42% Ultimate

Requires: 150-200 c.c. engine, 6 channel radio w/ 17 high torque servos.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>98 in / 2490 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>3300 sq in / 213 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>38-40 lbs / 17250-18160 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>104 in / 2640 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:

- **AB**: Apply epoxy glue.
- **C.A**: Apply instant glue (C.A.glue, super glue.)
- **L/R**: Assemble left and right sides the same way.
- **Ensure smooth non-binding movement while assembling.**
- **Cut off shaded portion.**
- **N.I.**: Drill holes with the specified diameter (here: 3mm).
- **Must be purchased separately!**
- **Pay close attention here!**
- **Warning!**: Do not overlook this symbol!
- **Pierce the shaded portion covering film.**

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PARTS LIST ................................................................. P. 2
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Parts List

1. MAIN WING (LOWER WING) -- 1 pair
   MAIN WING (UPPER WING) -- 1 pair

2. WOODEN 6x10x21mm (For Aileron Servo Stand) -- 8 pcs

3. WOODEN 6x10x21mm (For Aileron Servo Stand) -- 8 pcs

4. STABILIZER & ELEVATOR -- 1 set
   FUSELAGE -- 1 pc.
   WOODEN 6x10x21mm (For Elevator Servo Stand) -- 8 pcs
   STABILIZER TUBE Ø22x514mm -- 1 pc.
   SCREW PWA3x14mm -- 2 pcs
   WIRE Ø3x192mm -- 1 pc.

5. VERTICAL FIN & RUDDER -- 1 set

7. ENGINE BOX SIDE PLATE 8x127x571mm (F8) -- 1 pc.
   ENGINE BOX SIDE PLATE 8x127x563mm (F8') -- 1 pc.
   PLYWOOD 6x20x123mm (F8A) -- 4 pcs
   PLYWOOD 6x20x205mm (F8B) -- 4 pcs
   FIREWALL 9x159x164mm (F9) -- 1 pc.
   UPPER PLATE 6x159x221mm (F9A) -- 1 pc.
   LOWER PLATE 3x159x230mm (F9B) -- 1 pc.
   Balsa 9x9x213mm (F9C) -- 2 pcs
   Balsa 9x9x221mm (F9D) -- 2 pcs
   Balsa 9x9x109mm (F9E) -- 2 pcs
   Balsa 9x9x109mm (F9F) -- 1 pc.
   Balsa 9x9x109mm (F9H) -- 1 pc.
   Balsa 9x9x70mm (F9I) -- 2 pcs
   Balsa 9x9x90mm (F9J) -- 2 pcs
   WOODEN 6.6x25x210mm (F10) -- 4 pcs
   BAMBOO D3.5x380mm -- 1 pc.
   Balsa 10x10x143mm (F63C) -- 1 pc.

8. CENTER WING CABANE -- 1 set
   ALUMINUM PLATE -- 2 pcs
   Balsa 9x9x41.4mm (F36A) (For Fuselage) -- 2 pcs
   Balsa 9x9x40.3mm (F36A) (For Fuselage) -- 2 pcs

9. MAIN LANDING GEAR -- 1 set
   ALUMINUM PLATE -- 2 pcs
   WHEEL PANTS -- 1 pair
   SOCKET HEAD SCREW M6x20mm -- 4 pcs
   SCREW PA3x12mm -- 4 pcs

15. WING TUBE Ø22x865.5mm -- 1 pc.
    SCREW PM3x22mm -- 1 pc.
    SCREW PA3x22mm -- 1 pc.
    WASHER d3xD7mm -- 2 pcs

16. WING TUBE Ø22x817mm -- 1 pc.
    SCREW PM3x22mm -- 1 pc.
    SCREW PA3x22mm -- 1 pc.
    WASHER d3xD7mm -- 2 pcs

17. FLYING WIRE ASSEMBLY -- 1 set
    PLYWOOD 3x536.6x597.4mm
    (Wing Incidence Angle Template) -- 2 pcs
    PLYWOOD (OUTER WING CABANES) -- 1 pair

18. CANOPY -- 1 pc.
    COCKPIT -- 1 pc.
    SCREW PM3x25mm -- 4 pcs
    WASHER d3xD7mm -- 4 pcs

19. COWLING -- 1 pc.

20. DECALS -- 1 set

COVERING:

* PURPLE COLOR SCHEME:
  TOUGHON STL 100 WHITE
  TOUGHON STL 201 BLACK
  TOUGHON STL 561 PEARL PURPLE
  TOUGHON STL 370 SILVER

* YELLOW COLOR SCHEME:
  TOUGHON STL 100 WHITE
  TOUGHON STL 201 BLACK
  TOUGHON STL 330 CADMIUM YELLOW
  TOUGHON STL 370 SILVER
1 Main Wing

- Replace CA hinges by metal hinges. Glue the metal hinges to wing and aileron by epoxy.

Main Wing (Lower)  
Main Wing (Upper)

- Bottom View

2 Aileron Servo (Upper Wing)

- Drill and tap the swivel clevis horn locations for M4 machine screw.

- Outer wing cabane mounts

- Bottom View
**3 Aileron Servo (Lower Wing)**

Similar installation as upper wing.

**4 Stabilizer & Elevator**

Replace CA hinges by metal hinges. Glue the metal hinges to stabilizer and elevator by epoxy.
5 Vertical Fin & Rudder

- Replace CA hinges by metal hinges. Glue the metal hinges to vertical and rudder by epoxy.

6 Tail Landing Gear

- Bottom View

COPPER PLATE

PA3 x 14mm

PWA2 x 12mm
7 Engine Box

Please note right thrust angle of firewall.

Use epoxy to glue all parts together.

Completed
8 Wing Cabane

9 Main Landing Gear

M6x20mm SOCKET HEAD SCREW 4
PA3x12mm Screw 4
10 Rudder Pushrod

- Heavy Duty Horn Bracket
- M4 Nylon Insert Lock Nut
- Heavy Duty Clevis
- PM2x8mm
- Drill and tap the swivel clevis horn locations for M4 machine screw.

11 Flying Wire

- Copper Tube
- Press down the center 1/3 portion
- PM2x8mm
- M2 Nut
- Heavy Duty Clevis

Bottom View
12 Fuel Tank

13 Engine

Center line of firewall

F9

63mm

10mm

Engine thrust line

14 Radio Equipment

Install and arrange the receiver and battery as shown in the diagram.
Step 1. Insert the aluminum wing tube (Ø22x865.5mm) with the pre-drilled hole into the right wing (lower). Align the lines marked at the wing root and wing tube, then apply the PM3x22mm machine screw through the pre-drilled hole on top of the wing. (Please confirm the alignment of the hole by putting a 2.5mm diameter rod through the pre-drilled wing hole before applying the screw.) The hole on the wing tube is pre-thread, do not over-tighten the PM3 screw, the set up is for future removal of the wing.

Step 2. Install the right wing to the fuselage by inserting the wing tube (now attached to the right wing) through the fuselage, then install the left wing.

Step 3. Make sure the wings are resting against the fuselage tightly. Locate the pre-drilled 2mm hole at top of left wing, and drill along with 2.5mm drill bit until it passes through the wing tube. Apply the PA3x22mm self-tapping screw.

Note: It is recommended that the wing tube stays with the left wing. Removal of the wings could be achieved by removing the right wing machine screw, the right wing then the left wing with wing tube. If removal of wing tube from left wing is also required, it is recommended that instead of applying self-tapping screw in step 3, you pre-tap with M3 thread cutter and apply M3 machine screw.
Step 1. Insert the aluminum wing tube (Ø22x817mm) with the pre-drilled hole end into the right wing (upper). Align the lines marked at the wing root and wing tube, then apply the PM3x22mm machine screw through the pre-drilled hole on top of the wing. (Please confirm the alignment of the hole by putting a 2.5mm diameter rod through the pre-drilled wing hole before applying the screw.) The hole on the wing tube is pre-thread, do not over tighten the PM3 screw, the set up is for future removal of the wing.

Step 2. Install the right wing to the center wing cabane by inserting the wing tube (now attached to the right wing) through the cabane, then install the left wing.

Step 3. Make sure the wings are resting against the center wing cabane tightly. Locate the pre-drilled 2mm hole at top of left wing, and drill along with 2.5mm drill bit until it passes through the wing tube. Apply the PA3x22mm self-tapping screw.

Note: It is recommended that the wing tube stays with the left wing. Removal of the wings could be achieved by removing the right wing machine screw, the right wing then the left wing with wing tube. If removal of wing tube from left wing is also required, it is recommended that instead of applying self-tapping screw in step 3, you pre-tap with M3 thread cutter and apply M3 machine screw.
17 Outer Wing Cabanes & Flying Wire

Outer wing cabane should fit to the outside of outer wing cabane mounts.

With the wing incidence angle template still in place, position the side cabanes, mark and drill the side cabane mounts and fasten with PM3x18mm screw and nut.

Once assembled, wire will remain permanently attached to center cabane and fuse bracket. Make sure that you triple wrap the wire in both places.

Cut slot to fit wire and install the dowels so they run parallel with the fuselage sides. Glue the dowels to the wires using CA.

18 Canopy

First insert the grommet to the canopy then apply screw.

PM3x25mm Screw 4

d3 x D7mm Washer 4
19 Cowling & Spinner

- First insert the grommet to the cowling then apply screw.

20 Wing Setting

- Adjust the wing and fuselage configuration as in the diagrams.
**21 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.

- **Elevator**
  - 40mm
  - 40mm

- **Rudder**
  - 85mm
  - 85mm

- **Ailerons**
  - 30mm
  - 30mm

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**22 C.G.**

The ideal C.G. position is at center of top wing. You can check the C.G. by hanging the plane with wire around the top wing tube. Unscrew the right wing bolt will leave a gap for the wire. In order to obtain the C.G. specified, add weight to the fuselage or move the battery position. Check the C.G. before flying.

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**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.

# **42% Ultimate** is specially designed to be powered by **150cc-200cc** gasoline engine, using a more powerful engine does not mean better performance. In fact, overpowered engine may cause severe 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.
Ducted Fan

Pattern

Warbirds

Funfly

Scale

Electric

Sports

Glider

Trainer

Boat

Accessories

Covering

(Lightex / Toughlon)

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