Editors Preface: Over the past twelve years, in the process of doing kit reviews, building prototype designs for publication, constructing prototypes of construction articles submitted for publication in order to check out their performance capability, I have had the pleasure of building and flying virtually all types and configurations of R/C aircraft. Some planes always stand out as distinctive, either in appearance or because of their particular flight characteristics. Each of us has our own favorite aircraft that we have built and flown over the years.

I can honestly say that I have never derived as much enjoyment from any model aircraft that I have built at any time in my life as the Pietenpol Air Camper designed by Don Dombrowski and Doug Edwards. This Stand-Off Scale model of the famous home-built aircraft of the 1930's, is an aircraft that is a easy to build and one that offers more flying pleasure than any model we have ever published. Our prototypes were powered by OS Max .30's and OS Max .35's using 10/6 wooden props. A couple of prototypes were finished with MonoKote and Solarfilm and had only the barest of scale details. Another was finished with Coverite and K & B Superpoxy. Still another was finished with PermaGloss Coverite and was complete with tooled thin aluminum cowl plates and a simulated Ford Model A radiator. A few of the prototypes used the large Trexler air wheels while others used Proctor spoked wheels. Each of the prototypes flew exactly like the one that preceeded it, and all are still flying at the time of this writing. With an OS Max .35 and muffler, the aircraft can be flown at 1/4 to 1/3 throttle, at sufficient altitude, and your wife and kids can have a ball flying big wide circles around the field. With adequate throws on the control surfaces, the Pietenpol will do some of the wildest maneuvers you have seen. At full power, it will climb straight up, hanging on the prop, at an unbelievably slow rate of climb. If you so desire, you can climb it up to altitude, cut the throttle, and go looking for thermals — at its low wing loading it will thermal quite easily on a warm summer day.

And, if you are so inclined, as Don Dombrowski and I were on one particular afternoon of test flying the Pietenpol, you can bring the plane down low, reduce the throttle, and by proper and judicious use of throttle, elevator, and rudder, fly the plane low and slow around you a few feet off the ground, ukie style. You can even shoot one or two wheel touch-and-go's as you're flying around yourself if you want to impress the spectators.

The Pietenpol captures all the nostalgia of the vintage aircraft of the 30's as well as adding a new dimension to R/C — putting the fun back into flying! Whenever I have the chance to go flying, and there isn't a kit or prototype aircraft to be tested, I take the Pietenpol for sheer flying pleasure. I have never enjoyed an airplane as much as this one, and I am sure that you will share this enthusiasm if you build one of your own. Try an OS Max .30 or .35 with a 10/6 prop and find out for yourself what real flying pleasure is all about.

And, if you want to teach a novice to fly, here's an airplane that resembles its full size counterpart, flies like its big brother, and can be handled by your student with ease. Yet, in the hands of a proficient pilot, it will do some of the wildest maneuvers with a degree of grace and realism you won't believe until you build it and fly it yourself. - - - Don Dewey.

A Sport And Stand-Off Scale Trainer

PIETENPOL

By Don Dombrowski and Doug Edwards

● The Pietenpol is an attractive Stand-Off Scale airplane, reminiscent of the full-scale home-builts of the 1930's, capturing both appearance and flying style of the original. It is an easy building stable trainer which is excellent as a first airplane. The extremely rugged construction (plywood fuselage sides and formers) can take the abuse of an "every Sunday" sport airplane. Either version, antique or modern home-built, the Pietenpol is gentle in the hands of a beginner and responsive to the hands of an expert. You can have fun slowly and economically with a Pietenpol.

CONSTRUCTION

Fuselage:

(1) Cut the firewall from 1/4" birch plywood. Position the engine mount (.19-.35) even with the top and center it side to side. Mark and drill the mount attachment holes and install the 6-32 blind nuts on the backside of the firewall.

(2) Place the engine on the mount. Drill and tap for 4-40 screws.

(3) Cut the fuselage sides, tank compartment floor, cockpit floors, fuselage formers, chin plate, and radio access hatch from 1/8" plywood.

(4) Cut 1/4" x 1/4" balsa stock for the aft fuselage stringers, uprights and diagonals. Place wax paper over the plan and build up two identical aft truss sections.

(5) Cut 4 cabanes from 1/2" x 1/4" spruce, making sure that all are exactly the same length.

(6) Cut 2 landing gear mounts from 1/4" birch plywood.

(7) Place the right hand fuselage side on the plan and mark the firewall downthrust reference line.

(8) Wrap 2 of the 4 cabanes with Saran Wrap and, using them as spacers, glue the cockpit floors, formers, tank floor, gear mounts and aft truss section to the fuselage sides. **Do not** bond the cabanes at this time. Note: Use a drafting triangle to insure that all parts are perpendicular to the fuselage side.

(9) Using the cabanes as spacers, glue the left hand fuselage side to the cockpit floors, formers, tank floor, and gear mounts.

(10) When the assembly is dry, remove the cabanes. Turn the assembly over top down on the top view of the plan. Using a piece of 1/8" plywood as a spacer under the aft end of the truss assembly, glue the other truss assembly to the left fuselage side.

(11) Glue the firewall in position, making sure that it lines up with the downthrust reference line.

(12) Using the top view center line as a reference, pull the aft end of the fuselage together and glue together at the tail post.

(13) Cut and glue 1/4" x 1/4" balsa cross braces in position along the aft bottom of the fuselage.

(14) When this assembly is dry, turn it upright and glue the cabanes to the fuselage sides and gear mounts. Note: Insure that the cabanes are seated on top of the gear mounts.

(15) Cut the pushrod exit plates from 3/32" x 2" balsa sheeting and glue in place at the aft end of the fuselage.

(16) Cut your 1/4" x 1/4" balsa stock and glue the aft top cross braces in place.

(17) Cut Formers #1, #2, #3 and #4 from 1/16" birch plywood. Place each one on the plan and mark the stringer locations.

(18) Glue the formers in place.

(19) Cut the 1/4" x 1/4" balsa stock and glue the top stringers in place.

(20) Cut out your cockpit blocks and tank hatch cover from 1½" x 3" x 12" balsa blocks.

(21) Contour and notch the cockpit blocks.

(22) Slide the blocks down the cabanes and glue in place.

(23) Cut forward tank hatch holddown plate & aft cleat from 1/8" birch ply.

(24) Glue the hold-down plate to the firewall and the fuselage sides.

(25) Glue the aft cleat to the aft end of the hatch cover, making sure of a 1/8" overhang.

(26) Cut a piece of 5/16" dowel 3/8" long and drill a hole through the center for a 4-40 screw.

(27) Drill the forward end of the tank hatch cover with a 5/16" drill and glue the dowel in place. Note: Use the side view of the plan for reference.

(28) Place the hatch cover in position. Drill the hold-down plate and install a 4-40 blind nut on the aft side.

(29) Contour the hatch cover to match the cockpit blocks.

(30) Cut the nose block from 3/8" x 2" stock and glue in place.

(31) Cut the spinner ring from 1/16" plywood and glue to the nose block.

(32) Route out the nose block to match the inside contour of the spinner ring.

(33) Glue the 1/8" plywood chin plate in place.

(34) Contour the nose section to match the spinner ring.

(35) Cut 1/4" x 1/4" stock and glue the cockpit side rails to the cockpit floors and blocks.

(36) Cut and bend the 3/32" piano wire landing gear and spreader bar.

(37) Cut, drill and bend 8 wing strut fittings from .032 aluminum sheet.

(38) Cut 2 pieces of 1/4" O.D. brass tubing for axles, using the forward view of the fuselage as a reference for the proper length.

(39) Place the radio access hatch in position. Drill and install the 4-40 blind nuts on the aft side of the gear mount plates.

(40) Attach the strut fittings and landing gear to the gear plates using #4 sheet metal screws and K & B Veco metal 3/32" gear clips.

(41) Solder the brass axle over the 3 protruding gear wires (forward gear, aft gear, and spreader bar). Note: Use the forward view of the fuselage on the plan for reference.

(42) Solder a 1/4" I.D. steel washer to the inboard end of the axles.

(43) Bend the tail wheel assembly from 3/32" piano wire. Install it in a Du-Bro aileron bushing and glue in place.

(44) Cut the vertical stabilizer, horizontal stabilizer, rudder and elevators from 3/16" x 3" balsa.

(45) Cut the 3/16" dowel elevator joiner to the proper length and glue to the elevators using the plan as a reference.

(46) Place the horizontal stabilizer on the plan. Mark a center reference line and glue on the vertical fin, insuring proper alignment.

(47) Glue the stabilizer assembly on top of the fuselage and check alignment several times.

(48) Drill a 3/32" hole in the rudder for the tail wheel wire.

(49) Hinge the rudder and elevators using the plan as a reference for hinge locations.

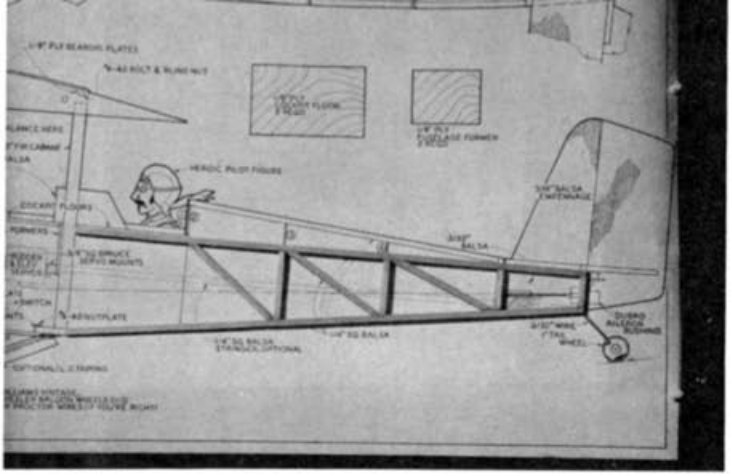
Wing:

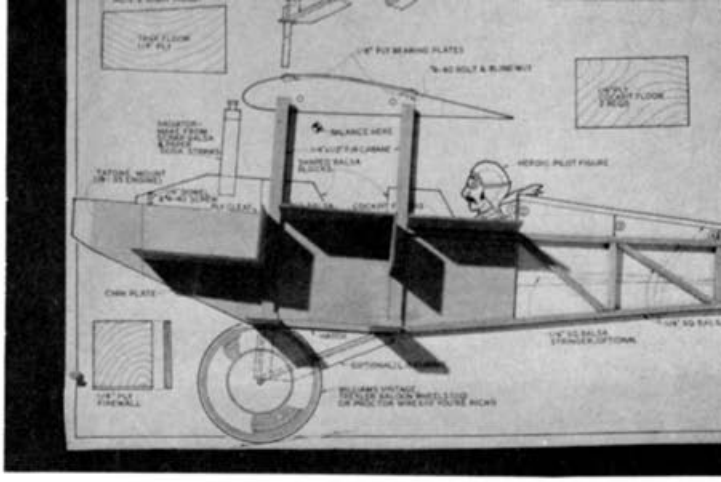
General Notes

(a) The 5/16" diameter holes in all the ribs can be drilled using a piece of 5/16" O.D. x 3" brass tubing, sharpened on the end using a #11 X-Acto blade.

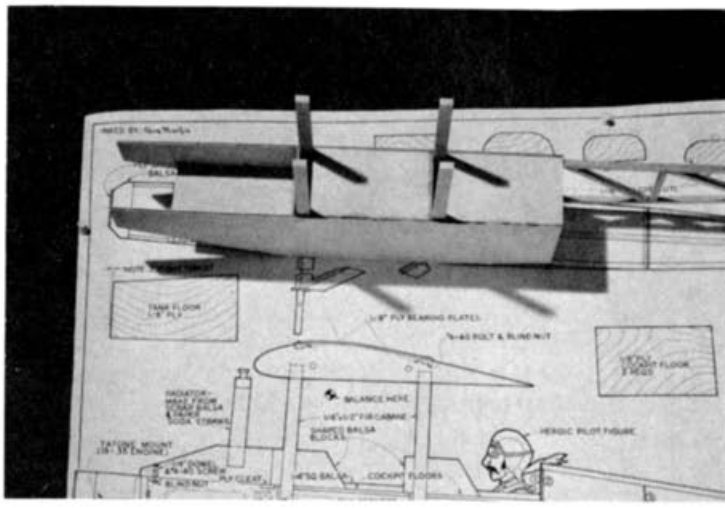
(b) Cut out all the ribs using plywood templates in the "sandwich" method.

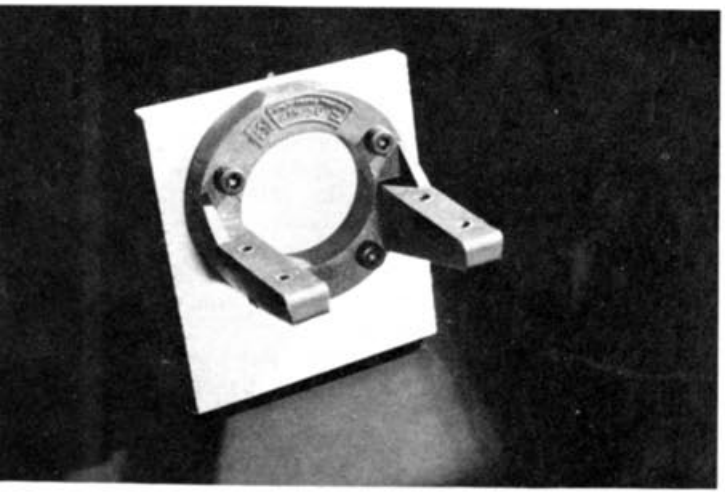
(c) The wing design on this airplane utilizes a minimum amount of time, effort, and material to construct. Due to the nature

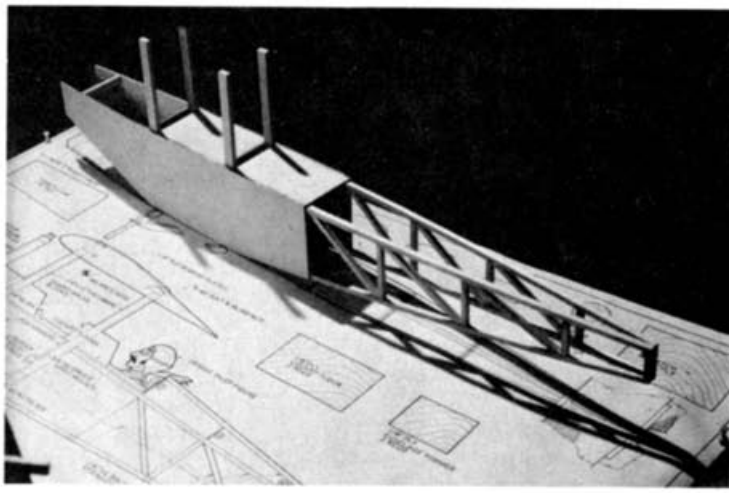


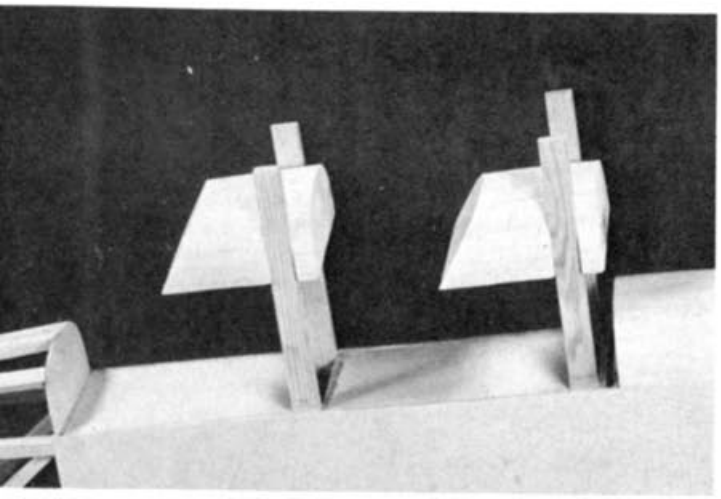


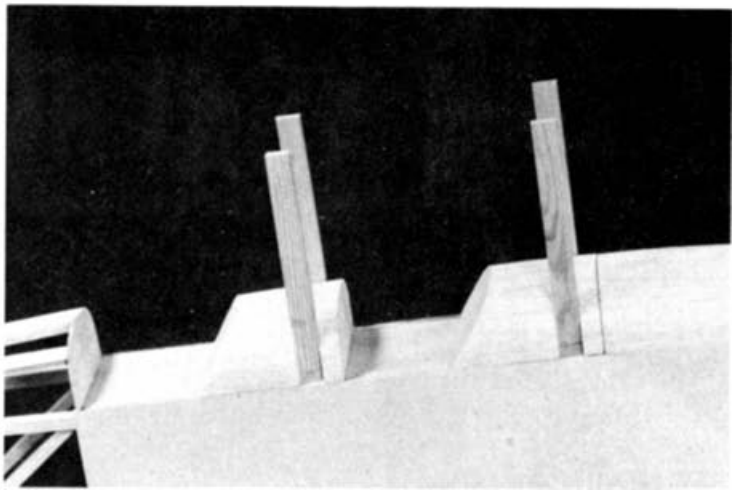
ABOVE, LEFT: Basic fuselage side stringers being laid out over full-size plans. ABOVE, RIGHT: Adding the plywood sides, cabanes, and bulkheads to one side. RIGHT: Second plywood fuselage side added over top view for alignment – rear stringers omitted in this photo. BELOW, LEFT: Kraft-Hayes motor mount bolted to firewall. BELOW, RIGHT: Basic fuselage completed and laid out over top view. BOTTOM, LEFT: Notched and shaped cabane blocks slip down over cabanes. BOTTOM, RIGHT: Cabane blocks in place.

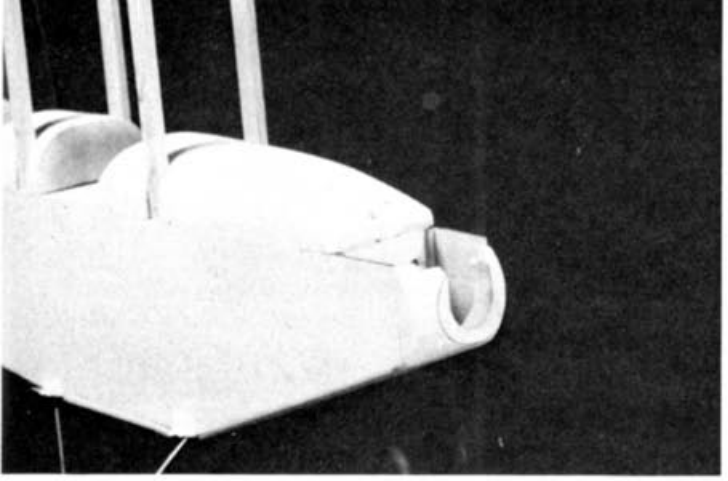


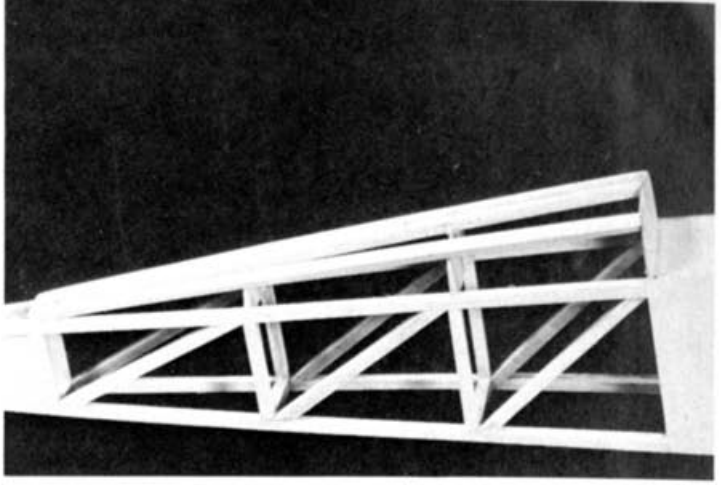


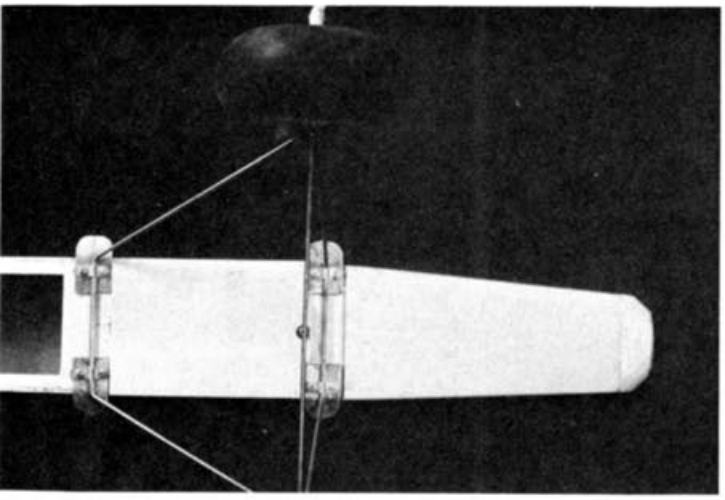


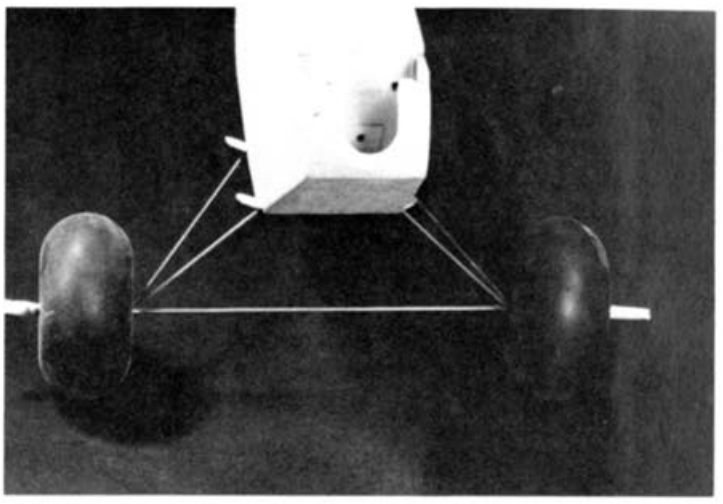


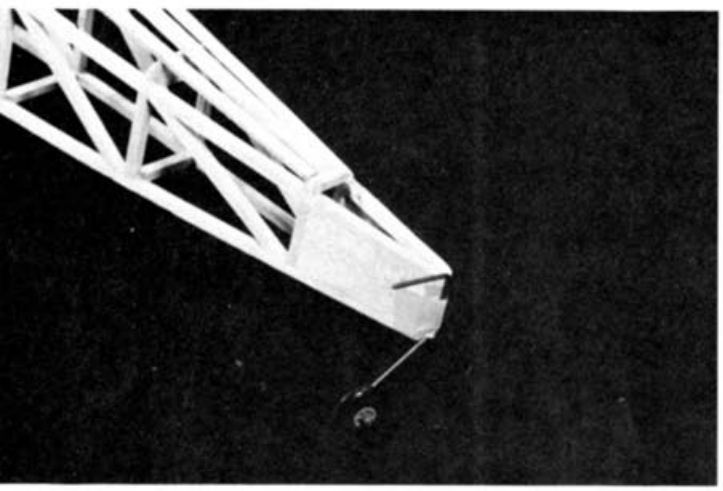




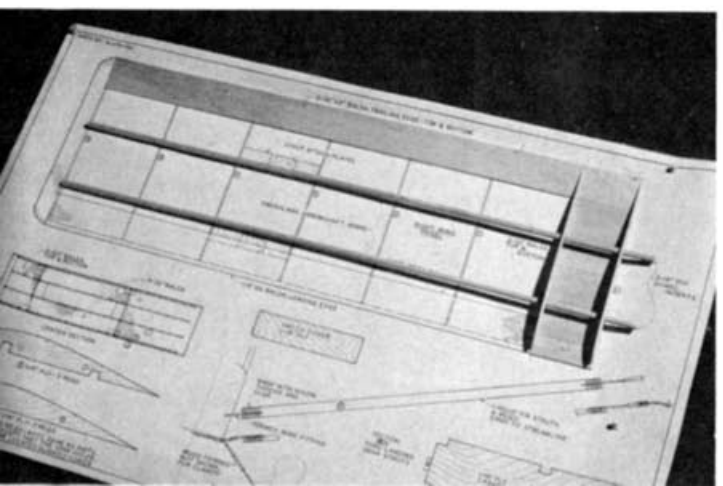


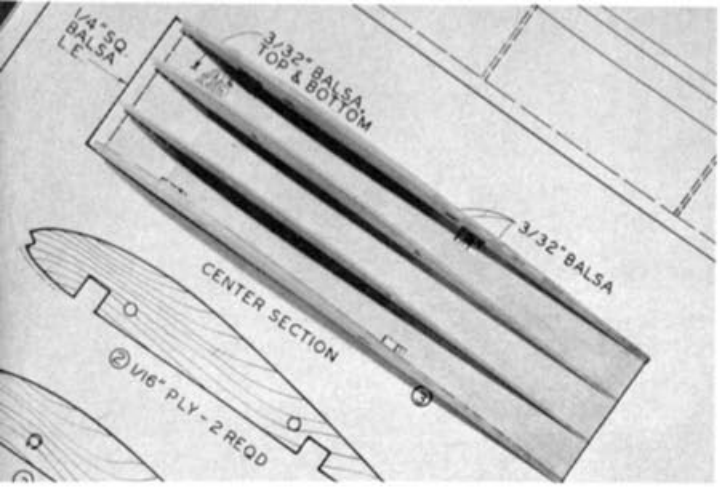




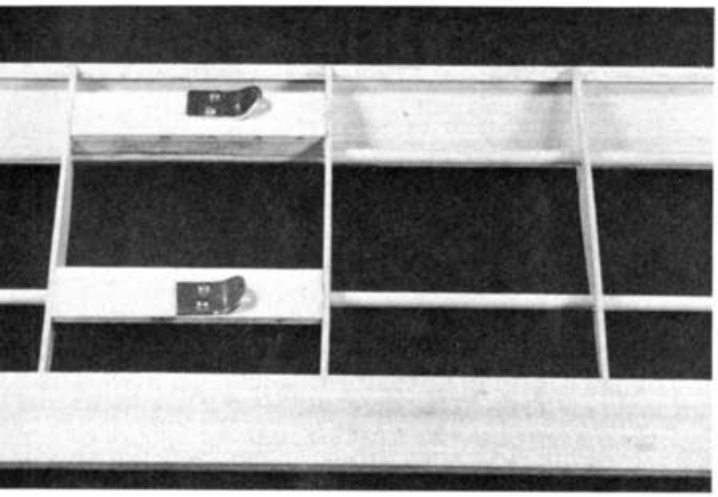


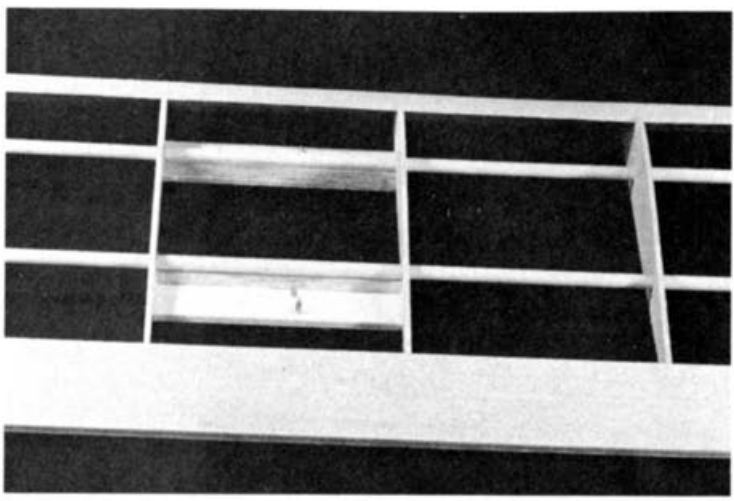
TOP ROW, LEFT: View of rough shaped nose, ply nose ring, and fuel compartment hatch block. TOP ROW, RIGHT: View of aft fuselage section showing turtledeck stringers and general construction details. ABOVE, LEFT: Bottom view of fuselage showing strut fittings, landing gear attachment, and plywood access hatch. ABOVE, RIGHT: Front view of landing gear with Trexler Air Wheels. Masking tape was used until cotter pin wheel retainers were installed. LEFT: Tail wheel held in place temporarily with masking tape. BELOW, LEFT: Laying out one wing panel. BELOW, RIGHT: Basic wing panel without top sheeting.

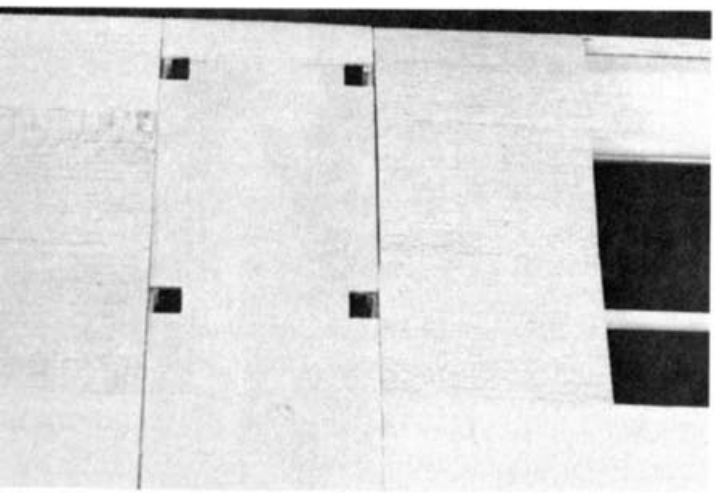


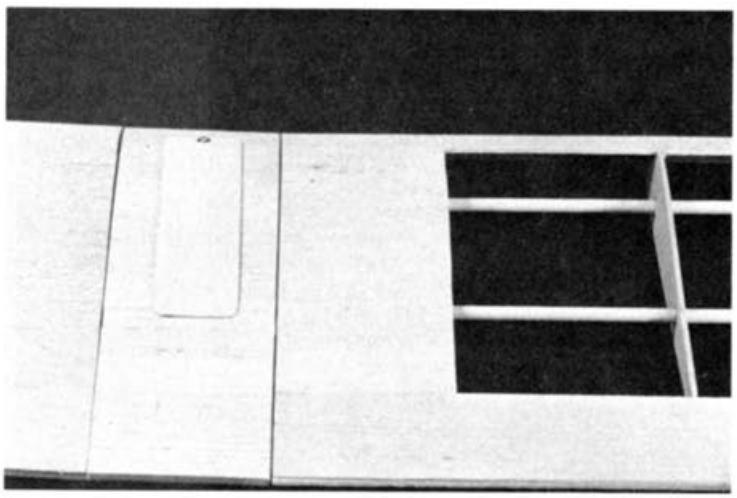


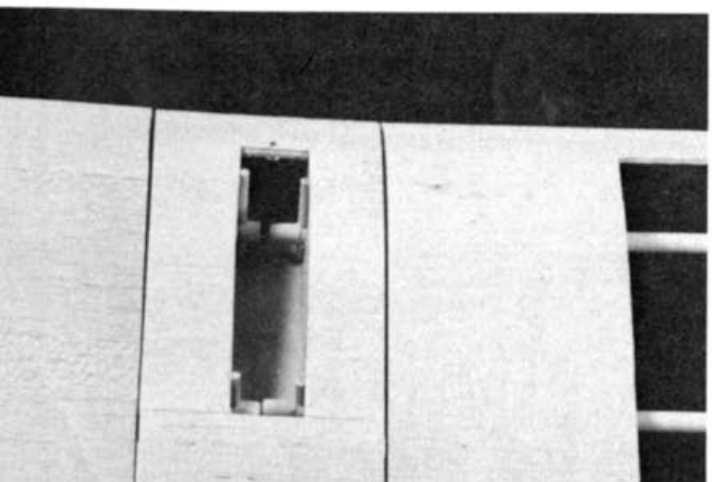
LEFT: Building the center section panel over the plans. BELOW, LEFT: Aluminum strut fittings installed on wing. BELOW, RIGHT: View from top of wing showing sheet metal screw strut fitting retainers. THIRD ROW, LEFT: Bottom view of center wing panel. THIRD ROW, RIGHT: Top view of center wing panel with plywood access hatch in place. BOTTOM ROW, LEFT: Access hatch removed showing dowel pin retainers through arrow shaft wing spars. BOTTOM ROW, RIGHT: Empennage pieces, joined elevators, and hardwood strut material.

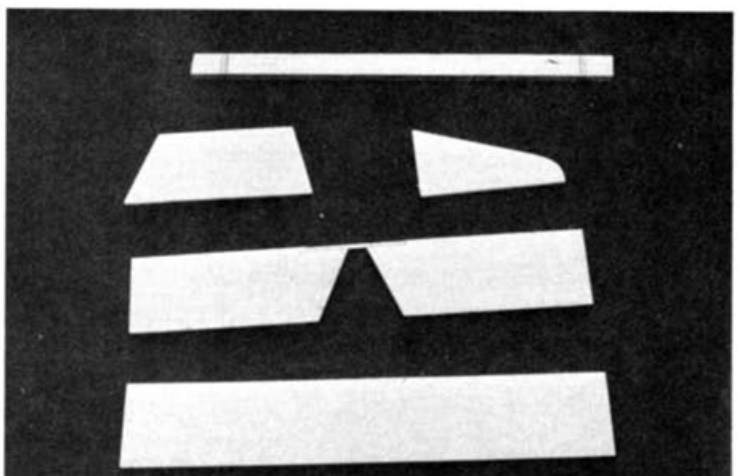












of the wings construction, the struts **are required** to enable this airplane to perform any maneuver the modeler wishes without fear of wing failure.

(d) The plans have both wing panels shown and it is recommended to build both at the same time if building space allows.

(1) Cut 16 pieces of 3/32" x 2" x 12" balsa sheeting.

(2) Drill, cut and sand 12 #5 ribs and 4 #4 ribs using the sandwich method.

(3) Cut 6 pieces of 1/16" x 2" x 12" plywood.

(4) Drill, cut and sand 2 each — #1, #2, and #3 center section ribs.

(5) Cut 6 pieces of 3/32" x 3" x 3" balsa sheeting. Glue together to form the lower inboard wing bay sheeting.

(6) Cover the wing plan with wax paper.

(7) Cut and pin the 3/32" x 2" x 30" balsa aft lower wing sheeting to plan.

(8) Glue the inboard wing bay sheeting to the forward edge of the 3/32" x 2" x 30".

(9) Cut four 5/16" shafts to the proper length.

(10) Glue both #4 ribs in place and allow to dry.

(11) Insert the 5/16" shafts through the #4 ribs from the tip side until they align with the end of the tip rib. Glue the shafts to the #4 ribs and allow to dry.

(12) Slide the #5 ribs in position and glue to the aft lower sheeting and shafts.

(13) Cut 1/4" x 1/4" stock 30" long and glue to the leading edge of the wing ribs.

(14) Cut the strut attach plates from 1/8" birch plywood and glue in their proper locations between the #5 ribs.

(15) Cut 1/4" x 1/4" balsa stock and glue between the 1/8" ply strut attach plates and the 5/16" shafts.

(16) Sheet the top leading edge and trailing edge with 3/32" x 2" x 30" balsa sheeting.

(17) Sheet the top inboard bay with 3/32" x 3" x 3" balsa.

(18) Glue the 1/4" x 1" tip pieces in place.

(19) Sand the complete assembly and contour the leading edge using the plan as a reference.

Center Section

(1) Cut the cabane plate from 1/16" birch plywood.

(2) Glue #2 and #3 together. Note: Make a right and left hand assembly.

(3) Place the cabane plate on the plan and mark the location for the #1 ribs.

(4) Glue the ribs in their proper location.

(5) Cut a piece of 1/4" x 1/4" 3" long and glue to the leading edge of the ribs.

(6) Sheet the forward lower edge with 3/32" balsa and allow to dry.

(7) Slide the center section on the cabanes and check for proper fit. The cabanes should seat at the top of the notches in the #2 ribs. When a proper fit has been established, bond the center section to the cabanes.

(8) Sheet the top of the center section with 3/32" x 3" balsa sheeting.

(9) Contour the leading edge to the proper radius and sand the entire assembly.

(10) Using the plan as a reference, mark and cut out the 3/32" sheeting on top of the center section for the wing shaft attach pin access hole.

(11) Cut the hatch cover plate from 1/16" birch plywood.

(12) Cut two 1/8" plywood hatch hold-down plates and glue in place. Allow to dry.

(13) Place the hatch cover in position. Drill through both the hatch and hold-down plates for 4-40 screws. Install 4-40 blind nuts on the bottom side of the hold-down plates.

Wing Struts

(1) Cut 4 pieces of 1/4" x 1/2" fir 18" long.

(2) Cut and bend four 1/16" piano wire strut ends using the plan as a reference.

(3) Place the 4 Kwik Link ends at mid travel. Cut to length and put a 90° bend as shown on the plan.

(4) Mark and drill both ends of the 4 struts, and install the strut ends using nylon thread and glue.

(5) Install the strut fitting on the wing panels with #4 sheet metal screws.

(6) When the glue is thoroughly dried, install the struts into the fuselage fitting.

(7) Insert the wing panels into the center section and attach the struts to the wing fittings. Adjust the Kwik Links as required to obtain a slight load upward to maintain the proper dihedral angle.

(8) Place a slight load inward on the wing to eliminate any excess gap between the center section and the inboard end of the wing. Mark the 5/16" shaft inboard of the #1 rib for the 1/16" dowel pin location.

(9) Remove the struts and the wing panels. Drill a 1/16" hole through the 5/16" shafts at the previously marked locations for the wing hold-down pins.

(10) Place the wing panels back into the center section. Install the 1/16" wing pins and struts.

That's it — one complete Pietenpol ready for covering and paint unless we missed something along the way which we probably did. If we did, we are truly sorry, but nobody's perfect. The only modeler I know that is perfect is Don Dewey, except when it comes to flying, building, finishing and trying to drill the 1/16" hole through a Pietenpol wing spar shaft. If you happen to mis-drill the 1/16" holes for the wing hold-down pins like Dewey did and end up with a condition where your wings move in and out of the center section a quarter of an inch, you can correct the condition by bonding 5/16" I.D. washers to the inside face of rib #1.

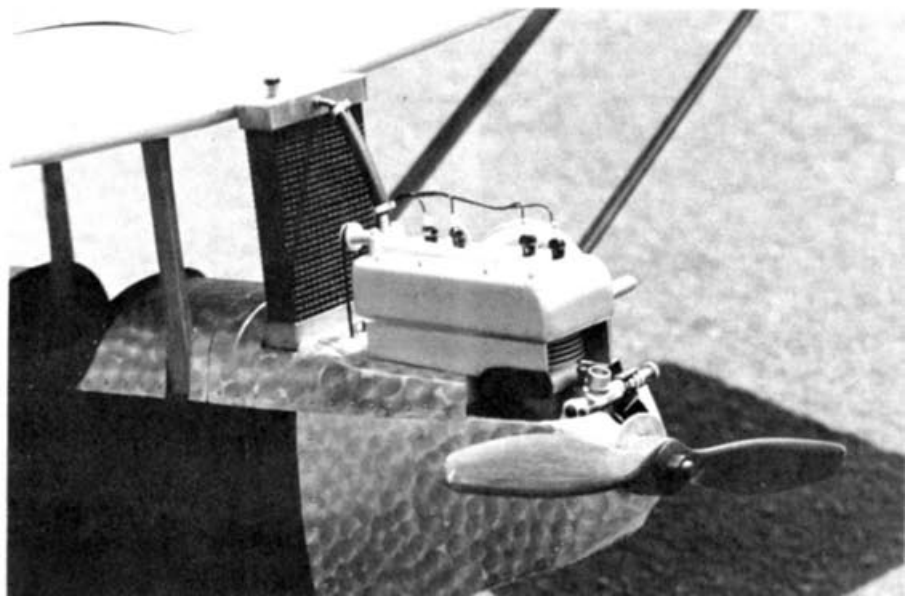
FINISHING & COVERING

We could go into a long seminar on covering and finishing, but we won't for three reasons.

1. Everyone has his own ideas on the subject.

2. The Pietenpol was designed with fun in mind, so do your thing. If you want it fast and sporty, Super MonoKote and DJ Striping. If you want it vintage still, try


NCB



In this sequence, Don Dombrowski replaced another 10/6 prop for RCM's CTP. And, somehow, Dewey made it – the Pietenpol chugs off down the field and into the wild blue yonder.

PermaGloss Coverite, wire wheels, and heroic pilot.

3. The last and most important reason is I have a headache and my fingers are tired from writing!

RADIO INSTALLATION

There isn't much to say here accept to position the battery and receiver as shown on the plan to get as close to the C.G. range as possible and follow your radio manufacturer's recommendations. The suggested control surface throws with the Center of Gravity as specified on the plans are: Elevator 3/4'' up — 3/4'' down; Rudder 1'' right — 1'' left. Controls may be decreased or increased to obtain the desired sensitivity.

ENGINE AND TANK INSTALLATION

The tank is positioned on the plan in such a way that you should not have any problem with fuel feed to the engine or access to the tank. This airplane, at 4½ lbs. will fly realistically with a Veco .19 and you can burn up the sky with a good .35. We recommend a good .29 or .30 for general sport flying.

FLYING AND TRIM

The airplane has no bad habits. In fact, it has such a light wing loading that in a 5 knot wind you can slow it up to a point where your roll out is only 10 feet. Set the controls as recommended for initial flights and adjust it to fit your needs after that.

Take-offs are no problem. Hold a slight amount of up, feed the throttle smoothly and by the time you are at full throttle you are in the air. Except in the case of Dewey, RCM's chief prototype test pilot! The first airplane we built (God rest its soul) went through hell in the hands of RCM's chief test pilot just trying to get it off the ground. After many end-over-ends and cartwheels, and not to mention 12 10/6 maple props, the grandstand consisting of Dick Kidd, Doug Edwards, and myself, had doubts about the flying capabilities of this airplane. Then Dick Kidd said he wanted to try it and, lo and behold, right into the blue with no problem. Doug tried it, same thing, no sweat. I tried it and it was gentle as a lamb.

We are not saying we had a problem with RCM's chief test pilot. All we know is that once we installed an autopilot and automatic landing and take-off capabilities in Don Dewey's transmitter and receiver, his take-off problems went away!

If you want to try a fun airplane low and slow instead of high and fast, try the Pietenpol. □

PIETENPOL MATERIALS LIST

1/8" Plywood (Ramin, Mahogany, Birch, etc.)

2 — Fuselage sides
1 — Tank compartment floor
2 — Cockpit Floors
2 — Fuselage Formers
1 — Radio Access Hatch
1 — Chin Plate

1/4" Plywood (Birch)

1 — Firewall
2 — Landing Gear Mounts

1/4" x 1/2" (Spruce, Fir, Pine, etc.)

4 — Cabanes
4 — Wing Struts
Landing Gear Fairings (optional)

1/8" Plywood (Birch)

1 — Tank compartment hatch cleat
1 — Tank Compartment hold-down plate
2 — Center section hatch hold-down plates

1/8" x 1/4" (Spruce, Fir, Pine, etc.) Optional

Landing Gear Fairing Caps

3/16" x 3" (Balsa)

1 — Vertical Stabilizer
1 — Horizontal Stabilizer
1 — Rudder
2 — Elevators

3/16" Dia. Birch Dowel

1 — Elevator Jointer

1½" x 3" x 12" Balsa Block

1 — Tank compartment hatch
2 — Cockpit blocks

3/8" x 2" Balsa

1 — Nose Block

1/16" Plywood (Birch)

1 — Nose Ring
1 — Cabane Plate
1 — Center section hatch cover
2 — #1 Ribs
2 — #2 Ribs
2 — #3 Ribs
4 — Turtle Deck Formers

3/32" x 2" Balsa

6 — Wing sheets
12 — #5 Ribs
4 — #4 Ribs

3/32" x 3" Balsa

1 — Wing Sheeting

1/4" x 1" Balsa

2 — Wing Tips

1/4" x 1/4" Balsa

Stringers, uprights, and diagonals

5/16" Cedar Arrow Shafts or Maple Dowels

4 — Wing Spars
1 — Tank compartment hold-down bushing

3/32" Piano Wire

1 — Forward landing gear
1 — Aft landing gear
1 — Spreader Bar
1 — Tail Wheel Assembly

1/16" Piano Wire

4 — Wing Strut Ends
2 — Pushrod ends

1/4" O.D. Brass Tubing

2 — Wheel Axles

.032" Aluminum Plate

8 — Sheet Metal Wing Strut Fittings

Hardware

2 — Small cotter pins
4 — 1/4" I.D. steel washers
16 — #4 Sheet metal screws 3/8" long
4 — 4-40 blind nuts and 1/2" screws
4 — 6-32 blind nuts and 3/4" screws
4 — K & B Veco 3/32" dia. wire clips

PIETENPOL

Designed By: Don Dombrowski & Doug Edwards

TYPE AIRCRAFT
Sport — Stand-Off Scale Trainer
WINGSPAN
65 Inches
WING CHORD
11"
TOTAL WING AREA
715 Square Inches
WING LOCATION
High Wing Parasol
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Constant Chord
DIHEDRAL, EACH TIP
1½ Inches
O.A. FUSELAGE LENGTH
37¼"
RADIO COMPARTMENT AREA
(L) 5" X (W) 2¾" X (H) 4⅜"
STABILIZER SPAN
18 Inches
STABILIZER CHORD (incl. elev.)
6 Inches
STABILIZER AREA
108 Square Inches
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
5⅞ Inches
VERTICAL FIN WIDTH (incl. rudder)
5¼" (Average)
REC. ENGINE SIZE
.19 — .35 Cubic Inch
FUEL TANK SIZE
6 — 8 Ounce
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
2 — 3
CONTROL FUNCTIONS
Rud., Elev., Throt., or Rud. & Throt.
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa, and Ply
Wing ..... Balsa and Ply
Empennage ..... Balsa
Weight Ready-To-Fly ..... 72—88 Oz.
Wing Loading ..... 14.5-17.7 Oz./Sq. Ft.


N 2104