



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

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|--------------------------------|---|-------------------------|------------|
| Location: | CHICAGO, Illinois | Incident Number: | CHI99IA351 |
| Date & Time: | September 24, 1999, 22:30 Local | Registration: | N6362X |
| Aircraft: | Cessna 402B | Aircraft Damage: | Minor |
| Defining Event: | | Injuries: | 1 None |
| Flight Conducted Under: | Part 135: Air taxi & commuter - Non-scheduled | | |

Analysis

The airplane struck airport lighting during an aborted takeoff. The pilot said, "I followed the taxi line until I found a white line and lined up on it. I applied partial power, ...when I noticed what I thought was a box on the runway (all I could discern was a black cube)." He said, "...I heard a WHUMP, but felt no yaw or any adverse affect on the airplane." He "...heard what seemed like a buzz." He aborted the takeoff, taxied to the parking ramp, and found propeller damage. A runway inspection revealed a damaged directional sign and runway light on runway 31C's northeast shoulder prior to the runway's displaced threshold. An investigation revealed that near the foxtrot taxiway on runway 31C two taxiway centerline markings branched out from and were located north of the taxiway's lead-in line for runway 31C's centerline. These two taxiway centerline markings were located on the runway's approach side of the displaced threshold bar for runway 31C and these taxiway centerline markings did cross the solid white northeast runway side stripe for runway 31C. Runway 31C's shoulder, at the incident site, was found without shoulder markings. Advisory Circular 150/5340-1H states, "Runway shoulder markings are used ... where pilots have experienced problems identifying the runway from the shoulder thereby creating a need to delineate the shoulder as unusable pavement."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: THE FAILURE OF THE PILOT IN COMMAND TO MAINTAIN CLEARANCE WITH GROUND OBSTRUCTIONS.

Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: TAKEOFF - ROLL/RUN

Findings

1. LIGHT CONDITION - NIGHT
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. OBJECT - AIRPORT SIGN/MARKER
4. OBJECT - RUNWAY LIGHT

Factual Information

On September 24, 1999, at 2230 central daylight time, a Cessna 402B, N6362X, piloted by an airline transport pilot, sustained minor damage on contact with an object during an aborted takeoff on runway 31C (6,522 feet X 150 feet, dry/concrete) at Chicago Midway Airport, Chicago, Illinois. The 14 CFR Part 135 flight was operating on a company VFR flight plan. Visual meteorological conditions prevailed at the time of the incident. The pilot sustained no injuries. The non-scheduled domestic cargo flight was originating at the time of the incident and was destined for Kent County International Airport near Grand Rapids, Michigan.

In his written statement, the pilot said that, while on the foxtrot taxiway, he was given a takeoff clearance, read back the clearance, turned on his landing lights, and started to taxi to runway 31C. He stated that he looked down the runway to make sure a jet, that had just landed, had cleared the runway. He said, "I followed the taxi line until I found a white line and lined up on it. I applied partial power, making sure both engines came up evenly, and did not surge. I had approximately 20 inches of manifold pressure and 2000 rpm, when I noticed what I thought was a box on the runway (all I could discern was a black cube). I started to reduce power to idle, when I heard a WHUMP, but felt no yaw or any adverse affect on the airplane. I then began to reapply power, until I heard what seemed like a buzz. I was concerned that I may have damaged the right main gear door. At that time I closed the throttles and aborted the takeoff." The pilot stated that he informed Chicago Midway Airport's tower that he was aborting his takeoff and that he thought he hit something. He taxied to the parking ramp. He said that he discovered he had a damaged propeller during his post flight inspection of the airplane.

A Chicago Midway Airport operations inspection documented that a directional sign and runway light were damaged on runway 31C's northeast shoulder prior to the runway's displaced threshold bar marking.

Runway and taxiway markings at Chicago Midway Airport were investigated. The taxiway centerline markings on the approach side of runway 31C's displaced threshold were found to have two taxiway centerline markings which diverged out from and which were located north of the foxtrot taxiway's lead-in line for runway 31C's centerline. These two taxiway centerline markings were located on the runway prior to the displaced threshold bar for runway 31C and these taxiway centerline markings did cross the solid white northeast runway side stripe for runway 31C. These two taxiway centerline markings indicated taxi routes across runway 31C's displaced threshold. Runway 31C's northeast shoulder around the island by the displaced threshold was found without any shoulder markings.

Advisory Circular 150/5340-1H, 17a, describes the application of runway shoulder markings. The circular states, "Runway shoulder markings are used, when needed, as a supplement to

runway side stripes to identify pavement areas contiguous to the runway sides that are not intended for use by aircraft. Runway side stripes are usually sufficient in defining the limits of usable pavement. Shoulder markings are generally needed where pilots have experienced problems identifying the runway from the shoulder thereby creating a need to delineate the shoulder as unusable pavement."

The Assistant Commissioner for Chicago Midway Airport sent the NTSB a letter (attached) which stated "The following additional steps have been implemented on runway 31 center to preclude similar occurrences.

- A. An additional arrow head was painted close to the beginning of the runway to depict centerline beginning."
- B. All lead lines into and out of the runway now have had two way reflectors installed to delineated runway centerline."

Pilot Information

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|----------------------------------|---|--|-------------------|
| Certificate: | Airline transport; Flight instructor | Age: | 44,Male |
| Airplane Rating(s): | Single-engine land; Single-engine sea; Multi-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | Glider | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane multi-engine; Airplane single-engine; Instrument airplane | Toxicology Performed: | No |
| Medical Certification: | Class 1 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | February 19, 1999 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | May 28, 1999 |
| Flight Time: | 5900 hours (Total, all aircraft), 7 hours (Total, this make and model), 4800 hours (Pilot In Command, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|---------------------------------|---------------------------------------|--------------------------|
| Aircraft Make: | Cessna | Registration: | N6362X |
| Model/Series: | 402B 402B | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | 402B1325 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 8 |
| Date/Type of Last Inspection: | Unknown | Certified Max Gross Wt.: | 6300 lbs |
| Time Since Last Inspection: | | Engines: | 2 Unknown |
| Airframe Total Time: | | Engine Manufacturer: | |
| ELT: | | Engine Model/Series: | |
| Registered Owner: | SPARTA AVIATION SERVICE INCE | Rated Power: | |
| Operator: | SPARTA AVIATION SERVICE INC | Operating Certificate(s) Held: | On-demand air taxi (135) |
| Operator Does Business As: | RAPID AIR | Operator Designator Code: | EAVA |

Meteorological Information and Flight Plan

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|---|----------------------------------|---|-------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Night |
| Observation Facility, Elevation: | MDW,620 ft msl | Distance from Accident Site: | |
| Observation Time: | 21:53 Local | Direction from Accident Site: | |
| Lowest Cloud Condition: | Unknown | Visibility | 10 miles |
| Lowest Ceiling: | Broken / 8000 ft AGL | Visibility (RVR): | |
| Wind Speed/Gusts: | 8 knots / None | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 10° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.71 inches Hg | Temperature/Dew Point: | 21°C / 12°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | (MDW) | Type of Flight Plan Filed: | Company VFR |
| Destination: | GRAND RAPIDS, MI (GRR) | Type of Clearance: | VFR |
| Departure Time: | 00:00 Local | Type of Airspace: | Class B |

Airport Information

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|-----------------------------|--------------------|----------------------------------|----------|
| Airport: | CHICAGO MIDWAY MDW | Runway Surface Type: | Concrete |
| Airport Elevation: | 620 ft msl | Runway Surface Condition: | Dry |
| Runway Used: | 31C | IFR Approach: | None |
| Runway Length/Width: | 6522 ft / 150 ft | VFR Approach/Landing: | None |

Wreckage and Impact Information

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|----------------------------|--------|-----------------------------|--------------------------|
| 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: | 41.780738,-87.76995(est) |

Administrative Information

Investigator In Charge (IIC): Malinowski, Edward

Additional Participating Persons: THOMAS F DUELLMAN

Original Publish Date: May 21, 2002

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=47523>

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