User Guide

Pratt Whitney R-2800 Double WASP

rev. 2018/07 Radial

Scale ~ 1:6.6

For 25mm - 65 mm motors

“History”

Pratt & Whitney R-1340 Wasp

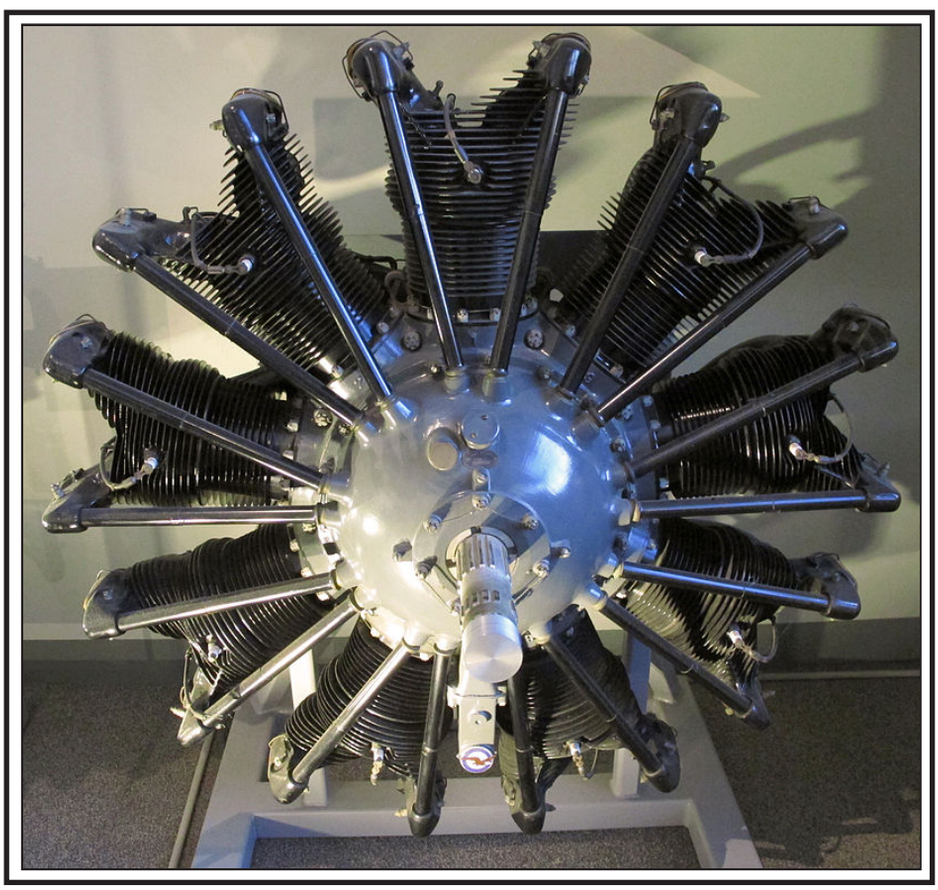


Photo- Wikipedia, the free encyclopedia

History From Wikipedia, the free encyclopedia

The 425 HP, 9 cylinder air cooled wasp became the preferred engine for many military and commercial aircraft, including the Ford 5-AT Tri-Motor and the Boeing 40A. The picture shown is the first built Wasp. Displayed at the Smithsonian's w:National Air and Space Museum, Washington, DC. Displacement: 22.2L (1344 cu in). Power: 425 hp at 1900 rpm. Weight: 295 kg (650 lb). M

Jimmy Doolittle used the Wasp to set records in his Gee Bee Racer and Emelia Earhart made history using the Wasp in her Electra L-10.

“History”

Vought F4U Corsair

Pratt & Whitney’s R-2800

Photo by Peter DE Jong

History From Wikipedia, the free encyclopedia

The Pratt & Whitney R-2800 Double Wasp is an American twin-row, 18-cylinder, air-cooled radial aircraft engine with a displacement of 2,800 in³ (46 L), and is part of the long-lived Wasp family.

The R-2800 saw widespread use in many important American aircraft during and after World War II. During the war years, Pratt & Whitney continued to develop new ideas to upgrade the engine, including water injection for takeoff in cargo and passenger planes and to give emergency power in combat.

“History”

Vought F2G “Super” Corsair

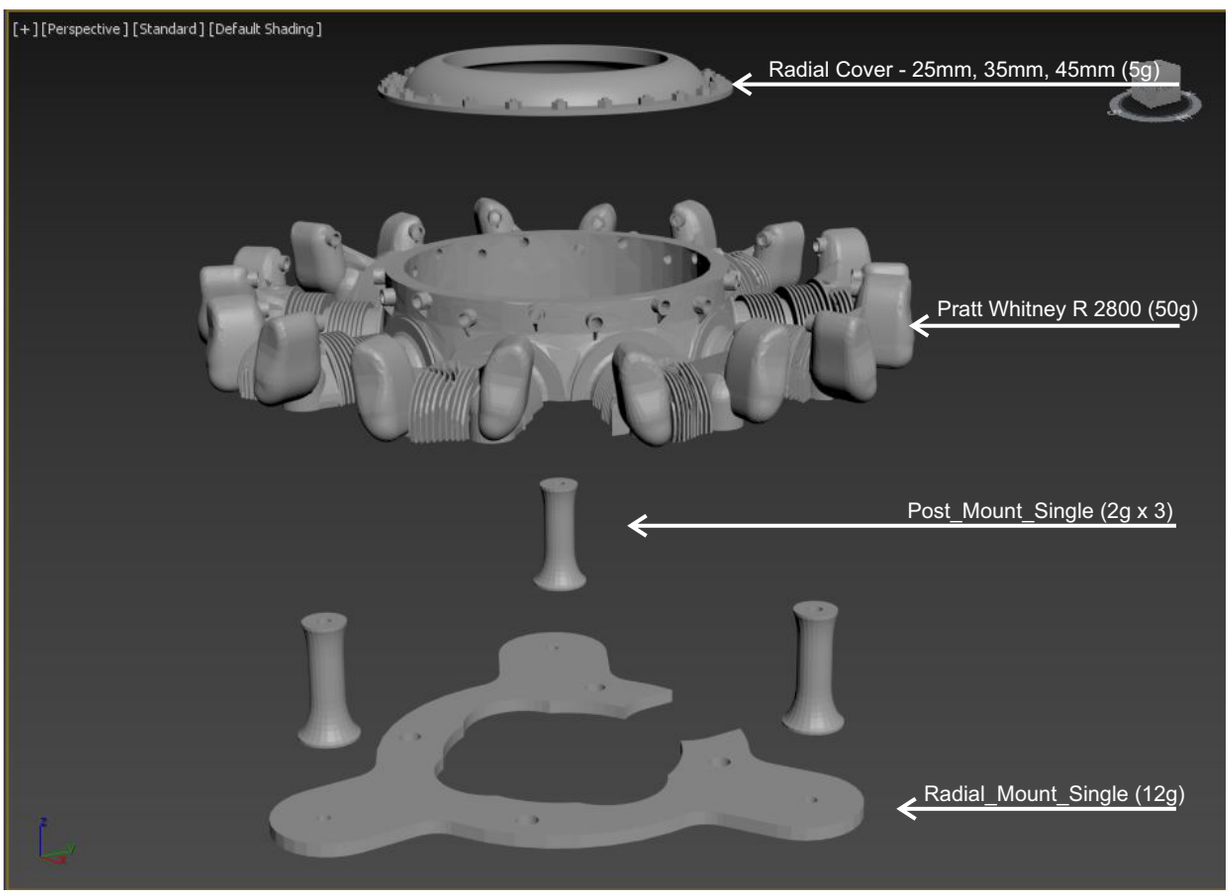
Pratt & Whitney’s R-4360 (nickname “Corncob”)

Photographer Unknown

History From Wikipedia, the free encyclopedia

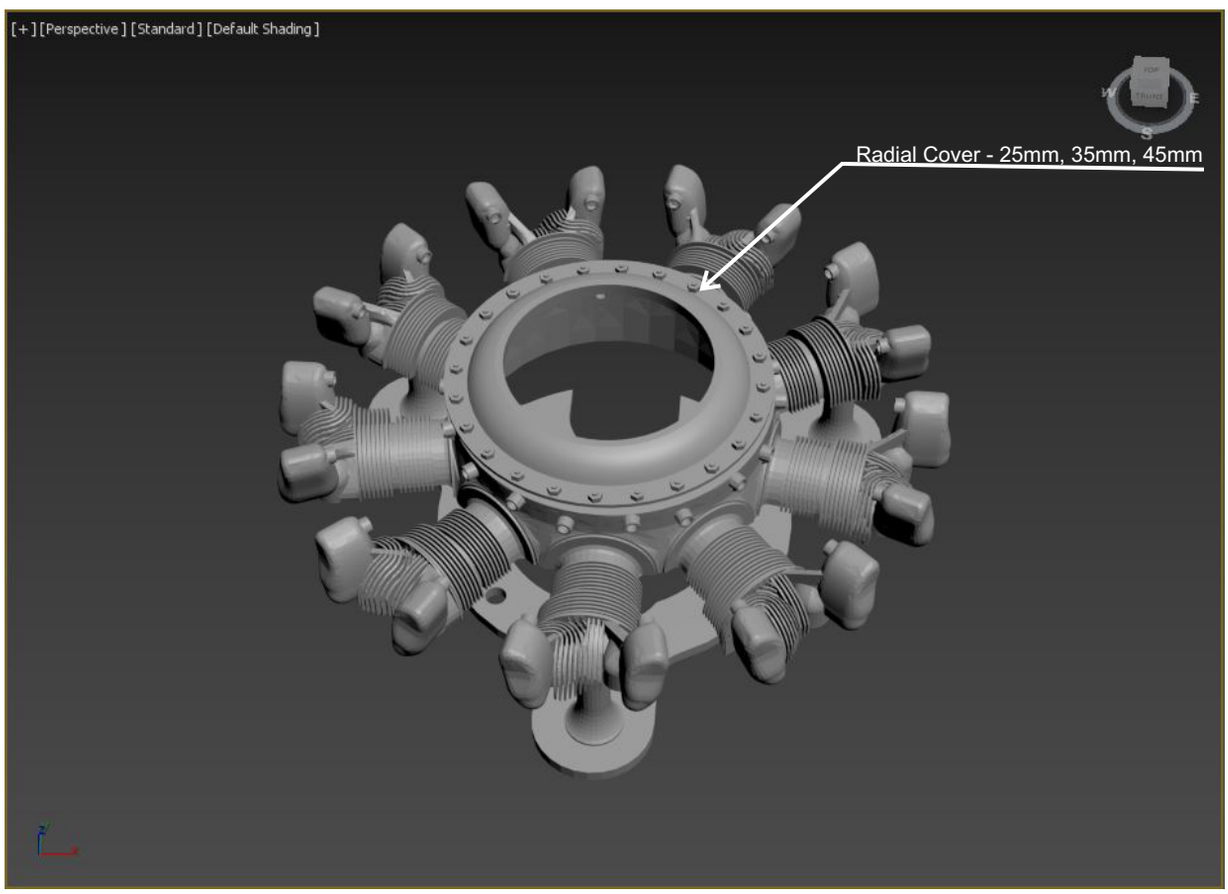
Pratt & Whitney’s 28-cylinder, four-row radial, the R-4360, was the largest and most complex aircraft piston engine to enter production in the West. After cancellation of P & W’s liquid cooled sleeve valve efforts, the R-4360 was rushed into development with an initial rating of over 3000 hp. Although too late for WWII, it played a significant part in postwar military aviation and to a lesser degree, in commercial aviation.

1.1 Stacked Parts (WASP)



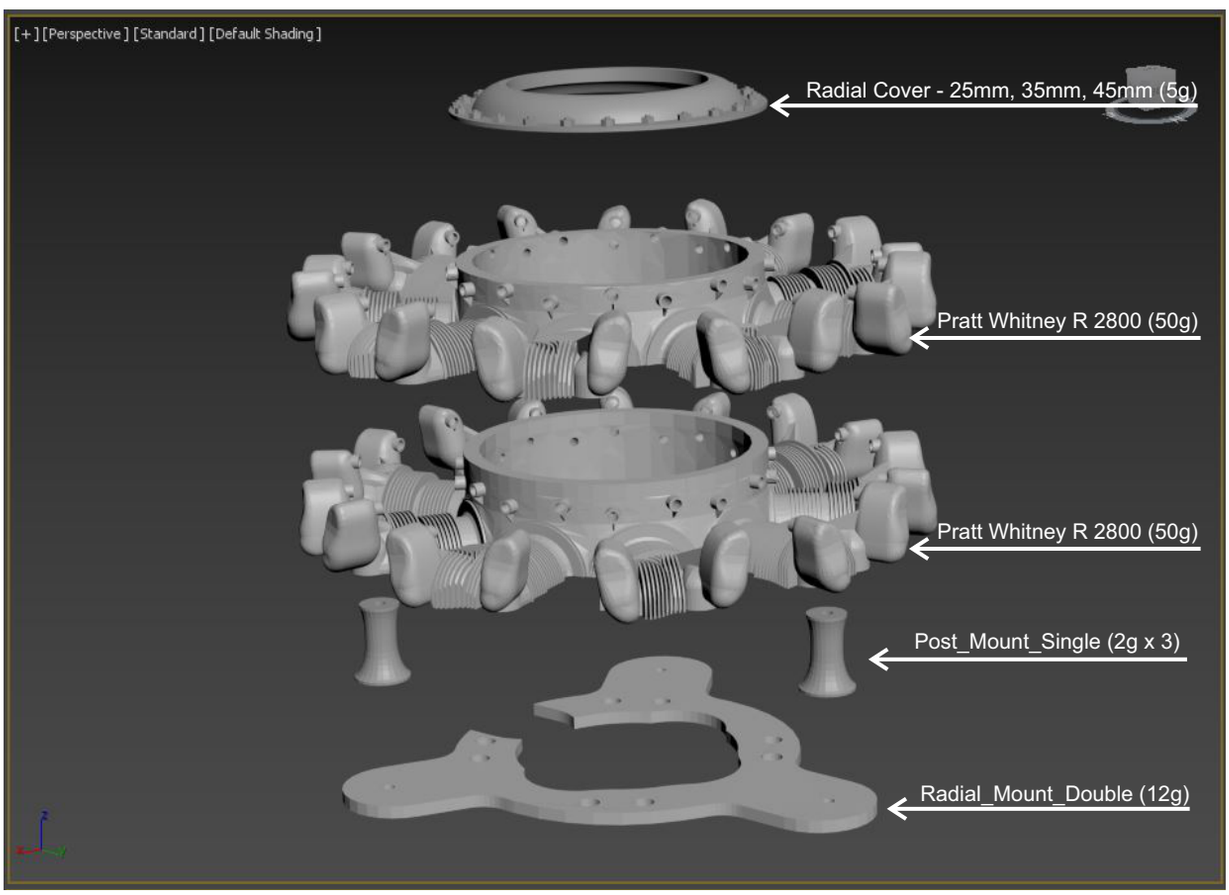
Using a single layer R-2800 will allow plenty of air-flow, it is suggested that you use this setup first making sure that you are not over heating your ESC & Motor. After your first flight with the single WASP, check ESC & Motor temps, if everything is still cool then you can add the second radial making it a Double WASP.

1.2 Printing Suggestions Single Row



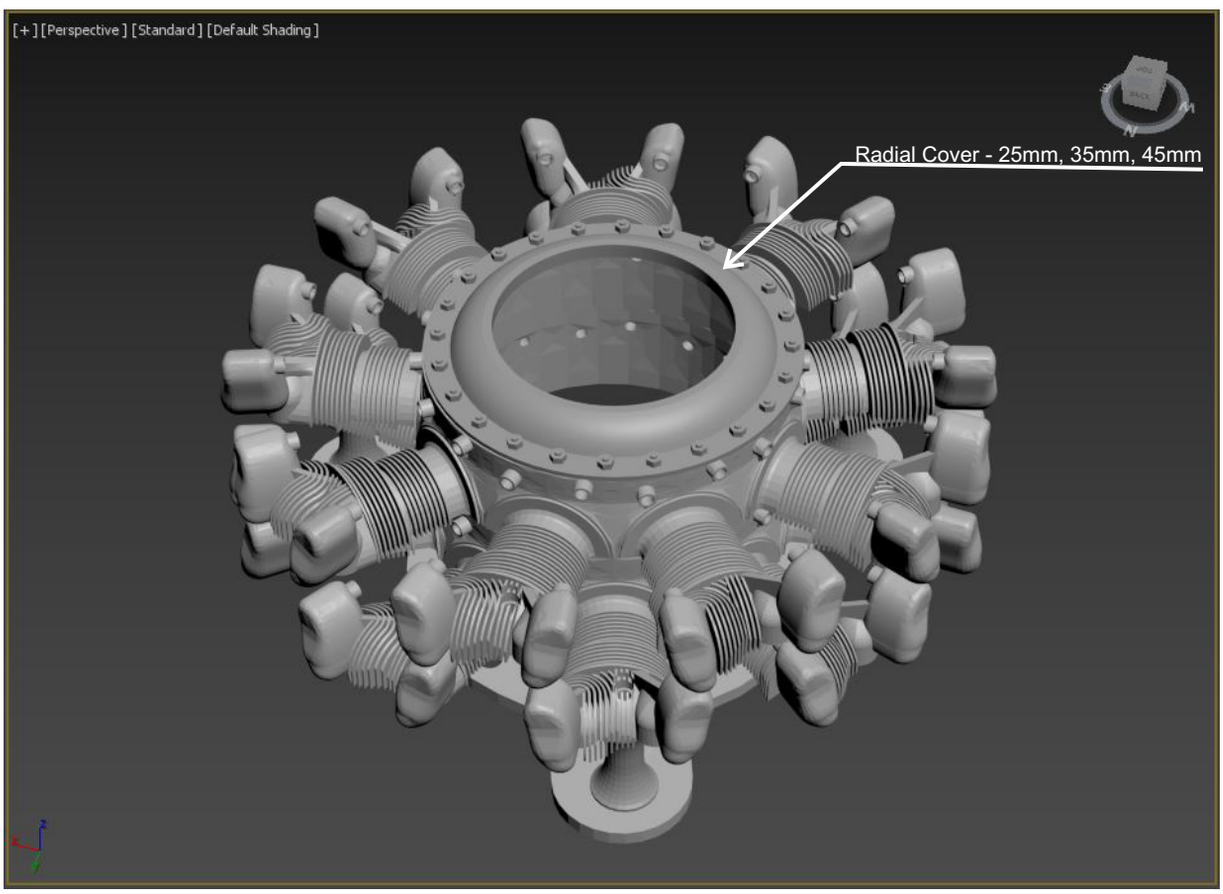
The S3D Factory files are set up to print the parts using a standard .4mm nozzle. The extrusion width has been narrowed to 0.34 allowing the fins to print properly and the layer height has been reduced to 0.2000 mm. These setting should produce a satisfactory part.

2.1 Stacked Parts (Double WASP)



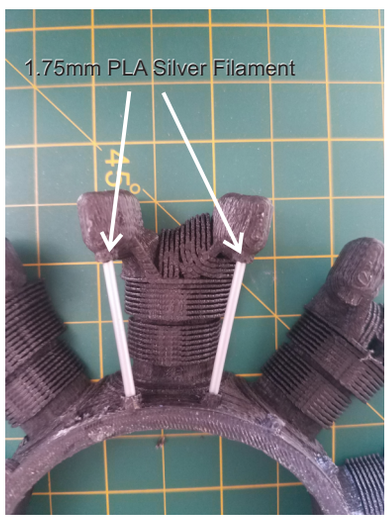
Using two layers, the Double WASP R-2800 will partially block the air-flow, it is suggested that you use this setup first making sure that you are not over heating your ESC & Motor. After your first flight with the single WASP, check ESC & Motor temps, if everything is still cool then you can add the second radial making it a Double WASP.

2.2 Printing Suggestions Double Row



The S3D Factory files are set up to print the parts using a standard .4mm nozzle. The extrusion width has been narrowed to 0.34 allowing the fins to print properly and the layer height has been reduced to 0.2000 mm. These setting should produce a satisfactory part.

3.1 Installing Pushrod Tubes



The radial engine prints will have a small amount of support in the pushrod holes. Using a small wire or drill to push the support out. Depending on your printer, the holes will range from 1.75mm to 2mm in diameter. You can use 1.75mm Silver PLA for the pushrod tubes. Or you can use Aluminum tubing, you will need to use a hot wire to punch the holes out to the proper diameter. This is easier than drilling out the holes.

Basic Tips and Advice (WASP)

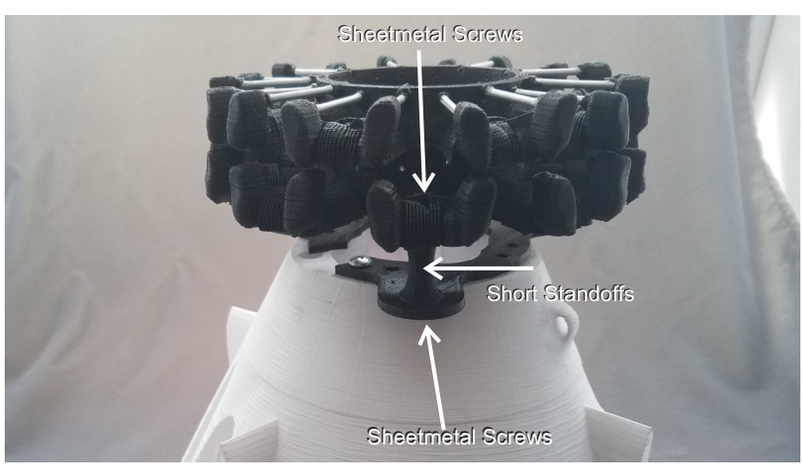
For demonstration purposes, these photos show the radials mounted without the motor installed. The printed mount will install behind the motor mount using the recommended screws.

You will need 6- #4 x 1” sheetmetal screws to screw the mount to the **long** standoffs and then to the radial.

The mount is designed so that you can slip over the ESC wires so the need to unplug the motor will not be necessary. The process would be to screw the proper length standoffs to the mount, then install the base behind the motor mount. Next, using the #4 sheet metal screws, screw the printed radial to the studs and finish by installing the cowl. If by chance the motor you are using has a longer or shorter can, you may need to reprint the standoffs and scale them in the “Z” dimension to adjust for the height.

Basic Tips and Advice (Double WASP)

For demonstration purposes, these photos show the radials mounted without the motor installed. The printed mount will install behind the motor mount using the recommended screws.



You will need 6- #4 x 1” sheetmetal screws to screw the mount to the **short** standoffs and then to the radial. For a dual row of engines, you will need to use CA around the inner ring to attach the outer motor to the one below. You will still have access to remove the entire assembly.

The mount is designed so that you can slip over the ESC wires so the need to unplug the motor will not be necessary. The process would be to screw the proper length standoffs to the mount, then install the base behind the motor mount. Next, using the #4 sheet metal screws, screw the printed radial to the studs and finish by installing the cowl. If by chance the motor you are using has a longer or shorter can, you may need to reprint the standoffs and scale them in the “Z” dimension to adjust for the height.

Finished Engine