NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division Washington, D.C. 20594

November 14, 2019

Flight Data Recorder

Specialist's Factual Report By Cassandra Johnson

1. EVENT SUMMARY

Location:	Philadelphia, Pennsylvania
Date:	August 10, 2018
Aircraft:	Gulfstream GIV
Registration:	N619A
Operator:	Pegasus Elite Aviation
NTSB Number:	DCA18IA265

On Friday August 10, 2018, about 2050 eastern daylight time (EDT), a Gulfstream GIV airplane, N619A, operated by Pegasus Elite Aviation as PEGJET flight 19, was on a visual approach and cleared to land on runway 35 at Philadelphia International Airport (KPHL). During the approach, the airplane aligned with taxiway E. About 0.10 mile from the end of taxiway E, the pilot initiated a go-around. The airplane overflew four air carrier airplanes on taxiway E during the go-around climb. The incident airplane came within about 200 ft of the first airplane on the taxiway. At the time of the approach, the runway 35 runway end identifier lights and the precision approach path indicator lights were out of service. There were no injuries to the seven passengers and crew onboard, and the airplane was not damaged. The airplane was operating under 14 *Code of Federal Regulation* (CFR) Part 135 as a charter flight.

2. FLIGHT DATA RECORDER GROUP

A flight data recorder (FDR) group was not convened.

3. FDR CARRIAGE REQUIREMENTS

The event aircraft, N619A, was manufactured in 1989, and was operating such that it was required to be equipped with an FDR that recorded, at a minimum, 18 parameters, as cited in CFR Part 135.152.

4. DETAILS OF FDR INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following FDR:

Recorder Manufacturer/Model:L-3/Fairchild FA2100Recorder Serial Number:1548

4.1. L-3/Fairchild FA2100 Description

This model FDR records airplane flight information in a digital format using solid-state flash memory as the recording medium. The FA2100 can receive data in the ARINC 573/717/747 configurations and can record a minimum of 25 hours of flight data. It is configured to record 64 12-bit words of digital information every second. Each grouping of 64 words (each second) is called a subframe. Each subframe has a unique 12-bit synchronization (sync) word identifying it as subframe 1, 2, 3, or 4. The sync word is the first word in each subframe. The data stream is "in sync" when successive sync words appear at proper 64-word intervals. Each data parameter (for example altitude, heading, airspeed) has a specifically assigned word number within the subframe. The FA2100 is designed to meet the crash-survivability requirements of TSO-C124a.

4.1.1. Recorder Condition

The recorder was in good condition and the data were extracted normally from the recorder.

4.1.2. Recording Description

The FDR recording contained approximately 451 hours of data. Timing of the FDR data is measured in subframe reference number (SRN), where each SRN equals one elapsed second. The event flight was the 8th previously recorded flight and its duration was approximately 4 hours and 46 minutes. The parameters evaluated for the purpose of this report appeared to be in accordance with federal FDR carriage requirements.

4.1.3. Engineering Units Conversions

The engineering unit conversions used for the data contained in this report are based on documentation from the aircraft manufacturer. Where applicable, the conversions have been changed to ensure that the parameters conform to the NTSB's standard sign convention that climbing right turns are positive (CRT=+).¹

Table 1 lists the FDR parameters verified and provided in this report. Additionally, table 2 describes the unit and discrete abbreviations used in this report.

4.1.4. Parameters

Table 1 lists the parameters that were verified and provided in this report as tabular data. Pressure altitude is based on a standard altimeter setting of 29.92 inches of mercury (in Hg) and has not been corrected for the local altimeter setting at the time of the event. Parameters in table 1 with a blank unit description are discretes. A discrete is typically a 1-bit parameter that is either a 0 state or a 1 state where each state is uniquely defined for each parameter. Table 2 contains the unit and discrete state abbreviations for the parameters.

Table Labels	Parameter Name	Units
Accel Lat	Lateral Acceleration	g
Accel Long	Longitudinal Acceleration	g

Table 1. Verified and provided FDR parameters.

¹ CRT=+ means that for any parameter recorded that indicates a climb or a right turn, the sign for that value is positive. Also, for any parameter recorded that indicates an action or deflection, if it induces a climb or right turn, the value is positive. Examples: Right Roll = +, Pitch Up = +, Elevator Trailing Edge Up = +, Right Rudder = +.

Table Labels	Parameter Name	Units
Accel Vertical	Vertical Acceleration	g
Airspeed Cal	Calibrated Airspeed	kts
Altitude Press	Pressure Altitude	ft
Altitude Radio	Radio Altitude	ft
AP	Auto Pilot	
Eng1 N1	Engine 1 Fan Speed	%RPM
Eng2 N1	Engine 2 Fan Speed	%RPM
Gear WOW-L	Left Main Gear Weight on Wheels	
Gear WOW-R	Right Main Gear Weight on Wheels	
Heading Mag	Magnetic Heading	deg
Key VHF-1	Microphone Keying-1	
Key VHF-2	Microphone Keying-2	
Latitude	Latitude Position	deg
Longitude	Longitude Position	deg
Pitch	Pitch Angle	deg
Roll	Roll Angle	deg

Table 2. Unit and discrete state abbreviations.

Unit and discrete Abbreviations	Descriptions
%RPM	percent revolutions per minute
deg	degrees
ft	feet
Grnd	Ground
kts	knots

4.2. Time Correlation

Correlation of the FDR data from SRN to the event local time, EDT, was established with an offset provided by the Aircraft Performance Specialist in the Aircraft Performance Study.²

Accordingly, the time offset for the event flight data from SRN to local EDT is the following: EDT = SRN - 1,476,072. Therefore, all times are referenced as EDT, not SRN.

4.3. Tabular Data

The tabular data for the entire event flight from 16:03:48 EDT to 21:18:48 EDT for all the parameters listed in table 1 are provided in electronic comma separated value (*.csv) format as attachment 1 to this factual report.

² For more details, refer to NTSB's Aircraft Performance Study.