Aviation Investigation Final Report

Location:	Baldwin City, Kansas	**Accident Number:**	CEN18LA246
Date & Time:	June 30, 2018, 11:55 Local	**Registration:**	N107BL
Aircraft:	Cessna 337	**Aircraft Damage:**	Substantial
Defining Event:	Flight control sys malf/fail	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot was conducting a local flight to practice single-engine maneuvers. After taking off and climbing the airplane to 3,500 ft, he shut down the rear engine and feathered the propeller. After performing some turns and climbs, the pilot attempted to unfeather the propeller and restart the engine but was unsuccessful. He returned to the airport to set up for a single-engine approach. During the approach, the pilot realized that the flaps were no longer in the full-flap setting and that a landing on the grass runway was going to be close, so he chose to perform a go-around. However, as the pilot began to go around, he realized that the airplane could not maintain altitude. He maneuvered the airplane for an off-airport landing to a nearby field, during which the airplane struck small trees and a fence and sustained substantial damage to the left wing and fuselage.

The rear engine propeller had a remote hydraulic accumulator that assisted in unfeathering the propeller and was normally serviced to 120 pounds per square inch (psi). During an annual inspection that took place 4 flight hours before the accident flight, it was noted that the pressure was slightly low. During postaccident examination, the accumulator pressure was 85 psi. It is likely that a nitrogen leak occurred between the time the accumulator was last serviced and the time of the accident; however, the reason for the nitrogen leak could not be determined. Further, the flap switch was not holding position due to a loss of tension at the flap switch pivot, which is likely why the flaps were not in the full-flap setting as reported by the pilot.

Probable Cause and Findings

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

The loss of hydraulic accumulator pressure for reasons that could not be determined, which prevented the propeller from unfeathering, and the pilot's improper decision to attempt a go-around, which resulted in an off-airport landing and the airplane impacting trees and a fence. Contributing to the accident was the loss of tension at the flap switch pivot, which prevented it from holding position.

Findings

Personnel issues	Scheduled/routine maintenance - Pilot
Aircraft	(general) - Malfunction
Aircraft	TE flap control system - Malfunction

Factual Information

History of Flight

Maneuvering	Engine shutdown
Maneuvering	Attempted remediation/recovery
Approach-VFR pattern final	Flight control sys malf/fail (Defining event)
Landing-landing roll	Collision with terr/obj (non-CFIT)

****This report was modified on November 7, 2019. Please see the docket for this accident to view the original report.****

On June 30, 2018, about 1155 central daylight time, a Cessna 337F, N107BL, a multiengine centerline thrust airplane, was substantially damaged when it struck trees and a fence during a forced landing about one mile southeast of Vinland Valley Aerodrome (K64), Baldwin City, Kansas. The commercial pilot was not injured. The airplane was registered to and operated by Vinland Aerodrome, Baldwin City, Kansas, under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed at the time of the accident, and no flight plan had been filed for the local personal flight.

According to the pilot, who is also an airframe and powerplant (A&P) mechanic, he took off and climbed to 3,500 ft to practice single-engine operations. He shut down the rear engine and feathered the propeller. After doing some air work, the pilot attempted to unfeather the propeller and restart the rear engine but was unsuccessful. He returned to the airport and made a single-engine landing approach.

During the approach, the pilot noticed [he had lost his] full flap down setting and determined a full stop landing on the grass runway was going to be close. He reduced flaps to 10°. The flap setting "relaxed" and the pilot determined there was insufficient altitude available to retract the landing gear. The pilot maneuvered to avoid houses and made a forced landing in a crosswind. Full power and full flaps were used until touchdown. The airplane struck small trees, shrubs, and a fence. The left wing was bent and the fuselage was buckled.

The rear engine propeller has a remote hydraulic accumulator that assists in unfeathering the propeller and is serviced to 120 psi. During annual inspection 4 hours prior to the accident flight, it was found to be slightly low. Post-accident examination revealed the pressure to be 85 psi. It is most likely a nitrogen leakage had developed during those 4 hours. The flap switch was not holding position; the reason for this anomaly could not be determined.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	67,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 4, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	December 8, 2017
Flight Time:	8691 hours (Total, all aircraft), 47 hours (Total, this make and model), 8627 hours (Pilot In Command, all aircraft), 40 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N107BL
Model/Series:	337 F	**Aircraft Category:**	Airplane
Year of Manufacture:	1970	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	33701330
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 22, 2018 Annual	**Certified Max Gross Wt.:**	4630 lbs
Time Since Last Inspection:	4 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	2918 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360-C
Registered Owner:		**Rated Power:**	210 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LWC,833 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	11:52 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.87 inches Hg	**Temperature/Dew Point:**	34°C / 23°C
Precipitation and Obscuration:			
Departure Point:	Baldwin City, KS (K64)	**Type of Flight Plan Filed:**	None
Destination:	Baldwin City, KS (K64)	**Type of Clearance:**	None
Departure Time:	11:40 Local	**Type of Airspace:**	Class E;Class G

Airport Information

Airport:	Vinland Valley Aerodrome K64	**Runway Surface Type:**	Grass/turf
Airport Elevation:	884 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	16	**IFR Approach:**	None
Runway Length/Width:	3030 ft / 80 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	38.836112,-95.181945(est)

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	Keith Allen; FAA Flight Standards District Office; Wichita, KS
Original Publish Date:	April 20, 2020
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97650