0.46 Cubic inch displacement 2-stroke
0.70-0.81 Cubic inch displacement 4-stroke
Requires: 5-channel radio w/5 standard servos and 1 low profile retract servo.

<table>
<thead>
<tr>
<th>Specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>57 in / 1450 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>564 sq in / 36.4 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>6.3 lbs / 2860 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>49 in / 1240 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. 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!
- **L/R**: Assemble left and right sides the same way.
- **剥**: Peel off shaded portion covering film.
- **3mm**: Drill holes with the specified diameter (here: 3mm).
- **警告**: Pay close attention here!
- **Warning**: Do not overlook this symbol!
# Parts List

1. **MAIN WING** -- 1 pair
   - SCREW PB2x16mm -- 6 pcs
   - SCREW PWA2x8mm -- 8 pcs
   - TRI-HORN M3x14mm(L) -- 2 sets
   - PUSHROD Ø1.8x110mm (For Aileron Servos) -- 2 pcs
   - STRAPER -- 2 pcs
   - CLEVIS -- 2 pcs
   - FUEL TUBE Ø6x55mm -- 4 pcs

2. **SERVO MOUNTING PANEL (PL5310000)** -- 1 pair
   - SCREW PB2x16mm -- 6 pcs
   - SCREW PWA2x8mm -- 8 pcs
   - TRI-HORN M3x14mm(L) -- 2 sets
   - PUSHROD Ø1.8x110mm (For Aileron Servos) -- 2 pcs
   - STRAPER -- 2 pcs
   - CLEVIS -- 2 pcs
   - FUEL TUBE Ø6x55mm -- 4 pcs

3. **WING JOINER 6x20x309mm** -- 1 pc.

4. **LINKAGE CONNECTOR 2.1mm** -- 2 sets
   - COVERING FILM 32x42mm -- 2 pcs

5. **FUSELAGE** -- 1 pc.
   - STABILIZER & ELEVATOR -- 1 set
   - Balsa 8x20.4x44mm -- 1 pc.

6. **VIRTUAL FIN & RUDDER** -- 1 set
   - SCREW PA3x12mm -- 2 pcs
   - PM2x10mm -- 1 pc.
   - M2 NUT -- 1 pc.
   - ALUMINUM PLATE 0.5mm -- 1 pc.
   - COLLAR 2.1mm w/ set screw -- 1 set
   - TAIL WHEEL Ø25mm -- 1 pc.

7. **TAIL LANDING GEAR** -- 1 set
   - SCREW PA3x12mm -- 2 pcs
   - PM2x10mm -- 1 pc.
   - M2 NUT -- 1 pc.
   - ALUMINUM PLATE 0.5mm -- 1 pc.
   - COLLAR 2.1mm w/ set screw -- 1 set
   - TAIL WHEEL Ø25mm -- 1 pc.

8. **SCREW PB2x14mm** -- 6 pcs
   - PUSHROD Ø1.8x457mm w/ Threads (For Elevator Servo) -- 2 pcs
   - TRI-HORN M3x14mm(L) (For Elevator Servo) -- 2 sets
   - CLEVIS -- 2 pcs
   - FUEL TUBE Ø6x55mm -- 2 pcs

9. **SCREW PB2x14mm** -- 3 pcs
   - PUSHROD Ø1.8x560mm w/ Threads (For Rudder Servo) -- 1 pc.
   - TRI-HORN M3x14mm (L) (For Rudder Servo) -- 1 set
   - CLEVIS -- 1 pc.
   - FUEL TUBE Ø6x55mm -- 1 pc.

10. **SOCKET HEAD SCREW M4x25mm** -- 4 pcs
    - WASHER d4xD9mm -- 4 pcs
    - ENGINE MOUNT PL511050 -- 1 set

11. **FUEL TANK 320cc** -- 1 set
    - BALSA 8x8x104mm (For Fuel Tank Position Fixing) -- 1 pc.

12. **LINKAGE CONNECTOR 2.1mm** -- 1 set

13. **THROTTLE PUSHWIRE Ø1.2x440mm** -- 1 pc.
    - PLASTIC TUBE d2x3x300mm -- 1 pc.
    - SOCKET HEAD SCREW M3.5x30mm -- 4 pcs
    - WASHER d3.5xD8mm -- 8 pcs
    - M3.5 NUT -- 8 pcs

14. **COWLING** -- 1 pc.
    - TRANSPARENT 3D TEMPLATE -- 1 pc.
    - SCREW PWA2.6x12mm -- 4 pcs
    - SILICON GROMMET d1.5xD6.5mm -- 4 pcs
    - SPINNER Ø82mm -- 1 set

15. **CANOPY** -- 1 pc.
    - DOUBLE SIDED TAPE 500mm -- 1 pc.
    - SCREW PWA2.3x12mm -- 4 pcs
    - SILICON GROMMET d1.5xD6.5mm -- 4 pcs
    - PILOT PC001065B -- 1 pc.

16. **FUEL TUBE Ø6x55mm** -- 2 pcs
    - STRAPER -- 2 pcs
    - SPONGE 60x70x105mm -- 1 pc.
    - PUSHROD Ø1.8x70mm -- 1 pc.
    - PUSHROD CONNECTOR (PL4410010) -- 1 set
    - PLYWOOD 3x64.5x4.7mm (For Elevator & Rudder Servos) -- 1 pc.
    - PLYWOOD 3x64.5x102mm (For Throttle Servo) -- 1 pc.
    - Balsa 6x6x64mm (For Servo Stand) -- 4 pcs

17. **SOCKET HEAD SCREW M4x35mm** -- 2 pcs
    - SCREW PWA3x12mm -- 1 pc
    - WASHER d4xD15mm -- 2 pcs
    - AIR SCOOP -- 1 pc.

18. **DECALS A079SDEC** -- 1 set
    - COVERING:
      - TOUGHLON STL 203 LIGHT GRAY
      - TOUGHLON STL 340 OLIVE DRAB
      - LIGHTEX SGX 331 CUB YELLOW

---

**Covering:**

- TOUGHLON STL 203 LIGHT GRAY
- TOUGHLON STL 340 OLIVE DRAB
- LIGHTEX SGX 331 CUB YELLOW
1. Main Wing

- 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.

2. Aileron Servo

- ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

3. Main Wing

- 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.
4 Retract Servo

- Covering Film 32x42mm
- Balsa 8x20.4x44mm

5 Stabilizer & Elevator

- Temporary install the main wing, adjust leveling of the stabilizer to make it as parallel to the main wing as possible
- Balsa 8x20.4x44mm
6  Vertical Fin & Rudder

C = C'

Completed

7  Tail Landing Gear

PA3x12mm Screw
PM2x10mm Screw
M2 Nut
2.1mm Collar
3mm Set Screw

PM2x10mm
M2 NUT

L/R
8 Elevator Pushrod

- Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

PB2x14mm Screw 6

9 Rudder Pushrod

- Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

PB2x14mm Screw 3

10 Engine Mount

- Apply thread locker to screws

M4x25mm Socket Head Screw 4
d4xø9mm Washer 4

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

Install Balsa 8x8x104mm (For Fuel Tank Position Fixing)

12 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.
13 Engine

- M3.5x30mm Socket Head Screw: 4
- d3.5xD8mm Washer: 8
- M3.5 Nut: 8

Installed Engine Position: 130mm (5.12in)

- d3.5xD8mm Washer
- M3.5x30mm Socket Head Screw

- Plastic Tube: d2xD3x300mm
- Throttle Pushwire: Ø1.2x440mm

14 Cowling

- PWA2.6x12mm Screw: 4
- d1.5xD6.5mm Silicon Grommet: 4

- Fuel Filler: PL8110030

- Please refer to the attached sheet for usage of the transparent 3D template.
- First insert the grommet to the cowling then apply screw.
15 Canopy

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

16 Radio Equipment

- Install and arrange the servo as shown in the diagram.
**Main Wing**

- M4x35mm Socket Head Screw: 2
- PWA3x12mm Screw: 1
- d4x15mm Washer: 2

![Bottom View](image)

- Air Scoop

**Wing Setting**

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

![Airplane Diagram](image)

- A=A'
- B=B'
- C=C'
- D=D'
19 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: 30mm
- Aileron: 10mm

20 C.G.

- The ideal C.G. position is 80mm (3.15 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.

- Measure C.G. with the wheels in retracted position.
**Important Safety Precautions**

1. First time flyer should never fly by himself/herself. Assistance from experienced flyer is absolutely necessary.
2. Pre-flight adjustment must be done before flying; it is very dangerous to fly a badly pre-adjusted aircraft.
3. **P-40 WARHAWK** is specially designed to be powered by 2C 0.46 or 4C 0.70 - 0.81 engine; using a more powerful engine does not mean better performance. In fact, overpowered engine may cause severe damage and injuries.
4. Make sure the airfield is spacious, never fly the plane too close to people and never get too close to a running propeller.
5. 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.
6. Check and re-tighten up all factory assembled screws, use thread locker if necessary.

---

**LINKAGE CONNECTOR**

**HW7111050 & HW7111060**

- 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.
Usage of the transparent 3D template

This transparent 3D template is used for position guidance of the actual cutting of the pre-painted cowling.

Simply cut the transparent 3D template to fit your engine and exhaust pipe, then slide onto the actual cowling and use as template to mark the openings required for final cutting.
## Optional Parts

### ACCESSORIES

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<tr>
<th>Optional Parts</th>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>180mm Extension</strong></td>
<td>KW0011800</td>
<td>180mm</td>
<td>1 set</td>
</tr>
<tr>
<td><strong>Fuel Filler</strong></td>
<td>PL8110030</td>
<td>15 x 22 x 49mm</td>
<td>1 x 1 pc</td>
</tr>
<tr>
<td><strong>180mm Y-Cord</strong></td>
<td>KW0021800</td>
<td>180mm</td>
<td>1 pc</td>
</tr>
<tr>
<td><strong>Clevis Wrench</strong></td>
<td>PL8210010</td>
<td></td>
<td>1 set</td>
</tr>
<tr>
<td><strong>Charge Receptacles</strong></td>
<td>KP0041300</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Field Stand</strong></td>
<td>MS9111430</td>
<td>600 x 240 x 310mm</td>
<td>1 pc</td>
</tr>
<tr>
<td><strong>180mm Extension</strong></td>
<td>KW0011800</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Speed</th>
<th>Time (sec) / Angle (°) @ Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.17</td>
<td>60° @ 4.8V</td>
</tr>
<tr>
<td>0.14</td>
<td>60° @ 6.0V</td>
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</table>

<table>
<thead>
<tr>
<th>Torque</th>
<th>Force (kg.cm) / Force (oz - in) @ Voltage (V)</th>
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</thead>
<tbody>
<tr>
<td>3.2</td>
<td>44.8 oz - in @ 4.8V</td>
</tr>
<tr>
<td>4.1</td>
<td>57.4 oz - in @ 6.0V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions (mm / in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.6 x 20 x 37</td>
<td>1.60 x 0.79 x 1.46 in</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.4 g</td>
<td>1.39 oz</td>
</tr>
</tbody>
</table>

Special tool for clevis installation. Suitable for standard and small (EP) clevis.
Ducted Fan Pattern

Warbirds Funfly

Scale Electric

Sports Glider

Trainer Boat

Accessories

Covering

(Lightex/Toughlon)