North American B-25C Mitchell

Last revised March 8, 2000

The B-25C was the first version of the Mitchell to be mass-produced. Following the completion of the initial B-25, B-25A, and B-25B contracts, a number of contracts were awarded to North American for 1625 B-25Cs to be built at its Inglewood factory. At the same time, an additional contract was issued for 2290 essentially identical B-25Ds, to be built at a new North American plant in Kansas City, Kansas.

The first B-25C contract was approved on September 24, 1940 for 863 aircraft under the company designation NA-82. On June 24, 1941, the Netherlands government ordered an additional 162 aircraft under the designation NA-90 which were later built as the B-25C-5. Lend-Lease funds financed contracts signed on January 23, 1942 for 150 NA-94 (B-25C-10) for Britain and 150 NA-93 (B-25C-15) for China. However, these allotments were not followed in the delivery of actual aircraft.

The B-25C was outwardly almost identical to the B-25B. It introduced the R-2600-13 Double Cyclone engine with Holley 1685HA carburetors in place of the earlier Bendix Stromberg PD-13E-2 units. The Bendix carburetors were favored because of their easier maintenance, but they required more careful anti-icing procedures. De-icer and anti-icing systems were added, and a Stewart-Warner cabin heater was added in the left wing. A 24-volt electrical system was also added.

The armament of the B-25C was the same as that of the B-25B, namely a single 0.30-inch machine gun in the nose, two 0.50-inch machine guns in the dorsal turret, and two 0.50-inch machine guns in a retractable ventral turret. The ventral turret was often removed in the field.

The B-25C introduced a new type of tail skid underneath the extreme rear fuselage, a solid unit which replaced the spring-loaded tail skid of earlier versions. This type of tail skid was retained throughout the Mitchell production run.

On the earlier B-25s, the exhaust pipe coming out of the back of the engines extended all the way to a position underneath the forward leading edge of the wing. On the B-25C, the exhaust pipes were considerably shortened, and terminated immediately behind the engines.

The fuel was carried in four tanks in the inner wing panels, with a total capacity of 670 US gallons. In addition, a 515-gallon tank could be installed in the bomb bay for ferrying purposes, bringing total fuel capacity to 1255 US gallons.

Beginning with B-25C serial number 41-12817, a small transparent scanning blister was installed above the navigator's station. At this time, the turrets were changed to Bendix Amplidyne type, and a carbureter air filter was added. Changes were made so that an additional 304 US gallons of fuel could be carried in auxiliary cells in the outer wing panels, for a total of 974 US gallons.

The B-25C-1 production block introduced under-wing bomb racks which could accommodate six to eight 100- to 325-pound bombs. In addition, provisions were made for a rack underneath the fuselage capable of carrying a short 22.4-inch torpedo weighing 2000 pounds. If the torpedo was carried, no bombs could be, although a bomb bay fuel tank could be used. The Mitchell was employed only in limited numbers as a torpedo plane against Japanese shipping. However, extensive use was made of the external wing racks, which could carry six to eight bombs of 100-325 pounds in weight.

Beginning with the B-25C-5 production block, the 0.30-inch nose gun was removed and replaced by a flexible 0.50-inch machine gun in the extreme nose and a fixed 0.50-inch machine mounted on the starboard side of the nose and firing through a hole cut into the side of the Plexiglas glazing. At the same time, better winterization provision were made.

The B-25C-5 production block also introduced a new type of engine exhaust. The B-25B and earlier C versions had a problem with bright spurts of flame being emitted from the exhaust, a dead giveaway during night operations. This problem was so bad that the Mitchell had to be restricted from night operations where enemy aircraft could be expected. In these earlier versions, the exhaust from each cylinder head was gathered by a collector ring, which directed the exhaust to the outside via a single pipe on the side of the nacelle away from the fuselage. Several different exhaust modifications were tried out in an attempt to alleviate this problem. The most effective arrangement was found to be a the replacement of the single exhaust pipe by a set of "finger"-type flame

dampening exhaust collectors which ported the exhaust through groups of small rectangular outlets that stuck out underneath the trailing edge of the cowl flaps. These "finger"-type flame dampeners were installed on the production line beginning with the B-25C-5 production block. These were fairly effective flame quenchers, but they suffered considerable cracking and few B-25Cs reached combat zones without the replacement of these finger exhausts by full collector rings or by the later Clayton S-shaped stacks that were introduced on the -15 production block.

The B-25C-10 production block introduced an AM remote reading compass, provisions for additional cabin heating, and an improved scanning lens for the sig.

Beginning with the B-25C-15 production block, the exhaust collector ring was replaced with Clayton "S"-shaped flame dampening stacks attached to each individual cylinder. Cutouts and fairings were added to the cowling panels where each of the stacks protruded, creating a rather cluttered cowling shape. These protrusions introduced a slight speed penalty, but this was considered an acceptable tradeoff in view of the better flame dampening that was achieved. This feature was provided on all subsequent Mitchells. However, the new exhaust system was not all that popular with Mitchell crews, since it resulted in an increase in cockpit noise as compared to the old arrangement in which collector rings ported the exhaust to the outboard side of the nacelles.

At the same time, emergency hydraulic landing gear lowering devices were provided.

Deliveries on a new contract (NA-96) began in February 1943 with the similar B-25C-20.

Beginning with production block B-25C-25, a "clear-vision" windshield was installed. Provisions were made for the fitting of additional fuel tanks for ferrying purposes. 125 gallons of fuel could be carried in side-mounted tanks in the waist position. A 215-gallon self-sealing fuel tank could be installed in the bomb bay, and provisions for a droppable 335-gallon metal bomb-bay fuel tank were made on every second airplane.

B-25C serial number 43-32732 was fitted with a special bomb bay rack to carry an airborne flame thrower. The results of tests with this unusual feature are unknown.

The first B-25C was accepted in December of 1941, with the 1619th and last one being delivered in May of 1943.

Serials of North American B-25C Mitchell

41-12434/13038 North American B-25C Mitchell
c/n 82-5069/82-5673
41-13039/13296 North American B-25C-1 Mitchell
c/n 82-5674/82-5931
42-32233/32382 North American B-25C-10 Mitchell
c/n 94-12641/94-12790
42-32383/32532 North American B-25C-15 Mitchell
c/n 93-12491/93-12640
42-53332/53493 North American B-25C-5 Mitchell
c/n 90-11819/90-11980
42-64502/64701 North American B-25C-20 Mitchell
c/n 96-16381/96-16580
42-64702/64801 North American B-25C-25 Mitchell
c/n 96-16581/96-16680

Specification of the North American B-25C Mitchell:

Engines: Two Wright R-2600-13 Double Cyclone fourteen-cylinder air-cooled radials, each rated at 1700 hp each for takeoff, 1500 hp at 2400 rpm. Equipped with Holley 1685HA carburetors. Performance: Maximum speed 284 mph at 15,000 feet. Cruising speed 233 mph at 15,000 feet. Initial climb rate 1100 feet per minute. An altitude of 15,000 feet could be reached in 16.5 minutes. Service ceiling 24,000 feet, Range 1500 miles with 3000 pounds of bombs. Weights: 20,300 pounds empty, 34,000 pounds maximum loaded. Dimensions: wingspan 67 feet 67.7 inches, length 53 feet 0 inches, height 15 feet 9 inches, wing area 610 square feet. Fuel: The fuel capacity consisted of four tanks in the inner wing panels, with a total capacity of 670 US gallons. In addition, a 515-gallon tank could be installed in the bomb bay for ferrying purposes, bringing total fuel capacity to 1255 US gallons. Later versions had additional auxiliary fuel tanks in the outer wing panels. Later versions could also have 125-gallon tanks fitted in side waist positions, a 215-gallon self-sealing fuel tank installed in the bomb bay, and provisions could be made for a droppable 335-gallon metal bomb-bay

fuel tank. the waist position. Armament: Two 0.50-inch machine guns in dorsal turret. Two 0.50-inch machine guns in retractable ventral turret. One 0.30-inch machine gun in flexible mount in the nose. Starting with B-25C-5 the 0.30-inch nose gun was removed and replaced by a flexible 0.50-inch machine gun in the extreme nose and a fixed 0.50-inch machine mounted on the starboard side of the nose and firing through a hole cut into the side of the Plexiglas glazing. Normal bomb load was 3000 pounds but could be increased on the B-25C-1-NA with external underwing racks to a maximum of 5200 pounds.

Sources:

1. B-25 Mitchell: The Magnificent Medium, N. L. Avery, Phalanx, 1992.
2. Medium with the Mostest--The B-25 Mitchell, Jerry Scutts, Air International, Vol. 44, Nos 2 and 3, 1993.
3. Boston, Mitchell, and Liberator in Australian Service, Stewart Wilson, Aerospace Publications, 1992.
4. Famous Bombers of the Second World War, William Green, Doubleday, 1959.
5. North American's Flying Gun--The Story of the B-25 From Paper Airplane to Legendary Bomber, Jack Dean, Wings, Vol 23 No 4, 1993.
6. United States Military Aircraft Since 1909, Gordon Swanborough and Peter M. Bowers, Smithsonian, 1989.
7. United States Navy Aircraft Since 1911, Gordon Swanborough and Peter M. Bowers, Naval Institute Press, 1990.
8. North American B-25A-G Mitchell, Aircraft in Profile, Doubleday, 1966.
9. Jane's American Fighting Aircraft of the 20th Century, Michael J. H. Taylor.