B1T
1/8" PLYWOOD

1/8" PLYWOOD
B1B

POSITION OF TATONE ½A TANK MOUNT BOLTS (3 CIRCLES)

B2

1/8" PLYWOOD

B3T
3/32"
THIS IS A ONE PIECE BULKHEAD

POSITION OF COX .049 REED VALVE MOTOR BOLT HOLES (4 CROSSES)

B3B
3/32"
2 REQ.

ARROWS INDICATE DIRECTION OF WOOD GRAIN

B5T
2 REQ.
1/8"

B6T
POSITION OF BULKHEAD TIES
2 REQ.
1/8"

B7T
CUT CORNER NOTCHES OF BULKHEADS B6T AND B7T OVER PATTERNS
2 REQ.
1/8"

B7D
2 REQ.
1/8"

B8T
ADD B7D TO BACK OF BULKHEAD AFTER THE ATTACHMENT OF C11 PARTS
2 REQ.
3/32"

B8B
2 REQ.
3/32"

B9T
2 REQ.
3/32"

B9B
2 REQ.
3/32"

B10T
3/32"
PUSH ROD HOLES
1/8" DIA.

B10B
3/32"

C13
4 REQ.
1/16" PLYWOOD
1/8" DIA.

1/8" x 3/8" HARDWOOD - CEMENT TO BACK SIDE OF BULKHEAD

1/8" x 1/4" BALSA BRACE - CEMENT TO FRONT SIDE OF BULKHEAD

B5B
1/8"

POSITION OF 1/16" x 3/16" x 3/4" STRIPS CEMENTED TO FRONT OF B5B

B6B
1/8"

B7C
1/8"

TAPER EDGES AS SHOWN

C5
1/8"

B4
3/32"
2 REQ.

3/32" B11

B7B 1/8"
1/8" DIA.
POSITIONS OF C13 ON BOTH FRONT AND BACK SIDES

FUSELAGE PARTS

ALL BALSA EXCEPT AS NOTED -SEE OTHER SIDE FOR PARTS A7, A8 + C9

C7
3/32"
2 REQ.

C8
3/32"

FRONT
2 REQ. C11 1/8"

HOLES THRU RIB TO BIND LANDING GEAR IN PLACE WITH LIGHT WIRE

1/8" A4 and C4 2 OF C4 REQ. FRONT C4 TO HERE

POSITION OF GEAR BLOCK G16

G4
1/8" PLYWOOD RIB

1/4"
1/8" DOWEL HOLES

MAKE SMALL CUTOUT IN RIB FOR CLEARANCE OF LANDING GEAR BINDING WIRE

F1
3/32"
5/16"

F2

F3

F4

F5

F6

F7

F8

WING RIBS
2 OF EACH REQ.
ALL 1/16" STOCK EXCEPT AS NOTED

G20
1/8"

G21
1/8" 2 REQ.

F9
4 REQ.
1/8"

G15
1/16"
2 REQ.

G11
1/8"
2 REQ.

G14
Grain
2 REQ.
1/16"

G18
Grain
2 REQ.
1/16"

WING PARTS

ALL BALSA UNLESS OTHERWISE NOTED

G10 1/8"
2 REQ.

1/8" G9 2 REQ.

G1
1/8" PLYWOOD

POSITION OF G1A
POSITION OF G1B

Note: Bore all necessary holes before using parts

G2
1/8"

Cut thru score cuts with modeler's knife

NOTE: Use model builder's saw or knife to cut out pre-scored notches in die-cut parts B1T, B1B, B2, G1, G2 and G4

1/4" DIA
G19
1/16"
2 REQ.

G3
1/8"

G1A
1/8" x 3/8" HARDWOOD

13/64" DIA.
G13
1/16" PLYWOOD

G5
1/8"

TAPER EDGES AS SHOWN

G1B 1/8"

G8 1/16" 2 REQ.

1/8" G12 2 REQ.

1/8" G6 2 REQ.

PATTERN SHEET

KIT NO. 1502

BELLANCA CRUISEMASTER

LEFT WING LAYOUT

ALL SPECIFICATIONS SAME AS RIGHT WING PANEL

WING SECTION AT F4 RIB

F8 F7 F6 F5 F4 F3 F2 F1

F9 - BETWEEN TOP AND BOTTOM SPARS

PLASTIC WING TIP

1/16" SHEET BALSA

RIBS

2-5/16" DIHEDRAL - MEASURED FROM BOTTOM OF RIB F8 TO BOTTOM OF WING CENTER SECTION

TAPERED LEADING EDGE 1/4" x 1/2" to 1/4" x 3/8"

LEADING EDGE CUTAWAY TO REVEAL INNER STRUCTURE

TOP AND BOTTOM SPARS

DOWEL SLOT

LEADING EDGE VIEW

SIDE VIEW OF WING CENTER SECTION

LANDING GEAR WIRED TO G4

G17 G1A G1B G1 DOWEL HOLE G3 DOWEL HOLE G2 G16 BALSA SHEETING G4 SAND TO MATCH BOTTOM CONTOUR G19 G7 G13 G9 G5 G18 G14

WING CENTER SECTION LAYOUT

(TOP SHEETING OMITTED)

LEADING EDGE G17 G11 1/8" PLYWOOD G1 HARDWOOD G1A G6 G8 G20 G21 G12 G2 G3 G7 G13 G9 G5 G10 G15 G14

BATTERY TRAY

HARD WOOD WING HOLDDOWN BLOCK

1/16" PLYWOOD

TIGHTLY BIND LANDING GEAR TO G4 WITH LIGHT WIRE - SEE DETAIL ON INSTRUCTION SHEET

1/8" FORMED WIRE LANDING GEAR

G16 GEAR BLOCK

BOTTOM SHEETING SHOWN

G4 1/8" PLYWOOD

CONSTRUCT WING CENTER SECTION IN NUMERICAL ORDER - G1 THRU G21. (SOME PARTS NOT DIE-CUT PIECES)

NOTE!

THE INITIAL STAGE OF WING CENTER SECTION FRAME IS BUILT UPSIDE DOWN OVER LAY-OUT - BE SURE AND READ IN-STRUCTIONS EXPLAINING THIS PROCEDURE

SECTION THRU RUDDER AND FIN

CONTROL HORN

3/16" FIN

3/16" RUDDER

CONTROL HINGE

CEMENT FIN TIP TO FIN BEFORE SHAPING

RUDDER/FIN LAYOUT

RUDDER FIN FIN TIP

DIAGRAM OF RUDDER/FIN PARTS ON 3/16" x 3" x 11-7/8" DIE-CUT BALSA SHEET

CUT OUT SECTION OF RUDDER IF NEEDED FOR TAIL WHEEL WIRE CLEARANCE

CONTROL HORN

WIRE TAILWHEEL YOKE - BEND IN POSITION WITH THREAD AND CEMENT

F9 F1 G4 G16 G12 G1 G21 G1A G13 G7 G18 G17 G11 G8 G6 G1B G20 G3 G1 G2 G5 G19 G6 G14 G15

1/8" x 1-1/2" HARDWOOD DOWEL

1/16" BALSA SHEETING

LEADING EDGE VIEW - TOP AND BOTTOM SHEETING CUT BACK TO REVEAL INNER STRUCTURE

TRAILING EDGE VIEW

G19 G18

DETAIL OF WING CENTER SECTION -TOP SHEETING OMITTED FROM RIGHT SIDE

1/8" HIGH SHIM

1/16" RIBS

1/16" SHEET BALSA - TOP ONLY

1/4" x 3/8" LEADING EDGE - SHIM UP EACH END AS INDICATED

FOUR TOP AND BOTTOM SPARS 1/8" SQ.

1/16" HIGH SHIM

PLASTIC WING TIP - ADD AFTER FRAME IS COVERED

F1 F9 - BETWEEN TOP AND BOTTOM SPARS F2 F3 F4 F5 F6 F7 F8

3/32" ROOT RIB

NUMERALS - TOP OF RIGHT WING - BOTTOM OF LEFT WING

TRAILING EDGE FILLER "LINE-UP" MARKS

AILERON SEPARATION LINE - TOP AND BOTTOM - USE 1/16" WIDE TRIM TAPE

TRAILING EDGE - 3/32" x 1" TAPERED TO 3/32" x 5/8"

RIGHT WING LAYOUT

Cover all layouts with Saran Wrap or wax paper to prevent frames from sticking to plan.

TOP KEEL LAYOUT

A7 1/8" BALSA A8 A1 1/8" BALSA A2 1/8" BALSA

B1B B2 B3B B4 B8B B9B B10B B5B A1 B6B B7B

TEMPORARY CROSS BRACES - SEE INSTRUCTIONS

IMPORTANT NOTE!

BULKHEADS B2 AND B4 ARE ADDED TO FUSELAGE FRAME AFTER KEEL UNIT HAS BEEN REMOVED FROM LAYOUT-SEE INSTRUCTIONS.

ALL CROSS BRACES ARE 1/8" SQ.

CEMENT PARTS A1 AND A2 TOGETHER AT JOINTS

FUSELAGE CENTER KEEL LAYOUT

SMALL SQUARE METAL BLOCKS

SUGGESTED METHOD OF SQUARING AND BLOCKING HALF BULKHEADS ON KEEL FOR ACCURATE ALIGNMENT. NOTE-ILLUSTRATION NOT THAT OF BELLANCA CRUISE-MASTER FRAME.

ELEVATOR STABILIZER FAIRING BLOCK CONTROL HORN SIDE VIEW OF ELEVATOR HORN ATTACHMENT

-SECTION AT X-Y

SMALL DRESSMAKER PINS 3/32" TIP FIN CONTROL HINGE 3/16" STABILIZER WIRE ELEVATOR JOINER STABILIZER FAIRING BLOCK X Y 3/16" ELEVATOR CONTROL HORN

STABILIZER/ELEVATOR LAYOUT

TRAILING EDGE FILLER - 1/16" x 3/16"

COMPLETED WING FRAME (BEFORE TRAILING EDGE IS SANDED TO SHAPE)

WHITE AREAS INDICATE EXCESS STOCK

C12

WING CENTER SECTION SHEETING 2 REQ.

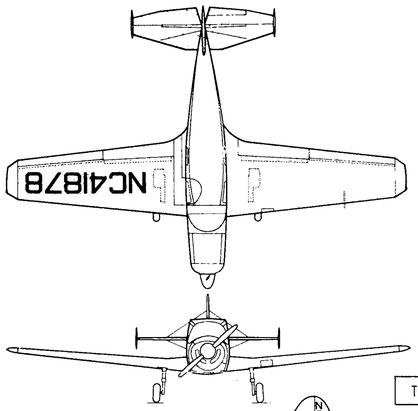
DIAGRAM SHOWING HOW TO CUT WING SHEETING AND PARTS C12 (FIN SEATS) FROM THE 1/16" x 3" x 11-7/8" AND 1/16" x 2" x 16-3/4" PLAIN BALSA SHEETS

ASSEMBLING THE BOTTOM OF FUSELAGE FRAME OVER CENTER KEEL

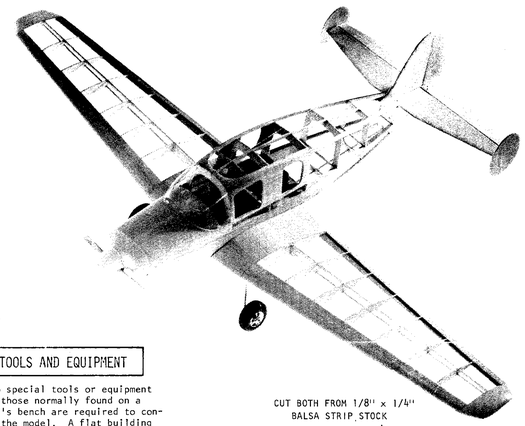
Kit No. 1502

BELLANCA CRUISEMASTER

FRAME LAYOUT SHEET



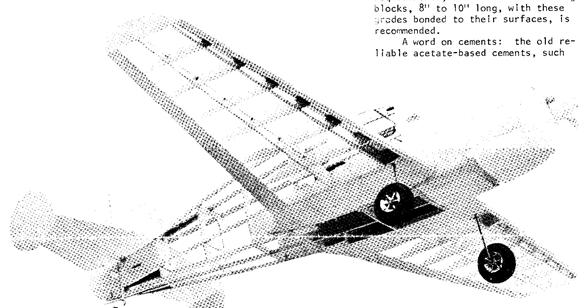
3 VIEW DRAWING OF BELLANCA CRUISEMASTER

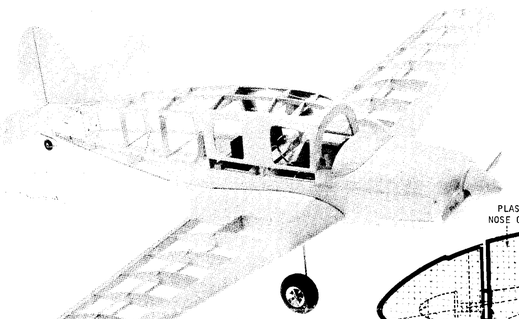


TOOLS AND EQUIPMENT

No special tools or equipment beyond those normally found on a modeler's bench are required to construct the model. A flat building board at least 48" x 12" should be used, and the usual X-acto or single-edge razor blades, straight pins, long-nosed pliars, and an assortment of sandpaper and cements is all that will be required. Garnet Paper, grades 150 (4/0) and 220 (6/0) will be suitable for all of the sanding requirements, and the use of sanding blocks, 8" to 10" long, with these grades bonded to their surfaces, is recommended.

A word on cements: the old reliable acetate-based cements, such as Ambroid or Testor's, are fine for structural balsa work; however, keep in mind that they contract on drying and, if used excessively, will warp a structure and dimple sheet covering. The newer aliphatic resins, such as Wilhold or Titebond, are light and strong and do not contract on drying. They are recommended where alignment accuracy is critical or where hardwoods are to be joined. Many builders are now using the new super glues ("Hot Stuff", "Zap, etc.). These are fine if properly used. They set up very fast, are strong, and add almost no weight. They must be handled with caution, however, since they will bond your fingers to the structure before you are aware of it. Also, they are not void fillers, and require perfect wood-to-wood joints for strength.





PRE-WORK INSTRUCTIONS

The plan set in kit consists of a Main Plan for reference purposes, a Frame Layout Sheet, two Pattern Sheets of parts and a step-by-step Instruction Sheet describing the recommended procedure for building model and installing R/C system.

Before beginning actual construction, study the plans, instruction sheets and sketches, and the parts provided in the kit, until you have a good understanding of the design and construction techniques employed. You will find that the construction is straightforward and similar to other Guillow scale models. Note, however, that in certain areas a particular sequence of assembly is outlined, and this should be followed, since experience in building the prototypes has proven this to be the easiest or most accurate approach.

All frames are built on the layouts on the opposite side of this main plan. Before starting to build a particular frame unit, place the layout on a workboard and pin Saran Wrap or wax paper over it to prevent parts from sticking to plan during assembly.

When removing balsa or plywood parts from die-cut sheets, use the point of a model builder's knife or single edge razor blade to loosen any part that does not "pop out" easily.

Although every effort has been made to avoid error in the design and production of this kit, we do not claim it is errorless. Please notify us if you discover anything that should be corrected since it is our desire to rectify it immediately.

If, during the building of this model, you need some word of explanation to solve a particular construction problem, just drop us a line and we will answer your inquiry by return mail.

Guillow's RADIO CONTROL

KIT NO. 1502

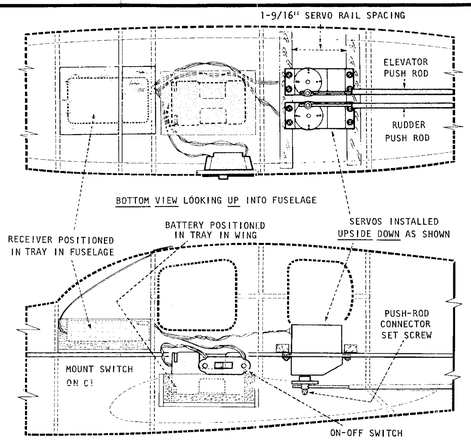
BELLANCA CRUISEMASTER

½A Sport — Scale Radio Control Model

42¾" (108.59cm) wing span — Scale: 1¼=1'-0"

Wing area: 252 sq. in. — Length: 28¾" (73.03 cm) — Weight without radio: 16 to 18 oz.
Engine: .049-.051 — Wing loading: 12½ oz. per sq. ft. with 2 channel radio — R/C equipment: any 2 or 3 channel system.

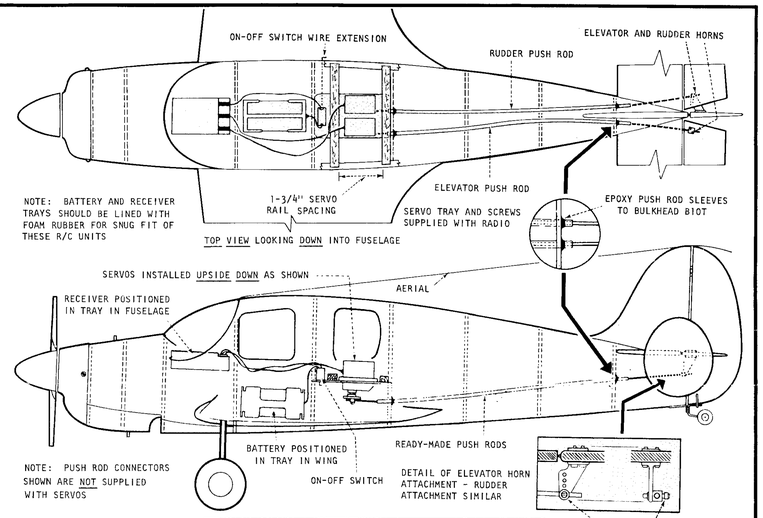
Paul K. Guillow, Inc., P.O. BOX 229 – 40 NEW SALEM ST., WAKEFIELD, MASS. 01880 U.S.A.



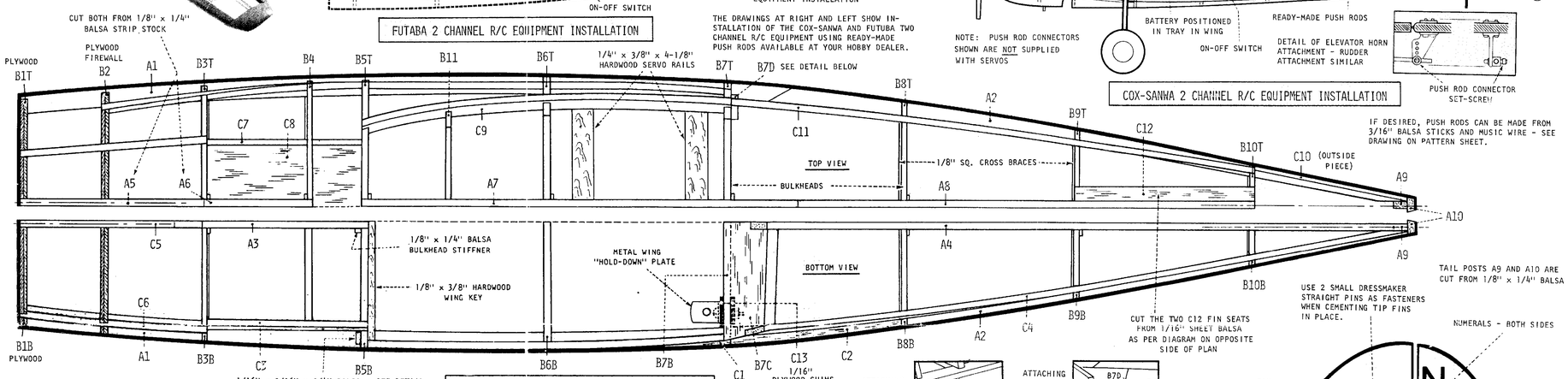
FUTABA 2 CHANNEL R/C EQUIPMENT INSTALLATION

PHOTO OF COX-SANWA R/C EQUIPMENT INSTALLATION

THE DRAWINGS AT RIGHT AND LEFT SHOW INSTALLATION OF THE COX-SANWA AND FUTUBA TWO CHANNEL R/C EQUIPMENT USING READY-MADE PUSH RODS AVAILABLE AT YOUR HOBBY DEALER.



COX-SANWA 2 CHANNEL R/C EQUIPMENT INSTALLATION



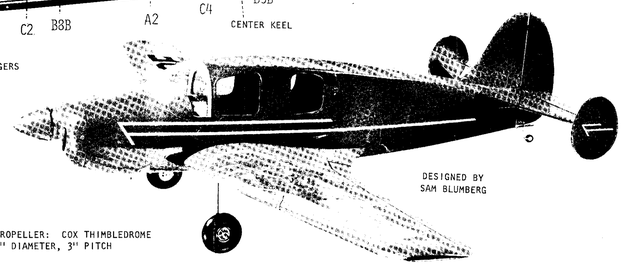
FULL SIZE TOP AND BOTTOM VIEWS OF FUSELAGE
(HALF VIEWS UP TO KEEL ONLY)
BALSA SHEETING OMITTED FOR CLARITY

FULL SIZE SIDE VIEW
BALSA SHEETING OMITTED FOR CLARITY

MAIN PLAN

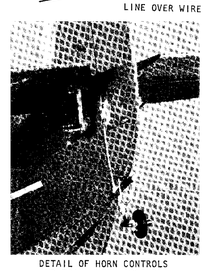
NOTE

THE "A", "B" and "C" FUSELAGE PARTS ARE INSTALLED IN NUMERICAL ORDER AS LISTED ABOVE - SOME PARTS ARE MADE FROM THE BALSA AND HARDWOOD STRIPS PROVIDED.



DESIGNED BY SAM BLUMBERG

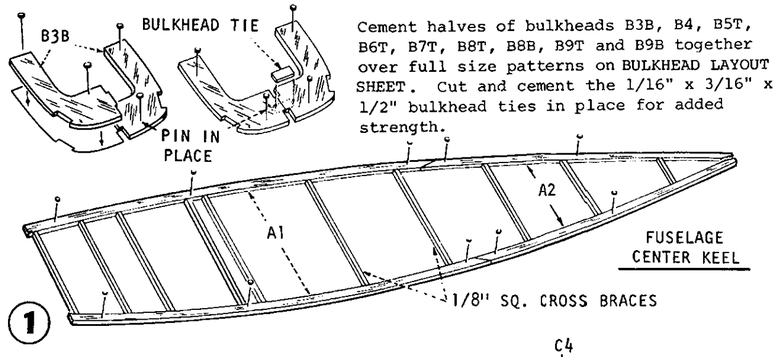
PROPELLER: COX THIMBLEDROME 6" DIAMETER, 3" PITCH



DETAIL OF HORN CONTROLS AND TAIL WHEEL ASSEMBLY

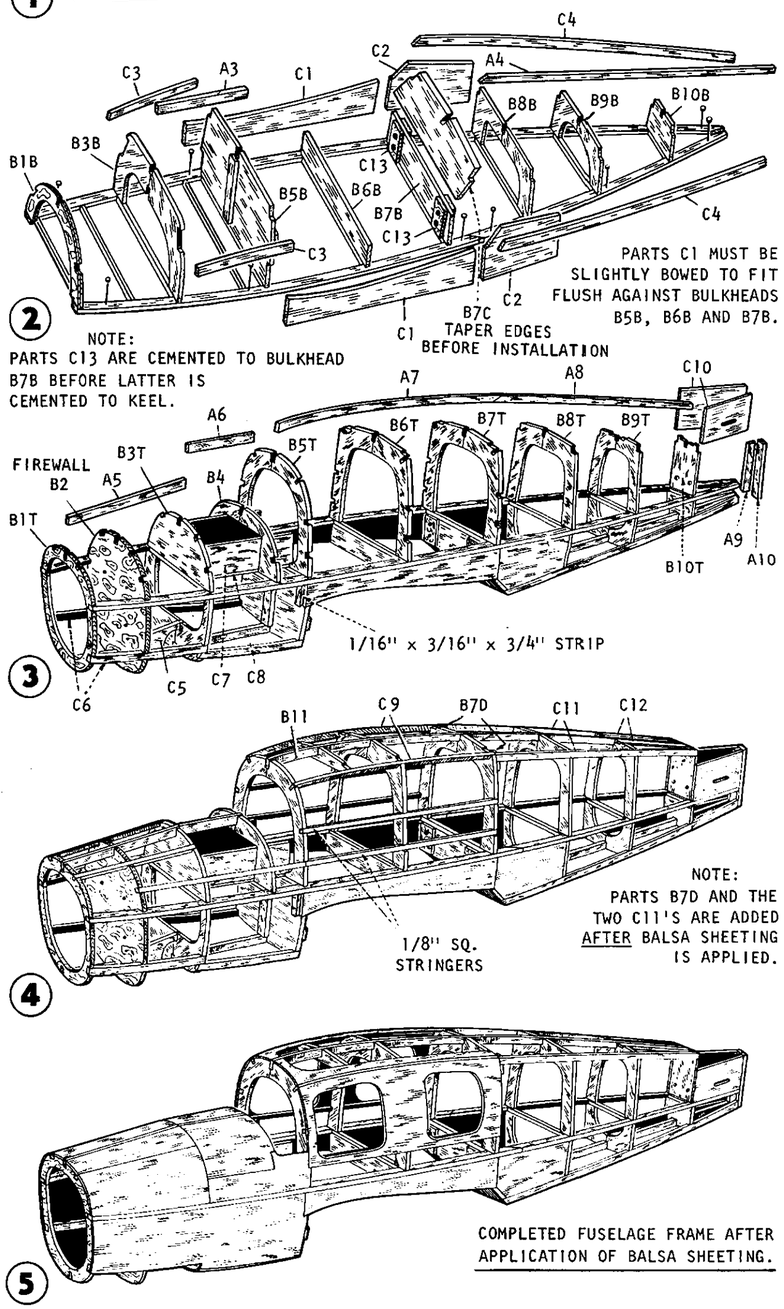
BELLANCA CRUISEMASTER BUILDING INSTRUCTIONS

THE ILLUSTRATIONS AND INSTRUCTIONS PROVIDED INDICATE THE RECOMMENDED CONSTRUCTION PROCEDURE FOR BUILDING THIS MODEL. A BEGINNER SHOULD FOLLOW THE STEP-BY-STEP DIRECTIONS - ADVANCE MODEL BUILDERS CAN PROCEED ON THEIR OWN MAKING CERTAIN BEFOREHAND THAT THEY FULLY UNDERSTAND SOME OF THE SPECIAL CONSTRUCTION DETAILS PARTICULAR TO THIS MODEL.



Cement halves of bulkheads B3B, B4, B5T, B6T, B7T, B8T, B8B, B9T and B9B together over full size patterns on BULKHEAD LAYOUT SHEET. Cut and cement the 1/16" x 3/16" x 1/2" bulkhead ties in place for added strength.

① ② ③ ④ ⑤



PARTS C1 MUST BE SLIGHTLY BOWED TO FIT FLUSH AGAINST BULKHEADS B5B, B6B AND B7B.

NOTE: PARTS C13 ARE CEMENTED TO BULKHEAD B7B BEFORE LATTER IS CEMENTED TO KEEL.

NOTE: PARTS B7D AND THE TWO C11'S ARE ADDED AFTER BALSA SHEETING IS APPLIED.

COMPLETED FUSELAGE FRAME AFTER APPLICATION OF BALSA SHEETING.

Kit No. 1502
BELLANCA CRUISEMASTER

SERVO RAILS OMITTED FOR CLARITY - BE SURE AND SEE INSTRUCTIONS FOR INSTALLATION.

1. BUILDING THE FUSELAGE FRAME

First off, cement the bulkhead halves together over BULKHEAD LAYOUT SHEET as shown at left. Then bore holes where necessary in the balsa and plywood parts.

1. Build the fuselage center keel over layout on plan using die-cut parts A1 and A2 and 1/8" sq. cross braces.

2. The lower half of fuselage is built on the keel while it is still pinned to plan. Starting with plywood bulkhead B1B, cement the bottom bulkheads to keel as shown by illustration using a builder's triangle or square to achieve perfect alignment. Next add parts C1 cementing them to bulkheads B5B, B6B and B7B and follow up with the two C2 parts that establish the angle at which bulkhead B7C is installed. Add B7C then the centerline pieces A3 (1/8" x 1/4" stock) and A4 finishing up with lower longerons C3 and C4.

At this time a decision should be made as to the type of engine and engine mount you plan to install since the engine mounting holes, tee-nuts, etc. should now be prepared in the plywood firewall (B2). See PATTERN SHEET.

3. The lower fuselage assembly can now be lifted off the layout and the B2 firewall slipped into place against the temporary 1/8" square cross-brace. Cement the firewall to the keel but NOT to the cross-brace. Check it for perpendicularity, and glue in the C5 lower forward keel member to secure it. When dry, remove cross brace. The two C6 longerons may also be added at this time, taking care not to distort the forward fuselage. Assemble the receiver tray (parts C7 and C8) then line it with 1/4" foam rubber, and cement it into place on top of the cross-braces at Stations 3 and 4. (NOTE: the tray has been sized to fit the Cox-Sanwa and Futaba 2-channel receivers. If it is planned to use a different receiver, confirm that it will fit or adjust the size of the tray accordingly.) With the tray in place, the previously assembled bulkhead top halves can be cemented into position, checking each for perpendicularity to the keel. Secure their alignment by installing the 1/8" x 1/4" parts A5 and A6 and then centerline part A7/A8 after it has been joined together over plan layout - now remove the temporary cross brace in back of B1 bulkhead.

4. Mark the position of the B11 cabin bulkhead and install it concurrently with the two C9 longerons. Note that the C9's protrude beyond the contours of bulkheads 5, 7 and 8 so that 1/16" cabin sheeting, when installed, can butt against them. Add the 1/8" square stringers about the nose and along the cabin sides. Now add parts A9 and A10 at tail making certain that they are perpendicular to keel. Add stabilizer mounts C10 and fin mounts C12.

Before proceeding further with the fuselage, it is IMPORTANT that plans be made for the installation of radio gear. Refer to "RADIO EQUIPMENT and CONTROLS INSTALLATION" instructions furnished on reverse side of this sheet.

5. Before putting on any of the nose or cabin sheeting, give the structure that will be sheeted a thorough sanding to eliminate any rough spots and ensure that the sheeting will seat smoothly against all of the structural members. Now refer to instructions on PATTERN SHEET that cover the application of balsa sheeting to fuselage frame.

After the cabin sheeting is completed, cement the B7D pieces to the rear face of bulkhead B7T so that the outer surfaces of C11 longerons, when installed, will be flush with the side and top of cabin - when dry add C11's.

When everything has dried, give the entire fuselage structure a thorough sanding to blend its contours and knock off any rough edges that might show through the covering. It is suggested that you sand the edges of the bulkheads along the cabin top and aft of the cabin to recess them below the covering line. This will provide a smoother covering job and a more realistic appearance.

Complete the fuselage by adding wing mounting hardware, cowl mounts, and any other details still outstanding.

2. BUILDING THE WING FRAME

The wing is constructed in three sections: two outer panels and a center section. Construction of the outer panels is conventional, with die-cut ribs, four 1/8" x 1/8" spars, a tapered leading edge with 1/16" sheeting on top, and a 3/32" sheet trailing edge. The panel is built directly on the plan, with the trailing edge and two lower spars pinned in place and the ribs erected on them. Make certain that rib F1 (root rib) is perpendicular to the spars, since this determines the dihedral built into the wing. The leading edge is tapered from 1/4" x 1/2" to 1/4" x 3/8", but this tapering, being slight, may be accomplished during the final shaping and sanding of the panel. Cement the leading edge to the ribs while the panel is still pinned to the plans, with the root end of the leading edge shimmed up 1/8" off the plan and the tip end up 1/16".

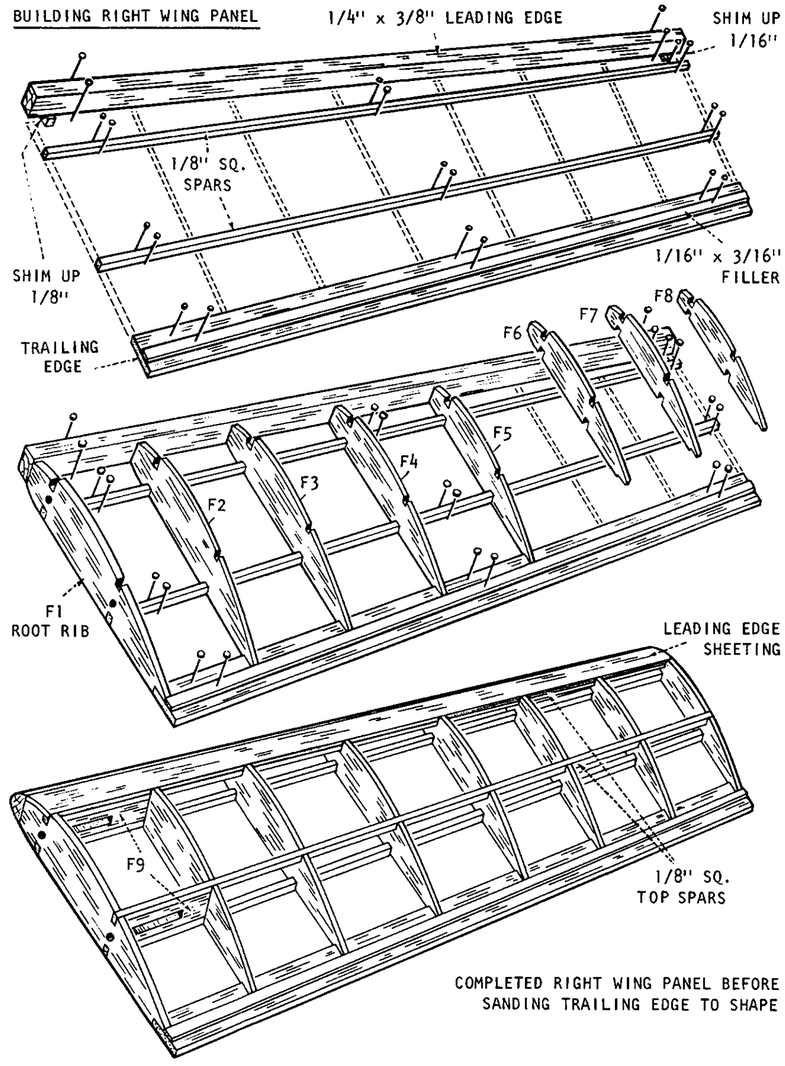
The two top spars are cemented into their notches while the panel is still pinned down, as is the 1/16" leading edge sheeting. Trim the sheeting to size before installing it and bevel its front edge to obtain a good butt seam against the leading edge. Complete the outer panel by cementing on the 1/16" x 3/16" butt strip at the rib trailing edges, and insert the two F9 shear webs between the spars and ribs F1 and F2. Note that the F9's are slightly oversize and will have to be trimmed and beveled to fit against the spars and ribs. Be certain that the slots for the 1/8" dowel shear pins align with the holes in rib F1 and trim them if necessary. Do not change the location of the holes, since these establish the alignment of the outer panels with the center section.

Permit the panel to dry thoroughly, preferably overnight, while still pinned to the plans. It may then be removed and sanded to shape. Avoid sanding too much near the root rib at this time, however, since this is best done after the panel has been joined to the center section and the wing can be sanded as an assembly.

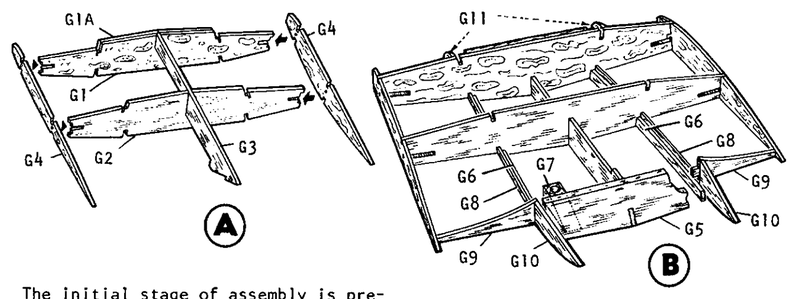
A. Begin the wing center section construction by cementing parts G1A and G1B to plywood spar G1 (see pattern sheet). Now place spars G1 and G2

(CONTINUED ON OTHER SIDE)

BUILDING RIGHT WING PANEL



COMPLETED RIGHT WING PANEL BEFORE SANDING TRAILING EDGE TO SHAPE

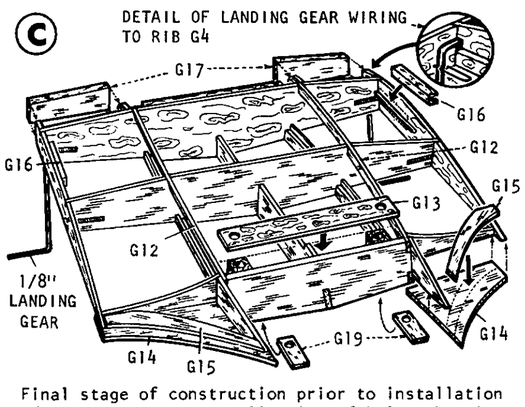


The initial stage of assembly is prepared UPSIDE DOWN over wing center section layout.

The second stage is assembled in conjunction with fuselage frame.

WING CENTER SECTION

The center section has been designed to be, as much as possible, a self-jigging assembly. However, since it must mate with the fuselage and building tolerances can't be avoided, some portions of the construction must be coordinated with the fuselage structure. Read instructions carefully before starting construction!



Final stage of construction prior to installation of battery tray and application of balsa sheeting.

(Continued from other side)

UPSIDE DOWN over wing center section layout and cement keel G3 into notches in G1 and G2. When dry add the two plywood root ribs G4 which lock into notches on ends of G1 and G2. Work carefully and make certain that the parts fit well and are properly aligned.

B. When dry, lift frame from layout and trial fit into the fuselage wing cut-out area using scrap 1/16" balsa shims between the tops of G1 and G2 and fuselage parts C1 to allow for addition of the wing sheeting at a later stage of construction.

With G1 held against bulkhead B5B, the tail end of G3 should be in contact and aligned with inclined bulkhead B7C. If the fit is not correct, shim or trim the end of G3 until it is. When you're satisfied with the fit, set the frame aside. Now bevel the top and bottom edges of bulkhead G5 and pin it into place on fuselage bulkhead B7C with a piece of Saran Wrap between the two to prevent them from sticking together. Now reinsert the center section frame into the fuselage cut out and cement G3 to the G5 bulkhead. Next cement the two G6 longerons into their notches in G1, G2 and G5 and let dry.

Now line up the holes in the G7 hardwood blocks with the wing attachment fittings on fuselage bulkhead B7C and cement the G7's firmly into place on G5. (The tops of the G7's should be in line with the top of G5) -- add the two G8 stringers, which serve as gluing strips for the bottom 1/16" sheet covering. Next, cement the two G9 parts between the G4 root ribs and the G8's, making them perpendicular to the G4's at a point in line with the top front edge of G5. Now add the G10 fillet formers, cementing them to the G9's and the edges of G5 so that they lay flat against the sides of fuselage - see drawing B.

C. While these are drying, move up to the leading edge and cement the G11's to the G1 spar so that they lay against the fuselage side, as was done with the G10's. Again, pieces of Saran Wrap will prevent miss-gluing. Glue these very firmly and let dry well, because they will be unsupported until after the landing gear legs are in place and the G17 leading edges can be installed. Once these are dry, the center section frame can be removed from the fuselage and completed as a separate assembly.

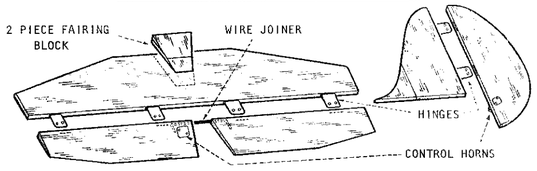
Cement the two G12 upper longerons into their notches in G1, G2 and G5 and add the G13 plywood stiffener across the tops of the G7's and bulkhead G5. Now do the G14 lower fillet panels, using pins to make them conform to the bottom contour of G10. When dry, add the G15 doublers to the G14's. Note: because of the curve in G14, the G15 must be clamped and pinned to follow the curve. Two or three clothes pins will work well as clamps until the cement dries. While this is drying, insert the landing gear legs through the holes in G1 and position them so that the vertical leg is 3/8" forward of G1. Make certain that you have the correct leg in each side - the axle points outward. When in position, epoxy the grooved hardwood blocks (G16) over the wire against the G4 ribs. Be liberal with the epoxy, since it must stand the shocks of hard landings.

Now cement the G17 leading edges in place but do not shape them until after the center section sheeting is completed. Sand the entire structure in preparation for the sheeting and, at the same time, bevel the top edge of the G4 ribs to follow the contour of G1, G2 and G9, and do the same with the top of G10. The trailing edge of the G14 skin panels, with their G15 doublers, should also be carved and sanded to a knife edge, so that the G18 top panels will lay smoothly against them. Then cement in the G18's using pins and clamps to hold them in place. The remainder of the center section sheeting, with the grain running spanwise, is cut from the 1/16" sheet supplied and is simply cut and cemented into place, using pins to hold it to contour. When everything is dry, shape the G17 leading edges and add the G19 filler plates to bottoms of G7 blocks.

Temporarily insert the 1/8" dowel shear pins in the holes in the center section root ribs and trial fit the outer panels. Sand the mating surfaces if required to get a good fit, but be careful not to alter the angular relationship between the surfaces, since this establishes the dihedral of the wing. Invert the assembled wing on your bench, with a 1-1/4" block beneath the G1 center section spar. The tops of the outer panel tip ribs should be just touching the bench top if the dihedral is correct. Sand the mating butt ribs, if necessary, to achieve this. When satisfied, disassemble the wing, apply cement to the shear pins and root ribs, and reassemble with the wing blocked and weighted down in the inverted position. Let dry at least overnight.

Finally, assemble and install the center section battery box, (G20 and G21's) and give the entire wing a thorough sanding. Pay particular attention to the junction of the panels to the center section and the concave trailing edge of the fillet since these areas greatly affect the appearance of the model. Install the wing in fuselage for sanding the bottom of the center section and sand away any irregularities that may exist at the fore and aft junctions. At the same time, eliminate any interferences that prevent the wing from seating completely in the cut-out.

3. PREPARING THE TAIL SURFACES

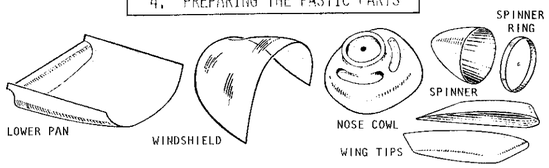


Solid sheet balsa tail surfaces are used on the Bellanca model and, since they are supplied pre-cut, require little more than contour sanding and the installation of hinges and control horns. As a first step, shape the elevator joiner from the 1/16" wire supplied. Bend this carefully, making certain that the bends are true 90° and that the legs are parallel to each other. Then pin the two elevators to the plane and, using the formed joiner as a template, locate the 1/2" deep holes in which the joiner will seat. Remove the elevators from the plans and drill the holes and, at the same time, cut the 1/16" slots for the wire from the holes to the inboard ends of the elevators. Roughen the surface of the joiner with a file, coat it with epoxy, and insert it into the two elevators. After the epoxy has set, check that the elevators are perfectly aligned with each other and, if necessary, realign them by springing the wire joiner. To install the hinges, first mark the centerline of the stabilizer and elevator at each hinge location. Then, with a sharp X-acto knife, carefully cut 1/32" wide slots along the centerline at each hinge location. Work carefully and use a very sharp blade, or else the grain of the wood will force the cut away from the centerline. After all the slots are cut, insert the hinges but do not glue them, and check that the movement of the surfaces is free and easy. If it is not, isolate the hinge or hinges causing the binding and open the slot until the binding is relieved. Later, when the hinges are permanently installed, any gaps can be filled with cement or slivers of balsa. Final installation of the hinges is best accomplished after the surfaces are covered and the model is in final assembly. The same procedure is followed in hinging the rudder to the vertical fin.

The control horns are also installed after the surfaces are covered, however they should be located now and the holes for their mounting screws predrilled.

Cement the two piece fairing block into place on the stabilizer and carve and sand the surfaces to the streamlined shape shown on the plans. When this is completed, sew and cement the #8 tail wheel yoke to the bottom of the rudder and put the surfaces aside for covering.

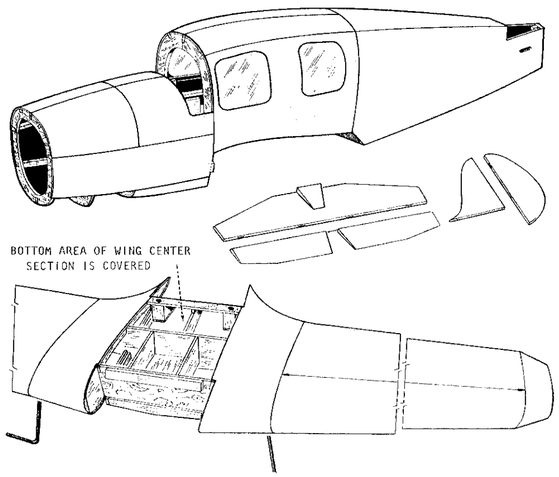
4. PREPARING THE PASTIC PARTS



The vacuumed formed plastic parts should first be cut apart with scissors. Using the point of a modelers knife or a single edged razor blade, score the plastic part as close as you can at the trim points. The score should be deep but not through. Score twice if necessary. After scoring, gently bend the excess material back and forth until it breaks away. Now sand all the edges to smooth them off. All plastic parts should be test fit to areas where they will be attached before covering the frame. Trim or sand as needed to obtain a smooth tight joint.

Most dopes and paints will invariably tend to soften the plastic if too much is applied at frequent intervals. When painting over plastic, work fast and let each coat of dope or paint dry at least 1/2 hour. It is best to test paints and cements on scrap pieces of plastic before use on parts. Refer to information supplied in small kit circular enclosed about choosing proper paints and adhesives for plastic parts.

5. COVERING THE FRAMES

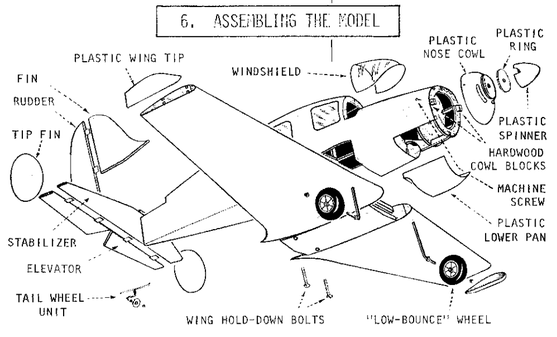


Any of the commonly used covering materials and methods are suitable for the Bellanca. Remember, however, that flight performance is greatly affected by weight, and finishes such as colored dope and epoxy paint are heavy unless applied sparingly. The kit contains Silkspan tissue and if this is used with hot-fuel-proof dope an excellent finish can be obtained. Try to use the same brand of dope throughout, thin it as much as possible, and sand lightly between coats. Finally, use only as much color dope as is necessary to get coverage. The iron-on films, such as MonoKote and Solarfilm, will produce very fine and durable finishes at relatively light weight. If you are not familiar with them, however, it may take a bit of practice and learning in order to do a professional job. Some of them will accept paint for trimming but, generally, it is safer and easier to trim with compatible films or tapes. Regardless of the covering material you elect to use, remember that the appearance of the finished model will be no better than the quality of the structure beneath the covering. So take the time to sand thoroughly with fine sandpaper and remove all sanding dust with a tack rag or vacuum cleaner before applying the covering.

Before covering the fuselage make certain that all provisions for the installation of the radio and engine have been completed. Test fit the engine cowling and the molded belly pan, and do any final sanding of the nose sheeting needed to fit these parts. Do the same in the cabin and top nose cowl area for the molded windshield.

The acetate side windows are best applied before the fuselage is covered. A technique that works well is to cut them to shape approximately 1/16" larger than the window opening. Run a thin bead of clear acetate-base cement (Duco or Pactra) all around the window opening and let it dry. Then position the acetate window over the opening and touch the edges with acetone. Capillary action will suck the acetone under the edge of the window and soften the dried cement. This will bond the acetate without risking unsightly cement smears on the windows. When the covering is applied, it is trimmed to lap over the acetate to the window contour. If you are using one of the iron-on coverings, be careful and avoid running the iron over the acetate window. Its heat will warp or melt the window.

6. ASSEMBLING THE MODEL



IMPORTANT NOTE! BE SURE THAT ALL NECESSARY RADIO GEAR AND CONTROL INSTALLATIONS REQUIRED BEFORE MODEL ASSEMBLY HAVE BEEN COMPLETED - READ INSTRUCTIONS

The stabilizer and vertical fin are glued into position on the fuselage after the fuselage is covered. They may be covered before or after installation but, if before, make certain that any covering material is cut away so that wood-to-wood bonds are achieved. A strip of covering the width and length of the fin will also have to be removed from the top of the fuselage to provide a gluing base for the fin. Align them very carefully, making certain that they are perpendicular to each other and to the centerline of the model. This is particularly important on the stabilizer because of the large, fixed, tip fins mounted at its ends. The elevator must be attached to the stabilizer before the rudder is installed. This is done after the stabilizer and elevator have been covered. Slice through the covering at the hinge slots and cement the hinges into one of the surfaces. Do this carefully to avoid getting cement into the hinge itself. When this has dried, apply cement to the other slots and insert the hinges. The rudder is attached in similar fashion after the elevator is in place, but note that the rudder yoke must also engage the steering rod on the tail wheel as the rudder is installed. The control horns may be installed on both the rudder and elevator after the surfaces are in place.

The molded windshield is installed after the fuselage is covered. Trim it to shape and then, using small strips of masking tape, tape it into position. Using a nylon-tipped marking pen draw a line on the covering where the windshield seats. Then, using a very sharp razor blade, cut and peel away a thin strip of covering material along the line you've marked. Be careful not to cut too deeply into the wood beneath the covering. Then use the same technique previously described for mounting the side windows to mount the windshield. After it has dried, the edges can be trimmed out with hot-fuel-proof tape (available at your hobby shop) or thin strips of your covering material.

The nose cowl and belly pan are styrene moldings which can be painted before installation on the airplane. Use an enamel or polyeurethane paint--dope will attack the styrene. The belly pan will be cemented into place, and strips of covering will have to be removed to provide gluing surfaces. The nose cowl will be mounted with #2 sheet metal screws into pre-drilled hardwood blocks cemented on bulkhead #1. Do not install either molding until after the engine installation has been completed.

After covering the fuselage, but before installing the engine, coat the interior of the nose between bulkheads 1 and 3 with a hot fuel proofer. This may be an epoxy or polyeurethane paint or a butyrate dope. Apply several coats and make certain that every bit of the structure is covered. NOTE: If you have installed Tee-nuts in the firewall for engine mounting, protect the threads by plugging them with screws during this painting.

Two-inch diameter scale-type wheels (Du-Bro, Goldberg, or equivalent should be used. They can be obtained from your local hobby shop. The wheels are retained on the axles by 1/8" collars, also available at the hobby shop, or by 1/8" diameter washers soldered in place.

The tail wheel is a 5/8" diameter unit supplied in the kit. Retain it with a 1/16" washer soldered to the wire.

7. COMPLETING THE MODEL

Final appearance detailing of the model is done after covering. Cowl lines, door cut-outs, flap and aileron markings, etc. are best done with 1/32" or 1/16" black striping tape but, if you have a steady hand, may be ruled with a drafting pen and India ink. Hot-fuel-proof striping tape in various widths is available at your hobby shop. Non-fuel proof chart tape is available at most stationery stores. If used, it must be sealed with a clear epoxy paint. Wing and tail numerals are supplied as decals in the kit. Most Bellanca Cruisemasters were delivered from the factory painted a single solid color, with black numerals on the wing and tail and a single chrome molding strip on the side of the fuselage. Those that can be seen at airports today have invariably been repainted to suit their current owners. Therefore, you are free to use your imagination in painting and trimming your model without disturbing its scale appearance.

8. RADIO EQUIPMENT AND CONTROLS INSTALLATION

With the completion of Step 4 of fuselage frame construction, attention should be given to planning the installation of the radio gear. The reduced size drawings on plan show the installation of the popular Cox-Sanwa and Futaba two channel systems with the installations of other systems being quite similar.

There is adequate room in the cabin for any of the current two or three channel systems, but the installation details may vary. Since the battery and receiver locations are established by the built-in battery box and receiver tray, the principal variables will be the placement of the servo mounting rails and the routing of the control push rods from the servos. Due to the low-wing configuration, access to the radio after the model is covered must be through the wing cut-out in the fuselage; therefore, the servos (and servo tray if used) are installed upside down. Determine the required spacing of the mounting rails by measuring your equipment, if other than Cox or Futaba, and cement the rails firmly into place on the keel between bulkheads 7 and 8. Scrap balsa chocks between the rails and their adjacent bulkheads may be added for extra strength.

Pushrod routing is dictated by the location and rotation of the servos and the placement of the control horns on the rudder and elevator (and throttle, if a third control is used). The plans show the elevator control horn on the bottom of the left elevator and the rudder horn on the right side of the rudder. This placement is optional with the builder, but, with this arrangement, when the elevator stick on the transmitter is pushed forward, the elevator servo must rotate so as to pull on the elevator pushrod; and, when the rudder control stick is moved to the right, the rudder servo must pull on the rudder pushrod. Since servo rotation versus stick movement is not always the same with different systems, you should check out your system before deciding on the location of the servos. Remember that, on a rotary output servo, pushrod movement can be reversed by moving the rod from one side of the servo output wheel to the other.

The use of any of the ready-made pushrod assemblies (Gold-N-Rods, NyRods, Flex-Cables, etc.) is recommended and these are available at your local hobby shop. If preferred, home-made pushrods may be fabricated of 3/16" square balsa strips with 1/16" music wire bound and epoxied to their ends as per drawing on pattern sheet. The commercial units, all of which employ a fixed outer sheath and an internal sliding rod, will be easier to install, lighter, and more positive in their action. They are also flexible and can be routed easily through the interior of the fuselage. If they are used, the sheaths must be anchored at both ends, which is why the location of the servos should be established at this time. The anchoring may be done by cementing them to holes drilled in bulkhead B7B in line with the servo output wheels, and to bulkhead BT10 in line with the slots in C10 stabilizer mounts. If a throttled engine is to be used a pushrod will have to extend forward, around the receiver tray, through holes in the forward bulkheads.

Once the servo mounting rails and pushrod housings are installed, refer back to the fuselage building instructions for information on adding the balsa sheeting to framework.

The structural provisions for installation of the radio equipment have been discussed in the preceding paragraphs. Refer to your Owner's Manual for any requirements unique to your particular system.

Start your radio installation by mounting your servos, or servo tray, to the mounting rails. Use the wood screws and rubber grommets supplied with your radio. The use of Pushrod Connectors (Goldberg PC-1, DuBro, or equivalent) is recommended for their simplicity and convenience. These should be installed in the innermost holes in the servo output wheels and the outermost holes in the control horns. If preferred, zee bends in 1/16" wire soldered or epoxied to the ends of the pushrods may be substituted for the Connectors, but, if used, an adjustable clevis should be installed at the control horn end of the pushrod to permit final zeroing of the surfaces. Measure and cut to length the pushrods and insert them into the sheaths previously installed in the fuselage. Slide them into the holes in the Connectors but do not tighten the set screws at this time. Place the battery pack with fresh cells or a fresh charge in the center section battery box and connect it and the servos to the receiver mounted in the receiver tray. If a servo tray, having a switch mounting, is used, mount the switch and bend up a remote switch actuator wire of .035 music wire and install it. If your tray does not have a switch mounting, or you are not using a tray, mount the switch through the balsa wing saddle so that it can be actuated externally. Make certain that the location leaves enough slack in the connecting wire to permit removal of the battery pack without disturbing the switch. Run the receiver antenna wire up through a hole at the top of the fuselage just behind the windshield and attach it to a straight pin inserted in the top of the rudder. Do not pull the antenna too tight and do not cut it short--let the loose end dangle behind the airplane.

Turn the transmitter ON and place the control sticks and trim levers in neutral. Now turn the receiver ON and let the servos assume their neutral position. Turn OFF the receiver and transmitter and tighten down the connector set screws. Now turn the transmitter and receiver back ON and confirm that movement of the control sticks produce the proper control responses and that the controls move freely throughout their operating range. ± 1/4" to 3/8" travel on both the rudder and elevator is all that is required.

Range checks and other details of radio checkout should be performed as outlined in your Owner's Manual.

9. ENGINE INSTALLATION

If built to the plans and reasonable restraint is exercised in finishing the model, ready-to-fly weight of the Bellanca will not exceed 22 ounces with two-channel equipment aboard. The prototypes averaged 18.5 ounces. At this weight any of the Cox .049 reed valve engines (QRC, Black Widow, Golden Bee) will provide scale-like performance. "Hotter" performance will be obtained with the Cox rotary valve engines (Medallion and TD-.049 or TD-.051). Diesel conversion kits now on the market, which permit the use of larger propellers on the .049 engines, will show significant performance gains. The airframe is stressed for engines up to .09 displacement, but these larger engines should be used only with throttle control and by experienced R/C flyers.

The plans show typical installations for both the reed valve and rotary valve .049's. In both cases the engine is shown inverted. Upright installations would be similar, and simpler, but not as attractive; since they would have the engine protruding through a hole cut in the top nose cowling.

Commercial tank mounts (Tatone #33½, Competition Models Tankmount) are available at your hobby shop for mounting the rotary valve engines. These combine the fuel tank and engine mount and may be bolted directly to the firewall. The Cox #2440 tank mount may also be used for the rotary valve engines, however this mount requires that the engine be installed upright. A design for a home-made mount, of hardwood and plywood, for the rotary valve engines is given on the plans. This mount may be cemented or screwed directly to the firewall also. Its use will require that a separate fuel tank be installed in the compartment aft of the firewall.

To use the reed valve engines on the same firewall, approximately 1/2" of stand-off is required. This can be a solid block, preferably hardwood, 1-1/3" x 1-7/16" x 1/2"; or, as shown on the plans, a block laminated of 1/8" balsa plates. The engine can be mounted with four 2-56 through bolts to Tee-nuts on the firewall, or the block can be cemented into place and the engine mounted with four #2 wood screws.

With an inverted engine installation it is necessary to run external leads from the glow plug and ground for the starting battery connection. These leads can be passed through holes in the nose or attached to machine screws installed on the nose sheeting. The lead attached to the plug should be clip type, or otherwise removeable, to permit removal and replacement of the glow plug.

It will also be necessary to solder an extension on the needle valve of the inverted engines. This can be bent up of .032 to .040 music wire and soldered directly to the head of the needle valve. A 1/4" diameter hole in the styrene cowling will permit the valve to be installed after the cowl is in place.

If a Cox or Tatone engine muffler is to be used on the inverted engine, an extension should be installed to lead the exhaust gases outside. This can be made of neoprene or silicone tubing, or fabricated of tin can stock.

Flight tests of the prototype models showed that approximately 2° of downthrust was helpful, but no side thrust was required. The down thrust can be obtained by installing washers under the rear mounting bolts of the lug-mounted engines, or by beveling the standoff block on the rotary valve engines.

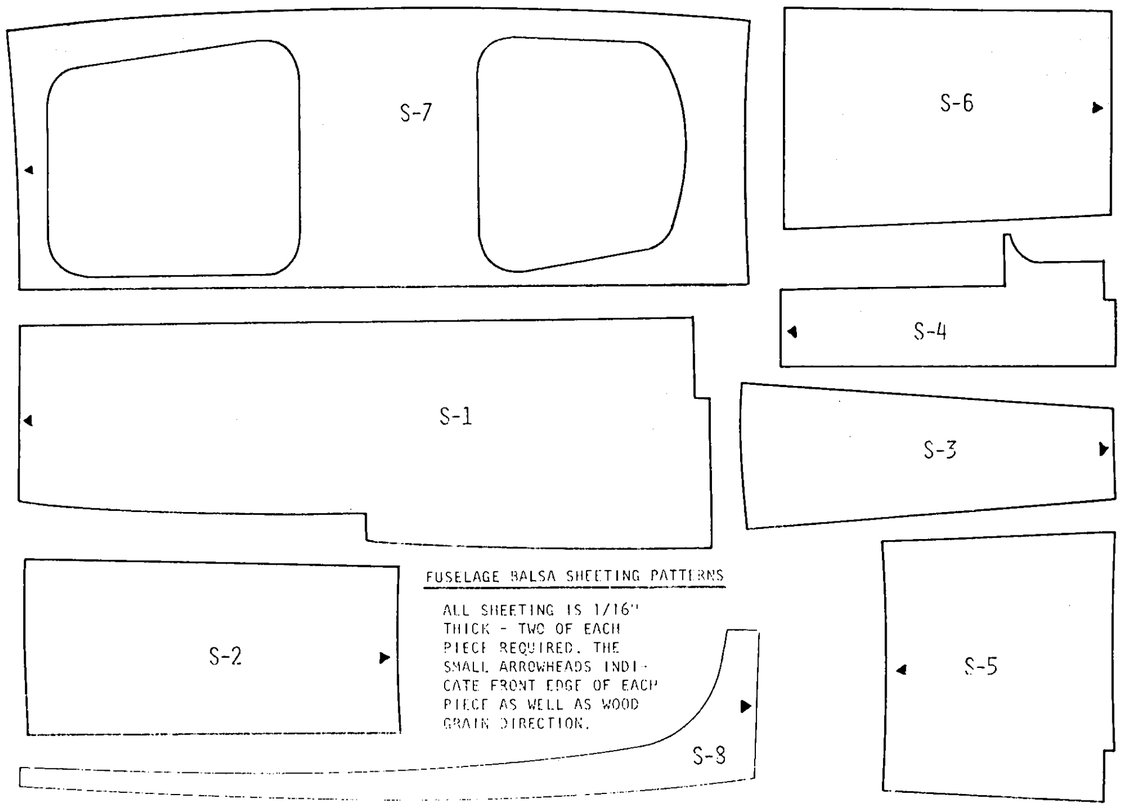
10. FLYING THE MODEL

Before attempting to fly the model check all surfaces for any warps that may have developed. If the model was covered with one of the iron-on materials, warps can be eliminated by twisting the surface and heating the covering with an iron or air gun until the wrinkles disappear. If tissue and dope was used for covering, warps can be removed by twisting and steaming. In any case, eliminate the warps before you attempt to fly the model.

Ready to fly, the model should balance at a point 1-3/4" aft of Bulkhead #5. If picked up by the wing tips, this point is about 1-1/4" aft of the leading edge on Rib #8. A slight nose heaviness is acceptable, but do not attempt to fly it if any tail heaviness is evident. Add ballast if necessary.

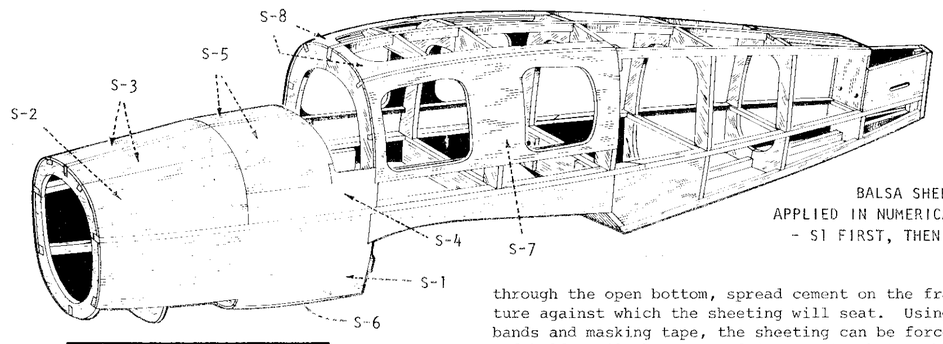
If this is your first R/C model, or if you have limited R/C flying experience, we strongly recommend that you enlist the aid of an experienced flyer for your test flights. The Bellanca is extremely stable and the prototypes have shown no peculiar characteristics. However, R/C flying can be very confusing to the beginner and flight testing is something that should be done by someone with enough experience to do the right things instinctively.

Due to the low-wing configuration, the Bellanca is difficult to hand launch, and should be permitted to take off from a hard surfaced runway. With the engine at full throttle the model will accelerate well and lift off by itself in ten to fifteen feet. Do not try to force it off the ground before it is ready, however, or a stall and snap roll into the ground is almost certain to follow. The steerable tail wheel will help keep the take off run straight until the tail lifts, but, after that, it is wise to leave the rudder alone until the model is airborne at flying speed



FUSELAGE BALSA SHEETING PATTERNS

ALL SHEETING IS 1/16" THICK - TWO OF EACH PIECE REQUIRED. THE SMALL ARROWHEADS INDICATE FRONT EDGE OF EACH PIECE AS WELL AS WOOD GRAIN DIRECTION.



BALSA SHEETING IS APPLIED IN NUMERICAL ORDER - S1 FIRST, THEN S2, ETC.

FUSELAGE SHEETING

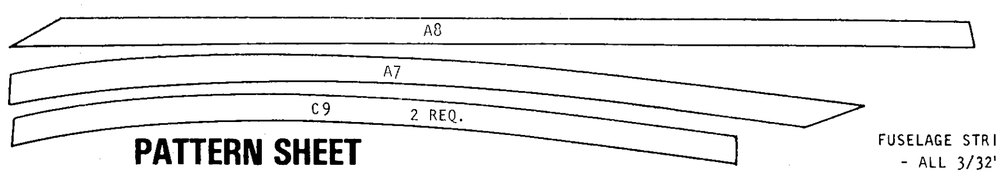
Sheeting the fuselage with balsa is straight-forward and should present no difficulties. It is suggested that you follow the sequence outlined and, before starting, prepare yourself for the job by obtaining a container of water, a small paint brush or swab, straight pins, and some rubber bands. A small roll of masking tape will also come in handy.

The balsa sheet panels are supplied slightly oversize and, after being cut from the printed sheets, should be rough fitted to the fuselage structure and trimmed where necessary before cementing them in place. Also, it is suggested that the two sides be worked alternately or at the same time if possible to avoid distorting the fuselage.

Begin the sheeting by butt-cementing the upper edges of nose side panels S1 to the bottom of the center keel between bulkheads B1B and B5B - hold these in place with pins until dry. Next, by reaching beneath the panels and through the open bottom, spread cement on the frame structure against which the sheeting will seat. Using rubber bands and masking tape, the sheeting can be forced down and held until the cement dries. Note that at bulkhead B5B, the sheeting is cemented to the small pieces of 1/16" x 3/16" x 3/4" that were previously attached to B5B and front of C1's - see plan.

Before attaching any more of the nose sheeting, review your engine installation plans and make certain that all the necessary provisions for engine mounting, separate fuel tank and lines, throttle push rods, etc. have been incorporated in the fuselage structure, then proceed with the remainder of nose sheeting in sequence noted. Should any panel be too stiff to follow the contours of the bulkheads without cracking, wet the outer surface and it will bend easily.

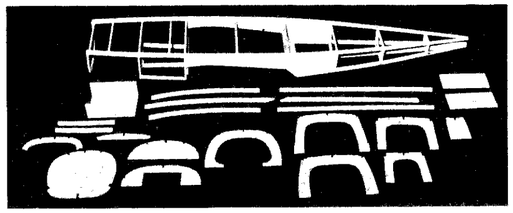
The S7 window panels must have a 45° - sanded or bevel cut along their top edges to mate with the C9 pieces. Work carefully trimming a little at a time to achieve a smooth gap-free fit. A similar bevel and care in fitting is required when installing the S8 roof panels. The smoothness of this corner at the top of cabin is a major appearance item and the extra care taken to get a good fit is justified.



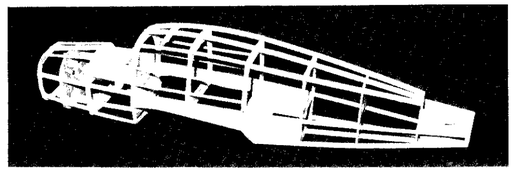
FUSELAGE STRINGER PARTS - ALL 3/32" BALSA

PATTERN SHEET

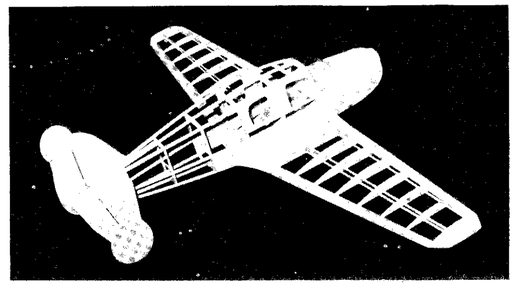
Kit No. 1502 BELLANCA CRUISEMASTER



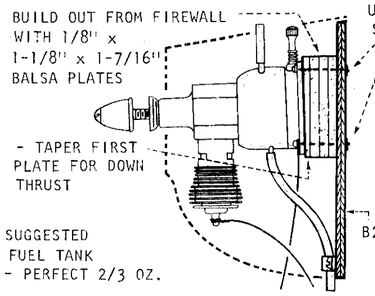
FUSELAGE FRAME AND UPPER BULKHEAD PARTS



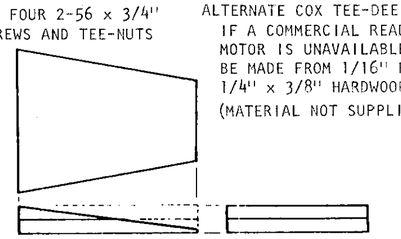
COMPLETED FUSELAGE FRAME



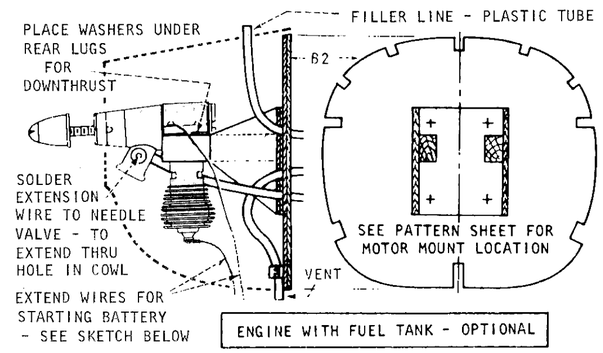
COMPLETED MODEL FRAMEWORK



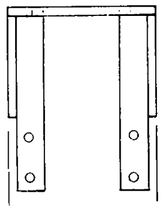
COX .049 REED VALVE INSTALLATION



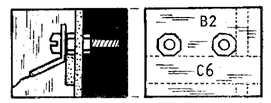
STABILIZER FAIRING BLOCK MADE FROM TWO DIE-CUT BALSA BLOCKS CEMENTED TOGETHER AND TAPERED AS SHOWN



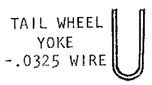
ENGINE WITH FUEL TANK - OPTIONAL

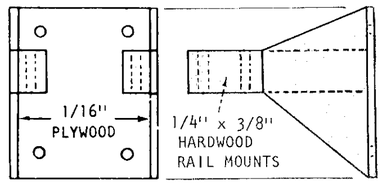


COX TEE-DEE .049/.051 ENGINE INSTALLATION WITH ALTERNATE WOOD MOUNT USING SEPARATE FUEL TANK (NOT SHOWN) BETWEEN BULKHEADS B2 AND B3.



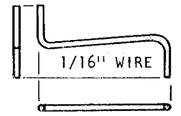
BATTERY WIRE ATTACHMENTS ON OUTSIDE SURFACE OF FUSELAGE



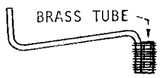


ALTERNATE COX TEE-DEE MOTOR MOUNT. IF A COMMERCIAL READY-MADE MOTOR IS UNAVAILABLE, ONE CAN BE MADE FROM 1/16" PLYWOOD AND 1/4" x 3/8" HARDWOOD STRIPS (MATERIAL NOT SUPPLIED)

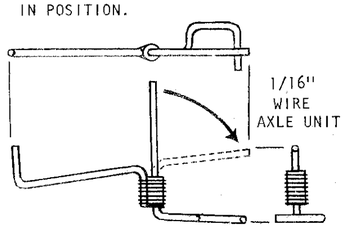
MAKING AND ASSEMBLING TAIL WHEEL GEAR



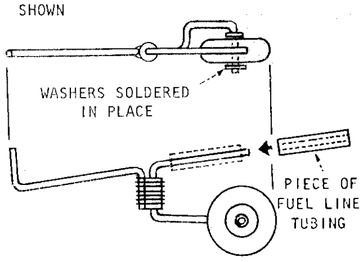
1. BEND WIRE UNIT TO SHAPE



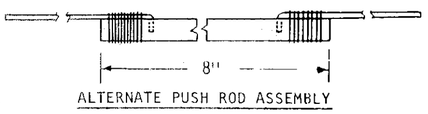
2. BIND BRASS TUBE TO WIRE FORM WITH THIN COPPER WIRE AND SOLDER IN POSITION.



3. BEND AXLE UNIT TO SHAPE AND, BEFORE BENDING TOP LEG IN POSITION, SLIP IT THRU BRASS TUBE AS SHOWN

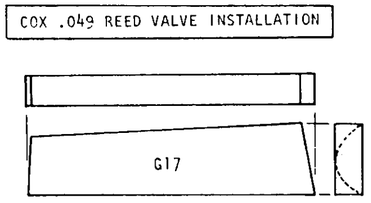


4. ATTACH TAIL WHEEL AND PLASTIC TUBE.

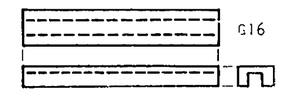


ALTERNATE PUSH ROD ASSEMBLY

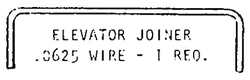
If ready-made push rods are not available, they can be made from 3/16" sq. firm balsa sticks and 1/16" wire as indicated above. The wires should be bound to balsa sticks with thread and cement and should be of ample length to reach to push rod connectors on servo disks and rudder and elevator horns. NOTE: Balsa sticks do NOT go thru bulkhead B1O.

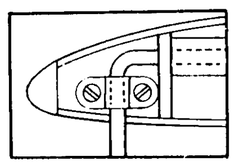


WING CENTER SECTION LEADING EDGE - 2 REQ.

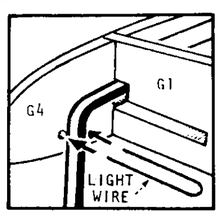


HARDWOOD GEAR BLOCK - 2 REQUIRED





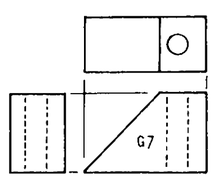
ALTERNATE GEAR CLAMP - AVAILABLE AT YOUR HOBBY SHOP



BIND GEAR TO RIB G4 WITH LIGHT WIRE - TWIST ENDS AND FLATTEN AGAINST G4. GOUGE OUT SHALLOW CUT IN F1 TO TAKE TWISTED WIRE.

MAIN LANDING GEAR - 1/8" WIRE

1 RIGHT, 1 LEFT REQUIRED



HARDWOOD WING MOUNT BLOCK - INSTALLED IN WING CENTER SECTION. 2 REQ.