

ARCHIVED REPORT

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Cessna Citation Hemisphere

Outlook

- Cessna announced suspension of the Hemisphere program in April 2018
- The Hemisphere was to be Cessna's largest business jet to date
- Cessna cited delays in development of Safran's Silvercrest engine as the reason for suspending the program
- NetJets signed an option to purchase up to 150 Hemispheres in October 2018

Orientation

Description. Twin-turboprop, large-cabin business jet.

Application. Long-range, luxury executive transportation.

Sponsor. Privately sponsored by Cessna Aircraft Co.

Price Range. Estimated at \$35 million.

Status. Development suspended in April 2018.

Total Produced. Development suspended before flight testing began.



Citation Hemisphere (concept art)

Source: Textron Aviation

Cessna Citation Hemisphere

Contractors

Prime

Cessna Aircraft Co	http://cessna.txtav.com , One Cessna Blvd, PO Box 7706, Wichita, KS 67277 United States, Tel: + 1 (316) 517-6000, Prime
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Subcontractor

Honeywell Aerospace, Business Aviation	http://www.honeywell.com , 19019 N 59th Ave, Glendale, AZ 85308 United States, Tel: + 1 (602) 822-3000 (Primus Epic Avionics System)
Safran Aircraft Engines (formerly Snecma)	http://www.safran-aircraft-engines.com , Route Henri Auguste Desbrùères, BP 81, Evry, France, Tel: + 33 1 69 879 92 60, Fax: + 33 1 69 87 89 28 (Silvercrest Turbofan)
Thales	http://www.thalesgroup.com , 31 Place des Corolles - CS 20001, Tour Carpe Diem, Paris, La Defense Cedex, France, Tel: + 33 1 57 77 80 00, Fax: + 33 1 57 77 86 59 (Fly-By-Wire Flight Control System)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

(Preliminary)

Design Features. Low-swept-wing design with a large swept T-tail section and twin empennage-mounted turbofan engines. It features a moderately swept wing with small winglets. The flight control system is fly-by-wire and features active control sidesticks in the cockpit.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Fuselage length	TBD	TBD
Fuselage diameter	259 cm	8.5 ft
Interior		
Height	1.89 m	6.2 ft
Width	2.59 m	8.5 ft
Weight		
Max gross weight	TBD	TBD
Performance		
Max range (4 pax)	8,334 km	4,500 nm
Max speed	Mach 0.90	Mach 0.90

Propulsion

(2) Safran Silvercrest 2C turbofans rated 53.38 kN (12,000 lbst) each at takeoff.

Seating

Two crew plus standard seating for up to 19 passengers.

TBD = To Be Determined

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Program Review

Cessna launched the Citation Hemisphere in November at the 2015 National Business Aviation Association (NBAA) show to occupy the top slot in the manufacturer's product line. The manufacturer abandoned an earlier attempt to build a large-cabin aircraft, the Citation Columbus, in 2009 when the global recession slashed business jet sales, forcing Cessna to cut program costs.

Cessna selected the Safran Silvercrest engine to power the Hemisphere in October 2016. It selected Honeywell's Primus Epic avionics suite, breaking with the traditional use of Garmin-based flight decks on its smaller jets. Thales was tapped to supply the fully fly-by-wire flight control system.

Development of the aircraft did not run as planned. Safran had difficulty completing development of the Silvercrest engine's high-pressure compressor, which uses an axial-centrifugal flow configuration that is common in engines below 7,000 pounds of thrust but

rare in more powerful engines like the Silvercrest. Delays in the engine program had already led to the demise of the Dassault Falcon 5X in December 2017, leaving the Hemisphere as the engine's only application.

In January 2018, Textron CEO Scott Donnelly said publicly that the business case for the Hemisphere required use of the small, but powerful, Silvercrest engine. He warned that if Safran could not certificate the engine, then Cessna would have to use a larger engine, and a larger engine would require a larger aircraft than the current design. That would effectively kill the program.

A few months later, in April 2018, Donnelly announced during an investor conference that Cessna had decided to suspend development of the Hemisphere. He did not say the suspension was permanent, but instead noted that the manufacturer was "waiting to see how the engine plays out."

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Nov	2015	Cessna launches program
Oct	2016	Selection of Silvercrest engines announced
Apr	2018	Cessna suspends development program

Forecast Rationale

The Citation Hemisphere will be the largest aircraft in Cessna's product line if the aircraft ever makes it into production. The manufacturer suspended development of the all-new model in April 2018 due to Safran's ongoing difficulties in completing development of the aircraft's Silvercrest engines.

At the time, management at Cessna noted that the business case for the aircraft depended upon use of the Silvercrest. It noted that it would wait to see if Safran could resolve issues with the engine's compressor before fully terminating the Hemisphere program. One sign

that it continues to be interested in finishing the aircraft was an October 2018 announcement of a new option agreement covering up to 150 Hemispheres and 175 Citation Longitudes.

The suspension of the Hemisphere program could be only temporary, but we cannot be sure that Safran will be able to resolve the outstanding problems with the Silvercrest engine. We zeroed out our forecast for the Hemisphere in early 2018, but we will continue to monitor the program and will adjust the forecast if the situation changes.

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