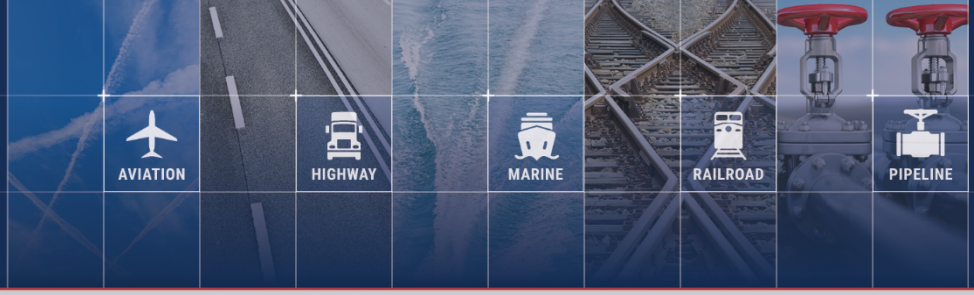

Aviation Investigation Final Report

Location:	Englewood, Colorado	**Accident Number:**	CEN21FA215
Date & Time:	May 12, 2021, 10:23 Local	**Registration:**	N280KL (A1); N416DJ (A2)
Aircraft:	Swearingen SA226TC (A1); CIRRUS DESIGN CORP SR22 (A2)	**Aircraft Damage:**	Substantial (A1); Substantial (A2)
Defining Event:	Midair collision	**Injuries:**	1 None (A1); 2 None (A2)
Flight Conducted Under:	Part 91: General aviation - Positioning (A1); Part 91: General aviation - Personal (A2)		

Analysis

A Cirrus SR22 and a Swearingen AS226TC were approaching to land on parallel runways and being controlled by different controllers on different control tower frequencies. The pilot of the Swearingen was established on an extended final approach for the left runway, while the pilot of the Cirrus was flying a right traffic pattern for the right runway.

Data from an on-board recording device showed that the Cirrus' airspeed on the base leg of the approach was more than 50 kts above the manufacturer's recommended speed of 90 to 95 kts. As the Cirrus made the right turn from the base leg to the final approach, its flight path carried it through the extended centerline for the assigned runway (right), and into the extended centerline for the left runway where the collision occurred. At the time of the collision, the Cirrus had completed about ½ of the 90° turn from base to final and its trajectory would have taken it even further left of the final approach course for the left runway.

The pilot of the Swearingen landed uneventfully; the pilot of the Cirrus deployed the airframe parachute system, and the airplane came to rest upright about 3 nautical miles from the airport. Both airplanes sustained substantial damage to their fuselage.

During the approach sequence the controller working the Swearingen did not issue a traffic advisory to the pilot regarding the location of the Cirrus and the potential conflict. The issuance of traffic information during simultaneous parallel runway operations was required by Federal Aviation Administration Order JO 7110.65Y, which details air traffic control procedures and phraseology for use by persons providing air traffic control services. The controller

working the Cirrus did issue a traffic advisory to the Cirrus pilot regarding the Swearingen on the parallel approach.

Based on the available information, the pilot of the Cirrus utilized a much higher than recommended approach speed which increased the airplane's radius of turn. The pilot then misjudged the airplane's flight path, which resulted in the airplane flying through the assigned final approach course and into the path of the parallel runway. The controller did not issue a traffic advisory to the pilot of Swearingen regarding the location of the Cirrus. The two airplanes were on different tower frequencies and had the controller issued an advisory, the pilot of the Swearingen may have been able to identify the conflict and maneuver his airplane to avoid the collision.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The Cirrus pilot's failure to maintain the final approach course for the assigned runway, which resulted in a collision with the Swearingen which was on final approach to the parallel runway. Contributing to the accident was the failure of the controller to issue a traffic advisory to the Swearingen pilot regarding the location of Cirrus, and the Cirrus pilot's decision to fly higher than recommended approach speed which resulted in a larger turn radius and contributed to his overshoot of the final approach course.

Findings

Personnel issues (A1)	Forgotten action/omission - ATC personnel
Aircraft (A2)	Airspeed - Not attained/maintained
Personnel issues (A2)	Aircraft control - Pilot

Factual Information

History of Flight

Approach-IFR final approach (A1)	Midair collision (Defining event)
Approach-VFR pattern base (A2)	Midair collision

On May 12, 2021, at 1023 mountain daylight time, a Cirrus SR22 airplane, N416DJ, and a Swearingen SA226TC airplane, N280KL, were substantially damaged when they collided in flight while approaching to land at Centennial Airport (APA), Englewood, Colorado. The pilot and passenger onboard the Cirrus were not injured, and the pilot onboard the Swearingen was not injured. The Cirrus was operated as a Title 14 *Code of Federal Regulations* (CFR) Part 91 personal flight, and the Swearingen was operated as a Title 14 *CFR* Part 91 positioning flight.

At the time of the accident, parallel runways 17R and 17L were being utilized for simultaneous operations at APA. Automatic Dependent Surveillance-Broadcast (ADS-B) data was provided by the Federal Aviation Administration (FAA), and data from the on-board Remote Data Module (RDM) was downloaded from the Cirrus. The data showed that the Cirrus departed APA for a local flight about 0921, and the Swearingen departed the Salida Airport (ANK), Salida, Colorado, about 0956. About 1022:43, the Swearingen was about 5.5 nm from APA and had completed a right turn to align with the final approach course to runway 17L. At this same time, the Cirrus was on the downwind leg of the right-hand traffic pattern for runway 17R just before commencing a right turn to the base leg of the traffic pattern.

The Swearingen continued its approach and remained aligned with runway 17L. The Cirrus continued the right-hand traffic pattern through the base leg, and then began to turn toward the final approach course for the runway. The Cirrus continued through the extended centerline for runway 17R, and then continued to the extended centerline for runway 17L where it collided with the Swearingen. The airplanes collided at 1023:52 when they were about 3.2 nm from APA. The Swearingen was aligned with runway 17L while the Cirrus had not completed the turn from base to final and was heading about 146° when the collision occurred.

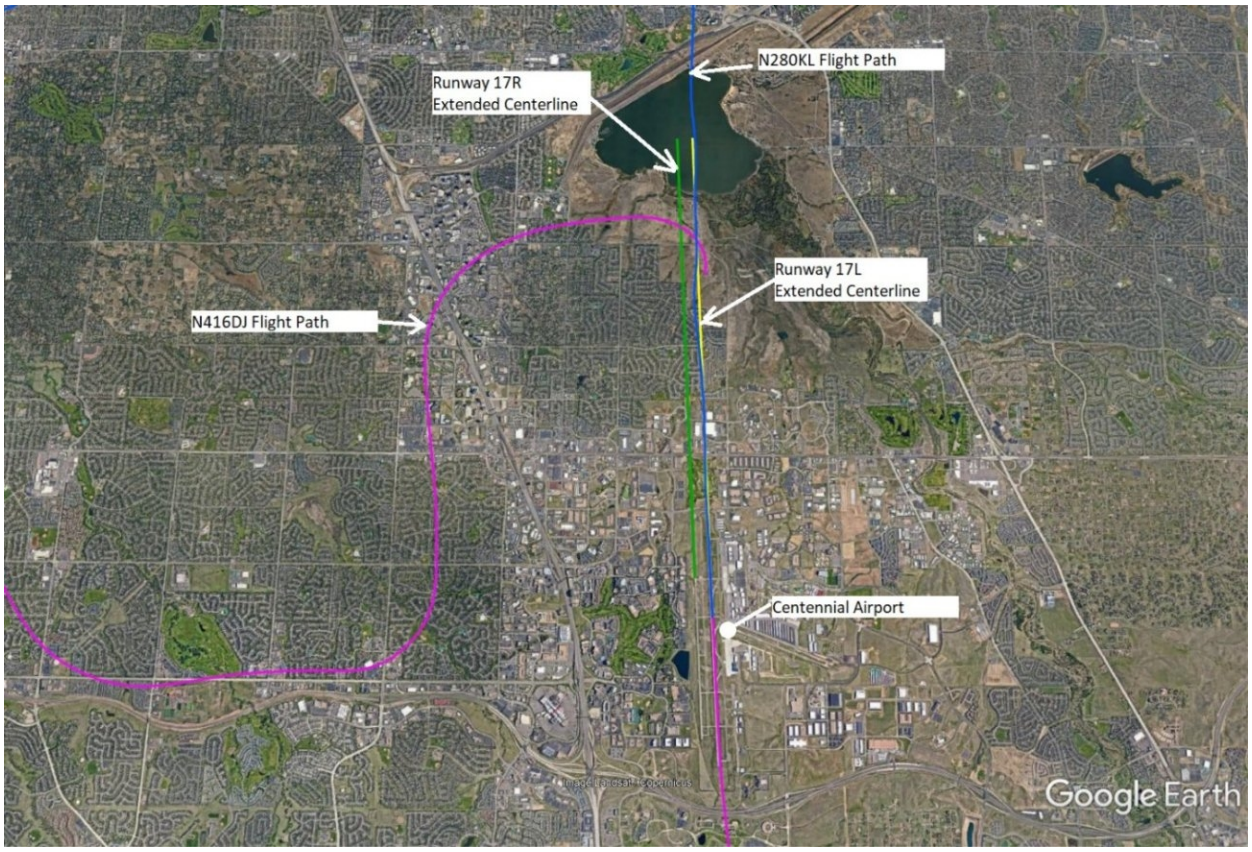

Figure 1 – Plot of ADS-B and RDM flight path information

After the impact, the pilot of the Swearingen declared an emergency, continued to APA, and landed successfully on runway 17L. The pilot of the Cirrus reported that the airplane was not controllable after the impact, and he deployed the Cirrus Airframe Parachute System (CAPS). The Cirrus came to rest about 3 nm north of APA. Both airplanes sustained substantial damage (see figures 2 & 3)

Figure 2 – Photograph of the Swearingen after the accident.

Figure 3 – Photograph of the Cirrus at the accident scene.

Review of the data retrieved from the RDM from the Cirrus revealed that the airplane's autopilot was disengaged at 1018:50 and stayed off for the remainder of the flight, indicating that the pilot was manually flying the airplane during the landing approach. At 1023:16, the avionics system issued a traffic alert which remained on until the collision. RDM data further indicated that that during the downwind portion of the airplane's approach, the airspeed was about 125 kts and the flaps were up. Once the airplane was established on the base leg of the traffic pattern the recorded airspeed was about 148 kts and the flaps were still up. As the airplane maneuvered from the base leg to final approach, the airspeed was about 140 kts and the flaps were lowered to 50% about 4 seconds before impact. When the collision occurred, the airplane was about halfway through its turn from base to final at an airspeed of 140 kts, and an altitude of 6,619 ft msl. At 1023:54, the CAPS handle was pulled.

According to the Cirrus "Pilot's Operating Handbook and FAA Approved Airplane Flight Manual" (POH/AFM), the recommended approach speed for the airplane was 90-95 knots indicated airspeed (KIAS) with flaps up, 85-90 KIAS with 50% flaps, and 80-85 KIAS with 100% flaps.

Review of communications between both airplanes and the APA Airport Traffic Control Tower (ATCT) revealed that the local control 1 (LC1) controller had cleared the Swearingen for a straight in landing to runway 17L and the local control 2 (LC2) controller had cleared the Cirrus to land on runway 17R. The two controllers communicated with the respective airplanes on different ATCT frequencies.

FAA Order JO 7110.65Y detailed air traffic control procedures and phraseology for use by personnel providing air traffic control services. Included in the order were instructions for prioritizing the issuance of traffic alerts when potential conflicts with other aircraft exist. The order also specified conditions in which parallel runway operations could be authorized, including visual flight rules meteorological conditions, and that two-way radio communication be maintained with the aircraft involved and that pertinent traffic information be issued.

Further review of the communications at APA revealed that although the LC2 controller had issued pertinent traffic advisories to the pilot of the Cirrus, the LC1 controller did not issue a traffic advisory to the pilot of the Swearingen regarding the location of the Cirrus.

Pilot Information (A1)

Certificate:	Airline transport	**Age:**	50,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane; Sport pilot	**Toxicology Performed:**	
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	April 7, 2021
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 1, 2021
Flight Time:	11184 hours (Total, all aircraft), 2656 hours (Total, this make and model), 10373 hours (Pilot In Command, all aircraft), 112 hours (Last 90 days, all aircraft), 75 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Pilot Information (A2)

Certificate:	Private	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Unknown	**Last FAA Medical Exam:**	December 1, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information (A1)

Aircraft Make:	Swearingen	**Registration:**	N280KL
Model/Series:	SA226TC	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	TC-280
Landing Gear Type:	Retractable - Tricycle	**Seats:**	3
Date/Type of Last Inspection:	March 9, 2021 Continuous airworthiness	**Certified Max Gross Wt.:**	12500 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo prop
Airframe Total Time:	29525 Hrs as of last inspection	**Engine Manufacturer:**	Honeywell
ELT:	C126 installed, not activated	**Engine Model/Series:**	TPE331-10UA-511G
Registered Owner:	CBG LLC	**Rated Power:**	840 Horsepower
Operator:	Key Lime Air	**Operating Certificate(s) Held:**	Flag carrier (121), Supplemental, On-demand air taxi (135)

Aircraft and Owner/Operator Information (A2)

Aircraft Make:	CIRRUS DESIGN CORP	**Registration:**	N416DJ
Model/Series:	SR22	**Aircraft Category:**	Airplane
Year of Manufacture:	2016	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4394
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed	**Engine Model/Series:**	IO-550-N
Registered Owner:	BB CO LLC	**Rated Power:**	310 Horsepower
Operator:	Independence Aviation	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	APA,5883 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	10:53 Local	**Direction from Accident Site:**	3°
Lowest Cloud Condition:	Few / 8000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.27 inches Hg	**Temperature/Dew Point:**	10°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salida, CO (ANK) (A1); Englewood, CO (A2)	**Type of Flight Plan Filed:**	IFR (A1); None (A2)
Destination:	Englewood, CO (A1); Englewood, CO (A2)	**Type of Clearance:**	IFR (A1); VFR (A2)
Departure Time:	08:54 Local (A1)	**Type of Airspace:**	Class D (A1); Class D (A2)

Airport Information

Airport:	CENTENNIAL APA	**Runway Surface Type:**	Concrete
Airport Elevation:	5884 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17L	**IFR Approach:**	Visual
Runway Length/Width:	10000 ft / 100 ft	**VFR Approach/Landing:**	Straight-in;Traffic pattern

Wreckage and Impact Information (A1)

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	39.585036,-104.85469

Wreckage and Impact Information (A2)

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	39.585036,-104.85469

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Josh Pritchard; FAA; Denver, CO Michael Giovannini; Key Lime Air; Englewood, CO
Original Publish Date:	March 29, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=103073