



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

March 2, 2022

Specialist's Factual Report

AIR TRAFFIC CONTROL

CEN21FA238

A. ACCIDENT

Location: McDermott, Ohio
Date: May 28, 2021
Time: 1048 eastern daylight time (EDT)
1448 coordinated universal time (UTC)
Airplane: Lancair Evolution, N515DL

B. AIR TRAFFIC CONTROL SPECIALIST

Specialist Charles Olvis
National Transportation Safety Board (NTSB)
Washington, D.C.

C. DETAILS OF THE INVESTIGATION

On May 28, 2021, about 1048 eastern daylight time, a Lancair Evolution airplane, N515DL, was destroyed when it was involved in an accident near McDermott, Ohio. The private pilot and passenger were fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The NTSB air traffic control investigator did not travel for this accident. Data was requested from the Federal Aviation Administration (FAA) and included certified audio from Indianapolis Air Route Traffic Control Center (ZID ARTCC), Automatic Dependent Surveillance-Broadcast (ADS-B) data, ZID weather products, FAA Form 7230-4 Facility Log, and the Electronic Radar Intelligence Tool (ERIT) radar data.

A review of ATC handling and all FAA data was conducted by the ATC investigator for this report.

D. FACTUAL INFORMATION

1.0 History of Flight

ATC data revealed the airplane departed about 1014 from Bellefontaine Regional Airport (EDJ), Bellefontaine, Ohio on an instrument flight rules (IFR) flight plan, with a destination of Charleston International Airport (CHS), Charleston, South Carolina.

As the flight was proceeding southeast bound on course, ATC climbed the flight to 25,000' (FL 250) mean sea level (MSL). At about 1043, the pilot of N515DL established communications with the ZID sector R79 controller and reported level at FL250.

At about 1046:07, a transmission was received from N515DL with a voice in the background saying, “what are you doing?”. The pilot of N515DL then can be heard calling the ZID R79 controller. However, the transmitter on the airplane remained on and the pilot could be heard saying “I don’t know what happened honey, it won’t perform” followed by a scream. The ZID R79 controller attempted to contact the pilot however the transmitter was still active and heavy breathing and unintelligible words could be heard.

At 1047:05, another unintelligible transmission was heard. The ZID R79 controller then coordinated with adjacent sectors concerning N515DL and continued to attempt to contact the pilot. N515DL made a left turn with a rapid descent, and according to the FAA, the controllers last observed altitude on the radar display was 9,100’. There were no further communications with the pilot of N515DL.

2.0 Radar and Surveillance Data

In general, two types of radar are used to provide position and track information for aircraft cruising at high altitudes between airport terminal airspaces, and for those operating at low altitude and speeds within terminal airspaces. Additionally, surveillance data may be obtained through Automatic Dependent Surveillance-Broadcast (ADS-B).

ADS-B data is aircraft global positioning system (GPS) derived position reports and other aircraft information transmitted by the airplane and received through a ground infrastructure and shared with other users within the national airspace system (NAS). Air traffic controllers across the nation can monitor aircraft using either ground-based radar or ADS-B.

To improve the consistency and reliability of ADS-B and radar returns, airplanes are equipped with transponders. For ADS-B equipped airplanes, the transponders are assigned a unique Mode-S address for each airplane. N515DL was equipped with an ADS-B 1090 MHz Out transponder with an assigned Mode S of A67458. The airplane was squawking an ATC assigned transponder beacon code of 1424. However, according to the FAA, the last time any ADS-B data was received from the airplane was on October 12, 2015. There was no ADS-B data for the accident flight.

Air route surveillance radars (ARSRs) are long range (250 nm) radars used to track aircraft cruising between terminal airspaces. ARSR antennae rotate at 5 to 6 rotations per minute (rpm), resulting in a radar return every 10 to 12 seconds. Airport surveillance radars (ASRs) are short range (60 nm) radars used to provide air traffic control services in terminal areas. ASR antennas rotate at 13 to 14 rpm, resulting in a radar return every 4.6 to 5 seconds. Radar data for this report was obtained from the FAA and was of good quality.

Figure 1 show an overview of the flight track from departure. After departing the airplane flew to the southeast and climbed to FL250. Figure 2 is a graphic illustrating the transponder targets from the airplane and includes primary targets that were detected by radar immediately after the airplane was detected; it also includes the reported position of airplane wreckage located on the ground. All the primary targets are clamped to the ground since the radar system is not able to ascertain the altitude of primary targets. Figure 3 illustrates the descent of the airplane and includes the primary targets and the plotted wreckage locations.

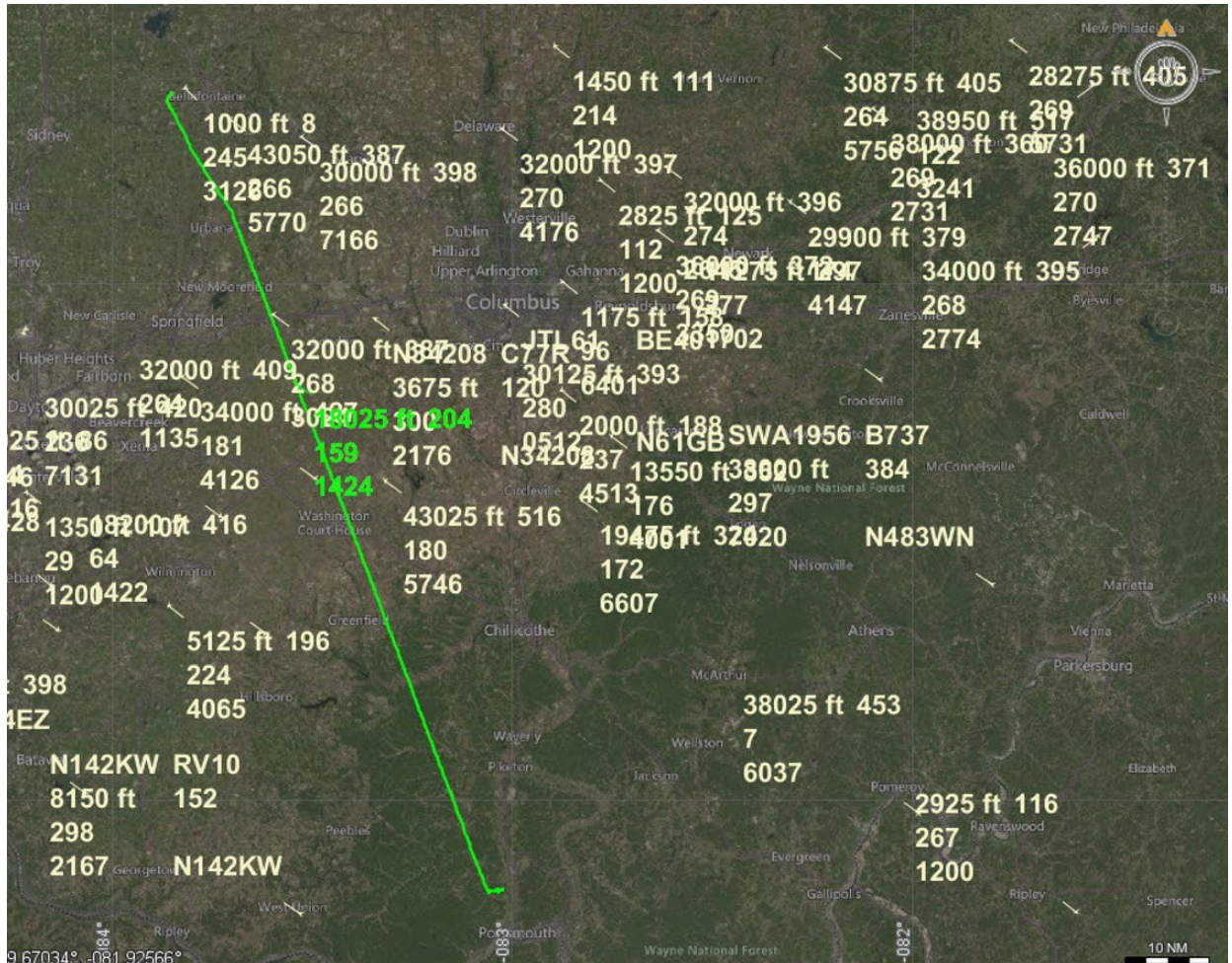


Figure 1 – The entire flight track of N515DL.

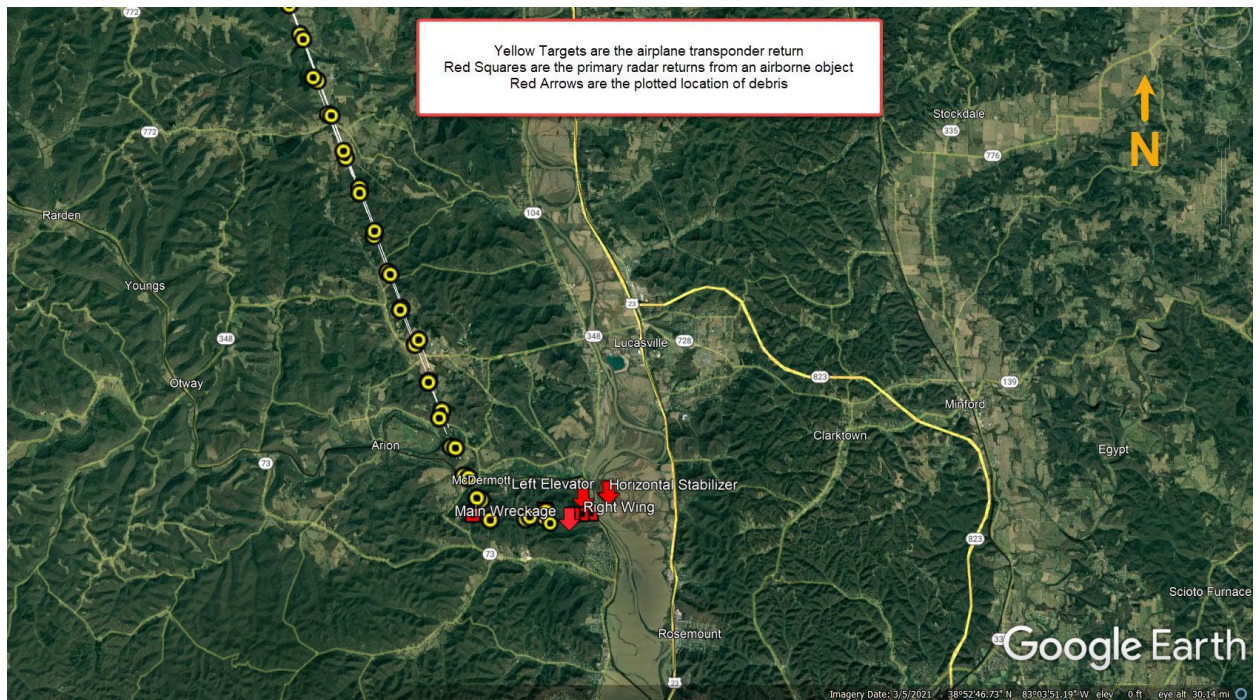


Figure 2 – Final segment of N515DL with primary radar targets and plotted wreckage locations.

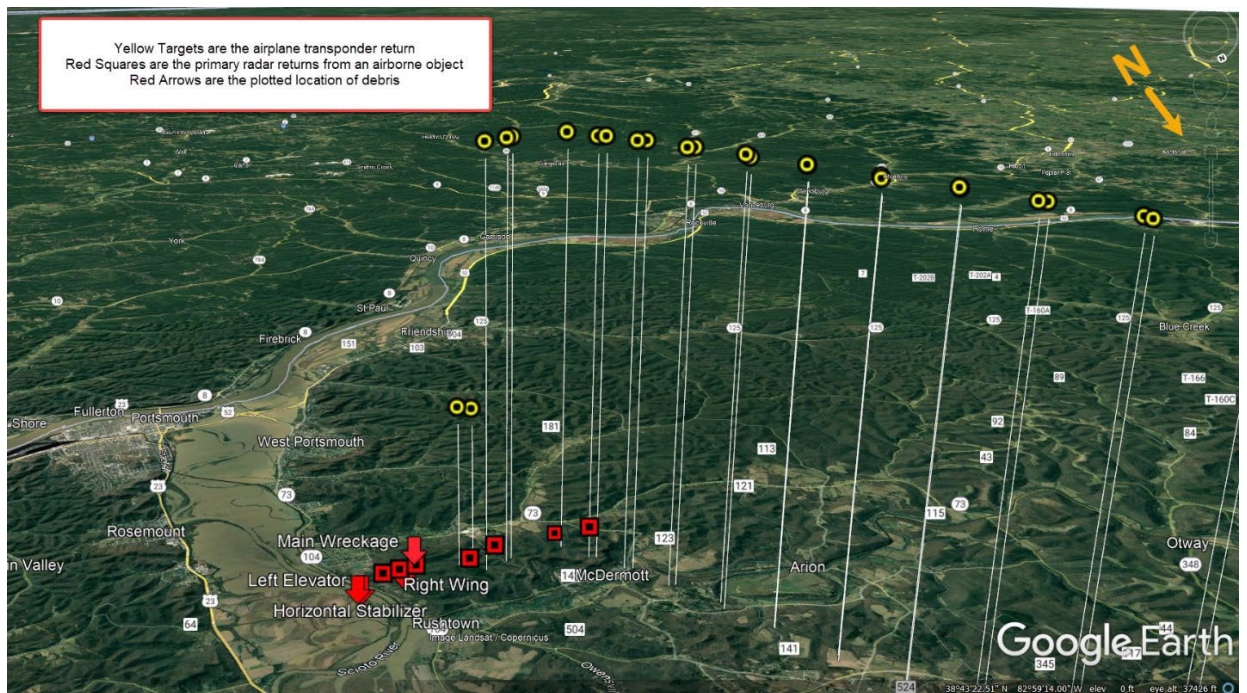


Figure 3 – Graphic showing the descent of N515DL and the plotted primary and wreckage locations.

3.0 Weather

See the NTSB meteorological investigator's factual report for detailed weather information. The NTSB ATC investigator requested all pertinent weather information available to controllers before and after the accident.

On the day of the accident, an Airman's Meteorological Information (AIRMET) Sierra (instrument flight rules, or IFR, conditions) Tango (Turbulence), and Zulu (icing) were in effect for the area N515DL was operating.

The AIRMETs warned of IFR conditions due to ceilings below 1,000 ft above ground level (agl) and visibilities below 3 miles in precipitation and mist, moderate turbulence between FL250 and FL420, and moderate icing between the freezing level and FL220. A review of communications and weather information provided by the FAA indicated the ZID R79 air traffic controller did not read the AIRMET information to the accident pilot or solicit and disseminate pilot reports (PIREPs).

4.0 Federal Aviation Administration Directives

4.1 FAA JO 7110.65Z

This order prescribes air traffic control procedures and phraseology for use by personnel providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

4.1.1 Chapter 2 General Control, Section 6 Weather Information

Chapter 2, Section 6, *Weather Information*, addresses the air traffic controller's responsibility to become familiar with pertinent weather information when coming on duty, and stay aware of current and forecasted weather information needed to perform ATC duties. Because ZID was an enroute facility, unique enroute directives will have "enroute" stated denoting additional or differing requirements.

Paragraph 2-6-2, *PIREP Solicitation and Dissemination*, addresses the requirements for air traffic controllers to solicit PIREPs and states [in part]:

2-6-2. PIREP SOLICITATION AND DISSEMINATION

Emphasis must be placed on the solicitation and dissemination of Urgent (UUA) and Routine (UA) PIREPs. Timely dissemination of PIREPs alerts pilots to weather conditions and provides information useful to forecasters in the development of aviation forecasts. PIREPs also provide information required by ATC in the provision of safe and efficient use of airspace. This includes reports of strong

frontal activity, squall lines, thunderstorms, light to severe icing, wind shear and turbulence (including clear air turbulence) of moderate or greater intensity, braking action, volcanic eruptions and volcanic ash clouds, detection of sulfur gases in the cabin, and other conditions pertinent to flight safety. Controllers must provide the information in sufficient detail to assist pilots in making decisions pertinent to flight safety.

NOTE– Routine PIREPs indicating a lack of forecasted weather conditions, for example, a lack of icing or turbulence, are also valuable to aviation weather forecasters and pilots. This is especially true when adverse conditions are expected or forecasted but do not develop or no longer exist.

- a. Solicit PIREPs when requested, deemed necessary or any of the following conditions exists or is forecast for your area of jurisdiction:
 1. Ceilings at or below 5,000 feet. These PIREPs must include cloud bases, tops and cloud coverage when available. Additionally, when providing approach control services, ensure that at least one descent/climb-out PIREP and other related phenomena is obtained each hour.
 2. Visibility (surface or aloft) at or less than 5 miles.
 3. Thunderstorms and related phenomena.
 4. Turbulence of moderate degree or greater.
 5. Icing of light degree or greater.
 6. Wind shear.
 7. Braking action reports.
 8. Volcanic ash clouds.
 9. Detection of sulfur gases (SO₂ or H₂S), associated with volcanic activity, in the cabin.
- b. Record with the PIREPs:
 1. Time.
 2. Aircraft position.
 3. Type aircraft.
 4. Altitude.
 5. When the PIREP involves icing include:
 - (a) Icing type and intensity.
 - (b) Air temperature in which icing is occurring.
- c. Obtain PIREPs directly from the pilot, or if the PIREP has been requested by another facility, you may instruct the pilot to deliver it directly to that facility.
- d. Disseminate PIREPs as follows:

1. Relay pertinent PIREP information to concerned aircraft in a timely manner.
NOTE– Use the word gain and/or loss when describing to pilots the effects of wind shear on airspeed.
2. EN ROUTE. Relay all operationally significant PIREPs to the facility weather coordinator.

Paragraph 2-6-6, *Hazardous Inflight weather Advisory*, addresses the requirements for air traffic controllers to disseminate hazardous inflight weather information to pilots and states [in part]:

2–6–6. HAZARDOUS INFLIGHT WEATHER ADVISORY

Controllers must advise pilots of hazardous weather that may impact operations within 150 NM of their sector or area of jurisdiction. Hazardous weather information contained in the advisories includes Airmen’s Meteorological Information (AIRMET), Significant Meteorological Information (SIGMET), Convective SIGMET (WST), Urgent Pilot Weather Reports (UUA), and Center Weather Advisories (CWA). Facilities must review alert messages to determine the geographical area and operational impact of hazardous weather information. Advisories are not required if aircraft on your frequency(s) will not be affected.

- a. Controllers must broadcast a hazardous inflight weather advisory on all frequencies, except emergency frequency, upon receipt of hazardous weather information. Controllers are required to disseminate data based on the operational impact on the sector or area of control jurisdiction. Pilots requesting additional information must be directed to contact the nearest Flight Service.

E. LIST OF ATTACHMENTS

Attachment 1 ZID Weather Products.

Submitted by:

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