

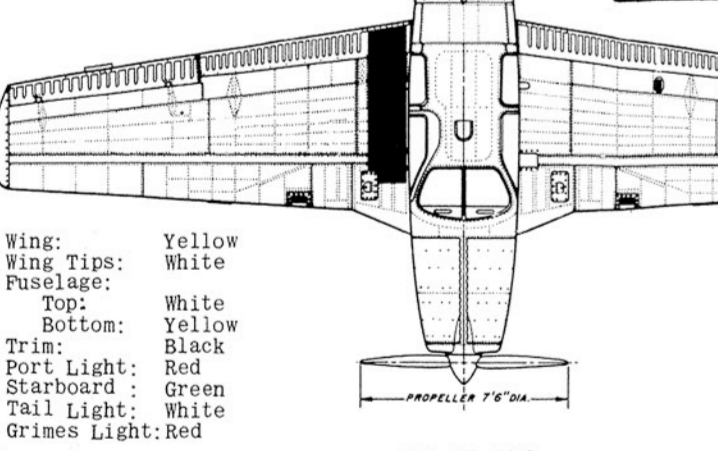
OPERATIONAL LANDING GEAR INSTALLATION

Landing gears are operational in flight, on rubber powered models only. Installation is simple and action is positive, if directions are followed carefully. Assemble landing-gear-release Tee slide track for main landing gear and nose gear as shown and described in detail note. Cut out center keel L3 between F3 and F5, and at the same time cut off bottom of F4 leaving sides of F4 intact. Also cut out top rear 1/16 square spar in center section. Make hole and cement eyelet in center of both bulkheads F3 and F5, directly above keel. Track (with landing gear release inserted) is now cemented securely to top of center ribs W1, front in line with notch of removed spar. Use two heavy coats on this installation and allow to dry thoroughly, making sure release Tee slides freely inside track. Rear thread is inserted through eyelets, pulled snug, and tied securely to rear hook while it is in vertical position as shown. Make sure line is snug, then coat knot with cement. Tie

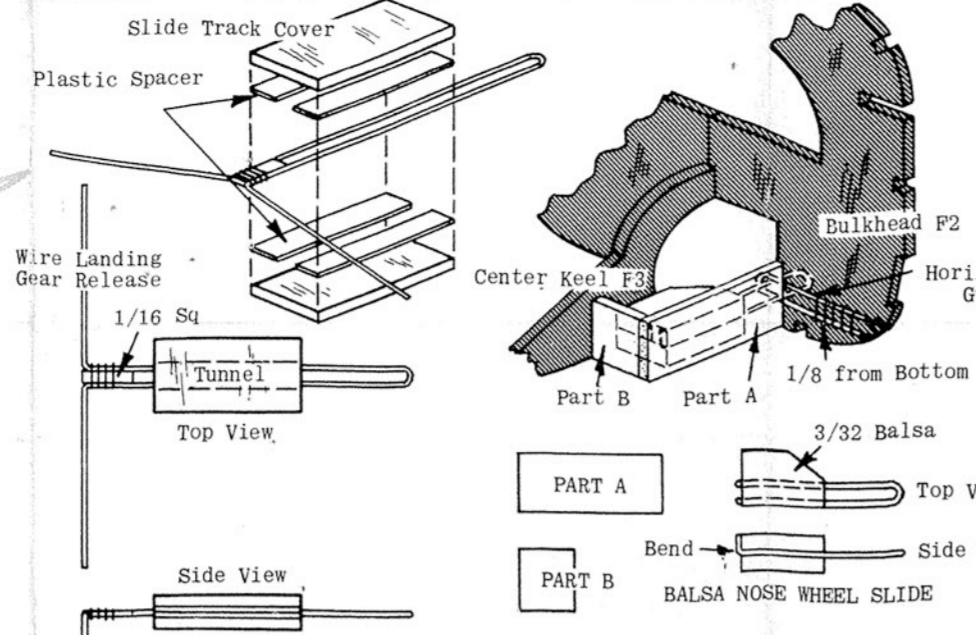
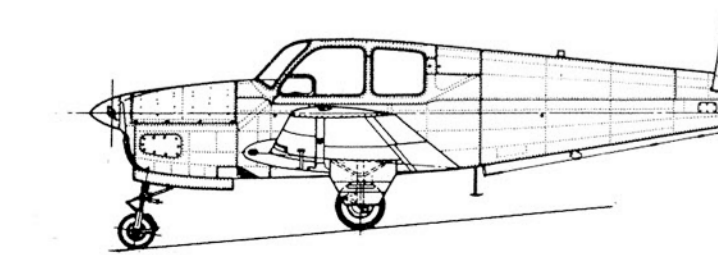
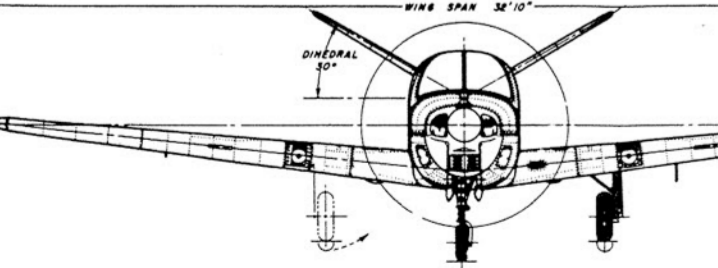
front thread to end of wire cemented in nose release block. Pull line up snug and coat knot with cement. Install wheels as described in Final Assembly. This completes mechanism. To operate, wind rubber motor. This will pull rear hook forward from a vertical position to a horizontal position, loosening threads. With tension released, wheels are then retracted manually (by hand) by bending up into place in wing and slipping strut under 1/32 wire main landing gear retainers. BEING CERTAIN THAT WHEEL AXLES ARE BEHIND LANDING GEAR RELEASE TEE. Nose gear is bent up in same manner engaged beneath horizontal U cemented to bulkhead F2. Landing gear is now locked in place. As motor unwinds, rear hook pulls back to a vertical position, tightening lines. This pulls main landing gear release Tee which in turn pulls balsa nose release block; moving landing gears past retaining wires. Landing gears now snap down into position for landing.

BEECHCRAFT BONANZA SPECIFICATIONS AND COLOR SCHEME

Wing Span - 32 Ft. 10 In.
Length - 25 Ft. 2 In.
Height - 6 Ft. 6 1/2"
Maximum Speed - 185 M.P.H.
Cruising Speed - 175 MPH
Range - 750 Miles
Engine - Continental - 185 H.P.
Propeller - 7'6" Dia.
Fuel Capacity - 40 Gals.

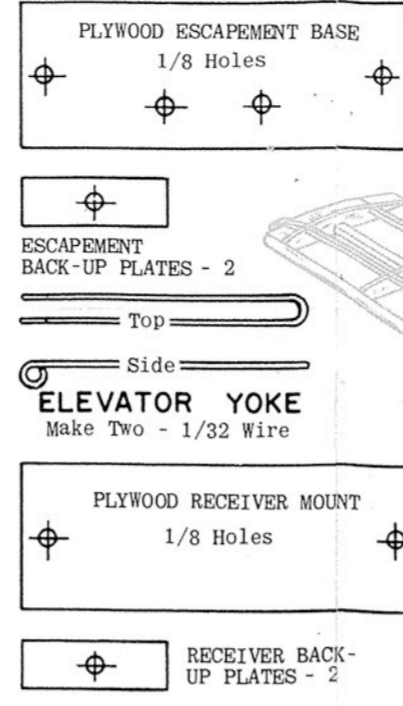


Wing: Yellow
Wing Tips: White
Fuselage: White
Top: White
Bottom: Yellow
Trim: Black
Port Light: Red
Starboard: Green
Tail Light: White
Grimes Light: Red



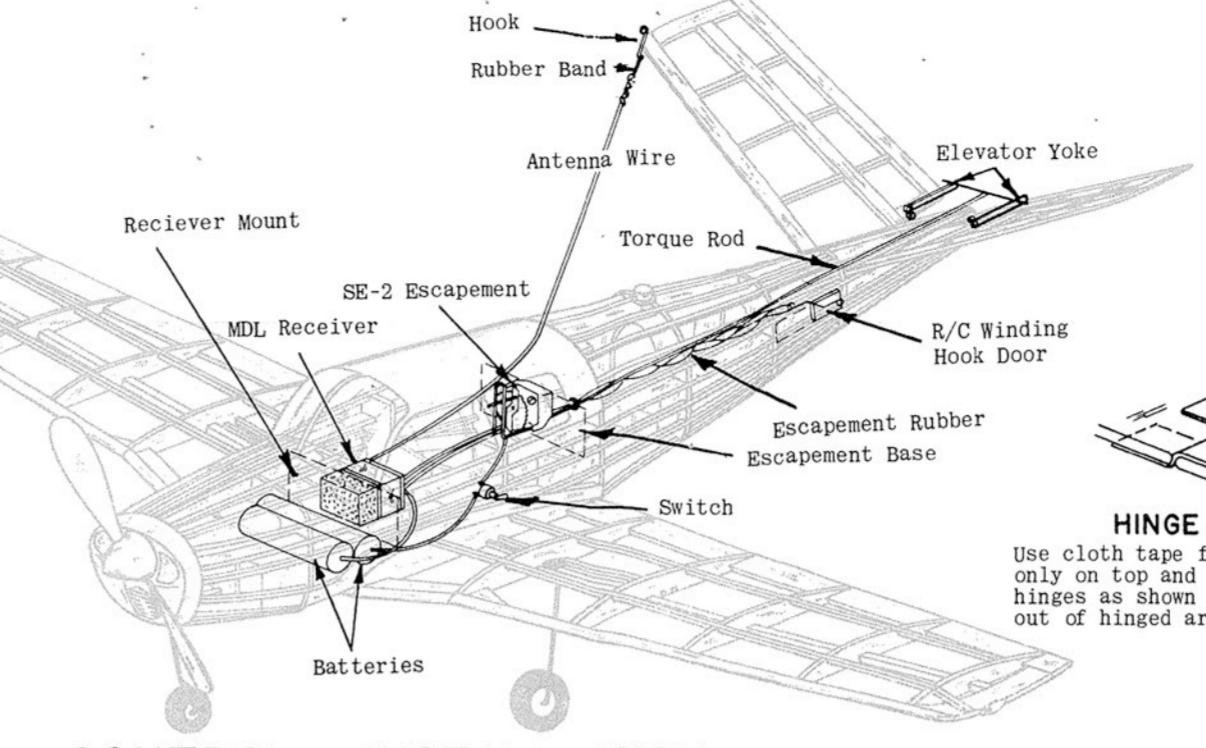
SLIDE RELEASE DETAIL

Make main landing gear slide release by cutting two slide track covers 1/16 x 3/8 x 3/4 from scrap balsa, grain running as shown. Cut a strip of plastic (from plastic parts sheet) 1/8 wide, and cement a double layer to each side and between track covers to form tunnel as shown. Long U section of Tee shaped wire-landing-gear release should slide snugly yet freely in tunnel between plastic spacers. Allow to dry thoroughly. Cement a 1/4" length of 1/16 square balsa between wire on open end of wire-landing-gear release as shown. Allow to dry thoroughly, then trim flush on top and bottom. Wrap two or three turns of thread around very end and keep it together, coating with cement. When dry, insert into slide, and tie a 12" length of thread, both to front and rear. Cement assembly into fuselage as described in Operational Landing Gear Installation. Use good grade of strong thread (not supplied in kit). Make nose wheel slide unit by cutting two pieces to shape shown from 3/32 scrap balsa. Make a right angle bend in each end of U shaped wire part and cement in place sandwiched between the two 3/32 balsa blocks as shown, spur on wide end. Allow to dry thoroughly. Cut two slide retainers from 1/16 balsa to shape shown. Cement part A vertically against front of F2 and part B between part A and center keel L3; both flush with bottom of bulkhead and center keel as shown in sketch. This forms a guide housing for nose wheel slide. Place slide in housing as shown, inserting wire through horizontal guide previously cemented to bulkhead F2. Installation of system is now completed as described in Operational Landing Gear Installation.



RADIO CONTROL INSTALLATION

Test models used, and drawing shows, Citizen-Ship MDL Receiver, SE2 Escapement, used with SPX Transmitter. This equipment, and other material necessary, is not provided in kit. Install radio after fuselage frame is completed in Step 4. Stabilizer is cut apart at location shown by dotted lines, then assembled together with cloth hinges, see detail. Bend two wire yokes from 1/32 wire using pattern above, and install on elevators as shown on sketch and full size stab drawing. Mount both with 2/56 nut and bolt. Cut escapement base from 1/16 plywood and stab escapement. Cut back-up plates from 1/16 plywood, install blind nuts on rear, then cement to back of bulkhead F5, on each side, in location shown. Install escapement with 2/56 bolts screwed through F3 into blind nuts. Cut receiver mount and two receiver back-up plates from 1/16 plywood. Cement back-up plates, to front, on either side of bulkhead F3 as shown. Receiver is installed on mount according to R/C manufacturer's instructions, and unit is installed with 2/56 bolts screwed through bulkhead F3 into blind nuts. Remove receiver and escapement from fuselage and wire radio equipment in accordance with manufacturer's instructions. Line bottom and front of compartment between bulkhead F2 and F3 with foam rubber. Batteries are then inserted and remainder of space filled



with foam rubber. Receiver is then screwed in place as is the escapement. Make hole in rear of fuselage at joint formed by side and center keels. Insert a length of 1/16 wire (for torque rod) through hole. Bend U (following R/C manufacturer's instructions and shown above) in front of wire, then pull back and engage in escapement as shown. Make a right angle bend in rear of rod in line with rear of yokes. Solder a length of 1/16 wire to bend making a Tee cross piece, which is engaged in both yokes, extending 1/2" past them when yokes are straight out and elevator is in neutral position. Movement of elevators can be increased by moving yokes away from center and vice versa. Make winding hook and door as described in detail note, then place rubber band between escapement and door hooks. Bend small hook for antenna stabilizer. Bring antenna out of fuselage directly behind F5 and fasten to hook with rubber band. Plastic cabin is installed next. Hinge right side of cabin by cementing a length of cloth tape along entire length of cabin and to fuselage. Opposite side is secured by cementing hardwood blocks on inside at front and back lower corners of cabin. Fasten in place with either small wood screws or 2/56 bolts with

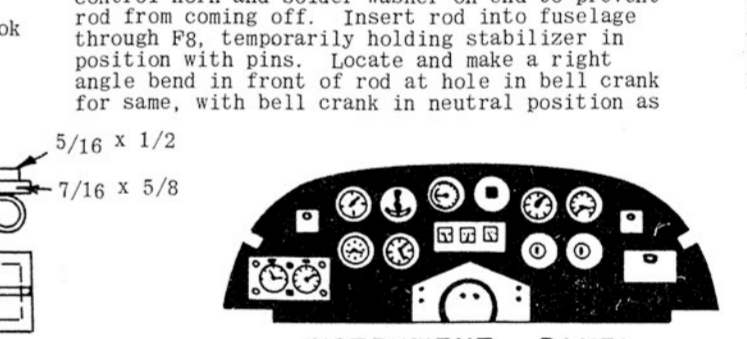
FLIGHT INSTRUCTIONS

When model has been completed, it must balance 7/8 from front of wing at tip ribs W6 as 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 Covering Step. Model is now ready for flight testing. Pick a calm day for testing. Wind propeller clockwise approximately 100 turns and launch into any prevailing wind, slightly nose down at a point on the ground approximately 50 feet ahead of you. If model noses up and then falls off and stalls (AFTER MODEL WAS BALANCED), then bend both elevators down slightly using hot breath in same manner as steam. If model dives, bend both elevators up. If model veers too much to one side, bend elevator down on the side that model turned, BENDING OPPOSITE ELEVATOR UP AN EQUAL AMOUNT. If model now dives, increase bend in up elevator and if necessary, decrease bend in down elevator. Take-offs require more power and therefore more turns in rubber motor. For longer flights and competition, it is recommended that the loops of rubber be lubricated with model

lubricant (available at most hobby shops) or with Castor Oil. Apply sparingly and KEEP OFF KNOT OR IT WILL BECOME UNDONE! Use winder which you can make by tightening hook into hand drill. To store winds in motor, stretch rubber out three to five times original length, then proceed to wind moving slowly back to model. Peel 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!!!

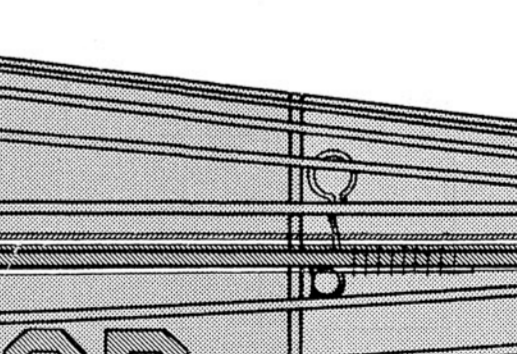
R.C. WINDING HOOK DOOR

Cut out stringer above side keel between F7 and F8 and insert 1/16 balsa flush. Cut out square hole 5/16 x 1/2. Cement it to a piece 1/16 x 7/16 x 5/8, grain running crosswise to form door. Bend half of hook shown from 1/32 wire and push straight end through door. Bend hook in other end and cement securely to door in position shown. Place loop of rubber between escapement and inner door hook.



INSTRUMENT PANEL

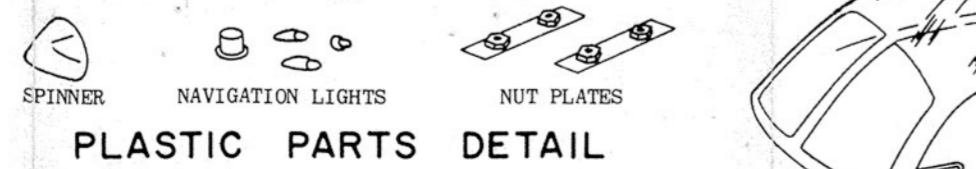
Cut from plan and cement to back of F2A



ENGINE INSTALLATION

Engine is used if model is being built for control line, free flight or radio. Engine and installation material not provided in kit. Drawing shows installation of Cox .020 Tee Dee engine, however any other similar engine may be used. Cover entire fuselage, at least back to F5 with 1/32 or 1/16 sheet balsa. The top is cut out now for engine clearance. Obtain a piece of 1/16 plywood and cut engine fire wall, using full size drawing, drilling holes indicated. Cut two engine mount blocks 3/16 x 5/16 x 1-3/8 from hardwood. Cement them securely to plywood fire wall in position shown. When dry, drill 1/8 holes through blocks and fire wall. Mount engine to fire wall with #2 nuts and bolts, tightening nuts securely. Cut plastic nut plates from molded sheet and securely cement to back of fire wall

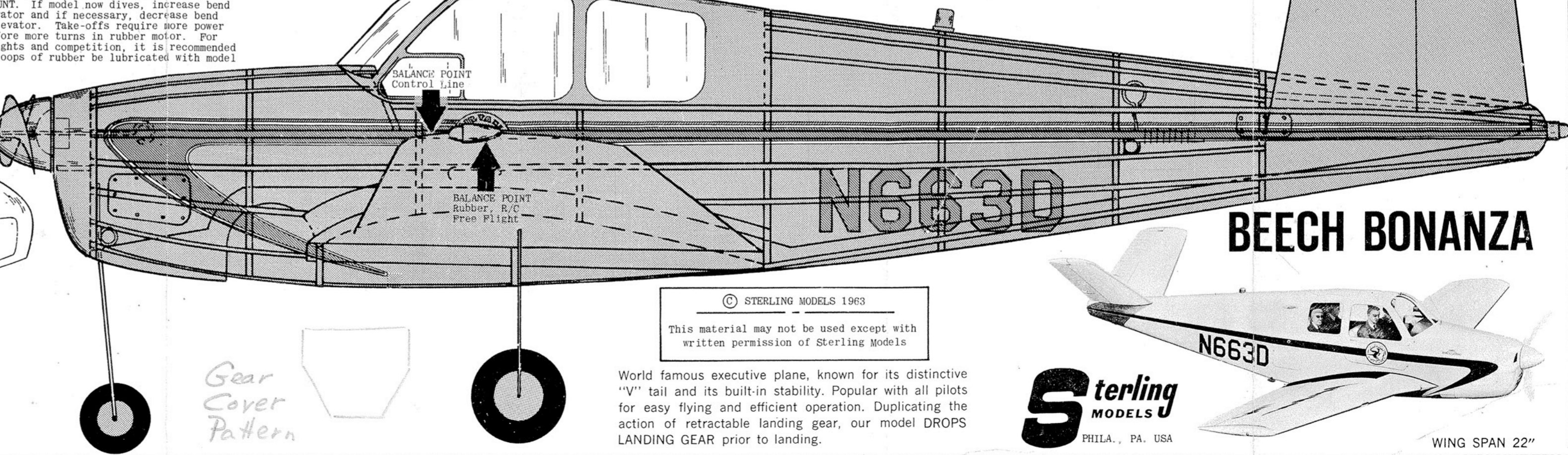
over nuts, drilling hole through so that bolts can protrude. Use cement generously. Nut plate keeps nuts from turning so that engine can be removed by just unscrewing bolts. When dry, remove engine. Securely cement fire wall to front of F2. Cut molded engine cowl from plastic sheet as described in detail note and fit over F1. Trim cowl to clear engine clearance. Cowl is not installed until after model is painted, and engine is installed. Cowl is then cemented in place. If it becomes necessary to remove engine for any reason, break cement joint of cowl. Engine is then re-installed and cowl re-cemented back in position. Add a 1/2" length of 1/16 I.D. plastic tubing to fuel tank fill and overflow tubes. Cut top of tubing at angle facing forward for easy admission of air stream.



PLASTIC PARTS DETAIL

Follow instructions carefully. COWL: Cut from sheet, leaving 1/16 material for trim. Sand and trim off excess material carefully. Cowl may be placed on bulkhead F1 for support while sanding. Clear hole for nose bearing. SPINNER: Carefully sand and trim off excess material in same manner as cowl. Cut out spinner at scribble lines and cement over propeller. GRIMES LIGHT & NAVIGATION LIGHTS: Cut from sheet and trim in same manner, being careful not to lose small parts. NUT PLATES: Cut from sheet right along trim line and install as described in Engine Installation. CABIN: Cut from sheet and trim. Install red fit in place on fuselage. Install permanently as described in Final Assembly or hinge as described in R/C Note. PAINTING: Regular plastic

model paint or enamel can be used on red parts and clear cabin. Model airplane dope can be used on red plastic only, but must be applied in light spray coat. Excessive use of dope may deform plastic. If red parts are to be painted lighter color, apply a light coat of silver, then white; otherwise lighter color will not take well. This is not required on darker colors. 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 THICK COAT AT ANY TIME. Install red Grimes and Navigation lights. See 3-views for color and location. Installation of other parts are described in text.



© STERLING MODELS 1963
This material may not be used except with written permission of Sterling Models

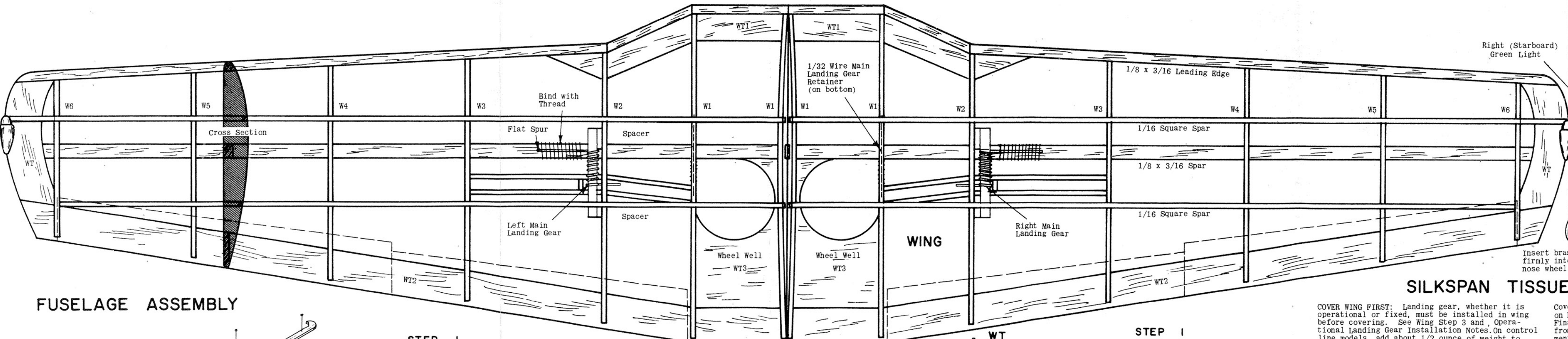
World famous executive plane, known for its distinctive "V" tail and its built-in stability. Popular with all pilots for easy flying and efficient operation. Duplicating the action of retractable landing gear, our model DROPS LANDING GEAR prior to landing.



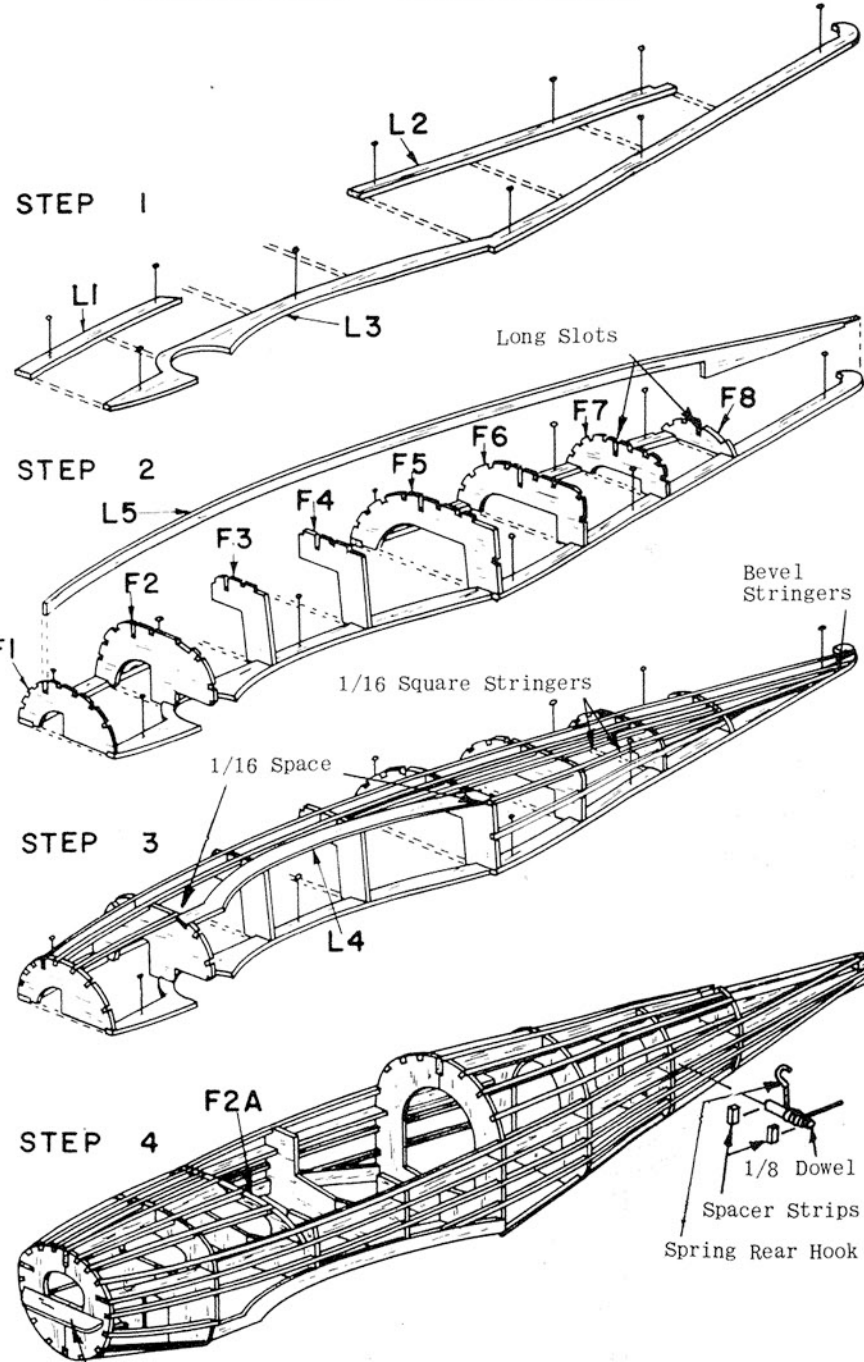
BEECH BONANZA



WING SPAN 22"



FUSELAGE ASSEMBLY

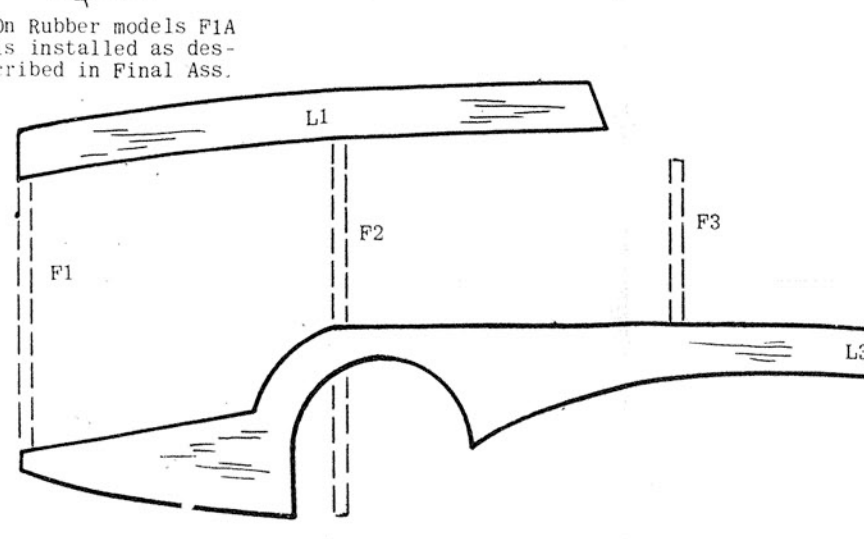


STEP 1
Fuselage construction is started on flat surface directly over plan. Pin all L parts in place as shown.

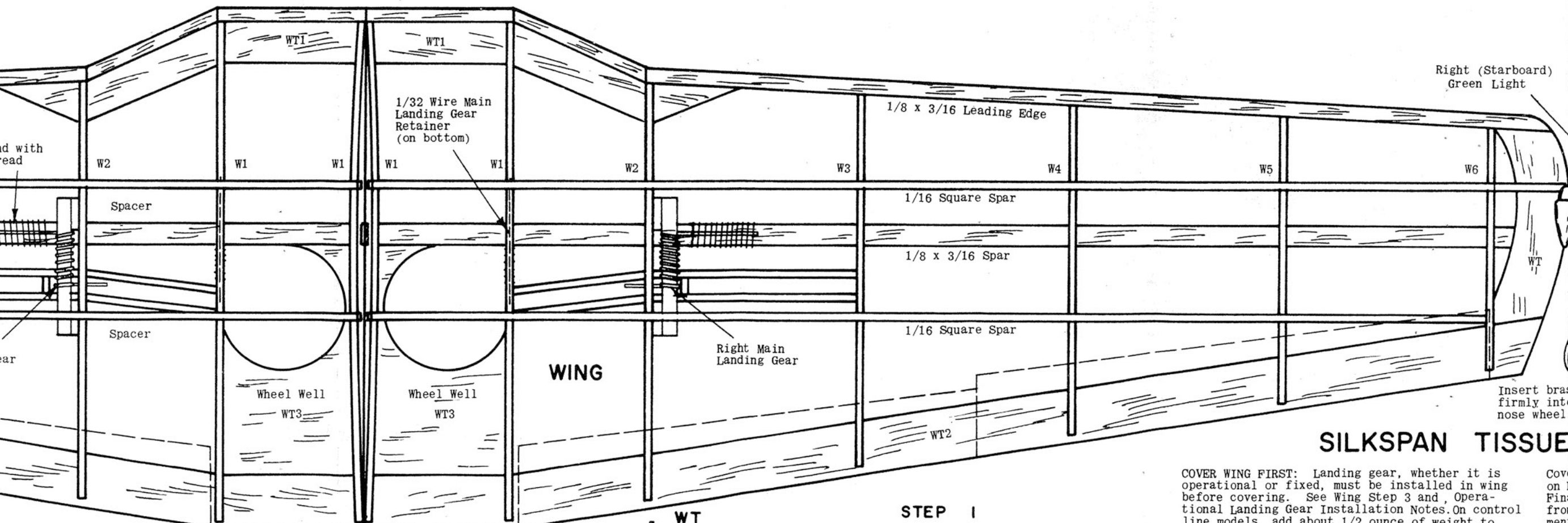
STEP 2
Cement all bulkhead halves from F1 to F8 vertically to frame as shown, then add L5, which is inserted into long slots in center of bulkheads.

STEP 3
Pin and cement side keel L4 into notches in corners from F2 to F5. Note that rear of L4 fits against top of notch in F5 to provide a 1/16 space for stringer below it; front fits against bottom of notch in F2 to provide 1/16 space for stringer above it. Install all stringers, which are 1/16 square, below side keel L5 as shown. Bevel ends to fit at rear. Allow frame to dry thoroughly to prevent warping or twisting. Over night is recommended. Assembly of wing or tail surfaces can be started in the meantime.

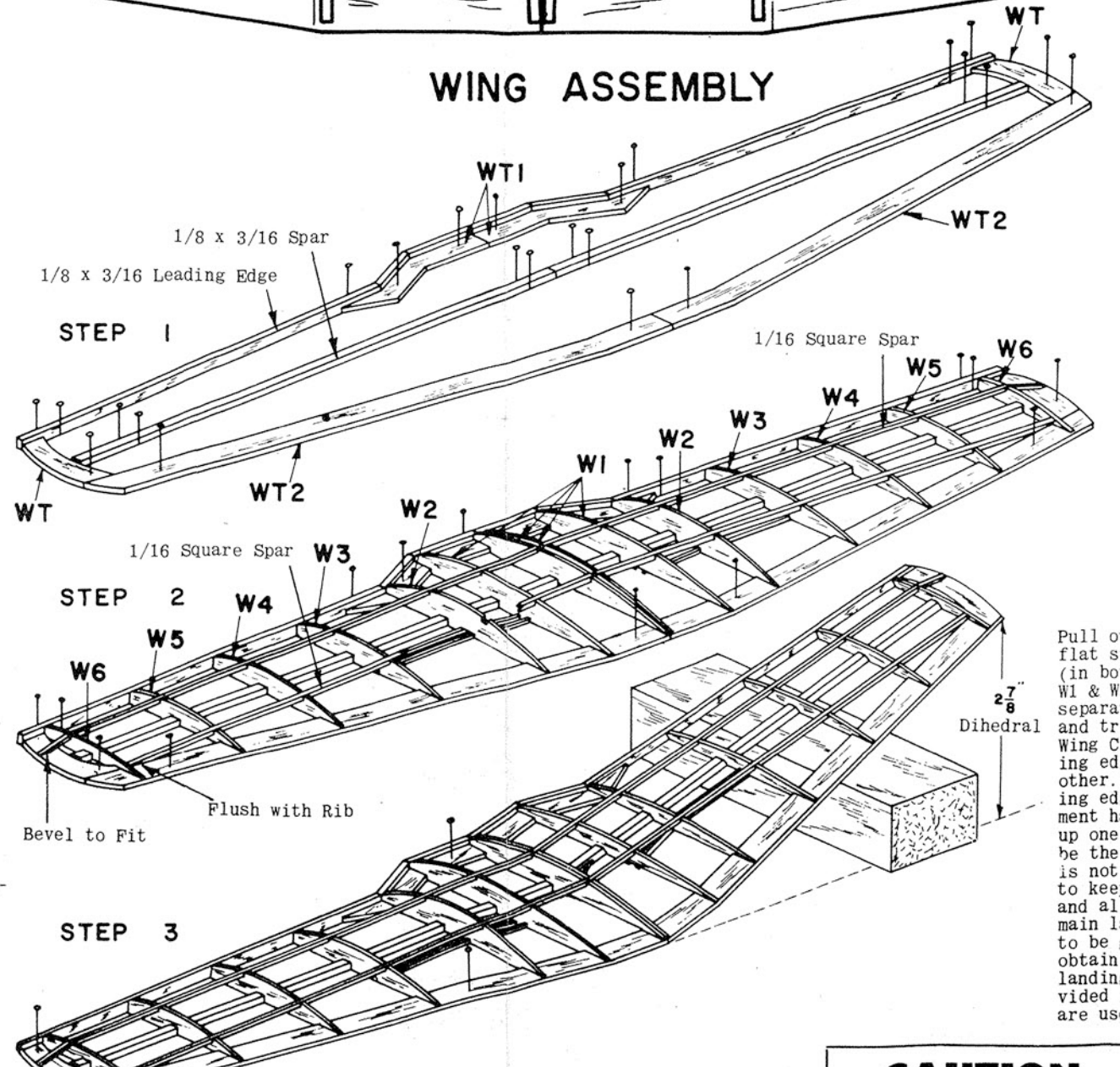
STEP 4
Carefully pull out pins and remove frame from flat surface, then cement opposite halves of bulkheads in place followed by L5. Cement F2A in fuselage flush with rear of L1 in position shown on sketch and side view. Install spring rear hook (omit on gas powered models) by inserting a 1-3/8 length of 1/8 dowel through coils of rear hook. Place in fuselage and cement to rear of bulkhead F6, placing 1/4" lengths of 1/16 x 3/32 strips between bulkhead and dowel, on both ends so that spring clears bulkhead and can actuate freely. Unit is against bottom of L5's. Straight end of hook is cemented and bound with light thread) to bottom of L5. Keep cement from coil for free spring movement of hook. When dry cement the remainder of 1/16 square stringers into their respective notches as shown. Stringers at bottom of nose are still not installed at this time. Allow fuselage frame to dry thoroughly, then sand lightly to present a smooth surface for tissue covering described in detail note. If model is constructed other than for rubber power, see respective note (Control Line, Radio, etc.) before covering fuselage.



On Rubber models F1A is installed as described in Final Ass.



WING ASSEMBLY

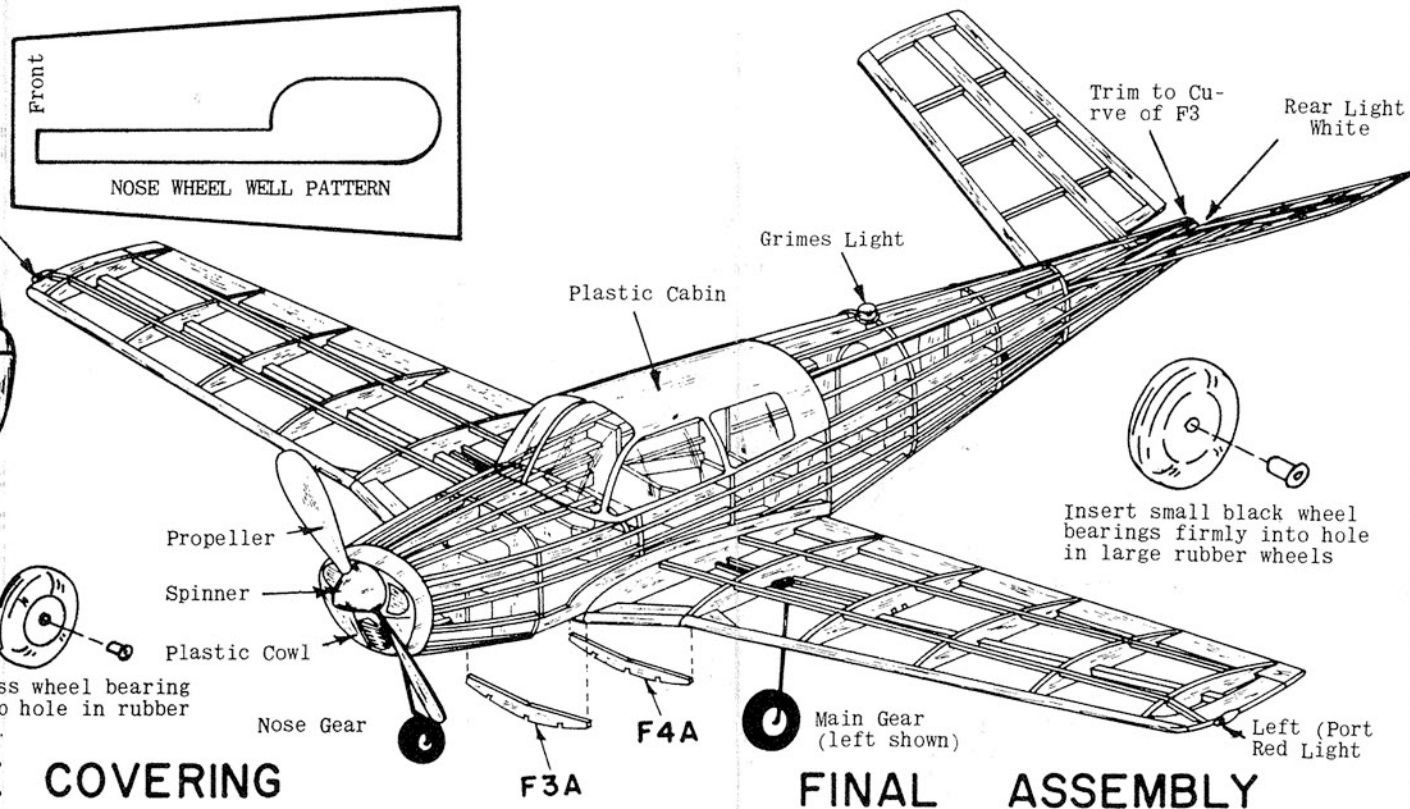
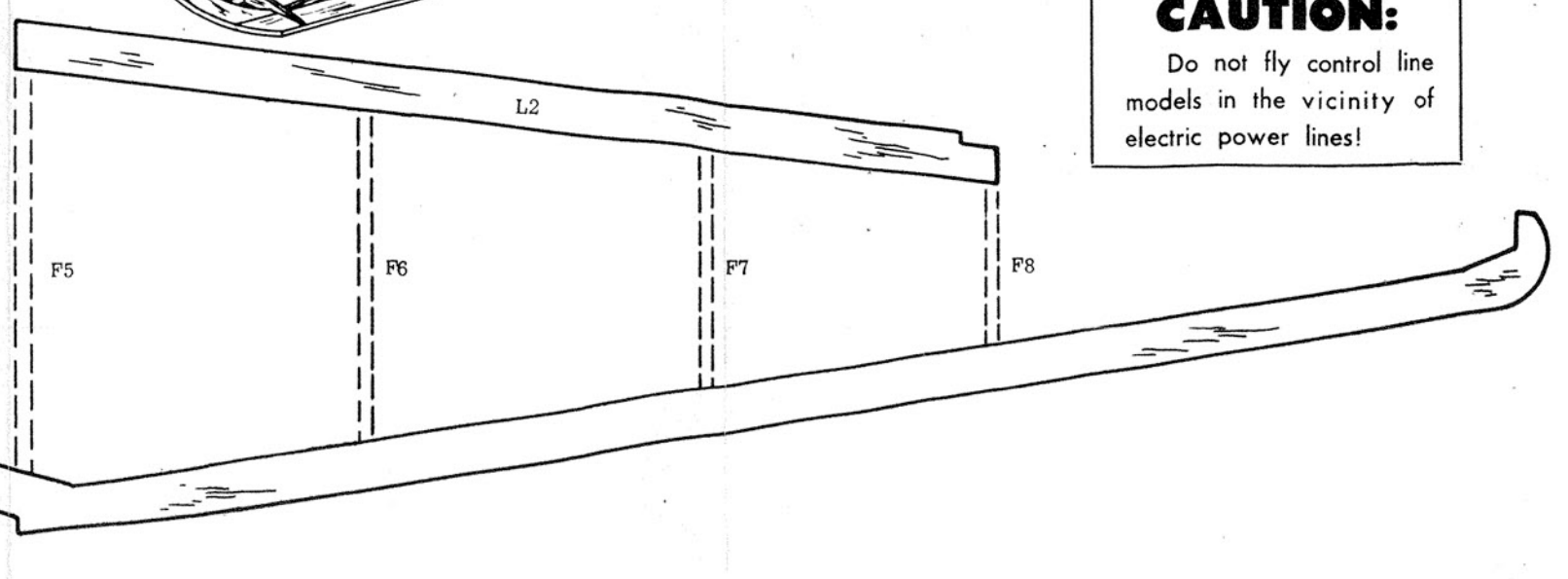


STEP 1
Build wing on flat surface directly on plan. Pin all WT parts in place, cementing to each other where they join. Cut 1/8 x 3/16 x 12 main spars to proper length. Pin in place flat, joining directly over center, where they are cemented to each other and to WT's. 1/8 x 3/16 x 12 is also used for leading edge. Pin in place in upright position, fitting small sections around WT1's as shown.

STEP 2
Ribs W1 to W6 are now cemented in place. Center ribs W1's are angled, using rib angle template as shown in detail sketch. This insures proper dihedral angle. All other ribs are vertical. Cement 1/16 square spars into notches along top of ribs. Front spar tips are cut to length, ends beveled, and then cemented in place separately. Rear spar tips are cut off and cemented flush with top of W6 as shown. Note that drawing shows rear spar between W1 and W3 (on left side) broken to reveal 1/16 square spars on bottom of wing which are installed later. Trim leading edge to curve of tip. Allow frame to dry thoroughly before removing from flat surface.

STEP 3
Pull out pins carefully and remove frame from flat surface. Cement 1/16 square bottom spars (in both wing halves) into notches between ribs W1 & W3. Crack at W2 for angle. Cement 1/16 square spars between W1 and W3. Separate wing halves and trim & sand leading edge to shape shown on Wing Cross Section. Round off tips and trailing edge as shown to blend smoothly into each other. Trim off leading edge, spars, and trailing edge flush to angle of center ribs, then cement halves together on flat surface, blocking up one side 2-7/8" as shown. Measurement must be the same at leading & trailing edge so wing is not warped. Other side is pinned or weighted to keep flat on surface. Use cement generously and allow to dry thoroughly. When dry, install main landing gears. In the event that model is to be gas powered, it is recommended that you obtain 1/16 diameter music wire and bend new landing gear struts to exact shape of ones provided in kit, omitting spring coils since they are used only in rubber powered model and those

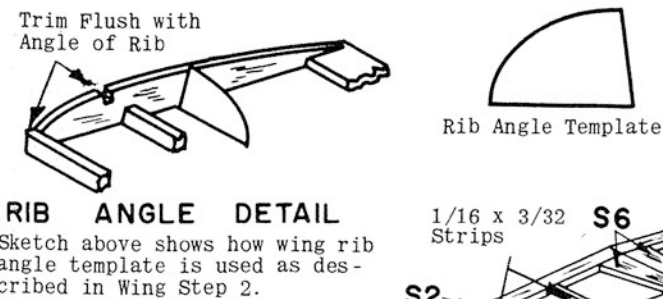
CAUTION:
Do not fly control line models in the vicinity of electric power lines!



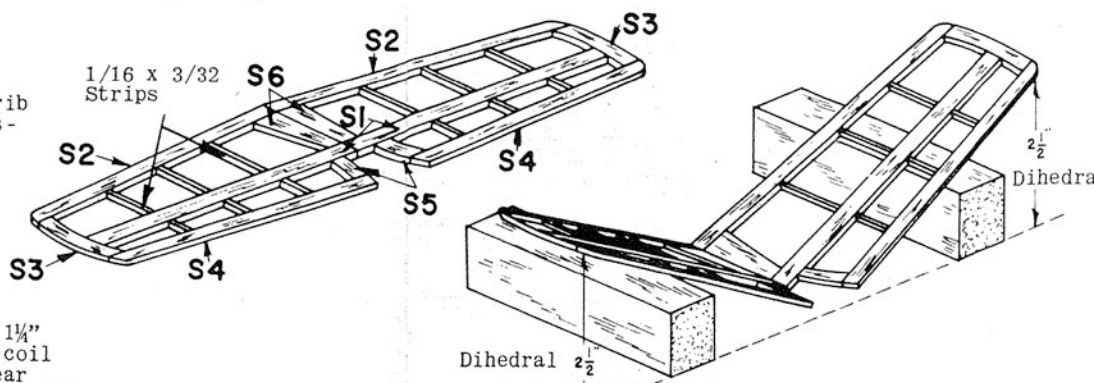
SILKSPAN TISSUE COVERING

COVER WING FIRST: Landing gear, whether it is operational or fixed, must be installed in wing before covering. See Wing Step 3 and Operational Landing Gear Installation Notes. On control line models, add about 1/2 ounce of weight to wing tip on outside of circle flown. Cover top and bottom of wing on both sides from W1 to tips, leaving center section uncovered. **COVER STABILIZER NEXT:** Cover each half of stabilizer with one piece used for top and one for bottom. See special instructions on Stab Note. **COVER FUSELAGE NEXT:** Finished stabilizer is installed, as described in Final Assembly Note, before fuselage is covered. Cover full length of sides in one piece from L4 to stringer above side keels L5. Cover top of nose in one piece back to F2A.

Cover top from F5 back in two halves, joining on L2. Wing is now installed as described in Final Assembly Note. Cut out nose-wheel well from stiff paper using pattern provided and cement in place from F1 to F3A, sides cemented to stringers adjoining center keel. Cover entire bottom in one piece from front to back, trimming out sections for landing gears when dry. Cover small side sections at nose in front of wing on both sides. Apply four coats of thinned dope to tissue covering on fuselage. Check wing and stabilizer throughout entire covering procedure for warps. Warps can be removed by holding over steam (from boiling kettle) and twisting structure gently in opposite direction. Check again when cool.



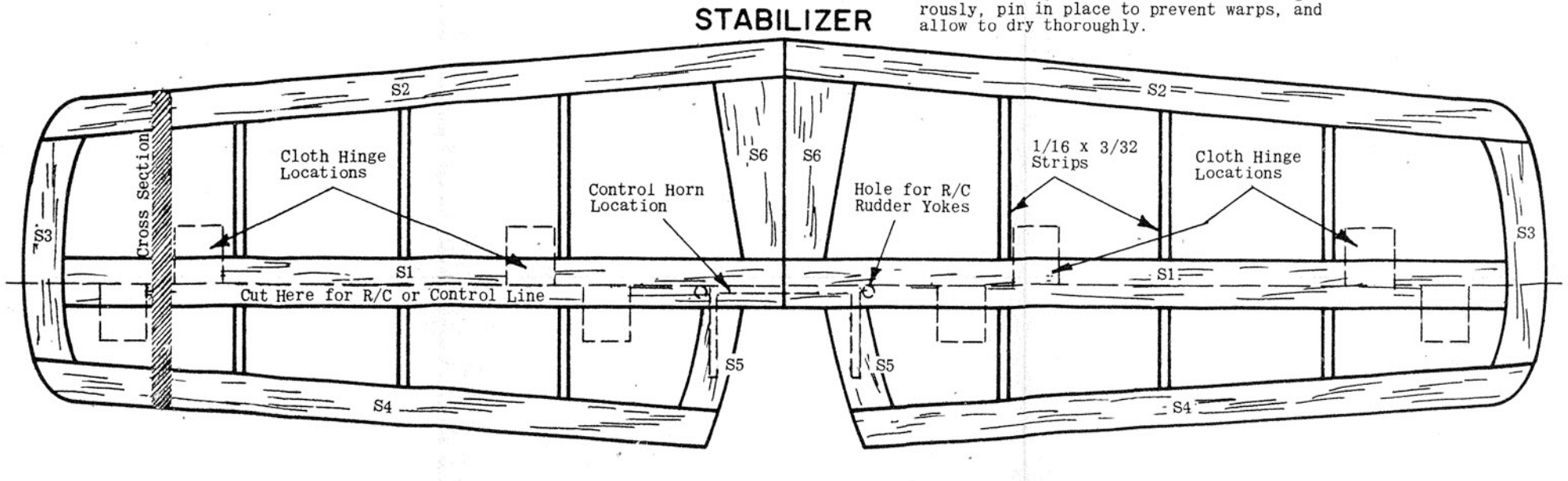
RIB ANGLE DETAIL
Sketch above shows how wing rib angle template is used as described in Wing Step 2.



STABILIZER ASSEMBLY

Pull out pins carefully and remove frame from flat surface. Cement 1/16 square bottom spars (in both wing halves) into notches between ribs W1 & W3. Crack at W2 for angle. Cement 1/16 square spars between W1 and W3. Separate wing halves and trim & sand leading edge to shape shown on Wing Cross Section. Round off tips and trailing edge as shown to blend smoothly into each other. Trim off leading edge, spars, and trailing edge flush to angle of center ribs, then cement halves together on flat surface, blocking up one side 2-7/8" as shown. Measurement must be the same at leading & trailing edge so wing is not warped. Other side is pinned or weighted to keep flat on surface. Use cement generously and allow to dry thoroughly. When dry, install main landing gears. In the event that model is to be gas powered, it is recommended that you obtain 1/16 diameter music wire and bend new landing gear struts to exact shape of ones provided in kit, omitting spring coils since they are used only in rubber powered model and those with operational landing gear. Cut two 1/4" lengths of 1/8 dowel and insert through coil spring of right and left main landing gear struts. Cut four 5/16" lengths of 1/16 x 3/32 strips. Assembly is now securely cemented in place against rib W2 as shown on full size layout with 1/16 x 3/32 x 5/16 strips used as spacers between rib and dowel as shown. Flat spur of landing gear rests on top of main spar and is securely cemented and bound in place with thread as shown. Be sure landing gears are on correct side, axle facing inward. Don't get cement on coil, it must be free to actuate. Cut two 1-3/8" lengths of 1/32 wire for main landing gear retainers. Bend 1/8 at right angle to form spur. Put pin hole in bottom of rib W1's for spur and sink into place as shown, rear extending 3/32 into landing gear slot. Bind and cement securely in place. Use needle and thread for binding, passing needle right through rib. When dry, sand frame smooth to prepare for tissue covering.

Assemble stabilizer by pinning all S parts shown to plan on flat surface, and cementing to each other where they join, except along center joint. Cut 1/16 x 3/32 strips to fit and cement in place upright. Allow assemblies to dry thoroughly on flat surface, then remove and sand smooth. Round edges (except center joint) as shown on Cross Section. Cover with tissue as described in detail note. If model is being constructed for control line or radio, cut elevators loose and hinge together as described in their respective detail notes. Cement halves to each other, blocking up each side so that both tips are 2 1/2" from flat surface as shown. Bevel joint to fit. Use cement generously, pin in place to prevent warps, and allow to dry thoroughly.



FINAL ASSEMBLY

Install nose wheel gear by cutting a 1" length of 1/8 dowel and inserting through spring coil. Cut two 1/4" lengths of 1/16 x 3/32 strips. Assembly is now cemented to rear of F1 as shown on side view. Strips are placed on either side of spring between dowel and F1 as spacers. This space permits coil spring to operate freely. Strut is located 1/16 from right side of keel with open end of axle facing same side. Use two heavy coats of cement and allow to dry thoroughly. Keep cement off coil, it must actuate freely. Cement wing securely in fuselage, ribs W1 are directly under side keels L4. Be certain to press wing tightly against L4's to insure proper incidence, otherwise model may not fly! Trailing edge is flush with F5. Hold in place with pins until dry. Cement F3A under leading edge of wing. Cement F4A to bottom of main spar, flush with rear. Cement 1/16 square stringer into center notch from F3A, to rear of rib W1, just in front of trailing edge. Bevel rear to knife edge where it is cemented to rib W1 and becomes flush with surface. Cement wheel well's WT3 in place between spar & trailing edge as shown on full size drawing. WT3's are inset flush with surface of F4A, ribs and trailing edge. If operational landing gear is installed, cement horizontal wire nose-guide to front of F2, 1/8 above bottom of bulkhead, closed end in line with center keel. Install on left side only. Install remainder of stringers (two on each side) into notches for same from nose to F4A. Cement completed stabilizer to rear of fuselage against F8. Be certain both tips are equal distance from flat surface. Pin in place and allow to dry thoroughly. Cement 1/16 square stringer rests in notch in L2 and on flat top of center keel L3. When dry, stringer is trimmed to curve of L3. Cement 1/16 square stringers from rear of F8 to end. Front of stringers are placed flush with outer edge, in center of bulkhead and rear is beveled to fit. To install and replace rubber motors, it is necessary to have an access door. Cut out stringer immediately above side keel L5, on right side, between F6 and F7. Fit a piece of 1/16 balsa into space. Cement a strip of 1/16 square to side keel L5 inside bottom of door to act as stop to keep door flush with surface. Hold bottom with Scotch Tape. Sand structure smooth to prepare for covering. Complete operational landing gear installation, as described in detail note, then cover as described in Silkspan Note. F1A is shown for position in fuselage step 4 sketch. It is now cemented across F1 flush with flat bottom cut-out. Cut out and prepare all plastic parts as described in detail note. Place cowl over F1 and F1A to check fit, but do not install. Do likewise with plastic cabin. Plastic parts are shown separately as described in Plastic Parts Note. Model is now painted. If it is to be painted scale colors, see three view drawings or box top. Since the Beechcraft Bonanza was a personal plane, there were many color schemes at the option of the owner. For best flight performance, use a minimum of color dope. Apply decals by dipping in water and sliding off into position shown. Cut instrument panel from plan and cement to rear of F2A in cabin. Cement cowl, plastic cabin and remainder of plastic parts in place as shown. Outlines of scale control surfaces can be drawn on with India Ink. Insert brass wheel bearings into wheels and place wheels on axles. Secure by bending up end of axle or with drop of cement or solder. Insert straight end of propeller shaft through rear of nose bearing. Slip on two washers provided and insert shaft through back of propeller. Bend front of shaft to U shape as shown on side view and cement U securely to propeller. Cement spinner over front center of propeller. Make two loops of rubber. Insert rubber through trap door on right side of fuselage and engage in rear hook. Slip remainder of rubber into fuselage and shake down towards nose. Make hook on end of a piece of wire. Slip wire through hole in cowl and capture rubber on hook. Pull through cowl and engage prop shaft. Nose bearing fits into center hole in cowl. Four Beechcraft Bonanza is now completed. See Flight Instructions before flying. GOOD LUCK AND HAPPY LANDINGS!!!