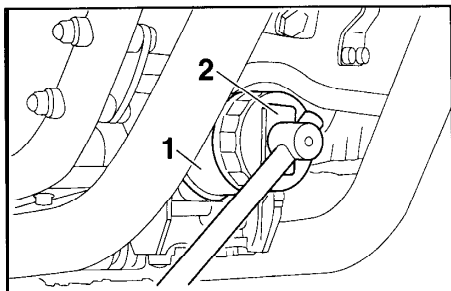
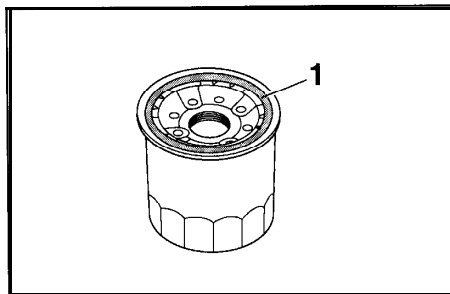


# PERIODIC MAINTENANCE AND MINOR REPAIR



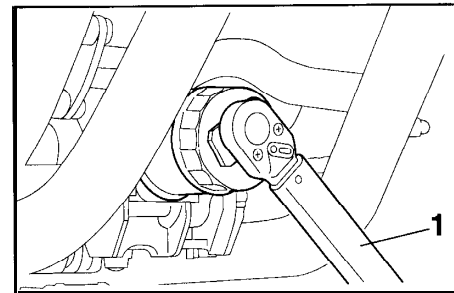
- 1 Oil filter cartridge
- 2. Oil filter wrench

4. Remove the oil filter cartridge with an oil filter wrench.



- 1. O-ring

5. Apply a thin coat of engine oil to the O-ring of the new oil filter cartridge.



- 1. Torque wrench

6. Install the new oil filter cartridge, and then tighten it to the specified torque with a torque wrench.

6

**NOTE:** \_\_\_\_\_  
An oil filter wrench is available at a Yamaha dealer.

**NOTE:** \_\_\_\_\_  
Make sure that the O-ring is properly seated.

**Tightening torque:**  
Oil filter cartridge:  
17 Nm (1.7 m·kg, 12 ft·lb)

7. Install the engine oil drain bolt, and then tighten it to the specified torque.

**Tightening torque:**  
Engine oil drain bolt:  
43 Nm (4.3 m·kg, 31 ft·lb)

# PERIODIC MAINTENANCE AND MINOR REPAIR

8. Add the specified amount of the recommended engine oil, and then install and tighten the oil filler cap.

## -Recommended engine oil:

See page 8-l.

### Oil quantity:

Without oil filter cartridge replacement:

3.2 L (2.8 Imp qt, 3.4 US qt)

With oil filter cartridge replacement:

3.4 L (3.0 Imp qt, 3.6 US qt)

Total amount (dry engine):

4.0 L (3.5 Imp qt, 4.2 US qt)

EC000072



- In order to prevent clutch slippage (since the engine oil also lubricates the clutch), do not mix any chemical additives with the oil- or use oils of a higher grade than “CD”. In addition, do not use oils labeled “ENERGY CONSERVING II” or higher.
- Make sure that no foreign material enters the crankcase.

9. Start the engine, and then let it idle for several minutes while checking it for oil leakage. If oil is leaking, immediately turn the engine off and check for the cause.

## NOTE:

After the engine is started, the engine oil level warning light should go off if the oil level is sufficient.

EC000067



If the oil level warning light flickers or remains on, immediately turn the engine off and have a Yamaha dealer check the vehicle.

10. Turn the engine off, and then check the oil level and correct it if necessary.

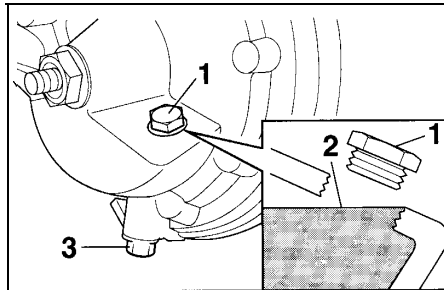
# PERIODIC MAINTENANCE AND MINOR REPAIR

EAU02975

## Final gear oil

The final gear case must be checked for oil leakage before each ride. If any leakage is found, have a Yamaha dealer check and repair the motorcycle. In addition, the final gear oil must be changed as follows at the intervals specified in the periodic maintenance and lubrication chart.

1. Place the motorcycle on the centerstand.
2. Place an oil pan under the final gear case to collect the used oil.



1. Final gear oil filler bolt
2. Correct oil level
3. Final gear oil drain bolt

3. Remove the oil filler bolt and drain bolt to drain the oil from the final gear case.
4. Install the final gear oil drain bolt, and then tighten it to the specified torque.

### Tightening torque:

Final gear oil drain bolt:  
23 Nm (2.3 m·kg, 17 ft·lb)

5. Add the specified amount of the recommended final gear oil, and then install and tighten the oil filler bolt.

Recommended final gear oil:  
Hypoid gear oil SAE 80 (API GL4)  
or multigrade hypoid gear oil SAE  
80W-90  
Oil quantity:  
0.2 L (0.18 Imp qt, 0.21 US qt)

### NOTE:

GL4 is a quality rating. Hypoid gear oils rated GL5 or GL6 may also be used.

EW000066

### **WARNING**

- Make sure that no foreign material enters the final gear case.
  - Make sure that no oil gets on the tire or wheel.
6. Check the final gear case for oil leakage. If oil is leaking, check for the cause.

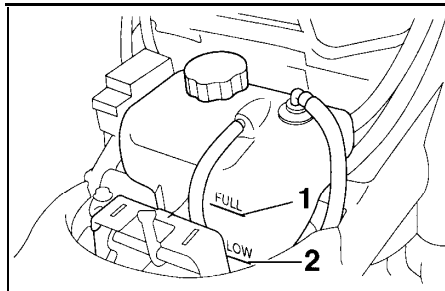
# PERIODIC MAINTENANCE AND MINOR REPAIR

EAU03416

## Coolant

The coolant level should be checked before each ride. In addition, the coolant must be changed at the intervals specified in the periodic maintenance and lubrication chart.

If the engine overheats, see page 6-47 for further instructions.



1. Maximum level mark
2. Minimum level mark

### To check the coolant level

1. Place the motorcycle on a level surface and hold it in an upright position.
2. Remove cowling A. (See page 6-8 for cowling removal and installation procedures.)

### NOTE:

- The coolant level must be checked on a cold engine since the level varies with engine temperature.
- Make sure that the motorcycle is positioned straight up when checking the coolant level. A slight tilt to the side can result in a false reading.

3. Check the coolant level in the coolant reservoir.

### NOTE:

The coolant should be between the minimum and maximum level marks.

4. If the coolant is at or below the minimum level mark, remove the coolant reservoir cap and add coolant to the maximum level mark.
5. Install the coolant reservoir cap and the cowling.

Coolant reservoir capacity:  
0.3 L (0.26 Imp, 0.32 US qt)

# PERIODIC MAINTENANCE AND MINOR REPAIR

EC000060

## CAUTION

- If coolant is not available, use distilled water or soft tap water instead. Do not use hard water or salt water since it is harmful to the engine.
- If water has been used instead of coolant, replace it with coolant as soon as possible, otherwise the engine may not be sufficiently cooled and the cooling system will not be protected against frost and corrosion.
- If water has been added to the coolant, have a Yamaha dealer check the antifreeze content of the coolant as soon as possible, otherwise the effectiveness of the coolant will be reduced.

EW000067

## WARNING

Never attempt to remove the radiator cap when the engine is hot.

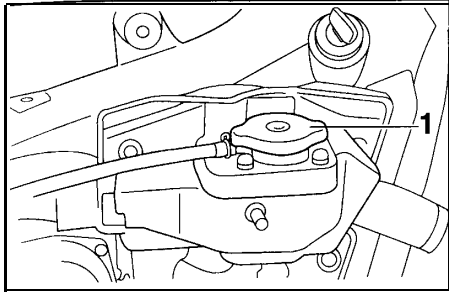
**NOTE:** \_\_\_\_\_  
The radiator fan is automatically switched on or off according to the coolant temperature in the radiator. If the engine overheats, see page 6-47 for further instructions.

EAU03417

## To change the coolant

- Place the motorcycle on a level surface and let the engine cool if necessary.
2. Remove cowlings A and panel A. (See pages 6-8 and 6-9 for cowlings and panel removal and installation procedures.)
  3. Place a container under the engine to collect the used coolant.

# PERIODIC MAINTENANCE AND MINOR REPAIR



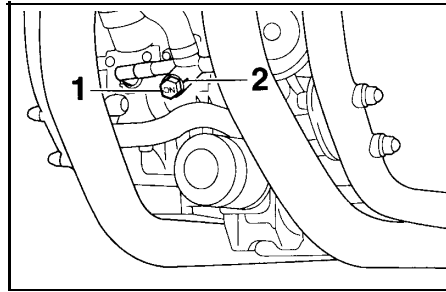
1. Radiator cap

4. Remove the radiator cap.

EW000067

## **WARNING**

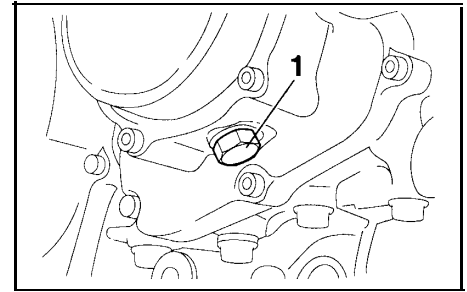
**Never attempt to remove the radiator cap when the engine is hot.**



1. Coolant drain cock

2. Position indicator

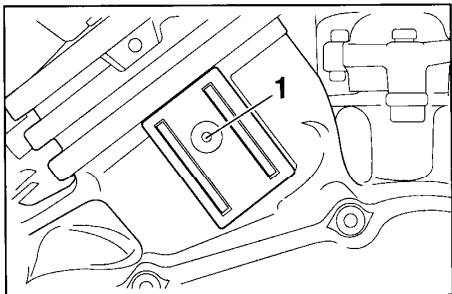
5. Turn the coolant drain cock to "ON".



1. Water pump drain bolt

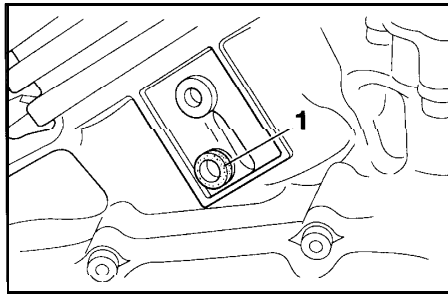
6. Remove the water pump drain bolt to drain the water pump housing.

# PERIODIC MAINTENANCE AND MINOR REPAIR



1. Screw (x 4)

7. Remove the cylinder drain plug covers on the outside of the cylinder blocks by removing the screws.



1. Rubber coolant drain plug (x 4)

8. Remove the rubber coolant drain plugs to drain the coolant from the engine.
9. After the coolant is completely drained, thoroughly flush the cooling system with clean tap water.
10. Install the water pump drain bolt, and then tighten it to the specified torque.

**NOTE:** \_\_\_\_\_  
Check the washer for damage and replace it if necessary.

Tightening torque:

Water pump drain bolt:

43 Nm (4.3 m·kg, 31 ft·lb)

11. Install the rubber coolant drain plugs, and then install the cylinder drain plug covers.

**NOTE:** \_\_\_\_\_  
Check the rubber plugs for damage and replace them if necessary.

12. Turn the coolant drain cock to "OFF".
13. Pour the recommended coolant into the reservoir to the maximum level, and then install the cap.
14. Pour the recommended coolant into the radiator until it is full.

# PERIODIC MAINTENANCE AND MINOR REPAIR

Antifreeze/water mixture ratio:

1:1

Recommended antifreeze:

High-quality ethylene glycol antifreeze containing corrosion inhibitors for aluminum engines

Coolant quantity:

Total amount:

3.05 L (2.68 Imp qt, 3.22 US qt)

Coolant reservoir capacity:

0.3 L (0.26 Imp qt, 0.32 US qt)

EC000080

## CAUTION:

- **If coolant is not available, use distilled water or soft tap water instead. Do not use hard water or salt water since it is harmful to the engine.**
- **If water has been used instead of coolant, replace it with coolant as soon as possible, otherwise the engine may not be sufficiently cooled and the cooling system will not be protected against frost and corrosion.**

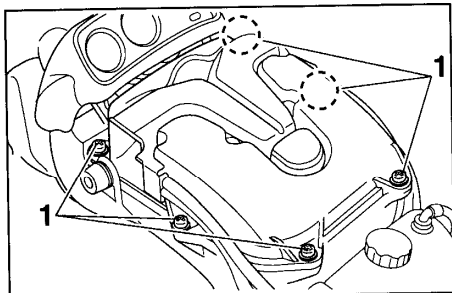
- **If water has been added to the coolant, have a Yamaha dealer check the antifreeze content of the coolant as soon as possible, otherwise the effectiveness of the coolant will be reduced.**

15. Install the radiator cap, start the engine, let it idle for several minutes, and then turn it off.
16. Remove the radiator cap to check the coolant level in the radiator. If necessary, add sufficient coolant until it reaches the top of the radiator, and then install the radiator cap.
17. Check the coolant level in the reservoir. If necessary, remove the coolant reservoir cap, add coolant to the maximum level mark, and then install the cap.
18. Start the engine, and then check the vehicle for coolant leakage. If coolant is leaking, have a Yamaha dealer check the cooling system.
19. Install the cowling and the panel.



# PERIODIC MAINTENANCE AND MINOR REPAIR

EC000062



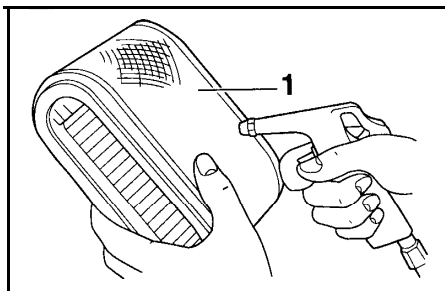
1. Screw (x 6)

EAU01662

## Cleaning the air filter element

The air filter element should be cleaned at the intervals specified in the periodic maintenance and lubrication chart. Clean the air filter element more frequently if you are riding in unusually wet or dusty areas.

1. Remove cowling A. (See page 6-8 for cowling removal and installation procedures.)
2. Remove the air filter case cover by removing the screws.



1. Air filter element

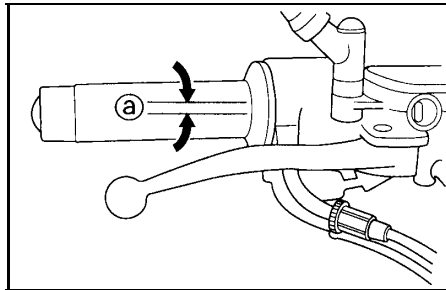
3. Pull the air filter element out.
4. Lightly tap the air filter element to remove most of the dust and dirt, and then blow the remaining dirt out with compressed air as shown. If the air filter element is damaged, replace it.
5. Insert the air filter element into the air filter case.

## CAUTION

- Make sure that the air filter element is properly seated in the air filter case.
  - The engine should never be operated without the air filter element installed, otherwise the piston(s) and/or cylinder(s) may become excessively worn.
6. Install the air filter case cover by installing the screws.
  7. Install the cowling.

## Adjusting the carburetors

The carburetors are important parts of the engine and emission control system, which require very sophisticated adjustment. Therefore, all carburetor adjustments should be left to a Yamaha dealer, who has the necessary professional knowledge and experience.



a. Throttle cable free play

## Adjusting the throttle cable free play

The throttle cable free play should measure 3-5 mm (0.12-0.20 in) at the throttle grip. Periodically check the throttle cable free play and, if necessary, have a Yamaha dealer adjust it.

## Adjusting the valve clearance

The valve clearance changes with use, resulting in improper air-fuel mixture and/or engine noise. To prevent this from occurring, the valve clearance must be adjusted by a Yamaha dealer at the intervals specified in the periodic maintenance and lubrication chart.

# PERIODIC MAINTENANCE AND MINOR REPAIR

EAU03360

## Tires

To maximize the performance, durability, and safe operation of your motorcycle, note the following points regarding the specified tires.

### Tire air pressure

The tire air pressure should be checked and, if necessary, adjusted before each ride.

EW000082

#### **WARNING**

- The tire air pressure must be checked and adjusted on cold tires (i.e., when the temperature of the tires equals the ambient temperature).
- The tire air pressure must be adjusted in accordance with the riding speed and with the total weight of rider, passenger, cargo, and accessories approved for this model.

| Tire air pressure<br>(measured on cold tires) |   |  |
|---|---|--|
| Load*   | Front   | Rear   |
| Up to 90 kg (198 lb)                          | 225 kPa<br>2.25 kgf/cm <sup>2</sup><br>33 psi     | 225 kPa<br>2.25 kgf/cm <sup>2</sup><br>33 psi  |
| 90 kg (198 lb)-<br>maximum                    | 225 kPa<br>2.25 kgf/cm <sup>2</sup><br>33 psi     | 2.50 kPa<br>2.50 kgf/cm <sup>2</sup><br>36 psi |
| High-speed riding                             | 225 kPa<br>2.25 kgf/cm <sup>2</sup><br>33 psi     | 2.50 kPa<br>2.50 kgf/cm <sup>2</sup><br>36 psi |
| Maximum load*                                 | 216 kg (476 lb): VMX12<br>215 kg (474 lb): VMX12C |  |

\* Total weight of rider, passenger, cargo and accessories

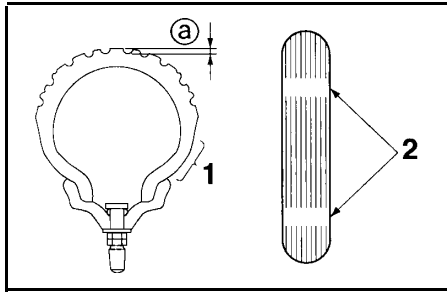
EW000083

#### **WARNING**

Proper loading of your motorcycle is important for several characteristics of your motorcycle, such as handling, braking, performance and safety. Do not carry loosely packed items that can shift. Securely pack your heaviest items close to the center of the motorcycle, and distribute the weight evenly from side to side. Properly adjust the suspension for your load, and check the condition and pressure of your tires. **NEVER OVERLOAD YOUR MOTORCYCLE.** Make sure the total weight of the cargo, rider, passenger, and accessories (cowling, saddlebags, etc. if approved for this model) does not exceed the maximum load of the motorcycle. Operation of an overloaded motorcycle could cause tire damage, an accident, or even injury.

# PERIODIC MAINTENANCE AND MINOR REPAIR

EAU00664



1. Sidewall
2. Wear indicator
- a. Tire tread depth

## Tire inspection

Always check the tires before operating the motorcycle. If a tire tread shows crosswise lines (minimum tread depth), if the tire has a nail or glass fragments in it, or if the side wall is cracked, contact a Yamaha dealer immediately and have the tire replaced.

## FRONT

| Manufacturer | Size          | Type   |
|--------------|---------------|--------|
| Bridgestone  | 110/90-18 61V | G525AW |
| Dunlop       | 110/90-18 61V | F20    |

## REAR

| Manufacturer | Size               | Type   |
|--------------|--------------------|--------|
| Bridgestone  | 150/90-1 5 M/C 74V | G526BW |
| Dunlop       | 150/90-1 5 M/C 74V | K525   |

|  |                  |
|--|------------------|
| Minimum tire tread depth<br>(front and rear) | 1.0 mm (0.04 in) |
|--|------------------|

## WARNING

This motorcycle is fitted with super-high-speed tires. Note the following points in order to make the most efficient use of these tires.

- Use only the specified replacement tires. Other tires may run the danger of bursting at super high speeds.
- Brand-new tires can have a relatively poor grip on certain road surfaces until they have been “broken in”. Therefore, it is advisable before doing any speed riding to ride conservatively for approximately 100 km (60 mi) after installing a new tire.
- The tires must be warmed up before a high-speed run.
- Always adjust the tire air pressure according to the operating conditions.