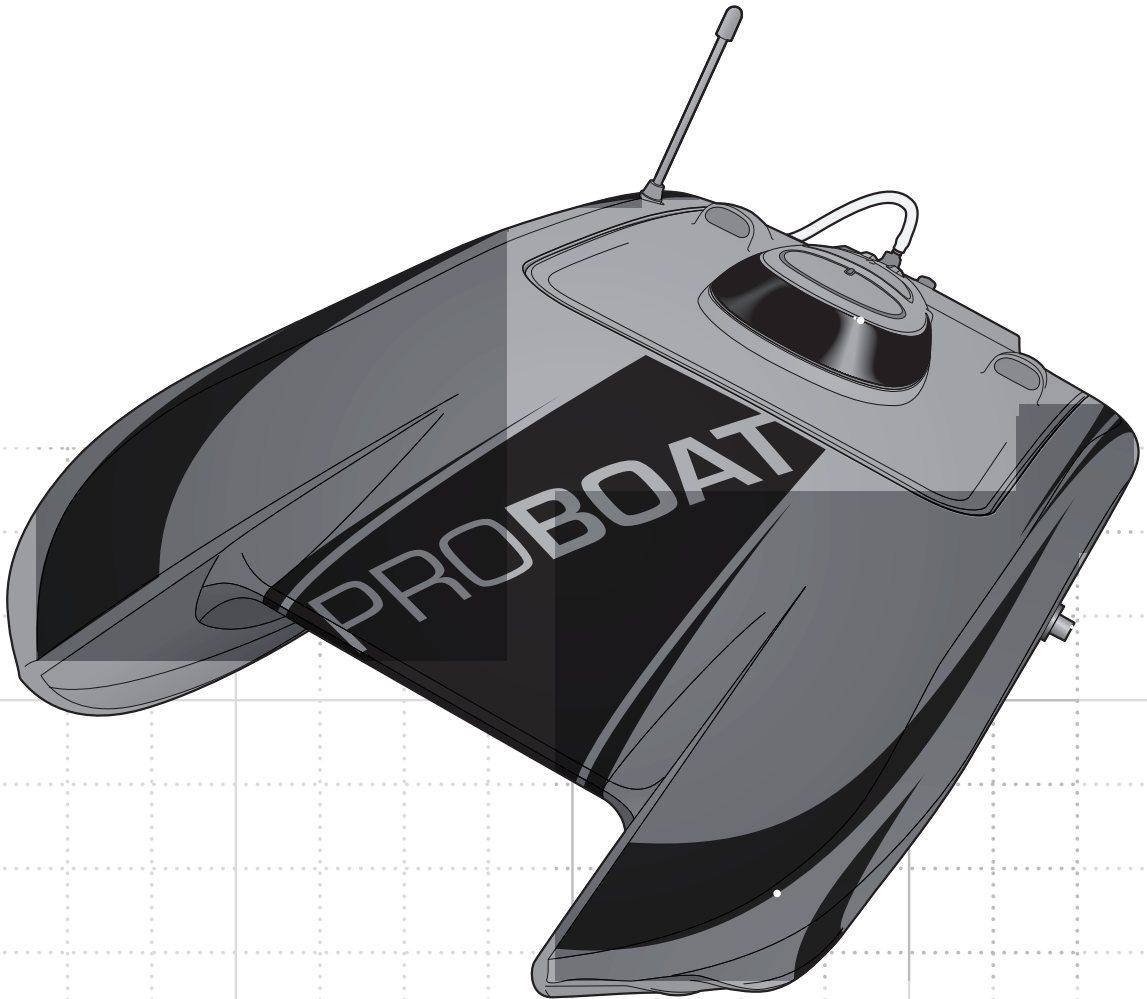


Blackjack™ 24

24-INCH BRUSHLESS RTR CATAMARAN

PRB08007

**Owners Manual • Bedienungsanleitung
Manuel de l'utilisateur • Manuale dell'utente**



Batteries and charger sold separately



NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit <http://www.horizonhobby.com> and click on the support tab for this product.


Meaning of Special Language

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND little or no possibility of injury.

 **WARNING:** Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not use with incompatible components or alter this product in any way outside of the instructions provided by Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

 **WARNING AGAINST COUNTERFEIT PRODUCTS:** Always purchase from a Horizon Hobby, LLC authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, LLC disclaims all support and warranty with regards, but not limited to, compatibility and performance of counterfeit products or products claiming compatibility with DSM or Spektrum technology.

Age Recommendation: Not for children under 14 years. This is not a toy.

Safety Precautions and Warnings

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

- When handling and/or transporting your boat, always pick up the boat from the front, keeping all moving parts pointed away from you.
- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to unprotected electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Never operate your model with low transmitter batteries.

Table of Contents

Water-Resistant Boat with Waterproof Electronics	3	Throttle Range Calibration.....	10
General Precautions	3	Binding	10
Wet Conditions Maintenance	3	Failsafe.....	10
Product Inspection.....	4	Motor Care	10
Box Contents.....	4	Water Cooling System	11
Recommended Tools and Materials	4	Rudder Service.....	11
Battery and Battery Charger	4	Propeller Service.....	11
Transmitter Controls.....	5	Prop Angle Adjustment.....	11
Installing Transmitter Batteries.....	5	Drivetrain Lubrication	12
Antenna Tube Installation.....	6	ESC Programming	12
Installing the Battery Pack.....	6	Troubleshooting Guide	13
Low Voltage Cutoff (LVC).....	7	Limited Warranty.....	14
Battery Chemistry	7	Warranty and Service Contact Information.....	15
Getting Started.....	7	FCC and IC Information.....	15
Control Check.....	8	EU Compliance Statement.....	15
Testing Your Boat in the Water.....	8	Instructions for Disposal of WEEE.....	15
Boating Tips.....	9	Replacement Parts.....	58
When You Are Finished	9	Optional Parts	58
After Boating Maintenance.....	10		

Water-Resistant Boat with Waterproof Electronics

Your new Horizon Hobby boat has been designed and built with a combination of waterproof and water-resistant components to allow you to operate the product in calm, fresh water conditions.

While the entire boat is highly water-resistant, it is not completely waterproof and your boat should NOT be treated like a submarine. The various electronic components used in the boat, such as the Electronic Speed Control (ESC), servo(s) and receiver are waterproof, however, most of the mechanical components are water-resistant and require additional maintenance after use.

Metal parts, including the bearings, pins, screws and nuts, propeller, rudder, rudder mounts, prop struts, as well as the contacts in the electrical cables, will be susceptible to corrosion if additional maintenance is not performed after running in wet conditions. To maximize the long-term performance of your boat and to keep the warranty intact, the procedures described in the "Wet Conditions Maintenance" section below must be performed regularly.



CAUTION: Failure to exercise caution while using this product and complying with the following precautions could result in product malfunction and/or void the warranty.

General Precautions

- Read through the wet conditions maintenance procedures and make sure that you have all the tools you will need to properly maintain your boat.
- Not all batteries can be used in wet conditions. Consult the battery manufacturer before use. Caution should be taken when using Li-Po batteries in wet conditions.
- Most transmitters are not water-resistant. Consult your transmitter's manual or the manufacturer before operation.
- Never operate your transmitter or boat where lightning may be present.
- Salt water is very conductive and highly corrosive. If you choose to run your boat in salt water, immediately rinse the boat in fresh water after every use. Operating your boat in salt water is at the sole discretion of the modeler.
- Even minimal water contact can reduce the life of your motor if it has not been certified as water-resistant or waterproof. If the motor becomes excessively wet, apply very light throttle until the water is mostly removed from the motor. Running a wet motor at high speeds may rapidly damage the motor.
- Driving in wet conditions can reduce the life of the motor. The additional resistance of operating in water causes excess strain.

Wet Conditions Maintenance

- Drain any water that has collected in the hull by removing the drain plug or canopy and tilting the boat in the appropriate direction to drain the water.



CAUTION: Always keep hands, fingers, tools and any loose or hanging objects away from rotating parts.

- Remove the battery pack(s) and disconnect the ESC and motor. Dry the contacts. If you have an air compressor or a can of compressed air, blow out any water that may be inside the recessed connector housings.
- Remove the flex shaft and all moving parts. Dry and lubricate parts after every 30 minutes of operation or if the boat becomes submerged.

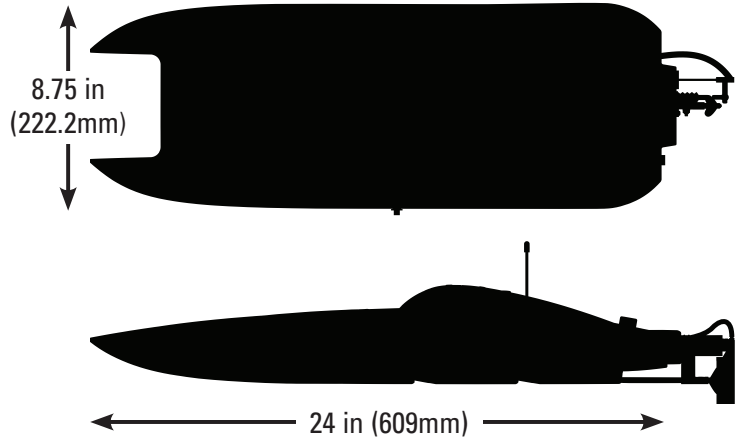


NOTICE: Never use a pressure washer to clean your boat.

- Use an air compressor or a can of compressed air to dry the boat and help remove any water that may have gotten into small crevices or corners.
- Spray the bearings, fasteners and other metal parts with a water-displacing light oil or lubricant. Do not spray the motor.
- Let the boat air dry before you store it. Water (and oil) may continue to drip for a few hours.

Product Inspection

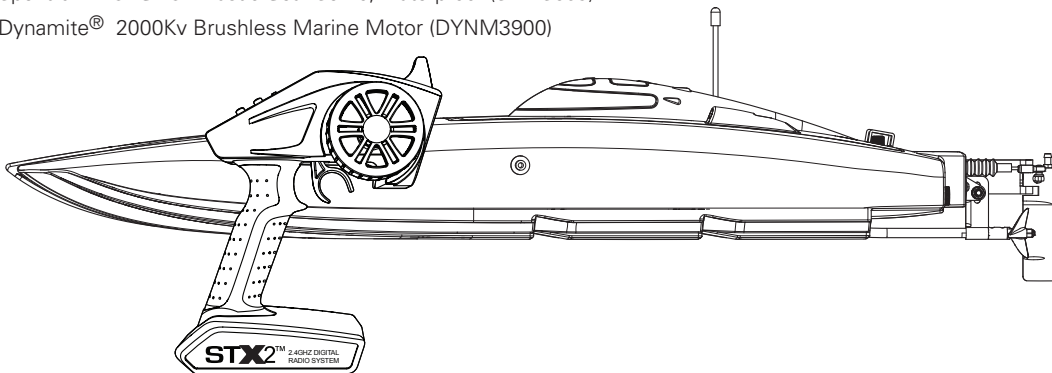
Carefully remove the boat and radio transmitter from the box. Inspect the boat for damage. If you find damage is present, please contact the retailer where you purchased your boat.



Box Contents

- Pro Boat® Blackjack™ 24 Inch Brushless Catamaran
- Spektrum™ STX2® 2CH 2.4GHz FHSS Transmitter (SPMSTX200)
- Spektrum™ STX2® 2CH 2.4GHz FHSS Receiver (SPMSRX200)
- Dynamite® 30A Brushless 23S Marine ESC (DYNM3860)
- Spektrum™ 3KG 23T Plastic Gear Servo, Waterproof (SPMS603)
- Dynamite® 2000Kv Brushless Marine Motor (DYNM3900)

A battery (**sold separately**) is required to operate the boat. The ESC will operate with 2–3 Cell (7.4V–11.1V) Li-Po or 6–9 Cell (7.2V–10.8V) Ni-MH/Ni-Cd batteries.



Recommended Tools and Materials

- Needle nose pliers
- Paper towel
- Rubbing alcohol
- Open-end wrench: 10mm (2)
- Nut driver: 4mm, 5.5mm, 7mm (DYNT0502)
- Phillips screwdriver: #1
- Hex wrench: 1.5mm, 2mm, 2.5mm, 3mm (DYNT0502)
- Clear tape (DYNM0102)
- Marine Grease and Gun (DYNE4200)
- Hook and Loop Tape Set, WP 4pcs (DYNK0300)

Battery and Battery Charger

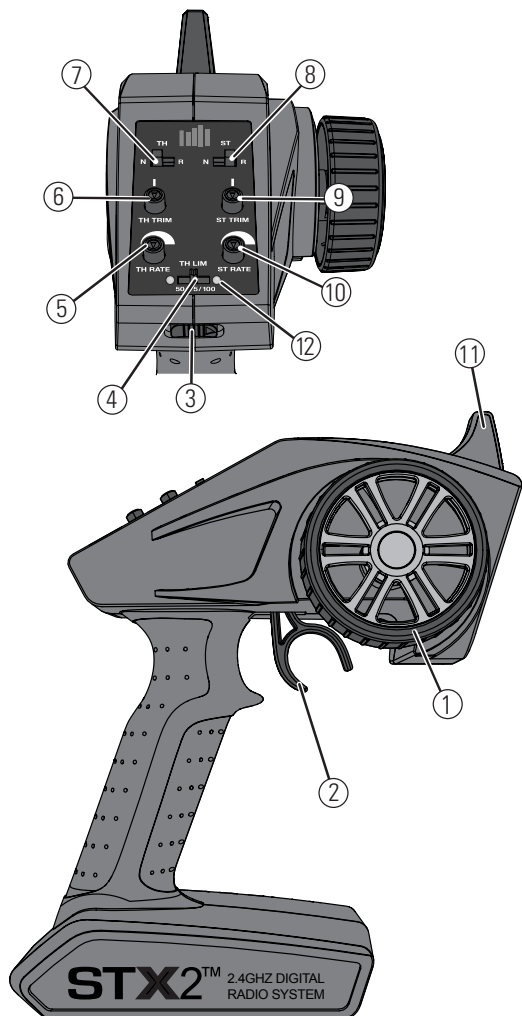
This product does not come with a battery. We recommend the Dynamite® Reaction® 7.4V 5000mAh 2S 30C LiPo Hardcase with EC3™ connectors.

This product does not come with a charger. Choose a charger designed to charge the recommended battery. We recommend either the Dynamite® Prophet™

Sport LiPo 35W AC Charger (DYN200CA) or the Dynamite® Prophet™ Sport Plus 50W AC/DC Charger (DYN2010CA). Refer to your charger manual for charging instructions and safety information.

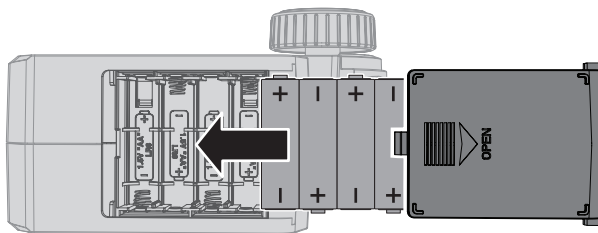
NOTICE: Never charge a battery in the boat or damage may result.

Transmitter Controls



1. **Steering Wheel** Controls direction (left/right) of the model
2. **Throttle Trigger** Controls speed and direction (forward/brake/reverse) of the model
3. **ON/OFF Switch** Turns the power ON/OFF
4. **Throttle Limiting Switch** Adjusts the throttle limit from 50%, 75%, and 100%
5. **TH Rate** Adjusts the end point of the throttle
6. **TH Trim** Adjusts the throttle neutral point
7. **TH REV** Reverses the function of the speed control when pulled back or pushed forward
8. **ST REV** Reverses the function of the steering when the wheel is turned left or right
9. **ST Trim** Adjusts the steering center point
10. **ST Rate** Adjusts the end point of the steering
11. **Antenna** Transmits the signal to the model
12. **Indicator Lights**
 - **Solid red lights**—Indicates radio connectivity and adequate battery power
 - **Flashing red lights**—Indicates the battery voltage is critically low. Replace batteries

Installing Transmitter Batteries



This transmitter requires 4 AA batteries.

1. Remove the battery cover from the transmitter.
2. Install the batteries as shown.
3. Install the battery cover.

CAUTION: If using rechargeable batteries, charge only rechargeable batteries. Charging non-rechargeable batteries may cause the batteries to burst, resulting in injury to persons and/or damage to property.

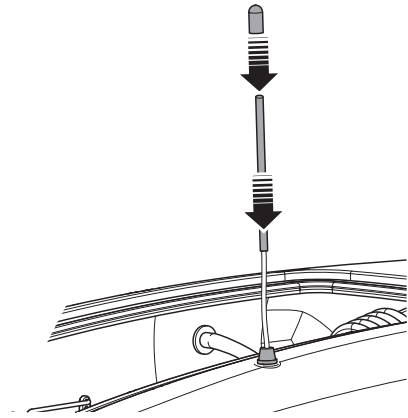
CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to national regulations.

Antenna Tube Installation

Install the receiver antenna in the tube as shown.

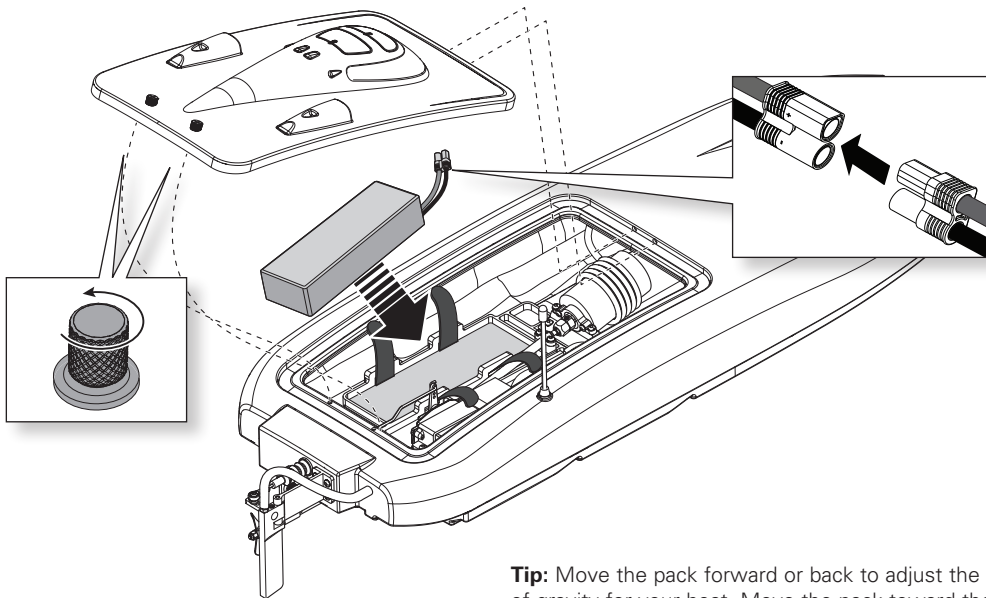
Keep the end of the antenna above the boat's waterline to get the best transmitter reception. Apply clear tape (DYNAM0102), if desired.

NOTICE: Do not cut or kink the receiver antenna or damage may result.



Installing the Battery Pack

1. Loosen the 2 screws on the rear of the canopy.
2. Carefully lift the rear of the canopy and pull back to disengage the 2 front pins from the hull.
3. Install the battery in the compartment. Secure it with the hook and loop straps. If running your boat in rougher water conditions, the use of Waterproof Hook and Loop Tape (DYNK0300) may also be needed to fully secure the battery.
4. Connect the battery pack to the ESC power connector.



Tip: Move the pack forward or back to adjust the center of gravity for your boat. Move the pack toward the bow so the bow rides lower in the water. Move the pack away from the bow so that the bow rides higher in the water.

Low Voltage Cutoff (LVC)

Discharging a Li-Po battery below 3V per cell may damage the battery. The included ESC protects the boat battery from over-discharge using Low Voltage Cutoff (LVC). Before the battery charge decreases too much, LVC removes power supplied to the motor.

Power to the motor will be reduced significantly, showing that the battery has reached the minimum LVC threshold. The ESC is programmed to allow enough battery power to drive back to shore from a maximum of 100 yards (45m), at no more than ¼ throttle.

Disconnect and remove the Li-Po battery from the boat after use to prevent trickle discharge. Charge your Li-Po battery to about half capacity before storage. During storage, make sure the battery charge does not fall below 3V per cell. LVC does not prevent the battery from over-discharge during storage.

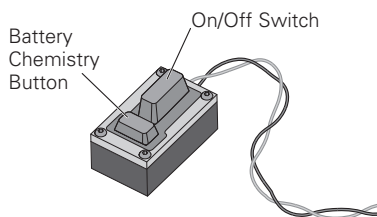
NOTICE: Repeated operation to LVC will damage the battery.

Tip: Monitor your boat battery's voltage before and after boating by using a Li-Po Cell Voltage Checker (EFLA111, sold separately).

Battery Chemistry

The ESC comes from the factory in Li-Po Mode. To change battery chemistry:

1. Keep the throttle at neutral and power ON the ESC.
2. Press and hold the Battery Chemistry Button on the power switch for 3 seconds. The LED flashes the current battery chemistry (red = Ni-MH or Ni-Cd; green = Li-Po).
3. Continue holding the Battery Chemistry Button for another 6 seconds. The ESC changes battery chemistry and the LED flashes the new battery chemistry.
4. Power OFF the ESC. The ESC saves the setting until it is changed.



Getting Started

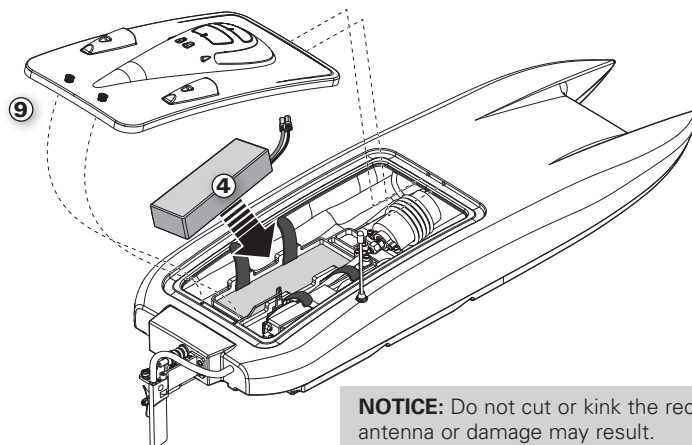
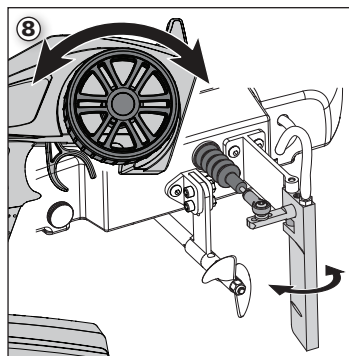
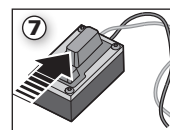
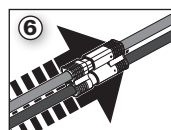
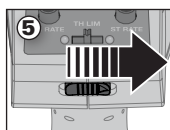
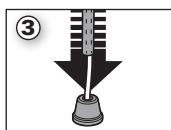
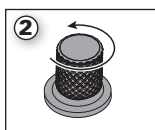
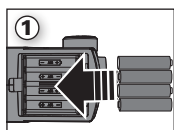
1. Install 4 AA batteries into the transmitter.
2. Remove the canopy from the hull.
3. Install the receiver antenna in the antenna tube.
4. Install the fully charged battery in the compartment and secure it with the hook and loop strap.
5. Power on the transmitter. Ensure the throttle is not reversed and the throttle trim is neutral.
6. Connect the battery to the ESC.
7. Keep the throttle at neutral and power ON the ESC. The ESC automatically calibrates the throttle range

after 3 seconds. A beep will sound, indicating battery chemistry and cell count:

- 1 beep: Ni-MH or Ni-Cd
- 2 beeps: 2S Li-Po
- 3 beeps: 3S Li-Po

One short beep will sound when the ESC is ready to run.

8. Test the transmitter's control of the boat with the boat on the display stand.
9. Install the canopy on the hull.



NOTICE: Do not cut or kink the receiver antenna or damage may result.

Control Check

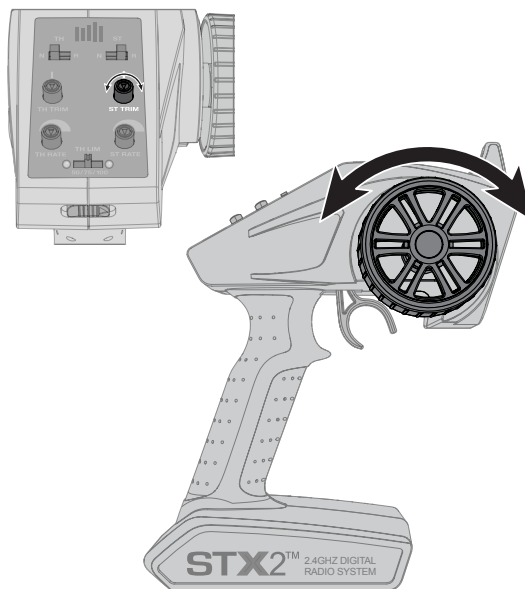
IMPORTANT: Perform a control check at the beginning of each boating session, after repair or after installation of new batteries.

Ensure the receiver antenna is extended properly and all batteries are fully charged.

1. Power ON the transmitter and the boat. **Do not install the boat canopy.**
2. Place the boat securely on the boat stand.

NOTICE: Do not operate the motor without water cooling circulation or damage may result.

3. Check steering and throttle on the transmitter.



Testing Your Boat in the Water

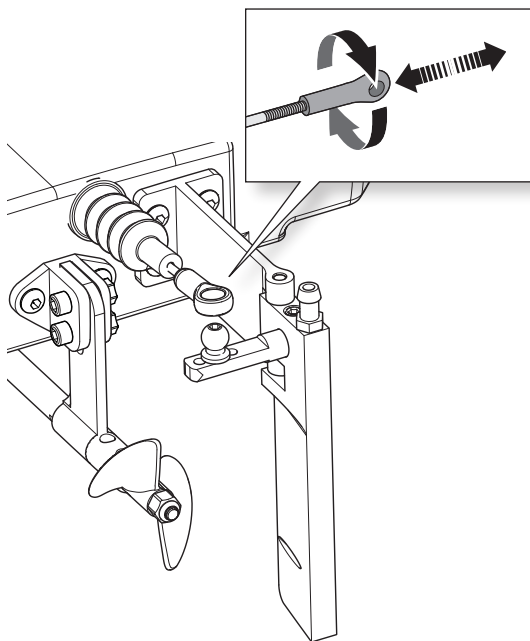
Tip: Use Clear Flexible Marine Tape (DYNAM0102) around the canopy when running your boat in rough water.

1. Carefully place the boat in the water.
2. Operate the boat at slow speeds near the shoreline. Avoid objects in the water at all times. When the boat is moving forward, ensure water flows out of the coolant outlet. Remove any blockage from the rudder inlet and coolant system or the motor and ESC (electronic speed control) may overheat.
3. Once you are comfortable operating the boat at slow speeds, it is safe to operate the boat farther from the shore.
4. If the boat does not go straight, adjust the steering trim dial on the transmitter.

Tip: If you are using too much steering trim on your transmitter to make the boat drive straight, return the trim to neutral and mechanically center the rudder. To do this, remove the ball link from the rudder horn, then turn the ball link on the linkage threads until the rudder is properly centered. Use needle-nose pliers or ball link pliers (RVO1005) to remove or install a link on a control horn.

5. Bring the boat back to shore when you notice the boat starting to lose speed.
6. Power off the ESC and disconnect the battery pack.
7. Allow the motor, ESC and battery packs to cool before charging the battery or operating the boat again.

NOTICE: Do not turn off the transmitter first or the receiver may pick up stray signals and run out of control.



Boating Tips

When running your boat for the first time, we recommend calm wind and water conditions so that you can learn how the boat responds to your control.

Maximum speeds are only achieved when the water conditions are smooth and there is little wind. A sharp turn, wind or waves can turn over a boat when it is moving quickly. Always pilot your boat for the wind and water conditions so that the boat does not turn over.

Consult local laws and ordinances before choosing a location to pilot your boat.

Avoid boating near:

- watercraft
- people (swimming areas, fishing areas)
- stationary objects
- waves, wakes
- rapidly moving water
- wildlife
- floating debris
- overhanging trees
- vegetation

If the propeller and rudder are blocked with debris or vegetation, remove the boat from the water and remove the debris before continuing operation.

When making turns, decrease the throttle to reduce the probability of flipping the boat over.

Never operate your boat in less than 12 inches (30.5 cm) of water.

If you need to retrieve your boat from the water, use fishing equipment or another boat.

Tip: Use Clear Flexible Marine Tape (DYNM0102) around the canopy when running your boat in rough water.

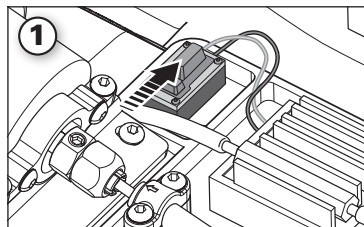
NOTICE: When running at full speed in choppy water, the propeller may exit and re-enter the water repeatedly and very quickly, subjecting the propeller and flex shaft to some stress. Frequent stress may damage the propeller and flex shaft.

CAUTION: Never operate your boat in extreme temperatures or turbulent water.

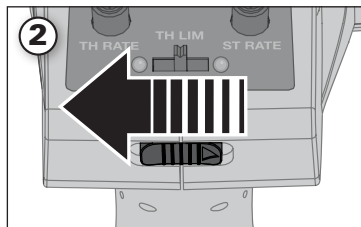
CAUTION: Never attempt to retrieve a downed boat by swimming.

When You Are Finished

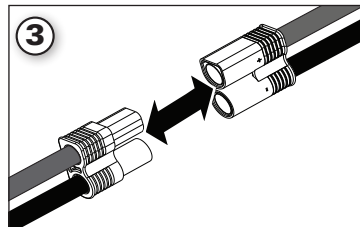
1. Power off the receiver.



2. Power off the transmitter.



3. Disconnect and remove the battery from the boat.



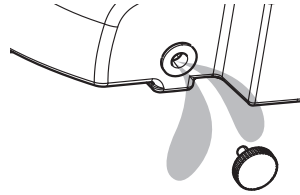
Tip: Always remove the canopy before storage or moisture may allow mold and mildew to grow in the boat.

After Boating and Maintenance

- Drain water from inside the hull using the drain plug
- Fully dry the inside and outside of the boat, including the water cooling lines and jacket around the motor
- Remove the hatch before storing your boat
- Repair any damage or wear to the boat
- Lubricate the flex shaft using Pro Boat Marine Grease (DYNE4200)
- Make note of lessons learned from the trimming of your boat, including water and wind conditions

Tip: The hook and loop strips in the boat retain water. To dry them, press on them with a dry cloth.

NOTICE: When you are finished boating, never leave the boat in direct sunlight or in a hot, enclosed area such as a car. Doing so can damage the boat.



Throttle Range Calibration

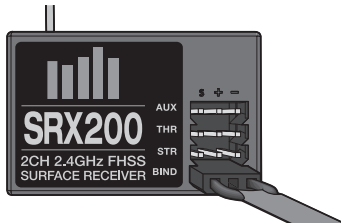
1. Power on the transmitter and set the throttle TRIM dial to the center position.
2. Install the batteries in the boat and connect the batteries to the ESC.
3. With the ESC powered off, pull the throttle trigger to full throttle and press the power buttons on both ESC simultaneously. The ESC will beep twice. The green light will flash with each beep.

4. Return the throttle to neutral. The ESC will beep once and the green light will flash once.

The calibration process is now complete. The ESC will arm with beeps and flashes to announce the number of battery cells it has detected. Reverse calibration is unnecessary.

Binding

Binding is the process of programming the receiver to recognize the GUID (Globally Unique Identifier) code of a single specific transmitter. **The STX2® transmitter and SPMSRX200 receiver are bound at the factory.** If you need to rebind, follow the instructions below:



1. Insert the Bind Plug in the BIND port of the ESC.
2. Connect a fully charged battery to the ESC.
3. Power on the ESC. The red receiver LED flashes, indicating the receiver is in bind mode.

4. Center the transmitter ST TRIM and TH TRIM dials.
5. Turn the Steering Wheel to Full Right. Power ON the transmitter while holding the Steering Wheel to the Right.
6. Release the Steering Wheel when the receiver LED goes solid.
7. Remove the Bind Plug and store it in a convenient place.
8. Power OFF the ESC to save the settings.
9. Power OFF the transmitter.

You must rebind when:

- When you want different failsafe positions (e.g. when throttle or steering reverse has been changed).
- Binding the receiver to a different transmitter.

NOTICE: Do not attempt to bind the transmitter and receiver if there are other compatible transmitters in bind mode within 400 feet. Doing so may result in unexpected binding.

Failsafe

Failsafe positions are also set during binding. In the unlikely event that the radio link is lost during use, the receiver will drive the servos to their preprogrammed failsafe positions. If the receiver is turned on prior to

turning on the transmitter, the receiver will enter failsafe mode. When the transmitter is turned on, normal control is resumed. For more information on setting the failsafe, refer to the Binding section above.

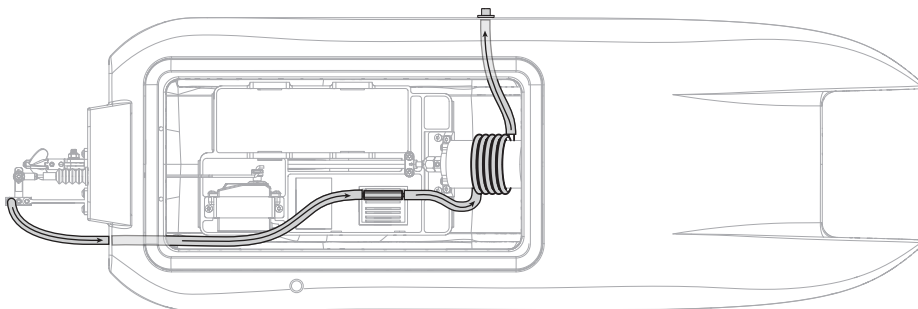
Motor Care

- Prolong motor life by preventing overheating conditions. Undue motor wear results from frequent turns, stops and starts, pushing objects, boating in rough water or vegetation and boating continuously at high speed.
- Over-temperature protection is installed on the ESC to prevent circuit damage, but cannot protect the motor from pushing against heavy resistance.

Water Cooling System

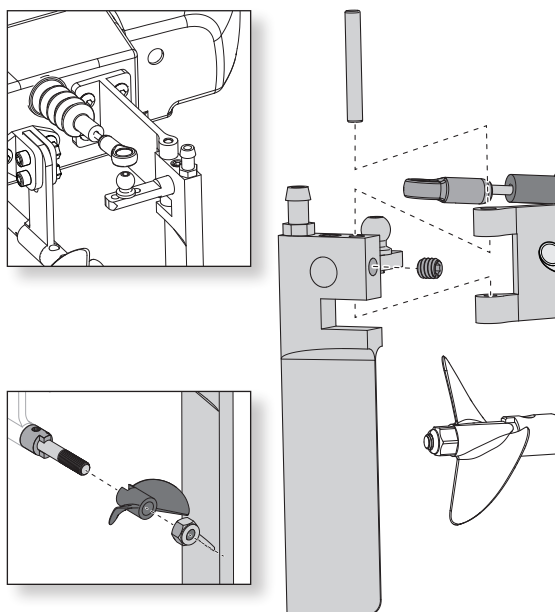
If water does not stream out of the water outlets while the boat is moving forward, immediately stop the boat and clean the obstruction from the water cooling system.

1. Disassemble and clean the water cooling system to remove blockage and prevent overheating.
2. Replace damaged parts.



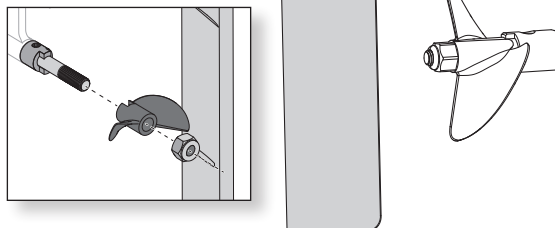
Rudder Service

1. Disconnect the water tube from the rudder.
2. Remove the linkage from the rudder arm with Ball Link Pliers.
3. Turn the rudder and loosen the set screw from the rudder pin.
4. Turn over the boat and lightly tap the rudder to remove the pin.
5. Assemble in reverse order.



Propeller Service

1. Use an 7mm nut driver (DYN2804) to loosen the nut from the driveshaft.
2. Remove the nut and propeller from the driveshaft.
3. Assemble in reverse order. Correctly align the propeller with the drive dog on the driveshaft.

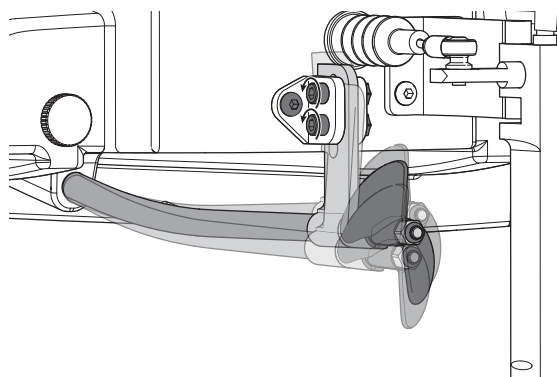


Prop Angle Adjustment

Raising the drive strut increases speed, but also decreases steering response and increases cavitation.

Lowering the drive strut increases steering response, but also increases steering sensitivity and decreases speed.

1. Loosen 2 bolts and 2 nuts from the drive strut on the rear of the boat.
2. Slide the strut up or down to change the angle of the propeller in relation to the hull.
3. Adjust as desired and tighten the nut and bolt.



Drivetrain Lubrication

Always replace the drivetrain parts when they are damaged or show visible wear or injury and damage may result.

Lubricating the flex shaft is vital to the life of the drivetrain. The lubricant also acts as a water seal, keeping water from entering the hull through the stuffing tube.

Lubricate the flex shaft and all moving parts after every 30 minutes of operation and prior to storage.

1. In the hull, use a 10mm open-end wrench to loosen the collet nut from the flex shaft.
2. Slide the flex shaft out from the stuffing tube and drive strut at the rear of the boat.

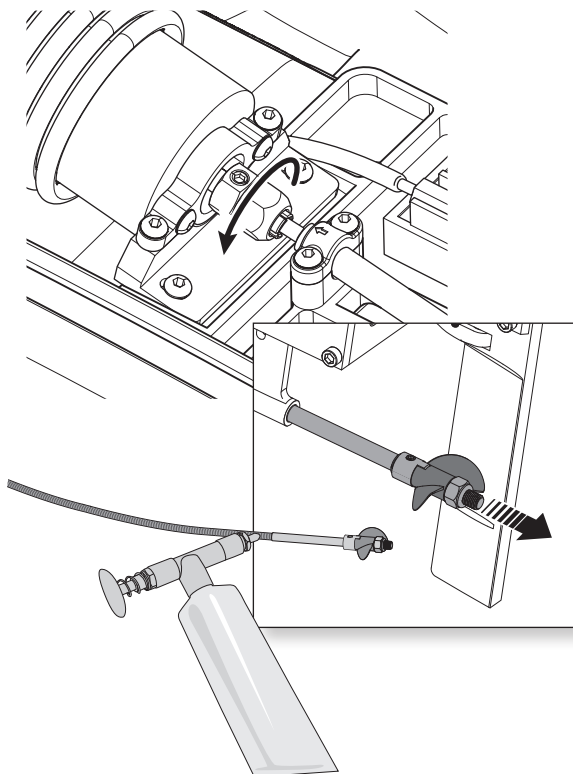
Tip: Use paper or cloth when handling the flex shaft and other lubricated parts.

3. Wipe the old lubricant and material from the flex shaft.
4. Lubricate the full length of the flex shaft assembly up to the drive dog using marine grease (DYNE4200). Also apply grease to the collet threads.
5. Carefully reinstall the flex shaft in the drive strut, stuffing tube and collet. If the flex shaft is difficult to remove or install in the collet, use a flat screwdriver to spread the grips of the collet.

Ensure there is a 1–2mm gap between the drive strut and drive dog to allow for flex shaft shrinkage under load.

NOTICE: Running the boat in saltwater could cause some parts to corrode. If you run the boat in saltwater, rinse it thoroughly in freshwater after each use and lubricate the drive system.

NOTICE: Because of its corrosive effects, running RC boats in saltwater is at the discretion of the modeler.



ESC Programming

1. Pull and hold the Throttle Trigger to full throttle and turn the ESC on.
2. After 2 seconds a “-B-B” will sound. Wait another 5 seconds and the ESC will give a rising tone to indicate you have entered **Programming Mode**.
3. After entering Programming Mode, you will hear 4 tones in a loop indicating **Programmable Items**. Push the Throttle Trigger to full brake within 3 seconds after the tone sounds matching the programmable item you want to select.
4. After selecting a programmable item, you will hear several tones in a loop indicating **Programmable Values**. Pull Throttle Trigger to full throttle to select the value matching the tone. The ESC will give an alternating tone to indicate the item is selected.
5. Keep the trigger in Full Throttle to return to **Step 3** and continue item selection. Move the throttle stick to full brake position within 2 seconds to exit the Program Mode.

The black-shaded setting is the factory default

Programmable Items	Programmable Value				-B Single Beep		B— Long Beep	
	-B	-B-B	-B-B-B	-B-B-B-B	B—	B— -B	B— -B-B	B— -B-B-B
Running Mode -B	Forward Only	Forward/Backward						
Li-Po Cells -B-B	Auto Calc.	2s	3s	4s	5s	6s		
Low Voltage Cutoff -B-B-B	None	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell			
Timing -B-B-B-B	0.00°	3.75°	7.50°	11.25°	15.00°	18.75°	22.50°	26.25°

Troubleshooting Guide

Problem	Possible Cause	Solution
Boat will not respond to throttle but responds to other controls	Throttle channel is reversed	Reverse throttle channel on transmitter
Extra noise or extra vibration	Damaged propeller, shaft or motor	Replace damaged parts
	Propeller is out of balance	Balance or replace propeller
Reduced runtime or boat underpowered	Boat battery charge is low	Completely recharge battery
	Boat battery is damaged	Replace boat battery and follow battery instructions
	Blocking or friction on shaft or propeller	Disassemble, lubricate and correctly align parts
	Boat conditions may be too cold	Make sure the battery is warm (above 10° C [50° F]) before use
	Battery capacity may be too low for conditions	Replace battery or use a larger capacity battery
	Drive dog is too near the stuffing tube	Loosen drive shaft side of the motor coupling and move drive shaft small amount back
	Too little lubrication on drive shaft	Fully lubricate drive shaft
Boat will not Bind (during binding) to transmitter	Vegetation or other obstacles block the rudder or propeller	Remove vegetation or obstacles from rudder or propeller
	Transmitter is too near boat during binding process	Move powered transmitter a few feet from boat, disconnect and reconnect battery to boat
	Boat or transmitter is too close to large metal object, wireless source or another transmitter	Move the boat and transmitter to another location and attempt binding again
	Another compatible transmitter is powered on within range of the receiver	Power off all compatible transmitters except the one you are trying to bind
	Boat battery/Transmitter battery charge is too low	Replace/recharge batteries
Boat will not connect (after binding) to transmitter	ESC switch is off	Power on ESC switch
	Transmitter is too near boat during connecting process	Move powered transmitter a few feet from boat, disconnect and reconnect battery to boat
	Boat or transmitter is too close to large metal object, wireless source or another transmitter	Move boat or transmitter to another location and attempt to connect again
	Boat battery/transmitter battery charge is too low	Replace/recharge batteries
Boat tends to dive in the water or takes on water	ESC switch is off	Power on ESC switch
	The boat hull is not completely closed	Dry out the boat and ensure the hatch is fully closed on the hull before returning the boat to the water
	Center of gravity is too far forward	Move batteries back in the hull
Boat tends to turn one direction	Trim tabs are angled incorrectly	Angle each trim tab up a small amount to lift the bow or down a small amount to lower the bow
	Rudder or rudder trim is not centered	Repair rudder or adjust rudder and rudder trim for straight running when control is at neutral
Rudder does not move	Vertical fins are angled incorrectly	Adjust the right or left fin angle for straight running when control is at neutral
	Rudder, linkage or servo damage	Replace or repair damaged parts and adjust controls
	Steering servo wire is damaged or connections are loose	Do a check of steering servo wires and connections, connect or replace as needed
	Transmitter is not bound correctly	Re-bind
Controls reversed	BEC (Battery Elimination Circuit) of the ESC is damaged	Replace ESC
	ESC switch is off	Power on ESC switch
Motor overheats	Transmitter settings are reversed	Do the Control Direction Test and adjust controls on transmitter appropriately
Motor power pulses then motor loses power	Blocked water cooler tubes	Clean or replace water tubes
	Weather conditions might be too cold	Postpone until weather is warmer
	Battery is old, worn out or damaged	Replace battery



Limited Warranty

What this Warranty Covers

Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase.

What is Not Covered

This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, or (vi) Product not compliant with applicable technical regulations or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Remedy

Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law

These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES

Questions, Assistance, and Services

Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon to better answer

your questions and service you in the event that you may need any assistance. For questions or assistance, please visit our website at www.horizonhobby.com, submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services

If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at http://www.horizonhobby.com/content/service-center_render-service-center. If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

NOTICE: Do not ship Li-Po batteries to Horizon. If you have any issue with a Li-Po battery, please contact the appropriate Horizon Product Support office.

Warranty Requirements

For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

Non-Warranty Service

Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website http://www.horizonhobby.com/content/service-center_render-service-center.



ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.

Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 888-338-4639	
European Union	Horizon Technischer Service	service@horizonhobby.eu	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

FCC Information

FCC ID: 2A13D-SS0001 This device complies with part 15 of the FCC rules. 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.



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

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

This equipment has been tested and found to comply with the limits for Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

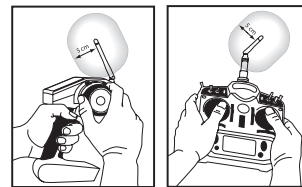
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

IC Information

IC ID: 21682-SSTC9202 This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Antenna Separation Distance

When operating your Spektrum transmitter, please be sure to maintain a separation distance of at least 20 cm between your body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF exposure safety requirements as determined by FCC regulations.



The following illustrations show the approximate 20 cm RF exposure area and typical hand placement when operating your Spektrum transmitter.

The following illustrations show the approximate 20 cm RF exposure area and typical hand placement when operating your Spektrum transmitter.

CE EU Compliance Statement: Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the RED and EMC Directives.

A copy of the EU Declaration of Conformity is available online at: <http://www.horizonhobby.com/content/support-render-compliance>.



E328



Instructions for Disposal of WEEE by Users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

Replacement Parts / Ersatzteile / Pièces de rechange / Pezzi di ricambio

Part #	English	Deutsch	Français	Italiano
DYNM3860	30A Brushless Marine ESC: Single Battery	Dynamite 30A BL Marine Regler ESC 3-3S	Contrôleur brushless 30A Simple batterie	ESC brushless marino 30A: batteria singola
DYNM3900	2000kv Brushless Motor	4 Pole BL Marine Motor 2400kv	Moteur brushless 2400Kv	Motore brushless 2400kv
PRB281009	Hull & Decals	Rumpf u. Dekorbogen	Coque avec décoration	Scafo e adesivi
PRB281010	Canopy & Decals	Kabinenhaube u. Dekorbogen	Cockpit avec décoration	Capottina e adesivi
PRB281011	Rudder	Ruder	Gouvernail	Timone
PRB286009	Prop Strut	Propstrebe	Chaise d'hélice	Piede elica
PRB282007	Flex Shaft, Drive Dog, Liner & Nut	Flexwelle, Mitnehmer, Dichtung	Flexible/gaine/entraîneur/écrou	Albero flessibile, trascinatore, guida e dado
PRB282008	Propeller: 1.34" x 2.06"	1.34" x 2.06"	Hélice 1.34" x 2.06"	Elica 1.34" x 2.06"
PRB286010	Motor Coupler: 5mm motor shaft	Kupplung 5mm Welle	Accouplement moteur 5mm	Adattatore motore con albero 5mm
SPMSRX200	SPMSRX200 STX2 2Ch 2.4GHz FHSS Receiver	Spektrum 2-Kanal 2,4 GHz FHSS Empfänger	Récepteur FHSS 2,4 GHz 2 canaux Spektrum	Ricevente Spektrum 2 canali 2,4 GHz FHSS

Optional Parts / Diverse Teile / Pièces optionnelles / Pezzi opzionali

Part #	English	Deutsch	Français	Italiano
DYN2801	4mm Nut Driver	Steckschlüssel 4mm	Clé à écrou 4mm	Chiave per dado 4mm
DYN2803	5.5mm Nut Driver	Steckschlüssel 5.5mm	Clé à écrou 5.5mm	Chiave per dado 5,5mm
DYN2805	7mm Nut Driver	Steckschlüssel 7mm	Clé à écrou 7mm	Chiave per dado 7mm
DYN2819	Hex Wrench 1.5mm, 2mm, 2.5mm, 3mm	Inbuschlüsselsatz 1.5, 2, 2.5, 3, 4mm metrisch	Clés BTR 1.5mm, 2mm, 2.5mm et 3mm	Chiave esagonale 1.5mm, 2mm, 2.5mm, 3mm
DYNB3802EC	Reaction 7.4V 5000mAh 2S 30C LiPo, Hardcase: EC3	Reaction 7.4V 5000mAh 2S 30C LiPo, Hardcase: EC3	Batterie Reaction Li-PO 2S 7.4V 5000mA 30C, coque rigide, prise EC3	Batteria LiPo Reaction 7.4V 5000mAh 2S 30C, Contenitore rigido: EC3
DYNB3803EC	Reaction 11.1V 5000mAh 3S 20C LiPo, Hardcase: EC5	Reaction 11.1V 5000mAh 3S 20C LiPo, Hardcase: EC5	Batterie Reaction Li-PO 3S 11.1V 5000mA 20C, coque rigide, prise EC5	Batteria LiPo Reaction 11.1V 5000mAh 3S 20C, Contenitore rigido: EC5
DYNC2010CA	Prophet Sport Plus 50W AC/DC Charger	Ladegerät Prophet Sport Plus 50W AC/DC EU	Chargeur Prophet Sport Plus 50W AC/DC	Caricatore Prophet Sport Plus 50W AC/DC
DYNE4200	Grease Gun with Marine Grease (5 oz.)	Fettpresse mit Marine Grease (140 g)	Pistolet graisseur avec graisse marine (140 g)	Ingrassatore a pressione con grasso marino (140 g)
DYNE4201	Marine Grease	Proboat Marine Fett m. Applikator 5 oz	Graisse marine	Grasso marino
DYNF1055	Infrared Temp Gun/ Thermometer with Laser Site	Infrarotmesspistole mit Laser	Détecteur infrarouge de température avec laser	Misuratore temperatura a infrarossi a pistola con puntamento laser
DYNK0300	Hook and Loop Tape Set, WP 4pcs	Klettband Set 75x25 4 Stk	Bande auto-agrippante adhésive, résistante à l'eau (4pcs)	Set nastro a strappo. WP 4 pz.
DYNM0102	Waterproof Tape	Transparentes Marineklebeband (18m)	Adhésif transparent résistant à l'eau	Nastro impermeabile
DYNT0502	Start Up Tool Set: Proboat	Dynamite Startup Werkzeugset: Pro Boat	Proboat - Set d'outils de démarrage	Start Up Tool Set: Proboat
EFLA411	Cell Voltage Checker	LiPo Cell Volt- Checker	Contrôleur de tension	Misuratore di tensione celle
PRB282028	Right Side Propeller, CCW Rotation, 1.4x1.65, 3/16 Sha	Rechtsseitiger Propeller, Drehung gegen den Uhrzeigersinn, 1,4x1,65, 3/16 Welle	Elica lato destro, rotazione in senso antiorario, 1,4 x 1,65, albero 3/16	Hélice droite, rotation CCW, 1,4 x 1,65, arbre 3/16
RVO1005	Ball Link Pliers	Revolution Deluxe Kugelkopfzange	Rotule Pliers	Pinza per attacchi a sfera
SPMSS6170	S6170 Std Digital Surface Sx	S6170 Standard Digital Surface Servo	Servo S6170 Standard digital	S6170 Std Digitale per auto SX

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