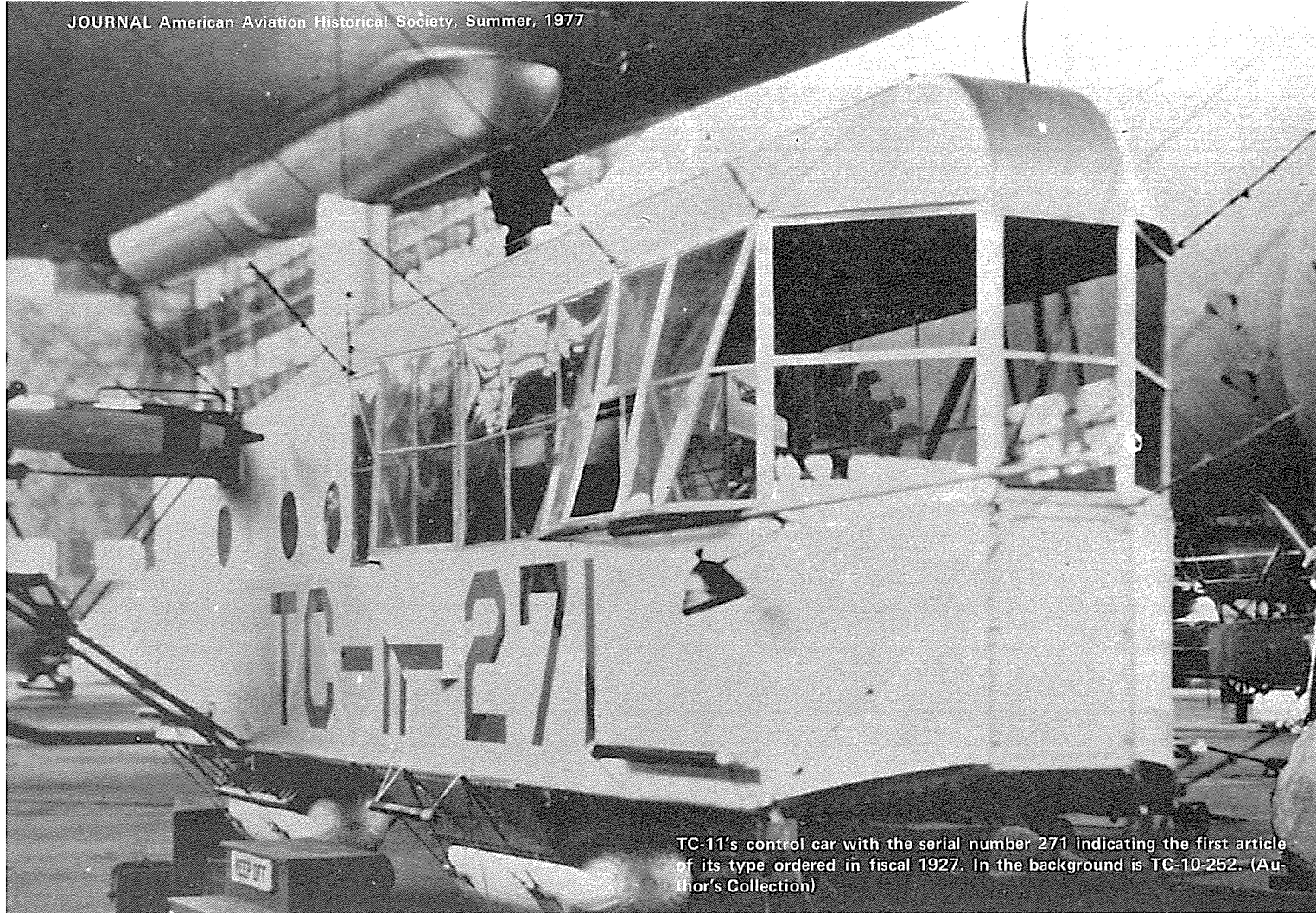




TC-11's control car with the serial number 271 indicating the first article of its type ordered in fiscal 1927. In the background is TC-10-252. (Author's Collection)

THOSE CONFUSING ARMY AIRSHIP DESIGNATIONS

by MERLE C. OLMSTEAD

One of the more obscure aspects of American aviation history is that relating to the 20-year use of the airship by the U.S. Army. To those few who have pursued this facet of our past, one of the more confusing phases of this murky subject is the system, or seeming non-system, of Army airship designations seen on the ships themselves as shown in the photos.

The Army purchased its first powered lighter-than-air (LTA) vehicle in 1908. The ship was tagged with the entirely logical designation "Signal Corps Dirigible #1." However, in the years following World War I, when the army reentered the airship business, designations were no longer so simple or straightforward.

The number of army airships was never great, less than 40 ships, and they carried a variety of confusing markings over the

years which seemed to have been picked at random. This is not correct, as there was a definite system of LTA vehicle designation, except for early postwar ships. As we shall see, there were some puzzling exceptions.

The Air Service issued its first specification, #2050, for airship and balloon markings on May 25, 1920. The instructions given in this specification were little used, and in fact, the author has never seen a photograph showing these markings.

Prior to the spring of 1920, the army's few airships retained the designations assigned at their point of origin. The first postwar ship delivered was the Goodyear-built A-4, and this was, apparently, a company assigned nomenclature. The British-built SSTs (Sea Scout Twin) continued as such, as did the C and D type ships obtained from the navy.

The 1920 specification did not attempt to set up a designation system, but was primarily concerned with the markings. It called for the use of the U.S. Nationality marking "N" followed by a dash and the letters "US", plus two further letters assigned to that particular ship. These were to be painted on one-ply balloon fabric and cemented to the sides of the envelope, in size not to exceed eight feet in height. The standard air service star insignia was to be painted top and bottom of the envelope, and standard rudder stripes applied. Three serial numbers were called for, one each for the control car and the envelope, and one for the complete ship, this to be painted in red numerals 18 inches high just below the N registration. The car and envelope serials were quite small and would be invisible on photographs. Even though this specification was in effect for almost three years, it is not known if any army ships were ever painted in this manner.

Specification #2050 was superseded in January 1923 by 2050A, which brought forth, in a vague way, the more familiar marking and designation system seen until the end of powered airships with the U.S. Army. One interesting point brought out by this and subsequent specs is that, from January 1923 until the end of army airshipping, all numbers and letters on army airships were blue, not black.

Under AIRSHIP MARKINGS, and the sub-heading "Registration Marks," appeared the following:

"The registration marks shall consist of two letters and a sub-number, the latter being separated from the letters by a dash. The first letter will denote the function of the ship, the second will denote the class of the ship, and the sub-number will denote the order of construction of that class."

These were to be applied to the sides of the envelope, preceded by "U.S. ARMY," all in blue letters 54 inches in height.

The Goodyear-built TC-1 was apparently the first ship to carry these markings. The ship was used as an example in the specification drawings. There was a slight numbering change in the subsequent revisions of this specification when it became 99-2050-B, etc. No further details are found until Spec 99-2050-C, dated July 27, 1926, when the type designations were finally spelled out as follows:

a) The letters TC followed immediately by an Arabic numeral indicating the model for training class "C" airships.

Following this are instructions regarding the training "A" class ships and the training "E" and "F" classes. The single letter "R" (never used) was to indicate a rigid airship. The letters "RS" followed by a numeral indicated a reconnaissance semi-rigid airship, and the letters "RN" were for a reconnaissance non-rigid ship.

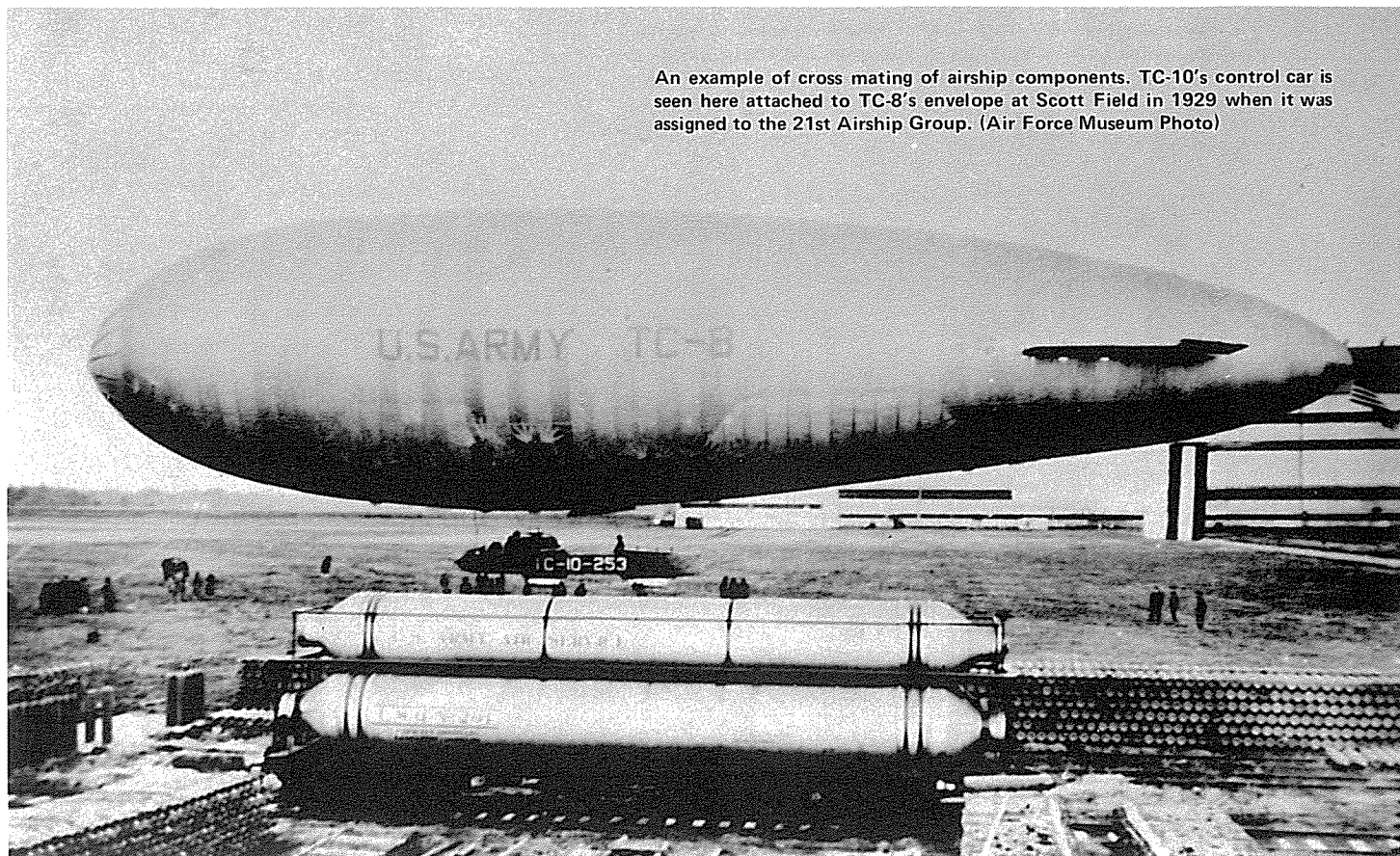
The ship serial number was to be tied to the designation, the example given being "TC-6-241," the 241 showing that it was the

first ship of this type obtained in 1924.

The fallacy here is that the serial number applies to the airship, but an airship was made up of two major parts, the envelope and the control car (and sometimes engine cars). Control cars could be, and were, mated to other envelopes for various reasons, leaving confusion as to the proper serial number. No clarification appears in any of the later specifications, but the problem was recognized. There are many photos of army airships bearing large numeral-letter combinations on their envelopes, which do not conform to the specs. Examples of these are C-41, C-42, C-43, C-53, and C-71. Because of the letter "C", there has been speculation that these are later and different "C" class ships, but this is not the case. The mystery of these was finally solved for this author, in the discovery of a document in the Air Force Museum entitled, "CHARACTERISTICS AND DESIGN DATA ON TYPE TC-11 AIRSHIP," dated January 17, 1933. Under "insignia" the document states as follows:

"The Air Corps insignia, the wording U.S. ARMY, serial number et cetera, are placed on the envelope in accordance with requirements of U.S. Army Spec. 2050. In addition to these requirements, a large letter 'C', followed by a dash, is placed on the bow portion of the envelope just to the rear of the bow stiffener battens. The last two figures of the car serial number are inserted by operating units at the time of envelope erection in order that the designation of the airship may be more easily seen when in the air. *The airship car being the major unit of the airship, its serial number determines the number of the airship regardless of the serial number of the envelope.*"

Although this memo does not say so, it would appear then that the letter "C" stands for the word "car" or "control car," and mated with the envelope, the last two numerals are the car serial.



An example of cross mating of airship components. TC-10's control car is seen here attached to TC-8's envelope at Scott Field in 1929 when it was assigned to the 21st Airship Group. (Air Force Museum Photo)

On several of the TC ships in the 1930s, the full designation and car serial number were painted in large numerals on the sides of the control car and these can easily be read in many photos. TC-11's car bore the marking TC-11-271, and on the bow of the envelope was the marking "C-71" to conform to the above instructions.

Other than the ships of the early postwar years, which retained their original nomenclature, most army airship designations are obviously from the instructions in Spec 2050. Examination of these Air Corps Specs provides many answers, but questions still remain. Nowhere in the documents examined is it clear what constitutes a "class" of airship. As an example, what were the characteristics which put a ship in the "C" class, the most widely operated type? One would immediately guess that size or gas volume would be the answer. Yet TC-13 and TC-14, the last of the breed, with 350,000 cubic feet of capacity, were almost twice the size of TC-1.

One ship that remains a mystery is the Goodyear-built AC-1. No explanation has been found for this designation. The letter "A", normally a function letter, is not found anywhere in the specs. The ship's envelope shape is entirely different from other "C" class ships of the era and its control car and power plant layout resemble no other TC type. Since the ship was used at Scott Field for training, it is possible that the "A" meant advanced trainer, but this is pure speculation.

Neither do the small OA-1 and OB-1 ships of the 1920s fit into the normal scheme, as the letter "O" is not included as a function letter in any of the specs issued through 1932. However, a memo issued on May 6, 1923, gives a tentative answer. Proving that the confusing jargon of government offices is not a new thing, this memo was written by Chief of Property Requirements Section to

Property Maintenance and Cost Compilation Section of F.A.I.D. (Fairfield Air Intermediate Depot).

Four function letters are given here: O for Observation, T for Training, R for Reconnaissance, and C for Carrier. This is probably the origin of the "O" in the OA-1 designation. No army airship has ever been observed with the carrier markings and this was probably to be used on the big rigid airship which the Air Service coveted, but never obtained.

During the 1930s, authority and instructions existed for the application of organizational (Squadron and Group) insignia to airships. Air Corps technical order 16-1-6, dated 15 January 1931, provides both the authority and instructions, but the author has never seen a photo of any army airship bearing organizational insignia such as was common on military airplanes of the period.

REFERENCES (All from Air Force Museum Files)

Air Service Specification 2050, 25 May 1920
 Air Service Specification 2050A, 20 January 1923
 Air Service Specification 99-2050-B, 18 December 1923
 Air Service Specification 99-2050-C, 27 July 1926
 Air Service Specification 99-2050-D, 24 January 1927
 Air Service Specification 99-2050-E, 22 December 1934
 Air Service Specification 99-2050-F, 4 January 1937
 Characteristics & Design Data on Type TC-11 Airship, 17 January 1933
 Technical Order No. 16-1-6, Balloons, Airships, and Parts, General, Markings and Insignia, 15 January 1931

ABOUT THE AUTHOR

Merle Olmsted was the seventh flying buff to lend support in launching AAHS 21 years ago, and has been active ever since as an air historian and director. Peruse all volumes of the Journal and you will find his carefully researched articles in abundance. He is presently retired from the USAF, and makes his home in Salinas, California.

TC-10 is seen here in February, 1931, near Langley Field, with the mysterious envelope numbers which indicated she was equipped with control car #252. Also of interest here is the object attached aft below the car. This is a one-man sub-cloud car which was about to be lowered on a cable as part of experiments which the 19th Airship Company was conducting. (Author's Collection)

