

07/15/2022

CEN20LA352 (N198DM) – Airframe Examination Report

Onsite:

- The accident airplane is N198DM, a Beechcraft B200 (serial number BB-1198). The accident occurred on 08/20/2020 about 1350 central time.
- A Federal Aviation Administration aviation safety inspector and a chief air safety investigator from Textron Aviation responded to the accident site on 08/21/2020 in Rockford, Illinois. The accident site was a flat grass field at the Rockford International Airport (RFD) in Rockford, Illinois.
- The wreckage was destroyed from the impact sequence and a postimpact fire.
- All the airplane's major structural pieces were found at the accident site.
- Based on security video footage at RFD, the airplane's left wing tip contacted the ground with the airplane in an almost nose level, left wing straight down attitude. The airplane then cartwheeled and separated into multiple pieces before coming to rest.

Flight Control System Information		
Control lock: Undetermined		
Flight Control Cable Continuity		
Ailerons: See below	Elevators: See below	Rudder: See below
Aileron tab: Undetermined	Elevator tab: Undetermined	Rudder tab: Undetermined
Flap and Trim Positions		
Flaps:	Indicator: Undetermined	Handle: Undetermined
	Left outboard actuator: Retracted	Left inboard actuator: Undetermined
	Right outboard actuator: Retracted	Right inboard actuator: Undetermined
Elevator trim:	Indicator: Unknown due to damage	
	Left actuator: 1.7" - See below	Right actuator: 1.7" - See below
Rudder trim:	Indicator: Unknown due to damage	Actuator: 1.4" - outside of normal range
Aileron trim:	Indicator: Unknown due to damage	Actuator: 1.0" - outside of normal range

- The rudder cables separated from the aft bellcrank during the impact sequence.
- The aileron cables were attached to their respective bellcranks in the wings.
- The condition of the wreckage precluded a check of the remaining portions of the aileron and rudder cables.
- The elevator trim tab was between 5° and 10° tab down.

Airframe Fuel System Condition, Controls, and Read Outs					
Fuel filter screen:		Left: Undetermined		Right: Clean	
Fuel strainer bowl:		Left: Undetermined		Right: Clean	
Main fuel tank gauge:		Left: Undetermined		Right: Undetermined	
Firewall shut off valve:		Left: Open		Right: Open	
Standby pump:	Left: Undetermined		Aux transfer override:	Left: Undetermined	
	Right: Undetermined			Right: Auto	
Crossfeed flow: Off					

- The fuel control panel was damaged by the postimpact fire.
- The fuel system was destroyed.

Landing Gear System Condition and Controls			
Gear position:	Nose: Retracted	Left: Retracted	Right: Retracted
Actuator position:	Nose: Retracted	Left: Retracted	Right: Retracted
Landing gear selector: Retracted		Aux gear control: Undetermined	
Environmental System Controls and Read Outs			
Defrost: Undetermined	Cabin heater: Undetermined		Temp control: Undetermined
Fan speed: Undetermined	Cabin bleed air:	Left: Undetermined	Right: Undetermined
Air conditioner:	Blower: Undetermined	Mode: Undetermined	Temperature knob: Undetermined
Oxygen quantity: Undetermined		Oxygen control knob: Undetermined	
Pressurization System Controls and Read Outs			
Cabin altitude needle: Undetermined		Difference pressure: Undetermined	
Cabin VSI: Undetermined		Pressurization: Undetermined	
Cabin rate knob: Undetermined		Cabin altitude knob: Undetermined	
Cabin vent: Undetermined		Source selector knob: Undetermined	
Icing System Information, Switches, and Read Outs			
Certified into known icing? Yes		Type of Ice Protection Installed? Boots with heated windshield	
Pitot/Static heat:	Left: Off	Right: Off	Stall vane heat: Off
Prop Auto Ice: Undetermined		Prop Manual Ice: Undetermined	
Windshield Anti-Ice:	Pilot: Undetermined		Copilot: Undetermined
Ice Vane Manual Extension:	Left: Undetermined		Right: Undetermined
ELT Information			
Installed? Yes	Manufacturer: Undetermined		Type: Undetermined
Serial number: Undt	Battery due date: Undt		Armed: Yes
			Activated: Undetermined

- The ELT was found separated from its mount.

Restraint System Information						
Seat	Occupied	Restraint type	Restraint used	Condition	Manufacturer	
1	Undt	5-Point	Undt	Consumed by fire	Undetermined	
2	Undt	5-Point	Undt	Consumed by fire	Undetermined	
3	No	Undetermined	N/A	Undetermined	Undetermined	
4	No	Undetermined	N/A	Undetermined	Undetermined	
5	No	Undetermined	N/A	Undetermined	Undetermined	
6	No	Undetermined	N/A	Undetermined	Undetermined	
7	No	Undetermined	N/A	Undetermined	Undetermined	
8	No	Undetermined	N/A	Undetermined	Undetermined	
9	No	Undetermined	N/A	Undetermined	Undetermined	

Seat Condition Information					
Seat	Orientation	Feet intact	Back intact	Base intact	Rail intact
1	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
2	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
3	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
4	Side facing	Undetermined	Undetermined	Undetermined	Undetermined
5	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
6	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
7	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
8	Forward facing	Undetermined	Undetermined	Undetermined	Undetermined
9	Side facing	Undetermined	Undetermined	Undetermined	Undetermined

- The postimpact fire consumed a majority of the cabin.
- According to the fire chief at the accident site, the pilot was found in seat 2 facing sideways to the left.
- Seat 4 was a two-place, side facing coach.
- Seat 9 was a side facing toilet.

Navigation Instruments							
Analog primary instruments				Autopilot type: Undetermined			
Instrument air: Undt			Magnetic compass: Undt			Clock: Undt	
	Left side		Right side		Left side		Right side
Airspeed:	Undt		0	Turn coordinator (airplane):	Undt		Undt
Attitude (pitch):	Undt		Undt	Turn coordinator (ball):	Undt		Undt
Attitude (roll):	Undt		Undt	Heading indicator:	Undt		Undt
Altimeter:	Undt		Undt	Heading "bug":	Undt		Undt
Altimeter setting:	Undt		Undt	Vertical speed indicator:	Undt		Undt
Communication and Navigation Radios							
Radio	Control	Active frequency	Stand-by frequency	Radio	Control	Active frequency	Stand-by frequency
Com 1:	Undt	Undt	Undt	Com 2:	Undt	Undt	Undt
Nav 1:	Undt	Undt	Undt	Nav 2:	Undt	Undt	Undt
Obs 1:	Undt			Obs 2:	Undt		
Transponder:	Mode: Undt		Active code: Undt		Stand-by code: Undt		
Engine Starter and Ignition Switch Positions							
Ignition and engine start:	Left: Undetermined			Right: Undetermined			
Eng Auto Ignition:	Left: Off			Right: Off			
Electrical Switch Positions							
Left gen: Undetermined		Battery: Off			Right gen: Undetermined		
Avionics bus:	Undetermined				Inverter switch: Inv 1		
Propeller Switch Positions							
Governor test: Undetermined				Auto feather: Arm			
Lighting Switch Positions							
L Landing: Off		R Landing: Off			Ice: Off		
Nav: Off				Recog: Off			
Beacon: Undetermined				Strobe: Undetermined			

- The postimpact fire consumed a majority of the instrument and switch panels.

Engine Instruments					
Hour meter: Undetermined			Voltmeter: Undetermined		
	Left Engine	Right Engine		Left Engine	Right Engine
Torquemeter:	250	1300	Fuel flow:	0	0
Np RPM needle:	0	0	Oil press:	Damaged	Damaged
ITT:	300	200	Oil temp:	Damaged	Damaged
Ng RPM:	Off scale	0	Ammeter:	Undetermined	Undetermined
Left Engine Control Positions					
	Cockpit	Engine		Cockpit	Engine
Power:	Forward	Undetermined	Cowl flaps:	Not applicable	Not applicable
Propeller:	Forward	Undetermined	Inertial sep:	Undetermined	Undetermined
Fuel control:	Near low idle	Undetermined			
Right Engine Control Positions					
	Cockpit	Engine		Cockpit	Engine
Power:	Forward	Undetermined	Cowl flaps:	Not applicable	Not applicable
Propeller:	Forward	Undetermined	Inertial sep:	Undetermined	Undetermined
Fuel control:	High idle	Undetermined			
Fire Protection and Propeller Sync Switch Positions					
Covered fire switch:	Left engine: Undetermined		Right engine: Undetermined		
Propeller sync: Undetermined					
Engine Condition					
	Left engine		Right engine		
Engine attached to airframe:	No		No		
Propeller attached to engine:	See below		See below		

- Both engines were found separated from the airframe. The propeller had separated from engine "A". Engine "B" and propeller "B" remained attached.
- The center pedestal was fire damaged and covered in debris which precluded determining the position of the rudder boost switch and viewing the engine control lever position markings.
- When compared to an exemplar quadrant, the throttle levers appeared to be full forward, the propeller levers appeared to be at the rear detent or in the feather range, and the condition levers were split with the left condition lever appearing to be near low idle and the right condition lever near high idle.
- The auto-feather switch was found in the ARM position.
- Both propeller domes separated from their propellers during the impact sequence.
- Two blades on propeller "A" were rotated trailing edge forward. One of the blades exhibited s-bending while the other blade was bent aft at midspan. The other two blades were rotated forward. Both blades were bent aft at midspan.
- The blades of propeller "B" were all bent forward at various angles at mid span. Three of the blades were near the feathered position while one of the blades was rotated 180° aft.

Follow-up:

On 07/19/2021 and 07/20/2021, the airframe from N198DM was laid out at AMF Aviation, LLC in Springfield, Tennessee. The area of the airframe that were laid out was from the front of the cockpit to the mid-fuselage (where the couches in the cabin terminate) in the hangar. The remaining parts of the airframe were examined in the storage yard. The wreckage was destroyed from the impact sequence and the postimpact fire. Present was the NTSB IIC and two air safety investigators from Textron Aviation.

- Flight control continuity was established for the airframe.
- The cockpit was destroyed from the impact sequence and the postimpact fire.
- The flap handle was documented and was found in the full up position.
- The cockpit trim knobs were documented:
 - A. The rudder trim knob was found 4 units to the left.
 - B. The aileron trim knob was found 6 units to the right.
- The rudder boost switch (a gated switch) was found in the off position.
- The throttle quadrant was destroyed from the impact sequence and the postimpact fire.
- The airframe, engine, and propeller maintenance records were examined and documented.