**Rambler-45**

(A099)

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0.40-0.46 cu. in. displacement 2-stroke

0.60-0.72 cu. in. displacement 4-stroke

Requires: 5-channel radio w/ 5 standard servos and 1 low profile retract servo

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### Specifications

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Wing Span</td>
<td>63.0</td>
<td>1600 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>660</td>
<td>42.6 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>6.0</td>
<td>2700 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>51.0</td>
<td>1290 mm</td>
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</tbody>
</table>

*Specifications are subject to change without notice.*

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**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.

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FACTORY PRE-FABRICATED

ALMOST-READY-TO-FLY (ARF) SERIES

MADE IN CHINA

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The World Models Manufacturing Co., LTD.
www.theworldmodels.com

A099PO28981303
BEFORE YOU BEGIN

Read through the manual before you begin, so you will have an overall idea of what to do.

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.

Symbols used throughout this instruction manual comprise of the following:

- Apply epoxy glue.
- Apply instant glue (C.A.glue, super glue.)
- Apply thread locker
- Must be purchased separately!
- 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).
- Pierce the shaded portion covering film.
- Pay close attention here!
- Do not overlook this symbol!

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Parts List

1. MAIN WING -- 1 pair
   FUEL TUBE Ø6x5mm -- 4 pcs
   CLEVIS PL4112103 -- 2 pcs
   STRAPER PL4112102 -- 2 pcs
   TRI-HORN M3x14mm (For Aileron) PL4111185 -- 2 sets
   PUSHROD Ø1.8x115mm w/ Threads (For Aileron) -- 2 pcs

3. WING JOINER 5x29x108mm -- 1 pc.

4. RETRACTABLE LANDING GEAR -- 1 pair
   MAIN WHEEL Ø56mm -- 2 pcs
   COLLAR Ø4.1mm w/ set screw -- 2 sets

5. LINKAGE CONNECTOR Ø2.1mm w/ set screw -- 2 sets

6. STABILIZER & ELEVATOR -- 1 set
   FUSELAGE -- 1 pc.

7. VERTICAL FIN & RUDDER -- 1 set

8. TAIL LANDING GEAR -- 1 set
   TAIL WHEEL Ø23mm -- 1 pc.
   COLLAR Ø2.1mm w/ screw -- 1 set
   SCREW PA3x12mm -- 2 pcs

9. ENGINE MOUNT PL5111050 -- 1 set
   SOCKET HEAD SCREW M4x25mm -- 4 pcs
   WASHER d4xD9mm -- 4 pcs

10. FUEL TANK 320cc -- 1 set
    DOUBLE-SIDED TAPE 40x100mm -- 1 pc.
    CABLE TIE 1.5x5x400mm -- 1 pc.

11. SCREW HM3.5x30mm -- 4 pcs
    WASHER d3.5xD8mm -- 8 pcs
    M3.5 NUT -- 8 pcs
    THROTTLE PUSHWIRE Ø1.2x320mm -- 1 pc.
    w/ Plastic Tube d2xD3x125mm -- 1 pc.

12. SCREW PB2x16mm -- 6 pcs
    TRI-HORN M3x14mm (For Elevator) PL4111185 -- 2 sets
    FUEL TUBE Ø6x5mm -- 2 pcs
    CLEVIS PL4112103 -- 2 pcs
    PUSHROD Ø1.8x805mm w/ Threads (For Elevator) -- 2 pcs

13. SCREW PB2x16mm -- 3 pcs
    CLEVIS PL4112103 -- 1 pcs.
    FUEL TUBE Ø6x5mm -- 1 pc.
    TRI-HORN M3x14mm (For Rudder) PL4111185 -- 1 set
    PUSHROD Ø1.8x720mm w/ Threads (For Rudder) -- 1 pc.

14. LINKAGE CONNECTOR Ø2.1mm w/ set screw -- 1 set

15. SPONGE 10x80x200mm (For Radio Equipment) -- 2 pcs
    STRAPER PL4112102 -- 2 pcs
    FUEL TUBE Ø6x5mm -- 2 pcs
    PUSHROD CONNECTOR 4x9x20mm (For Elevator) -- 1 set
    PUSHROD Ø1.8x90mm (For Elevator) -- 1 pc.
    PLYWOOD 3x49x113mm (For Throttle Servo) -- 1 pc.
    BALSA 6x6x46mm (For Throttle Servo Stand) -- 2 pcs

16. COWLING -- 1 pc.
    TRANSPARENT DUMMY COWLING -- 1 pc.
    SILICON GROMMET d1.5xD6.5mm -- 4 pcs
    SPINNER Ø62mm PL2111062 -- 1 pc.
    SCREW PWA2.6x12mm -- 4 pcs

17. CANOPY -- 1 pc.
    SILICON GROMMET d1.5xD6.5mm -- 4 pcs
    SCREW PWA2.3x12mm -- 4 pcs
    PILOT PC001063A -- 1 pc.

18. SCREW HM4x40mm -- 2 pcs
    WASHER d4xD15mm -- 2 pcs

19. DECALS: A099DEC -- 1 set

COVERING:
TOUGHLON STL 100 WHITE
TOUGHLON STL 251 SKY BLUE
TOUGHLON STL 360 VIOLET
LIGHTEX SGX 201 BLACK
LIGHTEX SGX 312 BRIGHT RED
LIGHTEX SGX 320 ORANGE
1 Aileron

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

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 Retractable Landing Gear

3mm Set Screw

4.1mm collar

KA3x14mm

5 Retract Servo

3 X 3mm Set Screw 2

Linkage Connector 2

2mm Nut 2

2mm Washer 4

6 Stabilizer/ Elevator

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

- Complete

- Remove coverings for all surfaces in contact before applying A/B epoxy glue.

- Select the servo horn that will give 26mm travel when it rotates through 180°
7 Vertical Fin & Rudder

- Apply instant type CA glue to both sides of each hinge.
- Remove coverings for all surfaces in contact before applying A/B epoxy glue.

8 Tail Landing Gear

PA3x 12mm Screw 2
3mm Set Screw 1
2.1mm Collar 1

9 Engine Mount

M4x 25mm Socket Head Screw 4
d4 x D9mm Washer 4

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

- Fuel Tank 320cc
- Cable Tie 1.5x5x400 mm
- Double-sided Tape 40 x 100 mm
- Plywood 2x59.5x102.4 mm

11 Engine

Illustration is for upright mounting. You can mount the engine inverted or sideways simply by rotating the engine mount. Thrust angles will not be affected.

- HM3.5x30mm Screw 4
- 3.5mm Washer 8
- 3.5mm Nut 8

Installed Engine position

Throttle Pushwire w/ Plastic tube d2xD3x125mm
**12 Elevator Pushrod**

- **PB 2 x 16 mm Screw**: 6
- **Clevis**: Tri-horn M3 x 22mm (L)
- **Fuel Tube**: Ø6x5mm
- **PB 2 x 16 mm**: Fuel Tube Ø6x5mm
- **Tri-horn**: M3 x 22mm (L)

- φ1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

**13 Rudder Pushrod**

- **PM 2 x 16 mm Screw**: 3
- **Fuel Tube**: Ø6x5mm
- **Clevis**: Tri-horn M3 x 22mm (L)
- **PB2 x 16mm**: Fuel Tube Ø6x5mm
- **Tri-horn**: M3 x 22mm (L)

- φ1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

**14 Servo Set**

- **3 X 3mm Set Screw**: 1
- **Linkage Connector**: 1
- **2mm Nut**: 1
- **2mm Washer**: 2
- **3mm**: Included with the Radio Set.

- **Throttle Pushwire**: 2mm
- **2mm M2 Nut**: Throttle Servo.

- ! Please refer to the attached sheet for linkage connector installation.
15 Radio Equipment

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

Front

- Pushrod Connector
- Elevator Servo
- M2 Nut
- KM 2x8mm

Bottom View

- Elevator Pushrod
- Fuel Tube Ø6x5mm
- Rudder Servo
- Throttle Servo
- Balsa 6x6x46mm
- Plywood 3x49x113mm
- Balsa 6x6x46mm
- Throttle Pushwire

16 Cowling

- Please refer to the attached sheet for usage of the transparent 3D template.

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

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

![Canopy Diagram]

- PWA2.3 x 12mm Screw
- d1.5 x D6.5mm Silicon Grommet
- PWA2.3 x 12mm
- d1.5 x D6.5mm Silicon Grommet

18 Main Wing

- HM4x40mm Screw
- d4 x D15mm Washer

![Main Wing Diagram]

- HM4x40mm
- d4 x D15mm Washer

19 Wing Setting

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

![Wing Setting Diagram]

- A = A'
- B = B'
- C = C'
- B = B' C = C'
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

Rudder

Aileron

21 C.G.

The ideal C.G. position is 100mm (3.9in.) 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. If you are converting this model to electric, please move the C.G. forward 10% of current C.G. distance from leading edge to compensate for weight of fuel.

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.

# RAMBLER-45 is specially designed to be powered by 2C 0.40 - 0.46 / 4C 0.60 - 0.72 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. 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.

Usage of the transparent 3D template

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

1. 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.

A099PO28981303
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.

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 AirBorne 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:___________________________________________________

Please call AirBorne Models at 925 371 0922 for any assistance in filling this form. Thank you very much for purchasing our product.
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Scale Electric

Sports Glider

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Accessories

Covering
(Lightex / Toughlon)