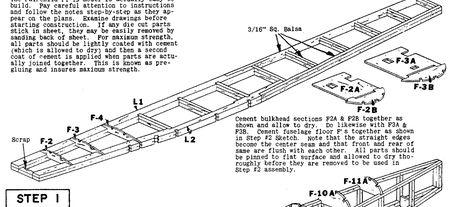
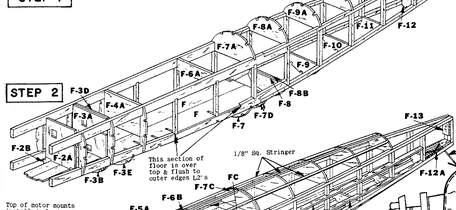
PRE-CONSTRUCTION NOTE

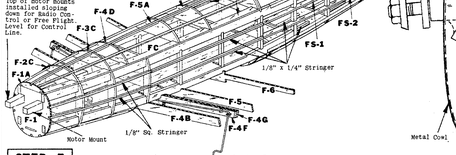
The Fairchild PT-19 model is actually easy to build. For best construction results, read instructions and follow the notes step-by-step as they appear on the plans. Examine drawings before starting construction. If any die cut parts stick in sheet, they may be easily removed by sanding back of sheet. For maximum strength, all parts should be lightly crazed with cement (which is allowed to dry) and then a second coat applied and quickly spread out evenly. Do not actually glaze (spread) cement. This makes a pressing and insures maximum strength.



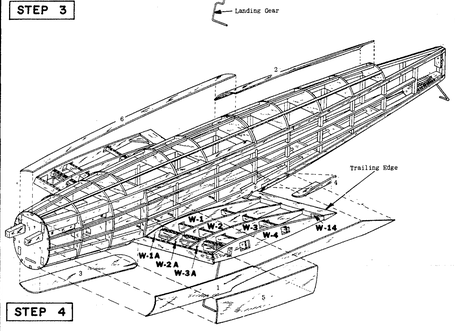
STEP 1



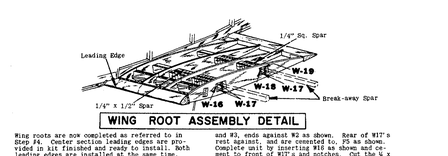
STEP 2



STEP 3

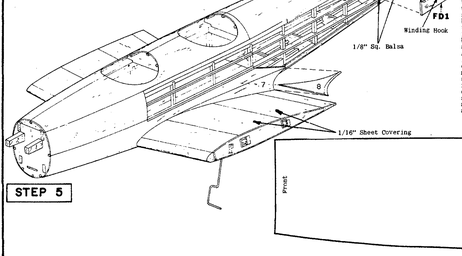


STEP 4



WING ROOT ASSEMBLY DETAIL

STEP 5



FUSELAGE ASSEMBLY

STEP I

Place wax paper on drawing to prevent parts from sticking to plans. Construct fuselage side frames directly over side view on shaded part of structure. Sketch above shows how to do. Proceed as explained in following notes. Construct inside frame (F-3 to F-6) directly over inside view of plans. Rear upper and lower longerons are 1/16" square balsa. Pin upper and lower rear longerons in place on plans and into notches in rear of L1 & L2 respectively as shown. Cut 3/16" square vertical members to fit between notches for same in L1 & L2 as shown. Install 3/16" vertical members between upper and lower longerons in same manner. Cement a length of 3/16" square balsa to front of assembly (marked scrap on sketch) between L1 & L2 flush with front of same to temporarily complete assembly. Allow to dry thoroughly before removing pins. Place wax paper over inside view. Then construct an identical frame directly over first one in same manner as shown. Connect these sides F2, F3 & F4 in place into notches between L1 & L2 as shown and allow assembly to dry completely. When dry, remove sides from plan. Side bulkheads F2, F3 & F4 are now connected in their respective places on first side, opposite to those on second side, to make left and right hand side frames.

STEP 2

Remove temporary 3/16" square vertical scrap piece cemented to front of fuselage side. Assemble side frames to floor F-1 as shown. Front of F is flush with front of sides. Section of floor, as shown on sketch, rests on top, and flush with outer edges of L2's as shown. This section of floor is over top of L1's and flush with (viewed from top). Insert bulkheads F4A & F4B in place as shown, flush with top of side frames. Cement F4A into notches for same, across top of frame. Assembled unit is parallel (when viewed from top) and should be securely cemented and allowed to dry thoroughly before proceeding with construction. Parts may be held with pins until dry. Put pins or wrap rubber bands around F4A location to certain sides do not prevent insertion of plate that will be under F4B. Add cement to rear of same around all four sides of unit which will provide a tough and permanent protective skin. Allow to dry thoroughly. Wing rest is now covered using 1/16 x 3 x 15-7/8 sheet balsa. Cement is applied with grain running from ribs W1 to W4. Skins are easily fitted by placing them over wing. Front skin is cemented against rear, and flush with top of leading edge. Rear end is formed off to fit against L2. Trim skin off flush with outer edges of rib W4. Apply skin in same manner fitted to first skin. Rear skin cemented to front of fuselage, and flush with front of trailing edge. Skin does not have to be trimmed towards fuselage rib W1. It may extend a bit, since this portion is under wing fillet which is installed later. Cover bottom of wing panel in same manner beveling skins to center where it is cemented along center of the bottom-center-stringer. Locate and cut 1/8" die holes to clear landing gear in front skins. When installing, slip over landing gear. Cement wing panels opposite wing root in same manner. All skins should be flush with outer edges and trailing edges and flush with outer edge of rib W4. Hold skins in place with pins and set aside to dry thoroughly.

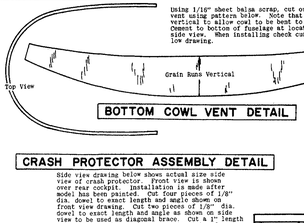
Cut out two upper wing fillets using pattern F7. Sand sheet smooth on both sides so that it will bend around fuselage without cracking or breaking. All edges of fillets are chamfered at sharp angle to conform to curve of fuselage. Cut the two F8 cheek on right hand and one left hand skin) so that skin will flow into wing at fuselage (otherwise thickness of skin will show instead of a smooth flowing surface from fillet to wing and body). Soak skin in hot water for a few moments then, while skin is soft, bend to approximately shape of fuselage. Skin may be held in place using beading cement. Pin skin in place and wrap rubber bands around skin without leaving any dents in same. Again: Be certain to make one right and one left hand fillet. Set aside to dry naturally. Skin may be placed in hot oven for a few minutes to achieve same result in a hurry. Place a pencil mark on both sides of trailing edge 3-1/8" from center. Dried fillet skins are now cemented in place as shown. Front of fillet should be re-moistened with water to allow it to assume curve, then fillet is securely cemented and pinned in place so that rear point rests at top rear corner of F5 skins as shown. Opposite side falls on pencil mark. If necessary, push together (to slightly curve) to achieve location at pencil mark. Repeat installation on opposite side. Cut two bottom wing fillets using pattern F8. Sharply chamfer rear edges only, as shown. Moisten generously with water, then cement in place to rear of leading edge from center of wing to outer edge of fillet. Bend fillet and fit to body and upper wing fillet. Hold in place with pins until thoroughly dry. Cement stabilizer platform SP against rear of F4A1A flush with outer edges of F4A1A and flush with bottom edge of the 1/8" sq. retainers and winding hook door is omitted if model is being made for U Control or Free Flight. IF MODEL IS BUILT FOR RADIO CONTROL ONLY, cement a length of 1/8" square between F5A & F5C or left side of fuselage at bulkhead F11, against rear and flush with outer edge of vertical upright as shown above and on side view. Cement a length of 1/8" square between F5A & F5C, against front of vertical upright at F5C, 3/32" in from outer surface of vertical upright to allow thickness of F11 to be flush when it is installed. Spanwise winding-hook-door to cementing F5 to F5C so that top and bottom are flush and F5A extends 1/8" on either side and F5 as shown. When dry, door may now be fitted in section between 1/8" squares. Outer surface of winding-hook-door should be flush with outer surfaces of structure. If all skin covering is to be used, Step 5 fillings are dry, remove pins. Entire structure is sanded smooth with fine sand paper. All skins (except wing root covering) should be sanded smooth. Any cracks in skin covering (usually on seams) should be filled with balsa wood cement (see your dealer) and sanded smooth when dry. Model should appear as one smooth unbroken unit. Framework is likewise sanded to remove any lumps or dry cement or similar lumps which would prevent a smooth surface for covering. Trace (or transfer using carbon paper) cockpit outline from pattern #6 to piece of paper. Mark on fuselage and cut out cockpit holes as shown. Be careful to cut (not break) through 1/8" square stringers. Care must also be taken not to break skin at rear of rear cockpit which is quite narrow.

STEP 3

Draw side frames together and cement securely to F2A & F3A, at the same time inserting protrusion in front of rib W4 into notch in same. Use two coats of cement on this joint. Be certain that fuselage is square with wing panels. IF MODEL IS TO BE BUILT FOR CONTROL LINE FLYING. See detail note for radio control models only, in which case model as well as radio equipment should be kept as light as possible. The preceding engines may be installed inverted if a pressure type tank is used. Conventional fuel tank is mounted in floor (see detail) while a new conventional gas tank is used when mounting engines upright in which case care must be taken that tank is installed so that fuel line to engine is on same level as needle valve. FOR CONTROL LINE MODELS we recommend the use of engines from .19 to .35 similar to those made by the Fox Manufacturing Company. ENGINES MUST BE MOUNTED UPRIGHT and a conventional gas tank is installed as described later on in this step. Model has been manufactured with both K & B engines and Fox engines. Accordingly, it may be necessary to adjust notches for motor mounts in bulkheads F1, F2A and F3A. IF MODEL IS BUILT FOR U CONTROL, install ¼ x ⅜ x 3½ hardwood motor mounts by inserting into notches through F1, F2A & F3, being certain they are firmly seated against back of bulkhead F2A. ANGLE CUT IN FRONT OF MOTOR MOUNTS SHOULD BE ON BOTTOM SO THAT ENGINE WILL BE INSTALLED SLOPING DOWN FOR RADIO CONTROL. Place with top sloping down which is installed in that manner ONLY FOR MODELS NOT BUILT FOR CONTROL LINE. Use two heavy coats of cement around all joints for motor mounts and allow to dry thoroughly. CONTROL LINE MECHANISM MUST be installed at this point if model is to be built for control line flying. See detail note for this installation. Cement bulkhead F1 and insert length of Sterline Regular Fuel Tubing through hole and over feed line of gas tank, allowing ¼" to project. Cut to length and connect to feed line. This is later cut, to protrude past bulkhead F1 as shown. Use two coats of cement on this joint. Install tank in location as shown, using a soft balsa scrap or sponge rubber as indicated by tank manufacturer. Install lengths of Sterline Tubing over fill and outlet tubes in top and bottom of tank so that tubing extends well past top and bottom of F2A when viewed from side. ON CONTROL LINE MODELS ONLY, top cowl from bulkheads F2A to F3 is removable cowl-mounted in place. ON RADIO OR FREE FLIGHT MODELS, F2A and bulkhead F3 are cemented securely in place so that front edges are flush with outer edges of L1's. Rear rests against F2A and front is flush with F3A. Cement bulkheads F3A, F2C, F5C, F4D, F5A, F5B & F7C (this bulkhead pin-spotted if for radio, permanently if for U control), in place across FC's as shown. Note that outer edges of F7C are flush with outer edges of F7A. Units may be held in place with pins until dry. Cement F6 in place in notches for same. Add notches for same in top bulkheads from F3A to rear of F7C. Continue with rear stringers from front of F7A to rear of F11A. Cement in place the three 1/8" square stringers into notches for same in F11A. Outer of bulkheads are cemented flush with front of F1 and through to rear of F5E. Lower rear stringers (flight) are inserted into notches for same flush with front of F7 and rear of F5E. The 1/8" x 1/8" x 3/16" strips to complete bottom rear stringer assembly are cemented in place as shown, flush with bottom edges of F5 and against 1/8" square stringer extending past F12. Taper rear to fit on longeron as shown on side view. Adjoining stringers are also 1/8" x 3/16". They extend from front of F5B and are cemented against FRONT of F12 flush with outer edge of same. Using side view, mark locations of F9, F10 and F12 in place on both sides of fuselage as shown. Outer edges at rear of F9 and F12 are flush with outer edges of vertical upright. Rear bottom of F12 is notched to fit over stringer on F11A. Cut 1/8" square balsa to length to fit between the two remaining 1/8" square stringers into notches in bulkheads and in side of fuselage as shown. Front is flush with F9 and is flush with bottom rear of F9. Taper side stringers to allow for close adaptation to bulkhead F1. Locate and drill hole in front of F1. Sides of skin are cemented to outer lower stringers against bottom of #1 slot. Rear of skin is carefully bent and pinned to wing. Vee cut will close and skin should fair into wing covering. Cement the #4 skins going pattern provided. Bottom is cemented to top of stringers and to top of F4 and F5 and to longerons as shown. Allow to dry thoroughly before proceeding. Cut a 1" length of 1/8 x 1/4 balsa for top. Construct two frames with lower longerons as shown. Slip assembled bulkhead F3A & F3B on floor (flat side up) until it rests against shoulder on side view. Insert and securely cement bottom of assemblies in holes for same. Top of units are cemented together to form inverted Vee and 1/8 x 1/4 block is cemented on top of assembly as shown. Allow to dry thoroughly then paint black.

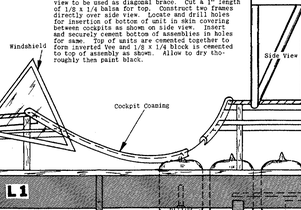
BOTTOM COWL VENT DETAIL

Using 1/16" sheet balsa scrap, cut out lower cowl vent using pattern below. Note that grain runs vertical to allow easy bend to curve shown. Cement to bottom of fuselage at location shown on side view. When installing check curve with below drawing.



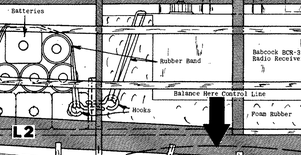
WINDSHIELD PATTERN DETAIL

Cut two windshields from celluloid (provided in kit) using full size pattern below. Windshields are then cemented in place with household cement or with pieces of transparent tape as used on full size aircraft. These may be added using white or silver cotton tape of proper width or colored tape may be painted on. Cement to fronts of cockpits at locations shown on side view.



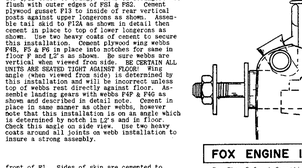
CRASH PROTECTOR ASSEMBLY DETAIL

Side view drawing below shows actual size side view of crash protector. Front view is shown near cowl cockpit. Installation is made after model has been painted. Cut four pieces of 1/8" dia. dowel to exact length and angle shown on front view drawing. Cut two pieces of 1/8" dia. dowel to exact length and angle shown on side view to assemble in diagonal brace. Cut a 1" length of 1/8 x 1/4 balsa for top. Construct two frames with lower longerons as shown. Slip assembled bulkhead F3A & F3B on floor (flat side up) until it rests against shoulder on side view. Insert and securely cement bottom of assemblies in holes for same. Top of units are cemented together to form inverted Vee and 1/8 x 1/4 block is cemented on top of assembly as shown. Allow to dry thoroughly then paint black.



FOX ENGINE INSTALLATION DETAIL

See Step 3 for information regarding engine selection. Full size drawing above shows installation of Fox .35 engine. Note that motor mounts are set under spar that provided in kit. It is necessary to trim outer edges of notches in bulkheads F1, F2A and F3A to achieve this. Fill in any resulting gaps between motor mounts and inner side of notches with scrap balsa. Note how aluminum cool, as well as built-up cowl, is cut out to clear around engine. Section of F1A and skin is cut right out for necessary clearance. Similar changes may be necessary when using various different type engines.

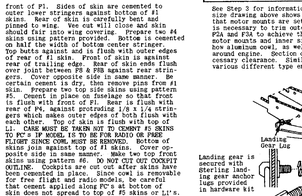


STEP 4

Install filler strip on opposite side in same manner. Outer top corner of F5 (which are now square) is sanded off to match curve of sides of bulkheads (when viewed from front). 1/16" sheet balsa skin covering is now applied to fuselage. FOLLOW DIRECTIONS EXACTLY AS GIVEN FOR SIMPLEST AND QUICKEST METHOD OF SKINNING. Skins are shown. All edges should be sanded at proper bevel angle so that top of skins can join against each other tightly. All skins should be dampened or moistened with water which will permit sheet balsa to assume necessary curve. Be careful not to moisten sheet balsa with pattern or cut from sheet balsa. When skins join over stringer, each one is mounted on half the width, so as to provide a cementing surface for both. Center should be applied to all framework covered by skin. Pins may be used to hold skins in place only. Skins for each side of fuselage by using one sheet extra. Cover side of fuselage by fitting one skin to each side of same then cement to frame as follows: Front is flush with front of F1. Top is cemented to half the width of lower side stringers from F1 to F4. Skin continues under 1/8 x 1/4 stringer flush with outer edge of same to front of F5Z. Lower front of skin is cemented along bulkhead F1 and lower edges are cemented to F1 to leading edge. Skin fits over top surface of wing against 1/2 and ends in a point at bulkhead F9 location as shown on sketch and side view. Apply opposite side skin in same manner. Preserve right and left skins in order to assure fit of skin rest on both sides of center stringer. Front of skin is flush with joint between F5A & F5C. Rear of skin rests on half the thickness of F5C. Bottom of skin is cut and is flush with outer edge of 1/16 x 3/16 filler strip as shown. Cover opposite side in same manner. Using pattern F2, make one lower cowl skin. Cement to form gap, which is to be installed vertically through bottom of bell crank as shown, replacing if necessary. Install a bell crank (& rod) according to the manufacturers instructions, leaving enough rod straight. Exact length of control rod is shown on side view. Length is determined by installing bell crank in neutral (position shown above) and elevators in neutral (as shown on side view after it has been installed in Step 5). Fit is then made between bell crank and control horn. Horizontal bend is then made and inserted through control horn. See Control Line Stabilizer Detail which shows how control rod is inserted and secured by washers soldered to end of same. Pull ends of cable together and wrap with masking tape to prevent same from straightening out and placed temporarily in fuselage until it has been completed and covered. When outboard wing panels are permanently cemented in place as described in Step 6, holes are trimmed out and cable passed through holes and inserted through guide tubes in left wing tip (see control line wing tip detail). Make loop in end of leadout-cables 3" from wing tip. Cables should be of equal length when controls are in neutral. Pull on cables to check freeness of operation.

FOX ENGINE SKIN ARRANGEMENT SKETCH

Small layouts above show how skins are cut from specific size sheets as marked. If layouts are not followed, there may be wastage which will result in disadvantage of sheet balsa. Follow instructions closely as given in detail in Step 4.

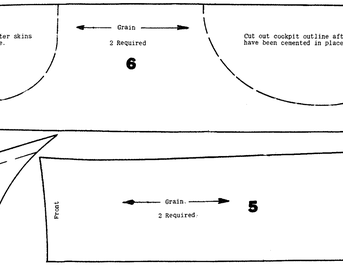


STEP 5

Using 1/16" sheet balsa, cement top rear corner of F5 skins as shown. Opposite side falls on pencil mark. If necessary, push together (to slightly curve) to achieve location at pencil mark. Repeat installation on opposite side. Cut two bottom wing fillets using pattern #8. Sharply chamfer rear edges only, as shown. Moisten generously with water, then cement in place to rear of leading edge from center of wing to outer edge of fillet. Bend fillet and fit to body and upper wing fillet. Hold in place with pins until thoroughly dry. Cement stabilizer platform SP against rear of F4A1A flush with outer edges of F4A1A and flush with bottom edge of the 1/8" sq. retainers and winding hook door is omitted if model is being made for U Control or Free Flight. IF MODEL IS BUILT FOR RADIO CONTROL ONLY, cement a length of 1/8" square between F5A & F5C or left side of fuselage at bulkhead F11, against rear and flush with outer edge of vertical upright as shown above and on side view. Cement a length of 1/8" square between F5A & F5C, against front of vertical upright at F5C, 3/32" in from outer surface of vertical upright to allow thickness of F11 to be flush when it is installed. Spanwise winding-hook-door to cementing F5 to F5C so that top and bottom are flush and F5A extends 1/8" on either side and F5 as shown. When dry, door may now be fitted in section between 1/8" squares. Outer surface of winding-hook-door should be flush with outer surfaces of structure. If all skin covering is to be used, Step 5 fillings are dry, remove pins. Entire structure is sanded smooth with fine sand paper. All skins (except wing root covering) should be sanded smooth. Any cracks in skin covering (usually on seams) should be filled with balsa wood cement (see your dealer) and sanded smooth when dry. Model should appear as one smooth unbroken unit. Framework is likewise sanded to remove any lumps or dry cement or similar lumps which would prevent a smooth surface for covering. Trace (or transfer using carbon paper) cockpit outline from pattern #6 to piece of paper. Mark on fuselage and cut out cockpit holes as shown. Be careful to cut (not break) through 1/8" square stringers. Care must also be taken not to break skin at rear of rear cockpit which is quite narrow.

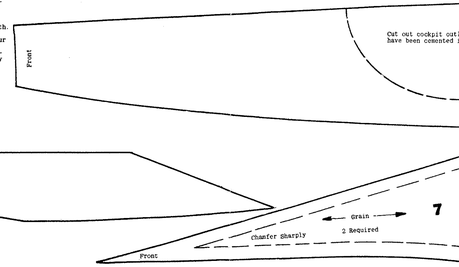
CONTROL LINE INSTALLATION

Install controls in step #2 Fuselage Construction, before front top fuselage is cemented in place. Assemble bell crank and control horn as shown. Install in location with outer edges and in center of CL1 as shown. Allow to dry thoroughly, then drill 1/8" dia. hole at punch mark indicated, for bell crank installation. When dry, securely cement assembled CL1 and CL2 in fuselage as shown at location shown on side view. CL2 is between L1's, and CL1 is beneath, and flush with outer sides of L1's. Use three heavy coats of cement around entire installation, and allow to dry thoroughly. MOUNTING OF ENGINE, RADIO AND BATTERY IS NOT PROVIDED IN KIT. Mount as conveniently as possible using parts available at your hobby dealer. The Fairchild PT-19 requires a 3" dia. bell crank assembly and a Veco or Perfect crank(or similar type). Cut off two 32" lengths of Class B or lead-out-cable. Form loops through holes for same on either side of bell crank as shown. Loops are secured as described and shown in lead-out-cable detail. Cut out holes with knife or drill in L1 where lead-out-cables come through fuselage as shown above. Cables are passed through holes and are held in same position through use of a piece of masking tape on fuselage as shown on side view. Using 3/32" dia. music wire (not provided in kit) bend one end of control rod to form gap, which is installed vertically through bottom of bell crank as shown, replacing if necessary. Install a bell crank (& rod) according to the manufacturers instructions, leaving enough rod straight. Exact length of control rod is shown on side view. Length is determined by installing bell crank in neutral (as shown on side view after it has been installed in Step 5). Fit is then made between bell crank and control horn. Horizontal bend is then made and inserted through control horn. See Control Line Stabilizer Detail which shows how control rod is inserted and secured by washers soldered to end of same. Pull ends of cable together and wrap with masking tape to prevent same from straightening out and placed temporarily in fuselage until it has been completed and covered. When outboard wing panels are permanently cemented in place as described in Step 6, holes are trimmed out and cable passed through holes and inserted through guide tubes in left wing tip (see control line wing tip detail). Make loop in end of lead-out-cables 3" from wing tip. Cables should be of equal length when controls are in neutral. Pull on cables to check freeness of operation.



LANDING GEAR INSTALLATION DETAIL

Landing gear assembly is made and installed as a unit as described in Step 3. Pre-glue then securely cement F5D to bottom of F5A and F5C. Fit in place with other end also to dry thoroughly. When dry drill 3/8"-dia. holes at points indicated by punch marks. Formed steel music wire landing gear is provided in halves. Mount as shown by slipping landing gear assembly over landing gear as shown. Insert lugs through holes in assembled web. Secure permanently with lockwashers and nuts provided. In the event landing gear anchor lugs seem short, tap with hammer to work into plywood web to allow rear end to protrude sufficiently to be engaged. Opposite landing gear is installed in same manner. Apply two heavy coats of cement around horizontal portions of landing gears as well as nuts (in rear) to insure a permanent installation. Allow to dry thoroughly before installing as described in Step 3.



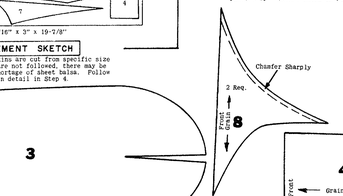
STEP 6

Cut out cockpit outline after skins have been cemented in place.

Cut out cockpit outline after skins have been cemented in place.

EXHAUST STACK ASSEMBLY DETAIL

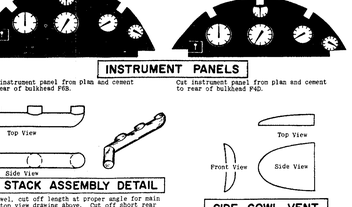
Using 1/4" dia. dowel, cut off length at proper angle for main stack as shown on top view drawing above. Cut off short rear portion of auxiliary stack at same angle and cement in place securely together with main stack. The three lengths of dowel are cemented in holes of main stack in position shown above. Space between 1/8" lengths and main stack are filled with plastic balsa (or plastic wood) and unit set aside to dry thoroughly. When dry, round off front of stack as shown and sand unit smooth. Make second exhaust stack in exactly the same manner. Paint exhaust stacks silver then cement to right side of fuselage (after model has been painted) as shown in dotted lines on side view. DO NOT CEMENT FORWARD PORTION OF FRONT STACK TO METAL COWLING, since metal cowling is removable. Cement securely to fuselage only.



INSTRUMENT PANELS

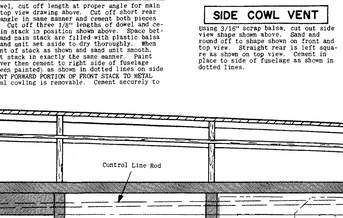
Cut instrument panel from plan and cement to rear of bulkhead F6B.

Cut instrument panel from plan and cement to rear of bulkhead F4D.



SIDE COWL VENT

Using 3/16" scrap balsa, cut out side view shape shown above. Sand and round off to shape shown on front and top view. Straight rear is left square as shown on top view. Cement in place at side of fuselage as shown in dotted lines.

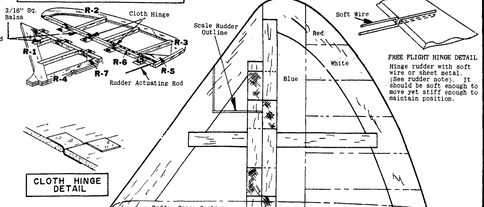


EXHAUST STACK ASSEMBLY DETAIL

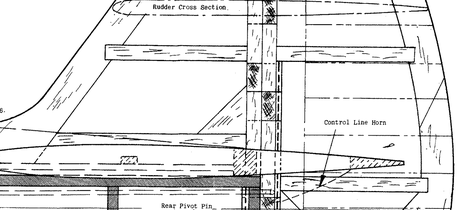
Using 1/4" dia. dowel, cut off length at proper angle for main stack as shown on top view drawing above. Cut off short rear portion of auxiliary stack at same angle and cement in place securely together with main stack. The three lengths of dowel are cemented in holes of main stack in position shown above. Space between 1/8" lengths and main stack are filled with plastic balsa (or plastic wood) and unit set aside to dry thoroughly. When dry, round off front of stack as shown and sand unit smooth. Make second exhaust stack in exactly the same manner. Paint exhaust stacks silver then cement to right side of fuselage (after model has been painted) as shown in dotted lines on side view. DO NOT CEMENT FORWARD PORTION OF FRONT STACK TO METAL COWLING, since metal cowling is removable. Cement securely to fuselage only.

RUDDER ASSEMBLY

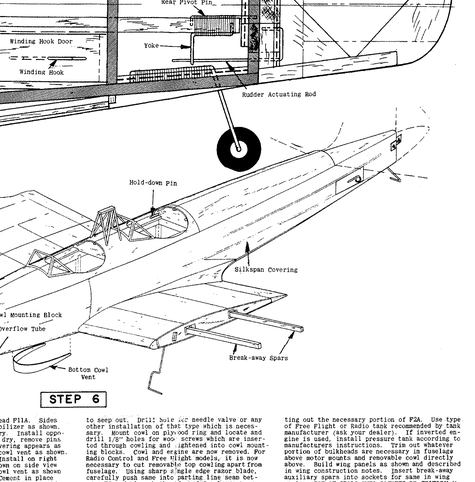
Rudder is built directly on drawing shown in side view. Use wax paper to prevent structure from sticking to plans. Cement R1 to R2 and R3 to R4 at hinging. At location shown where R5 and R6 meet cement together. This insures a strong warp-resistant construction. All structure except die cut outline is cut from 1/4 x 1/4 x 15-7/8 balsa. Cut vertical and horizontal members to exact length and pin into place directly on drawing. R6 should be cemented against rear and flush with bottom of rear vertical post as shown. Horizontal members may be cemented to vertical posts. DO NOT CEMENT VERTICAL POSTS TOGETHER. Use 1/16" dia. pin to mark location of hinge holes in R1 and R4, so that 1/4" square frame fits into notches for same as shown. Rear outline R2 and R3 are cemented to frame in same manner, except, since these are thinner (because of streamlining) they are cemented to the center of the 1/4" square structure when viewed from rear. Add triangular gusset R7. IF MODEL IS FOR RADIO CONTROL, bend rudder to floating rod to exact shape shown in radio style. Holes in rudder are 1/16" dia. and 1/8" dia. Holes in frame through R5 and vertical post at exact location shown on side view. Using two pieces of cement, secure rod to inside of R5 with long length of rod protruding as shown. Cement gusset R8 in place. Allow rudder to dry thoroughly on flat surface. Entire rudder is now sanded to streamline shape. Front of R1 is rounded off to streamline cross section as shown on side view. Section from vertical post to rear is sanded on both sides so that structure tapers to rear outline. Taper top of vertical post and round off top of R1 so that it flows into R2. Check to see that structure is free from warps. IF MODEL IS BUILT FOR RADIO CONTROL, hinge rear portion of rudder with cloth provided using method shown in sketch. IF MODEL IS BUILT FOR FREE FLIGHT, obtain soft wire (or soft aluminum or brass sheet) which is securely cemented to both units so that rear of rudder may be bent into fixed position for free flight adjustments. Wire is cemented in place as shown (see Step 6). IF MODEL IS BUILT FOR CONTROL LINE, rear of rudder is cemented so that it is offset ¾" to outside of circle flown. Rudder is covered with silkspan tissue used wet. Apply two coats of dope and set aside to dry, being certain structure is not warped. Rudder may now be cemented to stabilizer and installed as described in Step 6.



CLOTH HINGE DETAIL



STEP 6



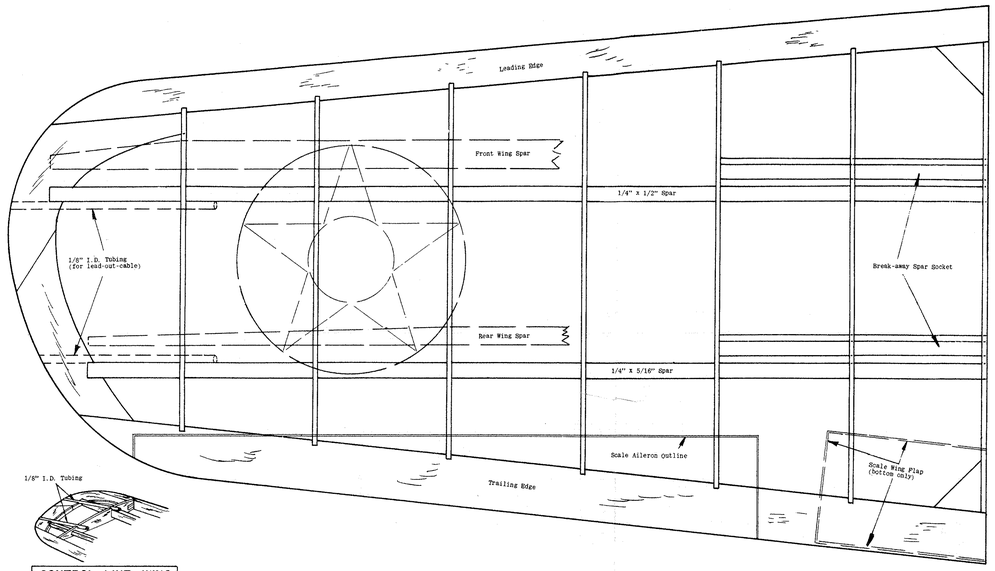
TAIL SKID ASSEMBLY DETAIL

Tail skid is bent from 1/16" dia. music wire to exact shape as shown above. Dotted line indicates position of tail skid on F2A). Drill 1/16" dia. holes through F2A at points indicated by punch marks. Slip bent wire tail skid through rear hole and engage front hole in first hole. Secure with two heavy coats of cement. Then wrap entire unit with heavy thread as shown in Step 3 sketch. Apply additional coat of cement and allow to dry thoroughly. Unit is now ready to be installed as described in Step 3.

CLOTH HINGE DETAIL

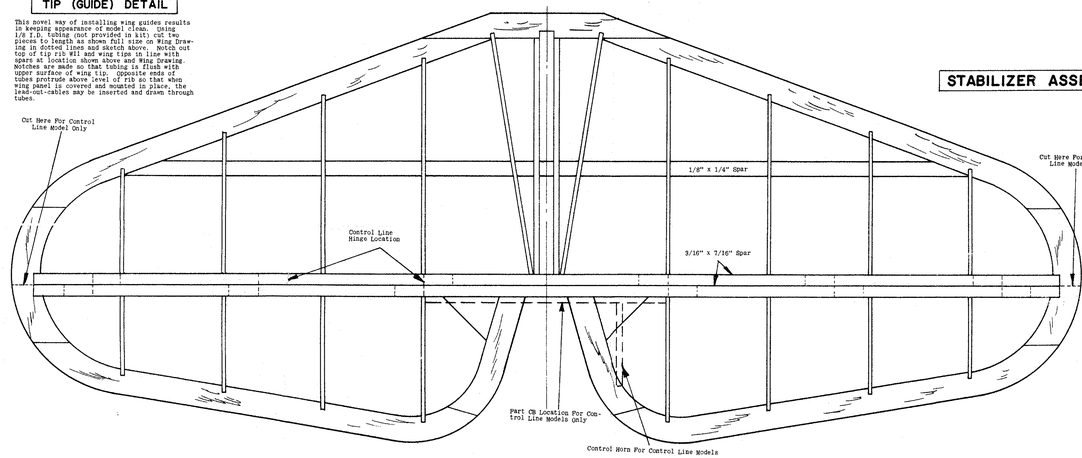
STEP 7 FINAL ASSEMBLY

All uncovered portions of framework on side and bottom of fuselage are now covered with silkspan, applied wet. Then give a coat of clear dope. Model builder desired TWO LAYERS OF SILKSPAN. Thin silk or nylon fabric may be used (dope provided in kit). The use of nylon or silk will practically eliminate all possibility of dope cracking. Refinish and trim all exposed surfaces of model. Silkspan on balsa surfaces use two coats of clear dope. Model is now ready for decalling. Trim for Radio Control PT-19 is a primary trainer and therefore is painted overall yellow. Metal cowling is painted black and the wing fairings, is painted medium blue. Top and bottom of wings, fuselage and tail surfaces of fin are painted chrome yellow. Entire removable cowl is painted black. Cockpit interior is red and the cowl is painted dull black. Color scheme may be changed to suit builder's ideas. Make cowl protector as shown and described in detail note above and cement in place as shown on side view. Cowl should be free of dope. Cockpit rim is painted with aluminum (optional (not included in kit) and may be installed if model builder so desires, using fuel tubing (Sterl-X Regular). Slit tubing along length and install by sliding in place around edge of cockpit. Hold in place with rubber bands. Using pattern provided, make windshields as described in note and cement in place in front of cockpits as shown on side view. Cement fuselage to wing assembly, carefully apply same when dry. Cement fin and rudder assembly to fuselage. Using sharp-pointed modeling razor blade, cut out elevator and rudder from trailing edge of stabilizer assembly. Cement hinges in fuselage above motor mounts and removable cowl directly above. Cowl and engine are now removed. For Radio Control and Free Flight models, it is now necessary to cut removable top cowling apart from fuselage. Using sharp-pointed razor blade, carefully cut through cement joint at places where cement fastened cowl to bulkheads F2A and F3A. They must be a PRESS FIT and require considerable force to remove. Cut instructions are given in Step 2. Do likewise in case between F2A and F7C at rear of removable cowl. Cut through upper part of plywood ring F2C in a permanent part of cowling and must be cut off at level of F2A and as indicated on front view (see detail) and side view. Cowl should now be free of fuselage. It is necessary to trim rear of cowling on fuselage are made from two pieces 1/8" dia. dowel. Drill 1/8" dia. holes for same in cowl at location shown on side view. Cement in place with either side of bulkheads F2C directly above, (so that 1/8" dia. holes in bulkheads are in line with holes in cowl) and allow to dry thoroughly. Drill 1/8" dia. holes in ends of dowel. Place cowling on fuselage and mark location of holes for pins in F2A. Drill holes through portion of dowel through holes in cowl. Fill holes with cement. Push pins through F2C's on F4's with pointed ends protruding 1/2" past F2C. Drill 1/8" dia. holes as located on F2A and apply two coats of cement around holes to strengthen. FOR FREE FLIGHT AND RADIO CONTROLLED MODELS, gas tank is now installed by cutting out the necessary portion of F2A. Use type of Free Flight or Radio Control tank recommended by tank manufacturer (ask your dealer). If inverted engine is used, install pressure tank according to manufacturers instructions. Trim out whatever portion of bulkheads are necessary in fuselage above motor mounts and removable cowl directly above. Cowl and engine are now removed. For Radio Control and Free Flight models, it is now necessary to cut removable top cowling apart from fuselage. Using sharp-pointed razor blade, carefully cut through cement joint at places where cement fastened cowl to bulkheads F2A and F3A. They must be a PRESS FIT and require considerable force to remove. Cut instructions are given in Step 2. Do likewise in case between F2A and F7C at rear of removable cowl. Cut through upper part of plywood ring F2C in a permanent part of cowling and must be cut off at level of F2A and as indicated on front view (see detail) and side view. Cowl should now be free of fuselage. It is necessary to trim rear of cowling on fuselage are made from two pieces 1/8" dia. dowel. Drill 1/8" dia. holes for same in cowl at location shown on side view. Cement in place with either side of bulkheads F2C directly above, (so that 1/8" dia. holes in bulkheads are in line with holes in cowl) and allow to dry thoroughly. Drill 1/8" dia. holes in ends of dowel. Place cowling on fuselage and mark location of holes for pins in F2A. Drill holes through portion of dowel through holes in cowl. Fill holes with cement. Push pins through F2C's on F4's with pointed ends protruding 1/2" past F2C. Drill 1/8" dia. holes as located on F2A and apply two coats of cement around holes to strengthen. FOR FREE FLIGHT AND RADIO CONTROLLED MODELS, gas tank is now installed by cutting out the necessary portion of F2A. Use type of Free Flight or Radio Control tank recommended by tank manufacturer (ask your dealer). If inverted engine is used, install pressure tank according to manufacturers instructions. Trim out whatever portion of bulkheads are necessary in fuselage above motor mounts and removable cowl directly above. Cowl and engine are now removed as described in wing construction notes. Insert break-away spars in notches provided in ribs W1 to W4. Spars are positioned so that top surfaces are flush with top surfaces of ribs. They must be a PRESS FIT and require considerable force to remove. Cut instructions are given in Step 2. Do likewise in case between F2A and F7C at rear of removable cowl. Cut through upper part of plywood ring F2C in a permanent part of cowling and must be cut off at level of F2A and as indicated on front view (see detail) and side view. Cowl should now be free of fuselage. It is necessary to trim rear of cowling on fuselage are made from two pieces 1/8" dia. dowel. Drill 1/8" dia. holes for same in cowl at location shown on side view. Cement in place with either side of bulkheads F2C directly above, (so that 1/8" dia. holes in bulkheads are in line with holes in cowl) and allow to dry thoroughly. Drill 1/8" dia. holes in ends of dowel. Place cowling on fuselage and mark location of holes for pins in F2A. Drill holes through portion of dowel through holes in cowl. Fill holes with cement. Push pins through F2C's on F4's with pointed ends protruding 1/2" past F2C. Drill 1/8" dia. holes as located on F2A and apply two coats of cement around holes to strengthen. FOR FREE FLIGHT AND RADIO CONTROLLED MODELS, gas tank is now installed by cutting out the necessary portion of F2A. Use type of Free Flight or Radio Control tank recommended by tank manufacturer (ask your dealer). If inverted engine is used, install pressure tank according to manufacturers instructions. Trim out whatever portion of bulkheads are necessary in fuselage above motor mounts and removable cowl directly above. Cowl and engine are now removed as described in wing construction notes. Insert break-away spars in notches provided in ribs W1 to W4. Spars are positioned so that top surfaces are flush with top surfaces of ribs. They must be a PRESS FIT and require considerable force to remove. Cut instructions are given in Step 2. Do likewise in case between F2A and F7C at rear of removable cowl. Cut through upper part of plywood ring F2C in a permanent part of cowling and must be cut off at level of F2A and as indicated on front view (see detail) and side view. Cowl should now be free of fuselage. It is necessary to trim rear of cowling on fuselage

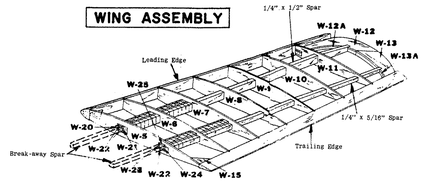


CONTROL LINE WING TIP (GUIDE) DETAIL

This novel way of installing wing guides results in keeping appearance of model clean. Using 1/8 I.D. tubing (not provided in kit) cut two pieces to length as shown full size on Wing Drawing in dotted lines and sketch above. Notch out top of tip rib W11 and wing tips in line with spars at location shown above and Wing Drawing. Notches are made so that tubing is flush with upper surface of wing tip. Opposite ends of tubes protrude above level of rib so that when wing panel is covered and mounted in place, the lead-out-cables may be inserted and drawn through tubes.



WING ASSEMBLY

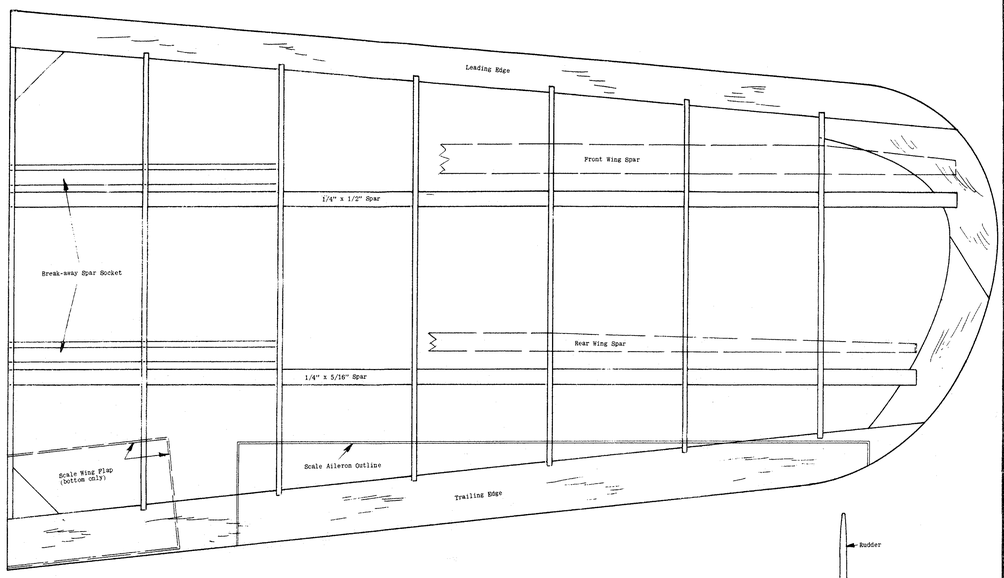


STEP 1

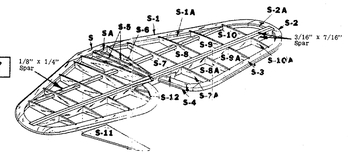
Check wing panels continuously through assembly operation to prevent warpage. Wing tips are made up of two layers as shown in drawings. Prepare two pieces of 1/16" sheet balsa for each tip and place-with-grain until dry. Make two sets of each. Pre-glue all front and rear of ribs as well as notches for same, in leading and trailing edges, to insure strong and warp free construction. Prepare front wing spar (¼" x ½" x 23-7/8") by cutting to length and angle as shown in full size wing drawing. Prepare rear spar (¼" x 5/16" x 22-7/8") in same manner. Slide wing ribs #5, #6, #7, #8, #9, #10 and #11 on to both front and rear spars (through notches for same in ribs) as shown. DO NOT USE CEMENT ON SPAR AND RIB JOINTS AT THIS TIME. Cement front of ribs into notches for same in leading edge, and rear of ribs into notches for same in trailing edge as shown. Check alignment over full size drawing. Note that #5 & #6 ribs are not perpendicular to front spar (rear of leading and trailing edge when viewed from front) to allow for 1/16" sheet covering. Cement front wing tip W12 in place into notch in front of rib #11 and against leading edge. Spar is inserted into notch for same as shown. Tip assembly W13 is cemented to rear of W12 and against front of trailing edge as shown. Rear spar is cemented into notch as shown. Bottom of W13A is flush with bottom of trailing edge. Apply cement liberally on installation. Check on full size drawing for alignment and set aside to dry thoroughly. Make opposite wing panel in same manner.

STEP 2

Sockets for auxiliary break-away spars are now constructed. Assemble front socket by cementing W21 against front spar through notches in ribs. W22 is then cemented to front of W21 flush to top and bottom of notches against W21 as shown. W20 is then cemented against front of W22's and notch (as shown) to complete socket. Insert the ¼" x 5/16" spar through socket to align units THEN PULL PROMPTLY OUT. Allow to dry thoroughly. Rear spar socket is assembled in same manner using W24 against front of rear spar, followed by W22 which is cemented to bottom of notch against W24. W23 is cemented to top of notch and over top of W24 as shown. W15 is cemented against front of W23's and W22. Insert the auxiliary spar into socket to check alignment, then PROMPTLY PULL OUT. Allow sockets to dry thoroughly. Then wrap units (socket and respective spar) with many turns of heavy thread. Apply a heavy coat around all four sides of unit which will provide a tough permanent protective skin. Allow to dry thoroughly. Apply cement to all spar and rib joints. Cement front gusset W18 between leading edge and W5, followed by rear gusset W19 between rear of rib and trailing edge. Cement gusset W16 to front of W5 and W6 as shown, over top and bottom of wing section between W5 & W6 (grain running between ribs). Front section of skin butts against and is flush with leading edge. Cement second 9° section directly behind first, and follow with third section which is fitted behind second section and front of trailing edge is flush with rear spar. Hold in place with plastic spring. Covering is trimmed flush with outer edges of W5 & W6. Mark wing tip curves on leading and trailing edges as shown on full size drawing (and dotted lines on sketch) and trim to shape. Tips are now tapered as shown on front view. Trim and round off leading edge fron top and bottom as shown on sketch until it fairs smoothly into wing tip assembly. Rear of wing tip is trimmed from top and bottom and rounded off until it gradually flows into trailing edge. Repeat for other wing tip. Then add ¼ inches of weight coiled solder-in each wing tip and cable tubes to left tip as shown and described in Control Line Wing Tip Detail. Finish other wing panel in same manner. Wing panels are now ready to be installed on wing roots as described in Final Assembly Detail for final sanding. Wing panels are now sanded smooth in preparation for silkspan covering. Cover with silkspan applied wet. A second coat of silkspan tissue or nylon or silk fabric may be used. This is particularly advisable if model is intended for stick type flying. Additional silkspan, silk or nylon, is not supplied with the kit, but may be purchased at your hobby dealer. Apply two coats of clear dope, check for warpage, then set aside to dry. Wing is now ready to be installed as described in Step 6.



STABILIZER ASSEMBLY

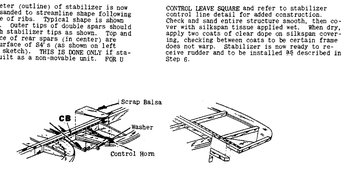


STEP 1

Stabilizer, while containing many parts, is quite simple to build and results in a warp-resistant unit. Construction is somewhat similar to wing. Using 1/8" x 1/4" x 16-7/8" balsa strip cut front spar to length (ends are angled) by laying directly over full size stabilizer drawing. The center section is made from two pieces of 3/16" x 7/16" x 11-7/8" balsa strip. Cut to length and taper ends as shown. Mark location of stabilizer on spr is two layers cemented together. Parts are identical except for thickness and when cementing together all edges should be flush. Cement S 10 8A, S1 to S1A (two units required), S2 to S2A (two units required), S3 to S3A (two units required) and S4 to S4 (two units required). Place wax paper over stabilizer plans then pin the center unit (S & SA) in position. Cement the two outer units (S1 & S1A) to either side of center unit building up in place with pins until dry. Pin both S4 assemblies in place and cement both S2 assemblies to rear of same. When outline units are dry, remove from plan. Slide stabilizer ribs into location on front spar (leave fill as shown) using full size plan for location. ASSEMBLE DRY (joints are cemented when structure is completed later in step) in the following sequence: Both S5's, both S6's, both S7's, both S8's and both S9's. Install front of stabilizer assembly by inserting front of rib into notches for same as shown. Cement both S10's into notch for same in front spar as shown. Remainder rear double spar. IF MODEL IS BEING BUILT FOR FREE FLIGHT, cement both rear spars together. Sand to a wedge shape. IF MODEL IS BEING BUILT FOR RADIO CONTROL STABILIZER CONTROL, cement spars together. Sanding control operation of stabilizer is NOT RECOMMENDED FOR BEGINNERS. If such control is desired, only the right side of elevator is used. In this case, only the left half of spars should be cemented together. Right half is lightly cemented together so that structure may be cut apart and hinged after stabilizer has been finished. Equipment and other details necessary for stabilizer control may be obtained by writing to manufacturer of radio equipment. IF MODEL IS BUILT AS CONTROL LINE, DO NOT CEMENT SPARS TOGETHER. They may be held together with pins or light spot cemented so that they can be cut loose after stabilizer construction is completed, as described in Control Line Stabilizer Detail. Pin spars down on plan and cement rear of ribs (EXCEPT BOTH S6's) in place. Cement front of ribs into notches for same. Stabilizer is of the flat surface type. Cement rear of ribs and spars may be pinned down. Note top and bottom of ribs are flush with spars. Cement assembled stabilizer tips (S2 & S2A) against rear of stabilizer outline, inserting double spar into notch for same as shown. Install rear stabilizer rib by cementing both S7's, both S8A's, both S8B's and both S10A's to rear spar directly behind their respective front ribs as shown. Front of rear ribs are flush with top and bottom of spar. Cement rear triangular gussets S12 on either side between rear spar and S6 assemblies as shown. Allow units to dry thoroughly. When dry, cement S11 in place and apply a coat of cement around all joints. Cement S3 in place on top of spars at joints S2 to S2A. Cement spar joints in S6's. Check for warps, and allow structure to dry thoroughly.

STEP 2

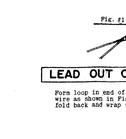
Entire perimeter (outline) of stabilizer is now trimmed and sanded to streamline shape following general curve of ribs. Typical shape is shown on side view. Outer tips of double spars should be flush with stabilizer tips as shown. Top and bottom spars (front and rear) are sanded to taper to surface of ribs (as shown on left side only of sketch). THIS IS DONE ONLY if stabilizer is built as a non-movable unit. FOR U CONTROL LEAVE SQUARE and refer to stabilizer control line detail for added construction. Check and sand entire structure smooth, then cover with silkspan tissue applied wet. When dry, apply two coats of clear dope on silkspan covering, checking between coats to be certain frame does not warp. Stabilizer is now ready to receive rudder and to be installed #6 described in Step 6.



STABILIZER (AND RUDDER) CONTROL LINE DETAIL

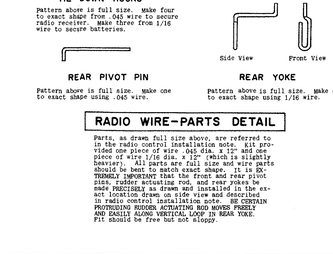
After stabilizer has been built, cut rear elevator loose by inserting sharp razor blade between double rear spars and cutting through tips, in line with seam between spars (when viewed from top). Plywood spar gusset CB is cemented against rear of spar between ribs F7A. To do this, cut both S6's and S12's 3/32" short (thickness of CB). Cement CB in place as shown. Using a #30 drill, centerpunch and drill 1/16" dia. hole at punch mark indicated. To be certain that rod action does not wear out hole, it is recommended that a brass eyelet or length of tubing (not supplied in kit) be installed through hole to act as bearing surface. Securely cement control horn in stabilizer by mounting same over CB (control horn has slot for this purpose). Rear of control horn is beveled to fit against S12, so that control horn is parallel to rib when viewed from top. Use two heavy coats of cement on all joints to secure control horn installation. Control rod is bent from .045 wire as shown. Drill holes installed for this purpose, as shown above. Method of hooking up batteries and radio equipment is shown in detail sketch above. Equipment is not shown in their relative positions for clarity reasons. Components however should be installed in fuselage as described. BE CERTAIN ALL SOLDERED CONNECTIONS ARE TIGHT. Wrap a layer of foam rubber (¼" to 1" thick) around front, bottom and rear of receiver. Receiver is firmly secured in fuselage as shown by rubber bands supplied in kit. Use of rubber bands, tie, and hooks is unique as shown above. This type of rubber tie-down will protect receiver in event of impact. Foam rubber may also be installed in battery compartment around batteries for same purpose. The complete installation of the radio equipment is fully covered in the manual provided with the equipment that you are using. When installation is completed, operation of the radio equipment must be checked out with transmitter. BE CERTAIN THAT ESCAPEMENT MECHANISM AND RUDDER LINKAGE OPERATES FREELY. Complete flight instructions are given in radio control flying note. RADIO EQUIPMENT SHOULD BE CHECKED OUT CAREFULLY BEFORE EACH FLIGHT.

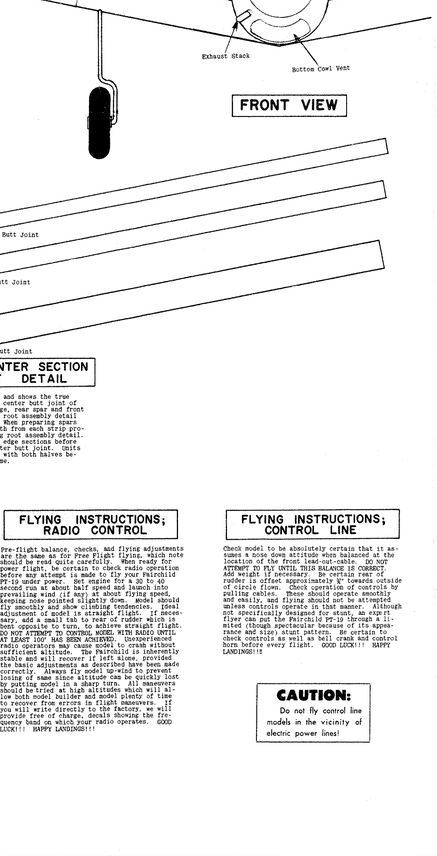
square to control horn so that front is flush with bottom of CB and rear is flush with S12. to provide shoulder for silkspan covering. All edges should be rounded and sanded smooth. Rudder is prepared for control line installation by notching triangular section out of vertical upright as shown in sketch. This is necessary to allow for movement of control horn. Rudder is cut away from bottom rear point of S6 to 9° above same, at rear of rear vertical upright. DO NOT CUT THROUGH PLYWOOD GUSSET R6 which has been installed so that section of vertical upright can be removed. Front of rudder is trimmed 3/16" below bottom of R4 and rear is 1-3/8" below cutout already made in rear vertical upright. Be certain that glue joints between rear vertical upright and plywood gusset R6 are secure. After rudder has been covered, be certain rear portion cemented in place so that it is offset ¼" towards outside of circle flown. Rudder may be offset to left or right, depending on how model is to fly. Tail is installed as described in Step 5. Sketch above shows how control rod spur is bent horizontally on end of control rod at location of hole in control horn. Spur should be ¼" long. Insert through hole and secure by soldering washer (or soft wire) to end of spur.



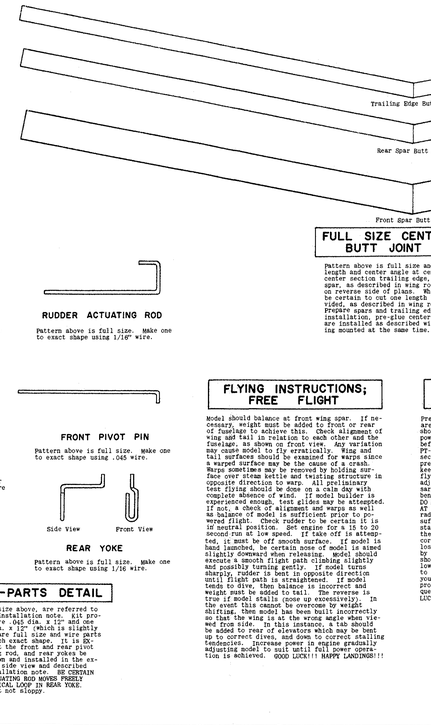
LEAD OUT CABLE LOOP DETAIL

Form loop in end of cable and wrap with soft copper wire as shown in fig. #1. Allow enough cable to fold back and wrap with wire as shown in Fig. #2.





FRONT VIEW



FULL SIZE CENTER SECTION BUTT JOINT DETAIL

Pattern above is full size and shows the true length and center angle at center butt joint of center section trailing edge, rear spar and front spar, as described in wing root assembly detail on reverse side of plans. When preparing spars be certain to cut one length from each strip provided, as described in wing root assembly detail. Prepare spars and trailing edge sections before installation, pre-glue center butt joint. Units are installed as described with both halves being mounted at the same time.

RADIO CONTROL INSTALLATION NOTE

For all installations that are secured with wood screws, cement plywood (scrap from kit may be used) to surface of balsa so that wood screws can be securely tightened. Side view drawing shows typical installation of radio and pushrod mounting units. These should be positioned only during the installation of radio and equipment. Drawings show installation of the Babcock BCH-3, which is a 27 MC Radio Receiver, and the Babcock Super Compound Escapement. This equipment is not supplied with kit and is purchased at your favorite hobby dealer. Equipment shown has been installed and tested in our original model and carries our complete approval. There are many other fine radio receivers and equipment on the market which may also be used. For information, check with your hobby dealer. In the event a different equipment is used, or installation made, in the type and location of batteries, all equipment should be placed in the completely assembled model (ready to fly) and model checked carefully for balance. Be certain that your Fairchild PT-19 when ready to fly, balances on the front wing spar. THIS IS EXTREMELY IMPORTANT! Balance model on finger tips placed at outer tips of wing at main spar location. If necessary, batteries in the equipment MUST BE SHIFTED to achieve this balance. Using patterns shown on radio wire parts detail, cut bulkheads F3F and F4C as provided. Add same to bulkheads with two coats of cement before installing bulkheads in fuselage. Position of hooks on bulkheads are clearly shown above, and on side view. Cement hook in center of F3F, hook facing rear and protruding through hole in F2A. F4C has two hooks facing front and two hooks facing rear as shown, mounted on both sides of cut outs. Cement a hook on each side of F6C facing forward as shown. Using two coats of cement, securely install wire hook bulkheads in fuselage at location shown. Install F7B across vertical upright, and to floor, directly under F6A. Install F7E between and flush with F6A and F6B. Install F7A between and flush with F6D and F6E. Cement two heavy coats of cement on both installations. Prepare torque rod (which transmits motion to rudder by cutting a ¼" x 15-7/8" strip balsa TO EXACT LENGTH AS SHOWN ON SIDE VIEW. Bend front pivot pin from .041 (see radio wire detail for part drawing) wire and cement securely to front of torque rod IN EXACT LOCATION SHOWN ON SIDE VIEW. Pivot pin is secured by wrapping with thread (as shown) and applying two heavy coats of cement. Repeat for rear pivot pin installation (see radio wire detail for part drawing). Bend rudder pushrod using .045 wire (see radio wire detail for part drawing). Install front pivot pin securely to bottom rear of torque rod in EXACT LOCATION SHOWN ON SIDE VIEW. Rear yoke is secured by wrapping with thread (as shown) and applying two heavy coats of cement. Be certain that rudder actuating rod moves freely and easily in loop. Drill a 3/64" dia. (#56) hole through F13 at point indicated by punch mark, into which rear pivot pin is inserted. When installation has been built and hinged, place one of the two #56 drill mark location where RUDDER ACTUATING ROD PASSES through F13 and drill a hole 3/32" dia. (#42) holes to form a slot ¼" long. Outer edges of slot are tapered outwards to match angle of body when viewed from top. This will leave a 1/16" wall between ends of slot and outer edges of fuselage. Trim slot smooth with tiny flat file or razor blade. Rudder actuating rod should move freely from side to side in slot. ANY TENDENCY TO BIND MUST BE ELIMINATED. When tail surfaces are installed as described in Step 6, rudder actuating rod is engaged in yoke as shown. Amount of turn in rudder is adjustable. It can be increased by bending rudder actuating rod up in yoke. BE CERTAIN ROD RIDES FREELY IN SLOT AND YOKE. Complete flight instructions are installed at same time. Locate and drill 3/32" dia. mounting holes at proper location for CB and F7B. Insert rear pivot pin of torque rod in hole for same through F13. Insert front pivot pin through holes in escapement and securely solder equipment in place permanently as shown, using 2-56 nuts, bolts and lockwashers (not provided in kit). If tail surfaces have not been installed, do so at this point. Pin rudder in neutral position (no turn) and drill hole through rudder and fuselage for rudder line provided with escapement (a row soldered in place to front pivot pin as shown in neutral position (vertical when viewed from front). File end of pivot pin slightly to provide a good base for solder. Be certain to use a hot iron to obtain a PERMANENT SOLDER JOINT. Operation can be checked by turning crank handle on escapement. This movement should cause the torque bar to move from side to side, which in turn moves the rudder from side to side. Check entire installation thoroughly to eliminate any binding. ALL PARTS MUST WORK FREELY AND EASILY. Install tail surfaces as described in Step 6. Complete manual with radio equipment is mounted on F6A as shown. Cement plywood scrap to F6A to strengthen installation. Suspend a loop of 1/8" flat rubber (or rubber recommended in radio manual) between inner hook of winding door and hook in rear of escapement. Instructions for this operation is covered in radio manual. Batteries are now installed. Experience has shown the value of soldering all leads (wires) directly to the batteries as shown in sketch. The finished battery unit may be held together with tape (friction, adhesive, etc.) and then entire unit strapped into place in fuselage being held in place by rubber bands as shown. Battery wire hooks installed for this purpose, as shown above. Method of hooking up batteries and radio equipment is shown in detail sketch above. Equipment is not shown in their relative positions for clarity reasons. Components however should be installed in fuselage as described. BE CERTAIN ALL SOLDERED CONNECTIONS ARE TIGHT. Wrap a layer of foam rubber (¼" to 1" thick) around front, bottom and rear of receiver. Receiver is firmly secured in fuselage as shown by rubber bands supplied in kit. Use of rubber bands, tie, and hooks is unique as shown above. This type of rubber tie-down will protect receiver in event of impact. Foam rubber may also be installed in battery compartment around batteries for same purpose. The complete installation of the radio equipment is fully covered in the manual provided with the equipment that you are using. When installation is completed, operation of the radio equipment must be checked out with transmitter. BE CERTAIN THAT ESCAPEMENT MECHANISM AND RUDDER LINKAGE OPERATES FREELY. Complete flight instructions are given in radio control flying note. RADIO EQUIPMENT SHOULD BE CHECKED OUT CAREFULLY BEFORE EACH FLIGHT.

Pattern above is full size. Make one to exact shape using 1/16" wire.

Pattern above is full size. Make one to exact shape using 1/16" wire.

Pattern above is full size. Make four to exact shape from .045 wire to secure radio receiver. Make three from 1/16 wire to secure batteries.

Pattern above is full size. Make one to exact shape using .045 wire.

Pattern above is full size. Make one to exact shape using 1/16 wire.

Pattern above is full size. Make one to exact shape using 1/16 wire.

RADIO WIRE-PARTS DETAIL

Parts, as drawn full size above, are referred to in the radio control installation note. Kit provided one piece of wire .045 dia. x 12" and one piece of wire 1/16 dia. x 12" (which is slightly heavier). All parts are full size and wire parts should be bent to match exact shape. It is EXTREMELY IMPORTANT that the front and rear pivot pins, rudder actuating rod, and rear yokes be installed exactly as shown in sketch. Install in the exact location shown on side view. Follow instructions in radio control installation note. BE CERTAIN PROTRUDING RUDDER ACTUATING ROD MOVES FREELY AND EASILY ALONG VERTICAL LOOP IN REAR YOKE. Fit should be free but not sloppy.

FLYING INSTRUCTIONS; FREE FLIGHT

Model should balance at front wing spar. If necessary, weight must be added to front or rear of fuselage to achieve this. Check alignment of wing and tail in relation to each other and the fuselage, as shown on front view. Any variation may cause model to fly erratically. Wing and tail surfaces should be examined for warps since a warped surface may cause a model to crash. Warps sometimes may be removed by bending slightly over steam kettle or other suitable steam and in opposite direction to warp. All of these factors should be done on a calm day with complete absence of wind. If model flight is experienced enough, test glides may be attempted. If not, a check of alignment and warps as well as balance of model is sufficient prior to powered flight. Check rudder to be certain it is in neutral position. Set engine for a 15 to 20 second run of low speed. If take off is attempted, it must be off smooth surface. If model is hand launched, be certain nose of model is headed slightly downward when released. Model should glide with a shallow path in a slightly left turn, and possibly turning gently. If model turns sharply, rudder is bent in opposite direction until flight path is straightened. If model tends to dive, then balance is incorrect and weight must be added to tail. The reverse is true if model stalls (nose up excessively). In the event this cannot be overcome by weight shifting, then model has been built incorrectly so that the wing is at the wrong angle when fastened from sides. In this instance, a tab should be added to rear of trailing edge of wing, bent up to correct dives, and down to correct stalling tendencies. Increase power in engine gradually adjusting model to suit until full power operation is achieved. GOOD LUCK!!! HAPPY LANDINGS!!!

FLYING INSTRUCTIONS; RADIO CONTROL

Pre-flight balance, checks, and flying adjustments are the same as for Free Flight flying, which note should be read quite carefully. When ready for power flight, be certain to check radio operation before may attempt is made to fly your Fairchild PT-19 under power. Set engine for a 20 to 40 second run at about half speed and launch into wind. Model should climb straight ahead with a very slight turn. If model is flown properly it will fly smoothly and show climbing tendencies. Ideal adjustment of model is straight flight. If necessary, add a small tab to rear of rudder which is bent opposite to turn, to achieve straight flight. DO NOT ATTEMPT TO CONTROL MODEL WITH RADIO UNTIL AT LEAST 100' HAS BEEN ACHIEVED. Inexperienced radio operators may cause model to crash without sufficient altitude. The Fairchild is inherently stable and will recover if left alone, provided the basic adjustments as described have been made correctly. Always fly model into wind. If model noses down, rudder can be quickly lost by putting model in a sharp turn. All maneuvers should be tried at high altitudes which will allow both model builder and model plenty of time to recover from errors in flight maneuvers. If you will write directly to the factory, we will provide free of charge, decals showing the frequency band on which your radio operates. GOOD LUCK!!! HAPPY LANDINGS!!!

FLYING INSTRUCTIONS; CONTROL LINE

Check model to be absolutely certain that it assumes a nose down attitude when balanced at the location of the front lead-out-cable. DO NOT ATTEMPT TO FLY UNTIL THIS BALANCE IS CORRECT. Add weight if necessary. Be certain rear of rudder is offset approximately ¼ inches outside of circle flown. Check operation of control by hooking up lead-out-cables to control horn and easily, and flying should not be attempted unless controls operate in that manner. Although not specifically designed for stunts, an expert flyer can put the Fairchild PT-19 through a limited (though spectacular because of its appearance and size) stunt pattern. Be certain to check controls as well as ball crank and control horn before every flight. GOOD LUCK!!! HAPPY LANDINGS!!!

CAUTION:

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