

Statement of facts

April 6, 2021, 0610 EST, FAA IIC, received notification of a non-fatal aircraft accident on Worcester Regional Airport (ORH). The aircraft U.S. registered N61EF, Bushby, Mustang M II, Serial number M-II-1019, had two souls on board (SOB).

Immediately after taking off from Runway 33, during climb out, the aircraft departed the runway centerline to the East at the 3,000 feet remaining marker, and impacted the grassy area between Runway 33 and Taxiway B, eventually coming to rest on Taxiway B, on Worcester Regional Airport (ORH). Both souls on board egressed the aircraft without injury. Airport fire crews responded, there was no post-crash fire. Airport FBO services contracted a local vehicle to move the aircraft to an enclosed hangar (number 20) on the airport.

FAA IIC arrived on scene April 7, 2021 @ 0900 local time and were met by Worcester Airport Operations officials. FAA team proceeded to the departure end of Runway 33. Initial investigation revealed no abnormalities in the runway surface, foreign objects, or debris from the aircraft. There were no skid marks related to the N61EF on the runway pavement. The grassy area between Runway 33 and Taxiway B exhibited ruts and depressions from the aircrafts tires and landing gear. Hatch marks were also present at the time indicating that the engine had been making power at the time of impact with the grass. Scoring marks on the surface of Taxiway B indicate that the landing gear collapsed prior to the aircraft passing from the grass and onto the asphalt. There was no sign of fuel on the asphalt where the aircraft had come to rest. There were no signs of hatch marks on the asphalt, indicating that the engine was not making any power when the aircraft passed onto Taxiway B.

FAA team proceeded to Hangar 20 to inspect N61EF and meet the pilot in command as well as his student, and owner, of the aircraft. The aircraft was resting on two stacked automobile tires under each wing. At the time of this initial observation the aircraft had been moved and handled by an unknown number of people.

Initial observations of the aircraft.

The propeller blades were both bent aft approximately 5 inches from the tip. One propeller blade (actual hub position not known) was scored chord wise on the camber side. The other blade (actual hub position unknown) had significant chunking on the leading edge but had little to no signs of scoring chord wise on the camber side of the blade. There was no visible damage to the spinner.

The right main landing gear strut had partially detached from the wing at its trunnion, the strut having bent inboard and forward, laying under the lower aft engine cowling. The left main landing gear strut had partially detached from the wing, the strut having bent outboard and slightly forward, laying under the leading edge of the wing.

The left wing sustained damage to the outer wing section. The left aileron was at a trailing edge low position. The aileron was separated from the aileron hinge (7 tangs distance), from the outboard end of aileron towards the center. The aileron hinge pin remained in the tangs attached to the aileron side of the hinge. The separated section of the aileron was bent down and aft. The aileron counterweight on the outboard end of the aileron extended forward and down from the leading edge of the aileron at

approximately a 45 degree angle as manufactured. The counterweight had grass and dirt covering it, indicating that it had dug into the earth forcing the outer section of the aileron to separate from its hinge. The left aileron trim tab was in a neutral position. The left flap showed no signs of damage.

The right wing sustained damage at the wing root and wing attach points. The right main landing gear strut was driven through the upper wing skin after becoming detached from its trunnion and during failure. The inner wing to outer wing attach point also showed buckling of the upper wing skin toward the trailing edge of the wing at the outboard end of the right flap. The right aileron was in a trailing edge low position. The aileron hinge was intact and undamaged. The aircraft has no aileron trim tab on the right aileron. The right flap showed no sign of damage.

The empennage, vertical stabilizer, horizontal stabilizer, rudder, and elevators showed no sign of damage. The tail wheel had grass and dirt in its mechanism, but showed no sign of physical damage.

The FAA team received the written and oral statements from the pilot in command as well as the passenger. The pilot in command (ATP / CFI / CFII) was giving instruction and a check ride to the new owner of the aircraft (Commercial / Instrument) at the time of the accident. Both pilot's oral and written statements agree with the other. According to their statements, immediately after breaking ground (between 4 and 8 ft. AGL) the aircraft experienced a smooth uncommanded roll to the right. Both pilot simultaneously attempted to apply left stick to counteract the roll. The flight controls failed to respond and the aircraft continued to roll. The pilot in command retarded the throttle and flew the aircraft into a hard landing in the grass, causing the landing gear to partially detach from the aircraft and collapse.

Inspection of the aircraft.

An inspection of the aircraft focused on the roll control (aileron) system. The right wing aileron bellcrank access door was removed for access to the bellcrank and push/pull rod. There was no visible damage to the bellcrank or the push/pull rod. The push /pull rod had free and clear movement through its range of motion in its connection to the bellcrank, as well as its movement through the aft spar, and connection to the aileron mounting bracket. There were no chaff grommets installed in the aft spar access hole.

The left wing aileron bellcrank access door was removed for access to the bellcrank and push/pull rod. There was no visible damage to the bellcrank. An attempt to cycle the control sticks in the cockpit left and right, was unsuccessful with severe binding in movement to the left. The left aileron push/pull rod was removed and exhibited damage in multiple areas. The rod was severely scored at the aileron attach end of the rod, between the shear rivets and the adjustment threads, from contact and rubbing with the access hole, in the aft spar. The forward and aft motion of the push/pull rod also left scoring on the lower section of the access hole in the aft spar. The threaded rod end was bent at an approximately 25 degree angle. This caused the bearing rod end to be offset from the push/pull rod by approximately 25 degrees. The corresponding bend appears to have caused the shear rivets to interfere with the movement of the rod through the aft spar locking the left aileron in place. Disconnecting the left aileron push/pull rod, from the left aileron bellcrank resulted in free movement of both control sticks and full range of motion for the opposing RIGHT aileron.