



YAMAHA

! Read this manual carefully before operating this vehicle.

OWNER'S MANUAL


XMAX

BU8-F8199-30


EALJ46091

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

EALJ46091

 **在使用这电单车以前，请充分使用这小手册。这手册须付与电单车一起。**

EALJ46091

 **Baca buku panduan dengan teliti sebelum mengendalikan motosikal ini. Buku panduan diberi bersama dengan pembelian motosikal.**

Introduction

EAU10114

Welcome to the Yamaha world of motorcycling!

As the owner of the XMAX, 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 XMAX. The Owner's Manual does not only instruct you in how to operate, inspect and maintain your scooter, 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 scooter 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 scooter and this manual. If there is any question concerning this manual, please consult a Yamaha dealer.

EWA12412






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

Important manual information

EAU10134

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.

*Product and specifications are subject to change without notice.

Important manual information



EAUV0012

**XMAX
OWNER'S MANUAL
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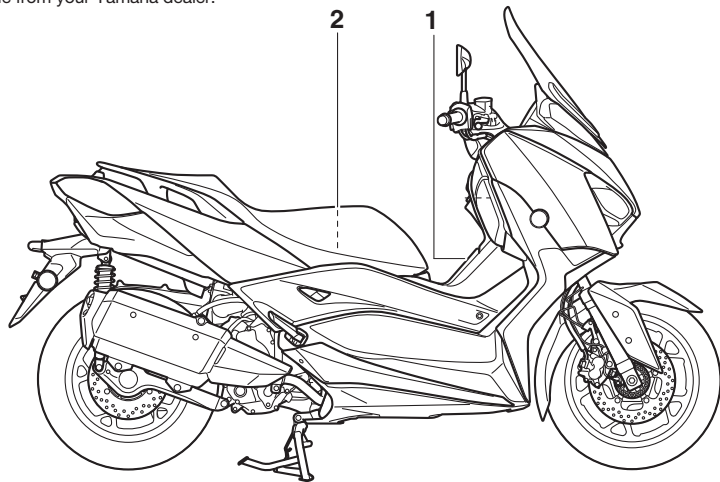
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Location of important labels

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1

Read and understand all of the labels on your vehicle. They contain important information for safe and proper operation of your vehicle. Never remove any labels from your vehicle. If a label becomes difficult to read or comes off, a replacement label is available from your Yamaha dealer.







Location of important labels

1



2

			
100kPa=1bar		kPa, psi	kPa, psi
		200, 29	225, 33
		200, 29	225, 33

1

Safety information

EAU1026B

2

Be a Responsible Owner

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

Scooters 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 scooter.

He or she should:

- Obtain thorough instructions from a competent source on all aspects of scooter 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.

- Never operate a scooter without proper training or instruction. Take a training course. Beginners should receive training from a certified instructor. Contact an authorized scooter dealer to find out about the training courses nearest you.

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 6-1 for a list of pre-operation checks.

- This scooter is designed to carry the operator and a passenger.
- The failure of motorists to detect and recognize scooters in traffic is the predominating cause of automobile/scooter accidents. Many accidents have been caused by an automobile driver who did not see the scooter. 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 scooter accidents to occur.
- Ride where other motorists can see you. Avoid riding in another motorist's blind spot.
- Never maintain a scooter without proper knowledge. Contact an authorized scooter dealer to inform you on basic scooter maintenance. Certain maintenance can only be carried out by certified staff.

- Many accidents involve inexperienced operators. In fact, many operators who have been involved in accidents do not even have a current driver's license.
- Make sure that you are qualified and that you only lend your scooter 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 scooter where there is no traffic until you have become thoroughly familiar with the scooter and all of its controls.
- Many accidents have been caused by error of the scooter 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).
- 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 scooter.
- 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.
- This scooter is designed for on-road use only. It is not suitable for off-road use.

Protective Apparel

The majority of fatalities from scooter 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, substantial shoes, 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 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.

Safety information

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 scooter can adversely affect stability and handling if the weight distribution of the scooter is changed. To avoid the possibility of an accident, use extreme caution when adding cargo or accessories to your scooter. Use extra care when riding a scooter 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 scooter:

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:

161 kg (355 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 scooter 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 scooter to minimize imbalance or instability.
- Shifting weights can create a sudden imbalance. Make sure that accessories and cargo are securely attached to the scooter 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. Such items 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 recommended by Yamaha, even if sold and installed by a Yamaha dealer.

Aftermarket Parts, Accessories, and Modifications

While you may find aftermarket products similar in design and quality to genuine Yamaha accessories, recog-

nize 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 scooter. 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 scooter due to aerodynamic effects. Wind may attempt to lift the scooter, or the scooter 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 freedom 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 scooter's electrical system, an electric failure could result, which could cause a dangerous loss of lights or engine power.

Safety information

Aftermarket Tires and Rims

The tires and rims that came with your scooter 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 8-20 for tire specifications and more information on replacing your tires.

Transporting the Scooter

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

- Remove all loose items from the scooter.
- Point the front wheel straight ahead on the trailer or in the truck bed, and choke it in a rail to prevent movement.
- Secure the scooter with tie-downs or suitable straps that are attached to solid parts of the scooter, 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 lo-

cation 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 scooter will not bounce excessively during transport.

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Further safe-riding points

- Be sure to signal clearly when making turns.
- Braking can be extremely difficult on a wet road. Avoid hard braking, because the scooter could slide. Apply the brakes slowly when stopping on a wet surface.
- Slow down as you approach a corner or turn. Once you have completed a turn, accelerate slowly.
- Be careful when passing parked cars. A driver might not see you and open a door in your path.
- Railroad crossings, streetcar rails, iron plates on road construction sites, and manhole covers become extremely slippery when

wet. Slow down and cross them with caution. Keep the scooter upright, otherwise it could slide out from under you.

- The brake pads or linings could get wet when you wash the scooter. After washing the scooter, check the brakes before riding.
- Always wear a helmet, gloves, trousers (tapered around the cuff and ankle so they do not flap), and a brightly colored jacket.
- Do not carry too much luggage on the scooter. An overloaded scooter is unstable. Use a strong cord to secure any luggage to the carrier (if equipped). A loose load will affect the stability of the scooter and could divert your attention from the road. (See page 2-3.)

Helmets

EAUN0532

Operating this vehicle without an approved motorcycle helmet increases your chances of a severe head injury or death in the event of an accident. The majority of fatalities from motorcycle or scooter 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 select an approved motorcycle helmet

Pay attention to the following when choosing a motorcycle helmet.

- The helmet must meet the safety standard "SIRIM".
- The helmet size must match the size of the rider's head.
- Never subject a helmet to heavy shocks.

Wearing the helmet correctly

Always connect the chin strap. In the case of an accident, the helmet has a much less chance of coming off if the chin strap is connected.

Correct usage



Wrong usage



ZAUU0007

Types of helmets and their usage

- Full-type: use only for riding at low to mid-range speeds



ZAUU0005

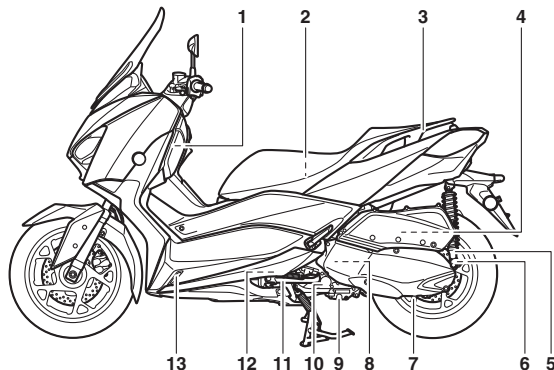
- Full-face-type: use for riding at mid-range to high speeds



ZAUU0006

Left view

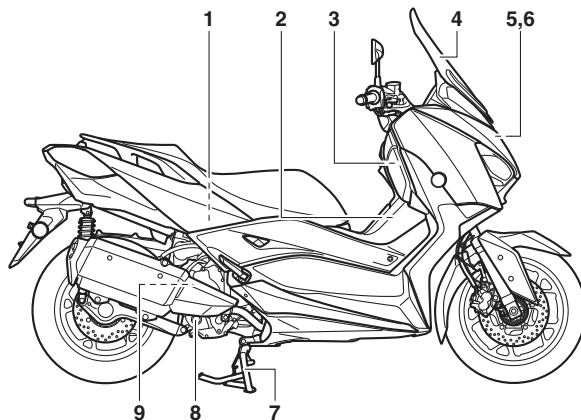
3



1. Storage compartment A (page 5-18)
2. Owner's tool kit (page 8-1)
3. Grab bar (page 7-2)
4. Air filter element (page 8-15)
5. Shock absorber assembly spring preload adjusting ring (page 5-23)
6. Final transmission oil filler cap (page 8-12)
7. Final transmission oil drain bolt (page 8-12)

8. V-belt case air filter element (page 8-15)
9. Engine oil drain bolt (page 8-10)
10. Engine oil filter element (page 8-10)
11. Sidestand (page 5-23)
12. Spark plug (page 8-9)
13. Coolant reservoir (page 8-13)

Right view



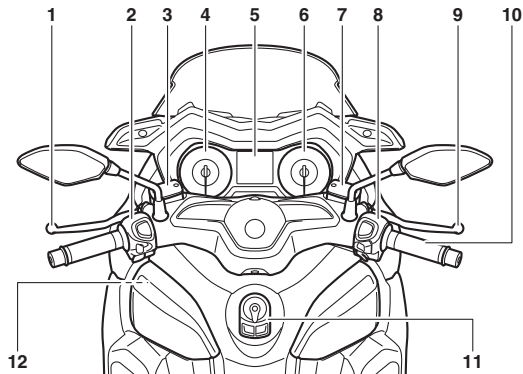
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|---|--|
| 1. Rear storage compartment (page 5-18) | 7. Centerstand (page 8-26) |
| 2. Fuel tank cap (page 5-15) | 8. Engine oil level check window (page 8-10) |
| 3. Storage compartment B (page 5-18) | 9. Engine oil filler cap (page 8-10) |
| 4. Windshield (page 5-20) | |
| 5. Battery (page 8-28) | |
| 6. Fuses (page 8-30) | |

Description

Controls and instruments

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3

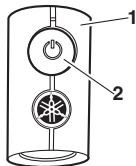


- | | |
|--|---|
| 1. Rear brake lever (page 5-12) | 8. Right handlebar switches (page 5-10) |
| 2. Left handlebar switches (page 5-10) | 9. Front brake lever (page 5-12) |
| 3. Rear brake fluid reservoir (page 8-23) | 10. Throttle grip (page 8-19) |
| 4. Speedometer (page 5-2) | 11. Main switch (page 4-7) |
| 5. Multi-function display (page 5-3) | 12. Auxiliary DC jack (page 5-26) |
| 6. Tachometer (page 5-3) | |
| 7. Front brake fluid reservoir (page 8-23) | |

Smart key system

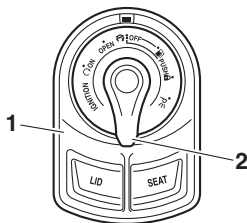
Smart key system

The smart key system enables you to operate the vehicle without using a mechanical key. In addition, there is an answer-back function to help you locate the vehicle in a parking lot. (See page 4-5.)



1. Smart key
2. Smart key button

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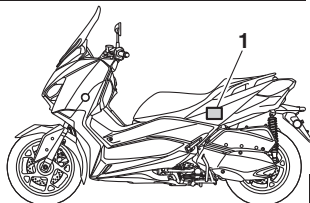


1. Main switch
2. Main switch knob

EWA14704

WARNING

- Keep implanted pacemakers or cardiac defibrillators, as well as other electric medical devices away from the vehicle mounted antenna (see illustration).
- Radio waves transmitted by the antenna may affect the operation of such devices when close by.
- If you have an electric medical device, consult a doctor or the device manufacturer before using this vehicle.



1. Vehicle mounted antenna

ECA15763

4

NOTICE

The smart key system uses weak radio waves. The smart key system may not work in the following situations.

- The smart key is placed in a location exposed to strong radio waves or other electromagnetic noise
- There are facilities nearby that are emitting strong radio waves (TV or radio towers, power plants, broadcasting stations, airports, etc.)
- You are carrying or using communication equipment such as radios or mobile phones in close proximity of the smart key

Smart key system

- The smart key is in contact with or covered by a metallic object
- Other vehicles equipped with a smart key system are nearby

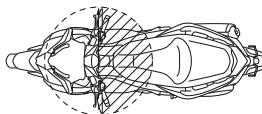
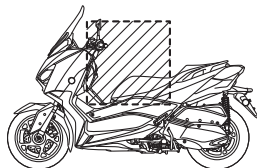
In such situations, move the smart key to another location and perform the operation again. If it still does not work, use the mechanical key to carry out the operation in emergency mode (See page 8-37).

TIP

To preserve vehicle battery power, the smart key system turns off approximately 9 days after the vehicle was last used (the answer-back function is disabled). In this situation, simply push the main switch knob to turn the smart key system back on.

Operating range of the smart key system

The operating range of the smart key system is about 80 cm (31.5 in) from the main switch.



TIP

- As the smart key system uses weak radio waves, the operating range may be affected by the surrounding environment.

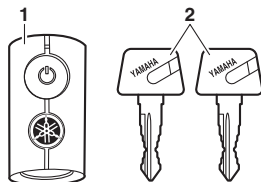
- When the battery of the smart key is discharged, the smart key may not work or its operating range may become very small.
- If the smart key is turned off, the vehicle will not recognize the smart key even if it is within operating range. If the smart key system does not operate, see page 4-4 and confirm that the smart key is turned on.
- Placing the smart key in the front or rear storage compartment may block communication between the smart key and the vehicle. If the rear storage compartment is locked with the smart key inside, the smart key system may be disabled. The smart key should always be carried with you.
- When leaving the vehicle, make sure you lock the steering and take the smart key with you. It is recommended that you turn the smart key off.

Smart key system

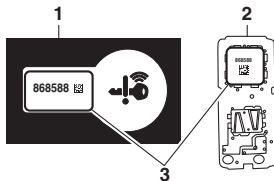
Handling of the smart key and mechanical keys

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1. Smart key
2. Mechanical key



1. Identification number card
2. Smart key (inside)
3. Identification number

WARNING

- The smart key should be carried with you. Do not store it on the vehicle.
- When the smart key is within operating range, exercise due care because other people not carrying the smart key can start the engine and operate the vehicle.

Included with the vehicle is one smart key, two mechanical keys, and one identification number card. The identification number can also be found on the inside of the smart key itself. Keep one mechanical key and the identification number card in a safe place separate from the vehicle.

If the vehicle battery is discharged, the mechanical key can be used to open the seat to charge or replace the battery. Therefore it is recommended that you carry one mechanical key together with the smart key.

If the smart key and the smart key system identification number are both lost or damaged, the entire smart key sys-

tem will need to be replaced. To prevent this, it is recommended that you write down the identification number in case the identification number card is lost.

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NOTICE

The smart key has precision electronic components. Observe the following precautions to prevent possible malfunction or damage.

- Do not place or store the smart key in a storage compartment. The smart key may be damaged from road vibrations or excessive heat.
- Do not drop, bend, or subject the smart key to strong impacts.
- Do not submerge the smart key in water or other liquids.
- Do not place heavy items or excessive stress on the smart key.
- Do not leave the smart key in a place exposed to direct sunlight, high temperature or high humidity.
- Do not grind or attempt to modify the smart key.

Smart key system

4

- **Keep the smart key away from strong magnetic fields and magnetic objects such as key holders, TVs, and computers.**
- **Keep the smart key away from electric medical equipment.**
- **Do not allow oils, polishing agents, fuel, or any strong chemicals to come in contact with the smart key. The smart key body may become discolored or cracked.**

TIP

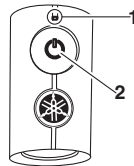
- The smart key battery life is approximately two years, but this may vary according to operating conditions.
- Replace the smart key battery when the smart key system indicator light flashes for 20 seconds when the vehicle is turned on, or when the smart key indicator light does not come on when the smart key button is pushed. (See page 4-6.) After changing the smart key battery, if the smart key system

still does not operate, check the vehicle battery and then have a Yamaha dealer check the vehicle.

- If the smart key continually receives radio waves, the smart key battery will discharge quickly. (For example, when placed in the vicinity of electrical products such as televisions, radios, or computers.)
- You can register up to six smart keys for the same vehicle. See a Yamaha dealer regarding spare smart keys.
- If a smart key is lost, contact a Yamaha dealer immediately to prevent the vehicle from being stolen, etc.

Smart key

EALU76470



1. Smart key indicator light
2. Smart key button

To turn the smart key on or off

Push and hold the smart key button for approximately 1 second to turn the smart key on or off. When the smart key is turned off, the vehicle cannot be operated even if the smart key is within operating range. To operate the vehicle, turn the smart key on and bring it within operating range. (See **Operating range of the smart key system.**)

Smart key system

EAU76480

To check whether the smart key is turned on or off

Push the smart key button to confirm the current operating status of the smart key.

If the smart key indicator light:

- Short flash (0.1 seconds): The smart key is turned on.
- Long flash (0.5 seconds): The smart key is turned off.

Remote answer-back function

Push the smart key button to operate the answer-back function remotely. The beeper will sound twice and all of the turn signal lights will flash twice. This feature is convenient for locating your vehicle in a parking lot and other areas.

To turn the answer-back beeper on or off

The beeper, which sounds when the answer-back function is operated, can be turned on or off according to the following procedure.

1. Turn the smart key on and bring it within operating range.

2. Turn the main switch to "OFF", and then push the main switch knob once.
3. Within 9 seconds of pushing the knob, push and hold the knob again for 5 seconds.
4. When the beeper sounds, the setting is complete.

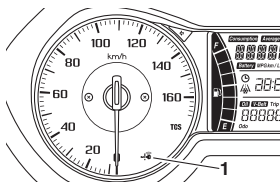
If the beeper:

- Sounds twice: The beeper is turned off.
- Sounds once: The beeper is turned on.

Replacing the smart key battery

Replace the battery in the following situations.

- The smart key system indicator light flashes for about 20 seconds when the power of the vehicle is turned on.
- The answer-back function does not operate when the smart key button is pushed.



1. Smart key system indicator light "48"

WARNING

EWA14724

- The battery and other removable parts may cause injury if swallowed. Keep the battery and other removable parts away from children.
- Do not expose the battery to direct sunlight or other heat sources.

Smart key system

NOTICE

ECA15784

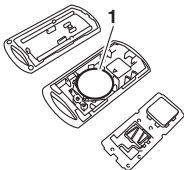
- Use a cloth when opening the smart key case with a screw-driver. Direct contact with hard objects may damage or scratch the smart key.
- Take precautions to prevent the waterproof seal from being damaged or contaminated by dirt.
- Do not touch the internal circuits and terminals. This may cause malfunctions.
- Do not apply excessive force to the smart key when replacing the battery.
- Make sure the battery is installed correctly. Confirm the direction of the positive/“+” side of the battery.

To replace the smart key battery

1. Open the smart key case as shown.

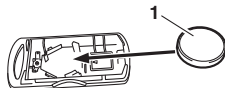


2. Remove the battery.



1. Battery

Specified battery:
CR2032



1. Battery

4. Gently snap the smart key case closed.

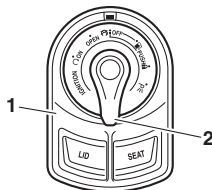
TIP

Dispose of the removed battery in accordance with local regulations.

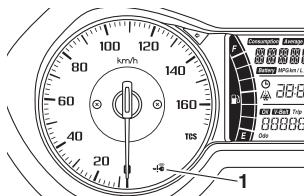
3. Install a new battery as shown.
Note the polarity of the battery.

Main switch

EAU76892



1. Main switch
2. Main switch knob



1. Smart key system indicator light "⚡"

The main switch is used to turn the vehicle power on and off, lock and unlock the steering, and open the seat, fuel tank cap lid and storage compartment A. After pushing the main switch knob

and confirmation with the smart key has taken place, the main switch can be turned while the smart key system indicator light is on (approximately 4 seconds).

⚠ WARNING

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

EWA18720

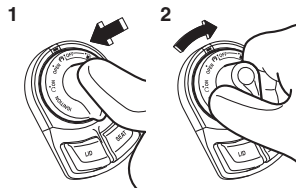
TIP

Do not push the main switch knob repeatedly or turn the main switch back and forth beyond normal use. Otherwise, to protect the main switch from damage, the smart key system will temporarily disable and the smart key system indicator light will flash. If this occurs, wait until the indicator light stops flashing before operating the main switch again.

The main switch positions are described below.

ON (on)

EAU76500



1. Push.
2. Turn.

All electrical circuits are supplied with the power, and the engine can be started.

To turn the vehicle power on

1. Turn the smart key on and bring it within operating range.
2. Push the main switch knob and the smart key indicator light will come on for approximately 4 seconds.
3. While the smart key system indicator light is on, turn the main switch to "ON". All of the turn signal lights flash twice and the vehicle power turns on.

Smart key system

TIP

- If the vehicle battery voltage is low, the turn signal lights will not flash.
- See "Emergency mode" on page 8-37 for information on turning the vehicle power on without the smart key.

4

OFF (off)

EAU76510



1. Turn.

All electrical systems are off.

To turn the vehicle power off

1. With the smart key turned on and within operating range, turn the main switch to "OFF".

2. The turn signal lights flash once and the vehicle power turns off.

TIP

When the main switch is turned to "OFF" but the smart key cannot be confirmed (the smart key is either outside operation range or has been turned off), the beeper will sound for 3 seconds and the smart key system indicator light will flash for 30 seconds.

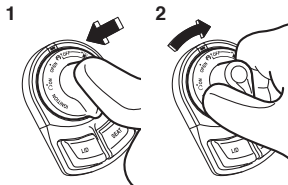
- During this 30 seconds, the main switch can be freely operated.
- After 30 seconds, the vehicle power will turn off automatically.
- To turn the vehicle power off immediately, push the main switch knob four times within 2 seconds.

OPEN (open)

EAU79040

The seat and storage compartment A can be opened.

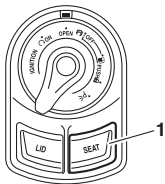
To open seat and compartment A



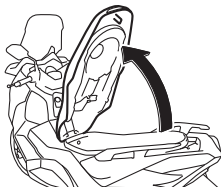
1. Push.

2. Turn.

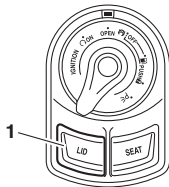
Smart key system



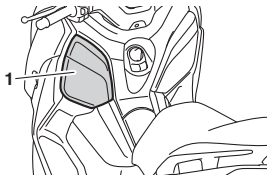
1. "SEAT" button



To open storage compartment A, push the "LID" button.



1. "LID" button



1. Storage compartment A

TIP

Make sure that the seat and storage compartment are securely closed before starting off.

Open position reminder

To prevent you from accidentally leaving the vehicle unlocked by walking away with the main switch still in the "OPEN" position, the smart key system beeper will sound under the following conditions.

- When the main switch has been in the open position for 3 minutes
- If the smart key is turned off while the main switch is in the open position
- If you walk out of range of the smart key system with the main switch in the open position

If the beeper sounds after 3 minutes, turn the main switch to "OFF" or "LOCK". If the beeper sounds because the smart key was turned off or moved out of range, turn the smart key on and walk back into range.

TIP

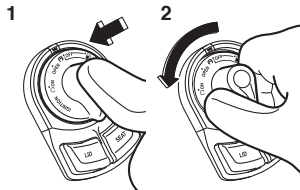
- The beeper will turn off after 1 minute.
- The seat can also be opened with the mechanical key. (See page 5-18.)

Smart key system

EAU76521

EAU79000

“i” (lock)



1. Push.
2. Push and turn.

The steering is locked and all electrical systems are off.

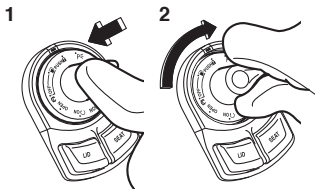
To lock the steering

1. Turn the handlebar all the way to the left.
2. With the smart key turned on and within operating range, push the main switch knob.
3. While the smart key system indicator light is on, push and turn the main switch to “i”.

TIP

If the steering will not lock, try turning the handlebar back to the right slightly.

To unlock the steering

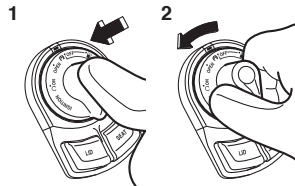


1. Push.
2. Push and turn.

1. With the smart key turned on and within operating range, push the main switch knob.
2. While the smart key system indicator light is on, push and turn the main switch to the desired position.

“f” (fuel tank cap lid)

To open the fuel tank cap lid



1. Push.
2. Turn.

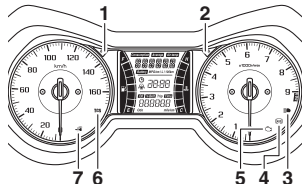
1. With the smart key turned on and within operating range, push the main switch knob.
2. While the smart key system indicator light is on, turn the main switch to “f”.

To close the fuel tank cap lid

Push the fuel tank cap lid down until it is closed.

Instrument and control functions

Indicator lights and warning lights



EAU4939C

EAU11081

EAU78180

High beam indicator light “”

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

Engine trouble warning light “”

This warning light comes on if a problem is detected in the engine or other vehicle control system. If this occurs, have a Yamaha dealer check the on-board diagnostic system.

The electrical circuit of the warning light can be checked by turning the main switch 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 main switch is turned to “ON”, or if the warning light remains on, have a Yamaha dealer check the vehicle.

EAU78171

ABS warning light “”

In normal operation, the ABS warning light comes on when the main switch is turned to “ON”, and goes off after traveling at a speed of 10 km/h (6 mi/h) or higher.

If the ABS warning light:

- does not come on when the main switch is turned to “ON”
- comes on or flashes while riding
- does not go off after traveling at a speed of 10 km/h (6 mi/h) or higher

The ABS may not work correctly. If any of the above occurs, have a Yamaha dealer check the system as soon as possible. (See page 5-12 for an explanation of the ABS.)

EWA16041

WARNING

If the ABS warning light does not go off after traveling at a speed of 10 km/h (6 mi/h) or higher, or if the warning light comes on or flashes while riding, the brake system reverts to conventional braking. If either of the above occurs, or if the warning light does not come on at all, use extra caution to avoid possible wheel lock during emergency braking. Have a Yamaha dealer check the brake system and electrical circuits as soon as possible.

Turn signal indicator lights “” and “”

Each indicator light will flash when its corresponding turn signal lights are flashing.

EAU11032

Instrument and control functions

TIP

The ABS warning light may come on while accelerating the engine with the vehicle on its centerstand, but this does not indicate a malfunction.

If this happens, turn the main switch off and then back on again to reset the indicator light.

EAU78591

Traction control system indicator light "TCS"

This indicator light will flash when traction control has engaged.

If the traction control system is turned off, this indicator light will come on. (See page 5-13.)

TIP

When the vehicle is turned on, the light should come on for a few seconds and then go off. If the light does not come on, or if the light remains on, have a Yamaha dealer check vehicle.

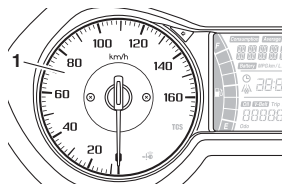
Smart key system indicator light "⚡"

This indicator light communicates the status of the smart key system. When the smart key system is operating normally, this indicator light will be off. If there is an error in the smart key system, the indicator light will flash. The indicator light will also flash when communication between the vehicle and smart key takes place and when certain smart key system operations are carried out.

EAU78600

Speedometer

EAU63542



1. Speedometer

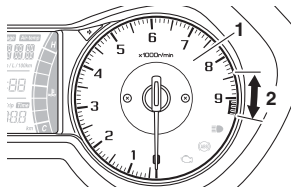
The speedometer shows the vehicle's traveling speed.

When the vehicle power is turned on, the speedometer needle will sweep once across the speed range and then return to zero in order to test the electrical circuit.

Instrument and control functions

Tachometer

EAU63551



1. Tachometer
2. Tachometer red zone

5

The electric tachometer allows the rider to monitor the engine speed and keep it within the ideal power range. When the vehicle power is turned on, the tachometer needle will sweep once across the r/min range and then return to zero r/min in order to test the electric circuit.

NOTICE

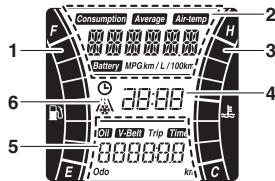
Do not operate the engine in the tachometer red zone.

Red zone: 8400 r/min and above

ECA10032

Multi-function display

EAU78484



1. Fuel meter
2. Information display
3. Coolant temperature meter
4. Clock
5. Tripmeter display
6. Icy road warning indicator "A"

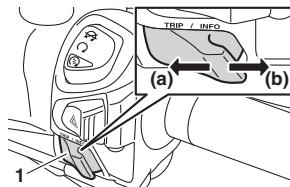


WARNING

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

The "TRIP/INFO" switch is located on the right side of the handlebar. This switch allows you to control or change

the settings of the multi-function meter unit. To use the "TRIP" switch, move the "TRIP/INFO" switch in direction (a). To use the "INFO" switch, move the "TRIP/INFO" switch in direction (b).



1. "TRIP/INFO" switch

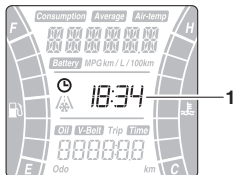
The multi-function display is equipped with the following:

- clock
- fuel meter
- coolant temperature meter
- tripmeter display
- information display

EWA12423

Instrument and control functions

Clock



1. Clock

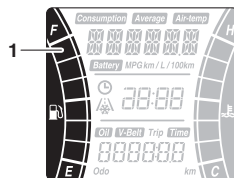
The clock uses a 24-hour time system.

To set the clock

1. Turn the main switch to "OFF".
2. Push and hold the "TRIP" switch.
3. Turn the main switch to "ON" while pushing the "TRIP" switch, and then continue to push the "TRIP" switch for eight seconds. The hour digits will start flashing.
4. Use the "TRIP" switch to set the hours.
5. Push the "TRIP" switch for three seconds, and then release it. The minute digits will start flashing.

6. Use the "TRIP" switch to set the minutes.
7. Push the "TRIP" switch for three seconds, and then release it to start the clock.

Fuel meter



1. Fuel meter

The fuel meter indicates the amount of fuel in the fuel tank. The segments of the fuel meter disappear from "F" (full) towards "E" (empty) as the fuel level decreases. When the last segment of the fuel meter starts flashing, refuel as soon as possible.

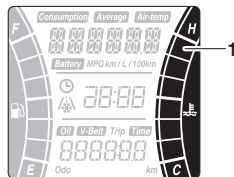
TIP

- If a problem is detected in the fuel meter, the all segments will flash repeatedly. If this occurs, have a Yamaha dealer check the vehicle.

5-4

- When approximately 2.4 L (0.63 US gal, 0.53 Imp.gal) of fuel remains in the fuel tank, the last segment of the fuel meter will start flashing. The display will automatically change to the fuel reserve tripmeter "F Trip" and start counting the distance traveled from that point.

Coolant temperature meter



1. Coolant temperature meter

The coolant temperature meter indicates the temperature of the coolant. If the top segment flashes, stop the vehicle, then stop the engine, and let the engine cool.

Instrument and control functions

ECA10022

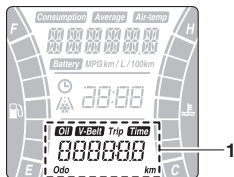
NOTICE

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

TIP

- If a problem is detected in the coolant temperature meter, all segments will flash repeatedly. If this occurs, have a Yamaha dealer check the vehicle as soon as possible.
- The coolant temperature varies with changes in the weather and engine load.

Tripmeter display



1. Tripmeter display

The tripmeter display is equipped with the following:

- odometer
- tripmeter
- time tripmeter
- fuel reserve tripmeter
- oil change tripmeter
- V-belt replacement tripmeter

Push the "TRIP" switch to change the display between the odometer "Odo", tripmeter "Trip", time tripmeter "Trip Time", oil change tripmeter "Oil Trip", and V-belt replacement tripmeter "V-Belt Trip" in the following order:

Odo → Trip → Trip Time → Oil Trip → V-Belt Trip → Odo

TIP

When approximately 2.4 L (0.63 US gal, 0.53 Imp.gal) of fuel remains in the fuel tank, the last segment of the fuel meter will start flashing. The display will automatically change to the fuel reserve tripmeter "F Trip" and start counting the distance traveled from that point.

Odometer "Odo" and tripmeter "Trip"

The odometer shows the total distance traveled by the vehicle.

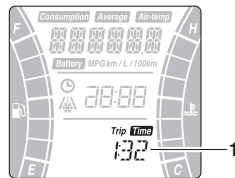
The tripmeter shows the distance traveled since it was last reset.

To reset the tripmeter, select it by pushing the "TRIP" switch, and then push the "TRIP" switch for three seconds.

TIP

- The odometer will lock at 999999.
- The tripmeter will reset and continue counting after 9999.9 is reached.

Time tripmeter "Time"



1. Time tripmeter

The time tripmeter displays the time that has elapsed while the main switch was in the "ON" position since it was last reset.

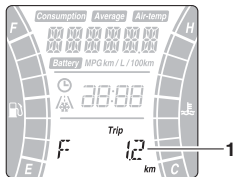
Instrument and control functions

The maximum time that can be shown is 99:59.

TIP

To reset the time tripmeter, select it by pushing the “TRIP” switch, and then push the “TRIP” switch for three seconds.

Fuel reserve tripmeter “F Trip”



1. Fuel reserve tripmeter

When approximately 2.4 L (0.63 US gal, 0.53 Imp.gal) of fuel remains in the fuel tank, the last segment of the fuel meter will start flashing. The display will automatically change to the fuel reserve tripmeter “F Trip” and start counting the distance traveled from that point. In this case, push the “TRIP”

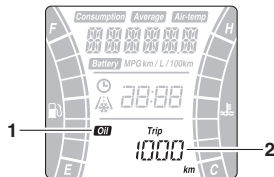
switch to switch the display in the following order:

F Trip → Oil Trip → V-Belt Trip → Odo → Trip → Trip Time → F Trip

To reset the fuel reserve tripmeter, select it by pushing the “TRIP” switch, and then push the “TRIP” switch for three seconds.

The fuel reserve tripmeter will reset automatically and disappear after refueling and traveling 5 km (3 mi).

Oil change tripmeter “Oil Trip”



1. Oil change indicator “Oil”
2. Oil change tripmeter

The oil change tripmeter shows the distance traveled since the oil was last changed.

The oil change indicator “OIL” flashes at the initial 1000 km (600 mi), then at 4000 km (2400 mi) and every 5000 km (3000 mi) thereafter to indicate that the engine oil should be changed.

After changing the engine oil, reset the oil change indicator and the oil change tripmeter. To reset them both, select the oil change tripmeter, and then push the “TRIP” switch for three seconds.

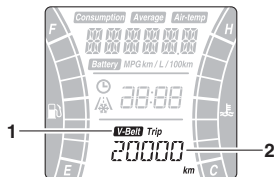
While the oil change tripmeter is flashing, push the “TRIP” switch for 15 to 20 seconds. Release the “TRIP” switch, and the oil trip value will reset to zero.

TIP

If the engine oil is changed before the oil change indicator comes on (i.e., before the periodic oil change interval has been reached), the oil change tripmeter must be reset for the oil change indicator to come on at the correct time.

Instrument and control functions

V-belt replacement tripmeter "V-Belt Trip"



1. V-belt replacement indicator "V-Belt"
2. V-belt replacement tripmeter

The V-belt replacement tripmeter shows the distance traveled since the V-belt was last replaced.

The V-belt replacement indicator "V-Belt" will flash every 20000 km (12000 mi) to indicate that the V-belt should be replaced.

After replacing the V-belt, reset the V-belt replacement indicator and the V-belt replacement tripmeter. To reset them both, select the V-belt replacement tripmeter, and then push the "TRIP" switch for three seconds.

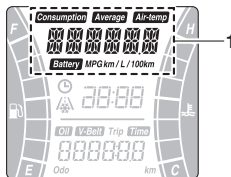
While the V-belt replacement tripmeter

is flashing, push the "TRIP" switch for 15 to 20 seconds. Release the "TRIP" switch, and the V-belt trip value will reset to zero.

TIP

If the V-belt is replaced before the V-belt replacement indicator comes on (i.e., before the periodic V-belt replacement interval has been reached), the V-belt replacement tripmeter must be reset for the V-belt replacement indicator to come on at the correct time.

Information display



1. Information display

The information display is equipped with the following:

- air temperature display
- battery voltage display
- traction control system display

- average fuel consumption display
- instantaneous fuel consumption display
- average speed display
- warning message function

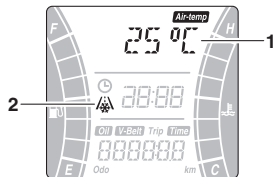
Navigating the information display

Push the "INFO" switch to change the display between the air temperature display "Air-temp", battery voltage display "Battery", traction control system display "TCS ON" or "TCSOFF", average fuel consumption display "Consumption/Average_ _ _ km/L" or "Consumption/Average_ _ _ L/100 km", instantaneous fuel consumption display "Consumption_ _ _ km/L" or "Consumption_ _ _ L/100 km" and average speed display "Average" in the following order:

Air-temp → Battery → TCS ON or TCSOFF → Consumption/Average_ _ _ km/L → Consumption/Average_ _ _ L/100 km → Consumption_ _ _ km/L → Consumption_ _ _ L/100 km → Average → Air-temp

Instrument and control functions

Air temperature display



1. Air temperature display
2. Icy road warning indicator "A"

This display shows the air temperature from -10°C to 50°C in 1°C increments.

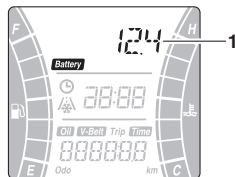
The icy road warning indicator "A" will flash when the temperature is below 4°C .

The temperature displayed may vary from the actual ambient temperature.

TIP

The accuracy of the temperature reading may be affected by engine heat when riding slowly (under 20 km/h [12 mi/h]) or when stopped at traffic signals, etc.

Battery voltage display



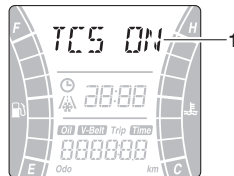
1. Battery voltage display

This display shows the current charge state of the battery.

TIP

- If the engine turns over slowly when using the start switch, have a Yamaha dealer charge the battery.
- If "----" appears in the battery voltage display, have a Yamaha dealer check the battery.

Traction control system display



1. Traction control system display

This display shows the current status of the traction control system. (See page 5-13.)

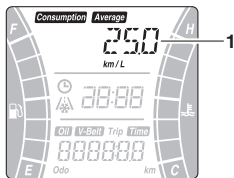
- "TCS ON": the system is on
- "TCSOFF": the system is off

TIP

If only "TCS" is displayed, there is a communication error within the vehicle. Have a Yamaha dealer check the vehicle as soon as possible.

Instrument and control functions

Average fuel consumption display



1. Average fuel consumption display

This function calculates the average fuel consumption since it was last reset.

The average fuel consumption can be displayed as either "Consumption/Average_ _ _ km/L", "Consumption/Average_ _ _ L/100 km" or "Consumption/Average_ _ _ MPG"

- "Consumption/Average_ _ _ km/L": The average distance that can be traveled on 1.0 L of fuel is shown.
- "Consumption/Average_ _ _ L/100 km": The average amount of fuel necessary to travel 100 km is

To reset the average fuel consumption, push the "INFO" switch for at least three seconds.

TIP

After resetting the average fuel consumption, " _ _ _" will be shown until the vehicle has traveled 1 km (0.6 mi).

Instantaneous fuel consumption display



1. Instantaneous fuel consumption display

This function calculates the fuel consumption under current riding conditions.

The instantaneous fuel consumption can be displayed as either "Consumption_ _ _ km/L", "Consumption_ _ _ L/100 km" or "Consumption_ _ _ MPG"

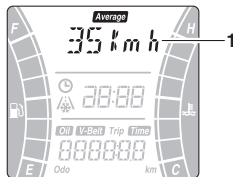
- "Consumption_ _ _ km/L": The distance that can be traveled on 1.0 L of fuel under the current riding conditions is shown.

- "Consumption_ _ _ L/100 km": The amount of fuel necessary to travel 100 km under the current riding conditions is shown.

TIP

If traveling at speeds under 10 km/h (6 mi/h), " _ _ _" is displayed.

Average speed display



1. Average speed display

The average speed "Average_ _ _ kmh"

The average speed is the total distance divided by the total time (with the main switch in the "ON" position) since the display was last reset to zero. This display shows the average speed since it was last reset.

Instrument and control functions

EAU1234M

To reset the average speed display, select it by pushing the "INFO" switch, and then push the "INFO" switch for three seconds.

Warning message function

This function displays a warning message corresponding to the current warning.

"L FUEL": Appears when the last segment of the fuel meter starts flashing. If "L FUEL" is displayed, refuel as soon as possible.

"H TEMP": Appears when the top segment of the coolant temperature meter starts flashing. If "H TEMP" is displayed, stop the vehicle, then stop the engine, and let the engine cool.

"ICE": Appears when the icy road warning indicator "▲" starts flashing. If "ICE" is displayed, be careful of icy roads.

"OIL SERV": Appears when the oil change indicator "OIL" starts flashing. If "OIL SERV" is displayed, change the engine oil, and then reset the oil change indicator and oil change tripmeter.

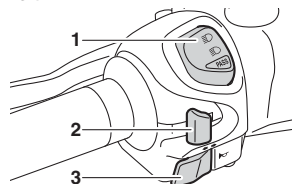
"V-BELT SERV": Appears when the V-belt replacement indicator "V-Belt" starts flashing. If "V-BELT SERV" is displayed, replace the V-belt, and then reset the V-belt replacement indicator and V-belt replacement tripmeter.

When there are two or more warnings, the warning messages are displayed in the following order:

L FUEL → H TEMP → ICE → OIL SERV
→ VBELT SERV → L FUEL

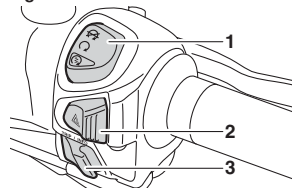
Handlebar switches

Left



1. Dimmer/Pass switch "☐O/☐O/PASS"
2. Turn signal switch "↵/↶"
3. Horn switch "🔊"

Right



1. Stop/Run/Start switch "☐/☐/☐"
2. Hazard switch "▲"
3. "TRIP/INFO" switch

Instrument and control functions

Dimmer/Pass switch “/ /PASS”

EAU54201

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

To flash the high beam, push the pass side “PASS” of the switch while the headlights are on low beam.

Turn signal switch “/ ”

EAU12461

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.

Horn switch “”

EAU12501

Press this switch to sound the horn.

Stop/Run/Start switch “/ / ”

EAU54212

To crank the engine with the starter, set this switch to “”, and then push the switch down towards “”. See page 6-2 for starting instructions prior to 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.

Hazard switch “”

EAU78190

With the main switch 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.

NOTICE

ECA10062

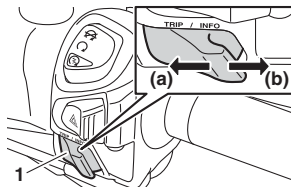
Do not use the hazard lights for an extended length of time with the engine not running, otherwise the battery may discharge.

“TRIP/INFO” switch

EAU78491

This switch is used to make setting and display changes in the multi-function meter unit. See page 5-3 for more information.

To use the “TRIP” switch, move the “TRIP/INFO” switch in direction (a). To use the “INFO” switch, move the “TRIP/INFO” switch in direction (b).

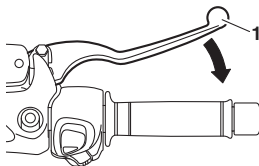


1. “TRIP/INFO” switch

Instrument and control functions

Front brake lever

EAU12902

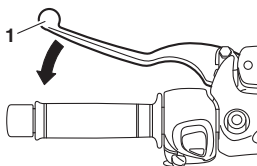


1. Front brake lever

The front brake lever is located on the right side of the handlebar. To apply the front brake, pull this lever toward the throttle grip.

Rear brake lever

EAU12952



1. Rear brake lever

The rear brake lever is located on the left side of the handlebar. To apply the rear brake, pull this lever toward the handlebar grip.

ABS

EAU78200

The Yamaha ABS (Anti-lock Brake System) features a dual electronic control system, which acts on the front and rear brakes independently.

Operate the brakes with ABS as you would conventional brakes. If the ABS is activated, a pulsating sensation may be felt at the brake levers. In this situation, continue to apply the brakes and let the ABS work; do not “pump” the brakes as this will reduce braking effectiveness.

EWA16051



WARNING

Always keep a sufficient distance from the vehicle ahead to match the riding speed even with ABS.

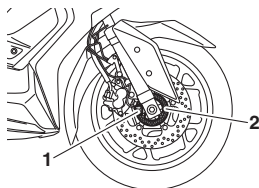
- The ABS performs best with long braking distances.
- On certain surfaces, such as rough or gravel roads, the braking distance may be longer with the ABS than without.

Instrument and control functions

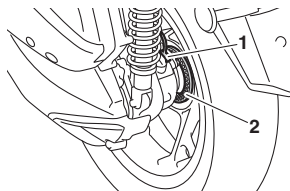
The ABS is monitored by an ECU, which will revert the system to conventional braking if a malfunction occurs.

TIP

- The ABS performs a self-diagnosis test each time the vehicle first starts off after the main switch is turned to "ON" and the vehicle has traveled at a speed of 10 km/h (6 mi/h) or higher. During this test, a "clicking" noise can be heard from the front of the vehicle, and if either brake lever is even slightly applied, a vibration can be felt at the lever, but these do not indicate a malfunction.
- This ABS has a test mode which allows the owner to experience the pulsation at the brake levers when the ABS is operating. However, special tools are required, so please consult your Yamaha dealer.



1. Front wheel sensor
2. Front wheel sensor rotor



1. Rear wheel sensor
2. Rear wheel sensor rotor

ECA20100

NOTICE

Be careful not to damage the wheel sensor or wheel sensor rotor; otherwise, improper performance of the ABS will result.

EAU78611

Traction control system

The traction control system (TCS) helps maintain traction when accelerating on slippery surfaces, such as unpaved or wet roads. If sensors detect that the rear wheel is starting to slip (uncontrolled spinning), the traction control system assists by regulating engine power until traction is restored. When traction control has engaged, the "TCS" indicator light will flash. You may notice changes in engine response or exhaust sound.

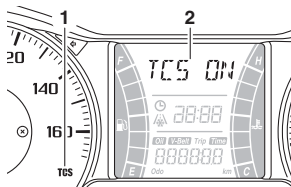
EWA18860

WARNING

The traction control system is not a substitute for riding appropriately for the conditions. Traction control cannot prevent loss of traction due to excessive speed when entering turns, when accelerating hard at a sharp lean angle, or while braking, and cannot prevent front wheel slipping. As with any vehicle, approach surfaces that may be slippery with caution and avoid especially slippery surfaces.

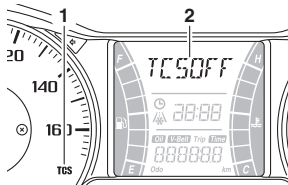
Instrument and control functions

Setting the traction control system



1. Traction control system indicator light "TCS"
2. Traction control system display

When the vehicle is turned on, traction control is automatically turned on. To turn the traction control system off, use the "INFO" switch to change the information display to the traction control system display. Then push the "INFO" switch for three seconds. The display will show "TCSOFF", and the "TCS" indicator light will come on.



1. Traction control system indicator light "TCS"
2. Traction control system display

TIP

Turn the traction control system off to help free the rear wheel if the vehicle gets stuck in mud, sand, or other soft surfaces.

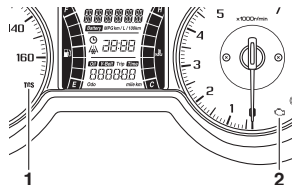
NOTICE

Use only the specified tires. (See page 8-20.) Using different sized tires will prevent the traction control system from controlling tire rotation accurately.

ECA16801

Resetting the traction control system

The traction control system will automatically disable under certain conditions; such as when a sensor fault is detected, or when only one wheel is allowed to rotate for more than a few seconds. Should this happen, the "TCS" indicator light will come on, and possibly the "E" warning light, too.



1. Traction control system indicator light "TCS"
2. Engine trouble warning light "E"

TIP

When the vehicle is on the centerstand, do not rev the engine for an extended period of time. Otherwise, the traction control system will automatically disable and need to be reset.

Instrument and control functions

If the traction control system automatically disables, try resetting it as follows.

1. Stop the vehicle and turn it off completely.
2. Wait a few seconds and then turn the vehicle power on.
3. The "tcs" indicator light should turn off and the system be enabled.

TIP

If the "tcs" indicator light remains on after resetting, the vehicle may still be ridden; however, have a Yamaha dealer check the vehicle as soon as possible.

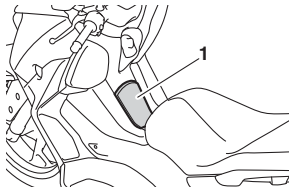
4. Have a Yamaha dealer check the vehicle and turn off the "tcs" warning light.

Fuel tank cap

EAU78502

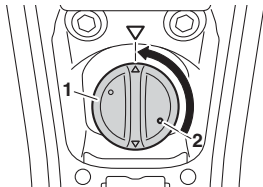
To remove the fuel tank cap

1. Turn the main switch to "⏻" to open the fuel tank cap lid.



1. Fuel tank cap lid

2. Turn the fuel tank cap counter-clockwise until the release mark "o" aligns with "▽", and then pull the cap off.

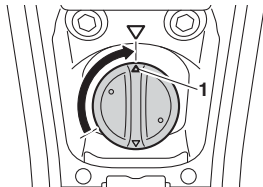


1. Fuel tank cap
2. Release mark "o"

To install the fuel tank cap

1. Insert the fuel tank cap onto the tank opening and turn it clockwise until the install mark "△" aligns with "▽".

Instrument and control functions



1. Install mark "△"

2. Close the fuel tank cap lid.

EWA11092

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.

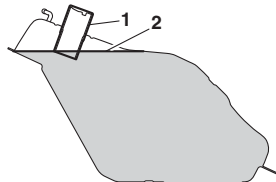
EAU13213

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.

EWA10882

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.** [ECA10072]
4. Be sure to securely close the fuel tank cap.

EWA15152

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 vapor, or get some gasoline in your

Instrument and control functions

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.

EAU76750

Recommended fuel:
Regular unleaded gasoline

Fuel tank capacity:
13.2 L (3.4 US gal, 2.9 Imp.gal)

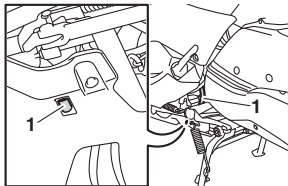
ECA11401

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.

Fuel tank overflow hose

EAU58301



1. Fuel tank overflow hose

Before operating the vehicle:

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

EAU13447

Catalytic converters

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

EW110863

⚠ WARNING

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.

Instrument and control functions

ECA10702

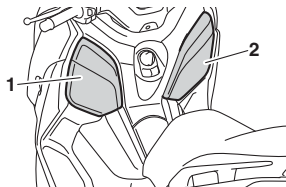
EAU78512

NOTICE

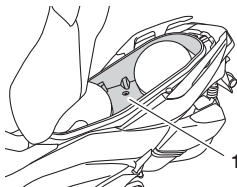
Use only unleaded gasoline. The use of leaded gasoline will cause unrepairable damage to the catalytic converter.

Storage compartments

This model is equipped with 3 storage compartments. The front storage compartments and rear storage compartment are located as shown.



1. Storage compartment A
2. Storage compartment B



1. Rear storage compartment

TIP

- Storage compartment A must be opened using the smart key system. (See page 4-8.)
- The seat/rear storage compartment can be opened using the smart key system or the mechanical key.
- Some helmets cannot be stored in the rear storage compartment because of their size or shape.

Storage compartment A

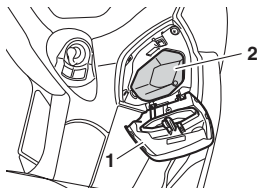
To open storage compartment A, turn the main switch to "OPEN" and then push the "LID" button.

To close storage compartment A, push the storage compartment lid until it is closed.

Storage compartment B

To open storage compartment B, push the storage compartment lid inward to unlock it, and then pull to open.

Instrument and control functions



1. Lid
2. Storage compartment

To close storage compartment B, push the storage compartment lid into the original position.

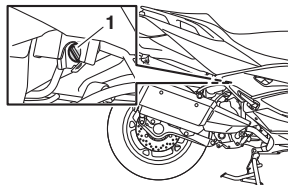
Seat/rear storage compartment

To open the seat/rear storage compartment via the main switch

Turn the main switch to "OPEN", and then push the "SEAT" button.

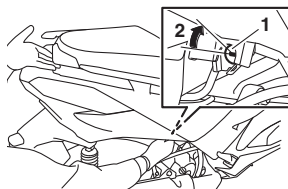
To open the seat/rear storage compartment with the mechanical key

1. Open the keyhole cover.



1. Keyhole cover

2. Insert the mechanical key into the seat lock, and then turn it clockwise.



1. Seat lock
2. Unlock.

TIP

Be sure to close the seat and all storage compartments before starting off.

ECA24020

NOTICE

Make sure that the keyhole cover is installed when the mechanical key is not being used.

ECA21150

NOTICE

Keep the following points in mind when using the storage compartment.

- Since the storage compartment accumulates heat when exposed to the sun and/or the engine heat, do not store anything susceptible to heat, consumables or flammable items inside it.
- To avoid humidity from spreading through the storage compartment, wrap wet articles in a plastic bag before storing them in the compartment.
- Since the storage compartment may get wet while the vehicle is being washed, wrap any articles stored in the compartment in a plastic bag.
- Do not keep anything valuable or breakable in the storage compartment.

Instrument and control functions

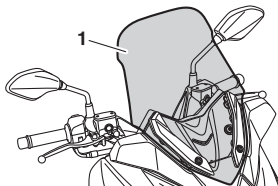
WARNING

- Do not exceed the maximum load of 1.0 kg (2 lb) for compartment A.
- Do not exceed the maximum load of 0.5 kg (1 lb) for compartment A.
- Do not exceed the maximum load of 5.0 kg (11 lb) for rear compartment.
- Do not exceed the maximum load for the vehicle 161kg (355 lb).

EWA15401

Windshield

To suit the rider's preference, the windshield height can be changed to one of two positions.

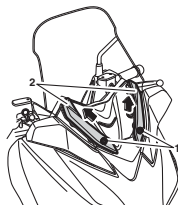


1. Windshield

To change the windshield height to the high position

1. Remove the bolt access covers by removing the quick fasteners.

EAU78521



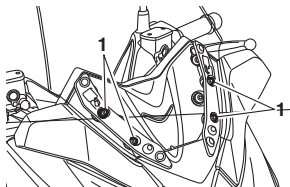
2. Remove the windshield by removing the fastener.



1. Quick fastener
2. Bolt access cover
3. Remove the windshield by removing the bolts.

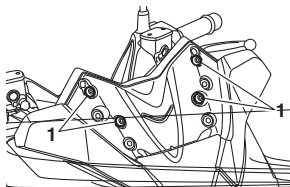
Instrument and control functions

5

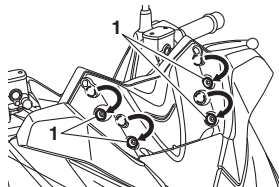


1. Bolt

4. Remove the bolts, and then install the bolts in the desired position.



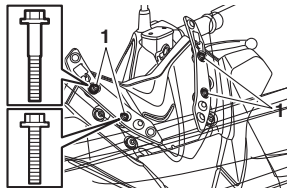
1. Bolt



1. Bolt

5. Install the windshield to the high position by installing the bolts, and then tighten the bolts to the specified torque. **WARNING! A loose windshield could cause an accident. Be sure to tighten the screws to the specified torque.**

[EWA15511]

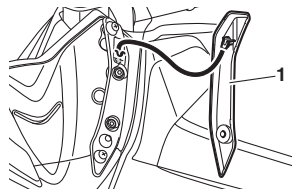


1. Bolt

Tightening torque:

Windshield bolt:
8 N·m (0.8 kgf-m, 5.9 lb-ft)

6. Place the bolt access covers, and then install the quick fasteners.



1. Bolt access cover

6. Place number plate bracket with bolt and collar.

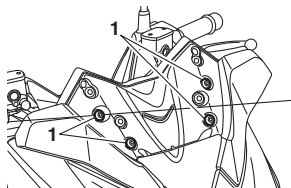
To change the windshield height to the low position

1. Remove number plate bracket with bolt and collar.
2. Remove the bolt access covers by removing the quick fasteners.
3. Remove the windshield by removing the bolts.

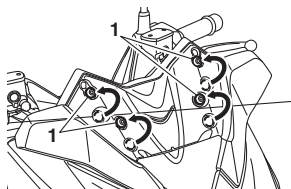
Instrument and control functions

EALJ46833

4. Remove the bolts, and then install the bolts in the desired position.



1. Bolt

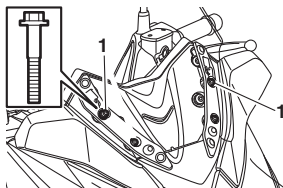


1. Bolt

5. Install the windshield to the low position by installing the bolts, and then tighten the bolts to the specified torque. **WARNING! A loose windshield could cause an acci-**

dent. Be sure to tighten the screws to the specified torque.

[EWA15511]



1. Bolt

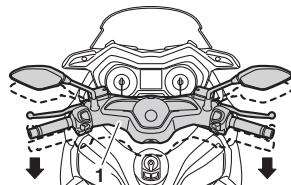
Tightening torque:

Windshield bolt:
8 N·m (0.8 kgf-m, 5.8 lb-ft)

6. Place the bolt access covers, and then install the quick fasteners.
7. Place number plate bracket with bolt and collar.

Handlebar position

The handlebar can be adjusted to one of two positions to suit the rider's preference. Have a Yamaha dealer adjust the position of the handlebar.



1. Handlebar

Instrument and control functions

Adjusting the shock absorber assemblies

EAU14893

EWA10211

WARNING

Always adjust both shock absorber assemblies equally, otherwise poor handling and loss of stability may result.

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

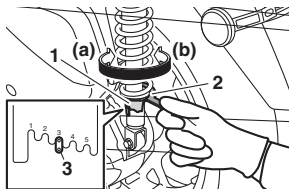
ECA10102

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 on each shock absorber assembly in direction (a). To decrease the spring preload and thereby soften the suspension, turn the adjusting ring on each shock absorber assembly in direction (b).

- Align the appropriate notch in the adjusting ring with the position indicator on the shock absorber.
- Use the spring preload adjusting tool included in the owner's tool kit to make this adjustment.



1. Spring preload adjusting ring
2. Special wrench
3. Position indicator

Spring preload setting:

Minimum (soft):

1

Standard:

3

Maximum (hard):

5

Sidestand

EAU15306

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 the following section for an explanation of the ignition circuit cut-off system.)

EWA10242

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 and have a Yamaha dealer repair it if it does not function properly.

EALU78690

Ignition circuit cut-off system

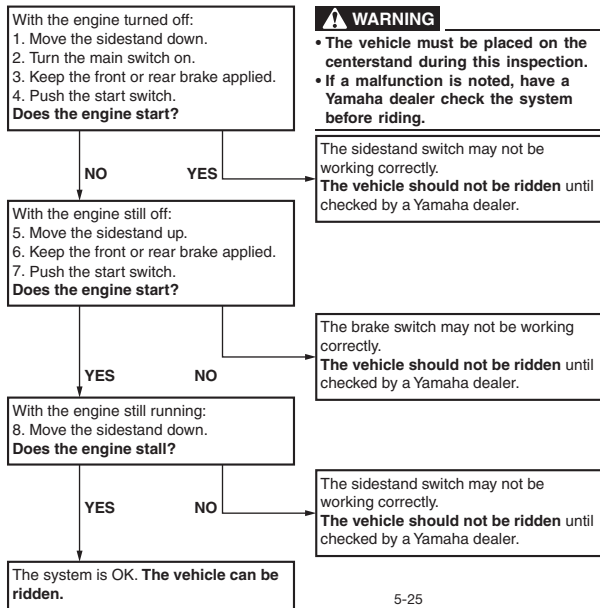
The ignition circuit cut-off system works with the sidestand switch and brake light switches. It has the following functions.

- It prevents the engine from starting when the sidestand is down.
- It prevents the engine from starting if the brakes are not applied.
- It will stop the running engine if the sidestand is moved down.

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

Instrument and control functions

5



Auxiliary DC jack

EAU78213

EWA14361



WARNING

To prevent electrical shock or short-circuiting, make sure that the cap is installed when the auxiliary DC jack is not being used.

ECA15432

NOTICE

The accessory connected to the auxiliary DC jack should not be used with the engine turned off, and the load must never exceed 12 W (1 A), otherwise the fuse may blow or the battery may discharge.

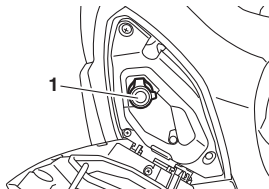
This vehicle is equipped with an auxiliary DC jack located within storage compartment A.

A 12-V accessory connected to the auxiliary DC jack can be used when the main switch is in the "ON" position and should only be used when the engine is running.

To use the auxiliary DC jack

1. Open storage compartment A.
(See page 4-8.)
2. Turn the main switch off.

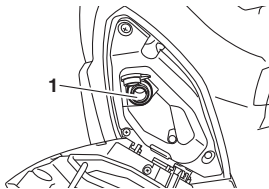
3. Remove the auxiliary DC jack cap.



1. Auxiliary DC jack cap

4. Turn the accessory off.

5. Insert the accessory plug into the auxiliary DC jack.



1. Auxiliary DC jack

6. Turn the main switch on, and then start the engine.

7. Turn the accessory on.

5-26

For your safety – pre-operation checks

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.



WARNING

EWA11152

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:

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 fuel tank overflow hose for obstructions, cracks or damage, and check hose connection.	5-15, 5-17
Engine oil	<ul style="list-style-type: none">• Check oil level in engine.• If necessary, add recommended oil to specified level.• Check vehicle for oil leakage.	8-10
Final transmission oil	<ul style="list-style-type: none">• Check vehicle for oil leakage.	8-12
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.	8-13

For your safety – pre-operation checks

ITEM	CHECKS	PAGE
Front 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 specified brake fluid to specified level. • Check hydraulic system for leakage. 	8-22, 8-22, 8-23
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 specified brake fluid to specified level. • Check hydraulic system for leakage. 	8-22, 8-22, 8-23
Throttle grip	<ul style="list-style-type: none"> • Make sure that operation is smooth. • Check throttle grip free play. • If necessary, have Yamaha dealer adjust throttle grip free play and lubricate cable and grip housing. 	8-19, 8-25
Control cables	<ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate if necessary. 	8-25
Wheels and tires	<ul style="list-style-type: none"> • Check for damage. • Check tire condition and tread depth. • Check air pressure. • Correct if necessary. 	8-20, 8-21
Brake levers	<ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate lever pivoting points if necessary. 	8-26
Centerstand, sidestand	<ul style="list-style-type: none"> • Make sure that operation is smooth. • Lubricate pivots if necessary. 	8-26

For your safety – pre-operation checks

ITEM	CHECKS	PAGE
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.	—
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.	5-23

Operation and important riding points

EAU15952

EAU78221

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.



EWA10272

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

TIP

This model is equipped with a lean angle sensor to stop the engine in case of a turnover. In this case, the engine trouble warning light will come on but this is not a malfunction. Before restarting the engine, turn the main switch off and then back on to reset the engine trouble warning light. Failing to do so will prevent the engine from starting even though the engine will crank when pushing the start switch.

Operation and important riding points

Starting the engine

EAU78231

ECA10251

NOTICE

See page 7-4 for engine break-in instructions prior to operating the vehicle for the first time.

In order for the ignition circuit cut-off system to enable starting, the side-stand must be up. (See page 5-24.)

1. Turn the main switch on and make sure that the stop/run/start switch is set to "C".

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

- Engine trouble warning light
- Traction control system indicator light
- Smart key system indicator light

TIP

The ABS warning light should come on and stay on until the vehicle reaches a traveling speed of 10 km/h (6 mi/h) or higher.

NOTICE

If a warning or indicator light does not work as described above, see page 5-1 for the corresponding warning and indicator light circuit check.

2. Close the throttle.
3. While applying the front or rear brake, push the "C" side of the stop/run/start switch. Release it when the engine starts.

TIP

If the engine does not start, release the start switch after 5 seconds. Before pressing the start switch again, wait 10 seconds to allow battery voltage to restore.

ECA11043

NOTICE

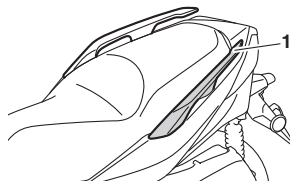
For maximum engine life, never accelerate hard when the engine is cold!

ECA22510

Starting off

EAU45093

1. While pulling the rear brake lever with your left hand and holding the grab bar with your right hand, push the scooter off the center-stand.

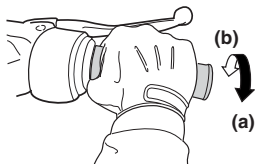


1. Grab bar
2. Sit astride the seat, and then adjust the rear view mirrors.
3. Switch the turn signals on.
4. Check for oncoming traffic, and then slowly turn the throttle grip (on the right) in order to take off.
5. Switch the turn signals off.

Operation and important riding points

Acceleration and deceleration

EAL16782



ZAUM009

The speed can be adjusted by opening and closing the throttle. To increase the speed, turn the throttle grip in direction (a). To reduce the speed, turn the throttle grip in direction (b).

Braking

EAL16794

EWA10301

WARNING

- **Avoid braking hard or suddenly (especially when leaning over to one side), otherwise the scooter may skid or overturn.**
- **Railroad crossings, streetcar rails, iron plates on road construction sites, and manhole covers become extremely slippery when wet. Therefore, slow down when approaching such areas and cross them with caution.**
- **Keep in mind that braking on a wet road is much more difficult.**
- **Ride slowly down a hill, as braking downhill can be very difficult.**

1. Close the throttle completely.
2. Apply both front and rear brakes simultaneously while gradually increasing the pressure.

Tips for reducing fuel consumption

EAL16821

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

- Avoid high engine speeds during acceleration.
- 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).

Operation and important riding points

7

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.

EAU16942

1600 km (1000 mi) and beyond

The vehicle can now be operated normally.

ECA10311

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.

EAU34323

0–1000 km (0–600 mi)

Avoid prolonged operation above 4500 r/min. **NOTICE:** After 1000 km (600 mi) of operation, be sure to replace the engine oil, the transmission oil and the oil filter element. [ECA12932]

1000–1600 km (600–1000 mi)

Avoid prolonged operation above 5400 r/min.

EAUN1421

Parking


When parking, turn the vehicle power off, and then turn the smart key off.

TIP

Even when the vehicle is parked in a location partitioned by a fence or the glass window of a shop, if the smart key is within operating range, other people will be able to start the engine and operate the vehicle. Please turn the smart key off when leaving the vehicle. (See page 4-4.)

If the sidestand is lowered when the engine is running, the engine will stop and the beeper will sound for approximately 1 minute. To stop the beeper, turn the vehicle power off or raise the sidestand.

TIP

- Before leaving the vehicle, be sure to turn the main switch to “OFF” or “”. Otherwise, the battery may discharge.
- The sidestand alarm beeper can be set to not activate. Please contact your Yamaha dealer.

Operation and important riding points

EWA10312

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 inflammable materials which might catch fire.

Periodic maintenance and adjustment

EAU17246

8

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

EWA10322

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.

WARNING

EWA15123

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 2-2 for more information about carbon monoxide.**

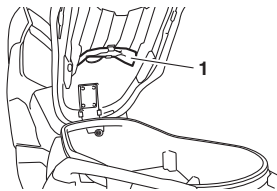
WARNING

EWA15461

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

Owner's tool kit

EAU39692



1. Owner's tool kit

The owner's tool kit is located on the bottom of the seat. (See page 4-8.)

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.

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

TIP

- The annual checks must be performed every year, except if a kilometer-based maintenance is performed instead.
- From 25000 km, repeat the maintenance intervals starting from 5000 km or 5 month.
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

EALJ46932

Periodic maintenance chart for the emission control system

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (whichever comes first)					ANNUAL CHECK
			1000 km or 1 month	5000 km or 5 months	10000 km or 10 months	15000 km or 15 months	20000 km or 20 months	
1	* Fuel line	• Check fuel hoses for cracks or damage.		√	√	√	√	√
2	* Fuel filter	• Check condition. • Replace if necessary.	Every 12000 km (7500 mi)					
3	Spark plug	• Check condition. • Clean and regap.		√	√	√	√	
		• Replace.	Every 8000 km (5000 mi)					
4	* Valves	• Check valve clearance. • Adjust if necessary.			√		√	
5	* Fuel injection	• Check engine idle speed.	√	√	√	√	√	√
6	* Exhaust system	• Check for leakage. • Tighten if necessary. • Replace gasket(s) if necessary.		√	√	√	√	√

Operation and important riding points

EAJN0284

General maintenance and lubrication chart

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (whichever comes first)					ANNUAL CHECK
			1000 km or 1 month	5000 km or 5 months	10000 km or 10 months	15000 km or 15 months	20000 km or 20 months	
1	* Diagnostic system check	<ul style="list-style-type: none"> Perform dynamic inspection using Yamaha diagnostic tool. Check the error codes. 	√	√	√	√	√	√
2	Air filter element	• Replace.	Every 12000 km (7500 mi)					
3	* Pre air filter element	• Clean.	Every 12000 km (7500 mi)					
4	* Sub air filter element	• Replace	Every 12000 km (7500 mi)					
5	Air filter case check hose	• Clean.	√	√	√	√	√	
6	* V-belt case air filter element	<ul style="list-style-type: none"> Clean. Replace, if necessary. 		√	√	√	√	
7	* Battery	<ul style="list-style-type: none"> Check voltage. Charge if necessary. 	√	√	√	√	√	√
8	* Front brake	<ul style="list-style-type: none"> Check operation, fluid level, and for fluid leakage. Replace brake pads if necessary. 	√	√	√	√	√	√
		• Replace brake shoes.	Whenever worn to the limit					

Periodic maintenance and adjustment

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (whichever comes first)					ANNUAL CHECK
			1000 km or 1 month	5000 km or 5 months	10000 km or 10 months	15000 km or 15 months	20000 km or 20 months	
9	*	Rear brake	✓	✓	✓	✓	✓	✓
10	*	Brake hoses		✓	✓	✓	✓	✓
11	*	Brake fluid						
12	*	Wheels		✓	✓	✓	✓	
13	*	Tires		✓	✓	✓	✓	✓
14	*	Wheel bearings		✓	✓	✓	✓	
15	*	Steering bearings	✓	✓	✓	✓	✓	
16	*	Chassis fasteners		✓	✓	✓	✓	✓

Operation and important riding points

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (whichever comes 1st)					ANNUAL CHECK
			1000 km or 1 month	5000 km or 5 months	10000 km or 10 months	15000 km or 15 months	20000 km or 20 months	
17	Front brake lever pivot shaft	• Lubricate with silicone grease.		✓	✓	✓	✓	✓
18	Rear brake lever pivot shaft	• Lubricate with silicone grease.		✓	✓	✓	✓	✓
19	Sidestand, center-stand	• Check operation. • Lubricate with lithium-soap-based grease.		✓	✓	✓	✓	✓
20	* Sidestand switch	• Check operation.	✓	✓	✓	✓	✓	✓
21	* Front fork	• Check operation and for oil leakage.		✓	✓	✓	✓	
22	* Shock absorber assemblies	• Check operation and shock absorbers for oil leakage.		✓	✓	✓	✓	
23	Engine oil	• Change.	✓					
		• Check oil level and vehicle for oil leakage.	Every 5000 km (3000 mi)					
24	* Engine oil strainer	• Clean.	✓					✓
25	* Cooling system	• Check coolant level and vehicle for coolant leakage.		✓	✓	✓	✓	✓
		• Change with Yamaha genuine coolant.	Every 3 years					

Periodic maintenance and adjustment

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (whichever comes first)					ANNUAL CHECK
			1000 km or 1 month	5000 km or 5 months	10000 km or 10 months	15000 km or 15 months	20000 km or 20 months	
26	Final transmission oil	• Check vehicle for oil leakage.	√	√	√	√	√	
		• Change.	√	Every 10000 km (6000 mi)				
27	* V-belt	• Check for damage and wear.			√	√	√	√
		• Replace.	Every 20000 km (12500 mi)					
28	* Front and rear brake switches	• Check operation.	√	√	√	√	√	√
29	Moving parts and cables	• Lubricate.		√	√	√	√	√
30	* Throttle grip	• Check operation. • Check throttle grip free play, and adjust if necessary. • Lubricate cable and grip housing.		√	√	√	√	√
31	* Lights, signals and switches	• Check operation. • Adjust headlight beam.	√	√	√	√	√	√

TIP

- Engine air filter and V-belt air filter
 - This model's engine air filter is equipped with a disposable oil-coated paper element, which must not be cleaned with compressed air to avoid damaging it.
 - The engine air filter element and sub air filter element need to be replaced and the V-belt air filter element needs to be serviced more frequently when riding in unusually wet or dusty areas.

Periodic maintenance and adjustment

- Hydraulic brake service
 - After disassembling the brake master cylinders and calipers, always change the fluid. Regularly check the brake fluid levels and fill the reservoirs as required.
 - Every two years replace the internal components of the brake master cylinders and calipers, and change the brake fluid.
 - Replace the brake hoses every four years and if cracked or damaged.
-

Periodic maintenance and adjustment

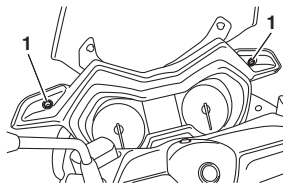
Removing and installing the panel

EAU18752

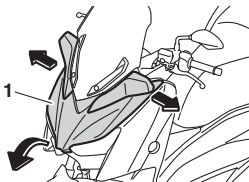
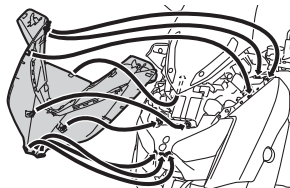
The panel shown needs to be removed to perform some of the maintenance jobs described in this chapter. Refer to this section each time the panel needs to be removed and installed.



1. Panel A



1. Screw



1. Panel A

Panel A

EAU78530

To remove the panel

Remove the screws, and then pull the panel outward and slide it forward as shown.

To install the panel

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

Periodic maintenance and adjustment

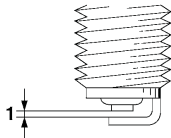
EAU19623

Checking the spark plug

The spark plug is an important engine component, which should be checked periodically, preferably by a Yamaha dealer. Since heat and deposits will cause any spark plug to slowly erode, it 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. The porcelain insulator around the center electrode of the spark plug should be a medium-to-light tan (the ideal color when the vehicle is ridden normally). 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. If the spark plug shows signs of electrode erosion and excessive carbon or other deposits, it should be replaced.

Specified spark plug:
NGK/LMAR8A-9

Before installing a spark plug, the spark plug gap should be measured with a wire thickness gauge and, if necessary, adjusted to specification.



1. Spark plug gap

Spark plug gap:

0.8–0.9 mm (0.031–0.035 in)

Clean the surface of the spark plug gasket and its mating surface, and then wipe off any grime from the spark plug threads.

Tightening torque:

Spark plug:
13 N·m (1.3 kgf·m, 9.6 lb·ft)

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.

Periodic maintenance and adjustment

EAU79020

Engine oil and oil filter element

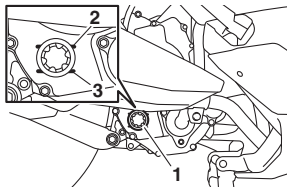
The engine oil level should be checked before each ride. In addition, the oil must be changed and the oil filter element replaced at the intervals specified in the periodic maintenance and lubrication chart.

To check the engine oil level

1. Place the vehicle on a level surface and hold it in an upright position. A slight tilt to the side can result in a false reading.
2. Start the engine, warm it up for several minutes, and then turn it off.
3. Wait a few minutes until the oil settles, and then check the oil level through the check window located at the bottom-right side of the crankcase.

TIP

The engine oil should be between the minimum and maximum level marks.



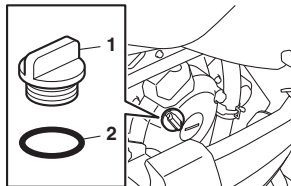
1. Engine oil level check window
2. Maximum level mark
3. Minimum level mark

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.

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

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

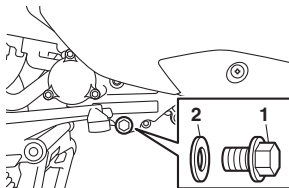
3. Remove the engine oil filler cap and its O-ring, and then remove the engine oil drain bolt and its gasket to drain the oil from the crankcase.
4. Check the O-ring for damage, and replace it if necessary.



1. Engine oil filler cap
2. O-ring

Periodic maintenance and adjustment

8

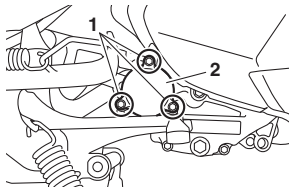


- 1. Engine oil drain bolt
- 2. Gasket

TIP

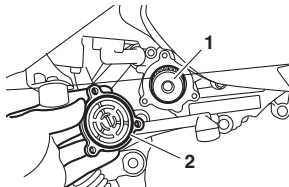
Skip steps 5–7 if the oil filter element is not being replaced.

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



- 1. Bolt
- 2. Oil filter element cover

- 6. Remove and replace the oil filter element and O-ring.



- 1. Oil filter element
- 2. O-ring

- 7. Install the oil filter element cover by installing the bolts, then tightening them to the specified torque.

Tightening torque:

Oil filter element cover bolt:
10 N·m (1.0 kgf·m, 7.2 lb·ft)

TIP

Make sure that the O-ring is properly seated.

- 8. Install the engine oil drain bolt and its new gasket, and then tighten the bolt to the specified torque.

Tightening torque:

Engine oil drain bolt:
20 N·m (2.0 kgf·m, 15 lb·ft)

- 9. Refill with the specified amount of the recommended engine oil.

Recommended engine oil:

See page 10-1.

Oil quantity:

Oil change:
1.50 L (1.59 US qt, 1.32 Imp.qt)
With oil filter removal:
1.60 L (1.69 US qt, 1.41 Imp.qt)

TIP

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

ECA24060

NOTICE

Make sure that no foreign material enters the crankcase.

- 10. Install and tighten the oil filler cap and its O-ring.
- 11. Start the engine, and then let it idle for several minutes while checking it for oil leakage. If oil is leaking,

Periodic maintenance and adjustment

EAL20067

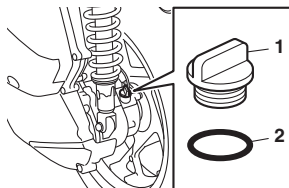
immediately turn the engine off and check for the cause.

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

Final transmission oil

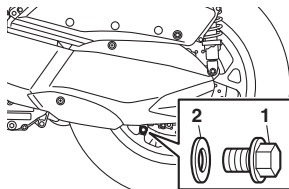
The final transmission case must be checked for oil leakage before each ride. If any leakage is found, have a Yamaha dealer check and repair the scooter. In addition, the final transmission oil must be changed as follows at the intervals specified in the periodic maintenance and lubrication chart.

1. Start the engine, warm up the final transmission oil by riding the scooter for several minutes, and then stop the engine.
2. Place the scooter on the center-stand.
3. Place an oil pan under the final transmission case to collect the used oil.
4. Remove the final transmission oil filler cap and its O-ring from the final transmission case.



1. Final transmission oil filler cap
2. O-ring

5. Remove the final transmission oil drain bolt and its gasket to drain the oil from the final transmission case.



1. Final transmission oil drain bolt
2. Gasket

Periodic maintenance and adjustment

6. Install the final transmission oil drain bolt and its new gasket, and then tighten the bolt to the specified torque.

Tightening torque:

Final transmission oil drain bolt:
20 N·m (2.0 kgf·m, 15 lb·ft)

7. Refill with the specified amount of the recommended final transmission oil. **WARNING! Make sure that no foreign material enters the final transmission case. Make sure that no oil gets on the tire or wheel.** [EWA11312]

Recommended final transmission oil:

See page 10-1.

Oil quantity:

0.20 L (0.21 US qt, 0.18 Imp.qt)

8. Install the final transmission oil filler cap and its new O-ring, and then tighten the oil filler cap.
9. Check the final transmission case for oil leakage. If oil is leaking, check for the cause.

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.

EAL20071

To check the coolant level

1. Place the vehicle on the center-stand.

EAU78580

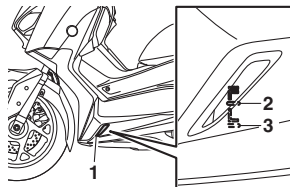
TIP

- 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 through the check window.

TIP

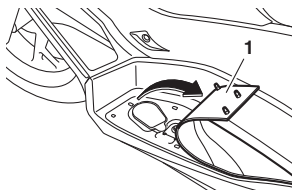
The coolant should be between the minimum and maximum level marks.



1. Coolant level check window
2. Maximum level mark
3. Minimum level mark

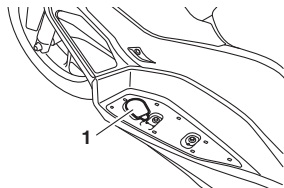
3. If the coolant is at or below the minimum level mark, remove the left floorboard mat by pulling it up.

Periodic maintenance and adjustment



1. Floorboard mat

4. Remove the coolant reservoir cover.

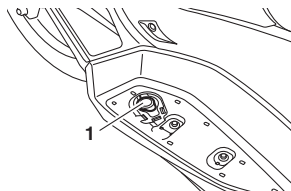


1. Coolant reservoir cover

5. Remove the coolant reservoir cap, add coolant to the maximum level mark, and then install the reservoir cap. **WARNING! Remove only the coolant reservoir cap. Never**

attempt to remove the radiator cap when the engine is hot.

[EWA15162] **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. [ECA10473]



1. Coolant reservoir cap

Coolant reservoir capacity (up to the maximum level mark):
0.18 L (0.19 US qt, 0.16 Imp.qt)

6. Install the coolant reservoir cover.
7. Place the left floorboard mat in the original position and push it downward to secure it.

EALU33032

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

Periodic maintenance and adjustment

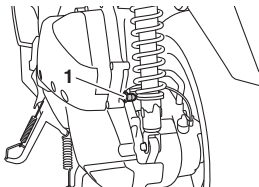
the radiator cap when the engine is hot. [EWA103B2]

EAU78573

Air filter and V-belt case air filter elements

The air filter element and the sub air filter element should be replaced every 20000 km (12000 mi). The pre air filter element and the V-belt case air filter element should be cleaned at the intervals specified in the periodic maintenance and lubrication chart. Service the air filter elements more frequently if you are riding in unusually wet or dusty areas. The air filter check hose must be frequently checked and cleaned if necessary.

Cleaning the air filter check hose



1. Air filter check hose

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

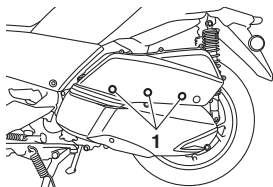
TIP

If dirt or water was found in the check hose, be sure to check the air filter element for excessive dirt or damage and replace it if necessary.

Replacing the air filter element and sub air filter element and cleaning the pre air filter element

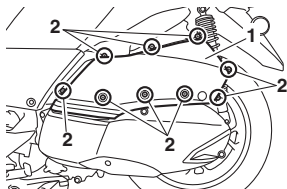
1. Place the vehicle on the center-stand.
2. Remove the rubber plugs.

Periodic maintenance and adjustment



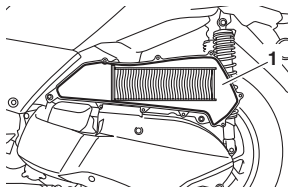
1. Rubber plug

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

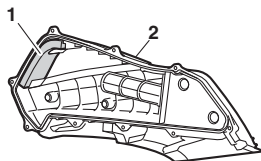


1. Air filter case cover
2. Screw

4. Pull the air filter element and sub air filter element out.



1. Air filter element



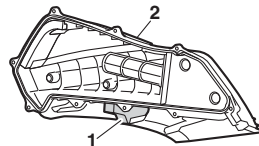
1. Sub air filter element
2. Air filter case cover

5. Insert a new sub air filter element into the air filter case cover.
6. Insert a new air filter element into the air filter case. **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.

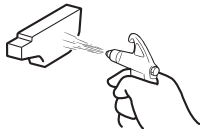
[ECA10482]

7. Pull the pre air filter element out, and then blow out the dirt with compressed air as shown.



1. Pre air filter element
2. Air filter case cover

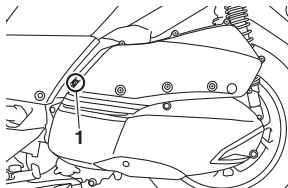
Periodic maintenance and adjustment



8. Check the pre air filter element for damage, and replace it if necessary.
9. Insert the pre air filter element into the air filter case cover.
10. Install the air filter case cover by installing the screws.

TIP

The long screw should be installed as shown.

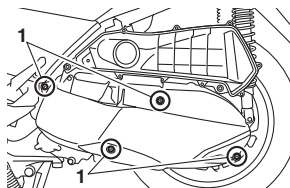


1. Long screw

11. Install the rubber plugs.

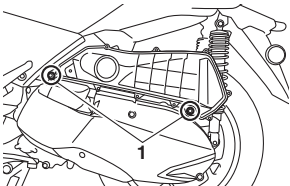
Cleaning the V-belt case air filter element

1. Place the vehicle on the center-stand.
2. Remove the air filter case cover. (See the previous section.)
3. Remove the V-belt case cover screws.



1. Screw

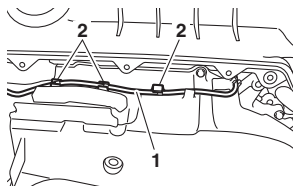
4. Remove the air filter case bolts.



1. Bolt

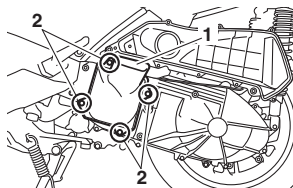
5. Lift up the air filter case slightly, remove the rear wheel sensor lead from the holder, and then remove the V-belt case cover.

Periodic maintenance and adjustment



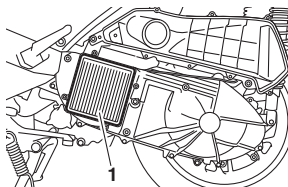
- 1. Rear wheel sensor lead
- 2. Lead holder

6. Remove the V-belt case air filter cover by removing the bolts.

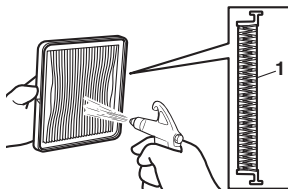


- 1. V-belt case air filter cover
- 2. Bolt

7. Remove the air filter element, and then blow out the dirt with compressed air from the clean side as shown.



- 1. V-belt case air filter element



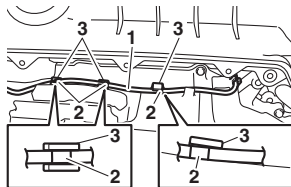
- 1. Clean side

8. Check the V-belt case air filter element for damage and replace it if necessary.

9. Insert the element into the V-belt case.

10. Install the V-belt case air filter cover by installing the bolts.

11. Install the rear wheel sensor lead into the holder at the white tape on the lead as shown.



- 1. Rear wheel sensor lead
- 2. White tape
- 3. Lead holder

12. Install the air filter case bolts, and then tighten the bolts to the specified torque.

Tightening torque:

Bolt:
10 N·m (1.0 kgf·m, 7.4 lb·ft)

13. Install the V-belt case cover by installing the screws.

Periodic maintenance and adjustment

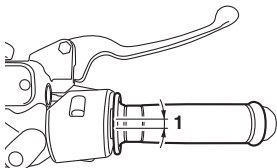
14. Install the air filter case cover by installing the screws.

EAU21386

EAU21402

Checking the throttle grip free play

Measure the throttle grip free play as shown.



1. Throttle grip free play

Throttle grip free play:
3.0–5.0 mm (0.12–0.20 in)

Periodically check the throttle grip free play and, if necessary, have a Yamaha dealer adjust it.

Valve clearance

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

Periodic maintenance and adjustment

Tires

EAU69760

Tires are the only contact between the vehicle and the road. Safety in all conditions of riding depends on a relatively small area of road contact. Therefore, it is essential to maintain the tires in good condition at all times and replace them at the appropriate time with the specified tires.

Tire air pressure

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

EWA10504



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.

Tire air pressure (measured on cold tires):

1 person:

Front:

200 kPa (2.00 kgf/cm², 29 psi)

Rear:

225 kPa (2.25 kgf/cm², 33 psi)

2 persons:

Front:

200 kPa (2.00 kgf/cm², 29 psi)

Rear:

225 kPa (2.25 kgf/cm², 33 psi)

Maximum load*:

161 kg (355 lb)

* Total weight of rider, passenger, cargo and accessories

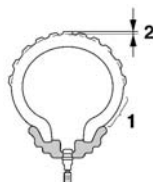
EWA10512



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):

1.0 mm (0.04 in)

EWA10472



WARNING

- Have a Yamaha dealer replace excessively worn tires. Besides being illegal, operating the vehi-

Periodic maintenance and adjustment

cle with excessively worn tires decreases riding stability and can lead to loss of control.

- The replacement of all wheel and brake-related parts, including the tires, should be left to a Yamaha dealer, who has the necessary professional knowledge and experience to do so.
- Ride at moderate speeds after changing a tire since the tire surface must first be “broken in” for it to develop its optimal characteristics.

Tire information

This model is equipped with tubeless tires and rubber tire air valves.

Tires age, even if they have not been used or have only been used occasionally. Cracking of the tread and sidewall rubber, sometimes accompanied by carcass deformation, is an evidence of ageing. Old and aged tires shall be checked by tire specialists to ascertain their suitability for further use.

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.

Front tire:

Size:
120/70-15 M/C 56P
Manufacturer/model:
DUNLOP/SCOOTSMART

Rear tire:

Size:
140/70-14 M/C 62P
Manufacturer/model:
DUNLOP/SCOOTSMART

EWA10462

EAU21963

Cast wheels

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

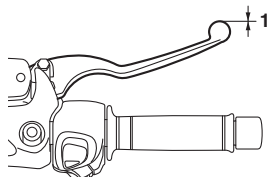
- The wheel rims should be checked for cracks, bends, warpage or other damage before each ride. If any damage is found, have a Yamaha dealer replace the wheel. Do not attempt even the smallest repair to the wheel. A deformed or cracked wheel must be replaced.
- The wheel should be balanced whenever either 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

Checking the front and rear brake lever free play

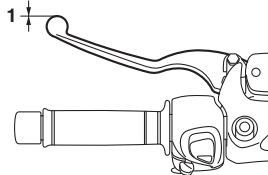
EAU50861

Front



1. No brake lever free play

Rear



1. No brake lever free play

There should be no free play at the brake lever ends. If there is free play, have a Yamaha dealer inspect the brake system.

WARNING

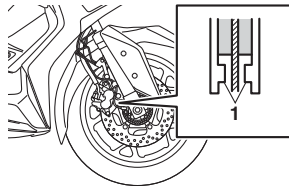
A soft or spongy feeling in the brake lever can indicate the presence of air in the hydraulic system. If there is air in the hydraulic system, have a Yamaha dealer bleed the system before operating the vehicle. Air in the hydraulic system will diminish the braking performance, which may result in loss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

EWA14212

Checking the front and rear brake pads

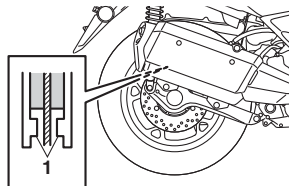
EAU22312

Front brake



1. Brake pad wear indicator

Rear brake



1. Brake pad wear indicator

The front and rear brake pads must be checked for wear at the intervals specified in the periodic maintenance and

Periodic maintenance and adjustment

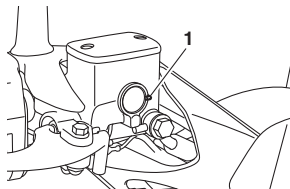
lubrication chart. Each brake pad is provided with a wear indicator, which allows you to check the brake pad wear without having to disassemble the brake. To check the brake pad wear, check the position of the wear indicator while applying the brake. If a brake pad has worn to the point that the wear indicator almost touches the brake disc, have a Yamaha dealer replace the brake pads as a set.

Checking the brake fluid level

EALU22582

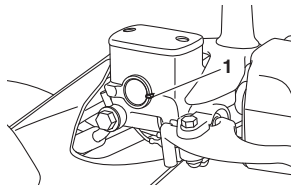
Before riding, check that the brake fluid is above the minimum level mark. Check the brake fluid level with the top of the reservoir level. Replenish the brake fluid if necessary.

Front brake



1. Minimum level mark

Rear brake



1. Minimum level mark

Specified brake fluid:
DOT 4

EWA15991

WARNING

Improper maintenance can result in loss of braking ability. Observe these precautions:

- Insufficient brake fluid may allow air to enter the brake system, reducing braking performance.
- Clean the filler cap before removing. Use only DOT 4 brake fluid from a sealed container.

Periodic maintenance and adjustment

- Use only the specified brake fluid; otherwise, the rubber seals may deteriorate, causing leakage.
- Refill with the same type of brake fluid. Adding a brake fluid other than DOT 4 may result in a harmful chemical reaction.
- Be careful that water does not enter the brake fluid reservoir when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.

brake system for leakage. If the brake fluid level goes down suddenly, have a Yamaha dealer check the cause before further riding.

NOTICE

ECA17B41

Brake fluid may damage 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. A low brake fluid level may indicate worn brake pads and/or brake system leakage; therefore, be sure to check the brake pads for wear and the

Changing the brake fluid

EALJ22733

Have a Yamaha dealer change the brake fluid at the intervals specified in the periodic maintenance and lubrication chart. In addition, have the oil seals of the 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

Checking the V-belt

EAUJ0311

The V-belt must be checked and replaced by a Yamaha dealer at the intervals specified in the periodic maintenance and lubrication chart.

Checking and lubricating the cables

EAU23098

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. **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.** [EWA10712]

Recommended lubricant:
Yamaha cable lubricant or other suitable cable lubricant

Checking and lubricating the throttle grip and cable

EAU49921

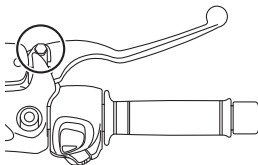
The operation of the throttle grip should be checked before each ride. In addition, the cable should be lubricated by a Yamaha dealer at the intervals specified in the periodic maintenance chart.

Periodic maintenance and adjustment

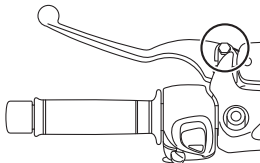
Lubricating the front and rear brake levers

EAU23173

Front brake lever



Rear brake lever

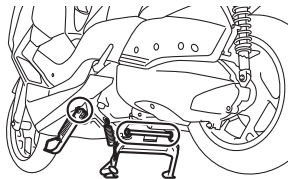


The pivoting points of the front and rear brake levers must be lubricated at the intervals specified in the periodic maintenance and lubrication chart.

Recommended lubricant:
Silicone grease

Checking and lubricating the centerstand and sidestand

EAU23215



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

⚠ WARNING

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

EWA10742

Periodic maintenance and adjustment

Recommended lubricant:
Lithium-soap-based grease

Checking the front fork

EAU23273

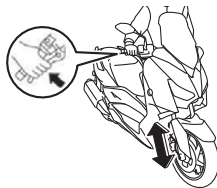
The condition and operation of the front fork must be checked as follows at the intervals specified in the periodic maintenance and lubrication chart.

To check the condition

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.** [EWA10752]
2. While applying the front brake, push down hard on the handlebars several times to check if the front fork compresses and rebounds smoothly.



ECA10591

NOTICE

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

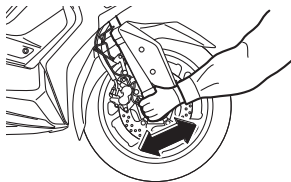
Periodic maintenance and adjustment

EAU45512

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 the vehicle on the center-stand. **WARNING! To avoid injury, securely support the vehicle so there is no danger of it falling over.** [EWA10752]
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.



EAU23292

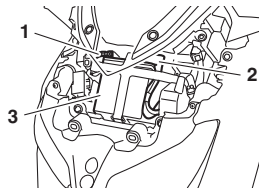
Checking the wheel bearings



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.

EAU60691

Battery



1. Negative battery lead (black)
2. Positive battery lead (red)
3. Battery

The battery is located behind panel A. (See page 8-8.)

This model is 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.

EWA10761

WARNING

- **Electrolyte is poisonous and dangerous since it contains sulfuric acid, which causes severe burns. Avoid any contact with**

Periodic maintenance and adjustment

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, matches, 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.

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 to turn the main switch off, then disconnect the negative lead before disconnecting the positive lead. [ECA16304]

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 to turn the main switch off, then connect the positive lead before connecting the negative lead.

[ECA16842]

ECA16522

4. After installation, make sure that the battery leads are properly connected to the battery terminals.

ECA16531

NOTICE

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

Periodic maintenance and adjustment

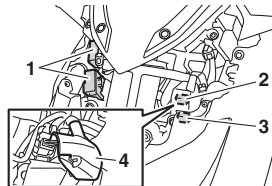
EAU782/42

Replacing the fuses

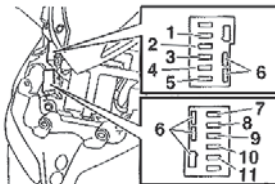
The main fuse and the fuse boxes, which contain the fuses for the individual circuits, are located under panel A. (See page 8-8.)

TIP

To access the main fuse, remove the starter relay cover as shown.



1. Fuse box
2. Main fuse
3. Spare main fuse
4. Starter relay cover



1. Signaling system fuse
2. ABS control unit fuse
3. Main fuse 2
4. Radiator fan motor fuse
5. Backup fuse
6. Spare fuse
7. ABS motor fuse
8. ABS solenoid fuse
9. Turn signal light and hazard fuse
10. Terminal fuse 1
11. Answer back fuse

If a fuse is blown, replace it as follows.

1. Turn the main switch 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. [EWA15132]

Specified fuses:

- Main fuse:
20.0 A
- Main fuse 2:
7.5 A
- Terminal fuse 1:
2.0 A
- Signaling system fuse:
10.0 A
- Signaling system fuse 2:
7.5 A
- Radiator fan motor fuse:
7.5 A
- Backup fuse:
7.5 A
- Turn signal light and hazard fuse:
7.5 A
- ABS control unit fuse:
7.5 A
- ABS motor fuse:
30.0 A
- ABS solenoid fuse:
15.0 A
- Answer back fuse:
2.0 A

3. Turn the main switch on and turn on the electrical circuit in question to check if the device operates.

Periodic maintenance and adjustment

4. If the fuse immediately blows again, have a Yamaha dealer check the electrical system.

Headlights

This model is equipped with LED-type headlights.

If a headlight does not come on, have a Yamaha dealer check its electrical circuit.

EAU64070

Auxiliary lights

This model is equipped with LED-type auxiliary lights.

If an auxiliary light does not come on, have a Yamaha dealer check it.

EAU54502

NOTICE

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

ECA16581

Periodic maintenance and adjustment

Brake/tail light

EAU70540

This model is equipped with an LED-type brake/tail light.

If the brake/tail light does not come on, have a Yamaha dealer check it.

Front turn signal light

EAU39881

If a front turn signal light does not come on, have a Yamaha dealer check its electrical circuit or replace the bulb.

Rear turn signal light bulb

EAUT1331

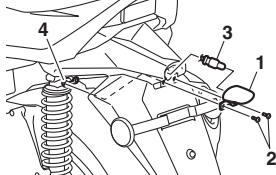
If a rear turn signal light does not come on, have a Yamaha dealer check the electrical circuit or replace the bulb.

Periodic maintenance and adjustment

EAU78560

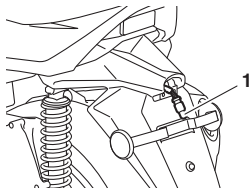
Replacing the license plate light bulb

1. Remove the license plate light unit by removing the bolts and plate, and then remove the license plate light bulb socket (together with the bulb) by pulling it out.



1. License plate light unit
2. Bolt
3. License plate light bulb socket
4. Plate

2. Remove the burnt-out bulb by pulling it out.



1. License plate light bulb

3. Insert a new bulb into the socket.
4. Install the socket (together with the bulb) by pushing it in, and then install the license plate light unit by installing the plate and bolts.

EAU60701

Troubleshooting

Although Yamaha vehicles 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 vehicle require any repair, take it to a Yamaha dealer, whose skilled technicians have the necessary tools, experience, and know-how to service the vehicle 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.

Periodic maintenance and adjustment



WARNING

EWA15142

When checking the fuel system, do not smoke, and make sure there are no open flames or sparks in the area, including pilot lights from water heaters or furnaces. Gasoline or gasoline vapors can ignite or explode, causing severe injury or property damage.

- Is the vehicle battery discharged?
When the vehicle battery is discharged, the smart key system will not operate. Please have the vehicle battery charged or replaced.
(See page 8-28.)

If the smart key system does not work after checking the above items, have a Yamaha dealer check the smart key system.

TIP

See “Emergency mode” on page 8-37 for information on starting the engine without the smart key.

EAU76550

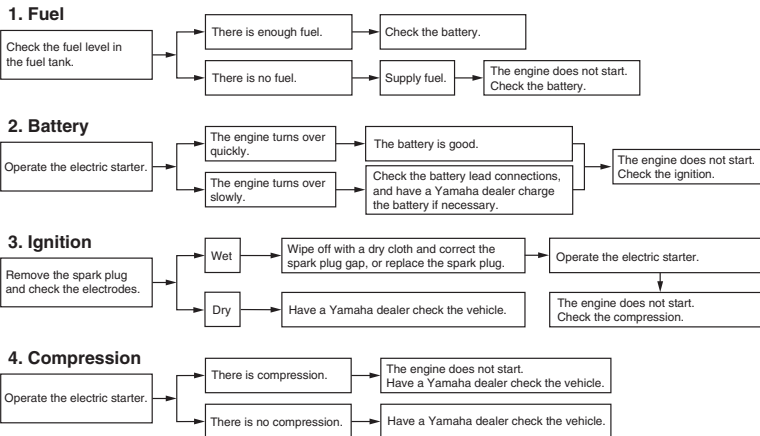
Smart key system troubleshooting

Please check the following items when the smart key system does not work.

- Is the smart key turned on? (See page 4-4.)
- Is the smart key battery discharged? (See page 4-5.)
- Is the smart key battery installed correctly? (See page 4-5.)
- Is the smart key being used in a location with strong radio waves or other electromagnetic noise? (See page 4-1.)
- Are you using the smart key that is registered to the vehicle?

Troubleshooting charts

Starting problems or poor engine performance



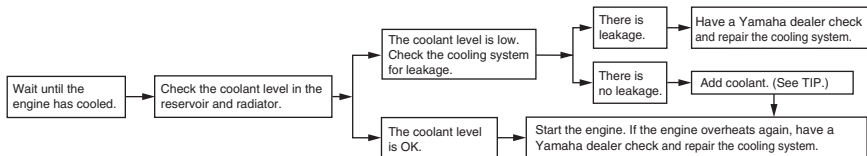
Periodic maintenance and adjustment

Engine overheating

EWAT1041

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.
- 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.

Periodic maintenance and adjustment

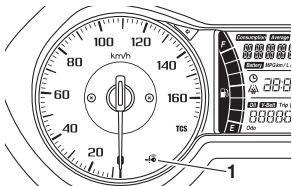
EAU76561

Emergency mode

When the smart key is lost or damaged, or its battery has discharged, the vehicle can still be turned on and the engine started. You will need the smart key system identification number.

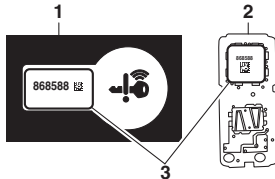
To operate the vehicle in emergency mode

1. Stop the vehicle in a safe place and turn the main switch to "OFF".
2. Push the main switch knob for 5 seconds until the smart key system indicator light flashes once, then release it. Repeat two more times. The smart key system indicator light will come on for three seconds to indicate the transition to emergency mode.



1. Smart key system indicator light "4b"

3. After the smart key system indicator light goes off, input the identification number as follows.



1. Identification number card
2. Smart key (inside)
3. Identification number

4. Inputting the identification number is done by counting the number of flashes of the smart key system indicator light.

For example, if the identification number is 123456:

Push and hold the knob.

The smart key system indicator light will start to flash.



Release the knob after the smart key system indicator light flashes once.

The first digit of the identification number has been set as "1".

Push and hold the knob again.



Release the knob after the smart key system indicator light flashes twice.

The second digit has been set as "2".

Repeat the above procedure until all digits of the identification number have been set. The smart key

Periodic maintenance and adjustment

system indicator light will flash for 10 seconds if the correct identification number was entered.

TIP

When one of the following situations applies, emergency mode will be terminated and the smart key system indicator light will flash quickly for 3 seconds. In this case, start over again from step 2.

- When there are no knob operations for 10 seconds during the identification number input process.
- When the smart key system indicator light is allowed to flash nine or more times.
- The identification number is not entered correctly.

5. While the smart key system indicator light is on, push the knob once more to complete emergency mode access. The smart key indicator light will go off and then come back on for approximately 4 seconds.
6. While the smart key system indicator light is on, turn the main switch to "ON". The vehicle can now be operated normally.

Scooter care and storage

Matte color caution

EAUJ37834

ECA15193

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.

Care

While the open design of a scooter 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 scooter. Frequent and proper care does not only comply with the terms of the warranty, but it will also keep your scooter 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 prod-

EAUN1000

ucts onto seals, gaskets and wheel axles. Always rinse the dirt and degreaser off with water.

Cleaning

ECA10784

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 water, diluted mild detergent with water

Scooter care and storage

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 swing-arm bearings, fork and brakes), electric components (couplers, connectors, instruments, switches and lights), breather hoses and vents.
- For scooters equipped with a windshield: Do not use strong cleaners or hard sponges as they will cause dulling or scratching. Some cleaning

compounds for plastic may leave scratches on the windshield. Test the product on a small hidden part of the windshield to make sure that it does not leave any marks. If the windshield is scratched, use a quality plastic polishing compound after washing.

After normal use

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

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

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

1. Clean the scooter 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. [ECA10792]
2. Apply a corrosion protection spray on all metal, including chrome- and nickel-plated, surfaces to prevent corrosion.

Cleaning the windshield

Avoid using any alkaline or strong acid cleaner, gasoline, brake fluid, or any other solvent. Clean the windshield with a cloth or sponge dampened with a neutral detergent, and after cleaning, thoroughly wash it off with water. For additional cleaning, use Yamaha Windshield Cleaner or other quality cleaner. Some cleaning compounds for plastics may leave scratches on surfaces of the windshield. Before using them, make a test by polishing an area which does not affect your visibility.

Scooter care and storage

After cleaning

1. Dry the scooter with a chamois or an absorbing cloth.
2. 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.)
3. To prevent corrosion, it is recommended to apply a corrosion protection spray on all metal, including chrome- and nickel-plated, surfaces.
4. Use spray oil as a universal cleaner to remove any remaining dirt.
5. Touch up minor paint damage caused by stones, etc.
6. Wax all painted surfaces.
7. Let the scooter dry completely before storing or covering it.

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 operating the scooter test its braking performance and cornering behavior.**

NOTICE

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

EWA10943

ECAL0022

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.

Scooter care and storage

Storage

EAU36564

Short-term

Always store your scooter 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 scooter.

ECA10821

NOTICE

- **Storing the scooter 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 scooter for several months:

1. Follow all the instructions in the "Care" section of this chapter.

2. Fill up the fuel tank and add fuel 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.** [EWA10952]
4. Lubricate all control cables and the pivoting points of all levers and pedals as well as of the side-stand/centerstand.
5. Check and, if necessary, correct the tire air pressure, and then lift the scooter 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 outlet with a plastic bag to prevent moisture from entering it.
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 8-28

TIP

Make any necessary repairs before storing the scooter.

Specifications

Dimensions:

- Overall length:
2185 mm (86.0 in)
- Overall width:
775 mm (30.5 in)
- Overall height:
1415/1465 mm (55.7/57.7 in)
- Seat height:
795 mm (31.3 in)
- Wheelbase:
1540 mm (60.6 in)
- Ground clearance:
135 mm (5.31 in)
- Minimum turning radius:
2.6 m (8.53 ft)

Weight:

- Curb weight:
179 kg (395 lb)

Engine:

- Combustion cycle:
4-stroke
- Cooling system:
Liquid cooled
- Valve train:
SOHC
- Number of cylinders:
Single cylinder
- Displacement:
249.8 cm³
- Bore × stroke:
70.0 × 64.9 mm (2.76 × 2.56 in)
- Compression ratio:
10.5 : 1

Starting system:

- Electric starter

Lubrication system:

- Wet sump

Engine oil:

- Recommended brand:
YAMALUBE
- SAE viscosity grades:
10W-40
- Recommended engine oil grade:
API service SG type or higher, JASO
standard MA or MB
- Engine oil quantity:
Oil change:
1.50 L (1.59 US qt, 1.32 Imp.qt)
- With oil filter removal:
1.60 L (1.69 US qt, 1.41 Imp.qt)

Final transmission oil:

- Type:
Motor oil SAE 10W-30 type SE or higher or
Gear oil SAE 85W GL-3
- Quantity:
0.20 L (0.21 US qt, 0.18 Imp.qt)

Coolant quantity:

- Coolant reservoir (up to the maximum level
mark):
0.18 L (0.19 US qt, 0.16 Imp.qt)
- Radiator (including all routes):
1.10 L (1.16 US qt, 0.97 Imp.qt)

Air filter:

- Air filter element:
Oil-coated paper element

Fuel:

- Recommended fuel:
Regular unleaded gasoline (Gasohol [E10]
acceptable)
- Fuel tank capacity:
13 L (3.4 US gal, 2.9 Imp.gal)
- Fuel reserve amount:
2.4 L (0.63 US gal, 0.53 Imp.gal)

Fuel injection:

- Throttle body:
ID mark:
B741 00

Spark plug(s):

- Manufacturer/model:
NGK/LMAR8A-9
- Spark plug gap:
0.8–0.9 mm (0.031–0.035 in)

Clutch:

- Clutch type:
Dry, centrifugal, shoe

Drivetrain:

- Primary reduction ratio:
1.000
- Final drive:
Belt
- Secondary reduction ratio:
7.590 (48/18 × 37/13)
- Transmission type:
V-belt automatic

Chassis:

- Frame type:
Underbone
- Caster angle:
26.5 °

Trail:
95 mm (3.7 in)

Front tire:

Type:
Tubeless
Size:
120/70-15 M/C 56P
Manufacturer/model:
DUNLOP/SCOOTSMART

Rear tire:

Type:
Tubeless
Size:
140/70-14 M/C 62P
Manufacturer/model:
DUNLOP/SCOOTSMART

Loading:

Maximum load:
161 kg (355 lb)
(Total weight of rider, passenger, cargo
and accessories)

Tire air pressure (measured on cold tires):

1 person:
Front:
200 kPa (2.00 kgf/cm², 29 psi)
Rear:
225 kPa (2.25 kgf/cm², 33 psi)
2 persons:
Front:
200 kPa (2.00 kgf/cm², 29 psi)
Rear:
225 kPa (2.25 kgf/cm², 33 psi)

Front wheel:

Wheel type:
Cast wheel
Rim size:
J15M/C x MT3.5

Rear wheel:

Wheel type:
Cast wheel
Rim size:
J14M/C x MT4.0

Front brake:

Type:
Hydraulic single disc brake
Specified brake fluid:
DOT 4

Rear brake:

Type:
Hydraulic single disc brake
Specified brake fluid:
DOT 4

Front suspension:

Type:
Telescopic fork
Spring:
Coil spring
Shock absorber:
Hydraulic damper
Wheel travel:
110 mm (4.3 in)

Rear suspension:

Type:
Unit swing
Spring:
Coil spring

Shock absorber:
Hydraulic damper
Wheel travel:
79 mm (3.1 in)

Electrical system:

System voltage:
12 V
Ignition system:
TCI
Charging system:
AC magneto

Battery:

Model:
GTZ8V
Voltage, capacity:
12 V, 7.0 Ah (10 HR)

Bulb wattage:

Headlight:
LED
Brake/tail light:
LED
Front turn signal light:
10.0 W
Rear turn signal light:
10.0 W
Auxiliary light:
LED
License plate light:
5.0 W
Meter lighting:
LED
High beam indicator light:
LED

Specifications

Turn signal indicator light:

LED

Engine trouble warning light:

LED

ABS warning light:

LED

Smart key system indicator light:

LED

Traction control system indicator/warning light:

LED

Fuse(s):

Main fuse:

20.0 A

Main fuse 2:

7.5 A

Terminal fuse 1:

2.0 A

Signaling system fuse:

10.0 A

Signaling system fuse 2:

7.5 A

Radiator fan motor fuse:

7.5 A

Turn signal light and hazard fuse:

7.5 A

ABS control unit fuse:

7.5 A

ABS motor fuse:

30.0 A

ABS solenoid fuse:

15.0 A

Answer back fuse:

2.0 A

Backup fuse:

7.5 A

Identification numbers

EAU53562

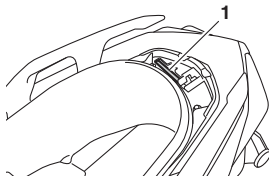
Record the vehicle identification number, engine serial number, and the model label information in the spaces provided below. These identification numbers are needed when registering the vehicle with the authorities in your area and when ordering spare parts from a Yamaha dealer.

VEHICLE IDENTIFICATION NUMBER:

ENGINE SERIAL NUMBER:

Vehicle identification number

EAU26411



1. Vehicle identification number

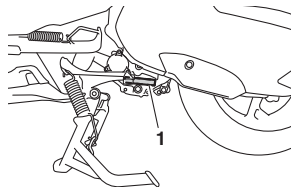
The vehicle identification number is stamped into the frame.

TIP

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

Engine serial number

EAU26442



1. Engine serial number

The engine serial number is stamped into the crankcase.

Consumer information

EAUJ74701

Vehicle data recording

This model's ECU stores certain vehicle data to assist in the diagnosis of malfunctions and for research and development purposes. This data will be uploaded only when a special Yamaha diagnostic tool is attached to the vehicle, such as when maintenance checks or service procedures are performed.

Although the sensors and recorded data will vary by model, the main data points are:

- Vehicle status and engine performance data
- Fuel-injection and emission-related data

Yamaha will not disclose this data to a third party except:

- With the consent of the vehicle owner
- Where obligated by law
- For use by Yamaha in litigation
- For general Yamaha-conducted research purposes when the data is not related to an individual vehicle nor owner

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