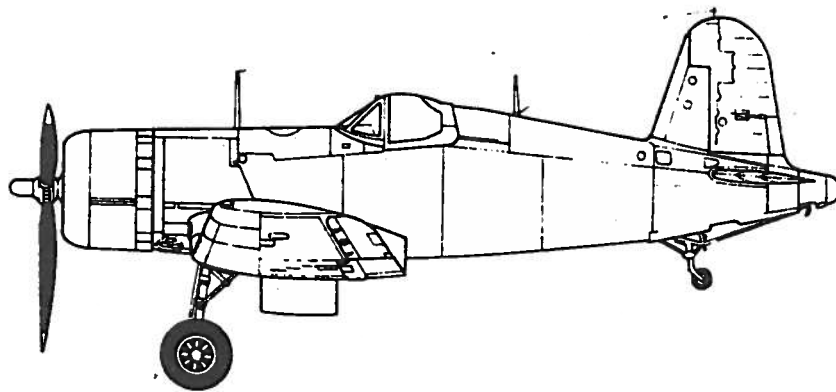


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CONGRATULATIONS ON HAVING JUST PURCHASED ONE OF THE FINEST SCALE MODEL KITS AVAILABLE TODAY.

THERE IS A GREAT DEAL OF INDIVIDUAL DETAIL TO BE TAKEN CARE OF PRIOR TO GLUING A TO B SO SIT BACK, RELAX AND CONSIDER THE FOLLOWING PRELIMINARIES.

YOUR CHOICE OF THIS KIT WAS INITIALLY MOTIVATED BY SOME PRIOR EXPERIENCE OR PREFERENCE FOR THIS PARTICULAR MODEL. PERHAPS IT IS A REAL PLANE OF THE SAME DESIGN YOU HAVE FLOWN OR MAYBE OWN NOW. THE POINT IS, RIGHT NOW, ONLY YOU ARE FAMILIAR WITH THAT FEELING. HAVEN'T YOU NOTICED THAT WHEN YOU SPEAK OF THIS BEAUTIFUL SCALE JOB THERE IS THE CASUAL INDIFFERENT LOOK ON YOUR COMPANION'S FACE? WOULD YOU BELIEVE THE SAME INDIFFERENT FEELING COULD BE IN THE JUDGE'S MIND AS HE INSPECTS THIS BEAUTY YOU WILL CREATE? 'TIS POSSIBLE, ISN'T IT?

THE ABSOLUTE FIRST THING YOU MUST DO AT THIS VERY TIME IS DETERMINE WHETHER THIS IS TO BE THE "ULTIMATE SCALE JOB" OR AN "EYEBALL SCALE". IF YOU CHOOSE "EYEBALL SCALE", WHICH IS JUDGED FROM 25 FEET AWAY, THEN YOU MAY AS WELL TURN TO CONSTRUCTION TECHNIQUES AND START BUILDING! HOWEVER, IF YOUR CHOICE IS "ULTIMATE SCALE", THEN YOUR PROJECT HAS NOT YET BEGUN.

THE NEXT DECISION YOU MUST MAKE IS WHICH PARTICULAR TYPE, MODEL AND SERIES YOU INTEND TO DUPLICATE TO THE NTH DEGREE. THE TYPE (THAT IS BomBER, FIGHTER, ETC.) HAS ALREADY BEEN DECIDED AS YOU BOUGHT THE KIT. THE MODEL (THAT IS 24-25-26 ETC) MAY NEED TO BE YOUR CHOICE AS FOR INSTANCE, THERE IS NO EASILY RECOGNIZABLE DIFFERENCE BETWEEN A B-44 AND A B-50. THE SERIES VARY WIDELY AND YOU WILL NEED TO MAKE THIS DECISION YOURSELF. FOR INSTANCE THERE IS VERY LITTLE DIFFERENCE BETWEEN A B-52B, B-52C, B-52D AND B-52E TO THE CASUAL OBSERVER, BUT TO THE TRAINED EYE OF A COMPETITION SCALE JUDGE THIS MAKES THE FIRST GREAT DIFFERENCE.

ONCE YOUR CHOICE HAS BEEN MADE AS TO EXACTLY WHICH TYPE, MODEL AND SERIES YOU WILL BUILD, YOUR NEXT TASK WILL BE TO COMPLY WITH THE "SCALE PRESENTATION". BY THIS I MEAN YOU MUST ASSEMBLE AND ARRANGE THE "PROOF" YOU INTEND TO USE, TO THOROUGHLY CONVINCE THE JUDGE THAT YOURS IS THE BEST OF THE BUNCH! KEEP IN MIND THAT YOU CAN'T "TALK" HIM INTO IT SO EXTRA EFFORT SPENT AT THIS STAGE REAPS GREAT BENEFITS LATER.

START WITH AN ACCURATE, AUTHENTIC 3-VIEW DRAWING PREFERABLY FROM THE MANUFACTURER, AND WHICH GIVES DIMENSIONS OF THE REAL PLANE. IF NOT AVAILABLE, THEN SUCH GREAT WORKS AS THE COMMERCIAL SCALE 3-VIEWS BY NIETO, NYE, WYLAM, SUPERSCALE, ETC. ARE ACCEPTABLE. I KNOW THIS BECAUSE I JUST READ IT IN THE CURRENT AMA MODEL AIRCRAFT REGULATIONS BOOK WHICH INCIDENTALLY IS THE BOOK BY WHICH YOUR EFFORT WILL BE RATED. NEEDLESS TO SAY, BEFORE YOU GO ANY FURTHER, GET REAL FAMILIAR WITH THE RULES FOR SCALE.

ONE MORE WORD OF ADVICE ABOUT THE "SCALE PRESENTATION". THE BETTER IT LOOKS, THE BETTER YOUR SCORE WILL BE SO DON'T CUT CORNERS OR GO SECOND CLASS! 'NUFF SAID?

NOW THAT YOU'VE ASSEMBLED THE 3-VIEW, TECH DATA, PICTURES AND REFERENCES AND CONSTRUCTED A WELL ORGANIZED, WELL PLANNED, EYE APPEALING PRESENTATION, YOU MUST STUDY, COMPARE, MEASURE AND CAREFULLY PLAN THE MODEL YOU WILL BUILD.

FIRST, SELECT THE SCALE RATIO YOU WILL USE. THIS HAS BEEN APPROXIMATED IN OUR KITS BECAUSE THERE ARE SO MANY VARIANTS BETWEEN EACH DIFFERENT SERIES OF THE BASIC AIR PLANE. YOU MAY CHOOSE THE SERIES WHICH IS CLOSEST TO OUR KIT - STILL YOU WILL HAVE TO MAKE ADJUSTMENTS, PERHAPS AN INCH IN WINGSPAN, 1/2 INCH IN LENGTH OR SO ON. THE POINT IS--THIS IS THE TIME TO PLAN FOR THESE ADJUSTMENTS AND THEY MUST ALL BE THE SAME RATIO FOR MAXIMUM POINTS.

THE EASIEST WAY TO DO THIS IS TO OBTAIN A PAIR OF "PROPORTIONAL" DIVIDERS. THIS IS A TOOL WITH A MOVEABLE PIVOT IN THE MIDDLE AND WHEN OPEN LOOKS LIKE AN "X" WITH NEEDLE POINTS AT EACH TIP. WITH THESE YOU MAY SET THE "RATIO" SO THAT MEASURING WITH ONE END OFF THE 3-VIEW WILL GIVE THE DESIRED MEASUREMENT AT THE OTHER END. CAREFULLY ADJUST THE DRAWINGS WE'VE PROVIDED TO EXACTLY MATCH THE 3-VIEW YOU WILL USE.

NEXT, CAREFULLY STUDY THE MATERIAL YOU'VE GATHERED AND MAKE NOTE OF EXACTLY WHICH DETAILS YOU WILL INCLUDE ON YOUR MODEL AND WHERE AND HOW THEY WILL BE INCORPORATED. FOR INSTANCE, DO YOU PLAN ON FLAPS? RETRACTABLE GEAR? LIGHTS? THOUSANDS OF TECHNIQUES ARE INCLUDED IN MAGAZINES AND COLUMNS WHICH ARE DEVOTED TO SCALE CONSTRUCTION TECHNIQUES SO I'LL LEAVE YOU TO HUNT UP ALL THAT FOR YOURSELF.

WE WILL NOW CONSIDER THE BASIC AIRPLANE AND THEN IT'S CONSTRUCTION.

THE F4U CORSAIR

THIS AIRCRAFT IS KNOWN AS OLD "HOG NOSE" (A TERM OF ENDEARMENT) OR WHISTLING DEATH (FROM THE SOUND OF AIR RUSHING THROUGH THE INTAKES IN THE WING LEADING EDGE). THE FIRST CORSAIR WAS FLOWN IN 1940 AND THE FRENCH NAVY (FOR ONE) STILL FLYS THEM TODAY. THE LAST ONE WAS BUILT AND DELIVERED TO THE FRENCH IN 1964---SO WITH LITTLE EFFORT YOU SHOULD BE ABLE TO OBTAIN CURRENT DETAILED DRAWINGS AND SPECIFICATIONS FOR ONE PARTICULAR PLANE.

A MAGAZINE ENTITLED AIRPOWER, VOL. 1 NO.1 DATED SEPTEMBER 1971, HAS A FEATURE STORY ON THE F4U WHICH IS A MUST FOR ANYONE PLANNING A SUPER DETAIL SCALE PROJECT. THE STORY IS WRITTEN BY A MAN NAMED BOONE GUYTON WHO FLEW THE EXPERIMENTAL MODELS. IN HIS TEXT, MANY INTERESTING FACTS ARE ENTWINED WITH NOSTALGIC MEMORIES, WHICH INCLUDING THE COVER, SPANS 17 PAGES. THERE ARE ALSO MANY PICTURES, DETAIL DRAWINGS AND COLOR THREE VIEWS TO SUPPLEMENT THE WORDS.

THE FOLLOWING SPECIFICATIONS AND FACTS ARE EXTRACTED FROM THIS MAGAZINE TO SERVE AS A GUIDELINE FOR YOUR PROJECT:

SPECIFICATIONS

TYPE MODEL AND SERIES -- RANGE FROM F4U6 - F4U-7

POWER-- PRATT & WHITNEY R-2800 RADIAL DRIVING THREE OR FOUR BLADED PROPELLER.

ARMAMENT: THREE .50 CAL, ONE .30 CAL, 10 LIGHT BOMBS OR TWO 1,000 POUND BOMBS.

TOP SPEED -- 420 MPH PLUS (432 MPH STRIPPED CLEAN)

COMBAT RANGE AND ALTITUDE -- 1,000 MILES AT 20,000 FT.

THERE IS A BEAUTIFUL SIDE VIEW IN COLOR OF THE CORSAIR WHICH WAS FLOWN BY ONE OF AMERICA'S GREAT WAR ACES. THE CAPTION IS QUOTED BELOW:

".....FLOWN BY MAJOR GREGORY "PAPPY" BOYINGTON, SKIPPER OF VMF-214, AFTER OCTOBER 17, 1943 RAID ON KAHILI AIRFIELD, SOLOMANO. LULUBELLE WAS LAST PERSONAL AIRCRAFT WHICH MARINE ACE FLEW. IT IS SHOWN HERE WITH 20 KILL MARKS. (ED. NOTE THESE ARE SMALL JAPANESE SUNBURST FLAGS BELOW COCKPIT ON LEFT SIDE).....BOYINGTON WAS SHOT DOWN WITH HIS WINGMAN IN A CORSAIR BORROWED FROM ACE MARION CARL ON JANUARY 3, 1944. IN HIS LAST FLIGHT HE SHOT DOWN THREE ENEMY AIRCRAFT BRINGING HIS SCORE TO 28....."

VOUGHT-SIKORSKY XF4U-1

A HEAVY LONG RANGE FIGHTER. "THE FASTEST AIRPLANE IN THE UNITED STATES TODAY" (ED. NOTE, 1941). DESIGNED FOR HIGH ALTITUDE OPERATION, THE NEW VOUGHT OUTSPEEDS OTHER MODELS ON THE UPPER LEVELS (35,000 FEET AND ABOVE). HER 18 CYLINDER "DOUBLE WASP" DEVELOPS 2,000 H.P. ON TAKE-OFF THOUGH NORMALLY RATED AT 1,850. PERFORMANCE FIGURES ARE RESTRICTED. THE XTBU-1 TORPEDO-BOMBER MAY BE A THREE PLACE MODIFICATION OF THE XF4U-1 DESIGN.

ALL THE ABOVE AND BELOW INFORMATION IS FROM A BOOK ENTITLED "THE SHIPS AND AIRCRAFT OF THE U.S. FLEET" BY JAMES C. FAHEY C. 1941.

PAGE 25 TABLE LAST LINE DIVULGES THE FOLLOWING:

<u>MODEL TYPE</u>	<u>MANUFACTURER</u>	<u>FIRST ORDER</u>	<u>FIRST DELIVERY</u>
XF4U-1	VOUGHT-SIKORSKY	1938	1940

<u>GROSS WT.</u>	<u>LENGTH</u>	<u>SPAN</u>	<u>ENGINE</u>
9,000 LBS.	30'	40'	PRATT & WHITNEY R-2800

<u>HORSEPOWER</u>	<u>TOP SPEED</u>
1,850	400 UNOFFICIAL

THE NAVY SINGLE SEAT FIGHTERS, COMPARABLE TO THE ARMY'S PURSUIT CRAFT, WERE TOPS IN GUNNERY AND PERFORMANCE. PRIMARY MISSIONS: CONTROLLING THE AIR OVER COMBAT AREAS, DESTROYING ENEMY SPOTTERS AND PROTECTING FRIENDLY PLANES AND VESSELS. SECONDARY MISSION: ATTACKING ENEMY SURFACE AND SUBSURFACE CRAFTS, EXPOSING PERSONNEL AND VITAL CONTROLS WITH MACHINE GUN FIRE, LIGHT CANNON OR SMALL BOMBS.

F4U 1D CORSAIR BUILDING INSTRUCTIONS

CONSTRUCTION OF THE CORSAIR IS NOT DIFFICULT BUT THE MODEL IS COMPLICATED AND WILL REQUIRE ATTENTION TO DETAIL AND ALIGNMENT. DUE TO THE COMPLEX CURVES INVOLVED MUCH OF THE MODEL MUST BE BUILT FREE-HAND. ONE'S TASK IS MADE MUCH EASIER THROUGH THE USE OF SEVERAL OF THE NEW ADHESIVES AVAILABLE. ZAP AND HOT STUFF HOLD BALSA PARTS AND SET VERY QUICKLY. (WE RECOMMEND A SMALL FILLET OF ALIPHATIC RESIN GLUE OVER THE CYANOACRYLATE JOINTS), 5-MINUTE EPOXY MAY BE USED SPARINGLY ON PLY PARTS. KEEP IN MIND THAT EPOXY IS HEAVY SO A LIGHT COAT IS HIGHLY ADVISABLE. CONTACT CEMENT MAY BE USED TO SPEED THE ATTACHMENT OF THE WING SKINS.

SEPARATE THE KIT PARTS INTO THE PRIMARY ASSEMBLY GROUPS -- FUSELAGE, WING, STAB, AND FIN. TRIAL FIT THE PARTS WHILE STUDYING THE PLANS AND CONSTRUCTION VIEWS. NOTE THOSE PIECES THAT CAN BE PINNED FLAT DURING CONSTRUCTION AND THOSE WHICH MUST BE BUILT FREE-HAND. BE SURE TO SPEND SEVERAL EVENINGS FAMILIARIZING YOURSELF WITH CONSTRUCTION.

DRAW CENTERLINES ON THE WING, FIN, AND STAB RIBS TO FACILITATE ALIGNMENT DURING CONSTRUCTION.

FIN AND RUDDER

1. MARK LOCATION OF RIBS ON V-8 AND V-7. GLUE RIBS V-2, 3, 4, PERPENDICULAR TO V-8 ON V-8. ADD V-5, V-6 AND V-7. WHEN DRY TAPER V-7 FOR THE V-1 PLANKING AND GLUE V-1'S IN PLACE.
2. LIGHTLY SAND LEADING EDGE SQUARE AND GLUE V-9 IN PLACE.
3. MARK THE LOCATION OF THE RIBS R-2 THRU 6 ON ONE R-1 SHEET. PIN THE SHEET TO THE WORKSURFACE.
4. GLUE R-2 THRU 6 IN PLACE. ALSO ADD R-8.
5. WHEN DRY ADD REMAINING R-1 SHEET.
6. SQUARE LEADING EDGE OF RUDDER AND GLUE R-7, 9, 10 IN PLACE.
7. SAND FIN AND RUDDER TO FINAL SHAPES.

STABILIZER AND ELEVATOR

1. MARK THE LOCATION OF S-1, 6, 7, 8, 9 AND 12 ON S-3.
2. PIN S-3 TO WORKSURFACE WITH THE SIDE TO WHICH THE RIBS ATTACH FACING UP. GLUE S-1 IN PLACE AND THEN ADD AN S-5 ON EACH SIDE. USE A SMALL RIGHT TRIANGLE WHEN GLUING RIBS IN PLACE AND BE SURE THE CENTERLINES ARE PERPENDICULAR TO S-3.
3. GLUE S-9'S IN PLACE. BE SURE THERE IS NO SWEEP FROM S-5 TO S-9. THE LEADING EDGE MUST BE STRAIGHT.
4. GLUE FOUR S-12'S IN PLACE AND THEN ADD S-6, 7, AND 8.
5. BEVEL S-2'S FOR CENTER JOINT AND GLUE IN PLACE.

6. WHEN DRY, UN-PIN AND CAREFULLY GLUE THE S-4 SHEETING IN PLACE. BE SURE NOT TO WARP STAB.
7. TRIM ANY OVERHANG AND GLUE S-11'S AND S-10'S IN PLACE.
8. SAND STAB TO SHAPE.
9. GLUE E-2 AND 3 IN PLACE ON EACH E-1 PIECE.
10. WHEN DRY, SAND TO SHAPE, CUT HINGE SLOTS AND DRILL HOLES FOR ELEVATOR TIE-ROD.

WING

1. THOROUGHLY FAMILIARIZE YOURSELF WITH THE NUMEROUS DETAILS CONCERNING THE WING STRUCTURE. THE WING MUST BE BUILT USING THE SPARS FOR ALIGNMENT, CONSEQUENTLY, THE WING MUST BE BUILT FREE-HAND. CHECK THE ALIGNMENT CONTINUALLY DURING CONSTRUCTION.
2. GLUE THE W-14 AND W-13 SPARS TOGETHER BEING SURE TO MAKE ONE RIGHT AND ONE LEFT ASSEMBLY. BE SURE THE RIB NOTCHES ARE ALIGNED AND THE UPSWEEP TO THE TIPS ARE IDENTICAL.
3. CUT THE AILERON PUSHROD HOLES IN RIBS W-1 THRU W-8.
4. JOIN SPAR ASSEMBLIES WITH W-31. GLUE W-15 SPARS TOGETHER WITH W-32.
5. WHEN ABOVE IS DRY, GLUE THE RIBS INTO POSITION ON SPARS. ADD ONE PAIR OF RIBS AT A TIME BEGINNING WITH W-1. STICK PINS INTO THE ENDS OF THE RIBS, PARALLEL AND ON THE RIB CENTERLINES. SIGHT DOWN THE PINS TO CHECK ALIGNMENT. CONTINUE AND ADD RIBS W-2 THRU W-12. ALLOW TO DRY COMPLETELY. REMOVE PINS.
6. GLUE W-16 AND W-17 TRAILING EDGE SHEETING IN PLACE. BE SURE TO BEVEL THE AFT EDGE OF THE SHEET FOR A SMOOTH JOINT AT THE TRAILING EDGE. CHECK THAT THE TRAILING EDGE IS NOT DISTORTED AS THE SHEET IS APPLIED.
7. WHEN SHEET IS DRY, GLUE W-3D A, W-18'S AND W-19'S IN PLACE.
8. SANDWICH 1 W-23 BETWEEN 2 W-22'S TO FORM THE GEAR BLOCK. CHECK THE SIDE VIEW TO BE CERTAIN THE PROPER GEAR ANGLE IS OBTAINED.
9. GLUE ASSEMBLY IN PLACE AND ADD THE W-38 BLOCKS. ALSO ADD THE TRIANGLE STOCK SUPPORTS.
10. INSTALL BELLCRANKS ON SUPPORTS W-35'S AND THEN GLUE INTO WING. INSTALL AILERON PUSHROD AT THIS TIME.
11. MEASURE CAREFULLY AND CUT-OUT AILERONS. BE SURE TO REMOVE ONLY THE SHADED PORTIONS AS INDICATED ON THE PLANS.
12. BOLT AILERON HORNS TO W-40'S AND GLUE INTO AILERONS. ADD W-39'S AND W-26'S.
13. GLUE W-27'S INTO WING. ADD W-25'S AND W-28'S.
14. TEMPORARILY HINGE AILERONS AND INSTALL REMAINING AILERON PUSHRODS. BE SURE ALL IS CORRECT.

15. ADD REMAINING WING SKINS EXCEPT FROM W-3 TO W-6 AND THE CENTERSECTION PLANKING. THE SKIN FROM W-3 TO W-6 HAS THE GRAIN RUNNING SPANWISE. BE SURE TO OBSERVE THIS GRAIN RECOMMENDATION.
16. WHEN READY TO SHEET THE AREA FROM W-3 TO W-6, WET ONE SIDE OF THE STRIPPING AND IT WILL CURL. IT IS THEN EASIER TO SHEET THE CURVED AREAS.
17. AFTER STEP 16 IS COMPLETE, ADD W-29's, W-20A's, W-20B's AND W-21's. TRIM TIPS AND ADD W-24's.
18. CUT W-1A TO FIT AND INSTALL IN THE CENTER SECTION. GLUE W-33 IN PLACE AND THEN ADD THE CENTERSECTION PLANKING. RELIEVE SHEET FOR AILERON SERVO.
19. RELIEVE PLANKING AND INSTALL W-36 AND W-37.

FUSELAGE

1. FUSELAGE CONSTRUCTION MUST ALSO BE ACCOMPLISHED FREE-HAND. AGAIN, CHECK AND RECHECK ALIGNMENT AS THE FRAMEWORK AND SKINS ARE CONSTRUCTED.
2. TRIAL FIT F-2, F-3's, F-4, F-5, F-6, F-7, AND F-1 ON THE F-35 STRINGERS. WHEN SATISFIED, GLUE THE BULKHEADS IN POSITION. ALLOW TO SET, 5-MINUTE EPOXY IS HIGHLY RECOMMENDED.
3. GLUE THE 3/16" SQUARE STRINGER ON TOP OF BULKHEADS F-2 THRU F-6.
4. INSTALL BOTH F-12's. BE SURE TO ORIENT THE STRINGERS PROPERLY.
5. GLUE F-33's BETWEEN F-6 AND F-7 AND ON TOP OF THE F-12's. FOLLOW BY ATTACHING THE COCKPIT FLOOR, F-32.
6. GLUE F-25 IN PLACE ON THE RIGHT TOP SEGMENT OF F-4.
7. ADD THE F-13's BETWEEN F-1 AND F-3. GLUE EM's IN PLACE (F-1 THRU F-3's) AND BE CERTAIN RIGHT THRUST IS BUILT INTO THE MOUNTS.
8. GLUE F-8, 9, 10, 7B AND THE BOTTOM STRINGER IN PLACE. BE CERTAIN THE FUSE IS SQUARE AND NOT TWISTED. NOTE THE SLANT IN F-7B. GLUE F-14 IN PLACE. FOLLOW WITH THE F-15's AND THE TOP STRINGER.
9. TRIM THE AFT ENDS OF F-12's AS SHOWN.
10. GLUE THE F-16A DOUBLERS TO F-16's. BE SURE TO MAKE ONE RIGHT AND ONE LEFT ASSEMBLY.
11. SKIN THE FUSELAGE IN THE FOLLOWING SEQUENCE: F-16's, F-16B's, F-17's, F-18, F-19, AND FINALLY THE F-24's. TRIM THE SHEETS TO FIT, THEN HOLD IN PLACE WITH TAPE. BE SURE NOT TO DISTORT THE STRUCTURE WHEN GLUING SKINS IN PLACE.
12. GLUE F-11 IN PLACE.
13. ATTACH THE TAILWHEEL ASSEMBLY AND PUSHROD TO F-10 AND THEN ADD THE F-20 SKIN. BE SURE THE TAILWHEEL LINKAGE IS CORRECT BEFORE THE F-20 SKIN IS ADDED.
14. GLUE TB-3's AND TB-4 IN PLACE. ADD TB-5 AND TB-6.

15. GLUE TB-1'S AND TB-2 TOGETHER WITH THE TRIANGLE STOCK DOUBLERS. TACK GLUE TO FUSE FOR CARVING AND SANDING. BREAK LOOSE WHEN SANDED AND ADD DURING FINAL ASSEMBLY.
16. GLUE THE NOSE RING IN PLACE ON THE FACE OF F-2 / F-3. BE SURE F-22 IS ON TOP. THE REST OF THE RING IS COMPOSED OF 3 F-23 PIECES.
17. GLUE F-22A IN PLACE. ADD F-22B AND THE HARDWOOD SCREW BLOCK.
18. GLUE F-21 IN THE SLOT OF F-27. ADD F-26 PLY ON EITHER SIDE OF F-21. DO NOT GLUE F-26 / 27 ASSEMBLY TO FACE OF F-3 UNTIL FINAL ALIGNMENT.
19. SAND FUSELAGE TO SHAPE.

FINAL ASSEMBLY

1. REFER TO ALIGNMENT INSTRUCTIONS BEFORE PROCEEDING.
2. PIN AND TAPE WING AND STAB IN PLACE AND BE SURE INCIDENCES ARE CORRECT.
3. GLUE STAB IN PLACE. WHEN SET, ADD TAIL BLOCK GROUP.
4. WITH WING IN PROPER POSITION GLUE W-30B AND W-30C IN PLACE.
5. DRILL BOLT HOLES THRU WING AND INSTALL REAR HOLD-DOWN BOLTS AND BLOCKS.
6. DOUBLE CHECK WING ALIGNMENT AND WHEN SATISFIED, GLUE THE F-26 / 27 ASSEMBLY IN PLACE. THE F-21 TONGUE ENGAGES THE SLOT IN W-30C TO MAINTAIN ALIGNMENT.
7. GLUE R-11 IN PLACE. GLUE FIN IN PLACE BEING SURE TO PRESERVE ALIGNMENT.
8. WITH WING IN PLACE ON FUSELAGE GLUE F-27A, F-28, F-29, AND THE STRINGER ON THE WING BOTTOM. ADD THE F-30 AND F-31 SHEET.
9. ADD FILLETS, DRILL ANTENNA HOLES AND FINISH SAND THE ENTIRE AIRFRAME.

AIRCRAFT ALIGNMENT

THIS SHEET IS INCLUDED AS AN ADDITION TO THE NORMAL INSTRUCTIONS IN HOPES THAT YOU MAY BENEFIT FROM THE INFORMATION IT CONTAINS. THE TIME IT TAKES TO ACCURATELY ALIGN AN AIRPLANE IS REPAYED MANY, MANY TIMES BY THE SUPERIOR PERFORMANCE OF THE AIRCRAFT.

ALL ALIGNMENT INFORMATION IS INCLUDED ON THE PLANS. NOTE THAT WING AND STAB ANGLES, THRUST ANGLES, ETC., APPEAR NEAR THEIR COMPONENT LOCATIONS. GENERALLY, THE ANGLES ARE REFERENCED TO A FUSELAGE CENTERLINE WHICH IS ALSO DRAWN ON THE PLANS.

MOST ANGLES ARE EXPRESSED IN DEGREES OF ANGULAR OFFSET. DON'T LET THIS STOP YOU FROM USING THEM! THE LEAST EXPENSIVE CONVERSION METHOD IS TO BORROW AN ALGEBRA BOOK WHICH HAS TRIGONOMETRY SECTIONS. USE THE FORMULAS TO CONVERT THE DEGREES TO FRACTIONS OF AN INCH OF OFFSET. THE EASIEST METHOD IS TO USE A ROBART INCIDENCE METER. THIS DEVICE IS CALIBRATED IN DEGREES AND ALLOWS DIRECT READINGS OF THE INCIDENCE ANGLES.

THE FIRST STEP IN ALIGNING THE AIRCRAFT IS TO TRANSFER THE CENTERLINE TO THE FUSE SIDES. USUALLY THE CENTERLINE RUNS PARALLEL TO A MAJOR PIECE OF THE FUSE SUCH AS THE TOP EDGE OF THE SIDE. USE A FELT TIP PEN AND DRAW A LINE PARALLEL TO THE CENTERLINE ABOVE THE WING SADDLE AND BELOW THE STAB SADDLE.

NEXT, MARK THE CENTERLINES OF THE LEADING AND TRAILING EDGES ON THE STAB AND WING. MAKE A TEMPLATE FROM THE PLANS TO TRANSFER THIS LOCATION.

PLACE THE FUSE ON THE WORKBENCH AND BLOCK UP SO THAT THE CENTERLINE IS PARALLEL TO THE TABLE TOP. NOW PLACE THE STAB IN ITS SADDLE AND TRIM AND SKIM IT UNTIL THE LEADING AND TRAILING EDGES ARE AT THE REQUIRED DIFFERENT ANGLES. LET'S SAY THE PLANS CALL FOR 1° 16' POSITIVE INCIDENCE. THAT MEANS THE CENTER OF THE LEADING EDGE IS 1° 16' HIGHER (REFERENCED TO THE TOP) THAN THE CENTER OF THE TRAILING EDGE. IT MAKES NO DIFFERENCE HOW FAR UP THE TRAILING EDGE IS FROM THE WORK SURFACE--JUST MAKE THE LEADING EDGE 1° 16' HIGHER. THE STAB MAY HAVE POSITIVE, NEGATIVE, OR NO INCIDENCE DEPENDING ON THE DESIGN.

ALIGN THE WING THE SAME WAY. A METHOD TO USE, WHERE DOWELS ARE EMPLOYED ON THE LEADING EDGE, IS TO DRILL THE DOWEL HOLES IN THE BULKHEAD HIGHER THAN NECESSARY (TOWARD THE TOP OF THE FUSE IN A LOW WING DESIGN). NOW, WHEN THE WING IS PUT IN PLACE, THE TRAILING EDGE WILL STICK UP OFF THE WING SADDLE. USING A RAT TAIL FILE, ELONGATE THE HOLES DOWNWARD UNTIL THE WING IS AT THE CORRECT INCIDENCE. IF THERE IS A GAP ALONG THE WING SADDLE USE BALSA, PLY, OR FILLER TO CLOSE. IF YOU WANT TO USE WING SEATING TAPE, BE SURE TO MAKE ALL YOUR MEASUREMENTS WITH THE TAPE IN PLACE.

THE WING AND STAB MUST ALSO BE CHECKED TO BE SURE THEY HAVE THE SAME LENGTH EXTENDING OUT FROM THE FUSELAGE. USE A BALSA STICK OR YARDSTICK AND BE SURE THAT IF THE TOTAL WINGSPAN IS 70" THAT 35" MINUS 1/2 THE FUSE WIDTH, EXTEND ON EACH SIDE OF THE FUSELAGE.

NEXT, BE SURE THE WING AND STAB ARE NOT SKEWED ON THE FUSELAGE OR TO EACH OTHER. USE A PIECE OF NON-STRETCHABLE STRING AND TIE A LOOP IN ONE END. PIN THROUGH THE LOOP ATTACHING THE STRING IN THE EXACT CENTER OF THE FUSELAGE. FOR THE WING ATTACH NEAR THE TAIL. (NEAR NOSE FOR STAB) MEASURE OUT TO ONE TIP AND THEN GO TO THE OTHER TIP. IT MUST BE THE SAME DISTANCE. DO THIS FOR THE WING AND STAB.

THE LAST THING TO CHECK IS THAT THE WING AND STAB ARE NOT TILTED. CAREFULLY SIGHT FROM THE FRONT AND BE SURE THAT ONE TIP OF THE STAB DOES NOT DROOP LOWER THAN THE OTHER.

AS YOU CAN SEE, THESE 5 PARAMETERS MUST BE COMPLETED TAKING INTO ACCOUNT THE OTHER 4 AS ONE IS BEING WORKED UPON. USUALLY, WE ESTABLISH THE STAB INCIDENCE, EQUAL EXTENSION, SKEWNESS FIRST, AND THEN GLUE THE STAB IN POSITION WHILE SIGHTING FROM THE FRONT WITH A STRAIGHT ROD RESTING ON THE WING SADDLE.

THE LAST DIFFICULT AREA IS THE FIN AND RUDDER. BE SURE THE FIN IS PERPENDICULAR TO THE STAB. A LARGE RIGHT TRIANGLE IS NECESSARY FOR THIS STEP. ALSO, SIGHT CAREFULLY FROM THE FRONT TO BE SURE THAT THE FIN IS IN LINE WITH THE TOP CENTERLINE. SIGHT FROM THE FRONT AND MAKE SURE YOU SEE THE SAME AMOUNT OF EACH SIDE OF THE FIN.

MOTOR OFFSET IS DIFFICULT TO MEASURE. IF THE ROBART GAUGE IS USED, IT IS EASY. IN CASE YOU DON'T USE THE GAUGE, ABOUT THE BEST METHOD IS TO DRAW THE THRUST LINE ON THE NOSE OR NACELLE AND THEN EXTEND THIS LINE WITH A STICK. MEASURE FROM THE CRANKSHAFT TO THE STICK AND COMPARE WITH WHAT THE PLANS CALL FOR. REMEMBER THAT THRUST ANGLES MAY BE ALTERED WITH SKIMS OR OVERSIZE MOTOR MOUNT HOLES. WHEN YOU VERIFY THAT THE THRUST IS CORRECT, FILL THE UNNEEDED PART OF THE HOLE WITH EPOXY TO MAINTAIN STRENGTH.

WE ARE SURE THAT IF YOU TAKE THE TIME TO COMPLETE THE ABOVE STEPS YOU WILL HAVE MUCH MORE SATISFACTION FROM YOUR NEW MODEL.

THE FINISH WORK

THE CONSTRUCTION PHASE CONCLUDED WITH THE REMAINING PARTS BEING STUCK ONE TO ANOTHER AND/OR "SHAPE" SANDED. THIS PILE OF PARTS WHICH MAY RESEMBLE AN AIRPLANE DEPENDING ON ARRANGEMENT MUST NOW BE FINISHED TO SATISFY THE GOAL.

ONE OF THE KEYS TO A GOOD FINISH IS SAND, SAND, SAND, DUST IT OFF AND SAND ONCE MORE. REMEMBER THAT, AS IT'S IMPORTANT. THE FIRST SANDING IS DONE WITH ROUGHER OPEN COAT SAND PAPER (I PREFER ALUMINUM OXIDE OR GARNET PAPER) 280-320 RANGE. I GLUE NINE TO 1"x4"x12" BLOCKS WITH SPRAY CONTACT ADHESIVE OR "STICKY BACK" BY SCOTCH. IT'S BEST TO SAND ALL COMPONENTS PRIOR TO FINAL ASSEMBLY AND IS ALSO MUCH EASIER. THE NEXT SAND IS DONE WITH 320-400 GRIT PAPER. AFTER THIS STEP TAKE A GOOD REST, THEN COME BACK AND SAND UNTIL TIRED AGAIN. NOW WIPE THE PLANE DOWN WITH A CLEAN SOFT RAG AND CHECK IT FOR SEAMS, LOW SPOTS, AND SYMMETRY. THEN SAND ONCE MORE WITH THE 400 GRIT.

IF YOU PLAN TO "MONOKOTE" YOUR EYEBALL SCALE, IT IS DONE AT THIS STAGE ON BARE WOOD AND IN ACCORDANCE WITH THE DIRECTIONS FURNISHED WITH THE "MONOKOTE". AFTER IT'S ALL MONOKOTED, GO TO THE FINAL ASSEMBLY STEP.

IF YOU PLAN AN ULTIMATE SCALE JOB FINISH YOU MUST PAINT IT 'CAUSE NO REAL AIRPLANES ARE MONOKOTED. (TOO BAD, THOUGH!) YOU MUST DECIDE WHAT TYPE HINGES YOU WILL USE NOW BECAUSE IT MAKES A DIFFERENCE. IF YOU ARE GOING TO USE HINGES WITH REMOVABLE HINGE PINS, THEN INSTALL ALL HINGES AND CONTROL RODS, LINKAGE, RADIO GEAR, (ACCORDING TO MANUFACTURERS INSTRUCTIONS) ETC., AT THIS TIME. THEN DISMANTLE IT AND COVER IT INDIVIDUALLY. IF YOU ARE TO USE "HIDDEN" HINGES (LIKE THE NO GLUE MOLDED NYLON ONES) THEN COVER ALL THE SEPARATE PIECES AND THEN ASSEMBLE THEM.

TO PREPARE THE MODEL FOR COVERING, YOU DOPE THE Balsa WITH AT LEAST A 50/50 DOPE-THINNER MIXTURE. AFTER EACH COAT SAND LIGHTLY AND CONTINUE UNTIL NO "FUZZ" OCCURS AFTER DOPING. (USUALLY 3 OR 4 COATS). NOW COVER WITH THE MATERIAL OF YOUR CHOICE (FOR INSTANCE, SILK, SILRON, NYLON ETC.) CHECK THE GRAIN (LOOK AT A CORNER OF THE MATERIAL TO DISCOVER THE GRAIN IS PARALLEL TO THE HEAVIEST OR MOST DENSE THREADS WHICHEVER THE CASE). THE GRAIN MUST GO LENGTHWISE ON EACH PIECE.

TO APPLY THE COVERING, CUT IT OVERSIZE, HOLD IN PLACE AND SPRAY WITH A FINE FINE MIST WATER SPRAYER CAREFULLY WORKING OUT ALL THE WRINKLES AND DOPE IT WHILE STILL WET WITH THE BRUSH NEARLY PARALLEL TO THE SURFACE AND LIGHTLY, LIGHTLY STROKING IT. IF DONE WHILE WET, THE DOPE WILL "FLOAT" ON THE DAMP SURFACE AND DRY "WHITE OR CLOUDY" BUT WILL REQUIRE FAR FEWER COATS AND THE CLOUDY LOOK WILL DISAPPEAR AFTER THE 2ND OR 3RD COAT.

CAREFULLY TRIM (WITH A DOUBLE EDGE RAZOR BLADE) AND SAND THE "ROUGH" AREAS BUT BE CAREFUL NOT TO "CUT" OR "SAND" OUT THE FIBERS OVER A "HIGH" PLACE LIKE A RIB.

WHEN SURFACE REMAINS SMOOTH AFTER A COAT OF DOPE (3RD OR 4TH COAT) IT'S TIME TO THIN THE MIXTURE AND ADD TALC OR CORNSTARCH FOR FILLER "BODY". SAND AFTER EACH COAT

UNTIL DESIRED SMOOTHNESS IS ACHIEVED. THEN ASSEMBLE THE PARTS AND SPRAY PAINT THE FINAL COLORS TO SUIT. JUST REMEMBER A LOT OF PLANES MODELED ARE GLOSSY WHEN THE PROTOTYPE WAS NOT. THIS MISTAKE COSTS POINTS. AS I MENTIONED EARLIER, I WON'T PRESUME TO ADVISE ON ACHIEVING THE "ULTIMATE SCALE" FINISH, BUT IF IN DOUBT, THERE ARE VOLUMES WRITTEN ON THE SUBJECT. THERE MAY EVEN BE A "SCALE NUT" IN YOUR AREA WHO CAN HELP. DON'T FORGET THE PLASTIC MODELER WHO KNOWS FINISHES. REMEMBER ALSO, THE PLASTIC MODEL IS AN EXCELLENT SOURCE OF SCALE DETAIL AS WELL.

BALANCE AND FLIGHT

THERE BEFORE YOU, IS THE RESULT OF THESE MANY EFFORTS. ALL OF THE WORK IS DONE, YOU SAY. NAY, SAY I. ALL OF WHAT IS DONE, ANYONE COULD DO. WHAT LIES AHEAD IS IMPORTANT FOR IT MAKES AN ALMIGHTY DIFFERENCE.

THIS PHASE BEGINS WITH THE MODEL READY FOR FLIGHT AND ENDS WITH A SUCCESSFUL LANDING. BEGIN WITH THE AIRPLANE ASSEMBLED AS IF TO FLY. SET IT ON A SMOOTH SURFACE WITH A PLAIN UNBROKEN BACKGROUND AND GO AROUND BEHIND THE CRAFT AND "EYEBALL" IT. VERY CAREFULLY CHECK TO SEE THAT THE RUDDER AND VERTICAL FIN ARE PERFECTLY ALIGNED. IN THE CASE OF TWIN RUDDERS, MEASURE THEM ACCURATELY. IS THE HORIZONTAL STABILIZER PARALLEL TO THE WING? ARE THERE ANY WARPS IN ANY OF THE FLYING SURFACES? IS THE FUSELAGE STRAIGHT? IF THE ANSWER IS YES TO ALL THESE QUESTIONS, YOU ARE IN GREAT SHAPE. IF NOT, ADJUST IT SO IT IS. YOU KNOW WHAT MUST BE DONE TO ALIGN SURFACES BUT WAIT AWHILE TO DO THAT WHILE WE CONSIDER WARPS.

WARPS ARE CROOKED OR "BENT" SURFACES. THEY CAUSE MOST ACCIDENTS. IT ISN'T NECESSARY AS THEY CAN BE FIXED. ON ANY WOOD AIRPLANE WHICH HAS BEEN DOPED OR PAINTED WITH ANY OF SEVERAL DIFFERENT PAINTS THE PROBLEM IS TO SOFTEN THE PAINT AND TWIST THE SURFACE OPPOSITE THE WARP, THEN LET IT HARDEN AGAIN.

THE PAINT CAN GENERALLY BE SOFTENED TWO WAYS. IT CAN BE HEATED OR DISSOLVED. TO HEAT IT, USE STEAM. IF A SMALL SURFACE IS THE PROBLEM, A TEAKETTLE OVER A STOVE DOES NICELY. IF A LARGE SURFACE IS WARPED, THE OUTLET BEHIND A STEAM CLEANING PLANT WILL DO THE JOB. YOU APPLY BOTH SIDES OF THE WARPED SURFACE TO THE STEAM UNTIL GOOD AND HOT, THEN HOLD OPPOSITE WARP, REMOVE FROM STEAM AND ALLOW TO COOL WELL. WAIT AWHILE, THEN CHECK AGAIN. DO THIS UNTIL THE WARP IS GONE.

TO DISSOLVE THE PAINT, USE MORE COATS OF PAINT OVER BOTH SIDES OF THE WARP. THIS DOESN'T WORK ON ALL PAINT, BUT HAS BEEN DONE SUCCESSFULLY WITH DOPE AND LACQUER. I HAVE ALSO SEEN GUYS FASTEN THE SURFACE DOWN IN PROPER POSITION AND PAINT AND PAINT UNTIL IT WILL STAY. THAT'S THE HARD WAY.

NOW THAT ALL THE WARPS ARE GONE, REASSEMBLE THE PLANE, PUT IT ON A TRUE FLAT SURFACE AND MEASURE THE DISTANCE FROM THAT SURFACE TO LEADING EDGE OF WING, THEN FROM THE SURFACE TO TRAILING EDGE OF WING AT SAME STATION (CHORD POINT) AND VERIFY THAT IT AGREES WITH THE INCIDENCE SHOWN ON THE PLANS. DO THE SAME FOR THE TAIL. IF IT DOESN'T AGREE, DO WHATEVER IS NECESSARY TO MAKE IT AGREE.

NEXT CHECK THE THRUST. FASTEN A STRING TO THE CENTERLINE OF THE PLANE BACK NEAR THE TAIL AND COMPARE THE DISTANCE TO EACH PROP TIP WITH THE PROP HORIZONTAL INSURING THAT THE OFFSET AGREES WITH THAT SHOWN ON THE PLANS. THEN VERTICAL FOR DOWN-THRUST.

NOW, CHECK THE BALANCE POINT TO BE SURE IT IS EXACTLY AS SHOWN ON THE PLAN. IF NOT, ADD WEIGHT OR RELOCATE THE RADIO IN SUCH A MANNER THAT IT AGREES WITH THAT SHOWN.

LASTLY, TURN THE RADIO ON AND OPERATE ALL THE SURFACES ONE AT A TIME TO INSURE THAT THEY MOVE IN THE PROPER DIRECTION, DO NOT BIND, DO NOT INTERACT WITH OTHER CONTROLS AND DO RUN SMOOTHLY. WHEN YOU HAVE SATISFIED ALL THESE REQUIREMENTS, PUT THE OUTFIT ON CHARGE ALL NIGHT BEFORE YOU GO FLY.

WHEN YOU GET TO THE FIELD, DON'T BE AFRAID TO ASK AN EXPERT TO FLY YOUR PLANE FOR YOU IF YOU ARE A NOVICE OR IF YOU HAVEN'T FLOWN IN AWHILE.

IF YOU DECIDE TO FLY IT YOURSELF, PLAN YOUR FLIGHT FROM TAKEOFF, THROUGH CLIMB, TURNS, PATTERN, APPROACH AND LANDING WITH CAREFUL CONSIDERATION GIVEN TO WIND DIRECTION, RUNWAY ORIENTATION, OTHER TRAFFIC AND RELATIVE POSITION OF THE SUN.

I HAVE SEEN EVERYTHING MENTIONED IN THIS CHAPTER CAUSE A SCALE JOB TO CRASH WHEN NOT DONE PROPERLY, SO IF YOU WILL CAREFULLY TEND EACH ONE OF THESE POINTS, YOUR ODDS WILL BE MUCH MUCH BETTER. DON'T YOU AGREE?

GOOD LUCK AND HAPPY LANDING!