The first production model was the P-82B (Model NA-123), with a pair of Packard Merlin V-1560-19/21 engines. Five hundred production P-82Bs were ordered by the USAAF. These P-82Bs were basically similar to the XP-82, but differed in having provisions for underwing racks capable of carrying four 1000-pound bombs, two 2000-pound bombs, or 25 5-inch rockets. A central pod carrying eight additional 0.50-inch machine guns could also be fitted.

The P-82B was one of the hottest piston-engined fighters of the war. Maximum speed was 482 mph at 25,100 feet. Normal range was 1390 miles at 227 mph, 1280 miles with a 4000-pound bomb load. Service ceiling was 41,600 feet, and an altitude of 20,000 feet could be attained in 7 minutes. Weights were 13,405 pounds empty, 19,100 pounds normal loaded, and 22,000 pounds maximum. Dimensions were wingspan 51 feet 3 inches, length 38 feet 1 inches, height 13 feet 10 inches, and wing area of 408 square feet.

Only twenty of these P-82Bs had been built by the time of V-J Day (serials were 44-65160/65179). None of these planes managed to get overseas before the end of the war. The end of the war against Japan resulted in the cancellation of the remaining 480 of these P-82Bs.

On February 28, 1947, P-82B serial number 44-65168 piloted by Robert E. Thacker and his copilot John M. Ard flew nonstop without refueling from Hickam Field, Hawaii to LaGuardia Airport, New York, covering a distance of 4968 miles in 14 hours 31 minutes 50 seconds for an average speed of 342 mph. This airplane, named *Betty Joe* after Thacker's wife, carried four external fuel tanks under the wings for this flight. This was the longest unrefuelled flight ever carried out by a piston-engined fighter. The record still stands.