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The National Insignia for U.S. Military Aircraft

The first form of a national insignia appearing on U.S. Army aircraft was a red five-pointed star adopted by the Signal Corps' Aviation Section in 1916 during the Mexican Punitive Expedition. On 19 May 1917 the United States officially adopted the star in a circle for both Army and Navy aircraft. This national insignia consisted of a red circle inside of a white five-pointed star inside a blue circle, the colors to be the same shades as those of the U.S. flag. After entering World War I, on 11 January 1918 the United States changed the national insignia to match those of the Allied nations. The new insignia was a roundel, consisting of a white circle inside a blue circle inside a red circle. Then, on 30 April 1919 the U.S. national insignia reverted to the red-centered white star within the blue circle. In the 1920s a darker shade of blue gradually came into use, but no further changes occurred in the insignia until the outbreak of World War II.

In 1942 the red center of the star was removed because U.S. pilots often confused other U.S. aircraft with Japanese aircraft, which displayed a red ball symbolizing the rising sun. Some units in the Pacific area and on the West Coast began painting over the red circle of the U.S. insignia, and on 28 May 1942 the Combined Chiefs of Staff ordered its removal from combat aircraft. On 1 June 1942 this requirement was extended to all U.S. military aircraft. On 30 June 1943 the United States added the familiar rectangles on the left and right sides of the blue circle and a red border to outline the entire design, circle and rectangles. However, air units involved in the war against Japan immediately protested the use of red, and on 14 August 1943 the red border changed to blue. On 16 June 1948 the
Numerous styles of national insignia, markings, and color schemes have been displayed on aircraft used by the U.S. Air Force and its predecessor organizations during the half century following the appearance of the JN3 Jennies along the Mexican border in 1916.

Beginning with the Army's first airplane, Wright Flyer, Signal Corps Airplane No. 1, in 1909, until our nation's entry into World War I, the Army ordered and received only a few hundred planes. These aircraft appeared in clear finish and were usually marked with consecutive serial numbers allotted by the Signal Corps' Aviation Section. These serials were the only official markings and were displayed conspicuously in black in various positions. For example, on No. 28, a Burgess "H" model, the number was located well forward on the fuselage, but on airplane No. 30, a Curtiss

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JN1, it appeared on the rudder. Understandably, Signal Corps Airplane No. 1 did not carry a number, although the crossed flag insignia of the Signal Corps was painted on its rudders after it arrived at Fort Sam Houston in Texas in February 1910. The next use of a distinguishing mark on Army aircraft apparently occurred during Pershing's Punitive Expedition into Mexico in 1916. Since the service's activities prior to the Mexican campaign had been limited to intra-country operations, little need for an identifying insignia for Army planes had previously existed. Various photographs of some of the Jennies used by the 1st Aero Squadron on the border prove that a five-pointed star was painted on their rudders.

A design, approved in War Department Stencil No. 2 on May 19, 1917, consisted of a white five-pointed star centered in a circumscribed blue circle, equal in diameter to the chord of the wing on which the insignia was placed. A red circle occupied the center of the star but missed touching the inner star points "by an amount equal to 1/24th of the diameter of the circumscribed circle." Colors used were to be the same as those appearing in the American flag. The stencil also prescribed the location for the newly adopted insignia. It was to be placed on the upper surface of each upper wing, positioned so that the circumference of each circumscribed circle just missed contact with the wing aileron. Lower wings bore similar markings on their undersurface.

COL. MITCHELL OBJECTS

Objections to the new insignia design came from Col. William (Billy) Mitchell, named by General Pershing to command the A. E. F.'s Air Service, Zone of the Advance. Colonel Mitchell recommended the use of three concentric circles, similar to the national insignia on British and French aircraft, but with a different sequence of color. The suggestion had merit since quick, certain identification of airplanes in combat was a life and death matter, particularly during periods of poor visibility. The adoption of Colonel Mitchell's
idea would standardize Allied markings as tri-color cocardes, while color variations would serve as distinguishing marks for the various Allied nations. German airplanes and those of her allies, Bulgaria and Austria, were identified by formée and Greek crosses.

On Jan. 11, 1918, the Joint Army and Navy Technical Aircraft Board did adopt a new insignia for aircraft manufactured in the United States for the Army and Navy. Wings were to bear a red circle with a diameter approximately equal to the chord length, an inner blue circle two-thirds the length of the chord, and a center white circle one-third the chord length in diameter. General Order No. 299 dated Feb. 8, 1918, specified that the wing marking should appear on the upper wing so that the outer circle "just misses contact with the wing flap." Insignia were to be placed in a corresponding position on the underside of the lower wing. In March, the size of these wing markings was limited to a maximum diameter of 60 inches.

A bulletin issued by the Air Service on May 7, 1918 outlined other standard markings that were to be applied to combat aircraft in Europe. All planes in a squadron were to be numbered serially, from one to 19 in black on both sides of the fuselage near the stabilizer, on the upper right wing's top surface, and on the underside of the lower right wing. A later memo dated June 28, 1918 stated: "All planes in a squadron shall be numbered... in yellow or red." Each squadron would have an official insignia painted on the middle of each side of the fuselage. Squadrons were to design their own insignia during the period of organizational training. In addition, the planes in some squadrons displayed on the upper side of the top left wing and underside of bottom left wing a stripe or series of stripes of any color as specified by the group commander to facilitate recognition by pilots of the same squadron from above and below.

Six months after the signing of the Armistice, the Secretaries of the Navy and War agreed to resume the use of the original national insignie on B-26s return to Japan following a strike against Communist positions in Korea. The letter type designation on the fuselage identifies the aircraft as to type (BC for B-26).
United States military aircraft, the star in the circle. On each upper and lower wing, the circumference of the blue circle was to be tangent to the wing tips. One point of each star would point forward and unless otherwise specified, the insignia diameter would be 60 inches. Rudder markings would be the familiar three vertical bands, with blue nearest the rudder post.

The return to the start insignia was not immediate. All aircraft already constructed would continue to employ the “three circle” design, but all planes delivered after May 17, 1919, which were not already marked would carry the star insignia. The change would be effective on all planes not later than Jan. 1, 1920. Although the Armistice had been signed six months earlier, the order contained the restriction that under no circumstances would the star be used on aircraft stationed in Europe “until after the end of hostilities.”

NO CHANGE FOR 23 YEARS

During the years of uneasy peace between 1918 and 1941, no change in the basic star insignia appeared, although succeeding Air Corps specifications frequently noted minor changes in position and size. On Jan. 21, 1926, the diameter of the wing insignia was fixed at three-fourths of the available chord length at the location of attachment, with a maximum size of 60 inches. Available chord length was defined as the whole chord on wings without ailerons and the chord length from the aileron cut-out to the leading edge on wings with ailerons. The insignia were positioned tangent to the cut-out on wings with ailerons; on those without, the insignia center fell midway of the chord. Later specifications required that the marking on fabric and metal covered wings be placed on the metal covering, tangent to the point between the two materials. Subsequently, the location for the emblem’s center was specified as a distance from the wing tip equal to one-sixteenth of the wing span on straight wings and one-eighth of the wing span on tapered wings. The outside edge of the blue circle was not to approach the wing tip closer than six inches.

By mid-1940, all Air Corps aircraft were ordered marked with designators in black or in yellow on camouflage airplanes. The unit identifying number was followed by a letter or letters designating the type of aircraft, followed by a number assigned by group and station commanders or by higher authority to designate a particular airplane. For example, 9B1 and FAD1 identified the first aircraft of the 9th Bombardment Group and Fairfield Air Depot, respectively. For uncamouflaged aircraft, the black designator appeared on each side of the vertical stabilizer in two lines, such as 12-31P to represent the number 12 aircraft of the 31st Pursuit Group. On camouflaged aircraft, the designator utilized the necessary area of both the vertical stabilizer and rudder. The designator appeared in one line on the upper and lower sides of the left wing on monoplanes, or on the upper side of the left upper wing and undersurface of the lower left wing on biplanes. An airplane identification number also appeared on the engine cowling or on the forward portion of the fuselage. On Oct. 28, 1941, radio call letters replaced the formed designator symbols.

These call numbers consisted of at least four numerals, the first being the last digit of the year in which the airplane was ordered followed by the serial, using zeros when necessary to make up the minimum number of digits. The radio call number of an airplane produced in 1942, having serial number 42-7 thus would be 2007, while the call number of aircraft 42-5434 would be 25434. The figures were to be of sufficient size so they could be seen from a distance of 150 yards. Radio call numbers also were placed on the underside of the wings on aircraft operating solely within the continental limits of the United States during the early 1940’s. Local using agencies were given latitude in determining the size and placement on the wings, but call numbers were not required on primary trainers which were not equipped with radios and which bore field identifying numbers.

Experience under combat conditions early in the war revealed the inadequacy of the existing national insignia. To reduce the possibility of confusion between the star insignie and the red “meatball” used on Japanese airplanes, the red center was eliminated from the national insignia on United States combat planes on May 28, 1942. At the same time, officials ordered that the insignia should be placed on the rudders of combat aircraft, although the original star design and rudder markings were retained temporarily on trainers. Some A-20 aircraft were observed late in 1942 still displaying rudder stripes although these had been abandoned officially.

RED ELIMINATED

On Aug. 14, 1943, red was completely eliminated from the national insignia for the remainder of the war, when a blue border was substituted for the red outline. On the same date, dimensions for fuselage insignia on night fighters such as the P-61 Black Widow were limited to a 25-inch maximum diameter and all wing insignia on these specialized aircraft fixed at a 25-inch size. Specifications also noted that while fuselage insignia on all aircraft might extend over doors and emergency exits, an insignia was not to overlap windows or openings used during combat which might alter the marking’s pattern. On Dec. 26, 1943, the AAF’s Training Command received authorization to omit fuselage insignia if there was insufficient space for both the national emblem and necessary field identification numbers.

The short span of peaceful years between World War II and the Korean Conflict brought other alterations in aircraft markings. After June 10, 1946, the insignia blue circle and border surrounding the star insignie were omitted when these markings
were placed on a sea blue, dark blue or a black background. The adoption of the present national emblem took place on Jan. 14, 1947, with the addition of a red horizontal stripe centered in each of the white rectangles at each side of the blue circle. The width of the stripe equalled one-sixth of the star’s radius. Once again the marking bore the three colors of the nation’s flag. As during the previous decades, dimensional limits changed occasionally after the selection of the tri-color “star and bar” marking.

Swept-wing fighters employed during the Korean Conflict appear in photos displaying wing insignia with one point of the star pointing directly forward. A specification change dated Sept. 15, 1954, assured uniformity as it outlined the procedures for proper alignment. Henceforth, a line through the top point and the star’s center would be perpendicular to a line formed by the constant 50 per cent chord line of the wing which passed through the center of the star.

The difficult task of locating aircraft forced down in snow-covered areas was eased somewhat by the use of a special color scheme during the 1950s for most aircraft assigned to operate during any part of the year in or through any portion of the cold weather area outside the zone of the interior. Insignia red paint applied to the upper and lower surfaces of the outer wing sections covered 25 per cent of the wing span while the entire aft portion of the fuselage from the tip of the tail forward for about one-fourth of its length was similarly painted. Red stabilizers completed the colorful yet functional appearance. After mid-1959, fluorescent paint was authorized to replace the insignia red enamel or lacquer.

**UNIQUE MARKINGS**

Air attaché planes bore unique markings as did search and rescue aircraft. The standard marking for the former was an American flag painted on both sides of the vertical stabilizer. Since the World War II period, search craft were identified by orange-yellow areas outlined in black on wings, fuselage and tail and black “RESCUE” markings. Until Mar. 25, 1965, Air National Guard aircraft bore special markings, but after that date they were authorized to display standard Air Force markings and finishes.

Between June 1957 and May 1958, 1,600 aircraft assigned to the Air Training Command received conspicuity markings as part of a test program designed to lessen the frequency of mid-air collisions. These planes were marked with “blaze orange” fluorescent paint on tails, nose and wing tips. With certain exceptions, after May 11, 1959, all USAF aircraft were to receive conspicuity markings consisting of four or six-foot bands about the nose, aft fuselage and wing tips or center line tip tanks or pods. Those exempted included active combat force strike aircraft, helicopters, century-series fighters, and delta wing aircraft. Air attaché, Military Assistance Advisory Group and Air Force liaison aircraft were later exempted, also. Experience revealed that the fluorescent red-orange color offered approximately a 25 per cent increase in service life over the fluorescent yellow. Although planes bore these dashing red-orange markings for several years, the paint was hurriedly removed from those aircraft alerted during the Cuban crisis in 1962.

Specific Air Force wing markings had not been authorized since the service’s elevation to departmental status in July 1947. Service markings were restored on May 16, 1955 with “USAF” appearing on the lower surface of the left wing and again on the upper face of the right, thus balancing the placement of the “star and bar” insignia on the wings. The height and location of these letters were to correspond as far as possible with the national star insignia appearing on the opposite wing. On aluminized finishes, these letters were to be painted in blue or black, in red paint on black surfaces, and in white on red drone aircraft. Using a similar color arrangement, “U. S. AIR FORCE” was added to each side of the fuselage with the aircraft’s configuration dictating the position as outlined in the specific technical order for each aircraft model. The size and location of the letters were to be the same on all aircraft of the same model, however. Serial numbers and the model
designation with the words "U. S. AIR FORCE" stenciled in one-inch letters continued to appear on all Air Force planes on the left side of the fuselage near the pilot's compartment. Radio call letters had first appeared in 1941 on Army Air Corps planes; their use continued into the 1960's. By 1955, the minimum number of numerals had been increased from four to five. "O" placed before the first number identified an aircraft that was older than 10 years and precluded duplication of call numbers. After July 15, 1959, the number of digits was set at five, being the last five figures of the serial number. This marking reflected the last figure of the contract year only if the serial number consisted of fewer than five numbers. The technical order no longer exempted primary trainers from the requirement to display call numbers; use of the "O" on older aircraft continued. Throughout this period, rotary-wing aircraft bore their call numbers on the fuselage.

Air Force missiles normally carried the same national markings as did their manned counterparts, although their configuration obviously demanded variations in placement and size. Missiles with wings or guide vanes, such as the Bomarc, displayed the national insignia on the top left and lower right wing surfaces. When a missile's configuration permitted, the national insignia was placed midway between nose and tail and "U. S. AIR FORCE" one-eighth of the overall missile length from the nose. The Air Force authorized the elimination of the national insignia from the fuselage after Oct. 30, 1959, if there was not enough space for the emblem and the "U. S. AIR FORCE" markings.

Fuselage insignia on horizontally viewed missiles were to be positioned so that a line through the top star point and the insignia's center was perpendicular to the missile's longitudinal line. Vertically viewed missiles, those seen in an attitude of 60 degrees or greater to the horizon, were marked with "U S AIR FORCE" (without periods) as near to the nose as practical. The national insignia was to be located so that a line through the top star point and the center of the design would be parallel to the missile's longitudinal center line.

All markings except for the serial number were eliminated from operational ballistic missiles in 25 and 100 pounds per square inch hardened configurations following a Jan. 8, 1961, change to the technical order covering aircraft and missile markings. These same missiles were to carry all identification markings when on public display and in parades, or when appearing in publicity photos and in training films, however, this order was extended on Jan. 6 1965 to eliminate all missile markings except for serial numbers and engine warning stripes. Those used for display, training or publicity purposes would continue to bear all Air Force identification markings including the national star insignia.

This B-17 miraculously brought its crew home without injury after colliding with a German fighter in 1942. The fuselage insign is outlined in yellow to facilitate recognition.
long ago as the country's leading ace in the army."

Eighteen enemy planes were brought down within seventeen days by this youngest of aces, a record unparalleled in aviation history. When he died fighting single-handed a column of infantry, he was the leading American ace.

Seldom before has there ever been collected so varied a group of insignia as those representing the aero squadrons. They even outdo in imaginative creation the insignia of the combat divisions. Small wonder that the Boche aviators were filled with an unholy terror when they saw Mr. "Jiggs" of the Eleventh Squadron flying towards them with a bomb under his arm.

The originals of the insignia designs are on file in the library of the Bureau of Aeronautics of the War Department, just as they were sent from the front. All of them are the work of artists of the various aviation groups, some of them roughly scrawled, others cleverly drawn in pen and ink or painted with brush. Not a few are drawn on the camouflaged canvas covering of the plane.

Under War Department orders, these insignia are for use only on planes and on baggage for the purpose of distinguishing different squadrons and not worn as shoulder insignia by individuals.

Whatever may be the future of the American air service under the army reorganization plans of Congress, the insignia of the combat squadrons of the American Expeditionary Forces will tell the story of how American aviators set a pace for the best of Europe.

They had "just begun to fight" when the signing of the Armistice ended their short but eventful record.

The War Department has compiled a statement giving a brief history and the military record of each squadron whose insignia is reproduced in these pages: The insignia selected for the First Aero Squadron is the American flag. The records of the various squadrons with description of the insignia are as follows:

First: The First Aéro Squadron was organized and operated as a Corps Observation squadron. It arrived on the Front at Ourches, April 4, 1918, and was assigned to the First Corps April 8, 1918. The First was engaged in the operations in the Toul Sector, Chateau-Thierry, St. Mihiel and the Argonne-Meuse first and second offensives, and after the Armistice it was assigned to the Army of Occupation on November 20, 1918. This squadron suffered 26 casualties, consisting of 15 killed, 8 wounded, 2 prisoners and 1 missing. Having engaged in 94 combats it was officially accredited with having shot down thirteen enemy aircraft. The First Air Squadron was a continuation of the First Squadron in the United States Air Service beginning its service on the Mexican border.

Eighth: The insignia for the Eighth Aéro Squadron is a great American eagle, with the wings spread, holding the American Liberty Bell.

The Eighth Aéro Squadron was of the Corps Observation type. It arrived on the Front at Ourches on July 31, 1918, and was assigned to the Fourth Corps, Observation Group, First Army, on August 14th. The Eighth was engaged in the operations in the Toul Sector, Chateau-Thierry, St. Mihiel, and the Argonne-Meuse first and
second offensives, terminating its work on February 5, 1919. It suffered twelve casualties, consisting of 4 killed and 8 prisoners.

Ninth: The insignia for the Ninth Aéro Squadron is a silhouette showing the beams three search-lights pointing upward and forming the numeral IX.

The Ninth Aéro Squadron was organized as a night observation squadron. It was assigned to the First Day Bombardment Group, First Army, on September 5, 1918. It had already reached the Front at Delouze on August 26th. The Eleventh was engaged in the operations at St. Mihiel and

Eleventh: The Eleventh Aéro Squadron is represented by a cartoon of Mr. "Jiggs" carrying a bomb under his arm.

The Eleventh Aéro Squadron was a day bombardment squadron assigned to duty in the Argonne-Meuse first and second offensives. It made 32 bombing raids, engaged in 17 combats and received official confirmation for 13 victories. It ceased operations December 11, 1918. The squadron suffered 20 casualties consisting of 10 killed, 1 wounded, 8 prisoners and 1 missing.

Twelfth: The Twelfth’s insignia is given. The Twelfth Aéro Squadron was a Corps Observation squadron. It was assigned to the First Corps on April 30, 1918, and three days
later, May 3rd, reached the front at Ourches. This squadron was engaged in the operations in the Toul Sector, at Chateau-Thierry, St. Mihiel and the Argonne-Meuse first and second offensives. During its long period of activity it engaged in numerous reconnaissances, fought many combats and received confirmation for three victories. The Twelfth suffered heavy casualties, consisting of 8 killed, 9 wounded, and 4 prisoners. It received its demobilization orders April 1, 1919.

5, 1918. The Thirteenth suffered 13 casualties, consisting of 5 killed, 1 wounded and 7 prisoners.

Seventeenth: The insignia for the Seventeenth Aero Squadron is the great snow owl flying through the air ready to pounce upon the enemy.

The Seventeenth Aero Squadron was a pursuit squadron, assigned to the Second Army on November 4, 1918, and reached the American Front at Toul on the same day. This squadron had been assigned first to the Royal Air Force on July 15, 1918, and had operated with them until November. During its period of activity it had engaged in 110 combats, and received official confirmation for 54 victories. The Seventeenth ceased operations December 11, 1918. Since July it had suffered 24 casualties, consisting of 10 killed, 5 wounded, 7 prisoners and 2 missing.

Twentieth: Three legs in a circle arranged in pinwheel fashion comprise the insignia adopted by the Twentieth Squadron; it is unofficial.

The Twentieth Aero Squadron was a day bombardment squadron. It was assigned to the
First Day Bombardment Group, First Army, on September 5, 1918, and reached the Front at Amanty two days later. It was engaged in the operations at St. Mihiel and the Argonne-Meuse first and second offensives. It carried on numerous bombing raids into German territory, engaged in eleven combats and received confirmation for eleven victories. The Twentieth received demobilization orders on December 11, 1918. This squadron suffered 25 casualties, consisting of 13 killed, 3 wounded, 8 prisoners and 1 missing.

Twenty-second: A number of stars in a ring with a large star with a tail, evidently a comet, superimposed, represents the 22nd Aero Squadron.

The Twenty-second Aero Squadron was a pursuit squadron. It reached the Front at Toul on August 16, 1918, and on August 22d was assigned to the Second Pursuit Group, First Army. It was engaged in the operations in the Toul Sector, at St. Mihiel, and in the Argonne-Meuse first and second offensives. During its period of activity it performed 117 patrols and war missions, fought 90 engagements, and received official confirmation for 46 victories. It ceased operations April 4, 1919. It suffered 9 casualties, consisting of 6 killed, 2 prisoners and 1 wounded.

Twenty-fourth: The Twenty-fourth Aero Squadron is represented by an American eagle pouncing upon the German dachshund which is running away with its tail between its legs.

The Twenty-fourth Aero Squadron was an Army observation squadron. It was assigned to the first Army Observation Group on August 14, 1918, and reached the Front at Condeville on August 22d to take part in the operations at St. Mihiel and the Argonne-Meuse first and second offensives. Before the Armistice it had carried out more than 80 reconnaissances, fought 54 combats and received official confirmation for 12 victories. The squadron suffered 7 casualties, consisting of 1 killed, 1 wounded, 3 prisoners and 2 missing.

On April 10, 1919, it was assigned for further duty to the Army of Occupation.

Twenty-fifth: A cartoon of a masked headsman with an ax is the insignia used by the Twenty-fifth Aero Squadron.

The Twenty-fifth Aero Squadron was a pursuit squadron. It was assigned to the Fourth Pursuit Group, Second Army, on October 22, 1918, and reached the Front at Toul two days later. It was engaged in the operations of the Argonne-Meuse second offensive. It had been operating but a few days when the Armistice was declared, and had not received confirmation for any victories. Neither had it suffered any casualties.

Twenty-seventh: The Twenty-seventh Aero Squadron insignia comprises another form of the American eagle, superimposed upon a large round spot.
The Twenty-seventh Aéro Squadron was a pursuit squadron. It was assigned to the First Pursuit Group, First Army, on April 30, 1918, and reached the Front on June 1 at Toul. This squadron was engaged in the operations in the Toul Sector, at Chateau-Thierry, St. Mihiel, and the Argonne-Meuse first and second offensives. The Twenty-seventh carried out 314 patrols and war missions, engaged in 230 combats, and received official confirmation for 54 victories. In all it suffered 22 casualties, consisting of 8 killed, 4 wounded, 7 prisoners, and 3 missing. It ceased operations December 5, 1918.

Twenty-eighth: The Twenty-eighth Aéro Squadron insignia is that of a painted American Indian looking to the left. Its headdress includes a single feather.

The Twenty-eighth Aéro Squadron was a pursuit squadron. It was assigned to the Third Pursuit Group, First Army, on August 22, 1918, having reached the Front at Vaucouleurs July 15th. This squadron was engaged in the operations in the Toul Sector, St. Mihiel and the Argonne-Meuse first and second offensives. It ceased operations April 10, 1919. It has made 128 patrols and bombing raids into Germany, fought 29 combats and received official confirmation for 15 victories. It suffered six casualties, consisting of 1 killed, 1 wounded, 2 prisoners and 2 missing.

Forty-first: The Forty-first Aéro Squadron is represented by an oval inclosing a scene in an African desert, a camel appearing in the foreground. This is superimposed upon the numeral V, showing that the squadron was one of the Fifth Pursuit Group.

The Forty-first Aéro Squadron was a pursuit squadron. It was assigned to the 5th Pursuit Group, Second Army, on October 29, 1918. It did not function on the Western Front before the Armistice. It was ordered demobilized on May 11, 1919.

Forty-ninth: The Forty-ninth Aéro Squadron is depicted by a snaring wolf's head within a circle.

The Forty-ninth Aéro Squadron was a pursuit squadron. It was assigned to the First Army on August 14, 1918, having reached the Front at Toul Airdrome on August 2d. It was engaged in the operations in the Toul Sector, St. Mihiel, and the Argonne-Meuse first and second offensives. It accomplished 161 patrols and war missions, fought 53 combats and received official confirmation for 24 victories. It ceased opera-
tions on December 5, 1918. It suffered 6 casualties, consisting of 3 killed, 1 prisoner and 2 missing.

**Fiftieth**: The Fiftieth Aéro Squadron insignia is a silhouette cartoon of a Dutch woman similar to the one in "Dutch Cleanser" advertisement.

The Fiftieth Aéro Squadron was a Corps Observation squadron. It was assigned to the Fifth Corps Observation Group, First Army, on August 14, 1918, and reached the Front at Bicqueley near Toul on September 8th. It engaged in the operations at St. Mihiel and the Argonne-Meuse first and second offensives. It ceased operations April 1, 1919. This squadron made many reconnaissances over the lines, taking many pictures and gathering much useful information, during the accomplishment of which it

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**50th Aéro Squadron**

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ron insignia is a bucking broncho, ridden by a cowboy, all within a circle.

The Eighty-eighth Aéro Squadron was a Corps Observation squadron. It was assigned to the First Corps on May 29, 1918, and June 1 reached the Front at Toul. It was engaged in the operations in the Toul Sector, at Chateau

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**49th Aéro Squadron**

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fought off many German attacks and was credited with one victory. It suffered nine casualties, consisting of 5 killed, 2 wounded, and 2 prisoners.

**Eighty-fifth**: Winged Cupid with a campaign hat, sitting on the top of the world, is the insignia selected to represent the Eighty-fifth Squadron.

The Eighty-fifth Aéro Squadron was an Army observation squadron. It reached the Front at the Toul Airdrome on October 24, 1918, and the next day was assigned to the Fourth Corps Observation Group, First Army. This squadron took part in the Second Argonne-Meuse offensive. It accomplished several missions over the lines in the few remaining days before the Armistice, but was not accredited with any victories nor did it suffer any casualties. It was finally ordered to be demobilized May 11, 1919.

**Eighty-eighth**: The Eighty-eighth Aéro Squad-

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**85th Aéro Squadron**

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Thierry, St. Mihiel, and the Argonne-Meuse first and second offensives. This squadron accomplished many reconnaissances over the lines, taking many pictures, locating machine gun nests and batteries and gathered military information of greatest value. It received official credit for four enemy planes brought down. The squadron suffered 14 casualties, consisting of 6 killed and 8 wounded.

_Eighty-ninth: Insignia:_ The front view of an American eagle in full flight.

_Ninetieth: Insignia:_ Pair of bones: the lucky number, seven, is uppermost.

The Ninetieth Aero Squadron was a Corps Observation squadron. It was assigned to the Third Corps Observation Group on June 11, 1918, and two days later reached the front at Ourches. It took part in the operations in the Toul Sector, St. Mihiel and the Argonne-Meuse first and second offensives. This squadron carried out many reconnaissances, fought 23 combats and received official confirmation for 7 victories. It suffered 3 casualties, consisting of 2 killed and 1 wounded. It was ordered demobilized on December 19, 1918.

_Ninety-first: The Ninety-first Aero Squadron shows a mounted knight in pursuit of the winged devil whose blood he has already drawn by the lance._

The Ninety-first Aero Squadron was an Army observation squadron. It was assigned to the First Army Corps on May 7, 1918, and on May 24th reached the Front at Condreville. It was engaged in the operations in the Toul Sector, at St. Mihiel and the Argonne-Meuse first and second offensives. The Ninety-first accomplished many war missions, fought 104 combats, and received credit for bringing down 21 German machines. It suffered 28 casualties, consisting of 20 killed, 8 wounded, 9 prisoners and 1 missing. The Ninety-first was ordered demobilized April 7, 1919.

_Ninety-third: The Ninety-third Aero Squadron is represented by an Indian head similar to that of the 28th, but in the reverse direction and bearing two feathers instead of one._

The Ninety-third was a pursuit squadron. It was assigned to the Third Pursuit Group, First Pursuit Wing, First Army, and reached the Front at Vaucouleurs about July 28, 1918. It was engaged in the operations in the Toul Sector,
at Amanty on May 18th. This squadron was engaged in the operations in the Toul Sector, at Chateau-Thierry, St. Mihiel, and the Argonne-Meuse, fought 230 combats, and was officially accredited with having brought down 47 enemy airplanes. It suffered 21 casualties, consisting of 6 killed, 4 wounded, 10 taken prisoners and 1 missing. It was ordered demobilized December 5, 1918.

*Ninety-sixth*: The Ninety-sixth, a bombardment squadron, is represented by the head and shoulders of a red devil, who prepares to launch an aerial bomb. This figure is placed on a white triangular-shaped background.

The Ninety-sixth Aéro Squadron was a day bombardment squadron. It was assigned to the First Day Bombardment Group, First Army, on May 29, 1918, having reached the Front at Amanty on May 18th. It was engaged in the

90th AERO SQUADRON

at St. Mihiel, and the Argonne-Meuse first and second offensives. It took part in 157 war missions, fought 64 combats and received official confirmation for 32 enemy planes brought down. The Ninety-third suffered 8 casualties, consisting of 2 killed, 1 wounded, and 5 prisoners. This squadron ceased to function December 11, 1918.

*Ninety-fourth*: The Ninety-fourth Aéro Squadron insignia is the well-known “hat in the ring.”

The Ninety-fourth Aéro Squadron was a pursuit squadron. It was assigned to the First Army Corps on April 9, 1918, having reached the Front at Epiez on April 1st. This squadron was engaged in the operations in the Toul Sector, at Chateau-Thierry, St. Mihiel, and the Argonne-Meuse first and second offensives. The squadron accomplished 304 patrols and war missions, fought 114 combats and brought down 64 enemy planes which were officially confirmed. It ceased operations on April 7, 1919. It had suffered 18 casualties, consisting of 10 killed, 4 wounded, and 4 taken prisoners.

*Ninety-fifth*: The Ninety-fifth shows the familiar kicking mule, poised on its front feet, ready to deliver a blow, the history of this squadron indicates that the insignia was well chosen.

The Ninety-fifth Aéro Squadron was a pursuit squadron. It was assigned to the First Army Corps on May 29, 1918, having reached the Front operations in the Toul Sector, at St. Mihiel, and the Argonne-Meuse first and second offensives. This squadron made many bombing raids into Germany, destroying a great amount of enemy property and gathering much valuable information. It fought 19 combats, and was officially accredited with 14 enemy airplanes. The squadron suffered 41 casualties, consisting of 12 killed, 12 wounded, 15 taken prisoners and 2 missing. It ceased operations December 11, 1918.

*Ninety-ninth*: A conventional American bison in silhouette is the insignia of the Ninety-ninth Aéro Squadron.

The Ninety-ninth Aéro Squadron was a Corps Observation squadron. It was assigned to the Fifth Corps Observation Group June 12, 1918, having reached the Front on May 31, at Amanty. This squadron was engaged in the
operations in the Toul Sector, at St. Mihiel and
the Argonne-Meuse first and second offensives.
The squadron performed many reconnaissances
and war missions into German territory, fought
18 combats and received official confirmation
for 3 victories. It suffered 13 casualties, con-
sisting of 6 killed and 7 wounded. It ceased
operations February 13, 1919.

One Hundredth: The One Hundredth Squad-
ron shows the devil riding on an aerial
bomb in flight.

The One Hundredth Aéro Squadron was a day
bombardment squadron. It was assigned to
the Second Day Bombardment
Group, Second Army, on October 26,
1918, having been on the Front since
July 20, 1918, with the Royal Air
Force. It was engaged in British
operations. This squadron accom-
plished many raids into Germany
without suffering any losses. It is
not given official credit for any enemy
planes brought down. It ceased oper-
ations on April 8, 1919.

One Hundred Third: The One Hun-
dred Third Squadron was represented
by another Indian head with a large
war bonnet decorated with a swastika.
The One Hundred Third Squadron
was a pursuit squadron. It was as-
signed to the Second Pursuit Group,
First Army, June 30, 1918.

From February 18, 1918, until
July 4, 1918, this squadron had
served with the French Army as
the Lafayette Escadrille. After joining the
American Army it was engaged in the operations
at St. Mihiel and the Argonne-Meuse first and
second offensives. This squadron carried out
many war missions, fought 327 combats and was
officially accredited with 51 victories. It suffered
15 casualties, consisting of 6 killed, 3 wounded,
4 taken prisoners and 2 missing in action. It
ceased operations December 11, 1918.

One Hundred Fourth: Insignia: Figure of
winged sphinx, placed in a large circle.
The One Hundred Fourth Aéro Squadron was a Corps Observation squadron. It was assigned to the Fifth Corps Observation Group, First Army, August 7, 1918, and reached the Front at Souilly on September 8, 1918. It was engaged in the operations at St. Mihiel and the Argonne-Meuse first and second offensives. This squadron made many reconnaissances over the lines, fought 25 combats, was officially accredited with one victory and suffered four casualties, consisting of 2 killed, 1 wounded and 1 taken prisoner. The squadron ceased operations December 19, 1918.

One Hundred Thirty-eighth: A charging goat under full speed about to pass through the numeral V is the insignia of the One Hundred Thirty-eighth Squadron.

The One Hundred Thirty-eighth Aéro Squadron was a pursuit squadron. It was assigned to the Fifth Pursuit Group, Second Army, on October 28, 1918, but due to the signing of the Armistice, a few days later, it did not function on the Front.

One Hundred Thirty-ninth: The One Hundred Thirty-ninth was represented by an outline figure of flying Mercury.

The One Hundred Thirty-ninth Aéro Squadron
was a pursuit squadron. It was assigned to the First Army on June 12, 1918, and reached the Front at Toul on June 30 following. This squadron was engaged in operations in the Toul Sector, at St. Mihiel and the Argonne-Meuse first and second offensives. It accomplished 160 patrols and various other war missions, fought 80 combats and received confirmation for 34 victories. It suffered 8 casualties, consisting of 3 killed, 2 wounded, 1 taken prisoner and 2 missing. It ceased operations December 11, 1918.

One Hundred Forty-first: Insignia: Great Bengal tiger playing with a German helmet and iron cross.

The One Hundred Forty-first Aéro Squadron was a pursuit squadron. It was assigned to the Fourth Pursuit Group, Second Army, on October 18, 1918, and the next day reached the Front at Toul. This squadron was engaged in the Argonne-Meuse first and second offensives. It accomplished many patrols and war missions into German territory, gaining a great deal of valuable military information. It received official confirmation for bringing down two enemy aircraft. The squadron suffered no casualties before the Armistice and ceased operations May 11, 1919.

One Hundred Forty-seventh: A cartoon of a rat terrier is used to represent the One Hundred Forty-seventh Aéro Squadron.

The One Hundred Forty-seventh Aéro Squadron was a pursuit squadron. It was assigned to the First Army on May 29, 1918, and reached the Front at Toul on June 1st. The squadron was engaged in operations in the Toul Sector, at Chateau-Thierry, St. Mihiel and the Argonne-

Meuse first and second offensives. This squadron accomplished many patrols and raids over German territory, fought 102 combats and received official confirmation for 31 victories. It suffered 8 casualties, consisting of 7 killed and 1 missing. It ceased operations on December 5, 1918.

One Hundred Forty-eighth: The head of Liberty in a circle was the insignia of the One Hundred Forty-eighth Aéro Squadron.

The One Hundred Forty-eighth Squadron was a pursuit squadron. It was assigned to the Fourth Pursuit Group, Second Army, November 4, 1918. This squadron had previously been assigned with the Royal Air Force July 20, 1918, and had taken part in British operations up until it had been assigned to the Second Army. This squadron had accomplished many patrols over the enemy lines, fought 107 combats and received official confirmation for 71 victories. The squadron suffered 11 casualties, consisting of 3 killed, 3 wounded, 4 taken prisoner and 1 missing. It ceased operations December 11, 1918.

One Hundred Fifty-fifth: The One Hundred Fifty-fifth Squadron had for its insignia the head of a large arrow, pointed upward.

The One Hundred Fifty-fifth Aéro Squadron was a night bombardment squadron. It was assigned to the First Army on November 9, 1918, but, owing to the Armistice being signed two days later, it never functioned on the Front. It ceased operations December 4, 1918.

One Hundred Sixty-first: Insignia: A grinning clown with a cap and ruff.

One Hundred Sixty-second: The insignia of the One Hundred Sixty-second is a silhouette map of the United States.
One Hundred Sixty-third: The One Hundred Sixty-third shows the silhouette of a cat with one eye closed, standing on a bomb.

The One Hundred Sixty-third Aero Squadron was a day bombardment squadron, and was assigned to the Second Day Bombardment Group, Second Army, October 27, 1918, reaching the Front three days later at Ourches. It engaged in the operations of the Argonne-Meuse first and second offensives. It accomplished several war missions during this period of activity, but never received official confirmation for any victories, neither did it suffer any casualties. It finally ceased operations April 8, 1919.

One Hundred Sixty-sixth: Insignia: Includes the sun with a pair of wings made of the American flag. In the foreground is a map of Europe, with Germany distinctly marked, while a hand, armed with an aerial bomb, hovers over it, ready to drop the bomb.

The One Hundred Sixty-sixth Aero Squadron was a day bombardment squadron. It was assigned to the First Day Bombardment Group, First Army, September 20, 1918, and reached the Front at Maul on about September 25th. This squadron engaged in operations in the Argonne-Meuse, first and second offensives. It accomplished 11 war missions and bombing raids into German territory, fought off many German attacks and received official confirmation for 6 victories. It suffered 4 casualties, consisting of 1 killed and 3 wounded. It ceased operations April 7, 1919.

One Hundred Sixty-eighth: Insignia: A winged skull in a circle.

The One Hundred Sixty-eighth Aéro Squadron was a Corps Observation squadron. It was assigned to the Fourth Corps Observation Group, First Army, on September 30, 1918, and reached the Front at Toul October 5th, following. It was engaged in operations of the Argonne-Meuse, first and second offensives. It accomplished many war missions and reconnaissances over the German lines, gaining much valuable military information, fought several combats and received official confirmation for two victories. It suffered no casualties and ceased operations May 11, 1919.

One Hundred Sixty-ninth: Insignia: An unusual hieroglyphic, somewhat similar to the monogram CB.

One Hundred Seventy-fourth: Insignia: A black alley cat on a fence silhouetted against the moon.

One Hundred Eighty-fifth: Insignia: A silhouette of a bat within a circle.

The One Hundred Eighty-fifth Aero Squadron was a night pursuit squadron. It was assigned to the First Pursuit Group, First Army, October 5, 1918, and reached the Front at Remecourt, three days later. It participated in the Argonne-Meuse first and second offensives. The squadron accomplished several night patrols into Germany, suffered only one casualty, one pilot being taken prisoner, and never received confirmation for any victories. It ceased operations on April 10, 1919.

One Hundred Eighty-sixth: Insignia on page 135. This squadron was an Army observation squadron. It was assigned to the First Army Observation Group, First Army, October 27, 1918,
and reached the Front at Scouilly two days later. It participated in the operation of the Argonne-Meuse two offensives. Up to the signing of the Armistice it had suffered no casualties and had never received confirmation for any victories. On April 10, 1919, it was assigned to the Army of Occupation.

_**Two Hundred Thirteenth:** Insignia: The head of an American Indian facing the right, with two feathers in his scalp lock.

The Two Hundred Thirteenth Squadron was a pursuit squadron. It was assigned to the First Army on August 4, 1918, having reached the Front at Vaucouleurs July 26, preceding. It was engaged in operations in the Toul Sector, at St. Mihiel and in the Argonne first and second offensives. This squadron made 148 raids into German territory, fought 38 combats and received official confirmation for 16 victories. It suffered 10 casualties, consisting of 2 killed, 3 wounded, 4 taken prisoners and 1 missing. It ceased operations on April 10, 1919.

_**Two Hundred Forty-eighth:** Insignia: A black cat wearing a broad grin and decorated with a large bow neck-tie made of an American flag.

The Two Hundred Forty-eighth Aéro Squadron was a Corps Observation squadron. It was assigned to the Seventh Corps Observation Group, First Army, on September 10, 1918, and reached the Front at Luxeuil on September 19th. It was engaged in operations in the Vosges Sector.

_**Two Hundred Fifty-eighth:** Insignia: Reproduction of a lion, apparently carved out of stone.

The Two Hundred Fifty-eighth Squadron was a Corps Observation squadron. It was assigned to the Seventh Corps Observation Group, September 10, 1918, and reached the Front at Luxeuil September 19th. This squadron was engaged in the operations in the Vosges Sector. It was finally assigned to the Army of Occupation on April 10, 1919. During its activity on the Western Front it did not suffer any casualties, nor gain any victories which received official confirmation.

_**Two Hundred Seventy-eighth:** Insignia: Flying Owl.

The Two Hundred Seventy-eighth Aéro Squadron was an Army observation squadron. It was assigned to the Seventh Corps Observation Group, Second Army, October 29, 1918. It reached the Front at Toul November 10; this squadron did not function on the Western Front and was finally ordered demobilized May 11, 1919.

_**Three Hundred Fifty-fourth:** Insignia: A witch mounted on a broomstick supplied with model airplane equipment.

The Three Hundred Fifty-fourth Aéro Squadron was a Corps Observation squadron. It was assigned to the Sixth Corps Observation Group, Second Army, October 21, 1918, and reached the Front at Saizerais four days later. It was engaged in the Argonne-Meuse first and second offensives. This squadron made several reconnaissances over the German lines and gained a great deal of valuable military information. It neither gained any official victories nor suffered any casualties, and was finally ordered demobilized May 11, 1919.

_**Three Hundred Seventieth:** Insignia: A triangle with a star in the centre.

_**Four Hundred Eighty-sixth:** Insignia: A large star or comet, with six smaller stars in its wake.

_**Six Hundred Thirty-eighth:** Insignia: A half-starved cat superimposed on the numeral V, signifying the Fifth Pursuit Group.

The Six Hundred Thirty-eighth Aéro Squadron was a pursuit squadron, and was assigned to the Fifth Pursuit Group, Second Army, on October 28, 1918. It did not function on the Front before the Armistice and was finally ordered demobilized on May 11, 1919.

_**Eleven Hundred and Fifth:** Insignia: A winged elephant.
WELCOME HOME!

15 October 1988

USAF MUSEUM
Wright-Patterson Air Force Base, Ohio
Shoo Shoo Baby in profile in a rare photo of her wartime service while assigned to the 91st Bomb Group, 401st Squadron, Bassingbourn, England, a typical Allied Air Forces bomber base (bottom).
Schedule of Events

10:00 a.m.  Concert by U. S. Air Force “Airmen of Note” featuring WWII era music

10:50 a.m.  Fly-by, Shoo Shoo Baby with P-51 escorts*

11:00 a.m.  Shoo Shoo Baby lands at Wright Field

11:15 a.m.  Shoo Shoo Baby taxies to USAF Museum

11:20 a.m.  Welcome Remarks and History of Aircraft and Restoration
            Colonel Richard L. Uppstrom, USAF (Ret),
            Director, U. S. Air Force Museum

            Comments by General Alfred G. Hansen,
            Commander, Air Force Logistics Command

            Presentation of Shoo Shoo Baby
            Major General Roger P. Scheer,
            Chief, Air Force Reserve

            Recognition of and Presentation to Original Crew Members and Primary Restorers

            Closing Remarks

12:00 Noon  Shoo Shoo Baby available for exterior photographs

1:30 p.m.   Tour of the Month — “World War II Bombers” — USAF Museum

3:00 p.m.   Lecture by Don Sachs — “The B-17... A Legend in Its Time” — Museum Auditorium

*Shoo Shoo Baby Crew

Dr. William Hospers, Colonel, USAR (Ret), Pilot
Major Quinton Smith, Co-Pilot, 326 MAS
Robert Hospers, Flight Engineer
Fred Street, Mechanic

Escorts courtesy of “Moon” Spillers (P-51A) and Ron Runyan (P-51D)

WWII base operations living history courtesy of Association of Living History, Inc., Ohio Chapter
B-17Gs on the line at Boeing's Seattle plant.
The Story of The B-17

The Boeing B-17 Flying Fortress was probably the most famous of WWII combat aircraft. Described by Gen H. H. "Hap" Arnold as the “backbone of our world-wide aerial offensive,” the development of this airplane was unique in aviation history.

Boeing assumed the expense of the design and production of the 299, the bomber prototype that led to the B-17, and staked its entire future on this new airplane. The 299 first appeared on Boeing drawing boards in 1933. The first prototype flew on July 28, 1935.

The imminence of war brought numerous Fortress modifications with the B-17C as the result. Major change was the armament equipment. Of 38 built, 20 were sent to Great Britain in the Spring of 1941.

As a result of operational service of the B-17C, further alterations were made and forty-two B-17Ds were built and the "C's" modified.

The B-17E, of which 512 were built, was the first offensive model of the Fortress family. It first flew on September 5, 1941. In the Spring of 1942, Douglas and Lockheed production lines began turning out the B-17F model.

Last of the Fortress series was the B-17G, of which Boeing built 4,035. The last Boeing-built B-17G was delivered April 13, 1945.

A total of 12,731 Fortresses were built in all series. This included 6,981 by Boeing, 3,000 by Douglas, and 2,750 by Lockheed.

One of the most famous B-17s was "Alexander the Swoose," a D model which averaged 150 combat hours a month for a wartime record. It was one of 21 Fortresses which broke speed records from the United States to the Philippines two months before Pearl Harbor. Eight months later it was the only known survivor of its squadron.

A total of 4,750 B-17s were lost on combat missions, more than any other type of aircraft. This was because the Forts did so much of the fighting. The Forts shot down an average of 23 enemy fighters on a thousand-plane raid, compared with 11 shot down by U.S. fighters.

During the war, B-17s dropped a total of 640,036 tons of bombs on European targets. This compares with 452,508 tons dropped by B-24 Liberators and 436,544 tons dropped by all other U.S. aircraft.

At its peak, Boeing was producing 16 B-17s per day. A complete set of B-17 master drawings would total over 600 for major assembly and installation points alone. (USAFM/RD)
“Shoo Shoo Shoo Baby”—The Song

The song “Shoo Shoo Shoo Baby” was written in 1943 by Phil Moore and first recorded by the Phil Moore Four. The most popular version was apparently recorded by The Andrews Sisters on the Decca label. Another popular version was made by Ella Mae Morse on the Capitol label. A third female vocalist to record the song was Georgia Gibbs for Corar records.

Band Leader Jan Garber had a record with two hits of 1943, “Shoo Shoo Shoo Baby” on one side and “They’re Either Too Young or Too Old” on the other side. Lize Tilton was his lead vocalist and the company was Hit Records.

After the war a collector’s edition of 45’s was issued featuring Glen Miller and the Army Air Force Band. Several Andrews Sisters album collections have featured the song. A Reader’s Digest Stereo album collection of songs of the 40’s also included the song.

![Sheet Music]

The most popular sheet music version of the song was the 1943 edition by Leeds Music with the Andrews Sisters on the cover. There were at least two versions of this edition promoting the song as it was featured in the Universal Pictures release, “Three Cheers for the Boys.” Another version featured the three female leads of the Columbia Pictures’ release, “Beautiful but Broke,” which also had the song as part of the movie. Other versions include a copy printed in England with the Joe Loos Orchestra.
**History of Shoo Shoo Baby**

**SHOO SHOO BABY** is the last known B-17G that exists today which flew combat missions during World War II and has been completely restored by volunteers of the 512th Military Airlift Wing (Associate), United States Air Force Reserve, and members of the 512th Antique Aircraft Restoration Group, Dover Air Force Base, Delaware.

Shoo Shoo Baby has been under the care of MSgt Ray McCloskey and his team of volunteers since 1978 when the Air Force Museum accepted the offer of the 512th to restore the aircraft.

Boeing B-17G-35-BO was assigned the serial number 42-32076 and delivered from the Seattle plant to Wright Field, Ohio, January 24, 1944. It was then delivered to the US Army Air Corps depot in Burtonwood, United Kingdom, March 2, 1944. Following her assignment to the 401st Bomb Squadron, 91st Bomb Group, 8th Air Force, she was flown in combat for the first time March 24 by Lieutenant Paul McDuffee, Allied Air Force Station, Bassingbourn, England.

That first bombing mission was a raid on Frankfurt, Germany. During the next two months, Lt. McDuffee and his aircrew completed 19 more raids into Germany and France. Her combat duty ended May 29, 1944 during a raid against Posen, Poland, when engine troubles forced her new pilot, Lt. Robert Guenther, to land the plane in neutral Sweden.

"Shoo Shoo Baby" was one of nearly seventy B-17s to force-land in neutral Sweden, and one of three from the 91st Bomb Group.

The Swedish government was officially given seven B-17s as a gift and in exchange, our American flight crews were repatriated. "Shoo Shoo Baby’s" nose was lengthened three feet with provisions made for accommodating fourteen passengers and 4,400 pounds of cargo in the bomb bay.

She was first registered as SE-BAP in November 1945 then went to the Danish Airlines as OY-DFA, affectionately known as "Stig Viking". During her tenure as a passenger airline, she flew to such locations as Khartoum and Johannesberg as well as many other European points.

The Royal Danish Air Force obtained "Shoo Shoo Baby" and gave her the serial number 672 as well as another nickname, "Store Bjorn," meaning "Great Bear". After being fitted with special equipment, she was used for aerial survey work in Greenland. The Navy Air Arm of the Royal Danish Air Force also used her for the same purposes. During this period, "Shoo Shoo Baby" made flights to Iceland, Canada and one to her native land, the United States.

The Danish officially retired her from service in January 1953.

In 1955, "Shoo Shoo Baby" was purchased by the Babb Company of New York and they in turn sold her to the Institute Geographique National in Paris, France. She was then registered as F-BGSH and flew as a survey aircraft. She had windows installed in her floor for the geographic missions. She was retired for the last time in July 1961.

Several years later, she was discovered by an Australian air historian and author, Steve Birdsell, on a ramp at Criel, France with her engine missing. He contacted the 91st Bomb Group Memorial Association and the efforts were begun to save her from the scrap heap.

As a gesture of friendship to the United States, the French government presented the B-17G "Shoo Shoo Baby" to American officials in 1971 for preservation by the Air Force Museum. The combat veteran was disassembled for shipment by truck to Frankfurt and then airlifted by C-5A to Wright-Patterson AFB, Ohio.

From the time of her arrival in June 1972, until July 1978, "Shoo Shoo Baby" sat in crates on the ramp at the Air Force Museum when the 512th Military Airlift Wing volunteered to restore the plane to her wartime condition.

A crew led by MSgt Ray McCloskey has literally put the "Flying Fortress" back together and she is now ready to join the ranks of other famous Air Force aircraft at the USAF Museum.

### OWNER/OPERATOR

| United States Army Air Force (Ferry Command) |  
| 8th Air Force, 91st Bomb Group, 401st Squadron |  
| Last Mission — Swedish Government |  
| Swedish Civilian Registration |  
| Danish Airliner |  
| Danish Army Flying Corps |  
| Danish Navy Flying Corps |  
| The Babb Co. Inc. N.Y. |  
| French National Geographic |  
| Retired from Service |  
| United States Air Force, Rhein Main AB, Germany |  
| United States Air Force |  
| United States Air Force |  
| 512th Military Airlift Wing |  
| United States Air Force Museum |  

### USAGE

| Delivery | Jan. 24, 1944 |
| Heavy Bomber | Mar. 1944 |
| Internment in Sweden | May 29, 1944 |
| Conversion to Airliner | Dec. 4, 1944 |
| Airliner | Nov. 2, 1945 |
| Airliner | Nov. 5, 1945 |
| Mapping | Mar. 31, 1948 |
| Survey | Dec. 1, 1949 |
| Resale | Feb. 2, 1955 |
| Mapping | May 6, 1955 |
| Storage at Criel, France | Jul. 15, 1961 |
| Disassembled for Shipment | Jan. 23, 1972 |
| Airlifted to Wright-Patterson AFB | Jun. 14, 1972 |
| Storage | June 1972 |
| Restoration | July 1978 |
| Display | Oct. 15, 1988 |
# Shoo Shoo Baby Crew Members

## Pilots
- Lt John L. Black
- Lt Philip R. Goynes
- Lt Roy J. Griesbach
- Lt Robert J. Guenther
- Lt Thomas H. Gunn
- Lt Paul G. McDuffee
- Lt Sam Newton

## Co-Pilots
- Lt Ralph J. Bell
- Lt Harold R. DeBolt
- Lt Richard T. Fressey
- Lt George Havrisik
- Lt John E. LaFontin
- Lt Joseph J. Kozina
- Lt Walter R. Langford
- Lt Charles R. Peck
- Lt Bert Stiles
- Lt Robert J. Guenther

## Navigators
- Lt Grant H. Benson
- Lt Howard L. Hutchinson
- Lt Frank T. Kenley
- Lt John M. Lowdermilk
- Lt John P. McLaren
- F/O Apu E. Pinkerton
- Lt John W. Ryan
- Lt John R. Simonson
- Lt Lawrence F. Sylvester, Jr.
- Lt Benjamin H. Yarborough

## Bombadiers
- Lt Lester Biot
- Lt Donald R. Bird
- Lt Maurice A. Bonomo
- Lt Leo D. Godfrey
- SSgt William A. Grant
- Lt Patrick N. Kennedy
- Lt Leonard V. Peterson
- Lt John R. Piland
- Lt Jerome D. Pope
- SSgt Elmer Weaver, Jr.

## Top Turret
- SSgt Stewart B. Butler
- TSgt Joe Z. Cardwell
- SSgt Eugene J. Letalien
- TSgt William F. Lewis
- TSgt George W. Parks
- Sgt Sebastiano F. Ripa
- TSgt Richard R. Saffell
- TSgt James Shoesmith
- SSgt Harry A. Soderberg
- TSgt Samuel L. Sommers, Jr.
- TSgt Emil J. Viskocil

## Radios
- TSgt Daniel S. Abeles
- SSgt John P. Armstrong
- TSgt John H. Bigham
- TSgt Charles R. Braman
- TSgt Robert G. Hartford
- SSgt Jack L. Sayre
- TSgt Russell D. Shields
- TSgt Edwin C. Ross

## Left Waist
- SSgt Charles E. Clark
- SSgt Robert O. Duncan
- SSgt Daniel E. Harrington, Jr.
- SSgt John Hinda
- Sgt Walter Peacock
- Sgt Harry R. Small
- Sgt Bernice L. Stanton
- Sgt Eldon H. Hughes

## Right Waist
- SSgt Harry V. Banes
- SSgt Jack S. Bond
- SSgt Charles M. Borchert
- Sgt Harvey W. Brundage
- SSgt Junior H. Clifton
- SSgt Basil J. Crone
- SSgt Leland H. Fleming
- Sgt Eldon H. Hughes
- SSgt Robert J. Jackson
- SSgt Barry V. Lane
- SSgt Harold F. Nicely

## Ball Turret
- SSgt Andrew Adelbo
- SSgt Gordon E. Beach
- SSgt George H. Bogert
- SSgt Price D. Dougherty
- SSgt Freeman A. Ford
- SSgt Nick P. Premkeni
- Sgt Ralph E. Rigaud
- SSgt Donald E. Schwab

## Tail Gunner
- Sgt Marion F. Allen
- SSgt Paul C. Bara
- SSgt Edward J. Gallagher
- SSgt John D. Hamner
- SSgt Maurice P. LaCasse
- SSgt Edward L. Sharpe
- SSgt SSgt Harry R. Small
- SSgt Robert D. Smith
- SSgt Harry J. Teems
- SSgt Woodrow W. Tressler

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* Crew members of first combat mission 24 March 1944
** Crew members of last combat mission 29 May 1944
Shoo Shoo Baby's Combat Record

<table>
<thead>
<tr>
<th>Date:</th>
<th>Target</th>
<th>Pilot</th>
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<tbody>
<tr>
<td>24 Mar</td>
<td>Frankfurt</td>
<td>Lt Paul McDuffee</td>
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<tr>
<td>26 Mar</td>
<td>Marquis-Mimbyecques</td>
<td>Lt Paul McDuffee</td>
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<td>27 Mar</td>
<td>St Jean D'Angeley</td>
<td>Lt Paul McDuffee</td>
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<td>28 Mar</td>
<td>Reims-Champagne</td>
<td>Lt Paul McDuffee</td>
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<tr>
<td>8 Apr</td>
<td>Oldenburg</td>
<td>Lt Paul McDuffee</td>
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<tr>
<td>9 Apr**</td>
<td>Marienburg</td>
<td>Lt Paul McDuffee</td>
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<td>11 Apr</td>
<td>Stettin</td>
<td>Lt Paul McDuffee</td>
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<tr>
<td>18 Apr</td>
<td>Oraniernburg</td>
<td>(Believed McDuffee)</td>
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<tr>
<td>20 Apr</td>
<td>Croissette-Beauvoir</td>
<td>Lt Paul McDuffee</td>
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<tr>
<td>22 Apr</td>
<td>Hamm</td>
<td>Lt John L. Black</td>
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<tr>
<td>25 Apr</td>
<td>Brunswick</td>
<td>Lt Roy Griesbach</td>
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<td>28 Apr</td>
<td>Avord</td>
<td>Lt Philip Coynes</td>
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<tr>
<td>29 Apr</td>
<td>Berlin</td>
<td>Lt Roy Griesbach</td>
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<tr>
<td>1 May</td>
<td>Troyes</td>
<td>Lt Thomas Gunn</td>
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<td>7 May</td>
<td>Berlin</td>
<td>Lt Paul McDuffee</td>
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<td>11 May</td>
<td>Konzkarthus</td>
<td>Lt Paul McDuffee</td>
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<td>13 May</td>
<td>Stralsund</td>
<td>Lt Robert Guenther</td>
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<td>19 May</td>
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<td>22 May</td>
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<td>24 May</td>
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<td>Lt W. Langford</td>
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<td>25 May*</td>
<td>Nancy/Essey</td>
<td>Lt Sam Newton</td>
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<td>Lt R. Cable</td>
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<td>28 May*</td>
<td>Dessau</td>
<td>Lt W. Langford</td>
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<tr>
<td>29 May</td>
<td>Poznan</td>
<td>Lt Robert Guenther</td>
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*Mission Aborted

**On this day the 91st wing was recalled, however, two airplanes, Shoo Shoo Baby from the 401st and Lt Fred Gardner's 42-97563 from the 323rd Squadron, attached themselves to the 41st Combat Wing and completed the mission.
Her Makeup through the Years

She's forty-four this year, but she certainly doesn't show her age. Since her "birth" in a factory four decades ago, she has definitely lived a full life.

"Shoo Shoo Baby" was built by the Boeing Aircraft Co. in Seattle, Washington. She is B-17G-35-BO, Serial #4232076. This means she was in the thirty-fifth block of "G" models built by Boeing. The first digit of the serial number shows it was built in 1944. "Shoo Shoo Baby" was delivered to Bassingbourn, England, home of the 91st Bomb Group, in March of 1944.

In the next three months, she flew 21 successful missions, but on her 24th mission to Posen, Poland the #3 engine failed shortly after crossing the German border. "Baby's" crew continued to the target and dropped their bomb load but lost a second engine over the target. When it became obvious that they would not reach England, the crew headed for the neutral border of Sweden, ditching all loose equipment on the way. On final approach to Malmo, Sweden, a third engine failed, but the crew successfully landed the aircraft.

In December 1944, the Swedish government was officially given "Shoo Shoo Baby" and six other aircraft, which were converted for airline use. The Danish airlines received her in November 1945, and used her in passenger service until 1948, when the Danish Army Flying Corps bought her for use in radio communications and transport work. In 1953, she was retired from service, and in 1955, the Babb Company (an airplane broker) bought her and resold her to the French Institute Geographique National for high altitude survey mapping work.

In 1961, she was again retired and sat on the airfield at Creil, France, until 1971, when negotiations were completed in which the French, as a gesture of friendship, donated the plane to the United States. In January 1972, a USAF maintenance team arrived to disassemble her for the trip to Frankfurt, Germany, for shipment to the United States Air Force Museum at Wright-Patterson AFB in Ohio. Ironically, "Shoo Shoo Baby" bombed Frankfurt on her first wartime mission.

The B-17 sat in her packaging crates at the Air Force Museum until March 1978, when the 512th Military Airlift Wing offered to restore "Shoo Shoo Baby" to her original flying condition as a combined public service and maintenance training project. After arrangements were completed in July 1978, the aircraft was shipped to Dover AFB. The bomber originally had a bare metal finish, but 16 years of neglect outdoors, the deterioration of the aluminum coating on the skin, and the replacement of large sections of damaged or modified skin have made painting "Shoo Shoo" a necessity. It is now painted in the proper colors for aircraft used in the same squadron before the bare metal finish came into use. Tony Starcer, the original artist, repainted the Vargas pin-up girl on the plane.

The restoration project was financed in part from funds of the Air Force Museum. The largest portion of the B-17 restoration's financing came from sales of shirts, caps, and other memorabilia by the 512th Antique Aircraft Restoration Group, and by monetary donations from civic groups, World War II memorial associations, scout groups, and individual contributions of the public. All of the restoration work was done by volunteers. (Compiled from 512th MAW/PA)
Recovery from France

In early February 1972, the last of a 12-man U.S. Air Force crew returned to Wiesbaden AB from a World War II bomber mission in France.

No, the airmen had not been missing for the past 28 years — they had been on this bomber mission for less than two weeks.

The men, all stationed on Wiesbaden AB, were sent into France to recover a famous B-17 “Flying Fortress” bomber for the Air Force Museum in Ohio.

It seems the B-17 on display at the museum has no combat time and the one in France had a colorful European war record.

Named “Shoo Shoo Baby,” this war-experienced B-17’s last war action was a bombing raid on Posen, Poland, May 29, 1944. It was last reported with its number four engine smoking after dropping bombs on the target.

Later it was learned “Shoo Shoo Baby” had made it to Sweden where the crew and aircraft were interned. The aircraft after the war was given to that country. Still later “Shoo Shoo” was modified into a transport in Denmark and eventually sold to France where she was used until 1961.

After many months of negotiations between the U.S. air attache in Paris and the French government, “Shoo Shoo Baby” was given to the U.S. Air Force in late 1971.

Air Force contacted HQ USAFE for assistance in getting the Fort out of France. USAFE tasked the 7101st Air Base Wing and the wing selected a six-man aircraft maintenance team and another six-man transportation team.

CMSgt William D. Quinn of the 7101st Materiel Sq., was the project officer and maintenance team chief. He was assisted by SMSgt Elton P. Strom, MSgts Martin R. Maez, Sr., and Clarence G. Varnell, Jr., TSgt Ronald T. Cwetna and SSgt Billy G. Robinson, all from the 7101st Materiel Sq.

Transportation team chief, TSgt Claude W. Edmonds was assisted by SSgts Donald C. Kirtley and Clarence F. Switzer, Sergeants Robert L. Johnson, Jr. and Larry Jones and A1C Dennis H. Yamauchi all from the wing’s Transportation Division.

The airmen were not to fly the veteran aircraft out — they were to disassemble it and “drive” it out loaded on tractor trailers.

If their job seems easy consider the following:

- The weather in France during their TDY period was either raining, snowing or freezing;
- Many aircraft parts were time-welded (frozen) together as the last maintenance had been performed in the 1960s;
- Many parts had to be cut to permit the vehicles to stay within the French and German load limits, and finally,
- Each round trip from the French air base to Wiesbaden required 18 hours of driving time. Seven vehicle loads were required.

The last truckload of parts of “Shoo Shoo Baby” arrived at Wiesbaden AB Feb. 5. On Wiesbaden she underwent a piece-by-piece classification, packing and crating.

“Shoo Shoo Baby” flew her last mission in style — she was flown out of Rhein-Main AB inside a giant C-5 Galaxy June 14. Her destination: an honored spot in the Air Force Museum, Wright-Patterson AFB, Ohio. (George Sterling, Wiesbaden Post, June 30, 1972)
THE clatter of a rivet gun lets you know she’s not your typical pretty lady preparing for a special date. Instead of makeup, she’s wearing green paint; and instead of earrings, machine gun turrets. No, she’s not really a lady—she’s a renovated WW II bomber named “Shoo Shoo Baby.”

She arrived at Dover AFB in 27 crates in July 1978 after the 512th Military Airlift Wing (Associate) agreed to restore her as a public service and training project.

The project was no small task, depending solely on volunteers to slowly piece “Baby” back together.

“It’s been a total community effort to put the airplane back together,” said Col Keith Reiling, 512th MAW commander, explaining that hundreds of volunteers from both wings, as well as other interested parties did everything from scraping off old paint to hanging propellers to giving tours.

Four of the volunteers, Ray McCloskey, Vic Rossica, Dan Vasey, and Tom Corbeil, have been with “Baby” since she arrived.

McCloskey said most of the group are ‘jacks of all trades.’

“Tom Corbeil is basically the only specialist of the group,” he said. “He’s done all of the painting and some of the corrosion work. The rest of us have done everything from sheet metal to assembling the props. I’ve done the electrical wiring and intercom system.”

McCloskey, project manager, said the first part of the renovation was to splice about four feet of nose section that was removed onto the airplane.

“Next the radio compartment, extra seats and windows were installed. Once the flooring and structure for the ball turret in the center of the fuselage was complete, the forward and aft fuselage were put together.”

Then it was time to start installing the parts of her that would make her fly. They started with the vertical stabilizer, two horizontal stabilizers, rudder and two elevators.

“Then we worked on the right wing for a year and a half.” he said. The left wing was next, then came the main landing gear. “Shoo Shoo Baby” was then taken off the supporting jacks and set on the floor, he said.

The fuel tanks, engines, wiring and systems were then installed.

“Putting on the wings was the brute work; putting the systems together was the intricate part,” McCloskey said. And how does it feel knowing that their 10-year project is finished?

“I thought about it years ago,” said Vasey, “but that day was so far away I didn’t worry about it coming. Now it’s here.”

McCloskey said it would be nice to keep the combat veteran flying instead of settling down where she will only be looked at, “but that’s too risky.”

“You always take the chance of something happening to the airplane. If it were to crash, you would lose it forever. It’s best to have it in a static setting where a lot of people can come in and appreciate the airplane.”

Vasey said they accepted from the beginning that the airplane never really was theirs. “You always knew that it belonged to the Air Force Museum. You just kind of accept that and strive to get it flying for the final flight.”

Vasey said it has been a rewarding project to see the systems all starting to work again. The first time we put power on and saw the lights operate, saw the gears go up and down, and saw the flaps move, it was like the airplane took a heartbeat and came alive again. It was an exciting moment.”

On the weekend of Aug. 13 and 14 it was time to test further.

Dr. William Hosper, retired Army colonel who privately owns a B-17, was selected to fly “Shoo Shoo Baby” to the Air Force Museum. Together with the co-pilot for the mission, Maj. Quinton Smith from the 326th Military Airlift Squadron of the 512th MAW, he took the airplane out Aug. 13 for a high speed taxi test.

“They took her down runway 19,” said Colonel Reiling, and accelerated to about 100 knots and found out she was very airworthy.” He said there was only a minor shimmying in the tail that was fixed that evening.

The following day the taxi test was repeated, with one addition—lift off.

The four renovators were also on board. “I felt very elated and proud that we had done the job we had set out to do,” said McCloskey. (TSGT Darrell Lewis, 436th MAW/ PA)
Shoo Shoo Baby arrives at Wright-Patterson AFB in June 1972. Her first combat pilot, Paul McDuffee, gives a greeting from the cockpit to Maj. General Stanley Wray as Colonel Bernie Bass looks on (above left). In July 1978, personnel of the 512th MAW, Dover AFB, Del., off-load Shoo Shoo Baby from a C-5 Galaxy to begin a ten year restoration project (above right). Volunteers of the project prepare Shoo Shoo Baby before pinning on her wings (right) as project officer MSgt Ray McCloskey works on an oil cooler (below). The late Tony Starcer, her original artist, recreates the Vargas pin-up on her nose (lower right). Shoo Shoo Baby in the B-17 hangar at Dover AFB waiting for new props and a "nose job" (bottom).
As a footnote to this ceremony at the USAF Museum to welcome Shoo Shoo Baby home, it is impossible to mention by name all the thousands of people and numerous organizations who contributed time, talent and money to this historical event which further preserves the tradition and history of the United States Air Force. Yet, a few must be singled out without offending others who have kept the dream and legacy of Shoo Shoo Baby alive for the past twenty years. They are:

Steve Birdsall who found her
Robert C. Seaman, Jr., former Secretary of the Air Force
General Bryce Poe, Jr., USAF (Ret),
  former Deputy Chief of Staff/Logistics,
  Hq. USAFE and Commander, Air Force Logistics Command
Major General Stanley T. Wray, USAF (Ret),
  former 91st Bomb Group Commander
Colonel Joseph D. Hornsby, USAF (Ret), former Director, USAFM
Colonel Bernie S. Bass, USAF (Ret), former Director, USAFM
Mark C. Sloan, former Director and Curator, USAFM
Royal D. Frey, former Chief, Research Division and Curator, USAFM
Richard E. Baughman, former Chief, Public Affairs, USAFM
Captain Thomas C. Harrington, USAFE Recovery Project Officer
CMSgt William D. Quinn, USAF (Ret),
  Recovery Team Chief, 7101st Material Squadron, USAFE
MSgt Michael Leister, original Restoration Project Coordinator,
  512th MAW (AFRES)
MSgt Raymond J. McCloskey, Restoration Project Officer,
  512th MAW (AFRES)

Members of the Office of the Air Attaché,
French Institut Geographique National
Government of France
91st Bomb Group Memorial Association
Members of the Art and Museum Branch, Community Relations Division,
  Secretary of the Air Force Office of Public Affairs
Eighth Air Force Historical Society
Members of the 512th Military Airlift Wing (Associate) (AFRES)
Members of the 436th Military Airlift Wing (MAC)
Air Force Logistics Command
Military Airlift Command
United States Air Force Reserve
United States Air Forces, Europe

Colonel Keith T. Reiling
Commander, 512th MAW

512th Antique Aircraft Restoration Group, Inc.
Colonel Emmett Venett, Jr. – Chairman

Members
MSgt Raymond McCloskey  SMSgt Vic Rosica
TSgt Dan Vasey  2Lt Roberta L. Buchmoyer
MSgt Tom Corbeil  James Reed, (Ret), USAF
Ms Jan Sibbald, Civilian

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26950 A.C. - Solingen, Germany - Adverse weather continues over continent, but U.S. Army Air Forces Boeing B-17s attack Germany’s Largest Light Metal Alloy Works. (Cloud Carpet at 25,000) Dec. 1, 1943.

A-26950 A.C. - Solingen, Germany - Adverse weather continues over continent, but U.S. Army Air Forces Boeing B-17s attack Germany’s Largest Light Metal Alloy Works (Group Leader Releases)

B-26950 A.C. - Solingen, Germany - Attacking Focke-Wulf FW-190s as seen from Boeing B-17.
CLOUD CARPET AT 23,000'.
GROUP LEADER RELEASES.
51639 AC - TEAMWORK -- Bombs can be seen dropping from the bomb bay doors of these Boeing B-17 Flying Fortresses of the U.S. Eighth AAF during one of their recent missions deep into Germany...

U. S. AIR FORCE PHOTO
75272 A.G. - Consolidated B-24 "Liberators" fly in formation while en route to bomb enemy installations at Dortmund, Germany. 11 Nov. 1944.

U.S. AIR FORCE PHOTO
52746 AC - A formation of U.S. 8th AAF B-17 Flying Fortresses launch their bombs down onto Nazi Communications centers during one of their recent daylight attacks deep into Germany.

U.S. AIR FORCE PHOTO
More B-24 Liberator bombers were deployed during World War II than any other type of four-engined bomber. Approximately 18,000 of the Consolidated Vultee-designed bombers were constructed, in addition to nearly 1,800 equivalent spares. Consolidated Vultee later became known as Convair and merged with General Dynamics. More than 3,000 B-24s and C-87 cargo versions of the aircraft were assembled at General Dynamics' Fort Worth Division during World War II.

Formations of B-24s were used on the extremely long-range bombing missions in all theaters of the war, dropping an impressive total of 634,831 tons of bombs. They pounded enemy installations in Europe and Africa; dropped tons of bombs throughout the Pacific zone of war; and played the major role in the successful battle of the American and British navies against enemy submarines. They flew a total of 312,734 sorties. Their .50 caliber machine guns knocked down 4,189 enemy aircraft. The U.S. Navy designation for the Liberator is PB4Y-1.
Transport versions, designated Liberator Express C-87, were extensively used to carry military equipment and personnel on transoceanic and other long-range flights.

Toward the end of the war a single tail version, known as the B-24K and B-24N, was designed, but only a few were built.

Maximum speed of the B-24 was over 300 mph, and maximum cruising speed was 230 mph. The Liberator operated at gross weights ranging from 56,000 to 66,000 pounds. Under emergency conditions, B-24s have taken off with a gross weight of 72,000 pounds.

Heavily armed, the B-24J Liberator was equipped with four power operated turrets, each mounting twin .50 caliber machine guns. Two waist .50 caliber guns also were provided. It was powered by four Pratt & Whitney R1830 1,200 hp engines. Wingspan was 110 feet; length 67 feet two inches; height 18 feet.

More than 3,000 B-24s and C-87 cargo versions of the aircraft were assembled at General Dynamics' Fort Worth Division during World War II. B-24D in foreground was delivered June 28, 1943.
The nation's most modern heavy bomber when World War II ended was Consolidated Vultee's B-32 Dominator. Production of the new aerial weapon was getting into high gear when the war ended and the Army Air Force said the B-32 was no longer needed. A few of the 115 four-engine bombers arrived in the Pacific war zone and saw limited service in the closing days of the war. A crew from one of those B-32s is credited with shooting down the last Japanese fighter of the war.

Powered by four, 2,200 horsepower Wright engines, the B-32 had a maximum speed of 358 miles per hour and an average cruising speed of 250 miles per hour. Loaded with forty 500-pound bombs and 5,640 gallons of fuel, the B-32 had a range of 3,700 miles.
Each propeller had four blades that were nearly 12 feet long. Made by Curtiss, they were the largest used on a production aircraft in 1945. A synchronizer provided constant speed control for each engine by altering the propeller blade angles automatically. The B-32 was the first American aircraft to have the synchronizers as a production item.

Wingspan of the B-32 was 135 feet; it was 83 feet long and 32 feet high. The tail fin, which was 19 feet tall, was the B-32's most distinctive feature. The first two B-32's manufactured had a fin similar to that on the B-24, which was also made by Consolidated.

The B-32 carried ten .50 caliber machine guns, mounted in five powered turrets. A crew of eight normally was used to fly the aircraft.

During the closing months of World War II, 115 B-32 bombers were assembled at General Dynamics' Fort Worth Division.
The B-36s produced by Convair-Fort Worth (now the Fort Worth Division of General Dynamics) were the world's largest bombers. At speeds of more than 435 miles per hour, the B-36 could carry a heavier load of bombs for greater distances than any other aircraft in the world. While the B-36s were never used in combat, they played a major role in the United States’ policy of “peace through airpower” during the troubled decade between 1948 and 1958. The last B-36 was retired from the Air Force on February 12, 1959.

While in service, the B-36 set many records. One B-36, which could carry more than 30,000 gallons of gasoline, flew more than 10,000 miles non-stop and non-refueled, dropping a 10,000-pound bomb load midway in the flight. Another dropped a total of 84,000 pounds of dummy bombs, the heaviest load of bombs ever carried by one airplane. The B-36 also carried more defensive firepower than any other bomber: eight remote turrets containing a total of sixteen 20-millimeter cannons.
An experimental transport version of the B-36, designated XC-99, was developed for the Air Force. Flying heavy loads of high priority cargo, the XC-99 established new cargo records with almost every flight. The XC-99 could haul 400 troops or 100,000 pounds of cargo.

Another experimental version of the B-36, the NB-36H, carried an operating atomic reactor in flight to test shielding and the effects of radiation on equipment.

The RB-36, which closely resembled the B-36 bomber, was also designed to carry large cameras and other special equipment needed for long-range, high altitude reconnaissance.

Maximum gross weight of the B-36 was about 400,000 pounds, its wingspan was 230 feet, length was 162 feet, and it was nearly 47 feet high. The latest models of the B-36 were equipped with four J-47 jet engines in addition to six 3,800-horsepower, pusher-type engines.

The 10 engines of the B-36 developed as much horsepower as nine locomotives, its wing tanks held enough fuel to drive a car around the world 16 times, and each B-36 electrical system required more than 30 miles of wiring.

General Dynamics Fort Worth Division produced 385 B-36s for the Strategic Air Command between 1947 and 1954.
The delta wing B-58 Hustler was the world’s first mach 2 Strategic Bomber when it entered operational service in 1959. During the ten years it was flown by the U.S. Air Force, the B-58 established 19 speed and altitude records. It was also highly accurate as a bomber because of its advanced navigation and weapons systems.

The Hustler, capable of high speed attack at altitudes up to 85,000 feet or flying at near sonic speeds at 500 feet, was flown from New York to Paris in three hours and nineteen minutes at an average speed of 1,089 miles per hour. A B-58 flew from New York to Los Angeles in 2 hours at an average of 1,214 MPH and from Tokyo to London in 8 hours and 35 minutes at an average speed of 938 MPH. These records, which were recognized with international trophies, were set by Air Force crews in standard combat-configured B-58s.
The B-58 Hustler carried a 20 mm. cannon in a tail turret with conventional and nuclear bombs and weapons beneath its large triangular wings.

It was powered by four J79-GE-5B General Electric engines delivering a total of 62,000 pounds of thrust in afterburner.

A three-man crew flew the B-58: a pilot, a navigator-bombardier, and a defensive systems operator. Only the pilot could see out the front windscreen. The two men behind him had very small windows on each side of their seats which also served as escape capsules in case of emergencies.

The B-58 was 96 feet long, had a wingspan of 56 feet, was 31 feet tall, and weighed 55,600 pounds. It was capable of flying more than 4,450 miles without refueling and could be refueled in flight.

Between March 1953 and October 1962, 116 B-58 Hustlers were assembled at General Dynamics' Fort Worth plant.
The F-16 Multimission Fighter is potent in both air-to-air and air-to-surface roles and combines advanced technology with a relatively low cost. Its maneuverability and combat radius exceed that of all threat fighters now in operation. Because the F-16, which went into production in 1977, is small, it is difficult to detect by sight or by radar and is hard to hit.

Multiple and varied weapons delivery modes provide delivery accuracies that are superior to other fighters under visual conditions and are second only to the General Dynamics F-111 under radar bombing conditions.

The F-16 is normally armed with one M-61, 20 millimeter rapid fire cannon and two AIM-9 Sidewinder heat-seeking missiles. The F-16 can also deploy a wide range of other external ordnance from missile launchers and bomb racks that are carried on nine stations, one on the fuselage centerline, six under the wings, and two on the wing tips.
The Fighting Falcon is powered by either a single Pratt & Whitney F100-PW-200 afterburning turbofan engine, which is in the 25,000-pound-thrust class, or a General Electric F110-GE-100 augmented turbofan engine, in the 27,000-pound-thrust class.

The F-16 is 47.64 feet long, has a wingspan of 32.83 feet with missiles, and has an overall height of 16.43 feet at the vertical tail. Empty, the F-16 weighs 16,529 pounds; the maximum takeoff weight is 37,500 pounds.

Air forces of many nations are flying the F-16, manufactured at General Dynamics' Fort Worth Division. Aircraft are also assembled in Europe. More than 4,000 F-16s have been ordered.
The F-111 and FB-111 are the only aircraft in the U.S. Air Force's arsenal that have wings which can change position in flight. The swing-wing tactical F-111 and the strategic bomber version, the FB-111, can take off and land at slow speeds with the wings fully extended and can fly at more than twice the speed of sound with wings that sweep back to form a triangle.

Another unusual feature of the F-111 is its terrain following capabilities, permitting it to be flown at very low altitudes beneath enemy radar. The F-111 is a highly accurate weapons system and some Air Force leaders have called it "the best bomber in the world". It has a two-man crew and can operate day or night in all kinds of weather.
The F-111 and the FB-111 are powered by two Pratt & Whitney TF30 engines, each of which generates 25,000 pounds of thrust. Conventional and nuclear weapons arm the F-111.

The F-111 has extended wingspan of 63 feet, a length of 73 feet, and a height of 17 feet. The wingspan of the FB-111 is 70 feet. The major differences between the F-111 and the FB-111 are the longer wings, a heavier landing gear, and special wing pylons for fuel tanks and weapons.

The last of the 562 F-111s, manufactured at General Dynamics' Fort Worth Division, rolled off the assembly line in September 1976.
SPECTRE IN THE NIGHT SKY

by Lt. Col. JAMES F. HUMPHRIES

Take a four engine cargo plane off the shelf, bolt a half dozen cannons to the deck pointing ominously out the left side, put in some sensors to see in the dark, add a gunsight for the pilot and a computer to help him with the ballistics and you have the ingredients of an airborne gunship.

As a fellow pilot, I had worked the hostile skies of Southeast Asia with the AC-130 Spectres many nights. I had seen the still-smouldering evidence of their effectiveness in harassing the flood of Communist truck traffic that ran the gauntlet of Laos each night. I had seen the triple A light up the sky where they were working with streams of red tracers and quick, staccato bursts of yellow white as the 37mm. antiaircraft shells detonated high above the trails.
STREAKING MEANIES

You develop a healthy respect for guys who go out when they know the possibilities are good that one of those streaking meanies might hit their aircraft. Droning round and round—high above the stealthy trucks of Laos, the Spectres launched repeated broadsides until the jungle yielded up its contraband in plumes of fire and exploding ammunition.

Unorthodox as it seemed, the concept works and the “Fabulous

The cargo version of the Herky was the workhorse of tactical airlift in Vietnam, and carried millions of pounds of cargo to remote, dirt airstrips.

Four Engine Fighters,” as the guys proudly call themselves, enjoyed the sterling reputation as the best truck killers in Southeast Asia.

This promised to be a long day. An intelligence briefing at 1400 hours, crew briefing at 1520, takeoff at 1715, a half-hour before sunset, and a long mission over the road network of the Ho Chi Minh Trail.

Knowing that the enemy paved the sky with steel, I ducked into the personal equipment shop and got fitted with a flak helmet. The weight of that bucket made one conscious of having a head on his shoulders. My own webbed survival vest was suitable for this visit on a strange airplane.

“Charlie”—the working man’s term for the enemy—was up to. Then the scoreboard. So many trucks moved last night, so many sighted by this wing, so many destroyed and damaged. Spectre got so many, the fighters so many, and the bombers so many. Everybody silently assessed the score.

A WA. lieutenant passed out some code words and special frequencies and advised us where to bail out if our luck ran out. “Have a good one,” wished the lieutenant, and we stumbled out of the briefing room.

MILLING CREWS

The squadron was full of crews milling around with bandoliers of small arms ammo sewed on their vests; .38 caliber revolvers hung conspicuously from web belts. Here and there a big knife: whatever a guy felt he might need if he found himself on the ground in Laos. It was considered better to wait for a helicopter pick and try to walk out through the jungle. The old guys frequented the gunslingers for an unhealthy to try a John shotout under such odds.

The crew briefing was like. Call all triple A by citation. Call whether it’s accurate. Call “Break” if the pilot to change course some of the enemy fire.

“If you hear three short the alarm bell, prepare for. One long ring—exit out the door or the ramp,” the commander continued.

A quick review of search and cue procedures served to mind us all that the stable.

Cutting off my plastic “sterilized” my fire resist drab flying suit, picked up and went off to get my together before boarding the plane.

The crew chief was working the wheel well when the Force bus drew up beside the black gunship brooding in and concrete revetments. Been working feverishly to get ready in time for the take off, and assured the commander that he was up the last panels.

“Starting three,” caller from the cockpit, and came alive. As the hydraulic pumps began their work, my ramp to a thirty degree angle. Comfortable, but I could sit the opening at the back of the compartment.

Taxiing past rows of the lumbering giant whined to the end of the run changed a hand wave with the field guard, and wonder would like to be aboard.

I was jolted from my reverie by the mounting roar of the engine runup pad. The late after flooded into the cargo compartment with howling eddies huge propellers. Dust swirled behind the airplane, erupting distant ditches and across the grass. The
engines were started as another jock gunship with red lettering rolled up to the quick check inspection area. I wondered if we were escort.

The skyline of trees and brown wooden bungalows and business establishments diminished behind us as the plane accelerated down the runway, leaving the sun to sink into the night. The glorious feel of wings grabbing air and lifting the machine gently off the ground.

SHIMMERING CORES

"Gear up!"

Wind swirled into the open cargo compartment from behind, blowing in my face. I was still sitting on the ramp, watching lakes and dirt roads and tin-roofed houses fall away beneath us. The hot exhaust gases from the engines formed a pair of shimmering cores behind each wing. A storage area slid into view, and a winding river flowed by a red-roofed temple. Six minutes after take-off the air was noticeably colder, making me wish I'd brought along my flight jacket.

Circling over the airfield from which we had just taken off, the aircraft commander began to hone his crew and his multimillion-dollar warplane to a razor's edge of perfection. Men and equipment had to work as one to be effective in the dark and hostile skies of Laos.

There are a number of ways of seeing in the dark, and the Spectres take advantage of the best of these. Officers, trained in the interpretation of these sensors' electronic scopes for activity below. They occupied a lighted booth in the darkened cargo compartment of this noisy airplane. Another officer monitored their searching and selected the sensor to be used to attack the target.

ORBING

In these few minutes orbiting over home plate, the booth was a busy place, as the fire control officer checked the alignment of each of his sensors. Satisfied that his operators were seeing eye to eye, the aircraft commander leveled his wings and headed the gunship toward the target area.

From a dark, open scanner's port on the starboard side of the cargo compartment came an unexpected question. "Pilot, from right scanner, are we airborne yet?" "Where's he been, I wonder..." the crew laughed, realizing that there was real camaraderie aboard the aircraft as the crew could still make light of going to war.

The pilot assured him that we were in fact airborne, and then to answer the question he had intended, advised him that we were now in the target area.

"Do you have an escort yet?"

"I think we are now," someone asked.

"Yes sir. He's on top."

That was comforting. A Mach two fighter bomber would stay with us in the target area to attack the antiaircraft guns that probed for us in the dark sky above their emplacements.

The hunt was on. Charlie would be well advised to lay low and wait until this Spectre returned to its nest. But Charlie had other ideas.

"Charlie, Charlie, Charlie!" drewled a sensor operator in a deep Southern brogue. The first truck was sighted in the sophisticated cat eyes of the gunship.

"He's going down the road into some trees."

The other sensors slewed around to peer at the truck racing for cover.

"Hello! He's stopped in the trees.

The voice groaned. Then: "I see him again."

The forties began their deadly work. Circling overhead, the gunship sought satisfaction. Crash after thunderous crash as the big shells were launched into the jungle.

Those hit forward and high. More correction seemed appropriate.

"Triple A at 12 o'clock," announced the right scanner who was leaning out of the airplane into the slipstream looking at the first red balls of 37mm antiaircraft shells coming up.

"Four o'clock underneath. No threat," called another scanner lying on his stomach leaning out over the edge of the cargo ramp looking straight down. Charlie was going to

The AC-130 gunship carried (left to right) 20mm cannon, 7.62 miniguns, and 40mm cannon.

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light back. Those guns danced with
guns waiting for a chance to "hose down" the gunship.

NINE LEVELS

In this sector, the enemy gunners
had the earned reputation of being
"nine levels," the best in the game.
The first rounds sped by harmlessly,
lighting up the sky high above with
quick, bright flashes as they were
detonated by their fuses.

"How many rounds there?" came
a query from somewhere in the air-
plane. One of the crewmembers had
the job of counting the rounds of
triple A. The WAF lieutenant debrif-
fe would ask for that report when we
got home. You always had to think of
the paperwork. The location of ac-
tive triple A sites are important to all
who fly the trails of Laos.

Minutes raced by as the gunship
orbited the abandoned truck whose
driver was by now probably on top
of the nearest hill.

"Seven rounds underneath. Roll
out, pilot!" the unseen voice warned
excitedly. "Whew, that was a bit
close!" Charlie was firing in anger.

Back into the orbit and more
broadsides from the big guns. A
burst of flame signalled a hit on the
trapped supply truck.

"You got him! He's burning!"
cheered a crewmember. "Big fire!"

I left the false security of the
warm, lighted fire control room and
groped out into the dark cargo com-
partment. The acrid smoke of the
big cannons was in my nose and
could be seen in the glow of the red
combat lighting on the gun deck.

Two gunners seized this lull in the
firing to gather up the hot, smoking
shell cases that had missed the 55
gallon drums under their breech
ejectors. One opened a metal con-
tainer, pulled out a fresh clip of four
shells and pressed it in the maga-
zine atop the cannon.

The gunners were busy, and be-
sides there was no practicable way
to talk to them, so I moved toward
the tail of the airplane and stretched
out alongside the scanner.

Looking straight down I could see
fires scattered around the area. On
the horizon were large orange fires
where someone else had brought
jungle. A final chaser of good balls
arched up beneath us to remind us
that we were not welcome here.

"Six rounds at five o'clock.
No threat," announced the scanner.
Stars winked from below, and I
realized that my eyes had so well
adapted to the darkness that they
were seeing reflections of tiny stars
in water in the jungle below.

There was no moon tonight, to
everyone's relief. Crews watched
the moon rise every night. Coming
out of the base movie theater once, I
heard a Spectre gunner think out
loud, as he looked up at the full
moon, "I never thought I'd come to
hate the moon, but I do!"

GUNNER'S MOON

The term "gunner's moon" ex-
pressed a gunship crewman's
assessment. My crew had silently
breathed a sigh when the weather-
man had informed them that the
moon would not be up to betray
them tonight.

Already this evening, I had seen
more triple A thrown at us than I had
seen in months of combat missions.
I could only wonder what it would be
like illuminated under a gunner's
moon.

Another string of tracers sprang
up from the ground, catching the at-
tention of the fighter pilot high over-
head. Rolling inverted he swooped
down to loose some bombs on the
harassing gunner. A ripple of lights
indicated trouble on the ground as
the bombs chewed up the jungle.

The gunship pilot caught the ac-
tion and commented, "Escort two
just made a pass. Looked pretty
good." It was nice to have some
ough little friends around to encour-
ge Charlie to keep his head down.

Other targets found themselves
on the all seeing scopes of the gun-
ship as the night wore on. River
boats, trucks waiting at loading
docks, small convoys snaking their
way along the dangerous winding
dirt trails—each in turn discovering
the meaning of airpower.

GOLDEN HOSE

Charlie made his feelings known
hose. The scanners were kept busy
calling out the lethal stuff as it
streaked by. But Charlie was shoot-
ing blind tonight, and his aim was
wide of the mark.

"Let's safe the guns and go
home," called the pilot. Hours in
the target area had passed quickly. But
suddenly everyone felt the weight of
the heavy flak helmets and the dull
pain of ears long pressed under
sweaty earphones, and the eye
strain of trying to see electronic
lobs as trucks, and the weariness
of feeding heavy ammunition into
the hungry guns.

The pilot stretched himself after
the long spell of intense concentra-
tion to fly the bank angle and alti-
tude and airspeed required to match
the ballistics of his guns.

Heading to friendly territory again,
the crew began the physical and
emotional letdown that follow the
heavy demands of air combat. Off
came the flak helmets. The pilot and
I joined the gunners in shoveling the
brass 20mm. shell cases from a
wooden bin on the forward cargo
deck into canvas bags.

This ritual was a way in which we
could say to all the gunners that
made this ship a dreadnought,
"Thanks for playing on our team.

And in turn, the gunners would
nominate me, the "visiting fireman,"
as honorary gunner.

The exchange of smiles as the
shovel's full of brass filled the sacks
was testimony to the bond of com-
radeship that unites men who have
walked together in the nightmare of
war.

As we left the still airplane in
the peaceful night, the fire control
officer handed me a slip of paper
showing his tally of the triple A
thrown at us tonight—672 rounds! I
picked up a spent clip of 40s as a
souvenir and thanked my crew for
an impressive look at a unique and
courageous application of modern
airpower.

Back in my own squadron, I found
that there is no way to adequately
describe such an experience.

"How did your Spectre flight go,
Jim?" someone asked. "Very inter-
esting," I answered, but they knew
what I meant.