

CHRONOLOGICAL HISTORY OF THE F9C-2 AND ITS USE ON THE AKRON AND MACON

by

John C. Mitchell, Commander USNR

One of the most interesting aircraft now on display at the Smithsonian Institute in Washington, D.C., is the Curtiss F9C-2 "Sparrowhawk". It appeals to the general public, not only because it represents an early Navy fighter design, but also because of its use as an airship fighter. The airship hook-on mechanism attached to the fuselage visually shows its potential as a parasite fighter. This seems to intrigue the visitor to the Smithsonian who normally has but a passing interest in historical aircraft.

During the 1928-1930 period the Army Air Corps was particularly interested in the development of gull wing fighter designs. This apparently was the result of a need for better pilot visibility. The Boeing XP-9 had a single gull type wing. The Curtiss XP-10 was a gull wing biplane with plywood wings and the Berliner-Joyce XP-16 was designed as a two-place fighter with gull wings. Of these three designs only the P-16 resulted in a production order. This was for 25 additional aircraft.

As a result of the experience with this type of plane, Curtiss, Berliner-Joyce and Fokker all submitted designs for Navy carrier based gull wing fighters. These resulted in the experimental Curtiss XF9C-1, Berliner-Joyce XFJ-1 and the Fokker XFA-1. These three planes were similar and incorporated experience learned from the previous Army Air Corps planes. However, none of the three were accepted for production as carrier based fighters,

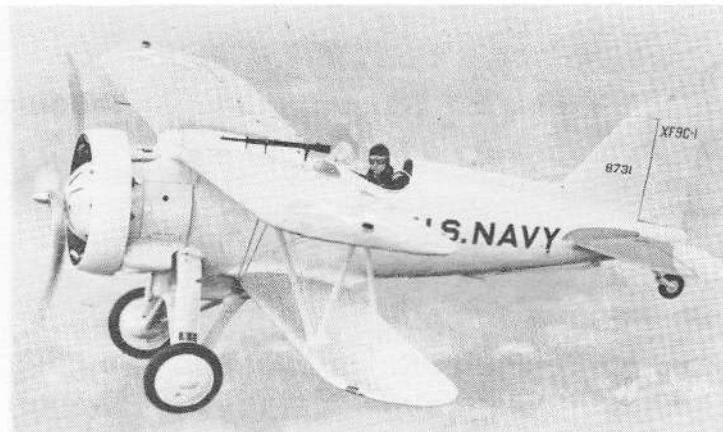
1931 OPERATIONS

From March 31st to June 30th 1931 the XF9C-1 (8731) flight tests were conducted by the Navy at Anacostia. The tests were limited to those conditions required of a carrier based fighter and no tests were conducted which had any connection with the possible use of the plane as an airship fighter. It was apparent from the test reports that no thought had been given at this time to the use of the plane for other than shipboard use. At the conclusion of the tests, it was determined that the plane was unsuitable for service use. The main criticisms included the location of the upper wing, the poor vision over the nose except at high speeds, the poor landing characteristics and the poor design of the arresting gear hook location which resulted in a tendency for the plane to nose over after being retrieved aboard the carrier. Otherwise the plane had good flying qualities and a good performance for such light weight, small dimensions and low power.

As a result of the XF9C-1 tests, Curtiss built another aircraft which was designated XF9C-2 and incorporated the design changes indicated in the above tests. This plane also had full pants over the wheels and a heavy fairing aft of the single main landing gear struts. Although the plane was designated XF9C-2 it did not carry a Bureau of Aeronautics serial number. Instead it had a civil registration, X-986M. It was manufactured 1 November 1931 and is listed as XF9C-2, c/n 1, in the civil aircraft register for January 1932. The plane had a Wright 420 H.P. engine and was painted dark blue. Photos show it with a carrier deck hook.



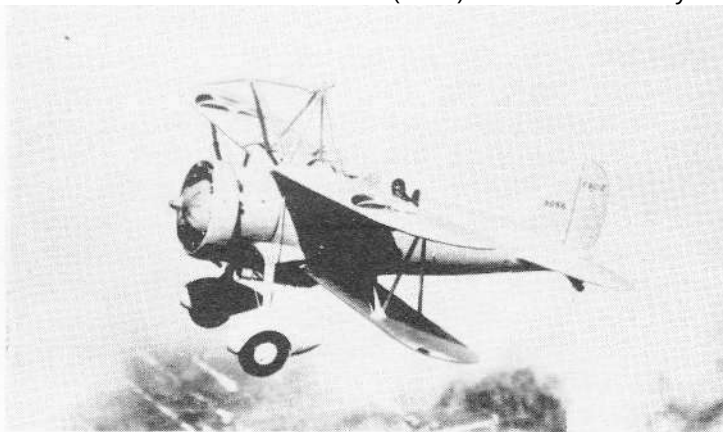
1. XF9C-1 (8731) U.S. Navy



2. XF9C-1 (8731) U.S. Navy



3. XF9C-1 (8731) AKRON Bamberger



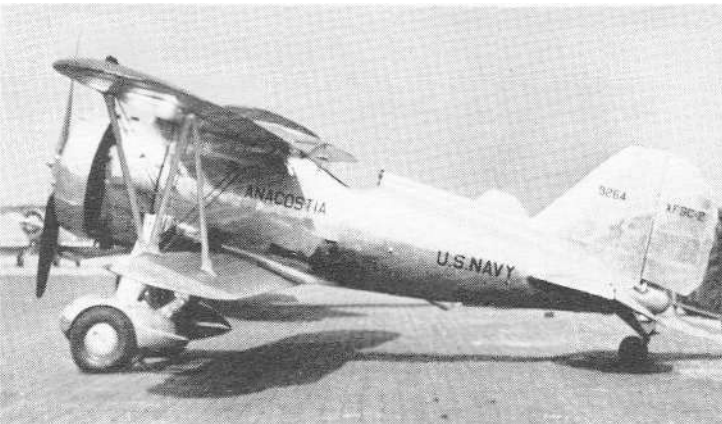
4. F9C-2, First mod. (9056) Curtiss



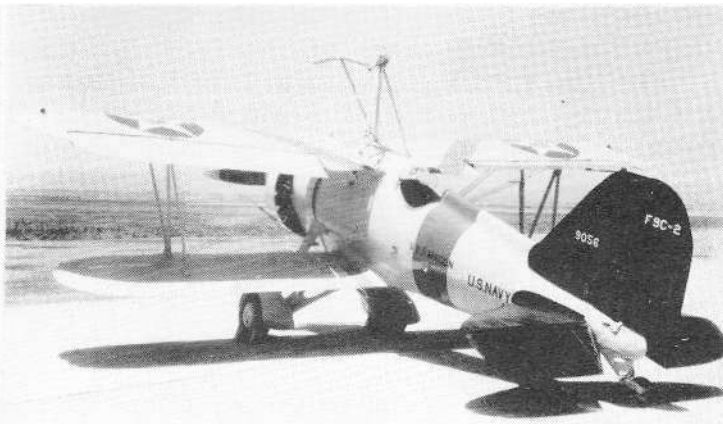
5. XF9C-2 (NX-986M) Curtiss



6. F9C-2, Second mod. (9056) Curtiss



7. XF9C-2 (9264) (Larkins)



8. F9C-2, Third mod. (9056) U.S. Navy

Also during 1931, the first "AKRON Unit" of aircraft was organized. In June the unit was authorized 1 VO aircraft and 4 VF aircraft. It actually had 1 Consolidated N2Y-1 and 1 Vought UO-1 at NAS Lakehurst. In addition there were five N2Y-1 aircraft designated for the AKRON at the Naval Aircraft Factory, Philadelphia. AKRON herself was christened on August 8th of 1931 and made her first flight the next month. It is interesting to note that the XF9C-1, although in existence during most of this year, is not shown on any of the records of the AKRON Unit and as such further indicates that it was not contemplated to use this plane originally as an airship fighter,

1932 OPERATIONS

Tests were conducted on the XF9C-2 (civilian registered plane) by both the Curtiss company and by the Navy. No information is available as to their detailed results but again the trials were limited to a potential carrier based fighter and did not include possible consideration as an airship fighter. Subsequent to these initial tests it was determined that the basic design might be adapted for use as an airship fighter. This resulted in the production of the first F9C-2, Bureau Number 9056, which was tested at Anacostia from May 9th to July 11th. This apparently is the same airplane which is now on display in the Smithsonian. Its airframe origin is not clear. It could have been a new production aircraft or possibly was a modification of the civilian XF9C-2 previously noted. In as much as the civilian plane did not carry a navy bureau number it is assumed that this plane was a factory modification of the XF9C-2.

The following is quoted from the report of flight trials: "The F9C-2 is a development of the XF9C-1 and the XF9C-2 and differs from the latter mainly in the substitution of the split axle tripod gear for the original cantilever gear and the installation of the airship hook-on mechanism." The flight trials were satisfactory although it was noted that with the hook-on mechanism installed the aircraft was somewhat directionally unstable. Five additional planes were ordered. These were F9C-2 serials 9057, 9058, 9059, 9060 and 9061. After manufacture at Buffalo, they were delivered to the AKRON Unit at NAS Lakehurst. It is interesting to note that these planes were slightly different from the first F9C-2. The major change was the fin and rudder design which resulted from an increase in tail surface area and was indicated by a flat rather than a rounded fin and rudder.

Markings on these aircraft were not all the same. Most of the planes carried the red-white-blue stripes on the tail. They had a singular colored band around the fuselage with the same color on the diagonal wing markings, cowl and wheel pants. At least one of the planes had a solid color tail,

The first hook-on of the test F9C-2 was made on June 16th. By July, 104 hook-ons had been made*. This led to the formation of the AKRON HOOK ON CLUB which consisted of those pilots who had successfully been retrieved by the AKRON. The initial group consisted of six pilots headed by Lt. D.W. Harrigan. Others included Lt. H.L. Young, F.M. Trapnell, F.N. Kinette, H.B. Miller and R.D. Larson. Most of this original group later became admirals in the Navy,

During the year the original XF9C-1 was modified to include the production type landing gear, and the installation of the hook-on mechanism. The original tail and wing location remained the same.

By the end of the year the AKRON Unit consisted of 6 F9C-2, 1 XF9C-1, 1 F6C-3 and 3 N2Y-1.

1933 OPERATIONS

One additional "Sparrowhawk" plane was delivered by Curtiss to MS Lakehurst. It was designated XF9C-2 and had Bureau Number 9264. Why this plane was delivered out of sequence with the other aircraft, and why it was designated XF9C-2 is unknown. It is possible that this could have been the original XF9C-2 with the civilian registration as noted previously. This brought to eight the number of "Sparrowhawk" aircraft that were utilized on the AKRON: 1 XF9C-1 (8731); 1 XF9C-2 (92610; and 6 F9G-2 (9056-9061).

In February the MACON was christened. On April 4th the AKRON crashed in a storm on the East Coast while operating from NAS Lakehurst. Although it had been planned to operate the planes on this flight, no planes were aboard as they had remained at Lakehurst because of the bad weather. After the AKRON crash the planes were shifted to the MACON. The MACON began operation from Moffett Field, Sunnyvale, California, and at the end of the year the Heavier Than Air Unit consisted of 6 F9C-2, 1 XF9C-2, 1 Loening OL-8, 1 Vought O2U-1 and 3 N2Y-1. The original XF9C-1 had been withdrawn from the unit and was at the Naval Aircraft Factory prior to being scrapped.

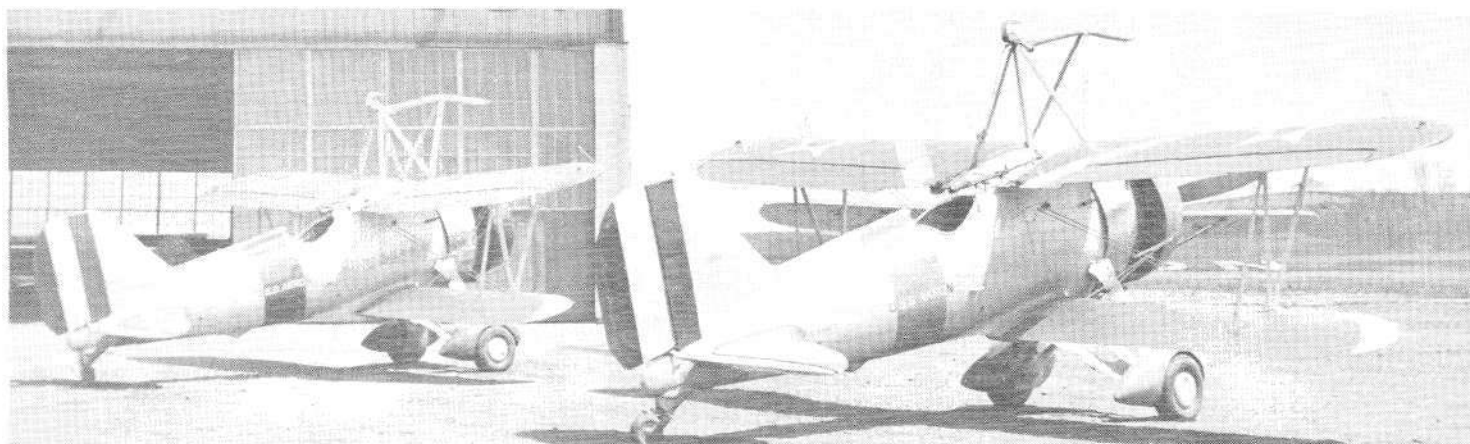
1934 OPERATIONS

The MACON continued to operate out of Moffett Field. The color scheme of the aircraft was changed. The insignia which had been used on the planes to designate attachment to lighter-than-air was dropped. The three color stripes on the tail were replaced by a solid blue-black tail. The stripes on the fuselage were retained as were the appropriate color markings on the wing, cowl and landing gear. Small fins were added forward of the wheel pants so that when landing aboard a carrier the arresting wires would not jump over the wheel fairings and cause a crash. Because of the airship hook attachment and the original design the landing characteristics remained poor. The plane was very unstable directionally and susceptible to ground loops.

It was normal procedure to carry four aircraft on all airship flights. Once the plane was attached to the trapeze it was drawn up into the airship and was transferred to rollers mounted on rails. The plane could then be moved to any one of four corners. This enabled the use of any one of four aircraft. However, it was possible to carry a fifth plane located in the center position. This was sometimes done but deprived the unit of interchangeability of the aircraft while in flight.

During two years of MACON operation the H.T.A. unit was under the command of Lt. H. B. Miller. He had as additional pilots Lt. Kivette, Simpler and Huff. Lt. Miller, in addition to his duties with the aircraft was usually the one who would be lowered in the spy basket that the MACON carried. This basket with 4,000 feet of 1/4" steel cable would be lowered through the clouds to provide observation while the airship remained within the cloud cover. The basket had a small key-typo radio to the airship and an altimeter. It was used in conjunction with the aircraft to accomplish the primary mission of the airship which was long range observation.

To secure additional range for the F9C-2 aircraft, Lt. Miller worked out a program of operating the planes from the airship without their landing gear. By eliminating the landing gear, and adding an auxiliary fuel tank, the range and speed of the aircraft could be substantially improved. During the year two additional utility pianos were added to the MACON complement. These were Waco XJW-1's. The aircraft complement at the end of the year remained the same except for this addition.

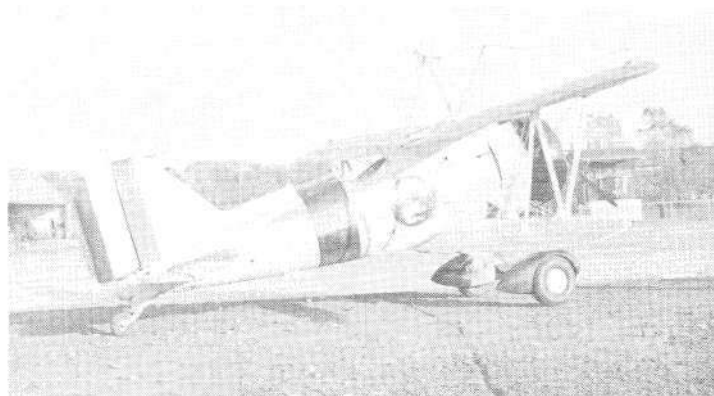


9. F9c-2s (Left to Right 9060, 9058) AKRON Emil Strasser

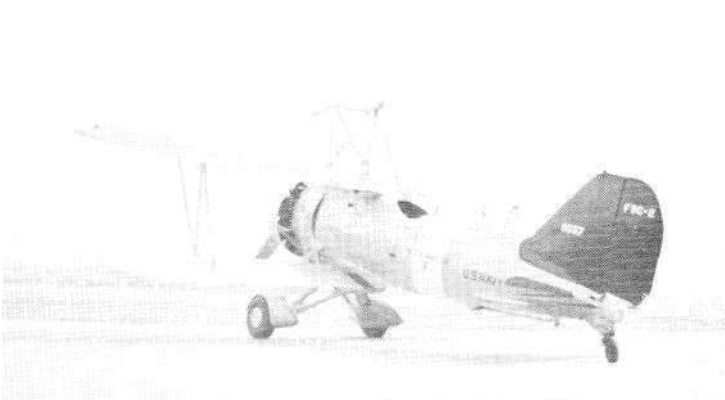


10. F9C-2 (9059) AKRON

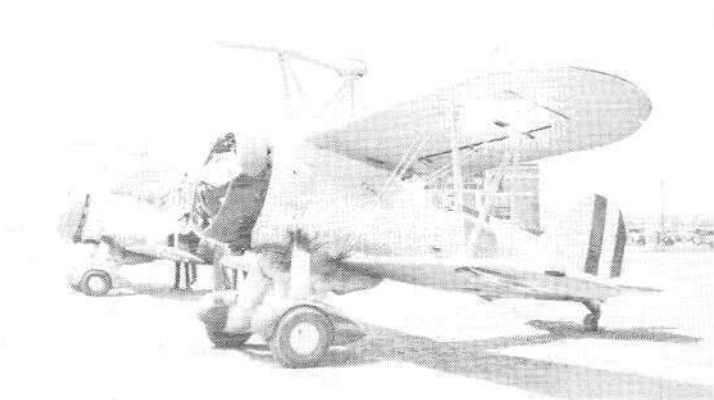
Mitchell



11. F9C-2 (9059) MACON A.U.Schmidt



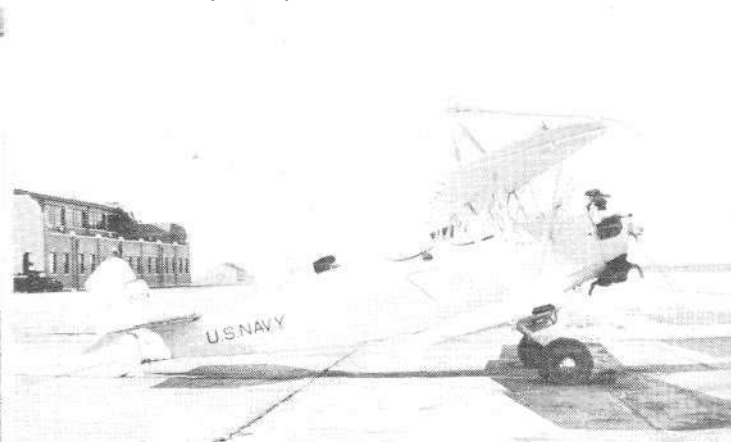
12. F9C-2 (9057) Mitchell



13. F9C-2 (9060) AKRON Emil Strasser



14. Insignia and Markings (Mitchell)



15. Consolidated N2Y-1, AKRON (Larkins)

1935 OPERATIONS

On February 12th the MACON crashed into the Pacific Ocean, during a storm, near Big Sur, California, Lt. Miller (now Rear Admiral) has indicated that four F9C-2's were aboard at this time. In the early stages of the disaster an attempt was made to drop the aircraft from the airship, however they became jammed on the launching rails and no planes were saved.

After the MACON had gone down, the three remaining planes were re-designated XF9C-2 from F9C-2 and sent to N.A.S. San Diego, One of the XJW-1's was sent to Anacostia, and the other to Lakehurst. At the end of the year one of the F9C-2's was transferred to Anacostia, The airship hooks were removed from all of the planes,

1936 OPERATIONS

The two XF9C-2's at San Diego were scrapped, and the one remaining at Anacostia was sent to NAS Norfolk where it remained in an operating condition until late in 1939.

1939 OPERATIONS

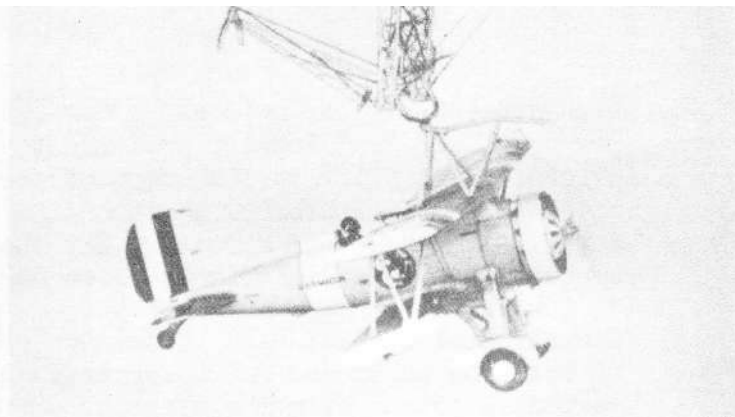
The sole remaining XF9C-2 was removed from the active Navy list and transferred to the Smithsonian Institute in Washington where it is now on display in the aviation museum. Before it was presented to the Smithsonian it was repainted with a red tail, stripe, cowl and wheel pants, and now carries the serial number 9056. It is interesting to note that if one stands off to the side of the fuselage one can still see the lettering ANACOSTIA near the cockpit. Several years later an airship hook was manufactured new from the original plans and added to the plane which physically brings the Sparrowhawk back to the way it appeared when it was operating from the AKRON and MACON.

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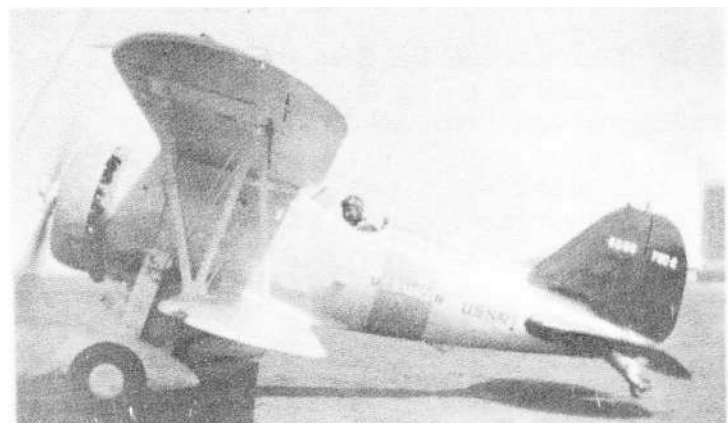
CAPTIONS TO NUMBERED PHOTOGRAPHS

- 1a This photo of the XF9C-1 (8731) indicates the original configuration of the "Sparrowhawk" design. It is very similar to the Berliner-Joyce XFJ-1 and Fokker XFA-1, all of which had a gull type upper wing and were of small size. This photo was taken at Anacostia in April 1931.
2. XF9C-1 (8731) flight shot taken during the carrier evaluation tests at Anacostia, Note the largo gun sight forward of the windshield and the carrier deck hook which was used during the carrier qualification trials. Because of poor landing characteristics and poor visibility the aircraft was not considered acceptable for production as a carrier based fighter. This photo was taken in June 1931.
3. The original XF9C-1 (8731) after it was modified for use with an airship unit. Note the landing gear is the same as the production F9C-2 model. However, the wing and the tail remain the same as in its original configuration, A large exhaust collector ring can also be seen which is different from the original model. At the time of this photograph, 1932, the plane was operating with the AKRON group and carried the AKRON insignia.

4. The original F9C-2 (9056). All features of this plane are identical to that of the F9C-2 which underwent tests as an airship fighter except for the unusual landing gear. As noted, the gear is wire braced and has a fairing aft of the main strut. This fairing is similar to that on the XF9C-2 before it was designated as an airship fighter. This picture was taken July 12, 1932.
5. The original XF9C-2 (X-986M). This plane incorporated most of the improvements recommended from the tests of the XF9C-1. It was not originally built as an airship fighter, but as a carrier based fighter. Its ultimate disposition is unknown, although it may have been modified to F9C-2 Bureau Number 9006 or 9264. The photograph shows the carrier deck hook blocked out by the censor, and the "X" of the military model designation and civilian registration have also been painted out,
- 6, F9C-2 (9056) as it appeared during its qualification tests as an airship fighter. Note the split axle tripod landing gear which is longer than on the XF9C-1, also the engine has been lowered and the wing raised 4" from the original airplane.
- 7* XF9C-2 (9264) This plane was manufactured one year later than the original production group. The reason is unknown although it may be the original XF9C-2 which carried the civilian markings. This photograph was taken after the MACON had gone down and the plane had been assigned to Anacostia as an administrative airplane. Note the absence of the airship hook and the buffed metal finish which designates it as a staff airplane,
8. F9C-2 (9056) This photo shows the third modification of 9056 which included the additional area to the fin and rudder which gave the whole tail a flat appearance. The plane had red markings on the fuselage and wing, and was #1 of the MACON unit. Photograph taken late 1934.
9. F9C-2 (9058, 9060) Two F9C-2's at the Municipal Airport at Akron, Ohio. Both planes carry the vertical tail stripes of the AKRON and individual colored bands for the fuselage and wings. This photo was taken in 1933 before the LTA insignia was used.
10. F9C-2 (9059) Photograph taken at N.A.S. Lakehurst in 1933. Each of the three planes have different colored cowls, fuselage stripes and wheel pants, These appear to be, left to right, red, blue and white»
11. F9C-2 (9059) Photograph taken at Municipal Airport, Kansas City, Missouri of the same plane as in Photo No, 10, The tail stripes have not been changed, the fuselage stripe is the same, but the name MACON has replaced AKRON and the LTA insignia has been added. This is the color scheme when the planes were first assigned to the MACON.
12. F9C-2 (9057) This photo shows the color scheme of the MACON unit planes just before the airship was lost. All planes attached to the MACON at this time had solid color blue-black tails. Note also that the insignia has been removed,
13. F9C-2 (9060) Akron, Ohio airport, 1933. Standard markings of AKRON aircraft without insignia or deck hook.



18. F9C-2 (9057) MACON K. Cooper 19. F9C-2 (9057) MACON Mitchell



20. F9C-2 (9060) MACON Mitchell 21. F9C-2 (9057) MACON Mitchell



22. Waco XJM-1 (9521) MACON Mitchell 23. Waco XJM-1 (9522) MACON

14. Lighter-than-air insignia and general details. This insignia was designed for use on all of the aircraft assigned to the airship unit and appeared on the aircraft just prior to the crash of the AKRON. It was left on the planes after they had been transferred to the MACON and was used by then until a new solid color tail scheme was adopted. Why the insignia was removed is unknown. See special drawing of this insignia on page 75.
15. Consolidated N2Y-1 (8604) This type of aircraft, a modified Fleet 2, was used by both the AKRON and MACON for training and utility use. It was used to ferry personnel to and from the airships when in flight, and for the preliminary qualification of pilots.
16. F9C-2 (9057) This photo shows the small fins which were added to the wheel pants to prevent the arresting wires on a carrier from damaging the planes when they were landed. This was necessary because of the small size of the wheel unit. Photo taken at Griffith Park, California, 1934.
17. F9C-2 (9057) Piano hooking on to the MACON, July 1, 1933. This is the same plane as #16, but note the change in markings during the one year period.
18. F9C-2 (9057) Plane after a ground loop accident at the Naval Reserve Air Base, Long Beach, California. The addition of the hook-on mechanism made the aircraft unstable directionally, thus it was susceptible to this type of accident.
19. F9C-2 (9057) Aircraft being flown without the engine cowl. This photograph also shows the landing gear fins which were added late in 1931.
20. F9C-2 (9060) Auxiliary gasoline tank can be seen between the landing gear. By utilizing this extra tank, and by removing the landing gear, the range of the plane was considerably extended when operating to and from the MACON.
21. F9C-2 (9057) Photograph shows the carrier deck hook, and attachment for gasoline servicing. Markings are identical to those used on all MACON planes just before the loss of the airship. Photo taken at Griffith Park, California, in 1934.
22. Waco XJW-1 (9521) Utility aircraft which operated with the MACON unit only. Plane had the same blue-black tail as the fighter aircraft, but without the colored band around the fuselage.
23. Waco XJW-1 (9522) The other of these two planes of this type, also assigned to the MACON. Note differences in the design of the hook attachment from other types. Photo taken at Griffith Park, California, 1935.