

6 Conclusion

Despite the problematical development of the R-2800, it became a fine engine. In World War II, it powered numerous fighters and medium bombers, and secured a reputation for ruggedness that was unsurpassed.

Howard Camp, a fighter pilot friend, flew both P-51s and P-47s in World War II. I once asked him which airplane he preferred. "It depends", he replied without hesitation, "on whether you are shooting or being shot at. You want the Mustang if you are shooting and the Thunderbolt if you are being shot at!"

The R-2800 also had a reputation for being robust. While the Wright R-3350 was a great engine, it required considerable care from its operators. On the other hand, the Pratt & Whitney R-2800 could take a lot of abuse and keep right on going. Just prior to World War II, Frank Walker was responsible for the development of anti-detonation injection (ADI) for the R-2800. ADI forces a water-alcohol mix into the induction system to cool the supercharged fuel-air mixture, thereby allowing a much higher manifold pressures and power outputs. Using ADI, Walker was able to coax 3800 HP from an experimental "C" engine

at manifold pressures up to 150 in Hg!¹ This is nearly twice the power the engine was designed to produce.

In addition to its reputation for ruggedness in aircraft like the P-47, the R-2800 developed a reputation for reliability in airline service after World War II. It had a recommended time between overhauls of 2000 hours on twin-engine aircraft, and 3000 hours on 4-engine aircraft.² The Douglas DC-6 was powered by four R-2800s. When Douglas designed the newer, larger DC-7, it chose the more powerful R-3350, and instructed pilots to run them at high power settings in order to achieve promised performance. There is more than a grain of truth in the old joke "What's the difference between a DC-6 and a DC-7? The DC-6 is a four-engine airplane with three-bladed props; the DC-7 is a three-engine airplane with four-bladed props."

The fact that many R-2800s are still in use today nearly sixty years after they were built is testimony to the quality of the vibration solution and crankshaft construction. It is also testimony to the dedication of the engine designers and test engineers. It is no doubt satisfying to Gordon Beckwith, as well as the other test engineers who did not know when to go home, that all of that time spent after hours in the test house was worthwhile.

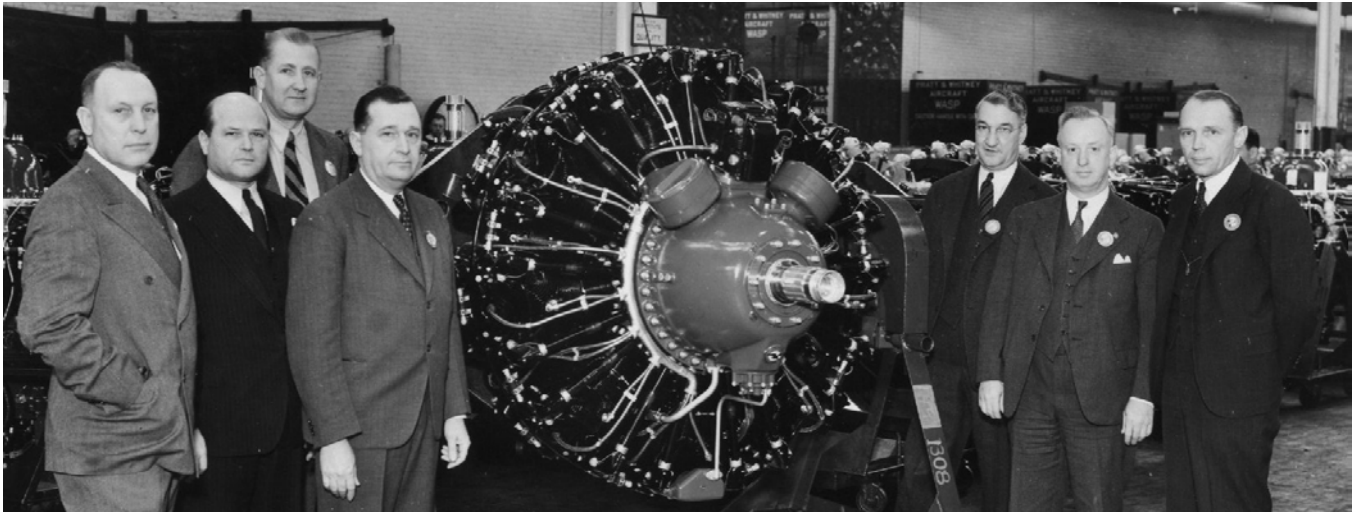


Figure 1. First production R-2800. Pictured left to right are E. Wilson, A. Willgoos, W. Parkins, W. Levack, B. Miller, D. Jack, and L. Hobbs (Pratt & Whitney)

¹ Frank Walker, interview by author (Huntsville, AL, March 29, 1999).

² *R-2800 Engine Reliability*, internal memorandum to Pratt & Whitney Field Service Personnel (December 21, 1967).