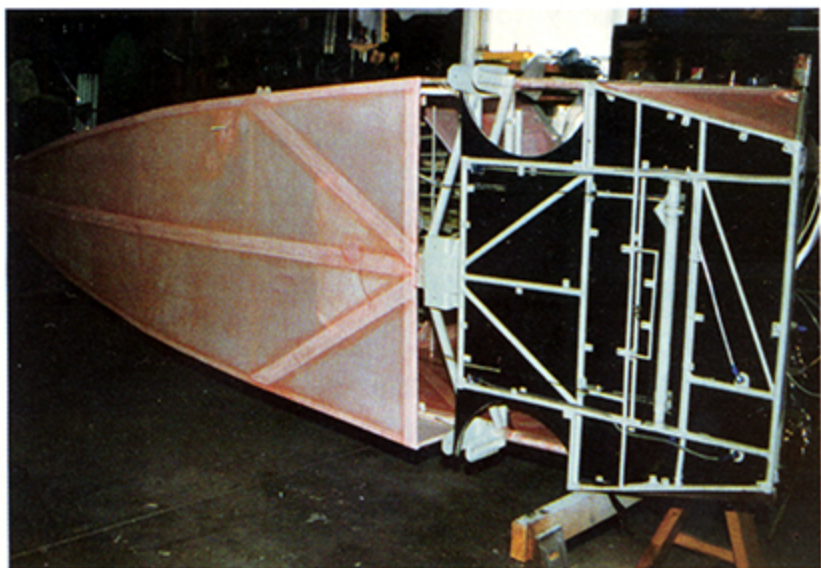


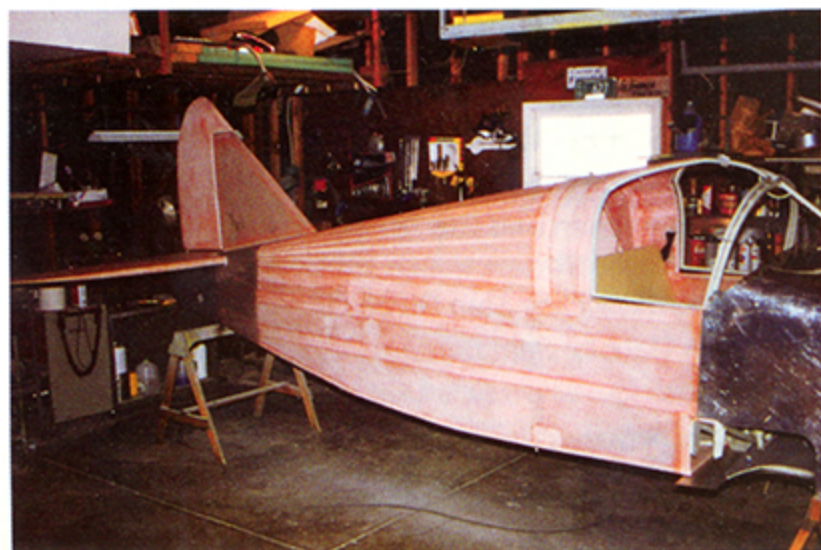
**SOMETHING NEW...**



# A Tube and Fabric Cadet



*A virtual sports car with wings and thanks to Neal La France, above, plans are now available so you can build your own. As pictures show, aircraft features conventional tube, wood and fabric construction.*



## Culver Cadet No. 2

Just had to have another

NEAL LAFRANCE, EAA 1905

**A**n airplane 10 years ahead of its time, the Culver Cadet was the accomplishment of three men: Al Mooney, the designer, and Art Mooney and Bill McMahon, the builders.

Al Mooney started his aviation career when he was 19 years old. In 1926, he designed the M-1 Eaglerock and then completed his aviation carrier at Lockheed designing the M-23 XV-4B military jet. Al also designed the M-12 Culver Cadet airplane while working for the Culver Aircraft Corporation at Ohio's Port Columbus Airport. On April 4, 1938, Al established his engineering office on the third floor tower of an old Trans World Airlines (TWA) hangar and spent long days and nights over the drawing board designing the airplane.

Art Mooney, Al's brother, was an expert aircraft wood worker; Bill McMahon was an expert aircraft welder and sheet metal worker. These two men built most of the prototype airplanes Al had designed. The three were inseparable; wherever Al worked you were sure to find Art and Bill.

The M-12 airplane was built in the rear half of the old TWA hangar. The front half of the hangar was occupied by Foster Lane's flight school. A canvas drop cloth separated the two operations. Foster had the privilege of flying NX20946, the first Cadet, on December 3, 1939. Foster said, "The airplane was small and light and scooted along at 125 mph on 75 horsepower. It was steady, stable, and a delight to fly. The Culver Cadet was the first light airplane with more speed; the result of its thin elliptical wing, retractable landing gear, and light weight."

Foster goes on to say, "[The] number one airplane he flew did not have wing slots." While waiting for the Civil Aeronautics Administration (CAA) inspector to arrive, Al cut three slots in the leading edge of the wing. It helped the tip stall but gave the airplane a slight Dutch roll on landing.

Some Culver Cadets operated by the military had the slots covered and then flew better and faster.

In October of 1940, the Culver Aircraft Corp. had produced 75 Cadets at Port Columbus and had advance orders of \$1,200,000. It needed more factory space and decided to move from Columbus. The old Bridgeport building on the north side of Wichita, Kansas, was vacated after a new factory was built. Culver Aircraft Corp. bought the Bridgeport factory in August of 1940 for \$100,000 and moved the complete operation to Wichita.

**"The Culver Cadet was the first light airplane with more speed; the result of its thin elliptical wing, retractable landing gear, and light weight."**

Approximately 368 Cadets were produced between 1939 and 1941. World War II came along and production of the Cadet ended. Sometime in 1941 or 1942 the production type certificate (ATC #730) was returned to the CAA. This was the demise of a great little airplane.

The Cadet airplane established the Culver Aircraft Corp. as a leader in high-performance light aircraft. The stylized two-place airplane with an elliptical wing and tail gave the impression of a World War II fighter airplane. This was enough to turn the heads of young aviators and inundate Culver with thousands of orders.

I was one of those young lads who fell in love with the Cadet. The selling price of the Cadet in 1941 was \$2,395. With the Depression coming to an end, all of my money went for living costs, but I promised myself that one day I would own a Culver Cadet.



Neal LaFrance and his restored Culver Cadet.

In 1950, I purchased a Cadet, and after a year of restoration with a lot of work on the wood structure, the plane was finally airworthy. Cruising cross-country at 125 mph on 4 gallons per hour suited my wallet just right. The Cadet always got its share of attention no matter where I went, especially from the old-timers who would talk wistfully about flying the Cadet. But the wood fuselage was showing its age so I decided to sell while it was still airworthy.

After retiring from Boeing Aircraft Company in 1989, I needed a project. When I sold my Cadet I knew that someday I would have to own another. The search was on. FAA aircraft registered listings in 1989 showed about 90 airplanes still in existence with about 20 still flying. I sent

postcards to all owners informing them I was looking for a Cadet. After reviewing all that were available, it turned out two were basket cases that fit my budget. I purchased serial number 148 from a gentleman in Iowa. I trucked the parts home and started a project that has consumed nine years, producing a finished airplane and a set of drawings to reproduce the Cadet.

My new Cadet airplane, Model STF, serial number 001, is an FAA-registered experimental homebuilt, N46TY. The old wood fuselage has been replaced with 4130 steel tubing, the wing slots have been removed, and a new cowling has been added around the 100-hp Continental engine. The Cadet is again a flying beauty that will turn the heads of many young aviators.

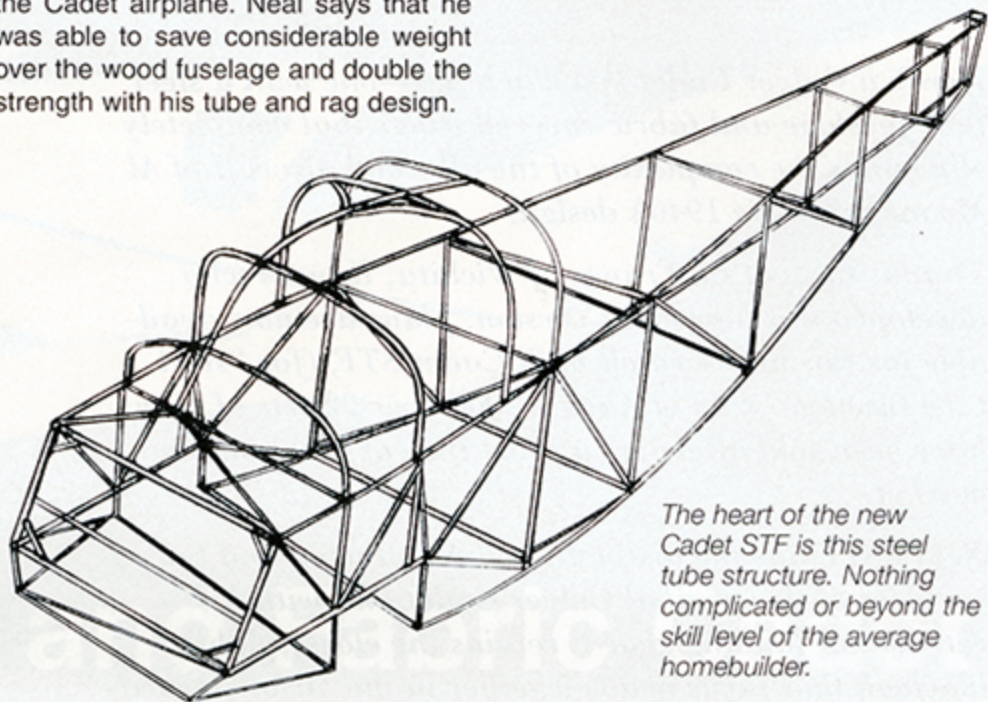


craft homebuilder, racer, and designer who once owned a Culver Cadet. Neal always regretted the day the Cadet went up of sale. The wood fuselage started to show signs of years of wear, so better to sell while still airworthy.

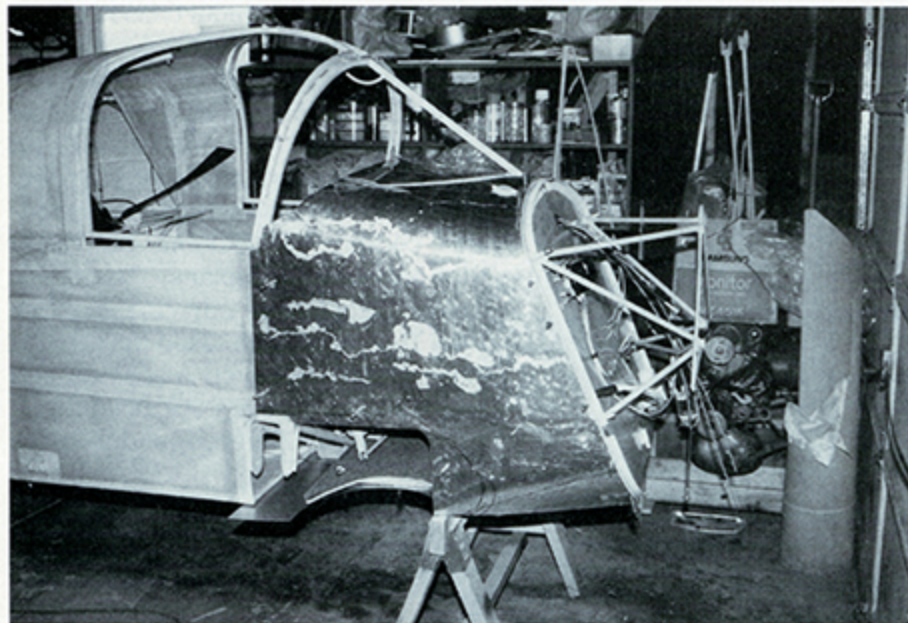
Neal has done extensive research on the Culver Cadet and found that there are quite a few of these airplanes left. Most are stashed away in hangars, garages and barns. The condition is usually the same, serviceable wings, tails and equipment, but rotten plywood fuselages. He found one of these basket case Culvers in a Iowa barn and trucked it home to Wichita, Kansas. After much design and analysis, Neal built a steel tube fuselage, rebuilt and bolted on the good parts, threw away the rotten original fuselage and of course flew off into the sunset.

Time, toil and temper are the products of invention. Such is the plight of the aircraft designer and builder! The fever to design and build a good airplane has kept Neal cooking during a couple of cold Kansas winters. He

decided to document his design so any builder could duplicate the steel tube, fabric covered fuselage. Neal's ideas will enable other builders, to resurrect the Cadet airplane. Neal says that he was able to save considerable weight over the wood fuselage and double the strength with his tube and rag design.



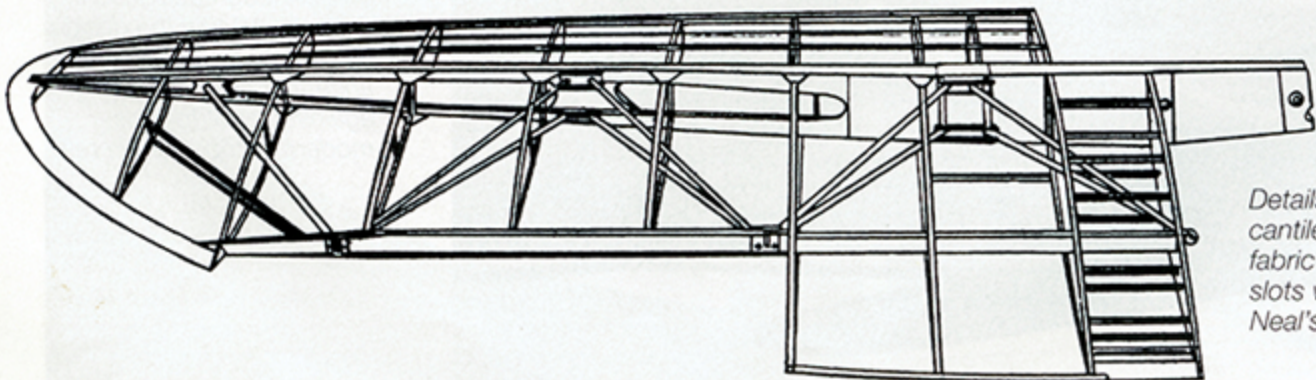
*The heart of the new Cadet STF is this steel tube structure. Nothing complicated or beyond the skill level of the average homebuilder.*



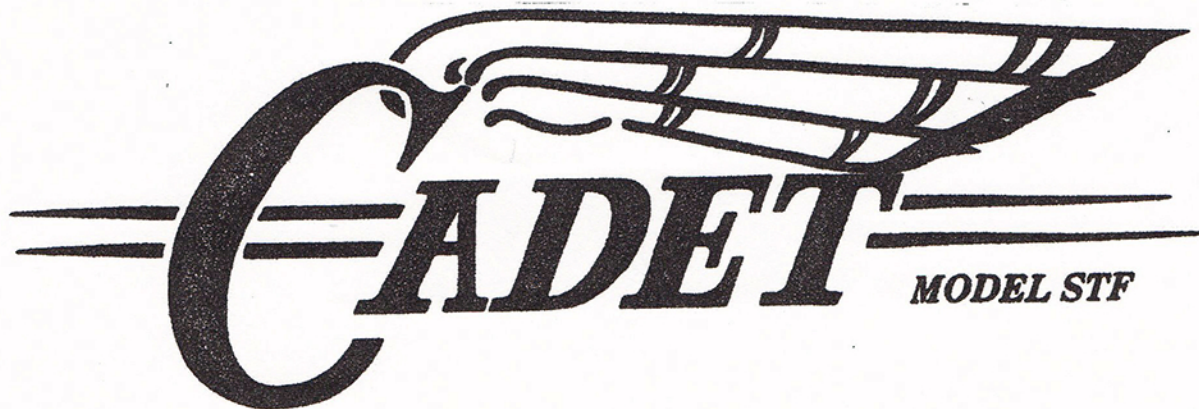
*Fuselage partially covered showing metal work, canopy details and engine mount. This aircraft incorporates all the time-proven techniques that are familiar to most builders.*



*Manual operated landing gear contributes to the Cadet's great performance. Retractable gears were a rarity in the days when the Cadet was introduced—especially on an aircraft of this size.*



*Details of the elliptical cantilever wing that is fabric covered. Wing slots were eliminated in Neal's wing.*



SPECIFICATIONS  
FOR CADET AIRCRAFT MODEL STF

TOP SPEED, MPH-----	175
CRUISE, MPH-----	130/120
RANGE, SM-----	500
STALL, MPH-----	50
RATE OF CLIMB, FPM-----	850
TAKEOFF DISTANCE, FT-----	800
LANDING DISTANCE, FT-----	875
SERVICE CEILING, FT-----	17,500
ENGINE USED-----	CONT.
HP RANGE-----	85/100
FUEL CAPACITY IN GAL-----	25
EMPTY WEIGHT, LBS-----	790
GROSS WEIGHT, LBS-----	1350
HEIGHT, FT-----	5.75
LENGTH, FT-----	18.5
WING SPAN, FT-----	27
WING AREA, SQFT-----	120
NO. SEATS-----	2
LANDING GEAR-----	TAIL WH., RETRACT MAINS
BLDG. MATERIALS-----	WOOD, STEEL TUBE, FABRIC
BLDG TIME IN HOURS-----	2500
INFO PACKAGE-----	\$10 US, \$15 FOREIGN
PLANS COST-----	\$430

## AERO-SYSTEMS

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