WHY DOESN'T SOMEONE BUILD...

The Cessna C-165 Airmaster

SCALE R/C MODELER suggests yet another superb lightplane classic that would be most ideal for a large scale kit . . .

By Orin Humphries

From the Golden Era comes this exceptionally clean aircraft, well-suited to Quarter Scale.

Taken in 1941, this is C-165 c/n 583.

Most of us would recognize the modern Cessna 150. Back in its "roots" lies a remarkably clean, efficient series of aircraft. The lineage began in 1934 with the C-34, and culminated in 1954 with the A-195. Our subject, the C-165 Airmaster, dates from September 11, 1938. This scale subject combines a Golden Era airplane (a period enjoyed by many of our readers), with the latest size, Quarter-Scale.

Clyde V. Cessna was truly an American pioneer in aviation. He was a dealer of Overland cars in Enid, Oklahoma. On February 11, 1911, he was enthralled by an air show, which changed his life. He went to New York, bought a license-built Bleriot, and brought it home. As there were no flight instructors in the area, he had to teach himself to fly, experiencing 13 crack-ups in the process. Repairing his plane led him to develop his own designs, and he was soon in demand as an air show pilot.

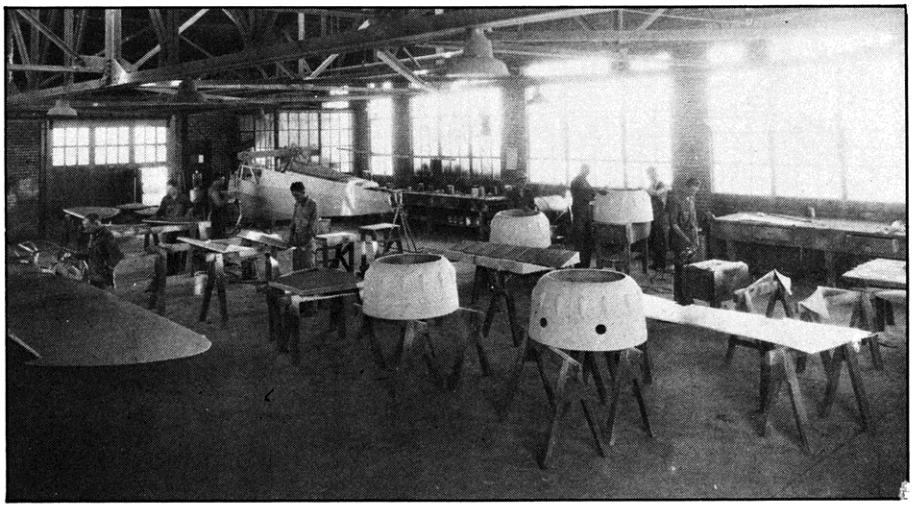
One thing led to another, and 1925 found him, Walter Beech, and Lloyd Stearman forming Travel Air Mfg. Co. Sounds familiar, doesn't it? Clyde's 1926 Cessna Monoplane was the basis of the Travel Air Monoplane series. Two examples of these, the "City of Oakland" and the "Woolaroc," were, in 1927, the first civilian airplanes to fly to Hawaii.

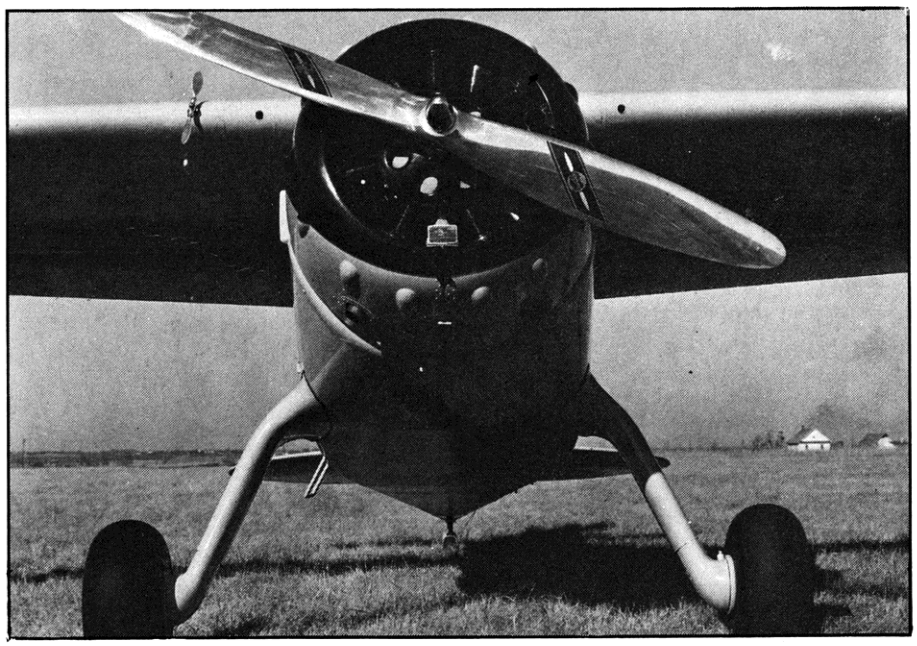
Clyde's newphew, Dwane Wallace, became an aeronautical engineer and joined the company in 1934. He designed the series from which our subject aircraft sprang, and also flew the first example, a C-34, in back-to-back wins in the *Detroit News* Trophy races in 1934 and '35. The double victory retired the trophy permanently in the C-34's hangar, and won for it the title, "the world's most efficient airplane." Now that's a title a modeler likes to hear.

Minor changes in the design of the flaps, size of the tail, spacing of the landing gear, width of the cabin, wing design, and 20 more horsepower in the engine were to be the only differences between the C-165 and the C-34. The overall dimensions remained virtually unchanged.

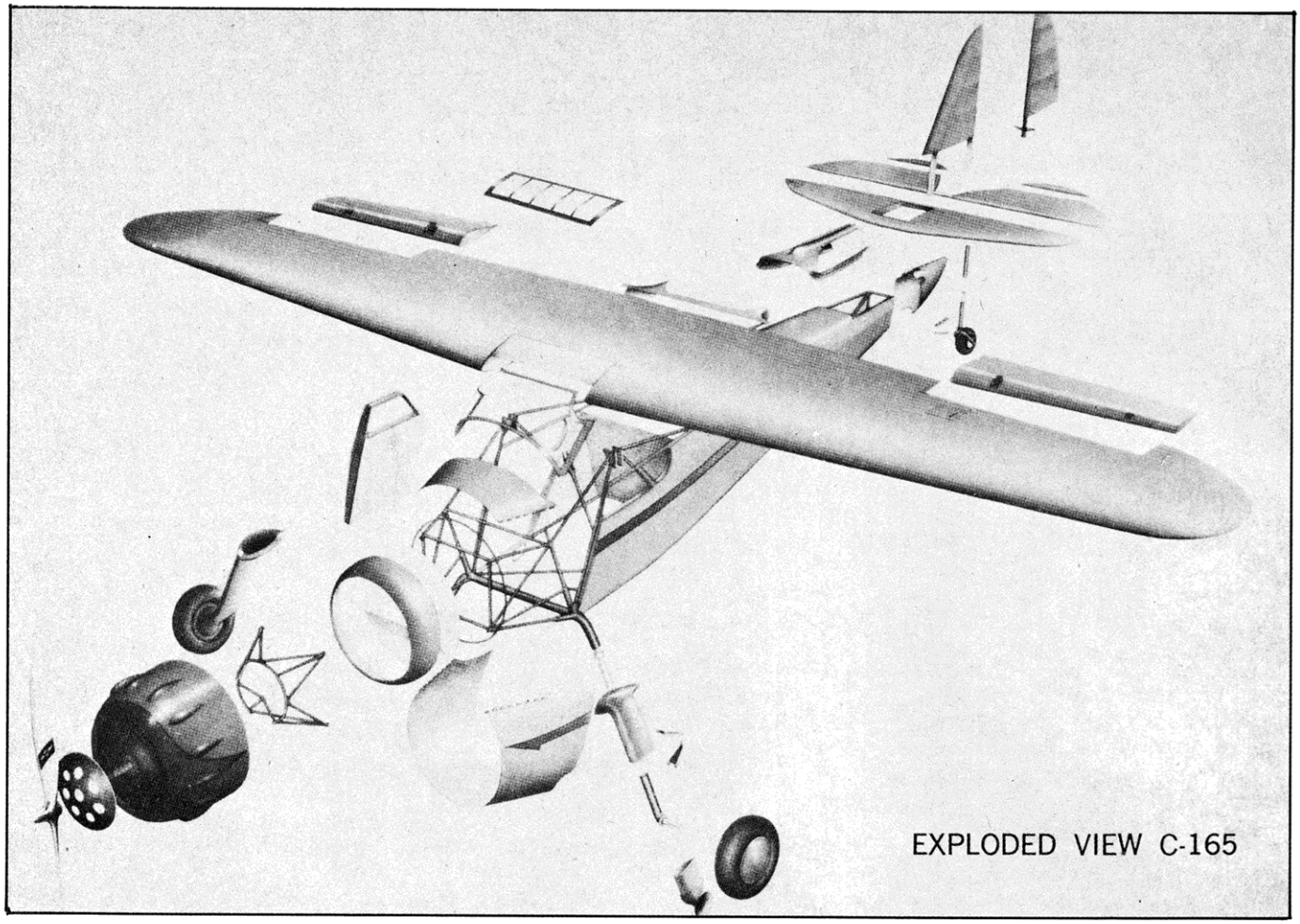
Construction was chrome-moly welded tubes, with fabric over most of the plane. The cowl and fuselage were aluminum, back to the landing gear, with the rest fabric. The wing leading edge and tips were wood covered, with fabric on the remain-

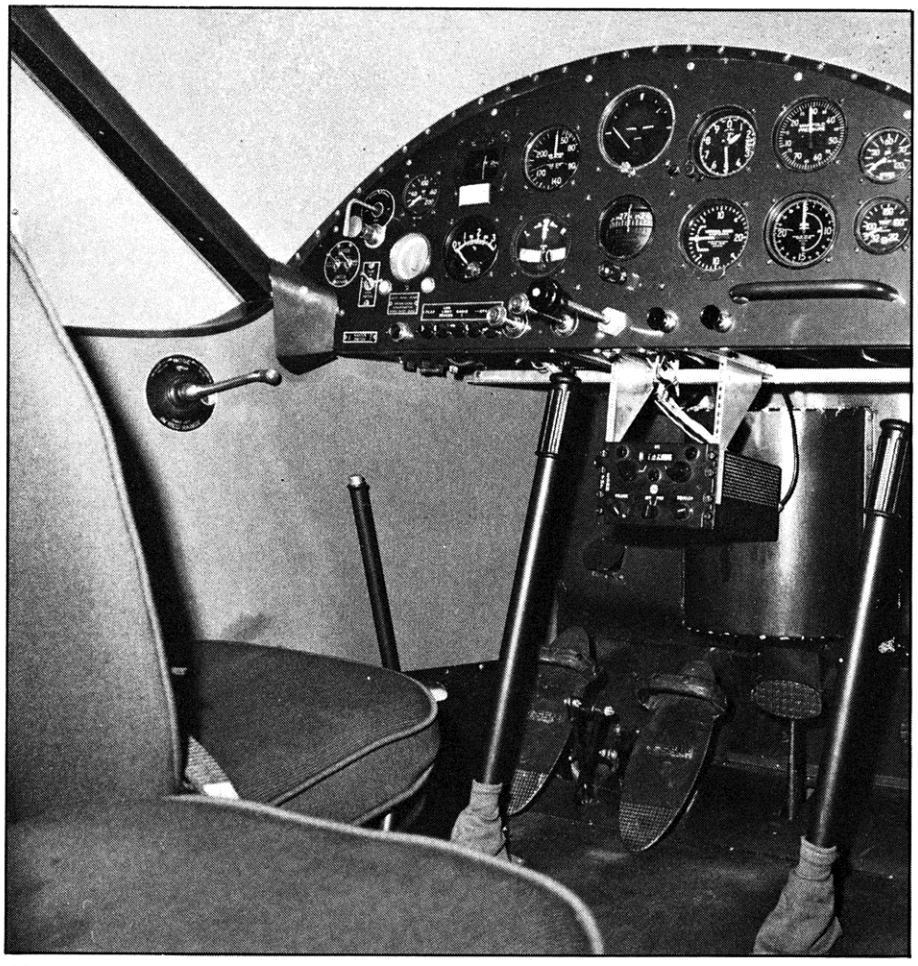
Numerous details of shape and construction are revealed in this paint shop view.





Good, clean shot of cowl and landing gear on a C-145. C-165 did not have perforated plate between prop and cylinders.



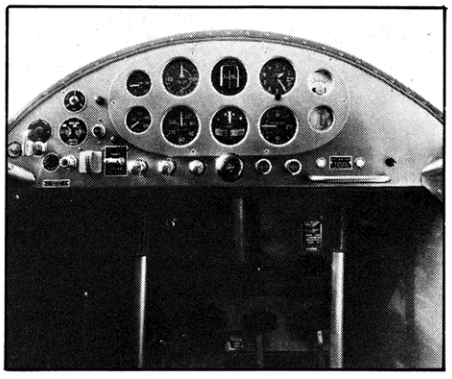


der. They liked hand-rubbed finishes in those days, for those of you who like shiny models, and many do.

A pilot report from the time reveals a pleasant-to-fly prototype for our model, including the following excerpts. The flaps were aluminum, and served almost 100 percent as speed brakes. There was little nose up trim change when they were de-

Interior of C-165 tail No. 25485.

C-145 panel. See page 109 of "Cessna Guidebook" Vol. 1 for C-165 panel. Engine and instrument panel were only noticeable differences between the two.



Duane Wallace's attention to drag reduction paid off when the plane won the title, "World's Most Efficient Airplane" in 1935. NC19464.

Landing gear, fuselage structure and skinning detail seen to good advantage here.

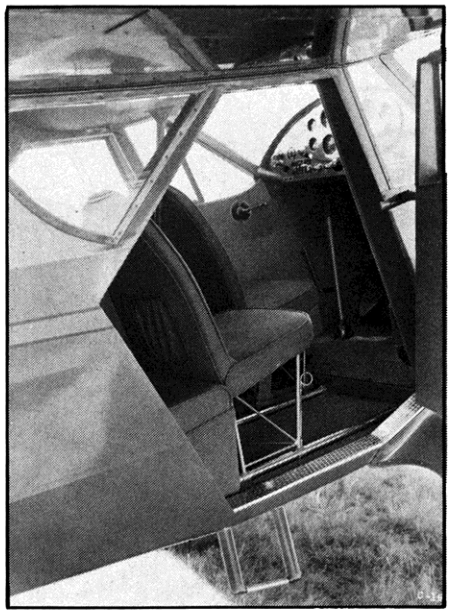
ployed, and hardly any tendency to settle when they were retracted. The stall, with the NACA 2412 airfoil, was very gentle. It was stable and responsive, with 0-degree dihedral in the wing.

NACA data shows that the 2412 airfoil, at full-size, has a rather flat drag curve, up to 8-degree angle of attack, which then rises to double that value at 14-degree angle of attack. The stall begins at 15 degrees, and is neither sharp nor flat.

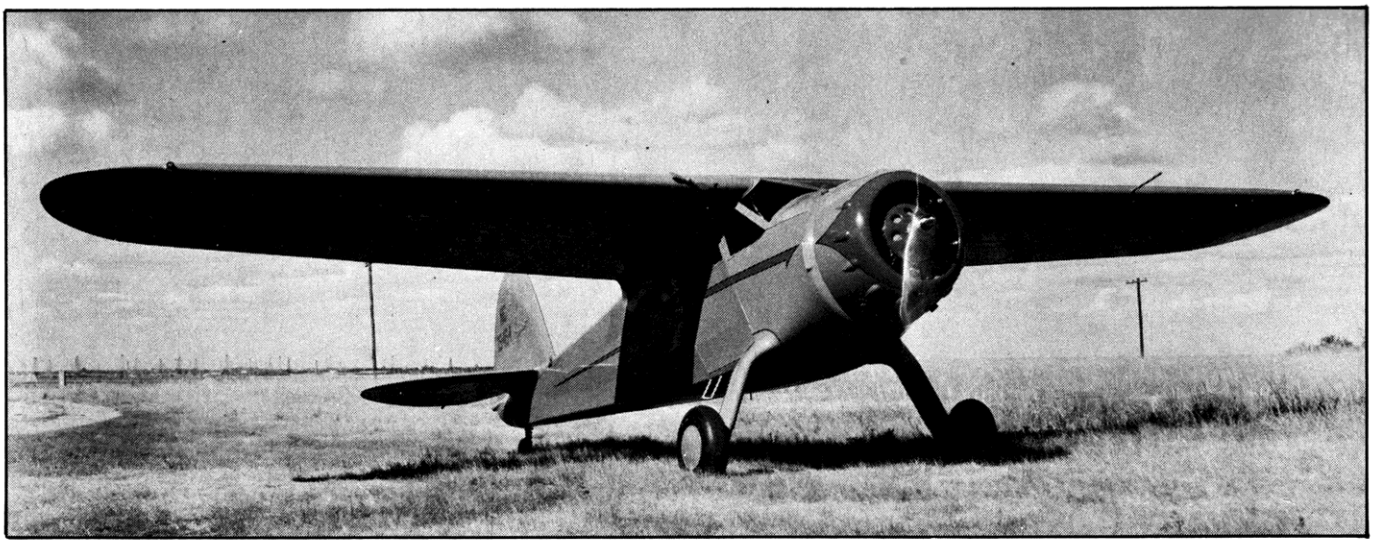
Talk about efficient, the C-165 got 157 mph out of 124 hp (cruise at 75 percent at 8,200 ft.)! Lack of wing struts or wires helped a bunch. A total of 180 C-34s through C-165s were built, with 34 of them being the latter.

Turning to the model, the builder will enjoy the essentially flat-sided fuselage and the lack of struts and

Interior of a C-145, NC19464, the first aircraft of this series.



This C-145 was aluminum with Deep Vermillion trim and Marine Blue pinstripe. Third C-145 built (note perforated plate between prop and cylinders) was sold to Ignacio Ogueira of Rio de Janeiro and then registered PP-TEH.



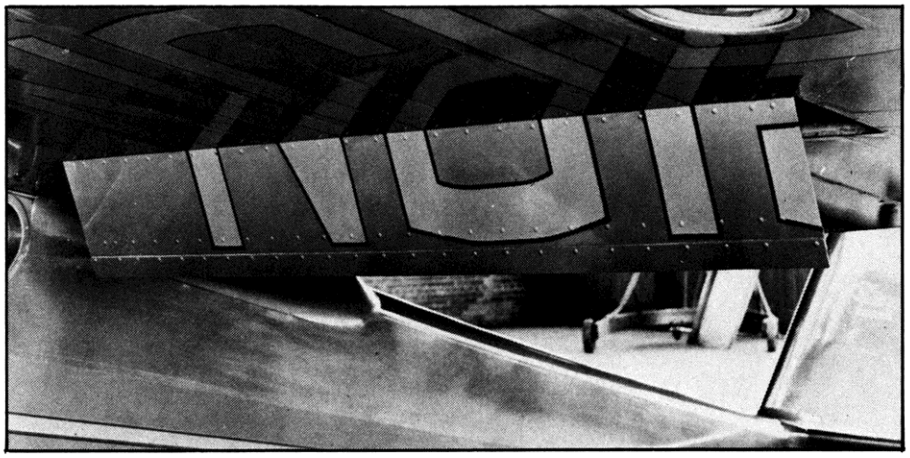
The first C-145, NC19464, c/n 450, was painted Brilliant Vermillion with Drake Blue trim and Marine Blue pinstripe.

bracing wires. Some dimensions, in quarter-scale, are listed to give you an idea of the size of the proposed model. Those who wish to make a smaller model, say, 1/8-scale, may half these numbers. The ¼-scale span would be 8.54 ft. with an area of 12.75 sq. ft. The root and tip chords are 20.93 inches and 14.87 inches, respectively. The thicknesses at these locations are 2.51 inches and 1.78 inches. The elevator would have a span of 30 inches and the aileron would be 18.15 inches long. The cabin comes out to 11 inches wide, and 10¾ inches high under the wing. The ground height is 20.1 inches and the scale prop is 21 inches. The tires are 5 inchers, and are 20½ inches apart. The only differences between the C-165 and the C-145 were the size of the engine and the instrument panel.

May I make a suggestion? You see, one thing that makes the larger scales attractive is that they make certain things possible. When I judged scale at the Nats several years ago, I was most impressed by the builders who had routed the exhaust to the scale outlet locations on their models. Impressions like this have a ballooning effect, which the builder can use to advantage. The Quadra muffler can have a couple of pipes added, that will dump the exhaust out at the right places, provided you invert the engine. If you plan to build at the smaller 1/8-scale, try a Slimline muffler, the manifold style, replacing the pipes with softened brass tubing. It's worth it.

Excellent scale documentation is available from the factory at cost, in the form of a copy of the *Cessna Guidebook*, Vol. 1. Write to: The Cessna Aircraft Company, Public Relations Office, Wichita, KS 67201. Also, Paul Matt's *Historical Aviation Album* (Vol. VI) has some superb three-views. □

Flaps were aluminum and functioned primarily as speed brakes rather than lift devices, with little effect on trim or sink rate.



C-145 c/n 552, taken on 9 February 1940.