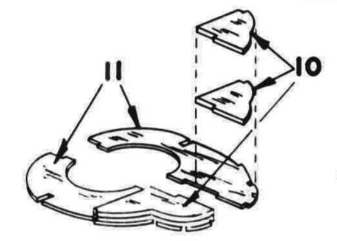
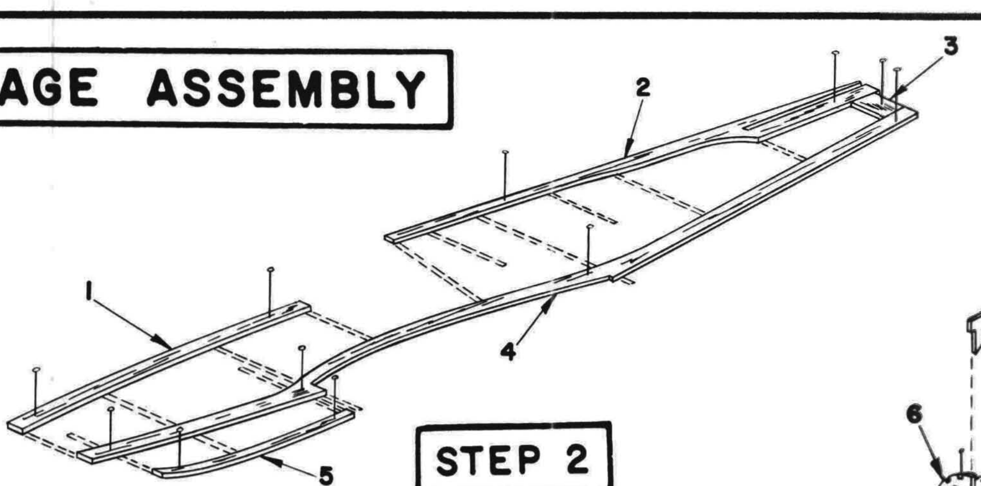
FUSELAGE ASSEMBLY



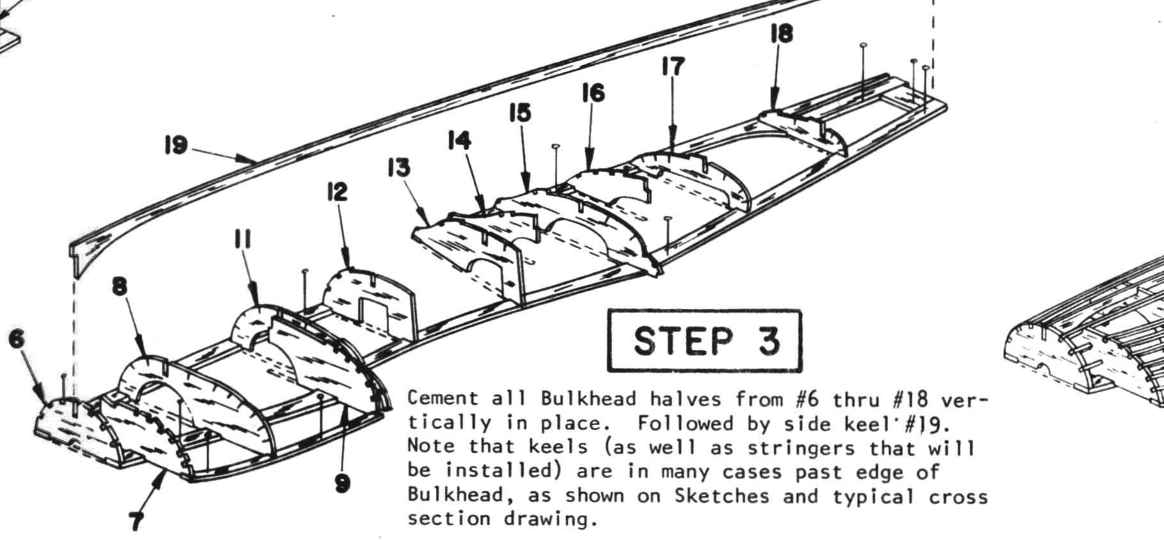
STEP 1

Saran Wrap (or similar) spread under frame will prevent frame from sticking to Plan. Fuselage is built on flat surface directly on Plan. Pin two 10's to bottom of Bulkhead 11 to form triple layer-make 2 units (left & right) as shown.



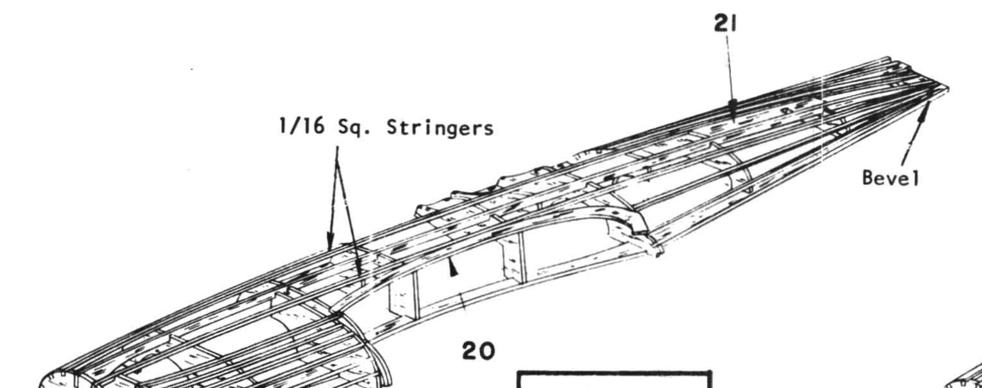
STEP 2

Pin parts in place as shown, cementing #3 between #2 and #4, flush with rear of 4.



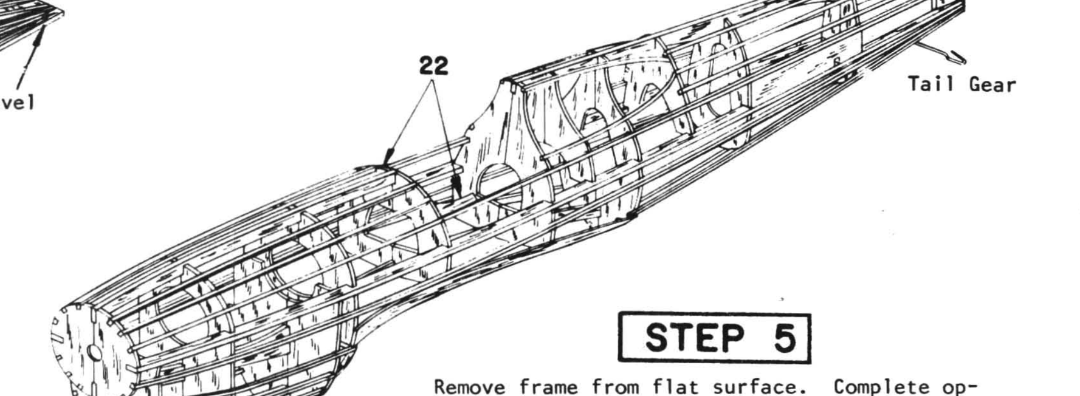
STEP 3

Cement all Bulkhead halves from #6 thru #18 vertically in place. Followed by side keel #19. Note that keels (as well as stringers that will be installed) are in many cases past edge of Bulkhead, as shown on Sketches and typical cross section drawing.



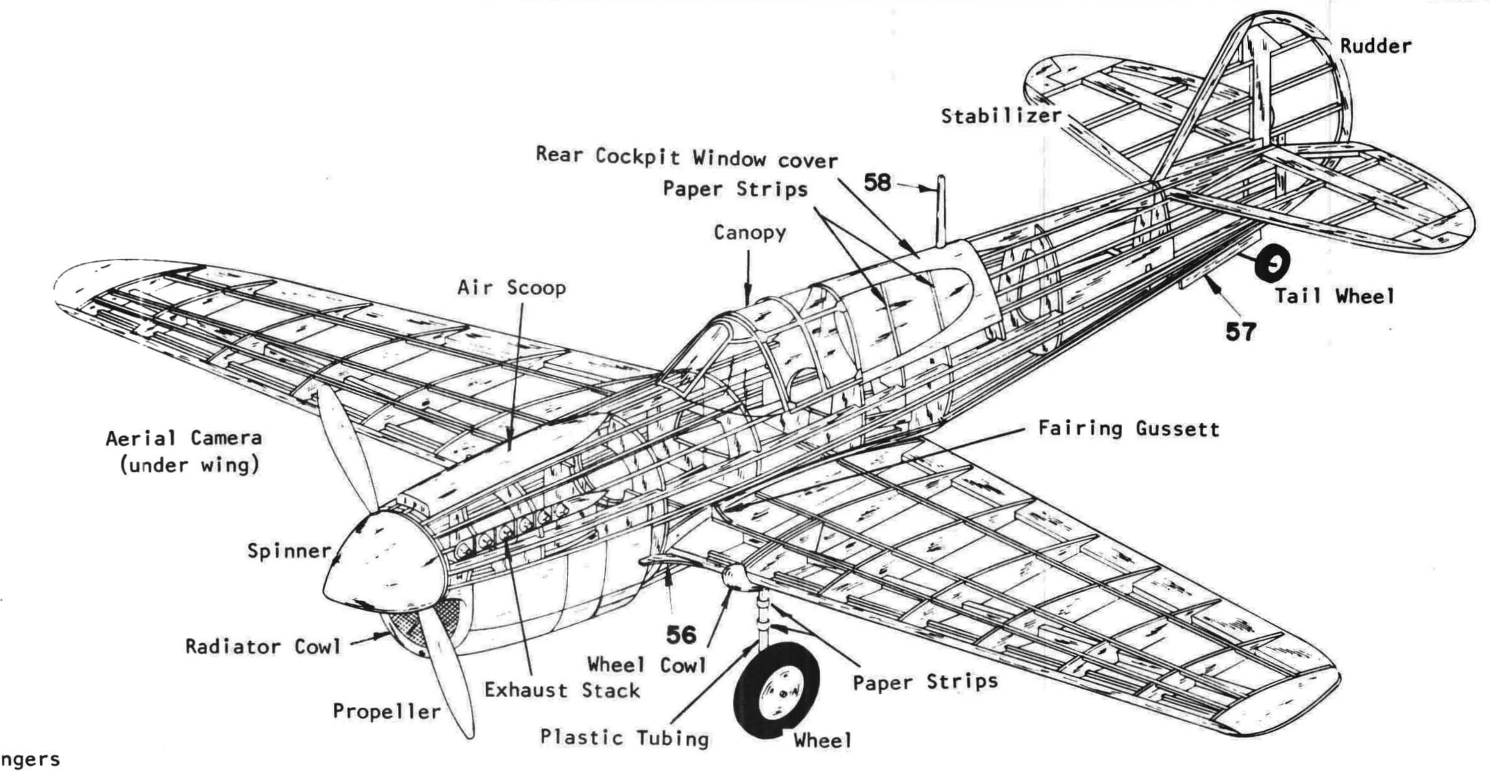
STEP 4

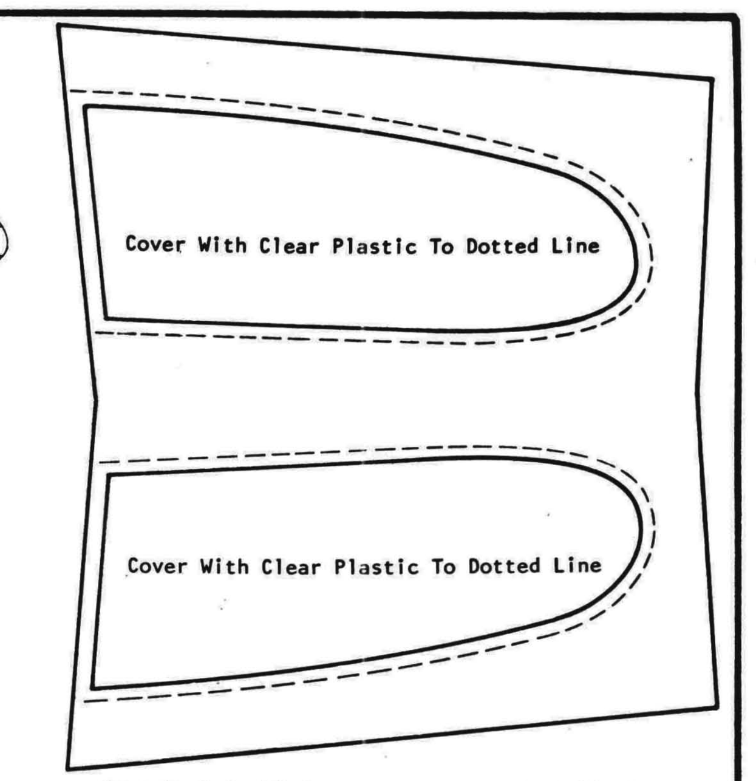
Cement #20 into notches from #11 to #15. Install all stringers shown, (which are 1/16 sq. strips) into their respective notches. Bevel ends at rear of fuselage to knive edge. Cement #21 between side keel and stringer above, behind #17. Allow to dry thoroughly before proceeding to next step, otherwise fuselage may warp.



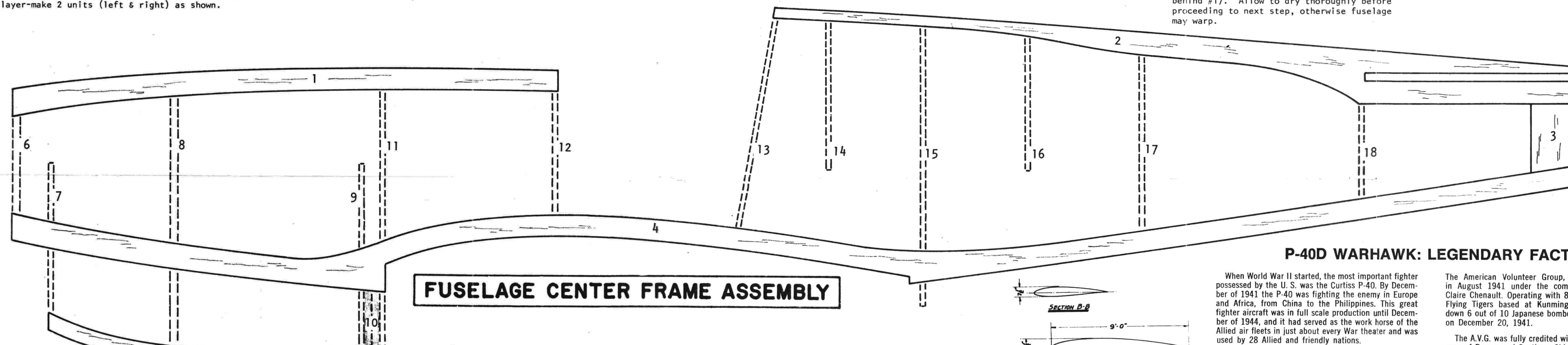
STEP 5

Remove frame from flat surface. Complete opposite side of fuselage in same manner as described in steps #3 & #4 (do not make another fuselage center frame assembly. These Bulkheads halves are cemented to the fuselage frame you have just removed from the flat surface). Cement #22's on each side at rear of #12, flush with outside. Bend Tail Gear as shown on detail and cement securely into the fuselage as shown in sketch and side view.

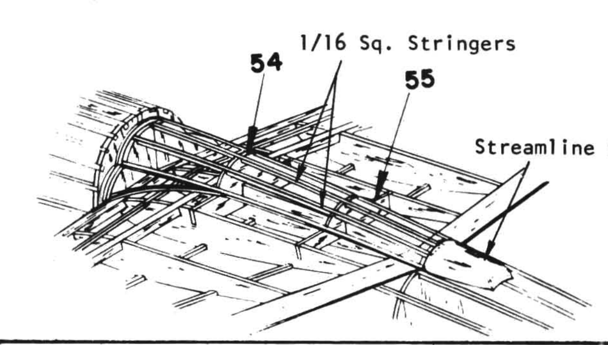




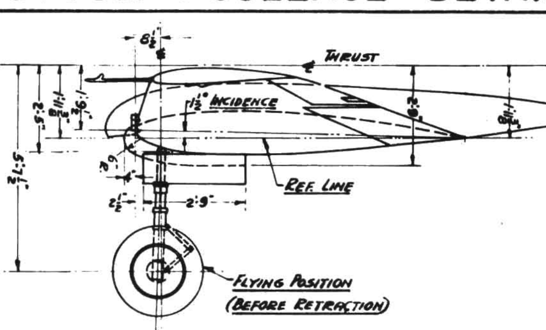
Rear Cockpit Window cover pattern is full size. Cut out window (solid line), then cut clear plastic (dotted line) and cement together, install assembly as described in Final Assembly.



FUSELAGE CENTER FRAME ASSEMBLY



BOTTOM FUSELAGE DETAIL

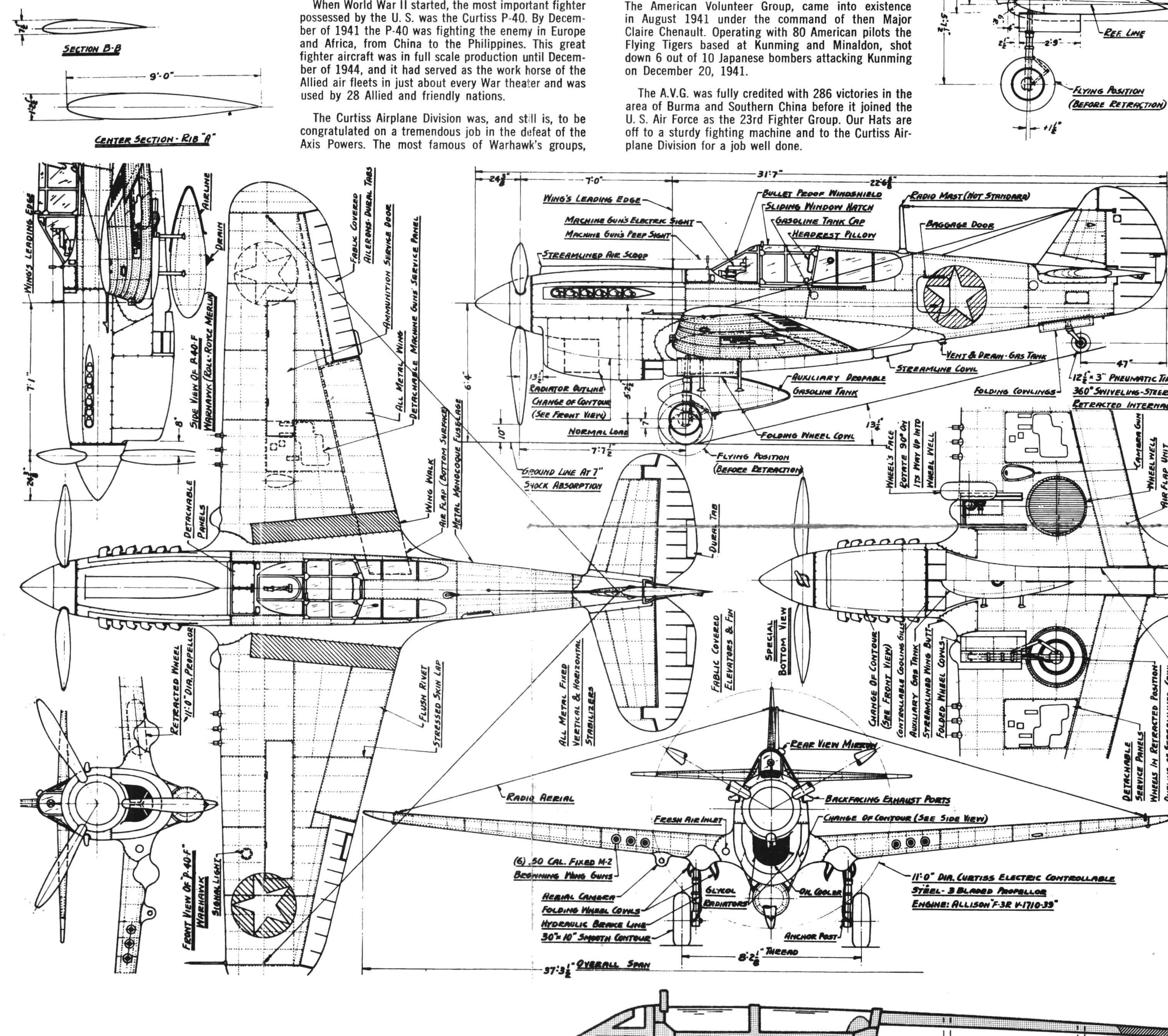


P-40D WARHAWK: LEGENDARY FACTS

When World War II started, the most important fighter possessed by the U. S. was the Curtiss P-40. By December of 1941 the P-40 was fighting the enemy in Europe and Africa, from China to the Philippines. This great fighter aircraft was in full scale production until December of 1944, and it had served as the work horse of the Allied air fleets in just about every War theater and was used by 28 Allied and friendly nations.

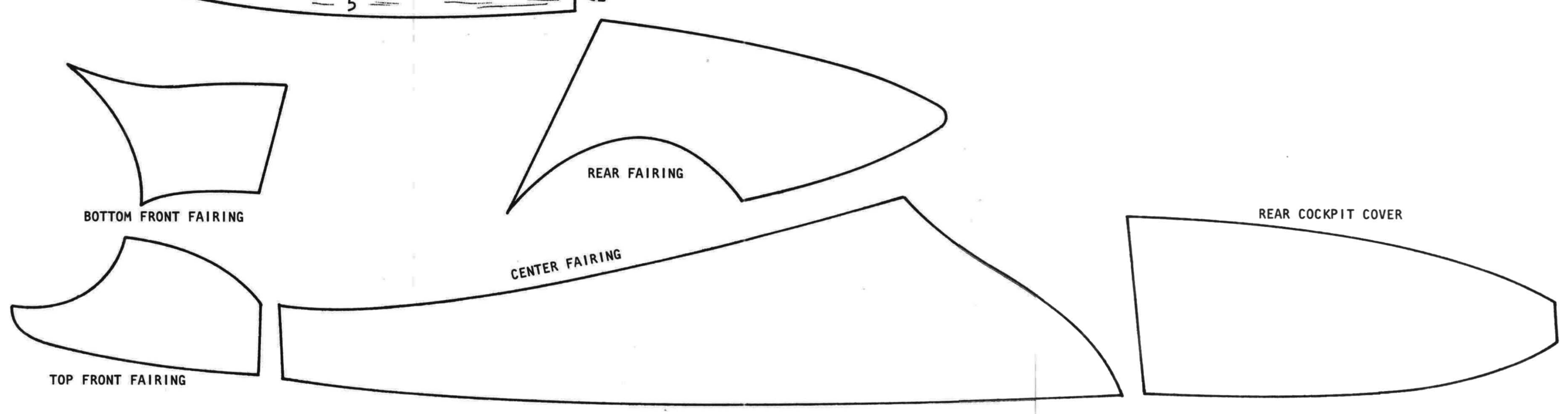
The Curtiss Airplane Division was, and still is, to be congratulated on a tremendous job in the defeat of the Axis Powers. The most famous of Warhawk's groups, The American Volunteer Group, came into existence in August 1941 under the command of then Major Claire Chenault. Operating with 80 American pilots the Flying Tigers based at Kunming and Minaldon, shot down 6 out of 10 Japanese bombers attacking Kunming on December 20, 1941.

The A.V.G. was fully credited with 286 victories in the area of Burma and Southern China before it joined the U. S. Air Force as the 23rd Fighter Group. Our Hats are off to a sturdy fighting machine and to the Curtiss Airplane Division for a job well done.



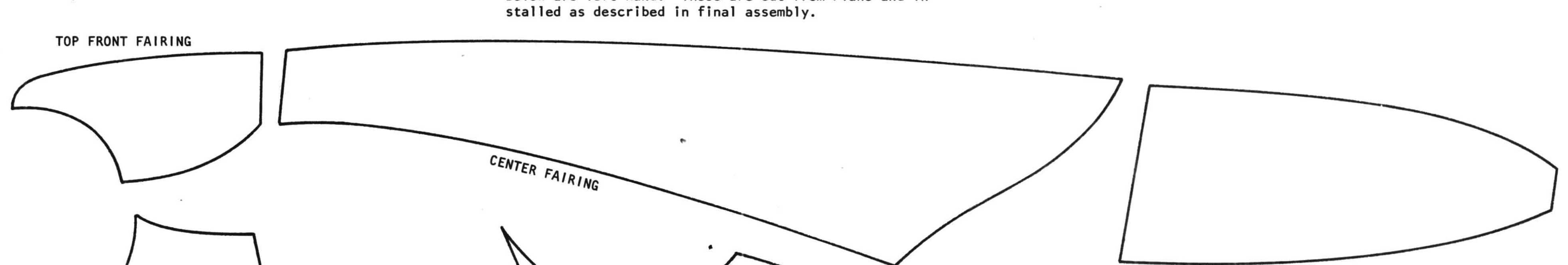
FINAL ASSEMBLY

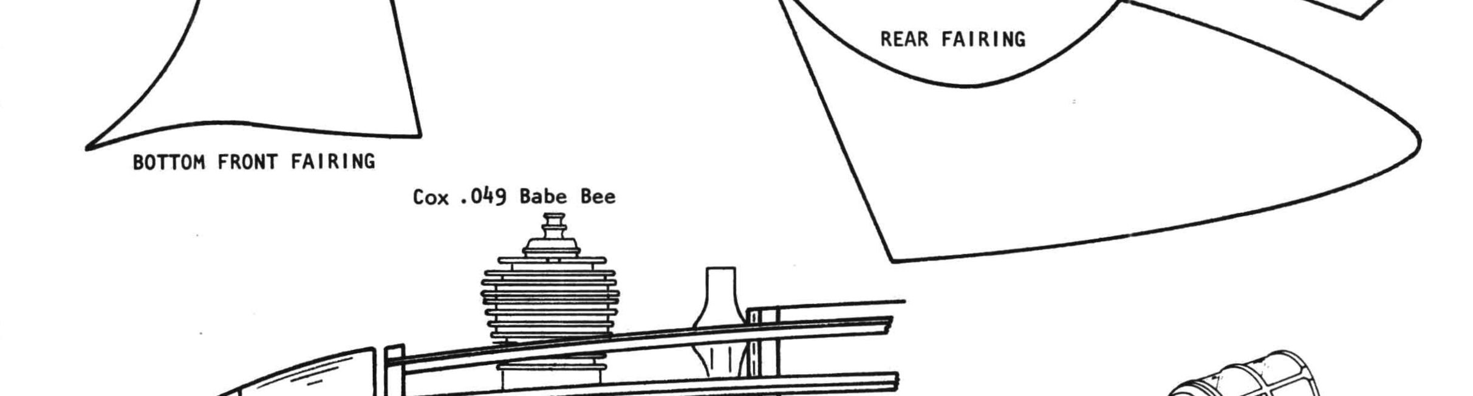
Trim and assemble all plastic parts as shown and described in detail note. Although sketch above shows model uncovered; Wing, Fuselage and Tail Surfaces must be covered before assembly is made (unless R/C or Control Line is being installed, in which case see respective detail note). Cement Stab into Fuselage slot, front resting against #18. Cement Rudder vertically in place to rear and top of Fuselage. Be certain that stabilizer is horizontal & Rudder is vertical. Install wing by cementing into bottom of Fuselage, pinning tightly against center keel #4 & outer keels #20. Wing must be against keels for proper angle of incidence otherwise model may not fly properly. Set model on flat surface and check that both tips are the same height and Stab is horizontal. Allow to dry thoroughly before moving. Finish bottom of Fuselage below wing by cementing 1/16 sq. stringers into notches as shown in bottom Fuselage Detail Sketch. Cover with 2 pieces of Silkspan Tissue, joining in center, then cement plastic stream Line Cowl in place against rear of #15 as shown. Cement plastic radiator cowl to Bulkhead #7. Use light coats of cement applied sparingly. If necessary, use more than 1 coat BUT DO NOT APPLY A THICK COAT AT ANYTIME. For powered models, NUT Plates are installed as described in Engine Installation. Cement Air Scoop to top of Fuselage and Exhaust Stacks to either side as shown. Cut two 2-1/8" lengths of plastic tubing and slip on to Landing Gear Struts, Cut 2 Strips of plan paper 5/32 wide. Wrap and cement around tubing at locations shown on side view until the required thickness is achieved. Slip folding wheel cowl over strut and cement to wing. Hold in place with Pins until dry. Cement Fairing Plates #56's in place. Wing Fairings are paper, which are those cut from plan. Using full size drawing on plan make 2 Fairing Gussetts from 3/32 scrap Balsa and cement to wing & fuselage at front 1/16 sq. Spar. Cement Front Paper Fairings to top & bottom, lining up with 56. Note how top Fairing curves to flow into side of fuselage. Cement center Fairing in place in same manner joining over Scrap Fairing Gussett, & lining up with wing Trailing Edge; rear Fairings are cemented against Trailing Edge of wing and where it contacts Fuselage, and allowed to dry. When dry, Fairing is carefully turned over and folded so that it follows line of center Fairing and is cemented to Fuselage matching top of center Fairing , at rear of center Fairing. Hold in place with pins until dry. Cut out rear cockpit covers from Plan and cement in place. Cement Tail Gear Door #57 in place. Model is now Painted. Scale color scheme as shown on Kit Box is Tan & Green camoflauge, bottom is Pale Blue, For Best flight performance use a minimum of color Dope. Make rear cockpit window cover as shown and described in full size drawing and detail note. Cement in place as shown. Round of #58 Antenna and cement in place. Cut instrument panel from plan & cement to #12. Cement Canopy in place. Paint canopy frame, rear cockpit cover & Antenna. Wood Wheel Hubs are sanded to remove point as shown in full size sketch. Hub paint light Blue then slip into tires. Install on Axles, holding in place with drop of cement or solder. Install Tail wheel similarly. Wheels must roll freely. If not enlarge hole. Paint plastic Aerial camera light Blue and cement to bottom of wing as shown on full size wing drawing. Make 12 exhaust Pipes from 1/8 Dowel as shown & described in detail note, and cement in place. Cut 6 lengths of 1/8 Dowel 3/16" long for machine guns, paint black and cement to front of wing. Outlines of Scale Control Surfaces may be drawn in place with India Ink. Apply Decals by dipping in water and sliding off into position. Insert straight end of Propeller Shaft through rear of Nose Bearing. Slip on two washers and insert Shaft through rear of propeller, then bend front of Shaft to "U" shape as shown on Side View. Rubber motor is now installed. It is engaged on 1/8 dowel (that cross through #21's at rear of fuselage by dropping rubber into Fuselage from Nose, far enough so that dowel can be inserted through one 21, through Rubber Loop and then into opposite 21. Tie a length of thread or make a hook in a piece of wire, to lower the loop of rubber into the Fuselage. After engaging it on dowel, pull rubber through #6 and engage on Propeller Shaft. Nose bearing fits into #6. Cement the spinner securely to Propeller making sure it is centered and in line when viewed from side. Installation of rigging, movable controls, and other detail scale installations are optional and described in Scale note. Installation for Control Line and R/C are described in respective notes. This completes your P-40 Warhawk. See Flight Instructions before flying model. GOOD LUCK !! HAPPY LANDINGS !!!

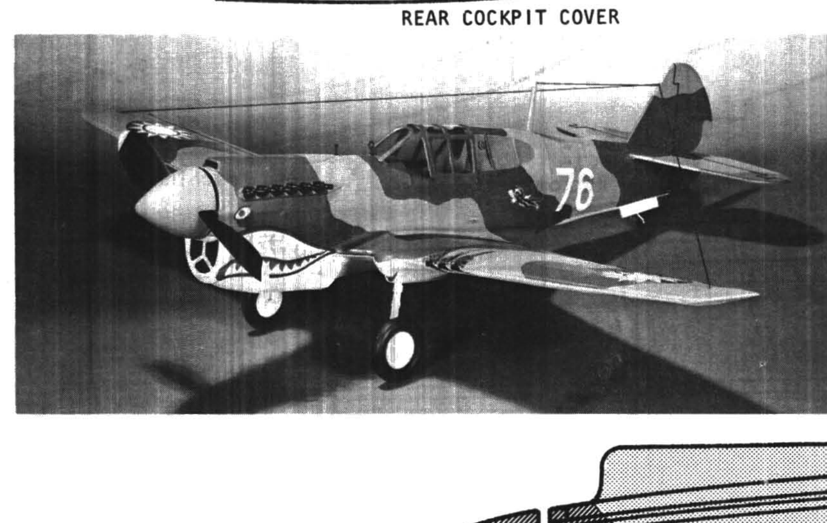


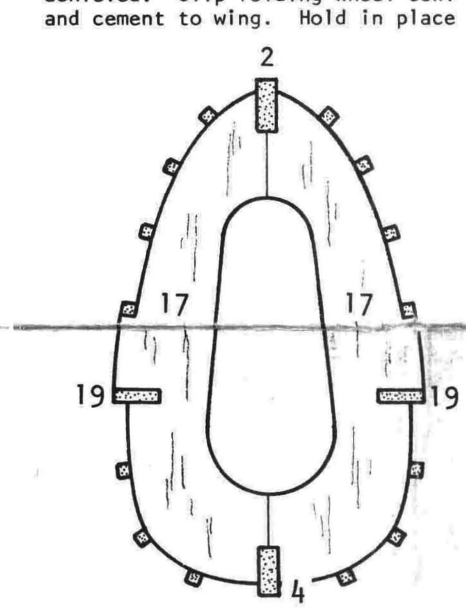
WING FAIRING DETAIL

Drawings are full size for Wing Fairing and rear cockpit covers. Fairings above this note are right hand, those below are left hand. These are cut from Plans and installed as described in final assembly.



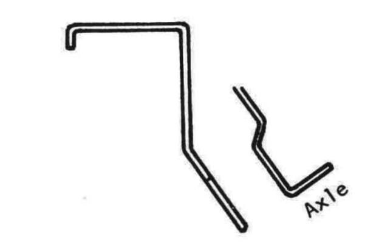






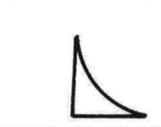
TYPICAL CROSS SECTION

Fuselage Cross-Section above is at Bulkhead #17. Note that there is only one Fuselage Frame Assembly in center. Bulkhead halves are cemented. directly to it. See Step #5.



TAIL GEAR DETAIL

Bend to shape of this full size pattern from .045 wire provided install as described in Step #5.

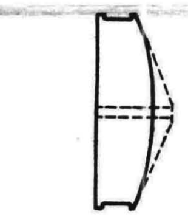


FAIRING GUSSET DETAIL

Make 2 Fairing Gussets from 3/32 scrap Balsa, using full size drawing above. Cement to wing Fuselage as described in Final Assembly.

EXHAUST PIPE DETAIL

Cut 12 Lengths of 1/8 Dowel to 3/8. Trim to shape shown, to match Stub plastic EXHAUST STACKS. Paint Black & cement in place.



WHEEL HUB DETAIL

Dotted lines on full size drawing above show shape of wheel Hub as supplied. Sand to shape shown in solid line (removing point) before installing as described in Final Assembly.

DANGER

RULES FOR SAFE FLYING

All equipment must be checked before each flight to make sure it is in good operating condition.

Fly only in a clear unobstructed area.

Model must never be flown in the vicinity of High Tension Lines or any Electrical Lines.

Model should never be flown when thunder and lightning storms are in the area.

Precautions should be taken to insure the safety of all spectators, modeler and property.

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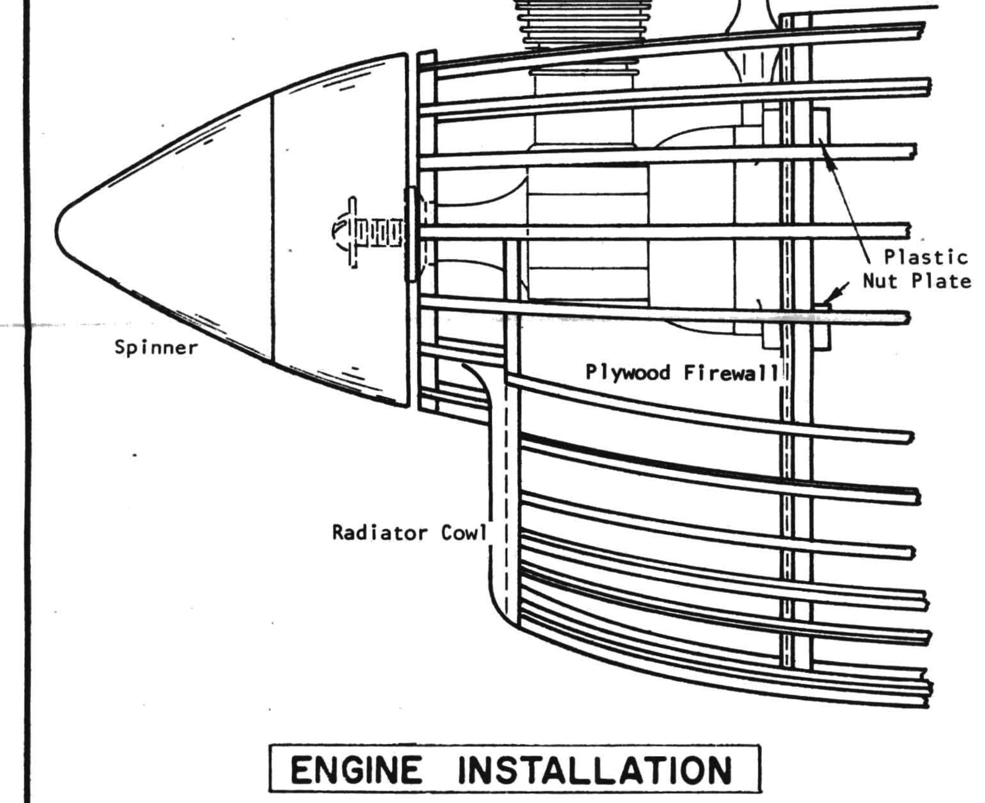
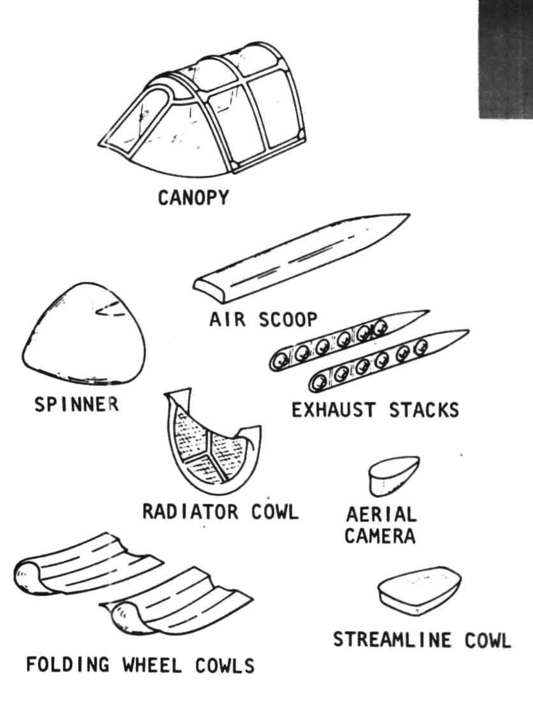
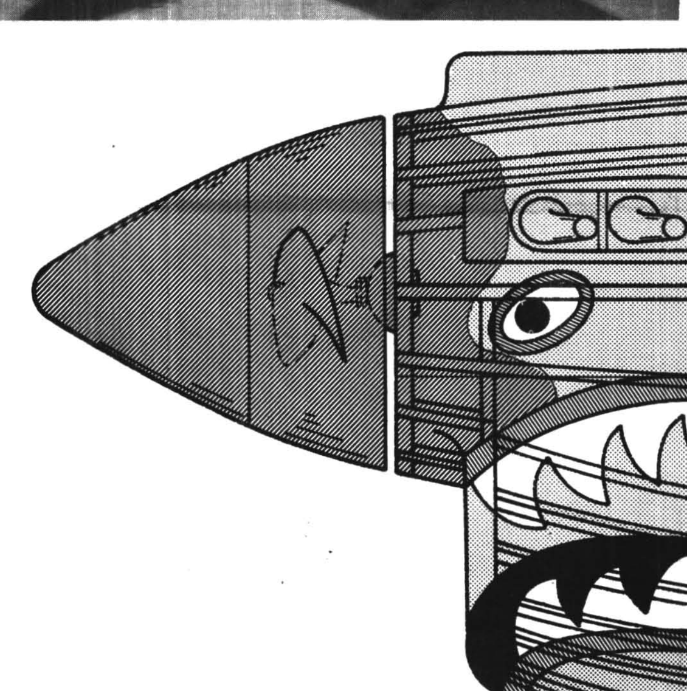
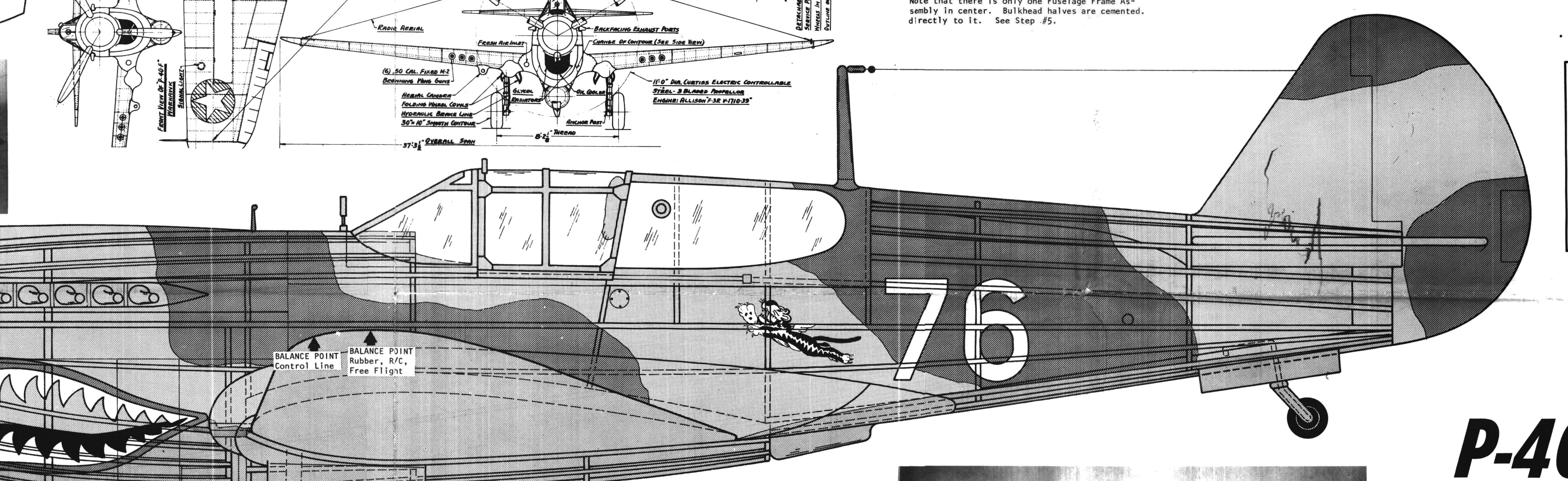
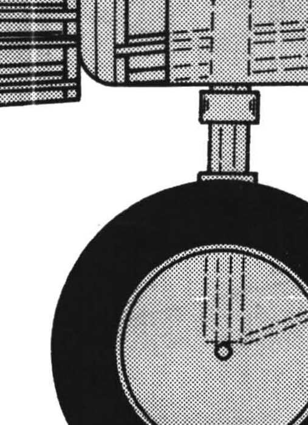










KIT E-4
SPAN 27"
SCALE ¾"=1'.0"

P-40D WARHAWK

ENGINE INSTALLATION

Engine is used if model is being built for R/C, Control Line or Free Flight Flying. Engine is not provided in kit. Drawing shows the installation of a Cox .049 Babe Bee Engine. Hole in #6 is now enlarged to permit passage of engine through front. Remove #1 back to Firewall. Mount engine to fire wall with #2 nuts and bolts (not provided) and tighten nuts securely. Cut plastic nut plates from molded sheet, trim to 1/8" around nut itself to provide gluing surface, then cement to back of fire wall over nuts, drilling hole through so that bolts can protrude. Use cement generously. Nut plate keeps nuts from turning so that engine can be removed by just unscrewing bolts, When dry, remove engine. Fuselage should be covered at least back to #11 with 1/32 or 1/16 sheet balsa. Engine is then installed after model has been painted. Cut out Air Scoop for engine clearance.

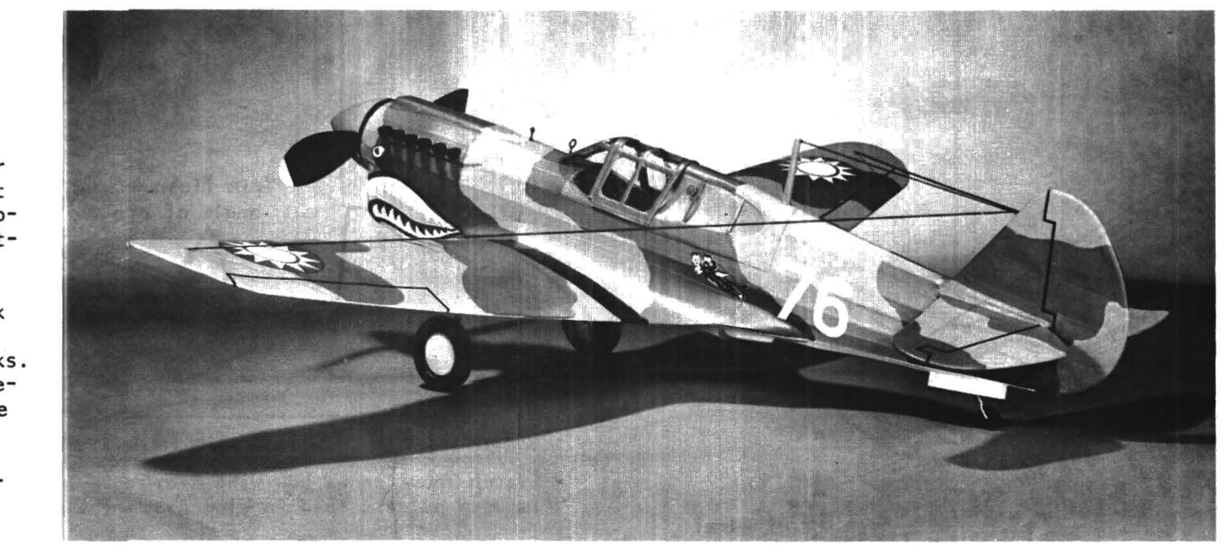
PLASTIC PARTS DETAIL

For best results, follow instructions carefully. Carefully remove all parts from Plastic Sheet. This is easily done by cutting part way thru. Then part will snap off. Scissors may also be used. When cutting, leave about 1/16 excess plastic on Part, which is then carefully trimmed and sanded off while Fitting Parts in place as described in final assembly. PAINTING: Regular plastic model paint or enamel can be used. Model airplane dope can be used only if applied if LIGHT spray coats, allowing paint to dry thoroughly between coats. Excessive use of dope may deform plastic. Parts may be used as provided, or if painting parts, apply a light coat of silver, followed by a light coat of white before painting final color. Darker paints may be applied directly to plastic. When cementing parts in place on model, use light coats of cement applied sparingly. If necessary, use more than one coat, but DO NOT APPLY A THICK COAT AT ANY TIME !

INSTRUMENT PANEL
Cut from Plan and Cement to #12

FLIGHT INSTRUCTIONS

When model has been completed, it must balance at point shown on side view. DO NOT ATTEMPT TO FLY MODEL UNTIL BALANCE HAS BEEN ACHIEVED, add weight if necessary. Check Wing and Tail. If warps have developed, remove using steam method described in Silkspan Step. Model is now ready. Pick a calm day for test flying. On Rubber-Powered models, wind Propeller clockwise and launch into any prevailing wind, slightly Nose down at a point on the ground approximately 50 ft. ahead of you. If model noses up and then falls off and stalls (AFTER MODEL WAS BALANCED), then bend Elevators down slightly, using hot breath in same manner as steam. If model dives, bend Elevators up. If model veers too much to one side, bend Rudder to opposite side. Takeoff require more power and therefore more turns in Rubber Motor. For longer flights and competition. It is recommended that the loop of rubber be lubricated with model lubricant (available at most Hobby Shops) or with Castor Oil. Apply sparingly. Use winder which you can make by tightening hook into hand drill. To store winds in motor, stretch rubber out 3 to 5 times original length, then proceed to wind, moving slowly back to model. Feeling rubber from time to time to be certain it does not get so taut that it breaks. Upon reaching the Nose, motor should be completely wound. When replacing rubber Motor, purchase contest grade T56 brown rubber at your favorite Hobby Shop. Engine powered Free-Flight models are tested and flown in same basic manner as above and is described in Flight Instructions at end of Radio Control Installation Note. GOOD LUCK AND GOOD FLYING !!!!!!



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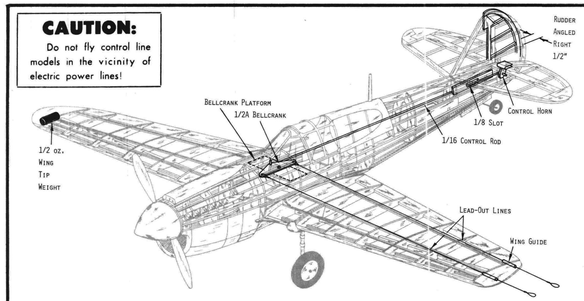
TC302M20

CAUTION:
Do not fly control line models in the vicinity of electric power lines!



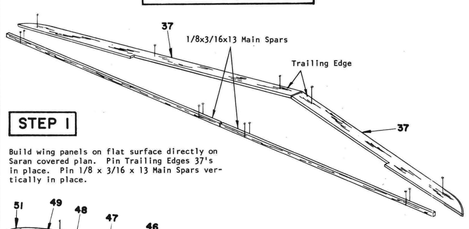
CONTROL LINE INSTALLATION

Install controls after Fuselage Step 5 has been completed. Fill area from 18 to rear with scrap 1/16 sheet balsa, flush with outside of frame;between the 2 stringers above #12. Cut 1/8 slot for control rod as shown. Cut two 22" lengths of lead-out lines (not provided in kit) and fasten them to bell crank. Mount bell crank on plywood platform as shown in Detail Sketch. Lead-out lines come through fuselage at holes drilled for them as shown. Cover fuselage with tissue as described in Detail Note. Cut stabilizer through wide main spars, as indicated by dotted lines on full size drawings. Round edges and install control horn and joiner at location shown on drawing, then join together with cloth hinges shown. Cement stabilizer to fuselage as described in Final Assembly Note. Tape elevators in neutral position (in line with stabilizer, neither up nor down). Bend 1/4" of one end of 1/16 wire for control rod at right angle. Loosen bell crank and insert rod from bottom with spur vertical, then secure bell crank, Control rod should be in line with elevator horn; if not, bend accordingly so that rod slips through slot freely. Make a right angle bend at rear end of rod at precisely the location of hole in elevator horn, with bell crank in neutral position as shown. Clip off excess and insert into horn. Solder washer on end to prevent rod from coming off. Controls are now in neutral position and must work freely and easily. Cut rudder apart on dotted lines, cement fin in place. Cement rudder to fin and rear of fuselage, angled 1/2" to outside of circle flown, as shown. Assemble wing to fuselage as described in Final assembly Detail. Cement Wing Guide Tubes securely to wing at location shown on sketch and full size drawing. Reinforce fuselage holes with washers or eyelets. Thread lines through wing guides and tie loops in end of lines at least 2" past wing tip. Lines must be of equal length when elevator is in neutral position. Control system must operate freely and easily. CAUTION: Model must balance (or slightly nose down) at point where front control line comes out of the fuselage. If necessary, add weight. Use regular 1/2A control lines when flying your P-40 Warhawk GOOD LUCK AND GOOD FLYING !

SILKSPAN TISSUE COVERING

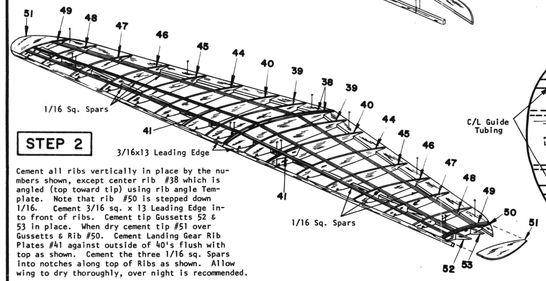
The finest grade wet strength Silkspan Tissue provided in this kit permits covering of most compound curves without wrinkling if moistened with water before applying to frame. Tissue shrinks when dry, to a tight smooth surface. Follow directions for a smoothly covered, warp-free flying model. Use clear dope to attach Tissue as follows: Apply a light coat to the outside edges of area to be covered, and allow it to dry. Cut Tissue to shape needed, plus 1/4" over size. Place Tissue on flat surface and dampen with moistened cloth. Apply a second coat of clear dope on frame, then place moistened Tissue on frame. Pull Tissue Gently with fingers, working out all wrinkles. WHEN COVERING WINGS AND TAIL SURFACES, PIN FRAMEWORK TO FLAT SURFACE TO PREVENT WARPS AS TISSUE DRIES. Cut out any wrinkled areas (bound by nearest framework) and re-cover. If model is being built as Non-Flying Scale, see detail note before covering is started. COVER WING FIRST: If model is being built for Control Line, be sure weight is added to Wing Tip (see Control Line Detail). Cement #54 & #55 to bottom center of wing as shown in bottom Fuselage detail note. Cover Top & bottom with 1 piece each allowing #54 & #55 to protrude. If any problem is encountered with wrinkles on the Tips, USE a separate piece of Tissue. COVER STABILIZER AND RUDDER NEXT: Cover both sides of each in one piece. COVER FUSELAGE NEXT: Cover sides from #6 to rear with 1 piece, from bottom of cockpit to #20 Cover top and bottom of front cowl with 2 piece joining over center, and cover top and bottom of rear of Fuselage in same manner. Apply 4 coats of thinned dope (3/4 dope, 1/4 thinner) to all Tissue covering, holding surfaces flat to prevent warpage while dope is drying. Con- any models required two additional coats of straight dope to fill pores before color dope was applied. Check Wing and Tail Surfaces for warps before assembly. Warps can be removed by holding over steam (from boiling kettle) and twisting gently in opposite direction. Check again when cool.

WING ASSEMBLY



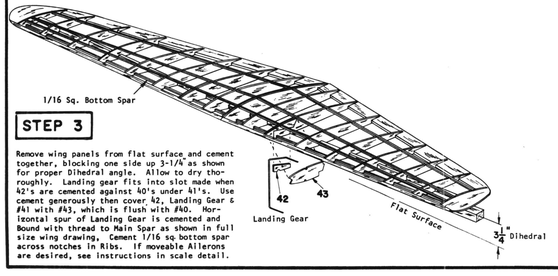
STEP 1

Build wing panels on flat surface directly on Saran covered plan. Pin Trailing Edges 37's in place. Pin 1/8 x 3/16 x 13 Main Spars vertically in place.



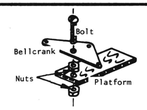
STEP 2

Cement all ribs vertically in place by the numbers shown, except center rib #38 which is angled (top toward tip) using rib angle Template. Note that rib #50 is stepped down 1/16. Cement 3/16 sq. x 13 Leading Edge into front of ribs. Cement tip Gussetts 52 & 53 in place. When dry cement tip #51 over Gussetts & Rib #50. Cement Landing Gear Rib Plates #41 against outside of 40's flush with top as shown. Cement the three 1/16 sq. Spars into notches along top of Ribs as shown. Allow wing to dry thoroughly, over night is recommended.



STEP 3

Remove wing panels from flat surface and cement together, blocking one side up 3-1/4" as shown for proper Dihedral angle. Allow to dry thoroughly. Landing gear fits into slot made when 42's are cemented against 40's under 41's. Use cement generously then cover 42, Landing Gear & #41 with #43, which is flush with #40. Horizontal spur of Landing Gear is cemented and Bound with thread to Main Spar as shown in full size wing drawing. Cement 1/16 sq.bottom spar across notches in Ribs. If moveable Ailerons are desired, see instructions in scale detail.



CONTROL ASSEMBLY

Drill 1/8" hole thru Plywood Platform. Insert Bolt thru Bellcrank and run Nut up Bolt till Bellcrank has just enough room to swing freely closed face of Nut down. Insert thru Platform and install bottom Nut closed face up. Tighten Nut towards each other leaving Bellcrank to pivot freely. Secure Nuts with solder or glue.

HINGE DETAIL

Use cloth tape for Hinges. Cement only on top and bottom, alternating Hinges as shown above. Keep cement out of Hinged area between sections.

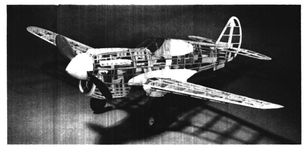
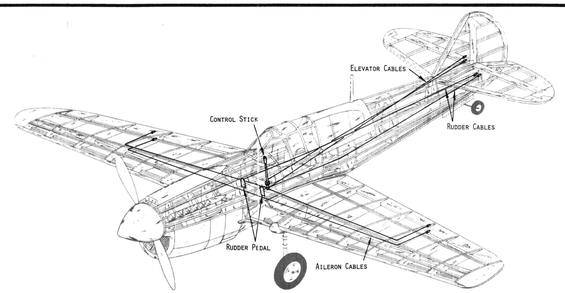
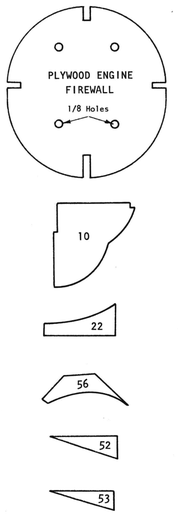


Photo Shows simple yet sturdy construction



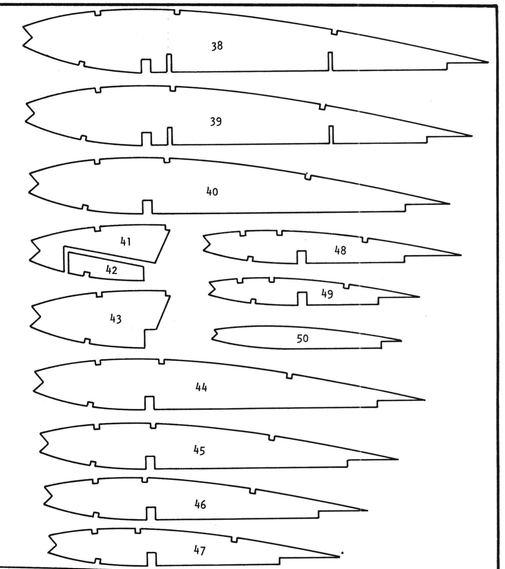
SCALE DETAIL

Multiple view drawings of the actual P-40 Warhawk reveal a real wealth of information which can be built into the model, if desired by the modeler. There are definite limitations on details if model is being built to fly; otherwise without the factor of weight involvement, etc. modeler can construct his model as detailed as he wishes. Basically, the scale outline of the full size craft has been followed accurately. The Scale outline of the Fuselage, as well as Wings and Tail are true and modeler can make whatever changes desired in the structure before covering. Plastic Parts and Decals are authentic and correct. Special overlay sketch shows installation of moveable controls from the Cockpit. Parts are mostly made from scrap Balsa and Nylon thread. Improvisation at this point by the modeler is a necessity. Reinforce area where the lines exit through Tissue covering with cardboard discs as shown. Additional structure must be installed so that Ailerons can be moveable. Kit contains 1/16 x 3/8 Strip Wood, which is cut to length and cemented between Ribs on either side of scale Aileron outlines (as shown on left side only of full size Plan) so that when Aileron is cut off of the Wing structure, there is a Leading Edge for Aileron and a Trailing Edge for Wing at that point. When dry, Ailerons are cut from Wing, then re-mounted with Hinges. Model is rigged with thin black thread. Rigging lines are shown on drawings of full size craft, as well as photograph of model on box top. A loop made in thin Wire and installed at the proper location will guide Aileron Control Lines from Wing into Fuselage. Be sure when installing Controls, that when stick and Rudder pedals are in neutral position, the Control surfaces are likewise. Propeller is painted Black color with White tips. Your comments & photographs will be welcome. Write to Sterling Models, Inc., Belfield Ave. & Wister St. Philadelphia, Pa. 19144 U.S.A.



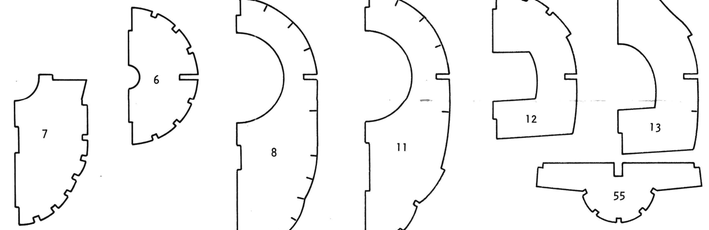
DIE CUT PART NOTE

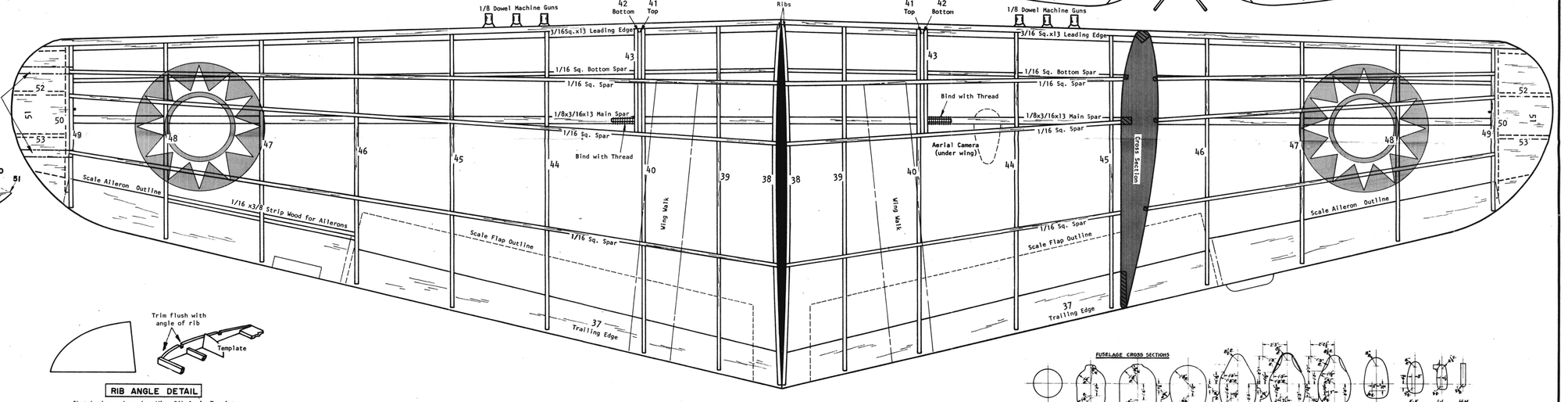
All die cut parts used in construction are given full size either on full size plan or individual layout. This will enable you to duplicate any part should it become necessary for any reason. Die cut parts contained in sheet as furnished in kit are also available from the factory as replacements.



RADIO CONTROL INSTALLATION

Because of the relatively small size of this fine scale P-40 Warhawk model, it is recommended that only the lightest Radio equipment be installed. The Ace Pulse Proportional System is a good example of lightweight equipment. None of the Radio Control Equipment or installation material is included in the kit, it must be supplied by the model builder. In order to maintain the balance point shown on side view, mount the Radio equipment in the Cockpit area. Access to this equipment is made through the cockpit, which is made removable by using tiny screws into hardwood blocks to receive them. Mount Rudder with cloth Hinges (see detail), making sure that it swings freely. Location of Hinges is shown on full size Rudder drawings. Since R/C equipment is varied, no specific installation directions can be given. Install the R/C equipment according to the R/C manufacturer's instructions. All installations for securing R/C in Fuselage should be made before covering Fuselage. When model has been completely finished, it must balance as shown on side view. If necessary; add weight, but DO NOT ATTEMPT TO FLY UNTIL BALANCE HAS BEEN ACHIEVED. Check Wing and Tail for warps. If any have developed, remove with steam method as described in Covering Instructions. Wait for calm weather for test flights. Field test R/C equipment before flying, as described in manufacturer's instructions. Start Engine and THROTTLE DOWN TO LOW SPEED, then launch model with Nose pointed slightly down at a point 50 to 60 ft. in front of you, and release at approximate flying speed. Model should fly in straight line and either maintain or slightly lose altitude. If model turns to either side, Rudder or Engine may be offset to opposite side to achieve a straight flight, which is how it should glide and fly, if model glides well, but stalls under power, point front of Engine down (down Thrust) by placing Shim under top of Fuel Tank. Increase Engine RPM as adjustments are made, checking R/C controls before each flight. GOOD LUCK! GOOD FLYING!





RIB ANGLE DETAIL

Sketch above shows how Wing Rib Angle Template is used as described in Wing Assembly.

TAIL ASSEMBLY

Tail Surfaces are built directly over Plan. Pin all parts to Plan by the number as shown, cementing them together where they join. Cut 1/16 x 3/32 Strips to fit, and cement in place upright. Rudder is built in same manner. Allow units to dry thoroughly on flat surface, then sand smooth, rounding edges (except for front of #36 & #28 and bottom of #23), as shown in cross section. If model is being constructed for Control Line or Radio, see respective detail notes BEFORE COVERing with Tissue as described in Silkspan note.