Wing Span: 63 in / 1600 mm
Wing Area: 1420 sq in / 91.6 sq dm
Flying Weight: 13-15 lbs / 5900-6810 g
Fuselage Length: 66.5 in / 1690 mm

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.

* Specifications are subject to change without notice.*
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.

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.
- **N.I.**: Must be purchased separately!
- **Peel off shaded portion covering film.**
- **Drill holes with the specified diameter (here: 3mm).**
- **Pierce the shaded portion covering film.**
- **Pay close attention here!**
- **Warning!** Do not overlook this symbol!
Parts List

1. MAIN WING (Upper Wing) — 1 pair
   MAIN WING (Lower Wing) — 1 pair
   METAL HINGES — 28 pcs

2. SERVO MOUNTING PANEL (For Aileron Servo) — 1 pair
   HEAVY DUTY SERVO HORN PL4120350 — 2 sets
   SCREW PM3x50mm — 2 pcs
   SCREW PWA2x12mm — 8 pcs
   WASHER d3xD7mm — 16 pcs
   M4 NYLON INSERT LOCK NUT — 2 pcs
   HEAVY DUTY HORN BRACKET PL4112400 — 2 sets
   SWIVEL CLEVIS HORN FAIRING PL4610010 — 2 sets
   PUSHROD ø2.5x70mm w/ Threads (For Aileron) — 2 pcs

3. SERVO MOUNTING PANEL (For Elevator) — 1 pair
   HEAVY DUTY SERVO HORN PL4120350 — 2 sets
   SCREW PM3x50mm — 2 pcs
   SCREW PWA2x12mm — 8 pcs
   M4 NYLON INSERT LOCK NUT — 2 pcs
   HEAVY DUTY HORN BRACKET PL4112400 — 2 sets
   SWIVEL CLEVIS HORN FAIRING PL4610010 — 2 sets
   PUSHROD ø2.5x70mm w/ Threads (For Aileron) — 2 pcs

4. STABILIZER & ELEVATOR — 1 set
   FUSELAGE — 1 pc
   STABILIZER TUBE ø4.5x319mm — 1 pc
   SCREW PWA3x12mm — 2 pcs
   WIRE ø3.1mm — 1 pc
   METAL HINGES — 8 pcs

5. VERTICAL FIN & RUDDER — 1 set
   METAL HINGES — 5 pcs

6. TAIL LANDING GEAR — 1 pair
   RUDDERWHEEL ø30mm — 1 pc
   COLLAR ø2.8 mm w/ set screw — 1 set
   SCREW PWA3x12mm — 4 pcs

7. SCREW PM3x13mm — 8 pcs
   M3 NYLON INSERT LOCK NUT — 8 pcs
   WASHER d3xD7mm — 16 pcs
   BALSA 5x5x60mm F3A — 1 pc
   BALSA 5x5x123mm F2 — 2 pcs
   BALSA 5x5x90mm F3B — 2 pcs
   BALSA 5x5x50mm F1 — 1 pc
   PLYWOOD 4x1x153mm F4 — 4 pcs
   PLYWOOD 4x1x14mm F4B — 4 pcs
   BAMBOO D3 3x30mm — 1 pc
   PLYWOOD F260 — 2 pcs
   BALSA 5x5x90mm F3A — 1 pc

8. CENTER WING CABANE — 1 set
   SCREW PM3x13mm — 5 pcs
   SCREW PM3x12mm — 4 pcs
   WASHER d3xD7mm — 1 pc
   M3 NYLON INSERT LOCK NUT — 6 pcs
   BALSA 6x6x246.7mm F18C — 2 pcs
   M3 NYLON INSERT LOCK NUT — 2 pcs
   COLLAR ø4.1mm w/ set screw — 4 sets

9. MAIN LANDING GEAR — 1 pair
   SOCKET HEAD SCREW M5x16mm — 4 pcs
   AXLE SHAFT ø3.9x44mm — 2 pcs
   WHEEL PANTS — 1 pc
   SCREW PWA3x12mm — 4 pcs
   WHEEL ø76mm — 2 pcs
   M8 NYLON INSERT LOCK NUT — 2 pcs
   COLLAR ø4.1mm w/ set screw — 4 sets

10. SCREW M4x80mm — 1 pc
    M4 NYLON INSERT LOCK NUT — 2 pcs
    EYE SCREW M2.5x6x25mm w/ Threads (For Rudder) — 2 pcs
    HEAVY DUTY HORN BRACKET PL4112400 — 2 sets
    SWIVEL CLEVIS HORN FAIRING PL4610010 — 2 sets
    COPPER TUBE ø3.2x12mm — 2 pcs
    WIRE ø1x800mm (For Rudder) — 2 pcs

11. SCREW PM4x70mm — 2 pcs
    M4 NYLON INSERT LOCK NUT — 2 pcs
    HEAVY DUTY HORN BRACKET PL4112400 — 2 sets
    HEAVY DUTY SERVO HORN PL412035 — 2 sets
    HEAVY DUTY CLEVIS PL4112200 — 4 sets
    SWIVEL CLEVIS HORN FAIRING PL4610010 — 2 sets
    PUSHROD ø2.5x70mm w/ Threads (For Elevator) — 2 pcs

12. FUEL TANK 650cc PL11165S (Gasoline Fuel) — 1 set
    FUEL TANK HOLD DOWN PLATE 3x95x281mm (F2A) — 1 pc
    SCREW PM3x12mm — 2 pcs
    WASHER d3xD7mm — 2 pcs
    SPONGE 10x80x200mm — 1 pc
    CABLE TIE 400mm (For Fuel Tank) — 2 pcs

13. BLIND NUT M6 — 4 pcs
    SOCKET HEAD SCREW M6x20mm — 2 pcs
    WASHER d6xD15mm — 4 pcs
    UPPER CONNECTOR 3x120x129.5mm F8C — 1 pc
    LINKAGE CONNECTOR ø2.1mm — 1 set
    THROTTLE PUSHWIRE ø1.5x250mm — 1 pc
    Plastic tube d2xD3x300mm — 1 pc

14. HEAVY DUTY SERVO HORN PL4120800 — 1 set
    HEAVY DUTY CLEVIS PL4112200 — 2 sets
    EYE SCREW M2 5x8x25mm w/ Threads (For Rudder) — 2 pcs
    COPPER TUBE d2.5x145mm w/ Thread (For Elevator) — 2 pcs
    SPONGE 10x80x200mm — 1 pc

15. WING TUBE ø14 5x806mm — 1 pc
    SCREW PM3x16mm — 1 pc
    SCREW PA3x16mm — 1 pc
    WASHER d3xD7mm — 2 pcs

16. WING TUBE ø14 5x145mm — 1 pc
    SCREW PM3x16mm — 1 pc
    SCREW PA3x16mm — 1 pc
    WASHER d3xD7mm — 2 pcs

17. PLYWOOD (OUTER WING CABANES) — 1 pair
    PLYWOOD 3x330.8x388.6mm Wing Incidence Angle Template — 2 pcs
    SCREW PM3x16mm — 8 pcs
    WASHER d3xD7mm — 16 pcs
    M3 NYLON INSERT LOCK NUT — 8 pcs

18. CANOPY — 1 pc
    COCKPIT — 1 pc
    PILOT PC00105A/B — 1 pc
    SCREW PWA 3x38mm — 4 pcs
    SCREW PM3x16mm — 2 pcs
    WASHER d3xD7mm — 2 pcs
    SILICON GROMMET d1.5x06.5mm — 4 pcs

19. COWLING — 1 pc
    SPINNER (w/ alu. back plate) ø39mm — 1 set
    SCREW PA3x12mm — 5 pcs
    WASHER d3xD7mm — 5 pcs
    SILICON GROMMET d2.5x08.5mm — 5 pcs

20. DECALS — 1 set

* COVERING:—

- PURPLE COLOR SCHEME
- YELLOW COLOR SCHEME
- TOUCH ON STL 100 WHITE
- TOUGH ON STL 100 WHITE
- TOUCH ON STL 210 BLACK
- TOUGH ON STL 210 BLACK
- TOUCH ON STL 501 PEARL PURPLE
- TOUGH ON STL 330 CADMIUM YELLOW
- TOUCH ON STL 370 SILVER
- TOUCH ON STL 370 SILVER
1 Main Wing

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

2 Aileron Servo (Upper Wing)

- PM4x50mm Screw
- M4 Nylon Insert Lock Nut

- Heavy Duty Horn Bracket
- M4 Nylon Insert Lock Nut

- Pushrod Ø2.5x70mm
- PM2x8mm

- Outer wing cabane mounts
- PWA2 x12mm
3 Aileron Servo (Lower Wing)

- **PM4x50mm Screw** 2
- **M4 Nylon Insert Lock Nut** 2

Similar installation as upper wing.

4 Stabilizer & Elevator

- **PWA3 x 12mm Screw** 2

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

- PA3 x 12mm Screw
- 2.6mm Collar
- Rubber Tail Wheel Ø30mm
- 2.6mm Collar
- M3 x 3mm Set Screw

Bottom View
7 Engine Box

PM3x13mm Screw
8
M3 Nylon Insert Lock Nut
8

PM3x13mm Washer
16

Use epoxy to glue all parts together.

Please note right thrust angle of firewall.
8 Wing Cabane

- PM3x13mm Screw (5)
- PM3x16mm Screw (1)
- d3x7mm washer (12)
- M3 Nylon Inert Lock Nut (6)

9 Main Landing Gear

- Ø4x54mm Axle Shaft (2)
- M5x16mm SOCKET HEAD SCREW (4)
- PA3x12mm Screw (4)
- 4.1mm Collar (4)
- M8 Nylon Inert Lock Nut (2)
10 Rudder Pullwire

- M 4 x 80mm Screw (1)
- M4 Nylon Insert Lock Nut (2)

11 Elevator Pushrod

- PM 4 x 50mm Screw (2)
- M4 Nylon Insert Lock Nut (2)

Press down the center 1/3 portion.
12 Fuel Tank

- PM3x12mm Screw x 2
- d3xD7mm Washer x 2

- PM3x12mm Screw
- d3xD7mm Washer

- Make sure that tongue on front of fuel tank hold down plate slides into slot of F2.

- Fuel Tank 650cc
- Plywood 3x95x281mm (F2A)
- Cable Tie

- Tongue
- Sponge

13 Engine

- M6 Blind Nut x 4
- M6x20mm SOCKET HEAD SCREW x 4
- d6xD15mm Washer x 4

- Engine thrust line
- Center line of firewall

- Throttle Servo
- Throttle Pushrod

- Plywood 3x120x129.5mm (F8A)
- M6x20mm SOCKET HEAD SCREW
- d6xD15mm Washer
14 Radio Equipment

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

15 Main Wing (Lower)

Step 1. Insert aluminum wing tube (Ø16x806mm) with the pre-drilled hole end into the right wing (lower). Align the lines marked at the wing root and wing tube, then apply the PM3x16mm 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-threaded. Do not overtighten the PM3 screw, the setup 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 2mm drill bit until it passes through the wing tube. Apply the PA3x16mm 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 aluminum wing tube (Ø16x645mm) 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 PM3x16mm 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-threaded, 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 2mm drill bit until it passes through the wing tube. Apply the PA3x16mm 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**

- **PM3x18mm Screw**: 8
- **d3 x D7mm Washer**: 16
- **M3 Nylon Insert Lock Nut**: 8

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.

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

**18 Canopy**

- **First insert the grommet to the canopy then apply screw.**

**19 Cowling & Spinner**

- **First insert the grommet to the cowling then apply screw.**
20 Wing Setting

- Adjust the wing and fuselage configuration as shown in the diagrams.

A=A'  B=B'  C=C'  D=D'  E=E'  F=F'  G=G'

A72S1 27% ULTIMATE

ENGINE
DOWN THRUST
ANGLE 0°

MAIN WING
INCIDENCE
ANGLE 0°

STABILIZER
INCIDENCE
ANGLE 0°
## 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**
  - 30mm
  - 30mm

- **Rudder**
  - 70mm
  - 70mm

- **Ailerons**
  - 25mm
  - 25mm

## 22 C.G.

The ideal C.G. position is at center of top wing tube. 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.

- **135mm**
  - 5.3 in.

## 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.
- # **27% Ultimate** is specially designed to be powered by 50cc gasoline engine, using a more powerful engine does not mean better performance. In fact, over powered 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.
Drill 2mm hole at servo horn.

Insert linkage connector into servo horn.

Make sure shoulder of screw is cleared from servo horn.
Add washer to reduce play if necessary.

Tighten up the round nut against the shoulder. Apply CA or permanent thread locker.

After fastening the round nut, make sure that the linkage connector can rotate freely.

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: ________________________________

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