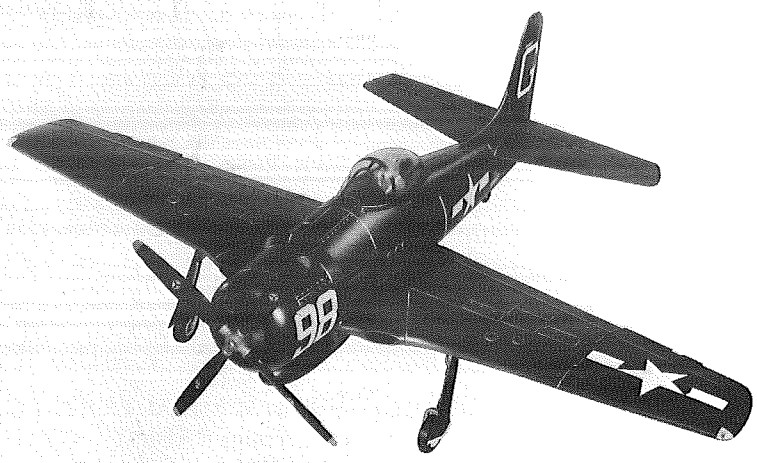


BUILDING THE F8F-2 BEARCAT

BEARCAT! by Kenneth D. Wilson

When the first Grumman Bearcat, Bureau of Aeronautics No. 90460 took to the air on 25 June 1944 on it's inaugural flight, the XF8F-1 was a culmination of a distinguished ancestry which included the F4F Wildcat and the F6F Hellcat, which the Bearcat was destined to replace as a first line fighter

Being the last of the famous Grumman "CAT" family, the F8F missed out on proving itself in aerial combat of WW II, and although the Bearcats did perform valiantly as a ground support aircraft when the French Expeditionary Force flew the F8Fs in Indo-China during the mid 1950s, the Bearcat would gain it's greatest fame by serving a peace time Navy.

The Grumman Bearcat started being deployed into the Navy VF class squadrons in mid 1945 and became the Navy's first line carrier fighter. When the jet fighters entered operational status during the early 1950s, the F8Fs were turned over to Naval Reserve Squadrons. However, the Navy kept several F8F-2s for drone control and tow target duties. The redesignated F8F-2D aircraft were perhaps the most colorful of the military Bearcats with a glossy Sea Blue color fuselage, Orange Yellow color flying surfaces and insignia Red color rudder and wing band. The crowds at the 1946 National Air Races could hardly believe the amazing rate of climb the F8F possessed. This was later dramatized when Lt. Cdr. M. W. Davenport piloted a stock F8F-1 Bearcat to 10,000 feet in 94 seconds from a standing start.

The U.S. Navy.s precision flight demonstration team, the Blue Angels, operated F8Fs during 1947-49. Due to the Blue Angels ability to keep the very maneuverable Bearcat within the airshow's crowd view, the F8F Bearcat became on of the favorite aircraft of the Blue Angels fans. The Blue Angels added an all Orange Yellow color F8F, nick named "Beetle Bomb" and developed a very warlike routine. "Beetle Bomb" would pounce the other four Blue Angels in their F8F-1s and a dogfight, right over the airport boundaries would transpire. As always, "Beetle Bomb" would be shot down trailing realistic smoke and the pilot was captured by a detachment of Marines.

Another very popular airshow Bearcat was Gulfhawk 4, which was flown by Major Al Williams in promoting Gulf Oil Products. Unfortunately this beautiful Gulf orange and white, trimmed in insignia blue color schemed Bearcat was destroyed in a landing with Williams miraculously escaping the flaming craft.

The U.S. Navy Grumman F8F-2 Bearcat, Bureau of Aeronautics No. 122637, from which Top Flite's award winning model was prototyped, dates back to 30 Dec. 1948 when the U.S. Navy accepted this aircraft.

Built under contract No. 9241, the F8F-2 was in the last group of 30 Bearcats constructed by Grumman. B. of A. No. 122637, (whichis the Navy serial number for this aircraft) was assigned to active duty with VF 34 at Quonset Point NAS Rhode Island. Except for a brief duty with VF 74 at Jacksonville, NAS, Florida the glossy sea blue color Bearcat remained with VF 34 until December 1950 when it was transferred to Norfolk NAS, Virginia.

During February 1952, B. of A. No. 122637 received orders to report to the Naval Air Reserve Training Unit at Birmingham NAS, Alabama and the powerful Grumman designed fighter found itself making qualification flights during carrier operations aboard the U.S.S. Midway in mid July 1852 with the Alabama Naval Reservists. The pilots at the Birmingham NAS enjoyed flying B. of A. No. 122637 until February 1953 when the airplane would serve again at Quonset Point NAS, then Chincoteaque NAS, Virginia, and Norfolk NAS, Virginia before winging to Corpus Christi NAS, Texas on 24 October 1953. At this southern principle Naval Air Station 122637 met every ultimate demand asked for by the Navy's air arm.

122637 would find a final berth at the giant Naval Air Station at San Diego, California on 11 February 1954. The swift and rugged F8F-2 would be stricken from the U.S. Navy's inventory on 9 January 1957 at San Diego with a total of 752 hours flown.

B. of A. No. 122637 would escape the fiery melting furnaces where so many ex-military aircraft ended their careers and would enter the civilian aircraft field carrying N 1033B F.A.A. registration number.

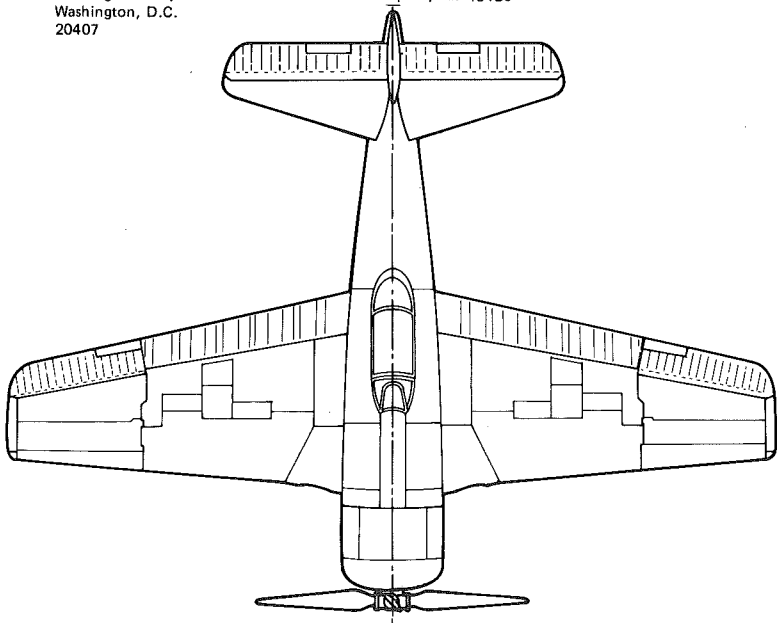
Mr John Church of Monterey, California bought the F8F-2 from Sherman Cooper in September 1971 and changed the F.A.A. registration number to N 198F. Church restored the F8F-2 back to the Glossy Sea Blue color scheme it had while serving in the U.S. Navy. Church also made the Bearcat competitive for closed course air racing. The "load lightened" N 198F Bearcat raced in the 1971 California 1000 Km Air Race at Mojave, California and the 1972 Unlimited races at the National Championship Air Races, Reno, Nevada under the tutorage of John Church. St. Louisian John B. Gury purchased N 198F from Church in 1973 and meticulously maintained the F8F-2 Bearcat.

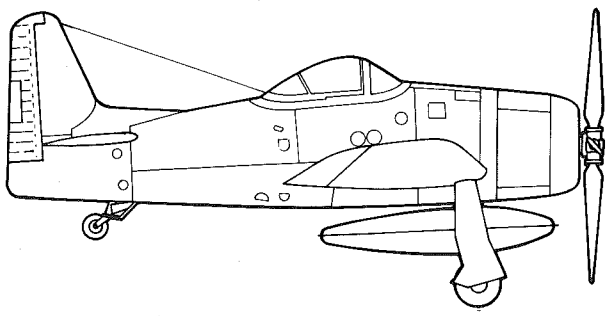
N 198F is one of the few Bearcats that exist today and it is the configuration that Top Flite Models proudly presents the Bearcat model.

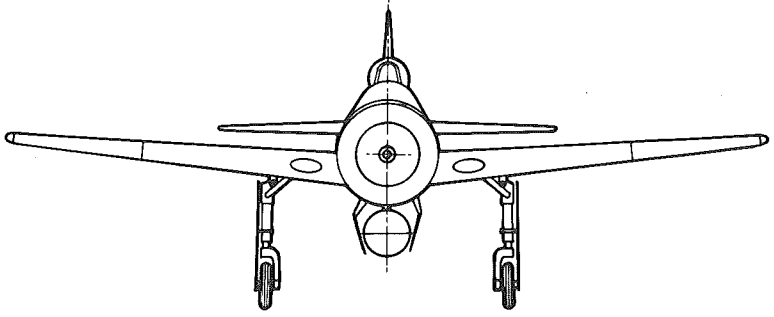
All Federal Standards No. 595 color numbers referred to in this story may be obtained by contacting the following addresses for information;

GSA
Specification Activity
Building 197
Washington Navy Yard
Washington, D.C.
20407

Naval Publication and Form Center
Customer Services
5801 Tabor Avenue
Philadelphia, Pa. 19120







CONGRATULATIONS!

You now own the most accurate R/C Stand-Off Scale kit ever produced.

We at Top Flite hope that you will find this model the most pleasant to build, inspiring to look at and exciting to fly that you have ever constructed.

It is honest to point out, however, that while this model is no more difficult - in fact is simpler than most comparable kits to make, R/C scale models generally are not for the newcomer to this hobby. Previous modleing experience and careful attention to craftsmanship are necessary. Even the "old hand" will do well to study and follow the instructions and guidance given in this booklet.

It is our aim to have you say: "This is the finest model I have ever built".

TOP FLITE MODELS, INC.

CONSTRUCTION OF THE F8F-2 BEARCAT

BEFORE YOU START, READ THIS:

The assembly sequence of your Top Flite F8F-2 has been carefully developed to help assure the correct alignment of your model Utilize the check-off blocks as you build: this will allow assembly of your model in minimum time.

Before beginning an assembly step, read the instructions to familiarize yourself with the parts to be used. Find the parts mentioned and double check them for proper indentification and size with the plans. Do not separate parts from the die cut sheets until you need them. There are machined parts in the kit which are not identified such as the fuselage sides, wing tips, etc. These parts can be easily identified by checking the parts against the plan.

We are sometimes asked which glues are best for model construction. The answer to this depends upon the particular job. This is our normal recommendation: For all hardwood-to-hardwood or hardwood-to-balsa joints, use white wood glue. "Titebond" is especially good, as it dries faster than other white glues and is very strong. For balsa-to-balsa joints, regular balsa-wood cements are ample for the job, although white glue can be used here too. Whichever type you use, remember that excess glue is no substitute for a well fitting joint. Use a minimum of glue at all times, and wipe off excess glue that squeezes out of joints before it sets hard; when set it is difficult to remove, but if not removed it could spoil the covering job.

IMPORTANT NOTE TO BUILDER

Every model built from a kit is different, reflecting the level of skill as well as the favored building techniques of the modeler..... ultimately thus, each model is essentially the individual creation of that builder.

Changes and variations take place in building so that while Top Flite supplies most essential building materials, the end product is the creation of the builder

Therefore, Top Flite assumes no responsibility for the performance of the model, nor does Top Flite assume any responsiblity of any nature whatsoever for the loss of, or property damage resulting from the operation of this model when it is completed.

USE COMMON SENSE

When you have completed this model, you will have invested considerable time, money and skill. Protect this investment by;

1. Re-checking all critical building points (center of gravity, hingeing of control surfaces, strength of stress areas, etc.).
2. Correctly installing the radio gear.
3. Test and re-test the radio, all moving surfaces, landing gear (if retracts), condition of batteries, etc., BEFORE EACH FLIGHT!
4. OBSERVE ACADEMY OF MODEL AERONAUTICS SAFETY CODE, particularly those rules governing RADIO CONTROLLED FLIGHT. DO NOT FLY WITHOUT BEING FULLY INSURED

WARNING!!

A radio controlled model is not a "TOY". Care and caution must be taken in properly building the model as well as in the installation and use of the radio controlled device. It is important to follow all directions as to construction of this kit as well as installation and use of the engine, propellers and radio gear. The advice and assistance of a well experienced builder and pilot is highly recommended. Don't take chances. Improper building, operation or flying of model could result in serious bodily injury to others, yourself, or property damage.

CONSTRUCTION SEQUENCE

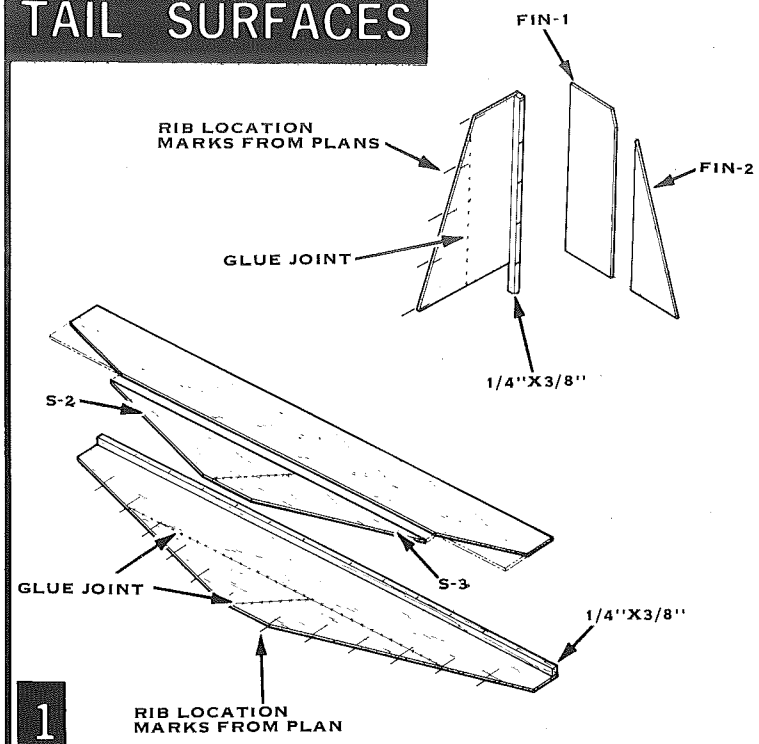
Follow each step in order and put check marks in the blocks as you complete each phase described.

PLANS

☐ Unlike many large kits, your Bearcat plans come in two full size sheets that do not require any cutting and splicing of plans. Before you do any building of this kit, we suggest you spend a few hours reading and studying this book and the plans.

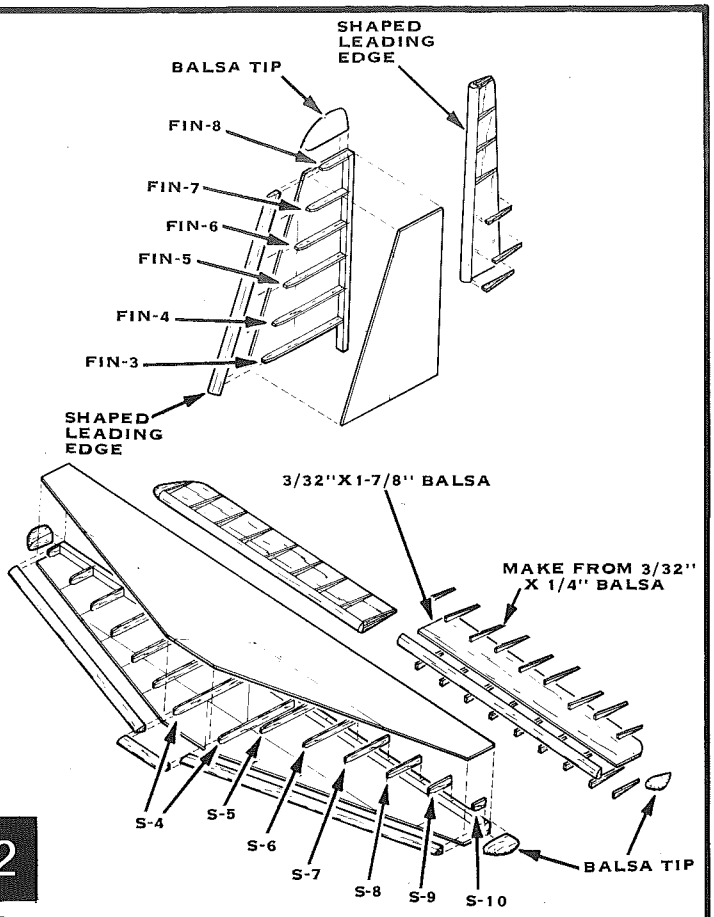
☐ When you are ready, tape or tack the fuselage plans on a flat work surface. Cover the working area of the plan with MonoKote backing or waxed paper.

TAIL SURFACES



1

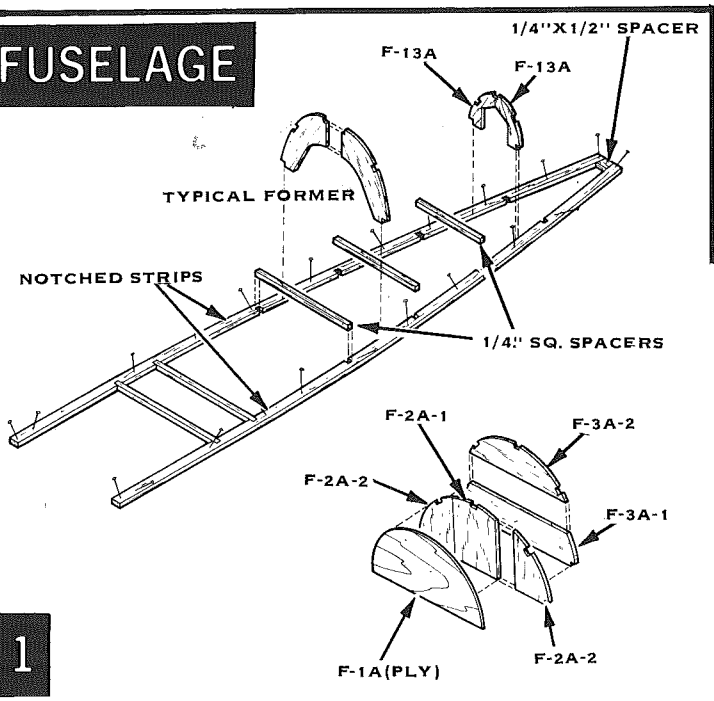
- ☐ Glue FIN-1 to FIN-2. Make two sets
- ☐ Glue S-2 to S-3. Glue them to 1/16" x 2-7/8" x 27" long pieces and trim corner angles as shown. Make two sets.
- ☐ Pin one panel each of stab and fin over plan. Glue 1/4" x 3/8" strip to them as shown. Mark rib locations on balsa from plans.Use soft pencil.



2

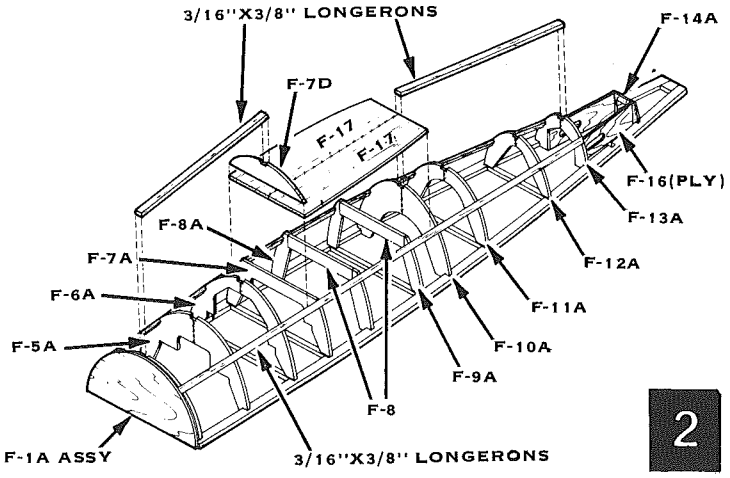
- ☐ Glue FIN-3 thru FIN-8 ribs in place as marked. Apply glue only up to start of curve on the ribs.
- ☐ Glue top panel in place. Again apply glue only up to start of curve on ribs.
- ☐ Glue leading edge to ribs only. When dry, glue planking to leading edge being sure that planking forms to shape of leading edge.
- ☐ Follow the same procedure for the fin. Add balsa tips to fin and stab.
- ☐ Make elevators of 3/32" x 1-7/8" balsa and glue shaped leading edge Glue 3/32" x 1/4" strips in indicated positions to simulate ribs, top and bottom. Sand down to 3/32" at trailing edge. Add tip blocks.
- ☐ Repeat same procedure for the rudder assembly.

FUSELAGE



1

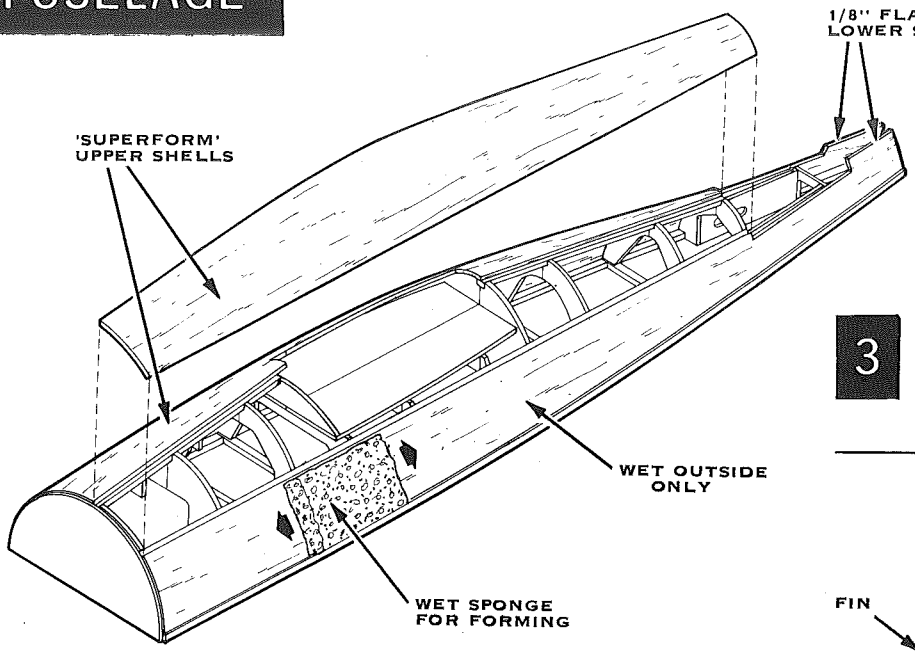
- ☐ Glue F-2A-2's to F-2A-1 and F-3A-2 to F-3A-1. Epoxy F-1A(PLY), F-2A assembly and F-3A assembly all together.
- ☐ Glue former halves F-5A thru F-13A together, using plans to measure correct width,
- ☐ Pin notched crutch strips down over top view of plans. Follow inner line as outer edge will be trimmed off later on.
- ☐ Measure, cut and glue 1/4" square crutch spacers in place. Glue rear 1/4" x 1/2" spacer in place at rear (scrap from notched strip).
- ☐ Glue formers F-5A thru F-13A to the notched strips as shown on the plans. Be sure they are perpendicular to the crutch.



2

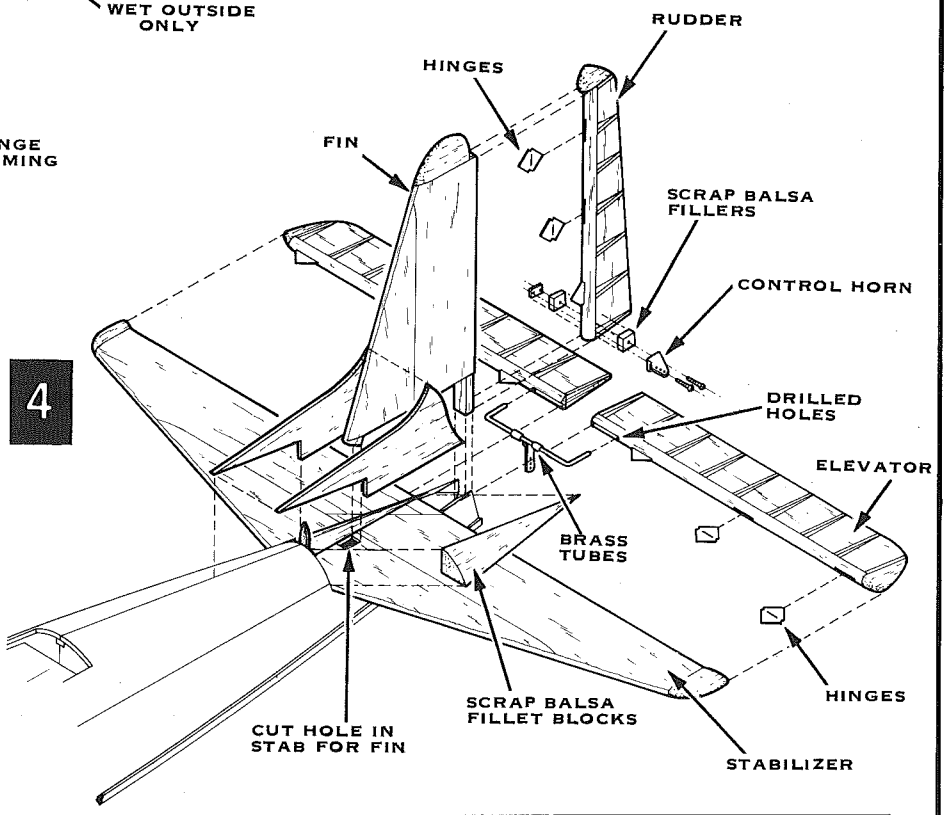
- ☐ With both F-16(PLY)'s resting on bench top, epoxy them to rear of F-13A. Epoxy F-14A to crutch strips and rear of F-16(PLY)'s.
- ☐ Glue 3/16" x 3/8" longerons into notches on top of formers F-10A thru F-13A. Also into notches on sides of formers F-1A thru F-13A.
- ☐ Glue two F-17 pieces together to make cockpit floor. Glue this assembly to top of formers F-7A, F-8A and F-9A and butting up against F-10A. Front of floor will overlap F-7A—DO NOT TRIM!. Glue F-7D to front of cockpit at angle shown on plan.
- ☐ Glue 3/16" x 3/8" longeron into notches of F-1A thru F-7D.

FUSELAGE



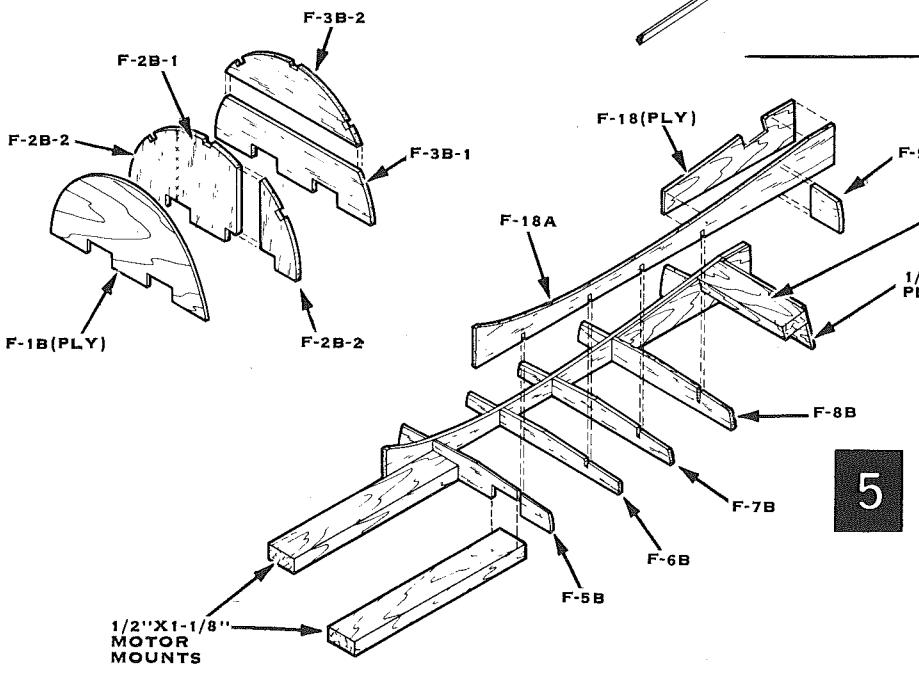
3

- ☐ Place F-28 over framework and trim where needed to get tight joints. Glue these pieces to the formers
- ☐ Place F-28 over framework and trim where needed to get tight joints. Glue this piece to the formers starting at the front. Make sure of tight joints at the crutch and all along to the rear crosspiece. Repeat on opposite side. Use slow drying glue.
- ☐ Trim and fit F-24 and F-25 "Superform" shells where necessary to achieve tight joints. Glue in place using pins and tape to hold until dry. Make small opening in one of the shells before glueing to aid in making final cockpit opening.
- ☐ Cut out cockpit opening using plans and canopy as a guide.



4

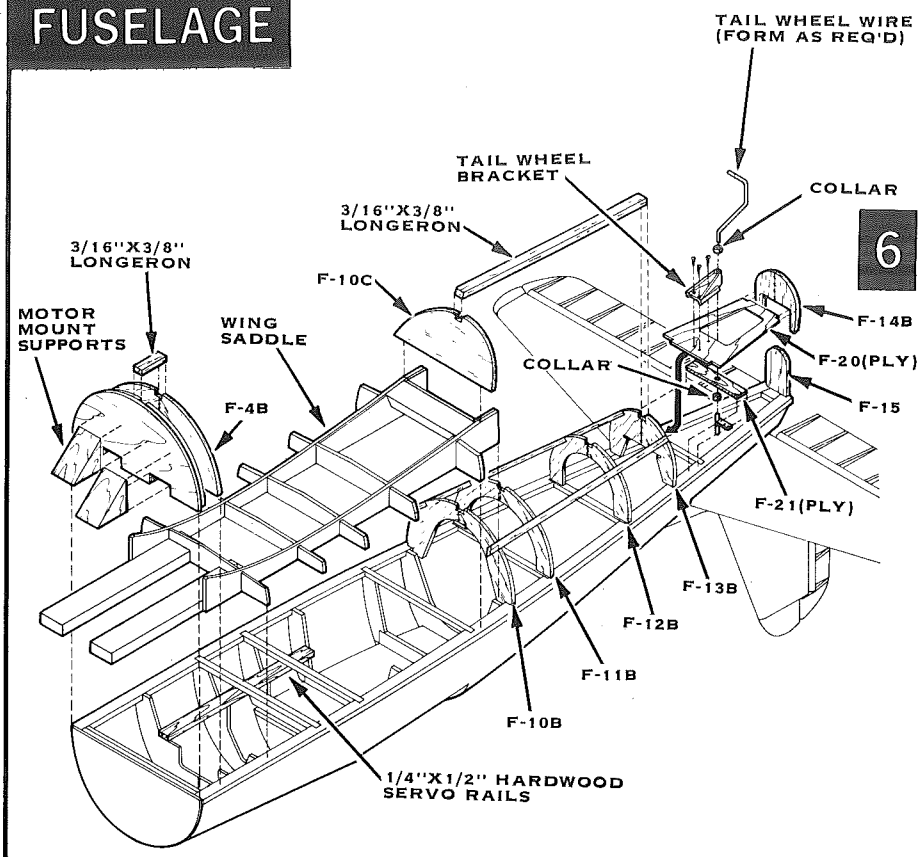
- ☐ Fit hinges to elev./stab and rudder/fin. Do not make permanent yet. Drill holes in elevators for control horn assembly. Fit elevators to stab and epoxy control horn brass tubes ONLY to stab. Make hinges permanent.
- ☐ Epoxy stab/elev. to fuselage. Check for centering and alignment in all directions.
- ☐ Add nylon control horn to rudder. Hinge rudder permanently to fin. Epoxy fin to stab. Check alignment in all directions.
- ☐ Glue dorsal fin pieces in place as shown on plans and illustration. Add scrap balsa fillets and shape as required.
- ☐ When dry, remove from bench top. re-glue any weak joints.



5

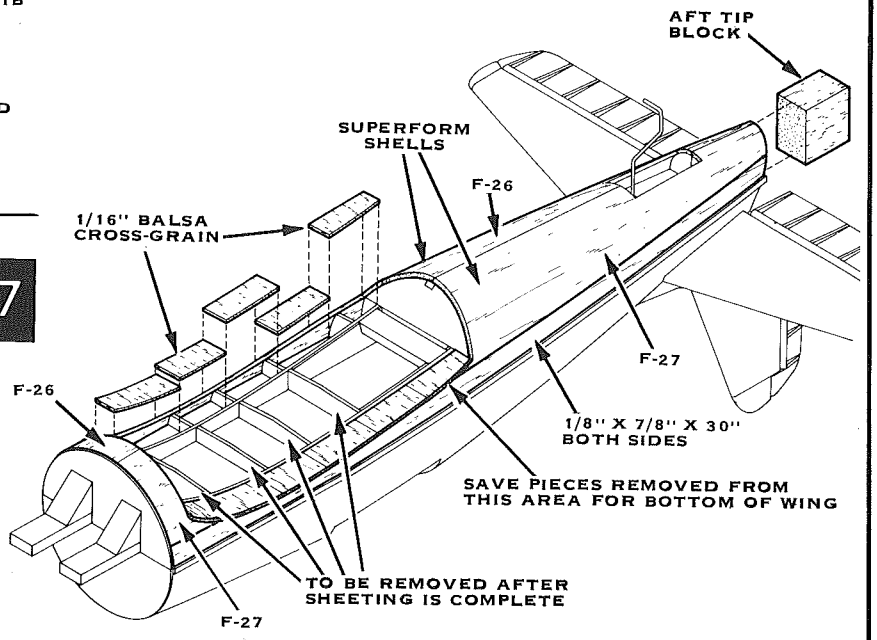
- ☐ Laminate F-1B, F-2B and F-3B firewall described previously.
- ☐ Epoxy F-18(PLY) doublers to insides of F-18A pieces. Make sure formers are at 90 degrees to F-18A and then glue together (it is best to work directly over plan on bench as every piece must be flush on the bottom).
- ☐ Epoxy 1/2" x 1-1/8" motor mounts to inside of F-18As. Locate as per plan. Epoxy F-5B former pieces in place.
- ☐ Epoxy 1/2" x 1-1/8" x 3-3/4" wing mounting blocks in notches of F-18(PLY). Epoxy 1/16" x 1-1/2" x 3-5/8"(PLY) to wing mounting block and F-18(PLY)s.

FUSELAGE



6

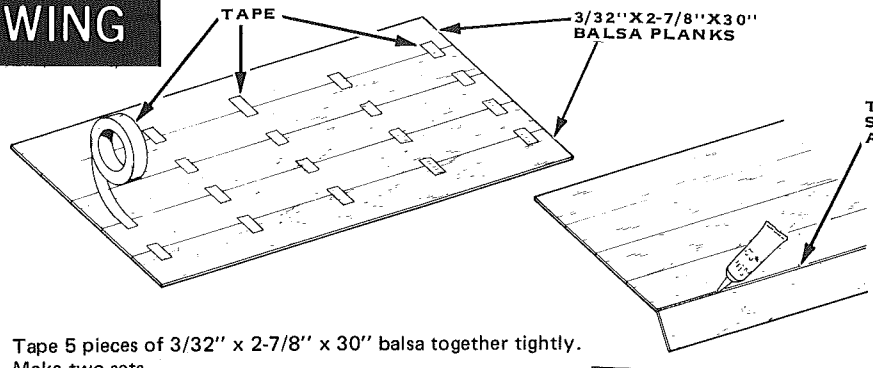
- ☐ Epoxy two 1/4" x 1/2" hardwood servo rails in place.
- ☐ Carefull position wing saddle assembly in position on inverted fuselage shell and glue.
- ☐ Epoxy former F 4B to front of wing saddle, to crutch and to motor mounts. Epoxy firewall assembly over motor mounts and to F-1A, making sure both firewalls are flush and true in both planes. Epoxy motor mount support blocks in place.
- ☐ Glue all remaining formers (except F-14B) in position on crutch. and glue 3/16" x 3/8" longerons into notches of formers F-10B thru F-13B.
- ☐ Cut off short end of tail wheel wire to 3/8" from bracket. Over long end, slip on one wheel collar, F-21(PLY)(after drilling hole), nylon tail wheel bracket and one more wheel collar. Bend the tail wheel wire as per plans.
- ☐ Epoxy F-14B to rear of F-20(PLY) and epoxy this assembly in place. Mount nylon bracket on F-20 (PLY) and epoxy F-21(PLY) in position. With control horn centered in slots of F-16(PLY), lock wheel collars to hold this position.
- ☐ Make up and attach servo pushrods now. See plans.

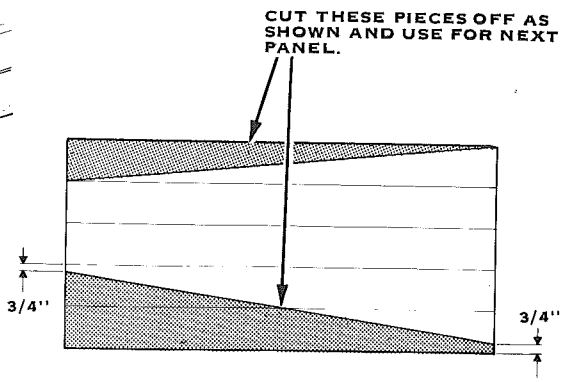


7

- ☐ Check all control surfaces for clearance and free movement. Safety wire all clevises now as they are hard to get at once the fuselage is sheeted.
- ☐ Glue 1/8" x 7/8" x 30" balsa to each side as shown.
- ☐ Cut out wing openings as printed on F-26 and F-27 'Superform' sides. This makes them into 3 pieces each. Follow printed instructions. Fit the pieces to the fuselage.
- ☐ When shells are dry, finish trim carefully around wing opening. Plank (cross grain) opening over formers F-5B thru F-10C with 1/16" balsa sheet.
- ☐ Glue tail block into position. Carve and sand to shape. Sand entire fuselage, cutting down exposed edges of crutch until flush with sheeting.
- ☐ For access to servo area, cut out formers F-6B, F-7B and F-8B flush with F-18A pieces.

WING

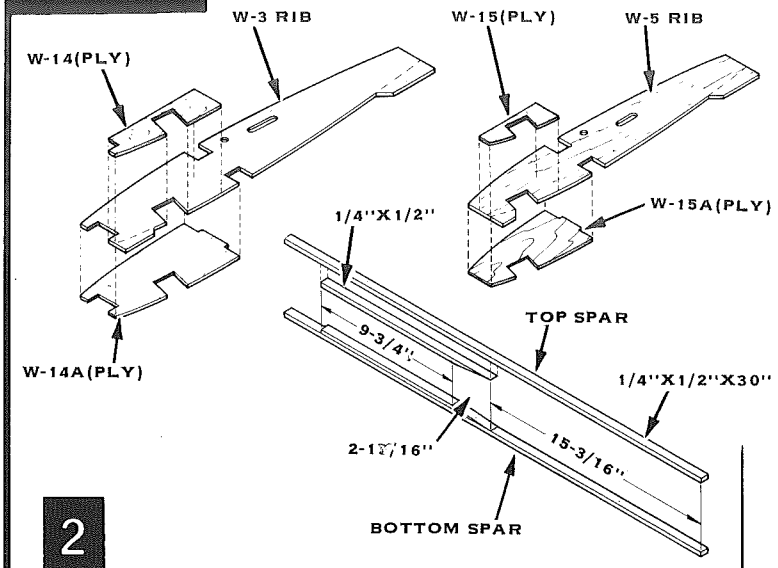




1

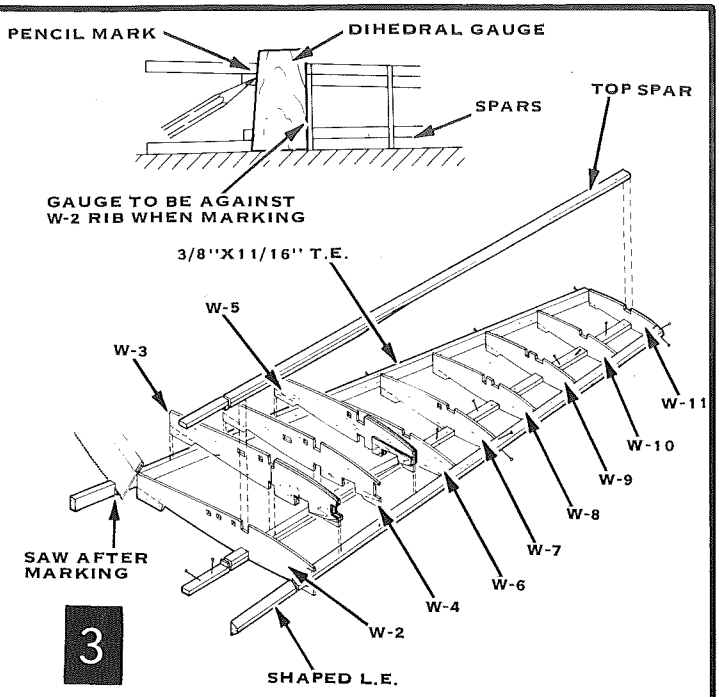
- ☐ Tape 5 pieces of 3/32" x 2-7/8" x 30" balsa together tightly. Make two sets.
- ☐ Turn them over, open up slightly and apply glue to joints. Lay on flat surface with weights until dry.
- ☐ Using dimensions shown, cut two triangular pieces off of each panel, and save.
- ☐ Tape two pieces of 3/32" x 2-7/8" x 30" balsa along with one each of the triangular pieces from above. Make two sets. Repeat glueing procedure. This will give you four sets of identical panels.

WING



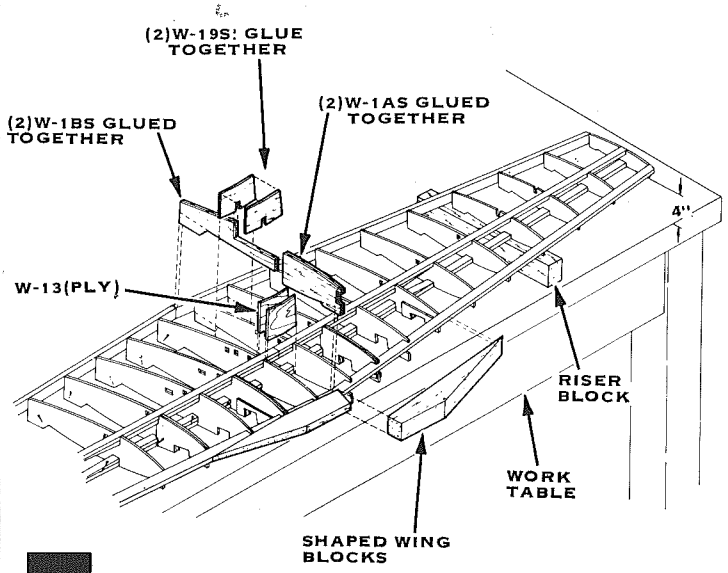
2

- ☐ Glue W-14(PLY) and W-14A(PLY) to W-3 ribs. Make one left hand and one right hand.
- ☐ Glue W-15(PLY) and W-15A (PLY) to W-5 ribs. Make one left hand and one right hand.
- ☐ Cut four pieces of 1/4" x 1/2" balsa strip to 12-9/16" long. Taper one end of each pieces as shown.
- ☐ Glue these strips to 1/4" x 1/2" x 30" spars, 15-3/16" from one end of each strip as shown. Leave excess length on spar to aid in pinning down. Make up four spar assemblies.



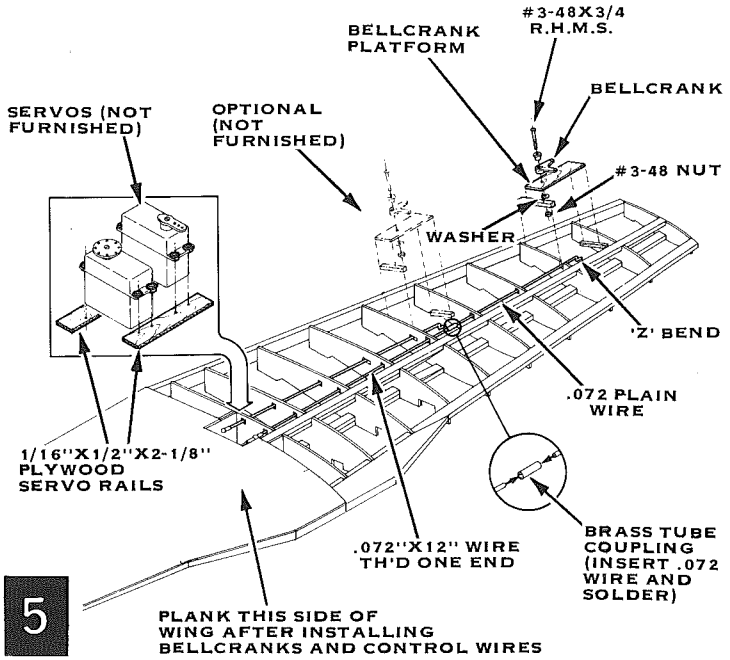
3

- ☐ Cover wing plan with Monokote backing. Pin one assembled spar over outline on plan.
- ☐ Glue ribs W-2 thru W-11 to spar, pinning through feet of ribs checking to be sure ribs are perpendicular.
- ☐ Glue shaped leading edge in place pinning to each rib.
- ☐ Glue trailing edge to ribs, pinning to each rib.
- ☐ Glue upper spar in position in rib notches.
- ☐ When wing assembly is dry, take dihedral as shown above, mark lines and cut off spars, leading edge and trailing edge. unpin from plan.
- ☐ Build opposite wing panel in exactly same manner.



4

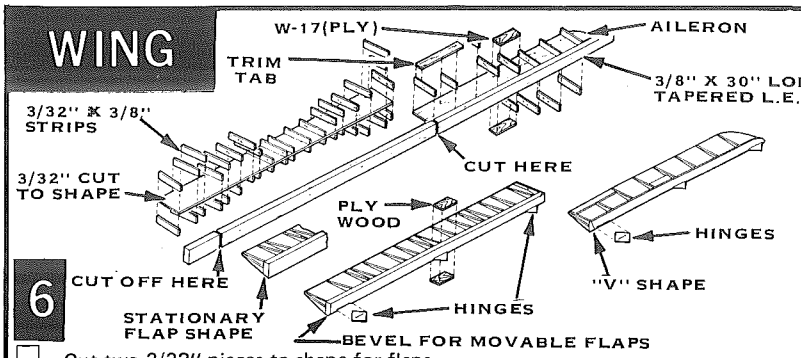
- ☐ Leave last wing panel built pinned to work table. Block up opposite wing panel for correct dihedral. Join wing halves together using W-13(PLY) joiners and slow drying epoxy.
- ☐ Glue two W-1A ribs together and two W-1B ribs together. Epoxy in place in wing as shown.
- ☐ Epoxy two W-19 pieces together and epoxy in place in wing as shown. Glue W-12(PLY)'s to W-2 ribs.
- ☐ Glue shaped wing blocks to leading edges as shown.



5

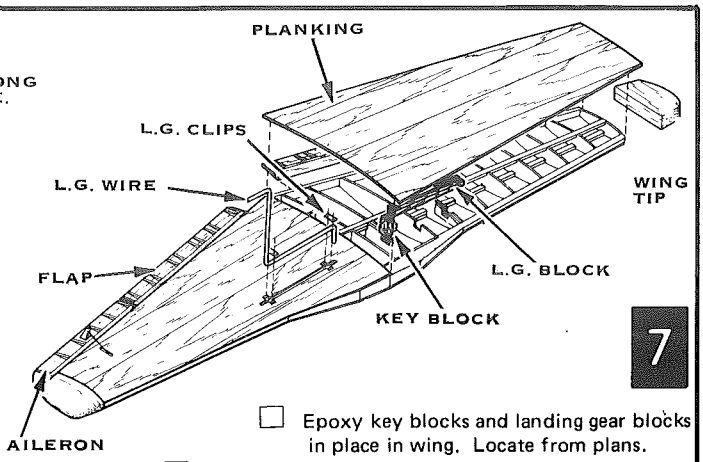
- ☐ Install servo mount rails and aligh servo arms so rods will correspond to holes in ribs.
- ☐ Install bellcranks and mounts as shown above. If flaps are to be used, install bellcranks and mounts for them(not furnished).
- ☐ Install control rods and make necessary "Z" bends.(ball link connectors are recommended at servo end). Be certain that any soldered connections are well made.
- ☐ Plank top of wing panel that is still pinned down.
- ☐ Remove wing from bench and pin down opposite wing panel. Repeat planking procedure on this panel. Unpin and remove rib platforms.

WING



6

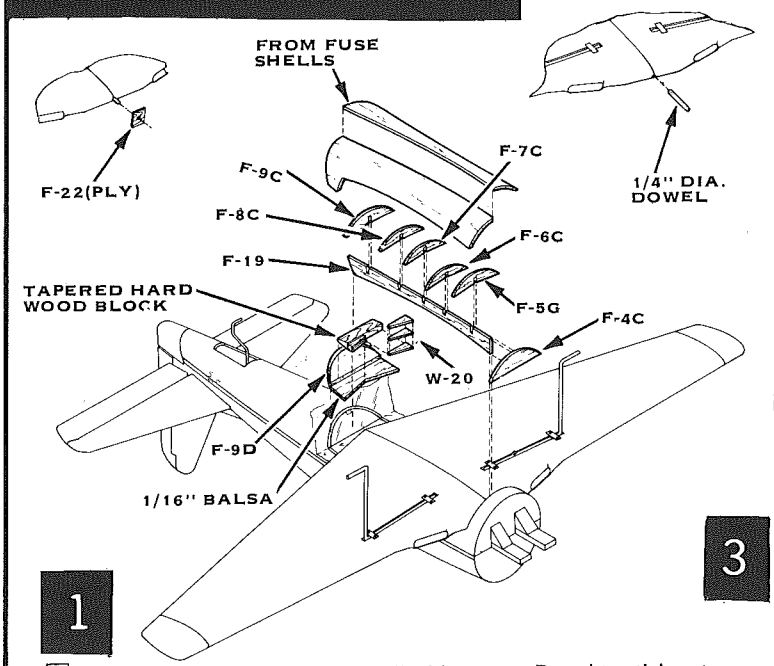
- ☐ Cut two 3/32" pieces to shape for flaps.
- ☐ Glue these and die cut aileron to the 3/8" wide x 30" long tapered strip. Use plans for proper locations. Make two.
- ☐ Cut and glue in place top and bottom, ribs from 3/32" x 3/8" balsa Taper ribs withs sandpaper block or razor plane. Cut leading edge apart to separate flap from aileron.
- ☐ If flap is to be stationary, it can be glued to wing as is. If not, bevel bottom of L.E. for 1/4", install hinges and plywood supports for control horn.
- ☐ "V" shape L.E. of aileron as shown, install hinges, trim tab pieces, and W-17(PLY)'s. Do not shape tip end of L.E. until aileron is installed to wing.



7

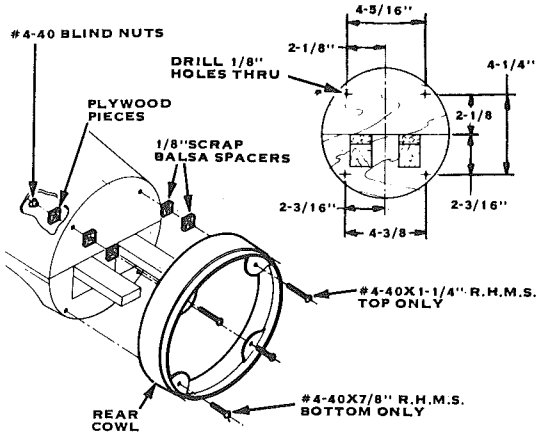
- ☐ Epoxy key blocks and landing gear blocks in place in wing. Locate from plans.
- ☐ Plank both bottom wing panels. Cut openings for landing gear wires and aileron (also flaps if used) control rods.
- ☐ Install wing tip blocks and shape. Sand wing all over. Shape leadings edges to shape shown on plans.
- ☐ Hinge ailerons to wing permanently. If flaps are not to be used, cement them to the wing, otherwise hinge them also. Sand and cover.

FINAL ASSEMBLY



1

- ☐ Drill wing for 1/4" dia. and install with epoxy. Dowel to stick out from the wing 1/2" to 5/8".
- ☐ Place F-22(PLY) over dowel, apply epoxy to front face, place the wing (with F-22(PLY) on it) on the fuselage, align carefully and temporarily fasten it down.
- ☐ Epoxy 1/16" balsa, tapered hardwood block and six W-20s to trailing edge. When dry drill 1/8" dia. holes (see plans for location) thru wing block and block in fuselage. Glue F-19 and F-4C thru F-9D in place and cover with pieces saved from fuselage planking.
- ☐ Remove wing. Tap fuselage holes with #8–32 self-tapping screw furnished. Drill wing holes out to 11/64" dia. for clearance for screws. Cut hole in planking for screw head clearance.



2

- ☐ Drill 1/8" dia. holes thru firewall as per dimensions shown.
- ☐ Screw rear cowl in place with #4-40 machine screws, plywood pieces from W-14's and W-15's, and blind nuts.

3

- ☐ Install a .60 size R/C engine. Attach fuel lines. Install throttle (and fuel mixture) control cables.
- ☐ Install the radio equipment(receiver, battery, servos, etc.) as per the manufacturers instructions.
- ☐ Make cut-outs in front cowl for exhaust, glow plug, etc. Cement to rear half and sand lightly with 400 grit paper prior to painting.
- ☐ Attach landing gear doors to main landing gear wire as shown on plans. Install the main wheels and the tail wheel.
- ☐ Cover the model (except cowl) with Insignia Blue MonoKote, or cover the model with Chrome MonoKote, paint as per color desired and then scribe panel outlines.
- ☐ Paint cockpit area with flat black paint. Apply instrument panel and your favorite pilot. Trim canopy to fit and cement in place. Apply markings furnished.
- ☐ Check radio carefully, including range check per manufacturers instructions. Check center of Gravity.. If you are not a proficient R/C pilot, get the help of one. Don't take chances! See warning on page one. Save your plane and avoid grief.

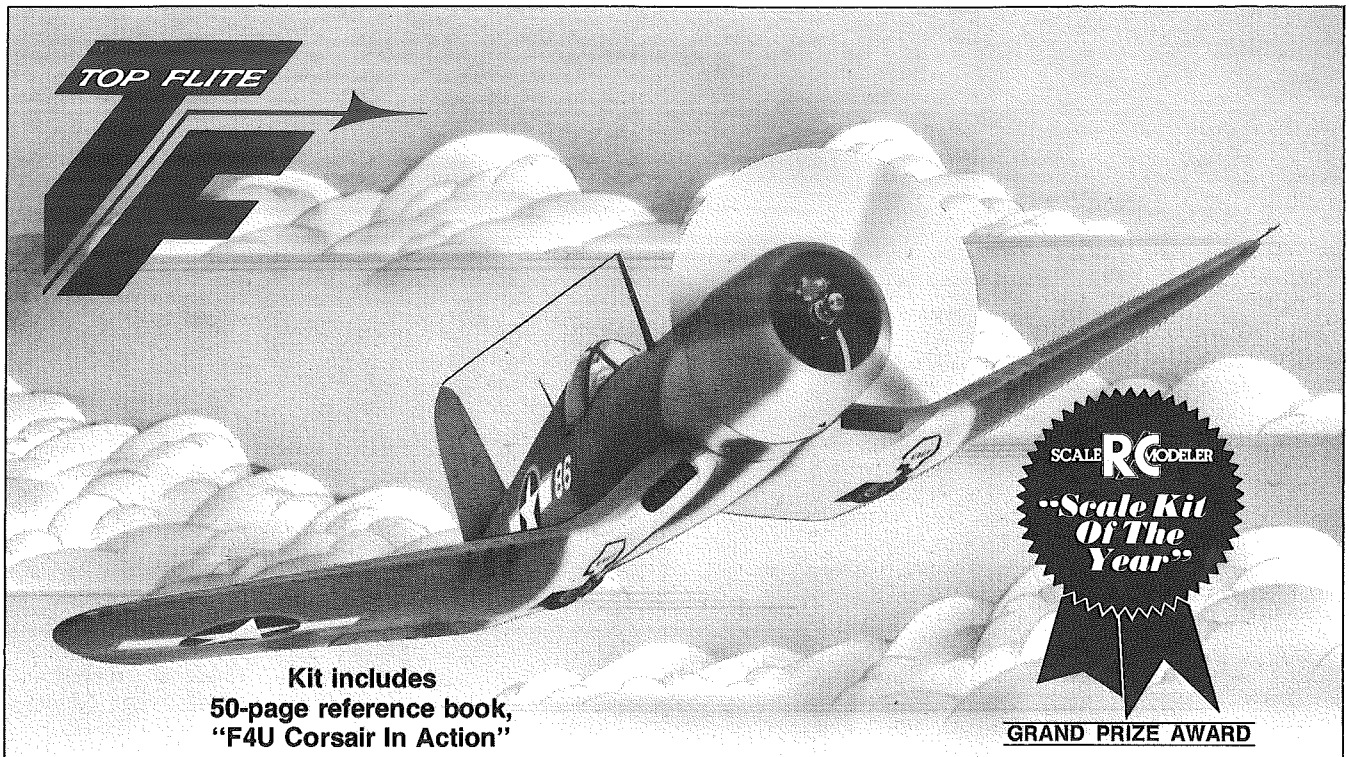
FLAP INFORMATION

This plane is designed to have operable flaps if desired. The flaps will have to be hinged instead fastened solid to wing as shown on plans. The wing has ample room for the additional

This plane is designed to have operable flaps if desired. The flaps will have to be hinged instead of fastened solid to the wing as shown on plans. Provisions have been made in the wing for additional servo. The decision to have operating flaps should be made before the wing construction is started.

LANDING GEAR RETRACTS

Again the decision to use landing gear retracts must be made before construction begins. Construction provisions have been built into the model for retracts. There is room in the wing for the additional servo and control valve. The air supply tanks(if this system is used) are located in the fuselage. Be sure the tanks and lines do not inter fere with the pushrod operation. Model can be balanced with the wheels up or down as the CG remains the same.



Kit includes 50-page reference book, "F4U Corsair In Action"

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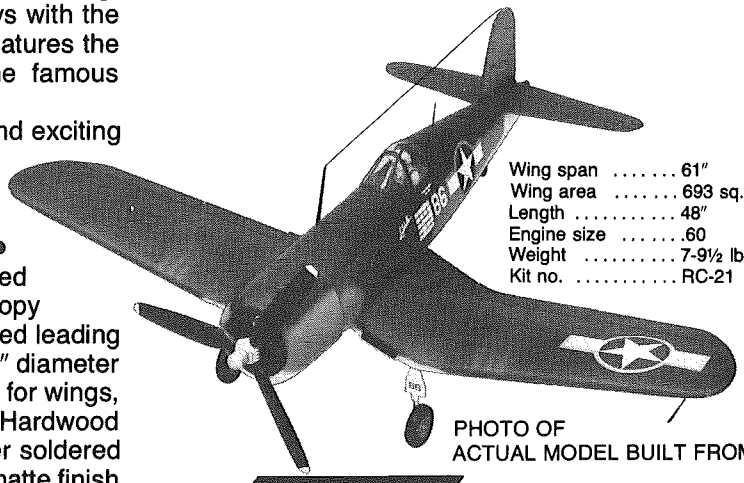
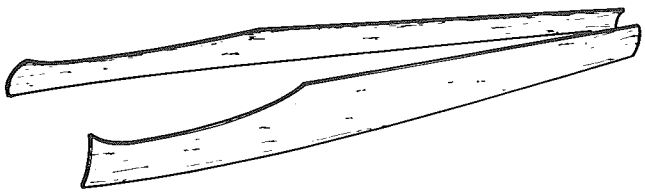
The F4U-1A Corsair...one more reason Top Flite continues to be the choice of champions.



Wing span	61"
Wing area	693 sq. in.
Length	48"
Engine size	.60
Weight	7-9½ lbs.
Kit no.	RC-21

PHOTO OF ACTUAL MODEL BUILT FROM KIT



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