

The Plane Don Berliner

THE FRENCH sure can be stubborn! They flatly refuse to do

things like other people.

Take competitive aerobatics, for example. Most countries have bowed to the superiority of a few basic types of airplanes—Pitts Specials, Yaks, Zlins—and simply plunk down the cash and fly away.



The CAP-21 (full size plane above) is the French idea of what an aerobatics airplane should be, and it's starting to gain acceptance in the world of full-scale flying. There's no doubt that the Quadra-powered Quarter Scale model (big picture) can hold its own with the best.

It's easy and it's safe, but of course it isn't very creative.

In France, they've been plugging away at their own designs for more than a decade, with less than rousing success. Had they bought Pitts or Zlins (buying a Yak from the U.S.S.R. is awfully complicated), they probably would be well up in the standings. As it is,

France never made much of a splash in international full-size aerobatic competition—until this airplane came along. Noted aviation writer Berliner gives us the background on this up-and-coming ship, and Ed Mitchell describes how you can build your own Quadra-powered RC Giant Scale version.



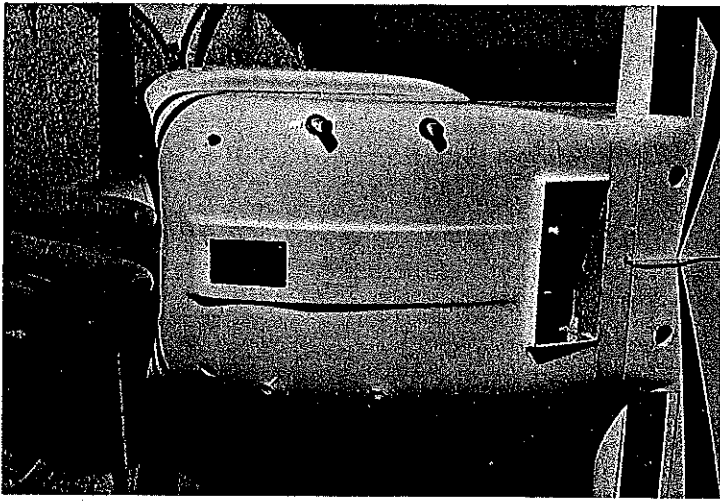
the French team has yet to make much of a mark in international competition.

All this may finally be changing. The latest development in the long series of native designs is clearly the best of the lot and, with reasonable improvements, may soon be right up there with the best. This new CAP-21 may be just

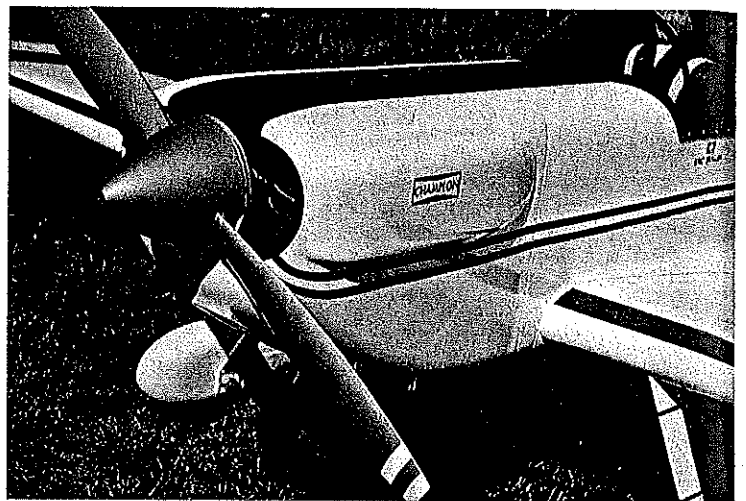
what le docteur ordered.

It all began in the late 1960s when home-built airplane designer Claude Piel (father of the Emeraude, Diamant, and others) produced his first serious aerobatic design, the CAP-10. A side-by-side

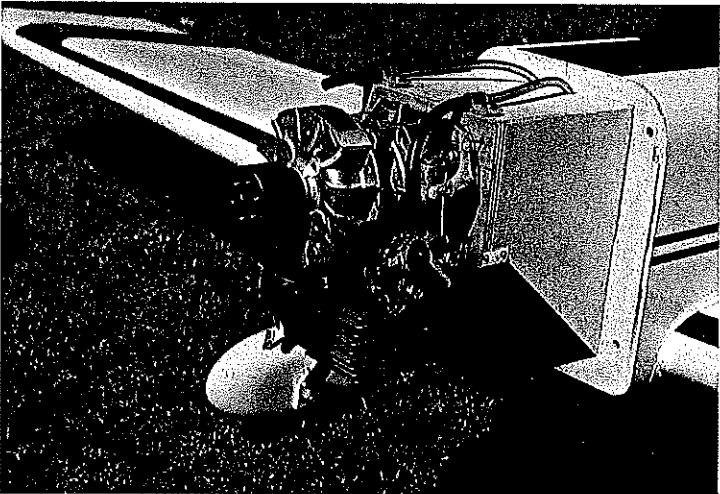
trainer, it combined classic lines (for which Piel already was famous) with good aerobatic capability and enough comfort to make it useful for touring. The CAP-10 and -10B went into production and have now been pro-



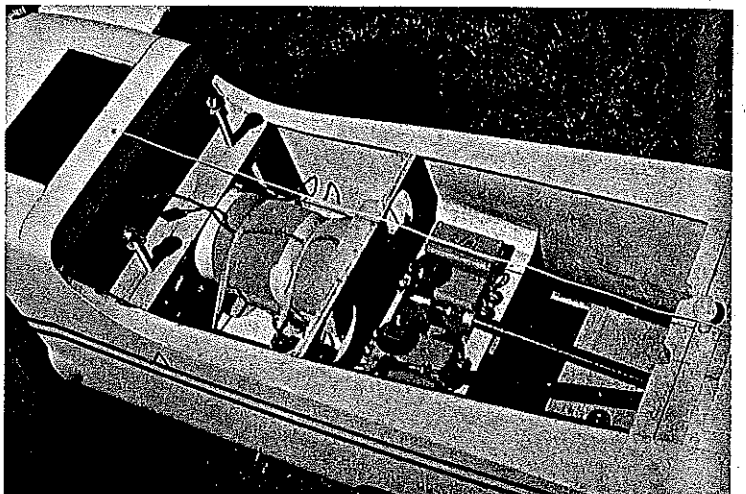
The bottom of the fiberglass cowl shows cooling outlets and scale exhaust stacks. Holes at forward end are for cowling hold-down bolts.



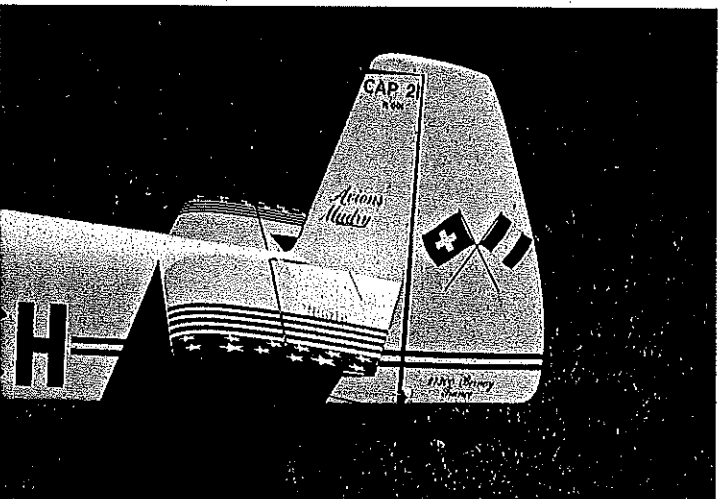
Detailing makes the model come alive, and really isn't as difficult as you'd think. Champion logo is done with liquid masking film.



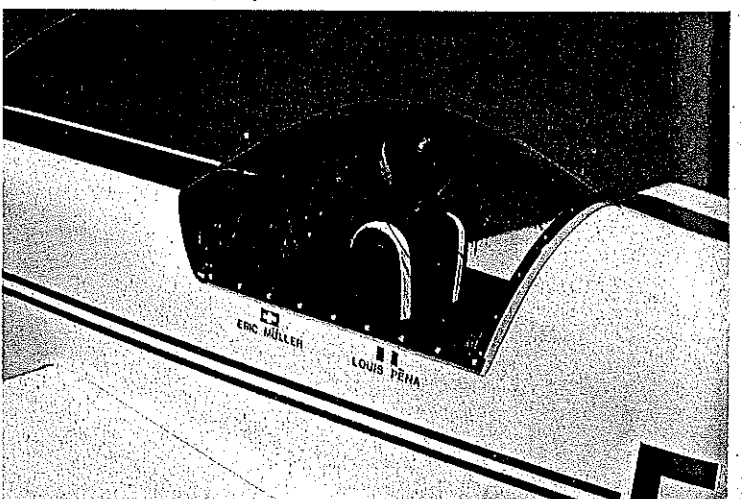
Quadra installation is straightforward. Note routing of fuel and vent lines. Throttle linkage is homemade.



Neat and orderly installation is a must in any high-stress airplane. Pushrods are supported mid-length to eliminate flexing.



Lettering is either dry transfer (from art store) or inked. Flags and registration numbers are done with liquid masking film and paint.



Canopy is attached to fuselage with 2-56 bolts. Aerobatic reference lines are marked on canopy with 1/64 striping tape.

duced in excess of 100, of which four or five are in the U.S.

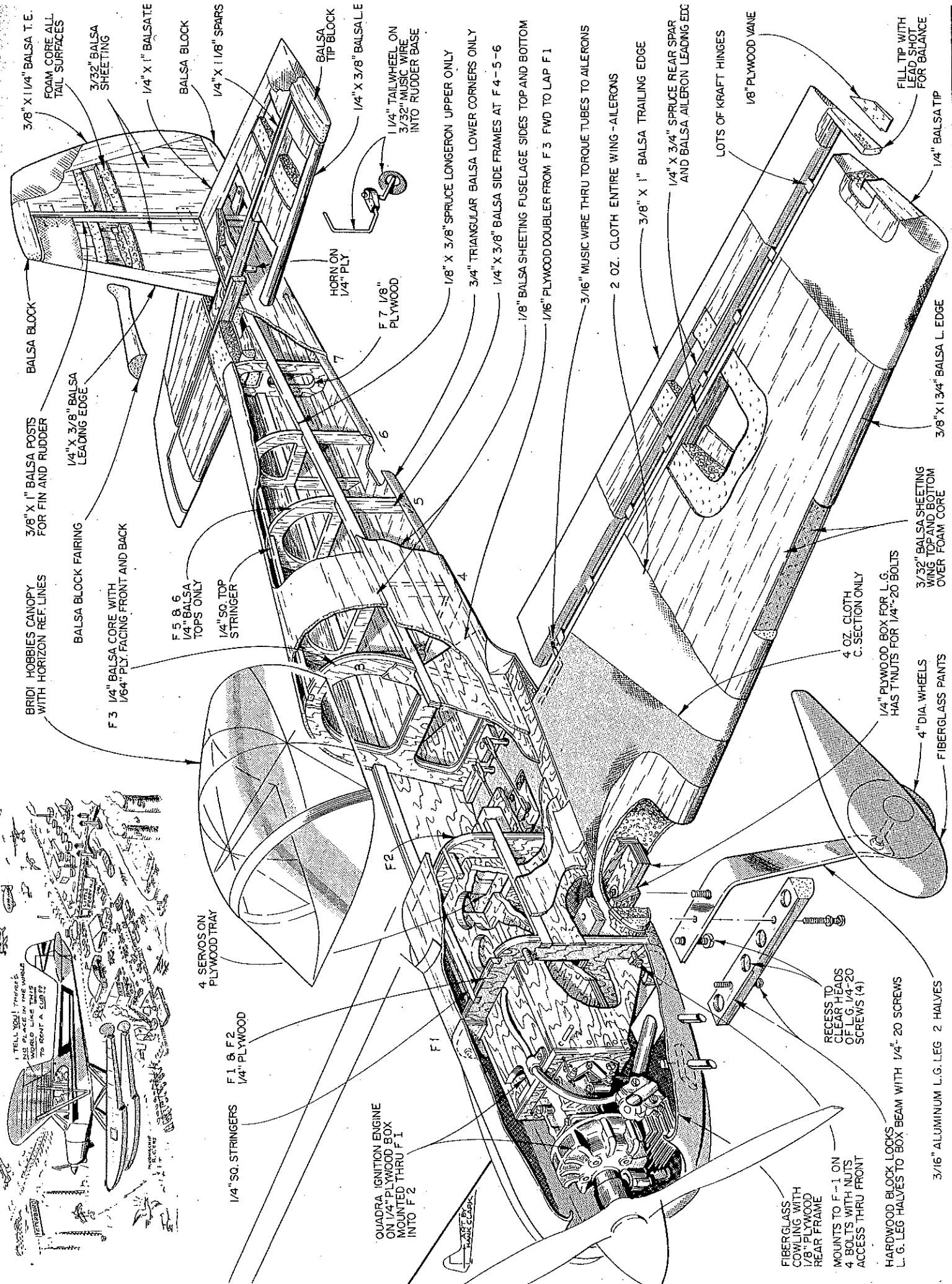
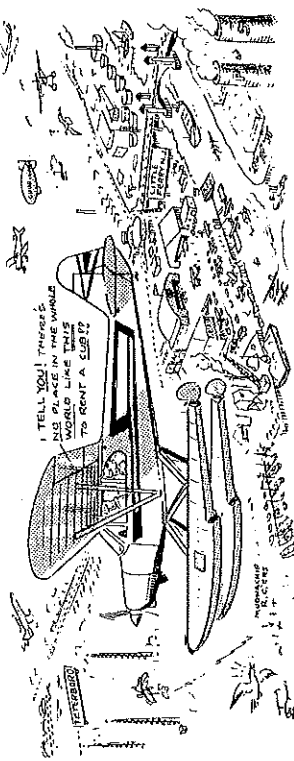
Less than a year after the first flight of the CAP-10, it was followed by the single-seat CAP-20 in July, 1969. Aimed at serious competition, it bowed in during the 1970 World Championships in England. Pilot Robert Baudoin, of the French Air Force, placed only 43rd, but it was his first major competition as well as the airplane's.

The entire French team flew CAP-20s in the 1972 World Championships in the south of France, but finished far behind the all-conquering U.S. team and its Pitts Specials. So far, the French government had reportedly sunk several hundred thousand dollars into developing its own airplane, and had gotten very little in return.

Problems with the CAP-20 were considerable, forcing it to slip further and further behind other countries' airplanes which were undergoing steady

improvement. The CAP-20 was heavy, its ailerons lacked effectiveness, and it was too stable. If it was ever to become a major force in the sport, extensive changes would have to be made.

The first sign that the French were willing to make big changes came in 1976. The prototype CAP-20L (for *leger*, meaning lightweight) accompanied the standard CAP-20s to the World Championships in Kiev, U.S.S.R. While it still couldn't cope with the super Pitts, Loudenslager's



3/8" X 1/4" Balsa T.E.
FOAM CORE ALL
TAIL SURFACES

3/32" Balsa
SHEETING

1/4" X 1" BALSALITE

Balsa BLOCK

1/4" X 1/8" SPARS

Balsa
TIP BLOCK

1/4" X 3/8" BALSALITE

1/4" TAILWHEEL ON
3/32" MUSIC WIRE
INTO RUDDER BASE

1/8" X 3/8" SPRUCE LONGERON UPPER ONLY

3/4" TRIANGULAR Balsa LOWER CORNERS ONLY

1/4" X 3/8" Balsa SIDE FRAMES AT F 4-5-6

1/8" Balsa SHEETING FUSELAGE SIDES TOP AND BOTTOM

1/16" PLYWOOD DOUBLER FROM F 3 FWD TO LAP F 1

3/16" MUSIC WIRE THRU TORQUE TUBES TO AILERONS

2 OZ. CLOTH ENTIRE WING -AILERONS

3/8" X 1" Balsa TRAILING EDGE

1/4" X 3/4" SPRUCE REAR SPAR
AND Balsa AILERON LEADING EDGE

LOTS OF KRAFT HINGES

1/8" PLYWOOD VANE

FILL TIP WITH
LEAD SHOT
FOR BALANCE

1/4" Balsa TIP

Balsa BLOCK

3/8" X 1" Balsa POSTS
FOR FIN AND RUDDER

1/4" X 3/8" Balsa
LEADING EDGE

Balsa BLOCK FAIRING

F 3 1/4" Balsa CORE WITH
1/64" PLY FACING FRONT AND BACK

F 5 8 6
1/4" Balsa
TOPS ONLY

1/4" SQ. TOP
STRINGER

HORN ON
1/4" PLY

F 7 1/8"
PLYWOOD

1/8" X 3/8" SPRUCE LONGERON UPPER ONLY

3/4" TRIANGULAR Balsa LOWER CORNERS ONLY

1/4" X 3/8" Balsa SIDE FRAMES AT F 4-5-6

1/8" Balsa SHEETING FUSELAGE SIDES TOP AND BOTTOM

1/16" PLYWOOD DOUBLER FROM F 3 FWD TO LAP F 1

3/16" MUSIC WIRE THRU TORQUE TUBES TO AILERONS

2 OZ. CLOTH ENTIRE WING -AILERONS

3/8" X 1" Balsa TRAILING EDGE

1/4" X 3/4" SPRUCE REAR SPAR
AND Balsa AILERON LEADING EDGE

LOTS OF KRAFT HINGES

1/8" PLYWOOD VANE

FILL TIP WITH
LEAD SHOT
FOR BALANCE

1/4" Balsa TIP

BRIDI HOBBIES CANOPY
WITH HORIZON REF LINES

Balsa BLOCK FAIRING

F 3 1/4" Balsa CORE WITH
1/64" PLY FACING FRONT AND BACK

F 5 8 6
1/4" Balsa
TOPS ONLY

1/4" SQ. TOP
STRINGER

HORN ON
1/4" PLY

F 7 1/8"
PLYWOOD

1/8" X 3/8" SPRUCE LONGERON UPPER ONLY

3/4" TRIANGULAR Balsa LOWER CORNERS ONLY

1/4" X 3/8" Balsa SIDE FRAMES AT F 4-5-6

1/8" Balsa SHEETING FUSELAGE SIDES TOP AND BOTTOM

1/16" PLYWOOD DOUBLER FROM F 3 FWD TO LAP F 1

3/16" MUSIC WIRE THRU TORQUE TUBES TO AILERONS

2 OZ. CLOTH ENTIRE WING -AILERONS

3/8" X 1" Balsa TRAILING EDGE

1/4" X 3/4" SPRUCE REAR SPAR
AND Balsa AILERON LEADING EDGE

LOTS OF KRAFT HINGES

1/8" PLYWOOD VANE

FILL TIP WITH
LEAD SHOT
FOR BALANCE

1/4" Balsa TIP

4 SERVOS ON
PLYWOOD TRAY

F 1 & F 2
1/4" PLYWOOD

1/4" SQ. STRINGERS

QUADRA IGNITION ENGINE
ON 1/4" PLYWOOD BOX
MOUNTED THRU F 1
INTO F 2

F 1

F 2

RECESS TO
CLEAR HEADS
OF L.G. 1/4"-20
SCREWS (4)

HARDWOOD BLOCK LOCKS
L.G. LEG HALVES TO BOX BEAM WITH 1/4"-20 SCREWS

3/16" ALUMINUM L.G. LEG 2 HALVES

FIBERGLASS
COWLING WITH
1/8" PLYWOOD
REAR FRAME

MOUNTS TO F-1 ON
4 BOLTS WITH NUTS
ACCESS THRU FRONT

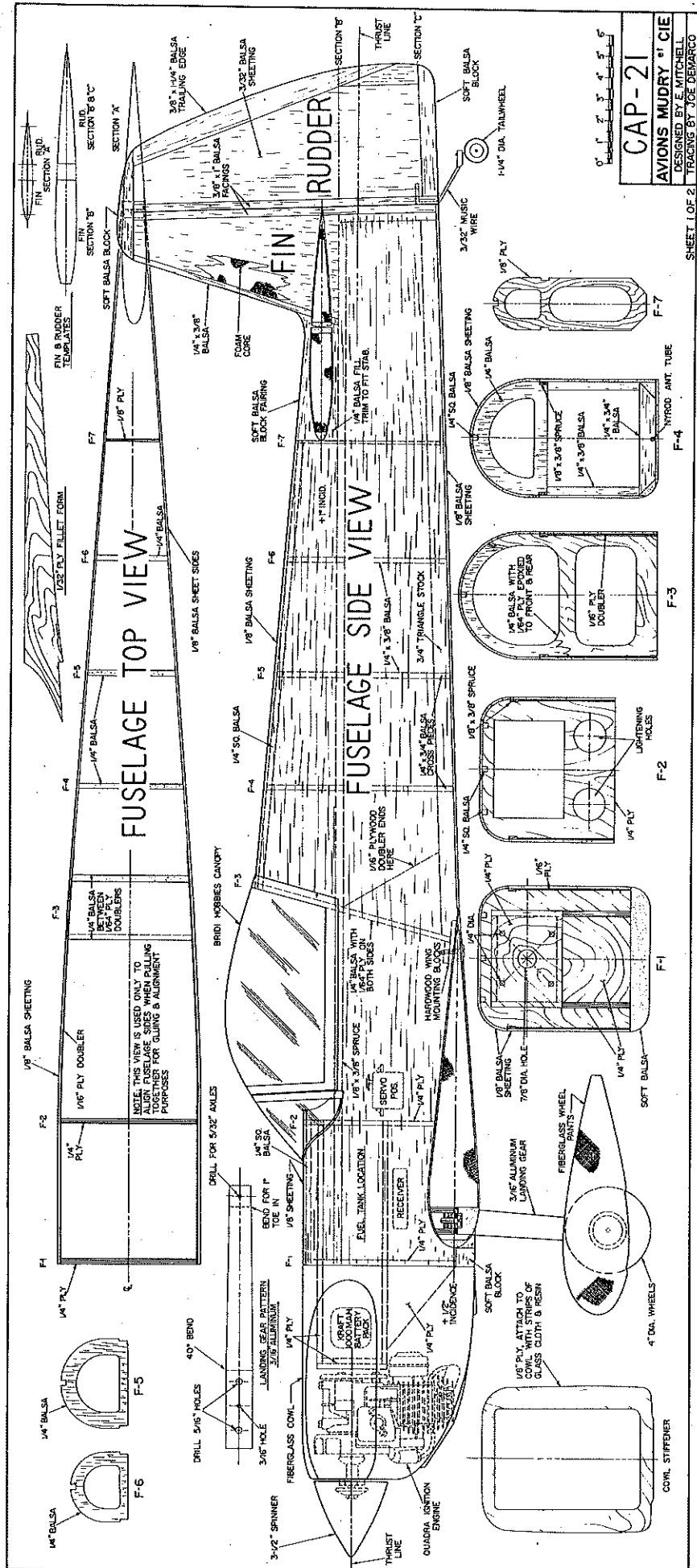
1/4" PLYWOOD BOX FOR L.G.
HAS T-NUTS FOR 1/4"-20 BOLTS

4" DIA. WHEELS
FIBERGLASS PANTS

4 OZ. CLOTH
C. SECTION ONLY

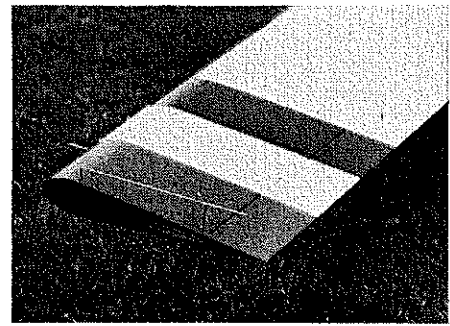
3/32" Balsa SHEETING
WING TOP AND BOTTOM
COVER FOAM CORE

3/8" X 1 3/4" Balsa L. EDGE



CAP-21
 AVIONS MUDRY of CIE
 DESIGNED BY E. MITCHELL
 TRACING BY JOE DEVARCO

SHEET 1 OF 2



Aerodynamic counterbalance adds to scale appearance. Lead-filled mass balance is not essential but is highly recommended.

Laser 200, and the rest, it showed promise. The CAP-20LS-200 version (200-hp Lycoming engine, constant-speed propeller) flew for the first time a few months after the Soviet contest. It was still lighter, was more powerful, and had bigger ailerons. It was certainly the best of the line, but it had not yet given up the graceful elliptical wing, which is the Piel trademark and which got much of the blame for its poor snap rolls.

It was obvious by now that if the French were ever to make a serious try for honors in World-class competition, there was not time to waste. The French team's political problems seemed to have been solved with the elimination of the military influence over the selection of pilots, and this new consistency had to help. However, not even the finest of pilots can overcome the handicap of a second-rate airplane, and that is exactly what the best of the CAP-20s was. The highest any French pilot placed in the 1978 World Championships (where they all flew CAP-20LS-200s) was 18th.

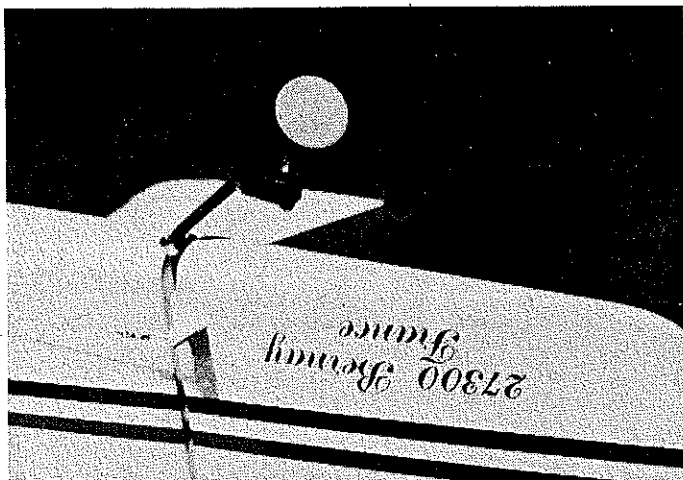
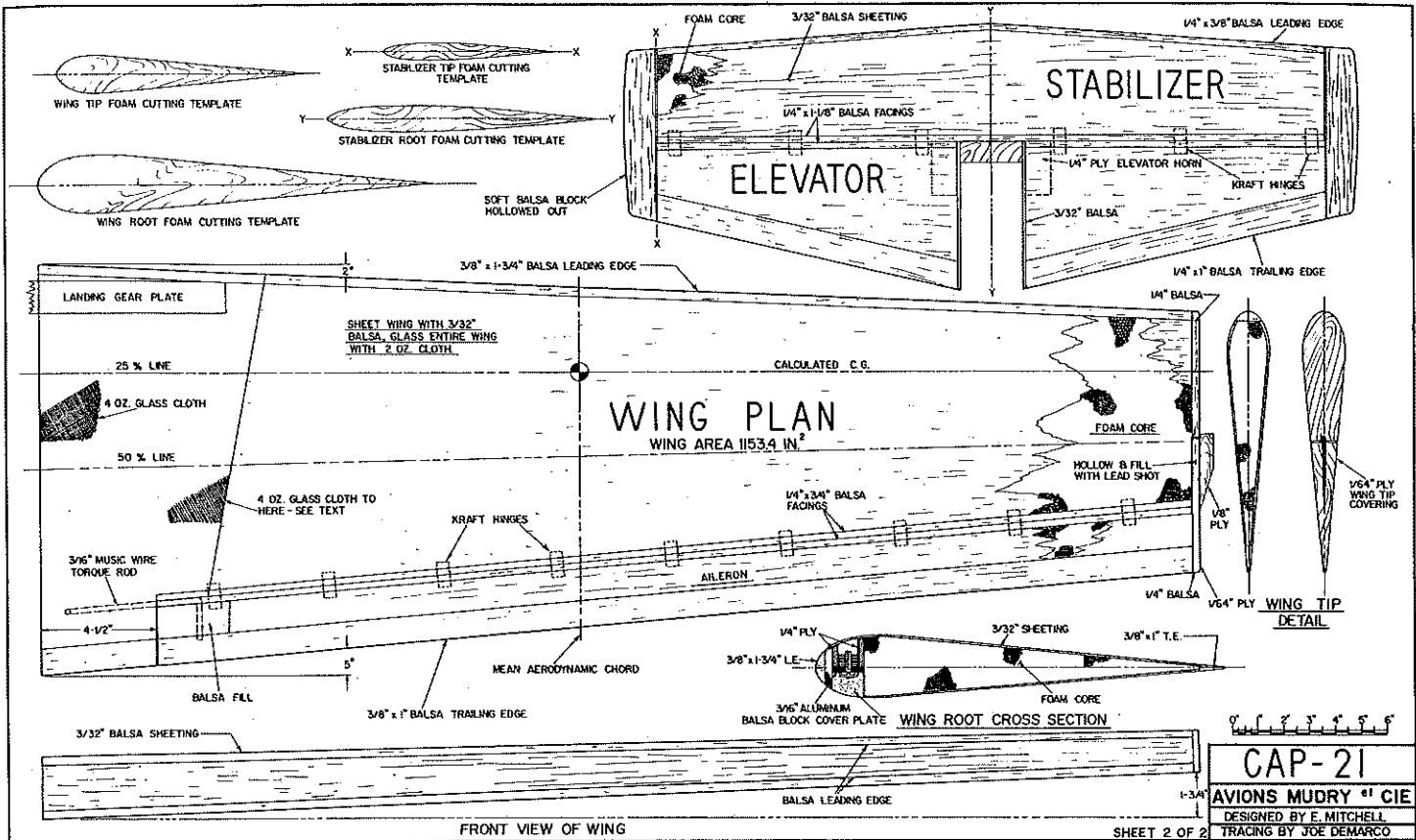
On June 23, 1980, Avions Mudry test pilot Louis Pena lifted off the runway at Bernay, France in the prototype CAP-21. The latest chapter in the checkered history of these airplanes had begun. The new airplane had the fuselage and tail of a CAP-20LS-200, but an entirely new straight-tapered wing with an Aerospatiale computer-designed V16F airfoil, and spring-leaf landing gear.

It didn't take long to determine that it possessed considerably better flying qualities than anything that had come before it. In fact, the test program went so well that, after just a few hours of flying, the prototype was dismantled, packed up, and shipped off to America for the 1980 World Championships to be held in Oshkosh, WI.

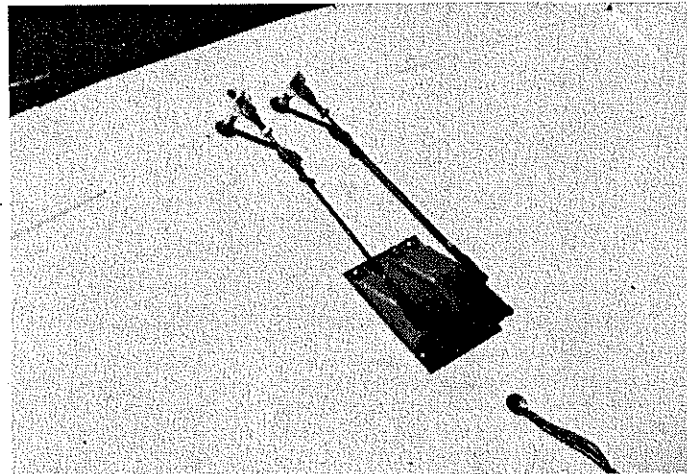
It arrived in Chicago and was assembled and flown to the French team's training field in northern Illinois, where test pilot Pena and Swiss



Adequate clearance on wheel pants is crucial. Struts are simple, must be anchored firmly.



Scale tail wheel is linked to rudder but supported by fuselage. Note control cables for rudder; see text.



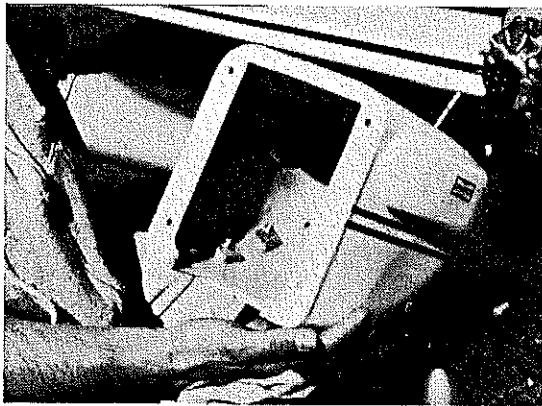
One servo is used for each aileron; Kraft KPS-20s were used in the prototype. Clevises are heavy duty 4-40 size.

veteran Eric Muller were more than ready to begin serious practice for the coming contest. While Pena was familiar with the entire CAP family, Muller had been flying his own Hirth Acrostar, and had achieved a first and a third in the European Championships.

By the time the French and Swiss headed for Oshkosh, neither Pena nor Muller had more than 15 hours in the new CAP-21, since less than two months had elapsed since its first flight, and much of that time had seen it in transit. This was hardly the ideal way to introduce a new airplane, but so much could be learned in a half dozen World Championships flights that it seemed

The CAP-21 was flown in the 1980 World Aerobatics Championships by Louis Pena of France and Eric Muller of Switzerland. Both of them finished in the top 10, despite very little practice in the prototype airplane. The ship was almost completely untried prior to the World Championships.





Cowl stiffener is used to attach cowl to fuselage with ¼-20 nylon bolts.

worth the gamble.

Pena and Muller were up against the best airplanes and the best pilots that the Western World had to offer. For a variety of poorly-understood reasons, none of the Eastern European countries were at Oshkosh, but everyone else was there, with some of the most beautifully prepared aerobatic airplanes ever seen: Laser 200, Super Pitts, Pitts S-2S, and even a West German-owned Zlin 50L.

When the two-week, 200-flight contest had ended on August 30, Eric Muller was in 9th place, and Louis Pena was in 10th—out of 51 pilots from 10 countries. It was a most impressive debut for such a new airplane—quickly followed by an announcement from the Avions Mudry factory that the CAP-21 would replace the CAP-20 on the production line after barely a dozen of the CAP-20LS-200s had been built.

Now, a few hours of good flying isn't enough to earn for any airplane a spot in the hall of fame. By early 1981, orders for at least a half dozen CAP-21s had come in from several countries, which was encouraging. This was only a beginning. The next opportunity to see if this airplane may have within it the makings of greatness came in the 1981 British Championships, where Muller placed a strong second out of 10 entries. The European Championships, set for Austria in August, 1981, would tell even more.

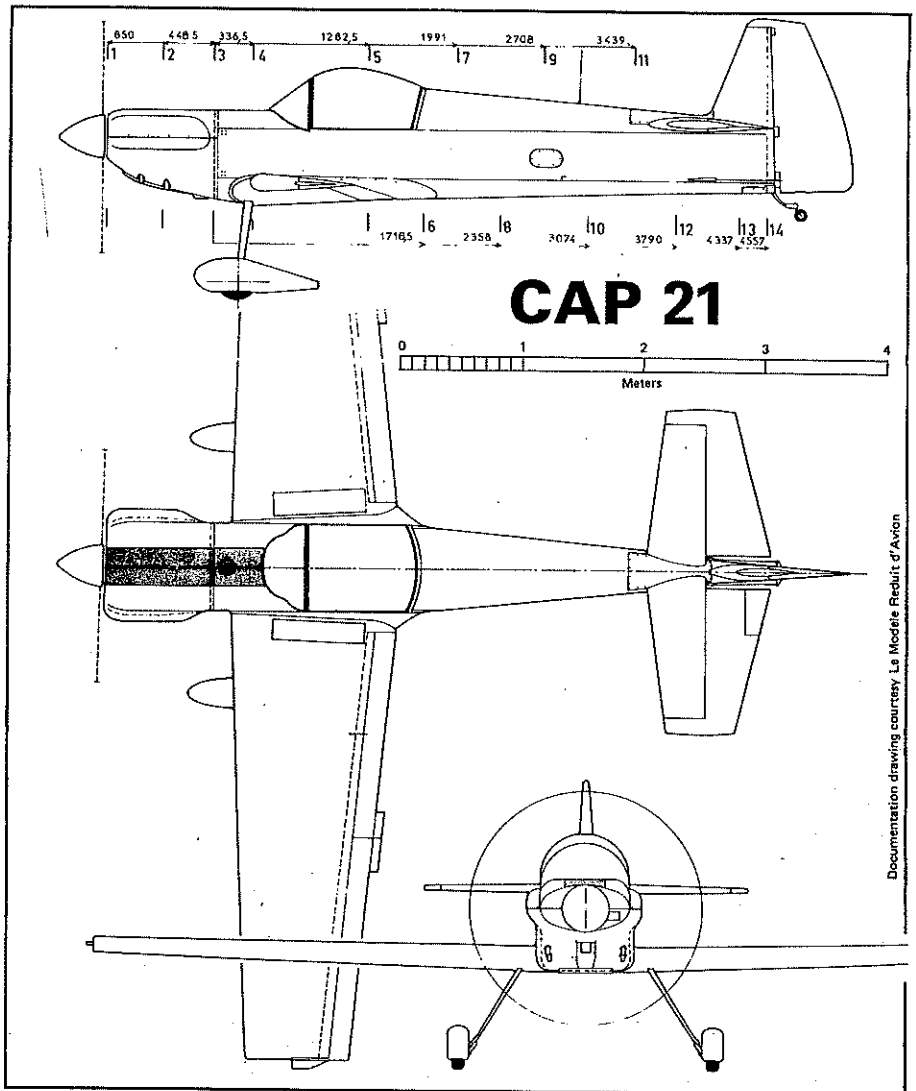
Still, if the reactions of Eric Muller have any meaning (and his excellent record suggests they do), the CAP-21 is a good one. Thanks to the newsletter of the British Aerobatic Association, we have Eric's views on flying this interesting machine.

"As soon as we climb in, it is obvious that this will handle like a sophisticated airplane. The seat is comfortable, the visibility is excellent, and the harness set up correctly for negative stresses.

"At 250 km./hr. (155 mph) two vertical rolls and push-out into level flight—no sign of wing drop. Positive and negative flick (snap) rolls are very fast and easy to stop. Spins, flat spins, inverted spins, a real joy!

"The high rate of roll is almost amazingly good at slow speed—guaranteed by the area of aileron that lies within the slipstream of the propeller. The relatively high fuselage generates good lift in knife (-edge) flight, something distinctly noticeable in rolling circles. Finally, landing is easy thanks to the excellent handling characteristics at low speed and the good forward view, provided that one is familiar with the niceties of highly sensitive tail-draggers.

"... going through the complete spectrum of aerobatic maneuvers in my repertoire, I am absolutely thrilled with the airplane. What strikes me when I look at the CAP-21 is its simplicity. Simple means inexpensive and less problems with maintenance, therefore less time consumed



Documentation drawing courtesy, La Modelle Reclut d'Avion

in the workshop, more time for pleasure, more time for aerobatics.

"The CAP-21 . . . could be and will be improved. But, as it is now, it's an excellent airplane that I, being the owner of an Acrostar,

can only dream of. As of this moment, I wouldn't change the CAP-21, I would fly it."

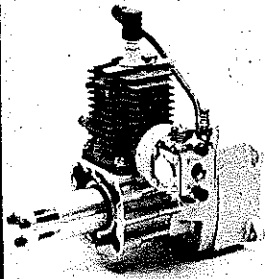
Specifications of the Avions Mudry CAP-21 prototype, F-WZCH: length—21 ft., 2½ in.
Continued on page 94



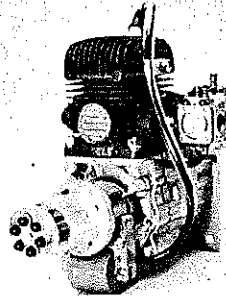
The author (L) and George Stube ready the Quadra-powered CAP-21 for another flight. Real plane isn't much bigger than the model!

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made myself clear—keep your complaints to yourself. Bob doesn't need any more weight on his back at this point. All he needs is your hand on his shoulder as you say "Thanks for a job well done!"

Send this month's letters to Bob Aberle, at my address below, and just say "Thanks for what you've done for me, and congratulations on receiving the Howard McEntee Memorial Award and the AMA Distinguished Service Award. You deserve them!" If you can't fill up a letter, a postcard will do. I'll sneak in some morning and leave the pile on his desk. Do it!

George M. Myers, 70 Froehlich Farm Rd.,
Hicksville, NY 11801.

For Fun/Winter

Continued from page 22

Speaking of fun, about 18 months ago, ye engineer-type Associate Editor Ross McMullen heckled us to write up the Sky-Lark EH-1, a Japanese RC Helicopter. It is electric powered, and connected by an umbilical cord to a battery source on the ground. Don't laugh. It has advantages—the manufacturer ran full pages in a Japanese magazine (so thick that more ad pages appear in front of the contents page—some 500 pages total—than there are pages in all but one American magazine). Blood-hound Ross chased down details. We note with pleasure that the reply was

addressed to Mr. McMullen. Let's just quote:

"The Sky-Lark EH-1, the world's first Electric Helicopter, has been well accepted by modelers because of stability and potential performance. You can easily practice flying in your yard or garage without disturbing neighbors by using power cord (optional). One point of advice: The Sky-Lark drains max 20-30 amps during flight. Use 12V 35-40 Ah capacity (find in Corolla class cars) for power cord flight, or quick charging flight pack. 12V batteries for engine starter (he means typical electrical starter) cannot be used for these purposes.

"To charge Ni-Cd pack, first discharge cells until rotor comes to complete stop." Some red ink scribbles reveal that Ross calculated flight duration. At 1.2 amp hours, 25 amps per flight, it comes out to 2.9 minutes—let's say three. For Fun would be lathered in much less time than that.

The power cord is special silicone, seven meters long. All this is in meters, so it's time to learn the metric system like they want you to. Length is 846mm, rotor diameter 992mm. With 9.6 1200 mAh flight pack, four channels and Mabuchi RS540A x 2, gross is 1.55kg, empty 1.2kg. Price of the semi-kit was, at the time, 38,000 yen—not bucks, for Heaven's sake. (Marketed by K. K. Ishimasa, #2-1, Honmachi, Shikuya-Ku, Tokyo, Japan 151.)

Off into the sunset. From Ron Moulton, MAP,

England: "Glad that piece about Dr. F. B. Thomas and his 1925 round-the-pole flying was of interest. FBT sent me a 16mm movie which must have been taken around 1927 which shows the whole works in action with outside-the-circle joystick and throttle, landings, takeoffs, and prangs.

"F. B. Thomas was flying Control Line in this country in 1925. To be technical, they were Round the Pole, rather than U-Control, but even so Thomas was flying on the handle and had ideas for the use of a bellcrank pre-1939. The ingenious bit is that very early models were remotely-powered with a large engine at the pylon base, driving a wire torque rod out of the model via bevel gears, using a bicycle front wheel fork to carry the mechanism."

For Fun recalls a guy named Broderick in California who, in 1909, flew a big steam-powered crate on a length of clothesline. It flew into the barn and everything went up (down?) in smoke. Gosh, those ancients really had fun.

Bill Winter, 4426 Altura Ct., Fairfax, VA 22030.

CAP-21/Berliner-Mitchell

Continued from page 30

(6.46 m.); wingspan—26 ft., 6 in. (8.08 m.); wing area—99 sq. ft. (9.2 sq. m.); empty weight—1,045 lb. (474 kg.).

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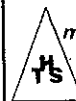
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The Model

Ed Mitchell

HAVING BUILT and flown an RC Scale model of the CAP-20L with a great deal of success, I was all set to build a second one. In September of 1980, a friend showed me some pictures he had taken at the World Aerobatics Championships, held the previous month at Oshkosh, WI. As soon as I saw the pictures of the new French CAP-21, I knew what my next project would be.

This airplane is definitely not for the novice. It requires a certain degree of building expertise and flying ability. I would recommend it to anyone who has built and flown a Pattern-type airplane.

The one characteristic that sets this plane apart from others is the *very* thick wing section with its thickest point well forward. This produces a high-lift/high-drag airfoil. In flight, the airplane is very groovy and fun to fly. Landings, however, must be made power-on—in other words, the airplane must be flown onto the runway.

Building the CAP-21 is very much like your average balsa/foam airplane, and consequently I will not go into great detail, but will touch each area briefly and elaborate on what I feel are the difficult things.

The fuselage is built by first constructing two fuselage halves from 1/8 balsa. Pin these two together and sand so you have two identical sides. Add the 1/4 x 3/8 spruce longeron, the 1/16 plywood doubler and the 3/4 triangle stock.

Cut out the three major bulkheads. Note that the bulkhead behind the wing is a sandwich of 1/64 and 1/4 balsa. The firewall is 1/4 plywood, and bulkhead #2 is 1/4 plywood. I built the fuselage upside down over the top view of the plans. Use large blocks to jig up the fuselage so that F-3 clears the table. Glue F-1, F-2, and F-3 into place, making sure they are 90° to the table, and the firewall is square.

After this is dry, weight down the forward part of the structure so it does not move. Using triangle blocks and weights, push the fuselage sides together to the required shape. Now add all of the 1/4 square vertical and horizontal stiffeners, tail block, etc.

Turn the fuselage right-side up, and add all of the turtledeck formers and 1/4 square top stringers. Take a long sanding block (at least 36 in.) and sand all of the formers at once to get a perfect shape.

Add 1/4 square stringers between F-1 and F-2 and sand to shape. Glue up some 1/8 sheeting to wrap around the turtledeck formers—but make it a little oversize. When you are sure of the fit, wet the outside of the sheet, and wrap it around the formers, using tape and pins but no glue. Let this sit overnight. Next day, remove the tape, add glue, reposition, and glue into place.

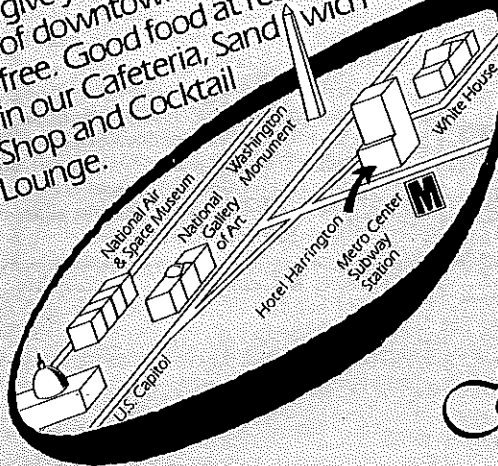
Wing. Standard foam wing practices are used here. Sand the cores and vacuum to remove dust. Edge-glue 3/32 sheeting, and cut it slightly oversize. Glue on the sheeting, and weight the wings—taking care not to induce any bows or warps. Add the trailing edge and leading edge, and sand wings to a smooth airfoil shape.

Draw the position of ailerons on the wings. Allow 1/4 in. forward and behind the aileron hinge line for 1/4 balsa facing. Cut out the ailerons, and add 1/4 balsa facing. Draw center lines on the facing, and add hinges.

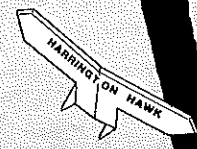
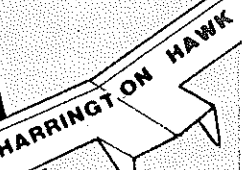
I used Kraft hinges, nine per aileron. Make up 3/16-in. music wire torque rods and install them as shown. The aileron tips have counterbalances

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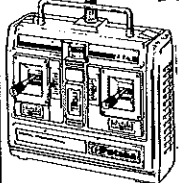
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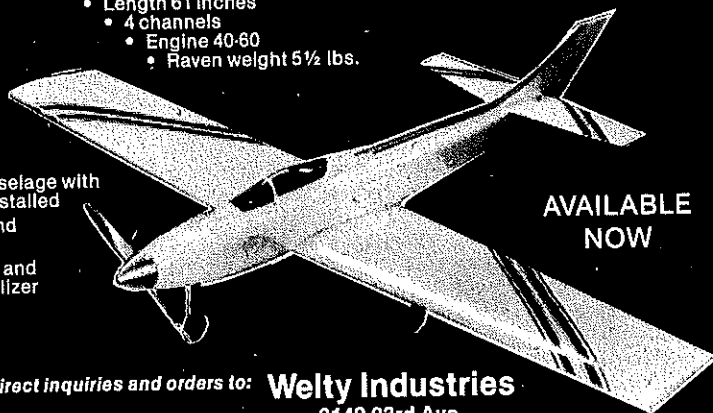
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shown on the plans. They are very helpful; I suggest that you build them.

Build the tips from 1/4 balsa, and shape them to the desired size. Add 1/64 plywood to the outside of the wing tip and aileron counterbalance. When dry, remove balsa from the inside of each counterbalance, and add lead shot and epoxy.

Landing gear. Use 3/16 T-6 aluminum to fabricate the gear. The gear mounts to a U-shaped box made from 1/4 plywood. Each gear leg is secured by 1/4-20 bolts.

The spar-gear box is made from 1/4 plywood, epoxied together and reinforced with 1/8-in. dowels. T-nuts are used, rather than threading the wood. The entire unit is epoxied (use micro-balloons) into the wing after the wing halves are joined. Make sure the entire box is tilted to allow the landing gear to sweep forward.

Stabilizer, fin and rudder. The stabilizer is standard balsa-and-foam construction. Choose your wood carefully; the lighter the better. The two elevator halves are linked together through a 1/4-in. U-shaped plate. The control horn attaches to this plate as well.

Standard construction is used on the fin and rudder. Keep it light. The rudder is made from two pieces of foam and must be carefully aligned during skinning.

Final assembly. Mate the wing with the fuselage first, and make fillet plates and fillets. Once these are made, use them as a reference to locate the stabilizer and engine. Set the wing at 1/2 deg. positive incidence, the stabilizer at one deg. positive incidence, and the engine at 1/2 deg. downthrust.

Finishing. The entire wing is covered with 2-oz. glass cloth. The center is reinforced with 4-oz. glass cloth, out past the landing gear box. The rest of the plane is glassed with 3/4-oz. cloth and finished with K&B epoxy paints. The canopy is from a Bridi (now Great Planes) CAP-20L kit.

Flying. Set up the elevator so that you have 1 1/4 in. travel in both directions. Ailerons should have 3/8 in. travel up and down, and the rudder should have as much travel as you can give it to ease ground handling.

Takeoffs are a snap (no pun intended). Hold a

tad of right rudder, add 1/4 to 1/2 throttle . . . and enjoy.

Two-Meter/Jolly

Continued from page 33

Bame fuselage with a polyhedral composite wing utilizing a MB 303515 wing section. Alex invited me to examine his model and explained its wing construction—basically a foam wing with balsa covering and a full-depth, carbon-fiber-web spar. Alex jokingly told me his model would take 200 lb. of force—I believe it!

Rick Schramack was flying the cut down Speed Whisper, flown by Luxembourgian Romain Sfredda at the World Champs. This very fast model features an Eppler 182 wing section, fiberglass fuselage, and veneer-covered foam wing. It is one of the Austrian "built-in-a-mold" high-technology models. Reported to have been designed by Fridolin Fritz, I'd say that the Whisper owes much of its heritage to the Austrian Pfeil.

On to the competition . . . Joe Welch held a short pilots' meeting and announced the day's itinerary. The task would be four-lap Speed on the 150-meter FAI course, 10-min. Duration with a 100-point landing (scored man-on-man), and 12-lap Distance on the 150-meter course, also to be scored man-on-man. Because of the course layout, downwind towing prevailed in the Speed round. I think it must be one of those unwritten rules which states that a Two-Meter World Cup meet must have strong wind, desert surroundings, downwind launches, and to please the Easterners who might show, the temperature should never get over 40°. To think we do this stuff for fun! No wonder my neighbors snicker when they see me loading the car for a contest.

Anyway, we all flew Speed, and right off the bat Don Edberg recorded 30.8 seconds or 43.5 mph—good enough to win Speed. Alex Bower was in second by 60 points. It was clear Edberg intended to repeat his 1981 victory.

There was no less than 17 "no times" in Speed. Rick Schramack was probably the most unfortunate flier in this round. Rick got a good tow, the Whisper accelerated onto the course—a fast time appeared imminent. Rick's caller anticipated the second turn, and the Whisper cut. Rick had to circle back and completed the course in 44.0 seconds—losing 300 points to Edberg. This was to be Rick's only mistake, and it certainly