



National Transportation Safety Board Aviation Accident Final Report

Location:	Milwaukee, WI	Accident Number:	CHI07FA060A
Date & Time:	01/24/2007, 2000 CST	Registration:	N699CZ
Aircraft:	Beechcraft BE99	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

A Beech 99 and a Cessna 402 were substantially damaged in a ground collision that occurred during night taxi operations at General Mitchell International Airport (MKE), Milwaukee, Wisconsin. Both pilots followed each of the controller's instructions to proceed to the same cargo ramp using intersecting taxiways after having landed. Neither controller had advised either pilot that other aircraft would be approaching the same taxiway intersection. Neither pilot reported seeing the other airplane approaching the taxiway intersection. The Cessna 402 landed on runway 25R and was instructed to taxi to the cargo ramp via Golf, Bravo, and Alpha taxiways. The Beech 99 landed on runway 25L. The taxi instructions given to the Beech 99 pilot were to turn right at taxiway A2 (high-speed taxiway), monitor ground on frequency 121.8, and taxi to the cargo ramp. The local controller reported he scanned taxiway A, the runway, and saw the Beech 99 clear of the runway. As the Beech 99 prepared to turn off taxiway A2 onto taxiway A, the Cessna 402 approached the taxiway A and taxiway A2 intersection. The Beech 99's right propeller impacted the Cessna 402's left wing tip fuel tank. The impact of the two airplanes resulted in a fire. Both of the pilots involved in the ground collision evacuated their respective airplanes. The FAA Order 7110.65, "Air Traffic Control," states that the absence of holding instructions authorizes an aircraft to cross all taxiways and runways that intersect the taxi route. FAA Order 7110.65, "Air Traffic Control," states that it is the procedure for controllers to instruct aircraft where to turn off the runway after landing and advise the aircraft to hold short of a runway or taxiway if required for traffic. Neither aircraft was issued hold short instructions. The Airport Surface Detection Equipment Model X (ASDE-X), provided images of each airplane's movement leading up to the time of the ground collision. The ASDE-X replay showed the Beech 99 taxiing at 20 knots on taxiway A2 approaching the taxiway A intersection. The Cessna 402 was shown taxiing at 20 knots just short of the taxiway A and taxiway A2 intersection. Both pilots reported that they did not see the other airplane approaching the same intersection while taxiing. Title 14 Code of Federal Regulations Part 91 states that vigilance shall be maintained by each person operating an aircraft so as to "see and avoid" other aircraft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of both pilots to adequately scan for and avoid other aircraft traffic during taxi operations, and the failure of Air Traffic Control to issue a traffic advisory to both of the pilots. A contributing factor to the accident was the night time light conditions.

Findings

Occurrence #1: COLLISION BETWEEN AIRCRAFT (OTHER THAN MIDAIR)
Phase of Operation: TAXI - FROM LANDING

Findings

1. (C) VISUAL LOOKOUT - INADEQUATE - PILOTS OF BOTH AIRCRAFT
2. (C) TRAFFIC ADVISORY - NOT ISSUED - ATC PERSONNEL(LCL/GND/CLNC)
3. (F) LIGHT CONDITION - NIGHT

Factual Information

"THIS CASE WAS MODIFIED MARCH 31, 2008."

HISTORY OF FLIGHT

On January 24, 2007, at 2000 central standard time, a Beech BE99, N699CZ, operating as Freight Runners, Inc., flight 1509 (FRG1509), collided with a Cessna 402-B, N7886Q, operating as Freight Runners, Inc., flight 1539 (FRG1539) at the intersection of taxiway A and taxiway A2 at the General Mitchell International Airport (MKE), Milwaukee, Wisconsin. Both airplanes were taxiing after having landed, and they received sustained substantial damage. The pilot of the Beech 99 received minor injuries and the pilot of the Cessna 402 was not injured. Both flights were operating under the provisions of 14 Code of Federal Regulations Part 135 for cargo operations. The Beech 99 departed Stevens Point Airport (STE), Stevens Point, Wisconsin, at 1928 en route to MKE. The Cessna 402 departed Baraboo Wisconsin Dells Airport (DLL), Baraboo, Wisconsin, at 1922 en route to MKE. Visual meteorological conditions prevailed at the time of the accident. Both aircraft had filed instrument (IFR) flight plans.

At 1954:10, the Cessna 402 pilot contacted the local controller and advised that he was conducting a visual approach to land on runway 25 left (25L). The local controller instructed the pilot to follow a Cessna Caravan turning a half-mile final and cleared the Cessna 402 to land on runway 25L.

Ten seconds later, the local controller instructed the Cessna 402 pilot to side step to runway 25 right (25R) and cleared the Cessna 402 to land on runway 25R. The pilot acknowledged the landing instructions and landed on runway 25R.

At 1956:32, the Beech 99 pilot advised the local controller that he was on frequency. The local controller cleared the Beech 99 to land on runway 25L. The pilot acknowledged the landing instructions and reported that due to traffic arriving and departing for runway 25L, he decided he would try to "land and exit quickly to expedite traffic flow."

At 1956:44, the local controller instructed the Cessna 402 pilot to turn left onto runway 13 and contact ground control on 121.8.

At 1956:58, the Cessna 402 pilot contacted the ground controller and was instructed to taxi to the cargo ramp via taxiways Golf, Bravo, Alpha. The pilot acknowledged the taxi instructions.

At 1959:33, the Beech 99 landed on runway 25L and the pilot advised the local controller that he would be able to exit runway 25L at taxiway A2. The local controller instructed the pilot to turn right at taxiway A2, monitor ground on frequency 121.8, and taxi to the cargo ramp.

At 1959:37, the Airport Surface Detection Equipment Model X (ASDE-X), replay showed the Cessna 402 taxiing on taxiway B at 20 knots.

At 1959:40, the ASDE-X replay showed the Beech 99 rolling out on runway 25L at 40 knots.

The local controller reported he scanned taxiway A and runway 25L, and saw that the Beech 99 was clear of runway 25L.

At 1959:46, the ASDE-X replay showed that the Beech 99 exited runway 25L via taxiway A2 at about 30 knots while the Cessna 402 was taxiing on taxiway B just short of taxiway P. The Beech 99 pilot stated that as he turned onto taxiway A2, he turned off the strobes, landing light, and deicing equipment, and then reached for the radio to tune the ground control

frequency.

At 1959:53, the ASDE-X replay showed the Beech 99 taxiing at 20 knots on taxiway A2 just short of taxiway A, and the Cessna 402 taxiing on taxiway B just short of the intersection of taxiway A and taxiway A2.

At 0200:00, the ASDE-X replay showed the Beech 99 taxiing at 20 knots just before striking the left side of the Cessna 402 at the intersection of taxiway A and taxiway A2.

The Cessna 402 pilot reported that as he taxied from taxiway B onto taxiway A, he was "hit by a company Beech 99 from behind in the left wing tip." The Cessna 402 pilot stated that the propeller from the Beech 99 ruptured the Cessna 402's wing tip fuel tank, creating a fireball. The Beech 99 pilot reported that he "heard a thump, looked up to my right, and saw the engine engulfed in flame." The Cessna 402 pilot shut down both engines and the electrical system and exited the airplane. The Beech 99 pilot reported that he thought the engine was on fire so he shut off the firewall shutoff valve. The fire continued to spread on the right side of the Beech 99 so the pilot shut down the left engine and attempted to evacuate the airplane. The pilot evacuated the Beech 99 through the cockpit crew window because cargo blocked the cargo exit door and the fuselage emergency exit. The Beech 99 pilot ran to the infield area between taxiway A and runway 25L, where he discovered the Cessna 402 pilot standing in the same area. The Cessna 402 pilot informed the Beech 99 pilot that the Beech 99 collided with the Cessna 402. The Beech 99 pilot reported that this was "the first indication of a collision that I had."

PERSONNEL INFORMATION

The Beech 99 pilot was an airline transport rated pilot with single and multi-engine land ratings. He had about 13,400 hours total flight time, 12,150 of which were logged as pilot in command (PIC) hours. 8,200 hours were logged in multi-engine aircraft. The pilot held a second-class medical certificate with a limitation.

The Cessna 402 pilot was an airline transport rated pilot with single and multi-engine land ratings. He had a total of about 18,650 hours flight time, 18,000 of which were logged as pilot in command (PIC) hours. 12,000 hours were logged in multi-engine aircraft. The pilot held a second-class medical certificate with a limitation.

METEOROLOGICAL INFORMATION

The official weather observation at the airport was provided through an Automated Surface Observation System (ASOS).

ATIS information "Yankee":

Milwaukee Mitchell Airport information Yankee: [1952 CST], wind 290 at 7, visibility 7 and light snow, ceiling 3,100 feet overcast, temperature minus 4, dew point minus 9, altimeter 30.00. Localizer runway 25L approach in use, visual approach runway 25R, landing and departing runway 25L/R. Simultaneous operations to parallel runways in use. Notices to Airmen: taxiway V closed; transponders required to be on while operating on runways and taxiways; all taxiing departing aircraft remain on ground control frequency until advised pre-departure clearance available; all other departures contact clearance delivery on 120.8; advise on initial contact you have information "Yankee."

AIRPORT AND Air Traffic Control FACILITY INFORMATION

MKE is located 5 miles south of Milwaukee, Wisconsin. The airport has five runways: 1-19 L/R, 7-25 L/R, and 13-31. It has an air traffic control tower that is operational 24 hours a day, 7 days a week. The MKE air traffic control tower is 164 feet high and is centrally located on the airport. Both local and ground control positions are located on the east side of the tower.

The intersection of taxiway A2 and taxiway A is a modified high speed exit point approximately 5,000 feet from the approach end of runway 25L. This exit point exits an aircraft into a 4-point intersection, allowing the aircraft to move in 3 other directions. The modified high-speed intersection of taxiway A2 and taxiway A does not provide any 90-degree visibility points. When an aircraft clears the hold short lines of taxiway A2, it is possible for it to protrude into taxiway A.

ASDE-X provides the air traffic controllers with images of aircraft and vehicle movement on runways and taxiways. ASDE-X can determine the position of aircraft and transponder-equipped vehicles on the airport movement areas. The information was presented as a color display of aircraft and vehicle positions overlaid on a map of the airport's runways and taxiways. ASDE-X creates a continuously updated map of airport movement that controllers can use to spot potential collisions.

The ASDE-X at MKE was operational during the ground collision between the Beech 99 and Cessna 402. The ASDE-X screen captured the airport's surface events leading to the collision between the two airplanes at the intersection of taxiway A2 and taxiway A. The MKE air traffic manager reported that the ASDE-X does not have conflict detection on taxiways and that the ASDE-X did not alarm during the accident occurrence.

WRECKAGE AND IMPACT INFORMATION

The Beech 99's right propeller impacted the Cessna 402's left wing tip tank, in the Beech 99's two o'clock position. The impact point on the Cessna 402 was at the eight o'clock position. MKE radar shows that both aircraft traveled over 100 feet from the point of impact to where they came to rest.

TESTS AND RESEARCH

Federal Aviation Administration (FAA) Order 7110.65, "Air Traffic Control," Chapter 3, Airport Traffic Control -Terminal, Section 7, Taxi and Ground Movement Procedures, states in 3-7-2 Taxi and Ground Movement Operations, that the absence of holding instructions authorizes an aircraft to cross all taxiways and runways that intersect the taxi route. The Cessna 402's taxi instructions from ground control were to "taxi to cargo via golf, bravo, alpha," thereby granting the pilot permission to taxi to the cargo ramp without holding short at any point along the instructed taxi route. Section 10, Arrival Procedures and Separation, states in 3-10-9 Runway Exiting, that it is the procedure for controllers to instruct aircraft where to turn-off the runway after landing and advise the aircraft to hold short of a runway or taxiway if required for traffic. The Beech 99's taxi instructions from the local controller were to "turn right alpha 2 and monitor ground point 8 and taxi to the cargo ramp." The controller's clearance was given seconds after the Beech 99 landed on runway 25L and did not include any hold short instructions for possible traffic that would be using the same taxiway.

Title 14 Code of Federal Regulations Part 91 General Operating and Flight Rules, states in Subpart B Flight Rules 91.113, that when the weather conditions permit regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. Both

pilots involved in the accident reported that neither one saw the other aircraft approaching the same intersection while taxiing.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	Age:	54, 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:	No
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last Medical Exam:	04/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	10/01/2006
Flight Time:	13400 hours (Total, all aircraft), 2400 hours (Total, this make and model), 12150 hours (Pilot In Command, all aircraft), 106 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Beechcraft	Registration:	N699CZ
Model/Series:	BE99	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	U-133
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	12/01/2006, AAIP	Certified Max Gross Wt.:	10900 lbs
Time Since Last Inspection:	75.5 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	35447 Hours	Engine Manufacturer:	Pratt & Whitney
ELT:	Installed, not activated	Engine Model/Series:	PT6A-27
Registered Owner:	Freight Runners Inc.	Rated Power:	680 hp
Operator:	Freight Runners Inc.	Air Carrier Operating Certificate:	On-demand Air Taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	MKE, 723 ft msl	Observation Time:	1952 CST
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:		Temperature/Dew Point:	-4° C / -9° C
Lowest Ceiling:	Overcast / 3100 ft agl	Visibility	7 Miles
Wind Speed/Gusts, Direction:	7 knots, 290°	Visibility (RVR):	
Altimeter Setting:	30.1 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Light - Snow		
Departure Point:	Stevens Point, WI (STE)	Type of Flight Plan Filed:	IFR
Destination:	Milwaukee, WI (MKE)	Type of Clearance:	IFR
Departure Time:	1928 CST	Type of Airspace:	Class C

Airport Information

Airport:	General Mitchell International (MKE)	Runway Surface Type:	Asphalt; Concrete
Airport Elevation:	723 ft	Runway Surface Condition:	Dry
Runway Used:	25L	IFR Approach:	ILS
Runway Length/Width:	8012 ft / 150 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	42.941667, -87.909167

Administrative Information

Investigator In Charge (IIC):	Jim Silliman	Adopted Date:	03/31/2008
Additional Participating Persons:	Cathy Vuksanovic; Milwaukee FSDO; Milwaukee, WI		
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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