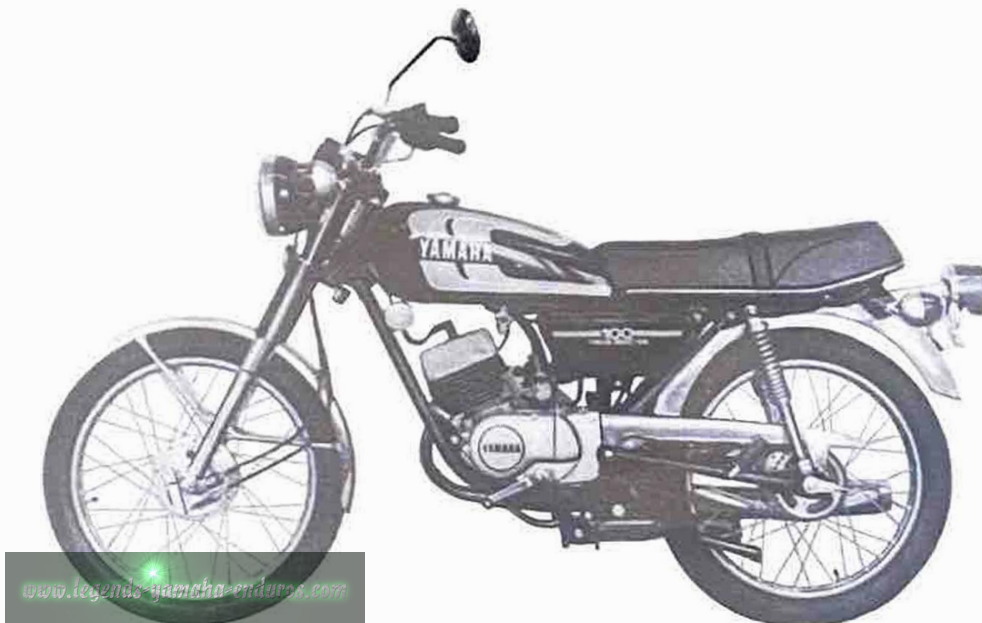


# YAMAHA MOTORCYCLE

# RS100B ASSEMBLY MANUAL



**YAMAHA MOTOR CO., LTD.**

**90894-07413**

## FOREWORD

This Assembly Manual contains the information required for the unpacking and assembly of Yamaha motorcycles so that the Yamaha serviceman can assemble the machine in the correct manner. To perform machine assembly, a basic knowledge of service and Yamaha machines is required. Therefore, all Yamaha dealers are urged to make a full study on the service of Yamaha motorcycles using the relevant service manuals.

## NOTICE

The service standards given in this Assembly Manual are based on the model as manufactured when this manual was published. Since this model may require some improvements, the service standards may be subject to partial change in the future. If any change is introduced into the specifications or service procedures, Yamaha dealers will be notified through technical service information to be published by Yamaha. The assembly procedure is described in the order that the mechanic should follow, and the correct service tools should be used in the correct manner. Failure to do this may result in poor performance and a danger to the rider.

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## PREPARATION

To assemble the machine correctly, the following service tools, supplies and working space are required:

### Tools for unpacking

1. Nail puller
2. Pliers
3. Steel hammer
4. Scissors

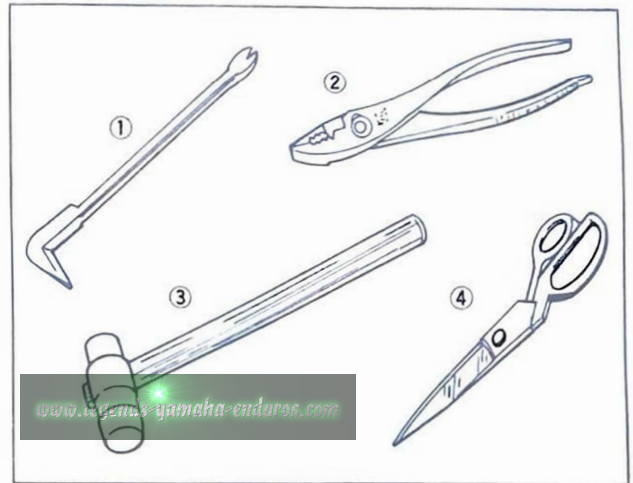


Fig. 1

### Tools for assembling

1. L-handle socket wrench
2. Spark plug wrench
3. Steel hammer
4. Soft-faced hammer
5. Wrench set
6. Slotted head screwdrivers (Large, medium and small)
7. Phillips head screwdrivers (Large, medium and small)
8. Pliers
9. Long nose pliers
10. Allen wrench set
11. T-handle socket wrench
12. Socket wrench set
13. Torque wrench

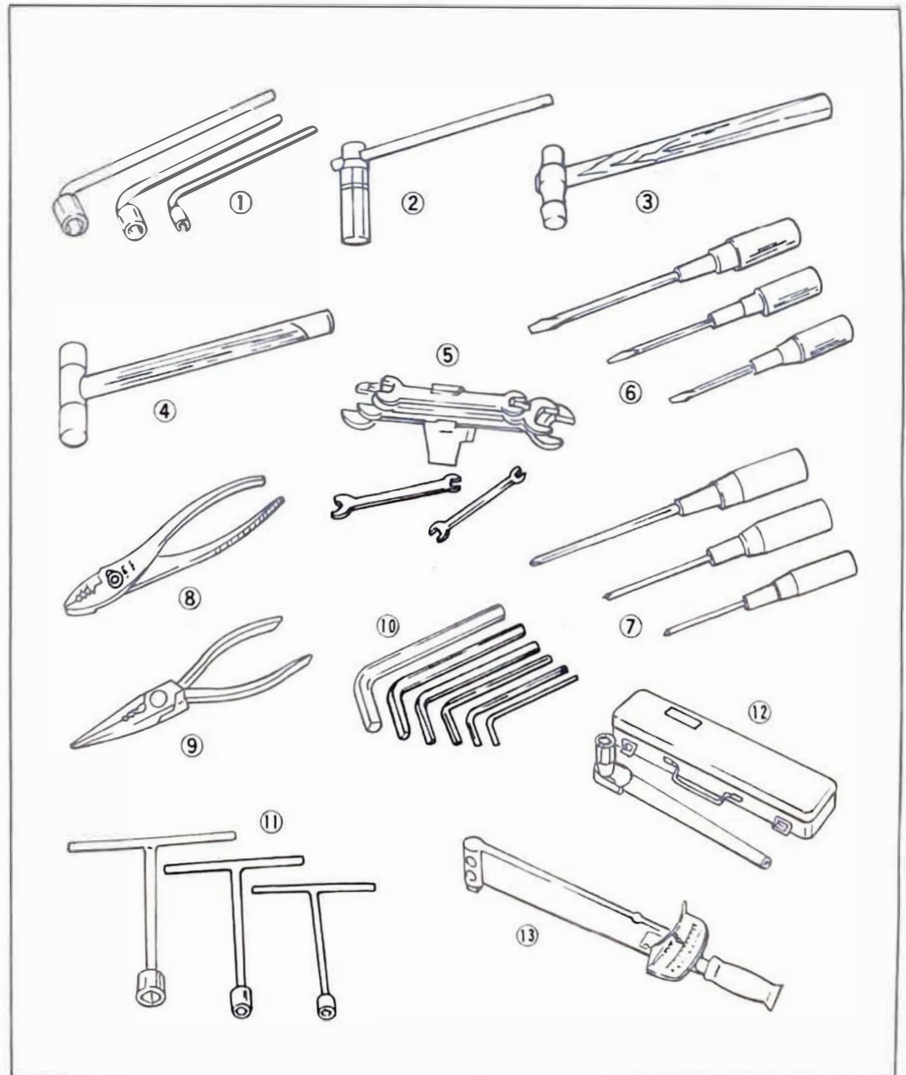


Fig. 2

## Supplies

Oils, Greases, Shop rags, Electrical contact cleaner

## Workshop

The workshop where the machine is assembled should be clean and large. The floor should be level.

## UNPACKING

### Note on transportation

Use care not to butt the machine packed in the crate against a hard object or give it a heavy shock during transportation or in the service shop.

### Procedure for unpacking

To remove the machine and parts packed in the crate, proceed as follows. (see figures)

1. Remove the nails securing the top board, and remove the top board complete.
2. Remove the nails securing the three wooden crosspieces supporting the top board, and remove the crosspieces.
3. Remove the nails securing the frame holding crosspiece, and remove the crosspiece.
5. Remove the wooden piece holding the front wheel shaft to the bottom board.



Fig. 3








## PARTS CHECK LIST

Before starting the assembly, check for damaged or missing (listed below).

Also check the machine for damage, scratches and other defects.

The following parts are contained in the foam tray and the vinyl bag in the package. Check the quantity of parts against the list. Also check for damage.

No	Photo	Part Name	Q'ty	Remarks
1		Damper	1	
2		Battery box damper	1	
3		Bolt A (Shoulder bolt)	2	
4		Washer with rim	1	
5		Fender mount collar	1	
6		Bolt (6 x 25)	1	For taillight
7		Nut (6 mm)	3	
8		Spring washer (6 mm)	3	
9		Plain washer (8 mm)	2	
10		Clevis pin	2	For seat
11		Clip	1	

No	Photo	Part Name	Q'ty	Remarks
12		Nut (8 mm)	2	For footrest
13		Cotter pin	1	For front wheel axle
14		Wire holder	1	For front fender
15		Spring washer (6 mm)	1	
16		Nut (6 mm)	1	
17		Bolt (6 x 12)	4	
18		Spring washer (6 mm)	4	

### INSTALLATION GUIDE

The removed parts should be installed in the positions indicated in the chart below.

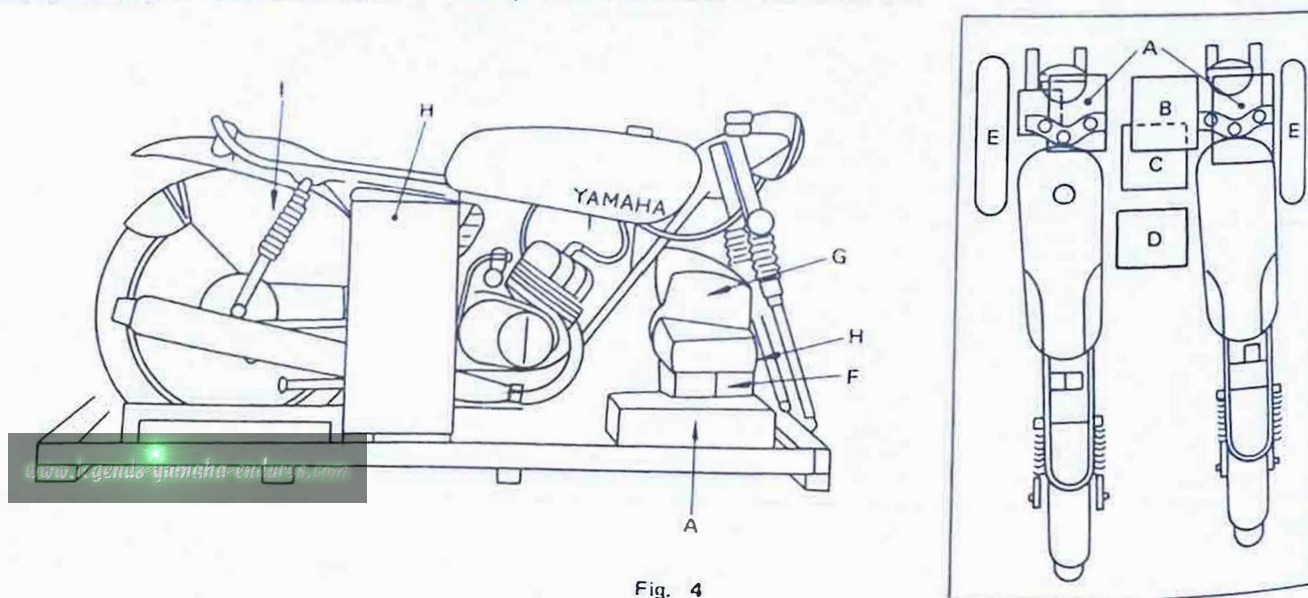


Fig. 4

Setting Position	Part Name	Q'ty	Setting Position	Part Name	Q'ty
A	Tool set	2 each	F	Handle bar assembly	2
B	Flasher	4	G	Front brake shoe plate assembly	2
C	Speedometer	1	H	Semi double seat	2
D	Taillight assembly	1	I	Front fender	2
E	Front wheel assembly	2	J	Change pedal and Bolts	2

## SET-UP PROCEDURES

Remove the front fender held between the rear tire and the rear fender. Next, remove the front wheel.

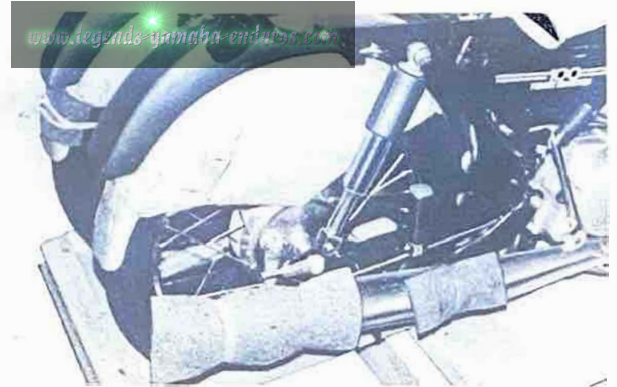


Fig. 5

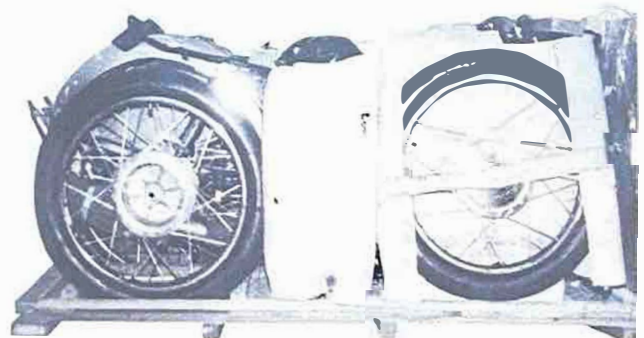


Fig. 6

Remove the seat

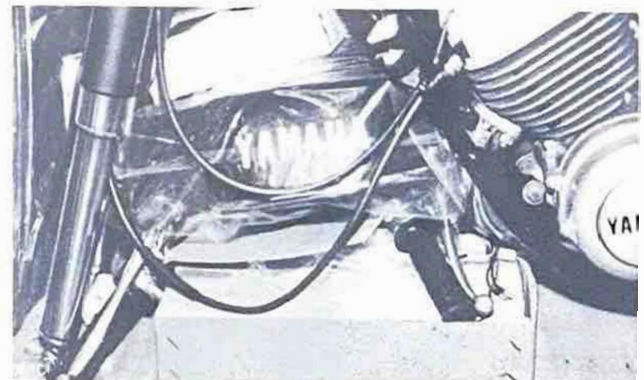


Fig. 7



Remove the nails from each corner of the crate, and remove the struts

To install the front fender and front wheel, place a properly sized wooden box or a wooden block under the engine to keep the front of the machine raised off the floor. Take care so that the machine does not fall over.

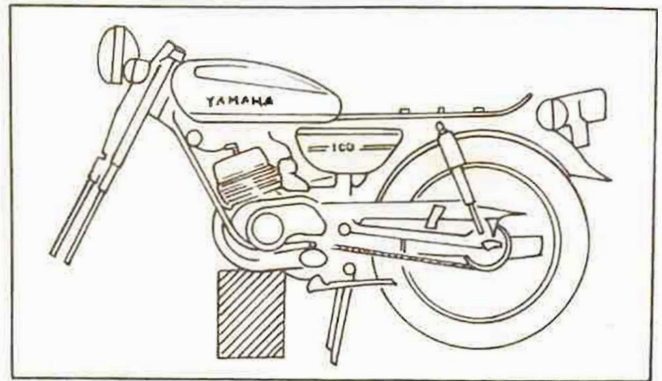


Fig. 8

Using the spring washer and nut contained in the vinyl bag, install the wire holder on the front fender.  
Spring washer 6 mm x 1



Fig. 9

Insert the front fender between the front fork legs, and secure the fender using the specified number of spring washers

Bolts 8 mm x 4 pcs

Spring washers 8 mm x 4 pcs

Tightening torque

175 ~ 220 in-lbs (2.0 ~ 2.5 m-kgs)



Fig. 10

Apply a light coat of grease to the speedometer drive gear and oil seal

**Caution:**

Take care not to put grease on the brake linings or inner surface of the brake drum. If you do so, clean using a rag dampened with a solvent. Foreign material on braking surface can cause impaired braking action.



Fig. 11

Remove the front wheel axle nut, and loosen the bolt securing the axle. Then remove the wheel.

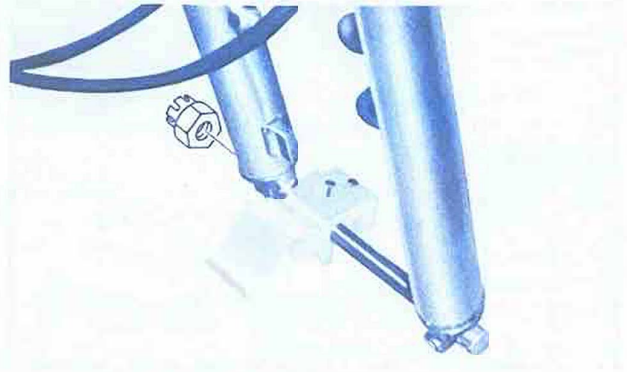


Fig. 12

Install the wheel axle collar in the wheel hub on the right side of the front wheel.

**Note:**

To avoid damaging the oil seal lip, apply a light coat of lithium base grease to the oil seal lip and axle collar. If the collar is dirty, clean with a rag.

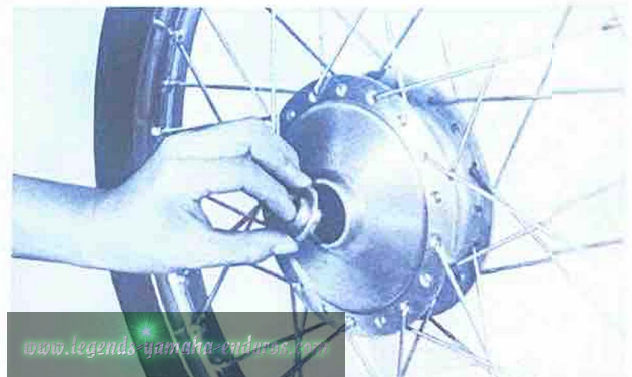


Fig. 13

Install the brake shoe plate assembly in the front wheel hub.

1. Clean the inner surface of the front wheel hub with a clean cloth.
2. Make sure the brake shoes and springs are correctly installed in the shoe plate assembly. If any one of them is out of place, correct per the figure.
3. Install the brake shoe plate assembly in the wheel hub.

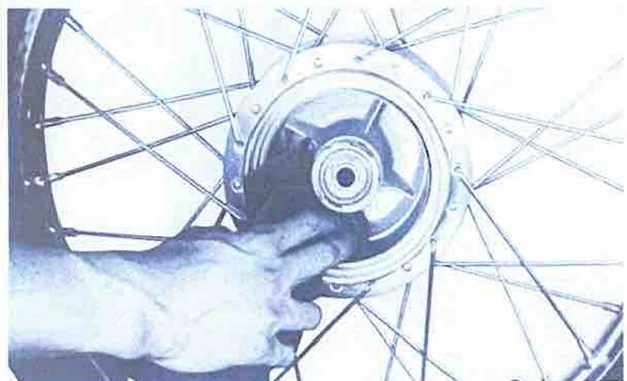


Fig. 14



Fig. 15

Install the front wheel on the front forks.

1. Insert the front wheel between the front fork legs so that the stopper (projection) on the front fork end correctly engages the slot in the brake shoe plate.
2. Insert the axle, mount the plain washer on the axle, and install the axle nut.
3. Lightly tighten the axle holder bolts so that the axle does not turn while the axle nut is tightened.
4. Torque the axle nut to specification.

Tightening torque:

29 ~ 33 ft-lbs. (4.0 ~ 4.5 m-kgs.)

5. Lock the nut with the cotter pin.  
The pin should be inserted downward, and the pin ends should be bent.

6. Torque the axle holder bolts to specification.

Tightening torque:

175 ~ 220 in-lbs. (2.0 ~ 2.5 m-kgs.)

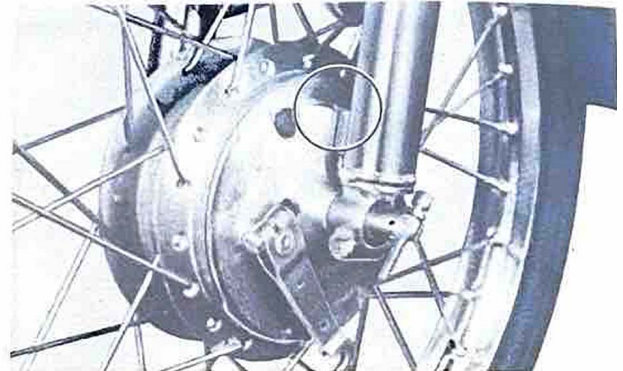


Fig. 16



Fig. 17

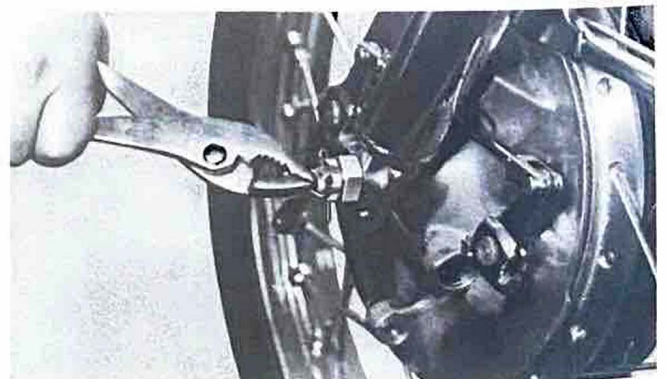


Fig. 18

Connect the speedometer cable to the front wheel hub gear unit. Insert the cable end into the gear unit, fit the circlip in the groove on the wheel hub side, and lock the cable. (The circlip is already attached to the cable.)



Fig. 19

#### Handlebar installation

1. Remove the four hexagon bolts, and remove the handlebar holder.
2. Insert the lead wire coming from the handle switch into the grommet attached to the headlight body.
3. Install the handlebar using the removed upper holder and four hexagon bolts.

Tightening torque:

14.5 ~ 16 ft-lbs. (2.0 ~ 2.2 m-kgs.)



Fig. 20

Grease the right end of the handlebar and the throttle grip housing, and install the throttle grip.

#### Caution:

Make certain throttle grip rotates on handlebar freely, without binding. If not, normal throttle return will be impaired.

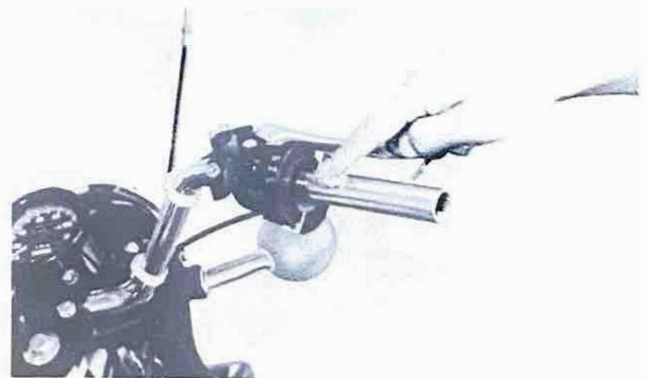


Fig. 21

Secure the brake lever and clutch lever holders with a 6 mm hexagon bolt and spring washer each.



Fig. 22

Using the bolts contained in the vinyl bag, install the meter bracket assembly on the handle crown.

Hexagon bolts: 8 mm x 2 pcs

Spring washer: 8 mm x 2 pcs

**Note:**

Before securing the meter bracket, all wires should be threaded through the headlight body grommet. Take care not to kink wires by pressure.

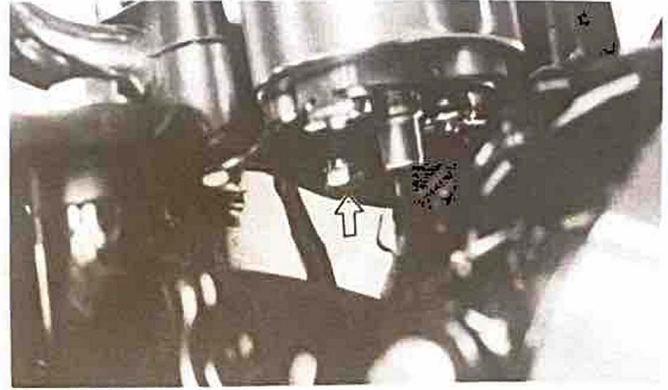


Fig. 23

**Brake wire and clutch wire installation**

1. Screw in the cable length adjusters on the brake shoe plate (brake wire) and the crankcase cover (clutch wire).
2. Fully loosen the lever adjuster lock nut, and screw in the adjuster until tight. Next, align the slit in the adjuster and adjuster lock nut with the slit in the lever holder.
3. Insert the wire end into the lever hole, and hook the outer cable end onto the adjuster lock nut, then squeeze the lever. Next, while pulling the outer cable in the direction opposite to the lever, release the lever quickly. While releasing it, seat the outer cable into the adjuster.

**Caution:**

Proper cable and wire routing is essential to insure safe vehicle operation. For details of the cable routing, refer to the cable routing diagram.

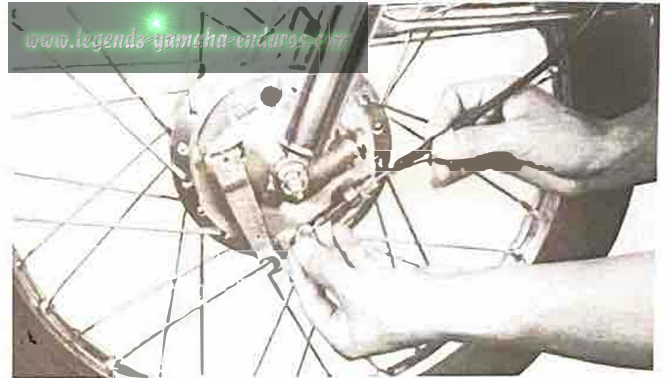


Fig. 24-1

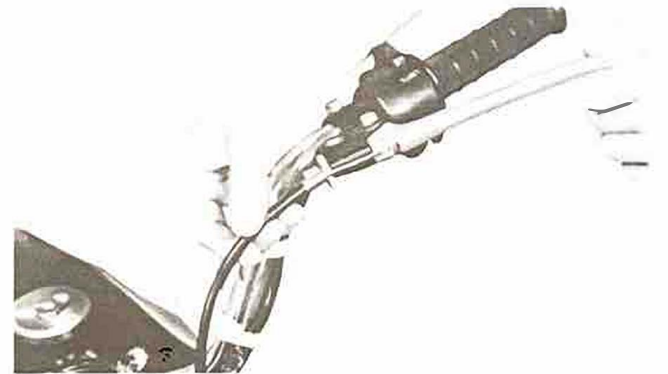


Fig. 24-2



Fig. 25

Connect the meter cable to the speedometer.

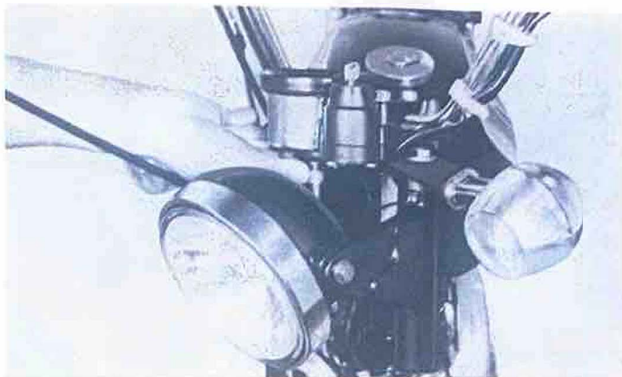


Fig. 26

Install the rear view mirror on the clutch lever holder (left hand side), and tighten the lock nut.

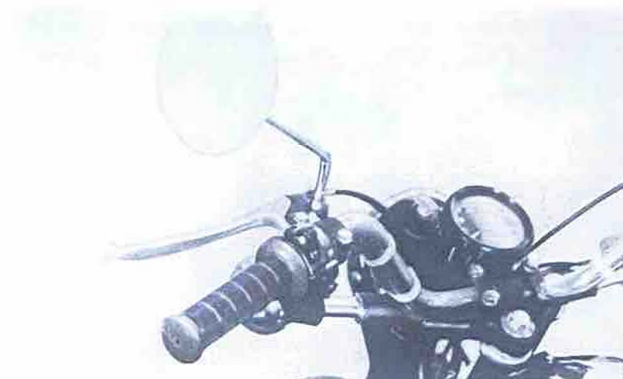


Fig. 27

Remove the Phillips head screw from the bottom of the headlight body. Insert a slotted head screwdriver between the headlight body and the headlight rim. pry out the lens assembly.

**Note:**

During the operation, care should be taken not to scratch the headlight body and lens rim. Also take care so that the screw is not lost.



Fig. 28

**Front flasher light installation**

1. Install both right and left front flasher lights on the handlebar as illustrated.
2. Hold the lamp lead wire to the fork cover upper cramp and insert the lead wire end into the headlight body. (See illustration.)

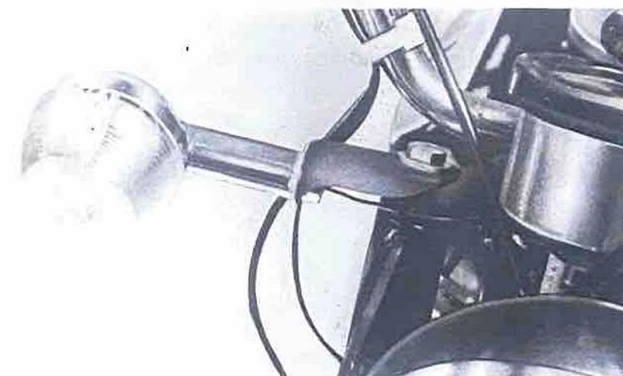


Fig. 29-1

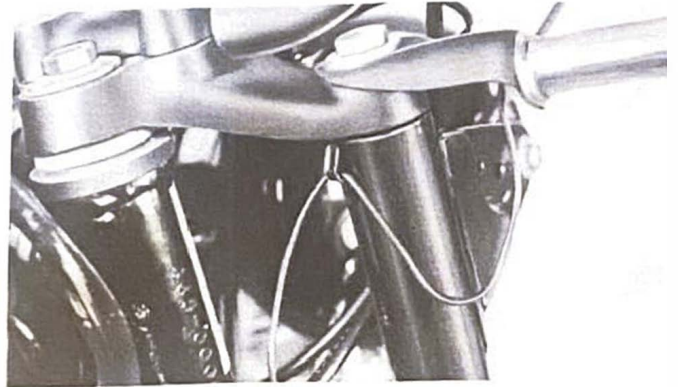


Fig. 29-2

Connect all lead wires inside the headlight body. The wires of identical colors should be connected. (Some lead wires are excluded.)



Fig. 30

When installing the headlight lens assembly, care should be used so that wires are not pinched. Secure the headlight assembly in place with the Phillips head screw.

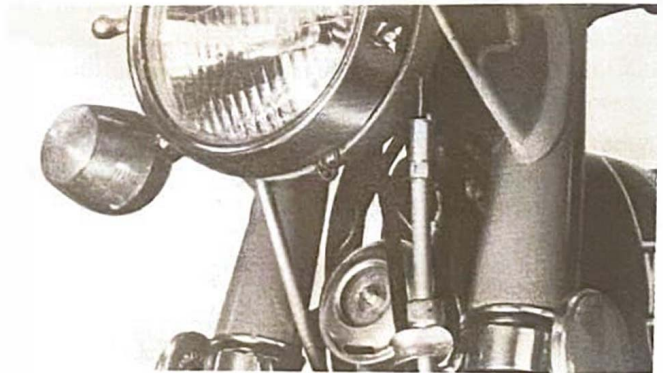


Fig. 31

Install the change pedal on the change shaft, and install the mounting bolt. The mounting position should be as illustrated.

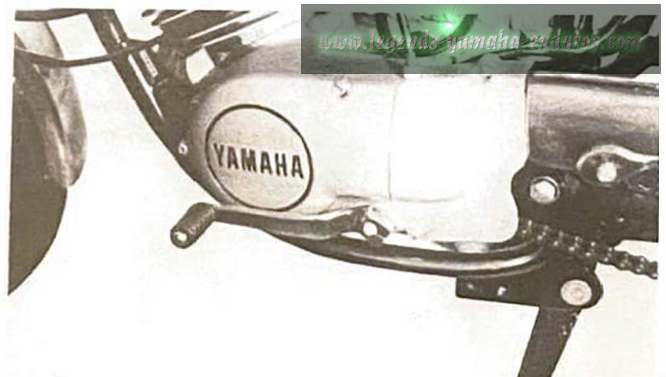


Fig. 32

Insert the footrest fixing bolt from the left hand side of the frame and then tighten it.

Tightening torque

10 mm; 25 ~ 29 ft-lbs. (3.5 ~ 4.0 m-kgs)

8 mm; 18 ~ 22 ft-lbs. (2.5 ~ 3.0 m-kgs)

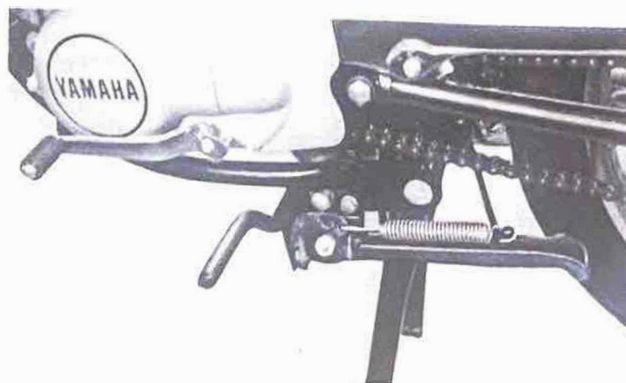


Fig. 33

Taillight assembly installation

1. Install the two rubber dampers (contained in the vinyl bag) on the tail/stoplight bracket.

2. Using the bolt, washer with rim, fender mounting collar, spring washer and nut contained in the vinyl bag, secure the front part of the tail/stoplight bracket to the rear fender.

Bolt: 6 mm. x 1 pc

Washer with rim: 1 pcs

Collar: 1 pc

Spring washer: 6 mm x 1 pc

Nut: 6 mm. x 1



Fig. 34



Fig. 35

Connect the taillight assembly lead wire to the wire harness, and lock it with the hook. (The wires of identical color should be connected)

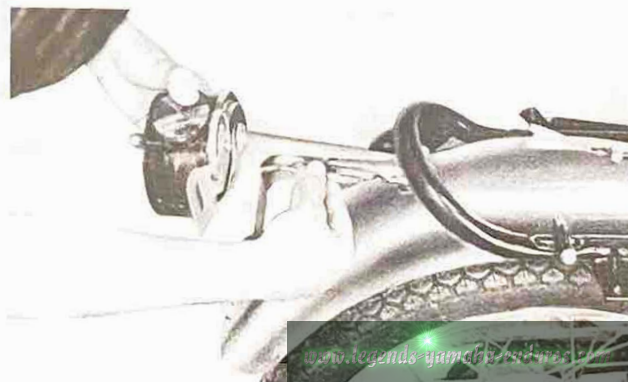


Fig. 36



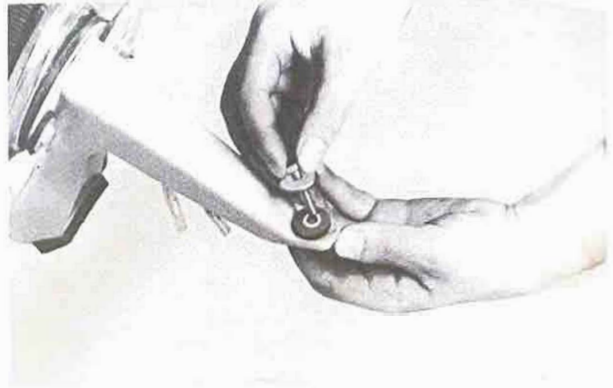


Fig. 37

3. Using the shoulder bolts, plain washers, spring washers and nuts contained in the vinyl bag, secure the rear part of the tail/stoplight bracket to the fender.  
 Shoulder bolts: 6 mm. x 2 pcs.  
 Plain washers: 6 mm x 2 pcs.  
 Spring washers: 6 mm. x 2 pcs.

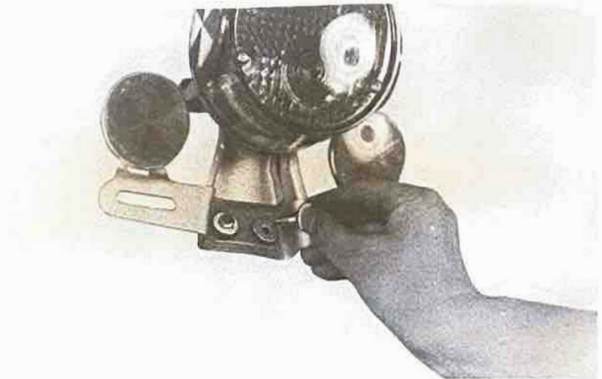


Fig. 38

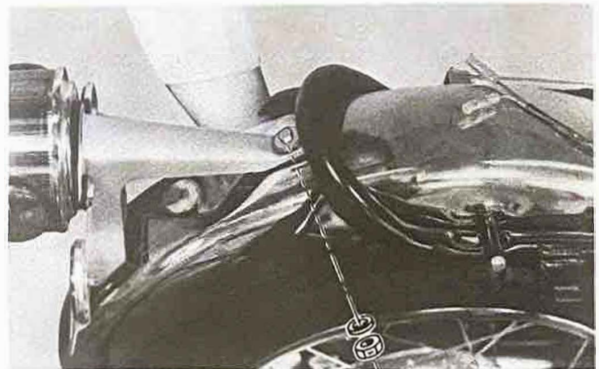


Fig. 39

#### Rear flasher light installation

1. Install the flasher light rubber damper on the rear flasher light stay.
2. Install the lead wire, with the chocolate color marker on the left side. Next, install the other flasher light (a dark green marker is attached) on the right side.
3. When installing the flasher light, install the ground wire between the special washer and the nut, and lock it as illustrated.
4. After installing the light, secure the lead wires with the clamp located on the rear fender.
5. Connect the flasher light lead wires to the wires inside the wire connector cover. The wires of identical colors should be connected.

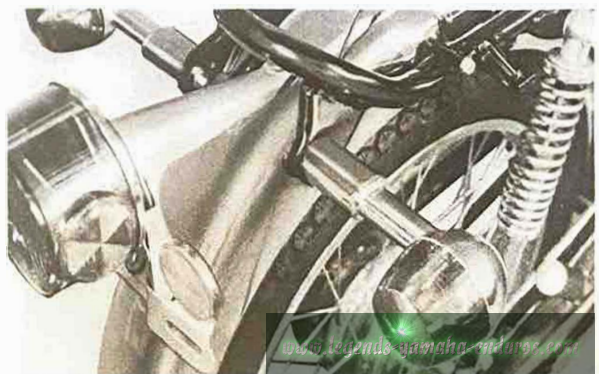


Fig. 40

## Battery

- 1 When filled with diluted sulfuric acid electrolyte, this battery can be put into use immediately. That is, it is a dry-charged battery. It is advisable, however, that the battery be charged as much as possible before using for the first time for maximum performance. This initial charge will prolong the life of the battery.  
Charging current 0.4A  
Charging hours 10 Hrs
- 2 How to prepare diluted sulfuric acid  
The diluted sulfuric acid can be prepared by adding sulfuric acid to distilled water at specific mixing ratio

Specific gravity at 68°F (20°C)	Ratio of distilled water to sulfuric acid
1.25	3.4
1.26	3.2
1.27	3.0
1.28	2.8
1.29	2.7
1.30	2.6

Pour distilled water into a glass container, and add sulfuric acid while stirring with a glass stick. Adding the acid will generate heat, and therefore, care should be taken so that heat does not rise excessively.

### Caution:

Never attempt to add distilled water to sulfuric acid.

### 3 Filling the battery with diluted sulfuric acid

- a Remove all filter caps from the battery, and remove the breather pipe cap at the same time.
- b Cool the diluted sulfuric acid down to below 86°F (30°C).
- c Pour diluted sulfuric acid into each cell little by little up to the upper level line, and leave it for a while. When the battery fluid permeates the plates and separators, the fluid level begins to lower. Add diluted sulfuric acid again.
- d Charge the battery as required, and measure the specific gravity of the fluid.
- e Install the filler caps, and thoroughly wipe off the fluid around the filler caps.

## Battery installation

- 1 Make sure the main switch is turned off, and install the battery in the battery box. (Secure the battery with a band.) Connect the positive lead wire first, and then connect the negative lead wire.

### Note:

After connecting the positive lead wire, be sure to place the rubber cover to prevent shorting.

- 2 The breather pipe should be connected as illustrated.

### Note:

Rout the breather pipe outlet down and away from any part of the machine.



Fig. 41

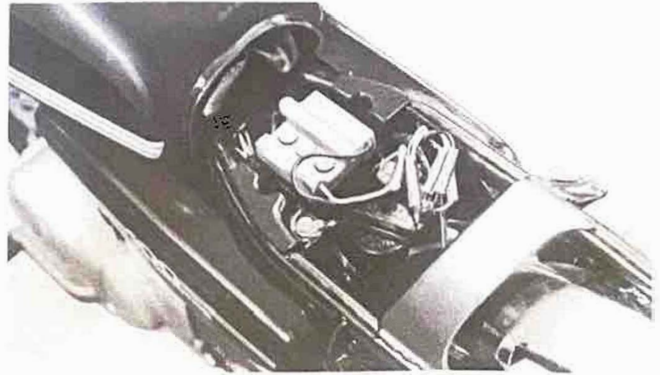


Fig. 42

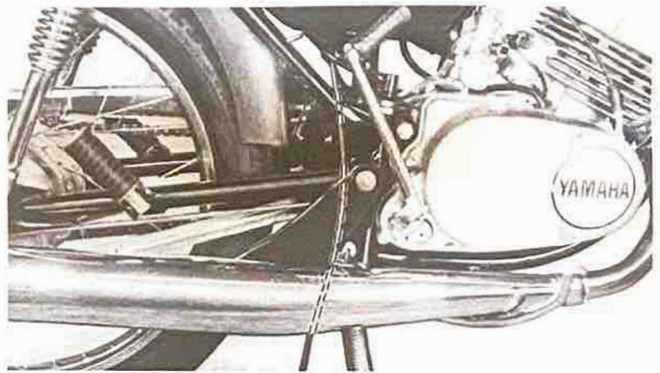


Fig. 43

#### Seat installation

Remove the clip, seat pin stopper and clevis pin from the frame, and using these, secure the seat to the frame. The clevis pin should be inserted into the stay from the rear side, and its front end should be locked with clips



Fig. 44

# INSPECTIONS AND ADJUSTMENTS

## Inspections

After all packed parts are installed, check to see that all these parts and other parts (mounted or installed at the Yamaha factory) are correctly mounted or installed, or tightened to specification. This check-up should be started with the front of the machine.

Item	
Front wheel spokes	Tension
Front wheel rim	Hopping, deflection
Front wheel tire	Tire pressure
Front wheel axle nut	Cotter pin, tightening torque
Front wheel axle holder lock nuts	Tightening torque
Front fork pinch bolts	Tightening torque
Steering head lock nut	Tightening torque
Handlebar holder	Tightening torque
Clutch lever holder	Tightening torque
Brake lever holder	Tightening torque
Front flasher light	Mounting, wiring
Throttle housing	Position, operation, tightness
Engine mounting bolts	Tightening torque
Carburetor joint(s)	Tightness

Footrests	Position, tightening torque
Change pedal	Position, looseness, operation
Brake pedal	Position, looseness, operation
Seat	Mounting, clevis pin, clips
Fuel tank	Mounting
Fuel pipe	Connection
Battery	Mounting, fluid level, wiring
Rear fender	Mounting
Taillight	Mounting, wiring
Rear flasher light	Mounting, wiring
Rear cushion	Mounting, tightening torque
Carrier	Mounting, tightness
Rear swing arm pivot shaft	Tightening torque
Rear axle nut	Cotter pin, tightening torque
Chain puller	Lock nut
Rear wheel	Spoke tension
Rear wheel rim	Hopping, deflection
Rear wheel tire	Tire pressure
Transmission oil	Oil level
Autolube oil	Oil level

## Adjustments

### Note:

This section deals with the main points only. For details, refer to the service manual for this model.

### Throttle wire adjustment

1. After adjusting the idling speed, adjust the play in throttle wire 2 (both right and left) to 0.02 ~ 0.04 in. (0.5 ~ 1.0 mm.).
2. Next, adjust the play of throttle wire 1 to 0.02 ~ 0.04 in. (0.5 ~ 1.0 mm.) at the throttle cable end.

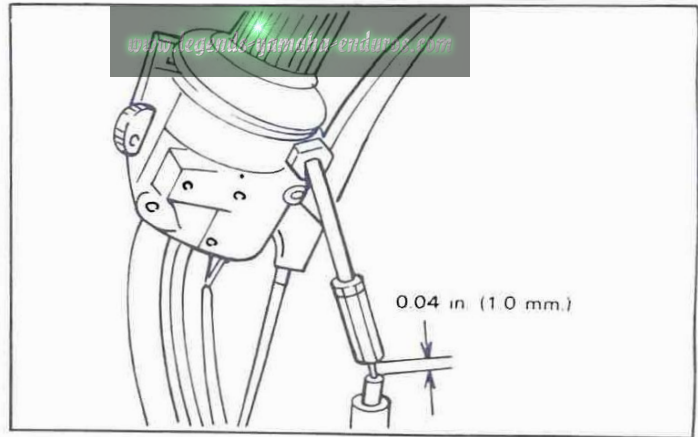


Fig. 45

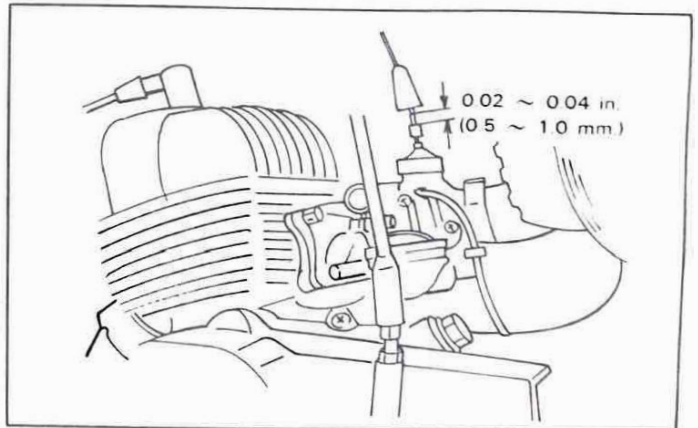


Fig. 46

#### Pump wire adjustment

- 1 Remove pump cover
- 2 Open throttle slightly to take up all play
- 3 Loosen wire adjuster lock nut and turn adjuster in or out until the proper mark on the adjusting pulley is aligned with the guide pin.

- 1 Adjustor  
2 Adjustor lock nut

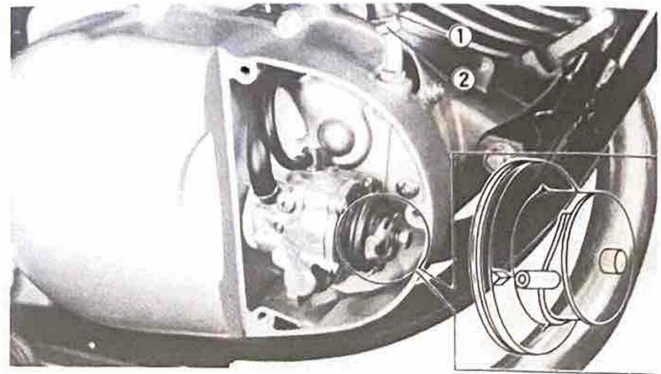


Fig. 47

#### Front brake wire adjustment

Loosen the adjusting nut, and adjust the play of the brake lever (at the position illustrated) to specification by turning the adjusting screw. After the adjustment, screw in the lock nut until tight.

Standard value: 0.8 ~ 1.1 ins. (20 ~ 30 mm.)

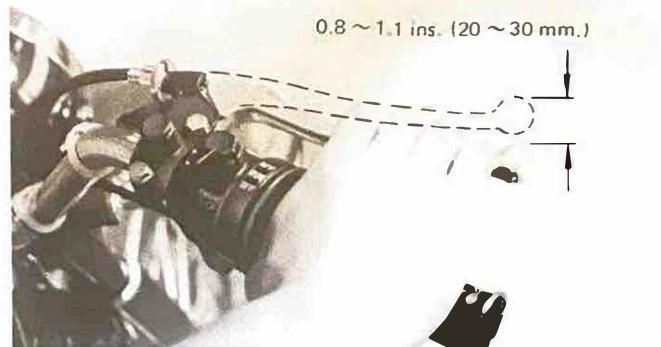


Fig. 48

#### Clutch wire adjustment

Loosen the clutch wire adjuster lock nut at the clutch lever, and adjust the clutch wire by turning the wire adjuster. Turning the adjuster clockwise (the adjuster is tightened) increases clutch wire play, while turning counterclockwise decreases the play.

The play should be 0.8 ~ 1.1 ins. (20 ~ 30 mm.) at the position shown in the figure.

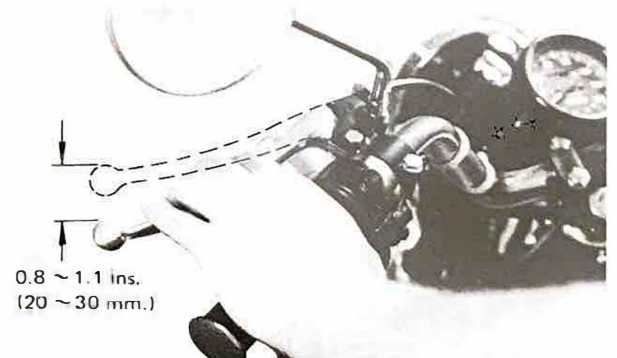


Fig. 49

#### Rear brake pedal adjustment

Rear brake pedal play can be adjusted by turning the adjusting nut on the rear end of the brake rod.

Standard:

0.8 ~ 1.1 ins. (20 ~ 30 mm.) at the brake pedal

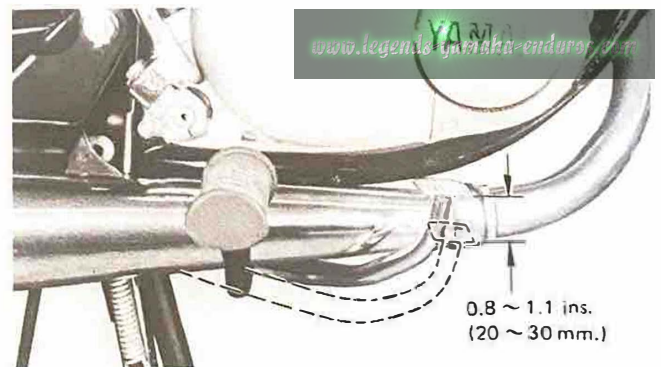


Fig. 50

Turning clockwise (tightening) decreases play.  
Turning counterclockwise (loosening) increases play

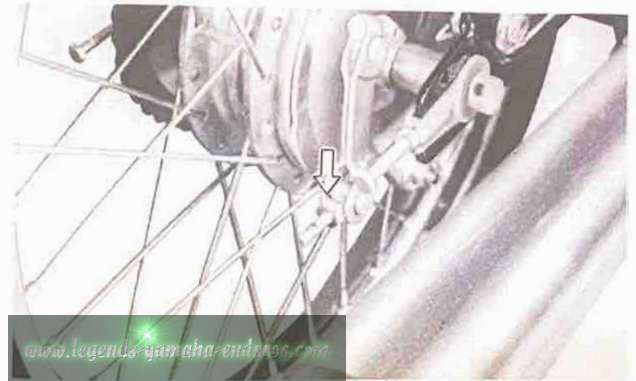


Fig. 51

If the engine will not start or will not start easily after inspection and adjustments are completed, check the following parts

#### Idling speed adjustment

- 1 Before adjustment, fully **warm up** the engine
2. Start the engine, and idle the engine a little faster by screwing in the throttle stop screws  
1,350 r.p.m.
3. Screw in and out slowly pilot screws, and **stop turning** when the engine idles faster.  
Standard turns out: 1-1/2
4. By backing out both throttle stop screws evenly, reduce the idling speed to specification.  
Standard speed: 1,300 r.p.m.

- 1 Throttle stop screw
- 2 Pilot air screw

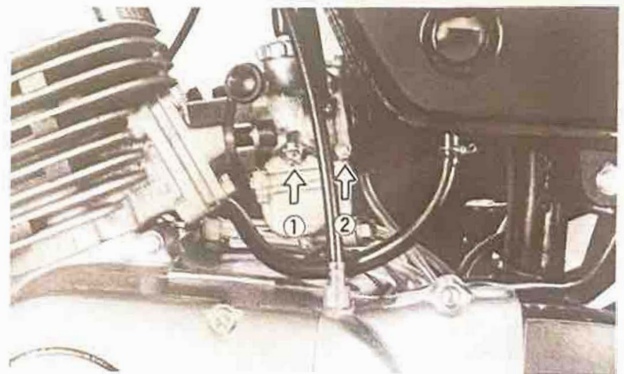


Fig. 52

#### Breaker points — checking and cleaning

If the engine is hard to start, the breaker point surfaces are considered to be dirty. Clean with a clean cloth dampened with a solvent, and try to start the engine.

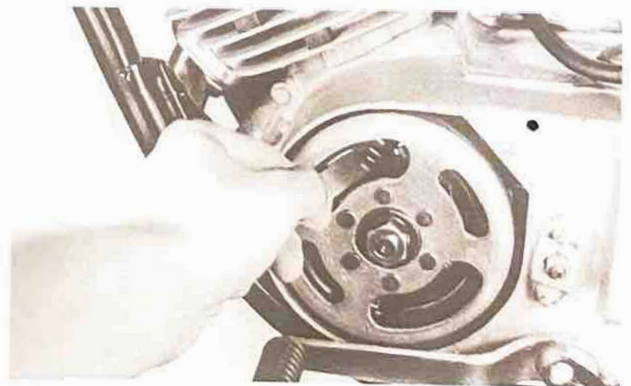


Fig. 53

#### Ignition timing — checking and adjustment

After starting the engine, check the ignition timing, and if necessary, adjust.

Ignition timing  $1.8 \pm 0.15$  mm

#### Note

For details, refer to the service manual for this model.

#### Spark plug — checking and adjustment

When the machine is stored or not used for a long period of time, the spark plug may get wet with oil. If so, hard starting will result. Remove the spark plug, and clean as required.



Fig. 54

## Service specifications

### SERVICE DATA

	Item	Service standards
Engine	Ignition timing	1.8 ± 0.15 mm
	Ignition point gap	0.3 ~ 0.35 mm
Autolube	Minimum pump stroke (at idle)	0.20 ~ 0.25 mm
	Maximum pump stroke (at full throttle)	1.85 ~ 2.25 mm
Carburetor:	Main jet	#110
	Jet needle/Clip position	4F10-3
	Air screw (Turns out)	1-1/2
	Float level	21.0 ± 1.0 mm
	Idling engine speed	1,300 ± 50 r p m
Fuel tank:	Capacity	9.0 liters
Engine oil tank:	Capacity	1.5 liters
Transmission	Gear oil capacity	700 ± 50 c c
Front fork:	Oil quantity	157 c.c
Tire pressure:	Front	1.6 kgs./cm <sup>2</sup>
	Rear	2.0 kgs./cm <sup>2</sup>
Battery	Type	6N4A-4D
	Capacity	6V4AH
	Specific gravity	1.260 at 20°C
	Charging rate	0.4A. x 10 hours

### TORQUE SPECIFICATIONS

See also "TORQUE CHART" on page 24.

Engine mounting nuts:	8 mm.	2.5 ~ 3.0 m-kgs.	18.1 ~ 21.7 ft-lbs
	10 mm.	3.5 ~ 4.0 m-kgs.	25.3 ~ 28.9 ft-lbs
Transmission drain plug		3.0 ~ 3.5 m-kgs.	21.7 ~ 25.3 ft-lbs
Front wheel shaft nut		3.5 ~ 5.0 m-kgs.	25.3 ~ 36.2 ft-lbs
Front wheel holding nuts		1.5 ~ 2.5 m-kgs.	10.8 ~ 18.1 ft-lbs
Front fork cap bolt		3.5 ~ 5.0 m-kgs.	25.3 ~ 36.2 ft-lbs
Front fork upper pinch bolts		1.4 ~ 2.4 m-kgs.	10.1 ~ 17.4 ft-lbs
Front fork lower pinch bolts		1.4 ~ 2.4 m-kgs.	10.1 ~ 17.4 ft-lbs
Handle bar securing bolts		1.4 ~ 2.0 m-kgs.	10.1 ~ 14.5 ft-lbs
Steering stem securing nut		5.0 ~ 6.0 m-kgs.	36.2 ~ 43.4 ft-lbs
Footrest securing nuts		1.5 ~ 2.0 m-kgs.	10.8 ~ 14.5 ft-lbs
Swing arm pivot shaft securing nut		3.1 ~ 5.0 m-kgs.	22.4 ~ 36.2 ft-lbs
Rear wheel shaft securing nut		6.6 ~ 10.5 m-kgs.	47.7 ~ 75.9 ft-lbs
Rear cushion securing nuts		2.0 ~ 3.0 m-kgs.	14.5 ~ 21.7 ft-lbs
Rear cushion securing bolts		2.0 ~ 3.0 m-kgs.	14.5 ~ 21.7 ft-lbs
Drive sprocket securing nut		6.5 ~ 9.0 m-kgs.	47.0 ~ 65.1 ft-lbs
Driven sprocket securing bolts		1.5 ~ 2.0 m-kgs.	10.8 ~ 14.5 ft-lbs



### Torque chart

The following torque specifications must be adhered to on every machine. On multi-secured Components with several studs should be tightened in gradual stages and in a pattern that will avoid warpage to the item being secured. Torque settings are for dry, clean threads. Torquing should always be done to the nut, never the bolt head.

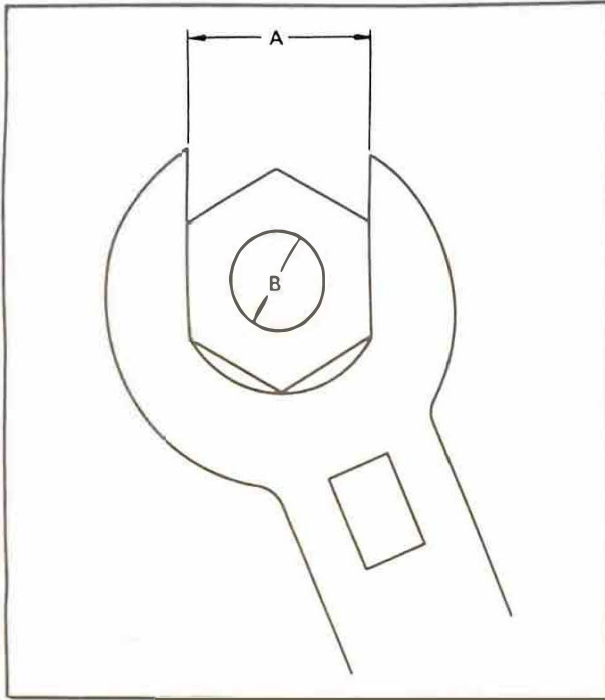


Fig. 55

A	B			
(Nut)	(Bolt)	m-kg	ft-lb	in.-lb
10 mm	6 mm	1.0	7.5	90
10 mm	7 mm	1.5	11	135
13 mm 14 mm	8 mm	2.0	15	180
17 mm	10 mm	3.5 ~ 4.0	20 ~ 29	300 ~ 350
19 mm	12 mm	4.0 ~ 4.5	29 ~ 33	350 ~ 400
22 mm	14 mm	4.5 ~ 5.0	33 ~ 37	400 ~ 450
26 mm	17 mm	5.8 ~ 7.0	40 ~ 50	500 ~ 600
27 mm	18 mm	5.8 ~ 7.0	40 ~ 50	500 ~ 600
30 mm	20 mm	7.0 ~ 8.3	50 ~ 60	600 ~ 700
SPARK PLUGS		1.5 ~ 1.9	11 ~ 14	135 ~ 170

### Note:

Certain items with other than standard thread pitches may require differing torque. Consult the model Service Manual or distributor if a question arises.

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