



# YAMAHA

# MX250B/400B ASSEMBLY MANUAL



[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

90894-07402

## 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 specifications given in this Assembly Manual are based on the model as manufactured when this manual was published. Since this model may require improvements, the service standards may be subject to 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 danger to the rider.

[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

**YAMAHA MX250B/400B  
ASSEMBLY MANUAL  
1st EDITION, OCTOBER, 1974  
OVERSEAS SERVICE DEPARTMENT  
YAMAHA MOTOR CO., LTD.  
IWATA, JAPAN  
LIT-11664-00-02**

## CONTENTS

<b>PREPARATION</b> .....	1
Tools for Unpacking .....	1
Tools for Assembling .....	1
Supplies .....	2
Workshop .....	2
<b>UNPACKING</b> .....	2
Note on Transportation .....	2
Procedure for Unpacking .....	2
<b>PARTS CHECK LIST</b> .....	3
<b>INSTALLATION GUIDE</b> .....	4
<b>SET-UP PROCEDURES</b> .....	5
<b>INSPECTIONS AND ADJUSTMENTS</b> .....	11
Inspections .....	11
Adjustments .....	12
<b>MISCELLANEOUS</b> .....	15
Torque Specifications .....	15
Conversion Table .....	16
<b>CABLE ROUTING DIAGRAMS</b> .....	17

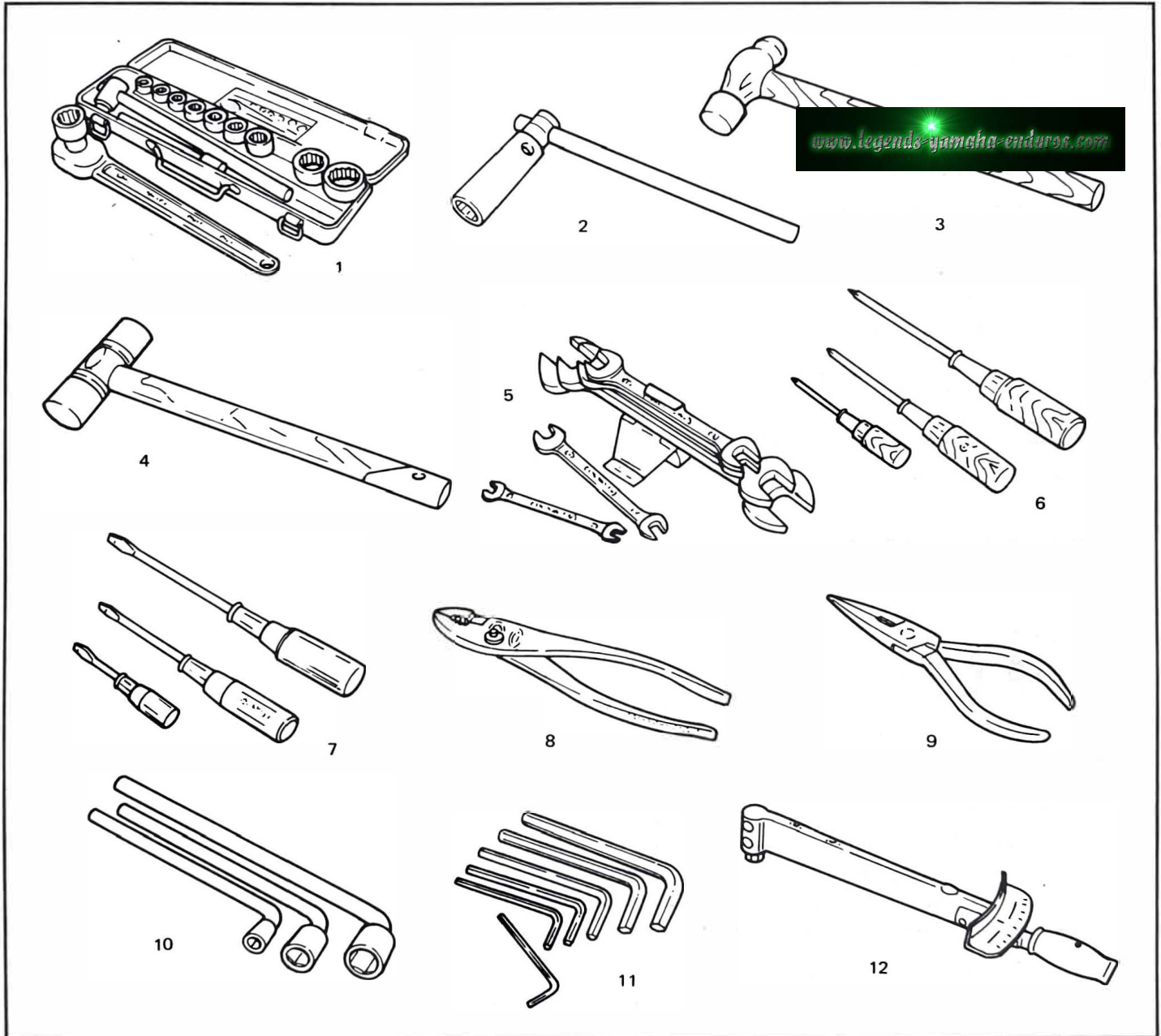
## PREPARATION

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

### Tools for Unpacking

1. Nail puller
2. Scissors
3. Wire cutter

### Tools for Assembling



1. Socket wrench set
2. Spark plug wrench
3. Steel hammer
4. Soft-faced hammer
5. Wrench set
6. Phillips-head screwdrivers  
(Large, medium and small)

7. Slotted-head screwdrivers  
(Large, medium and small)
8. Plier
9. Long nose plier
10. L-handle socket wrenches
11. Allen wrench set
12. Torque wrench

Fig. 1

## Supplies

1. Oils
2. Greases
3. Shop rags
4. 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.

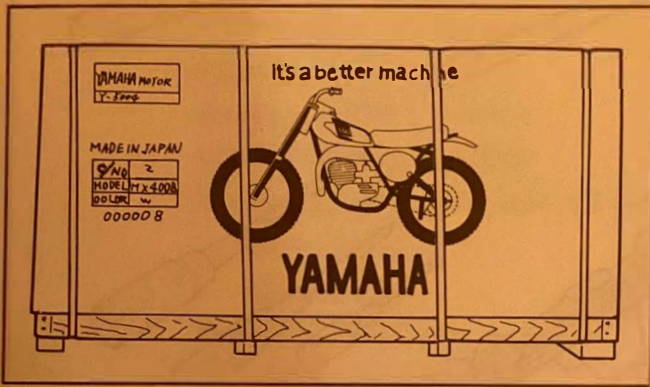


Fig. 2

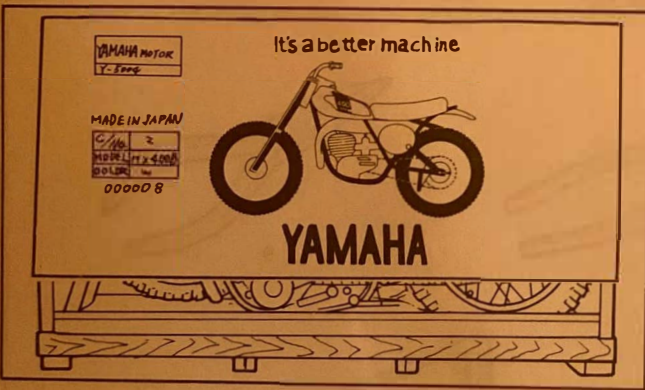


Fig. 3

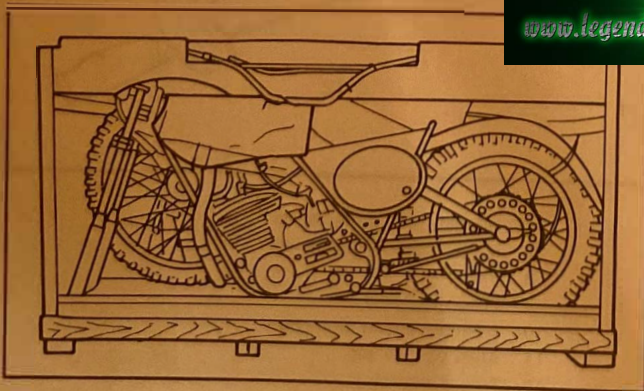


Fig. 4

### Procedure for Unpacking

To remove the machine and parts packed in the cardboard crate, cut the vinyl bands around the box using cutter or scissors. Next, remove the exterior carton by lifting it straight up. (Fig. 2 ~ 4)

## PARTS CHECK LIST

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

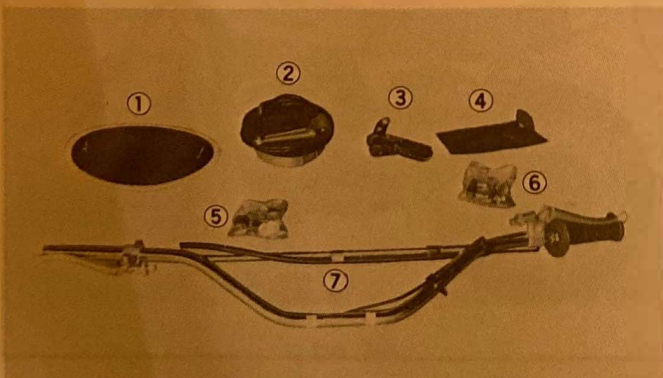
### 1. Details of parts in Vinyl Bag

(per unit)

No.	Illustration	Parts Name	Q'ty	Remarks
a		Owner's Service Manual	1	
b		O-ring	1	Front number plate
c		Fender damper	8	Front fender
d		Fender collar	4	
e		Special washer	4	
f		6 mm. bolt with washer	4	
g		Handle holder	2	
h		Fitting bolt	4	For handlebars holder
i		8 mm. spring washer	4	

### 2. Details of parts in foam tray.

(per unit)



Set Position	Parts Name	Q'ty
1	Number plate	1
2	Brake shoe plate assembly	1
3	Foot rest assembly	1
4	Tool set	1
5	Vinyl bag 1	1
6	Vinyl bag 2	1
7	Handlebar assembly	1

Fig. 5

## INSTALLATION GUIDE

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

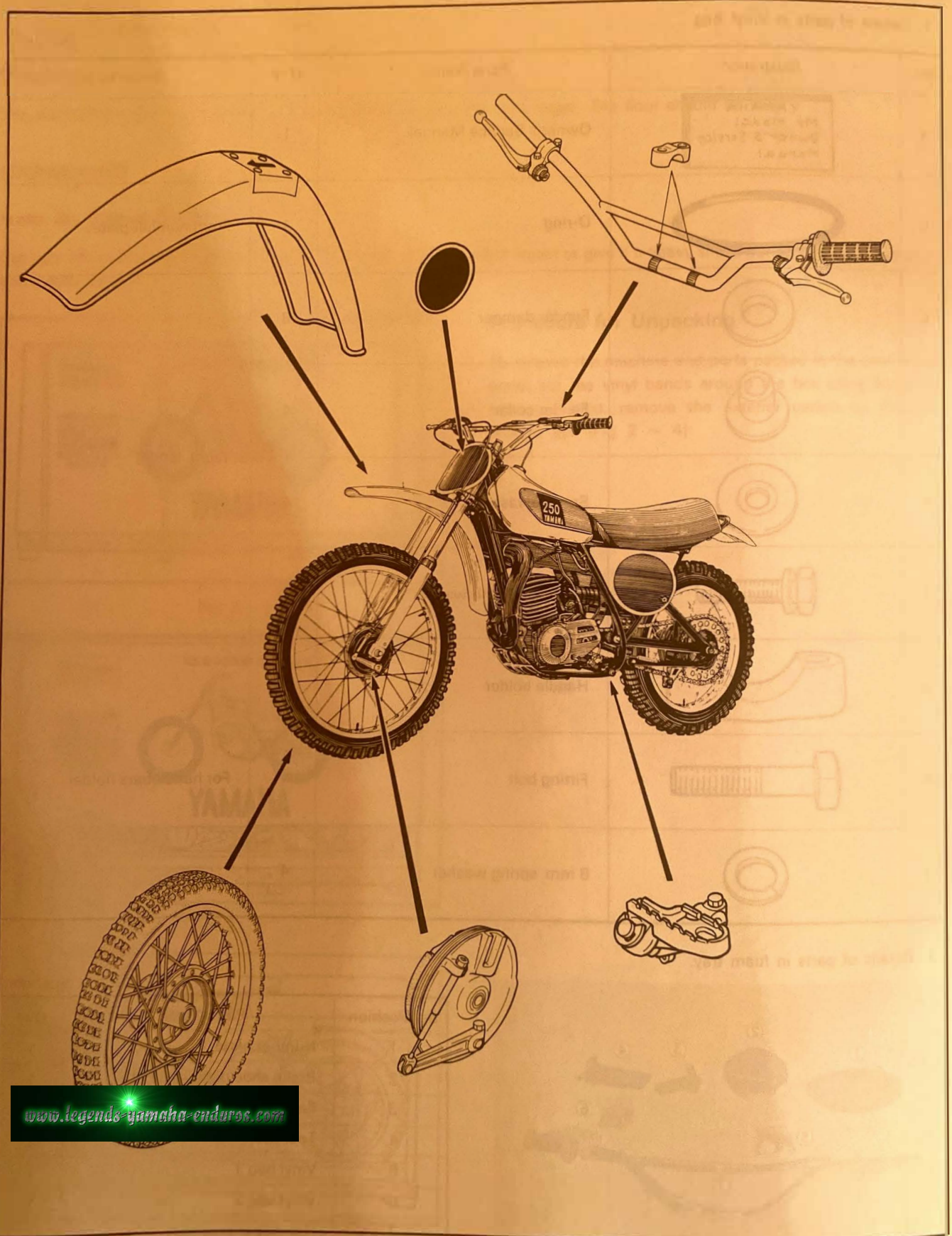


Fig. 6

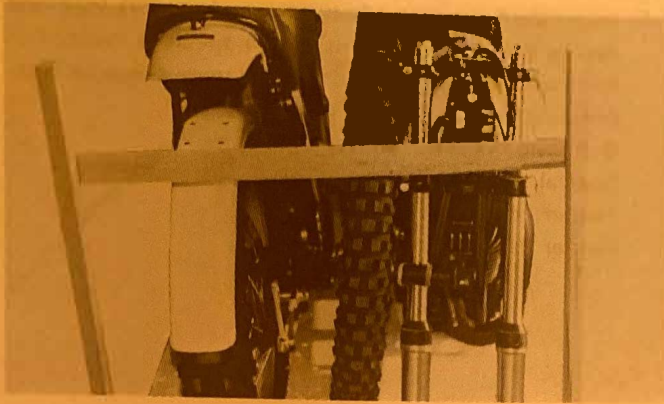


Fig. 7

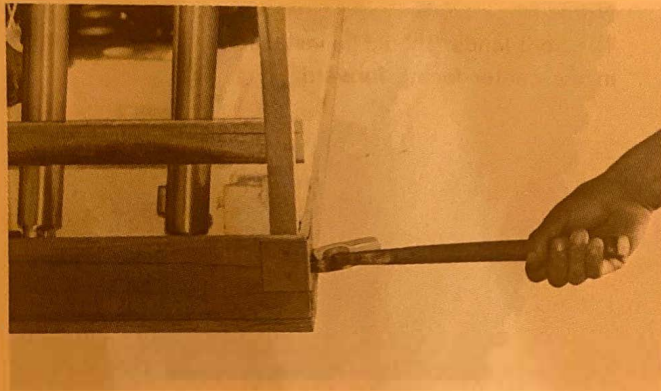


Fig. 8



Fig. 9



Fig. 10

## SET-UP PROCEDURES

1. Remove the front wheel. (Fig. 7)

2. Remove the nails from each corner of the crate, and remove the struts. (Fig. 8)

3. Lift up the machine, and remove the rear wheel section from the foam base. Then take out the machine. Remove the front fender held between the rear tire and the rear fender. (Fig. 9)

4. To install the front fender and front wheel, place a proper-size wooden box or a wooden block, and keep the front of the machine raised off the floor. Take care so that the machine does not fall down. (Fig. 10)



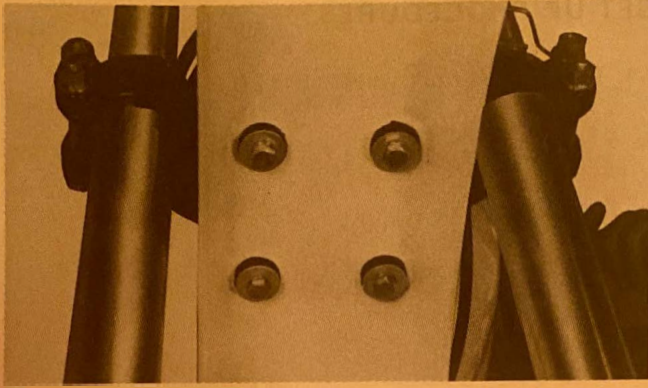


Fig. 11

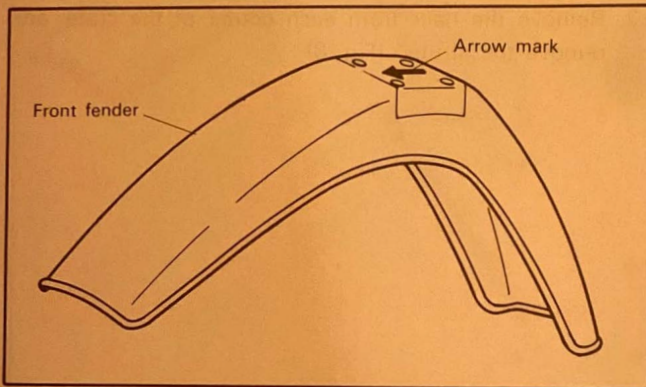


Fig. 12

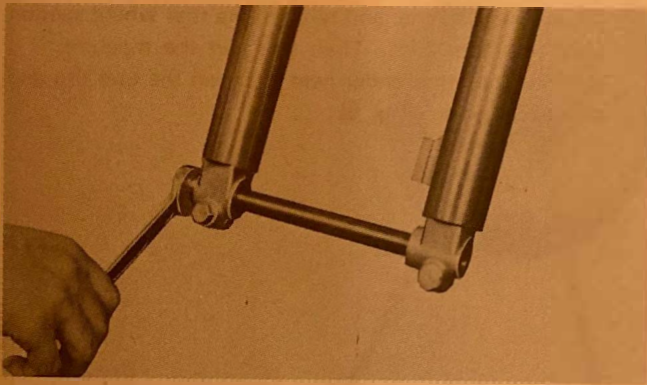


Fig. 13

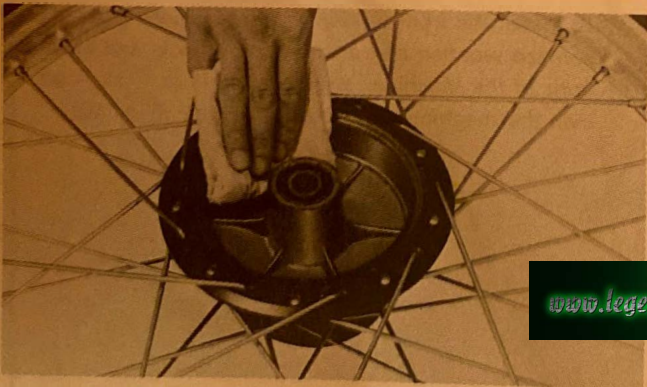


Fig. 14

5. Insert the front fender between the front fork legs, and secure the front fender using the specified number of bolts with spring washers, fender dampers, special washers and fender collars. (Fig. 11)

Bolt with washer: 6 mm. × 4 pcs.

Special washer: 6 mm. × 4 pcs.

Fender collar: 4 pcs.

Fender damper: 8 pcs.

**Note:**

The front fender should be installed with the arrow mark in the center facing forward. (Fig. 12)

6. Pull out the wheel shaft from the front forks. (Fig. 13)

7. 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. (Fig. 14)

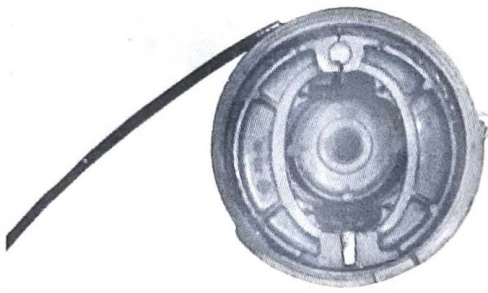


Fig. 15

- (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. (Fig. 15)
- (3) Install the brake shoe plate assembly in the wheel hub.

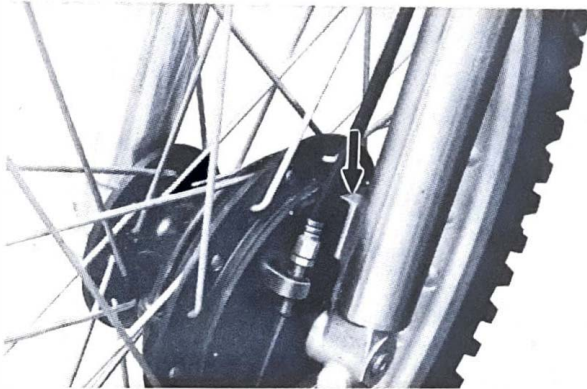


Fig. 16

8. 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 is correctly in the slot in the brake shoe plate. (Fig. 16)
- (2) Insert the wheel shaft.

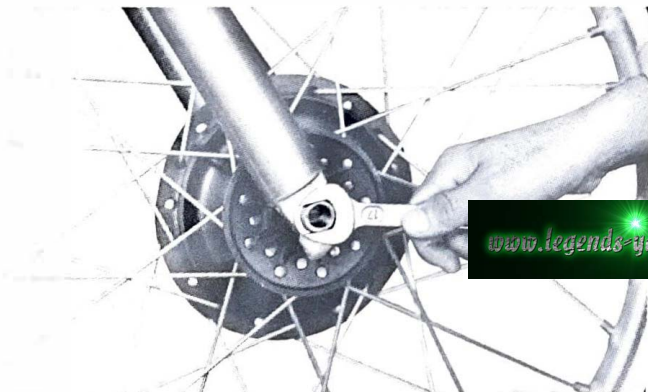


Fig. 17

- (3) Tighten the wheel shaft with specified torque. (Fig. 17)  
Tightening torque: 36.2 ~ 50.7 ft-lbs. (5.0 ~ 7.0 m-kgs.)

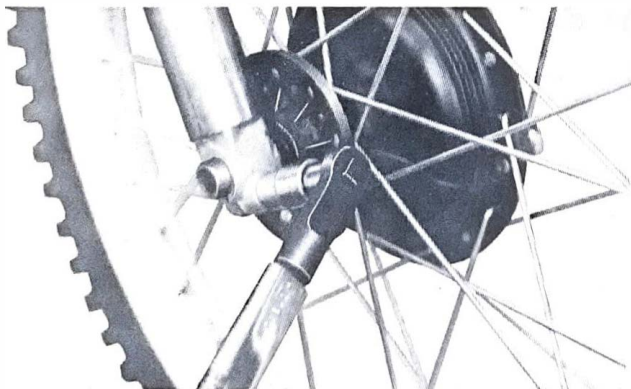


Fig. 18

- (4) Tighten the axle pinch bolt with specified torque. (Fig. 18)  
Tightening torque: 5.8 ~ 8.0 ft-lbs. (0.8 ~ 1.1 m-kgs.)

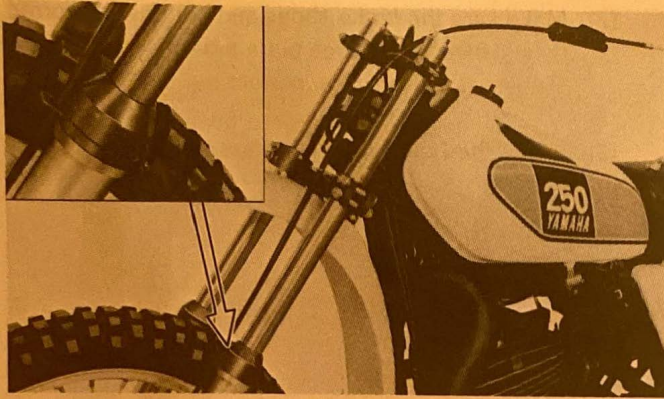


Fig. 19

9. Install the wire holder, which stays on the front brake wire on the left front fork dust seal. Thread the front brake wire through the wire holders. (Fig. 19)

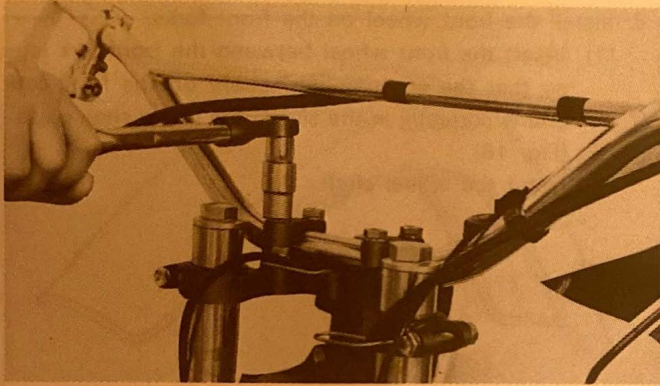
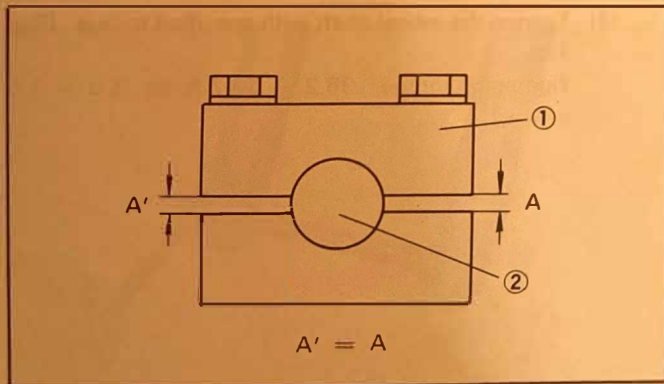


Fig. 20

10. Install the handle bar using the two upper holders and four hexagon bolts. (Fig. 20)  
Tightening torque: 7.7 ~ 13.0 ft-lbs. (1.1 ~ 1.8 m-kgs.)



1. Holder

2. Handlebar

Fig. 21

**Caution:**

Tighten bolts in stages and maintain an equal gap on each side of both holders. (Fig. 21)



Fig. 22

11. Grease the right end of the handlebar and the throttle grip housing, and install the handle grip. (Fig. 22)

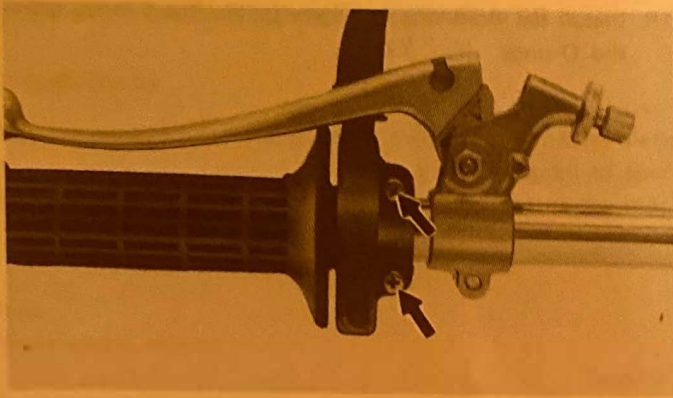


Fig. 23

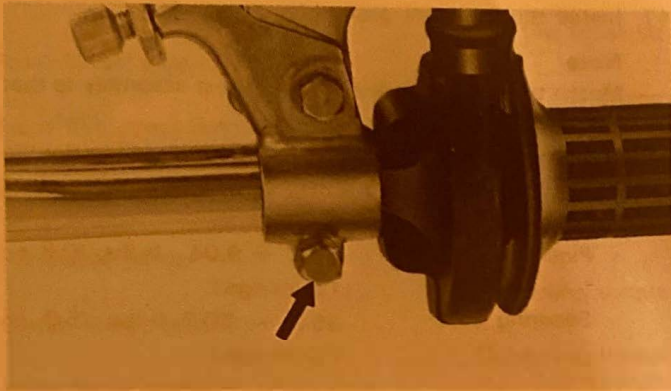


Fig. 24



Fig. 25



Fig. 26

12. Bolt the upper and lower throttle housing together, and check the throttle grip for smooth action, then fully tighten the throttle housing securing screws. (Fig. 23)

13. Tighten the brake and clutch lever holder hex. head bolts. (Fig. 24)  
Bolts size: 6 mm.

14. Brake wire and clutch wire installation. (Fig. 25)
  - (1) Screw in the cable length adjusters on the brake shoe plate and the crankcase cover.
  - (2) Fully loosen the lever adjuster locknut, and screw in the adjuster until tight. Next, align the slit in the adjuster and adjuster locknut 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 locknut, the squeeze the lever.  
Next, while pulling the outer cable in the direction opposite to the lever, release the lever quickly. While releasing it, hook the outer cable onto the adjuster.

**Note:**

For details of the cable routing, refer to "CABLE ROUTING DIAGRAM".

15. Connect the engine stop switch lead wire (coming from the engine switch) to the lead wire (Black/White) coming from the C.D.I. unit assembly in the connector cover. (Fig. 26)

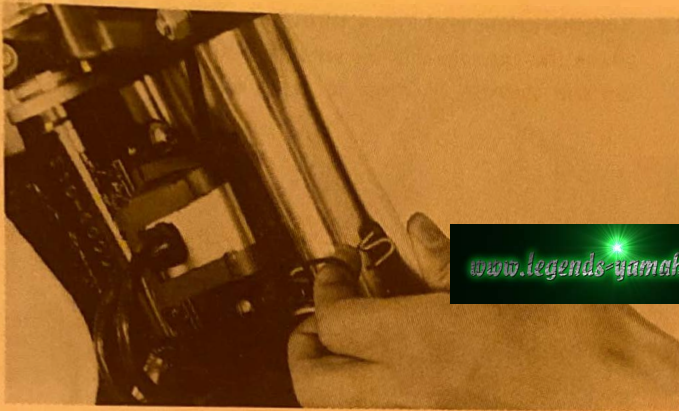


Fig. 27

16. Install the front number plate on the front forks, using the O-rings. (Fig. 27)

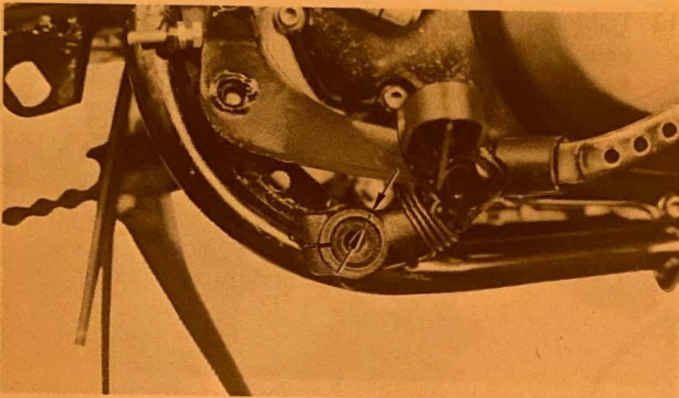


Fig. 28

17. Install the foot rest assembly.

**Note:**

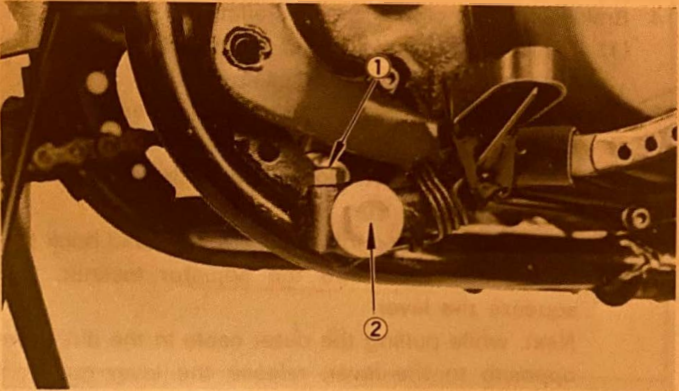
Match the punch mark of the foot rest assembly to that of the shaft. (Fig. 28)

To install, secure them with pinch bolt, and then tighten the securing bolt. (Fig. 29)

Tightening torque:

Pinch bolt; 5.78 ~ 9.04 ft-lbs. (0.8 ~ 1.2 m-kgs.)

Securing bolt; 36.2 ~ 50.7 ft-lbs. (5.0 ~ 7.0 m-kgs.)



1. Pinch bolt

2. Securing bolt

Fig. 29

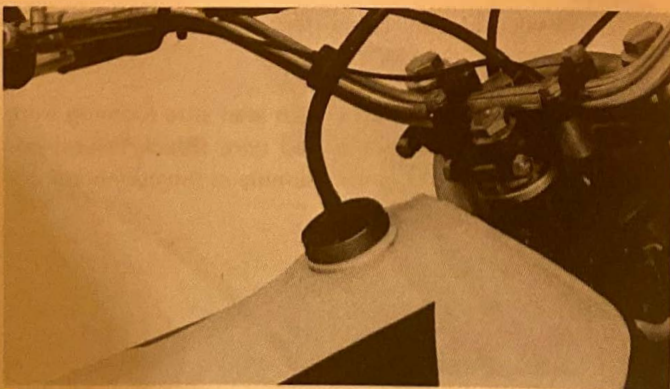


Fig. 30

18. Connect the air breather pipe to the fuel tank cap. (Fig. 30)

19. Cover the brake and clutch lever holders with holder covers.

## 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	..... Tightening
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
Throttle housing	..... Position, operation, tightness
Engine mounting bolt	..... Tightening torque
Carburetor joint	..... Tightness
Footrest	..... Position, tightening torque
Change pedal	..... Position, looseness, operation
Brake pedal	..... Position, looseness, operation
Seat	..... Mounting, clevis pin, clips
Fuel tank	..... Mounting
Fuel pipe	..... Connection
Rear fender	..... Mounting
Rear swing arm pivot shaft	..... Tightening torque
Rear axle nut	..... Cotter pin, tightening torque
Chain puller	..... Locknut
Rear wheel	..... Spoke tension
Rear wheel rim	..... Hopping, deflection
Rear wheel tire	..... Tire pressure
Transmission oil	..... Oil level
Engine oil	..... Oil level

[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

## CORRECTION

Referring to the "MX250B/400B ASSEMBLY MANUAL", it should be corrected as follows.

Page 12 Line 10	Incorrect
	0.91 ± 0.006 in. (2.3 ± 0.15 mm.) B.T.D.C.
	Correct
	0.091 ± 0.006 in. (2.3 ± 0.15 mm.) B.T.D.C.

## Adjustments

### Note:

This section deals with the main points only. For details, refer to the DT250B/400B service manual.

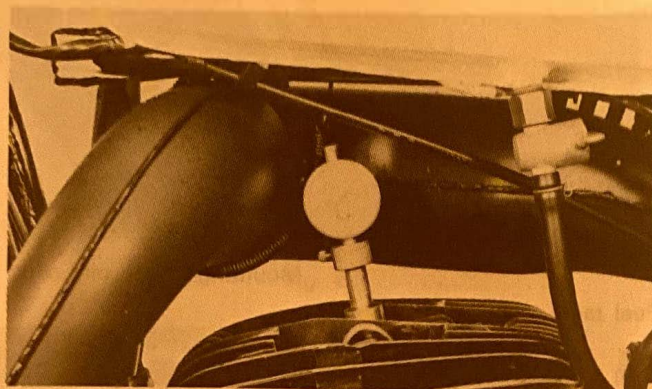


Fig. 31

### 1. Ignition timing — checking and adjustment (Fig. 31)

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

Ignition timing:

MX250B;

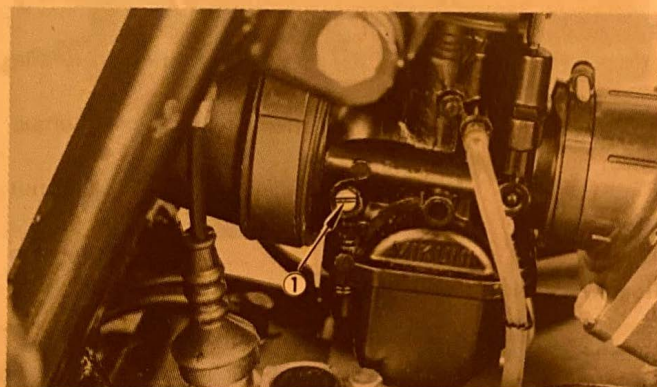
$0.91 \pm 0.006$  in. ( $2.3 \pm 0.15$  mm.) B.T.D.C.

MX400B;

$0.106 \pm 0.006$  in. ( $2.7 \pm 0.15$  mm.) B.T.D.C.

### Note:

For details, refer to the DT250B/400B service manual.



1. Pilot air screw

Fig. 32

### 2. Idle speed and idle air adjustments (Figs. 32, 33)

(1) Turn pilot air screw in until lightly seated.

(2) Back out

Back out	MX250B	1-1/2	turn
	MX400B	1	

(3) Turn the throttle stop screw until idle is at desired r.p.m.

### Note:

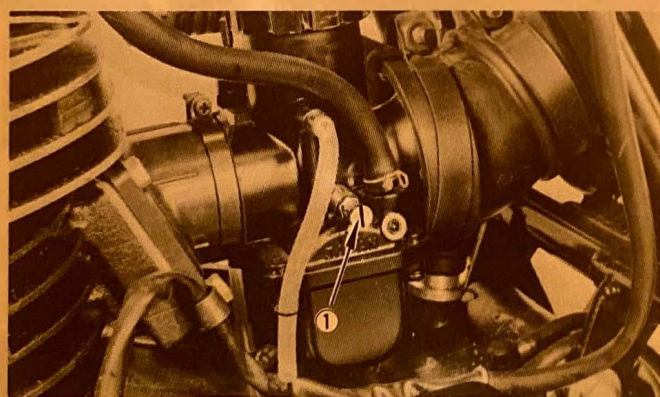
A locknut is incorporated on the screws for positive retention.

(4) Turn the pilot air screw in or out until idle speed is at highest r.p.m.

(5) Turn the throttle stop screw in or out until idle speed is at desired r.p.m.

### Note:

Pilot air and throttle stop screws should be so adjusted that engine response to throttle changes from idle position is rapid and without hesitation.



1. Throttle stop screw

Fig. 33



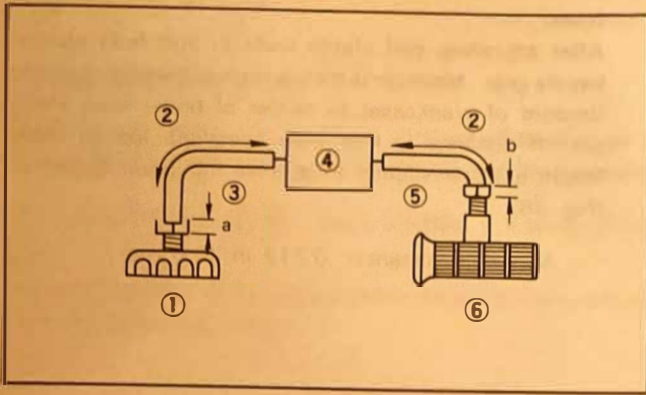
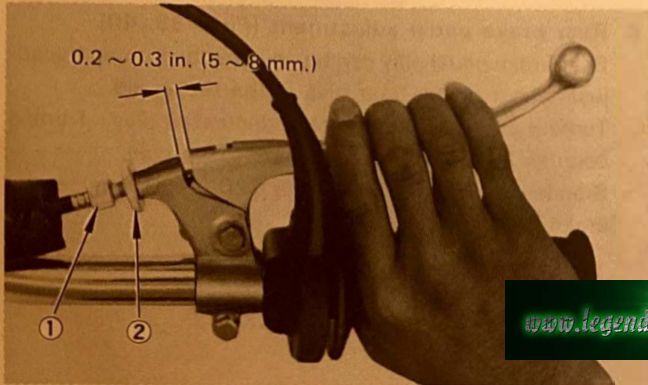


Fig. 34

**3. Throttle wire adjustment (Fig. 34)**

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

- a. 0.04 in. (1 mm.)
- b. 0.02 ~ 0.04 in. (0.5 ~ 1.0 mm.)
- 1. Carburetor case
- 2. Slide
- 3. Cable 2
- 4. Junction block
- 5. Cable 1
- 6. Throttle grip



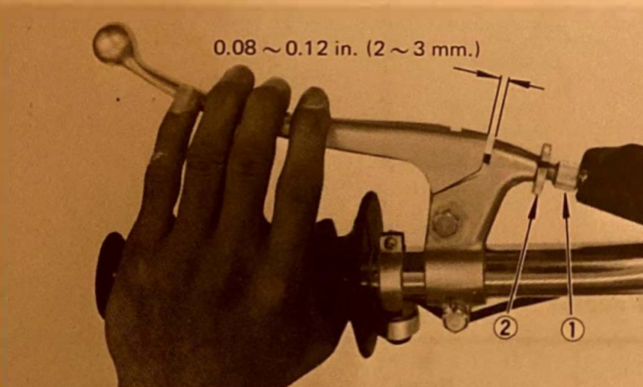
- 1. Adjuster
- 2. Adjuster locknut

Fig. 35

**4. Front brake wire adjustment (Fig. 35)**

Loosen the brake wire adjuster locknut, and adjust the play of the brake lever (at the position illustrated) to specification. After the adjustment, be sure to screw in the locknut until tight.

Standard value: 0.2 ~ 0.3 in. (5 ~ 8 mm.)



- 1. Adjuster
- 2. Adjuster locknut

Fig. 36

**5. Clutch adjustment**

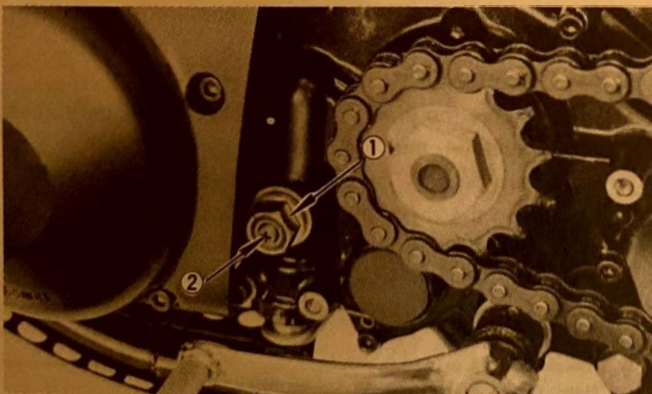
This model has two clutch cable length adjusters and a clutch mechanism adjuster. Cable length adjusters are used to take up slack from cable stretch and to provide sufficient freeplay for proper clutch operation under various operating conditions. The clutch mechanism adjuster is used to provide the correct amount of clutch "throw" for proper disengagement. Normally, once the mechanism is properly adjusted, the only adjustment required is maintenance of freeplay at the clutch handle lever.

**(1) Free play adjustment**

- a. Loosen either the handle lever adjuster locknut or the cable inline length adjuster locknut.
- b. Turn the length adjuster either in or out until proper lever free play is achieved. (Fig. 36)

**(2) Mechanism adjustment**

- a. Remove rear, lefthand crankcase cover. Note position of clutch axle lever under engine.
- b. Loosen adjusting screw locknut and fully tighten eccentric adjusting screw.
- c. Turn either cable length adjuster in or out until lever is positioned slightly behind main axle center line.
- d. Back eccentric adjust screw out until axle lever shaft contacts clutch push rod inside engine. Turn adjust screw in approximately 1/8 turn and tighten locknut. Readjust handle lever free play as required. (Fig. 37)



- 1. Adjusting screw locknut
- 2. Eccentric adjusting screw

Fig. 37

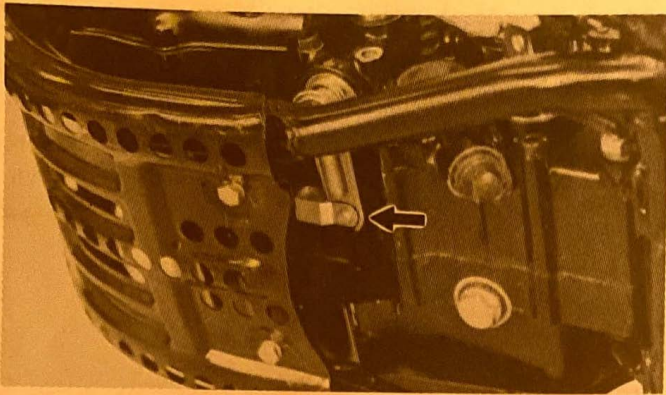


Fig. 38

**Note:**

After adjusting, pull clutch lever in and hold against handle grip. Measure distance from outer cable stopper (bottom of crankcase) to center of brake lever clevis pin. If distance is less than specified, loosen cable length adjuster slightly to achieve minimum distance. (Fig. 38)

Minimum distance: 0.217 in. (5.5 mm.)

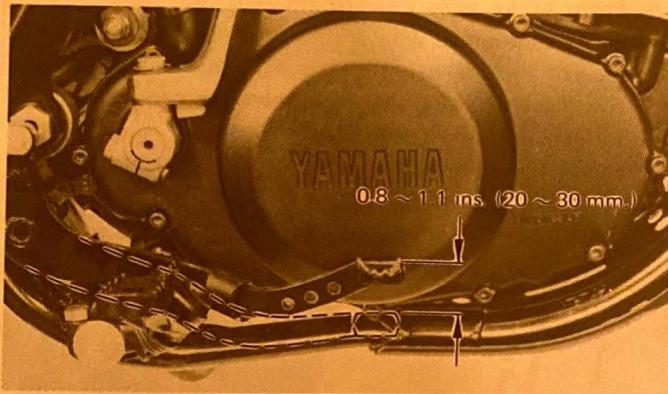


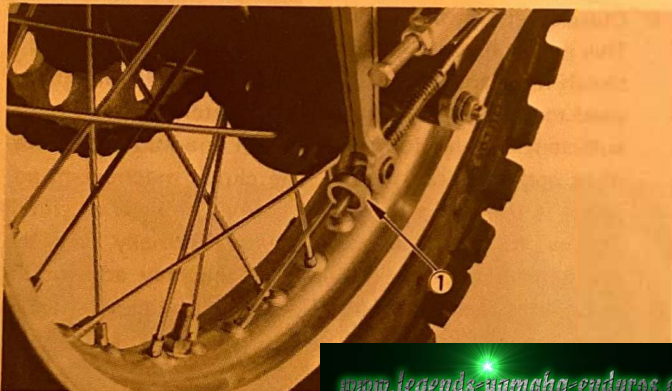
Fig. 39

**6. Rear brake pedal adjustment (Figs. 39, 40)**

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

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

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



1. Adjusting nut

Fig. 40

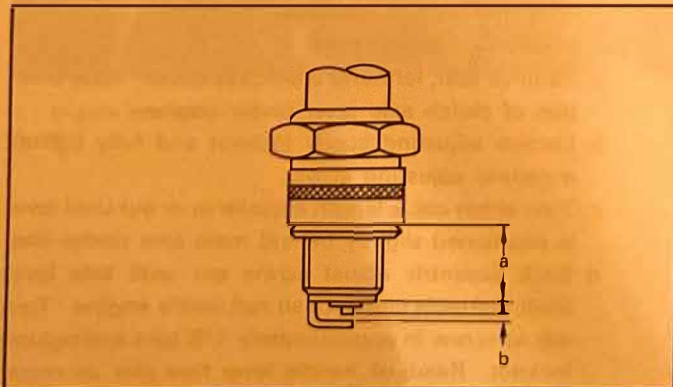


Fig. 41

**7. If the engine is hard to start, check the following points.**

(1) Carburetor

Remove the drain screw attached to the carburetor float bowl, and drain off the gasoline.

(2) Spark plug — checking and adjustment (Fig. 41)

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.

a. Reach: 0.794 in. (19.0 mm.)

b. Gap: 0.024 in. (0.6 mm.)

## MISCELLANEOUS

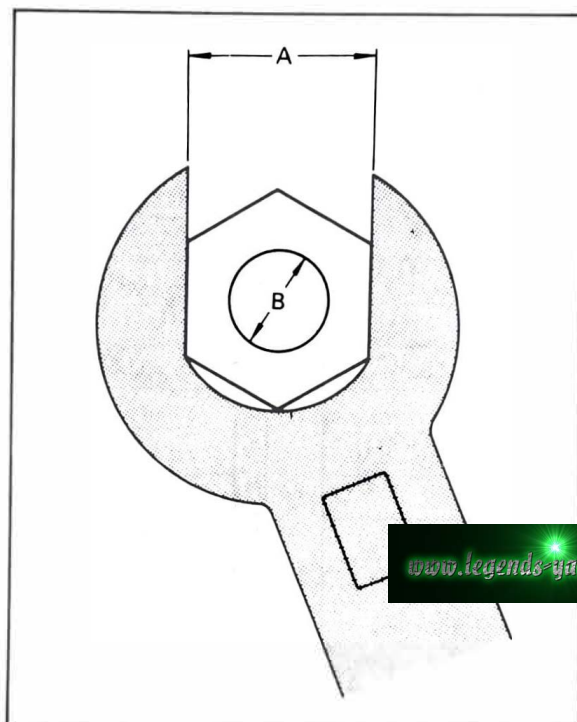
### Torque Specifications

The following torque specifications must be adhered to on every machine. Tightening torque, on multi-secured components, several studs should be 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 to the bolt head.

**Note:**

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



Change in dimension A is effective from November 1974.

Fig. 42

### Torque Specifications

A (Nut)	B (Bolt)	m-kg.	lb-ft.	lb-in.
10 mm.	6 mm.	1.0	7.2	87
12 (13) mm.	8 mm.	2.0	14.5	174
(14) mm.	(8) mm.			
14 (17) mm.	10 mm.	3.5 ~ 4.0	25 ~ 29	304 ~ 347
17 (19) mm.	12 mm.	4.0 ~ 4.5	29 ~ 33	347 ~ 391
19 (22) mm.	14 mm.	4.5 ~ 5.0	33 ~ 36	391 ~ 434
22 mm.	16 mm.	5.5 ~ 6.5	41 ~ 49	480 ~ 570
(26) mm.	(17) mm.	5.8 ~ 7.0	42 ~ 51	504 ~ 608
24 (27) mm.	18 mm.	5.8 ~ 7.0	42 ~ 51	504 ~ 608
27 (30) mm.	20 mm.	7.0 ~ 8.3	51 ~ 60	608 ~ 721
SPARK PLUGS		1.5 ~ 1.9	11 ~ 14	130 ~ 165

## Conversion Table

### Metric to Inch System

	Known	MULTIPLIER (Rounded off)	Result
TORQUE	m-kg.	7.233	ft-lbs.
	m-kg.	86.80	in-lbs.
	cm-kg.	0.0723	ft-lbs.
	cm-kg.	0.8680	in-lbs.
WT.	kg.	2.205	lb.
	g.	0.03527	oz.
FLOW/DISTANCE	km/ℓ.	2.352	mpg.
	km/hr.	0.6214	mph.
	km.	0.6214	mi.
	m.	3.281	ft.
	m.	1.094	yd.
	cm.	0.3937	in.
	mm.	0.03937	in.
VOL./CAPACITY	c.c. (cm. <sup>3</sup> )	0.03382	oz. (U.S. liq.)
	c.c. (cm. <sup>3</sup> )	0.06102	cu. in.
	ℓ. (liter)	2.1134	pt. (U.S. liq.)
	ℓ. (liter)	1.057	qt. (U.S. liq.)
	ℓ. (liter)	0.2642	gal. (U.S. liq.)
MISC.	kg/mm.	56.007	lb/in.
	kg/cm. <sup>2</sup>	14.2234	psi. (lb/in. <sup>2</sup> )
	Centigrade (°C)	9/5(°C)+32	Fahrenheit (°F)

### Inch to Metric System

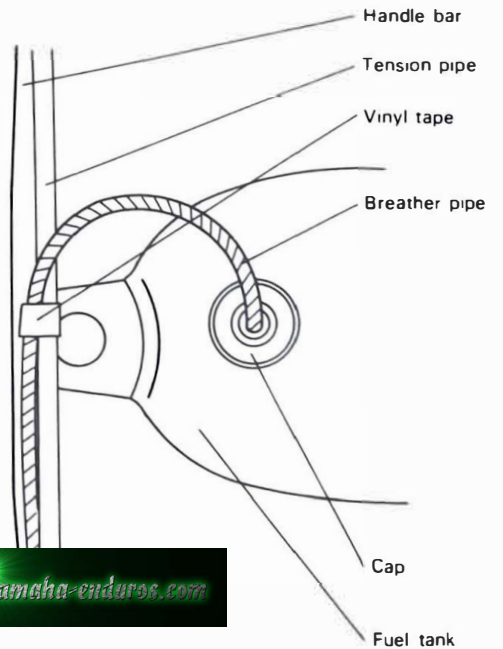
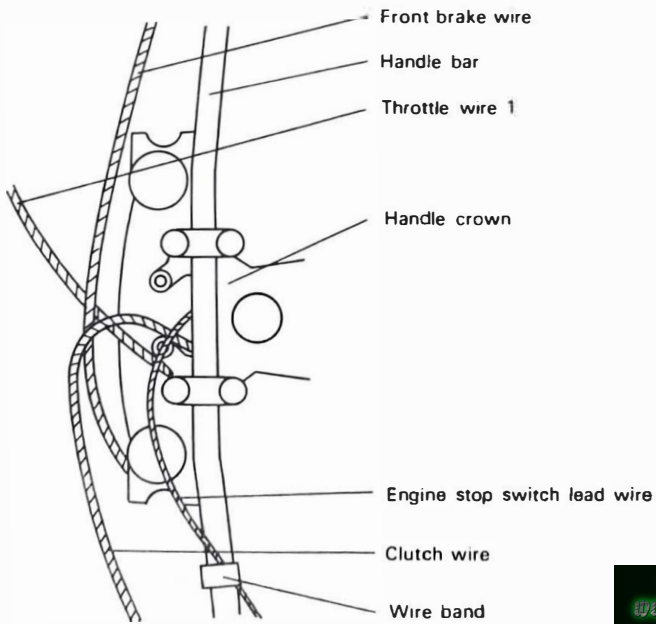
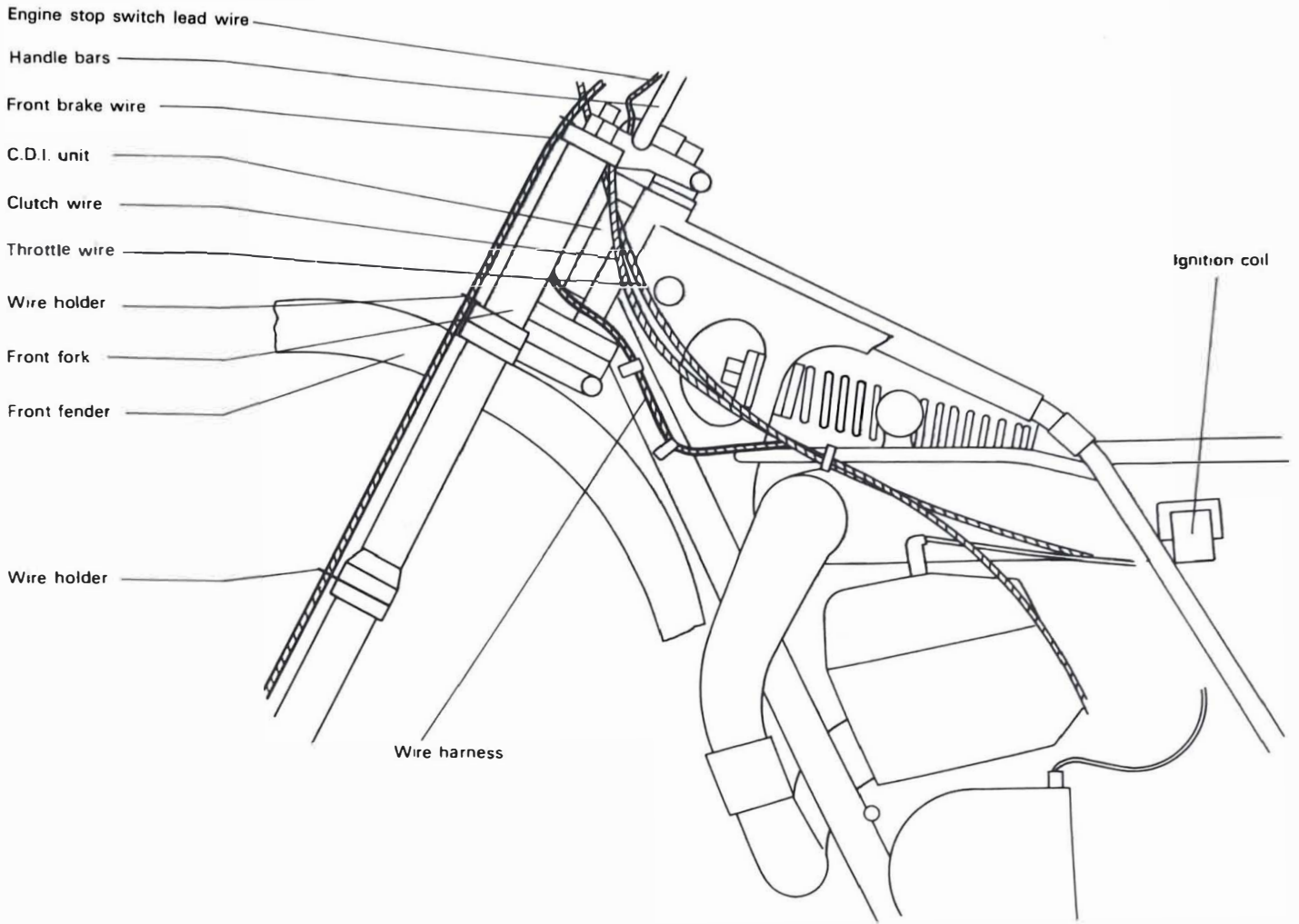
	Known	MULTIPLIER (Rounded off)	Result
TORQUE	ft-lbs.	0.13826	m-kg.
	in-lbs.	0.01152	m-kg.
	ft-lbs.	13.831	cm-kg.
	in-lbs.	1.1521	cm-kg.
WT.	lb.	0.4535	kg.
	oz.	28.352	g.
FLOW/DISTANCE	mpg.	0.4252	km/ℓ
	mph.	1.609	km/hr.
	mi.	1.609	km.
	ft.	0.3048	m.
	yd.	0.9141	m.
	in.	2.54	cm.
	in.	25.4	mm.
VOL./CAPACITY	oz. (U.S. liq.)	29.57	c.c. (cm. <sup>3</sup> )
	cu. in.	16.387	c.c. (cm. <sup>3</sup> )
	pt. (U.S. liq.)	0.4732	ℓ. (liter)
	qt. (U.S. liq.)	0.9461	ℓ. (liter)
	gal. (U.S. liq.)	3.785	ℓ. (liter)
MISC.	lb/in.	0.017855	kg/mm.
	psi. (lb/in. <sup>2</sup> )	0.07031	kg/cm. <sup>2</sup>
	Fahrenheit(°F)	5/9(°F-32)	Centigrade(°C)

### Definition of terms:

- m-kg. = Meter-kilograms: Usually torque
- g. = Gram(s)
- kg. = Kilogram(s): 1,000 grams
- km. = Kilometer(s)
- ℓ. = Liter(s)
- km/ℓ. = Kilometer(s) per liter: Mileage
- c.c. = Cubic centimeter(s) (cm.<sup>3</sup>): Volume or capacity
- kg/mm. = Kilogram(s) per millimeter: Usually spring compression rate
- kg/cm.<sup>2</sup> = Kilogram(s) per square centimeter: Pressure

[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

# CABLE ROUTING DIAGRAMS



[www.legends-gamcha-enduros.com](http://www.legends-gamcha-enduros.com)



[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)



SINCE 1887

**YAMAHA MOTOR CO., LTD.**

IWATA, JAPAN

**LIT-11664-00-02**

PRINTED IN JAPAN  
74 · 10 · 2.6 x 1 ©