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The Perfect Fortress

The rebirth of a 1943 B-17F

BY MARK CARLSON

National Treasure

A time long ago the skies over Europe were filled with the sound of roaring engines and white contrails. The airplanes that created them were the mighty air armadas of the 8th Air Force from England. Thousands of four-engine bombers once carried the war to Hitler's *Festung Europa*, but they're nearly all gone now. Only a few hardy examples remain to thrill and inspire people yet unborn when they helped to change the world.

Of all the planes that annually travel the country at air shows, one of the most recognized and beloved is the B-17 Flying Fortress. While a few remain flying today, owned and operated by various organizations, they all have one thing in common.

Outwardly they appear as authentic examples of the most famous bomber in history. But inside, they bear little resemblance to the cramped and utilitarian confines that carried thousands of young men to fight and die in the skies over France, Belgium, Germany, and Italy. The paying passengers and visitors who crawl with wide eyes inside the B-17s are often not aware of what they're missing.

Government regulations, in the ever-changing effort to ensure the safety of crew and passengers, require the operators to make concessions to safety.

Folding seats, seat restraints, modern radio and navigational systems, and a host of other non-wartime equipment have been installed in the planes in order to qualify for the FAA's limited airworthiness certificate.

No one would fault this, as the planes are all about 60 years old and well past their prime. The operators of these precious warbirds willingly accede to the FAA regulations to keep them in the air.

The remaining B-17s all fit in this category, except for one special B-17F, now at its permanent home at The Museum of Flight.

Birth of a Legend

It is singularly appropriate that the bomber isn't far from where the B-17 was born.

At Boeing Field, Model 299—the prototype for what later became known as the Flying Fortress—took flight for the first time in 1935 carrying the hopes of Boeing engineers and workers into the skies. Model 299 was the first of 12,730 Fortresses, one of which was F Model No. 42-29782. It rolled out of Boeing's Plant No. II on 13 February 1943.

While not as well known as its successor, the B-17G, the B-17F was the backbone of 8th Air Force Bomber Command in the months when it was struggling to prove the theory of daylight precision bombing.

Hitting strategic targets in Europe with little or no fighter protection and against great odds, the B-17Fs of the growing air force were virtually alone in the sky. Many were lost, but others absorbed unbelievable damage and brought their crews home.

Aircraft No. 42-29782 had a decidedly varied career and never served in combat, which is one reason it still exists. After the war it was the centerpiece of a park in Stuttgart, Arkansas, for five years. It was purchased in April 1953 from the government for \$20,000 by brothers Max and John Biegert. The Biegerts brought the B-17 to Lincoln, Nebraska, and converted the bomber into a pesticide sprayer. Tanks were installed in the nose compartment, the bomb bay, and waist, and they were added to the external bomb racks. Rows of spray nozzles were fitted to the trailing edges of the wings. Little by little, No. 42-29782, under its Civil Aeronautics Adminis-

tration number N17W, lost its wartime appearance.

By May of 1954 the B-17F was fitted to carry more than 3,000 gallons, nearly 20,000 pounds of pesticides for crop spraying.

Its career as a crop sprayer lasted until early 1960, when it was leased to Abe Sellards of Safford, Arizona, as an air tanker to fight forest fires. During the early 1960s the aging bomber went through a series of jobs and finally became part of Sellards' Aviation Specialties in Phoenix, Arizona. There N17W underwent more modifications, including the installation of a large cargo door on the left side of the waist compartment. She was one of a fleet of modified B-17s used solely for firefighting. Later the company moved to Falcon Field near Mesa, Arizona, coincidentally the current home of the Commemorative Air Force's Arizona Wing.

Movie Star

Over the next several years, N17W traveled around the country and appeared in two major motion pictures, beginning with Columbia's 1962 release *The War Lover*, starring Steve McQueen and Robert Wagner. Among the pilots who flew N17W and two other B-17s in the very last formation flight to England was famed aviation writer and historian Martin Caidin, who wrote of the experience in his book *Everything But the Flak* (Duell, Sloan & Pearce, New York, 1964).

In 1967 N17W appeared in ABC's *Twelve O'Clock High*, the television version of the 1949 Gregory Peck film.

The B-17's film career was far from finished as it was one of a rapidly diminishing breed of warbirds. Don Clark became N17W's pilot for the next 23 years. He flew the airplane to Hawaii, Alaska, and England, logging hundreds of hours in the air as an air tanker, crop duster, and movie star.

United Artists' 1969 *The Thousand Plane Raid* brought the Fortress to the screen once again, flown by famed stunt pilot James Appleby. But probably its most famous role was as one of four B-17s used in 20th Century Fox's epic *Tora! Tora! Tora!* The B-17s in the

A Starboard view of N17W during her time as air tanker in Arizona May 1983.

B N17W port wing in Arizona May 1983.

C Seattle's Museum of Flight put its rare Boeing B-17F Flying Fortress back on public display on Thursday, June 30, 2011, after 20 years of restoration. The plane, which was last on display at the Museum in 1999, is now regarded as one of the most authentic B-17s in the world.

D The B-17 is pushed onto the east lawn at the Museum of Flight in Seattle on Thursday, June 30, 2011.

film were "F" and modified "G" models, which were all that was available to portray the long-gone B-17Ds arriving over Oahu on the morning of 7 December 1941.

The career changes and modifications hadn't been kind to the old warbird, and by June 1969 N17W had more than 2,500 hours in the air. In October 1985 the aircraft was sold to Robert Richardson, who removed the air tanker scheme and repainted it in wartime olive drab. Fiberglass replicas were installed to replace the long-gone top and ball turrets. By 1988 N17W was nearing its final home, The Museum of Flight in Seattle, Washington. But the venerable old plane had one more film commitment to fulfill. It returned to England to appear in Warner Brothers' 1990 film *Memphis Belle*. Then just as the bomber was approaching its destination of RAF Binbrook in Lincolnshire, an engine blew, but it was landed safely. A replacement engine was secured from *Sally B*, an England-based B-17G. The filming put another 50 hours on N17W.

There's an amusing note to this. During filming, N17W was given the slightly risqué name of *C-Cup* and had an impressive female bosom painted on the nose. When it landed at Gen-



PHOTO COURTESY HERB PHELAN

A view from the bombardier's seat, looking at the starboard side of the nose compartment.



PHOTO COURTESY HERB PHELAN

The new navigator's table on port side with gun, oxygen tank, and other equipment.



PHOTO COURTESY HERB PHELAN

Looking at the left waist gun with all equipment as it was in 1943.



PHOTO JOE DYER/SEATTLEPI.COM

The flight deck of the B-17 is seen on Thursday, June 30, 2011, in Seattle.

eseo, New York, the city fathers there said they had to paint it out.

For the next two years, N17W remained on display at The Museum of Flight, occasionally appearing at air shows. But it was apparent the old plane needed serious restoration work. Clark flew it to the airport at Renton, Washington, where the initial phase of restoration would begin.

Well-Deserved Restoration

The man in charge of the restoration project from 1998 to completion was Herb Phelan, who provided excellent and detailed background material for this article. "Tom Elliott was the Boeing Management Association rep on the project, and the project manager was Pat Coluccio. They were in charge when I first came on board in 1993."

The first job was to carefully ex-

amine every single inch of the aircraft inside and out. What they saw was heartbreaking. Corrosion from pesticides and fire retardant permeated the fuselage, which was a hodgepodge of missing fittings and clipped tubing, bare wires and shredded insulation, leaking hydraulic lines and oil tanks. Holes had been cut into bulkheads and floors for equipment during the crop spraying and air tanker duty, and numerous holes and loose skin panels allowed rainwater to collect in the bottom of the fuselage, adding to the damage.

The wings had pools of thick sludge in the nacelles, corroded fuel tanks, and much more. The flight deck revealed missing and inoperable controls, broken gauges, hanging wires, and loose windows. Pilots' seats were broken along with the oxygen and in-

terphone systems. The Boeing workers who had built the once-spanning new B-17F would have cried to see such a beautiful aircraft reduced to such degrading decay.

Phelan explained, "The initial restoration in Renton to make the plane airworthy took about seven years. In 1996 we painted the aircraft regulation USAAF olive drab and gray over the paint from the filming of *Memphis Belle*. We added the national insignia and serial number. The last time that number had been painted on the tail was in 1945."

In 1998 the restoration continued at Plant II at Boeing Field. In a way the old warbird was returning to the nest. No. 42-29782 rolled out of that same plant in February of 1943.

Nearly every single piece of World War II mission equipment had been



PHOTO COURTESY HERB PHELAN

An excellent shot of the pilots' seats, control pedestal, and panel.

removed in the plane's long and checkered career. All the restoration crew had to work with was an empty, tired, and sadly abused aluminum tube.

The care and restoration of any rare object is a labor of love. Volunteers who spend countless hours of dirty and knuckle-skinning work to restore beauty to something unique share a common bond. Many of the dedicated men and women who gave freely of themselves to restore N17W back to what it had been in 1943 were the literal descendants of those who built it, active and retired Boeing employees. Anyone who cared about the B-17 volunteered his time.

Phelan said, "All in all the total number of people who participated in the restoration was around 50 or so. Roy Ostling was one of the original designers of the B-17. He worked on the

project with us, and occasionally we needed him to help decipher one of his drawings. I was working on the rear radio compartment bulkhead and had some trouble figuring out some notation he'd written in 1942. So I called him over and said, 'Hey, Roy, what's going on with this? What is this?' And he'd look at it and know right away what it was." Phelan added, "Roy has since passed away, but it was a thrill for him to be working on that plane."

The cargo door that had been cut into the port waist compartment in the 1960s had to be removed and the fuselage restored to its original configuration. "Hundreds of parts had to be repaired, obtained, or custom-made for every compartment," Phelan said. Wherever corrosion or damage was found the area was fully repaired, rebuilt, or replaced.

For example, in the nose compartment a new clear Plexiglas nose was made, along with the Norden bomb-sight mount. The bombardier's panel, bomb bay door control, and bomb release were custom-made and installed from original Boeing plans.

A new navigator's table was built and installed with navigator's instruments and systems.

Electrical junction boxes were made. Original seats for the bombardier and navigator were repaired and mounted.

The B-17 required new flooring, doors and lights, new or rebuilt bulkheads in every compartment, and an entire interphone system.

Windows in all the compartments were either made or repaired, along with the window frames. The oxygen system components were made and installed.

On the flight deck, all the instru-



PHOTO COURTESY CRAIG COVNER

Port side of N17W during air tanker work in Arizona, October 1976. A 300-gallon tank has been fitted into the nose compartment.

ments were overhauled and mounted in a new panel. The finished panel is exactly what Boeing installed in 1943.

The control pedestal was overhauled as were all flight and engine control systems. All the control cables and flight surfaces were replaced.

The original fire extinguisher system, engines, fuel tanks, fuel lines, oil lines, and intercoolers were rebuilt. Original bomb racks, gun mounts, and other rare components were found and repaired for the restoration.

The list went on and on, year after year.

Volunteer ham radio enthusiasts worked tirelessly to collect and refurbish more than 100 components of the standard B-17 radio set. The newly installed radio works perfectly and both transmits and receives on the 40-60 meter band.

Found in a Georgia junkyard, three top turrets were combined to assemble a working Sperry top turret.

Robert Richardson found a complete Sperry ball turret, which was totally disassembled, overhauled, and rebuilt with either new or repaired parts. Ten replica Browning ANM2 .50-caliber machine guns were donated to the restoration project and mounted along with working ammo boxes and feed chutes.

“From 1998 until 2008 we spent the time restoring it with all the mission equipment and all the final details,” continued Phelan. “We just

finished making a full load of replica 500-pound bombs and fitting them in the bomb racks. Even the bombardier’s windshield wiper works,” he said with a smile.

From nose to tail, from wingtip to wingtip, and from wheels to rudder, B-17F 42-29782 slowly reached completion at Boeing Field. Every system put in was in working condition to Boeing’s original drawings.

Queen Bee

No warbird is truly complete or alive until it’s given a name. On the nose is a large bumblebee with machine guns over the name *Boeing Bee*.

The venerable old warbird was returned to The Museum of Flight on 30 June 2011 after more than 17 years of painstaking work. The number of man-hours needed to bring the old airplane back to life is immeasurable, not only in numbers but in sweat and blood. They can’t be listed in a ledger, nor can they be bought and sold. It takes a love of history and a desire to be a part of something rare and special.

“We had three 8th Air Force combat veterans who volunteered,” Phelan said. “Hank Hendrickson was a pilot, Arthur Heino was a tail gunner, and Ralph McLaren was a flight engineer. Ralph and Art have passed away. They were very big parts of the effort. Hank was my tour guide, talked to the public about the plane, and told stories.”

Dan Hagedorn, curator of the museum’s collection, has this to say about the B-17F. “It’s not like those aluminum tubes you see at air shows selling rides,” he said, chuckling. “They have to accede to FAA regulations with seat belts and modern navigation and communications. But when you step into this plane, you’re returning to 1943. Every single part and system is correct—they all work. From the controls to the interphone system and radios, the bomb bay doors and fire extinguishers all work just as they did during the war. You can look on the navigator’s table and see an aviation chart of Europe along with the navigator’s instruments and logbook.”

The priceless airplane will be on display in a place of honor, right in front of the museum, Hagedorn said. “We’ll arrange small guided tours of no more than 12 people at a time inside. We want to protect this aircraft. In the fall when the weather gets bad, we’ll put her back in the hangar for protection.”

Hagedorn is understandably proud of their rare B-17F. “Every time I see it the first thing I feel is pride,” he said. “I think of the people, many of whom have gone on to take their ‘last flight,’ who really poured their hearts and soul into this aircraft. Often they really couldn’t afford to do it. Some were in poor health, but this is what kept them going. It was the central thing in their lives.”



PHOTO JOE DYER/SEATTLEPI.COM

Staff and volunteers push the B-17 into position on Thursday, June 30, 2011, in Seattle.



PHOTO JOE DYER/SEATTLEPI.COM

Herb Phelan, who has supervised the restoration of the B-17 since 1998, sits in the flight deck as the aircraft is moved into position at the Museum of Flight on Thursday, June 30, 2011 in Seattle.

“Every time I look at that airplane,” Phelan said, “I think of the thousands of B-17s that flew in the war. Over 4,700 were lost—that’s 47,000 crewmen. I think of what those kids went through all those years. Do you think 18- or 19-year-old kids today could do something like that? I don’t think so.”

It was an almost impossible restoration project, trying to restore youth to an old and weary dowager. But Phelan and his team, the volunteers, and the Boeing crew and the veterans showed their dedication.

B-17F *Boeing Bee* has been given back its youth. Preserved and cher-

ished, it will represent more than 4,500 B-17Fs that no longer exist, educating the people of today and bringing back nostalgic memories to the aerial warriors of the past. As Phelan likes to say, “This Boeing B-17 has been brought back from the brink of the boneyard.”



WARBIRDTOONS

by Jean Barbaud

<http://jeanbarbaud.blogspot.com>

BIG BAD WULF !
WHAT BIG FEET
YOU HAVE !!

