

Aviation Investigation Final Report

Location: NEW SMYRNA BCH, Florida Accident Number: MIA95FA224

Date & Time: September 15, 1995, 16:44 Local Registration: N117ER

Aircraft: AEROSPATIALE TB-9 Aircraft Damage: Destroyed

Defining Event: 3 Fatal

Flight Conducted Under: Part 91: General aviation - Instructional

Analysis

The Aerospatiale TB-9, N117ER, was observed on short final approach, and the Piper PA-38, N2351A, had turned from base to final just above and behind the TB-9. Two pilots on the ground transmitted warnings to the aircraft but no action was taken. The aircraft collided; the TB-9 sustained stabilator damage and nosed down and crashed. The Piper landed without further incident. Pilots on the ground reported seeing the Piper performing takeoffs and landings, and heard the pilot making position reports. The pilots only observed the TB-9 while on short final approach, and did not recall hearing any position reports from the pilots. They stated there were many aircraft with similar call signs and they might have missed the calls. The operator of the TB-9 teaches their pilots to fly a 1.6 nm final approach at a 3 degree descent angle while making visual approaches. Other pilots stated that this practice conflicts with pilots who fly normal close in approaches with a 3/4 to 1 nm final approach leg. The aircraft flying the long final are at a lower altitude where a pilot making a normal visual approach would not expect to see conflicting traffic.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the pilots of both aircraft to see and avoid each other.

Findings

Occurrence #1: MIDAIR COLLISION

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (C) VISUAL LOOKOUT - INADEQUATE - FLIGHT INSTRUCTOR(ON GROUND)

2. (C) VISUAL LOOKOUT - INADEQUATE - PILOT OF OTHER AIRCRAFT

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Page 2 of 15 MIA95FA224

Factual Information

HISTORY OF FLIGHT

On September 15, 1995, about 1644 eastern daylight time, an Aerospatiale TB-9, N117ER, operated by Embry-Riddle Aeronautical University (Embry-Riddle) and a Piper PA-38-112, N2351A, operated by Spruce Creek Aviation, collided while on final approach to runway 11 at New Smyrna Beach Municipal Airport, New Smyrna Beach Florida. Both flights were 14 CFR Part 91 instructional flights. Visual meteorological conditions prevailed at the time and neither flight had filed a flight plan. N117ER was destroyed and the commercial-rated flight instructor and two student pilots were fatally injured. N2351A received minor damage and the private-rated pilot was not injured. N117ER originated from Daytona Beach Regional Airport, on September 15, 1995, about 1540. N2351A originated from Spruce Creek Airport, Daytona Beach, Florida, on September 15, 1995, about 1610.

The pilot of N2351A stated he had performed four previous landings on runway 11 at New Smyrna Beach and was on his fifth approach. He reported his position by transmitting on the airport unicom frequency (unicom) while on the downwind leg. He turned base leg, reported his position on unicom, and visually checked for other aircraft on final. He did not hear transmissions from any other pilots who were on final approach or see any other aircraft on final approach. He turned to final and established his airspeed at 70 knots. While on short final he heard someone on unicom say "two planes on final, Tomahawk go around Tomahawk go around." At the same time he heard a noise and felt a bump from the bottom of his aircraft and then saw N117ER nosing down in front of him. His propeller contacted something and his engine began running rough. He proceeded to land on the runway and then turned off onto the taxiway where he stopped.

Witnesses reported that N2351A had been in the traffic pattern for runway 11 for several approaches and landings. The pilot was flying a close pattern to the runway and they heard the pilot reporting his position on unicom for each approach. No witness could remember hearing the pilots of N117ER reporting their position on unicom or seeing the aircraft before it was on short final approach. Witnesses stated there were many aircraft with the "echo romeo" call sign on unicom and they just might not have heard the pilots of N117ER reporting their position.

Witnesses saw N117ER on short final approach, and N2351A rolling wings level onto final approach about 30 feet above and just behind N117ER. The pilot in an aircraft on the ground called on unicom that there were two airplanes close together on final. There was no reaction from either aircraft. Another pilot in an aircraft on the ground then called for N2351A to go around. Shortly after this, when the aircraft were about 100 feet above the ground, N117ER was observed to pitch up 10-20 degrees and then immediately nose down to a near vertical

Page 3 of 15 MIA95FA224

descent from which it impacted on the displaced threshold of runway 11. N2351A continued the approach and landed on runway 11.

PERSONNEL INFORMATION

The flight instructor on N117ER had been employed by Embry-Riddle since August 18, 1995. The dual student and observer he was instructing were enrolled in the private pilot flight course and at the time of accident neither had performed solo flight.

The pilot of N2351A held a U.S. private pilot certificate issued on the basis of a Swiss private pilot certificate. He was in the U.S. to build his flight time and obtain flight training so that upon returning to Switzerland he could obtain his commercial pilot certificate.

Additional information on the pilots of N117ER and the pilot of N2351A is contained in this report under First Pilot Information and in Supplement E.

AIRCRAFT INFORMATION

Information on N117ER and N2351A is contained in this report under Aircraft Information.

METEOROLOGICAL INFORMATION

Visual meteorological conditions prevailed at the time of the accident. See Weather Information.

WRECKAGE AND IMPACT INFORMATION

N117ER and N2351A collided over the displaced threshold of runway 11 at the New Smyrna Beach Airport. Debris from the vertical stabilizer, rudder, and right stabilator of N117ER and about a 3 inch portion of propeller tip from N2351A were found in the displaced threshold area. After the collision N117ER pitched down and impacted nose first on the displaced threshold, about 300 feet past the point of collision. A post crash fire erupted. N2351A continued and landed.

Post crash examination of N117ER showed that the aircraft impacted at about a 70-80 degree nose down attitude. The post crash fire consumed the fuselage, inboard wings, and tail sections of the aircraft. The outboard portion of the right stabilator had separated from the aircraft and was found forward or southeast of the aircraft wreckage, outside of the fire area. Examination of this portion of right stabilator showed damage and transfer of black paint consistent with it having been contacted by the propeller of N2351A. The propeller of N117ER had damage consistent with it rotating at the time of impact. The engine assembly rotated after the accident. All engine accessories were consumed or damaged by the post crash fire.

Examination of N2351A showed that the 3 inch piece of propeller tip found in the area of the

Page 4 of 15 MIA95FA224

collision had come from its propeller. Small pieces of sheet metal debris with white and blue paint similar to the colors of N117ER were found in the propeller spinner of N2351A. Blue scrape marks similar to the color of N117ER were found on the belly of N2351A, just aft of the engine.

MEDICAL AND PATHOLOGICAL INFORMATION

Post mortem examination of the three occupants of N117ER was performed by Dr. Ronald L. Reeves, Medical Examiner, Volusia County, Florida. The cause of death for each occupant was attributed to multiple blunt force trauma.

Post mortem toxicology studies on specimens obtained from the three occupants of N117ER was performed by the Volusia County Medical Examiners Office. The specimens obtained from the pilot-in-command were negative for ethanol alcohol, basic, acidic, and neutral drugs. The tests were positive for nicotine, caffeine, and 2% carbon monoxide. The tests on specimens obtained from the dual student were negative for ethanol alcohol, basic, acidic, and neutral drugs. The tests were positive for 1% carbon monoxide. See Supplement K and toxicology reports.

Toxicology tests on specimens obtained from the pilot of N2351A were performed by the Florida Department of Law Enforcement Laboratory, Orlando, Florida. The tests were negative for ethanol alcohol, basic, acidic, and neutral drugs.

TESTS AND RESEARCH

An Embry-Riddle flight instructor stated after the accident that they were directed by their Chief Flight Instructor to teach the students to fly a long final approach with a shallow descent angle, similar to an instrument approach. The procedure requires that they extend the downwind leg of a visual approach to 1.6 nm past the end of the runway before turning base leg and final. The aircraft is then placed on the final approach 1.6 nm from the runway at 500 feet agl. This will then require about a 3 degree descent angle to the runway. In the TB-9 this would be flown at an airspeed of 67 knots. See attached diagram and information from the Chief Flight Instructor.

Flight instructors from flight schools at the New Smyrna Beach Airport and the Ormond Beach Airport, where Embry-Riddle aircraft practice takeoff and landings, stated after the accident that the long final approach with a shallow descent angle flown by the Embry-Riddle aircraft conflicts with other aircraft operating at the airports. They stated that they teach their students to fly a downwind leg 3/4 nm from the runway. When they are at a 45 degree angle to the runway approach end they turn on base leg and then final. This places them on final approach about 3/4 nm from the runway at 500 feet. They stated that the Embry-Riddle aircraft are on a much longer final approach at a lower altitude and are not in a position a pilot would expect to see conflicting traffic. There have been cases at the two airports where Embry-Riddle aircraft have been cut off by other aircraft on final approach when the other pilots did not see

Page 5 of 15 MIA95FA224

them on the long, low final approach.

The FAA Aeronautical Information Manual and Flight Training Handbook states that pilots should fly a basic rectangular pattern when making visual approaches to runways. The downwind leg of the pattern should be flown at the established traffic pattern altitude about 1/2 to 1 nm from the runway. The downwind leg continues past the point abeam of the approach end of the runway to where a descending medium bank 90-degree turn is made onto the base leg and then a 90-degree turn is made onto the final approach leg. The turn to final approach should be completed at least 1/4 mile from the runway. See pages from the Flight Training Handbook and Aeronautical Information Manual.

None of the pilots who were operating at the New Smyrna Beach Airport at the time of the accident, including the pilot of N2351A, recalled hearing N117ER make position reports on unicom. Several witnesses stated that there were many Embry-Riddle aircraft operating at the airport using the call sign "echo romeo." Because of this they just might not recall that specific Embry-Riddle aircraft making position reports. The Embry-Riddle Flight Operations Manual does not give instructions as to what radio calls Embry-Riddle pilots should make when performing normal landings at uncontrolled airports. The Aeronautical Information Manual states that pilots should make position reports on downwind, base, and final legs when making approaches at uncontrolled airports.

After the accident the communications radio from N117ER was inspected by FAA and King Radio engineers at the King factory. The purpose of the examination was to determine the communication frequency the radio was set to at the time of the accident. They were unable to determine the frequency do to fire damage to the radio. See FAA inspector statement and King Radio report.

Witnesses reported that several minutes before the accident an unknown aircraft had a microphone stuck in the transmit position on the New Smyrna Beach Airport unicom. This prevented other pilot's transmissions from being heard. Witnesses stated that at the time of the accident, and for a few minutes before, this condition was corrected and normal radio operations were occurring.

The operator of N2351A stated the aircraft did have a sticky microphone switch on the left control wheel several days before the accident. This condition was reported to have been corrected. The aircraft was examined by an FAA Avionics inspector after the accident. The microphone switch on the left pilots control wheel was found to stick in the transmit position on occasion or not go into the transmit position when pushed on occasion. See attached FAA Inspector statement.

ADDITIONAL INFORMATION

The wreckage of N117ER was released to Embry-Riddle Aeronautical University, Mr. Agee C. Tacker, on September 16, 1995.

Page 6 of 15 MIA95FA224

The wreckage of N2351A was released to Spruce Creek Aviation, Mr. Donald E. Seawy, on September 16, 1995.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	26,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medicalno waivers/lim.	Last FAA Medical Exam:	February 13, 1995
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	668 hours (Total, all aircraft), 566 ho all aircraft)	ours (Pilot In Command, all aircraft), 5	9 hours (Last 30 days,

Aircraft and Owner/Operator Information

Aircraft Maker	AFROCRATIALE	Donistrations	N117ED
Aircraft Make:	AEROSPATIALE	Registration:	N117ER
Model/Series:	TB-9 TB-9	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal; Utility	Serial Number:	1509
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	August 8, 1995 Annual	Certified Max Gross Wt.:	2337 lbs
Time Since Last Inspection:	79 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	2429 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	O-320-D2A
Registered Owner:	EMBRY-RIDDLE AERONAUTICAL UNV.	Rated Power:	160 Horsepower
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Page 7 of 15 MIA95FA224

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	DAB ,35 ft msl	Distance from Accident Site:	10 Nautical Miles
Observation Time:	16:56 Local	Direction from Accident Site:	335°
Lowest Cloud Condition:	Scattered / 1500 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 10000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	29°C / 23°C
Precipitation and Obscuration:	No Obscuration; No Precipita	ition	
Departure Point:	DAYTONA BEACH (DAB)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	15:40 Local	Type of Airspace:	Class G

Airport Information

Airport:	NEW SMYRNA BEACH MUNI 34J	Runway Surface Type:	Asphalt
Airport Elevation:	12 ft msl	Runway Surface Condition:	Dry
Runway Used:	11	IFR Approach:	None
Runway Length/Width:	4300 ft / 100 ft	VFR Approach/Landing:	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	3 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	29.020427,-80.920341(est)

Page 8 of 15 MIA95FA224

Administrative Information

Investigator In Charge (IIC): KENNEDY, JEFFREY Additional Participating RICHARD SHEPPARD; ORLANDO , FL AGEE C TACKER: DAYTONA BEACH . FL Persons: EDWARD ROGALSKI; BELLEVIEW , FL Original Publish Date: May 29, 1996 **Last Revision Date: Investigation Class:** Class Note: **Investigation Docket:** https://data.ntsb.gov/Docket?ProjectID=37665

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 Code of Federal Regulations section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 United States Code section 1154(b)). A factual report that may be admissible under 49 United States Code section 1154(b) is available here.

Page 9 of 15 MIA95FA224



Aviation Investigation Final Report

Location: NEW SMYRNA BCH, Florida Accident Number: MIA95FA224

Date & Time: September 15, 1995, 16:44 Local Registration: N2351A

Aircraft: PIPER PA-38-112 Aircraft Damage: Minor

Defining Event: 1 None

Flight Conducted Under: Part 91: General aviation - Instructional

Analysis

The Aerospatiale TB-9, N117ER, was observed on short final approach, and the Piper PA-38, N2351A, had turned from base to final just above and behind the TB-9. Two pilots on the ground transmitted warnings to the aircraft but no action was taken. The aircraft collided; the TB-9 sustained stabilator damage and nosed down and crashed. The Piper landed without further incident. Pilots on the ground reported seeing the Piper performing takeoffs and landings, and heard the pilot making position reports. The pilots only observed the TB-9 while on short final approach, and did not recall hearing any position reports from the pilots. They stated there were many aircraft with similar call signs and they might have missed the calls. The operator of the TB-9 teaches their pilots to fly a 1.6 nm final approach at a 3 degree descent angle while making visual approaches. Other pilots stated that this practice conflicts with pilots who fly normal close in approaches with a 3/4 to 1 nm final approach leg. The aircraft flying the long final are at a lower altitude where a pilot making a normal visual approach would not expect to see conflicting traffic.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the pilots of both aircraft to see and avoid each other.

Findings

Occurrence #1: MIDAIR COLLISION

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (C) VISUAL LOOKOUT - INADEQUATE - PILOT OF OTHER AIRCRAFT 2. (C) VISUAL LOOKOUT - INADEQUATE - PILOT IN COMMAND

Occurrence #2: MISCELLANEOUS/OTHER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Page 11 of 15 MIA95FA224

Factual Information

Same as narrative for MIA95FA224A.

Pilot Information

Certificate:	Private	Age:	22,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Valid Medicalw/ waivers/lim	Last FAA Medical Exam:	June 14, 1994
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	79 hours (Total, all aircraft), 13 hours (Total, this make and model), 20 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 19 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Page 12 of 15 MIA95FA224

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N2351A
Model/Series:	PA-38-112 PA-38-112	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal; Utility	Serial Number:	38-78A0649
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	September 11, 1995 Annual	Certified Max Gross Wt.:	1670 lbs
Time Since Last Inspection:	14 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	2575 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	0-235-L2C
Registered Owner:	SPRUCE CREEK AVIATION, INC.	Rated Power:	112 Horsepower
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

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Lowest Ceiling:	Broken / 10000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	29°C / 23°C
Precipitation and Obscuration:	No Obscuration; No Precipita	ation	
Departure Point:	(34J)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	16:40 Local	Type of Airspace:	Class G

Page 13 of 15 MIA95FA224

Airport Information

Airport:	NEW SMYRNA BEACH MUNI 34J	Runway Surface Type:	Asphalt
Airport Elevation:	12 ft msl	Runway Surface Condition:	Dry
Runway Used:	11	IFR Approach:	None
Runway Length/Width:	4300 ft / 100 ft	VFR Approach/Landing:	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Minor
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	29.020427,-80.920341(est)

Page 14 of 15 MIA95FA224

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Investigator In Charge (IIC): KENNEDY, JEFFREY Additional Participating RICHARD SHEPPARD; ORLANDO . FL AGEE C TACKER: DAYTONA BEACH . FL Persons: **EDWARD** ROGALSKI; BELLEVIEW , FL **Original Publish Date:** May 29, 1996 Last Revision Date: **Investigation Class:** Class Note: **Investigation Docket:** https://data.ntsb.gov/Docket?ProjectID=37665

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Page 15 of 15 MIA95FA224