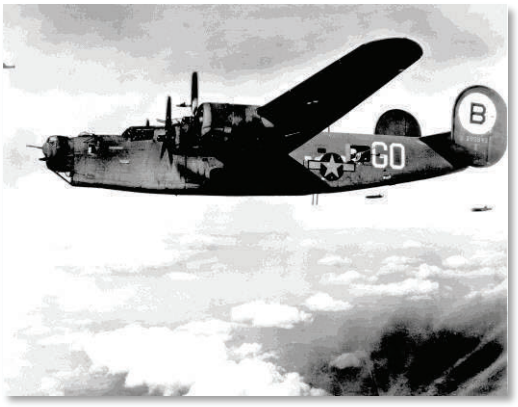
B-24 LIBERATOR



The B-24 Liberator was produced in larger numbers than any other American aircraft during World War II. The B-24J Liberator was an upgrade of the workhorse B-24D that had been in service in the European and Asia Pacific Theaters of Operation since 1942. The "D" was the first B-24 to be qualified for combat. Under the original Production Pool plan, Consolidated/San Diego was the prime manufacturer, supplying components to Fort Worth and Douglas/Tulsa for assembly. In May, 1942 the first of 2738 B-24D's rolled off the assembly lines.

Due to rapidly changing needs, especially for defensive machine guns, there were many variations within the B-24D model, these differences identified by "production blocks" (e.g B-24D-70-CO). Various ventral gun systems were tired, including a totally unworkable, Bendix turret theoretically aimed with a periscope. Another, familiar problem was inadequate firepower in the nose. In the "D" two cheek guns were added, but didn't work out so well.

Specs for late model B-24D:

- Four Pratt & Whitney R-1830-43 fourteen-cylinder radial engines, rated at 1200 hp.
- Performance: Maximum speed 303 mph at 25,000 feet.
- Service ceiling: 32,000 feet.
- Range: 2300 miles with 5000 pounds of bombs. Maximum range 3500 miles.
- Fuel capacity: 3614 US gallons.
- Dimensions: Wingspan 110 feet 0 inches, length 66 feet 4 inches, height 17 feet 11 inches, wing area 1048 square feet.
- Weights: 32,605 pounds empty, 55,000 pounds gross, Maximum takeoff weight 64,000 pounds.
- Armament: Bomb bay could accommodate up to eight 1600-pound bombs.
- The late model "D"s included eleven .50 caliber machine guns: three in the nose, two in the belly turret, two in a tail turret, two in a dorsal turret (just aft of the cockpit), and two in the waist

A few non-numerous production variants included: the B-24E - produced at Willow Run, similar to the "D" model; C-109 - a tanker conversion of the B-24E, capable of carrying 2,900 gallons of fuel, used over "the Hump" (the Himalayan Mountain Range) from India to China and the B-24G - North American's model, all equipped with the nose turret.

Trying to increase forward firepower, some 90th Bomb Group field engineers got the bright idea to install a cannibalized B-24 tail turret in the nose. It worked pretty well, and an Emerson A-15 twin-gun nose turret was standardized on B-24H's. The top and tail turrets were improved, and the camouflage paint was omitted late in the "D" series. 3,100 were produced, over half at Willow Run.

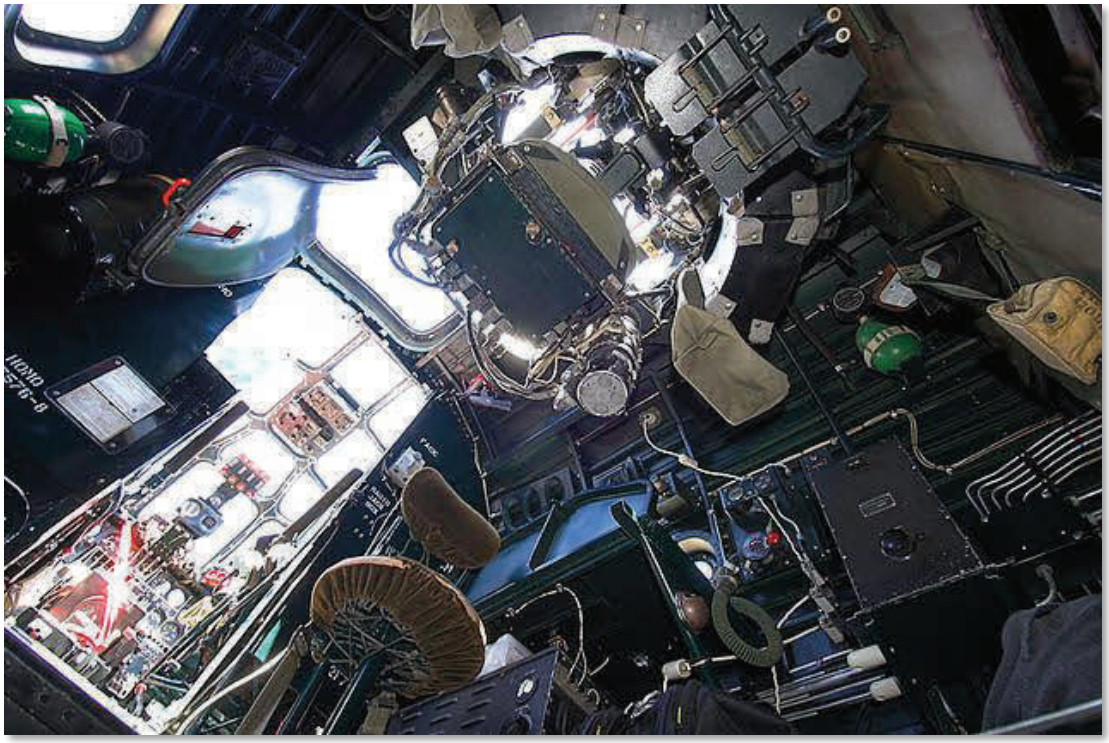
The B-24J was essentially the same as the B-24H; but early "J"s were equipped with the Convair (merged Consolidated/Vultee) A-6A nose turret, instead of the Emerson A-15 turret, due to a limited supply of the Emerson turrets. By early 1944, enough Emersons were available for all five factories. The B-24J was also

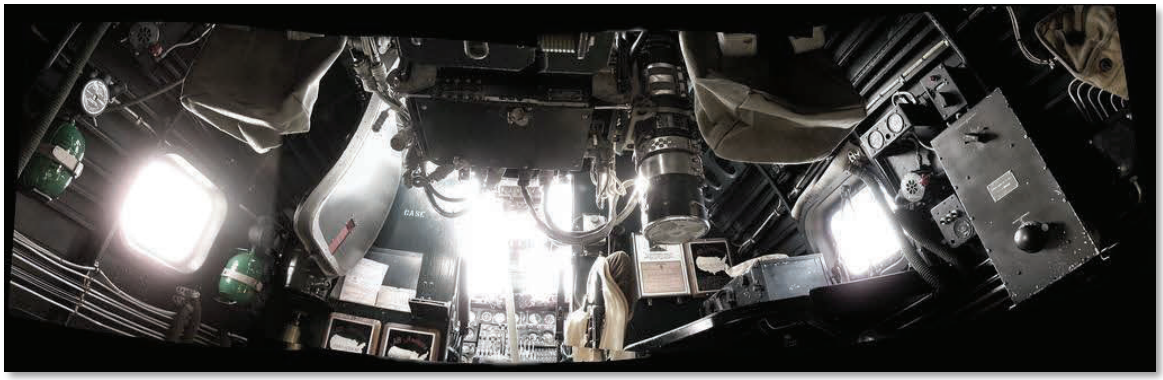
equipped with an improved C-1 automatic pilot, a new M-series bomb sight, an electronic control system for the turbosuperchargers, and a better fuel transfer system. Excessive weight was a real drawback of the B-24J; numerous additions totaling 8,000 pounds had been made since the B-24D, but using the same engine. Performance, fuel efficiency, and flight stability fell off because of this excess weight.

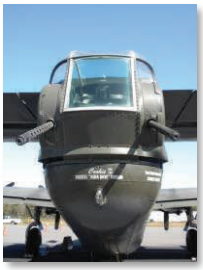
6678 B-24J's were produced. By late 1944, the Army foresaw a lessened demand for Liberators, and ordered that three of the plants be freed up for other purposes. Only Ford-Willow Run and Convair-San Diego continued turning out B-24's in 1945. Late in the B-24 program, attempts were made to trim its weight (in the Pacifc, field engineers had been removing the belly turrets to save weight). The result was the B-24L, some 1,000 pounds lighter than the "J," of which 1667 were built, mostly at Willow Run.

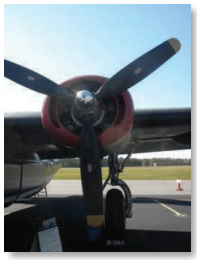
Specs of B-24J (key differences from B-24D in **boldface**)

- Four Pratt & Whitney **R-1830-65** fourteen-cylinder radial engines, rated at 1200 hp, **with GE turbosuperchargers**
- Performance: Maximum sustained speed **278 mph** at 25,000 feet.
- Service ceiling: **28,000 feet**.
- Range: **1700 miles** at all-up weight of 61,500 pounds.
- Fuel capacity: 3614 US gallons.
- Dimensions: Wingspan 110 feet 0 inches, length 64 feet 2 inches, height 18 feet 0 inches, wing area 1048 square feet.
- Weights: **38,000 pounds empty**, 55,000 pounds gross, Maximum takeoff weight **71,000 pounds**.
- Armament: Bomb bay could accommodate up to eight 1600-pound bombs.
- Eleven .50 caliber machine guns: three in the nose, two in the belly turret, two in a tail turret, two in a dorsal turret (just aft of the cockpit), and two in the waist

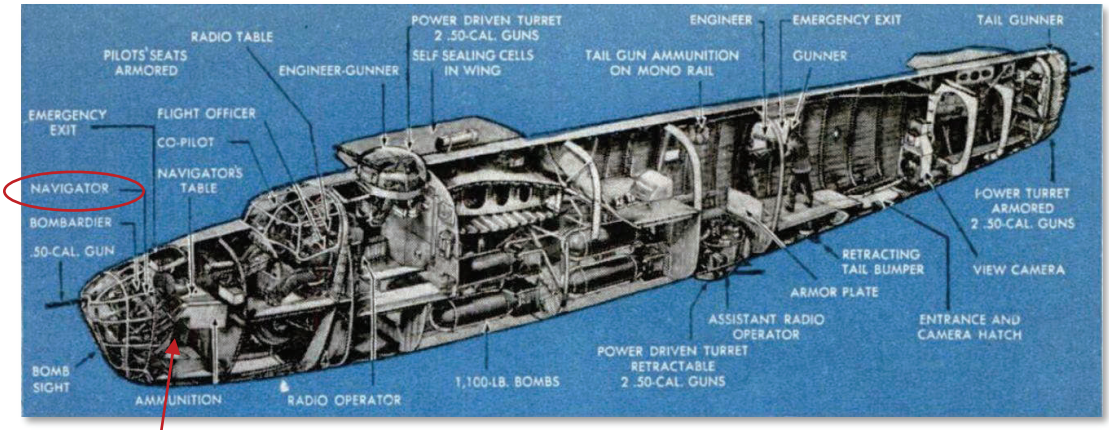


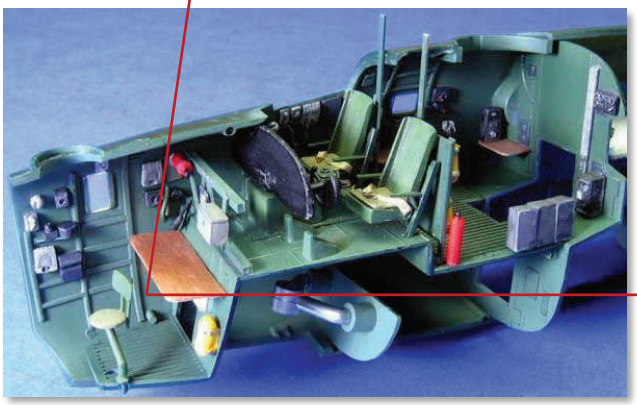


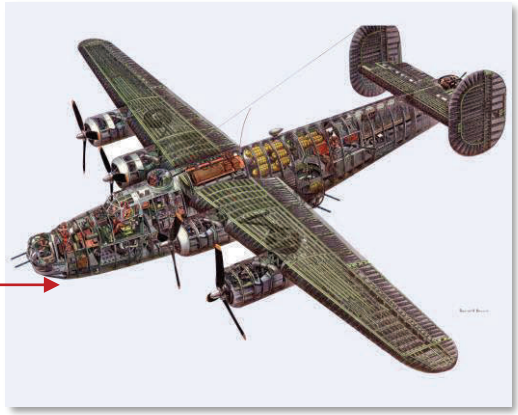


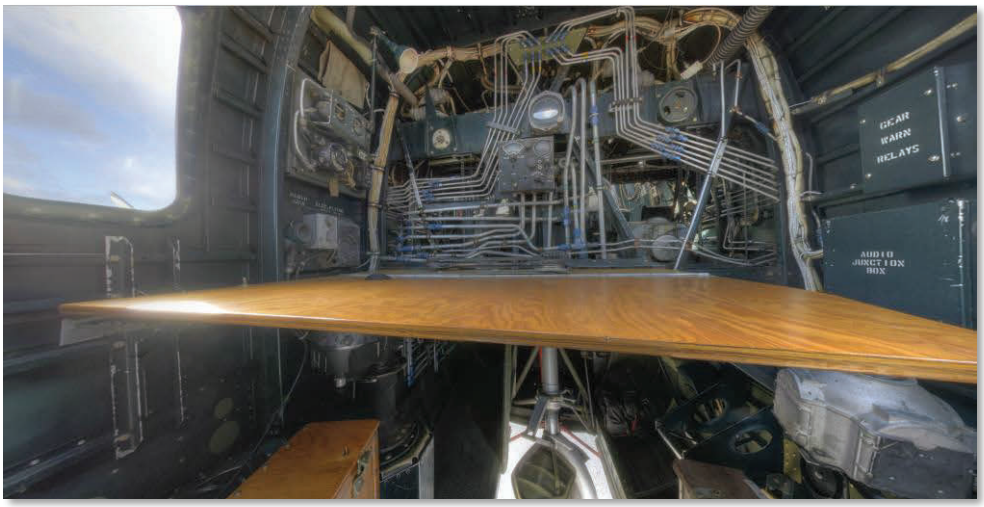


2nd Lt. Anthony J. Goode's office would be at the cramped navigator station in the nose of a B-24J Liberator Bomber facing backwards immediately behind the nose gunner, under the feet of the pilot and co-pilot, and straddling the head and shoulders of bombardier. Amidst the tangle of hydraulic lines and cables was a plywood table and mechanical course plotting tools. Above him was a small plexiglass dome just big enough for his head and shoulders giving him a 360 degree view of the sky for celestial navigation. The primary way in or out were through the wheel well immediately under the navigator table but only when the landing gear was extended. The observation dome could also be removed, albeit with some difficulty and was effective in water or belly landings when the wheel well was blocked or flooded. Trying to get through the emergency dome exit while donning a parachute was difficult at best if not impossible and there was the possibility of being hit by the B-24 tail.









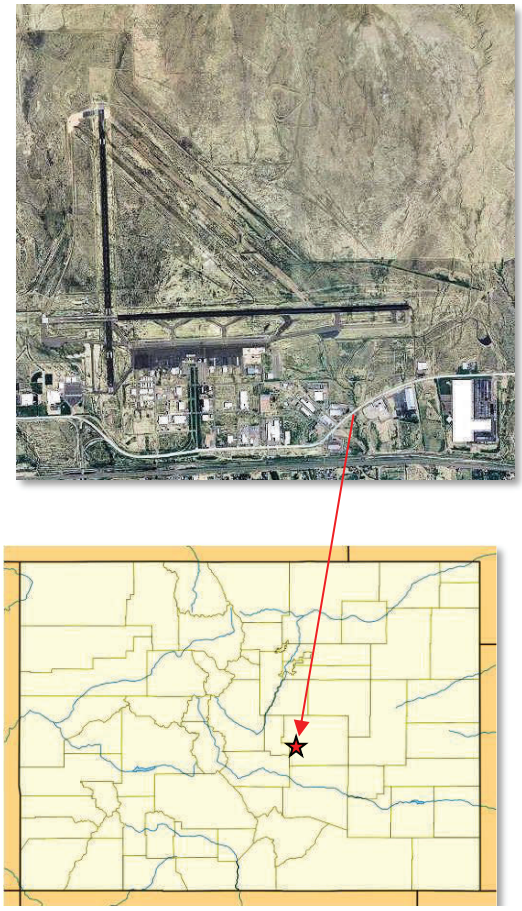
Navigator's Table Looking Aft

Looking Forward From Under the Navigator's Table Towards the Bombardier Station and Downwards Through the Nose Gear Wheel Well to the Tarmac Below

Looking Up at the Overhead Navigation Dome

Looking Forward and Downwards to the Bombardier's Position and the Top Secret Norden Bombsight. The Nose Gunner Position Is Just Above the Bombardier Behind the Riveted Metal Bulkhead.

ADVANCED AND COMBAT CREW TRAINING - Built in 1941 as the **Pueblo Army Air Base**, it was used as an advanced flying school to train B-17 Flying Fortress and B-24 Liberator four engine heavy bomber crews. It was under the command of the United States Army Air Forces Second Air Force 360th Army Air Force Base Unit.



Diligent, thorough training of all unit personnel was critical in carrying out future missions under combat conditions. Formation flying was emphasized for pilots, and personnel assigned to all other combat crew positions were given the best training possible. Our combat crew training was concluded with a cross-country formation flight across the United States to Bermuda and back with 35 aircraft and crews.

Training as a crew was intense, flying night and day, all over the local region. Crews practice day and night landings in all weather conditions until they were fully proficient. Frequent long distance cross country trips were common testing the endurance of the crew given the inherent long range capabilities of the B-24. It was not uncommon to fly a course as far as Bermuda and back again to base.

Practice bombing runs with both live and dummy munitions were numerous and essential as that was the primary role of the aircraft. Experience with variations in altitude, visibility, temperatures and other weather conditions were the norm as were flying and landing with less than the full complement of operating engines. Accidents and breakdowns were not uncommon serving to keep the crew on their toes.

After five months the combat crew was ready and they would receive their deployment orders. For 2nd Lt. Anthony J. Goode those orders came in early February 1944 and his crew was assigned to the Western South-Pacific as part of the 13th Air Force 72nd Bombardment Squadron (Heavy) in the 5th Bombardment Group. Their deployment to the "Jungle Air Force"[1] came just in time to be part of General Douglas MacArthur's thrust to retake control of the islands of the South Pacific as a staging point for retaking the Philippines.

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[1] From 1942–1945, Thirteenth Air Force staged out of tropical jungles. Dubbed the "Jungle Air Force" because its squadrons were never based near cities or civilization, the 13th battled over millions of square miles of ocean and tropical islands on more than 40 remote islands including the Gilbert and Marshall Islands campaign; Mariana and Palau Islands campaign and the Philippines campaign (1944–45). The command's units participated in a total of five different operation areas and 13 campaigns.