

Upcoming KC-46 Tests To Focus On Key Deficiencies

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Flight testing of the Boeing KC-46 next month will arm the program with more data on three identified deficiencies related to the refueling process. Boeing

Flight testing with the KC-46 Pegasus tanker next month will help the U.S. Air Force and Boeing determine a way forward on three key deficiency reports.

The fixed-price development program is running behind schedule and over cost, with the financial burden for overruns being borne by Boeing. Now the Air Force has identified three issues related to the aerial refueling process that require closer scrutiny and resolution prior to operational use.

The two most concerning issues are uncommanded boom extensions when disconnecting from a receiver aircraft with fuel flowing; and the operator's inability to detect when the boom has missed the receiver aircraft's receptacle and causes damage to the coating or worse.

Those issues were discovered earlier this year, But the Air Force says it also needs to gather more data on another potential issue related to the aircraft's high-frequency (HF) radios that was first noticed in late 2016.

HF radios use the skin of the aircraft as an antenna, which sometimes causes electrical sparks and arcs. So, the government wants to make sure those radios are failsafe and can never transmit during the refueling process for fear of fires.

None of these issues appear to be showstoppers if they can be resolved easily and cheaply. But the government program team says it needs to collect more data during testing in October and November to figure out the best path forward.

The Air Force's program executive officer for tankers, Brig. Gen. Donna Shipton, and Pegasus Program Manager Col. John Newberry says they are monitoring these issues closely and should soon know what effect they might have on cost and schedule.

They confirmed during a Sept. 22 conference call with reporters that Boeing will have to correct any unresolved issues prior to certification and aircraft delivery. The company already has reported over \$2 billion in financial charges relating to tanker development since 2014. It was awarded the development contract in February 2011 and will need to self-fund any modifications required to meet the agreed-upon specifications.

"We'll go through system verification right prior to delivery to determine if they meet the specifications or not," Newberry says. "Anything they must go retrofit to bring it up to the production configuration is on them."

However, if any of the deficiencies aren't covered by the original weapon system specifications, the Air Force might decide to make changes anyway at its own expense.

The one area where this could be a financial headache for the government is the "undetected contacts outside receptacle," or UCOTR, deficiency. The solution could be to install more modern remote cameras, which are used to monitor the refueling process. A service spokesman said Sept. 20 that Boeing would pick up the bill for installing any new cameras. But the Air Force now says, "final determination of specification compliance will occur after flight testing is complete."

The service is now combing through historical aerial refueling certification data to figure out how regularly legacy tankers tap the outside of refueling receptacles compared to the miss rate for the KC-46. The Air Force will be taking an extra-close look at this issue once in-air refueling tests resume next month.

This problem is especially dicey for stealth aircraft. Any damage to the skin of a B-2, F-22 or F-35 could expose them to enemy radars. So far, the Pegasus has refueled the C-17, A-10, F-16 and F/A-18, but no low-observable stealth aircraft.

Shipton and Newberry say Boeing continues to make progress with aircraft certification and the government's estimate for first delivery remains spring 2018.

Newberry still assesses the KC-46 program to be a relatively "low-risk" undertaking, despite all the hiccups, delays and charges to Boeing. The Air Force's financial obligations are capped at \$4.9 billion, thanks to the fixed-price terms signed by Boeing.

He says Boeing underestimated how difficult it would be to obtain an amended type certificate for the brand-new 767-2C type, while concurrently working on an amended type certificate for the military-specific KC-46 modifications.

"They underestimated the complexity and scope and Boeing is now paying for those underestimations," he says. "Big-picture: we're making progress but it's slower than planned." Boeing is on contract to deliver 34 aircraft and another contract for 15 more aircraft is expected in January. The total program will deliver 179 KC-46s.