**Wingman I**

**Specifications**

- **Wing Span:** 60 in / 1525 mm
- **Wing Area:** 620 sq in / 40 sq dm
- **Flying Weight:** 3.7 lbs / 1680 g
- **Fuselage Length:** 48.5 in / 1235 mm
- **Requires:**
  - **(Engine powered)** 2-stroke 0.40 engine
  - 4-channel radio w/ 4 standard servos
  - **(Electric powered)** 450W motor system
  - 4-channel radio w/ 3 standard servos
  - 40A brushless ESC with 11x8E propeller,
  - 4 cells 14.8V 3200 mAh Li-Po battery & charger

---

⚠️ **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/electric 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.*
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.
- **C.A**: Apply instant glue (C.A.glue, super glue.)
- **N.I.**: Must be purchased separately!
- **3mm**: Drill holes with the specified diameter (here: 3mm).
- **L/R**: Assemble left and right sides the same way.
- **N.L.**: Peel off shaded portion covering film.
- **N.L.**: Cut off shaded portion.
- **N.L.**: Pierce the shaded portion covering film.
- **Warning**: Do not overlook this symbol!
## Parts List

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOCKET HEAD SCREW M3x20mm</strong></td>
<td>4 pcs</td>
</tr>
<tr>
<td><strong>WASHER d3xD7mm</strong></td>
<td>4 pcs</td>
</tr>
<tr>
<td><strong>FUEL TANK 320cc PL1111320</strong></td>
<td>1 set</td>
</tr>
<tr>
<td><strong>BALSIA 6x6x76mm(For Fuel Tank Position Fixing)</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>LINKAGE CONNECTOR Ø2.1mm HW7111960</strong></td>
<td>1 set</td>
</tr>
<tr>
<td><strong>PUSHROD Ø1.2x370mm w/ Threads (For Throttle)</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>PLASTIC TUBE d2xD3x180mm (For Throttle)</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>IF WINGMAN IS ELECTRIC POWERED:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOCKET HEAD SCREW M3x8mm</strong></td>
<td>4 pcs</td>
</tr>
<tr>
<td><strong>WASHER d3xD7mm</strong></td>
<td>4 pcs</td>
</tr>
<tr>
<td><strong>MOTOR MOUNT PL5404000</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>SOCKET HEAD SCREW M3x12mm</strong></td>
<td>4 pcs</td>
</tr>
<tr>
<td><strong>WASHER d3xD7mm</strong></td>
<td>4 pcs</td>
</tr>
<tr>
<td><strong>BETTERY TIE 270mm</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>DOUBLE-SIDED TAPE 30x36mm</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>11x8E PROPELLER PL6211108</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>12. LINKAGE CONNECTOR Ø2.1mm</strong></td>
<td>1 set</td>
</tr>
<tr>
<td><strong>13. STRAPS PL4112106</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>FUEL TUBE d2xD4x4mm</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>RING Ø2.1mm</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>14. PLYWOOD 2x59x131mm</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>PLYWOOD 2x54.5x99.6mm</strong></td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>SCREW PM2x10mm</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>M2 NYLON INSERT LOCK NUT</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>WASHER d2xD5mm</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>MOUNTING PLATE PL4114015</strong></td>
<td>2 pcs</td>
</tr>
<tr>
<td><strong>15. DECALS : GA027 DEC</strong></td>
<td>1 set</td>
</tr>
<tr>
<td><strong>COVERING:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHTEX SGX 201 BLACK</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHTEX SGX 100 WHITE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHTEX SGX 330 CADMIUM YELLOW</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHTEX SGX 540 PEARL GREEN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOUGHLON STL 100 WHITE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOUGHLON STL 311 FERRARI RED</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOUGHLON STL 540 PEARL GREEN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOUGHLON STL GA027 RED/WHITE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOUGHLON STL GA027 RED/YELLOW</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOUGHLON STL GA027 GREEN/WHITE</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Additional Parts

- **IF WINGMAN IS ENGINE POWERED:**
  - **SOCKET HEAD SCREW M3x25mm** -- 4 pcs
  - **M3 NUT** -- 8 pcs
  - **ENGINE MOUNT PL5111030** -- 1 set
  - **PUSHROD Ø1.5x255mm w/ Threads (For Throttle)** -- 1 pc.
  - **PLASTIC STRIP d2xD3x255mm** -- 2 pcs
  - **SCREW HM3x25mm** -- 2 pcs
  - **SCREW HM3x25mm** -- 2 pcs

## Covering
- **LIGHTEX SGX 201 BLACK**
- **LIGHTEX SGX 100 WHITE**
- **LIGHTEX SGX 330 CADMIUM YELLOW**
- **LIGHTEX SGX 540 PEARL GREEN**
- **TOUGHLON STL 100 WHITE**
- **TOUGHLON STL 311 FERRARI RED**
- **TOUGHLON STL 540 PEARL GREEN**
- **TOUGHLON STL GA027 RED/WHITE**
- **TOUGHLON STL GA027 RED/YELLOW**
- **TOUGHLON STL GA027 GREEN/WHITE**
Please dry fit wing joiner into left and right wing to make sure they fit with the proper dihedral angle, mark the wing joiner if necessary. Apply epoxy glue to both sides of all surfaces in contact. Use a stick to apply the glue to inner side of wing joiner sleeve, and apply the glue to wing joiner before putting them together. Wing joiner not glued properly will lead to wing failure and plane crash.

Apply epoxy glue to the linkage wire BEFORE applying instant type CA glue to both sides of each hinge.

Completed

Bottom View

Main Wing

Completed

Main Wing

Completed

Aileron Servo

Completed

Bottom View
4 Stabilizer & Elevator

- Apply instant type CA glue to both sides of each hinge.

Temporary install the main wing, adjust leveling of the stabilizer to make it as parallel to the main wing as possible.

5 Vertical Fin & Rudder

- Apply instant type CA glue to both sides of each hinge.

![Diagram of vertical fin and rudder with screws and washers labeled PM3x45mm, PM3x35mm, d3xD7mm, and C=C']

Completed
6 Elevator Pushrod

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

![Elevator Pushrod Diagram]

PB2x10mm Screw

7 Rudder Pushrod

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

![Rudder Pushrod Diagram]
8 Front Landing Gear

- PA3x10mm Screw (4)
- 3.1mm Collar (4)

- Steering Arm d3.1mm
- Plastic Tube d2xD3x200mm
- Front Wheel Pushwire Ø1.2x330mm

Completed

- Bottom View

9 Main Landing Gear

- PA2.3x12mm Screw (6)
- 3.1mm Collar (4)

- 3mm Set Screw
- Wheel Ø50mm
- 3.1mm Wheel Collar
- 3.1mm Wheel Collar

- Ø1mm pilot holes are pre-drilled. Please look for pin-hole marks on the under side of fuselage.

Completed

- Bottom View

L/R
10 A Engine

- This step is for engine powered. Please follow step 10B if your model is electric powered.
- Apply thread locker to screws.

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

Apply thread locker to screws.

Installed Engine Position

- Engine Mount PL5111030
- Fuel Tank 320cc
- Balsa 8x8x76mm (For Fuel Tank Position Fixing)
- Plastic Tube d2xD3x180mm
- Linkage connector

This step is for engine powered. Please follow step 10B if your model is electric powered.

Blind nuts are off-centered to keep the spinner at the fuselage axis.
If Wingman I is electric powered, please follow this step.

- **Electric**
  - M3x8mm Socket Head Screw
  - M2.5x12mm Socket Head Screw
  - d3xD7mm Washer
  - Battery Tie
  - 40A Brushless ESC
  - Double-Sided Tape
  - Battery
  - M6 NUT
  - Spinner Ø52mm

**Bottom View**
11 Servo Set

3x3mm Set Screw 1
Linkage Connector 1
M2 Nut 1
2mm Washer 2

Please refer to the attached sheet for linkage connector installation.

12 Radio Equipment

Install and arrange the servo as shown in the diagram.
13 Fuselage Cover

- PM2x10mm Screw: 2
- d2x5mm Washer: 2
- M2 Nylon Insert Lock Nut: 2

14 Main Wing

- HM3x25mm Screw: 2
- d3x7mm Washer: 2

Plastic Plate For Wing Protection: 1x15x75mm
Adjust the wing and fuselage configuration as shown in the diagrams.
**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.

# **Wingman** is specially designed to be powered by 2C 0.40 engine or 450W motor system. Make sure the air field is spacious, never fly the plane too close to people and never get too close to a running propeller. Extreme caution should be exercised when working with electric powered models. Make sure the propeller is cleared of all objects, especially your hands before connecting the battery to the model. Make sure you understand the operation of the ESC (Electronic Speed Control) by studying the ESC manual. Once you plug in the battery for electric powered model, always treat the propeller as a rotating one, as accidental movement of the throttle stick will spin the propeller and could cause injuries.

# 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. Don't use hot iron near the seams or edges, hot iron will melt the glue and shrink the covering at the same time, causing the seams to pull away.

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

---

**Warning!**

**16 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**
  - 15mm
  - 15mm

- **Rudder**
  - 20mm
  - 20mm

- **Ailerons**
  - 6mm
  - 6mm

---

**17 C.G.**

The ideal C.G. position is 80mm (3.15in) 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.

---

**Diagram of Control Throws**

- Elevator: 15mm / 15mm
- Rudder: 20mm / 20mm
- Ailerons: 6mm / 6mm

---

**Diagram of C.G.**

80mm (3.15in) behind the leading edge measured at where the wing meets the fuselage.
After fastening the round nut, make sure that the linkage connector can rotate freely.

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.

Shoulder

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

(ACCESSORIES)

Outrunner 37/48 Deluxe

- Max speed: 13860 rpm
- Kv (rpm/V): 770
- Operating Power: 450W
- Operating Voltage: 8.5-18V
- Operating Current: 30A
- Peak Current: 38A (max. 15 sec.)
- Internal Resistance: 34 m ohms
- Diameter: 37.2 mm
- Length: 48.5 mm
- Weight: 172 g
- Shaft Diameter: 5 mm
- Shaft Length: 21 mm
- Mounting Screw: M3 (Front) and M2.5 (Back)
- Distance of Mounting Holes:
  - 25 mm (Front) and 15.5 mm (Back)

Fuel Filler

- Code No. PL8110030
- Size: 15 x 22 x 49 mm
- Package: 1 x 1 pc

- Special tool for clevis installation.
- Suitable for standard and small (EP) clevis.

Clevis Wrench

- Code No. PL8210010
- Size: 1 set

- Small Clevis
- Large Clevis

Charge Receptacles

- Code No. KP0041300
- Size: 40A Brushless ESC
- Package: 1 pc

- Voltage Range: 6 ~ 21V
- Current: 40A continuous
- Current (Burst, <10 seconds): 55A
- Weight: 33 g
  (with wires and connector)
- BEC: 5V / 3A
- Low Voltage Cut-off: /
- Light weight with low internal resistance
  for high current operation
- BEC function for Li-Ion / Li-poly
- 2 ~ 5 cells; Nimh / Nicd 5 ~ 15 cells operation.
- Low battery voltage auto cut off to reserve power to the servos.
- Safe start up motor.

Field Stand

- Code No. MS9111430
- Size: 600 x 240 x 310 mm
- Package: 1 pc