

Cessna Aircraft Company Aircraft Incident/Accident Technical Report

Aircraft and Incident/Accident Information			
Year: 1977	Model: 182Q	Serial number: 18265584	Registration: N182PE
Location: Littleton, NC		Date: 06-27-14	Time: 0944 EDT
Aircraft Owner		Aircraft Operator	
Poe Incorporated 1300 Old Logan Rd Manakin Sabot, VA 23103-2724		Same as Aircraft Owner	
Report Information			
Senior Air Safety Investigator: Henry J. Soderlund		Report #: ASI-14-BC-T	Report date: 09-30-14

Airframe

Impact Sequence and Airframe Structure

Based on 78 foot long ground scars, the aircraft contacted an open field in a nose up, wings level attitude. The aircraft's nose then contacted the soft terrain and the aircraft inverted coming to rest facing the initial ground contact point. The outboard portion of the right wing was bent down and the bottom of the engine cowling was pushed up into the engine compartment. The top of the vertical stabilizer was crushed down where it contacted terrain. Vertical wrinkles were present on the sides of the empennage.



On Site ASI-14-BC-001



On Site ASI-14-BC-008



On Site ASI-14-BC-015

Airframe Systems

Flight Control System Information		
Control lock: Stowed		
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: Retracted	Flap indicator: Retracted	Flap handle: Retraced
Elevator trim:	Actuator: 1" - 5° to 10° tab down	Indicator: Between neutral and full nose up
Rudder trim:	Actuator: Not applicable	Indicator: Between neutral and full left

Remarks:

None.

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

Remarks:

An undetermined amount of fuel remained in the aircraft's fuel tanks.

Landing Gear System Condition and Controls			
Gear position:	Nose: Fixed	Left: Fixed	Right: Fixed
Actuator position:	Nose: Not applicable	Left: Not applicable	Right: Not applicable
Landing gear selector: Not applicable			
Environmental System Controls and Read Outs			
Cabin heater: Off	Cabin vent: Open	Defrost: Open	
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: Undetermined		Stall heat: Not applicable	
Anti-ice:	Surface: Not applicable	Propeller: Not applicable	Windshield: Not applicable
ELT Information			
Installed? Yes	Manufacturer: Leigh Systems, Inc.	Model: Sharc 7	Type: AF/AP/P
Serial number: 133870	Battery due date: 06-16	Armed: Yes	Activated: Undetermined

Remarks:

None.

Cabin and Equipment/Furnishings

Restraint System Information						
Seat	Occupied	Restraint type	Restraint used	Condition	Manufacturer	2nd seat stop
1	Yes	3-Point	See below	Lap belt cut	Cessna	Yes
2	No	3-Point	N/A	Intact	Undetermined	No
3	No	2-Point	N/A	Intact	Undetermined	Not applicable
4	No	2-Point	N/A	Intact	Undetermined	Not applicable

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:

The seat 1 shoulder harness attachment rivet/post was missing its bushing.



On Site ASI-14-BC-060

Instrument Panel

Navigation Instruments							
Analog primary instruments				Autopilot type: King			
Suction gage: 0			Magnetic compass: 070			Clock: Digital	
	Left side				Left side		
Airspeed:	0			Turn coordinator (airplane):	Center		
Attitude (pitch):	15°			Turn coordinator (ball):	Left		
Attitude (roll):	Level			Heading indicator:	210°		
Altimeter:	0			Heading "bug":	070°		
Altimeter setting:	30.04			Vertical speed indicator:	50 FPM down		
Communication and Navigation Radios							
Radio	Control	Active frequency	Stand-by frequency	Radio	Control	Active frequency	Stand-by frequency
Com 1:	Undt	Digital	Digital	Com 2:	Undt	Digital	Digital
Nav 1:	Undt	Digital	Digital	Nav 2:	Undt	Digital	Digital
Obs 1:	190°			Obs 2:	225°		
Transponder:	Mode: Digital		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: On			Landing: Off	
Taxi: Off			Strobe: Off			Instrument: Off	
Ignition Switch Position							
Key: Off							

Remarks:

The master, alternator, and key switches were turned off the by FAA-IIC. The key switch was in the "both" position before it was turned off. The autopilot was in "NAV" mode. The ADF was set to a frequency of 1240.

Powerplant Description

Engine Instruments							
Hour meter:	N/A	Tach RPM:	0	Tach hours:	2908.8	Manifold press:	30.00
Oil press:	20	Oil temp:	120	EGT:	0	CHT:	Max
Fuel press:	N/A	Fuel flow:	N/A	Ammeter:	0	Voltmeter:	N/A
Engine Control Positions							
	Cockpit	Engine		Cockpit	Engine		
Throttle:	Full forward	Undetermined	Cowl flaps:	Open	Open		
Mixture:	Closed	Undetermined	Carburetor heat:	Off	Off		
Propeller:	Full forward	Undetermined	Primer:	Locked			
Engine Condition							
Engine attached to airframe:	Yes	Propeller attached to engine:	Yes				
Engine compression:	Undetermined	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	5	6	
Top	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Bottom	Normal	Normal	Normal	Normal	Normal	Normal	Normal

Remarks:

Engine control cable continuity for the mixture and propeller controls was confirmed. Continuity for the throttle and carburetor heat could not be confirmed due to cable binding from the engine shifting.

Multiple holes were observed in the crankcase. The rocker box covers on cylinders 4 and 6 were both missing screws. Multiple screws on all of the rocker box covers were loose.

The engine was disassembled after the aircraft was recovered. Metal particles and oil were observed in the oil sump. The connecting rods for cylinders 1, 2 and 4, were separated from the crankshaft and attached to their pistons. A rubbery type material was found on the crankcase halves when the engine was split. The material was also present on the through bolts. Crankshaft journals 1 and 2 exhibited discoloration similar to an over temperature signature due to a lack of lubrication. The oil port for main bearing 2 was damaged and the oil port was closed off. The bearing had spread outside of the bearing saddle. A number of other bearings exhibited heat discoloration.



On Site ASI-14-BC-160.jpg



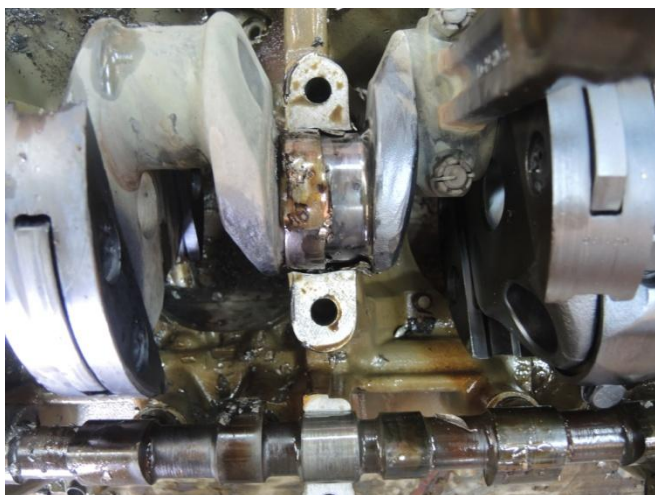
On Site ASI-14-BC-161.jpg



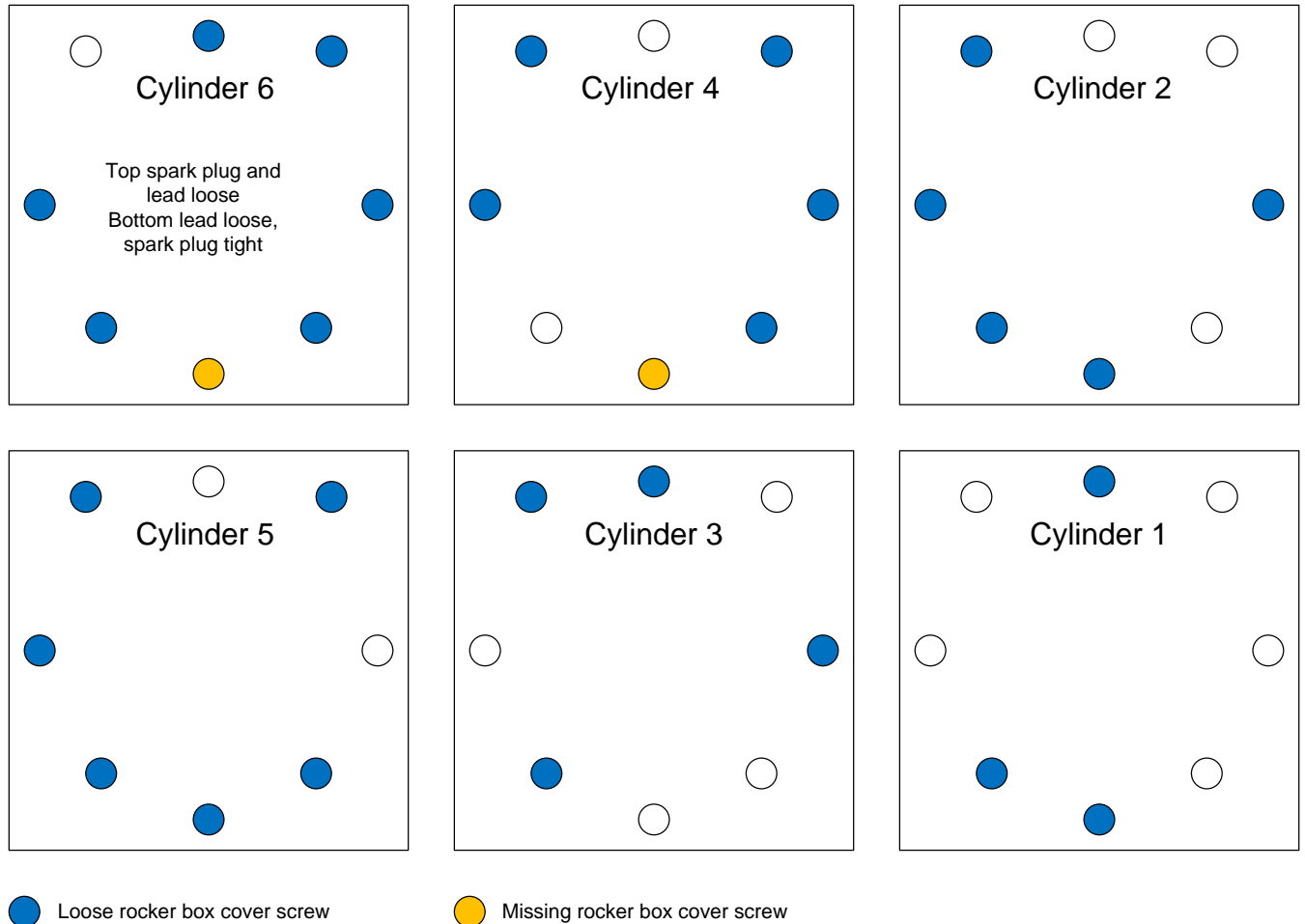
On Site ASI-14-BC-170.jpg



Wreckage review ASI-14-BC-105.jpg



Wreckage review ASI-14-BC-114.jpg



Drawing depicting loose and missing rocker box cover screws as found at the accident site.

Propeller

The three propeller blades remained in the hub. One blade appeared undamaged while the other two blades exhibited slight bending.

Research & Testing

The engine crankcase and crankshaft was sent to the NTSB laboratory. At the time this report was completed the results of their examination had not been released.

According to Continental service information, no unapproved substances are to be placed on the crankcase parting surfaces during assembly due to the possibility of loss of torque.