Before commencing assembly, please read these instructions thoroughly.

**Specifications**

- **Wing Span**: 81 in / 2050mm
- **Wing Area**: 1020 sq in / 65.8 sq dm
- **Flying Weight**: 9 lbs / 4100 g
- **Fuselage Length**: 61 in / 1560mm
- **Radio required**: 4 - stroke 0.91 engine
- **Radio**: 4 - channel radio w/ 5 servos

**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.*

THE WINGS MAKER
FACTORY PRE-FABRICATED
ALMOST-READY-TO-FLY (ARF) SERIES
MADE IN CHINA
www. thewingsmaker. com

GA011
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. Warranty will not cover any parts modified by customer.

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

- **AB**: Apply epoxy glue.
- **CA**: 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.**
- **Peel off shaded portion covering film.**
- **Cut off shaded portion.**
- **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.**
Parts List

1. MAIN WING -- 1 pair

2. SCREW PM2 X 20mm -- 2 pcs
SCREW PM2 X 25mm -- 4 pcs
PUSHROD Ø1.8 x 106mm w/ Threads (For Aileron) -- 2 pcs
TRI-HORN M3 X 14mm (L) -- 2 sets
CLEVIS -- 2 pcs
STRAPER -- 2 pcs
FUEL TUBE Ø6 X 5mm -- 4 pcs

3. MAIN LANDING GEAR -- 1 pair
MAIN LANDING GEAR COVER -- 1 set
MOUNTING PLATE 12 X 20mm -- 4 pcs
SCREW PA3 X 14mm -- 8 pcs
SCREW PM2 X 8mm -- 8 pcs
WASHER d2 X D5mm -- 16 pcs
M2 NUT -- 8 pcs

4. SCREW PA3 X 12mm -- 4 pcs
COLLAR Ø5.1mm w/ Set screw -- 4 sets
MAIN WHEEL Ø90mm -- 1 pc.
WHEEL PANTS -- 1 pair
MOUNTING PLATE 12 X 20mm -- 2 pcs

5. WING TUBER Ø18 X 701mm -- 1 pc.

6. STABILIZER & ELEVATOR -- 1 set
SCREW PM3 X 25mm -- 1 pc.
WASHER d3 X D7mm -- 1 pc.
FUSELAGE -- 1 pc.

7. VERTICAL FIN & RUDDER -- 1 set

8. TAIL LANDING GEAR -- 1 set
TAIL WHEEL Ø25mm -- 1 pc.
SCREW PA3 X 12mm -- 2 pcs
COLLAR Ø3.1mm w/ Set screw -- 1 set
SCREW PM2 X 14mm -- 1 pc.
WASHER d2 X D5mm -- 2 pcs
M2 NUT -- 1 pc.
ALUMINUM PLATE 0.3mm -- 1 pc.

9. FUEL TANK 450CC -- 1 set
BALSIA 8 x 10 x 116mm (For fixing fuel tank) -- 1 pc.

10. ENGINE MOUNT (PL5911120) -- 1 set
SOCKET HEAD SCREW M6 X 30mm -- 4 pcs
WASHER d6 X D15mm -- 4 pcs

11. THROTTLE PUSHWIRE Ø1.2 x 340mm
w/Plastic tube d2 x D3 x 185mm -- 1 set
ALUMINUM PLATE (For Engine Mount) -- 1 pc.
ANTI - VIBRATION MOUNT -- 1 set
INCLUDE: SCREW M4 X 35mm -- 4 pcs
SCREW KM3 X 20mm -- 8 pcs
WASHER d4 X D12mm -- 8 pcs
M3 NYLON INSERT LOCK NUT -- 8 pcs
M4 NYLON INSERT LOCK NUT -- 4 pcs

12. COWLING -- 1 set
TRANSPARENT DUMMY COWLING -- 1 set
PWA2.6 X 12mm -- 5 pcs
SILICON GROMMET d1.5 X D6.5mm -- 5 pcs
SPINNER Ø70mm -- 1 set

13. WIRE Ø1 x 900mm (For Rudders) -- 2 pcs
COPPER TUBE Ø2.5 X D3.2 X 8mm -- 2 pcs
RIGGING COUPLER Ø1.8 X 27mm w/ Threads (For Rudders) -- 2 pcs
SCREW PM2 X 16mm -- 3 pcs
M2 NUT -- 3 pcs
TRI-HORN M3 X 14mm (L) (w/o - Base For Rudders) -- 2 sets
FUEL TUBE Ø6 X 5mm -- 2 pcs
CLEVIS -- 2 pcs

14. PUSHROD Ø1.8 x 660mm w/ Threads (For Elevator) -- 2 pcs
TRI-HORN M3 X 4mm (L) -- 2 sets
SCREW PM2 X 16mm -- 6 pcs
FUEL TUBE Ø6 X 5mm -- 2 pcs
CLEVIS -- 2 pcs

15. LINKAGE CONNECTOR Ø2.1mm -- 1 set

16. SPONGE 60 X 70 X 115mm -- 1 pc.
RIGGING Z BEND Ø1.8 x 27mm (For Rudders) -- 2 pcs
PUSHROD Ø1.8 x 170mm (For Elevator) -- 1 pc.
COPPER TUBE Ø2.5 X D3.2 X 8mm -- 2 pcs
STRAPER -- 1 pc.
FUEL TUBE Ø6 X 5mm -- 1 pc.
PLYWOOD 120 X 35 X 6mm (For Throttle Servo) -- 1 pc.
BALSIA 6 x 6 x 35 (For Throttle Servo Stand) -- 2 pcs
PUSHROD CONNECTOR 8 X 9 X 20mm -- 1 set

17. CANOPY -- 1 set
SCREW PWA2.3 X 8mm -- 8 pcs
SILICON GROMMET d1.5 X 6.5mm -- 8 pcs
PILOT PLB01085A/B -- 1 pc.

18. SCREW PM4 X 35mm -- 2 pcs
WASHER d4 X D15mm -- 2 pcs
PLYWOOD 2 x 30 x 120mm (Wing Protection) -- 1 pc.

19. DECALS -- 1 set

COVERING:
TOUGHLON STL204 CREAM
TOUGHLON STL310 RED
TOUGHLON STL402 CHECKER BLACK/WHITE
TOUGHLON STL571 RICH GOLD

P. 2
1 Main Wing

Pre-glued Ø 1mm pilot holes for The Wings Maker tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

2 Aileron Servo

Ø 1.8 x 106mm

PM2 x 20mm Screw
PM2 x 25mm Screw

3 Main Landing Gear

PM2 x 8mm Screw
PM2 x 8mm Screw

M2 Nut

P. 3
4 Main Landing Gear

- PA 3 x 12mm Screw (4)
- 3mm Set Screw (4)
- 5.1mm Collar (4)

Apply thread locker to screws.

5 Main Wing

Wing Tuber Ø18 x 701mm

Apply thread locker to screws.

6 Stabilizer / Elevator

- d3 x D7mm Washer (1)
- PM3 x 25mm Screw (1)

Apply thread locker to screws.

Bottom View

Completed

Bottom View

Pre-glued

Complete
7 Vertical Fin / Rudder

Completed

8 Tail Landing Gear

PA 3 x 12mm Screw 2
3mm Set Screw 1
2.1mm Wheel Collar 1
PM2 x 14mm Screw 1
d2 x D5mm Washer 2
M2 Nut 1

PM2 x 14mm Screw

9 Fuel Tank

Install Balsa 8 x 10 x 116mm (For fixing fuel tank)

Fuel Tank 450cc

Install Balsa 8 x 10 x 116mm (For fixing fuel tank)
10 Engine Mount

- M6 x 30mm Socket Head Screw
  - 4
- d6 x D15mm Washer
  - 4

Apply thread locker to screws

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

11 Engine

- M4x35mm SOCKET HEAD SCREW
  - 4
- KM3x20mm Screw
  - 8
- M4 Nylon Insert Lock Nut
  - 4
- M3 Nylon Insert Lock Nut
  - 8
- d4 x D12mm Washer
  - 8

Install Engine Position

142mm
5.6in.

M4 Nylon Insert Lock Nut

d4 x D12mm Washer

M4 x 35mm SOCKET HEAD SCREW

ANTI-VIBRATION MOUNT INSTALLATION

KM3 x 20mm

Make sure the rounded edges are facing the shock absorbing SILICON PAD.

3mm

Plastic Tube
d2 x D3 x 185mm

Throttle Push wire
1.2 x 340mm
12 Cowling

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

13 Rudder Pullwire

- Ø1mm pilot holes for The Wings Marker tri-horn are pre-drilled. Please look for pin-hole marks at side of control surfaces.

14 Elevator Pushrod

- Ø1mm pilot holes for The Wings Marker tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.
Please refer to attached sheet for linkage connector installation.

Install and arrange the servo as shown in the diagram.
17 Canopy

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

18 Main Wing

- Bottom View

Completed
19 Wing Setting

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

20 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: 20mm
- Rudder: 44mm
- Aileron: 9mm
The ideal C.G. Position is 108mm (4.25 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.

# **Sport Wings 90** is specially designed to be powered by **0.91  4 stroke** glow 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.