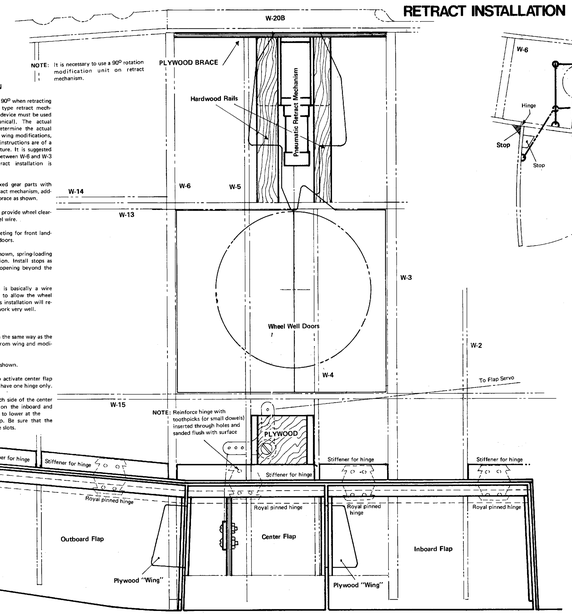
ROYAL PRODUCTS CORP.

CHANCE VOUGHT F4U-1D Corsair

RETRACT INSTALLATION



NOTE: It is necessary to use a 90° rotation modification unit on retract mechanism.

RETRACT INSTALLATION

NOTE: Since wheel must rotate 90° when retracting into wing, the proper type retract mech-anism and 90° rotating device must be used to operate the doors mechanically. The actual mechanism used will determine the actual placement of necessary wing modifications, therefore the following instructions are of a more or less general nature. It is suggested that top wing sheeting between W-6 and W-3 be omitted until retract installation is complete.

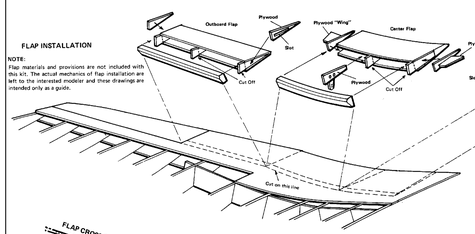
1. Replace W-22's and W-23 fixed gear parts with hardwood rails to support retract mechanism, adding the plywood leading edge brace as shown.
2. Cut away ribs W-5 and W-6 to provide wheel clearance, and notch W-13 for wheel wire.
3. Carefully cut away lower sheeting for front landing gear panel and wheel well doors.
4. Hinge wheel well doors as shown, spring-loading the doors in the open position. Install stops as shown to keep doors from opening beyond the straight down position.
5. The door closing mechanism is basically a wire saddle, located in a position to allow the wheel itself to close the doors. This installation will require careful fitting, but will work very well.

FLAP INSTALLATION

NOTE: Flaps are constructed in the same way as the ailerons, i.e. cut away from wing and modified as shown.

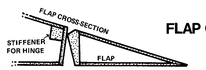
1. Cut away flaps and modify as shown.
2. Install bell-crank as shown to activate center flap only. Note that this flap is to have one hinge only.
3. The plywood "wings" on each side of the center flap fit into matching slots on the inboard and outboard flaps, causing flaps to lower at the same time as the center flap. Be sure that the "wings" move smoothly in the slots.

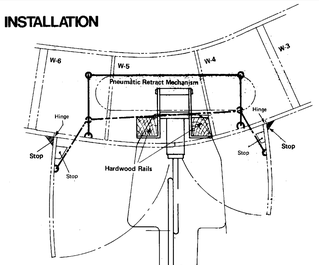
NOTE: Reinforce hinge with toothpicks (or small dowels) inserted through holes and sanded flush with surface

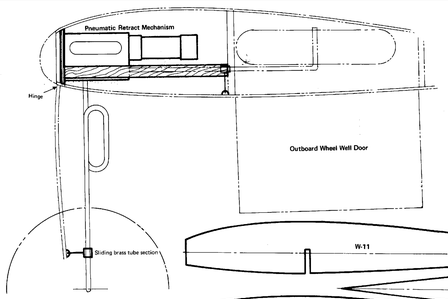


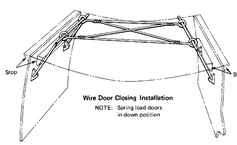
FLAP CONSTRUCTION

NOTE: Flap materials and provisions are not included with this kit. The actual mechanics of flap installation are left to the interested modeler and these drawings are intended only as a guide.



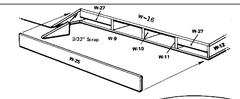




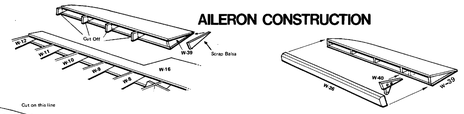


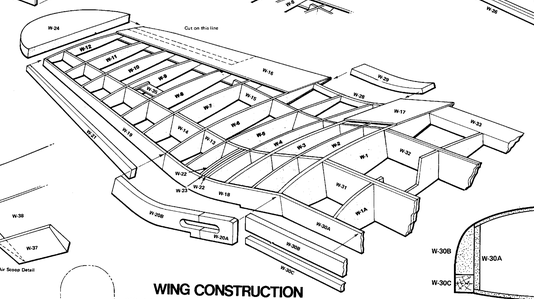
Wire Door Closing Installation

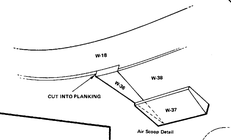
NOTE: Spring load doors in down position

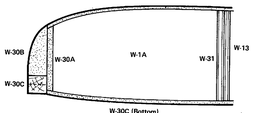


AILERON CONSTRUCTION



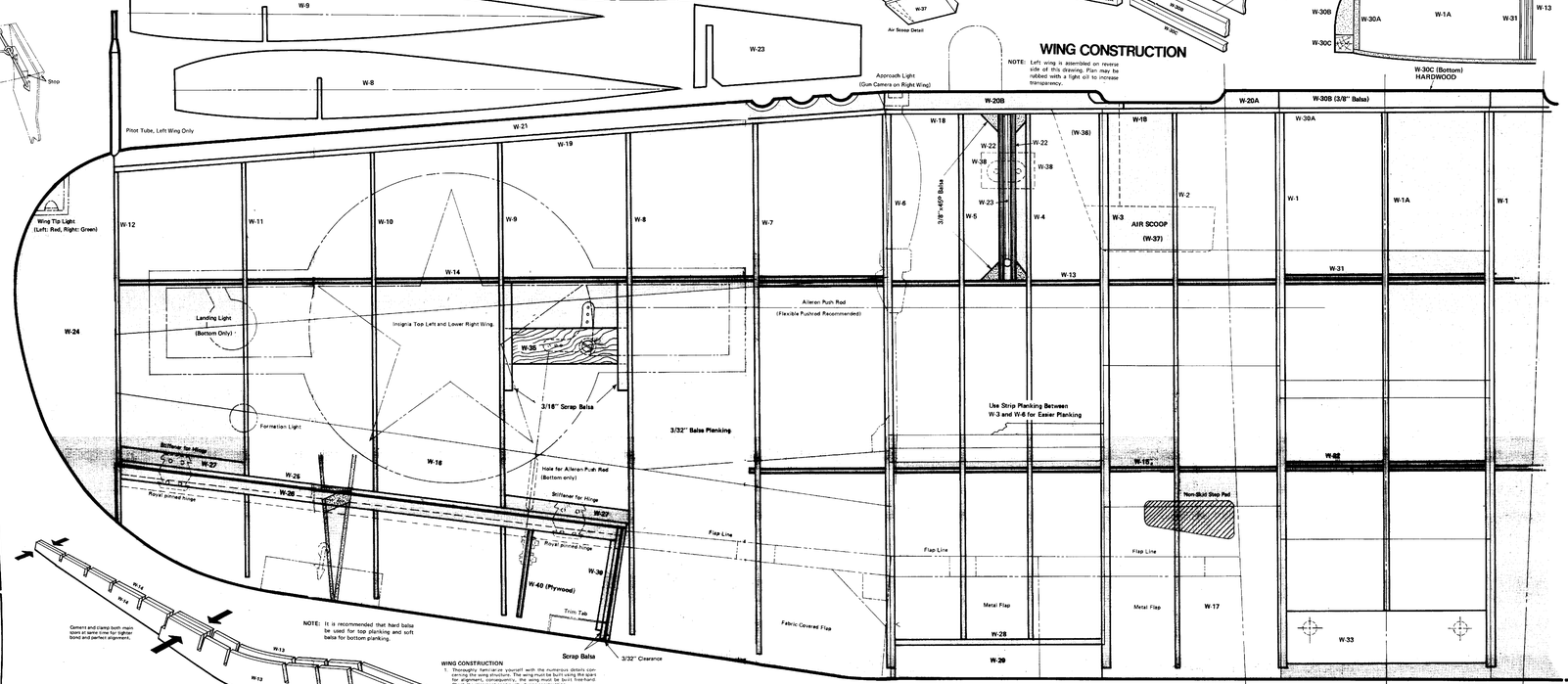






WING CONSTRUCTION

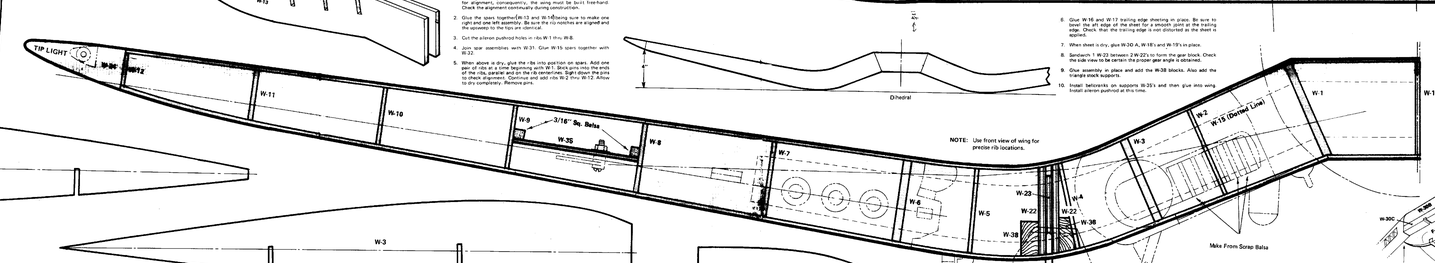
NOTE: Left wing is assembled on reverse side of this drawing. Plan may be rubbed with a light oil to increase transparency.



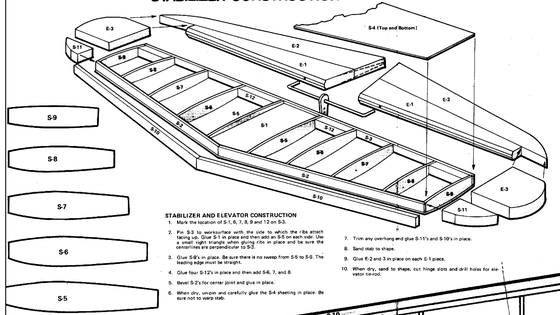
NOTE: It is recommended that hard balsa be used for top planking and soft balsa for bottom planking.

WING CONSTRUCTION

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 spars together (W-13 and W-15) taking care to make one right and one left wing. Be sure the rib notches are aligned and the grooves in the spars are opposite.
3. Cut the aileron pushrod holes in ribs W-11 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. Remove 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-30 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 belcranks on supports W-25'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-29's and W-28'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 center section 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 stringing and it will curl. It is then easier to sheet the curved area.
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-34'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.

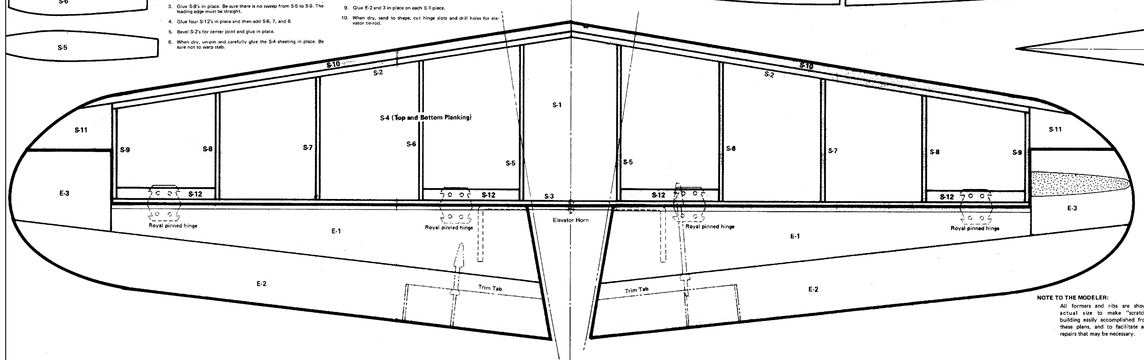


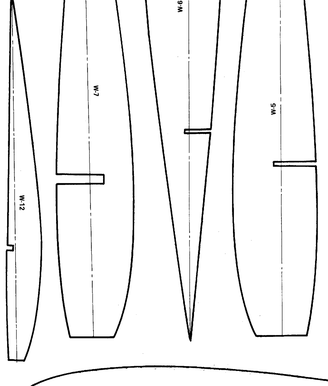
NOTE: Use front view of wing for precise rib locations.

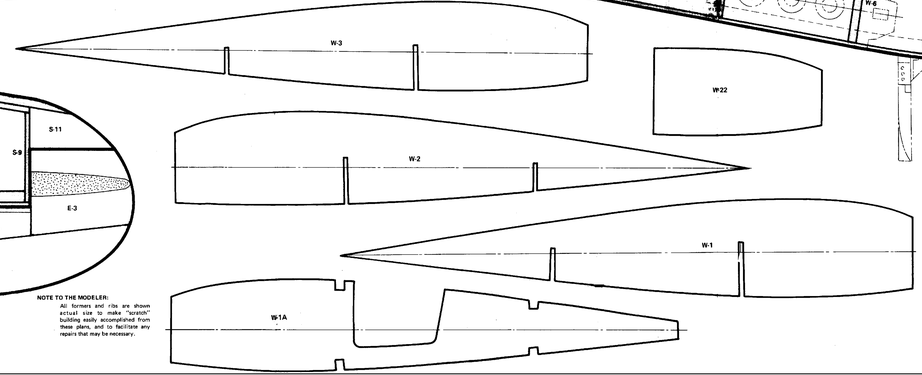


STABILIZER AND ELEVATOR CONSTRUCTION

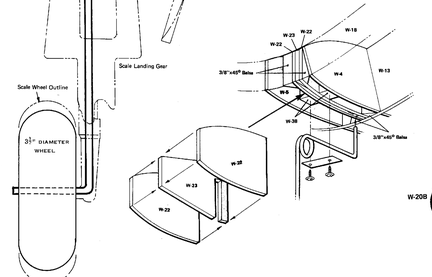
1. Mark the location of S-1, 6, 7, 8, 9 and 12 on S-3.
2. Pin S-3 to workbuilder with the side to which the ribs attach facing up. Glue S-1 in place and then add an S-5 on each side. Use a square to be certain that the ribs are in place and be sure the centerlines are perpendicular to S-3.
3. Glue S-9's 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, unpin 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 torque.

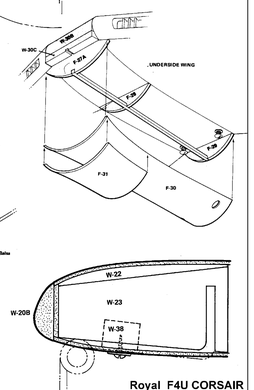




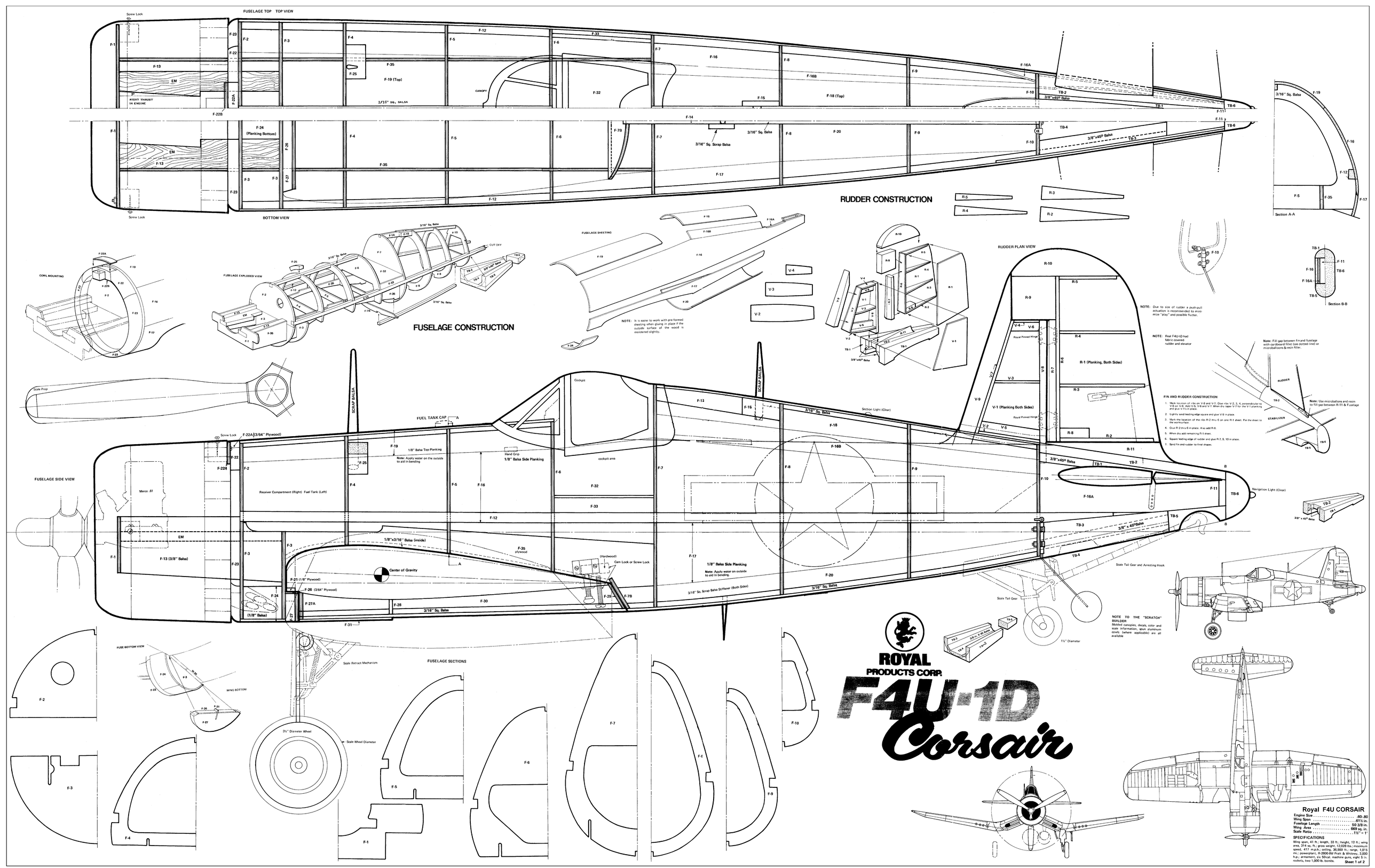


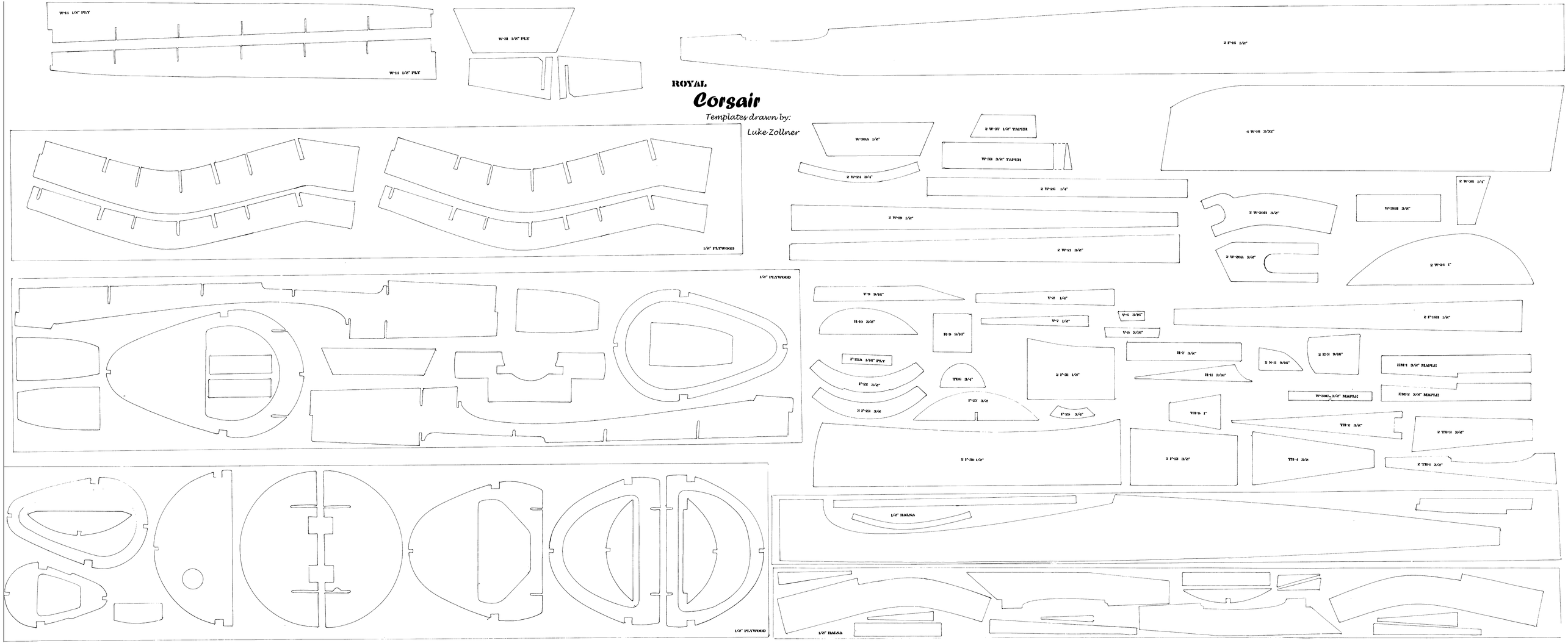
NOTE TO THE MODELER:
All formers and ribs are shown actual size to make "scratch" building easily accomplished from these plans, and to facilitate any repairs that may be necessary.





Royal F4U CORSAIR
Sheet 2 of 2


FUSELAGE TOP TOP VIEW
BOTTOM VIEW
Screw Lock
RIGHT THRUST IN ENGINE
CANOPY
3/16" sq. BALSA
3/16" Sq. Balsa
3/16" Sq. Scrap Balsa
3/8"x45° Balsa
RUDDER CONSTRUCTION
Section A-A
Section B-B
CORL MOUNTING
FUSELAGE EXPLODED VIEW
CUT OFF
FUSELAGE CONSTRUCTION
FUSELAGE SHEETING
NOTE: It is easier to work with pre-formed sheeting when gluing in place if the outside surface of the wood is moistened slightly.
RUDDER PLAN VIEW
NOTE: Due to size of rudder a push-pull actuation is recommended to minimize "play" and possible flutter.
NOTE: Real F4U-1D had fabric covered rudder and elevator
Royal Pinned Hinge
R-1 (Planking, Both Sides)
V-1 (Planking Both Sides)
Note: Fill gap between fin and fuselage with cardboard fillet (see dotted line) or microballoons & resin filler.
Note: Use microballons and resin to fill gap between R-11 & Fuselage
RUDDER
STABILIZER
FIN AND RUDDER CONSTRUCTION
1. Mark location of ribs on V-8 and V-2. Glue ribs V-2, 3, 5, 6, perpendicular to V-8 on V-8. Add V-9, V-8 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 workbench.
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.
Scale Prop
FUEL TANK CAP
SCRAP BALSA
Cockpit
Section Light (Clear)
Navigation Light (Clear)
FUSELAGE SIDE VIEW
Merco .61
Receiver Compartment (Right) Fuel Tank (Left)
1/8" Balsa Top Planking
Note: Apply water on the outside to aid in bending
Hard Grip
1/8" Balsa Side Planking
cockpit area
1/8"x3/16" Balsa (inside)
Center of Gravity
(Hardwood)
Cam Lock or Screw Lock
3/16" Sq. Scrap Balsa Stiffener (Both Sides)
Scale Tail Gear and Arresting Hook
Scale Tail Gear
1½" Diameter
NOTE TO THE "SCRATCH" BUILDER
Molded canopies, decals, color and scale information, spun aluminum cowls (where applicable) are all available
FUSE BOTTOM VIEW
WING BOTTOM
Scale Retract Mechanism
FUSELAGE SECTIONS
3½" Diameter Wheel
Scale Wheel Diameter
ROYAL
PRODUCTS CORP.
F4U-1D
Corsair
Royal F4U CORSAIR
Engine Size ..... .60-.80
Wing Span ..... .61½ in.
Fuselage Length ..... 50 3/8 in.
Wing Area ..... 669 sq. in.
Scale Ratio ..... 1½" = 1'
SPECIFICATIONS
Wing span, 41 ft.; length, 33 ft.; height, 12 ft.; wing area, 314 sq. ft.; gross weight; 12,028 lbs.; maximum speed, 417 m.p.h.; ceiling, 36,000 ft.; range, 1,015 mi.; powerplant, R-2800-8W Pratt & Whitney, 2,000 h.p.; armament, six 50-cal. machine guns, eight 5 in. rockets, two 1,000 lb. bombs.
Sheet 1 of 2

ROYAL Corsair

Templates drawn by:
Luke Zollner