

FUSELAGE ASSEMBLY

STEP 1

To prevent parts from sticking to plan, spread a clear kitchen film over plan. Sub assemblies shown should be completed as first step. Cement the two #1's together. When dry drill 1/8 dia. holes at punch marks. Make a Left and Right Hand Wing Tip assembly as shown by cementing #29 to #30 and #27 to #28 on top of #29/30.

STEP 2

Fuselage is built on flat building board directly over plan. Pin parts #32, #33, #34, #35 and #36 to plan cementing them together where they join. Cut the 3/8 x 11/16 maple Engine Beams to length and at proper angle, as drawn on full size center frame drawing, and cement in place.

STEP 3

Step #3 and Step #4 must be done one after the other to prevent glue from setting before Side Keels and Stringers are installed. Drill 3/32 dia. hole at punch mark in #38. Cement all bulkhead halves #37 through #45 vertically in place; then immediately.....

STEP 4

Insert Side Keels #46 and #47 into their respective notches. For scale reproduction, note that Keels (as well as some stringers) are in many cases past the edge of the bulkheads as shown on sketches and typical cross section drawing. Cement nose stringers #52 and #53 in place as shown. Cement Cabin Brace #48 in place. Cut the 3/16 sq. top and bottom corner stringers to length and cement in place as shown. Front of bottom stringer can be moistened with water to aid in bending. Do likewise with the two side 3/16 sq. stringers. A short length of 3/16 sq. is cut to length and beveled (squared) to fit into notch in #45 and extend to rear as shown in line with top of #33. When dry, cement Cabin Side #50 in place as shown on sketch and Side View. Allow to dry thoroughly before removing from building board and continuing fuselage construction.

STEP 5

Remove frame from building board and complete opposite side of fuselage in same manner described in steps 3 and 4. DO NOT MAKE ANOTHER FUSELAGE CENTER FRAME ASSEMBLY. THESE BULKHEAD HALVES ARE CEMENTED TO THE FUSELAGE. FRAME YOU HAVE JUST REMOVED FROM BUILDING BOARD! Note that right half uses Bulkheads #37A, #38A and #39A. Cement #49 across top front of #40 between Cabin Sides (Flush with top) as shown. Cement Bulkhead #51 in place at proper angle shown in sketch and on side view. Cut two 3/16 sq. stringers to length and cement in place between #37 - 37A and #51. Cut hardwood landing gear block to length to fit into notches in #36 and between bottom corner 3/16 sq. stringers and cement in place. A 1-1/2" long piece of this hardwood landing gear block is also notched and cemented to front of #38 as shown and described in Nose Gear Detail Note.

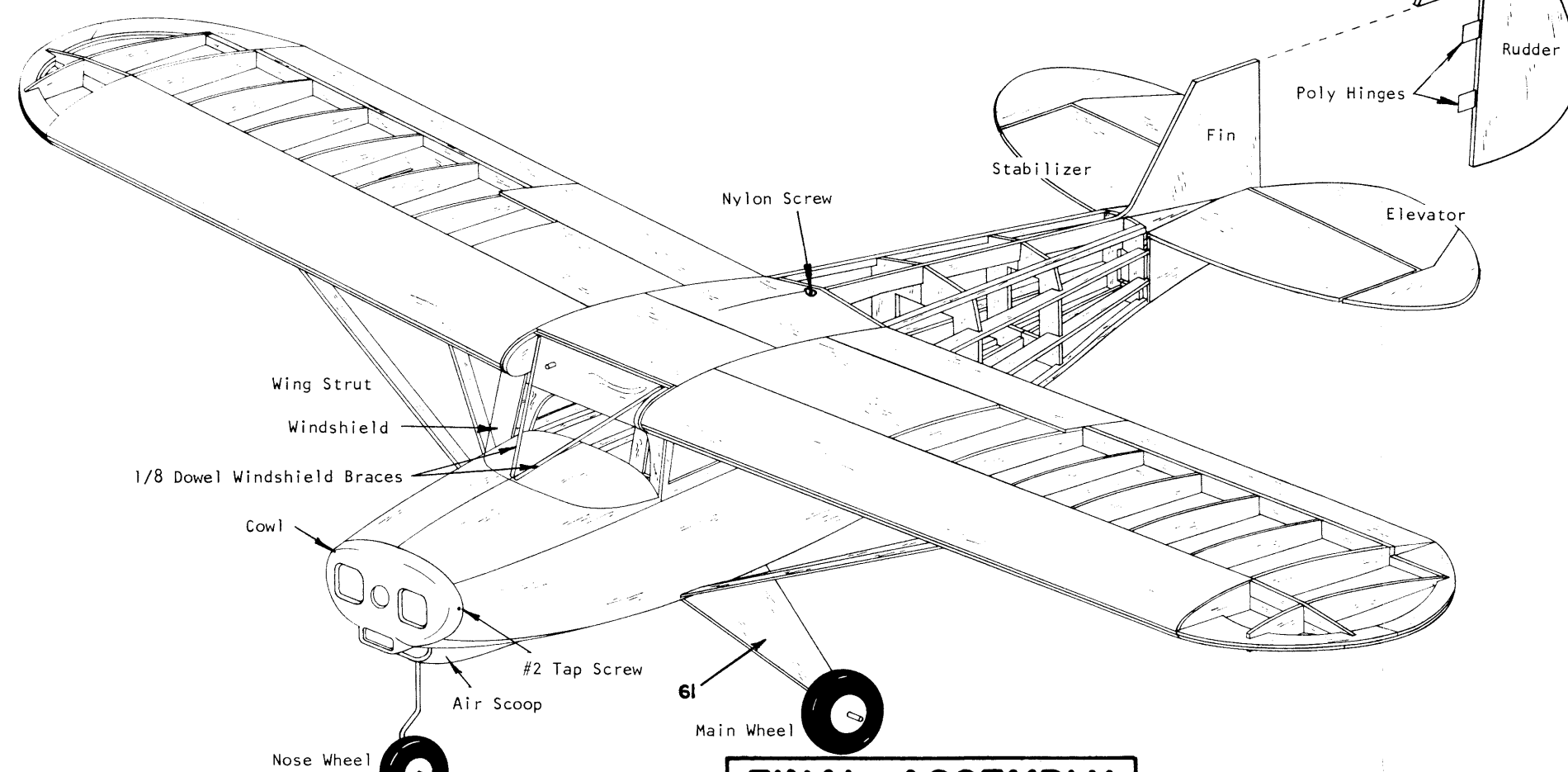
STEP 6

Cement #31's in place as shown. Install wire nose Landing Gear as shown and described in detail note. Main (front) and auxiliary (rear) Landing Gear Wires are installed in slotted blocks in same manner using L.G. Clamps and Tap screws. Main and Auxiliary Gears are wrapped with soft copper wire (not supplied) where they join at bottom and then soldered together. Using 1/16 x 3 balsa cover top, sides and bottom of fuselage front as shown on sketch and Side View. Rear side section is also covered from back of #45 to rear. When dry entire fuselage is sanded smooth to prepare for covering. Center Keel #33 is now removed from #40 to Nut Block as shown. Top of bulkhead #41 is also removed in Cabin area as shown. Engine to be used must be selected at this time. Front Bulkhead is now trimmed out as shown to clear engine. Side of fuselage should have hole cut out to clear head of engine and facilitate cooling. Bottom of fuselage should also have hole cut (around nose gear) for exhaust and oil drip exit. This is all done to suit particular engine used. Cut two 1/2" lengths from 1/4 x 5/16 hardwood strip and cement them to front of bulkhead #37-37A leaving space on outside for Plastic Cowl thickness as shown. Bend two Wing Strut Attachment Wires as described in detail note. Drill 1/16 dia. hole into Main L.G. Block at location shown on sketch and side view and cement wires in place on each side allowing clearance for nylon tubing on end of wing struts.

WINDSHIELD PATTERN

Place celluloid provided over full size drawing and score outline with razor or knife. Celluloid breaks easily on scored line. Cement in place as described in Final Assembly.

FUSELAGE CENTER FRAME ASSEMBLY

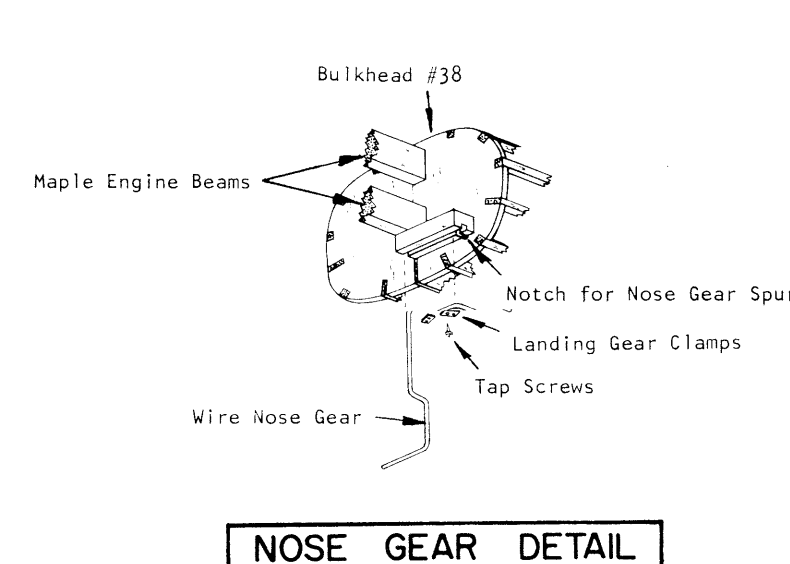
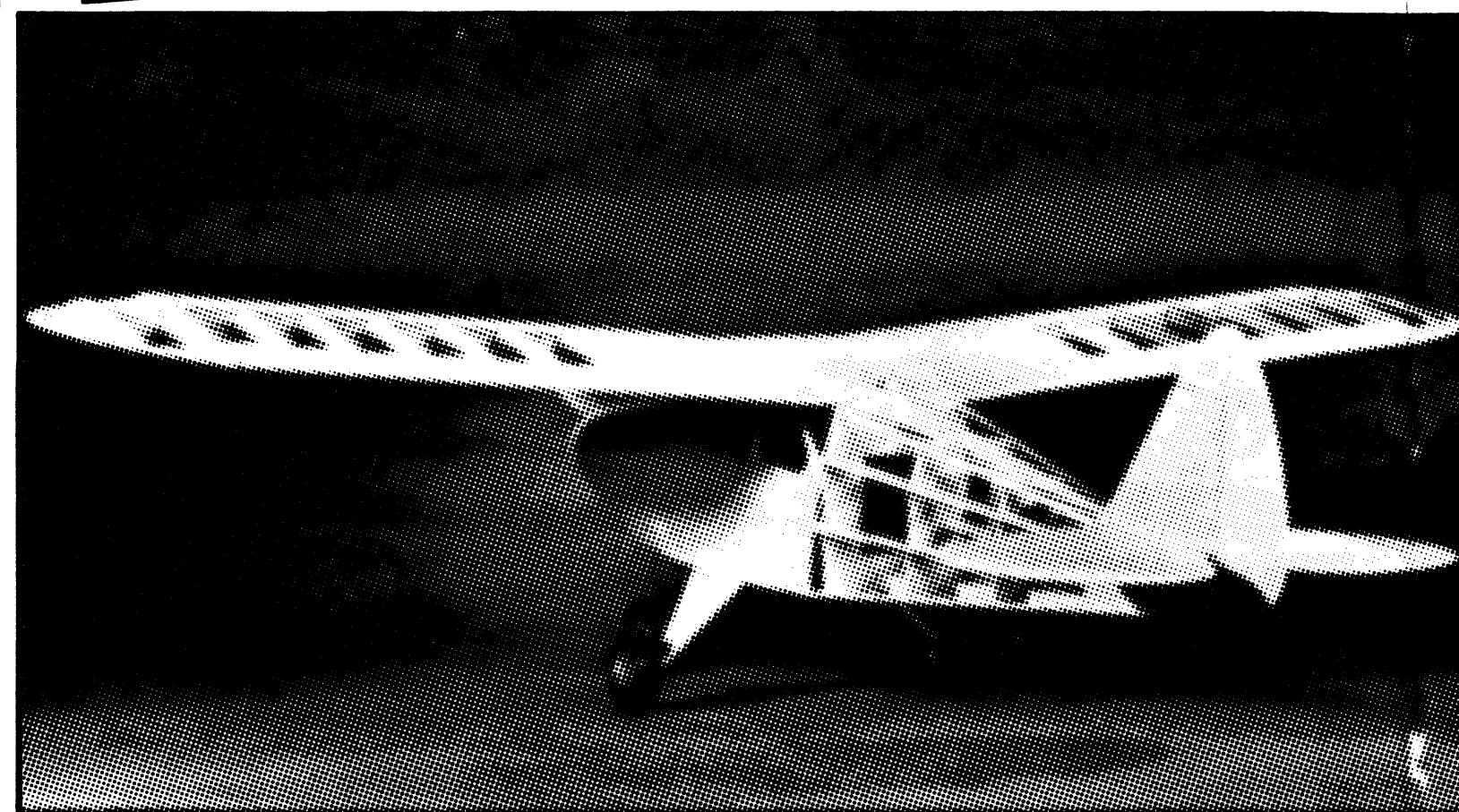


FINAL ASSEMBLY

Stab, which is assembled as described in Detail Note is now cemented to top of fuselage against Bulkhead #45. Be certain it is level and in line when viewed from top. Elevator is hinged to Stab as described in Poly Hinge Note. Cement Vertical Fin to top of Stab and Bulkhead #45 as shown in sketch and Side View. Cement Landing Gear Fairings #61 in place on Main Gear as shown. Allow clearance for shock movement at top. Cut Plastic Cowl and Lower Air Scoop from Plastic Sheet. Drill 1/4" dia. hole in Air Scoop for Nose Gear then cement Scoop in place. (See Side View). Cowl is held in place with small Tap screws into Hardwood Blocks. 1/8 dia. holes previously drilled in #49 are now enlarged to 3/16 dia. to align with Dowels in Wing. Wing is now placed on fuselage slipping Dowel into holes. Locate

hole at rear of Wing for nylon screw, remove Wing, drill hole then install Wing back on fuselage. Assemble Struts as shown in detail. Struts should now slip over Wire Keepers in Wing and on fuselage. Struts are gently pushed together to engage on Wing. Cut two lengths of 1/8 balsa to fit from top corners of #49, drill hole at proper location shown in top of fuselage and cement Dowel Braces in place as shown. Dismantle model to sand everything smooth for covering. Model is now covered with material of your choice (not included in kit) and painted to suit individual taste. Full Size Drawings and Pictures on book top show scale color scheme and location of decals. 2-1/4" wheels which are not included in kit are now installed on model. Radio equipment (not included in kit) is now installed in accordance with manufacturers instructions. Typical position has battery pack under 2 oz.

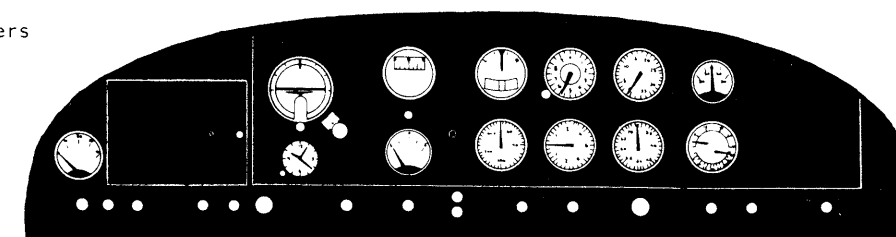
Fuel Tank behind Bulkhead #39. Receiver is directly behind Bulkhead #40, with Rudder, Elevator and Throttle Servos mounted in front of Bulkhead #41. These locations however, can and should be altered to aid in balancing model. If model is being built for Control Line flying, see Control Line Model Note. Model is painted cut instrument panel from plan and cement to #51. Cut windshield from clear celluloid provided over full size pattern on plan and cement in place as shown. Side Cabin Windows are also covered with this clear Celluloid. Install engine, cowl, prop and spinner. IT IS IMPERATIVE THAT MODEL BALANCES AT POINT SHOWN ON SIDE VIEW. If necessary add weight to front or rear to achieve balance since model must not be flown until it balances properly. NOTE: Model is always balanced with an empty fuel tank. This completes your Tri-Pacer. Good Luck and Many Happy Flights.



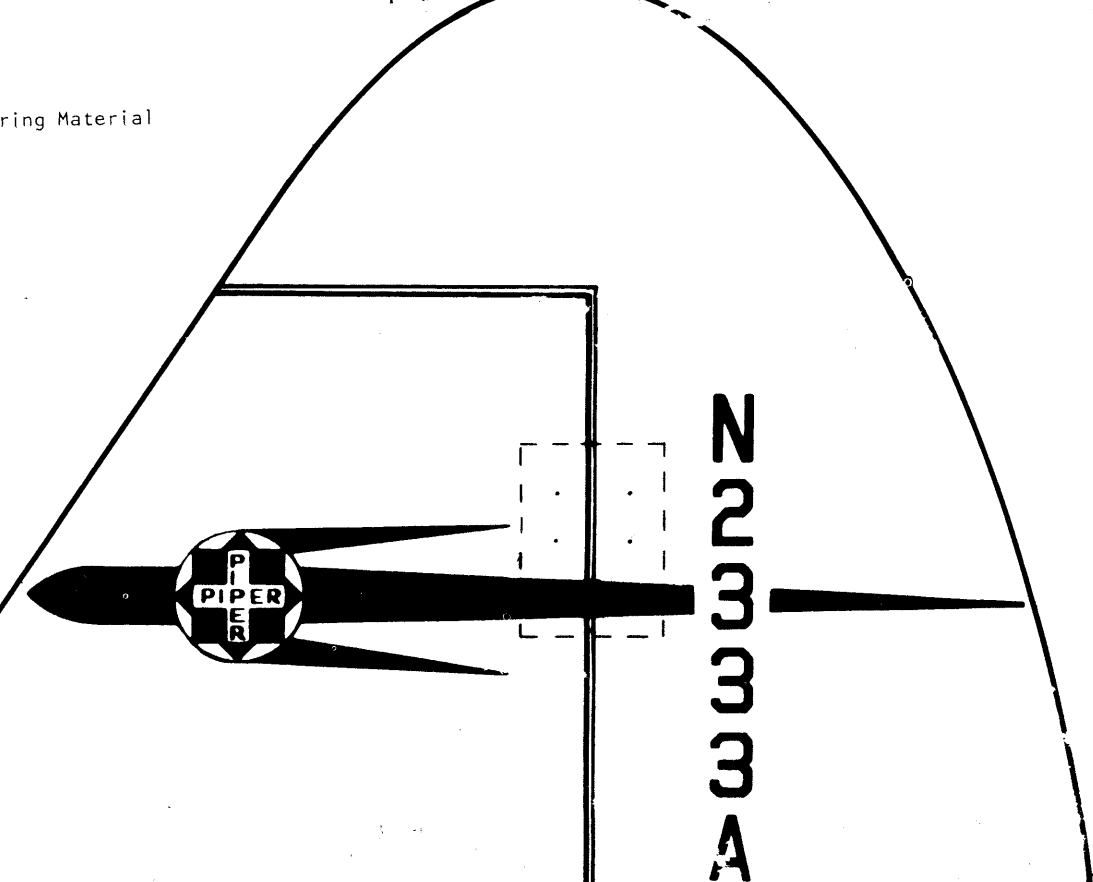
NOSE GEAR DETAIL

Drawing shows how 1-1/2" length of slotted Landing Gear Block is notched for spur of Nose Gear and cemented to front of #38. Block is against bottom of lower Engine Beam and notch lines up with hole in #38 as shown. NOTE: Stringers and Keel sections already installed have been omitted for clarity. Nose Gear is inserted into slots and secured with clamps and tap screws as shown.

TYPICAL CROSS-SECTION AT BULKHEAD 43



INSTRUMENT PANEL



SCALE DETAILS AND SPECIFICATIONS

SPECIFICATIONS

Engine
HP and RPM
Gross Wgt. (Lbs.)
Empty Wgt. (Lbs.)
Useful Load (Lbs.)
Wing Span (Ft.)
Wing Area (Sq. Ft.)
Wing Chord (In.)
Length (Ft.)
Height (In.)
Prop. Dia. (In.)
Wing Loading (Lb./Sq. Ft.)
Power Loading (Lb./HP)
Baggage Cap. (Lbs.)
Fuel Cap. (Gal.)

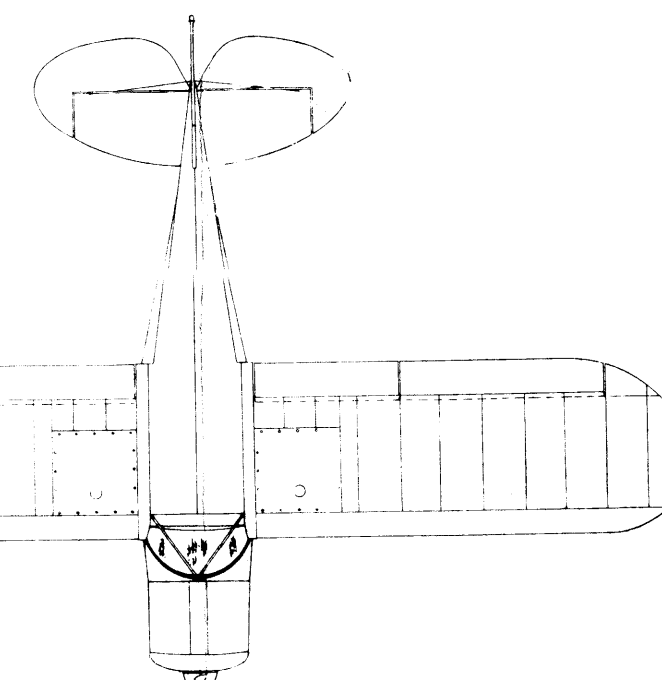
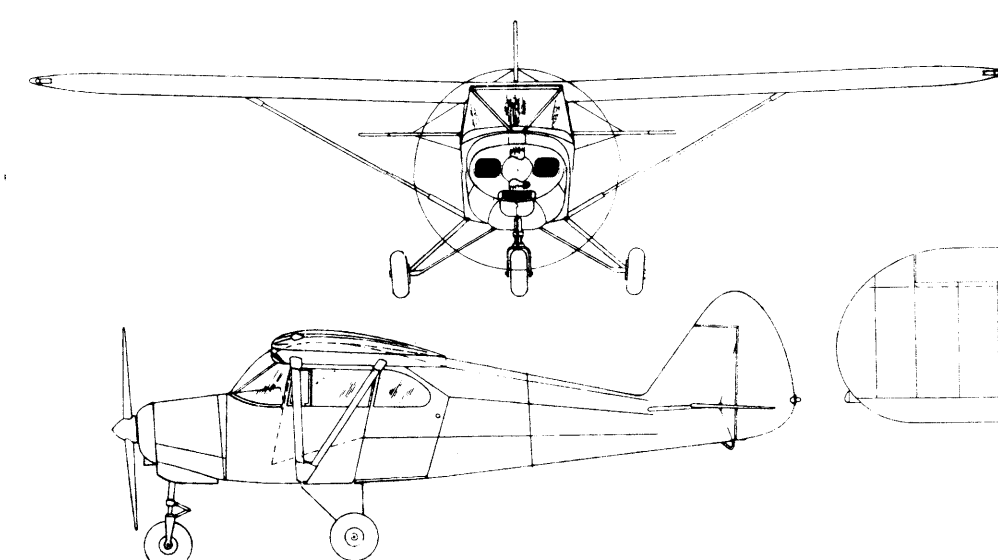
TRI-PACER
PA-22 "T" 135"
Lyc. 0-290-02
135 at 2600
1950
1000
910
29.3
147.5
63.0
20.4
100
74.0
13.2
14.4
100.0
36.0

PERFORMANCE

Top Speed (MPH)
Cruising Speed at S.L. (MPH)
Cruising Speed at Optimum
Altitude
Stalling Speed (With Flaps)
(MPH)
Best Rate of Climb Speed (MPH)
Rate of Climb (Ft./Min.)
Cruising Range (Mi.)
Service Ceiling (Ft.)
Absolute Ceiling
Fuel Consumption (25% Power)
(Gal./Hr.)

TRI-PACER
PA-22 "T" 135"
137
123
132
48
800
580
15,000
17,500
7.7

~ 7,000 Feet @ 75% Power



Kit FS37

PIPER TRI-PACER

Wing Span-44'

Scale 1 1/2" = 1' For .049-.10 Engines



PHILA PA 19134 U S A

WING ASSEMBLY

STEP 1

Select a flat building board to insure a non-warpage wing. Center Section is assembled first by pinning bottom 3/16 s.p. Spar directly onto the covered Plan. Slip Rib #2, #3's and #4's onto 3/16 s.p. Spar. Cement web and pin in place over 3/16 s.p. Spar on Plan. Cement all joints and add top 3/16 s.p. Spar. Cement Trailing Edge #25 in place against Rib and Ribs and against Front of Leading Edge #1 against front of Ribs as shown. Drill 1/8 dia. holes at punch mark on #14's then cement Vertical Webs #13's and #14's in place between Ribs and against front of #3's and #4's. Cement #25's in place toward center as shown and allow framework to dry thoroughly. When dry remove framework from building board and enlarge 1/8 dia. holes in #1's and #14's to 3/16 dia. Cut two 1-1/2" x 3/4" x 3/16" strips of 3/16" round off front and cement in place as shown.

STEP 2

Sketch shows assembly of Right Wing Panel. Wings are built directly over Plan. Trailing edge of wing is finished by cutting Rib #16 x 1/2" is pinned in place. Then cut Rib #16 x 3 x 18 Leading Edge Sheet to length and pin in place. Cut 3/16" Sp. x 17/16" Lower Wing Spar to length and pin in place. Cut 1/2" x 17/16" Lower Wing Sheet, Flush with rear as shown. Cut Trailing Edge at Aileron from 3/16" x 1/2" balsa using full thickness of 1/2" sheet. Cement 1/2" x 17/16" Lower Wing Spar into place. Cement all Ribs in place by the number shown. **NOTE:** Rib #5 must lean outward toward tip and Rib #12 must lean inward toward tip. Cement Late Cement 3/16" Sp. Spar in place. Cement Leading Edge in place to top of Sheet Covering. Cement 1/2" x 17/16" Lower Wing Sheet to match curve of Ribs. Cement #21, #22, #23 and #24 in place between Ribs as shown and cement 3/16" Sp. Spar in place. Cement #25 recommended. When dry remove framework from building board and cement Rib #12 into assembly. Cement 3/16" Sp. Spar in place. Cement #26 as shown followed by top 6 bottom bars #26.

STEP 3

Remove framework from building board. Center Section is now securely cemented to panel by inserting Spars into notches in Ribs as shown in Figure 1. Cut out 1/2" wide Vertical Webs #15 to #20 in place as shown. Cut rear Top/Sheet from 1/16 x 2 x 16 and cement in place. Drill 1/8" holes in webs and slip wires in place and cement securely into cutouts in #22 & 24. Cut top Leading Edge Sheet Covering from 1/16 x 1/2 x 16 and cement in place. The following items for the model are: Allorons are optional and no hardware is supplied. Company models Flow very well with Rudder, Elevator and Throttle. If operating Allorons are not used, the model will fly at 100 to 150 mph. Bell crank be installed between Ribs 9 & 10 according to manufacturers Instructions and Alloron hinged in place, otherwise Alloron is simply cemented in place. The elevator is made of 1/16" pieces of scrap balsa and cement into rear of 1/2" rear Section as shown.

STEP 4

Build Left Hand Wing Panel in same manner as Right and join to Center Section in same manner. Dihedral should be pre-set, however, check to see that center of tip is 1-3/4" from flat surface. Entire Center Section as well as panels from Rib #5 to #8 is now sheet covered using 1/16 x 3 x 10 balsa as shown. Entire Wing is now sand papered and ready for covering which is described in Final Assembly Note. If model is being built for control line flying, 1 oz. of weight (fishing sinker) must be securely cemented to Wing Tip as shown on Control Line Detail before Wing is covered.

WING STRUT DETAIL

Make two Vee Strut assemblies directly over full size Plan. Front Struts are 1/8 x 3/8 hardwood, Rear Struts are 1/8 x 5/16. Cut to length, then round edges and cement together over Plan. Make two of these assemblies. Cut proper lengths of small nylon tubing and securely cement to ends of each Strut as shown. Allow to dry thoroughly then wrap with covering material and install as described in Final Assembly.

WING GUIDE

Bend to shape of this full size pattern from 1/16 Wire (not provided). Install as described in Control Line installation note.

DANGER

RULES FOR SAFE FLYING

1. All equipment must be checked before each flight to make sure it is in good operating condition.
 2. Fly only in a clear unobstructed area.
 3. Model must never be flown in the vicinity of High Tension Lines or any Electrical Lines.
 4. Model should never be flown when thunder and lightning storms are in the area.
 5. Precautions should be taken to insure the safety of all spectators, modeler and property.
- Sterling Models, Inc.
Phila., Pa., 19134, U.S.A.

BELLCRANK PLATFORM

Cut From 3/16 Plywood (not Supplied)

CONTROL LINE INSTALLATION

Control line system parts are not included in kit. Install controls after fuselage Step 6 is complete. Connect the control line to the fuselage lead-out lines and fasten them to Bellcrank. Cut Bellcrank Platform from 3/16" Plywood using the Bellcrank Platform Reinforce Pattern. Attach the crank according to manufacturers instructions. Then, connect securely into fuselage in position of the control line. The control line should be level with balance Point. Lead-out lines come out of the fuselage and connect to the Elevator. Connect Elevator to Bellcrank with nylon Tubing Pushrod as shown making sure Elevator is neutral when Bellcrank is also centered and neutral. Connect Pushrod to Front and rear of Fuselage angled 1/2" to outside of circle flown as shown. Assemble Wing to Fuselage as described in the kit assembly sheet. Attach the wing from 1/16 Wire as shown in detail. Connect securely to wiring at Strut Plates #22 and #23 as shown in detail. Reinforce Folds with 1/16" or Eyelets. Insert lines through holes in Wing Guide and make loops in and at least 2" from Wing Tip. Lines should be level when Elevator is in neutral position. Control line should operate freely with no binding. Model must balance (or slightly nose down) at point where front control line comes out of Fuselage.

LINKAGE DETAIL

LINKAGE DETAIL

Large Nylon Tube
Small Nylon Tube
Threaded Pushrod
Nylon Retainer
Servo Arm
Insert spur....
Swing, then...

The diagram illustrates the assembly of the linkage mechanism. It shows a large nylon tube and a small nylon tube being joined. A threaded pushrod is inserted through the small tube. A nylon retainer is used to secure the pushrod. The servo arm is attached to the pushrod, and a spur is inserted into the servo arm. The final step shows the linkage being swung into position.

PUSHROD LINKAGE

AILERON LINKAGE

(Optional-Material Not Supplied)

