Aviation Investigation Final Report

Location:	WHITNEY, Texas	**Accident Number:**	FTW00LA190
Date & Time:	June 29, 2000, 18:55 Local	**Registration:**	N6932N
Aircraft:	Mooney M20C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor simulated an engine failure by pulling the throttle to idle. The student pilot overshot the final approach and increased the bank angle in an attempt to realign the aircraft on final. The instructor stated that he did not have his hands on the controls. He felt the airplane buffet approximately 75 feet agl, grabbed the controls, leveled the wings, lowered the nose and attempted to add full power. The engine did not produce full power and the airplane stalled. The instructor pulled aft on the control yoke in an attempt to land flat instead of nose low. The airplane then impacted the ground and slid across the runway. Examination of the engine's carburetor revealed that its throttle shaft, throttle shaft bushing and packings, air metering valve, accelerator pump seal, and accelerator pump linkage were worn.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The partial loss of engine power, which resulted from the worn carburetor.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
1. GO-AROUND - INITIATED - PILOT IN COMMAND(CFI)
2. (C) FUEL SYSTEM,CARBURETOR - WORN

3. STALL/MUSH - ENCOUNTERED - PILOT IN COMMAND(CFI)

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

On June 29, 2000, at 1855 central daylight time, a Mooney M20C airplane, N6932N, was substantially damaged when it impacted terrain during a forced landing at the Lake Whitney State Park Airport, near Whitney, Texas. The airplane was registered to a private individual and was operated by Texas Aero of Waco, Texas. The flight instructor, the private pilot receiving instruction, and the student pilot passenger received minor injuries. Visual meteorological conditions prevailed and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 instructional flight. The flight originated from Waco, Texas at 1805.

According to the flight instructor, the pilot receiving instruction performed two takeoffs and landings on Runway 35 at the Lake Whitney State Park Airport. On the third approach, while on downwind, the instructor simulated a loss of engine power by retarding the throttle to idle. The instructor stated that the pilot overshot the final approach course and their descent rate was approximately 600-700 fpm. The instructor added that the pilot recognized that he overshot final approach, and pitched the airplane's nose for 75 knots, and increased his bank angle to approximately 45 degrees of bank. The instructor stated that he did not have his hands on the control yoke. He then felt a "small buffet of the airplane" approximately 75 feet above the ground, and as a result, he grabbed the controls, leveled the wings, lowered the nose, and attempted to add full power. The engine however, would not produce full power, and the airplane "broke into a stall." The instructor pulled aft on the control yoke so that the airplane would not impact the ground nose low. The airplane impacted the ground west of the runway and slid across the runway to the east side.

According to the FAA inspector, who responded to the accident site, the left main landing gear separated from the airplane, and the right main and nose landing gear collapsed. The left wing was bent up approximately 5 feet inboard from the wing tip.

At 1853, the Waco Regional Airport weather observation facility (located 24 miles southeast of the accident site) reported the wind from 080 degrees at 5 knots, visibility 10 statute miles, sky clear, temperature 88 degrees Fahrenheit, dew point 70 degrees Fahrenheit, and altimeter setting 29.95 inches of mercury.

On October 20, 2000, the NTSB investigator-in-charge (IIC) examined the engine at Air Salvage of Dallas, Lancaster, Texas. The engine's crankshaft was rotated manually and compression was confirmed on all 4 cylinders. During the compression check, crankshaft continuity to the accessory case and rocker arm movement were confirmed. The magneto timing was checked and found to be at 27 degrees before top dead center. The left and right magnetos were rotated manually with the leads and spark plugs attached, and sparks were noted on all of the spark plugs.

The carburetor was removed from the engine and taken to J&G Aero Carburetor, Inc., of Dallas, Texas, for examination on December 14, 2000. The examination of the Marvel Schebler MA-4-5 (serial number K-10-5275) carburetor was conducted under the supervision of the NTSB IIC. The carburetor drain plug was removed and found clear. The carburetor inlet filter was removed and a nominal amount of debris was noted. It was noted that the throttle linkage was worn. The carburetor was then disassembled. The accelerator pump was found worn and the air metering valve face was worn to a concave shape instead of its new convex shape. The throttle shaft displayed deep grooves and its bushing and packings were worn. The accelerator pump seal was worn through its entirety and was held together by a small section of seal.

According to the maintenance records the engine underwent a 100-hour inspection on June 26, 2000, at an engine total time of 1,166.6 hours. At the time of the accident, the engine had accumulated a total of 1,174.4 hours. It could not be determined how much time the carburetor had accumulated or when it was installed on the engine.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	21,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 multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	May 21, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	855 hours (Total, all aircraft), 22 hours (Total, this make and model), 654 hours (Pilot In Command, all aircraft), 105 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N6932N
Model/Series:	M20C M20C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	680186
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 26, 2000 100 hour	**Certified Max Gross Wt.:**	2740 lbs
Time Since Last Inspection:	8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4384 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated	**Engine Model/Series:**	O-360-A2D
Registered Owner:	MARK OWEN	**Rated Power:**	180 Horsepower
Operator:	TEXAS AERO	**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:	ACT ,516 ft msl	**Distance from Accident Site:**	23 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	150°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	80°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	31°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	WACO , TX (ACT)	**Type of Flight Plan Filed:**	None
Destination:	LAKE WHITNEY , TX (F50)	**Type of Clearance:**	None
Departure Time:	18:05 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	LAKE WHITNEY STATE PARK F50	**Runway Surface Type:**	Asphalt
Airport Elevation:	564 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	35	**IFR Approach:**	None
Runway Length/Width:	2000 ft / 50 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	2 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Minor	**Latitude, Longitude:**	31.939208,-97.319(est)

Administrative Information

Investigator In Charge (IIC):	Charnon, Nicole
Additional Participating Persons:	STEVE SORICH; FORT WORTH , TX
Original Publish Date:	July 10, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=51139