



 Read this manual carefully before operating this vehicle.

OWNER'S MANUAL

TENERE

XT660Z
XT660ZA

56P-F8199-E0

 **Read this manual carefully before operating this vehicle. This manual should stay with this vehicle if it is sold.**



YAMAHA MOTOR ELECTRONICS CO., LTD.
1450-6, Mori, Mori-machi, Shuchi-gun, Shizuoka-ken, 437-0292 Japan

DECLARATION of CONFORMITY

We

Company: YAMAHA MOTOR ELECTRONICS CO., LTD.
Address: 1450-6, Mori, Mori-Machi, Shuchi-gun, Shizuoka-Ken, 437-0292 Japan

Hereby declare that the product:

Kind of equipment: IMMOBILIZER
Type-designation: SSL-00

is in compliance with following norm(s) or documents:


R&TTE Directive(1999/5/EC)
EN300 330-2 v1.1.1(2001-6), EN60950-1(2001)
Two or Three-Wheel Motor Vehicles Directive(97/24/EC: Chapter 8, EMC)

Place of issue: Shizuoka, Japan

Date of issue: 1 Aug. 2002

| Revision record | | |
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| 3 | To change company name | 1 Mar. 2007 |
| | | |

General manager of quality assurance div.

01/Mar/2007


Welcome to the Yamaha world of motorcycling!

As the owner of the XT660Z - XT660ZA, 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 XT660Z - XT660ZA. 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!

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 there is any question concerning this manual, please consult a Yamaha dealer.






Please read this manual carefully and completely before operating this motorcycle.

IMPORTANT MANUAL INFORMATION

EAU10132

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

| | |
|---|---|
|  | This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death. |
|  | A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury. |
|  | A NOTICE indicates special precautions that must be taken to avoid damage to the vehicle or other property. |
| TIP | A TIP provides key information to make procedures easier or clearer. |

IMPORTANT MANUAL INFORMATION

EAUS1172

**XT660Z - XT660ZA
OWNER'S MANUAL**
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EAU10318

Be a Responsible Owner

As the vehicle's owner, you are responsible for the safe and proper operation of your motorcycle.

Motorcycles are single-track vehicles. Their safe use and operation are dependent upon the use of proper riding techniques as well as the expertise of the operator. Every operator should know the following requirements before riding this motorcycle. He or she should:

- Obtain thorough instructions from a competent source on all aspects of motorcycle operation.
- Observe the warnings and maintenance requirements in this Owner's Manual.
- Obtain qualified training in safe and proper riding techniques.
- Obtain professional technical service as indicated in this Owner's Manual and/or when made necessary by mechanical conditions.

Safe Riding

Perform the pre-operation checks

each time you use the vehicle to make sure it is in safe operating condition. Failure to inspect or maintain the vehicle properly increases the possibility of an accident or equipment damage. See page 4-1 for a list of pre-operation checks.

- This motorcycle is designed to carry the operator and a passenger.
- The failure of motorists to detect and recognize motorcycles in traffic is the predominating cause of automobile/motorcycle accidents. Many accidents have been caused by an automobile driver who did not see the motorcycle. Making yourself conspicuous appears to be very effective in reducing the chance of this type of accident.

Therefore:

- Wear a brightly colored jacket.
- Use extra caution when you are approaching and passing through intersections, since intersections are the most likely places for motorcycle accidents to occur.

- Ride where other motorists can see you. Avoid riding in another motorist's blind spot.
- Many accidents involve inexperienced operators. In fact, many operators who have been involved in accidents do not even have a current motorcycle license.
- Make sure that you are qualified and that you only lend your motorcycle to other qualified operators.
- Know your skills and limits. Staying within your limits may help you to avoid an accident.
- We recommend that you practice riding your motorcycle where there is no traffic until you have become thoroughly familiar with the motorcycle and all of its controls.
- Many accidents have been caused by error of the motorcycle operator. A typical error made by the operator is veering wide on a turn due to excessive speed or undercornering (insufficient lean angle for the speed).



SAFETY INFORMATION

1

- Always obey the speed limit and never travel faster than warranted by road and traffic conditions.
- Always signal before turning or changing lanes. Make sure that other motorists can see you.
- The posture of the operator and passenger is important for proper control.
- The operator should keep both hands on the handlebar and both feet on the operator footrests during operation to maintain control of the motorcycle.
- The passenger should always hold onto the operator, the seat strap or grab bar, if equipped, with both hands and keep both feet on the passenger footrests. Never carry a passenger unless he or she can firmly place both feet on the passenger footrests.
- Never ride under the influence of alcohol or other drugs.

Protective Apparel

The majority of fatalities from motorcycle accidents are the result of head injuries. The use of a safety helmet is the single most critical factor in the prevention or reduction of head injuries.

- Always wear an approved helmet.
- Wear a face shield or goggles. Wind in your unprotected eyes could contribute to an impairment of vision that could delay seeing a hazard.
- The use of a jacket, heavy boots, trousers, gloves, etc., is effective in preventing or reducing abrasions or lacerations.
- Never wear loose-fitting clothes, otherwise they could catch on the control levers, footrests, or wheels and cause injury or an accident.
- Always wear protective clothing that covers your legs, ankles, and feet. The engine or exhaust system become very hot during or after operation and can cause burns.

- A passenger should also observe the above precautions.

Avoid Carbon Monoxide Poisoning

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion, and eventually death.

Carbon Monoxide is a colorless, odorless, tasteless gas which may be present even if you do not see or smell any engine exhaust. Deadly levels of carbon monoxide can collect rapidly and you can quickly be overcome and unable to save yourself. Also, deadly levels of carbon monoxide can linger for hours or days in enclosed or poorly ventilated areas. If you experience any symptoms of carbon monoxide poisoning, leave the area immediately, get fresh air, and **SEEK MEDICAL TREATMENT.**

- Do not run engine indoors. Even if you try to ventilate engine exhaust with fans or open windows and doors, carbon monoxide can rapidly reach dangerous levels.



- Do not run engine in poorly ventilated or partially enclosed areas such as barns, garages, or carports.
- Do not run engine outdoors where engine exhaust can be drawn into a building through openings such as windows and doors.

Loading

Adding accessories or cargo to your motorcycle can adversely affect stability and handling if the weight distribution of the motorcycle is changed. To avoid the possibility of an accident, use extreme caution when adding cargo or accessories to your motorcycle. Use extra care when riding a motorcycle that has added cargo or accessories. Here, along with the information about accessories below, are some general guidelines to follow if loading cargo to your motorcycle:

The total weight of the operator, passenger, accessories and cargo must not exceed the maximum load limit.

Operation of an overloaded vehicle could cause an accident

Maximum load:

XT660Z: 190 kg (419 lb)

XT660ZA: 188 kg (414 lb)

When loading within this weight limit, keep the following in mind:

- Cargo and accessory weight should be kept as low and close to the motorcycle as possible. Securely pack your heaviest items as close to the center of the vehicle as possible and make sure to distribute the weight as evenly as possible on both sides of the motorcycle to minimize imbalance or instability.
- Shifting weights can create a sudden imbalance. Make sure that accessories and cargo are securely attached to the motorcycle before riding. Check accessory mounts and cargo restraints frequently.
- Properly adjust the suspension for your load (suspension-adjustable models only), and check the condition and pressure of your tires.

- Never attach any large or heavy items to the handlebar, front fork, or front fender. These items, including such cargo as sleeping bags, duffel bags, or tents, can create unstable handling or a slow steering response.
- **This vehicle is not designed to pull a trailer or to be attached to a sidecar.**

Genuine Yamaha Accessories

Choosing accessories for your vehicle is an important decision. Genuine Yamaha accessories, which are available only from a Yamaha dealer, have been designed, tested, and approved by Yamaha for use on your vehicle.

Many companies with no connection to Yamaha manufacture parts and accessories or offer other modifications for Yamaha vehicles. Yamaha is not in a position to test the products that these aftermarket companies produce. Therefore, Yamaha can neither endorse nor recommend the use of accessories not sold by Yamaha or modifications not specifically recom-

SAFETY INFORMATION

mended by Yamaha, even if sold and installed by a Yamaha dealer.

1 Aftermarket Parts, Accessories, and Modifications

While you may find aftermarket products similar in design and quality to genuine Yamaha accessories, recognize that some aftermarket accessories or modifications are not suitable because of potential safety hazards to you or others. Installing aftermarket products or having other modifications performed to your vehicle that change any of the vehicle's design or operation characteristics can put you and others at greater risk of serious injury or death. You are responsible for injuries related to changes in the vehicle.

Keep the following guidelines in mind, as well as those provided under "Loading" when mounting accessories.

- Never install accessories or carry cargo that would impair the performance of your motorcycle. Carefully inspect the accessory before using it to make sure that it does not in any way reduce

ground clearance or cornering clearance, limit suspension travel, steering travel or control operation, or obscure lights or reflectors.

- Accessories fitted to the handlebar or the front fork area can create instability due to improper weight distribution or aerodynamic changes. If accessories are added to the handlebar or front fork area, they must be as lightweight as possible and should be kept to a minimum.
- Bulky or large accessories may seriously affect the stability of the motorcycle due to aerodynamic effects. Wind may attempt to lift the motorcycle, or the motorcycle may become unstable in cross winds. These accessories may also cause instability when passing or being passed by large vehicles.
- Certain accessories can displace the operator from his or her normal riding position. This improper position limits the fre-

edom of movement of the operator and may limit control ability, therefore, such accessories are not recommended.

- Use caution when adding electrical accessories. If electrical accessories exceed the capacity of the motorcycle's electrical system, an electric failure could result, which could cause a dangerous loss of lights or engine power.

Aftermarket Tires and Rims

The tires and rims that came with your motorcycle were designed to match the performance capabilities and to provide the best combination of handling, braking, and comfort. Other tires, rims, sizes, and combinations may not be appropriate. Refer to page 6-17 for tire specifications and more information on replacing your tires.

Transporting the Motorcycle

Be sure to observe following instructions before transporting the motorcycle in another vehicle.

- Remove all loose items from the motorcycle.
- Check that the fuel cock (if equipped) is in the “OFF” position and that there are no fuel leaks.
- Point the front wheel straight ahead on the trailer or in the truck bed, and choke it in a rail to prevent movement.
- Shift the transmission in gear (for models with a manual transmission).
- Secure the motorcycle with tie-downs or suitable straps that are attached to solid parts of the motorcycle, such as the frame or upper front fork triple clamp (and not, for example, to rubber-mounted handlebars or turn signals, or parts that could break). Choose the location for the straps carefully so the straps will not rub against painted surfaces during transport.
- The suspension should be compressed somewhat by the tie-downs, if possible, so that the motorcycle will not bounce excessively during transport.

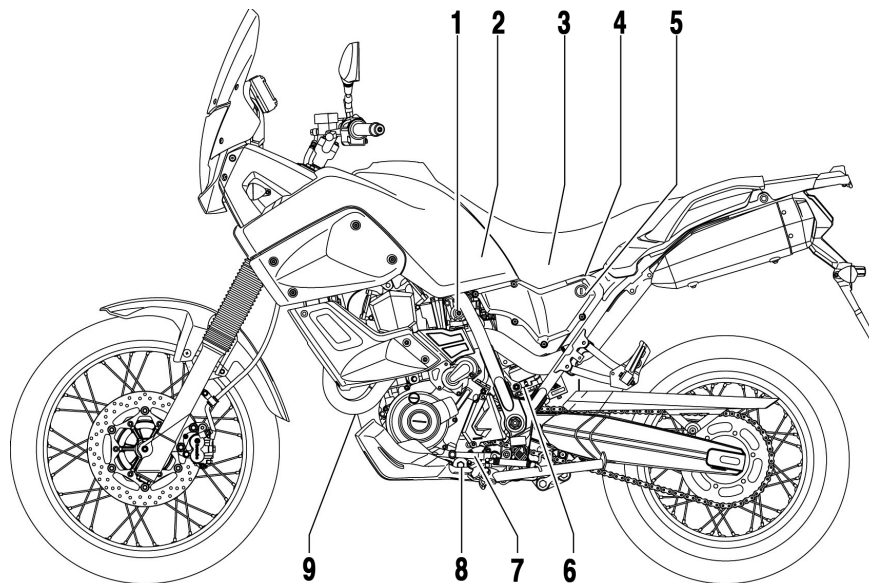
DESCRIPTION

EAU32220

Left view

XT660Z

2



1. Idle adjusting screw (page 6-16)

2. Owner's tool kit (page 6-1)

3. Air filter element (page 6-15)

4. Fuse box 1 (page 6-31)

5. Seat lock (page 3-16)

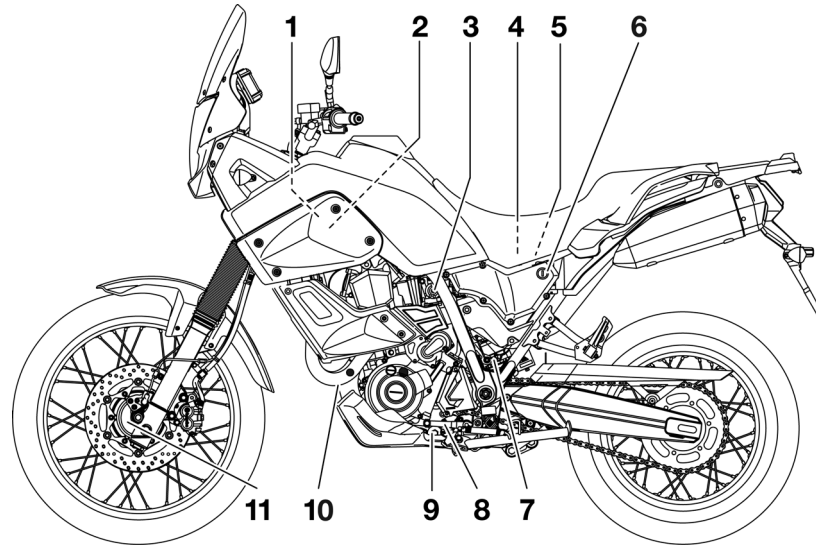
6. Shock absorber assembly spring preload adjusting ring (page 3-18)

7. Shift pedal (page 3-11)

8. Engine oil drain bolt (crankcase) (page 6-11)

9. Engine oil drain bolt (oil tank) (page 6-11)

XT660ZA



1. Main fuse (page 6-31)
2. Fuse box 1 (page 6-31)
3. Idle adjusting screw (page 6-16)
4. Fuse box 2 (page 6-31)
5. Fuse box 2 (page 6-31)
6. Seat lock (page 3-16)
7. Shock absorber assembly spring preload adjusting ring (page 3-18)
8. Shift pedal (page 3-11)

9. Engine oil drain bolt (crankcase) (page 6-11)
10. Engine oil drain bolt (oil tank) (page 6-11)
11. Front wheel hub

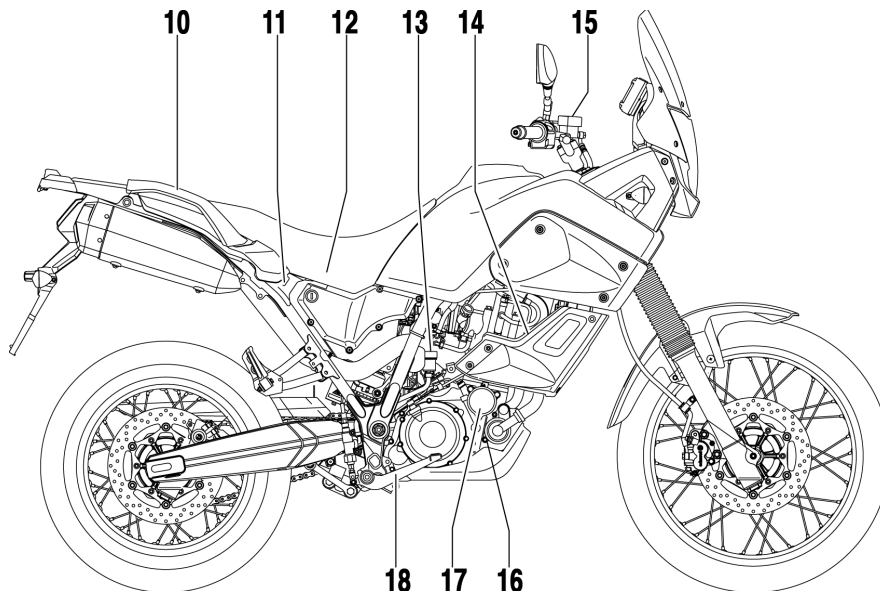
DESCRIPTION

EAU32230

Right view

XT660Z

2



10. Grab bar

11. Main fuse (page 6-31)

12. Battery (page 6-29)

13. Rear brake fluid reservoir (page 6-21)

14. Coolant reservoir (page 6-14)

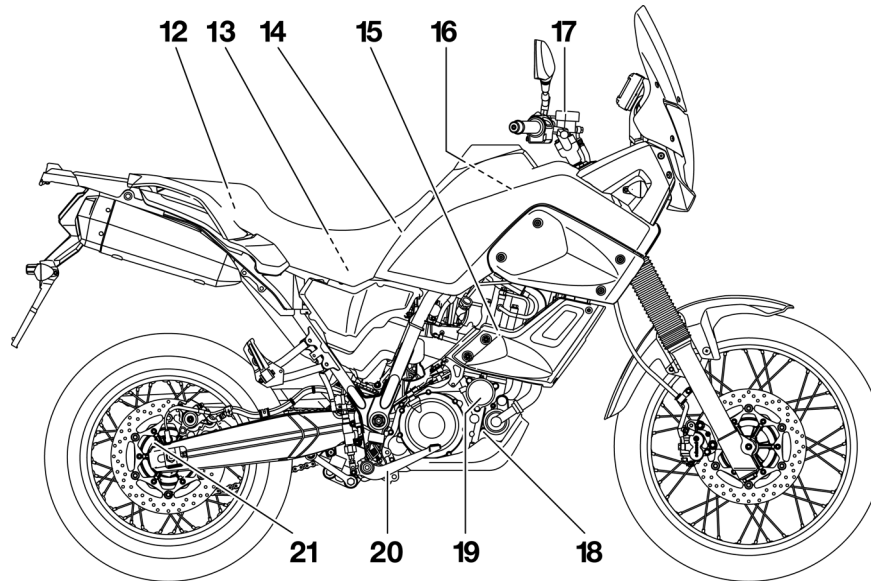
15. Front brake fluid reservoir (page 6-21)

16. Coolant drain bolt

17. Engine oil filter element (page 6-11)

18. Brake pedal (page 3-12)

XT660ZA



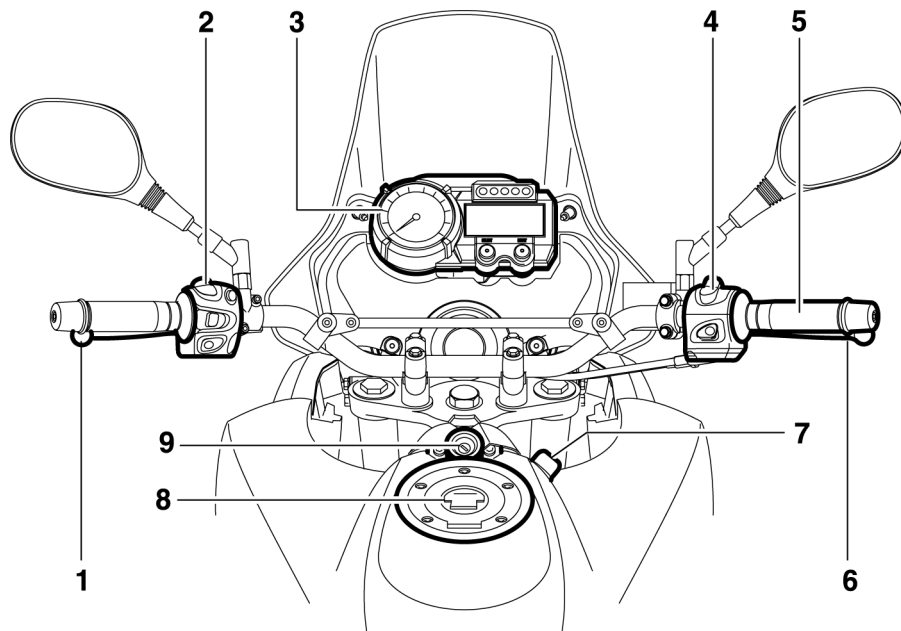
- 12. Rear brake fluid reservoir (page 6-21)
- 13. Fuse box 2 (page 6-31)
- 14. Owner's tool kit (page 6-1)
- 15. Coolant reservoir (page 6-14)
- 16. Battery (page 6-29)
- 17. Front brake fluid reservoir (page 6-21)
- 18. Coolant drain bolt
- 19. Engine oil filter element (page 6-11)

- 20. Brake pedal (page 3-12)
- 21. Rear wheel hub

DESCRIPTION

EAU10430

Controls and instruments

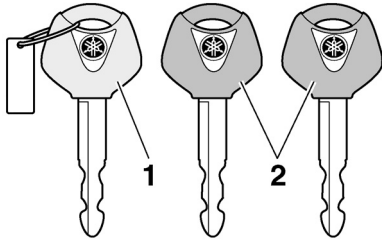


1. Clutch lever (page 3-11)
2. Left handlebar switches (page 3-9)
3. Multi-function display (page 3-6)
4. Right handlebar switches (page 3-9)
5. Throttle grip (page 6-17)
6. Brake lever (page 3-11)
7. Engine oil filler cap (page 6-11)
8. Fuel tank cap (page 3-13/3-14)

9. Main switch/steering lock (page 3-2)

Immobilizer system

EAU10976



1. Code re-registering key (red bow)
2. Standard keys (black bow)

This vehicle is equipped with an immobilizer system to help prevent theft by re-registering codes in the standard keys. This system consists of the following:

- a code re-registering key (with a red bow)
- two standard keys (with a black bow) that can be re-registered with new codes
- a transponder (which is installed in the code re-registering key)
- an immobilizer unit
- an ECU

- an immobilizer system indicator light (See page 3-4)
- The key with the red bow is used to register codes in each standard key. Since re-registering is a difficult process, take the vehicle along with all three keys to a Yamaha dealer to have them re-registered. Do not use the key with the red bow for driving. It should only be used for re-registering the standard keys. Always use a standard key for driving.

ECA11821

NOTICE

- **DO NOT LOSE THE CODE RE-REGISTERING KEY! CONTACT YOUR DEALER IMMEDIATELY IF IT IS LOST!** If the code re-registering key is lost, registering new codes in the standard keys is impossible. The standard keys can still be used to start the vehicle, however if code re-registering is required (i.e., if a new standard key is made or all keys are lost) the entire immobilizer system must be replaced. Therefore, it is

highly recommended to use either standard key and keep the code re-registering key in a safe place.

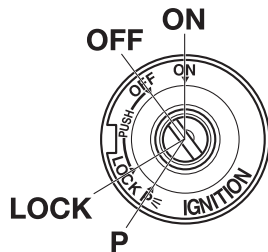
- Do not submerge any key in water.
- Do not expose any key to excessively high temperatures.
- Do not place any key close to magnets (this includes, but not limited to, products such as speakers, etc.).
- Do not place items that transmit electrical signals close to any key.
- Do not place heavy items on any key.
- Do not grind any key or alter its shape.
- Do not disassemble the plastic part of any key.
- Do not put two keys of any immobilizer system on the same key ring.
- Keep the standard keys as well as keys of other immobilizer systems away from this vehicle's code re-registering key.

INSTRUMENT AND CONTROL FUNCTIONS

- Keep other immobilizer system keys away from the main switch as they may cause signal interference.

Main switch/steering lock

EAU10472



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

TIP

Be sure to use the standard key (black bow) for regular use of the vehicle. To minimize the risk of losing the code re-registering key (red bow), keep it in a safe place and only use it for code re-registering.

ON

All electrical circuits are supplied with

EAU10550

power, the meter lighting, taillight, license plate light and auxiliary lights come on, and the engine can be started. The key cannot be removed.

TIP

The headlights come on automatically when the engine is started and stay on until the key is turned to “OFF”, even if the engine stalls.

EAU10661

OFF

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

EWA10061

! WARNING

Never turn the key to “OFF” or “LOCK” while the vehicle is moving. Otherwise the electrical systems will be switched off, which may result in loss of control or an accident.

EAU10683

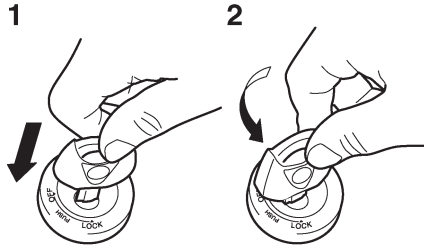
LOCK

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

INSTRUMENT AND CONTROL FUNCTIONS

EAU10941

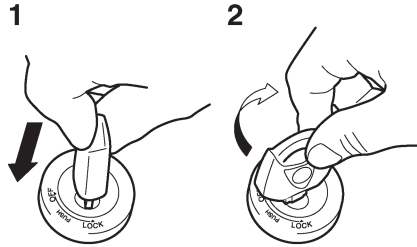
To lock the steering



1. Push
2. Turn

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



1. Push
2. Turn

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

p (Parking)

The steering is locked, and the tail-light, license plate light and auxiliary lights are on. The hazard lights and turn signal lights can be turned 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**”.

3

ECA11020

NOTICE

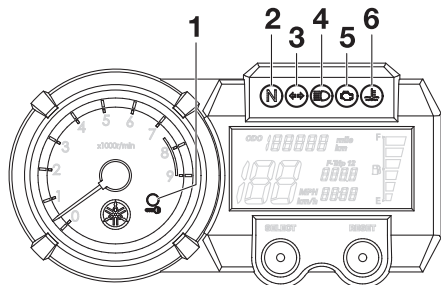
Do not use the parking position for an extended length of time, otherwise the battery may discharge.

INSTRUMENT AND CONTROL FUNCTIONS

EAU47040

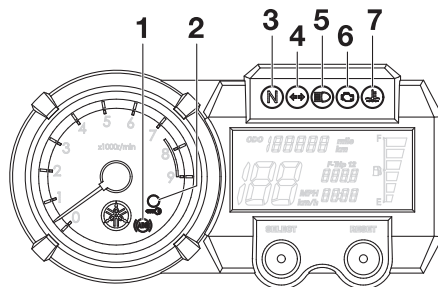
Indicator and warning lights

For XT660Z



1. Immobilizer system indicator light
2. Neutral indicator light “ N ”
3. Turn signal indicator light “ ← → ”
4. High beam indicator light “ ≡ ”
5. Engine trouble warning light “ 〇 ”
6. Coolant temperature warning light “ 〰 ”

For XT660ZA



1. Anti-lock Brake System (ABS) warning light “ 〇 ”
2. Immobilizer system indicator light
3. Neutral indicator light “ N ”
4. Turn signal indicator light “ ← → ”
5. High beam indicator light “ ≡ ”
6. Engine trouble warning light “ 〇 ”
7. Coolant temperature warning light “ 〰 ”

Turn signal indicator light “ ← → ”

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

The electrical circuit of the turn signal indicator light can be checked by turning the key to “ON”.

EAUB1510

If the indicator light does not come on for a few seconds, then go off, have a Yamaha dealer check the electrical circuit.

EAUB1520

Neutral indicator light “ N ”

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

The electrical circuit of the neutral indicator light can be checked by turning the key to “ON”.

If the indicator light does not come on for a few seconds, then go off, have a Yamaha dealer check the electrical circuit.

EAUB1530

High beam indicator light “ ≡ ”

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

The electrical circuit of the high beam indicator light can be checked by turning the key to “ON”.

If the indicator light does not come on for a few seconds, then go off, have a Yamaha dealer check the electrical circuit.

INSTRUMENT AND CONTROL FUNCTIONS

EAU11444

Coolant temperature warning light “”

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

The electrical circuit of the warning light can be checked by turning the key to “ON”. The warning light should come on for a few seconds, and then go off.

If the warning light does not come on initially when the key is turned to “ON”, or if the warning light remains on, have a Yamaha dealer check the electrical circuit.

ECA10021

NOTICE

Do not continue to operate the engine if it is overheating.

TIP

- For radiator-fan-equipped vehicles, the radiator fan(s) automatically switch on or off according to the coolant temperature in the radiator.

- If the engine overheats, see page 6-40 for further instructions.

EAU11534

Engine trouble warning light “”

This warning light comes on or flashes if a problem is detected in the electrical circuit monitoring the engine. If this occurs, have a Yamaha dealer check the self-diagnosis system. (See page 3-8 for an explanation of the self-diagnosis device.)

The electrical circuit of the warning light can be checked by turning the key to “ON”. The warning light should come on for a few seconds, and then go off.

If the warning light does not come on initially when the key is turned to “ON”, or if the warning light remains on, have a Yamaha dealer check the electrical circuit.

EAU11545

ABS warning light “” (for ABS models)

If this warning light comes on or flashes while riding, the ABS may not work correctly. If this occurs, have a

Yamaha dealer check the system as soon as possible. (See page 3-12).

EWA10081

WARNING

If the ABS warning light comes on or flashes while riding, the brake system reverts to conventional braking. Therefore, be careful not to cause the wheels to lock during emergency braking. If the warning light comes on or flashes while riding, have a Yamaha dealer check the brake system as soon as possible.

The electrical circuit of the warning light can be checked by turning the key to “ON”. The warning light should come on for a few seconds, and then go off.

If the warning light does not come on initially when the key is turned to “ON”, or if the warning light remains on, have a Yamaha dealer check the electrical circuit.

INSTRUMENT AND CONTROL FUNCTIONS

EAU26877

Immobilizer system indicator light “”

The electrical circuit of the indicator light can be checked by turning the key to “ON”. The indicator light should come on for a few seconds, and then go off.

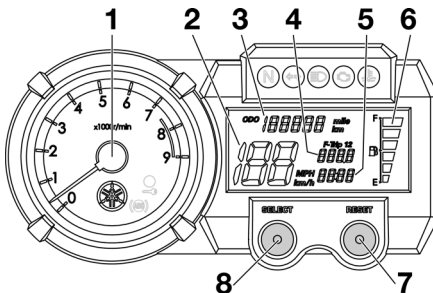
If the indicator light does not come on initially when the key is turned to “ON”, or if the indicator light remains on, have a Yamaha dealer check the electrical circuit.

When the key is turned to “OFF” and 30 seconds have passed, the indicator light will start flashing indicating the immobilizer system is enabled. After 24 hours have passed, the indicator light will stop flashing, however the immobilizer system is still enabled.

The self-diagnosis device also detects problems in the immobilizer system circuits. (See 3-8 for an explanation of the self-diagnosis device.)

EAUS1942

Multi-function display



1. Tachometer
2. Speedometer
3. Odometer
4. Tripmeters/fuel reserve tripmeter
5. Clock
6. Fuel meter
7. “RESET” button
8. “SELECT” button

EWA12312

WARNING

Be sure to stop the vehicle before making any setting changes to the multi-function display. Changing settings while riding can distract the operator and increase the risk of an accident.

The multi-function display is equipped with the following:

- a speedometer (which shows the riding speed)
- a digital tachometer (which shows engine r/min)
- an odometer (which shows the total distance traveled)
- two tripmeters (which show the distance traveled since they were last set to zero)
- a fuel reserve tripmeter (which shows the distance traveled since the bottom segment of the fuel meter started flashing)
- a clock
- a fuel meter
- a self-diagnosis device

TIP

- Be sure to turn the key to “ON” before using the “SELECT” and “RESET” buttons.
- For the U.K. only: To switch the speedometer and odometer/tripmeter displays between kilometers and miles, push the “SELECT” and “RESET” buttons together, then while holding the

INSTRUMENT AND CONTROL FUNCTIONS

buttons, turn the key to “ON”. When the digits start flashing, push the “SELECT” button to change between kilometers and miles.

ECA10031

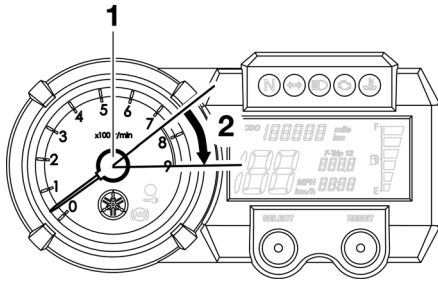
NOTICE

Do not operate the engine in the tachometer red zone.

Red zone: 7500 r/min and above

When the fuel amount in the fuel tank decreases to XT660Z 6.7 L (1.76 US gal, 1.46 Imp.gal) - XT660ZA 5.8 L (1.53 US gal, 1.28 Imp.gal), the bottom segment of the fuel meter starts flashing, and the tripmeter display automatically changes to the fuel reserve tripmeter mode “F-TRIP” and starts counting the distance traveled from that point. In that case, pushing the “SELECT” button switches the display between the various tripmeter modes in the following order:

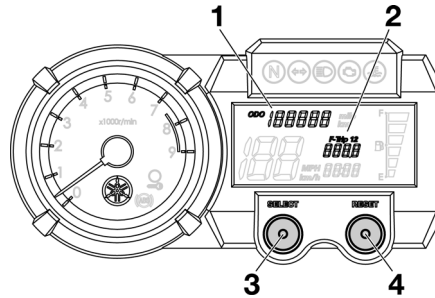
Tachometer



1. Tachometer
2. Tachometer red zone

The tachometer allows the rider to monitor the engine speed and keep it within the ideal power range. When the key is turned to “ON”, the tachometer needle sweeps once across the r/min range and then returns to zero r/min in order to test the electrical circuit.

Tripmeter and tachometer modes



1. Odometer
2. Tripmeters/fuel reserve tripmeter
3. “SELECT” button
4. “RESET” button

Pushing the “SELECT” button switches the display between the tripmeter modes “TRIP 1” and “TRIP 2” in the following order:

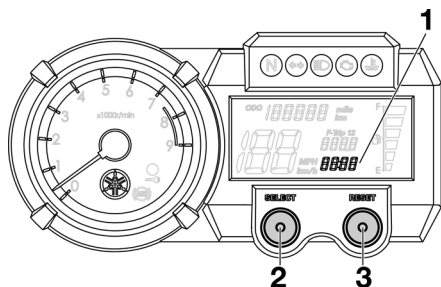
TRIP 1 → TRIP 2 → TRIP 1

F-TRIP → TRIP 1 → TRIP 2 → F-TRIP

To reset a tripmeter, select it by pushing the “SELECT” button, and then push the “RESET” button for at least four seconds. If you do not reset the fuel reserve tripmeter manually, it resets itself automatically and the display returns to the prior mode after refueling and traveling 5 km (3 mi).

INSTRUMENT AND CONTROL FUNCTIONS

Clock mode



1. Clock
2. “SELECT” button
3. “RESET” button

TIP

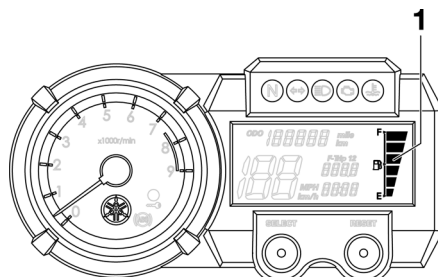
The clock always shows the time regardless of the main switch position.

To set the clock:

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

5. Push the “SELECT” button and then release it to start the clock.

Fuel meter



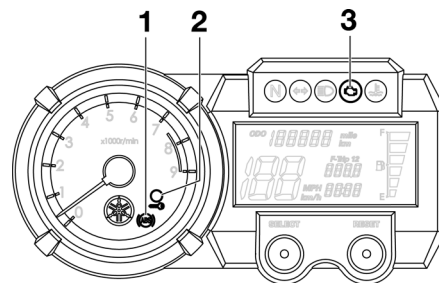
1. Fuel meter



With the key in the “ON” position, the fuel meter indicates the amount of fuel in the fuel tank. When the key is turned to “ON”, all of the display segments of the fuel meter appear one after the other and then disappear in order to test the electrical circuit. The display segments of the fuel meter disappear towards “E” (Empty) as the fuel level decreases. When only one segment is left near “E” (Empty), refuel as soon as possible.

TIP

This fuel meter is equipped with a self-diagnosis system. If the electrical circuit is defective, all the segments start flashing. If this occurs, have a Yamaha dealer check the electrical circuit.

Self-diagnosis devices



1. Anti-lock Brake System (ABS) warning light “”
2. Immobilizer system indicator light
3. Engine trouble warning light “”

This model is equipped with a self-diagnosis device for various electrical circuits.

If any engine electrical circuits are defective, the engine trouble warning light starts flashing. If this occurs, have a Yamaha dealer check the vehicle.

(for ABS models)

If any of the ABS electrical circuits are defective, the ABS warning light will come on. If this occurs, have a Yamaha dealer check the vehicle.

This model is also equipped with a self-diagnosis device for the immobilizer system.

If any of the immobilizer system circuits are defective, the immobilizer system indicator light starts flashing. If this occurs, have a Yamaha dealer check the vehicle.

TIP

If the indicator light slowly flashes five times, and then quickly flashes two times repeatedly, this error could be caused by transponder interference. If this occurs, try the following.

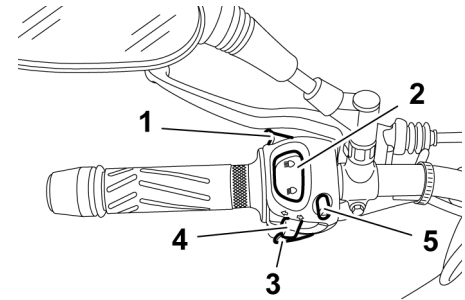
1. Use the code re-registering key to start the engine.
2. If the engine starts, turn it off, and try starting the engine with the standard keys.
3. If one or both of the standard keys do not start the engine, take the vehicle, the code re-registering key and both standard keys to a Yamaha dealer and have the standard keys re-registered.

Anti-theft alarm (optional)

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

Handlebar switches

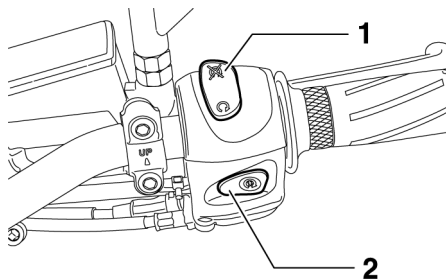
Left






1. Pass switch “≡〇”
2. Dimmer switch “≡〇 / 〇”
3. Horn switch “🔔”
4. Turn signal switch “↔ / ↔”
5. Hazard switch “△”

INSTRUMENT AND CONTROL FUNCTIONS

Right



1. Engine stop switch “ / ”
2. Start switch “”



EAU12350

Pass switch “ ”

Press this switch to flash the headlight.

EAU12400

Dimmer switch “ / ”

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

EAU12500



Horn switch “ ”

Press this switch to sound the horn.

EAU12460


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.

EAU12733

Hazard switch “ ”

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

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


ECA10061


NOTICE

Do not use the hazard lights for an extended length of time with the engine not running, otherwise the battery may discharge.

EAU12660

Engine stop switch “ / ”

Set this switch to “ ” before starting the engine. Set this switch to

“ ” to stop the engine in case of an emergency, such as when the vehicle overturns or when the throttle cable is stuck.

EAU12711

Start switch “ ”

Push this switch to crank the engine with the starter. See page 5-1 for starting instructions prior to starting the engine.

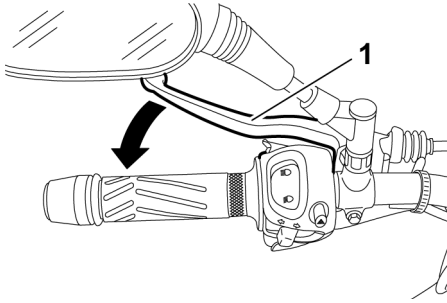
EAU44710

The engine trouble warning light and ABS warning light (ABS model only) will come on when the key is turned to “ON” and the start switch is pushed, but this does not indicate a malfunction.

INSTRUMENT AND CONTROL FUNCTIONS

EAU12820

Clutch lever



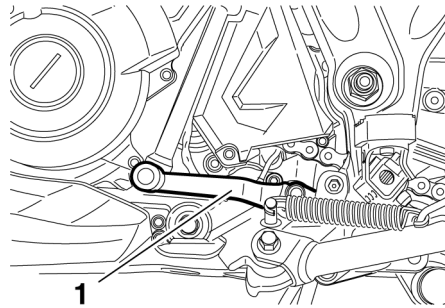
1. Clutch lever

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 3-20).

EAU12871

Shift pedal

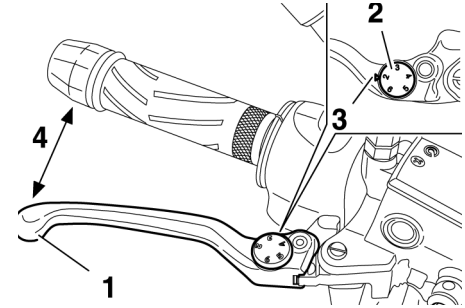


1. Shift pedal

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

EAU26823

Brake lever



1. Brake lever
2. Position adjusting dial
3. Arrow mark
4. Distance between brake lever and handlebar grip

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

The brake lever is equipped with a brake lever position adjusting dial. To adjust the distance between the brake lever and the handlebar grip, turn the adjusting dial while holding the lever pushed away from the handlebar grip. Make sure that the appropriate setting on the adjusting dial is

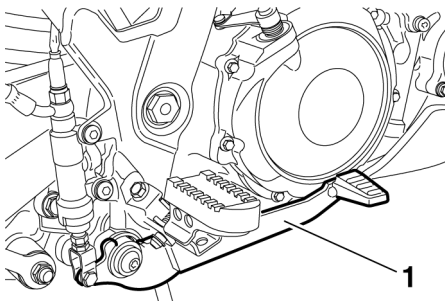
INSTRUMENT AND CONTROL FUNCTIONS

aligned with the “△” mark on the brake lever.

EAU12941

EAU26794

Brake pedal



1. Brake pedal

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

ABS (for ABS models)

The Yamaha ABS (Anti-lock Brake System) features a dual electronic control system, which acts on the front and rear brakes independently. The ABS is monitored by an ECU, which will have recourse to manual braking if a malfunction occurs.

EWA10090

! WARNING

- The ABS performs best on long braking distances.
- On certain (rough or gravel) roads, the braking distance may be longer with than without the ABS. Therefore, always keep a sufficient distance to the vehicle ahead to match the riding speed.

TIP

- When the ABS is activated, the brakes are operated in the usual way. A pulsating action may be felt at the brake lever or brake pedal, but this does not indicate a malfunction.

INSTRUMENT AND CONTROL FUNCTIONS

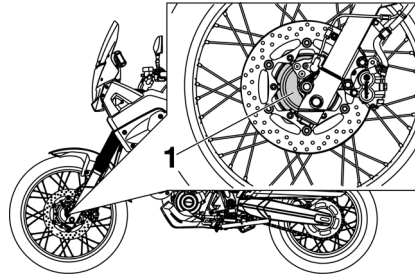
EAU13074

- This ABS has a test mode which allows the owner to experience the pulsating at the brake lever or brake pedal when the ABS is operating. However, special tools are required, so please consult your Yamaha dealer when performing this test.

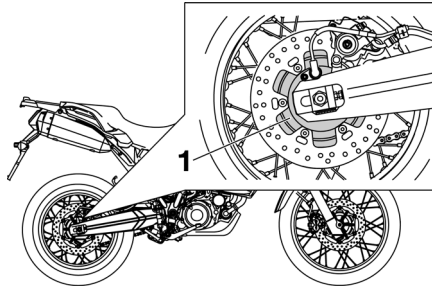
ECA16120

NOTICE

Keep any type of magnets (including magnetic pick-up tools, magnetic screwdrivers, etc.) away from the front and rear wheel hubs, otherwise the magnetic rotors equipped in the wheel hubs may be damaged, resulting in improper performance of the ABS system.

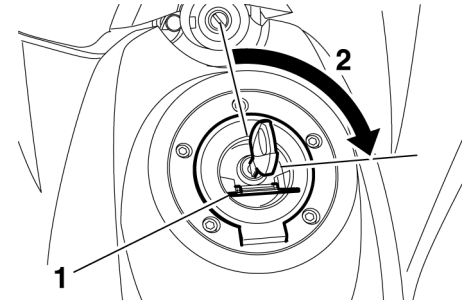


1. Front wheel hub



1. Rear wheel hub

Fuel tank cap



1. Lock cover
2. Open

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.

INSTRUMENT AND CONTROL FUNCTIONS

TIP

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.

EWA11091

WARNING

Make sure that the fuel tank cap is properly closed after filling fuel. Leaking fuel is a fire hazard.

Fuel

Make sure there is sufficient gasoline in the tank.

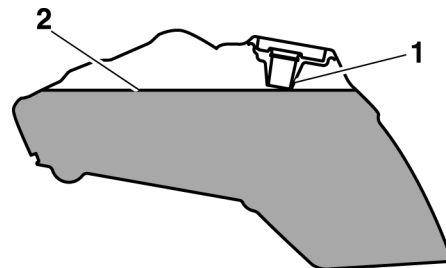
EAU13212

EWA10881

WARNING

Gasoline and gasoline vapors are extremely flammable. To avoid fires and explosions and to reduce the risk of injury when refueling, follow these instructions.

1. Before refueling, turn off the engine and be sure that no one is sitting on the vehicle. Never refuel while smoking, or while in the vicinity of sparks, open flames, or other sources of ignition such as the pilot lights of water heaters and clothes dryers.
2. Do not overfill the fuel tank. Stop filling when the fuel reaches the bottom of the filler tube. Because fuel expands when it heats up, heat from the engine or the sun can cause fuel to spill out of the fuel tank.



1. Fuel tank filler tube
2. Maximum fuel level

3. Wipe up any spilled fuel immediately. **NOTICE: Immediately wipe off spilled fuel with a clean, dry, soft cloth, since fuel may deteriorate painted surfaces or plastic parts.** [ECA10071]
4. Be sure to securely close the fuel tank cap.

EWA15151

WARNING

Gasoline is poisonous and can cause injury or death. Handle gasoline with care. Never siphon gasoline by mouth. If you should swallow some gasoline or inhale a lot of gasoline

INSTRUMENT AND CONTROL FUNCTIONS

EAUB1300

vapor, or get some gasoline in your eyes, see your doctor immediately. If gasoline spills on your skin, wash with soap and water. If gasoline spills on your clothing, change your clothes.

EAU49460

Recommended fuel:

PREMIUM UNLEADED
GASOLINE ONLY

Fuel tank capacity:

23.0 L (6.08 US gal, 5.06 Imp.gal)

Fuel reserve amount:

XT660Z 6.7 L (1.76 US gal,
1.46 Imp.gal)

XT660ZA 5.8 L (1.53 US gal,
1.28 Imp.gal)

ECA11400

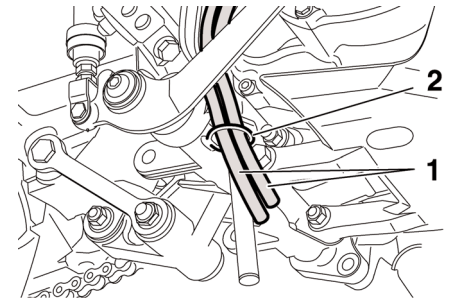
NOTICE

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

Your Yamaha engine has been designed to use premium unleaded gasoli-

ne with a research octane number of 95 or higher. If knocking (or pinging) occurs, use a gasoline of a different brand. Use of unleaded fuel will extend spark plug life and reduce maintenance costs.

Fuel tank breather/overflow hose



1. Fuel tank breather/overflow hose
2. Hose clamp

Before operating the motorcycle:

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

INSTRUMENT AND CONTROL FUNCTIONS

EAU13445

ECA10701

EAU13861

Catalytic converters

This vehicle is equipped with catalytic converters in the exhaust system.

EWA10862

WARNING

3 The exhaust system is hot after operation. To prevent a fire hazard or burns:

- Do not park the vehicle near possible fire hazards such as grass or other materials that easily burn.
- Park the vehicle in a place where pedestrians or children are not likely to touch the hot exhaust system.
- Make sure that the exhaust system has cooled down before doing any maintenance work.
- Do not allow the engine to idle more than a few minutes. Long idling can cause a build-up of heat.

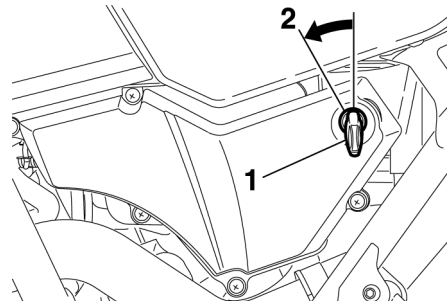
NOTICE

Use only unleaded gasoline. The use of leaded gasoline will cause unrepairable damage to the catalytic converter.

Seat

To remove the seat

1. Insert the key into the seat lock, turn it counterclockwise, and then pull the seat off.



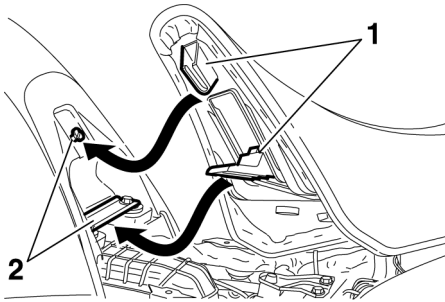
1. Seat lock
2. Unlock

To install the seat

Insert the projections on the front of the seat into the seat holders, push the rear of the seat down to lock it in place, and then remove the key.

INSTRUMENT AND CONTROL FUNCTIONS

EAUS1920



- 1. Projection
- 2. Seat holder

TIP
Make sure that the seat is properly secured before riding.

Adjusting the front fork

For XT660Z:

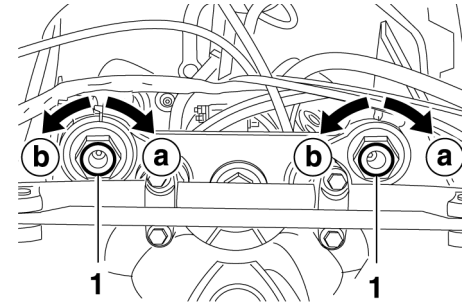
This front fork is equipped with spring preload adjusting bolts.

EWA10180



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

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



- 1. Spring preload adjusting bolt

TIP
Use the 10 mm hexagon wrench included in the owner's tool kit to turn the adjusting bolts.

Spring preload setting:

Minimum (soft):

0 complete turn(s) in direction (b)*

Standard:

22 complete turn(s) in direction (b)*

Maximum (hard):

27 complete turn(s) in direction (b)*

* With the adjusting bolt fully turned in direction (a)

INSTRUMENT AND CONTROL FUNCTIONS

For XT660ZA:

This front fork cannot be adjusted.

Adjusting the shock absorber assembly

This shock absorber assembly is equipped with a spring preload adjusting ring.

EAUB1462

ECA10101

NOTICE

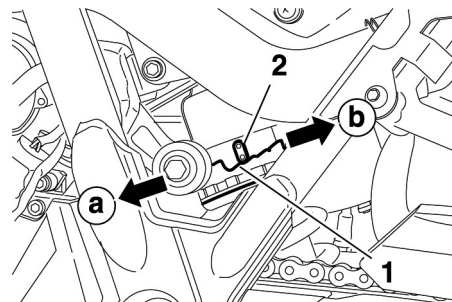
To avoid damaging the mechanism, do not attempt to turn beyond the maximum or minimum settings.

Adjust the spring preload as follows.

To increase the spring preload and thereby harden the suspension, turn the adjusting ring in direction (a). To decrease the spring preload and thereby soften the suspension, turn the adjusting ring in direction (b).

TIP

Align the appropriate notch in the adjusting ring with the position indicator on the shock absorber.



1. Spring preload adjusting ring
2. Position indicator

EWAB0020

WARNING

Never adjust the spring preload until the exhaust system has cooled down.

Spring preload setting:

Minimum (soft):

1

Standard:

2

Maximum (hard):

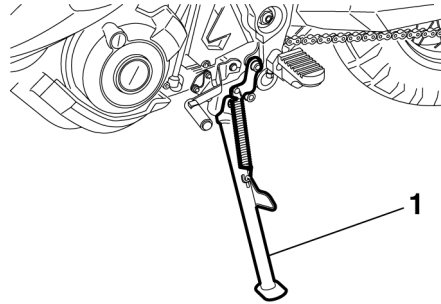
9

⚠ WARNING

This shock absorber assembly contains highly pressurized nitrogen gas. Read and understand the following information before handling the shock absorber assembly.

- Do not tamper with or attempt to open the cylinder assembly.
- Do not subject the shock absorber assembly to an open flame or other high heat source. This may cause the unit to explode due to excessive gas pressure.
- Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.
- Do not dispose of a damaged or worn-out shock absorber assembly yourself. Take the shock absorber assembly to a Yamaha dealer for any service.

Sidestand



1. Sidestand

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

TIP

The built-in sidestand switch is part of the ignition circuit cut-off system, which cuts the ignition in certain situations. (See page 3-20 for an explanation of the ignition circuit cut-off system.)

⚠ WARNING

The vehicle 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.

INSTRUMENT AND CONTROL FUNCTIONS

EAU15314

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.

TIP

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

INSTRUMENT AND CONTROL FUNCTIONS

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 on.
4. Shift the transmission into the neutral position.
5. Push the start switch.

Does the engine start?

YES NO

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

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



WARNING

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

The neutral switch may not be working correctly.
The motorcycle should not be ridden until checked by a Yamaha dealer.

The sidestand switch may not be working correctly.
The motorcycle should not be ridden until checked by a Yamaha dealer.

The clutch switch may not be working correctly.
The motorcycle should not be ridden until checked by a Yamaha dealer.

FOR YOUR SAFETY – PRE-OPERATION CHECKS

EAU15596

Inspect your vehicle each time you use it to make sure the vehicle is in safe operating condition. Always follow the inspection and maintenance procedures and schedules described in the Owner's Manual.

EWA11151

WARNING

Failure to inspect or maintain the vehicle properly increases the possibility of an accident or equipment damage. Do not operate the vehicle if you find any problem. If a problem cannot be corrected by the procedures provided in this manual, have the vehicle inspected by a Yamaha dealer.

Before using this vehicle, check the following points:

4

| ITEM | CHECKS | PAGE |
|-------------|---|------|
| Fuel | <ul style="list-style-type: none">• Check fuel level in fuel tank.• Refuel if necessary.• Check fuel line for leakage.• Check the fuel tank breather/overflow hose for obstructions, cracks or damage, and check the hose connection. | 3-14 |
| Engine oil | <ul style="list-style-type: none">• Check oil level in oil tank.• If necessary, add recommended oil to specified level.• Check vehicle for oil leakage. | 6-11 |
| Coolant | <ul style="list-style-type: none">• Check coolant level in reservoir.• If necessary, add recommended coolant to specified level.• Check cooling system for leakage. | 6-14 |
| Front brake | <ul style="list-style-type: none">• Check operation.• If soft or spongy, have Yamaha dealer bleed hydraulic system.• Check lever free play.• Adjust if necessary.• Check brake pads for wear.• Replace if necessary.• Check fluid level in reservoir.• If necessary, add recommended brake fluid to specified level.• Check hydraulic system for leakage. | 6-21 |

FOR YOUR SAFETY – PRE-OPERATION CHECKS

| ITEM | CHECKS | PAGE |
|--|---|------------|
| Rear brake | <ul style="list-style-type: none"> • Check operation. • If soft or spongy, have Yamaha dealer bleed hydraulic system. • Check brake pads for wear. • Replace if necessary. • Check fluid level in reservoir. • If necessary, add recommended brake fluid to specified level. • Check hydraulic system for leakage. | 6-21 |
| Clutch | <ul style="list-style-type: none"> • Check operation. • Lubricate cable if necessary. • Check lever free play. • Adjust if necessary. | 6-20 |
| Throttle grip | <ul style="list-style-type: none"> • Make sure that operation is smooth. • Check cable free play. • If necessary, have Yamaha dealer adjust cable free play and lubricate cable and grip housing. | 6-17, 6-25 |
| Control cables | <ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate if necessary. | 6-25 |
| Drive chain | <ul style="list-style-type: none"> • Check chain slack. • Adjust if necessary. • Check chain condition. • Lubricate if necessary. | 6-23, 6-24 |
| Wheels and tires | <ul style="list-style-type: none"> • Check for damage. • Check tire condition and tread depth. • Check air pressure. • Correct if necessary. | 6-17, 6-19 |
| Brake pedal | <ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate pedal pivoting point if necessary. | 6-26 |
| Brake and clutch levers | <ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate lever pivoting points if necessary. | 6-25 |
| Sidestand | <ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate pivot if necessary. | 6-26 |
| Chassis fasteners | <ul style="list-style-type: none"> • Make sure that all nuts, bolts and screws are properly tightened. • Tighten if necessary. | — |
| Instruments, lights, signals and switches | <ul style="list-style-type: none"> • Check operation. • Correct if necessary. | — |

FOR YOUR SAFETY – PRE-OPERATION CHECKS

| ITEM | CHECKS | PAGE |
|-------------------------|---|------|
| Sidestand switch | <ul style="list-style-type: none">• Check operation of ignition circuit cut-off system.• If system is not working correctly, have Yamaha dealer check vehicle. | 3-19 |

OPERATION AND IMPORTANT RIDING POINTS

EAU15951

Read the Owner's Manual carefully to become familiar with all controls. If there is a control or function you do not understand, ask your Yamaha dealer.

EWA10271

WARNING

Failure to familiarize yourself with the controls can lead to loss of control, which could cause an accident or injury.

EAU45310

TIP

This model is equipped with a lean angle sensor to stop the engine in case of a turnover. To start the engine after a turnover, be sure to turn the main switch to "OFF" and then to "ON". Failing to do so will prevent the engine from starting even though the engine will crank when pushing the start switch.

EAUS1950

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.

EWA10290

WARNING

- **Before starting the engine, check the function of the ignition circuit cut-off system according to the procedure described on page 3-20.**
- **Never ride with the sidestand down.**

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

OPERATION AND IMPORTANT RIDING POINTS

ECAS0040

NOTICE

The following warning lights and indicator lights should come on for a few seconds, then go off.

- Neutral indicator light
- Turn signal indicator light
- High beam indicator light
- Engine trouble warning light
- Coolant temperature warning light
- Immobilizer system indicator light
- ABS warning light (for ABS model)

If a warning or indicator light does not go off, see page 3-4 for the corresponding warning and indicator light circuit check.

2. Shift the transmission into the neutral position.

TIP

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. Start the engine by pushing the start switch. **NOTICE:** For maximum engine life, never accelerate hard when the engine is cold! [ECA11041]

TIP

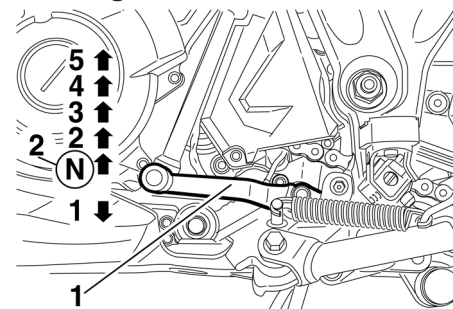
If the engine fails to start, release the start switch, wait a few seconds, and then try again. Each starting attempt should be as short as possible to preserve the battery. Do not crank the engine more than 10 seconds on any one attempt.

TIP

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

EAU16671

Shifting



1. Shift pedal
2. Neutral position

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.

TIP

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.

OPERATION AND IMPORTANT RIDING POINTS

ECA10260

EAU16810

EAU16841

NOTICE

- 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.

Tips for reducing fuel consumption

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

- 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).

Engine break-in

There is never a more important period in the life of your engine than the period between 0 and 1600 km (1000 mi). 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 1600 km (1000 mi). 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.

EAU17101

0–1000 km (0–600 mi)

- Avoid prolonged operation above 4500 r/min. **NOTICE: After 1000 km (600 mi) of operation, the engine oil must be changed, and the oil filter element replaced.** [ECA11151]

1000–1600 km (600–1000 mi)

- Avoid prolonged operation above 6000 r/min.

OPERATION AND IMPORTANT RIDING POINTS

1600 km (1000 mi) and beyond

- The vehicle can now be operated normally.

ECA10310

NOTICE

- 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.
-

5

EAU17213

Parking

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

EWA10311

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 and be burned.
 - Do not park on a slope or on soft ground, otherwise the vehicle may overturn, increasing the risk of a fuel leak and fire.
 - Do not park near grass or other flammable materials which might catch fire.
-

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU17243

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

! WARNING

Failure to properly maintain the vehicle or performing maintenance activities incorrectly may increase your risk of injury or death during service or while using the vehicle. If you are not familiar with vehicle service, have a Yamaha dealer perform service.

EWA10321

EWA15121

! WARNING

Turn off the engine when performing maintenance unless otherwise specified.

- A running engine has moving parts that can catch on body parts or clothing and electrical parts that can cause shocks or fires.
- Running the engine while servicing can lead to eye injury, burns, fire, or carbon monoxide poisoning – possibly leading to death. See page 1-1 for more information about carbon monoxide.

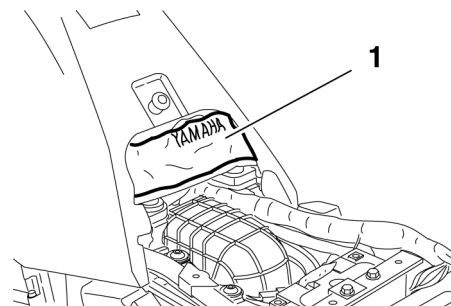
EWA15460

! WARNING

Brake discs, calipers, drums, and linings can become very hot during use. To avoid possible burns, let brake components cool before touching them.

EAU17381

Owner's tool kit



1. Owner's tool kit

The owner's tool kit is located under the seat. (See page 3-16).

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.

PERIODIC MAINTENANCE AND ADJUSTMENT

TIP

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

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU46861

TIP

- The annual checks must be performed every year, except if a kilometer-based maintenance, or for the UK, a mileage-based maintenance, is performed instead.
- From 50000 km (30000 mi), repeat the maintenance intervals starting from 10000 km (6000 mi).
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

EAU46910

Periodic maintenance chart for the emission control system

| NO. | ITEM | CHECK OR MAINTENANCE JOB | ODOMETER READING | | | | | ANNUAL CHECK |
|-----|------------------------------|--|---------------------|-----------------------|------------------------|------------------------|------------------------|--------------|
| | | | 1000 km (600 mi) | 10000 km (6000 mi) | 20000 km (12000 mi) | 30000 km (18000 mi) | 40000 km (24000 mi) | |
| 1 | * Fuel line | <ul style="list-style-type: none"> • Check fuel hoses for cracks or damage. | | √ | √ | √ | √ | √ |
| 2 | Spark plug | <ul style="list-style-type: none"> • Check condition. • Clean and regap. | | √ | | √ | | |
| | | <ul style="list-style-type: none"> • Replace. | | | √ | | √ | |
| 3 | * Valves | <ul style="list-style-type: none"> • Check valve clearance. • Adjust. | | | √ | | √ | |
| 4 | * Fuel injection | <ul style="list-style-type: none"> • Adjust engine idling speed. | √ | √ | √ | √ | √ | √ |
| 5 | * Mufflers and exhaust pipes | <ul style="list-style-type: none"> • Check the screw clamps for looseness. | √ | √ | √ | √ | √ | |
| 6 | * Air induction system | <ul style="list-style-type: none"> • Check the air cut-off valve, reed valve, and hose for damage. • Replace any damaged parts if necessary. | | √ | √ | √ | √ | √ |

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU1770C

General maintenance and lubrication chart

| NO. | ITEM | CHECK OR MAINTENANCE JOB | ODOMETER READING | | | | | ANNUAL CHECK |
|-----|---------------------------|--|----------------------------|-----------------------|------------------------|------------------------|------------------------|--------------|
| | | | 1000 km (600 mi) | 10000 km (6000 mi) | 20000 km (12000 mi) | 30000 km (18000 mi) | 40000 km (24000 mi) | |
| 1 | Air filter element | <ul style="list-style-type: none"> • Replace. | | | √ | | √ | |
| 2 | Clutch | <ul style="list-style-type: none"> • Check operation. • Adjust. | √ | √ | √ | √ | √ | |
| 3 | * Front brake | <ul style="list-style-type: none"> • Check operation, fluid level and vehicle for fluid leakage. | √ | √ | √ | √ | √ | √ |
| | | <ul style="list-style-type: none"> • Replace brake pads. | Whenever worn to the limit | | | | | |
| 4 | * Rear brake | <ul style="list-style-type: none"> • Check operation, fluid level and vehicle for fluid leakage. | √ | √ | √ | √ | √ | √ |
| | | <ul style="list-style-type: none"> • Replace brake pads. | Whenever worn to the limit | | | | | |
| 5 | * Brake hoses | <ul style="list-style-type: none"> • Check for cracks or damage. | | √ | √ | √ | √ | √ |
| | | <ul style="list-style-type: none"> • Replace. | Every 4 years | | | | | |
| 6 | * Wheels | <ul style="list-style-type: none"> • Check runout, spoke tightness and for damage. • Tighten spokes if necessary. | √ | √ | √ | √ | √ | |
| 7 | * Tires | <ul style="list-style-type: none"> • Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary. | | √ | √ | √ | √ | √ |
| 8 | * Wheel bearings | <ul style="list-style-type: none"> • Check bearing for looseness or damage. | | √ | √ | √ | √ | |

PERIODIC MAINTENANCE AND ADJUSTMENT

| NO. | ITEM | CHECK OR MAINTENANCE JOB | ODOMETER READING | | | | | ANNUAL CHECK |
|-----|---------------------------------|---|---|-----------------------|------------------------|------------------------|------------------------|--------------|
| | | | 1000 km (600 mi) | 10000 km (6000 mi) | 20000 km (12000 mi) | 30000 km (18000 mi) | 40000 km (24000 mi) | |
| 9 | * Swingarm | <ul style="list-style-type: none"> • Check operation and for excessive play. | | √ | √ | √ | √ | |
| | | <ul style="list-style-type: none"> • Lubricate with lithium-soap-based grease. | Every 50000 km (30000 mi) | | | | | |
| 10 | Drive chain | <ul style="list-style-type: none"> • Check chain slack, alignment and condition. • Adjust and lubricate chain with a special O-ring chain lubricant thoroughly. | Every 500 km (300 mi) and after washing the motorcycle, riding in the rain or riding in wet areas | | | | | |
| 11 | * Steering bearings | <ul style="list-style-type: none"> • Check bearing play and steering for roughness. | √ | √ | √ | √ | √ | |
| | | <ul style="list-style-type: none"> • Lubricate with lithium-soap-based grease. | Every 20000 km (12000 mi) | | | | | |
| 12 | * Chassis fasteners | <ul style="list-style-type: none"> • Make sure that all nuts, bolts and screws are properly tightened. | | √ | √ | √ | √ | √ |
| 13 | Brake lever pivot shaft | <ul style="list-style-type: none"> • Lubricate with silicone grease. | | √ | √ | √ | √ | √ |
| 14 | Brake pedal pivot shaft | <ul style="list-style-type: none"> • Lubricate with silicone grease. | | √ | √ | √ | √ | √ |
| 15 | Clutch lever pivot shaft | <ul style="list-style-type: none"> • Lubricate with lithium-soap-based grease. | | √ | √ | √ | √ | √ |
| 16 | Sidestand | <ul style="list-style-type: none"> • Check operation. • Lubricate with lithium-soap-based grease. | | √ | √ | √ | √ | √ |
| 17 | * Sidestand switch | <ul style="list-style-type: none"> • Check operation. | √ | √ | √ | √ | √ | √ |

PERIODIC MAINTENANCE AND ADJUSTMENT

| NO. | ITEM | CHECK OR MAINTENANCE JOB | ODOMETER READING | | | | | ANNUAL CHECK |
|------|---|---|---------------------|-----------------------|------------------------|------------------------|------------------------|--------------|
| | | | 1000 km (600 mi) | 10000 km (6000 mi) | 20000 km (12000 mi) | 30000 km (18000 mi) | 40000 km (24000 mi) | |
| 18 * | Front fork | <ul style="list-style-type: none"> Check operation and for oil leakage. | | √ | √ | √ | √ | |
| 19 * | Shock absorber assembly | <ul style="list-style-type: none"> Check operation and shock absorber for oil leakage. | | √ | √ | √ | √ | |
| 20 * | Rear suspension relay arm and connecting arm pivoting points | <ul style="list-style-type: none"> Check operation. | | √ | √ | √ | √ | |
| | | <ul style="list-style-type: none"> Lubricate with lithium-soap-based grease. | | | √ | | √ | |
| 21 | Engine oil | <ul style="list-style-type: none"> Change. Check oil level and vehicle for oil leakage. | √ | √ | √ | √ | √ | √ |
| 22 | Engine oil filter element | <ul style="list-style-type: none"> Replace. | √ | | √ | | √ | |
| 23 * | Cooling system | <ul style="list-style-type: none"> Check coolant level and vehicle for coolant leakage. | | √ | √ | √ | √ | √ |
| | | <ul style="list-style-type: none"> Change. | Every 3 years | | | | | |
| 24 * | Front and rear brake switches | <ul style="list-style-type: none"> Check operation. | √ | √ | √ | √ | √ | √ |
| 25 | Moving parts and cables | <ul style="list-style-type: none"> Lubricate. | | √ | √ | √ | √ | √ |
| 26 * | Throttle grip housing and cable | <ul style="list-style-type: none"> Check operation and free play. Adjust the throttle cable free play if necessary. Lubricate the throttle grip housing and cable. | | √ | √ | √ | √ | √ |

PERIODIC MAINTENANCE AND ADJUSTMENT

| NO. | ITEM | CHECK OR MAINTENANCE JOB | ODOMETER READING | | | | | ANNUAL CHECK |
|-----|--------------------------------|--|---------------------|-----------------------|------------------------|------------------------|------------------------|--------------|
| | | | 1000 km (600 mi) | 10000 km (6000 mi) | 20000 km (12000 mi) | 30000 km (18000 mi) | 40000 km (24000 mi) | |
| 27 | * Lights, signals and switches | <ul style="list-style-type: none"> • Check operation. • Adjust headlight beam. | √ | √ | √ | √ | √ | √ |

EAUM1890

TIP

- Replace the air filter element more frequently 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 change the brake fluid.
 - Replace the brake hoses every four years and if cracked or damaged.

PERIODIC MAINTENANCE AND ADJUSTMENT

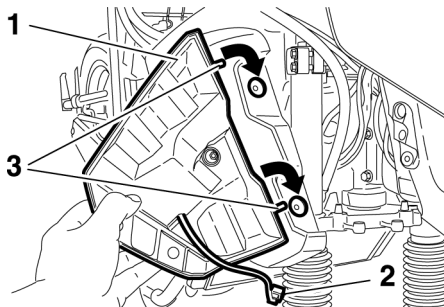
Removing and installing panels

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

EAU18771

To install the panel

Place the panel in the original position, and then install the bolts.



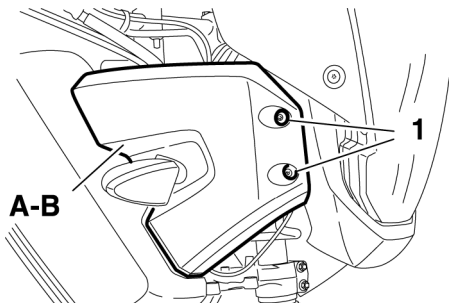
1. Panel
2. Turn signal light coupler
3. Pin

EAUB1541

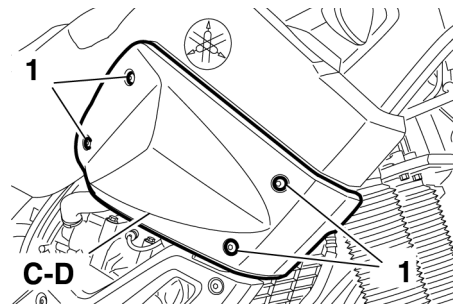
Panels A and B

To remove one of the panels

Remove the bolts, and then pull the panel off at the areas shown.



1. Panel mounting bolt
- A. Right panel
B. Left panel



1. Panel mounting bolt
- C. Right panel
D. Left panel

To install the panel

Place the panel in the original position as shown, and then install the bolts.

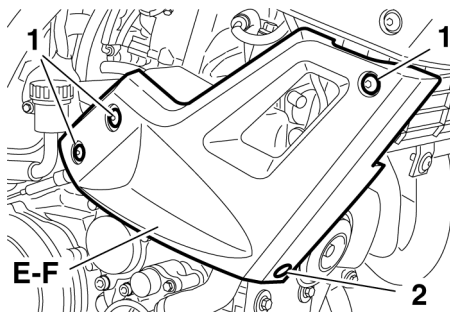
Panels E and F

To remove one of the panels

1. Remove the bolts.
2. Remove the quick fastener and then pull the panel off at the areas shown.

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU19604



- 1. Panel mountign bolt
- 2. Quick fastener
- E. Right panel
- F. Left panel

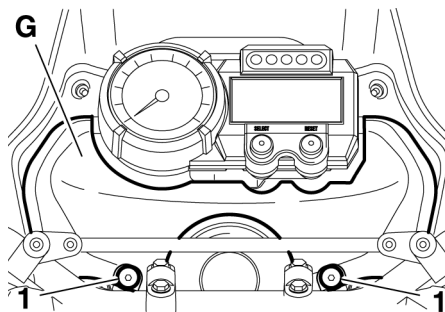
To install the panel

1. Place the panel in the original position.
2. Install the quick fastener and the bolts.

Panel G

To remove the panel

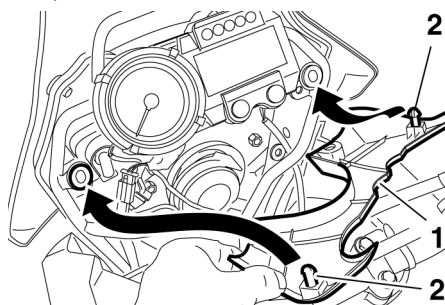
Remove the bolts, and then pull the panel off at the areas shown.



- 1. Panel mountign bolt
- G. Panel

To install the panel

Place the panel in the original position, and then install the bolts.



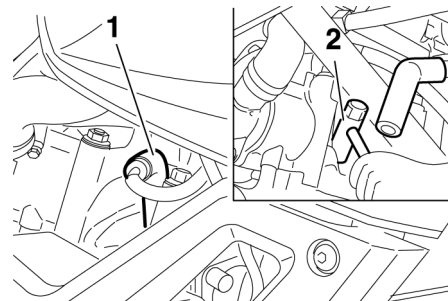
- 1. Panel
- 2. Pin

Checking the spark plug

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

To remove the spark plug

1. Remove the spark plug cap.



- 1. Spark plug cap
- 2. Spark plug wrench

PERIODIC MAINTENANCE AND ADJUSTMENT

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

To check the spark plug

1. Check that the porcelain insulator around the center electrode of the spark plug is a medium-to-light tan (the ideal color when the vehicle is ridden normally).

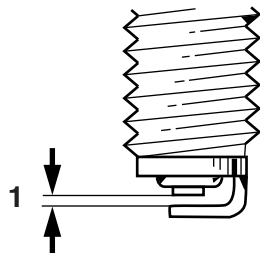
TIP

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

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

Specified spark plug:
NGK/CR7E

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



ZALUM0037

1. Spark plug gap

Spark plug gap:
0.7–0.8 mm (0.028–0.031 in)

To install the spark plug

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

Tightening torque:

Spark plug:
12.5 Nm (1.25 m·kgf, 9.0 ft·lbf)

TIP

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.

3. Install the spark plug cap.

PERIODIC MAINTENANCE AND ADJUSTMENT

EAUB1561

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 vehicle on a level surface and hold it in an upright position.

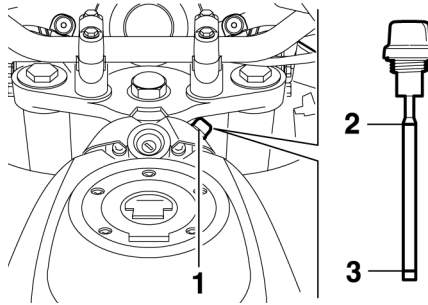
TIP

Make sure that the vehicle 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 10–15 minutes, and then turn it off.
3. Remove the oil filler cap, wipe the dipstick clean, insert it back into the oil filler hole (without screwing it in), and then remove it again to check the oil level.

TIP

- The engine oil tank is located inside of the frame.
- The engine oil should be between the minimum and maximum level marks.



1. Engine oil filler cap
2. Maximum level mark
3. Minimum level mark

EWA10361

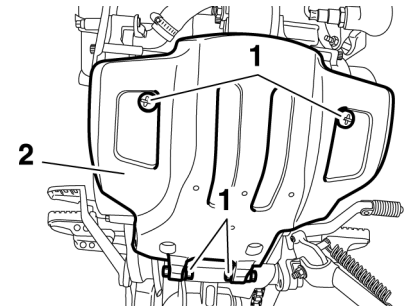
⚠ WARNING

Never remove the engine oil tank cap after high-speed operation, otherwise hot engine oil could spout out and cause damage or injury. Always let the engine oil cool down sufficiently before removing the oil tank cap.

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. **NOTICE: Do not operate the vehicle until you know that the engine oil level is sufficient.** [ECA10011]
5. Install the oil filler cap.

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

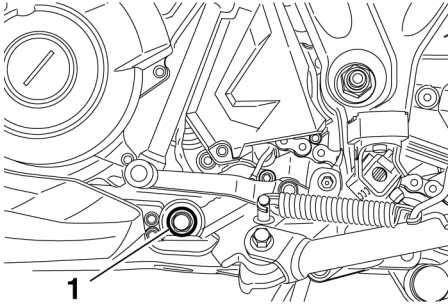
1. Start the engine, warm it up for several minutes, and then turn it off.
2. Remove the engine guard by removing the screws.



1. Screw
2. Engine guard

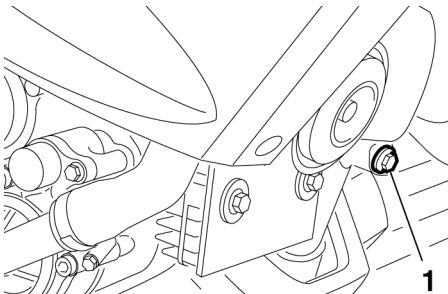
PERIODIC MAINTENANCE AND ADJUSTMENT

- Place an oil pan under the engine to collect the used oil.
- Remove the engine oil filler cap and the drain bolt to drain the oil from the crankcase.



1. Engine oil drain bolt (crankcase)

- Remove the drain bolt to drain the oil from the oil tank.



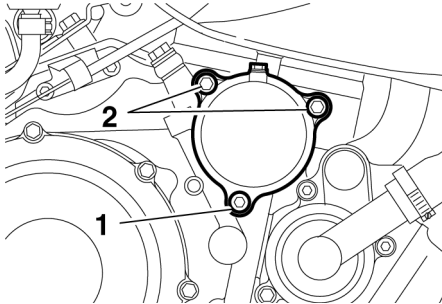
1. Engine oil drain bolt (oil tank)

- Remove the oil filter element drain bolt to drain the oil from the oil filter element.

TIP

Skip steps 7–9 if the oil filter element is not being replaced.

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

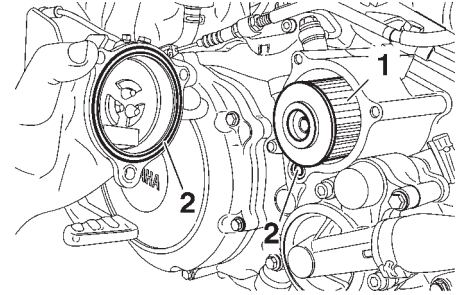


1. Oil filter element drain bolt
2. Oil filter element cover bolt

- Remove and replace the oil filter element and O-rings.

TIP

Make sure that the O-rings are properly seated.



1. Oil filter element
2. O-ring

- Install the oil filter element cover by installing the bolts.
- Install the oil filter element drain bolt.
- Tighten the oil filter element cover bolts and the oil filter element drain bolt to their specified torques.

Tightening torques:

Oil filter element cover bolt:
10 Nm (1.0 m·kgf, 7.2 ft·lbf)
Oil filter element drain bolt:
10 Nm (1.0 m·kgf, 7.2 ft·lbf)

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

PERIODIC MAINTENANCE AND ADJUSTMENT

Tightening torques:

Engine oil drain bolt (crankcase):

30 Nm (3.0 m·kgf, 22 ft·lbf)

Engine oil drain bolt (oil tank):

18 Nm (1.8 m·kgf, 12.9 ft·lbf)

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

ECAM1061

NOTICE

The engine oil tank must be filled in 2 steps. First, fill the engine oil tank with 1.90 L (2.0 US qt, 1.67 Imp.qt) of the recommended engine oil. Then, start the engine, race it 5 or 6 times, turn it off, and then add the remainder of the engine oil.

Recommended engine oil:

See page 8-1

Without oil filter element replacement:

2.50 L (2.64 US qt, 2.20 Imp.qt)

With oil filter element replacement:

2.60 L (2.75 US qt, 2.29 Imp.qt)

TIP

Be sure to wipe off spilled oil on any parts after the engine and exhaust system have cooled down.

ECA11620

NOTICE

- In order to prevent clutch slip-page (since the engine oil also lubricates the clutch), do not mix any chemical additives. Do not use oils with a diesel specification of “CD” or oils of a higher quality than specified. In addition, do not use oils labeled “ENERGY CONSERVING II” or higher.
 - Make sure that no foreign material enters the crankcase.
14. 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.
 15. Turn the engine off, and then check the oil level and correct it if necessary.
 16. Install the engine guard by installing the screws.

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU20070

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.

EAU20253

To check the coolant level

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

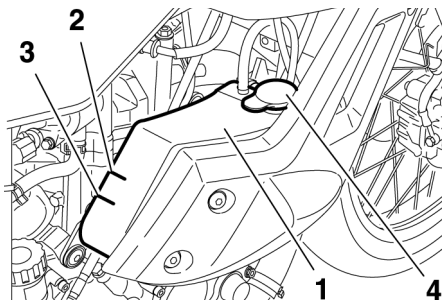
TIP

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

2. Check the coolant level in the coolant reservoir.

TIP

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



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

3. If the coolant is at or below the minimum level mark, remove panel E (See page 6-8)., remove the reservoir cap, add coolant to the maximum level mark, and then install the reservoir cap and the panel. **WARNING! Remove only the coolant reservoir cap. Never attempt to remove the radiator cap when the engine is hot.** [EWA15161]

NOTICE: 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 cooling system will not be protected against frost and corrosion. If water has been added to the coolant, have a Yamaha dealer check the anti-freeze content of the coolant as soon as possible, otherwise the effectiveness of the coolant will be reduced. [ECA10472]

Coolant reservoir capacity (up to the maximum level mark):
0.50 L (0.53 US qt, 0.44 Imp.qt)

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU33031

Changing the coolant

The coolant must be changed at the intervals specified in the periodic maintenance and lubrication chart. Have a Yamaha dealer change the coolant. **WARNING! Never attempt to remove the radiator cap when the engine is hot.** [EWA10381]

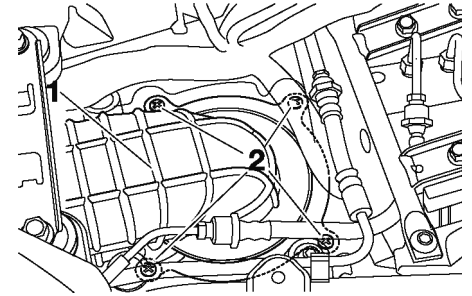
EAUB1481

Replacing the air filter element and cleaning the check hose

The air filter element should be replaced at the intervals specified in the periodic maintenance and lubrication chart. Replace the air filter element more frequently if you are riding in unusually wet or dusty areas. In addition, the air filter check hose must be frequently checked and cleaned if necessary.

To replace the air filter element

1. Remove the seat. (See page 3-16).
2. Remove the air filter case cover by removing the screws.



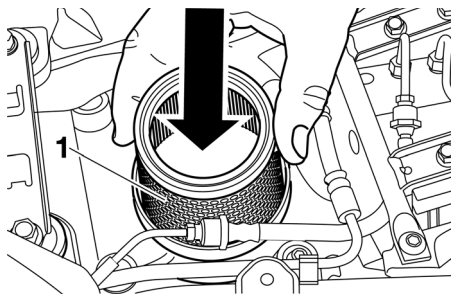
1. Air filter case cover
2. Screw

3. Pull the air filter element out.
4. Insert a new air filter element into the air filter case as shown. **NOTICE: 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.**

[ECA10481]

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU44734



1. Air filter element

1. Check the hose on the side of the air filter case for accumulated dirt or water.
2. If dirt or water is visible, remove the hose, clean it, and then install it.

Checking the engine idling speed

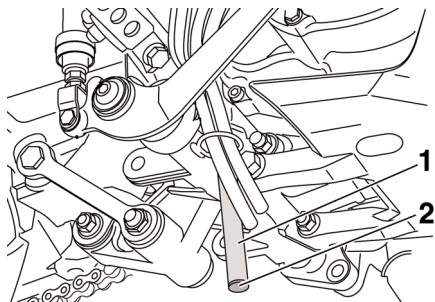
Check the engine idling speed and, if necessary, have it corrected by a Yamaha dealer.

Engine idling speed:
1400–1600 r/min

5. Install the air filter case cover by installing the screws.
6. Install the seat.

6

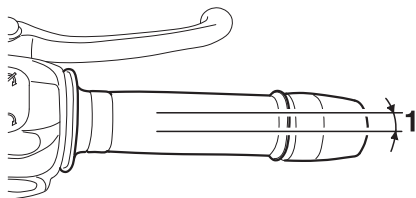
To clean the air filter check hose



1. Air filter check hose
2. Check hose cap

EAU21383

Checking the throttle cable free play



1. Throttle grip free play

The throttle cable free play should measure 3.0–5.0 mm (0.12–0.20 in) at the inner edge of the throttle grip. Periodically check the throttle cable free play and, if necessary, have a Yamaha dealer adjust it.

EAU21401

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.

EAU21642

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.

EWA10503

WARNING

- Operation of this vehicle with improper tire pressure may cause severe injury or death from loss of control.
- 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.

PERIODIC MAINTENANCE AND ADJUSTMENT

Tire air pressure (measured on cold tires):

0–90 kg (0–198 lb):

Front:

210 kPa (2.10 kgf/cm²,
30 psi, 2.10 bar)

Rear:

230 kPa (2.30 kgf/cm²,
33 psi, 2.30 bar)

XT660Z 90–190 kg (198–419 lb)

XT660ZA 90–188 kg (198–414 lb):

Front:

230 kPa (2.30 kgf/cm²,
33 psi, 2.30 bar)

Rear:

250 kPa (2.50 kgf/cm²,
36 psi, 2.50 bar)

Off-road riding:

Front:

200 kPa (2.00 kgf/cm²,
29 psi, 2.00 bar)

Rear:

200 kPa (2.00 kgf/cm²,
29 psi, 2.00 bar)

High-speed riding:

Front:

210 kPa (2.10 kgf/cm²,
30 psi, 2.10 bar)

Rear:

230 kPa (2.30 kgf/cm²,
33 psi, 2.30 bar)

Maximum load*:

XT660Z: 190 kg (419 lb)

XT660ZA: 188 kg (414 lb)

* Total weight of rider, passenger, cargo and accessories

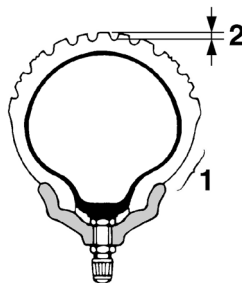
EWA10511



WARNING

Never overload your vehicle. Operation of an overloaded vehicle could cause an accident.

Tire inspection



1. Tire sidewall
2. Tire tread depth

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 (0.06 in)

TIP

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

Tire information

This motorcycle is equipped with tube tires.

EWA10461



WARNING

The front and rear tires should be of the same make and design, otherwise the handling characteristics of the vehicle may be different, which could lead to an accident.

After extensive tests, only the tires listed below have been approved for this model by Yamaha Motor Co., Ltd.

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU21942

EWA10610

Front tire:

Size:

XT660Z 90/90-21M/C 54S

XT660Z 90/90-21M/C 54T

XT660ZA 90/90-21M/C 54S

Manufacturer/model:

XT660Z METZELER/ TOURANCE

XT660Z MICHELIN/SIRAC

XT660ZA PIRELLI/SCORPION

TRAIL

Rear tire:

Size:

XT660Z 130/80-17M/C 65S

XT660Z 130/80-17M/C 65T

XT660ZA 130/80-17M/C 65S

Manufacturer/model:

XT660Z METZELER/ TOURANCE

XT660Z MICHELIN/SIRAC

XT660ZA PIRELLI/SCORPION

TRAIL

EWA10570

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, inclu-**

ding the tires, should be left to a Yamaha dealer, who has the necessary professional knowledge and experience.

- **It is not recommended to patch a punctured tube. If unavoidable, however, patch the tube very carefully and replace it as soon as possible with a high-quality product.**

Spoke wheels

WARNING

The wheels on this model are not designed for use with tubeless tires. Do not attempt to use tubeless tires on this model.

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

- The wheel rims should be checked for cracks, bends or warpage, and the spokes for looseness or damage before each ride. If any damage is found, have a Yamaha dealer replace the wheel. Do not attempt even the smallest repair to the wheel. A deformed or cracked wheel must be replaced.
- The wheel should be balanced whenever either the tire or wheel has been changed or replaced. An unbalanced wheel can result in poor performance, adverse handling characteristics, and a shortened tire life.

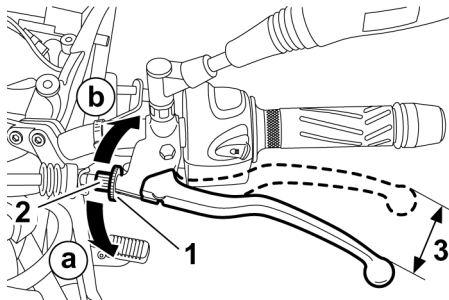
PERIODIC MAINTENANCE AND ADJUSTMENT

EAU22043

Adjusting the clutch lever free play

The clutch lever free play should measure 10.0–15.0 mm (0.39–0.59 in) as shown. Periodically check the clutch lever free play and, if necessary, adjust it as follows.

1. Slide the rubber cover back at the clutch lever.
2. Loosen the locknut.
3. To increase the clutch lever free play, turn the adjusting bolt in direction (a). To decrease the clutch lever free play, turn the adjusting bolt in direction (b).

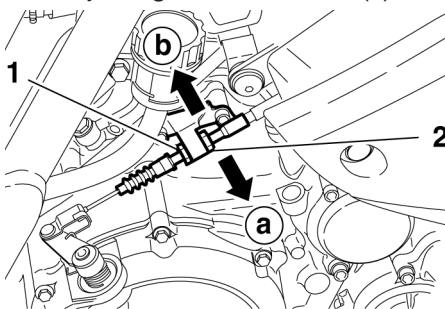


1. Locknut (clutch lever)
2. Clutch lever free play adjusting bolt
3. Clutch lever free play

TIP

If the specified clutch lever free play could be obtained as described above, skip steps 4–7.

4. Fully turn the adjusting bolt at the clutch lever in direction (a) to loosen the clutch cable.
5. Loosen the locknut at the crankcase.
6. To increase the clutch lever free play, turn the adjusting nut in direction (a). To decrease the clutch lever free play, turn the adjusting nut in direction (b).



1. Locknut (crankcase)
2. Clutch lever free play adjusting nut (crankcase)

7. Tighten the locknut at the crankcase.
8. Tighten the locknut at the clutch lever and then slide the rubber cover to its original position.

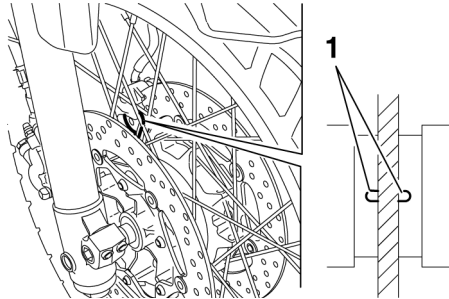
EAU22392

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.

Front brake pads

EAU22420



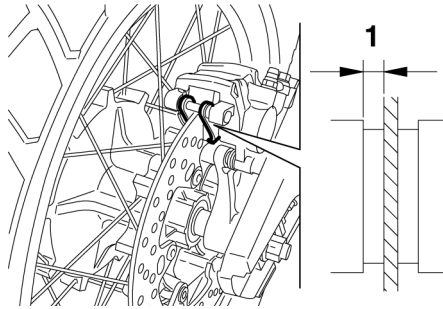
1. Wear indicator groove

Each front brake pad is provided with a wear indicator groove, which allows you to check the brake pad wear without having to disassemble the brake. To check the brake pad wear, check the wear indicator groove. If a brake pad has worn to the point that the wear indicator groove has almost

disappeared, have a Yamaha dealer replace the brake pads as a set.

Rear brake pads

EAU22500



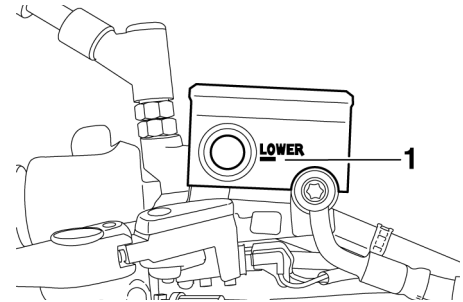
1. Lining thickness

Check each rear brake pad for damage and measure the lining thickness. If a brake pad is damaged or if the lining thickness is less than 10 mm (0.04 in), have a Yamaha dealer replace the brake pads as a set.

EAU38640

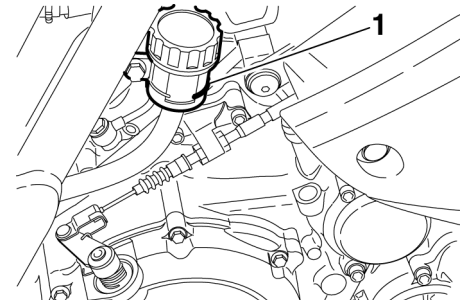
Checking the brake fluid level

Front brake



1. Minimum level mark

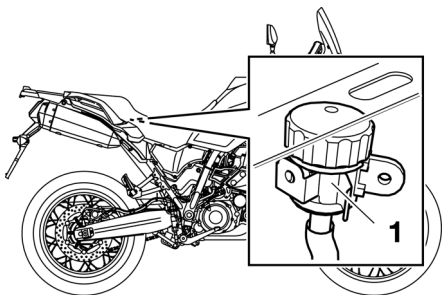
Rear brake (for XT660Z)



1. Minimum level mark

PERIODIC MAINTENANCE AND ADJUSTMENT

Rear brake (for XT660ZA)



1. Minimum level mark

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 fluid level is low, be sure to check the brake pads for wear and the brake system for leakage.

TIP

For XT660ZA, the rear brake fluid reservoir is located under the seat. (See page 3-16).

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 or dust 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, and dirt may clog the ABS hydraulic unit valves.
- 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.

EAU22731

Changing the brake fluid

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

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

PERIODIC MAINTENANCE AND ADJUSTMENT

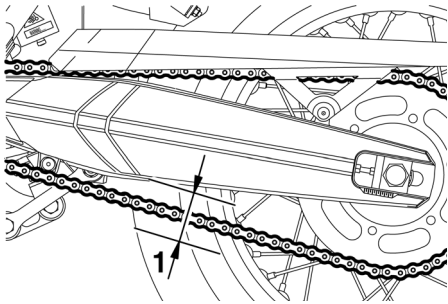
Drive chain slack

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

EAU22760

To check the drive chain slack

EAU22783



1. Drive chain slack

1. Place the motorcycle on the sidestand.

TIP

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

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:

XT660Z 50.0-60.0 mm
(1.96-2.36 in)
XT660ZA 40.0-55.0 mm
(1.57-2.17 in)

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

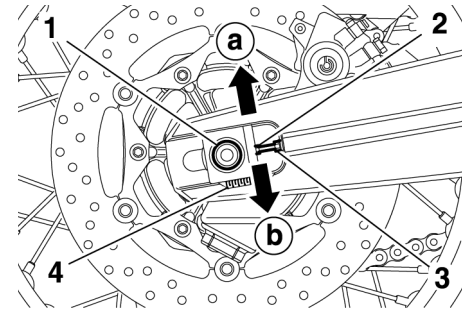
TIP

When checking the drive chain slack, the chain tensioner should not be touching the drive chain.

EAU34316

To adjust the drive chain slack

1. Loosen the axle nut and the locknut on each side of the swingarm.



1. Wheel axle
2. Drive chain slack adjusting bolt
3. Locknut
4. Alignment marks

2. To tighten the drive chain, turn the drive chain slack adjusting bolt on each side of the swingarm in direction (a). To loosen the drive chain, turn the adjusting bolt on each side of the swingarm in direction (b), and then push the rear wheel forward.

NOTICE: 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. [ECA10571]

PERIODIC MAINTENANCE AND ADJUSTMENT

TIP

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

3. Tighten the axle nut, then the locknuts to their specified torques.

Tightening torques:

Axle nut:

16 Nm (1.6 m·kgf, 11 ft·lbf)

Locknut:

105 Nm (10.5 m·kgf, 75 ft·lbf)

6

EAU23025

Cleaning and 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.

ECA10583

NOTICE

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

1. Clean the drive chain with kerosene and a small soft brush.
NOTICE: To prevent damaging the O-rings, do not clean the drive chain with steam cleaners, high-pressure washers or inappropriate solvents. [ECA11121]
2. Wipe the drive chain dry.
3. Thoroughly lubricate the drive chain with a special O-ring chain lubricant. **NOTICE: Do not use engine oil or any other lubri-**

cants for the drive chain, as they may contain substances that could damage the O-rings.

[ECA11111]

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU23093

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.

EWA10711

WARNING

Damage to the outer housing of cables may result in internal rusting and cause interference with cable movement. Replace damaged cables as soon as possible to prevent unsafe conditions.

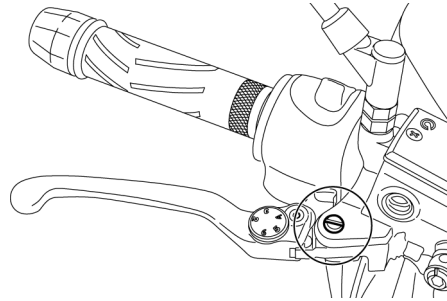
Recommended lubricant:

Yamaha Chain and Cable Lube or engine oil

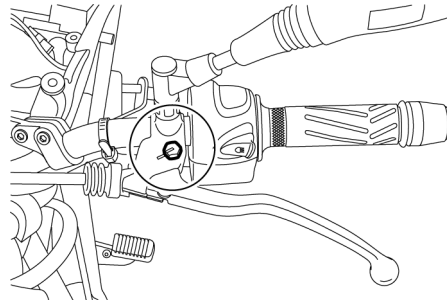
EAU23142

Checking and lubricating the brake and clutch levers

Brake lever



Clutch lever



ride, and the lever pivots should be lubricated if necessary.

Recommended lubricants:

Brake lever:

Silicone grease

Clutch lever:

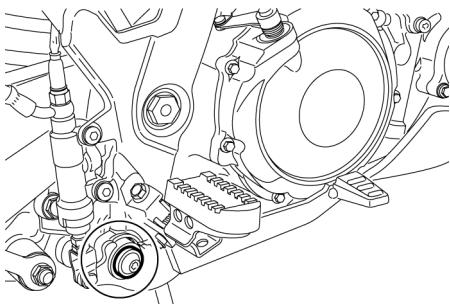
Lithium-soap-based grease

The operation of the brake and clutch levers should be checked before each

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU23182

Checking and lubricating the brake pedal

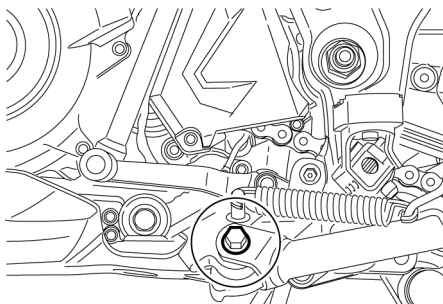


The operation of the brake pedal should be checked before each ride, and the pedal pivot should be lubricated if necessary.

Recommended lubricant:
Silicone grease

EAU23202

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.

EWA10731

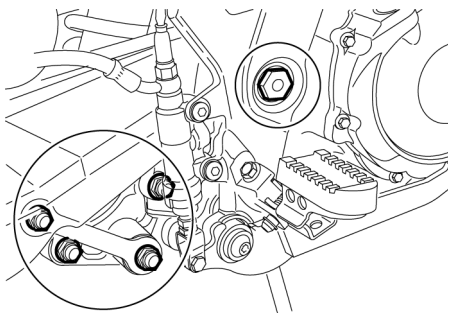
WARNING

If the sidestand does not move up and down smoothly, have a Yamaha dealer check or repair it. Otherwise, the sidestand could contact the ground and distract the operator, resulting in a possible loss of control.

Recommended lubricant:
Lithium-soap-based grease

EAU23251

Lubricating the rear suspension



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

Recommended lubricant:
Lithium-soap-based grease

EAUM1651

Lubricating the swingarm pivots

The swingarm pivots must be lubricated by a Yamaha dealer at the intervals specified in the periodic maintenance and lubrication chart.

Recommended lubricant:
Lithium-soap-based grease

EAU23272

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.

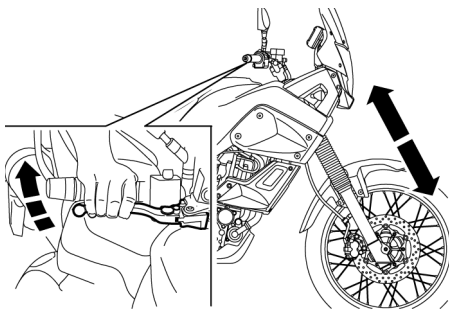
To check the condition

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

To check the operation

1. Place the vehicle on a level surface and hold it in an upright position. **WARNING! To avoid injury, securely support the vehicle so there is no danger of it falling over.** [EWA10751]
2. While applying the front brake, push down hard on the handlebars several times to check if the front fork compresses and rebounds smoothly.

PERIODIC MAINTENANCE AND ADJUSTMENT



ECA10590

NOTICE

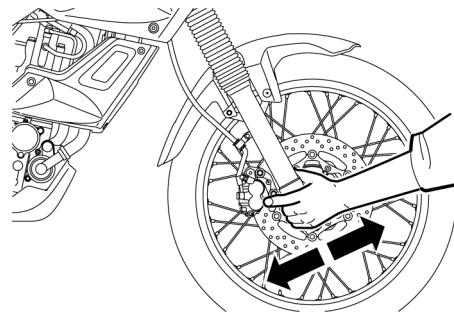
If any damage is found or the front fork does not operate smoothly, have a Yamaha dealer check or repair it.

EAU23283

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.

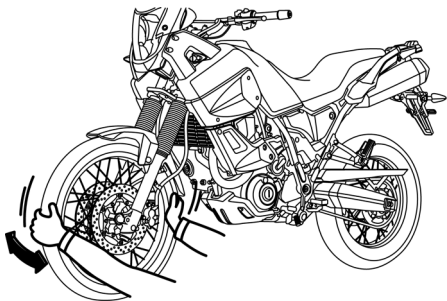
1. Place a stand under the engine to raise the front wheel off the ground. (See page 6-35 for more information.) **WARNING! To avoid injury, securely support the vehicle so there is no danger of it falling over.** [EWA10751]
2. Hold the lower ends of the front fork legs and try to move them forward and backward. If any free play can be felt, have a Yamaha dealer check or repair the steering.



PERIODIC MAINTENANCE AND ADJUSTMENT

EAU23291

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.

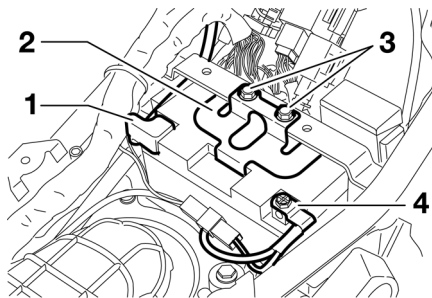
EAUS1910

Battery

To access the battery (XT660Z):

The battery is located under the seat. (See page 3-16).

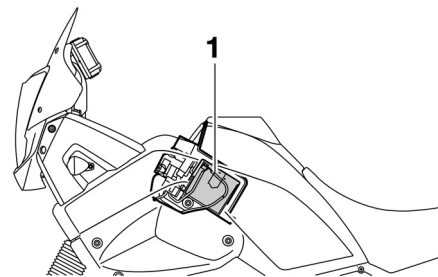
Remove the battery holder bracket by removing the bolts.



1. Positive battery terminal
2. Holder
3. Bolt
4. Negative battery terminal

Battery (XT660ZA):

The battery is located under the fuel tank.



1. Battery

Have a Yamaha dealer access the battery.

These models are equipped with a VRLA (Valve Regulated Lead Acid) battery. There is no need to check the electrolyte or to add distilled water. However, the battery lead connections need to be checked and, if necessary, tightened.

ECA10620

NOTICE

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

PERIODIC MAINTENANCE AND ADJUSTMENT

EWA10760

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 vehicle is equipped with optional electrical accessories.

ECA16521

NOTICE

To charge a VRLA (Valve Regulated Lead Acid) battery, a special (constant-voltage) battery charger is required. Using a conventional battery charger will damage the battery.

To store the battery:

1. If the vehicle will not be used for more than one month, remove the battery, fully charge it, and then place it in a cool, dry place.
NOTICE: When removing the battery, be sure the key is turned to “OFF”, then disconnect the negative lead before disconnecting the positive lead.

[ECA16302]

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. **NOTICE:** When installing the battery, be sure the key is turned to “OFF”, then connect the positive lead before connecting the negative lead. [ECA16840]
4. After installation, make sure that the battery leads are properly connected to the battery terminals.

ECA16530

NOTICE

Always keep the battery charged. Storing a discharged battery can cause permanent battery damage.

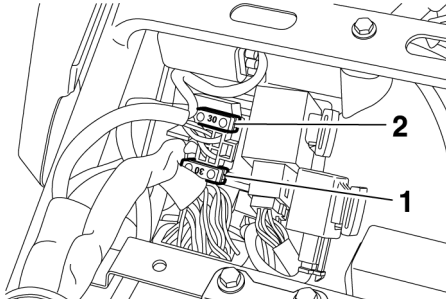
PERIODIC MAINTENANCE AND ADJUSTMENT

EAUS1930

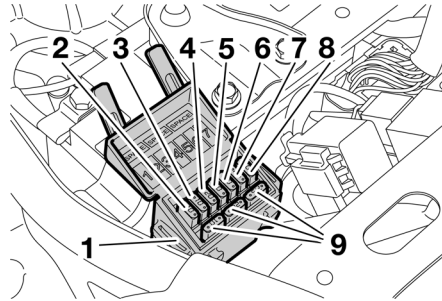
Replacing the fuses

To replace the fuses (XT660Z):

The main fuse and fuse box 1 (for individual circuits) are located under the seat. (See page 3-16).



1. Main fuse
2. Spare main fuse

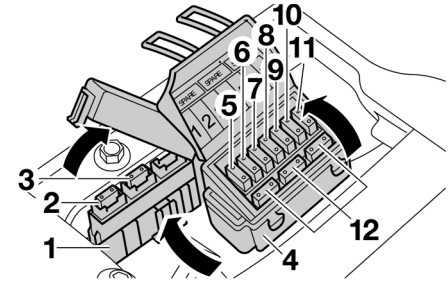


1. Fuse box 1
2. Parking lighting fuse
3. Signaling system fuse
4. Headlight fuse
5. Ignition fuse
6. ECU fuse
7. Radiator fan fuse
8. Backup fuse
9. Spare fuse

To replace the fuses (XT660ZA):

The main fuse and fuse box 1 (for ABS model only), which are in a different and hard-to-reach location, must be replaced by a Yamaha dealer. Fuse box 2 (for ABS model only) and fuse box 3 (for individual circuits) are located under the seat. (See page 3-16).

To access fuse box 2, pull it upward and then open it.



1. Fuse box 2
2. ABS control unit fuse
3. Spare fuse
4. Fuse box 3
5. Parking lighting fuse
6. Signaling system fuse
7. Headlight fuse
8. Ignition fuse
9. ECU fuse
10. Radiator fan fuse
11. Backup fuse
12. Spare fuse

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. **WARNING! 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.** [EWA15131]

PERIODIC MAINTENANCE AND ADJUSTMENT

Specified fuses:

Main fuse:

30.0 A

Parking lighting fuse:

10.0 A

Signaling system fuse:

10.0 A

Headlight fuse:

20.0 A

Ignition fuse:

10.0 A

Fuel injection system fuse:

10.0 A

Radiator fan fuse:

7.5 A

Backup fuse:

10.0 A

ABS motor fuse (for ABS model):

30.0 A

ABS solenoid fuse (for ABS model):

20.0 A

ABS control unit fuse (for ABS model):

5.0 A

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.

Replacing a headlight bulb

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

EAUB1581

ECA10650

NOTICE

Take care not to damage the following parts:

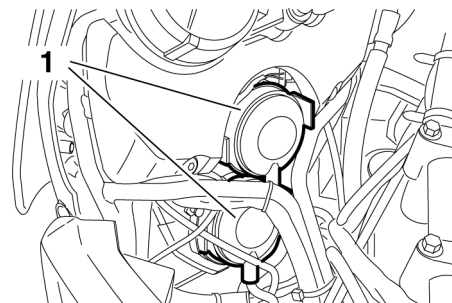
● Headlight bulb

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.

● Headlight lens

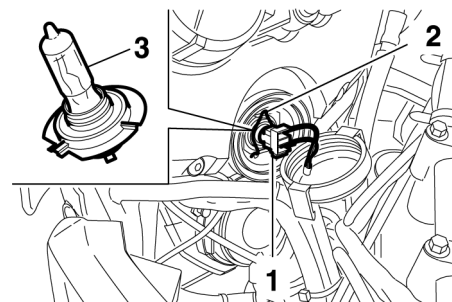
Do not affix any type of tinted film or stickers to the headlight lens.

Do not use a headlight bulb of a wattage higher than specified.



1. Headlight bulb cover

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

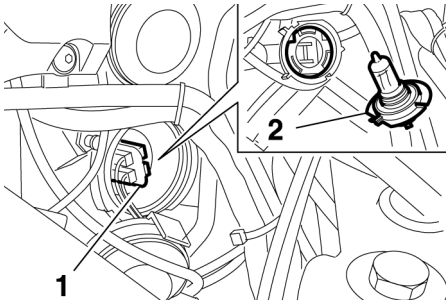


1. Headlight coupler
2. Headlight bulb holder
3. Headlight bulb

PERIODIC MAINTENANCE AND ADJUSTMENT

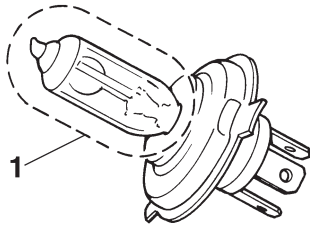
EWA10790

EAU24181



1. Headlight bulb holder
2. Headlight bulb

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



1. Do not touch the glass part of the bulb.

⚠ 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 headlight bulb into position, and then secure it with the bulb holder.
4. Connect the coupler, and then install the headlight bulb cover.
5. Have a Yamaha dealer adjust the headlight beam if necessary.

Tail/brake light

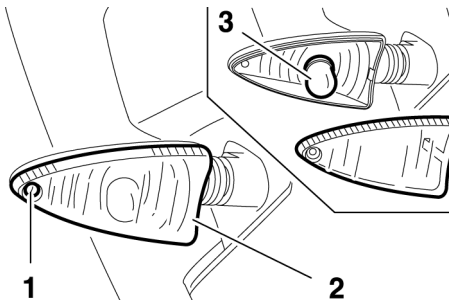
This model is equipped with an LED-type tail/brake light. If the tail/brake light does not come on, have a Yamaha dealer check it.

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU24204

Replacing a turn signal light bulb

1. Remove the turn signal light lens by removing the screw.



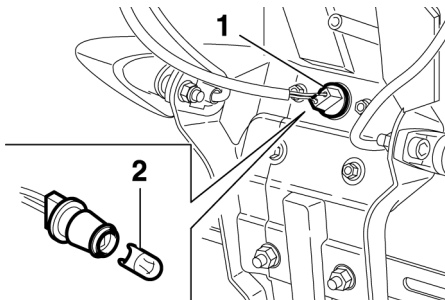
1. Screw
2. Turn signal light lens
3. Turn signal light bulb

2. Remove the burnt-out 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 screw. **NOTICE: Do not over-tighten the screw, otherwise the lens may break.** [ECA11191]

EAU22202

Replacing the license plate light bulb

1. Remove the socket (together with the bulb) by pulling it out.



1. License plate light bulb socket
2. License plate light bulb

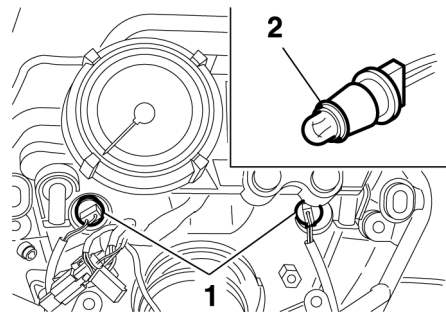
2. Remove the burnt-out bulb by pulling it out.
3. Insert a new bulb into the socket.
4. Install the socket (together with the bulb) by pushing it in.

EAU42652

Replacing an auxiliary light bulb

This model is equipped with two auxiliary lights. If an auxiliary light bulb burns out, replace it as follows.

1. Remove panel G. (See page 6-8).
2. Remove the auxiliary light socket (together with the bulb) by pulling it out.



1. Auxiliary light bulb socket
2. Auxiliary light bulb

3. Remove the burnt-out bulb by pulling it out.
4. Insert a new bulb into the socket.

PERIODIC MAINTENANCE AND ADJUSTMENT

5. Install the auxiliary light socket (together with the bulb) by pushing it in.
6. Install the panel.

EAU24350

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.

placing a jack either under each side of the frame in front of the rear wheel or under each side of the swingarm.

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

PERIODIC MAINTENANCE AND ADJUSTMENT

Front wheel

EAU44790

EWA14840

WARNING

For the ABS model, have a Yamaha dealer remove and install the wheel.

EAUB1441

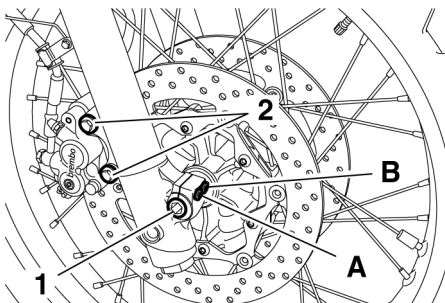
To remove the front wheel

EWA10821

WARNING

To avoid injury, securely support the vehicle so there is no danger of it falling over.

1. Loosen the front wheel axle pinch bolts, the wheel axle and the brake caliper bolts.



1. Wheel axle
2. Brake caliper bolt
3. Front wheel axle pinch bolt
4. Front wheel axle pinch bolt

2. Lift the front wheel off the ground according to the procedure on page 6-35.
3. Remove the brake caliper on each side by removing the bolts.
NOTICE: Do not apply the brake after the brake calipers have been removed, otherwise the brake pads will be forced shut.

[ECA11051]

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

EAUB1472

To install the front wheel

1. Lift the wheel up between the fork legs.
2. Insert the wheel axle.
3. Install the brake calipers by installing the bolts.

TIP

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

4. Lower the front wheel so that it is on the ground.
5. Tighten the wheel axle and the brake caliper bolts to the specified torques.

ECAB0061

NOTICE

Be sure the right brake disc is positioned exactly between the brake pads to prevent any brake drag. Tap the side of the right fork leg to position the disc correctly.

6. Tighten wheel axle pinch bolt A, and then pinch bolt B to their specified torque.

PERIODIC MAINTENANCE AND ADJUSTMENT

7. Retighten pinch bolt A to the specified torque.

Tightening torques:

Wheel axle:

60 Nm (6.0 m·kgf, 44 ft·lbf)

Front wheel axle pinch bolt:

18 Nm (1.8 m·kgf, 13 ft·lbf)

Brake caliper bolt:

40 Nm (4.0 m·kgf, 29 ft·lbf)

8. Apply the brake lever several times, and then while holding the brake lever in, push down hard on the handlebar several times to check for proper fork operation.

Rear wheel

EAU44800

EWA14840



WARNING

For the ABS model, have a Yamaha dealer remove and install the wheel.

EAU25314

EWA10821

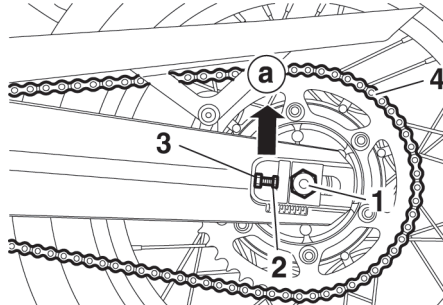
To remove the rear wheel



WARNING

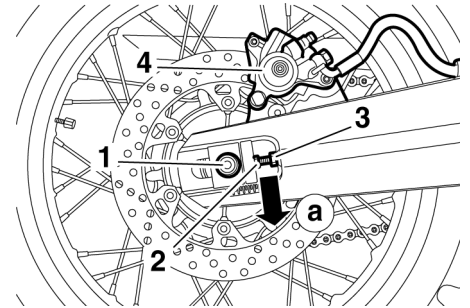
To avoid injury, securely support the vehicle so there is no danger of it falling over.

1. Loosen the axle nut.



1. Wheel axle nut
2. Drive chain slack adjusting bolt
3. Locknut
4. Drive chain

2. Lift the rear wheel off the ground according to the procedure on page 6-35.
3. Remove the axle nut.



1. Wheel axle
2. Drive chain slack adjusting bolt
3. Locknut
4. Brake caliper

4. Fully loosen the locknut on each side of the swingarm.
5. Turn the drive chain slack adjusting bolts fully in direction (a) and push the wheel forward.
6. Remove the drive chain from the rear sprocket.

TIP

- If the drive chain is difficult to remove, remove the wheel axle

PERIODIC MAINTENANCE AND ADJUSTMENT

EAU25871

first, and then lift the wheel upward enough to remove the drive chain from the rear sprocket.

- The drive chain cannot be disassembled.

7. While supporting the brake caliper bracket, pull the wheel axle out, and then remove the wheel.

NOTICE: Do not apply the brake after the wheel has been removed together with the brake disc, otherwise the brake pads will be forced shut. [ECA11071]

EAUB1450

2. Install the drive chain onto the rear sprocket.
3. Install the axle nut, and then lower the rear wheel so that it is on the ground.
4. Adjust the drive chain slack. (See page 6-23).
5. Apply the rear brake several times, and then tighten the axle nut to the specified torque.

Tightening torque:

Axle nut:

105 Nm (10.5 m·kgf, 75 ft·lbf)

6

To install the rear wheel

1. Install the wheel and the brake caliper bracket by inserting the wheel axle from the left-hand side.

TIP

- Make sure that the slot in the brake caliper bracket is fit over the retainer on the swingarm.
- Make sure that there is enough space between the brake pads before installing the wheel.

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.

EWA15141

WARNING

When checking the fuel system, do not smoke, and make sure there are no open flames or sparks in the

PERIODIC MAINTENANCE AND ADJUSTMENT

area, including pilot lights from water heaters or furnaces. Gasoline or gasoline vapors can ignite or explode, causing severe injury or property damage.

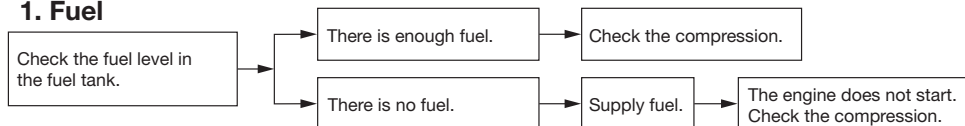
PERIODIC MAINTENANCE AND ADJUSTMENT

EAU42131

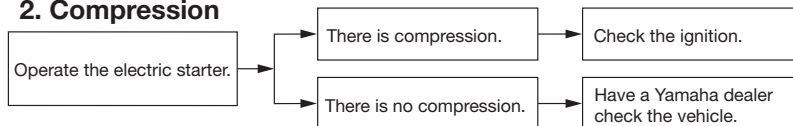
Troubleshooting charts

Starting problems or poor engine performance

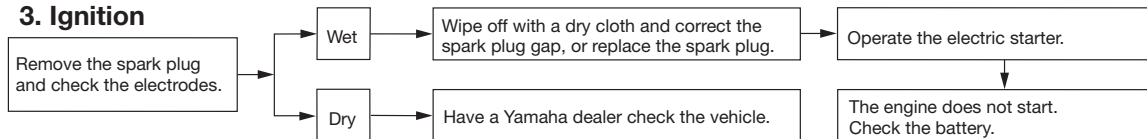
1. Fuel



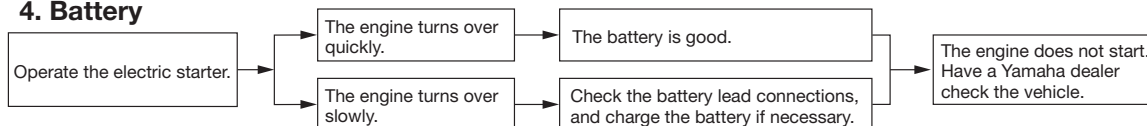
2. Compression



3. Ignition



4. Battery



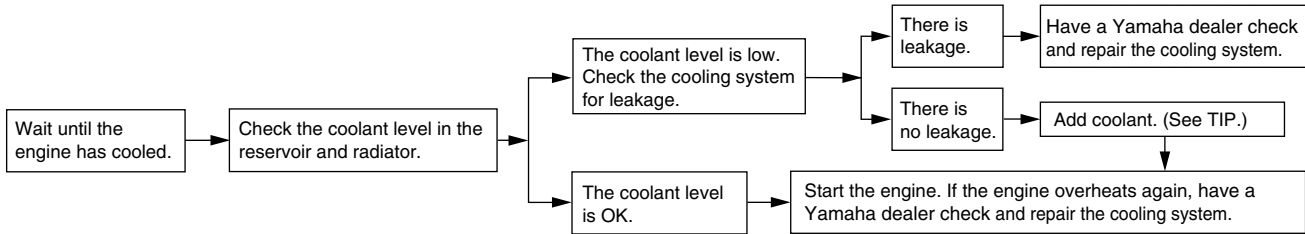
PERIODIC MAINTENANCE AND ADJUSTMENT

Engine overheating

EWA10400

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.



TIP

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

EAU37833

Matte color caution

ECA15192

NOTICE

Some models are equipped with matte colored finished parts. Be sure to consult a Yamaha dealer for advice on what products to use before cleaning the vehicle.

Using a brush, harsh chemical products or cleaning compounds when cleaning these parts will scratch or damage their surface. Wax also should not be applied to any matte colored finished parts.

EAU26004

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 outlet with a plastic bag 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 cap, 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

ECA10772

NOTICE

- 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 plastic parts (such as cowlings, panels, windshields, headlight lenses, meter lenses, etc.) and the mufflers. Use only a soft, clean cloth or sponge with water to clean plastic. However, if the plastic parts cannot be thoroughly cleaned with

MOTORCYCLE CARE AND STORAGE

water, diluted mild detergent with water may be used. Be sure to rinse off any detergent residue using plenty of water, as it is harmful to plastic parts.

- 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 com-

pounds 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.

TIP

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

[ECA10791]

2. 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.)

MOTORCYCLE CARE AND STORAGE

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.

EWA11131

WARNING

Contaminants on the brakes or tires can cause loss of control.

- **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 riding at higher speeds, test the motorcycle's braking performance and cornering behavior.**
-

ECA10800

NOTICE

- **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.**
-

TIP

- Consult a Yamaha dealer for advice on what products to use.
 - Washing, rainy weather or humid climates can cause the headlight lens to fog. Turning the headlight on for a short period of time will help remove the moisture from the lens.
-

EAM1902

Storage

Short-term

Always store your motorcycle in a cool, dry place and, if necessary, protect it against dust with a porous cover. Be sure the engine and the exhaust system are cool before covering the motorcycle.

ECA10810

NOTICE

- **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. Fill up the fuel tank and add fuel

MOTORCYCLE CARE AND STORAGE

stabilizer (if available) to prevent the fuel tank from rusting and the fuel from deteriorating.

3. Perform the following steps to protect the cylinder, piston rings, etc. from corrosion.
 - a. Remove the spark plug cap and spark plug.
 - b. Pour a teaspoonful of engine oil into the spark plug bore.
 - c. Install the spark plug cap onto the spark plug, and then place the spark plug 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 wall with oil.)
 - e. Remove the spark plug cap from the spark plug, and then install the spark plug and the spark plug cap. **WARNING! To prevent damage or injury from sparking, make sure to ground the spark plug**

electrodes while turning the engine over. [EWA10951]

4. Lubricate all control cables and the pivoting points of all levers and pedals as well as of the sidestand/centerstand.
5. 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.
6. Cover the muffler outlets with plastic bags to prevent moisture from entering them.
7. 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 (30 °F) or more than 30 °C (90 °F)]. For more information on storing the battery, see page 6-29.

TIP

Make any necessary repairs before storing the motorcycle.

SPECIFICATIONS

Dimensions:

Overall length:

XT660Z 2246 mm (88.42 in)

XT660ZA 2260 mm (89.0 in)

Overall width:

900 mm (35.4 in)

Overall height:

XT660Z 1477 mm (57.1 in)

XT660ZA 1450 mm (57.1 in)

Seat height:

XT660Z 896 mm (35.27 in)

XT660ZA 865 mm (34.1 in)

Wheelbase:

XT660Z 1500 mm (59.05 in)

XT660ZA 1505 mm (59.3 in)

Ground clearance:

XT660Z 260 mm (10.23 in)

XT660ZA 205 mm (8.07 in)

Minimum turning radius:

1980 mm (78.0 in)

Weight:

With oil and fuel:

XT660Z 208.5 kg (459 lb)

XT660ZA 215 kg (474 lb)

Engine:

Engine type:

Liquid cooled 4-stroke, SOHC

Cylinder arrangement:

Forward-inclined single cylinder

Displacement:

660 cm³

Bore x stroke:

100.0 x 84.0 mm (3.94 x 3.31 in)

Compression ratio:

10.00 :1

Starting system:

Electric starter

Lubrication system:

Dry sump

Engine oil:

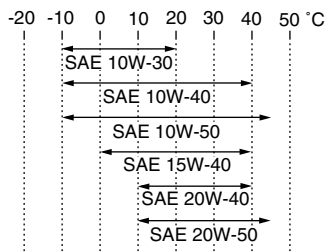
Recommended brand:

YAMALUBE

Type:

SAE 10W-30, SAE 10W-40, SAE 15W-40,

SAE 20W-40 or SAE 20W-50



Recommended engine oil grade:

API service SE, SF, SG type or higher,

JASO standard MA

Engine oil quantity:

Without oil filter element replacement:

2.50 L (2.64 US qt, 2.20 Imp.qt)

With oil filter element replacement:

2.60 L (2.75 US qt, 2.29 Imp.qt)

Cooling system:

Coolant reservoir capacity (up to the maximum level mark):

0.50 L (0.53 US qt, 0.44 Imp.qt)

Radiator capacity (including all routes):

1.20 L (1.26 US qt, 1.05 Imp.qt)

Air filter:

Air filter element:

Dry element

Fuel:

Recommended fuel:

Premium unleaded gasoline only

Fuel tank capacity:

23.0 L (6.08 US gal, 5.06 Imp.gal)

Fuel reserve amount:

XT660Z 6.7 L (1.76 US gal, 1.46 Imp.gal)

XT660ZA 5.8 L (1.53 US gal, 1.28 Imp.gal)

Throttle body:

ID mark:

5YK2 11

Manufacturer:

MIKUNI

Spark plug(s):

Manufacturer/model:

NGK/CR7E

Spark plug gap:

0.7–0.8 mm (0.028–0.031 in)

Clutch:

Clutch type:

Wet, multiple-disc

Transmission:

Primary reduction system:

Spur gear

SPECIFICATIONS

Primary reduction ratio:
75/36 (2.083)
Secondary reduction system:
Chain drive
Secondary reduction ratio:
45/15 (3.000)
Transmission type:
Constant mesh 5-speed
Operation:
Left foot operation

Gear ratio:

1st:
30/12 (2.500)
2nd:
26/16 (1.625)
3rd:
23/20 (1.150)
4th:
20/22 (0.909)
5th:
20/26 (0.769)

Chassis:

Frame type:
Diamond
Caster angle:
28.00 °
Trail:
XT660Z 113.0 mm (4.44 in)
XT660ZA 120.0 mm (4.72 in)

Front tire:

Type:
With tube

Size:
XT660Z 90/90-21M/C 54S
XT660Z 90/90-21M/C 54T
XT660ZA 90/90-21M/C 54S
Manufacturer/model:
XT660Z METZELER/TOURANCE FRONT
XT660Z MICHELIN/SIRAC
XT660ZA PIRELLI/SCORPION TRAIL

Rear tire:

Type:
With tube
Size:
XT660Z 130/80-17M/C 65S
XT660Z 130/80-17M/C 65T
XT660ZA 130/80-17M/C 65S
Manufacturer/model:
XT660Z METZELER/TOURANCE FRONT
XT660Z MICHELIN/SIRAC
XT660ZA PIRELLI/SCORPION TRAIL

Loading:

Maximum load:
XT660Z 190 kg (419 lb)
XT660ZA 188 kg (414 lb)

Tire air pressure (measured on cold tires):

Loading condition:
0–90 kg (0–198 lb)
Front:
210 kPa (2.10 kgf/cm², 30 psi, 2.10 bar)
Rear:
230 kPa (2.30 kgf/cm², 33 psi, 2.30 bar)

Loading condition:
XT660Z 90 -190 kg (198 -419 lb)
XT660ZA 90 -188 kg (198 -414 lb)
Front:
230 kPa (2.30 kgf/cm², 33 psi, 2.30 bar)
Rear:
250 kPa (2.50 kgf/cm², 36 psi, 2.50 bar)
Off-road riding:
Front:
200 kPa (2.00 kgf/cm², 29 psi, 2.00 bar)
Rear:
200 kPa (2.00 kgf/cm², 29 psi, 2.00 bar)
High-speed riding:
Front:
210 kPa (2.10 kgf/cm², 30 psi, 2.10 bar)
Rear:
230 kPa (2.30 kgf/cm², 33 psi, 2.30 bar)

Front wheel:

Wheel type:
Spoke wheel
Rim size:
21x1.85

Rear wheel:

Wheel type:
Spoke wheel
Rim size:
17x 2.75

Front brake:

Type:
Dual disc brake
Operation:
Right hand operation
Recommended fluid:
DOT 4

SPECIFICATIONS

Rear brake:

Type:
Single disc brake
Operation:
Right foot operation
Recommended fluid:
DOT 4

Front suspension:

Type:
Telescopic fork
Spring/shock absorber type:
Coil spring/oil damper
Wheel travel:
XT660Z 210.0 mm (8.26 in)
XT660ZA 160.0 mm (6.30 in)

Rear suspension:

Type:
Swingarm (link suspension)
Spring/shock absorber type:
Coil spring/gas-oil damper
Wheel travel:
XT660Z 200.0 mm (7.87 in)
XT660ZA 145.0 mm (5.71 in)

Electrical system:

Ignition system:
TCI
Charging system:
AC magneto

Battery:

Model:
GT9B-4
Voltage, capacity:
12 V, 8.0 Ah

Headlight:

Bulb type:
Halogen bulb

Bulb voltage, wattage x quantity:

Low beam headlight:
12 V, 55.0 W x 1
High beam headlight:
12 V, 55.0 W x 1
Tail/brake light:
LED

Front turn signal light:
12 V, 10.0 W x 2
Rear turn signal light:
12 V, 10.0 W x 2
Auxiliary light:
12 V, 5.0 W x 2

Meter lighting:
LED (backlight)
Neutral indicator light:
LED
High beam indicator light:
LED

Turn signal indicator light:
LED
Coolant temperature warning light:
LED
Engine trouble warning light:
LED

ABS warning light (for ABS models):
LED
Immobilizer system indicator light:
LED

Fuses:

Main fuse:
30.0 A
Headlight fuse:
20.0 A
Signaling system fuse:
10.0 A
Ignition fuse:
10.0 A
Parking lighting fuse:
10.0 A
Radiator fan fuse:
7.5 A
Fuel injection system fuse:
10.0 A
ABS control unit fuse (for ABS models):
5.0 A
ABS motor fuse (for ABS models):
30.0 A
ABS solenoid fuse (for ABS models):
20.0 A

EAU48610

EAU26400

EAU26520

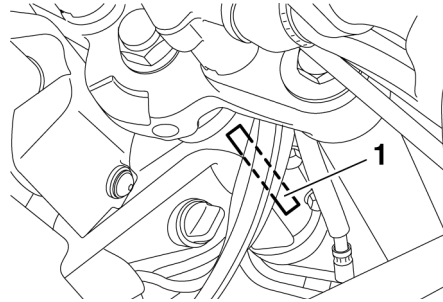
Identification numbers

Record the 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.

VEHICLE IDENTIFICATION NUMBER:

MODEL LABEL INFORMATION:

Vehicle identification number



1. Vehicle identification number

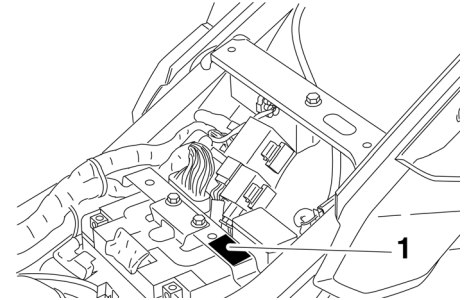
The vehicle identification number is stamped into the steering head pipe. Record this number in the space provided.

TIP

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.

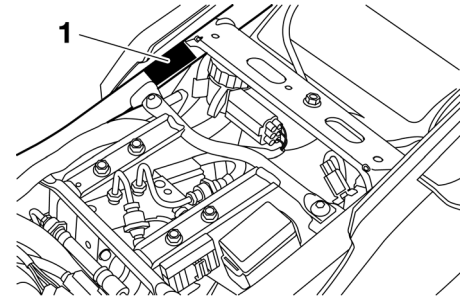
Model label

FOR XT660Z



1. Model label

FOR XT660ZA



1. Model label

The model label is affixed to the frame

CONSUMER INFORMATION

under the passenger seat. (See page 3-16). 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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