Aviation Investigation Final Report

Location:	WATKINS, Colorado	**Accident Number:**	FTW98LA222
Date & Time:	May 17, 1998, 21:30 Local	**Registration:**	N1306W
Aircraft:	Mooney M20E	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor, 2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot said that he experienced a total electrical failure while on a night cross-country flight. He landed without incident but while taxiing along the unlit taxiway, he lost sight of the centerline stripe. The airplane went off the taxiway and down an embankment. The airport night manager said the pilot told him he would 'turn on the navigation lights, if necessary,' to warn other airplanes. Postaccident inspection disclosed that when the master switch was turned on, all electrical components functioned normally. A specific gravity check indicated the battery was fully charged. According to the operator's records, the Hobbs meter and tachometer registered 65.9 and 3903.3, respectively, when the pilot checked the airplane out. At the accident site, the Hobbs meter and tachometer registered 67.6 and 3905.1, respectively, a Hobbs meter difference of 1.7 hours and a tachometer difference of 1.8 hours. The operator said he believed the pilot had turned off the master switch in an attempt to save on rental charges. He had also received reports from other renter pilots who said the pilot had bragged about saving money by turning off the master switch. An FAA inspector said that, based on the point where the aircraft departed the taxiway and its point of impact, taxi speed was excessive.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain visual contact with the taxiway. Factors were the pilot's disabling the electrical system by turning off the master switch, a dark night, and excessive taxi speed.

Findings

Occurrence #1: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: TAXI - FROM LANDING

Findings
1. (F) ELECTRICAL SYSTEM - CLOSED
2. (F) TAXISPEED - EXCESSIVE - PILOT IN COMMAND
3. (F) LIGHT CONDITION - DARK NIGHT
4. (C) VISUAL LOOKOUT - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

On May 17, 1998, approximately 2130 mountain daylight time, a Mooney M20E, N1306W, operated by Flight Training, Inc., was substantially damaged when collided with terrain while taxiing from landing at Watkins, Colorado. The private pilot and one passenger were not injured, but another passenger sustained a minor injury. Visual meteorological conditions prevailed, and a VFR flight plan had been filed. The flight was conducted under Title 14 CFR Part 91, and had originated at Akron, Colorado, approximately 2030.

According to the pilot's accident report, while en route to the Front Range Airport, the cockpit "lights dimmed [electrical charging system failure]." He shut down all electrical devices with the exception of the navigation lights and rotating beacon. He said that as he got closer to his destination, he "did not have enough [electrical] power to communicate or turn on the runway lighting system." Front Range Airport's approach lights came on and he flew towards the airport. He then noticed two airplanes in the traffic pattern. He landed on runway 17.

Although runway 17 is equipped with pilot-controlled high intensity runway lights, the parallel taxiway is not illuminated0. The pilot said that after he turned off the runway, he tracked the taxiway centerline. He said he "was blind. . .The battery was exhausted. . .The visibility was near zero. I was fixated on the center line of the taxiway and negotiated some turns. I lost the center line and went off the taxi way, where I pulled back on the elevator control for soft field procedure. There was a sensation of falling. The aircraft had gone off a sharp embankment."

According to the airport's night manager, he was driving to the fuel farm when he encountered the pilot walking along the taxiway. The pilot told him what had happened, then expressed concern that the airplane might be a hazard to other traffic and offered to "turn on the navigation lights, if necessary." The night manager said he thought the remark was odd if the airplane had had a total electrical failure.

An FAA inspector later examined the airplane. When the master switch was closed, all electrical components functioned normally. Additionally, the inspector said that, based on the point where the aircraft departed the taxiway and its point of impact, taxi speed was excessive.

The airplane operator asked a mechanic to examine the airplane. In his written statement, the mechanic said he "checked all lights [internal and external] and found them operational except for the landing light, which had been broken during the off-pavement excursion. Closer inspection of the landing light showed that when it was broken, it was not illuminated. A specific gravity check. . .found the battery to be fully charged. Inspection of the battery relays and primary power bus also showed no defects."

The airplane owner contacted this investigator and said that according to the operator's

records, the Hobbs meter and tachometer registered 65.9 and 3903.3, respectively, when the pilot checked the airplane out. At the accident site, the Hobbs meter and tachometer registered 67.6 and 3905.1, respectively, a Hobbs meter difference of 1.7 hours and a tachometer difference of 1.8 hours. The Hobbs meter is electrically driven and begins operating when the master switch is turned on. The tachometer is driven by engine oil pressure and begins operating when the engine is started and oil pressure is sensed. It is also affected by engine speed; the higher the rpm, the faster the clock operates. Airplane renters have historically billed customers based on the Hobbs meter reading because it registers approximately .1 to .2 hours greater than the tachometer. The airplane owner and operator said they became suspicious when they discovered the tachometer registered .1 greater than the Hobbs meter, and expressed the belief that the pilot had turned off the master switch in an attempt to save on rental charges.

This investigator, accompanied by the airplane operator, went to the accident site on June 25, 1998. Faint tire marks, identified by the operator as having been made by N1306W, were noted on the tarmac. These marks were approximately 75 feet long and terminated at an embankment dropoff. At the bottom of the dropoff, approximately 140 feet from the edge of the tarmac, were ground scars identified by the operator as having been made by the airplane's landing gear. There were no ground scars between the tarmac and the point of impact.

This investigator also examined the airplane in its hangar. According to the operator, the only disturbance to the airplane was the removal of the right portion of the engine cowling. All electrical components came on line when the master switch was turned on.

The airplane operator said he had also received reports from other renter pilots who said they had heard the pilot brag about being able to save money by turning off the master switch.

Pilot Information

Certificate:	Private	**Age:**	38,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:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	July 8, 1997
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	131 hours (Total, all aircraft), 23 hours (Total, this make and model), 68 hours (Pilot In Command, all aircraft), 21 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N1306W
Model/Series:	M20E M20E	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	194
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	May 7, 1998 100 hour	**Certified Max Gross Wt.:**	2575 lbs
Time Since Last Inspection:	17 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3905 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360-A1A
Registered Owner:	MARTIN W. BRINK	**Rated Power:**	200 Horsepower
Operator:	FLIGHT TRAINING, INC.	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	DEN ,5431 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	19:53 Local	**Direction from Accident Site:**	290°
Lowest Cloud Condition:	Scattered / 20000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	15°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	AKRON , CO (AKO)	**Type of Flight Plan Filed:**	VFR
Destination:	(FTG)	**Type of Clearance:**	None
Departure Time:	20:30 Local	**Type of Airspace:**	

Airport Information

Airport:	FRONT RANGE FTG	**Runway Surface Type:**	
Airport Elevation:	5512 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor, 1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor, 2 None	**Latitude, Longitude:**	39.750816,-104.599014(est)

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	DAVID F GONZALES; DENVER , CO
Original Publish Date:	February 15, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=20608