

PLAN UPDATE FOR THE SR. FALCON

THIS BOOKLET CONTAINS NEW INFORMATION NOT SHOWN ON PLAN!!!

PREPARATION FOR BUILDING AND FLYING YOUR MODEL

For orderly, uninterrupted building of your model, organize in advance by reading all info concerning your kit. A flat, warp-free working surface such as pine, basswood or celotex board, suitable for accepting straight pins is required. You will need clamps or clothespins, straight pins, 3/4" to 1" masking tape, rubber bands, and square weights or bricks to hold parts until dry when gluing. While gluing structures over plan, cover the plan with wax paper. Your tools should include a razor knife, small vise, small triangle, razor saw, screw drivers, drill, drill bits, and various sand paper grades. A CG Hinge-Line Marker, and a Monokote iron or heat gun are good optional items. Read these in-

structions first, then select your adhesives, covering material and finishing liquids. AT THE FLYING FIELD you will need a glow plug clip. 1-1/2 volt battery, fuel, fuel bulb, spare glow plug and wrench, extra propellers and prop wrench, extra screws, pins, extra wing attach rubber bands, SUPER JET or 5 Minute epoxy, paper towels or cleaning rags and liquid cleaner, assorted screw drivers and pliers. Optional items include an electric starter, electric fuel pump, power panel chargers and a flight box such as CG Handi-Tote. Be sure to check over content and function of all equipment before going to flying field.

GENERAL INFORMATION FOR CONSTRUCTING SR. FALCON

BEFORE STARTING ASSEMBLY OF MODEL, read instructions carefully and construct your model in the following order :

- | | |
|--|--------------------------------|
| I FUSELAGE (Steps 1 thru 10, page 2 of this booklet) | VII FINAL ASSEMBLY - See below |
| II WING (Steps 1 thru 7, page 4) | VIII BALANCE |
| III HATCH (Step 11, page 3) | IX RADIO INSTALLATION |
| IV STABILIZER AND ELEVATOR* (Steps 1 thru 4, Plan sheet 2) | X RADIO CHECK |
| V FIN AND RUDDER (Build over Plan sheet 1) | XI GENERAL |
| VI COVERING AND TRIM - See below | |

See " OPERATING INSTRUCTIONS FOR R/C MODELS " folder.

* NEW WIDER ELEVATOR: For better performance, the elevator is now 1/4" wider than shown on plan.

VI COVERING AND TRIM

Any good covering job should be preceded by filling nicks and dents with wood filler or balsa scrap, and sanding wood surfaces. Any irregularities in the wood surface will show on the covering, so a smooth sanding job is a must for appearance. Also, when using fabric, avoid excessive doping, otherwise the model will be heavy. Many novices wind up with uncontrollable tail-heavy airplanes because of this.

If you wish to avoid the tedious job of doping and sanding multiple coats, film coverings such as Monokote and Solarfilm are attractive yet light. Fabric coverings give more strength to airframes, but they also add weight.

VII FINAL ASSEMBLY

Glue the 5/16" wing dowels firmly to the fuselage, and touch up with paint. Seal the wing rest area using a cushion of wing seating foam tape or silicone bathtub seal as indicated on fuse side view. Mount wing, and center it carefully, then mark matching center lines on wing and fuselage. Set stabilizer on fuselage, and shim up one side or the other until it is level. When the wing is level, glue stabilizer to fuselage aligning it with the

Cover wing and tail surfaces, and control surfaces, individually. After covering, carefully examine wing and tail, checking for warps. It is important to take out all warps, which can be done with the aid of a heat lamp, etc., or over a pan of boiling water. Hold the surface warped the other way while correcting.

The model can be easily trimmed with CG Color-Stripe. Glue the canopy in place, add decals, etc. Any edges of covering or trim tape that tend to come up should be sealed down with SUPER JET or epoxy.

The hinges should now be installed, except for the fin and rudder. To increase effectiveness and reduce chance of flutter, keep all control surface gaps at 1/32" or less.

fuselage end, and sighting the fin from front to rear to see that it is pointing dead straight ahead through the center of the fuselage. Hinge the rudder to the fin and fuselage. Add the control horns, and install the nose and main gear struts and wheels. Install the tank and fuel lines. With model fully assembled, recheck alignment of all flying surfaces.

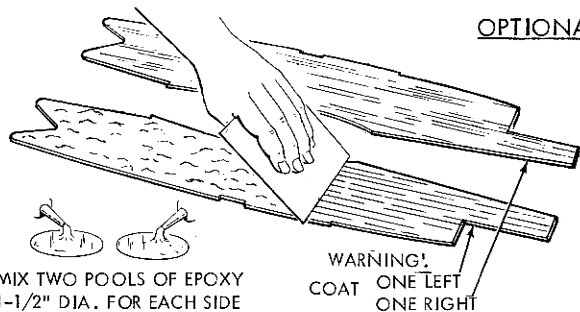
ADHESIVES

Be careful not to use too little or too much glue. Too little leaves a model weak. Excessive use of adhesives and paints can make a model heavy. SUPER JET Instant Glue can be used for almost all glue joints. Slower setting glue, such as epoxy or aliphatic resin are recommended for wing joiners. SUPER JET's thick body and quick set make for strong joints and rapid assembly. Aliphatic resin glue makes good strong joints.

For broad areas such as fuselage doublers, SUPER JET, epoxy, or contact cement are recommended.

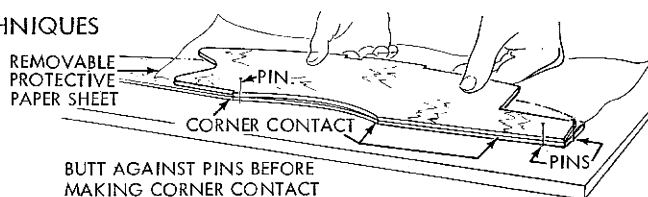
For high stress joints such as firewall, and engine bearers, SUPER JET, epoxy glue, or aliphatic resin glue are good. Epoxy also makes an excellent fuel-proof coating for engine and tank compartments. AVOID getting into screwholes or on to screws.

OPTIONAL DOUBLER GLUING TECHNIQUES



MIX TWO POOLS OF EPOXY
1-1/2" DIA. FOR EACH SIDE

CAUTION:
DO NOT USE ALIPHATIC RESINS ON BROAD AREAS SUCH AS DOUBLER GLUING- WITHOUT FIRST APPLYING A MOISTURE PROTECTIVE COAT OF POLYURETHANE VARNISH.



Contact cement is a fast way to join broad areas such as doublers. However, it must be used carefully, since once cemented parts are touched together, they CANNOT be repositioned. Briefly, there are two types of contact cements: solvent, and water base. Solvent-based contact cements have a petroleum odor, and are very fast drying. Before using a water-based contact cement (such as Blue Goo), apply a moisture protective coat of polyurethane varnish at areas to be joined. Use pins as guides to make accurate contact. Place a protective sheet of paper between the surfaces, exposing only a small contact area at one corner. When satisfied with position, make first contact. Then, gradually remove protective sheet and press parts firmly together.

IN ADDITION TO THE KIT CONTENTS you will need the following. See instructions for details.

Radio control equipment
Engine
Propeller
2-1/2" spinner
(CG #50S-250)
8 to 12 oz. fuel tank
Fuel line
3" main wheels
2-3/4" nose wheel

SUPER JET (cyano-acrylate)
(CG #5J-50 or equiv.)
Silicone seal
30° drafting triangle
Bricks, or heavy books
(sq. corner wts.)
Solder
#64 rubber bands
(for wing hold-down)

Foam rubber (padding servos, etc.)
Scotch, masking, or drafting tape
3/32" & 7/64" Allen wrenches
(to fit 4-40 screw)
Finishing materials (covering, paint,
Pins CG Color-Stripe, etc.)
Drill & 1/32", 1/16", 1/8" & 3/16" bits
Round toothpicks
Sandpaper

OTHER POSSIBLE ITEMS :

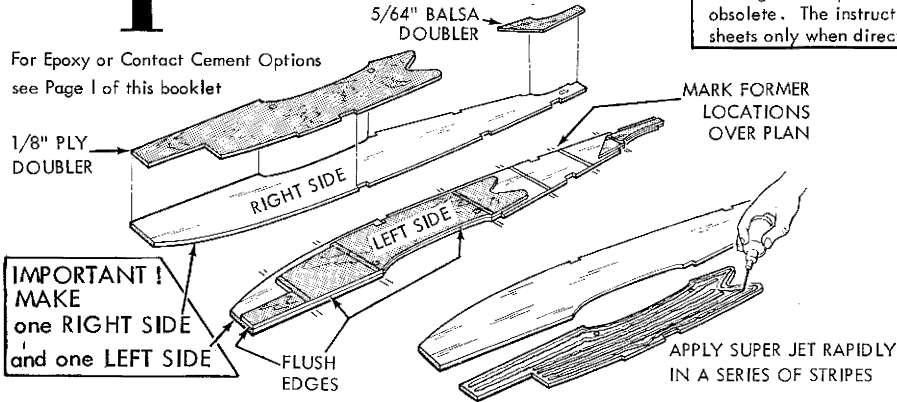
Engine muffler
Klett hinges
(CG #RK 3)
5/32" x 3/16" dia. wheel collars
(CG #WC-532, WC-316)
Pilot figure
(Williams Bros. #184 or equiv.)

Hinge Slotting Kit
(CG #HSK-2)
Pushrod exit guides
(CG #PEG-1 or PEG1-H)
Epoxy glue
Aliphatic resin glue
(i.e. Wilhold, Titebond)
* 5/32" dia. x 10" music wire
* 1/8" dia. x 10" music wire
* (for drilling purposes)

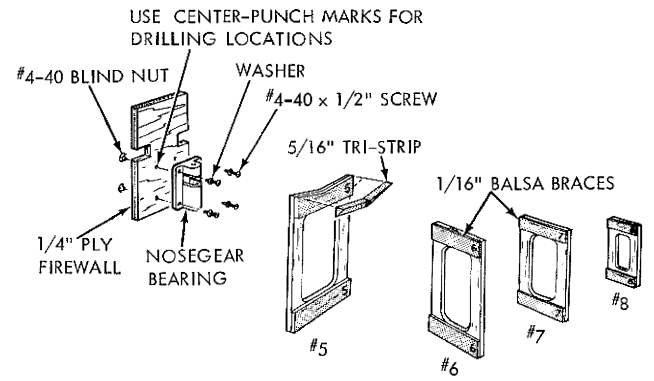
I FUSELAGE ASSEMBLY

SUMMARY OF IMPROVEMENTS
 The fuselage (fuse) front has been widened for larger engines and tanks, and some parts redesigned for quicker building; this makes some instructions and views on the plan obsolete. The instructions below are updated; follow them carefully. Refer to the plan sheets only when directed by these instructions.

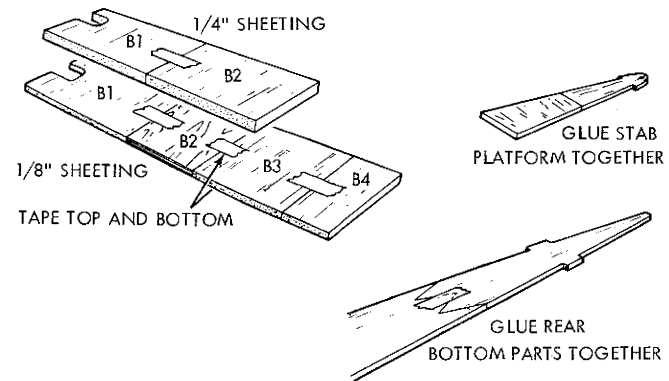
Before starting assembly compare die-cut parts with plan and these instructions. If necessary, use a razor saw or knife to assist in the removal of parts from plywood sheets.



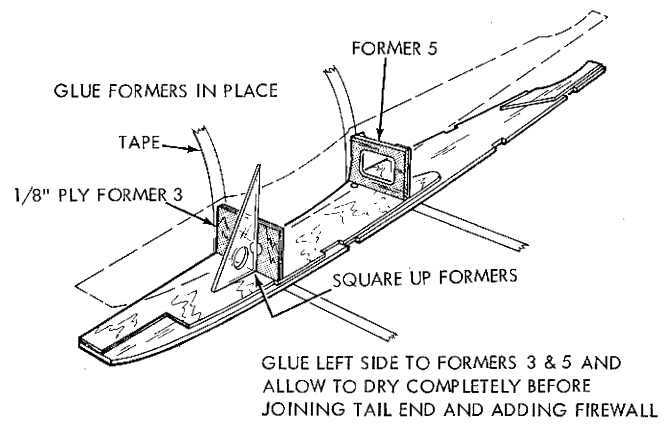
- FUSELAGE DOUBLERS.** (IMPORTANT: Make one LEFT SIDE and one RIGHT SIDE).
- Temporarily position doublers and check for fit and correct placement. Apply a bead of SUPER JET rapidly in a series of ribbons or stripes to the ply doubler. Then, when the doubler is pressed firmly in position the adhesive will squeeze into a very thin layer and set up almost instantaneously. Medium or slow setting epoxy may also be used, and allows more time for application and adjustment.
 - Carefully drill four 5/16" dowel holes through fuse sides using die-cut holes in doublers as guides.
 - Lay fuse sides over plan and mark locations of all formers.



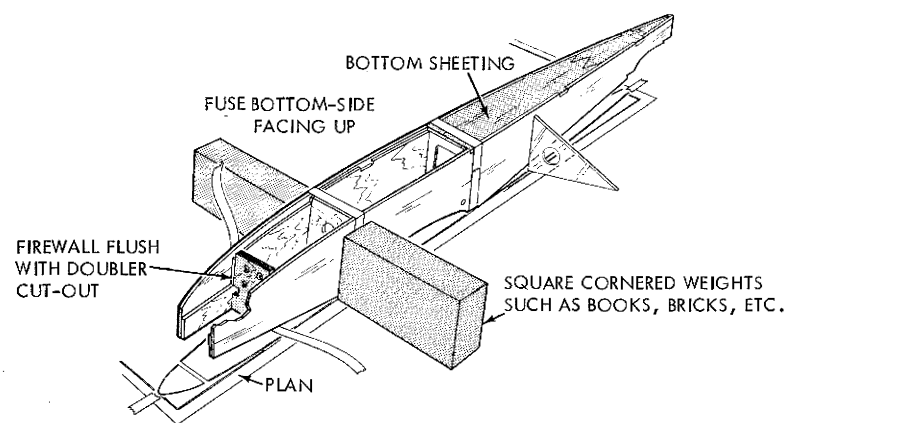
- NOSEGEAR BEARING AND FORMER BRACES.**
- Using center-punch marks on 1/4" firewall for guides, drill four 1/8" diameter holes through firewall. Install nose gear bearing as shown.
 - Glue 1/16" & 1/8" braces and 5/16" Tri-strip to respective formers as shown.



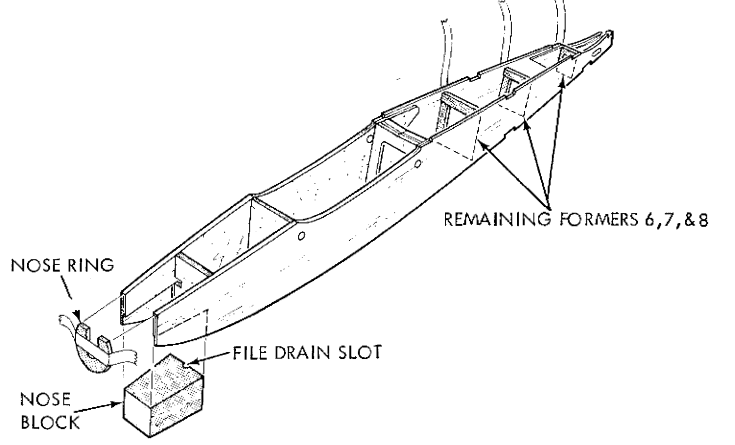
- BOTTOM SHEETING ASSEMBLY.** (Hold parts with tape until dry.)
- Glue 1/4" bottom sheeting parts B1, B2 together.
 - Glue 1/8" bottom sheeting parts B1, B2, B3, B4 together.
 - Glue 1/8" rear bottom parts together.
 - Glue 1/8" stab platform parts together.



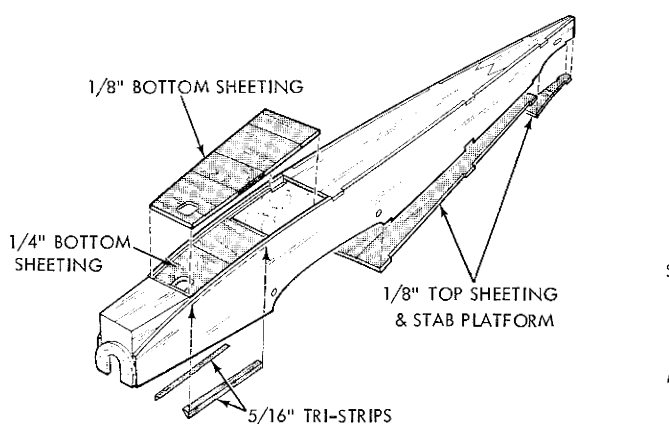
- FUSELAGE ASSEMBLY**
- Glue 1/8" ply former 3 and balsa former 5 to right fuse side. IMPORTANT: Square up formers with fuse side and let dry.
 - Glue left fuse side to formers 3 & 5, and hold securely with masking, drafting, or Scotch tape.



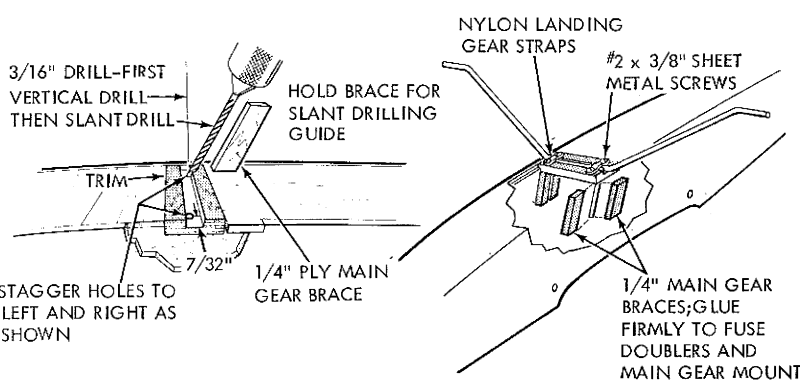
- TAIL JOINING, FIREWALL & BOTTOM SHEETING**
- Position fuse over plan, bottomside up, pull tail end together and hold with tape or pins. Temporarily set bottom sheeting in place for alignment.
 - Carefully align fuse with top view outline. Use bricks or heavy books to hold alignment. Glue tail end together and let dry thoroughly.
 - Glue bottom sheeting in place.
 - Glue firewall solidly in position, flush firewall front with edge of fuse doubler cut-out. Hold with tape.



- NOSERING & BLOCK AND REMAINING FORMERS**
- File a drain slot in rear of nose block, and make clearance for blindnuts. Position nose block so it butts against firewall and doubler edges. Glue block to fuse sides, doubler edges, and firewall. With tape, firmly hold fuse sides against nose block until dry.
 - Glue 1/8" ply nosering to fuse front and hold with tape until dry.
 - Locate proper positions of Formers 6, 7, & 8 from full size view on plan (note which way braces are facing when properly installed). Glue formers in place. With tape, firmly hold fuse sides against formers until dry.

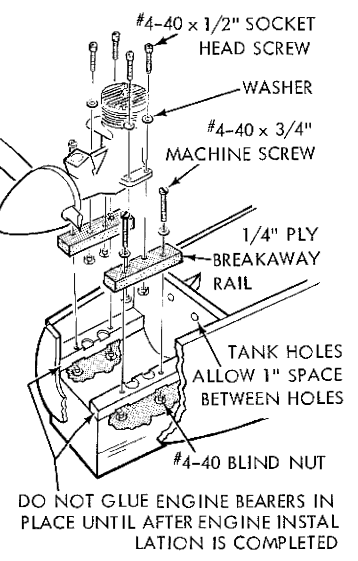


- REMAINING SHEETING**
- Add remaining 1/4" and 1/8" bottom sheeting.
 - Turn fuse over and glue 1/8" balsa stab platform and 1/8" fuse top sheeting in place.
 - Glue two 5/16" tri-strip gussets in position at bottom of tank compartment.

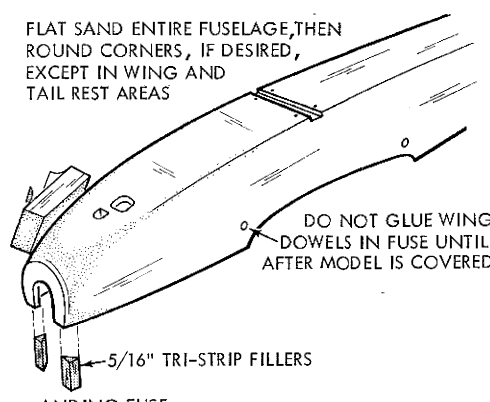


- MAIN GEAR (M.G.) SUPPORT**
- Trim bottom sheeting for plywood M.G. mount. Glue mount in fuse (groove must face out). Let dry.
 - Measure in 7/32" from each end of mount and drill two 3/16" diameter pilot holes (IMPORTANT: stagger holes - one to front, one to rear).
 - To provide for rearward slant of landing gear wires through mount, reinsert drill in one hole with bit turning, and slowly lean drill backwards to match with angle of ply brace as shown. Repeat for other hole.
 - Insert formed wire landing gear. Position and mount nylon landing gear straps with #2 x 3/8" sheet metal screws. Position and glue 1/4" M.G. braces so they fit snugly against wire gear and restrict gear movement. Let dry.

- ENGINE INSTALLATION**
- Mount propeller and spinner on your engine. Temporarily slide engine bearers in position through rear of firewall. Hold in place with tape. Rest 1/4" ply breakaway rails on bearers. Place engine on rails (cut rails if necessary to fit around engine). Viewing from above, measure from nosering to back of spinner 1/8". Tape spinner to side. Being careful not to disturb engine position, slide rails so they are centered; under engine lugs. For 1st right thrust on an 11" prop, measure 3/16" difference from propeller tips to rear of fuse when tips are horizontal. Mark rail locations on bearers, and engine screw locations on breakaway rails, then remove engine and rails. Drill four 1/8" holes through the rails. Install blind nuts in rails (pull blind nuts up by means of a screw and washer) and cut blind nut clearance recesses in bearers.
 - Replace and tack cement rails on bearers. Fasten engine to rails using four #4-40 x 1/2" socket head screws. Mark four center points for rail hold-down screws close to engine. Remove engine and drill four 1/8" diameter holes on center points through rails and engine bearers. Remove RAILS and bearers. Install blind nuts in underside of bearers (Note; blind nuts must be recessed in bearers to allow bearer to slide through firewall).
 - Permanently install bearers in fuse being careful that blind nuts and holes do not get filled with glue. Allow to dry.



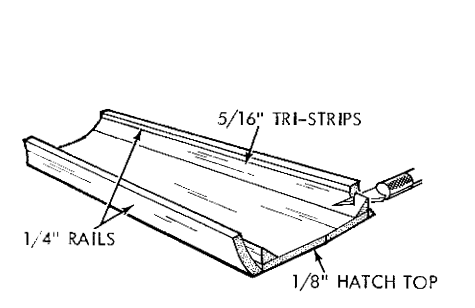
DO NOT GLUE ENGINE BEARERS IN PLACE UNTIL AFTER ENGINE INSTALLATION IS COMPLETED



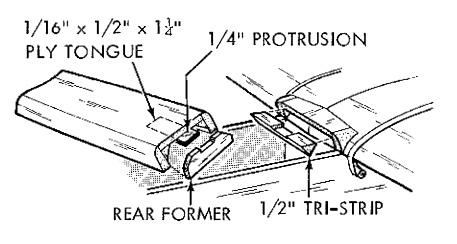
- SANDING FUSE**
- Remove wire L.G. Carve and sand fuse to final shape, rounding corners and blending surfaces.
 - Glue 5/16" tri-strip fillers in place behind nosering.
 - Fuel proof engine well, fuel compartment, engine bearers and breakaway rails using epoxy.
 - Proceed directly to II WING ASSEMBLY, page 4.

III HATCH ASSEMBLY

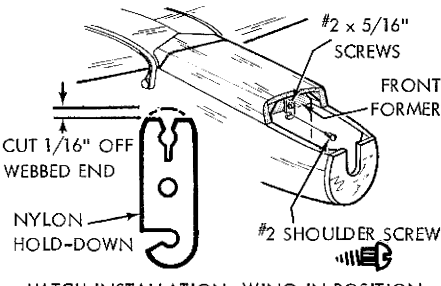
(NOTE: WING STRUCTURE MUST BE COMPLETED AND RUBBER-BANDED IN POSITION BEFORE HATCH CAN BE FINALIZED)



- HATCH ASSEMBLY**
- Glue 1/4" balsa rails to 1/8" balsa hatch top.
 - Glue 5/16" tri-strips in place and trim ends as shown.
 - Temporarily install wing dowels in fuse.
 - Complete ONLY Step 2 of HATCH ASSEMBLY on plan.



- TONGUE INSTALLATION**
- Center 1/16" x 1/2" x 1-1/4" ply tongue inside hatch top so 1/4" of tongue protrudes beyond hatch rear.
 - Bevel edges of rear former to fit in hatch. Notch rear former for tongue and glue in place.
 - Trim ends of 1/2" tri-strip so it will fit in wing as shown. Notch tri-strip to fit snug with tongue.
 - Glue tri-strip in place.



- HATCH INSTALLATION, WING IN POSITION**
- Locate and glue 1/4" front former in hatch so when hatch is positioned on fuse the former will be FLUSH with firewall. Let dry.
 - Cut 1/16" off webbed end of nylon hold-down.
 - Center hold-down on hatch front, and secure using #2 x 5/16" screws. Remove screws and apply a drop of SUPER JET Instant Glue in screw holes to harden balsa, and let dry. Re-install hold-down with screws and SUPER JET around the edges.
 - Set hatch in position on fuse. Mark location on firewall as shown for #2 shoulder screw. Install screw in marked location exposing enough shank to engage hold-down. Snap on and off until it works well.

- 9** With fuel tank temporarily in position, mark and drill holes in firewall for fuel tank overflow and outlet lines (IMPORTANT: DO NOT drill holes in center area, allow 1" space between holes).

- 10**

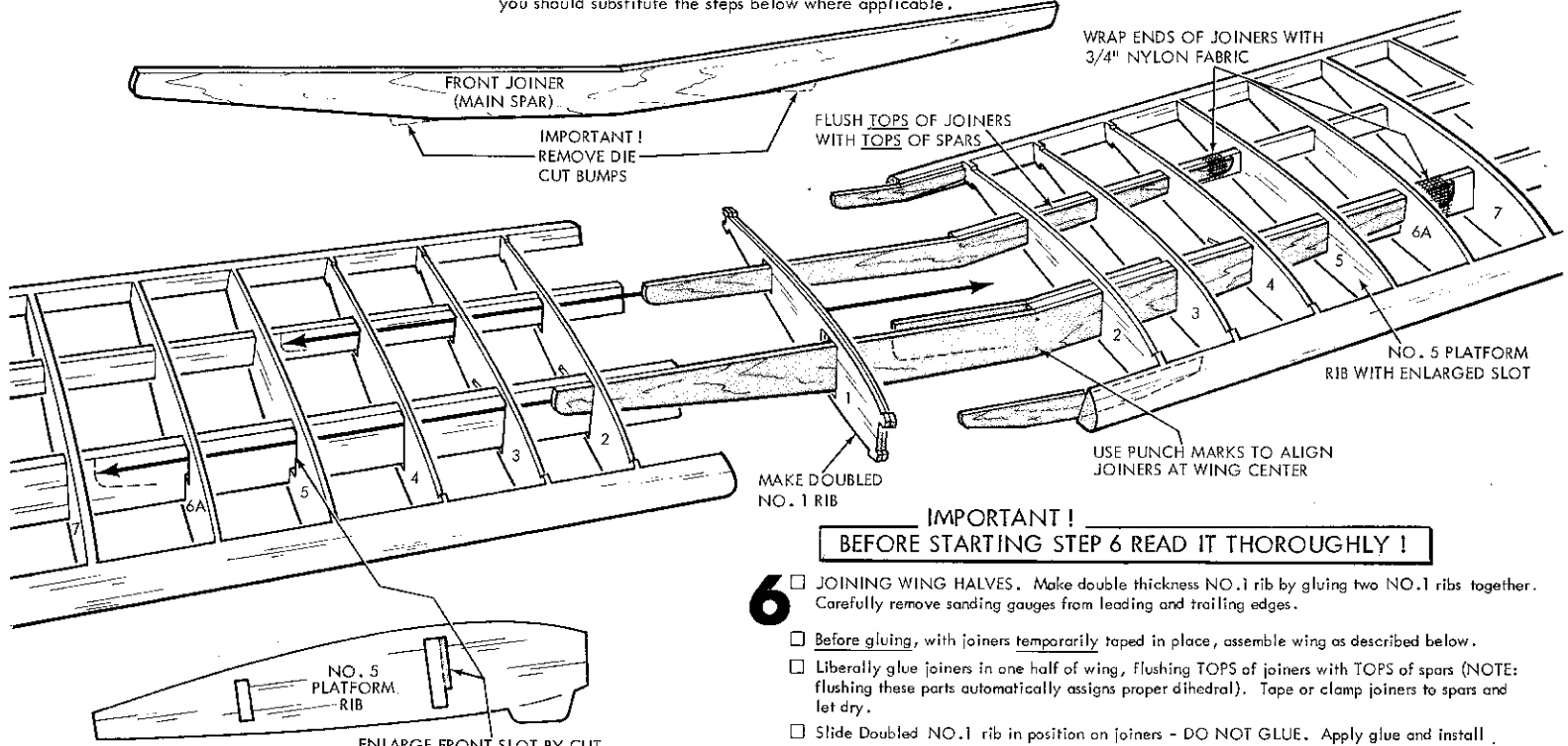
- 11a**

- b**

- c**

WING ASSEMBLY

SUMMARY OF IMPROVEMENTS. To give you a stronger wing we have changed the 1/4" balsa joiners as shown on the Plans to rugged 1/8" plywood joiners as described here. This change makes some wing instructions on Plan sheet 2 obsolete and you should substitute the steps below where applicable.



3 **IMPORTANT!** Before starting STEP 3 on plan enlarge rib slots in two of four NO. 5 platform ribs as shown. Both of these ribs to be used at inboard ends of wing halves.

Then proceed to complete STEPS 3 through 5 on plan. STEP 4 NOTE: error in top view of wing on plan - use NO. 7 ribs where NO. 8 ribs are specified.

6 **JOINING WING HALVES.** Make double thickness NO. 1 rib by gluing two NO. 1 ribs together. Carefully remove sanding gauges from leading and trailing edges.

Before gluing, with joiners temporarily taped in place, assemble wing as described below.

Liberally glue joiners in one half of wing, flushing TOPS of joiners with TOPS of spars (NOTE: flushing these parts automatically assigns proper dihedral). Tape or clamp joiners to spars and let dry.

Slide Doubled NO. 1 rib in position on joiners - **DO NOT GLUE.** Apply glue and install second half of wing so both wing panels butt at center, make sure TOPS of joiners flush with TOPS of spars. Tape or clamp joiners until dry. Check for correct dihedral as shown in plan STEP 6. Glue rib NO. 1 in position at wing center joint. Let entire assembly dry thoroughly.

7 Complete STEP 7 on plan up to but not including the last operation "cut hole for access to servo".

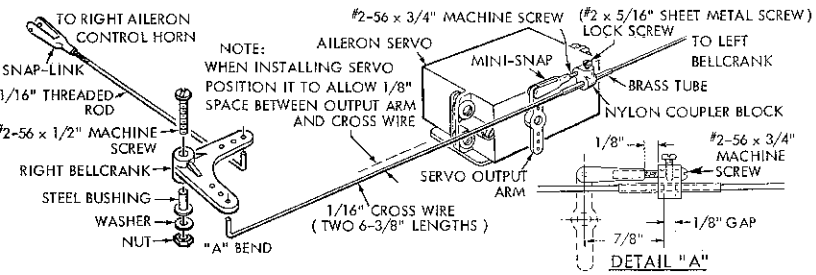
Wrap and glue wing center joint with 4" nylon fabric, top and bottom. Brush epoxy through nylon for extra strength, using cheap stiff bristle brush. Using 3/4" nylon fabric, wrap and glue ends of the two longest ply joiners. Let dry.

Cut hole in bottom sheeting for access to servo.

IMPORTANT!
BEFORE STARTING STEP 6 READ IT THOROUGHLY!

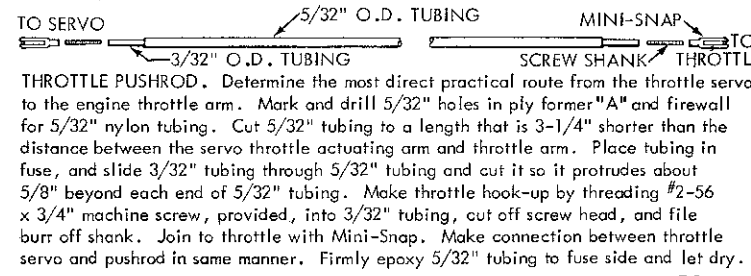
NEW PUSHROD SYSTEMS

GENERAL. Tape ALL control surfaces and servos in neutral before beginning pushrod installations. Operate your radio to determine servo movements, and label the servos Throttle, Elevator, Rudder, etc. Keep all pushrod routing as straight as possible. Use full-size views as guides for cutting, bending, and assembling pushrods. Final pushrod adjustments may be made with the Mini-Snaps and Pushrod Connector. Grind or file angled flats on end of 1/8" and 5/32" wire about 10" long to use as drill bits for installing pushrods.

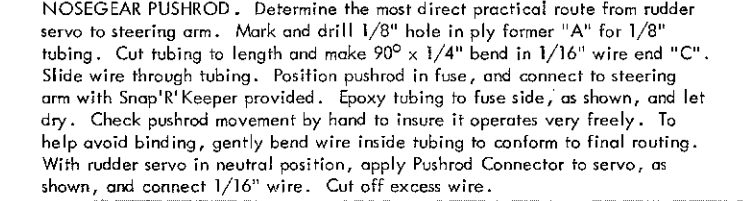


AILERON LINKAGE. Mount bellcranks in wing. Using 1/16" x 7" threaded rods & Snap-Links, connect bellcranks to aileron control horns as shown on Plan sheet 1. Make "A" bends in two pieces of 1/16 x 6-3/8" wire, install in bellcranks, then tape wires together at wing center. Position and mount aileron servo, allowing 1/8" space between servo output arm and taped cross wire. Assemble coupler block using 3/4" screw and Mini-Snap (turn screw up snug, then an extra 1/2 turn). Cut cross wires just to right of servo as shown in Detail "A". Slide brass tube over right half of wire, coupler block as far over left wire as possible. Solder tube to wires, avoiding heat damage to coupler block. Test for strong joint. Slide coupler block over tube, connect Mini-Snap to output arm. Reach through lock screw hole, and drill 1/32" hole in tube. Add lock screw, tighten an extra 1/2 turn for firmness.

TO ELIMINATE ELECTRICAL "NOISE" THE THROTTLE PUSHROD SHOWN ON PLAN HAS BEEN UPDATED AS EXPLAINED HERE.



THROTTLE PUSHROD. Determine the most direct practical route from the throttle servo to the engine throttle arm. Mark and drill 5/32" holes in ply former "A" and firewall for 5/32" nylon tubing. Cut 5/32" tubing to a length that is 3-1/4" shorter than the distance between the servo throttle actuating arm and throttle arm. Place tubing in fuse, and slide 3/32" tubing through 5/32" tubing and cut it so it protrudes about 5/8" beyond each end of 5/32" tubing. Make throttle hook-up by threading #2-56 x 3/4" machine screw, provided, into 3/32" tubing, cut off screw head, and file burr off shank. Join to throttle with Mini-Snap. Make connection between throttle servo and pushrod in same manner. Firmly epoxy 5/32" tubing to fuse side and let dry.



NOSEGEAR PUSHROD. Determine the most direct practical route from rudder servo to steering arm. Mark and drill 1/8" hole in ply former "A" for 1/8" tubing. Cut tubing to length and make 90° x 1/4" bend in 1/16" wire end "C". Slide wire through tubing. Position pushrod in fuse, and connect to steering arm with Snap'R' Keeper provided. Epoxy tubing to fuse side, as shown, and let dry. Check pushrod movement by hand to insure it operates very freely. To help avoid binding, gently bend wire inside tubing to conform to final routing. With rudder servo in neutral position, apply Pushrod Connector to servo, as shown, and connect 1/16" wire. Cut off excess wire.

HOW TO USE THE FITTINGS IN YOUR KIT

