

INSPECTOR STATEMENT

DATE: December 7, 2010

SUBJECT: Aircraft Accident Investigation

NTSBID: CEN11LA086

ATQA:

NTSB INVESTIGATOR: Arnold Scott

IIC: Brian L. Rochester, Aviation Safety Inspector (ASI)

Aircraft Registration Number: N244RC

Aircraft Serial Number: 8025C

Make: Maule

Model: M-5-180C

Date of Manufacture: 1984

Engine Serial Number: L-30734-36A

Make: Lycoming

Model: O-360-C1F

Pilot/Owner: John R. Armstrong

Address: ----- Emory, Texas 75440

Certificate: Private Pilot Certificate -----

Date of Birth: -----

Medical: 3rd Class dated 04/30/2010

Injuries: Fatal

Location of Accident: 2998 Highway 19 North, Emory, Texas 75440

GPS Coordinates: 32°54'46"N and 95°44'23"W

I. OVERVIEW

On November 30, 2010 at approximately 1350 hours (local) near the address of 2998 Highway 19 North, Emory, Texas 75440, the pilot (Certificate -----) of the Maule M-5-180C aircraft (N244RC) attempted to land on a grass airstrip during variably gusty crosswinds, lost control of the aircraft and crashed. During the landing attempt, a witness stated the aircraft bounced twice, wobbled, and pitched up sharply with power applied. The pilot lost control of the aircraft during the climb out, stalling it approximately 100 feet above the ground. The aircraft entered a left bank spin, descended, and the left wing struck a tree before the aircraft crashed nose first into the ground in a near vertical attitude. The aircraft burned during a post-crash fire and fell into its final resting position on its back, nose pointing at a 320° heading approximately 500 feet from the centerline of the airstrip. The pilot was the only occupant of the aircraft and suffered fatal injuries.

II. PRELIMINARY ACCIDENT NOTIFICATION

At approximately 1430 hours local on November 30, 2010, I was notified by the FAA Southwest Regional Operations Center, by telephone, of a fatal aircraft accident involving an unknown type of aircraft and an unknown pilot at a location described to be two miles north of Emory, Texas in the immediate area of Highway 19. I was given the name and phone number of Rains County Deputy Sheriff Kurt Fischer who was the first responder on the scene.

I interviewed Deputy Sheriff Fischer. The deputy was notified of the accident at approximately 1350 hours by emergency radio and was on-scene at approximately 1400 hours. He stated that the only occupant of the aircraft was the pilot, who was positively identified as John R. Armstrong. He stated the aircraft crashed into the ground and burned at the location of -----, Emory, Texas 75440, property of the pilot. He stated the property contained a grass airstrip. The deputy also stated that he took photographs of the accident scene that included evidence of the aircraft completely on fire, smoke and wind direction, the deceased pilot, and post fire evidence. He provided the name of one eye witness, Mr. Kris Martin.

Aviation Safety Inspector (ASI) John. R. Loomis and I dispatched to the aircraft accident scene at approximately 1500 hours and arrived on scene at approximately 1700 hours.

III. ACCIDENT INVESTIGATION FINDINGS

PILOT

John R. Armstrong (Private Pilot Certificate-----) was an 80-year old male with the following restrictions to his Private Pilot certificate: Must have available glasses for near vision. Flight Hours at last biannual check ride was 1300 flight hours. The date of last medical was 04/3/2010 and he received a 3rd Class Medical Code. No accident or enforcement history was identified.

Initial Medical Review of the pilot was provided by Dr. Nick Webster M.D., FAA, Office of Aerospace Medicine, Civil Aeronautics Medical Institute (CAMI) on December 2, 2010. A complete list of medical conditions, medical history, and prescribed/over-the-counter medication history was provided by CAMI, but is not listed in this statement due to its length and its availability through CAMI. At the time of this report, the toxicology report had not been returned to me by the NTSB or CAMI.

A family member, Mr. Russell Armstrong (the pilot's son), reported that the pilot began the flying day in Emory, Texas on November 30, 2010 at 0900, flying to Bonham, Texas to each lunch with a friend. He stated the pilot called him between 1100 and 1200 hours reporting that he was going to fly to Durant, Oklahoma to pick up several boxes of peanuts that were considered Christmas gifts. Russell Armstrong stated that he called John R. Armstrong between 1230 and 1300. John R. Armstrong was still in Durant during this conversation. He stated that John R. Armstrong was concerned about high

winds at Durant, but attempted the landing despite the wind conditions. He stated that his father seemed normal and displayed no verbal signs of sickness or illness at the time of either conversation on the day of the accident.

Russell Armstrong stated that he and John R. Armstrong routinely flew this route and the flight time to fly the route from Emory, to Bonham, to Durant, and back to Emory was approximately an hour and thirty minutes.

Russell Armstrong also stated that the aircraft was purchased by John R. Armstrong on July 27, 2010, and that the pilot had not accumulated very many hours flying the aircraft. The pilot's total flying hours and total hours in the airframe could not be determined during this investigation due to the pilot's records being destroyed in the accident. He also verbally stated that John R. Armstrong taught him to fly as a child, but prior to purchasing this Maule aircraft, John R. Armstrong had a 25-year break in which he did not fly an aircraft. This could not be confirmed by flight records.

AIRFIELD AND AIRSTRIP

The airstrip was noted to be a rough grass and dirt area, with the appearance of contour disc plowing parallel to the longitudinal axis of the runway and variably parallel to the contour of the terrain. The airstrip was not level. The airstrip heading was measured at 015° by handheld GPS and is approximately 2000 feet in length by 75 feet in width.

A windsock was noted on the airfield and affixed to a metal aircraft hangar approximately 200 feet left of the south end of the airstrip. The aircraft was reported by Russell Armstrong to have been stored in this hangar. The windsock was attached to the top of a metal pole approximately 15 feet high. The building dimensions were approximately 20 feet by 30 feet wide, by 15 feet tall. A grove of trees was noted on the south side of the building.

On the second day of the field investigation, weather data for the area reported winds out of the West Southwest at 11 mph. The windsock was moderately inflated and was observed to indicate that winds were out of the south.

Russell Armstrong stated that John R. Armstrong had limited experience flying the aircraft on the grass airstrip.

WEATHER

Russell Armstrong stated that the pilot received a weather report from the internet and that the pilot complained of high winds while he was in Durant, Oklahoma. The source of the pilot's weather data is unknown.

I retrieved three sources of weather data from the internet and compared them to weather data from the FAA Form 8020-9 (Preliminary Accident Notice). All sources of weather data reported winds at the time of the accident from the North Northwest (320°) at

approximately 14 knots and gusting to 17 knots, or greater. Weather data on FAA Form 8020-9 was issued for KSLR (Sulphur Springs, Texas). Weather data retrieved from the internet for the corresponding zip code (75440) was issued for Alba, Mineola and Sulphur Springs, Texas. The distance from the accident site to each town was approximately 9 miles, 22 miles and 21 miles respectively. During investigation, it was revealed that eye witness accounts and photographic evidence contradicted reported weather data.

Eye witnesses to the accident and those present immediately following the aircraft fire (from approximately 1400 to 1430 hours) stated that the winds were out of the South and South Southwest and were very strong. Photographic evidence was provided by Rains County Deputy Sheriff Kurt Fischer and reported to have been taken during the aircraft fire on the day of the accident. The aircraft in the photographs appeared to be the same aircraft, and resting in the same position, as the aircraft observed during the accident investigation by the FAA IIC at 1700 hours on the day of the accident.

The drift path of the smoke in the photographs was examined and compared to the aircraft's position, airstrip heading, shadow casts and compass headings. Photographic evidence suggests that the wind direction within 10 minutes to 40 minutes after the accident were South and Southwest. Weather data from the three previously mentioned weather data sources at the corresponding times were reported to be from the North Northwest (320° heading) at speeds of approximately 14 knots gusting to 17 knots or greater.

AIRCRAFT POSITION AND GROUND SCARING

An attempt to positively identify the aircraft could not be determined until speaking with the Maule Aircraft Field Service Representative (FSR), Charles Dermeyer on day two of the investigation, due to a missing external aircraft data plate. The FSR provided the location of the factory mounted data plate, stating it was located on the left door frame post. The data plate was recovered from the door post location, positively identifying the aircraft as a Maule M-5-180C, Serial No. 8025C.

The aircraft was observed to be upside down, burned with no skin remaining on the aircraft fuselage, wings and horizontal stabilizer. Red fabric remained on the vertical stabilizer. Most aluminum parts on the aircraft had melted. The steel tubular frame structure remained intact, providing the basic shape of the aircraft. The aircraft was approximately 500 feet from the grass airstrip. The nose of the aircraft faced northwest and the tail faced southeast, placing the aircraft at 45° from the longitudinal axis of the airstrip on a 320° heading.

Small pieces of the left wing landing light plexiglass, a small metal bracket and pieces of aircraft fabric (painted white and red) were found next to a small tree approximately 150 feet from the tail of the aircraft and scattered in the aircraft's 45° path from the airstrip. The tree was positioned atop a small hill with an approximate terrain gradient of 20°. The tree was approximately 15 feet tall and showed evidence of broken and severed branches at the top. A three foot section of the top of this tree was found approximately 20 feet

away from the main section of the tree and approximately 10 feet to the right of the aircraft.

One ground scar was observed approximately eight feet to the right and forward of the left wing, and it was approximately the same width as the left wing tip. A second ground scare was observed approximately three feet to the right of the engine. The propeller and propeller hub assembly were noted to be inside this ground scar and were separated from the engine at the crank shaft.

PILOT AND AIRCRAFT RECORDS

According to Russell Armstrong, all pilot and aircraft maintenance records were in the aircraft at the time of accident. An attempt to recover the records from the aircraft was made. No pilot records were recovered from the aircraft. The front cover pages of the airframe and engine logbooks were recovered and identifiable. Each of the records was significantly burned. The only legible maintenance records that could be identified were an overhaul tag for an unknown part dated 9/17/2008 and an Emergency Locator Transmitter replacement with an unknown date of replacement. Both records were partially legible due to fire damage.

Russell Armstrong stated that the date of the last annual inspection was November 29, 2010 and was performed by Mr. Billy Ragain (IA, A&P Certificate-----). According to verbal statement from and records retained by the IA/A&P, the date of the last annual inspection was November 29, 2010. The recorded aircraft time was 786.6 hours. Mr. Ragain stated that he returned the aircraft to service in an airworthy condition on November 29, 2010. Both Russell Armstrong and IA/A&P Billy Ragain stated that an engine exhaust leak at a weld on a right exhaust retaining bracket was repaired by a third party welder on the day of the annual inspection. Both men stated that the pilot (John R. Armstrong) removed the exhaust pipe by unbolting it and took it to a welder for repairs, the reinstalled it on the aircraft later that day. Mr. Ragain inspected the weld and stated that he found no further defects with the weld. Service Bulletin and Airworthiness Directive compliance could not be verified, as maintenance records were reported to have been located in the aircraft during the accident and post-impact fire.

Russell Armstrong provided Supplemental Type Certificate (STC) and Major Alteration Records for the aircraft that were retrieved from the deceased pilot's home. The records matched records in the FAA database. The records reflected documentation of the aircraft being properly altered and placarded by installation of vortex generators on the wing and tail surfaces under STC # SA00170SE. It is unknown if a supplement was made to the pilot's operating handbook, as the document was destroyed in the fire. It is unknown if the pilot was familiar and experienced with the operating limitations of the aircraft with this STC alteration.

Records reflected documentation of the aircraft being properly altered and placarded by installation of Alaska Tire and Rubber Company (Tundra type) Tires under STC #SA01015SE. It is unknown if a supplement was made to the pilot's operating handbook,

as the document was destroyed in the fire. It is unknown if the pilot was familiar and experienced with the operating limitations of the aircraft with this STC alteration. The IA who performed the annual inspection on November 28, 2010 stated that both STC's were installed on the aircraft at the time of the annual inspection.

ENGINE

The engine was inspected and observed to be pushed back approximately twelve inches into the firewall. The engine frame structure and engine mounts were all bent towards the cabin. All major components of the engine were identifiable, but were burned and damaged. Configuration of engine carburetor and propeller control arm positions could not be positively confirmed from the engine section due to impact, and post impact fire damage. The cockpit mixture and throttle controls were both identified in the full forward position. The engine crank shaft was sheered at the propeller flywheel attach plate. The end of the crankshaft showed evidence of rotational torsional metal failure. Damage to the engine crank shaft indicated the engine was producing power at impact.

The propeller was examined. The nose cone was crushed inwards. Further examination revealed that the center section of the crankshaft's propeller flywheel attach plate was still bolted to the propeller with evidence of rotational torsional failure along the attach plate weld line. Fractured pieces of the fly wheel were found near the propeller and hub assembly within the ground scar. The fly wheel was examined and sheer type fracturing was noted along the outline of the missing center section. The damage noted to the propeller and hub indicated the engine was producing power at impact.

The cabin heater box was observed on the engine to be intact. A radial crack was noted in a weld on the lower side of the exhaust pipe that bolts to the aft end of the cabin heater box. The cabin heater box was disassembled and the interior examined. A 1" crack was noted on the curved interior surface of the heater box assembly at the center section of the outboard flange, propagating parallel to the curved surface. A white powdery residue was observed on the interior side of the cabin heater box cover plate and on the interior curved section of the heater box assembly. The white powdery substance was also noted on the orange heater hoses attached to heater box and other engine components that were located outside the cabin heater box. A gray discoloration was noted beneath (or under) the white powdery residue on the interior curved shape of the cabin heater box assembly. The gray discoloration propagated from a small gap on the forward flange (engine exhaust intake end) section of the assembly. The pattern resembled a tear drop or flame shape and propagated aft. The same pattern and gray discoloration were also noted on the upper flange area, appearing to propagate aft. The same pattern and gray discoloration were also noted on the aft flange and appeared to propagate forward. The corresponding sections of the cabin heater box cover examined and the gray discoloration was noted on the inside of the cover plate. The metal surface of the heater box was wiped clean and examined for bluing. No bluing was observed on the heater box assembly. The external metal surface of the heater box cover was examined. No bluing was observed on the cover.

AIRCRAFT FLIGHT CONTROLS

The aircraft flight control cables were inspected for continuity and compared to the factory illustration configuration provided by Maule Aircraft Factory Representative (FSR), Mr. Charlie Dermeyer. Flight control cables were routed to each of the flight controls on the wings and tail section of the aircraft as depicted in the aircraft flight control cable blueprint. Movement and travel check of flight controls could not be performed due to impact and post-impact fire damage.

The left aileron control arms and pulleys near the aileron and wing tip were bent and damaged, consistent to damage found in the surrounding structure, indicating impact and post impact fire damage. The flap control lever was found in the second detent. No “bird nesting”, chafing or fractured segmenting was found in the flight control cables to indicate that any of the flight control cables had failed. It was noted that several turnbuckle barrel sections were missing on the flight control cables located in the belly section of the aircraft. Safety wire was still present in some of the turnbuckle assemblies, suggesting the barrel assemblies melted during the post impact fire.

During initial 360° photographing of the aircraft, an object resembling a dirt dobber insect nest was noted on the left wing aileron cable directly next to the aft wing strut attach point and fitting on the aft wing spar. The object measured 3” long x 2” wide x approximately 2” thick in diameter. The dirt dobber nest did not show visible evidence of damage or visible evidence of missing pieces that would suggest it struck an object within the wing prior to impact, or at impact. It appeared to be intact. The nest appeared to have been heated and was baked by the aircraft fire. It was remarkably hard in texture and the texture was not consistent with the flakey texture of a dirt dobber nest not exposed to fire.

The FSR provided comparable photographs of a left wing during assembly at the factory, and took measurements of its aileron cable travel at the location of where the dirt dobber nest was found on the accident aircraft. He also provided wing blue prints of the wing. The cable movement was reported to be approximately 1.75’ in the inboard and outboard directions with a total overall travel of approximately 3.5” at this location. The location where the dirt dobber nest was found did not appear to be at location where it would contact the internal structure of the wing and prevent full movement of the aileron cable. However, it is unknown if the position of the nest at the accident site was the location of the nest prior to the accident due to cable stretch from heating and impact damage. It is unknown if the nest affected flight control movement of the aileron in any manner.

WITNESSES

Witness #1

Mr. Kris Martin stated that he had a direct visual account of the accident from his kitchen table as the accident occurred and post accident as the aircraft burned and was destroyed. His position was approximately 1500 – 2000 feet from the centerline of the airstrip,

midpoint of the length of the airstrip at the 270° heading position. He stated the aircraft was flying towards the 015° runway heading and observed it bounce once, it wobbled left and right, it came back down, bounced again, then it pulled up wobbling left and right again. He stated after the aircraft pulled up sharply and wobbled, it banked hard to the left, then spun into the ground. He stated it remained in the upright position until it caught fire, then it fell onto its back. He stated that heavy crosswinds from the South and South Southwest were present at the time of the accident and during local the fire department's actions to extinguish the fire.

Witness #2 and #3

Rains County Deputy Sheriffs Kurt Fischer and Brad Strawn were both present during the local fire department's actions to extinguish the fire. Both witnesses separately stated that wind direction was from the South and South Southwest immediately following the arrival at the scene (approximately 1400 hours) and during the time fire department personnel worked to extinguish the fire. Both witnesses stated that winds were very strong.

IV. CONCLUSION

The pilot failed to maintain control of the aircraft and impacted the ground in a near vertical attitude.

Brian L. Rochester
Aviation Safety Inspector
Dallas Flight Standards District Office