Aviation Investigation Final Report

Location:	Stillwater, Oklahoma	**Accident Number:**	CEN22LA255
Date & Time:	June 18, 2022, 09:45 Local	**Registration:**	N5895Q
Aircraft:	Mooney M20E	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that, during cruise flight, the engine lost partial power, which necessitated an emergency landing on a highway. During the landing, the airplane impacted a road barrier, which resulted in substantial damage to the left wing.

During a postaccident examination, the induction air coupling was found wrapped in gray tape. When the tape was removed, separations were visible on the top and bottom at the flange on the inboard side. The top and bottom separations likely reduced the rigidity of the coupling when the engine was operating. Examination of the inside of the coupling showed that the lower portion appeared to be permanently deformed in a manner similar to compression. Therefore, because of the reduction in the coupling's rigidity, the coupling had likely closed due to suction from the engine, which impeded airflow.

Tape should not have been applied as a fix for the induction coupling separations. The investigation could not determine when the coupling separations appeared or the tape was applied, but those events had likely caused the permanent deformation to the coupling. The airframe and powerplant mechanic, who performed annual inspections for the airplane during the 3 years before the accident. should not have allowed the airplane to return to service with the tape applied and the coupling deformed.

Probable Cause and Findings

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

The inadequate maintenance and inspection of the engine induction air coupling, which impeded airflow to the engine and resulted in the subsequent partial loss of engine power.

Findings

Personnel issues	Decision making/judgment - Maintenance personnel
Personnel issues	Scheduled/routine maintenance - Maintenance personnel
Personnel issues	Scheduled/routine inspection - Maintenance personnel
Aircraft	(general) - Inadequate inspection

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (partial) (Defining event)
Landing-flare/touchdown	Collision during takeoff/land

On June 18, 2022, about 0945 central daylight time, a Mooney M20E airplane, N5895Q, sustained substantial damage when it was involved in an accident near Stillwater, Oklahoma. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations (CFR)* Part 91 personal flight.

The pilot reported that, about 20 to 25 minutes after departure and while in cruise flight at an altitude of about 4,500 ft mean sea level, the airplane lost partial engine power. The power had been set to 2,400 rpm and 24 inches of manifold pressure, which decreased to 2,000 rpm and between 11 and 12 inches of manifold pressure. The pilot manipulated the throttle control, but the engine did not respond. He moved the fuel selector through all positions while also moving the throttle, but the engine still did not respond. Because the airplane was unable to maintain level flight, the pilot elected to conduct a forced landing to a highway. As the airplane was about to land, the pilot became focused on avoiding a vehicle and failed to extend the landing gear. The airplane touched down “very softly” with the gear up, and the pilot turned the airplane slightly to the left to keep the propeller from impacting the vehicle, which resulted in the left wing impacting a road barrier and substantial damage to the wing.

A postaccident examination revealed no anomalies with the engine control system, and throttle control continuity was established from the cockpit controls to the engine. The engine cowling was removed, and the induction air coupling was found wrapped in gray tape (see figure 1). When the tape was removed, separations were visible on the top and bottom at the flange on the inboard side. The inside of the coupling was examined, and the lower portion appeared to be permanently deformed in a manner consistent with compression (see figure 2).

Figure 1. *Induction coupling* with gray tape.

Figure 2.View from i*nside the induction coupling*

The pilot reported that the airplane's tachometer time at the time of the accident was about 4,489 hours. According to the maintenance logbooks, the airplane's most recent annual inspection, in accordance with Title 14 CFR Part 43 Appendix D, was performed on June 11, 2021, at a tachometer time of about 4,429 hours.

The airframe and powerplant mechanic with inspection authorization who completed that annual inspection also completed the airplane's two previous annual inspections. Those inspections were performed on November 11, 2018, and December 7, 2019, when the airplane's tachometer time was about 4,380 and 4,396 hours, respectively.

The maintenance entry dated November 11, 2018, noted "installed new Brackett induction air filter." No other entries in the maintenance logbooks were associated with the induction air

filter or coupling. Multiple attempts to contact the mechanic were made with no success. As a result, the investigation could not determine when the tape was applied to the induction coupling.

According to Title 14 Part 43 Appendix D, during an annual inspection, lines, hoses, and clamps should be checked “for leaks, improper condition and looseness” and all systems should be checked for “improper installation, poor general condition, defects, and insecure attachment.”

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	58,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	February 1, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 11, 2021
Flight Time:	22545 hours (Total, all aircraft), 21 hours (Total, this make and model), 8278 hours (Pilot In Command, all aircraft), 234 hours (Last 90 days, all aircraft), 78 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N5895Q
Model/Series:	M20E	**Aircraft Category:**	Airplane
Year of Manufacture:	1965	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	812
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 11, 2021 Annual	**Certified Max Gross Wt.:**	2575 lbs
Time Since Last Inspection:	54 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4488 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	IO360A1A
Registered Owner:	On file	**Rated Power:**	200 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSWO,961 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	264°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.08 inches Hg	**Temperature/Dew Point:**	29°C / 23°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Seminole, OK (KSRE)	**Type of Flight Plan Filed:**	None
Destination:	Benton, KS (1K1)	**Type of Clearance:**	VFR;VFR flight following
Departure Time:	09:15 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	36.17261,-96.959532(est)

Administrative Information

Investigator In Charge (IIC):	Williams, David
Additional Participating Persons:	Timothy Wells; FAA; Oklahoma City, OK Troy Helgeson; Lycoming Engines; Williamsport, PA
Original Publish Date:	September 14, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=105283