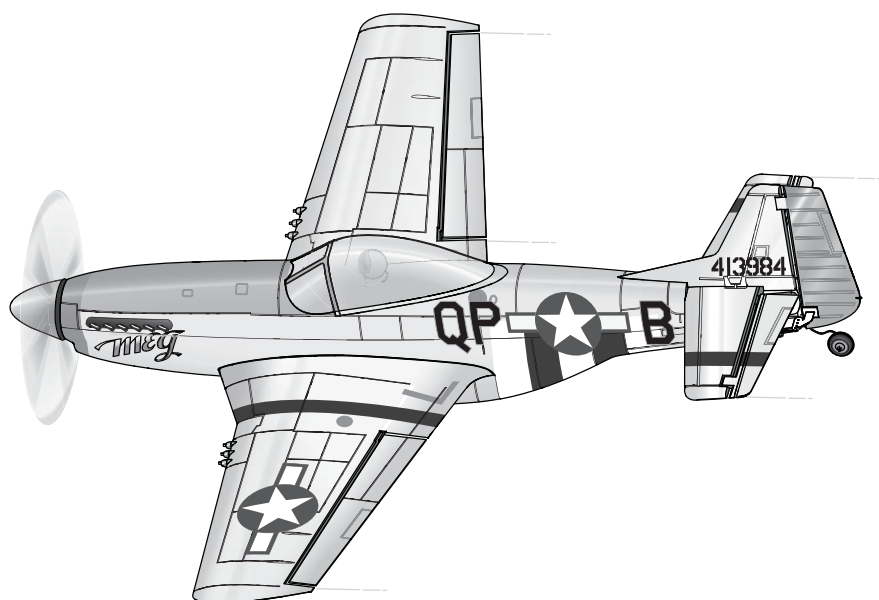


ULTRA
MICRO
SERIES



parkzone®



Ultra Micro **P-51D Mustang**

*Instruction Manual / Bedienungsanleitung
Manuel d'utilisation / Manuale di Istruzioni*



Bind-N-Fly™ Ready to fly, redefined.



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 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. 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.

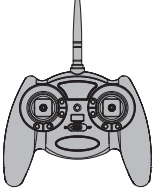
Age Recommendation: Not for children under 14 years. This is not a toy.

One of the earliest ParkZone® Ultra Micro aircraft, the original P-51D Mustang has been a hugely successful aircraft. This all-new P-51D has been designed from the ground up to be even more desirable thanks to AS3X® stabilization technology and a significant increase in the level of scale detail. This Ultra Micro Mustang even includes a pilot figure! Before you take to the skies though, you must take time to read this manual. In it you will find handy setup tips and important information about the AS3X System that will enable you to get the most from your P-51D Mustang, helping ensure your first flight and every flight afterward is a success.

RTF

READY-TO-FLY

Includes



BNF

BIND-N-FLY

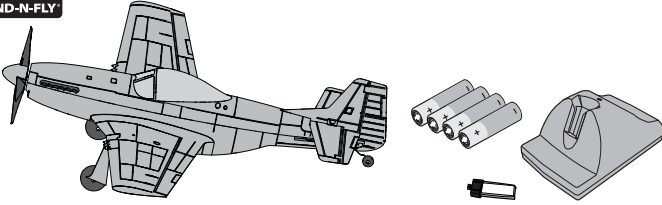
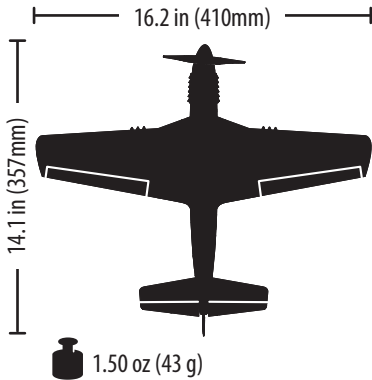








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Specifications



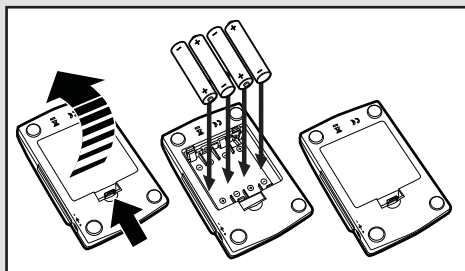
RTF	BNF		
READY-TO-FLY	BIND-N-FLY		
Installed	Installed		8.5mm Brushed Motor
Installed	Installed		DSM2®/DSMX® AS3X Receiver/ESC
Installed	Installed		(1) Servo (SPMSA2030L) (2) (SPMSA2030L) on the board
Included	Included		Battery: 150mAh 3.7V 25C Li-Po
Included	Included		Charger: 1S 3.7V Li-Po Battery Charger
Included	Needed to Complete		DSM2/DSMX 4-Channel Transmitter

To register your product online, go to www.parkzone.com

Charging the Battery

Your aircraft comes with a 1S 3.7V DC Li-Po battery charger and 1S 3.7V 150mAh 25C Li-Po battery. Refer to the charging warnings. It is recommended to charge the battery pack while you are inspecting the aircraft. The flight battery will be required to confirm proper aircraft operation in future steps.


Remove the cover on the bottom of the charger and install four of the included AA batteries, noting proper polarity. Replace the cover after the AA batteries are installed. Only use alkaline AA batteries.




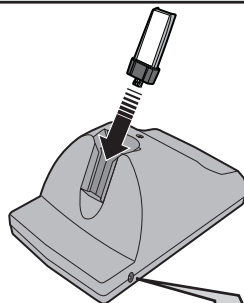
Battery Charging Process

NOTICE: Charge only batteries that are cool to the touch and are not damaged. Look at the battery to make sure it is not damaged e.g., swollen, bent, broken or punctured.


1. Slide the battery into the slot on the charger and press it into the charge jack/connector located at the bottom of the slot. The end cap of the battery is specifically designed to allow the battery to fit into the slot one way (usually with the label on the battery facing outward) to prevent reverse polarity connection. However, check for proper alignment and polarity.
2. Always disconnect the flight battery from the charger immediately upon completion of charging.

 **CAUTION:** Only use the included charger specifically designed to charge this Li-Po battery. Failure to do so could result in fire, causing injury or property damage.

 **CAUTION:** Never exceed the recommended charge rate.



Purchase the optional AC to 6V DC 1.5 amp Power Supply (EFLC1005) to charge your battery pack without AA batteries.

 **CAUTION:** Only use an E-flite® 6V power supply (EFLC1005) with this charger. DO NOT use a 12V power supply or property damage and injury could occur.

LED Indications

When you make the connection successfully, the LED on the charger turns solid red, indicating charging has begun.

Charging a fully discharged (not over-discharged) 150mAh battery takes approximately 30–40 minutes. As the battery nears full charge, the LED begins to blink. The intervals between blinks will increase as the battery comes closer to full charge.


When the LED blinks approximately every 20 seconds, the battery is ready to be removed. However, the battery can be left charging until the LED completely goes out for a maximum charge.

CHARGING (Solid Red)..... ●

READY (Blinking 20 sec. intervals)..... ●


MAX CHARGE (off)..... ○

If the LED stays **ON** when the flight battery is removed, the AA batteries in the charger are low.

 **CAUTION:** Once charging is complete, immediately remove the battery. Never leave a battery connected to the charger.

Charging Warnings

The Battery Charger (EFLC1000) included with your aircraft has been designed to safely charge the Li-Po battery.

 **CAUTION:** All instructions and warnings must be followed exactly. Mishandling of Li-Po batteries can result in a fire, personal injury and/or property damage.

- By handling, charging or using the included Li-Po battery, you assume all risks associated with lithium batteries.
- If at any time the battery begins to balloon or swell, discontinue use immediately. If charging or discharging, discontinue and disconnect. Continuing to use, charge or discharge a battery that is ballooning or swelling can result in fire.
- Always store the battery at room temperature in a dry area for best results.
- Always transport or temporarily store the battery in a temperature range of 40–120° F (5–49° C). Do not store the battery or model in a car or direct sunlight. If stored in a hot car, the battery can be damaged or even catch fire.
- Always charge batteries away from flammable materials.
- Always inspect the battery before charging.
- Always disconnect the battery after charging, and let the charger cool between charges.
- Always constantly monitor the temperature of the battery pack while charging.
- **ONLY USE A CHARGER SPECIFICALLY DESIGNED TO CHARGE LI-PO BATTERIES.** Failure to charge the battery with a compatible charger may cause a fire resulting in personal injury and/or property damage.
- Never discharge Li-Po cells to below 3V under load.
- Never cover warning labels with hook and loop strips.
- Never leave charging batteries unattended.
- Never charge batteries outside recommended levels.
- Never charge damaged batteries.
- Never attempt to dismantle or alter the charger.
- Never allow minors to charge battery packs.
- Never charge batteries in extremely hot or cold places (recommended between 40–120° F or (5–49° C) or place in direct sunlight.

Low Voltage Cutoff (LVC)

When a Li-Po battery is discharged below 3V per cell, it will not hold a charge. The aircraft's ESC protects the flight 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 quickly decreases and increases, showing that some battery power is reserved for flight control and safe landing.

When the motor power pulses, land the aircraft immediately and recharge the flight battery.

Disconnect and remove the Li-Po battery from the aircraft after use to prevent trickle discharge. Fully charge your Li-Po battery before storing it. 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.

For your first flights, set your transmitter timer or a stopwatch to 4 minutes. Adjust your timer for longer or shorter flights once you have flown the model. Flights of 6 minutes or more are achievable if using proper throttle management.

NOTICE: Repeated flying to LVC will damage the battery.

AS3X® System Delivers Breakthrough Performance

Horizon Hobby has always made RC sport, scale and unique aircraft with the kind of performance experts appreciate. Now the exclusive Artificial Stability – 3 aXis (AS3X) system helps take performance expectations in ultra micro aircraft a quantum leap higher.

Based on the successful use of MEMS sensor technology within the AS3X Stabilization System essential to Blade® ultra micro flybarless helicopters, the specifically tuned

AS3X System for airplanes helps invisibly correct for turbulence, torque and tip stalls when encountered. Furthermore, the outstanding control agility delivers an ultra smooth, locked-in feel that obeys your every command with performance that's natural feeling. It's so gratifying, in fact, that it's as though you're the RC pilot of an expertly tuned, giant-scale model.

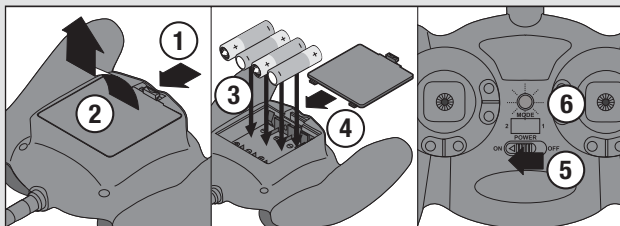
AS3X will change the way you'll want to fly now and in the future. To see what we mean, go to www.E-fliteRC.com/AS3X.

RTF Installing the Transmitter Batteries

READY-TO-FLY

Your ParkZone® 4-channel DSM2/DSMX RTF transmitter comes pre-bound to the aircraft.

Remove the cover, install four of the included batteries (noting proper polarity) and reinstall the cover.



BNF Transmitter and Receiver Binding

BIND-N-FLY®

Binding is the process of programming the receiver to recognize the GUID (Globally Unique Identifier) code of a single specific transmitter. You need to 'bind' your chosen Spektrum™ DSM® technology equipped aircraft transmitter to the receiver for proper operation.

For a list of compatible DSM2/DSMX transmitters, please visit www.bindnfly.com.

CAUTION: When using a Futaba® transmitter with a Spektrum DSM module, you must reverse the throttle channel and rebind. Refer to your Spektrum module manual for binding and failsafe instructions. Refer to your Futaba transmitter manual for instructions on reversing the throttle channel.

✓ Binding Procedure Reference Table

1. Refer to your transmitter's unique instructions for binding to a receiver.	
2. Make sure the flight battery is disconnected from the aircraft.	
3. Ensure the transmitter is powered OFF	
4. Connect the flight battery to the aircraft. The receiver LED will begin to flash (typically after 5 seconds).	
5. Make sure the transmitter controls are at neutral and the throttle is in the low position.	
6. Put your transmitter into bind mode. <i>If you are using the transmitter that is supplied with the RTF version, push the left control stick vertically into the case (until it clicks) while powering ON the transmitter.</i>	
7. After 5 to 10 seconds, the receiver status LED will become solid, indicating that the receiver is bound to the transmitter. If the LED does not turn solid, refer to the Troubleshooting Guide at the end of the manual.	

For subsequent flights, power ON the transmitter for 5 seconds before connecting the flight battery.

Installing the Flight Battery and Arming the ESC

Arming the ESC also occurs after binding as previously described, but subsequent connection of a flight battery requires the following steps.

AS3X

The AS3X® system will not activate until the throttle stick or trim is increased for the first time. Once active, the control surfaces may move rapidly and noisily on the aircraft. This is normal. AS3X technology will remain active until the battery is disconnected.

It is normal for linear servos to make noise. Noise is not an indication of a faulty servo.

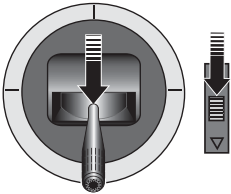
CAUTION: Always keep hands away from the propeller. When armed, the motor will turn the propeller in response to any throttle movement.

CAUTION: Always disconnect the Li-Po battery from the aircraft receiver when not flying to avoid over-discharging the battery. Batteries discharged to a voltage lower than the lowest approved voltage may become damaged, resulting in loss of performance and potential fire when batteries are charged.

1

Lower throttle and throttle trim to lowest settings.

Power ON the transmitter, then wait 5 seconds

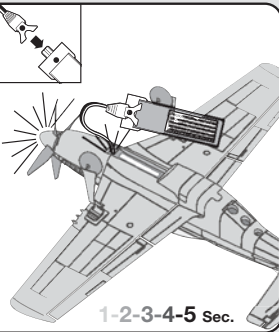


2

Connect the battery to the ESC, noting proper polarity.

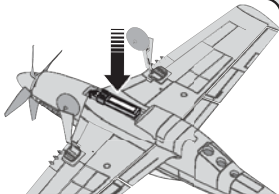
Keep the plane immobile and away from wind for 5 seconds.


Continuous LED



3

Secure the battery to the hook and loop strip on the battery holder.





FLY...

Preflight Checklist

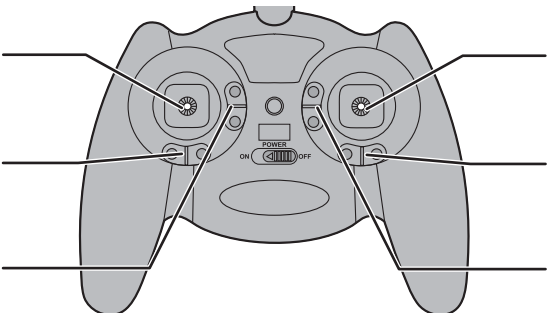
✓	
	1. Charge the flight battery.
	2. Install the flight battery in the aircraft (once it has been fully charged).
	3. Bind the aircraft to the transmitter. (BNF only)
	4. Make sure the linkages move freely.

✓	
	5. Perform the Control Direction Test with the transmitter.
	6. Adjust the center of gravity.
	7. Perform a radio system Range Check
	8. Find a safe and open area.
	9. Plan flight appropriate for flying location.

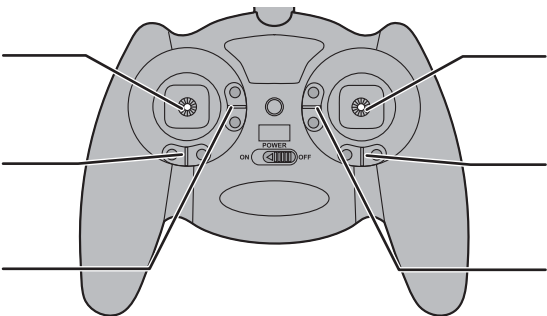
RTF Transmitter Control

READY-TO-FLY

Mode 2

Throttle/Rudder		Elevator/Aileron
Rudder Trim		Aileron Trim
Throttle Trim		Elevator Trim

Mode 1

Elevator/Rudder		Throttle/Aileron
Rudder Trim		Aileron Trim
Elevator Trim		Throttle Trim

Digital Trims

The ParkZone® 4-channel DSM2/DSMX transmitter features digital trim buttons on all controls to make fine adjustments. The digital trims are used to fine-tune the model's flight path when in flight.

Before the first flight, center the control surfaces mechanically (see Control Centering).

When pressed down, trim buttons make a sound that increases or decreases in pitch at each pressing. The middle or neutral trim position is heard as a middle tone in the pitch range of the sounds. The end of the control range is sounded by a series of beeps.

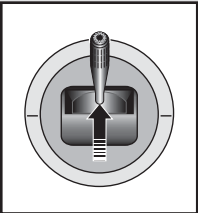
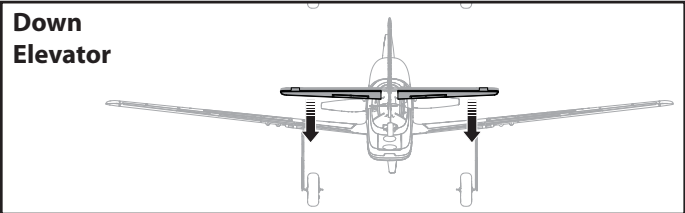

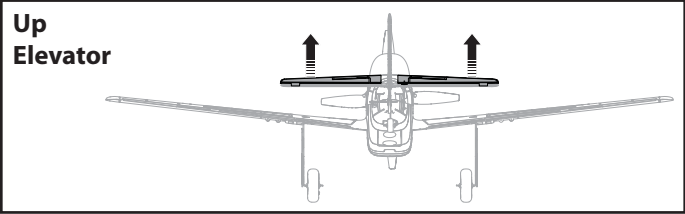
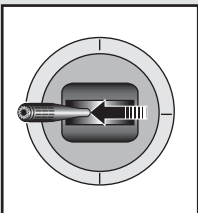
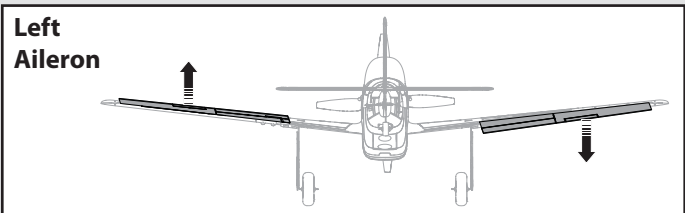
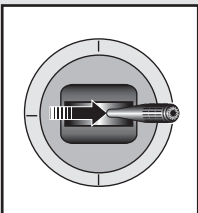
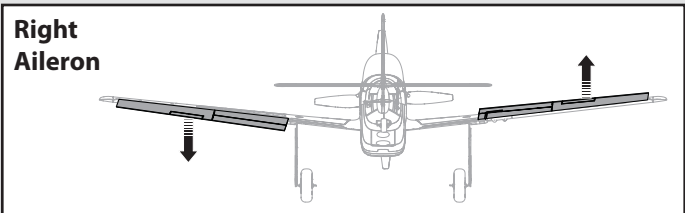
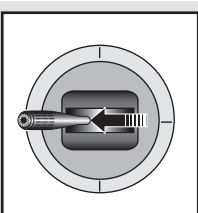
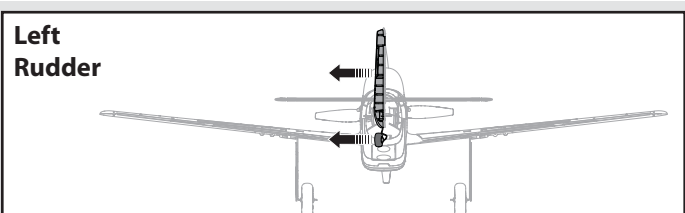
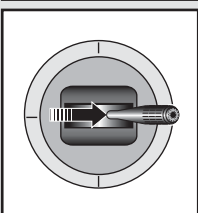
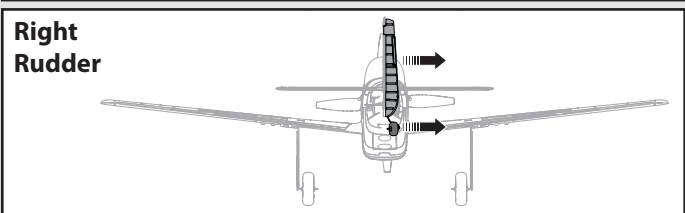
Dual Rate Function

This transmitter's dual rate feature lets you change between high and low control rates for the aileron, elevator and rudder.

- When powered ON, this transmitter is automatically set to high-rate mode.
- Change rate modes by pushing the right-hand control stick vertically into the case (until it clicks) while the transmitter is powered ON.
- High-rate mode is shown by the transmitter's LED glowing solid red. In high-rate mode, the controls can reach their maximum values. This mode is typically preferred by experienced pilots for maximum control authority.
- Low-rate mode is shown by the transmitter's LED blinking continuously. In low-rate mode, the controls are reduced to approximately 70% of their maximum values. This mode is typically preferred by (and best for) beginner pilots or others interested in smoother and more easily controlled flight.

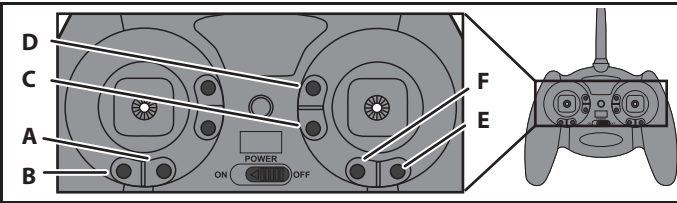
Control Direction Test

Bind your aircraft and transmitter before doing these tests. Move the controls on the transmitter to make sure aircraft control surfaces move correctly. **Always keep throttle at the low position during testing.**

	Down Elevator 
	Up Elevator 
	Left Aileron 
	Right Aileron 
	Left Rudder 
	Right Rudder 

Reverse Controls

NOTICE: The aircraft should not require any servo reversing. Should the electronic components be used in another aircraft, you may find it necessary to reverse the operation of the flight control surfaces.



The diagram shows a top-down view of the transmitter and servo tray. Labels A through F point to specific controls: A points to the Rudder trim, B to the Rudder reverse button, C to the Elevator trim, D to the Elevator reverse button, E to the Aileron trim, and F to the Aileron reverse button. A power switch is also visible with 'ON' and 'OFF' positions.

A	Rudder Reversed
B	Rudder Normal
C	Elevator Reversed
D	Elevator Normal
E	Aileron Reversed
F	Aileron Normal

The transmitter included with the aircraft is the same transmitter included in other Ultra Micro RTF models.

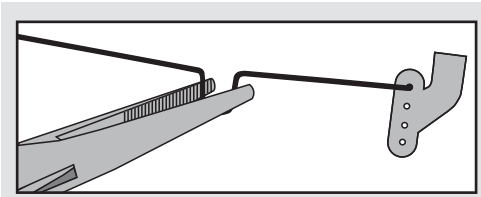
1. Ensure the battery is disconnected from the aircraft and the transmitter is turned off.
 2. Press and hold the digital trim button for the surface you would like to reverse.
 3. While holding the digital trim button, turn the transmitter on.
4. Hold the digital trim buttons down for approximately 5 seconds until you hear a tone confirming the selection.
 5. Connect the flight battery and complete the flight control test. Confirm all surfaces operate in the correct direction.

Control Centering

Before first flights, or in the event of an accident, make sure the flight control surfaces are centered. Adjust the linkages mechanically if the control surfaces are not centered.

Use of the transmitter trims may not correctly center the aircraft control surfaces due to the mechanical limits of linear servos.

1. Make sure the control surfaces are neutral when the transmitter controls and trims are centered. The transmitter sub-trim must be set to zero.
2. When needed, use a pair of pliers to carefully bend the metal of the linkage (see illustration).
3. Make the U-shape narrower to make the connector shorter. Make the U-shape wider to make the linkage longer.

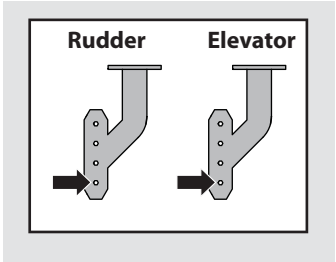


Centering Controls After First Flights

For best performance with AS3X, it is important that excessive trim is not used. If the aircraft requires excessive transmitter trim (4 or more clicks of trim per channel), return the transmitter trim to zero and adjust the linkages mechanically so that the control surfaces are in the flight trimmed position.

Settings for Control Horns

The illustration shows factory settings for linkages on the control horns. After flying, if you want to modify control throw, carefully adjust the linkage positions for desired control response.



Control Rates

We recommend using a DSM2/DSMX aircraft transmitter capable of dual rates. Adjust according to individual preferences after initial flight.

To achieve the proper Low Rate settings when using a programmable DSM2/DSMX aircraft transmitter, set the low rate value to 70% for the aileron, elevator and rudder.

NOTICE: Do not set your transmitter travel adjust over 100%. If the TRAVEL ADJUST is set over 100%, it will not result in more control movement, it will overdrive the servo and cause damage.

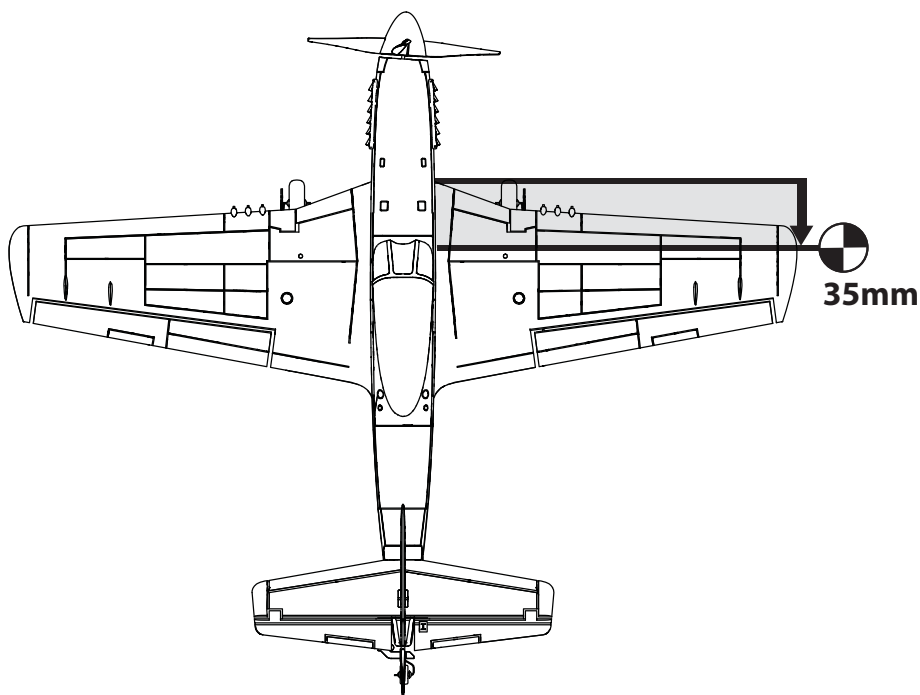
	High Rate	Low Rate
Aileron	100%	70%
Elevator	100%	70%
Rudder	100%	70%

Adjusting the Center of Gravity (CG)

The CG location is **35mm** back from the leading edge at the wing root.

This CG location has been determined with the included 1S 150mAh 3.7V Li-Po battery installed in the battery cavity.

Balance the model on the edge of a metal ruler to find the Center of Gravity. Place the ruler on the underside of the airframe.



Motor Service

CAUTION: DO NOT handle propeller parts while the flight battery is connected. Personal injury could result.

Disassembly

1. Disconnect the battery from the ESC/receiver.
2. Carefully cut the tape and decals on the side of the fuselage and behind the canopy to remove the top of the fuselage.

IMPORTANT: Removing tape or decals can remove paint from the fuselage.

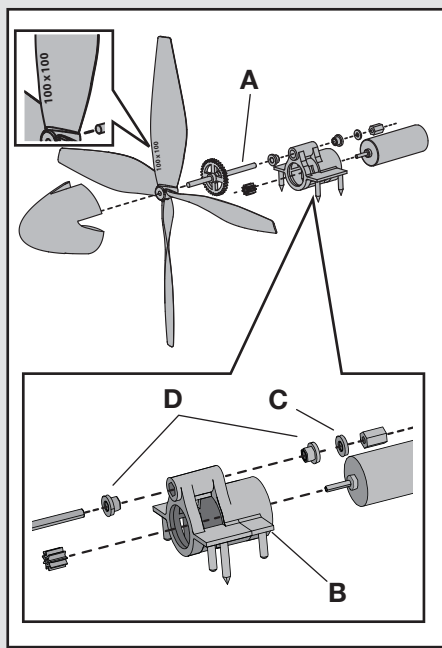
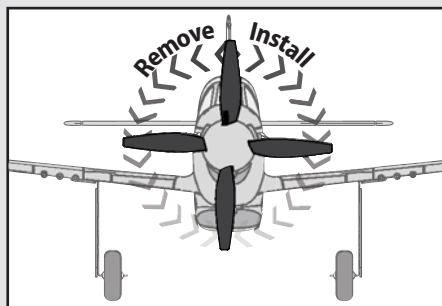
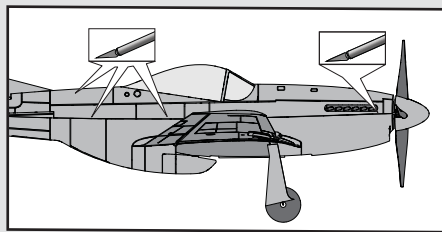
3. Hold the prop shaft using needle-nose pliers or hemostats.
4. Turn the propeller counterclockwise (facing the front of the model) to remove. Turn the propeller clockwise to install.
5. Carefully remove a damaged spinner and glue from the propeller.
6. Hold the nut on the end of the prop shaft using needle-nose pliers or hemostats.
7. Turn the gear on the shaft clockwise (facing the front of the model) to remove the nut.
8. Gently pull the shaft (A) from the gearbox (B) and make sure the washer (C) and two bushings (D) are not lost.
9. Disconnect the motor from the ESC/receiver.
10. Gently push the motor out of the gearbox and remove the motor through the top of the fuselage behind the ESC/receiver.

NOTICE: DO NOT remove the gearbox from the aircraft. Damage to the aircraft will result.

Assembly

Assemble the aircraft using the instructions above in reverse order.

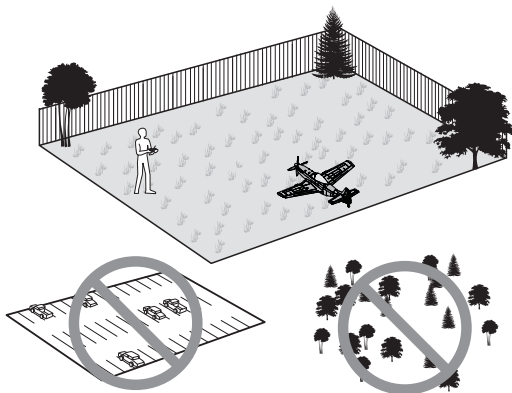
- Correctly align the prop shaft gear with the pinion gear on the motor.
- Connect the motor to the ESC/receiver so that the powered motor turns the propeller counterclockwise (facing the front of the model).
- Make sure the propeller size numbers (100 x 100) face away from the motor (see illustration).
- Attach the spinner to the propeller using foam-compatible CA (Cyanoacrylate adhesive).
- Assemble the fuselage using clear tape.



Flying Tips and Repairs

Flying

We recommend flying your P-51D Mustang outside in no greater than moderate winds or inside in a large gymnasium. Always avoid flying near houses, trees, wires and buildings. You should also be careful to avoid flying in areas where there are many people, such as busy parks, schoolyards or soccer fields. Consult local laws and ordinances before choosing a location to fly your aircraft.



Takeoff

Place the P-51D Mustang in position for takeoff (facing into the wind if flying outdoors). Gradually increase the throttle to full and steer with the rudder. Pull back gently with the elevator and climb to check trim. Once the trim is adjusted, begin exploring the flight envelope of the P-51D Mustang.

Landing

Make sure to land into the wind. Fly the aircraft to approximately 6 inches (15cm) or less above the runway, using a small amount of throttle for the entire descent. Keep the throttle on until the aircraft is ready to flare. During flare, keep the wings level and the aircraft pointed into the wind. Gently lower the throttle while pulling back on the elevator to set the aircraft gently on the ground.

Failure to lower the throttle stick and trim to the lowest possible positions during a crash could result in damage to the ESC in the receiver unit, which may require replacement.

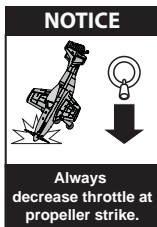
NOTICE: Crash damage is not covered under warranty.

Repairs

Repair the P-51D Mustang using foam-compatible CA glue (Cyanoacrylate adhesive) or clear tape. Only use foam-compatible CA glue, as other types of glue can damage the foam. When parts are not repairable, see the Replacement Parts List for ordering by item number.

NOTICE: Use of foam-compatible CA accelerant on your aircraft can damage paint. DO NOT handle the aircraft until accelerant fully dries.

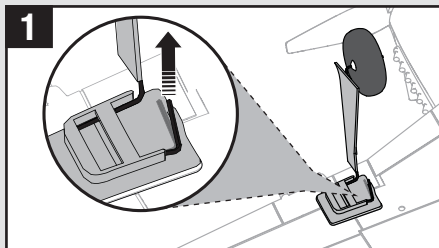
For a listing of all replacement and optional parts, refer to the list at the back of this manual.



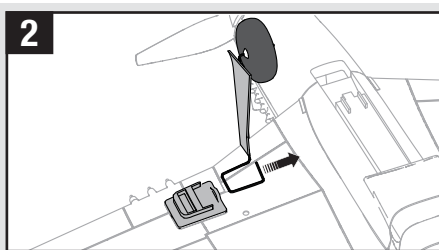
Removing and Installing the Landing Gear

To remove the factory-installed landing gear:

1. Lift the end of the landing gear wire above the stop.



2. Gently pull the landing gear toward the center of the wing and away from the clips.



Install in reverse order, making sure the end of the landing gear wire is inside the stop and the vertical strut is toward the front of each wing.

Additional Safety Precautions and Warnings

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

- 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.
- Always keep the aircraft in sight and under control.
- Always use fully charged batteries.
- Always keep the transmitter powered ON while the aircraft is powered.
- Always remove batteries before disassembly.
- Always keep moving parts clean.
- Always keep parts dry.
- Always let parts cool after use before touching.
- Always remove batteries after use.
- Always ensure failsafe is properly set before flying.
- Never operate aircraft with damaged wiring.
- Never touch moving parts.

Post Flight Checklist

✓		✓	
	1. Disconnect the flight battery from the ESC (Required for safety and battery life).		4. Recharge the flight battery.
	2. Power OFF the transmitter.		5. Store the flight battery apart from the aircraft and monitor the battery charge.
	3. Remove the flight battery from the aircraft.		6. Make note of the flight conditions and flight plan results, planning for future flights.

Troubleshooting Guide

AS3X

Problem	Possible Cause	Solution
Control surfaces not at neutral position when transmitter controls are at neutral	Control surfaces may not have been mechanically centered from factory	Center control surfaces mechanically by adjusting the U-bends on control linkages
	Aircraft was moved after the flight battery was connected and before sensors initialized	Disconnect and reconnect the flight battery while keeping the aircraft still for 5 seconds
Model flies inconsistently from flight to flight	Trims are moved too far from neutral position	Neutralize trims and mechanically adjust linkages to center control surfaces
Controls oscillate in flight, (model rapidly jumps or moves)	Propeller is unbalanced, causing excessive vibration	Remove propeller and rebalance or replace it if damaged
	Nut on prop shaft is too loose, causing excessive vibration.	Tighten the prop shaft nut 1/2 turn

Problem	Possible Cause	Solution
Aircraft will not respond to throttle but responds to other controls	Throttle stick and/or throttle trim is too high	Reset controls with throttle stick and throttle trim at lowest setting
	Throttle channel is reversed	Reverse throttle channel on transmitter
	Motor is disconnected from receiver	Open fuselage and ensure the plug for the motor is properly installed
Extra propeller noise or extra vibration	Damaged propeller, prop shaft or motor	Replace damaged parts
	Nut on prop shaft is too loose	Tighten the prop shaft nut 1/2 turn
Reduced flight time or aircraft underpowered	Flight battery charge is low	Completely recharge flight battery
	Propeller is installed backwards	Install propeller with numbers facing forward
	Flight battery is damaged	Replace flight battery and follow flight battery instructions
	Flight conditions may be too cold	Make sure battery is warm before use
	Battery capacity is too low for flight conditions	Replace battery or use a larger capacity battery

Troubleshooting Guide (continued)

Problem	Possible Cause	Solution
LED on receiver flashes rapidly and aircraft will not bind to transmitter (during binding)	Transmitter is too near aircraft during binding process	Power off transmitter, move transmitter a larger distance from aircraft, disconnect and reconnect flight battery to aircraft and follow binding instructions
	Bind switch or button was not held while transmitter was powered on	Power off transmitter and repeat bind process
	Aircraft or transmitter is too close to large metal object, wireless source or another transmitter	Move aircraft and transmitter to another location and attempt binding again
LED on receiver flashes rapidly and aircraft will not respond to transmitter (after binding)	Less than a 5-second wait between first powering on transmitter and connecting flight battery to aircraft	Leaving transmitter on, disconnect and reconnect flight battery to aircraft
	Aircraft is bound to a different model memory (ModelMatch™ radios only)	Select correct model memory on transmitter and disconnect and reconnect flight battery to aircraft
	Flight battery/transmitter battery charge is too low	Replace/recharge batteries
	Transmitter may have been bound to a different model (or with a different DSM Protocol)	Select the right transmitter or bind to the new one
	Aircraft or transmitter is too close to large metal object, wireless source or another transmitter	Move aircraft and transmitter to another location and attempt connecting again
Control surface does not move	Control surface, control horn, linkage or servo damage	Replace or repair damaged parts and adjust controls
	Wire damaged or connections loose	Do a check of wires and connections; connect or replace as needed
	Flight battery charge is low	Fully recharge flight battery
	Control linkage does not move freely	Make sure control linkage moves freely
Controls reversed	Transmitter settings reversed	Do the Control Direction Test and adjust controls on transmitter appropriately
Motor loses power	Damage to motor or power components	Do a check of motor and power components for damage (replace as needed)
	Nut on prop shaft is too tight	Loosen prop shaft nut until propeller shaft turns freely
Motor power quickly decreases and increases then motor loses power	Battery power is down to the point of receiver/ESC Low Voltage Cutoff (LVC)	Recharge flight battery or replace battery that is no longer performing
Servo locks or freezes at full travel	Travel adjust value is set above 100% overdriving the servo	Set Travel adjust to 100% or less and/or set sub trims to Zero and adjust linkages mechanically.

Limited Warranty

What this Warranty Covers

Horizon Hobby, Inc. ("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.

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 877.504.0233 toll free to speak to 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 LiPo 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 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 Information

Country of Purchase	Horizon Hobby	Address	Phone Number/Email Address
United States of America	Horizon Service Center (Electronics and engines)	4105 Fieldstone Rd Champaign, Illinois 61822 USA	877-504-0233 Online Repair Request visit: www.horizonhobby.com/service
	Horizon Product Support (All other products)	4105 Fieldstone Rd Champaign, Illinois 61822 USA	877-504-0233 productsupport@horizonhobby.com
United Kingdom	Horizon Hobby Limited	Units 1-4 Ployters Rd Staple Tye Harlow, Essex CM18 7NS, United Kingdom	+44 (0) 1279 641 097 sales@horizonhobby.co.uk
Germany	Horizon Technischer Service	Christian-Junge-Straße 1 25337 Elmshorn, Germany	+49 (0) 4121 2655 100 service@horizonhobby.de
France	Horizon Hobby SAS	11 Rue Georges Charpak 77127 Lieusaint	+33 (0) 1 60 18 34 90 infofrance@horizonhobby.com
China	Horizon Hobby – China	Room 506, No. 97 Changshou Rd. Shanghai, China, 200060	+86 (021) 5180 9868 info@horizonhobby.com.cn

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 license-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.

Compliance Information for the European Union Declaration of Conformity

(in accordance with ISO/IEC 17050-1)
No. HH2013021602

Product(s): PKZ Ultra Micro P-51D Mustang BNF
Item Number(s): PKZU2480
Equipment class: 1

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 LVD Directive 2006/95/EC

EN 301 489-1 V1.7.1: 2006
EN 301 489-17 V1.3.2: 2008

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
Feb 16, 2013

Steven A. Hall
Executive VP – Chief Operating Officer
International Operations and Risk Management
Horizon Hobby, Inc.

(in accordance with ISO/IEC 17050-1)
No. HH2013021603

Product(s): PKZ Ultra Micro P-51D Mustang RTF
Item Number(s): PKZU2400
Equipment class: 1

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 LVD Directive 2006/95/EC

EN 300-328 V1.7.1: 2006
EN 301 489-1 V1.7.1: 2006
EN 301 489-17 V1.3.2: 2008

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
Feb 16, 2013

Steven A. Hall
Executive VP – Chief Operating Officer
International Operations and Risk Management
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 collections 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 # • Nummer Numéro • Codice	Description	Beschreibung	Description	Descrizione
EFLUP1001004B	100 x 100mm 4 Blade Propeller	100 x 100mm 4 Blattpropeller	Hélice quadripale 100x100mm	Elica 4 pale 100x 100mm mm
PKZU2408	Spinner Set (3): UM P-51D w AS3X	UM P-51D AS3X: Spinner Set	Jeu de cônes (3): UM P51D AS3X	Set ogiva (3): UM P-51D w AS3X
PKZU2470	Ultra Micro Fighter Pilot	Parkzone Ultra Micro Fighter Pilot	Pilote militaire pour avion Ultra Micro	Pilota da caccia Ultra Micro
PKZU2467	Fuselage w/ Canopy: UM P-51D AS3X	UM P-51D AS3X: Rumpf	Fuselage avec verrière : UM P-51D AS3X	Fusoliera c/ capottina: UM P-51D AS3X
PKZU2420	Main Wing: UM P-51D w/ AS3X	UM P-51D AS3X: Tragfläche	Aile: UM P-51D w/ AS3X	Ala Principale: UM P-51D w/ AS3X
PKZU2425	Complete Tail w/ Accessories: UM P51D AS3X	UM P51D AS3X: Leitwerk m. Zbh.	Stabilisateur complet avec accessoires : UM P51D AS3X	Coda completa di accessori: UM P51D AS3X
PKZU2403	Landing Gear Set: UM P51D AS3X	UM P-51D AS3X: Fahrwerksset	Train d'atterrissage: UM P51D AS3X	Set carrello: UM P51D AS3X
PKZU2426	Pushrod Set: UM P-51D w/ AS3X	UM P-51D w/ AS3X: Schubstangensatz	Jeu tringleries : UM P-51D w/ AS3X	Set asta di spinta: UM P-51D w/ AS3X
PKZ3623	Aileron Bellcrank	Querruderanlen- khebel	Renvois d'ailerons	Squadretta alettoni
PKZU2402	Decal Sheet: UM P-51D w/ AS3X	Parkzone UM P-51D AS3X: Dekorbogen	Planche de décalcomanies : UM P-51D w/ AS3X	Foglio con decalcomanie: UM P-51D w/ AS3X
EFLB1501S25	1S 3.7V 25C 150mAh Li-Po Battery	1S-3,7V-25C 150mAh-Li-Po-Akku	Batterie Li-Po 150 mAh 25C 3,7V 1S	Batteria Li-Po 1S da 3,7V, 25C 150 mAh
EFLC1000	AC/DC 3.7V Li-Po Charger	AC/DC-3,7V-Li-Po- Ladegerät	Chargeur Li-Po CA/DC 3,7V	Caricabatterie Li-Po CA/CC da 3,7V
PKZU2164	DSM2/X 6 Ch UM AS3X Receiver ESC	DSM2/X 6 Kanal UM AS3X Empfänger/ Regler	Module RX 6voies/ AS3X/ESC	Ricevitore/ESC DSM2/X 6 ch UM AS3X
SPMSA2030L	2.3-Gram Performance Linear Long Throw Servo	Spektrum 2,3-Gramm Performance Linear Servo m. langem Ruderweg	Servo 2.3g linéaire longue course performant	Ottimo servo lineare a corsa lunga da 2,3 Grammi
SPM6836	Replacement Servo Mechanics: 2.3- Gram 2030L	Spektrum Ersatzgetriebe Servo: 2.3-Gramm 2030L	Mécanique de servo servo : 2.3g 2030L	Meccanica di ricambio per servo: 2.3- grammi 2030L
PKZ3616	Motor: Ultra Micro P-51, UM T-28	Parkzone Motor : Micro P51	Moteur : Ultra Micro P-51, UM T-28	Motore Ultra Micro P-51, UM T-28
PKZ3527	Gearbox (No Motor): Sukhoi, UM P-51	Parkzone Getriebe ohne Motor : UM- P-51	Réducteur (sans moteur) : Sukhoi, UM P-51	Riduttore (senza motore): Sukhoi, UM P-51
PKZ3624	Motor and Gear Box: Ultra Micro P-51, SU26 XP	Parkzone Motor mit Getriebe : Micro P51	Réducteur avec moteur : UM P-51,SU 26 XP	Motore con riduttore: Ultra Micro P-51, SU26 XP

Part # • Nummer Numéro • Codice	Description	Beschreibung	Description	Descrizione
EFL9054	Prop Shaft with gear (2) : Sukhoi Su-26m, Micro P-51	E-flite Ultra Micro 4-Site Luftschrauben-welle mit Getriebe	Arbre d'hélice avec réducteur (2) : Sukhoi Su-26m, Micro P-51	Albero dell'elica con ingranaggio (2): Sukhoi Su-26m, Micro P-51

Optional Parts and Accessories • Optionale Bauteile und Zubehör • Pièces et accessoires optionnels • Componenti e accessori opzionali

Part # Nummer Numéro Codice	Description	Beschreibung	Description	Descrizione
EFLC1004	Celectra 4-Port 1S 3.7V 0.3 A DC Li-Po Charger	E-flite 4 Port Lade-gerät 1S 3,7V 0,3A	Chargeur Li-Po CC 0,3 A 3, 7V 1S 4 ports Celectra	Caricabatterie Li-Po 1S da 3,7V 0,3 A CC, a 4 porte, Celectra
EFLC1005/AU/EU/UK	AC to 6V DC 1.5 amp Power Supply (Based upon your sales Region)	E-flite Netzteil für 4 Port Ladegerät	Alimentation CA vers 6 V CC, 1,5 A (En fonction de votre région)	Alimentatore da CA a 6 V CC, 1,5 Amp (in base al Paese di vendita)
	DX4e DSMX 4-channel Transmitter	Spektrum DX4e DSMX 4 Kanalsender ohne Empfänger	Emetteur DX4e DSMX 4 voies	DX4e DSMX Trasmettitore 4 canali
	DX5e DSMX 5-channel Transmitter	Spektrum DX5e DSMX 5 Kanalsender ohne Empfänger	Emetteur DX5e DSMX 5 voies	DX5e DSMX Trasmettitore 5 canali
	DX6i DSMX 6-Channel Transmitter	DX6i DSMX 6-Kanal Sender	Emetteur DX6i DSMX 6 voies	DX6i DSMX Trasmettitore 6 canali
	DX7s DSMX 7-Channel Transmitter	Spektrum DX7s 7 Kanal Sender	Emetteur DX7s DSMX 7 voies	DX7s DSMX Trasmettitore 7 canali
	DX8 DSMX Transmitter	Spektrum DX8 nur Sender	Emetteur DX8 DSMX 8 voies	DX8 DSMX Solo trasmettitore

Parts Contact Information • Kontaktinformationen für Ersatzteile • Coordonnées (pièces) • Recapiti dei distributori

Country of Purchase	Horizon Hobby	Address	Phone Number/ Email Address
United States	Sales	4105 Fieldstone Rd Champaign, Illinois, 61822 USA	800-338-4639 sales@horizonhobby.com
United Kingdom	Horizon Hobby Limited	Units 1-4 Ployters Rd Staple Tye Harlow, Essex CM18 7NS, United Kingdom	+44 (0) 1279 641 097 sales@horizonhobby.co.uk
Germany	Horizon Hobby GmbH	Christian-Junge-Straße 1 25337 Elmshorn, Germany	+49 (0) 4121 2655 100 service@horizonhobby.de
France	Horizon Hobby SAS	11 Rue Georges Charpak 77127 Lieusaint, France	+33 (0) 1 60 18 34 90 infofrance@horizonhobby.com
China	Horizon Hobby – China	Room 506, No. 97 Changshou Rd. Shanghai, China, 200060	+86 (021) 5180 9868 info@horizonhobby.com.cn

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US D578,146. US 7,898,130. PRC ZL 200720069025.2. Other patents pending.



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