

**Download and Analysis of Two N1
Digital Electronic Engine Controls
from
Telluride, CO
Hawker 900XP Accident Aircraft
Registration N526FC
Summary**

1 REPORT SUMMARY

1.1 PURPOSE

This report summarizes the findings of the investigation of two N1 Digital Electronic Engine Controls (N1 DEECs) at the Honeywell Aerospace facility in Tucson, Arizona on October 25, 2024.

The investigation was conducted at the request of and under the supervision of the National Transportation Safety Board (NTSB).

1.2 BACKGROUND

The N1 DEEC's were installed on two TFE731-50R engines, serial numbers P122137 (LH) and P122135 (RH), of a Hawker 900XP aircraft, Registration Number N526FC, Serial Number HA-0015. The aircraft experienced a runway excursion after an aborted takeoff in Telluride, CO, on July 20, 2024, at 13:39 MDT. The aircraft was substantially damaged and the two pilots on board were not injured.

1.3 DATA ANALYSIS

The downloaded files disclosed that N1 DEEC S/N 47-BF0038 was associated with Engine #1 (Left) S/N P122137 and N1 DEEC S/N 31-AF0213 N1 DEEC was associated with Engine #2 (Right) S/N P122135.

The incident recorder stores the following parameters in NVM:

N1 (Low Pressure spool % speed)	N2 (High Pressure spool % speed)
ITT (inter-turbine temperature)	WOW (weight-on-wheels)
Mach	PLA (power lever angle)
ALT (pressure altitude)	TR (thrust reverser deploy)
Control Mode (auto / manual)	Buffer Location Pointer

The data shows the following for the left engine:

- The accident flight appears to start between the 318 second mark (the last change in PLA before takeoff power was applied) and 544 second mark (the last Air/Ground transition). Due to how the N1 DEEC records data, the exact startup time for the accident flight cannot be determined.
- Throughout the accident flight, the engine appears to be operating and correctly responding to Power Lever (PLA) movements.
- At time stamp 317 seconds, the increasing PLA movement begins. The N1, N2, and ITT data all show a corresponding response to the PLA movement.

- At time stamp 281 seconds (36 seconds after increased PLA), the decreasing PLA movement begins. Again, N1, N2, and ITT data all show a corresponding response to the PLA movement.
- At time stamp 277 seconds, the thrust reversers were deployed and increasing PLA movement begins.
- At time stamp 252 seconds, decreasing PLA movement begins.
- At time stamp 196 seconds, the thrust reversers are stowed.
- The engine continued to run after impact and was still running when power was removed from the N1 DEEC.

The data shows the following for the right engine:

- The accident flight appears to start between the 337 second mark (the last change in PLA before takeoff power was applied) and the 596 second mark (the last Air/Ground transition). Due to how the N1 DEEC records data, the exact startup time for the accident flight cannot be determined.
- Throughout the accident flight, the engine appears to be operating and correctly responding to Power Lever (PLA) movements.
- At time stamp 316 seconds, the increasing PLA movement begins. The N1, N2, and ITT data all show a corresponding response to the PLA movement.
- At time stamp 281 seconds (35 seconds after increased PLA), the decreasing PLA movement begins. Again, N1, N2, and ITT data all show a corresponding response to the PLA movement.
- At time stamp 276 seconds, the thrust reversers were deployed and increasing PLA movement begins.
- At time stamp 253 seconds, decreasing PLA movement begins.
- At time stamp 197 seconds, the thrust reversers are stowed.
- The engine continued to run after impact and was still running when power was removed from the N1 DEEC.

1.4 SUMMARY

The download of the incident recorder data and fault history data from both N1 DEECs was completed successfully. Analysis of the data indicated that both engines were rotating, operating, and responding to power lever inputs throughout the takeoff roll and accident sequence. Approximately 250 seconds after PLA was decreased for the last time, power was removed from the N1 DEECs, but it appears both engines continued to run beyond that point in time.

Appendix A: 512 Second Data Chart

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Swamp Bird LLC, Hawker 900XP, N526FC

Telluride, CO, July 20, 2024

1-512 Seconds of Data

☒ P122137 Eng 1: Left Engine S/N

☒ P122135 Eng 2: Right Engine S/N

