Cessna Aircraft Company
Aircraft Incident/Accident Technical Report

Aircraft and Incident/Accident Information			
Year: 1972	Model: 150L	Serial number: 15074051	Registration: N18699
Location: Anchorage, AK		Date: 08-24-13	Time: 1537 AKDT

Aircraft owner	Aircraft operator
Robert W Lilly [redacted] Big Lake, AK 99652-1224	Same as Aircraft Owner

Report Information		
Senior Air Safety Investigator: Andrew L. Hall	Report #: 13-CYMP-T	Report date: 10-25-13

Airframe

Impact Sequence and Airframe Structure

The aircraft impacted the ground in a steep nose down attitude. The right wing outboard end then contacted the ground and the aircraft bounced to the south approximately 12 feet coming to rest on the nose and right wing. The aft fuselage was observed displaced down and to the right.

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		
Flap actuator: Up	Flap indicator: Undt	Flap switch: down
Elevator trim:	Actuator: 1.6"	Indicator: Unknown due to damage

Remarks:

The cockpit flap control switch was observed in the down position. The switch is a three-position switch; center off, momentary down spring loaded to center, and up. The switch fixed in the down position is not a normal position.

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

Remarks:

The firewall fuel strainer was removed. Fuel was observed within the bowl with a slight amount of debris. Water finding paste was used to test the fuel for water with positive results for a slight amount of water in the bowl.

The fuel lines from both the left and right fuel tank outlet ports were intact down their respective aft door post to the fuel selector valve. The fuel selector valve was observed in the “ON” position. The fuel vent line from the right fuel tank to the left fuel tank was observed separated and exhibited damage consistent with impact. The vent line from the left fuel tank to the vent was intact, undamaged, and free of debris. Both the left and right fuel caps were vented and the seals were intact and pliable.

The right fuel tank was removed from the wing structure and appeared intact and not breached. The fuel tank contained approximately 1.8 gallons of fuel. Water finding paste was used to test the fuel for water with negative results. The left wing fuel tank was removed from the wing and appeared intact and not breached. The fuel tank contained approximately 1 quart of fuel. Water finding paste was used to test the fuel for water with negative results. The left wing fuel tank is equipped with a vent line drain on the forward outboard area of the tank.

Landing Gear System Condition and Controls			
Gear position:	Nose: Fixed	Left: Fixed	Right: Fixed

Environmental System Controls and Read Outs		
Cabin heater: Cold	Cabin vent: Closed	Defrost: Undt
Air conditioner: N/A	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: Undetermined		Stall heat: Not applicable
Anti-ice:	Surface: Not applicable	Propeller: Not applicable	Windshield: Not applicable

ELT Information			
Installed? Yes	Manufacturer: Marco	Model: ELT 10	Type:
Serial number: 33312	Battery due date: Dec 13	Armed: Yes	Activated: Yes

Remarks:
None

Cabin and Equipment/Furnishings

Restraint System Information						
Seat	Occupied	Restraint type	Restraint used	Condition	Manufacturer	2nd seat stop
1	Yes	3-Point	Yes	Cut	Cessna	No
2	Yes	3-Point	Yes	Intact	Cessna	No

Seat Condition Information					
Seat	Orientation	Feet intact	Back intact	Base intact	Rail intact
1	Forward facing	Undetermined	Yes	Yes	Partially
2	Forward facing	Partially	Yes	Yes	Partially

Remarks:
The right seat was removed by the first responders.

Instrument Panel

Navigation Instruments					
Analog primary instruments			Autopilot type: None		
Suction gage: 0			Magnetic compass: Undetermined		Clock: Undt
	Left side			Left side	
Airspeed:	68		Turn coordinator (airplane):	Left low slightly	
Attitude (pitch):	Level		Turn coordinator (ball):	Left	
Attitude (roll):	Slight left low		Heading indicator:	350	
Altimeter:	1,500'		Heading “bug”:	N/A	
Altimeter setting:	29.82		Vertical speed indicator:	0	

Communication and Navigation Radios							
Radio	Control	Active frequency	Stand-by frequency	Radio	Control	Active frequency	Stand-by frequency
Com 1:	Undt	Undetermined	Undetermined	Com 2:	Undt	Undetermined	Undetermined
Nav 1:	Undt	Undetermined	Undetermined	Nav 2:	Undt	Undetermined	Undetermined
Obs 1:	Undetermined			Obs 2:	Undetermined		
Transponder:	Mode: Undt			Active code: Undetermined		Stand-by code: Undetermined	

Electrical Switch Positions		
Master battery: Undetermined	Master alternator: Undetermined	Avionics 1: Undetermined

Lighting Switch Positions		
Navigation: Undetermined	Rotating Beacon: Undetermined	Landing: Undetermined
Taxi: Undetermined	Strobe: Undetermined	Instrument: Undetermined

Ignition Switch Position	
Both	

Remarks:
None

Powerplant Description

Engine Instruments							
Hour meter:	4,140.3	Tach rpm:	0	Tach hours:	6,232.8	Manifold press:	N/A
Oil press:	R of arc	Oil temp:	Full left	EGT:	N/A	CHT:	N/A
Fuel press:	N/A	Fuel flow:	N/A	Ammeter:	0	Voltmeter:	Undt

Engine Control Positions					
	Cockpit	Engine		Cockpit	Engine
Throttle:	Full out	Undetermined	Cowl flaps:	N/A	N/A
Mixture:	Rich	Undetermined	Carburetor heat:	Cold	Cold
Propeller:	N/A	N/A	Primer:	In not locked	

Engine Condition			
Engine attached to airframe:	Partially	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:	Not applicable	Carburetor inlet screen:	Clean

Magneto 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		
Top	Worn	Normal	Normal	Normal		
Bottom	Oil fouled	Normal	Oil fouled	Normal		

Remarks:

The investigative team examined the engine on 08-27-13 at Alaska Aircraft Engines. The vacuum pump was observed separated from its mount pad, two of the four engine mounts were damaged, and the carburetor was separated from the induction intake manifold. The oil sump was compressed upwards and breached. All four cylinders remained attached to the crankcase. Evidence of fire damage was observed on the carburetor and cylinder 1 and 3 (1/3) side of the engine. The induction system was impact damaged. The exhaust (left and right) were impact damaged and free of any debris within the flow path.

The ignition harness was impact damaged. The top sparkplugs, Champion REM 38E's, were removed. Both the left and right magnetos were intact and exhibited slight thermal damage.

The carburetor bowl was observed separated and there was extensive fire damage. The venturi was intact and in place. The mixture arm was impact damaged and moved slightly by hand. The throttle arm was impact damaged and moved slightly by hand. The metal floats were intact, however, one was separated. A significant amount of a foreign substance, consistent with fire extinguishing material, was observed throughout the carburetor bowl, intake filter mount, and brackets. The carburetor heat lever

partially moved by hand but remained connected to the air box. The carburetor inlet screen was removed and was free of debris.

All the accessories and camshaft gear were removed. The accessory gears were oil coated and intact. The engine partially rotated by hand with a degree of stiffness. The accessory case was intact and fire damaged. The oil pump rotated freely by hand. The oil pickup screen was secure and impact damaged.

All four cylinders were removed from the crankcase. All of the valves were observed in place and unremarkable. All four pistons remained attached to their respective connecting rod via the piston wrist pin. All four pistons were unremarkable. All four cylinders were unremarkable. All intake and exhaust valve rocker arms were unremarkable.

Internal examination of the engine revealed that one of the thrust bearings was found free within the engine.

The crankcase bolts were loosened and the crankshaft rotated freely. The crankshaft was intact, however, the oil slinger ring was separated throughout its circumference. All four connecting rods remained attached and moved freely. The 1/3 side crankcase was intact. The front, middle, and aft bearings appeared to be slightly shifted aft. The forward thrust bearing saddle exhibited impact damage with aft moving striations. The 2/4 side crankcase was intact. The forward, middle, and aft bearings were intact and shifted slightly aft. Damage was observed to the forward bearing saddle and the thrust bearing saddle.

All lifters were intact and undamaged. The camshaft was intact and undamaged. All cam lobes were unremarkable.

Damage to the front bearings, thrust bearings, crankshaft oil slinger ring, and the middle and aft bearing shift was found consistent with impact damage.

Propeller

Chordwise striations were observed on the inner half of each blade. Both propeller blades were slightly bent aft.

Research & Testing

None