



# F118

## turbofan engines



17,000 lb thrust class

The **F118** is a non-afterburning variant of the F110 for the U.S. Air Force. This engine family powers the B-2A Spirit, the stealth bomber for the Air Force, and the re-engined U-2S high altitude reconnaissance aircraft.

The F118 story starts with the F101 engine, which was originally developed for the Advanced Manned Strategic Aircraft program, which became the B-1 bomber. Utilizing the same core design as the F101, the F110 and F118 derivative engines were created by developing new low pressure systems to tailor engine performance to the desired aircraft application.

In 1988, the U.S. Air Force unveiled the Northrop B-2 stealth Bomber, powered by four F118-100 engines. The B-2 stealth aircraft flying wing design was very similar to an experimental aircraft that was developed by Northrop in the 1940s – the YB-49A -- which had been powered by eight GE J35 engines.

Flight testing of the F118 began in mid-1989 and in 1991, the B-2 was awarded the Collier Trophy for the greatest achievement in aeronautics and astronautics. The F118-100 produces 19,000 lbs. of thrust, but has no afterburner to minimize the possibility of detection.

A Service Life Extension Program (SLEP) is ready to deliver improved durability for the B-2. Designed for 2x time-on-wing, it offers parts commonality with F101 and F110 engines for maintenance flexibility.

Another application of the F118 engine is the U-2S. The U-2S is the result of re-engineing a U-2R aircraft with a F118-GE-101. The F118-101 produces 17,000 lbs. of thrust and offers engine weight reduction, an improved hot section design that extends the interval between overhauls, added operational utilization and lower life cycle costs.

This greatly increases the ceiling, range, ease of flight, and safety of this reconnaissance aircraft. The F118 contributed to the U-2S selection for the Collier Trophy in 1998, the second prestigious honor for this engine.

### Quick engine facts

Applications: B-2A, U-2S

Introduction: 1988

Total number of aircraft produced: B-2A – 22, U-2S – 36

Thrust range: -100 – 19,000 lbs, -101 – 17,000 lbs