



**YAMAHA**

# **GENERAL ASSEMBLY INSTRUCTIONS**

**FOR NEW MOTORCYCLES**

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

## NOTICE

This manual has been written by Yamaha Motor Company for use by Authorized Yamaha Dealers and their qualified mechanics. In light of this purpose it has been assumed that certain basic mechanical precepts and procedures inherent to our product are already known and understood by the reader. Without such basic knowledge, incorrect assembly of one of the models listed within these pages could occur. This may render the machine unsafe.

The dealer is further cautioned to review the Service Manual for the machine being assembled in order to acquaint himself with the servicing procedures on the machine after assembly has been completed.

The Research, Engineering, and Service Department of Yamaha are continually striving to further improve all models manufactured by the company. Modifications are therefore inevitable and changes in specifications or procedures mentioned within this manual will be forwarded to all Authorized Yamaha Dealers and will, where applicable, appear in future editions of this manual.

Should the dealer note a difference between the information in this manual and the actual model, he is advised to contact the U.S. Distributor, Yamaha International Corporation, per established routine for clarification.

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**GENERAL ASSEMBLY INSTRUCTIONS  
FOR NEW MOTORCYCLES**

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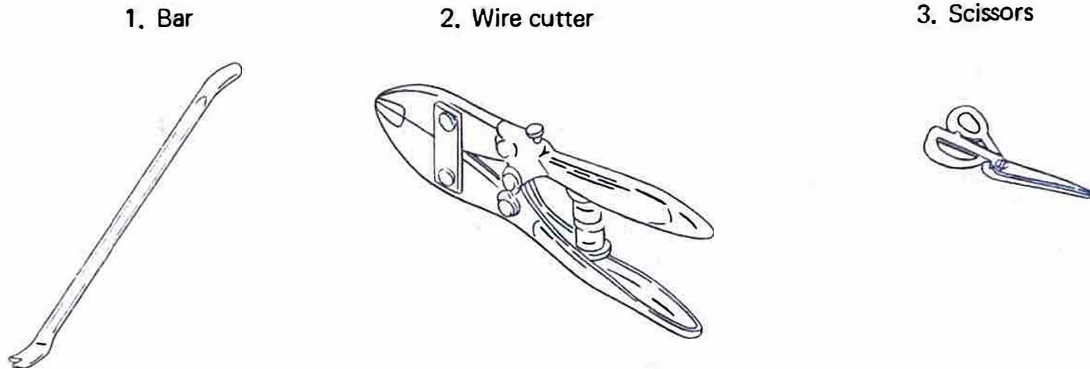
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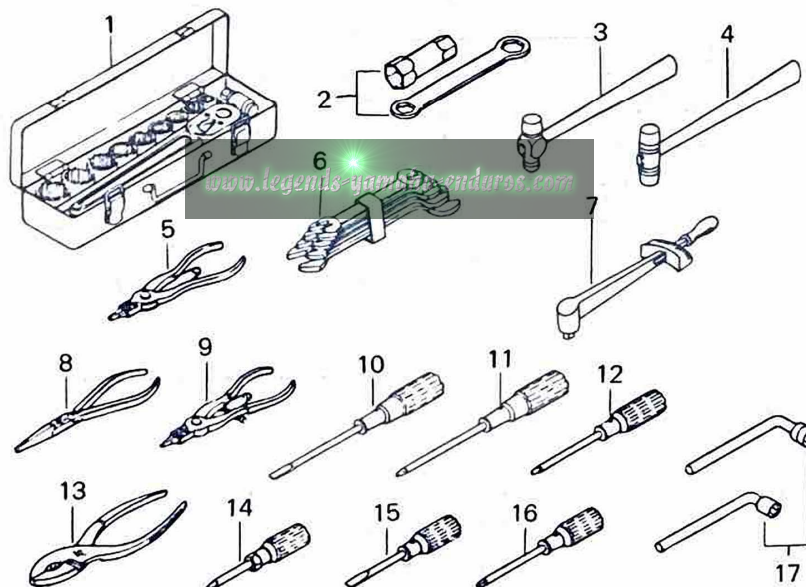
## I. GENERAL INFORMATION

### 1. TOOLS FOR UNCRATING

To uncrate the motorcycle, the following tools are required.



### 2. TOOLS FOR ASSEMBLING (General tools)



- |                             |   |
|-----------------------------|---|
| 1. Set of socket wrenches   | 10. Slot-head screw driver (medium)     |
| 2. Plug wrench              | 11. Phillips-head screw driver (large)  |
| 3. Steel hammer             | 12. Phillips-head screw driver (medium) |
| 4. Soft-faced hammer        | 13. Pliers                              |
| 5. Circlip pliers (ST type) | 14. Phillips-head screw driver          |
| 6. Set of open-end wrenches | 15. Slot-head screw driver (small)      |
| 7. Torque wrench            | 16. Phillips-head screw driver (small)  |
| 8. Needle nose pliers       | 17. L-type socket wrench                |
| 9. Circlip pliers (RT type) |   |



### 3. LUBRICANTS

A. Autolube Oil

Use Yamaha 2-cycle oil or a name-brand oil labeled "BIA Certified for Service TC-W."

B. Fork Oil

Use Yamaha Fork Oil or a name-brand fork oil.

C. Transmission

Use Yamaha 4-cycle or a name-brand motor oil SAE Type "SE", 20W ~ 40W.

D. Control Cables

Use a graphite-base lubricant or a brand-name cable lubricant. SAE 5W-20 motor oil may be used if graphite-base types are not available.

E. Grease

Use chart below to select proper grease for each specific application.

ITEM	REMARKS	TYPE
Drive Chain	Lube/Adjust	No. 1
Air Filter	Foam Type	No. 7
Control and Meter Cables	All-Apply thoroughly	No. 2
Throttle Grip and Housing	Light application	No. 3
Tacho and Speedo Gear Housings	Light application	No. 3
Rear Arm Pivot Shaft	Zirc-Apply until grease shows	No. 4
Brake Pedal Shaft	Light application	No. 3
Change Pedal Shaft	Light application	No. 3
Stand Shaft Pivot	Light application	No. 3
Steering Ball Races	Inspect thoroughly - Medium pack	No. 5
Point Cam Lubricating Wick	Very light application	No. 6
Wheel Bearings	Do not overpack	No. 5

No. 1 Use 10W/30 "SE" motor oil. (If desired, specialty type lubricants of quality manufacture may be used.

No. 2 Use graphite base type (specialty types available – use name-brand, quality manufacturer).

No. 3 Smooth, light-weight, "white" grease.

No. 4 Use standard lube grease - smooth, not coarse.

No. 5 Medium-weight wheel bearing grease of quality manufacturer - preferably waterproof.

No. 6 Light-weight machine oil.

No. 7 Air filters - foam element air filters must be damp with oil at all times to function properly.

#### 4. U.S.A. TIRE REGULATIONS

United States Federal Law requires that accurate records be kept on all tire sales within the U.S.

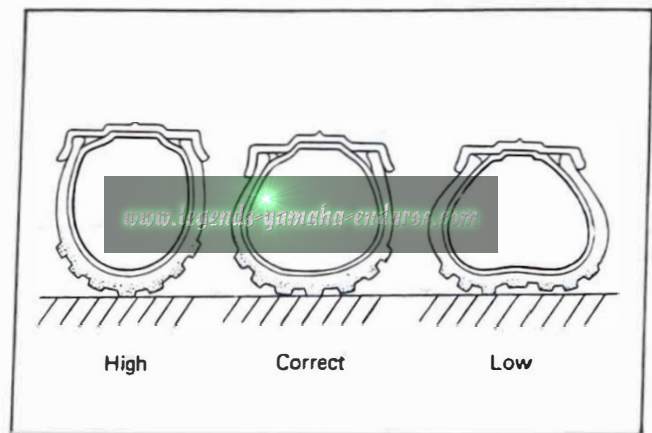
The U.S. Distributor, Yamaha International Corporation, has published a manual outlining the procedure to follow when complying with the above Federal Law. This manual, "Tire Registration Procedure for Motorcycle Dealers," should be thoroughly studied.

The Dealer's primary concern during new machine assembly is to make sure that any wheel assembly that comes unattached is assembled on the correct machine; and that his records (which must be sent to the U.S. Distributor) are completely accurate.

#### TIRE PRESSURE

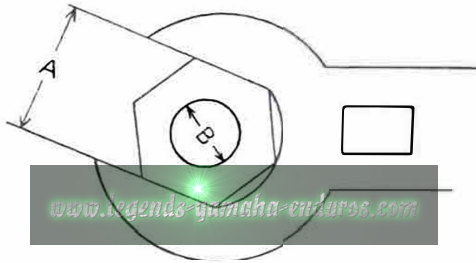
All tires currently used on Yamaha motorcycles are low-pressure pneumatic types. This affords additional damping action (apart from the normal suspension) by making full use of the elasticity of the tire material and air cushion within. Tire pressure is regulated so that the side walls and tread assume approximately the shape shown in the schematic (right-center).

Tire pressure recommendations must be considered as a guide only. Local conditions, weather, the owner's riding habits, terrain, and the load on the machine (e.g., passenger or accessories) must all be taken into account. Your personal experience, coupled with the information given within the model service manual, is your best guide.



## 5. TORQUE SPECIFICATIONS

Torque specifications call for dry, clean threads. Components such as the cylinder or cylinder head should be at room temperature prior to torquing. A cylinder head or any other item with several fasteners should be torqued down in a cross-hatch pattern in successive stages until torque specifications is reached. The method is similar to installing an automobile wheel and will avoid warping the component.



A (NUT)	B (BOLT)	TORQUE SPECIFICATION		
		kg-m	Ft-lbs	In-lbs
10mm	6mm	1.0	7.2	85
13mm	8mm	2.0	15	175
14mm	8mm	2.0	15	175
17mm	10mm	3.5 ~ 4.0	25 ~ 29	300 ~ 350
19mm	12mm	4.0 ~ 4.5	29 ~ 33	350 ~ 400
22mm	14mm	4.5 ~ 5.0	33 ~ 36	400 ~ 440
26mm	17mm	5.8 ~ 7.0	42 ~ 50	500 ~ 600
27mm	18mm	5.8 ~ 7.0	42 ~ 50	500 ~ 600
30mm	20mm	7.0 ~ 8.3	50 ~ 60	600 ~ 700
SPARK	12mm	1.5 ~ 2.0	11 ~ 14	130 ~ 175
PLUG	14mm	2.7 ~ 2.9	19 ~ 21	230 ~ 250

## 6. CONVERSION TABLES

**Metric to Inch System**

	Known	Multiplier (Rounded Off)	Result
Torque	kg-m	7.235	ft-lbs
	kg-m	86.82	in.-lbs
	kg-cm	.0724	ft-lbs
	kg-cm	.8682	in.-lbs
Weight	kg	2,205	lb
	g	.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.
Volume/ Capacity	cc (cm <sup>3</sup> )	0.03381	oz (U.S. liq.)
	cc (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	kg-m
	in.-lbs	0.01152	kg-m
	ft-lbs	13.825	kg-m
	in.-lbs	1.1518	kg-m
Weight	lb	0.4536	kg
	oz	28.35	g
Flow/ Distance	mpg	0.4252	Km/ℓ
	mph	1.609	Km/hr
	mi	1.609	Km
	ft	0.3048	m
	yd	0.9144	m
	in.	2.54	cm
	in.	25.4	mm
Volume/ Capacity	oz (U.S. liq.)	29.57	cc (cm <sup>3</sup> )
	cu in.	16.387	cc (cm <sup>3</sup> )
	pt (U.S. liq.)	0.4732	ℓ (Liter)
	qt (U.S. liq.)	0.9463	ℓ (Liter)
	gal (U.S. liq.)	3.7853	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.
- cc = 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.

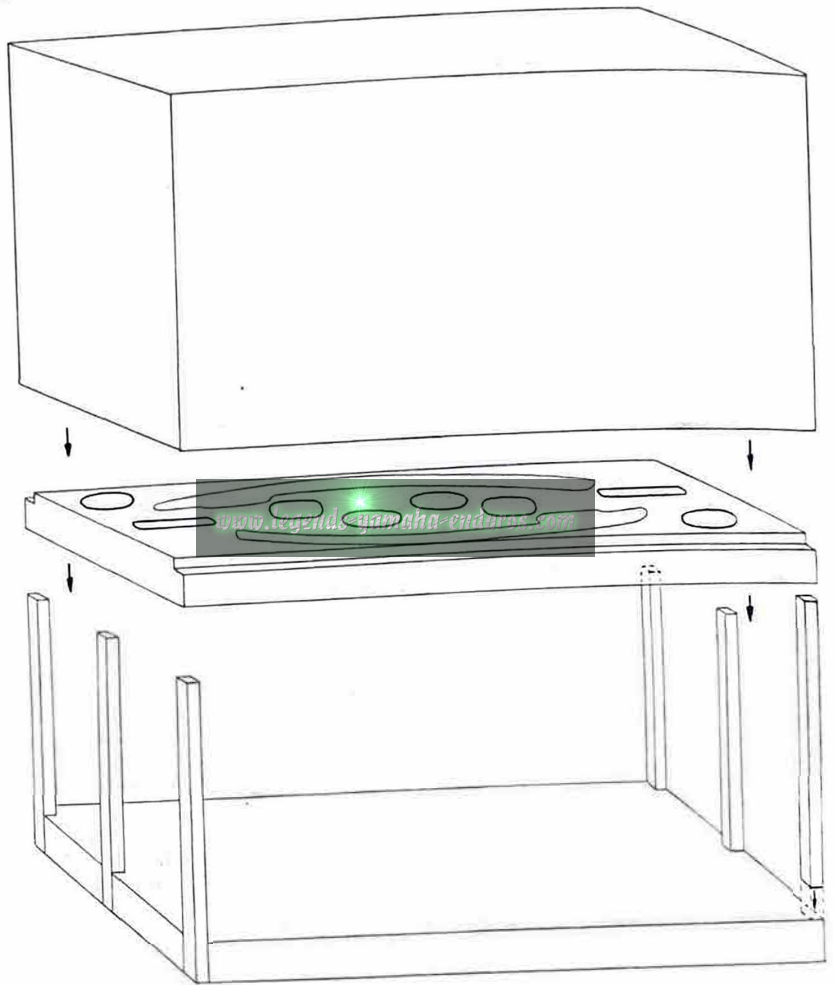
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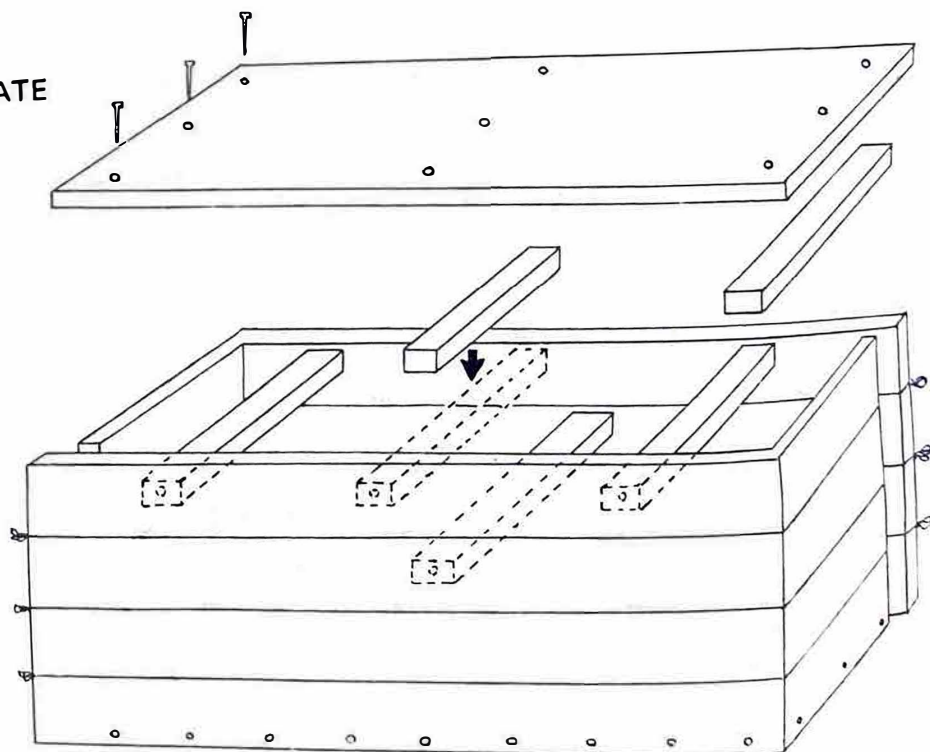
## II. UNCRATING

Occasionally, crate material will vary as will the number of machines to a crate, but the uncrating procedure is basically the same for all Yamaha motorcycles.

### A. CARDBOARD CRATE



### 3. WOODEN BOX CRATE



### III. ASSEMBLY

A. For detailed assembly instructions, see the Yamaha Assembly Manual for year and model you wish to assemble.

B. Post-Assembly Checks

Recheck the tightness of the following according to the appropriate torque specifications.

1. Axle nuts (front and rear) and lock nuts.
2. Steering nut(s).
3. Fork triple clamp and inner tube securing bolts.
4. Engine mounting bolts.
5. Cylinder stud nuts (bolts).
6. Rear swing arm pivot shaft nut(s).
7. Rear shock mounting nuts.
8. Handlebar clamp bolts.
9. Hydraulic brake line fittings.

Recheck the following items for proper routing in accordance with the specific model assembly manual or applicable Service Manual.

1. Throttle cable.
2. Clutch cable.
3. Front brake cable.
4. Hydraulic brake lines.
5. All electrical wiring.
6. Battery vent tube.
7. Carburetor overflow tube.
8. Crankcase vent tube.
9. Autolube oil tank vent tube.
10. Crankcase oil tank vent tube (4-stroke).

#### IV. SET-UP

**NOTE:** This is an example list only, and is not complete in itself. Instructions for the completion of the steps listed below can be found in the following.

Service Manual for the individual model  
Assembly Manual for the individual model  
Yamaha Shop Guide  
Service Data Wall Chart

#### ALL MODELS

Oil the air filter (if foam).  
Tighten carburetor mounting bolts.  
Tighten carburetor cap.  
Adjust idle mixture screw(s).  
Adjust throttle cable freeplay.  
Adjust throttle synchronization (if twin).  
Check starter lever freeplay.  
Adjust clutch at engine and at lever.  
Check spark plug heat range and gap.  
Clean ignition points and adjust gap.  
Set ignition timing.  
Check head torque.  
Check oil delivery line tightness.  
Lubricate and adjust chain (and align rear wheel).  
Adjust front and rear brakes.  
Service and install battery and check electrics.  
Check front and rear tire pressure and suspension.  
Fill gas tank.  
Set idle speed (if twin, also synchronize).  
Check transmission oil level.

#### 4-STROKE MACHINES

Adjust cam chain tensioner.  
Adjust all valves.  
Drain and replace engine oil.

#### 2-STROKE MACHINES

Fill Autolube tank.  
Bleed Autolube pump.  
Check minimum pump stroke.  
Adjust Autolube cable.

## V. PRE-OPERATION AND TEST RIDE

A. Prior to engine operation and test ride, perform the following checks:

1. Front and rear brake freeplay and operation.
2. Clutch lever freeplay.
3. Drive chain tension.
4. Throttle operation.
5. Autolube pump cable and stroke.
6. Tire pressure. (Refer to Owner's Manual for correct pressure.)
7. Air cleaner. (If foam, make sure it hasn't dried out during storage.)

B. Pre-Operation Checks

1. Check the Autolube tank quantity.
2. Check transmission oil level.
3. Start engine and check idle speed.
4. If twin, check carb. synchronization.
5. Check operation of electrical components:
  - a. Horn
  - b. High and low beam.
  - c. Right and left turn signals (F. and R.)
  - d. Indicator lamps (inc. neutral)
  - e. Taillight and stoplight
  - f. Meter lights

C. Test Ride

Take the motorcycle for a test ride. Drive at least five (5) miles or ten (10) minutes.

1. Check transmission operation.
2. Check engine for abnormal noises.
3. Thoroughly check all operating controls.
4. Check acceleration and general performance.
5. After test, check spark plug coloration.



## VI. CLEAN UP AND DELIVERY

### A. Clean Up

Clean the motorcycle thoroughly after the test ride. If it is washed, do not allow the chain lubricant to be removed. Wipe the motorcycle down with a clean rag. During the wipe down, check all components for nicks, scratches, or other signs of damage.

### B. Delivery

When the motorcycle is delivered to the new owner, make sure he is familiar with all the operating controls. Advise him regarding break-in. Let him know if there are any service or operational problems peculiar to his locale that may require extra attention on his part.

Show him where his tool kit (if supplied) is located and familiarize him with the Owner's Manual. Finally, explain his rights and obligations under the warranty program.

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