THE B-29, SUPERFORTRESS BOMBER OF WW2

THE DEVELOPMENT, HISTORY, ASSEMBLY PLANTS & PRODUCTION NUMBERS

THE MOST POWERFUL BOMBER OF ITS TIME

190

This section of Planes of the Past is meant to be a tribute to those who designed & built the B-29 Superfortress, the crews who flew her, and those who have worked tirelessly to preserve this incredible plane and its history.

Many have already done a tremendous job of documenting the Superfortress in great detail on the Internet, both in text and pictures. We will not attempt to recreate the work already done, but instead present an overview of the plane's design, development, deployment, and preservation.

NOTE:

The B-29 Superfortress was the single most expensive weapons project undertaken by the United States in World War II, exceeding the cost of the Manhattan Project by a whopping $1.7 billion.

Seventeen General Motors Divisions provided 800 subassemblies and parts for this WWII state-of-the-art bomber. They were: AC Sparkplug, Allison, Brown-Lipe-Chapin, Buick, Chevrolet, Delco Appliance, Delco Products, Delco Radio, Delco-Remy, Fisher Body, Frigidaire, Harrison Radiator, Hyatt Bearings, Moraine Products, New Departure, Packard Electric, and Rochester Products.

B-29 SUPERFORTRESS DESIGN & DEVELOPEMENT

Boeing began work on a pressurized long-range bomber in 1938. In December 1939, the Army Air Corps issued formal specifications for a so-called "superbomber", capable of delivering 20,000 lbs of bombs to a target 2,667 miles distant, at a speed of 400 mph.

***Bids were submitted by Lockheed, Consolidated, Douglas, and Boeing*, which ultimately won the competition and subsequent contracts. An initial production order for 14 service test aircraft and 250 production bombers was placed in May 1941. The B-29 was one of the most advanced bombers of its time, featuring innovations such as a pressurized cabin, a central fire-control system, and remote-controlled machine gun turrets, but also had its problems.**

THE XB-29

***The first three aircraft built were identified as the XB-29*, with triple-bladed propellers.**

The initial XB-29 (Serial Number 41-0002) was rolled out on the runway at Boeing Field, Seattle, and made its maiden flight on September 21, 1942, in front of almost all the Boeing employees who had contributed over 1,300,000 man-hours to the project. This first XB-29 remained at Boeing throughout the war as a test aircraft.

The second XB-29 (Serial Number 41-0003) first flew on December 30, 1942. Shortly after noon on February 18, 1943, pilot Eddie Allen and crew were flight-testing the second XB-29 when an engine fire developed.

The port wing spar burned through and collapsed sending the huge bomber crashing into the Frye meat packing plant three miles from Boeing Field. All eleven men aboard the plane and 18 in the plant were killed instantly.

XB 29

The third XB-29 prototype (S/N 41-18335) had its maiden flight in June of 1943. It incorporated extensive power plant and equipment revisions and was later moved to Boeing-Wichita to be part of the configuration of the assembly line. The aircraft was then transferred to the USAAF for armament and accelerated flight testing. *This third XB-29 later crashed.*

THE YB-29 PROTOTYPE

The YB-29 was an improved version of the XB-29 used for service testing. The engines were upgraded, and the three-blade propellers of the XB-29 were changed to a four-blade type for the YB-29. The YB-29 also featured an improved fire control system and turret-mounted .50-cal. machine gun pairs.

The first YB-29 (S/N 41-36954) made its initial flight on June 26, 1943. A total of 14 YB-29 aircraft were manufactured at Boeing-Wichita. They provided the basis for continued B-29 development and testing, and eventually a flyable aircraft was ready for production.

Initial models were plagued with problems and faced a constant series of modifications. The most common cause of maintenance headaches *and catastrophic failures was the engine*.

YB-29

THE B-29

***The B-29 featured the first ever fully pressurized nose and cockpit in a bomber;* an aft area for the crew was also pressurized. Since the bomb bays were not pressurized, a pressurized tunnel was devised to connect the fore and aft crew areas. A retractable tail bumper was provided for tail protection during nose-high takeoffs and landings.**

B -29

B-29A

The Boeing B-29A was an improved version of The B-29, assembled only at Boeings Renton Plant. It featured an improved wing design and a four-gun forward top turret. ***The new wing had a span 12 inches greater than the B-29*** and was constructed in three pieces, a center section, and two outboard sections, rather than the two sections of the earlier model. This allowed for greater strength and quicker installation at the factory plus maintenance in the field was easier.

All 1,122 B-29A aircraft were built at the Boeing Renton plant.

B-29B

The Boeing B-29B was a modification of the basic B-29 design for use in the Pacific during World War II for low-level bombing raids against Japan. The B-29B had all defensive armament removed except for the tail turret. The 20mm cannon was removed and the two .50-cal. machine guns were aided by the installation of an AN/APG-15B radar fire control system.

All 311 B-29B aircraft were built at the Bell Atlanta-Marietta plant, between January and September of 1945.

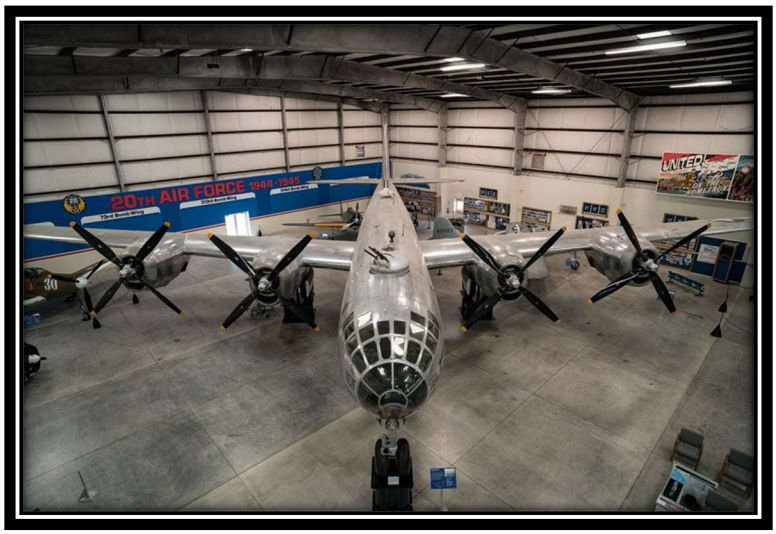
THE ENGINE PROBLEMS WITH THE B-29

Gen Paul Tibbets (pilot of the Enola Gay) when asked; ***"What were the problems of the B-29"*** responded by saying..

"Well the problems with the B-29 ***were, I guess, so many of them that you can't go into them all. But, the big problem was this: Number one, the airplane was ordered into mass production before the first thing was ever tested on it,*** which is contrary to anything that happened before that and is still happening today.

You've got all kinds of tests of equipment and then the successor is using the same equipment on an expanded basis. But the ***biggest of the problems was that the engine had been made from two previous types of engines."***

B-29 SUPERFORTRESS SPECIFICATIONS



ARMAMENT: Eight .50-cal. machine guns in remote-controlled turrets plus two .50-cal. machine guns and one 20mm cannon in the tail; 20,000 lbs. of bombs

ENGINES: Four Wright R-3350s of 2,200 hp each

MAXIMUM SPEED: 357 mph

CRUISING SPEED: 220 mph

RANGE: 3,700 miles

WINGSPAN 141 ft. 3 in.

LENGTH: 99 ft. 7 in.

WEIGHT: 133,500 lbs. maximum

SERVICE CEILING: 31,850 FT

MANUFACTURER: Boeing

THE REMAINING B-29S ACROSS THE COUNTRY

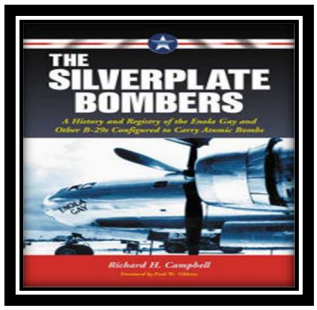
(COPY AND PASTE THE BELOW LINK INTO YOUR BROWSER)

https://www.youtube.com/watch?v=sEhMoldDeyY

Production Line During The War

THE SILVERPLATE BOMBERS

ONLY 65 WERE PRODUCED



Silverplate was the code reference for the United States Army Air Forces' participation in the Manhattan Project during World War II. *Originally the name for the aircraft modification project for the B-29 Superfortress bomber to enable it to drop an atomic weapon*, Silverplate eventually came to identify the training and operational aspects of the program as well. The original directive for the project had as its subject line "Silver Plated Project" but continued usage of the term shortened it to "Silverplate"

Testing began with scale models at the Naval Proving Ground in Dahlgren, Virginia, in August 1943. Modifications began on *a prototype Silverplate B-29 known as the "Pullman" in November 1943*, and it was used for bomb flight testing at Muroc Army Air Field in California commencing in March 1944. The testing resulted in further modifications to both the bombs and the aircraft.

Seventeen production Silverplate aircraft were ordered in August 1944 **to allow the 509th Composite Group to train with the type of aircraft they would have to fly in combat, and for the 216th Army Air Forces Base Unit to test bomb configurations. These were followed by 28 more aircraft that were ordered in February 1945 for operational use by the 509th Composite Group.**

This batch included the aircraft which carried out the atomic bombing of Hiroshima and Nagasaki in August 1945. Including the Pullman B-29, a total of 46 Silverplate B-29s were produced during and after World War II. An additional 19 Silverplate B-29s were ordered in July 1945, which were delivered between the end of the war and the end of 1947. *Thus, a total of 65 Silverplate B-29s were made*.

The use of the Silverplate codename was discontinued after the war, but modifications continued under a new codename, Saddletree. Another 80 aircraft were modified under this program. A last group of B-29s were modified in 1953 but never saw further service.

THE B-29 THAT MADE HISTORY

"THE ENOLA GAY"

The "Enola Gay" At Tinian Island in 1945

Col Paul Tibbets stands in front of the B-29:Enola Gay

The Cockpit of the Enola Gay

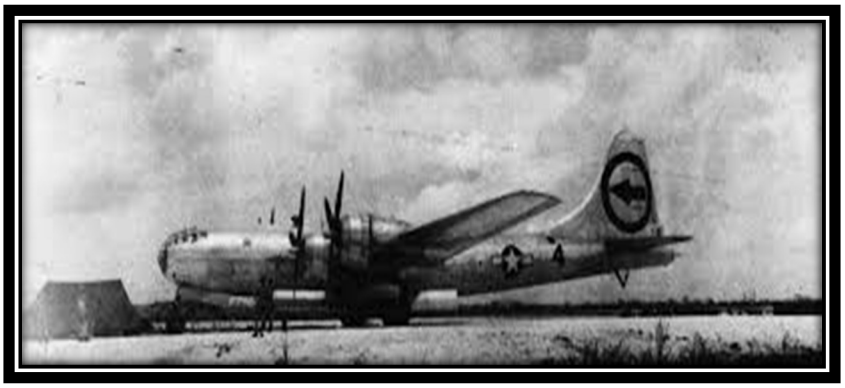
Putting The Enola Gay back together again for proper display

The "Enola Gay" as she stands today in the Smithsonian as she rightly deserves.

THE B-29 THAT ENDED THE WAR

"BOCKSCAR"

Bockscar dropped the second bomb, called Fat Man, on Nagasaki three days later. Bockscar is on display at the National Museum of the United States Air Force in Dayton, Ohio.



Bockscar during her working days

Martin-Omaha B-29-35-MO 44-27297 on Tinian Island, August 1945. The nose art was applied to the airplane after the August 9, 1945 bombing mission. (U.S. Air Force)

Five days after the bombing of Nagasaki, the Emperor of Japan—recognizing that his country now faced destruction—agreed to surrender. World War II was over.

In 1946, Bockscar was placed in storage at Davis-Monthan AAF, Tucson, Arizona. On 26 September 1961, the B-29 was flown to the National Museum of the United States Air Force, Wright-Patterson Air Force Base, Dayton, Ohio, where it remains in the museum's collection of historic aircraft.

Bockscar on Display @ Wright Patterson AFB in Dayton, Ohio (I've seen this display and it is awesome GJ)

GENERAL INFORMATION ABOUT THE B-29S WITH SOME COMMENTS BY THE MEN WHO FLEW THEM

In September 1942 the Boeing Company scheduled the first test flight of its new B-29 bomber. But it would be early 1944 before the Army Air Forces received the airplane for use against the Japanese. *The B-29, or Superfortress, as it was called, was designed to operate faster, at higher altitudes, and with heavier bomb loads than its predecessor, the B-17 Flying Fortress.*

HIGH TECH WEAPONS

One of the most advanced bombers in the world, the B-29s had pressurized cabins, remote control gun placements, *and 2,200-horsepower engines -- the most powerful piston engines of the time*. Able to fly over 3,000 miles, up to 16 hours, these bombers were just what the Allies needed to target Japan. *As Robert Rodenhouse, a B-29 pilot, remembers:*

"It just blew my mind. First of all its size, and then its capabilities. And to think that they could take an airplane, a bomber, and pressurize it so that we could feel the same at sea level as we do at 30,000 feet. And that's essentially what they were doing. And then when I knew that the range that it was capable of doing, and the weight and the bomb load, I couldn't wait to get behind the wheel."

TRIAL & ERROR IN THE MARIANAS

The first B-29s arrived in the Mariana Islands in October 1944. This base was closer to Japan, but the bombing runs still had problems. *The B-29s had been rushed into service without complete testing*. *The result was not good, according to Rodenhouse:*

"We had trouble even getting the bomb bay doors to retract, and also the landing gear. The biggest problem was the overheating of engines. And that was so critical because if an engine coughed or sputtered on a takeoff, you'd never make it. You'll never get off the ground. And the plane was so overloaded that it would never be able to stop it with its normal braking."

NUMEROUS RISKS WERE TAKEN

The planes were hard to handle. Heavy bomb loads made takeoffs risky. Flying 3,000 miles round trip to Japan over hostile waters made emergency landings almost impossible. But perhaps the most baffling problem to the flight crews was something we know today as the "jet stream."

"If we were going with the jet stream, our bombs were going over the target. And if we're going against it, the bombs would be short of the target. And it wasn't until about three or four missions that some meteorologist went along with the bombing group, and they determined what that was, a jet stream," recalled Rodenhouse. "It's a very common occurrence now. It's in every meteorological broadcast today, where the jet stream is, how fast it is, and what it's moving. It has such an effect on weather systems. And we didn't know about that."

GENERAL CURTIS LEMAY'S LOW ALTITUDE STRATEGY

In January 1945, General Curtis LeMay arrived in the Mariana Islands to take over the problem-plagued B-29 command.

For two months, his crews flew similar high-altitude missions over Japan with little more success. His job on the line, General LeMay decided on a risky new strategy: his pilots would fly daring, dangerous bombing missions at altitudes as low as 5,000 feet, low enough to be within range of anti-aircraft weapons. Robert Rodenhouse was shocked:

"We thought they could throw the kitchen sink up there and hit us. *Can you imagine flying a big four-engine bomber at 5,000 feet?* Why that was just unheard of, absolutely unheard of. And like my crew says, I think those generals lost their marbles. They weren't thinking straight."

The low-altitude bombing runs turned out to be highly successful. The planes carried much larger bomb loads. Crews flew at night to avoid enemy fighters. And flight personnel were kept to a minimum. *Most of the gunners were removed to make room for still more bombs - incendiary bombs.*

PRISONERS OF WAR

Not all the B-29 crews made it back safely to their home bases. As war prisoners in Japanese hands, some of the men suffered unimaginable hardships. In some cases, they were executed immediately, but in others, they were subjected to various forms of torture including medical experimentation, beheading, cannibalism, and even death by being burnt alive. One captured B-29 flyer was put on display at a zoo in Tokyo. It is not known exactly how many downed B-29 flyers were killed while being held prisoner, but the numbers reach into the hundreds.

THE END OF PRODUCTION OF THE B-29

The last of 3,970 B-29s rolled off the assembly line in 1946. *The planes were used in the Korean War in the early 1950s and remained in the Air Force until the late 1950s.*

THE BOEING RENTON FACILITY IN RENTON, WASHINGTON, TODAY THE HOME OF BOEINGS SINGLE AISLE JET AIRLINERS BUILT THE LAST B-29 ON MAY 28, 1946

B-29 SUPERFORTRESS ASSEMBLY PLANTS AND PRODUCTION NUMBERS A TOTAL OF 3,970 PRODUCTION B-29S WERE BUILT AT THESE LOCATIONS

			Prototypes		Production			
Aircraft Manufacturer	Plant Location	Plant Code	XB-29	YB-29	B-29	B-29A	B-29B	Production B-29s Built
Boeing	Seattle, Washington	BO	3					
Boeing	Renton, Washington	BN				1,122		1,122
Boeing	Wichita, Kansas	BW		14	1,644			1,644
Bell Aircraft Co.	Atlanta (Marietta), Georgia	BA			357		311	668
Glenn L. Martin Co.	Omaha, Nebraska	MO			536			536
	TOTAL PRODUCTION				2,537	1,122	311	3,970

Among the B-29s built at the Bellevue Martin plant were the Enola Gay and Bockscar, the planes that dropped atomic bombs on the Japanese cities of Hiroshima and Nagasaki.

On May 9, 1945, Col. Tibbets personally selected the B-29 that would become the Enola Gay on the production line at Omaha with the advice of plant foremen.

The plant location was indicated in the data block on the left side of the fuselage below the pilot's window. Also contained in the block number was information such as the model type and serial number.

Each plane was identified by a seven-digit serial number, with the first two digits indicating the fiscal year in which the Army Air Force ordered the plane, followed by a five-digit number unique to each aircraft.

The end of World War II in August 1945 dictated massive cancellations of existing orders for military equipment. *In September of 1945, existing orders for over 5,000 additional B-29s were canceled.*

Many of the existing B-29 aircraft were sent for storage, and ultimately scrapped at WWII aircraft storage and disposal facilities around the U.S. *The remaining B-29s helped build the initial bomber inventory of the Strategic Air Command when it was formed in March of 1946.*

The Boeing Plant In Wichita, Kansas as It was during the War. The plant closed in January 2012

PRODUCTION AT THE BOEING PLANT IN WICHITA

The first production B-29s began to roll off the production lines at Boeing-Wichita in *September of 1943*.

By mid-January 1944, 97 B-29s had been built by Wichita, but unfortunately, only 16 of these were flyable. Only the very early Wichita-built models were delivered in olive drab and grey camouflage paint, with the remainder being delivered unpainted.

During March and April 1944, the intensive effort to get the first B-29s ready for overseas service became known as the "Battle of Kansas." All the B-29s used in the first raid on Japan on the steel center at Yawata, on June 15, 1944, were built at Wichita.

At the end of the war, Boeing-Wichita was producing 4.2 Superfortresses per working day for an average of 100 a month, which was the military's schedule. The plant had also reduced the number of manhours to produce a single B-29, from 156,000 (the average required for the first 100 bombers) to less than 20,000.

When the war was won, uncompleted airframes on the Wichita assembly line were stripped of all government-furnished equipment and scrapped on the flight line.

Of the 3,888 Superfortresses built by all factories, 1,644 were Wichita-made. Wichita also built an additional 125 Superfortresses in spare parts.

In later years, 1,370 Boeing B-47 Stratojets would be built in Wichita, as well as B-52 Superfortresses.

Boeing announced plans in January 2012, to close its Wichita plant.

PICTURES OF B-29S IN DIFFERENT PHASES OF COMPLETION AT THE WICHITA PLANT

WHAT HAPPENED TO ALL OF THOSE 3,970 B29S

Twenty-two B-29s are preserved at various museums worldwide, including one flying example; Fifi, located in the Museum of Flight in Seattle, which belongs to the Commemorative Air Force, along with four complete airframes either in storage or under restoration (including one to airworthy), eight partial airframes in storage or under restoration, and four known wreck sites.

The B-29, Miss Marilyn Gay, which flew 27 successful bombing missions mainly over Japan during the Second World War, and five POW relief missions are displayed at Dobbins Air Reserve Base in Georgia. There is a restored B-29A, Jack's Hack, located as part of the 58th Bomb Wing Memorial at the New England Air Museum in Windsor Locks, CT. The Enola Gay (nose number 82) the B-29 that dropped the first atomic bomb, was fully restored and placed on display at the *Smithsonian's Steven F. Udvar-Hazy Air & Space Museum* near Washington Dulles International Airport in 2003. Similarly, the weapons delivery aircraft for the Nagasaki raid deploying the Fat Man, the Bockscar (nose number 77) is restored and on display at *the National Museum of the United States Air Force* at Wright-Patterson AFB in Dayton, Ohio.

Only two of the 22 museum aircraft are outside the United States*, one is the B-29A It's Hawg Wild in the American Air Museum at the *Imperial War Museum Duxford in the United Kingdom*, the other at *the KAI Aerospace Museum in Sachon, South Korea...

AND THEN THERE WAS ONE – THAT STILL FLIES

COMMEMORATIVE AIR FORCE

AND "FIFI" IS HER NAME

A VIDEO SALUTE to those who flew the B-29 through 'FIFI", the last flying B-29 in the world.

https://www.youtube.com/watch?v=tfKP9Cpz8AY

"FIFI – The only flying B-29 Super Fortress in the world.

THE SURPLUS B-29S WHEN THE WAR ENDED IN 1945

DAVIS-MONTHAN AIR FORCE BASE IN THE POST WW2 ERA

AKA 'THE BONE YARD

With the end of World War II and victory over Japan and Germany assured, the United States found itself with a large inventory of aircraft, around 65,000. These were temporarily stored and subsequently disposed of at 30 airfields, with the largest concentrations at seven major depots such as Kingman Army Airfield in Arizona and *Walnut Ridge Army Air Field in Arkansas.*

While some planes went into civilian usage, *most were scrapped and their metal components melted and sold.* Other planes were kept for future usage, and stored at several locations, including Warner-Robins, Victorville, Pyote Army Air Field in Texas, and Davis-Monthan AAF.

Rows of cocooned B-29 Superfortress bombers in storage at Davis-Monthan AFB in Arizona in 1950

Immediately after the war, the Army's San Antonio Air Technical Service Command established a storage facility primarily for B-29 Superfortress and C-47 Skytrain aircraft at Davis-Monthan. By May of 1946, more than 600 B-29 Superfortresses and 200 C-47 Skytrains had been moved to Davis-Monthan.

Boeing B-29 "Bockscar " in storage @ Davis-Monthan after the end of WW2 before being moved to the USAF Museum in Dayton, Ohio where it resides today

In addition, about 30 other aircraft were stored at Davis-Monthan that were destined for museums, including the "Enola Gay" and "Bockscar". *Many of the B-29s would be pressed back into service as the Korean War escalated in the early 1950s.*

Favored by Warm breezes and under a blue Kansas Sky, a vast crowd attends the delivery ceremony of the 1,000th B-29 on the Boeing-Wichita flight apron at 4:15 P.M on February 14, 1945