



**YAMAHA**

**2012**

**⚠ Read this manual carefully before operating this vehicle.**

**OWNER'S SERVICE MANUAL**

***YZ250FB***

**LIT-11626-25-10**

**17D-28199-12**

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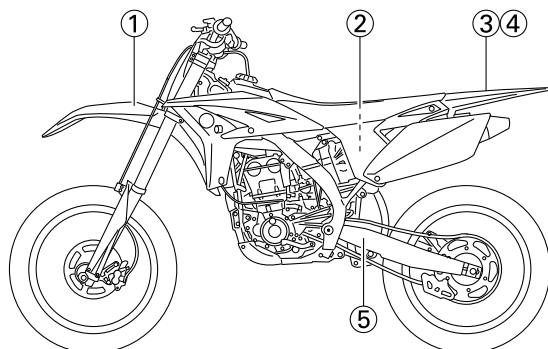
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# LOCATION OF IMPORTANT LABELS

## GENERAL INFORMATION LOCATION OF IMPORTANT LABELS

Please read the following important labels carefully before operating this vehicle.



1

Premium unleaded gasoline only.  
3FB-2415E-02

2

**⚠ WARNING**  
This unit contains high pressure nitrogen gas. Mishandling can cause explosion.  
• Read owner's manual for instructions.  
• Do not incinerate, puncture or open.  
4AA-22259-80

3

**⚠ WARNING**  
• BEFORE YOU OPERATE THIS VEHICLE, READ THE OWNER'S MANUAL AND ALL LABELS.  
• NEVER CARRY A PASSENGER. You increase your risk of losing control if you carry a passenger.  
• NEVER OPERATE THIS VEHICLE ON PUBLIC ROADS. You can collide with another vehicle if you operate this vehicle on a public road.  
• ALWAYS WEAR AN APPROVED MOTORCYCLE HELMET, eye protection, and protective clothing.  
• EXPERIENCED RIDER ONLY.  
5PA-2118K-00

4

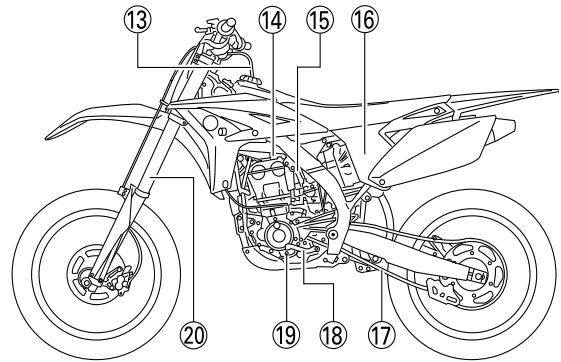
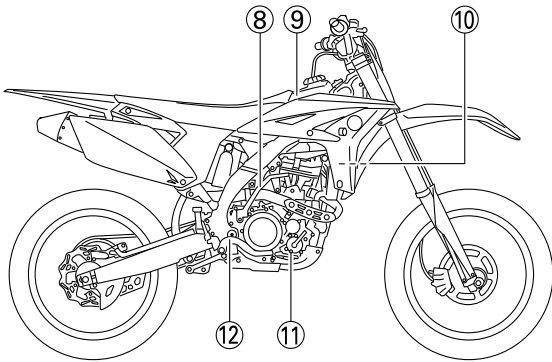
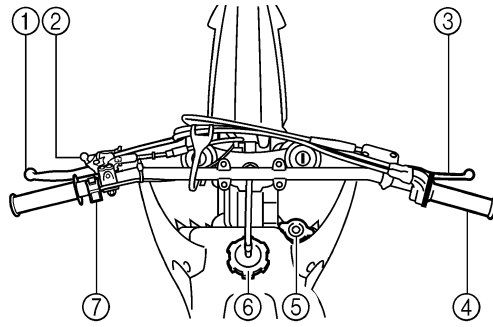
For use only on a closed course in sanctioned competition.  
This motorcycle does not meet EPA noise and emissions standards and is not for general off-road recreational riding.  
17D-2812P-00

5

**TIRE INFORMATION**  
Cold tire normal pressure should be set as follows.  
FRONT : 100kPa, {1.00kgf/cm<sup>2</sup>}, 15psi  
REAR : 100kPa, {1.00kgf/cm<sup>2</sup>}, 15psi  
3RV-21668-A0

1

## DESCRIPTION



- |                       |                            |
|-----------------------|----------------------------|
| 1. Clutch lever       | 11. Coolant drain bolt     |
| 2. Hot starter lever  | 12. Rear brake pedal       |
| 3. Front brake lever  | 13. Valve joint            |
| 4. Throttle grip      | 14. Fuel cock              |
| 5. Radiator cap       | 15. Cold starter knob      |
| 6. Fuel tank cap      | 16. Air filter             |
| 7. Engine stop switch | 17. Drive chain            |
| 8. Kickstarter crank  | 18. Shift pedal            |
| 9. Fuel tank          | 19. Oil level check window |
| 10. Radiator          | 20. Front fork             |

### TIP

- The machine you have purchased may differ slightly from those shown in the following.
- Designs and specifications are subject to change without notice.

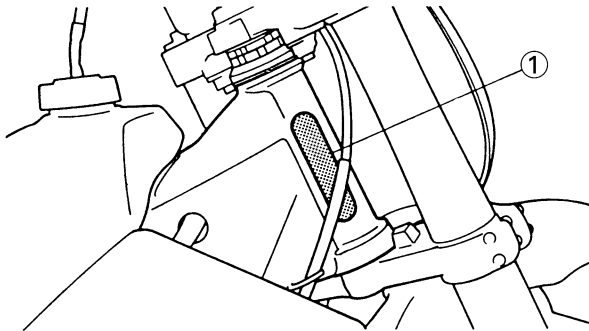
## CONSUMER INFORMATION

There are two significant reasons for knowing the serial number of your machine:

1. When ordering parts, you can give the number to your Yamaha dealer for positive identification of the model you own.
2. If your machine is stolen, the authorities will need the number to search for and identify your machine.

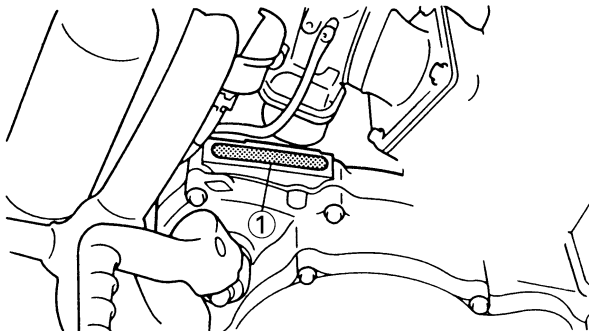
### VEHICLE IDENTIFICATION NUMBER

The vehicle identification number "1" is stamped on the right of the steering head pipe.



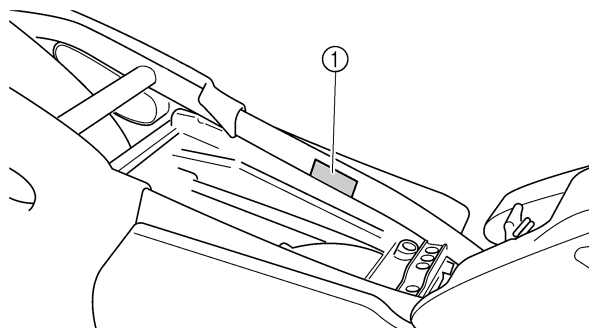
### ENGINE SERIAL NUMBER

The engine serial number "1" is stamped into the elevated part of the right-side of the engine.



### MODEL LABEL

The model label "1" is affixed to the frame under the rider's seat. This information will be needed to order spare parts.





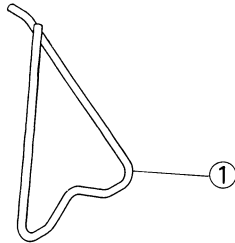
## INCLUDED PARTS

### DETACHABLE SIDESTAND

This sidestand "1" is used to support only the machine when standing or transporting it.

#### **⚠ WARNING**

- Never apply additional force to the side-stand.
- Remove this sidestand before starting out.

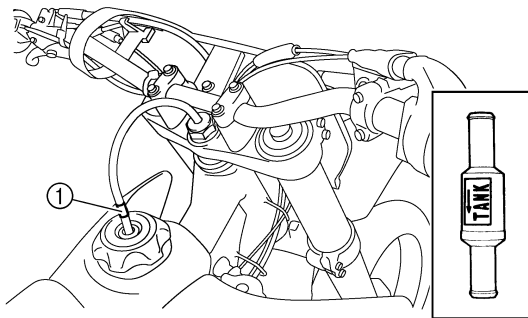


### VALVE JOINT

This valve joint "1" prevents fuel from flowing out and is installed to the fuel tank breather hose.

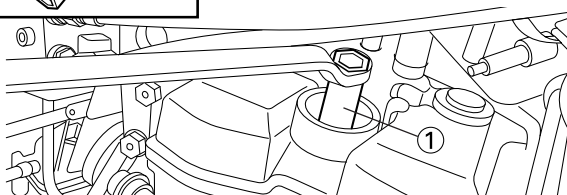
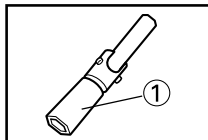
#### **NOTICE**

In this installation, make sure the arrow faces the fuel tank and also downward.



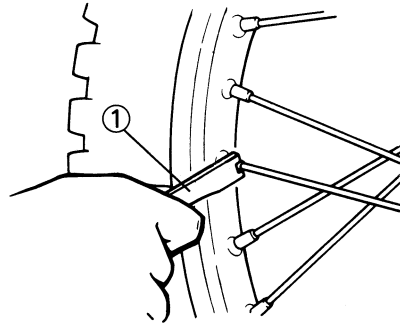
### SPARK PLUG WRENCH

This spark plug wrench "1" is used to remove and install the spark plug.



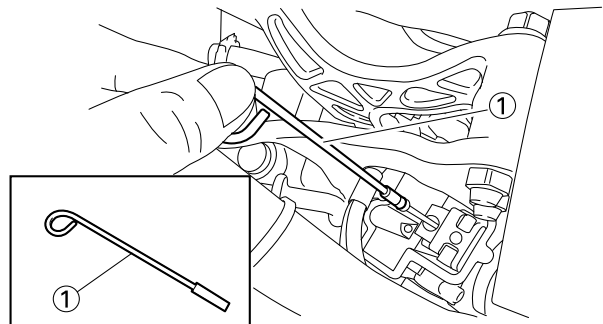
### NIPPLE WRENCH

This nipple wrench "1" is used to tighten the spoke.



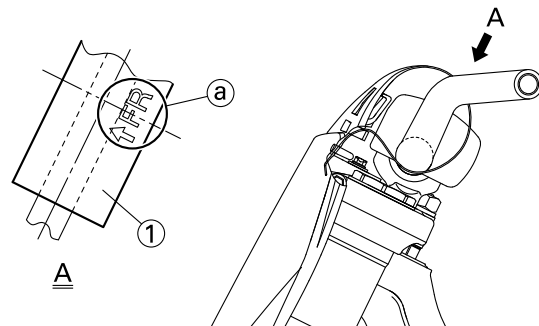
### JET NEEDLE PULL-UP TOOL

The jet needle pull-up tool "1" is used to pull the jet needle out of the carburetor.



### HANDLEBAR PROTECTOR

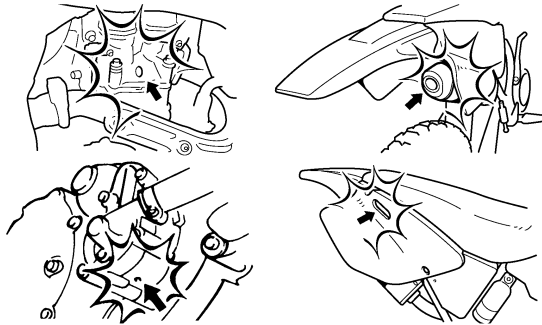
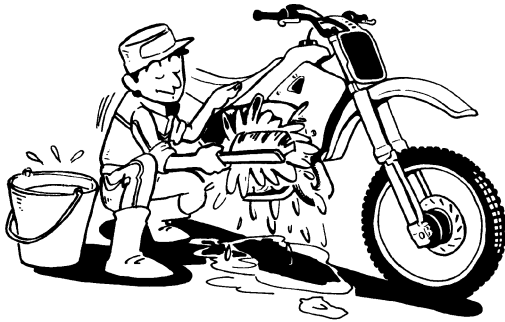
Install the handlebar protector "1" so that the mark "a" face forward.



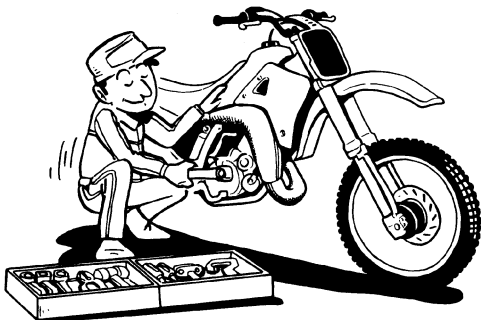
## IMPORTANT INFORMATION

### PREPARATION FOR REMOVAL AND DISASSEMBLY

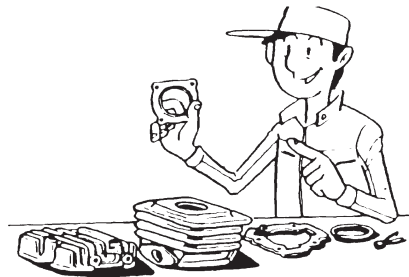
1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.
  - When washing the machine with high pressured water, cover the parts follows.  
Silencer exhaust port  
Side cover air intake port  
Water pump housing hole at the bottom  
Drain hole on the cylinder head (right side)



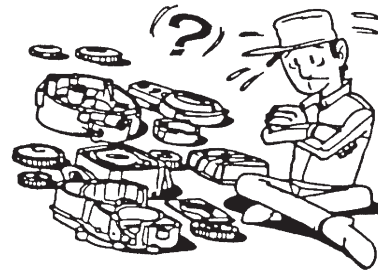
2. Use proper tools and cleaning equipment. Refer to "SPECIAL TOOLS" section.



3. When disassembling the machine, keep mated parts together. They include gears, cylinders, pistons, and other mated parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.



4. During the machine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled.



5. Keep away from fire.

### ALL REPLACEMENT PARTS

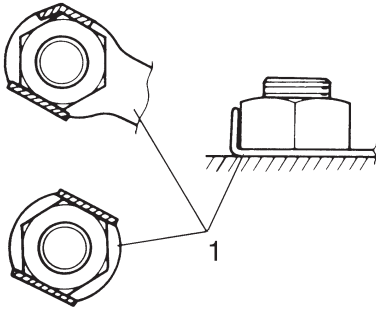
1. We recommend to use Yamaha genuine parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment.

### GASKETS, OIL SEALS AND O-RINGS

1. All gaskets, oil seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.

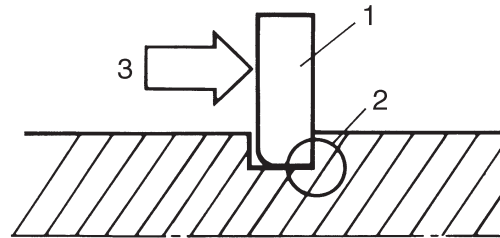
## LOCK WASHERS/PLATES AND COTTER PINS

1. All lock washers/plates "1" and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.



## CIRCLIPS

1. All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip "1", make sure that the sharp-edged corner "2" is positioned opposite to the thrust "3" it receives. See the sectional view.

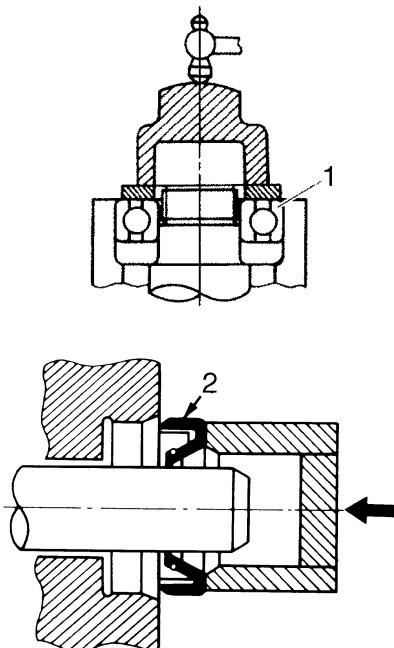


## BEARINGS AND OIL SEALS

1. Install the bearing(s) "1" and oil seal(s) "2" with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of lightweight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.

### NOTICE

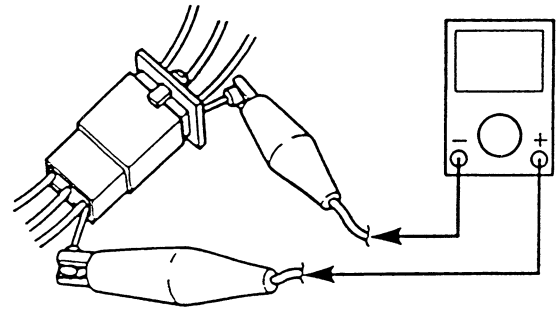
**Do not use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.**



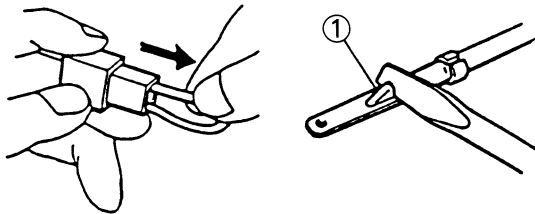
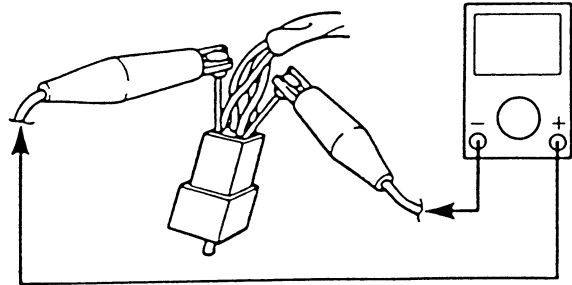
## CHECKING OF CONNECTION

Dealing with stains, rust, moisture, etc. on the connector.

1. Disconnect:
  - Connector
2. Dry each terminal with an air blower.



3. Connect and disconnect the connector two or three times.
4. Pull the lead to check that it will not come off.
5. If the terminal comes off, bend up the pin "1" and reinsert the terminal into the connector.



6. Connect:
  - Connector

### **TIP**

The two connectors "click" together.

7. Check for continuity with a tester.

### **TIP**

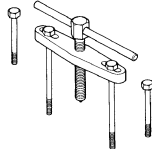
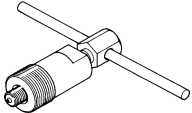
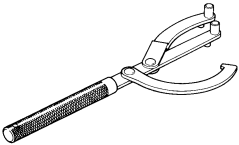
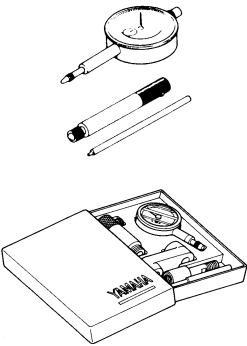
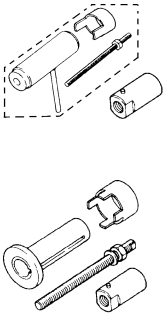
- If there is no continuity, clean the terminals.
- Be sure to perform the steps 1 to 7 listed above when checking the wire harness.
- For a field remedy, use a contact revitalizer available on the market.
- Use the tester on the connector as shown.

## SPECIAL TOOLS

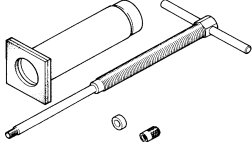
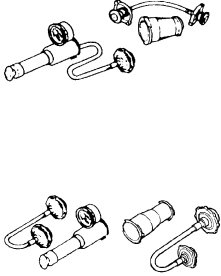
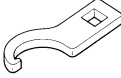

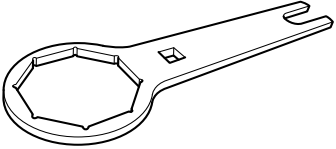
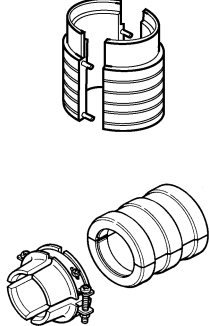
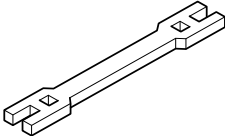
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques. The shape and part number used for the special tool differ by country, so two types are provided. Refer to the list provided to avoid errors when placing an order.

### TIP

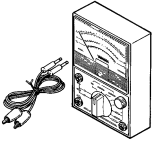
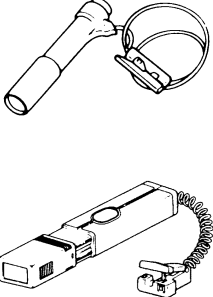
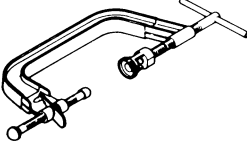
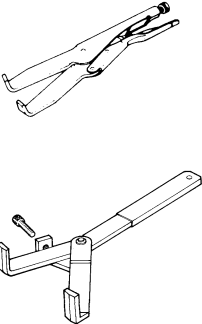

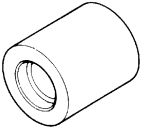
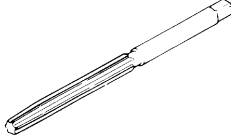
- For U.S.A. and Canada, use part number starting with "YM-", "YU-" or "ACC-".
- For others, use part number starting with "90890-".

Tool name/Part number	How to use	Illustration
Crankcase separating tool YU-1135-A, 90890-01135	These tool is used to remove the crankshaft from either case.	
Flywheel puller YM-1189, 90890-01189	This tool is used to remove the flywheel magneto.	
Rotor holding tool YU-1235, 90890-01235	This tool is used when loosening or tightening the flywheel magneto securing nut.	
Dial gauge and stand YU-3097, 90890-01252 Stand YU-1256	These tools are used to check each part for runout or bent.	
Crankshaft installing tool Crankshaft installing pot YU-90050, 90890-01274 Crankshaft installing bolt YU-90050, 90890-01275 Spacer (crankshaft installer) YU-91044, 90890-04081 Adapter (M12) YU-90063, 90890-01278	These tools are used to install the crankshaft.	

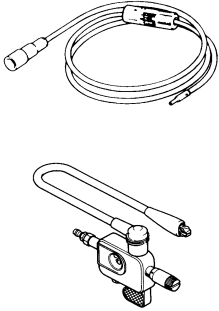
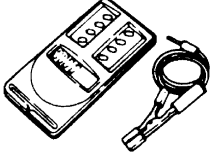
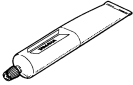
# SPECIAL TOOLS

Tool name/Part number	How to use	Illustration
Piston pin puller set YU-1304, 90890-01304	This tool is used to remove the piston pin.	
Radiator cap tester YU-24460-01, 90890-01325 Radiator cap tester adapter YU-33984, 90890-01352	These tools are used for checking the cooling system.	
Steering nut wrench YU-33975, 90890-01403	This tool is used when tighten the steering ring nut to specification.	
Cap bolt wrench YM-01500, 90890-01500	This tool is used to loosen or tighten the base valve.	
Cap bolt ring wrench YM-01501, 90890-01501	This tool is used to loosen or tighten the damper assembly.	
Fork seal driver YM-A0948, 90890-01502	This tool is used when install the fork oil seal.	
Spoke nipple wrench YM-01521, 90890-01521	This tool is used to tighten the spoke.	

# SPECIAL TOOLS

Tool name/Part number	How to use	Illustration
Pocket tester YU-3112-C, 90890-03112	Use this tool to inspect the coil resistance, output voltage and amperage.	
Timing light YM-33277-A, 90890-03141	This tool is necessary for checking ignition timing.	
Valve spring compressor YM-4019, 90890-04019	This tool is needed to remove and install the valve assemblies.	
Clutch holding tool YM-91042, 90890-04086	This tool is used to hold the clutch when removing or installing the clutch boss securing nut.	
Valve guide remover Intake 4.0 mm (0.16 in) Exhaust 4.5 mm (0.18 in) YM-4111, 90890-04111 YM-4116, 90890-04116	This tool is needed to remove and install the valve guide.	
Valve guide installer Intake 4.0 mm (0.16 in) Exhaust 4.5 mm (0.18 in) YM-4112, 90890-04112 YM-4117, 90890-04117	This tool is needed to install the valve guide.	
Valve guide reamer Intake 4.0 mm (0.16 in) Exhaust 4.5 mm (0.18 in) YM-4113, 90890-04113 YM-4118, 90890-04118	This tool is needed to rebores the new valve guide.	

# SPECIAL TOOLS

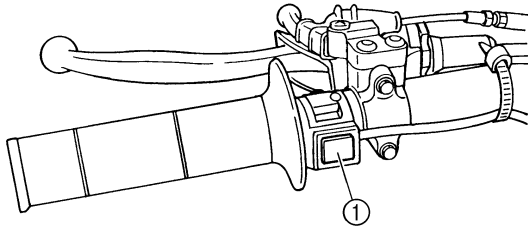
Tool name/Part number	How to use	Illustration
Dynamic spark tester YM-34487 Ignition checker 90890-06754	This instrument is necessary for checking the ignition system components.	
Digital tachometer YU-39951-B, 90890-06760	This tool is needed for observing engine rpm.	
YAMAHA Bond No. 1215 (ThreeBond® No. 1215) 90890-85505	This sealant (Bond) is used for crankcase mating surface, etc.	



## CONTROL FUNCTIONS

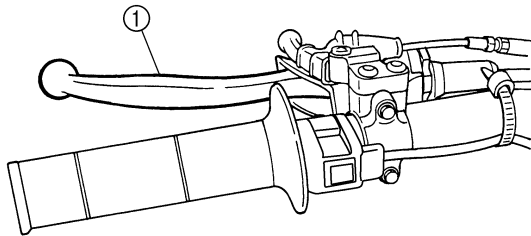
### ENGINE STOP SWITCH

The engine stop switch "1" is located on the left handlebar. Continue pushing the engine stop switch till the engine comes to a stop.



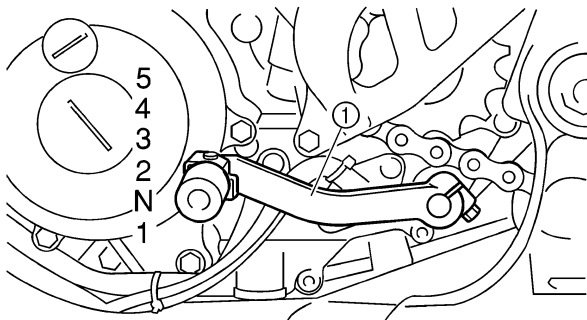
### CLUTCH LEVER

The clutch lever "1" is located on the left handlebar; it disengages or engages the clutch. Pull the clutch lever to the handlebar to disengage the clutch, and release the lever to engage the clutch. The lever should be pulled rapidly and released slowly for smooth starts.



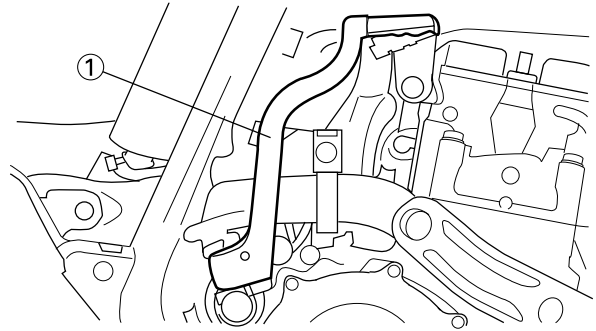
### SHIFT PEDAL

The gear ratios of the constant-mesh 5 speed transmission are ideally spaced. The gears can be shifted by using the shift pedal "1" on the left side of the engine.



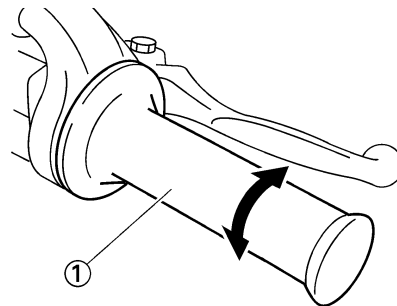
### KICKSTARTER CRANK

Rotate the kickstarter crank "1" away from the engine. Push the starter down lightly with your foot until the gears engage, then kick smoothly and forcefully to start the engine. This model has a primary kickstarter crank so the engine can be started in any gear if the clutch is disengaged. In normal practices, however, shift to neutral before starting.



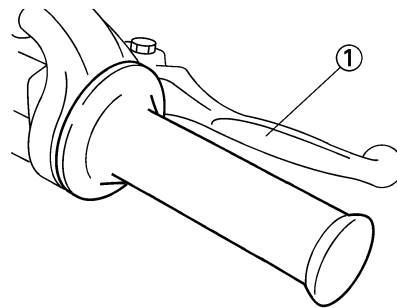
### THROTTLE GRIP

The throttle grip "1" is located on the right handlebar; it accelerates or decelerates the engine. For acceleration, turn the grip toward you; for deceleration, turn it away from you.



### FRONT BRAKE LEVER

The front brake lever "1" is located on the right handlebar. Pull it toward the handlebar to activate the front brake.



## REAR BRAKE PEDAL

The rear brake pedal "1" is located on the right side of the machine. Press down on the brake pedal to activate the rear brake.



## FUEL COCK

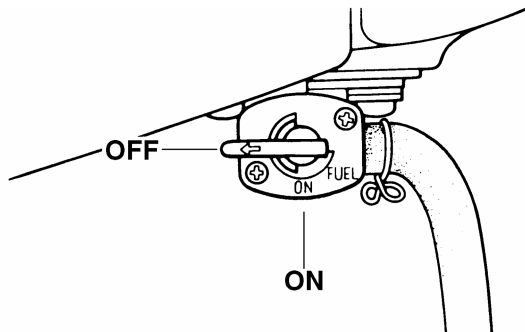
The fuel cock supplies fuel from the tank to carburetor and also filters the fuel. The fuel cock has the two positions:

### OFF:

With the lever in this position, fuel will not flow. Always return the lever to this position when the engine is not running.

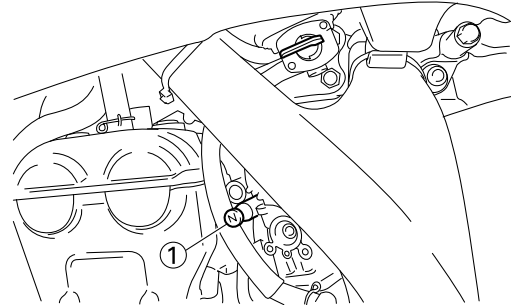
### ON:

With the lever in this position, fuel flows to the carburetor. Normal riding is done with the lever in this position.



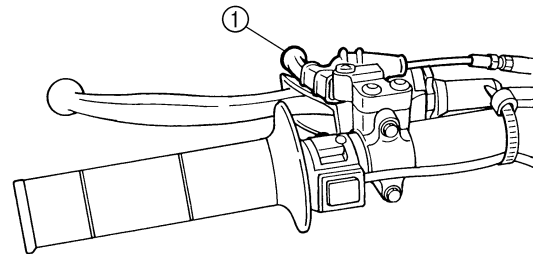
## COLD STARTER KNOB

When cold, the engine requires a richer air-fuel mixture for starting. A separate starter circuit, which is controlled by the cold starter knob "1", supplies this mixture. Pull the cold starter knob out to open the circuit for starting. When the engine has warmed up, push it in to close the circuit.



## HOT STARTER LEVER

The hot starter lever "1" is used when starting a warm engine. Use the hot starter lever when starting the engine again immediately after it was stopped (the engine is still warm). Pulling the hot starter lever injects secondary air to thin the air-fuel mixture temporarily, allowing the engine to be started more easily.



## STARTING AND BREAK-IN

### FUEL

Always use the recommended fuel as stated below. Also, be sure to use new gasoline the day of a race.



**Recommended fuel:**  
Premium unleaded gasoline only with a research octane number of 95 or higher.

### NOTICE

Use only unleaded gasoline. The use of leaded gasoline will cause severe damage to the engine internal parts such as valves, piston rings, and exhaust system, etc.

### TIP

If knocking or pinging occurs, use a different brand of gasoline or higher octane grade.

### WARNING

- For refueling, be sure to stop the engine and use enough care not to spill any fuel. Also be sure to avoid refueling close to a fire.
- Refuel after the engine, exhaust pipe, etc. have cooled off.

### HANDLING NOTE

### WARNING

Never start or run the engine in a closed area. The exhaust fumes are poisonous; they can cause loss of consciousness and death in a very short time. Always operate the machine in a well-ventilated area.

### NOTICE

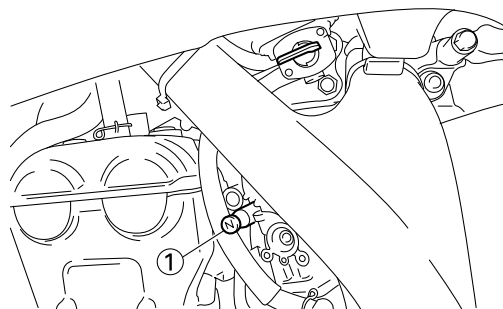
- The carburetor on this machine has a built-in accelerator pump. Therefore, when starting the engine, do not operate the throttle or the spark plug will foul.
- Unlike a two-stroke engine, this engine cannot be kick started when the throttle is open because the kickstarter may kick back. Also, if the throttle is open the air/fuel mixture may be too lean for the engine to start.
- Before starting the machine, perform the checks in the pre-operation check list.

### AIR FILTER MAINTENANCE

According to "CLEANING THE AIR FILTER ELEMENT" section in the CHAPTER 3, apply the foam-air-filter oil or its equivalent to the element. (Excess oil in the element may adversely affect engine starting.)

### STARTING A COLD ENGINE

1. Inspect the coolant level.
2. Turn the fuel cock to "ON".
3. Shift the transmission into neutral.
4. Fully open the cold starter knob "1".
5. Kick the kickstarter crank.



### WARNING

Do not open the throttle while kicking the kickstarter crank. Otherwise, the kickstarter crank may kick back.

6. Return the cold starter knob to its original position and run the engine at 3,000–5,000 r/min for 1 or 2 minutes.

### TIP

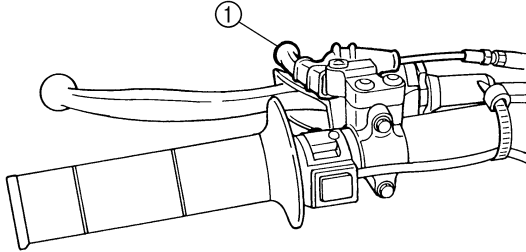
Since this model is equipped with an accelerator pump, if the engine is raced (the throttle opened and closed), the air/fuel mixture will be too rich and the engine may stall. Also unlike a two-stroke engine, this model can idle.

### NOTICE

Do not warm up the engine for extended periods of time.

## STARTING A WARM ENGINE

Do not operate the cold starter knob and throttle. Pull the hot starter lever "1" and start the engine by kicking the kickstarter crank forcefully with a firm stroke. As soon as the engine starts, release the hot starter lever to close the air passage.



### Restarting an engine after a fall

Pull the hot starter lever and start the engine. As soon as the engine starts, release the hot starter lever to close the air passage.

### The engine fails to start

Pull the hot starter lever all the way out and while holding the lever, kick the kickstarter crank 10 to 20 times to clear the engine. Then, restart the engine. Refer to "Restarting an engine after a fall".

		Throttle grip operation*	Cold starter knob	Hot starter lever
Starting a cold engine	Air temperature = less than 5 °C (41 °F)	Open 3 or 4 times	ON	OFF
	Air temperature = more than 5 °C (41 °F)	None	ON	OFF
	Air temperature (normal temperature) = between 5 °C (41 °F) and 25 °C (77 °F)	None	ON/OFF	OFF
	Air temperature = more than 25 °C (77 °F)	None	OFF	OFF
Starting an engine after a long period of time		None	ON	OFF
Restarting a warm engine		None	OFF	ON
Restarting an engine after a fall		None	OFF	ON

\* Operate the throttle grip before kick starting.

## NOTICE

Observe the following break-in procedures during initial operation to ensure optimum performance and avoid engine damage.

## BREAK-IN PROCEDURES

1. Before starting the engine, fill the fuel tank with the fuel.
2. Perform the pre-operation checks on the machine.
3. Start and warm up the engine. Check the idle speed, and check the operation of the controls and the engine stop switch. Then, restart the engine and check its operation within no more than 5 minutes after it is restarted.
4. Operate the machine in the lower gears at moderate throttle openings for five to eight minutes.
5. Check how the engine runs when the machine is ridden with the throttle 1/4 to 1/2 open (low to medium speed) for about one hour.
6. Restart the engine and check the operation of the machine throughout its entire operating range. Restart the machine and operate it for about 10 to 15 more minutes. The machine will now be ready to race.

## NOTICE

- After the break-in or before each race, you must check the entire machine for loose fittings and fasteners as per "TORQUE-CHECK POINTS". Tighten all such fasteners as required.
- When any of the following parts have been replaced, they must be broken in.  
**CYLINDER AND CRANKSHAFT:**  
 About one hour of break-in operation is necessary.  
**PISTON, RING, VALVES, CAMSHAFTS AND GEARS:**  
 These parts require about 30 minutes of break-in operation at half-throttle or less. Observe the condition of the engine carefully during operation.

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