CAUDRON C-460

Gus Morfis' model of the famous French Caudron of 1936 National Air Race fame has the potential of a winning Quarter Midget with the added bonus of a classic flair.

If Carl Weyl hadn't tried to thread his regular Quarter Midget Racer through some pylon guy wires we wouldn't be doing this article now.

The local Quarter Midget racing scene was pretty well dominated by Shoestrings and Mustangs, and other than by color schemes, it was getting tough to tell the various models apart. Accordingly, we figured it would be worthwhile to look at something different and see if we could add some new dimension to the sport.

In the '30's the design of high performance racing planes made fantastic strides. Many of these planes were very cleanly designed and would lend themselves to a distinctive and competitive model. One plane that I always remember as "looking like a racer" was the French Caudron C-460 of 1936 National Air Races fame. There has always been something about the unusual canopy and long lean nose of this machine which make it stand out in a line-up. When you look at the canopy in profile it has a high, blunt appearance but when you see it from the top it is really very narrow with a sharp entry. I can't help but wonder about the pilot however, he must have had a narrow pointed head, with a crease on top!

Our preliminary sketches looked promising. The Caudron seemed to have all the features we were looking for; distinct appearance, clean lines, inverted engine (which permits shorter landing gear) and reasonable building time. Carl sort of

A fine assortment of "tennies." The comments range from "What kind of a P-40 is that?" to "How come you didn't cowl the engine?"

grumbled about the inverted engine, but after a while he quieted and we decided to forge ahead — after all the next contest was only a few weeks away. A flurry of building and re-building resulted in the first flight taking place on December 28, with the contest scheduled for the 31st.

Carl made two flights with the Caudron to make adjustments and check the handling. Since it looked real good we felt there was no need to take anymore chances with it before next Sunday's race.

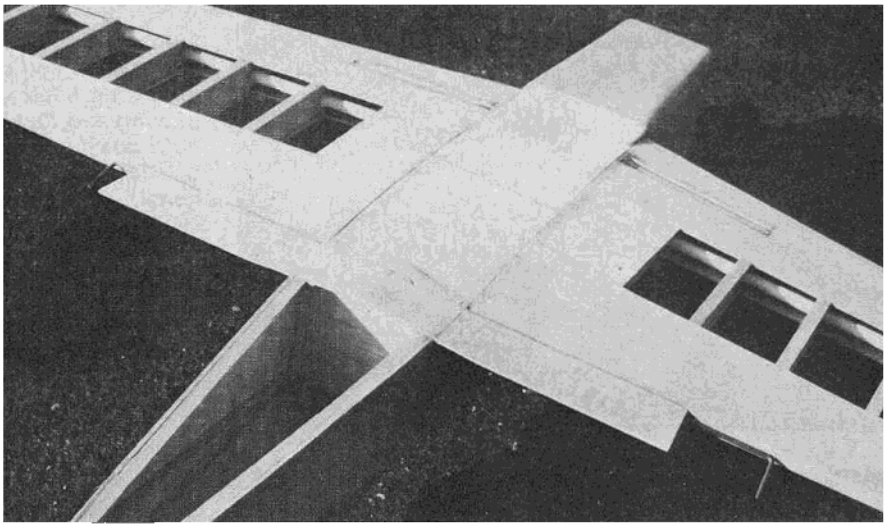
CAUDRON C-460

Designed By: Gus Morfis

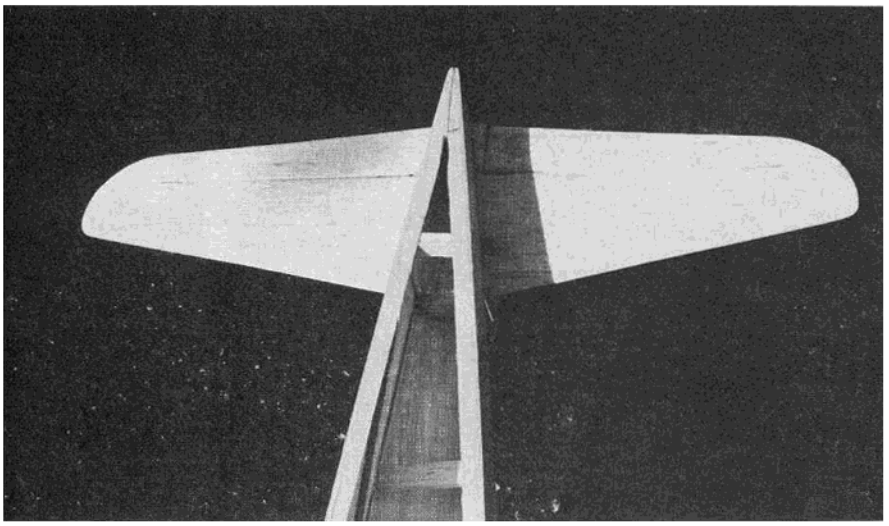
TYPE AIRCRAFT
1/4 Midget Racer
WINGSPAN
38 Inches
WING CHORD
8¾" (Average)
TOTAL WING AREA
320 Square Inches
WING LOCATION
Low Wing
AIRFOIL
Sym. Inboard — Semi-Sym. Outboard
WING PLANFORM
Double Taper
DIHEDRAL, EACH TIP
3½ Degree (At Spar)
O A. FUSELAGE LENGTH
35¼ Inches
RADIO COMPARTMENT AREA
(L) 9" X (W) 2⅜" X (H) 1¾"
STABILIZER SPAN
15½ Inches
STABILIZER CHORD (incl. elev.)
3⅜ Inches (Average)
STABILIZER AREA
50 Square Inches
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Mid Fuselage
VERTICAL FIN HEIGHT
4¼ Inches
VERTICAL FIN WIDTH (incl. rudder)
4 Inches (Average)
REC. ENGINE SIZE
.15 Cubic Inch
FUEL TANK SIZE
2½ — 4 Ounce
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
Four
CONTROL FUNCTIONS
Rudder, Elevator, Ailerons, Throttle
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa, Ply, Spruce
Wing	Balsa with 1/4" Fiberglass arrowshaft spars
Empennage	Balsa
Weight Ready-To-Fly	44 — 48 Ounces
Wing Loading	20-21.8 Oz./Sq. Ft.
Wing Loading	21.8 Oz./Sq. Ft.

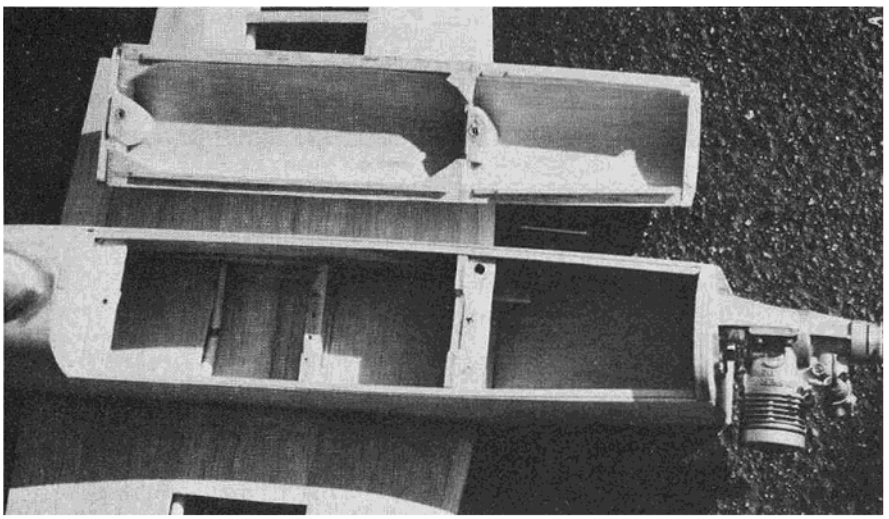
Race day saw 28 entries competing. I wish I could say that we repeated the clean sweep Carl made with the "Spirit of St. Louis" last year, but it was not to be. He won the first two heats he flew in, setting some of the top times, but cutting pylons cost him points. He won the third heat clean. He took a second in the fourth heat,



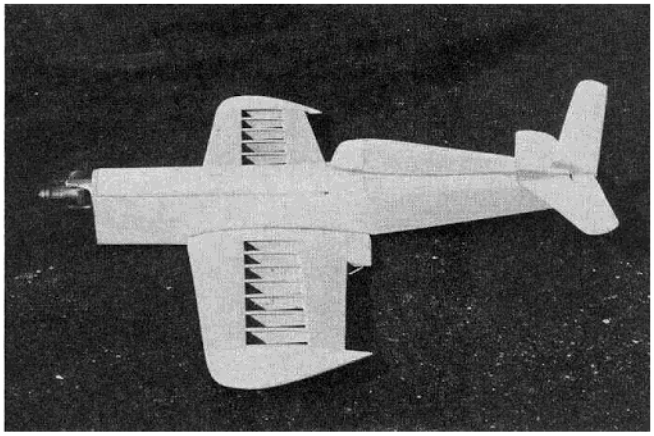
View of the rough framed Caudron wing in place on the semi-completed fuselage. Note trunion blocks and aileron linkages in place.



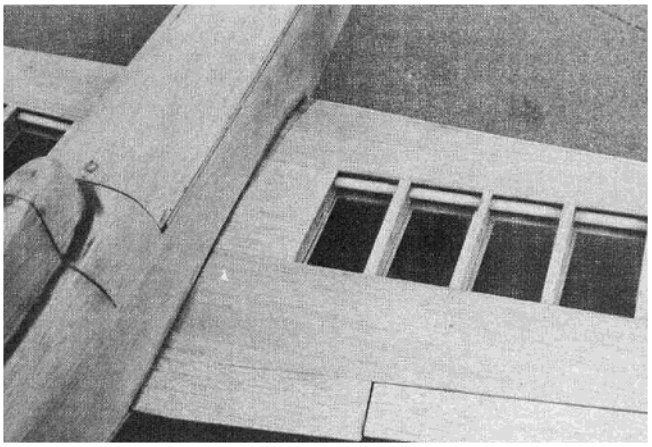
The aft end of the Caudron fuselage, minus bottom planking. Now is a good time to plan radio installation and install pushrods.

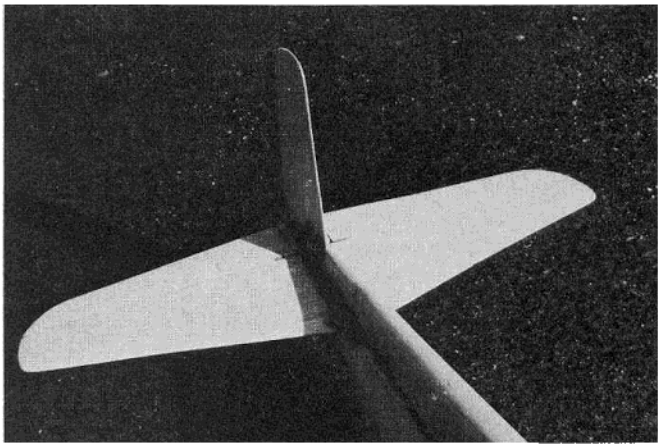


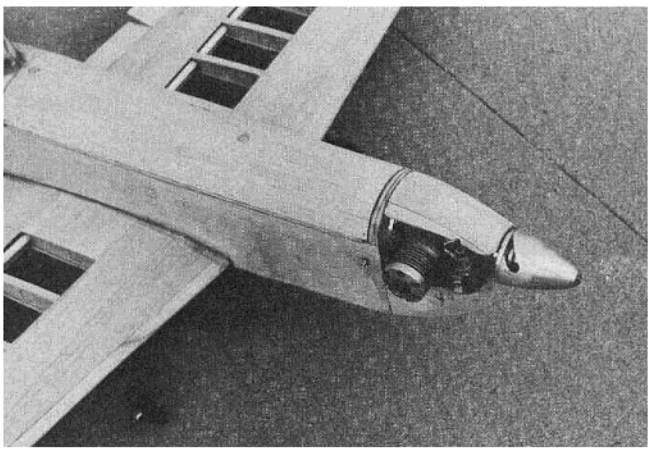
Top view of fuselage, minus cowl, with hatch removed. One piece unit allows easy access to entire radio, battery, and fuel compartments.

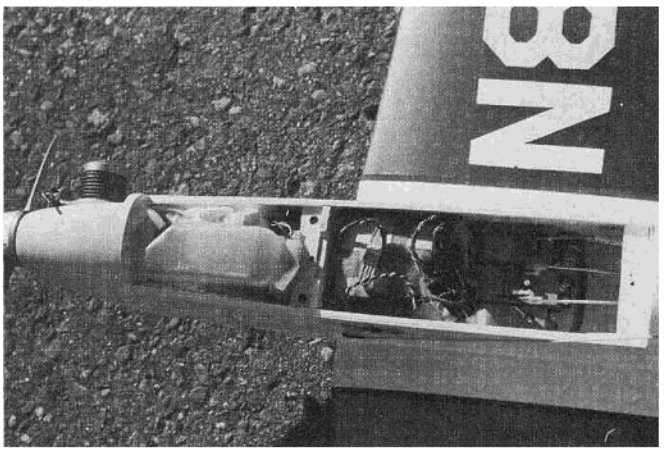


LEFT: The completely framed Caudron C-460 fuselage, minus cowl and control surfaces. Note darker areas indicating filleting material. CENTER ROW, LEFT: Close-up of wing and fuselage junction. Hatch hold-down evident in front of block canopy. CENTER ROW, RIGHT: Empennage is of all sheet construction. Again, note use of filler material. BOTTOM ROW, LEFT: While not fully cowled, engine installation is easy and allows ready access and ample cooling. BOTTOM ROW, RIGHT: It's a bit of a tight fit, but there's room enough for everything.









but mashed a gear leg on a hard crosswind landing. Some 5 minute epoxy and a new prop got the Caudron ready for the fifth heat. It was a disaster! In the excitement to get going someone grabbed a 6/4 instead of a 6/6 prop and the poor Caudron just sort of coasted around the course. It took a third, but broke the other gear mount in landing and that was it for the day.

We were convinced the Caudron is competitive, just wait until next time!

BUILDING

It isn't necessary to go into detailed building instructions for your Caudron. I will, however, make some general comments about the various components which might prove helpful. This model is definitely not a beginners project, but then, no Quarter Midget is. If you have had experience with small, tight, hot ships, come on along! You might just shake up your buddies at the next race.

Fuselage:

As we got into the detailed design and started laying in the location of the servos etc., we realized that this was going to be a tight fit, so let me warn you; don't try this model unless you have the latest miniature gear and unless you know exactly where everything is to be installed.

You will notice some differences between the photos and the plans. Like most new projects there is a fair bit of second guessing that goes on. We really planned on an inverted engine but, at the last minute, Carl's doubts about engine idling came back and he decided to side mount it after all. What a waste of all that cowling space! We also show the hatch smaller on the drawings. The model, as made originally, was much too flimsy in the front end. Carl twisted the Tatone mounts back and forth by hand and you should have seen the fuselage sides bow clear back to the cockpit! There was no torsional stiffness at all. Lots of hardwood gussets and plywood doublers

solved the problem, but it is far better to avoid this type of thing than to fix it like we had to. The smaller hatch doesn't really make the equipment tougher to install. It only affects the fuel tank and battery. The tank is a one-time installation and the battery is wadded underneath and is not removed for charging. The stiffness added by this design revision will be considerable.

Check your fuselage height and width (5 x 2¾ inch minimum) at the cockpit and make sure that you have a little extra in there for insurance. The judges around have made some gizmos to check and some of the guys are flying around with strange things taped to the sides of their fuselage.

Wing:

We found that we could use the House of Balsa Quarter Midget Wing kit. We were familiar with this design and its features. It has a low drag airfoil with good tip stall characteristics. It is also very easy to assemble, self-aligning, and quite strong. (The 'House of Balsa' 1/4 Midget Glass Spar Wing kit is available at local model shops for $11.95. If they don't have it write to: House of Balsa, 2814 East 56th Way, Long Beach, California 90805.

One mod we made was to cut the arrow shaft spars in half to incorporate dihedral. Aluminum or brass tubing, bent as shown, will work fine. Just make sure that both pieces are bent exactly alike or else you might get some strange twist in your wing panels that could give you a bad time.

The wing tip shape is different also, but this is no big deal, just remember to use lightweight balsa to keep the weight down.

Empennage:

Nothing to say here except the usual caution about tail weight. Remember that every additional unwanted ounce in the tail requires about four ounces of ballast in the nose!

Landing Gear:

The hard landings that Carl made drove the gear blocks up into the wing ribs, the solution is to use some ply doublers on the ribs as shown on the drawings.

CONCLUSION

So there you have it. The Caudron C-460 showed us that it has the potential to be a winning airplane. We had a bad day, first time out, but it won't be like that all the time. As we said before — wait 'till next time! □

From RCModeler Apr. 1975