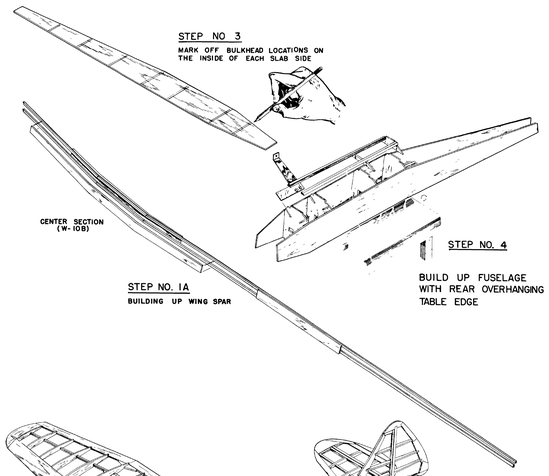
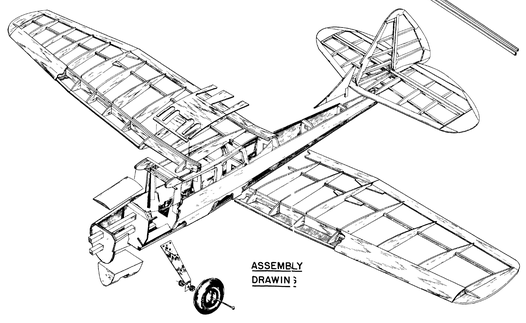
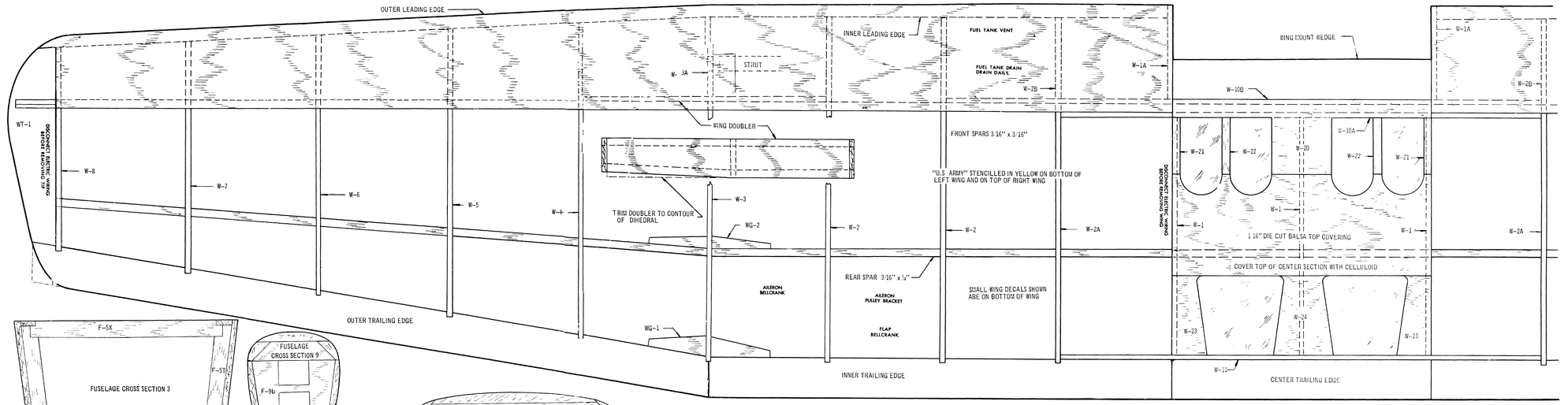
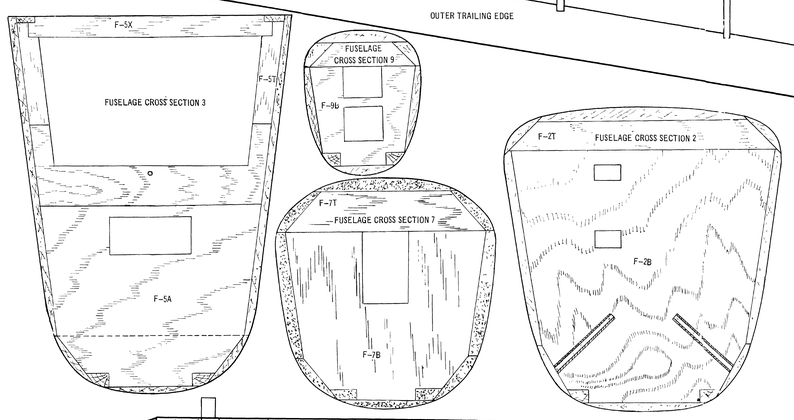








TIME ALLOWANCE — **1½" BIRD DOG BUILDING INSTRUCTIONS**

12 min 1. Open box and layout contents on workable, checking material against "Kit Contents" on plan. Try to identify as many parts as possible. Two woodblocks are best used in building this model. Package a razor blade, sandpaper, tube of cement, some pins, prop and both sandwiched hard parts while the cement is drying.

5 min 2. Arrange the workbench with the necessary items. These items include
Model making tools set (X-Acto type)
Package of single edge razor blades
Kraft-Bound hand gloves
Sandpaper #0 to 1 and 3/0 grits
Tube of rubber cement (the wonder type is useful !)
Model cement (about 1 large tubes)
Small screwdriver
Pencil
Small block plane, mini or square
Pair of scissors
5 large rubber bands (no. 33).

10 min 3. Remove the die cut fuselage sides from the die cut sheet and mark the bulkhead locations with a pencil. Turn the plan over and mark the bulkhead locations for the opposite side

12 min 4. Stand the fuselage sides upside down on the workbench with the rear ends overhanging the table. Cement the bulkheads no. 2 through 5 in position. Note that bulkhead no. 4 has a reinforcement strip cemented to it. (See special sketch)

12 min 5. Cement plywood bulkhead no. 1 in place inserting the motor mounts (F-3B) and the F-1 hardwood spacer. Adjust spacing between the motor mounts with the carburetor of your engine otherwise, allow the spacing accordingly

8 min 6. Bolt the metal landing gear blocks to plywood pieces F-6 making sure that the left and right blocks are set properly. Note that the blank is inverted to bulkhead F-1 just on the lip side of it. Cement both L-1 pieces in the bulkhead slots. At this time, carefully check and see that the bulkheads are square with the fuselage

Allow the above to dry and start the wing assembly. See step 1-A

12 min 7. Turn the fuselage around on the table so that the rear end is now on the workbench. glue it to the table top and cement bulkheads no 6, 7, 8, 9 in place

1 min 8. Cement F-1B in back of F-3A.

10 min 9. Cement beveled front and rear bottom stringers in position on bulkheads

6 min 10. Cut away fuselage front sheet blade to clear landing gear. Sand the edge of the blade to a proper angle to join with the fuselage side and cement in position. Allow to dry while working on the wing. Re-insert the landing gear cut outs

12 min 11. After the forward bottom bevels have dried, sand the edges flush with the bottoms of the fuselage formers. Then cement the bottom plank in place, making sure that the fuselage centerline goes down the center of the plank. Use plenty of pins to hold while drying. This is the best chance to avoid having an off-center fuselage

10 min 12. Next cement the bottom pose block in position. If you intend to use a heavy motor glue, it is best to bolt the motor this block down to about 1/4" thickness. If a light weight motor is used, this is not necessary. After the blocks is cemented in place, carve the block to conform, shaping the side, bottom plate and cowl block at the same time.

20 min 13. The installation of the rear bottom bevel block requires actual fitting to each individual model. Cut F-9B to the proper length, tapering from 1½" to ¾" on supports for this. They are larger than the space requires but gives you extra material for trimming to fit. Sand the top of the block to the proper bevel angle to form one smooth angle. Two angle fillers will be necessary to go to the rear, so a good small block plane will help. As you do this you will note that there is a definite notch in the side at bulkhead no. 5

Next bevel the edge of the 1-32" sheet so that it fits against the side of the fuselage. It will be necessary to taper both ends of this piece to fit. Cement in place with the F-9B block. Sand along the fuselage contours also. Give an extra coat of cement on the outside of this joint and allow to dry hard before attempting to help it into the bottom plate. Work on the wing and tail surfaces in the meantime

When the cement joint has dried, then apply cement along the bevel and bottom planking edge and bend the sheet over to join, holding a few of pins to hold it in position. Give an extra coat of cement on the inside of the fuselage along these joints to hold in position

30 min 14. When completely dry, turn over and assemble the cabin superstructure. Cement the windshield former F-7T in place with no. 1 bevel on F-7A. Then proceed F-5T by a coat of cement on the pieces F-2B, Add F-4T and F-4U, 14, and 17. Then add F-5T and F-5U & F-5Z

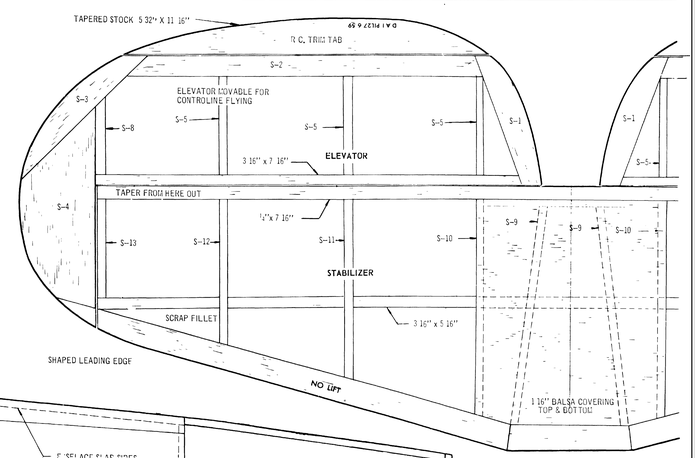
Cement F-2B on top, along with the cross pieces F-4X, F-5X, and F-13. Cement the wing Mount Blocks of the proper angle and add F-18 (doubler laminated) and the front dowel. Likewise install the rear dowel

Go over all the joints with extra cement

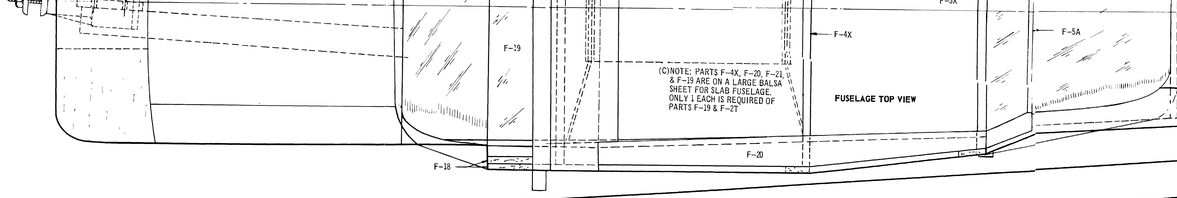
NOTE: AT THIS POINT, WE MUST PLAN OUR RADIO AND MOTOR INSTALLATION. THE MODEL WAS FLIGHT TESTED USING THE MOST ELEMENTARY CONTROL SYSTEM. MORE ELABORATE MULTI-CONTROL SYSTEMS CAN BE USED SATISFACTORILY, BUT WE DO NOT RECOMMEND ANY PARTICULAR R.C. OR MULTI-CHANNEL SYSTEM OVER ANOTHER. THE MODEL MAGAZINES KEEP YOU ABREAST OF THE LATEST DEVELOPMENTS.

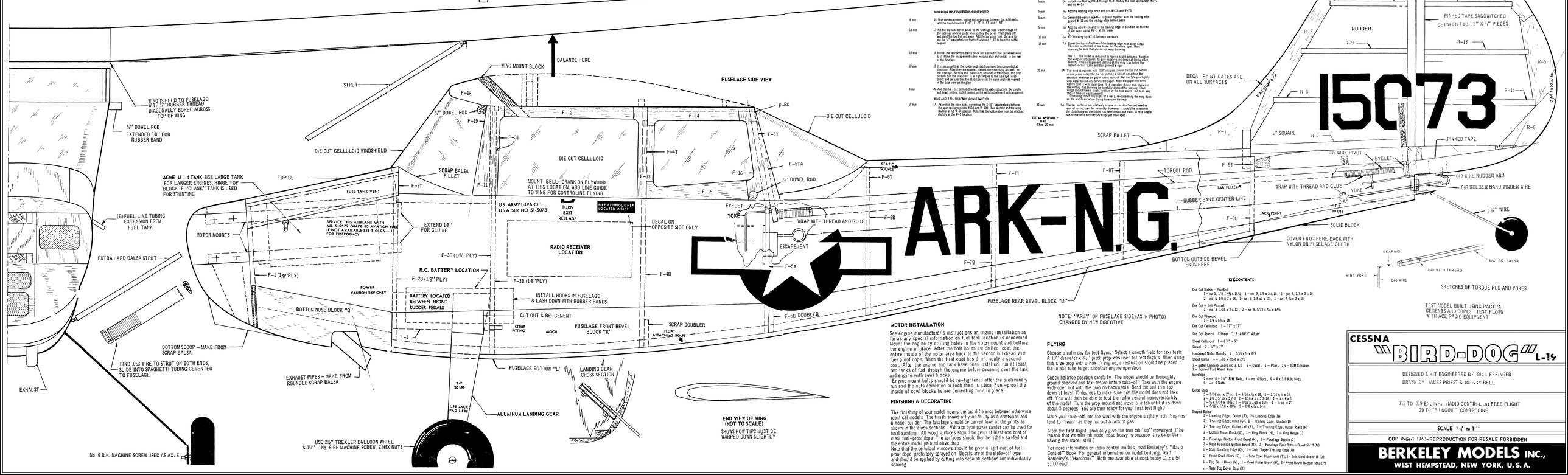
See "ENGINE INSTALLATION" Details 6 "RADIO CONTROL" Details

12 min 15. After the motor and tank have been installed, add bulkhead F-2T, the top fuselage and the side top blocks, notching the rear to slide to close the turn head rubs



MOTOR COWL BLOCK BUILD – UP
ATTACH BLOCKS AFTER THE ENGINE IS INSTALLED. SAW AND CARVE OUT-SIDE SHAPE . NOTE THAT HOLE CUT FOR EXHAUST SHOULD HAVE ALUM-INUM FOIL LINING





MOTOR INSTALLATION

See engine manufacturer's instructions on engine installation as far as any special information on fuel tank location is concerned Mount the engine by drilling holes in the motor mount and bolting the engine in place. After the bolt holes are drilled, coat the entire inside of the motor area back to the second bulkhead with fuel proof dope. When the first coat has dried, apply a second coat. After the engine and tank have been installed, run at least two tanks of fuel through the engine before covering over the tank and engine with cowl blocks

Engine mount bolts should be re-tightened after the preliminary run and the nuts cemented to lock them in place. Fuel-proof the inside of cowl blocks before cementing them in place.

FINISHING & DECORATING

The finishing of your model means the big difference between otherwise identical models. The finish shows off your ability as a craftsman and a model builder. The fuselage should be carved down at the joints as shown in the cross sections. Vibrator type power sander can be used for final sanding. All wood surfaces should be given at least one coat of clear fuel-proof dope. The surfaces should then be lightly sanded and the entire model painted olive drab

Note that the celluloid windows should be given a light coat of fuel-proof dope, preferably sprayed on. Decals are of the slide-off type and should be applied by cutting into separate sections and individually soaking

BUILDING INSTRUCTIONS CONTINUED

6 min 16. With the escapement horizontal and in position between the bulkheads, add the top bulkheads F-11, F-12, F-13, and F-14T

15 min 17. Fit the top side bevel blocks to the fuselage slab. Use the edge of the table as a guide when cutting the bevel. Then plane off and sand the top flat and even. Add the top plank last. Be sure to cut the "L" opportunities in front of bulkhead F-11 to take the rudder support

15 min. 18. Install the rear bottom balsa block and sandwich the tail wheel wire by it. Make the escapement rubber winding plug and install in the rear of the fuselage

10 min 19. It is assumed that the rudder and stabilizer have been completed at this time. After they are covered, cement them carefully and well on the fuselage. Be sure that there is no off-set in the rudder, and also be sure that the rudder is at right angles to the fuselage. Also be sure that the stabilizer is at the same angle as viewed in the side view on the plan.

8 min 20. Add the die-cut celluloid windows to the cabin structure. Be careful and re-set getting model cement on the celluloid where it is transparent.

WING AND TAIL SURFACE CONSTRUCTION

10 min 1A. Assemble the main spar, cementing the 3-16" square strips between the spar reinforcements W-2A and W-2B. (See sketch) and the wing doubler at rib W-3 location. Note that the bottom spar must be checked slightly at the W-3 location.

5 min 2A. Install rib W-2 and W-4 through W-8. Adding the rear spar gusset WG-2 and rib W-2A

5 min 3A. Add the leading edge strip and ribs W-1A and W-2B

5 min 4A. Cement the center rib W-1 in place together with the training edge gusset W-11 and the training edge center piece

5 min 5A. Add the ribs W-2A and 11 the training edge in position for the rest of the span, using WG-1 at the break.

10 min *A. Fit the wing tip WT-1 between the spars

15 min 7A. Cover the top and bottom of the training edge with strips of balsa. Then cover the entire wing with the 1/16" die cut spar. When covering, be sure that you do not warp the wing

NOTE: The model is designed to have a slight amount of twist in the wing in both panels to give negative incidence at the tips See the plan for the amount of twist. Check the wing tip before the center section slabs and ribs are fitted in spar

20 min 8A. The wing is covered with 5100 Silkspan. Cover the top and bottom as one piece except for the tip, cutting a slit all covered on the structure wherever the paper makes contact. Wet the Silkspan lightly with water before cutting across the paper. Wash the paper two doses with water to make it tight. It is important during both passes of the wetting that the paper be stretched tightly, otherwise the wings would have a slight twist as in the case above. Tip each way should have an equal amount

Allow the wing to dry overnight or wrap the wing down on the workboard while drying to remove the twist

30 min 9A. The tail surfaces are relatively simple in construction and need no special instructions for assembly. However, it should be noted that the cloth hinge on the rudder has been tested and found to be a simple one of the most satisfactory hinge yet developed

TOTAL ASSEMBLY TIME 4 hrs 20 min

KIT CONTENTS

Die Cut Balsa – Printed
1 – no 1, 1/8 x 4¾ x 18½, 1 – no 3, 1/8 x 3 x 18, 2 – pc 4, 1/8 x 3 x 18
2 – no 1 1/8 x 3 x 18, 1– no 6, 1/8 x3 x 18, 1 – no 7, ¼ x 3 x 18

Die Cut – Not Printed
1 – no 2, 1/16 x 3 x 18, 2 – no 8, 5/32 x 4¼ x 27½

Die Cut Plywood
1 – 1/8 x 5¼ x 18

Die Cut Celluloid 1 – 11" x 17"

Die Cut Stencil 1 Sheet "U S ARMY" ARMY

Sheet Celluloid 1 – 6 3/2 x 9"

Dowel 2 – ¼" x 7"

Hardwood Motor Mounts 1 5/16 x ⅝ x 6 6

Sheet Balsa 4 – 1/16 x 2½ 8 x 27½

2 – Metal Landing Gears (R & L) 1 – Decal , 1 – Plan , 2½ – SGM Silkspan
1 – Formed Tail Wheel Wire

Envelope
2 – no 6 x 1¼" R.H. Bolt, 4 – no 6 Nuts, 6 – 4 x 3/8 R/H. Nuts
2 – no 4 Nuts

Balsa Strip
5 – 3/16 sq. x 27½, 1 – 3/16 x ¼ x 36, 1 – 3/16 x ¼ x 24,
2 – 1/8 x 5/16 x 5 7/8, 2 – 3/16 x 2 x 3 3/16, 1 – ¼ x 4 x ,
1 – ¼ x 7/16 x 18¼, 1 – 3/16 x 7/32 x 16½, 1 – ¼ sq x 2"
1 – 3/16 x 5/16 x 18¼, 2 – 1/8 x ¼ x 14½

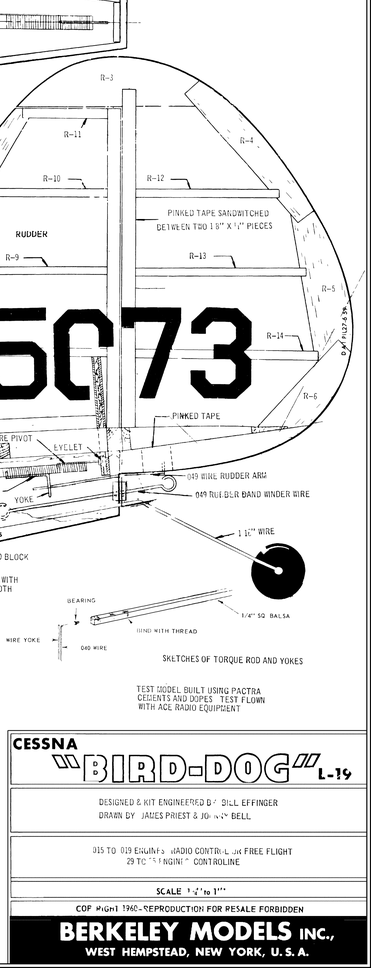
Shaped Balsa
2 – Leading Edge , Outer (A), 2– Leading Edge (B)
2 – Trailing Edge, Inner (C), 1 – Trailing Edge, Center (D)
1 – Tip Leading Edge, Outer Left (E), 1 – Trailing Edge, Outer Right (F)
1 – Bottom Nose Block (G), 1 – Keg Block (H), 1 – Keg Wedge (I)
2 – Fuselage Bottom Front Bevel (K), 1 – Fuselage Bottom L (
2 – Rear Fuselage Bottom Bevel (M), 2 – Fuselage Rear Bottom Bevel Stiff (N)
1 – Stab Leading Edge (Q), 1 – Stab Taper Trailing Edge (R)
1 – Front Cowl Block (S), 1 – Side Cowl Block Left (T), 1– Side Cowl Block R (U)
1 – Top Cowl Block (V), 1 – Cowl Filler Block (W), 2– Front Bevel Bottom Strip (P)
1 – Rear Top Bevel Strip (X)

FLYING

Choose a calm day for test flying. Select a smooth field for taxi tests A 10" diameter x 7½" pitch prop was used for test flights. When using this size prop with a Fox 15 engine, a restriction should be placed in the intake tube to get smoother engine operation

Check balance position carefully. The model should be thoroughly ground checked and tax-tested before take-off. Taxi with the engine wide open but with the prop on backwards. Bend the tail trim tab down at least 15 degrees to make sure that the model does not take off. You will then be able to test the radio control maneuverability of the model. Turn the prop around and move trim tab until it is down about 5 degrees. You are then ready for your first test flight!

Make your take-off into the wind with the engine slightly rich. Engines tend to "lean" as they run out a tank of gas

After the first flight, gradually give the trim tab "up" movement (the reason that we trim the model nose heavy is because it is safer than having the model stall !)

For more information on radio control models, read Berkeley's "Radio Control" Book. For general information on model building, read Berkeley's "Handbook" Both are available at most hobby shops for $1 00 each.