

## Pratt & Whitney R-2800 "Double Wasp" Engine



The legendary R-2800 that powered the Marauder and many other superb aircraft (see the list below) is widely considered to be one of the finest piston aircraft engines ever developed. It was a two-row, 18-cylinder, air-cooled radial design displacing 2,804 cubic inches (46 liters), with a bore of 5.75 inches (146 mm) and a stroke of 6 inches (152 mm).

It had a diameter of only 52.8 inches (1342 mm) and a dry weight of about 2,360 lbs. (1,073 kg). Despite being much smaller than the only other contemporary eighteen cylinder

radial, the Gnome-Rhone 18L of 3,442 cu in. (56.4 L), the R-2800 was nevertheless more powerful and thus more difficult to cool. Therefore, the cast or forged cooling fins used in previous motors were no longer practical, and new, very thin and finely shaped, machined fins were developed for the Double Wasp. The engine also incorporated one of the most advanced baffle systems to control cooling air flow.

The valve train was of the poppet type with two valves per cylinder. The engine had a single stage, variable speed, centrifugal supercharger and a Stromberg injection carburetor. It typically burned 100/130 octane aviation gasoline. The R-2800-43 used in the B-26 Marauder produced 1,900 to 2,000 horsepower and had a power-to-weight ratio of about 0.89 hp/lb. (1.46 kW/kg). At the time of its introduction, no other air-cooled engine, and few inline, water-cooled engines could match the Pratt's power-to-weight ratio. The powerplant series was consistently refined and upgraded during WWII, including additions such as a water injection system to increase combat emergency power. Later models towards the end of WWII produced over 2,400 hp.

After World War II, the engine served the Korean war and many other conflicts all the way up until the late 1960s. It also powered a variety of post-war airliners made by Douglas, Lockheed and Martin. Today, more than 60 years after the first Double Wasp was built, it is still used in many restored vintage aircraft and even on modern aircraft such as the Canadair CL215 water-bomber.

### Other Aircraft Powered by the R-2800:

- North American AJ/A-2 Savage
- Grumman AF Guardian
- Curtis C-46 Commando
- Fairchild C-82 Packet
- Fairchild C-123 Provider
- Sikorsky CH-37 Mojave
- Canadair CL-215
- Convair 240, 340 and 440
- Douglas A-26 Invader
- Douglas DC-6
- F4U Corsair
- F6F Hellcat
- F7F Tigercat
- F8F Bearcat
- P-47 Thunderbolt
- P-61 Black Widow
- Lockheed Ventura/B-34 Lexington/  
PV-1 Ventura/PV-2 Harpoon
- SB2A-1 Buccaneer/ A-32/Bermuda
- TBY Sea Wolf
- Vickers Warwick
- Vultee XA-19B
- XB-28 Dragon
- XF-15C-1
- XP-56 Black Bullet
- XP-60