



VATERRA[®]

FORD[®] F-150[®] SVT[®] RAPTOR[®]

OWNER'S MANUAL

BEDIENUNGSANLEITUNG
MANUEL DE L'UTILISATEUR
MANUALE DELL'UTENTE



NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, Inc. For up-to-date product literature, visit 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:

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

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

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.



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 and NOT a toy. 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, Inc. 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.

AGE RECOMMENDATION: Not for children under 14 years. This is not a toy.

REGISTER YOUR VATERRA PRODUCT ONLINE

Register your vehicle now and be the first to find out about the latest option parts, product updates and more. Click on the Support tab at WWW.VATERRARC.COM and follow the product registration link to stay connected.

SAFETY PRECAUTIONS AND GUIDELINES

- » 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 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.

WATER-RESISTANT VEHICLE WITH WATERPROOF ELECTRONICS //////////////////////////////////////

Your new Horizon Hobby vehicle has been designed and built with a combination of waterproof and water-resistant components to allow you to operate the product in many “wet conditions”, including puddles, creeks, wet grass, snow and even rain.

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

Metal parts, including the bearings, hinge pins, screws and nuts, 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 vehicle and to keep the warranty intact, the procedures described in the “Wet Conditions Maintenance” section to follow must be performed regularly if you choose to run in wet conditions. If you are not willing to perform the additional care and maintenance required, then you should not operate the vehicle in those conditions.



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 vehicle.
- » 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 vehicle where lightning may be present.
- » Do not operate your vehicle where it could come in contact with salt water (ocean water or water on salt-covered roads), contaminated or polluted water. Salt water is very conductive and highly corrosive, so use caution.
- » 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. Alter the gear ratio by using a smaller pinion or larger spur gear. This will increase torque (and motor life) when running in mud, deeper puddles, or any wet conditions that will increase the load on the motor for an extended period of time.

WET CONDITIONS MAINTENANCE

- » Drain any water that has collected in the tires by spinning them at high speed. With the body removed, place the vehicle upside down and pull full throttle for a few short bursts until the water has been removed.



CAUTION: Always keep hands, fingers, tools and any loose or hanging objects away from rotating parts when performing the above drying technique.

- » Remove the battery pack(s) and 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 housing.
- » Remove the tires/wheels from the vehicle and gently rinse the mud and dirt off with a garden hose. Avoid rinsing the bearings and transmission.

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

- » Use an air compressor or a can of compressed air to dry the vehicle and help remove any water that may have gotten into small crevices or corners.
- » Spray the bearings, drive train, fasteners and other metal parts with a water-displacing light oil. Do not spray the motor.
- » Let the vehicle air dry before you store it. Water (and oil) may continue to drip for a few hours.
- » Increase the frequency of disassembly, inspection and lubrication of the following:
 - Front and rear axle hub assembly bearings.
 - All transmission cases, gears and differentials.
 - Motor—clean with an aerosol motor cleaner and re-oil the bearings with lightweight motor oil.

INTRODUCTION

Thank you for purchasing this Vatera® product! The Ford F-150 SVT Raptor is a special concept edition that is a reflection of our dedication to embodying the essence of monster truck excitement. To ensure you continue to have a positive experience with your vehicle, it is important you read and understand these instructions before you drive. Regular maintenance is essential to optimize performance; driving characteristics will suffer if your vehicle is not regularly and properly maintained. For additional setup information, please visit www.vaterrarc.com; there you can also find updates and part listings for this and other Vatera products.

 **WARNING AGAINST COUNTERFEIT PRODUCTS:**

Thank you for purchasing a genuine Spektrum product. Always purchase from a Horizon Hobby, Inc. authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, Inc. 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.

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Please read the entire manual to gain a full understanding of the vehicle, fine-tuning the setup, and performing maintenance.

- 1 Read the safety precautions found in this manual.
- 2 Install the AA batteries in the transmitter. Only use alkaline or rechargeable batteries.
- 3 Install a fully charged battery in the vehicle.
- 4 Power ON the transmitter and then the vehicle. Always power the transmitter ON before the vehicle and power it OFF after the vehicle has been powered OFF.
- 5 Check the steering and throttle control directions. Verify that the servos are moving in the correct direction.
- 6 Drive your vehicle.
- 7 Perform any necessary maintenance.

COMPONENTS

- » 1/10-Scale Ford® F-150® SVT® Raptor® RTR Truck
- » Spektrum™ DX2E 2.4GHz DSM® Radio System
- » Dynamite® Fuze™ 70A Waterproof Sensorless Brushless ESC
- » Dynamite Fuze 540 4-Pole 3300Kv Sensorless Brushless Motor
- » 313WP Standard Waterproof Servo
- » 4 AA batteries (for transmitter)



RECOMMENDED ACCESSORIES

- » Hobby grade knife
- » Needle nose pliers
- » Side cutting pliers
- » Safety goggles
- » Soldering iron

Use only Dynamite tools or other high-quality tools. Use of inexpensive tools can cause damage to the small screws and parts used on this type of model.

SUPPLIED TOOLS



- » "L" shaped hex wrench
 - 1.5mm, 2mm, 2.5mm



- » 4-way wrench



- » Flat Turnbuckle Wrench



- » Shock Tools

SPEKTRUM DX2E RADIO SYSTEM

For more information on the transmitter, go to www.horizonhobby.com and click on the support tab for the Spektrum DX2E to download the instruction manual.

AVC SENSITIVITY

The ST RATE dial adjusts the sensitivity, or stability, value in the receiver. If you increase the sensitivity, the AVC™ system becomes more sensitive to the vehicle drifting left or right. Maximum sensitivity is used during high speed driving or drag racing when you want the vehicle to stay in a straight line. As the sensitivity value increases, the amount of steering travel decreases.

Turn the ST RATE knob counter-clockwise to reduce the sensitivity.

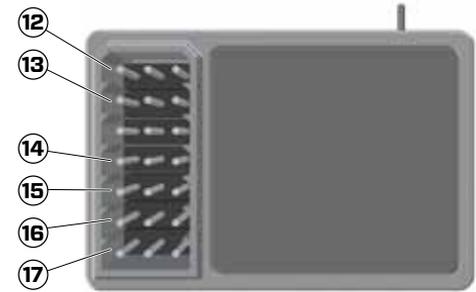
Turn the ST RATE knob clockwise to increase the sensitivity.

IMPORTANT: The ST RATE knob will only adjust the sensitivity when the transmitter is bound to a DSMR™ receiver. When the transmitter is bound to a DSM, DSM2® or DSM Marine receiver, the ST RATE knob controls the steering dual rate.

- 1 **Steering Wheel** controls direction (left/right) of the model
- 2 **Throttle Trigger** controls speed and direction (forward/brake/reverse) of the model
- 3 **Antenna** transmits the signal to the model
- 4 **ON/OFF Switch** turns the power ON/OFF for the transmitter
- 5 **Indicator Lights**
 - *Solid green light* indicates adequate battery power
 - *Flashing green light* indicates the battery voltage is critically low. Replace batteries.
- 6 **ST Trim** Adjusts the total steering travel
- 7 **TH Trim** Adjusts the total throttle travel
- 8 **ST Rate** Adjusts the sensitivity value in the receiver
- 9 **BIND Button** puts the transmitter into Bind Mode
- 10 **ST. REV** reverses the function of the steering when the wheel is turned left or right
- 11 **TH. REV** reverses the function of the speed control when pulled back or pushed forward

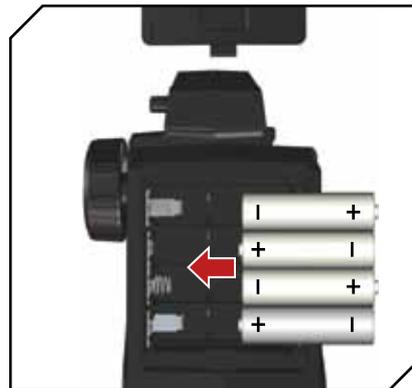
SRS4200 AVC TECHNOLOGY RECEIVER

- 12 **BIND**
- 13 **DISABLE**
- 14 **AUX 2**
- 15 **AUX 1**
- 16 **THR**
- 17 **STR**



INSTALLING THE TRANSMITTER BATTERIES

- 1 Push in the battery cover a small amount to release the retaining tab, then remove the cover.
- 2 Install 4 AA batteries, taking care to align the battery polarity to the diagram in the transmitter's battery case.
- 3 Carefully reinstall the battery cover by aligning the tabs with the slots on the transmitter.

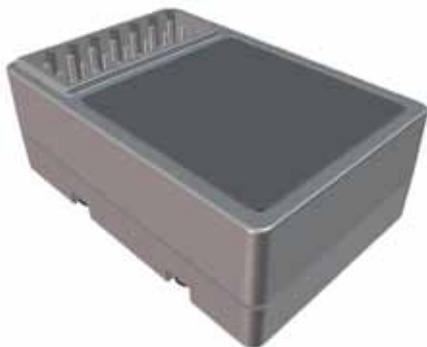


⚠ CAUTION: NEVER remove the transmitter batteries while the vehicle is powered ON, as loss of control, property damage or injury may result.

⚠ 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.

CALIBRATING THE RECEIVER

IMPORTANT: You must use digital servos with the SRS4200 receiver. Using analog servos will reduce the performance of the system and may cause analog servos to overheat.



- 1 Insert the Bind Plug in the BIND port on the receiver.
- 2 Connect a fully charged battery pack to the ESC.
- 3 Power on the ESC. The orange LED flashes, indicating the receiver is in bind mode.
- 4 Center the ST TRIM and TH TRIM dials on the transmitter.
- 5 Press and hold the BIND button while powering on the transmitter.
- 6 Release the BIND button when the orange LED slowly flashes. The transmitter and receiver are linked when the orange LED is solid.
- 7 Pull the transmitter trigger to Full Throttle.
- 8 Push the transmitter trigger to Full Brake, then return the trigger to center.
- 9 Turn the transmitter steering wheel to Full Right.
- 10 Turn the transmitter steering wheel to Full Left, then return the steering wheel to center. The orange LED flashes once.
- 11 Remove the Bind Plug, then power off the receiver to save the settings.
- 12 Power off the transmitter.

The Spektrum SRS4200 receiver features Active Vehicle Control™ (AVC) technology that responds similar to traction control in full-scale vehicles. In addition to traction control, AVC technology also increases steering stability during high speed driving or while driving over rough terrain. As you increase the AVC sensitivity, the system increases steering stability and traction control, similar to reducing the amount of steering rate in a computer transmitter. Reducing the sensitivity value increases the amount of steering control from the transmitter. The SRS4200 receiver also enables you to quickly turn AVC on or off if you participate in organized racing.

Default Settings

PROGRAMMABLE ITEMS	PROGRAMMABLE VALUE							
	1	2	3	4	5	6	7	8
1 Running Mode	Forward Only with Brake	Forward/Reverse with Brake						
2 Drag Brake Force	0%	5%	10%	15%	20%	25%	30%	40%
3 Low Voltage Cutoff Threshold	non-protection	2.6V/Cell	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell		
4 Start Mode (Punch)	Level 1	Level 2	Level 3	Level 4				
5 Max Brake Force	25%	50%	75%	100%				

DESCRIPTIONS

1 Running Mode

- **Forward Only with Brake**
Intended for competition use, this mode allows only forward and brake controls.
- **Forward/Reverse with Brake**
This mode is the basic all-around mode, allowing forward, reverse and brake controls. To engage reverse while moving forward, apply the brake until the vehicle has come to a complete stop. Release the brake, then apply the brake again. While braking or in reverse, engaging the throttle will result in the vehicle immediately accelerating forward.

2 Drag Brake Force

Adjusts the amount of brake automatically applied when the throttle is returned to neutral. This simulates the engine braking effect of a full-scale vehicle, allowing improved turn-in and your vehicle's general response to controls.

3 Low Voltage Cutoff Threshold

This function helps to prevent battery over-discharge. The ESC continuously monitors the battery's voltage. If the voltage falls below the voltage threshold for 2 seconds, the output power shuts off and the red LED flashes twice repeatedly.

The cutoff threshold calculation is based on individual Li-Po cell voltage. For Ni-MH batteries, if the voltage battery pack is higher than 9.0V, it will be treated as a 3-cell Li-Po battery pack; if it is lower than 9.0V, it will be treated as a 2-cell Li-Po battery pack.

Example: for a 8.0V Ni-MH battery pack used with a 2.6V/cell threshold, it will be treated as a 2-cell Li-Po battery pack and the low-voltage cutoff threshold will be 5.2V (2.6x2=5.2). Using the optional Digital Program Box (DYN3748, sold separately), you can adjust the custom values for the cutoff threshold. Unlike the preset values, custom cutoff values are for the total battery voltage, not individual cell voltage.

4 Start Mode (Punch)

Sets the initial throttle punch when the car accelerates. Level 1 gives a very soft initial acceleration and level 4 gives a stronger initial acceleration.

5 Max Brake Force

Adjusts the maximum braking force. A higher value provides stronger braking, but can also cause the wheels to lock, resulting in loss of control of the car.

DYNAMITE FUZE 540 4-POLE 3300KV SENSORLESS BRUSHLESS MOTOR

GEARING

Your vehicle has been equipped with the optimal gearing for the stock platform. It offers an ideal balance between speed, power and efficiency. Should you decide to customize your vehicle with optional batteries or motors, it may be necessary for you to change the pinion or spur gear.

Installing a pinion gear with less teeth or a spur gear with more teeth will provide greater torque but will reduce top speed. Likewise, a pinion gear with more teeth or a spur gear with fewer teeth will reduce torque and increase top speed. Care should be taken when installing larger pinion gears as this can “overgear” the vehicle, resulting in overheating of the motor and ESC. When testing different gearing options, pay close attention to the temperature of the motor and speed control to ensure you are operating within the temperature range of the components. The motor or ESC should never be so hot that it cannot be touched. If temperatures are too hot, a different gearing combination with a lower pinion gear and/or higher spur gear is suggested.

SETTING THE GEAR MESH

The gear mesh has already been set at the factory, and setting it is only necessary when changing motors or gears.

Proper gear mesh (how gear teeth meet) is important to the performance of the vehicle. When the gear mesh is too loose, the spur gear could be damaged by the pinion gear of the motor. If the mesh is too tight, speed could be limited and the motor and ESC will overheat.

PRECAUTIONS

- » Never touch moving parts.
- » Never disassemble while the batteries are installed.
- » Always let parts cool before touching.

ADJUSTING THE SLIPPER

Turn the 5mm adjustment nut clockwise (to the right) to reduce the slip or counterclockwise (to the left) to increase the slip.

CHANGING THE PINION GEAR/GEAR RATIO

Your vehicle comes with the 20T pinion gear. To change to another pinion gear (sold separately), follow the directions below.

- 1 Unscrew the 3 screws holding the gear cover/motor mount in place.
- 2 Remove the motor gear cover.
- 3 Remove the pinion gear.
- 4 Remove the screws holding the motor and move to the appropriate holes (marked with the number of teeth on the pinion) and reinstall the screws.
- 5 Place the new pinion gear on the motor shaft.
- 6 Reinstall the gear cover.

GEAR CHART

FINAL DRIVE RATIOS

		FINAL DRIVE RATIO		
		2S	3S	
MARGINAL THERMO OK	PINION	16T	14.52	14.52
		17T	13.66	13.66
		18T	12.91	12.91
		19T	12.23	12.23
		20T	11.61	11.61
		21T	11.06	11.06
		22T	10.56	10.56
		23T	10.10	10.10
		24T	9.68	9.68

EXAMPLE

INTERNAL GEAR RATIO	2.67
SPUR	87
PINION	20
FINAL DRIVE RATIO	11.61



To set the gear mesh, screw the motor into the corresponding marked set of holes. For example, with a 20T pinion, the motor screws must be screwed into the holes labeled “20”.

NOTICE: Do not ship Li-Po batteries to Horizon. If you have any issue with a LiPo 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 1/2 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)	www.quickbase.com/db/bghj7ey8c?a=GenNewRecord 888-959-2306	
	Sales	sales@horizonhobby.com 888-959-2306	
United Kingdom	Service/Parts/Sales: Horizon Hobby Limited	sales@horizonhobby.co.uk +44 (0) 1279 641 097	Units 1-4 Ployters Rd Staple Tye Harlow, Essex CM18 7NS United Kingdom
Germany	Horizon Technischer Service	service@horizonhobby.de +49 (0) 4121 2655 100	Christian-Junge-Straße 1 25337 Elmshorn
	Sales: Horizon Hobby GmbH		
France	Horizon Hobby SAS	infofrance@horizonhobby.com +33 (0) 1 60 18 34 90	11 Rue Georges Charpak 77127 Lieusaint, France
China	Service/Parts/Sales: Horizon Hobby - China	info@horizonhobby.com.cn +86 (021) 5180 9868	Room 506 No. 97 Changshou Rd. Shanghai, China 200060

FCC INFORMATION //////////////////////////////////////

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.

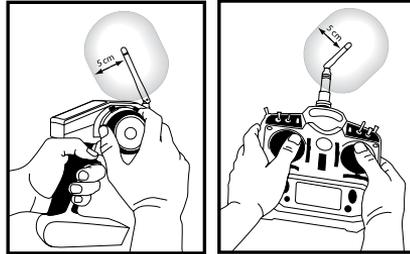
IC INFORMATION //////////////////////////////////////

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 5 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 5 cm RF exposure area and typical hand placement when operating your Spektrum transmitter.



COMPLIANCE INFORMATION FOR THE EUROPEAN UNION //

AT	BE	BG	CZ	CY	DE	DK
EE	ES	FI	FR	GR	HR	HU
IE	IT	LT	LU	LV	MT	NL
PL	PT	RO	SE	SI	SK	UK
IS	LI	NO	CH			

CE DECLARATION OF CONFORMITY (in accordance with ISO/IEC 17050-1)

No. HH2014021502

Product(s): VTR 1:10 4WD Raptor Pre Runner Truck (Spektrum DX2E transmitter and SPMSRS4200 receiver included)

Item Number(s): VTR03009

Equipment class: 2

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC, EMC Directive 2004/108/EC and and LVD Directive 2006/95/EC:

EN 300-328 V1.7.1: 2006

EN301 489-1 V1.9.2: 2012

EN301 489-17 V2.1.1: 2009

EN60950-1:2006+A11:2009+A1:2010+A12: 2011

EN55022:2010 + AC:2011

EN55024:2010

Signed for and on behalf of:

Horizon Hobby, Inc.
Champaign, IL USA
February 15, 2014

Robert Peak
Chief Financial Officer
Horizon Hobby, Inc.

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.