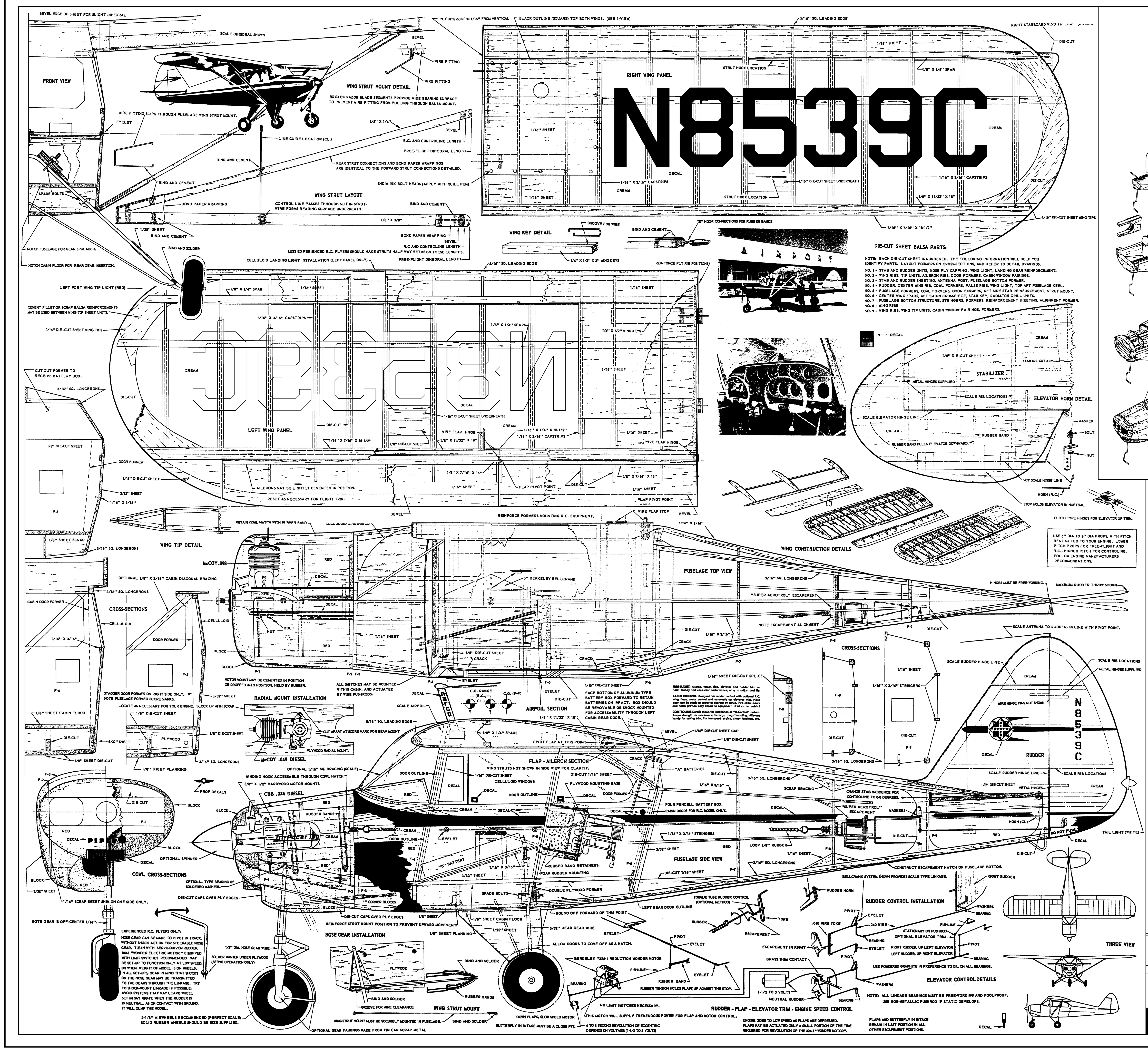
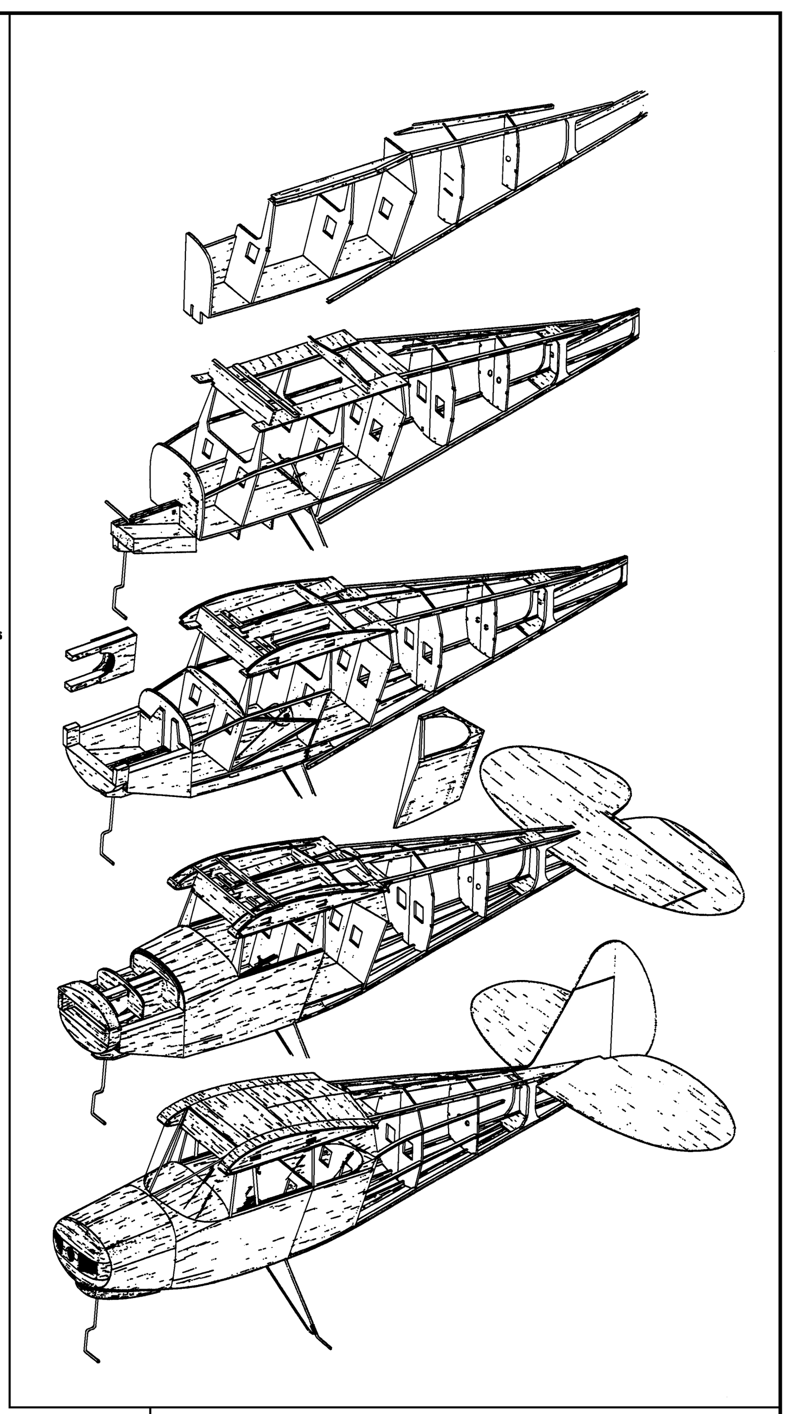


## BUILDING AND FLYING INSTRUCTIONS:

This exact scale replica of the PIPER "TRI-PACER" has been designed for Radio Control, (R.C.) Free-Flight, (F-F) and Controline, (CL) with the slight modifications necessary for each detailed on the plans. Decide at this time which type you would like to build. Study the die-cut sheets, and read the information pertaining to them on the plans.

Begin construction with the 1/8" sheet die-cut tail surfaces. Cement the units together on a flat surface, and allow to dry well. For Controline work, hinge elevator sections as shown, and offset the rudder 3/16" to the right. For R.C. hinge the rudder and the optional tab sections of the elevators (if desired) for trim. Scale rib locations are shown for those desiring a built-up tail assembly. We recommend the solid sheet type for all types of flying.

Now focus your attention on the wing. There are two main panels, a center-section, and two flap-aileron sections. The main panels are never joined in the usual manner. Instead, they are keyed to fit into the center-section which is constructed as part of the fuselage, and held together under [illegible] Dihedral is therefore adjustable in the construction stage. The flap-ailerons are constructed separately from the main panel, and may be left attached to one another for simplicity of adjustment, or separated for R.C. operation.

Start construction with the main panels. Study the detail drawings before beginning. Note the ribs are capstripped top and bottom. The leading edge is a 3/16" sq. set on edge. The three spars are 1/8" x 1/4", and the rear edge is 1/8" x 11/32", capstripped top and bottom with 1/16" x 7/16" and 1/16" x 1/4" respectively. The first rib is 1/8" ply, the next two are balsa, notched in like manner. Each wing tip is constructed from four 1/16" die-cut sheet balsa parts which make a flush fit against the leading edge and rear edge sheeting. The building sequence is as follows:

Pin the 1/8" x 11/32" rear edge and the 1/8" x 1/4" lower spar to the plan. Cement all but the tip rib in position. Incline the plywood rib as shown. Insert the top 1/8" x 1/4" spars and the 3/16" sq. leading edge. Remove from the plan and trim off excess cement.

At the twelfth rib location, slit the spars with a razor, crack and re-cement to allow them to bend toward each other as detailed on the plan. Now install the smaller tip ribs, centering the rear edge on the 1/8" x 11/32" rear edge. The rear edge is then tapered with a razor, from the twelfth rib to the tip rib, meeting beyond the tip rib at the point shown on the plans. The forward top 1/8" x 1/4" spar is now cracked and bent to meet the tip rib in much the same manner. Crack all spars once again at the tip rib, after cement has dried, and beveled to meet and form support for the wing tip sheet.

Now cement the 1/16" x 1/4" lower rear edge caps in position, with one edge flush with the rear face of the 1/8" x 11/32" rear edge. After this, capstrip the bottom of the wing panel with 1/16" x 3/16" stock. Note sheeting for the first three ribs, and die-cut strut mounts between the seventh and eighth rib locations. Butt cement the capstrips to the leading edge before bending over and cementing to the ribs. Moisten if wood seems too stiff.

The wing tip units are now cemented together on a flat surface. Pre-coat all end grain to prevent excessive cement absorbtion. Cement to the rear 1/8" x 1/4" spar, the aft portion of the tip rib, and the 1/16" x 1/4" rear edge cap. Crack with a razor slit at the tip rib if necessary. Fit in like manner to the forward top spar, which should be bevelled accordingly, and then to the leading edge. The leading edge planking is applied at this time, followed by the 1/16" x 7/16" top rear edge cap and 1/16" x 3/16" capstrips. Apply a heavy cement fillet to reinforce the plywood rib before applying top center-section sheeting. Scraps of balsa may be used in addition if desired. Also time, bind and cement the wire fittings to the 1/4" x 1/2" x 3" stock as detailed, and cement thoroughly into the first three wing ribs. Allow to protrude 3/16". Add the die-cut trailing edge wing tip sections at this time, completing the structure of the main panel. Re-cement important joints, then trim and sand to shape.

The aileron-flap sections are easy to assemble. 1/16" x 1-5/8" x 15-6/8" stock is provided for the bottom camber. Cement the wedge shaped rib units flush with the bevelled edge of the sheet. Butt the 1/8" x 7/16" x 16" stock to the forward edge of this sheet, flush with the bottom edge. This forms the flap-aileron leading edge. Next, pencil a line 13/32" from the trailing edge, and taper the sheet from this line aft to a thin edge. The same is done to the top camber sheeting, allowing the edges to come together in the neatest manner possible. Round off the leading edge as indicated, and subdivide if desired into separate flap and aileron units. Ailerons may be lightly cemented in place and used for banking trim on Controline, Free-Flight and Radio Control models. Flaps of course can be pre-set or timer actuated for Free-Flight, mechanically actuated for Controline or Radio actuated for R.C. Movement should be made slight at first, and tested at high altitude. Initial ballooning is to be expected, and may effect the model noticeably in some instances. Experiment with caution, and be prepared to neutralize the flaps if necessary.

With our flying surfaces completed structurally, we can focus our undivided attention to the fuselage. We suggest you first study the construction sketches above.

In general the fuselage, as on the full scale airplane is constructed in a series of straight sections and flat planes. It may appear angular, but it is exact scale, checked in great length against the full scale version.

Begin construction in this manner. Pin the 1/8" die-cut top center aft keel in place on the plan. Position the last two formers shown in Step 1, shimming up their lower ends 1/16" off the plan. (The former at the stab leading edge will be added later.) The rear cabin former at the wing trailing edge is installed next. This former half is in two parts. Bevel and cement it at the proper angle, then shim it up 1/16" and position over plan.

The 1/8" x 1/4" x 9" cabin floor section is now cemented to this former. Shim up 1/16" once again. The central cabin former half is cemented to the cabin floor, followed by the former half at the windshield. Shim up 1/16" in each case. A 1/8" die-cut reinforcement is cemented forward of the former as visible in Step 1 and 2. Do not shim this reinforcement up. The 1/8" cowl former is installed next, shimmed up 1/16" once again. The reinforcement will hold the proper angles on these important former locations.

Select one of the 1/8" sheet cabin roof members, and cement a length of 3/16" sq. longeron to it, cracking as necessary. The longeron should be flush with the top. It may now be fitted to the cabin formers, and should be 1-9/16" above the plan, parallel to it. We recommend cutting a piece of scrap to the exact measurement shown on the top plan view to use as a gauge. Remaining longeron sections are now installed, from the aft cabin former rearward only. These will be straight lines. Bevel rear edge of lower longeron slightly to clear plan. Triple-coat longeron former joints with a cement skin. This is important! Add 1/8" die-cut stab rest and rear structure as detailed. Note the 1/16" sheet splice at stab rest fuselage juncture.

In Step 2, the fuselage half has been removed from the plan, and the right side constructed in like manner to the left. No shimming will be required in this case. Note lower longeron forward of the aft cabin former is still unattached. 1/16" sheet balsa is now added to the cabin roof, extending from the edge of the 1/8" cabin reinforcement outward 1-1/16", with the grain running on that dimension. Try to give it a touch of dihedral at this time, by sanding the sheet at the cabin juncture, or easier still, cock the cabin reinforcement a minute amount. See the detail at extreme top left of plan. Add 1/8" die-cut fore and aft wing center section spars and the lower 1/8" x 1/4" spar. Cock the front spar at the angle shown on the side plan view. Position the 1/8" sheet die-cut sheet rear cabin cross-piece across the top rear of the cabin. Bevel edges at longerons as necessary.

The rear gear plywood formers are butted together, and drill holes cleaned out for the spade bolts. All spade bolts must be installed on wire before attachment to these ply formers. Notch the cabin flooring as necessary to allow passage of gear and two spade bolts. Add lower former units and undercarriage forward of the rear gear. Cowl structure in early stage is shown in this detail. Note the plywood nose gear sandwich covered in detail on the plan.

In Step 3, we see the addition of the plywood triangular gear braces and spade bolts. Note the extra thickness of plywood at the spade bolts. Cement the ply triangles well as they take a lot of the gear shock. Plywood ribs and an 1/8" sheet balsa center rib is now added to the wing center section. Die-cut 1/8" sheet lower structure is now added, with block balsa in the lower corners of the cowl former. Note die-cut 1/8" sheet longeron reinforcement behind rear gear. Longeron is bent in, moistened if necessary, and cemented to this sheet. Strap with rubber bands till cement dries. Note additional cowl structure.

In Step 4, we see the addition of center section 1/16" sheet die-cut ribs, top spar, etc. With motor mount unit in place, the top removable cowl is assembled. The cowl splits at the centerline, except for the small forward blocks which act as retainers. 1/16" top sheeting is added under the windshield, and 3/32" sheeting to the fuselage sides aft to the rear cabin former. Access to R.C. equipment is made through cabin doors. (Optional) The TRI-PACER has a rear door on the left, front door on the right side. See typical door construction between Step 3 and 4.

Install the stab at this time. It may be cemented in place as recommended on the plan, or if you prefer, it can be keyed and mounted by internal rubber bands attached to hooks down by the lower longerons. With this arrangement, the rudder would be removed with the stab. Note additional cowl block structure and sheeting. Moisten the 1/8" sheet in hot water if it feels too stiff to negotiate the slight curvature.

Windshield installation is next. We suggest you make a scrap balsa contour of the windshield curvature as seen in the side view. Tack cement lightly in place, so that it may be knocked free through the side cabin window openings, after windshield is in place. Test fit celluloid before cementing. Side portions curve around to cabin corner posts, with excess above running up on the inner faces of the false ribs. Celluloid across top drapes back over the center-section spar. A small slit at the exact center may prove helpful at this point. A slight excess has been added to the celluloid to allow for variations in structure between models. Reinforce key points where celluloid might start to crack with transparent scotch tape. Once windshield is cemented in place, the tape can be removed.

Bellcrank and line guide installation for Controline flying is shown on the plans, as are details for the R.C. installations.

Construct the wing struts from the material provided, with wire fittings as detailed. Determine the dihedral you wish to incorporate at this time, whether scale or in the amounts indicated.

Cover the model in the normal manner, while it is a very easy model to cover, it will be easier still if you wet the Silkspan first. This makes it easier to cover the wing tip areas in particular. Clear dope applied to the edges of the structure through the wet Silkspan will adhere nicely, though it will turn milky-white. This will disappear with the second coat of dope. After sufficient clear dope (fuel-proof) has been applied, color dope cream and red as indicated. Balsa areas need not be covered of course, but should be sanded lightly between coats of dope to remove fuzz. A wood filler may be used to seal the grain pores. Decals are self explanatory, and detailed on the plan. Fuel-proof with clear dope, applied carefully, or sprayed on if possible.

Assemble the wing panels in this manner. Attach three 1/4" wide rubber bands to "S" hooks, and thread through each of the wing center-section slots. A wire hook will help at this operation. Slip the "S" hooks into the wire loops in the wing keys, and the panels are attached. The wings of course will droop until the struts are fitted. Note the strut fittings at the wing juncture are designed to pop free on contact with weeds, etc., to avoid damage. At the same time, they will not unhook in flight. Test fittings from time to time to make sure they are functioning as they should. For rough terrain flying, you may wish to add diagonal internal cabin supports.

We recommend the following test flying procedure. Controline: 3/16" right rudder offset, high pitch prop, large engine running at reasonably high speed. 1/8" down left aileron, 1/8" up right aileron, elevator horn in training position for minimum movement. Elevator should be free-moving with no binding action. Test by blowing on the surfaces. Take-off down wind with arm stiff at elbow and wrist. Control model by raising and lowering your entire arm, thereby avoiding over-control.

Free-Flight: Run with the model to get the feel of it. Adjust elevator trim by warping surfaces or changing incidence. When model feels as if it is capable of gliding, test glide it into weeds until satisfied with the trim. Use minimum power at first, with prop on backwards. If this is still too much power, choke the air intake. A little right thrust is recommended as a starter. Make adjustments in side thrust on field by adding washers under the crankcase lugs. Alter down thrust by shaving motor mounts. Adjust flight trim with ailerons and flaps.

Radio Control: Heft the model and test glide into weeds in much the same manner as for the Free-Flight version, only with still more care. Gliding from an altitude is also helpful. Test in calm air under medium power, and allow to climb to sufficient altitude before pulsing. Rudder control only is advised for all but experienced R.C. flyers. Allow to turn gradually at first, pulsing it around, rather than all at once, until you build up confidence. Fly upwind as much as possible to give yourself a greater safety margin. Try to feather model into wind for touchdown. We hope you like your perfect scale "TRI-PACER".

# PIPER "TRI-PACER"

For .065 to .099 Engines—Radio Control | .035 to .075 Engines—Free-Flight | .075 to .15 Engines—Controline

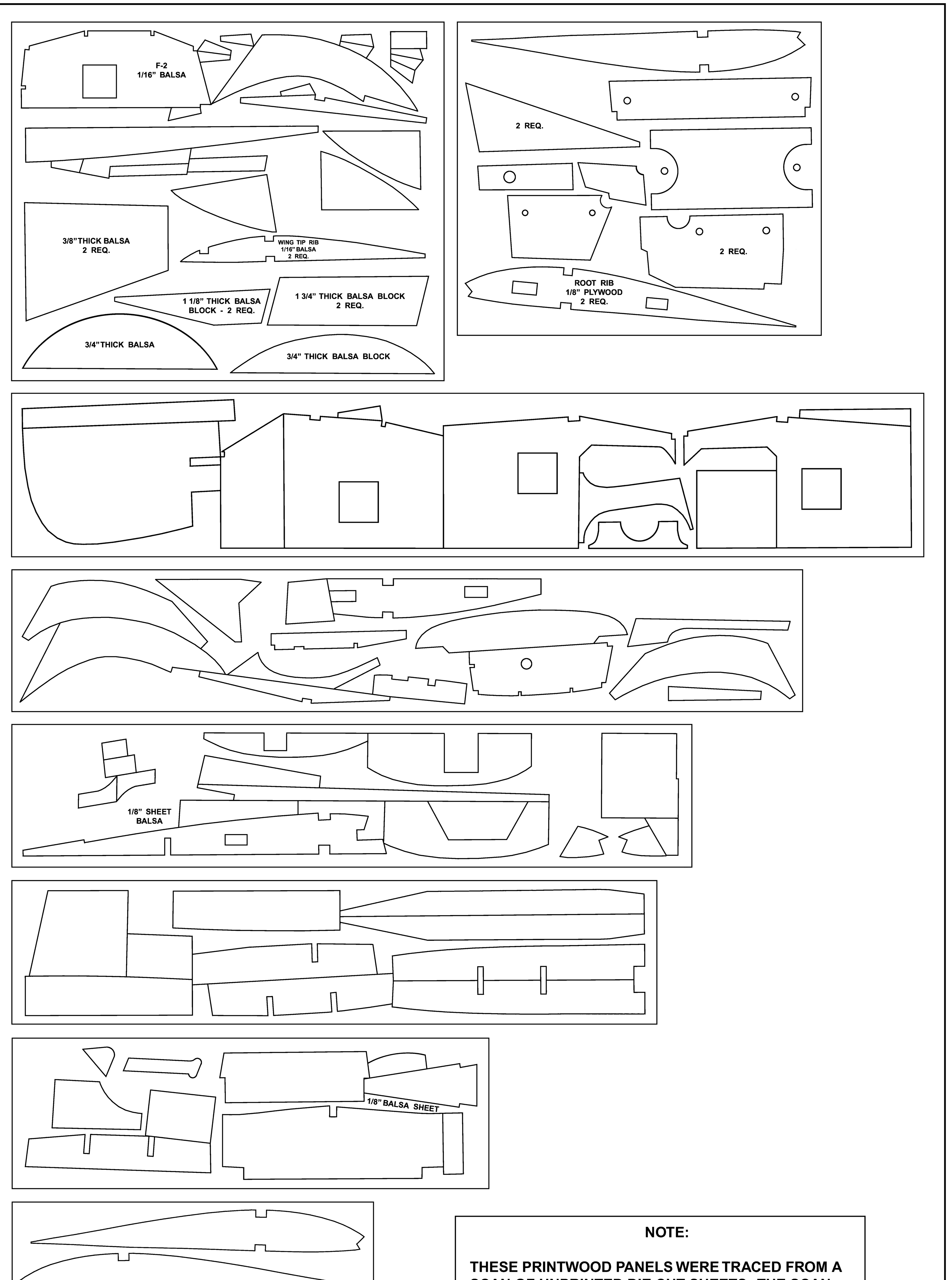
DESIGNED AND DRAWN BY: DON McGOVERN

KIT ENGINEERED BY: BILL EFFINGER



FULL SIZE PLANS
SCALE: 1-1/2" = 1'
WING AREA - 322 SQ. "
WING SPAN - 43-3/4"

BERKELEY MODELS INC.,
WEST HEMPSTEAD, NEW YORK, U.S.A.




**NOTE:**

THESE PRINTWOOD PANELS WERE TRACED FROM A SCAN OF UNPRINTED DIE CUT SHEETS. THE SCAN WAS FURNISHED BY ANOTHER AND THE BALSA THICKNESS OF EACH SHEET WAS NOT NOTED. ALSO, THE SCAN WAS OUT OF SCALE FROM THE PLAN. I HAVE TRACED THE SCANS FOR CLARITY AND I HAVE TRIED TO RE-SCALE THE PRINTWOOD TO THE PLAN. FOR THESE REASONS I STRONGLY RECOMMEND YOU USE THE PRINTWOOD PANELS AS A GUIDE AND USE PATTERNS TAKEN FROM A COPY OF THE PLAN WHENEVER POSSIBLE.

"PLANEMAN"