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INSIGHT

B-52 Re-Engining Program Begins

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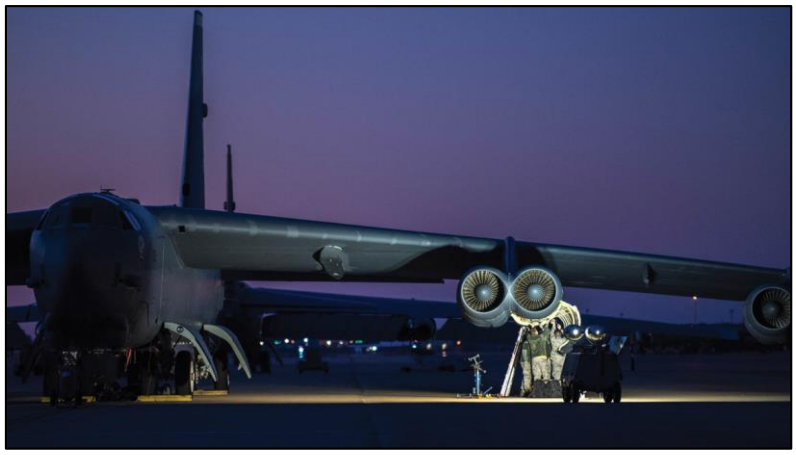
On September 24, 2021, the U.S. Air Force awarded a contract to Rolls-Royce, Indianapolis, IN, for 608 new engines to replace the TF33 engines powering the B-52H Stratofortress bomber fleet, in a contract running up to 17 years. The initial contract is for $500.9 million, but with spare engines, technical data, support equipment, and sustainment, the contract could ultimately be worth $2.6 billion, and may include 650 engines. Rolls-Royce has 18 months to deliver initial engines.

The Air Force currently operates 76 B-52Hs, the most recent of which was built in the 1960s. The Air Force now expects to operate them until 2050. The last TF33 engine was built in 1985. (For more on the B-52 fleet, see CRS Report R43049, *U.S. Air Force Bomber Sustainment and Modernization: Background and Issues for Congress*.)

Figure 1. Engine Mounting on B-52



Source: U.S. Air Force

This re-engining effort (officially the Commercial Engine Replacement Program, or CERP) had been in the works for some time, as the Air Force had announced its plans to extend the B-52s' service into at least the 2040s, and had held an industry day on December 12, 2017, to share information and solicit vendors for the program. Boeing, the B-52 prime contractor, even produced an animated video touting the benefits of re-engining.

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The request for proposals, released May 19, 2020, called for engines that are military-specific derivatives of existing commercial engines. Given the specification that the eight engines on each B-52 were to be replaced by eight new engines (as opposed to, perhaps, four larger engines), the expected candidates were variants of engines used for business jets and regional airliners, as those best approximate the physical size of the TF33s to be replaced while offering considerably improved fuel efficiency.

CERP's principal goals are to reduce the fuel cost of operating the B-52 fleet while increasing reliability. The engines under consideration provide similar thrust to the existing TF33s but are based on much more recent designs. Also, as their commercial versions are in current service around the world, they can be supported more easily using the commercial logistics infrastructure. Most commercial equivalents of the TF33 have been retired, as have most TF33s used in other Air Force aircraft.

Potential vendors had already placed their candidate engines on display at public conferences, and are believed to include

- GE Aviation (Evendale, OH), offering variants of the CF34 and Passport engines;
- Rolls-Royce (Indianapolis, IN) proposing a modified BR725;
- Pratt & Whitney (East Hartford, CT) with a militarized PW800.

The Air Force awarded the indefinite delivery/indefinite quantity contract as a rapid prototyping effort under what is known as Section 804 acquisition authority. Use of this authority has attracted controversy among some Members of Congress. In the conference report accompanying the FY2020 National Defense Authorization Act (S. 1790), Congress required that the Air Force submit a report detailing the acquisition and logistics strategies, key performance parameters, and other aspects of CERP, and withheld 25% of the $175 million pending release of that report. Although the Air Force has not announced whether the report has been submitted, the CERP solicitation and its appendices included the data requested in the NDAA conference report.

The competition was to be based on best value, with technical risk and price given approximately equal weight. Specific evaluation factors are shown in **Figure 2**.

Figure 2. Best Value Factors

Source: U.S. Air Force solicitation, "B-52 CERP Commercial Engine Replacement Program (CERP) Engine Contract," Appendix F, available at https://go.usa.gov/xwqey.

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