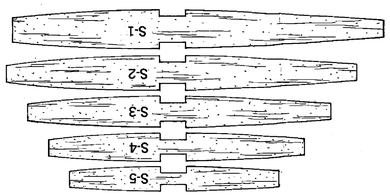
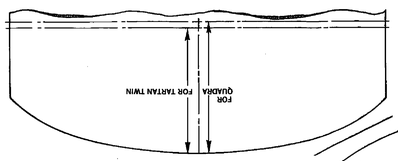
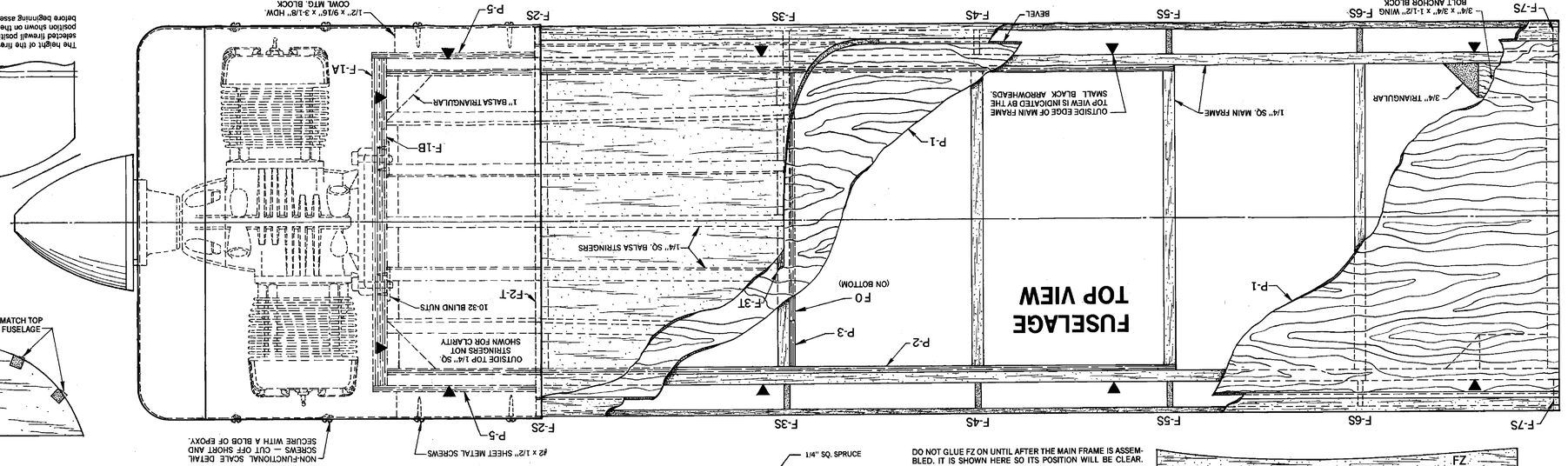
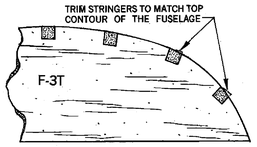


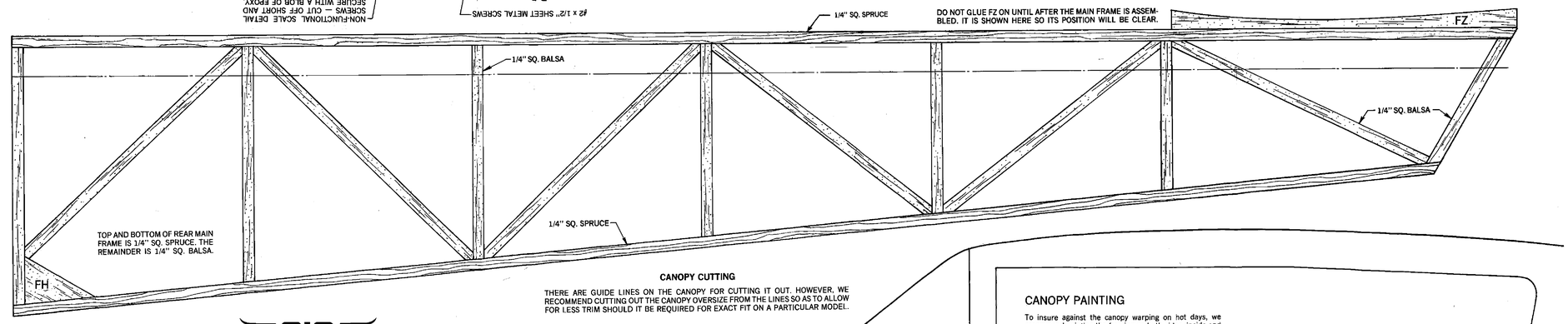


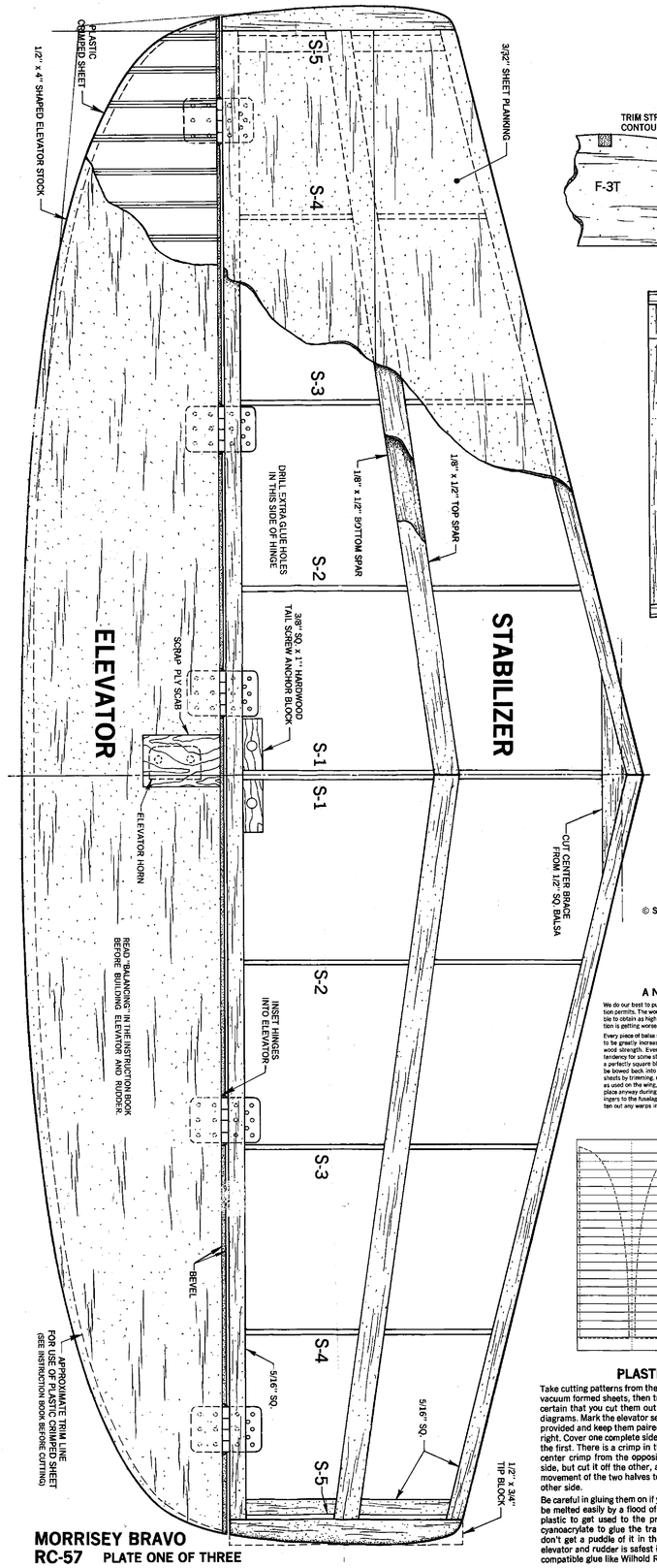
FIREWALL TOP PATTERN

The height of the firewall above the datum (thrust) line varies with the engine used. Draw your selected firewall position on the plan is only for the Tartan Twin. Draw your firewall position on the fuselage side view to determine the required height. The firewall before beginning assembly of the main frame sides.









MORRISEY BRAVO
RC-57 PLATE ONE OF THREE

WARNING — DANGER!
Important: Read These Warnings:

A model airplane motor gets very hot and can cause serious burns. Do not touch the motor during or after operation. Keep clear of the propeller. If cast-off of a finger or part out an eye. Make sure the propeller is securely fastened in place and is not cracked. Model airplane fuel is flammable and poisonous. Take the same precautions while transporting and using it that you would with a can of gasoline or a bottle of poison.

Remember that it is possible to lose control of a model airplane. Do not fly in locations where the model may hit people or damage property if loss of control occurs. Check your model and equipment regularly to insure it is in safe operating condition.

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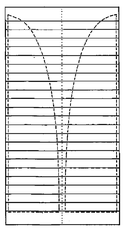
A NOTE ON BALSA WOOD

We do our best to put as good a grade of balsa in our kits as the supply situation permits. The world-wide increase in demand for balsa has made it impossible to obtain as high an average quality as used to be the case and this situation is getting worse.

Every piece of balsa supplied cannot be 100% perfect or kit prices would have to be greatly increased. Mineral stains or small knots do not seriously affect wood strength. Even with the very best grades of balsa, there is a natural tendency for some sticks or sheets to immediately bow upon being cut off from a perfectly square block because of built-in stresses. In most cases, these can be bowed back into alignment during building. True up the edges of bowed sheets by trimming, using a metal straightedge to cut against. Planking sheets, as used on the wing, need not be perfectly flat since they must be curved into place anyway during construction. The gluing of the plywood doublers and stringers to the fuselage sides while they are pinned to a flat surface should flatten out any warps in the side sheets.



PLASTIC CRIMP SHEETS

Take cutting patterns from the plans. Cut slightly oversize to get them from the vacuum formed sheets, then trim them to exact size on the control surface. Be certain that you cut them out in pairs as shown by the accompanying cutting diagrams. Mark the elevator segments from each of the two 9" x 16-3/4" sheets provided and keep them paired. Use one set on the left side and one set on the right. Cover one complete side of the elevator and then match the other side to the first. There is a crimp in the center of the elevator but do not overlap the center crimp from the opposite half. Instead use the center crimp from one side, but cut it off the other, as shown by the drawing here. This allows slight movement of the two halves to line them up accurately with the crimps on the other side.

Be careful in gluing them on if you are using cyanoacrylates. The thin plastic can be melted easily by a flood of glue. We suggest experimenting with the scrap plastic to get used to the procedure. We used very small amounts of thin cyanoacrylate to glue the trailing edges of the elevator sheets together but don't get a puddle of it in the "V". The overall gluing on the surface of the elevator and rudder is safest if done with a contact type of cement or a plastic compatible glue like Wilhold RC-56.

SIG

✱ 3" C.B. SPINNER

✱ TARTAN TWIN ENGINE INSTALLATION SHOWN

A 20" DIAMETER, 8" PITCH PROP WAS USED WITH THE TARTAN TWIN.

AN ASTERISK (*) INDICATES AN ITEM NOT FURNISHED IN THE KIT. IF THE SUGGESTED BRAND NAME IS NOT AVAILABLE, AN EQUIVALENT PRODUCT MAY BE SUBSTITUTED.

✱ 1/2" BRASS TUBING DUMMY SCALE EXHAUST PIPE

3/4" x 8" x 4" BOTTOM BLOCK IS FORMED BY GLUING TWO 3/4" x 4" x 4" BLOCKS TOGETHER

ENGINES: 2 - 3 Cu. In.
WINGSPAN: 86"
WING AREA: 1375 Sq. In.
WEIGHT: 19 Lbs.

MORRISEY
FINE OWNER-BUILT AIRCRAFT

PROOF OF COLOR

The color trim on the Bravo is Dupont Dulux. The can reads "5880 Silver Metallic 73(A78) Ford Mfg. No.1G". This was used by Ford as late as 1980.

Bill Morrisey

FUSELAGE CARVING GAUGE

GLUE TO LIGHT CARDBOARD AND CUT OUT.

6-1/8" x 13-1/4"

CANOPY CUTTING

THERE ARE GUIDE LINES ON THE CANOPY FOR CUTTING IT OUT. HOWEVER, WE RECOMMEND CUTTING OUT THE CANOPY OVERSIZE FROM THE LINES SO AS TO ALLOW FOR LESS TRIM SHOULD IT BE REQUIRED FOR EXACT FIT ON A PARTICULAR MODEL.

CANOPY PAINTING

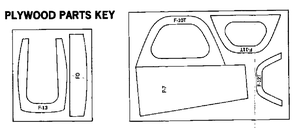
To insure against the canopy warping on hot days, we recommend painting the framing on both sides, inside and out, at the same time. If the frame is carefully masked on the outside, the inside masking can be less precise and need not be perfectly aligned with the outside mask. Make a "T" handle, taped to the inside masked-off window area so that the canopy can be easily held and spray paint both sides at once. The same cautions and paint recommendations given in the Bravo book still apply. Use as little thinner in the paint as possible, preferably none. It is best to have a double thickness of tape on the canopy so thinner can not soak through to the plastic.

NOTE THAT WHILE MOST FORMERS ARE CENTERED ON THE 1/4" SQ. MAIN FRAME PART UNDER THEM, SOME ARE NOT, BUT ARE ON ONE SIDE OR THE OTHER OF THE 1/4" SQ.

THE SCALE NACA 43015 AIRFOIL IS USED ON THE MODEL.

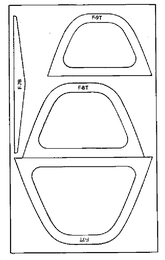
LIMIT OF LIABILITY: Sig Mfg. Co.'s only obligation shall be to replace such quantity of the product proven to be defective. User shall determine the suitability of the product for his or her intended use and shall assume all risk and liability in connection therewith.

PLYWOOD PARTS KEY

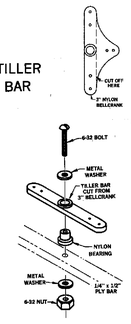


SUMMARY OF PLYWOOD PARTS

P-1 Cabin Floor — 1/8" x 7-7/8" x 22-9/16" Lite Ply
P-2 Fuselage Side Doubler (2) — 1/8" Die Cut Lite-Ply
P-3 Wing Dowel Hole Piece (2) — 1/8" x 1" x 7-1/16" 5-Ply Birch
P-4 Bottom of Fuselage Nose — 1/8" x 5" x 7-1/2" Lite Ply
P-5 Side of Fuselage Nose (2) — 1/8" x 4-1/2" x 5" Lite Ply
P-6 Landing Gear Plate — 1/4" x 3" x 6-1/2" 5 Ply Birch
D-1 Wing Dihedral Doublers (2) — 5/32" Die-Cut 3-Ply Birch
W-9 Wing Tip Rib (2) — 1/8" Die-Cut Lite Ply
Fuselage formers of 1/8" Lite Ply are shown on accompanying Plywood Parts Key.
Tailwheel Tiller Bar is 1/4" x 1/2" x 9" strip of 5-Ply Birch
Stabilizer Screw Plate SP is 1/16" x 1" x 1-5/8" 3-Ply Birch
Stabilizer Dowel Scab SS is 3/32" x 1-1/8" x 1-1/2" 3-Ply Birch



TILLER BAR



Giant Sport Scale

Sig Manufacturing Co., Inc. Montezuma, Iowa 50171

Designed and Drawn by Claude McCullough

CUT DORSAL FIN FROM 3/8" SHEET BALSA
RUN GRAIN PARALLEL TO THIS EDGE.
MAKE TIP END FROM 3/8" SCRAP SHEET
DORSAL FIN PATTERN
FUSELAGE MAIN FRAME
FS
1/4" SQ. BALSA
SHADED AREA MAY BE REMOVED FROM THE QUADRA Q35X TO REDUCE HEIGHT.
ADJUST SIZE OF THE BOTTOM SCOOP TO ENCLOSE PROTRUDING ENGINE HEADS.
QUADRA Q35X ENGINE OUTLINE
NOTE: Location of the firewall is determined by the engine to be used. Adjust front section of the main frame accordingly. This main frame drawing is sized for the Quadra Q35X. The other recent Quadra glow and ignition engines should also fit this drawing.
MAKING A HINGE SLOT
1.) DRILL TWO 1/16" DIA. HOLES INTO THE WOOD.
2.) CUT BETWEEN THE HOLES WITH A MODELING KNIFE.
3.) USE EPOXY GLUE TO FASTEN THE HINGE IN THE SLOT.
NOTE: AN X-ACTO KEYHOLE SAW BLADE NO. 15 IS ALSO HANDY FOR CUTTING HINGE SLOTS, OR A CARL GOLDBERG HINGE SLOTTING KIT WITH A LARGE SLOT BLADE.
FIN CROSS-SECTION
The leading edge of the fin has a fairly small radius. The accompanying cross-section drawing should be used as a guide in shaping and sanding.
FIN L.E. CROSS-SECTIONS
WRONG
BETTER
BEST
TYPICAL DORSAL FIN CROSS-SECTION
RUDDER HORN
USE SLOW-CURE EPOXY TO GLUE THE FIN TO THE FUSELAGE.
1/8" LITE PLY
F-13
3/8" x 1" BALSA STRIP
5/16" x 1/2" BALSA
CRIMPED PLASTIC SHEET
MORRISEY
R-1
R-2
R-3
INSET HINGES INTO RUDDER
PHANTOM LINE SHOWS TOP OF 1/8" BOTTOM PLANKING SHEET. (PICTURE 149 IN BOOK)
5/16" SPECIAL SHAPED FIN SHEET
10-32 x 1-1/4" NYLON STAB ATTACHMENT SCREWS
ELEVATOR HORN IS INTENTIONALLY PLACED BEHIND HINGE LINE.
F-7T
F-7C
F-7S
F-7B
CROSS-SECTION AT F-7
AS SEEN FROM THE BACK
1/4" SQ. BALSA
TYPICAL FIN BOTTOM CROSS-SECTION
DO NOT OMIT THE 1/8" PLANKING SHEET SHOWN HERE. IT IS NECESSARY FOR PROPER STRENGTH AND HELPS SCALE APPEARANCE.
IT IS EASIER TO PRE-SHAPE THE PORTIONS OF THE BOTTOM PLANKING SHEET THAT ARE ON THE FIN BEFORE GLUING THE SHEETS TO THE FIN.
3/8" x 3/4" 13-1/2" SPRUCE
GLUE FIN STUB SECURELY TO F-11T
FIN STUB DETAIL
CUT HARDWOOD L.E. STUB TO THIS SHAPE.
1/4" x 1" BALSA BACKBONE
HOLE FOR FIN STUB BACK OF HOLE IS TAPERED
F-11T
3/8" PRINTED SHEET SECTIONS
READ "GLUING ON THE FIN" ON THE BACK OF THE FLAP SHEET.
GRAIN
FK
CUT FK FROM DORSAL FIN SCRAP
F-10T
FF
CROSS-SECTION AT F-10
1/8" x 1/4" BALSA FILL STRIP
1/4" x 1
F-9T
CROSS-SECTION AT F-9
SCRAP STANDOFF
1/4" x 1"
F-11T
CROSS SECTION AT F-11
1/8" SHEET BALSA
P-1
1/4" SQ. BALSA
CROSS-SECTION AT F-6
F-6S
PHANTOM LINE SHOWS TOP OF WING
FS
FW
1/8" BALSA SHEETING
CROSS-SECTION AT F-4
F-4S
P-2
FY
CROSS-SECTION AT F-5
F-5S
DO NOT OMIT THE 1/8" PLANKING SHEET SHOWN HERE. IT IS NECESSARY FOR PROPER STRENGTH AND HELPS SCALE APPEARANCE.
F-12C
F-12T
CROSS SECTION AT F-12
FJ
TIP OF DORSAL FIN GOES IN SLOT IN CANOPY. DORSAL FIN IS OFFSET TO THE LEFT SIDE OF CENTERLINE TO PROVIDE RIGHT TRIM.
3/8" SHEET BALSA DORSAL FIN
1/8" BALSA PLANKING SHEET
1/4" x 1" BALSA "BACKBONE"
1/8" x 1/4" BALSA STRINGERS
F-7D
F-7T
F-8T
F-9T
F-10T
F-12T
K-1
K-2
FX
FZ
SS
N124BM
RED DECAL STRIPE
1/4" SQ. MAIN FRAME
BLACK DECAL STRIPES
COLOR TRIM LINE
1/8" x 1/4" SPRUCE STRINGER
1/4" x 1/4" x 1/2" HARDWOOD TAIL CONE MOUNTING BLOCK
FORMED PLASTIC TAIL CONE
P-7
FL
FM
F-13
NYLON TUBING GUIDE FOR TAIL WHEEL CABLE
COLOR TRIM LINE IS ALIGNED WITH SPRUCE SIDE STRINGER.
BOTTOM OF MAIN FRAME IS 1/4" SQ. SPRUCE.
BRAIDED STEEL CABLE
1/8" x 1/4" BALSA FILL STRIP
1/8" x 1/4" SPRUCE STRINGER
FH
FG
FN
F-7B
1/4" x 1-1/4" BALSA
2-1/4" WHEEL
BIND STEEL CABLE ENDS WITH COPPER WIRE, GLUE WITH CYANOACRYLATE.
SS IS 3/32" PLY
SP IS 1/16" PLY
WARNING — DANGER!
F-8T
1/8" BALSA SHEETING
F-3T
P-1
CROSS-SECTION AT F-8
CROSS-SECTION AT F-3
AS SEEN FROM THE BACK
F-3S
P-3
P-2
SCRAP STANDOFFS
FO
SCRAP
1/2" SQ.
FOR ADDITIONAL STRENGTH, PUT SCRAP SUPPORTS BETWEEN THE SIDE STRINGERS AND THE DIAGONAL BRACES.
FF IS SHOWN CUT AWAY AND MOST OF IT IS NOT SHOWN ON THIS SIDE OF THE TOP VIEW SO THAT OTHER DETAILS MAY BE SEEN.
1/4" x 1/8" SPRUCE STRINGER
SCRAP SUPPORT
OUTSIDE EDGE OF MAIN FRAME TOP VIEW IS INDICATED BY THE SMALL BLACK ARROWHEADS.
FX NOT SHOWN ON THIS SIDE
1/4" SQ. BALSA CROSS PIECE ON BOTTOM
1/4" x 1" CROSS PIECE
NOTCH FOR FIN SPAR
1/4" x 1/2" BALSA EXTRA TOP CROSSPIECE
HOLE FOR FIN LEADING EDGE
TOP FUSELAGE FORMERS ARE SHOWN CUT AWAY ON ONE SIDE SO THAT THE FUSELAGE MAIN FRAME CAN BE MORE EASILY SEEN. THE 1/8" x 1/4" STRINGERS ARE NOT SHOWN AT ALL IN THE TOP VIEW.
CENTERLINE OF FIN IS OFFSET 1/8"
FIN OUTLINE
F-11T
F-10T
F-9T
F-8T
F-7T
F-7D
F-13
STAB MOUNTS K-1 AND K-2 ARE PIECES OF 1/4" x 1/2" BALSA.
OUTSIDE EDGE OF FF
BEVEL
FUSELAGE TOP VIEW
F2-T
CROSS-SECTION AT F-2
F-2S
BALSA BOTTOM BLOCK
THE 5/16" SQ. STABILIZER MAIN FRAME IS LEFT EXPOSED IN THE CENTER SO THAT IT WILL SIT ON THE KEY BLOCKS K-1 AND K-2 AND SET THE STAB AT ZERO INCIDENCE. (THIS DRAWING OMITS THE FAIRING BLOCKS FOR CLARITY. IN PRACTICE THE STAB WILL BE SLID OVER THE KEY BLOCKS FROM THE REAR AND UNDER THE FAIRINGS.)
SIG
MORRISEY BRAVO
RC-57 PLATE TWO OF THREE
Giant Sport Scale
Sig Manufacturing Co., Inc. Montezuma, Iowa 50171

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SIG

MORRISEY BRAVO
RC-57 PLATE THREE OF THREE

Sig Manufacturing Co., Inc. Montezuma, Iowa 50171

W-8A
W-8B
MAKE A LEFT AND A RIGHT W-8 RIB ASSEMBLY. (RIGHT W-8 SHOWN.)

THE W-8 RIB IS FORMED BY JOINING W-8A & W-8B OVER THE W-8 RIB DRAWING.

W-3C

W-4
D-1
W-9 IS 1/8" LITE PLY

W-8B
W-8A
W-9
W-7
W-6
W-5
W-4
W-3B
W-3C
W-4B
W-8BD

1/4" x 1" x 18" BALSA LEADING EDGE CAP

1/4" x 1" x 18" BALSA LEADING EDGE

3/32" x 1" BALSA SHEET PLANKING ON TOP AND BOTTOM

1/4" x 1/2" x 18" BALSA OUTER TOP SPAR

1/4" x 1/2" 18" BALSA OUTER BOTTOM SPAR

3/32" x 1" BALSA SHEET PLANKING ON TOP & BOTTOM

3/32" x 1/4" BALSA CAP STRIPS ON TOP & BOTTOM

PINS

ALLERON HINGE GAP

3/32" SHEET

3/8" SQ. HARDWOOD SERVO MOUNT

3/16" SQ. BALSA

INNER ALLERON HINGE IS THE SAME AS THE OUTER HINGE

90° NYLON BELLCRANK FOR AILERON HORN EPOXIED TO W-4B.

SEE INSTRUCTION BOOK FOR EXPLANATION OF HINGE CONSTRUCTION

SERVO ACCESS IS FROM BOTTOM OF THE WING

USE CAP STRIP ON BOTH RIB W-3A & W-3B

1/4" SQ. BALSA BOTTOM PLANKING SPAR

1/4" x 1/2" x 24" SPRUCE INNER BOTTOM SPAR

1/4" x 1/2" SPRUCE DOUBLER CUT TO HERE.

BALSA SHEET PLANKING ON TOP AND BOTTOM

3/32"

D-1

1/4" x 1" x 24" BALSA LEADING EDGE

1/4" x 1/2" x 24" SPRUCE INNER TOP SPAR

1/4" x 1" x 24" BALSA LEADING EDGE CAP

1/4" BALSA FILL

5/16" x 1" SHAPED BALSA FILL-IN BLOCK

WING BOLT HOLE

NOTE: SEAM OFFSET SO PLANKING WOOD ON END WILL CATCH THE RIB.

3/32" SHEET PLANKING

3/32" SHEET BOTTOM PLANKING

1/4" SQ. BALSA

3/32" x 1/4" BALSA CAP STRIP

IN THE INTEREST OF CLARITY, INSTALLATION OF SOME WING PARTS IS SHOWN IN THE INSTRUCTION BOOK ONLY AND NOT ON THIS MAIN WING FRAME ASSEMBLY DRAWING.

ROLLED PAPER TUBE FOR SERVO LEADS

HOLE FOR SERVO WIRE

LEFT WING

W-1 W-1 W-2 D-1 W-2 W-3A W-3A W-3A

1/4" x 1" x 24" BALSA LEADING EDGE

1/4" x 1/2" x 24" SPRUCE INNER BOTTOM SPAR

1/4" SQ. BALSA TOP AND BOTTOM REAR SPAR

1/4" x 1" x 18" BALSA LEADING EDGE

1/4" x 1/2" x 18" BALSA OUTER TOP SPAR

1/4" x 1/2" 18" BALSA OUTER BOTTOM SPAR

1/4" SQ. BALSA TOP AND BOTTOM REAR SPAR

W-3C

W-4B

W-8B

W-8BD

W-6

W-4B

W-7

W-5

W-9

DO NOT GLUE THE CENTER W-1 RIB OR THE PLYWOOD DOUBLERS IN PLACE UNTIL AFTER THE WING HALVES ARE JOINED TOGETHER. SEE INSTRUCTION BOOK.

USE ENOUGH GLUE!

Instant glues assemble a framework quickly but may not be good enough to withstand the vibration of a 1/4-scale engine if improperly used. Thin cyanoacrylate should only be applied to perfectly fitted joints, otherwise use gap-filling types. If you assemble with instant glue, we think it is a good idea to go over the framework with a normal slow dry glue like Sig-Bond and fillet all of the joints on the outside. One mistake often made is inadequate amounts of glue on large mating surfaces to completely cover them when the parts are joined. A structure does not have full strength unless all of the parts are glued to each other. For example, the wing spar webs must not just be glued to the spars but the outside wing sheeting must be glued to the ends of the webs as well as to the spars.

RIGHT WING

THIS HALF OF THE DRAWING IS INTENDED ONLY FOR ASSEMBLY OF THE RIGHT WING MAIN FRAME. SEE THE OTHER HALF OF THE WING, CROSS-SECTION VIEWS AND THE INSTRUCTION BOOK FOR CONSTRUCTION DETAILS.

TO RIB

Dihedral Gauge