

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR25LA053

AIRFRAME AND ENGINE EXAMINATION

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TABLE OF CONTENTS

A. ACCIDENT.....	3
B. AIRFRAME AND ENGINE EXAMINATION.....	3
C. SUMMARY	3
D. ACCIDENT SITE EXAMINATAION.....	3
E. DETAILS OF THE EXAMINATION.....	4
1.0 AIRFRAME EXAMINATION.....	4
2.0 ENGINE EXAMINATION	7
3.0 PROPELLER EXAMINATION	8
4.0 METEOROLOGICAL INFORMATION	9

A. ACCIDENT

Location: Spokane, Washington
Date: December 2, 2024
Time: 1530 Pacific daylight time
Airplane 1: N29GA, Gulfstream AM CORP COMM DIV690D

B. AIRFRAME AND ENGINE EXAMINATION

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C. SUMMARY

On December 02, 2024, about 1530 Pacific standard time, a Gulfstream AM CORP COMM DIV 690D, N29GA, was substantially damaged when it was involved in an accident near Spokane, Washington. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, during the GPS instrument approach to runway 04L at Felts Field Airport (SFF), Spokane, Washington, the airplane was about 100 ft above ground level (agl), he added power, and both engines were unresponsive. The airplane landed about 950 ft short of the runway threshold in soft terrain. During the landing roll, the landing gear collapsed, and the airplane came to rest upright.

D. ACCIDENT SITE EXAMINATION

Examination of the accident airplane at SFF, on December 3, 2024, by the Federal Aviation Administration (FAA) revealed that, N29GA attempted to land but ended up short of runway 04L at SFF. The airplane was observed to be on its belly with all the landing gear collapsed. Remnants of moderate rime ice was observed on the right and left-wing leading edges that were documented with pictures. Indications of icing was

also still visible on the propeller spinner, vertical and horizontal surfaces as well as two top fuselage antennas. Severe icing was observed on the stall warning vane. The initial impact point was 1,122 ft short of the runway . Both propellers had fractured separated from both engines and were scattered in the debris field past the impact point. Wrinkling was observed on the fuselage in several places on both sides of the airplane. The flaps were in the extended position and documented with pictures. Flight control continuity was established from the cockpit to the primary flight control surfaces. On December 4, 2024, during recovery of the airplane, the recovery crew turned the airplanes power on and used the airframe fuel pump to defuel; they recovered 300+ gallons aboard.

E. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

Examination of the recovered wreckage revealed that the nose landing gear was in the retracted position, in the nose wheel well. Buckling and crushing was observed throughout the fuselage. The left wing was separated at the wing root by recovery personnel to facilitate recovery. The left-wing main landing gear remained attached to the wing via its attach points, and exhibited impact damage.



Figure 1: Front view of wreckage during examination.



Figure 2: View of left-wing during examination.

The right wing was separated at the wing root by recovery personnel to facilitate recovery. The right-wing main landing gear remained attached to the wing via its attach points, and an exhibited impact damage.



Figure 3: View of right-wing during examination.

The empennage remained attached to the fuselage. Both left and right horizontal stabilizers were cut by recovery personnel about 30 in. from the root, to facilitate recovery. Both elevators were removed from the horizontal stabilizers, a cut about 4 in. in length was observed on the left elevator near the inboard leading edge. No visible damage was observed to the right elevator. The vertical stabilizer remained attached to the empennage; no visible damage was observed. The rudder had been removed, and buckling was observed near the top leading edge.

Continuity of the stall heat was established from the cockpit switch to right wing root. Power was applied to the airframe, the stall warning heat switched and the right pitot heat switch was moved to the on position and utilizing an ohm meter power was detected at the right-wing wire bundle.

Continuity of the heating element to the stall warning vane was established from the wing root to the stall warning vane. Power was applied to the wires of the heating element, and the stall warning vane heating element was hot when touched by hand.

Power was applied to the airplane and the pitot heat on both left and right was turned on. Both left and right pitot's were hot when touched by hand.

Control continuity of the power levers and the condition levers for both engines were established from the cockpit controls to both engines. Both the power control cables, and condition lever cables had separations (cuts) near the wing roots and engine nacelles, consistent with cuts by recovery personnel. The power lever and the condition lever linkage for both engines remained attached to their respective attachment points.

A visual inspection was conducted of the right-wing fuel system. Continuity of the right-wing fuel system was established from the fuel tanks throughout the system to the engine nacelle. Air pressure was applied to the fuel line at the engine nacelle and fuel was observed draining from the fuel bladder. Power from an external power source was applied to the airframe fuel pump at the wing root, and the airframe fuel pump was heard functioning.

A visual inspection was conducted of the left-wing fuel system. Continuity of the left-wing fuel system was established from the fuel tanks throughout the system to the engine nacelle. Power from an external power source was applied to the airframe fuel pump at the wing root, the airframe fuel pump was heard functioning and fuel was observed draining from the fuel line at the engine nacelle.

A fuel sample of the recovered fuel was tested using a MISCO, Palm Abbe digital refractometer for PRIST. The reading on the meter was 1.3341, consistent with positive indications of PRIST.

2.0 Engine Examination

Left Engine

Engine Manufacturer: Honeywell Aerospace Technologies

Engine Model Number: TPE331-10T-513K

Engine Part Number: 3108110-3

Engine Serial Number: P99443

The left engine had been separated from the airframe by the recovery personal. The starter/generator was separated from the engine due to a fractured bracket. Damage to the top of the propeller governor was observed, consistent with contact with the starter/generator. No visible damage was observed to the 1st stage compressor impeller or the 3rd stage turbine rotor. The power section of the turbine was manually rotated with no binding, and a corresponding rotation was observed on the propeller output shaft. The chip detector was removed, and no visible debris was observed

The propeller and propeller hub were disassembled from the propeller output shaft and the engine was placed into a manufacture provided shipment container.



Figure 4: View of left engine during examination.

Right Engine

Engine Manufacturer: Honeywell Aerospace Technologies

Engine Model Number: TPE 331-10T-513K

Engine Part Number: 3108110-3

Engine Serial Number: P99444

The right engine had been separated from the airframe by the recovery personal. No visible damage was observed to the exterior of the engine. No visible damage was observed to the 1st stage compressor impeller or the 3rd stage turbine rotor. The power section of the turbine was manually rotated with no binding, and a corresponding rotation was observed on the propeller output shaft. The chip detector was removed, and no visible debris was observed.

The propeller and propeller hub were disassembled from the propeller output shaft and the engine was placed into a manufacture provided shipment container.



Figure 5: View right engine during examination.

3.0 Propeller Examination

Left Propeller

Propeller Manufacturer: MT Propeller

Propeller Model Number: MTV-27-1-E-C-F-R(G)/CFRL240-55d

Propeller Serial Number: 160250

The airplane was equipped with a two, five-bladed MT Propellers; for the purposes of this report the propeller blades for the left engine propeller were labeled A through E. All the left engine propeller blades remained attached to the propeller hub. The tip of propeller blade A fracture separated, consistent with impact damage. Propeller blades B through E fracture separated about mid span, consistent with impact damage. The propeller blades exhibited various striations on the cambered side of the blades.

Right Propeller

Propeller Manufacturer: MT Propeller

Propeller Model Number: MTV-27-1-E-C-R(G)/CFRL240-55d

Propeller Serial Number: 160251

For the purposes of this report, the propeller blades for the right engine propeller were labeled F through J. Propeller blades F through H fracture separated about mid span, consistent with impact damage. Propeller blades J and I were fracture separated at the propeller hub, consistent with impact damage. Fragments of propeller blades J and I were observed within the propeller hub. The propeller blades exhibited various striations on the cambered side of the blades.

4.0 Meteorological Information

KSFF 022353Z COR 00000KT 2SM BR BKN003 OVC005 M01/M01 A3042 RMK AO2
SLP324 T10061011 10000 21011 53006

Submitted by:

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