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**Acquisition Research:  
Creating Synergy for Informed Change**

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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# KC-46 TANKER MODERNIZATION: Aircraft Delivery Has Begun, but Deficiencies Could Affect Operations and Will Take Time to Correct

## Why the GAO Did This Study

Aerial refueling—the transfer of fuel from airborne tankers to combat and airlift forces—is critical to the U.S. military’s ability to effectively operate globally. The Air Force initiated the KC-46 program in 2011 to replace about a third of its aging KC-135 aerial refueling fleet. Boeing was awarded a fixed-price incentive contract to develop the first four aircraft, which are being used for testing. Boeing was also required to deliver the first 18 fully capable aircraft by August 2017. The program plans to eventually field 179 aircraft.

This report assesses the program’s progress toward meeting cost, schedule, and performance goals. The report also assesses how the program’s contracting and sustainment planning approach could inform other acquisition programs.

The GAO analyzed cost, schedule, performance, test, manufacturing, contracting, and sustainment planning documents and interviewed officials from the KC-46 program office and other defense offices, such as the Defense Contract Management Agency, the Federal Aviation Administration, and Boeing.

## What the GAO Found

Costs for the KC-46 program remain lower than expected, as shown in Table 1.

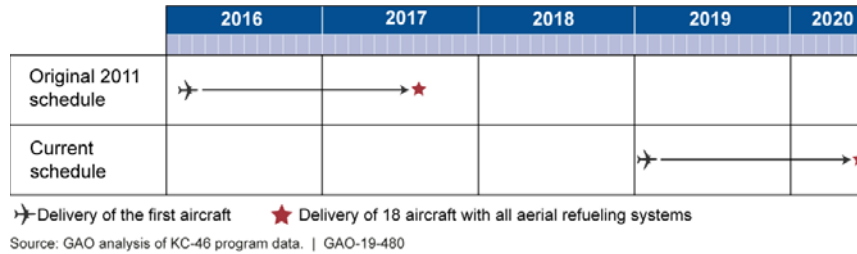
**Table 1. Initial and Current Acquisition Cost Estimates for the KC-46 Tanker Aircraft.**

	<b>February 2011</b>	<b>January 2019</b>	<b>Percent Change</b>
Development	7,149.6	5,857.7	-18
Procurement	40,236.0	34,188.7	-15
Military construction	4,314.6	2,872.1	-33.4
<b>Total</b>	<b>51,700.2</b>	<b>42,918.5</b>	<b>-17</b>

Source: GAO presentation of Air Force Data. | GAO-19-480. These numbers represent then-year dollars in millions.

The Air Force accepted the first KC-46 in January 2019, but Boeing remains nearly three years behind schedule. As shown in Figure 1, Boeing now plans to deliver the first 18 aircraft with all three aerial refueling subsystems by June 2020.





**Figure 1. Boeing Schedule.**  
Source: GAO Analysis of KC-48 Program Data

Program officials expect the KC-46 to meet key performance goals over the next few years as it accumulates 50,000 fleet hours. However, the Air Force is accepting aircraft that do not fully meet contract specifications and have critical deficiencies, including ones that affect (1) the operators’ ability to guide the fuel delivery boom into position and (2) the boom itself. The deficiencies could affect operations and cause damage to stealth aircraft being refueled, making them visible to radar. Program officials estimate it will take three to four years to develop fixes for the deficiencies and a few more years to retrofit up to 106 aircraft. The Air Force and Boeing will incur costs to fix the deficiencies, with the Air Force’s portion estimated to be more than \$300 million. The Air Force is withholding 20% payment on each aircraft until Boeing fixes the deficiencies and noncompliances. Meanwhile, the Air Force has limited some refueling operations.

The GAO identified a number of insights that could benefit other programs, including the use of a fixed-price-type development contract and a correction of deficiencies clause in the contract that protected the government from some cost increases. The Department of Defense agreed to provide lessons learned about the KC-46 program for future acquisition programs based on a recommendation the GAO made in March 2012 but does not plan to do so until development is complete in 2021. The GAO believes other programs could benefit from insights identified in this report if they were disseminated sooner.

**What the GAO Recommends**

The GAO recommends that the Department of Defense disseminate insights in this report about the KC-46’s contracting and sustainment planning experiences for consideration by acquisition programs, particularly those that plan to use a fixed-price-type development contract or a commercial derivative aircraft. The Department of Defense concurred with the recommendation.

See the full report at <https://www.gao.gov/products/GAO-19-480>.





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