YAMAHA

OWNER'S MANUAL

⚠ Read this manual carefully before operating this vehicle.

NEO'S

MOTORCYCLE

ESS025B (Delivery model) (NEO'S)

BFM-F8199-E1

EAU98161

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

EAUN3031

For Europe

Declaration of Conformity:

Hereby, YAMAHA MOTOR CO., LTD declares that the radio equipment type, Communication Control Unit, Y08U-A00 is in compliance with Directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address:
https://global.yamaha-motor.com/eu_doc/

Frequency band: 2402~2480 MHz
The maximum radio frequency power:
Bluetooth 4.2 2.75 dBm 1.88 mW
Bluetooth 5.0 2.59 dBm 1.82 mW

Manufacturer:
PT Chao Long Motor Parts Indonesia
JL.MERANTI 1 BLOK, L2 NO. 5-6 DELTA SILICON INDUSTRIAL
PARK LIPPO CIKARANG BEKASI 17550, INDONESIA

Importer:
YAMAHA MOTOR EUROPE N.V.
Koolhovenlaan 101, 1119 NC Schiphol-Rijk, 1117 ZN, Schiphol, the Netherlands

EAU94441

For UK

UK CA Declaration of Conformity:

Hereby, YAMAHA MOTOR CO., LTD declares that the radio equipment type, Communication Control Unit, Y08U-A00 is in compliance with the Radio Equipment Regulations 2017.
The full text of the declaration of conformity is available at the following internet address:
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Importer:
YAMAHA MOTOR EUROPE N.V., BRANCH UK
Units A2-A3, Kingswey Business Park, Forsyth Road, Woking, Surrey. GU21 5SA. United Kingdom.

For Europe

Declaration of Conformity:

Hereby, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, declares that the radio equipment type, Smart Keyless System (SKEA7E-01 (Smart Unit), SKEA7E-02 (Hand Unit)) is in compliance with Directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address:
http://www.mitsubishielectric.com/bu/automotive/doc/re.html

Smart Unit: SKEA7E-01
Operation frequency: 125 kHz
Maximum output power: 107 dBuV/m at 10 meters

Hand Unit: SKEA7E-02
Operation frequency: 433.92 MHz
Maximum output power: 10 mW

Manufacturer:
MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS
840, Chiyoda-machi, Himeji, Hyogo 670-8677, Japan

Importer:
YAMAHA MOTOR EUROPE N.V.
Koolhovenlaan 101, 1119 NC Schiphol-Rijk, 1117 ZN, Schiphol, the Netherlands

EAU94453

For UK

UK CA Declaration of Conformity:

Hereby, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, declares that the radio equipment type, Smart Keyless System (SKEA7E-01 (Smart Unit), SKEA7E-02 (Hand Unit)) is in compliance with the Radio Equipment Regulations 2017.
The full text of the declaration of conformity is available at the following internet address:
http://www.mitsubishielectric.com/bu/automotive/doc/ukgb.html

Smart Unit: SKEA7E-01
Operation frequency: 125 kHz
Maximum output power: 107 dBuV/m at 10 meters

Hand Unit: SKEA7E-02
Operation frequency: 433.92 MHz
Maximum output power: 10 mW

Manufacturer:
MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS
840, Chiyoda-machi, Himeji, Hyogo 670-8677, Japan

Importer:
YAMAHA MOTOR EUROPE N.V., BRANCH UK
Units A2-A3, Kingswey Business Park, Forsyth Road, Woking, Surrey. GU21 5SA. United Kingdom.

EAU97060

Welcome to the Yamaha world!
As the owner of the ESS025B, 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 ESS025B. The Owner's Manual does not only instruct you in how to operate, inspect and maintain your electric vehicle, 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 electric vehicle 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 electric vehicle and this manual. If there is any question concerning this manual, please consult a Yamaha dealer.

EWA21770

⚠ WARNING

Please read this manual carefully and completely before operating this electric vehicle.

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.**
⚠ WARNING	**A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.**
NOTICE	**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.

EAU98171

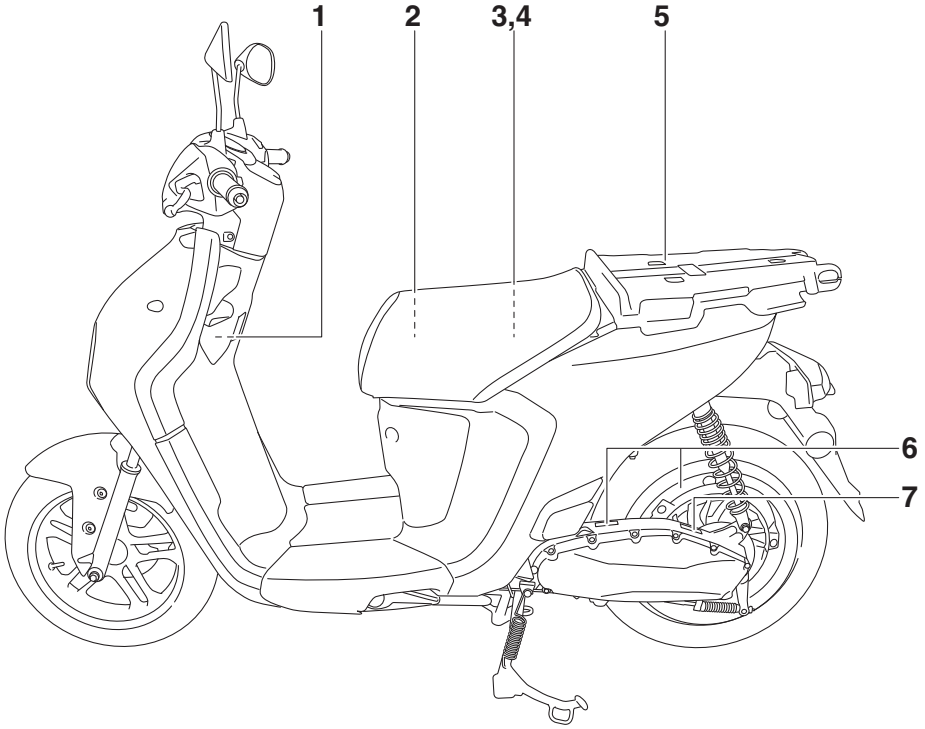
ESS025B
OWNER'S MANUAL

Table of contents

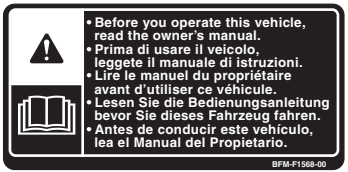
Location of important labels

EAU98081

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.



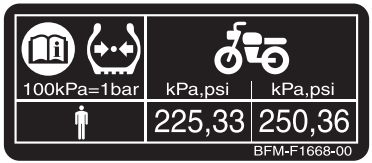
1


• Before you operate this vehicle, read the owner's manual.
• Prima di usare il veicolo, leggete il manuale di istruzioni.
• Lire le manuel du propriétaire avant d'utiliser ce véhicule.
• Lesen Sie die Bedienungsanleitung bevor Sie dieses Fahrzeug fahren.
• Antes de conducir este vehículo, lea el Manual del Propietario.
BFM-F1568-00

2


• Push the button and the arm down at once.
• Pousser le bouton et le bras vers le bas à la fois.
• Presione el botón y el brazo hacia abajo a la vez.
• Drücken den Knopf und den Arm gleichzeitig nach unten.
• Premere il pulsante e il braccio verso il basso contemporaneamente.
BFM-F477G-00

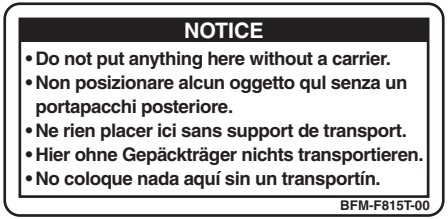
3


100kPa=1bar
kPa,psi
kPa,psi
225,33
250,36
BFM-F1668-00

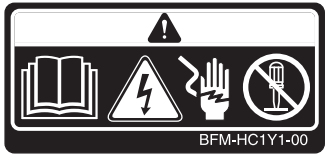
4


• Use only YAMAHA recommended chargers
• Utilisez uniquement les chargeurs recommandés par YAMAHA
• Utilizzare solo caricabatterie consigliati da YAMAHA
• Verwenden Sie nur von YAMAHA empfohlene Ladegeräte
• Utilice solo cargadores recomendados por YAMAHA
BFM-F817K-00

5


NOTICE
• Do not put anything here without a carrier.
• Non posizionare alcun oggetto qul senza un portapacchi posteriore.
• Ne rien placer ici sans support de transport.
• Hier ohne Gepäckträger nichts transportieren.
• No coloque nada aquí sin un transportín.
BFM-F815T-00

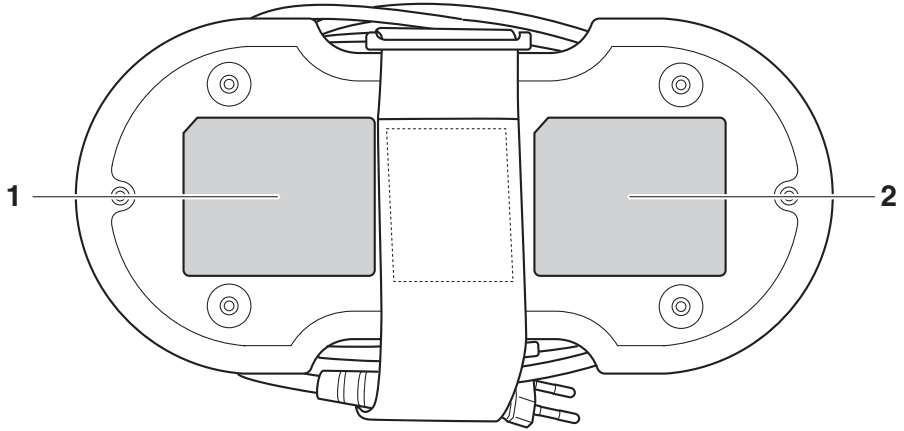
6

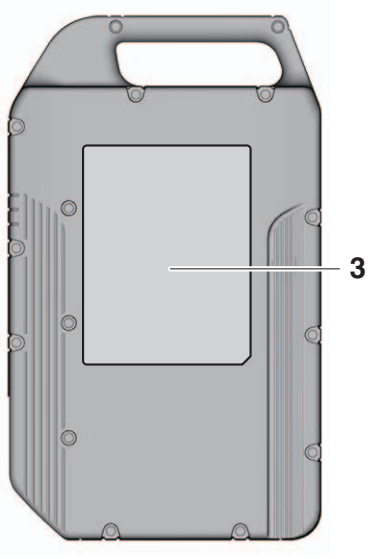

BFM-HC1Y1-00

7


• WHEEL NUT TIGHTENING TORQUE
• COPPIA DI SERRAGGIO DADO RUOTA
• COUPLE DE SERRAGE DES ÉCROUS DE ROUE
• ANZUGSDREHMOMENT DER RADMUTTER
• PAR DE APRIETE DE LA TUERCA DE LA RUEDA
65 Nm
1 4 2 3 5
BFM-F151A-00

Location of important labels





1

2

For EU

For UK

3

Location of important labels

1

Familiarize yourself with the following pictograms and read the explanatory text.

	Read the Owner's manual.		No open flame.
	High voltage.		No wet hands.
	Electrical shock hazard.		Hot surface.
	Do not disassemble.		Improper handling may lead to death or serious injury.

	The battery charger should be sorted for environmental-friendly recycling. Do not dispose as household waste.
	Class Ⅱ equipment.
	Time-lag fuse-link.
	Do not shock lithium-ion battery.

	No wet lithium-ion battery.

EAUV1320

2

Be a Responsible Owner

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

This electric vehicle is a single-track vehicle.

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 vehicle.

He or she should:

- Obtain thorough instructions from a competent source on all aspects of this vehicle's 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 vehicle without proper training or instruction. Take a training course. Beginners should receive training from a certified instructor. Contact an authorized 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 7-1 for a list of pre-operation checks.

- This vehicle is designed to carry the operator only. No passengers.
- The failure of motorists to detect and recognize other vehicles in traffic is the predominating cause of vehicle accidents. Many accidents have been caused by an automobile driver who did not see the other vehicle. 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 vehicle accidents to occur.
  - Ride where other motorists can see you. Avoid riding in another motorist's blind spot.
  - Never maintain this vehicle without proper knowledge. Contact an authorized dealer to inform you on basic 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 this vehicle 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 this vehicle where there is no traffic until you have become thoroughly familiar with the vehicle and all of its controls.

- Many accidents have been caused by error of the vehicle 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 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 vehicle.
- Never ride under the influence of alcohol or other drugs.
- This vehicle is designed for on-road use only. It is not suitable for off-road use.

Protective Apparel

The majority of fatalities from vehicle 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 EV system and its related components may become very hot during or after operation and can cause burns.

Loading

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

The total weight of the operator, accessories and cargo must not exceed the maximum load limit. **Operation of an overloaded vehicle could cause an accident.**

Maximum load:
129 kg (284 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 vehicle 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 vehicle to minimize imbalance or instability.
- Shifting weights can create a sudden imbalance. Make sure that accessories and cargo are securely attached to the vehicle 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, recognize that some aftermarket accessories or modifications are not suitable because of potential safety hazards to you or others. Installing aftermarket products or having other modifications performed to your vehicle that change any of the vehicle's design or operation characteristics can put you and others at greater risk of serious injury or death. You are responsible for injuries related to changes in the vehicle.

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

- Never install accessories or carry cargo that would impair the performance of your vehicle. 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 vehicle due to aerodynamic effects. Wind may attempt to lift the vehicle, or the vehicle 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 vehicle electrical system, an electric failure could result, which could cause a dangerous loss of lights or EV system power.

Aftermarket Tires and Rims

The tires and rims that came with your vehicle 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. See page 10-6 for tire specifications and more information on replacing your tires.

Transporting the Electric Vehicle

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

- Remove all loose items from the vehicle.
- 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 vehicle with tie-downs or suitable straps that are attached to solid parts of the vehicle, such as the frame or upper front fork triple clamp (and not, for example, to rubber-mounted handlebars or turn signals, or parts that could break). Choose the location for the straps carefully so the straps will not rub against painted surfaces during transport.
- The suspension should be compressed somewhat by the tie-downs, if possible, so that the vehicle will not bounce excessively during transport.

Further safe-riding points

EAU97624

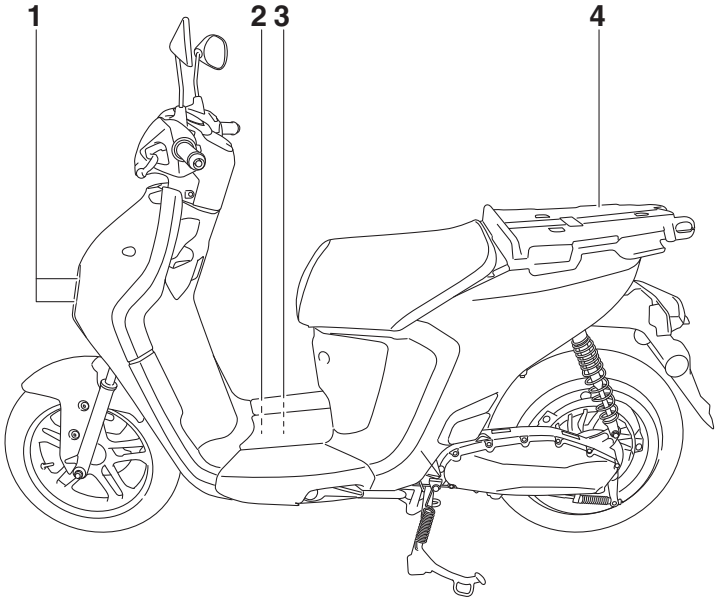
- Be sure to signal clearly when making turns.
- Braking can be extremely difficult on a wet road. Avoid hard braking, because the vehicle could slide. Apply the brakes slowly when stopping on a wet surface.
- Slow down as you approach a corner or turn. Once you have completed a turn, accelerate slowly.
- 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 vehicle upright, otherwise it could slide out from under you.
- The brake pads or linings could get wet when you wash the vehicle. After washing the vehicle, 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 vehicle. An overloaded vehicle is unstable. Use a strong cord to secure any luggage to the carrier (if equipped). A loose load will affect the stability of the vehicle and could divert your attention from the road. (See page 2-2.)

Avoid riding on flooded roads

Riding on flooded roads could cause the EV system to stop and also malfunctions such as electric leakage or short circuits. If an electric component becomes submerged in water, have a Yamaha dealer check the vehicle.

EAU10411

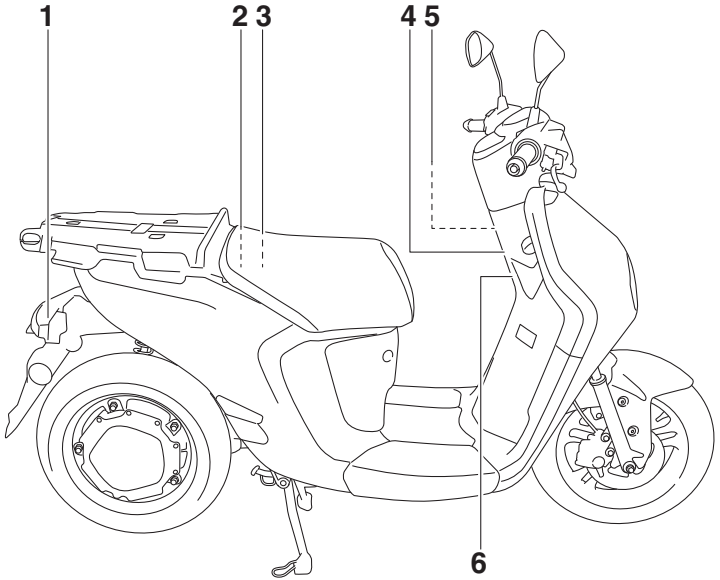
Left view



1. Headlight (page 10-18)
2. Fuses (page 10-17)
3. 12V battery (page 10-15)
4. Carrier cover (page 6-8)

EAU10421

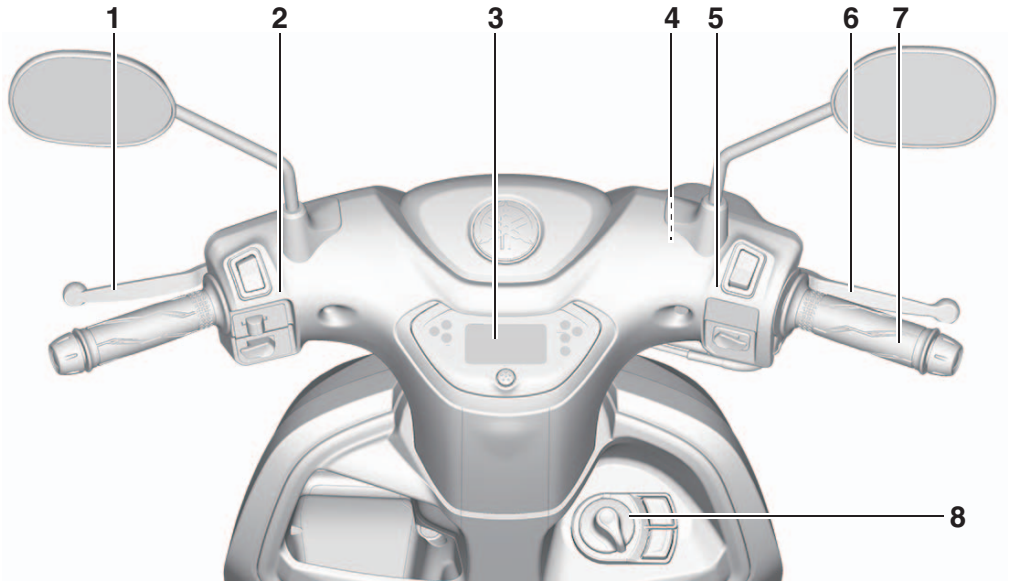
Right view



1. Brake/tail light
2. Rear storage compartment (page 6-8)
3. Tool kit (page 10-2)
4. Front storage compartment (page 6-8)
5. Power outlet (page 6-9)
6. Luggage hook (page 6-8)

EAU10431

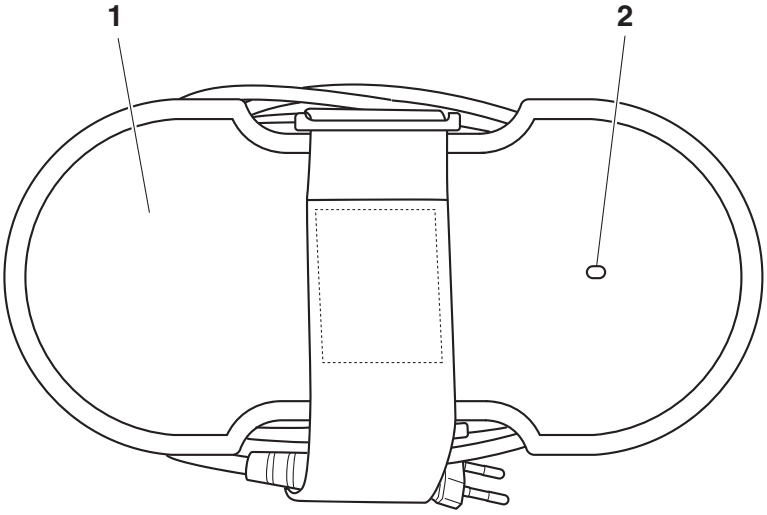
Controls and instruments

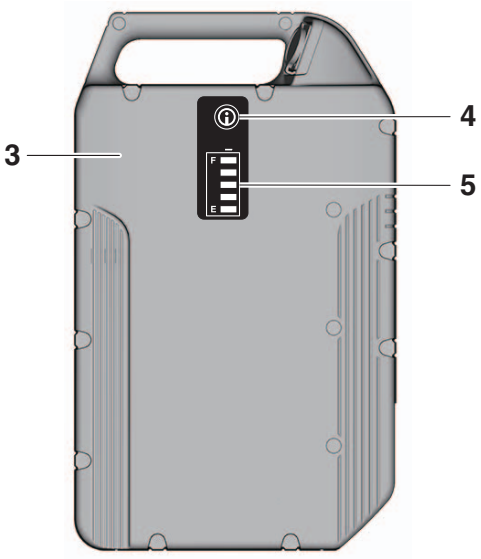


1. Rear brake lever (page 6-7)
2. Left handlebar switches (page 6-5)
3. Multi-function display (page 6-2)
4. Front brake fluid reservoir (page 10-11)
5. Right handlebar switches (page 6-5)
6. Front brake lever (page 6-6)
7. Accelerator grip (page 10-6)
8. Main switch (page 5-8)

EAU98330

Battery charger/lithium-ion battery

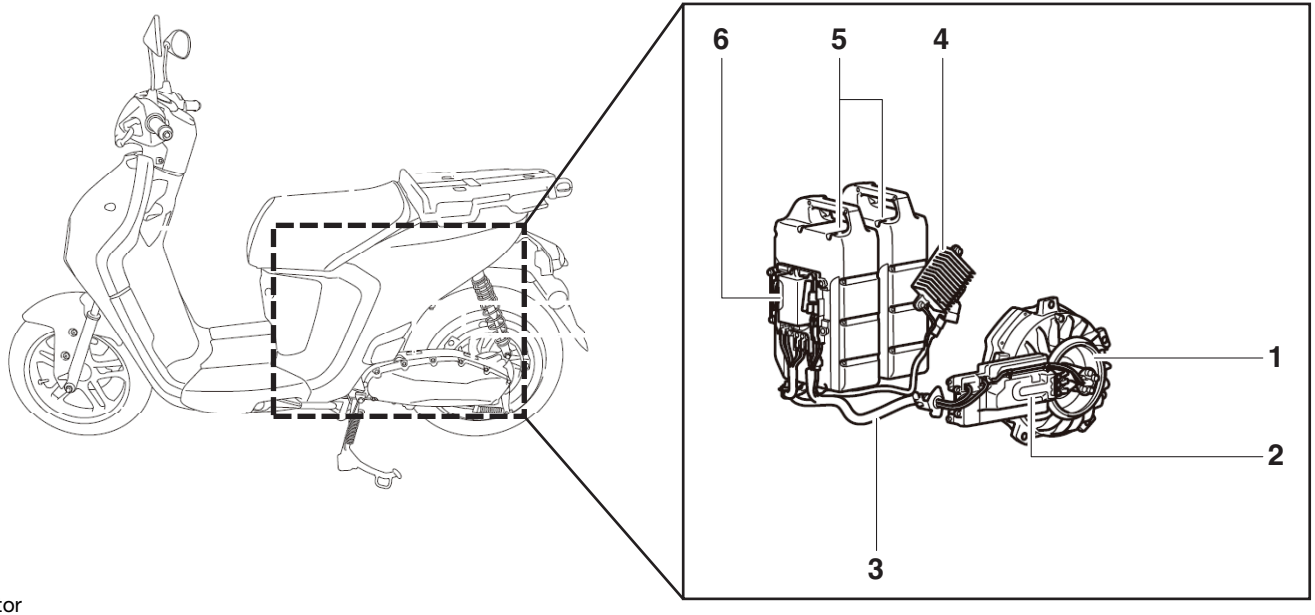




1. Battery charger
2. Battery charger indicator light
3. Lithium-ion battery
4. Button
5. Lithium-ion battery level meter

EAU97510

High-voltage components



1. Motor
2. Motor control unit (MCU)
3. High-voltage wiring (orange-colored)
4. DC-DC converter
5. Relay unit
6. Lithium-ion battery

EAUV1730

Features

The ESS025B is an EV commuter vehicle with an output of 2.5 kW (Yamaha internal measurement).
This model is equipped with a 48V detachable lithium-ion battery and a brushless motor. It offers agile and smooth driving typical of modern EV vehicles.

EAU97505

Precautions for high voltage components

This vehicle uses high voltage components (up to 48V) (See page 3-1). Do not disassemble or remove any of the high voltage components. The high-voltage wiring used to connect high-voltage components is colored orange. Warning labels are attached to the high-voltage components.

EWA22040

⚠ WARNING

Never push/pull the high-voltage components or orange-colored high-voltage wiring, as this may cause electric shock and serious injury. Do not touch the electrical wiring.

EWA21801

⚠ WARNING

In the event of a road accident, be sure to observe the following:

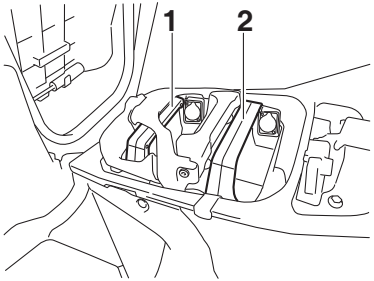
- **Never touch the high-voltage components or the orange-colored high-voltage wiring if they are exposed due to damage or deformation of the vehicle body.**
- **Do not touch them if they are covered with wet. Since the electrolyte is poisonous and dangerous, if it adheres to your skin and/or clothing, immediately flush with plenty of water and seek prompt medical attention.**

In the event of a fire, always use a fire extinguisher designed for electrical fires.

EAUV1330

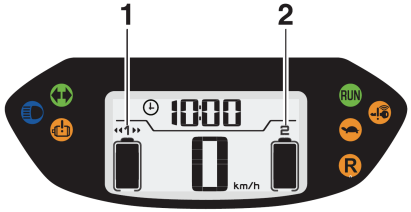
Multiple lithium-ion batteries

Up to 2 lithium-ion batteries can be installed at a time. The batteries can be installed in the following two patterns:



1. Lithium-ion battery 1
2. Lithium-ion battery 2

- If the lithium-ion battery currently used for driving, switches to limited output power due to low remaining charge, the limited output indicator light will come on. (See page 4-6.) When this occurs, if the vehicle stops with the accelerator closed, e.g. because of waiting at a traffic light, the vehicle will automatically switch to using the second lithium-ion battery. In addition, the output limit will be released.
- When the remaining charge of the first lithium-ion battery decreases to almost 0%, the vehicle will automatically switch to using the second lithium-ion battery, even if the vehicle is driving or has stopped.
- The battery charge levels are displayed on the multi-function display as shown.



1. Lithium-ion battery level meter 1
2. Lithium-ion battery level meter 2

TIP

- Even if some capacity remains in the first lithium-ion battery, if it is in the limited output status due to high or low temperature or if an abnormality occurs, the vehicle might change to using the second lithium-ion battery automatically.
- Do not charge two lithium-ion batteries successively. The battery charger could become hot, and as a result, it could take more time until the lithium-ion battery is fully charged or charging could be interrupted mid-way. Therefore, wait until the battery charger has cooled down sufficiently, and then charge the other lithium-ion battery.

EAU97863

Charging the 12V battery from lithium-ion battery

While the vehicle power is on, the lithium-ion battery charges the 12V battery using the DC-DC converter.

TIP

When the vehicle power is turned off, if the 12V battery level is low, the lithium-ion battery may continue to charge the 12V battery. If this happens, and the lithium-ion battery charger is plugged in, the charger may enter standby mode for a maximum of 30 minutes (See 8-12 for more information on the charger standby mode).

EAU96403

Traveling distance

The traveling distance on a single charge depends on the riding style and overall conditions:

Riding mode, frequent starting and stopping, total vehicle weight, slope, road conditions, wind direction, wind speed, temperature, charging situation, deterioration of lithium-ion battery capacity, insufficient tire inflation, and so on.

Traveling distance on a single charge (WMTC Class1):
37 km (23.0 mi)

EAUV1340

Reverse mode

Reverse mode assists to back up the vehicle when parking. Reverse mode allows the driver to move the vehicle backward at a slow speed by operating the “MODE” and “RUN” switches. See page 6-5 for instructions on how to use this function.

EWAV0030

⚠ WARNING

To prevent loss of balance or injury, observe the following:

- **Only use the reverse function while straddling the vehicle.**
- **Check the area around the vehicle to make sure there are no people or objects around before reversing.**

EAUV1350

Forward drive

The forward drive assists in moving the vehicle forward when parking. Forward drive allows the driver to move the vehicle forward at a slow speed by operating the "RUN" switch. See page 6-5 for instructions on how to use this function.

EWAV0040

⚠ WARNING

To prevent loss of balance or injury, observe the following:

- **Only use the forward drive while straddling the vehicle.**
- **Check the area around the vehicle to make sure there are no people or objects around.**

EAU97685

Temperature warning function to protect EV system

This vehicle is equipped with a temperature warning function to protect the EV system.

When the information display shows "HOT" / "COLD"

When the temperature of EV system becomes higher than the specified temperature, "HOT" will appear on the information display. And when the temperature becomes lower, "COLD" will appear.

TIP

If the lithium-ion battery becomes too hot or cold, the lithium-ion battery level meter may also flash.

Limited output indicator light "🐢" on

When the limited output indicator light "🐢" on with "HOT" or "COLD" on the information display, the EV system output is restricted.

TIP

When a lithium-ion battery has deteriorated significantly (due to age, usage, etc.), and it is cold, the limited output indicator light may come on even if "COLD" is not displayed.

Run indicator light "RUN" off

If the vehicle continues to be ridden with "HOT" on the information display and the limited output indicator light "🐢" on, the run indicator light "RUN" may turn off and the vehicle may stop.

TIP

When the temperature warning function limits the output and/or stops the EV system, it is not a malfunction. If the temperature returns to the specified temperature, the limits will be released. Turn the vehicle power off and wait for a while.

The temperature warning function may activate in the following circumstances:

- Riding right after charging the battery
- Long riding in high ambient temperatures
- Riding on a long uphill stretch
- Riding after the vehicle has been left in a place where exposed to strong sunshine for a long period
- Riding after the vehicle has been left in an excessively cold place (less than 0 °C)

EAUV1720

Regenerative brake

The regenerative brake produces a braking effect, similar to the engine brake on a conventional combustion engine, for smooth deceleration of the vehicle. When slowing down and no acceleration is applied, the rotational power of the rear wheel is regenerated and supplied to the lithium-ion battery.

EWA21512

⚠ WARNING

- **The regenerative brake is not a substitute for appropriate riding or braking techniques. In order to obtain effective braking and stopping power, operate the front and rear brake levers simultaneously.**
- **When the lithium-ion battery is fully charged or the lithium-ion battery temperature is extremely high or low, the regenerative brake may not function.**
- **If the lithium-ion battery is close to fully-charged or the temperature of the lithium-ion battery is high or low, the regenerative brake may not function well.**

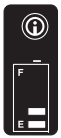
TIP

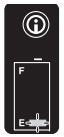
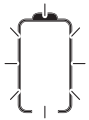
When the regenerative brake decelerates the vehicle at a rate in excess of a certain threshold, the brake light comes on without pulling the brake lever.

EAU96358

Lithium-ion battery level

The remaining charge level and status of the lithium-ion battery can be checked via the following indicators.
To check the lithium-ion battery level, push the button on the lithium-ion battery.

Remaining battery level (%)	Lithium-ion battery level meter (on the multi-function display)	Lithium-ion battery level meter (on the battery)	Indicator light	Current status
100–81			–	The vehicle can be operated.
80–61				
60–41				
40–21				

Remaining battery level (%)	Lithium-ion battery level meter (on the multi-function display)	Lithium-ion battery level meter (on the battery)	Indicator light	Current status
20–11				When the lithium-ion battery level decreases to 15%, the limited output indicator light will come on. When this light comes on, the output of EV system is restricted. **TIP** If the lithium-ion battery has deteriorated, the output may be limited even if the remaining level exceeds 15%.
10–1				When the lithium-ion battery level decreases to 10%, the last segment will flash. Stop riding as soon as possible and charge the lithium-ion battery.
0				If the lithium-ion battery level meter is flashing, the vehicle cannot be driven.

EAU97225

Effective use of the lithium-ion battery

If the lithium-ion battery is charged/stored improperly or exposed to high temperatures for an extended period, it will rapidly degrade. To extend the lithium-ion battery life, handle as follows:

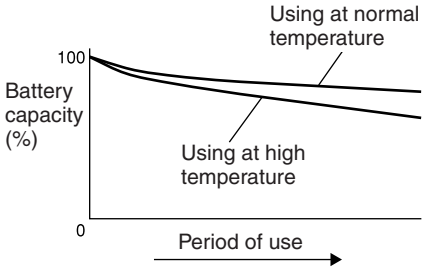
- Choose a cool place with no direct sunlight when charging the lithium-ion battery.
- Do not store the lithium-ion battery with a charge less than 20 % (the last 1 segment of the lithium-ion battery level meter) for an extended period of time.
- Do not store the lithium-ion battery with a nearly full charge (5 segments shown on the lithium-ion battery level meter) for an extended period of time.
- Choose a cool and well-ventilated place without direct sunlight for storing the vehicle.
- If the vehicle will not be used for a long period of time, charge the lithium-ion battery until the 2–3 segments of the lithium-ion battery level meter are shown and then store the vehicle in a cool place (optimum temperature 15–25 °C). Check the battery level while the vehicle is in storage. If the battery level drops to the last segment, recharge the lithium-ion battery until 3 segments of the lithium-ion battery level meter are shown.

ECA28170

NOTICE

If the lithium-ion battery is completely discharged, recharging will not be possible and the lithium-ion battery will not be usable.

Lithium-ion battery degradation



EAUV1280

CCU (Communication Control Unit)

This model is equipped with a CCU that allows your vehicle and smartphone to connect using Bluetooth wireless technology and the MyRide App.
With this connection, notifications from apps, incoming phone calls and missed calls are signaled to you.

EWAN0070

⚠ WARNING

- **Always stop the vehicle before operating your smartphone.**
- **Never take your hands off the handlebars while riding.**
- **Always concentrate on riding by keeping your eyes and mind on the road.**

ECAN0150

NOTICE

The Bluetooth connection may not work in the following situations.

- **In a location exposed to strong radio waves or other electromagnetic noise.**

4

- **At facilities nearby that are emitting strong radio waves (TV or radio towers, power plants, broadcasting stations, airports, etc.).**

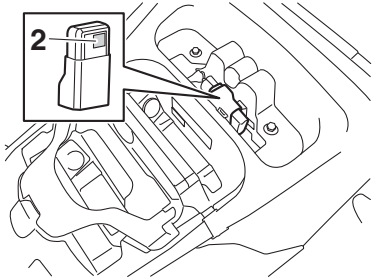
Pairing the CCU and your smartphone

1. Install the MyRide App on your smartphone and activate it.

TIP

The MyRide App can be downloaded from an application store.

2. When pairing is complete, the App connect icon will come on.



1. CCU (Communication Control Unit)
2. CCU QR Code

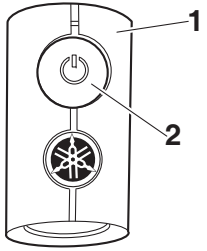
TIP

- Once paired, the smartphone is registered in the CCU. The next time the vehicle is turned on and the MyRide App is active, the connection will be automatically executed.
- Only one smartphone can be connected to the CCU at a time.
- If more than one phone has been registered in the CCU, then the first phone within reach will be connected.

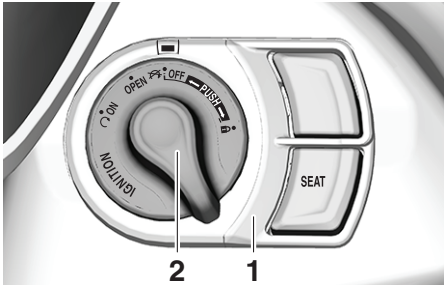
EAU76444

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 5-5.)



1. Smart key
2. Smart key button

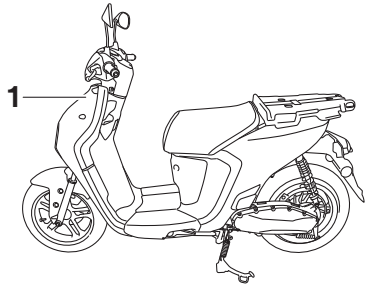


1. Main switch
2. Main switch knob

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

ECA24080

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.)**

5

- **You are carrying or using communication equipment such as radios or mobile phones in close proximity of the smart key**
- **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, operate the vehicle in emergency mode. (See page 10-23.)

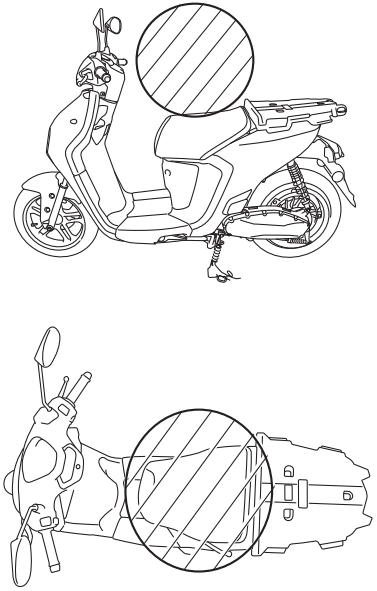
TIP

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.

EAU76453

Operating range of the smart key system

The approximate operating range of the smart key system is shown below.



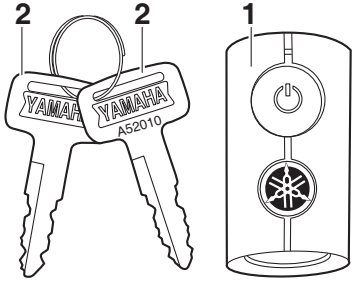
If the smart key is turned off, the vehicle will not recognize the smart key even if it is within operating range. If the smart key battery is discharged, the smart key system may not work or its operating range may become very short.

TIP

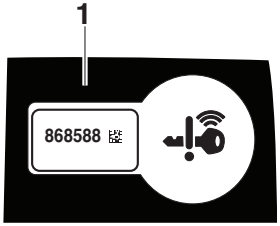
- Do not place the smart key in a storage compartment.
- Always carry the smart key with you.
- Turn the smart key off when leaving the vehicle.

EAU97252

Handling of the smart key and mechanical keys



1. Smart key
2. Mechanical key



1. Identification number card

EWA21620

⚠ 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 EV system and operate the vehicle.**

Included with the vehicle is one smart key, two mechanical keys, and one identification number card. Keep one mechanical key and the identification number card in a safe place separate from the vehicle.

If the 12V battery is discharged, the mechanical key can be used to open the seat to charge the lithium-ion 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 system 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.**

ECA21573

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.**

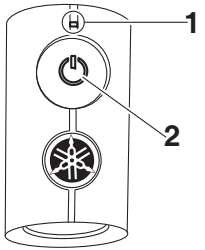
- **Keep the smart key away from strong magnetic fields and magnetic objects such as key holders, TVs, and computers.**
- **Keep the smart key away from electric medical equipment.**
- **Do not allow oils, polishing agents, fuel, or any strong chemicals to come in contact with the smart key. The smart 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 5-6.) 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.

EAU97261

Smart key



1. Smart key indicator light
2. Smart key button

EWA21620

⚠ WARNING

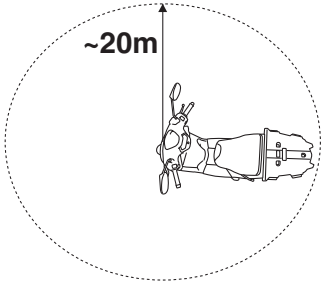
- **The smart key should be carried with you. Do not store it on the vehicle.**
- **When the smart key is within operating range, exercise due care because other people not carrying the smart key can start the EV system and operate the vehicle.**

To turn the smart key on or off
Push 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.

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:
- Comes on quickly for 0.1 seconds: The smart key is turned on.
- Comes on slowly for 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. This feature is convenient for locating your vehicle in a parking lot and other areas.

Operating range of the answer-back function
The approximate operating range of the answer-back function is as shown.



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

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.

EAU97271

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 "⊸"

EWA20631

⚠ WARNING

Danger of explosion if battery is incorrectly replaced

- **Replace only with the same or equivalent type.**
- **Please check and obey all local laws and regulations for the disposal of batteries or accumulations.**
- **Never dispose of battery in fire or mechanical crushing or cutting.**
- **If battery is incorrectly discarded or heated to high temperature (100 °C (212 °F) or higher), gas may be generated inside battery, causing electrolyte leak, internal short circuit, heat generation, explosion and violent flaring.**

Do not expose Hand Unit to excessive heat such as sunshine, fire or the like.

Do not ingest the battery, Chemical Burn Hazard

- **This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. Keep new and used batteries away from children.**
- **If the battery compartment does not close securely, stop using the product and keep it away from children.**
- **If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical action.**

ECA15785

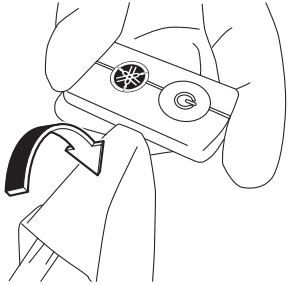
NOTICE

- **Use a cloth when opening the smart key case with a screwdriver. 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.**

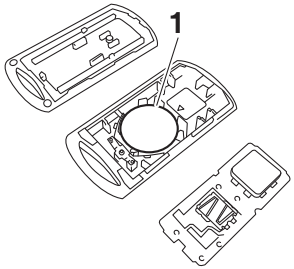
- **Make sure the battery is installed correctly. Confirm the direction of the positive "+" side of the battery.**

To replace the smart key battery

1. Open the smart key case as shown.



2. Remove the battery.



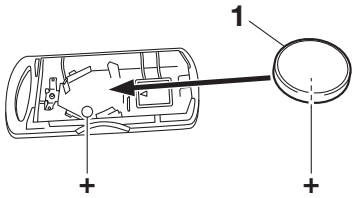
1. Battery (smart key)

TIP

Dispose of the removed battery in accordance with local regulations.

3. Note the polarity of the battery and install it with the "+" side facing downwards as shown.

Specified battery:
CR2032

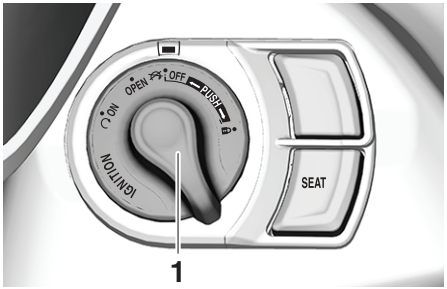


1. Battery (smart key)

4. Gently snap the smart key case closed.

Main switch

EAU97281



1. Main switch knob

1. Smart key system indicator light “ ”

The main switch is used to turn the vehicle power on/off, lock/unlock the steering, and open the seat and the charging plug lid. 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).

EWA18720

WARNING

Never turn the main switch to “OFF”, “ ”, 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.

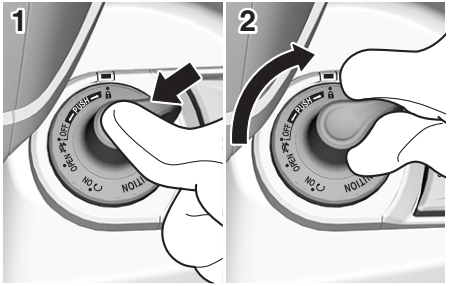
TIP

Do not push the main switch knob repeatedly or turn the main switch back and forth excessively (beyond normal use). 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, and then operate the main switch.

The main switch positions are described below.

ON

EAU96711



1. Push.
2. Turn.

All electrical circuits are supplied with power.

To turn the vehicle power on

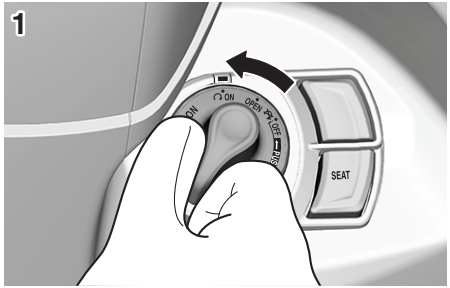
1. Turn the smart key on and bring it within operating range.
2. Push the main switch knob and the smart key indicator light will come on for approximately 4 seconds.
3. While the smart key system indicator light is on, turn the main switch to “ON”.

TIP

See “Emergency mode” on page 10-23 for information on turning the vehicle power on without the smart key.

EAU96721

OFF



1. Turn.

All electrical systems are off.

To turn the vehicle power off

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

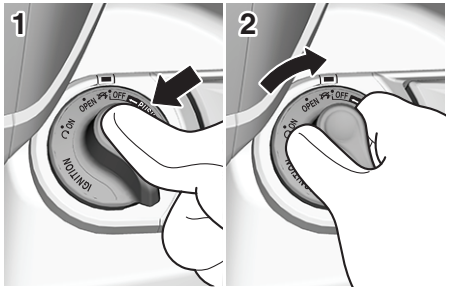
- During this 30 seconds, the main switch can be freely operated.
- After 30 seconds, the vehicle power will turn off automatically.
- To turn the vehicle power off immediately, push the main switch knob four times within 2 seconds.

EAU97302

OPEN

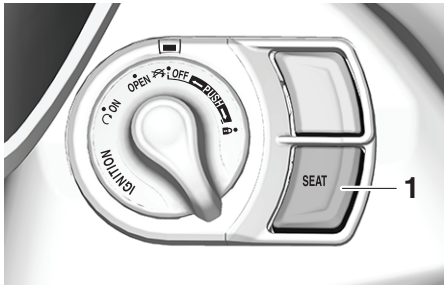
The seat can be opened:

1. With the smart key 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 “OPEN”.



1. Push.
2. Turn.

To open the seat



1. “SEAT” button

Press the “SEAT” button, and then lift the rear of the seat.

To close the seat, push down on the rear to lock it in position.

TIP

- Make sure that the seat is securely closed before starting off.
- The seat can also be opened with the mechanical key. (See page 6-8.)

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

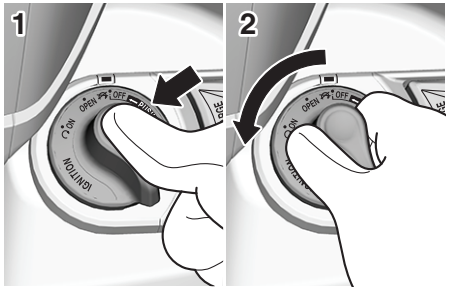
If the beeper sounds after 3 minutes, turn the main switch to "OFF" or "🔒". If the beeper sounds because the smart key was turned off or moved out of range, turn the smart key on and walk back into range.

TIP

The beeper will turn off after 1 minute.

EAU76521

"🔒" (lock)



1. Push.
2. Turn.

The steering is locked and all electrical systems are off.

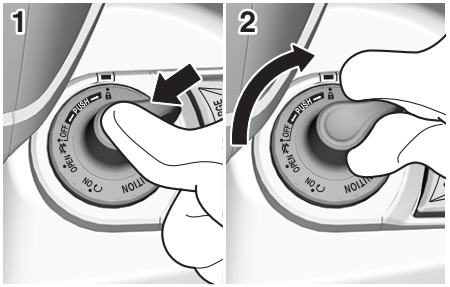
To lock the steering

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 "🔒".

TIP

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

To unlock the steering



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, push and turn the main switch to the desired position.

EAU97650

Indicator lights and warning lights

1. Turn signal indicator light “ ”
2. High beam indicator light “ ”
3. EV system warning light “ ”
4. Run indicator light “RUN”
5. Smart key system indicator light “ ”
6. Limited output indicator light “ ”
7. Reverse indicator light “R”

EAU98181

Turn signal indicator light “ ”

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

EAU98190

High beam indicator light “ ”

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

EAU96415

EV system warning light “ ”

In the case of abnormalities in the electric circuits or if the lithium-ion battery cannot be identified, the EV system warning light will come on. Check the status of the lithium-ion battery, and then have a Yamaha dealer check the vehicle.

TIP

When the vehicle is turned on, this light should come on for a few seconds and then go off. Otherwise, have a Yamaha dealer check vehicle.

EAU98200

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.

EAUT4483

Run indicator light “RUN”

When the vehicle can be driven and ready to run, “RUN” will come on. When the light “RUN” is not lit, the vehicle cannot be driven.

EAU97691

Limited output indicator light “ ”

This indicator light comes on when the lithium-ion battery level is too low. When this light comes on, the output of EV system is restricted.

This indicator light also comes on if:

- the motor or controller are too hot
- the lithium-ion battery is too hot/cold
- there is a minor malfunction in the EV system (a malfunction that does not completely disable the EV system)

TIP

- When the vehicle is turned on, the light should come on for a few seconds and then go off (unless the vehicle's status dictates the light should be on, ie. lithium-ion battery level is low). Otherwise, have a Yamaha dealer check the vehicle.
- While this light is on, the accelerator response is reduced, but it is not a malfunction.

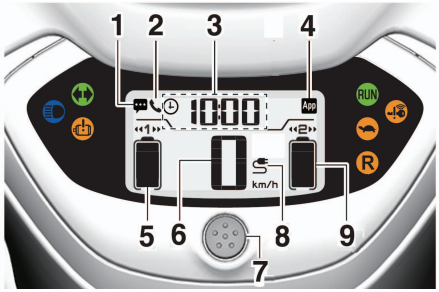
EAUV1360

Reverse indicator light "Ⓡ"

This indicator light flashes when the vehicle is in run mode with the "MODE" switch pressed.

EAUV1370

Multi-function display



1. Incoming notification icon "💬"
2. Incoming call notification icon "📞"
3. Information display
4. App connect icon
5. Lithium-ion battery level meter 1
6. Speedometer
7. Select button
8. Charging indicator
9. Lithium-ion battery level meter 2

EWA22020

⚠ WARNING

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

The select button is located below the multi-function display. This button allows you to control or change the settings of multi-function display.

The multi-function display is equipped with the following:

- speedometer
- information display
- two lithium-ion battery level meters
- charging indicator
- App connect icon
- incoming notification icon
- incoming call notification icon

TIP

Be sure to turn the main switch on before using the select button.

EAUN3051

App Connect icon

This icon comes on when CCU and smartphone is connected via MyRide App.

TIP

Even if the smartphone is not connected, when the vehicle is turned on, this icon should come on for a few sec-

onds. Otherwise have a Yamaha dealer check the CCU and the electrical circuit.

EAU96494

Switching the display units

The display units can be switched between kilometers and miles.

To switch the display units:

1. With the select button, display the odometer.
2. Press and hold the select button until the currently selected unit starts flashing.
3. Press the select button once to switch the display units between km/h and MPH.
4. Press and hold the select button until the flashing stops.

EAU96501

Speedometer

The speedometer shows the vehicle's traveling speed.

EAU96513

Lithium-ion battery level meters

The lithium-ion battery level meters show the current charge of the lithium-ion batteries.

If an optional lithium-ion battery is installed in the vehicle, two battery level meters are displayed on either side of the multi-function display.

According to which battery is being used, the arrow marks "◂◂ ▸▸" will be displayed around the battery number.

TIP

For more details on the lithium-ion battery level meters, see page 4-6.

EAU98211

Information display

The information display contains:

- clock
- odometer
- trip meter
- charging status display (shown when charging)
- vehicle status messages

Press the select button to cycle through display items.

EAU96536

Clock

The clock uses a 12-hour time system.

To set the clock

1. Use the select button to display the clock.
2. Press and hold the select button until the hour digits start flashing.
3. Use the select button to set the hours.
4. Press and hold the select button until the minute digits start flashing.
5. Use the select button to set the minutes.
6. Press and hold the select button until the minute digits stop flashing. The setting is confirmed.

TIP

When the CCU and smartphone are connected after vehicle power on, the clock is automatically adjusted.

Odometer

The odometer shows the total distance traveled by the vehicle.

TIP

The odometer will lock at 99999 and cannot be reset.

Tripmeter

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

TIP

The tripmeter will reset and continue counting after 9999.9 is reached.

To reset the tripmeter

1. Use the select button to display the clock.
2. Press and hold the select button until the tripmeter is reset.

Charging status display

When charging with the vehicle power on, the charging status display will come on automatically. It indicates the current charge of the lithium-ion batteries as “Lo”, “Full” or a percentage in between.

Vehicle status messages

The following status messages appear on the information display in certain situations:

- “PUSH”
  The vehicle and EV system are ready to start.
- “HOT”
  The lithium-ion battery, MCU or EV motor temperature is high. (Temperature warning function to protect EV system. (See page 4-4.))
- “COLD”
  The lithium-ion battery temperature is low.
- “OLD”
  The lithium-ion battery capacity has degraded and it needs to be replaced.

EAU96550

Incoming notification icon “ ”

This icon flashes for 10 seconds when the connected smartphone receives an SMS, E-mail or other notification. After that, the icon stays on until you turn the vehicle off.

TIP

- This function works only when the smartphone is connected to the vehicle.
- Notification setting is needed for each application at the connected smartphone in advance.

EAU96560

Incoming call notification icon “ ”

This icon flashes when there is an incoming call to the connected smartphone. If you do not answer the call, the icon stays on until you turn the vehicle off.

TIP

This function works only when the smartphone is connected to the vehicle.

EAU98220

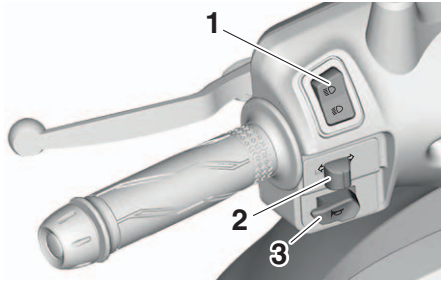
Charging indicator

This indicator comes on when the charger is connected to the vehicle.

EAU1234T

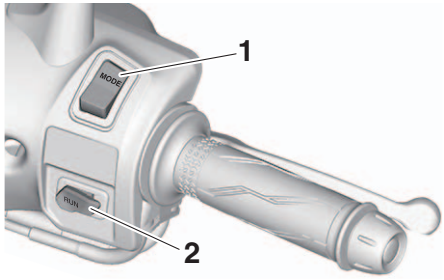
Handlebar switches

Left



1. Dimmer switch "≣O/≣O"
2. Turn signal switch "⇦/⇨"
3. Horn switch "📯"

Right



1. Mode switch "MODE"
2. Run switch "RUN"

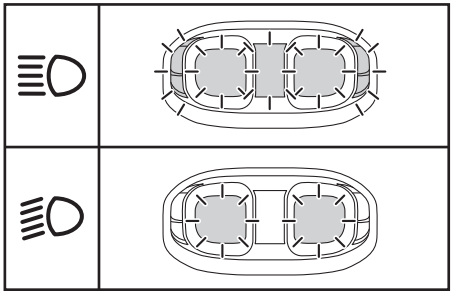
EAUV1651

Dimmer switch "≣O/≣O"

Set this switch to "≣O" for the high beam and to "≣O" for the low beam.

TIP

When the switch is set to low beam, both headlights come on.
When the switch is set to high beam, all headlights come on.



EAU12461

Turn signal switch "⇦/⇨"

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

EAU12501

Horn switch "📯"

Press this switch to sound the horn.

EAUV1391

Mode switch "MODE"

Stop the vehicle and hold the "MODE" switch until the reverse indicator light flashes, indicating the vehicle is in reverse mode.

- Hold the "RUN" switch to move the vehicle in reverse.
- Release the "RUN" switch to stop the reverse movement.

To return to run mode, hold the "MODE" switch until the reverse indicator light goes off.

TIP

- You cannot switch between reverse mode and run mode while the accelerator is turned. To change modes, first close the accelerator completely.
- While in reverse mode, the accelerator does not function.

EWAV0030

⚠ WARNING

To prevent loss of balance or injury, observe the following:

6

- **Only use the reverse function while straddling the vehicle.**
- **Check the area around the vehicle to make sure there are no people or objects around before reversing.**

EAUV1380

Run switch “RUN”

With the sidestand up, press the “RUN” switch while applying the front or rear brake to enter run mode and the run indicator light will come on .
See page 9-2 for starting instructions prior to starting off.

Forward drive

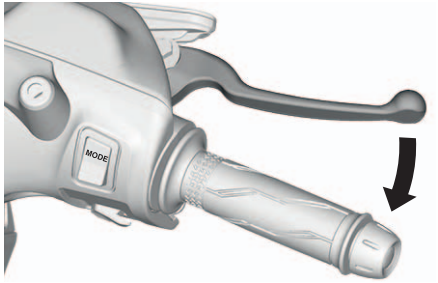
While in run mode, hold the run switch “RUN” at least 1 second and the forward drive will engage. While holding “RUN” switch, the vehicle will move forwards at a slow speed. When the “RUN” switch is released, the forward drive will stop.

TIP

While using the forward drive, the accelerator does not function. To return to normal accelerator function, release the “RUN” switch and close the accelerator completely once.

EAU97100

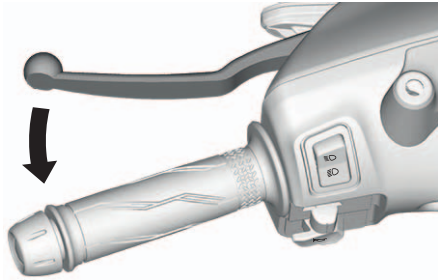
Front brake lever



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

EAU12952

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.

EAU89400

Seat

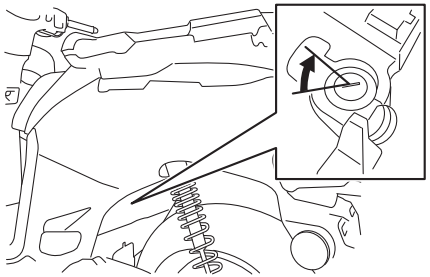
To open the seat

Via the main switch

Turn the main switch to “OPEN”, and then push the “SEAT” button. (See page 5-9.)

With the mechanical key

1. Open the keyhole cover.



2. Insert the mechanical key into the seat lock, and then turn it clockwise.
3. Lift the rear of the seat.

ECA24020

NOTICE

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

To close the seat

Push the rear of the seat down to lock it in place.

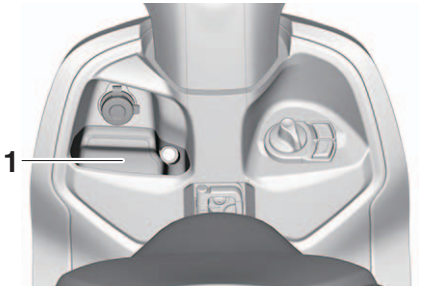
TIP

Make sure that the seat is properly secured before riding.

6

EAUT1051

Front storage compartment



1. Front storage compartment

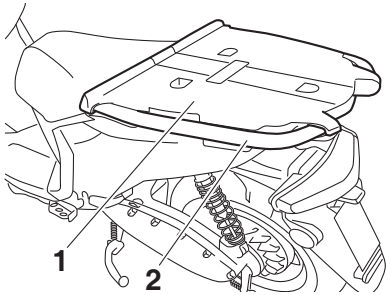
EWA10961

WARNING

- **Do not exceed the load limit of 1.5 kg (3 lb) for the storage compartment.**
- **Do not exceed the maximum load of 129 kg (284 lb) for the vehicle.**

EAUV1400

Rear carrier



1. Carrier cover
2. Optional carrier

This model is equipped with a carrier cover.
If you want to use it to carry luggage, an optional carrier part is required. See a Yamaha dealer for details.

ECAV0060

NOTICE

Do not put anything on the carrier cover without the optional carrier installed.
Otherwise the carrier cover may be damaged, or the carrier cover may detach and the luggage may fall.

EAU61380

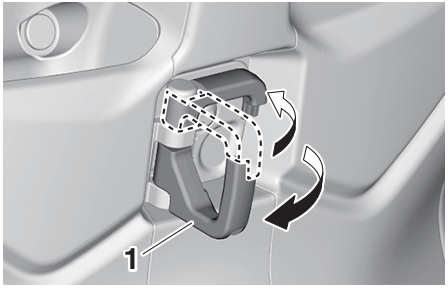
Luggage hook

To use the luggage hook, pull it out as shown.
To retract the luggage hook, push it back to its original position.

EWAT1032

WARNING

- **Do not exceed the load limit of 1 kg (2.2 lb) for the luggage hook.**
- **Do not exceed the maximum load of 129 kg (284 lb) for the vehicle.**



1. Luggage hook

EAU98400

Power outlet

This model is equipped with a 12V DC power outlet.

ECA28190

NOTICE

Do not use the power outlet when the EV system is off, and do not exceed the specified electrical load; otherwise the fuse may blow or the battery may discharge.
When washing the vehicle, do not direct high-pressure washers at the power outlet area.

Maximum electrical load:
12W (1.0 A)

To use the power outlet

1. Turn the vehicle power off.
2. Remove the power outlet cap.
3. Turn the accessory off.
4. Insert the accessory plug into the power outlet.
5. Turn the vehicle power on and start the EV system.
6. Turn the accessory on.

TIP

When finished riding, turn off the accessory and disconnect it from the power outlet, and then install the cap.

EWAN0050

⚠ WARNING

To prevent electrical shock or short-circuiting, install the cap when the power outlet is not in use.

EAU70642

DC connectors

This vehicle is equipped with additional wiring and DC connector(s) for the installation of optional electric accessories.
Consult a Yamaha dealer for more information regarding the location and capacity of the DC connector(s) and about what accessories are capable of being installed.

EAUV1420

Sidestand

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

TIP

- The built-in sidestand switch cuts off power to the EV system when the sidestand is down.
- An optional sidestand can also be installed on the right side of the frame. Consult your Yamaha dealer.

EWA21630

⚠ 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. Therefore, check the sidestand switch regularly and have a Yamaha dealer repair it if it does not function properly.

EAU1559B

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.

EWA11152

⚠ WARNING

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

Before using this vehicle, check the following points:

ITEM	CHECKS	PAGE
Front brake	• 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.	10-10, 10-11
Rear brake	• Check operation. • Lubricate cable if necessary. • Check lever free play. • Adjust if necessary.	10-9, 10-10
Control cables	• Make sure that operation is smooth. • Lubricate if necessary.	10-12
Wheels and tires	• Check for damage. • Check tire condition and tread depth. • Check air pressure. • Correct if necessary.	10-6, 10-8
Brake levers	• Make sure that operation is smooth. • Lubricate lever pivoting points if necessary.	10-13

For your safety – pre-operation checks

ITEM	CHECKS	PAGE
Centerstand, sidestand	• Make sure that operation is smooth. • Lubricate pivots if necessary.	10-13
Chassis fasteners	• Make sure that all nuts, bolts and screws are properly tightened. • Tighten if necessary.	—
Instruments, lights, signals and switches	• Check operation. • Correct if necessary.	—
Sidestand switch	Check if the EV system turns off when the sidestand is lowered. Otherwise have Yamaha dealer check the vehicle.	6-10

EAU97964

Safety information

Avoiding electric shock or fire while handling the battery charger

EWA22140

⚠ WARNING

- **Never use this battery charger to charge other electrical appliances.**
- **Do not use any other battery charger or charging method to recharge the special batteries. Using any other battery charger could result in fire, explosion, or damage the batteries.**
- **This battery charger can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they are supervised or have been given instruction concerning the use of the battery charger in a safe way and with understanding of the hazards involved. Children shall not play with the battery charger. Cleaning and user maintenance shall not be done by children without supervision.**
- **For indoor use only, do not use this battery charger outdoors or in wet condition. Although the battery charger is waterproof, never allow it to become immersed in water or other fluids. In addition, never use the battery charger if the terminals are wet.**
- **Never handle the power plug, charging plug or touch the battery charger contacts with wet hands. This could result in electric shock.**
- **Do not touch the battery charger contacts with metallic objects. Do not allow foreign material to cause short circuit of the contacts. This could result in electric shock, fire, or damage the battery charger.**
- **Never disassemble or modify the battery charger. This could result in fire or electric shock.**
- **Do not use with a power strip or extension cable. Using a power strip or similar methods may exceed rated current and can result in fire.**
- **Do not use with the cable tied or rolled up. Cable damage can result in fire or electric shock.**
- **Firmly insert the power plug and the charging plug into the connectors. Failure to insert the power plug or the charging plug completely can result in fire caused by electric shock or overheating.**
- **Do not drop the battery charger or expose it to strong impacts. Otherwise, it could cause a fire or electric shock.**
- **Never use a high-pressure washer to clean the battery charger. It could result in electric shock or damage to the device.**
- **Do not drop the charging cable/plug or expose them to strong impacts. This could cause a fire, electric shock or short circuit.**

- Do not unplug the device by pulling on the charging cable or power cable, this could cause an electric shock, short circuit or fire.
- Do not use the AC outlet of a car or a generator to charge the battery as this could cause a malfunction.
- Do not run with the battery charger in the storage under the seat.
- When charging, place the battery charger securely on a flat surface and with the indicator light facing up. Pulling the cables with excessive force or using the charger upside down could result in electric shock or fire.

Avoiding electric shock or fire while charging

EWA21452

⚠ WARNING

- Periodically remove dust from the power plug. Dampness or other issues could reduce the effectiveness of the insulation and result in fire.
- Do not use the battery charger near flammable material or gas. This could result in fire or explosion.
- Never cover the battery charger or place other objects on top of it while charging. This could result in internal overheating leading to fire.
- Do not touch the battery charger while it is charging. As the battery charger reaches 40–70 °C (104–158 °F) during charging, touching it could result in burns.
- If the power cable and/or plug is damaged, stop using the battery charger and have it inspected at a Yamaha dealer.
- Do not move the vehicle while the battery charger is connected. Doing so could cause the damage to the battery charger, power cable, or plug.
- Handle the power cable and plug with care. Connecting the battery charger indoors while the vehicle is outdoors could result in the power cable becoming pinched and damaged in a doorway or window.
- Do not run over the power cable or plug with the wheels of a vehicle. Doing so could result in damage to the power cable or plug.
- Avoid using the battery charger in dusty areas, as it could result in damage to the device.
- Do not use the battery charger while it is stored under the seat. Doing so could result in damage.
- If the vehicle or the battery charger become submerged while charging, do not touch either

due to risk of electrical shock. Have the vehicle and charger inspected by a Yamaha dealer.

Avoiding injury or damage while storing the battery charger

EWA21460

⚠ WARNING

- Store the battery charger out of reach of children.
- Do not store the battery charger where it may get wet as this could cause short circuits.

Avoiding electric shock or fire while handling the lithium-ion battery

EWA22031

⚠ WARNING

- Do not sprinkle water onto the lithium-ion battery or drop it in water.
  Exposing the lithium-ion battery to water could cause an electrical shock. If it is dropped in water, it will become permanently useless.
- Do not dispose of the lithium-ion battery in a fire.
  If the lithium-ion battery is thrown in a fire, it could explode. Return used batteries to a Yamaha dealer for proper recycling.
- Do not disassemble the lithium-ion battery.
  Disassembling batteries is likely to cause electric shock or fire.
- Do not drop the lithium-ion battery or expose it to strong shocks.
  The lithium-ion battery could be damaged or break. Avoid subjecting the lithium-ion battery to strong impacts or repetitive shocks during transport. This could lead to an electric shock or fire.
- Do not use a damaged lithium-ion battery.
  If a lithium-ion battery has been dropped or damaged due to impact, do NOT use it as there is a risk of electric shock or fire. Have a Yamaha dealer check the lithium-ion battery before using it again.

EAUV1660

Charging the lithium-ion battery

Appropriate charging environments
For safe and efficient charging, charge the lithium-ion battery in a location that is:

- Flat and stable
- Free of rain or moisture
- Out of direct sunlight
- Well-ventilated and dry
- Not accessible to children or pets
- Temperature between 15–25 °C (59–77 °F)

Inappropriate charging environments and solutions
The hot and cold environments described below can cause charging to enter standby or suspension without fully charging the lithium-ion battery.

Summertime charging standby/suspension
If charging in a location receiving direct summer sunlight or immediately after riding, the lithium-ion battery might enter charging standby (Indicator light on the battery charger flashes green). See "Checking the charging status of the lithium-ion battery" on page 8-12. This is to automatically control or stop charging in order to protect the battery from exceeding the specified temperature while charging. You can avoid charging suspension by starting to charge with the battery at a temperature of 15–25 °C (59–77 °F). If charging suspension occurs, move the lithium-ion battery and battery charger to a cool location to reduce the charging standby time.

Wintertime charging standby/suspension
Charging standby will occur if the temperature is less than 0 °C (32 °F). If charging is started and the temperature drops below this level due to late-night cooling or other factors, charging is suspended and standby mode is entered to protect the lithium-ion battery. In such cases, restart charging at a temperature of 15–25 °C (59–77 °F).

Interference with televisions/radios/computers
Charging next to televisions, radios, or similar appliances might cause static, flickering images, and other interference. If this occurs, recharge in a location further away from the television or radio.

EWA21471

⚠ WARNING

If a problem occurs during charging, remove the power plug of the battery charger from the socket and wait for the lithium-ion battery and/or the battery charger to cool.

EWA21892

⚠ WARNING

- **Before charging, make sure that dust, dirt, mud, oil, water, etc., do not stick to the charging plug. If this is the case, wipe the parts clean with a dry rag.**
- **Do not touch it with wet hands. An electric shock could occur.**
- **Do not charge the lithium-ion battery where infants and pets play around. Due to their unex-**

pected behavior, it could cause harm to the lithium-ion battery or result in a fire.
- If the cable or plugs of the battery charger are wet, wipe them dry with a dry rag.
- Do not use the lithium-ion battery if the battery case has any damage or cracks or if the battery emits any odor. This could result in a fire or injury owing to electrolyte leakage. If any abnormality is noticed, consult a Yamaha dealer immediately.
- Periodically remove dust from the power plug. Dampness or other issues could reduce the effectiveness of the insulation, resulting in fire.
- When installing the battery, make sure that dust or dirt does not build up around the terminals on the vehicle side.

ECAV0080

NOTICE

- Only charge the lithium-ion battery with the charger provided by the manufacturer.
- Do not drop the battery charger or expose it to strong impacts.
- Do not connect any other charging plug than the designated one to the charging connector.
- Never use this battery charger to charge other electrical appliances.
- Do not touch the connecting terminals of the lithium-ion battery. Otherwise, it could cause bending, surface scraping, damage, etc. to the terminals. If any abnormalities are found on the terminals, consult your Yamaha dealer.
- Do not connect any other battery or power supply than the designated one to the terminals on the vehicle side. Otherwise, it could cause damage to the EV system.
- If the temperature of the lithium-ion battery is high, wait until the battery has cooled down to the ambient temperature. Do not cool it down forcefully by placing it in a refrigerator, etc.
- If the temperature of the lithium-ion battery is low, wait until the battery temperature has risen to the ambient and proper temperature. Do not warm up the battery forcefully by placing it near a heater, etc.
- Do not use the lithium-ion battery for any other purpose than this vehicle. It cannot be used as an emergency power supply, nor as a portable power supply.

Charging procedure

EAU9644A

EWA21740

⚠ WARNING

Before plugging anything in, check all of the plugs and cables. Failure to check may result in electric shock or short circuit.

- **Check that there is no damage to the plugs and cables. If a problem is detected, have a Yamaha dealer check the battery charger.**
- **Check that there is no dirt or foreign material on the plugs and cables. Wipe off any dirt with a dry cloth.**

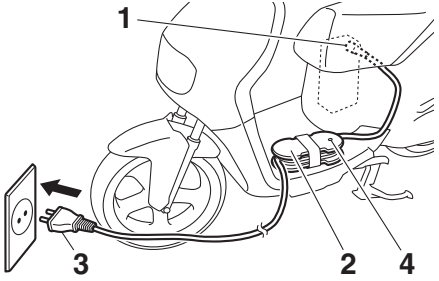
EWA21902

⚠ WARNING

When installing the lithium-ion battery, make sure that dust or dirt does not build up around the terminals on the vehicle side.

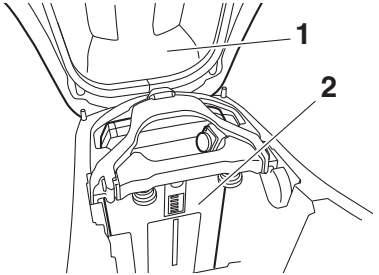
Charging the lithium-ion battery mounted on the vehicle

1. Turn off the main switch of the vehicle.
2. Place the vehicle on the center-stand.



1. Charging plug
2. Battery charger
3. Power plug
4. Battery charger indicator light

3. Open the seat.



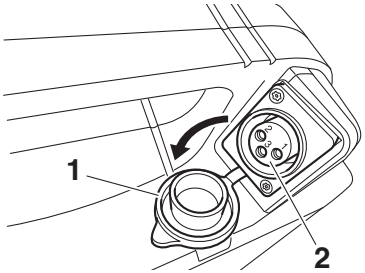
1. Seat
2. Lithium-ion battery

4. Connect the power plug into an appropriate AC outlet (AC220–240 V).
5. Open the charging connector cap.

ECA28110

NOTICE

To prevent an electric shock or short circuit, be sure to close the cap of the charging connector when the battery is not charged. Otherwise, dust or water could build up on the connector, leading to a malfunction.

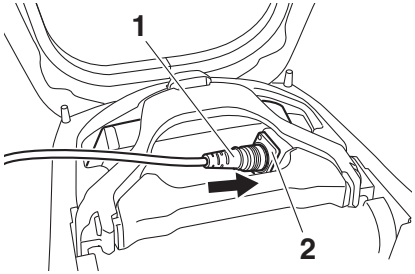


1. Charging connector cap
2. Charging connector

6. Insert the charging plug into the charging connector. Charging will start automatically when it is properly connected.

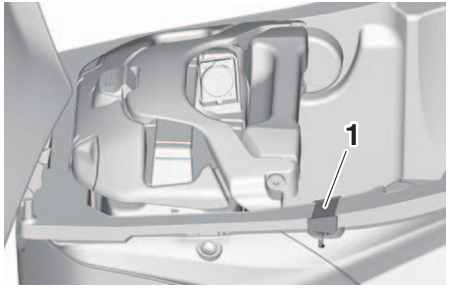
TIP

Insert the charging plug with the "▲" mark facing up.

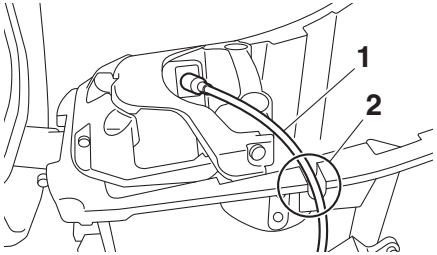


1. Charging plug
2. Charging connector

7. Remove the grommet and pass the charging cable through the guide.



1. Grommet



1. Charging cable
2. Guide

ECA27811

NOTICE

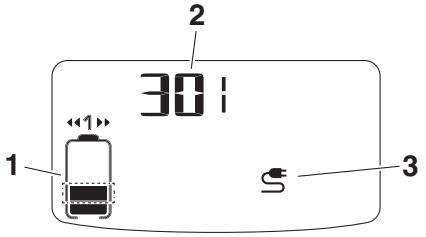
- **Make sure that the charging plug and charging connector are not wet before connecting, as it could cause damage.**
- **Never apply excessive stress to the charging plug or pull the plug while it is locked with the connector.**
- **Never move the vehicle and battery while the charging plug is connected, as it could cause damage.**
- **Wire the cable through the guide. If the cable is not passed correctly, the cable may be damaged.**
- **To prevent theft, be sure to lock and carry the key when you leave the vehicle.**

8. Confirm the charging status on the multi-function display. See "Checking the charging status of the lithium-ion battery" on page 8-12.

TIP

If turning on the main switch of the vehicle, you can check the charging status with the lithium-ion battery level meter and charging status display. After checking it, turn off the main switch.

8



1. Lithium-ion battery level meter
2. Charging status display
3. Charging indicator

EWA21560

⚠ WARNING

If the battery charger emits abnormal noises, foul odors or smoke, immediately unplug the power plug, remove the battery, and have it inspected at your dealer.

ECA27821

NOTICE

When charging with the main switch of the vehicle on, it will not be fully charged.

9. When charging is complete, the green light on the battery charger will go off. Make sure the indicator light is off and unplug the charging plug from the charging connector.

ECA27830

NOTICE

- **When unplugging the charging plug, make sure to pull straight out.**
- **When plugging/unplugging the charging plug, keep your hand away from the charging connector cap to avoid damaging the cap.**

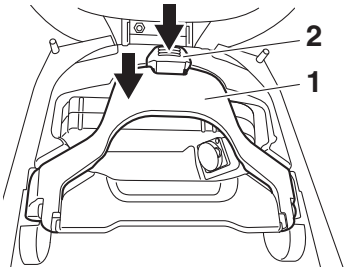
10. Close the charging connector cap.
11. Close the seat.

Charging the lithium-ion battery removed from the vehicle

1. Turn off the main switch of the vehicle.
2. Place the vehicle on the centerstand.
3. Open the seat.
4. Press the button to open the arm.

TIP

While pressing down on the arm, press the button.



1. Arm
2. Button

5. Remove the lithium-ion battery from the vehicle.

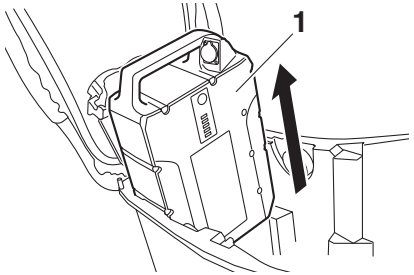
EWA21572

⚠ WARNING

- **Make sure that the main switch is turned off before removing the lithium-ion battery.**
- **When removing the battery, support it with both hands so that it does not drop.**

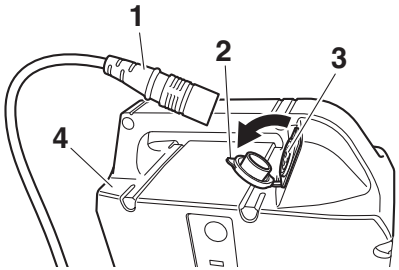
TIP

Hold the grip of the lithium-ion battery firmly when you carry it.



1. Lithium-ion battery

6. Connect the power plug into an appropriate AC outlet (AC220–240 V).
7. Open the charging connector cap.



1. Charging plug
2. Charging connector cap
3. Charging connector
4. Lithium-ion battery

8. Insert the charging plug into the charging connector. Charging will start automatically when it is actually connected.

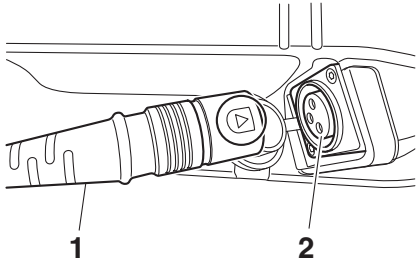
TIP

Insert the charging plug with the "▲" mark facing up.

ECA27840

NOTICE

- **Make sure that the charging plug and charging connector are not wet before connecting, as it could cause damage.**
- **Never apply excessive stress to the charging plug or pull the plug while it is locked with the connector.**



1. Charging plug
2. Charging connector

9. Confirm the charging status on the battery charger indicator and lithium-ion battery level meter. See "Checking the charging status of the lithium-ion battery" on page 8-12.

TIP

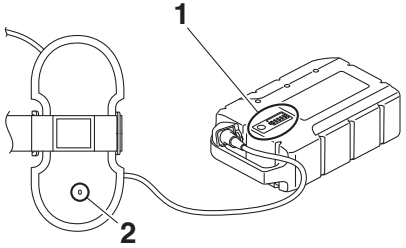
Do not place the battery charger on the lithium-ion battery. The battery may become hot and may go into charging standby mode.

8

EWA21580

⚠ WARNING

If the battery charger emits abnormal noises, foul odors or smoke, immediately unplug the power plug and have it inspected at your dealer.



1. Lithium-ion battery level meter
2. Battery charger indicator light

10. When charging is complete, the green light on the battery charger and the lithium-ion battery level meter will go off. Make sure charging is complete and unplug the charging plug from the charging connector.

ECA27850

NOTICE

- **When unplugging the charging plug, make sure to hold the circled-part of the left figure and pull straight out.**
- **When plugging/unplugging the charging plug, keep your hand away from the charging connector cap to avoid damaging the cap.**

11. Close the charging connector cap and install the lithium-ion battery to the vehicle.
12. Close the arm and close the seat.

ECA28120

NOTICE

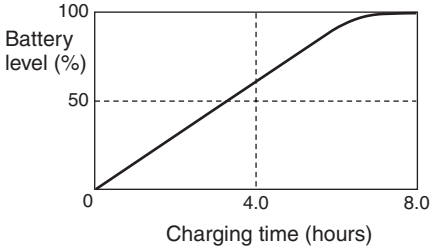
- **Hold the grip of the lithium-ion battery firmly, and then slowly lower the battery.**
- **Remove any obstacles around the terminals on the vehicle side. Otherwise, this will prevent connection of the lithium-ion battery or closing of the lid.**

EAU96464

Charging time

When the bottom of lithium-ion battery level meter on the battery flashes, the approximate charging time until the battery is fully charged will be as follows.

Charging time:
Approximately 8 hours



TIP

- The charging time varies depending on the battery's internal temperature.
- If charging after a long period of disuse, the charging time will be lengthened depending on the battery status.

- The charging time does not include the charging standby time (the time until the battery's internal temperature lowers enough to start charging). See "Checking the charging status of the lithium-ion battery" on page 8-12 for charging standby.

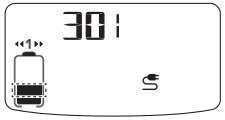
EAU96475

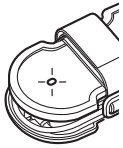
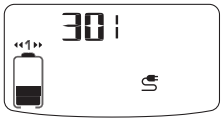
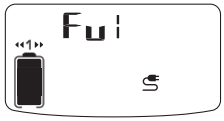
Checking the charging status of the lithium-ion battery

The lithium-ion battery charging status can be monitored both on the multi-function display and the lithium-ion battery itself. To check the charging status on the multi-function display, the lithium-ion battery must be mounted on the vehicle and the main switch must be turned “ON”.
The lithium-ion battery level meter on the lithium-ion battery and the battery charger indicator light come on automatically when the charger is connected.

TIP

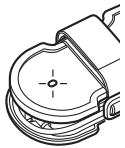
- After checking the charging status of the battery, turn the main switch to “OFF”.
- If the battery charger indicator light does not come on, have your Yamaha dealer check the vehicle.

<table>
<tr><th>Current status</th><th>Battery charger indicator light</th><th>Lithium-ion battery level meter on the battery</th><th>Lithium-ion battery level meter on the multi-function display</th><th>Details</th></tr>
<tr><td>Charging</td><td> 
ON [Green]</td><td rowspan="2"> 
Charging progress is represented by the flashing segment on the lithium-ion battery level meter.</td><td rowspan="2"> 
Charging progress is represented by the flashing segment on the lithium-ion battery level meter.</td><td>The battery charger indicator light comes on in green when charging is normal. Charging progress is represented by the flashing segment on the lithium-ion battery level meter. As charging progresses, the segments will increase one by one.</td></tr>
<tr><td>Charging output is limited</td><td> 
Flashing [Green] (Once a second)</td><td>When the battery charger gets hot, the battery charger indicator light will flash green to let you know that the charging output is limited. When the charger temperature reaches a temperature suitable for charging, the charging output becomes normal and the battery charger indicator light comes on in green.</td></tr>
</table>

Current status	Battery charger indicator light	Lithium-ion battery level meter on the battery	Lithium-ion battery level meter on the multi-function display	Details
Standby	 Flashing [Green] (Twice a second)	 All segments flash simultaneously.	 Segment does not flash.	When the inside of the battery is hot or the battery is excessively cold, the battery charger indicator light flashes green, and all the segments on the lithium-ion battery level meter flash to inform you that the battery is waiting to be charged. When the internal temperature of the battery reaches a temperature suitable for charging, charging starts and the battery charger indicator light comes on in green. Depending on the temperature of the battery, the limited output indicator light "" and EV system warning light "" of the multi-function display may come on.
Completed	 OFF	 OFF	 "Full" will appear on the information display.	When charging is complete, the battery charger indicator light and the lithium-ion battery level meter on the battery will turn off. Also, when the main switch is turned on, "Full" will appear on the information display.

8

Lithium-ion battery

Current status	Battery charger indicator light	Lithium-ion battery level meter on the battery		Lithium-ion battery level meter on the multi-function display	Details
Malfunction	 Flashing [Red]	 Each segment (1st, 3rd and 5th/2nd and 4th) flashes alternately.	 1st and 4th segments flash simultaneously.	 Entire lithium-ion battery level meter flashes.	If a malfunction occurs during charging, the battery charger indicator light flashes red and the lithium-ion battery level meter on the battery flashes abnormally. In addition, the EV system warning light "" on the multi-function display and the entire lithium-ion battery level meter on the multi-function display flashes. Make sure that the charging operation is performed correctly. If a malfunction still occurs even if the charging operation is performed correctly, an error has occurred during charging. Have a Yamaha dealer check the vehicle.

8

EAU95865

About the battery

Lithium-ion battery

The lithium-ion battery used in the vehicle features high energy density and has a high voltage (approximately three times that of nickel-cadmium (Ni-Cd) or nickel-hydrogen (Ni-MH) batteries), meaning it can be made both compact and lightweight.
Nickel-cadmium and nickel-hydrogen batteries have a memory effect that causes their capacity to degrade quickly as a result of repeated partial discharging and charging, so that they need to be completely discharged periodically. Lithium-ion batteries can be repeatedly partially charged without needing to be fully discharged.

Lithium-ion battery degradation

The charge capacity of the lithium-ion battery gradually decreases over time and usage. The rate of capacity degradation varies based on the usage conditions.

TIP

- It is not necessary to use up the battery before charging.
- Storing the vehicle in an extremely hot or cold place could degrade the lithium-ion battery capacity more quickly.
- Even if the lithium-ion battery is not used, it discharges and degrades gradually over time.

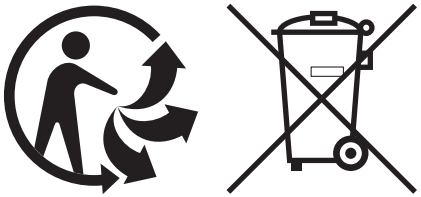
Recycling the battery

Lithium-ion batteries can be recycled. If the capacity decreases excessively due to degradation, have a Yamaha dealer replace the battery. Always follow local regulations regarding the disposal of batteries.

Disposal

The battery charger and packaging should be stored for environmental-friendly recycling.
Do not dispose of the charger as household waste.

For EU countries:
According to the European Guideline 2012/19/EU, electrical devices/tools that are no longer usable must be collected separately and disposed of in an environmentally correct manner.



8

Lithium-ion battery

EAU98030

Battery specifications

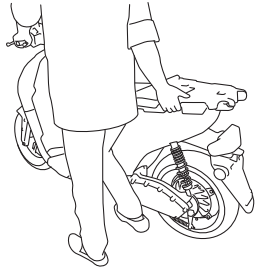
Battery charger	Type	BFM-HC2A1
	Input voltage	AC220–240 V / 50 Hz–60 Hz
	Maximum output voltage	58.8 V
	Maximum output current	3 A
	Applicable type battery	BFM0
Battery	Type	BFM0
	Voltage	50.4 V (3.6 V × 14)
	Capacity	Rated 19.2 Ah (Typ. 20 Ah)
	Number of battery cells	112 (14 series 8 parallel)
Battery Charger (Product information)	Type	BFM-HC2A1
	Manufacturer	YAMAHA MOTOR CO., LTD. 2500 Shingai, Iwata, Shizuoka 438-8501, Japan
	Importer (EU)	YAMAHA MOTOR EUROPE N.V. Koolhovenlaan 101, 1119 NC Schiphol-Rijk, 1117 ZN, Schiphol, the netherlands
CE UK CA	Importer (UK)	YAMAHA MOTOR EUROPE N.V., BRANCH UK Units A2-A3, Kingswey Business Park, Forsyth Road, Woking, Surrey. GU21 5SA. United Kingdom.
	Trademark/Trade Name	YAMAHA

EAU97386

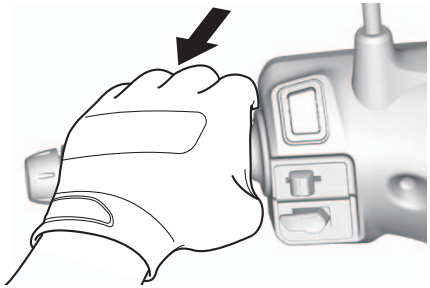
Preparations for starting off

The EV system will enable starting only when the sidestand is up.

1. Stand on the left side of the vehicle.
2. While pulling the rear brake lever with your left hand and holding the grab bar with your right hand, push the vehicle off the centerstand.



3. Squeeze the rear brake with your left hand to prevent the vehicle from moving.



To start the EV system

1. Turn the vehicle power on. (See page 5-8.)

TIP

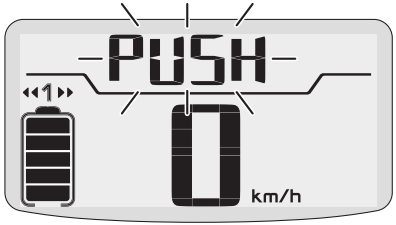
- This vehicle is equipped with the self-diagnostic function. When the vehicle power is turned on, all of the indicators and warning lights come on for few seconds.
- Do not start the EV system if the EV system warning light remains on.

ECA24110

NOTICE

If a warning or indicator light does not work as described above, have a Yamaha dealer check the vehicle.

2. After the self-diagnostic is complete, “PUSH” will flash on the information display.

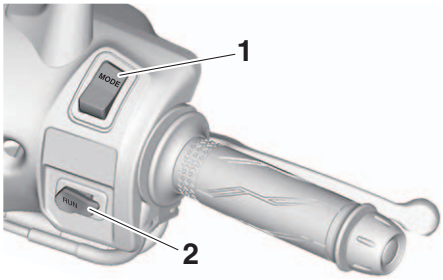


TIP

“PUSH” will not flash under the following conditions:

- Sidestand is down.
- Accelerator grip is turned.
- Charging plug is inserted.
- Rear wheel is rotating.
- Any warning lights are on.

3. While applying the front or rear brake and press the run switch.



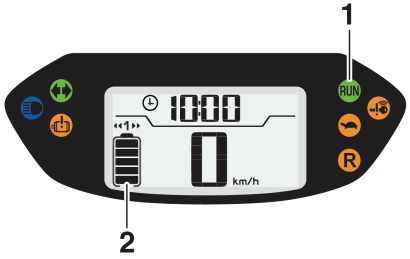
1. Mode switch “MODE”
2. Run switch “RUN”

4. The run indicator light “RUN” comes on and the vehicle is now ready to start off.

TIP

- If the sidestand is lowered, the run indicator light “RUN” does not comes on. And if the sidestand is lowered when the EV system is running, the run indicator light “RUN” will go off and the beeper will sound. To stop the beeper, turn the vehicle power off or raise the sidestand.

- Press the run switch only after the vehicle has stopped. The EV system cannot enter run mode while in motion.



1. Run indicator light “RUN”
2. Lithium-ion battery level meter

5. Check the lithium-ion battery level meter to make sure that the remaining charge is sufficient. (See page 4-6 for more information about the charge level.)

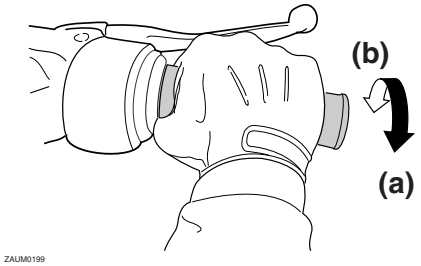
EAU97970

Starting off

1. Check that the run indicator light comes on.
2. Switch a turn signal on.
3. Check for oncoming traffic, and then slowly turn the accelerator in order to take off.
4. Switch the turn signal off.

EAU97110

Acceleration and deceleration



ZAUM0199

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

EAU97120

Braking

EWA17790

⚠ WARNING

- **Avoid braking hard or suddenly (especially when leaning over to one side), otherwise the vehicle 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 accelerator completely.
2. Apply both front and rear brakes simultaneously while gradually increasing the pressure.

EAU97613

Parking

When parking, turn the vehicle's power off and place it on the sidestand or centerstand.

When parking the vehicle, turn the main switch to "OFF" or "LOCK" to turn off the EV system to prevent the batteries from running out. Then, take the smart key with you and leave the vehicle. In addition, it is recommended to lock the handlebar as an anti-theft measure.

EWA21600

⚠ WARNING

Before getting off the vehicle, be sure to turn the vehicle power 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 EV system and operate the vehicle. Please turn the smart key off when leaving the vehicle is the location where vehicle theft may be a concern. (See page 5-4.)

If the sidestand is lowered when the EV system is running, the EV system 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 lithium-ion battery may discharge.
- The sidestand alarm beeper can be set to not activate. Please contact your Yamaha dealer.

EWA21610

⚠ WARNING

- **Since some components of the EV 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.**
- **Do not park near grass or other flammable materials which might catch fire.**

EAU97990

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.

EWA10322

⚠ WARNING

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

EWA21391

⚠ WARNING

Turn off the EV system when performing maintenance unless otherwise specified.

- **A running motor has moving parts that can catch on body parts or clothing and electrical parts that can cause shocks or fires.**
- **Running the EV system while servicing can lead to eye injury, burns or fire.**

EWA15461

⚠ WARNING

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

EWA21990

⚠ WARNING

- **Do not check or repair the vehicle while charging the lithium-ion battery. This could cause an electric shock or short circuit.**
- **Replace the charging cable and/or charging plug if damaged. Otherwise fire, electric shock, or short circuits could result.**

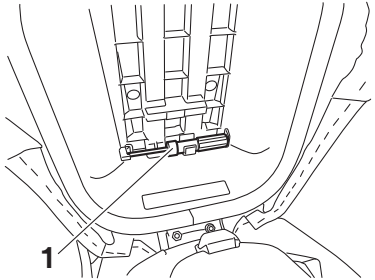
ECA28160

NOTICE

Make sure that corrosion inhibitors, solvents or oil do not come in contact with the charging cable or charging plug while checking the vehicle.

EAU85230

Tool kit



1. Tool kit

The tool kit is in the location shown.
The information included in this manual and the tools provided in the tool kit are intended to assist you in the performance of preventive maintenance and minor repairs. However, a torque wrench and other tools are necessary to perform certain maintenance work correctly.

TIP

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

EAU71021

TIP

- **The annual checks must be performed every year, except if a distance-based maintenance is performed instead.**
- From 30000 km (17500 mi), repeat the maintenance intervals starting from 6000 km (3500 mi).
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

EAU71344

General maintenance and lubrication chart

NO.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING					ANNUAL CHECK
				1000 km (600 mi)	6000 km (3500 mi)	12000 km (7000 mi)	18000 km (10500 mi)	24000 km (14000 mi)	
1	*	**Diagnostic system check**	• Perform inspection using Yamaha diagnostic tool. • Check the error codes.	√	√	√	√	√	√
2	*	**12V battery**	• Check voltage. • Charge if necessary.	√	√	√	√	√	√
3	*	**Front brake**	• Check operation, fluid level, and for fluid leakage. • Replace brake pads if necessary.	√	√	√	√	√	√
4	*	**Rear brake**	• Check operation. • Adjust cable. • Replace brake shoes if necessary.	√	√	√	√	√	√
5	*	**Brake hoses**	• Check for cracks or damage.		√	√	√	√	√
			• Replace.	Every 4 years					
6	*	**Brake fluid**	• Change.	Every 2 years					

10

NO.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING					ANNUAL CHECK
				1000 km (600 mi)	6000 km (3500 mi)	12000 km (7000 mi)	18000 km (10500 mi)	24000 km (14000 mi)	
7	*	**Wheels**	• Check runout and for damage. • Replace if necessary.		√	√	√	√	
8	*	**Tires**	• Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	√	√	√	√
9	*	**Wheel bearings**	• Check bearing for looseness or damage.		√	√	√	√	
10	*	**Steering bearings**	• Check bearing assemblies for looseness.	√	√	√	√		
			• Moderately repack with lithium-soap-based grease.					√	
11	*	**Chassis fasteners**	• Make sure that all nuts, bolts and screws are properly tightened.		√	√	√	√	√
12		**Front and rear brake lever pivot shaft**	• Lubricate with lithium-soap-based grease.		√	√	√	√	√
13		**Sidestand, center-stand**	• Check operation. • Lubricate with lithium-soap-based grease.		√	√	√	√	√
14	*	**Sidestand switch**	• Check operation and replace if necessary.	√	√	√	√	√	√
15	*	**Front fork**	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	

NO.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING					ANNUAL CHECK
				1000 km (600 mi)	6000 km (3500 mi)	12000 km (7000 mi)	18000 km (10500 mi)	24000 km (14000 mi)	
16	*	**Shock absorber assembly**	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	
17	*	**Front and rear brake switches**	• Check operation.	√	√	√	√	√	√
18	*	**Moving parts and cables**	• Lubricate.		√	√	√	√	√
19	*	**Accelerator**	• Check operation. • Check accelerator grip free play, and adjust it if necessary. • Lubricate accelerator housing tube guides.		√	√	√	√	√
20	*	**Lights, signals and switches**	• Check operation. • Adjust headlight beam.	√	√	√	√	√	√
21	*	**Motor noise**	• Check for irregular noise coming from the motor. • Replace if necessary.	√	√	√	√	√	√

EAU96820

10

TIP

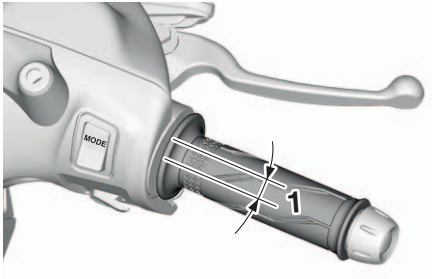
Hydraulic brake service

- Regularly check and, if necessary, correct the brake fluid level.
- 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.

EAU97140

Checking the accelerator grip free play

Measure the accelerator grip free play as shown.



1. Accelerator grip free play

Accelerator grip free play:
2–4 mm (0.8–0.12 in)

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

EAUV1431

Tires

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.

EWA21260

⚠ 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, cargo, and accessories approved for this model.**

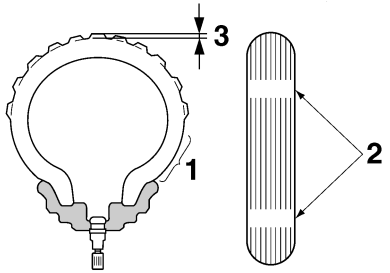
Cold tire air pressure:
1 person with load:
Front:
225 kPa (2.25 kgf/cm², 33 psi)
Rear:
250 kPa (2.50 kgf/cm², 36 psi)
Maximum load:
Vehicle:
129 kg (284 lb)
The vehicle's maximum load is the combined weight of the rider, cargo, and any accessories.

EWA10512

⚠ WARNING

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

Tire inspection



1. Tire sidewall
2. Tire wear indicator
3. Tire tread depth

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

Minimum tire tread depth (front and rear):
1.6 mm (0.06 in)

TIP

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

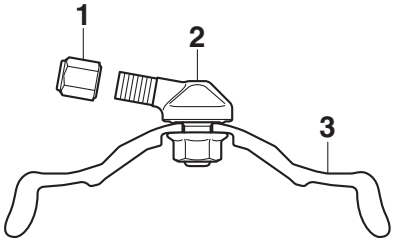
EWA10472

⚠ WARNING

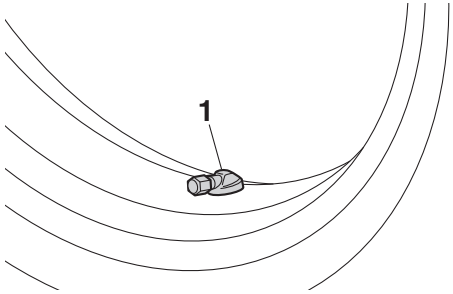
- **Have a Yamaha dealer replace excessively worn tires. Besides being illegal, operating the vehicle with excessively worn tires decreases riding stability and can lead to loss of control.**
- **The replacement of all wheel and brake-related parts, including the tires, should be left to a Yamaha dealer,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

Rear



1. Tire air valve cap with seal
2. Clamp-in valve
3. Wheel rim



1. Tire air valve

This model is equipped with tubeless tires and 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.

EWA21531

⚠ WARNING

- **The front and rear tires should be of the same make and design, otherwise the handling characteristics of the motorcycle may be different, which could lead to an accident.**
- **Always make sure that the valve caps are securely installed to prevent air pressure leakage.**
- **Use only the tire valves and valve cores listed below to avoid tire deflation during a ride.**
- **The rear tire air valve original position is with the valve cap pointing to the left side of the vehicle, perpendicular (90 degree left angle) to the axis (center line) of the wheel. If the tire air valve becomes misaligned, do not twist it back to its original position by yourself. Otherwise, leakage may occur. Have a Yamaha dealer inspect the valve.**

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

Front tire:
Size:
110-70-13M/C 48P
Manufacturer/model:
IRC/SS-570F
Rear tire:
Size:
130-70-13M/C 63P
Manufacturer/model:
IRC/SS-560R

EAU21963

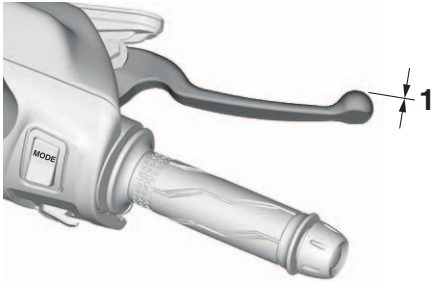
Cast wheels

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.

EAU49351

Checking the front brake lever free play



1. No brake lever free play

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

EWA14212

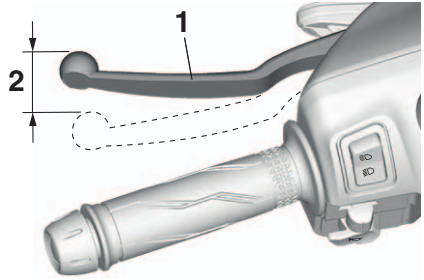
⚠ WARNING

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.

EAU22172

Adjusting the rear brake lever free play

Measure the rear brake lever free play as shown.

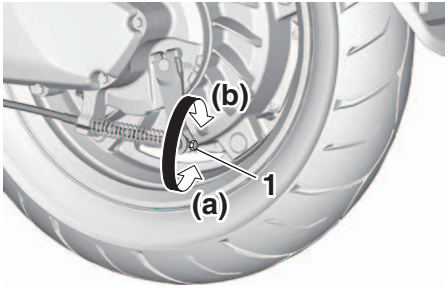


1. Rear brake lever
2. Rear brake lever free play

Rear brake lever free play:
10.0–20.0 mm (0.39–0.79 in)

Periodically check the brake lever free play and, if necessary, adjust it as follows.

To increase the brake lever free play, turn the adjusting nut at the brake shoe plate in direction (a). To decrease the brake lever free play, turn the adjusting nut in direction (b).



1. Rear brake lever free play adjusting nut

EWA10651

⚠ WARNING

If proper adjustment cannot be obtained as described, have a Yamaha dealer make this adjustment.

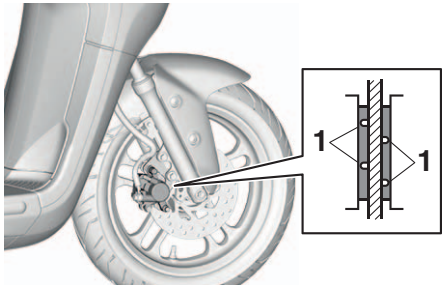
EAU22382

Checking the front brake pads and rear brake shoes

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

EAU22411

Front brake pads

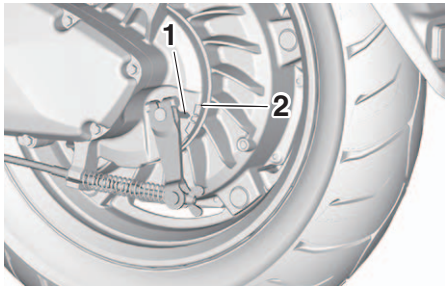


1. Brake pad wear indicator groove

Each front 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.

EAU22541

Rear brake shoes



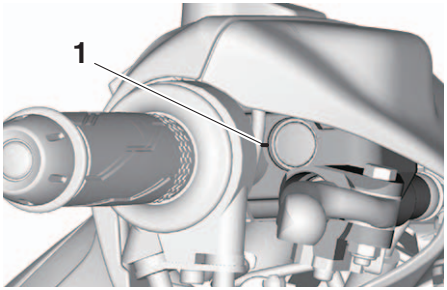
1. Wear indicator
2. Wear limit line

The rear brake is provided with a wear indicator, which allows you to check the brake shoe wear without having to disassemble the brake. To check the brake shoe wear, check the position of the wear indicator while applying the brake. If a brake shoe has worn to the point that the wear indicator reaches the wear limit line, have a Yamaha dealer replace the brake shoes as a set.

EAU32346

Checking the brake fluid level

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.



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.**
- **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.**

ECA17641

NOTICE

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

EAU22734

Changing the brake fluid

Have a Yamaha dealer change the brake fluid every 2 years. In addition, have the seals of the master cylinders and brake calipers, as well as the brake hoses replaced at the intervals listed below or sooner if they are damaged or leaking.

- Brake seals: every 2 years
- Brake hoses: every 4 years

EAU23098

Checking and lubricating the cables

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

EAU97150

Checking and lubricating the accelerator grip

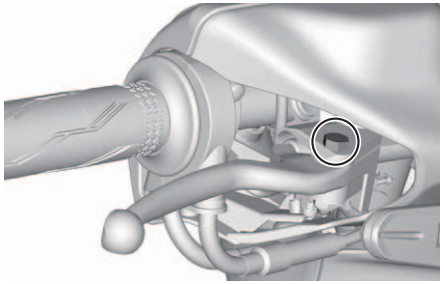
The operation of the accelerator grip should be checked before each ride. In addition, the accelerator grip housing should be lubricated by a Yamaha dealer at the intervals specified in the periodic maintenance chart.

EAU43643

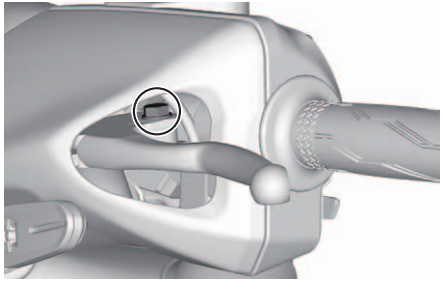
Lubricating the front and rear brake levers

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

Front brake lever



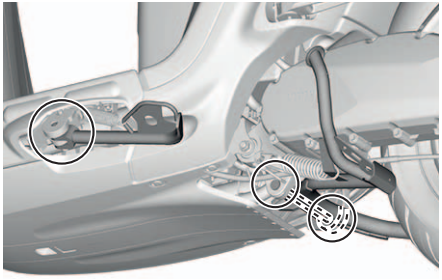
Rear brake lever



Recommended lubricants:
Front brake lever:
Silicone grease
Rear brake lever:
Lithium-soap-based grease

EAU23215

Checking and lubricating the centerstand and sidestand



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.

EWA10742

⚠ 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.

Recommended lubricant:
Lithium-soap-based grease

EAU23273

Checking the front fork

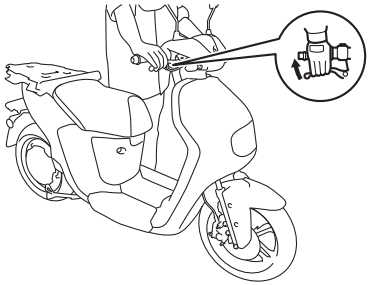
The condition and operation of the front fork must be checked as follows at the intervals specified in the periodic maintenance and lubrication chart.

To check the condition

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

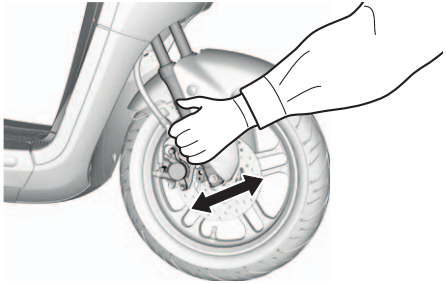
If any damage is found or the front fork does not operate smoothly, have a Yamaha dealer check or repair it.

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 centerstand. **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

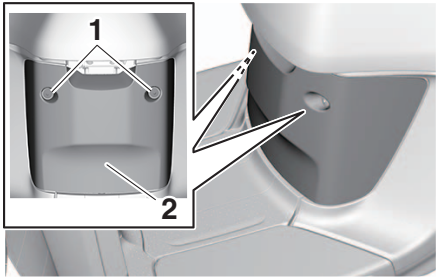
The front and rear wheel bearings must be checked at the intervals specified in the periodic maintenance and lubrication chart. If there is play in the wheel hub or if the wheel does not turn smoothly, have a Yamaha dealer check the wheel bearings.

EAU97394

12V battery

To remove the battery cover

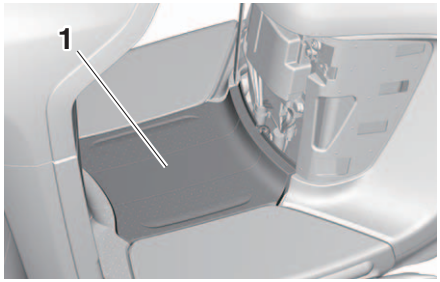
1. Turn the main switch to “OFF”.
2. Remove the lithium-ion battery.
3. Remove the under cover.



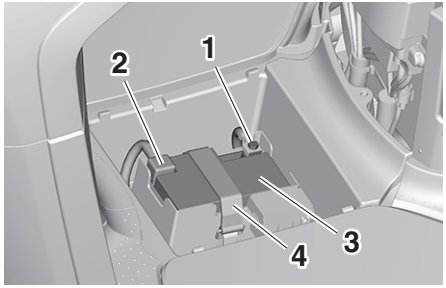
1. Screw
2. Under cover

4. Remove the battery cover.

10



1. Battery cover



1. Negative battery lead (black)
2. Positive battery lead (red)
3. 12V battery
4. Battery band

The battery is located under the battery cover.

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

To charge the battery

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

ECA16522

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

ECA16531

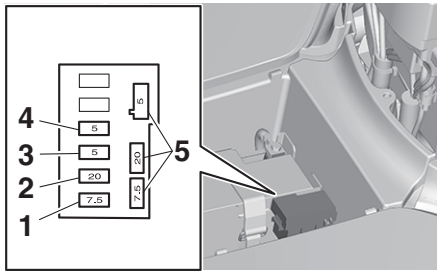
NOTICE

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

EAU98271

Replacing the fuses

The fuse boxes, which contain the fuses for the individual circuits, are located under the battery cover. (See page 10-15.)



1. Main fuse 2
2. Main fuse
3. Backup fuse
4. Terminal fuse 1
5. Spare fuse

If a fuse is blown, replace it as follows.

1. Turn off the electrical circuit in question, and then turn off the main switch.
2. Remove the lithium-ion battery.
3. Remove the under cover and battery cover by removing the screws.
4. 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:
5.0 A
Clock fuse (backup):
5.0 A

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

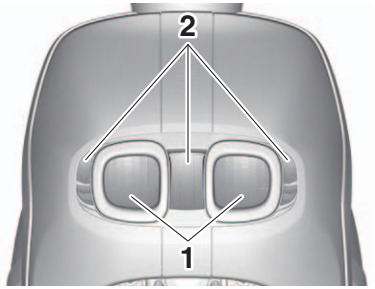
TIP

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

6. Install the battery cover.
7. Install the under cover.

EAU72980

Vehicle lights



1. Headlight (low beam)
2. Headlight (high beam)

This model is equipped with full-LED lighting. There are no user replaceable bulbs.
If a light does not come on, check the fuses and then have a Yamaha dealer check the vehicle.

ECA16581

NOTICE

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

EAU97455

Troubleshooting

If a problem occurs, check the following before taking the vehicle to a Yamaha dealer. However, if no electric power is supplied (nothing appears in the display), have a Yamaha dealer inspect the vehicle.

After the vehicle power is turned on, the vehicle does not enter run mode (the run indicator light "RUN" is not turned on) even though the run switch is pressed

Confirm that none of the following are true:

- The sidestand is down
- The accelerator is turned
- The charging plug is inserted
- The rear wheel is rotating
- The EV system warning light "" is on (See "The EV system warning light "" is turned on")
- The lithium-ion battery level is low. (See page 4-6.)

If you are still not able to enter run mode after checking the above items, have the vehicle inspected by a Yamaha dealer.

The vehicle does not start off

Is the vehicle is run mode (run indicator light "RUN" is turned on)?
The vehicle cannot be ridden unless it is run mode.
After checking the above, try starting off again by following the procedures described on pages 9-1 and 9-2 to restart the vehicle.
If the vehicle still does not start off, have a Yamaha dealer inspect it.

The EV system warning light "" is turned on

Check the following;

- Turn the vehicle power off and then back to on.
- Confirm that the lithium-ion battery is mounted properly.
- Confirm that the lithium-ion battery level is not too low.
- Is "HOT" shown on the information display, with the limited output indicator light "" on?
  The lithium-ion battery or other EV system temperatures have become too high. Turn the vehicle power off and allow the vehicle to cool down.

- Is “COLD” shown on the information display, with the limited output indicator light “” on?
  The lithium-ion battery temperature has become too low. Wait until the lithium-ion battery warms to an appropriate temperature.

EWA21710

⚠ WARNING

- **When pushing the vehicle, turn the vehicle power off.**
- **When possible, push the vehicle on a sidewalk.**

After checking the above, if the EV system warning light is still turned on, have a Yamaha dealer inspect the vehicle.

“Err” is displayed on the information display

Check the following:

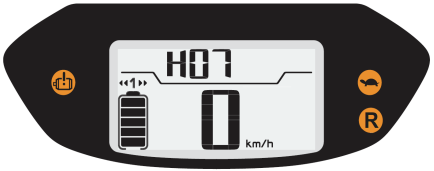
- Turn the vehicle power off and then back to on.
- Is the 12V battery sufficiently charged?
  Check the 12V battery level (See page 10-15).

After checking the above, if “Err” still remains displayed, have a Yamaha dealer inspect the vehicle.

The motor stops while riding

Check the following:

1. Is the lithium-ion battery sufficiently charged?
   If the remaining charge is insufficient, charge the battery before continuing to ride.
2. Is “HOT” displayed on the information display, with the limited output indicator light “” on and the run indicator light “RUN” off?



The temperature protection function has been activated. Turn the vehicle power off and allow the vehicle to cool down.

EWA21710

⚠ WARNING

- **When pushing the vehicle, turn the vehicle power off.**
- **When possible, push the vehicle on a sidewalk.**

After checking the above, if the vehicle still does not run, have a Yamaha dealer inspect the vehicle.

The display and headlight go off while the vehicle power is on.

Is the 12V battery sufficiently charged?
Check the 12V battery level (See page 10-15).

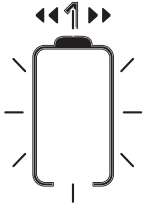
EWA21710

⚠ WARNING

- **When pushing the vehicle, turn the vehicle power off.**
- **When possible, push the vehicle on a sidewalk.**

After checking the above, turn the vehicle power on again. If the multi-function display and headlight do not come on, have a Yamaha dealer inspect the vehicle.

The lithium-ion battery level meter appears empty and is flashing (once a second).



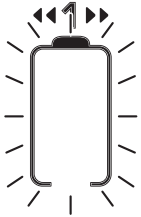
The remaining charge of the lithium-ion battery is 0%.
Charge the lithium-ion battery.

EWA21710

⚠ WARNING

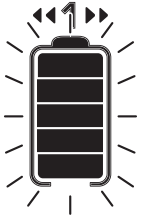
- **When pushing the vehicle, turn the vehicle power off.**
- **When possible, push the vehicle on a sidewalk.**

The lithium-ion battery level meter appears empty and is flashing (Twice a second).



Check that the lithium-ion battery is correctly mounted.
After checking the above, if it continues to flash empty, then there is connection error between the lithium-ion battery and the vehicle. Have a Yamaha dealer inspect the vehicle.

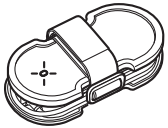
The lithium-ion battery level meter appears full and is flashing (Twice a second).



There may be a problem with the lithium-ion battery. Please check the status of the lithium-ion battery.

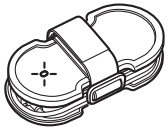
The battery charger indicator light is flashing (Once a second) while charging.
This is not malfunction.
Due to the high temperature of the battery charger, the battery is being charged with limited current. In this case, the charging time becomes longer, but still continues. When the battery charger temperature is reduced to within the normal range, charging resumes at normal speed (See page 4-6).

The battery charger indicator light is flashing (Twice a second) while charging, and the lithium-ion battery level meter is not flashing.



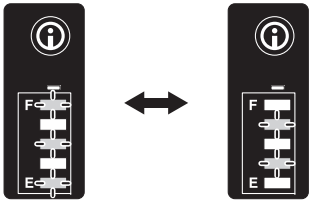
This is not malfunction. The charger has entered standby mode.
When the lithium-ion battery is too hot/cold, the charger may enter standby mode. Depending on the temperature, the EV system warning light and the limited output indicator light may come on. When the battery charger temperature returns to within the normal range, charging will resume. (See page 4-6)

The battery charger indicator light is flashing red while charging, and the EV system warning light and the lithium-ion battery level meter are flashing.



Due to the extremely high temperature of the lithium-ion battery, charging has been stopped. In this case, disconnect the charger and resume charging when the lithium-ion battery temperature reduces to within the normal range.
If this occurs while lithium-ion battery temperatures appear to be within the normal range, have a Yamaha dealer inspect the vehicle.

Each segment (1st, 3rd and 5th / 2nd and 4th) on the lithium-ion battery level meter is flashing alternately while charging.



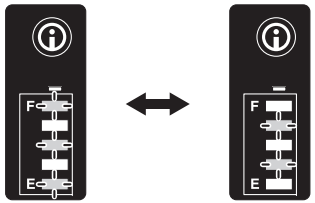
A charging malfunction has occurred because of one of the following:

- Due to the extremely high temperature of the lithium-ion battery, charging has been stopped. In this case, disconnect the charger and resume charging when the lithium-ion battery temperature is reduced to within the normal range.
- The lithium-ion battery usage rate exceeds the charging rate. If charging the battery mounted on the vehicle, check that the vehicle

power is off. Disconnect the charging plug and connect it again.

After checking the above, have a Yamaha dealer inspect the vehicle.

Each segment (1st, 3rd and 5th / 2nd and 4th) on the lithium-ion battery level meter is flashing alternately



There may be connection error between the lithium-ion battery and the vehicle.

- If dust or moisture is attached to the plug of the lithium-ion battery and the vehicle, remove and clean it.
- To recover the lithium-ion battery from the abnormal condition, connect the lithium-ion battery to the charger.

If the lithium-ion battery cannot recover from its abnormal condition, even if connected to the charger, or if the abnormal condition occurs repeatedly, have a Yamaha dealer inspect the vehicle.

The 1st and 4th segments of the lithium-ion battery level meter are flashing

The lithium-ion battery is malfunctioning, and the protection function is activated, making the lithium-ion battery unusable.

Please have the battery replaced by a Yamaha dealer.

"OLD" is shown on the information display.

The lithium-ion battery has reached the end of its service life.

Have a Yamaha dealer replace the battery.

EAU97171

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 5-4.)
- Is the smart key battery discharged? (See page 5-6.)
- Is the smart key battery installed correctly? (See page 5-6.)
- Is the smart key being used in a location with strong radio waves or other electromagnetic noise? (See page 5-1.)
- Are you using the smart key that is registered to the vehicle?

- 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 10-15.)

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 10-23 for information on starting the EV system without the smart key.

EAU96631

Emergency mode

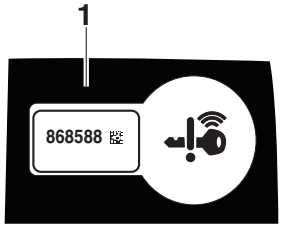
When the smart key is lost or damaged, or its battery has discharged, the vehicle can still be turned on and the EV system started. You will need the smart key system identification number.

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 3 seconds to indicate the transition to emergency mode.

1. Smart key system indicator light "  "

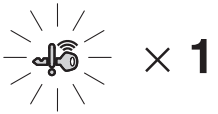
3. After the smart key system indicator light goes off, input the identification number as follows.



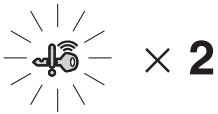
1. Identification number card

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 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.

EAU37834

Matte color caution

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.

EAU97636

Care

Frequent, thorough cleaning of the vehicle will not only enhance its appearance but also will improve its general performance and extend the useful life of many components. Washing, cleaning, and polishing will also give you a chance to inspect the condition of the vehicle more frequently. Be sure to wash the vehicle after riding in the rain or near the sea, because salt is corrosive to metals.

Special care in winter

ECA28181

NOTICE

In cold weather, when roads may be salted as a de-icing method, it's important to clean the vehicle thoroughly to remove road salt and avoid corrosion. Wheel spokes, bolts/nuts and other unpainted metal parts can be especially vulnerable to corrosion from road salt. Apply an anti-corrosion product to any vulnerable parts after washing and drying the vehicle.

TIP

- The roads of heavy snowfall areas may be sprayed with salt as a de-icing method. This salt can stay on the roads well into spring, so be sure to wash the underside and chassis parts after riding in such areas.
- Genuine Yamaha care and maintenance products are sold under the YAMALUBE brand in many markets worldwide.
- See your Yamaha dealer for additional cleaning tips.

ECA26280

NOTICE

Improper cleaning can cause cosmetic and mechanical damage. Do not use:

- **high-pressure washers or steam-jet cleaners. Excessive water pressure may cause water seepage and deterioration of wheel bearings, brakes, transmission seals and electrical devices. Avoid high-pressure**

detergent applications such as those available in coin-operated car washers.

- **harsh chemicals, including strong acidic wheel cleaners, especially on spoke or magnesium wheels.**
- **harsh chemicals, abrasive cleaning compounds, or wax on matte-finished parts. Brushes can scratch and damage the matte-finish, use soft sponge or towel only.**
- **towels, sponges, or brushes contaminated with abrasive cleaning products or strong chemicals such as, solvents, gasoline, rust removers, brake fluid, or antifreeze, etc.**

Before washing

EWA21750

⚠ WARNING

Before washing, check to make sure that all lids and storage compartments are completely closed. If the electrical components inside become wet, electric shock and/or short circuits could result.

1. Park the vehicle out of direct sunlight and allow it to cool. This will help avoid water spots.
2. Make sure all caps, covers, electrical couplers and connectors are tightly installed.
3. Pre-soak stubborn stains like insects or bird droppings with a wet towel for a few minutes.
4. Remove road grime and oil stains with a quality degreasing agent and a plastic-bristle brush or sponge. ***NOTICE:*** **Do not use degreasing agent on areas requiring lubrication such as seals, gaskets, and wheel axles. Follow product instructions.** [ECA26290]

Washing

EWA21911

⚠ WARNING

Make sure that the seat is properly closed before cleaning the vehicle. If the seat is not properly closed, water could splash onto the batteries and DC plug and cause an electric shock or short circuit.

1. Rinse off any degreaser and spray down the vehicle with a garden hose. Use only enough pressure to do the job. Avoid spraying water directly into the instrument panel, breather hose, and other inner areas such as underseat storage compartments.
2. Wash the vehicle with a quality automotive-type detergent mixed with cool water and a soft, clean towel or sponge. Use an old toothbrush or plastic-bristle brush for hard-to-reach places. ***NOTICE:*** **Use cold water if the vehicle has been exposed to salt. Warm water will increase salt's corrosive properties.** [ECA26301]
3. For windshield-equipped vehicles: Clean the windshield with a soft towel or sponge dampened with water and a pH neutral detergent. If necessary, use a high-quality windshield cleaner or polish for the vehicle. ***NOTICE:*** **Never use**

any strong chemicals to clean the windshield. Additionally, some cleaning compounds for plastic may scratch the windshield, so be sure to test all cleaning products before general application. [ECA26310]

4. Rinse off thoroughly with clean water. Be sure to remove all detergent residues, as they can be harmful to plastic parts.

After washing

1. Dry the vehicle with a chamois or absorbent towel, preferably microfiber terrycloth.
2. For drive chain-equipped models: Dry and then lubricate the drive chain to prevent rust.
3. Use a chrome polish to shine chrome, aluminum, and stainless steel parts. Often the thermally induced discoloring of stainless steel can be removed through polishing.
4. Apply a corrosion protection spray on all metal parts including chrome or nickel-plated surfaces. **WARNING! Do not apply silicone or oil spray to seats, hand grips, rubber foot pegs or tire treads. Otherwise these parts will become slippery, which could cause loss of control. Thoroughly clean the surfaces of these parts before operating the vehicle.** [EWA20651]
5. Treat rubber, vinyl, and unpainted plastic parts with a suitable care product.
6. Touch up minor paint damage caused by stones, etc.
7. Wax all painted surfaces using a non-abrasive wax or use a detail spray for the vehicle.
8. When finished cleaning, start the EV system for several minutes to help dry any remaining moisture.
9. If the headlight lens has fogged up, start the EV system and turn on the headlight to help remove the moisture.
10. Let the vehicle dry completely before storing or covering it.

ECA26320

NOTICE

- **Do not apply wax to rubber or unpainted plastic parts.**
- **Do not use abrasive polishing compounds as they will wear away the paint.**
- **Apply sprays and wax sparingly. Wipe off excess afterwards.**

EWA20660

⚠ WARNING

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

- **Make sure there is no lubricant or wax on the brakes or tires.**
- **If necessary, wash the tires with warm water and a mild detergent.**
- **If necessary, clean the brake discs and pads with brake cleaner or acetone.**
- **Before riding at higher speeds, test the vehicle's braking performance and cornering behavior.**

EAU97645

Storage

Always store the vehicle in a cool, dry place. If necessary, protect it against dust with a porous cover. Be sure the EV components are cool before covering the vehicle.

ECA21170

NOTICE

- **Storing the vehicle 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 storage

Before storing the vehicle long term (60 days or more):

1. Make all necessary repairs and perform any outstanding maintenance.
2. Follow all instructions in the Care section of this chapter.
3. Lubricate all control cables, pivots, levers and pedals, as well as the sidestand and centerstand (if equipped).
4. Check and correct the tire air pressure, and then lift the vehicle so that all wheels are off the ground. Otherwise, turn the wheels a little once a month in order to prevent the tires from becoming degraded in one spot.

Lithium-ion battery storage

Regarding long term storage of the lithium-ion battery, follow the instructions, see page 4-8.

TIP

- If the remaining lithium-ion battery capacity is low, charge the battery. To extend the battery life, it is recommended to store the battery with the lithium-ion battery level meter showing 2–3 segments.
- Do not store the battery with the battery charge indicator below the last segment (i.e. with a remaining battery capacity of less than 20%).
- If the vehicle or the batteries are stored in a place where it is excessively hot or cold, the electric output capacity may decrease.
- If the vehicle will not be used for a long time (one month or more), remove the lithium-ion battery and store it. Store the battery with the lithium-ion battery level meter on the battery showing 2-3 segments in a place with low humidity.
- If the vehicle will not be used for a long time (two months or more), check the remaining lithium-ion battery capacity every month. When using the vehicle again, make sure to charge the battery.

12V battery storage

Remove the 12V battery and fully charge it, or attach a maintenance charger to keep the battery optimally charged. ***NOTICE:*** **Confirm that the battery and its charger are compatible. Do not charge a VRLA battery with a conventional charger.** [ECA26330]

ECAV0070

NOTICE

If the vehicle will not be used for a long time, additionally charge the 12V battery every three months.

TIP

- If the 12V battery will be removed, charge it once a month and store it in a temperate location between 0–30 °C (32–90 °F).
- See page 10-15 for more information on charging and storing the 12V battery.
- Remove the 12V battery and fully charge it, or connect the maintenance charger to it to ensure an appropriate charging status of the battery.
- If the vehicle will not be used for a long time (two months or more), check the remaining lithium-ion battery capacity every month. When using the vehicle again, make sure to charge the battery.

Specifications

Dimensions:
Overall length:
1875 mm (73.8 in)
Overall width:
695 mm (27.4 in)
Overall height:
1120 mm (44.1 in)
Seat height:
795 mm (31.3 in)
Wheelbase:
1305 mm (51.4 in)
Ground clearance:
135 mm (5.31 in)
Minimum turning radius:
1.9 m (6.23 ft)

Weight:
Curb weight:
89 kg (196 lb)

Power unit:
Electric motor type:
Alternating current synchronous motor
Cooling system:
Air cooled

Front tire:
Type:
Tubeless
Size:
110-70-13M/C 48P
Manufacturer/model:
IRC/SS-570F

Rear tire:
Type:
Tubeless
Size:
130-70-13M/C 63P
Manufacturer/model:
IRC/SS-560R

Loading:
Maximum load:
129 kg (284 lb)
(Total weight of rider, cargo and accessories)

Front brake:
Type:
Hydraulic single disc brake

Rear brake:
Type:
Mechanical leading trailing drum brake

Front suspension:
Type:
Telescopic fork

Rear suspension:
Type:
Swingarm

Main battery:
Type:
ERROR2
Model:
BFM-00
Voltage, capacity:
50 V, 19 Ah

Battery:
Model:
GTZ6V
Voltage, capacity:
12 V, 5.0 Ah (10 HR)

Bulb wattage:
Headlight:
LED
Brake/tail light:
LED
Front turn signal light:
LED
Rear turn signal light:
LED
License plate light:
LED
Operating status indicator:
LED
Reverse indicator light:
LED
Limited output indicator light:
LED

EAU96640

Identification numbers

Record the vehicle identification number, EV system 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.

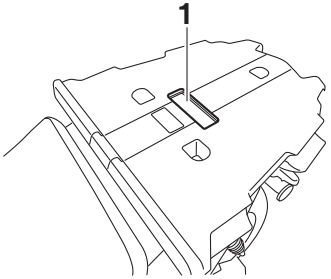
VEHICLE IDENTIFICATION NUMBER:

EV SYSTEM SERIAL NUMBER:

MODEL LABEL INFORMATION:

EAU26411

Vehicle identification number



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.

EAU96060

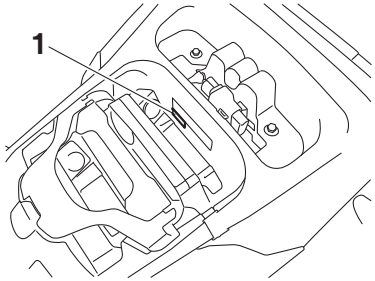
EV system serial number

1. EV system serial number

The EV system serial number is stamped into the power unit case.

EAU26501

Model label

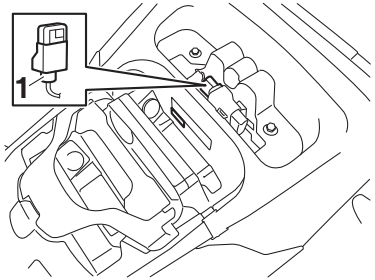


1. Model label

The model label is affixed to the inside of the rear storage compartment. (See page 6-8.) Record the information on this label in the space provided. This information will be needed when ordering spare parts from a Yamaha dealer.

EAU69910

Diagnostic connector



1. Diagnostic connector

The diagnostic connector is located as shown.

EAUA0872

Use of your data

This is a brief summary of how Yamaha (Yamaha Motor Co. Ltd., and Yamaha Europe N.V.) uses your data. For more details, please go to the specific URL below for the Privacy Policy:

Country	Language	URL
Austria	German	https://www.yamaha-motor.eu/at/de/privacy/privacy-policy/
Belgium	Dutch	https://www.yamaha-motor.eu/be/nl/privacy/privacy-policy/
Belgium	French	https://www.yamaha-motor.eu/be/fr/privacy/privacy-policy/
Bulgaria	Bulgarian	https://www.yamaha-motor.eu/bg/bg/privacy/privacy-policy/
Czech Republic	Czech	https://www.yamaha-motor.eu/cz/cs/privacy/privacy-policy/
Denmark	Danish	https://www.yamaha-motor.eu/dk/da/privacy/privacy-policy/
Finland	Finnish	https://www.yamaha-motor.eu/fi/fi/privacy/privacy-policy/
France	French	https://www.yamaha-motor.eu/fr/fr/privacy/privacy-policy/
Germany	German	https://www.yamaha-motor.eu/de/de/privacy/privacy-policy/
Greece	Greek	https://www.yamaha-motor.eu/gr/el/privacy/privacy-policy/
Hungary	Hungarian	https://www.yamaha-motor.eu/hu/hu/privacy/privacy-policy/
Italy	Italian	https://www.yamaha-motor.eu/it/it/privacy/privacy-policy/
Ireland	English	https://www.yamaha-motor.eu/ie/en/privacy/privacy-policy/
Netherlands	Dutch	https://www.yamaha-motor.eu/nl/nl/privacy/Privacybeleid/
Norway	Norwegian	https://www.yamaha-motor.eu/no/nb/privacy/privacy-policy/
Poland	Polish	https://www.yamaha-motor.eu/pl/pl/prywatnosc/polityka-prywatnosci/
Portugal	Portuguese	https://www.yamaha-motor.eu/pt/pt/privacy/privacy-policy/
Romania	Romanian	https://www.yamaha-motor.eu/ro/ro/privacy/privacy-policy/
Spain	Spanish	https://www.yamaha-motor.eu/es/es/privacy/privacy-policy/
Sweden	Swedish	https://www.yamaha-motor.eu/se/sv/privacy/privacy-policy/
Switzerland	German	https://www.yamaha-motor.eu/ch/de/privacy/privacy-policy/
Switzerland	French	https://www.yamaha-motor.eu/ch/fr/privacy/privacy-policy/
Turkey	Turkish	https://www.yamaha-motor.eu/tr/tr/privacy/privacy-policy/
U.K.	English	https://www.yamaha-motor.eu/gb/en/privacy/privacy-policy/

Consumer information

What data we collect? and How we collect your data?
This vehicle collects three types of data through integrated Engine Control Units (ECU).: (1) Vehicle Identification Number (VIN); (2) live data showing the performance of the vehicle such as engine/motor operating state, vehicle speed, mileage; and (3) other data showing the status of the vehicle such as diagnostic trouble code (DTC).
The collected data will be uploaded to server at Yamaha Motor Co., Ltd. by attaching a special Yamaha diagnostic tool to the vehicle, only when maintenance checks or service procedures are performed.

How will we use your data?
Yamaha use collected data from your vehicle, (1) to conduct adequate maintenance service including diagnostics, (2) to implement proper warranty claim judgement, (3) to conduct research and development of vehicle, (4) to provide and improve quality of products, features, and services, (5) to ensure our business purpose, and (6) to comply with requirements of laws and regulations.

How we share your data?
We may share your data with: (i)our subsidiaries, affiliates, and business partners; (ii) dealers in your country or region, and (iii) contractors within the scope necessary to achieve the purpose of use described above.

How to contact us
Yamaha Motor Co., Ltd., and Yamaha Motor Europe N.V. are joint data controller regarding your data collected. Any questions or complaints regarding the processing of your Personal Data can be submitted in writing to:
Yamaha Motor Europe NV/Digital Marketing & CRM
– PO Box 75033 – 1117 ZN Schiphol – The Netherlands.

The SOLE PURPOSE of above provided contact information is TO RESPOND DATA PROCESSING INQUIRY AND OTHER KINDS OF INQUIRIES **WILL NOT BE RESPONDED.** Please provide the following information for the proper handling of your inquiry: **(1) Your Name; (2) Your Email Address; (3) Your Country of Residence; and (4) Your VIN.** We will use your personal information provided only for the purpose of supporting your data processing inquiry.

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