

THE ACCIDENT HAPPENED AROUND 08:30 LOCAL TIME. THIS WAS MR. CAPERS FIRST FLIGHT IN THIS AIRCRAFT. FAMILY MEMBERS WHO SAW MR. CAPERS TAKE OFF SAID THAT HE HAD BEEN FLYING AROUND HIS PROPERTY FOR ABOUT AN HOUR BEFORE THE ACCIDENT OCCURED. THE AIRCRAFT'S ONBOARD ENGINE COMPUTER MONITOR INDICATED THE ENGINE HAD BEEN RUNNING FOR 40 MINUTES. AT THE TIME OF THE ACCIDENT THERE WAS ONE WITNESS, MR. ENOS WICKER, WHO ONLY HEARD THE ACCIDENT. THE MORNING OF THE ACCIDENT MR. WICKER STATES THAT HE SAW MR. CAPERS FLYING HIS AIRCRAFT. HE SAID HE SAW MR. CAPERS BUZZNG AROUND. ADDITIONALLY, HE STATED THAT AS MR. CAPERS APPROACHED THE TREE LINE (TREE LINE GOES IN A NORTHWEST TO SOUTH EAST DIRECTION AT AN APPROXIMATE 25 DEGREE ANGLE) ON THE SOUTH SIDE OF MR. CAPERS PROPERTY AND SOUTH OF MR. CAPERS RUNWAY. HE COULD SEE THE AIRCRAFT FLYING FROM THE SOUTH AND HEADING NORTHERLY DIRECTION. MR. WICKERS WAS AT HIS HOME WHICH IS EXACTLY 0.21 MILES FROM THE CRASH SITE AT 049 DEGREES. AS MR. CAPERS GOT CLOSER TO THE RUNWAY MR. WICKER SAID HE LOST SIGHT OF MR. CAPERS BUT COULD STILL HEAR THE AIRCRAFT'S ENGINE RUNNING. SHORTLY AFTER HE LOST SITE OF THE AIRCRAFT HE HEARD THE ENGINE QUIT AND THEN IMMEDIATELY HEARD A CRUNCH SOUND. THIS AIRCRAFT IS EQUIPPED WITH A SAFETY PARACHUTE. UPON ARRIVING AT THE ACCIDENT SCENE IT WAS FOUND THAT THE PARACHUTE'S FIRING HANDLE STILL HAD ITS SAFETY PIN INSTALLED WITH THE "REMOVE BEFORE FLIGHT" TAG STILL ATTACHED TO THE PIN. ADDITIONALLY, THE MAIN BATTERY POWER SWITCH WAS IN THE OFF POSITION. THE PROPELLER'S CONDITION HAD NO INDICATION THAT THE ENGINE WAS RUNNING AT THE TIME OF THE IMPACT. THERE WERE NO STRIKE MARKS OR ABRASIONS ON THE LEADING EDGES OF THE PROPELLER BLADES. ONE OF THE COMPOSITE BLADES WAS SPINTERED AT THE TIP HORIZONTIALLY ALONG THE FACE OF THE BLADE. THIS BLADE SPLINTER IS CONSISTANT WITH THE BLADE BENDING AT THE TIP DUE TO THE AIRCRAFT ROLLING ON THE GROUND. THERE WAS ONE TREE LOCATED AT THE AFT SIDE OF THE AIRCRAFT THAT SHOWED ONE LIMB HAD BROKEN OFF ON THE NORTH SIDE OF THE TREE LINE. THIS LIMB WAS ON THE EDGE OF THE TREE LINE. NO TREES IN THE MIDST OF THE TREE LINE WERE DAMAGED. THIS DAMAGED TREE LIMB SHOWS THAT THE AIRCRAFT WOULD HAVE HAD TO HAVE FALLEN AT A NEAR 90 DEGREE ANGLE OUT OF THE SKY. DAMAGE TO THE AIRCRAFT INDICATES THAT THE AIRCRAFT STRUCK THE GROUND WITH THE LEFT WING, THEN ROLLED THE AIRCRAFT AND STRUCK THE LEFT SIDE OF THE NOSE OF THE AIRCRAFT, AND FINALLY RESTING WITH THE FUSELAGE RESTING ON ITS LEFT SIDE. HOWEVER, THE FUSELAGE AND TAIL WERE NO LONGER IN A STRAIGHT LINE. THE TAIL WAS IN AN APPROXIMATE 35 DEGREE ANGLE FROM THE NOSE AS IT LAYED ON THE GROUND. THE ENGINE WAS UP IN THE AIR WITH THE FORWARD SIDE OF THE ENGINE FACING DOWN TOWARDS THE GROUND AT AN APPROXIMATE 80 DEGREE ANGLE. THE FUEL TANK WAS FOUND TO BE AT HALF FULL. THERE WAS ALMOST NO FUEL FOUND IN THE FUEL LINES AND THE CARBORATOR FLOAT BOWLS HAD VERY LITTLE FUEL LEFT IN THEM. ADDITIONALLY, THERE WAS NO FUEL IN THE AUTOMOTIVE FUEL FILTER.

THE AIRCRAFT WAS FOUND TO HAVE AN AUTOMOTIVE FUEL PUMP INSTALLED JUST OUTSIDE OF THE FUEL TANK. THE PUMP HAD A FUEL FILTER INSTALLED ON THE OUTFLOW SIDE OF THE PUMP. THE PAPER FUEL FILTER WAS VERY DIRTY AND HAD SEDIMENT IN IT. AFTER FURTHER INSPECTION OF THE FUEL SYSTEM INSTALLATION IT WAS DISCOVERED THAT THERE WERE SEVERAL ISSUES THAT MAY CAUSE AN UNSAFE CONDITION. FIRST, THE MR. GASKET FUEL FILTER MODEL 42S WAS INSTALLED IN SERIES WITH THE ENGINE'S FUEL PUMP. THE ROTAX 503 MANUAL STATES THE FOLLOWING: "IF THE FUEL TANK IS CONSIDERABLY LOWER THAN THE ENGINE, AN ELECTRIC PUMP SHOULD BE USED. THIS PUMP IS TO BE CONNECTED IN PARALLEL AS IN CASE OF SERIES-CONNECTION THE FUEL PRESSURE WOULD BE EXCESSIVE." THE SECOND ISSUE IS THAT THE FUEL PUMP ON THE ENGINE WAS NOT THE SAME MODEL FUEL PUMP THAT IS SUPPLIED BY ROTAX. THE MODEL INSTALLED IS A MIKUNI PUMP TYPICALLY USED ON TWO STROKE ENGINES FOR SNOWMOBILES AND ATV'S. THIS

STYLE PUMP DOES NOT HAVE THE BLEED HOLES DRILLED IN IT THE WAY THE PUMPS FROM ROTAX DO. WITHOUT THESE BLEED HOLES THIS STYLE PUMP MAY HYDRO LOCK. THE THIRD ISSUE INVOLVED THE FUEL FILTER USED IN CONJUNCTION WITH THE MR. GASKET 42S FUEL PUMP. THE FILTER INSTALLED IS A PAPER TYPE FILTER. THE ROTAX 503 INSTALLATION MANUAL STATES THE FOLLOWING: "A SUITABLE FUEL FILTER OF 0.15 MM MESH SIZE MUST BE FITTED BETWEEN PUMP AND CARBURETOR. DO NOT USE PAPER FILTERS." ON 11/30/2012, A TECHNICIAN FOR ROTAX ENGINES OPERATIONALLY CHECKED THE ENGINE AFTER THE AUTOMOTIVE FUEL FILTER WAS REMOVED. THE ENGINE OPERATIONALLY CHECKED SATISFACTORY. HOWEVER, THE MAGNETO SWITCH WOULD SHOCK HIM WHENEVER HE PUT THE SWITCH IN THE "START" POSITION. THE PREVIOUS OWNER OF THE AIRCRAFT, MR. SWAFFORD SAID THAT THE AIRCRAFT HAD A NEW ENGINE INSTALLED ON IT ABOUT 69 HOURS AGO. ACCORDING TO DESIGNATED AIRWORTHINESS REPRESENTATIVE LANNY RUNDELL, THIS AIRCRAFT WAS CERTIFICATED WITH A ROTAX ENGINE MODEL 447. HOWEVER, AT THE TIME OF THE ACCIDENT THE AIRCRAFT WAS EQUIPPED WITH A ROTAX MODEL 503 ENGINE. ACCORDING TO THE AIRCRAFT'S OPERATING LIMITATIONS, THE OWNER IS REQUIRED TO RE-ESTABLISH COMPLIANCE WITH 14 CFR 91.319(B) AFTER INCORPORATING A MAJOR CHANGE TO THE AIRCRAFT. THERE IS NO INDICATION THAT THIS AIRCRAFT WAS IN COMPLIANCE WITH THIS RULE AFTER THE ENGINE MODEL WAS CHANGED