A-10 Thunderbolt II
1/10 Scale Twin 80mm EDF JET

User Manual

Length: 1551mm (61.1")
Wingspan: 1700mm (66.9")
Weight: 4250g (w/o Battery)
Thank you for purchasing our Freewing 80mm EDF jet A-10 thunderbolt II. The original A-10 Thunderbolt II is a single-seat twin-engine attack plane, produced by Fairchild. It is now the only continuous service jet in US Air Force to provide intensive support for the ground forces.

The Freewing 80mm EDF A-10 Thunderbolt II's length is 1551mm (61.1"), wingspan is 1700mm (66.9"). The main wing and horizontal tail have a hollow frame design which reduces the weight effectively, and significantly increases main wing's strength. Three control boards are installed on the fuselage and both main wings. The ribbon wire connection reduces wire installation time, and increases connection reliability. The model uses screws for assembly so you can assemble/disassemble it quickly for convenience when carrying or shipping.

The A-10 Thunderbolt II model plane comes in a stock grey color scheme with most of the factory decals installed. In the package, we include three different sets of fuselage decals, please refer to the decal instructions and choose which set you want to use.

The A-10 Thunderbolt II model plane utilizes the newest 9-blade dual 80mm EDF with a 3530-1900KV brushless out-runner motor and 100A ESC. In flight, each side's continuous current is about 85A. The A-10 Thunderbolt II model plane uses 2 x 5000mAh lipo batteries, the flight time is about 3.5 ~ 4 minutes, the max flight speed is about 180KPH / 110MPH.

The A-10 Thunderbolt II has excellent flight characteristics in both high and low speed flight as well as excellent short takeoff and landing capabilities. The new 70mm nose wheel and 85mm rear wheels allow you to operate from all types of runways.

Enjoy your new The A-10 Thunderbolt II!

⚠️ NOTE: This is not a toy. Not for children under 14 years. Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of an adult. Please keep these instructions for further reference after completing model assembly.

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Basic product information

Standard version
Wing loading: 124g/dm²
Motor: 3530-1900KV brushless outrunner motor
Ducted fan: 80mm 9-blade fan
ESC: 100A brushless UBEC 8A(2pcs)
Servo: 17g Digital MG servo (9pcs) 30g Digital MG servo (2pcs) 9g Digital MG servo (1pcs)
Weight: 4250g(without battery)
Thrust: 6600kg

Other features
Material: EPO
Aileron: Yes
Flap: Yes
Elevator: Yes
Rudder: Yes
Landing gear: Retract landing gear
Landing gear doors: electric nose gear doors
Scale LED lights
Scale Pilot figure

Package list

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>PNP</th>
<th>ARF Plus</th>
<th>Airframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fuselage</td>
<td>Pre-installed all</td>
<td>Pre-installed</td>
<td>No-electronic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>electronic parts</td>
<td>servo</td>
<td>equipment</td>
</tr>
<tr>
<td>2</td>
<td>Main wing</td>
<td>Pre-installed all</td>
<td>Pre-installed</td>
<td>No-electronic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>electronic parts</td>
<td>servo</td>
<td>equipment</td>
</tr>
<tr>
<td>3</td>
<td>Horizontal tail</td>
<td>Pre-installed all</td>
<td>Pre-installed</td>
<td>No-electronic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>electronic parts</td>
<td>servo</td>
<td>equipment</td>
</tr>
<tr>
<td>4</td>
<td>Vertical tail</td>
<td>Pre-installed all</td>
<td>Pre-installed</td>
<td>No-electronic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>electronic parts</td>
<td>servo</td>
<td>equipment</td>
</tr>
<tr>
<td>5</td>
<td>Engine compartment</td>
<td>Pre-installed all</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>electronic parts</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>Carbon tube</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>PNP</th>
<th>ARF Plus</th>
<th>Airframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Linkage Set</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>8</td>
<td>Scale accessories</td>
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</tr>
<tr>
<td>9</td>
<td>Stabilizer wing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>10</td>
<td>Manual &amp; Decals</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>11</td>
<td>Glue &amp; Non-slip mat</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>12</td>
<td>Screws</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
PNP Assembly instructions

**Steel wire use instructions**
Our tests show that excessively long servo extension lines increase the rise of poor connections that can lead to servo brownouts or failure, causing accidents during flight. Instead, this kit contains a steel wire that can be used to pull the main wing/elevator and rudder servo wires through the airplane to the battery compartment, eliminating the need for extension wires.

**Fuselage Installation**
Use glue to assemble the front/rear fuselage.

**Horizontal stabilizer / Vertical stabilizer assembly**

As shown in the photo:
1. Attach the vertical stabilizer to the horizontal stabilizer and use the 2 screws to attach the left/right vertical stabilizer.
2. When installing the vertical stabilizer, pull the rudder servo cable wires through the inside trough.
3. Use the metal wire to pull the elevator/rudder servo cable wires through to the battery compartment.
4. Attach the horizontal stabilizer to the rear of the fuselage and use the 4 screws to secure it.

**A- Carbon tube (Ø6x200mm)**
**B- Carbon square tube (8.5x8.5x800mm)**

**A- Screws (PA3x8 4pcs)**
**B- Vertical tail**
**C- Horizontal tail**
**D- Servos wire**
**E- Screws (PA3x8 4pcs)**
**Engine compartment assembly**

1. Use the metal wire to pull the ESC cable and throttle cable to the battery compartment.
2. Assemble the engine compartment to the rear of fuselage.
3. Use 6 screws to secure it.

**Main wing assembly**

1. Insert the carbon tubes A and B into the fuselage.
2. Insert the connection cable to the control board, then install the left and right main wings to the fuselage.
3. Use 4 screws to secure the main wing.
Missile Installation

Follow the pictures below to install the weapons

Step 1
AIM-9 Missiles
AIM-9 pylons

Step 2
AIM-9 Missiles
AIM pylons

Step 3
AGM-65 Missiles
AN/ALQ-131
Mk-84

Step 4
LAU-131
AGM-65 Missiles
Mk-84
Antenna Installation

Step 1

Step 2

Step 3

Radar and Wing Fence Installation

Wing fence

Screw (PM3x6 1pcs)

Radar

Screws (PA3x8 2pcs)

Pushrod instructions

<table>
<thead>
<tr>
<th>Flap pushrod size(Inside)</th>
<th>Flap pushrod mounting hole(Inside)</th>
</tr>
</thead>
<tbody>
<tr>
<td>63mm (2-1/2&quot;)</td>
<td>Pushrod diameter Ø1.5mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flap pushrod size(Outside)</th>
<th>Flap pushrod mounting hole(Outside)</th>
</tr>
</thead>
<tbody>
<tr>
<td>76mm (3&quot;)</td>
<td>Pushrod diameter Ø1.5mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aileron pushrod size</th>
<th>Aileron pushrod mounting hole</th>
</tr>
</thead>
<tbody>
<tr>
<td>63mm (2-1/2&quot;)</td>
<td>Pushrod diameter Ø1.5mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elevator pushrod size</th>
<th>Elevator pushrod mounting hole</th>
</tr>
</thead>
<tbody>
<tr>
<td>63mm (2-1/2&quot;)</td>
<td>Pushrod diameter Ø1.5mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rudder pushrod size</th>
<th>Rudder pushrod mounting hole</th>
</tr>
</thead>
<tbody>
<tr>
<td>48mm (1-7/8&quot;)</td>
<td>Pushrod diameter Ø1.5mm</td>
</tr>
</tbody>
</table>
A-10 Thunderbolt II uses ribbon wires for convenience. Please refer to the following photo for connecting the electronic equipment.
Before connect the battery and receiver, turn on your transmitter, select the desired model channel and make sure the throttle stick is in the lowest position. We recommend assigning a switch as a kill switch.

**Center of gravity**

The Center of Gravity is directly related to the flight characteristics the airplane will demonstrate on its first flight. As a starting point, we recommend using 78 mm. Achieve this CG by moving the batteries. If, for some reason moving the batteries does not allow you to reach the proper CG, another suitable material such as sticky backed weight can be utilized. As you become more accustomed to the airplane, you can adjust the CG to meet your individual taste.

We recommend the following battery capacity and discharge rate:

- 6S 22.2V 4000mAh ~ 6S 22.2V 5200mAh (2pcs)
- Discharge rate of C > 30C

**Battery size**

Battery compartment size:

\[ L = 360 \text{ W} = 90 \text{ H} = 90 \text{ (mm)} \]

**Battery compartment size:**

Place the first battery into the forward position and secure it with the velcro strap.

**Center of gravity**

The Center of Gravity is directly related to the flight characteristics the airplane will demonstrate on its first flight. As a starting point, we recommend using 78 mm. Achieve this CG by moving the batteries. If, for some reason moving the batteries does not allow you to reach the proper CG, another suitable material such as sticky backed weight can be utilized. As you become more accustomed to the airplane, you can adjust the CG to meet your individual taste.

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- 6S 22.2V 4000mAh ~ 6S 22.2V 5200mAh (2pcs)
- Discharge rate of C > 30C

**Battery compartment size:**

Place the first battery into the forward position and secure it with the velcro strap.
Control direction test

After the airplane is assembled, but before the first flight, ensure that your control surface directions are correct. Turn on the transmitter and set the throttle in its lowest position, then test the control surfaces individually to ensure correct movement.

### Aileron

**Stick Left**

![Aileron stick left](image1)

**Stick Right**

![Aileron stick right](image2)

### Elevator

**Up Elevator**

![Elevator up](image3)

**Down Elevator**

![Elevator down](image4)

### Rudder

**Stick Left**

![Rudder stick left](image5)

**Stick Right**

![Rudder stick right](image6)

### Flaps

**Flaps down**

![Flaps down](image7)
PNP Assembly instructions

Dual rates

From our flight test results, we recommend the following parameters for aileron/elevator rates. In low rates, the airplane will be more stable. In high rates, it will be more sensitive. We advise using the recommended high rates in your first flight, then trying the recommended low rates. Afterwards can may want to adjust the rates to suit your individual taste.

Aileron

<table>
<thead>
<tr>
<th>Low Rate</th>
<th>High Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1/H2 30mm/30mm D/R Rate: 70%</td>
<td>H1/H2 40mm/40mm D/R Rate: 100%</td>
</tr>
</tbody>
</table>

Elevator

<table>
<thead>
<tr>
<th>Low Rate</th>
<th>High Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1/H2 30mm/30mm D/R Rate: 85%</td>
<td>H1/H2 34mm/34mm D/R Rate: 100%</td>
</tr>
</tbody>
</table>

Rudder

<table>
<thead>
<tr>
<th>Low Rate</th>
<th>High Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1/H2 20mm/20mm D/R Rate: 85%</td>
<td>H1/H2 26mm/26mm D/R Rate: 100%</td>
</tr>
</tbody>
</table>

Flaps

<table>
<thead>
<tr>
<th>Low Rate</th>
<th>High Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 32mm</td>
<td>H1 50mm</td>
</tr>
</tbody>
</table>

⚠️ Preflight precautions:

1. Correct elevator center position
   After assembly, adjust the elevator to center its position, please refer to the photo. After adjusting, the surface should look as if it has a little up elevator.

Flap-elevator mix parameter
   When deploying the flaps, the jet will tend to fly tail heavy. In order to correct this, we recommend a ‘Flap/Elevator’ mix within your radio. In this case, when you deploy the flaps, the airplane will maintain level flight.
   Setting range is as following:
   Deploy flaps to 50mm, pre-set the elevator 3mm down.
   Deploy flaps to 32mm, pre-set elevator 2mm down. Fine tune these settings according to your individual taste.
A servo or reversed servo is defined as follows:
When the servo input signal changes from 1000ųs to 2000ųs, if the servo arm rotates clockwise, it's a positive servo. If it rotates counter clockwise, it's a reversed servo.

If you choose not to use the factory servo, please refer to the following list to ensure the selected servo is the correct size.

<table>
<thead>
<tr>
<th>Position</th>
<th>Model</th>
<th>No.</th>
<th>Pos./Rev.</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nose gear steering servo</td>
<td>17g Digital MG</td>
<td>1</td>
<td>Positive</td>
<td>600mm</td>
</tr>
<tr>
<td>Landing gear door</td>
<td>9g Digital MG</td>
<td>2</td>
<td>Positive</td>
<td>600mm</td>
</tr>
<tr>
<td>Aileron(L)</td>
<td>30g Digital MG</td>
<td>3</td>
<td>Positive</td>
<td>600mm</td>
</tr>
<tr>
<td>Aileron(R)</td>
<td>30g Digital MG</td>
<td>4</td>
<td>Positive</td>
<td>600mm</td>
</tr>
<tr>
<td>Flap(L)</td>
<td>17g Digital MG</td>
<td>5</td>
<td>Positive</td>
<td>120mm</td>
</tr>
<tr>
<td>Flap(R)</td>
<td>17g Digital MG</td>
<td>6</td>
<td>Positive</td>
<td>120mm</td>
</tr>
<tr>
<td>Flap(L)</td>
<td>17g Digital MG</td>
<td>7</td>
<td>Positive</td>
<td>360mm</td>
</tr>
<tr>
<td>Flap(R)</td>
<td>17g Digital MG</td>
<td>8</td>
<td>Positive</td>
<td>360mm</td>
</tr>
<tr>
<td>Elevator(L)</td>
<td>17g Digital MG</td>
<td>9</td>
<td>Positive</td>
<td>950mm</td>
</tr>
<tr>
<td>Elevator(R)</td>
<td>17g Digital MG</td>
<td>10</td>
<td>Reverse</td>
<td>950mm</td>
</tr>
<tr>
<td>Rudder(L)</td>
<td>17g Digital MG</td>
<td>11</td>
<td>Positive</td>
<td>1200mm</td>
</tr>
<tr>
<td>Rudder(R)</td>
<td>17g Digital MG</td>
<td>12</td>
<td>Positive</td>
<td>1200mm</td>
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**Motor Parameters**

MO035303
3530-1900KV

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Use motor</th>
<th>motor(KV)</th>
<th>Thrust(kg)</th>
<th>Current(A)</th>
<th>Use voltage (V)</th>
<th>Use ESC (A)</th>
<th>EDF Weight (g)</th>
<th>Max power (W)</th>
<th>Efficiency (g/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E72310</td>
<td>O/R BL3530</td>
<td>1900</td>
<td>3300</td>
<td>90</td>
<td>22.2(6S)</td>
<td>100</td>
<td>278</td>
<td>2000</td>
<td>1.65</td>
</tr>
</tbody>
</table>
**Motor installation**

**Standard version**

- **A** - Screw
- **B** - Motor spinner
- **C** - Cup head screws (M3x7 4pcs)
- **D** - Washer
- **E** - 80mm ducted fan frame for outrunner motor
- **F** - 3530-1900KV motor
- **G** - 80mm 9-blade ducted fan
- **H** - Spinner
- **I** - Washer
- **J** - Cup head screws (M3x12 1pcs)

**Accessories Description**

Refer to the following diagram to install the ESC and power system:

- **A** - ESC fixed mount
- **B** - ESC
- **C** - ESC fixed part
- **D** - Screw (PA3x8 4pcs)
- **E** - Power system fixed mount
- **F** - 80mm EDF power system
- **G** - Screws (PWA3x8 4pcs)
- **H** - Plastic cover
- **I** - Engine compartment cover
- **J** - Screws (PA3x8 4pcs)

**90mm EDF power system instruction**

1. We have optional power systems available for the A-10. You may want to use one of these, just follow the above steps, the dimensions are suitable for all Freewing 90mm EDF power system and 130A ESC.

2. ESC cable specification:
   - The cable length for motor output port: 100mm
   - The cable length for power port: 200mm

3. **Note**: An alternate brand of power system and ESC might not fit in this engine compartment, check the dimensions before purchasing.

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**A-10 Thunderbolt II**

Item No.: FJ311
Aileron and Flap pushrod Installation

1. Use a servo tester or a transmitter to center the servo.
2. Use glue to install the servo and aileron horn to the main wing.
3. Feed the servo cable through the trough, when completed for all the servos, apply the decal over the trough.
4. Insert one end of the pushrod into the servo arm and adjust its length. And secure the clevis to the aileron horn.
5. Repeat the above four steps to install the other clevis’ for the flap, then repeat the procedure for the other aileron and flap servo.

Elevator pushrod Installation

1. Use a servo tester or a transmitter to center the servo.
2. Use glue to install the servo and elevator horn on the elevator.
3. Feed the servo cable through the trough, when completed for all the servos, apply the decal over the trough.
4. Insert one end of the pushrod into the servo arm and adjust its length. Secure the clevis to the elevator horn.
5. Repeat the above four steps for the other side of the elevator.

Rudder pushrod Installation

1. Use servo tester or a transmitter to center the servo.
2. Use glue to install the servo and rudder horn on the rudder.
3. Feed the servo cable through the trough, when completed, apply the decal over the trough.
4. Insert one end of the pushrod into the servo arm and adjust its length. Secure the clevis to the rudder horn.
5. Repeat the above four steps for the other rudder.

Note: There is a EPO glue on package, Please use it to glue. Glue should be spread evenly and wait for 90 seconds then install on. Its best glue condition.
Please assemble, disassemble the rear landing gear according to the following photo.

A - Nose gear axle
B - Nose wheel (Ø70x20mm)
C - Grub Screw (M4x3)
D - Nose gear slant strut
E - Grub Screw (M4x3)
F - Pin (Ø3.5x9.2mm)
G - H-Strut
H - C-Clip (Ø1.5mm)
I - Nose gear shock absorber active rod
J - 8-shape connecting arm
K - Pin (Ø3.5x9.2mm)
L - C-Clip (Ø1.5mm)
M - Screw (PM2x3 2pcs)
N - Screw (PM2x4 1pcs)
O - Nose gear strut

P - Pin (Ø3.5x9.2mm)
Q - C-Buckle (Ø1.5mm)
R - Spring
S - Screw (PM2x4 1pcs)
T - Grub Screw (M3x3)
U - L-shape rotating arm
V - shape ring
W - Pushrod
X - Nose metal wire Retract
Y - controller
Z - Grub Screw (M4x4)

AB - Nose landing gear Screw
AC - (PWA3x12 4pcs) Nose
AD - landing gear mount
AE - Screw (PA2x8 1pcs)
AF - LED lights
AG - LED light fixed arm
AH - Screw (PM2x3 1pcs)
AI - Nose landing gear door type
AJ - Spring
AK - Screw (PWA3x8 1pcs)
AL - Screw (PWA2.3x8 1pcs)
AM - Servo
AN - Screw (PWA2x8 1pcs)
AO - Nose steering pushrod
AP - Gear door servo
AQ - Gear door pushrod
AR - Nose cabin door

Note: When installing, please check the position of the flat spot on the spare part. When setting the grub screw, the flat position must face towards the screw hole, so that the grub screw anchors the part into place.
When assembling or disassembling the main landing gear, refer to the following diagram.

A - Main gear axle
B - Main wheel (Ø85x26mm)
C - Grub Screw (M4x3)
D - L-Slant strut
E - Pin (Ø3.5X9.2mm)
F - Spring
G - C-Clip (Ø1.5mm) Main
H - Gear strut
I - Grub Screw (M4x3)
J - Main gear main rod
K - Grub Screw (M4x3)
L - Electronic retract
M - Main landing gear
N - Screw (PWA3x12 4pcs)
O - Main gear plastic cover
Dongguan Freewing Electronic Technology Ltd
HK Freewing Model International Limited
Add.: FeiYi Building, face to Labor Bureau, Fumin Middle Road, Dalang Town, Dongguan City, Guangdong Province, China
Web: http://www.sz-freewing.com
Email: freewing@sz-freewing.com
Tel: 86-769-82669669 Fax: 86-769-82033233

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Email: freewing@sz-freewing.com
Tel: 86-769-82669669 Fax: 86-769-82033233