

# Pratt & Whitney

## Pratt & Whitney



<b>Type</b>	<a href="#">Subsidiary</a> of <a href="#">UTC</a>
<b>Founded</b>	1860
<b>Headquarters</b>	<a href="#">East Hartford, Connecticut</a>
<b>Key people</b>	Steven Finger, President
<b>Industry</b>	<a href="#">Aerospace</a>
	<a href="#">Aircraft engines</a>
<b>Products</b>	<a href="#">Gas turbines</a>
	<a href="#">Spacecraft propulsion</a>
<b>Website</b>	<a href="#">Pratt &amp; Whitney</a>

**Pratt & Whitney** is an [American aircraft engine](#) manufacturer whose products are widely used in both civil and [military aircraft](#). As one of the "big three" aero-engine manufacturers, it competes with [General Electric](#) and [Rolls-Royce](#), although it has also formed joint ventures with both of these companies. In addition to aircraft engines, Pratt & Whitney manufactures fixed [gas turbines](#) for industry and [power generation](#), marine turbines, railway [locomotive](#) engines, and [rocket](#) engines.

## History

The Pratt & Whitney Company was founded in 1860 by [Francis Pratt](#) and [Amos Whitney](#), with headquarters in [Hartford, Connecticut](#). The company manufactured machine tools, tools for the makers of sewing machines, and gun-making machinery for use by the [Union Army](#) during the [American Civil War](#).

In 1925, [Frederick Brant Rentschler](#) approached Pratt & Whitney looking for funds and a location to build his new aircraft engine. Pratt & Whitney loaned him \$250,000, the use of the Pratt & Whitney name, and space in their building. This was the beginning of the Pratt & Whitney Aircraft Company. Pratt & Whitney's first engine, the [Wasp](#), was completed on Christmas Eve 1925. The Wasp developed 425 horsepower (317 kW) on its third test run. It easily passed the Navy qualification test in March 1926, and by October the Navy had ordered 200 engines. The Wasp exhibited speed, climb, performance and reliability that revolutionized American aviation.

In 1929, Frederick Rentschler ended his association with Pratt & Whitney Machine Tool and formed [United Aircraft and Transport Corporation](#), the predecessor to today's [United Technologies](#). His agreement allowed Rentschler to carry the name with him to his new corporation.

What remains of the original Pratt & Whitney is Pratt & Whitney Measurement Systems, located in Bloomfield, CT. However, for many years they maintained a plant on New Park Avenue near the Hartford/West Hartford border. It was there where they manufactured machine tools such as their jig-bore machine and other numerically controlled machines. They also manufactured milling machines and twist drills.

On August 2, 2005, Pratt & Whitney acquired the space propulsion company [Rocketdyne](#) from [Boeing](#) and renamed the company Pratt & Whitney Rocketdyne, Inc.

Pratt & Whitney is headquartered in [East Hartford, Connecticut](#) and also has plants in [Columbus, Georgia](#); [Middletown](#), CT; [Cheshire](#), CT; [West Palm Beach](#), FL; and [North Berwick](#), ME.

## **In motorsport**

Between 1967 and 1971, Pratt & Whitney turbine engines were used in [American Championship Car Racing](#) and [Formula One](#). [Parnelli Jones](#)' entry in the [1967 Indianapolis 500](#) dominated the race until a small part failed four laps from the finish. The following year, [Team Lotus](#) entered a trio of [Lotus 56s](#) at Indianapolis. Two of the cars qualified fastest and second fastest, but all three retired from the race. Turbine cars were deemed illegal before the following year's race, so Lotus chief [Colin Chapman](#) developed the car for use in Formula One and an updated Lotus 56B competed in half a dozen Formula One races in 1971.

## **Divisions**

Pratt & Whitney is a business unit of industrial [conglomerate United Technologies](#), making it a sister company to [Sikorsky Helicopters](#), [Hamilton Sundstrand](#), [Otis Elevator Company](#), [UTC Fire & Security](#) and refrigeration giant [Carrier Corporation](#). It is also involved in two major joint ventures, the [Engine Alliance](#) with GE, and [International Aero Engines](#) company with [Rolls-Royce](#), [MTU Aero Engines](#), and the [Japanese Aero Engines Corporation](#). Those two joint ventures manufacture engines for the [Airbus A380](#) and the [Airbus A320](#) respectively.

## **Commercial Engines**

Pratt & Whitney's Large Commercial Engines (LCE) power more than 40 percent of the world's passenger aircraft fleet and serve more than 800 customers in 160 countries.

## **Global Material Solutions**

Global Material Solutions (GMS) will offer gas path and life limited parts for the [CFM56](#), which represents 90% of the material value of an average overhaul.

## **Global Service Partners**

Pratt & Whitney Global Service Partners (GSP) is a total service provider of Pratt & Whitney, [International Aero Engines](#), [General Electric](#), [Rolls-Royce](#) and [CFMI](#) engines. In addition to engine overhaul and repair services, GSP provides services including line maintenance, engine monitoring and diagnostics, environmentally-friendly on-wing water washes, leased engines, custom engine service programs and new and repaired parts.

## **Military Engines**

Pratt & Whitney's Military Engines power over 30 armed forces around the world. They are the engine manufacturer of choice for the [F-15 Eagle](#), [F-16 Fighting Falcon](#), [C-17 Globemaster III](#), [F-22A Raptor](#) and [F-35 Joint Strike Fighter](#).

## **Pratt & Whitney Canada**

Main article: [Pratt & Whitney Canada](#)

[Pratt & Whitney Canada](#) (PWC, originally United Aircraft of Canada) provides engines powering business and regional aircraft, and helicopters. The company also offers advanced engines for industrial applications. P&WC's operations and service network span the globe. PWC designs and builds the smaller aircraft engines while P&W manufactures the larger engines.

## Space Propulsion

Main article: [Rocketdyne](#)

[Pratt & Whitney Rocketdyne](#) powers the Space Shuttle, supplies booster engines for Delta II rockets and boosters and upper stage engines for Atlas III and V and Delta IV rockets.

## Pratt & Whitney Power Systems

Pratt & Whitney Power Systems, Inc. (PWPS) designs, builds, furnishes and supports aero-derivative gas turbine power systems to customers worldwide. These industrial gas turbines power everything from lighting cities to powering large ships. PWPS also provides parts and repairs for heavy-duty frame gas turbines as an OEM alternative.

## International Aero Engines

Main article: [International Aero Engines](#)

[International Aero Engines](#) is a joint venture that develops, builds and services the [V2500](#) aero engine family, which powers the [Airbus A320](#) family and [McDonnell Douglas MD-90](#) aircraft. The four engine manufacturers that make up IAE each contribute an individual module to the V2500 engine. Pratt & Whitney produces the combustor and high-pressure turbine, [Rolls-Royce](#) the high-pressure compressor, [JAEC](#) the fan and low-pressure compressor and [MTU](#) the low-pressure turbine.

## Engine Alliance

Main article: [Engine Alliance](#)

The [Engine Alliance](#) is a joint venture between [General Electric](#) and Pratt & Whitney. The main application is the GP7200, which has been designed for use on the [Airbus A380](#). It competes with the [Rolls-Royce Trent 900](#), the launch engine for the aircraft.

## Products

### Civil turbine engines and applications



TF33s of a C-141 Starlifter leave [contrails](#) over Antarctica

- **[International Aero Engines V2500](#)** *PW is a stakeholder in the [IAE](#) joint venture which manufactures the V2500*
  - [Airbus A320](#)
  - [McDonnell Douglas MD-90](#)
- **[JT3C](#)**
  - [Boeing 707](#)
  - [Douglas DC-8](#)
- **[JT3D/TF33](#)**
  - [Boeing 707](#)
  - [Douglas DC-8](#)
- **[JT4A](#)**
  - [Boeing 707](#)
  - [Douglas DC-8](#)
- **[JT8D](#)**
  - [Boeing 727](#)
  - [Boeing 737](#)
  - [Dassault Mercure](#)
  - [Douglas DC-9](#)
  - [McDonnell Douglas MD-80](#)
  - [Sud Aviation Caravelle](#)
- **[JT9D](#)**
  - [Airbus A300](#)
  - [Airbus A310](#)
  - [Boeing 747](#)
  - [Boeing 767](#)
  - [McDonnell Douglas DC-10](#)

- **JT12/J60**
  - [North American Sabreliner](#)
  - [Sikorsky S-69](#)
- **PW2000/F117-PW-100**
  - [Boeing 757](#)
  - [Ilyushin IL-96M](#)
  - [C-17 Globemaster III](#)
- **PW4000**
  - [Airbus A300-600](#)
  - [Airbus A310-300](#)
  - [Airbus A330](#)
  - [Boeing 747-400](#)
  - [Boeing 767](#)
  - [Boeing 777](#)
  - [McDonnell Douglas MD-11](#)
- **PW6000**
  - [Airbus A318](#)
- **Engine Alliance GP7000** *PW is a stakeholder in the [Engine Alliance](#) which manufactures the GP7000*
  - [Airbus A380](#)

## Military turbine engines and applications



F-22 showing F119 engines in afterburner

- **J52**
  - [A-4 Skyhawk](#)
  - [A-6 Intruder](#)
  - [EA-6 Prowler](#)
- **J57**
  - [F-100 Super Sabre](#)
  - [F-101 Voodoo](#)
  - [F-102 Delta Dagger](#)
  - [F-8 Crusader](#)
- **JT3D/TF33**
  - USAF and NATO [E-3 Sentrys](#)
  - [E-8 JSTARS](#)

- [KC-135](#)
- [Boeing RC-135](#)
- [B-52 Stratofortress](#)
- [C-141](#)
- [J58/JT11D](#)
  - [Lockheed SR-71](#)
- [TF30](#)
  - [F-111](#)
  - [F-14As](#)
- [F100](#)
  - [F-15 Eagle](#)
  - [F-15E Strike Eagle](#)
  - [F-16](#)
- [F119](#)
  - [F-22 Raptor](#)
- [F135](#)
  - [F-35 Joint Strike Fighter.](#)

## Rocket engines

- [H-1](#) - ([RP-1/LOX](#)) Used by the [Saturn I](#), [IB](#), [Jupiter](#), and some [Delta](#) rockets
- [F-1](#) - ([RP-1/LOX](#)) Used by the [Saturn V](#).
- [J-2](#) - ([LH2/LOX](#)) Used by both the Saturn IB and Saturn V rockets and will be used on the second stages of both the future [Ares I](#) crew launch rocket and the heavy-lift [Ares V](#) cargo launch rocket for NASA's [Project Constellation](#).
- [SSME](#) - ([LH2/LOX](#)) The [Space Shuttle](#) Main Engine
- [RS-68](#) - ([LH2/LOX](#)) Used by the [Delta IV](#) first stage and on the core stage of the Ares V heavy-lift rocket for NASA's Project Constellation
- [RS-27A](#) - ([RP-1/LOX](#)) Used by the Delta II/III and [Atlas ICBM](#)
- [RL-10](#) - Used on the [Centaur upper stage](#) of the [Atlas V](#) rocket, the second stage of the [Delta IV](#), and will be used on the [Lunar Surface Access Module](#) for NASA's [Project Constellation](#)
- [RL60](#)
- [RLX](#)
- [RD-0146](#)
- [RD-180](#)
- [COBRA](#) Co-optimized Booster for Reusable Applications ([LH2/LOX](#)) Prototype 600,000 lbf thrust engine

## Reciprocating engines

- [R-1340](#) (Wasp)
- [R-1690](#) (Hornet)
- [R-985](#) (Wasp Junior)
- [R-1535](#) (Twin Wasp Junior)
- [R-1830](#) (Twin Wasp)
- [R-2000](#)

- [R-2800](#) (Double Wasp)
- [R-4360](#) (Wasp Major) - powering many postwar large bombers and transports.

### Aeroderivative industrial & marine gas turbines

- [FT4](#)
- [FT8](#) - ~30MW derivative of JT8D



### External links

- [Pratt & Whitney a United Technologies Company website](#)
- [Pratt & Whitney Measurement Systems website](#)
- [Pratt & Whitney Canada](#)