



Aviation Investigation Factual Report

Location:	MESQUITE, Texas	Accident Number:	FTW99FA153
Date & Time:	May 29, 1999, 12:03 Local	Registration:	N74706
Aircraft:	Mooney M20B	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Factual Information

HISTORY OF FLIGHT

On May 29, 1999, at 1203 central daylight time, a Mooney M20B low-wing airplane, N74706, and a Cessna 172P high-wing airplane, N96868, collided in flight while on final approach to runway 17 at the Mesquite Metro Airport, near Mesquite, Texas. Both airplanes were destroyed by subsequent impact with the ground. The Mooney was registered to and operated by the pilot on a local personal flight. The Cessna was owned by Richard Vehorn Enterprises Inc., of Dallas, Texas, and was being operated as an instructional flight by Monarch Aviation of Addison, Texas. The private pilot and the passenger in the Mooney were fatally injured. The private pilot receiving instruction in the Cessna sustained minor injuries, while his flight instructor escaped without injuries. Visual meteorological conditions prevailed for the 14 Code of Federal Regulations Part 91 flights. The Mooney flight originated from the Redbird Airport, near Dallas, Texas, approximately 1150, with the Mesquite Metro Airport (HQZ) as its intended destination. The Cessna's local instructional flight originated from the Addison Airport (ADS) near Dallas, Texas, approximately 1015. No flight plans were filed by either of the pilots for their respective flights.

The flight instructor in the Cessna 172 stated that a one-hour instructional flight was scheduled to conduct instrument flight training in the local area. Multiple instrument approaches were executed at the Mesquite Metro Airport. Two consecutive practice Instrument Landing System (ILS) approaches were performed to Runway 17, each of which terminated with a touch and go landing. The in-flight collision occurred during the third practice ILS approach to Runway 17.

The instrument student in the Cessna 172 reported that after reaching the decision height (DH) altitude for the approach (250 feet agl), he removed the instrument hood and confirmed that the airplane was properly aligned for landing. He added that he visually checked for traffic, reduced the engine power to idle, and extended the wing flaps to 30 degrees.

The flight instructor stated that the mid-air collision occurred within 4 to 6 seconds after the flaps were extended while the airplane was at an indicated airspeed of 65 knots and approximately 150 to 200 feet agl. After the collision, the flight instructor assumed control of the airplane. The airplane collided with the airport perimeter fence (chain link), impacted a drainage ditch, and nosed over, coming to rest in the inverted position on the east side of the runway.

None of the reported eyewitnesses were able to confirm the operational status of the landing lights, the strobe lights, or the anti-collision lights on either of the airplanes.

PERSONNEL INFORMATION

According to his flight logbook, the Mooney pilot started flying on February 23, 1993, and had accumulated a total of 158.7 flight hours. His first solo was conducted on June 17, 1993, and he received his private pilot's certificate on June 29, 1993. He purchased and started flying the Mooney on December 30, 1998, and had accumulated a total of 37 hours in the accident airplane, of which 10.6 hours were completed within the last 90 days. His most recent medical certificate (class III) was issued on September 23, 1998. His last biennial flight review (BFR) was completed on September 29, 1998, in a Cessna 150.

The flight instructor in the Cessna 172 started flying on July 12, 1993, and received his private pilot's certificate on May 13, 1994. The flight instructor earned his flight instructor's privileges on November 23, 1998. His last class II medical certificate was issued on August 18, 1998, without any waivers or limitations. His last BFR was completed on April 10, 1999, in a Cessna 172. According to his flight logbook, he had accumulated a total of 650 flight hours, of which 320 hours were as a flight instructor. The flight instructor reported having accumulated a total of 250 hours in the Cessna 172 airplane.

None of the pilots were required to wear corrective lenses. The flight instructor in the Cessna reported that he was wearing his sunglasses at the time of the accident. The remains of the instructor's sunglasses were found in the wreckage.

AIRCRAFT INFORMATION

The 1961-model Mooney M20B was a single engine airplane featuring retractable landing gear and a constant speed propeller. The airplane, serial number 1706, had accumulated a total of 1,831.34 flight hours. The last annual inspection was completed on November 26, 1998, at 1,792.8 airframe hours (1,647.1 tachometer). The engine had accumulated a total of 1,831.34 hours, with 1,042 hours since its most recent major overhaul.

The Mooney had been out of service for the previous 7 days while an avionics dealer at the Redbird Airport installed a new King/Bendix KA134 intercom system. The owner last changed the engine oil on March 6, 1999. The engine tachometer was reading 1,685.64 hours at the accident site. The Mooney was equipped with a hand held Garmin GPS Map 195 (serial number 61027964).

The 1984-model Cessna 172P was a high wing all metal airplane featuring fixed tricycle landing gear and a fixed pitch propeller. The airplane had accumulated a total of 3,319.3 tachometer hours (5,148.3 Hobbs hours). The Cessna was equipped with a panel mounted Morrow Inc., Apollo GPS II, (serial number 01034228).

According to the pilot's operating handbook (POH) for the Mooney, the approach speed with the flaps retracted was 78 knots. The recommended approach speed for the Cessna was 65 knots.

The NTSB Investigator-in-charge (IIC) and an FAA inspector conducted a review of the airframe and engine records for both airplanes. No evidence of anomalies or uncorrected maintenance discrepancies was found on either.

METEOROLOGICAL INFORMATION

A pilot at the airport reported a scattered to broken cloud layer at 2,500 feet msl, with 10 miles visibility. The flight instructor in the Cessna 172 reported a 2,300 foot scattered layer of clouds with 7 to 8 miles visibility in haze. A local law enforcement officer reported that it was "a muggy and hazy 5 miles" at the time of the accident.

Hourly sequence reports from the Redbird Airport (KRBD) located 18 nm west-southwest, the Dallas Love Field (KDAL) located 17 nm west-northwest, the Terrel Municipal Airport (KTRL) located 13 nm to the east, and the McKinney Airport (KTKI), located 25 nm north of the Mesquite Metro Airport, indicated mostly clear skies with visibilities between 7 and 10 miles.

COMMUNICATIONS

The radio transmissions made on the airport's common traffic advisory frequency (CTAF) were not recorded. The flight instructor reported that he made a radio call on the CTAF frequency when the Cessna was over the outer marker inbound. The instructor further stated that at that point he heard the Mooney pilot announcing on the CTAF that he was entering the traffic pattern on a left downwind. The flight instructor stated that he was unable to establish visual contact with the Mooney. The flight instructor last announced his position on the CTAF when the airplane was a half-mile out on final approach for runway 17.

Another pilot, who reported that he was in the traffic pattern on a left downwind leg for Runway 17 when the accident occurred, acknowledged that both pilots in the traffic pattern (Mooney and Cessna) were announcing their positions and intentions on the CTAF. He stated that the Mooney pilot announced turning left base and a few seconds later announced "turning final for a full stop on 17." The pilot in the pattern further stated that the flight instructor in the Cessna responded, "I am on short final, and I have been announcing." The Mooney pilot did not respond to or acknowledge the Cessna pilot's transmission.

AERODROME INFORMATION

The Mesquite Metro Airport is a public non-towered airport located 3 miles east of the City of Mesquite, in Dallas County, at GPS coordinates North 32 degrees, 44.82 minutes; West 96 degrees, 31.83 minutes. The surveyed field elevation is 447 feet above sea level. There is a single 5,999-foot long by 100-foot wide, concrete runway oriented on magnetic headings of 175 and 355 degrees (runways 17 and 35). The airport is owned and operated by the City of Mesquite.

Left traffic is used for runway 17. The published traffic pattern altitude for the airport is 1,000 feet. Runway 17 has a published ILS/DME approach. The airport has two additional published instrument approaches (localizer back course runway 35 and a GPS approach).

The airport is attended from 0700 to 2100 daily. Unicom service (non-recorded) is provided on frequency 123.05. The Unicom receiver/transmitter is located at the airport's main office, which is located midfield on the west side of the airport. The airport has no weather recording capabilities.

At the time of the accident, there were approximately 210 aircraft based on the field, of which approximately 170 were single engine-airplanes. According to the statistics maintained by the airport manager, there were an average of 219 daily operations at the airport. Traffic at the airport was most congested during weekends when visual meteorological conditions prevailed.

WRECKAGE AND IMPACT INFORMATION

Both airplanes came to rest inside the airport perimeter fence. The Mooney, with its landing gear extended and the flaps retracted, came to rest in a nose down attitude, approximately 736 feet from the landing threshold of the runway, approximately 25 feet to the east of the extended centerline of Runway 17. The Cessna came to rest about 340 feet to the east of the resting point of the Mooney. The wreckage of both airplanes was recovered to the same facility to facilitate further examination. The wreckage was examined at the facility under the supervision of the NTSB IIC on June 4, 1999.

Propeller slashes were found on the left side of the Cessna 172 in the area between the engine firewall and the instrument panel. Several radio mounts, instruments, electrical wires, and hoses were severed by propeller slashes. Evidence of propeller impact was found on the left upper aileron control bracket on the "Y" bar for the control column. The chain was fractured and the sprocket was bent due to the contact with the propeller.

With the aid of a forklift, the Mooney was lifted and placed atop the Cessna 172. The imprints of tire tracks found atop the left wing and left flap of the Cessna 172 were matched with the main and nose landing gear of the Mooney. A 2-inch portion of the rear window retainer from the Cessna was found lodged on the underside of the Mooney. Paint transfers from the bottom of the right wing of the Mooney were also found on top of the fuselage and upper portions of the windscreen on the Cessna 172. The paint transfers, scratches, slashes, tire tracks, and other marks found progressed at about a 30-degree angle to the Cessna's longitudinal axis from left to right, and from the rear towards the front.

The landing light and rotating beacon switches in the Mooney were found in the "on" position. The switch positions on the Cessna, which was equipped with wing tip strobe lights, could not be determined. The landing light filaments on both airplanes were not stretched.

Two headsets were found in the wreckage of the Mooney. The speaker switch on the Mooney's intercom panel was found in the out (off) position.

The windshields for both airplanes were examined for evidence of distortion, crazing, obscuration or deformities. The windscreens on both airplanes were tinted and found to be free from defects and crazing. Both airplanes were equipped with sun visors, which were found in the stowed position at the accident site.

The Mooney was painted gloss white with thin red and gold stripes on the tail, engine cowling and wing tips. The wings on the Cessna were painted gloss white. The fuselage and tail displayed a gray and brown paint scheme.

The propeller blades on the Cessna did not exhibit any significant leading edge damage. The leading edges of both propeller blades on the Mooney sustained heavy gouges, dents, and rotational damage.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy and toxicological tests were ordered and performed on the Mooney pilot. The autopsy was performed by the Southwestern Institute of Forensic Sciences in Dallas, Texas, on May 30, 1999. Toxicological tests for the Mooney pilot were performed by the FAA's Civil Aero Medical Institute (CAMI) in Oklahoma City, Oklahoma. Toxicological tests revealed that 0.045 (ug/ml, ug/g) tetrahydrocannabinol carboxylic acid (marihuana) was detected in urine. According to Dr. Canfield, Manager of the Toxicology and Accident Research Laboratory at CAMI, he could not say if the marihuana found in the urine was impairing, as it was not found in the blood.

SURVIVAL ASPECTS

The Mooney was not fitted with shoulder harnesses for any of its occupants. The Cessna was equipped with shoulder harness. The airport's crash plan was effectively put into effect within seconds of the collision. The city police and fire department responded to the scene of the accident within 2 minutes of the occurrence.

TEST AND RESEARCH

The GPS receivers from both airplanes were sent to their appropriate manufacturer in an effort to obtain the flight data retained in non-volatile memory. The GPS from the Cessna was damaged and no flight data could be retrieved. The GPS from the Mooney was found to be operational. The track for its last flight from the Redbird Airport was retrieved from the GPS. The track indicated that the Mooney crossed mid-field heading from west to east, made a left turn of about 270 degrees, entered the left downwind leg for Runway 17, turned base and final for 17. The track ended with the Mooney on short final.

ADDITIONAL INFORMATION

The wreckages of both airplanes were released to the representatives of their respective owners on June 4, 1999.

Pilot Information

Certificate:	Private	Age:	43, 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:	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	September 23, 1998
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	159 hours (Total, all aircraft), 37 hours (Total, this make and model), 134 hours (Pilot In Command, all aircraft), 11 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	Registration:	N74706
Model/Series:	M20B M20B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	1706
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	November 26, 1998 Annual	Certified Max Gross Wt.:	2450 lbs
Time Since Last Inspection:	38 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	1831 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-360-A1D
Registered Owner:	RANDAL T. LEVERICK	Rated Power:	180 Horsepower
Operator:		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:	Day
Observation Facility, Elevation:	TRL ,474 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	11:53 Local	Direction from Accident Site:	92°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	26°C / 20°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:	(RBD)	Type of Flight Plan Filed:	None
Destination:	(HQZ)	Type of Clearance:	None
Departure Time:	11:50 Local	Type of Airspace:	Class G

Airport Information

Airport:	MESQUITE METRO AIRPORT HQZ	Runway Surface Type:	Concrete
Airport Elevation:	447 ft msl	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	
Runway Length/Width:	5999 ft / 100 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	32.730995,-96.560966(est)

Administrative Information

Investigator In Charge (IIC): CASANOVA, HECTOR

Additional Participating Persons: JAMES CARLSON; DALLAS , TX

Report Date: May 7, 2001

Last Revision Date:

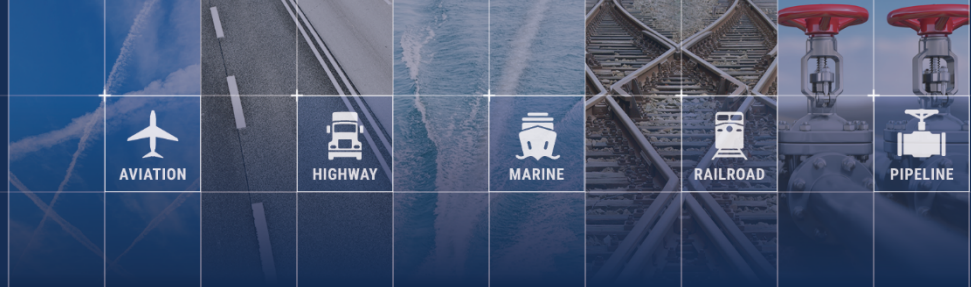
Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=46420>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).



Aviation Investigation Factual Report

Location:	MESQUITE, Texas	Accident Number:	FTW99FA153
Date & Time:	May 29, 1999, 12:03 Local	Registration:	N96868
Aircraft:	Cessna 172P	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Factual Information

SEE NARRATIVE FOR FTW-99-F-A-153A.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	26, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	August 18, 1998
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	650 hours (Total, all aircraft), 250 hours (Total, this make and model), 500 hours (Pilot In Command, all aircraft), 255 hours (Last 90 days, all aircraft), 94 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N96868
Model/Series:	172P 172P	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	172-76125
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	May 13, 1999 100 hour	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:	62 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3319 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320-D2J
Registered Owner:	RICHARD VEHORN ENTERPRISES INC	Rated Power:	160 Horsepower
Operator:	MONARCH AVIATION	Operating Certificate(s) Held:	None
Operator Does Business As:	MONARCH AVIATION INC.	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	TRL ,474 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	11:53 Local	Direction from Accident Site:	92°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	26°C / 20°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:	ADDISON (ADS)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	10:15 Local	Type of Airspace:	Class G

Airport Information

Airport:	MESQUITE METRO AIRPORT HQZ	Runway Surface Type:	Concrete
Airport Elevation:	447 ft msl	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	
Runway Length/Width:	5999 ft / 100 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 1 None	Latitude, Longitude:	32.730995,-96.560966(est)

Administrative Information

Investigator In Charge (IIC):	CASANOVA, HECTOR
Additional Participating Persons:	JAMES CARLSON; DALLAS , TX
Report Date:	May 7, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=46420

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).