

The 'best-looking biplane flying boat ever built' never reached the civil market, but it left its mark on subsequent aircraft—including the Republic Seabee

■ ■ Back in 1933, the management of the Curtiss-Wright Airplane Division decided that it was time to develop some new models for the civil market that was expected to open up at the close of the prevailing economic depression. One of the designs selected was a 4-to-5-place flying-boat amphibian.

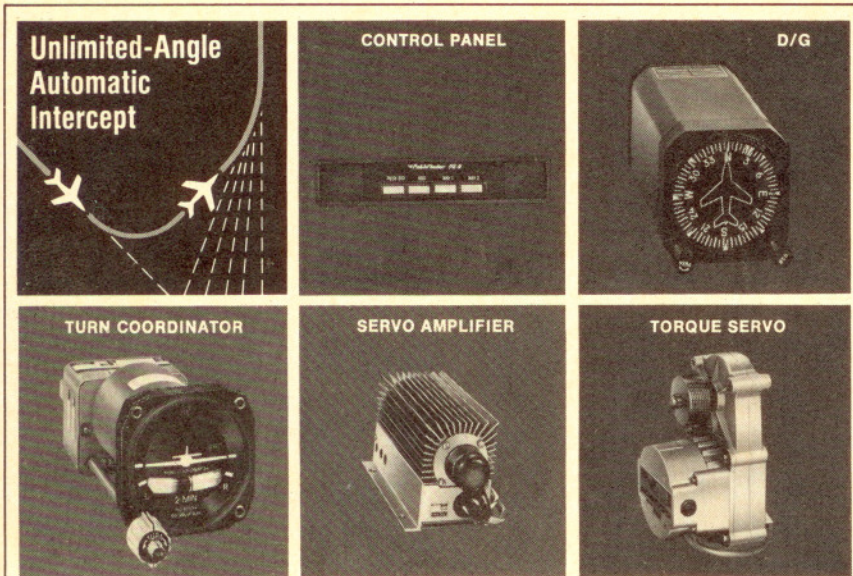
This had to be an entirely new de-

sign. A couple of civil amphibians that Curtiss had developed earlier had not been successful, and the popular Loening designs acquired when Curtiss bought Keystone-Loening not only were out of production but also did not meet the new requirements.

While Curtiss management had an open mind regarding innovations and improved design, it also had some

The Curtiss- Courtney CA-1

by PETER M. BOWERS / AOPA 54408



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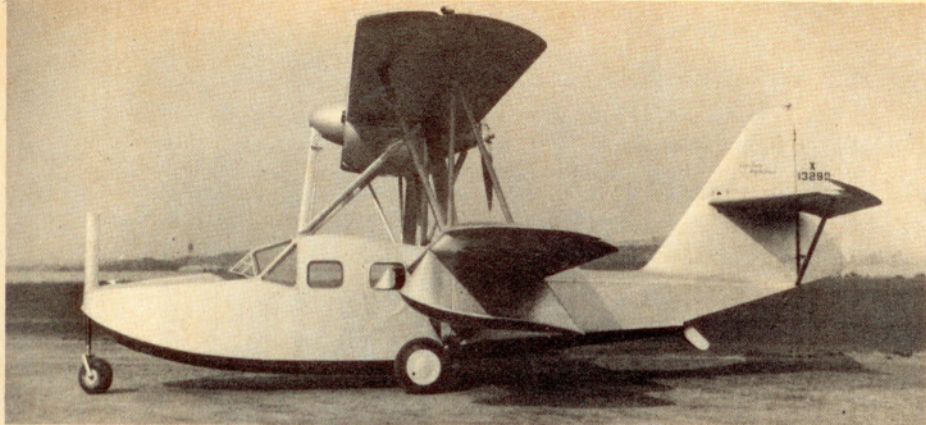
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pretty old-fashioned ideas as to basic features. At a time when the biplane was clearly on the way out, it insisted that the new amphibian be a biplane. Further, it insisted that it be a pusher, a combination that Glenn Curtiss had adopted for his first flying boat back in 1912!

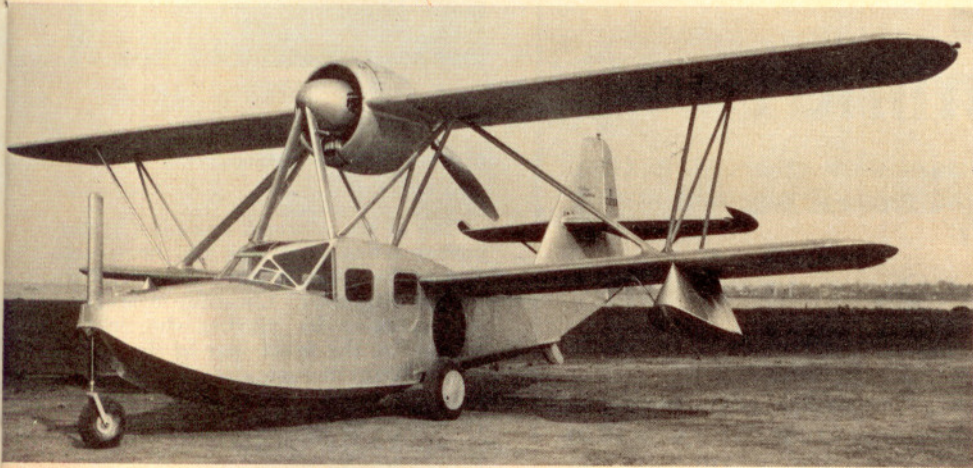
The designers, getting no help from past history, were hard put to come up with a suitable amphibian; however, they had an offer of help from an unexpected source. Frank T. Courtney, an internationally famous British test pilot then associated with Curtiss, declared that he could design an up-to-date amphibian that would meet all the requirements. After a hard sell to management, he was authorized to proceed.

Despite improving times, financing a new development was still a problem. Curtiss did some financial juggling and drew some unused funds from the inactive Curtiss-Caproni Division. Two Model CA-1 (for Courtney Amphibian) prototypes were then built in the newly reopened St. Louis plant, the former Curtiss-Robertson Division.

Courtney managed to add some real innovations to the classic pusher boat configuration. Where all previous amphibians had merely raised the wheels to get them out of the water, leaving them wholly or partially in the airstream and thus adding to drag, Courtney folded the main wheels flush into the sides of the hull. In a really daring move for the time, he used a



Side view of the Curtiss-Courtney CA-1, showing the tricycle landing gear and the distance between the pusher propeller and the forward-located engine. The skid under the rear step doubles as a water rudder. Gordon S. Williams photo.



Three-quarter front view of the CA-1 shows the wheel wells, substitution of struts for flying wires, and the unique nosewheel arrangement in which the nosewheel strut retracted straight up into the streamlined tube above the bow. Gordon S. Williams photo.

tricycle landing gear. This arrangement had been popular until World War I but had then vanished, being seen on only a few one-shot freak designs until Courtney reintroduced it several years before its popular revival in the late 1930s.

continued

CURTISS-COURTNEY CA-1

Specifications and Performance

Span	40 ft
Length	31 ft
Powerplant	Wright J-6-9 (R-975-E1), 365 hp @ 2,100 rpm
Empty weight	2,980 lb
Gross weight	4,650 lb
High speed	151 mph
Cruise speed	125 mph
Rate of climb	835 fpm
Service ceiling	14,000 ft
Range	550 sm

CURTISS-COURTNEY CA-1 continued

One of the inherent problems of the pusher flying boat was tail heaviness due to the need to have the propeller behind the wing. Courtney overcame this problem by moving the engine forward to the front spar of the upper wing. With the mandate to keep the plane a pusher, however, it became necessary to put an extension shaft on the engine. Courtney went to the Curtiss-Wright Engine Division with a request for such a modification to their standard J-6-9 Whirlwind engine. After being told flatly that the modification couldn't be done, he found an outside shop that did the job without fuss.

Except for a switch to all-metal hull construction, the only other notable innovation on the CA-1 was the replacement of the traditional biplane flying wires with two diagonal compression struts, as introduced a couple of years before on the new Waco cabin biplane line. Altogether, the lines and innovations made the CA-1 the cleanest and best-looking biplane flying boat ever built.

The CA-1 was flying in 1934 and soon qualified for a Category 2 type certificate, 2-497, which was issued in January 1935. But despite the aircraft's appealing looks and advanced design details, it never reached the civil market. Japanese interests were so impressed with the new amphibian that they bought not only one—and possibly both—airplanes, but the design rights as well. Their offer was so attractive that Curtiss couldn't resist selling them the whole package.

Thus the CA-1 vanished from the scene before it had fully entered it. Still, the aircraft left its mark. Tri-cycle landing gear appeared on many subsequent designs, and the famous Republic Seabee of 1946 used Courtney's trick of putting an extension shaft on a pusher engine to overcome the old balance problem. □