



National Transportation Safety Board Aviation Accident Final Report

Location:	Grain Valley, MO	Accident Number:	CHI06LA244
Date & Time:	08/17/2006, 1551 CDT	Registration:	N620PA
Aircraft:	Fairchild SA227-AC	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

The airplane impacted a fence and terrain on short final during a visual approach to runway 27. The airplane was operated as a cargo airplane with two flight crewmembers by a commercial operator certificated under 14 CFR Part 135. The flightcrew worked approximately 18.75 hours within a 24-hour period leading up to the accident performing flights listed by the operator as either 14 CFR Part 91 or 14 CFR Part 135, all of which were in the conduct of company business. Of this total, 5.9 hours involved flying conducted under 14 CFR Part 135. The flight to the accident airport was for the purposes of picking up repair parts for another company airplane that received minor damage in which the flight crew was previously piloting in the 24-hour period. They were then going to fly back to the operator's home base on the same day, which would have had an estimated flying time of 2:45 hours. The captain said he was tired and that he and the first officer had not slept at any of the stops made during the period. The captain said that the company likes for the airplanes to return to their home base. The captain said that the company prefers an option for pilots to stay overnight if tired and he has stayed overnight on previous trips but only due to maintenance related reasons. The Aeronautical Information Manual states that acute fatigue affects timing and perceptual field performance.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot not maintaining clearance from the fence. Contributing factors were the pilot's fatigue and the fence.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (F) OBJECT - FENCE
 2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
 3. (F) FATIGUE - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

4. (C) LEVEL OFF - INADEQUATE - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On August 17, 2006, at 1551 central daylight time, a Fairchild SA227-AC, N620PA, operated by Pak West Airlines Inc. (d.b.a. Sierra West Airlines), sustained substantial damage on impact with terrain during landing at the East Kansas City Airport (3GV), Grain Valley, Missouri. The 14 CFR Part 91 positioning flight for company business was operating in visual meteorological conditions on an instrument flight rules flight plan. The captain was uninjured, and the first officer received minor injuries. The flight last departed from Tuscaloosa Regional Airport (TCL), Tuscaloosa, Alabama, at 1415 eastern daylight time and was en route to 3GV.

The captain stated that after completing the flight to 3GV they were to return on the same day to El Paso International Airport (ELP), El Paso, Texas. He estimated the return flight duration would have been 2 hours 45 minutes. He stated that he was "tired" and did not sleep since he began company flying on August 16, 2006. He stated that he and the first officer spent several hours on the ground in Alabama where they got lunch but did not sleep. He stated that the company "likes" for the airplanes to return.

On August 16, 2006, at 2030, the flight crew began their duty day at ELP.

On August 16, 2006, at 2108, the flight crew departed in a Fairchild SA227-AC, N5441F, on a 14 CFR Part 91 positioning flight from ELP to Abraham Gonzalez International Airport, Juarez, Mexico, where cargo was loaded onto the airplane for a return flight to ELP under 14 CFR Part 135.

On August 16, 2006, at 2240, the flight crew departed ELP, but during the taxi out, the airplane wingtip struck a wingtip of another airplane while being marshaled. The wingtip was repaired using duct tape, and the flight then continued to ELP without further incident where it arrived at 2256. The flight crew then changed airplanes to N620PA, which was used for the remainder of the flights by the flight crew.

On August 17, 2006, at 0101, the flight crew departed ELP en route to Capital City Airport (FFT), Frankfort, Kentucky, on a 14 CFR Part 135 cargo flight that arrived at 0530.

On August 17, 2006, at 0658, the flight crew departed from FFT en route to Mc Ghee Tyson Airport (TYS), Knoxville, Tennessee, on a 14 CFR Part 91 positioning flight that arrived at 0747.

On August 17, 2006, at 0854, the flight crew depart YYS en route to Tuscaloosa Regional Airport (TCL), Tuscaloosa, Alabama, on a 14 CFR Part 135 cargo flight that arrived at 1003.

On August 17, 2006, at 1315, the flight crew departed from TCL en route to 3GV on a 14 CFR Part 91 flight to pick up parts to repair N5441F.

The company and flight crew provided a written statement that reported the following: Approximately 3 miles from 3GV, and 3,000 feet mean sea level on a left base for runway 27, N620PA was cleared for a visual approach to runway 27. The landing gear was in the extended position and the before landing checklist was completed to flaps (1/2) half. The pilot entered final, intercepted the visual approach slope indicator, and selected full flaps about 2 miles from the airport. The airplane was reported to be at a constant airspeed and descent rate. The before landing checklist was completed. Approximately 150 feet from the runway threshold, a

sink rate developed, full power was applied, and the landing gear impacted approximately 5 feet from the runway threshold. The power was increased on the right engine to maintain directional control. The left landing gear folded backwards during the last 10 feet of the landing. The airplane came to rest to the right of the runway in the grass and the flight crew evacuated through the over-wing emergency exit.

The on-scene Federal Aviation Administration (FAA) inspector reported that fuel began leaking from the airplane due to broken fuel lines, and the first officer fired the right engine fire extinguisher as a precautionary measure.

The captain stated during a telephone interview with the Investigator-In-Charge that he could not open the cabin entry door to egress from the airplane after the accident so he exited through the overwing emergency exit. He stated he was later able to open the cabin entry door and that he might have been unable to open the door during his egress because he did not apply enough force on the cabin entry door lever to open it.

METEOROLOGICAL INFORMATION

The Lee's Summit, Missouri, Automated Surface Observing System, located 8 nautical miles southwest of 3GV recorded at:

1353: wind variable at 4 knots; visibility 10 statute miles (sm); sky conditions clear; temperature 32 degrees Celsius (C); dew point 21 degrees C; altimeter 29.99 inches of mercury.

1453: wind 300 degrees at 6 knots; 10 sm; sky conditions clear; temperature 33 degrees C; dew point 21 degrees C; altimeter 29.98 inches of mercury.

AIRPORT INFORMATION

3GV is was an uncontrolled airport served by runways 9-27(4,501 feet by 44 feet), 5-23 (2,200 feet by 20 feet), and 17-35 (1,230 feet by 25 feet). Runway 9-27 was equipped with a 4-box visual approach slope indicator (VASI) with an approach slope angle of 3.3 degrees and a threshold crossing height of 44 feet. Airport Facility Directory airport remarks, stated in part, "Rwy 09-27 [nonstandard] precision instrument runway markings; no aiming point; small [runway] threshold; touchdown and centerline markings and incorrect spacing.

After the accident, inspection of the runway 27 VASI was examined and found to be within limits.

WRECKAGE AND IMPACT INFORMATION

On-scene inspection of the accident site by the FAA inspector revealed that a chain link fence, located approximately 36 feet from the approach end of runway 27, had the top fence tube separated from the rest of the fence. The fence was approximately two feet in height above the approach end of runway 27 due to sloping terrain that preceded the runway. Ground scars consistent with tracks from the landing gear were located 30 feet from the approach end of runway 27 and markings consistent with a tail strike were located 986 feet down runway 27. The right main landing gear was separated from the airplane and was lying about 1,334 feet down runway 27. The airplane, with attached left main and nose landing gears, was 1,584 feet

down and along the right side of runway 27.

TESTS AND RESEARCH

FAR 135.267 Flight time limitations and rest requirements: unscheduled one- and two-pilot crews, states, in part:

(b) Except as provided in paragraph (c) of this section, during any 24 consecutive hours the total time of the assigned flight when added to any other commercial flying by that flight crewmember may not exceed -

(1) 8 hours for a flight crew consisting on one pilot; or

(2) 10 hours for a flight crew consisting of two pilots qualified under this Part for the operation being conducted

(c) A flight crewmember's flight time may exceed the flight time limits of paragraph (b) of this section if the assigned flight time occurs during a regularly assigned duty period of no more than 14 hours and -

(1) If this duty period is immediately preceded by and followed by a required rest period of at least 10 consecutive hours of rest;

(2) If flight time is assigned during this period, that total flight time when added to any other commercial flying by the flight crewmember may not exceed -

(i) 8 hours for a flight crew consisting of one pilot; or

(ii) 10 hours for a flight crew consisting of two pilots; and

(d) Each assignment under paragraph (b) of this section must provide for at least 10 consecutive hours of rest during the 24 hour period that precedes the planned completion time of this assignment.

The Aeronautical Information Manual, Chapter 8, Medical Facts For Pilots, states: "Like stress, fatigue also falls into two broad categories: acute and chronic. Acute fatigue is short term and is a normal occurrence in everyday living. It is the kind of tiredness people feel after a period of strenuous effort, excitement, or lack of sleep. Rest after exertion and 8 hours of sound sleep ordinarily cures this condition.

A special type of acute fatigue is skill fatigue. This type of fatigue has two main effects on performance:

Timing disruption. Appearing to perform a task as usual; but the timing of each component is slightly off. This makes the pattern of the operation less smooth, because the pilot performs each component as though it were separate, instead of part of an integrated activity.

Disruption of the perceptual field. Concentrating attention upon movements or objects in the center of vision and neglecting those in the periphery. This may be accompanied by loss of accuracy and smoothness in control movements.

The captain stated that he was "tired" and did not sleep since he began company flying on August 16, 2006. He stated that he and the first officer spent several hours on the ground in Alabama where they got lunch but did not sleep. He stated that the company provides an "option" for flight crews to stay overnight at a destination to rest, but he did not ask for it. He

said that this option has been used 3 or 4 times by other pilots since his employment with the company.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	32, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 1	Last FAA Medical Exam:	05/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	06/01/2006
Flight Time:	1379 hours (Total, all aircraft), 188 hours (Total, this make and model), 1127 hours (Pilot In Command, all aircraft), 178 hours (Last 90 days, all aircraft), 71 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Commercial	Age:	35, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:	Class 1	Last FAA Medical Exam:	06/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	06/01/2006
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Fairchild	Registration:	N620PA
Model/Series:	SA227-AC	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	AC-553
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	06/01/2006, Continuous Airworthiness	Certified Max Gross Wt.:	14500 lbs
Time Since Last Inspection:		Engines:	2 Turbo Prop
Airframe Total Time:	22504 Hours at time of accident	Engine Manufacturer:	Garrett
ELT:	Installed	Engine Model/Series:	TPE-331
Registered Owner:	Career Aviation Company Inc	Rated Power:	1100 hp
Operator:	PAC WEST AIRLINES INC	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	Sierra West Airlines	Operator Designator Code:	OEYA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LXT, 997 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	1453 CDT	Direction from Accident Site:	245°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	200°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.98 inches Hg	Temperature/Dew Point:	33° C / 21° C
Precipitation and Obscuration:			
Departure Point:	Tuscaloosa, TX (TCL)	Type of Flight Plan Filed:	IFR
Destination:	Grain Valley, MO (3GV)	Type of Clearance:	IFR
Departure Time:	1415 EDT	Type of Airspace:	

Airport Information

Airport:	East Kansas City Airport (3GV)	Runway Surface Type:	Asphalt
Airport Elevation:	835 ft	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	Visual
Runway Length/Width:	4501 ft / 44 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 1 None	Latitude, Longitude:	39.015556, -94.213333

Administrative Information

Investigator In Charge (IIC):	Mitchell F Gallo	Report Date:	11/29/2007
Additional Participating Persons:	Doug Jackson; Federal Aviation Administration; Kansas City, MO		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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