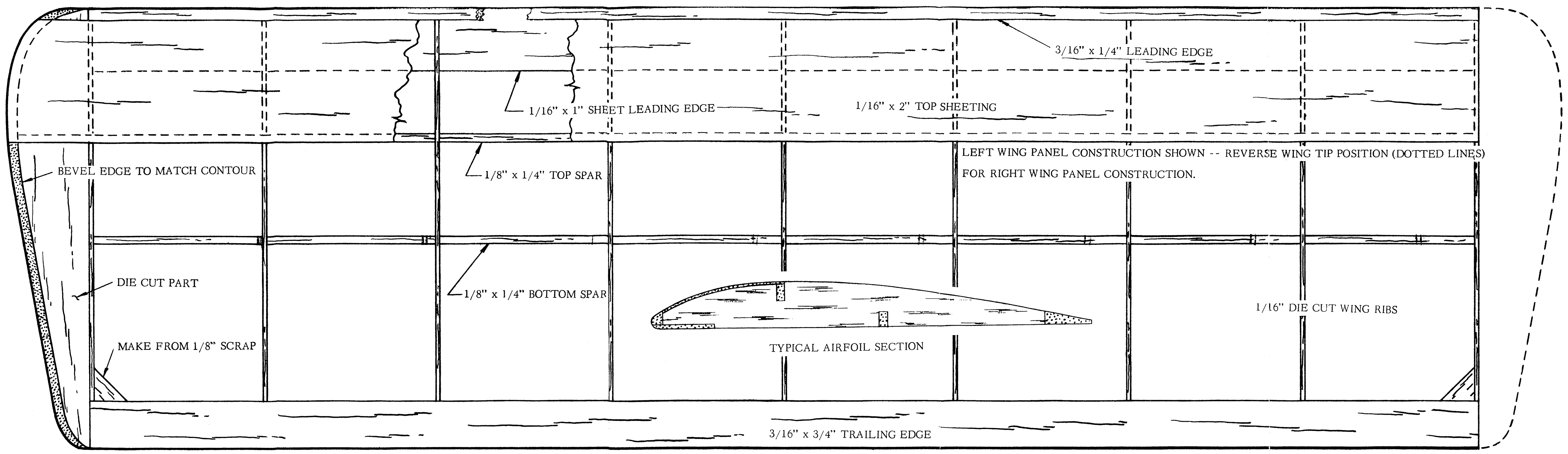
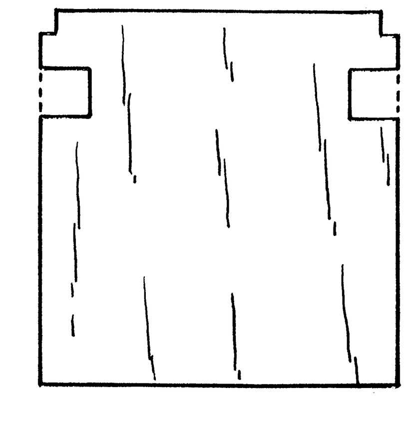
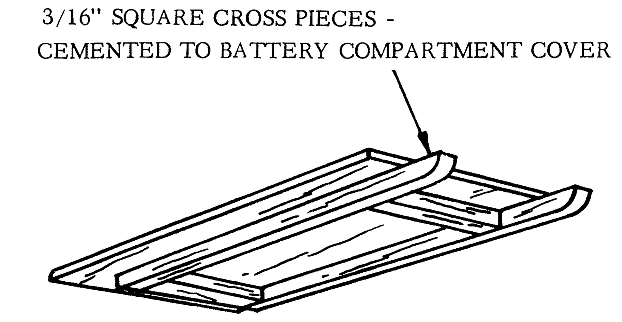
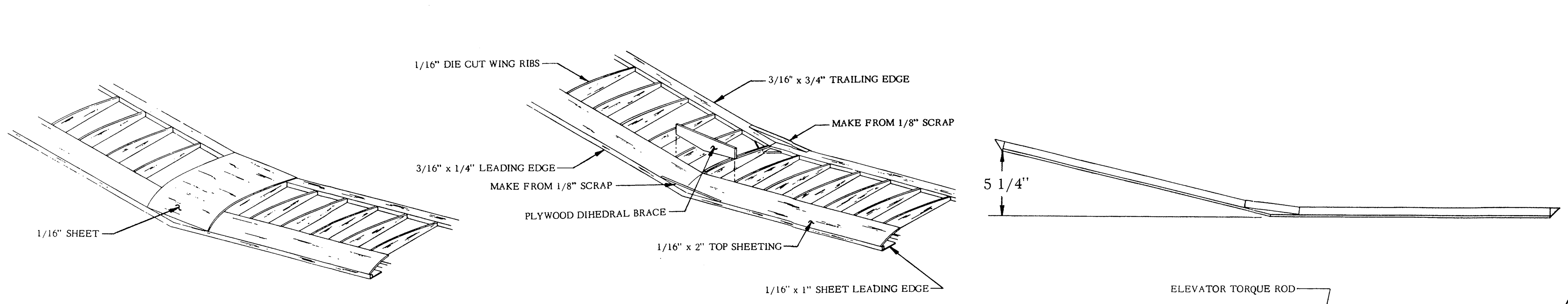


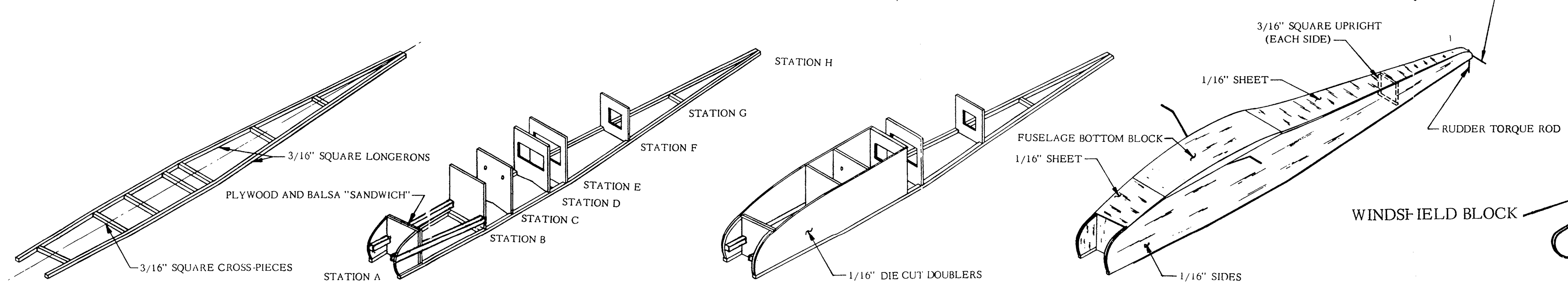
NOTCH FORMER "B" AS SHOWN IF BEAM TYPE MOTOR MOUNTS ARE TO BE USED.

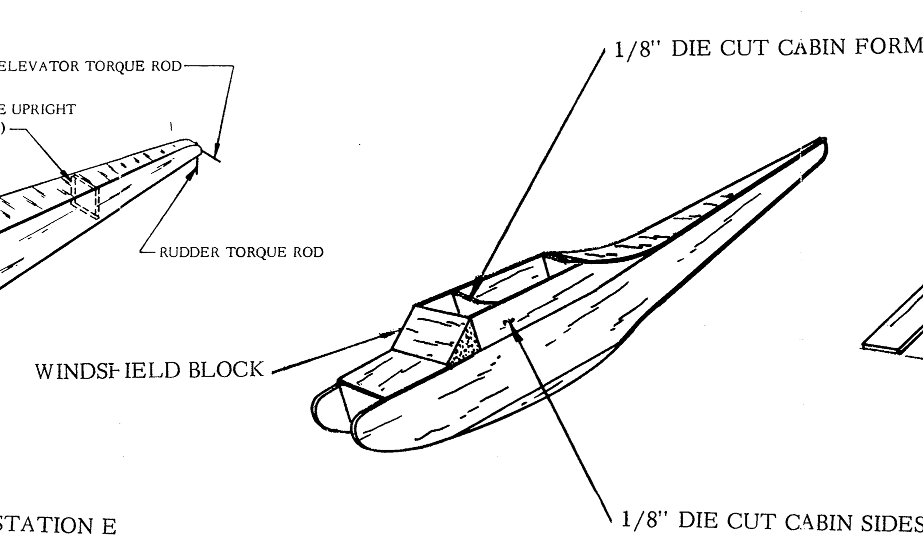


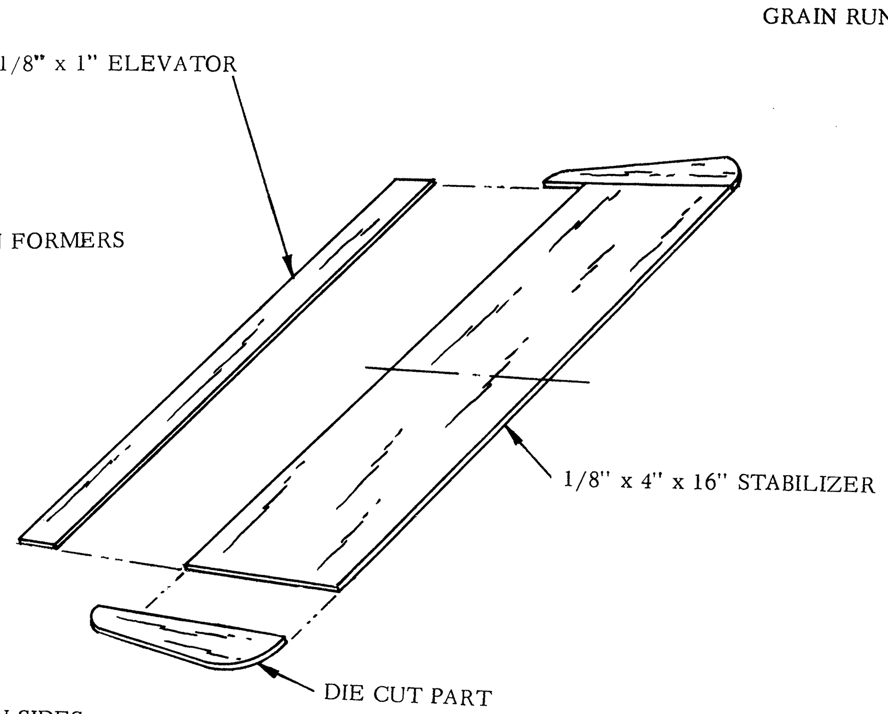


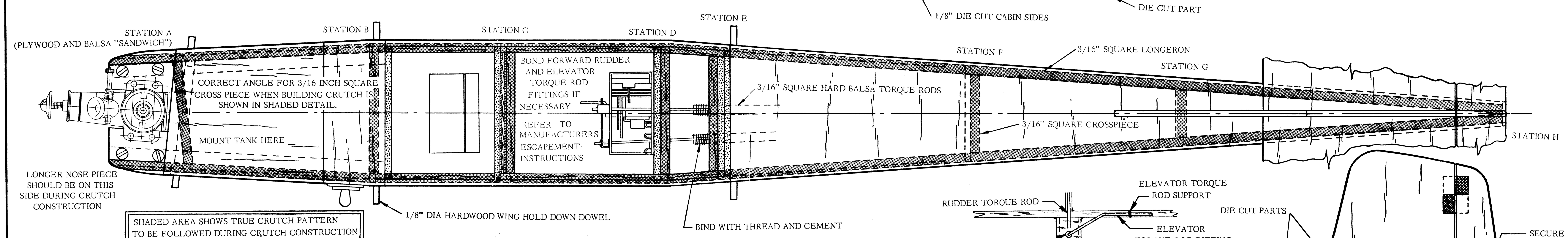
1/16" SHEET TOP COVER FOR BATTERY COMPARTMENT
GRAIN RUNNING LENGTHWISE

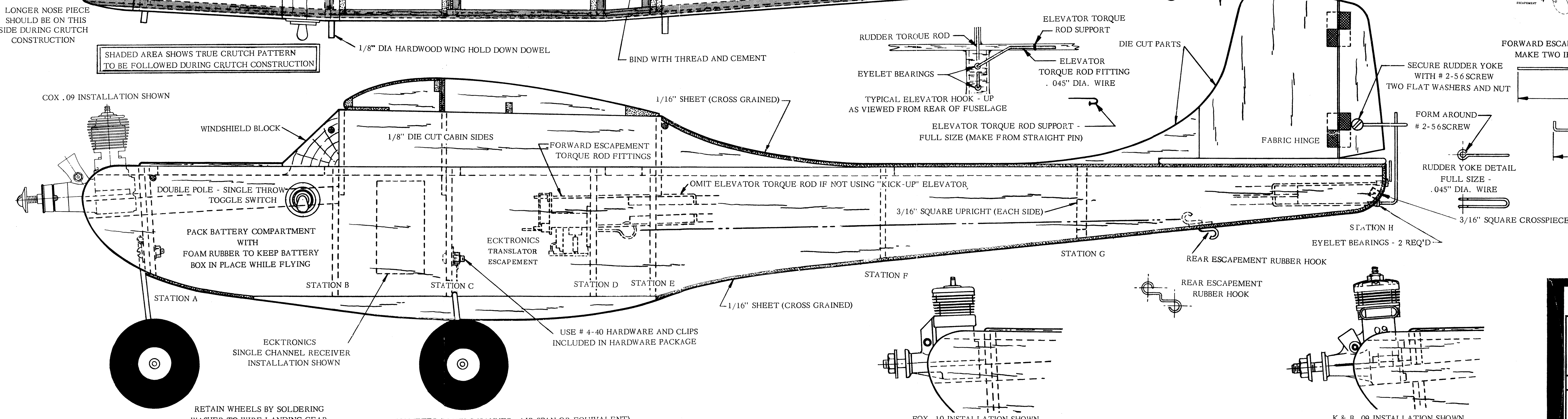












THE CONCORD

The Concord is expressly designed for the newcomer to Radio Control. It also is an excellent single channel airplane for the advanced modeler.

The kit has been thoroughly engineered so that you can build it rapidly and accurately. Take the time to make good, solid joints and precise alignment and you will have an airplane which will fly right off the board and will continue to give you many hours of satisfying flying.

PREPARATION

The first step in construction is to prepare a good building surface if you don't already have one. This will insure warp-free construction and make the building job that much easier. We've found about the best way to do this is to buy a piece of Celotex or similar material and a piece of 3/4" plywood from your lumber dealer. Both of these should be the same size--2 ft. x 4 ft. is convenient and will give you extra space when you build larger airplanes.

Bond the Celotex and plywood together by liberally applying "white glue", put the surfaces together and then weight them down on a flat surface overnight.

The next day you'll have a beautiful building surface which will stay perfectly flat and into which you can stick pins easily.

STABILIZER CONSTRUCTION

(1) Pin the 1/8 x 4 x 16 stabilizer to the work surface.
(2) Glue and pin the tips in place as shown in the perspective view. Double glueing is recommended.
(3) If you plan to fly rudder only, glue elevator piece firmly in place. If you plan to use kick up elevator with your escapement, tack glue the elevator in place for finishing. It will be cut away later.

RUDDER CONSTRUCTION

(1) Glue the two fin pieces firmly together.
(2) Tack glue the rudder to the fin for finishing. It will be cut away later.
(3) Allow to dry thoroughly, then sand the fin and rudder assembly.

FUSELAGE CONSTRUCTION

(1) To start the airplane, lets begin with the fuselage. Lay the plans out on your board and put wax paper over them. Lay down the two 3/16" square fuselage stringers over the shaded outline using pins to hold the curves. Glue them together at the rear. Then, insert and glue the 3/16" square crosspieces at positions A, B, C, D, E, F and G. Note that the crosspiece at "A" should follow the shaded line since you are building the crutch from the bottom. This assembly is called a "crutch" and is the "backbone" of your fuselage. It insures you perfect alignment.
(2) At this time you must decide whether you intend to use radial or beam motor mounts. If a radial mount is used, the formers are left as they are. If a beam mount is to be used, former "B" must be notched to accept the beams as shown on the plan.
(3) After the "crutch" has dried, insert the formers at A, B, C, D, E and F. Note that C is a plywood former and A is a "sandwich" made by glueing a plywood and a 1/8" balsa former together. All formers are perpendicular to the fuselage centerline except A which is placed at an angle for off-set engine thrust. If beam type motor mounts are to be used, they should be installed at this time.
(4) Before this assembly dries, glue the two nose pieces in place. Note that these are butted to former A and the two stringers. Be sure the longer one is on the left as you look down on the plans. Note that with the beam mounts the nose pieces must be cut with a 3/8" wide section removed at the point where the motor mounts pass through.
(5) Now you have completed the fuselage "skeleton". The nest step is to insert the 1/16" doublers. This is most easily done by glueing the flat part first (the area adjacent to formers B, C and D). Then after this has dried, glue the remainder to the surface by bending the doublers around and pinning in place.
(6) Glue the sides in place in the same manner --- start with the center, then work towards the nose and the tail. Make them flush with the bottom of the formers.
(7) Install your escapement at former D and insert the torque rods. We strongly recommend that you use a compound escapement such as the Ecktronics "Translator" rather than one of the simple SN variety. Both types return to neutral when no signal is given but the important difference is that the "Translator" always gives the same function for the same command (one for right, two for left, etc.). We have included hard 3/16" sq. balsa for the torque rods. To make them, bend .045 wire to the shape shown, join it to the balsa and bind with thread. Coat generously with cement. Use the eyelets included as rear bearings for the torque rods.
(8) Insert the 3/16 sq. crosspieces at G.
(9) Bolt the rear landing gear to plywood former C.
(10) Install the balsa block fuselage bottom.
(11) Finish the fuselage bottom using 1/16" sheet cross grained.
(12) Install the cabin formers and sides making sure the longer former is at the front and the shorter one at the rear.
(13) Cover the top of the fuselage with 1/16" sheet from station D to the rear.
(14) Pin and glue the windshield block in place.
(15) Make the battery compartment cover as shown in the perspective view. Note that the cover is "hooked" under the windshield block with the front being held down by rubber bands.
(16) Trim the balsa blocks then sand to shape. Sand entire fuselage.

Your fuselage is now ready for final finishing.

Your Concord is now complete, ready for installation of Radio Control Equipment.

WING PANEL CONSTRUCTION

(1) The wing is made in two identical sections, except for reversing the tips. Each is made on the same plan.
(2) Start by pinning the 3/4" trailing edge, the 1" leading edge, and the bottom spar to plans and trimming to size.
(3) Glue the 3/16" x 1/4" leading edge piece on top of the 1" piece.
(4) Glue the ribs in place. The rib toward the center should be slanted to allow for dihedral.
(5) Add the top spar, leaving an overhang on the tip end.
(6) Glue the sheet in place by starting with the leading edge, then bending towards the top spar and pinning. Leave overhang on the tip end.
(7) Glue the tips in place by trimming the top spar and sheet so they fit flush when the tip is tilted upward.
(8) Remove the wing from the plans and trim the leading edge.

You have now finished one wing panel. Make the other in the same manner except reverse the tip as shown by the dotted lines on the plans.

FINAL WING CONSTRUCTION

(1) Trim the spars and sheet so as to make a good flush fit at the center wing ribs. Then glue the two sections together. Lay one wing flat on your board and support the other with blocks so that the tip rib is exactly 5 1/4 from the board. (SEE DETAIL) This will give you the correct dihedral angle. Make sure the wing is straight and not warped or tilted where the two sections meet. Allow to dry thoroughly.
(2) Now cut a 3/32" slot right through the two center ribs at the rear of the top spar.
(3) Mount the plywood dihedral brace in the slot and glue thoroughly.
(4) Sheet the top center section as shown.
(5) Check all joints--give each joint of rib to trailing edge another coat of glue.
(6) Sand the entire wing until smooth.

COVERING INSTRUCTIONS

No covering materials are furnished with this kit. You may cover with tissue but we strongly recommend the use of silk. You may prefer to cover with white silk and color dope the finish. If so, use three coats of clear dope and two colored.

An easier method for a lighter model, however, is to use colored silk with four or five coats of clear dope. In either event, it is our recommendation that you cover all the surfaces, including the fin and fuselage. This will give you a much stronger airplane than if you merely sand the fuselage and apply dope to it directly.

Use either unthinned clear dope or a mixture of clear dope and cement as a covering adhesive. Give all pieces one coat of unthinned dope and a light sanding before covering. Cut each piece of silk with about 1/2" to 1" extra around the edge for handling.

The wings are covered with four separate pieces, starting from the center in each case. Apply the adhesive through the silk. Attach the silk at the center, then pull out to the end and pin in place. Then work out from the center, about 2 ribs at a time. Do not attach the silk to ribs--only to the leading, trailing edges and tips.

The stabilizer and elevator assembly is covered with separate pieces, top and bottom. Attach to leading edge, then work back.

After covering the wing and stabilizer, apply water with either an atomizer or a piece of cotton. This will shrink the material.

Cover the fuselage with separate pieces for the sides and bottom, and with two pieces on the top (leave the wing mount open). The easiest way is to pin the silk in place, rub it down with wet cotton, then coat through with clear dope. Cover the rudder-fin assembly in the same manner.

FINAL ASSEMBLY

(1) Separate the fin and rudder with a razor blade and install the hinges as shown on the plan.
(2) If using kick-up elevator, separate and hinge the elevator to the stabilizer.
(3) Mount the stabilizer on the fuselage. So as to get a balsa-to-balsa joint, carefully cut away a 1/4" strip of silk on each piece.
(4) Mount the fin on the fuselage and stabilizer in the same manner.
(5) Cut away the top battery hatch, leaving the hinges and silk intact on the front so it will hinge forward.
(6) Install the nose landing gear using the fittings provided.
(7) Give all joints inside the battery compartment another coat of glue--then two coats of clear dope.
(8) Install the engine on the firewall and, if using a separate gas tank, mount it in the battery compartment behind the firewall using scrap balsa.
(9) Mount the wheels using the washers provided.
(10) Insert the wing holding dowels in place.
(11) Make small fittings from pins for the rubber band which holds down the battery compartment. cover.

Your Freedom 7 is now complete, ready for installation of Radio Control Equipment.

INSTALLATION OF RADIO CONTROL EQUIPMENT

Do a neat careful job on your R/C equipment and you'll have many happy hours of flying. Use a soldering pencil or a light duty soldering iron. Pre-tin all joints before soldering the wires together.

The Ecktronics single channel receiver wiring diagram is shown to graphically illustrate how the system is wired in an airplane.

Here are a few tips which will help you:

(1) Leave the leads to the battery box long enough so it can be easily removed for battery replacement.
(2) The seven prong connector shown is available from Ecktronics through your dealer. When soldering leads to it, use pieces of fuel tubing over each wire to provide strain relief.
(3) Although you may be tempted to use a slide switch because it is cheaper, the toggle switch shown is much more reliable. If you have a miniature toggle, fine. If not, the standard size shown weighs only 1/2 oz.
(4) Use #24 or #26 19 strand wire in the colors as shown. It is available from your hobby shop.

FLYING INSTRUCTIONS

Before taking your Concord out to the field for its test flights, have your hobby dealer or someone else experienced in R/C check it over for proper operation and alignment. If possible, take an active R/Cer along to fly it the first time. We recommend the following procedure:

(1) First be sure your receiver is tuned--follow the Ecktronics receiver instruction sheet.
(2) Check the balance on your Concord Shift batteries to make it balance properly. It should balance 2 1/4" back from the leading edge of the wing.
(3) Make sure you have right thrust and down thrust on the engine as shown in the plans.
(4) Check the receiver by having your friend key the transmitter with the motor running. Make complete range check in this manner. Make sure control surfaces move smoothly.
(5) With a friend helping you, start taxiing tests. Start the engine and have your friend stand 10-15 feet away. Release the model toward him so he can stop it by catching the wing on both sides. Correct any tendency to turn by bending the nose wheel.
(6) When you're sure everything is O.K., start the engine for your first flight. If you have a runway, we recommend that you R.O.G. the model on the first flight. If you must hand launch, have your partner run with the model and launch it, nose slightly down, into the wind. With proper speed, the model should feel buoyant enough to fly out of his hand. A nose-up javelin throw type of launch will stall the airplane and result in a crack-up.

Whether a hand launch or R.O.G., stand about 10 ft. behind the airplane at the beginning and do not control until the airplane has gained some altitude.

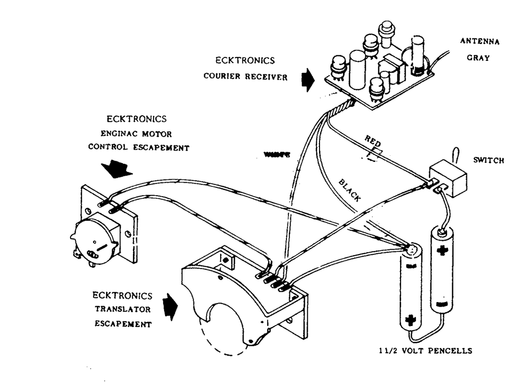
Control for short blips at first until you get the feel of the plane. Keep the model upwind at all times. Then when the engine cuts bring it around in a wide circle so that you land into the wind.

	Symptom	Correction
1.	Very slight climb angle--glide too steep.	Add slight amount of incidence to wing by raising leading edge.
2.	Glide OK, but climb angle too shallow.	Decrease the amount of downthrust.
3.	Glide OK, but "porpoising" tendencies (repeated stalls) under power.	Increase the amount of downthrust.
4.	With neutral rudder, turns in same direction under power and in glide.	Check for wing or stabilizer warps -- correct by holding surface over steam, twisting to desired shape. If tendency is slight, can be corrected by changing neutral rudder angle.
5.	Glides straight, but turns under power.	Move thrust line to right or left--away from direction of turn.
6.	Flies straight under power, but turns in the glide.	Check and correct warps as in (4) above.
7.	Flight under power OK, but stalls in the glide.	Check balance--add weight to nose if necessary or shift batteries forward.

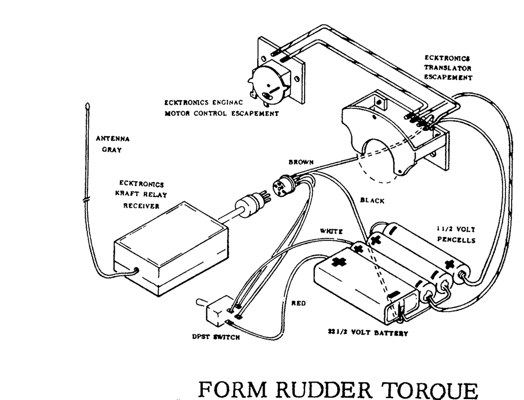
We at Ecktronics wish you the best of success with your Concord. We have test flown many, many models and we know it will perform beautifully, even if you've never flown before. We know you'll have a lot of fun in Radio Control, the King of Hobbies.

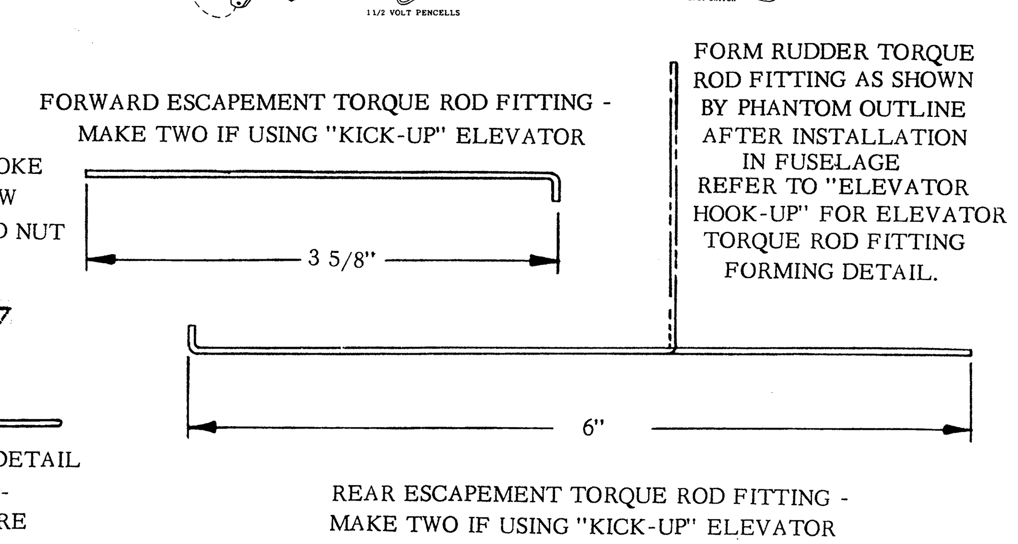
GOOD FLYING!

RELAYLESS RECEIVER WIRING DIAGRAM



RELAY RECEIVER WIRING DIAGRAM





The Concord

DESIGNED AND ENGINEERED BY DICK ECK DRAWN BY C. G. FONDREN	WING SPAN - 46"	WING AREA 322 SQ. INCHES
	LENGTH 29 INCHES	WEIGHT Approx. 32 Ounces
	ENGINEERED FOR ECKTRONICS EQUIPMENT USING .07 TO .10 ENGINES.	

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