YAMAHA

OWNER'S MANUAL

TDM

TDM850

4TX-28199-E5

INTRODUCTION

Welcome to the Yamaha world of motorcycling!

As the owner of a TDM850, you are benefiting from Yamaha's vast experience and newest technology regarding the design and manufacture of high-quality products, which have earned Yamaha a reputation for dependability.

Please take the time to read this manual thoroughly, so as to enjoy all advantages of your TDM850. The owner's manual does not only instruct you in how to operate, inspect and maintain your motorcycle, but also in how to safeguard yourself and others from trouble and injury.

In addition, the many tips given in this manual will help keep your motorcycle in the best possible condition. If you have any further questions, do not hesitate to contact your Yamaha dealer.

The Yamaha team wishes you many safe and pleasant rides. So, remember to put safety first!

IMPORTANT MANUAL INFORMATION

EAU00005

Particularly important information is distinguished in this manual by the following notations:

⚠	**The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**
⚠ WARNING	**Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander, or a person inspecting or repairing the motorcycle.**
CAUTION:	**A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.**
NOTE:	A NOTE provides key information to make procedures easier or clearer.

NOTE:

- This manual should be considered a permanent part of this motorcycle and should remain with it even if the motorcycle is subsequently sold.
- Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your motorcycle and this manual. If you have any questions concerning this manual, please consult your Yamaha dealer.

EW000002

⚠ WARNING

PLEASE READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING THIS MOTORCYCLE.

IMPORTANT MANUAL INFORMATION

EAU03337

TDM850
OWNER'S MANUAL

1st Edition, August 2000

Printed in Japan.

EAU00009

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GIVE SAFETY THE RIGHT OF WAY 1-1

⚠ GIVE SAFETY THE RIGHT OF WAY

EAU00021

Motorcycles are fascinating vehicles, which can give you an unsurpassed feeling of power and freedom. However, they also impose certain limits, which you must accept; even the best motorcycle does not ignore the laws of physics.

Regular care and maintenance are essential for preserving value and operating condition of your motorcycle. Moreover, what is true for the motorcycle is also true for the rider: good performance depends on being in good shape. Riding under the influence of medication, drugs and alcohol is, of course, out of the question. Motorcycle riders—more than car drivers—must always be at their mental and physical best. Under the influence of even small amounts of alcohol, there is a tendency to take dangerous risks.

Protective clothing is as essential for the motorcycle rider as seat belts are for car drivers and passengers. Always wear a complete motorcycle suit (whether made of leather or tear-resistant synthetic materials with protectors), sturdy boots, motorcycle gloves and a properly fitting helmet. Optimum protective wear, however, should not encourage carelessness. Although full-coverage helmets and suits, in particular, create an illusion of total safety and protection, motorcyclists will always be vulnerable. Riders who lack critical self-control run the risk of going too fast and are apt to take chances. This is even more dangerous in wet weather. The good motorcyclist rides safely, predictably and defensively—avoiding all dangers, including those caused by others.

Enjoy your ride!

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Right view 2-2
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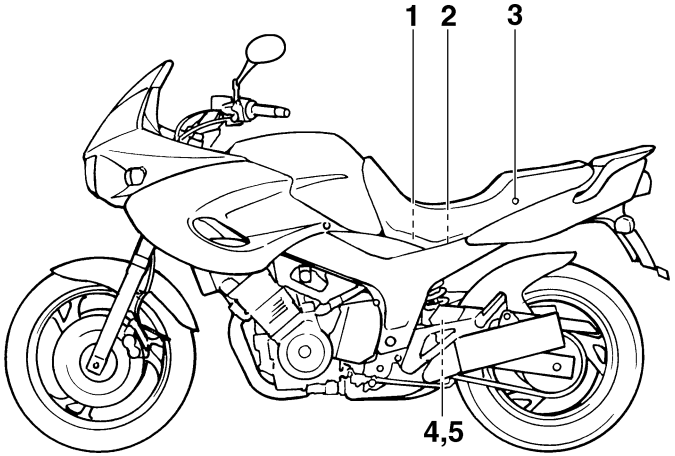
DESCRIPTION

EAU00026

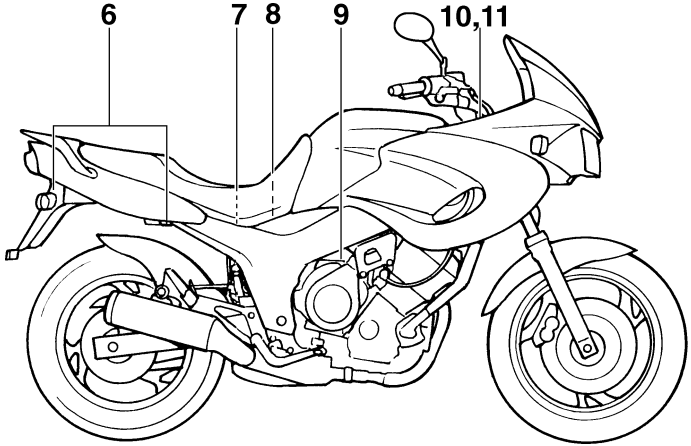
Left view

2



1. Coolant reservoir (page 6-12)
2. Helmet holder (page 3-11)
3. Seat lock (page 3-11)
4. Shock absorber assembly spring preload adjusting nut (fine adjustment) (page 3-15)
5. Shock absorber assembly damping force adjusting dial (page 3-16)

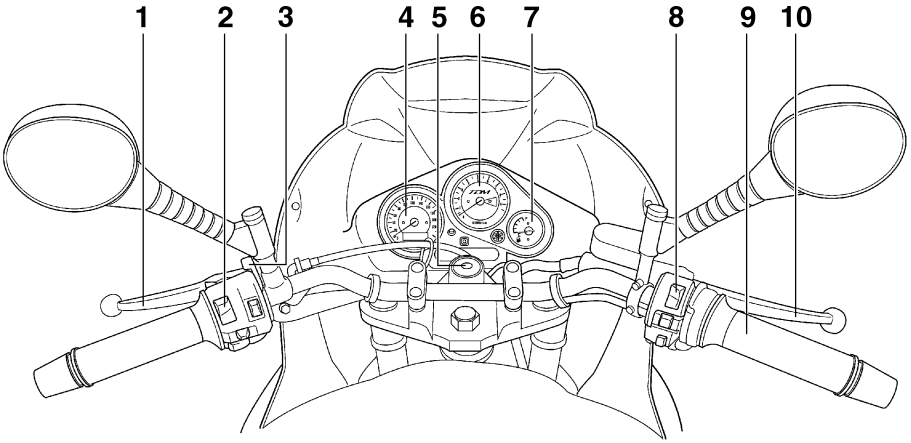
Right view



6. Luggage strap holders (page 3-17)
7. Shock absorber assembly spring preload adjusting lever (coarse adjustment) (page 3-15)
8. Fuses (page 6-35)
9. Engine oil level check window (page 6-9)
10. Front fork spring preload adjusting bolt (page 3-13)
11. Front fork damping force adjusting screw (page 3-14)

DESCRIPTION

Controls and instruments



1. Clutch lever	(page 3-7)	6. Tachometer	(page 3-4)
2. Left handlebar switches	(page 3-5)	7. Fuel gauge	(page 3-5)
3. Starter (choke) lever	(page 3-10)	8. Right handlebar switches	(page 3-6)
4. Speedometer unit	(page 3-3)	9. Throttle grip	(page 6-19)
5. Main switch/steering lock	(page 3-1)	10. Brake lever	(page 3-7)

INSTRUMENT AND CONTROL FUNCTIONS

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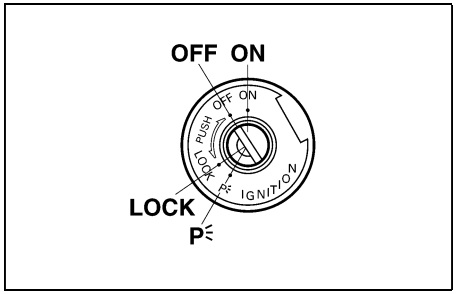
INSTRUMENT AND CONTROL FUNCTIONS



EAU00029

Main switch/steering lock

The main switch/steering lock controls the ignition and lighting systems, and is used to lock the steering. The various positions are described below.

EAU00036

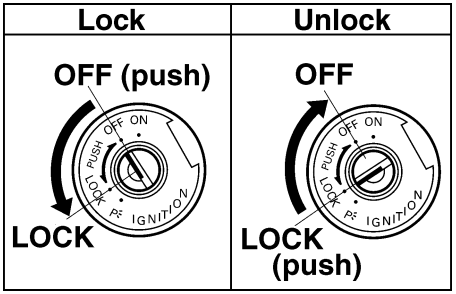
ON

All electrical systems are supplied with power, and the engine can be started. The key cannot be removed.

EAU00038

OFF

All electrical systems are off. The key can be removed.



EAU00040

LOCK

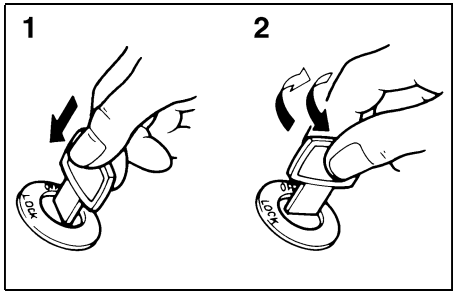
The steering is locked, and all electrical systems are off. The key can be removed.

To lock the steering

1. Turn the handlebars all the way to the left.
2. Push the key in from the “OFF” position, and then turn it to “LOCK” while still pushing it.
3. Remove the key.

To unlock the steering

Push the key in, and then turn it to “OFF” while still pushing it.



1. Push.
2. Turn.

EW000016

⚠ WARNING

Never turn the key to “OFF” or “LOCK” while the motorcycle is moving, otherwise the electrical systems will be switched off, which may result in loss of control or an accident. Make sure that the motorcycle is stopped before turning the key to “OFF” or “LOCK”.

EAU01590

P (Parking)

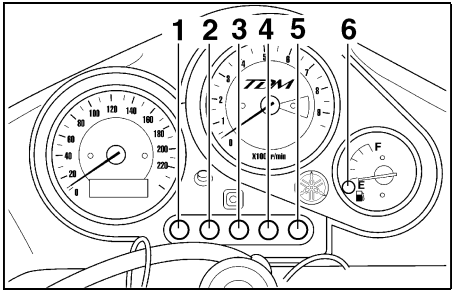
The steering is locked, and the taillight and auxiliary light are on, but all other electrical systems are off. The key can be removed.

The steering must be locked before the key can be turned to "P".

ECA00043

CAUTION:

Do not use the parking position for an extended length of time, otherwise the battery may discharge.



1. Left turn signal indicator light "⇦"
2. Neutral indicator light "N"
3. High beam indicator light "≡D"
4. Coolant temperature warning light "≋"
5. Right turn signal indicator light "⇨"
6. Fuel level warning light "⛽"

EAU03034

Indicator and warning lights

EAU03299

Turn signal indicator lights "⇦"/"⇨"

The corresponding indicator light flashes when the turn signal switch is pushed to the left or right.

EAU00061

Neutral indicator light "N"

This indicator light comes on when the transmission is in the neutral position.

EAU00063

High beam indicator light "≡D"

This indicator light comes on when the high beam of the headlight is switched on.

EAU01707

Coolant temperature warning light "≋"

This warning light comes on when the engine overheats. When this occurs, stop the engine immediately and allow the engine to cool.

The electrical circuit of the warning light can be checked according to the following procedure.

1. Set the engine stop switch to "○" and turn the key to "ON".
2. Shift the transmission into the neutral position or pull the clutch lever.
3. Push the start switch. If the warning light does not come on while pushing the start switch, have a Yamaha dealer check the electrical circuit.

EC000002

CAUTION:

Do not operate the engine if it is overheated.

3

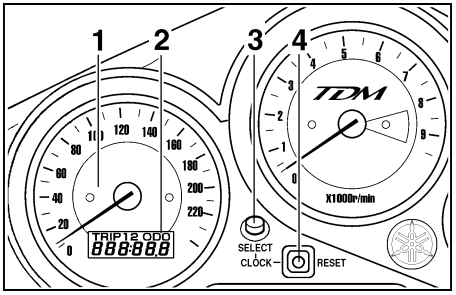
EAU03680

Fuel level warning light " "

This warning light comes on when the fuel level drops below approximately 3.1 L. When this occurs, refuel as soon as possible.

The electrical circuit of the warning light can be checked according to the following procedure.

1. Set the engine stop switch to " " and turn the key to "ON".
2. Shift the transmission into the neutral position or pull the clutch lever.
3. Push the start switch. If the warning light does not come on, have a Yamaha dealer check the electrical circuit.



1. Speedometer
2. Odometer/tripmeter/clock
3. "SELECT" button
4. "RESET" button

EAU03492

Speedometer unit

The speedometer unit is equipped with the following:

- a speedometer (which shows the riding speed)
- an odometer (which shows the total distance traveled)
- two tripmeters (which show the distance traveled since they were last set to zero)
- a clock

Odometer and tripmeter modes

Pushing the "SELECT" button switches the display between the odometer mode "ODO" and the tripmeter modes "TRIP 1", "TRIP 2" and "CLOCK" in the following order:

ODO→TRIP 1→TRIP 2→CLOCK→ ODO

To reset a tripmeter, select it by pushing the "SELECT" button, and then push the "RESET" button for at least one second. The tripmeters can be used to estimate the distance that can be traveled with a full tank of fuel. This information will enable you to plan future fuel stops.

Clock mode

To change the display to the clock mode, push both the "SELECT" and "RESET" buttons.

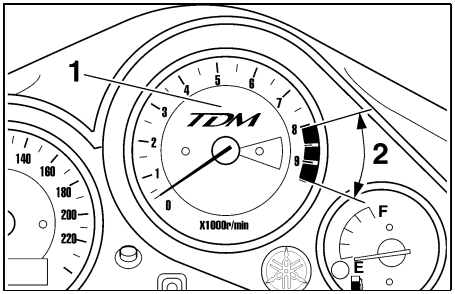
To change the display back to the odometer mode, push the "SELECT" button.

To set the clock

1. Push both the “SELECT” and “RESET” buttons for at least two seconds.
2. When the hour digits start flashing, push the “RESET” button to set the hours.
3. Push the “SELECT” button to change the minutes.
4. When the minute digits start flashing, push the “RESET” button to set the minutes.
5. Push the “SELECT” button to start the clock.

NOTE:

After setting the clock, be sure to push the “SELECT” button before turning the key to “OFF”, otherwise the clock will not be set.



1. Tachometer
2. Tachometer red zone

EAU00101

Tachometer

The electric tachometer allows the rider to monitor the engine speed and keep it within the ideal power range.

EC000003

CAUTION:

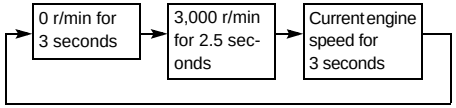
Do not operate the engine in the tachometer red zone.
Red zone: 8,000 r/min and above

EAU00103

Self-diagnosis device

This model is equipped with a self-diagnosis device for the throttle position sensor circuit.

If the throttle position sensor circuit is defective, the tachometer will repeatedly display the following error code:



If the tachometer displays such an error code, have a Yamaha dealer check the motorcycle.

EC000004

CAUTION:

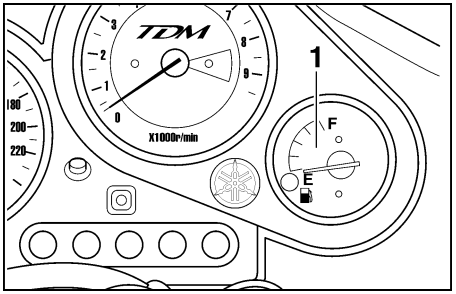
When the tachometer displays an error code, the motorcycle should be checked as soon as possible in order to avoid engine damage.

3

EAU00109

Anti-theft alarm (optional)

This motorcycle can be equipped with an optional anti-theft alarm by a Yamaha dealer. Contact a Yamaha dealer for more information.



1. Fuel gauge

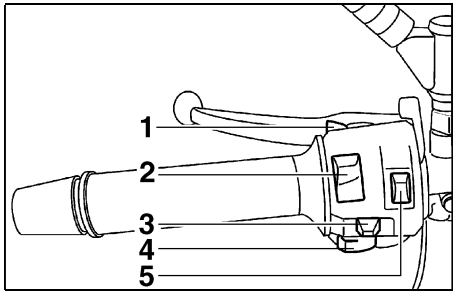
EAU00110

Fuel gauge

The fuel gauge indicates the amount of fuel in the fuel tank. The needle moves towards “E” (Empty) as the fuel level decreases. When the needle reaches “E”, approximately 3.1 L of fuel remain in the fuel tank. If this occurs, refuel as soon as possible.

NOTE:

Do not allow the fuel tank to empty itself completely.



1. Pass switch “PASS”
2. Dimmer switch
3. Turn signal switch
4. Horn switch “ ”
5. Hazard switch “ ”

EAU00118

Handlebar switches

EAU00120

Pass switch “PASS”

Press this switch to flash the headlight.

EAU00121

Dimmer switch

Set this switch to “ ” for the high beam and to “ ” for the low beam.

EAU00127

Turn signal switch

To signal a right-hand turn, push this switch to "⇨". To signal a left-hand turn, push this switch to "⇦". When released, the switch returns to the center position. To cancel the turn signal lights, push the switch in after it has returned to the center position.

EAU00129

Horn switch "📯"

Press this switch to sound the horn.

EAU03826

Hazard switch "⚠"

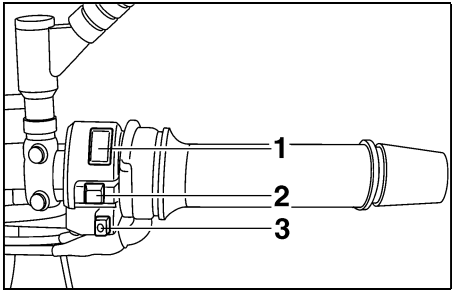
With the key in the "ON" or "P≤" position, use this switch to turn on the hazard light (simultaneous flashing of all turn signal lights).

The hazard light is used in case of an emergency or to warn other drivers when your motorcycle is stopped where it might be a traffic hazard.

EC000006

CAUTION:

Do not use the hazard light for an extended length of time, otherwise the battery may discharge.



1. Engine stop switch
2. Light switch
3. Start switch "⏲"

EAU00138

Engine stop switch

Set this switch to "⊗" to stop the engine in case of an emergency, such as when the motorcycle overturns or when the throttle cable is stuck.

EAU00134

Light switch

Set this switch to "≡D ⊂≡" to turn on the auxiliary light, meter lighting and taillight. Set the switch to "☼" to turn on the headlight also.

EAU00143

Start switch "⏲"

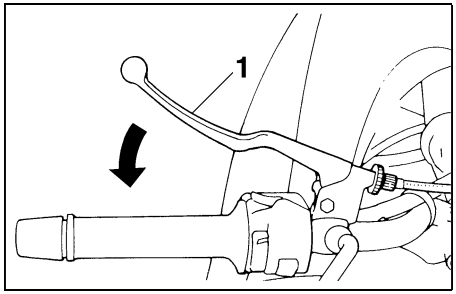
Push this switch to crank the engine with the starter.

EC000005

CAUTION:

See page 5-1 for starting instructions prior to starting the engine.

3



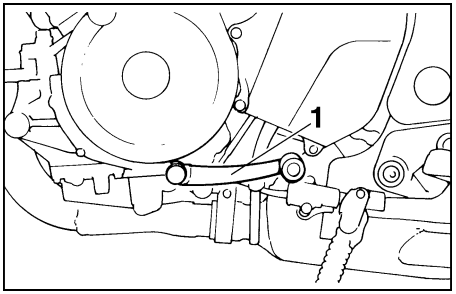
1. Clutch lever

EAU00152

Clutch lever

The clutch lever is located at the left handlebar grip. To disengage the clutch, pull the lever toward the handlebar grip. To engage the clutch, release the lever. The lever should be pulled rapidly and released slowly for smooth clutch operation.

The clutch lever is equipped with a clutch switch, which is part of the ignition circuit cut-off system. (See page 3-18 for an explanation of the ignition circuit cut-off system.)

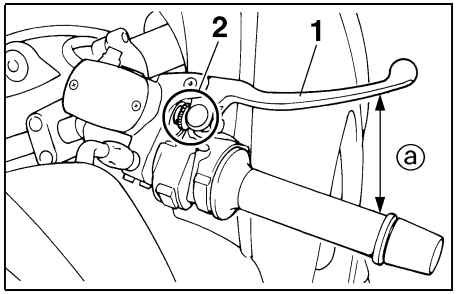


1. Shift pedal

EAU00157

Shift pedal

The shift pedal is located on the left side of the engine and is used in combination with the clutch lever when shifting the gears of the 5-speed constant-mesh transmission equipped on this motorcycle.

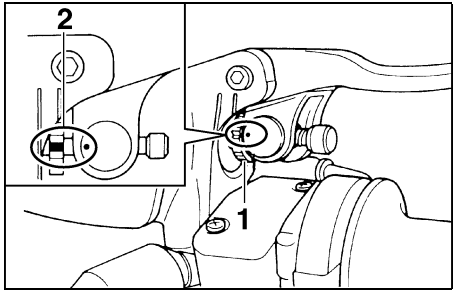


1. Brake lever
2. Brake lever position adjusting nut
a. Distance between brake lever and handlebar grip

EAU00160

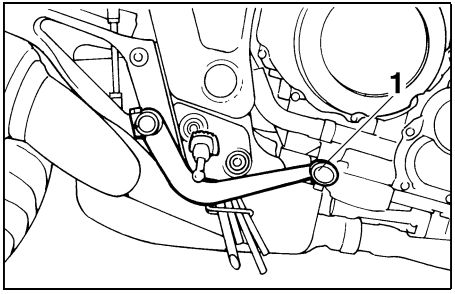
Brake lever

The brake lever is located at the right handlebar grip. To apply the front brake, pull the lever toward the handlebar grip.



1. Brake lever position adjusting nut
2. Properly aligned marks

The brake lever is equipped with a position adjusting nut. To adjust the distance between the brake lever and the handlebar grip, turn the adjusting nut while holding the lever pushed away from the handlebar grip. Make sure that the mark " ■ " on the adjusting nut is aligned with the mark " ● " on the brake lever.

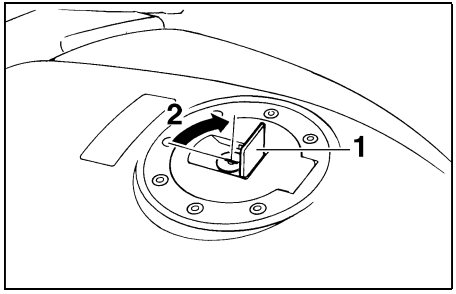


1. Brake pedal

EAU00162

Brake pedal

The brake pedal is on the right side of the motorcycle. To apply the rear brake, press down on the brake pedal.



1. Fuel tank cap lock cover
2. Unlock.

EAU02935

Fuel tank cap

To open the fuel tank cap

Open the fuel tank cap lock cover, insert the key into the lock, and then turn it 1/4 turn clockwise. The lock will be released and the fuel tank cap can be opened.

To close the fuel tank cap

1. Push the fuel tank cap into position with the key inserted in the lock.
2. Turn the key counterclockwise to the original position, remove it, and then close the lock cover.

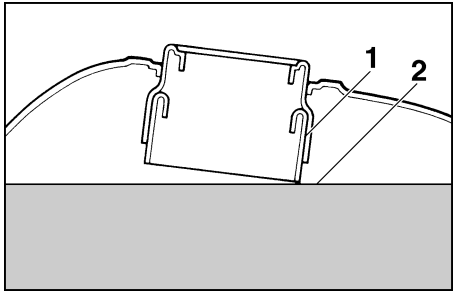
NOTE:

The fuel tank cap cannot be closed unless the key is in the lock. In addition, the key cannot be removed if the cap is not properly closed and locked.

EWA00025

WARNING

Make sure that the fuel tank cap is properly closed before riding.



1. Fuel tank filler tube
2. Fuel level

EAU03753

Fuel

Make sure that there is sufficient fuel in the tank. Fill the fuel tank to the bottom of the filler tube as shown.

EW000130

WARNING

- **Do not overfill the fuel tank, otherwise it may overflow when the fuel warms up and expands.**
- **Avoid spilling fuel on the hot engine.**

EAU00186

CAUTION:

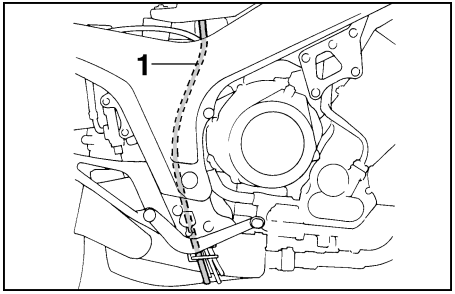
- **Immediately wipe off spilled fuel with a clean, dry, soft cloth, since fuel may deteriorate painted surfaces or plastic parts.**
- **For Germany only: Whenever replacement is necessary, use a fuel tank cap of the same special design as the original.**

EAU00191

Recommended fuel:
Regular unleaded gasoline with a research octane number of 91 or higher
Fuel tank capacity:
Total amount:
20 L
Reserve amount:
3.1 L

NOTE:

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



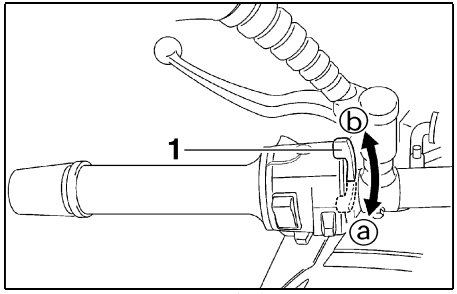
1. Fuel tank breather hose

EAU00196

Fuel tank breather hose (for Germany only)

Before operating the motorcycle:

- Check the fuel tank breather hose connection.
- Check the fuel tank breather hose for cracks or damage, and replace it if damaged.
- Make sure that the end of the fuel tank breather hose is not blocked and clean it if necessary.

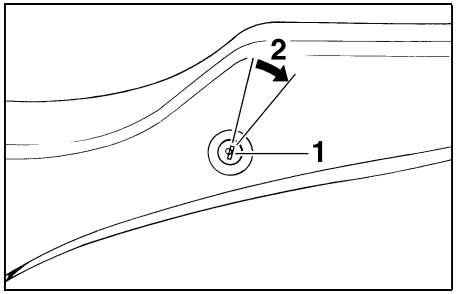


1. Starter (choke) lever "⎢↘⎢"

EAU02976*

Starter (choke) lever "⎢↘⎢"

Starting a cold engine requires a richer air-fuel mixture, which is supplied by the starter (choke).
Move the lever in direction ⓐ to turn on the starter (choke).
Move the lever in direction ⓑ to turn off the starter (choke).



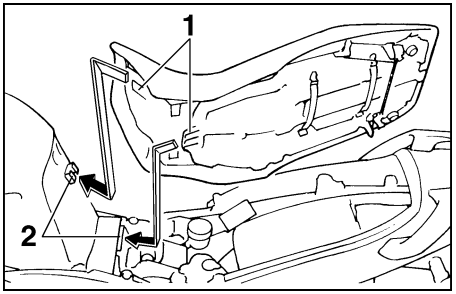
1. Seat lock
2. Unlock.

EAU01726

Seat

To remove the seat

1. Insert the key into the seat lock, and then turn it clockwise.
2. Pull the seat off.



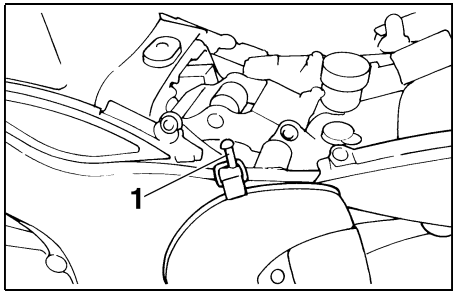
1. Projection (× 2)
2. Seat holder (× 2)

To install the seat

1. Insert the projections on the front of the seat into the seat holders as shown.
2. Push the rear of the seat down to lock it in place.
3. Remove the key.

NOTE:

Make sure that the seat is properly secured before riding.



1. Helmet holder

EAU00263*

Helmet holder

The helmet holder is located under the seat.

To secure a helmet to the helmet holder

1. Remove the seat.
2. Attach the helmet to the helmet holder, and then securely install the seat.

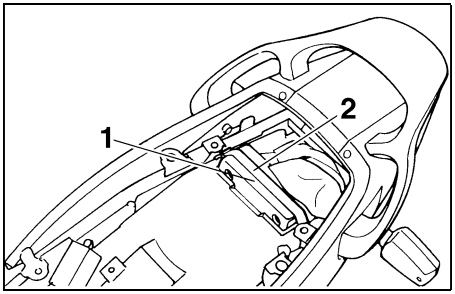
EW000030

⚠ WARNING

Never ride with a helmet attached to the helmet holder, since the helmet may hit objects, causing loss of control and possibly an accident.

To release the helmet from the helmet holder

Remove the seat, remove the helmet from the helmet holder, and then install the seat.

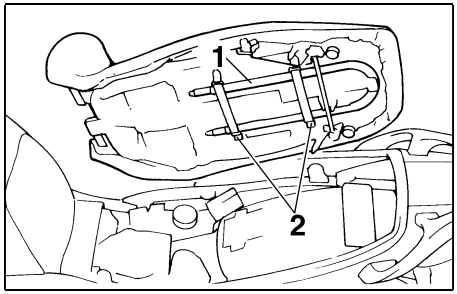


1. U-LOCK (optional)
2. Strap

EAU01688

Storage compartment

This storage compartment is designed to hold a genuine Yamaha U-LOCK. (Other locks may not fit.) When placing a U-LOCK in the storage compartment, securely fasten it with the straps. When the U-LOCK is not in the storage compartment, be sure to secure the straps to prevent losing them.



1. U-LOCK (optional)
2. Strap (× 2)

When storing the owner's manual or other documents in the storage compartment, be sure to wrap them in a plastic bag so that they will not get wet. When washing the motorcycle, be careful not to let any water enter the storage compartment.

3

EAU01728

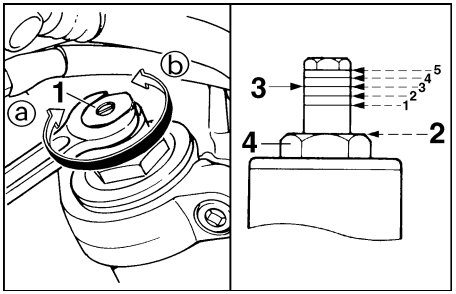
Adjusting the front fork

The front fork is equipped with spring preload adjusting bolts and damping force adjusting screws.

EW000035

⚠ WARNING

Always adjust both fork legs equally, otherwise poor handling and loss of stability may result.



1. Spring preload adjusting bolt
2. Current setting
3. Standard setting
4. Front fork cap bolt

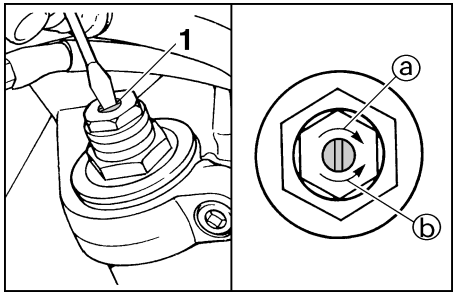
Spring preload

To increase the spring preload and thereby harden the suspension, turn the adjusting bolt on each fork leg in direction ⓐ. To decrease the spring preload and thereby soften the suspension, turn the adjusting bolt on each fork leg in direction ⓑ.

NOTE:

Align the appropriate groove on the adjusting mechanism with the top of the front fork cap bolt.

	Setting
Minimum (soft)	1
Standard	3
Maximum (hard)	5



1. Damping force adjusting screw

Damping force

To increase the damping force and thereby harden the damping, turn the adjusting screw on each fork leg in direction ⓐ. To decrease the damping force and thereby soften the damping, turn the adjusting screw on each fork leg in direction ⓑ.

Minimum (soft)	0 clicks in direction ⓐ*
Standard	1 click in direction ⓐ*
Maximum (hard)	4 clicks in direction ⓐ*

* With the adjusting screw fully turned in direction ⓑ

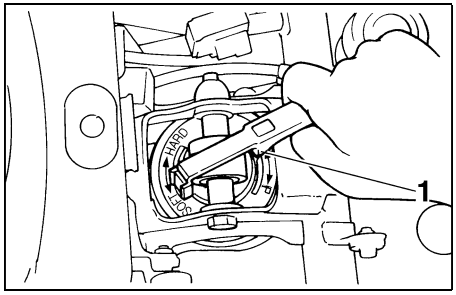
EC000015

CAUTION:

Never attempt to turn an adjusting mechanism beyond the maximum or minimum settings.

NOTE:

Although the total number of clicks of a damping force adjusting mechanism may not exactly match the above specifications due to small differences in production, the actual number of clicks always represents the entire adjusting range. To obtain a precise adjustment, it would be advisable to check the number of clicks of each damping force adjusting mechanism and to modify the specifications as necessary.



1. Spring preload adjusting lever

EAU03834

Adjusting the shock absorber assembly

This shock absorber assembly is equipped with a spring preload adjusting lever and adjusting nut and a damping force adjusting dial.

EC000015

CAUTION:

Never attempt to turn an adjusting mechanism beyond the maximum or minimum settings.

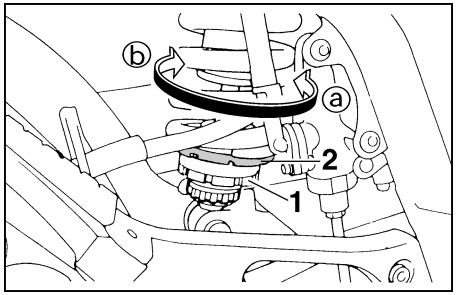
Spring preload

Coarse adjustment

For riding solo, move the adjusting lever (at the top of the shock absorber assembly) to “SOFT”. For riding with a passenger, move the adjusting lever to “HARD”.

NOTE:

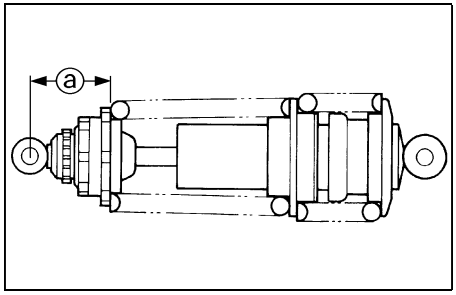
Use the special tool included in the owner’s tool kit to make the adjustment.



1. Locknut
2. Spring preload adjusting nut

Fine adjustment

1. Loosen the locknut.
2. To increase the spring preload and thereby harden the suspension, turn the adjusting nut (at the bottom of the shock absorber assembly) in direction ⓐ. To decrease the spring preload and thereby soften the suspension, turn the adjusting nut in direction ⓑ.



a. Distance A

NOTE:

The spring preload setting is determined by measuring distance A, shown in the illustration. The shorter distance A is, the lower the spring preload; the longer distance A is, the higher the spring preload.

Spring preload:
Minimum (soft):
Distance A = 59 mm
Standard:
Distance A = 61 mm
Maximum (hard):
Distance A = 63 mm

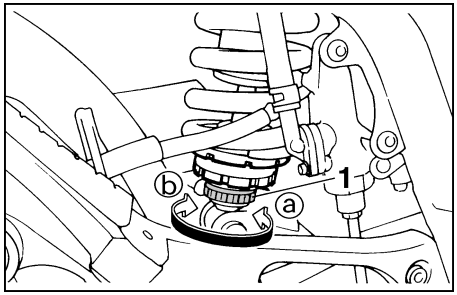
3. Tighten the locknut to the specified torque.

Tightening torque:
Locknut:
40 Nm (4.0 m·kg)

EC000018

CAUTION:

Always tighten the locknut against the adjusting nut, and then tighten the locknut to the specified torque.



1. Damping force adjusting dial

Damping force

To increase the damping force and thereby harden the damping, turn the adjusting dial in direction ⓐ. To decrease the damping force and thereby soften the damping, turn the adjusting dial in direction ⓑ.

Minimum (soft)	20 clicks in direction ⓑ*
Standard	10 clicks in direction ⓑ*
Maximum (hard)	0 clicks in direction ⓑ*

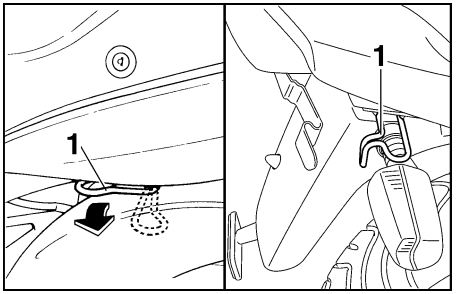
* With the adjusting dial fully turned in direction ⓐ

EAU00315

⚠ WARNING

This shock absorber contains highly pressurized nitrogen gas. For proper handling, read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.

- **Do not tamper with or attempt to open the gas cylinder.**
- **Do not subject the shock absorber to an open flame or other high heat sources, otherwise it may explode due to excessive gas pressure.**
- **Do not deform or damage the gas cylinder in any way, as this will result in poor damping performance.**
- **Always have a Yamaha dealer service the shock absorber.**



1. Luggage strap holder (× 4)

EAU00324

Luggage strap holders

There are four luggage strap holders below the passenger seat, two of which can be turned out for easier access.

EAU00330

Sidestand

The sidestand is located on the left side of the frame. Raise the sidestand or lower it with your foot while holding the motorcycle upright.

NOTE:

The built-in sidestand switch is part of the ignition circuit cut-off system, which cuts the ignition in certain situations. (See further down for an explanation of the ignition circuit cut-off system.)

EW000044

⚠ WARNING

The motorcycle must not be ridden with the sidestand down, or if the sidestand cannot be properly moved up (or does not stay up), otherwise the sidestand could contact the ground and distract the operator, resulting in a possible loss of control. Yamaha's ignition circuit cut-off system has been designed to assist the operator in fulfilling the responsibility of raising the sidestand before starting off. Therefore, check this system regularly as described below and have a Yamaha dealer repair it if it does not function properly.

EAU03720

Ignition circuit cut-off system

The ignition circuit cut-off system (comprising the sidestand switch, clutch switch and neutral switch) has the following functions.

- It prevents starting when the transmission is in gear and the sidestand is up, but the clutch lever is not pulled.
- It prevents starting when the transmission is in gear and the clutch lever is pulled, but the sidestand is still down.
- It cuts the running engine when the transmission is in gear and the sidestand is moved down.

Periodically check the operation of the ignition circuit cut-off system according to the following procedure.

EW000045

⚠ WARNING

If a malfunction is noted, have a Yamaha dealer check the system before riding.

With the engine turned off:
1. Move the sidestand down.
2. Make sure that the engine stop switch is set to "◯".
3. Turn the key to "ON".
4. Shift the transmission into the neutral position.
5. Push the start switch.

Does the engine start?

YES **NO** → The neutral switch may be defective. **The motorcycle should not be ridden** until checked by a Yamaha dealer.

With the engine still running:
6. Move the sidestand up.
7. Keep the clutch lever pulled.
8. Shift the transmission into gear.
9. Move the sidestand down.

Does the engine stall?

YES **NO** → The sidestand switch may be defective. **The motorcycle should not be ridden** until checked by a Yamaha dealer.

After the engine has stalled:
10. Move the sidestand up.
11. Keep the clutch lever pulled.
12. Push the start switch.

Does the engine start?

YES **NO** → The clutch switch may be defective. **The motorcycle should not be ridden** until checked by a Yamaha dealer.

The system is OK. **The motorcycle can be ridden.**

NOTE:
This check is most reliable if performed with a warmed-up engine.

PRE-OPERATION CHECKS

Pre-operation check list 4-1

PRE-OPERATION CHECKS

EAU01114

The condition of a vehicle is the owner's responsibility. Vital components can start to deteriorate quickly and unexpectedly, even if the vehicle remains unused (for example, as a result of exposure to the elements). Any damage, fluid leakage or loss of tire air pressure could have serious consequences. Therefore, it is very important, in addition to a thorough visual inspection, to check the following points before each ride.

EAU03439

Pre-operation check list

ITEM	CHECKS	PAGE
Fuel	• Check fuel level in fuel tank. • Refuel if necessary. • Check fuel line for leakage.	3-9–3-10
Engine oil	• Check oil level in engine. • If necessary, add recommended oil to specified level. • Check vehicle for oil leakage.	6-9
Coolant	• Check coolant level in reservoir. • If necessary, add recommended coolant to specified level. • Check cooling system for leakage.	6-11–6-13
Front brake	• Check operation. • If soft or spongy, have Yamaha dealer bleed hydraulic system. • Check fluid level in reservoir. • If necessary, add recommended brake fluid to specified level. • Check hydraulic system for leakage.	6-25–6-26
Rear brake	• Check operation. • If soft or spongy, have Yamaha dealer bleed hydraulic system. • Check fluid level in reservoir. • If necessary, add recommended brake fluid to specified level. • Check hydraulic system for leakage.	6-23–6-26
Clutch	• Check operation. • Lubricate cable if necessary. • Check lever free play. • Adjust if necessary.	6-23
Throttle grip	• Make sure that operation is smooth. • Lubricate throttle grip, housing and cables if necessary. • Check free play. • If necessary, have Yamaha dealer make adjustment.	6-19

ITEM	CHECKS	PAGE
Control cables	• Make sure that operation is smooth. • Lubricate if necessary.	6-29
Drive chain	• Check chain slack. • Adjust if necessary. • Check chain condition. • Lubricate if necessary.	6-27
Wheels and tires	• Check for damage. • Check tire condition and tread depth. • Check air pressure. • Correct if necessary.	6-19–6-22
Brake and shift pedals	• Make sure that operation is smooth. • Lubricate pedal pivoting points if necessary.	6-30
Brake and clutch levers	• Make sure that operation is smooth. • Lubricate lever pivoting points if necessary.	6-31
Sidestand	• Make sure that operation is smooth. • Lubricate pivot if necessary.	6-31
Chassis fasteners	• Make sure that all nuts, bolts and screws are properly tightened. • Tighten if necessary.	—
Instruments, lights, signals and switches	• Check operation. • Correct if necessary.	—
Sidestand switch	• Check operation of ignition circuit cut-off system. • If system is defective, have Yamaha dealer check vehicle.	3-17

NOTE:

Pre-operation checks should be made each time the motorcycle is used. Such an inspection can be accomplished in a very short time; and the added safety it assures is more than worth the time involved.

EWA00033

⚠ WARNING

If any item in the Pre-operation check list is not working properly, have it inspected and repaired before operating the motorcycle.

OPERATION AND IMPORTANT RIDING POINTS

Starting a cold engine 5-1
Starting a warm engine 5-2
Shifting 5-3
Recommended shift points (for Switzerland only) 5-3
Tips for reducing fuel consumption 5-4
Engine break-in 5-4
Parking 5-5

OPERATION AND IMPORTANT RIDING POINTS

EAU00372

EAU00373

⚠ WARNING

- **Become thoroughly familiar with all operating controls and their functions before riding. Consult a Yamaha dealer regarding any control or function that you do not thoroughly understand.**
- **Never start the engine or operate it in a closed area for any length of time. Exhaust fumes are poisonous, and inhaling them can cause loss of consciousness and death within a short time. Always make sure that there is adequate ventilation.**
- **Before starting out, make sure that the sidestand is up. If the sidestand is not raised completely, it could contact the ground and distract the operator, resulting in a possible loss of control.**

5

EAU03827*

Starting the engine

In order for the ignition circuit cut-off system to enable starting, one of the following conditions must be met:

- The transmission is in the neutral position.
- The transmission is in gear with the clutch lever pulled and the sidestand up.

EW000054

⚠ WARNING

- **Before starting the engine, check the function of the ignition circuit cut-off system according to the procedure described on page 3-19.**
- **Never ride with the sidestand down.**

1. Turn the key to “ON” and make sure that the engine stop switch is set to “ ”.

EC000035

CAUTION:

If the fuel level warning light comes on, check the fuel level, and, if necessary, refuel as soon as possible.

2. Shift the transmission into the neutral position.

NOTE:

When the transmission is in the neutral position, the neutral indicator light should be on, otherwise have a Yamaha dealer check the electrical circuit.

3. Turn the starter (choke) on and completely close the throttle. (See page 3-10 for starter (choke) operation.)
4. Start the engine by pushing the start switch.

NOTE:
If the engine fails to start, release the start switch, wait a few seconds, and then try again. Each starting attempt should be as short as possible to preserve the battery. Do not crank the engine more than 10 seconds on any one attempt.

ECA00022

CAUTION:

- **The coolant temperature warning light and fuel level warning light should come on when the start switch is pushed, and they should go off when the start switch is released.**
- **If the coolant temperature warning light remains on after starting, immediately stop the engine, and then have a Yamaha dealer check the electrical circuit.**
- **If the fuel level warning light remains on after starting, stop the engine, and then check the fuel level. If necessary, refuel as soon as possible, and then check the warning light again. If the warning light does not come on when pushing the start switch, or if it does not go off after starting with sufficient fuel, have a Yamaha dealer check the electrical circuit.**

5. After starting the engine, move the starter (choke) lever back halfway.

ECA00045

CAUTION:

For maximum engine life, never accelerate hard when the engine is cold!

6. When the engine is warm, turn the starter (choke) off.

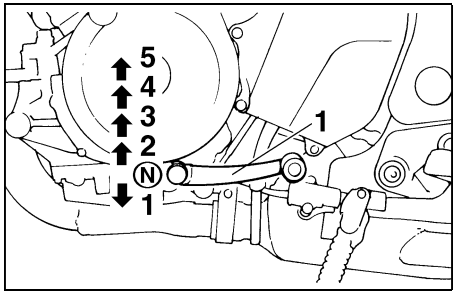
NOTE:
The engine is warm when it responds normally to the throttle with the starter (choke) turned off.

EAU01258

Starting a warm engine

Follow the same procedure as for starting a cold engine with the exception that the starter (choke) is not required when the engine is warm.

5



1. Shift pedal
N. Neutral position

EAU00423

Shifting

Shifting gears lets you control the amount of engine power available for starting off, accelerating, climbing hills, etc.

The gear positions are shown in the illustration.

NOTE:

To shift the transmission into the neutral position, press the shift pedal down repeatedly until it reaches the end of its travel, and then slightly raise it.

EC000048

CAUTION:

- **Even with the transmission in the neutral position, do not coast for long periods of time with the engine off, and do not tow the motorcycle for long distances. The transmission is properly lubricated only when the engine is running. Inadequate lubrication may damage the transmission.**
- **Always use the clutch while changing gears to avoid damaging the engine, transmission, and drive train, which are not designed to withstand the shock of forced shifting.**

EAU02941

Recommended shift points (for Switzerland only)

The recommended shift points during acceleration are shown in the table below.

	Shift point (km/h)
1st → 2nd	23
2nd → 3rd	36
3rd → 4th	50
4th → 5th	60

NOTE:

When shifting down two gears at a time, reduce the speed accordingly (e.g., down to 35 km/h when shifting from 4th to 2nd gear).

EAU00424

Tips for reducing fuel consumption

Fuel consumption depends largely on your riding style. Consider the following tips to reduce fuel consumption:

- Thoroughly warm up the engine.
- Turn the starter (choke) off as soon as possible.
- Shift up swiftly, and avoid high engine speeds during acceleration.
- Do not rev the engine while shifting down, and avoid high engine speeds with no load on the engine.
- Turn the engine off instead of letting it idle for an extended length of time (e.g., in traffic jams, at traffic lights or at railroad crossings).

EAU00436

Engine break-in

There is never a more important period in the life of your engine than the period between 0 and 1,000 km. For this reason, you should read the following material carefully.

Since the engine is brand new, do not put an excessive load on it for the first 1,000 km. The various parts in the engine wear and polish themselves to the correct operating clearances. During this period, prolonged full-throttle operation or any condition that might result in engine overheating must be avoided.

EAU00440*

0–150 km

- Avoid prolonged operation above 5,000 r/min.
- After every hour of operation, stop the engine, and then let it cool for five to ten minutes.
- Vary the engine speed from time to time. Do not operate the engine at one set throttle position.

150–500 km

- Avoid prolonged operation above 6,000 r/min.
- Rev the engine freely through the gears, but do not use full throttle at any time.

500–1,000 km

- Avoid prolonged full-throttle operation.
- Avoid prolonged operation above 7,000 r/min.

EC000052*

CAUTION:

After 1,000 km of operation, the engine oil must be changed and the oil filter element replaced.

1,000 km and beyond

The vehicle can now be operated normally.

EC000053

CAUTION:

- **Keep the engine speed out of the tachometer red zone.**
- **If any engine trouble should occur during the engine break-in period, immediately have a Yamaha dealer check the vehicle.**

EAU00460

Parking

When parking, stop the engine, and then remove the key from the main switch.

EW000058

WARNING

- **Since the engine and exhaust system can become very hot, park in a place where pedestrians or children are not likely to touch them.**
- **Do not park on a slope or on soft ground, otherwise the motorcycle may overturn.**

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EAU00462

EAU00464

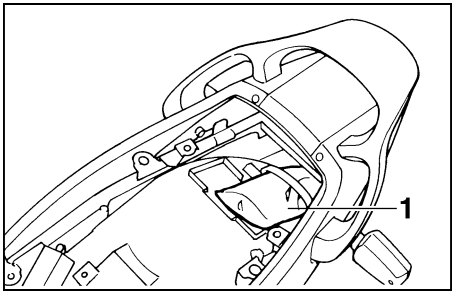
Safety is an obligation of the owner. Periodic inspection, adjustment and lubrication will keep your vehicle in the safest and most efficient condition possible. The most important points of inspection, adjustment, and lubrication are explained on the following pages.

The intervals given in the periodic maintenance and lubrication chart should be simply considered as a general guide under normal riding conditions. However, DEPENDING ON THE WEATHER, TERRAIN, GEOGRAPHICAL LOCATION, AND INDIVIDUAL USE, THE MAINTENANCE INTERVALS MAY NEED TO BE SHORTENED.

EW000060

⚠ WARNING

If you are not familiar with motorcycle maintenance work, have a Yamaha dealer do it for you.



1. Owner's tool kit

EAU01299

Owner's tool kit

The owner's tool kit is located inside the storage compartment under the seat. (See page 3-11 for seat removal procedures.)

The service information included in this manual and the tools provided in the owner's tool kit are intended to assist you in the performance of preventive maintenance and minor repairs. However, additional tools such as a torque wrench may be necessary to perform certain maintenance work correctly.

NOTE:

If you do not have the tools or experience required for a particular job, have a Yamaha dealer perform it for you.

EW000063

⚠ WARNING

Modifications not approved by Yamaha may cause loss of performance and render the vehicle unsafe for use. Consult a Yamaha dealer before attempting any changes.

EAU03685

Periodic maintenance and lubrication chart

NOTE:

- **The annual checks must be performed every year, except if a kilometer-based maintenance is performed instead.**
- From 50,000 km, repeat the maintenance intervals starting from 10,000 km.
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

NO.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (× 1,000 km)					ANNUAL CHECK
				1	10	20	30	40	
1	*	**Fuel line**	• Check fuel hoses for cracks or damage.		√	√	√	√	√
2	*	**Fuel filter**	• Check condition.			√		√	
3		**Spark plugs**	• Check condition. • Clean and regap.		√		√		
			• Replace.			√		√	
4	*	**Valves**	• Check valve clearance. • Adjust.	Every 40,000 km					
5		**Air filter element**	• Clean.		√		√		
			• Replace.			√		√	
6		**Clutch**	• Check operation. • Adjust.	√	√	√	√	√	
7	*	**Front brake**	• Check operation, fluid level and vehicle for fluid leakage. (See NOTE on page 6-4.)	√	√	√	√	√	√
			• Replace brake pads.	Whenever worn to the limit					
8	*	**Rear brake**	• Check operation, fluid level and vehicle for fluid leakage. (See NOTE on page 6-4.)	√	√	√	√	√	√
			• Replace brake pads.	Whenever worn to the limit					

NO.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (× 1,000 km)					ANNUAL CHECK
				1	10	20	30	40	
9	*	**Brake hose**	• Check for cracks or damage.		√	√	√	√	√
			• Replace. (See NOTE on page 6-4.)	Every 4 years					
10	*	**Wheels**	• Check runout and for damage.		√	√	√	√	
11	*	**Tires**	• Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	√	√	√	
12	*	**Wheel bearings**	• Check bearing for looseness or damage.		√	√	√	√	
13	*	**Swingarm**	• Check operation and for excessive play.		√	√	√	√	
			• Lubricate with molybdenum disulfide grease.	Every 50,000 km					
14		**Drive chain**	• Check chain slack. • Make sure that the rear wheel is properly aligned. • Clean and lubricate.	Every 1,000 km and after washing the motorcycle or riding in the rain.					
15	*	**Steering bearings**	• Check bearing play and steering for roughness.	√	√	√	√	√	
			• Lubricate with lithium-soap-based grease.	Every 20,000 km					
16	*	**Chassis fasteners**	• Make sure that all nuts, bolts and screws are properly tightened.		√	√	√	√	√
17		**Sidestand**	• Check operation. • Lubricate.		√	√	√	√	√
18	*	**Sidestand switch**	• Check operation.	√	√	√	√	√	√
19	*	**Front fork**	• Check operation and for oil leakage.		√	√	√	√	
20	*	**Rear shock absorber assembly**	• Check operation and shock absorber for oil leakage.		√	√	√	√	
21	*	**Rear suspension relay arm and connecting arm pivoting points**	• Check operation.		√	√	√	√	
			• Lubricate with molybdenum disulfide grease.			√		√	

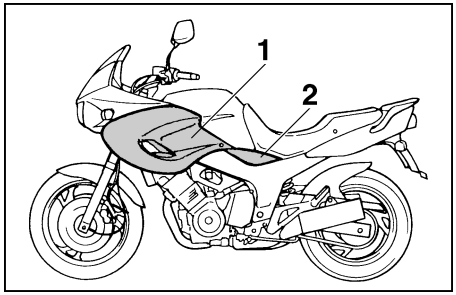
NO.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (× 1,000 km)					ANNUAL CHECK
				1	10	20	30	40	
22	*	**Carburetors**	• Check starter (choke) operation. • Adjust engine idling speed and synchronization.	√	√	√	√	√	√
23		**Engine oil**	• Change.	√	√	√	√	√	√
24		**Engine oil filter element**	• Replace.	√		√		√	
25	*	**Cooling system**	• Check coolant level and vehicle for coolant leakage.		√	√	√	√	√
			• Change.	Every 3 years					
26	*	**Front and rear brake switches**	• Check operation.	√	√	√	√	√	√
27		**Moving parts and cables**	• Lubricate.		√	√	√	√	√
28	*	**Lights, signals and switches**	• Check operation. • Adjust headlight beam.	√	√	√	√	√	√

EAU03541

NOTE:

- The air filter needs more frequent service if you are riding in unusually wet or dusty areas.
- Hydraulic brake service
  - Regularly check and, if necessary, correct the brake fluid level.
  - Every two years replace the internal components of the brake master cylinder and caliper, and change the brake fluid.
  - Replace the brake hoses every four years and if cracked or damaged.

6

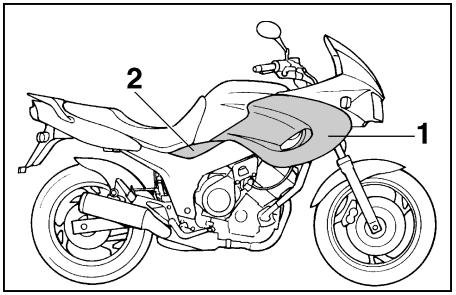


1. Cowling A
2. Panel A

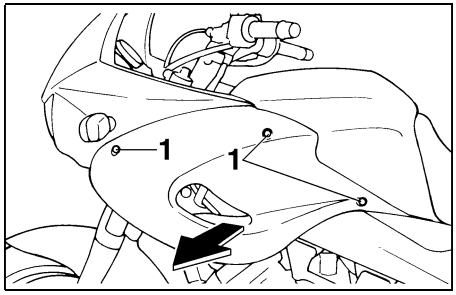
EAU01139

Removing and installing cowlings and panels

The cowlings and panels shown above need to be removed to perform some of the maintenance jobs described in this chapter. Refer to this section each time a cowling or panel needs to be removed and installed.



1. Cowling B
2. Panel B



1. Screw (× 3)

EAU03494

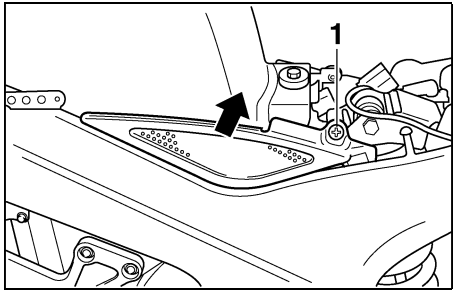
Cowlings A and B

To remove one of the cowlings

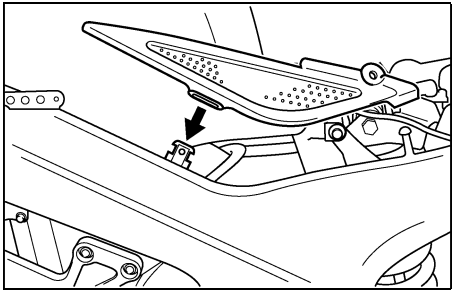
Remove the cowling screws, and then pull the cowling off as shown.

To install the cowling

Place the cowling in the original position, and then install the screws.



1. Screw



EAU03317

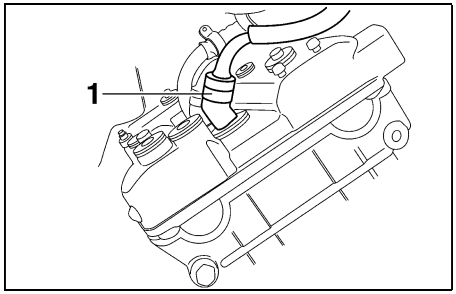
Panels A and B

To remove one of the panels

1. Remove the corresponding cowling A or B. (See page 6-5 for cowling removal and installation procedures.)
2. Remove the seat. (See page 3-11 for seat removal and installation procedures.)
3. Remove the screw, and then take the panel off.

To install the panel

1. Place the panel in the original position, and then install the screw.
2. Install the seat and the cowling.



1. Spark plug cap

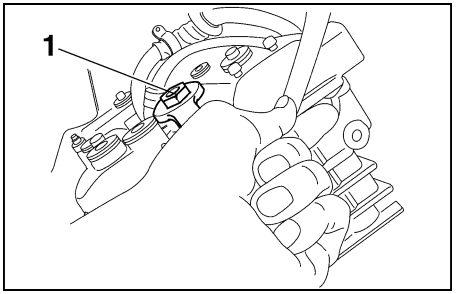
EAU01668

Checking the spark plugs

The spark plugs are important engine components, which are easy to check. Since heat and deposits will cause any spark plug to slowly erode, the spark plugs should be removed and checked in accordance with the periodic maintenance and lubrication chart. In addition, the condition of the spark plugs can reveal the condition of the engine.

To remove a spark plug

1. Remove cowling A. (See page 6-5 for cowling removal and installation procedures.)
2. Remove the spark plug cap.



1. Spark plug wrench

3. Remove the spark plug as shown with the spark plug wrench included in the owner's tool kit.

To check the spark plugs

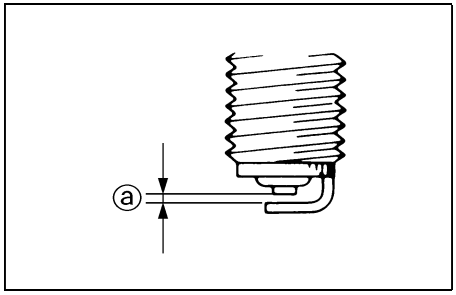
1. Check that the porcelain insulator around the center electrode on each spark plug is a medium-to-light tan (the ideal color when the motorcycle is ridden normally).
2. Check that all spark plugs installed in the engine have the same color.

NOTE:

If any spark plug shows a distinctly different color, the engine could be defective. Do not attempt to diagnose such problems yourself. Instead, have a Yamaha dealer check the motorcycle.

3. Check each spark plug for electrode erosion and excessive carbon or other deposits, and replace it if necessary.

Specified spark plug:
DPR8EA-9 (NGK) or
X24EPR-U9 (DENSO)



a. Spark plug gap

To install a spark plug

1. Measure the spark plug gap with a wire thickness gauge and, if necessary, adjust the gap to specification.

Spark plug gap:
0.8–0.9 mm

2. Clean the surface of the spark plug gasket and its mating surface, and then wipe off any grime from the spark plug threads.
3. Install the spark plug with the spark plug wrench, and then tighten it to the specified torque.

Tightening torque:
Spark plug:
18 Nm (1.8 m·kg)

NOTE:
If a torque wrench is not available when installing a spark plug, a good estimate of the correct torque is 1/4–1/2 turn past finger tight. However, the spark plug should be tightened to the specified torque as soon as possible.

4. Install the spark plug cap.
5. Install the cowling.

EAU01692

Engine oil and oil filter element

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

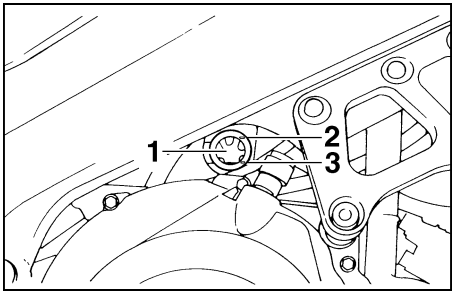
To check the engine oil level

1. Place the motorcycle on a level surface and hold it in an upright position.

NOTE:

Make sure that the motorcycle is positioned straight up when checking the oil level. A slight tilt to the side can result in a false reading.

2. Start the engine, warm it up for 15 minutes, and then turn it off.



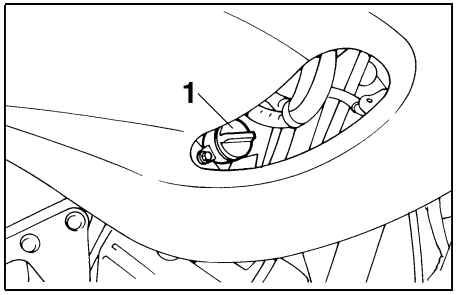
1. Engine oil level check window
2. Maximum level mark
3. Minimum level mark

3. Check the oil level through the check window located on the right side of the engine oil tank.

NOTE:

- The engine oil tank is located behind the cylinders.
- The engine oil should be between the minimum and maximum level marks.

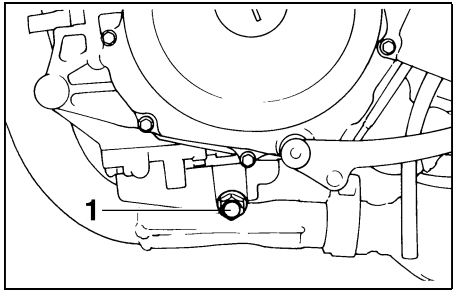
4. If the engine oil is below the minimum level mark, add sufficient oil of the recommended type to raise it to the correct level.



1. Engine oil tank cap

To change the engine oil (with or without oil filter element replacement)

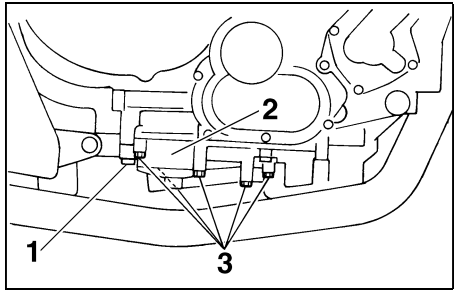
1. Start the engine, warm it up for several minutes, and then turn it off.
2. Place an oil pan under the engine to collect the used oil.



1. Engine oil drain bolt A

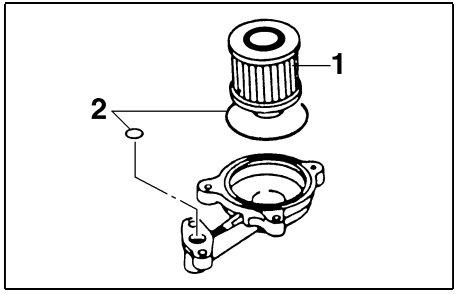
3. Remove the engine oil tank cap and drain bolts to drain the oil from the crankcase.

NOTE:
Skip steps 4–6 if the oil filter element is not being replaced.



1. Engine oil drain bolt B
2. Oil filter element cover
3. Bolt (× 5)

4. Remove the oil filter element cover by removing the bolts.



1. Oil filter element
2. O-ring (× 2)

5. Remove and replace the oil filter element and O-rings.
6. Install the oil filter element cover by installing the bolts, then tightening them to the specified torque.

Tightening torque:
Oil filter element cover bolt:
10 Nm (1.0 m·kg)

NOTE:
Make sure that the O-rings are properly seated.

7. Install the engine oil drain bolts, and then tighten them to the specified torques.

Tightening torques:
Engine oil drain bolt A:
35 Nm (3.5 m·kg)
Engine oil drain bolt B:
30 Nm (3.0 m·kg)

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

Recommended engine oil:
See page 8-1.
Oil quantity:
Without oil filter element replacement:
3.5 L
With oil filter element replacement:
3.6 L
Total amount (dry engine):
4.2 L

EC000072

CAUTION:

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

EAU03495

Coolant

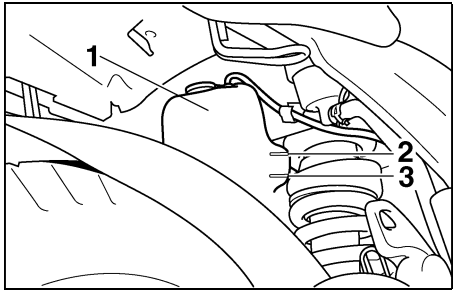
The coolant level should be checked before each ride. In addition, the coolant must be changed at the intervals specified in the periodic maintenance and lubrication chart.
If the engine overheats, see page 6-45 for further instructions.

To check the coolant level

1. Place the motorcycle on a level surface and hold it in an upright position.

NOTE:

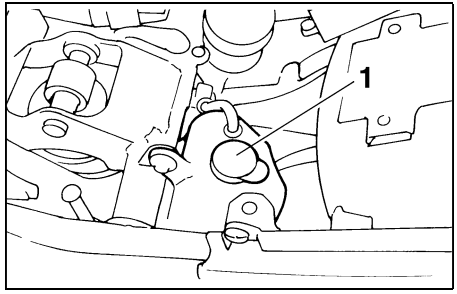
- The coolant level must be checked on a cold engine since the level varies with engine temperature.
- Make sure that the motorcycle is positioned straight up when checking the coolant level. A slight tilt to the side can result in a false reading.



1. Coolant reservoir
2. Maximum level mark
3. Minimum level mark

2. Check the coolant level in the coolant reservoir.

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



1. Coolant reservoir cap

3. If the coolant is at or below the minimum level mark, remove the seat (See page 3-11 for seat removal and installation procedures.), and then open the coolant reservoir cap.
4. Add coolant or distilled water to raise the coolant to the specified level, close the coolant reservoir cap, and then install the seat.

Coolant reservoir capacity:
0.3 L

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.**

EW000067

WARNING

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

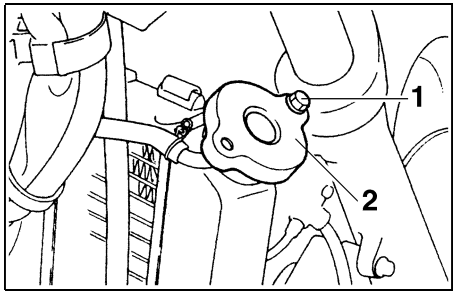
6

NOTE:
- The radiator fan is automatically switched on or off according to the coolant temperature in the radiator.
- If the engine overheats, see page 6-45 for further instructions.

EAU03300

To change the coolant

1. Place the motorcycle on a level surface and let the engine cool if necessary.
2. Remove the seat. (See page 3-11 for seat removal and installation procedures.)
3. Remove cowling B and panel B. (See pages 6-5 and 6-6 for cowling and panel removal and installation procedures.)
4. Place a container under the engine to collect the used coolant.



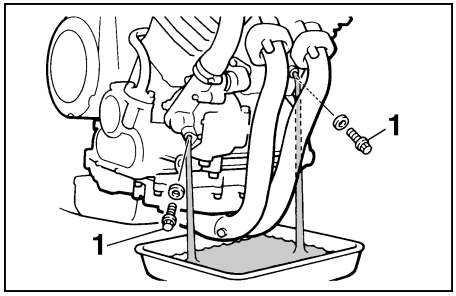
1. Radiator cap retaining bolt
2. Radiator cap

5. Remove the radiator cap retaining bolt and the radiator cap.

EW000067

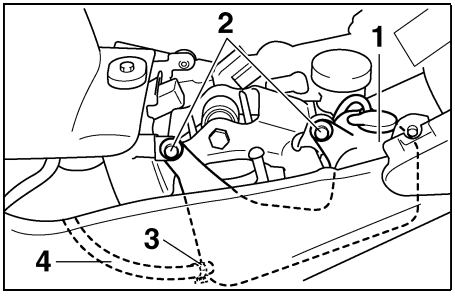
WARNING

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



1. Coolant drain bolt (× 2)

6. Remove the coolant drain bolts to drain the cooling system.



1. Coolant reservoir
2. Bolt (× 2)
3. Clamp
4. Hose

7. Remove the coolant reservoir bolts.
8. Slightly move the coolant reservoir back, and then disconnect the hose at the bottom of the coolant reservoir.
9. Drain the coolant from the coolant reservoir by opening the cap, then turning the reservoir upside down.
10. Connect the hose to the coolant reservoir.
11. Install the coolant reservoir by placing it in the original position, then installing the bolts.
12. After the coolant is completely drained, thoroughly flush the cooling system with clean tap water.
13. Install the coolant drain bolts, and then tighten them to the specified torque.

NOTE:
Check the washers for damage and replace them if necessary.

Tightening torque:
Coolant drain bolt:
7 Nm (0.7 m·kg)

14. Pour the recommended coolant into the radiator until it is full.

6

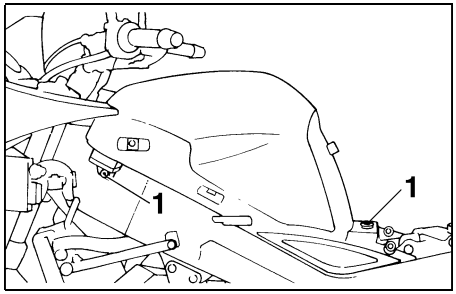
Antifreeze/water mixture ratio:
1:1
Recommended antifreeze:
High-quality ethylene glycol antifreeze containing corrosion inhibitors for aluminum engines
Coolant quantity:
Total amount:
1.7 L
Coolant reservoir capacity:
0.3 L

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 and the cap retaining bolt.
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. Install the panel, the cowling, and the seat.
19. Start the engine, and then check the vehicle for coolant leakage. If coolant is leaking, have a Yamaha dealer check the cooling system.



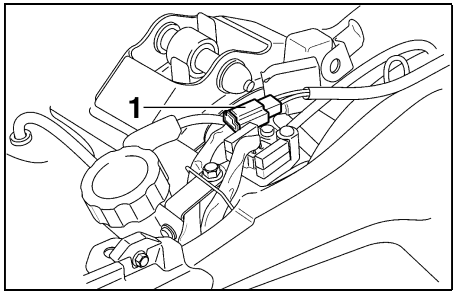
1. Bolt (× 3)

EAU03496

Cleaning the air filter element

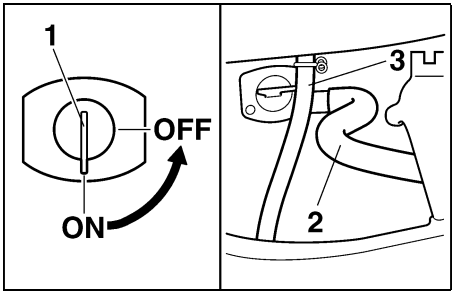
The air filter element should be cleaned at the intervals specified in the periodic maintenance and lubrication chart. Clean the air filter element more frequently if you are riding in unusually wet or dusty areas.

1. Remove the seat. (See page 3-11 for seat removal and installation procedures.)
2. Remove cowlings A and B as well as panels A and B. (See pages 6-5 and 6-6 for cowling and panel removal and installation procedures.)
3. Remove the fuel tank bolts.



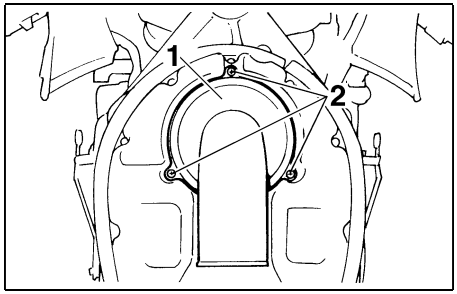
1. Fuel sender coupler

4. Disconnect the fuel sender coupler.



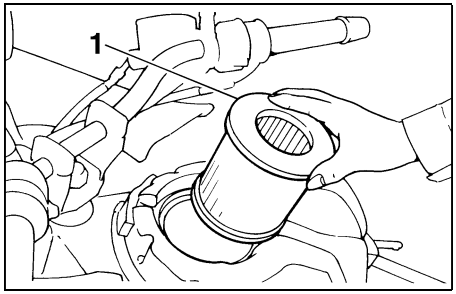
1. Fuel cock
2. Fuel hose
3. Fuel tank breather hose

5. Slightly lift the rear of the fuel tank, turn the fuel cock lever to “OFF”, disconnect the fuel hose and breather hose, and then take the fuel tank off.



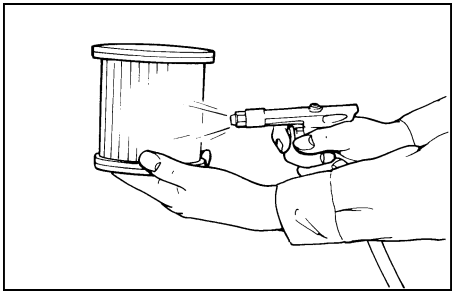
1. Air filter case cover
2. Screw (× 3)

6. Remove the air filter case cover by removing the screws.



1. Air filter element

7. Pull the air filter element out.



8. 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.
9. Insert the air filter element into the air filter case.

EC000082

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.**

10. Install the air filter case cover by installing the screws.
11. Connect the fuel hose, breather hose and fuel sender coupler, turn the fuel cock lever to “ON”, and then install the fuel tank by installing the bolts.

EWA00013

⚠ WARNING

Make sure that the fuel hose and breather hose are properly connected and routed, and not pinched. Replace any damaged hoses.

12. Install the panels and cowlings.
13. Install the seat.

EAU00630

Adjusting the carburetors

The carburetors are important parts of the engine and require very sophisticated adjustment. Therefore, most carburetor adjustments should be left to a Yamaha dealer, who has the necessary professional knowledge and experience. The adjustment described in the following section, however, may be serviced by the owner as part of routine maintenance.

EC000095

CAUTION:

The carburetors have been set and extensively tested at the Yamaha factory. Changing these settings without sufficient technical knowledge may result in poor performance of or damage to the engine.

EAU00632

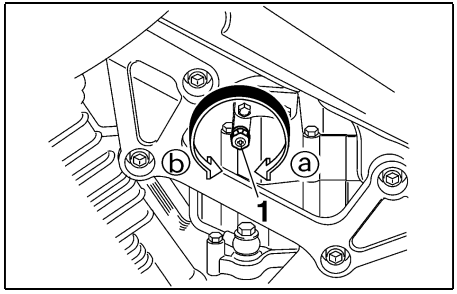
Adjusting the engine idling speed

The engine idling speed must be checked and, if necessary, adjusted as follows at the intervals specified in the periodic maintenance and lubrication chart.

1. Start the engine and warm it up for several minutes at 1,000–2,000 r/min while occasionally revving it to 4,000–5,000 r/min.

NOTE:

The engine is warm when it quickly responds to the throttle.



1. Throttle stop screw

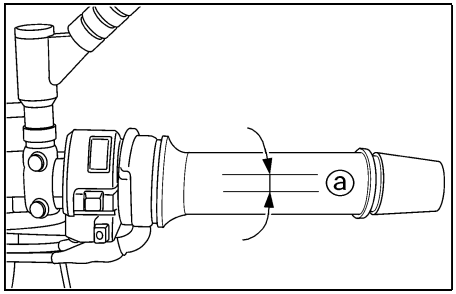
2. Check the engine idling speed and, if necessary, adjust it to specification by turning the throttle stop screw. To increase the engine idling speed, turn the screw in direction ⓐ. To decrease the engine idling speed, turn the screw in direction ⓑ.

Engine idling speed:
1,050–1,250 r/min

NOTE:

If the specified idling speed cannot be obtained as described above, have a Yamaha dealer make the adjustment.

6



a. Throttle cable free play

EAU00635

Adjusting the throttle cable free play

The throttle cable free play should measure 3–5 mm at the throttle grip. Periodically check the throttle cable free play and, if necessary, have a Yamaha dealer adjust it.

EAU00637

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.

EAU00658

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 (measured on cold tires)		
Load*	Front	Rear
Up to 90 kg	225 kPa (2.25 kg/cm^2, 2.25 bar)	275 kPa (2.75 kg/cm^2, 2.75 bar)
90 kg–maximum	225 kPa (2.25 kg/cm^2, 2.25 bar)	275 kPa (2.75 kg/cm^2, 2.75 bar)
High-speed riding	225 kPa (2.25 kg/cm^2, 2.25 bar)	275 kPa (2.75 kg/cm^2, 2.75 bar)

Maximum load*	203 kg

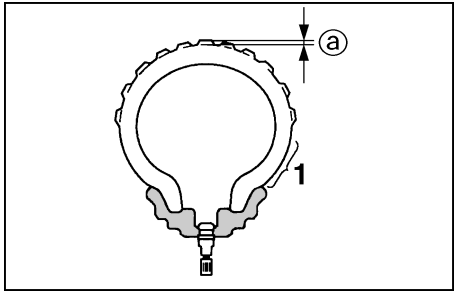
* Total weight of rider, passenger, cargo and accessories

EWA00012

⚠ WARNING

Because loading has an enormous impact on the handling, braking, performance and safety characteristics of your motorcycle, you should keep the following precautions in mind.

- **NEVER OVERLOAD THE MOTORCYCLE! Operation of an overloaded motorcycle may result in tire damage, loss of control, or severe injury. Make sure that the total weight of rider, passenger, cargo, and accessories does not exceed the specified maximum load for the vehicle.**
- **Do not carry along loosely packed items, which can shift during a ride.**
- **Securely pack the heaviest items close to the center of the motorcycle and distribute the weight evenly on both sides.**
- **Adjust the suspension and tire air pressure with regard to the load.**
- **Check the tire condition and air pressure before each ride.**



1. Tire sidewall
a. Tire tread depth

Tire inspection

The tires must be checked before each ride. If the center tread depth reaches the specified limit, if the tire has a nail or glass fragments in it, or if the sidewall is cracked, have a Yamaha dealer replace the tire immediately.

Minimum tire tread depth (front and rear)	1.6 mm

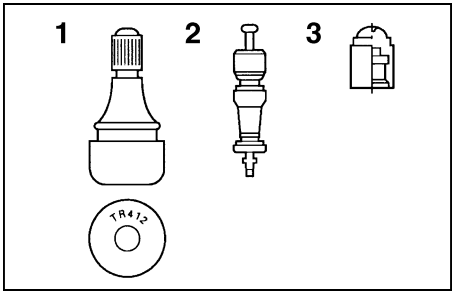
NOTE:

The tire tread depth limits may differ from country to country. Always comply with the local regulations.

EW000079

WARNING

- **Have a Yamaha dealer replace excessively worn tires. Besides being illegal, operating the motorcycle with excessively worn tires decreases riding stability and can lead to loss of control.**
- **The replacement of all wheel- and brake-related parts, including the tires, should be left to a Yamaha dealer, who has the necessary professional knowledge and experience.**



1. Tire air valve
2. Valve core
3. Valve cap with seal

Tire information

This motorcycle is equipped with cast wheels and tubeless tires with valves.

EW000080

WARNING

- **The front and rear tires should be of the same make and design, otherwise the handling characteristics of the motorcycle cannot be guaranteed.**
- **After extensive tests, only the tires listed below have been approved for this model by Yamaha Motor Co., Ltd.**
- **Always make sure that the valve caps are securely installed to prevent air pressure leakage.**
- **Use only the tire valves and valve cores listed below to avoid tire deflation during a high-speed ride.**

FRONT

Manufacturer	Size	Model
Bridgestone	110/80 ZR18 (58W)	BT54F
Pirelli	110/80 ZR18 (58W)	MTR03
Michelin	110/80 ZR18 (58W)	MACADAM 90X

REAR

Manufacturer	Size	Model
Bridgestone	150/70 ZR17 (69W)	BT54R
Pirelli	150/70 ZR17 (69W)	MTR04
Michelin	150/70 ZR17 (69W)	MACADAM 90X

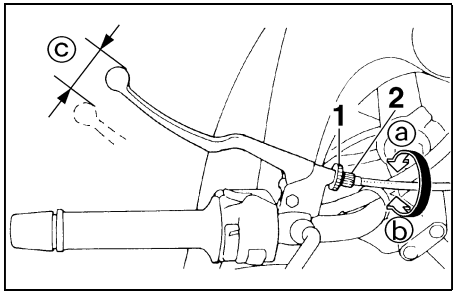
FRONT & REAR	
Tire air valve	TR412
Valve core	#9000A (original)

EAU00684

⚠ 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 high-speed riding to ride conservatively for approximately 100 km 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.**



1. Locknut
2. Clutch lever free play adjusting bolt
c. Clutch lever free play

EAU00692

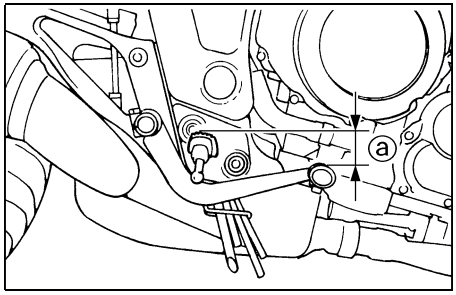
Adjusting the clutch lever free play

The clutch lever free play should measure 10–15 mm as shown. Periodically check the clutch lever free play and, if necessary, adjust it as follows.

1. Loosen the locknut at the clutch lever.
2. To increase the clutch lever free play, turn the adjusting bolt in direction ⓐ. To decrease the clutch lever free play, turn the adjusting bolt in direction ⓑ.
3. Tighten the locknut.

NOTE:

If the specified free play cannot be obtained as described above or if the clutch does not operate correctly, have a Yamaha dealer check the internal clutch mechanism.



a. Distance between brake pedal and footrest

EAU00712

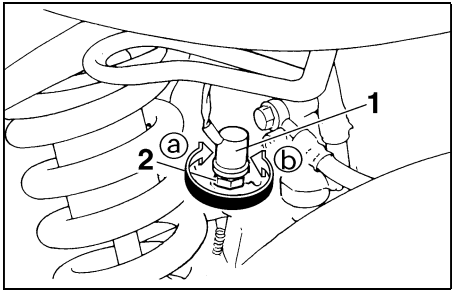
Adjusting the brake pedal position

The top of the brake pedal should be positioned approximately 29 mm below the top of the footrest as shown. Periodically check the brake pedal position and, if necessary, have a Yamaha dealer adjust it.

EW000109

⚠ WARNING

A soft or spongy feeling in the brake pedal can indicate the presence of air in the hydraulic system. If there is air in the hydraulic system, have a Yamaha dealer bleed the system before operating the motorcycle. Air in the hydraulic system will diminish the braking performance, which may result in loss of control and an accident.



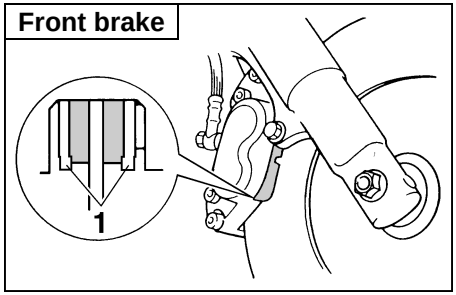
1. Brake light switch
2. Brake light switch adjusting nut

EAU00713

Adjusting the rear brake light switch

The rear brake light switch, which is activated by the brake pedal, is properly adjusted when the brake light comes on just before braking takes effect. If necessary, adjust the brake light switch as follows.

Turn the adjusting nut while holding the rear brake light switch in place. To make the brake light come on earlier, turn the adjusting nut in direction ⓐ. To make the brake light come on later, turn the adjusting nut in direction ⓑ.

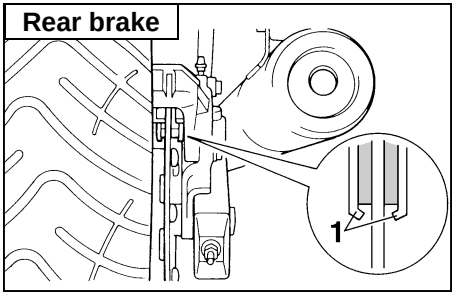


1. Brake pad wear indicator (× 2)

EAU00715

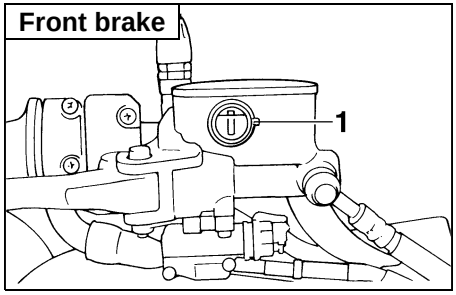
Checking the front and rear brake pads

The front and rear brake pads must be checked for wear at the intervals specified in the periodic maintenance and lubrication chart. Each brake pad is provided with a wear indicator, which allows you to check the brake pad wear without having to disassemble the brake.



1. Brake pad wear indicator (× 2)

To check the brake pad wear, check the position of the wear indicator while applying the brake. If a brake pad has worn to the point that the wear indicator almost touches the brake disc, have a Yamaha dealer replace the brake pads as a set.



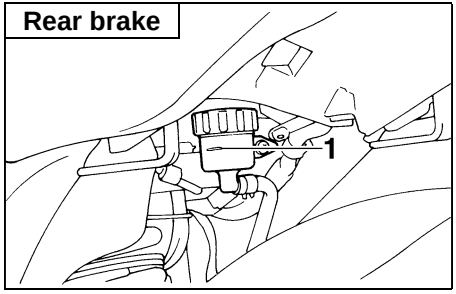
1. Minimum level mark

EAU03776

Checking the brake fluid level

Insufficient brake fluid may allow air to enter the brake system, possibly causing it to become ineffective.

Before riding, check that the brake fluid is above the minimum level mark and replenish if necessary. A low brake fluid level may indicate worn brake pads and/or brake system leakage. If the brake level is low, be sure to check the brake pads for wear and the brake system for leakage.



1. Minimum level mark

Observe these precautions:

- When checking the fluid level, make sure that the top of the brake fluid reservoir is level.
- Use only the recommended quality brake fluid, otherwise the rubber seals may deteriorate, causing leakage and poor braking performance.

Recommended brake fluid: DOT 4

- Refill with the same type of brake fluid. Mixing fluids may result in a harmful chemical reaction and lead to poor braking performance.
- Be careful that water does not enter the brake fluid reservoir when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.
- Brake fluid may deteriorate painted surfaces or plastic parts. Always clean up spilled fluid immediately.
- As the brake pads wear, it is normal for the brake fluid level to gradually go down. However, if the brake fluid level goes down suddenly, have a Yamaha dealer check the cause.

EAU03238

Changing the brake fluid

Have a Yamaha dealer change the brake fluid at the intervals specified in the periodic maintenance and lubrication chart. In addition, have the oil seals of the brake master cylinder and caliper as well as the brake hose replaced at the intervals listed below or whenever they are damaged or leaking.

- Oil seals: Replace every two years.
- Brake hose: Replace every four years.

EAU00744

Drive chain slack

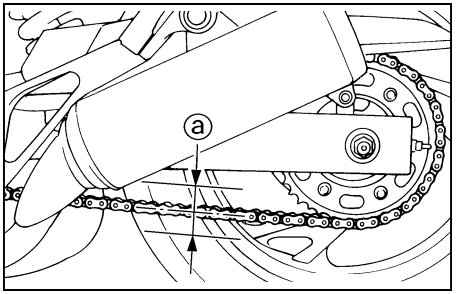
The drive chain slack should be checked before each ride and adjusted if necessary.

To check the drive chain slack

1. Place the motorcycle on a level surface and hold it in an upright position.

NOTE:

When checking and adjusting the drive chain slack, the motorcycle should be positioned straight up and there should be no weight on it.

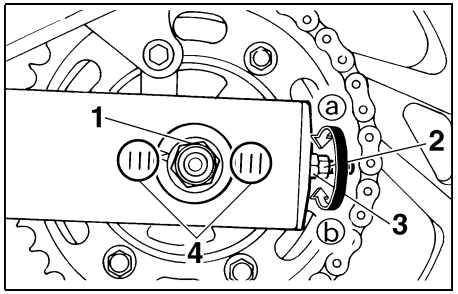


a. Drive chain slack

2. Shift the transmission into the neutral position.
3. Move the rear wheel by pushing the motorcycle to locate the tightest portion of the drive chain, and then measure the drive chain slack as shown.

Drive chain slack:
40–50 mm

4. If the drive chain slack is incorrect, adjust it as follows.

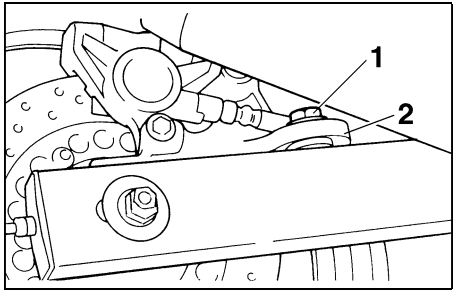


1. Axle nut
2. Locknut
3. Drive chain slack adjusting nut
4. Alignment marks

EAU00765

To adjust the drive chain slack

1. Loosen the axle nut and the brake caliper bracket bolt.
2. Loosen the chain puller locknut at each end of the swingarm.
3. To tighten the drive chain, turn the adjusting nut at each end of the swingarm in direction ⓐ. To loosen the drive chain, turn the adjusting nut at each end of the swingarm in direction ⓑ, and then push the rear wheel forward.



1. Bolt
2. Brake caliper bracket

NOTE:

Using the alignment marks on each side of the swingarm, make sure that both adjusting nuts are in the same position for proper wheel alignment.

EC000096

CAUTION:

Improper drive chain slack will overload the engine as well as other vital parts of the motorcycle and can lead to chain slippage or breakage. To prevent this from occurring, keep the drive chain slack within the specified limits.

4. Tighten the locknuts, and then tighten the axle nut and the brake caliper bracket bolt to the specified torques.

Tightening torques:
Axle nut:
110 Nm (11.0 m·kg)
Brake caliper bracket bolt:
35 Nm (3.5 m·kg)

EAU03006

Lubricating the drive chain

The drive chain must be cleaned and lubricated at the intervals specified in the periodic maintenance and lubrication chart, otherwise it will quickly wear out, especially when riding in dusty or wet areas. Service the drive chain as follows.

EC000097

CAUTION:

The drive chain must be lubricated after washing the motorcycle or riding in the rain.

1. Clean the drive chain with kerosene and a small soft brush.

ECA00053

CAUTION:

To prevent damaging the O-rings, do not clean the drive chain with steam cleaners, high-pressure washers or inappropriate solvents.

2. Wipe the drive chain dry.
3. Thoroughly lubricate the drive chain with a special O-ring chain lubricant.

ECA00052

CAUTION:

Do not use engine oil or any other lubricants for the drive chain, as they may contain substances that could damage the O-rings.

EAU02962

Checking and lubricating the cables

The operation of all control cables and the condition of the cables should be checked before each ride, and the cables and cable ends should be lubricated if necessary. If a cable is damaged or does not move smoothly, have a Yamaha dealer check or replace it.

Recommended lubricant:
Engine oil

EW000112

⚠ WARNING

Damage to the outer sheath may interfere with proper cable operation and will cause the inner cable to rust. Replace a damaged cable as soon as possible to prevent unsafe conditions.

EAU03209

Checking and lubricating the throttle grip and cable

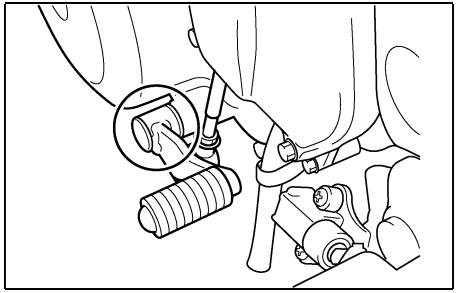
The operation of the throttle grip and the condition of the throttle cable should be checked before each ride, and the cable should be lubricated or replaced if necessary.

NOTE:

Since the throttle grip must be removed to access the throttle cable end, the throttle grip and the cable should always be lubricated at the same time.

1. Remove the throttle grip by removing the screws.
2. Disconnect the throttle cable, hold it up, and then apply several drops of oil to the cable end, allowing it to trickle into the sheath.
3. Connect the throttle cable, and then grease the inside of the throttle grip housing.
4. Grease the metal-to-metal contact surface of the throttle grip, and then install the grip by installing the screws.

Recommended lubricant:
- Throttle cable:
  - Engine oil
- Throttle grip housing and grip:
  - Lithium-soap-based grease (all-purpose grease)

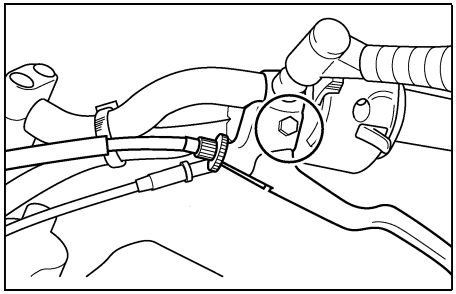


EAU03370

Checking and lubricating the brake and shift pedals

The operation of the brake and shift pedals should be checked before each ride, and the pedal pivots should be lubricated if necessary.

Recommended lubricant:
- Lithium-soap-based grease (all-purpose grease)

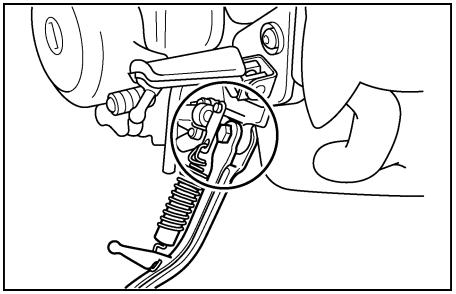


EAU03164

Checking and lubricating the brake and clutch levers

The operation of the brake and clutch levers should be checked before each ride, and the lever pivots should be lubricated if necessary.

Recommended lubricant:
Lithium-soap-based grease (all-purpose grease)



EAU03165

Checking and lubricating the sidestand

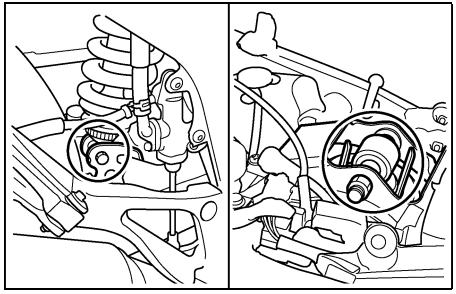
The operation of the sidestand should be checked before each ride, and the sidestand pivot and metal-to-metal contact surfaces should be lubricated if necessary.

EW000113

⚠ WARNING

If the sidestand does not move up and down smoothly, have a Yamaha dealer check or repair it.

Recommended lubricant:
Lithium-soap-based grease (all-purpose grease)



EAU00790

Lubricating the rear suspension

The pivoting points of the rear suspension must be lubricated at the intervals specified in the periodic maintenance and lubrication chart.

Recommended lubricant:
Molybdenum disulfide grease

EAU02939

Checking the front fork

The condition and operation of the front fork must be checked as follows at the intervals specified in the periodic maintenance and lubrication chart.

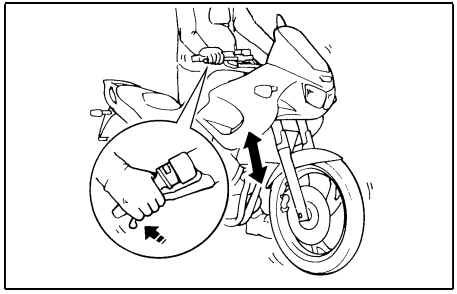
To check the condition

EW000115

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

Check the inner tubes for scratches, damage and excessive oil leakage.



To check the operation

1. Place the motorcycle on a level surface and hold it in an upright position.
2. While applying the front brake, push down hard on the handlebars several times to check if the front fork compresses and rebounds smoothly.

EC000098

CAUTION:

If any damage is found or the front fork does not operate smoothly, have a Yamaha dealer check or repair it.

6

EAU00794

Checking the steering

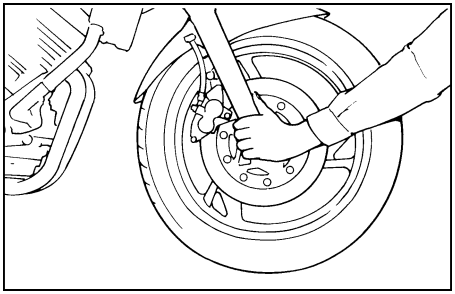
Worn or loose steering bearings may cause danger. Therefore, the operation of the steering must be checked as follows at the intervals specified in the periodic maintenance and lubrication chart.

1. Place a stand under the engine to raise the front wheel off the ground.

EW000115

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.



2. Hold the lower ends of the front fork legs and try to move them forward and backward. If any free play can be felt, have a Yamaha dealer check or repair the steering.

EAU01144

Checking the wheel bearings

The front and rear wheel bearings must be checked at the intervals specified in the periodic maintenance and lubrication chart. If there is play in the wheel hub or if the wheel does not turn smoothly, have a Yamaha dealer check the wheel bearings.

EAU00800

Battery

This motorcycle is equipped with a sealed-type (MF) battery, which does not require any maintenance. There is no need to check the electrolyte or to add distilled water.

EC000101

CAUTION:

Never attempt to remove the battery cell seals, as this would permanently damage the battery.

EW000116

WARNING

- **Electrolyte is poisonous and dangerous since it contains sulfuric acid, which causes severe burns. Avoid any contact with skin, eyes or clothing and always shield your eyes when working near batteries. In case of contact, administer the following FIRST AID.**
  - **EXTERNAL: Flush with plenty of water.**
  - **INTERNAL: Drink large quantities of water or milk and immediately call a physician.**
  - **EYES: Flush with water for 15 minutes and seek prompt medical attention.**
- **Batteries produce explosive hydrogen gas. Therefore, keep sparks, flames, cigarettes, etc., away from the battery and provide sufficient ventilation when charging it in an enclosed space.**
- **KEEP THIS AND ALL BATTERIES OUT OF THE REACH OF CHILDREN.**

To charge the battery

Have a Yamaha dealer charge the battery as soon as possible if it seems to have discharged. Keep in mind that the battery tends to discharge more quickly if the motorcycle is equipped with optional electrical accessories.

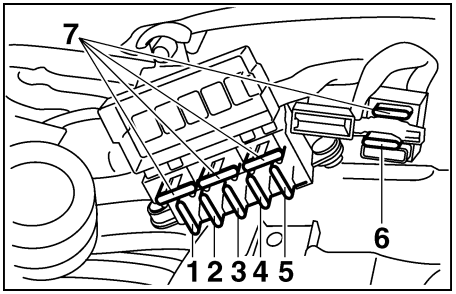
To store the battery

1. If the motorcycle will not be used for more than one month, remove the battery, fully charge it, and then place it in a cool, dry place.
2. If the battery will be stored for more than two months, check it at least once a month and fully charge it if necessary.
3. Fully charge the battery before installation.
4. After installation, make sure that the battery leads are properly connected to the battery terminals.

EC000102

CAUTION:

- **Always keep the battery charged. Storing a discharged battery can cause permanent battery damage.**
- **To charge a sealed-type (MF) battery, a special (constant-voltage) battery charger is required. Using a conventional battery charger will damage the battery. If you do not have access to a sealed-type (MF) battery charger, have a Yamaha dealer charge your battery.**



1. Headlight fuse
2. Signaling system fuse
3. Ignition fuse
4. Hazard fuse
5. Odometer fuse
6. Radiator fan fuse
7. Spare fuse (× 4)

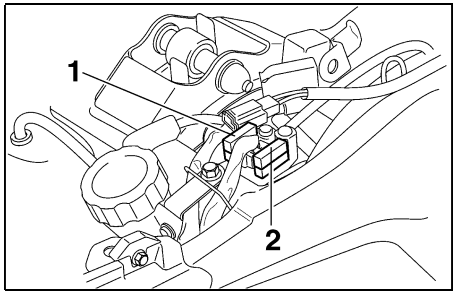
EAU03772

Replacing the fuses

The fuse boxes and main fuse box are located under the seat. (See page 3-11 for seat removal and installation procedures.)

If a fuse is blown, replace it as follows.

1. Turn the key to “OFF” and turn off the electrical circuit in question.
2. Remove the blown fuse, and then install a new fuse of the specified amperage.



1. Main fuse
2. Spare main fuse

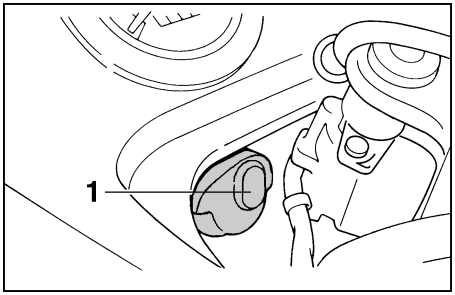
Specified fuses:	
Main fuse:	30 A
Headlight fuse:	15 A
Signaling system fuse:	15 A
Ignition fuse:	10 A
Hazard fuse:	10 A
Odometer fuse:	5 A
Radiator fan fuse:	7.5 A

EC000103

CAUTION:

Do not use a fuse of a higher amperage rating than recommended to avoid causing extensive damage to the electrical system and possibly a fire.

3. Turn the key to “ON” and turn on the electrical circuit in question to check if the device operates.
4. If the fuse immediately blows again, have a Yamaha dealer check the electrical system.



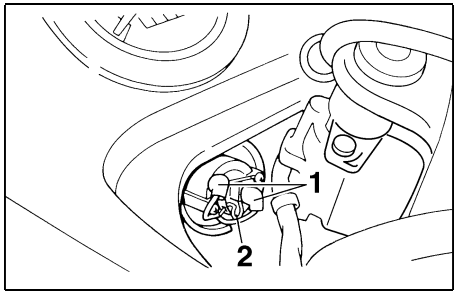
1. Headlight bulb cover

EAU03794

Replacing a headlight bulb

This motorcycle is equipped with quartz bulb headlights. If a headlight bulb burns out, replace it as follows.

1. Remove the headlight bulb cover, and then disconnect the headlight couplers.



1. Headlight coupler (× 2)
2. Headlight bulb holder

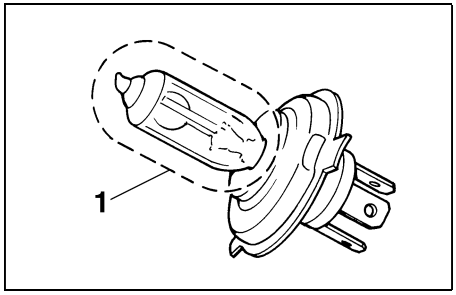
2. Unhook the headlight bulb holder, and then remove the defective bulb.

EW000119

⚠ WARNING

Headlight bulbs get very hot. Therefore, keep flammable products away from a lit headlight bulb, and do not touch the bulb until it has cooled down.

3. Place a new bulb into position, and then secure it with the bulb holder.



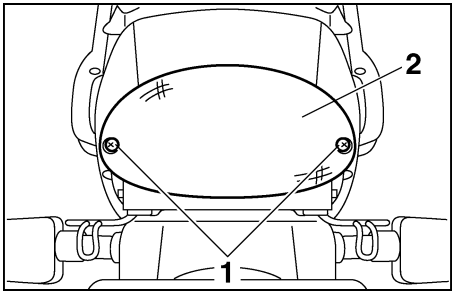
1. Do not touch this area.

EC000105

CAUTION:

Do not touch the glass part of the headlight bulb to keep it free from oil, otherwise the transparency of the glass, the luminosity of the bulb, and the bulb life will be adversely affected. Thoroughly clean off any dirt and fingerprints on the headlight bulb using a cloth moistened with alcohol or thinner.

4. Connect the headlight couplers, and then install the bulb cover.
5. Have a Yamaha dealer adjust the headlight beam if necessary.

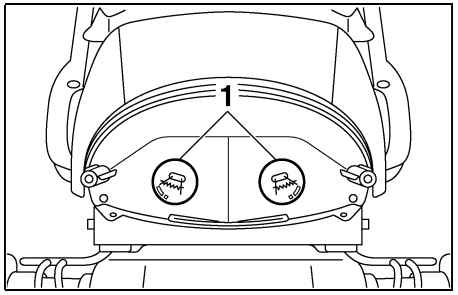


1. Screw (× 2)
2. Tail/brake light lens

EAU01623

Replacing the tail/brake light bulb

1. Remove the tail/brake light lens by removing the screws.
2. Remove the defective bulb by pushing it in and turning it counterclockwise.
3. Insert a new bulb into the socket, push it in, and then turn it clockwise until it stops.
4. Install the lens by installing the screws.

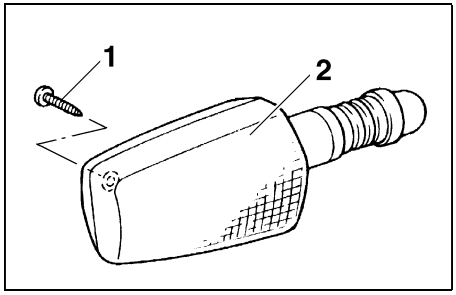


1. Tail/brake light bulb (× 2)

EC000108

CAUTION:

Do not overtighten the screws, otherwise the lens may break.

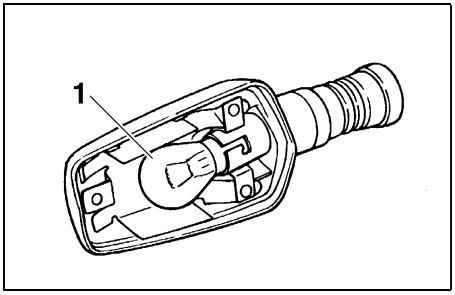


1. Screw
2. Turn signal light lens

EAU03497

Replacing a turn signal light bulb

1. Remove the turn signal light lens by removing the screw.
2. Remove the defective bulb by pushing it in and turning it counterclockwise.



1. Turn signal light bulb

3. Insert a new bulb into the socket, push it in, and then turn it clockwise until it stops.
4. Install the lens by installing the screw.

ECA00065

CAUTION:

Do not overtighten the screw, otherwise the lens may break.

6

EAU01579

Supporting the motorcycle

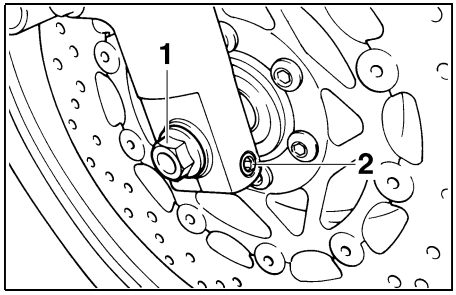
Since this model is not equipped with a centerstand, follow these precautions when removing the front and rear wheel or performing other maintenance requiring the motorcycle to stand upright. Check that the motorcycle is in a stable and level position before starting any maintenance. A strong wooden box can be placed under the engine for added stability.

To service the front wheel

1. Stabilize the rear of the motorcycle by using a motorcycle stand or, if an additional motorcycle stand is not available, by placing a jack under the frame in front of the rear wheel.
2. Raise the front wheel off the ground by using a motorcycle stand.

To service the rear wheel

Raise the rear wheel off the ground by using a motorcycle stand or, if a motorcycle stand is not available, by placing a jack either under each side of the frame in front of the rear wheel or under each side of the swingarm.



1. Wheel axle
2. Front wheel axle pinch bolt

EAU03498*

Front wheel

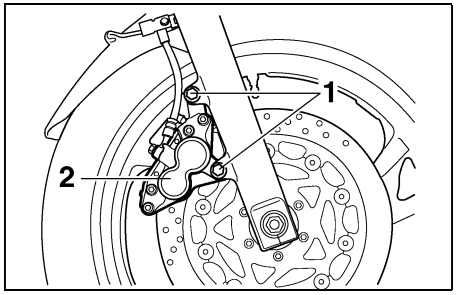
To remove the front wheel

EW000122

⚠ WARNING

- **It is advisable to have a Yamaha dealer service the wheel.**
- **Securely support the motorcycle so that there is no danger of it falling over.**

1. Loosen the front wheel axle pinch bolt, then the wheel axle and the brake caliper bolts.
2. Lift the front wheel off the ground according to the procedure.



1. Bolt (× 2)
2. Brake caliper

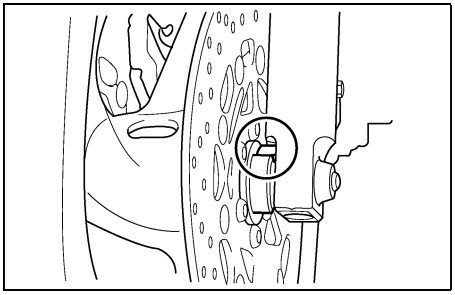
3. Remove the brake caliper on each side by removing the bolts.

ECA00046

CAUTION:

Do not apply the brake after the brake calipers have been removed, otherwise the brake pads will be forced shut.

4. Pull the wheel axle out, and then remove the wheel.



EAU03829

To install the front wheel

1. Lift the wheel up between the fork legs.
2. Insert the wheel axle from the right-hand side.
3. Lower the front wheel so that it is on the ground.
4. Install the brake calipers by installing the bolts.

NOTE:

Make sure that there is enough space between the brake pads before installing the brake calipers onto the brake discs.

5. Tighten the wheel axle, the front wheel axle pinch bolt and the brake caliper bolts to the specified torques.

Tightening torques:
Wheel axle:
58 Nm (5.8 m·kg)
Front wheel axle pinch bolt:
19 Nm (1.9 m·kg)
Brake caliper bolt:
40 Nm (4.0 m·kg)

6. Push down hard on the handlebar several times to check for proper fork operation.

Rear wheel

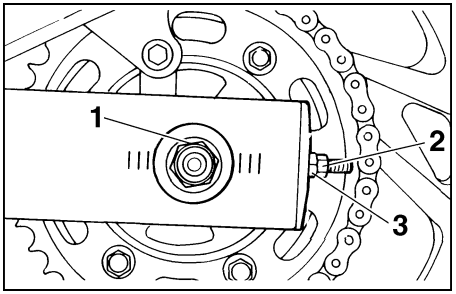
EAU03830

To remove the rear wheel

EW000122

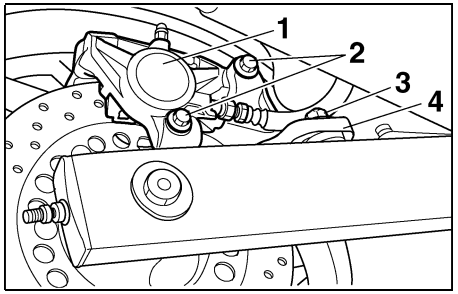
⚠ WARNING

- **It is advisable to have a Yamaha dealer service the wheel.**
- **Securely support the motorcycle so that there is no danger of it falling over.**



1. Axle nut
2. Locknut
3. Drive chain slack adjusting nut

1. Loosen the axle nut and the brake caliper bolts.
2. Lift the rear wheel off the ground according to the procedure on page 6-39.



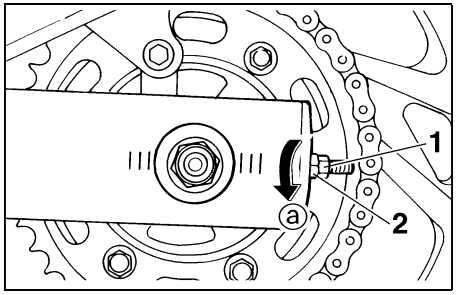
1. Brake caliper
2. Bolt (× 2)
3. Bolt
4. Brake caliper bracket

3. Loosen the brake caliper bracket bolt.
4. Remove the brake caliper by removing the bolts.

ECA00046

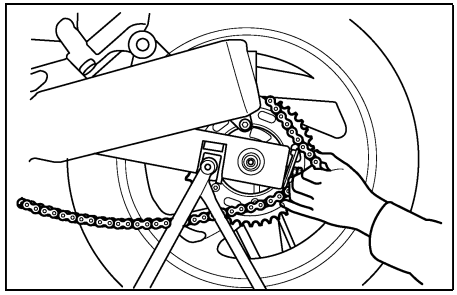
CAUTION:

Do not apply the brake after the brake calipers have been removed, otherwise the brake pads will be forced shut.



1. Locknut
2. Drive chain slack adjusting nut

5. Loosen the locknut on each side of the swingarm.
6. Turn the drive chain slack adjusting nuts fully in direction ⓐ.



7. Push the wheel forward, and then remove the drive chain from the rear sprocket.

NOTE:
The drive chain does not need to be disassembled in order to remove and install the rear wheel.

8. Remove the axle nut.
9. Pull the wheel axle out, and then remove the wheel.

EAU03501

To install the rear wheel

1. Install the wheel by inserting the wheel axle from the right-hand side.
2. Install the drive chain onto the rear sprocket, and then adjust the drive chain slack. (See page 6-27 for drive chain slack adjustment procedures.)
3. Install the brake caliper by installing the bolts.
4. Install the axle nut, and then lower the rear wheel so that it is on the ground.
5. Tighten the axle nut, the brake caliper bolts and the brake caliper bracket bolt to the specified torques.

Tightening torques:
Axle nut:
110 Nm (11.0 m·kg)
Brake caliper bolt:
40 Nm (4.0 m·kg)
Brake caliper bracket bolt:
35 Nm (3.5 m·kg)

EAU03087

Troubleshooting

Although Yamaha motorcycles receive a thorough inspection before shipment from the factory, trouble may occur during operation. Any problem in the fuel, compression, or ignition systems, for example, can cause poor starting and loss of power.

The following troubleshooting charts represent quick and easy procedures for checking these vital systems yourself. However, should your motorcycle require any repair, take it to a Yamaha dealer, whose skilled technicians have the necessary tools, experience, and know-how to service the motorcycle properly.

Use only genuine Yamaha replacement parts. Imitation parts may look like Yamaha parts, but they are often inferior, have a shorter service life and can lead to expensive repair bills.

EAU02990

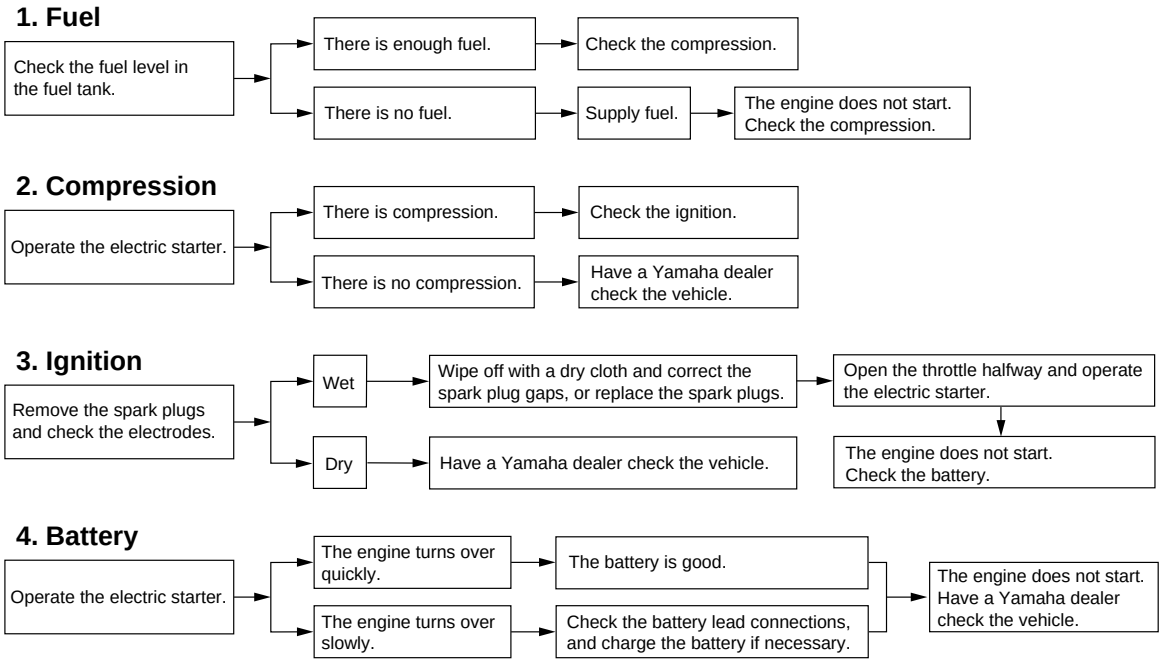
Troubleshooting charts

Starting problems or poor engine performance

EW000125

WARNING

Keep away open flames and do not smoke while checking or working on the fuel system.



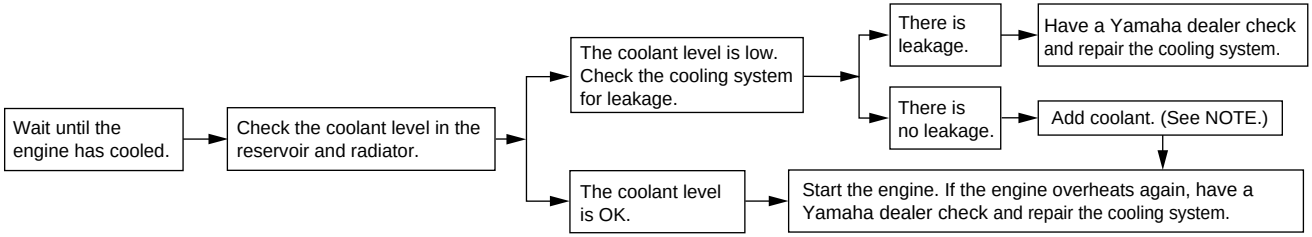
6

Engine overheating

EW000070

WARNING

- **Do not remove the radiator cap when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. Be sure to wait until the engine has cooled.**
- **After removing the radiator cap retaining bolt, place a thick rag, like a towel, over the radiator cap, and then slowly rotate the cap counterclockwise to the detent to allow any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning it counterclockwise, and then remove the cap.**



NOTE:

If coolant is not available, tap water can be temporarily used instead, provided that it is changed to the recommended coolant as soon as possible.

MOTORCYCLE CARE AND STORAGE

Care 7-1
Storage 7-4

MOTORCYCLE CARE AND STORAGE

EAU03429

Care

While the open design of a motorcycle reveals the attractiveness of the technology, it also makes it more vulnerable. Rust and corrosion can develop even if high-quality components are used. A rusty exhaust pipe may go unnoticed on a car, however, it detracts from the overall appearance of a motorcycle. Frequent and proper care does not only comply with the terms of the warranty, but it will also keep your motorcycle looking good, extend its life and optimize its performance.

Before cleaning

1. Cover the muffler outlets with plastic bags after the engine has cooled down.
2. Make sure that all caps and covers as well as all electrical couplers and connectors, including the spark plug caps, are tightly installed.
3. Remove extremely stubborn dirt, like oil burnt onto the crankcase, with a degreasing agent and a brush, but never apply such products onto seals, gaskets, sprockets, the drive chain and wheel axles. Always rinse the dirt and degreaser off with water.

Cleaning

ECA00010

CAUTION:

- **Avoid using strong acidic wheel cleaners, especially on spoked wheels. If such products are used on hard-to-remove dirt, do not leave the cleaner on the affected area any longer than instructed. Also, thoroughly rinse the area off with water, immediately dry it, and then apply a corrosion protection spray.**
- **Improper cleaning can damage windshields, cowlings, panels and other plastic parts. Use only a soft, clean cloth or sponge with mild detergent and water to clean plastic.**

- **Do not use any harsh chemical products on plastic parts. Be sure to avoid using cloths or sponges which have been in contact with strong or abrasive cleaning products, solvent or thinner, fuel (gasoline), rust removers or inhibitors, brake fluid, antifreeze or electrolyte.**
- **Do not use high-pressure washers or steam-jet cleaners since they cause water seepage and deterioration in the following areas: seals (of wheel and swingarm bearings, fork and brakes), electric components (couplers, connectors, instruments, switches and lights), breather hoses and vents.**
- **For motorcycles equipped with a windshield: Do not use strong cleaners or hard sponges as they will cause dulling or scratching. Some cleaning compounds for plastic may leave scratches on the windshield. Test the product on a small hidden part of the windshield to make sure that it does not leave any marks. If the windshield is scratched, use a quality plastic polishing compound after washing.**

After normal use

Remove dirt with warm water, a mild detergent, and a soft, clean sponge, and then rinse thoroughly with clean water. Use a toothbrush or bottlebrush for hard-to-reach areas. Stubborn dirt and insects will come off more easily if the area is covered with a wet cloth for a few minutes before cleaning.

After riding in the rain, near the sea or on salt-sprayed roads

Since sea salt or salt sprayed on roads during winter are extremely corrosive in combination with water, carry out the following steps after each ride in the rain, near the sea or on salt-sprayed roads.

NOTE:
Salt sprayed on roads in the winter may remain well into spring.

1. Clean the motorcycle with cold water and a mild detergent, after the engine has cooled down.

ECA00012

CAUTION:

Do not use warm water since it increases the corrosive action of the salt.

2. After drying the motorcycle, apply a corrosion protection spray on all metal, including chrome- and nickel-plated, surfaces to prevent corrosion.

After cleaning

1. Dry the motorcycle with a chamois or an absorbing cloth.
2. Immediately dry the drive chain and lubricate it to prevent it from rusting.
3. Use a chrome polish to shine chrome, aluminum and stainless-steel parts, including the exhaust system. (Even the thermally induced discoloring of stainless-steel exhaust systems can be removed through polishing.)
4. To prevent corrosion, it is recommended to apply a corrosion protection spray on all metal, including chrome- and nickel-plated, surfaces.
5. Use spray oil as a universal cleaner to remove any remaining dirt.
6. Touch up minor paint damage caused by stones, etc.
7. Wax all painted surfaces.
8. Let the motorcycle dry completely before storing or covering it.

EWA00001

⚠ WARNING

- **Make sure that there is no oil or wax on the brakes or tires. If necessary, clean the brake discs and brake linings with a regular brake disc cleaner or acetone, and wash the tires with warm water and a mild detergent.**
- **Before operating the motorcycle test its braking performance and cornering behavior.**

ECA00013

CAUTION:

- **Apply spray oil and wax sparingly and make sure to wipe off any excess.**
- **Never apply oil or wax to any rubber and plastic parts, but treat them with a suitable care product.**
- **Avoid using abrasive polishing compounds as they will wear away the paint.**

NOTE:

Consult a Yamaha dealer for advice on what products to use.

Storage

Short-term

Always store your motorcycle in a cool, dry place and, if necessary, protect it against dust with a porous cover.

ECA00014

CAUTION:

- **Storing the motorcycle in a poorly ventilated room or covering it with a tarp, while it is still wet, will allow water and humidity to seep in and cause rust.**
- **To prevent corrosion, avoid damp cellars, stables (because of the presence of ammonia) and areas where strong chemicals are stored.**

Long-term

Before storing your motorcycle for several months:

1. Follow all the instructions in the “Care” section of this chapter.
2. For motorcycles equipped with a fuel cock that has an “OFF” position: Turn the fuel cock lever to “OFF”.
3. Drain the carburetor float chamber by loosening the drain bolt; this will prevent fuel deposits from building up. Pour the drained fuel into the fuel tank.
4. Fill up the fuel tank and add fuel stabilizer (if available) to prevent the fuel tank from rusting and the fuel from deteriorating.
5. Perform the following steps to protect the cylinders, piston rings, etc. from corrosion.

a. Remove the spark plug caps and spark plugs.
b. Pour a teaspoonful of engine oil into each spark plug bore.
c. Install the spark plug caps onto the spark plugs, and then place the spark plugs on the cylinder head so that the electrodes are grounded. (This will limit sparking during the next step.)
d. Turn the engine over several times with the starter. (This will coat the cylinder walls with oil.)
e. Remove the spark plug caps from the spark plugs, and then install the spark plugs and the spark plug caps.

EWA00003

⚠ WARNING

To prevent damage or injury from sparking, make sure to ground the spark plug electrodes while turning the engine over.

6. Lubricate all control cables and the pivoting points of all levers and pedals as well as of the sidestand/centerstand.
7. Check and, if necessary, correct the tire air pressure, and then lift the motorcycle so that both of its wheels are off the ground. Alternatively, turn the wheels a little every month in order to prevent the tires from becoming degraded in one spot.
8. Cover the muffler outlets with plastic bags to prevent moisture from entering them.
9. Remove the battery and fully charge it. Store it in a cool, dry place and charge it once a month. Do not store the battery in an excessively cold or warm place (less than 0 °C or more than 30 °C). For more information on storing the battery, see page 6-34.

NOTE:

Make any necessary repairs before storing the motorcycle.

Specifications 8-1
Conversion table 8-5

SPECIFICATIONS

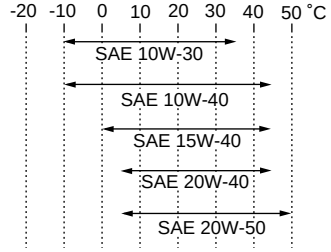
EAU01038

Specifications

Model	**TDM850**
Dimensions	
Overall length	2,165 mm (for GB, NL, B, F, E, P, I, GR, D, DK)
	2,200 mm (for N, S, SF)
Overall width	790 mm
Overall height	1,285 mm
Seat height	805 mm
Wheelbase	1,475 mm
Ground clearance	165 mm
Minimum turning radius	2,900 mm
Basic weight (with oil and full fuel tank)	232 kg
Engine	
Engine type	Liquid-cooled 4-stroke, DOHC
Cylinder arrangement	Forward-inclined parallel 2-cylinder
Displacement	849 cm^3
Bore × stroke	89.5 × 67.5 mm
Compression ratio	10.5:1
Starting system	Electric starter
Lubrication system	Dry sump

Engine oil

Type



Recommended engine oil classification	API Service SE, SF, SG or higher

CAUTION:

Be sure to use motor oils that do not contain anti-friction modifiers. Passenger car motor oils (often labeled "ENERGY CONSERVING II") contain anti-friction additives which will cause clutch and/or starter clutch slippage, resulting in reduced component life and poor engine performance.

Quantity

Without oil filter element replacement	3.5 L
With oil filter element replacement	3.6 L
Total amount (dry engine)	4.2 L

8

Cooling system capacity (total amount)	1.7 L
Air filter	Dry type element
Fuel	
Type	Regular unleaded gasoline
Fuel tank capacity	20 L
Fuel reserve amount	3.1 L
Carburetor	
Manufacturer	MIKUNI
Model × quantity	BDSR38 × 2
Spark plug	
Manufacturer/model	NGK / DPR8EA-9 or DENSO / X24EPR-U9
Gap	0.8–0.9 mm
Clutch type	Wet, multiple-disc
Transmission	
Primary reduction system	Spur gear
Primary reduction ratio	1.718
Secondary reduction system	Chain drive
Secondary reduction ratio	2.688
Number of drive chain sprocket teeth (front/rear)	16/43
Transmission type	Constant-mesh 5-speed
Operation	Left foot
Gear ratio	
1st	2.643
2nd	1.947
3rd	1.500
4th	1.174
5th	0.964
Chassis	
Frame type	Diamond
Caster angle	24.5°
Trail	103 mm
Tires	
Front	
Type	Tubeless tire
Size	110/80 ZR18 (58W)
Manufacturer/model	Bridgestone / BT54F
	Pirelli / MTR03
	Michelin / MACADAM90X
Rear	
Type	Tubeless tire
Size	150/70 ZR17 (69W)
Manufacturer/model	Bridgestone / BT54R
	Pirelli / MTR04
	Michelin / MACADAM90X

Maximum load*	203 kg
Tire air pressure (measured on cold tires)	
Up to 90 kg*	
Front	225 kPa (2.25 kg/cm^2, 2.25 bar)
Rear	275 kPa (2.75 kg/cm^2, 2.75 bar)
90 kg–maximum*	
Front	225 kPa (2.25 kg/cm^2, 2.25 bar)
Rear	275 kPa (2.75 kg/cm^2, 2.75 bar)
High-speed riding	
Front	225 kPa (2.25 kg/cm^2, 2.25 bar)
Rear	275 kPa (2.75 kg/cm^2, 2.75 bar)

* Total weight of rider, passenger, cargo and accessories

Wheels

Front	
Type	Cast wheel
Size	18 × MT 3.00
Rear	
Type	Cast wheel
Size	17 × MT 4.00

Brakes

Front	
Type	Dual disc brake
Operation	Right hand
Fluid	DOT 4
Rear	
Type	Single disc brake
Operation	Right foot
Fluid	DOT 4

Suspension

Front	Telescopic fork
Rear	Swingarm (monocross)

Spring/shock absorber

Front	Coil spring / oil damper
Rear	Coil spring / gas-oil damper

Wheel travel

Front	149 mm
Rear	144 mm

Electrical system

Ignition system	T.C.I. (digital)
Charging system	
Type	A.C. magneto
Standard output	14 V, 24 A @ 5,000 r/min
Battery	
Model	GT12B-4
Voltage, capacity	12 V, 10 Ah

Headlight type Quartz bulb (halogen)

Bulb voltage, wattage × quantity

Headlight	12 V, 55 W × 2
Auxiliary light	12 V, 5 W × 1
Tail/brake light	12 V, 5/21 W × 2
Turn signal light	12 V, 21 W × 4
Meter lighting	12 V, 2 W × 3
Neutral indicator light	14 V, 1.4 W × 1
High beam indicator light	14 V, 1.4 W × 1
Turn signal indicator light	14 V, 1.4 W × 2
Coolant temperature warning light	14 V, 1.4 W × 1
Fuel level warning light	12 V, 2 W × 1

Fuses

Main fuse	30 A
Headlight fuse	15 A
Signaling system fuse	15 A
Ignition fuse	10 A
Hazard fuse	10 A
Odometer fuse	5 A
Radiator fan fuse	7.5 A

EAU01064

Conversion table

All specification data in this manual are listed in SI and METRIC UNITS.
Use this table to convert METRIC unit data to IMPERIAL unit data.
Example

METRIC		MULTIPLIER		IMPERIAL
** mm	×	0.03937	=	** in
2 mm	×	0.03937	=	0.08 in

Conversion table

METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Torque	m·kg m·kg cm·kg cm·kg	7.233 86.794 0.0723 0.8679	ft·lb in·lb ft·lb in·lb
Weight	kg g	2.205 0.03527	lb oz
Speed	km/h	0.6214	mi/h
Distance	km m m cm mm	0.6214 3.281 1.094 0.3937 0.03937	mi ft yd in in
Volume, Capacity	cc (cm^3) cc (cm^3) L (liter) L (liter)	0.03527 0.06102 0.8799 0.2199	oz (IMP liq.) cu·in qt (IMP liq.) gal (IMP liq.)
Miscellaneous	kg/mm kg/cm^2 Centigrade (°C)	55.997 14.2234 9/5 + 32	lb/in psi (lb/in^2) Fahrenheit (°F)

8

Identification numbers 9-1
Key identification number 9-1
Vehicle identification number 9-1
Model label 9-2

EAU01039

EAU02944

Identification numbers

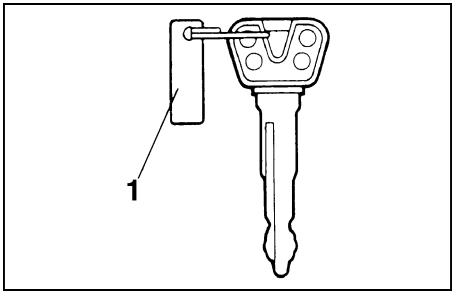
Record the key identification number, vehicle identification number and model label information in the spaces provided below for assistance when ordering spare parts from a Yamaha dealer or for reference in case the vehicle is stolen.

1. KEY IDENTIFICATION NUMBER:

2. VEHICLE IDENTIFICATION NUMBER:

3. MODEL LABEL INFORMATION:

○
●

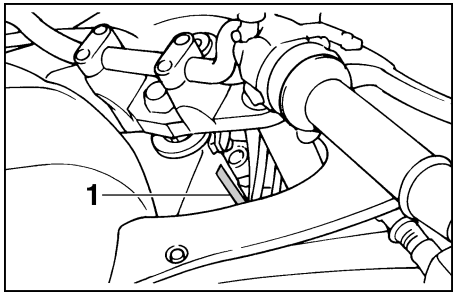


1. Key identification number

EAU01041

Key identification number

The key identification number is stamped into the key tag. Record this number in the space provided and use it for reference when ordering a new key.



1. Vehicle identification number

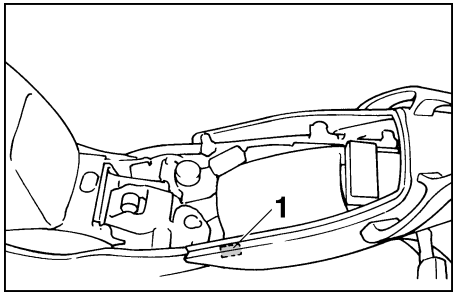
EAU01043

Vehicle identification number

The vehicle identification number is stamped into the steering head pipe. Record this number in the space provided.

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your area.



1. Model label

EAU01050

Model label

The model label is affixed to the frame under the seat. (See page 3-11 for seat removal and installation procedures.) Record the information on this label in the space provided. This information will be needed when ordering spare parts from a Yamaha dealer.

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