T6-F TEXAN

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A Magnificant And Fully Scale T-6 From New York. By Al Holmes.

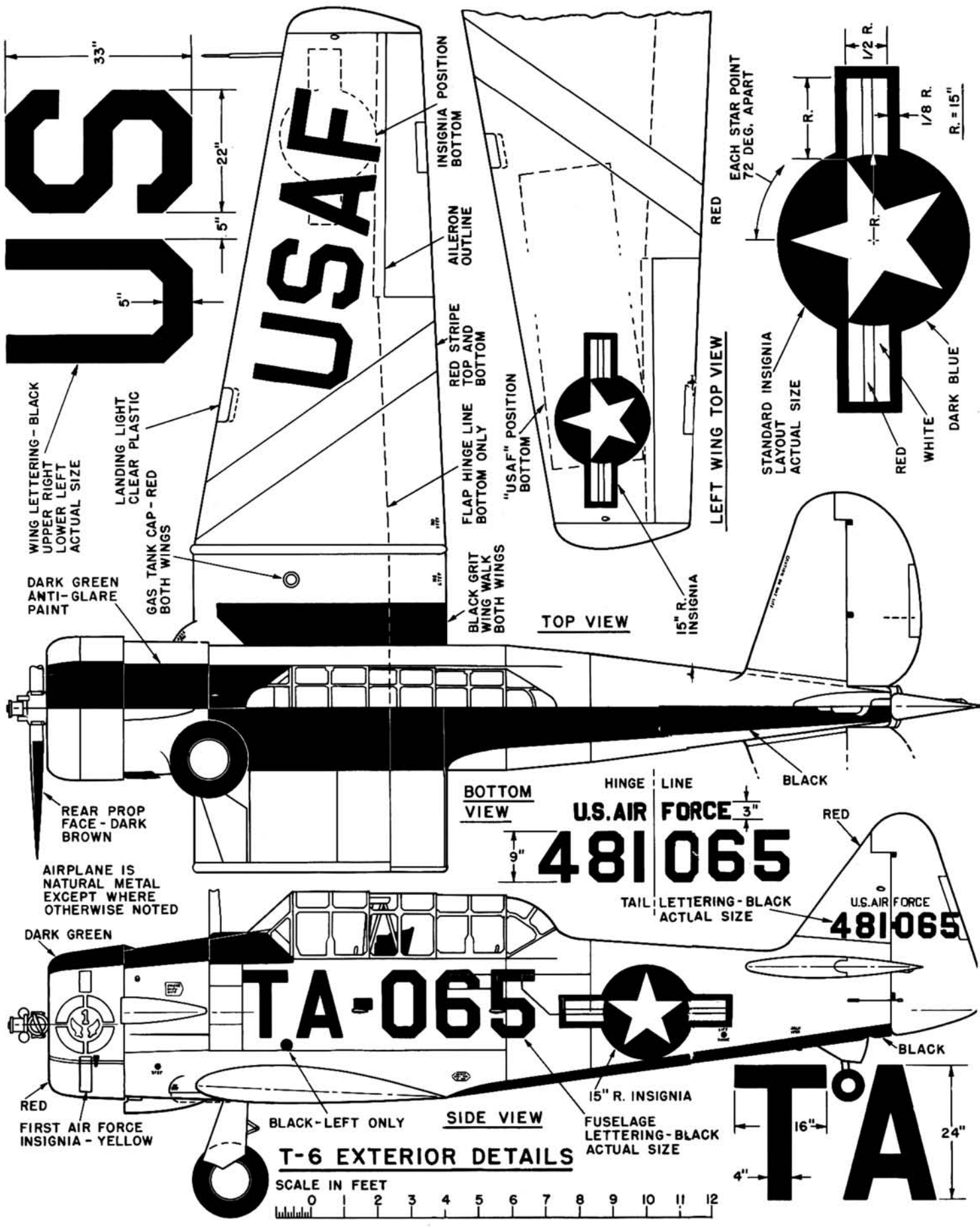
Photos by Sal Iasilli

I suppose I had wanted to build a T6 for nineteen or twenty years. My first experience with it was in 1950 and it made a lasting impression. Back in the '50's (the good old days) a radio controlled T6 would have been out of the question, so I had planned to make a scale U-Control. Somewhere along in my Air Force tour I managed to acquire a set of T6 tech orders. This gave me the best source of reference I could ever hope for. The tech orders and a good three-view drawing from Air Trails Magazine has been with me all these years. Three years ago, I was digging through and cleaning out my old foot locker and there they were! I never did finish cleaning out that locker.

With a pad, some sharp pencils, a scale and a fifth of Scotch, I soon found the T6 was a fairly good choice as a scale R/C ship. I decided to go "all out" scale and change nothing. A knowledgeable friend thought I should put about 1° to 1.5° positive incidence in the tail plane (he indeed may be right) but I chose to leave it at 0°. I keep wondering what would have happened to the flight characteristics if I had followed his advice. Maybe the next time around I'll try it.

The airfoils, fuselage cross sections, and all dimensions for the Texan are scale. This ship is not for any but the experienced model builder since it is not an easy ship to put together. On the other hand, for me, it was indeed a labor of love, and I think any other scale nut would find many hours of joy at his workbench.

Before I get into the building details, I would like to give credit to the fellows who eagerly lent a helping hand in this project: Pat Cherubino, for his photo work; Norm Rosenstock (our little old muffler maker of B & N Model Accessories) for all of his help with the exhaust system and scale gear; the fellows who scrounged around to find that hard to find .030 plexiglass and, last but not least, my fearless test pilot, Bob Van Wymasch (he had the best pilot credentials around – tied for first C Novice at the '69 Nationals). Over the two year period, from conception to completion, I am certain I have managed to leave out someone who was helpful and to those I give my most sincere apologies. Now, let's get to it! Please read all instructions carefully before you start construction.

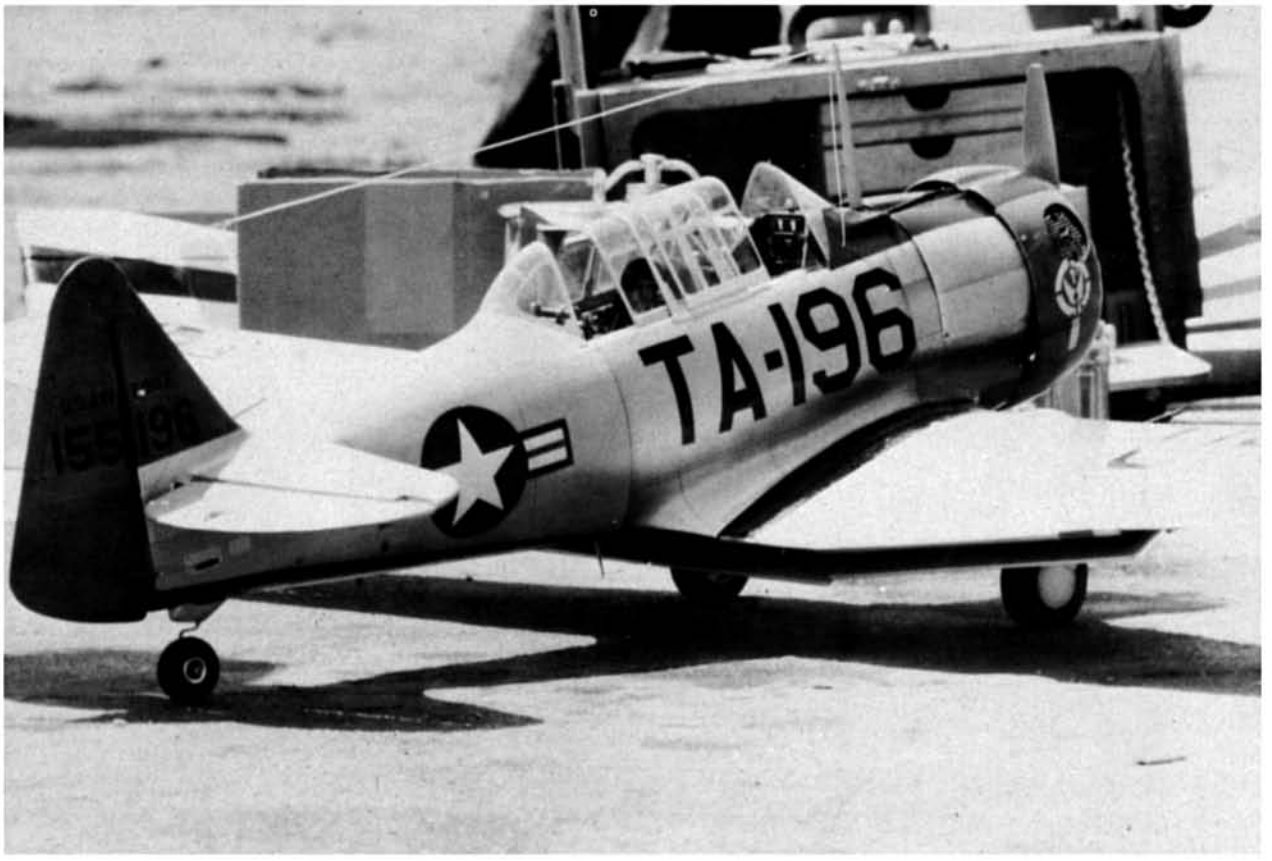

33"
22"
5"
5"
US
USAF
INSIGNIA POSITION BOTTOM
AILERON OUTLINE
RED STRIPE TOP AND BOTTOM
FLAP HINGE LINE BOTTOM ONLY
"USAF" POSITION BOTTOM
BLACK GRIT WING WALK BOTH WINGS
GAS TANK CAP - RED BOTH WINGS
LANDING LIGHT CLEAR PLASTIC
WING LETTERING - BLACK UPPER RIGHT LOWER LEFT ACTUAL SIZE
DARK GREEN ANTI-GLARE PAINT
REAR PROP FACE - DARK BROWN
AIRPLANE IS NATURAL METAL EXCEPT WHERE OTHERWISE NOTED
DARK GREEN
RED
FIRST AIR FORCE INSIGNIA - YELLOW
BLACK - LEFT ONLY
SIDE VIEW
TOP VIEW
BOTTOM VIEW
LEFT WING TOP VIEW
RED
15" R. INSIGNIA
HINGE LINE
U.S. AIR FORCE
3"
9"
481065
TAIL LETTERING - BLACK ACTUAL SIZE
U.S. AIR FORCE
481065
RED
BLACK
15" R. INSIGNIA
FUSELAGE LETTERING - BLACK ACTUAL SIZE
T-A-065
T-6 EXTERIOR DETAILS
SCALE IN FEET
0 1 2 3 4 5 6 7 8 9 10 11 12
EACH STAR POINT 72 DEG. APART
1/2 R.
R.
1/8 R.
R. = 15"
STANDARD INSIGNIA LAYOUT ACTUAL SIZE
RED
WHITE
DARK BLUE
T
A
16"
24"
4"

T-6F CONSTRUCTION

At first this ship may look like an easily assembled model. It isn't! All parts must be cut and put together with great care and accuracy to ensure proper alignment of all units. The wings, rudder, elevators and stabilizer **must** be completely assembled before the construction of the fuselage is started.

WING OUTER PANEL

Start by cutting out all parts needed to complete the wing (except the sheet covering). Note that the wing is made up of 3 basic units; center, and right and left outboard panels. Start construction with either outboard panel. First, glue the center spar doublers to the main spar (SP-1), both right and left half to make a full span spar. Now check for the correct dihedral at each tip (2-19/32") and clamp tightly until dry. While the spar is drying, sand all other wing parts and cut the leading edge (center and outboard) to length only, then make the pushrods and landing gear wires. Glue ribs W1-A through W7 to spars SP-2 and SP-3. Pin the assembly to the drawing, shimming as necessary under the spars, then position the main spar assembly on the ribs (making sure all parts are square) and glue. Add the 1/8" stringer from W7 to W3. At this point make sure that the trailing edge of W1-A to W4 line up properly. Shim the ribs and sand until proper alignment is achieved, checking carefully with a straightedge. Install the trailing edge half ribs T2 and T4 and check for proper alignment. Now cut the trailing edge cap and install (check cross section for correct position). Check the alignment of the leading edge and install 1" x 1/2" leading edge, but **do not** cut to shape at this time. Fit a 1/2" scrap block behind the leading edge tip of the right wing only for the pitot tube support. Position the flap bellcrank platform in wing (making sure the hole is closer to rear spar). Make 1/8" supports for the aileron bellcrank platform, pin in position, and install the platform.



AILERON

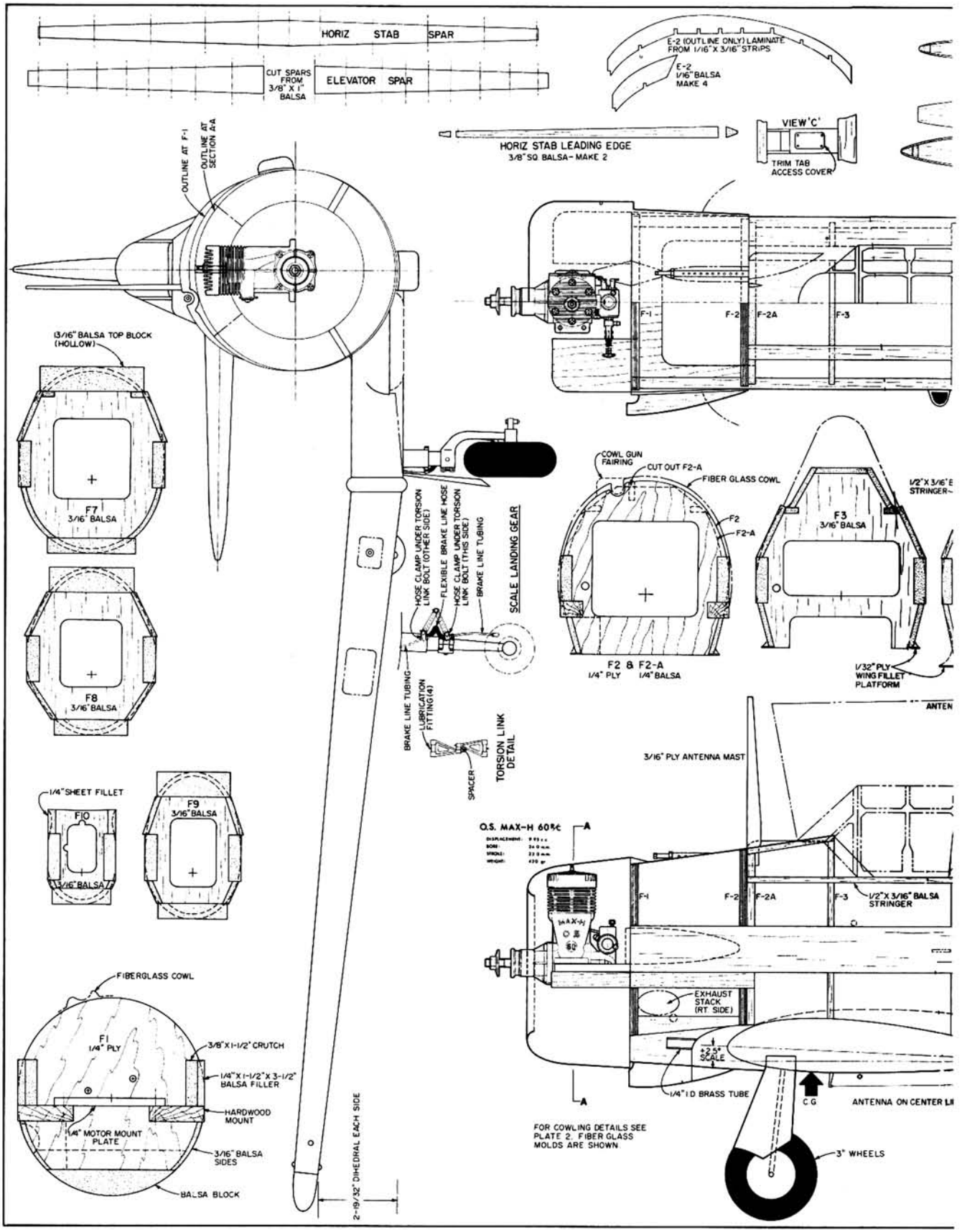
Cut the top and bottom leading and trailing edge planking from 1/16" sheet. Take the bottom edge planks and cut to proper length, then glue rib A-1 to the inboard end and A-11 to the outboard end 1/8" in from the front edge. Position this assembly over the drawing and pin in position. Sand the 1/8" leading edge to the proper angle and glue in position. Add the remaining ribs and top planks. After the aileron assembly is dry, remove from the board, add the capstrips, epoxy in the control horn and fit the hinges (do not glue).

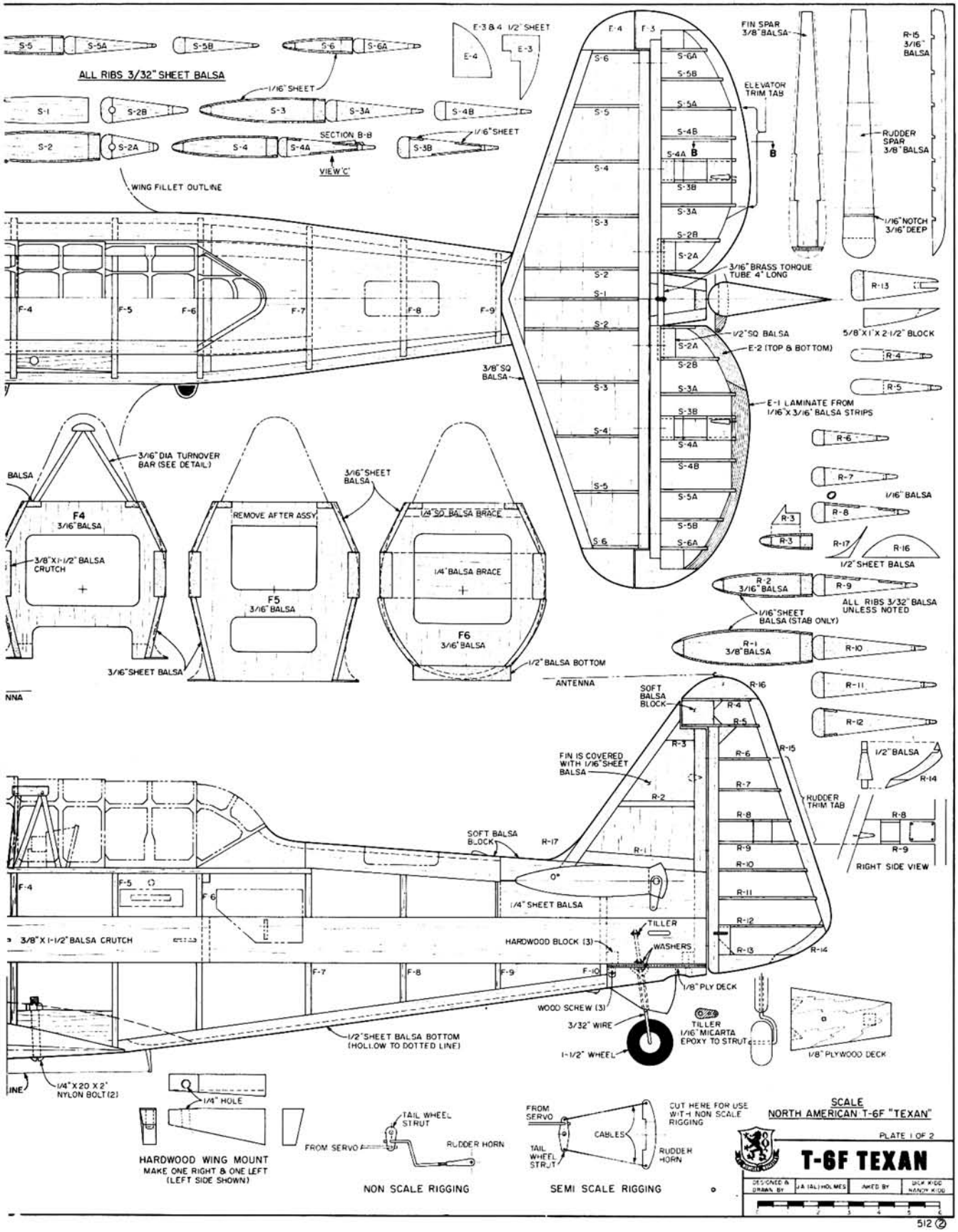
Now back to the wing. Cover the top trailing edge of wing with 3/32" sheet. Butt the sheet to the trailing edge cap and to the **center** of spar SP-3. After the planking is dry, remove the panel from the board and cover the bottom. Place a 3/32" x 6" sheet against the leading edge, then mark and cut to fit and, finally, glue in place. Note: A pie shaped area at the inboard trailing edge must be cut to fit and then glued. Be sure the planking on the bottom is flush with the rear edge of spar SP-3. Do not cover the top of the wing at this time! Plank the flap well with 1/16" sheet from the rear spar to the trailing edge cap. Leave the pushrod exit open. Pin the completed aileron in position and fit the hinges to the wing (do not glue). Fit the tip block to the wing, cut to shape, and glue in place.

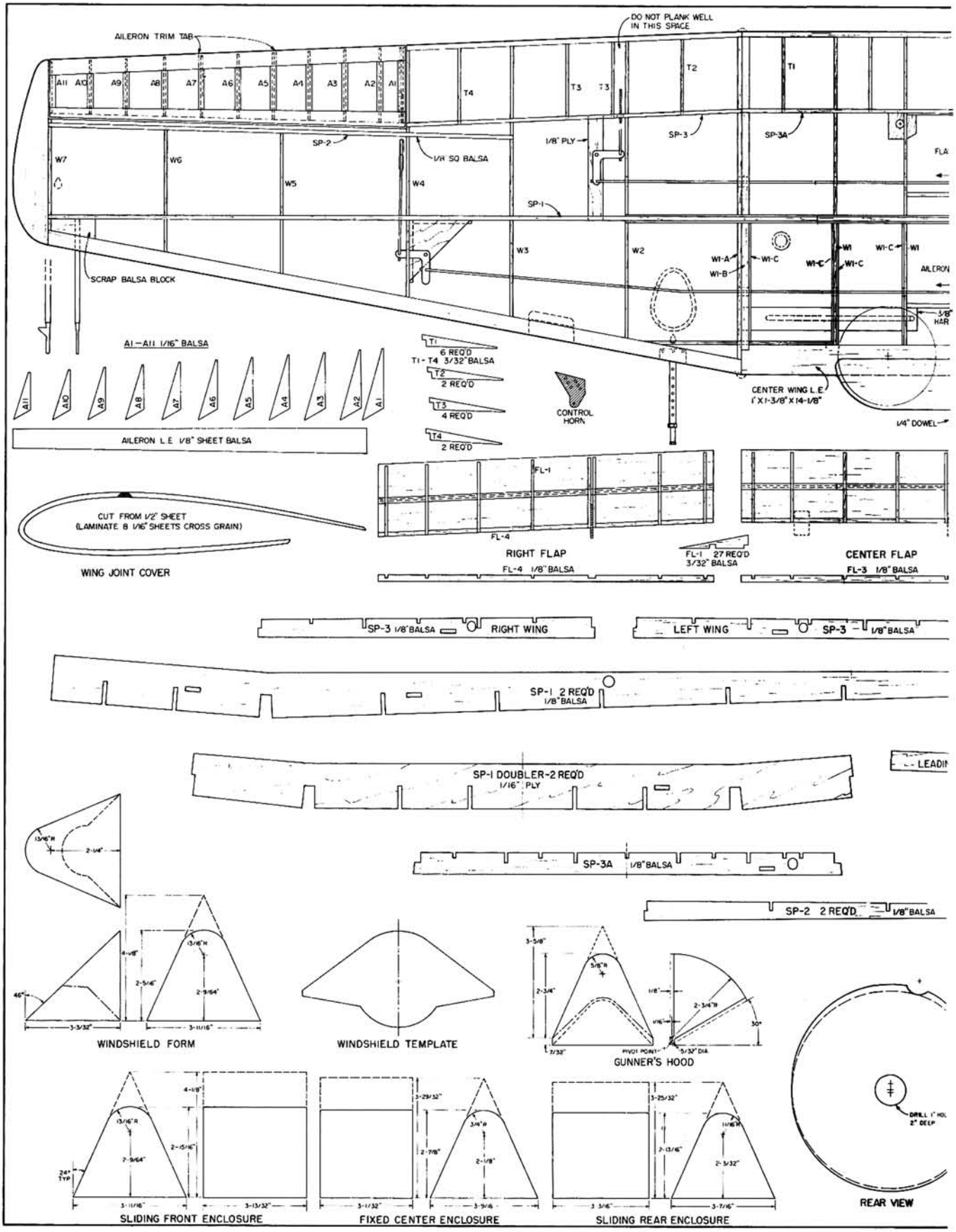
WING CENTER PANEL

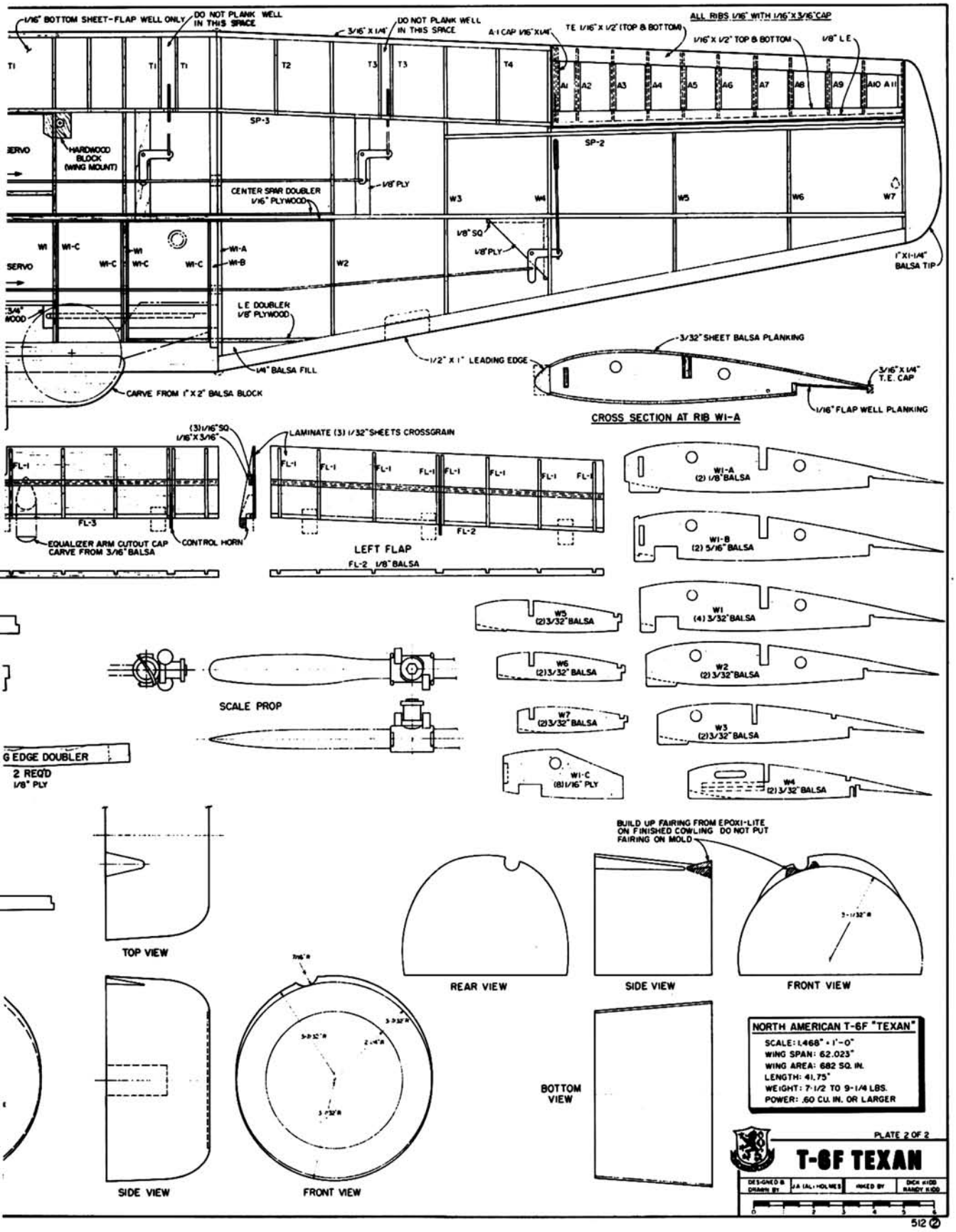
Place ribs W1 and W1-B in position on the drawing. Place the completed panel assembly with the main spar in position and glue. Check the wing tip dihedral and block up. Fit the rear spar SP-3A in position. Check the trailing edge for proper alignment and correct, if necessary, as you did on the outboard panel. Position the trailing edge half ribs (T1) and check alignment. Cut the trailing edge cap. Fit the center section leading edge in place and glue. Fit and glue the 1/8" ply leading edge doubler to the center and

text to page 98


HORIZ STAB SPAR
CUT SPARS FROM 3/8" X 1" BALSA
ELEVATOR SPAR
E-2 (OUTLINE ONLY) LAMINATE FROM 1/16" X 3/16" STRIPS
E-2 1/16" BALSA MAKE 4
HORIZ STAB LEADING EDGE 3/8" SQ BALSA- MAKE 2
VIEW 'C'
TRIM TAB ACCESS COVER
OUTLINE AT F-1
OUTLINE AT SECTION A-A
F-1
F-2
F-2A
F-3
3/16" BALSA TOP BLOCK (HOLLOW)
F7 3/16" BALSA
F8 3/16" BALSA
SCALE LANDING GEAR
HOSE CLAMP UNDER TORSION LINK BOLT (OTHER SIDE)
FLEXIBLE BRAKE LINE HOSE
HOSE CLAMP UNDER TORSION LINK BOLT (THIS SIDE)
BRAKE LINE TUBING
BRAKE LINE TUBING
LUBRICATION FITTING (4)
SPACER
TORSION LINK DETAIL
COWL GUN FAIRING
CUT OUT F2-A
FIBER GLASS COWL
F2
F2-A
F2 & F2-A
1/4" PLY
1/4" BALSA
F3 3/16" BALSA
1/2" X 3/16" STRINGER
1/32" PLY WING FILLET PLATFORM
1/4" SHEET FILLET
F10 3/16" BALSA
F9 3/16" BALSA
3/16" PLY ANTENNA MAST
O.S. MAX-H 60 FSC
A
1/2" X 3/16" BALSA STRINGER
EXHAUST STACK (RT SIDE)
1/4" I D BRASS TUBE
C.G
ANTENNA ON CENTER LI
FOR COWLING DETAILS SEE PLATE 2. FIBER GLASS MOLDS ARE SHOWN
3" WHEELS
FIBERGLASS COWL
F1 1/4" PLY
3/8" X 1-1/2" CRUTCH
1/4" X 1-1/2" X 3-1/2" BALSA FILLER
HARDWOOD MOUNT
1/4" MOTOR MOUNT PLATE
3/16" BALSA SIDES
BALSA BLOCK
2-19/32" DIHEDRAL EACH SIDE


ALL RIBS 3/32" SHEET BALSA
1/16" SHEET
1/16" SHEET
SECTION B-B
VIEW 'C'
WING FILLET OUTLINE
E-3 & 4 1/2" SHEET
FIN SPAR 3/8" BALSA
R-15 3/16" BALSA
ELEVATOR TRIM TAB
RUDDER SPAR 3/8" BALSA
1/16" NOTCH 3/16" DEEP
3/16" BRASS TORQUE TUBE 4" LONG
5/8" X 1" X 2-1/2" BLOCK
1/2" SQ BALSA
E-2 (TOP & BOTTOM)
3/8" SQ BALSA
E-1 LAMINATE FROM 1/16" X 3/16" BALSA STRIPS
1/16" BALSA
1/2" SHEET BALSA
ALL RIBS 3/32" BALSA UNLESS NOTED
1/16" SHEET BALSA (STAB ONLY)
3/16" DIA TURNOVER BAR (SEE DETAIL)
BALSA
F4
3/16" BALSA
3/8" X 1-1/2" BALSA CRUTCH
3/16" SHEET BALSA
REMOVE AFTER ASSY
F5
3/16" BALSA
3/16" SHEET BALSA
1/4" SQ BALSA BRACE
1/4" BALSA BRACE
F6
3/16" BALSA
1/2" BALSA BOTTOM
ANTENNA
SOFT BALSA BLOCK
FIN IS COVERED WITH 1/16" SHEET BALSA
RUDDER TRIM TAB
RIGHT SIDE VIEW
SOFT BALSA BLOCK
1/4" SHEET BALSA
TILLER
HARDWOOD BLOCK (3)
WASHERS
1/8" PLY DECK
WOOD SCREW (3)
3/32" WIRE
TILLER 1/16" MICARTA EPOXY TO STRUT
1-1/2" WHEEL
1/2" SHEET BALSA BOTTOM (HOLLOW TO DOTTED LINE)
1/8" PLYWOOD DECK
1/4" X 20 X 2" NYLON BOLT (2)
1/4" HOLE
HARDWOOD WING MOUNT
MAKE ONE RIGHT & ONE LEFT
(LEFT SIDE SHOWN)
TAIL WHEEL STRUT
FROM SERVO
RUDDER HORN
NON SCALE RIGGING
FROM SERVO
CABLES
TAIL WHEEL STRUT
RUDDER HORN
CUT HERE FOR USE WITH NON SCALE RIGGING
SEMI SCALE RIGGING
SCALE
NORTH AMERICAN T-6F "TEXAN"
PLATE 1 OF 2
T-6F TEXAN
DESIGNED & DRAWN BY
J.A. (AL) HOLMES
APPD BY
DICK KIDD
NANCY KIDD
512 ②


AILERON TRIM TAB
DO NOT PLANK WELL IN THIS SPACE
A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1
T4
T3 T3
T2
T1
SP-2
1/8" SQ BALSA
1/8" PLY
SP-3
SP-3A
W7
W6
W5
W4
W3
W2
SP-1
W1-A
W1-B
W1-C
W1
AILERON
SCRAP BALSA BLOCK
A1-A11 1/16" BALSA
AILERON L.E. 1/8" SHEET BALSA
T1 6 REQ'D
T1-T4 3/32" BALSA
T2 2 REQ'D
T3 4 REQ'D
T4 2 REQ'D
CONTROL HORN
CENTER WING L.E. 1" X 1-3/8" X 14-1/8"
1/4" DOWEL
CUT FROM 1/2" SHEET (LAMINATE 8 1/16" SHEETS CROSS GRAIN)
WING JOINT COVER
FL-1
FL-4
RIGHT FLAP
FL-4 1/8" BALSA
FL-1 27 REQ'D 3/32" BALSA
CENTER FLAP
FL-3 1/8" BALSA
SP-3 1/8" BALSA
RIGHT WING
LEFT WING
SP-3 1/8" BALSA
SP-1 2 REQ'D 1/8" BALSA
SP-1 DOUBLER-2 REQ'D 1/16" PLY
SP-3A 1/8" BALSA
SP-2 2 REQ'D 1/8" BALSA
WINDSHIELD FORM
WINDSHIELD TEMPLATE
GUNNER'S HOOD
PIVOT POINT
REAR VIEW
SLIDING FRONT ENCLOSURE
FIXED CENTER ENCLOSURE
SLIDING REAR ENCLOSURE


1/16" BOTTOM SHEET-FLAP WELL ONLY
DO NOT PLANK WELL IN THIS SPACE
3/16" X 1/4"
DO NOT PLANK WELL IN THIS SPACE
A1 CAP 1/16" X 1/4"
TE 1/16" X 1/2" (TOP & BOTTOM)
ALL RIBS 1/16" WITH 1/16" X 3/16" CAP
1/16" X 1/2" TOP & BOTTOM
1/8" L.E.
T1
T2
T3
T4
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
SP-3
SP-2
HARDWOOD BLOCK (WING MOUNT)
CENTER SPAR DOUBLER 1/16" PLYWOOD
1/8" PLY
W1
W1-C
W1-A
W1-B
W2
W3
W4
W5
W6
W7
1/8" SQ
1/8" PLY
1" X 1-1/4" BALSA TIP
L.E. DOUBLER 1/8" PLYWOOD
1/4" BALSA FILL
1/2" X 1" LEADING EDGE
CARVE FROM 1" X 2" BALSA BLOCK
3/32" SHEET BALSA PLANKING
3/16" X 1/4" T.E. CAP
1/16" FLAP WELL PLANKING
CROSS SECTION AT RIB W1-A
(3) 1/16" SQ 1/16" X 3/16"
LAMINATE (3) 1/32" SHEETS CROSSGRAIN
FL-1
FL-2
FL-3
EQUALIZER ARM CUTOUT CAP CARVE FROM 3/16" BALSA
CONTROL HORN
LEFT FLAP
FL-2 1/8" BALSA
W1-A (2) 1/8" BALSA
W1-B (2) 5/16" BALSA
W1 (4) 3/32" BALSA
W5 (2) 3/32" BALSA
W6 (2) 3/32" BALSA
W2 (2) 3/32" BALSA
W7 (2) 3/32" BALSA
W3 (2) 3/32" BALSA
W1-C (8) 1/16" PLY
W4 (2) 3/32" BALSA
SCALE PROP
G EDGE DOUBLER
2 REQ'D
1/8" PLY
BUILD UP FAIRING FROM EPOXI-LITE ON FINISHED COWLING DO NOT PUT FAIRING ON MOLD
TOP VIEW
REAR VIEW
SIDE VIEW
FRONT VIEW
SIDE VIEW
FRONT VIEW
BOTTOM VIEW
NORTH AMERICAN T-6F "TEXAN"
SCALE: 1.468" = 1'-0"
WING SPAN: 62.023"
WING AREA: 682 SQ. IN.
LENGTH: 41.75"
WEIGHT: 7-1/2 TO 9-1/4 LBS.
POWER: .60 CU. IN. OR LARGER
PLATE 2 OF 2
T-6F TEXAN
DESIGNED & DRAWN BY
J.A. (AL) HOLMES
INKED BY
DICK KOD
RANDY KOD
512

Al Holmes North American T-6 flying at Mitchell Field.

T6-F TEXAN

outboard leading edges (fit other side on assembly of other outboard panel). Cut scrap ¼" sheet filler to fit between the outboard leading edge and doubler and glue in place. Take four of the 8 W1-C plywood doublers and cut a 1/8" notch in the leading edge to fit over the leading edge doubler, position, and glue all eight W1-C in place. Cut two 3/32" bulkheads and glue in position to make servo boxes. Add the trailing edge cap and flap bellcrank platform (check hole position). Do not add the wheel fairing until the leading edges have been shaped.

Cover the trailing edge of the center section (top only) with 3/32" sheet cut to fit the same as the outboard panel. After this assembly is dry, remove from the board. Shape the landing gear mounting blocks to fit flush with the ribs, cut a 5/32" slot and drill a 5/32" hole as per the drawing and glue in place. Now cover the bottom center with 3/32" sheet and the flap well with 1/16" sheet. Epoxy the hardwood wing mounting blocks in position. When this assembly is dry, complete the other outboard panel as you did the first one.

Take great care with the wing at this point. Provide the proper bracing in order to keep it from warping, since the wing will be very flexible until the top paneling is added. When the wing is completed (except for top paneling) put it aside temporarily.

FLAPS

The construction of the flaps is quite simple so I'll caution you to build them on a flat surface. Use epoxy to assemble the three cross-grained sheets of 1/32" balsa, and do not remove from the board until they are completely dry.

Remove all hinge pins from the hinges and replace with straight pins (to be removed later). Put a small drop of light machine oil on each pin, to ensure that the epoxy will not block the free movement of the hinge. Now install the ailerons and hold in proper trim with pins, then epoxy the hinges in place. Install the bellcranks and pushrods for the ailerons. Follow the same steps to install the flaps. Fit the flaps very carefully and make sure that the trailing edge of the flaps fit **inside** of the wing trailing edge cap. This will protect the trailing edge of the flaps. After the epoxy on the hinges is dry, check for **free** movement of all surfaces. This is very important because once the top of the wing has been covered, that's it! NOTE: Use Kwik-Links on the flap and aileron outputs only. Use bent wire inside the wing. Tie 6" long strings to each flap push-rod Kwik-Link (I'll explain later.) When all bellcranks are **square** and **everything** works as it should, put a drop of glue on the nuts holding the bellcrank, let dry and check again. Now cover the top of the wing with 3/32" sheet the same as you did on the bottom, starting from the leading edge. Trim the leading edge to shape, (check cross-section), shape tips, cut out the servo boxes, and sand. Drill a 3/16" hole in the right hand panel leading edge for the gun as well as a 1/8" hole for the pitot tube. Set the wing aside to cure.

HORIZONTAL STAB AND ELEVATORS

Cut out and sand all parts and laminate (with white glue) the elevator trailing edge before you start building. The horizontal stab is built standing on its trailing edge with the ribs standing straight up. Use a triangle to be sure the ribs are square. When the assembly is dry, plank with 1/16" sheet, add the tip (E-4) and sand to shape. Elevators are built standing on their leading edge in the same manner as the stab. After the assembly is dry, add the 1/16" planking where indicated. Add tips (E-3), and carefully sand to shape. Sand the leading edge round, fit the 3/16" brass torque tube (do not glue), epoxy in the hinges (with straight pins for hinge pins) and fit to the horizontal stab. Mark the center of the torque tube and disassemble the elevators from the stab (by removing the hinge pins) then solder the elevator horn (made from 1/16" brass stock) to the torque tube.

RUDDER AND VERTICAL STAB

The vertical stabilizer, like the horizontal assembly, is built on its trailing edge with the ribs straight up. When dry, cover with 1/16" sheet. Do not glue R-17 in place or shape the bottom of R-1, until the fin is installed. The rudder, like the elevators, is built on its leading edge with the ribs straight up (ribs R-6 to R-12), adding parts R-13 to R-15. When dry, remove from the board and add the remaining parts and sheet where indicated. Sand to shape and round the leading edge.

FUSELAGE

After cutting and sanding all parts, mark the bulkhead locations on the two 3/8" x 1½" crutches. Then soak in hot water from F-5 back until they are bendable (the crutch should be cut 2" longer than necessary). Using epoxy, glue F-1, ½" hardwood motor mount, F-2, and F-2A to the crutches. Allow the crutch to stick out 2" in front of F-1 (cut off later). Take two blocks (the front block is ½" shorter than the rear block), place on top view and in front of F-1, and one behind F-10. The blocks must be tall enough to clear all formers from the working surface. Carefully place the crutch assembly on the blocks over the top view. Check to be sure F-1, F-2, and F-2A are square. Drive a nail on the outsides of both 2" crutch over-hangs into the front block. Glue the two balsa braces to the back of F-6 and put aside. Starting with F-3, put all forms in place, making sure the fuselage is straight. After F-10 is in place, check the tail post. Fit (do not glue) the tailpost in the bottom end of the vertical stab trailing edge. You will need to use nails to hold the crutch closed at the rear (same as front end). Use masking tape to hold the crutch tight on the other formers. Glue a ¼" x 1½" x 3½" filler over the crutch at F-1 and ½" x 3/16" strips on top of formers F-2A through F-7. Cut the hardwood wing mounts to shape (one right and one left) and epoxy in place, but do not drill until the wing is fitted. Let this assembly dry overnight. Remove the assembly from the blocks, remove the vertical fin, tape, etc. Sand the edge of the two ½" x 3/16" strips to match the former edges.

Put two sheets (for fuselage bottom side planking) of 3/16" balsa to soak in hot water. Sand the edges of two 3/16" sheets to fit in the top of the crutch (right and left) and glue in place, using pins and tape to hold in place. Cut the top of the front fuselage form F-2A to A3 from 3/16" sheet. Make a filler block from scrap balsa to fit under the right side of the motor mount against the rear of F-1. You will need the extra wood there when you cut in for the exhaust stack. When the top side planking is dry, remove all pins and tape. Sand the edge of the bottom-side planking to fit the bottom of the crutch and glue in place, using lots of tape to hold in place. Now you have the most frightful looking mess you ever saw! Right? Take heart, since it will work into the strongest, surprisingly light-weight, finished fuselage you could ask for.

After the planking is dry, sand the edges flat on the top and bottom and fit the top and bottom block on the rear of the fuselage. Be sure to hollow out these blocks, since the tail must be kept as light as possible. Cut the block for the front end (bottom). Shape to fit over the top of the wheel well fairings on the wing and glue (epoxy) the block in place between F-1 and F-2. Make the tail wheel platform from 1/8" ply and balsa block and screw in place. Cut the ¼" horizontal stab platforms and glue in place. When dry, use a rasp and sandpaper to work the fuselage to shape, cutting off the 2" of extra crutch. Remove the tail wheel platform and place the fuselage back on the blocks, making sure it's on **straight**! Pin in place. On the **center** of the firewall (F-1) make a mark for center reference. Fit the horizontal stab to the fuselage, using the reference mark on the top of the firewall to center, and check for zero degree incidence, then glue in place. Shape R-1 to fit the top of the stab, making sure to cut a notch to allow free movement of the elevator torque tube. Fit the vertical fin in place with the leading edge 1½° off center to the left. This will give you right rudder offset to compensate for engine torque on take-off, and it is scale. Make the top filler from soft balsa block and add R-17. While this is drying, complete the tail-wheel assembly. Make the wing fillet platform from 1/32" ply. Using the wing as a template, shape the saddle to final shape.

Drill a ¼" hole in the leading edge of the wing and install the ¼" dowel with epoxy. Paint the front of the dowel with any colored dope (black, red, etc.) and carefully position on the fuselage so that the wet paint will leave its mark to indicate where the ¼" I.D. brass tube should be installed. Make the hole larger than the tube used; this will allow adequate movement for final positioning. Block open the end of the tube (to keep out epoxy) and place the tube over the dowel. Now find the fillet platforms and glue in place on the fuselage. While the glue is still wet, install the wing by first coating the outside of the tube with epoxy. Put the wing with the tube in place on to the fuselage, making sure it is lined up correctly. Tape the wing to hold its position and, with a ¼" bit, drill the rear mounting holes through the wing blocks to the hardwood blocks in the fuselage. Be very careful to drill accurately. You can, if you wish, drill a 1/8" test hole in each block first, and it will act as a guide for the larger bit. Use 2" x ¼" x 20 nylon bolts with nuts, to bolt the wing down solid. Glue the nuts to the top of the blocks inside the fuselage. Now put the whole thing aside to dry. While waiting, you can start the **hard** part; the making of the dies for the cowling and cockpit enclosure.

Carve the cowl dies from balsa or soft pine since the finish doesn't have to be glass smooth, if you use the fiberglass and balloon casting method. I used this method, but if I had to do it over again, I wouldn't! My reason is not that this method doesn't work. Quite the opposite, it works very well, but these parts are quite large and finding large enough balloons is very difficult. So if I were you, I'd finish the dies glass smooth and make a rubber mold from it. The best thing about this method is that the mold will stretch when it needs to and can be used over and over again if your first attempts are not satisfactory. Also, you should save any bad cowls you make to use on test flights. If the rubber mold method is used, be sure to make your dies 1/16" over size.

The dies for the cockpit enclosure should be covered with white felt so the wood grain is not transferred to the plexiglass enclosure. Use heated plexiglass (.030) or maybe even better, vacuum form from plastic. I used .030 plexiglass only because I felt it would be more rigid and make sliding easier. If your enclosure is not going to open and close, I don't think it would matter. To make the front and rear sliding guides, I epoxied 1/16" O.D. tubing to the edges of both sections then blended them in with Epoxolite. This will slide well on 1/32" wire tracks.

Almost every airport seems to have an old T-6 around so you shouldn't have too much difficulty checking out cockpit detail. I will cover the exterior detail later on, when we get around to the finishing portion of this article.

Using scrap balsa, make the fuselage gun fairing on the right side. Build up the wing and tail fillets from Epoxolite. Now back to building! Put two or three coats of filler on all parts and cover the entire ship with silk. Cover the open framework with **dry** silk. (Don't use blends, use **pure silk**). Put on two coats of clear dope and sand lightly. At this point, I like to install the radio, engine, pushrods, etc.

Make a ¼" engine mounting plate and install the engine. The engine should be a good idling .60 (I used an OS .60 rear rotor). Drill the firewall for fuel lines and pushrod. Mount the engine servo behind the firewall in the accessory compartment next to the fuel tank. The battery goes under the fuel tank. At this point you can see you have enough room to mount one of your shoes in the fuselage if you were so inclined! Put the receiver under the front deck between formers F-2A and F-3. Run the antenna out the right side under the fuselage gun fairing, to the top of the mast, then to the rudder. The elevator and rudder servos should be mounted as far forward and as low as is possible. You must use a NyRod for rudder control. (I'll get to why later.) If you are going to detail the cockpit, you can safely remove the center ribs from formers F-4 and F-5. This will not weaken the fuselage at all, once it has dried and been covered with silk. Put in the cockpit floor; the depth depending on the servos you have used. Next, stick the elevator torque tube inside the tail. Epoxy the elevators to the tube and put the pins in the hinges. Check the angle of the control horn and hook up the pushrod to the servo and control horn (servo centered). Pin the elevators in their neutral position, being sure they line up. Install the rudder and pin in neutral position. Take the tail wheel assembly and attach the inner NyRod tube and rudder control cables (make the cables long). Push the ends of the control cables through the fuselage and run inner NyRod tube up the fuselage to the servo (through the outer one, of course). Now you see why we had to use NyRod. Use the

three wood screws to secure the tail wheel assembly in place. Attach the control cables to the rudder control horn. Because this is not the final installation, I would use fishing line for cable. Also, do not bend any hinge pins over, because the whole thing will be coming apart again for finishing. Put the fuselage aside to dry.

Now, install the ailerons and aileron servo. The strings you tied to the flap Kwik-Links now come in handy since no doubt the links are lost in the wing and have to be pulled out. Install the flap servo and run to the full down position. Using a small screwdriver to pry the links apart, hook-up to flaps, then to the hinge pins. It must be done in this order or you will **never** do it! By adjusting the length of the Kwik-Links you will soon have your flaps working together; all down together, all up together. **This is a must.** Put the wing and fuselage together (don't forget to plug in the servos). Take out the pins holding the rudder and elevator in trim. Make the landing gear from 5/32" wire with 3" wheels, (scale gear can be made later if you wish), and install in the wing. Even at this incomplete stage, the ship has a very impressive manner about it. Okay, enough of that dreaming! Turn on the radio and try out your control surfaces. At this point you can't wait to get into the air, but you must, so disassemble the whole thing.

Now fit the cowling, make the carburetor and oil cooler air scoops and cement in place. The oil cooler scoop must be cut in 2 parts; one part on the wing and one part on the fuselage. Be sure the air scoops do not interfere with the ring cowl. There should be a space of about 1/8" between the accessory section and the inside of the ring cowl. Also, it will be necessary to shim the motor mounts out to fit the cowl. Use small screws to hold in place. Put in all cockpit detail; put on the frame and install the cockpit enclosure. If you wish, you can make a dummy 9 cylinder Wasp engine from a 1½" Tatone engine kit.

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Make the exhaust system to feed the exhaust out from under the cowl. Make a **small** hole in the cowl so that the fuel mixture can be screwdriver-adjusted. Mount a "D" cell size nickel cadmium cell under the engine with a S.P.S.T. switch as a starter. This way no holes need be cut in the cowl for glow plug hook-up. No battery needs to be taken to the flight line and, since nose weight will be necessary, you might as well make it functional weight.

As far as finishing goes, just mask off the cockpit enclosure and use your favorite method. I used acrylic lacquer. After painting, add the guns, pitot tube, fuel tank drain tube output, the antenna under the bottom, and steps to the left side of the fuselage. Details like rivets can be added just prior to the last coat of paint, then rule on seams in gray. Well, there it is. As an ex-Air Force man, I don't know if I should mention this, but you can paint the whole thing yellow (yuck) and you'll have a Navy SNJ.

Install the engine and radio and check for proper balance. This ship should never be flown with the balance point to the rear of the point marked on the plans. Add lead if necessary.

FLYING

With knees knocking and hands shaking you go to the field and find the best, most experienced flyer you can to test fly your bird. You try not to step on a wing and stay out of the way. Do the usual pre-flight check as you would do for any new ship. Take great care to get the best engine idle you can obtain. Check for smooth flap operation - - - full flaps should be about 45°. Despite their small size, the ailerons are very touchy, so take it easy! Flaps are not necessary for take-off, but in competition you'll have to use them, so feed in about 1/2 flap. Refill the gas tank (I used the cowl gun as a gas tank filler). Check the prop (I used 12-8 wood) and start your engine. Slowly taxi out to the take-off point and stop. Do not rapidly go to full power or you will ground loop. Slowly advance the throttle, using as little rudder as you can to keep on a straight line. The tail should come up by itself at about 1/3 power (don't be tempted to lift off or the Ugly Gods will spoil your day). Continue to advance power, building up good ground speed, and then lift off. At about 50 feet, up flaps! Make the first turns wide and slow, until you get the feel of the Texan. After you have settled down a bit, bring the power back to about 2/3 or 3/4 and you will slow down to a scale speed that seems about right. What goes up - - - (I'm sure you know the rest).

Take the ship up fairly high and see how she will fly at slow speed with the flaps down. Don't try to fly with flaps down with more than 1/2 power since the load on them is fairly heavy. Now that you have mastered flying at slow speed with flaps you are ready to land (don't daydream and run out of gas). Bring the flaps up, add power, and fly into the pattern. About halfway along the downwind leg, cut to about 1/2 power, make the turn into the base leg, level the wings, feed in full flaps, ease off on the power, turn on to final. Do not cut to idle. Fly the ship in and, just before you flare, cut to idle and she's down. This ship has a large fuselage and a lot of drag, so don't cut power too high and never, **never** try to stretch a glide. (It **won't** stretch).

I hope you have as much pride in your T6 as I have in mine. Seeing it in the blue does bring back fond old memories. Happy landings!! □