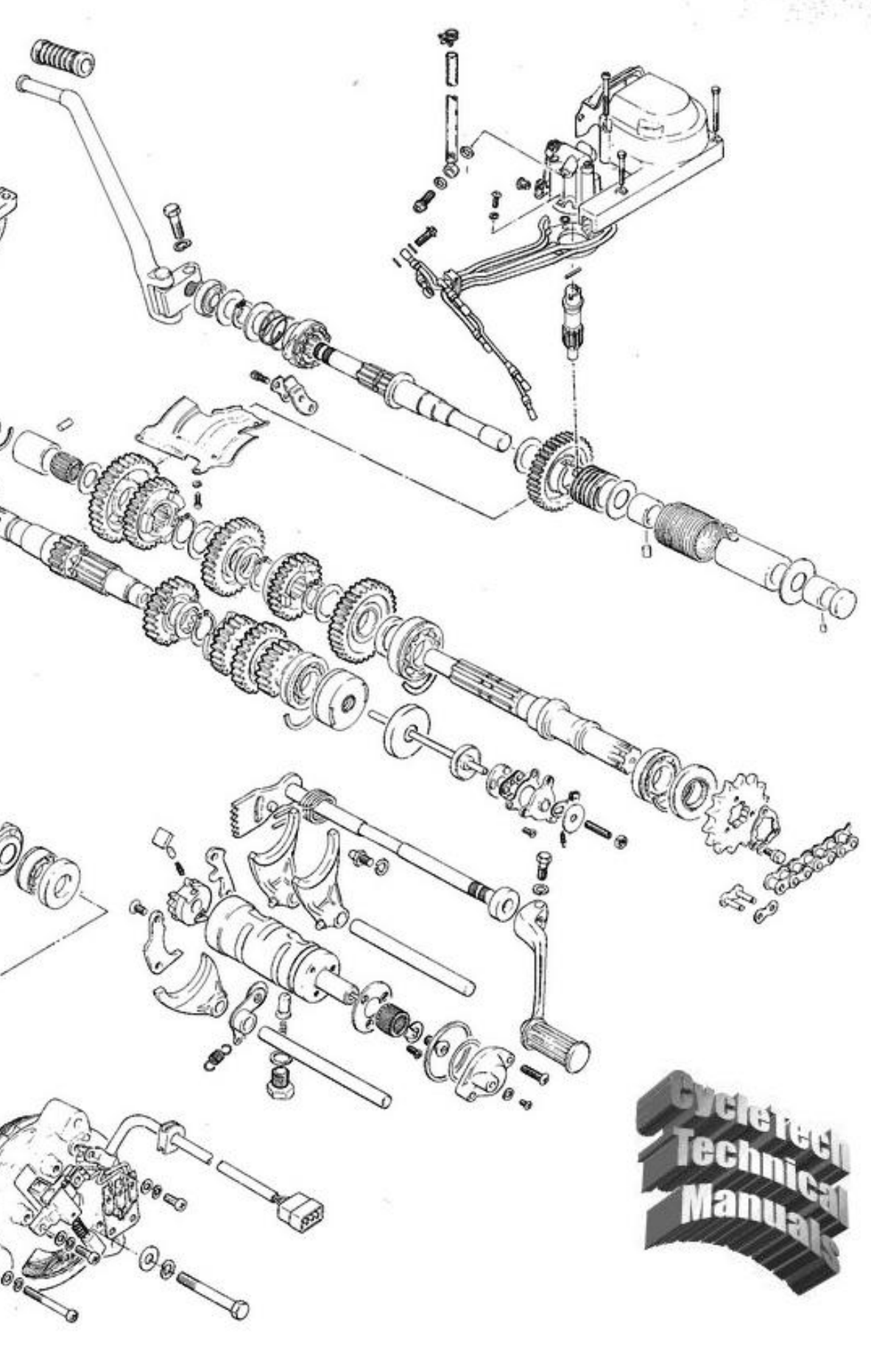
WIRING DIAGRAM (USA & CANADA specification)




RECTIFIER
TURN SIGNAL RELAY
STARTER RELAY
BATTERY 12V 11AH
REAR RIGHT TURN SIGNAL LAMP 12V 32CP
VOLTAGE REGULATOR
FUSE 20A
TAIL BRAKE LAMP 12V 32/3CP×2
NEUTRAL SWITCH
ALTERNATOR
STARTER MOTOR
GROUND TO ENGINE
BRAKE LAMP SWITCH
REAR LEFT TURN SIGNAL LAMP 12V 32CP

EXPLODED VIEW OF ENGINE

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