



# Aviation Investigation Final Report

<b>Location:</b>	Keokuk, Iowa	<b>Accident Number:</b>	GAA19CA001
<b>Date &amp; Time:</b>	October 1, 2018, 03:30 Local	<b>Registration:</b>	N89AM
<b>Aircraft:</b>	Cessna 340	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Collision during takeoff/land	<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Executive/Corporate		

## Analysis

The pilot reported that, while conducting an instrument approach at night in instrument meteorological conditions, about 50 ft above the decision altitude of 921 ft, he mistook building lights for runway lights. He inadvertently touched down the airplane in a soybean field about 3/4 mile short of the runway. He then increased engine power to full, and the airplane climbed "a couple hundred feet." Once he established visual contact with the runway lights, he landed the airplane on the runway without further incident.

The pilot added that the lateral guidance from the localizer was "dead center" but that he could not recall the position of the vertical guidance needle.

The airplane sustained substantial damage to the left wing.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

The airport's automated weather observation station reported that, about 5 minutes after the accident, the wind was from 030° at 3 knots, visibility was 1/2 statute mile with mist, overcast at 200 ft above ground level (agl), temperature 57°F, and dew point 57°F. The pilot reported that the airport ceiling was overcast at 300 ft agl with fog and rain and that visibility was 1 mile.

## Probable Cause and Findings

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

The pilot's failure to correctly identify the runway environment during an instrument approach at night in instrument meteorological conditions because he mistook building lights for runway lights, which resulted in landing short of the runway.

## Findings

<b>Aircraft</b>	Descent/approach/glide path - Not attained/maintained
<b>Personnel issues</b>	Perception - Pilot
<b>Environmental issues</b>	Glideslope - Compliance w/ procedure
<b>Personnel issues</b>	Aircraft control - Pilot
<b>Environmental issues</b>	Drizzle/mist - Effect on personnel
<b>Environmental issues</b>	Low visibility - Effect on personnel
<b>Environmental issues</b>	Dark - Effect on operation
<b>Environmental issues</b>	(general) - Contributed to outcome

## Factual Information

### History of Flight

<b>Landing</b>	Landing area undershoot
<b>Landing-aborted after touchdown</b>	Wrong surface or wrong airport
<b>Landing</b>	Collision during takeoff/land (Defining event)

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	31, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	March 31, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 8, 2017
<b>Flight Time:</b>	(Estimated) 2700 hours (Total, all aircraft), 215 hours (Total, this make and model), 3624 hours (Pilot In Command, all aircraft), 45 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N89AM
<b>Model/Series:</b>	340 Undesignat	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1975	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	340-0545
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	Annual	<b>Certified Max Gross Wt.:</b>	6340 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	TIO-550
<b>Registered Owner:</b>		<b>Rated Power:</b>	310 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Night/dark
<b>Observation Facility, Elevation:</b>	KEOK, 671 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	08:35 Local	<b>Direction from Accident Site:</b>	90°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	
<b>Lowest Ceiling:</b>	Overcast / 200 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	3 knots /	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	30°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.14 inches Hg	<b>Temperature/Dew Point:</b>	14°C / 14°C
<b>Precipitation and Obscuration:</b>	Moderate - None - Mist		
<b>Departure Point:</b>	Chicago, IL (ORD )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Mount Pleasant, IA (MPZ )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	01:45 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Keokuk Muni EOK	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	671 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	08	<b>IFR Approach:</b>	RNAV
<b>Runway Length/Width:</b>	5500 ft / 100 ft	<b>VFR Approach/Landing:</b>	Unknown

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	2 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	40.459999,-91.452224(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Nepomuceno, Eleazar
<b>Additional Participating Persons:</b>	Kendall Arkema; FAA; Des Moines, IA
<b>Original Publish Date:</b>	June 5, 2019
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=98396">https://data.nts.gov/Docket?ProjectID=98396</a>

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