



**YAMAHA**

**SERVICE MANUAL**

**Y12 – YL2C**

# YAMAHA 100 YL-2 SERVICE MANUAL

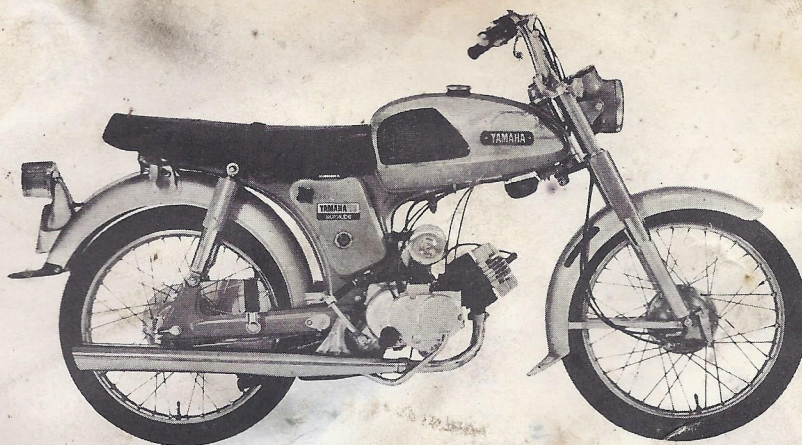
## FOREWORD

This new, attractive YAMAHA 100 YL-2 is a product representing many years of experience in the manufacture and marketing of world famous YAMAHA's motorcycles.

It also features a combination of successful designs adopted from the YAMAHA 80 YG series. The sturdy frame is slightly larger than the YG-1 series frames.

With its impressive styling and high performance, the rider will be able to enjoy long lasting rider comfort, with servicing as simple as that for the YG-1.

This manual is intended to provide vital technical service information for the YL-2 to assist YAMAHA's dealers the world over. It is sincerely hoped that they will find this booklet very useful in carrying out their servicing work.



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## Chapter 1. GENERAL

### 1-1 Features

1) **Rotary valve engine and YAMAHA Autolube.**

The YAMAHA 100 YL-2 is equipped with a powerful 2-cycle, rotary valve engine, featuring the YAMAHA Autolube that is now world famous. The engine has proven to be most outstanding in both low and high speed travelling as well as acceleration.

2) **Unique design.**

The totally closed type frame has greatly improved strength and rigidity, thus making the YL-2 quite suitable for both sports and business purposes.

3) **One-touch (primary) kickstarter.**

The engine can be started by simply squeezing the clutch and kicking the starter crank without shifting the transmission into neutral, a welcome convenience to the rider who stalls his machine in heavy traffic.

4) **Well-spaced 4-speed transmission.**

Replacing the ball-lock type shifting system used in the YG-1, the improved YA-5 and YA-6 type transmission system insures "soft-touch" shifting and smooth transition from low to high speeds. This transmission system has been developed from valuable engineering experience and technical data obtained over many years of motorcycle manufacturing.

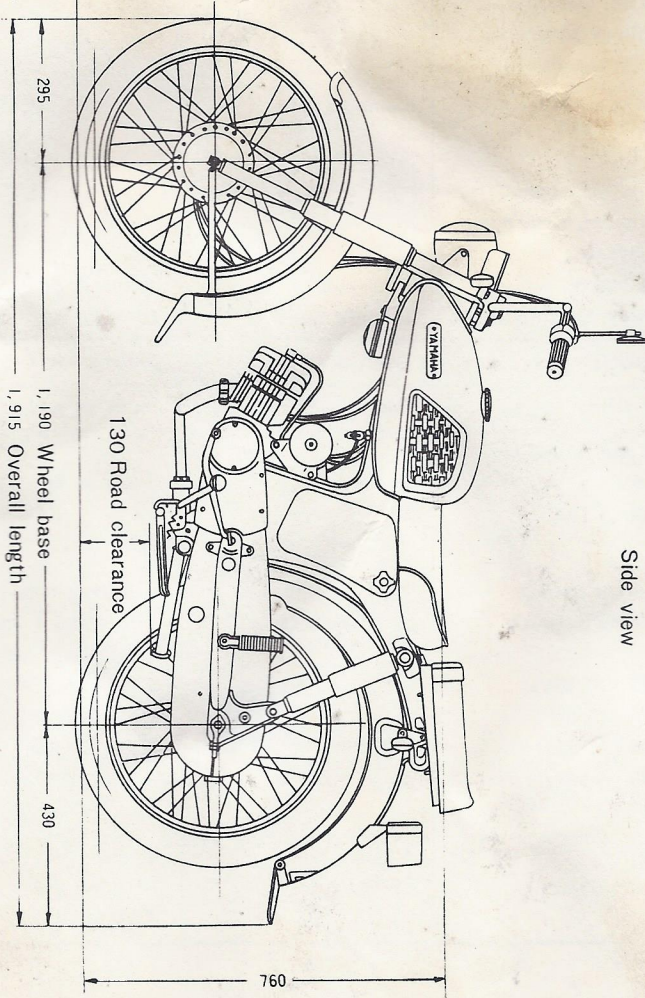
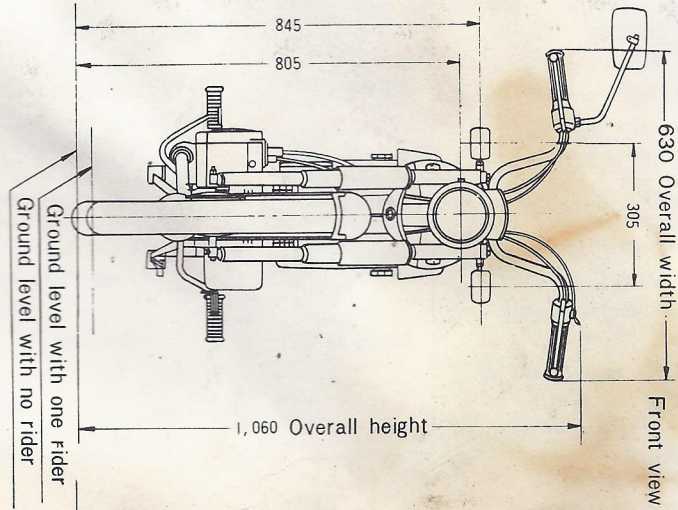
5) **Starter-jet-equipped carburetor.**

The starter-jet-equipped carburetor demonstrates its high efficiency in engine starting particularly during the cold season.

6) **Dependable brake**

Patented waterproof, dustproof brake drums provide safe, fade-free braking even on wet or dusty roads.

# External View



Overall External View YAMAHA 100 YL2

## 1-2 YL2 Performance & Specifications

Model	YAMAHA YL2 (U.S. A.)	YAMAHA YL2 general	YAMAHA YL2C (whole area)		
Overall length	1,915 mm - 79.4 in	Same as left	1,900 mm - 74.8 in		
Overall width	715 mm - 28.1 in		715 mm - 28.1 in		
Overall height	1,060 mm - 41.7 in		1,080 mm - 42.5 in		
Wheelbase	1,190 mm - 16.8 in		1,200 mm - 47.2 in		
Min. ground clearance	140 mm - 5.5 in		170 mm - 6.7 in		
Weight	100kg - 220 lbs.	Seme as left	109kg - 240 lbs.		
Max. speed	110km/h 65-70 mph	Seme as left	110 km/h 65-70 mph		
Fuel consumption	60km/L @ 40km/h		(Large Sprocket: 40-45mph)		
(on paved level road)	140mpg @ 25mph		more than 35°		
Climbing ability	22°				
Min. turning radius	1,870 mm 73-1/2 in				
Braking distance	7 m (@35km/h) 22.6 ft @ 21.8mph				
Engine	YAMAHA L2	Same as left	Same as left		
Type	2-cycle, gasoline				
No. of cylinders	Single-cylinder, tilted forward				
Displacement	97cc				
Bore X stroke	52 x 45.6 mm				
Compression ratio	7.2:1				
Max. output	9.5ps/7,500 rpm.				
Max. torque	0.94kg. m/5,500 rpm 6.8ft-lbs/5,500 rpm				
Starting system	kick starter			kick starter	Electric or kick
Ignition system	Battery ignition			Magnto ignition	Battery ignition
Carburetor	VM18SC x 1	Same as left	Same as left		
Air cleaner	Dry filter, paper	Same as left	Same as left		
Clutch	Wet multiple-disc	Same as left	Same as left		
Primary reduction	Gear				
Primary reduction ratio	74/19=3.894				
Type	Constant mesh, forward 4-step	Same as left	Constant mesh, forward 4-step		
Gear ratio:		Same as left	(Large spr.)		
Low	3.077 (26.204)		3.077 (51.672)		
2nd	1.889 (16.087)		1.889 (31.722)		
3rd	1.304 (11.104)		1.304 (21.898)		
4th	0.963 (8.201)		0.963 (16.172)		
5th					
Secondary reduction	Chain	Chain	Chain		
Secondary reduction ratio	35/16=2.187	35/16=2.187	70/16=4.375 37/16=2.3125		

Model	YAMAHA YL2 L2 (U.S. A.)	YAMAHA YL2 general	YAMAHA YL2-C L2-C (whole area)
Frame (type)	Steel plate back bone		
Suspension system (front)	Telescopic		
Suspension system (rear)	Swing arm	Same as left	Same as left
Damper (front)	Coil spring, oil damper		
Damper (rear)	Coil spring, oil damper		
Steering angle	45 each, right & left		
Caster	63.5	Same as left	Same as left
Trail	84mm		
Brake (type)	Internal expansion		
Brake (front)	Right hand-operated	Same as left	Same as left
Brake (rear)	Right foot-operated		
Tire size (front)	2.50-18-4PR	2.50-18-4PR	3.00-18 knobby tire
Tire size (rear)	2.50-18-4PR	3.00-18-4PR	3.00-18 knobby tire
Fuel tank capacity	8.4 (2.2 gal)	8.4 (2.2 gal)	Same as left
Oil tank capacity	1.6 (1.7 qts)	1.6 (1.7 qts)	
Model	DZ65/12CR	FCH-1CL	CJ-FR
Maker (Generator)	Mitsubishi Electric	Mitsubishi Electric	Mitsubishi Electric
Voltage regulator	"Tirril" Type	Silicon rectifier	"Tirril" Type
Spark plug	B-7HZ	B-7HZ	B-8HC
Maker	Furukawa or Nihon Battery	Furukawa or Nihon Battery	Furukawa or Nihon Battery
Model	BST3-12 or MG3-12	BST2-6 or MG2-6	BRT3-12 or MY3-12
Capacity	12V, 5.5AH	6V, 4AH	12V, 7AH
Head lamp	12V, 25 WD	6V, 15WD	12V, 25WD
Tail/Stop lamp	12V, 23W/70W (red)	6V, 3W/10W (red)	12V, 23W/70W (red)
Flasher lamp		6V, 8W x 4 (orange)	
Neutral lamp	12V, 2W	6V, 1.5W	12V, 2W
Meter lamp	12V, 3W	6V, 3W	12V, 3W



### 1-3 Performance Curves

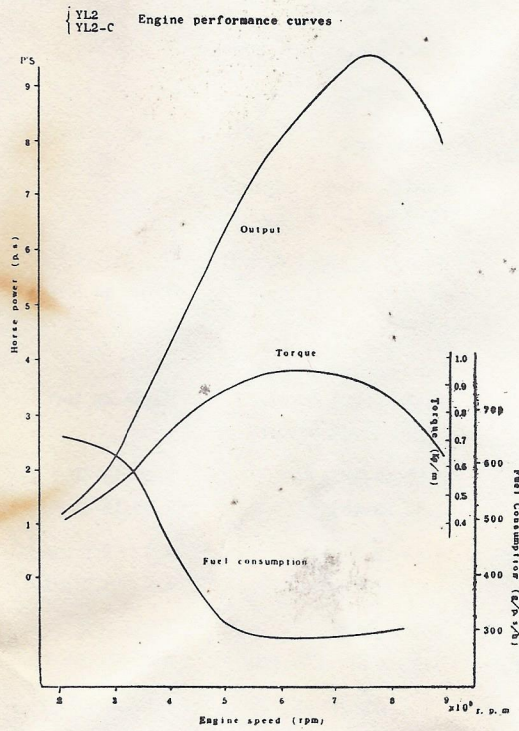


Fig. 1-3-1

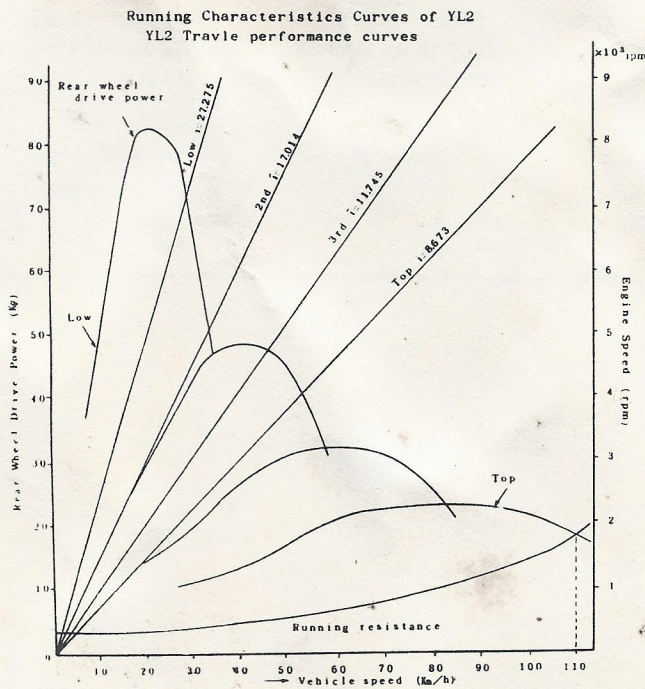
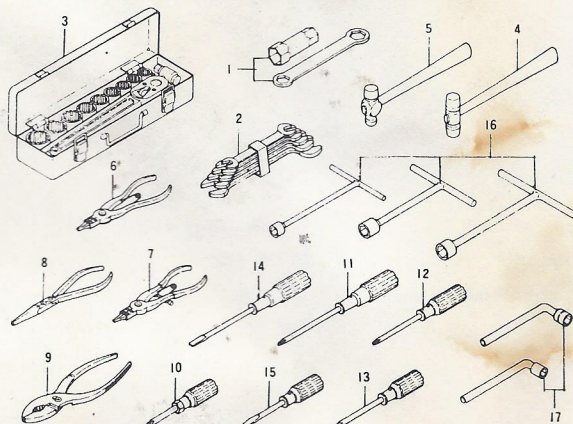


Fig. 1-3-2

## 1-4 Tools and Instruments for Shop Servicing

The following tools and instruments are required for shop servicing the YAMAHA YL-2.

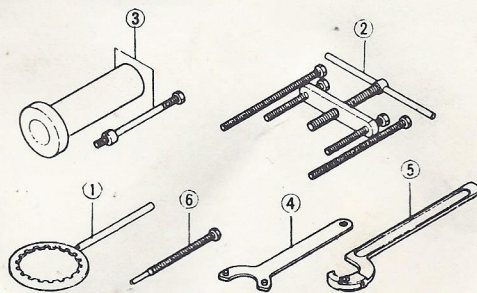
### 1. Genral Tools.



- |                             |  |
|-----------------------------|--|
| 1) Plug wrench 23×29        | 10) Phillips-head screwdriver          |
| 2) A set of wrenches        | 11) Phillips-head screwdriver (large)  |
| 3) A set of box wrenches    | 12) Phillips-head screwdriver (medium) |
| 4) Plastic tip hammer       | 13) Phillips-head screwdriver (small)  |
| 5) Steel hammer             | 14) Slot-head screwdriver (medium)     |
| 6) Circlip pliers (ST type) | 15) Slot-head screwdriver (small)      |
| 7) Circlip pliers (RT type) | 16) T-handle box wrench                |
| 8) Needle nose pliers       | 17) L-handle box wrench                |
| 9) Pliers                   |  |

Fig. 1-4-1

### 2. Special Tools and Instruments.

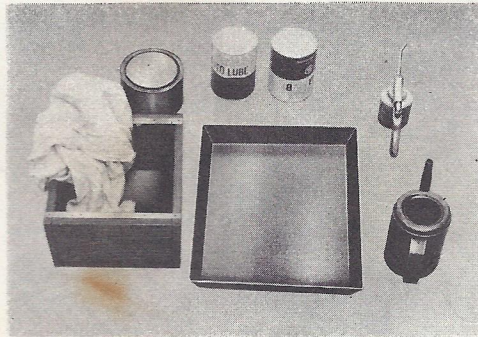


- |   |
|---|
| 1) Clutch holding tool                            |
| 2) Crankcase disassembling tool                   |
| 3) Crankshaft installing tool (for YG1-D and YA6) |
| 4) Flywheel magneto holding tool                  |
| 5) New type exhaust ring nut wrench               |
| 6) Mitsubishi armature removing tool (new type)   |

In addition, an electric-tester, tachometer (engine rpm meter), hydrometer, etc. will be furnished.

Fig. 1-4-2

### 3. Others



- |                        |                      |
|------------------------|----------------------|
| 1) Grease              | 5) Overhauling stand |
| 2) Autolube oil        | 6) Parts tray        |
| 3) YAMAHA bond (No. 5) | 7) Oil can           |
| 4) Rags                | 8) Oil drain pan     |

Fig. 1-4-3

The use of a wooden box as shown in the photo above will facilitate engine disassembly and servicing. Expendable parts (such as gaskets) and replacement parts must also be on hand.

## Chapter 2. YAMAHA AUTOLUBE

### 2-1 What is YAMAHA Auto1ube?

Conventional 2-cycle engines are lubricated by motor oil premixed in gasoline, but YAMAHA Autolube completely outdates this conventional mixed fuel lubrication. The Autolube system uses a separate oil tank to lubricate the engine with an oil pump which automatically regulates the volume of oil.

The Autolube is of an automatic, separate, lubricating system.

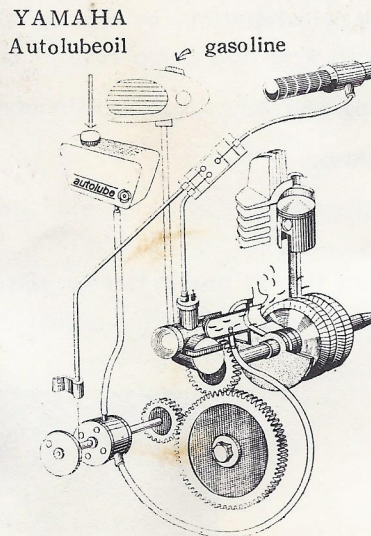


Fig. 2-1-1  
YAMAHA Autolube

### 2-2 Features of YAMAHA Autolube

- a. The oil pump is driven by the engine through a reduction gear, and connected to the carburetor slide cables which are controlled by the accelerator grip.
  - b. The oil pump automatically regulates the volume of lubricating oil according to both engine speed and the throttle opening; pumping the proper amount of oil for engine lubrication under all operating condition.
  - c. This "automatic, separate lubrication" not only eliminates the disadvantages of the pre-mixing system, but it furthers the potential efficiency, performance and durability of our 2-cycle engines.
- ① The Autolube feeds optimum lubrication for any operating condition:
    - .....economizes fuel consumption.
    - .....reduces carbon accumulation.
    - .....reduces exhaust smoke.
    - .....improves lubrication efficiency.
  - ② The Autolube simplifies fuel supply.
    - .....requires gasoline supply only.
    - .....lessens fuel contamination.
  - ③ The Autolube is highly dependable in lubrication.
    - .....eliminates special care as to oil quality and fuel-oil pre-mixing ratio.

## 2-3 Handling the Oil Pump

The oil pump is a precision-machined assembly. Make no attempt to disassemble it. When you remove the oil pump from the engine, protect it from dust, dirt, etc. After reinstallation, be sure to bleed and set the pump correctly. Proper handling will keep the pump free of trouble.

### 1. Checking and Adjusting the Minimum Pump Stroke.

#### a. Checking

- ① Fully close the accelerator grip. (In this case, pump stroke will be at minimum.)
- ② Turn the oil pump starter plate in the direction of the arrow shown on the plate until the adjust plate is pushed all of the way out.

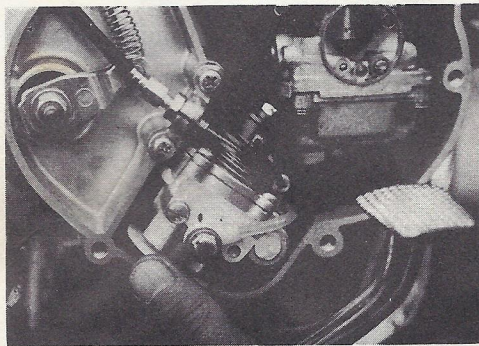


Fig. 2-3-1

- ③ Insert a 0.15 mm feeler gauge into the gap. If the gap allows the gauge to enter, the pump stroke is normal. If not, the stroke is insufficient. (Adjustment is required.)

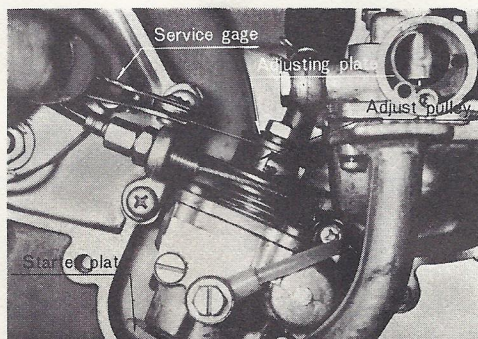


Fig. 2-3-2

**b. Adjusting methods.**

- ① Remove the adjust plate, and place a 0.1 mm adjusting shim.

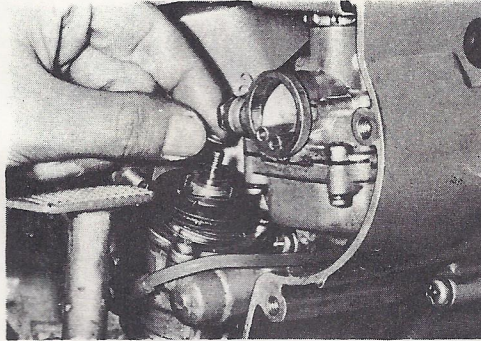


Fig. 2-3-3

- ② Reinstall the adjust plate, and check a minimum stroke with the adjusting shim in position.  
If the gap allows a 0.25 mm feeler gauge to enter but not a 0.35 mm, stroke is adjusted correctly.

Adjusting limit.....0.15 mm or less

Minimum stroke. (0.06 in)

Adjusting limit.....0.25 to 0.35 mm (0.1 in to 0.14 in)

**2. Checking and Adjusting the Setting of the Pump and Carburetor.**

After checking and adjustment of the minimum stroke, set the carburetor and the pump in the following manner.

**a. Checking**

- ① Adjust the idle adjustment screw in the carburetor, and then the free play of the throttle cable (B) to 1-2mm by adjusting the cable.

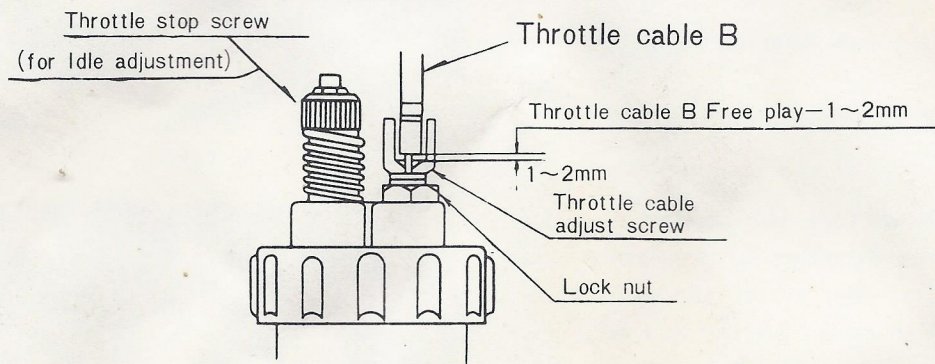


Fig. 2-3-4

- ② Open the accelerator grip slowly until the top of the stamped mark (circle) on the throttle valve comes in contact with the top of the main bore (the opening of the carburetor is  $\frac{1}{2}$ ), and check to see if the pump guide pin is aligned with the mark on the adjusting pulley.

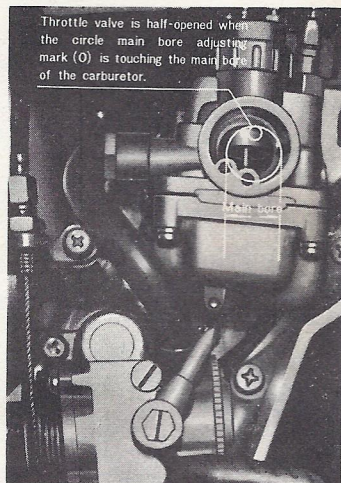


Fig. 2-3-5

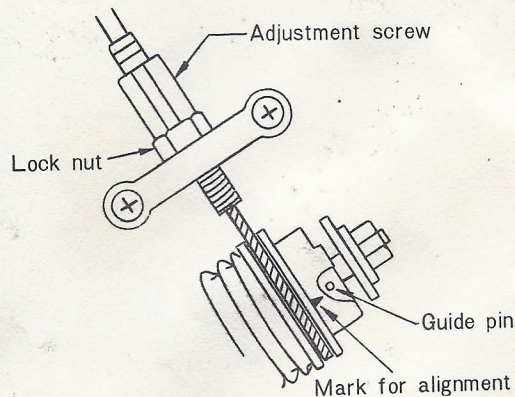


Fig. 2-3-6

### b. Adjustment

- ① If the mark on the pump guide pin is not aligned with that of the adjusting pulley, loosen the lock nut shown in Fig. 2-3-6.

To align both marks, turn the adjustment screw and pull up or slacken the pump cable.

After adjustment, tighten the lock nut fully.

### 3. Bleeding

When the oil pump is dismantled or when the Autolube oil line is disconnected, air enters the pump case, causing an irregular flow of oil from air bubbles in the delivery line.

The pump must be bled.

- ① Remove the bleeder bolt.

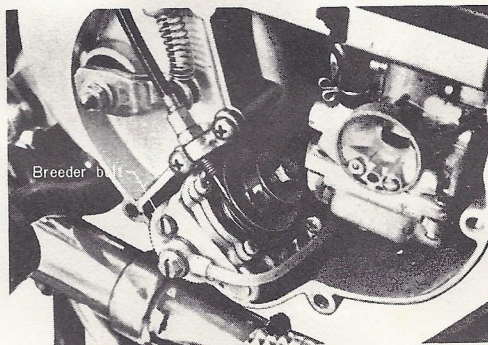


Fig. 2-3-7

- ② Next turn the starter plate in the direction of the arrow, to force out all of the air. Then tighten the bleeder bolt securely. For this bleeding, fully open the accelerator grip and rotate the starter plate, so that stroke will become greater and air may be expelled more quickly.

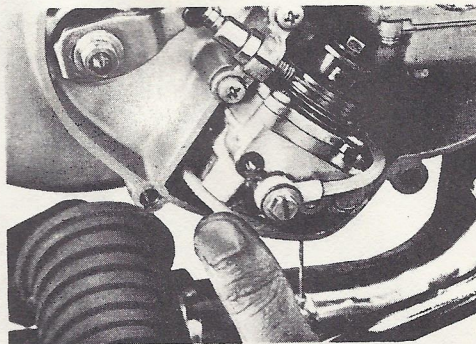


Fig. 2-3-8

## Chapter 3. ENGINE

The engine should be disassembled in an orderly sequence for easy and efficient work. The following procedures are a mere example.

○ Caution on engine disassembly

- (1) Before removing the engine, clean the dirt and dust from the cylinder heads, cylinders and crankcase and keep these parts clean during disassembly.
- (2) Always use clean tools and use them correctly to avoid damaging parts.
- (3) Keep disassembled parts on the parts trays in separate groups.

### 3-1 Dismounting the Engine

1. Drain the transmission oil after running the engine for 1 to 2 minutes. (Fig. 3-1-1)

※The transmission oil can be quickly drained after a 1-2 minute running of the engine.

※Volume of oil: 650 cc  
(YAMAHA gear oil)

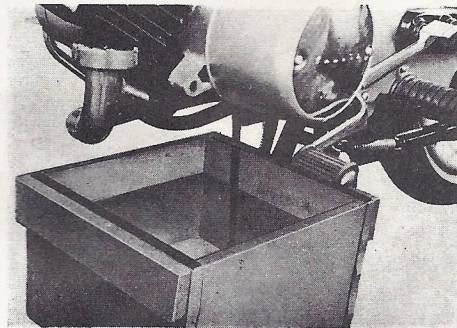


Fig. 3-1-1

2. Remove the exhaust pipe and muffler. (Fig. 3-1-2 and 3)

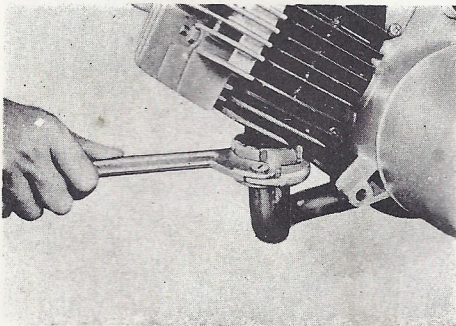


Fig. 3-1-2

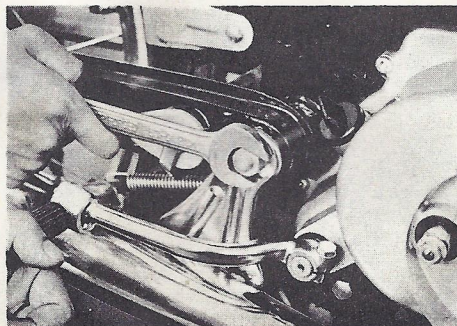


Fig. 3-1-3



3. Remove the shift lever.

(Fig. 3-1-4)

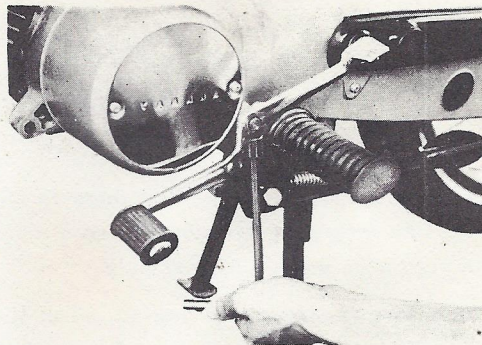


Fig. 3-1-4

4. Remove the crankcase cover (L).

(Fig. 3-1-5)

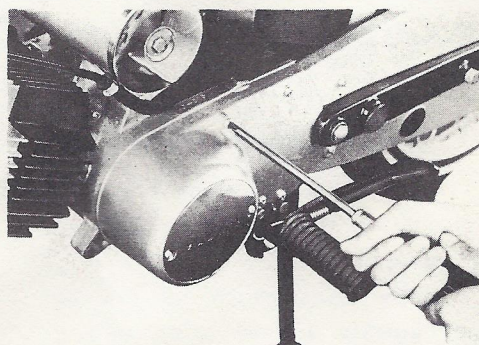


Fig. 3-1-5

5. Remove the generator wiring.

(Fig. 3-1-6)

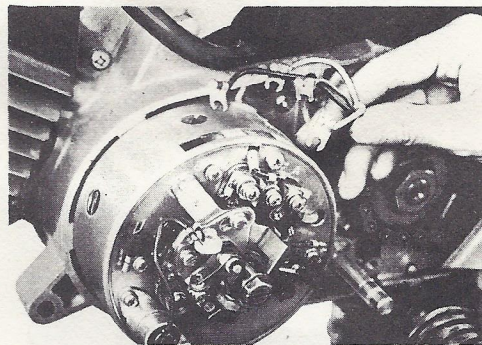


Fig. 3-1-6

6. Remove the yoke ass'y mounting bolt and the yoke. (Fig. 3-1-7)

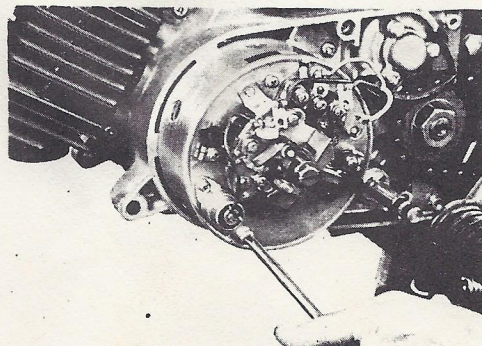


Fig. 3-1-7

7. Remove the armature through bolt, and pull out the breaker cam.  
(Figs. 3-1-8 and 9)

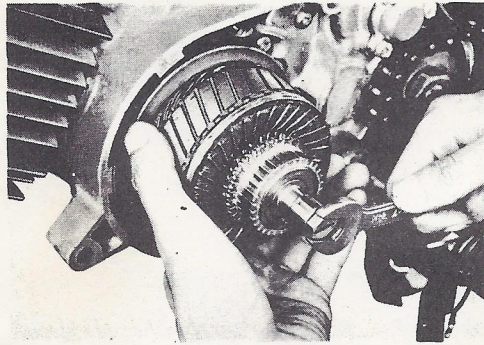


Fig. 3-1-8

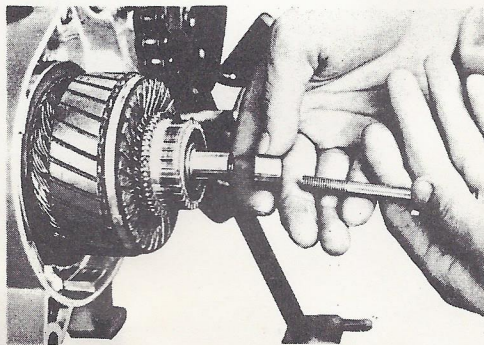


Fig. 3-1-9

8. Remove the armature by using the special armature puller bolt.  
(Fig. 3-1-10)

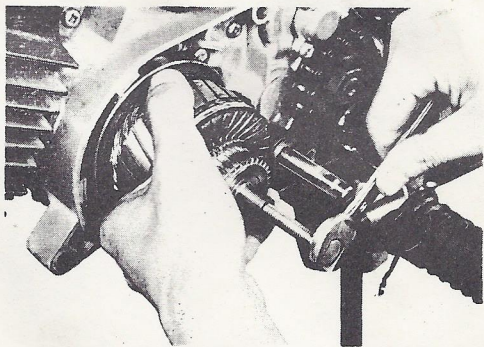


Fig. 3-1-10

9. Pry out the woodruff key with a slot-head screw driver.  
(Fig. 3-1-11)

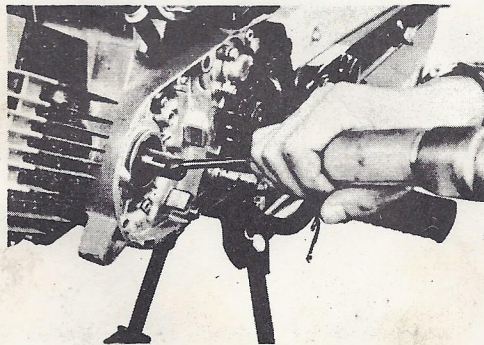


Fig. 3-1-11

10. Disconnect the chain case and remove the chain. (Fig. 3-1-12)

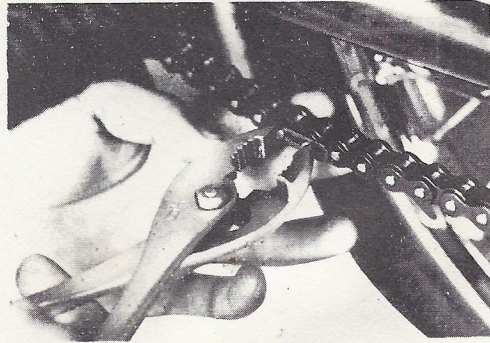


Fig. 3-1-12

11. Remove the carburetor cover.  
(Fig. 3-1-13)

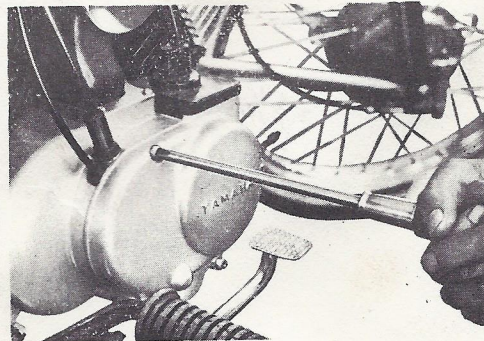


Fig. 3-1-13

12. Remove the carburetor.  
(Fig. 3-1-14)

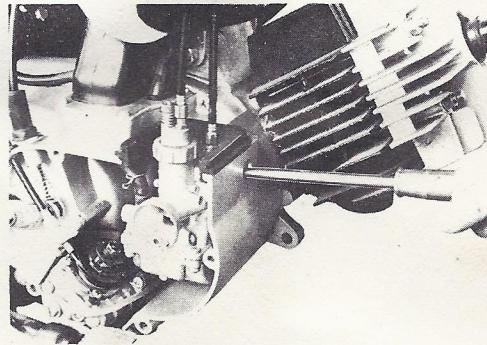


Fig. 3-1-14

13. Disconnect the oil line. (Plug the line to prevent oil from flowing out of the line.)

(Fig. 3-1-15)

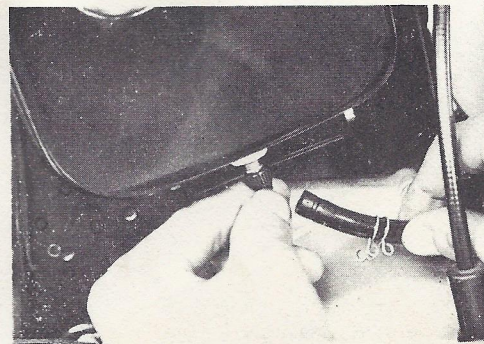


Fig. 3-1-15

14. Disconnect the pump cable.  
(Fig. 3-1-16)

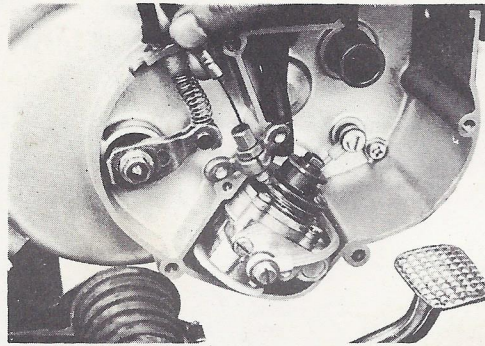


Fig. 3-1-16

15. Disconnect the clutch cable.  
(Fig. 3-1-17)

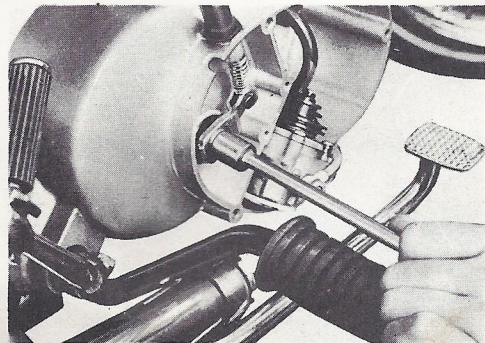


Fig. 3-1-17

16. Remove the air cleaner.  
(Fig. 3-1-18)

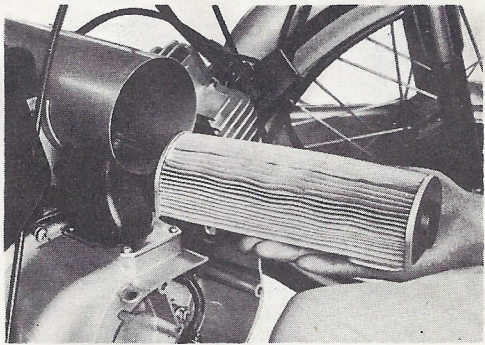


Fig. 3-1-18

17. Pull out the two mounting bolts on the upper part of the engine, and lower the engine.  
(Fig. 3-1-19 and 20)



Fig. 3-1-19

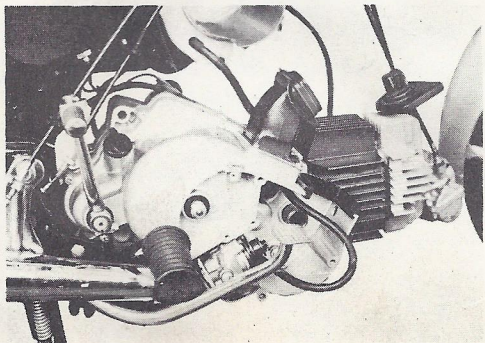


Fig. 3-1-20

18. Remove the connector from the neutral light switch.

(Fig. 3-1-21)

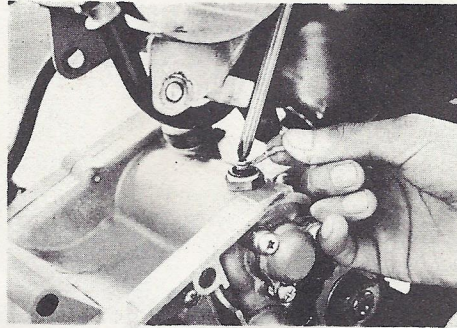


Fig. 3-1-21

19. Pull out the foot rest mounting bolt and remove the engine from the body.  
(Figs. 3-1-22 and 23)

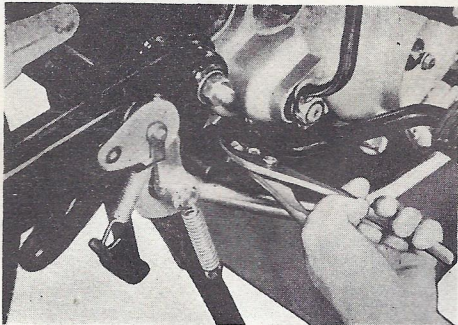


Fig. 3-1-22

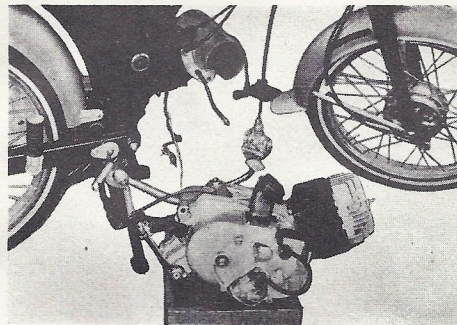


Fig. 3-1-23

### 3-2 Cylinder Head

#### 1. Removal and Replacement

Remove the nuts on the four cylinder stud bolts and cylinder head packings. Reverse the procedure to replace the heads. (Fig. 3-2-1)

Use a new cylinder head gasket if the old one is damaged or defective.

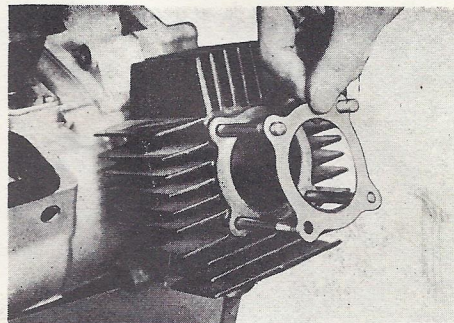


Fig. 3-2-1

## 2. Removing Carbon

Carbon accumulation inside the cylinder head (in the combustion chamber dome) tends to increase the compression ratio, causing pre-ignition, overheating, and increased fuel consumption. Scrape the cylinder heads clean. (Fig. 3-2-2)

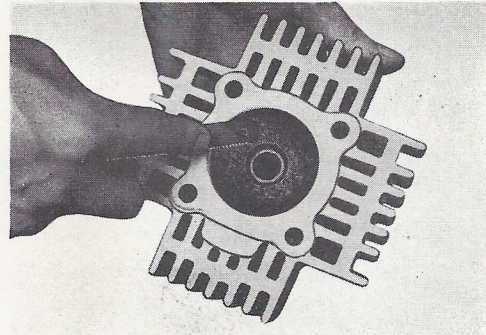


Fig. 3-2-2

## 3-3 Cylinder

### 1. Checking Cylinder Wear

Measure the cylinder's bore diameter at four different depths with a bore-measuring micrometer or a cylinder gauge placed parallel with, then at right angles to the crankshaft, for, 8 measurements in each cylinder. If the difference between the maximum and minimum diameters measured exceeds 0.05mm, rebores and hone the cylinder. (Figs. 3-3-1 and 2)

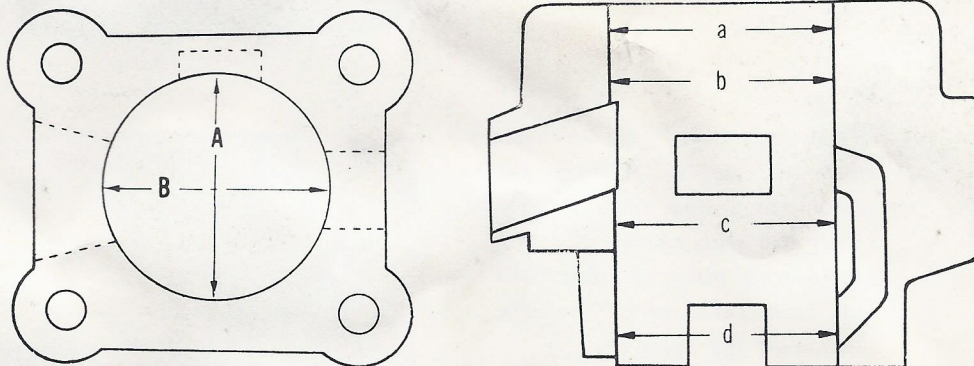


Fig. 3-3-1 Positions in the bore to be measured

### 2. Maximum Clearance between Piston and Cylinder.

The minimum clearance between the piston and the cylinder should be 0.025 to 0.030 mm.

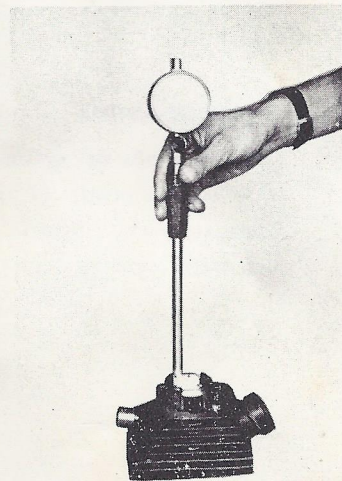


Fig. 3-3-2

### Cylinder Reconditioning

The cylinder should be reconditioned in the following manner.

- a. Pistons are available in 0.25mm and 0.50mm oversizes.
- b. Cylinder should be rebored and honed to the diameter of the oversize piston.
- c. The error between maximum and minimum bore diameters after honing should be no more than 0.01 mm.

### 3. Installing Cylinders

- a. Always use new cylinder gaskets when overhauling the engine.

(Fig. 3-3-3)

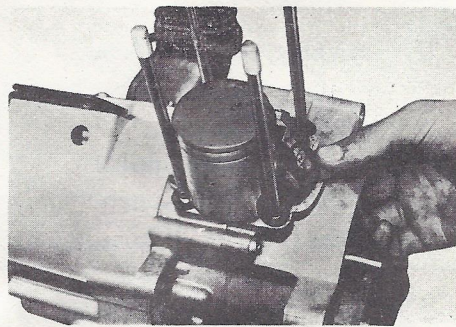


Fig. 3-3-3

- b. When installing the cylinder over the piston, squeeze the piston rings into their grooves (their end gaps should close on the locating pins), so they will not catch and break on the bottom of the cylinder.

(Fig. 3-3-4)

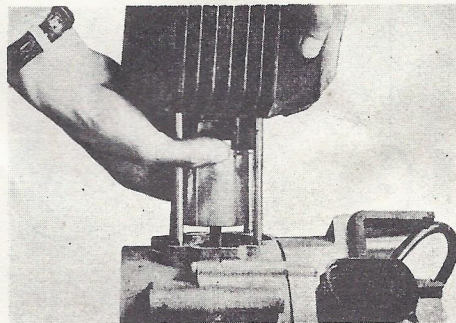


Fig. 3-3-4

### 4. Removing Carbon

Carbon tends to accumulate heavily on the walls of the cylinder exhaust ports. Scrape the carbon off with a screw driver.

(Fig. 3-3-5)



Fig. 3-3-5

### 3-4 Piston Pin

#### 1. Driving Out the Piston Pin.

Remove the clip at one end of the piston pin, with needle nose pliers, and push the pin out from the other side of the piston with a finger or a screw driver.

(Fig. 3-4-1)

Before removing the piston pin clips, cover the crankcase with a clean rag so as not to drop the clips into the crankcase.



Fig. 3-4-1

#### 2. Piston-to-Piston Pin Fit.

The piston pin should fit snugly in its bore so that it drags a little when it is pushed with a finger. If the pin is loose, the pin and/or the piston should be replaced. A pin with step-wear should also be replaced. (In this case, the needle bearing should also be replaced).

### 3-5 Piston Ring

#### 1. Removing Rings

Put both thumbs at each end of the piston ring and pull the piston ring ends apart, and slide it out of the groove and up off the piston on the other side of the ring ends. (Figs. 3-5-1 and 2)



Fig. 3-5-1



Fig. 3-5-2

#### 2. Fitting the Rings

First fit the No. 2 (hardened) ring over the piston, and then the No. 1 (chrome) ring, and align their end gaps with the locating pin in each ring groove. (Fig. 3-5-3)

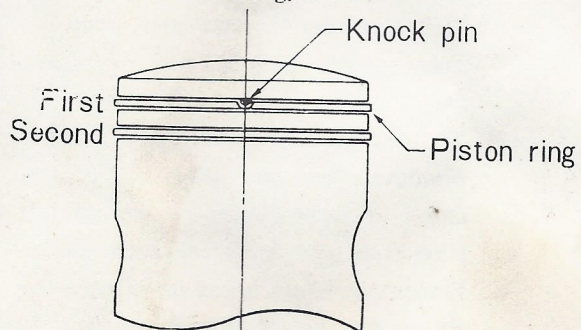


Fig. 3-5-3



### 3. Checking Piston Rings

- a. Measuring piston ring wear  
Put each ring into the cylinder so that the ring is parallel with the cylinder bottom, and measure the end gap with a feeler gauge. (Fig. 3-5-4)

Each gap should be between 0.15 and 0.35mm for both No. 1 and No. 2 rings. Measure this gap with a feeler gauge.

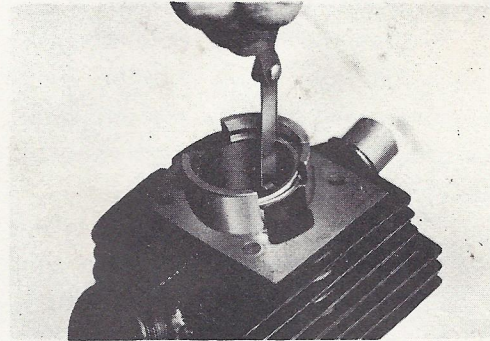


Fig. 3-5-4

- b. Removing carbon  
Carbon on the piston rings and in the ring grooves will make the rings stick to the piston. Remove the rings from the piston, and clean the carbon from the rings and grooves with a piece of broken ring as shown. (Fig. 3-5-5)  
No. 1 ring (upper) ... 0.04 to 0.08mm  
No. 2 ring (lower) ... 0.03 to 0.07mm

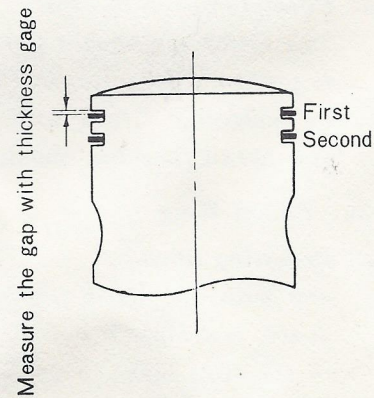


Fig. 3-5-5

### 3-6 Piston

#### 1. Checking and Reconditioning the Piston

- a. Measuring piston clearance  
Piston clearance mentioned here is defined as the difference between the minimum cylinder bore diameter and the maximum outer diameter of the piston. As described in "3-3 Cylinder" (19p) piston clearance should be 0.025 mm to 0.030 mm.

To determine maximum piston diameter, measure with a micrometer at right angles to the skirt 10mm from its bottom edge. (Fig. 3-6-1)

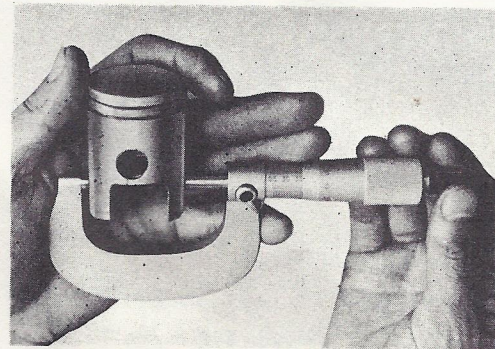


Fig. 3-6-1

- b. Checking and repairing scratches  
Pistons showing signs of seizure are noisy and keep the engine from developing full power. If a piston that has seized is used again without any correction, another seizure will develop at the same point, resulting in damage to

the cylinder. Lightly sand these seizure "high spots" on the piston in a cross hatch pattern with #400 sandpaper. (Figs. 3-6-2 and 3)

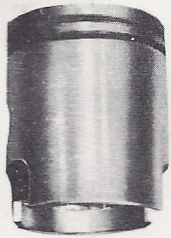


Fig. 3-6-2

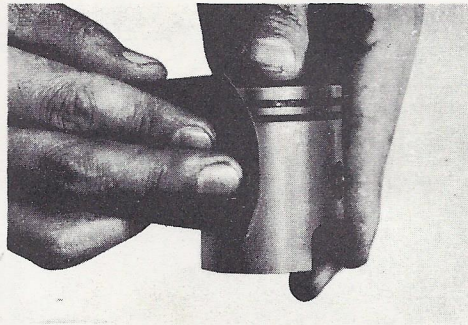


Fig. 3-6-3

c. Removing carbon

Carbon accumulated on the piston head should be removed with a driver or a saw blade. (Fig. 3-6-4)

Carbon accumulation on the piston ring groove makes the ring stick to the piston. Remove the carbon accumulation. (Fig. 3-6-5)

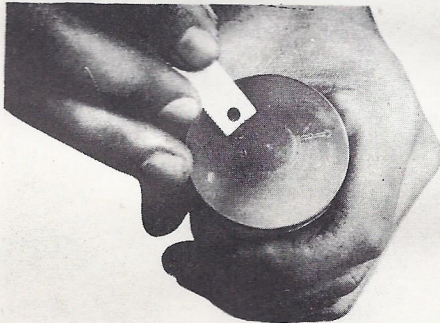


Fig. 3-6-4

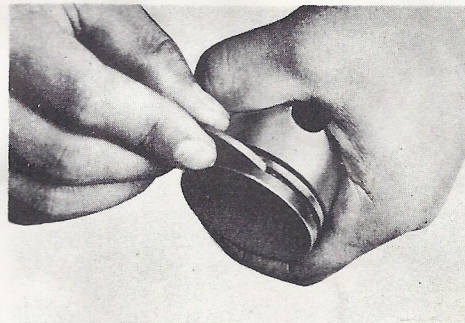


Fig. 3-6-5

2. Installing Piston in its Proper Direction

Install each piston with the arrow marked on the head pointing downward. (Fig. 3-6-6)

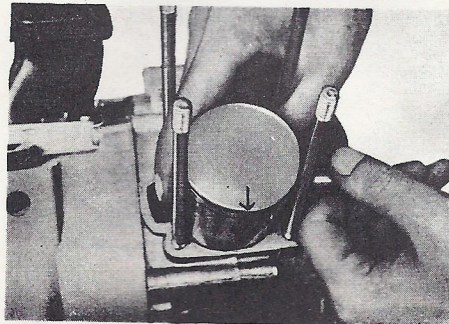


Fig. 3-6-6

### 3-7 Crankcase Cover (R)

#### 1. Removing

- a. Remove the starter crank clamping bolt, and remove the crank.  
(Fig. 3-7-1)

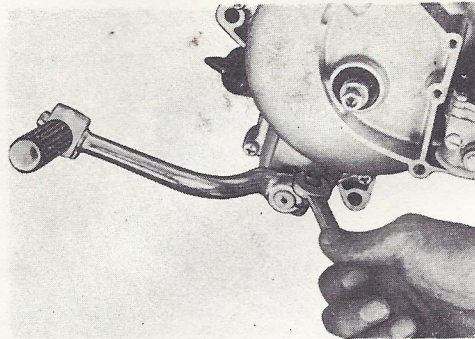


Fig. 3-7-1

- b. Remove the banjo bolt from the pump delivery line valve cover.  
(Fig. 3-7-2)  
(The crankcase cover can be removed without removing the oil pump.)

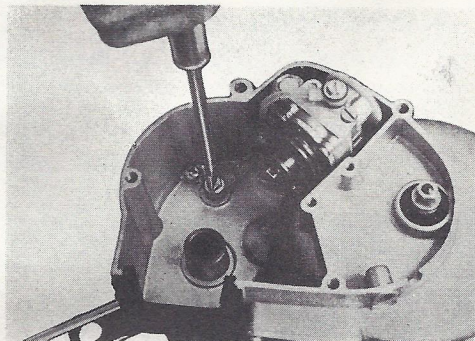


Fig. 3-7-2

- c. Remove the pan-head screws from the crankcase cover (R), and take off the cover. (Figs. 3-7-3 and 4)  
(The cover can be removed without removing the oil pump.)

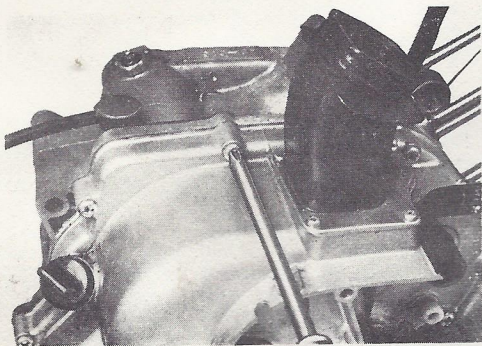


Fig. 3-7-3

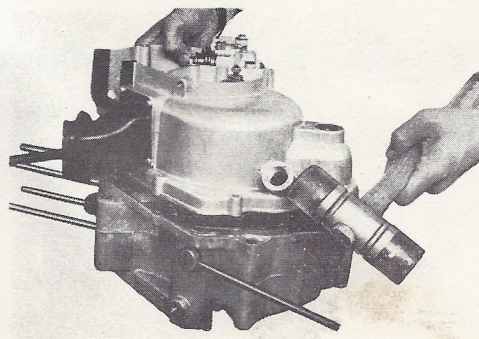


Fig. 3-7-4

- d. Replace the crankcase cover gasket, if damaged. (Fig. 3-7-5)

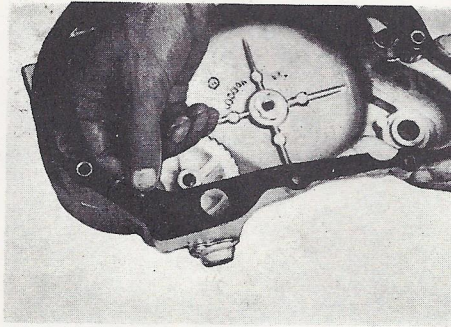


Fig. 3-7-5

## 2. Reinstallation

Apply the crankcase (R) sealing surface with gasket paste (YAMAHA BOND No.5); and lay the crankcase cover gasket upon it, and then install the crankcase cover.

(Fig. 3-7-6)

Be sure to apply YAMAHA BOND No.5; to prevent oil leakage.

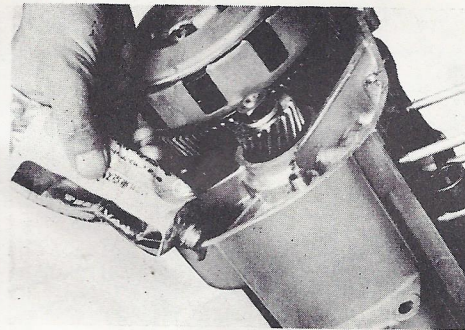


Fig. 3-7-6

## 3-8 Clutch

The clutch is a wet, multi-disc type, consisting of four molded cork friction plates and five clutch plates in a housing mounted on the transmission main shaft.

The housing is integrated with the large reduction gear, which is driven by the small reduction gear (primary drive gear).

The primary drive gear and the primary driven gear have 19 and 74 teeth, respectively, so the primary drive reduction ratio is 3.894:1. ( $74/19=3.894$ )

**Diagram of Clutch Construction (YL2)**

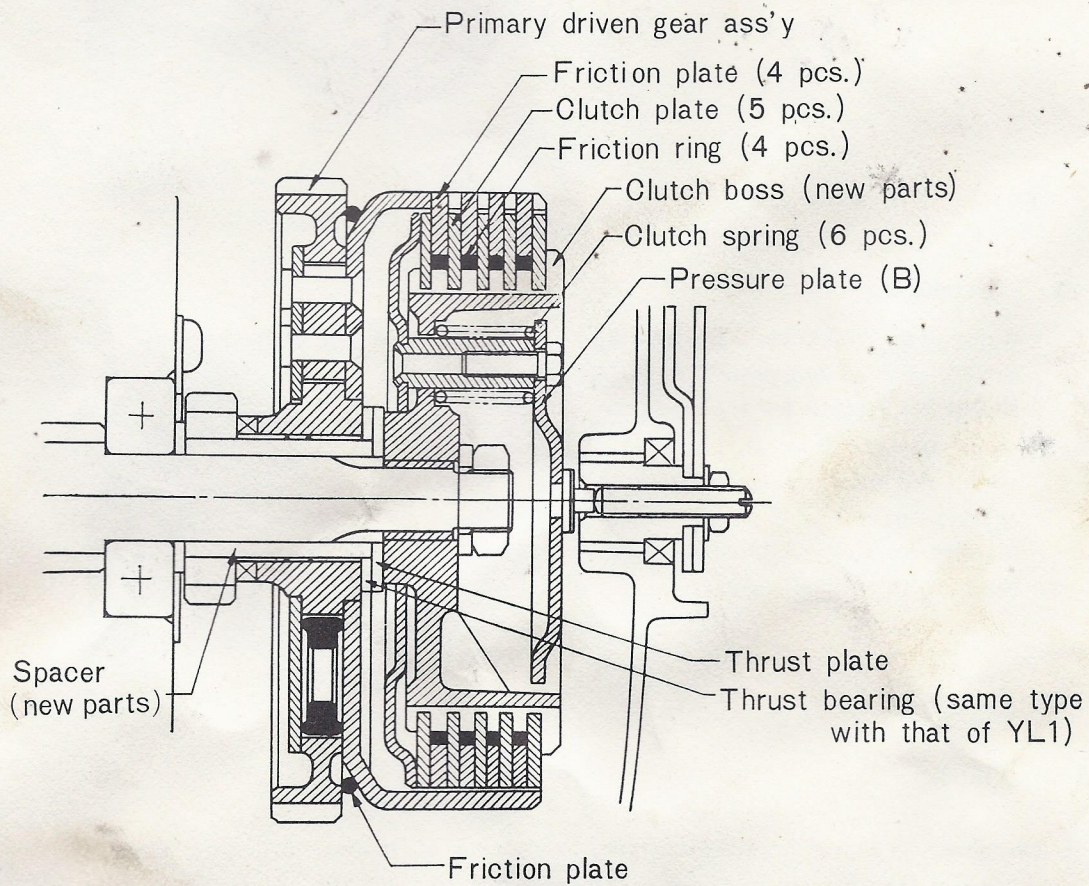


Fig.3-8-1

### I. Removing Pressure Plate

Remove the five clutch spring screws, and remove the pressure plate (B). (Figs. 3-8-2 and 3)

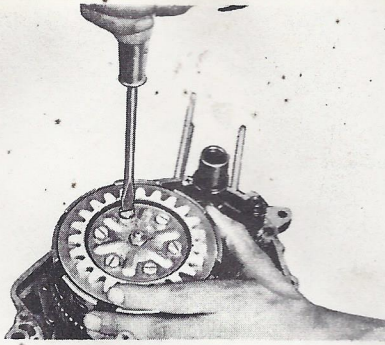


Fig. 3-8-2

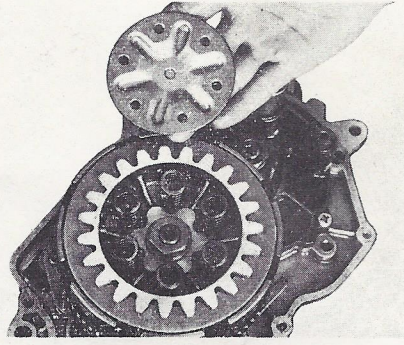


Fig. 3-8-3

### 2. Removing Clutch Boss

Fit the clutch holding tool on the clutch boss, and remove the clutch boss by loosening the lock nut.

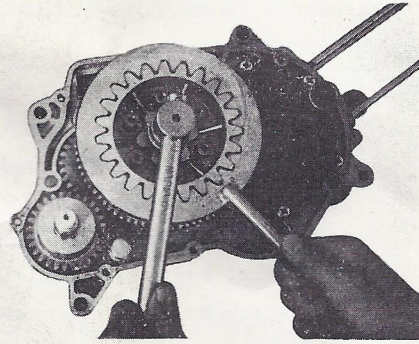


Fig. 3-8-4

### 3. Checking Clutch Springs

Measure the free length of each clutch spring, and replace any spring more than 2 mm shorter than the standard free length. (Figs. 3-8-5 and 6)

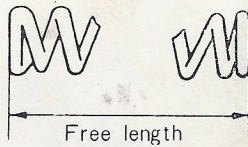


Fig. 3-8-5

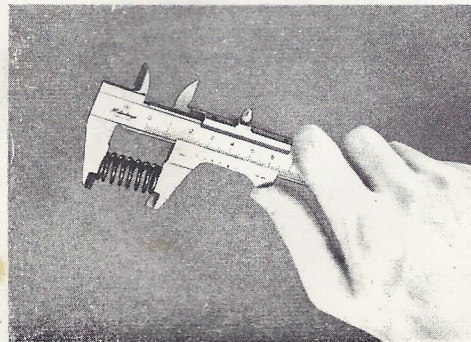


Fig. 3-8-6

#### 4. Checking Friction Plate

Friction plates are designed to wear, so plates worn more than 0.3 mm under standard thickness or showing uneven contact with the clutch plates should be replaced. (Figs. 3-8-7 and 8)

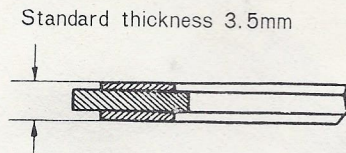


Fig. 3-8-7

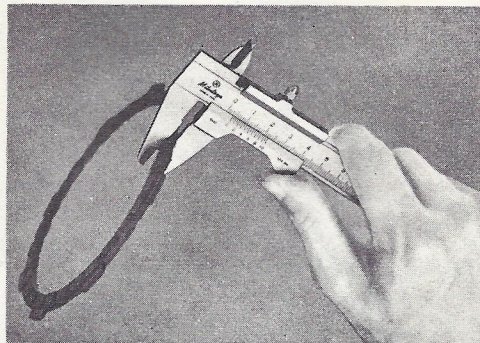


Fig. 3-8-8

#### 5. Clutch Housing Ass'y (integrated with the primary driven gear)

A rubber thrust cushion O-ring is fitted in the joint groove around the clutch housing-driven gear unit to eliminate transfer of gear noise at low speed revolution.

##### Checking

Insert the primary gear spacer in the primary driven gear boss, and check it for radial play and scratches that could cause noise. If any scratch is found, smooth it out with an oil stone or fine grain sandpaper, because such a scratch will impair clutch action. If the play is excessive, replace the spacer because it will cause excessive noise. (Fig. 3-8-9)

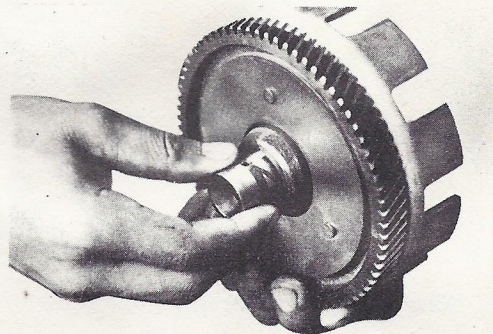


Fig. 3-8-9

#### 6. Checking Primary Gear Spacer

Place the primary gear spacer around the main axle and again check it for radial play. If play exists, replace the spacer. (Fig. 3-8-10)

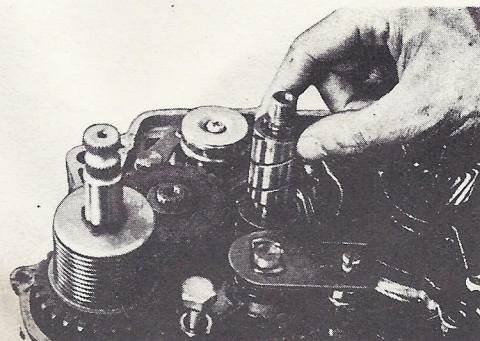


Fig. 3-8-10

### 7. Fitting Separator Rings

The separator rings are installed between each clutch-friction plate pair (starting from the outside) to insure even engagement and complete disengagement of the plates. When fitting separator rings, be sure they are flat and not twisted.

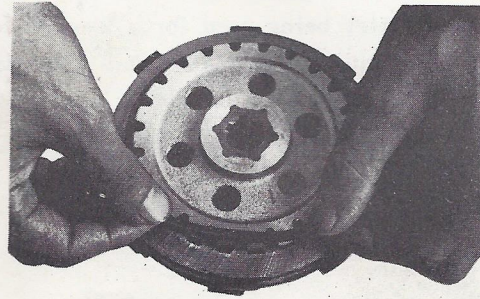


Fig. 3-8-12

### 8. Caution on Reassembling the Clutch

On both ends of the primary gear spacer are thrust washers and thrust bearings. If these washers and bearings are incorrectly installed, or omitted, the clutch boss will directly contact with the primary driven gear, impairing clutch actions. (Fig. 3-8-12)

Before fitting the clutch boss, install the clutch plate, friction plate, etc.

For this installation, the alignment mark (painted) should be utilized.

The thrust bearing assembly fits on the primary gear spacer, but it may slip out of place when you install the clutch boss, so apply grease to both surfaces of the bearing to make it stick to the spacer.

### 9. Clutch Adjustment

- a. Adjusting the push screw  
Remove the cab. cover and loosen the push screw lock nut.  
Turn the screw until it touches the clutch push cap, then back the adjustment off  $\frac{1}{4}$  turn.  
Finally, fasten the lock nut.  
(Fig. 3-8-13)

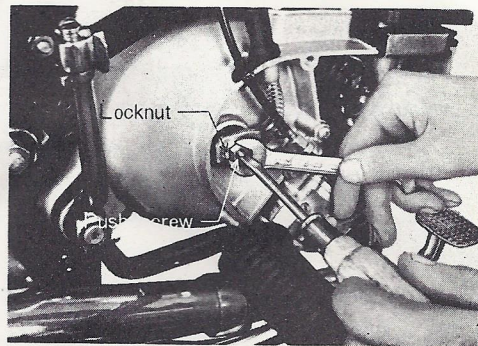


Fig. 3-8-13



b. Adjusting clutch cable tension

The clutch cable becomes slack after being used for a long time. Adjust the cable so that the play of the clutch handle is from 2 to 3 mm. (Fig. 3-8-14)

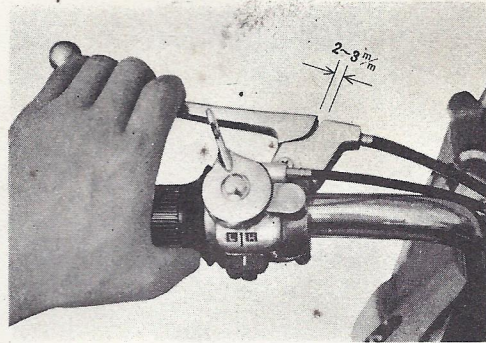


Fig. 3-8-14

c. Adjustment (Fig. 3-8-15)

- 1) Loosen the lock nut (a) fitted on the crankcase cover.
- 2) Loosen the adjusting screw to reduce lever play, and tighten it to increase play.
- 3) After adjustment, tighten the lock nut.

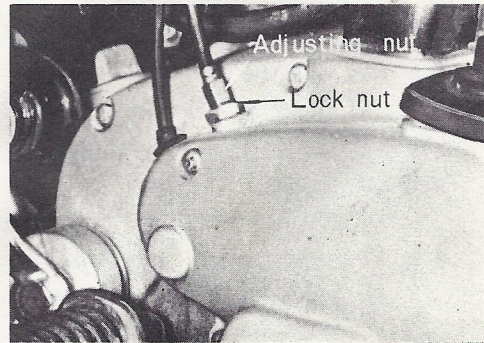


Fig. 3-8-15

### 3-9 Primary Drive Gear

#### Removing

Feed a rolled-up rag between the teeth of the primary drive gear and primary driven gear to lock them, when loosening the primary drive gear lock nut. (Fig. 3-9-1)

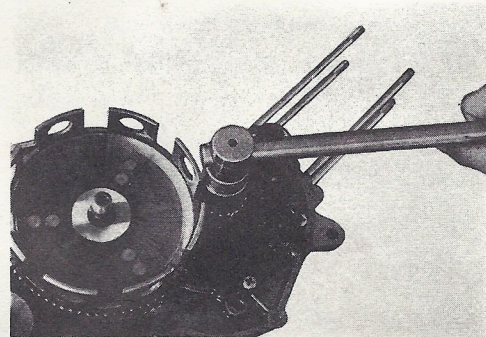


Fig. 3-9-1

3-10 Kick Strater Assembly

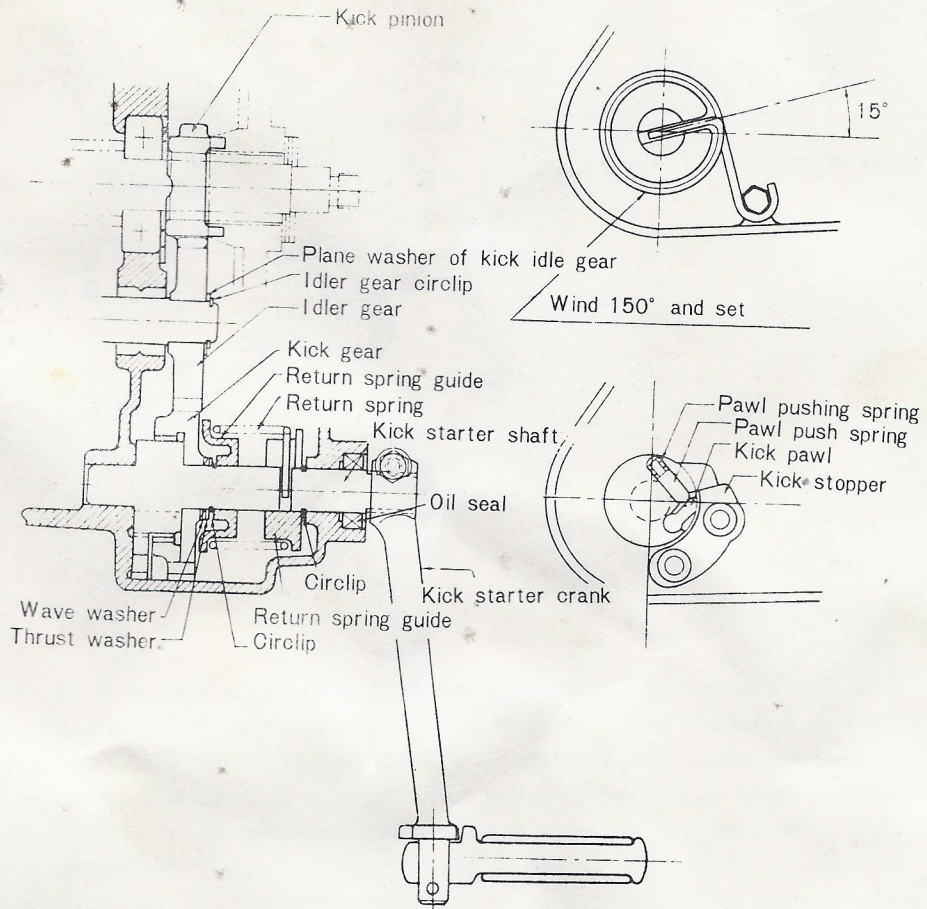


Fig. 3-10-1

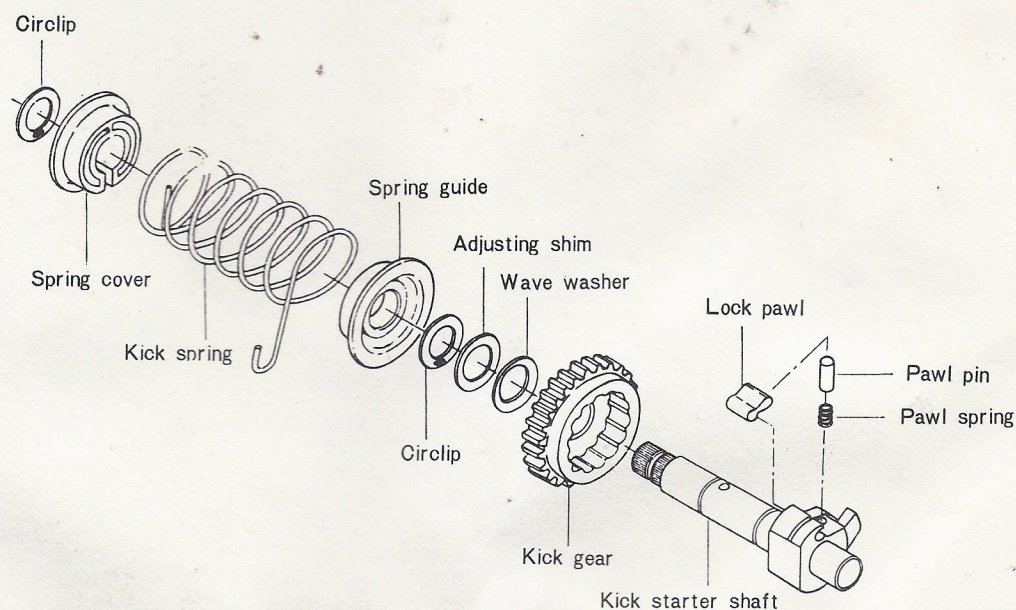


Fig. 3-10-2

**Operation:**

The YL-2 one-touch kick starter system is identical with that of YL-1 allowing the rider to kick-start his motorcycle by simply squeezing the clutch lever and then kicking the starter crank without shifting the transmission back to neutral.

Kicking down on the starter crank turns the kick gear mounted on the kick starter shaft. The kick gear turns the idler gear, free mounted on the drive shaft, and the idler gear turns the kick pinion. The kick pinion engages the dogs on the primary driven gear, so the driven gear turns the primary drive gear and starts the engine.

When the engine is running, and the kick starter ratchet mechanism has returned the starter shaft back to its normal position, the kick pawl is held away from the inner face of the kick gear by the kick stopper.

All parts of the kick starter are identical with those of YL-1

## 1. Removing

- a. Remove the circlip and spring cover. (Fig. 3-10-3)

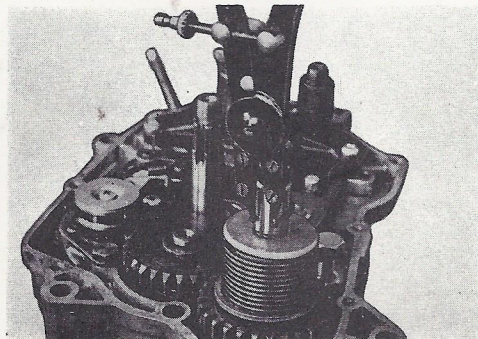


Fig. 3-10-3

- b. Detach the spring from the kick shaft, and remove the spring. (Fig. 3-10-4)

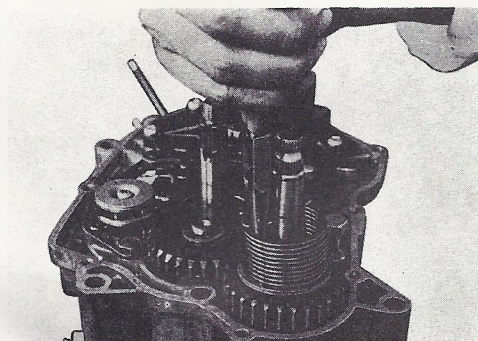


Fig. 3-10-4

- c. Remove the kick starter mechanism in the manner shown in (Fig. 3-10-5.)

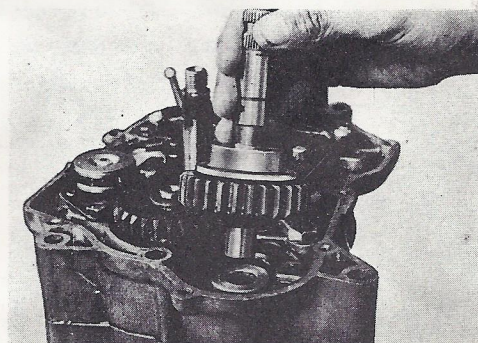


Fig. 3-10-5

## 2. Checking

- a. Kick gear

The inner surface of the kick gear is "ribbed" like an internal gear. If these internal "teeth" are worn, chipped or otherwise deformed, the kick pawl will slip during each starting cycle. A kick gear with excessively worn "teeth" should be replaced. (Fig. 3-10-6)

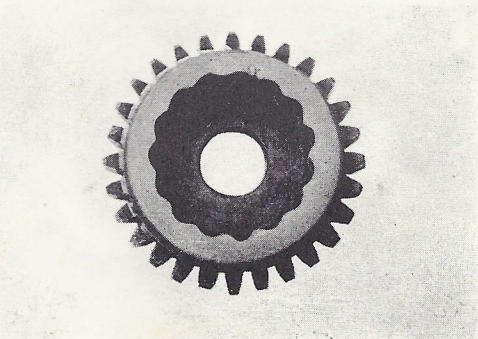


Fig. 3-10-6

b. Kick pawl

A kick pawl with a worn tip also causes slippage, and should be replaced. (Fig. 3-10-7)

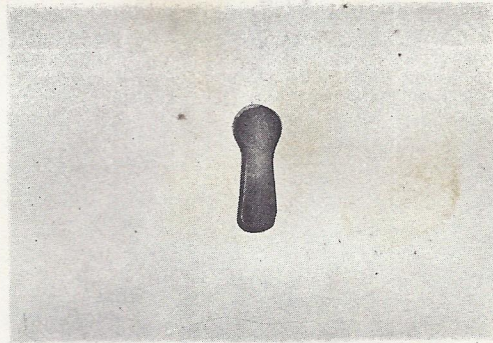


Fig. 3-10-7

c. Pawl push pin and spring

Foreign material wedged between the kick starter shaft pin hole and the pawl push pin or between the pawl push pin and its spring will cause kick starter failure and/or slippage. To check foreign material, put the spring and pawl push pin into the kick starter shaft pin hole, and depress the pawl pin with your finger to check its movement. If foreign material is present, you will feel the pin bind or drag against the wall of its hole. (Fig. 3-10-8)

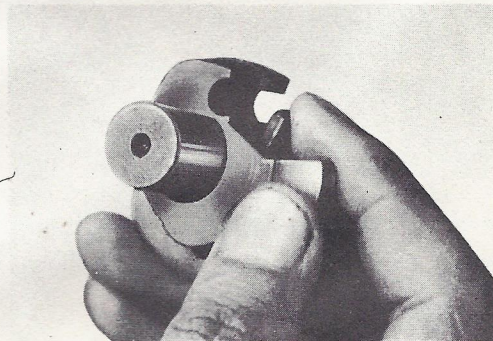


Fig. 3-10-8

3. Removing Kick Idle Gear

To remove the kick idle gear, pull off the clip with circlip pliers. (Fig. 3-10-9)

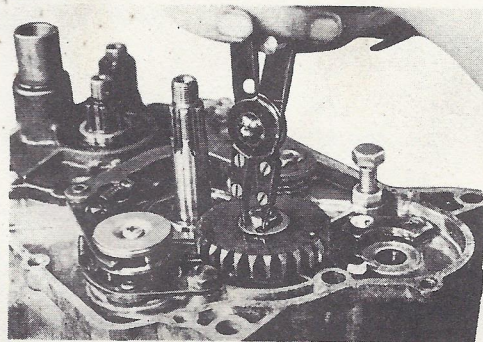


Fig. 3-10-9

### 3-11 Shifting Mechanism

#### Construction and Operation

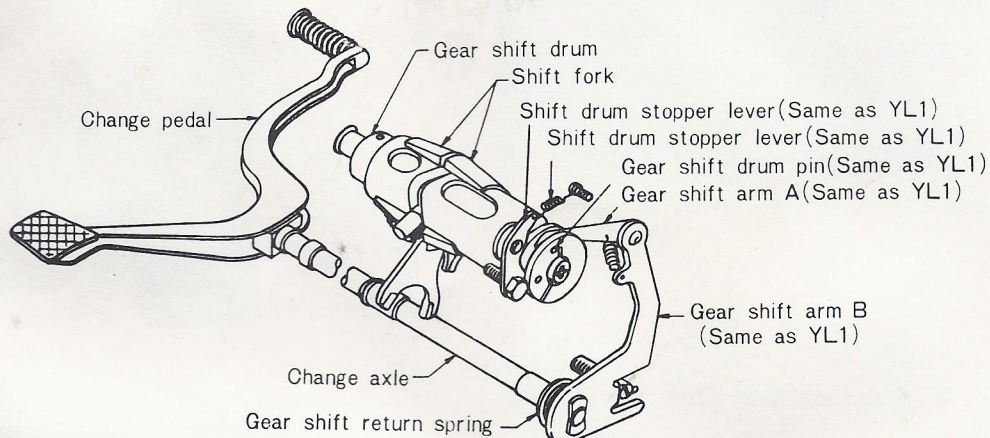


Fig.3-11-1 Shifting Mechanism

When the gear shift lever is depressed, the gear shift moves the gear shift arm A back and forth, and at the same time, the gear shift arm A pushes the gear shift drum pins mounted on the gear shift drum, thus turning the gear shift drum.

The gear shift drum is equipped with five gear shift drum pins, and designed to make a  $\frac{1}{5}$  turn each time the gear shift lever is depressed. In other words, one full turn of the drum will shift the transmission through five stages; neutral, low, second, third and top. The gear shift pins are held by the disc so that the stopper plate may secure each position of the five stages.

The outer surface of the gear shift drum is provided with a groove, along which the shift forks travel back and forth, and engage-with each other at each shifting stage.

#### 1. Removing the Gear Shifter Shaft Ass'y

To pull off the A gear shift arm remove the left circlip and washer, and push up the A gear shift arm from the right side of the engine. (Figs. 3-11-2, 3 and 4)

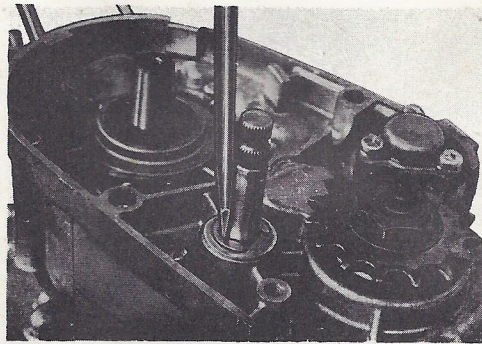


Fig.3-11-2

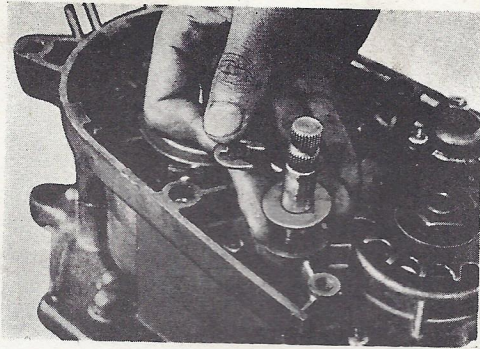


Fig. 3-11-3

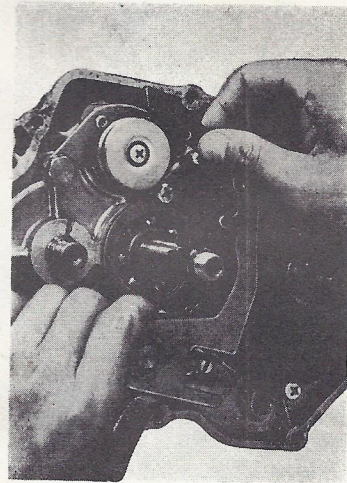


Fig. 3-11-4

## 2. Checking Gear Shift Shaft Parts

- a. Checking the gear shift return spring

Check the gear shift return spring for fatigue or damage. A broken or fatigued gear shift return spring will impair the returning action of the shifting system.

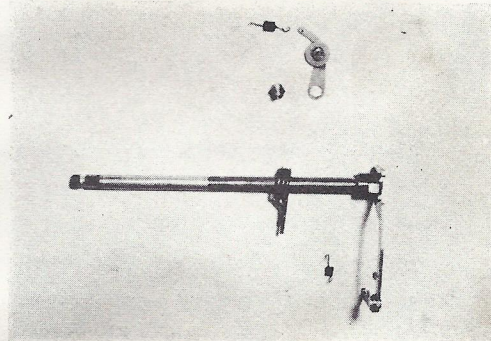


Fig. 3-11-5

- b. A broken or fatigued gear shift arm spring will impair shifting actions.

## 3. Gear Shift Arm

- a. Removing

First remove the mounting bolt, and remove springs one by one.

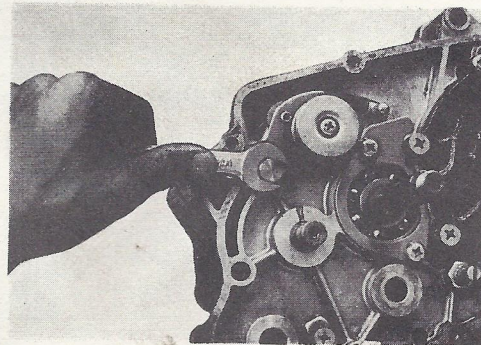


Fig. 3-11-6

- b. Checking the gear shift arm spring

A fatigued or broken gear shift arm spring may let the selector arm jump from one shifter drum pin to another. Check the spring for proper tension and replace it if weak or broken.

## 3-12 Rotary Valve

### 1. Removing

- a. Remove the valve cover mounting bolt and then valve cover. (Fig. 3-12-1)

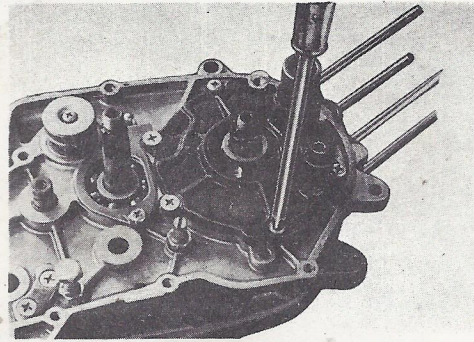


Fig. 3-12-1

- b. Removing the valve knock pin  
As shown in Fig. 3-12-2, push out the valve knock pin from the opposite side, with a nail or wire. Be careful not to damage the crank case surface. (Fig. 3-12-2)

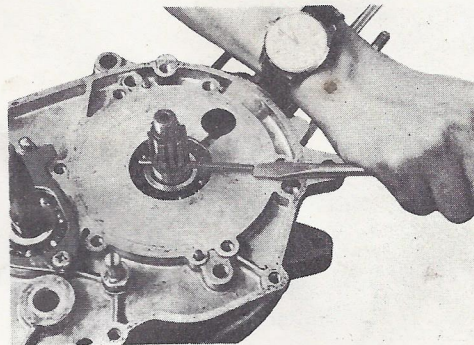


Fig. 3-12-2

### 2. Checking

- a. Valve and valve unit collar  
Fit the valve over the valve unit collar, and check for play. If play is excessive, replace the valve. (Fig. 3-12-3)

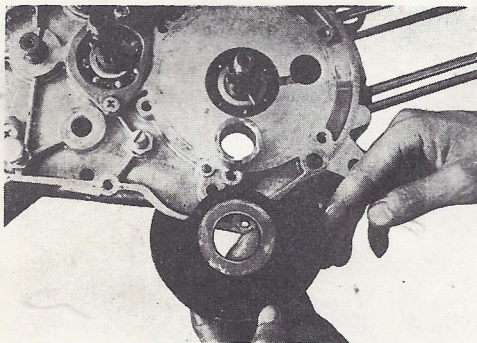


Fig. 3-12-3

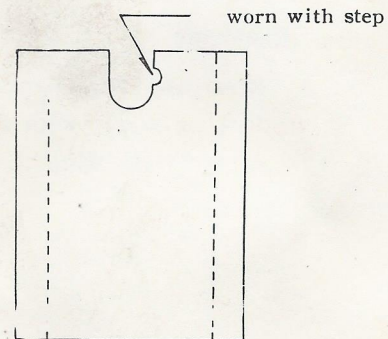


Fig. 3-12-4

In case the valve unit collar is worn with step, replace it, (Fig. 3-12-4)



- b. Valve cover O-ring  
O-rings tend to stretch slightly after being used for a long time. A stretched O-ring will not fit in the groove perfectly, and should be replaced. (Fig. 3-12-5)

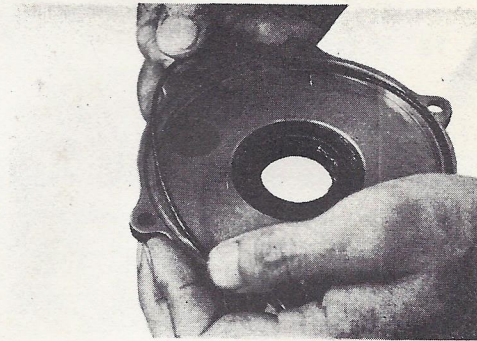


Fig. 3-12-5

- c. Crank shaft O-ring  
The crank shaft O-ring may easily be scratched on its surfaces when it is installed in the valve unit collar. Replace if damaged (Fig. 3-12-6)

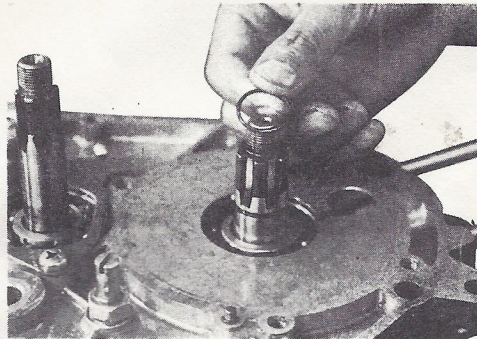


Fig. 3-12 6

- d. Valve cover oil seal  
Apply grease of good quality to the lip surface when the oil seal is replaced. (Fig. 3-12-7)

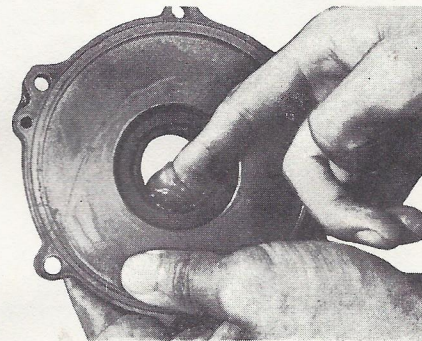


Fig. 3 12-7

### 3-13 Drive Sprocket

#### 1. Removing

- a. Straighten the bent edge of the locking washer with a screw driver or a chisel. (Fig. 3-13-1)

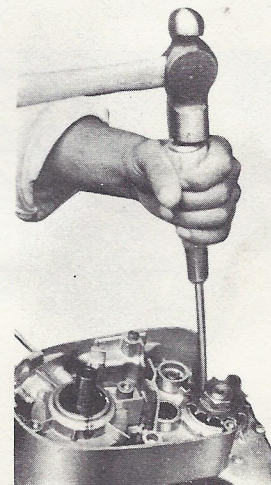


Fig. 3-13-1

- b. Keep the drive, sprocket from turning, with the flywheel magneto holding tool and loosen the sprocket nut. (Fig. 3-13-2)

If no flywheel magneto holding tool is available, shift the transmission into low gear, and fit a box wrench on the sprocket nut. Then hit the handle of the wrench with a hammer so that the impact loosens the nut.

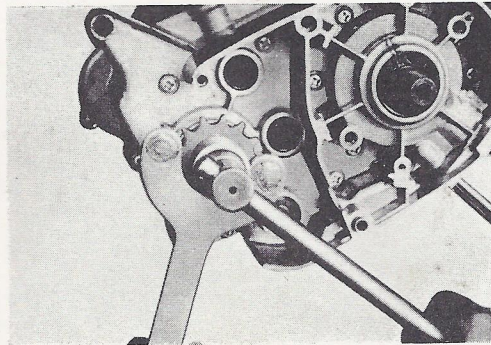


Fig. 3-13-2

## 2. Checking the Drive Sprocket

A worn drive sprocket may cause excessive noise, and reduced chain life. Check the sprocket and replace if worn. (Fig. 3-13-3)

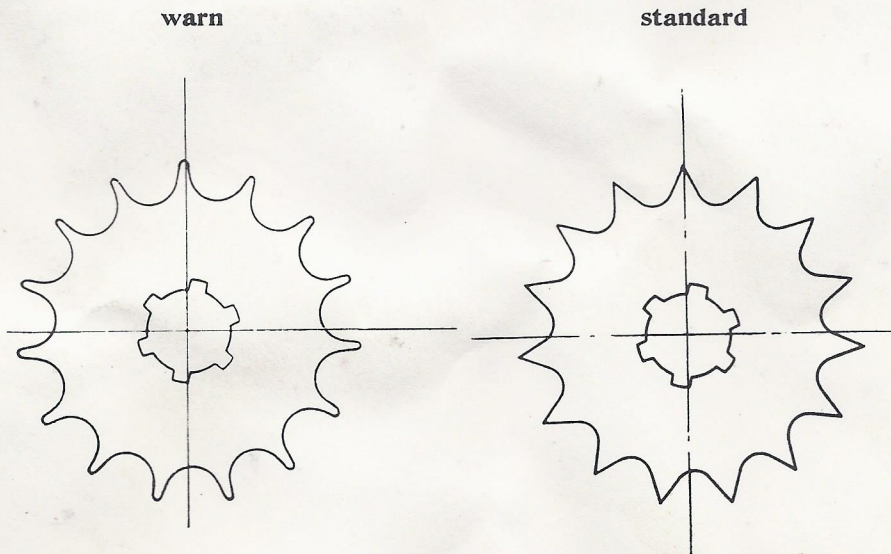


Fig. 3-13-3

## 3-14 Disassembly of Crankcase

### 1. Splitting

The crankcase may be splitted from either the left or right side. However, to facilitate subsequent servicing operations the splitting tool should be installed on the right half of the crankcase.

- a. Remove the pan-head screw on the left side crankcase. (Fig. 3-14-1)

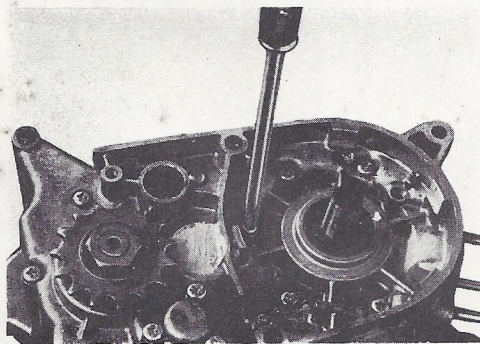


Fig. 3-14-1

- b. Install the crankcase splitting tool on the right case, and alternately tap the transmission main shaft and the side of the right case with a plastic tip hammer, so that the left and right halves will split. (Figs. 3-14-2 and 3)

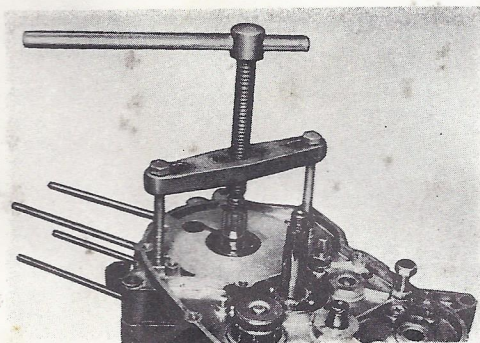


Fig. 3-14-2

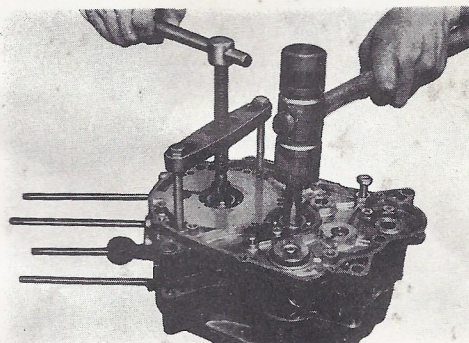


Fig. 3-14-3

Note: Fully tighten the bolts for tool, while keeping the body horizontal

## 2. Reassembling

When reassembling the crankcase, be sure to apply YAMAHA BOND No.5 to the mating surfaces of the crankcase. (Fig. 3-14-4)

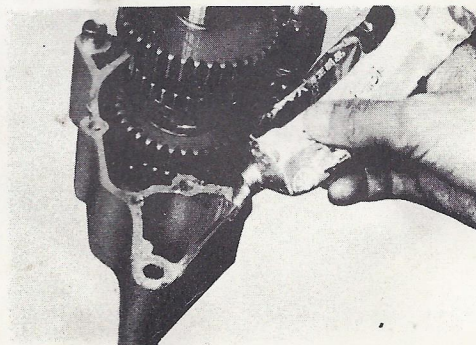


Fig. 3-14-4

3-15 Transmission Assembly

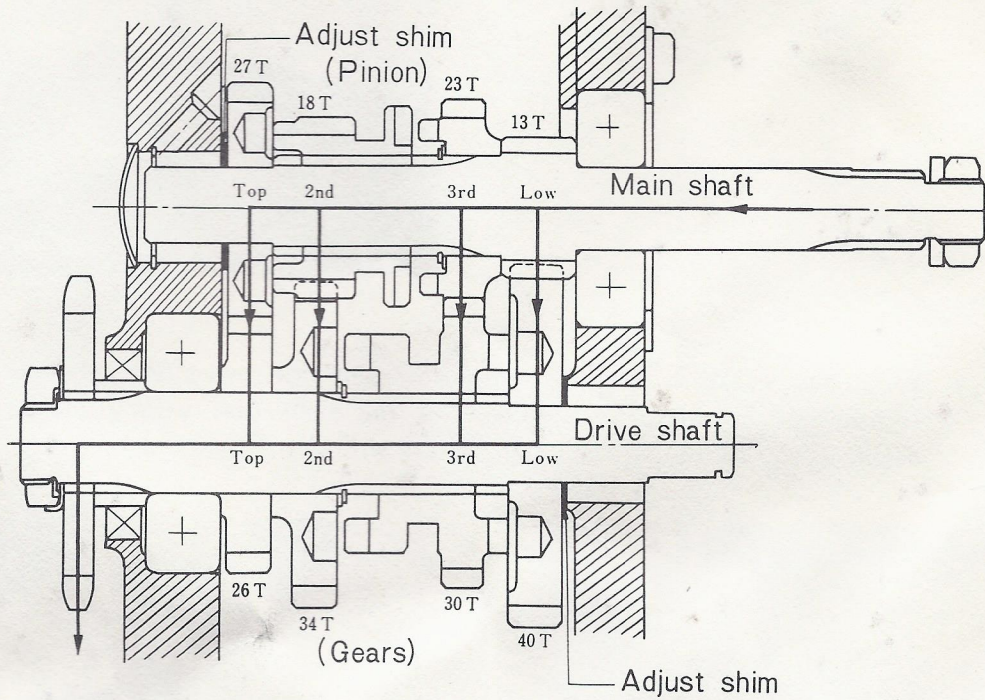


Fig. 3-15-1 Layout of Transmission Gears

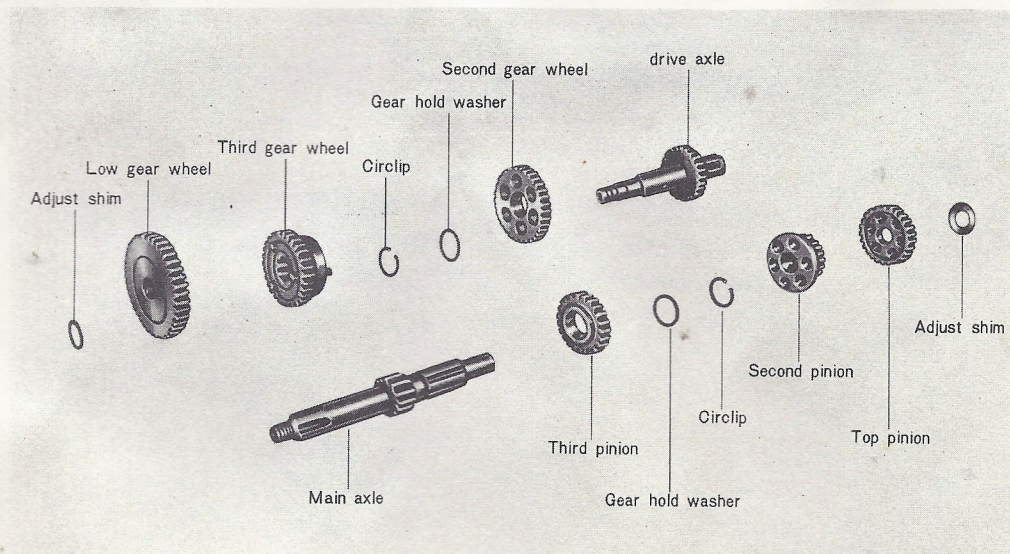


Fig. 3-15-2 Exploded View of Transmission

For details of assembly, arrangement and parts of the transmission, refer to Figs. 3-15-1 and 2.

The primary reduction ratio is 74/10 (3.894) and the secondary reduction ratio 37/15 (2.467). Therefore, the total reduction ratios will be:

	Primary reduction		Transmission gear reduction		Secondary reduction		Total reduction ratio
Low	74/19	×	40/13	×	37/14	=	29,560
2nd	74/19	×	34/18	×	37/14	=	18,417
3rd	74/19	×	30/23	×	37/14	=	12,530
Top	74/19	×	26/27	×	37/14	=	9,251

### 1. Removing Transmission Gears

- a. Remove the shifter drum mounting bolt and washer from the left side of the crankcase. (Fig. 3-15-3)

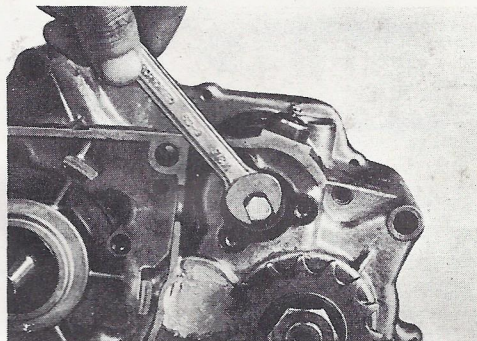


Fig. 3-15-3

- b. Remove the transmission shifter at the same time. (Fig. 3-15-4)

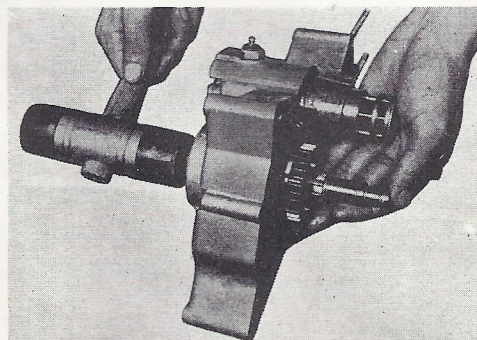


Fig. 3-15-4

### 2. Reinstallation

Reverse the above procedures for reinstallation, but be sure to put all washers in their proper places.

First assemble the transmission shifter and then fit it into the crankcase.

### 3-16 Crankshaft

Of all the engine parts, the crankshaft requires the highest degree of accuracy in engineering, manufacturing and servicing. The crankshaft is "delicate" so handle it very carefully.

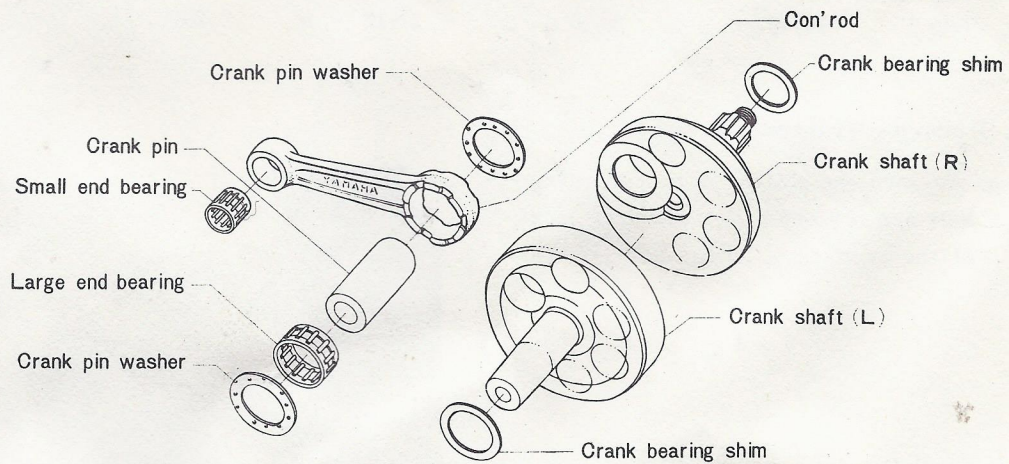


Fig. 3-16-1 Crankshaft Ass'y Component Parts

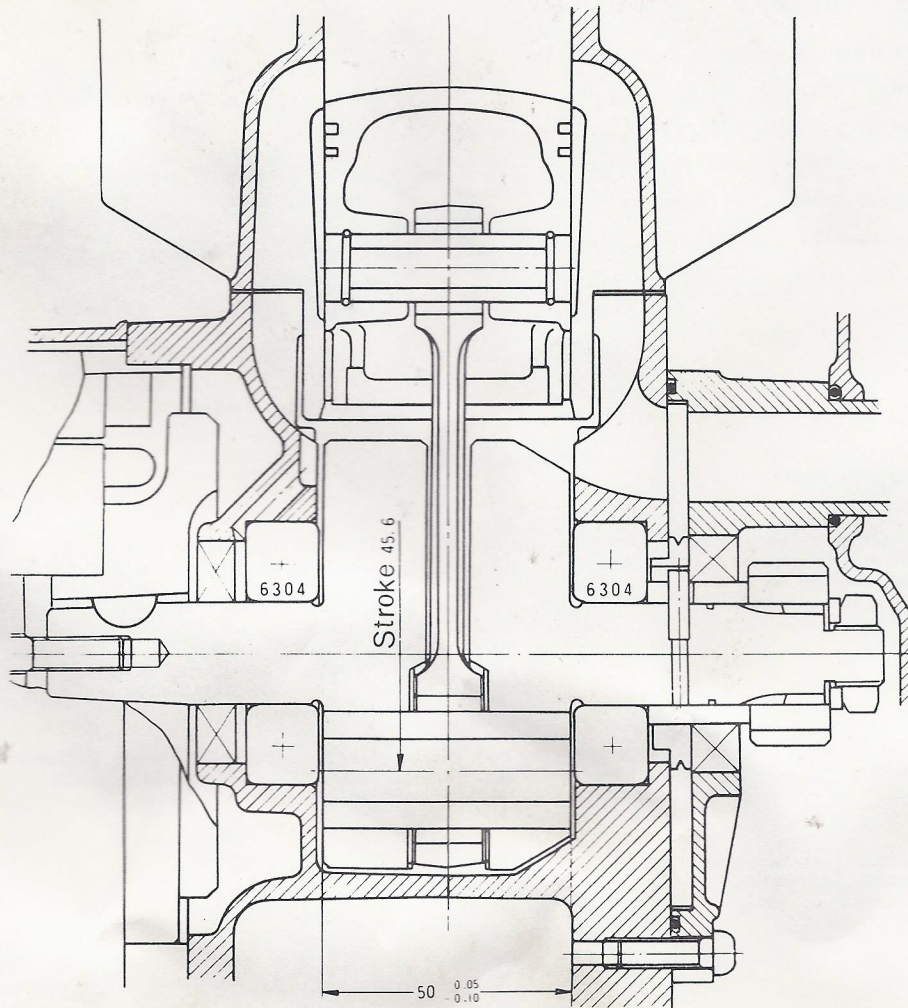


Fig. 3-16-2 Crankshaft Assembled Dimensions

### 1. Removing Crank Ass'y

- a. Remove the crank ass'y with crank case disassembling tools, (Fig. 3-16-3)  
Fully tighten the bolts' of the disassembling tool, and keep the tool body horizontal.

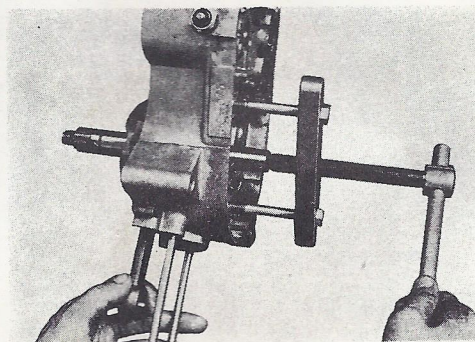


Fig. 3-16-3

## 2. Reinstalling Crank Ass'y

Put shims on both ends of the crank shaft, and reinstall it by use of crank mounting tools (for YA6 and YG1). Hold the connecting rod at top dead center with one hand while turning the handle of the mounting tool with the other. (Fig. 3-16-4)

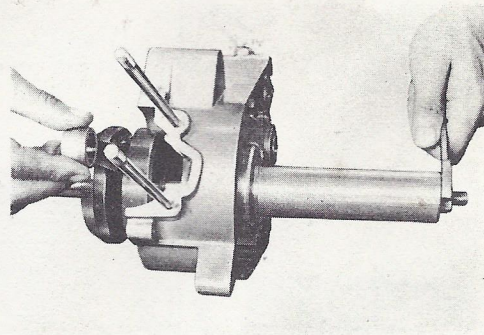


Fig. 3-16-4

## 3. Servicing Crank Ass'y

<p>a. Check connecting rod axial play at small end (to determine the amount of wear in big end, crank pin and big end bearing). (Fig. 3-16-5)</p>	<p>Small end play should not exceed 2mm.</p>	<p>If small end play exceeds 2 mm, disassemble the crankshaft, check the connecting rod, crank pin and big end bearing for wear or other defects.</p> <p>Replace worn parts, so after re-assembly small end play is within 0.8 - 1.0mm.</p>
<p>b. Check the connecting rod for axial play at big end. (Fig. 3-16-6)</p>	<p>Pry the connecting rod to one side and insert a feeler gauge. Big end axial play should be within 0.03 mm.</p>	<p>If excessive axial play is present, disassemble the crankshaft and replace any worn parts.</p>
<p>c. Check assembly eccentricity by checking the crankshaft for runout at each point shown in Fig. 3-16-7.</p>		

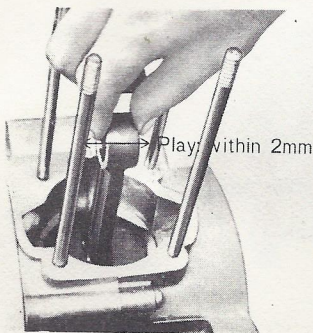


Fig. 3-16-5

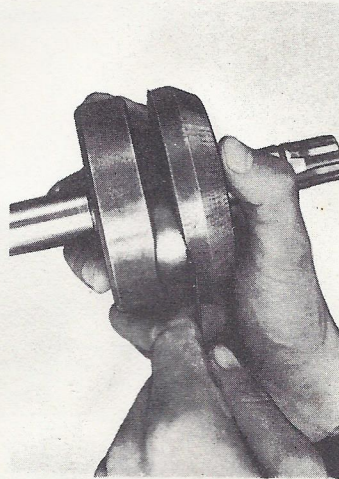


Fig. 3-16-6

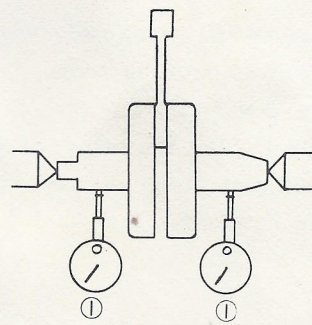
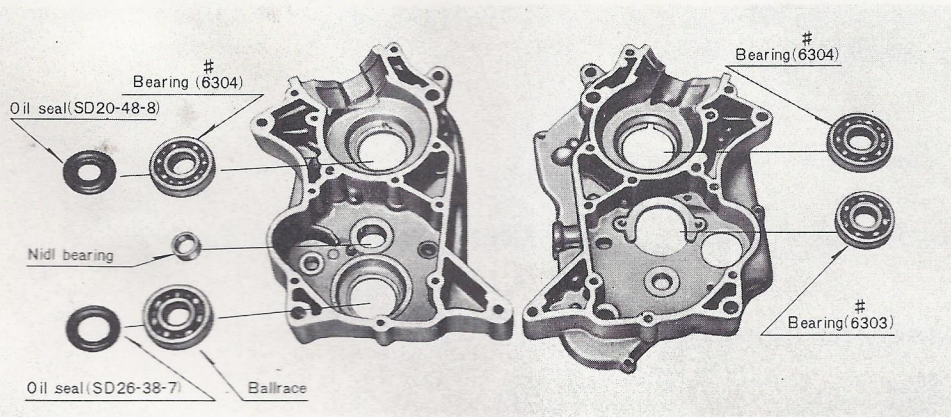


Fig. 3-16-7



### 3-17 Bearing and Oil Seal



1. Ideally, the crankcase should be heated to approximately 120°C to remove or install oil seals and bearings, but the following procedure is satisfactory.

#### a. Removing

- 1) Pry the oil seals out of place with a slot head screwdriver. (Fig. 3-17-2)  
Replace the oil seals upon overhauling.

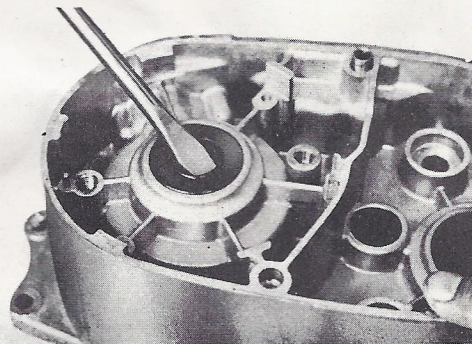


Fig. 3-17-2

- 2) Remove the bearing with bearing removing tool. (Fig. 3-17-3)

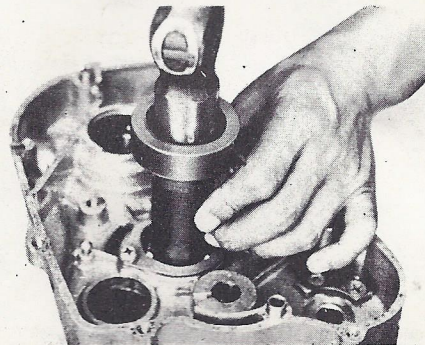


Fig. 3-17-3

b. Reinstallation

Install all bearings and oil seals with their stamped manufacturer's mark or numerals facing outward. (In other words, letters stamped must be on the exposed-to-view side).

### 3-18 Carburetor

The YL-2 engine is equipped with a MIKUNI Model VM18SC Carburetor.

#### 1. Checking the Carburetor

a. Float

If fuel leaks into the float while the engine is running, the float chamber fuel level will rise and make the combustion mixture too rich. Shake the float to check if gasoline exists in side. Replace the float if it is deformed or leaking.

b. Needle valve

Replace the needle valve if its seating end is grooved or scratched. Check the needle valve spring for fatigue. Depress the needle valve with your finger, and make sure that it properly seats against the valve seat when released. If the float valve spring is weakened, fuel may overflow, flooding the float chamber while the machine is running at certain speeds, or over a certain type of road.

c. Overflowing

If fuel overflows, check the carburetor as described in a and b above. If neither a nor b cures the overflowing, it may be caused by dirt or dust in the fuel preventing the needle valve from seating properly. If any dirt or dust is found, blow it off. Fig. (3-18-3 and 4)

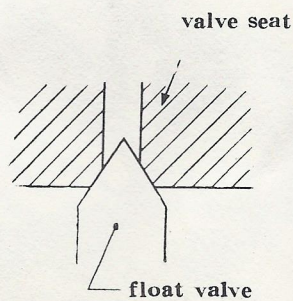


Fig. 3-18-1

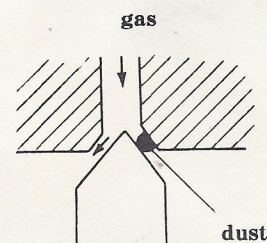


Fig. 3-18-2

d. Cleaning the carburetor

Disassemble the carburetor, and wash all its parts in clean gasoline. Blow fuel passages in the carburetor with compressed air. All jets and other delicate parts should be cleaned by blowing compressed air through them, because wire or other hard, pointed cleaning tools may damage their precision-machined surfaces.

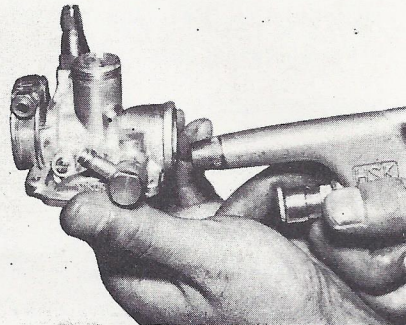


Fig. 3-18-3

2. Reconditioning the Carburetor

a. Adjusting the carburetor idle position

This adjustment should be performed after the engine is fully warmed up.

- 1 Fully turn the air screw, and keep the engine running at a minimum speed, and adjust the idle stop screw.

(Fig. 3-18-4)

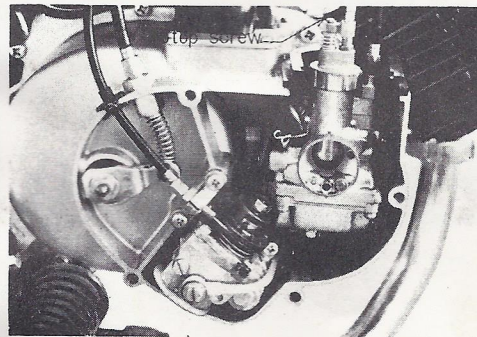


Fig. 3-18-4

- 2 Turn back the air screw slowly until the engine speed reaches its maximum and set the air screw, (Fig. 3-18-5)

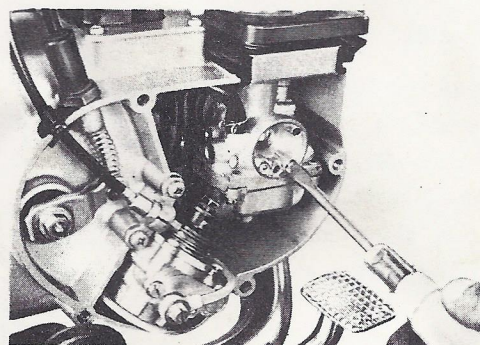


Fig. 3-18-5

- ③ Turn the stop screw until the engine speed reaches its maximum, and set the screw. Repeat this operation 2 or 3 times until the carburetor is correctly adjusted. For standard setting of air screw, the screw should be backed off a  $1\frac{1}{2}$  turn from a lightly seated position.

b. Carburetor setting

① M. J. (Main jet)	#95
② N. J. (Needle jet)	D-O
③ J. N. (Jet needle setting-the step where J. N. clip is fitted)	3D3-3
④ C. A. (Throttle slide cataway)	2.0
⑤ P. J. (Pilot jet)	#20
⑥ A. S. (Air screw setting-the number of turns the A.S. is backed off)	$1\frac{1}{2}$
⑦ G.S. (Starter jet)	#40

### 3-19 Air Cleaner

1. Removal

The air cleaner is inside the cleaner case on the upper part of the engine. To detach the cleaner, remove the cleaner case cover.

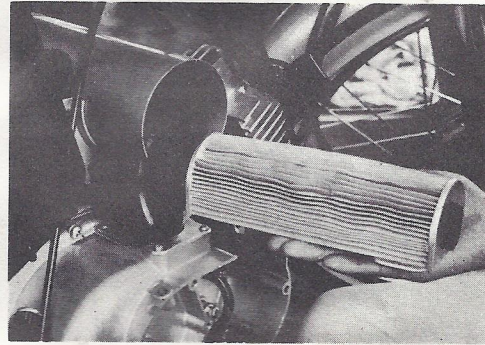


Fig. 3-19-1

2. Cleaning

Clean the filter element with compressed air, from the inside.

(Fig. 3-19-1)

The element is made of filter paper, so it should never be washed with water or oil.

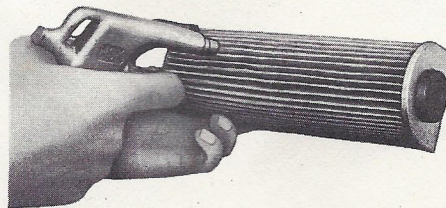


Fig. 3-19-2

### 3-20 Transmission Oil

Volume of transmission oil ..... YAMAHA gear oil A or motor oil low/30 650cc

## Chapter 4. CHASSIS

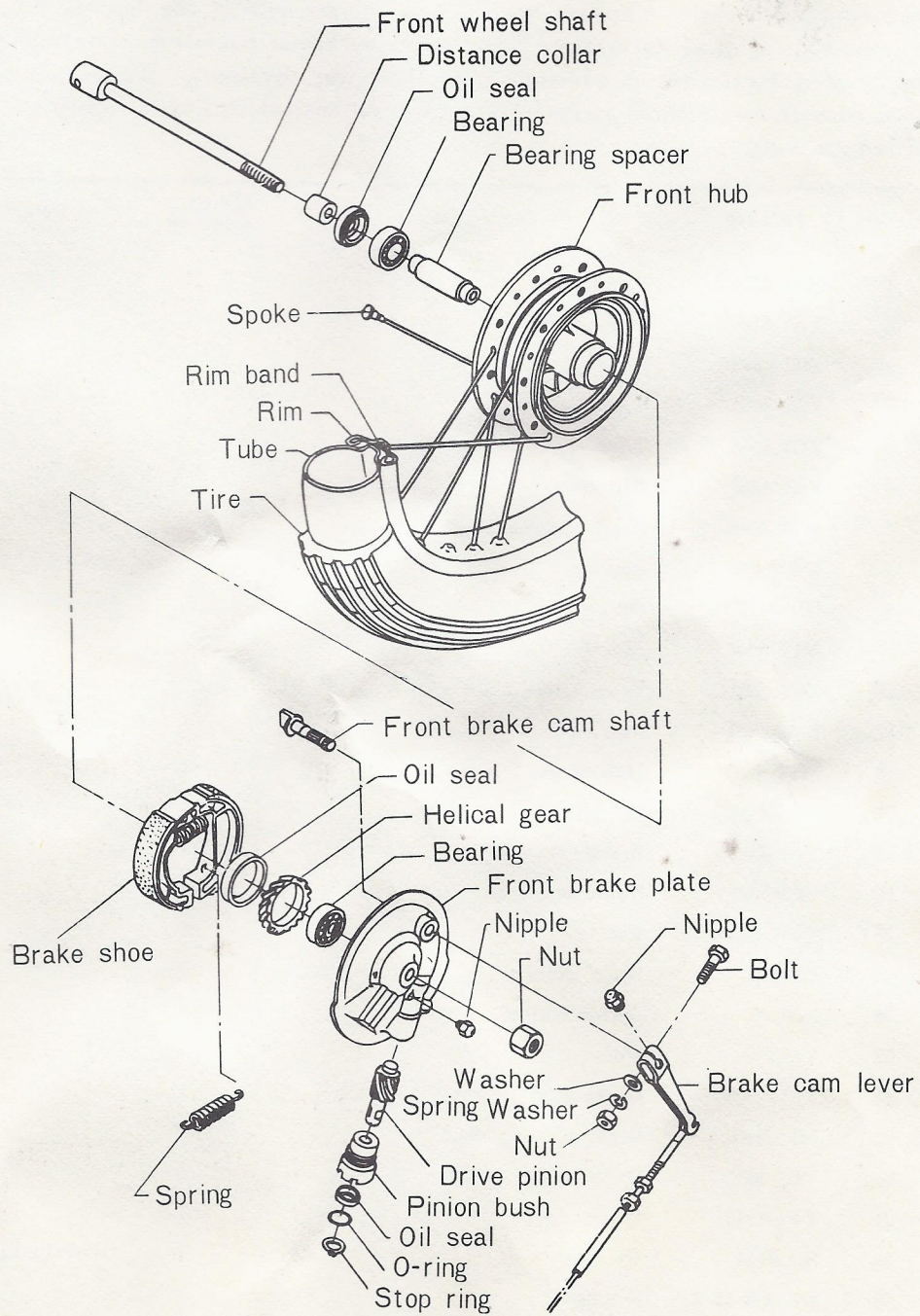
The YAMAHA 100 YL-2 has a slightly larger chassis than the other conventional models in the medium cc class, giving outstanding running stability and maneuverability.

Not only has a design emphasis been put on the strength of the chassis but also on the improvement of performance. The results are better operation, safety and exceptionally good durability. In addition to all these improvements, the all-welded steel closed type frame features an entirely new Auvil shaped styling to increase rigidity and reduce weight.

Ill. No.	Part No.	Name of Part	Qaut'y standard	Remarks
1	MF2-1510	Front hub	1	
2	YG-1610	Front spoke set	1	
3	YG1-1603	Rim	1	
4	YG1-1601	Tire	1	
5	YG1-1605	Tube	1	
6	YG1-1607	Rim band	1	
7	MF2-1508	Bearing spacer	1	
8	B-6202RS	Bearing	1	6202RS
9	DD-20357	Oil seal	1	DD-20-35-7
10	MF2-1518	Spacer collar (L)	1	
11	YG1-1501-1	Front brake plate	1	
12	B-6202RS	Bearing	1	6202RS
13	MF2-1511	Helical gear	1	
14	OS-52.5427	Oil seal	1	OS-52.5-42-7
15	YG1-1526	Brake cam shaft	1	
16	YF1-1522	Brake cam lever	1	
17	YS01-6.30C	Bolt	1	
18	YS06-6	Plane washer	1	
19	YS05-6	Spring washer	1	
20	YS02-6	Nut	1	
21	YG1-1506	Brake shoe	1	
22	MF2-1507	Brake shoe spring	1	
23	YG1-1512	Drive pinion	1	
24	YF1-1513	Drive pinion bush	1	
25	SO-7144	Oil seal	1	SO-7-14-4
26	OR-2.4-13.4	O-ring	1	
27	MF2-1517	Stop ring	1	
28	YG1-1501	Front wheel shaft	1	

## 4-1 Front Wheel

### 1. Structure.



## 2. Removal

- a. Disconnect the front brake and speedometer cables from the front-brake shoe plates.

(Fig. 4-1-1)

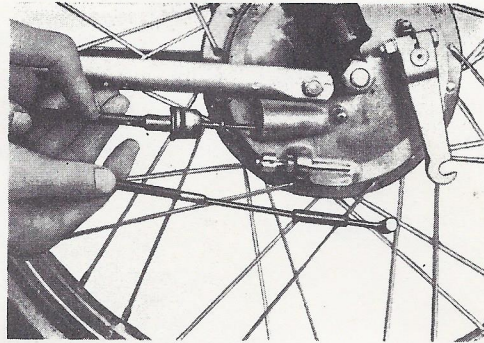


Fig. 4-1-1

- b. Remove the front axle nut, and loosen the front axle lock nut. Then pull out the axle.

(Figs. 4-1-2, 3 and 4)

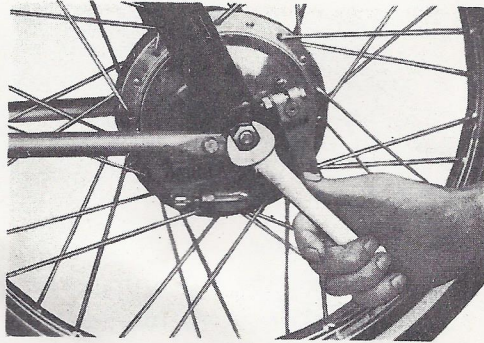


Fig. 4-1-2

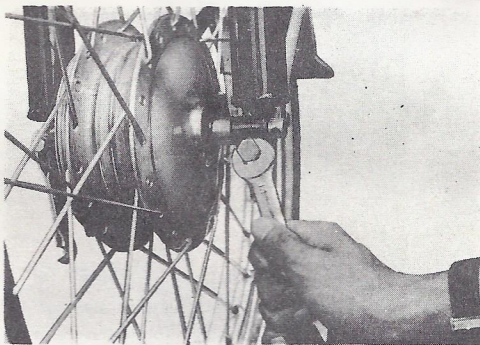


Fig. 4-1-3

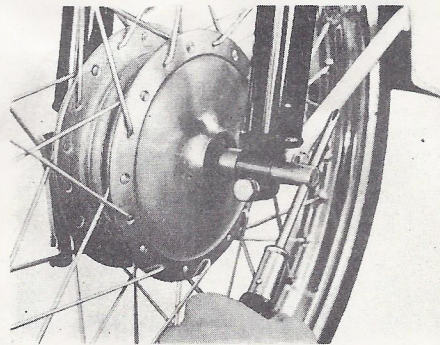


Fig. 4-1-4

- c. Remove the front wheel ass'y.

(Fig. 4-1-5)

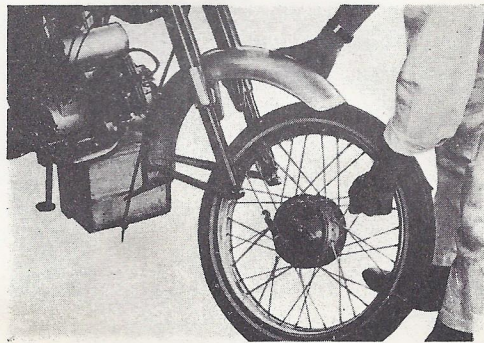


Fig. 4-1-5

### 3. Checking

#### a. Runout of the rim

As shown in Fig. 4-1-6, measure the runout of the rim with a dial gauge.

Limits of runout ..... 3 mm or less

(Fig. 4-1-6)

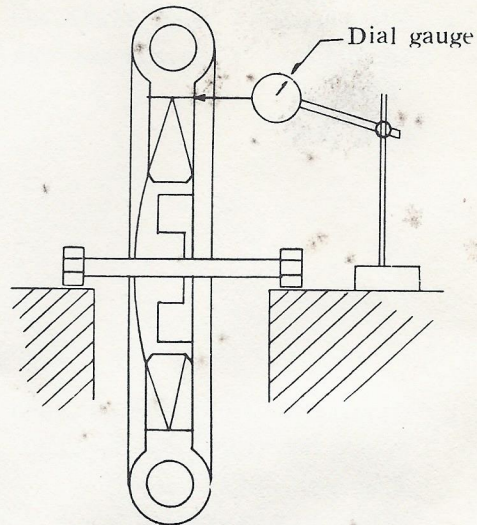


Fig. 4-1-6

#### b. Brake shoe

Measure the outer diameter of the brake shoe with slide calipers. If it measures 105 mm or less replace it.

(Fig. 4-1-7)

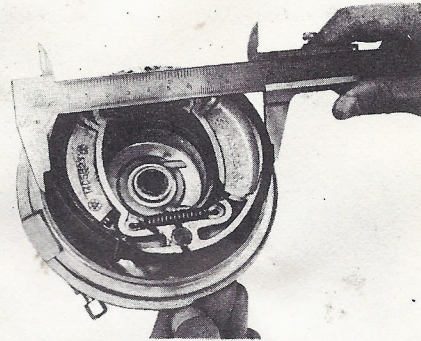


Fig. 4-1-7

#### c. Brake drum

Oil or scratches on the inner surface of the brake drum will result in poor functioning or noise. Clean or smooth out surface with rag or sandpaper.

(Fig. 4-1-8)

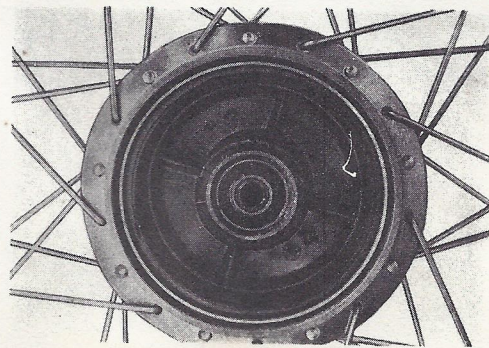


Fig. 4-1-8



## 4-2 Rear Wheel

### 1. Structure

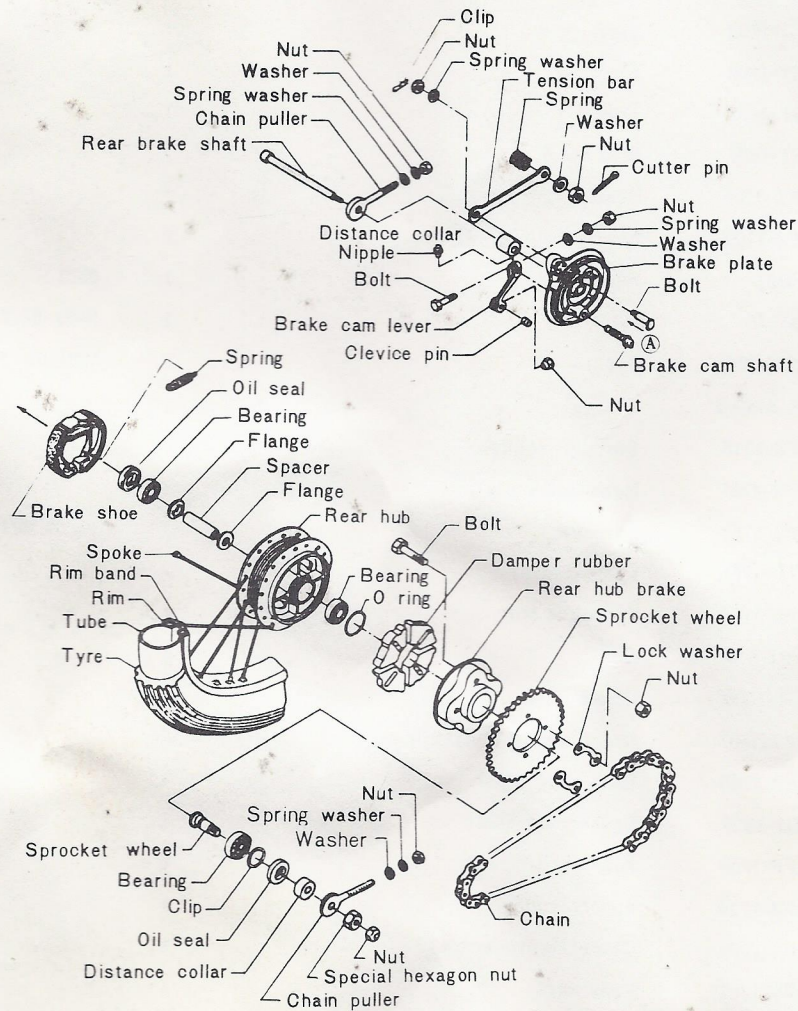


Fig. 4-2-1

Ill No.	Part No.	Name of Part	Quat'y Standard	Remarks
1	MF2-1710	Rear hub	1	
2	MF2-1620	Rear spoke set	1	
3	YG1-1603	Rim	1	
4	YG1-1202	Tire	1	
5	YG1-1605	Tube	1	
6	YG1-1607	Rim band	1	
7	MF2-1708	Bearing spacer	1	
8	MF2-1709	Bearing spacer flange	2	
9	B-6301	Bearing	1	6301
10	S-21377	Oil seal	1	S-21-37-7
11	B-6301RS	Bearing	1	6301RS
12	OR-4-40.5	O-ring	1	
13	MF2-1715	Damper rubber	4	
14	MF2-1717	Rear hub clutch	1	
15	MF2-1751	Sprocket	1	35.37.39T
16	MF2-1755	Lock washer	2	
17	MF2-1756	Sprocket bolt	4	
18	YS04-8	Nut	4	
19	YG1-1506	Brake shoe	2	
20	MF2-1507	Brake shoe return spring	2	
21	MF2-1705	Rear shoe plate	1	
22	YG1-1526	Brake cam shaft	1	
23	MF2-1769	Anchor bar bolt	1	
24	MF2-1719	Spacer collar (R)	1	
25	MF2-1772	Chain tightener (R)	1	
26	MF2-1701	Rear axel	1	
27	MF2-1752	Sprocket shaft	1	
28	B-6004	Bearing	1	6004

## 2. Removal

- a. Remove the anchor bar and brake rod attached to the rear brake shoe plate.  
(Fig. 4-2-2, 3 and 4)

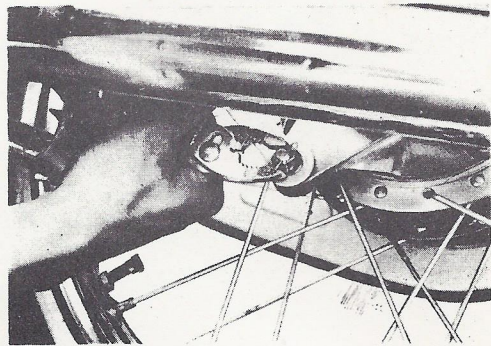


Fig. 4-2-2

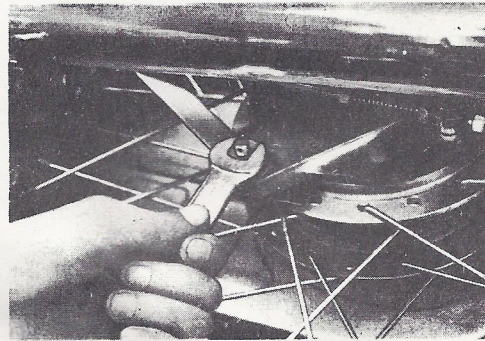


Fig. 4-2-3

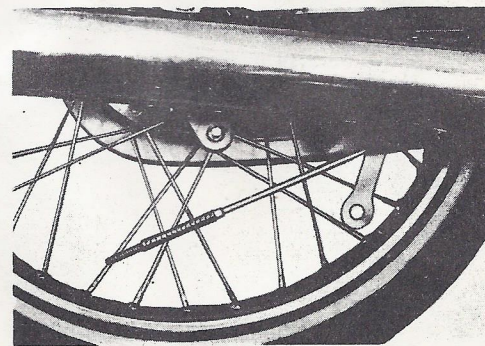


Fig. 4-2-4

- b. Remove the nut and then rear wheel axle. (Fig. 4-2-5)

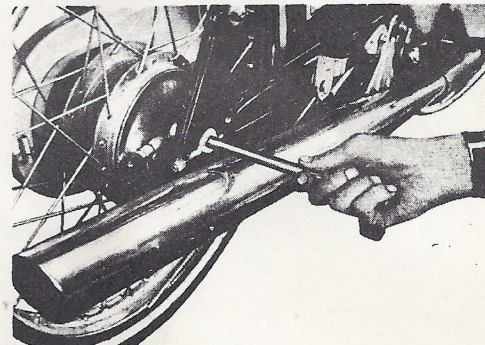


Fig. 4-2-5

- c. Remove the spacer collar.  
(Fig. 4-2-6)

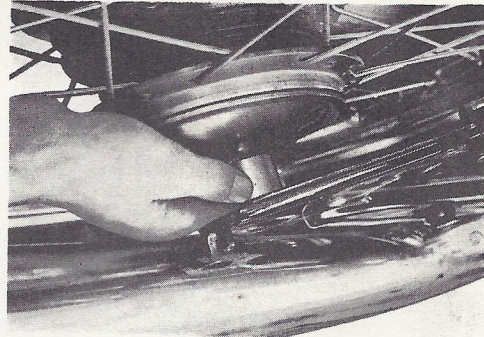


Fig. 4-2-6

- d. Incline the chassis and remove the rear wheel.  
(Fig. 4-2-7)

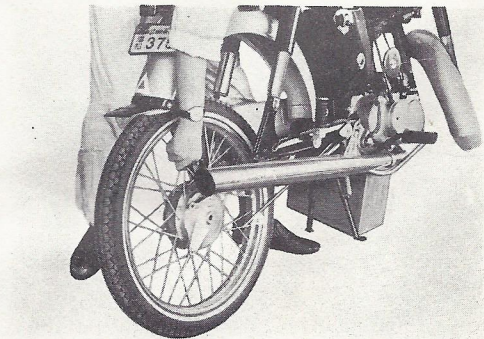


Fig. 4-2-7

- e. Pull out the rear shock absorber mounting bolt from the rear arm, and remove the chain case.

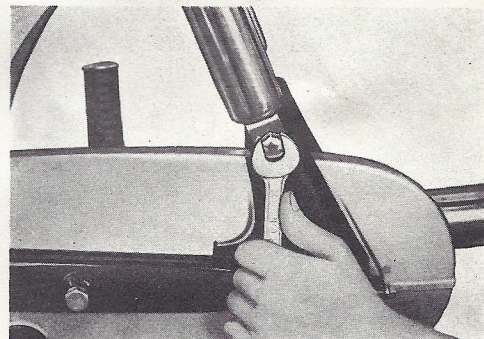


Fig. 4-2-8

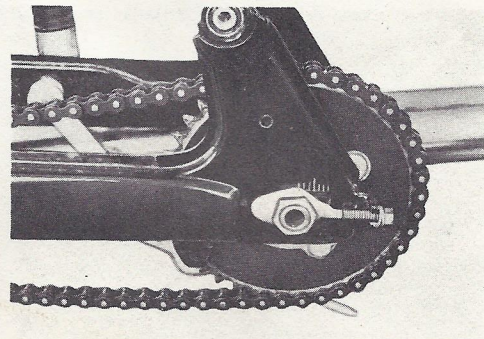


Fig. 4-2-9

- f. Remove the chain.
- g. Pull out the special hexagon nut and remove the rear clutch ass'y.  
(Figs. 4-2-10 and 11)

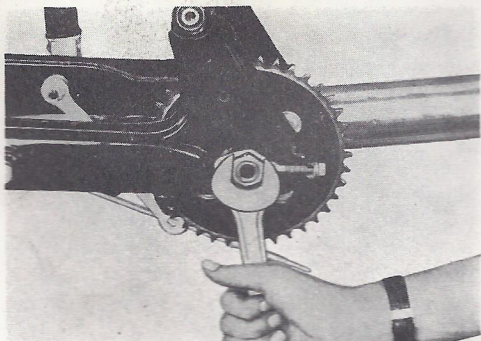


Fig. 4-2-10

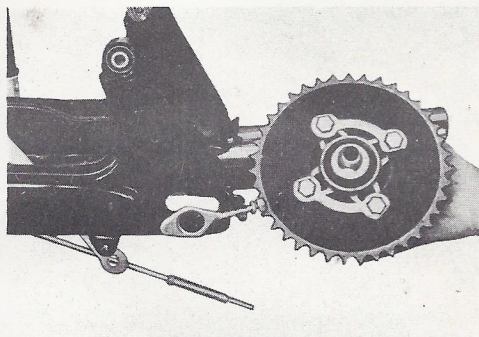


Fig. 4-2-11

### 3. Checking

- a. Runout of the rim  
Check the rim for runout in the same manner as the front wheel.  
Limit for runout less than 3 mm
- b. Brake shoe  
Check the rear brake shoe in the same manner the front brake shoe.  
Limit for size - less than 105 mm
- c. Brake drum  
Check the rear brake drum in the same manner as the front wheel.
- d. Rear sprocket  
Replace an excessively worn rear sprocket.

### 4-3 Front Forks

The following procedures are recommended for checking and repairing front fork, for oil leakages and straightness due to collision.

- a. Remove the front fender, and pull out the inner fork tube mounting bolt.  
(Figs. 4-3-1 and 2)

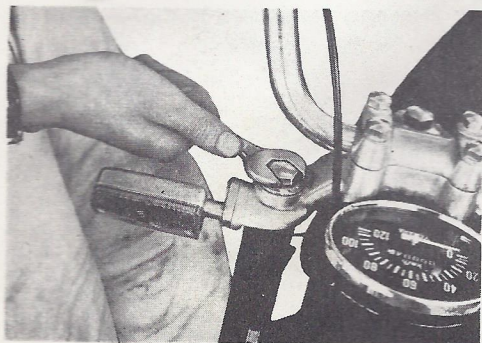


Fig. 4-3-1

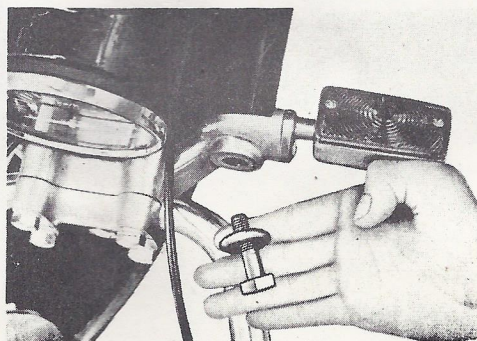


Fig. 4-3-2

- b. Loosen the inner tube mounting bolt on the lower bracket and pull off the fork downward. (Fig. 4-3-3, 4 and 5)

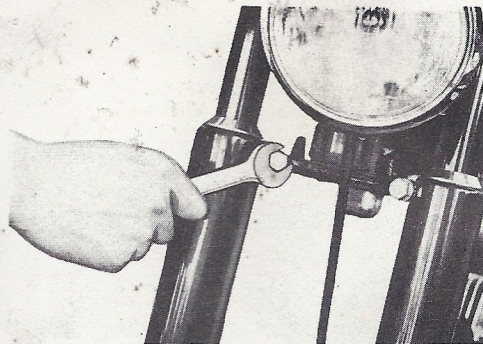


Fig. 4-3-3

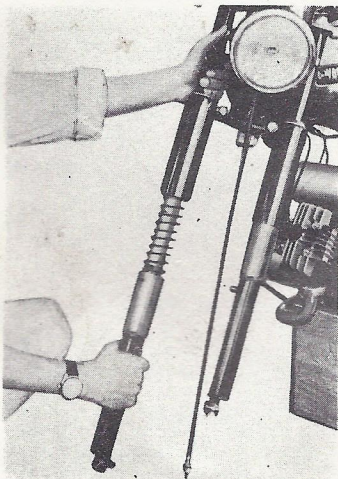


Fig. 4-3-4

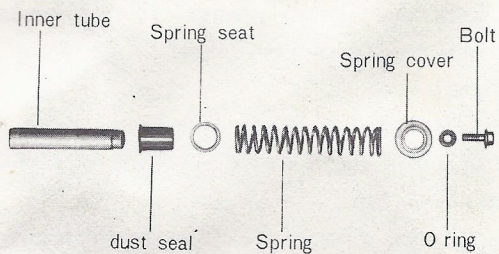


Fig. 4-3-5

## 2. Disassembling the Fork

- a. Drain fork oil.
- b. Place a rubber pad or rubber tube around the outer tube nut, and put pinch it with a vice. Then, turn the outer tube counterclockwise, and the inner tube can be removed from the outer tube. (Figs. 4-3-6 and 7)

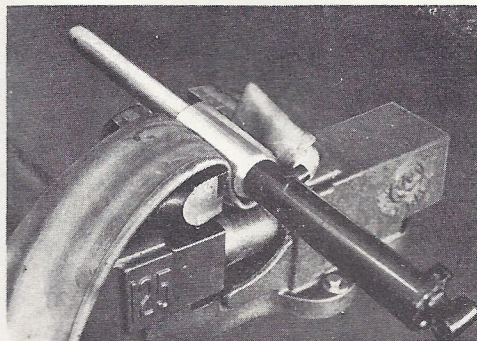


Fig. 4-3-6

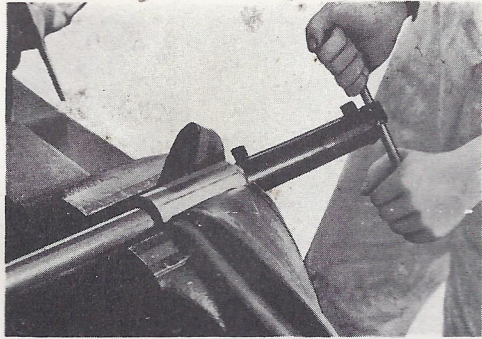


Fig. 4-3-7

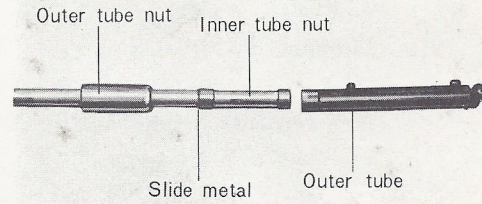


Fig. 4-3-8

(Photo of disassembled fork)

### 3. Checking

- a. Check the inner tube for bends and scratches.  
Slight bends can be corrected by a press machine, but it is best to replace the tube.
- b. Oil seal  
Be sure to replace the oil seals whenever the front forks are disassembled.

### 4. Reassembling

- a. For reassembling the front forks, reverse the order of disassembling as mentioned above. Check the inner tube for smooth operation. (Fig. 4-3-9)
- b. By using a front fork lifting rod, set the front fork in position, and tighten the lower bracket mounting bolt.

(Figs. 4-3-10 and 11)

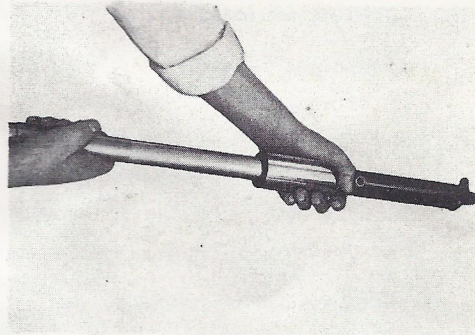


Fig. 4-3-9

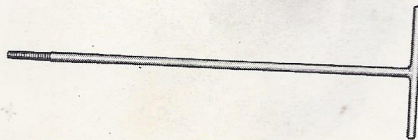


Fig. 4-3-10

Front fork lifting rod

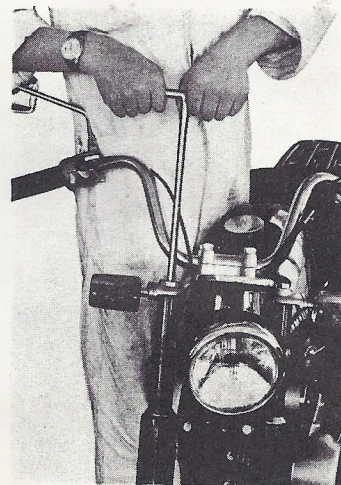


Fig. 4-3-11

- c. Feed front fork oil into the inner tube through the upper end. (Fig. 4-3-12)

Amount of oil...145 cc

Oil .....Supply 8:a  
mixture of mobile oil #30  
and spindle oil #60.

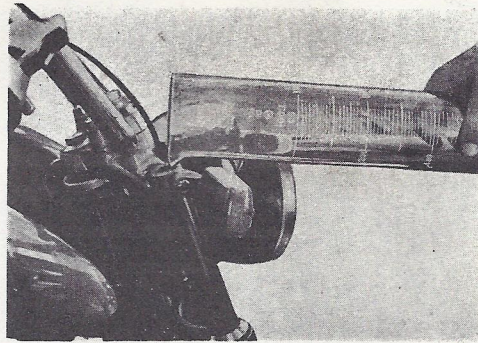


Fig. 4-3-12

- d. Finally, tighten the inner tube mounting bolt.

#### 4-4 Rear Shock Absorber Unit

The rear shock can not be disassembled. Therefore, the following details will be limited to oil leakage checking.

##### 1. Checking oil leakage

Sometimes oil seepage is seen on the bottom of the outer cover, as viewed from the outside of the rear shock. This oil seepage may be considered to be an oil leakage of the rear shock, but in most cases, it is not true.

Such an oil seepage mostly results from melting of grease applied to inner springs, and will not harm the function of the rear shock.

For checking oil leakages, the following measure is to be applied.

- a. Remove the rear shock, and depress it with the hand two or three times. If the spring quickly restores half-way, and gradually stretches for the last 10 mm, the shock is considered to function perfectly. If the spring restores entirely with quick motion, there may be oil leakages. Replace the whole rear shock ass'y. (Fig. 4-4-1)

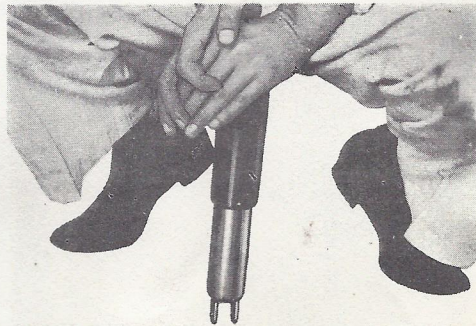


Fig. 4-4-1



## 4-5 Steering Head

### 1. Structure

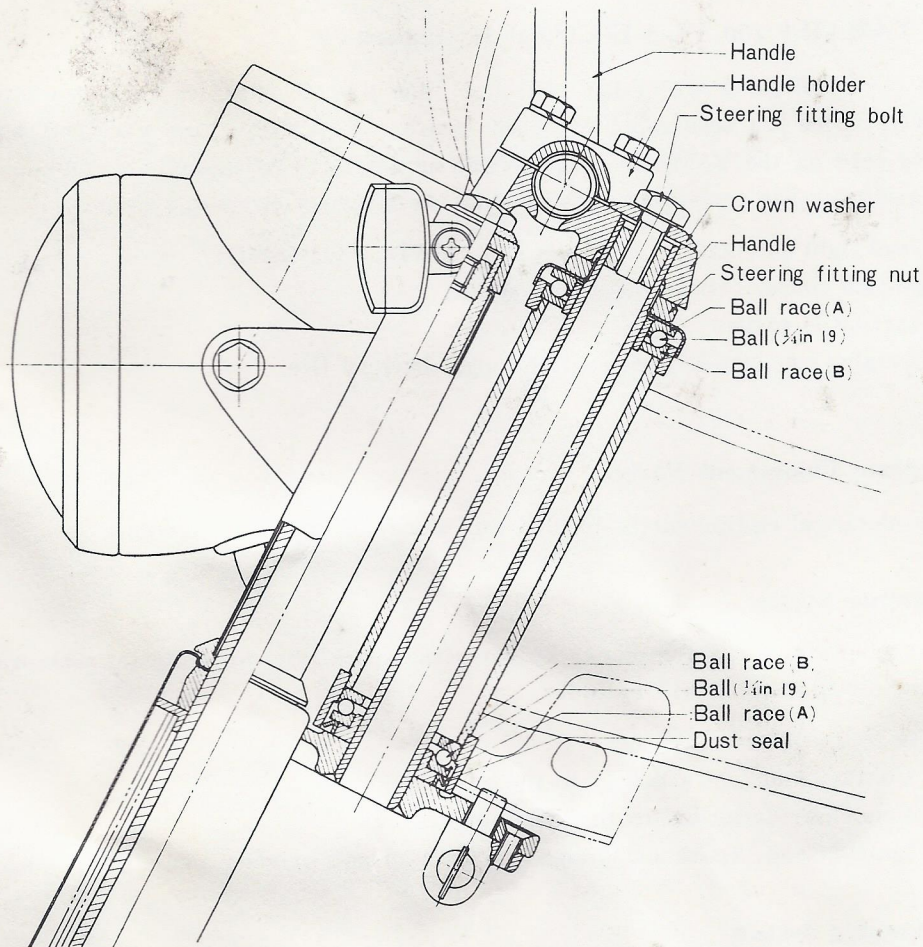


Fig. 4-5-1

### 2. Checking

#### a. Ball races and steel balls

If a motorcycle has been in long-time use, particularly careful checking is required. Balls having uneven wear or cracks will impair maneuverability of motorcycle. Therefore, if such defects are found, replace the balls and ball races.

Replace any ball race having scratches or streaks resulting from wear.

**Note:** Do not use a combination of new balls and used races or vice versa.

If any of these is found defective, replace the whole ball and race assembly.

## Chapter 5. ELECTRICAL EQUIPMENT

### 5-1 YAMAHA 100 YL-2 Electrical Equipment

All electrical parts are of 12V capacity. The YL2 flywheel magneto-generator or the YG1 series has been replaced by an ignition generator. This excellent system is also used on the YAMAHA Sports YDS3 and YM1 as well as on the YA6. The generator has certain advantages over the flywheel magneto system.

1. Head light intensity is higher. (YG1, 15WD, YL-1 25WD)
2. Ignition characteristics are more stable.
3. Starting is easier.
4. Charging capacity is greater, for longer battery life.

### 5-2 Main Component Parts

The electrical equipment is divided into the following three systems.

#### 1. Ignition System

This system starts the engine by using the spark plug to ignite the compressed fuel-air mixture in the cylinder.

The main parts consist of:

Contact breaker (attached to the generator)

Condenser (attached to the generator)

Ignition coil, spark plug, high tension lead and primary power source battery.

#### 2. Charging System

This system charge the battery, which is the primary power source for engine starting and all electrical equipment (lights, horn, etc.)

The main parts consists of:

Generator (yoke, armature, brushes), regulator (with cutout relay), fuse and battery.

#### 3. Lights

The main parts consist of signals to be used during travel, instruments, switch lamp (signal) and illuminating lights for night travel.

Signals .....Horn, flasher light (flasher relay), stop light, speedometer, neutral light and other switches.

Illumination...Head light, tail light and instrument lights.

### 5-3 Electrical Parts List

Location	Name of Part	Maker	Specifications	Remarks	
Engine	Ignition Generator	Mitsubish Electric	08-65/12CR		
	Neutral switch	Asahi Denso	YN-9	Usable for YL-1	
	Spark plug	NGK or Hitachi	B-6H or M-45		
Frame	Regulator	Mitsubishi Electric	RN2226J2		
	Ignition coil	Diamond Electric	TU-12		
	Horn	Nikko Kinzoku	YP-12	Usable for YL-1	
	Battery	Nihon Denchi	MG3-12	12V 5.5AH	Usable for YL-1
		Furukawa Denchi	BST3-12	12V 5.5AH	Usable for YL-1
	Fuse holder	Osachi	20A 3 pcs.		
	Main switch	Asahi Denso			
Flasher relay	Showa Electric	B2			
	Mitsuba Electric	FR-5			
Front	Head light	Imascn Electric	14V25WD	Usable for YG1	
	Speedometer	Nippon Seiki	YA6 Meter light 15V 3W Neutral light 15V 2W Flasher pilot 15V 2W		
	Front flasher light R & L	Imasen Electric	14V 8W		
	Handle switch	Asahi Denso	R-AG6-001 L-AG6-002		
	Stop switch	Asahi Desno	YS10	Usable for YG1	
Rear	Tail light	Stanley	14V 8W (Tail) 15V 20W (Stop)		
	Rear flasher light	Imasen Electric	14V 8W		

CHASSIS GROUP

RED - BATTERY  
 BROWN - CURRENT SOURCE WIRE  
 DR. BLUE - LIGHTING - SWITCHES  
 GREEN (IN LITE SHELL) - LOW BEAM  
 YELLOW (IN LITE SHELL) - HI BEAM  
 PINK - HORN  
 LT. BLUE - NEUTRAL LITE

BLUE/WHITE - STARTER SOLENOID  
 BROWN/WHITE - TURN SIGNAL SWITCH  
 DARK BROWN - LEFT TURN SIGNAL  
 GREEN - RIGHT TURN SIGNAL

YELLOW - STOP LIGHT  
 GREEN/YELLOW - FRONT STOP LIGHT SWITCH

ORANGE - IGNITION  
 BLACK - GROUND  
 DK. GREEN - FIELDS  
 WHITE - ARM. & CHARGE LITE  
 LT. GREEN - STARTER MOTOR

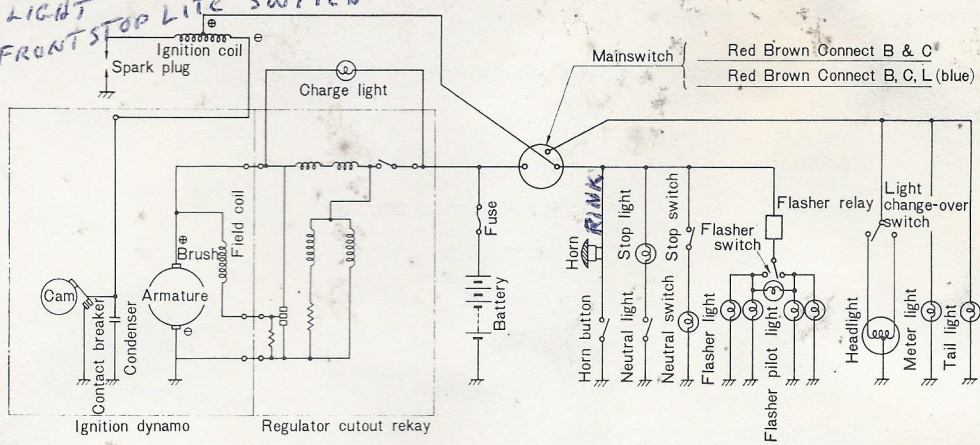


Fig. 5-4-1

5-5 Ignition Generator

The ignition generator consists of the following three ass'y units; that is, yoke ass'y (field coil, contact breaker, condenser brush, etc.), armature ass'y (armature coil and commutator), and cam ass'y. The ignition generator is the power source of both ignition and charging systems.

1. Ignition System

The ignition system consists of the contact breaker and condenser, and its purpose is to intermittently break the current flowing through the ignition primary coil to induce a high tension current in the secondary coil.

- a. Contact breaker ass'y  
 Incorrect ignition timing will result in knocking or vibration because the engine is not running smooth, reducing engine output. In addition, the engine will overheat, and shorten engine life. Be sure to check the contact breaker ass'y periodically.
- b. Condenser  
 The condenser instantly acts as a reservoir for static electricity when the high voltage is induced to the contact points of the breaker when the contact points close, currents flows through the primary winding of the ignition coil. When the contact points separates (primary current is interrupted), the voltage begins to increase. But the condenser prevents this instant voltage increase and a heavy electric are between the contact points, thus minimizing the wear of the points. The condenser causes a great primary current flow in the ignition coil.

2. Charging System

The charging system of the generator consists of the yoke ass'y (field coil and brush) and the armature ass'y (commutator). When the armature coil interrupts

the magnetic lines of force, an alternating current is induced and tured into a direct current through the commutator and brushes. This induced voltage is kept constant by the regulator, and the induced direct current is supplied to each load (spark plug, lights, signal light and battery).

### 3. Checking and Servicing the Ignition Generator

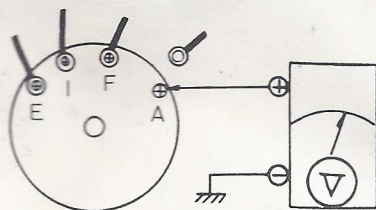
#### a. Checking the generator.

First disconnect the white wire from terminal A of the generator. Next, connect the positive lead of the tester to terminal A (white), and ground the negative lead to the frame (shift lever, etc). Start the engine and keep it running at 2,000 rpm. If the voltage is measured more than 14V, there is nothing wrong with the generator.

(Note: During this test, if the engine speed is increased more than specified the voltage will also increase. This results in damage to the coil, lead wires, etc. Do not run the engine at high rpm for more than three minutes).

#### b. Checking the yoke ass'y.

Clean the yoke with a rag to remove dust, oil and dirt from brush wear, etc.



E black - GROUND  
I orange - IGNITION  
F green - STARTER MOTOR  
A white - ARMATURE

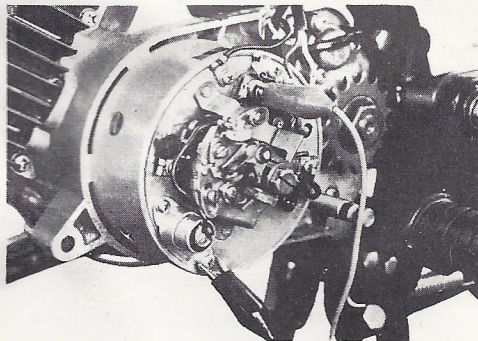


Fig. 5-5-1

E: black, I: orange, F: green, A: white

#### b. Checking the Yoke ass'y

Clean the yoke with a rag to remove dust, oil and dirt from brush wear, etc.

##### ① Brush insulation test

The positive brush is insulated from the yoke, and by using the tester, the insulation can be checked as shown in Fig. 5-5-2. If the insulation is bad, the brush holder or A terminal may short-circuit with the yoke.

(The negative brush is not insulated).

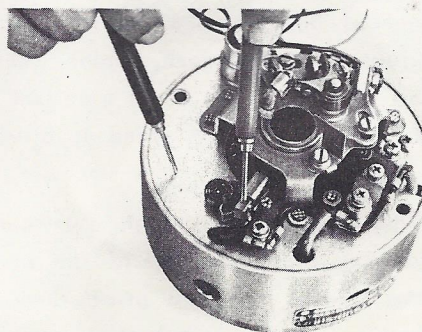


Fig. 5-5-2

- ② Conductivity test of field coil  
Check the coil for electrical leakage between terminals F and A. If the ohmic value is approximately  $5.4\Omega$ , the conductivity is considered to be good. If the conductivity between terminals, F and A, is bad, check the field coil for breakage. Replace the yoke if the coil is damaged inside, because repairs are difficult.

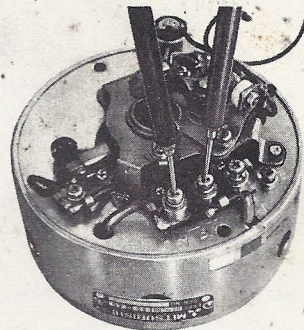


Fig. 5-5-3

- ③ Field coil insulation test.  
If the insulation between the F terminal and the yoke is bad, the circuit is considered to be grounded. Check the terminal and coil.

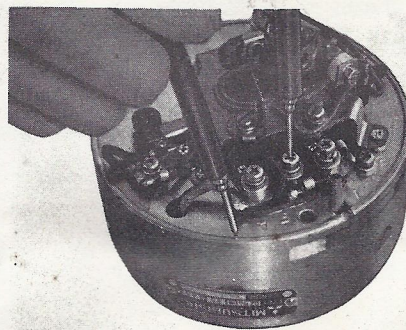


Fig. 5-5-4

- ④ Checking the brush.  
The brushes are one of the most important parts in the generator. Remove the brushes and check their surfaces in contact with the commutator.

Each brush must contact with commutator with more than  $\frac{3}{4}$  of its surface. If both brush and commutator surfaces are rough, check the alignment of the crank-

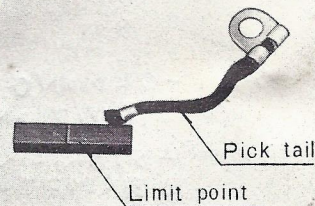


Fig. 5-5-5

shaft and armature. Smooth down any burrs on the edge of the armature's tapered bore, and clean it thoroughly. If either brush is worn past the minimum length mark, replace them both with new ones. The use of head and tail light for many hours with bad brush contact will damage the surface of the commutator and speed up brush wear.

- ⑤ Headling of the brushes

When replacing the brushes, be sure the braided lead of the positive brush does not touch the edge of the breaker plate or brush holder, and that the lead of the negative brush does not touch the positive brush spring; the friction from parts vibrating against the brush leads may wear through the insulation and cause short-circuit.

c. Inspection of the armature

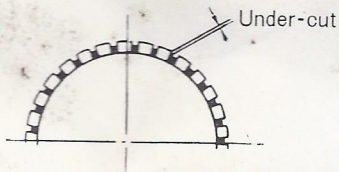
- ① Clean the commutator of oil and dirt. If the commutator is rough in its surface or covered with heavy brush dust polish it with fine grain sandpaper (#400-600) as shown in Fig. 5-5-6.

Polishing must be made evenly and lightly. Uneven polishing will deform the commutator and shorten brush life.

If the commutator is too rough to be smoothed out by sandpaper, use a lathe. Cutting by the lathe is not allowed more than 2 mm under the standard 40mm diameter.

- ② Checking the commutator mica under-cuts.

The commutator is provided with mica under-cuts. If under-cuts are made shallow due to wear of the commutator, adjust the depth of with a saw blade. Remove metal filings from the commutator surface, after this adjustment.



Mica under-cut 0.5 mm- 1.0mm  
Limit for under-cut adjustment  
0.2 mm

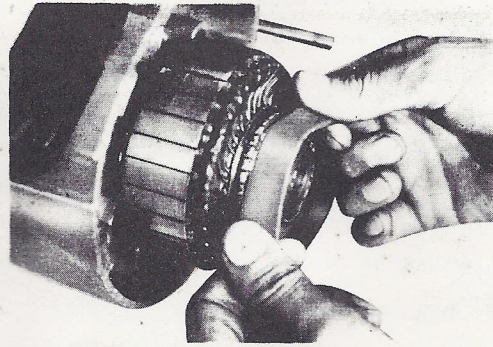


Fig. 5 5 6

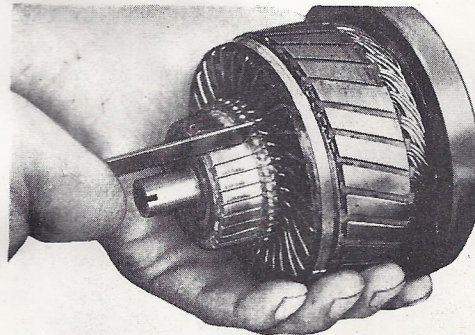


Fig. 5-5-7

- ③ Checking armature insulation

If there is electrical leakage between the commutator and the shaft, replace the entire armature. (Fig. 5-5-8)

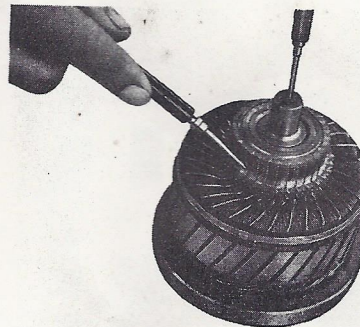


Fig. 5-5-8

d. Checking the condenser.

The condenser instantly acts as a reservoir of static electricity when the high voltage is induced to the contact points of the breaker. The contact points close, current flows through the primary winding of the ignition coil. When the contact points separate (primary current is interrupted), the voltage begins to increase. But the condenser prevents any instant voltage change and the heavy electric arc between the contact points, is minimized. The condenser also helps to cause a great primary current flow in the ignition coil.

1. Insulation test

Hook up an electro tester (service tester) for the insulation resistance test, and attach the tester terminals to those of the condenser. If the tester needle swings once and then returns to its original position, the condenser is good. Condenser leakage will hold the needle at the maximum reading. If the reading is more than  $3M\Omega$ , ground the condenser to discharge it.

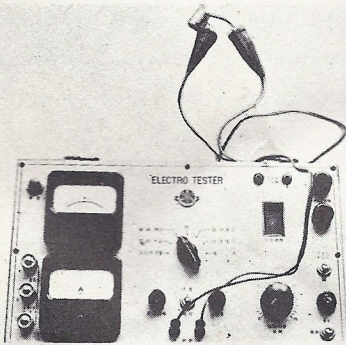


Fig. 5-5-9

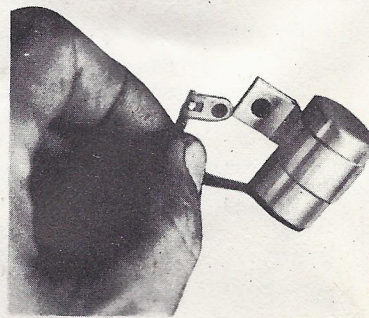


Fig. 5-5-10

② Capacity test

Set the service tester for the condenser capacity position, and connect its terminals to those of the condenser capacity should be no more than  $0.22 \mu F \pm 10\%$ , so before testing the condenser, adjust the capacity of the service tester.

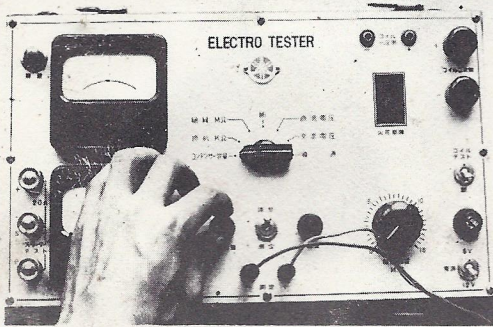


Fig. 5-5-11

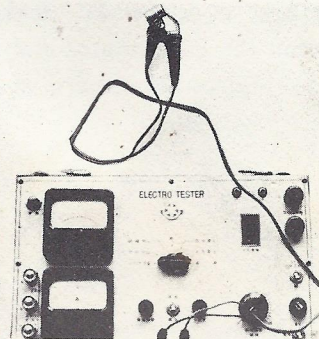


Fig. 5-5-12



e. Contact breaker

- ① Periodically inspect the breaker points and check the point gap.
- ② Excessive scratches should be smoothed out with a fine grain sandpaper (#400-600), and then wipe it with a dry cloth.

(Fig. 5-5-13)

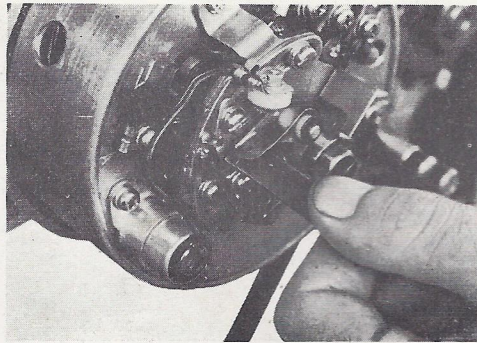


Fig. 5-5-13

- ③ Inspect the breaker cam lubricator every 5,000 Km, (3,000 mi) and grease it.
  - ④ Oil or dust attached to the point will not only impair spark performance but also point life. Clean the points with dry cloth from time to time.
- f. Adjusting ignition timing

- ① Adjustment by use of a dial gauge

Tools and instruments required for adjustment

Dial gauge (accuracy 1/100mm)

Dial gauge adapter

Point checker, testing lamp or YAMAHA electro tester

Point wrench

Slot-head screwdrivers

12mm wrench

- ② Screw the dial gauge adppter into the plug hole of the cylinder head, and install the gauge. Turn the armature bolt until the piston reaches Top Dead Center. Then turn the zero on the indicator to correspond wit the needle Top Dead Center.

(Fig.5-5-14)

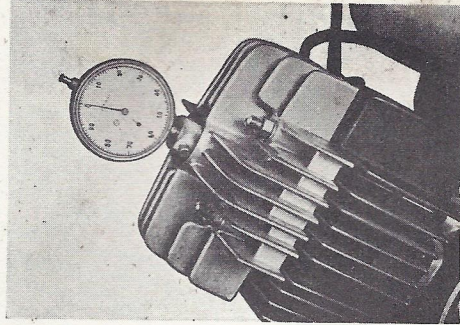


Fig.5-5-14

- ③ Set the point gap at 0.3-0.35mm. (0.010''-0.012'')

(Fig.5-5-15)

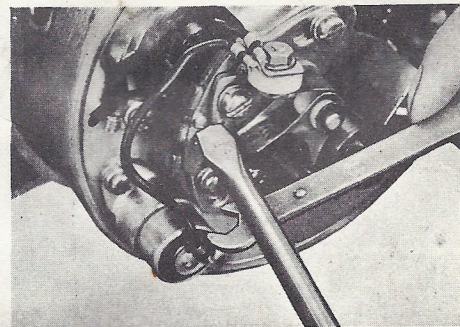


Fig.5-5-15

- ④ Remove the lead wires from Terminal I. Connect the terminal to the positive tester lead, and ground the negative tester lead to the engine or frame.

- ⑤ Loosen the breaker plate mounting screw, and move the plate either way with a slot-head screwdriver until the lamp lights up at exactly 1.8 mm before top dead center. (Do not fully loosen the screw, because the breaker will move when it is retightened.)

Turning the breaker plate in the engine rotation direction will delay ignition timing, while turning it in the reverse direction will advance ignition timing.

(Fig.5-5-16)

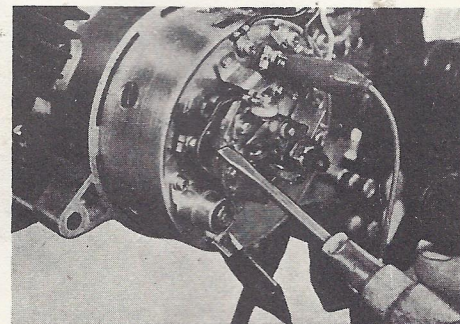


Fig.5-5-16

⑥ Generator Specifications

Part	Description	Standard Value		Inspection
		YI-2	YI2-C	
Field	Resistance value (20°C) Shunt Series	5.4Ω at 20°C	5.4Ω at 20°C 0.014 at 20°C	When voltage is irregular
	Material	CG-9RB	CG-6R-1	First 6,000km(4,000mi) Every 4,000km(2,500mi) thereafter
Brush	Number	2	2	
	Width × thickness × length	8 × 4.5 × 20mm	8 × 4.5 × 20mm	
	Minimum length	8mm	8mm	
	Spring capacity (kg)	0.6kg	0.6kg	
Commutator	Diameter	40mm		
	Minimum diameter	38mm		
	Mica under-cut	0.5-1.0mm	0.5-1.0mm	
	Minimum limit of mica under-cut	0.2mm	0.2mm	
	Difference between max. and min. dia.	0.03mm	0.03mm	
Breaker	Point gap	0.3-0.35mm	0.3-0.35mm	Every 3,000km(2,000mi) (High rpm irregular) (Ignition irregular)
	Contact Pressure	0.5-0.7kg	0.5-0.7kg	
	Condenser capacity	0.22μF	0.22μF	
	Ignition timing	BTDC 22.5° (1.8mm)		
	Automatic spark advancer		Initial 1200 ± 200 r. p. m Final 1600 ± 100 r. p. m Advance degree 17.5° ± 2°	
Others	Generator diameter	120φ	123φ	
	Generator inner diameter	115φ	115φ	
	No. of pole	6	8	
	Air gap	0.4mm	0.4mm	
	Armature taper	20φ × 1/10	20φ × 1/10	
	Cut-in rpm	1,800 r. p. m	1,800 r. p. m	
Capacity	Rated output rpm	14V 4.5A/ 2000r. p. m	14V 6A/1900 r. p. m	
	Lock torque		1.35 kg-m (125A)	

## 5-6 Regulator (Voltage regulator)

The generator alone cannot provide stable electrode current because fluctuations in engine rpm will affect the voltage. The voltage regulator (also called a voltage relay) stabilizes the voltage generated by breaking the field coil circuit (thereby collapsing the magnetic field) when the voltage exceeds a pre-set level.

A cutout relay (also called a charging relay) is built in the regulator. It allows stable electric current from the generator to charge the battery. However, when the engine stops, or when its speed is so low that the generator's output is lower than that of the battery, it breaks the circuit to the battery so that reverse current from the battery is prevented.

### 1. Inspection and Adjustment

If the regulator becomes out of order, the battery will be drained or overcharged and all electrical equipment may be burned out, so use a good tester when inspecting or adjusting the regulator.

#### a. Ignition (load) voltage

##### 1) Inspection

○Set a tester (DC voltage meter or electro-tester) as shown in Fig. 5-6-1.

○Start the engine and keep it running at 3,000 rpm. Remove the fuse connector to cut off the current flow to the battery, and the tester should indicate an output of 14.8-15.8V.

##### 2) Adjustment

If the voltage output is incorrect, remove the regulator cover and raise the voltage by lifting or lowering the voltage relay adjusting spring. (When the spring retainer is lowered, the voltage rises, and when the spring retainer is raised, the voltage drops.)

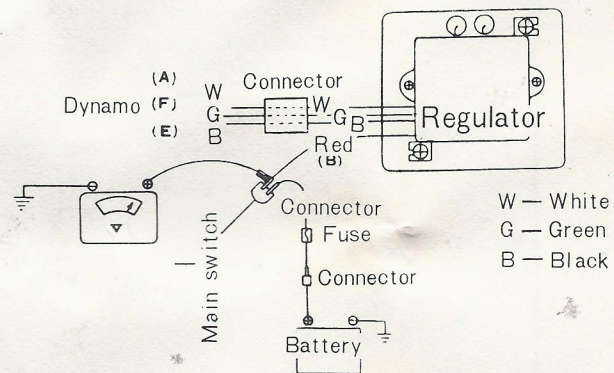


Fig. 5-6-1

Tightening the adjusting spring arm will cause the voltage to rise. When reducing the voltage, lower the arm.

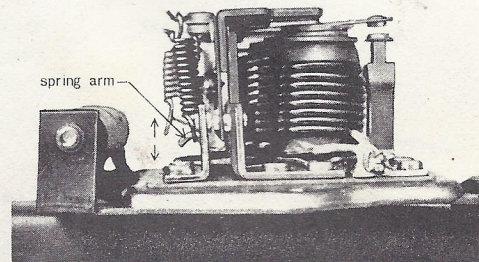


Fig. 5 6 2

The voltage relay has two contact points.

b. No-load voltage

1) Inspection

○ Disconnect the wire at terminal B (red) of the regulator and connect the positive tester lead to terminal B (red), then ground the negative tester lead.

○ Start the engine and keep it running at 2,500 rpm.

If the tester reads 15.6V-16.2V, the regulator is operating correctly.

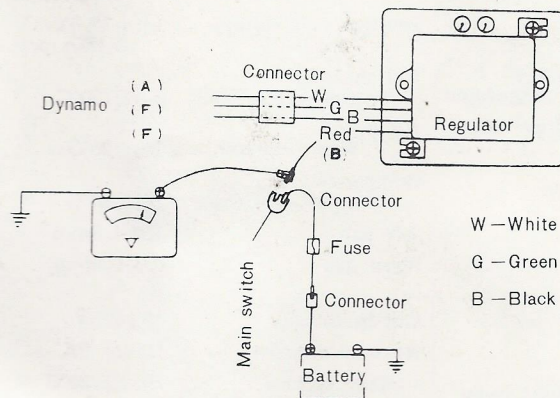


Fig. 5 6-3

2) Adjustment

Adjustment should be performed in the same way as for the load voltage adjustment.

c. Cut-in voltage of the cutout relay

1) Inspection

○ Use the same connections used for the ignition load voltage test.

○ Start the engine and increase its rpm slowly. The cutout relay is correctly set if its breaker points close between 12.5-13.5V. (Approx. 1,800 rpm)

2) Adjustment

Adjust the cutout relay by changing its spring tension.

In actual practice, there is rarely any need to adjust the cutout relay. If the point surfaces of the voltage and cutout relays are worn or pitted, polish them with fine sandpaper (#400-600), before making adjustment.

Tightening the adjusting spring arm will cause the voltage to rise. When reducing the voltage, lower the arm.

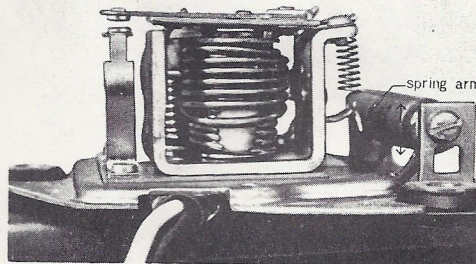


Fig 5-6-4

## 2. Regulator Standards

	Description	Standard Value		Inspection
		YL-2	YL-2 with electric starter (YL2C)	
Voltage regulator Voltage relay	No-load voltage adjustment value	15.6-16.3V/ 2,500r. p. m Under 16.7V/ 5,000r. p. m	15.8-16.5V/ 2,500r. p. m Under 16.9V/ 5,000r. p. m	When voltage is irregular
	Ignition coil voltage	14.8-15.8V/ 3,000r. p. m	15-16V/ 3,000r. p. m	
	Voltage coil resistance value	8.1Ω/20°C	8.1Ω/20°C	
	Field coil input resistance	10Ω/20°C	10Ω/20°C	
	Compensation resistance value	16Ω/20°C	16Ω/20°C	
	Air gap	1.0-1.2mm	1.0-1.2mm	
	Point gap	0.3-0.4mm	0.3-0.4mm	
Cutout relay	Cut-in voltage	13±0.5V	13±0.5V	
	Reverse current	Under 5A	Under 5A	
	Voltage coil resistance value	79.2Ω/20°C	79.2Ω/20°C	
	Air gap	0.5-0.7mm	0.5-0.7mm	
	Point gap	0.6-0.8mm	0.6-0.8mm	
Starting switch	Point voltage drop		Under 0.3V/100A	
	Point pressure		180g	
	Voltage coil resistance value		11Ω/20°C	

## 5-7 Ignition Coil

The ignition coil is a transformer with approximately 50 times the number of windings in the secondary coil as in the primary. If the electric current supplied to the primary coil (from the battery) is interrupted by a contact breaker, the primary coil will produce a 150-300 volt current surge by self-induction. This current is boosted to 7,000-10,000 volts by the mutual induction of the larger number of secondary coil windings, thus making a spark jump between the sparkplug electrodes.

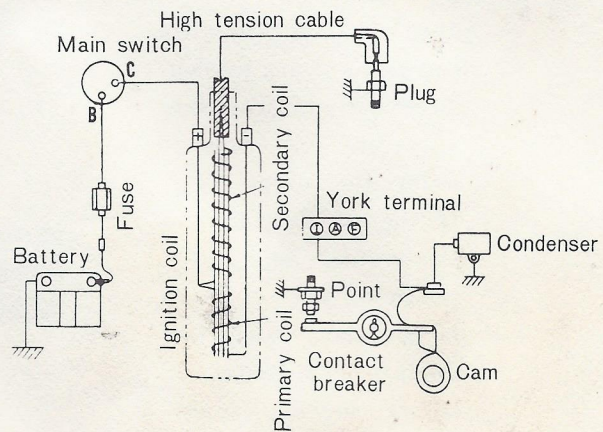


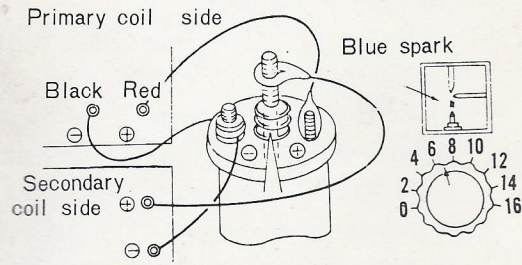
Fig. 5-7-1

### 1. Inspection

If no spark or a rather weak spark jumps the plug gap, inspect the ignition coil as well as the contact breaker.

a. When the coil alone is tested:

- 1) Use a 12V battery. A spark of 7mm or more means that the coil is in good condition. Fig.5-7-2



Yamaha electro- tester

Fig.5-7-2

- 2) Test, with coil installed. (practical test)

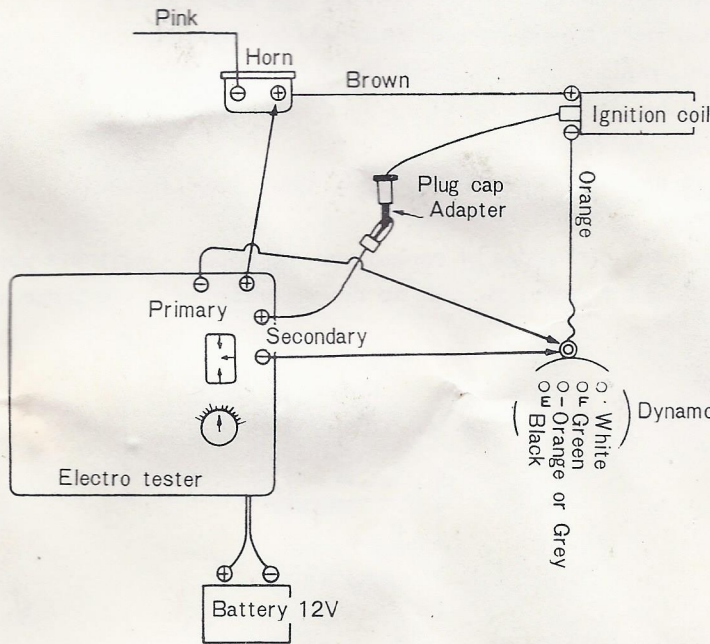


Fig.5-7-3

- Disconnect the lead attached to ignition generator terminal I, and connect it to the negative primary and secondary lead of the tester.
- Detach the high tension lead from the plug, attach an adapter (copper or iron wire may be usable) to the plug lead cap, and connect this adapter lead to the positive secondary lead of the tester.
- Connect the positive primary lead of the tester to the brown lead terminal of the horn.
- Use a 12V battery as power source for the tester.
- If the tester shows a spark of 7mm or more, the coil is in good condition.

## 5-8 Spark Plug

The life of a plug and its coloring vary according to the habits of the rider. At each periodic inspection replace burned or fouled plugs with suitable ones according to the color and condition of the bad plugs. One machine may be ridden only in urban areas at low speeds whereas another may be ridden for hours at high speeds, so confirm what the present plugs indicate, how long and how fast the rider usually travel, and recommend a cold, standard, or hot plug accordingly. It is actually economical to instal new plugs every 3,000km(2,000mi) since it will tend to keep the engine in good condition and prevent excessive fuel consumption.

### 1. How to "read" spark plug condition

- a. If the porcelain around the center electrodes is a light tan color, the plug is correct
- b. If the electrodes and porcelain are black and somewhat oily, replace the plug with the hotter-type used for low speed riding.
- c. If the porcelain is burned white and/or the electrodes are partially burned away, replace the plug with the colder-type used for high speed riding.

### 2. Inspection

Instruct the rider to:

Inspect and clean the spark plug at least once a month or every 1,000 km. (600 mi)

- a. Clean the electrodes of carbon and adjust the electrodes gap to 0.5-0.6 mm. 0.02"~0.04" (025") Be sure to use standrad 1/2" each plugs as replacements.

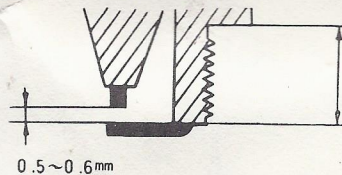


Fig.5-8-1

## 5-9 Battery

The battery is the power source for the whole electrical system. When the engine starts or engine rpm is low and the generator supplies very little electricity, the battery supplies power to the ignition system, lights, etc. During riding, the generator supplies the electric power and recharges the battery.

### I. Before the first ride:

A new battery should be charged by a battery service shop, but if the battery is charged at your shop, the following steps are recommended.



○How to charge a new battery:

- 1) First, fill each battery cell to maximum level with dilute sulphuric acid (specific gravity 1.26).
- 2) Charge it with 0.6A current for 13 hours.
- 3) After charging, tilt up a corner of the battery to let out air bubbles. If necessary, add distilled water to restore it to maximum level. Make sure the specific gravity is between 1.26 and 1.28. Then tighten all the cell caps.
- 4) Wash the battery off with water to remove any sulphuric acid. Dry it well and then mount it in the bike.

## 2. Periodic Inspection and Supplementary Charging

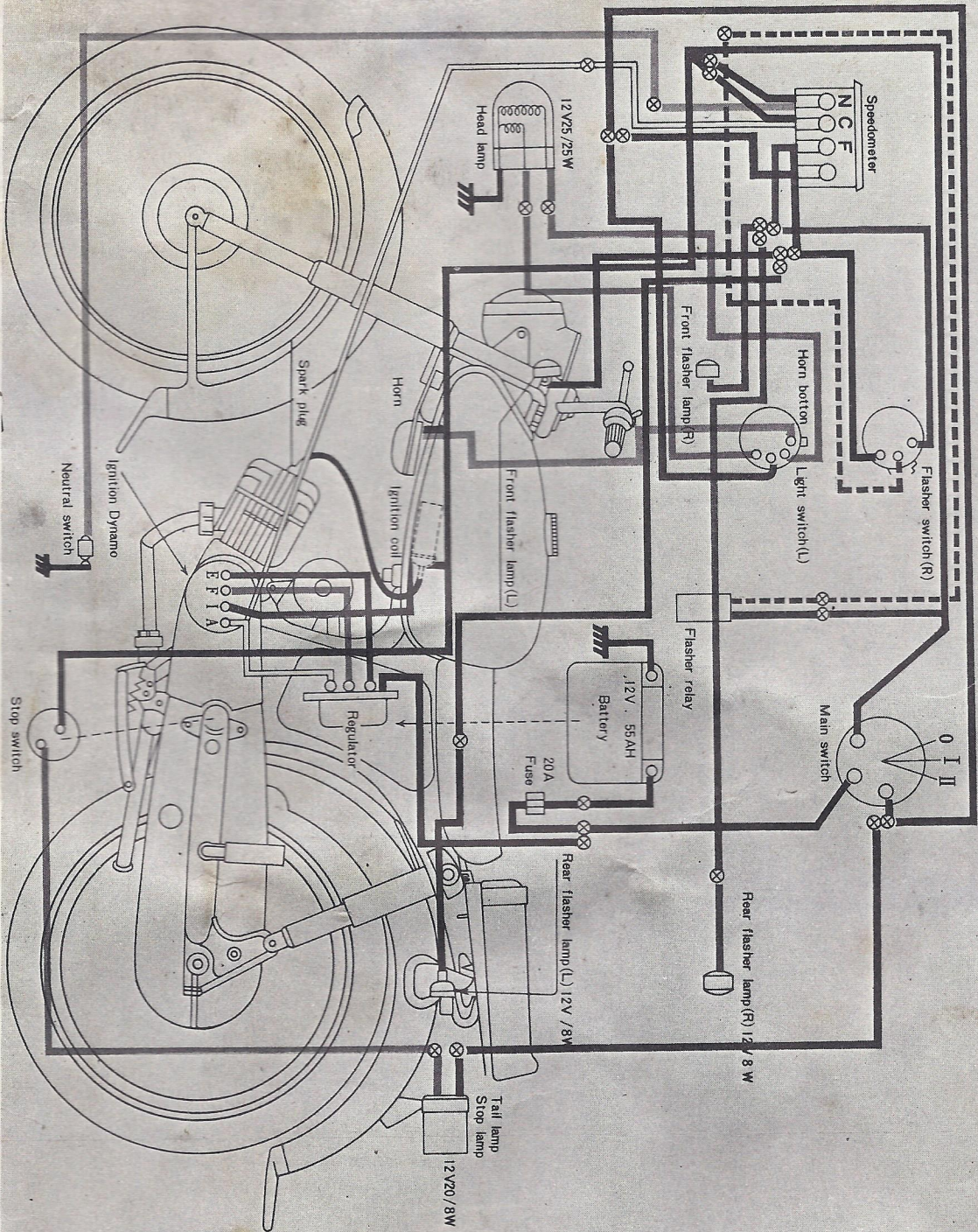
- Inspect the fluid level every month. If the level is below the middle line, instruct the rider to add distilled water to raise the level to the maximum.
- If the battery seems to be discharged, recharge it.  
The secondary charge should be made by a 0.6A current for 13 hours.  
Find out what has caused for the battery to discharge and correct and adjust defects.

## 3. Maintenance

- If your motorcycle will not be used for along time, remove the battery and have a battery shop or a YAMAHA dealer store it.
- The following steps are to be taken by shops equipped with a charger.
- 1) Recharge the battery after it is removed.
  - 2) Store it in a cool, dry place, and avoid temperatures below 0°C. (+32°F.)
  - 3) Recharge the battery once a month and before reinstallation.

M E M O

# YAMAHA 100 YL-2 Circuit Diagram



Circuit connected by main switch

Position	Condition	Connection
0	Stopped	
I	Day Riding	Red+Brown
II	Night Riding	Red+Brown+Blue