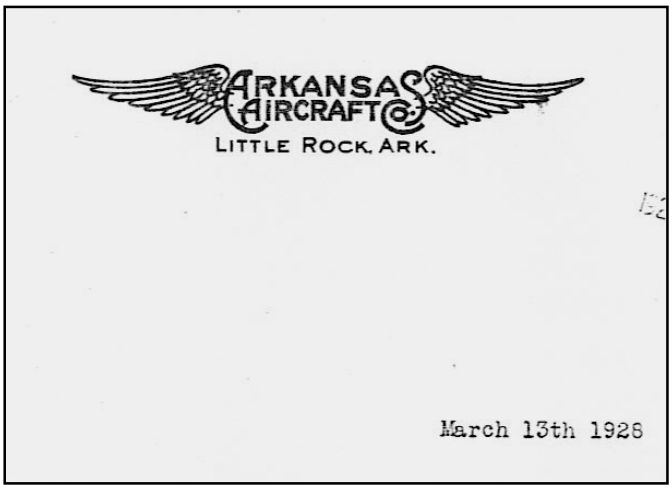
DEVELOPMENT OF ARKANSAS AIRCRAFT CORPORATION
MODEL 3C3

By
Robert G. Lock

After a stunning solo flight across the Atlantic Ocean from Long Island, New York to Paris, France concluding May 21, 1927, civil aviation in the United States began a very rapid growth. Some manufacturers became synonymous with early production of aircraft, such as Waco, Travel Air, Stinson and Stearman. Other companies played an important role in aircraft development, such as Alexander Eaglerock, American Eagle, Pitcarin, Swallow and Laird, just to name a few. And some a lesser role because they existed only a few short years, yet had a large impact on the history of aviation in the United States.

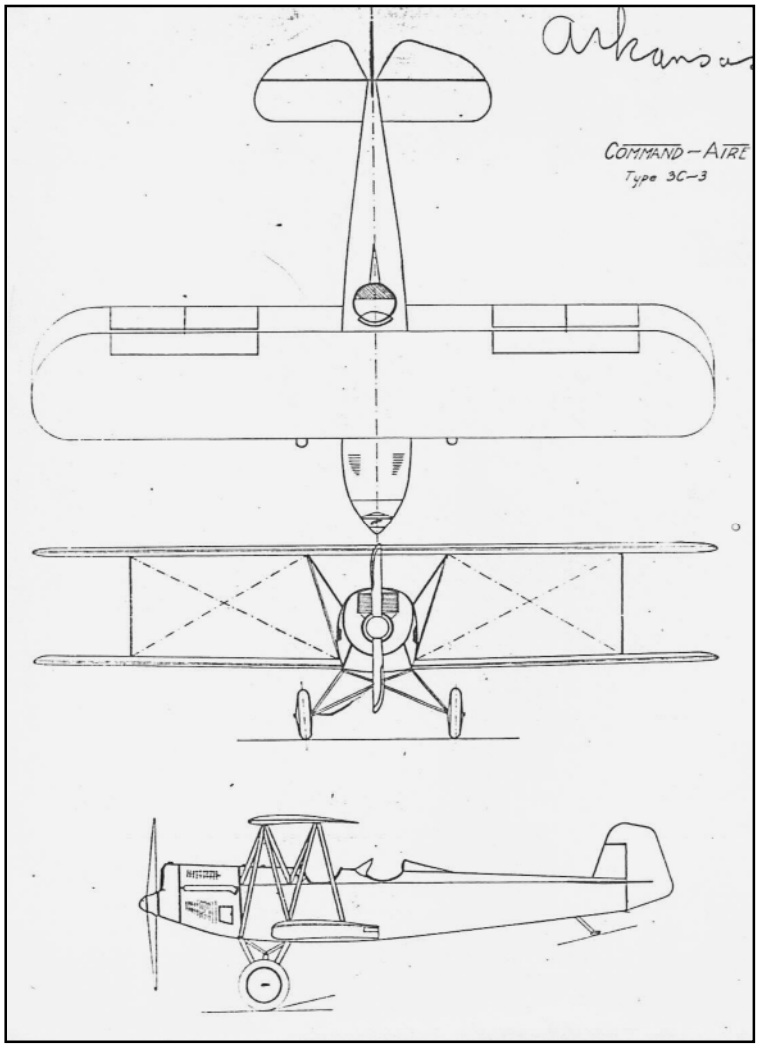
One such company was Arkansas Aircraft Corporation, later to be known as Command-Aire, Incorporated of Little Rock, Arkansas. The manufacturing and sale of civilian aircraft in the United States began in earnest by 1925 with Walter Beech at Travel Air and Buck Weaver at Waco being the most prominent. These ships were designed, constructed and sold before any government control became a reality, particularly Approved Type Certificates and licensing. Such was the case of this investigation into a little-known company that had set up shop in Little Rock, Arkansas – the Arkansas Aircraft Company that had its beginnings in the spring of 1926 when Major J. Carroll Cone, distinguished WW1 aviator and W. F. Moody, a mechanical and electrical engineer organized the company. The company was originally operated as a partnership doing business as a flying service, however other individuals became involved and the company was incorporated for the purpose of continuing the flying service, building airplanes and conducting such other business as would properly come within the scope of airplane builders and operators. Thus was born the Arkansas Aircraft Corporation of Little Rock, Arkansas.



A young graduate of the Massachusetts Institute of Technology was employed to design and build airplanes for the company. His name, as reported by Albert Vollmecke, was Morton Cronk. His first design was completed in the spring of 1927. The ship was well constructed, looked good and would fly, but not satisfactorily. The ship was powered by a Curtiss OX-5 motor purchased new surplus from the government, had a thick airfoil with ailerons placed on both upper and lower wings. A flyable craft but very slow. It was not the plane the newly formed company wanted to build. The company decided the lack of experience and business training on the part of the engineer was such as to make it impossible for the company to build satisfactory ships without a long delay,

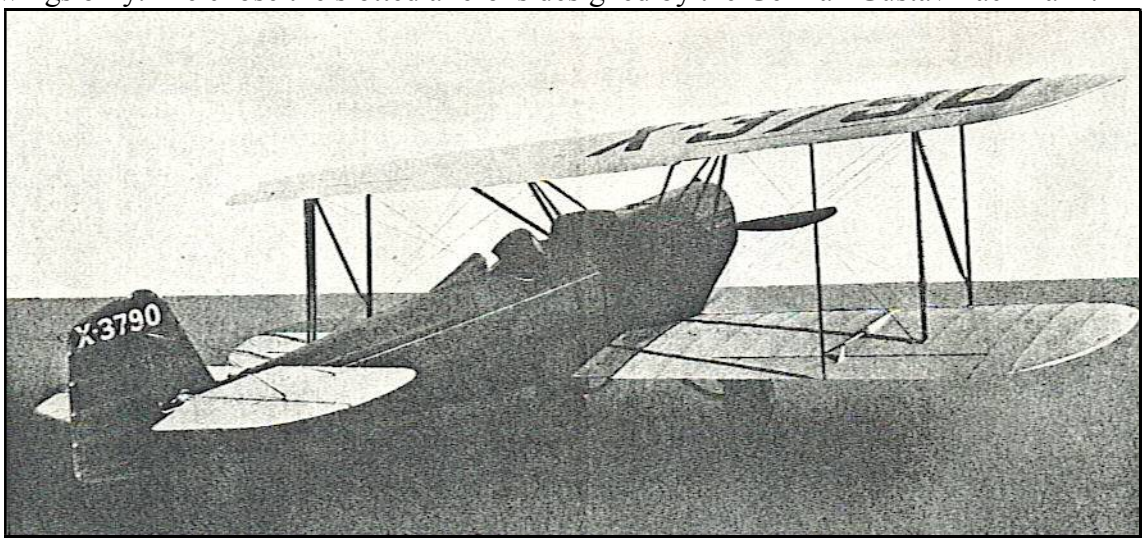
consequently another engineer was sought. Albert Vollmecke (original German spelling was Voellmecke) came to the United States representing the Ernst Heinkel Flugzeugwerke, Germany's second largest manufacturer of aircraft, to market a small low powered training ship and to seek a company that could manufacture such an aircraft under contract. Mr. Vollmecke was so enthralled with the state of civilian aviation that he decided to stay. Mr. Vollmecke was a 1925 graduate of the Technical University of Braunschweig with a degree in Mechanical Engineering with Aeronautical option. Soon after his graduation he was appointed technical head of the German Aeronautical Research Association, a government-financed organization maintained in connection with the university.

Seeing an advertisement in a trade paper from the Arkansas Aircraft Corporation in Little Rock, Mr. Vollmecke made contact, traveled for an interview and was immediately hired by the firm. It would fall on Vollmecke's shoulders to redesign the existing ship for better performance, however a new airplane could not be designed and built in a short period of time. And, since the company had already begun to manufacture sub assemblies such as wing fittings, the redesign was made more difficult.



The company's first airplane, the model 3C3 was manufactured December 23, 1927 and was used for "Experimental Work Only" with serial number 500 being affixed to the ship. The government issued license number 3790 for the experimental ship that did not have an Approved Type Certificate issued. That would come later. On the application for license filed December 30, 1927, the ship is described as a, "*Biplane for two passengers and pilot – At first will be equipped with OX-5 motor but will likely have an air cooled motor installed later. Will be completed by December 15, 1927. A new job throughout. Experimental – later to be put into production."* The sketch left depicts the original 3C3 ship with double ailerons but an improved thinner airfoil,

reported to be an Aeromarine 2A. Albert Vollmecke declared that the redesign flew well and was very stable. However there was more to come. After flying X-3790, Vollmecke was not satisfied with lateral control and decided to add full-span ailerons on the lower wings only. He chose the slotted ailerons designed by the German Gustav Lachmann.



Note that aileron controls are on upper surface of lower wings. This was later changed to the underside of surface when slotted ailerons were utilized on lower wings only on production ships.

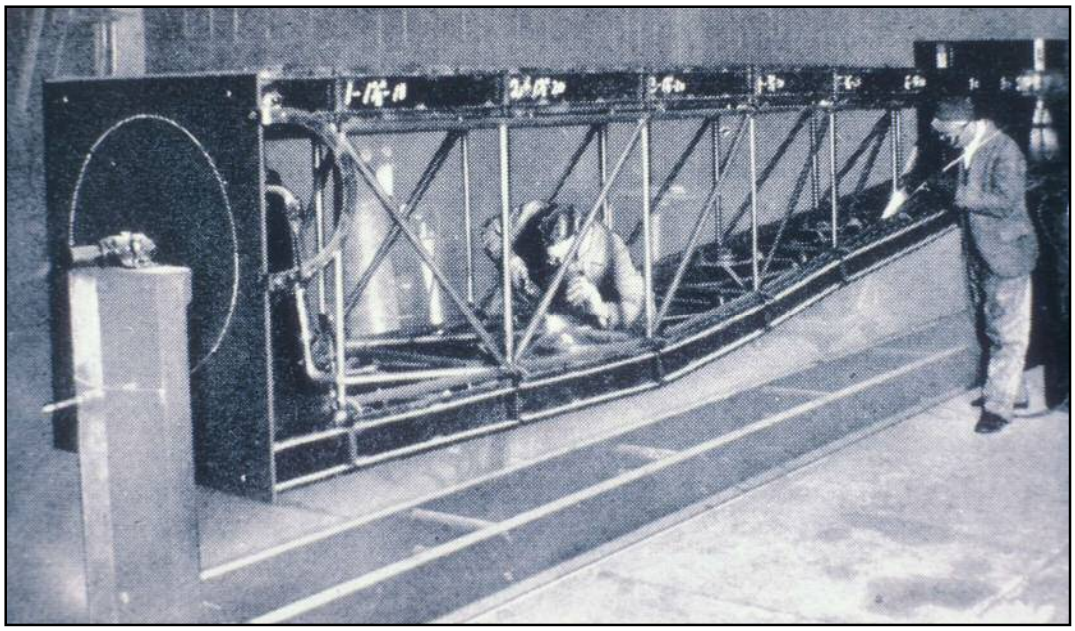
Albert Vollmecke's redesign of the first ship resulted in a better flying and more stable airplane. Even though the ship was manufactured by Arkansas Aircraft Corporation,

"Command-Aire" was painted on fuselage sides because the factory promoted taking Command of the Air. That is the handwriting of Albert Vollmecke at the top of the photo.

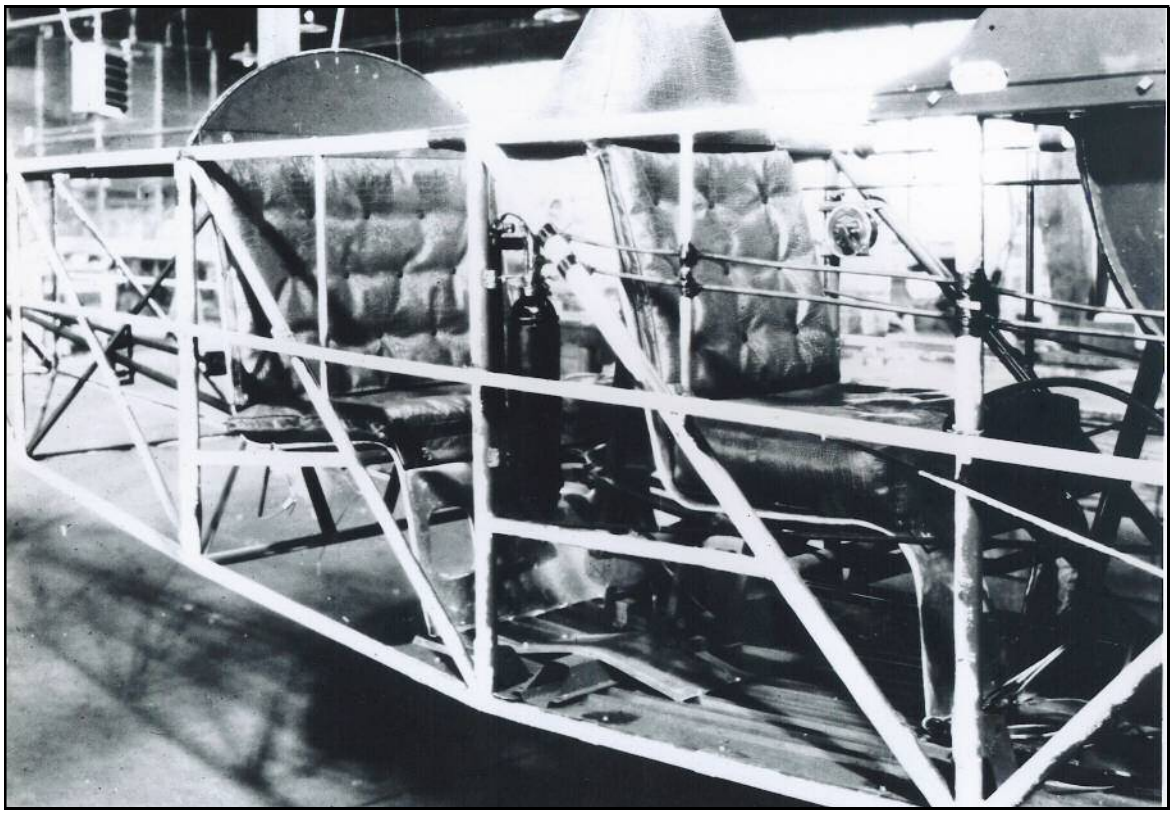
The granting of Approved Type Certificate (ATC) 53 required some two weeks of work in Washington, D.C. Albert Vollmecke led a group of factory personnel to the Roosevelt Hotel where they obtained a suite that served as a headquarters for the task. A large dining room table doubled for a drawing board for Vollmecke as he revised his drawings until the ATC was granted. A load or stress test was required and, as the photo below demonstrates, his design passed with flying colors. The man holding the sign is none other than designer Albert Vollmecke in his white shop coat.

The factory touted that, *"All steel throughout the ship including fittings, tubing, axels and struts is chrome molybdenum which highest quality obtainable. Entire tail group and ailerons are of steel as well as fuselage."* Many ships of this era were made of 1020 or 1025 mild steel tubing and plate to produce fuselages and tail surfaces, using higher strength 4130 chrome molybdenum for engine mounts and landing gears.

To produce the Command-Aire airplanes, Albert Vollmecke designed special fixtures that would hold all steel components in place prior to welding. This assured that all parts were the same and could even be interchangeable. Steel parts were meticulously gas welded by craftsmen from the local area. The weld beads were of high quality and completed by very competent oxy acetylene gas welders. That is all these craftsmen did – weld steel and stainless steel, which was used for engine exhaust systems.



Above, welding fixtures designed by Al Vollmecke to facilitate exact duplication of welded structure. Upper photo is the rotating fuselage fixture and below workmen are welding on a fuselage frame that has just been removed from the master jig. The frame appears to be an OX-5 powered model 3C3. Note large oxygen and acetylene tanks and long hoses.

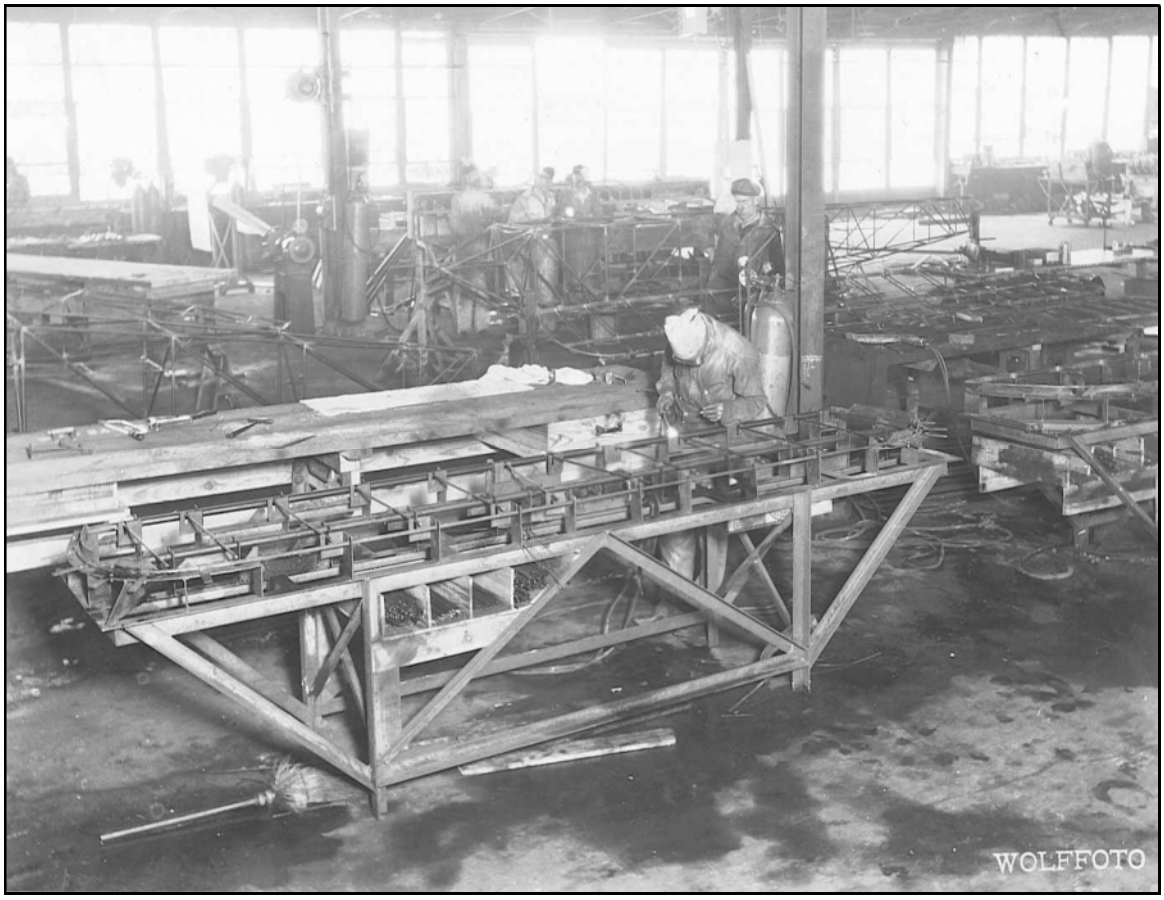


Above, inside the factory building, which once housed the Climber Motorcar factory, is a model 3C3 fuselage frame being assembled. This location was selected because, *"The property was about two blocks from the government airport, the building was equipped with machinery for building airplanes at the rate of three a week and the lease on the building included ground sufficient for a private flying field."* The property was also served by two spur tracks of the Rock Island and Missouri Pacific railroads that would make shipment of materials very convenient. The Climber Motor Car Company built approximately 200 automobiles and 75 to 100 trucks before declaring bankruptcy in February 1924. Its holdings were sold March 17, 1924.

Details in the above photograph are identified by a factory information sheet explaining the advantages of the Command-Aire ship. "**Unusual thickness of cushions. Only curled hair is used in cushions, the same as found in finest automobiles. *Pilot's cockpit entirely upholstered same as front. Seat*

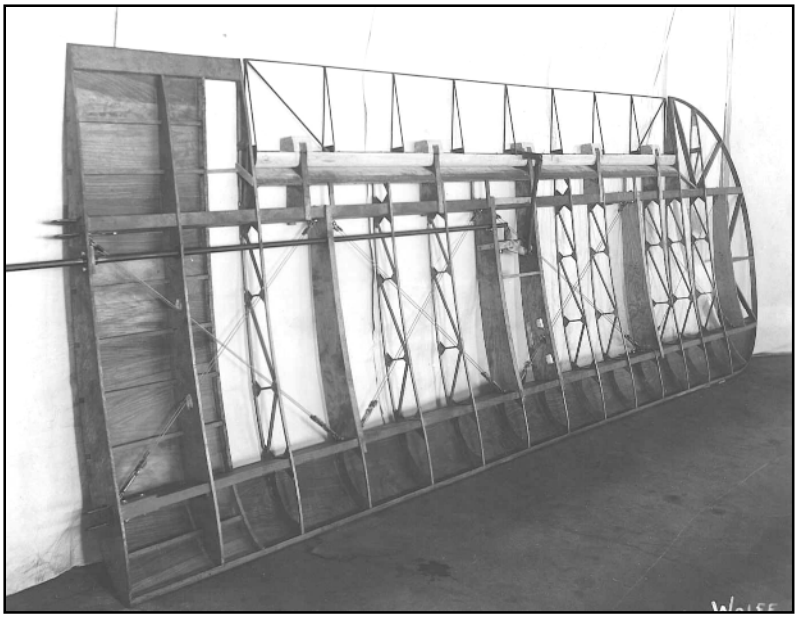
*in pilot's cockpit extends full width of fuselage making for extreme comfort. *Dual controls is standard equipment. *Gas tank rated at 42 gallon but usually holds 44 gallons. *No wood in fuselage except fairings. Even floor is metal. *Friction plates on throttle enabling pilot to adjust tension to suit his particular taste. *Elevators and ailerons are tube controlled. Elevator control tube runs through guides and on rubber rollers. *Only Grade 'A' Dartmouthtex airplane fabric is used. *Only best grades of Berryloid aircraft finishing materials used."*

Albert Vollmecke had traveled back to his native Germany are returned with a revolutionary fire extinguishing system marketed by the Phylax-Bau Company. It was optional equipment in all Command-Aire ships and could be installed by the factory for an additional nominal fee. The Phylax extinguisher bottle can be seen in the rear cockpit and two parallel lines leading forward on left side of fuselage towards the engine compartment.

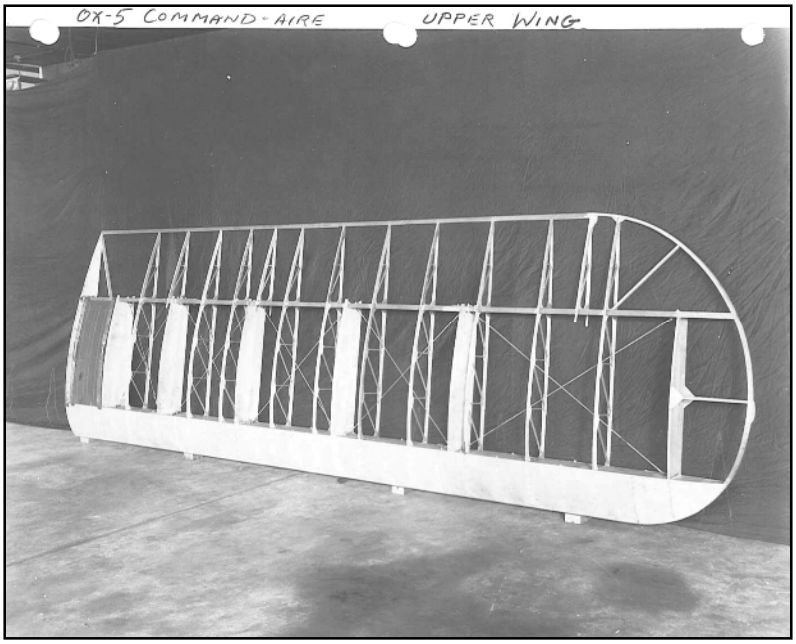


Above, one of Albert Vollmecke's welding fixtures for a horizontal stabilizer, completely assembled and ready to weld. Craftsman in center has begun to gas weld all components of the assembly. Vollmecke's fuselage fixture can be seen in center rear of photograph.

Arkansas Aircraft Corporation was renamed Command-Aire, Incorporated in September 1928. Command-Aire touted the "Wings of the Master Designer," Albert Vollmecke. Once again data taken from the factory descriptive folder for the model 3C3



states, " **Wing spars are of Navy specification best grade spruce and are solid. They are reinforced with plywood wherever a fitting of any kind is attached. *Form ribs are spruce caps top and bottom, and reinforced with gusset plates of plywood. Special construction is employed in front of the spar and static tests have proved the rib to be nearly three hundred percent over requirements. *Compression ribs are more than one inch wide and consist of spruce caps of generous thickness top and bottom, balsa wood center, and entire sides covered with three ply plywood. This type of construction is used on no other OX-5 job in America. *Leading edges of wings, both top and bottom sides, are covered with plywood. *All internal bracing in wings in the propeller wash are doule instead of single. Tie rods with a tensile strength of more than one ton are used as standard for internal bracing. *Wing panels have one more ay than is usually found, making for extreme torsion strength. This strength is also aided by the plywood leading edges. *Outer end of wing panel extra heavily braced to prevent breakage from rough handling on the ground. Outer rim consists of three laminations. *Steps on wings are very wide and heavily braced. They are covered with aluminum matting and molding fastened with brass screws. *All fittings are designed so that full strain from rigging wires comes in a straight line with the wire pull. *All internal wing fittings and tie rods are cadmium plated to prevent rust or deterioration. *All wing panels are treated with Lineoil before covering, which makes impervious to dampness, thus insuring long life under all conditions, even when the plane is not kept in a hangar regularly.*



Command-Aire was on to building a quality ship using only the best materials and employing craftsmen from the Little Rock area. As the company grew and output of airplanes grew, more and more workers were added to the roster. At the height of production, over 100 were employed by the factory.

Form R-14

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
OFFICE OF DIRECTOR OF AERONAUTICS

Official No.
6690

Identification Mark Assignment

This Certifies that the aircraft described below is an UNLICENSED aircraft to which has been assigned the following identification mark:

---6690---

This assignment remains in force from year to year, unless recalled, or suspended, or revoked.

Director of Aeronautics.

Dated July 14, 1928.

NOTE.—This assignment must not be posted in the aircraft.

Arkansas Aircraft Corp.,
Little Rock, Arkansas.

Command Aire 3-C-3 - Land Biplane
Manufacturer - Arkansas Aircraft Corp.
Manufacturer's No. - 515
Seating capacity exclusive of pilot - 2
Over-all span - 31'6"; Over-all length - 24'6"
Engine type - Curtiss OX5

Above, a rare factory photograph showing those personnel working on the production line. In the background is a model 3C3 ship. This view taken from the back of the building in Little Rock.

The first ship constructed after the prototype (3790) carried serial number 501 and was granted "unlicensed" number 5253. An early ship to move off the assembly line was serial number 515. Note that the registration number 6690 was issued to a model 3C3 and the ship was "unlicensed" because an ATC had not been granted.

The ship was originally powered by a Willys-Morrow Company Curtiss OX-5 90-hp motor, serial number M-6660. Arkansas Aircraft Corporation sold the ship to Shreveport Airways,

Incorporated on August 7, 1928 for $2757.50. Included in the sale price were 1-Pioneer compass installed ($50.00), a 1-pint Pyrene fire extinguisher installed ($9.00) and 1-first aid kit installed ($1.00). One must keep in mind that the ship did not conform to its ATC. Below, a photo of one of the first aircraft built, with designer Albert Vollmecke's handwriting in upper left corner. There is no license number displayed on the ship so it is an early aircraft. Note large Pioneer compass in front of rear windshield. There is no way to confirm if this is in fact 6690 as there are no marking on the ship.

On August 21, 1928 the factory furnished affidavit forms certifying that the ship was manufactured in accordance with ATC 53 and that a commercial license could be affixed to the ship. The aircraft was sold to a Mr. Clem Clarke who then sold the ship to Mr. J. S. Meriwether of Sheveport, Louisiana. It is at this point that things get interesting for NC-6690. On or about October 15, 1928 the ship was returned to the factory for "remodeling," that included the installation of new wings. The factory apparently not only installed new wings, but also changed the engine from an OX-5 to a 150 hp "Hisso", shown below outside the Little Rock plant. The handwriting on upper right corner is that of designer Albert Vollmecke. This is interesting from a historic standpoint in that the manufacturer apparently "remodeled" the ship by not only installing new wings but also

upgrading the engine from a 90 hp Curtiss OX-5 to a 150 hp Hisso; quite an upgrade even by today's standards with the FAA.

On November 21, 1928, Mr. Meriwether made application for a standard license, his paperwork showing the installation of a Hispano-Suisa motor, serial number 66740. A letter to Mr. Meriwether signed by Jesse W. Lankford, Chief, Licensing Section of the

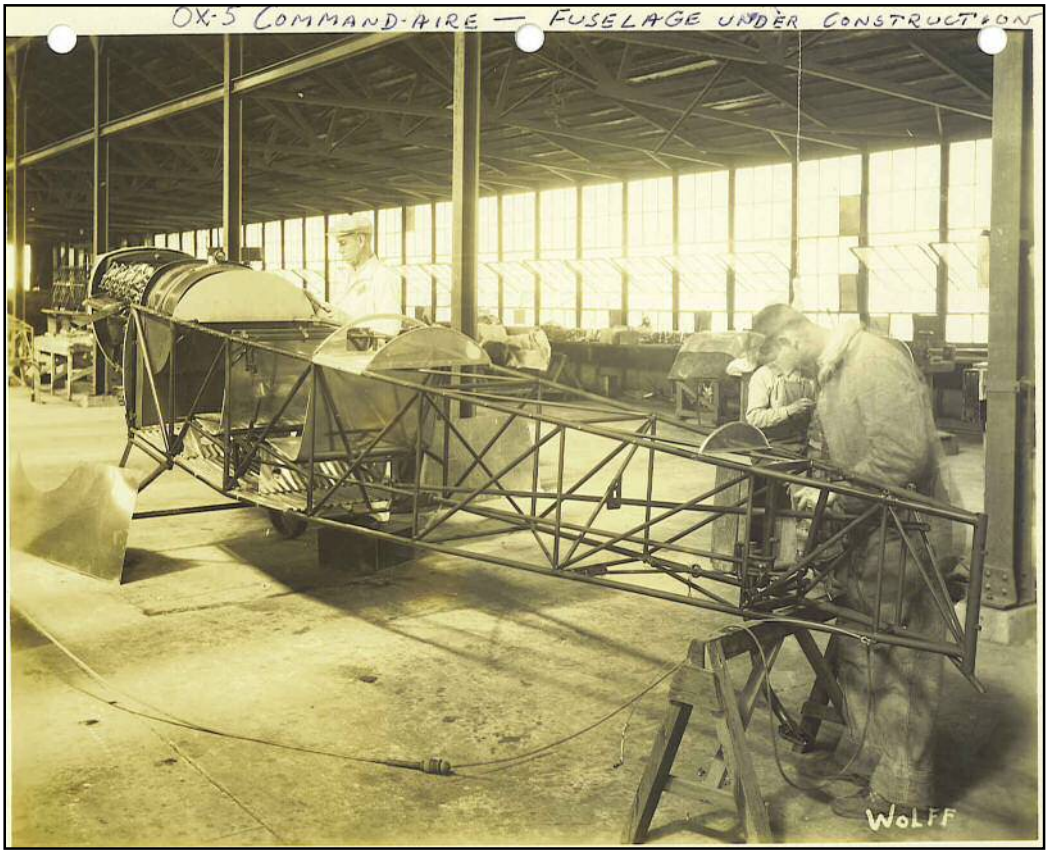
Department of Commerce states, *"It is noted that you have installed a Hispano-Suiza motor in this plane. The Command-Aire with Hispano-Suiza motor installed has not been approved for license by this department. For this reason license number 6690 is hereby cancelled, and you are assigned the number 6690 as your unlicensed identification number. The letter C must be removed from the plane before it can be operated."* C-6690 was essentially never heard from again except for a communication from the Aeronautics Branch of the Department of Commerce dated February 8, 1930 indicating that 6690 was still in the possession of James Meriwether and the aircraft was out of service because it was *"badly damaged in a crash."*

Below, one last look at 6690 and the beautifully cowled Hisso engine installation. Note large cooling radiator mounted below engine cowling

It is only a guess, but the factory may have used this ship to experiment with the Hispano-Suiza engine installation for a later production model 5C3-A, manufactured under ATC 185, but not until May of 1929. Compare the two previous photographs with the one shown below, which is NC919E, a model 5C3-A

Only 3-examples of the model 5C3-A were constructed by the factory – NC913E, serial number W-67 (5-29-29), NC911E, serial number W-75 (5-29) and NC919E, serial number W-81 (5-29-29). It should be noted here that the model 3 structure, while it looked identical to the model 5 structure, was quite different. As the supply of WW1 OX-5 engines began to fade, factories looked for alternative engines, and Command-Aire was no different. The Hisso was a nice replacement for the old OX-5.

A total of approximately 140 OX-5 powered Command-Aire model 3C3 ships including the model 3C3-T were produced by the Little Rock factory before declaring bankruptcy in the fall of 1931. The first model 3C3 ship was C-3790, serial number 500 and the last was NC745W, serial number 655.



Above, a model 3C3 is being assembled on the line. The OX-5 engine is installed along with the fuel tank and cockpit furnishings. The workman at rear is assembling the stabilizer trim mechanism while the fellow in front is installing the front cockpit panel behind the fuel tank. On the model 3C3 there were no instruments in the front cockpit. The early ships had a small baggage compartment behind the rear pilot's shoulders while later ships had a much larger compartment just behind the rear seat back. The handwriting at photo top is that of designer Albert Vollmecke.

Perhaps the most famous Command-Aire 3C3 was 7249, serial number 518, manufactured July 8, 1928. This ship was featured in early advertising by the factory to introduce their new ships to the public and secure sales.

AIR TRANSPORTATION 9

Copyright, Chicago Herald and Examiner

WHEN IKE VERMILYA DID HIS STUFF

THIS test of COMMAND-AIRE stability was made by Capt. Ike Vermilya at the Chicago Airport on October 25th, altitude about 1000 feet. It was witnessed and photographed by the Chicago Herald and Examiner and International News Reel.

Ike is known wherever quiet and noisy bird-men gather. He is rated a good pilot, and a good pilot takes no unnecessary chances. Ike doesn't regard the COMMAND-AIRE stability test as a chance; he just knows his ship.

COMMAND-AIRE and Ike will both be at the Show. One of Ike's favorite promises is to tell or show you something that will—well if he did so—it would be Nature's greatest gift to man. See Ike and see the COMMAND-AIRE. He says the latest COMMAND-AIRE will do it.

COMMAND-AIRE, INC., *Little Rock, Arkansas*

COMMAND-AIRE

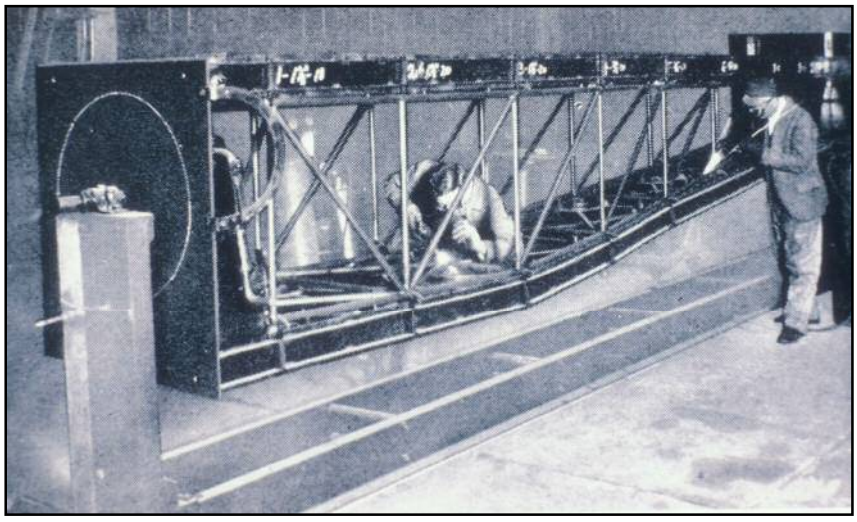
THE PLANE FOR WIDER SALES

There are many curious events that happened during the first few years of the widening government control over U.S civil aviation. Some have been detailed here in this story. First the license number 6690 given to an unlicensed aircraft because it was manufactured prior to the company receiving an Approved Type Certificate. And second the installation of a Hispano-Suiza 150 hp engine to replace the original Curtiss OX-5 engine of only 90 hp. And this apparently completed at the Command-Aire factory using their own data (if they even had any). After working in today's environment with the FAA it seems rather lax back in those days. Ah, bring back the good old days!

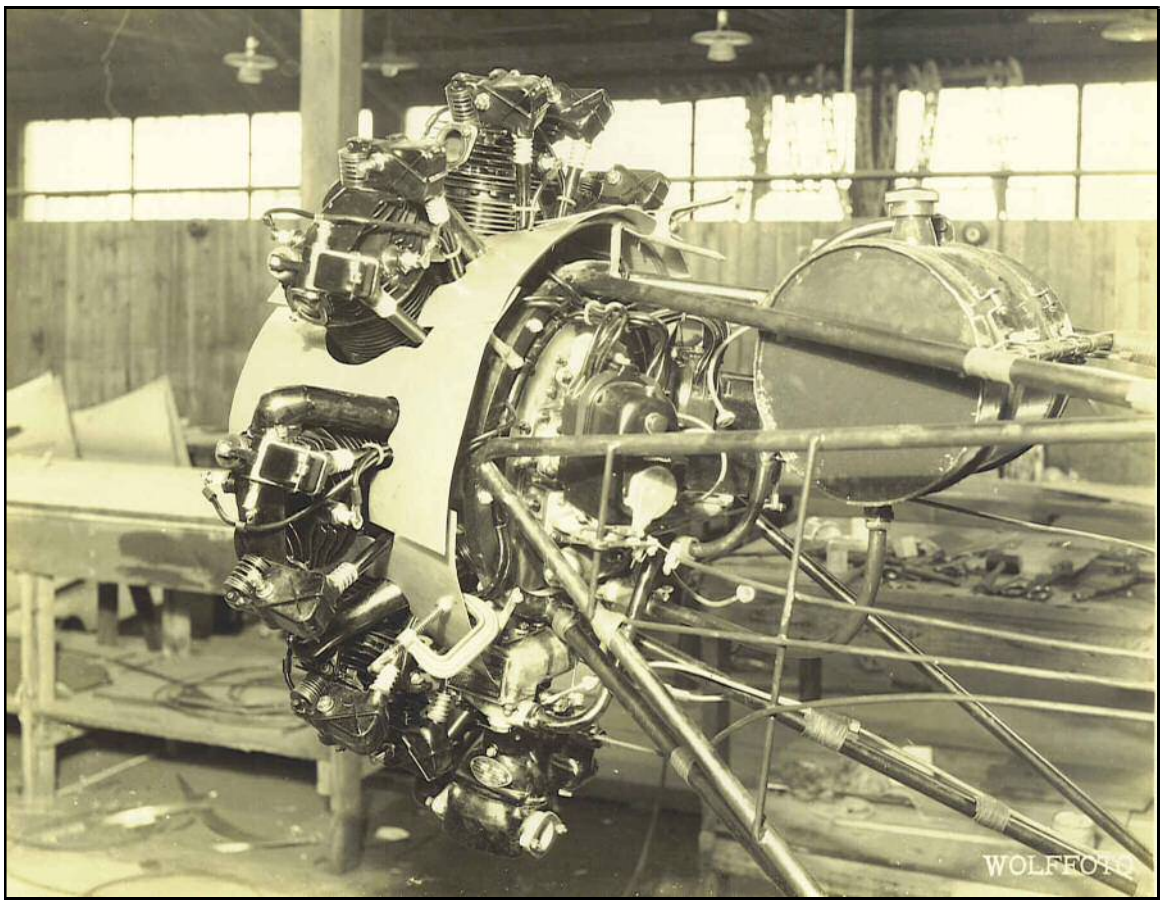
DEVELOPMENT OF COMMAND-AIR, INCORPORATED
MODEL 3C3-A AND 3C3-B

Photo from Peter Bowers

Having secured ATC 53 for his OX-5 powered model 3C3, Albert Vollmecke returned to Washington, D.C with a simple modification – the model 3C3-A. In keeping with the original statement on application for the factory's first 3C3, X-3790 – "*At first will be equipped with an OX-5 motor but will likely have air cooled motor installed later."* The Federal Government issued ATC 118 in March 1929 for the model 3C3-A, a handsome modification of the basic OX-5 powered model 3C3. Power was a Warner "Scarab" 7-cylinder air-cooled radial engine producing 110 horsepower. The modification was easily completed because all fuselage frames were built in a special rotating fixture designed by Albert Vollmecke. As fuselage structures were completed the motor mounts were welded on later. It is interesting to note that motor mounts were an integral part of the fuselage and not removable. Although advertisements in major aviation publications indicated that designer Albert Vollmecke had patented his fuselage device that was not



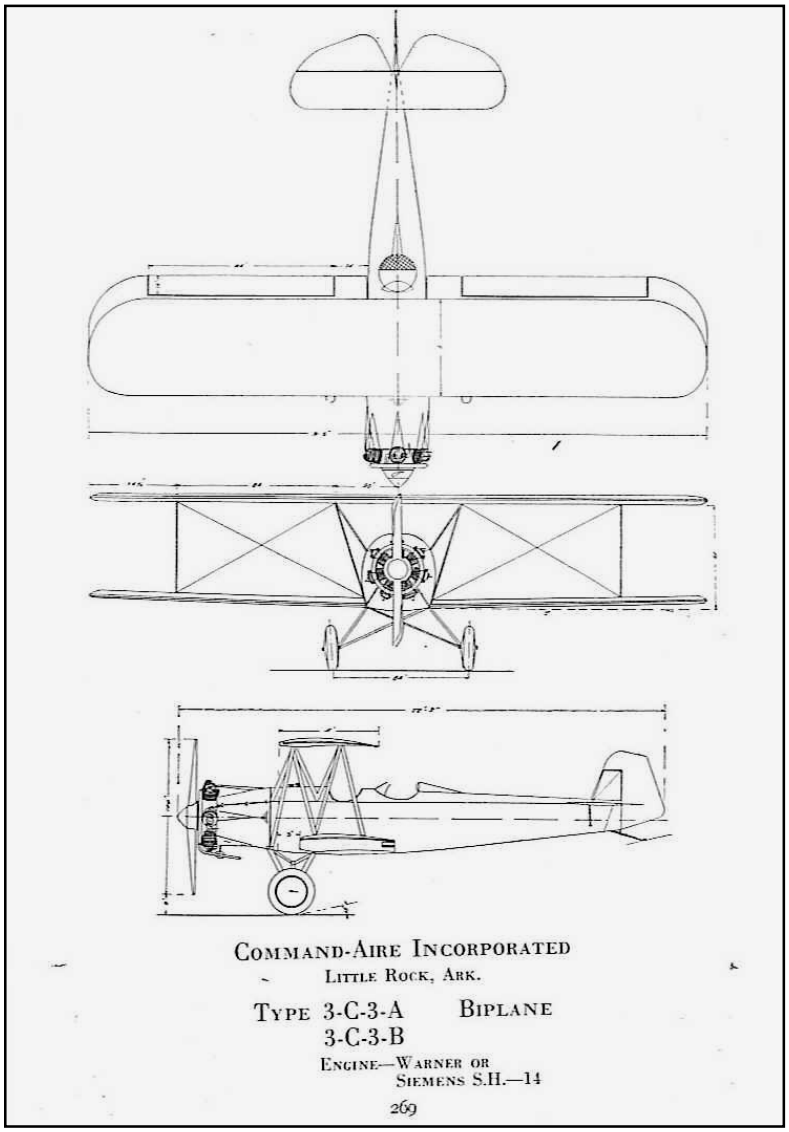
the case. The fixture was copied by other manufacturers, such as Curtiss Wright for their Travel Air ships constructed in Wichita, Kansas. And other factories visited to copy his invention.



Above, in this original factory photograph taken by photographer R. D. Wolff, details of the Warner engine installation can readily be seen. Very apparent is the extended engine mount that was necessary because the Warner engine was much lighter than the OX-5. Note the meticulous fitting of aluminum cowling around the cylinders and the rather large oil tank. There are lines running forward through the firewall that are part of the Phylax fire

extinguishing system. Nozzles can be seen around the accessory section of the engine in front of and below the oil tank, down near the carburetor. To properly locate engine, weight and balance comes into play. The aircraft center of gravity must be located slightly forward of the wings center of lift. When removing a heavy engine, radiator and associated systems and installing a lighter weight engine, it is necessary to move the engine farther forward, thus the long mount creating a long tapering nose.

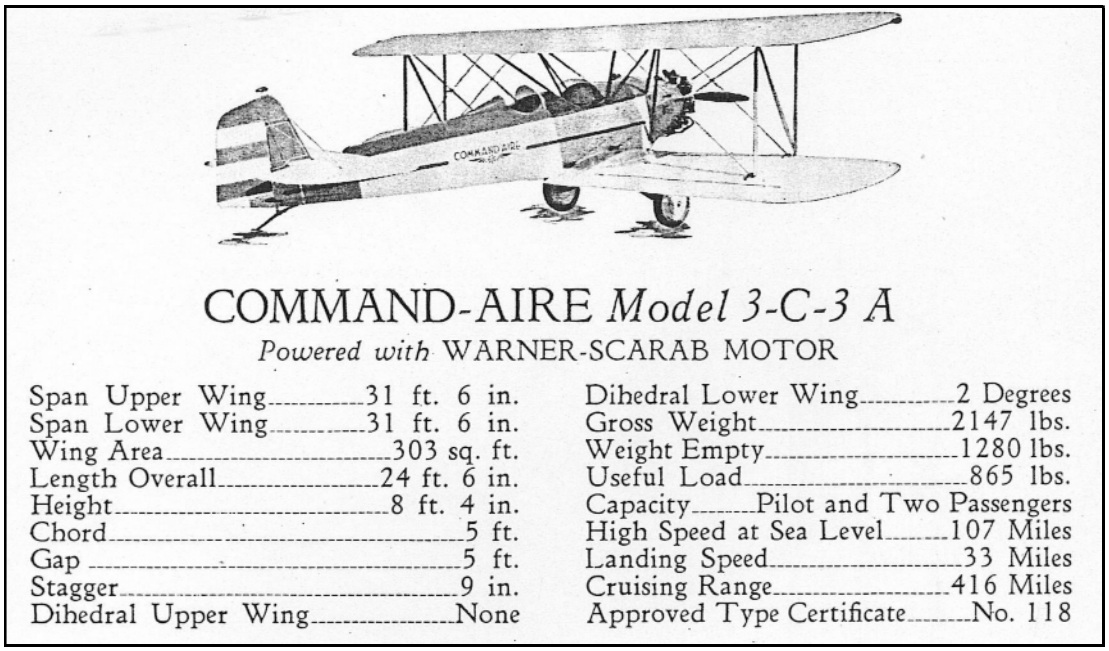
Inside the factory as shown in photograph above is the fuselage assembly line. Although the photo depicts a very sanitized floor, three model 3C3-A ships are being assembled, followed by an OX-5 powered 3C3. Completed wing panels, which were interchangeable on all model 3C3 ships are seen in upper right corner of photo.



Command-Aire produced an information document describing many of its ships. Note in the front view of the ship there are no roll wires, rather diagonal struts are fastened to the lower longerons to the cabane strut attach point on upper wings keep the wings rigid. The following information is gleaned from factory data.

"The plane has simple rigging. There are no outside drift wires and no outside rigging wires. The tailskid is of the leaf spring type, which has been found to be a satisfactory type for this particular plane. All metal parts are treated with an anti-rust solution before finishing. The aluminum turtle back or hood over the fuselage is removable. The pilot's seat extends the full width of the fuselage, is built integral with the frame and is fully upholstered with curled hair the same as the front seat. Extra large windshields protect the pilot and passengers from the wind and rain. A compartment for a suitcase of ordinary size is directly behind the pilot's seat. There is a

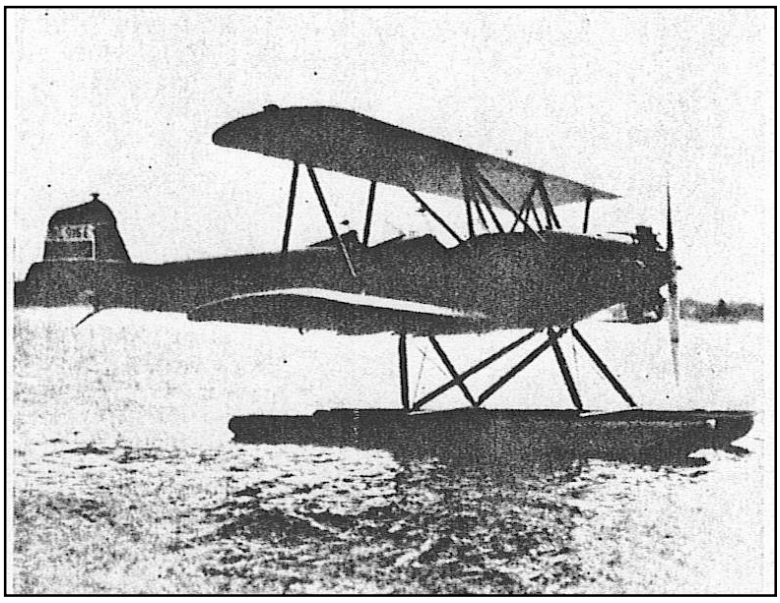
tool compartment under the engine hood, making light tools and oil cans available. A firewall of sheet steel between engine is provided.



COMMAND-AIRE *Model 3-C-3 A*

Powered with WARNER-SCARAB MOTOR

Span Upper Wing	31 ft. 6 in.	Dihedral Lower Wing	2 Degrees
Span Lower Wing	31 ft. 6 in.	Gross Weight	2147 lbs.
Wing Area	303 sq. ft.	Weight Empty	1280 lbs.
Length Overall	24 ft. 6 in.	Useful Load	865 lbs.
Height	8 ft. 4 in.	Capacity	Pilot and Two Passengers
Chord	5 ft.	High Speed at Sea Level	107 Miles
Gap	5 ft.	Landing Speed	33 Miles
Stagger	9 in.	Cruising Range	416 Miles
Dihedral Upper Wing	None	Approved Type Certificate	No. 118

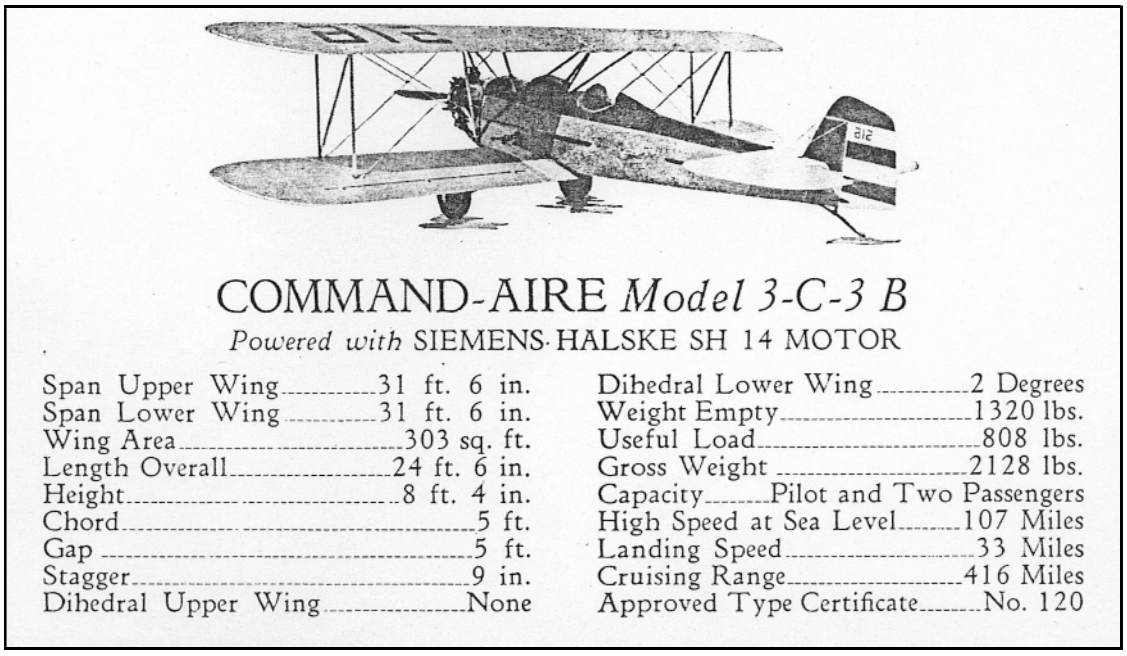


Right, rare photograph of a model 3C3-A, NC915E on Edo floats, resting majestically on the Arkansas River. Long nose of the Warner powered ship is very apparent in this silhouetted photo. Ship was constructed under Group Approval 2-137. In a Command-Aire fact sheet the following can be gleaned: *"Tail group is unusually clean, no horns or controls being exposed. Shape of rudder and fin is very individual and the silhouette of the ship in the sky is very different, making the ship easily recognizable at a great distance. Tool compartment under hood with engine. Oil can and light tools always available without having to open luggage compartment and usually move everything before finding the tool wanted."*

A total of 27 model 3C3-A ships were constructed, the first was NC10012, serial number 533 and the last was NC969E, serial number 639.

A total of 6 model 3C3-B ships were constructed, the first was NC516, serial number W-55 and the last was NC12539, serial number W-144.

ATC number 120 was issued to the Command-Aire 3C3-B in March 1929. It was essentially a model 3C3 with a Siemens-Halske 115 horsepower motor installed. Designer Albert Vollmecke, who would occasionally visit his homeland, had brought the engine back from Germany. The engine was a 7-cylinder radial model SH-14 that was later distributed by K. G. Frank and was nicknamed the "Yankee Siemens." This combination proved to be unsuccessful because parts were not readily available and it was a foreign-manufactured engine. Only 3 aircraft were constructed. In the photo left, a model 3C3-B sits outside the factory building in Little Rock, Arkansas, obviously during a winter snowstorm.



COMMAND-AIRE *Model 3-C-3 B*

Powered with SIEMENS-HALSKE SH 14 MOTOR

Span Upper Wing	31 ft. 6 in.	Dihedral Lower Wing	2 Degrees
Span Lower Wing	31 ft. 6 in.	Weight Empty	1320 lbs.
Wing Area	303 sq. ft.	Useful Load	808 lbs.
Length Overall	24 ft. 6 in.	Gross Weight	2128 lbs.
Height	8 ft. 4 in.	Capacity	Pilot and Two Passengers
Chord	5 ft.	High Speed at Sea Level	107 Miles
Gap	5 ft.	Landing Speed	33 Miles
Stagger	9 in.	Cruising Range	416 Miles
Dihedral Upper Wing	None	Approved Type Certificate	No. 120

In the data displayed above there are two items to note. First the negative is reversed and the license number is backwards. It should read 516, serial number W-55. Second, the specifications are identical to those of the model 3C3-A, which is the same airframe.

Above, from the Little Rock terminal comes this rare photo of Bill and Forrest Stolzer busy working an their Siemens-Halske powered Command-Aire 3C3-B. The model 3C3-A and 3C3-B was designed for the rough dirt and grass runways of the day.

Wide landing gear is apparent in this photograph of a model 3C3-B. Wire wheels obviously have no brakes. Flying and landing wires are visible. The Command-Aire fact sheet indicates, *"Front flying wires are the same size as employed on Douglas O-2 Army planes. Rear wires are one size smaller. Command-Aire equipped with OX-5 motor has a safety factor as great as found in army training ships of the PT-1 model. Pilot may rest assured ship is structurally equal to anything it may ever be called upon to do."*

Mr. Charles M. Taylor of Little Rock would become vice President of Command-Aire in 1929. From a very detailed biography of Mr. Taylor's flying, the following is extracted. *"Taylor served many years as executive vice President of the Little Rock Chapter of the National Aeronautic Association. This association, along with the Little Rock Chamber of Commerce and the 154th Observation Squadron of the Arkansas National Guard, sponsored the Annual Arkansas Air Tours starting in 1928. These tours did much to stimulate interest in aviation and the construction of airports in the State. In 1929, by permission of the chief of air regulations in Washington, stunt flying was added to the tours. Lts. Charles M. Taylor, Ellis M. Fagan and John D. Howe, billed as "The Blue Devils" thrilled the crowds flying black and orange striped sport model Command-Aire 3C3-A aircraft powered by Warner radial motors. This served a double purpose as Taylor was involved with the Arkansas Aircraft Corporation that built the Command-Aire in Little Rock, and these demonstrations helped in the sale of aircraft."*

Left, the year is 1983, November 12 to be exact. Two surviving original members of Command-Aire, Incorporated design and management team standing in front of a 1929 model 5C3 that had just been purchased for display in the local museum.

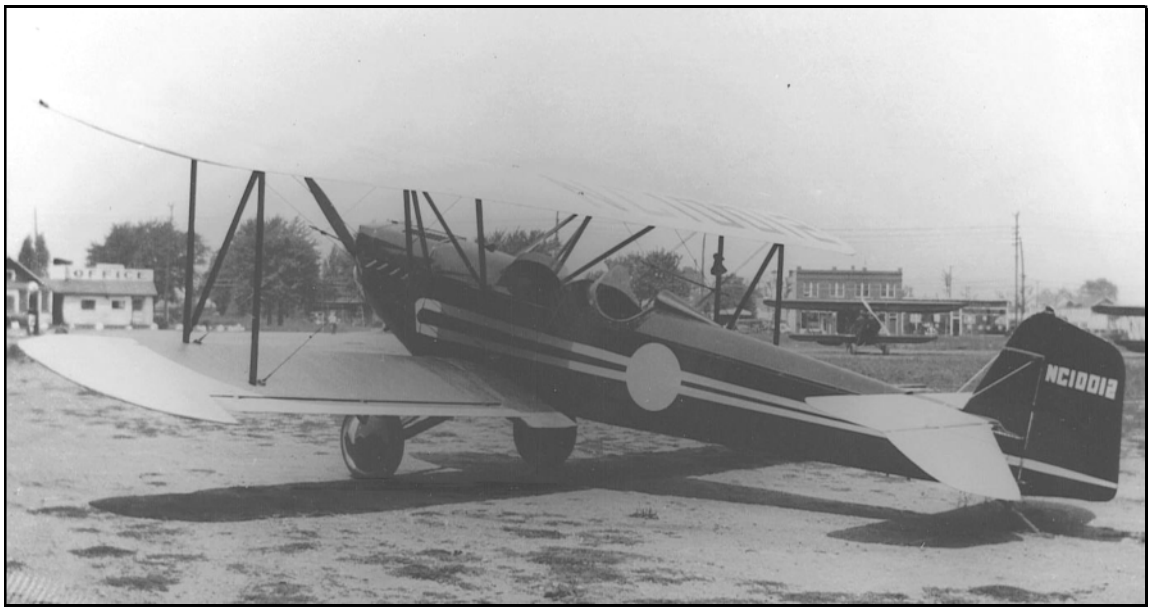
Albert Vollmecke (L) and Charles M. Taylor (R) renewing old acquaintance and sharing memories of their association with the Command-Aire factory in Little Rock. Al had just been inducted into the Arkansas Aviation Hall of Fame the evening of November 11, 1983. Mr. Taylor presented Mr. Vollmecke to the audience assembled to see the festivities. Mr. Taylor's opening remarks are worth reprinting. "*Mr. Chairman, General Wassell, Honorees, Ladies and Gentlemen. It will be my privilege and pleasure in the next few minutes to present to you, a very modest and unassuming man who contributed so much in the early days of aviation to the advancement of private and commercial*

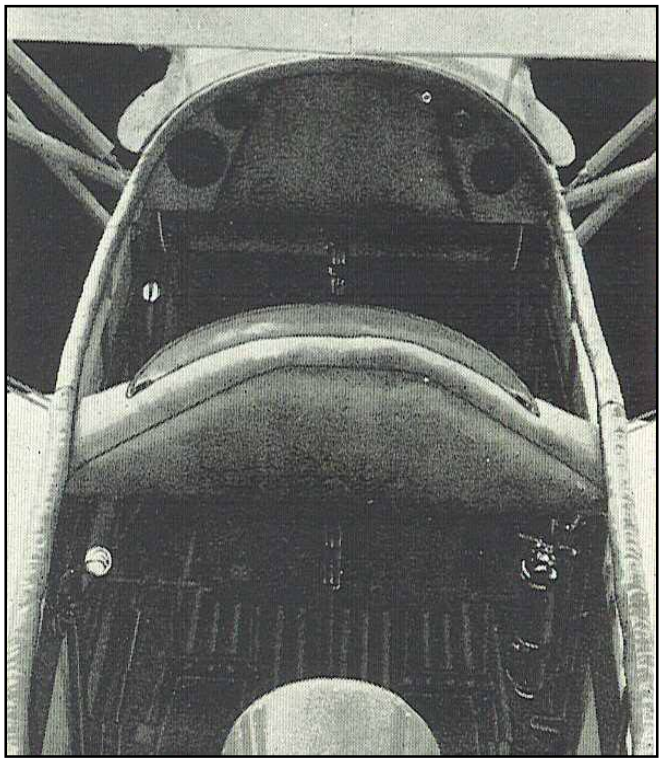
flying and its acceptance by the general public. His designs were among the top in safety, stability and reliability. The recognition given the airplanes designed by Albert Vollmecke and produced by Command-Aire, Inc., did a great deal to put Arkansas on the aviation map of the United States, bringing favorable national publicity to our State."

Mr. Taylor painted a portrait of the final days of Command-Aire in 1931. He writes, *"A brief note on what happened to Command-Aire that some of you may know. Bob Snowden* (president of Command-Aire) *invested substantial sums in the company and in order to expand it to its potential he got additional capital from financial housed in St. Louis and Detroit. Bob felt that the history of airplane manufacturing would repeat the history of automobile manufacturing – in that only a few factories would survive. Bob felt Command-Aire should merge with or sell out to one of the major aircraft companies. Curtiss was chosen as the best prospect. The two finance houses were to negotiate the merger or sale and Command-Aire meanwhile was to continue to produce a successful product and get publicity, which it did. In line with this concept, Command-Aire gave up its growing dealership organization and made Curtiss Flying Service its exclusive sales agent. Unfortunately, the finance houses dragged their feet and two of the biggest aircraft companies – Curtiss and Wright merged. Wright had just previously bought Walter Beech's Travel Air factory – an open cockpit biplane similar to the Command-Aire, so the new Curtiss-Wright Flying Service substituted the Travel Air in their sales program and Command-Aire was faced with rebuilding a sales organization. This occurred at a very depressed business period in the United States. The stock market crash and the bank closings were particularly hard on a growing industry that many people considered a luxury. It was wisely decided to liquidate the company.*

Albert Vollmecke had a brilliant career at Command-Aire, sadly shortened by the stock market crash in 1929 and ensuing depression. A sad ending to a company with a very good product and a very bright future.

DEVELOPMENT OF COMMAND-AIRE
MODEL 3C3-T, 3C3-AT AND 3C3-BT

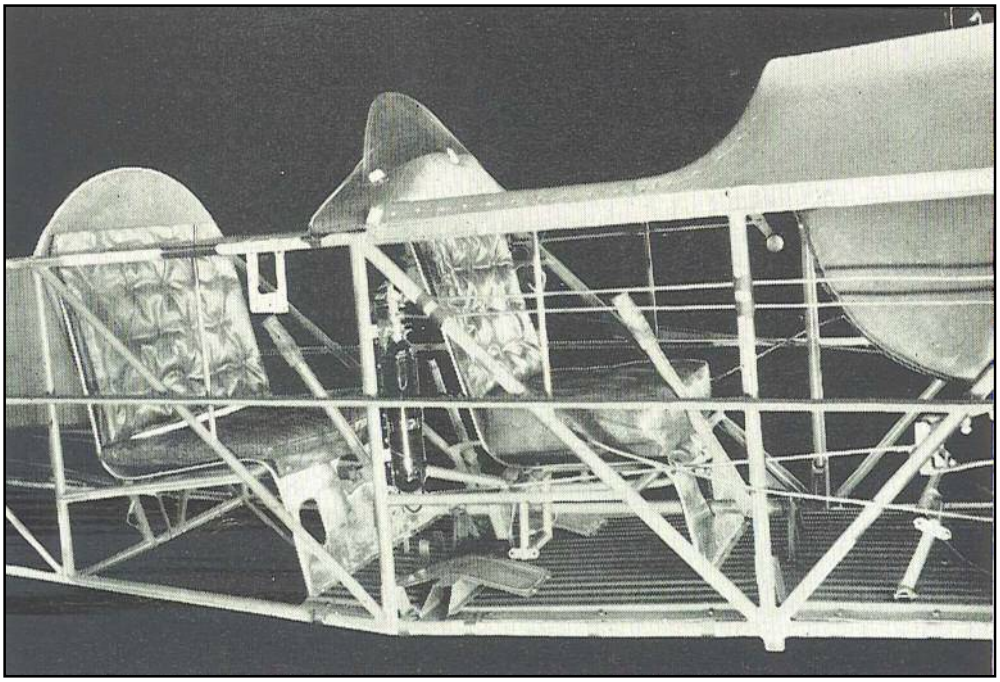




The year 1929 was the peak of production at Command-Aire, Little Rock, Arkansas. Under the design leadership of Albert Vollmecke, the factory was granted no less than 8-Approved Type Certificates from the government. At a time when flight instruction was gaining popularity, Mr. Vollmecke slightly altered the basic model 3C3 into a trainer aircraft and identified it as the model 3C3-T ("T" for trainer) and ATC number 150 was issued by the government in May 1929. The first ship constructed by the factory was NC10012, serial number 533 manufactured May 1929. It featured a "bath tub" cockpit arrangement that placed the student in the rear seat in direct contact with the instructor in the front seat. All there was separating the front and rear cockpit were a crash pad and windshield. Instruments were placed in the front seat with only basic engine instruments in the rear seat. Extracted from the factory brochure is a description of the model 3C3-T. *"Command-Aire's training ship is a master accomplishment in the development of its own exclusive design, whereby instructor and*

student occupy one open cockpit. While the seating is individual and tandem, and the plane fitted with dual controls, the cockpit is so arranged as to afford the student a close-up and clear view of the instrument board in front of the instructor's seat – an advantage which also permits ready communication between them. This is an improvement upon the design originated by U.S Army and Navy training planes. Thus, when the student is qualified to solo, he does so guided by the identical instruments and controls by which he was taught, as well as from a position with and in which he is familiar."

Above in this original factory photograph one can readily see the cockpit details of a model 3C3-T ship. From the factory brochure, more details emerge. "*In addition to the foregoing, the advanced structural feathers illustrated below further recommend the Command-Aire trainer. For example, observe the corrugated aluminum floor, affording maximum protection for the legs in a minor crack-up. This type of floor is easy to keep clean, free from oil and grease and eliminates any hazard of fire from that source. The instructor is provided with the greatest comfort for his long hours aloft by a thickly padded seat finished in Fabrikoid and curled hair upholstery.*



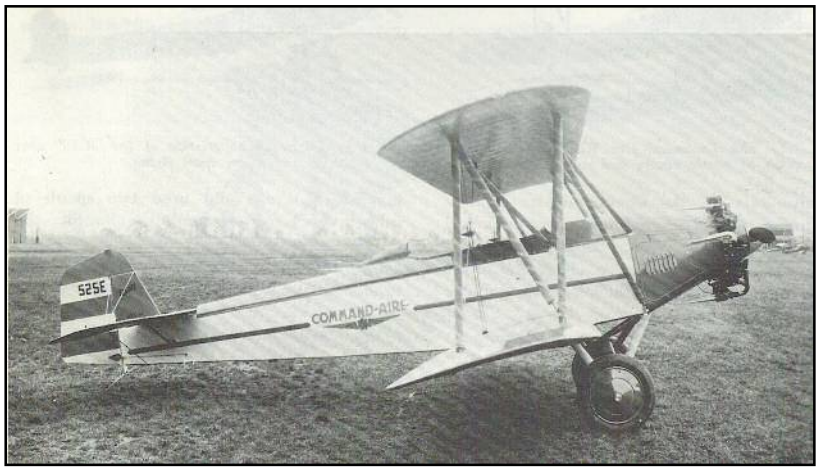
The student's seat is also roomy and the student securely protected by the large head crash pad that, combined with the windshield and cowling, keep the rear seat as warm and comfortable as the instructor's. Note also the extra throttle bracket that allows an interchange of the throttle to either right or left hand position.

The proven stability of the trainer ship, the perfect control and safety it affords at stall speed, through slotted ailerons and perfect balance together with the features just described, are responsible for its growing popularity at the Nation's leading flying schools. Command-Aire trainers are furnished with any of the motor equipment listed on pages 10 and 11." Other engines available were the Warner 110 hp Scarab installed in

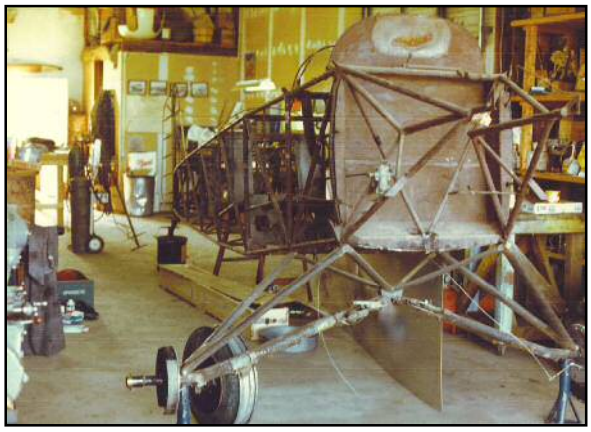
the model 3C3A-T and the Yankee Siemens 115 hp installed in the model 3C3B-T. In the above photograph, note the Phylax fire extinguishing system installed in the ship. Located to the right of instructor's front seat is the chemical bottle and parallel lines can be seen routing forward along right side of fuselage to engine compartment.

The factory produced 28-model 3C3-T ships, the first was NC10012, serial number 533 and the last was NC969E, serial number 639.

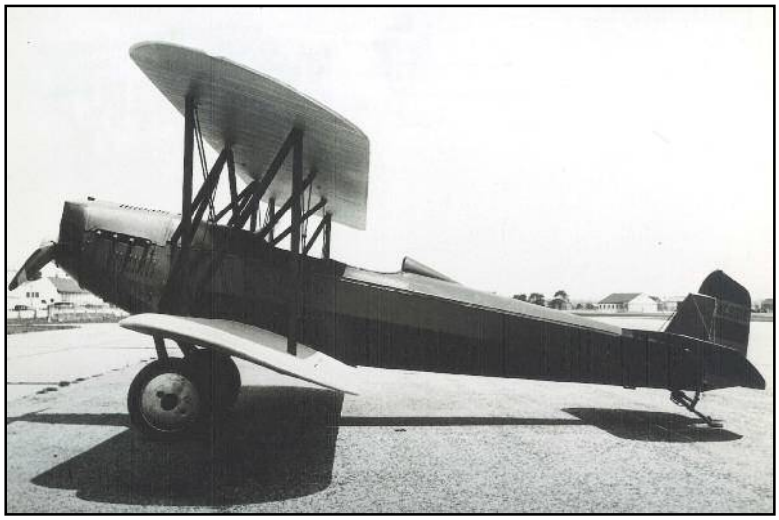
Albert's next evolution of the Command-Aire trainer was the model 3C3-AT, ATC number151 granted by the government in May 1929. The basic aircraft was a model 3C3-A modified with the bathtub open cockpit arrangement that had proven popular the model 3C3-T. Constructed were only 6-model 3C3-AT ships, the first was NC525E and the last was NC976E, serial number W-114. Power was a 110 hp Warner Scarab air-cooled radial engine. Cockpit arrangement was identical to the model 3C3-T.



The final trainer version was the model 3C3-BT, the ATC number 209 as granted by the federal government. Only 2 model 3C3-BT ships were produced by the factory. The first was NC611E, serial number W-70 and the last was NC953E, serial number W-97. It was powered by the Yankee Siemens air-cooled radial engine developing 115 hp.



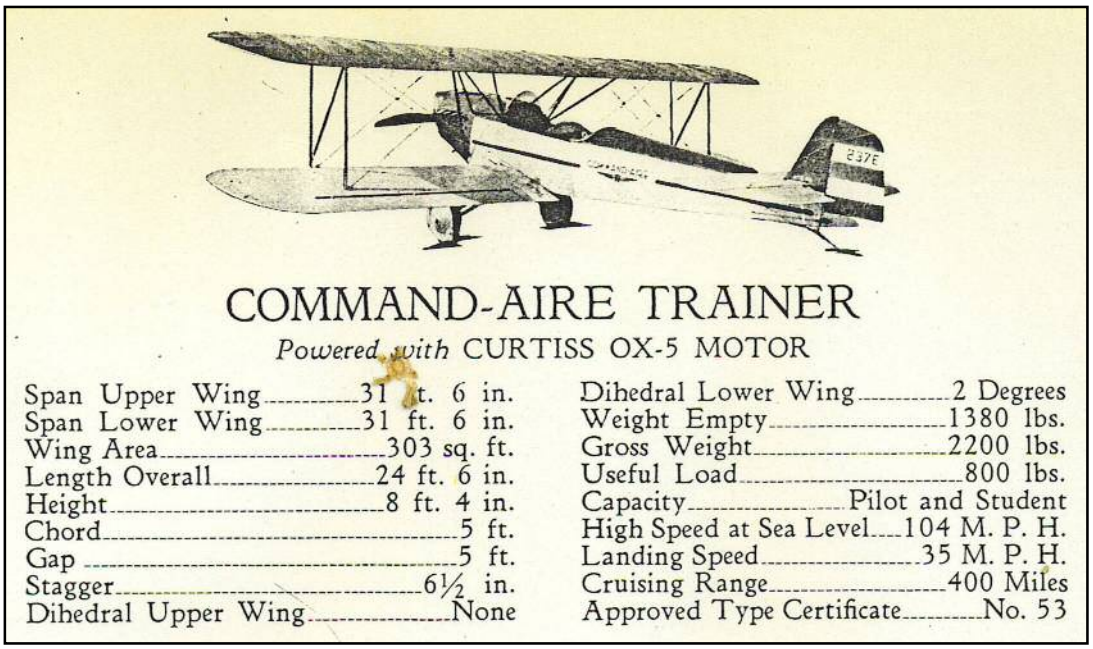
There is only one model 3C3-T that has survived over the years. The ship is NC583E owned by Art Knowles and restored by Tom Brown. Left is the fuselage frame of the aircraft in Knowles shop in 1982. After restoration the aircraft appeared at a few air shows but is now displayed in the biplane museum located at Bartlesville, Oklahoma.



Left, the unmistakable fuselage lines of the basic model 3C3-T with no separation between front and rear cockpits. Trusty Curtiss OX-5 engine powers this ship. All model 3C3 ships were equipped with a tail skid as the tail wheel did not appear until the model 5C3.

Approximately 36 of the trainer ships were constructed by the Little Rock factory in 1928 and 1929. This number includes 28 OX5 powered 3C3-T ships, 6-Warner 110 powered 3C3-AT ships and 2-Siemens 110 powered 3C3-BT ships.

Below are the factory specifications for the model 3C3-T aircraft.



COMMAND-AIRE TRAINER

Powered with CURTISS OX-5 MOTOR

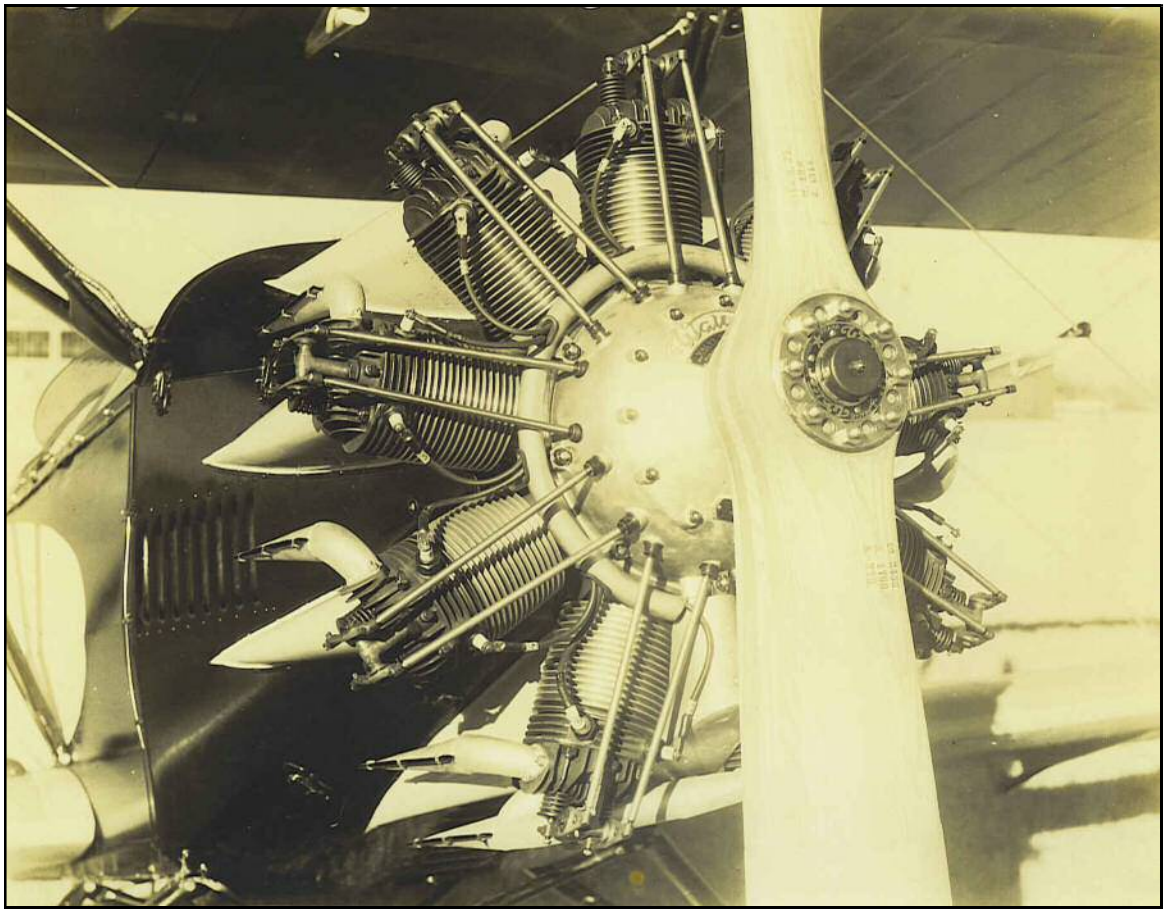
Span Upper Wing	31 ft. 6 in.	Dihedral Lower Wing	2 Degrees
Span Lower Wing	31 ft. 6 in.	Weight Empty	1380 lbs.
Wing Area	303 sq. ft.	Gross Weight	2200 lbs.
Length Overall	24 ft. 6 in.	Useful Load	800 lbs.
Height	8 ft. 4 in.	Capacity	Pilot and Student
Chord	5 ft.	High Speed at Sea Level	104 M. P. H.
Gap	5 ft.	Landing Speed	35 M. P. H.
Stagger	6½ in.	Cruising Range	400 Miles
Dihedral Upper Wing	None	Approved Type Certificate	No. 53

DEVELOPMENT OF THE COMMAND-AIRE MODEL 4C3

Chief engineer for Command-Aire Albert Vollmecke was a very busy man during 1928 and 1929, having secured five Approved Type Certificates for models 3C3, 3C3-A, 3C3-B, 3C3-T, 3C3-AT and 3C3-BT. Although each of these ships had the basic 3C3 fuselage, wings and tail assemblies, the Vollmecke touch was evident in each design. Now it was time for a pure Vollmecke design but still utilizing the building fixture that he had already designed for the company. Enter the mode 4C3.

Albert Vollmecke had been with the company for over a year and had been busy modifying the basic model 3C3 that had used the surplus Curtiss OX-5 motor. However as the supply of OX-5 engines began to decline and the purchase price went up, the factory began a search for other powerplants that could be used in their ships.

Vollmecke made a trip back to Germany and discovered an air-cooled 7-cylinder radial engine manufactured by J. Walter A. Spol in Prague, Czechoslovakia. The engine produced 120 hp at 1550 rpm and was the model NZ series 1.



Above, from the Albert Vollmecke collection, the Walter NZ series 1 radial engine. A special wood propeller manufactured by Hamilton was installed. Note bayonet stacks, most likely fabricated and welded by Lloyd Toll. This photograph is interesting because Albert eliminated the diagonal struts from fuselage lower longeron to upper wing cabane strut attach and installed roll wires that can be seen crossing diagonally between front cabane strut attach point and upper fuselage longeron. Since this ship was constructed just before the model 5C3 was produced it most likely had a slightly different fuselage frame that was to be the model 5C3.

Application for an Experimental license was made November 3, 1928 and a special airplane license number X-70E was issued by November 11, 1928.

Although license number X-70E was issued in November 1928 the ship was not ready until spring 1929. Specifications for the new ship can be extracted from the license form shown right.

Form R-7

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
OFFICE OF THE DIRECTOR OF AERONAUTICS

Official No. X-70E

Special Airplane License

This certifies that the airplane described below, of the property of ARKANSAS AIRCRAFT CORPORATION, LITTLE ROCK, ARKANSAS, is a specially licensed aircraft of the United States of America, subject to the following conditions:

LICENSED FOR EXPERIMENTAL PURPOSES ONLY. PASSENGERS OR PROPERTY FOR HIRE OR REWARD SHALL NOT BE TRANSPORTED THEREIN.

Description of aircraft: COMMAND-AIRE 4-C-3, LAND BIPLANE, MANUFACTURER'S NUMBER W-51, EQUIPPED WITH SPOL NZ SERIES 1 ENGINE.

WEIGHT EMPTY	1200 LBS.
USEFUL LOAD	960 LBS.
GROSS WEIGHT	2160 LBS.
OVER-ALL SPAN	32 FT. 1 INS.
OVER-ALL LENGTH	24 FT. 6 INS.

Dated NOVEMBER 10, 1928
LICENSE EXPIRES MAY 15, 1929.

Director of Aeronautics.

Details gleaned from the Application for Airplane License form R-8 shows officers of the company were: R. B. Snowden, Jr., president, C. M. Taylor, Jr., v. president, W. F. Moody, secretary and treasurer and G. O. Macfarlane, D. V. Leatherwood, R. L. Saxon, all directors and all citizens of the United States. Albert Vollmecke was shown as Designer and Director, a citizen of Germany.

The ship featured a gravity feed fuel system and was equipped with a tachometer, altimeter, compass, oil thermometer, gasoline gage, oil pressure gage, air speed indicator, chronometer, booster, first aid kit and belts.

There are no good photographs of the model 4C3 available. From the Joseph Juptner collection this grainy photo of X-70E.

Although a handsome ship it was never put into production. No doubt it was disassembled and the parts used to construct a model 5C3 aircraft under ATC 184 granted July 1919.

Designer Albert Vollmecke reported that the motor did not run well in the United States because the gasoline octane rating was too low and the engine tended to detonate, which would eventually lead to failure, so the project was abandoned for the next variant, the model 5C3.

During Vollmecke's trip to Germany to seek the Walter NX engine he also discovered the Phylax fire extinguishing system that the company imported and sold, as they became distributors in the United States.

The Phylax system was patented (0267542) in Germany by Phylax Feuerlosch-Automaten-Bau-Ges on March 10,


WESTERN FLYING
May, 1929 11

Safety . . .
. . . assurance

Fire . . . the deadliest menace of the air is placed under absolute positive control — only when a fool-proof automatic extinguisher guards every danger spot with mechanical certainty. No longer need the staunchest flyer blanch with fear of his hitherto unconquered enemy, for

PHYLAX

provides a complete and certain protection.

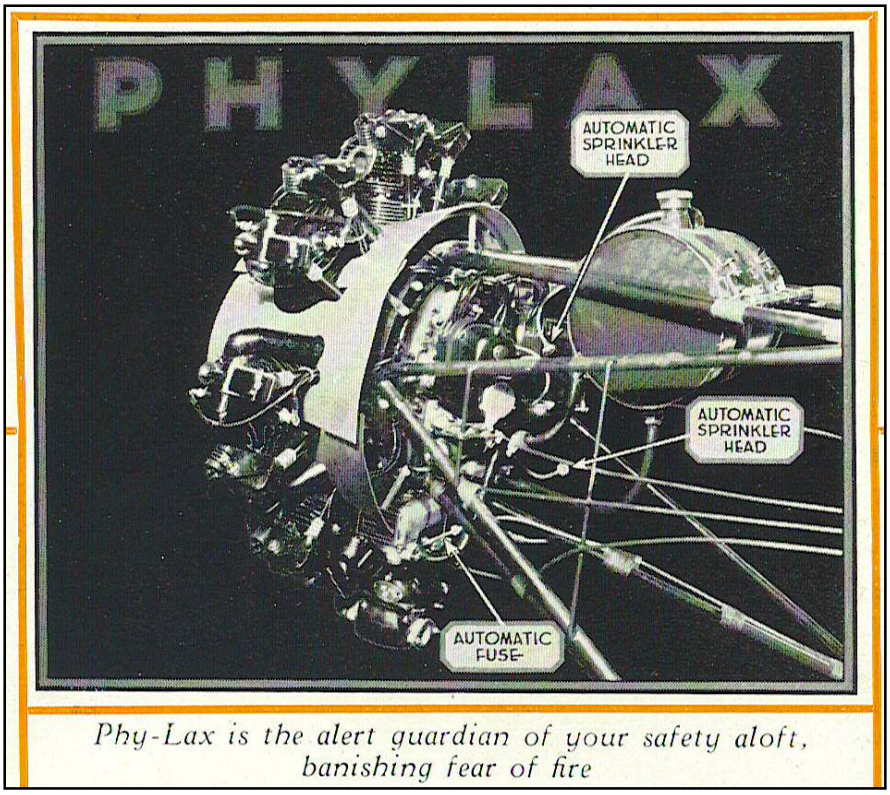
S. S. F. S.L. P.L. T. F.

A PHYLAX fire extinguisher installation consists of a tank (T), containing the extinguishing liquid, mounted in the pilot's cockpit. Connected to the tank (T) are two copper pipe lines — pressure line (PL) and sprinkler line (SL). At the ends of the pressure line (PL) are two or more fuses positioned where fire is most likely to originate. At the ends of the sprinkler line (SL) are one or two sprinkler heads (S) positioned to cover the strategic points of the engine — carburetor and oil sump. When any fuse (F) is attacked by fire, it automatically sets the PHYLAX system in operation.

Should a fire start—it is *out in five seconds*—even though the pilot may not see it. The flame itself releases the equipment which protects every part of the plane. PHYLAX may also be operated by hand or by electricity, especially when used on a multi-engine plane. It is made automatic because under certain circumstances the pilot might not be able to operate the controls and a fire extinguisher at the same time. Installed in a few minutes to protect either air or water cooled engines. A PHYLAX extinguisher, complete and ready for installation, costs but $70.00 — the most economical fire insurance — safety assurance. Write for complete particulars.

AERO SUPPLY
MANUFACTURING COMPANY, Inc.
College Point Long Island New York

PHYLAX
OUR CREED
MADE SAFE FOR THE AIRMAN THE WORLD OVER
PHYLAX
to conquer the air's deadliest menace . . . fire!

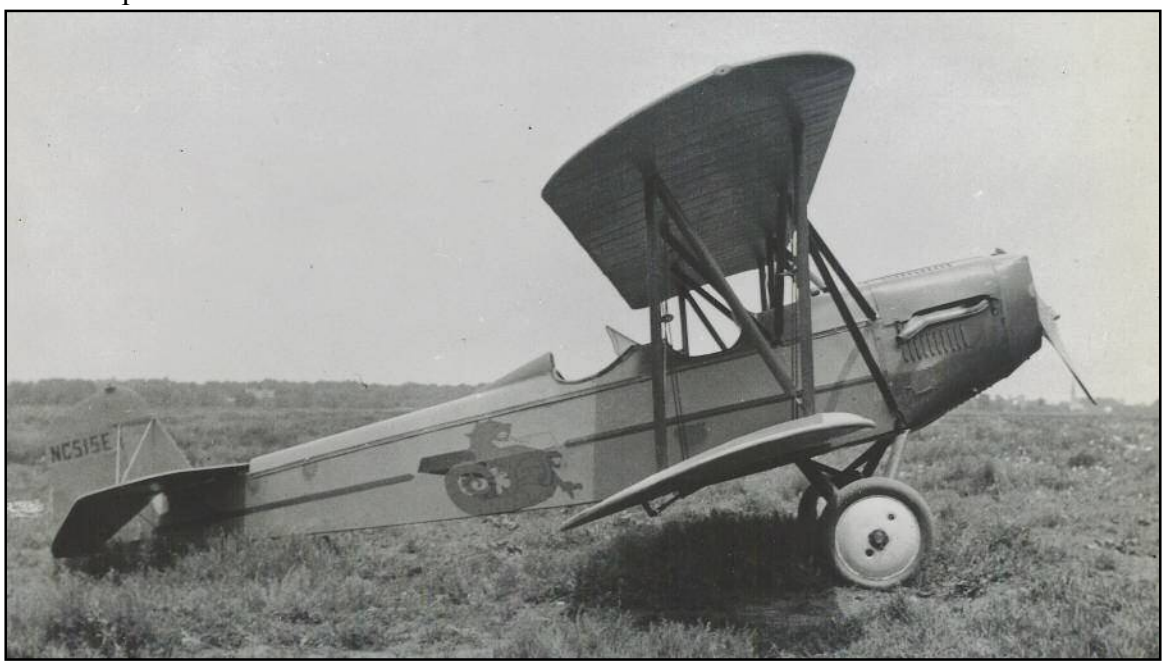


1926. The system consisted of a container for the extinguishing medium under pressure and sealed by a disc. Lines lead from the container to the engine compartment where sprinkler heads disperse the extinguishing medium around the engine. When the pilot pulled a handle a striker pierced the seal so that the fluid is forced through an outlet pit to spray nozzles above and behind the engine. In 1928 and 1929 the unit could be purchased for only $70.00 and had to be installed by the factory at the time the ship was being assembled and before covering went on the fuselage. The photograph left is extracted from an original factory brochure assembled in 1929 by Command-Aire, Incorporated, Little Rock, Arkansas.

According to designer Albert Vollmecke the 4C3 was not successful due to its engine, which was unable to operate satisfactorily in the United States because fuel octane was lower than what the engine required. Therefore the engine tended to detonate when operating at higher power settings. The model 4C3 would serve as a test bed for the model 5C3 that was being assembled at the factory.

Not much more is known about the experimental ship. One can surmise that components were the basic 3C3 wings, but modified to conform to Albert's drawings for his new model 5C3. From the photograph one can see that the diagonal strut used to maintain alignment of the upper wings has been eliminated and the more normal roll wires installed. The use of a diagonal strut, or later roll wires, is needed to position the upper wing cellule directly over the longitudinal axis (centerline) of the fuselage, then hold it in that position. If the upper wing center of mass is not placed directly above the fuselage centerline, then the ship would roll left or right depending where the weight mass was located. The thought at Command-Aire during manufacture of model 3C3 and its variants was that the roll wires would disturb the pilot's forward vision, therefore diagonal struts were originally used to provide the same outcome as roll wires.

In the photograph below, a model 3C3, NC515E, serial number 591 stands proudly in a grass field. Clearly illustrated is the long diagonal brace strut attaching to the forward lower fuselage longeron and to the cabane strut attach point on the front spar of the upper wing. By lengthening and shortening these struts during the rigging process, the centerline of the upper wing cellule could be placed directly above the longitudinal axis of the airplane.



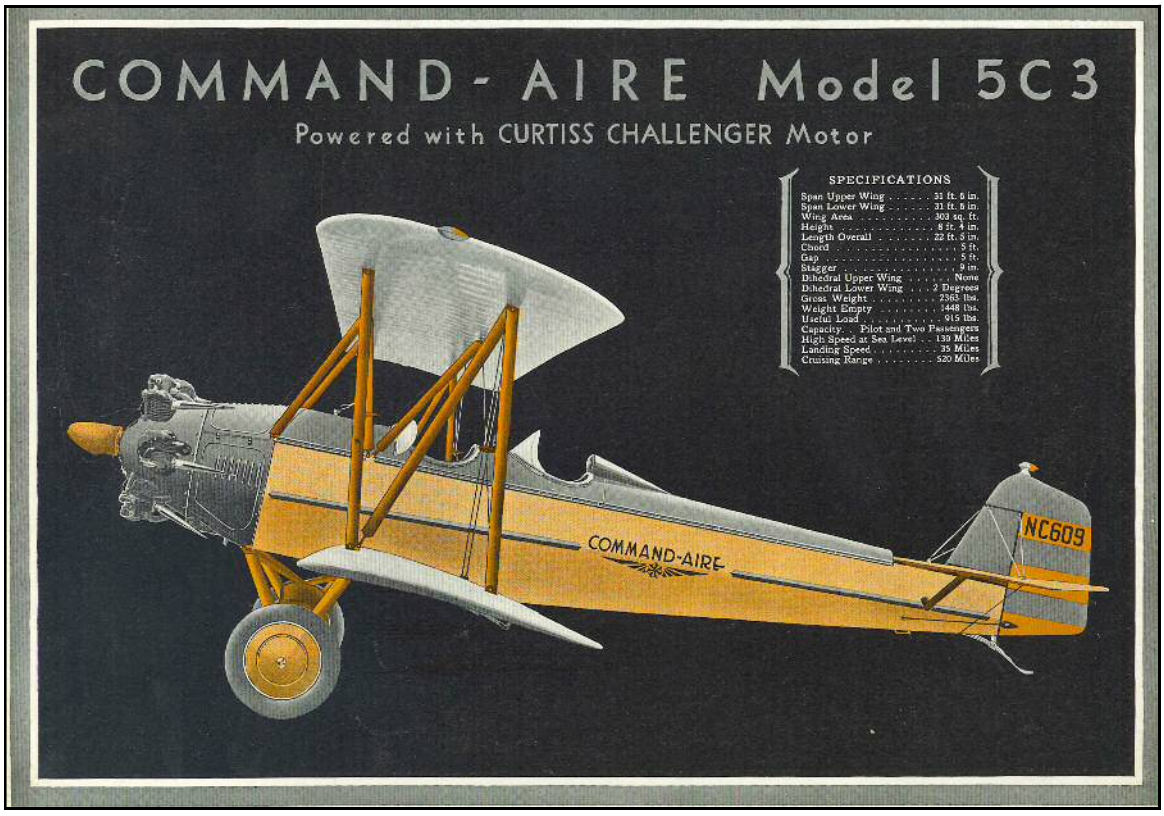
As has been reported before, all fuselage frames were constructed and welded in a special fixture designed by Al Vollmecke, so one can assume that the model 4C3 basic frame was the same general dimension as the model 3C3 shown above. Since engine mounts were welded in place later, it would have been simple to convert a 3C3 frame to the Walter engine. A known in advance factor would be just how long to make the mount so as to provide adequate weight and balance control when the ship was finished. That was the question. The lighter in weight the engine the longer the mount, and the heavier the engine the shorter the mount. In the model 3C3, a fuselage nose fuel tank was installed as there was no wing tank installation during this production time. Wing tanks came late with the introduction of the model 5C3, particularly those ships that were designed for crop dusting as the dust hopper had to take the place of the fuselage nose tank. In the photograph left note fuel tanks installed in upper wings with copper tube piping routed down cabane struts to a shut off valve, then to the carburetor.

Fate of the model 4C3 is unknown, although Joseph Juptner reports on page 57 in Volume 2 of U. S. CIVIL AIRCRAFT that the ship was delivered to a dealer in the state of Washington. No doubt X-70E was eventually converted into a crop dusting airplane with a different engine and was subsequently destroyed in a crash.

DEVELOPMENT OF THE COMMAND-AIRE MODEL 5C3

By July 1929, ATC number 184 had been granted by the government for Albert Vollmecke's latest design, a higher powered 3-place biplane that was to become very popular among sport pilots and commercial operators. It was not designed for instruction but rather to be easily converted from a 3-place ship to a crop dusting aircraft suitable for spreading up to 800-pounds of dust on crops that were infested with pests that could destroy the plants. By the time that ATC 184 was granted, Vollmecke had secured five Approved Type Certificates for aircraft from 90 to 110 horsepower. The model 5C3 was leap to 185 horsepower which would give the ship spirited performance. Although appearing nearly the same as earlier designs, the model 5C3 featured improved wing fittings, but dimensions were essentially the same as earlier models. Only the fuselage length changed due to the weight of various engines he used. The lighter the engine the longer the mount that attached the engine to the fuselage, primarily for weight and balance purposes.

The first model 5C3 to roll off the assembly line in July 1929 was serial number W-54, licensed NC607. Command-Aire serial numbers started with number 500 and rose through number 655 before the factory changed to serial numbers that began with "W", the first being W-51, which was assigned to the experimental model 4C3, X-70E.



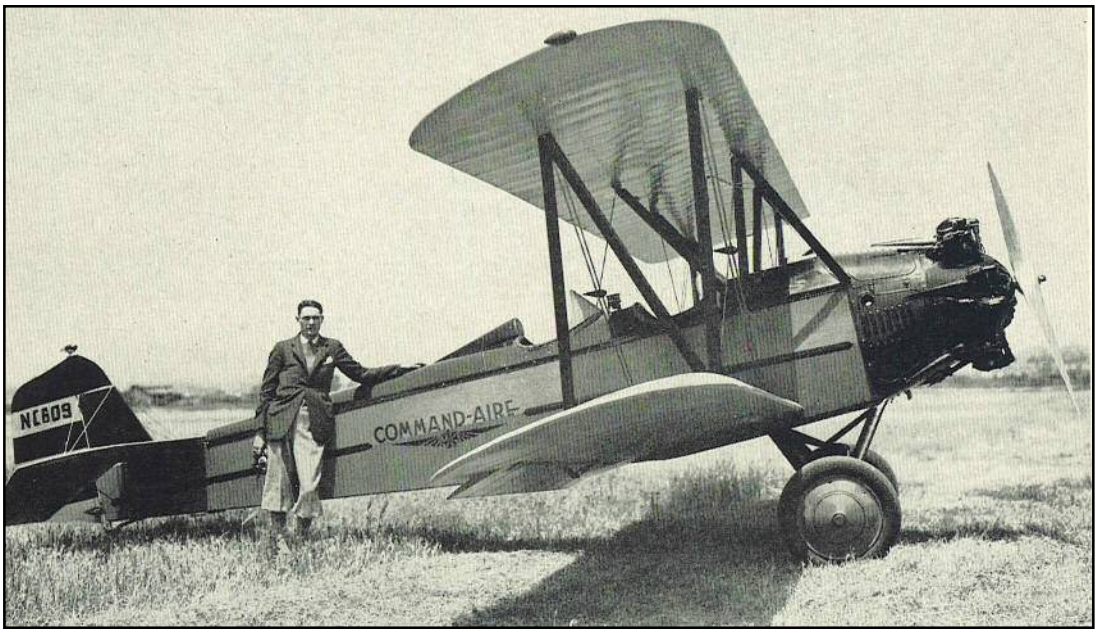
Above, from the original factory brochure printed in late 1929 a side view of the new model 5C3, NC609, serial number W-59 – the second model 5C3 produced. Fuselage structure was essentially the same dimensions as earlier models because they were

fabricated in Albert's fuselage fixture and gas welded, the engine mount being welded on later. Total production of the model 5C3 would be 39 ships, the last being completed in July 1930, serial number W-143, NC10475. Only two additional ships would be produced after NC10475, a model 3C3-B serial number W-144 licensed NC12539 and the Little Rocket Racer MR-1, serial number R-1 and licensed NX10403.

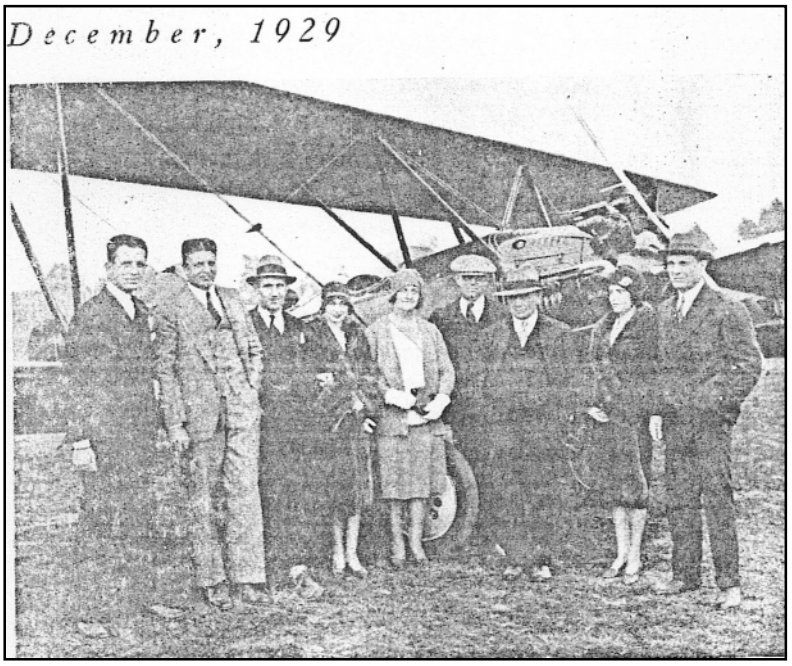
Consider that the model 3C3 had an empty weight of around 1820 pounds, a gross weight of 2200 pounds and was powered by a 90 hp OX-5 motor. The new model 5C3 had an empty weight of about 1725 pounds, a gross weight of 2365 pounds and was powered by a 185 hp Curtiss Challenger radial engine. One can easily deduce that by doubling the engine power and adding only 365 pounds to the gross weight of the ship, a good performing airplane would be produced.

Mr. Charles M. Taylor, vice President of Command-Aire in 1929 remembers taking the second production model 5C3, NC609 on a cross-country trip to California. Taylor writes, *"I was invited to join the Aviation Country Club flight to California* (May 1, 1929)*, consulting with Miss Ruth Nichols, famous aviatrix and holder of numerous records for women pilots. Ruth was one of three women in the United States holding a transport pilot's license, and Robb C. Oertel, previously manager for Commander Byrd's North Pole flight, and C. O. Bedford, engineer loaned by the Curtiss factory. Ruth flew a Curtiss Fledgling, Robb a Curtiss Robin with Bedford as passenger and I flew a Command-Aire – all three ships were powered by Curtiss Challenger 170 hp engines. The purpose of the trip was to establish a chain of aviation country clubs. Bob Snowden, who was president of Command-Aire, and I, as vice president, both thought this a golden opportunity to get some good exposure for Command-Aire and to run a test flight on this particular model of Command-Aire* (the 5C3, NC607, serial number W-54). *When the group arrived in Little Rock and invited us to join them, we quickly accepted. We flew to Dallas, Abiline, Midland, Pecos, El Paso, Lordsburg, Tucson, Gila Bend, Yuma, San Diego and Los Angeles, where we were guests of the former Secretary of War, Newton D. Baker. He was active at the time in starting a southern transcontinental mail and passenger route. I left the part in Los Angeles and started home on May 22 via Kingman, Ash Fork, Holbrook, Alburquerque, Amarillo, Oklahoma City, Tulsa, Wichita, Kansas City, St. Louis to Little Rock, arriving May 31. This trip was most enjoyable for me, being the start of a long time friendship with Roth and Robb. My notes on the performance and design of that model Command-Aire and the trip gave Command-Aire valuable publicity. One item was featured in the press emphasizing the stability of the Command-Aire design. I flew from San Diego until ready to land at Los Angeles without once touching the stick after I reached cruising altitude and set the stabilizer."*

In the photograph below taken from the factory files showing Charles M. Taylor with the second Command-Aire 5C3 produced, NC609 prior to his trip to the West coast. Mr. Taylor signed the Davis-Monthan Aviation Field register on May 6, 1929, along with Ruth Nichols and Robb Oretel. They listed their next destination as Yuma, Arizona and San Diego, California. Mr. Taylor was always a very classy dresser!



Robert B. Snowden bought controlling interest in Arkansas Aircraft Corporation September 1928 and the Snowden family moved from his large cotton plantation in Hughes, Arkansas. Snowden was a successful farmer but had an intense interest in aviation dating back before WW1. After joining Arkansas Aircraft, Snowden changed the name of the firm to Command-Aire. The Little Rock based aircraft factory was refinanced as Snowden poured his own money into the company and progress under his supervision was outstanding. Although Command-Aire had developed their own network of dealers, Snowden signed with Curtiss Flying Service to be the company's sole distributor. The model 5C3's popularity increased after the ship finished the highest of any production aircraft in the Guggenheim International Safe Aircraft competition held in Long Island, New York. Command-Aire aircraft were exhibited at national aircraft shows, even when the firm was near bankruptcy.



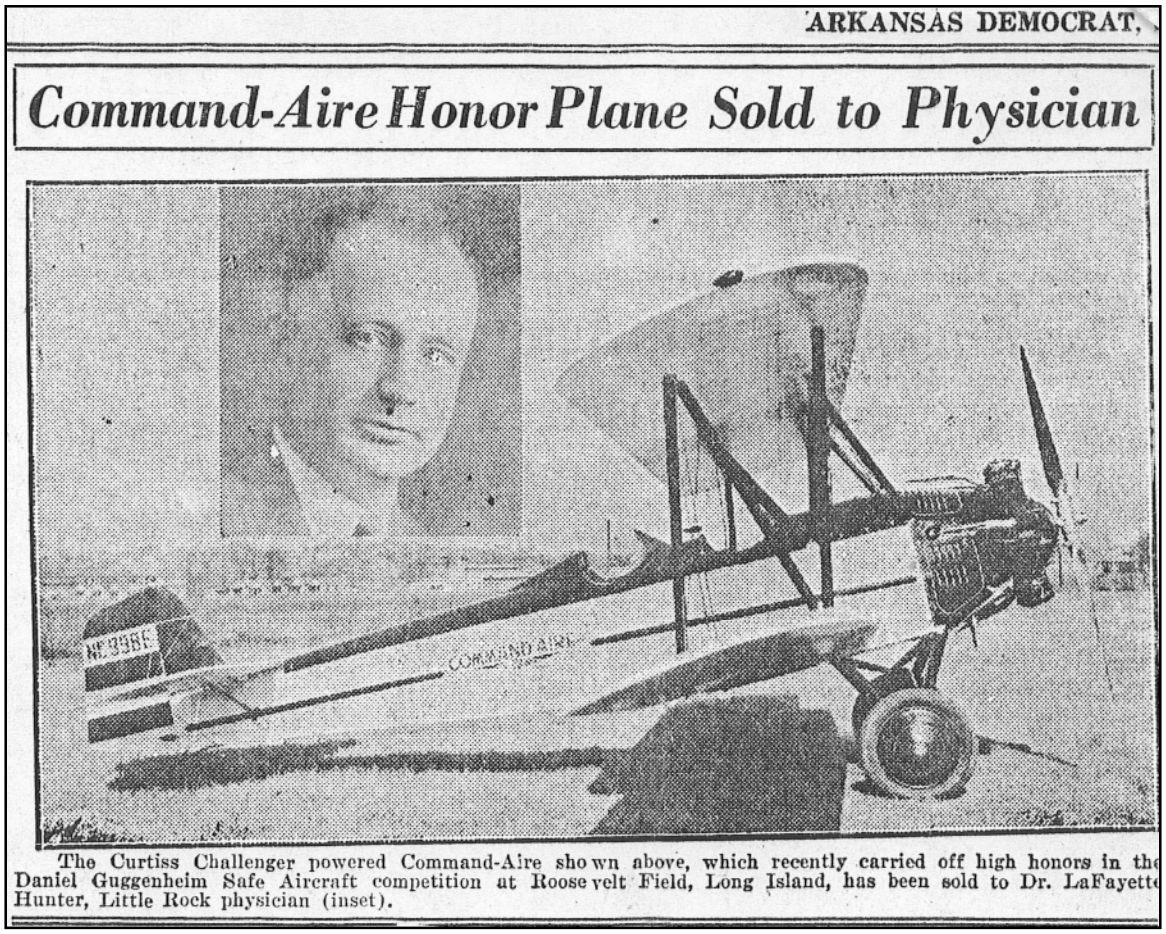
Right, Charles Taylor and Robert Snowden at Memphis Aviation Country Club with a new Command-Aire 5C3 ship.

Records of Air Tours conducted in Arkansas during the 1920's and 1930's always showed a stop in Horseshoe Plantation, the cotton plantation owned by the Snowden's. Air Tour chairman Charlie

Taylor wrote in an October 1935 letter of appreciation to Mr. Snowden, "*I don't think an aviation meeting in the State would be quite complete without your having some part in it.*"

Bob Snowden diversified his cotton plantation when the stock market crashed and banks began to fail in 1929. He surmised correctly that people still had to eat, so he grew vegetables and fruit on his large farm, dividing his time between the farming operation and Command-Aire in Little Rock. Snowden joined with Clarence Birdseye to develop flash frozen fresh food. Thus the farming operation and the frozen food business took a serious toll on Command-Aire and the company floundered without his leadership during a critical time caused by the pending depression. Another factor that led to the demise of Command-Aire was Curtiss buying Wright Aeronautical Corporation, which had purchased the manufacturing rights to the Travel Air factory from Walter Beech. When Curtiss and Wright merged, the new Curtiss-Wright Flying Service dropped Command-Aire and substituted Travel Air, which Wright owned. The end was in sight during 1930 and the company was liquidated in early 1931.

Above, Command-Aire model 5C3, NC998E, serial number W-137 was the next to last 5C3 produced by the factory on October 15, 1929. This ship was entered in the Guggenheim International Safe Aircraft Contest and is shown outside a hangar at Roosevelt Field, Long Island, New York. The ship was flown by Command-Aire sales manager, J. Carroll Cone, a noted pilot from WW1. This ship met all the requirements of the contest except low speed flight to 35 mph while holding altitude. The airplane just would not fly that slow. It finished the highest of all production ships entered in the contest and was withdrawn when it failed to meet the slow speed requirement. The ship was returned to the factory and repainted white with black trim and sold to a local Little Rock physician.



ARKANSAS DEMOCRAT,

Command-Aire Honor Plane Sold to Physician

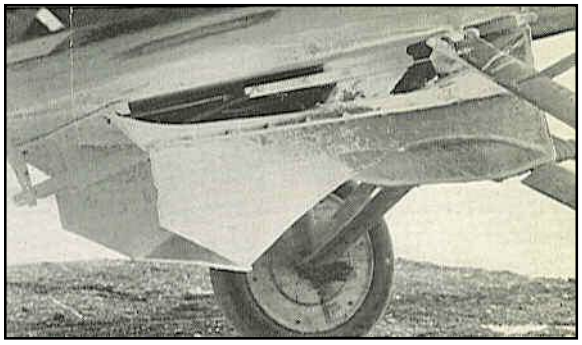
The Curtiss Challenger powered Command-Aire shown above, which recently carried off high honors in the Daniel Guggenheim Safe Aircraft competition at Roosevelt Field, Long Island, has been sold to Dr. LaFayette Hunter, Little Rock physician (inset).

Albert's model 5C3 design could be converted from a 3-place open land biplane into a single place crop duster by removing front seat and controls and installing a terneplace hopper. All aircraft that were manufactured by the company and destined for crop dusting had gas tanks installed in the center portion of the upper wings. Approximately 17 of the 39 total 5C3 ships were sold as crop dusters, however most of the aircraft that survived into the 1930's and 1940's became crop dusters after being modified by their owners.

Left a model 5C3 modified for crop dusting awaits its new owner outside the factory building. NC920E, serial number W-76 manufactured May 15, 1929. Note fuel tanks in center portion of upper wings. Most dusters were sold to Curtiss Flying Service and dusted in Texas and other southern

states.
NR920E now operating in Texas, most likely by the Curtiss Flying Service.

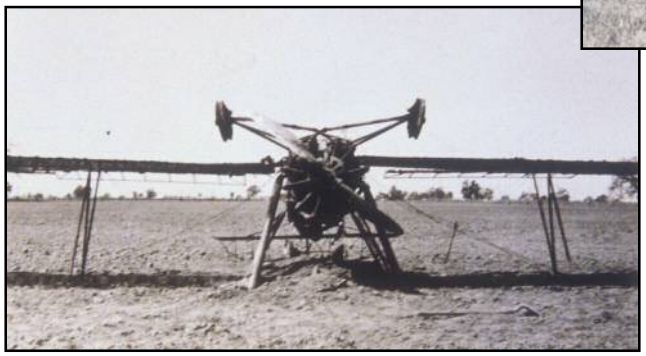
Left, a pair of Command-Aire model 5C3 ships flying formation dusting in Texas during 1929 and into the 1930's. Note Curtiss Flying Sevice logos painted on side of ships however they still retain the original Command-Aire factory paint schemes.



After ships left the factory, special spreaders were installed that had an air-driven agitator to aid driving dust into throat of spreader for more even application. Left, a photo of the spreader used by the Curtiss Flying Service, attached to the bottom of the hopper and facing into the propeller slipstream of the ship that aided in drawing dust from hopper and mixing it into the air stream.

Right, NR920E at its home in Strathmore, California, owned by Pacific Crop Dusters with headquarters in Los Angeles but operated by Campbell Air Service.

Below, the unfortunate end to a model 5C3 owned by Pacific Crop Dusters. This ship, either NR914E or NR920E crashed and burned while spreading sulfur dust at



the Traver Ranch near Visalia, California, June 1933. The pilot walked away but the ship was destroyed in the ensuing dust fire. Note Curtiss Challenger exhaust stacks piped up and over the upper wings. This was done on all early sulfur dusters to keep sparks from engine exhaust from igniting

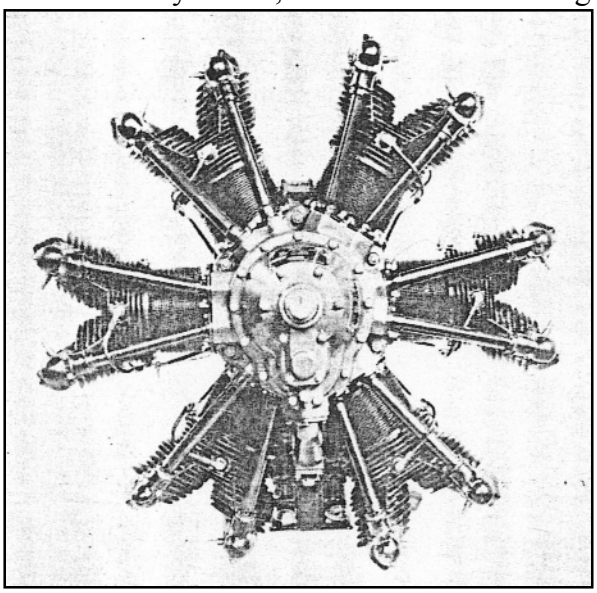
flammable dust in hopper. Sulfur dust would burn at a very intense rate.

An outstanding feature of all Command-Aire ships was the removable aluminum turtle back that allowed cleaning and inspection of the aft fuselage and tail structure. Most ships of the time had a fabric-covered turtle back making cleaning and inspection difficult.

While some ships had a career in crop dusting, others were used for barnstorming in the 1930's. Most barnstormers were single ship operations however a few formed troops of several aircraft complete with mechanics who doubled as wing walkers.

Left, a model 5C3, NC955E serial number W-134 and manufactured October 9, 1929 is out barnstorming "with Tony." Carrying two people in the front cockpit was a rather tight fit, but folks were smaller in the '30's than they are today. These gypsy pilots made a living flying from city-to-city charging a small fee for a flight in a biplane.

All model 5C3 ships were powered by the radically new Curtiss R-600 Challenger engine, a 6-cylinder radial that featured 2-rows of 3-cylinders, that made for a strange sound when compared to the standard 7 and 9 cylinder engines. Power output of the Challenger engine was from 170-185 hp and carburetor was a dual type, each half fed a fuel/air charge to 3-cylinders located on each row. The engine was reliable but had vibration problems because it was mounted directly to the engine mount ring with only a leather washer separating the engine from the ring. Vibration was a problem for all early engine installations as adequate rubber shock mounts had not been invented. Rubber shock mounts did not come along until well into the 1930's. Most early installations just bolted the vibrating engine rigidly to the mount.



The production run of model 5C3 ships lasted from December 1928 through July 1930. The next evolution of this ship were variants – the models 5C3-A, 5C3-B and 5C3-3.

DEVELOPMENT OF COMMAND-AIRE
MODELS 5C3-A, 5C3-B AND 5C3-C

While the basic model 5C3 was a popular ship, Albert Vollmecke and Command-Aire offered variants to the Wright Challenger version. Command-Aire was granted ATC 185 for its Hispano Suiza "Hisso" powered 5C3-A. This was a very handsome ship using the water-cooled 150 hp Hisso engine, which was more reliable than the Curtiss OX-5 plus had an additional 60 hp. The Hisso engine had been used in several aircraft of the era and was even installed in the venerable Standard J-1 aircraft of WW1 fame.

The first model 5C3-A was NC913E, serial number W-67, manufactured May 29, 1929.

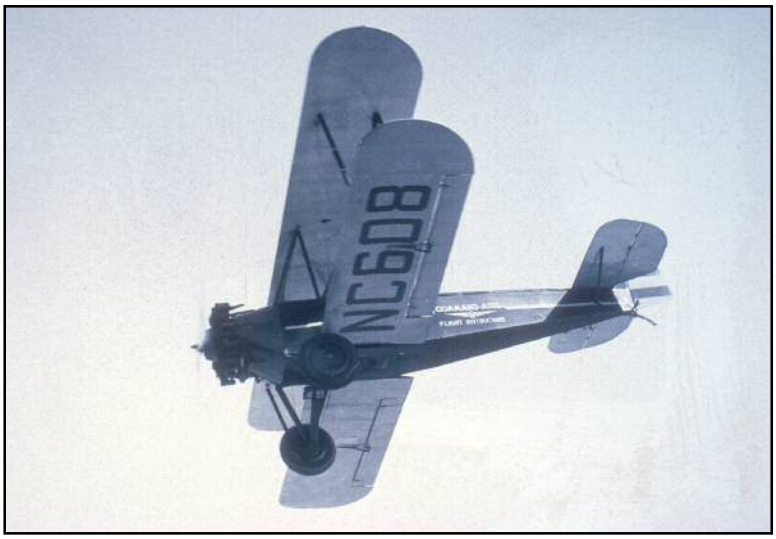
Above, NC919E, serial number W-81 with a May 29, 1929 manufacture date was the third and last 5C3-A model produced by the company. In the middle was NC911E, serial number W-75. Note large cooling radiator mounted below lower cowling between landing gear.

Below, in this official factory photograph, one might guess that it is NC913E, the first ship produced, however the rudder shows 607, that matches the license number of the first model 5C3 produced. There is data that suggests the factory, after conducting flight tests on NC607, disassembled the ship and used parts in other ways. That would explain why the license number 607 is on the rudder instead of NC913E. Since all major sub assemblies were built in steel fixtures they would be easily interchangeable. Note the installation of fuel tanks installed in upper wings. It would appear that there is also a fuselage nose fuel tank also installed, which would give the ship additional range. There was no center section in any Command-Aire biplanes, therefore wing tanks were mounted in the first bay of each wing. Tanks were held in place by 2" wide steel straps attached to the wing spars. This factory photo was most likely taken by R. D. Wolff, official photographer for the factory.

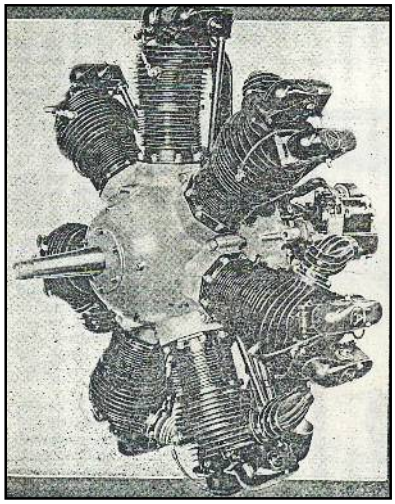
Shown below is a "counterfeit" model 5C3-A. If one examines the photo closely, diagonal brace struts can be seen attached to the front lower longerons to the cabane strut attach point on the upper wings. That makes this ship a model 3C3 and not a 5C3-A. The license number 6690 identifies the ship as probably the first production model 3C3, serial number 515, manufactured July 14, 1928. The ship was badly damaged in an accident and returned to the factory for repairs, including installation of new wings. Note also that upper wing fuel tanks have been installed along with the smooth nose of the model 5C3-A.

In a communication to the owner from Mr. Jesse W. Lankford, Chief of Licensing Section for the Aeronautics Branch of the Department of Commerce dated January 12, 1929, he states, *"It is noted that you have installed a Hispano-Suiza motor in the plane. The Command-Aire with Hispano-Suiza motor installation has not been approved for license by this Department. For that reason license No. 6690 is hereby cancelled, and you are assigned the No. 6690*

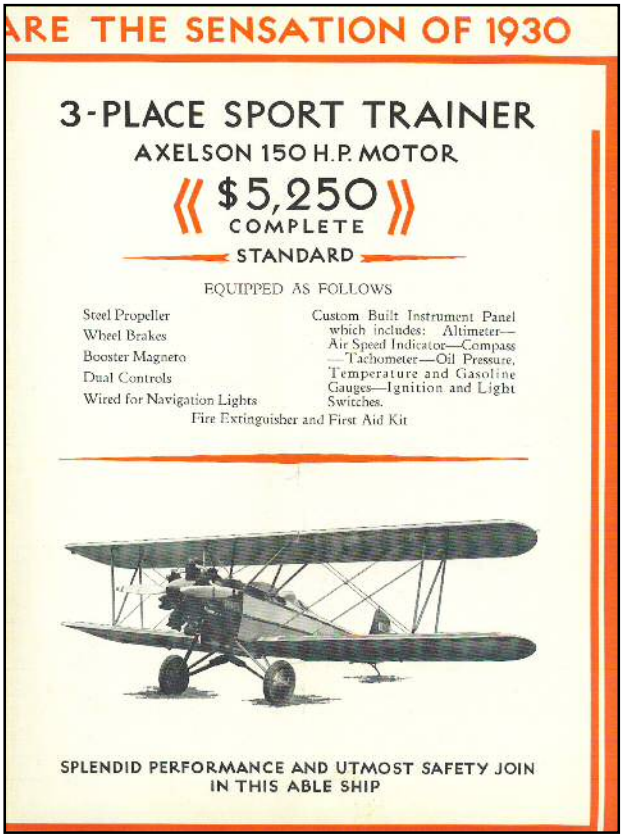
as your unlicensed identification number. The letter "C" must be removed from the plane before it is operated. Identification mark assignment and metal plate will be forwarded in due course." Since ATC 185 was not granted until July 1929, it would appear that the factory may have used this ship to test the Hispano-Suiza engine installation, complete with cowling and upper wing fuel tank installation, before constructing any model 5C3-A ships.



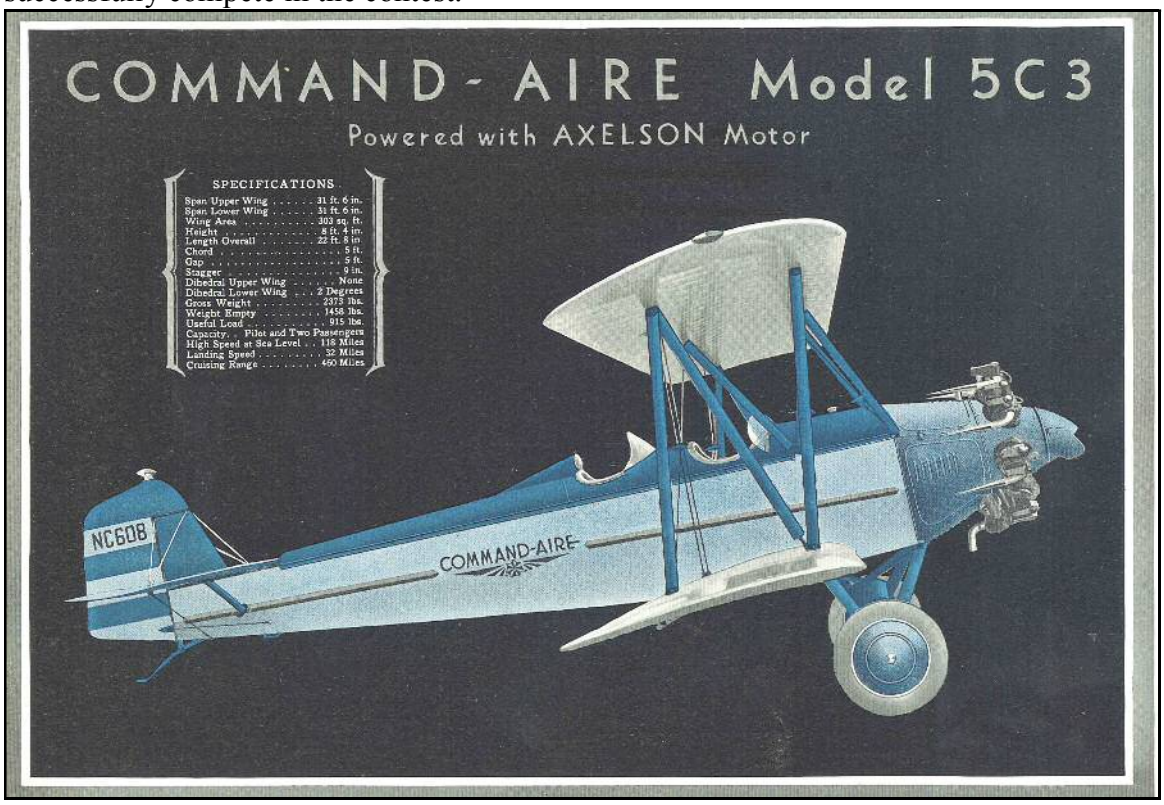
ATC 214 was issued to Command-Aire for another 5C3 variant, the model 5C3-B. This ship was powered by an Axelson 7-cylinder air-cooled radial engine producing 115 hp. Only 4 ships of this type were manufactured, the first being NC608, serial number W-61on in March 1929 and the last NC10457, serial number W-142 on July 5, 1930.



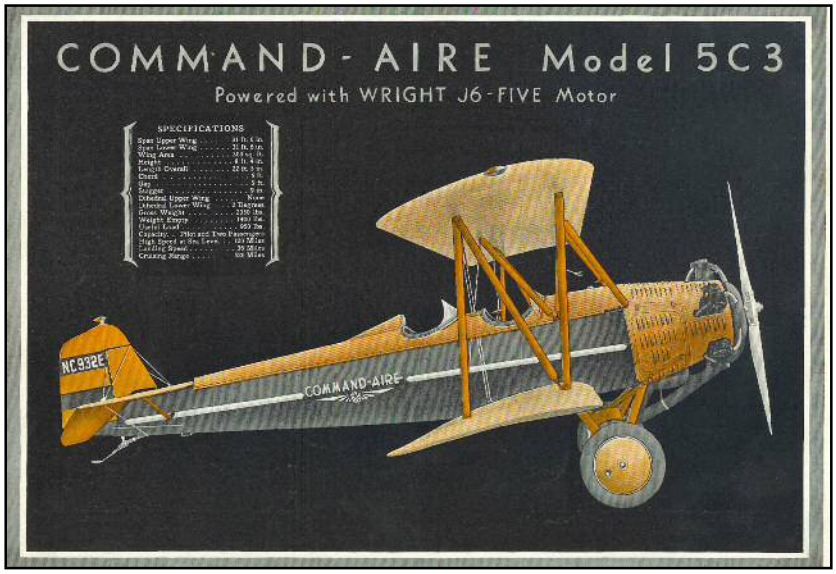
Axelson radial aircraft engines were manufactured in Los Angeles in the late 1920's. Their products included the 115 hp model A-7-R and the 150 hp model B engines. In the original Command-Aire factory brochure produced in 1930 the model 5C3-B is shown complete with price. Note that the ship still has a tail skid but now has mechanical brakes. Mechanical brakes were a direct result of the Guggenheim International Safe Aircraft competition whereby competing ships were judged for their "stick" and "unstick"



performance. "Unstick" was the length of take-off run to clear a 50' obstacle and "stick" was the length of landing run over a 50' obstacle. Brakes were an absolute necessity to successfully compete in the contest.



Above, from official factory brochure dated 1929 the model 5C3-B, although not identified as a "B" variant of the basic 5C3. Slightly longer nose is evident when compared to the Wright Challenger version.



The final variant of the model 5C3 was ATC number 233, the Command-Aire 5C3-C. Only 5 examples of the model 5C3-C were manufactured by the factory. Powered by a Wright J-6-5 (R-540) engine producing 165 hp, the first ship carried license number NC932E, serial number W-92 manufactured June 12, 1929 and the last ship NC978E, serial number W-116 was manufactured September 16, 1929. It is interesting to note that the western co-manager for LIFE magazine purchased a Command-Aire to

increase his sales effort. The advertisement below displays how Command-Aire capitalized on the event.

Fred Foote of LIFE buys a COMMAND-AIRE

FOR some time Fred Foote, Co-Western Manager of Life, has been selling space via airplane. We led him forward in Time January 27th and said: "Gentlemen: Mr. Foote—give the boy a hand."

Overnight Mr. Foote rises from the distinction of selling space via plane to the super-distinction of selling space via Command-Aire airplane.

For Mr. Foote has just contracted for a Command-Aire equipped with a Wright J-6 150 H. P. motor and with all the gadgets and luxuries which Command-Aire modishness dictates.

Command-Aire takes particular pride in Mr. Foote's purchase because it is a discriminating purchase. A licensed, experienced pilot, Mr. Foote looked the market over thoroughly and among 39 approved types selected Command-Aire.

It all started, doubtless, with the inherent stability of Command-Aire—a stability which, as the picture shows below, permits the pilot to leave the controls and straddle the fuselage while the plane flies serenely and unerringly forward. This is in no sense a stunt but an everyday test of Command-Aire stability.

What we have proved to Mr. Foote, we can prove to you. Just write.

COMMAND-AIRE

General Distributors:
CURTISS FLYING SERVICE, Inc.
27 W. 57th St., New York City, who handle Command-Aire at their 15 airports and in co-operation with the Distributors shown.

INDIANAPOLIS, IND.
Silver Wing Aircraft Corp.
802 South Delaware Street

SPRINGFIELD, MASS.
Eastern States Aircraft Corp.
134 Dwight Street

NEW YORK CITY
Eastern Aeronautical Corp.
Graybar Building

CHICAGO, ILLINOIS
Aviation Service & Transport Co.
2807 South Michigan Avenue

WASHINGTON, D. C.
Congressional Airport, Inc.
220 Transportation Building

SEATTLE, WASHINGTON
Northwestern Airlines, Inc.
6024 Duwamish Avenue

LOS ANGELES, CALIF.
Miller Aircraft & Motors, Inc.
2484 West Washington Blvd.

SYRACUSE, NEW YORK
General Aviation Company, Inc.
208 South Geddes Street

DETROIT, MICHIGAN
A. R. Taylor
214 Junction Avenue

ST. LOUIS, MISSOURI
Radio Aircraft Corporation
Melbourne Hotel
Care of Radio Station WIL

FORT WORTH, TEXAS
Texas Flying Service

TULSA, OKLAHOMA
Command-Aire Sales Corp.

Mr. Foote wanted his personal Command-Aire to be readily recognizable so he had the factory put a very distinctive paint job on the ship. Albert Vollmecke, when asked if the factory had really painted the ship to look like a Scarlet Tanager bird, his answer was "yes."

Above, Fred Foote's 1929 Command-Aire 5C3-C depicted in this painting that the factory used to advertise their product.

The Command-Aire factory had constructed 39-model 5C3, 3-model 5C3-A, 4-model 5C3-B and 5-model 5C3-C aircraft for a total run of model 5 ships of 50. Today only 5-original 5C3 aircraft remain, no other examples survived. Most ships, if they survived into the 1940's were converted into crop dusters and most were wrecked.

Rarely an aircraft would have a different history than barnstorming, sport flying or crop dusting. In the photograph right, Coast Guard LT. Clarence F. Edge poses with a Command-Aire 5C3 of unknown license. What is known was that the ship was seized for smuggling liquor into the United States during Prohibition. Many of the seized ships were transferred to the Coast Guard and patrolled the borders between United States, Canada and Mexico. In the early

1930's Prohibition had been the law of the land for over 10-years. The Customs Service and Border Patrol had an enormous task of combating the smuggling of alcohol, illegal aliens and drugs along the 5900-mile open border. Liquor smuggling was extremely profitable during Prohibition, but after it was repealed the smuggling of illegal aliens and drugs remained unaffected.

On March 9, 1934 all air operations of the U.S. Customs were transferred to the Coast Guard. Air detachments were scattered across the border States. A unit of five men commanded by LT. Clarence Edge arrived at Dodd Field near San Antonio, Texas

Transferred to the Coast Guard were 15 additional aircraft seized over the previous few y ears. It is believed that the mix of ships were 2-Curtiss Falcons, 2-Curtiss Robins, a Douglas Mailwing, 2-New Standard D-25's, a Pilgrim, a Command-Aire 5C3, a Sikorsky S-39 and 2-Waco 10's. Although this list looks impressive in reality most of the aircraft were in very poor condition and mostly unairworthy. Eventually all were replaced except the two New Standards. It is unknown what happened to the Command-Aire 5C3. (this data from U.S Coast Guard history files.

Perhaps the fate of this Command-Aire was much worse than being seized by U. S. Customs. Many early Hollywood movies featured the wreck of an airplane. This photo is unique because one can tell the ship is a Command-Aire but its precise model number cannot be determined because the damage is so extensive. However the brave (!) pilot can be seen exiting the rear cockpit. Many old aircraft met their end before the cameras of Hollywood film directors. Flying through barns, crashing into trees, flying through flaming barricades was the norm in those days. The brave stunt pilots were paid a nominal fee for wrecking these airplanes before the cameras.

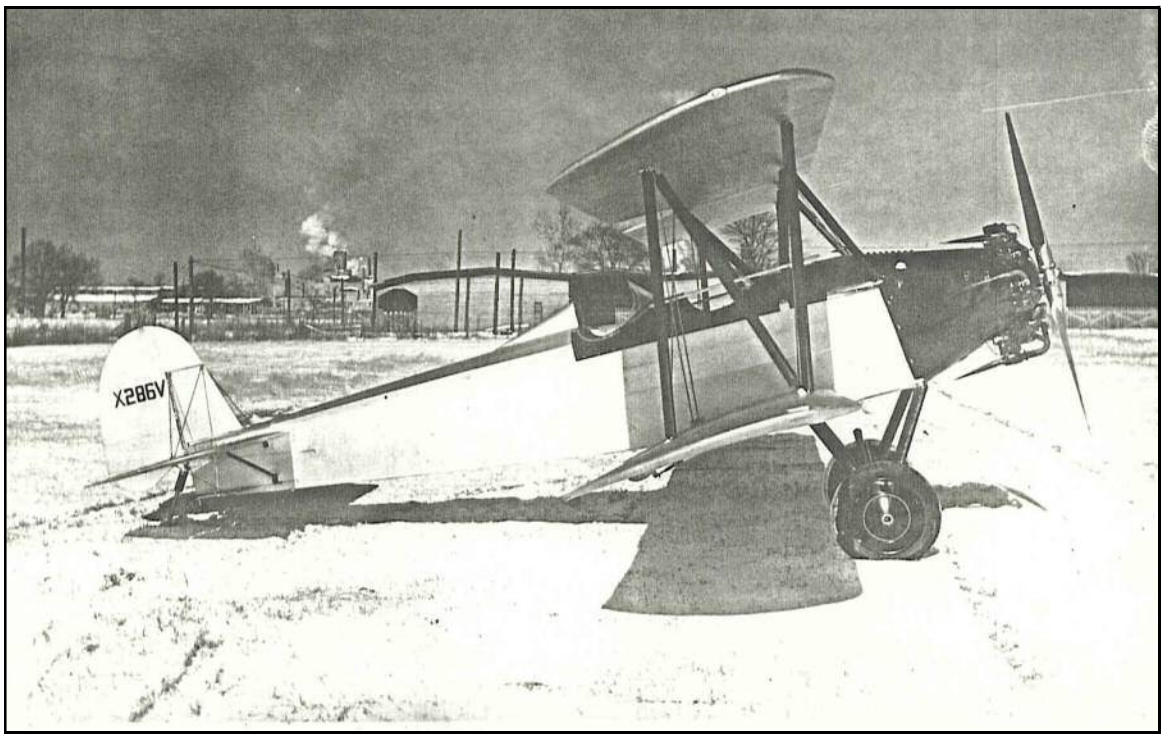
DEVELOPMENT OF THE COMMAND-AIRE
MODEL BS-14 AND BS-16

As hope of remaining a viable airplane manufacturing entity, hope for Command-Aire had dimmed early 1930. However, Chief Engineer Albert Vollmecke pressed on with his designs, producing two outstanding ships that could have been very successful had the company survived the stock market crash and ensuing depression.

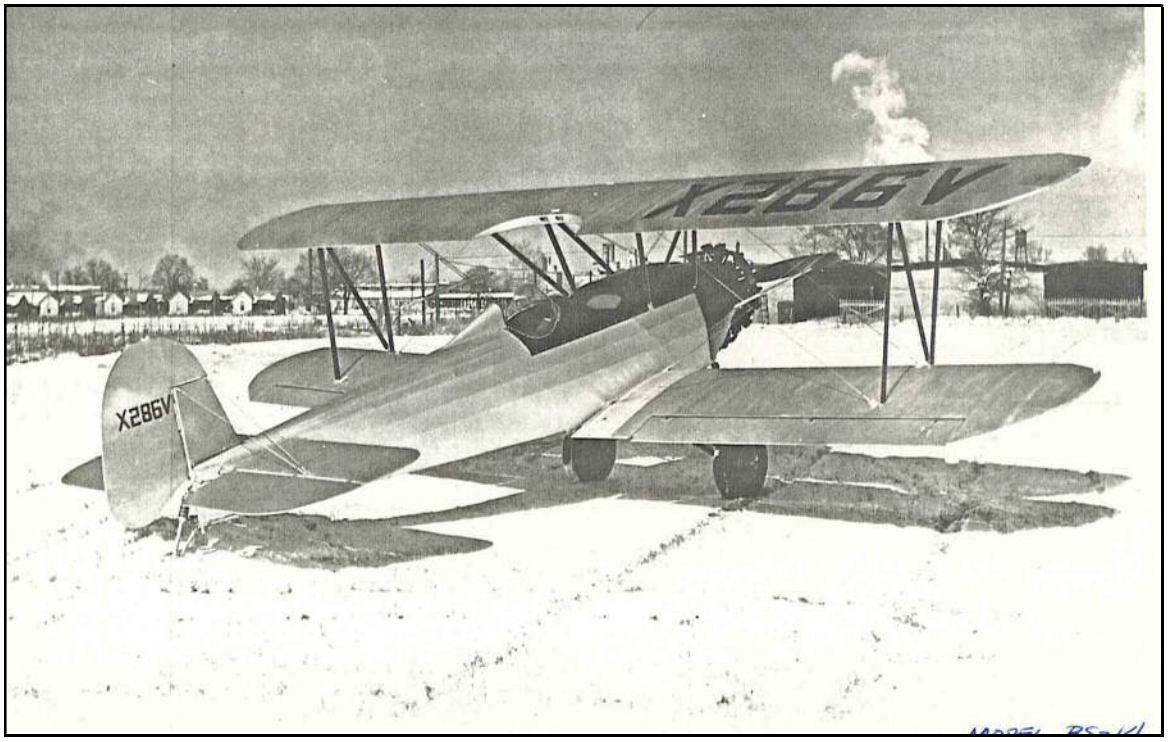
Albert's first really new design was the model BS-14. When asked what the "BS" represented, he replied, "*Biplane-Sport."* The ship was manufactured under a Department of Commerce – Aeronautics Branch Group 2 approval number 2-204. Group 2 approvals were issued by the government and were numbered sequentially starting with 2-1, therefore the BS-14 was the 204th airplane to receive the certificate. Group 2 approvals were used when the manufacturer did not want to go through the entire ATC process and where only 1 or 2 airplanes would be constructed or when there was major modifications to an existing ATC approved ship.

The model BS-14 carried serial number W-139 and was licensed X-286V. The ship was actually a modified model 3C3-A, but the modifications were significant. Albert upped the power by installing a 125 hp Warner Scarab 7-cylinder air-cooled radial engine.

Modified features of the BS-14 not only included an engine change but, as the photo left shows, an upper wing trailing edge cut-out over the front cockpit that would allow the passenger to bail-out of the ship if needed because the BS-14 was designed as an acrobatic trainer. The wings and tail cellules were from the model 5C3. Note shock absorbers on the axles at the lower end of the rigid landing gear. Although the fuselage had small modifications, the shape of the rudder was changed to a more rounded top. The ship still used a tail skid but it was steerable and included a shock absorber. Mechanical brakes were standard equipment.

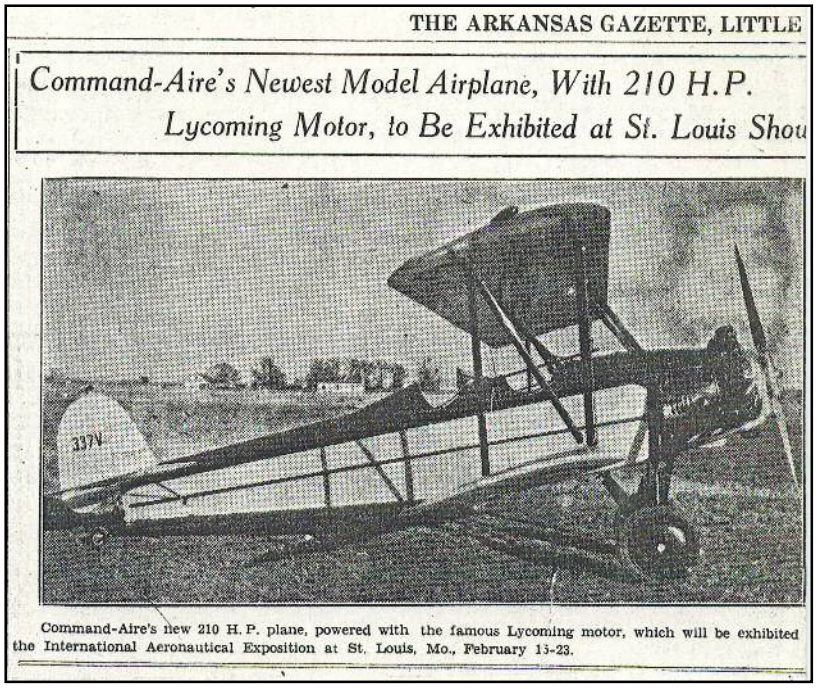


Note in the above factory photograph the rounded rudder and the absence of navigation lights at wing tips and rudder top. The navigation light mounts are installed in wing bows but no lights are attached.



In the above photograph the shape of the tail plane is clearly seen. Again the rudder profile has been significantly changed. Shock absorber for steerable tail skid is very

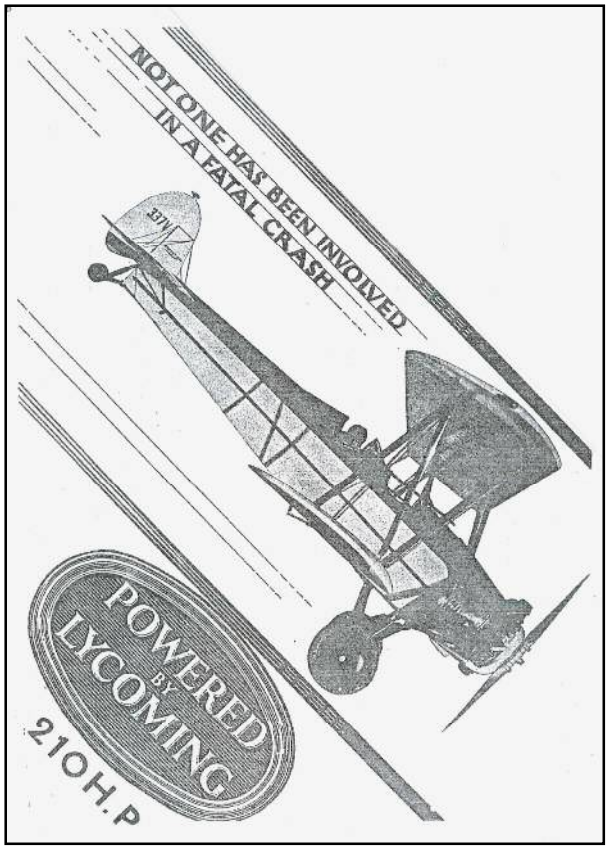
evident. Horizontal stabilizer, elevators and wings are from model 5C3. Hand holds can be seen in trailing edge cut-out in upper wings for ease of entry and exit. Aft fuselage turtle deck appears to be covered with fabric unlike model 3C3-A that had a removable aluminum cover that was screwed in place.

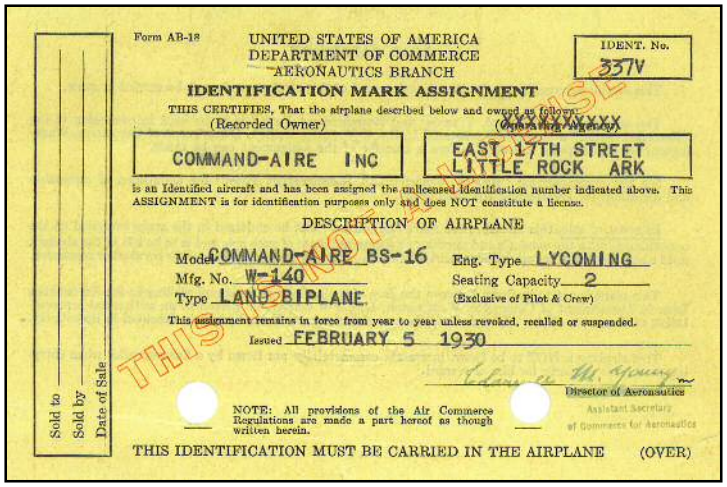

THE ARKANSAS GAZETTE, LITTLE

Command-Aire's Newest Model Airplane, With 210 H.P. Lycoming Motor, to Be Exhibited at St. Louis Shou

Command-Aire's new 210 H. P. plane, powered with the famous Lycoming motor, which will be exhibited the International Aeronautical Exposition at St. Louis, Mo., February 13-23.

The Command-Aire BS-16 was constructed under an Experimental Certificate issued by the government in January 1930. It never received a Group 2 approval or an Approved Type Certificate. The ship carried license number X-337V and serial number W-140 was assigned. This ship by far was Albert Vollmecke's best design for the company. It featured many modern conveniences and possessed very good performance. The fuselage was essentially a model 5C3 but was modified to incorporate a raised rear seat for better pilot visibility forward and an outrigger type landing gear with Gruss shock struts. Power was the new Lycoming R-680, which was a 9-cylinder air-cooled radial engine developing 210 hp. It was the largest radial engine that Chief Engineer Albert Vollmecke used during his design days at Command-Aire. The ship was the first to leave the factory with a tail wheel installed instead of a skid. When asked his favorite airplane during the Command-Aire days, Albert replied, *"It was the BS-16. I flew it to St. Louis for the International Aircraft Exposition on February17 – 22, 1930."*





Form AB-18 UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

IDENT. No. 337V

IDENTIFICATION MARK ASSIGNMENT

THIS CERTIFIES, That the airplane described below and owned as follow:

(Recorded Owner) COMMAND-AIRE INC

(Operating Agency) XXXXXXXXXX EAST 17TH STREET LITTLE ROCK ARK

is an Identified aircraft and has been assigned the unlicensed identification number indicated above. This ASSIGNMENT is for identification purposes only and does NOT constitute a license.

DESCRIPTION OF AIRPLANE

Model COMMAND-AIRE BS-16 Eng. Type LYCOMING
Mfg. No. W-140 Seating Capacity 2
Type LAND BIPLANE (Exclusive of Pilot & Crew)

This assignment remains in force from year to year unless revoked, recalled or suspended.

Issued FEBRUARY 5 1930

Director of Aeronautics

Assistant Secretary of Commerce for Aeronautics

NOTE: All provisions of the Air Commerce Regulations are made a part hereof as though written herein.

THIS IDENTIFICATION MUST BE CARRIED IN THE AIRPLANE (OVER)

Sold to
Sold by
Date of Sale

THIS IS NOT A LICENSE

Obtaining the Experimental license was timed very closely to when the ship had to leave for St. Louis. In their application for identification mark for the BS-16, Mr. J. A. Young, Assistant Sales Director for Command-Aire states, *"You will find enclosed herewith application for identification mark for Command-Aire, serial number W-140, our model BS-16, which is an open cockpit three place biplane sport model with a Lycoming R-D 680 two hundred ten horsepower motor. This ship is almost identical with out 5C3 Curtiss Challenger powered ship, ATC 184, with exceptions, of course, for motor installation and new type of landing gear. "* The factory was in a hurry to obtain a license number for an unlicensed ship as Mr. Young continues, *"You will note that this application is marked, "For Display in International Aircraft Exhibition, St. Louis, Missouri, Feb. 17th to 22nd. It is our desire to have an identification mark on this ship rather than an X number, only for the duration of the show; our intention being to apply for an experimental license number immediately following the show, and to request authorization for test flight as soon as all necessary information has been approved by the Department of Commerce. We shall not fly the ship for demonstration purposes and it will only be flown*

GRAM AND NEW LOW PRICES

COMMAND-AIRE 3-PLACE SPORT

210 H.P. MODEL: BS-16

POWERED BY LYCOMING

$5,675 COMPLETE STANDARD

EQUIPPED AS FOLLOWS

Consolidated Custom Built Instrument Panel including Tachometer—Altimeter—Air Speed Indicator—Compass—Oil Pressure, Temperature and Gasoline Gauges—Ignition and Navigation Light Switches: Dual Control—Steel Propeller—Hydraulic Landing Gear—Brakes—Navigation Lights—Tail Wheel—Luxurious Fabrikoid Upholstering.

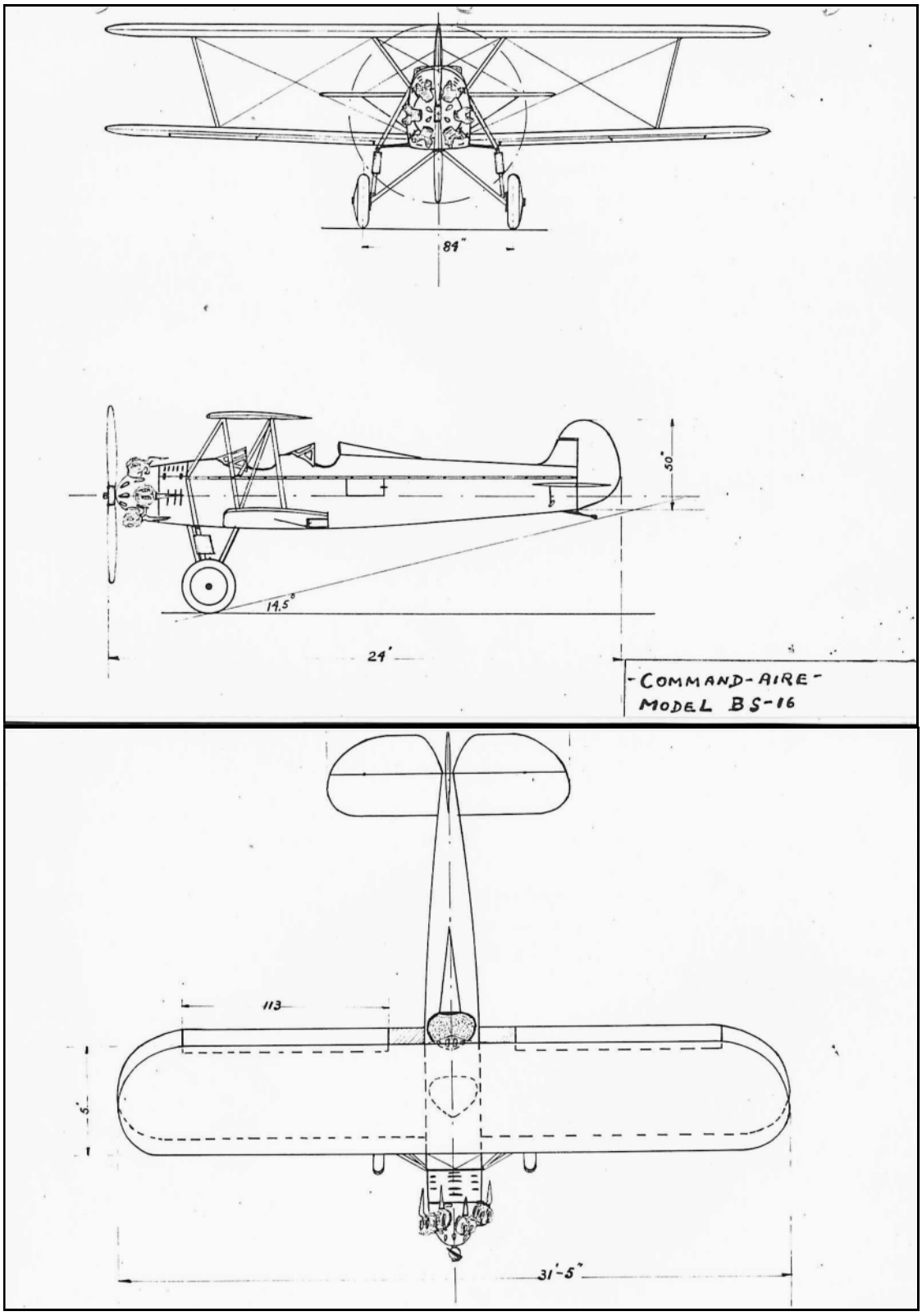
A Sportsman's Thoroughbred

Combining superpower of unmatched smoothness and quiet, with structural integrity, proven stability, luxurious appointments and smart lines.

from Little Rock to St. Louis and return." The certificate was promptly issued February 5, 1930, in time for a few test flights and then on to St. Louis.

Albert said he flew the BS-16 to St. Louis along with his assistant P. Y. Tien who came to the United States from China. At the Arkansas Aviation Hall of Fame induction of Albert Vollmecke , November 11, 1983, former Command-Aire vice president Charles M. Taylor made the following comments. *"I remember the 1930 St. Louis Aircraft Show. We had to take several planes up there to display and to demonstrate. Vollmecke and his Chinese assistant engineer P. Y. Tien – you see they were an international outfit – volunteered to fly one of the planes to St. Louis. I heard about the trip later from Mack West, who operated the airport at Paragould. He said this Command-Aire landed for gas but he couldn't find out how much gas they wanted. He said he didn't understand German or Chinese and he wasn't sure they understood each other, but they had two slide rules smoking, apparently computing miles already flown from Little Rock, miles still to fly to St. Louis, the amount of gas already consumed and the amount of gas required for the balance of the trip at various throttle settings and the RPM's. I asked Mack what happened – he said – Aw heck, I filled the tank full, told them to get out of there and get to St. Louis before dark."* This is a very funny story about Albert's flight to St. Louis in the BS-16.

Above, from a 1930 original factory brochure a description of the model BS-16. Based on the standard equipment, the BS-16 was a very posh machine for its time. It is such a shame that the company did not survive the hard times of the depression and bank failures, but very few people could afford to purchase such a luxury as an airplane in those days.



Above, from the files of my friend Albert Vollmecke, the only known sketch of the model BS-16 done with the designers own pen. Note the raised rear cockpit that gave the pilot better forward visibility, an ingenious invention by Vollmecke. The nice outrigger

type landing gear is apparent. Wings and tail plane same as model 5C3 with no upper wing trailing edge cut-out above front seat. Aircraft was a 2 place open land biplane and designed purely for sport flying.

COMMAND-AIRE IN SERIES OF TESTS

New Model Sports Biplane Is Considered Success by Officials.

A new model Command-Aire three-place sports biplane took to the air here for the first time yesterday in test flights that were pronounced an unqualified success by officials of Command-Aire, Inc., Little Rock airplane manufacturing concern. The first flight was made by John Bell, chief test pilot, and later flights were made during the day by Maj. J. Carroll Cone, sales manager; Albert Vollmeke, chief engineer, Charles M. Taylor, vice president, and other pilots connected with Command-Aire, Inc.

R. B. Snowden, president of the company, expressed himself as pleased with the performance of the ship, which he said was up to the highest expectations of the designers. The new ship, which has silver wings and fuselage and black engine mountings and black streamlined nose, made an unusually attractive picture as it took off from the snow covered fields.

The new ship, Mr. Snowden said, embodies the most advanced ideas in aeronautical design. A new type of hydraulic-spring landing gear affords greater elevation to the nose of the plane and makes possible quicker take-offs and faster climbing. The ship can climb on an almost vertical path, once it has gained sufficient momentum.

Another feature is the new type set of controls, unusually easy to handle, and affording smoother, more positive landings. Due to greater elevation of the nose through the new type landing gear, it is almost impossible for the plane to "nose over," it was said. The propeller has greater clearance.

The tail of the new Command-Aire is almost entirely a new design. The rudder and tail skid are hooked up together, making it possible to turn the ship in remarkable small space, much smaller than was possible with earlier models. Landing tests yesterday showed that floating characteristics in landing have been greatly cut down in the new model, giving more positive control. There are no brakes on the new plane, as it was explained that its slow landing speed makes brakes unnecessary.

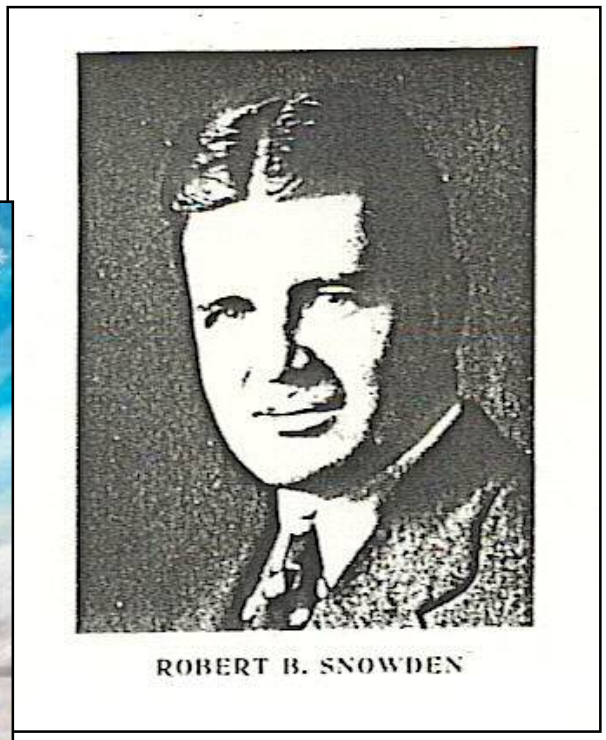
Left, story from Arkansas Gazette reports on flight testing of the new model BS-16. Story reports ship has no brakes as they are not needed due to its low landing speed. That is not exactly correct as the factory brochure states the ship has brakes.

X-337V was sold to Command-Aire president R. B. Snowden, Jr., on September 2, 1930. At this time the factory was being readied to go into receivership, so Mr. Snowden took the new ship before it could be liquidated. X-337V eventually wound up in the Houston, Texas area where it was converted to a crop duster. It was last licensed as NR (Restricted) 337V to Mr. J. L. Schroeder. In a communication dated November 9, 1934 on J. L. Schroeder Aeronautical Supplies of Houston, Texas, Mr. Schroeder states, *With reference to your letter concerning affidavit from Longview Airport, Sterling Building, Houston, Texas, which formerly recorded a lien in the above mentioned firm's name, covering a Command-Aire model BS-16, manufacturer's serial number W-140, revoked restricted license number RN337V, wish to advise that we notified Mr. Clark, the local inspector, in a letter dated October 12th, that this airplane had been damaged beyond repair, and that we did not propose to rebuild same. We have already junked the plane."*

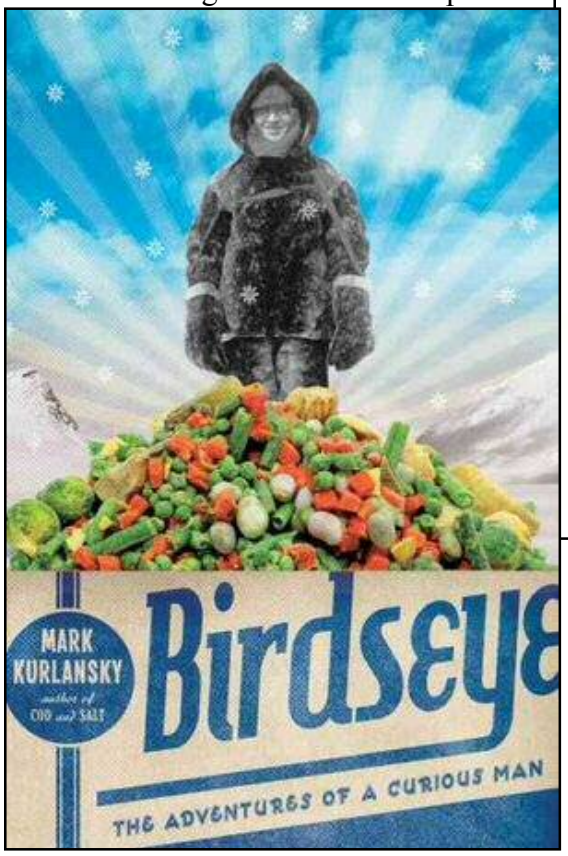
And so the end of X-337V, later NR337V is very evident. The ship crashed and burned while crop dusting in Texas

DEVELOPMENT OF THE COMMAND-AIRE MR-1 "LITTLE ROCKET"

Faced with a dwindling market for new aircraft, small manufacturer's like Command-Aire began to falter and faced a bleak future. In an interview with Chief Designer Albert Vollmecke, the conversation turned to the state of the corporation as 1930 approached. According to Vollmecke, president Bob Snowden had taken a great interest in a new invention to flash freeze vegetables by Clarence Birdseye. Snowden owned a large plantation in Hughes, Arkansas and was looking for a way to keep money flowing after the stock market crash and the start of a great depression. His attention to Birdseye left Command-Aire floundering without leadership.



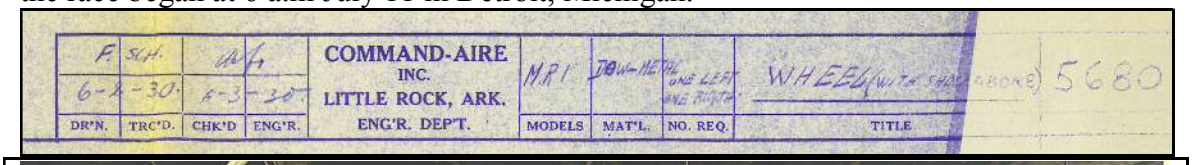
ROBERT B. SNOWDEN

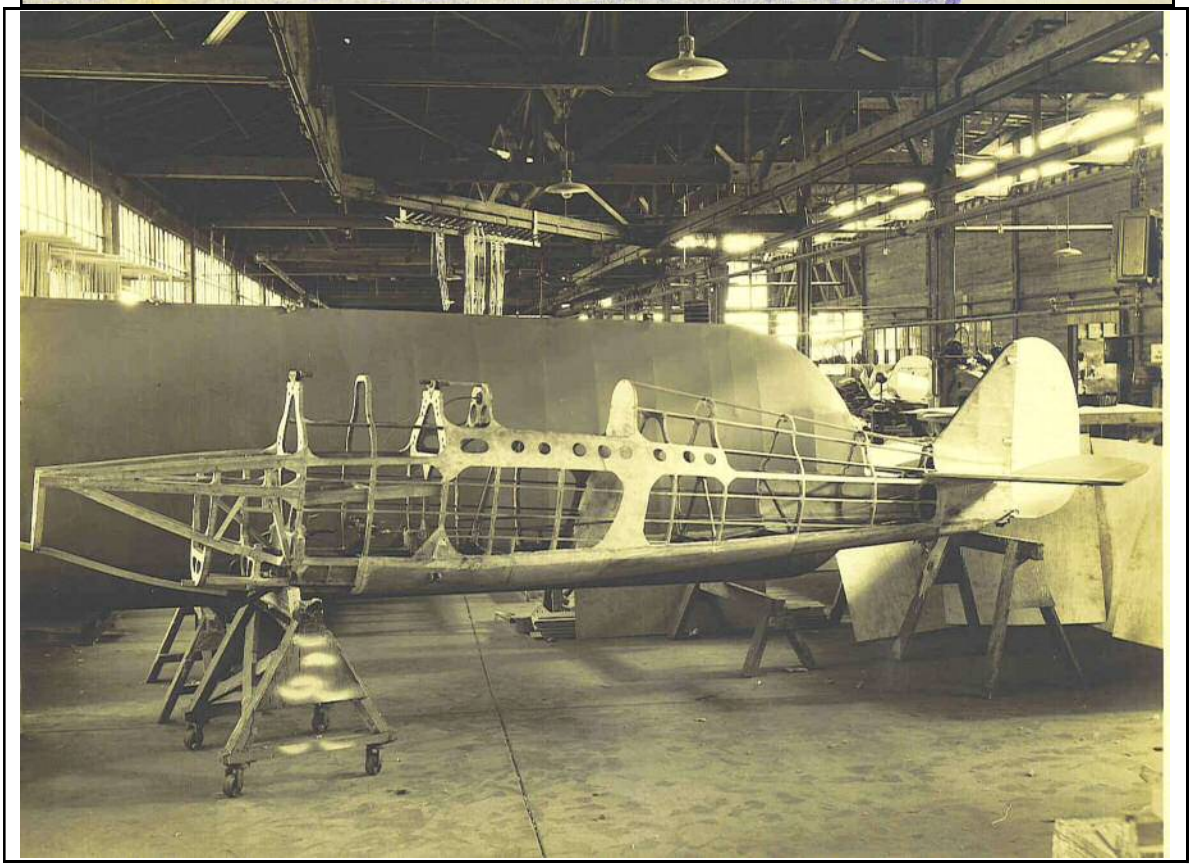


To compound the problem, Snowden had halted all Command-Aire dealerships and allied with the Curtiss Flying Service as sole distributer of the company's aircraft. In the beginning this may have been a good move, however Wright Aeronautical Corporation had acquired the assets of Travel Air manufacturing company in Wichita. Soon thereafter Curtiss and Wright merged, thus leaving Command-Aire without any dealerships. That was the ultimate straw that led to the demise of Command-Aire, Incorporated, Little Rock, Arkansas.

In late 1929, a group of investors from the Little Rock area came to Al Vollmecke at Command-Aire to propose funding for a design and fabrication of a small Cirrus powered racing airplane to enter the All American Cirrus Derby in 1930. This would be the last ship designed by Al Vollmecke and the last ship built by the corporation.
Al Vollmecke immediately went to work at his drawing board and produced the necessary prints in a matter of days. Construction began at the Command-Aire factory

and maximum effort was placed on the project to meet a deadline of early July 1930 for the race began at 6 a.m July 11 in Detroit, Michigan.



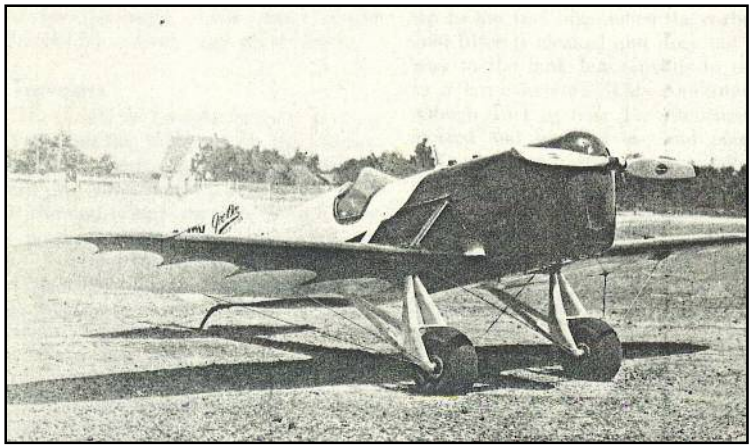


Inside the factory the fuselage begins to take shape. Note it is of monocoque construction and made of wood. A model 5C3 wing covered in cotton fabric through silver pigmented dope form the backdrop to show details. The airplane was completed in just four months after Vollmecke completed the design.

Above, the completed ship shown with major contributors. From left is chosen pilot Lee Gehlbach, Albert Vollmecke, Bob Snowden (president of Command-Aire) and Charles Shoemaker, Jr., (secretary/treasurer of Command-Aire and president of the Little Rock Racing Association).

Frontal view of the Little Rocket clearly shows its sleek racing lines. Note ships in background appear same in following side view photo of the Little Rocket. Obviously taken at the same time.

Command-Aire applied for a registration number on July 7, 1930 and received license number NR10403 shortly thereafter. The ship was painted red and silver and carried race number 1. Powered by a supercharged upright Cirrus "High Drive" inline 4-cylinder engine, the wing span was 23 feet 6 inches, which gave the small ship 88 square feet of wing area. It had several unique features, however of significance were shock absorbing wheels and drooping ailerons for better take-off and landing performance at high altitude and hot runways along the course. By means of a small hand crank on top of control stick, the pilot could crank both ailerons down approximately 15 degrees thus increasing the camber and lift of the wings. THE AVIATION NEWS on July 26, 1930 stated, "*It is apparent that some of the pilots have relied on a high speed to offset the necessity of landing for gas due to a low fuel capacity; others (among them the standard machines) sacrificing some speed in order to carry more gasoline. The Command-Aire 'Little Rocket' for instance, carries only 31 gallons of gasoline, but in unofficial tests is said to have made as high as 170 m.p.h.*"



The result was that the Little Rocket won the derby, averaging 127.11 m.p.h for the entire race. The next closest ship was a Gee Bee Sportster flown by Lowell Bayles, averaging 116.40 m.p.h. Note in photo above right that the Gee Bee uses an inverted Cirrus engine.

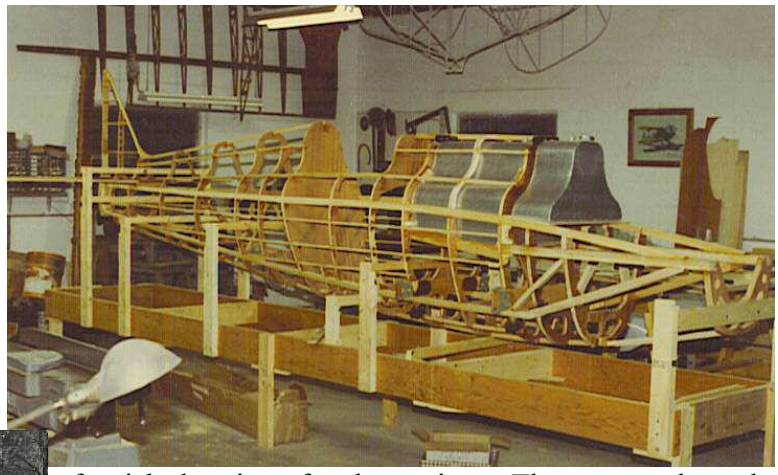
Cirrus All American Derby winner Lee Gehlbach and the Command-Aire Little Rocket, owned by the Little Rock Racing Association. The $25,000 prize money was split amongst the top three finishers.

After the derby the ship was

advertised in September 1930 and was sold for $750 to a Mr. Jack Walker of Little Rock, Arkansas. The bill of sale was dated March 18, 1931. The airplane went on to race in several events. The final chapter of the Little Rocket came in 1932 when the current owner drove from Memphis toward Little Rock when it caught fire in a trailer and burned. It was insured for $10,000.00 and the owner made claim to the insurance carrier, however the burning incident was investigated and the case went to court.

During an interview with Mr. Vollmecke, it seems that the federal government contacted him with interest in the Little Rocket and its design parameters. The military was interested in the design for a pursuit aircraft with a retractable landing gear, much larger and with a sizeable increase in horsepower. Al told me he began design for this aircraft but the corporation went out of business before it was completed. To my knowledge there was never any sketches or drawings of the proposed airplane.

DEVELOPMENT OF LITTLE ROCKET, SERIAL MR-2



And that ends the story of the Command-Aire Little Rocket racer. That is until Mr. Joe Araldi of Lakeland, Florida came along in 1982 and offered to build a replica of the ship if he could secure the plans. In a letter dated February 23, 1982, Mr. Vollmecke indicates that he will furnish drawings for the project. These were the only drawings that survived the closing of the factory – the FAA states that the original first copy drawings of all models of Command-Aire ships were destroyed.

Joe Araldi's replica MR-2 fuselage takes shape, built exactly per plans furnished by designer Albert Vollmecke. All wood construction is evident in this photograph. Note wood engine mount bearers and small oil tank in frontof main fuel tank of 31-gallons.

Joe Araldi with the Little Rocket in his hangar at the Green Swamp Aerodrome, Lakeland, Florida. Partially assembled ship can be seen in background. The project took eight years to replicate the original aircraft – the project being started in 1982 with a test flight in 1990.

Above, the Little Rocket, serial number MR-2 proudly displayed in front of Araldi's hangar.

It was a great day in 1989 at the annual Sun 'N Fun air show when Little Rocket #2 was displayed in their museum. April 1989 was a great time for a reunion of designer Albert Vollmecke and his Command-Aire creations – the MR-2 Little Rocket and the model 5C3 that were assembled in facility museum in hangar A. Arriving from Silver Spring, Maryland, Mr. Vollmecke was appropriately attired in his best vintage suit cap.

Al Vollmecke with Joe's Little Rocket replica in 1989. Al was 88-years old in these photographs. He would sit with me with my Command-Aire and watch when a person walked up to take a closer look at the Little Rocket. If the person looked interesting he would say, "*I think I'll go over and talk with that 'bird' who is looking at the Little Rocket."* He would walk over and engage the person in conversation, however he would choose whom he wanted to converse. Note the uncowled engine in the Little Rocket. Joe chose to use a Wright Gypsy inline engine instead of the Cirrus. The Wright and Cirrus were almost equal in horsepower output and weighed nearly the same, so it was a good choice as very few Cirrus 100 h.p engines are available.

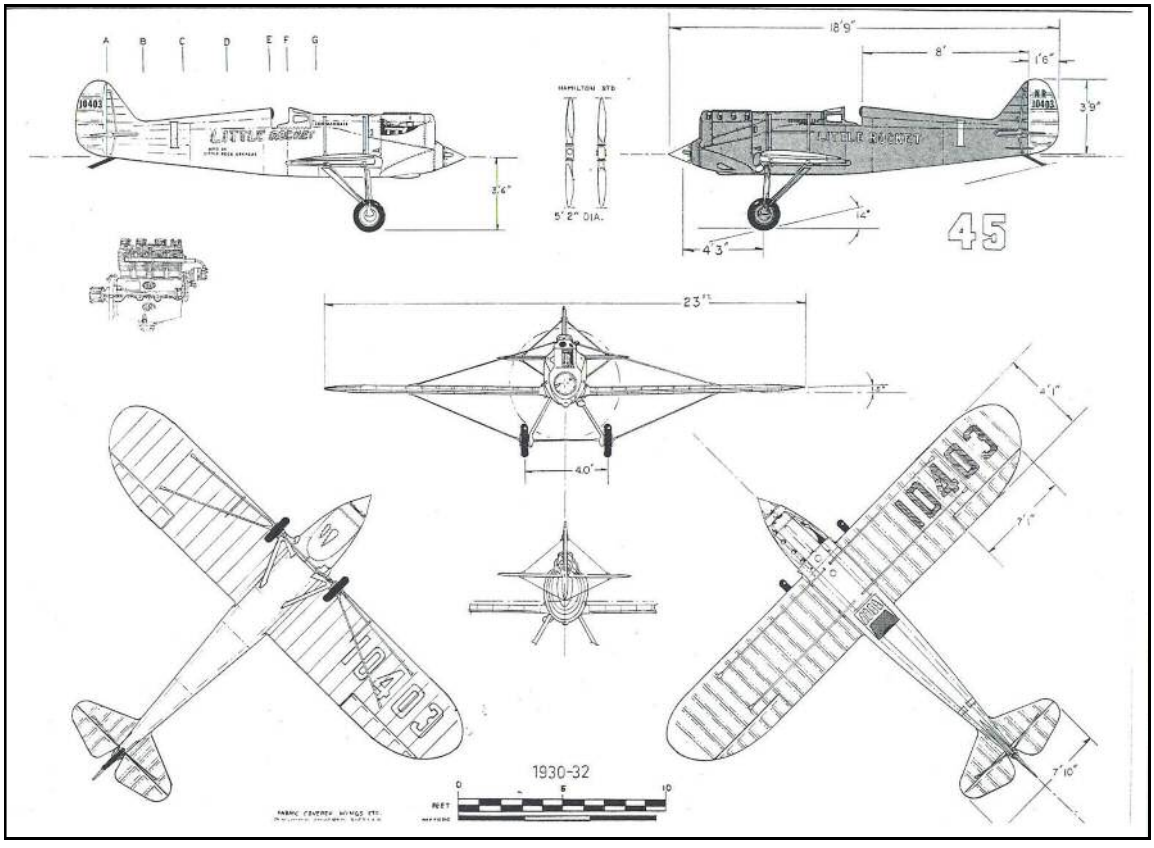
The Little Rocket flew on April 13, 1990 from the municipal airport in Lakeland, Florida. Joe made a total of 4-flights with the ship before retiring it to the museum at Sun 'N Fun.

DESCRIPTION OF INSPECTIONS, TESTS, REPAIRS AND ALTERATIONS
ENTRIES MUST BE ENDORSED WITH NAME, RATING AND CERTIFICATE NUMBER OF MECHANIC OR REPAIR FACILITY. (SEE BACK PAGES FOR OTHER SPECIFIC ENTRIES.)

TO WHOM IT MAY CONCERN:

THIS IS TO CERTIFY THAT THE REPLICA OF THE LITTLEROCKET, THE WINNER OF THE AMERICAN AIR DERBY OF 1930, IS SERIAL NO: 2. - BUILT BY MR. ARALDI AND CONSTRUCTED FROM THE ORIGINAL DRAWINGS OF THE COMMANDAIRE COMP. OF LITTLE ROCK, ARK. WHICH ARE IN MY POSSESSION.

Albert R. Pollmiller,
~~FORMERLY CHIEF ENGINEER, COMMANDAIRE~~
INC. LITTLE ROCK, ARK. AND
CHIEF AIRFRAME & EQUIPMENT INSP.



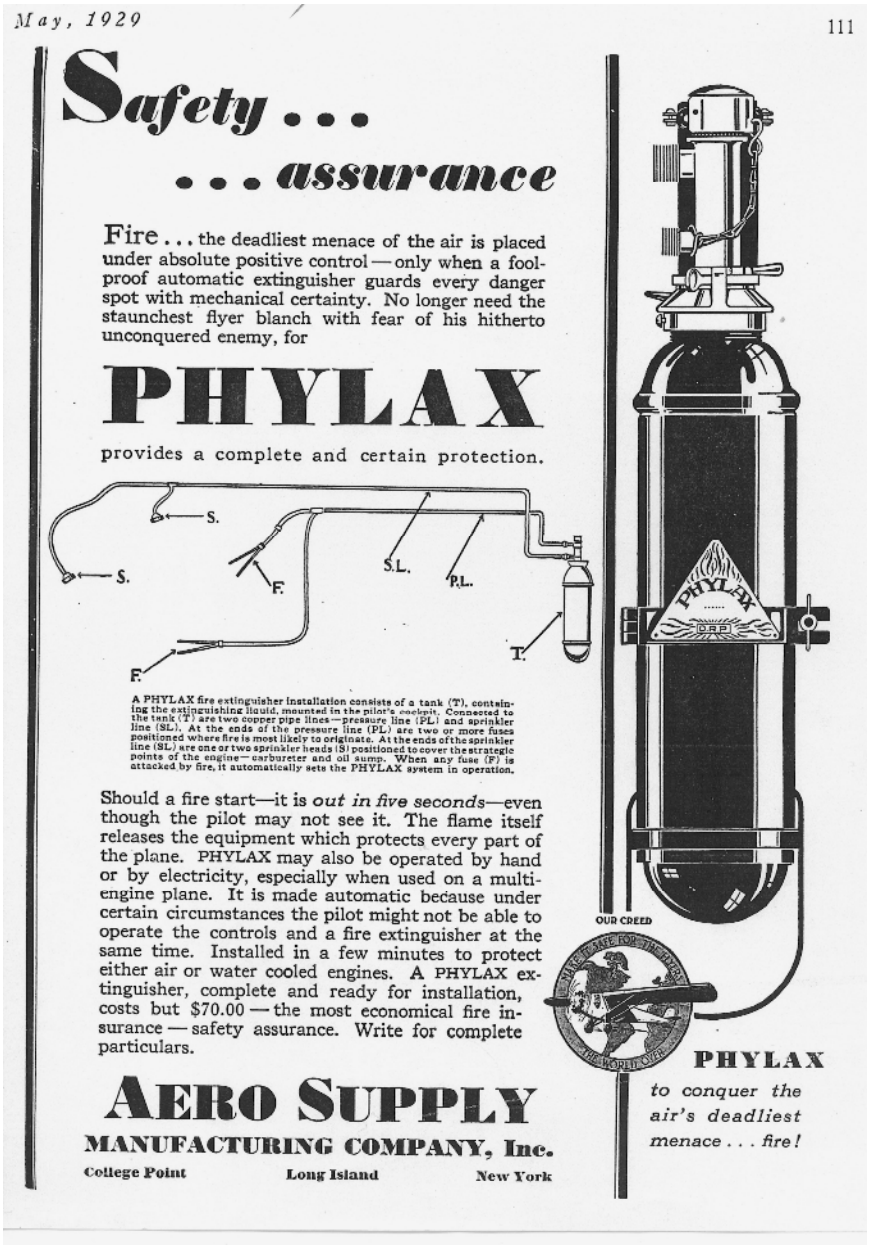
EARLY FIRE EXTINGUISHING SYSTEMS

When Albert Vollmecke joined Arkansas Aircraft Company in September 1927 he brought fresh ideas from his native Germany regarding aircraft design, stability and safety. He would, on occasion, return to Germany to bring back something new for the company. In 1928 Arkansas Aircraft Corporation changed its name to Command-Aire, Incorporated and the production run of new ships increased in its Little Rock, Arkansas plant.

On one such visit he returned with the rights to import and sell PHYLAX fire extinguisher system patented (GB 0267542) March 10, 1926 and manufactured in Berlin by Phylax Feuerlosch-Automaten-Bau-Ges. The PHYLAX Fire Extinguisher system consisted of a tank containing the extinguishing liquid. From the tank, which was usually installed in the pilot's cockpit or control cabin, sprinkler lines led to the parts of the plane where fires usually break out, such as the carburetor and oil sump on the engine.

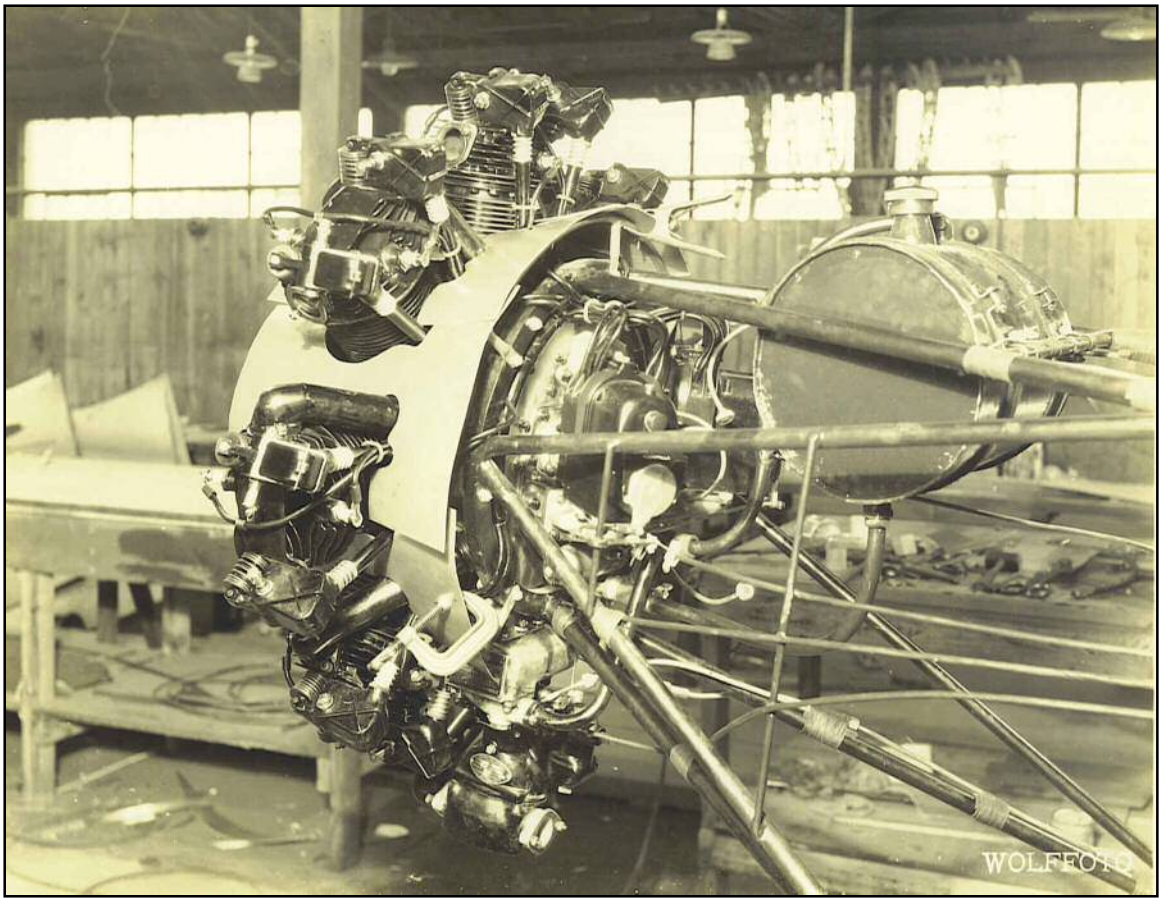
The unit was manufactured in Berlin, Germany and Command Aire had the sole distribution rights in the US, installing them on planes they manufactured. Left is an advertisement from AVIATION, November 1928 using their OX-5 powered model 3C3 ship to demonstrate the system.

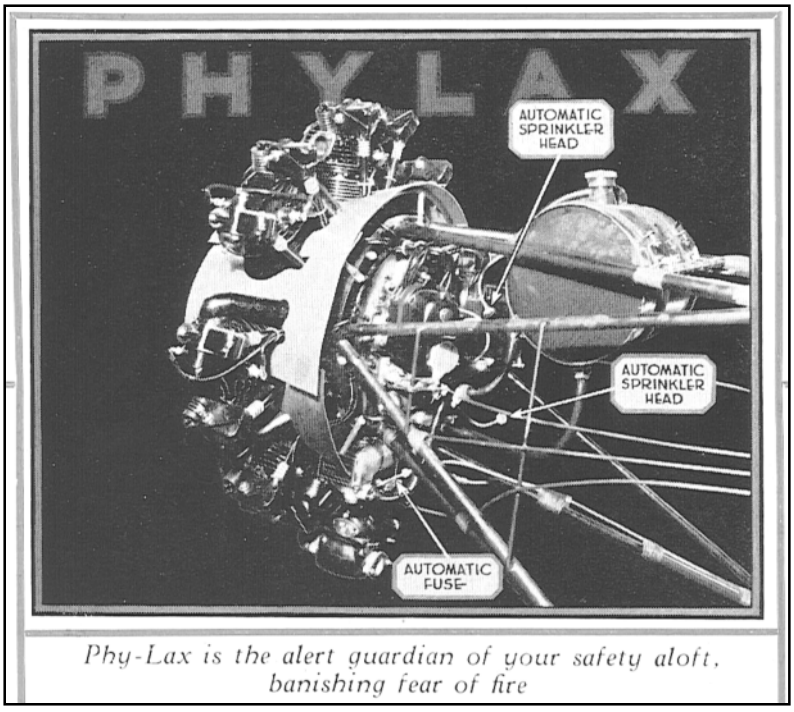
The PHYLAX system consisted of a pressurized tank of fluid with associated lines and nozzles leading to the engine compartment of the ship. Note here that the unit is manufactured in the United States by the Aero Supply Company located in Long Island, New York. The cost of the unit is $70.00 in this May 1929 advertisement in an aviation magazine.



In a letter dated April 10, 1929, Mr. Wiley Wright, assistant sales director for Command-Aire, Incorporated wrote, *"Command-Aire, Incorporated acquired the exclusive franchise rights for PHYLAX automatic fire extinguishers in the United States, Mexico and Central America. This extinguisher is the only automatic fire extinguisher available and is standard equipment on many European lines. It is manufactured by PHYLAX Bau of Germany and is receiving great response in the United States at the present time."*

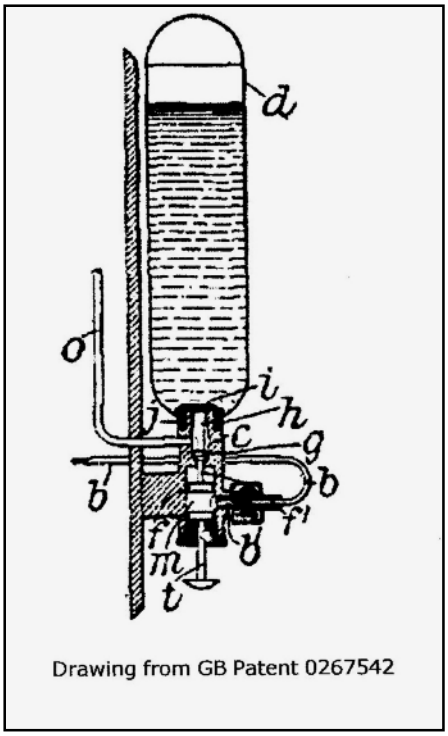
In this factory photograph below and from the files of Albert Vollmecke is a 110 hp Warner engine mounted in the Command-Aire model 3C3-A ship. Note engine cowling being neatly fitted around cylinders and associated tubes. The 3C3-A had a very long nose due to its lightweight, necessitating a longer arm for weight and balance control. In this photo the PHYLAX sprinkler heads are visible behind the magnetos, down near the carburetor and behind the oil inlet hoses on the accessory case of the engine.





Left is the same photograph with some details removed and other details added, principally the identification of the PHYLAX automatic fuse that fired the bottle of extinguishing fluid and the sprinkler heads. This illustration taken from a Command-Aire original factory brochure from the files of Albert Vollmecke.

Right is a sketch from the PHYLAX patent 0267542 dated March 10, 1926. A general description of the PHYLAX system is contained within the patent and states, *" The invention relates to a fire extinguishing device intended for use particularly with motor-cars, aeroplanes, motor boats, and the like, in which extinguishing fluid released under the control of fuse cords or cables ignited by the fire, is conveyed to the seat of the fire automatically through the flame."* In the sketch the discharge line into the engine compartment is shown as item "O." Line "b" comes from the automatic fuse located in the engine compartment down near the carburetor. The patient does not indicate what type of extinguishing fluid was contained within the tank; however soda-acid was widely used in those days and Carbon Tetrachloride was invented in 1912 by the Pyrene Company.

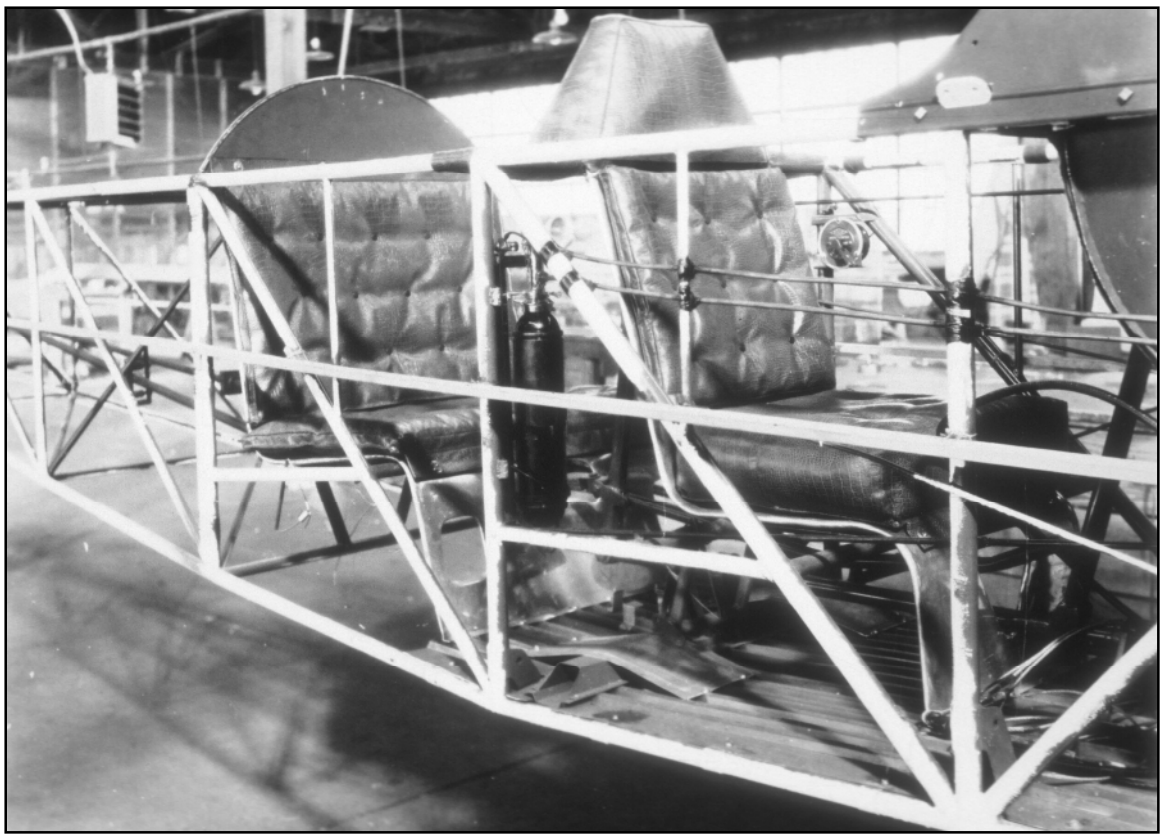


Drawing from GB Patent 0267542

In a communication from Command-Aire president Robert Snowden regarding the purchase of stock options in the company he states, *"Our exclusive franchise for the sale of Phylax automatic fire extinguishers should, if the War Department approves this extinguisher as standard equipment at a test to be made next week, net the corporation more than $50,000 annually. This extinguisher has been approved in all the European countries and the War Department has admitted to us that this is the only automatic fire extinguisher for airplanes in America and our patent rights on this will hold in this country and Mexico."*

What is not mentioned in any publicity regarding PHYLAX automatic fire extinguishing equipment is that it was brought to Command-Aire, Incorporated by chief designer Albert Vollmecke. Vollmecke visited his homeland on a regular basis and always brought back some new invention or new ideas on design and safety. This system was certainly ahead of its time safety wise and a credit to Albert's focus on stability and safety for his designs.

Below, in this original factory photograph of a Command-Aire 3C3-T fuselage on the assembly line at the Little Rock plant, the PHYLAX system can be seen mounted in the rear cockpit just behind the front seat, in the center of the photograph. The chemical bottles with 2-lines tied to the side tubes run forward to the engine compartment. One line is the automatic fuse and the other is the extinguishing fluid. Considering this is the year 1928, a remarkable achievement in the advancement of safety by Albert Vollmecke, Chief Designer for Command-Aire, Incorporated.



The factory also installed PYRENE hand fire extinguishers in the rear cockpit. The PYRENE unit was more adaptable to existing ships as was the PHYLAX system.

Pyrene fire extinguishers were made of brass and were nicely polished. They were not high-pressure units but required the use of a hand pump to generate pressure to expel liquid from cylinder. These type extinguishers were generally mounted in the rear cockpit to be accessible to the pilot of the ship. Command-Aire would install a Pyrene fire extinguisher for $7.00 in 1928 and 1929. It was a "factory extra."

Pyrene had been around for some time, having invented the carbon Tetrachloride extinguisher in 1912. Fire was and is still a large concern for aviators, but not as much in the eye as back then. All the early ships were covered with cotton or linen fabric and the only dope available was cellulose nitrate that burned like a torch when lit. Watching nitrate dope burn reminded me a Forth of July sparkler, very intense and hot. If a nitrate doped ship caught fire in the air there was no extinguisher that would put out the flames. The

PHYLAX system had an automatic sensor that would fire the bottle and send chemical into the engine compartment. The Pyrene extinguisher was more for ground use because you could not operate the bottle and fly the airplane at the same time.

By today's standards these extinguishing systems seem archaic, but for the time back in the 1920's they were the thing to have in your automobile, boat or airplane.

SPREADING THE WORD – ADVERTISING FROM COMMAND-AIRE

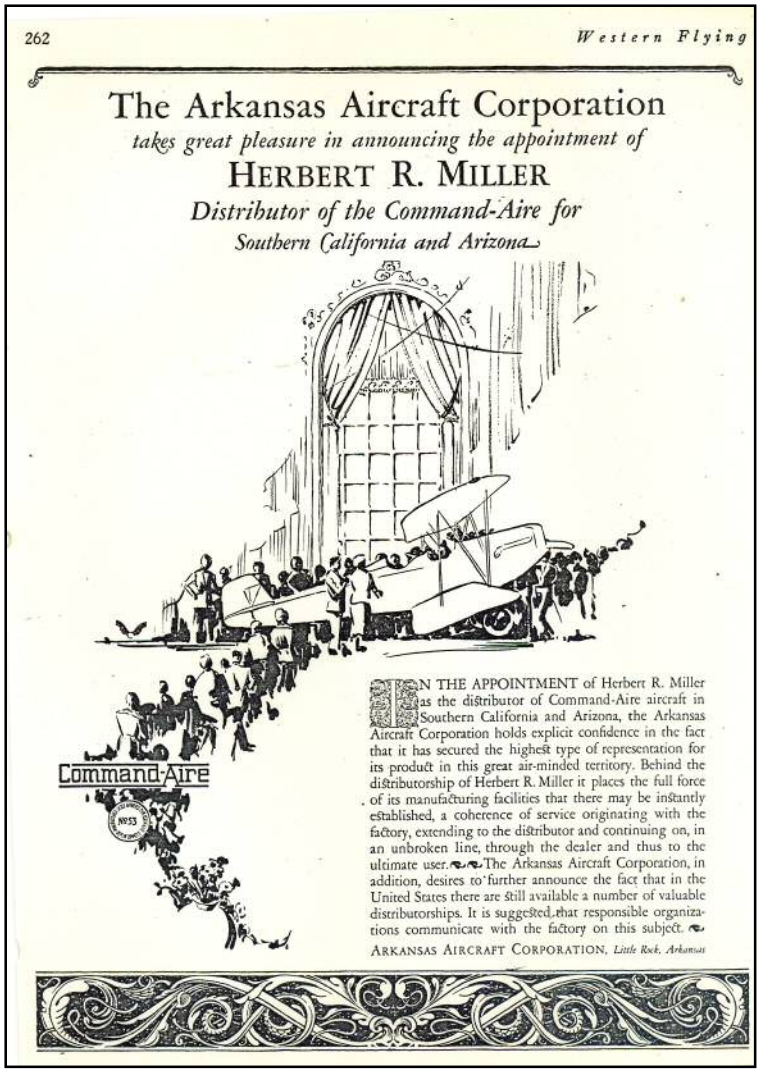
As civil aviation began to grow under regulation b the Federal Government and the ATC was firmly established in early 1927, those companies engaged in building, marketing and selling new aircraft set out to develop an advertising campaign. Companies like Travel Air ad Waco were established prior to 1927 and had small marketing strategies, advertising in mostly aviation magazines, such as Aero Digest, Popular Aviation and Flying Aces. One company that emerged in December 1926 was Arkansas Aircraft Corporation (later renamed to Command-Aire, Incorporated), located in Little Rock, Arkansas.

The newspaper was the quickest method to get the word out and the Arkansas Aircraft Company utilized the Arkansas Gazette newspaper. The trademark name selected for the new ship was Command-Aire – the name of the person submitting name is unknown. However, the fledgling company had its humble beginnings January 1, 1928.

By April 1928 Arkansas Aircraft Company was establishing dealers to promote the factory ships nation wide and Herbert Miller was one of the first dealerships in California. By setting up private dealerships the factory need only to build planes and ferry them to dealers, therefore the factory was not involved in selling any airplanes.

The factory also maintained a flight school at Adams Field in Little Rock that was established before the company began the manufacturing of airplanes. There were other schools, primarily one in the Chicago area. Below is a photograph of a Command-Aire 3C3-T, the trainer version of the basic OX-5 powered 3C3. The logo on fuselage side reads, "Aviation Service & Transport, Inc., School of Aviation, Chicago, Ill.

Advertised in the 1928 issue of Western Flying was Herbert Miller, distributer of the Command-Aire ships for Southern California and Arizona. Shown in the ad is a sketch of an OX-5 powered model 3C3 with a line of people coming to view, and hopefully purchase the airplane. The name Arkansas Aircraft Corporation was changed to Command-Aire, Incorporated in September 1928 by new president Robert Snowden. This was no doubt due to the fact that "Command-Aire" was painted on the fuselage side of every ship built by the Little Rock factory.


262 Western Flying

The Arkansas Aircraft Corporation
takes great pleasure in announcing the appointment of
HERBERT R. MILLER
Distributor of the Command-Aire for
Southern California and Arizona

Command-Aire

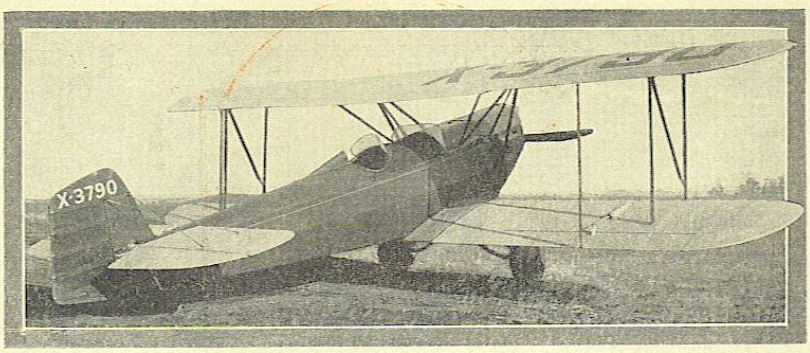
IN THE APPOINTMENT of Herbert R. Miller as the distributor of Command-Aire aircraft in Southern California and Arizona, the Arkansas Aircraft Corporation holds explicit confidence in the fact that it has secured the highest type of representation for its product in this great air-minded territory. Behind the distributorship of Herbert R. Miller it places the full force of its manufacturing facilities that there may be instantly established, a coherence of service originating with the factory, extending to the distributor and continuing on, in an unbroken line, through the dealer and thus to the ultimate user. The Arkansas Aircraft Corporation, in addition, desires to further announce the fact that in the United States there are still available a number of valuable distributorships. It is suggested that responsible organizations communicate with the factory on this subject.

ARKANSAS AIRCRAFT CORPORATION, *Little Rock, Arkansas*

Below, a good side view of the model 3C3 with original "Command-Aire" script painted to fuselage side. This factory photograph was taken prior to September 1928 and therefore before the

corporation changed its name. Unfortunately there is no license number painted on the ship thus making it impossible to determine when it was constructed, however it is an early ship of 1928 vintage.

Command-Aire employed a local photographer by the name of Wolff and most all factory photos carried his logo in lower right corner – "Wolffoto." The above photo is a copy of an original obtained from designer Albert Vollmecke. This photo was used in very early advertising by Command-Aire (then Arkansas Aircraft Company) to announce their new ship. In the first two advertisements, there are two noteworthy items to consider. The first ad in Aviation magazine shows a date of April 1928 before the ATC was issued and the prototype 3C3 ship, X-3790 is pictured. In the next ad extracted from Aero Digest, note that ATC 53 has been granted by the Aeronautics Branch of the Department of Commerce and the factory production line is in full operation.



THE COMMAND-AIRE

The COMMAND-AIRE was designed and built in the belief there were a large number of people anxious for a plane that could truly be classified as "A Better Ship". The volume of orders received for the COMMAND-AIRE has more than justified this belief.

Features That Make The "COMMAND-AIRE" the Greatest Airplane Value Ever Offered at the Present Price

1. Performance unexcelled by any other plane equipped with OX-5 motor.
2. Nose radiator, utilizing otherwise parasite resistance.
3. Improved split axle type landing gear with large wheels.
4. Fire wall of aluminum sheets with asbestos sheet between.
5. Metal floorboards, lighter than wood and fireproof.
6. Genuine Chase upholstering.
7. Extra large and comfortable cockpits.
8. All metal parts such as tubing, struts and fittings of chrome molybdenum steel.
9. Consolidated instruments mounted under plate glass and indirectly lighted as on finer automobiles.
10. Navigation lights connected ready for use.
11. Radiator shutters operated from pilot's cockpit for winter flying.
12. Stabilizer adjustable from pilot's cockpit.
13. Macwhyte streamline wires.
14. Plywood leading edges on wings.
15. Increased visibility through elimination of center section wires and braces.
16. Satin like finish through use of best fabrics and Berryloid lacquer.

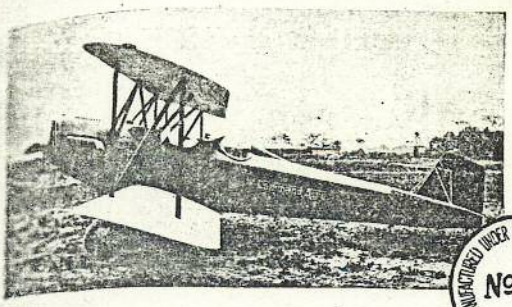
Price $2950
AT LITTLE ROCK
(Subject to change)

If you expect to own a COMMAND-AIRE this season, your order should be placed without delay.

To Dealers

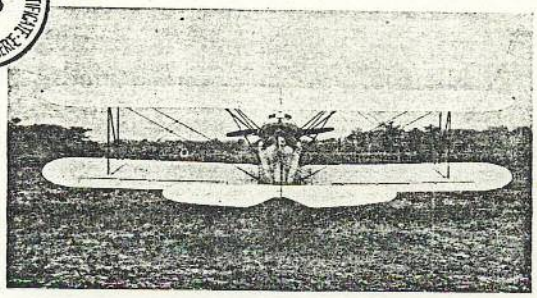
On account of increased production, we are in position to contract with a few more reputable dealers — wire for details.

ARKANSAS AIRCRAFT CO.
LITTLE ROCK, ARKANSAS



A Better Ship!

MANUFACTURED UNDER APPROVED TYPE CERTIFICATE - DEPT. OF COMMERCE - №53



The Command-Aire

Factory Running 50 Per Cent Overtime to Supply Demand for the Command-Aire!

Nothing could more simply and completely tell the story of Command-Aire Success.

Advanced Design
Rugged Construction
Beautiful Appearance
Outstanding Performance

DEALERS from all parts of the country are recognizing the Command-Aire as a good will builder, easier to sell and offering one of the most attractive and profitable franchises in the industry. Your territory may still be open.

Price $2,450 complete, less motor and propeller, at Little Rock. $3,250 at Little Rock, complete with Curtiss OX5 motor.

Descriptive folder and details of dealer franchise upon request.

Arkansas Aircraft Corporation
Little Rock, Arkansas

Say you saw it in AERO DIGEST

Command-Aire hired a publicity firm in Little Rock and entered into an aggressive advertising campaign, especially focusing on colleges and universities, thinking that if the parents had enough cash to send a sibling through school they must have enough money to invest in a new airplane. Creative advertising was placed in school newspapers, particularly in the University of Southern California in Los Angeles. The firm chose several major college and universities throughout the nation in which to place ads on behalf of Command-Aire, Incorporated.

College Publications

He caressed the nose of his COMMAND-AIRE while father fondled the bill

AN awkward situation it was too. Rupert held the plane, Father held the bill, and we held the bag.

Rupert was a minor, which was a new one on us. Heretofore, we had sold planes only to majors—not even to second lieutenants. The law says fathers are responsible for a minor's purchase of necessities. Then figure our chances of convincing him that Rupert's COMMAND-AIRE was a necessity.

But we did it. And now that the truth can be told, we did it by pulling out the old vox humana stop. "Mr. Hemingway," we asked, "you love Rupert, don't you, for if you don't, who can?" "I love Rupert dearly—yes, even expensively," was his quiet answer. Maybe it wasn't that quiet, but it was an answer.

"Rupert," we continued, "is air-minded."

"Thank God, he's got something in his head, even if it's only air," interrupted Mr. Hemingway. But wise cracks and the tremolo stop don't mix, so we ignored the remark.

"Being air-minded," we resumed brilliantly, "his mind is on the air. Do you want him going up with friends in any kind of plane, or do you want him to go up in a COMMAND-AIRE—noted for its stability?" And we flashed our photographs of the fuselage riding test where the pilot leaves the cockpit and lets the plane guide itself. (See below.)

"Furthermore," we began, but stopped suddenly, for Mr. Hemingway was writing a check—a check for $3,250. And check writing, like a hair-cut, rates silence. "You've saved Rupert's life," he said brokenly, "and after all, no one, not even a show girl, can replace the expense of a son."

We don't condone Rupert's action. For a while he had us worried. If your father won't buy you a plane, tear out the advertisement and send it to him. If you don't owe it to us, your circulation department owes it to us. We'll send father all the booklets, etc. He need only write us.

COMMAND-AIRE, INC., *Little Rock, Arkansas*

COMMAND-AIRE

Many of the advertisements could be considered "risqué'" by standard of the day, considering it was late 1928 and into 1929. Consider the following advertisement from the magazine "Vanity Fair" Take a look at that guy's face as he gingerly places "Nellie" in the cockpit of his Command-Aire.

Perhaps the best method to demonstrate Command-Aire advertising is to use the old adage, "a picture is worth a thousand words." So here we go.

From the dad who understands

AND the Dad who really understands is still a boy at heart. For he can look back to the vivid Christmas milestones of his own boyhood and profit by the master teacher, experience.

Clearly he recalls the time when his whole world centered on a .22 rifle for Christmas. And he got a book entitled, "My Travels in the Holy Land." But he didn't want to hurt Dad's or Mother's feelings, so he forced a ghastly smile and scuffed off down the road, winking because the sun hurt his eyes.

Youth has not changed much. Our boys are about the same. But the tempo of living has changed, and parents who don't keep up are groping for filial love and respect amid the ashes of forgotten youth.

Probably your boy wants a plane, especially if he knows you can afford it. Mother, perhaps, won't even discuss the subject, and for the sake of harmony you are severely neutral.

Give him a plane, if he wants it. If he wants to fly, he's probably going up now with a chum in a plane less safe than one you can buy for him. Boys are close-mouthed when they want to be.

Give him a COMMAND-AIRE—the only plane that can be perfectly controlled when the speed is stalled which means safety in the air and safety in landing. It will even maintain its stability without the aid of a pilot (photographic proof on request). It's a trim, sporty ship with the sleekness of a greyhound and the well-bred sparkling efficiency of a Rolls Royce. We've been telling him all about it in his college paper.

The price is $3,250 f. o. b. Little Rock, Arkansas, and a line to us will bring a booklet giving complete information, or the COMMAND-AIRE may be seen at DEALERS APPEARING AT THE LEFT.

The COMMAND-AIRE will also be shown in Chicago at the International Aeronautical Exposition in the Coliseum, December 1st to 9th.

COMMAND-AIRE, INC., *Little Rock, Ark.*

N. B. *This advertisement, of course, is not exclusive to Dads with grown sons, for COMMAND-AIRE is also proving to be the plane ideal for the younger, up and coming executive. COMMAND-AIRE'S stability—its ease of control—its all around dependability—make strong appeal to those who see in flying a business time-saver and great deal of sporting satisfaction.*

COMMAND-AIRE DISTRIBUTORS

NEW YORK CITY
W. B. Hunt Bancroft Smith
163 East 81st Street

SPRINGFIELD, MASS.
Eastern States Aircraft Co.
134 Dwight Street

HAVRE, MONT.
Havre Air Transport Co.

MINNEAPOLIS, MINN.
Mid-Plane Sales & Transit Co.
124 South Ninth Street

MEMPHIS, TENN.
Baughan Air College
725 Dermon Bldg.

LOS ANGELES, CALIF.
Herbert R. Miller
2484 West Washington Blvd.

TACOMA, WASH.
Northwestern Air Lines
300 City Hall Annex

ST. LOUIS, MO.
Radio Aircraft Corporation
Melbourne Hotel
c/o Radio Station W I L

DETROIT, MICH.
A. R. Taylor
214 Junction Ave.

SHREVEPORT, LA.
Shreveport Airways, Inc.

JACKSON, MISS.
Universal Air Service, Inc.
108 Lampton Bldg.

WASHINGTON, D. C.
Congressional Airport, Inc.
220 Transportation Bldg.

FORT WORTH, TEX.
W. T. Ponder
Ponder News Service

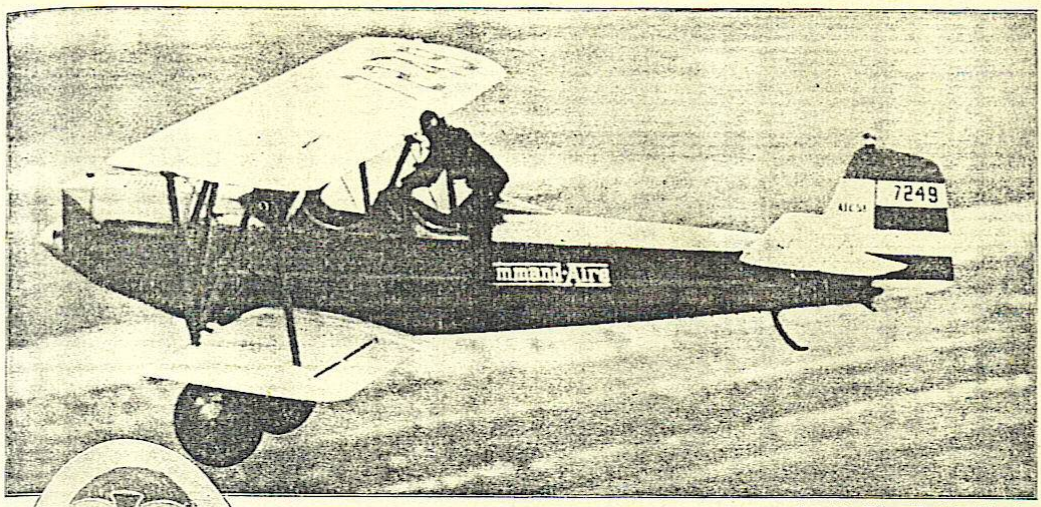
COMMAND-AIRE

№53

THE
BERRYLOID
FLEET
·
NUMBER EIGHT

COMMAND-AIRE *and* Berryloid AIRCRAFT FINISHES

COMMAND-AIRE planes roll out of the finishing room like clock-work, beautified and protected with Berryloid Aircraft Finishes. Niobe Brown and International Orange, standard Berryloid colors, combine in a scheme suggested by the Scarlet Rump Tanager, on the ship illustrated above.



Copyright, Chicago Herald and Examiner

WHEN IKE VERMILYA DID HIS STUFF

THIS test of COMMAND-AIRE stability was made by Capt. Ike Vermilya at the Chicago Airport on October 25th, altitude about 1000 feet. It was witnessed and photographed by the Chicago Herald and Examiner and International News Reel.

Ike is known wherever quiet and noisy bird-men gather. He is rated a good pilot, and a good pilot takes no unnecessary chances. Ike doesn't regard the COMMAND-AIRE stability test as a chance; he just knows his ship.

COMMAND-AIRE and Ike will both be at the Show. One of Ike's favorite promises is to tell or show you something that will—well if he did so—it would be Nature's greatest gift to man. See Ike and see the COMMAND-AIRE. He says the latest COMMAND-AIRE will do it.

COMMAND-AIRE, INC., *Little Rock, Arkansas*

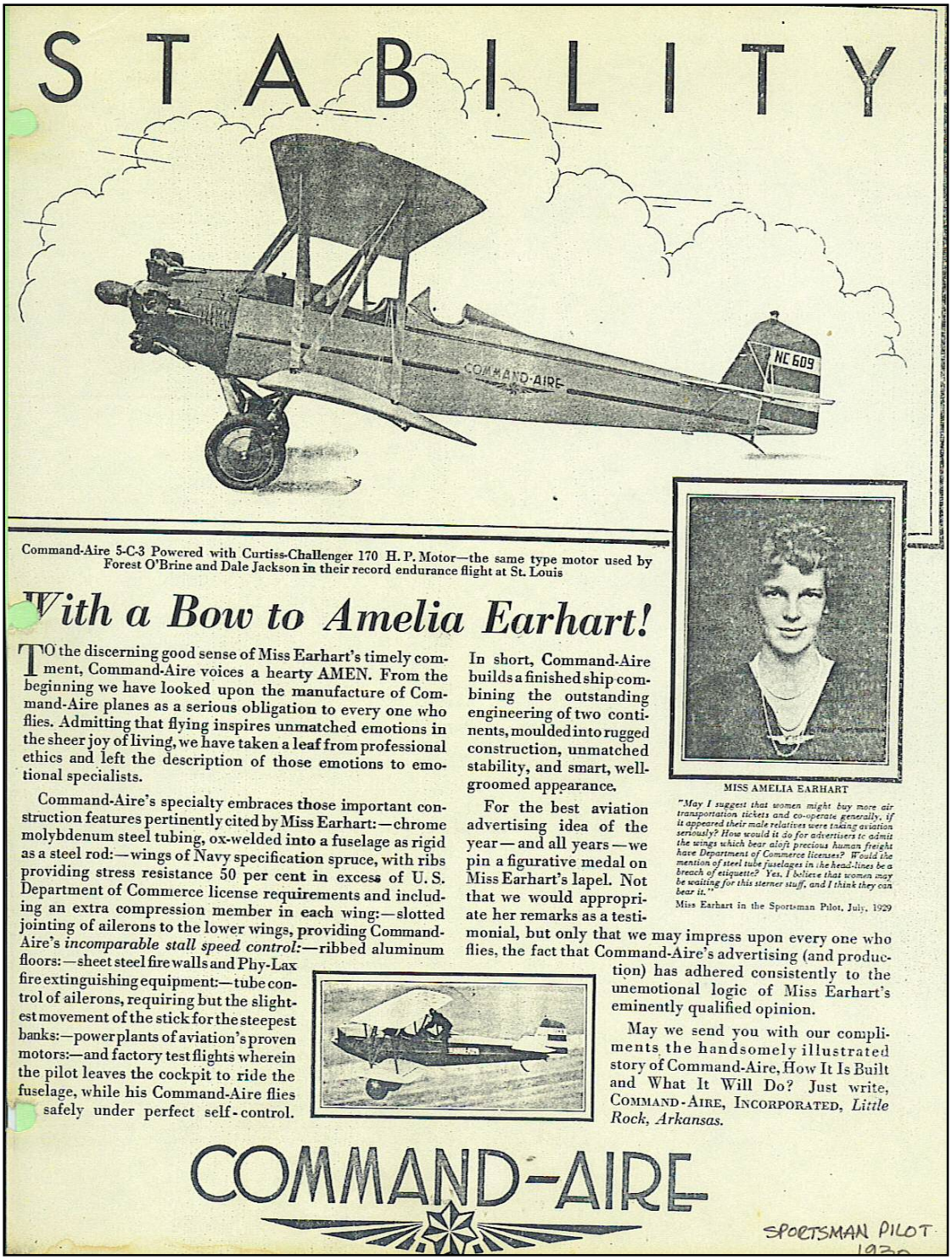
COMMAND-AIRE

№53

THE PLANE FOR WIDER SALES

Command-Aire went on an all-out campaign to advertise the stability of their ships. The truth is they were quite stable when rigged properly. In the photo above, Chief Pilot

Wright 'Ike' Vermilya is shown doing a stunt that the factory would capitalize as they tried to sell more ships. Vermilya, while flying at 1,000 feet from the Chicago Airport on October 25, 1928 climbed out of the rear cockpit and straddled the fuselage, sitting on the headrest. The Pathe News Agency in an air-to-air shot taken during the 1928 Chicago Air Exposition witnessed this feat, of which Command-Aire was a participant.




COMMAND-AIRE 3-PLACE SPORT

210 H.P. MODEL: B 5-16

POWERED BY LYCOMING

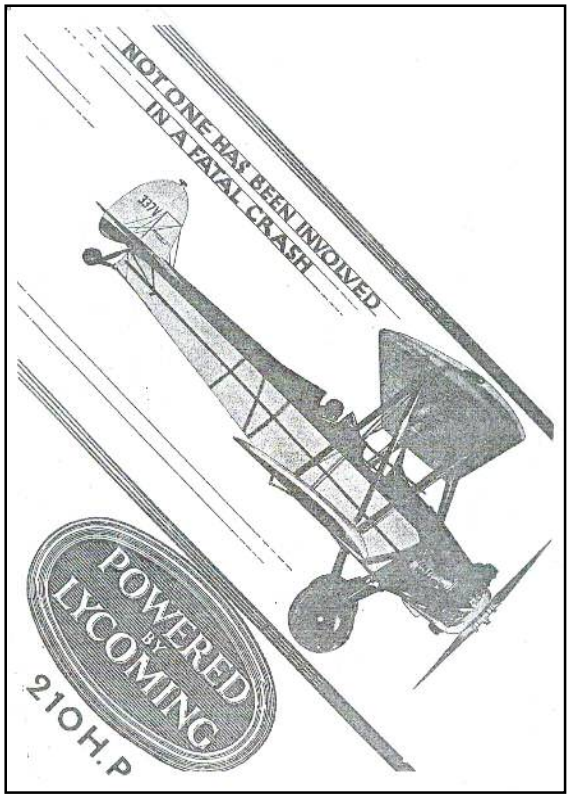
$5,675 COMPLETE STANDARD

EQUIPPED AS FOLLOWS

Consolidated Custom Built Instrument Panel including Tachometer—Altimeter—Air Speed Indicator—Compass—Oil Pressure, Temperature and Gasoline Gauges—Ignition and Navigation Light Switches: Dual Control—Steel Propeller—Hydraulic Landing Gear—Brakes—Navigation Lights—Tail Wheel—Luxurious Fabrikoid Upholstering.

A Sportsman's Thoroughbred

Combining superpower of unmatched smoothness and quiet, with structural integrity, proven stability, luxurious appointments and smart lines.



The factory produced several brochures to aid in promoting and selling the ships they constructed – two being in full color. This is their best publication but it came too late to save the company. Teetering on the brink of bankruptcy in 1930 and without good corporate leadership, the last two ships designed by Albert Vollmecke were the models

BS-14 and BS-16. The new BS-16 powered by a new Lycoming R-680 engine developing 210 hp is shown right. The ship featured an outrigger type main landing gear and a rubber tail wheel.

Command-Aire Has Receiver

Reorganization Is Planned by Local Aircraft Company.

Price Shofner, attorney, Thursday was appointed receiver for Command-Aire, Inc., airplane manufacturers, after a petition was filed by Robert B. Snowden Jr., president, as a stockholder, and the Bankers Trust Company and Union Trust Company as creditors. The petition was filed in circuit court, the receiver being appointed by Chancellor Dodge.

The receivership will not halt operations at the factory, Mr. Snowden said, and will not affect the Command-Aire Flying Service, Inc., a separate organization. The manufacturing plant is located on East Seventeenth street while the flying service operates at the Little Rock Airport.

A new organization is expected to be formed to take over the company, Mr. Snowden indicated. A letter to stockholders follows, in part:

"This action was taken to preserve the assets of the company and to protect the accounts of its creditors. Although the tangible assets of the company are at this time conservatively far in excess of its liabilities, the company has need of operating capital with which to continue.

"Hesitation on the part of some of our larger stockholders to support this need for more capital has made an assessment on the stock appear to be impracticable. It is reasonable to assume that the sound reputation and splendid standing of Command-Aire will make it possible to dispose of the tangible and intangible assets to advantage after the present depressed condition of general business has corrected itself. Indications are that this improvement is to be expected within the next few months.

"We have produced and sold over 300 ships, and we hold the world's record for the most production without a single death or serious accident. Our standing in the final report of the Guggenheim Safe Aircraft Contest shows that, first we had the only standard production ship to qualify for entrance, and, further, that we had the only of of two which did qualify—the other being the winner, the Curtiss Tanager.

"Besides the above mentioned achievements, we have others far too numerous to mention and which makes me feel confident that the company wil lspeedily be reorganized and will contiue to progress in the field."

Like many other small aircraft manufacturing companies, Command-Aire disappeared in early 1931 and ceased to exist. Its short run of production ran from December 1927 to 1930 the small Little Rock Corporation constructed 251 aircraft of all models, a comparable achievement. The company had a great product but the time was just not right to prosper.

GOVERNMENTAL CONTROL OVER CIVIL AVIATION 1926-1936

Prior to the Air Commerce Act passed by Congress in 1926, civil aviation in the United States was uncontrolled – there were no requirements for the manufacturing aircraft, licensing of pilots and mechanics and regulations regarding the operation of aircraft, pilots and mechanics. This all changed with the creation of the Aeronautics Branch of the Department of Commerce in early 1927 and with the appointment of William P. MacCracken as administrator. By March of 1927 the first Approved Type Certificate was issued, closely followed by pilot license number 1 issued to William P. MacCracken on April 6, 1927 and aircraft mechanic license number 1 issued to Frank Gates Gardner of Norfolk, Virginia on July 1, 1927. Both pilot and mechanic licenses were offered to Orville Wright, who declined because he was no longer active.

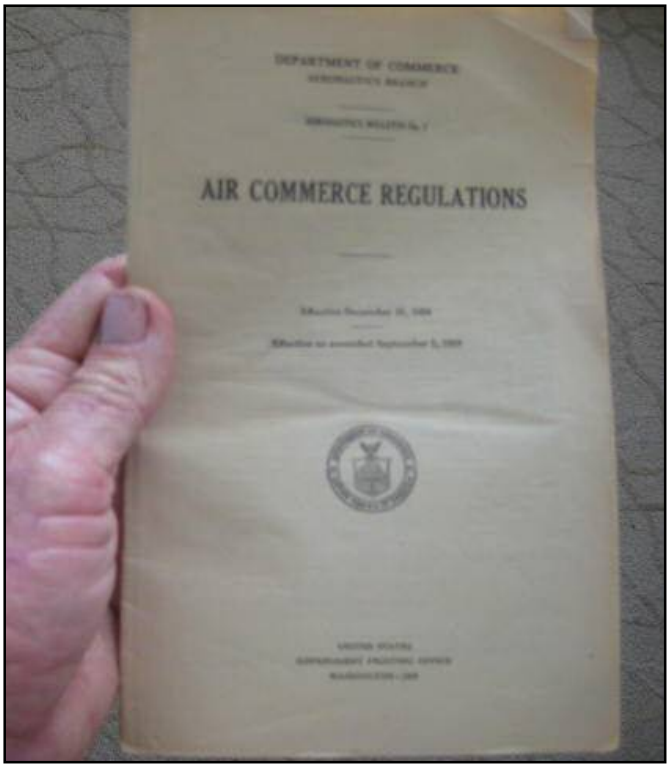
I have been an aircraft mechanic for over 50-years, beginning in 1956 as a mechanic helper. Over the years I have been under the regulation and guidance of the Federal Aviation Administration, having received my mechanics certificate in 1961, just 3-years after the FAA was morphed from the previous government entity, the Civil Aeronautics Administration. My careen as a mechanic has primarily focused on the older aircraft, dating back to the 1927 vintage. Thus these aircraft were born at the beginnings of civil aviation control by the Federal Government. More than once I have pondered what it must have been like to have functioned as an aircraft mechanic. Well, now here are some thoughts on that subject sprinkled with as much historical facts as can be garnered from various sources – publications, aircraft historical records and the internet.

ATC DOCUMENTS

With the advent of Approved Type Certificates, those entities seeking to manufacture and sell aircraft in the United States were required to submit documents to the Aeronautics Branch of the Department of Commerce, revise those documents until the requested ATC was issued. These documents became known as Type Design Data and, before the ATC was issued, those data were duplicated into blueprints for the drawings and white copy for typewritten documents, embossed with the department's seal and then placed in file cabinets in order of the ATC number, beginning with #1. These "first copy" documents were maintained in Washington, D.C but were later transferred to other locations as the collection grew. In conjunction with Aeronautics Bulletin No. 7, Aeronautics Bulletin No. 7A was published setting forth the standards for manufacturing aircraft to obtain the ATC. There were no maintenance manuals, parts manuals, rigging manuals or repair manuals for each aircraft – they simply were not required by the government for inclusion in the Type Design Data. Therefore, the question becomes – how did the early mechanics maintain, repair and modify aircraft? One answer comes from the actual aircraft records that were kept on file in Washington, D.C. Each aircraft file was labeled with its assigned license number and, as more aircraft were constructed and licensed, the number of filing cabinets grew, as did space to store the cabinets.

The Aeronautics Branch created publications that would begin government regulation of Air Commerce. These regulations were issued as Aeronautics Bulletin 7 (AB-7), first becoming effective December 31, 1926. This publication contained only 30-pages and 8-chapters – Chapter 1-Licensing of Aircraft, Chapter 2-Inspection of Aircraft, Chapter 3-

Operation of Aircraft, Chapter 4-Marking of Licensed and Unlicensed Aircraft, Chapter 5-Licensing of Pilots, Chapter 6-Licensing of Mechanics, Chapter 7-Air-traffic Rules and Chapter 8-Miscellaneous. Unlike today's massive amount of regulations, this manual measures 5" wide and 10" high and is typewritten on both sides of the page, so it is the size of a regular 8"x10" sheet folded in half. Aeronautics Bulletin No. 7 is the very beginning of government control over civil aviation. It was printed and distributed by the Government Printing Office in Washington, D.C.



Copied from AB-7 below is required marking to be stenciled on the airplane if it manufactured in accordance with an Approved Type Certificate.

(3) Upon airplanes manufactured under an approved type certificate the manufacturer thereof may display the insignia shown herewith, in conjunction with the above data required to be stenciled on the airplane.

DOE AIRCRAFT MFG. CO., INC.

No. 0

Gross weight	Pounds
Weight empty	Pounds
Useful load	Pounds
Maximum passengers authorized (less crew)	Persons

LICENSING OF AIRCRAFT

When an aircraft was constructed the factory made application the Aeronautics Branch to have a number affixed to the particular aircraft. That number was hand written in the upper right corner of the application and the ship also received an Airworthiness Certificate, to be renewed each 12-calendar month. Renewal was made by presenting the aircraft before a government inspector and if deemed airworthy, another certificate of airworthiness was issued for another year. License marks contained the Roman capital letter N followed by the category in which the aircraft was to operate – C for commercial, R for restricted, X for experimental and L for limited.

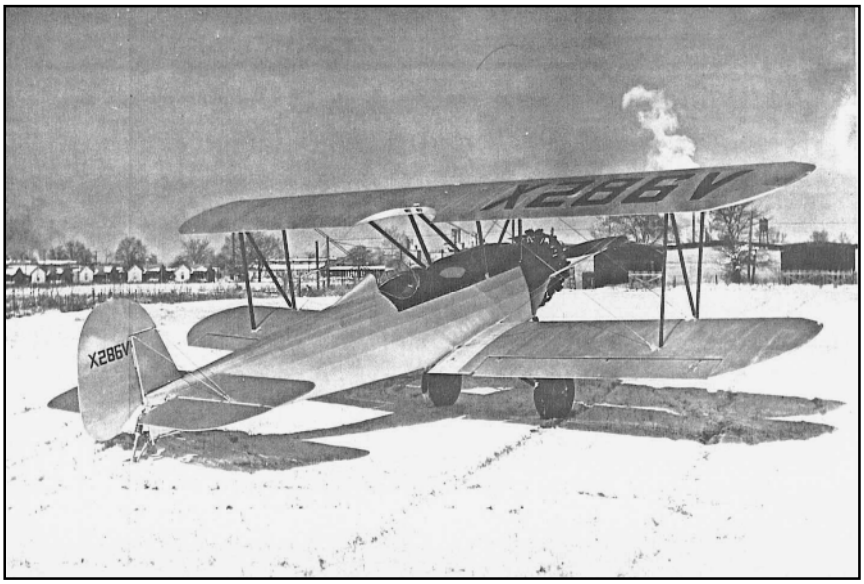
There was special consideration given for aircraft manufactured before October 1, 1927 and not constructed in accordance with an Approved Type Certificate. Section 14(2) states, "*For airplanes constructed prior to October 1, 1927, and found by the Secretary of Commerce to be of proper design, assembly, and workmanship, and of*

suitable materials and equipped in accordance with these regulations, aircraft licenses will be issued after such airplanes have passed the flight tests specified in Airworthiness Requirements (Aeronautics Bulletin No. 7-A). This data was obviously included to aid in the transition from non-ATC ships to those constructed in accordance with an ATC.

So here is how the markings were described in AB-7, Chapter 4. All aircraft built in accordance with an ATC were marked with the letter 'N' denoting registration in the United States followed by an 'S' denoting use by the governmental purposes and belonging to States, Territories, possessions, or political subdivisions thereof. The Roman capital 'C" was used to denote all commercially licensed ships.

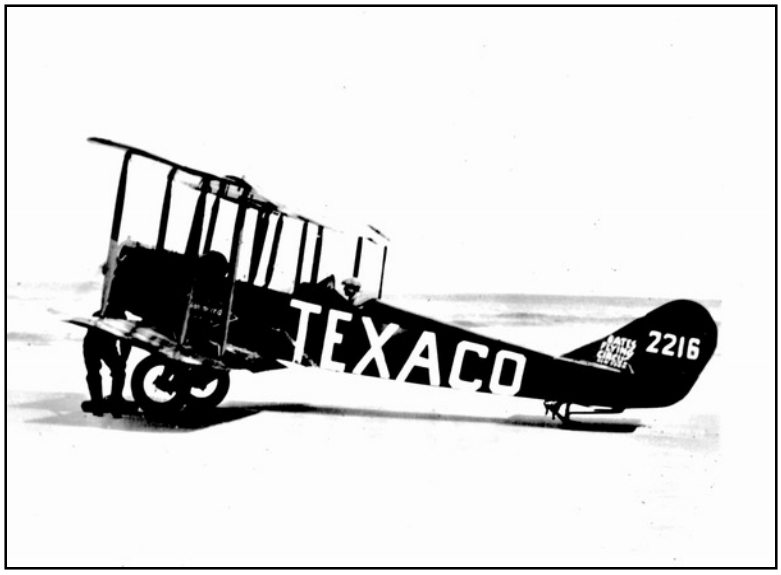
But here is the interesting part of airplane licensing. All ships that were NOT built in accordance with an ATC were marked with the license number but could not use the letter 'N' preceding the registration number. AB-7 further states that aircraft engaged in racing or experimental work of specially licensed for other purposes would be assigned a special identification numbers and symbols. Assume this would be the 'X', 'R' or 'L'.

Chapter 4 regulates where the license numbers can be displayed on the aircraft. "*On airplanes – on the lower surface of the lower left wing and the upper surface of the right upper wing, the top of the letters or figures to be toward the leading edge, the height to be at least four-fifths of the mean chord; provided however, that in the event four-fifths of the mean chord is more than 30 inches the height of the letters and figures, need not be more but shall not be less than the 30 inches. The marks shall also appear on both sides of the rudder, of size as large as the surface will permit, leaving a margin of at least 2 inches."* There also are regulations for markings on airships, balloons. The final wording of this section reads, "*Requirement for Displaying Registration Marks – all aircraft in flight, whether licensed or unlicensed, must display license or identification mark issued by this department. This applies to all flights, whether for hire or for pleasure, test purposes, experimental purposes, and whether the aircraft is licensed or unlicensed."*



Right, the only Command-Aire BS-14 manufactured by the factory. There is no 'N' preceding its license number but rather the letter 'X' denoting it has an Experimental license. Note large numbers on upper surface of right wing and small numbers on rudder assembly as provided for by AB-7. The ship was never granted an ATC.

Right, a Gates Flying Circus Hisso powered Standard J-1 on the beach near Miami on their last big tour. Texaco sponsored the circus for period of time in 1928 and 1929, thus the advertising on fuselage side. Note license number 2216 on rudder indicating that this is an "unlicensed" ship because it was not built in accordance with the new ATC requirements set forth by the Aeronautics Branch of the Department of Commerce.

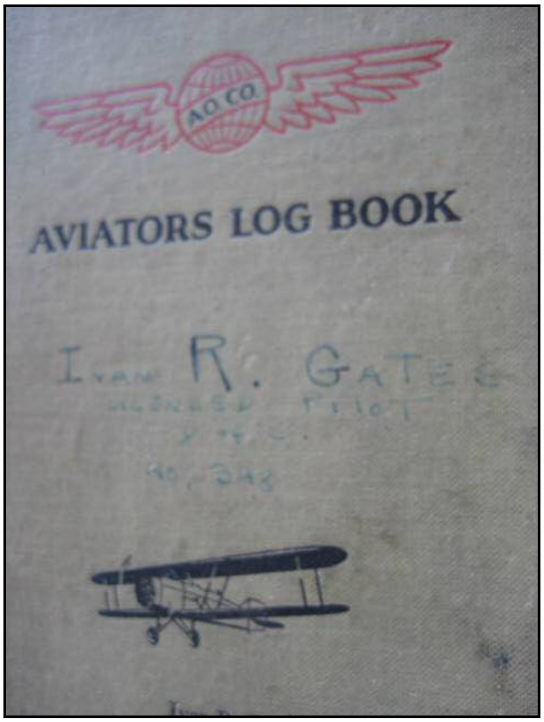


It would be of interest here to quickly review the construction of an aircraft just prior to ATC standards being introduced. Several companies were producing new ships to sell publically, such as Travel Air, Waco and Arkansas Aircraft Corporation, just to name a few. Those ships were sold as "unlicensed" aircraft even though they were completely new but the factory had not received an ATC. Once an ATC was granted, those "unlicensed" aircraft could be returned to the factory for inspection and certification that they were built in accordance with the new approval, their paperwork changed to reflect the ATC number and then the ship was then "licensed."

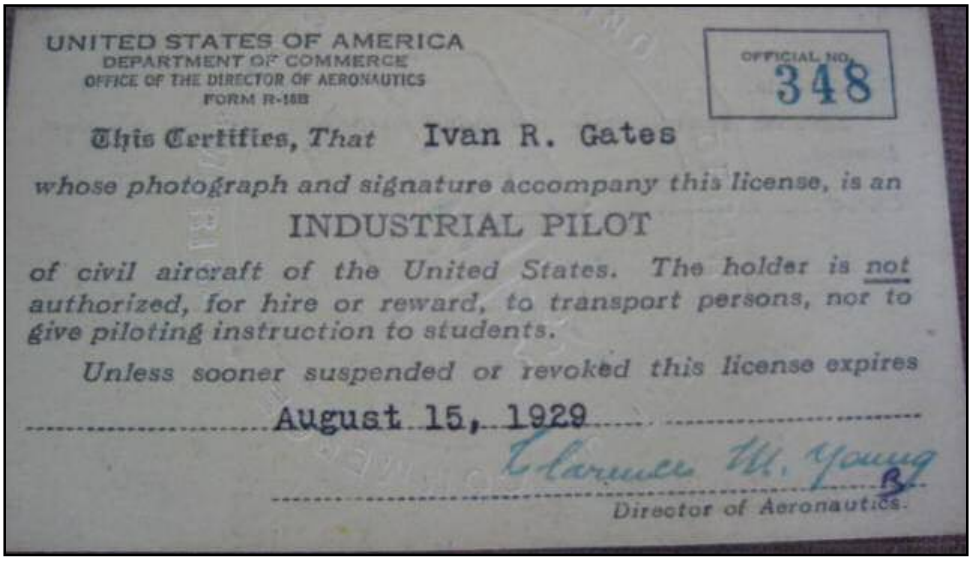
LICENSING OF PILOTS

All pilots were to be licensed commencing April 1927 so it is safe to assume that most all pilots carried log books to document their flying time. In fact, AB No.7, Section 57 states, "*A licensed pilot must keep an accurate record of his solo flying time in a log book in which the entries have been certified to and signed by him and attested to by one of the following persons.*

The classification of pilots was "commercial" and "private." Commercial pilots were licensed as – transport, limited commercial, industrial or glider pilots. Private pilots were designated as private pilots (without other qualifications) or as student pilots. This is the logbook of noted barnstorming entrepreneur Ivan Gates. The dates in his book show 1929 as the year entries are made, however it is unknown if Gates had a prior logbook. Gates certificate number is 348, which indicates he



was an early licensed aviator. Note that the Gates license is issued for an "Industrial Pilot" and that passenger carrying for hire is prohibited. Expiration date is August 15, 1929 that means it was most likely issued August 1927. That would indicate that his license was renewed by August 15, 1928 thus expiring on August 15, 1929. It is obvious that, like aircraft licenses, both pilot and mechanic licenses initially expired in 12 months intervals and had to be renewed, which gave the government an opportunity to review the applicant's performance by reviewing logbooks.



UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
OFFICE OF THE DIRECTOR OF AERONAUTICS
FORM R-158

OFFICIAL NO. 348

This Certifies, That Ivan R. Gates

whose photograph and signature accompany this license, is an

INDUSTRIAL PILOT

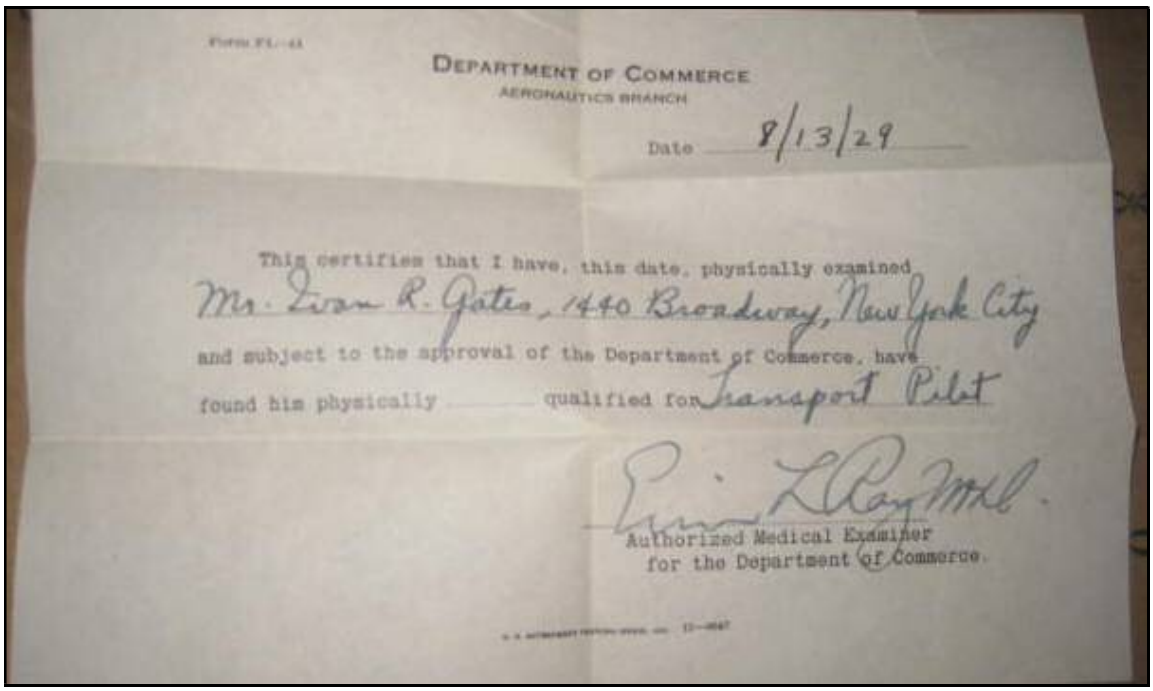
of civil aircraft of the United States. The holder is not authorized, for hire or reward, to transport persons, nor to give piloting instruction to students.

Unless sooner suspended or revoked this license expires

August 15, 1929

Clarence M. Young

Director of Aeronautics.



DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

Date 8/13/29

This certifies that I have, this date, physically examined Mr. Ivan R. Gates, 1440 Broadway, New York City and subject to the approval of the Department of Commerce, have found him physically qualified for Transport Pilot

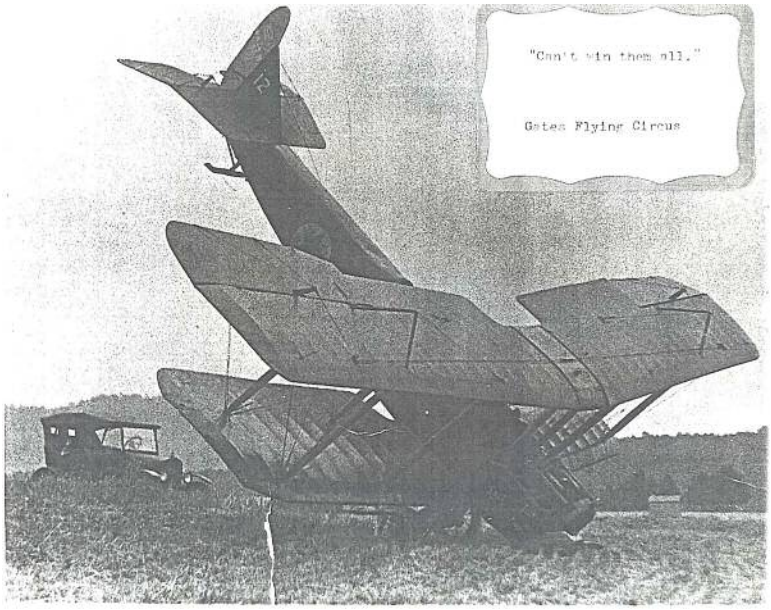
Authorized Medical Examiner
for the Department of Commerce.

The form used by a medical examiner to show documentation of a flight physical for renewal of pilot license. Note date is August 13, 1929 and the license of Ivan Gates expires August 15, 1929.

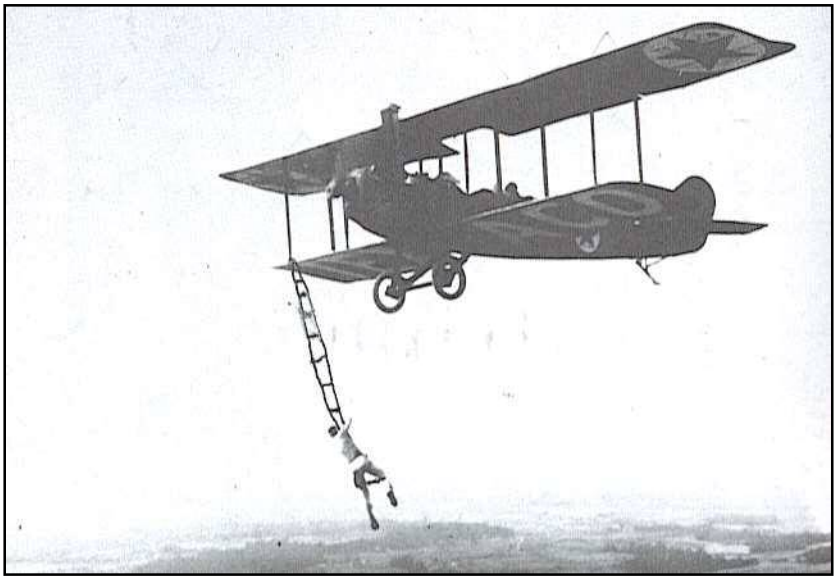
To qualify for a pilot license the applicant had to pass a theoretical and practical examination as administered by an inspector from the Aeronautics Branch.

LICENSING OF MECHANICS

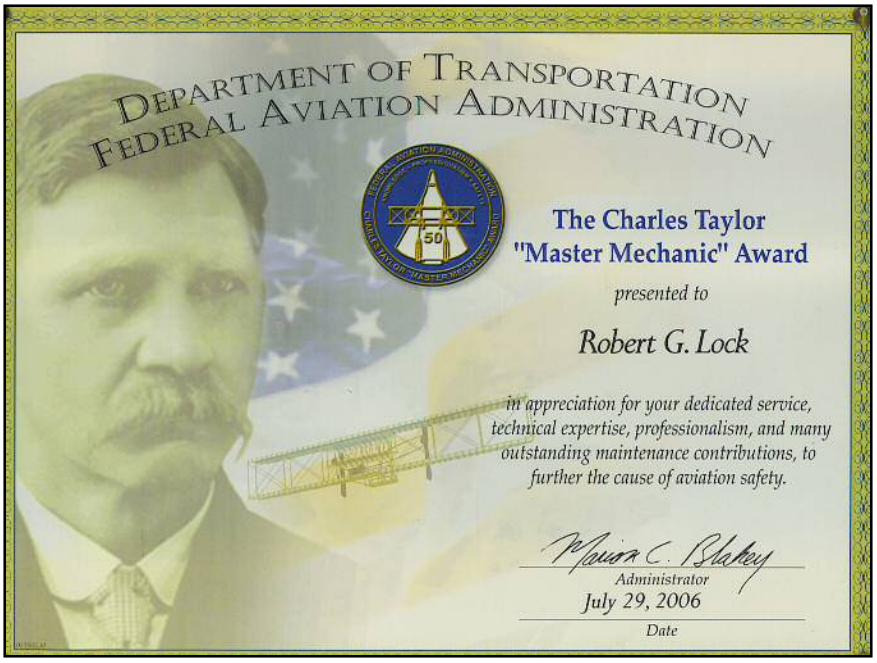
While the licensing of mechanics is more difficult to trace, it appears that Aircraft and Engine (A&E) mechanic license number one went to a Frank Gates Gardner of Norfolk, Virginia. His license was issued July 1, 1927. Like pilot licenses, the numbering system began with one and proceeded sequentially up to the present, with a short break when the FAA decided to issue license numbers based on Social Security number of the applicant. That was a choice for mechanics and pilots until some smart fellow figured out that every time a signature and certificate number was entered in the aircraft records, the Social Security number was out in public. The FAA dropped that option and went back to reissuing "unique" numbers to all pilots and mechanics.



Over the years airplane mechanics have played an important role in keeping aircraft safe to fly. This Gates Standard J-1 is a typical landing accident of the 1920's as these aircraft had no brakes and landed in unimproved fields. The Gates Flying Circus of the roaring 1920's sent out troupes of barnstorming airplanes, containing up to four ships complete with a mechanic to keep them flying. Many times the mechanic would double as a parachute jumper or wing walker. Such was the case of Aaron 'Duke' Krantz who is shown in this photograph hanging on a rope ladder below a Gates Standard J-1.



Many pilots became famous and became a household word while lowly mechanics were not conspicuous, until Charles Taylor was finally recognized for his achievement of being the mechanic on the Wright Flyer of 1903 and fabricating the engine. Today we celebrate Mr. Taylor with the Charles Taylor Master Mechanic award given by the FAA.



No doubt most very early aircraft mechanics got their start working on automobiles and motorcycles, like the famous Glenn Curtiss. There were no "approved aircraft quality" parts; this required mechanics to improvise to locate locally available components just to get the job done and the airplane back in the air.

One of the first to offer "organized" flight training – and later mechanic training was T. Higbee Embry and John Paul Riddle at the Lunken Airfield in Cincinnati, Ohio beginning in 1925. Embry and Riddle started out selling airplanes and later obtained airmail contracts, but realized proper training was an important ingredient to flight safety.

As civil aviation grew throughout the late 1920's, more demands were placed on mechanics in the area of completing what the FAA now calls "Major Repairs," meaning extensive repairs to primary flight structure of the airplane. However in the early days of mechanic certification, all major repairs were approved by the Department of Commerce Inspectors as the following set of paperwork clearly shows.

MORE PAPERWORK AND REGULATIONS FOR MECHANICS

IN REPLY REFER TO

FILE

DEPARTMENT OF COMMERCE

AERONAUTICS BRANCH

WASHINGTON

September 18, 1931.

To: Chief, Inspection Service

From: Chief, Engineering Section

Subject: Command-Aire 3-C-3 3 POLB OX-5 90HP
Serial #604 NC-580-E Repairs

Owner: Mr. M. C. Soloman, c/o W. C. Moore, 627 S. Fulton St., Salisbury, N. C.

Repaired by: Owner.

AERONAUTICS BRANCH
1931 OCT 14 PM 2 56

The technical data submitted to this office pertaining to repairs to the subject airplane have been examined and are approved.

A sealed drawing is attached and an inspection is requested.

Please pay particular attention to the fuselage structure forward of the rear cockpit as Inspector Lanter in his report of the accident to this airplane believed a satisfactory repair would be very difficult to obtain.

Richard C. Gazley
Chief, Engineering Section.

SEPTEMBER 19, 1931.

LEO C. WILSON
SUPERVISING AERO. INSPECTOR
ATLANTA, GEORGIA

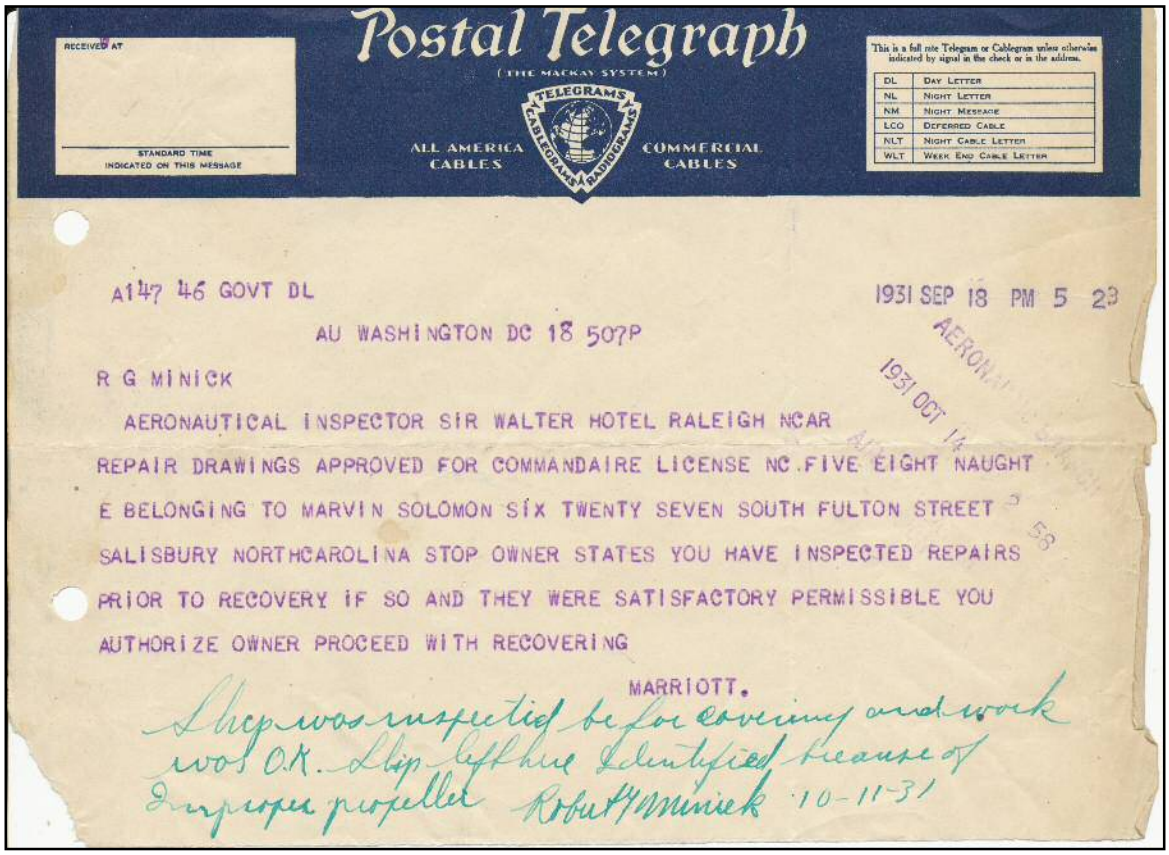
FORWARDED FOR YOUR ATTENTION.

J. L. MARRIOTT
ASST. CHIEF, INSPECTION SERVICE

DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH
1931 OCT 17 PM 2:04

Send charlotte this back with inspection report

3305



Postal Telegraph
(THE MACKAY SYSTEM)
ALL AMERICA CABLES — TELEGRAMS CABLEGRAMS RADIOGRAMS — COMMERCIAL CABLES

RECEIVED AT
STANDARD TIME INDICATED ON THIS MESSAGE

This is a full rate Telegram or Cablegram unless otherwise indicated by signal in the check or in the address.

DL	Day Letter
NL	Night Letter
NM	Night Message
LCO	Deferred Cable
NLT	Night Cable Letter
WLT	Week End Cable Letter

A147 46 GOVT DL
1931 SEP 18 PM 5 23

AU WASHINGTON DC 18 507P

R G MINICK

AERONAUTICAL INSPECTOR SIR WALTER HOTEL RALEIGH NCAR

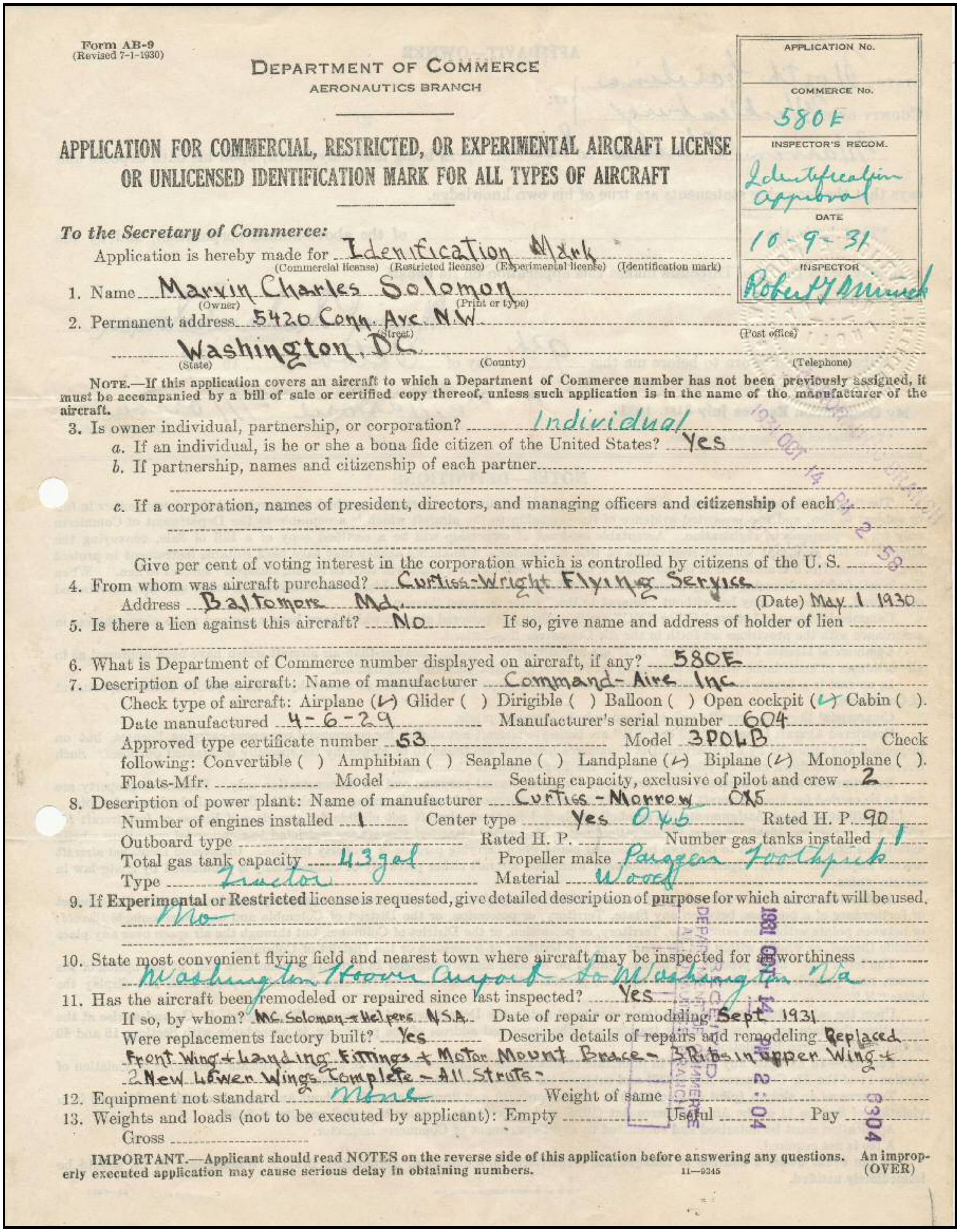
REPAIR DRAWINGS APPROVED FOR COMMANDAIRE LICENSE NC.FIVE EIGHT NAUGHT E BELONGING TO MARVIN SOLOMON SIX TWENTY SEVEN SOUTH FULTON STREET SALISBURY NORTHCAROLINA STOP OWNER STATES YOU HAVE INSPECTED REPAIRS PRIOR TO RECOVERY IF SO AND THEY WERE SATISFACTORY PERMISSIBLE YOU AUTHORIZE OWNER PROCEED WITH RECOVERING

MARRIOTT.

AERONAUTICAL BRANCH
1931 OCT 14

Ship was inspected before covering and work was O.K. Ship left here identified because of improper propeller Robt G Minick 10-11-31

This was the means of getting an airplane repaired after an accident. Keep in mind that aircraft manufactured prior to 1929 did not have brakes or a tail wheel, so they were prone to ground looping that usually caused damage to lower wings, such as broken wing spars and damaged main landing gears. This is the case of the above ship, an OX-5 powered Command-Aire 3C3. Every major repair had to be individually approved by a Department of Commerce Inspector. Detailed drawings had to be made so engineers could approve or disapprove the repair, and that took a long time. Initially there was no form within the department to record said major repairs, so a logbook entry had to suffice. However, the repair would be recorded on the department's annual relicense application form that can be seen below. Note at the bottom of form the statement stating that the ship "*Has the aircraft been remodeled or repaired since last inspection?"* The answer was 'yes' and the repair was completed by M.C Solomon & 'helpers," September 1931. Mr. Solomon apparently purchased repair parts from the Command-Aire factory and a repair was made to, "*Replaced front wing and landing fittings & motor mount brace – 3 ribs in upper wings, 2 new lower wings complete and all struts."* This represents quite a major repair by today's standards and regulations. And this repair was completed by the owner and helpers. This and the logbook is the only paperwork reference to this repair.


Form AB-9
(Revised 7-1-1930)

DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

APPLICATION No.
COMMERCE No. 580E
INSPECTOR'S RECOM. Identification approval
DATE 10-9-31
INSPECTOR Robert T. Aminck

APPLICATION FOR COMMERCIAL, RESTRICTED, OR EXPERIMENTAL AIRCRAFT LICENSE OR UNLICENSED IDENTIFICATION MARK FOR ALL TYPES OF AIRCRAFT

To the Secretary of Commerce:

Application is hereby made for Identification Mark (Commercial license) (Restricted license) (Experimental license) (Identification mark)

1. Name Marvin Charles Solomon (Owner) (Print or type)
2. Permanent address 5420 Conn. Ave. N.W. (Street) (Post office)
Washington, D.C. (State) (County) (Telephone)

NOTE.—If this application covers an aircraft to which a Department of Commerce number has not been previously assigned, it must be accompanied by a bill of sale or certified copy thereof, unless such application is in the name of the manufacturer of the aircraft.

3. Is owner individual, partnership, or corporation? Individual
   a. If an individual, is he or she a bona fide citizen of the United States? Yes
   b. If partnership, names and citizenship of each partner
   c. If a corporation, names of president, directors, and managing officers and citizenship of each
   Give per cent of voting interest in the corporation which is controlled by citizens of the U. S.
4. From whom was aircraft purchased? Curtiss-Wright Flying Service
   Address Baltimore Md. (Date) May 1 1930
5. Is there a lien against this aircraft? No If so, give name and address of holder of lien
6. What is Department of Commerce number displayed on aircraft, if any? 580E
7. Description of the aircraft: Name of manufacturer Command-Aire Inc.
   Check type of aircraft: Airplane (✓) Glider ( ) Dirigible ( ) Balloon ( ) Open cockpit (✓) Cabin ( ).
   Date manufactured 4-6-29 Manufacturer's serial number 604
   Approved type certificate number 53 Model 3C3B Check following: Convertible ( ) Amphibian ( ) Seaplane ( ) Landplane (✓) Biplane (✓) Monoplane ( ).
   Floats-Mfr. Model Seating capacity, exclusive of pilot and crew 2
8. Description of power plant: Name of manufacturer Curtiss-Morrow OX5
   Number of engines installed 1 Center type Yes OX5 Rated H. P. 90
   Outboard type Rated H. P. Number gas tanks installed 1
   Total gas tank capacity 43 gal Propeller make Paragon Toothpick
   Type Tractor Material Wood
9. If Experimental or Restricted license is requested, give detailed description of purpose for which aircraft will be used. No
10. State most convenient flying field and nearest town where aircraft may be inspected for airworthiness Washington Hoover Airport So. Washington Va.
11. Has the aircraft been remodeled or repaired since last inspected? Yes
   If so, by whom? M.C. Solomon + Helpers N.S.A. Date of repair or remodeling Sept. 1931
   Were replacements factory built? Yes Describe details of repairs and remodeling Replaced Front Wing + Landing Fittings + Motor Mount Brace - 3 Ribs in upper Wing + 2 New Lower Wings Complete - All Struts -
12. Equipment not standard None Weight of same
13. Weights and loads (not to be executed by applicant): Empty Useful Pay
   Gross

IMPORTANT.—Applicant should read NOTES on the reverse side of this application before answering any questions. An improperly executed application may cause serious delay in obtaining numbers. (OVER)

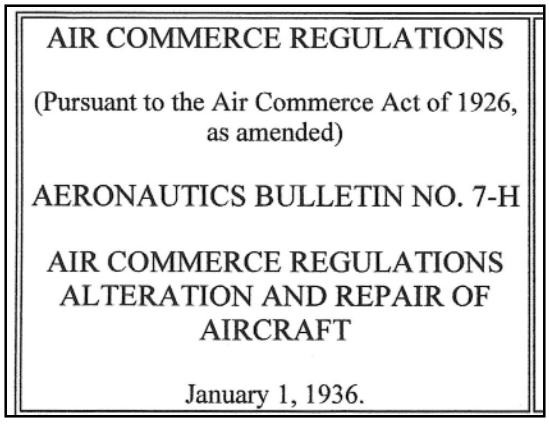
From this rare look into the past of major repair documentation for the Department of Commerce it is clear that such repairs were acted upon for each individual ship, which was cumbersome and time consuming.

In 1934, the Aeronautics Branch of he Department of Commerce gave way to the Bureau of Air Commerce. The Bureau began to set forth requirements for A&E mechanics to make major repairs to aircraft structure. But how did this happen?

Albert Vollmecke, noted designer and engineer for Command-Aire, Incorporated was to play a very important role in developing repair data that could be used by mechanics in the field to make major repairs to primary aircraft structure. Al joined the Aeronautics Branch to help regulate the growing field of aviation in 1933. The Aeronautics Branch of the Department of Commerce would be reorganized and renamed in 1934, becoming the Bureau of Air Commerce, still within the Department of Commerce. In 1938, Congress created the Civil Aeronautics Agency, which would be known as the CAA. A change from "agency" to "administration" came a short time later and Al, with all his talent, began to climb the ladder towards the top.

As civilian aviation continued to grow in the 1930's and 1940's, Al was assigned a formidable task to develop a manual for the repair of aircraft. This was to be a document for mechanics to make "approved" repairs on wood and steel tube aircraft. Prior to this publication, each repair had to be inspected and approved by a government official, which was a time consuming task and caused great delays and frustration to mechanics and owners since ideas on correct procedure for repairs varied among mechanics.

Albert assembled a small group of design engineers in Washington, D.C and set out to create the document. He designed splices for wood and steel tube structures which appear today in the FAA's Advisory Circular 43.13-1B. When asked how he and his committee went about the task, he said, "*We looked at how to put the margin of safety back into an aircraft after it had been damaged. I designed the scarf splice for wood wing spars and most of the steel tube splices. We sent the drawings to craftsmen in the Washington, D.C area and they made samples of the repairs. Then we had them tested to destruction to see if they worked."* The first publication was Aeronautics Bulletin 7H, signed by Daniel C. Roper, Secretary of Commerce on September 23, 1935. The document became effective January 1, 1936. In this document there appears several drawings of steel tube repairs, splices to wood wing spars and ribs. It is most likely in this Aeronautics Bulletin 7H that Albert Vollmecke and his committee designed the repairs. The drawings are very similar to those found in Civil Aeronautics Manual (CAM) 18 and the current FAA Advisory Circular 43.13-1B.


AIR COMMERCE REGULATIONS

(Pursuant to the Air Commerce Act of 1926, as amended)

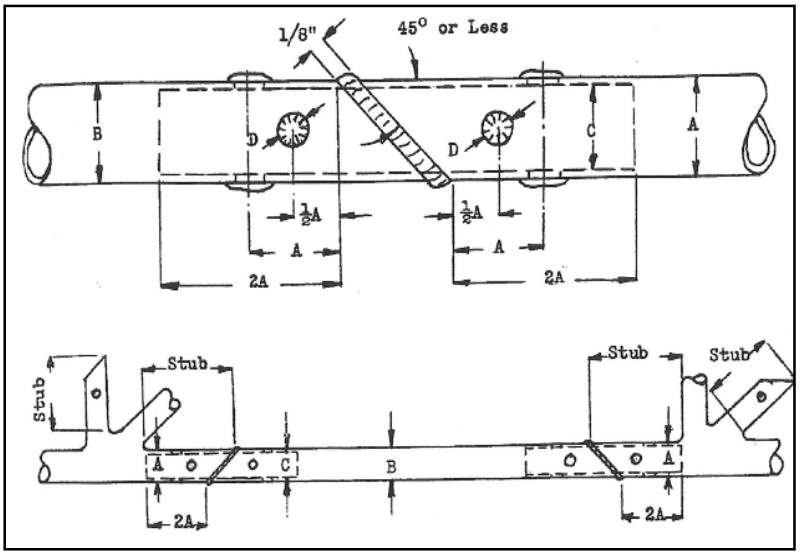
AERONAUTICS BULLETIN NO. 7-H

AIR COMMERCE REGULATIONS
ALTERATION AND REPAIR OF AIRCRAFT

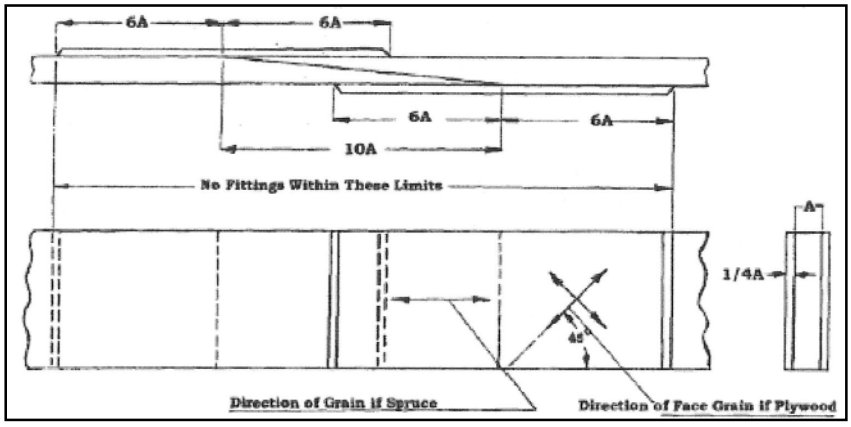
January 1, 1936.

Aeronautics Bulletins appeared in 1927, and eventually evolved into AB-7A, Airworthiness Requirements for Aircraft. This document was needed to comply with government regulations regarding Approved Type Certificates. Aeronautics Bulletin 7H is significant because it was the first document to address alterations and repairs to certificated aircraft. Prior to AB-7H there was no documented repair procedure if an aircraft was damaged.

To the right is a sketch of a structural tube splice using inside sleeve and is Figure 5 in AB-7H. Albert led the committee who designed and tested these types of repairs to both 1025 and 4130 steel tubing. All ATC manufactured ships used this type of steel tubing for fabrication of the structure and sometimes a combination of the two.



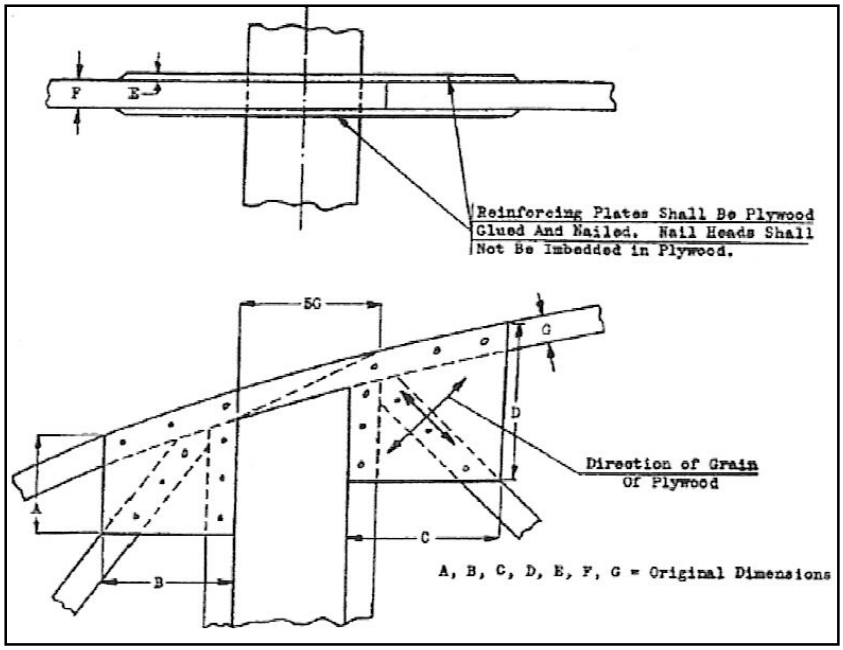
Below is Figure 9 in Aeronautics Bulletin 7-H.



It is identified as the method of splicing solid or laminated rectangular wing spars. This basic design is still used to this day. If properly cut, finished, glued, clamped and cured, the splice is as strong as the wood itself. It is called a "scarf" splice, the angle being 10 times the thickness of the spar. This type splice puts the glue in shear and gives grain continuation.

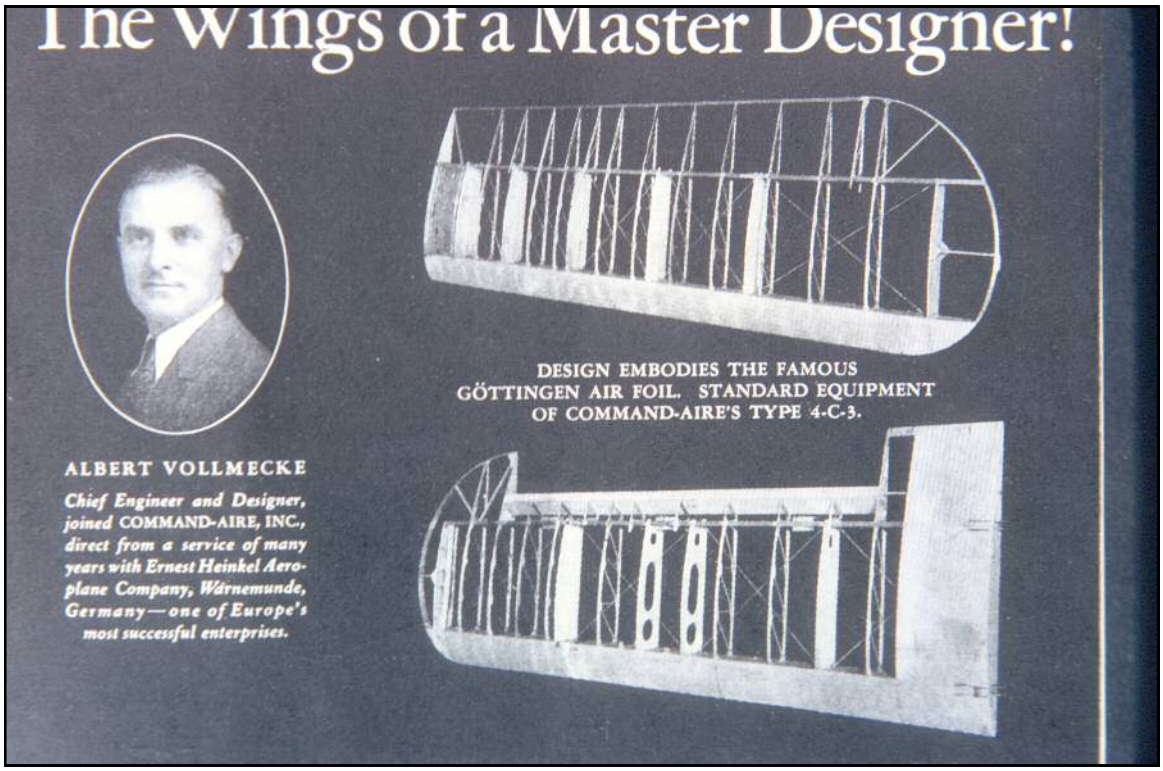
Shown at right is Figure 17 in Aero Bulletin 7-H. It is a Typical Rib Splice At A Spar. While similar to the splice shown in the current AC43.13-1B it is not the same.

There is good reason to believe that Albert either designed or had a hand in the design of



these major repairs to primary aircraft structural components.

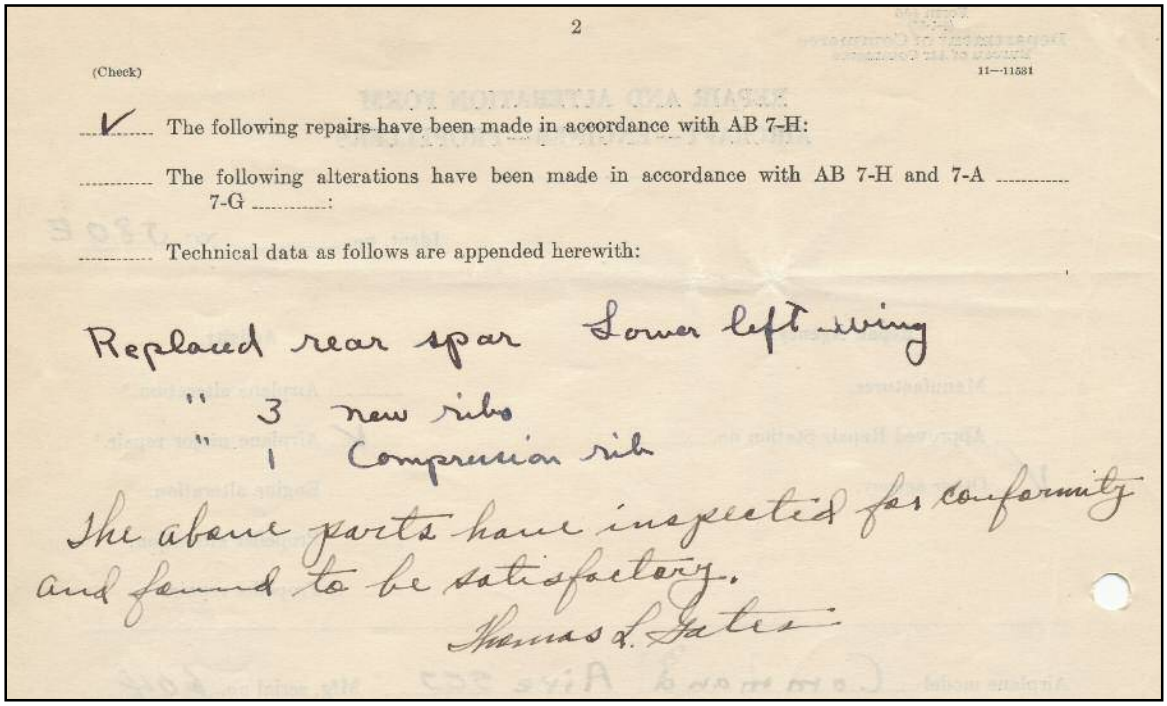
Albert's main concern in aircraft design was always SAFETY and the designs for major repairs to aircraft primary structure reflect this vision. To design a repair that, when properly completed, is as strong as the structure itself is noteworthy. He is indeed a genius, a person with immense talent. Former Command-Aire vice President Charles M. Taylor, in his presentation of November 11, 1983 states, *"The National Advisory Committee for Aeronautics – the NACA – appointed him* [Albert] *as a member of the Committee on Aircraft Construction and on the Research Advisory Committee on Aircraft Structures."* Al was a personal friend from 1978 until his death in 1994.



In this 1929 advertisement from Command-Aire, Incorporated the master designer is pictured. Al was only 28-years old in this photo. At right is Al at Sun 'N Fun 1989 – he is now 88-years old.

AB-7H was a very important document for mechanics in the field to give guidance on making structural repairs to primary aircraft structure, particularly the splicing of wood, steel tube and aluminum structure. Below may be the first Repair and Alteration Form developed by the Bureau of Air Commerce and dated June 1, 1935. All additional forms developed from this time on were similar but the result would be the same – record major repairs and alterations to an aircraft, engine or propeller.

Below is a another rare view into the earliest days of aircraft paperwork mandated by the Federal Government. Note the date of November 1, 1937 and the repair is on the same Command-Aire 3C3, NC580E but there is a space for the supervising mechanic's signature and his license number. In this case the mechanic is Harold D. Mountain, his license number is 6216 and he had dated the completion of the repair on Nov. 1, 1937. Also note that the repair was approved by Thomas L. Gates who is a "Department of Commerce Inspector." While Mr. Mountain does not identify what type of mechanic license he holds, he would have to be at least an A (Airplane) mechanic, or he might hold both Airplane and Engine license (A&E).



2

(Check) 11—11581

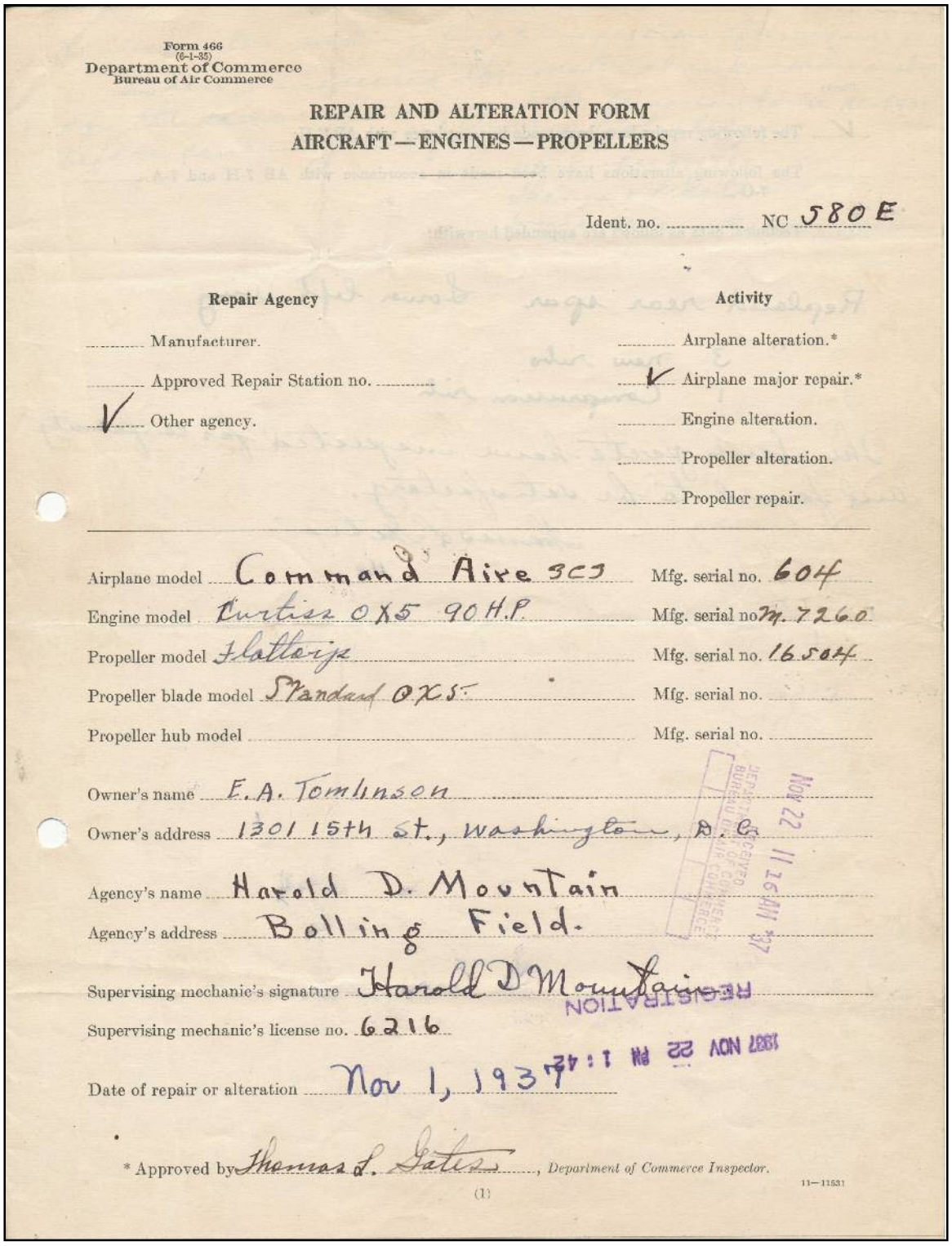
V The following repairs have been made in accordance with AB 7-H:

..... The following alterations have been made in accordance with AB 7-H and 7-A ..... 7-G .....:

..... Technical data as follows are appended herewith:

Replaced rear spar Lower left wing
" 3 new ribs
" 1 Compression rib
The above parts have inspected for conformity and found to be satisfactory.
Thomas L. Gates

On the reverse side of this form is a hand written description of what was repaired. Of particular interest here (for mechanics) is the reference that the,"*following repairs were made in accordance with AB 7-H."* Thank you Mr. Albert Vollmecke and his blue ribbon committee. From this humble beginning this form would be refined and revised over the years to become today's FAA Form ACA 337, widely known and used by current mechanics.



Form 466
(6-1-35)
Department of Commerce
Bureau of Air Commerce

REPAIR AND ALTERATION FORM
AIRCRAFT — ENGINES — PROPELLERS

Ident. no. ..... NC 580E

Repair Agency	Activity
..... Manufacturer.	..... Airplane alteration.*
..... Approved Repair Station no.	..... V Airplane major repair.*
..... V Other agency.	..... Engine alteration.
	..... Propeller alteration.
	..... Propeller repair.

Airplane model Command Aire 3C3 Mfg. serial no. 604
Engine model Curtiss OX5 90 H.P. Mfg. serial no. M. 7260
Propeller model Flatterjx Mfg. serial no. 16504
Propeller blade model Standard OX5 Mfg. serial no.
Propeller hub model Mfg. serial no.

Owner's name E. A. Tomlinson
Owner's address 1301 15th St., Washington, D. C.

Agency's name Harold D. Mountain
Agency's address Bolling Field.

Supervising mechanic's signature Harold D Mountain
Supervising mechanic's license no. 6216

Date of repair or alteration Nov 1, 1937

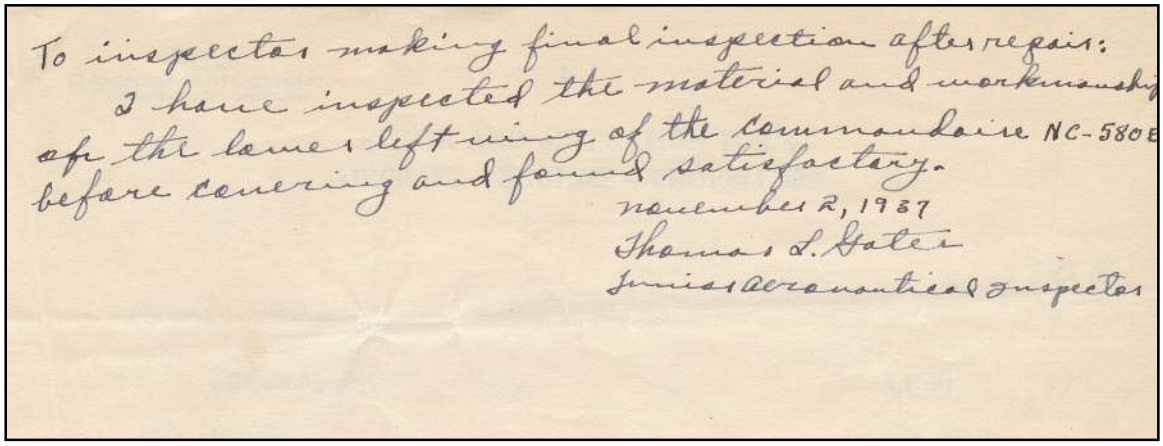
* Approved by Thomas L. Gates, Department of Commerce Inspector.

(1)

11—11531

The front side of this Bureau of Air Commerce "Major Repair and Alteration Form" used to record field repairs to primary structure of an aircraft, engine or propeller. There is one final recording on this 4-page form, and that is a note from Department of Commerce Inspector, Mr. Gates. There would be one final inspection of the work when

application for a new Airworthiness Certificate was received from the owner of the aircraft.


To inspector making final inspection after repair:
I have inspected the material and workmanship
of the lower left wing of the Commandaire NC-580E
before covering and found satisfactory.
november 2, 1937
Thomas L. Gates
Junior Aeronautical Inspector

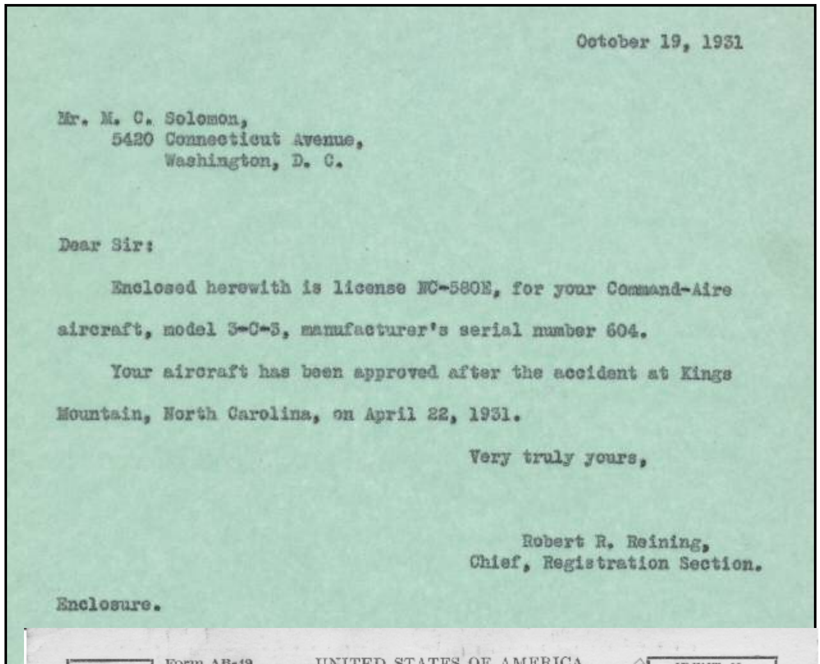
This was the very beginning of an authorization for A&E mechanics to make major repairs to aircraft, engines and propellers operating in the field. Once the form was completed the work was subject to two inspections by the Department of Commerce Inspectors. This would be the case until the CAA instituted the Designated Aircraft Maintenance Inspector (DAMI) that officially began January 15, 1946.

The issuance of annual airworthiness certificates initially by the Department of Commerce and later by a DAMI, would stay in effect until they were replaced by permanent airworthiness certificates beginning June 1956.

When an aircraft was damaged in an accident its liccense was suspended. When the repairs were approved by a D of C Inspector the license was reinstated. This is the official notification that the ship had its registration mark once again. Remember that when an aircraft was considered “licensed” it carried (in this case) an NC preceding the identification mark. The amount of data to-and-from the Aeronautics Branch is absolutely amazing. And it is all hand typed or hand written.

Bottom is the license as issued by the D or C, declaring the ship airworthy for (in this case) for a semi-annual (6-month) time period.

This has been a very rare look back in time to when civil aviation in the United States actually came under government control. The growth of aviation is very impressive through the period 1927-1929, however the stock market crash and following depression of 1929 dealt a severe blow to aviation and it did not fully recover until after WW2.



October 19, 1931

Mr. M. C. Solomon,
5420 Connecticut Avenue,
Washington, D. C.

Dear Sir:

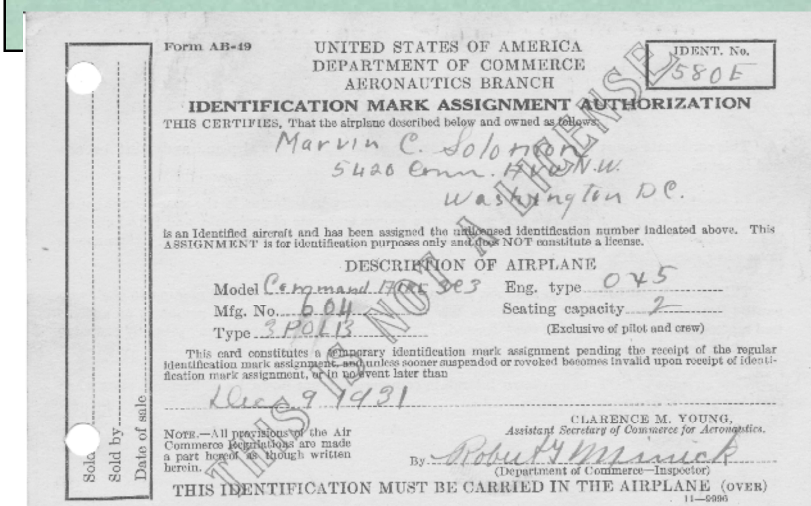
Enclosed herewith is license NC-580E, for your Command-Aire aircraft, model 3-C-3, manufacturer's serial number 604.

Your aircraft has been approved after the accident at Kings Mountain, North Carolina, on April 22, 1931.

Very truly yours,

Robert R. Reining,
Chief, Registration Section.

Enclosure.



Form AB-49

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

IDENT. No. 580E

IDENTIFICATION MARK ASSIGNMENT AUTHORIZATION

THIS CERTIFIES, That the airplane described below and owned as follows:
Marvin C. Solomon
5420 Comm. Ave N.W.
Washington DC.
is an Identified aircraft and has been assigned the unlicensed identification number indicated above. This ASSIGNMENT is for identification purposes only and does NOT constitute a license.

DESCRIPTION OF AIRPLANE

Model Command Aire 3C3 Eng. type OX5
Mfg. No. 604 Seating capacity 2
Type 3POLB (Exclusive of pilot and crew)

This card constitutes a temporary identification mark assignment pending the receipt of the regular identification mark assignment, and unless sooner suspended or revoked becomes invalid upon receipt of identification mark assignment, or in no event later than
Dec 9 1931

CLARENCE M. YOUNG,
Assistant Secretary of Commerce for Aeronautics.

NOTE.—All provisions of the Air Commerce Regulations are made a part hereof as though written herein.

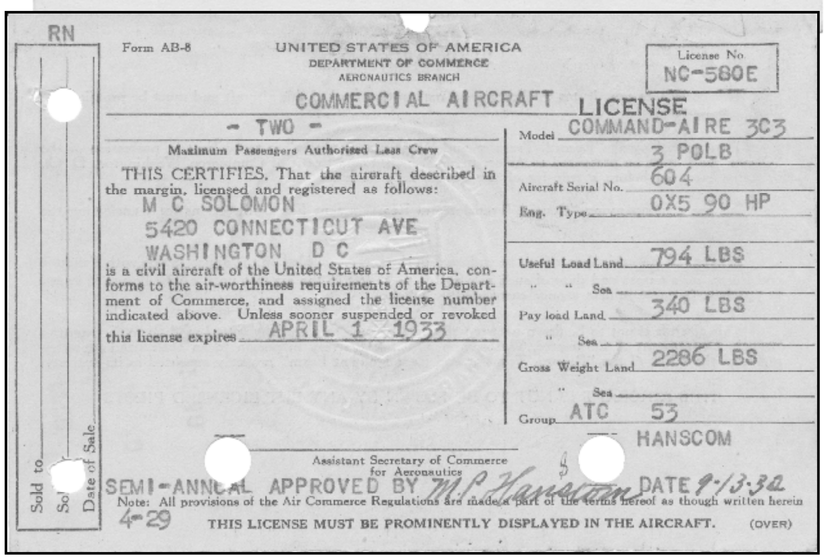
By [illegible]
(Department of Commerce—Inspector)

THIS IDENTIFICATION MUST BE CARRIED IN THE AIRPLANE (OVER)

11—9996

Sold ... Sold by ... Date of sale

THIS IS NOT A LICENSE



RN

Form AB-8

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

License No. NC-580E

COMMERCIAL AIRCRAFT LICENSE

- TWO -
Maximum Passengers Authorized Less Crew

THIS CERTIFIES, That the aircraft described in the margin, licensed and registered as follows:
M C SOLOMON
5420 CONNECTICUT AVE
WASHINGTON D C
is a civil aircraft of the United States of America, conforms to the air-worthiness requirements of the Department of Commerce, and assigned the license number indicated above. Unless sooner suspended or revoked this license expires APRIL 1 1933

Model COMMAND-AIRE 3C3
3 POLB
Aircraft Serial No. 604
Eng. Type OX5 90 HP
Useful Load Land 794 LBS
" " Sea
Pay load Land 340 LBS
" Sea
Gross Weight Land 2286 LBS
" Sea
Group ATC 53

HANSCOM

Assistant Secretary of Commerce for Aeronautics

SEMI-ANN[illegible] APPROVED BY [illegible] DATE 9-13-32

Note: All provisions of the Air Commerce Regulations are made a part of the terms hereof as though written herein

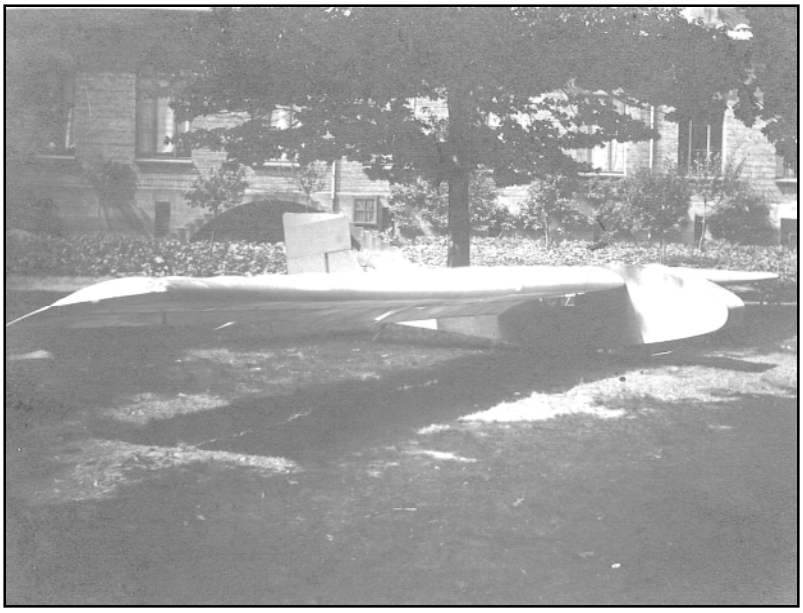
4-29

THIS LICENSE MUST BE PROMINENTLY DISPLAYED IN THE AIRCRAFT. (OVER)

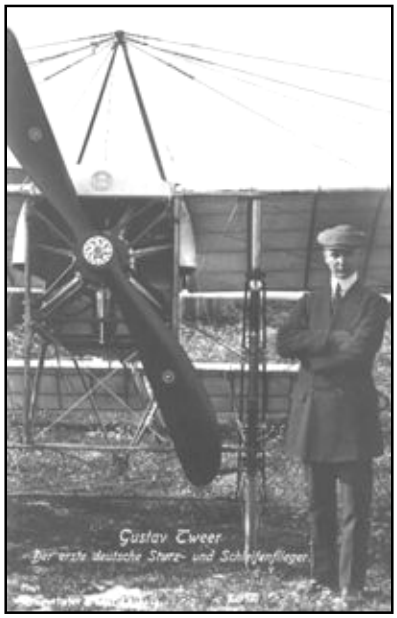
Sold to ... Sold ... Date of Sale

MY FRIEND ALBERT VOLLMECKE
OX-5 HALL OF FAME
PART 1
Robert G. Lock

Albert A. Vollmecke (original spelling Voellmecke, which he changed because people in America could not pronounce his name correctly) was a native of Osnabrueck, Westphalia, Germany, born in 1901. He was a 1925 graduate of the Technical University of Braunschweig with a degree in Mechanical Engineering with Aeronautical option. Soon after his graduation he was appointed technical head of the Aeronautical Research Association, a government-financed organization maintained in connection with the university. It was while serving in this capacity that he assisted in launching the gliding competitions in 1925. At the conclusion of World War I, the Treaty of Versailles had limited Germany to production of aircraft powered with motors up to only 80 horsepower. Subsequently the Germans became experts at building and flying gliders. They created glider clubs for young boys and perfected the art of gliding. Vollmecke competed in glider contests and was a firm believer that glider experiments in Germany, France and other countries did more to advance flying after WWI than any other factor. In 1923 he won second-place in a competition held in Wasserkuppe, Germany, remaining aloft for two and one half hours in a motor-less plane, depending solely on the mountain air currents and his delicately attuned "flying sense" to sustain his flight. He was widely known in Germany as one of the original promoters of the annual gliding competition that did much to stimulate the advancement of aeronautical science. Vollmecke designed and flew some of the most successful gliders of the time. In the photograph above, a glider rests on a lawn near a building in Germany. This photo, found in a bound volume of aircraft inventions and patients dated 1919 and given me by Mr. Vollmecke, this early picture could very well be one of his designs. There is no way to determine this fact, but this is not a clipping from a book or newspaper but a very early black and white photograph. There is a vague similarity in the shape of the rudder top and the size of the vertical stabilizer when compared with the shape and size of his Command-Aire model 3 and 5 designs.

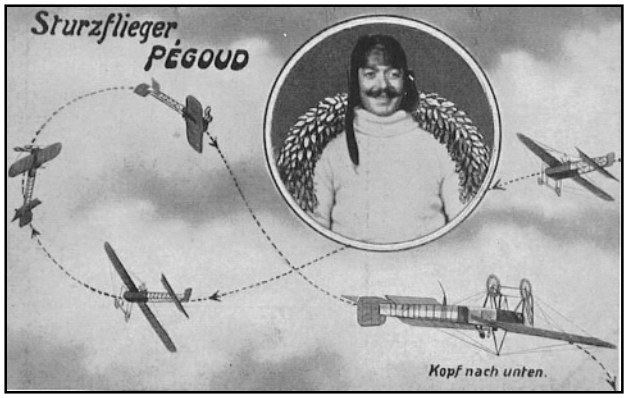


The Arkansas Democrat newspaper published a story about Albert Vollmecke on November 6, 1927 and reported, "*In his homeland, they refer to Vollmecke as a cousin of Captain Gustav Tweer, famous German ace who, at the age of 23, succeeded the great Immelman as squadron commander when the "ace of aces" was shot down over the lines in WW1. Tweer was officially credited with bringing down 32 planes, a record that was surpassed by few on the other side. By a strange freak of fate he survived all his air battles only to loose his life while testing a new plane behind the lines. The plane caught fire and Tweer fell to his death when he leaped from the burning machine at a height of 100 feet near Hanover. Vollmecke was too young to enter the German air service until the closing year of the war, when he attended an army flying school. The hostilities came to an end after he had finished the course and been assigned to an air unit on the western front."*

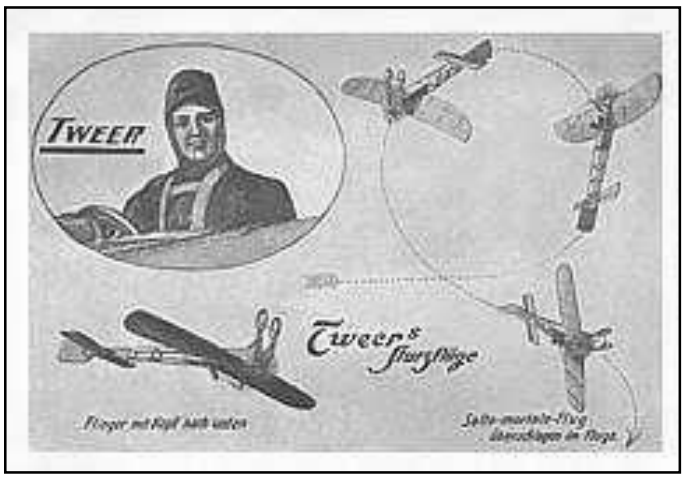


Albert told me the story of a brave German aviator who was engaged to his sister. This aviator died when his flying machine caught fire in the air and he jumped from the craft before it hit the ground. Could it have been this man, Gustav Tweer? Tweer was born July 5, 1893 in Osnabrueck, Germany and died November 1, 1916 in Hanover, Germany at the young age of 23. He learned to fly and earned German pilot license number 180 on April 18, 1912. He became a protégé' of the French looping and diving aviator Adolphe Pegoud. The photograph above is Gustav Tweer and his Bleriot monoplane, probably around 1913.

Adolphe Pegoud had met Louis Bleriot and learned to fly in a Bleriot monoplane. Pegoud made the first parachute jump from an aeroplane from an altitude of 250 meters on August 13, 1913 and accomplished the first loop on September 21, 1913 in a Bleriot Type XI machine. Pegoud died 1915 in WWI when he was shot down by a former student from Germany. He was only 26 years old.



In 1913 Tweer met Louis Bleriot in France. He learned flying and became an early "Sturz- und Schleifenflieger" (diving and looping pilot) like Pégoud. Left, a German postcard showing the Frenchman Pegoud looping his Bleriot monoplane. Note this illustration is very similar to the card below showing the German Tweer. Both aviators died young; Tweer at age of 23 years and Pegoud at the age of 26 years.



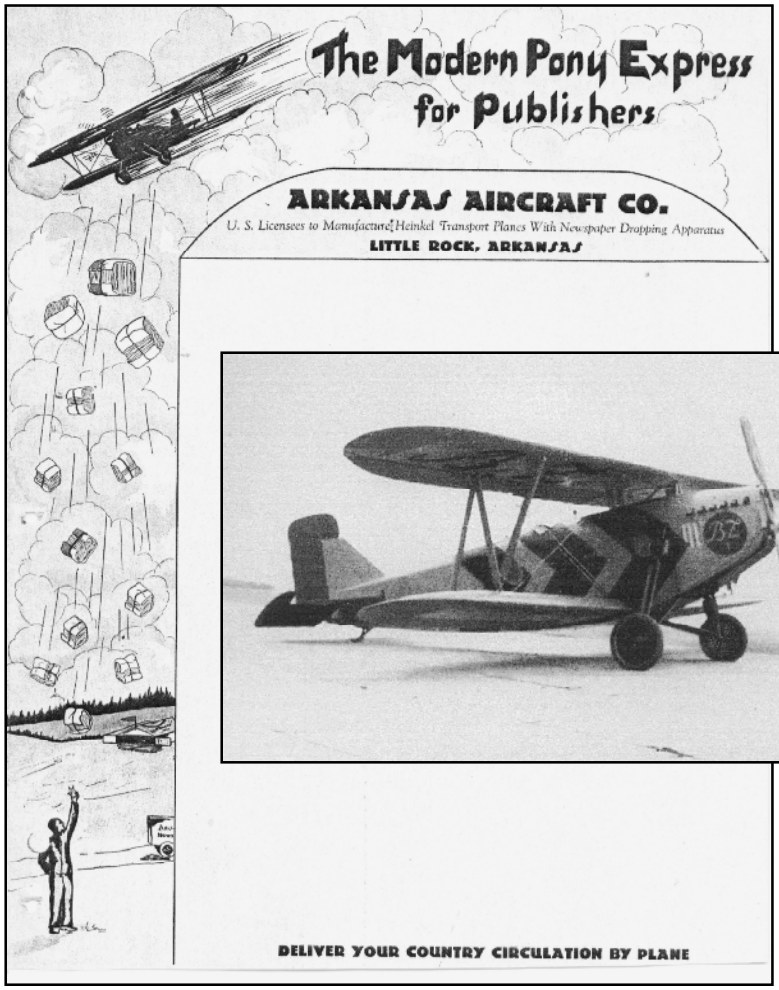
A rare postcard left shows Gustav Tweer looping his Bleriot monoplane, the feat he learned from Adolphe Pegoud, who was considered the first "art" flier. Tweer organized imperial flight day on June 1912 on the Vehrter running place, a racecourse in Germany. He made several flight demonstrations of looping and stunting before his death. He is buried in Osnabrueck on the Johannisfriedhof, the city of Albert's birth.

To label Gustav Tweer as a "daredevil" when ascending in an aeroplane would not be an exaggeration in the early days of flying. Besides looping and stunting, Tweer modified an early Grade-Eindecker ship with an auxiliary landing gear on top of the wings and tail plane so he could land inverted, perhaps the first time this had been executed in the history of flight. Note the wire bracing of flimsy wings to absorb flight loads during stunting.

Albert Vollmecke was employed by the Ernst Heinkel Flugzeugwerke, Germany's second largest manufacturer of aircraft, as a designing engineer. He had been with Heinkel for three and a half years before coming the United States in January 1927 as a company representative and scout for the factory. Heinkel had designed a small low-powered training airplane and the factory was interested in seeing if the airplane could be manufactured in the U. S under license. He was also instructed to report on American aviation developments and transmit all worthwhile new ideas discovered to his employer. He found the field of civilian aviation so active and promising that he decided to sever his connection with Heinkel and remain in this country if he could secure a satisfactory position with an American firm.

The opportunity came when he learned, through an aviation publication, that Arkansas Aircraft Company, Little Rock, Arkansas was seeking a highly qualified expert to serve as Chief Engineer. When company officials learned of Vollmecke's exceptional qualifications, they decided he was the very man they were looking for, and promptly offered him a contract which he found acceptable and signed immediately. He took charge of the Arkansas Aviation Company's plant at the foot of East 17th Street in late September 1927. Vollmecke immediately provided the touch of German efficiency for the design and production of airplanes. Naturally, Vollmecke hoped to put into practice some of the advanced ideas he gathered in connection with his work as a designer in Germany. The officials at Arkansas Aircraft Corporation offered him a "free hand" in the introduction of innovations, within reasonable limits.

Charles M. Taylor, vice President of Command-Aire, Incorporated in 1929 and 1930 reported on one of Vollmecke's innovations brought over from Germany. "*Vollmecke had an interesting program in mind which he postponed and then abandoned when he started designing for Command-Aire. His plan was a novel way for fast delivery of newspapers throughout the country. Carrying a load of daily newspapers in cargo type airplanes with built-in hoppers, papers would be jettisoned over a designated spot from where local carriers would pick them up and deliver them to their customers. Some mornings when I pick up my morning paper it looks like they were using Vollmecke's invention."* The ships were painted bright colors so people on the ground would know when the newspaper ship was approaching.



The Heinkel "Double Decker" biplane was to be manufactured in two sizes. The model 39 had a payload capacity of 1,150 pounds for both freight or passengers and the model 40 had a payload capacity of 2,500 pounds of freight or 10-passengers (including 2-pilots). A bundle of 100 average size newspapers would weigh

28 pounds, thus in one trip the Heinkel H.D. 40 could deliver 8,707 papers. Note colorful paint scheme.

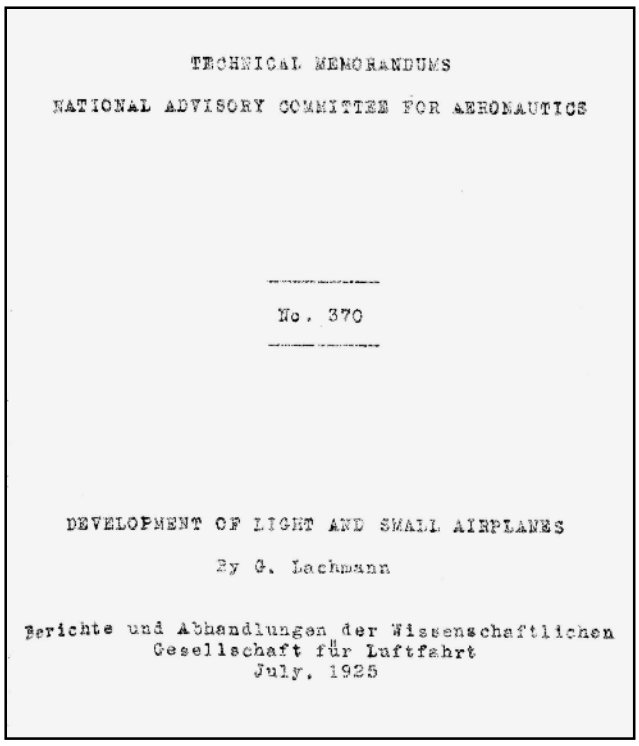
The March 19, 1929 issue of AVIATION magazine carried a story regarding the Heinkel H.D.40 German Freight and Express plane, which was to be manufactured in America and powered by an American engine. *"The Arkansas Aircraft Company of Little Rock, Ark., manufacturer of commercial airplanes, announces it is now preparing to put in production a type of plane suitable for freight and express carriers by air lines operating on regular schedules. This plane can also be furnished with a patented mechanical dropping device for the handling of certain commodities. This device was primarily designed for the delivery of newspapers, and several of the large European newspapers are now using this plane equipped with the dropping device in the daily delivery of*

their papers to distant towns.

The plane was designed by the Ernst Heinkel Airplane Works of Warnemuende, Germany, and is known in Europe as the Heinkel model H.D. 40. It is through Albert Vollmecke, chief engineer for the Arkansas Aircraft Company, who until recently was associated with the Heinkel Works in Germany, that arrangements are being made to manufacture this plane in America.

The H.D. 40 follows Heinkel practice in construction in that it has a large welded steel tubular fuselage with high lift wood wings. It is planned that these planes will be powered with Pratt and Whitney "Wasp" or "Hornet" engines or with Wright "Cyclone" engines. The plane was designed in compliance with the requirements of the German Technical Department for Aeronautics at Adlershof." The ship was never constructed in the United States.

The Arkansas Democrat publication dated Sunday, November 6, 1927 reported the following interview of Albert Vollmecke, "*Just before my departure from Germany I saw, under construction, a huge plane designed to carry 100 passengers. It will soon be ready for testing and I believe it will prove a success marking the beginning of a new era in commercial flying. This plane, built primarily for experimental purposes, will be driven by six motors of 1,000 horsepower each."* Vollmecke predicted that the trans-Atlantic planes of the near future would be big hydroplanes that would fly at great height, perhaps 15,000 feet and more, thus soaring high above all fog and atmospheric disturbances. This predicted just after Charles Lindberg had flown solo non-stop from New York to Paris. Vollmecke offered another forecast for the future. Diesel engines will eventually be substituted for gasoline motors. The fuel consumption of the diesel is much lower than the types of gasoline motors that were in use for aerial purposes. This, he predicted, would help solve one of the most troublesome problems of long distance flight – the excessive weight of the fuel that had to be carried. All this in November 1927!



TECHNICAL MEMORANDUMS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 370

DEVELOPMENT OF LIGHT AND SMALL AIRPLANES

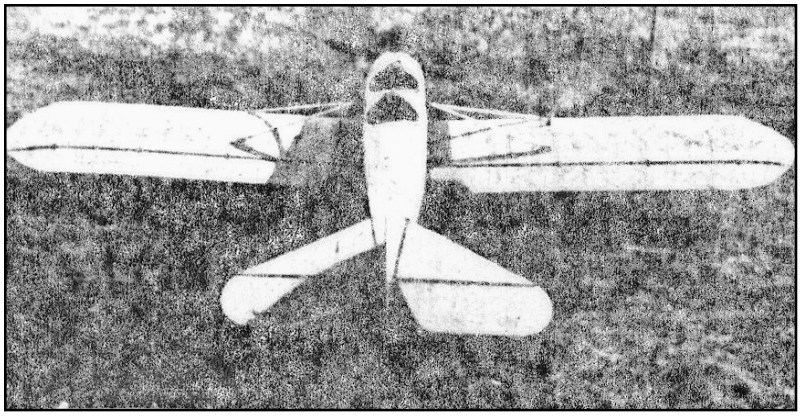
By G. Lachmann

Berichte und Abhandlungen der Wissenschaftlichen Gesellschaft für Luftfahrt
July, 1925

Vollmecke's ideas on aircraft design came mostly from Germany. In his collection of technical books was a 3-volume set of design ideas for every type of aeronautical device one could imagine. Gustav V. Lachmann wrote one such technical paper that Vollmecke commonly referred. It was authored July 1925 in Germany but recorded by the National Advisory Committee for Aeronautics (NACA)

in Washington, D.C in July 1926. The title is "Development of Light and Small Airplanes." Albert was always looking for the ideal light low-powered airplane. He was looking for efficiency and safety and his designs reflected this philosophy.

This poor quality photograph below comes from Dr. G. Lachmann's NACA report number 370. It is a small low-powered light ship produced by the Ernst Heinkel Airplane Works in Warnemuende, Germany. Asked if he had designed or helped design this airplane, Albert said "*no"*, but he had flown it on several occasions. Vollmecke added, "*The wings folded for storage and it had full-span slotted ailerons. The wing brace struts and fittings were poorly designed. While doing acrobatics a wing failed and the aircraft was destroyed."* Note the full-span ailerons as developed and reported on by Dr. Lachmann in his May 1926 report as published by the National Advisory Committee on Aeronautics (NACA) in Technical Memorandum number 393, dated January 1927. In his report, Dr. Lachmann concluded, *"There is no doubt that this form of lateral control has greatly increased the safety of flight in the region of the stall. It is quite likely that it could, with advantage, be applied to fighting airplanes, as the ability to start a turn rapidly and to maintain lateral control when stalled with full engine, on a turn of minimum radius, is of very great importance. Both model and full-scale experiments were made to see whether the drag of the airplane had been increased by the somewhat drastic alterations in the shape of the wings in the region of the ailerons. On the model the increase in drag coefficient was about 0.001, and on the full scale airplane was too small to be detected."* It was this type aileron system Vollmecke used on all Command-Aire aircraft he designed.



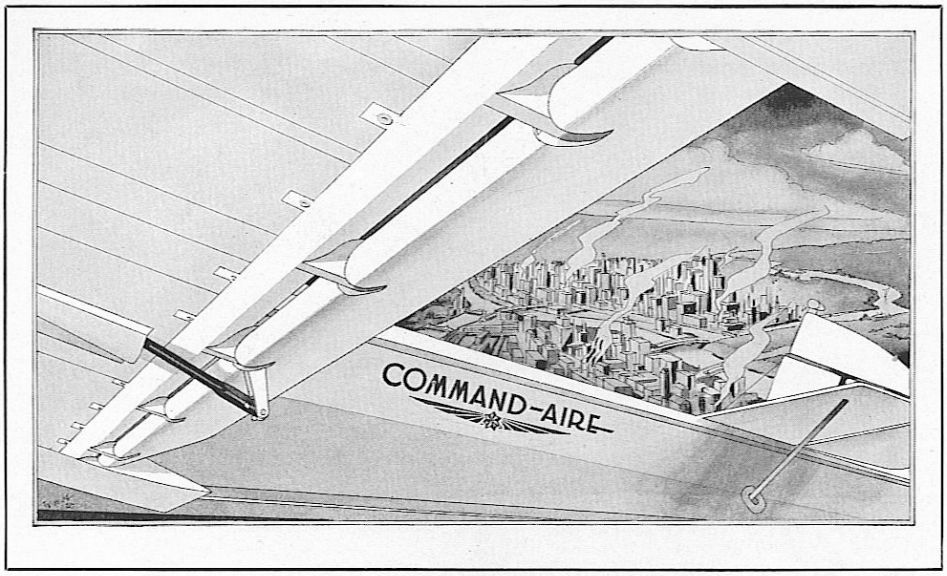
It is interesting to digress slightly at this point to explore an invention of a British aircraft designer, Mr. L. G. Frise (pronounced Freeze). In the June 12, 1942 issue of THE AEROPLANE, there appears an article titled, "I AM AN AIRCRAFT DESIGNER", which is the report of a talk given on the Forces Programme of the B.B.C on Monday, May 25, 1942. Mr. Frise states, "*I have been asked to mention the Frise aileron, which I patented as far back as 1921. The aileron, as you know, is the control on the wing tips used to carry out most of an aeroplane's maneuvers. This idea was born whilst I was working on a means of improving the safety of flight, and it was awarded the Wakefield Gold Medal by the Royal Aeronautical Society.*

This control became practically standard throughout the world, and soon its original purpose of improving safety was overshadowed by its ability to increase the fighting maneuverability of aircraft in war. The only enemy aircraft not so fitted at the beginning

of the War (WW2) was the Messerschmitt ME-109, but this suffered so badly at the hands of the Spitfires and Hurricanes using the Frise aileron, that it is not surprising to find that the latest model of the Messerschmitt, the 109F, has returned to the fight wearing Frise ailerons." Is it possible that the English chap Frise and the German Lachmann invented the same system independently of each other? It is also interesting to note that when Mr. Vollmeck was asked if he had employed the Frise slotted aileron on his Command-Aire designs, he replied, "*Oh no, I used the slotted aileron invented by the German, Dr. Lachmann."*

Above, in this original factory photograph furnished by Albert Vollmecke, his Lachmann slotted aileron, great for low speed lateral control. Note the sketch marks for license numbers on left lower wing, but not yet painted. This type aileron offers superior low speed roll control. This photograph taken outside the factory building in Little Rock, Arkansas, probably late 1928 or early 1929, was used extensively in the advertising campaign undertaken by Command-Aire, Incorporated between early 1928 and 1931. R.D Wolff, official factory photographer for the corporation, is identified in the lower right corner of photo.

JUST ONE OF COMMAND-AIRE'S SUPER SUPERIORITIES



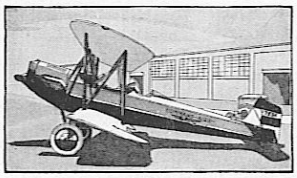
STALL SPEED CONTROL

Command-aire ailerons banish sloppy control

The picture gives you a clearer conception of COMMAND-AIRE aileron feature than miles of description might afford.

For instance, the exclusive advantage of slotted joining to the lower wings only. This requires but slight movement of the stick even for very steep banks.

Again, it provides positive control at stall speed, whether in the air or landing. Striking proof of COMMAND-AIRE stability was to have the pilot leave the cockpit and ride the fuselage, while the plane flew on under perfect self-control (photographic evidence furnished on request).



To the dealer, COMMAND-AIRE'S superiority of design and construction brings a vital advantage—namely, the widest possible market; among youth through speed, stability and smart appearance; among middle age in maximum assurance of stability.

The franchise may still be open in your territory. Write for the COMMAND-AIRE proposition.

COMMAND-AIRE, INC.
Little Rock Arkansas

COMMAND-AIRE

№53

THE PLANE OF WIDER SALES

WATCH THE TRADE PAPERS FOR MORE ABOUT COMMAND-AIRE'S UNCANNY STABILITY

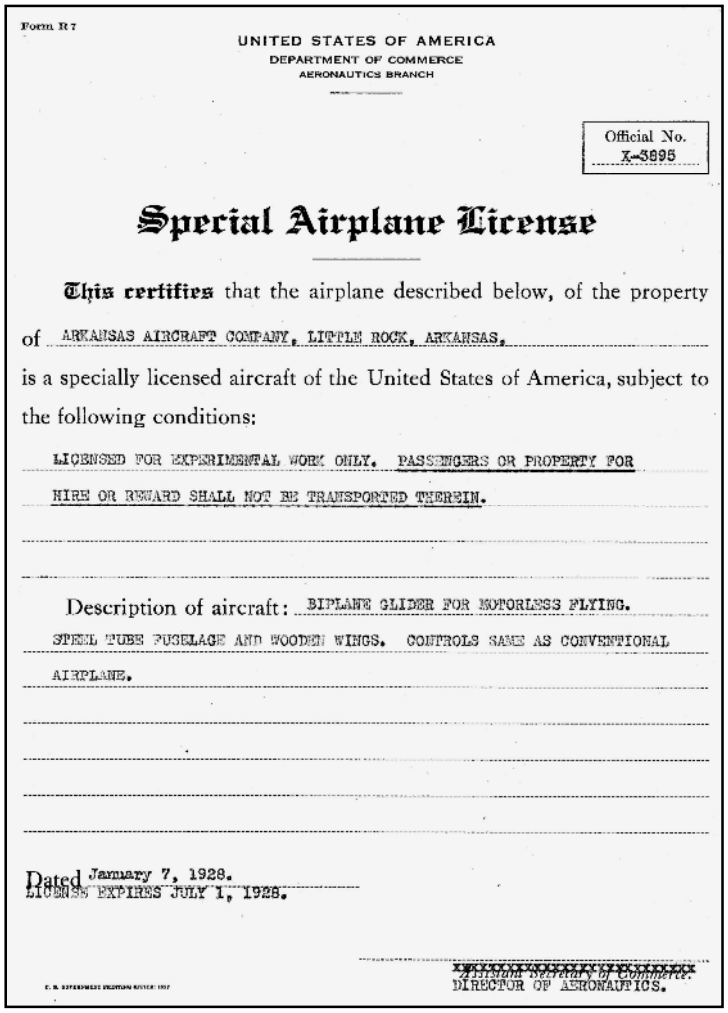
MY FRIEND ALBERT VOLLMECKE
OX-5 HALL OF FAME
PART 2

Another idea that Vollmecke brought to Command-Aire from Germany was the formation of glider clubs to teach young boys how to fly an airplane. The program had been so successful in Germany that Vollmecke reasoned, why not here? He undertook a project to design a small primary glider that Command-Aire could market to glider clubs that would spring up across the United States.

Application was made (shown below) to the Aeronautics Branch of the Department of Commerce December 19, 1927, just after Albert Vollmecke became employed with Arkansas Aircraft Company. The stated purpose of the airplane was *" Experimental."* Later will be production for sale to organizations such as Boy Scout Troops and Community Glider Clubs, the same as in Germany, and to individuals who wish a small plane for experimental purposes. *"Will be completed January 1st, 1928 at our factory, Little Rock, Arkansas."* In the application a description of the airplane appears, *"Biplane Glider for motorless flying. Steel tube fuselage and wooden wings. Controls same as conventional airplane. Designed by our engineer Mr. Albert Voelmecke, formerly of the Ernst Heinkel Airplane Works, Germany."*


Youths Test Their Glider

With the pressures of designing and producing powered biplanes the glider idea never was put into production. In a letter from the company dated July 22, 1928 to the Aeronautics Branch, an explanation appears. *"For your information this was a glider, and through the press of other business was never assembled. We will likely sell it shortly to some of the boys in the factory who expect to complete it and install a small motor of some sort. We will see that they make application for identification numbers at the proper time. Enclosed, find the metal identification plate for the glider. The records of the company were recently moved from the factory to am uptown office, and the license itself has apparently been lost as we*



Form R-7

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

Official No. X-3695

Special Airplane License

This certifies that the airplane described below, of the property of ARKANSAS AIRCRAFT COMPANY, LITTLE ROCK, ARKANSAS, is a specially licensed aircraft of the United States of America, subject to the following conditions:

LICENSED FOR EXPERIMENTAL WORK ONLY. PASSENGERS OR PROPERTY FOR HIRE OR REWARD SHALL NOT BE TRANSPORTED THEREIN.

Description of aircraft: BIPLANE GLIDER FOR MOTORLESS FLYING. STEEL TUBE FUSELAGE AND WOODEN WINGS. CONTROLS SAME AS CONVENTIONAL AIRPLANE.

Dated January 7, 1928.
LICENSE EXPIRES JULY 1, 1928.

Assistant Secretary of Commerce
DIRECTOR OF AERONAUTICS.

cannot find it." W. S. Shannon on behalf of Arkansas Aircraft Corporation signed the communication. Four North Little Rock boys spent 2-years completing a glider. First flights of the glider were made by Albert Vollmecke, chief engineer at Command-Aire, Incorporated, who furnished plans and sketches of the glider. However it was not the biplane glider he proposed that Arkansas Aircraft Company manufacture.

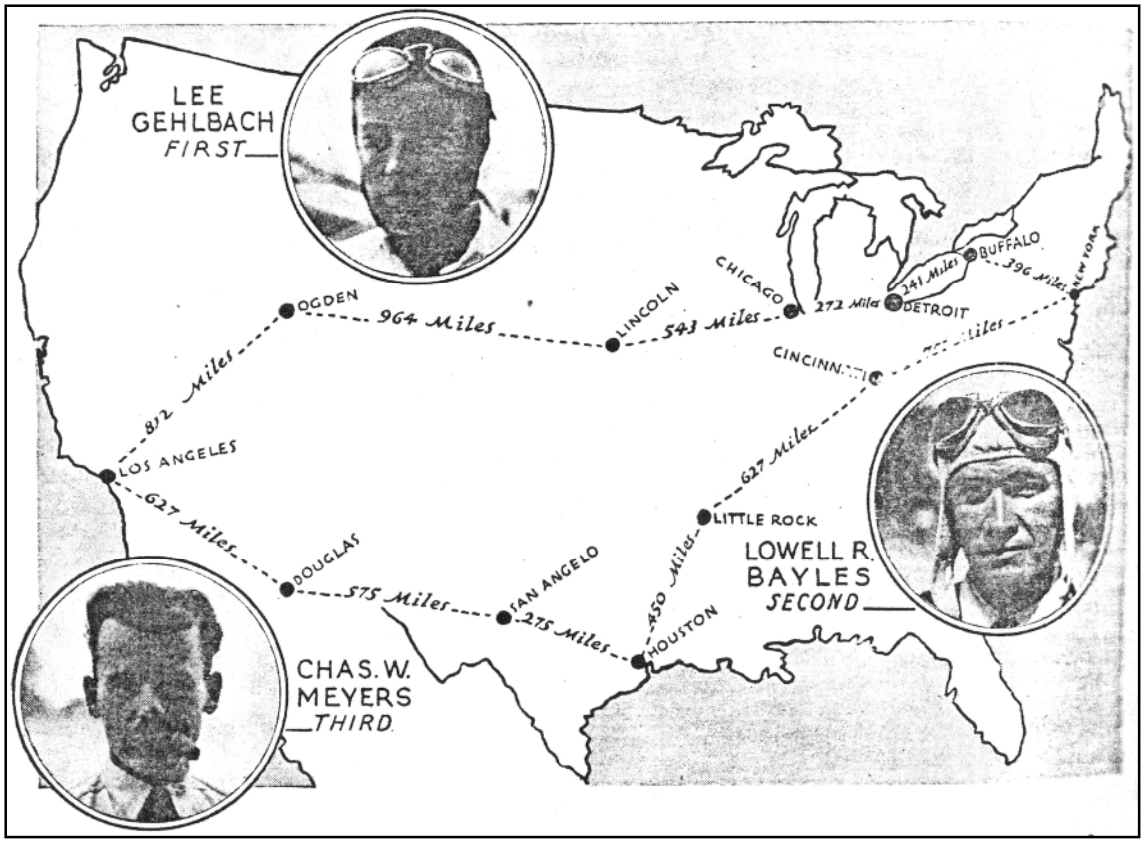
The Arkansas Democrat on Sunday, June 1, 1930 reported, "*Gliding became a reality in Little Rock Friday when four North Little Rock youths, shown in the picture, took their first gliding lessons in a glider they built themselves during the past 18-months. They worked on the glider after school hours and at night. At the top, the glider is shown in flight with Albert Voellmecke, chief engineer at Command-Aire, Inc., at the controls. He made two flights of about 75 yards each, attaining an altitude of about 25 feet. The four glider builders are shown below. From left to right they are: Hubert MacDonald, Elmo Bachus, Buddy Pyles and Weldon Clark."*

At the completion of the test flights Mr. Voellmecke stated, "*Glider training is good for preliminary training of an airplane pilot."* He himself is a glider pilot, having made a flight of two and one half hours in Germany in 1923. *"In several countries, before a person is permitted to train to fly an airplane he must be a glider pilot. Flying a glider is much safer for the beginner than flying an airplane, as the glider very rarely gets over 25 feet from the ground. If it fell, it would be less than a jump from the same height and consequently is very safe. If the glider is broken, repairs can be made easily and without much expense."* Voellmecke further stated, *"Gliding should become popular in the United States since Colonel Lindbergh demonstrated its safety. Training should begin on a primary type, after which a sailplane can be flown. The Ozark mountains should furnish excellent opportunities for a sailplane pilot to make a new long distance record in a motorless plane."*

One of Albert's crowning achievements while at Command-Aire was the design and construction of a small racing aircraft powered by an American Cirrus 4-cylinder inline engine. It would be entered in the All American Cirrus Derby, a 5,541-mile race that began on July 21, 1930 in Detroit, Michigan and ended eleven days later. The story of the "Little Rocket" racer is quite interesting, the construction, the race and the final chapter of the airplane. 1930 was also the final chapter for Command-Aire, Incorporated as it fell into bankruptcy and quickly ceased to exist.

The "Little Rocket" racer was a single seat low wing monoplane constructed mostly of wood and powered by a 110 horsepower supercharged American Cirrus 4-cylinder inline upright air-cooled engine. It won the Cirrus Derby with pilot Lee Gehlbach at the controls with an average speed of 127.11 miles per hour. Sponsored by American Cirrus Engines, Incorporated, a unit of Allied Motor Industries, Incorporated, the derby was organized to demonstrate the possibilities of long-distance flight by light airplanes. The course of 5,541 miles took contestants from Detroit, south to Texas, west to California, and back to Detroit over the mountains and deserts of the South and Southwest. It presented all the difficulties of flying that may be found in the confines of the United States, yet ten of the eighteen ships that started completed the course on schedule. Only one instance was the withdrawal of a plane the result of motor trouble. Lee Gehlbach, the winner flying the Command-Aire "Little Rocket", averaged 145 miles per hour while in the air. On one lap, that from Detroit to Buffalo, New York, he attained a speed of 200 miles per hour.

A number of private investors from the Little Rock area put up approximately $10,000 to have the ship designed and built. It was built for the Little Rock Racing Association, Incorporated. Gilbert Leigh was president, R. B. Snowden, Jr. was vice president, and Charles E. Shoemaker, Jr. was secretary treasurer. The aircraft was constructed July 7, 1930 and issued registration number X-10403. Manufacturer's serial number was R-1 and the model number was MR-1. Command-Aire vice president Charles M. Taylor stated*, "The 'Little Rocket', Command-Aire, Little Rock and the State of Arkansas got daily national publicity as the "Little Rocket", flown by Lee Gehlbach, won most of the daily legs as well as being declared the over-all winner of the race. This was one of those few cases where the local financial sponsors - some 40 people including Governor Parnell – got their money back with a profit."*



Above, from AERO DIGEST, September 1930, a sketch of the course complete with stops and miles between stops.

When Gehbach returned to Little Rock with the racer he was treated as an air hero. The Arkansas Gazette reported, "*Little Rock got its first glimpse of its 'air hero' as he trailed behind a formation of five National Guard planes as they circled the city shortly before noon Wednesday. Immediately upon arrival at the Municipal Airport the tiny monoplane was loaded on a truck and the procession through the business district started, headed by Gehlbach, state, county and municipal officials. Gehlbach, smiling and still wearing the grimy pilots uniform, was seated on the top of a large touring car, which had been lowered. The event recalled the reception given for Lindbergh shortly after his epochal Atlantic flight."* Following the small ship were cars with state and local officials, including Albert Vollmecke, designer of the plane, officials of the Little Rock Racing Association, which sponsored

the plane, officials of Command-Aire, Incorporated that built the plane, and members of the city council.

After the celebration was over, the plane was offered for sale by the racing association. It was sold to Mr. Jack Walker of Little Rock, Arkansas for the sum of $750. Included in the sale was the following: one "Little Rocket" racing airplane, one second-hand 28 foot Irving back-pack parachute, one extra blade for propeller of "Little Rocket" and one small lot of parts for the motor. This was not the end of the story of the "Little Rocket" by any means. The plane would race again at the National Air Races held in Chicago from August 24 to September 1, 1930 and flown by E. Z. Newsom.

The end was near for Command-Aire, Incorporated as the Depression that gripped the country starting with the stock market crash in 1929 was about to take its toll on many small airplane manufacturing companies. In his brief 4+ years with Command-Aire, under the direction of Albert Vollmecke, the company received 14-Approved Type Certificates that resulted in the construction of 116 aircraft powered by the Curtiss OX-5 engines. The company built approximately 184 aircraft of all types; a respectable record for only 4-years of operation.

Albert detailed to me the story of his design of a larger and more powerful Little Rocket type aircraft featuring a retractable landing gear. The design was for a pursuit type ship for the United States government and his compilation of sketches was presented for review. However, the company ceased operations before any negotiations could be completed for a prototype ship.

In one interview with Albert Vollmecke I asked what it was like in the last few weeks of Command-Aire as an employee and well know designer. First he indicated that the president, Bob Snowden, Jr., had his hands in several entities in 1930, primarily his large farming operation, the frozen food business and other interests. No matter how bad things got for the general public, they all needed to eat, which meant Snowden would have an income. However, there would be little money to purchase such extravagance as an airplane. Therefore he paid little attention to the floundering Command-Aire, Incorporated. In the last days, Albert said he took all his ATC drawings and locked them in the large safe located in the factory building. Then, he and others turned out the lights, walked out the front door and locked it. The days of Command-Aire had ended.

When asked who was Neil Romich, Albert answered, "*Romich joined Command-Aire in 1930, just before the company went into receivership. He was in charge of production, replacing a fellow by the name of Fielding. Romich and Bob Snowden moved small parts, including wings, fuselages, empennage, etc., to a National Guard building on the Municipal Airport. They planned to build more airplanes later when money was more plentiful, but they never did.*"

Now unemployed and with the country on hard times, Albert had to find work to support his wife Maja and their two sons, Walter and Albert, Jr. He found a job with the Civil Works Administration program for airport construction in Arkansas. He was an advisor

and inspector in the constructing of airway beacons for airmail pilots flying at night. Although this program lasted only a short time, 13 new airports were constructed and 9 existing ones improved. However, on the horizon was looming greater government control of civilian aviation. Seeing this Albert applied for a position with the Bureau of Aeronautics in 1933. He was not the only talented person with aircraft experience to join the government, however his career would be solidified as he climbed the ranks of the Civil Aviation Administration and finally the Federal Aviation Administration. Albert was to make a tremendous mark on aviation with his designing experience at Command-Aire and Ernst Heinkel Airplane Works. In the April 1980 issue of OX-5 NEWS, "*Moving over to the CAA/FAA in 1933, and for the next 30-years, as an Aeronautical Engineer, Vollmecke originated and developed many advanced designs regarded as major contributions to the safety and performance of all types of civil and military aircraft. He served in the early '40's as Senior Member of the Air Force/Navy/Civil Aircraft Design Criteria Committee that achieved standardization of design, testing and analysis of new and modified aircraft. The result of this was a tremendous savings in money and engineering manpower during WWII."*

Al joined the government to help regulate the growing field of aviation in 1933. The Aeronautics Branch of the Department of Commerce would be reorganized and renamed in 1934, becoming the Bureau of Air Commerce, still within the Department of Commerce. In 1938, Congress created the Civil Aeronautics Agency, which would be known as the CAA. A change from "agency" to "administration" came a short time later and Al, with all his talent, began to climb the ladder towards the top.

As civilian aviation continued to grow in the 1930's and 1940's, Al was assigned a formidable task to develop a manual for the repair of aircraft. This was to be a document for mechanics to make "approved" repairs on wood and steel tube aircraft. Prior to this publication, each repair had to be inspected and approved by a government official, which was a time consuming task and caused great delays and frustration to mechanics and owners since ideas on correct procedure for repairs varied among mechanics.

Albert assembled a small group of design engineers in Washington, D.C and set out to create the document. He designed splices for wood and steel tube structures which appear today in the FAA's Advisory Circular 43.13-1B. When asked how he and his committee went about the task, he said, "*We looked at how to put the margin of safety back into an aircraft after it had been damaged. I designed the scarf splice for wood wing spars and most of the steel tube splices. We sent the drawings to craftsmen in the Washington, D.C area and they made samples of the repairs. Then we had them tested to destruction to see if they worked."* The first publication was Aeronautics Bulletin 7H, signed by Daniel C. Roper, Secretary of Commerce on September 23, 1935. The document became effective January 1, 1936. In this document there appears several drawings of steel tube repairs, splices to wood wing spars and ribs. It is most likely in this Aeronautics Bulletin 7H that Albert Vollmecke and his committee designed the repairs. The drawings are very similar to those found in Civil Aeronautics Manual (CAM) 18 and the FAA Advisory Circular 43.13-1B.

AIR COMMERCE REGULATIONS

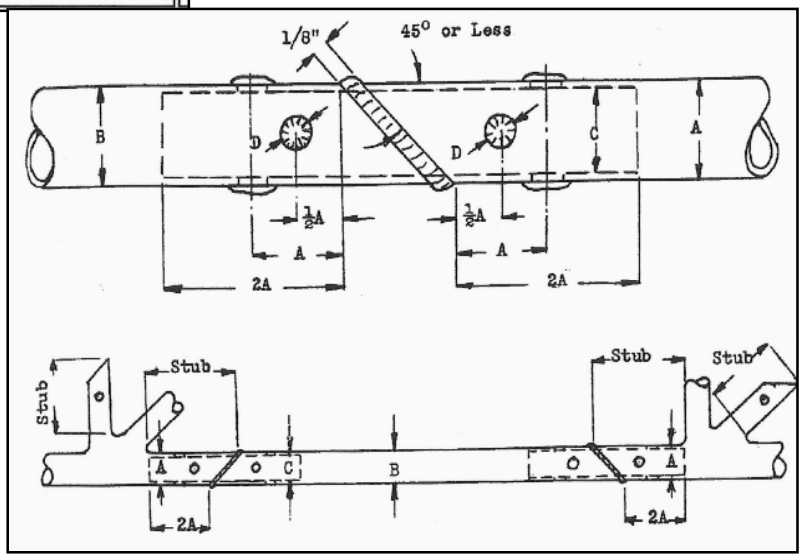
(Pursuant to the Air Commerce Act of 1926, as amended)

AERONAUTICS BULLETIN NO. 7-H

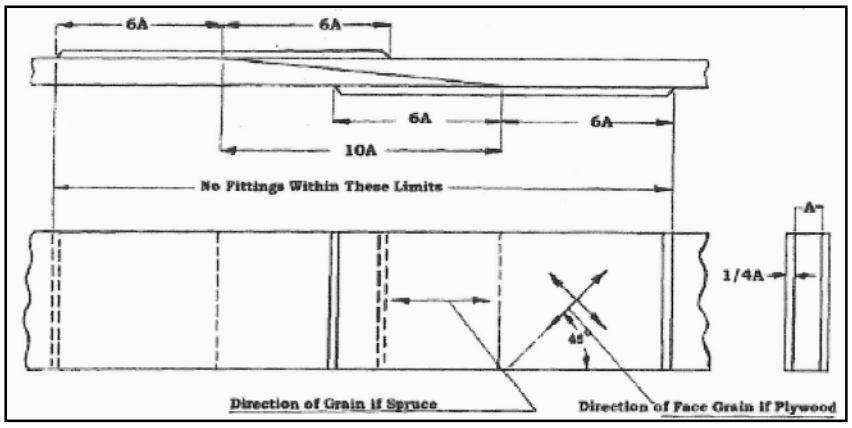
AIR COMMERCE REGULATIONS
ALTERATION AND REPAIR OF AIRCRAFT

January 1, 1936.

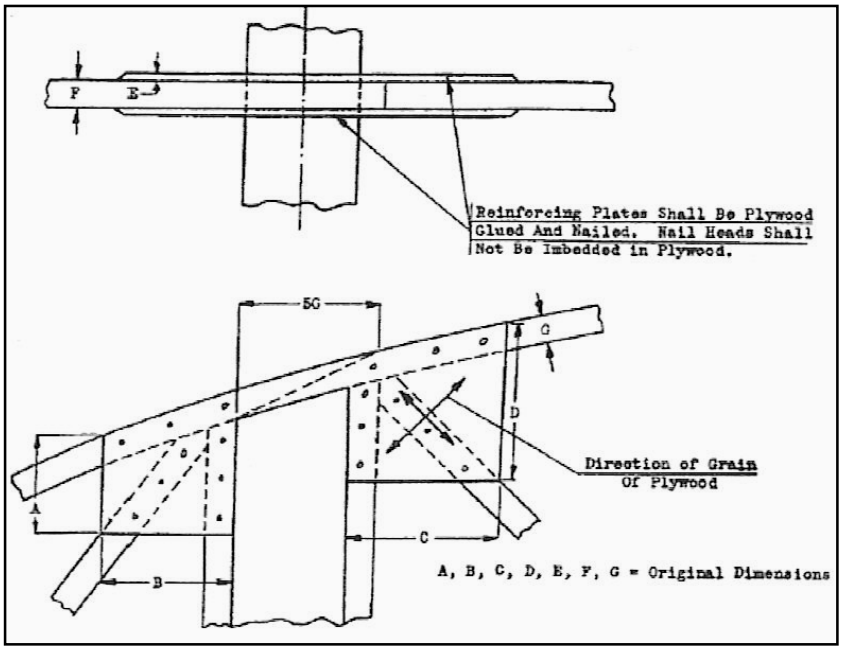
Aeronautics Bulletins appeared in 1927 beginning with #7, Airworthiness Requirements for Aircraft. This document was needed to comply with government regulations regarding Approved Type Certificates (ATC). Aero Bulletin 7 was amended to AB-7A September 1, 1934. Aeronautics Bulletin 7H is significant because it was the first document to address alterations and repairs to certificated aircraft. Prior to AB-7H there was no documented repair procedure if an aircraft was damaged.



To the right is a sketch of a structural tube splice using inside sleeve and is Figure 5 in AB-7H. Albert led the committee who designed and tested these types of repairs to both 1025 and 4130 alloy steel tubing. All ATC'd ships used either this type of steel tubing for fabrication of the structure. Below is Figure 9 in Aeronautics Bulletin 7-H. It is identified as the method of splicing solid or laminated rectangular wing spars. This basic design is still used to this day. If properly cut, finished, glued, clamped and cured, the splice is as strong as the wood itself. It is called a "scarf" splice, the angle being 10 times the thickness of the spar. This type splice puts the glue in shear and gives grain continuation.



Shown at right is Figure 17 in Aero Bulletin 7-H. It is a Typical Rib Splice At A Spar. While similar to the splice shown in the current AC43.13-1B it is not the same.



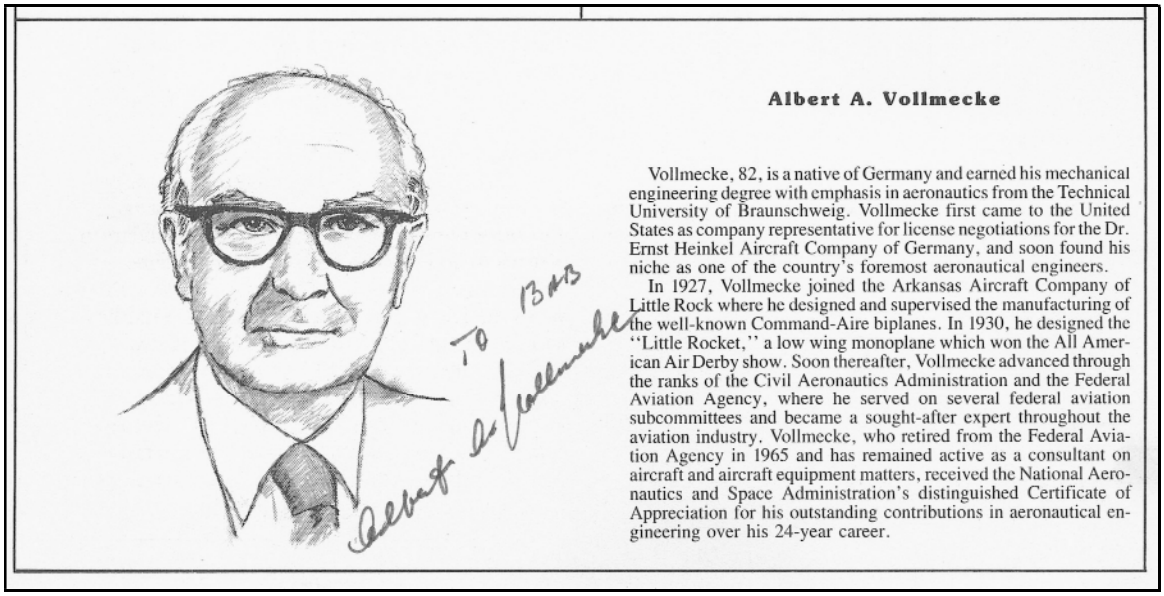
There is good reason to believe that Albert either designed or had a hand in the design of these major repairs to primary aircraft structural components.

Albert's main concern in aircraft design was always SAFETY and the designs for major repairs to aircraft primary structure reflect this vision. To design a repair that, when properly completed, is as strong as the structure itself is noteworthy. He is indeed a genius, a person with immense talent. Former Command-Aire vice President Charles M. Taylor, in his presentation of November 11, 1983 states, *"The National Advisory Committee for Aeronautics – the NACA – appointed him* [Albert] *as a member of the Committee on Aircraft Construction and on the Research Advisory Committee on Aircraft Structures."*

MY FRIEND ALBERT VOLLMECKE
OX-5 HALL OF FAME
PART 3

Albert Vollmecke was inducted into the Arkansas Aviation Hall of Fame on November 11, 1983. At the Vollmecke table "B" that evening was: Albert Vollmecke, Jr., Jan Vollmecke, Eric Vollmecke, Kirk Vollmecke, Walter Vollmecke, John Vollmecke, Bob Lock, Joe Araldi, Suzanne Goller (Araldi) and Hoyt McPherson.

The Arkansas Aviation Historical Society was formed as a non-profit corporation in 1979 with three primary goals. The first is to preserve the history of aviation in Arkansas at Little Rock through the oral history and archives program. The second goal has been achieved by establishing the Arkansas Aviation Hall of Fame. The third goal is to establish a major Air and Space Museum in the Central Arkansas area. Richard N. Holbert was president of the society at the time and Charles M Taylor was ex-officio director.



Albert A. Vollmecke

Vollmecke, 82, is a native of Germany and earned his mechanical engineering degree with emphasis in aeronautics from the Technical University of Braunschweig. Vollmecke first came to the United States as company representative for license negotiations for the Dr. Ernst Heinkel Aircraft Company of Germany, and soon found his niche as one of the country's foremost aeronautical engineers.

In 1927, Vollmecke joined the Arkansas Aircraft Company of Little Rock where he designed and supervised the manufacturing of the well-known Command-Aire biplanes. In 1930, he designed the "Little Rocket," a low wing monoplane which won the All American Air Derby show. Soon thereafter, Vollmecke advanced through the ranks of the Civil Aeronautics Administration and the Federal Aviation Agency, where he served on several federal aviation subcommittees and became a sought-after expert throughout the aviation industry. Vollmecke, who retired from the Federal Aviation Agency in 1965 and has remained active as a consultant on aircraft and aircraft equipment matters, received the National Aeronautics and Space Administration's distinguished Certificate of Appreciation for his outstanding contributions in aeronautical engineering over his 24-year career.

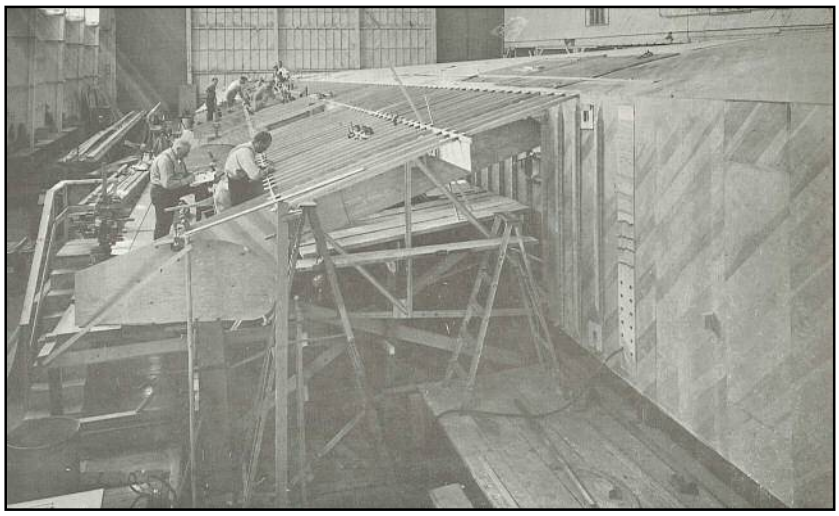
Albert rose quickly up the ranks of the Bureau of Aeronautics and the Civil Aeronautics Administration, which began in 1938. Commercial and civilian aviation had grown rapidly, but WWII was approaching and there was a huge increase in the number of small airplanes manufactured beginning 1938. Charles Taylor remembers, *"Vollmecke went to Washington to join the staff of the Civil Aeronautics Administration – the CAA – now the Federal Aviation Administration – FAA. There his genius in aircraft design and resultant performance soon led to important assignments within that governing body. In 1942 he was appointed Chief of the Aircraft Engineering Division. He also served as senior member of the Air Force-Navy-Civil Aircraft Design Criteria Committee. In October 1944 he was designated by the Department of State as Technical Expert on the U. S. Delegation to the International Civil Aviation Conference of more than 50-nations meeting in Chicago."*

"During World War II as the CAA/FAA representative between civilian and military agencies he was highly influential in standardizing design, testing, and analysis of new and modified aircraft which resulted in faster and more economic production of more efficient and effective aircraft."

Near the end of WWII, Howard Hughes was designing a large wooden seaplane of enormous dimensions. It would be built entirely of wood and would have a wingspan of 320 feet when fully assembled. Albert was appointed as a consultant/representative for the government to work with Hughes on his design. His stories about meetings with the flamboyant Howard Hughes were fascinating, and there were several.

Albert would fly from Washington, D.C to the Los Angeles Airport, to be met by a black limousine that would take him to the Culver City plant of Hughes where the H-4 "Hercules" was being constructed. The limousine driver would enter the Hughes compound and park. Then they would just sit and wait. Albert asked the driver what they were waiting for, and the driver replied, "*for a signal from Mr. Hughes."* After a long wait, a figure would appear from out of a large hangar, dressed in a dark pair of slacks with a wrinkled white shirt with sleeves rolled-up and wearing a hat. He waived his arms, the driver started the limousine and they drove to the hangar door. Howard Hughes was waiting for Albert and proudly showed progress on his gigantic airplane.

During one visit Hughes loaded Albert aboard his cabin Waco biplane and flew to Baker Lake, where Hughes had a hangar and a Sikorsky S-43 seaplane. He was practicing his flying skills in a large seaplane in preparation for flying the H-4. Albert remembered, "*I got into the right seat, a company pilot occupied the left seat and Mr. Hughes was in the back seat reading a newspaper. We flew in his 'Vaco' (that's the way Albert pronounced Waco) to Baker Lake, which was out on the Mojave Desert on the way to Las Vegas. There we inspected his Sikorsky seaplane but he didn't fly it. We returned to Culver City and I flew back to D.C."*

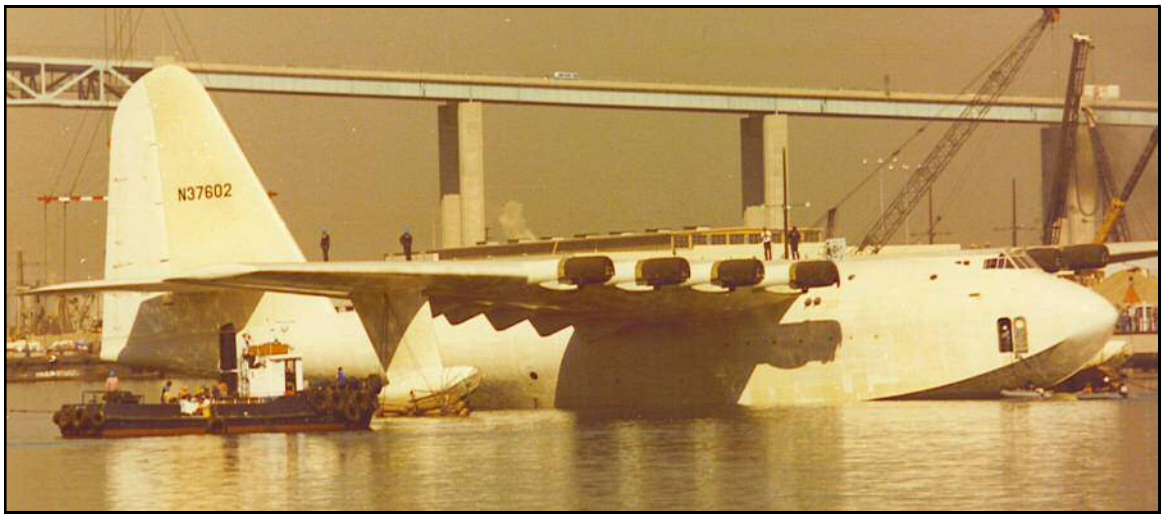


He made several visits to the Hughes facility, but on one of his initial visits he asked Hughes if his people had done any structural testing to assure the design and construction was safe. No person had ever constructed an aircraft as large as the H-4, particularly out of wood. The answer was a negative, that all design data complied was analytical in nature and that no structural testing was needed. Vollmecke said this was unacceptable to he and the

government, who would ultimately either pay for the aircraft or cancel the project. He convinced Hughes that they should build a sample of the horizontal stabilizer spar and test it to destruction. Hughes reluctantly agreed and Albert flew back to Washington, D.C.

On the ensuing visit the spar sample was ready and the Hughes people had it prepared to test until it failed. Unfortunately, the spar failed at only 50% of the design load! Seeing this Albert indicated they would have to redesign the spar and retest. What the Hughes people did was to glue birch veneer doublers on each side of the spar, then retest. On the second attempt the spar failed at about 75% of design load. Hughes refused to go any further and that was the end of the tests. Albert always maintained he knew why Hughes only flew the airplane once. "*The wing spars were designed and built exactly as the horizontal stabilizer spar, only larger in dimensions. Mr. Hughes knew if the aircraft was airborne and hit a gust, the wing spars may fail!"* Above, a photo from the Glenn Odekirk collection showing the massive wing under construction in Hughes' Culver City plant. Clearly shown is the wing rear spar and trailing edge ribs under fabrication. The birch veneer spar web can be seen with grain 45-degree grain direction.

Albert did indicate that the Hughes people had glued birch veneer plates on both sides of the horizontal stabilizer spar before it was skinned, which added weight to the structure. The horizontal stabilizer was not mounted directly to the fuselage structure, but to the vertical stabilizer, which was not strengthened. So, from Albert Vollmecke's point of view the aircraft was under designed structurally and totally unsafe. Below in my photograph of the H-4 just after it emerged from its hangar in Long Beach, California, note horizontal stabilizer is mounted to vertical stabilizer and not directly to fuselage.



The giant Hughes H-4 only flew once, about 1-mile at a height of only 60 feet. But it did fly and Hughes became embroiled in a fight with Congress to regain approximately 18 million dollars he had invested in the aircraft. He lost! The H-4 was stored in a climate - controlled hangar in San Pedro until October 30, 1980 when the aircraft was removed and the hangar disassembled. The above photograph was taken by the author as the aircraft

floated majestically in the bay near its former hangar. It was the first time the aircraft had seen sunlight since being placed in the new hangar, which was completed in 1948.

Charles Taylor remembered, *"Albert was a consultant in the cancellation of the government contract with the Howard Hughes organization to build a number of huge wooden flying boats for the War in the Pacific. You will remember this as the 'Spruce Goose' (*a term Hughes hated since it was constructed mostly of birch veneer*)."* So ends the saga of Albert Vollmecke, Howard Hughes and the "Spruce Goose."

SUPERSEDES AM-117

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON

AM-169
COMMAND-AIRE
3C-3 ATC 53
3C-3 2-201
3C-3 Trainer ATC 150
3C-3A ATC 118
3C-3A Trainer ATC 151
BS-14 2-204

November 6, 1942

AIRWORTHINESS MAINTENANCE INSPECTION NOTES

IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN HIS AIRPLANE SO THAT IT IS ALWAYS IN AN AIRWORTHY CONDITION. COMPLIANCE WITH THE NOTES CONTAINED HEREIN IS CONSIDERED NECESSARY FOR PROPER MAINTENANCE.

This paper should be placed in your airplane of the above model with the airworthiness certificate or in the log book. The superseded issue (if any) may then be discarded. (In the case of Air Carriers, the NOTES may be kept at the operator's main base.)

An inspection or revision in accordance with these NOTES must be made at the next periodic inspection and, in the case of the "INSPECTION NOTES", at each subsequent periodic inspection or at the interval stated in the note. "SPECIAL NOTES" need be complied with once only. The aircraft and engine mechanic making the periodic inspection must make an entry in the airplane (or engine) log book attesting to his inspection in compliance with these NOTES. (In the case of Air Carriers, compliance may be noted in the maintenance base records.)

The NOTES listed below are based on service experience and are forwarded in an endeavor to assist in maintaining the airworthiness of your airplane. If you have sold your airplane of the above noted model, please forward this list to the new owner.

- - - - - - - - - - - - - - - - - -

INSPECTION NOTE 1. (May 8, 1942) (Applies only to Models 3C-3 and 3C-3 Trainer)
INSPECTION REQUIRED EACH 25 HOURS OF OPERATION
Accomplish the 25 hour minor engine inspection and the 200 hour engine overhaul inspection in accordance with Airworthiness Maintenance Bulletin #64.

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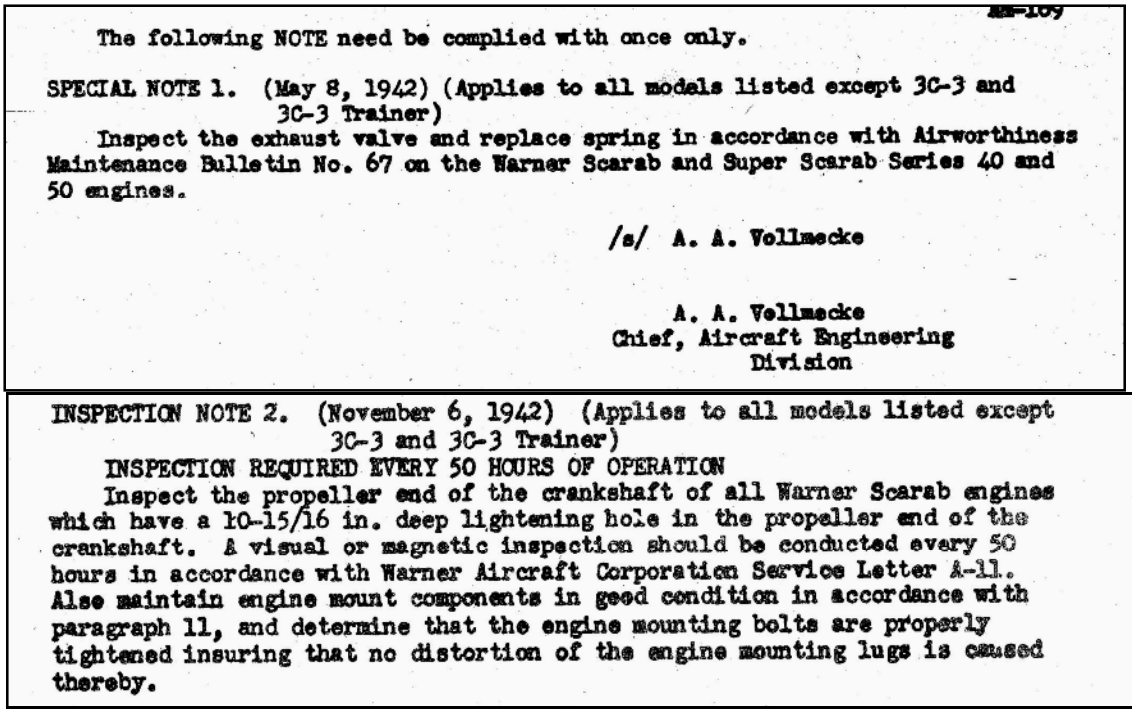


The following NOTE need be complied with once only.

SPECIAL NOTE 1. (May 8, 1942) (Applies to all models listed except 3C-3 and 3C-3 Trainer)

Inspect the exhaust valve and replace spring in accordance with Airworthiness Maintenance Bulletin No. 67 on the Warner Scarab and Super Scarab Series 40 and 50 engines.

/s/ A. A. Vollmecke

A. A. Vollmecke
Chief, Aircraft Engineering
Division

INSPECTION NOTE 2. (November 6, 1942) (Applies to all models listed except 3C-3 and 3C-3 Trainer)

INSPECTION REQUIRED EVERY 50 HOURS OF OPERATION

Inspect the propeller end of the crankshaft of all Warner Scarab engines which have a 10-15/16 in. deep lightening hole in the propeller end of the crankshaft. A visual or magnetic inspection should be conducted every 50 hours in accordance with Warner Aircraft Corporation Service Letter A-11. Also maintain engine mount components in good condition in accordance with paragraph 11, and determine that the engine mounting bolts are properly tightened insuring that no distortion of the engine mounting lugs is caused thereby.

As Albert rose through the ranks of the CAA he became Chief of the Aircraft Engineering Division in 1942, succeeding Marion F. Crews In the name of safety Airworthiness Maintenance Bulletins and Airworthiness Maintenance Inspection notes were issued from this office. Above, a November 6, 1942 Airworthiness Maintenance Inspection Note signed by Albert A. Vollmecke on his own aircraft designs when he worked for Command-Aire, Incorporated. Safety was the top priority in all Vollmecke designs and this virtue continued throughout his government career.

Albert Vollmecke had a magnificent career in the Federal Aviation Administration (FAA), retiring in 1996. In a letter to Robert Lock dated December 5, 1978, Albert states, *"By the way, I retired from the FAA 12-years ago. I was at that time the Chief of the Airframe and Equipment Branch. As you can see, I know my way around the FAA."*

Albert Vollmecke was indeed an American Treasure transplanted from Germany. He was brilliant and a genius in aeronautical design. He served this country honorably and provided great leadership during the early days of aviation, into the 1960's and beyond.

The author was privileged not only to have met Mr. Vollmecke but also to develop a very close friendship. As is often said of those who precede us, there will never be another like him and this is so true. He saw and was part of the development of aviation, both military and civilian, in these United States.

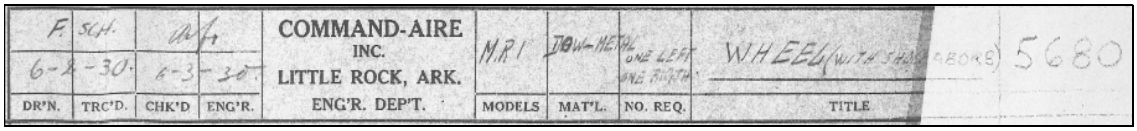
Right, November 1983, the remaining officials of Command-Aire, Incorporated, Charles Taylor (right) and Albert Vollmecke (left).

Finally, in the presentation of Albert Vollmecke for induction into the Arkansas Aviation Hall of Fame on November 11, 1983, Mr. Charles Taylor, former vice President of Command-Aire pretty well sums it up. *"Albert Vollmecke left Arkansas for the Civil Aeronautics Administration in Washington, D.C in February 1934 where he remained until his retirement in 1965. I have already outlined the assignments and responsibilities he was given in that organization in recognition of his unusual understanding and practical experience in aircraft design and production with particular emphasis on safety and reliability. These assignments in the CAA thus made the benefits of his unusual and outstanding qualifications available to the whole civil and military aircraft industry in the United States."*

Above is the last photo of Charles Taylor, former V.P of Command-Aire, Incorporated and Albert Vollmecke, former Chief Designer for the corporation, taken in Little Rock, Arkansas after Albert's induction into the Hall of Fame in 1983. Behind is a 1929 Command-Aire 5C3, NC925E which is presently on display at the Little Rock Airport in the Omnimax theater.

Left, Albert with son Albert, Jr., and his wife Jan at Al's townhouse in Silver Spring, Maryland, January 1986. Albert, Jr., had just brought a copy of his father's drawings of

the “Little Rocket” racer, the only drawings that survived Al’s days at Command-Aire. When Al walked out the front door of the Command-Aire factory building on East 17th Street for the last time, he put all his drawings in the safe, turned-off the lights, put his neatly rolled “Little Rocket” drawings under his arm and locked the door. The company ceased to exist in 1931. Below, a fuzzy copy of the title block of drawing number 5680 compiled by Albert Vollmecke for the “Little Rocket” racer. This particular drawing was of the “Wheel with shock absorber,” a unique invention credited to Al. It was drawn to full scale on June 2 & 3, 1930.



Albert was a member of the OX-5 Aviation Pioneers. In the April 1980 issue of OX-5 News carried a tribute to Albert A. Vollmecke, Aeronautical Engineer, Inventor and Designer. The front-page story was about Al and stated, *“In 1978 Al Vollmecke’s name went into the OX-5 Aviation Pioneers Hall of Fame, as one of many tributes to his accomplishments. He is an OX-5er, and a member of the Q-B’s, and obviously he holds membership in many aeronautical engineering societies. He has also received NASA’s Certificate of Appreciation for his outstanding contributions to aeronautical engineering, particularly for his work in connection with structural and research programs over the previous 24-years, during which time he served as a member of NACA and NASA Research and Advisory Committees.*

The foregoing accounts for one of the great aviation engineering personalities of our time, one who never sought nor expected notoriety for his behind-the-scenes expertise, and one whom we are glad to count as an associate.” And I must add one of the most important people who was my friend.

MY FRIEND ALBERT VOLLMECKE
OX-5 H ALL OF F AME
PART 4

Everything Al had to say was important and I did not want to miss a word. The only way was to purchase a voice activated cassette tape recorder in order to capture every word and every detail of Albert's career. On one particular visit to Silver Spring with Albert and Maja pronounced My-ya), the recorder was placed on a coffee table to capture all conversations. Al left the room and Maja asked what that black box was on her coffee table. I explained this device was recording all conversation between the three of us. "*Oh,"* Maja said. *"You don't want to hear my voice, you just want to listen to Albert. I'll keep quiet."* I assured her that the input she had was equally important. When Albert returned to his chair we began the conversation again. Before long, Maja had forgotten about the recording device and continued with her timely comments.

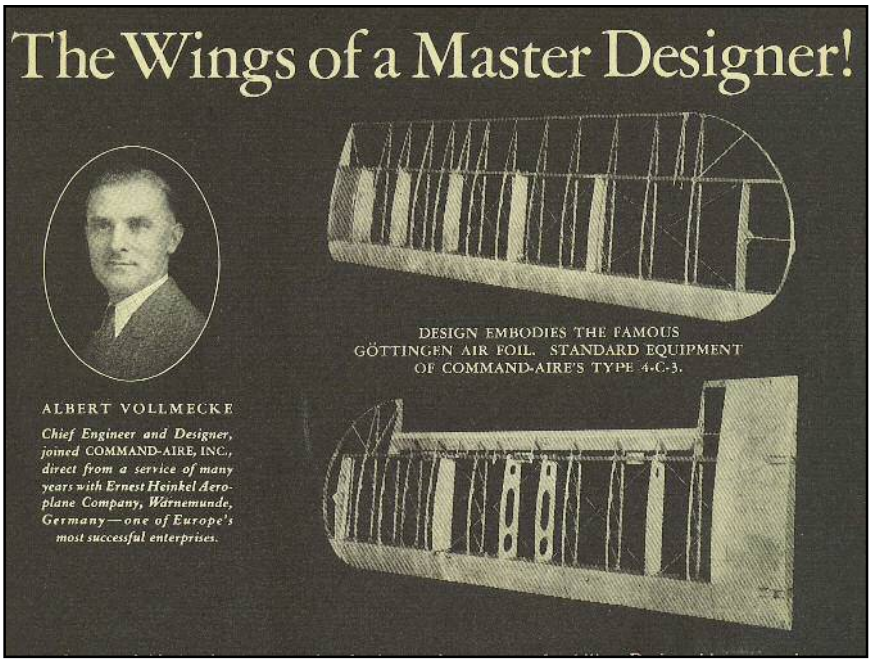
Then there was a memorable ride with Albert to a local German restaurant in the Silver Spring area of Maryland where he lived. Maja, his wife, had passed away and Al lived alone in his townhouse. At the age of 90, Al still navigated his car around the area. Al drove to a little place where we had a marvelous German dinner complete with bier. Then back at his place we had a small taste of Frangelica liquor, which he served in small German glasses on a beautiful silver tray. He was priceless and such a pleasure to be in his company. He kept current on local and world issues. He liked to discuss whatever was in TIME or NEWSWEEK magazine. One topic that stands out is a discussion on the legalization of drugs, such as marijuana. He was still a thinker of great magnitude.

When Albert visited Lock in 1982 to see the plane he had created 53 years previous, he flew from Monterey, California to Reedley, California in a Beechcraft Bonanza. He commented how nice the "instrument board" was designed. When the Bonanza entered into the long flat central San Joaquin Valley he spotted the aqueduct that moves water from Northern California to the Southern part of the State. It is a long and straight concrete canal directly adjacent to Interstate 5, a major North-South highway. He looked, to the left and right finally saying, *"What is that long straight line down there."* Lock explained what he was seeing and he said, *"I have never seen anything that long and that straight before in my life."* When the two landed at the Reedley Airport, lunch was suggested but Albert declined saying he wanted to go immediately to see the Command-Aire. He was very excited to see his airplane once again.

On November 18, 1978 Albert Vollmecke and the owner of a 1929 Command-Aire, Robert Lock were united and were to form a friendship that would last until Al's death June 9, 1994. The friendship had many memorable events even though Lock lived on the West Coast and Vollmecke on the East Coast. One such event took place on October 26, 1982 when a search of the Federal Records Storage Facility in Suitland, Maryland for Vollmecke's Command-Aire ATC drawings was made. His first copy ATC drawings were not to be found, but other data did turn up. He was disappointed as was I, but we pressed on with the restoration project.

Knowing Al Vollmecke and his family was a pleasure and an honor for the author. Al saw pre-WW1 aviation, Charles Lindbergh fly non-stop solo from Long Island, New York to Paris, France in 1927, astronauts land on the moon and the development of the Space Shuttle. He not only saw it all but he was a part of the development of aviation. He was a brilliant but humble man. To have him as a consultant of an airplane he had designed in 1929 was a great experience for Lock. Albert A. Vollmecke is remembered as an American Hero and a giant in the world of aviation.

Albert and Maja Vollmecke outside of their townhouse in Silver Spring, Maryland.



Above, from Popular Aviation, March 1929 this full page advertisement from Command-Aire, Incorporated touting the talent of Albert Vollmecke

Above, September 1982, the Master Designer and one of his original wings from the Command-Aire 5C3, NC997E. The fuselage can be seen in background.

To Albert and Maja Vollmecke this book is dedicated.
Al, you ARE the master designer!

SPECIAL MEMORIES OF ALBERT VOLLMECKE

I am including a few very special stories that happened after I met Albert Vollmecke. Many of these stories are not documented by photographs or tape recordings, but rather from my memory.

When I was restoring my Command-Aire work progressed painfully slow because I had a family to raise and there never seemed to be money left over to spend on the airplane. Therefore much of the parts and supplies were scrounged or traded. The project had started in 1978, the year I met Al, and progressed into 1989. Albert wrote me a letter and asked when the airplane would be finished, because he wasn't getting any younger. We talked about taking it to Sun N Fun in Lakeland, Florida in 1989. He indicated that he would be attending and that I should have the ship there so he could be with it. Joe Araldi was constructing a replica "Little Rocket" racer and it would be at the show, so I tried very hard to make the schedule. However it was just impossible to finish the ship, get it licensed and fly it there. Knowing this I called Al and told him my story, and he said I will send you some money to get that airplane there. So I designed a trailer big enough to house the airplane and planned to haul it there during my spring break at the college.

This was the fuselage assembly in late 1988, just 4-months before the 1989 Sun N Fun fly-in. Completion of the airplane was impossible, so it was packed aboard a trailer and hauled 2700 miles to Lakeland, Florida to be with Albert. Below, assembled at Sun N Fun March 22, 1989.

When Albert arrived by car from Orlando International Airport, this was what he saw, the Command-Aire together for the very first time. He was elated. In the foreground is a silver wing tip belonging to Joe Araldi's replica Little Rocket racer. We'll have more on this in the next installment. So both Command-Aire ships were displayed next to each other making it easy for Al to spend time with the ships. He and I sat next to 997E engaging in conversation, when a small group would gather near the Little Rocket. He would say, "*Well, I think I'll go over and talk to those 'birds' and see what they are interested in."* He used the term "birds" to identify people, who he would engage in conversation, but he was only interested in conversation that leaned to the technical side; he didn't want to just carry on a meaningless chitchat.

The OX-5ers sent a representative down to the Command-Aire because they heard Al was in the area. They offered a golf cart to transport him to their building, but he

declined. He said he could walk that far and he would be down later. We walked to the building and when he entered it was like a God from the past had returned. He was besieged with old timers wanting autographs and a conversation with him. He lasted about an hour, announced he was tired and we returned to the Command-Aire to sit and rest. He was very interested in the latest innovations of sport aviation displayed at Sun N Fun, particularly the "instrument boards." *"My how they have changed,"* he said.

Above, one of my favorite pictures of Al and the Command-Aire in 1989. Note how "snappy" he is dressed for his 88-years! He just looks like someone special.

Al stayed at a Holiday Inn in Lakeland; I would pick him up in the mornings and drop him off in the evenings. If he were not too tired we would have dinner together at the Inn. One evening he came to Joe Araldi's cabin at the Green Swamp Aerodrome for dinner. I was cooking chicken on the barbecue and he came over to ask, *"Bob, what are you cooking?"* I explained what I was doing and he said he had never seen this done before. The chicken was very good as were all the fixings that went with it. From that time on whenever he would call the first thing he would say is, *"Bob, are you cooking?"* It was our special "inside" joke.

Joe arranged with a friend in the videotape world to come and tape Albert around his Little Rocket. When they were finished they offered to tape me conducting an interview with Al. It was a very improvised on-the-spot deal but it turned out well. It is the only live interview I have of Al and me and was done about where he is standing in the above photograph, only we are sitting on chairs.

I had been trying to restore NC997E for some time and each of my A&P classes at Reedley College were well aware of the project. In my 1988-1989 Airframe class was a young lady by the name of Ellen Wickersham who did exquisite leaded glass work. She offered to build a leaded glass Command-Aire for me, which of course I accepted, except it would go to the designer, Albert Vollmecke instead of me. She was elated and shortly produced a superior work of art that I carried to Sun N Fun. During Al's visit I presented the glass Command-Aire to him and he was thrilled.

Above, a very special piece of art work for a very special friend. In his letter dated April 14, 1989 Al writes, *"I bet you had a nice sleep and you have fully recovered. I had an enjoyable flight home. Perfect weather, cruising at 37,000 feet. Everybody here loves the nice glas Command-Aire you gave me. Please tell the young lady how much it is being admired. Thanks again. I am attaching a small check – please accept it! You did a bang-up job which I appreciate and I do not need the money. I trust that it helps a little. Best Regards to all of you. Al Vollmecke"* Al told me over the phone that he hand carried that glass Command-Aire on his lap so nothing would happen to it. He absolutely loved it. It hung just inside the front door of his townhouse and the sun would shine through the window that would illuminate it brilliantly in the mornings. He said he would just sit in his chair and admire it. The Command-Aire was just on the other side of the room from his favorite chair.

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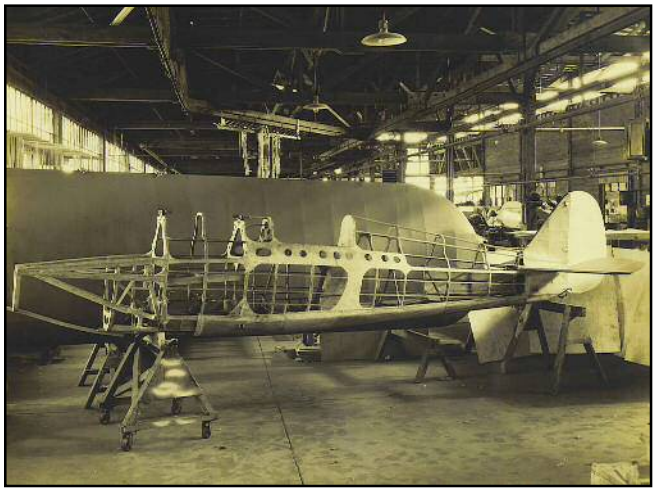
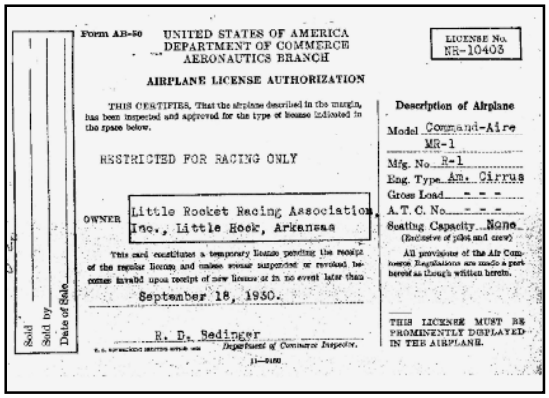
MY FRIEND ALBERT VOLLMECKE
OX-5 HALL OF FAME
PART 5

In the last part we were at Sun N Fun 1989 (that seems like yesterday to me) in the company of my friend Albert Vollmecke. About the same time that I discovered Al, my Florida friend Joe Araldi discovered him too. Joe wanted to build a replica Little Rocket racer and was able to acquire a copy of the original prints from Albert. He had given them to his son Albert, Jr., for safekeeping.

Right, my file copies of Albert's Little Rocket prints given me by Al's son, Albert, Jr. The drawings are highly detailed providing data to make every part in the aircraft. I asked Al if he ever made the drawings with some details left out to be finalized upon manufacture, and then drawn. He said it didn't work that way and that his drawings were rarely revised. Of course the factory only built one aircraft.



Left, the original Little Rocket racer under construction at the Command-Aire factory in Little Rock. Note use of 5C3 left upper wing covered through silver as a backdrop to highlight wood structure of ship. License for the completed ship was made July 7, 1930 and number NR-10403 was issued, with an expiration date of September 18, 1930. The ship was restricted for racing purposes only.



Form AR-50 UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

LICENSE No. NR-10403

AIRPLANE LICENSE AUTHORIZATION

THIS CERTIFIES, That the airplane described in the margin, has been inspected and approved for the type of license indicated in the space below.

RESTRICTED FOR RACING ONLY

OWNER Little Rocket Racing Association, Inc., Little Rock, Arkansas

This card constitutes a temporary license pending the receipt of the regular license and unless sooner suspended or revoked, becomes invalid upon receipt of new license or in no event later than September 18, 1930.

R. D. Redinger
Department of Commerce Inspector.

Description of Airplane
Model Command-Aire MR-1
Mfg. No. R-1
Eng. Type Am. Cirrus
Gross Load - - -
A. T. C. No. - - -
Seating Capacity None
(Exclusive of pilot and crew)

All provisions of the Air Commerce Regulations are made a part hereof as though written herein.

THIS LICENSE MUST BE PROMINENTLY DISPLAYED IN THE AIRPLANE.

Sold
Sold by
Date of Sale

Below a photo of the completed Little Rocket racer outside the Command-Aire factory building with principals involved. Left to right, Lee Gehlback (pilot), Albert Vollmecke (designer), Robert Snowden (president of Command-Aire, Incorporated) and

Charles E. Shoemaker, Jr. (president of the Little Rock Racing Association). The aircraft was designed to compete in the All American Cirrus Derby, a 5,500-mile course beginning July 21, 1930, starting at Detroit, Michigan and ending back at Detroit. The Little Rocket won and received a cash prize of $15,000, a huge sum in 1930.

Albert's design was far advanced for its time. The Little Rocket featured shock absorbers located inside the wheels. It had a unique aileron control system in that there was a small crank on top of the control stick that allowed the pilot to crank both ailerons down 15-degrees for landing, which increased the camber of the wing thus giving it more lift. The increased lift was needed for take-offs and landings in the high country of the West as the ship only had 88-square feet of wing area.

And the winner is ---- the Command-Aire Little Rocket piloted by Lee Gehlbach with an average speed of 127.11 m.p.h. This average speed with a 110 h.p supercharged Cirrus inline 4-cylinder engine. Gehlbach and the Little Rocket had bested some of the best racing pilots and airplanes of the day. Three in particular stand out – Lowell Bayles flying the Gee Bee Sportster, Jimmy Wedell flying the Wedell-Williams Racer and Harvey Mummert flying the Mercury Racer.

Lee Gehlbach, who led the fliers to New York in his "Little Rocket"

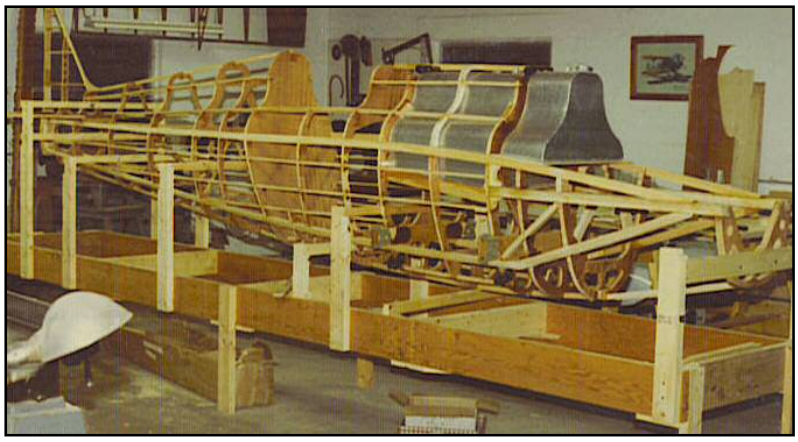
After winning the race the Little Rocket racer was immediately sold and went on to race in the 1930 National Air Races held in Chicago from August 24 to September 1. The ship was

flown by E.Z. Newsom and attained a speed of 151-85 m.p.h in the "Civilians' Free-for-all for engines up to 350 cubic inches. Newsom finished second behind Ben Howard in his Gypsy Howard at 161.01 m.p.h.

The final chapter of the Command-Aire "Little Rocket" came in 1932 when the owner drove to Memphis to retrieve the airplane, which had been damaged in a landing accident. A letter from the Hartford Fire Insurance Company, Chicago, Illinois dated March 15, 1932 to Mr. Clarence Young, Assistant Secretary, Department of Commerce, Aeronautics Division, Washington, D.C the disposition of the "Little Rocket" is made very clear. "*On or about May 28th or 29th the plane started from Little Rock to the Birmingham races and stopped at Memphis where the plane was laid up for repairs and was never flown thereafter. It would appear that the trouble at this time at Memphis was caused by a cam bearing being worn out, the bearings in the supercharger ruined, and that the oil, as well as the crank cover, all of which allowed the oil to run back in the supercharger. The plane was dismantled by the engine being removed and was never repaired. On or about June 17th or 18th, the owner with others appeared at Memphis and had the engine temporarily boarded in the plane and the plane placed in the trailer, and while the plane was being towed in this trailer by a Ford Coupe between Little Rock and Russellville, it caught fire and was burned, for which a claim was first presented against this company in the sum of $10,000, and later suit brought to recover $7,500. The claim was investigated by the writer and the company denied liability and prepared to defend the suit in the Federal Court in Little Rock, the case coming up in the April term of court there."* Thus ends the story of the "Little Rocket" designed by Albert Vollmecke and built by Command-Aire, Incorporated, Little Rock, Arkansas.

That is until Mr. Joe Araldi came along. Araldi formerly owned a Command-Aire 5C3, NX925E until it was sold to the Arkansas Aviation Museum in Little Rock. He was anxious to get started on another Command-Aire and decided to recreate the Little Rocket Racer. Albert Vollmecke furnished Mr. Araldi with a complete set of Little Rocket drawings that he had compiled in 1930 and were the only drawings that survived the closing of the Little Rock factory.

Joe Araldi started the painstaking job of building a replica of the Little Rocket racer from scratch, to include the shock absorbing wheels invented by Albert Vollmecke. Araldi could not locate an airworthy Cirrus engine so decided to build the airframe around a Wright "Gypsy" 4-cylinder upright inline air-cooled motor. Construction took place in Lakeland, Florida primarily in Araldi's hangar at the Green Swamp Aerodrome.



Left, the newly constructed fuselage taking

shape. Compare this fuselage to the original shown earlier in this column. Note small fuel tank contoured to fit shape fuselage, and wood engine mount structure. The fuel and oil capacities were 31-1/4 gallons and 2-1/2 gallons respectively.

Right, Joe Araldi fabricating an aileron with Little Rocket replica being assembled in background. Note the leading edge faired in with balsa wood. The aircraft is constructed mostly of Sitka Spruce and Mahogany or Birch plywood, making the ship very strong and light in weight. Araldi decided not to try and duplicate Vollmecke's drooping ailerons for low speed control.

The project of replicating the ship took 8-years from start in 1982 to test flight in 1990.

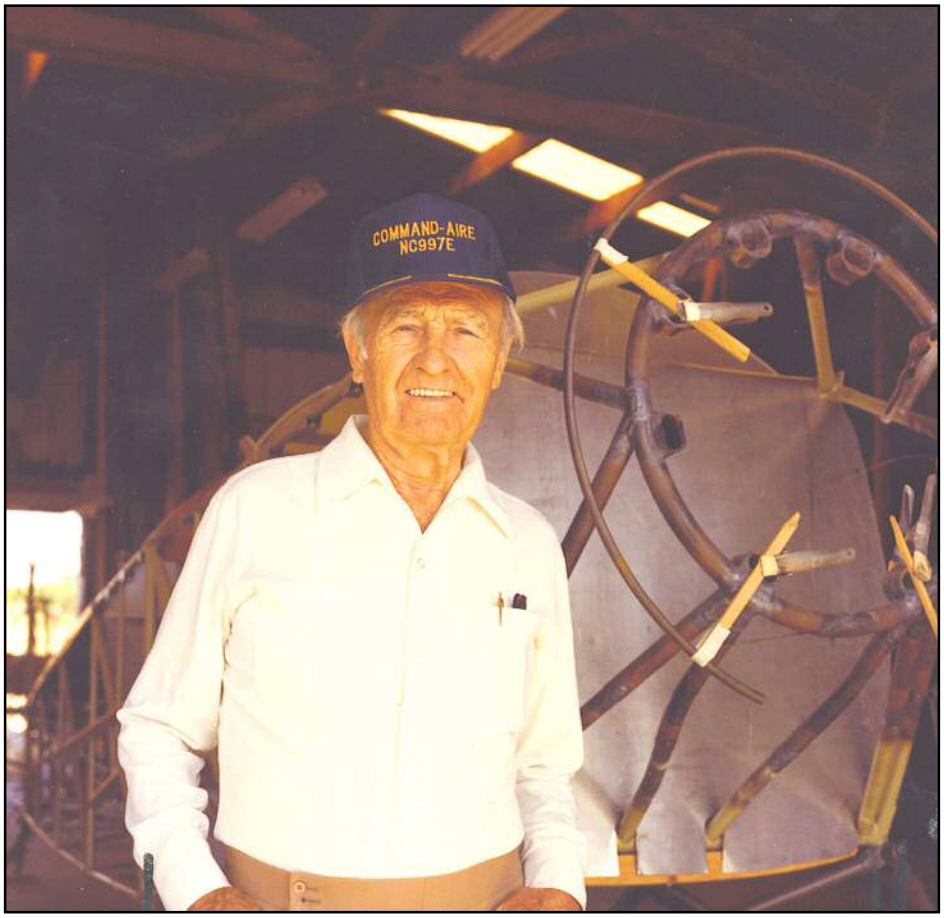
The aircraft was fully assembled and rigged at Araldi's hangar, then disassembled and moved into the maintenance hangar at the Sun-N-Fun site on the Lakeland Airport. Araldi and Lock completed a weight and balance of the "Little Rocket" and adjusted the center of gravity slightly by adding 2-bags of lead shot inside the forward fuselage.

Left, Joe Araldi putting some ground time on the newly overhauled Wright Gypsy motor with Bob Lock looking on.

Both Command-Aire ships, Lock's model 5C3, NC997E and Araldi's "Little Rocket" serial number MR-2, were proudly displayed in the museum at the 1989 annual Sun-N-Fun air show in Lakeland, Florida.

Below, Albert Vollmecke proudly shares information about the design of his "Little Rocket" racer with a curious onlooker. Albert would sit around the Command-Aire with Lock and observe people as they would walk up to the racer. He would select who he wanted to go and talk with, saying, *"I think I'll go over and talk with those 'birds;' they look like they're really interested."* So over he would go and spend time with the people. In the picture one can tell he is having a good time explaining details of his design.

Joe Araldi completed and flew the "Little Rocket" on April 13, 1990. On April 17 he flew the ship with the Vollmecke family present. Joe made a total of 4-flights on the ship before it went on display at the Sun-N-Fun museum at the Lakeland Airport where it can be viewed today.



Albert A. Vollmecke (1901 – 1994) will be remembered for his achievements and expertise as an engineer and designer of aircraft, having served the public well in the Civil Aeronautics Administration and the Federal Aviation Administration for a good part of his life. He is indeed an inspiration to those fortunate enough to know him, and I am one of the lucky individuals!

MY FRIEND ALBERT VOLLMECKE
OX-5 HALL OF FAME
CLOSING MEMORIES OF A GREAT MAN
PART 6

There are just so many memories I have of this great man and I wonder how many people actually know about his life. The conclusion of this 6-part column will focus on a few more special stories that keep flooding my mind as I think back on the times we spent together, the letters we shared and the phone calls over the years. Here are a few more stories for consumption by the aviation minded audience.

Announcement

At 3 o'clock Sunday afternoon, January 1, 1928, at the Little Rock Airport, our new 1928 Model Airplane will be formally presented to the public.

It will be on exhibition all afternoon and several flights will be made with it.

The name selected from the several hundred submitted as a suitable trade mark in our recent contest will appear on the plane. Name of person that submitted the chosen name will also be announced at that time.

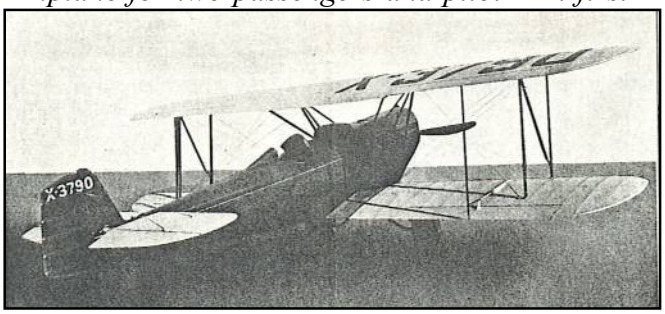
Planes of this type will be manufactured by us in our plant in Little Rock, starting early in January.

ARKANSAS AIRCRAFT COMPANY

LITTLE ROCK, ARK.

Planes Will Be Available Sunday for Flights Over the City
Rate $2.50 Per Passenger

This is probably the first public announcement of the new 1928 Model Airplane manufactured by Arkansas Aircraft Corporation. It appeared in THE ARKANSAS DEMOCRAT newspaper on December 30, 1927 and January 1, 1928. The prototype ship had been licensed "experimental" December 23, 1927 and may have been designated CX-3 but there is no use of that designation shown in the paperwork for X-3790. Albert Vollmecke had no hand in the design of this ship because he was not hired as yet. Application for license was made December 26, 1927 and it was described as a "*Biplane for two passengers and pilot – At first will be equipped withOX-5 motor but will likely have air cooled motor installed later. Will be completed by December 15, 1927. A new job throughout. Experimental – later to be put into production."* The model 3C3 did not appear until September 24, 1928. There are some great stories about this particular ship but there is not enough space here to go into detail. However it is this poor flying ship that was inherited by Albert Vollmecke when he joined the corporation in September 1927 and that he would completely redesign into the model 3C3.

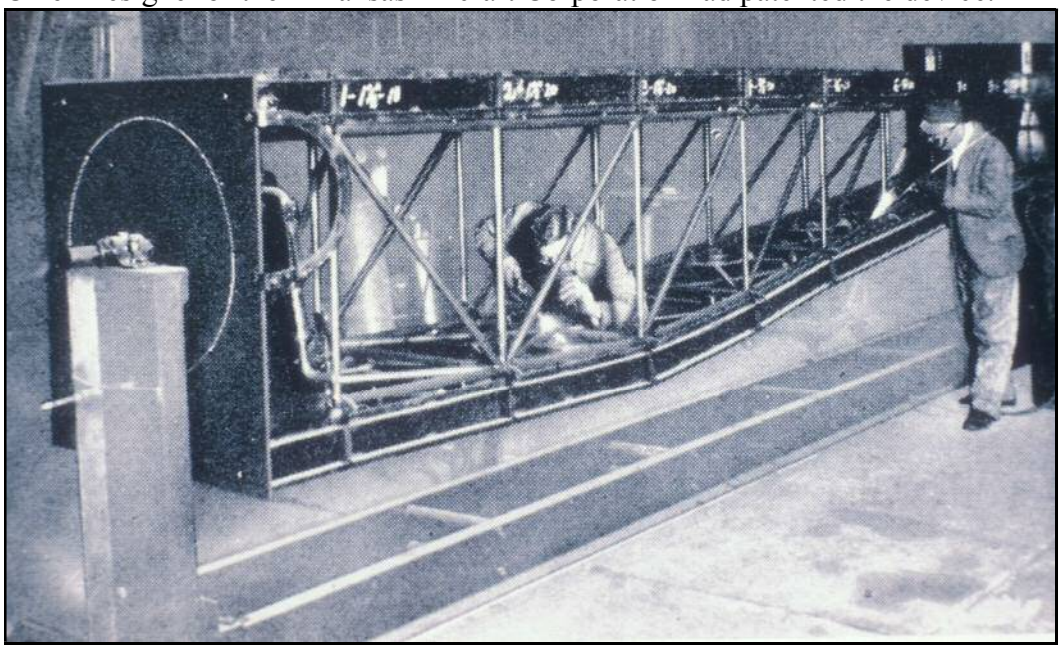


ATC 53 was issued to Command-Aire, Incorporated in the spring of 1928 and Model 3C3 ships began rolling off the assembly line. I asked Al how long it took to secure ATC 53, and he said 2-weeks (10 working days). He and a small entourage traveled to Washington, D.C and took a suite in the Roosevelt Hotel. It had a large dining room table that Al used for a drawing board. He submitted his drawings to the Aeronautics

Branch of the Department of Commerce and would receive them back in a couple days. He would make corrections or additions and resubmit. This process was completed in 10-days and they all left with a new Approved Type Certificate (ATC) in their pocket; much different than obtaining a TC today with the FAA. Of course, things were much simpler then. Incidentally, it is those original ATC drawings that the Aeronautics Branch copied and affixed their official stamp that are the focus of some historians and restoration specialists as these first copy drawings have been stored for the past 80-years. They kept the first copy for their files and the originals went with the manufacturer for factory files.

I asked Al about the configuration of biplanes in the early days of ATC designs, the fact that most all biplanes looked essentially the same. That is they were about the same size, had the same size engines, the same instrumentation, etc. He said they all copied each other in those early days. And they helped each other to obtain an ATC. He said he had helped Clyde Cessna get an early ATC for one of his ships.

Albert had designed a special fuselage fabrication fixture capable of having all tubing laid up in the welding position rather than use wood forms. Advertising indicated that the Chief Designer of the Arkansas Aircraft Corporation had patented the device.



I asked Al if he had indeed patented his invention and he answered in the negative. He did say that some officials from Curtiss Wright came down to look at his invention and copied it to build C-W Travel Air ships in Wichita, Kansas. This device is a credit to the ingenuity brought over from Germany. Note how all longerons, cross and diagonal tubes and stations are completely assembled and just require gas welding, thus saving time and labor. He said that all fuselages were welded in this fixture and when removed had the engine mount for a particular type engine welded on later. In the photograph shown below an OX-5 engine mount has been welded to the fuselage, which required another special fixture to keep alignment in proper location. Note large tanks of oxygen and

acetylene gas for gas welding of structure. There are many interesting points in this picture, particularly the fuselage fixture shown above is located center right while horizontal and vertical stabilizer and aileron fixtures can be seen in background. This

rare glimpse inside the factory was provided by Al from his personal files.

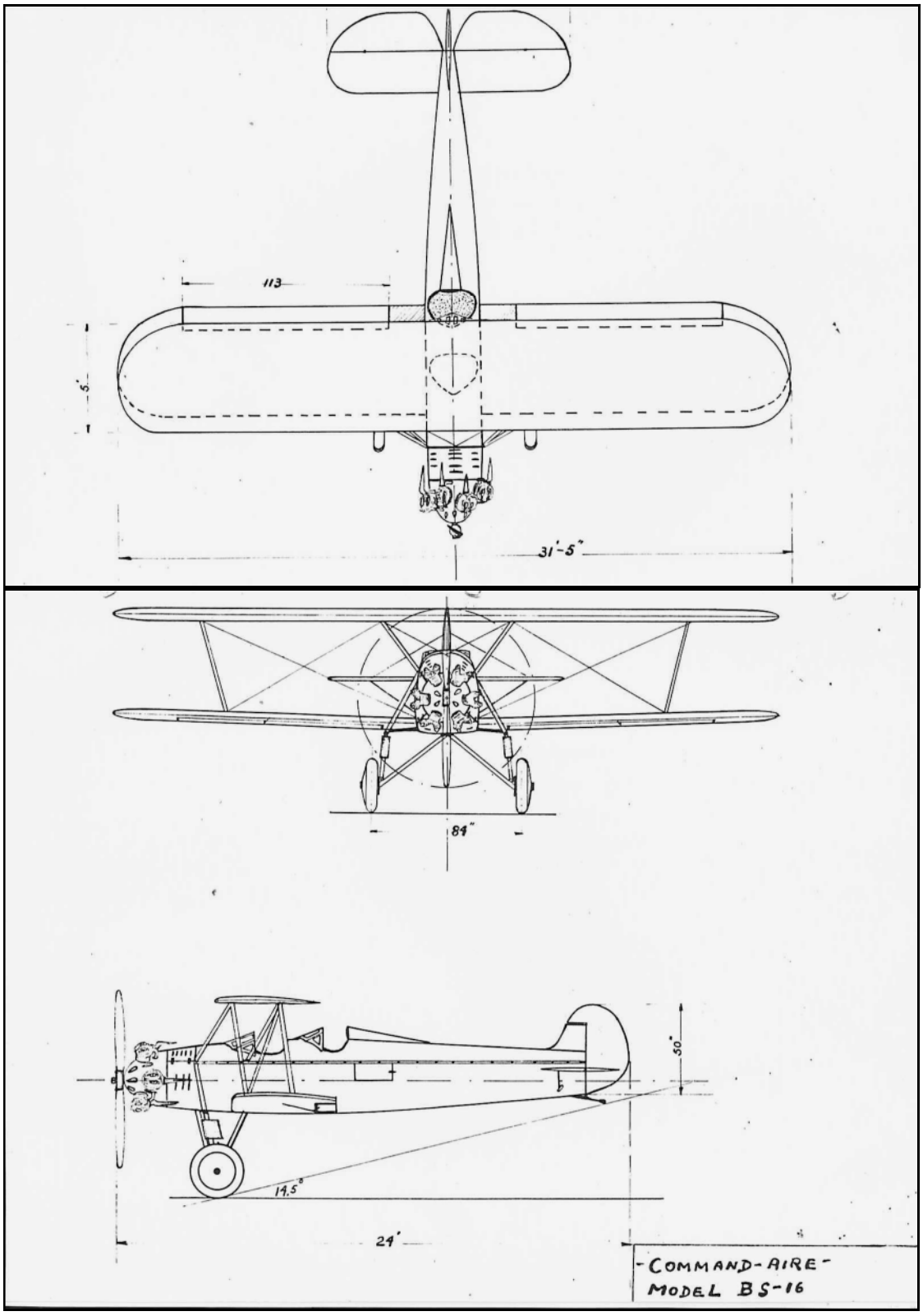
THE ARKANSAS GAZETTE, LITTLE

Command-Aire's Newest Model Airplane, With 210 H.P. Lycoming Motor, to Be Exhibited at St. Louis Shou

Command-Aire's new 210 H. P. plane, powered with the famous Lycoming motor, which will be exhibited the International Aeronautical Exposition at St. Louis, Mo., February 13-23.

Over the years of aircraft design at Command-Aire, I asked Al which one of his designs was his favorite, since he flew them all. He said his model BS-16, which was not a complete surprise to me. The BS-16 was a very handsome ship, modified from his successful 5C3. It featured an outrigger landing gear, a pneumatic tail wheel and an elevated rear seat for better visibility. There is no doubt in my mind that this would have been a big seller for the

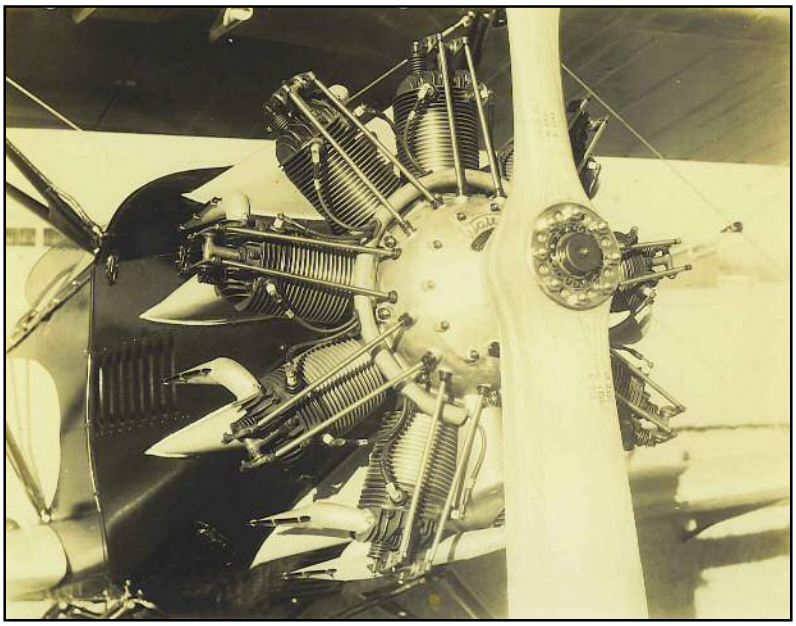
company if they had not gone bankrupt and ceased to exist.



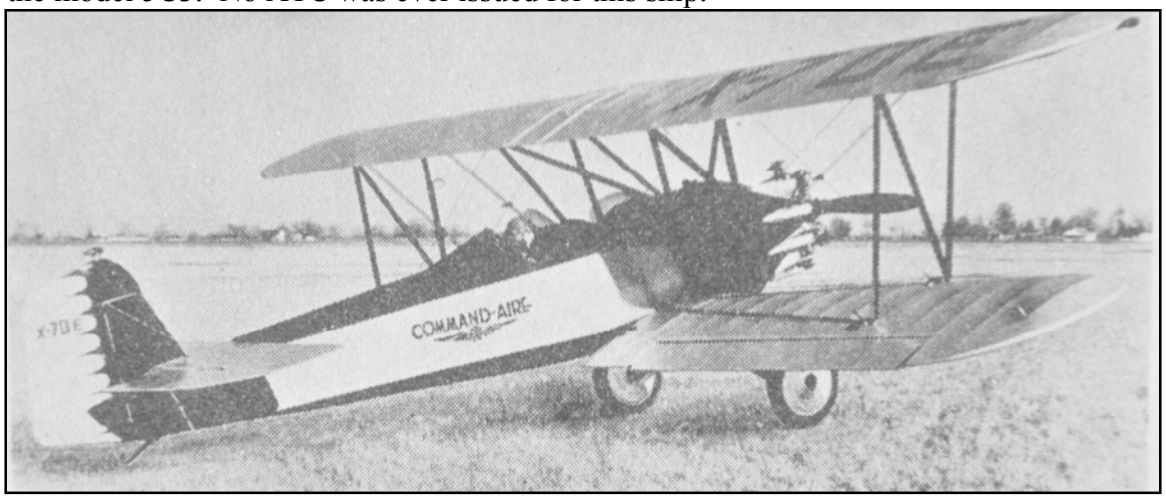
Above, to my knowledge a never seen sketch of the Vollmecke BS-16 design. The handwriting is his and is probably the only drawing of this particular airplane anywhere. He said the wing and tail cellule were basically model 5C3, however there is a slight change in the shape of the vertical stabilizer and rudder. The ship was powered by a new Lycoming R-680 nine cylinder air-cooled radial engine producing 210 horsepower. Its price new at the factory was $5,675 in 1930. Only 1-ship was produced with a manufacture date of January 1930. Serial number was W-140 and license number was X-337V. The ship was designed for a sport trainer capable of doing acrobatics. I asked Al what the "BS" represented and he replied, *"Biplane Sport."* The ship was sold and went to Texas where it was converted to crop-dusting and was destroyed in a fiery crash.

Al also designed the model BS-14, serial number W-139 with a license number of X-286V. It was powered by a Warner radial engine developing 125 horsepower. It too featured some advanced design work by Albert Vollmecke. The wing and empennage cellule was same as model 5C3 but the rudder was shaped differently. Note use of bayonet stacks on Warner engine and Standard steel propeller. The landing gear was rigid with shock absorbers connecting axles to landing gear. Only 1-aircraft was constructed under Group 2 Approval 2-204.

Al would, on occasion, travel back to his native Germany looking for new ideas. On one particular trip he was looking for a radial engine that pumped out about 120 h.p. He had designed the model 4C3 in November 1928 and needed a new engine for it. He came back to Little Rock with a Walter 9-cylinder radial engine manufactured by J. Walter A Spohl, Prague, Czechoslovakia. The model 4C3 was not a



modified 3C3 but a new design that would eventually evolve into the model 5C3. The model 4C3 received license number X-70E on November 10, 1928, but according to Albert Vollmecke the engine would not operate properly in the United States because the fuel octane was too low and detonation would occur. The 4C3 was abandoned in favor of the model 5C3. No ATC was ever issued for this ship.



Above, the only mode 4C3 constructed. It was the forerunner to the model 5C3 as it was adapted over to the Wright Challenger radial engine and received ATC 184.

I want to conclude this column about my friend Albert Vollmecke with a funny story told by former Command-Aire V.P Charles Taylor. It deals with a flight from Little Rock to St. Louis in 1930. It seems Albert Vollmecke and his colleague P.Y Tien (a mathematic genius from China) were flying the new BS-16 to the International Aircraft Exposition where the corporation had floor space to display its aircraft currently under production. The story from Charles Taylor goes, *"I remember the 1930 St. Louis Aircraft Show. We had to take several planes up there to display and to demonstrate. Vollmecke and his Chinese assistant engineer P. Y Tien – you see they were an international outfit – volunteered to fly one of the planes to St. Louis. I heard about the trip later from Mack West, who operated the airport at Paragould. He said this Command-Aire landed for gas but he couldn't find out how much gas they wanted. He said he didn't understand German or Chinese and he wasn't sure they understood each other, but they had two slide rules smoking, apparently computing miles already flown from Little Rock, miles still to fly to St. Louis, the amount of gas already consumed and the amount of gas required for the balance of the trip at various throttle settings and the*


AIBERT VOELLMECKE.


—Photo by Harris.
PEI YEH TIEN.

RPM's. I asked Mack what happened – he said- aw heck, I filled the tank full, told them to get the heck out of here and get to St. Louis before dark."

Albert's designs always focused on safety and specifically stability in flight.

Left, factory chief pilot Wright "Ike" Vermilya with NC7249. This was the airplane that began to put Arkansas Aircraft Corporation and their Command-Aire ships "on the map." Vermilya would exit the rear cockpit while the airplane was in flight and straddle the fuselage, perching on the headrest of the rear cockpit. This feat was shown nationwide on film by the Pathe News Agency, proving the safety and stability of the Vollmecke design. The stunt was also publicized in the Chicago Herald newspaper and by the international news services. This "attention getter" was later perfected into a 3-ship formation with all 3-pilots flying a-straddle the fuselage.

AIR TRANSPORTATION 9

WHEN IKE VERMILYA DID HIS STUFF

THIS test of COMMAND-AIRE stability was made by Capt. Ike Vermilya at the Chicago Airport on October 25th, altitude about 1000 feet. It was witnessed and photographed by the Chicago Herald and Examiner and International News Reel.

Ike is known wherever quiet and noisy bird-men gather. He is rated a good pilot, and a good pilot takes no unnecessary chances. Ike doesn't regard the COMMAND-AIRE stability test as a chance; he just knows his ship.

COMMAND-AIRE and Ike will both be at the Show. One of Ike's favorite promises is to tell or show you something that will—well if he did so—it would be Nature's greatest gift to man. See Ike and see the COMMAND-AIRE. He says the latest COMMAND-AIRE will do it.

COMMAND-AIRE, INC., *Little Rock, Arkansas*

COMMAND-AIRE

THE PLANE FOR WIDER SALES

And with that story I will end my dissertation and introduction (or is it reintroduction) to the aviation community of my friend Albert Vollmecke. He is priceless and was a great gift to aviation and humanity. I'll see you again someday, Al.

APPROVED TYPE CERTIFICATE DRAWINGS

Approved Type Certificates were required for manufacture and sale of aircraft beginning 1927. The government requirement came as a need for safety in the area of civil aviation in the United States took hold. Also created was a series of Aeronautics Bulletins that were to govern design of aircraft, engines, propellers and accessories. Originally, Aeronautics Bulletin 7 provided data for airframe design. The publication was later revised into AB 7A and would stay in effect until the Civil Aeronautics Agency took control in 1936 and created its Civil Air Regulations (CAR 3, 4, etc.).

Any person or group wishing to produce an aircraft were required to provide a set of pencil drawings and engineering data along with their application to the government body in control of civil aviation at the time. Aeronautics Bulletin 7A provided data on the required data to be presented to the board. The application was made and selected members of the company traveled to Washington, D.C to begin the ATC process. The entourage normally consisted of the chief engineer or designer and his selected assistants. Such was the case of Arkansas Aircraft Corporation of Little Rock, Arkansas. The small manufacturing company wanted to type certificate its OX-5 powered biplane in 1928. Chief Designer Albert Vollmecke and his assistants traveled to the Roosevelt Hotel in Washington, D.C and submitted their pencil drawings to the government. They waited 2-3 days for a reply. The drawings were returned and revisions made. Mr. Vollmecke told me that they used the large dining room table as their drawing board, and with Tee square and triangles completed the revisions. The drawings were resubmitted and again they waited for a reply. This process continued for about 2-weeks when finally, ATC #53 was issued for his model 3C3. Amazing that it only took two weeks to obtain the ATC!

Once the ATC was issued, the company representatives would take the drawings to a duplicating shop nearby and have blueprints made of the original copies. Blueprints were white lines on a blue background, thus the term “blueprint.” They returned to the government office and presented the first copy blueprints whereupon both original and first copies were embossed with the Department of Commerce, Aeronautics Branch seal, or whatever agency was in power at the time the ATC was granted.

The first copy blueprints were then filed in Washington, D.C and the original pencil drawings went back to the manufacturer. Minor modifications of the airplane were permitted, however any major modification, such as an engine change, required another ATC or a Group 2 Approval.

The blueprints were first stored in Washington, D.C, but when space became a problem, the early drawings were removed from filing cabinets, placed in cardboard boxes, loaded on trucks and transported to the old Navy torpedo factory along the Potomac River in Alexandria, Virginia. There they were stored until they were again moved to the Federal Records Storage Facility in Suitland, Maryland sometime in 1966. Each box was approximately the size of a filing cabinet drawer and the drawings were possibly removed from the drawer and placed in the box. The drawings appear in alphabetical

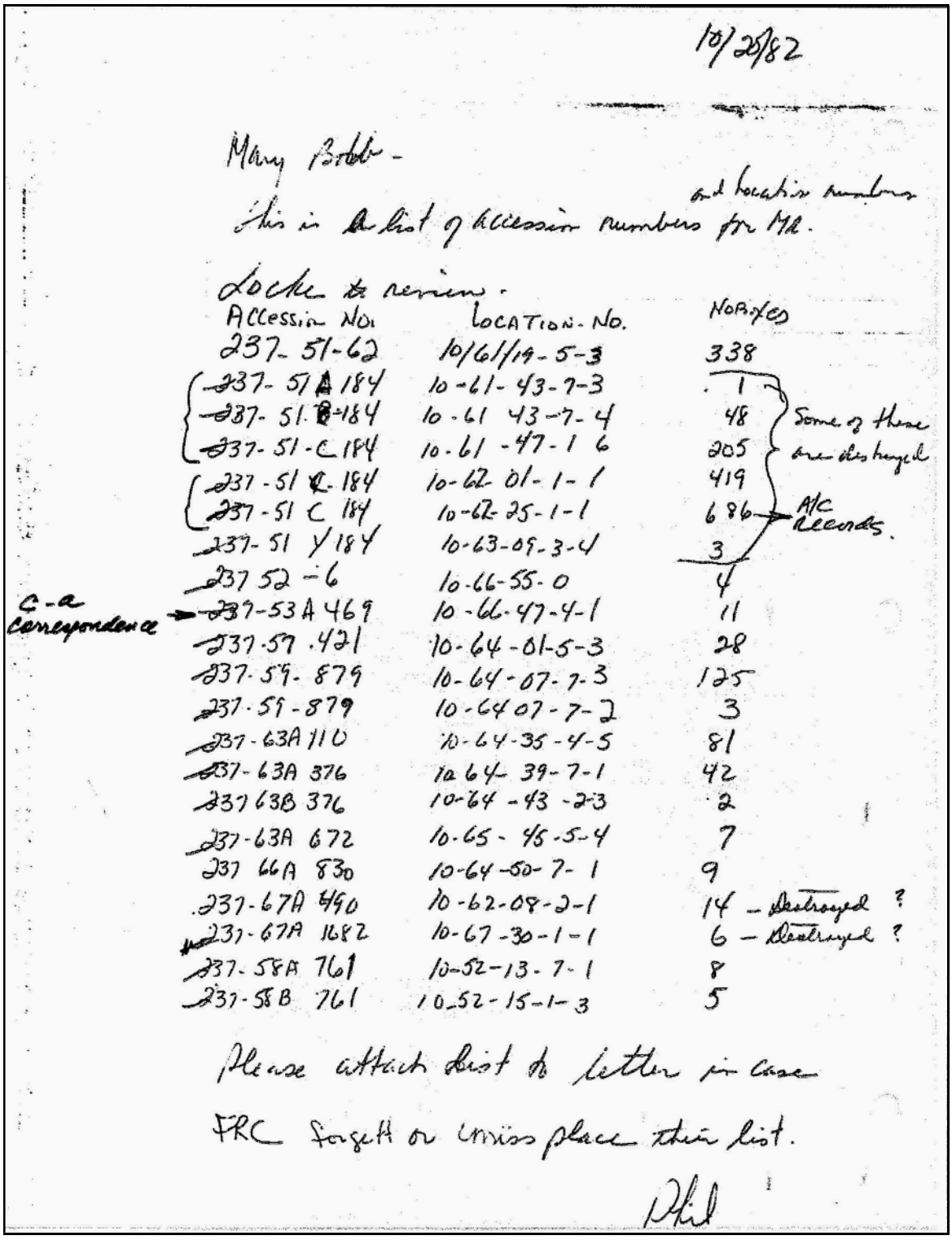
order but the boxes are not placed on shelving in alphabetic order, making the search more difficult.

When the FAA came into power in 1958 many drawings were transferred to the Regional Office where the aircraft was originally type certificated. Some drawings still exist at these regional offices, but many have been destroyed, some by fire, some by flood and others by unknown causes.

In the Suitland, Maryland storage facility, there are over 2,000 boxes of aeronautical data stored in cardboard boxes. Part of the stored boxes contain airworthiness and registration records for all aircraft beginning with NC1 through NC99999. These hardcopy files were originally in folders stored in Washington, D.C and contained every piece of correspondence related to the particular aircraft and registration number. Everything was in the file, letters, Western Union telegrams, etc. It is these files that were removed from storage and put on to microfiche and later CD. However, only important documents related to airworthiness and registration was copied, the rest was destroyed. The aircraft files that are still stored in Suitland are for aircraft that either do not exist or are in hiding somewhere. Some of the data still belongs to companies that still exist; Lockheed, Northrop, Douglas, Martin, Boeing, North American, just to name a few. However many companies have not existed since they went bankrupt in 1930-1931 due to the Depression.

Left, Albert Vollmecke, Chief Designer for Command-Aire and Bob Lock pull dusty boxes from storage shelving in the Suitland, Maryland storage facility hoping to find Al's ATC drawings. It was an immense job but alas the drawings were not to be found.

Below, a list of accession number hand prepared by the FAA showing possible location of data. An accession number led one to a specific area, location number led one to a specific row and the boxes were hand numbered. There is so much historical data stored here that it is unimaginable to comprehend. Little did I know then that in 2012 the ":Herrick Amendment" would be included in the FAA Reauthorization Bill that would protect these valuable data.



10/25/82

Mary Bobb -

This is a list of accession numbers and location numbers for Mr. Locke to review.

Accession No.	Location No.	No. Boxes	
237-51-62	10/61/19-5-3	338	
~~237-51 A 184~~	10-61-43-7-3	1	Some of these are destroyed A/C Records.
~~237-51 B 184~~	10-61 43-7-4	48	
~~237-51-C 184~~	10-61-47-1 6	205	
~~237-51 C 184~~	10-62-01-1-1	419	
~~237-51 C 184~~	10-62-25-1-1	686	
~~237-51 Y 184~~	10-63-09-3-4	3	
~~237 52 -6~~	10-66-55-0	4	
C-a correspondence → ~~237-53A 469~~	10-66-47-4-1	11	
~~237-57 421~~	10-64-01-5-3	28	
~~237-59-879~~	10-64-07-7-3	125	
~~237-59-879~~	10-64 07-7-2	3	
~~237-63A 110~~	10-64-35-4-5	81	
~~237-63A 376~~	10 64-39-7-1	42	
~~237 63B 376~~	10-64-43-2-3	2	
~~237-63A 672~~	10-65-45-5-4	7	
237 66A 830	10-64-50-7-1	9	
237-67A 490	10-62-08-2-1	14	Destroyed ?
~~237-67A 1682~~	10-67-30-1-1	6	Destroyed ?
~~237-58A 761~~	10-52-13-7-1	8	
~~237-58B 761~~	10-52-15-1-3	5	

Please attach list to letter in case FRC forgets or misplaces their list.

Phil

A few of the boxes contain miscellaneous correspondence related to a particular aircraft type and registration number. I recall finding a document for one of the Command-Aire 5C3 aircraft I own, NC998E. The aircraft was evaluated in 1938 for a possible use in the Civilian Pilot Training Program. The aircraft was not approved because it was not good

for acrobatic flight instruction. However, this document proved to be extremely important to me because it was the only source of weight and balance data I ever found for the model 5C3 aircraft. I was able to make my restoration of NC997E come very close to the original empty weight center of gravity and even extreme forward and aft loading.

In the early days of civil aviation there were no manuals written for what we now call Major Repairs and Major Alterations. Therefore, every major repair or alteration had to be submitted with detailed blueprint drawings and be approved by an inspector from the Aeronautics Branch of the Department of Commerce. These drawings are stored in boxes and filed from registration numbers 1C-1786E (box 144), 1V-1861V (box 152), and 6421-12282 (box 157).

The FAA, to this day, will tell me the Command-Aire drawings are "proprietary" and cannot be released, even though the company no longer exists. The letter written by Al Vollmecke allowed us access into the facility to search for the drawings. The FAA will not allow any drawings to be inventoried, nor will they attempt to determine if an ATC holder is still active, or the ATC is orphaned because the holder no loner exists. The old aircraft are not a priority with the FAA. The old aircraft do not pose a safety hazard to the FAA. The old airplane owners simply have problems modifying the aircraft for safety reasons. A few old airplanes have drawings that have been released, either by the original ATC holder of by some individual who now holds the ATC. There is no answer in sight for inventorying the existing drawings, which are unknown to the FAA. The FAA refuses to transfer the drawings to the National Air and Space Museum, where they rightly belong because they are a piece of the history of aviation in the United States. There is no reason for the FAA to act because the drawings are considered as "intellectual data", which is good forever. There is only one way to resolve this issue.

1. Transfer the stored drawings in Suitland, Maryland to the National Air and Space Museum in Washington, D.C.
2. Inventory the drawings to see what is there, including drawings that may be stored in FAA Regional Offices.
3. Some ATC drawings were transferred to the FAA Regional Offices, therefore a list of existing drawings could be obtained from each office. Some drawings have been lost due to fire, neglect, etc.
4. Attempt to contact ATC holders. If the holder no longer exists, the drawings should be in the public domain.
5. If the ACT holder exists, have the holder renew the ATC thus preserving the drawings as "proprietary." Place a mandate that the ATC must be revalidated every 5-years or it becomes public domain. Large manufacturing companies such as Boeing, Lockheed, Northrop, Martin, etc may still exercise their rights that original first copy drawings are "proprietary" and may not be released. Certainly there are small companies that have not existed in many years whose drawings could be released.

If continued airworthiness of aging aircraft is a growing problem, then a first step solution would be to release the drawings of small companies that no longer exist or support the airplane.

The FAA is not interested in an inventory of the existing ATC drawings. This fact was loud and clear at the aging aircraft summit meeting in Kansas City. The FAA would like to leave things status quo, keep the drawings in the dark storage areas where they now reside. They will use the excuse of budgetary problems and it is not worth their time to inventory and contact ATC holders.

The same can be said for STC holders, many who no longer exist or are active. The FAA will use the same lame excuse of budgetary problems to contact holder to see if they exist or support their STC.

COMMAND-AIRE REGISTRATION NUMBERS

By

Robert G. Lock

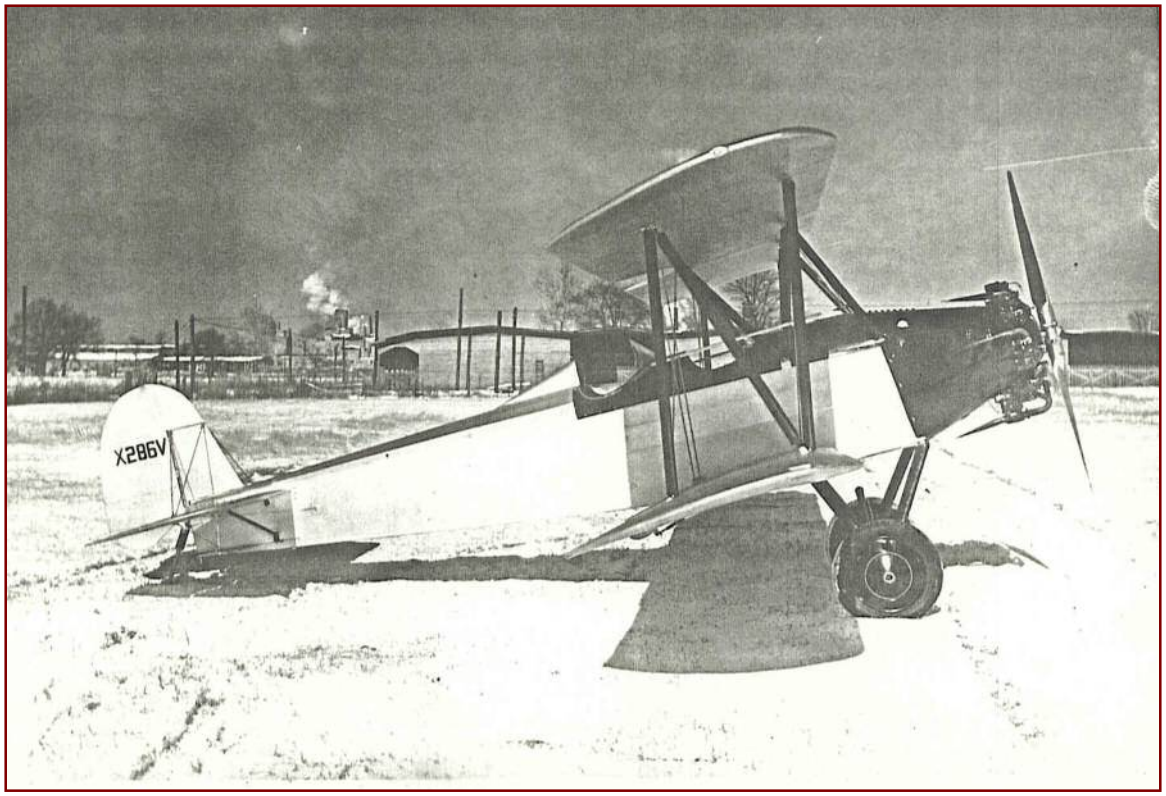
In my collection of Command-Aire components there are two rudders with registration numbers painted on the old Grade A fabric covering. Other components either have no covering or there are no numbers painted on the fabric. So I thought a brief research into said numbers might prove to be interesting, mainly because these rudders have two distinctly different shapes.

NC521E, serial number 597, was a model 3C3 powered by a 90 h.p Curtiss OX-5 engine.. The ship was manufactured March 24, 1929 by the Little Rock, Arkansas firm. Serial numbers began with 500 and increased sequentially to serial number 655 and then, for some reason, the factory switched to adding a 'W' prefix to the number and began with serial number W-51, which was the experimental 4C3, carrying the identification number X-70E that was powered by a Walter NZ radial engine manufactured in Germany. The designation NR on this rudder would indicate that this ship was used for crop dusting at one time, possibly when it was in the stable of Command-Aire ships owned by J.R McDaniel in Fort Pierce, Florida.

Although there are no known photos of NC521E, this would have been the appearance of a 3C3, license number NC515E, serial number 591 manufactured 3-16-29.

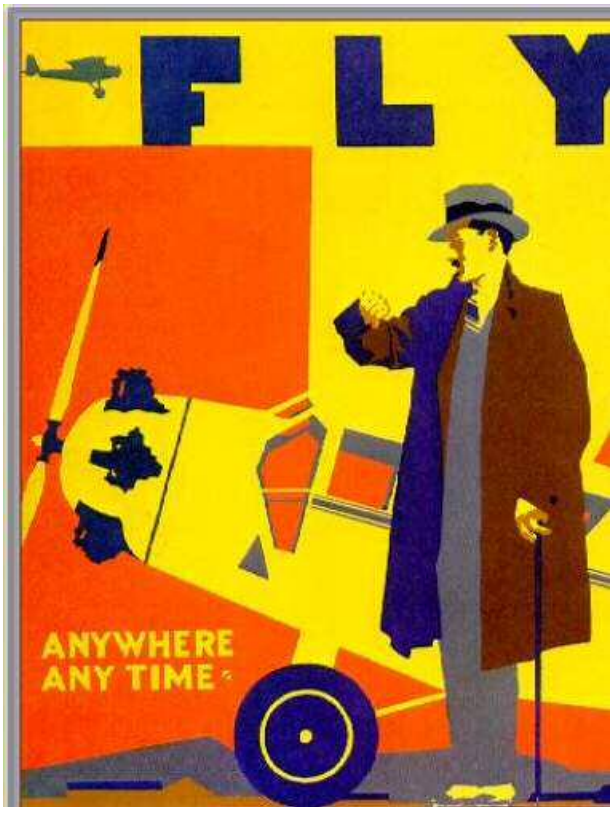
The factory used the designation of 3C3 to identify its OX-5 powered ships, of which approximately 116 were constructed. Production of the basic model 3C3 ceased in late 1929 with NC745W, serial number 655 being the last ship constructed. Subsequent ships were produced with a variety of engine types other than the Curtiss OX-5 because the engine was no longer produced and the supply had run out.

NC10475 was a model 5C3, serial number W-143, was constructed July 6, 1930. Power was a Wright R-600 Challenger engine producing 185 h.p. Only two more Command-Aire ships were produced before the company went into bankruptcy. Compare the rudder shape to that of NR521E and one can see that it changed dramatically. The rudder control horns were placed at the bottom of the surface and top is rounded while original rudder tops were more square in appearance. Placing control horns on the bottom may have been to accommodate the installation of a tail wheel that, in 1930 was needed because or more improved runways, some being concrete or asphalt.



There was also another factor that could have changed the shape of very late rudder assemblies. The model BS-14 had been designed by Albert Vollmecke and the prototype ship was licensed NX286V. It was produced under a Group 2 Approval number 2-204 in January 1930. This ship featured a factory installed tail wheel but the lower section of the rudder was different than that of NR10475. X286V carried serial number W-139.

CURTISS FLYING SERVICE



After the first successful flight of a heavier than air craft, the Wright Brothers later established the first civilian flying school at Montgomery, Alabama. Opening March 10, 1910, the school only lasted until May 15, closing because of problems with both aircraft and location. The Brothers moved back to the Dayton, Ohio area and reopened the operation.

In Hammondsport, New York another successful entrepreneur by the name of Glenn Curtiss began constructing flying machines in direct competition with the Wright's. Curtiss started his own flying school to compete with the Wright school and the Curtiss Flying School was born. By 1916-1922, the school had permanent facilities located at Newport News, Virginia.

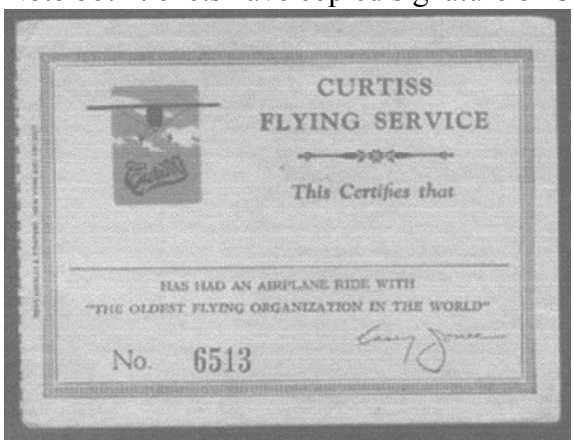
The Curtiss Aeroplane and Motor Company was formed and became the largest aircraft manufacturer aircraft and engine manufacturer in the world during WW1 with Glenn Curtiss at the controls. The famed JN-4 "Jenny" and OX-5 motor were produced in large quantities during the war – in fact over 10,000 units were produced from New York facilities at Buffalo and Hammondsport.

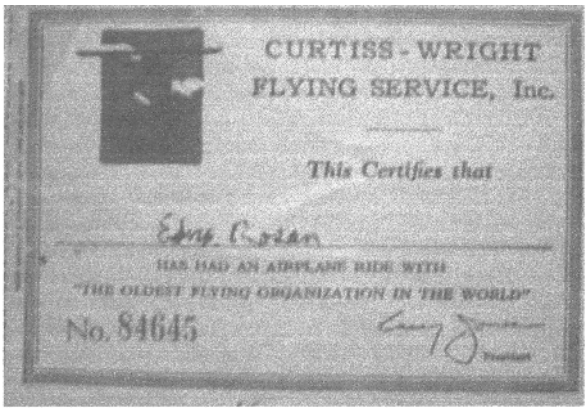
The Curtiss Flying School evolved into the Curtiss Flying Service, offering instruction and sightseeing rides. The company used WW1 surplus Standard J-1 and its own JN-4 ships to barnstorm the eastern states. Its only direct competitor was the Gates Flying Circus that had, at one time, a fleet of 27 barnstorming ships. The Curtiss Flying Service barnstormer's prowled the eastern United States in the mid 1920's when aviation was unregulated. It

expanded into operations in various states, spreading from the east towards the west.

Curtiss Flying Service Standard J-1 on the beach in Miami, Florida during the early 1920's. Barnstorming was still a big business that paid well when the right venue could be secured. Take-off and landing on the beach was a big draw for barnstormers from the Curtiss Flying Service. Note the women in long dresses, making entry and exiting the Standard a very interesting sport, particularly for the lonely pilot. In these photos it appears that the ship is still configured to carry just one passenger in front cockpit. Some of the Gates Flying Circus ships were modified to carry up to four paying passengers in the front cockpit.

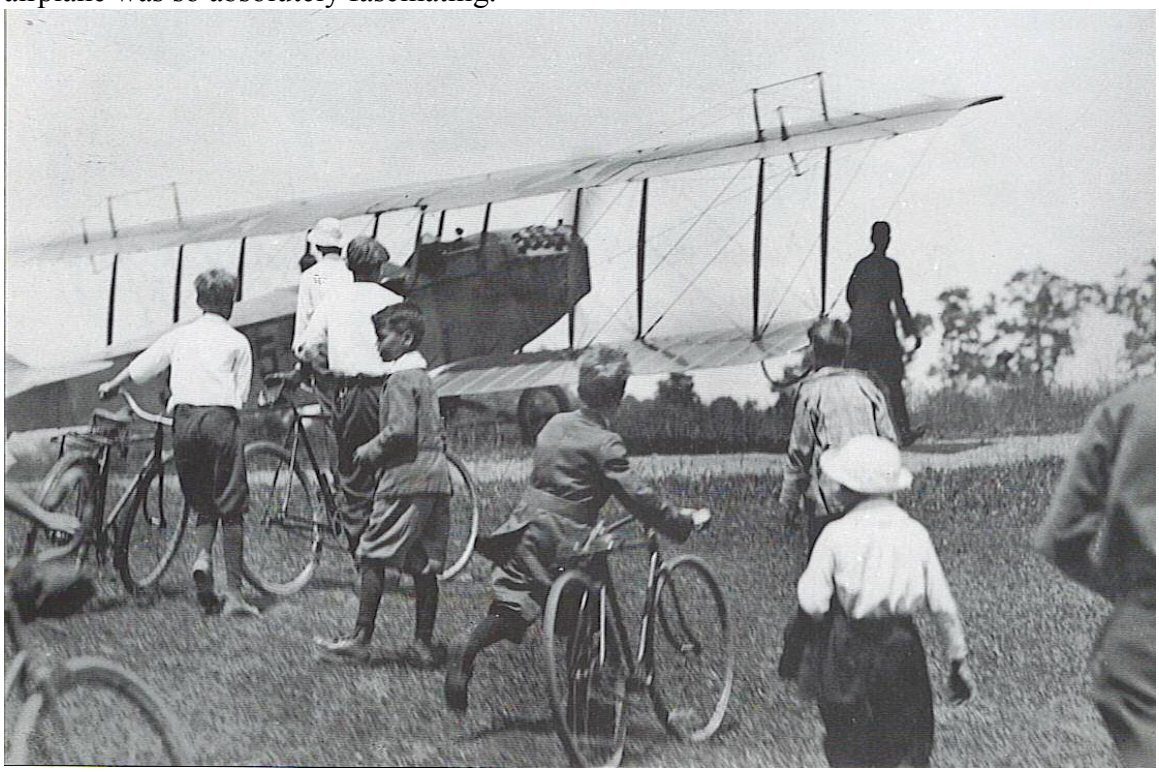
Miami became an operational center for the service that was still headquartered in New York. Below, two souvenir flight tickets, left from the Curtiss Flying Service and right from the Curtiss-Wright Flying Service after the merger took place. Note both tickets have copied signature of Casey Jones.



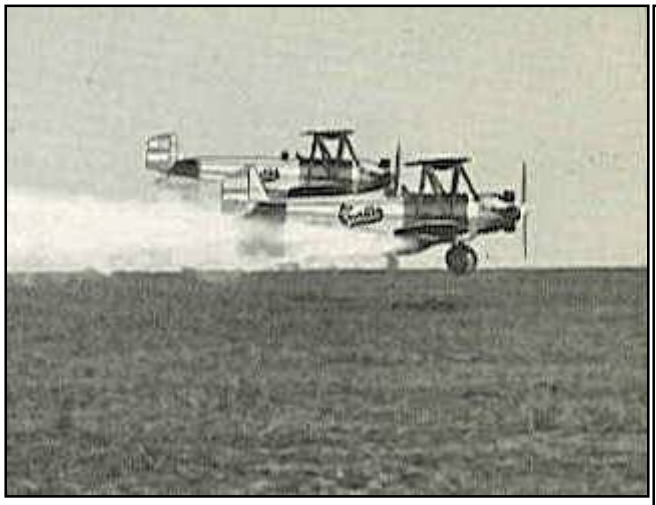


The Curtiss Flying Service operated surplus WW1 training ships for ride hopping – its own JN-4 "Jenny" and the trusty Standard J-1 that was much larger in size and could carry a larger load. In the following photograph, a Curtiss Jenny is surrounded with

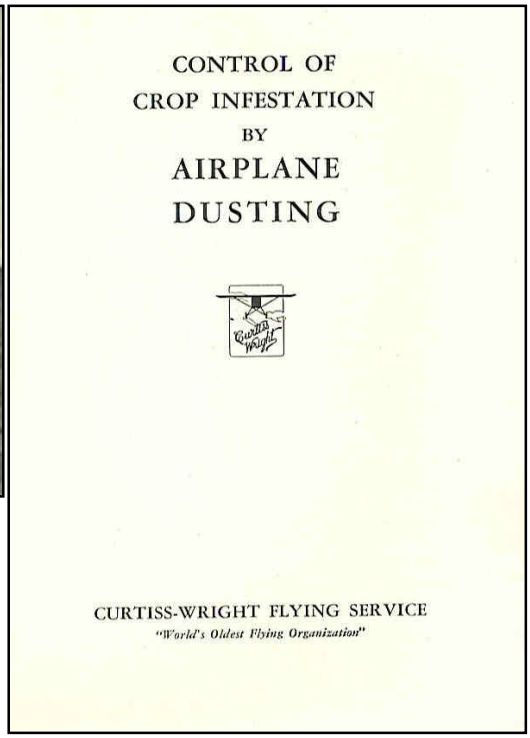
inquisitive young boys riding their bicycles, a common sight in those days when the airplane was so absolutely fascinating.



Curtis Flying Service was to spread from New York, to Miami, Florida, to St. Louis, Missouri, to Houston, Texas and onward to Glendale, California. In mid 1929, president Robert Snowden of Command-Aire, Incorporated signed on for the Curtiss Flying Service to be the sole distributers of the factory aircraft. Many ships were ferried to Houston, Texas to be put to work dusting crops around that area.

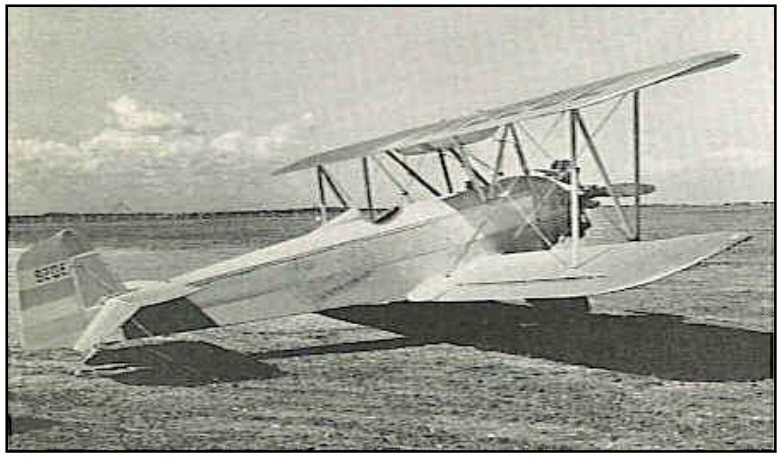


Above, two Wright Challenger powered Command-Aire 5C3 ships fly formation dusting somewhere in Texas in late 1929. With Curtiss

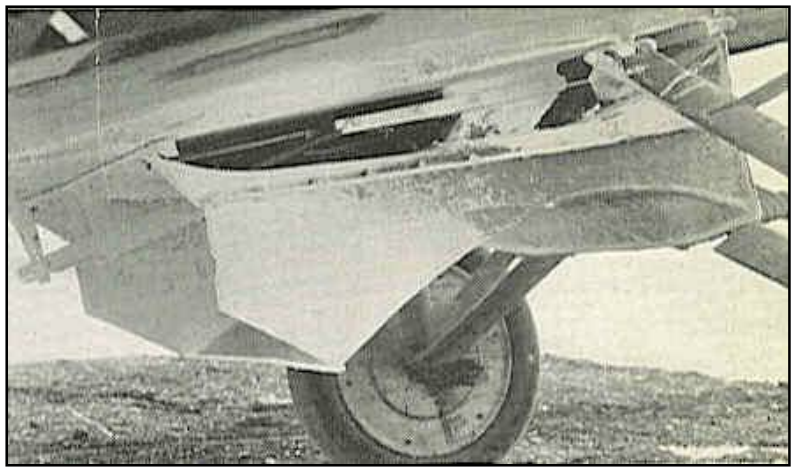

CONTROL OF
CROP INFESTATION
BY
AIRPLANE
DUSTING

CURTISS-WRIGHT FLYING SERVICE
"World's Oldest Flying Organization"

Flying Service now the only distributer for factory ships, many were sent out to control pests on crops in the southeast and southwest.



Right, NR920E, a model 5C3 converted for crop dusting. Designer Albert Vollmecke made the ship so it could be converted from a passenger aircraft to a crop duster and then returned to a passenger ship. It was a very unique design. Curtiss Flying Service (soon to be Curtiss-Wright) operated several of these fine ship dedicated to crop-dusting.



This is the spreader installation on the Command-Aire ship. This installation may have been designed by Vollmecke at the Command-Aire factory in Little Rock, but there is no evidence that this is fact. Most spreader installation evolved from the operator who kept modifying until the desired results were achieved.

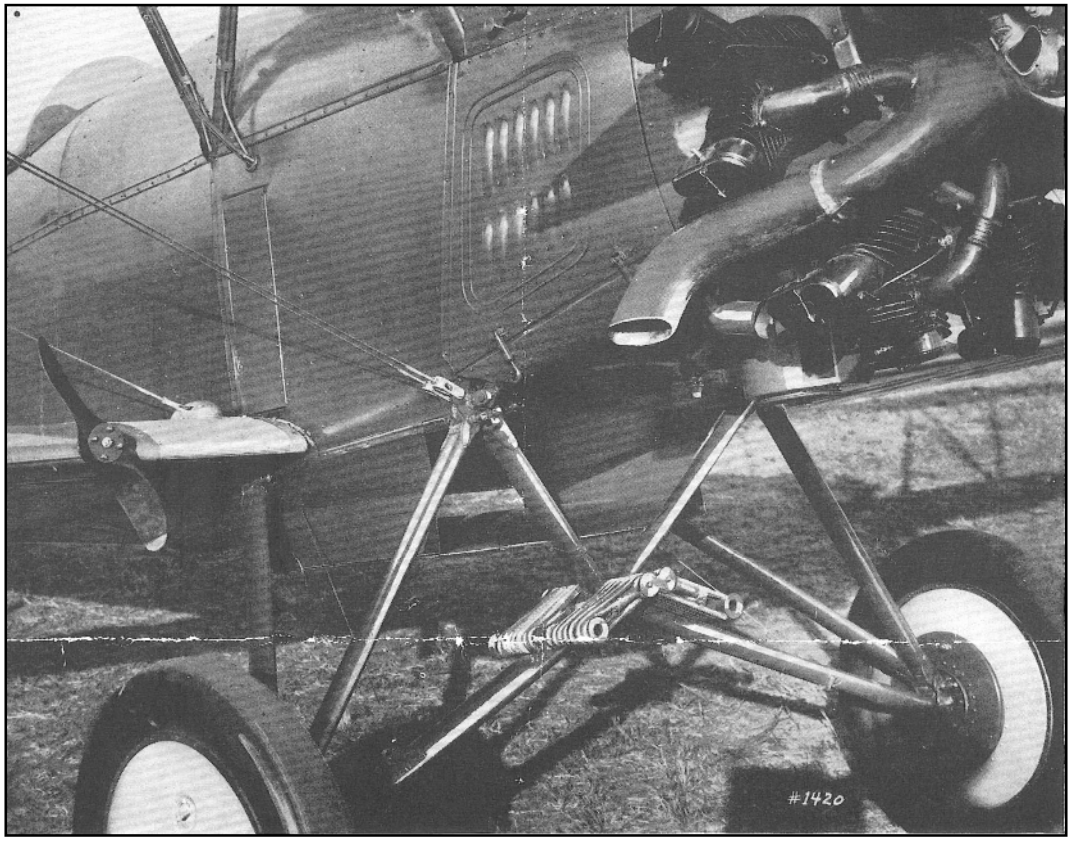
Wright Aeronautical was incorporated in 1919, being chartered to design and manufacture new aircraft engines. By that time Wilbur Wright had died and Orville had other interests elsewhere, but the roots of Wright Aeronautical Corporation can be traced back to a small four-cylinder engine built for the Wright's by Charles Taylor. Wright Aeronautical Corporation went on to design and build the famous J-5 Whirlwind, a 9-cylinder air-cooled radial made famous by the New York to Paris flight of Charles Lindbergh in 1927. The model J-5 was manufactured from 1925-1929 and the follow-on model J-6-7 and J-6-9 were manufactured from 1929 to 1945.

The year 1929 became famous for many reasons. The stock market crash and ensuing depression caused havoc for most aircraft manufacturing companies. The Travel Air Company in Wichita, Kansas had been formed by Walter Beech in 1925 and produced 1,200 to 1,800 airplanes, but the depression caused the demand for new ships to plummet and Travel Air could no longer pay its bills in late 1929. Wright Aeronautical Corporation absorbed Travel Air and most of its facilities were closed.

As a result of the tremendous success of both the Wright Aeronautical Corporation and the Curtiss Aeroplane and Motor Corporation, the two former competitors merged 12-Wright and Curtiss affiliated companies on July 5, 1929 to become the Curtiss-Wright

Corporation. In the Wright Aeronautical Corporation's portfolio was the Travel Air Manufacturing Company. In the Curtiss Aeroplane and Motor Corporation were the following: Curtiss Airports Corporation, Curtiss Flying Service, Curtiss Aeroplane Export Corporation, Curtiss-Caproni Corporation, Curtiss-Robertson Airplane Manufacturing Corporation, New York Air Terminals, New York and Suburban Airlines, Keystone Aircraft Corporation and Curtiss Propeller Corporation. On August 22, 1929, Curtiss-Wright was listed on the New York Stock Exchange, where it remains today. Curtiss Aeroplane and Motor Company, founded in Buffalo, New York in 1916 and Wright Aeronautical Corporation, founded in New York City in 1909 became the largest aeronautical conglomerate of the time.

Curtiss-Wright, distributers of Command-Aire aircraft now had their own aircraft manufacturing business, complete with Department of Commerce Approved Type Certificates – Travel Air became Curtiss-Wright Travel Air. Since Travel Air and Command-Aire ships served the same market and were very similar to each other, Curtiss-Wright no longer needed Command-Aire, so they cancelled their contract with the Little Rock Company in late 1929. This single event, the acquisition of Travel Air Manufacturing Company by Wright Aeronautical Corporation would spell doom for Command-Aire. Command-Aire was left without distributors as the stock market crash began.



Travel Air did manufacture a ship prepared for crop dusting, the model Z4D but only two aircraft were constructed at the factory, however many model 2000, 3000 and 4000 ships were modified in the field for dusting and spraying duties.

Curtiss-Wright went on to manufacture aircraft, engines and propellers to support the WW2 effort. An illustrious corporation that is still around.