The First Federal Aircraft Type Certificate

On March 29, 1927, the federal government issued its first aircraft type certificate when the Department of Commerce Aeronautics Branch issued Aircraft Type Certificate No. 1 to the Buhl Airster CA-3 (also known as the J4 Airster after its Wright J4 engine), a three-place open biplane. The company had applied for the certificate on January 31, 1927. John L. Hosch, a 1925 MIT engineering graduate, signed the certificate for the Aeronautics Branch. Hosch died the following month after an airplane accident while on duty.

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

Official No. AT-1

Approved Type Certificate

This certifies that Buhl Aircraft Company, Marysville, Mich. is entitled to the benefits granted by law in the production of airplanes manufactured in quantities of an exact similarity of type, structure, materials, assembly, and workmanship with the authenticated specifications, description, and drawings on file in the office of the Secretary of Commerce, duplicates of which are attached hereto and made a part hereof.

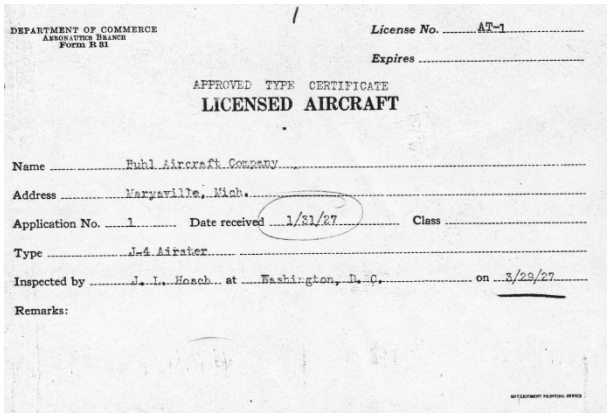
The type of airplane for which this certificate is issued is known as J-4 Airster

Dated March 29, 1927

All attached papers bear the seal of the Department of Commerce.

Assistant Secretary of Commerce.

Designed by Alfred Verville, the plane had an empty weight of 1,686 pounds and its engine had a horsepower rating of 200. The single-bay biplane with equal-span unstaggered wings accommodated the pilot and passengers in tandem open cockpits. The manufacturer marketed the plane for a variety of roles including crop-dusting, aerial photography, and freight carriage. The Buhl factory only built a few CA-3s.



DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH
Form R-51

License No. AT-1
Expires

APPROVED TYPE CERTIFICATE
LICENSED AIRCRAFT

Name Buhl Aircraft Company
Address Marysville, Mich.
Application No. 1 Date received 1/21/27 Class
Type J-4 Airster
Inspected by J. L. Hosch at Washington, D. C. on 3/29/27
Remarks:

The Department of Commerce Aeronautics Branch, established in May 1926, had issued the first Air Commerce Regulations on December 31, 1926. Those regulations specified in Chapter 1, Sec. 21, how a manufacturer obtained a type certificate:

> (A) A manufacturer of airplanes in quantities and of an exact similarity of type, structure, materials, assembly, and workmanship may, at the option of the manufacturer, file with the Secretary of Commerce an application for an approved type certificate.
>
> (B) The application must be accompanied, under oath, by:

1. Three view drawings of the airplane with main dimensions, aerodynamical and other characteristics, accompanied by a balance diagram for varying conditions of load to be employed.

2. Description of power plant and power-plant installation with illustrative diagrams.

3. Description of wings, fuselage, including engine mount, landing gear and tail surfaces, materials employed, and drawings or dimensioned sketches of main structural members.

4. Stress analysis, with signature of the responsible engineer.

The Branch agreed to keep all information furnished by the manufacturer confidential.

(C) If the Secretary of Commerce approved the submitted design and the aircraft met requirements, it would be inspected for exact similarity with the submitted design and specifications. Upon passing such inspection, the airplane had to undergo flight tests. If the aircraft passed the tests, the Secretary of Commerce issued an approved type certificate to the manufacturer.

(D) Once a manufacturer received an approved type certificate, he had to file a quarterly affidavit with the Secretary of Commerce showing the number of airplanes constructed under the approved type certificate during the quarter, with a statement that no airplane being constructed under the approved type certificate deviated from the terms thereof.

(E) Manufacturers of airplanes constructed under an approved type certificate could make changes with the approval of the Secretary of Commerce.

Although the rules seemed fairly basic and straightforward, obtaining a type certificate proved somewhat difficult. In 1927, the Aeronautics Branch suffered from limited resources in terms of budgets and staff. To simplify and expedite approvals of type certificates, in October 1927, the Branch required aircraft manufacturers to meet minimum engineering standards set forth in detail in a new handbook. Manufacturers still had to send blueprints and engineering data to the Branch for examination by its engineering section. If the data conformed to the standards, a Branch inspector went to the factory to determine if the manufacturer adhered to the approved design and specification. If the inspector found no issues, one aircraft of the type being manufactured underwent flight tests – first by a company pilot and then by a federal inspector. If the aircraft passed the flight tests, the Department of Commerce issued a type certificate.

If a manufacturer opted not to secure a type certificate for an aircraft type, he had to subject each aircraft produced to the same analysis and tests undergone by a type-certificated model before he could obtain an airworthiness certificate for each plane.

The Aeronautics Branch issued 21 type certificates in 1927:

1. Buhl-Verville CA-3
2. Boeing 40-A
3. Johnson Twin 60
4. Douglas O-2
5. Douglas M-2
6. Douglas M-4
7. Alexander Eaglerock Combo-Wing
8. Alexander Eaglerock Long-Wing
9. Fokker Universal
10. Fairchild FC-2
11. Waco 9
12. Buhl CA-5
13. Waco 10
14. Douglas C-1
15. Driggs Dart 2
16. Stinson SM-1
17. American Eagle A-1
18. Pitcairn PA-5
19. Kreider-Reisner C-2
20. Fairchild FC-2W
21. Swallow OX-5