Aviation Investigation Final Report

Location:	Oglesby, Texas	**Accident Number:**	CEN14LA174
Date & Time:	March 30, 2014, 11:30 Local	**Registration:**	N147WT
Aircraft:	Bell 47G 3B	**Aircraft Damage:**	Substantial
Defining Event:	Powerplant sys/comp malf/fail	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Aerial observation		

Analysis

The pilot reported that, during an en route climb in the helicopter, he increased the throttle and noticed a "slight resistance." Shortly after, the throttle freed up, but it was ineffective; there was no corresponding change in engine power when he moved the throttle control. Both the engine and rotor rpm were indicating in the green, but they began to decrease when he adjusted the collective. When he stopped moving the collective, the engine and rotor rpm increased rapidly and continued to accelerate. The pilot initiated an autorotation and cut off the fuel. The pilot then increased the collective, and the helicopter yawed left, touched down, and rolled over to the right, which resulted in the tailboom separating.

A postaccident examination of the helicopter revealed that the throttle control adapter had disconnected from the serrated shaft on the carburetor. The retention screws on the throttle control adapter were not safety wired to the carburetor idle stop lever as required in the helicopter manufacturer's maintenance manual. A review of maintenance records revealed that the carburetor was removed and replaced about 1 1/2 years before the accident and that the helicopter's last annual inspection was conducted about 4 1/4 months before the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Maintenance personnel's failure to safety wire the throttle control adapter per maintenance instructions when the carburetor was replaced and to detect that the adapter was not safety wired during the annual inspection, which resulted in the throttle control disconnecting and subsequent loss of engine control.

Findings

Personnel issues	Installation - Maintenance personnel
Aircraft	(general) - Incorrect service/maintenance
Aircraft	(general) - Incorrect service/maintenance
Personnel issues	Scheduled/routine inspection - Maintenance personnel

Factual Information

History of Flight

Maneuvering-low-alt flying	Powerplant sys/comp malf/fail (Defining event)
Autorotation	Loss of control in flight
Landing-flare/touchdown	Roll over

On March 30, 2014, about 1130 central daylight time, a Bell 47G-3B helicopter, N147WT, rolled over during an autorotation near Oglesby, Texas. The pilot and passenger were not injured. The helicopter was registered to and operated by Lazy 7 Agricultural Services LLC as a 14 Code of Federal Regulations Part 91 aerial observation flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The local flight originated from the Gatesville Municipal Airport (GOP), Gatesville, Texas at 1100.

The pilot reported the purpose of the flight was to spot wildlife. He stated that during the flight he initiated a climb to transit from one area to another. As he increased the throttle he noticed a "slight resistance." Shortly thereafter, the throttle freed up, but there was no response to the throttle movements. The pilot stated that both the engine and rotor rpm were indicating in the green, but the rotor and engine rpm decayed when he increased the collective. When he stopped increasing the collective, the rotor and engine rpm increased rapidly and continued to accelerate. The pilot initiated an autorotation, during which time he cutoff the fuel. During the final collective application to cushion the landing, the helicopter suddenly yawed to the left and simultaneously rolled to the right on touchdown.

A postaccident examination of the helicopter revealed the throttle control adapter had disconnected from the serrated shaft on the carburetor. The retention screws on the throttle control adapter were not safety wired to the carburetor idle stop lever as required in the Bell Helicopter maintenance manual.

Service Bulletin 131SB was issued on December 2, 1960, which addressed the reworking the adapter screw holes and safety wiring of the adapter to the carburetor idle stop lever. This Service Bulletin addressed the Bell 47G-2 and 47J-2 models. The maintenance manual for the 47G-3B was later revised to reflect the information in the Service Bulletin. Maintenance records show the carburetor was removed and replaced on September 25, 2012, and the last annual inspection was performed November 11, 2013.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	41
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	May 7, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	3800 hours (Total, all aircraft), 54 hours (Total, this make and model), 3000 hours (Pilot In Command, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N147WT
Model/Series:	47G 3B	**Aircraft Category:**	Helicopter
Year of Manufacture:	1964	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2920
Landing Gear Type:	N/A; Skid	**Seats:**	2
Date/Type of Last Inspection:	November 5, 2013 Annual	**Certified Max Gross Wt.:**	2950 lbs
Time Since Last Inspection:	30 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3280 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated	**Engine Model/Series:**	TVO-435-B1
Registered Owner:	LAZY 7 AGRICULTURAL SERVICES LLC	**Rated Power:**	180 Horsepower
Operator:	LAZY 7 AGRICULTURAL SERVICES LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TPL,682 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	12:15 Local	**Direction from Accident Site:**	160°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 21 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.19 inches Hg	**Temperature/Dew Point:**	22°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Gatesville, TX (GOP)	**Type of Flight Plan Filed:**	None
Destination:	Gatesville, TX (GOP)	**Type of Clearance:**	None
Departure Time:	11:00 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	31.311388,-97.361114(est)

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	Chris Doherty; FAA; Irving, TX
Original Publish Date:	June 1, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=88989