



National Transportation Safety Board Aviation Accident Factual Report

Location:	Sacramento, CA	Accident Number:	WPR17LA034
Date & Time:	12/04/2016, 2100 PST	Registration:	N916PD
Aircraft:	BELL OH 58A	Aircraft Damage:	Substantial
Defining Event:	Aircraft structural failure	Injuries:	2 None
Flight Conducted Under:	Public Aircraft		

On December 4, 2016, about 2100 Pacific standard time, a Bell OH-58A helicopter, N916PD, sustained substantial damage to the vertical stabilizer during a flight near, Sacramento, California. The pilot and observer were not injured. The helicopter was operated as a public flight.

The pilot and observer reported noticing the vertical stabilizer damage after the completion of a routine patrol flight, during the post-flight inspection. The vertical stabilizer was bent downwards away from the tail rotor. The pilot further reported that the flight was flown at a cruise altitude of 600-700 ft above ground level, and no turbulence or any other unusual flying conditions were encountered.

The helicopter's damaged vertical stabilizer was removed and shipped to the National Transportation Safety Board (NTSB) Materials Laboratory for examination. The data plate of the vertical stabilizer showed part number (P/N) 206-022-113-3. The examination revealed that the inboard side of the vertical stabilizer, inboard skin, was fractured above the attachment holes. The upper portion of the fin remained partially attached by the outboard skin. A drilled hole was located about 1 ¼ inch from the edge of the inboard skin. The skin fracture aft of the drilled hole intersected the lower side of the hole at a tangent and the fracture forward of the hole extended radially outward from the hole.

Examination of the lower surface using a scanning electron microscope revealed striations consistent with fatigue. The fatigue features in the skin emanated from a primary origin located at the trailing edge of the skin. A secondary origin was located at the forward side of the drill hole and the fatigue features extended to about 2 ½ inches of the inboard skin.

Cracks in the inboard, near the attachment holes of the vertical stabilizers installed on OH-58 Helicopters were a known issue to the U.S. Army. According to U.S. Army Aviation and Missile Command Technical Manual TM 55-1520-228-PMD, the daily inspection checklist included an inspection of the inboard of the vertical stabilizer for cracks originating from the four attachment inserts. The inspection was implemented in 2003 via Aviation Safety Action Message (ASAM) OH-58-03-ASAM-6, after a service failure of the vertical stabilizer. The

ASAM applied to fin assembly P/N 206-022-113-1 and P/N 5790032-501. Additionally, the ASAM applied to fin assembly P/N 206-022-113-3.

Alert Service Bulletin (ASB) 206-26 published in December 18, 1972, addressed the cracks in the inboard skin near the attachment bolts of vertical stabilizers installed on Bell Helicopter model 206 and TH-57A helicopters. The ASB applied to vertical fin P/Ns 206-020-113-5, -7 and -9. According, to a Bell representative, the vertical stabilizer part numbers mentioned in the alert were very similar to the vertical stabilizer installed on the OH-58 helicopter, but the part numbers were different due to minor differences. The ASB 206-26, required visual inspections of the inboard skin for cracks in the attachment area immediately upon receipt and subsequently at 25-hour intervals. ASB 206-26 was superseded by ASB 206-01-731, dated January 9, 1973, which affected the same helicopter but required the first inspection within 25 hours after receipt and the subsequent inspections at 25-hour intervals.

Accomplishment of Service Letter (SL) 206-203, terminated the requirement for the repetitive inspections for crack in the inboard skin of vertical stabilizer, required by the ASB. In SL 206-203, dated December 18, 1972, vertical stabilizers were modified or repaired by installing a doubler on the interior skin in the area of the attachment holes. Cracks in the vertical stabilizer longer than 3 1/2 inches were considered unrepairable and unairworthy.

Since the helicopter was acquired from the United States military as surplus, the operator would inherit the type certificate holder responsibilities. Therefore, the operator would be responsible for the engineering, continued airworthiness, and other associated safety information pertaining to the helicopter. The operator was unaware that the maintenance vendor that provided support to the helicopter, was not aware of a past U. S. Army ASAM, and therefore, was not accomplishing daily inspections of the vertical fin attachment area for cracks.

Pilot Information

Certificate:	Commercial	Age:	37, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	06/14/2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	10/24/2016
Flight Time:	(Estimated) 2310 hours (Total, all aircraft), 1963 hours (Total, this make and model), 2200 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	Registration:	N916PD
Model/Series:	OH 58A NO SERIES	Aircraft Category:	Helicopter
Year of Manufacture:	1971	Amateur Built:	No
Airworthiness Certificate:		Serial Number:	71-20440
Landing Gear Type:	High Skid;	Seats:	4
Date/Type of Last Inspection:	11/23/2016, 100 Hour	Certified Max Gross Wt.:	3200 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:	15662.3 Hours at time of accident	Engine Manufacturer:	Rolls Royce
ELT:		Engine Model/Series:	T63-A-720
Registered Owner:	CITY OF SACRAMENTO	Rated Power:	420 hp
Operator:	CITY OF SACRAMENTO	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	KSAC, 25 ft msl	Distance from Accident Site:	11 Nautical Miles
Observation Time:	2053 PST	Direction from Accident Site:	205°
Lowest Cloud Condition:	Clear	Visibility	5 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.11 inches Hg	Temperature/Dew Point:	7°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Sacramento, CA (MCC)	Type of Flight Plan Filed:	None
Destination:	Sacramento, CA (MCC)	Type of Clearance:	VFR
Departure Time:	1920 PST	Type of Airspace:	Class E

Airport Information

Airport:	MC CLELLAN AIRFIELD (MCC)	Runway Surface Type:	Concrete
Airport Elevation:	76 ft	Runway Surface Condition:	Dry
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Straight-in

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	38.667778, -121.400556 (est)

Administrative Information

Investigator In Charge (IIC):	Albert P Nixon
Additional Participating Persons:	Kenneth Meyer; Federal Aviation Administration; Sacramento, CA Mark Stuntzner; Bell Flight Safety; Ft. Worth, TX
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=94469