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.

- 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 aircraft in sight and under control.
- Always use fully charged batteries.
- Always keep transmitter powered on while 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.

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:** If you ever need to replace your Spektrum receiver found in a Horizon Hobby product, always purchase from Horizon Hobby, LLC or a Horizon Hobby 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.
Quick Start Information

Transmitter Setup
Set up your transmitter using the transmitter setup chart

Dual Rates

<table>
<thead>
<tr>
<th></th>
<th>Low Rate</th>
<th>Hi Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ail</td>
<td>8mm</td>
<td>12mm</td>
</tr>
<tr>
<td>Ele</td>
<td>8mm</td>
<td>12mm</td>
</tr>
<tr>
<td>Rud</td>
<td>10mm</td>
<td>20mm</td>
</tr>
<tr>
<td>Flaps</td>
<td>Half ▼=10mm</td>
<td>Full ▼=20mm</td>
</tr>
</tbody>
</table>

Center of Gravity (CG)
45mm (±5mm) from leading edge of wing at the fuselage

Flight Timer Setting
6 minutes, initially

Specifications

Motors: 2210–1350Kv (EFLM300514)
ESCs: 20A Brushless ESC (EFLA300515)
Servo: 9 gram servos (SPMSA330R)
Receiver: Spektrum AR636 6-Channel Sport Receiver (SPMAR636)
Recommended Battery: 11.1V 3S 2200–3200mAh Li-Po (SPMX22003S30, SPMX22003S50, SPMX22003S100)
Recommended Battery Charger: Compatible LiPo battery balancing charger
Recommended Transmitter: Full-Range 6 channel 2.4GHz with Spektrum DSMX® technology with adjustable Dual Rates

Box Contents

Table of Contents

SAFE® Select Technology (BNF Basic) ............................................. 4
Preflight ............................................................................... 4
Model Assembly ................................................................... 4
Receiver Installation (PNP) .................................................. 6
Transmitter Setup (BNF) ....................................................... 6
Battery Installation and ESC Arming ................................ 7
Center of Gravity ................................................................. 7
Transmitter and Receiver Binding/ Switching ON and OFF SAFE Select (BNF) ........................................... 8
SAFE® Select Switch Designation .......................................... 9
Control Surface Centering ..................................................... 9
Control Surface Direction .................................................... 10
Dual Rates and Control Throws .............................................. 10
AS3X Control Direction Test (BNF) ....................................... 11
In Flight Trimming (BNF) ...................................................... 11
Flying Tips and Repairs ....................................................... 12
SAFE Select Flying Tips ....................................................... 12
Post Flight ............................................................................ 13
Motor Service ....................................................................... 13
Float Assembly and Installation ........................................... 14
Flying Off Water ................................................................. 14
Replacement Parts, Optional Parts, Recommended Receivers (PNP) ......................................................... 15
AMA National Model Aircraft Safety Code ................. 16
Troubleshooting Guide AS3X/Troubleshooting Guide .......... 17
Limited Warranty ................................................................. 18
Contact Information ............................................................. 18
FCC Information .................................................................. 19
IC Information ..................................................................... 19
Compliance Information for the European Union ........... 19

As of this printing, you may be required to register with the FAA if you own this product.
For up-to-date information on how to register with the FAA, visit https://registermyuas.faa.gov/
For additional assistance on regulations and guidance on UAS usage, visit https://knowbeforeyoufly.org/

To receive product updates, special offers and more, register your product at https://www.horizonhobby.com/content/e-flite-rc
SAFE® Select Technology (BNF Basic)

The BNF Basic version of this airplane includes SAFE Select technology which can offer an extra level of protection in flight. Use the following instructions to make the SAFE Select system active and assign it to a switch. When enabled, SAFE Select prevents the airplane from banking or pitching past predetermined limits, and automatic self-leveling keeps the airplane flying in a straight and level attitude when the aileron, elevator and rudder sticks are at neutral.

SAFE Select is enabled or disabled during the bind process. When the airplane is bound with SAFE Select enabled, a switch can be assigned to toggle between SAFE Select mode and AS3X mode. AS3X® technology remains active with no banking limits or self leveling any time SAFE Select is disabled or OFF.

Preflight

1. Remove and inspect contents.
2. Read this instruction manual thoroughly.
3. Charge the flight battery.
4. Set up the transmitter using transmitter setup chart.
5. Fully assemble the airplane.
6. Install the flight battery in the aircraft (once it has been fully charged).
7. Check the Center of Gravity (CG).
8. Bind the aircraft to your transmitter.
10. Test the flap operation.
11. Perform the Control Direction Test with the transmitter.
12. Perform the AS3X Control Direction Test with the aircraft.
13. Adjust flight controls and transmitter.
14. Perform a radio system Range Test.
15. Find a safe open area to fly.
16. Plan flight for flying field conditions.

Model Assembly

Landing Gear Installation

1. Remove the screw (2mm x 15mm) on the bottom of the fuselage and remove the landing gear cover.
2. Install the six mounting screws (2mm x 10mm) and three landing gear mounting clamps as shown.
3. Reinstall the landing gear cover and tighten the fuselage screw (2mm x 15mm).
4. Install the nose wheel, aligning the flat area on the nose gear with the set screw in the nose gear bracket.
   **TIP:** The steering arm for the water rudder can be removed when flying with wheeled landing gear if desired.
5. Tighten the set screw.
   **TIP:** Apply a drop of CA to the landing gear strut covers and nose gear set screw, if desired.

Horizontal Tail Installation

1. Slide the horizontal stabilizer into place within the vertical fin, inserting it with the elevator control horn on the bottom of the stabilizer and the right side of the fuselage.
2. Install two screws (2mm x 10mm) on each side of the horizontal tail, as shown.
3. Move the elevator up and down several times. If the elevator joiner binds against the fuselage, continue to flex it until the binding is eliminated to allow for proper movement.
   **TIP:** Check and tighten any screws securing the control horns as needed. Do not overtighten the screws as it could damage the control surface and/or control horn.
4. Snap the elevator clevis into place, then snap the rudder clevis into place, if needed.
5. Slide the horizontal stabilizing fins into place.
   **TIP:** You may apply a drop of CA to secure the horizontal stabilizing fins, if desired.
Model Assembly *Continued*

**Wing Installation**

1. Connect the ESC, ailerons, LED lights, and flaps to the receiver in the following locations:
   1. ESC
   2. Aileron
   3. Elevator
   4. Rudder
   5. LED Lights
   6. Flaps

2. Install the wing, then secure it by tightening the thumb screw as shown.
3. Slide each wing strut into the fuselage slot.
4. Snap each wing strut into place at rear of motor nacelle.

**AR636 Port Assignments**

- **BND/PRG = BIND**
- 1 = ESC
- 2 = Aileron
- 3 = Elevator
- 4 = Rudder
- 5 = LED Lights
- 6 = Flaps

---

**Propeller Installation**

*WARNING:* Do not install the propeller until all system setups are complete. Failure to heed this warning could result in severe personal injury.

1. Determine which propeller matches each image and install as shown.
2. Install the left propeller (T7056C) on the left propeller adaptor.
   Install the right propeller (T7056CR) on the right propeller adaptor.
   Tighten each nut to secure each propeller in place.
   The nut securing the T7056CR propeller on the right wing is reverse threaded.
3. Install the spinners and secure them in place with a 2mm x 10mm machine screw.
**Receiver Installation (PNP)**

The Spektrum AR636 receiver is recommended for this airplane. If you choose to install another receiver, ensure that it is at least a 5-channel full range (sport) receiver. Refer to your receiver manual for correct installation and operation instructions.

**Installation (AR636 shown)**

1. Mount the receiver parallel to the length of the fuselage as shown. Use double-sided servo tape.

   **CAUTION:** Incorrect installation of the receiver could cause a crash.

2. Attach the appropriate control surfaces to the their respective ports on the receiver using the chart in the illustration.

**Transmitter Setup (BNF)**

**IMPORTANT:** After you set up your model, always rebind the transmitter and receiver to set the desired failsafe positions.

If you are using a 6 channel transmitter, the FLAP Channel (CH 6) controls the flaps.

**Dual Rates**

Attempt your first flights in Low Rate. For landings, use high rate elevator.

**NOTICE:** To ensure AS3X technology functions properly, do not lower rate values below 50%. If lower rates are desired, manually adjust the position of the pushrods on the servo arm.

**NOTICE:** If oscillation occurs at high speed, refer to the Troubleshooting Guide for more information.

**Expo**

After first flights, you may adjust expo in your transmitter.

---

**Computerized Transmitter Setup**

Start all transmitter programming with a blank ACRO model (perform a model reset), then name the model.

<table>
<thead>
<tr>
<th>Computerized Transmitter Setup</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set Dual Rates to</strong></td>
<td>HIGH 100%</td>
</tr>
<tr>
<td><strong>LOW 70%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Set Expo to</strong></td>
<td>HIGH 20%</td>
</tr>
<tr>
<td><strong>LOW 15%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Set Servo Travel to</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Set Throttle Cut to</strong></td>
<td>-130%</td>
</tr>
<tr>
<td><strong>DXe</strong></td>
<td>Refer to spektrumrc.com for the appropriate download setup.</td>
</tr>
</tbody>
</table>
| **DXSi** | 1. Go to the SETUP LIST MENU  
2. Set MODEL TYPE: ACRO  
3. Go to ADJUST LIST MENU  
4. Set TRAVEL: FLAPS †-100 ‡100  
5. Set FLAPS: Norm †-100 Flap ‡0  
LAND †100 Flap ‡35 Elev 0  
Elev 35 |
| **DX7S** | 1. Go to the SYSTEM SETUP  
2. Set MODEL TYPE: AIRPLANE  
3. Set WING TYPE: 1AIL 1 FLAP  
4. Go to the FUNCTION LIST  
5. Set FLAP SYSTEM: Choose Flap  
NORM: -100% FLAP  
MID: 0% FLAP  25% Elevator  
LAND: 100% FLAP  35% Elevator  
SPEED 2.0S: SWITCH = D |
| **DX8** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D  
5. Go to the FUNCTION LIST (Model Adjust)†  
6. Set FLAP SYSTEM:  
SELECT SWITCH D:  
POS 0: -100% FLAP*  25% Elevator  
POS 1: 0% FLAP*  35% Elevator  
SPEED 2.0 |
| **DX6e** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX6 (Gen2)** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX7 (Gen2)** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX8e** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX8 (Gen2)** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX9** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX10t** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX18** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |
| **DX20** | 1. Go to the SYSTEM SETUP (Model Utilities)†  
2. Set MODEL TYPE: AIRPLANE  
3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type):  
WING: 1AIL 1 FLAP  
4. Set CHANNEL ASSIGN (Model Setup, Channel Assign):  
(Defaut switch assignments with a new model setup)  
Flap (CH6): SWITCH D |

---

Some of the terminology and function locations used in the iX12 and iX20 programming may be slightly different than other Spektrum AirWare™ radios. The names given in parenthesis correspond to the IX programming terminology. Consult your transmitter manual for specific information about programming your transmitter.

*Flap programming values may vary slightly. For your initial flights use the recommended flap travel settings provided in the Flaps section and adjust the flap travel to your preference on subsequent flights.
Battery Installation and ESC Arming

Battery Selection

A 3S 2200-3200mAh LiPo battery is required. Refer to the Optional Parts List for battery recommendations. If using a battery other than those listed, the battery should be within the range of capacity, dimensions and weight of the E-flite Li-Po battery pack to fit in the fuselage.

**CAUTION:** Add nose weight for lighter batteries. Always verify the model balances within the recommended CG range before flying. Attempting to fly the model with an aft CG will cause the model to be unstable.

**CAUTION:** Never adjust the CG while a battery is connected.

**CAUTION:** When replacing the wheels with floats, recheck the CG. Place the battery further forward to compensate for the CG change.

1. For added security, apply the loop side (soft side) of the optional hook and loop tape to the bottom of your battery, and the hook side to the battery tray.
2. Remove the battery hatch.
3. Install the fully charged battery in the center of the battery compartment as shown. Secure using the hook and loop straps.
4. Connect the battery to the ESC. Two beeps indicate the ESCs are armed.

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

5. Keep the aircraft immobile and away from wind or the system will not initialize.
   - The motor will emit two even tones when the battery is connected and the ESC has a throttle signal.
   - The receiver LED will illuminate orange when it is initialized.
   - Fast continuous beeps indicate the ESCs are not armed.
6. Reinstall the battery hatch.

---

Center of Gravity

The Center of Gravity (CG) location is measured from the leading edge of the wing at the root. The CG will be affected by cargo or battery changes. Always verify the CG is within the recommended range before flight.

**IMPORTANT:** Place the CG 45mm (±5mm) from the leading edge.

**CAUTION:** Install the battery but do not arm the ESC while checking the CG. Personal injury may result.

---

<table>
<thead>
<tr>
<th>ESC Error Tone</th>
<th>Tone Meaning</th>
<th>Possible problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuously repeating single tone</td>
<td>Abnormal throttle signal</td>
<td>Transmitter and receiver not bound</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Throttle lead damaged or not plugged into receiver</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Throttle lead plugged into receiver backward</td>
</tr>
<tr>
<td></td>
<td>Throttle signal not at low position</td>
<td>Throttle stick not at low position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Throttle reversed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Throttle trim raised</td>
</tr>
</tbody>
</table>

---

45mm ±5mm
back from leading edge of wing at the fuselage.
Transmitter and Receiver Binding / Switching ON and OFF SAFE Select (BNF Basic)

This product requires an approved Spektrum DSM2®/DSMX® compatible transmitter. Visit www.bindnfly.com for a complete list of approved transmitters.

The aircraft has an optional SAFE Select feature, which can be switched ON or OFF easily by binding in a specific manner as described below.

IMPORTANT: Before binding a transmitter, read the Transmitter Setup section of this manual to ensure that your transmitter is properly programmed for this aircraft.

### Switching ON SAFE Select Binding Sequence

1. Install Bind Plug
2. Take three steps away from the aircraft /receiver and then put the transmitter in bind mode.
3. Place the aircraft level on its wheels, then connect the flight battery to the ESC. The motor will produce a series of sounds. The orange bind LED on the receiver will begin to flash rapidly.
4. Move the transmitter controls to neutral (flight controls: rudder, elevators and ailerons) or to low positions (throttle, throttle trim).*
5. Install a bind plug in the receiver bind port.
6. The receiver is bound to the transmitter when the orange bind light on the receiver stays orange. The ESC will produce a series of sounds. The tones indicate the ESC is armed, provided the throttle stick and throttle trim are low enough to trigger arming.

IMPORTANT: Once bound, the receiver will retain its bind settings for that transmitter until it has been intentionally changed, even when power is cycled ON and OFF. Repeat the binding process as necessary.

SAFE Select ON Indication
Every time the receiver is powered ON the surfaces will cycle back and forth twice with a slight pause at neutral position to indicate that SAFE Select is switched ON.

The throttle will not arm if the transmitter’s throttle control is not put at the lowest position. If problems are encountered, follow the binding instructions and refer to the transmitter troubleshooting guide for other instructions. If needed, contact the appropriate Horizon Product Support office.

*FAILSAFE
If the receiver loses transmitter communication, the failsafe will activate. When activated, failsafe moves the throttle channel to its preset failsafe position (low throttle) that was set during binding. All other channels move to actively level the aircraft in a descending turn.

### Switching OFF SAFE Select Binding Sequence

1. Install Bind Plug
2. Take three steps away from the aircraft /receiver and then put the transmitter in bind mode.
3. Place the aircraft level on its wheels, then connect the flight battery to the ESC. The motor will produce a series of sounds. The orange bind LED on the receiver will begin to flash rapidly. DO NOT remove the bind plug at this time.
4. Move the transmitter controls to neutral (flight controls: rudder, elevators and ailerons) or to low positions (throttle, throttle trim).*
5. Install a bind plug in the receiver bind port.
6. The receiver is bound to the transmitter when the orange bind light on the receiver stays orange. The ESC will produce a series of sounds. The ESC will produce a series of sounds. The tones indicate the ESC is armed, provided the throttle stick and throttle trim are low enough to trigger arming.

IMPORTANT: Once bound, the receiver will retain its bind settings for that transmitter until it has been intentionally changed, even when power is cycled ON and OFF. Repeat the binding process as necessary.

SAFE Select OFF Indication
Every time the receiver is powered ON the surfaces will cycle back and forth once to indicate that SAFE Select has been switched OFF.

The throttle will not arm if the transmitter’s throttle control is not put at the lowest position. If problems are encountered, follow the binding instructions and refer to the transmitter troubleshooting guide for other instructions. If needed, contact the appropriate Horizon Product Support office.
Control Surface Centering

After assembly and transmitter setup, confirm that the control surfaces are centered. The model must be powered up bound to the transmitter in AS3X mode, with the throttle left at zero. When enabled, SAFE mode is active at power up. AS3X mode is activated when the throttle is raised above 25% for the first time after being powered on. It is normal for the control surfaces to respond to aircraft movement if the aircraft is in AS3X or SAFE modes.

1. Verify the trims and subtrims on your transmitter are 0.
2. Power up the model in AS3X mode and leave the throttle at 0.
3. Verify the control surface tips are mechanically centered.
4. If you need to make an adjustment, rotate the clevis on the linkage to alter the linkage length between the servo arm and the control horn.

After binding a transmitter to the aircraft receiver, set the trims and sub-trims to 0, then adjust the clevises to center the control surfaces.

5. Center the elevator approximately 3mm down from neutral for level flight.

SAFE® Select Switch Designation

SAFE® Select technology can be assigned to any open switch (2 or 3 position) controlling a channel (5–9) on your transmitter. Once assigned to a switch, SAFE select ON gives you the flexibility to choose SAFE technology or AS3X mode while in flight. If the aircraft is bound with SAFE select OFF, the aircraft will be in AS3X mode exclusively.

**IMPORTANT:** Before assigning your desired switch, ensure that the travel for that channel is set at 100% in both directions and the aileron, elevator, rudder and throttle are all on high rate with the travel at 100%.

**CAUTION:** Keep all body parts well clear of the propeller and keep the aircraft securely restrained in case of accidental throttle activation.

**TIP:** SAFE Select is assignable on any unused channels 5–9. See your transmitter manual for more information about assigning a switch to a channel.

**TIP:** Use your radio channel monitor to confirm that the four primary channels are showing 100% travel while assigning the switch.

**TIP:** Use the channel monitor to make sure the switch you are assigning for SAFE Select is active and driving a channel between 5-9 and that it is traveling 100% in each direction.

**TIP:** Make sure your four primary channels are not reversed if you are having trouble assigning a SAFE Select switch.

Assigning a Switch

1. Bind the aircraft to choose SAFE Select ON. This will allow the system to be assigned to a switch.
2. Hold both transmitter sticks to the inside bottom corners and toggle the desired switch 5 times (1 toggle = full up and down) to assign that switch. The control surfaces of the aircraft will move, indicating the switch has been selected.

Repeat the process to assign a different switch or to deactivate the current switch if desired.
Control Surface Direction

Power on the transmitter and connect the battery. Use the transmitter to operate the aileron and elevator controls. View the aircraft from the rear when checking the control directions.

Ailerons
1. Move the aileron stick to the left. The right aileron should move down and the left aileron up, which will cause the aircraft to bank left.
2. Move the aileron stick to the right. The right aileron should move up and the left aileron down, which will cause the aircraft to bank right.

Elevators
1. Pull the elevator stick back. The elevators should move up, which will cause the aircraft to pitch up.
2. Push the elevator stick forward. The elevators should move down, which will cause the aircraft to pitch down.

Rudder
1. Move the rudder stick to the left. The rudder should move to the left, which will cause the aircraft to yaw left.
2. Move the rudder stick to the right. The rudder should move to the right, which will cause the aircraft to yaw right.

Dual Rates and Control Throws

Program your transmitter to set the rates and control throws based on your experience level.

After flying, you may choose to adjust the values for the desired control response.

<table>
<thead>
<tr>
<th></th>
<th>Low Rate</th>
<th>High Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aileron</td>
<td>8mm</td>
<td>12mm</td>
</tr>
<tr>
<td>Elevator</td>
<td>8mm</td>
<td>12mm</td>
</tr>
<tr>
<td>Rudder</td>
<td>10mm</td>
<td>20mm</td>
</tr>
<tr>
<td>Flap Travel</td>
<td>Half ▼</td>
<td>= 10mm</td>
</tr>
<tr>
<td></td>
<td>Full ▼</td>
<td>= 20mm</td>
</tr>
</tbody>
</table>

The table to the right shows the factory settings for the control horns and servo arms. These settings, in conjunction with the low rate transmitter settings, are intended for intermediate level pilots to help ensure a successful flight.

Fly the aircraft at these factory settings before making changes.
AS3X Control Direction Test *(BNF)*

This test ensures that the AS3X® control system is functioning properly. Assemble the aircraft and bind your transmitter to the receiver before performing this test.

1. Raise the throttle just above 25%, then lower the throttle to activate AS3X technology.

   **CAUTION:** Keep all body parts, hair and loose clothing away from a moving propeller, as these items could become entangled.

2. Move the entire aircraft as shown and ensure the control surfaces move in the direction indicated in the graphic. If the control surfaces do not respond as shown, do not fly the aircraft. Refer to the receiver manual for more information.

Once the AS3X system is active, control surfaces may move rapidly. This is normal. AS3X remains active until the battery is disconnected.

### In Flight Trimming *(BNF)*

During your first flight, trim the aircraft for level flight at 1/2 throttle with flaps up. Make small trim adjustments with your transmitter’s trim switches to straighten the aircraft’s flight path.

After adjusting the trim, do not touch the control sticks for 3 seconds. This allows the receiver to learn the correct settings to optimize AS3X performance. Failure to do so could affect flight performance.
Flying Tips and Repairs

Consult local laws and ordinances before choosing a flying location.

Getting Started
Before you fly, range check the radio system. Refer to your specific transmitter instruction manual for range test information. When you first connect the battery to the airplane AS3X will not be active. After advancing the throttle the first time, the AS3X system will be active and it is normal to see the control surfaces react to aircraft movement. For your first flights set your transmitter timer or a stopwatch to 5 minutes. Adjust your timer for longer or shorter flights once you have flown the model.

Takeoff
Face the aircraft into the wind for takeoff. Set your transmitter to low rates and drop the flaps to takeoff position (half position). Flaps are not required, but lowering them makes takeoffs shorter.

Gradually increase the throttle to full, and steer on the ground with rudder as necessary to keep the aircraft rolling straight. Be aware the nose wheel will become more sensitive as speed increases. Leave the elevator at neutral and allow the aircraft to accelerate up to speed on the ground, then pull up gently on the elevator to rotate for takeoff. When airborne, climb to a comfortable altitude, and return the flaps to the level position.

Flying
For your first flights climb to a moderate altitude and get comfortable with the aircraft while the battery is fresh. Get a feel for the aircraft’s low speed performance with the flaps up and down at a safe altitude (approximately 100 feet or more) before being required to make your first landing attempt. Land the aircraft when the timer expires. If at any time the motor power reduces, land the aircraft immediately to recharge the flight battery. See the Low Voltage Cutoff (LVC) section for more details on maximizing battery health and run time.

Landing
Plan to land the aircraft into the wind when possible. Fly downwind and turn into the wind to begin the approach. Lower the throttle and lower the flaps to the landing position (full down position.) Flaps will make the landing approach steeper and slower, and allow for a smoother landing. If there is a significant crosswind, only lower the flaps to the takeoff position (middle position) which will help maintain speed and better directional control during approach.

During the approach and descent, keep the wings level and the aircraft pointed into the wind. The angle of attack (the angle between the aircraft’s pitch attitude and the horizon) should remain consistent and slightly nose high during the decent. With the angle of attack maintained during the descent, the speed and descent rate is mostly controlled with small throttle changes. Stay into the throttle to maintain speed and control during decent until the aircraft is ready to flare. As the airplane descends into ground effect, fully lower the throttle, pull the nose up more to bleed off airspeed (flare), and the aircraft will settle on its wheels.

SAFE Select Flying Tips
When flying in SAFE Select mode the aircraft will return to level flight any time the aileron and elevator controls are at neutral. Applying aileron or elevator control will cause the airplane to bank, climb, or dive, and the amount the stick is moved will determine the attitude the airplane flies. Holding full control will push the aircraft to the pre-determined bank and roll limits but it will not go past those angles.

When flying with SAFE Select it is normal to hold the control stick deflected with moderate aileron input when flying through a turn. To fly smoothly with SAFE Select avoid making frequent control changes and don’t attempt to correct for minor deviations. With SAFE Select, holding deliberate control inputs will command the aircraft to fly at a specific angle and the model will make all corrections to maintain that flight attitude.

Return the elevator and aileron controls to neutral before switching from SAFE Select mode to AS3X mode. If you do not neutralize controls when switching into AS3X mode, the control inputs used for SAFE Select mode will be excessive for AS3X mode and the aircraft will react immediately.

Low Voltage Cutoff (LVC)
When a Li-Po battery is discharged too much per cell, it will not hold a charge. The 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 reduces, showing that some battery power is reserved for flight control and safe landing.

Disconnect and remove the Li-Po battery from the aircraft 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 flying to LVC will damage the battery.
Tip: Monitor your aircraft battery’s voltage before and after flying by using a Li-Po Cell Voltage Checker (SPMXBC100, sold separately).

Oscillation
For most flight maneuvers the aircraft should fly smoothly and normal, but it is possible in some flight conditions you may see oscillation (the aircraft rocks back and forth on one axis due to overcontrol). If oscillation occurs, refer to the Troubleshooting Guide for more information.

Repairs
Thanks to the EPO foam material in this aircraft, repairs to the foam can be made using virtually any adhesive (hot glue, regular CA, epoxy, etc.). When parts are not repairable, see the Replacement Parts List for ordering by item number. For a listing of all replacement and optional parts, refer to the list at the end of this manual.

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

Differences between SAFE Select and AS3X modes
This section is generally accurate but does not take into account flight speed, battery charge status, and many other limiting factors.

- In **SAFE Select mode** the aircraft will self level when the control stick is neutralized. In **AS3X mode** the aircraft will continue to fly at its present attitude when the control stick is neutralized.
- In **SAFE Select mode** holding a small amount of control will result in the model banking or pitching to a moderate angle and remaining at that angle as long as the control stick doesn’t move. In **AS3X mode** holding a small amount of control will result in the model continuing to pitch or roll at a slow rate as long as the control stick doesn’t move.
- In **SAFE Select mode** holding full control will result in the airplane banking or pitching to the predetermined limits and the aircraft will keep flying at that attitude as long as the control stick is fully deflected. In **AS3X mode** holding full control will result in the aircraft pitching or rolling as fast as possible, and it will continue to rapidly change attitude as long as the control stick is fully deflected.
### Post Flight

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disconnect the flight battery from the ESC (Required for Safety and battery life).</td>
</tr>
<tr>
<td>2</td>
<td>Power OFF the transmitter.</td>
</tr>
<tr>
<td>3</td>
<td>Remove the flight battery from the aircraft.</td>
</tr>
<tr>
<td>4</td>
<td>Recharge the flight battery.</td>
</tr>
<tr>
<td>5</td>
<td>Repair or replace all damaged parts.</td>
</tr>
<tr>
<td>6</td>
<td>Store the flight battery apart from the aircraft and monitor the battery charge.</td>
</tr>
<tr>
<td>7</td>
<td>Make note of flight conditions and flight plan results, planning for future flights.</td>
</tr>
</tbody>
</table>

### Motor Service

**CAUTION:** Always disconnect the flight battery before performing motor service.

**Disassembly**

1. Remove the spinner screw and spinner from the propeller shaft.
2. Remove the propeller nut. The right propeller nut for prop T7056CR is reverse rotation.
3. Remove the propeller.
4. Remove the two screws from the sides of the cowling and remove the cowling from the nacelle.
5. Remove top and bottom set screws.
6. Disconnect the motor wires from the ESC wires.
7. Remove the motor from the X-mount.

**Assembly**

Assemble in reverse order.

- Correctly align and connect the motor wire colors with the ESC wires.
- Install the propeller as shown.
- Tighten the spinner nut to secure the propeller into place.
**Float Assembly and Installation**

1. Remove the screw on the bottom of the fuselage, and remove the landing gear cover.
2. Loosen the nose wheel assembly screw, and remove the nose wheel assembly from the nose wheel steering bracket.
3. Loosen the six 2mm x 10mm mounting screws from the landing gear mounting clamps. Remove the mounting clamps (screws attached) and set them aside.
4. Install the front and rear float struts in the fuselage. The float struts angle down at the ends; the wheel strut is straight out, away from the plane.
5. Reinstall the landing gear cover and tighten the fuselage screw.
6. Install the floats and the spreader bars onto the struts, using the plastic clamps and the 2mm x 10mm screws to secure each clamp.
7. Install the steering wire, slipping the z-bend into the steering arm and snapping the rear clip into the water rudder clevis.
8. Secure the pushrod sleeve to the rear spreader bar with the included zip tie.

   **Tip:** If you removed the steering arm for the water rudder for flying with wheels, reinstall it for flying with floats.

**Disassemble in reverse order.**

**NOTICE:** If installing floats, always recheck the center of gravity before attempting to fly. Failure to do so may result in a crash.

---

**Flying Off Water**

Flying off water poses a higher risk because piloting errors or water conditions can cause the aircraft to become stranded. Only fly from the water when a level of comfort has been achieved flying the aircraft from the ground.

**Pre-Flight**

Ensure the optional floats are secure on the fuselage and the water rudder is correctly connected and operating with the main rudder before putting the aircraft in the water. Select an area to fly that does not have water currents, salt water, or debris. Look around the flight area and be aware of trees, docks, buoys, or other obstacles. Always fly with a spotter and avoid swimmers, boaters, people fishing, and people on the beach.

**Taxiing**

When taxiing, use low throttle settings and the rudders to steer. Hold up elevator to help keep the rudder in the water and the nose of the floats above the surface. Steer into the wind when turning, and crab into the wind if crosswind taxiing is required. When turning or crabbing into the wind, apply aileron against the wind to keep the upwind side of the wing down and prevent the aircraft from being flipped over. Do not apply down elevator when the airplane is taxiing or during the takeoff run.

**On Step**

When speed increases with throttle, the floats will rise out of the water and begin to plane on the surface of the water, riding “on step.” The floats will come on step at a speed below flight speed, this is a transitional phase when the aircraft is not up to flight speed yet. This is considered a high speed taxi. Do not attempt to take off as soon as the aircraft comes on step. Use low to medium throttle and hold up elevator to manage speed on the water during a high speed taxi.

**Takeoff**

To lift off from the water, set the flaps to the takeoff position, hold up elevator and accelerate the aircraft to bring it on step. Relax the up elevator as the airplane comes on step and accelerate to flight speed with full throttle. When the aircraft is travelling at a sufficient speed, pull back slightly on the elevator to rotate for liftoff.

**Landing**

To land on the water, set the flaps to the landing position, and fly into the wind. Reduce the throttle to a low setting but keep some power during the approach. As the aircraft settles into ground effect, reduce the throttle fully and hold up elevator to flare. Hold up elevator through the touch down and as the airplane decelerates on the water.

**WARNING:** Never attempt to retrieve a downed aircraft by swimming unless you are sufficiently trained and/or there is another person available to respond in the case of an emergency.

**CAUTION:** Have a plan for retrieval in the event the airplane becomes stranded. Never retrieve a downed model in the water alone.

**CAUTION:** If at any time water splashes in the fuselage while flying from water, bring the airplane to shore, open the battery hatch and immediately remove any water that may have gotten in the fuselage. Leave the battery hatch open overnight to let the inside dry out and to prevent moisture damage to the electronic components. Failure to do so could cause the electronic components to fail, which could result in a crash.

**TIP:** Use a fishing pole with heavy line as a retrieval tool. Attach a tennis ball to the line, and throw the ball past a stranded aircraft to retrieve it.
### Replacement Parts

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFL30051</td>
<td>Fuselage: Twin Otter</td>
</tr>
<tr>
<td>EFL300511</td>
<td>Wheels: Twin Otter</td>
</tr>
<tr>
<td>EFL300512</td>
<td>Battery Hatch: Twin Otter</td>
</tr>
<tr>
<td>EFL300513</td>
<td>Hardware Set: Twin Otter</td>
</tr>
<tr>
<td>EFL300516</td>
<td>Decal Sheet: Twin Otter</td>
</tr>
<tr>
<td>EFL300512</td>
<td>Decal Sheet: Twin Otter</td>
</tr>
<tr>
<td>EFL30052</td>
<td>Wing: Twin Otter</td>
</tr>
<tr>
<td>EFL30053</td>
<td>Horizontal Stabilizer: Twin Otter</td>
</tr>
<tr>
<td>EFL30054</td>
<td>Nacelles: Twin Otter</td>
</tr>
<tr>
<td>EFL30055</td>
<td>Cowlings: Twin Otter</td>
</tr>
<tr>
<td>EFL30058</td>
<td>Landing Gear Set: Twin Otter</td>
</tr>
<tr>
<td>EFL30059</td>
<td>Float Set: Twin Otter</td>
</tr>
<tr>
<td>EFLA300515</td>
<td>ESC 20A: Twin Otter</td>
</tr>
<tr>
<td>EFLA300517</td>
<td>Spinner Set: Twin Otter</td>
</tr>
<tr>
<td>EFLM300514</td>
<td>2210-1350 Motor: Twin Otter</td>
</tr>
<tr>
<td>EFLP30056</td>
<td>Propeller CW 7 x 5.6 x 3: Twin Otter</td>
</tr>
<tr>
<td>EFLP30060</td>
<td>Propeller CCW 7 x 5.6 x 3: Twin Otter</td>
</tr>
<tr>
<td>SPMAR636</td>
<td>AR636 6-Ch AS3X Sport Receiver</td>
</tr>
<tr>
<td>SPMAS330R</td>
<td>9 Gram Servo Reversed</td>
</tr>
</tbody>
</table>

### Recommended Receivers (PNP)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMAR620</td>
<td>AR620 6-Channel Sport Air Receiver</td>
</tr>
<tr>
<td>SPMAR6600T</td>
<td>AR6600T 6-Channel Integrated Telemetry Receiver</td>
</tr>
<tr>
<td>SPMAR6270T</td>
<td>AR6270T 6-Channel Carbon Fiber Integrated Telemetry Receiver</td>
</tr>
<tr>
<td>SPMAR8010T</td>
<td>AR8010T 8-Channel Air Integrated Telemetry Receiver</td>
</tr>
<tr>
<td>SPMAR9030T</td>
<td>AR9030T 9-Channel Air Integrated Telemetry Receiver</td>
</tr>
<tr>
<td>SPMAR636</td>
<td>AR636 6-Channel AS3X Sport Receiver</td>
</tr>
<tr>
<td>SPMAR7350</td>
<td>AR7350 7-Channel AS3X Receiver with Integrated Telemetry</td>
</tr>
<tr>
<td>SPMAR9350</td>
<td>AR9350 9-Channel AS3X Receiver with Integrated Telemetry</td>
</tr>
<tr>
<td>SPMAR6974</td>
<td>Aircraft Telemetry Airspeed Indicator</td>
</tr>
<tr>
<td>SPM9589</td>
<td>Aircraft Telemetry Altitude and Variometer Sensor</td>
</tr>
<tr>
<td>SPM9558</td>
<td>Brushless RPM Sensor</td>
</tr>
<tr>
<td>SPM9605</td>
<td>Aircraft Telemetry Flight Pack Battery Energy Sensor</td>
</tr>
<tr>
<td>SPM9687</td>
<td>Aircraft Telemetry GPS Sensor</td>
</tr>
</tbody>
</table>

*Not compatible with BNF, Telemetry receiver required*

### Optional Parts

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMA3065</td>
<td>AS3X Programming Cable - USB Interface</td>
</tr>
<tr>
<td>SPMBT1000</td>
<td>AS3X Bluetooth Programming Module</td>
</tr>
<tr>
<td>SPMXBC100</td>
<td>SMART Battery Checker and Servo Driver</td>
</tr>
<tr>
<td>EFLA111</td>
<td>Li-Po Cell Voltage Checker</td>
</tr>
<tr>
<td>DYN1405</td>
<td>Li-Po Charge Protection Bag, Large</td>
</tr>
<tr>
<td>DYN1400</td>
<td>Li-Po Charge Protection Bag, Small</td>
</tr>
<tr>
<td>SPMR12000</td>
<td>2x12 Channel Transmitter Only</td>
</tr>
<tr>
<td>SPMR6750</td>
<td>DX6 Transmitter Only MD2 G3</td>
</tr>
<tr>
<td>SPMR8000</td>
<td>DX8 Transmitter Only MD2</td>
</tr>
<tr>
<td>SPMR8100</td>
<td>DX8e 8CH Transmitter Only</td>
</tr>
<tr>
<td>SPMR9910</td>
<td>DX9 Black Transmitter Only MD2</td>
</tr>
<tr>
<td>SPMX32003S30</td>
<td>11.1V 3200mAh 3S 30C Smart LiPo, IC3</td>
</tr>
<tr>
<td>SPMXC1000</td>
<td>Smart S1200 DC Charger, 1x200W</td>
</tr>
<tr>
<td>SPMXC1010</td>
<td>Smart S2100 AC Charger, 2x100W</td>
</tr>
</tbody>
</table>
AMA National Model Aircraft Safety Code
Effective January 1, 2014

A. GENERAL
A model aircraft is a non-human-carrying aircraft capable of sustained flight in the atmosphere. It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and any additional rules specific to the flying site.

1. Model aircraft will not be flown:
   (a) In a careless or reckless manner.
   (b) At a location where model aircraft activities are prohibited.

2. Model aircraft pilots will:
   (a) Yield the right of way to all man carrying aircraft.
   (b) See and avoid all aircraft and a spotter must be used when appropriate. (AMA Document #540-D.)
   (c) Not fly higher than approximately 400 feet above ground level within three (3) miles of an airport, without notifying the airport operator.
   (d) Not interfere with operations and traffic patterns at any airport, heliport or seaplane base except where there is a mixed use agreement.
   (e) Not exceed a takeoff weight, including fuel, of 55 pounds unless in compliance with the AMA Large Model Aircraft program. (AMA Document 520-A.)
   (f) Ensure the aircraft is identified with the name and address or AMA number of the owner on the inside or affixed to the outside of the model aircraft. (This does not apply to model aircraft flown indoors).
   (g) Not operate aircraft with metal-blade propellers or with gaseous boosts except for helicopters operated under the provisions of AMA Document #555.
   (h) Not operate model aircraft while under the influence of alcohol or while using any drug which could adversely affect the pilot’s ability to safely control the model.
   (i) Not operate model aircraft carrying pyrotechnic devices which explode or burn, or any device which propels a projectile or drops any object that creates a hazard to persons or property.

Exceptions:
• Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight.
• Rocket motors (using solid propellant) up to a G-series size may be used provided they remain attached to the model during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code but may not be launched from model aircraft.
• Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Team AMA Program Document (AMA Document #718).
• Not operate a turbine-powered aircraft, unless in compliance with the AMA turbine regulations. (AMA Document #510-A).

3. Model aircraft will not be flown in AMA sanctioned events, air shows or model demonstrations unless:
   (a) The aircraft, control system and pilot skills have successfully demonstrated all maneuvers intended or anticipated prior to the specific event.
   (b) An inexperienced pilot is assisted by an experienced pilot.

4. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

B. RADIO CONTROL
1. All pilots shall avoid flying directly over unprotected people, vessels, vehicles or structures and shall avoid endangerment of life and property of others.
2. A successful radio equipment ground-range check in accordance with manufacturer’s recommendations will be completed before the first flight of a new or repaired model aircraft.
3. At all flying sites a safety line(s) must be established in front of which all flying takes place (AMA Document #706.)
   (a) Only personnel associated with flying the model aircraft are allowed at or in front of the safety line.
   (b) At air shows or demonstrations, a straight safety line must be established.
   (c) An area away from the safety line must be maintained for spectators.
   (d) Intentional flying behind the safety line is prohibited.
4. RC model aircraft must use the radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
5. RC model aircraft will not operate within three (3) miles of any pre-existing flying site without a frequency-management agreement (AMA Documents #922 and #923.)
6. With the exception of events flown under official AMA Competition Regulations, excluding takeoff and landing, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and the pilot’s helper(s) located at the flight line.
7. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual.
8. RC night flying requires a lighting system providing the pilot with a clear view of the model’s attitude and orientation at all times. Hand-held illumination systems are inadequate for night flying operations.
9. The pilot of a RC model aircraft shall:
   (a) Maintain control during the entire flight, maintaining visual contact without enhancement other than by corrective lenses prescribed for the pilot.
   (b) Fly using the assistance of a camera or First-Person View (FPV) only in accordance with the procedures outlined in AMA Document #550.
   (c) Fly using the assistance of autopilot or stabilization system only in accordance with the procedures outlined in AMA Document #560.

Please see your local or regional modeling association’s guidelines for proper, safe operation of your model aircraft.
## Troubleshooting Guide AS3X

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oscillation</strong></td>
<td>Damaged propeller or spinner</td>
<td>Replace propeller or spinner</td>
</tr>
<tr>
<td></td>
<td>Imbalanced propeller</td>
<td>Balance the propeller</td>
</tr>
<tr>
<td></td>
<td>Motor vibration</td>
<td>Replace parts or correctly align all parts and tighten fasteners as needed</td>
</tr>
<tr>
<td></td>
<td>Loose receiver</td>
<td>Align and secure receiver in fuselage</td>
</tr>
<tr>
<td></td>
<td>Loose aircraft controls</td>
<td>Tighten or otherwise secure parts (servo, arm, linkage, horn and control surface)</td>
</tr>
<tr>
<td></td>
<td>Worn parts</td>
<td>Replace worn parts (especially propeller, spinner or servo)</td>
</tr>
<tr>
<td></td>
<td>Irregular servo movement</td>
<td>Replace servo</td>
</tr>
<tr>
<td><strong>Inconsistent flight performance</strong></td>
<td>Trim is not at neutral</td>
<td>If you adjust trim more than 8 clicks, adjust the clevis to remove trim</td>
</tr>
<tr>
<td></td>
<td>Sub-Trim is not at neutral</td>
<td>No Sub-Trim is allowed. Adjust the servo linkage</td>
</tr>
<tr>
<td><strong>Incorrect response to the AS3X Control Direction Test</strong></td>
<td>Aircraft was not kept immobile for 5 seconds after battery connection</td>
<td>With the throttle stick in lowest position. Disconnect battery, then reconnect battery and keep the aircraft still for 5 seconds</td>
</tr>
</tbody>
</table>

| **Extra propeller noise or extra vibration** | Damaged propeller and spinner, collet or motor | Replace damaged parts |
| | Propeller is out of balance | Balance or replace propeller |
| | Prop nut is too loose | Tighten the prop nut |
| **Reduced flight time or aircraft underpowered** | Flight battery charge is low | Completely recharge flight battery |
| | Propeller installed backwards | Install propeller with numbers facing forward |
| | Flight battery damaged | Replace flight battery and follow flight battery instructions |
| | Flight conditions may be too cold | Make sure battery is warm before use |
| | Battery capacity too low for flight conditions | Replace battery or use a larger capacity battery |
| **Aircraft will not Bind (during binding) to transmitter** | Transmitter too near aircraft during binding process | Move powered transmitter a few feet from aircraft, disconnect and reconnect flight battery to aircraft |
| | 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 |
| | The bind plug is not installed correctly in the bind port | Install bind plug in bind port and bind the aircraft to the transmitter |
| | Flight battery/transmitter battery charge is too low | Replace/recharge batteries |
| | Bind switch or button not held long enough during bind process | Power off transmitter and repeat bind process. Hold transmitter bind button or switch until receiver is bound |
| **Aircraft will not connect (after binding) to transmitter** | Transmitter too near aircraft during connecting process | Move powered transmitter a few feet from aircraft, disconnect and reconnect flight battery to aircraft |
| | 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 |
| | Bind plug left installed in bind port | Rebind transmitter to the aircraft and remove the bind plug before cycling power |
| | Aircraft bound to different model memory (Model-Match radios only) | Select correct model memory on transmitter |
| | Flight battery/Transmitter battery charge is too low | Replace/recharge batteries |
| | Transmitter may have been bound to a different aircraft using different DSM protocol | Bind aircraft to transmitter |
| **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 |
| | Transmitter is not bound correctly or the incorrect airplanes was selected | Re-bind or select correct airplanes in transmitter |
| | Flight battery charge is low | Fully recharge flight battery |
| | BEC (Battery Elimination Circuit) of the ESC is damaged | Replace ESC |
| **Controls reversed** | Transmitter settings are reversed | Perform the Control Direction Test and adjust the transmitter controls appropriately |
| **Motor power pulses then motor loses power** | ESC uses default soft Low Voltage Cutoff (LVC) | Recharge flight battery or replace battery that is no longer performing |
| | Weather conditions might be too cold | Postpone flight until weather is warmer |
| | Battery is old, worn out, or damaged | Replace battery |
| | Battery C rating might be too small | Use recommended 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 NONINFRINGEMENT, 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 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 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.

Contact Information

<table>
<thead>
<tr>
<th>Country of Purchase</th>
<th>Horizon Hobby</th>
<th>Contact Information</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America</td>
<td>Horizon Service Center (Repairs and Repair Requests)</td>
<td>servicecenter.horizonhobby.com/RequestForm/</td>
<td>2904 Research Rd Champaign, Illinois, 61822 USA</td>
</tr>
<tr>
<td></td>
<td>Horizon Product Support (Product Technical Assistance)</td>
<td><a href="mailto:productsupport@horizonhobby.com">productsupport@horizonhobby.com</a></td>
<td>877-504-0233</td>
</tr>
<tr>
<td></td>
<td>Sales</td>
<td><a href="mailto:sales@horizonhobby.com">sales@horizonhobby.com</a></td>
<td>800-338-4639</td>
</tr>
<tr>
<td>European Union</td>
<td>Horizon Technischer Service</td>
<td><a href="mailto:service@horizonhobby.eu">service@horizonhobby.eu</a></td>
<td>Hanskampring 9 D 22885 Barsbüttel, Germany</td>
</tr>
<tr>
<td></td>
<td>Sales: Horizon Hobby GmbH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FCC Information

FCC ID: BRWDASRX15
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.

**Supplier's Declaration of Conformity**

EFL Twin Otter 1.2m BNF Basic with AS3X and SAFE Select | EFL30050

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.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Horizon Hobby, LLC
2904 Research Rd.,
Champaign, IL 61822
Email: compliance@horizonhobby.com
Web: HorizonHobby.com

IC Information

CAN ICES-3 (B)/NMB-3(B)
IC: 6157A-AMRX15
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.

Compliance Information for the European Union

**EFL30075 Twin Otter 1.2m PNP:** Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.

**EFL30050 Twin Otter 1.2m BNF BASIC:** 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.

**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 make sure 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.