The Boeing B-29:
The First "Very Heavy" Bomber

The B-29 was designated as a Very Heavy (VH) Bomber to distinguish it from the smaller Heavy (H) Bombers that dominated in the European Theater: the B-17 Flying Fortress and the B-24 Liberator. It was a great advance over the workhorse of the European air war, the B-17, which was limited in range and payload, making it effective in Europe but not suitable for the Pacific.

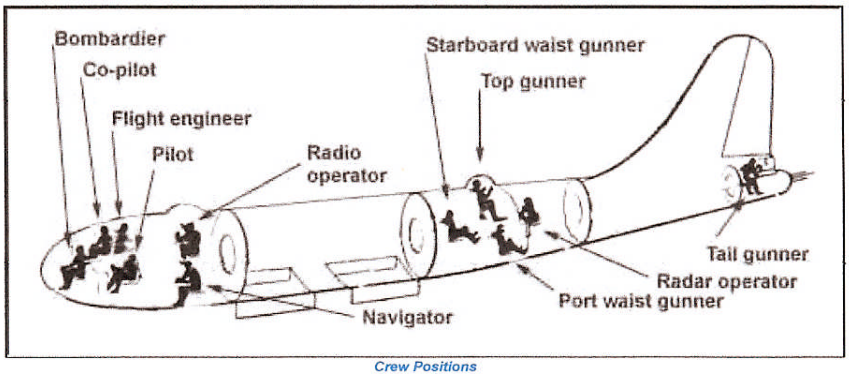
The B-29's 3,500-mile operating range allowed it to fly nonstop from the Marianas to Tokyo and back with fuel to spare. With a light load and careful fuel management its range was much longer: The longest nonstop combat flights were 4,100 miles, and the longest nonstop flight was 7,100 miles, in a stripped-down plane returning General Curtis LeMay to Washington, D.C. after the war.

Stripped and dry, the B-29 weighed 35 tons (70,000 pounds). Its maximum operating weight of 68 tons (136,000 pounds) allowed it to carry a payload of 33 tons in crew, fuel, weapons, gear, and bombs. Its operating ceiling of 35,000 feet allowed it to engage in high-level bombing above the reach of Japanese fighter planes and antiaircraft fire. To achieve this it had the first heated and pressurized fuselage in the air arsenal: the forward section (control), mid section (gunners and radar), and the aft section (tail gunner) were separate pressurized sections connected by long tunnels. Finally, it had a

cruising speed of 220 mph and a maximum speed of 350 mph—fast enough to outrun Japanese fighters.

Each B-29 had a crew of eleven. The lead pilot was the "Airplane Commander", called the APC or A/C. The co-pilot was called the "Pilot." Joining the APC and the pilot in the forward section were a navigator, a radioman, an engineer, and a bombardier. In the plane's mid-section, behind the wings and bomb bays, were a radar operator and three gunners: a right (starboard) waist gunner, a left (port) waist gunner, and a "CFC gunner" (also called the "Top Gunner") who manned the Central Firing Command (CFC) station. A tail gunner occupied a pressurized compartment in the rear.

The gunners viewed their fields of fire through heavy glass blisters. Their .50-caliber machine guns, mounted in external turrets, were remotely controlled: a gunner aimed by using an interior machine gun-like pedestal with handles to control an aiming crosshair. This pedestal was linked to the gun turrets via an analogue computer that took the crosshair aiming point as input and adjusted the turret guns' aiming point for target size and speed, wind velocity, humidity, temperature, and other characteristics. B-29 gunners played one of the first computer war games while avoiding the physical shock of their guns' recoil and the exposure to the elements found on the Heavy bombers.



Crew Positions

The B-29 had five gun positions: two top gun turrets (one forward and one aft), two bottom gun turrets (one forward and one aft), and the tail guns. The bombardier, who controlled both the forward upper and forward lower gun turrets ("nose guns"), commanded the gunnery team. He could cede control of those two turrets to the other gunners.

The CFC station was a new concept that allowed any gunner to control two turrets, with assignment selected by the CFC gunner. The tail gunner had primary control of the tail guns, but tail gun control could be ceded to either waist gunner. Each waist gunner could control either lower gun turret as well as the tail guns. The CFC gunner, viewing through a blister on top of the fuselage just forward of the aft top gun, controlled the rear top gun and could control the forward top gun (if ceded by the bombardier). It was obviously a complex system, but it allowed each gun turret to be assigned to an alternate gunner in the event a gunner was wounded or killed, and it allowed guns to be brought to bear by the gunner with the best field of view for the oncoming enemy planes.

B-29 crews operated as a unit throughout their combat tour. Dad was responsible for Crew 2408: the eighth crew in the 24th Bomb Squadron. These men stayed together throughout their tour unless a replacement was needed. Dad's crew ended the war with three replacements: on one mission, the right waist gunner was seriously wounded, surviving to be sent back to the States; on another mission the crew had to bail out and the flight engineer suffered a serious back injury; and, late in the war, the original pilot, First Lieutenant Ramon Holtzclaw, was promoted to airplane commander and transferred to another crew and plane. Their replacements were the only changes in Dad's crew.

The B-29 was designed by Boeing and produced at four plants. About three-quarters of the planes were made in two Boeing plants (Renton, Washington, and Wichita, Kansas); the rest were made in the Bell plant at Atlanta, Georgia, or in the Martin plant at Omaha, Nebraska. The only evidence of the production site was the "data block" located outside and below the APC's window on the left side; this was a plaque reporting the plane's model, its block number, its serial number, and its place of production (Renton-BN, Witchita-BW, Bell Atlanta-BA, or Martin Omaha-MO). The plane was being constantly refined, and the block number designated the precise set of plans used to produce that plane. For example, *Fortune's Follies*, Dad's first plane, was B-29A-30-MO, USAAF Serial Number 42-65347. This meant that it was a B-29, model A, made in block 30 at Martin's Omaha Plant (MO), with serial number 42-65347.

There were several B-29 variations made. The B-29A was the earliest and most familiar model, its fuselage bristling with top, bottom, and tail guns. The B-29B, made later in the war after Japanese air defenses had weakened, carried only the tail guns. The B-29B's sleeker fuselage gave it better range and speed than the highly armed B-29A, and it allowed a larger bomb load. A B-29C was designed but never produced, and the B-29D was produced after the war as the B-50. Very late in the war a "Silverplate Edition" of the B-29B was made.[1]

In addition, some B-29s were modified to serve special tasks: weather reconnaissance, aerial photography, or as air rescue planes (called Super Dumbos). After the war, B-29s were also modified to serve as refueling tankers.

[1] The 6th Bomb Group flew only B-29A's with one exception: a single B-29B, *Some Pumpkins*. She was renamed *Some Punkins* and assigned to the 509th Composite Group after its arrival in mid-July.

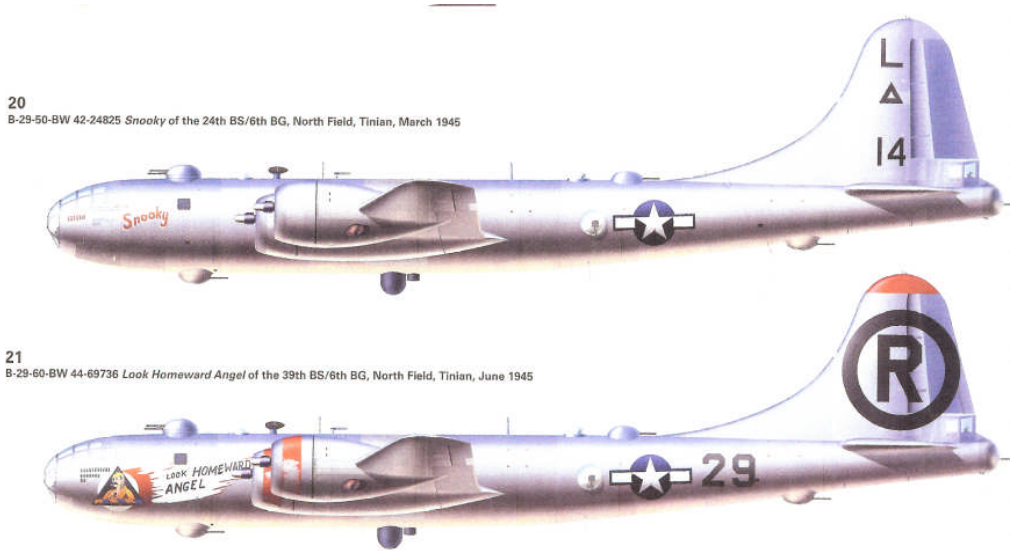
Identifying B-29s

I have spent a great deal of time and effort tracing the planes in Dad's group to find those that were assigned to him. This required becoming knowledgeable in B-29 identification, a tedious task aided by two books on B-29s by Robert A. Mann, who examined the aircraft record cards for each B-29 assigned to the Army Air Forces. Essential as Mann's books were, they are filled with incorrect information (including inconsistencies between the two books) that required separate confirmation in many cases. To nail down the primary planes flown by Dad, I developed a (hopefully) complete inventory of all B-29s used by the 6th Bomb Group. A summary of this inventory is reported in Table 1; the complete inventory is available on request.

According to Mann there were 3,960 B-29s constructed and delivered to the USAAF, each costing about $650,000 in 1940s dollars.[2] Each plane was identified by a seven-digit serial number, such as 42-65347. The first two digits were the fiscal year in which the Army Air Force ordered the plane; this was not the year of delivery and, paradoxically, a plane ordered in 1942 might not be delivered until after a plane that was ordered in 1944: the designation 44 could refer to a plane older than another designated 42. Because B-29s were ordered in either 1942 or 1944, the first two digits were either 42 or 44. The next five digits were unique to the plane.

[2] Only one of those 3,960 B-29s is still flying: *FiFi*, 44-62070, operated by the Commemorative Air Force (once called the Confederate Air Force), was originally assigned to the 330th Bomb Group, where she was called *Lucky Strike.* Other B-29s are on display at museums and air bases around the world.

While the serial number was the primary identification used in Army records, each bombardment group had markings for visual identification. These group markings were tail codes for their planes, as well as group plane numbers. Before April of 1945 the 6th Bomb Group had each rudder painted with an L over a hollow triangle over a plane group number. As an example, *Snooky* (42-24825), shown below, was plane number 14 in the 6th Bomb Group. She was designated as L TRI 14—B-29 number 14 in the 6th Bomb Group (L) of the 313th Bomb Wing (TRIangle).



6th Bomb Group B-29 Markings Before and After April 1945

However, in April of 1945 the 6th Bomb Group's tail codes were changed to a circle with an R inside it, and the plane number was moved from the rudder to the side of the fuselage; the circle denoted the 313th Bomb Wing, the R denoted the 6th Bomb Group.

Snooky then became CIRC R 14.[3] As shown above, *Look Homeward Angel* (44-69736), a well-known 6th Bomb Group plane, was CIRC R 29.[4]

An additional group marking common to all 6th Bomb Group planes was a logo with a pirate painted on each side of the nose. This logo, shown on page 5, is reputed to be the pirate Jean Lafitte; it arose from the Group's pre-WWII history of posting in the Caribbean. The pirate logo was sometimes added prior to April, and it was always added thereafter.

In addition, crews typically—but not always—added their own touches. Among these were a plane nickname (Dad's planes were *Fortune's Follies*), and mission markings recording the number of missions flown (one bomb for each bombing mission, one mine for each mining mission) and the number of enemy planes shot down (one Japanese flag for each shot down, sometimes a partial flag for a "probable"). The famous "nose art" displaying scenes that were close to the crew's hearts, often risqué, was not common in the 6th Bomb Group, but it was common elsewhere until April, 1945, when censorship entered the Pacific Theater.[5]

A final identification method, used solely for operational purposes, was the plane's Victor number, the last four digits of the serial number. For example, *Fortune's Follies*, with serial number 42-65347, was known as Victor 5347 when the 6th Bomb Group assigned planes to crews for a mission (see Table 3 for a mission assignment list); the Victor number also served as the radio code for the plane. A four-digit Victor

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[3] At about this time *Snooky*'s original crew crashed in *Fortune's Follies*, Dad's first plane. Its original crew decimated by six deaths, *Snooky* was assigned to Lt. Dragi C. Lazin's crew 2412 and was renamed *Patty Sue*.

[4] Ironically, LHA never made it home. She survived the war but was junked at Kwajalein on her trip back to the States.

[5] The genesis of the April 1945 nose art censorship is unknown. One story is that Eleanor Roosevelt was offended by press reports of nose art with nudity and risqué names.

number was considered sufficient to minimize the chance of two or more planes in a group having the same number; hence reducing confusion in assignments and radio calls.[6] If planes shared Victor numbers, a letter was attached to distinguish between them.[7] In the post-war period, when the number of planes assigned to an operational unit was smaller, Victor numbers with fewer digits were used. For example, many B-52 units employed two-digit Victor numbers.

[6] If planes are randomly assigned to groups and there are fifty planes in a Bomb Group (the maximum on the 6th BG's roster), the probability that all fifty planes would have different V-numbers is 88 percent—that is, about one in eight planes in a group would experience some V-number duplication.

[7] In fact, one of Dad's planes had the same Victor as another 6th Bomb Group plane: Victor 4058.