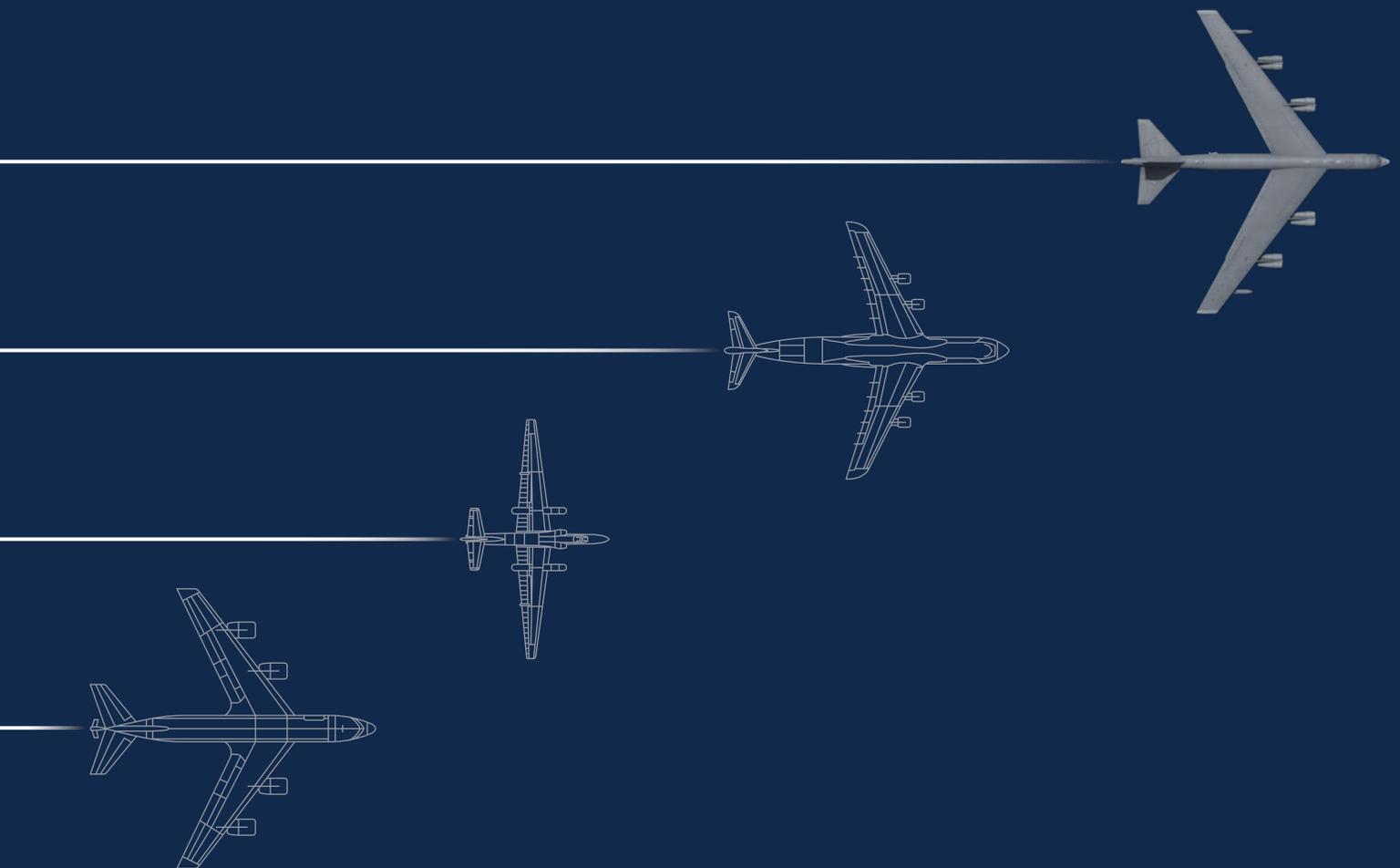




# Demonstrated Success

Why re-engining experience makes  
GE the top choice for B-52



## Re-Engining Experience

# Why re-engining experience makes GE the top choice for the B-52

GE Aviation has successfully completed more aircraft re-enginings for the U.S. Air Force than any other company. In fact, GE is the only company to have been involved in re-engining U.S. Air Force aircraft three times over.

That experience puts GE in a unique position for the B-52 Stratofortress Commercial Engine Replacement Program (CERP). To improve reliability and performance, the B-52 CERP will require a change from its current low bypass, fuel inefficient engines to modern, high bypass commercial products. GE is well-positioned with two outstanding options.

The first is the CF34-10, a proven performer and stalwart of commercial aviation with more than 162 million family flight hours, six times more than any other engine offering. The other option is the Passport, GE's most advanced, digitally capable engine built on proven technologies that deliver game-changing performance and fuel efficiency.

We have a demonstrated history of success in re-engining programs—success that we believe will translate to the B-52 with either the CF34-10 or Passport engine. It's worth taking a look at the three re-engining programs GE has completed with iconic Air Force aircraft.

**CF34-10**  
PROVEN PERFORMER



**PASSPORT**  
PROVEN PEDIGREE

## The KC-135R Stratotanker and the F108 A force multiplier for refueling

Introduced in 1957, the KC-135 Stratotanker was the U.S. Air Force's first jet-powered refueling aircraft. The KC-135 has been a core component of the Air Force fleet ever since, conducting a majority of its refueling missions.

In the 1980s the F108 high bypass turbofan (known as the CFM56-2 in commercial service) was selected to replace the KC-135's TF33, the same engine to be replaced during the B-52 commercial engine replacement program. The F108 enabled two tankers to do the work of three. With 25 percent better fuel efficiency and the ability to offload 50% more fuel, the re-designated KC-135R has proven to be a re-engining success story and force multiplier over the past four decades.

Nearly 1,800 F108 engines have been delivered, and more than 420 KC-135R and RC-135 aircraft remain in service today. Perhaps most impressive, though, is that more than 500 engines have been operating in excess of 20 years without a single shop visit. That level of reliability will help the KC-135R stay in service far past 2020—potentially another 20 years. GE is ready to provide this same level of reliability to the B-52 CERP.



### Fuel Efficiency



**20 YEARS**  
WITHOUT A SHOP VISIT

CFM is a 50/50 joint company between GE and Safran Aircraft Engines



## The U-2S Dragon Lady and the F118 elevating reconnaissance to new heights

Perhaps one of the most well-known aircraft of the Cold War, the U-2A Dragon Lady entered service in 1956. Designed to provide military intelligence on the Soviet Union from upwards of 65,000 feet, the U-2 has since been used extensively in Afghanistan, Iraq, and various NATO operations.

When the Air Force identified a need for re-engining its U-2R (a larger variant of the original U-2) in the late 1980s, GE offered its F118 engine, which had recently been qualified for the iconic B-2 bomber. Chosen to power the re-designated U-2S, the F118 offered higher thrust and lower fuel burn, increasing payload and aircraft range by more than 1,200 miles, along with a decreased time to climb.

Much like the F108 on the KC-135R, the re-engined U-2S served as a force multiplier for the Air Force fleet. It earned Lockheed Martin, GE, NASA, Air Combat Command, and the Defense Intelligence Agency the 1998 Collier Trophy. GE is ready, once again, to offer an off-the-shelf engine that meets all of the needs of the Air Force and its partners.



**1,200 MILE** RANGE INCREASE

**LOWER FUEL** BURN



## The C-5M Super Galaxy and the F138 Redefining global mobility

In the late 1990s, the C-5 Galaxy's operating cost was the highest of any aircraft in the Air Force fleet. With a lackluster 50% mission readiness rate and poor fuel efficiency, the nearly 30-year-old airplane was a major concern.

The Air Force launched two C-5 modernization efforts, with GE's F138 (the CF6-80C2 turbofan's military designation) as the selection to power the newly designated C-5M Super Galaxy. The F138 delivered—offering an estimated \$20 billion reduction in operating cost, access to twice as many airfields, and a 27% increase in unrefueled range, which avoided in-air refueling on many missions. The engine also included a 22% increase in thrust, a 30% shorter take-off roll, a 58% faster climb rate; and it allowed the C-5M to carry a heavier payload over longer distances.

While the C-5 has supported military operations and humanitarian missions dating back to the Vietnam War, the re-engined C-5M fleet is planned to remain operational beyond 2040. As such, GE is ready to do it again for the B-52 CERP, offering unparalleled reliability atop achieving all USAF performance metrics.



### Thrust



**2040 & BEYOND**  
OPERATIONAL PLAN



## Re-Engining Experience

### GE is B-52 ready

All this experience brings us to today. Our commercially proven offerings, combined with the experience of three U.S. Air Force re-enginings, and past integration partnerships with a number of airframers underscore the readiness of GE to sustain the B-52 onward. This experience enables GE to deliver the lowest program risk, highest mission readiness, and lowest cost of operation for the Air Force.



#### CF34-10

GE's most reliable engine even while operating under the harshest conditions—from the coldest temperatures in the world to the sweltering heat of the Middle East.



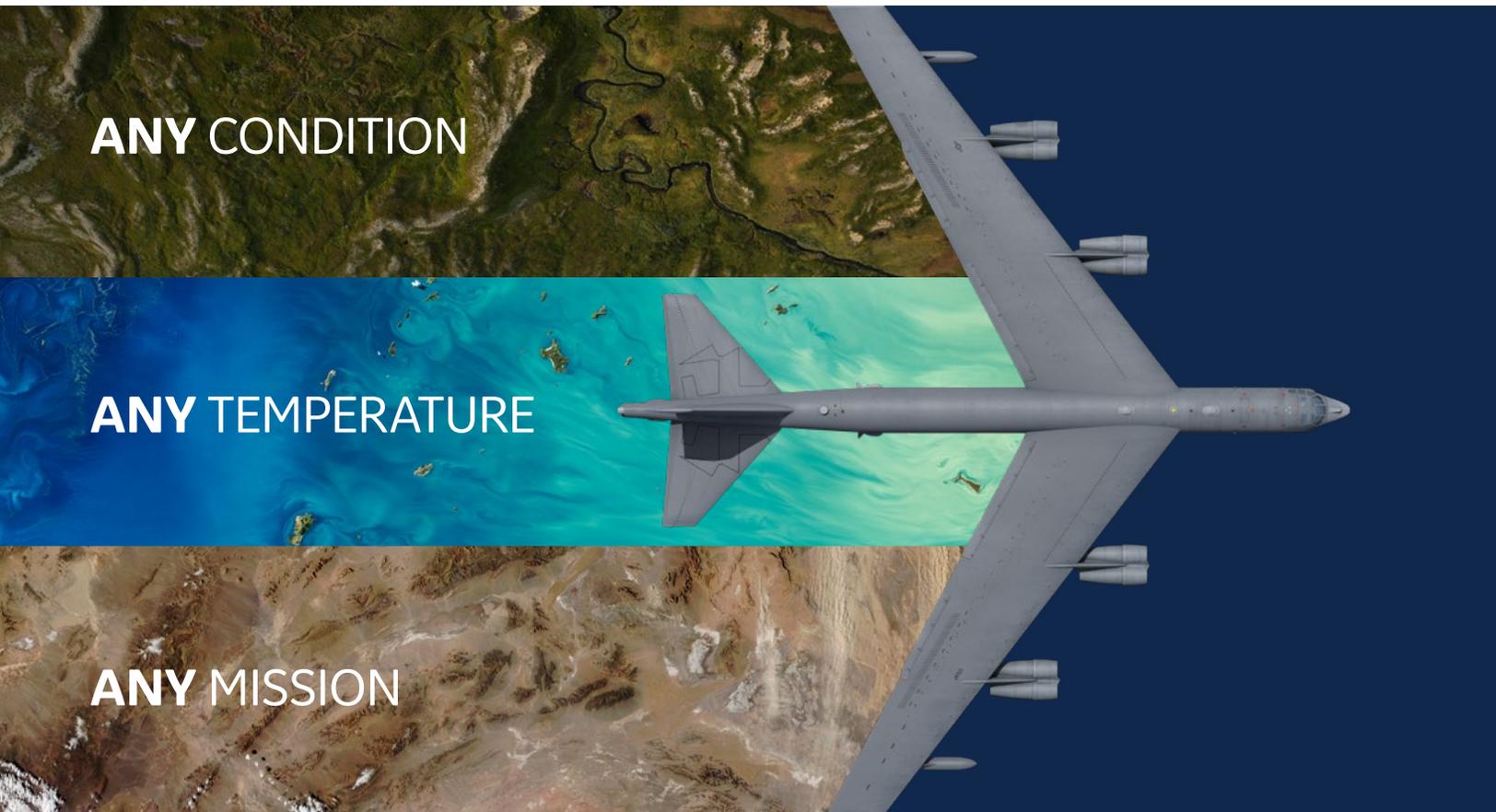
#### PASSPORT

Our most advanced, digitally capable engine built on proven technologies to deliver game-changing performance and fuel burn in the most severe environments.

**ANY** CONDITION

**ANY** TEMPERATURE

**ANY** MISSION





## About GE Aviation

GE Aviation, an operating unit of GE (NYSE: GE), is a world-leading provider of commercial and military jet engines and components as well as integrated digital, electric power and mechanical systems for aircraft. GE Aviation also has a global service network to support these offerings.

[B-52andGE.com](https://www.geaviation.com)

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