

Air Safety Investigations Aircraft Incident/Accident Technical Report

Aircraft Incident/ Accident Information	Year: 1967	Make: Beechcraft	Model: V35
	Serial number: D-8581		Registration: N6245V
Location: Monroe, WI		Date: 08-27-19	Time: 1220 CDT
Aircraft Owner		Aircraft Operator	
Luc E. Van Herle [REDACTED] Rochester, MN 55906-8600		Same as Aircraft Owner	
Report Information			
Air Safety Investigator: Jennifer D. Barclay		Report #: ASI-19-CU-T	Report date: 06-23-20

Airframe

Impact Sequence and Airframe Structure

The aircraft impacted a mature cornfield, rotated 180-degrees about the vertical axis and slid backwards before coming to rest. The fuselage remained intact. The right flap was undamaged, the left flap was folded up and forward. Both wingtips sustained impact damage.



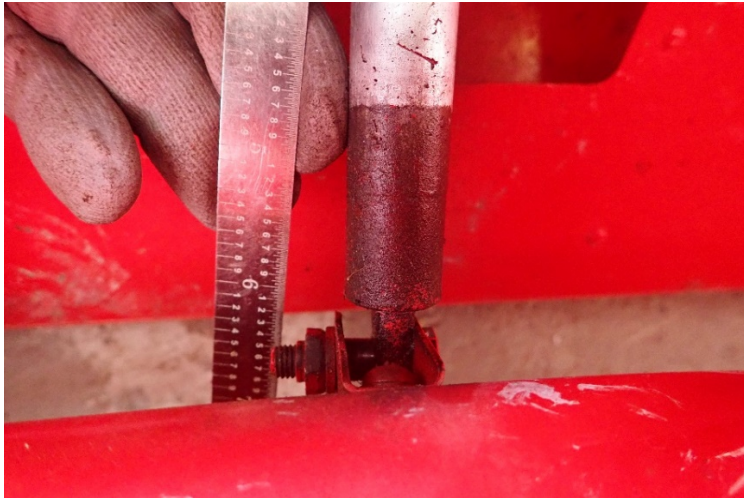
FAA photograph

Airframe Systems

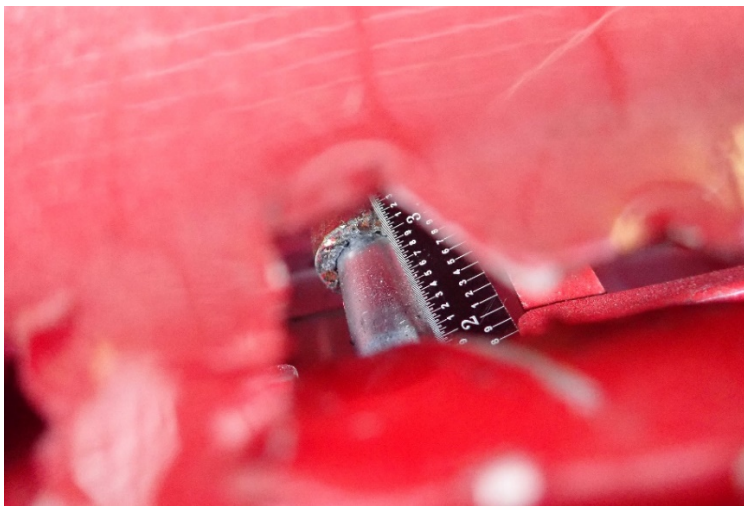
Flight Control System Information		
Control lock: Found loose in aircraft		
Flight Control Cable Continuity		
Ailerons: Established	Elevators: Established	Rudder: Established
Aileron tab: Not applicable	Elevator tab: Established	Rudder tab: Not applicable
Flap and Trim Positions		
Flaps:	Indicator: 0	Handle: Up
	Left actuator: 6.6" = outside normal limits	Right actuator: 3.2" ~ between 5-10°
Elevator trim:	Indicator: Between neutral and full nose down	
	Actuator: 0.9" ~ 5° tab UP	

Remarks:

Recovery personnel stated the flaps were fully extended prior to disassembling the aircraft.



Left flap actuator measurement, ASI-18-CU-081



Right flap actuator measurement, ASI-19-CU-075

Airframe Fuel System Condition, Controls, and Read Outs		
Fuel strainer screen: Clean		Fuel strainer bowl: Clean
Main fuel tank gauge:	Left: 0	Right: 0
Fuel selector handle: Left	Fuel selector valve: Left	Fuel boost pump: See below

Remarks:

A small amount of blue aviation fuel was drained from the fuel strainer which tested negative for water contamination using Sar-Gel.

The fuel boost pump switch was broken, and its position could not be determined.

Landing Gear System Condition and Controls			
Gear position:	Nose: Extended	Left: See below	Right: See below
Actuator position:	Nose: Extended	Left: Extended	Right: Extended
Landing gear selector:	Extended	Emer gear handle: Stowed	
Environmental System Controls and Read Outs			
Cabin heater:	Off	Cabin vent:	Off
Air conditioner:	Not applicable	Oxygen system:	Not applicable
		Oxygen quantity:	Not applicable
Icing System Information and Switches			
Certified into known icing? No		De-icing boots installed? No	
Pitot heat: See below		Stall heat: Not applicable	
De-ice:	Surface: Not applicable	Propeller: Not applicable	Windshield: Not applicable
Anti-ice:	Surface: Not applicable	Propeller: Not applicable	Windshield: Not applicable
ELT Information			
Installed? Yes	Manufacturer: Narco	Model: ELT-10	Type: (P) (AP) (AF)
Serial number: 40391	Battery due date: 04-20	Armed: No	Activated: Undetermined

Remarks:

During the examination of the recovered wreckage, the left and right main landing gear were observed in the retracted position. On-site photographs depict both gear extended.

The pitot heat switch was broken, and its position could not be determined.

Cabin and Equipment/Furnishings

Restraint System Information						
Seat	Occupied	Restraint type	Restraint used	Condition	Manufacturer	
1	Yes	3-Point	Yes	Intact	Non-OEM	
2	Yes	3-Point	Yes	Intact	Non-OEM	
3	No	2-Point	N/A	Intact	Non-OEM	
4	No	2-Point	N/A	Intact	Non-OEM	

Seat Condition Information						
Seat	Orientation	Feet intact	Back intact	Base intact	Rail intact	
1	Forward facing	Yes	Yes	Yes	Yes	
2	Forward facing	Yes	Yes	Yes	Yes	
3	Forward facing	Yes	Yes	Yes	Yes	
4	Forward facing	Yes	Yes	Yes	Yes	

Remarks:

None.

Instrument Panel

Navigation Instruments							
Digital primary instruments				Autopilot type: S-Tec			
Suction gage: 0		Magnetic compass: Loose in cabin			Clock: Not applicable		
	PFD 1	PFD 2		PFD 1	PFD 2		
Airspeed:	Digital	Digital	Turn coordinator (airplane):	Digital	Digital		
Attitude (pitch):	Digital	Digital	Turn coordinator (ball):	Digital	Digital		
Attitude (roll):	Digital	Digital	Heading indicator:	Digital	Digital		
Altimeter:	Digital	Digital	Heading "bug":	Digital	Digital		
Altimeter setting:	Digital	Digital	Vertical speed indicator:	Digital	Digital		
Stand-by:	Airspeed: 0		Attitude (pitch): 30° Up		Attitude (roll): 10° Right		
	Altimeter: 570'		Altimeter Setting: 29.78				
Communication and Navigation Radios							
Radio	Control	Active frequency	Stand-by frequency	Radio	Control	Active frequency	Stand-by frequency
Com 1:	Off	Digital	Digital	Com 2:	Off	Digital	Digital
Nav 1:	Off	Digital	Digital	Nav 2:	Off	Digital	Digital
Obs 1:	Digital			Obs 2:	122°		
Transponder:	Mode: Off		Active code: Digital		Stand-by code: Digital		
Electrical Switch Positions							
Master battery: Off		Master alternator: Off		Avionics 1: On			
Lighting Switch Positions							
Navigation: Off		Rotating Beacon: Off		Landing: See below			
Taxi: Undetermined		Strobe: On		Instrument: Off			
Wing Ice: Not applicable							
Ignition Switch Position							
Key: Off							

Remarks:

The aircraft was marked with two switches for the landing light, an UPPER and LOWER. The upper switch was in the OFF position; the lower switch was in the ON position.



Instrument panel, ASI-19-CU-026



Switch panel, ASI-19-CU-043

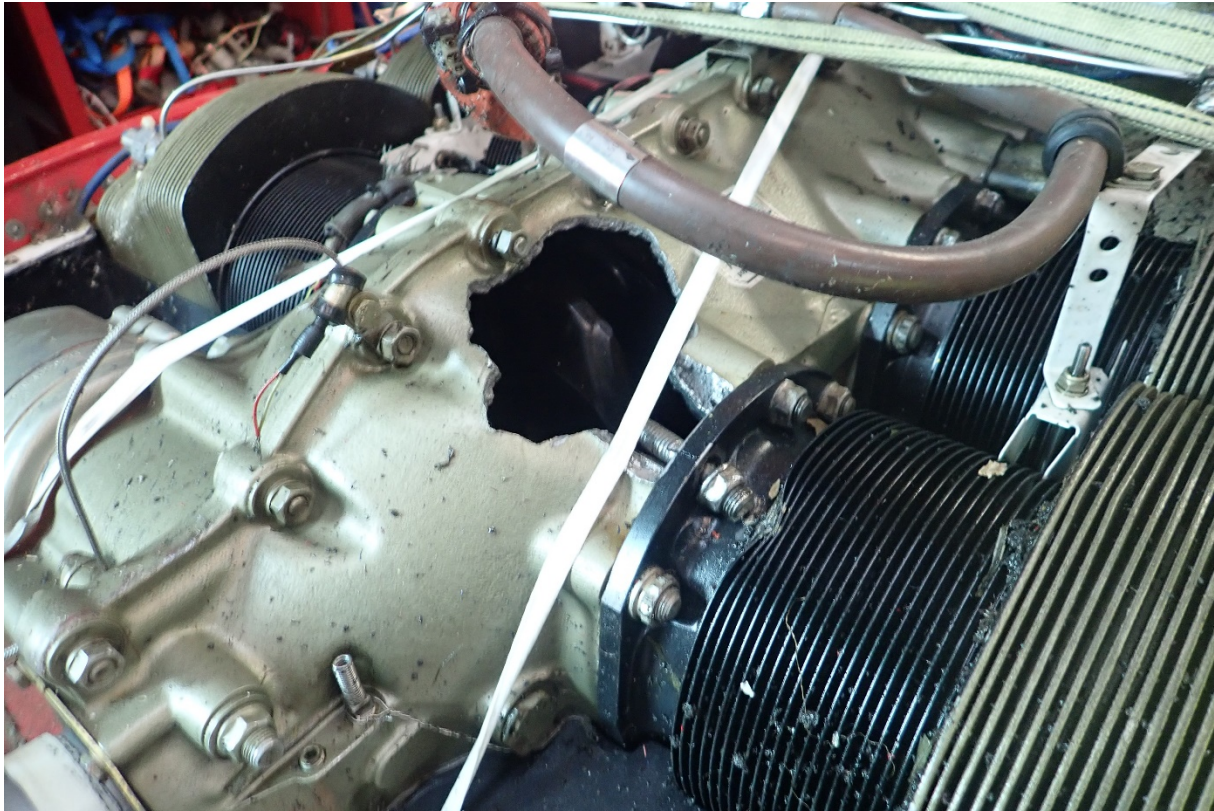
Powerplant Description

Engine Instruments						
Hour meter: Undt		Tach RPM: 0		Tach hours: 1318.8		
Oil press: 0		Oil temp: 0		EGT: Digital		
Fuel press: Digital		Fuel flow: Digital		Ammeter: 0		
Engine Control Positions						
	Cockpit	Engine		Cockpit	Engine	
Throttle:	3" out	Undt	Cowl flaps:	Closed	Undt	
Mixture:	1/4" out	Undt	Alternate air:	Closed	Undt	
Propeller:	1/4" out	Undt	Primer:	Not applicable		
Engine Condition						
Engine attached to airframe: No			Propeller attached to engine: Yes			
Engine compression: See below			Valve train continuity: Yes			
Vacuum pump drive shaft: Intact						
Engine Fuel System Condition						
Fuel pump drive shaft: Intact			Fuel control inlet screen: Clean			
Fuel distribution valve screen: Clean			Fuel injectors: See below			
Magnetos Condition						
Left magneto attached: Yes			Right magneto attached: Yes			
Left magneto spark: All leads			Right magneto spark: All leads			
Spark Plug Condition (per Champion Check-A-Plug Card)						
	1	2	3	4	5	6
Top	Carbon fouled	Normal	Normal	Normal	Normal	Normal
Bottom	See below	See below	See below	See below	See below	See below

Remarks:

The engine separated from the airframe; it was examined at Continental Aerospace Technologies on 11-19-19. The crankcase had a large hole in it above cylinder 6. Cylinder compression was not attained due to broken connecting rods in cylinders 5 and 6.

The fuel injectors were not examined. The bottom spark plugs all contained pieces of metallic debris. 4, 5 and 6 were oil fouled. The oil filter contained a significant amount of metal.



Hole in crankcase, ASI-19-CU-093



Cylinder 5 & 6 pistons and fractured connecting rods, ASI-19-CU-134

It was determined one of the piston pin plugs in cylinder 6 became loose during engine operation. The piston pin began to move unevenly within the piston pin boss and connecting rod eventually leading to failure of the connecting rod.



Comparison of piston pin plug from cylinder 6 to a normal plug, ASI-19-CU-136



Cylinder 6 piston pin boss, ASI-19-CU-137



Cylinder 6 connecting rod, piston pin & plug, ASI-19-CU-135

Propeller

The propeller remained attached to the engine. Blades A & B were bent slightly aft at the root with leading edge polishing. Blade C exhibited a slight S-bend.



Propeller, ASI-19-CU-014

Research & Testing

Oil analysis results were provided by the pilot for a period beginning 06-19-09. All samples were normal including the most recent sample taken 33.6 hours prior to the accident.

** CURRENT SAMPLE APPEARS NORMAL. Send next sample at normal interval. A.L.A.R.M. Meter: Normal Elevated High												
Sample Date: 6/26/2019 Analysis Date: 7/9/2019 Sample Number: P20 Cylinder Type: STEEL TSN/TSO: 1931.26 Oil Hours: 49 Filter Hours: 49 Oil Added: Filter Wt. (mgs): Flashpoint(deg. F): H2O (ppm): Total Acid No.:	*** OIL ANALYSIS RESULTS IN PARTS PER MILLION ***											
	Iron	Copper	Nickel	Chromium	Silver	Magn.	Alum.	Lead	Silicon	Titanium	Tin	Moly.
	29.4 (45.2)	1.3 (3.8)	1.7 (7.9)	0.4 (6.1)	N/A	N/A	2.9 (7.3)	3264 (5,089)	1.9 (5.1)	N/A	< 0.1 (0.7)	N/A
	*** FILTER ANALYSIS RESULTS ***											
	Material:	Stainless Steel	Carbon Steel	Alloy Steel	Bearing Alloy	Copper	Silver	Magn.	Alum.	Grit	Misc.	
	Amount:											
	Type:											
	Form:											
	Comments: ALL OIL VALUES SEEM FINE. WE WILL CONTINUE TO MONITOR THIS ENGINE WITH YOUR NEXT SAMPLE.											

Last oil analysis