

**CANADA AVIATION MUSEUM AIRCRAFT**  
**FAIRCHILD FC-2W-2**  
**G-CART**  
**CANADIAN TRANSCONTINENTAL AIRWAYS**



*Fairchild FC-2W-2 registration G-CART from the Museum's collection. (Museum photo)*

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## Introduction

This Fairchild FC-2W-2 is typical of a number of single radial engined cabin monoplanes manufactured during the second half of the 1920's and into the early 30's, that were built in the United States and to a lesser extent in Canada. Most of them were utility aircraft that could perform a number of roles and could be utilized on wheels floats, or skis. These aircraft played a major part in the rapid development of aviation during this period until they were succeeded by newer types later in the 30's.

Fairchild aircraft were to be found from Northern Canada and Alaska down through the United States, Central America to South America where they operated in some of the countries there. They were purchased by civil operators, governments and the military. Their main functions involved carrying of passenger and/or freight, air mail but also performed admirably in the role of aerial surveying.

Most of the work to open up the Canadian North, was carried out by Fairchild of the FAIRCHILD CABIN (FC) types and a number were used in Alaska for the same purpose. The Museum exhibit, G-CART was used solely for survey during its operational life.

## Development History - Sherman Fairchild and the FAIRCHILD FC Utility Monoplane

### Sherman Fairchild

This narrative is concerned with Sherman Fairchild and the FC monoplanes built during the mid 1920's and the early 1930's and does not cover subsequent designs produced by the Fairchild Company.

Sherman Fairchild was born in 1896 into a position of wealth and influence; his father became the first President and Board Chairman of IBM. As a young man he became interested in cameras and developed one with a shutter between the lenses for aerial photography. This model was far superior to aerial cameras then in use and with financial aid from his father, he formed the Fairchild Aerial Camera Corporation to manufacture and market his design.

Subsequently, he began hiring pilots and planes to demonstrate this camera, and, in 1921, lead to the formation of Fairchild Aerial Surveys. In 1922, Fairchild Aerial Surveys of Canada was formed to cover operations in Canada and it was here that the unsuitability of open cockpit and unheated biplanes for aerial surveys became apparent.



*The Museum G-CART. (Museum Photo)*

## The Requirement for an for an Aerial Photography Aircraft

After a meeting with crew members and staff, a rough concept of the requirements for an ideal survey plane were worked out. This would be a totally enclosed high wing cabin monoplane incorporating adequate heating and ample space for the photographer and his equipment behind the pilot. The aeroplane would have good endurance, and inherent flight stability. The wings could also be folded which meant that in the Arctic the aircraft could be put under cover with a small snowfence and tarpaulin. It could be fitted with wheels, floats or skis as the occasion demanded.



*The original Trans Continental Airways G-CART on floats. (Museum Photo)*

In 1926, finding that no suitable aircraft was available to meet this requirement, Fairchild formed the Fairchild Manufacturing Company to design and build airplanes for aerial survey work(s). The prototype, temporarily configured with the Curtiss OX-5 engine was finally fitted with a 200 H.P. Wright J4 radial to qualify the aircraft type (FC-1A). The first flight occurred in January 1927. This aircraft had a three longeron rear fuselage from behind the cabin in an attempt to improve air flow over the tail plane.

## Development of the Fairchild FC Types

Following initial tests, it became apparent that, suitably modified, a production version of the FC-1A, would have a good potential as a utility aircraft in addition to aerial survey qualities. This became the FC-2 and changes from the prototype included a wider cabin for more passenger comfort, an improved method of wing folding, a much lower landing gear and the installation of the well proven Wright J5 "WHIRLWIND" radial engine. Early production FC-2's retained the rear fuselage equipped with three longerons called "razor backs", but subsequently a standard four longeron version was introduced when potential structural weaknesses in the razor backs became apparent.

The first production FC-2 flew in June 1927 and these aircraft and the 420 hp Pratt and Whitney WASP powered derivatives to follow, were to be found from Northern Canada to Chile in South America by the end of the decade. This first modification of the FC-2 model was the FC-2W which was only produced in small numbers. These changes involved the installation of the WASP engine, an increase in the wing span to 50 feet (15.2 m), requiring longer wing struts plus added jury struts. The oil tank capacity was increased by the addition of "check" tanks to the forward fuselage that obscured the lower pilot's side windows. The ailerons were changed to the Frise type and increased in area.

After 10 FC-2W models had been built, the line was discontinued in favour of the FC-2W-2. This was essentially the FC-2W with a 2 ft. (60 cm) section added to the fuselage just aft of the wing and increased horizontal tail surfaces area. (In 1929 the author had a short flight in an FC-2W-1 (M-5COZ), leased by FAIRCHILD Aerial Surveys to evaluate oil properties of Huasteca Petroleum Company, Tampico Mexico. The pilot was one Elrey Jeppesen who later developed the Jeppesen aeronautical charts.)

In the interim, Fairchild Aviation Ltd. had been formed in Longueuil, Quebec. Initially, this company was involved in modifying existing Fairchild aircraft but in 1930 commenced production of a simplified version of the Fairchild "71", suitable for use in the Canadian North. This aircraft is described below.

Soon after FC-2W-2 production began, a new designation system was introduced involving the use of two numbers in which the first digit indicated the number of passengers plus pilot and the second, the sequential model number. The first aircraft to use this new designator system was the Fairchild "71", essentially a modified FC-2W-2 and built for passenger service. Changes from the FC-2W-2 involved the addition of two more seats in the rear cabin plus oval windows behind the passenger doors. Fairing was also added to the fuselage corners.

### **The Museum Aircraft - Operational History of FC-2W-2 NC 6621**

As the airplane log books are unavailable, little is known about its operational history. It was built by the Fairchild Airplane Manufacturing Corporation in USA in 1928 as factory construction number (CN) 128, given a US registration number NC6621 and delivered to Brock and Weymouth, a New York company involved in ground and aerial surveying and mapping.

This Company however, did not survive the November 1929 market crash and all of its assets were acquired by Aero Services, a Philadelphia firm, also engaged in aerial survey and mapping work. It can be assumed that NC6621 was utilized by both Brock and Weymouth and subsequently by Aero Service until it was retired in 1943, although no details are known. Brock and Weymouth however carried out both ground and aerial surveys for the Hoover (Boulder) Dam Project prior to the start of construction and it is possible that NC6621 was involved in this great enterprise (the first concrete pour took place in 1933).

In 1943 the aircraft was declared obsolete and was sold to an aircraft broker. On take-off for delivery to the new purchasers, the aircraft suffered an engine failure and was damaged in the ensuing forced landing. It remained in this condition in the possession of Aero Service, until 1962 when it was donated to the Museum by Virgil Kaufman, founder and President of the Company. It was restored in the markings of G-CART of Canadian Transcontinental Airways and placed on display in 1966.

#### Aircraft Restoration

When the Fairchild arrived for museum display from Aero Service in 1962, it came minus the engine, propeller, pilot's seat and the instrument panel, while the damage sustained in the 1943 forced landing still had to be repaired. In addition, sheet metal fairings covering the undercarriage legs were missing.

The restoration was carried out initially in a rented warehouse in Ottawa and finished in a hangar in Rockcliffe. This included replacement of a broken cast undercarriage fitting, repairs to some fuselage welds plus the straightening of a slight fuselage distortion. Except for the roof all fuselage woodwork in the cabin area had to be replaced. On the right wing, a new section of the front spar had to be spliced in and the plywood leading edges on both wings were replaced. The USAF Museum loaned and finally donated a Pratt and Whitney WASP C engine which required the casting of five new rocker box covers. A replacement propeller was found and purchased.

A break in the leading edge of the tail plane had to be spliced and new sheet metal fairings made for the undercarriage legs. In addition, a new instrument panel was required plus all instruments which were found and fitted, and a pilot's seat plus a trim wheel, were made. As the original baggage compartment aft of the cabin had been modified as a camera compartment, the original was recreated and finally the entire aircraft was recovered and painted.

### **Fairchild "FC" Aircraft in the News**

The period from the mid 1920's into the early 1930's, sometimes called "The Golden Age of Aviation", was one of remarkable development in aviation. Many historic flights were made and aviation records broken, as exemplified by Lindberg's epic transatlantic flight in 1927. Single engine monoplanes predominated in these events.

Although the Fairchild FC types rarely made the headlines, they played a significant part in aviation development at that time. It is noteworthy that more Fairchild aircraft were manufactured than similar aircraft types from any other Company in North America. Examples of events that did feature in the news media is as follows.

### Rescue Mission

In 1928, two Canadian FC-2W-2 aircraft were the first to reach a Junkers W33 “Bremen” after it had crashed on Greely Island in the Strait of Belle Isle after it had made the first East to West transatlantic flight.

### Round the World Trip

In June and July 1928, John Mears and Charles Collyer made the fastest trip round the world by sea and air. They took 23 days and 15 hours using a Fairchild FC-2W-1 NX5501 for the air travel.

This specific aircraft did not fly transoceanic, instead it was disassembled and shipped across the Atlantic and Pacific oceans.



*FC-2W NX5501, Collier and Mayers Round the World Flight.  
(Museum Photo)*

### Admiral Richard Bird Expedition

In 1928, Admiral Richard E. Byrd took three planes with him on his first Antarctic expedition, one of these being a Fairchild FC-2W-2 NX8006 named “Stars and Stripes”. This plane made the first flight in Antarctica and subsequently rescued the crew of the Fokker Super Universal who were stranded when their plane was wrecked in high winds. The Fairchild was left behind in a deep trench when the expedition left and was recovered and flown again when the second expedition returned.

It was brought back to USA and used by Fairchild Aerial Surveys. (As a footnote, the author of this brief history examined the Fokker “SUPER UNIVERSAL” aircraft at close quarters at Balbuena airfield in Mexico City in 1928 when on holiday with family. This was prior to its shipment to Antarctica).



*NX8006, 1928 Byrd Antarctic Expedition Aircraft on Skiis. (Museum Photo)*

## **Specifications of the FC-2W-2**

### Airframe:

Wing Span:	50 ft (15.2 m)
Length:	33 ft 2 in (10.1 m)
Height:	9 ft 6 in (2.9 m)
Weight, Empty:	2,732 lb (1,239 kg)
Weight, Gross:	5,500 lb (2,496 kg)
Cruising Speed:	108 mph (174 km/h)
Max Speed:	134 mph (216 km/h)
Rate of Climb:	875 ft (267 m)/min
Service Ceiling:	15,000 ft (4,570 m)
Range:	685 mi (1,102 km)

Power Plant: One Pratt & Whitney R-1340 WASP B  
420 hp radial engine.

## **Bibliography**

Molson K.M. *Canada's National Aviation Museum*. Ottawa, 1988.

Jupiter J.P., Molson K.M., Rinhart T.K. "The Fairchild Utility Monoplanes". *CAHS Journal*, Spring 1973.

Clapp, George H. "The Fairchild FC-2". *Model Aviation*

Sherman M. Fairchild Biographies.

Kauffman Virgil. Aero Service Corporation