



# National Transportation Safety Board Aviation Accident Factual Report

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<b>Location:</b>	SALEM, OR	<b>Accident Number:</b>	SEA00LA079
<b>Date &amp; Time:</b>	05/01/2000, 0818 PDT	<b>Registration:</b>	N1143L
<b>Aircraft:</b>	MORTON CHRISTAVIA MARK I	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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On May 1, 2000, at 0818 Pacific daylight time, an experimental Morton Christavia Mark I kitplane, N1143L, registered to, and constructed and being flown by a private pilot, was substantially damaged during an in-flight collision with terrain following a loss of control while on short final to runway 34, at McNary Field, Salem, Oregon. The pilot was uninjured. Visual meteorological conditions existed, and no flight plan had been filed. The flight, which was a maintenance check flight, was to have been operated under 14CFR91, and originated from McNary Field at 0816.

According to tower personnel, the pilot radioed that the aircraft had a brand new engine installed and was on a maintenance check flight. Immediately after takeoff from runway 13, the pilot declared an emergency and was cleared to land on runway 34. The controller reported that on short final the aircraft suddenly pitched nose down and impacted terrain. The airport manager examined the impact site and reported that the aircraft impacted terrain 281 feet short of the threshold, skidded up on to the runway tearing out a runway threshold light, and then came to rest along the east edge of the runway 236 feet north of the threshold. Both main landing gear were torn off and slash marks characteristic of propeller strikes were observed in the soil immediately following the initial ground impact.

The pilot reported that he took off from Salem on the initial test flight for the aircraft and experienced a nose-heavy condition during climb out. He requested immediate clearance to return and land and turned back toward the field. He reported that he "needed power for control and while trying to make [a] wheel landing contacted [the] ground approximately 200 [feet] short of [the] runway end." During an interview with an inspector from the Federal Aviation Administration's Hillsboro Flight Standards District Office, the pilot reported that during his approach the aircraft was controllable as long as power was applied, and that on short final he instinctively reduced the power for landing and the nose of the aircraft abruptly pitched down. He was unable to recover control prior to the ground impact.

According to the center of gravity (CG) calculations provided by the pilot/builder, the aircraft's empty weight was 1,053 pounds and its arm was 11.0 inches. The arm for the forward pilot seat was 18 inches and the arm for the forward mounted fuel tank was -15 inches. The

documentation provided also indicated that the forward CG limit was 10.5 inches and the aft limit was 19.5 inches.

The CG at the time of the accident was calculated for the aircraft based on the previous information, plus a weight of 170 pounds for the pilot from his most recent medical examination, and the pilot's reported total of 16 gallons of aviation fuel (96 pounds) aboard at takeoff, as follows:

WEIGHT	ARM	MOMENT	ACFT WT	1,053 lb	11 inches	11,583	
inch-pounds	PILOT WT	170 lb	18 inches	3,060	inch-pounds	FUEL WT	96 lb
15 inches	-1,440	inch-pounds					-
TOTAL WT		1,319 lb	10 inches	13,203		inch-pounds	

The center of gravity under these conditions (10 inches) would lie one-half inch forward of the forward most CG limit.

In a telephone conversation with the pilot/builder, he reported that after having worked up the basic aircraft CG figures he then made two changes within the aircraft. The first was the replacement of the aircraft battery with a larger unit weighing 7 pounds more than the former battery. The battery was located forward of the cockpit. The second was the replacement of the engine exhaust assembly with a newer, stainless steel system which weighed 2 to 3 pounds more than the former. These two changes would have changed the aircraft CG, making the aircraft more nose heavy.

The pilot/builder reported on his submitted NTSB Form 6120.1/2 under the "Recommendation" section that "closer attention by [the] builder to COG due to heavier equipment being placed after [the] COG [was] figured - builder's failure to re-work COG figures."

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	70, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	04/11/2000
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	624 hours (Total, all aircraft), 624 hours (Pilot In Command, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	MORTON	Registration:	N1143L
Model/Series:	CHRISTAVIA MARK I CHRISTAVIA	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	2
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	1500 lbs
Time Since Last Inspection:	0 Hours	Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-235
Registered Owner:	MORTON, JOHN, W.	Rated Power:	108 hp
Operator:	MORTON, JOHN, W.	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	SLE, 210 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0756 PDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	12° C / 6° C
Precipitation and Obscuration:			
Departure Point:	(SLE)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	
Departure Time:	0816 PDT	Type of Airspace:	Class D

## Airport Information

Airport:	MCNARY FIELD (SLE)	Runway Surface Type:	Asphalt
Airport Elevation:	210 ft	Runway Surface Condition:	Dry
Runway Used:	34	IFR Approach:	None
Runway Length/Width:	5145 ft / 140 ft	VFR Approach/Landing:	Precautionary Landing; Traffic Pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	

## Administrative Information

<b>Investigator In Charge (IIC):</b>	STEVEN A MCCREARY
<b>Additional Participating Persons:</b>	PINAR CRANE; HILLSBORO, OR
<b>Investigation Docket:</b>	NTSB accident and incident docket serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .