

# DOUGLAS WORLD CRUISER

**BACKGROUND:** During 1924, an important aviation history milestone was established with the successful completion of an around-the-world flight. Four Douglas DWC aircraft, the "Seattle," "Chicago," "Boston," and the "New Orleans," departed from the United States on the mission. The flagship, Seattle, crashed into a mountainside soon after the start, but with no harm to the crew.

The remaining three aircraft continued the journey in a series of hops, with frequent stops for refueling and engine changes. The landing gear were altered, as appropriate, to either wheels or pontoons. The stops included Canada, Alaska, the Aleutian Islands, Japan, China, French Indo-China, Siam, Burma, India, Persia, Mesopotamia, Syria, Turkey, Rumania, Hungary, Austria, France, England and the Orkney Islands. En route to Iceland, the "Boston" was forced down, and subsequently lost at sea after the crew had been rescued. The remaining Cruisers continued from Iceland to Greenland, Labrador, Newfoundland, and then to Nova Scotia. There they were joined by the factory prototype DWC, which had been hastily christened "Boston II." A triumphant tour of the United States, terminating in Seattle, Washington, completed the 27,533 mile journey. Total elapsed time was 175 days.

**SPECIFICATIONS:** Wing Span: 50 feet Engine: 420 h.p. Liberty V-12  
Top Speed (with wheels): Approximately 104 m.p.h.  
(with pontoons): Approximately 100 m.p.h.

DOUGLAS WORLD CRUISERS					
NUMBER:	1	2	3	4	5
NAME:	SEATTLE	CHICAGO	BOSTON	NEW ORLEANS	BOSTON II
CREW:	F. L. Martin Alva Harvey	Lowell Smith Leslie Arnold	Leigh Wade Henry Ogden	Erik Nelson John Harding	Leigh Wade Henry Ogden
COMMENTS:	Crashed near Dutch Harbor, Alaska	Exists today in Smithsonian collection	Sunk in North Atlantic	Exists today in Air Force Museum	"Stand-in" for original BOSTON Scrapped in 1932

**NOTE:** Crew name decals are furnished, to be applied beneath the cockpits as follows:

SEATTLE: Front Cockpit: MARTIN Rear Cockpit: HARVEY  
CHICAGO: Front Cockpit: SMITH Rear Cockpit: TURNER  
(The original mechanic, who was replaced by Leslie Arnold.)  
BOSTON: Front Cockpit: WADE Rear Cockpit: OGDEN  
NEW ORLEANS: Front Cockpit: NELSON Rear Cockpit: HARDING  
Apparently, the BOSTON II did not feature crew names.

**RESEARCH NOTES:** Since the World Cruisers were literally constructed by hand, no two were exactly alike. Differences existed in many details. Additionally, changes were made to the aircraft during the course of the world flight. For example, the fuselage side numbers, thought originally to have been orange, were repainted white.

Because the factory-installed long exhaust manifolds were causing gasket failures, short individual stacks were fabricated by a Chinese shipyard crew, and fitted in Shanghai. Curiously, while the Smithsonian DWC has the short stacks, the Air Force Museum example features the older style manifolds. Only the short stacks are furnished in this kit, but a sketch of the other style is shown for those who may care to fabricate their own.

The Boston II differed from the other craft in many ways, the most noticeable of which were: No dihedral in upper wing. Top of wing and horizontal tail were khaki-colored. Fuselage side numerals were of different style than on the Boston. The Boston II model fuselage side 3s are slightly shorter and are located at the bottom of the decal sheet. We have not encountered any photographic evidence of any top wing numeral on the Boston II. The horizontal tail featured wire rigging, instead of struts on the front underside. Other less noticeable differences, such as the cockpit side shape and cowling details, may be found in published references.

The dedicated modeler may refer to the following publications for additional information on the various craft:

DOUGLAS "WORLD CRUISER" drawings by W. Koster, available from the Smithsonian Institution AEROMODELLER, drawings by G. A. Cox, April, 1964  
WINGS, December, 1964 NATIONAL AERONAUTICS, Spring, 1971  
NATIONAL AERONAUTICS, June, 1974 DC FLIGHT APPROACH, April, 1974  
THE FIRST WORLD FLIGHT, Lowell Thomas, 1925

Researchers are cautioned that some misinformation has appeared in published drawings, reports and photo captions, as well as conflicting specifications. Worse, certain photographs have been deliberately altered or retouched.

fuselage, seating it against the small protrusions on inside of fuselage walls.

Paint engine components. Cement exhaust stack part (No. 8) atop engine block at front of fuselage, with the "dimple" to the front, as shown in the drawing. Add Part No. 9 and Parts No. 10 (two required). When assembling engine parts, keep their front ends in alignment, as the radiator will fit against them later when it is installed.

Apply instrument panel decals to Parts No. 11 and No. 12. Note that the front panel decal is different than the simpler rear panel decal. After the decals have dried, cut out the central hole in each. Touch up exposed edges around decals with flat black paint.

Cement front instrument panel (No. 11) into upper fuselage part (No. 13), using the locating lines which appear inside Part No. 13.

Check fit of rear instrument panel/strut assembly (No. 12) into slots of upper fuselage part (No. 13). If necessary, remove slight amount of material from slots for satisfactory fit. Cement part in position.

Repeat fitting operation for front strut assembly (No. 14) and install, noting that the "T" marking faces forward and right-side-up.

Check completed upper fuselage/strut assembly for proper fit on fuselage. Correct any discrepancies and cement in position, securing to the fuselage with rubber bands while drying. Add streamlined fairing (No. 15) to lower port side of fuselage nose, as illustrated.

**NOTE:** Tailskid is removed from fuselage for pontoon-equipped model.

Fill and smooth centerline joints on fuselage, prime, mask and paint.

Drill tiny hole in fuselage turtleback for compass generator (No. 39). The location may be determined from the side view drawing.

Paint propeller (No. 16), and cement shaft (No. 17) in hub. Paint radiator (No. 18) and check fit at front of fuselage. A small amount of trimming may be required on the underside in order for it to seat correctly. Hold propeller/shaft assembly in place, and secure it by cementing the radiator in position. **CAUTION:** Apply cement carefully so that propeller will remain free to rotate.

**WINGS:** Smooth edges as required. If model will be equipped with rigging (not furnished), drill holes to suit.

For Boston II model, a razor saw may be used to remove dihedral from upper wing (No. 19). Carefully fit joints and cement together with wing flat. Paint wings.

**TAILPLANES:** Smooth edges as necessary and drill holes if rigging will be fitted. Paint horizontal tail (No. 20) and apply drift sight line decals, trimming to length as required. Paint vertical tail (No. 21) and add decal stripes to rudder, trimming to fit. **NOTE:** Decal setting solution, such as "Solvaset" (SM) or "Micro Sol," will aid the decals to adjust to the compound curves.

**LANDING GEAR:** Decide if wheels or pontoons will be fitted, and select the appropriate parts. If wheels are chosen, paint tires and wheel discs (No. 22, two required) and associated strut components (No. 23, two required and No. 24, two required). Place wheels on axles of parts No. 23, and apply a heated blade or hold a tiny soldering iron close to the axle ends to "mushroom" them enough to retain the wheels, yet allow rotation.

If pontoon type landing gear is chosen, drill out the inboard strut mounting holes in pontoon halves (No. 25 and No. 27). These holes are partly formed and require only to be drilled through from the inside before assembling pontoon halves.

Cement pontoon halves\* (No. 25 and No. 26; No. 27 and No. 28) together, using rubber bands to apply pressure while the cement dries. Smooth joining seams, prime and paint. Paint and install centerline struts (No. 29).

**ASSEMBLY:** Cut two windshields from the furnished clear plastic sheet, using the pattern shown on the drawing. Fold sides as indicated, and trim for a good fit on the fuselage. Windshield framing may be painted on (Aluminum) or applied with thin strips of tape. Cement windshield to fuselage. **NOTE:** Regular plastic cement may not be suitable for this.

Check lower wing (No. 30) for proper fit in fuselage and adjust if necessary. When satisfactory, cement in position. Note that the lower inboard wing struts will need to be "sprung" into the holes on top of the wing. Check the wing/fuselage alignment, as viewed from both the bottom and front, before the cement dries, and make any needed corrections.

Paint the outboard fuel tank (No. 31), which mounts against the fuselage on the port wing root. Slight sanding or trimming may improve the fit. Paint and cement in position.

Install horizontal tail (No. 20), being certain that the central groove is pointing up. Install the vertical tail (No. 21), and adjust the tailplane alignment before the cement dries.

Paint and install the horizontal tail struts (No. 32, four required, except for Boston II,

drawings, reports and photo captions, as well as conflicting specifications. Worse, certain photographs have been deliberately altered or retouched.

**ACKNOWLEDGMENTS:** Grateful thanks to the following individuals and organizations for research assistance: Russ Barrera, Russ-Craft Model Museum; Bruce Reynolds and Ed Leiser, San Diego Aero-Space Museum; Robert C. Mikesch and Louis S. Casey, National Air and Space Museum, Smithsonian Institution; Harry Gann, Douglas Aircraft Company; Charles G. Worman, United States Air Force Museum.

**IMPORTANT: READ BEFORE STARTING ASSEMBLY:** This kit should be approached with patience and care and is not intended for the rank beginner. A certain amount of fitting will be required during construction. Study the illustrations carefully.

**GENERAL INFORMATION:** Clean all parts in lukewarm water and liquid detergent so that paints may adhere properly. Remove any "flash" that may be present, and using a sanding block, dress all mating surfaces until they match perfectly. A suitable sanding block can be made by gluing No. 400 sandpaper onto a flat scrap of wood.

Use only cement suitable for styrene plastic for assembling the model and avoid excess amounts, which might damage the plastic's surface. For safety and efficiency, follow the cement manufacturer's instructions exactly. Check the fit of each part BEFORE applying cement. Small parts may be painted while still attached to their "trees." Separate only as needed to reduce risk of loss. When cementing components onto already painted surfaces, first scrape off paint in joining areas to permit proper adhesion.

**PAINTING:** It is suggested that individual sub-assemblies be painted before the model is assembled. Use only paints intended for styrene plastic, as other types may damage the model's surface. Follow paint manufacturer's instructions exactly for safety and best results. Spray painting is recommended, but good results can be achieved using high quality brushes and paint. After painting, the decals may be applied. A final clear coating will seal them in position and give a more uniform appearance to all surfaces.

**COLOR INFORMATION** (see also box painting)

**FUSELAGE:** Fabric surfaces from back of rear cockpit forward: Silver.  
Metal panels from back of rear cockpit forward: Natural Aluminum.  
Remainder of fuselage: Khaki.  
**NOTE:** New Orleans, as restored, has natural aluminum panels on both sides of fuselage, beneath horizontal tail.

**FUSELAGE INTERIOR:** (Based primarily upon information from the restored Chicago.)  
Cockpit Walls: Grey. Floorboard: Grey. Rear Rudder Bar: Grey.  
Front Rudder Bar: Varnished wood with metal fittings.  
Seats: Grey. Seat Cushions: Black Leather.  
Control Wheels: Rims: Natural wood. Spokes and Columns: Greenish Grey. Cockpit Coamings: Black Leather.

**WINGS:** Upper surface of top wing: Yellow.  
Remainder of wing surfaces: Khaki.  
**NOTE:** Upper wing of Boston II was all khaki.

**TAILPLANES:** Upper surface of horizontal tail: Yellow.  
Radiating drift sight lines on upper surface: Black.  
Remainder of horizontal tail: Khaki.  
**NOTE:** Upper surface of Boston II horizontal tail was khaki, with yellow drift sight lines.  
Vertical Fin: Khaki. Rudder (front to rear): Blue, White, Red.

**ALL STRUTS:** Khaki. **TAIL SKID:** Natural varnished wood, with metal shoe.

**WHEEL DISCS:** Khaki. **NOTE:** However, light-colored discs appear in some photos.

**TIRES:** Grey. **ANCHOR:** Grey. **PONTOONS:** Khaki.

**RADIATOR:** Tarnished Brass. **PROPELLER:** Natural Dark Wood, varnished.

**ENGINE:** Cylinder Block: Grey. Exhaust Stacks: Steel.  
Carburetor Intake: Aluminum. "U"-shaped portion of Part No. 8: Black. Parts No. 10: Aluminum. Areas around engine inside cowling may be painted flat dark grey for a realistic effect.

**OUTBOARD FUEL TANK:** Aluminum.

**FUSELAGE:** Paint interior of fuselage halves (Parts No. 1 and No. 2). Cement rear cockpit bulkhead (No. 3) into starboard side of fuselage (No. 1). Check port fuselage half (No. 2) for proper fit. Adjust if necessary and cement halves together, checking alignment carefully. Use rubber bands to apply pressure while the cement is drying.

Paint floorboard (No. 4) and rudder bars. Paint control columns (No. 5, two required), control wheels (No. 6, two required), and seats (No. 7, two required). Cement control wheels to control columns and install them into floorboard openings. Cement seats to floorboard, cementing them within locating outlines. Cement floorboard assembly into

Paint and install horizontal tail struts (No. 32, four required, except for Boston II, which only requires the rear pair). Note that the lower ends of the struts will need to be sanded to a slight angle for proper fit against the fuselage.

Place upper wing on inboard fuselage struts and check alignment. Be certain it is correct before applying cement. A rubber band slipped over each pair of wing panels will hold the assembly while drying. **CAUTION:** Do not use overly strong bands, which might cause the struts to fail. Allow to dry thoroughly before proceeding.

Paint and install outboard wing struts (No. 33, four required). These should be carefully "sprung" into wing strut locating holes. If necessary, when cementing struts in position, slight tension may be applied by using weak rubber bands slipped over the wing panels at the tips. **CAUTION:** Excessive pressure may cause wing strut failure. A Boston II model without dihedral in the upper wing will need the outboard struts shortened to fit. Allow to dry thoroughly before proceeding.

If wheeled landing gear is to be installed, invert model and cement landing gear parts No. 23 into the holes in lower wing. These struts should be aligned vertically, when viewed from the front. Next, check fit of strut parts No. 24, between the inner axle ends of parts No. 23 and the slight depressions in the lower fuselage, just forward of the wing joint. Slight sanding of the strut ends will allow a more precise fit. When satisfactory, cement the struts in place and allow to dry.

If pontoons are to be fitted, study the illustrations carefully. Note that the rear centerline struts (No. 34) may need slight trimming to achieve best fit. Cement the No. 34 strut ends into the pontoons. While the cement is still tacky, align the other ends of the struts with the openings provided for them in the lower wing. Apply cement to these and the forward wing holes, which receive struts No. 29, and install the pontoons. **NOTE:** Pontoons will be somewhat flimsy until remainder of struts have been installed, so exercise care. Install struts No. 35, which extend from the front inner sides of the pontoons to the notches at the lower fuselage nose corners. If necessary, trim struts slightly for a good fit. Trim inboard rear struts (No. 36) for a satisfactory fit and cement into position. **NOTE:** These struts are rather difficult to install and tweezers may prove helpful tools. Avoid a "force fit" of either strut, which could twist the pontoons out of alignment with the fuselage.

Finally, cement the cross-bars (No. 37, two required) to the pontoons as illustrated. **NOTE:** Different interpretations exist regarding these cross-bars. Some references claim that they were of streamlined section. In some photos, wires appear instead. Possibly they were installed only under certain conditions. In any event, they contribute to the strength and rigidity of the model.

Paint the anchor (No. 38) and cement it to port pontoon strut No. 29. Thin tape strips may be added to simulate the leather straps employed on the prototype machines.

**RIGGING:** The rigging does require extra effort to install but can enhance the model's appearance. A calm, unhurried approach is helpful. Rigging may be silk thread or nylon monofilament, in the smallest available diameter. Monofilament is available from fishing supply stores.

Each section of rigging may be installed between indicated points and cemented into drilled holes. Note that a type of cement suitable for nylon may be employed for monofilament.

Avoid excess slack when installing. However, rigging may be tightened somewhat after installation. Silk thread may be shrunk by applying water. Monofilament may be tightened with a judicious application of heat from a tiny soldering iron. **CAUTION:** An excess of heat may damage the plastic or nearby paint. The soldering iron tip need only be brought within close proximity of the rigging to do the job. The various rigging spreader bars (see also box cover painting) may be made from wire or scrap plastic.

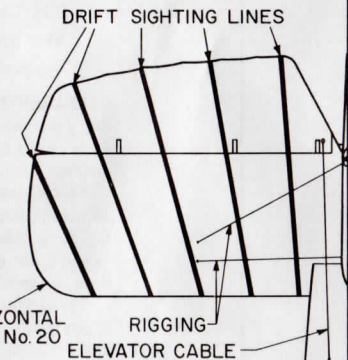
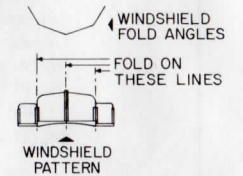
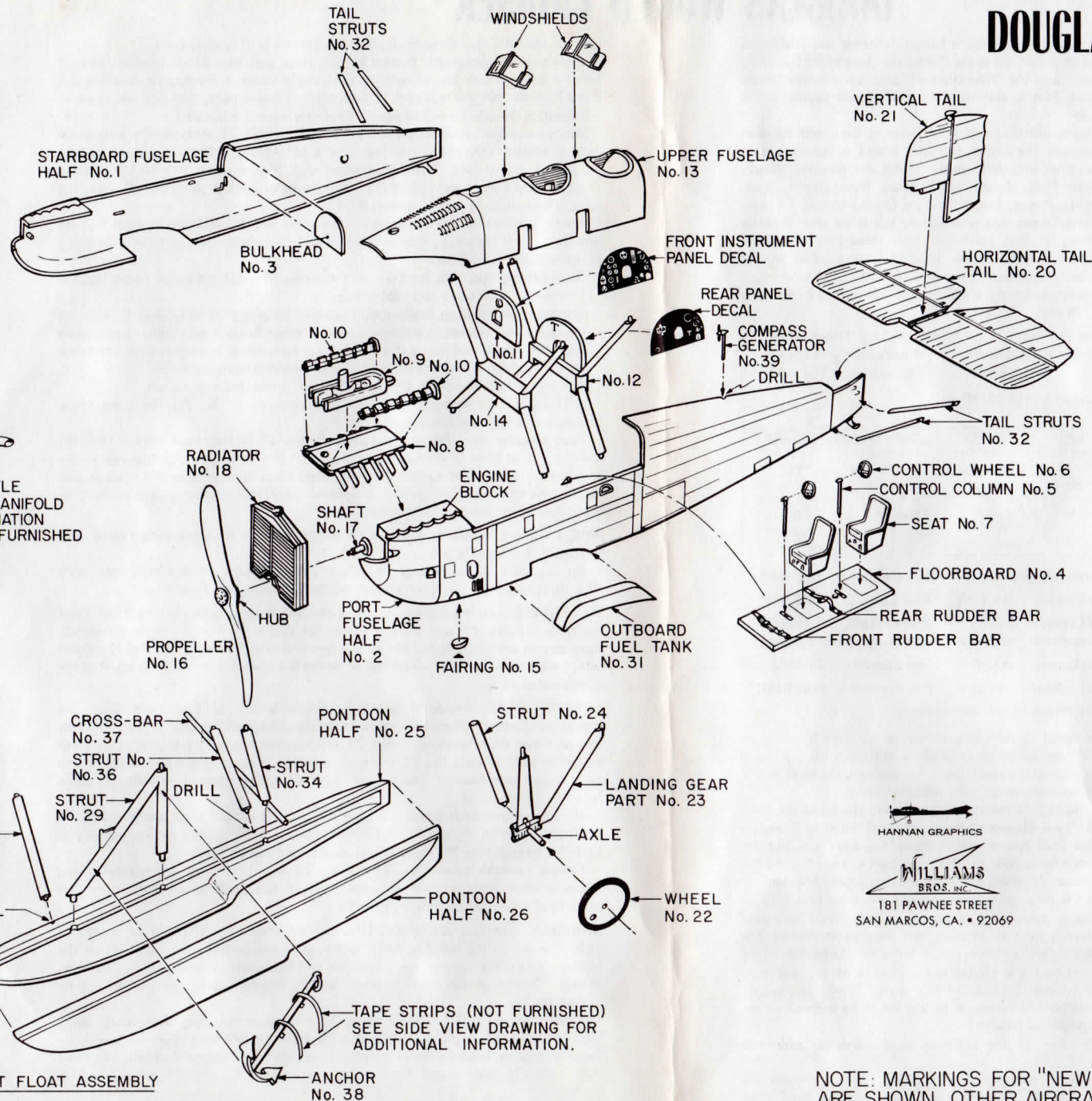
If desired, the "control cables" may be added to the ailerons, elevators and rudder. The aileron control horns are molded integral, but the rudder and elevator control horns would need to be fabricated from scrap plastic.

**FINAL DETAILS:** Paint and install the remaining small components, such as the wind-driven compass generator (No. 39), the wind-driven fuel pump (No. 40) (see side and front view drawings), and the lights (No. 41, four required). Gas and water feed lines, made from fine wire (not furnished), may also be added if desired.

Finally, paint any remaining details, such as the filler caps, control horns, etc., and touch up any places which may have been scratched during assembly.

**DIORAMAS:** Advanced builders may care to consider the challenging possibilities of a World Cruiser diorama. Some of the listed references, such as the December, 1974 issue of WINGS, feature photographs of the machines that could provide the inspiration. The aircraft are shown on land, in the air, on and near the sea, singly and in groups. Activity photos include maintenance chores being performed in many different parts of the world, which would suggest a wide variety of potential settings.

# DOUGLAS WORLD CRUISER



HANNAN GRAPHICS  
WILLIAMS BROS. INC.  
181 PAWNEE STREET  
SAN MARCOS, CA. • 92069

NOTE: MARKINGS FOR "NEW ORLEANS" ARE SHOWN. OTHER AIRCRAFT MARKINGS LOCATIONS ARE SIMILAR:

- "SEATTLE" 1
- "CHICAGO" 2
- "BOSTON" 3

SEE ALSO, BOX TOP

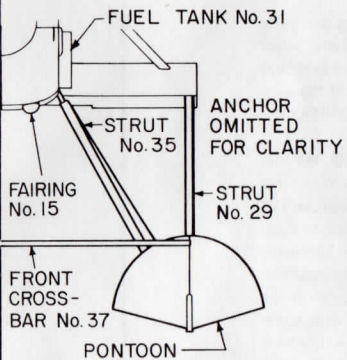
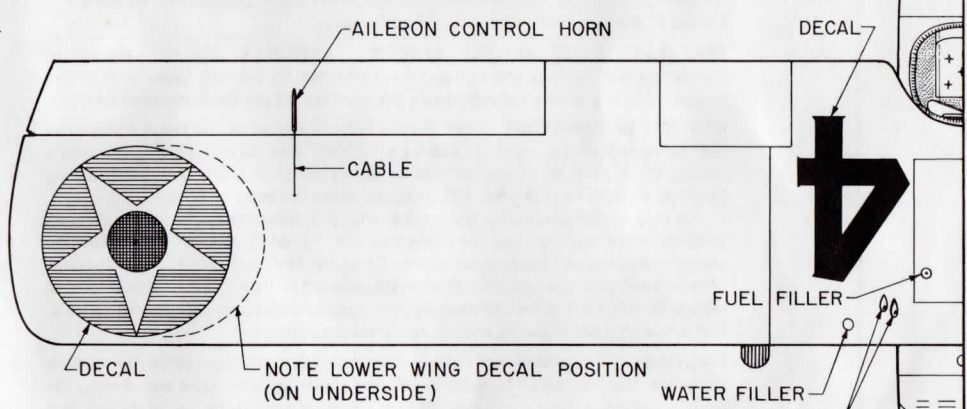
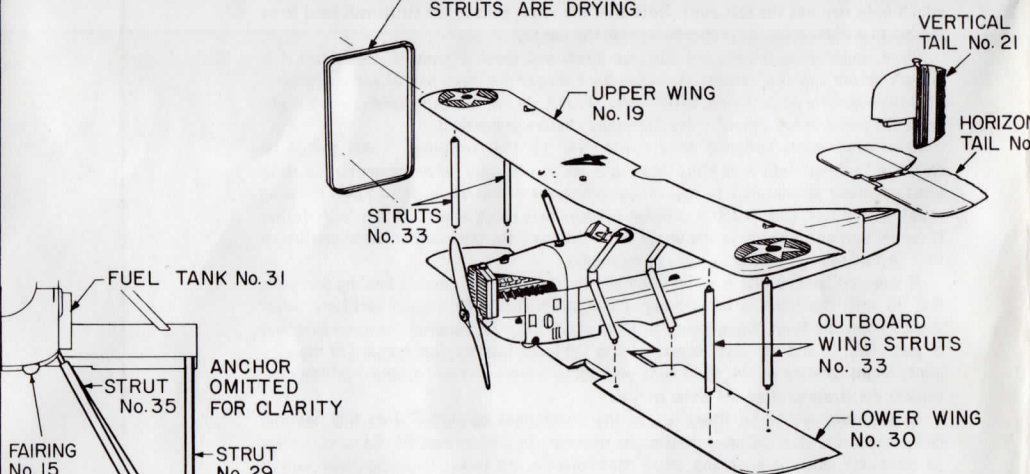
A WEAK RUBBER BAND SLIPPED OVER EACH PAIR OF WING PANELS WILL APPLY SLIGHT PRESSURE TO HOLD WINGS IN POSITION WHILE CEMENTED

COMPASS GENERATOR No. 39

APPLY SLIGHT PRESSURE TO HOLD WINGS IN POSITION WHILE CEMENTED STRUTS ARE DRYING.

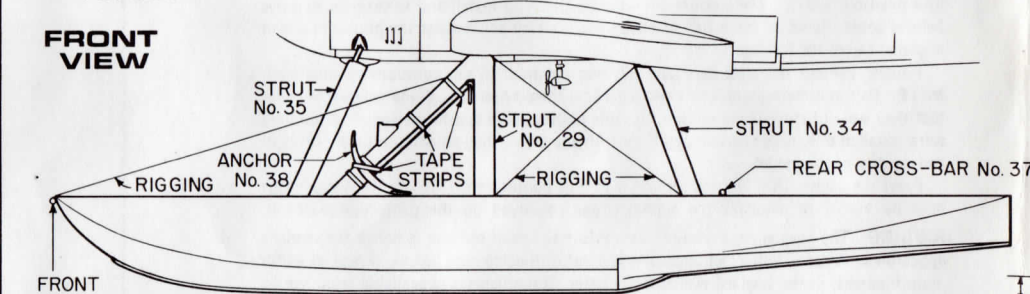
BOX TOP PAINTING

"BOSTON" 3  
"BOSTON II" 3

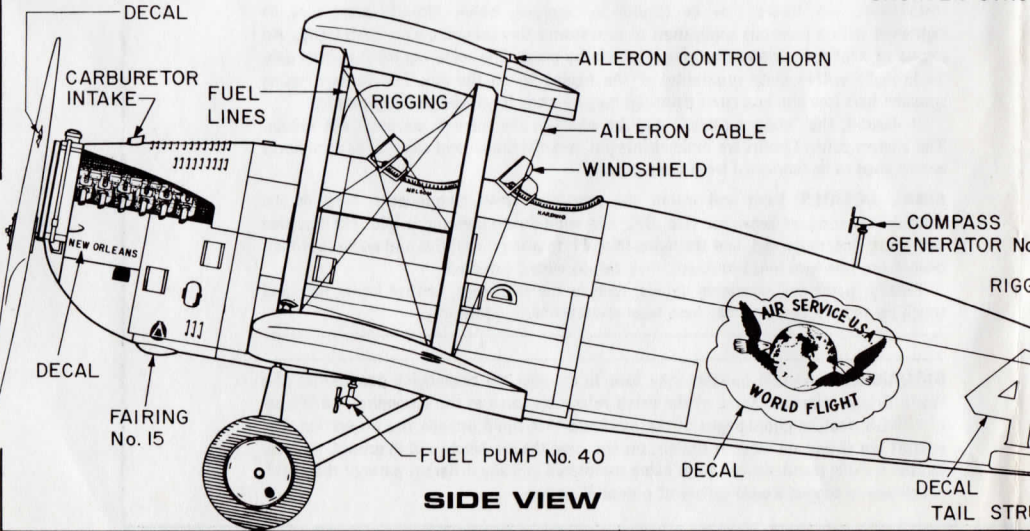


TOP VIEW

FRONT VIEW

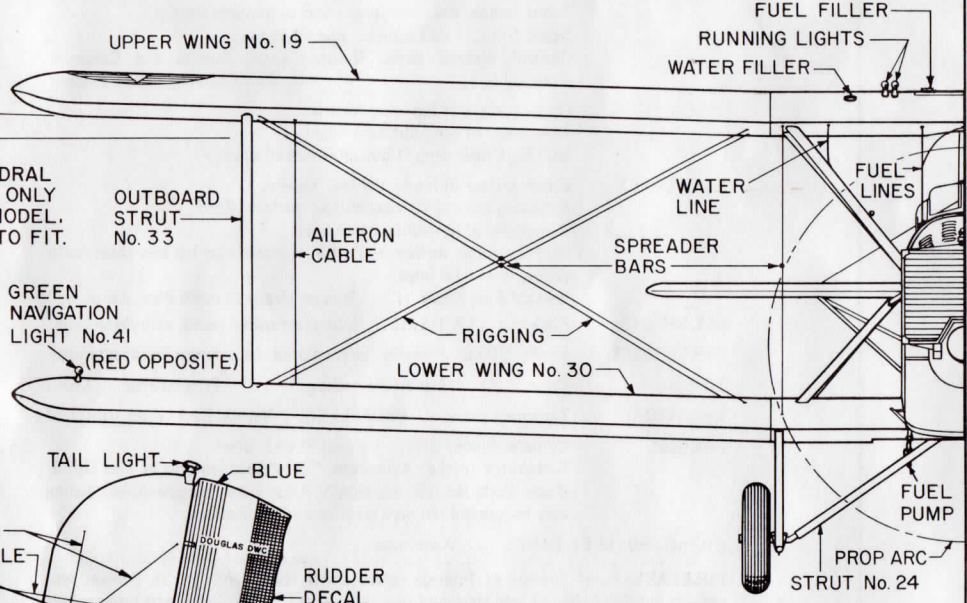


OPTIONAL PONTOON SET-UP  
SIDE VIEW



SIDE VIEW

REMOVE THIS DIHEDRAL FROM UPPER WING ONLY FOR "BOSTON II" MODEL. SHORTEN STRUTS TO FIT.



FRONT VIEW

TAIL LIGHT BLUE

RUDDER DECAL RED

TAIL SKID (DELETE FOR PONTOON VERSION)