Electric propulsion motor (HARMO) H3.1B (SINGLE MOTOR)





OPERATION MANUAL



⚠Read this manual carefully before operation.

LIT-18626-16-13
6MK-28199-11-E0

WARNING: This product can expose you to chemicals including phthalates and lead which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Read this manual carefully before operating this system. Keep this manual onboard in a waterproof bag when boating.

To the owner

Thank you for selecting a Yamaha electric propulsion motor. This operation manual contains information needed for proper operation, maintenance and care. A thorough understanding of these simple instructions will help you obtain maximum enjoyment from your new Yamaha. If you have any question about the operation or maintenance of your electric propulsion motor, please consult a Yamaha dealer.
In this operation manual particularly important information is distinguished in the following ways.

⚠ : 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 electric propulsion motor or other property.

TIP:

A TIP provides key information to make procedures easier or clearer.

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 machine and this manual. If there is any question concerning this manual, please consult your Yamaha dealer.
To ensure long product life, Yamaha recommends that you use the product and perform the specified periodic inspections and maintenance by correctly following the instructions in the operation manual. Any damage resulting from neglect of these instructions is not covered by warranty.
Some countries have laws or regulations restricting users from taking the product out of the country where it was purchased, and it may be impossible to register the product in the destination country. Additionally, the warranty may not apply in certain regions. When planning to take the product to another country, consult the dealer where the product was purchased for further information.
If you purchased this electric propulsion motor used, see your Yamaha dealer to have it registered in your name in Yamaha records.

TIP:

The H3.1B (HARMO) and the standard accessories are used as a base for the explanations and illustrations in this manual. Therefore some items may not apply to every model.

Electric propulsion motor (HARMO)
H3.1B (SINGLE MOTOR)
OPERATION MANUAL
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CONTENTS

Safety information 1
- **Electric propulsion motor safety....1**
  - Electric shock 1
  - Batteries 1
  - Impeller 1
  - Hot parts 1
  - Power tilt 1
  - Electric motor shut-off cord (lanyard) 1
  - Modifications 2
- **Boating safety 2**
  - Alcohol and drugs 2
  - Personal flotation devices (PFDs) 2
  - People in the water 2
  - Passengers 2
  - Overloading 2
  - Avoid collisions 2
  - Collisions with floating or submerged objects 3
  - Leaving the boat 3
  - Weather 3
  - Accident reporting 4
  - Boat education and training 4
  - Passenger training 4
  - Boating safety publications 4
  - Laws and regulations 4
- **Boating organizations 4**
- **Basic boating rules (Rules of the road) 5**
  - Steering and sailing rules and sound signals 5
  - Rules when encountering vessels 5
  - Other special situations 6

General information 9
- **Identification numbers record 9**
  - Electric propulsion motor serial number 9
- **EC Declaration of Conformity (DoC) 9**
- **CE Marking / UKCA Marking 9**
- **Compliance mark label 10**
- **Read manuals and labels 11**
  - Warning labels 11

Specifications and requirements 12
- **Specifications 12**
- **Installation requirements 12**
  - Boat rated output 12
  - Mounting electric propulsion motor 12
- **Battery requirements 13**
  - Battery specifications 13
- **Start-in-gear protection 13**
- **Anti-fouling paint 14**
- **Electric propulsion motor disposal requirements 14**
- **Emergency equipment 14**

Components 15
- **Components diagram 15**
- **Electric propulsion motor equipment 17**
  - Power tilt switch on apron 17
  - Tilt support knob 17

Instruments and indicators 18
- **CL5 Display 18**
- **Alert message information 20**

Electric propulsion motor installation 25
- **Electric propulsion motor installation 25**
  - Mounting the electric propulsion motor 25

Operation 27
- **First-time operation 27**
  - Getting to know your boat 27
- **Checks before starting electric propulsion motor 27**
  - Controls 27
  - Electric motor shut-off cord (lanyard) 27
  - Electric propulsion motor 27
  - Checking power tilt unit 27
  - Battery 28
  - Battery charging 28

Operating electric propulsion motor 28
Starting electric propulsion motor 28
Unlock the electric propulsion system 28
ELECTRONIC KEY SWITCH (EKS) 29
POWER switch 31
START/STOP switch 32
Emergency electric propulsion motor shut-off switch 33
Key fob settings 33
Replacing the battery in the key fob .. 42
Information required by radio laws 43
Remote control box 48
Digital Electronic Control (DEC) alert indicator 49
Remote control levers 49
LED color setting 50
Adjusting the friction of the remote control levers 51
Adjusting the detent of the remote control levers 54
Neutral hold switch 55
Speed control 56
Power tilt (PT) switch 57
Autopilot Operation 58
Heading Sensor Operation 59
Heading Sensor Calibration 59
HEADING HOLD 60
COURSE HOLD 63
TRACK POINT 66
PATTERN STEER 70
Adjusting the Autopilot sensitivity 72
Joystick 73
Joystick switch 75
Joystick hold 76
SetPoint switches (DRIFTPOINT/ FISHPOINT) 79
Plus (+) button/minus (-) button 81
SetPoint functions 82
Changing the position of your boat in SetPoint mode 84
Stopping boat 86
Tilting up and down 86
Procedure for tilting up 86
Procedure for tilting down 87
PT TotalTilt™ 88
Cruising in shallow water 89
Operating in other conditions 89

Maintenance 90
Transporting and storing electric propulsion motor 90
Storing electric propulsion motor 90
Lubrication 90
Cleaning and anticorrosion measures 90
Cleaning the electric propulsion motor 91
Checking painted surface of electric propulsion motor 91
Periodic maintenance 91
Outline 92
Maintenance interval chart 92
Inspecting wiring and connectors 94
Inspecting impeller 94
Inspecting and replacing anode(s) 94
Checking the control battery (12 V) ... 94
Connecting the control battery (12 V) 95
Disconnecting the control battery (12 V) 95
Storing the control battery (12 V) 95

Trouble Recovery 96
Troubleshooting 96
Temporary action in emergency 98
Impact damage 98
Replacing fuse 98
Treatment of submerged motor 99

Product information 100
Information required by radio laws 100

Safety information

Electric propulsion motor safety

Observe these precautions at all times. Do not disassemble the product except as described in this manual.

Electric shock

Do not touch any electrical parts while starting or operating the electric propulsion motor. They can cause shock or electrocution.

Batteries

This model requires two types of batteries, 12 V and 48 V, depending on the application.

- 12 V: Control battery
  Battery used to turn on the electric propulsion motor and display the CL5 Display.
- 48 V: Drive batteries
  Batteries used to drive the electric propulsion motor.

To avoid electric shock or damage to the electrical system, turn off the battery switches according to the manufacturer's instructions before working on the electric propulsion motor. Use appropriate insulation protection equipment when working in the vicinity of the batteries or electric propulsion motor.

Comply with ISO 16315 regarding battery placement.

Impeller

People can be injured or killed if they come in contact with the impeller. The sharp edges of the impeller can cut even when stationary.

- Stop the electric propulsion motor when a person is in the water near you.
- Keep people out of reach of the impeller, even when the electric propulsion motor is off. Touching the edge of the impeller may result in injury. Do not touch or go near the impeller.

Hot parts

During and after operation, the heat dissipation part is hot enough to cause burns. Avoid touching the heat dissipation part until it has cooled.

Power tilt

Body parts can be crushed between the electric propulsion motor and the clamp bracket when the electric propulsion motor is tilted. Keep body parts out of this area at all times. Be sure no one is in this area before operating the power tilt mechanism.

The PT switch operates even when the main switch is off. Keep people away from the PT switch whenever working around the electric propulsion motor.

Never get under the lower unit while it is tilted, even when the tilt support knob is locked. Severe injury could occur if the electric propulsion motor accidentally falls.

Electric motor shut-off cord (lanyard)

Attach the electric motor shut-off cord so that the electric propulsion motor stops if the operator falls overboard or leaves the helm. This prevents the boat from running away under power and leaving people stranded, or running over people or objects.

Always attach the electric motor shut-off cord to a secure place on your clothing or your arm or leg while operating. Do not remove it to leave the helm while the boat is moving. Do not attach the cord to clothing that could tear loose, or route the cord where it could become entangled, preventing it from functioning.

Do not route the cord where it is likely to be accidentally pulled out. If the cord is pulled during operation, the electric propulsion motor will shut off and you will lose most steering control. The boat could slow rapidly, throwing people and objects forward.

Modifications
Do not attempt to modify this electric propulsion motor. Modifications to your electric propulsion motor may reduce safety and reliability, and render the outboard unsafe or illegal to use.

Boating safety
This section includes a few of the many important safety precautions that you should follow when boating. Do not disassemble the product except as described in this manual.

Alcohol and drugs
Never operate after drinking alcohol or taking drugs. Intoxication is one of the most common factors contributing to boating fatalities.

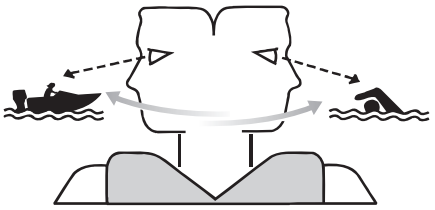
Personal flotation devices (PFDs)
Have an approved PFD on board for every occupant. Yamaha recommends that you must wear a PFD whenever boating. At a minimum, children and non-swimmers should always wear PFDs, and everyone should wear PFDs when there are potentially hazardous boating conditions.

People in the water
Always watch carefully for people in the water, such as swimmers, skiers, or divers, whenever the electric propulsion motor is running. When someone is in the water near the boat, shift into neutral and stop the electric propulsion motor.
Stay away from swimming areas. Swimmers Passengers be hard to see.

Passengers
Consult your boat manufacturer's instructions for details about appropriate passenger locations in your boat and be sure all passengers are positioned properly before accelerating and when operating above the lowest speed. Standing or sitting in non-designated locations may result in being thrown either overboard or within the boat due to waves, wakes, or sudden changes in speed or direction. Even when people are positioned properly, alert your passengers if you must make any unusual maneuver. Always avoid jumping waves or wakes.

Overloading
Do not overload the boat. Consult the boat capacity plate or boat manufacturer for maximum weight and number of passengers. Be sure that weight is properly distributed according to the boat manufacturer's instructions. Overloading or incorrect weight distribution can compromise the boat's handling and lead to an accident, capsizing or swamping.

Avoid collisions
Scan constantly for people, objects, and other boats. Be alert for conditions that limit your visibility or block your vision of others.



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Operate defensively at safe speeds and keep a safe distance away from people, objects, and other boats.
- Do not follow directly behind other boats or waterskiers.
- Avoid sharp turns or other maneuvers that make it hard for others to avoid you or understand where you are going.
- Avoid areas with submerged objects or shallow water.
- Ride within your limits and avoid aggressive maneuvers to reduce the risk of loss of control, ejection, and collision.
- Take early action to avoid collisions. Remember, boats do not have brakes, and stopping the electric propulsion motor or reducing throttle can reduce the ability to steer. If you are not sure that you can stop in time before hitting an obstacle, apply throttle and turn in another direction.

- Never use the electric propulsion motor in shallow water where the distance between the bottom edge of the electric propulsion motor and the bottom of the water is less than 100 cm (3.3 ft). There is a risk of injury due to contact with obstacles in the water while sailing or if a passenger falls overboard.

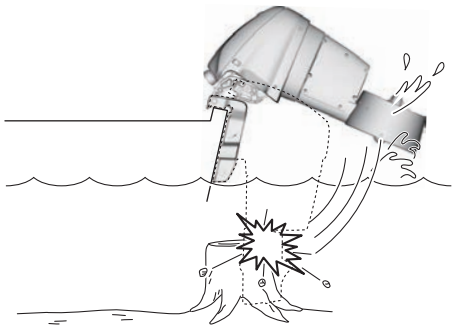
Collisions with floating or submerged objects

If the electric propulsion motor hits a floating object or an obstacle in the water while cruising, the following could occur:

- The passengers and any loose equipment or luggage could be thrown forward due to the sudden deceleration.
- Parts of the electric propulsion motor could come loose as a result of the impact and could be thrown into the boat.
- The boat or electric propulsion motor could be damaged as a result of the impact.

When you operate the boat in an area where there might be floating objects or obstacles in the water, stop the electric propulsion motor, and avoid the floating objects or obstacles in the water using a pole, oar, or other implement.

If the electric propulsion motor hits a floating object or an obstacle in the water, make sure that there are no abnormalities with the boat and the electric propulsion motor. If anything abnormal is found, return to the nearest harbor at low speed and have a Yamaha dealer inspect the electric propulsion motor.



Leaving the boat

When leaving the boat, turn off all battery switches to prevent the power of the electric propulsion motor from coming on.

Weather

Stay informed about the weather. Check weather forecasts before boating. Avoid boating in hazardous weather.

Accident reporting

Boat operators are required by law to file a Boating Accident Report with their boating law enforcement agency if their boat is involved in any of the following accidents:

(1) There is loss of life or probable loss of life.
(2) There is personal injury that requires medical attention beyond first aid.
(3) There is property damage to boats or other property over a certain amount.
(4) There is complete loss of a boat.

Contact local law enforcement personnel if a report is necessary.

Boat education and training

For U.S.A.

Operators should take a boating safety course. This may be required in your state. Many of the organizations listed in the next section can provide information about courses in your area.

You may also want to consider an Internet-based program for basic boater education. The Online Boating Safety Course provided by the Boat U.S. Foundation, is approved by the National Association of State Boating Law Administrators (NASBLA) and recognized by the United States Coast Guard.

Most, but not all, states accept this course to meet their minimum requirements. While it cannot replace an indepth course such as one offered by the U.S. Coast Guard, U.S. Power Squadron, or other organization, this online course does provide a general overview of the basics in boating safety, requirements, navigation, and operation. Upon successful completion of the course, the user can download a certificate of completion immediately or, for a small charge, request one by mail. To take this free course, go to boatus.org.

For Canada

All operators of pleasure craft must illustrate competency by means of a Pleasure Craft Operators Card with the exception of Personal Water Craft used for rental purposes which require a rental checklist be completed. Pleasure Craft Operators Cards can be obtained following the completion of a competency course, with an online option. Details can be found on Transport Canada's website. www.tc.gc.ca

Passenger training

Make sure at least one other passenger is trained to operate the boat in the event of an emergency.

Boating safety publications

Be informed about boating safety. Additional publications and information can be obtained from many boating organizations.

Laws and regulations

Know the marine laws and regulations where you will be boating—and obey them. Several sets of rules prevail according to geographic location, but all are basically the same as the International Rules of the Road. The rules presented in the following section are condensed—and have been provided for your convenience only.

Contact the U.S. Coast Guard, the National Association of State Boating Law Administrators, or your local Power Squadron for a complete set of rules governing the waters in which you will be using your boat.

Boating organizations

The following organizations provide boating safety training and information about boating safety and laws.

In the U.S.A.

United States Coast Guard
Consumer Affairs Staff (G-BC)
Office of Boating, Public, and Consumer Affairs
U.S. Coast Guard Headquarters
Washington, D.C. 20593-0001
http://www.uscgboating.org/

United States Power Squadrons
1-888-FOR-USPS (1-888-367-8777)
http://www.usps.org/

Boat Owners Association of The United States
1-800-336-BOAT (1-800-336-2628)
http://www.boatus.com/

National Association of State Boating Law Administrators (NASBLA)
1500 Leestown Road, Suite 330
Lexington, KY 40511 859-225-9497
http://www.nasbla.org/

National Marine Manufacturers Association (NMMA)
200 East Randolph Drive
Suite 5100
Chicago, IL 60601 http://www.nmma.org/

Marine Retailers Association of America
155 N. Michigan Ave.
Chicago, IL 60304
http://www.mraa.com/

In Canada
National Marine Manufacturers Association Canada
14 McEwan Drive
Suite 8
Bolton, ON
L7E 1H1
http://www.nmma.org/

In Australia
Boating Industry Association of Australia
http://www.biaa.com.au/

In New Zealand
NZ Marine Industry Association
http://www.nzmarine.com/

Basic boating rules (Rules of the road)

Just as there are rules that apply when you are driving on streets and highways, there are waterway rules that apply when you are driving your boat. These rules are used internationally. (For U.S.A.: and are also enforced by the United States Coast Guard and local agencies.) You should be aware of these rules, and follow them whenever you encounter another vessel on the water.

Steering and sailing rules and sound signals

Whenever two vessels on the water meet one another, one vessel has the right-of-way; it is called the “stand-on” vessel. The vessel that does not have the right-of-way is called the “give-way” or “burdened” vessel. These rules determine which vessel has the right-of-way, and what each vessel should do.

Stand-on vessel
The vessel with the right-of-way has the duty to continue its course and speed, except to avoid an immediate collision. When you maintain your direction and speed, the other vessel will be able to determine how best to avoid you.

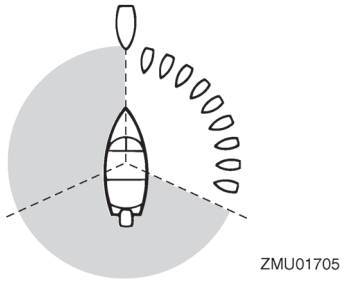
Give-way vessel
The vessel that does not have the right-of-way has the duty to take positive and timely action to stay out of the way of the Stand-On vessel. Normally, you should not cross in front of the vessel with the right-of-way. You should slow down or change directions briefly and pass behind the other vessel. You should always move in such a way that the operator of the other vessel can see what you are doing.

“The general prudential rule”
This rule is called Rule 2 in the International Rules and says, “In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances, which may render a departure from the above rules necessary in order to avoid immediate danger.”
In other words, follow the standard rules except when a collision will occur unless both vessels try to avoid each other. If that is the case, both vessels become “Give-Way” vessels.

Rules when encountering vessels

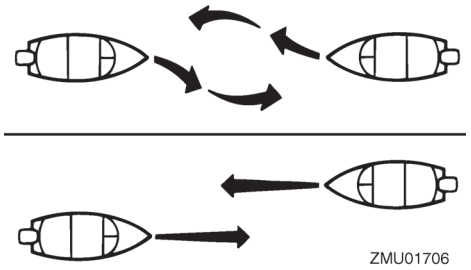
There are three main situations that you may encounter with other vessels which could lead to a collision unless the Steering Rules are followed:

Meeting: (you are approaching another vessel head-on)
Crossing: (you are traveling across the other vessel's path)
Overtaking: (you are passing or being passed by another vessel)
In the following illustration, your boat is in the center. You should give the right-of-way to any vessels shown in white area (you are the Give-Way vessel). Any vessels in the shaded area must yield to you (they are the Give-Way vessels). Both you and the meeting vessel must alter course to avoid each other.



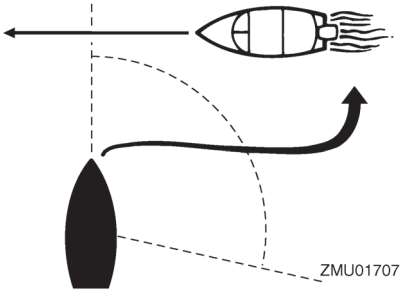
Meeting

If you are meeting another power vessel head-on, and are close enough to run the risk of collision, neither of you has the right-of-way. Both of you should alter course to avoid an accident. You should keep the other vessel on your port (left) side. This rule doesn't apply if both of you will clear one another if you continue on your set course and speed.



Crossing

When two power driven vessels are crossing each other's path close enough to run the risk of collision, the vessel which has the other on the starboard (right) side must keep out of the way of the other. If the other vessel is on your right, you must keep out of its way; you are the Give-Way vessel.
If the other vessel is on your port (left) side, remember that you should maintain course and direction, provided the other vessel gives you the right-of-way as it should.



Overtaking

If you are passing another vessel, you are the "Give-Way" vessel. This means that the other vessel is expected to maintain its course and speed. You must stay out of its way until you are clear of it. Likewise, if another vessel is passing you, you should maintain your speed and direction so that the other vessel can steer itself around you.

Other special situations

There are three other rules you should be aware of when driving your boat around other vessels.

Narrow channels and bends

When navigating in narrow channels, you should keep to the right when it is safe and practical to do so. If the operator of a power-driven vessel is preparing to go around a bend that may obstruct the view of other water vessels, the operator should sound a prolonged blast on the whistle (4 to 6 seconds). If another vessel is around the bend, it too should sound the whistle. Even if no reply is heard, however, the vessel should still proceed around the bend with caution. If you navigate such waters with your boat, you will need to carry a portable air horn, available from local marine supply stores.

Fishing vessel right-of-way

All vessels that are fishing with nets, lines or trawls are considered to be “fishing vessels” under the International Rules. Vessels with trolling lines are not considered fishing vessels.

Fishing vessels have the right-of-way regardless of position. Fishing vessels cannot, however, impede the passage of other vessels in narrow channels.

Sailing vessel right-of-way

Sailing vessels should normally be given the right-of-way. The exceptions to this are:

(1) When the sailing vessel is overtaking the power-driven vessel, the power-driven vessel has the right-of-way.

(2) Sailing vessels should keep clear of any fishing vessel.

(3) In a narrow channel, a sailing vessel should not hamper the safe passage of a power-driven vessel that can navigate only in such a channel.

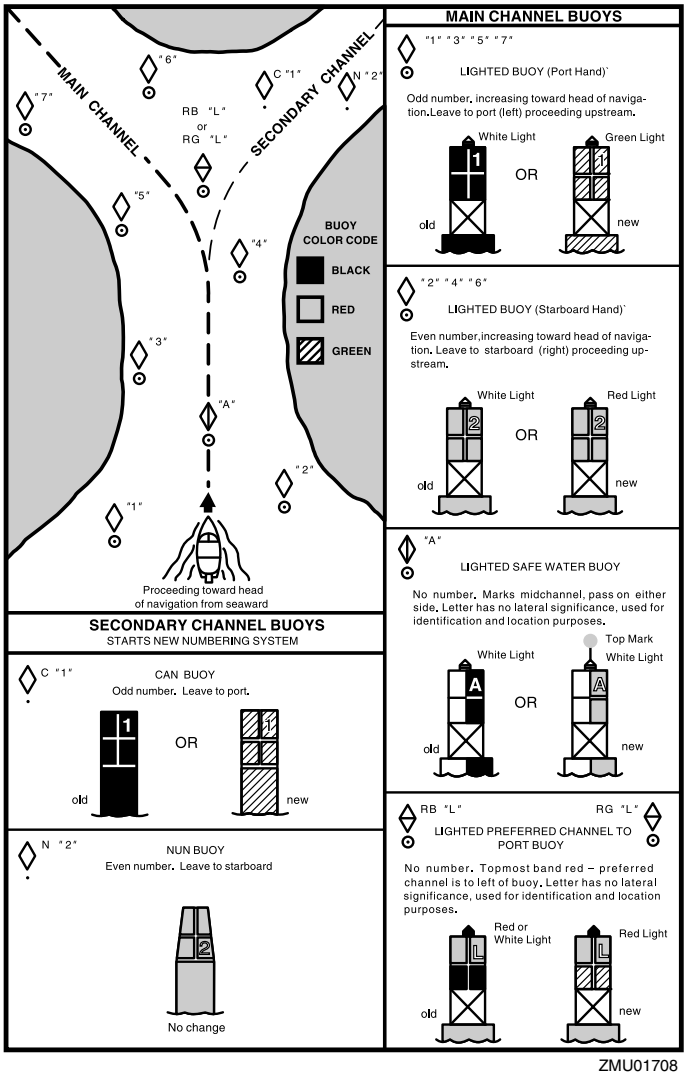
Reading buoys and other markers

The waters of the United States are marked for safe navigation by the lateral system of buoyage.

Simply put, buoys and markers have an arrangement of shapes, colors, numbers and lights to show which side of the buoy a boater should pass on when navigating in a particular direction. The markings on these buoys are oriented from the perspective of being entered from seaward (the boater is going towards the port). This means that red buoys are passed on the starboard (right) side when proceeding from open water into port, and black buoys are to port (left) side. When navigating out of port, your position with respect to the buoys should be reversed; red buoys should be to port and black buoys to starboard.

Many bodies of water used by boaters are entirely within the boundaries of a particular state. The Uniform State Waterway Marking System has been devised for these waters. This system uses buoys and signs with distinctive shapes and colors to show regulatory or advisory information. These markers are white with black letters and orange boarders. They signify speed zones, restricted areas, danger areas, and general information.

Remember, markings may vary by geographic location. Always consult local boating authorities before driving your boat in unfamiliar waters.



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General information

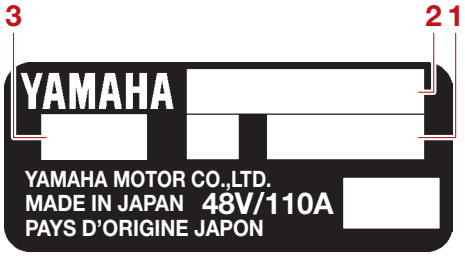
Identification numbers record

Electric propulsion motor serial number

The electric propulsion motor serial number is stamped on the label attached to the port side of the transom plate.
Record your electric propulsion motor serial number in the spaces provided to assist you in ordering spare parts from your Yamaha dealer or for reference in case your electric propulsion motor is stolen.



1. Electric propulsion motor serial number location



1. Serial number
2. Model name
3. Electric propulsion motor cod

EC Declaration of Conformity (DoC)

This declaration is included with electric propulsion motor that conform to European regulations.
This electric propulsion motor conforms to certain portions of the European Parliament directive relating to machinery. Each conformed electric propulsion motor accompanied with EC DoC. EC DoC contains the following information;

- Manufacturer
- Model name
- Electric propulsion motor code
- Applied directives

CE Marking / UKCA Marking

This label is affixed to electric propulsion motor that conform to European regulations.
Electric propulsion motor affixed with this "CE" marking conform with the directives of; 2006/42/EC, 2014/30/EU, and 2013/53/EU.

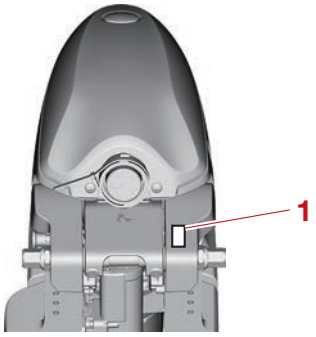


1. CE marking location



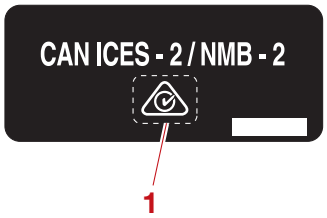
Compliance mark label

Electric propulsion motor affixed with this label conform to the regulations for each country.
This label is affixed to the transom plate.



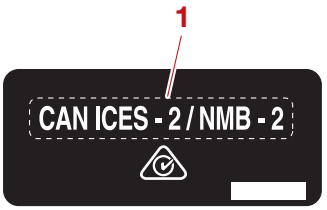
1. Compliance mark and manufactured date label location

Regulatory Compliance Mark (RCM)
Electric propulsion motor affixed with this mark conform to certain portion(s) of the Australian Radio Communications Act.



1. Regulatory Compliance Mark (RCM)

ICES-002 Compliance Label
Electric propulsion motor affixed with this mark meet all requirements of the Canadian Interference Causing Equipment Regulations.



1. ICES-002 Compliance Label

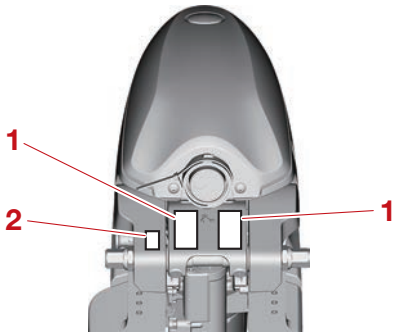
Read manuals and labels

Before operating or working on this electric propulsion motor:
- Read this manual.
- Read any manuals supplied with the boat.
- Read all labels on the electric propulsion motor and the boat.

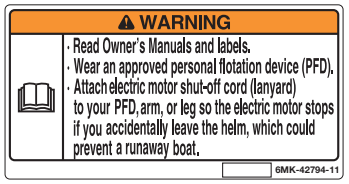
If you need any additional information, contact your Yamaha dealer.

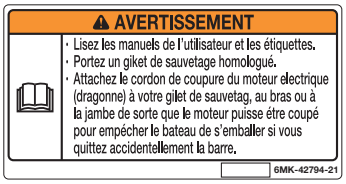
Warning labels

If these labels are damaged or missing, contact your Yamaha dealer for replacements.



1





Contents of labels

The above warning labels mean as follows.

1

⚠ WARNING

- **Read operation manual and labels.**
- **Wear an approved personal flotation device (PFD).**
- **Attach electric motor shut-off cord (lanyard) to your PFD, arm, or leg so the electric propulsion motor stops if you accidentally leave the helm, which could prevent a runaway boat.**

Other labels

2



Symbols

The following symbols mean as follows.

Notice/Warning



ZMU05696

Read operation manual



ZMU05664

Specifications and requirements

Specifications

Dimension and weight:
Overall length:
570 mm (22.5 in)
Overall width:
360 mm (14.2 in)
Overall height L:
1052 mm (41.2 in)
Overall height X:
1179 mm (46.5 in)
Motor unit weight L:
58 kg (128 lb)
Motor unit weight X:
64 kg (141 lb)

Performance:
Motor output:
3.1 kW
Static thrust:
103 kgf (227 lbs.)
(Comparable petrol outboards):
(9.9 hp)
Full throttle operating range:
970 r/min
Lowest speed:
200 r/min

Electric propulsion motor:
Trim/Tilt method:
Power tilt
Maximum tilt-up angle:
70°
Steering angle:
70+70° (during joystick operation)
40+40° (during steering operation)
Shift positions:
Forward (F) - Neutral (N) - Reverse (R)
Controls:
Digital electric control
Digital electric steering
Joystick
Impeller rotation direction (seen from the stern):
Clockwise
Voltage:
12 V (for control)
48 V (for drive)

Control battery (12 V):
45 Ah (20-hour rate)

Drive battery (48 V):
220 Ah (20-hour rate)

Installation requirements

Boat rated output

⚠ WARNING

Overpowering a boat can cause severe instability.

Before installing the electric propulsion motor(s), confirm that the total output of your electric propulsion motor(s) does
not exceed the boat's maximum rated output. See the boat's capacity plate or contact the manufacturer.

Mounting electric propulsion motor

⚠ WARNING

Improper mounting of the electric propulsion motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards.

Special equipment and training are required for safe installation.
Your dealer or other person experienced in proper rigging should mount the electric propulsion motor using correct equipment and complete rigging instructions. For further information, see page 25.

Battery requirements

Battery specifications

This model requires two types of batteries, 12 V and 48 V, depending on the application.

- 12 V: Control battery
  Battery used to turn on the electric propulsion motor and display the CL5 Display.
- 48 V: Drive batteries
  Batteries used to drive the electric propulsion motor.

Use fully charged batteries that meet the following specifications.

12 V battery:
45 Ah (20-hour rate)
48 V batteries:
220 Ah (20-hour rate)

The electric propulsion motor cannot be started if the voltage of the drive batteries (48 V) is too low.

NOTICE

- **Do not use batteries that do not meet these standards. Using batteries that do not meet the standards may cause malfunction due to insufficient supply of electrical current or place an excessive load on the electrical system.**
- **Use the recommended batteries only with electric propulsion motor.**

Mounting the control battery (12 V)

Mount the battery holder for the control battery (12 V) securely in a dry, well-ventilated, vibration-free location in the boat. **WARNING! Do not put flammable items, or loose heavy or metal objects in the same compartment as the battery. Fire, explosion or sparks could result.**

Consult your Yamaha dealer for installation of the drive batteries (48 V).

Battery cable

The battery cable size and length are critical. Consult your Yamaha dealer about the battery cable size and length.

Usage time of drive batteries (48 V)

The amount of time the drive batteries can be used is as follows.

	Speed (km/h)	Distance (km)	Usage time (hr)
Low speed	4	116	29
Middle speed	6	74	12.3
Fully open	10	15	1.5

TIP:

Depends on type of boat, load, impeller, battery and conditions. Speed and range indications do not represent a legal guarantee.

Start-in-gear protection

Yamaha electric propulsion motor or Yamaha-approved digital electronic control units are equipped with a remote control lever. This feature permits the electric propulsion motor to be started only when it is in neutral (N). Always select neutral (N) before starting the electric propulsion motor.

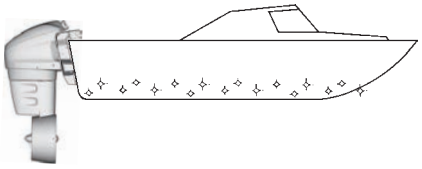
Anti-fouling paint

A clean hull is required to maintain your boat's performance. Boats moored in the water should be protected from marine growth (barnacles, mussels, and marine plants). If approved by regulations for your area, the bottom of the hull can be coated with an anti-fouling paint to inhibit marine growth.

Anti-fouling paints specifically formulated for use on aluminum may be applied to the electric propulsion motor. The original Yamaha paint surface may be scuffed lightly before applying anti-fouling paint, but do not remove the original paint. Removal of the original paint will increase the rate of corrosion.

NOTICE

Anti-fouling paint for fiberglass and wood may contain materials, such as copper, graphite, and tin, that can cause corrosion if applied to aluminum boats and electric propulsion motor components. Never apply these types of paint to your electric propulsion motor because rapid corrosion damage could occur.



Sacrificial anodes are attached to the electric propulsion motor to provide corrosion protection and must never be painted.

Sacrificial anodes made from a different material may be necessary for maximum corrosion protection due to your local water conditions. Please consult your Yamaha dealer.

NOTICE

Painted sacrificial anodes will not provide corrosion protection.

Electric propulsion motor disposal requirements

Never illegally discard (dump) the electric propulsion motor. Yamaha recommends consulting the dealer about discarding the electric propulsion motor.

Emergency equipment

Keep the following items onboard in case the electric propulsion motor breaks down.

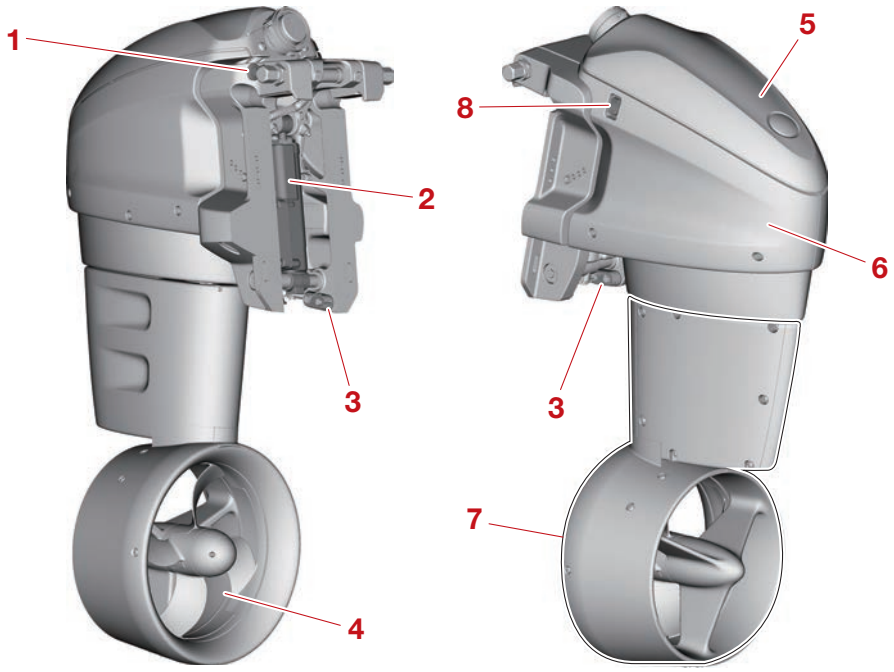
- Manual auxiliary steering such as oars
- Wireless radio
- Cellular phone

Consult your Yamaha dealer for details.

Components

Components diagram

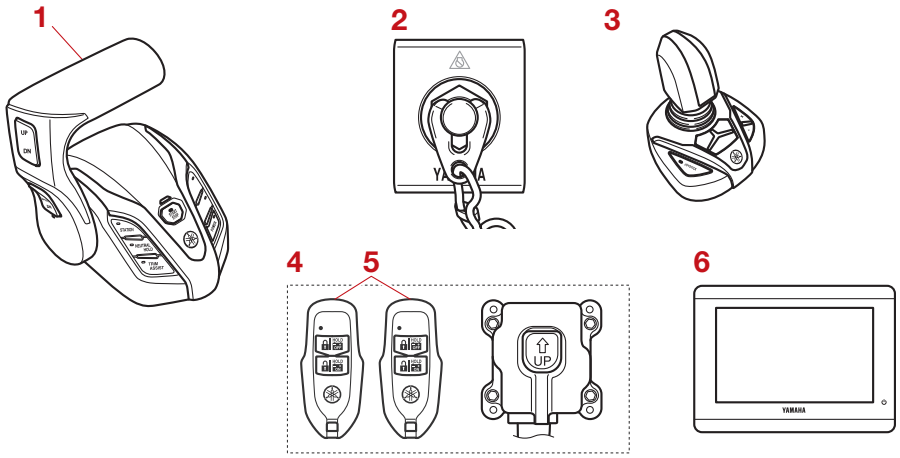
TIP:
Equipment may vary by region. For further information, consult your Yamaha dealer.



1. Tilt support knob
2. Power tilt unit
3. Anode
4. Impeller
5. Top cover
6. Apron
7. Body
8. PT switch

Optional items

The following items are available from your Yamaha dealer. For details, consult your Yamaha dealer.



1. Digital electronic control
2. Electric propulsion motor shut-off switch
3. Joystick
4. Yamaha Security System (Y-COP)
5. Key fob
6. CL5 Display

Electric propulsion motor equipment

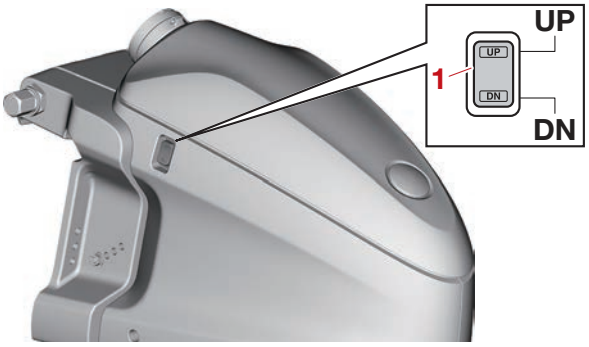
Power tilt switch on apron

The power tilt switch is located on the side of the apron. You can adjust the electric propulsion motor angle from the boat transom. Pushing the “UP” switch increases the angle of the electric propulsion motor. Pushing the “DN” switch decreases the angle of the electric propulsion motor. When the switch is released, the electric propulsion motor will stop in its current position.

For instructions on using the power tilt switch, see page 57.

⚠ WARNING

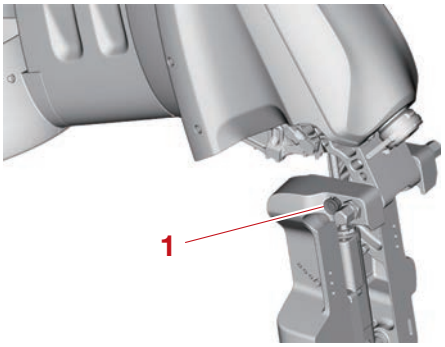
Use the power tilt switch located on the apron only when the boat is at a complete stop with the electric propulsion motor off. Attempting to use this switch while the boat is moving could increase the risk of falling overboard and could distract the operator, increasing the risk of collision with another boat or an obstacle.



1. Power tilt switch

Tilt support knob

To keep the electric propulsion motor in the tilted up position, push in and hold the tilt support knob.



1. Tilt support knob

NOTICE

Do not use the tilt support knob when trailering the boat. The electric propulsion motor could shake loose from the tilt support and fall. If the electric propulsion motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.

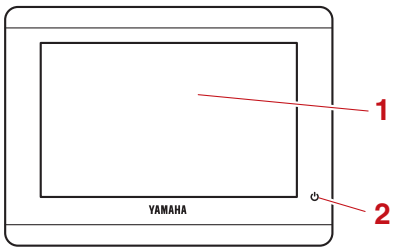
Instruments and indicators

CL5 Display

The CL5 Display shows electric propulsion motor status and alert information. The display can be changed. This manual mainly covers the alert display.
If a warning message appears on the CL5 Display, follow the instructions on the display.

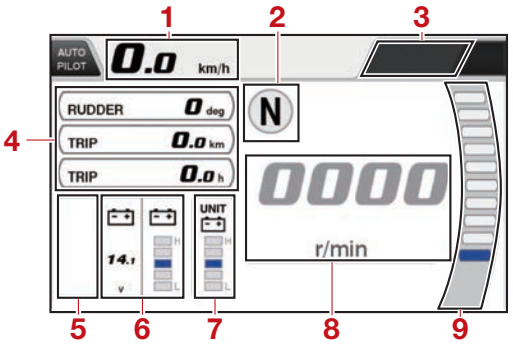
TIP:

The functions shown in the display varies according to the equipment of the boat.



1. Touchscreen
2. Power button

Electric propulsion motor information screen and boat information screen



1. Speedometer
2. Shift position
3. Boat control indicator
4. Boat status
5. Electric propulsion motor status
6. Battery status
7. Sub status
8. Tachometer
9. Tilt angle

GPS signal strength icons

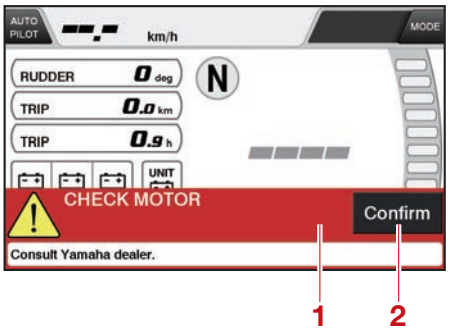
The icons shown in the upper-right of the menu screen indicate the GPS signal strength. “ ” shows GPS satellite signal strength according to the number of antenna symbol. “ ” shows no GPS antenna connection.

TIP:

To use the GPS feature, a GPS receiver must be connected to this device.
Contact your Yamaha dealer for information on how to connect a GPS receiver.

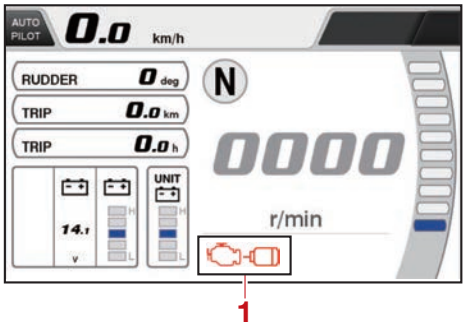
Electric propulsion motor alert icons

Red icons indicate electric propulsion motor abnormalities. When an abnormality occurs, a pop-up window will be displayed, and the buzzer will sound.



1. Pop-up window
2. Confirm button

Press the confirm button to change to the normal display. The electric propulsion motor alert icon will start to blink.



1. Electric propulsion motor alert icon

NOTICE

Do not continue to operate the electric propulsion motor if an alert device has activated. Consult your Yamaha dealer if the problem cannot be located and corrected.

The electric propulsion motor alert icon will appear according to the kind of abnormality. The symbols and their explanations are described below.

- **Check electric propulsion motor alert “ ”**

  If the electric propulsion motor malfunctions while cruising, this alert will be activated. Return to port and consult a Yamaha dealer immediately.
- **Check System / Steering Malfunction Alert “ ⚠ ”**

  If a malfunction occurs in the system, the system alert will be activated. Return to port immediately and contact your Yamaha dealer.

Alert message information

This section contains electric propulsion motor alert information that will be displayed on the MFD (Multi Function Display). Refer to MFD (Multi Function Display) operation manual for additional information.

The MFD (Multi Function Display) will display a window and alert icons to notify the operator when abnormalities in the Digital Electric propulsion motor occur. A window will also be displayed when specific alert conditions occur.

When events requiring multiple windows occur, the window with the highest priority (red alert) is displayed first.

There are 2 types of windows, “Alert notifications,” and “Other notifications” each displayed with its own color.

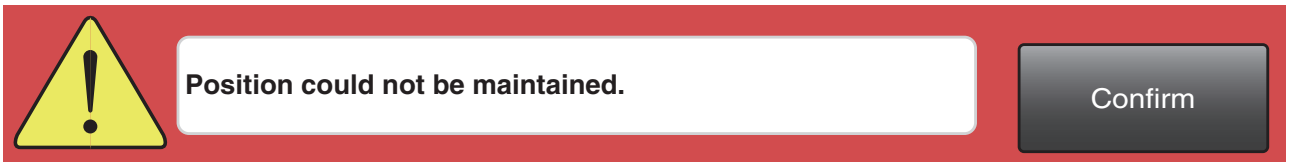
Alert notifications: Red

Other notifications: Yellow

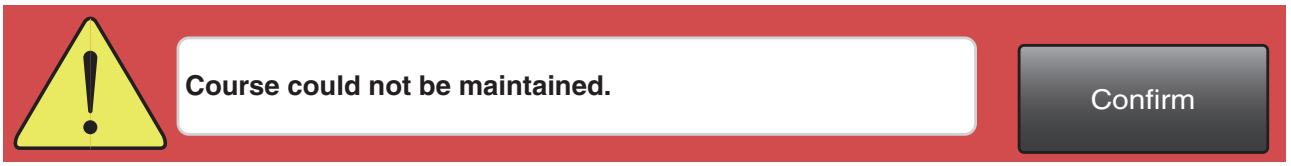
Alert notifications

Observe the following instructions for responding to each specific alert.

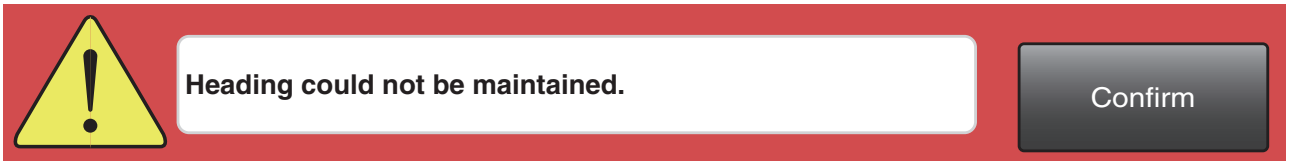
Displayed if the boat cannot maintain its course during SetPoint.



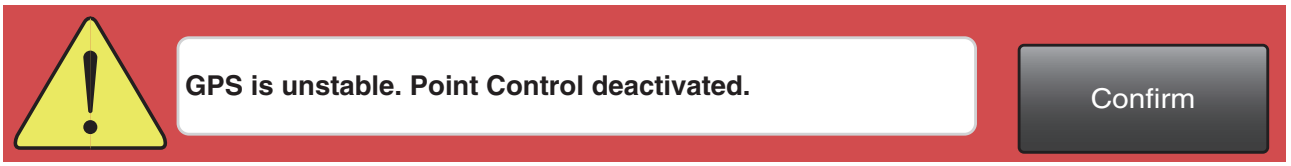
Displayed if the boat cannot maintain its course during COURSE HOLD, DRIFTPOINT TRACK, or TRACK POINT.



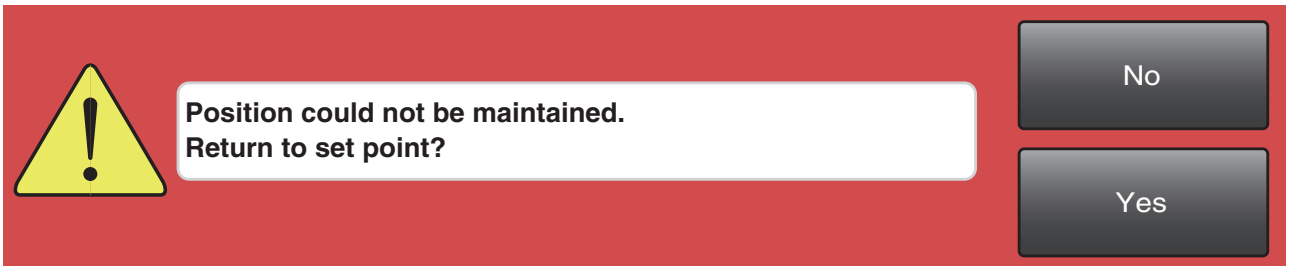
Displayed if the boat cannot maintain its heading during HEADING HOLD or DRIFTPOINT.



Displayed if SetPoint cannot be controlled because GPS signal is unstable.



Displayed if the boat cannot maintain its position during SetPoint control.



Displayed if battery connection is abnormal.



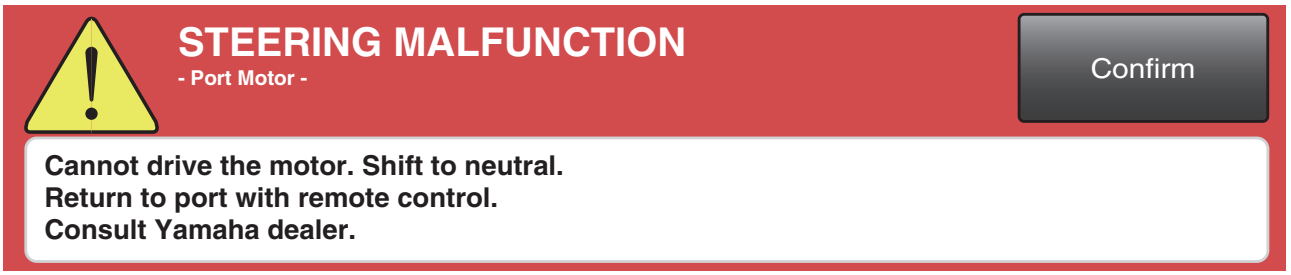
Displayed if the steering system is un-calibrated or failed.



Displayed if electric propulsion motor steering systems do not move properly. Consult a Yamaha dealer.



Displayed if electric propulsion motor steering systems do not move properly. Consult a Yamaha dealer.



Displayed if electric propulsion motor steering systems do not move properly. Consult a Yamaha dealer.

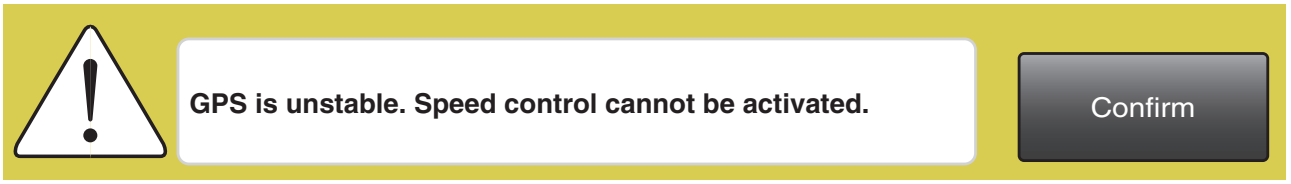


Displayed if a problem occurred in the electric propulsion motor system. Consult a Yamaha dealer.

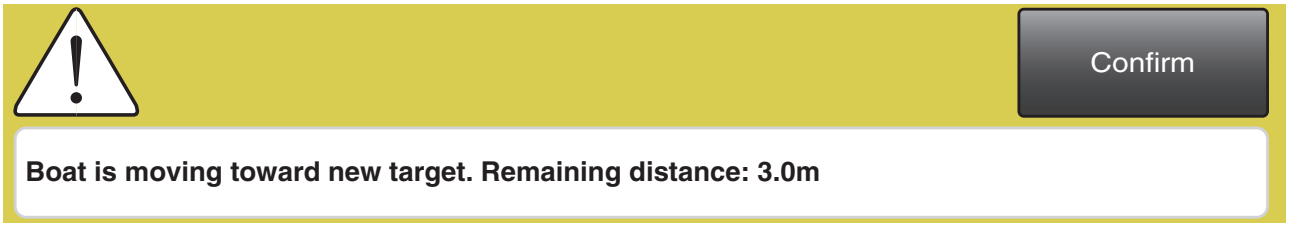


Other notifications

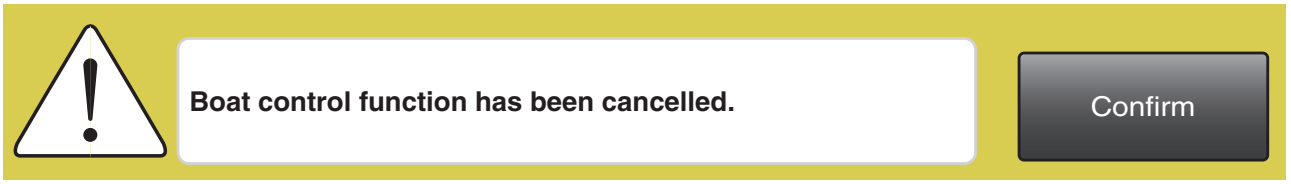
Displayed if GPS signal is interrupted and speed control stopped functioning.



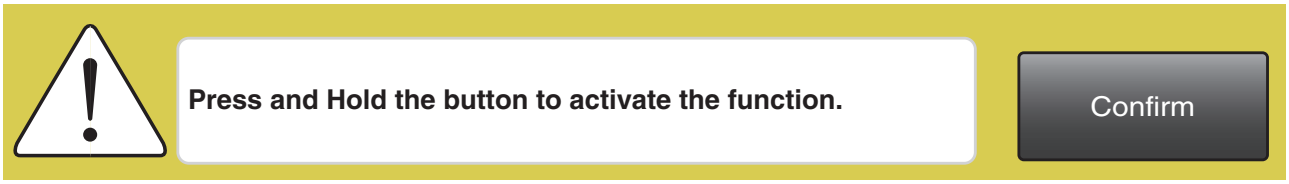
Displayed if target position is changed while boat is moving during SetPoint.



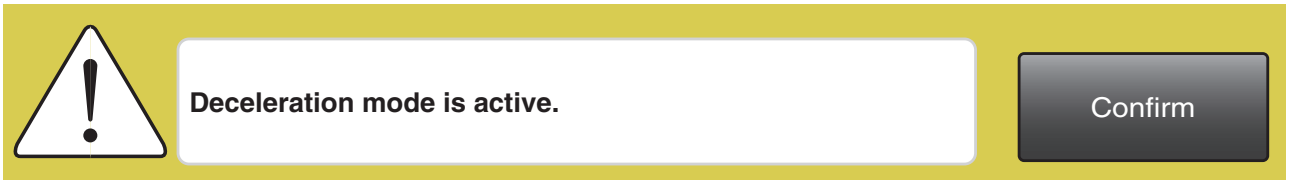
Displayed if GPS signal is interrupted and maneuvering control could not be done.



Displayed when the TRACK POINT switch is pressed for a short time.
Displayed when the PATTERN STEER switch is pressed for a short time.



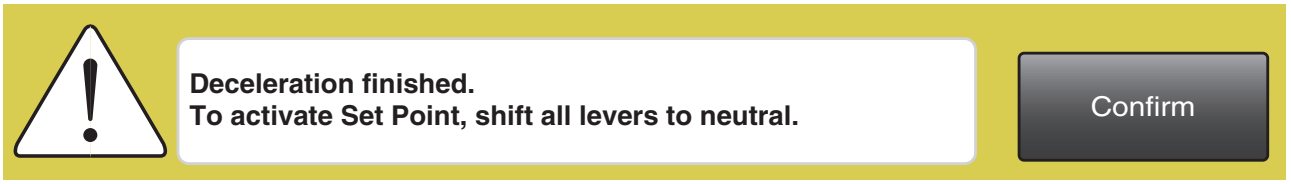
Displayed when boat decelerates after determining final destination of TRACK POINT has been reached.



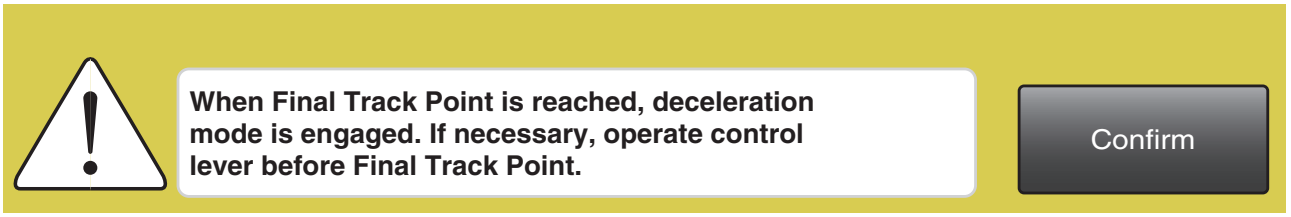
Displayed when deceleration during TRACK POINT has finished. (When boat stops at final destination)



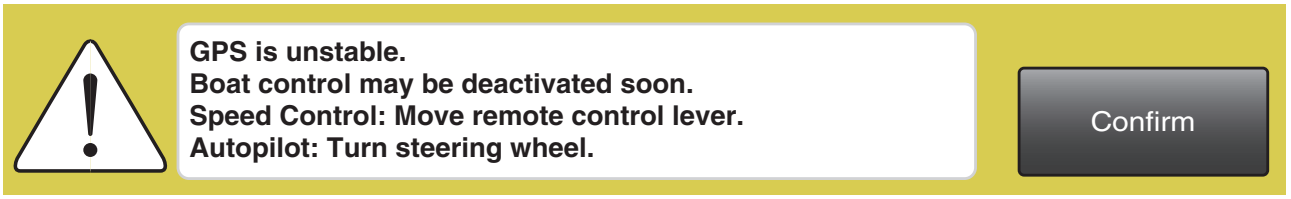
Displayed when deceleration during TRACK POINT has finished. (When boat does SetPoint control at final destination)



Displayed when TRACK POINT was turned on after setting route on MFD (Multi Function Display) with no final destination information.



Displayed if GPS signal is unstable. If this situation continues, the Autopilot function will be cancelled and boat speed will be reduced.



Electric propulsion motor installation

Electric propulsion motor installation

TIP:

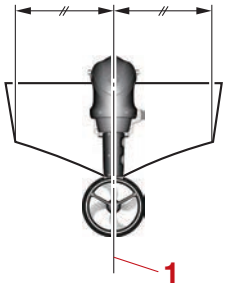
The information presented in this section is intended as reference only. It is not possible to provide complete instructions for every possible boat and electric propulsion motor combination. Proper mounting depends in part on experience and the specific boat and electric propulsion motor combination.

⚠ WARNING

- **Overpowering a boat could cause severe instability. Do not install an electric propulsion motor with more rated output than the maximum rating on the capacity plate of the boat. If the boat does not have a capacity plate, consult the boat manufacturer.**
- **Improper mounting of the electric propulsion motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards. For permanently mounted models, your dealer or other person experienced in proper rigging should mount the electric propulsion motor.**

Mounting the electric propulsion motor

The electric propulsion motor should be mounted so that theboat is well balanced. Otherwise, the boat could be hard tosteer. For single-motor boats, mount the electric propulsion motor on the centerline (keel line) of the boat. Consult your Yamaha dealer or boat manufacturer for further information on determining the proper mounting location.

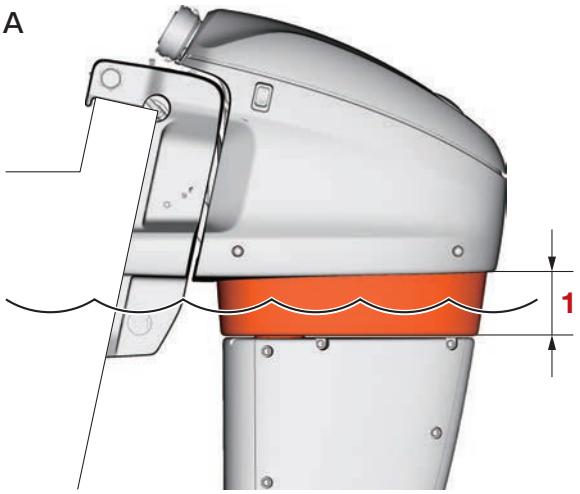


1. Center line (keel line)

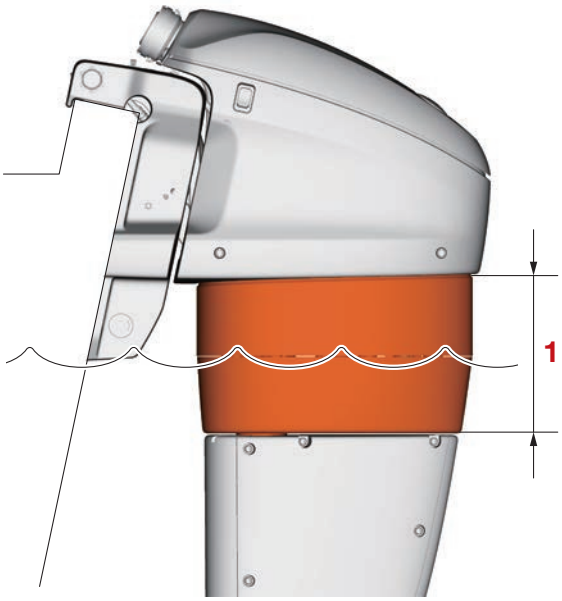
Mounting height (boat bottom)

The mounting height of your electric propulsion motor affects its efficiency and reliability. If it is mounted too high, ventilation is more likely to occur. Ventilation may cause the impeller to rotate idly, which may reduce propulsion. If the electric propulsion motor is mounted too low, water resistance (drag) will increase, thereby reducing electric propulsion motor efficiency and performance.

Install the electrical propulsion motor so that the draft range comes to a position between the lower part of the apron and the upper part of the body.



B



1. Draft range

A. L-transom model
B. X-transom model

NOTICE

Incorrect electric propulsion motor height or obstructions to the smooth flow of water (such as the design or condition of the boat, or accessories, such as transom ladders or depth finder transducers) can create airborne water spray while the boat is cruising. If the electric propulsion motor is operated continuously in the presence of airborne water spray, enough water could enter the electric propulsion motor to cause severe electric propulsion motor damage. Remove the cause of the airborne water spray.

Operation

First-time operation

Getting to know your boat

All boats have unique handling characteristics. Operate cautiously while you learn how your boat handles under different conditions.

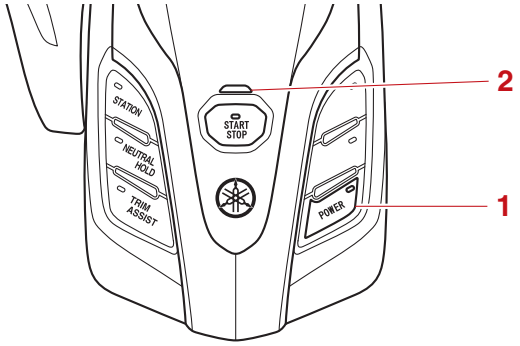
Checks before starting electric propulsion motor

⚠ WARNING

If any item in "Checks before starting electric propulsion motor" is not working properly, have it inspected and repaired before operating the electric propulsion motor. Otherwise, an accident could occur.

Controls

(1) Make sure that when the power switch is pressed and the power is turned on, the Digital Electronic Control (DEC) alert indicator will come on in blue.



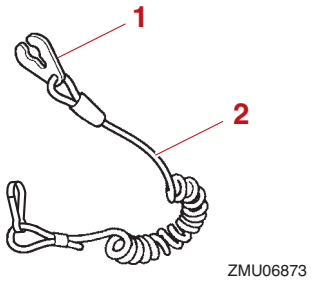
1. Power switch
2. Digital Electronic Control (DEC) alert indicator

(2) Turn the steering wheel fully to the left and right and make sure that the electric propulsion motor moves to port and starboard smoothly.

(3) Operate the remote control levers several times to make sure there is no hesitation in their travel.

Electric motor shut-off cord (lanyard)

Check the electric motor shut-off cord and clip for damage, such as cuts, breaks, and wear.



1. Clip
2. Electric motor shut-off cord (lanyard)

Electric propulsion motor

- Check that the electric propulsion motor is mounted properly and check the electric propulsion motor mounting bolts for looseness.
- Check the impeller for damage.

Checking power tilt unit

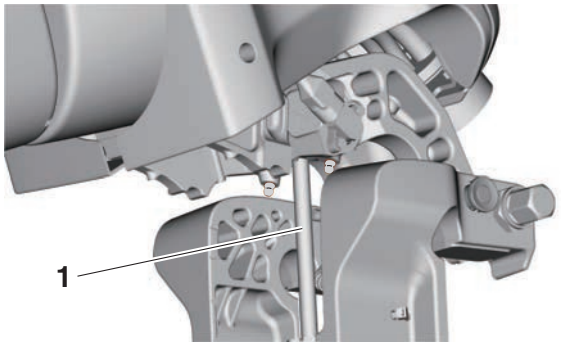
⚠ WARNING

- **Never get under the lower unit while it is tilted, even when the tilt support knob is locked. Severe injury could occur if the electric propulsion motor accidentally falls.**
- **Body parts can be crushed between the electric propulsion motor and the clamp bracket when the electric propulsion motor is tilted.**
- **Be sure no one is near the electric propulsion motor before performing this check.**

(1) Check the power tilt unit for any sign of oil leaks.

(2) Operate the PT switch on the Digital Electronic Control (DEC) to check that all switches work.

(3) Tilt the electric propulsion motor up and check that the tilt rod is extended completely.



1. Tilt rod

(4) Check that the tilt rod is free of corrosion or other flaws.

(5) Tilt the electric propulsion motor down. Check that the tilt rod operates smoothly.

Battery

Check the charge of the control battery (12 V).
A voltage of 12 V is required to run equipment such as the CL5 Display and Digital Electronic Control (DEC).
Check that the battery terminals are clean, that the connection parts are secure, and that the insulation covers are on Connect the battery terminals properly. If they are not properly connected, the batteries will not be able to start the electric propulsion motor or operate the CL5 Display.
To charge the batteries, use the battery charger or consul your Yamaha dealer.
To check the drive batteries (48 V), have checked by you Yamaha dealer.

Battery charging

For the charging method for the drive batteries (48 V), check the user's manual for your battery charger.
To charge the control battery (12 V), consult your neares Yamaha dealer.

Operating electric propulsion motor

Starting electric propulsion motor

⚠ WARNING

Before starting the electric propulsion motor, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.

⚠ WARNING

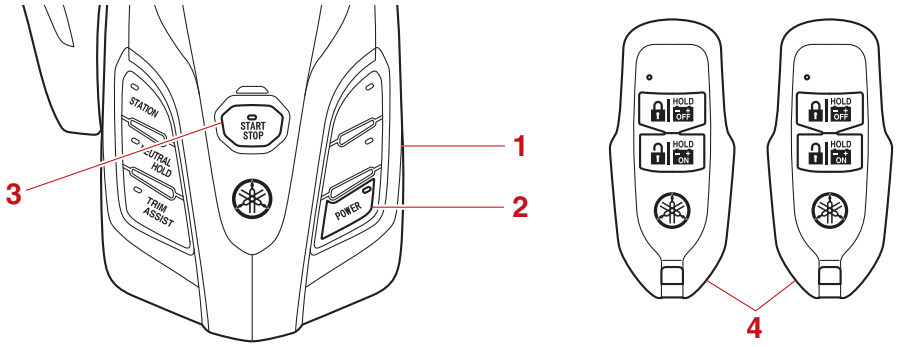
- **Failure to attach the electric motor shut-off cord could result in a runaway boat if operator is ejected. Attach the electric motor shut-off cord to a secure place on your clothing, or your arm or leg while operating. Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the cord during normal operation. Loss of electric propulsion motor power means the loss of most steering control. Also, without electric propulsion motor power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**

Unlock the electric propulsion system

For instructions on how to unlock the power switch, see page 31.

ELECTRONIC KEY SWITCH (EKS)

The EKS consists of the digital electronic controls and key fob. EKS functions: EKS locking/unlocking using key fobs, power switch ON/OFF and electric propulsion motor starting and stopping.



1. Digital Electronic Control (DEC)
2. POWER switch
3. START/STOP switch
4. Key fob (2 pcs)

TIP:

Part number of key fob:

- 6X9-86261-02 (433 MHz)
- 6X9-86261-13 (315 MHz)

⚠ WARNING

- **If you take the key fob onto an airplane, do not press the operation buttons. Also, when put it in a bag, store it so the operation buttons cannot be easily pressed. If the operation buttons are pressed, the key fob will output a radio signal, which could interfere with the airplane's controls.**
- **The key fob is considered an electronic device whose use in airplanes is restricted.**

NOTICE

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

For emergencies, EKS key fob floats and is water-resistant. All attempts should be made to keep the EKS key fob dry and away from water, however. Operators are cautioned to removed EKS key fob from pockets before entering the water.

- **The key fob is placed in a location exposed to strong radio waves or other electromagnetic noise.**
- **There are facilities nearby that are emitting strong radio waves (TV or radio towers, power plants, broadcasting stations, airports, etc.).**
- **You are carrying or using communication equipment such as radios or mobile phones in close proximity of the key fob.**
- **The key fob is in contact with or covered by a metallic object.**
- **Other boats equipped with a key fob system are nearby.**
- **The key fob is near the MFD (Multi Function Display), gauges, or a marine radio.**

In such situations, move the key fob to another location and perform the operation again. If it still does not work, operate the vehicle in emergency mode.

NOTICE

- **Do not store the key fob in direct sunlight or in very hot locations.**
- **Do not drop the key fob or subject it to powerful shocks or place heavy objects on it.**
- **To clean the key fob, use a clean, soft, dry cloth to wipe it. Do not use cleaners, alcohol, or other chemicals, to clean the key fob.**

TIP:

- The EKS system can only be operated by a key fob that is registered as authorized in the receiver. This is because the receiver recognizes and accepts only signals from a transmitter that is registered as authorized. If your key fob does not work, consult a Yamaha dealer.
- Replace the initial key fob battery one year after purchase, and then replace it every two years from the second and following years. To replace the battery, consult a Yamaha dealer.
- You can register up to six key fobs in the EKS system. For details, consult a Yamaha dealer.
- Be sure to lock the EKS when leaving the boat, or when leaving the operator's seat if children are nearby. Also, check that the lock indicator is turned ON.
- Repeatedly using a key fob to lock/unlock the system may cause the key fob to malfunction. When you use a key fob for locking or unlocking the system, after you move the key fob away from the lock indicator, wait at least one second before doing another lock or unlock operation.
- When locking/unlocking with the key fob, do not place the key close to devices possessing a magnetic field (magnets), as this may prevent the lock/unlock operation.
- When operating or stopping the boat, be sure to carry the key fob with you and be careful not to lose it.
- If any key fob is lost, be sure to have a Yamaha dealer delete the registration of the lost key number for security reasons.
- While operating the POWER switch or START/STOP switch, do not turn the steering wheel or perform any system operations at the same time, otherwise unexpected errors may occur.
- Interference from other electronic devices (radios) could affect locking and unlocking of the system. Confirm the EKS has locked before leaving the boat. Repeat the locking/unlocking procedure if necessary.

POWER switch

Pushing the power switch turns the power to each electric propulsion motor ON and OFF. When the power is ON, the LED will be illuminated.

How to lock

(1) Hold the key fob within 5 m of the POWER switch.

(2) Press the lock button on the key fob.

(3) The lock indicator on the POWER switch turns on, and the system locks.

TIP:

- Locking cannot be done automatically. Always use the key fob to lock the system.
- Only operates when the POWER switch is off.
- The smart key LED turns on when the key fob is used.

How to unlock (Pattern 1)

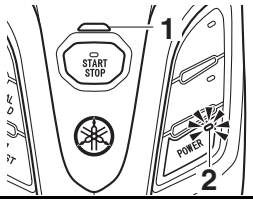
(1) Place the key fob at the console area.

(2) Press the POWER switch.

	Number of beeps
Recognition succeeded	●

(3) The lock indicator turn off, and the POWER switch turns on. (LED turns on)

Power switch



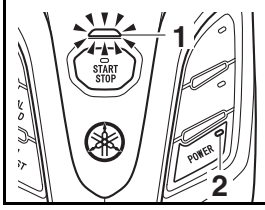
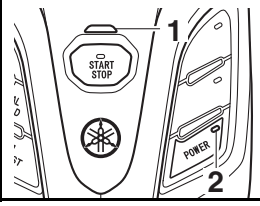
1. Lock indicator
2. LED

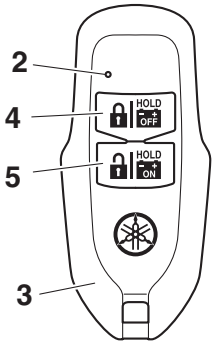
How to unlock (Pattern 2)

(1) Hold the key fob within 5 m of the POWER switch.

(2) Press the Unlock button on the key fob.

EKS	Number of beeps	Electric propulsion motor can be started	Lock indicator
Lock	●	No	Turned on
Unlock	●●	Yes	Turn off

Lock	Unlock
	



1. Lock indicator
2. LED
3. Key fob
4. Lock button
5. Unlock button

START/STOP switch

Pushing the START/STOP switch starts and stops each electric propulsion motor. The LED will be illuminated when the electric propulsion motor is running.

How to start

(1) Place the key fob near the POWER switch.

(2) Press the POWER switch.

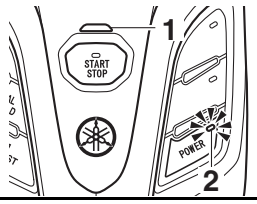
TIP:

If you push the POWER switch, and the beep sounds more than twice, request an inspection and repairs at a Yamaha dealer.

	Number of beeps
Recognition succeeded	●
Recognition failed	More than ●●

(3) The lock indicator turn off, and the POWER switch turns on. (LED turns on)

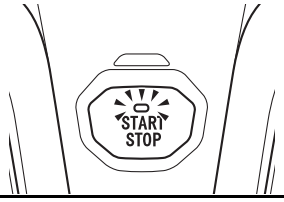
POWER switch



1. Lock indicator
2. LED

(4) You can press the “START/STOP” switch to start the electric propulsion motor.

START/STOP switch

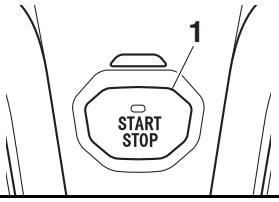


How to stop

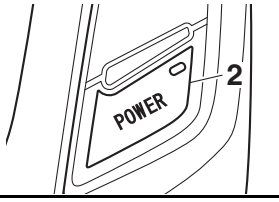
(1) You can press the “START/STOP” switch to stop the electric propulsion motor.

(2) Press the “POWER” switch.

START/STOP switch



POWER switch



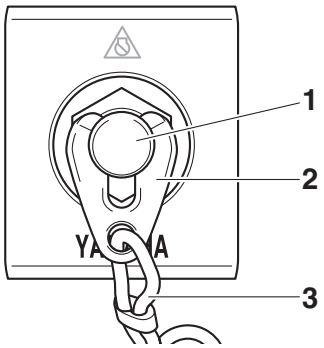
1. “START/STOP” switch
2. “POWER” switch

Emergency electric propulsion motor shut-off switch

The clip must be attached to the emergency electric propulsion motor shut-off switch for the electric propulsion motor to run. The cord should be attached to a secure place on the operator's clothing, or arm or leg. Should the operator fall overboard or leave the helm, the cord will pull out the clip, turning all electric propulsion motor OFF. This will prevent the boat from running away under power.

⚠ WARNING

Attach the electric motor shut-off cord to a secure place on your clothing, or your arm or leg while operating. Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning. Avoid accidentally pulling the cord during normal operation. Loss of electric propulsion motor power means the loss of most steering control. Also, without electric propulsion motor power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.



1. Emergency electric propulsion motor shut-off switch
2. Clip
3. Electric motor shut-off cord (lanyard)

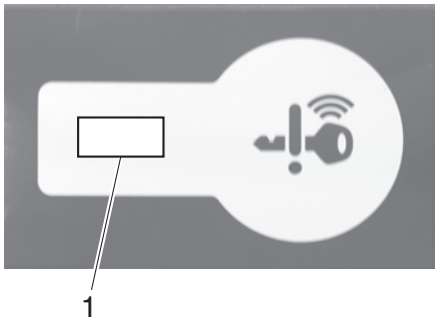
Key fob settings

Password card

The key fob is provided with two cards on which are written its factory default. Keep these cards in safe places, because you will need one of them to start the electric propulsion motor if the key fob is lost or malfunctions, or its battery fails.

TIP:

If you change the password, the factory default that is provided is disabled.



1. Factory default

Changing the password

You can add a new key fob or change the password to unlock the system if the smart key is lost.

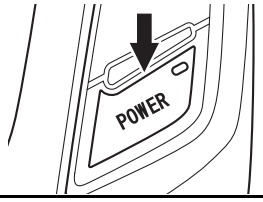
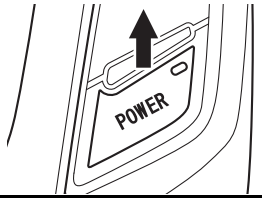
TIP:

- The procedure to change the password in “How to set (how to enter setting mode)”, and when the recognition succeeded beep sounds, move to “How to set (how to set passwords)”.
- If you change the password, the factory default that is provided is disabled.

How to set (how to enter setting mode)

(1) Use the key fob to lock the system. (The lock indicator turns on)

(2) Press the POWER switch repeatedly on and off three times. After that, a beep sounds two times.

ON	OFF
Long press for more than 3 seconds	Release for more than 3 seconds
	



Beep
Recognition succeeded
●●

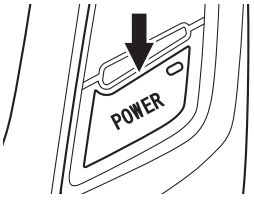
How to set (how to set passwords)

(1) Repeat steps 1 and 2 three times.

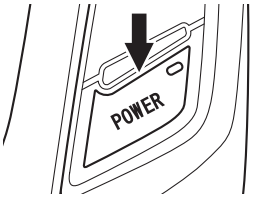
(2) The password input mode activates and a beep sounds.

	Number of beeps
When recognition succeeds	●●

(3) Press the POWER switch once to start the password beep.

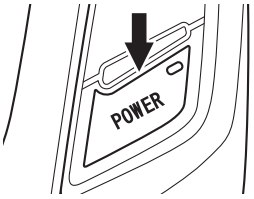


(4) Set the first digit “●○○○” of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.

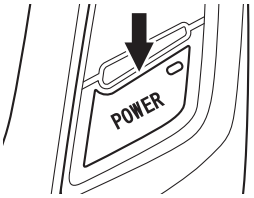


How the beep sounds:
●_●_●_●_●_●_●_●_●_●

(5) After the first digit is set, press the POWER switch to start setting the second digit of your password.

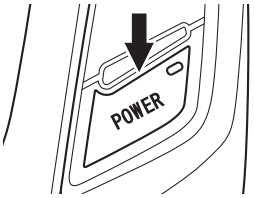


(6) Set the second digit "○●○○" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.



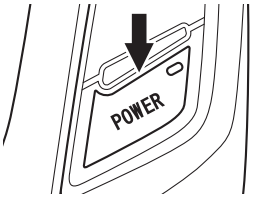
How the beep sounds:
●●_●●_●●_●●_●●_●●_●●_●●_●●_●●

(7) After the second digit is set, press the POWER switch to start setting the third digit of your password.

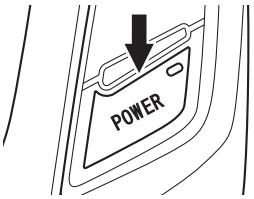


(8) Set the third digit "○○●○" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.
How the beep sounds:
●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●

(9) After the third digit is set, press the POWER switch to start setting the fourth digit of your password.



(10) Set the fourth digit "○○○●" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.



How the beep sounds:
●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●

(11) After the fourth digit is set, the POWER switch turns on, and the change is complete.

(12) Beeps sound indicating the new password.

	Number of beeps
Recognition succeeded	●
Recognition failed	●●●

TIP:

- A short beep sounds 10 times according to the numbers in the password (password: 1, 2, 3, 4, 5, 6, 7, 8, 9, 0).

Number of beeps	First	Second	Third	Fourth	Fifth	Sixth	Sev-enth	Eighth	Ninth	Tenth
Password number	1	2	3	4	5	6	7	8	9	0

- When setting the numbers in the password, the beep sounds differently for the selection of each digit, first through fourth.

Sound of beep for first digit of password (short beep 1 time x 10)	●_●_●_●_●_●_●_●_●_●
Sound of beep for second digit of password (short beep 2 times x 10)	●●_●●_●●_●●_●●_●●_●●_●●_●●_●●
Sound of beep for third digit of password (short beep 3 times x 10)	●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●
Sound of beep for fourth digit of password (short beep 4 times x 10)	●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●

- Even if you forget the password you pressed in the first round, after the password beep sounds 10 times, you can input your password again. However, if there is no input by the third round, the mode is shutdown.

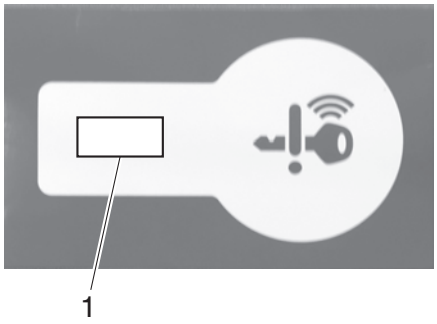
Example of how to set a password

Example) To set “3468” as the password. ●: Beep

	1	2	3	4	5	6	7	8	9	10 (0)
First digit	●	●	●	●	●	●	●	●	●	●
										
Second digit	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
										
Third digit	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
										
Fourth digit	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
										

Special mode

If the key fob is lost, damaged, or its battery dies, you can still start the electric propulsion motor. You can unlock the system by inputting either the key fobs factory default, or the password that you set yourself.



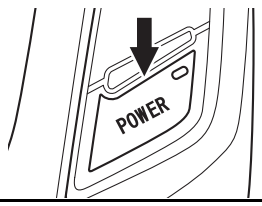
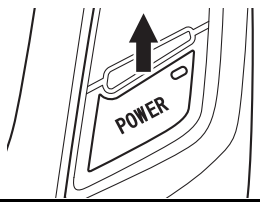
1. Factory default

TIP:

The procedure to change the password in “How to set (how to enter setting mode)”, and when the recognition succeeded beep sounds, move to “How to set (how to set passwords)”.

How to set (how to enter setting mode)

(1) Press the POWER switch repeatedly on and off three times. After that, a beep sounds one time.

ON	OFF
Long press for more than 3 seconds	Release for more than 3 seconds
	



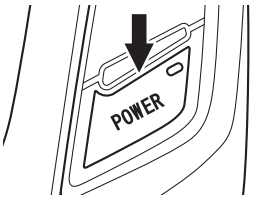
Beep
Recognition succeeded
●

How to set (how to set passwords)

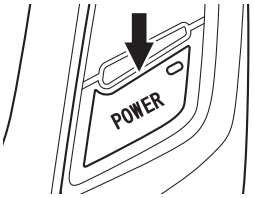
(1) The password input mode activates and a beep sounds.

	Number of beeps
When recognition succeeds	●

(2) Press the POWER switch once to start the password beep.

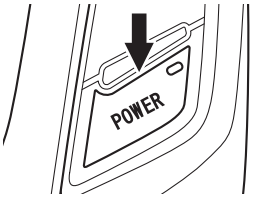


(3) Set the first digit "●○○○" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.

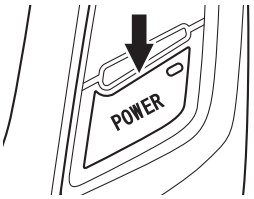


How the beep sounds:
●_●_●_●_●_●_●_●_●_●

(4) After the first digit is set, press the POWER switch to start setting the second digit of your password.

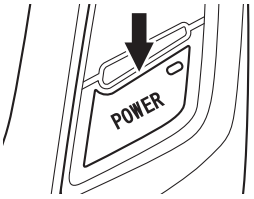


(5) Set the second digit "○●○○" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.



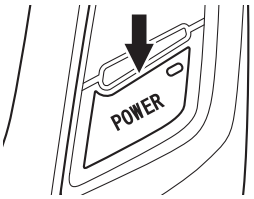
How the beep sounds:
●●_●●_●●_●●_●●_●●_●●_●●_●●_●●

(6) After the second digit is set, press the POWER switch to start setting the third digit of your password.

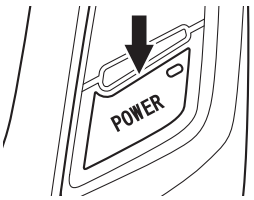


(7) Set the third digit "○○●○" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.
How the beep sounds:
●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●

(8) After the third digit is set, press the POWER switch to start setting the fourth digit of your password.



(9) Set the fourth digit "○○○●" of the password.
Press the POWER switch, while the beep is beeping, when it reaches the number of beeps that is equal to the number you want for this digit of your password.



How the beep sounds:
●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●

(10) After the fourth digit is set, the POWER switch turns on, and the change is complete.

	Number of beeps
Recognition succeeded	●
Recognition failed	●●●

TIP:

- A short beep sounds 10 times according to the numbers in the password (password: 1, 2, 3, 4, 5, 6, 7, 8, 9, 0).

Number of beeps	First	Second	Third	Fourth	Fifth	Sixth	Sev-enth	Eighth	Ninth	Tenth
Password number	1	2	3	4	5	6	7	8	9	0

- When setting the numbers in the password, the beep sounds differently for the selection of each digit, first through fourth.

Sound of beep for first digit of password (short beep 1 time x 10)	●_●_●_●_●_●_●_●_●_●
Sound of beep for second digit of password (short beep 2 times x 10)	●●_●●_●●_●●_●●_●●_●●_●●_●●_●●
Sound of beep for third digit of password (short beep 3 times x 10)	●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●_●●●
Sound of beep for fourth digit of password (short beep 4 times x 10)	●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●_●●●●

- Even if you forget the password you pressed in the first round, after the password beep sounds 10 times, you can input your password again. However, if there is no input by the third round, the mode is shutdown.

Example of how to set a password

Example) To set “3468” as the password. ●: Beep

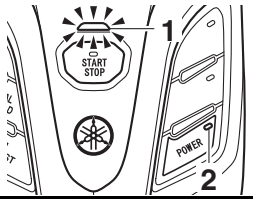
	1	2	3	4	5	6	7	8	9	10 (0)
First digit	●	●	●	●	●	●	●	●	●	●
										
Second digit	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
										
Third digit	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
										
Fourth digit	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
										

Adding a new key fob

If you want to add a new key fob, you can use the following procedure to do it.

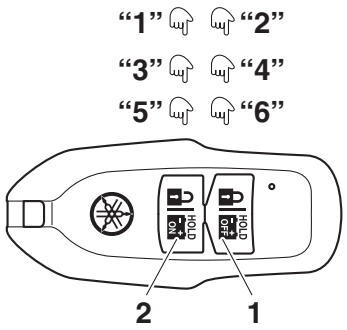
(1) Place the key fob near the Digital Electronic Control (DEC).

(2) Use your original key fob to lock the system. (The lock indicator turns on)

Lock


1. Lock indicator
2. LED

(3) Within 10 seconds after turning on the POWER switch, on your original key fob, alternately press the lock button and then unlock button 6 times.



1. Lock button
2. Unlock button

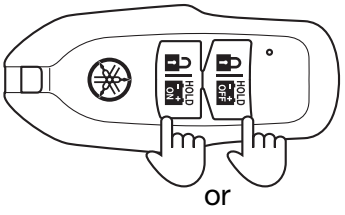
(4) beep sounds.

TIP:

If registration is not possible, setup ends.

	Number of beeps
Registration possible	●
Registration not possible (6 keys are already registered)	●●●●●●

(5) Press the lock or unlock button on the new key fob that you want to register one time.



(6) The beep sounds and registration is complete.
After registration is successful or fails, the beep beeps once for each of the key fobs that have been registered and not deregistered.

TIP:

The beep stops after the third round.

Example of beep (If registration is successful and there are 4 key fobs that have been registered and not deregistered)

Number of beeps
●_●●●●

Replacing the battery in the key fob

After the recognition succeeded beep sounds one time, if the beep sounds 10 times in a row, then replace the battery in the key fob. To replace the battery, consult a Yamaha dealer.

	Number of beeps
Recognition succeeded	●



	Number of beeps
Successive beeps	●●●●●●●●●

Information required by radio laws

1. USA (FCC), Canada (ISED)

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the operator's authority to operate the equipment.

FCC/ISED

This device complies with part 15 of FCC Rules and Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines as this equipment has very low levels of RF energy.

2. EC RE Directive

[EN] English	Hereby, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, declares that the radio equipment type Smart Keyless System (SKESAE-01,SKESAE-03) 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
[FR] French	Le soussigné, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, dé clare que l'équipement radioélectrique du type Smart Keyless System (SKESAE-01,SKESAE-03) est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[IT] Italian	Il fabbricante, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, dichiara che il tipo di apparecchiatura radio Smart Keyless System (SKESAE-01,SKESAE-03) è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[DE] German	Hiermit erklärt MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, dass der Funkanlagentyp Smart Keyless System (SKESAE-01,SKESAE-03) der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[ES] Spanish	Por la presente, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS declara que el tipo de equipo radioeléctrico Smart Keyless System (SKESAE-01,SKESAE-03) es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[SV] Swedish	Härmed försäkrar MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS att denna typ av radioutrustning Smart Keyless System (SKESAE-01,SKESAE-03) överensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[MT] Maltese	B'dan, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, niddikjara li dan it-tip ta' tagħmir tar-radju Smart Keyless System (SKE47E-01,SKE47E-03) huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan l- indirizz tal-Internet li ġej: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[FI] Finnish	MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS vakuuttaa, että radiolaitetyyppi Smart Keyless System (SKESAE-01,SKESAE-03) on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: http://www.mitsubishielectric.com/bu/automotive/doc/re.html

[NL] Dutch	Hierbij verklaar ik, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, dat het type radioapparatuur Smart Keyless System (SKESAE-01,SKESAE-03) conform is met Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[PT] Portuguese	O abaixo assinado MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS declara que o presente tipo de equipamento de rádio Smart Keyless System (SKESAE-01,SKESAE-03) está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[DA] Danish	Hermed erklærer MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, at radioudstyrstypen Smart Keyless System (SKESAE-01,SKESAE-03) er i overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[CS] Czech	Tímto MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS prohlašuje, ž e typ rádiového zařízení Smart Keyless System (SKESAE-01,SKESAE-03) je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[PL] Polish	MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS niniejszym oś wiadcza, że typ urządzenia radiowego Smart Keyless System (SKESAE-01,SKESAE-03) jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[ET] Estonian	Käesolevaga deklareerib MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, et käesolev raadioseadme tüüp Smart Keyless System (SKESAE-01,SKESAE-03) vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[BG] Bulgarian	С настоящото MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS дек ларира, че този тип радиосъоръжение Smart Keyless System (SKESAE-01, SKESAE-03) е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[LT] Lithuanian	Aš, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, patvirtinu, kad radijo įrenginių tipas Smart Keyless System (SKESAE-01,SKESAE-03) atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[SK] Slovak	MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS týmto vyhlasuje, že rádiové zariadenie typu Smart Keyless System (SKESAE-01,SKESAE-03) je v s úlade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[SL] Slovenian	MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS potrjuje, da je tip radijske opreme Smart Keyless System (SKESAE-01,SKESAE-03) skladen z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[RO] Romanian	Prin prezenta, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS declară că tipul de echipamente radio Smart Keyless System (SKESAE-01,SKESAE-03) este în conformitate cu Directiva 2014/53/UE. Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[LV] Latvian	Ar šo MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS deklarē, ka radioiekārta Smart Keyless System (SKESAE-01,SKESAE-03) atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[HU] Hungarian	MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS igazolja, hogy a Smart Keyless System (SKESAE-01,SKESAE-03) típusú rádióberendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[EL] Greek	Με την παρούσα ο/η MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS, δηλώνει ότι ο ραδιοεξοπλισμός Smart Keyless System (SKESAE-01,SKESAE-03) πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστ οσελίδα στο διαδίκτυο: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[HR] Croatian	MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS ovime izjavljuje da je radijska oprema tipa Smart Keyless System (SKESAE-01,SKESAE-03) u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: http://www.mitsubishielectric.com/bu/automotive/doc/re.html
[SQ] Albanian	Përmes kësaj, MITSUBISHI ELECTRIC MOBILITY CORPORATION, deklaron se pajisja radio e llojit Smart Keyless System (SKESAE-01, SKESAE-03) është në pë rputhje me Direktivën 2014/53/BE. Teksti i plotë i deklaratës së BE-së për konformitetin disponohet në adresën e më poshtme të internetit: https://www.mitsubishielectricmobility.com/doc/re_documents.html
[TR] Turkish	Bu belgeyle, MITSUBISHI ELECTRIC MOBILITY CORPORATION, Akıllı Anahtarsı z Sistem (SKESAE-01, SKESAE-03) tipi radyo ekipmanının 2014/53/EU Direktifine uygun olduğunu beyan eder. AB uygunluk beyanının tam metnine aşağıdaki internet adresinden ulaşılabilir: https://www.mitsubishielectric-mobility.com/doc/re_documents.html

Smart Unit : SKESAE-01
Operation frequency : 125 kHz
Maximum output power : 107 dBμV/m at. 10 meters
Hand Unit : SKESAE-03
Operation frequency : 433.92 MHz
Maximum output power : 10mW

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

CAUTION - 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.

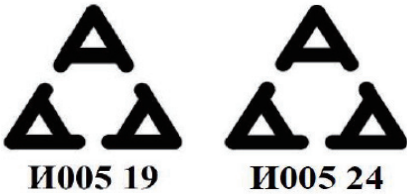
CAUTION - Do not expose Hand Unit to excessive heat such as sunshine, fire or the like.

WARNING
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 attention.

The caution mark of ISO 7000-0434 is located on the case.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

No.	Country name	Radio laws detail
1	Serbia	• Operating frequency range: 433.05MHz 434.79MHz • Maximum output power: 10mW • Importer Name: Delta Team d.o.o. Krsko • Importer Address: CKZ 135a, 8270 Krsko, Slovenia  И005 19 И005 24
2	Moldova	• Operating frequency range: 433.05MHz - 434.79MHz • Maximum output power: 10mW • Importer Name: Motodynamics Srl. • Importer Address: Şoseaua Odăii 307 - 309, Sector 1, București, România Moldova: Prin prezenta, MITSUBISHI ELECTRIC CORPORATION, HIMEJI WORKS declară că tipul de echipamente radio Smart Keyless SyStem (SKESAE-01, SKESAE-03) este în conformitate cu Reglementarea tehnică „Punerea la dispoziție pe piață a echipamentelor radio”. Textul integral al declarației de conformitate este disponibil la următoarea adresă de Internet: https://www.mitsubishielectric-mobility.com/doc/mda_documents.html

<table>
<tr><th>No.</th><th>Country name</th><th>Radio laws detail</th></tr>
<tr><td>3</td><td>Australia</td><td>
The Consumer Goods (Products Containing Button/Coin Batteries) Safety and Information Standard is effective from 22nd June 2022.



The smart key contains a coin/button cell battery

⚠ WARNING
• KEEP OUT OF REACH OF CHILDREN.
• If the coin/button cell battery is swallowed or placed inside any part of the body, it can cause severe internal burns in just 2 hours and can lead to death.
• If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical action.
• Always have a Yamaha dealer replace the smart key battery.


</td></tr>
</table>

⚠WARNING

- **INGESTION HAZARD**: This product contains a button cell or coin battery.
- **DEATH** or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **Internal Chemical Burns** in as little as **2 hours**.
- **KEEP** new and used batteries **OUT OF REACH of CHILDREN**
- **Seek immediate medical attention** if a battery is suspected to be swallowed or inserted inside any part of the body.

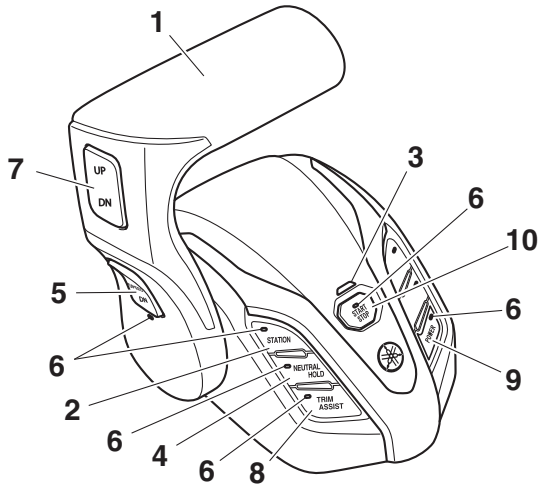




a. Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
b. Even used batteries may cause severe injury or death.
c. Call a local poison control center for treatment information.
d. Use CR2025 battery.
e. The nominal battery voltage is 3.0 V.
f. Non-rechargeable batteries are not to be recharged.
g. Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
h. To replace the battery, consult a Yamaha dealer.

Remote control box

The Digital Electronic Control (DEC), and its remote control lever and switches, allows you to control the electric propulsion motor and maneuver your boat.



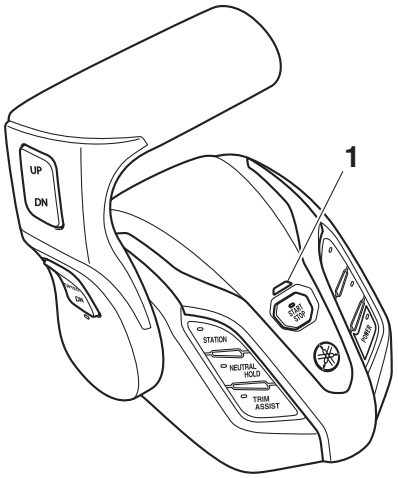
1. Remote control lever
2. Station selector switch (not used)
3. Digital Electronic Control (DEC) alert indicator/Lock indicator
4. Neutral hold switch
5. Speed control switch
6. LED
7. PT switch
8. Trim assist switch (not used)
9. POWER switch
10. START/STOP switch

TIP:

You can change the color of the LED lens when operating the remote control lever from the CL5 Display. For instructions on using the LED Color Setting, see page 50.

Digital Electronic Control (DEC) alert indicator

The alert indicator on the remote control changes from blue to orange when a problem occurs with the electric propulsion motor or other rigging. A beep also sounds (repeatedly on and off) to alert the operator. To stop the beep, tap “Confirm” on the MFD (Multi Function Display). If the color changes to orange, immediately return to port, even if there are no symptoms of trouble in the shift or accelerator operations, and consult about an inspection and repairs at a Yamaha dealer.

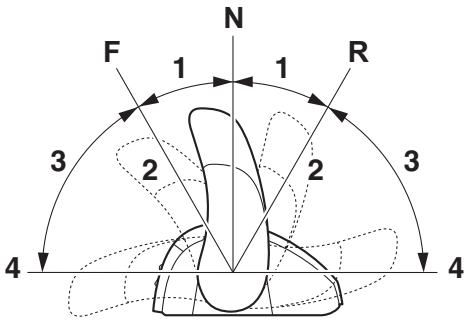


1. Digital Electronic Control (DEC) alert indicator

Remote control levers

Moving the remote control levers from the neutral (N) position to the forward (F) position (towards the bow of the boat) makes the boat move forward, while moving it to the reverse (R) position (towards the stern of the boat) makes the boat move reverse.

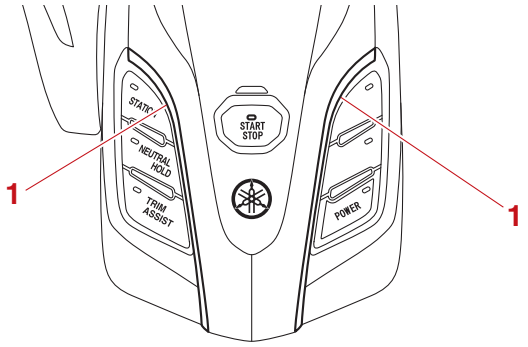
Moving the lever farther opens the throttle, and the electric propulsion motor will begin to accelerate.



1. Shift
2. Fully closed
3. Throttle
4. Fully open

LED color setting

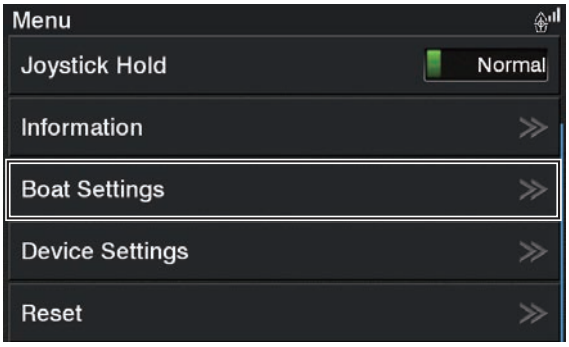
The position of the remote control lever can change the color of the LED.



1. Digital Electronic Control (DEC) LED

Changing the Digital Electronic Control (DEC) LED

(1) Select the “Boat Settings” screen.



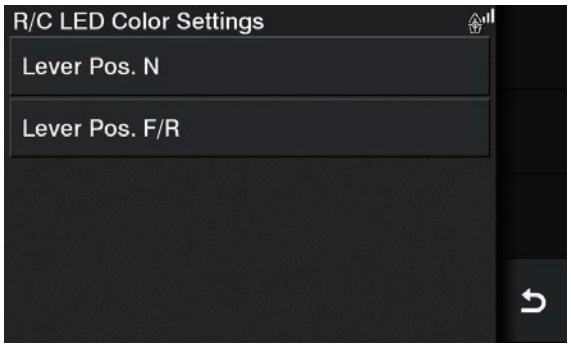
(2) Select the “Remote Control Settings” screen.



(3) Select the “LED Color Setting” screen.



(4) Select the “Lever Pos. N” or “Lever Pos. F/R” screen.



(5) Choose a color.





Adjusting the friction of the remote control levers

The effort to move the remote control levers can be adjusted to suit the operator preference.

⚠ WARNING

- **Do not over-loosen the effort needed to move the remote control levers. Over-loosen the effort needed to move the remote control levers could interfere with steering the boat, which may cause an accident.**
- **Do not over-tighten the effort needed to move the remote control levers. Over-tightening the effort needed to move the remote control levers could interfere with steering the boat, which may cause an accident.**

Removing the front cover and top cover

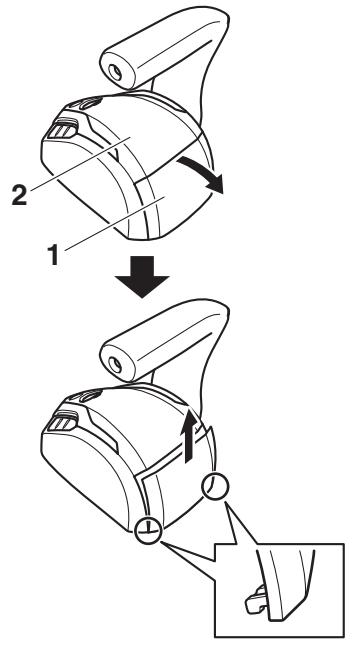
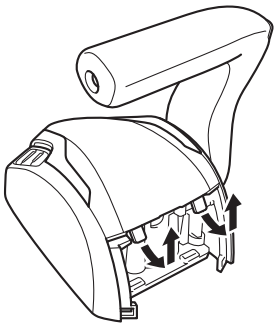
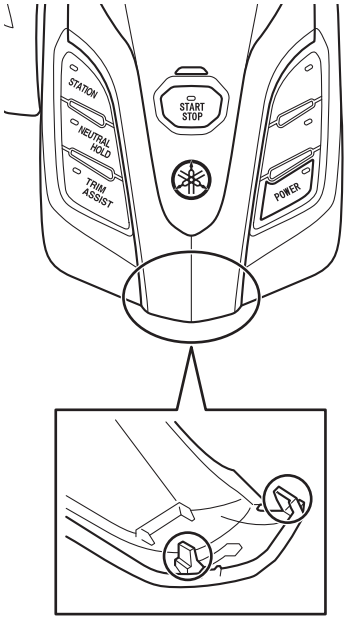
Remove the various covers to adjust the effort needed to move the remote control levers.

Remove

(1) Remove the front cover in the direction of the arrow.

(2) Raise the left and right hooks in the direction of the arrows to lift the top cover upward.

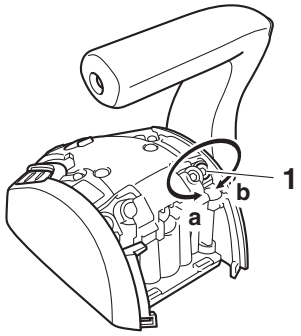
(3) Release the hooks on the front of the top cover to remove it from the remote control.

Step 1	Step 2	Step 3
		

1. Front cover
2. Top cover

How to adjust

To adjust the effort needed to move the remote control lever, remove the front cover and top cover. Turning the adjustment screw clockwise increases the effort to move the remote control lever. Turning the adjustment screw counterclockwise decreases the effort to move the remote control lever.



1. Effort to move the remote control lever

a. Lighter
b. Heavier

Install the front cover and top cover

Install

(1) Hook the hooks on the front of the top cover to the remote control.

(2) Press on the left and right sides of the center of the top cover at the same time.

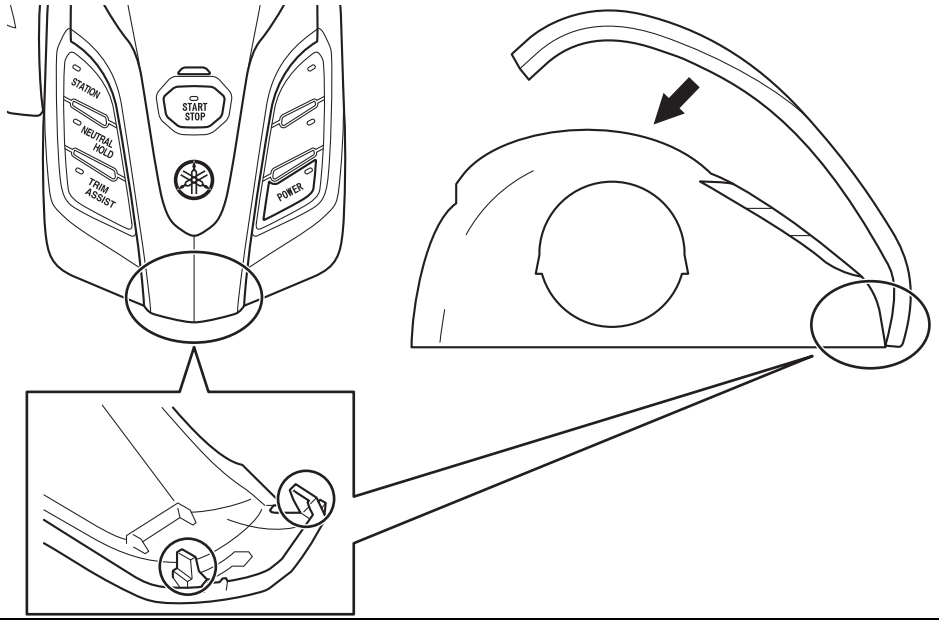
(3) Press so the gap between the top cover and the remote control is even.

TIP:

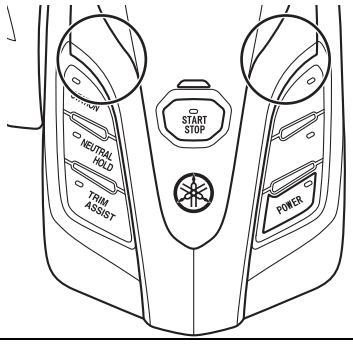
- After Installing the top cover, the top cover should not be suspended. Also, confirm that the left and right gaps are even.
- If the top cover is not securely Installed, the front cover cannot be Installed.

(4) Hook the hooks on the bottom of the front cover, and then press on the hooks on the top of the front cover to insert them.

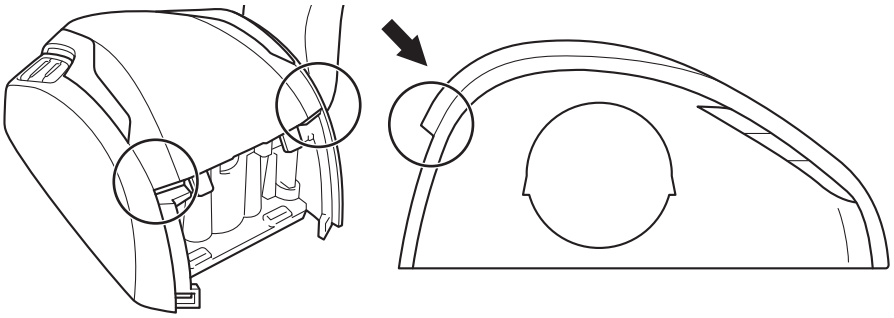
Step 1



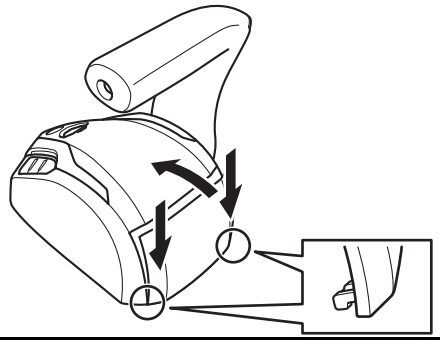
Step 2



Step 3



Step 4



Adjusting the detent of the remote control levers

The movement of the remote control levers and click felt when shifting can be adjusted to suit the operator's preference.

⚠ WARNING

- **If the movement of the remote control levers and the click felt when shifting are too loose, the remote control levers may move too quickly, which may cause an accident.**
- **Do not over-tighten the movement of the remote control levers or the click felt when shifting. Over-tightening the effort needed to move the remote control levers could interfere with steering the boat, which may cause an accident.**

TIP:

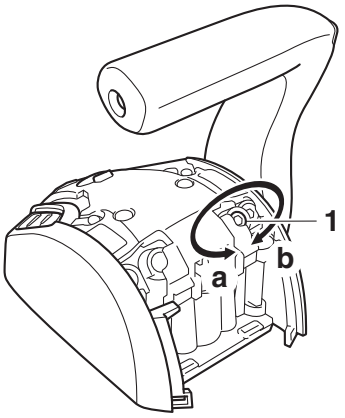
The initial setting of the movement of the remote control lever and the click felt when shifting is the lightest setting.

Removing the front cover and top cover

For instructions on removing the front and top covers, see page 51.

How to adjust

To adjust the click felt when shifting, remove the front cover and top cover. Turning the adjustment screw "1" clockwise increases the click felt when shifting by moving the remote control lever. Turning the adjustment screw "1" counterclockwise decreases the click felt when shifting by moving the remote control lever.



a. Lighter
b. Heavier

Installing the front cover and top cover

For instructions on installing the front and top covers, see page 52.

Neutral hold switch

When the neutral hold switch is enabled, the electric propulsion motor will not operate even if the remote control lever is in forward (F) or reverse (R).

How to operate

(1) Move the remote control levers to the neutral (N) position.

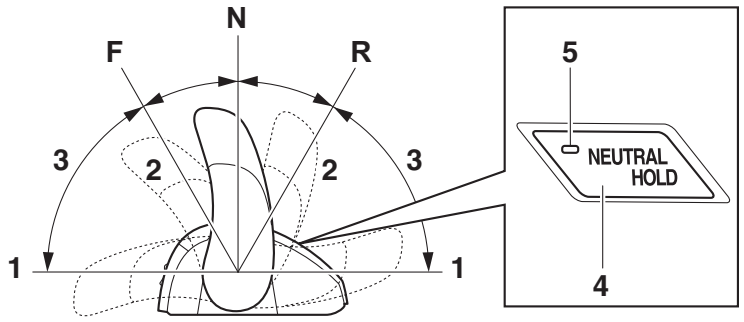
(2) When the “NEUTRAL HOLD” switch is pressed, the beep sounds and the LED turns on.

(3) Moving the remote control levers forward (F) or reverse (R) allows you to open and close the throttles.

How to release

(1) Move the remote control levers to the neutral (N) position.

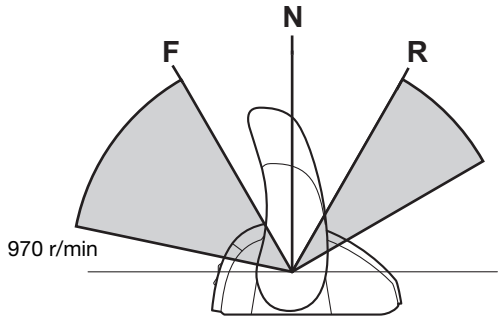
(2) When the “NEUTRAL HOLD” switch is pressed, the beep sounds and the LED turn off.



1. Fully open
2. Fully closed
3. Free accelerator
4. Neutral hold switch
5. LED

Speed control

Enabling the speed control switch allows you to maintain a speed or make small speed adjustments to the motor speed and boat speed.
Pressing the UP side or DN side on the speed control switch further reduces the trolling speed by decreasing shift in time.



⚠ WARNING

The motor speed/boat speed when you press the speed control switch is maintained, so you should not turn on the speed control while accelerating or decelerating.

How to operate (remote control lever operations)

(1) Set the remote control levers in any position.
Setting conditions
Forward:
From the forward (F) position to an motor speed of 970 r/min
Reverse:
Reverse (R) position (Throttle fully closed)

(2) When “UP” or “DN” on the speed control switch is pressed, the beep sounds and the LED turns on.

(3) Each time you press “UP” on the speed control switch, the motor speed/boat speed gradually increases; each time you press “DN”, the motor speed/boat speed gradually decreases.

How to operate (joystick operations)

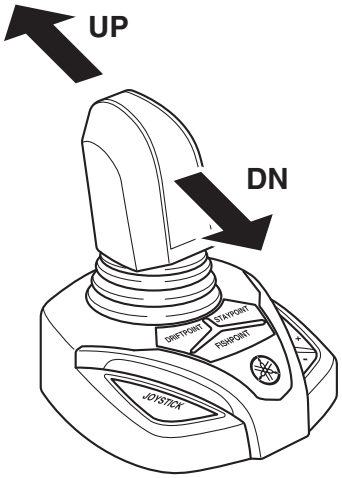
(1) Set the remote control levers in any position.
Setting conditions
Forward:
From the forward (F) position to an motor speed of 970 r/min
Reverse:
Reverse (R) position (Throttle fully closed)

(2) When “UP” or “DN” on the speed control switch is pressed, the beep sounds and the LED turns on.

(3) Each time you tilt the joystick forward, the motor speed/boat speed gradually increases; each time you tilt it reverse, the motor speed/boat speed gradually decreases.

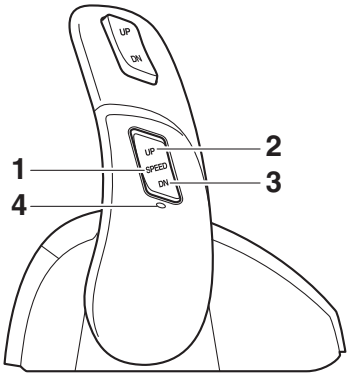
TIP:

- Each time you press UP or DN, the speed increases or decreases by 50 r/min.
- You can switch between motor speed and speed (when GPS is installed) by using the setting on the MFD (Multi Function Display). For details, refer to the manual for the MFD (Multi Function Display).
- You can use the joystick for increasing and decreasing.
- You can also adjust the speed control when the single lever switch is enabled.



How to release

(1) When the remote control levers are operated, the beep sounds and the LED turn off.



1. Speed control switch
2. Speed UP switch
3. Speed DN switch
4. LED

Power tilt (PT) switch

The PT switch can adjust the angle of the electric propulsion motor in relation to the transom. Pressing the “UP” switch moves the electric propulsion motor upward. Pressing the “DN” switch moves the electric propulsion motor downward.

⚠ WARNING

There is a risk of serious injury if anyone is crushed between the electric propulsion motor and the clamp brackets during trimming or tilting.

TIP:

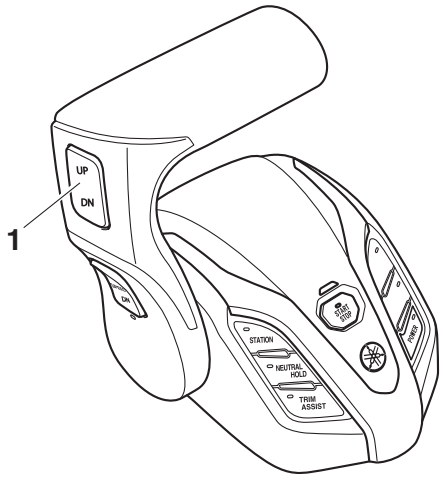
The PT can be operated while the battery switch is ON.

How to operate

(1) Press the “UP” or “DN” switch on the PT switch on the remote control lever.

How to release

(1) Stop pressing the PT switch.



1. PT switch

Autopilot Operation

Autopilot

The Autopilot, which has four modes, is an automatic piloting function that assists with steering and throttle operations to keep the boat moving to a desired point or heading.

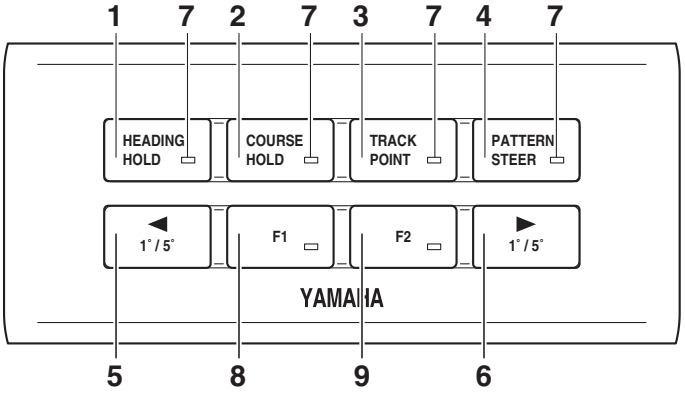
The Autopilot system is a device that assists with steering. The captain is responsible for safe navigation, and should carefully monitor his boat while underway.

⚠ WARNING

- **The operator is responsible for confirming there are no obstacles or shallow water along the route.**
- **This function does not avoid obstacles. It also does not automatically steer through waves. The operator must remain in the operator seat and monitor the surrounding conditions.**

TIP:

- The Autopilot function is cancelled if the GPS antenna cannot receive a GPS signal.
- In addition to not being able to receive the GPS signal, the signal could become unreliable if a large building is nearby that reflects the satellite signal so accurate information cannot be received.



1. HEADING HOLD switch
2. COURSE HOLD switch
3. TRACK POINT switch
4. PATTERN STEER switch
5. ARROW switch (left)
6. ARROW switch (right)
7. LED
8. F1 switch (optional)
9. F2 switch (optional)

Heading Sensor Operation

Calibrate the compass before using the Autopilot or SetPoint functions.

Heading Sensor Calibration

When doing calibration, take care to keep the boat as steady and as level as possible. Note that you may not use any Autopilot functions (e.g. HEADING HOLD) during calibration.



The compass setup screen pictured above shows whether Compass Calibration and Heading Alignment (Set North Calibration) currently is done or not done.

(1) To start calibration, go to compass setup screen.

TIP:

You can go to the setup screen anytime by pressing the following on-screen buttons.
CL5: Menu > Boat Settings > Calibration > Compass Setup

(2) First, ensure that the boat is level before starting calibration to make sure pitch and roll values are accurate. Next, perform “Compass Cal”. according to on-screen instructions until you see “Calibration Status: Success”.

TIP:

You cannot start calibration in Autopilot mode. Also, you must do “Compass Cal”. before Set North calibration or Set North Calibration will fail.

(3) Point the bow leewards / towards drifting direction to reduce inaccuracy caused by the boat drifting. Perform Set North Calibration according to the on-screen instructions until you see “Calibration Status: Success”.
Doing “Compass Cal”. again will erase the previous Set North Calibration data (i.e Heading Alignment: Not Done). So it is necessary to do Set North Calibation again after every “Compass Cal”.

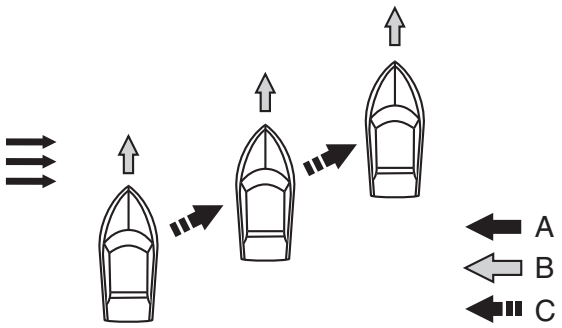
(4) (Optional) You can use the Fine Adjustment function to fine tune the Heading Alignment. Using a far landmark or a good compass, detemine the heading of your boat. Adjust the heading in 1 degree increments / decrements until it matches your determined heading value.

TIP:

Do not change the position of the Heading Sensor after calibration. If you change its position, do the calibration again.

HEADING HOLD

This mode keeps the boat moving in the direction of the bow at the time the mode is set. After it is set, the desired direction can be adjusted. (The desired direction is maintained even if current or wind causes the boat's bow to swing about.)



A. Wind
B. Boat direction
C. Current

How to set HEADING HOLD

(1) Maintain desired heading and speed.

(2) Press the "HEADING HOLD" switch.

(3) The LED lights and HEADING HOLD mode activates.

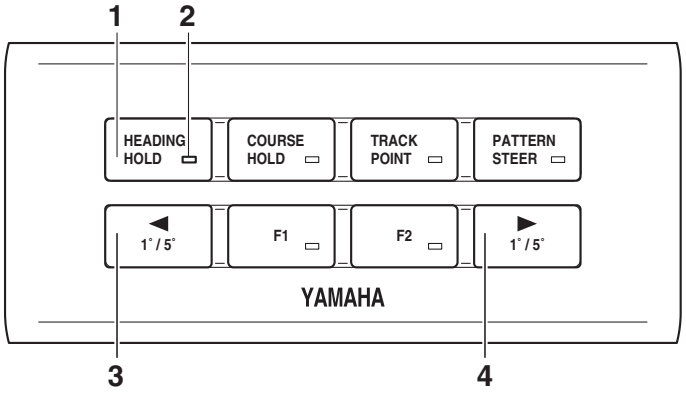
TIP:

- The steering is locked and the boat continues to move forward in the direction of the bow.
- The heading and speed at the time the "HEADING HOLD" switch is pressed are maintained.
- When heading hold is enabled, joystick hold does not function.
- When cruising in joystick hold, the HEADING HOLD switch can be pressed to engage HEADING HOLD.

How to release HEADING HOLD

Do any of the following to release HEADING HOLD.

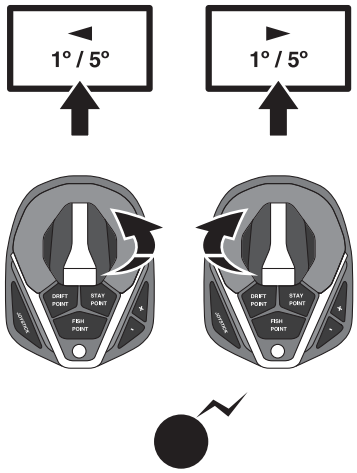
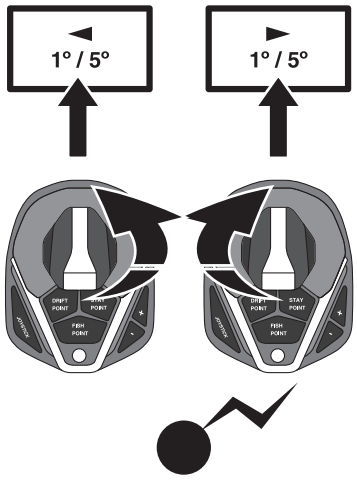
- Do any of the following to release HEADING HOLD.
- Press the HEADING HOLD switch.
- Steer the steering wheel.
- Move the remote control levers to N.



1. HEADING HOLD switch
2. LED
3. ARROW switch (left)
4. ARROW switch (right)

How to adjust the heading deviation

- Short press the ARROW switch/short twist the joystick: Adjusts the desired heading 1° in the direction of your operation.
- Long press the ARROW switch/long twist the joystick: Adjusts the desired heading 5° in the direction of your operation.

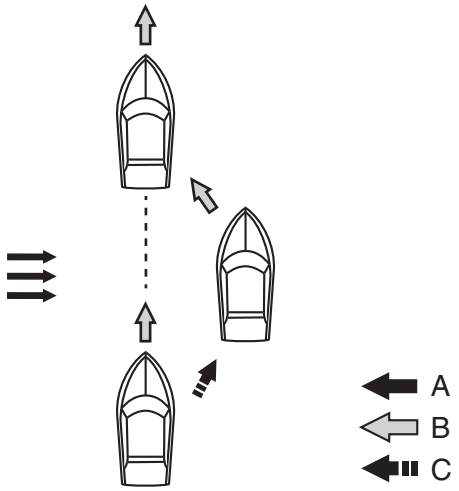
ARROW switch (right) operation	Effect	Direction the joystick is operated
Short press the ARROW switch. Short twist the joystick.	Adjusts the desired heading 1° in the direction of your operation.	
Long press the ARROW switch. Long twist the joystick.	Adjusts the desired heading 5° in the direction of your operation.	

COURSE HOLD

This mode keeps the boat moving on the vector at the time the mode is set. After it is set, the desired direction can be adjusted. (A course is set to a hypothetical destination, and this course is maintained along the desired course, while compensations are done for the effects of current and wind.)

TIP:

This mode is a function to keep the boat's heading at the time the mode is set. This mode cannot be turned on while the boat is rotating, or strong currents or wind are causing it to move sideways or reverses.



A. Wind
B. Boat direction
C. Current

How to set COURSE HOLD

(1) Maintain desired vector and speed.

(2) Press the "COURSE HOLD" switch.

(3) The LED lights and COURSE HOLD mode activates.

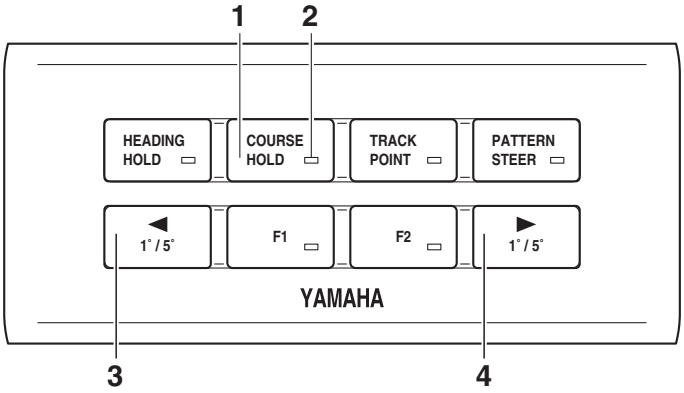
TIP:

- The steering is locked and the boat continues to move on its vector.
- Joystick Hold does not function when COURSE HOLD is enabled.
- When sailing in Joystick Hold, you can enter COURSE HOLD by pressing the COURSE HOLD switch.

How to release COURSE HOLD

Do any of the following to release COURSE HOLD.

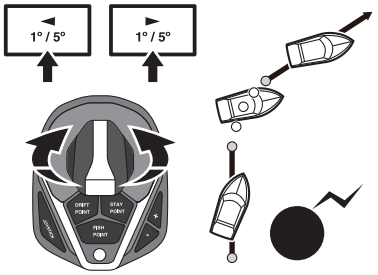
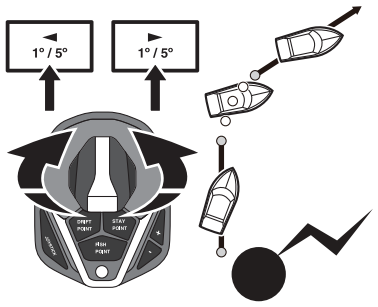
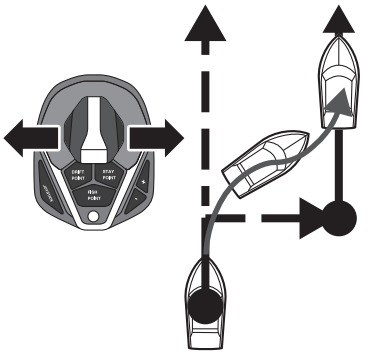
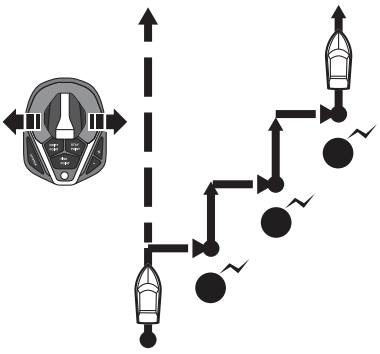
- Press the “COURSE HOLD” switch.
- Steer the steering wheel.
- Move the remote control levers to neutral (N).



1. COURSE HOLD switch
2. LED
3. ARROW switch (left)
4. ARROW switch (right)

How to adjust the course deviation

- Short press the ARROW switch/short twist the joystick: Adjusts the desired heading 1° in the direction of your operation.
- Long press the ARROW switch/long twist the joystick: Adjusts the desired heading 5° in the direction of your operation.

Operation	Effect	Direction the joystick is operated
Short press the ARROW switch. Short twist the joystick.	Adjusts the desired heading 1° in the direction of your operation.	
Long press the ARROW switch. Long twist the joystick.	Adjusts the desired heading 5° in the direction of your operation.	
Move the joystick left or right.	Offsets the course in the direction of your operation. Decide the amount of offset on the MFD (Multi Function Display). • Autopilot Screen>Menu>CourseHold Offset • CL5/MFDI Type-1: Menu > Boat Settings > Autopilot Setting > Course Hold Offset	
Long tilt the joystick left or right.	Consecutively offsets the course, for set periods of time, in the direction of your operation.	

TRACK POINT

This mode moves the boat to its final destination along the transit points set on the MFD (Multi Function Display). Depending on the settings, it can slow down and stop when it reaches the final destination. It can change to a preset mode after it stops.

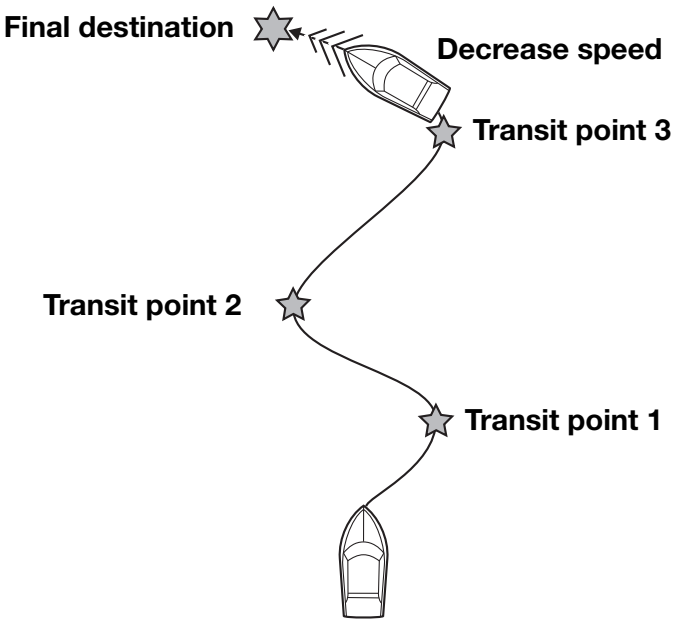
⚠ WARNING

Your boat may not decelerate even if it goes past its final destination, according to the MFD (Multi Function Display).

TIP:

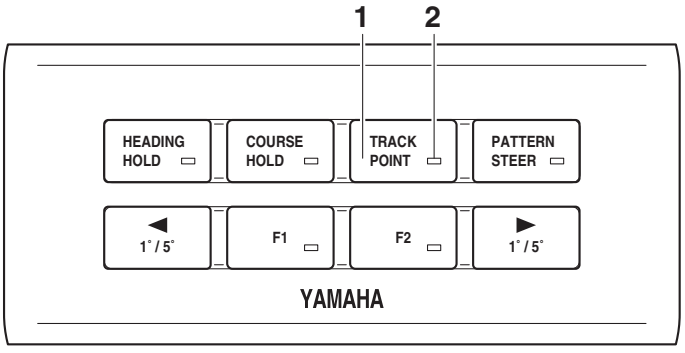
- If a route is not set, “TRACK POINT” cannot turn on.
- This mode may not be able to follow a route, due to the route’s set conditions or the boat’s speed.

This mode needs map data on which the destination and transit points have been set. For details, refer to the manual for the MFD (Multi Function Display).



⚠ WARNING

- **TRACK POINT control just heads the boat towards the desired position that was sent from the MFD (Multi Function Display). The operator is responsible for confirming there are no obstacles or shallow water along the route.**
- **This function does not avoid obstacles. It also does not automatically steer through waves. The captain must remain in the operator's seat and monitor the surrounding conditions.**
- **The boat's speed may be reduced after passing the final destination, depending on the MFD (Multi Function Display). In addition, the boat may overshoot, even if it decreases speed at the final destination. Slow the boat yourself if there are obstacles at the final destination that was set.**
- **After arriving at the final destination, you put the remote control lever in neutral (N) to enter SetPoint, or a different mode. However, to prevent shift shock the mode may not be able to enter SetPoint, if at that time your forward propulsion force is too powerful, or if a following wind or current is causing you to go too fast (12 km/h (7.5 mph) or higher).**
- **The SetPoint after decelerating in TRACK POINT is the SetPoint is the position at which the lever is put in N.**
- **You may go past the final destination because decelerating in TRACK POINT may be delayed if the final WAY POINT and the penultimate WAY POINT are close together, because decelerating starts when the next WAY POINT is the final WAY POINT.**
- **While in TRACK POINT mode, if you change a waypoint while reducing speed and then move the remote control lever to stop reducing speed, you cannot reduce speed again if your boat is already within the specified distance (within speed reduction range) from the changed waypoint.**
- **If you cancel TRACK POINT mode while reducing speed in TRACK POINT mode, your boat may not decelerate even if it goes past its final destination. As you reduce speed, carefully monitor your surroundings to be able to take evasive measures.**



1. TRACK POINT switch
2. LED

How to operate

(1) Set a route on the MFD (Multi Function Display).

(2) Operate the remote control lever to move forward (F).

(3) Press the “TRACK POINT” switch.

(4) The LED lights and TRACK POINT mode activates.

How to release

Do any of the following to release TRACK POINT.

- Press the “TRACK POINT” switch.
- Steer the steering wheel.

Changing the mode after arriving at the final destination

The system determines it has arrived at the final destination, starts to reduce speed, and changes to the mode that you set.

How to set

(1) Select a mode from the MFD (Multi Function Display).
  - Autopilot Screen>Menu>Final Track Point Mode
  - CL5/MFDI Type-1: Menu > Boat Settings > Autopilot Setting > Final Track Point Mode

TIP:

- When TRACK POINT is enabled, FISHPOINT, STAYPOINT, and DRIFTPOINT do not function. (These functions are changed to SetPoint by moving the remote control lever to neutral (N).)
- After decelerating, SetPoint maintains the position, “to stay in the position when the remote control lever were put in neutral (N)”.
- Implement route settings before turning on the mode.
- Cannot route change when approaching arrival at the final destination.
- Cannot be selected when grade, or combination, or system is set.
- Joystick hold does not function when TRACK POINT is enabled.
- When sailing with joystick hold, you can enter TRACK POINT by pressing the TRACK POINT switch.

Selection of automatic deceleration distance

The deceleration distance setting allows you to select from three ranges of deceleration starting distance. When approaching the final destination, deceleration starts at different timings depending on the selected setting.

CL5/MFDI Type-1: Menu > Boat Settings > Autopilot Setting > Deceleration Setting

-Very short

-Short

-Normal

TIP:

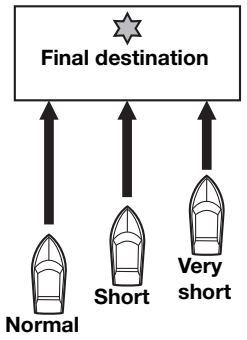
The default is set to Normal.

⚠ WARNING

If you select Very Short/Short, you may not be able to stop at the final destination.

TIP:

- You cannot set the auto deceleration distance setting when Final Track Point Mode is set to None (Non-Stop).
- Before turning on TRACK POINT mode, implement the auto deceleration distance settings.
- The auto deceleration setting cannot be changed when you are approaching the final destination.



PATTERN STEER

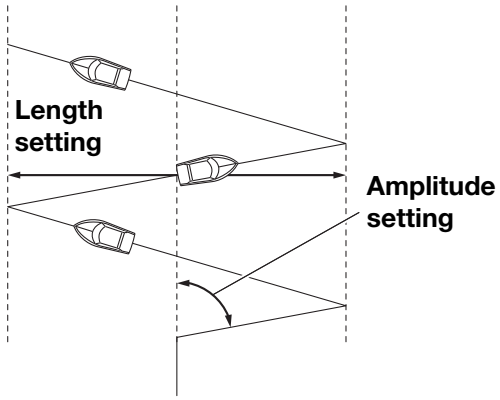
This mode allows you to steer along a pattern set in advance in the MFD (Multi Function Display). The pattern's selection and setting must be set on the MFD (Multi Function Display). For details, refer to the manual for the MFD (Multi Function Display).

- Autopilot Screen>Menu>Pattern Set
- CL5/MFDI Type-1: Menu > Boat Settings > Autopilot Setting > Pattern Steering

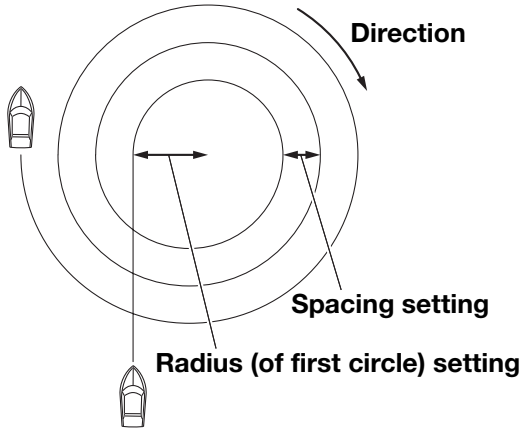
TIP:

Pattern steer may not be able to trace accurately if the set value is smaller than the speed.

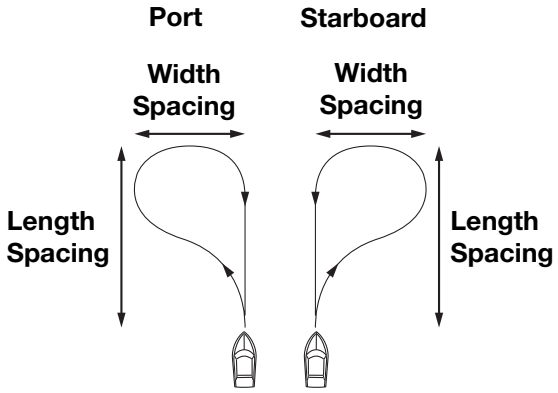
Zigzag setting item



Spiral setting item

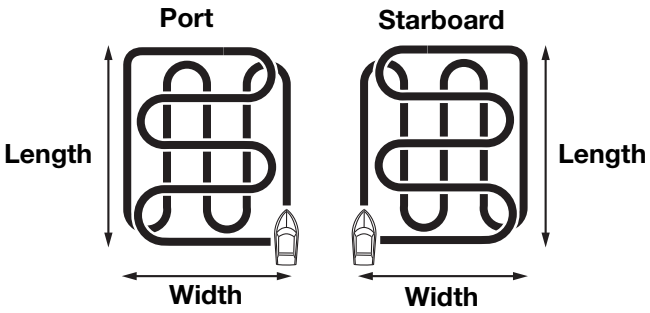


Williamson turn setting item



Length Spacing	20–2000 m (60–9500 ft)
Width Spacing	20–2000 m (60–9500 ft)
Direction	Port or Starboard

Pattern search setting item



Length	200–20000 m (0.1–15 mile)
Width	200–20000 m (0.1–15 mile)
Direction	Port or Starboard

How to operate

(1) Set a mode on the MFD (Multi Function Display).

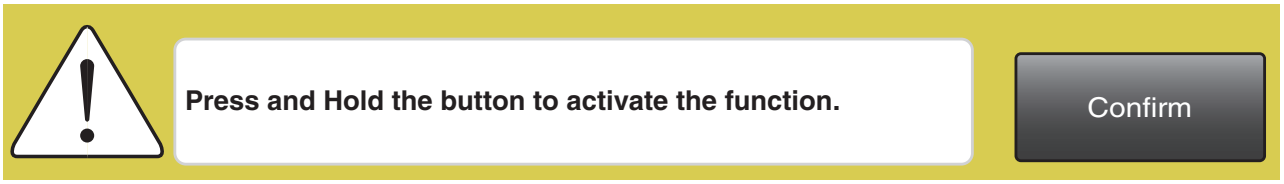
(2) Operate the remote control lever to move forward.

(3) Long press (3 seconds) the “PATTERN STEER” switch.

(4) The LED lights and PATTERN STEER mode activates.

TIP:

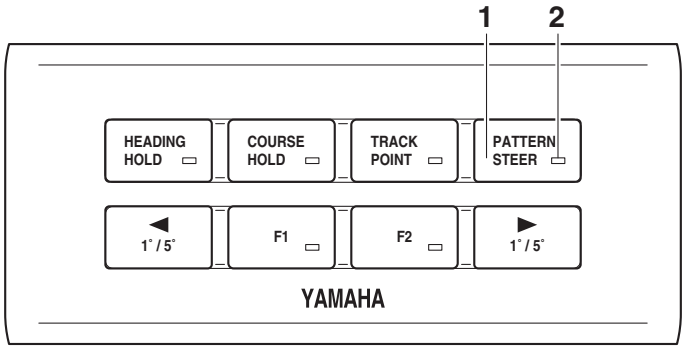
- When you press the “PATTERN STEER” switch briefly, PATTERN STEER does not work. A short press will display the following popup.
- Joystick hold does not function when PATTERN STEER is enabled.
- When sailing with joystick hold, you can enter PATTERN STEER by pressing the PATTERN STEER switch.



How to release

Do any of the following to release PATTERN STEER.

- Press the “PATTERN STEER” switch.
- Steer the steering wheel.
- Move the remote control levers to neutral (N).



1. PATTERN STEER switch
2. LED

Adjusting the Autopilot sensitivity

You can adjust the steering speed level of the electric propulsion motor while Autopilot is being used.

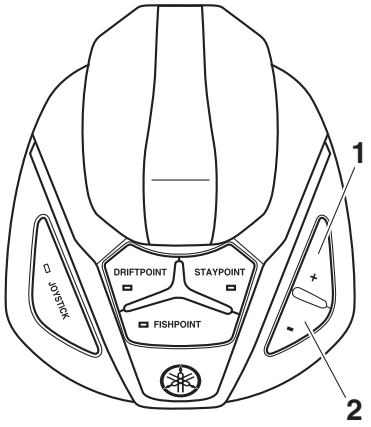
How to adjust

While Autopilot is being used, pressing the plus (+) button increases steering speed, and pressing the minus (-) button decreases steering speed.

Level 1	Level 2	Level 3	Level 4	Level 5
Slower		⇔		Faster
–		⇔		+

TIP:

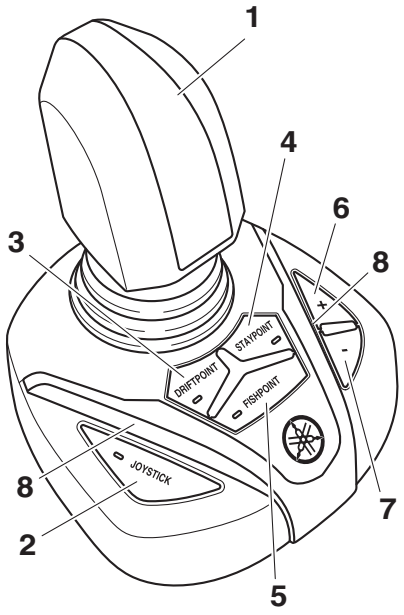
- Steering speed level can also be adjusted via compatible Yamaha displays.
- The settings return to their initial values when the power is turned off.
- To keep the settings even though the power is turned off, do the settings in Autopilot mode in the MFD (Multi Function Display).
  - CL5: Menu > Boat Settings > Calibration > AutoPilot Sensitivity
  - CL5: Menu > Boat Settings > Autopilot Setting > Pattern Steering
- If the rudder angle is hunting while in Autopilot, lower the steering level.



1. Plus (+) button
2. Minus (-) button

Joystick

The joystick control allows you to control the throttles and steering.



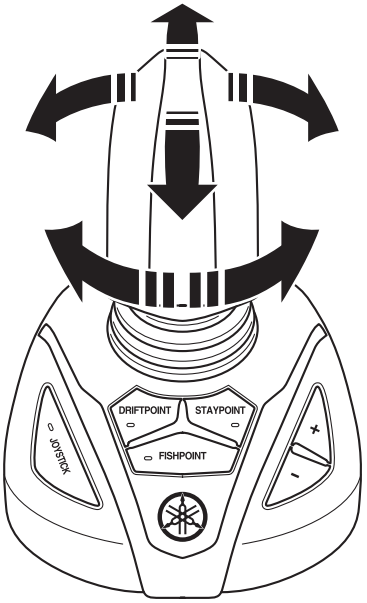
1. Joystick
2. Joystick switch
3. DRIFTPOINT switch
4. STAYPOINT switch (not used)
5. FISHPOINT switch
6. Plus (+) button
7. Minus (-) button
8. Joystick LED

Joystick

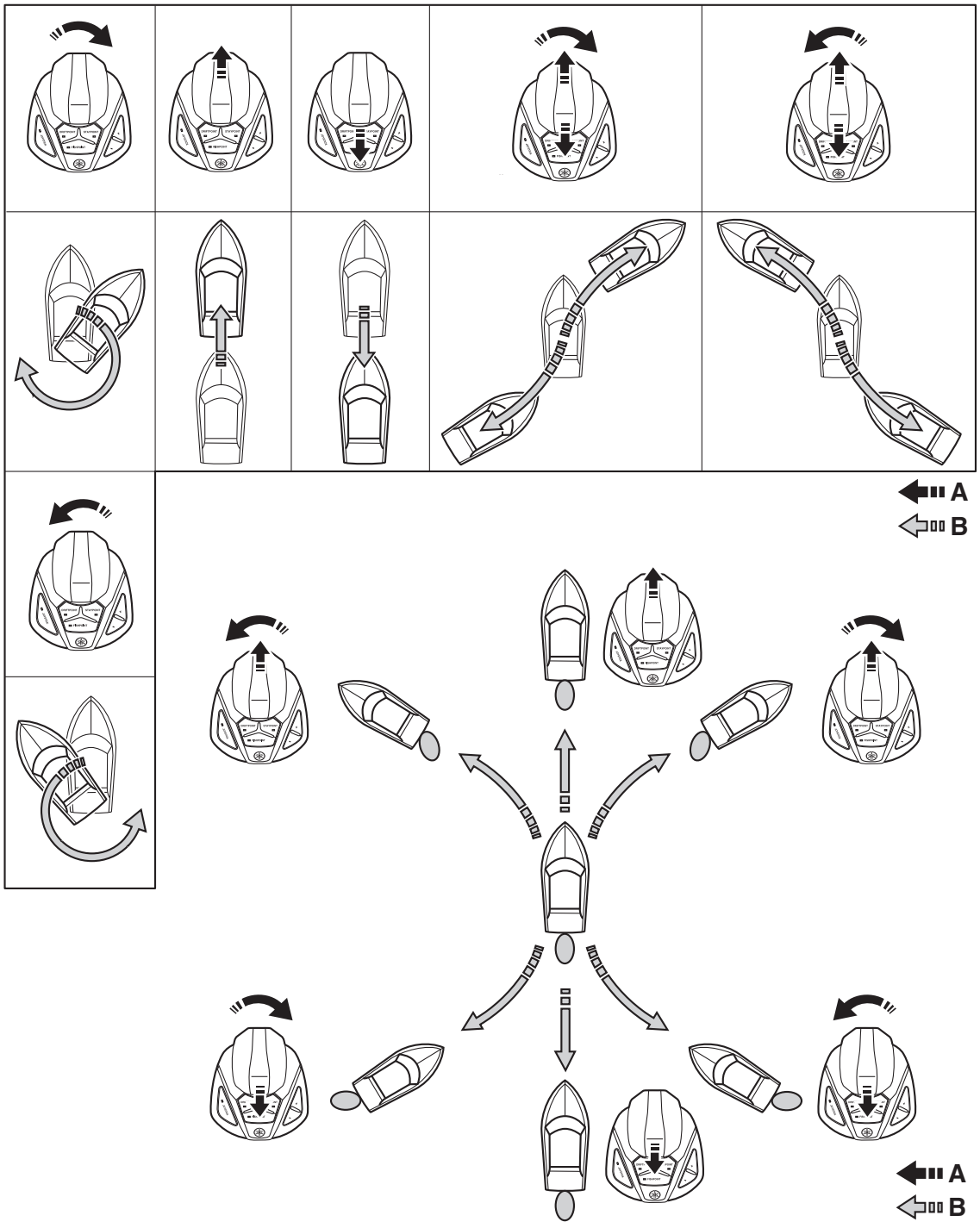
By moving the joystick left, right, forward, reverse, or diagonally, you can move the boat in that direction. When you release the joystick, it returns to the neutral (N) position.

TIP:

- The position of the joystick and the movement of the boat may not coincide, depending on the wind, the current, the boat's load, and the hull design. Turn the knob on the joystick to correct the direction of movement as needed.
- The joystick LED changes color in conjunction with the remote control lever LED.



Maneuvering with the joystick



A. Joystick operation
B. Boat direction

Joystick switch

Enabling the joystick switch allows you to operate the boat at low speeds when leaving or arriving at a dock.

How to operate

(1) While the electric propulsion motor is running, put the remote control levers and joystick in the neutral (N) position.

(2) Press the “JOYSTICK” switch.

(3) The LED lights and you can operate the joystick.

TIP:

- When the joystick is being used, the motor speed is restricted and the steering wheel is locked.
- By doing the settings on the MFD (Multi Function Display) while the joystick switch is enabled, you can press the plus (+) button/minus (-) button to increase or decrease the thrust level. For instructions on using the plus (+) button/minus (-) button, see page 81.

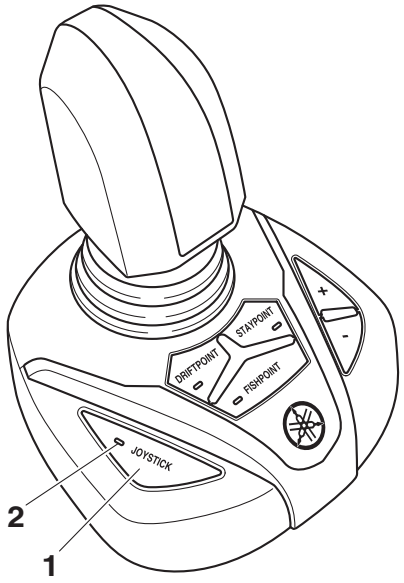
How to release

If you want to end the operation, do any of the following.

- Press the “JOYSTICK” switch. (LED goes out)
- Move the remote control levers to the forward (F) or reverse (R) position.
- Stop one or more electric propulsion motor.

TIP:

When the joystick mode is ended, the LED goes out and the steering wheel lock is released.



1. Joystick switch
2. LED

Joystick hold

When joystick hold enabled, you can tilt the joystick once in the forward direction or reverse direction to keep the heading in which you are cruising.

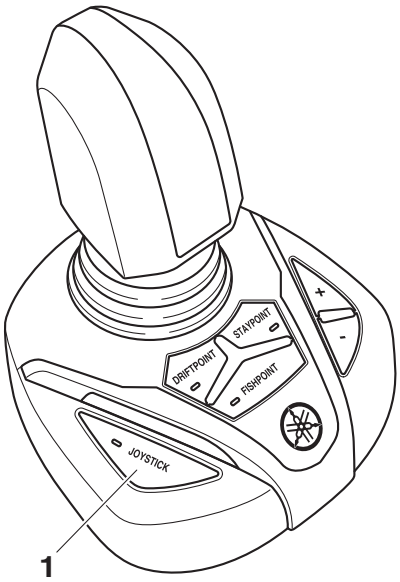
TIP:

By selecting “With Heading Hold” in the “Activation Option” of the CL5 Display beforehand, HEADING HOLD will also function at the same time as joystick hold.

How to operate

(1) While in joystick mode, put the joystick in the neutral (N) position.

(2) Long press the joystick switch.



1. JOYSTICK switch

(3) Tilt the joystick in the forward direction or reverse direction to gain some speed, then return the joystick to the neutral (N) position.

(4) The boat will continue to cruise in the direction you moved the joystick.

TIP:

While in joystick hold, the boat speed is maintained when the joystick is in the neutral (N) position. Also, while in joystick hold, you can turn the boat by twisting the joystick.

How to release

If you want to end the operation, do any of the following.

- Short press the joystick switch.
- Long tilt the joystick in the direction opposite to the direction of travel.

TIP:

While in joystick hold, do any of the following to release joystick mode.

- Operate the remote control lever.
- Steer the steering wheel.

Speed control while in joystick hold

- Increase motor RPM/boat speed: Tilt the joystick in the forward direction.
- Decrease motor RPM/boat speed: Tilt the joystick in the backward direction.

TIP:

A short push on the joystick will increase or decrease the motor RPM by a fixed amount. A long push on the joystick will change the motor RPM continuously. A long push on the joystick in the opposite direction will exit Joystick mode.

Electric propulsion motor speed adjustment function

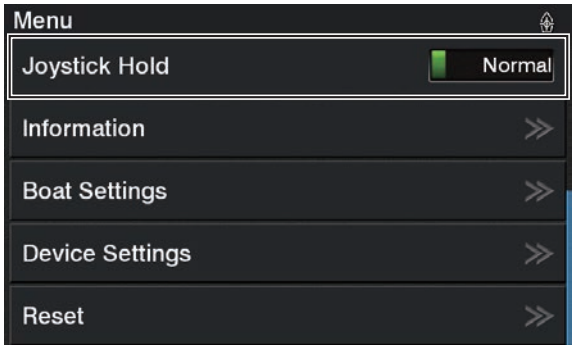
You can change how much the motor RPM changes when the joystick is short tilted.

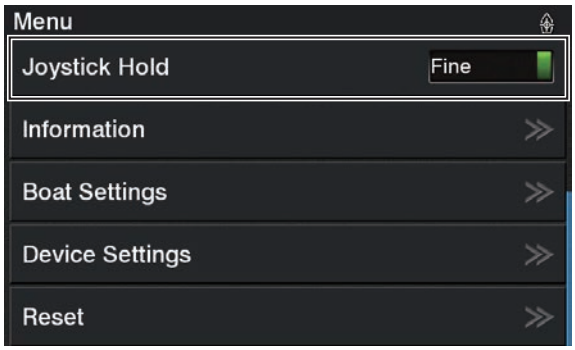
(1) Select “Normal” or “Fine” from “Joystick Hold” in “Menu”.

TIP:

The default setting is “Normal”.

- Normal : 50 r/min
- Fine : 10 r/min

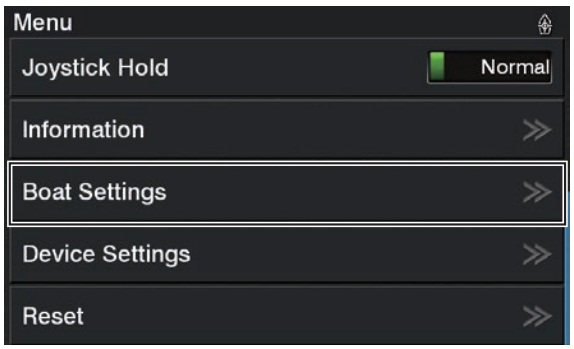




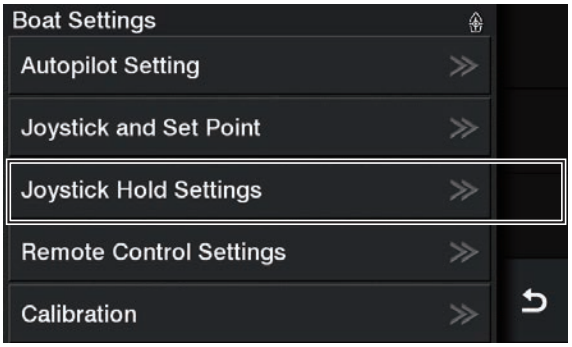
Changing the speed for hold target when in joystick hold

When cruising in joystick hold, you can select whether to maintain speed by motor speed or boat speed.

(1) From the “Menu”, select “Boat Settings”.



(2) Select the “Joystick Hold Settings”.

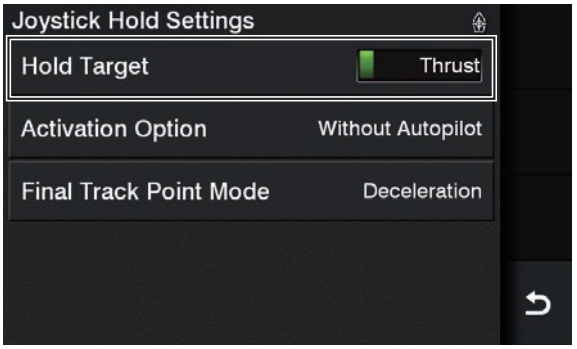


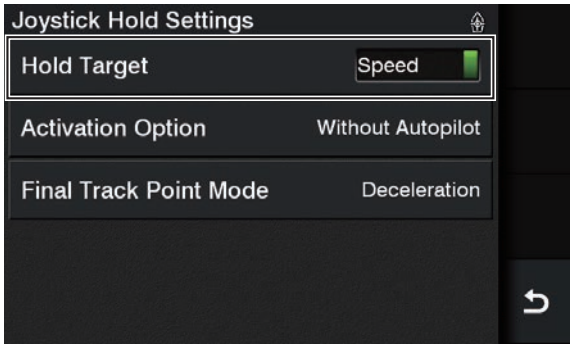
(3) Select “Thrust” or “Speed” from “Hold Target”.

TIP:

The default setting is “Thrust”.

- Thrust: Motor RPM
- Speed: Boat speed

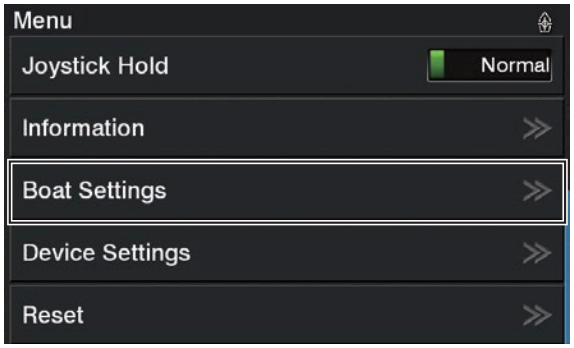




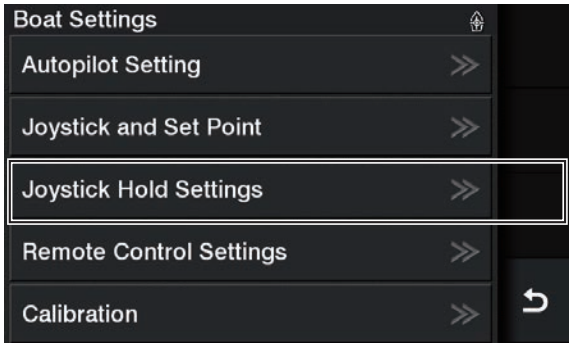
Selecting HEADING HOLD when in joystick hold

When heading hold is enabled, it can be linked to joystick hold at the same time.

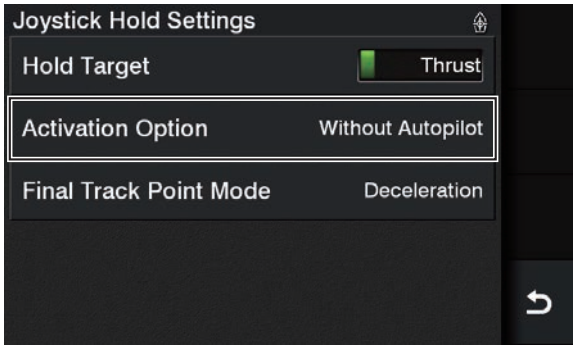
(1) From the “Menu”, select “Boat Settings”.



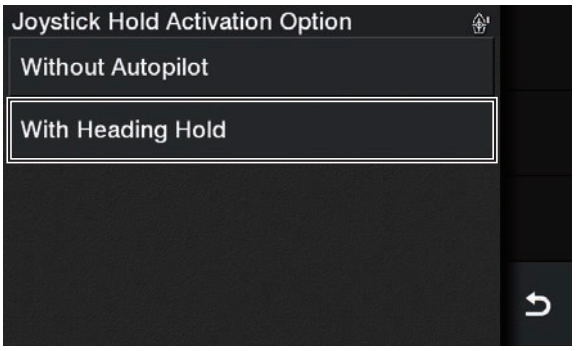
(2) Select the “Joystick Hold Settings”.



(3) Select the “Activation Option”.



(4) Select the “With Heading Hold”.



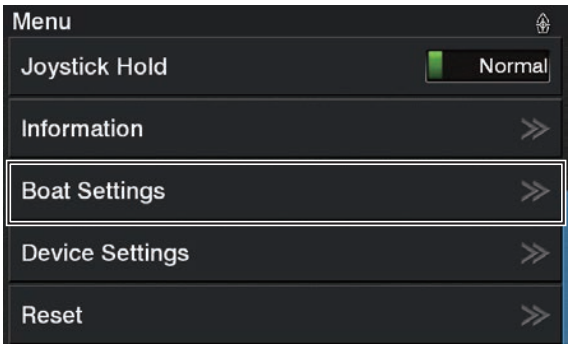
TIP:

- The default setting is “Without Autopilot”.
- Without Autopilot: Not linked to HEADING HOLD when in joystick mode
- With Heading Hold: Linked to HEADING HOLD when in joystick mode

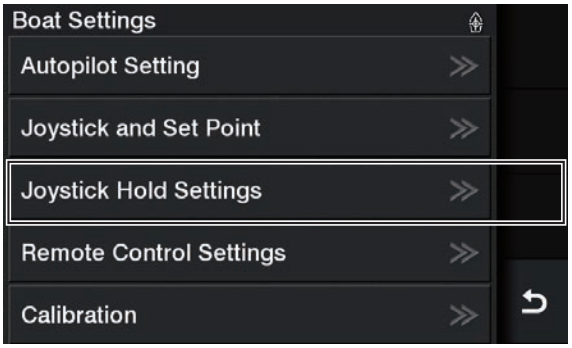
Selecting automatic deceleration when in Final Track Point Mode

You can select whether to decelerate before reaching the final destination.

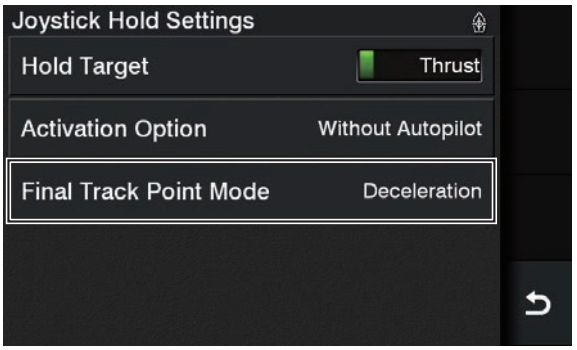
(1) From the “Menu”, select “Boat Settings”.



(2) Select the “Joystick Hold Settings”.



(3) Select the “Final Track Point Mode”.

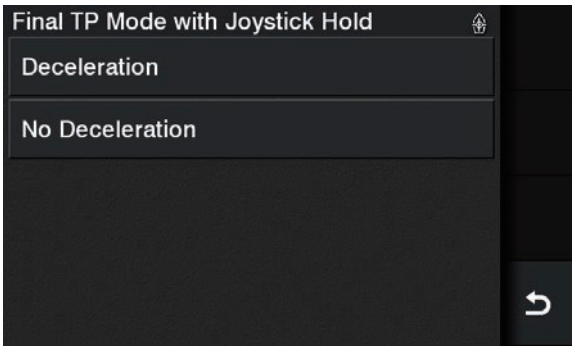


(4) Select the “Deceleration” or “No Deceleration”.

TIP:

The default setting is “Deceleration”.

- Deceleration: Decelerates
- No Deceleration: Does not decelerate



SetPoint switches (DRIFTPOINT/ FISHPOINT)

Enabling the various switches allows you to do the following operations.

- Enabling the DRIFTPOINT switch keeps only the boat’s heading, while the boat drifts with the wind and current.
- Enabling the DRIFTPOINT switch (Track), and by using both the route setting function and the DRIFT POINT function on the MFD (Multi Function Display), allows you to drift along a set route while keeping a heading. Pressing the DRIFTPOINT switch while in DRIFTPOINT TRACK mode, activates DRIFTPOINT mode.

TIP:

To use this function correctly, the boat’s heading must be perpendicular to, or at some angle to, the direction of the current. (So the boat drifts sideways.)

- FISHPOINT switch
  - Enabling the FISHPOINT switch (bow) keeps the bow heading into the wind or current.
  - Enabling the FISHPOINT switch (stern) keeps the stern heading into the wind or current.

TIP:

- You can switch between FishPoint Bow and Stern by using the setting on the MFD (Multi Function Display).
  CL5: Menu > Boat Set> Joystick and SetPoint > FishPoint Button
- While SetPoint is enabled, the two notification lights installed on both sides of the transom flash. The flashing lights notify people in the surrounding area that a SetPoint mode is enabled, to warn them not to enter the water. The prop lights' brightness is automatically adjusted according to the brightness of the surroundings.
- The SetPoint function is cancelled if the GPS antenna cannot receive a GPS signal. The SetPoint function is cancelled when the remote control lever or neutral-hold switch is operated.
- You may not be able to turn on the SetPoint switch if the boat is moving too fast.
- Straight sideways operation is not available with single-motor Digital electronic control (DEC) applications.
- In addition to not being able to receive the GPS signal, the signal could become unreliable if a large building is nearby that reflects the satellite signal so accurate information cannot be received.

How to operate

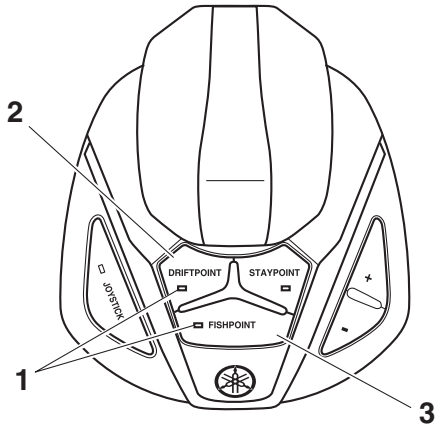
(1) While the electric propulsion motor is running, put the remote control levers and joystick in the neutral (N) position.

(2) Press the switch you want to select. (LED turns on)

How to release

If you want to end the operation, do any of the following.

- Press the switch you enabled. (LED turn off)
- Move the remote control levers to the forward (F) or reverse (R) position. (LED goes out)



1. LED
2. DRIFTPOINT switch
3. FISHPOINT switch

Plus (+) button/minus (-) button

While DRIFTPOINT, FISHPOINT or joystick switch is enabled, each time you press the plus (+) button the motor speed increases; each time you press the minus (-) button the motor speed decreases.

How to operate (when SetPoint is enabled)

(1) Enabling the DRIFTPOINT, FISHPOINT or the joystick switch allows you to adjust the maximum motor speed and to adjust the thrust level.

Adjustment level	Motor speed is low = 1 to 5 = Motor speed is high

How to operate (when joystick switch is enabled)

TIP:

You can use the MFD (Multi Function Display) to change the settings of default values.

• CL5/MFDI Type-1, Type-2: Menu > Boat Settings > Joystick and SetPoint > Joystick Thrust

(1) Press the plus (+) button/minus (-) button to adjust the thrust level.

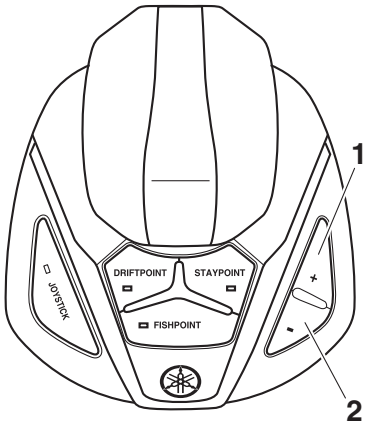
Adjustment level	Thrust level slower = 1 to 5 = Thrust level faster

How to release

If you want to end the operation, do any of the following.

• Press the switch you enabled.

• Move the remote control levers to the forward (F) or reverse (R) position.

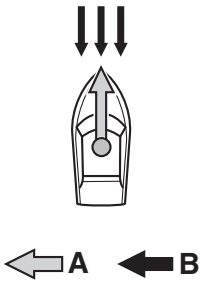
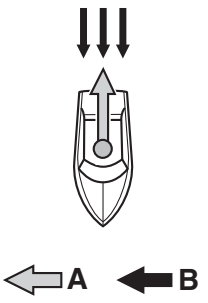
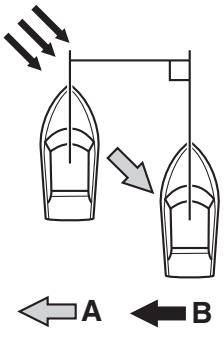


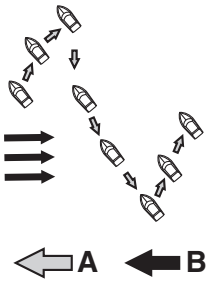
1. Plus (+) button
2. Minus (-) button

SetPoint functions

⚠ WARNING

- **While the SetPoint function is enabled, the electric propulsion motor is operated automatically, as needed, to maintain the boats position or heading. Do not enable this function when people are in the water, or if other boats or obstacles are nearby. There is a risk of collision with the propeller or boat, which are moving for adjustments. In addition, the operator should be prepared to steer at any time, in case the SetPoint function is released unexpectedly.**
- **There is a risk of serious injury or death if anyone in the water comes in contact with the rotating propeller or the moving boat. While the SetPoint function is operating, the propeller rotates and the boat moves automatically to maintain a fixed position. If anyone enters the water near the boat, immediately stop the electric propulsion motor and disable the SetPoint function.**

Mode	Maximum motor speed setting (Plus (+)/minus (-) buttons)	Wind and current direction, and maintained orientation	Remarks
FISHPOINT (Bow) Keeps the bow heading into the wind or current. This mode is suitable for fishing from a fixed point. Shifting and motor speed are restricted so the operating sounds do not scare away the fish.	Thrust level Lv1–5		The electric propulsion motor being controlled switches according to the thrust level.
FISHPOINT (Stern) Keeps the stern heading into the wind or current. This mode is suitable for fishing from a fixed point. Shifting and motor speed are restricted so the operating sounds do not scare away the fish.	Thrust level Lv1–5		The electric propulsion motor being controlled switches according to the thrust level.
DRIFTPOINT Keeps only the boat's heading, while the boat can drift diagonally with the wind and current.	Thrust level Lv1–5		The electric propulsion motor being controlled switches according to the thrust level.

Mode	Maximum motor speed setting (Plus (+)/minus (-) buttons)	Wind and current direction, and maintained orientation	Remarks
DRIFTPOINT TRACK Allows boat to drift along a set route while keeping a heading by using both the route setting function and the DRIFTPOINT function on the MFD (Multi Function Display).	Thrust level Lv1–5		• The electric propulsion motor being controlled switches according to the thrust level. • To use this function correctly, the boat's heading must be perpendicular to, or at some angle to, the direction of the current. (That is to say, so the boat drifts sideways.) • If this function goes past the final destination, it just goes into regular DRIFTPOINT at that point. Take care, because the boat may drift in some unintended direction. In addition, if the radius of a way point on the MFD (Multi Function Display) is small, the boat may not switch to the next way point, so you should constantly confirm the boat is following the route.

A. Boat direction
B. Current/wind

—: Does not operate

TIP:

- A popup message appears asking whether to return to the original position if the boat moves more than 23 m (75.4 ft) from the position fixed for FISHPOINT.
- A popup message appears if the boat cannot maintain the position fixed for FISHPOINT.

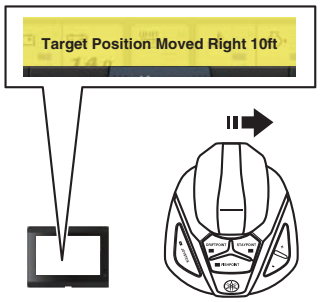
Changing the position of your boat in SetPoint mode

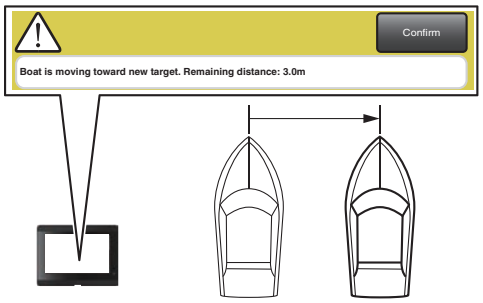
You can change your boat's heading or move its position while SetPoint mode is operating.
If you want to move the current position of your boat forward, reverse, left, or right tilt the joystick. To change the heading, twist the joystick. Operate the joystick to start moving or changing the heading, and then your boat will again maintain that new position or heading. You can operate the joystick up to 10 times successively in the same direction, and the boat will change heading or position according to the number of successive inputs.

TIP:

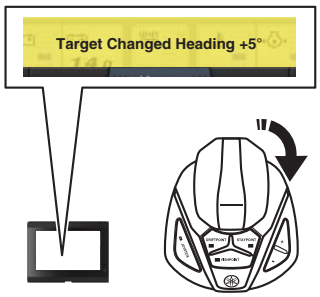
- You can push and hold your long press on the panel or long twist of the joystick to change to the required angle. You will hear one beep per each 5 degrees of change.
- For DRIFTPOINT TRACK only, tilting the joystick in the opposite direction does not cancel the operation.
- You can change the amount of adjustment for each operation by doing the settings on the MFD (Multi Function Display).

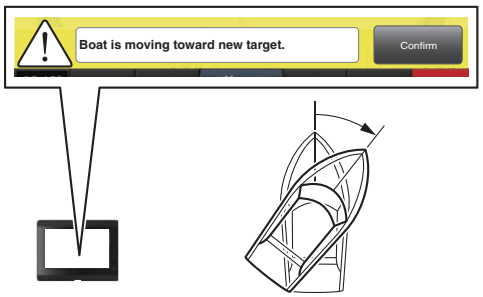
You can select a distance to move from 1.5 m, 3 m, or 6 m (5 ft, 10 ft, or 20 ft).
Displays the remaining distance to move. (CL5 Display only)





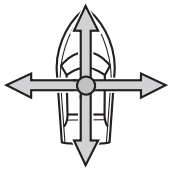
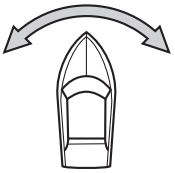
Rotating left or right: 5°/1 operation (50°/10 successive inputs)





- Each operation of the joystick is triggered when the joystick returns to the center position after twisting or tilting it toward the direction you want to change heading or move position.
- While SetPoint is enabled, the boat stops at the point where you move or change the boat's heading by moving the joystick. In addition, if you move the joystick in a direction different from the previous joystick operation, that movement is cancelled before the boat starts the new movement.
- To do successive inputs, each joystick operation must be done within three seconds. If the interval exceeds three seconds, successive input stops.

The orientation of the changes to the movement or heading of the boat vary depending on the mode of the SetPoint function.

FISHPOINT	DRIFTPOINT
	

Stopping boat

⚠ WARNING

Do not use the reverse function to slow down or stop the boat as it could cause you to lose control, be ejected, or impact the steering wheel or other parts of the boat. This could increase the risk of serious injury.

The boat is not equipped with a separate braking system. Water resistance stops the boat after the throttle lever is moved back to neutral (N). The stopping distance varies depending on gross weight, water surface conditions, and wind direction.

Tilting up and down

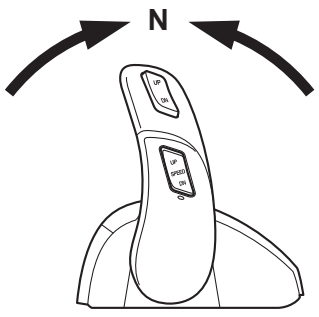
If the electric propulsion motor will be stopped for some time or if the boat is moored in shallows, the electric propulsion motor should be tilted up to protect the impeller and lower case from damage by collision with obstructions, and also to reduce salt corrosion.

⚠ WARNING

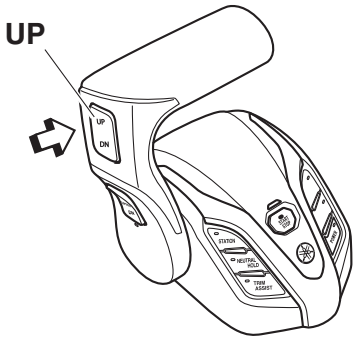
Make sure that all people are clear of the electric propulsion motor when tilting the electric propulsion motor up and down. Body parts can be crushed between the electric propulsion motor and the clamp bracket when the electric propulsion motor is tilted.

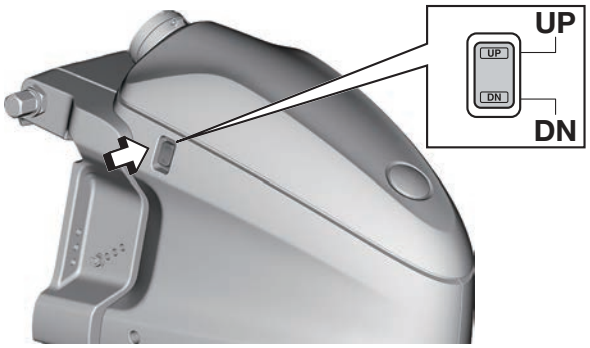
Procedure for tilting up

(1) Place the control lever in neutral (N).

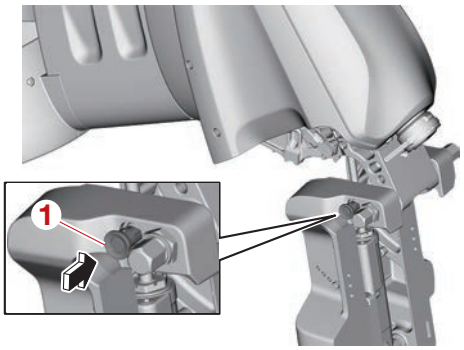


(2) Press the power tilt switch “UP” until the electric propulsion motor has tilted up completely.





(3) Push the tilt support knob into the bracket to support the electric propulsion motor. **WARNING! After tilting the electric propulsion motor, be sure to support it with the tilt support knob. Otherwise the electric propulsion motor could fall back down suddenly if oil in the power tilt unit or in the power tilt unit loses pressure. NOTICE: Do not use the tilt support knob when trailering the boat. The electric propulsion motor could shake loose from the tilt support and fall. If the electric propulsion motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.**

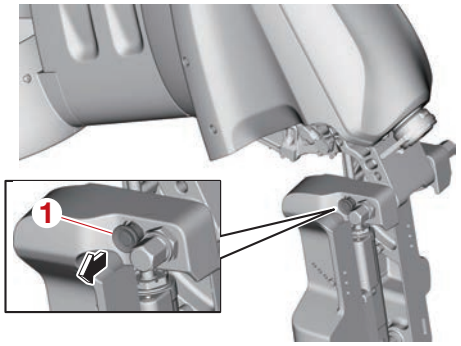


1. Tilt support knob

Procedure for tilting down

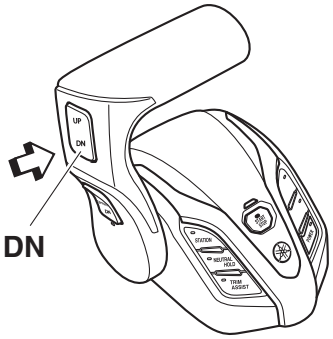
(1) Push the PT switch “UP” until the electric propulsion motor is supported by the tilt rod and the tilt support knob becomes free.

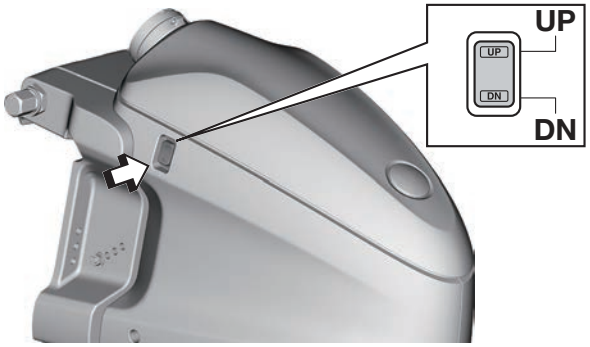
(2) Pull out the tilt support knob, and return it to the original position.



1. Tilt support knob

(3) Push the PT switch “DN” to lower the electric propulsion motor to the desired position.





PT TotalTilt™

This electric propulsion motor is equipped with an automatic PT tilt function. When this function is activated, you can tilt the electric propulsion motor up/down automatically without keeping the PT switch pushed.

TIP:

The PT TotalTilt function is available only when the electric propulsion motor is stopped.

Activating and deactivating the PT TotalTilt function

This function is deactivated by default. You can activate and deactivate it by yourself.

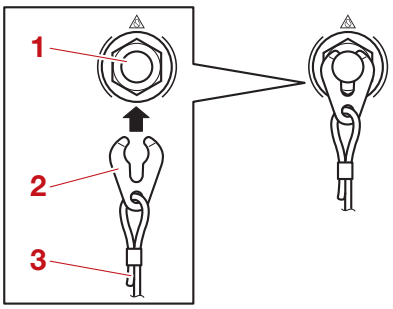
⚠ WARNING

Make sure that all people are clear of the electric propulsion motor when tilting the electric propulsion motor up and down. Body parts can be crushed between the electric propulsion motor and the clamp bracket when the electric propulsion motor is trimmed or tilted.

(1) Make sure that all the battery switches are turned on before operation.

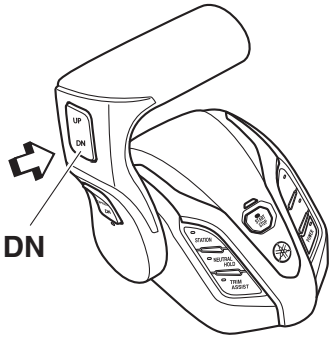
(2) Fully tilt the electric propulsion motor down.

(3) Remove the clip from the electric propulsion motor shut-off switch.



1. Electric propulsion motor shut-off switch
2. Clip
3. Electric motor shut-off cord (lanyard)

(4) Hold the “DN” side of the PT switch pushed.



(5) Operate the trim zero set while keeping the “DN” side of the PT switch pushed.



TIP:

- For how to operate the trim zero set, see the operation manual included with the gauge.
- When the PT TotalTilt function is activated, the buzzer will sound once.
- When the PT TotalTilt function is deactivated, the buzzer will sound twice.

Automatic tilt-up

⚠ WARNING

Make sure that all people are clear of the electric propulsion motor when tilting the electric propulsion motor up and down. Body parts can be crushed between the electric propulsion motor and the clamp bracket when the electric propulsion motor is trimmed or tilted.

(1) Make sure that the PT TotalTilt function is activated.

(2) Push the “UP” side of the PT switch twice quickly.

TIP:

- This operation causes the electric propulsion motor to automatically tilt up to the fully tilted-up position and stop.
- If the tilt limiter is installed, the auto tilt up operation causes the electric propulsion motor to automatically tilt up to the angle set by the tilt limiter and stop.
- The buzzer sounds before the automatic operation begins, and sounds intermittently during automatic tilting.
- Pushing the PT switch briefly during the automatic operation, stops the operation.

Automatic tilt-down

⚠ WARNING

Make sure that all people are clear of the electric propulsion motor when tilting the electric propulsion motor up and down. Body parts can be crushed between the electric propulsion motor and the clamp bracket when the electric propulsion motor is trimmed or tilted.

(1) Make sure that the PT TotalTilt function is activated.

(2) Push the “DN” side of the PT switch twice quickly.

TIP:

- This function causes the electric propulsion motor to automatically tilt down to the fully tilted-down position and stop.
- The buzzer sounds before the automatic operation begins, and sounds intermittently during automatic tilting.
- Pushing the PT switch briefly during the automatic operation, stops the operation.

If automatic tilting does not operate

In the following situations, the PT TotalTilt function is deactivated and does not operate. If you suspect a malfunction, consult your Yamaha dealer.

- The PT unit is stuck, or foreign matter is preventing the tilting operation.
- The buzzer is malfunctioning.
- The tilt sensor is malfunctioning.

Cruising in shallow water

Take care of the following when navigating shallow water.

- In places where the bottom of the water may be sandy, slow down and navigate carefully to avoid running aground.
- When navigating in shallow water where the distance between the bottom edge of the electric propulsion motor and the bottom of the water is less than 100 cm (3.3 ft), there is a risk of decreased propulsion force due to wear or damage to the impeller, or the propulsion unit may get damaged due to running aground.

Operating in other conditions

Operating in salt water

After operating in saltwater, brackish water, or water high in other minerals, rinse the exterior of the electric propulsion motor with fresh water.

Operating in water containing mud, sand, silt, debris, or vegetation

Rinse the electric propulsion motor with fresh water after cruising in areas where mud, sand, silt, and vegetation are present in the water.

Maintenance

Transporting and storing electric propulsion motor

⚠ WARNING

- **Never get under the electric propulsion motor while it is tilted. Severe injury could occur if the electric propulsion motor accidentally falls.**
- **Do not use the tilt support knob when trailering the boat. The electric propulsion motor could shake loose from the tilt support and fall. If the electric propulsion motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.**

The electric propulsion motor should be transported and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the electric propulsion motor in the tilt position using a electric propulsion motor support device such as a transom saver bar. Consult your Yamaha dealer for further details.

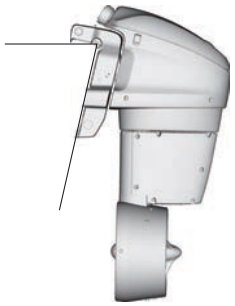
Storing electric propulsion motor

When storing your Yamaha electric propulsion motor for prolonged periods of time (2 months or longer), several important procedures must be performed to prevent excessive damage. It is advisable to have your electric propulsion motor serviced by an authorized Yamaha dealer prior to storage.

NOTICE

Store the electric propulsion motor in a dry, well-ventilated place, not in direct sunlight.

Keep the electric propulsion motor in the attitude shown when transporting and storing it.



Lubrication

Lubricate all grease fittings. For details, consult your Yamaha dealer.

TIP:

For long-term storage, fogging the electric propulsion motor with fogging oil is recommended. Contact your Yamaha dealer for information about fogging oil and procedures for your electric propulsion motor.

Cleaning and anticorrosion measures

(1) Wash down the exterior of the electric propulsion motor with fresh water and dry off completely.
(2) Spray the electric propulsion motor exterior with “Yamaha Silicone Protectant”.

NOTICE

Do not spray when the electric propulsion motor is running. Otherwise the electric propulsion motor could be damaged.

(3) Wax the cowling with a non-abrasive wax such as “Yamalube Professional Polish”.

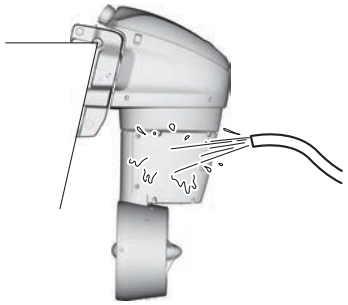
Cleaning the electric propulsion motor

When cleaning the electric propulsion motor, the top cowling must be installed.

⚠ WARNING

To prevent electric shock, turn off all battery switches and the power to the electric propulsion motor before rinsing.

(1) Wash the exterior of the electric propulsion motor using fresh water.



(2) Clean the electric propulsion motor thoroughly.

Checking painted surface of electric propulsion motor

Check the electric propulsion motor for scratches, nicks, or flaking paint. Areas with damaged paint are more likely to corrode. For details, consult your Yamaha dealer.

Periodic maintenance

⚠ WARNING

These procedures require mechanical skills, tools, and supplies. If you do not have the proper skills, tools, or supplies to perform a maintenance procedure, have a Yamaha dealer or other qualified mechanic do the work.

The procedures involve disassembling the electric propulsion motor and exposing dangerous parts. To reduce the risk of injury from moving, hot, or electrical parts:

- **Turn off the electric propulsion motor and keep the key(s) and electric motor shut-off cord (lanyard) with you when you perform maintenance unless otherwise specified.**
- **Keep people away from the switches whenever working around the electric propulsion motor. When the electric propulsion motor is tilted, keep away from the area under it or between it and the clamp bracket. Be sure no one is in this area before operating the power tilt mechanism.**
- **Always completely reassemble the electric propulsion motor before operation.**

Replacement parts

If replacement parts are necessary, use only genuine Yamaha parts or parts of equivalent design and quality. Any part of inferior quality may malfunction, and the resulting loss of control could endanger the operator and passengers. Yamaha genuine parts and accessories are available from your Yamaha dealer.

Outline

- To obtain long product life, Yamaha strongly recommends that the specified periodic checks and maintenance be performed according to the maintenance interval charts.
- If replacement parts are necessary, use only genuine Yamaha parts of equivalent design and quality. Any parts of inferior quality may cause a malfunction, and the resulting loss of control could endanger the operator and passengers. Yamaha genuine parts and accessories are available from Yamaha dealers.
- The maintenance cycle on these charts is based on usage of 200 hours per year.
- Disassembly or repairs may be necessary depending on the outcome of maintenance checks.
- Expendable or consumable parts and lubricants will lose their effectiveness over time and through normal usage regardless of the warranty period.
- When operating the electric propulsion unit in salt water, or in muddy, turbid (cloudy), or acidic water, flush the electric propulsion unit using clean water after each use.

Maintenance interval chart

The "●" symbol indicates the check-ups which the owners or operators may carry out themselves.
The "○" symbol indicates work to be carried out by a Yamaha dealer.

Item	Actions	Initial	Every			Page
		10 hours (1 month)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)	
Lowest speed/noise	Inspection	●/○	●/○	●/○	●/○	—
Impeller	Inspection	●/○	●/○	●/○	●/○	94
Impeller nut	Inspection	○	○	○	○	—
Control battery (12 V) (electrolyte level, terminal)	Inspection	●/○	●/○	●/○	●/○	94
Control battery (12 V) terminal	Inspection	●/○	●/○	●/○	●/○	94
Control battery (12 V) (voltage, state of charge)	Inspection or charging as necessary	●/○ Before operation				—
Drive battery (48 V) (electrolyte level, terminal)	Inspection	●/○	●/○	●/○	●/○	—
Drive battery (48 V) terminal	Inspection	●/○	●/○	●/○	●/○	—
Drive battery (48 V) (voltage, state of charge)	Inspection or charging as necessary	●/○ Before and after operation				—
"START/STOP" switch/ electric motor shut-off switch	Inspection or replacement as necessary	○	○	○	○	—
Wire harness connections/wire coupler connections	Inspection or replacement as necessary	○	○	○	○	94
Anode	Inspection or replacement as necessary	●/○	●/○	●/○	●/○	94
Throttle	Inspection	○	○	○	○	—
Display	Inspection	○	○	○	○	—
Power tilt unit	Inspection	●/○	●/○	●/○	●/○	86
Greasing points	Greasing	○	○	○	○	—

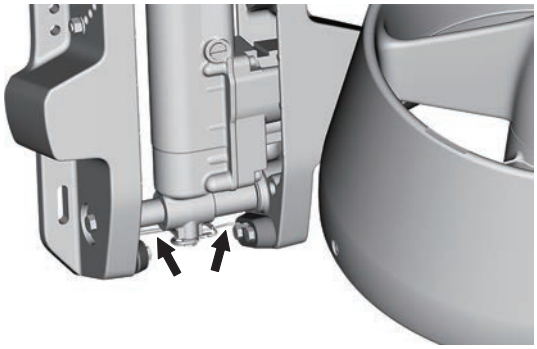
Item	Actions	Initial	Every			Page
		10 hours (1 month)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)	
SBW (Steer-bywire)	Inspection				○	—
Steering	Inspection	○	○	○	○	—
Joystick	Inspection	○	○	○	○	—

Inspecting wiring and connectors

- Inspect that each connector is engaged securely.
- Inspect that each ground lead is properly secured.

TIP:

The electric propulsion motor must be tilted up to check the ground lead. For the tilt-up procedure, see page 86.



Inspecting impeller

⚠ WARNING

You could be seriously injured if the electric propulsion motor accidentally starts when you are near the impeller. Before inspecting the impeller, move the control lever to the neutral position, remove the key, and remove the clip from the electric propulsion motor shut-off switch. Turn off the battery switches for both the drive batteries (48 V) and the control battery (12 V).

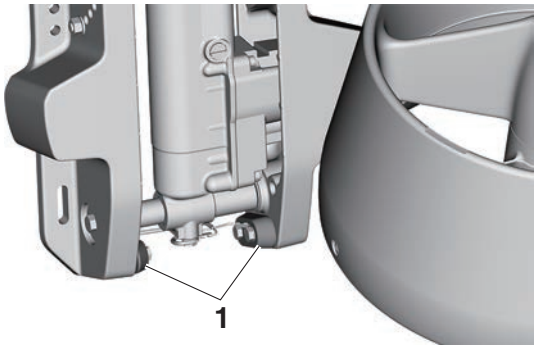
When inspecting the impeller, do not handle the impeller with bare hands. Inspect the impeller for any foreign matter, and remove any foreign matter you find.

Inspecting and replacing anode(s)

Yamaha electric propulsion motor are protected from corrosion by sacrificial anodes. Inspect the external anodes periodically. Remove scales from the surfaces of the anodes. Consult a Yamaha dealer for replacement of external anodes.

NOTICE

Do not paint anodes, as this would render them ineffective.



1. Anode

TIP:

Inspect ground leads attached to external anodes on equipped models.

Consult a Yamaha dealer for inspection and replacement of internal anodes attached to the power unit.

The electric propulsion motor must be tilted up to check the anode. For the tilt-up procedure, see page 86.

Checking the control battery (12 V)

⚠ WARNING

Battery electrolyte is poisonous and caustic, and batteries generate explosive hydrogen gas. When working near the battery:

- **Wear protective eye gear and rubber gloves.**
- **Do not smoke or bring any other source of ignition near the battery.**

Perform inspection work on the control battery (12 V) required to operate equipment such as the CL5 Display and Digital Electronic Control (DEC).

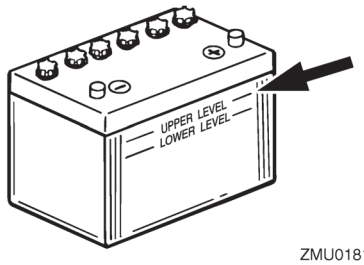
The battery inspection procedure varies depending on the battery. This manual shows a general inspection method, however, be sure to refer to the battery's user manual.

Have your Yamaha dealer perform the drive batteries (48 V).

NOTICE

A poorly maintained battery will quickly deteriorate.

(1) Check the electrolyte level.



ZMU01810

(2) Check the battery's charge. If your boat is equipped with the digital speedometer, the voltmeter and low battery alert functions will help you monitor the battery's charge. If the battery needs charging, consult your Yamaha dealer.

(3) Check the battery connections. They should be clean, secure, and covered by an insulating cover. **WARNING! Bad connections can produce shorting or arcing and cause an explosion.**

Connecting the control battery (12 V)

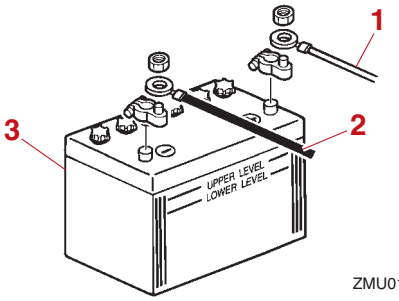
⚠ WARNING

Mount the battery holder securely in a dry, well-ventilated, vibration-free location in the boat. Install a fully charged battery in the holder.

NOTICE

Do not reverse the battery cables. Otherwise, the electri-cal parts could be damaged.

(1) Connect the red battery cable to the POSITIVE (+) terminal first. Then connect the black battery cable to the NEGATIVE (-) terminal.



ZMU01811

1. Red cable
2. Black cable
3. Battery

(2) The electrical contacts of the battery and cables must be clean and properly connected.

Disconnecting the control battery (12 V)

(1) Turn off the battery switch. **NOTICE: If they are left on, the electrical system can be damaged.**

(2) Disconnect the negative cable(s) from the negative (-) terminal. **NOTICE: Always disconnect all negative (-) cables first to avoid a short circuit and damage to the electrical system.**

(3) Disconnect the positive cable(s) and remove the battery from the boat.

(4) Clean, maintain, and store the battery according to the manufacturer's instructions.

Storing the control battery (12 V)

When storing your Yamaha electric propulsion motor for prolonged periods of time (2 months or longer), remove the control battery (12 V) and store it in a cool, dry place. Check the battery and charge it if necessary.

Trouble Recovery

Troubleshooting

This section describes the likely causes and remedies for problems, such as those in the fuel, compression, and ignition systems, poor starting, and loss of power. Please note that all of the items in this section may not apply to your model.
If your electric propulsion motor requires repair, bring it to a Yamaha dealer.
If the electric propulsion motor trouble-alert indicator is blinking, consult your Yamaha dealer.

Trouble	**The electric propulsion motor will not start.**	
Item	**Question**	**Answer**
Digital Electronic Control (DEC) alert indicator	Does the Digital Electronic Control (DEC) alert indicator come on in orange?	Have serviced by a Yamaha dealer.
Remote control lever	Is control lever in gear?	Shift to neutral (N).
Drive batteries (48 V)	Is battery capacity low or weak?	Have serviced by a Yamaha dealer.
	Are battery connections corroded or loose?	
Electric motor shut-off cord (lanyard)	Is clip on electric motor shut-off cord (lanyard) installed?	Install clip to electric propulsion motor shut-off switch.
Ignition parts	Are ignition parts malfunctioning?	Have an inspection by a Yamaha dealer.
Ignition wiring	Is ignition wiring damaged or poorly connected?	Have an inspection by a Yamaha dealer.

Trouble	**Rotation of the impeller is unstable or has stopped.**	
Item	**Question**	**Answer**
Ignition parts	Are ignition parts malfunctioning?	Have an inspection by a Yamaha dealer.
Alert system	Has alert system activated?	Have an inspection by a Yamaha dealer.
Drive batteries (48 V)	Is battery cable disconnected?	Have an inspection by a Yamaha dealer.

Trouble	Electric propulsion motor power loss.	
Item	**Question**	**Answer**
Impeller	Is impeller damaged?	Have impeller repaired or replaced.
Mounting height	Is electric propulsion motor mounted at incorrect height on transom?	Have electric propulsion motor adjusted to proper transom height.
Alert system	Has alert system activated?	Find and correct cause of alert.
Boat bottom	Is boat bottom fouled with marine growth?	Clean boat bottom.
Body	Are weeds or other foreign material tangled on body?	Remove foreign material and clean body.
	Is the body hot?	After ensuring safety, stop operation for a suitable period of time for the temperature inside the body to lower.
Ignition wiring	Is the wiring for the drive batteries (48 V) damaged or poorly connected?	Have an inspection by a Yamaha dealer.
Electrical parts	Are electrical parts malfunctioning?	Have an inspection by a Yamaha dealer.
Remote control lever	Is electric propulsion motor not responding properly to remote control lever position?	Have an inspection by a Yamaha dealer.
Neutral hold switch	Is the neutral hold switch on?	Turn off the neutral hold switch.

Trouble	Electric propulsion motor vibrates excessively.	
Item	**Question**	**Answer**
Impeller	Is impeller damaged?	Have an inspection by a Yamaha dealer.
	Are weeds or other foreign material tangled on impeller?	Remove and clean impeller.
Electric propulsion motor mounting	Are electric propulsion motor mounting bolts loose?	Have an inspection by a Yamaha dealer.
Steering pivot	Is steering pivot loose or damaged?	Have an inspection by a Yamaha dealer.

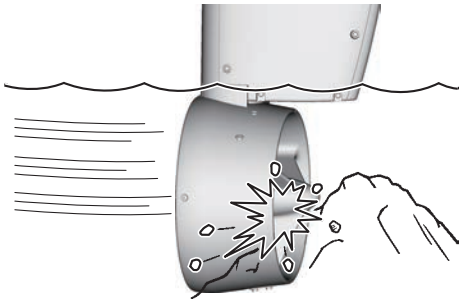
Temporary action in emergency

Impact damage

⚠ WARNING

The electric propulsion motor can be seriously damaged by a collision while operating or trailering. Damage could make the electric propulsion motor unsafe to operate.

If the electric propulsion motor hits an object in the water, follow the procedure below.



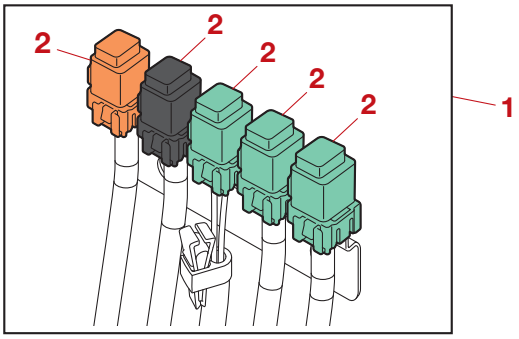
(1) Stop the electric propulsion motor immediately.
(2) Check the control system and all components for damage. Also, check the boat for damage.
(3) Whether damage is found or not, return to the nearest harbor slowly and carefully.
(4) Have a Yamaha dealer check the electric propulsion motor before operating it again.

Replacing fuse

⚠ WARNING

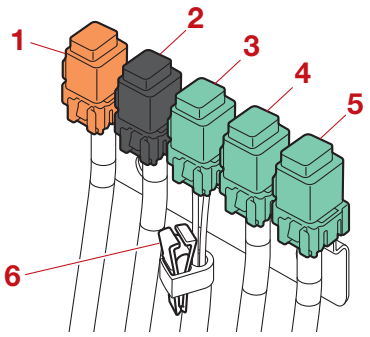
- **Substituting an incorrect fuse or a piece of wire could allow excessive current flow. This could cause electric system damage and a fire hazard.**
- **Replace fuses for the control battery (12 V) only with the replaceable fuses described in this manual. Do not replace with any fuses other than those described in this manual because there is a risk of electric shock.**

The location of the fuse box for this model is shown in the wire harness assembly.



1. Wire harness assembly
2. Fuse box

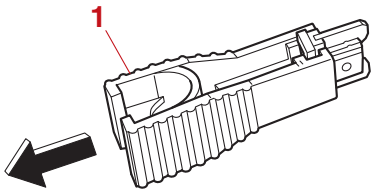
This model is equipped with the following fuses.



1. MCU fuse (5 A) / Spare fuse (5 A)
2. PT switch/RC-ECU fuse (15 A) / Spare fuse (15 A)
3. Power steering actuator fuse (30 A) / Spare fuse (30 A)
4. DC/DC converter fuse (30 A) / Spare fuse (30 A)
5. 12V main fuse (30 A) / Spare fuse (30 A)
6. Fuse puller

If a fuse has blown, replace the fuse according to the following procedure.

(1) Turn off all of the battery switches.
(2) Remove the fuse box cap and use a fuse puller to remove the fuses.
(3) Install the appropriate amperage fuse and replace the fuse box cap.



1. Fuse puller

Consult your Yamaha dealer if the new fuse immediately blows again.

Treatment of submerged motor

If the electric propulsion motor is submerged, immediately take it to a Yamaha dealer. Otherwise some corrosion may begin almost immediately. **NOTICE: Do not attempt to run the electric propulsion motor until it has been completely inspected.**

Product information

Information required by radio laws

1. USA (FCC), Canada (ISED)

FCC CAUTION
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC/ISED
This device complies with part 15 of FCC Rules and Innovation, Science and Economic Development
Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit
pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2. EC RE Directive

[EN] English	Hereby, Garmin, declares that this product is in compliance with the essential requirements and other relevant provisions of the Directive 2014/30/EU. To view the full Declaration of the Comformity, go to [https://support.garmin.com/support/manuals/manuals.htm?partNo=010-DECNF-00].

3. UK

[EN] English	Hereby, Garmin, declares that this product is in compliance with the relevant statutory requirements. To view the full Declaration of the Comformity, go to [https://support.garmin.com/support/manuals/manuals.htm?partNo=010-DECNF-00].

For your best ownership experience, think **Genuine Yamaha!**

Genuine Yamaha Parts — Genuine Yamaha replacement parts are the exact same parts as the ones originally equipped on your vehicle, providing you with the performance and durability you have come to expect. Why settle for aftermarket parts that may not provide full confidence and satisfaction?

Genuine Yamaha Accessories — Yamaha only offers accessories that meet our high standards for quality and performance. Buy with confidence, knowing your Genuine Yamaha Accessories will fit right and perform right — right out of the box.

Yamalube — Take care of your Yamaha with legendary Yamalube oils, lubricants, and care products. They're formulated and approved by the toughest judges we know: the Yamaha engineering teams that know your Yamaha from the inside out.

Genuine Yamaha Service Manuals — Get the same factory manual for your vehicle that the technicians at your authorized Yamaha dealer use. Service manuals are available through your Yamaha dealer or you can order them directly through yamahapubs.com (USA only).

Genuine Yamaha products are available only from your Yamaha dealer.

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