



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Central Region

February 10, 2021

WRECKAGE EXAMINATION SUMMARY

CEN20LA214

A. ACCIDENT

Location:	New Washington, Indiana
Date:	June 6, 2020
Aircraft:	N13520; Cessna 172M
NTSB Investigator-in-Charge:	Joshua Lindberg

B. PARTICIPANTS

On-scene

Steve Stombaugh – FAA

Chris House – FAA

Follow-up

Angela Kachinski – FAA

Mike Childers – Lycoming

Ricardo Asensio – Textron

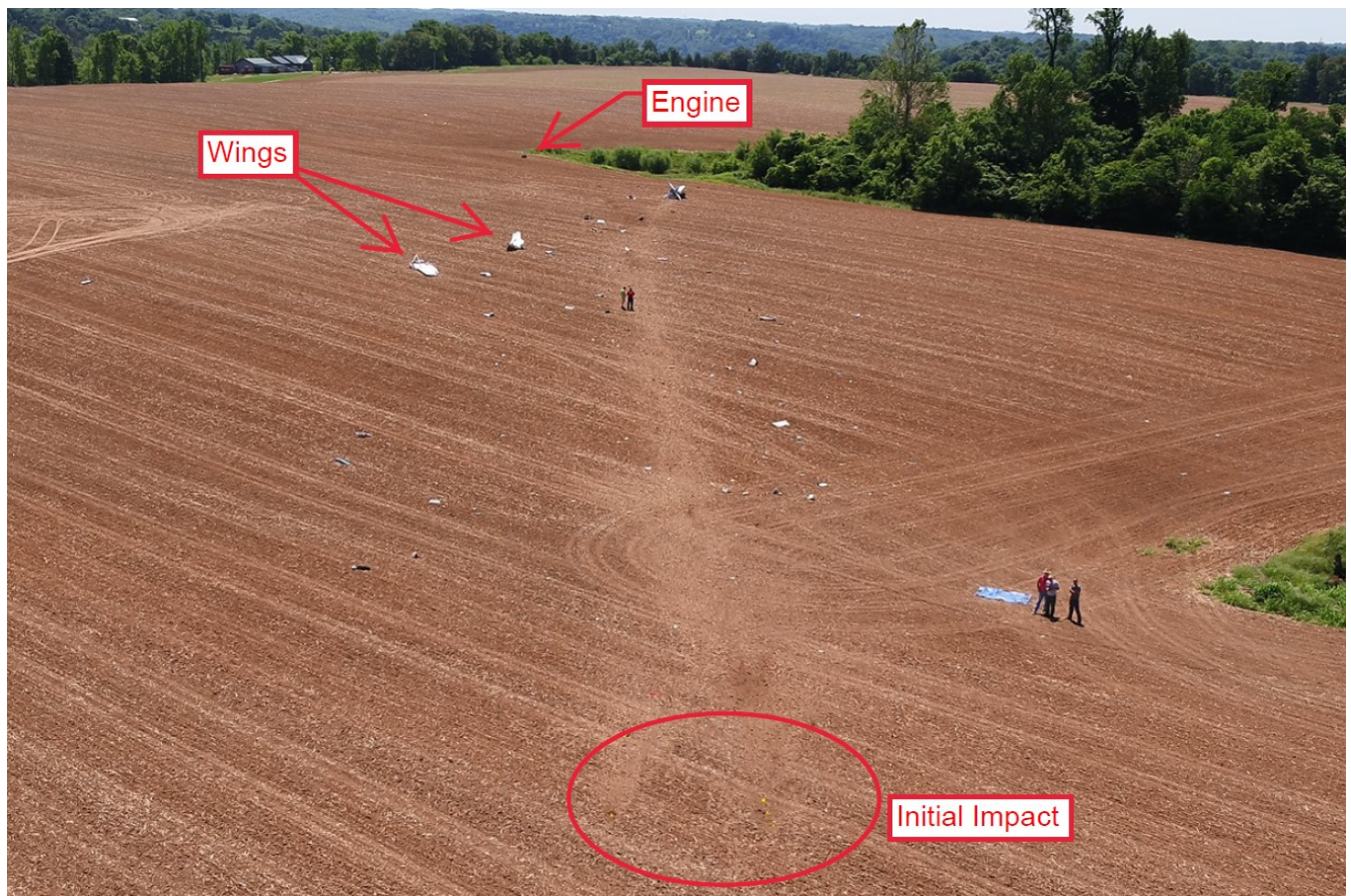
C. ACCIDENT SITE SUMMARY

FAA accident site summary

On 6/7/20, Inspector House and Inspector Stombaugh traveled to the scene, in a field about 3 miles east/southeast of New Washington, IN. ISP trooper was on scene, soon to be joined by ISP detective and crime scene technician. Inspector House took pictures while Inspector Stombaugh reviewed the pilot's personal belongs, including his flight log and certificates. The airplane impacted the soybean field at an apparent high speed, resulting it in tumbling along the flight path. The debris field started shortly after impact, with ground scarring indicating that the left wing tip and left main gear hit first. The airplane appeared to tumble along the flight path, shedding the propeller, then both wings, with the fuselage and tail coming to rest approximately 600 ft from initial impact. The engine continued another 200 ft, with the left fuel tank coming to rest about 1,000 ft from initial impact. The pilot was ejected from the airplane and was found in the vicinity and left of the fuselage. An examination of the wreckage showed all control surfaces intact and the flaps were retracted, with continuity of all control cables. There was damage to the throttle cable, but it appeared the engine controls were in appropriate adjustment for flight. The propeller showed signs of rotation at impact, with no apparent anomalies. There was a smell of fuel near the resting point of the fuel tank. After documenting the scene, the Inspectors traveled to the FBO that owned the aircraft, meeting with the student's CFI. The CFI stated that he and the student had flown the day prior, doing a 'mock checkride', in anticipation of the student's private pilot checkride six days later. The CFI stated the student was well prepared to pass the checkride, and that student had asked permission for another solo flight, for more practice. The CFI stated that the student was one of his best and that he was always well prepared. The CFI was questioned if he was aware why the student had a restricted medical and he explained that the student had previously taken anti-depression medicines and that he had been evaluated, drug

tested, and recently approved for a first class medical. The CFI stated the student had started flying as a hobby but had so enjoyed it that he was working toward a career in aviation. A review of the aircraft maintenance logbooks listed the required inspections and there were no recorded maintenance discrepancies. The accident flight was the fifth flight of that day on the aircraft. Records show that it was fueled with full tanks before the accident flight.

The inspectors received drone video and photos from the ISP troopers which is seen below.



D. FOLLOW-UP EXAMINATION SUMMARY

Engine/Propeller

Lycoming O-320-E2D s/n L-36539-27A

Last annual inspection 11/11/2019

Propeller: McCauley m/n 1C160/DTM 7553 hub s/n 723522

As first viewed, the engine was in a bag on the floor of a hangar at the facilities of AMF Aviation, in Springfield, TN, and had been stored outside in the bag during the 7 months since the accident date. The engine was removed from the bag, suspended from a lift and partially disassembled to facilitate the examination. The exhaust tubing and muffler were partially

crushed. A hole was observed in the bottom of the oil sump. The oil filter assembly, left magneto, carburetor, alternator and propeller were impact separated from the engine. The crankshaft flange was rotated through 360 degrees of rotation with difficulty. Normal thumb compression was observed from cylinder Nos. 1-3. Less compression was observed from cylinder No. 4. The interiors of the cylinders were observed using a lighted borescope and corrosion of the cylinder walls noted. Corrosion and combustion byproducts were observed in the cylinders. Continuity of the crankshaft to the rear gears and to the valve train was confirmed. Normal valve action was observed from all intake and exhaust valves. All four cylinders, the No. 4 connecting rod and the accessory case were removed. No damage other than corrosion to the cylinders was noted. The no. 4 connecting rod was removed only to facilitate crankshaft rotation and no damage to the connecting rod, connecting rod bearing or crankshaft rod journal was noted. The accessory case and rear gears were unremarkable. The crankshaft was rotated smoothly through 360 degrees of rotation.

The engine data plate was labeled "RAM Aircraft Corporation" and marked: STC SE3692 SW Fuel Oct. Min. 100LL H.P.M.C. 160

A review of the FAA online Supplemental Type Certificate database revealed that STC SE3692SW-D allows a 5-minute takeoff maximum power rating increase to 160 horsepower on the Lycoming O-320-E2D.

The carburetor was fractured across the throttle bore and separated from the engine. The throttle and mixture actuating arms were separated from the carburetor and not observed. The carburetor fuel inlet fitting and fuel inlet screen were separated from the carburetor and not observed. The carburetor bowl was removed. A small amount of water and sandy debris was observed in the float bowl. The blue composite float assembly and needle and seat assembly moved freely and no damage was noted.

The left magneto had been impact separated from the engine and contained water inside the unit. When rotated, the impulse couple worked but the magneto did not produce a spark from any lead, which was to be expected based on the water damage.

The right magneto remained attached to the engine with no damage noted. When rotated, the magneto produces a spark at three terminals.

The spark plugs were undamaged and exhibited normal wear signatures. The ignition harness exhibited significant impact damage.

A hole was observed in the bottom of the oil sump. Oil was observed on engine internal parts. The oil suction screen was absent of debris. The oil filter assembly was impact separated from the engine. The oil filter media was absent of debris.

All of the propeller attachment bolts were broken, and the propeller was separated from the engine crankshaft flange. One propeller blade exhibited longitudinal twisting toward the blade face and was broken off at about midspan. The outboard portion of the blade was not observed.

The other blade was curved aft about 100 degrees and exhibited longitudinal twisting toward the blade face, leading edge and trailing edge Gouges and trailing edge “S” bending.

Airframe

1973 Cessna 172M s/n 17262816

Tach – 6412.4

Annual inspection: 5/6/2020 8,527.4 hours – accident occurred ~45 hours after annual inspection

The wings separated from the fuselage on impact. The left wing fragmented into multiple sections consistent with high energy impact. It was bent downward approximately 30° at the lift strut attach location. The right wing was mostly intact and remained attached to the upper cabin skin and wing attach fittings. The fuselage was fragmented into multiple sections forward of the baggage compartment. The engine separated from the fuselage. Flight control cable continuity was established for all flight control surfaces through tensile overload separations to the cockpit area. The fuel selector handle and valve were observed in both position. All fuel selector valve positions were tested with compressed air and the valve operated as designed. No fuel was observed. Fuel strainer screen and bowl were free of contaminants. Altimeter setting: 29.96 inHg. No other cockpit and/or instrument information was recorded due to significant impact damage.

E. ADS-B FLIGHT TRACK

