

# PINEY MOUNTAIN AIR FORCE

Box 7304 \* Charlottesville \* Virginia \* 22906-7304

## DATA★LETTER

VOLUME III, No. 12

December 1983

Whole Number 37



DECEMBER, The Twelfth Month, provides us with 31 days in which we may choose to try to make our planet a little better than it was in November. Fly a few prayers: they will help.

On the 1st of December, 200 years ago, a new balloon called *Charlière* became the first hydrogen-filled balloon to make a man-carrier flight. Jacques Alexandre César Charles and a passenger, M.N. Robert, flew 27 miles, or about 43 kilometres, before landing safely.

The elated aeronaut, Charles, imprudently released a great quantity of on-board ballast and the balloon rushed up to an altitude in excess of 9,000 feet. It is said that Charles was frightened by his capricious vehicle and he vowed never again to try to fly a balloon.

THE FIRST PUBLIC JET SERVICE began on the 10th of December in 1958.

MAYFLOWER arrived in Plymouth Harbor on the 16th of December in 1620.

FLYER, perhaps the world's first ultralight, took off under its own power at Kill Devil Hill (about 4 miles south of Kitty Hawk, NC) and flew a 120-foot distance in 12 seconds. Date: 17 December 1903. The pilot: Orville Wright.

FULL MOON on the 19th of December.

WINTER SOLSTICE is on the 22nd.

ON CHRISTMAS DAY, the 25th, your sundial and your clock will be in agreement if you are situated on a time-zone meridian.

DECEMBER also marks the third anniversary of the publication of the first issue of *PMAF DATA LETTER*, a genuine no-profit venture.

\*

JALBERT PARAFOLS are well known among kitefliers and sky-diving parachutists; but now ultralight pilots, too, are discovering a new use for the parafoil—under twin-engined power! The new craft, available in two sizes of 375 ft<sup>2</sup> or 450 ft<sup>2</sup>, is presently being sold as "ParaPlane," by a Pennsauken, NJ firm.

Because the giant ultralight "kite" grasps the fancies of our versatile, flexible-minded readers, we offer here some brief specifications of ParaPlane: Powerplants are two 15 hp gasoline engines; two co-axial counter-rotating, 50" caged propellers; canopy of ripstop in choice of 28.5' or 36' span; canopy loading of 1.05 or 1.26 lb/ft<sup>2</sup>; maximum pilot weight of 249 lbs; fuel capacity, 4.5 gallons; takeoff distance, 75 ft; rate of climb, 300 ft/minute; climb or cruise, 26 mph; power off glide ratio (again, at 26 mph), 3:1; power-off sink rate (26 mph), 600 fpm; and landing distance is a mere 25 feet.

The canopy is flaked out on the grass in the same manner that a parafoil kite is readied for flight. The shrouds straddle the encaged pusher propellers and engines attached to the

# A WORK TABLE AND LAYOUT SQUARE FOR THE KITEMAKER

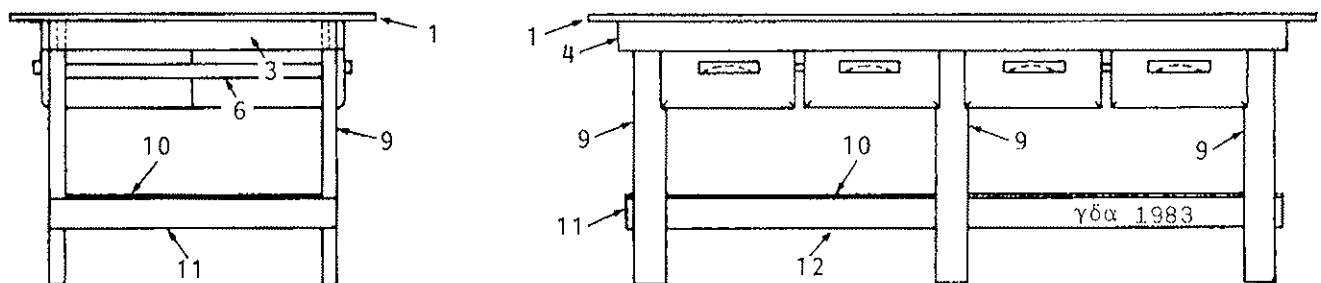
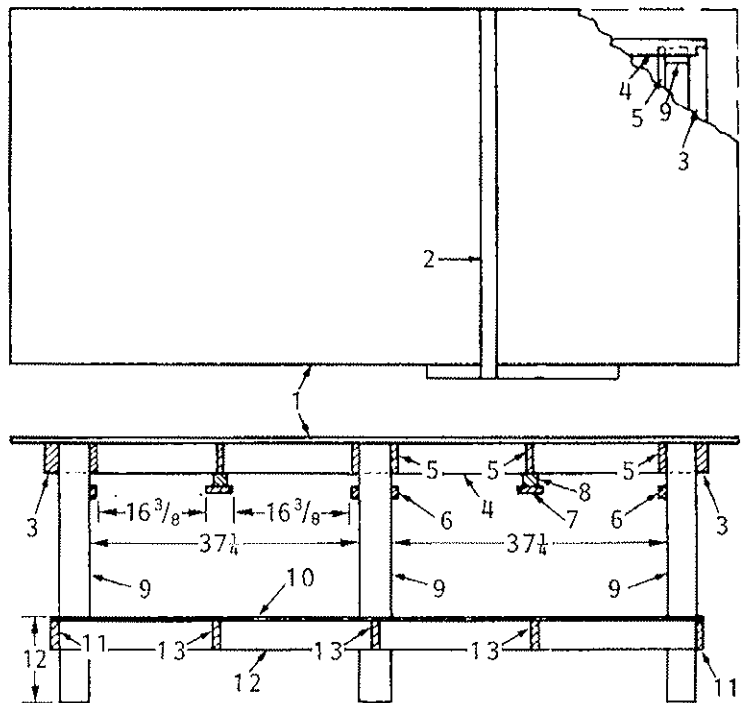
A Versatile Combination by Lycurgus "Chips" Groone

## BILL OF MATERIAL

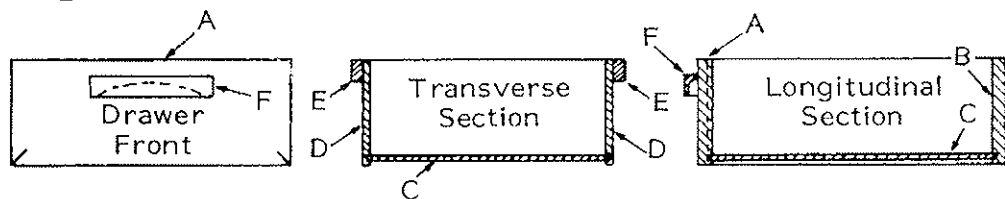
- 1—Top: Birch-faced, lumber-cored plywood,  $\frac{3}{4}$ " x 48" x 96"
- 2—Wallboard Square: Purchase from hardware or building mat'l. store
- 3—Frame End (2):  $1\frac{1}{2}$ " x  $3\frac{1}{2}$ " x  $38\frac{1}{2}$ "
- 4—Frame Side (2):  $1\frac{1}{2}$ " x  $3\frac{1}{2}$ " x 88"
- 5—Batten (6):  $\frac{3}{4}$ " x  $3\frac{1}{2}$ " x 37"
- 6—Guide (4):  $\frac{3}{4}$ " x  $1\frac{1}{2}$ " x  $38\frac{1}{2}$ "
- 7—Guide (2):  $\frac{3}{4}$ " x 3" x  $38\frac{1}{2}$ "
- 8—Spacer (2):  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " x  $38\frac{1}{2}$ "
- 9—Leg (6):  $1\frac{1}{2}$ " x  $3\frac{1}{2}$ " x  $35\frac{1}{2}$ "
- 10—Shelf: Plywood,  $\frac{1}{4}$ " x  $35\frac{1}{2}$ " x  $86\frac{1}{2}$ "
- 11—Shelf End (2):  $\frac{3}{4}$ " x  $3\frac{1}{2}$ " x  $38\frac{1}{2}$ "
- 12—Stringer (2):  $\frac{3}{4}$ " x  $3\frac{1}{2}$ " x 85"
- 13—Batten (3):  $\frac{3}{4}$ " x  $3\frac{1}{2}$ " x 34"

### For the Drawers:

- A—Front (8):  $\frac{3}{4}$ " x  $7\frac{1}{2}$ " x  $18\frac{1}{4}$ "
- B—Back (8):  $\frac{3}{4}$ " x  $7\frac{1}{2}$ " x  $15\text{--}3\frac{3}{4}$ "
- C—Bottom (8): Plywood,  $\frac{1}{4}$ " x  $16$ " x  $19$ "
- D—Side (16): Plywood,  $\frac{1}{4}$ " x  $7\frac{1}{2}$ " x  $19\frac{1}{2}$ "
- E—Glide (16):  $\frac{3}{4}$ " x  $1\text{--}3\frac{3}{8}$ " x  $19\frac{1}{4}$ "
- F—Pull (8):  $1$ " x  $1\frac{1}{4}$ " x 8"



DRAWER DETAILS →



**CONSTRUCTION NOTES:** Select the hard, birch-faced, 4' x 8' top with care. Reserve the better side for the future work-surface.

The top overhangs the 40" x 88" framing of the base by a uniform 4", and provides toe-room at the floor and the option to use C-clamps to hold items on the table surface.

Frame with straight, stud-grade 2-by-4's (actually  $1\frac{1}{2}$ " x  $3\frac{1}{2}$ ") of spruce, pine, or fir.

Secure all joints with resorcinol or urea-

resin glue. Do NOT use the amateurs' folly—the white or yellow hygroscopic glues.

The drawers will have ample sliding clearances if the piece-dimensions and the 4" of top overhang are carefully maintained.

Varnish the entire table. Later, wax the top to prevent glue and stains from fixing.

An aluminum wallboard-square (ca. \$18) is a wonderful layout convenience. The head and blade are graduated in inches—by 8ths.

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# THE ASTROHEX KITE

The Tailless Double Triangle by Lyon Roper and Braidy Lyons

## CONSTRUCTION NOTES:

1. Carefully lay out the star shape as is shown in Figure 1. For a single kite, the builder may care to make his layout directly on the covering material; but if the kite is to be made in quantity, make an accurate pattern of stable cardboard. Be sure to allow at least  $\frac{1}{4}$ " of material for hemming the perimeter.

2. Tape or glue the hem if the covering is of Tyvek® or plastic sheet. Stitch the hem if the covering is cloth or ripstop.

3. Reinforce the internal angles with bits of self-material, tape, or invested string.

4. If the covering is fabric, stitch in appropriate sleeves or pockets to accommodate the longeron and the spars. If the covering is of material that can be glued to wood, the longeron and spars may be glued or secured with self-sticking tape.

5. Make two spars of  $\frac{1}{8}$ " x  $\frac{1}{2}$ " Sitka spruce, 41.569" long. Drill  $\frac{1}{16}$ " diameter holes, for the bowstrings,  $\frac{1}{4}$ " from each spar end (see Figure 2).

6. Make the longeron of  $\frac{1}{4}$ " x  $\frac{3}{8}$ " Sitka spruce, 48" long. Commencing at points 12" from the ends, symmetrically taper the  $\frac{3}{8}$ " dimension to  $\frac{3}{16}$ " at the ends of the longeron. Drill  $\frac{1}{16}$ " holes  $\frac{1}{4}$ " from the ends to accommodate the angled bowstrings (see Figure 3).

7. Assemble the wooden members to the covering and rig the bridle strings and the two bowstrings to the dimensions that are shown in Figure 4. The bowstrings are tied to the spar-ends, and merely threaded through end-holes of the longerons.

Note that the unorthodox angled bowstrings impose a compound curvature in the covering by bending both spars and the longeron. Note, too, that the maximum curvature is imposed on the lower, trailing portion of the kite.

8. Hook on the kiteline; fly and enjoy!

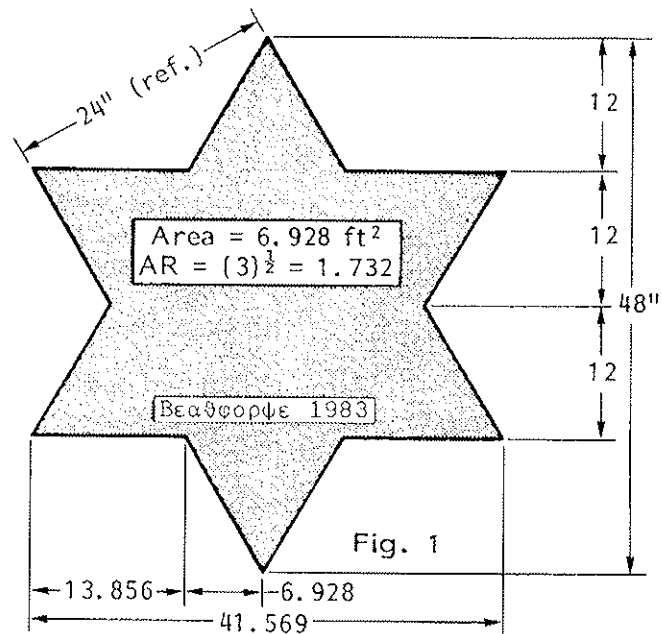


Fig. 2. Spar; typical end

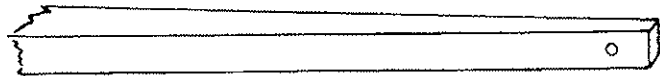


Fig. 3. Longeron; typical end (taper from  $\frac{3}{8}$ " to  $\frac{3}{16}$ " in 12")

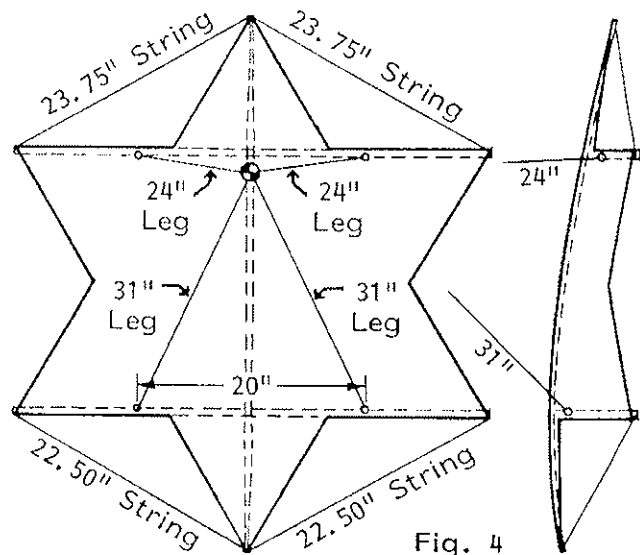


Fig. 4

continued from p. 1:

rear of a tricycle assembly that supports the pilot seat, the foot-steering levers, a hand-throttle, and little else except for a mirror the pilot uses to verify the canopy inflation prior to breaking away from the ground. Like a parafoil kite or parachute, ParaPlane can be folded and stored in a passenger-auto trunk.

Want more information? If so, be sure to see the December *Glider Rider* (full-page ad inside front cover), the August *National Geographic* (pp. 214-15), the August *Popular Mechanics*, and the July/August *Ultralight Pilot* (cover and pp. 20-24).

PMAF pilots are eager to fly the ParaPlane.

\*

THOMAS B. CALDWELL, loyal DL subscriber and a retired judge who lives in San Mateo, California, offers us these items of interest:

"Do not despair if your well-meaning wife or girl friend makes you a gift of 'ripstop nylon' of the garment kind (too stretchy, particularly on the bias). All is not lost! Simply sew into the hems--or wherever else needed--some 1/4" wide twill tape as used by dressmakers. It is very light in weight, strong, and has almost no stretch.

"Hornbeam Mark I kites can form the basis for very fine high-soaring 'sleddelta' kites by merely attaching delta-type wings to the longerons or to the longeron sleeves. Experiment to find the proper spreader-bar tension(s). Use three or four adjustable transverse tie lines between the longerons to fix their correct spacing against the spreader-bar loads. Lower or raise bridle points to balance out a change in center of lift, or make the wing-area distribution so that the aggregate lift center matches the location of that of Mark I.

"Re DL #36, p. 4, 'Q & A Dept.': Please

don't knock all 'hoop' or 'doughnut' shaped reels merely because those you tried were of bad design or of inadequate material. Proper reels of the type are 'reely' terrific (see my letter and picture as printed in *AKA News* for October/November 1983, pp. 9, 10.).

"Re *Hang Loose*, DL #32, p. 3: My half-size plastic-cover version flew very well with the following changes: (a) An adjustable bridle was made by attaching one end of a rather long line to the keel apex, and the other end to the longeron (through the cover) at about one-fifth of the way up from the lower end of the longeron; then, the flying line was tied to this bridle with a larkshead sliding loop. (b) Instead of a spreader bar, I used a V-shaped spar (bamboo) bent at a 30° angle."

\*

LEE TOY, back in San Francisco, writes this: "Dear Old Troll of Piney Mountain and Mrs. Hornbeam:

". . . It was a great pleasure to fly with you in and about the hallowed grounds of Hornbeam Hall. I am sorry I could not have witnessed the maiden flight of Quicksilver MX, but perhaps you can fly cross country to our Marina Green and show us how you can fly it.

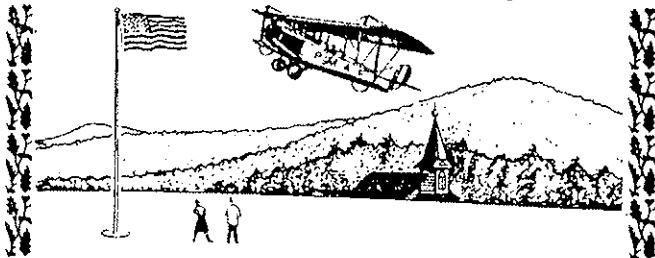
"I am enclosing a bouncy check to cover the next two years of *Data Letter* at the OLD rate if I understand the offer correctly.

". . . Mount a camera on your bird and get some aerial shots of Hornbeam Country for the readers of your noose-paper. —Lee Toy."

\*

HUGH and MARJORIE HARRISON of British Columbia extended their AKA Convention tour farther east and shared H.H. moist hospitality with DR. PHILIP and OLGA MODJESKI of Richmond. The drizzley October 11th messed up flying, but we kept warm on P.M. elixir:

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P.O. Box 7304, Charlottesville, Virginia 22906



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Feb 1985  
(S 332)

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