Zen 120

INSTRUCTION MANUAL

1.20 cu. in. displacement 4-stroke
Requires: 5-channel radio w/ 5 standard servos and 1 low profile retract servo

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>71 in / 1800 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>955 sq in / 61.6 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>10.0 lbs / 4500 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>71.5 in / 1820 mm</td>
</tr>
</tbody>
</table>

* Specifications are subject to change without notice.*

**Warning! This model is not a toy.**

It is designed for maximum performance. Please seek advice if one is not familiar with this kind of engine powered precision model. Operating this model without prior preparation may cause injuries. Remember, safety is the most important thing. Always keep this instruction manual at hand for quick reference.
BEFORE YOU BEGIN

1. Read through the manual before you begin, so you will have an overall idea of what to do.

2. Check all parts. If you find any defective or missing parts contact your local dealer. Please DRY FIT and check for defects for all parts that will require CA or Epoxy for final assembly. Any parts you find to be defective after the gluing process may be difficult to remove for warranty replacement. The manufacturer will replace any defective parts, but will not extend to the parts that are good before gluing to defective parts during assembly.

3. Symbols used throughout this instruction manual comprise of the following:

- **Apply epoxy glue.**

- **Apply thread locker**

- **Assemble left and right sides the same way.**

- **Peel off shaded portion covering film.**

- **Drill holes with the specified diameter (here: 3mm).**

- **Pay close attention here!**

- **Apply instant glue (C.A.glue, super glue.)**

- **Must be purchased separately!**

- **Ensure smooth non-binding movement while assembling.**

- **Cut off shaded portion.**

- **Pierce the shaded portion covering film.**

- **Warning!** Do not overlook this symbol!
Parts List

1. FUZELAGE & BELLY PAN -- 1 set
2. MAIN WING -- 1 pair
3. STABILIZER & ELEVATOR -- 1 set
4. RUDDER -- 1 pc.
5. CANOPY -- 1 set
6. COWLING -- 1 pc.
   TRANSPARENT 3D TEMPLATE -- 1 pc.
7. PILOT (#PC01083A) -- 1 pc.
8. ALUMINUM SPINNER Ø70mm -- 1 pc.
9. ENGINE MOUNT PL5911-120 -- 1 set
10. ANTI-VIBRATION MOUNT 4C-120 -- 1 set
    (INCLUDE: SOCKET HEAD SCREW M3 x 35mm -- 4 pcs
     SCREW KM3 x 20mm -- 8 pcs
     WASHER d3 x D12mm -- 8 pcs
     NYLON INSERT LOCK NUT 3mm -- 12 pcs)
11. FUEL TANK 450cc -- 1 set
12. SPONGE 10 x 60 x 200mm (For Radio Equipment) -- 2 pcs
13. TAIL LANDING GEAR -- 1 set
14. MAIN WHEEL Ø55mm -- 2 pcs
15. TAIL WHEEL Ø30mm -- 1 pc.
16. ELEVATOR LINKAGE -- 1 set
17. PUSHROD & PULLWIRE:
   COPPER TUBE d3.0 x D2.4 x 8mm (For Rudder) -- 4 pcs
   RIGGING COUPLER Ø1.8 x 27mm (For Rudder) -- 2 pcs.
   RIGGING Z BEND Ø1.8 x 27mm (For Rudder) -- 2 pcs.
   METAL ROD Ø1.8 x 65mm (For Elevator) -- 1 pc.
   METAL ROD Ø1.8 x 130mm w/Threads (For Aileron) -- 2 pcs
   METAL ROD Ø1.8 x 115mm w/Threads (For Elevator) -- 2 pcs
   WIRE 0.8 x 1000mm (For Rudder) -- 2 pcs
   WOODEN ROD Ø6 x 205mm (For Elevator) -- 1 pc.
18. THROTTLE PUSHWIRE Ø1.2 x 320mm
   w/Plastic tube d2 x D3 x 180mm -- 1 set
19. WOODEN PARTS:
   BALSA 14 x 10 x 111mm (For Fixing Fuel Tank) -- 1 pc.
   BALSA 6 x 6 x 57mm (For Rudder) -- 2 pcs
   PLYWOOD 12 x 3 x 98.5mm (For Rudder Servo) -- 1 pc.
   PLYWOOD 12 x 2 x 102.5mm (For Rudder Servo) -- 1 pc.
   PLYWOOD 65 x 3 x 102mm (Rudder Servo Stand) -- 1 pc.
   PLYWOOD 60 x 3 x 81mm (Elevator Servo Stand) -- 1 pc.
   PLYWOOD 65 x 3 x 114mm (Throttle Servo Stand) -- 1 pc.
   PLYWOOD 12 x 3 x 107mm (For Throttle Servo) -- 1 pc.
   PLYWOOD 12 x 3 x 108mm (For Throttle Servo) -- 1 pc.
   PLYWOOD 20 x 12 x 272mm (Wing Joiner) -- 1 pc.
20. PLASTIC PARTS:
   CLEVIS -- 8 pcs
   SILICON GROMMET d1.5 x D6.5mm
     (For Coupling: Canopy & Belly Pan) -- 13 pcs
   TRI-HORN M3 x 14mm(L) -- 4 sets
   TRI-HORN M3 x 14mm(L) (w/o-Base For Rudder) -- 2 sets
   STRAP -- 4 pcs
21. METAL PARTS:
   LINKAGE CONNECTOR 2.1mm -- 3 sets
   COLLAR 2.6mm w/Slot screw -- 1 set
   STABILIZER JOINER Ø3 x 36mm -- 1 pc.
   STABILIZER TUBE Ø9.6 x 294mm -- 1 pc.
   NUT 2mm -- 3 pcs
   SCREW PA3.5 x 12mm -- 4 pcs
   SCREW PM2 x 25mm -- 12 pcs
   SCREW PM2 x 30mm -- 12 pcs
   SCREW PN4 x 30mm -- 6 pcs
   SCREW PW2 x 8mm -- 4 pcs
   SCREW PW2 x 12mm -- 6 pcs
   SCREW PW2 x 18mm -- 6 pcs
   SCREW PW2 x 12mm -- 2 pcs
   SCREW PW2 x 12mm -- 5 pcs
   SCREW PW2 x 12mm -- 3 pcs
   SCREW PW2 x 12mm -- 5 pcs
   SCREW PW2 x 12mm -- 3 pcs
   SOCKET HEAD SCREW M6 x 30mm -- 4 pcs
   WASHER d4 x D15mm -- 2 pcs
   WASHER Ø6.6 x Ø18mm -- 4 pcs
   ALUMINUM PLATE 2 x 12 x 75mm (For Engine Mount) -- 1 pc.
22. FUEL TUBE Ø6 x 5mm -- 12 pcs
    HEAT-SHRINK TUBE Ø6 x 45mm -- 2 pcs
23. DECALS:
    ST200 040 -- 1 set
7 Vertical Fin / Rudder

8 Tail Landing Gear

PA3 x 12mm Screw 2
3mm Set Screw 1
2.6mm Collar 1

Wheel Ø30mm

9 Engine Mount

M6 x 30mm Screw 4
6mm Washer 4

Engine Mount PL 5911120

- Apply thread locker to screws.

Blind nuts are off-centered to keep the spinner at the fuselage axis.
10 Fuel Tank

Fuel Tank 450 cc

Install Balsa & Plywood for fixing fuel tank

Install Balsa 4 x 10 x 111 mm

Bottom View

11 Engine

M3 x 35mm Screw

3x D12mm Washer

3mm Nylon Insert Lock Nut

KM3 X 20mm Screw

3mm

Plastic tube

d2 x D3 x 180mm

Throttle Pushwire

Ø1.2 x 320mm

Illustration is for inverted mounting. You can mount the engine upright or sideways simply by rotation the engine mount. Thrust angles will not be affected.

M3 x 35mm Screw

L/R

12 Elevator Linkage

PWA2 x 12mm Screw

3mm Set Screw

Metal Rod

Ø1.8 x 27mm

Copper Tube

Elevator Pullwire

Camp the copper tubing

Plastic Collar

You may need only one spacer.

PWA2 x 12mm

PWA2 x 12mm
16 Servo Set

- Throttle Pushwire
- N.I. Included with the Radio Set.

Please refer to attached sheet for linkage connector installation.

17 Radio Equipment

- Install and arrange the servo as shown in the diagram.

- Plywood12 x 3 x 102.5mm
- Sponge
- Plywood12 x 3 x 98.5mm
- Balsa 6 x 6 x 57mm
- plywood 57 x 3 x 114mm
- Receiver
- Throttle Servo
- Battery
- Copper
- Rudder Servo
- Wire Ø0.8 x 100mm
- Plywood 65 x 3 x 102mm
- Riggings Z Bend Ø1.8 x 27mm

18 Main Wing

- PM4 x 30mm Screw: 2
- d4 x D15mm Washer: 2
- PWA2 x 8mm Screw: 4

Bottom View

Balsa 6 x 6 x 57mm
19 Cowling
- PWA2.6 x 12mm Screw x 5
- d1.5 x D6.5mm Silicon Grommet x 5
- Silicon Grommet d1.5 x 6.5mm

20 Belly Pan
- Bottom View

21 Canopy
- Apply double-sided tape
- PWA2.3 x 8mm Screw x 6
- d1.5 x D6.5mm Silicon Grommet x 6
- Silicon Grommet d1.5 x 6.5mm
22 Wing Setting
Adjust the wing and fuselage configuration as in the diagrams.

23 Control Throws
Adjust the control throws as shown in the diagram. These throws are good for general flying. You can adjust according to your personal preference.

24 C.G.
The ideal C.G. position is 195mm (7.7 in.) behind the leading edge measured at where the wing meets the fuselage. In order to obtain the C.G. specified, add weight to the fuselage or move the battery position. Check the C.G. before flying.
**Warning!**

Important Safety Precautions

- First time flyer should never fly by himself / herself. Assistance from experienced flyer is absolutely necessary.

- Pre-flight adjustment must be done before flying, it is very dangerous to fly a badly pre-adjusted aircraft.

- Zen 120 is specially designed to be powered by 2C 0.91 or 4C 1.20 engine, using a more powerful engine does not mean better performance. In fact, over powered engine may cause structural damage and injuries.

- Make sure the air field is spacious, never fly the plane too close to people and never get too close to a running propeller.

- If you find wrinkles on the covering as a result of weather changes, you can use hot iron to remove the wrinkles. Please begin with lower temperature setting and gradually raise the temperature until the wrinkles are gone. Too hot an iron may damage the covering.

- Check and re-tighten up all factory assembled screws, use thread locker if applicable.

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**ANTI-VIBRATION MOUNT INSTALLATION**

For Engine Mount (PL5911120)

![Diagram of Anti-Vibration Mount Installation]

1. KM3 X 16mm Screw
2. Copper Tube
3. 3mm Nylon Insert Lock Nut
4. 3mm Washer
5. PM3 X 35mm Screw

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**Landing Gear**

Should you need to bend the landing gear wire, use the radio control to open or close the gear to 25% from fully retracted position and switch off the receiver. It is safer to bend the wire in this position. Bending the wire in fully open position may damage the supporting structure.

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It is optional for builder to add the supplied plywoods and screws to fasten the belly pan on fuselage.

Parts List:
1. PLYWOOD 6 X 20 X 30mm (For Belly Pan) -- 2 pcs
2. PLYWOOD 1 X 10 X 20mm (For Belly Pan) -- 2 pcs
3. SCREW PWA2.3 X 12mm -- 2pcs
4. SILICON GROMMET d1.5 X D6.5mm (For Belly Pan) -- 2 pcs
Product Registration Form (US Customers)

We would like to share with you any relevant information regarding your model, including product news and free upgrade parts when applicable. Please fill in the following and send to Air Borne Models, 4749-K, Bennett Drive, Livermore, CA 94551 USA.

1. Name: ____________________________

2. Address: ____________________________

3. Phone #: ____________________________ e-mail: ____________________________

4. Model: ____________________________
   Wing QC# __________ Fuselage QC# ________________
   (QC numbers are stamped on wing and fuselage)

5. Date of Purchase: ____________________________

6. Store Name: ____________________________

Please call AirBorne Models at 925 371 0922 for any assistance in filling this form. Thank you very much for purchasing our product.
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