Aviation Investigation Final Report

Location:	Soldotna, Alaska	**Accident Number:**	ANC20LA064
Date & Time:	July 4, 2020, 15:23 Local	**Registration:**	N3604A
Aircraft:	Piper PA22	**Aircraft Damage:**	Substantial
Defining Event:	Part(s) separation from AC	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

In cruise flight, the private pilot heard and felt a “pop” emit from the airplane. He immediately noticed the airplane descending but verified he still had elevator continuity. Unable to maintain altitude, the pilot made an emergency landing on a nearby paved road; however, the airplane landed hard, and the main landing gear collapsed.

Postaccident examination revealed control continuity, but it was noted that the adhesive adhering the fabric above the windscreen had separated.

FAA Airworthiness Directive (AD) 74-17-04 applies to certain Piper airplanes, including PA-22 series airplanes that are covered with cotton or linen, and was issued to prevent the sudden failure of the material at the top of the windshield by requiring the installation of a reinforcement metal strip. Because the accident airplane was covered in a heavy-duty polyester material, the hardware specified in the AD was not required for installation on the airframe nor was it installed.

It is likely that the adhesive adhering the fabric above the windscreen delaminated and disrupted the airflow over the airplane. It was not determined why the adhesive failed/delaminated.

Probable Cause and Findings

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

The delamination of the fabric material from the fuselage above the windscreen due to failed adhesive, which resulted in disrupted airflow and a subsequent hard landing.

Findings

Aircraft	Fuselage main structure - Failure
Personnel issues	Aircraft control - Pilot
Aircraft	Landing flare - Unknown/Not determined

Factual Information

History of Flight

Enroute	Part(s) separation from AC (Defining event)
Enroute	Loss of control in flight
Emergency descent	Attempted remediation/recovery
Landing	Hard landing

On July 4, 2020, about 1523 Alaska daylight time, a Piper PA-22 airplane, N3604A, was substantially damaged when it was involved in an accident near Soldotna, Alaska. The private pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that once established in a cruise flight configuration, around 1,300 ft mean sea level (msl), he heard and felt a "pop" emit from the airplane. He immediately noticed the airplane was descending and verified that he still had elevator continuity by looking back at the empennage. The elevator was not "stuck", but he was unable to maintain altitude. He made an emergency landing on a nearby paved roadway, but during the touchdown, the airplane landed hard and the main landing gear collapsed. The airplane sustained substantial damage to the left wing, both wing struts, and the fuselage.

A Federal Aviation Administration (FAA) aviation safety inspector examined the airplane after recovery and reported that the flight control cables were intact, and that flight control continuity was established. The inspector noted that the area above the windscreen where the fabric was connected to the fuselage had separated. He also indicated that the fabric did not tear; rather, the adhesive that held the fabric to the structure delaminated. FAA Airworthiness Directive (AD) 74-17-04, dated April 11, 1977, and applicable to certain Piper airplane models, including PA-22 series airplanes, that are "covered with cotton or linen at the critical area on top of the windshield" where the fabric attaches to the structure was issued to prevent the sudden failure of the material at the top of the windshield by requiring the installation of a reinforcement metal strip. The accident airplane was covered in Ceconite 101, a heavy-duty polyester material. The AD hardware was not installed on the airframe of the accident airplane nor was it required to be.

Pilot Information

Certificate:	Private	**Age:**	32,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 14, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 336 hours (Total, all aircraft), 237 hours (Total, this make and model), 258 hours (Pilot In Command, all aircraft), 73 hours (Last 90 days, all aircraft), 31 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N3604A
Model/Series:	PA22 135	**Aircraft Category:**	Airplane
Year of Manufacture:	1953	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-1864
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	2000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-320B
Registered Owner:	On file	**Rated Power:**	150 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:	PASX,113 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	14:56 Local	**Direction from Accident Site:**	298°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	24°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Sterling, AK (AK84)	**Type of Flight Plan Filed:**	None
Destination:	Homer, AK (HOM)	**Type of Clearance:**	None
Departure Time:	15:17 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	60.45,-150.93333(est)

Administrative Information

Investigator In Charge (IIC):	Swenson, Eric
Additional Participating Persons:	David C Longan; FAA; Juneau, AK
Original Publish Date:	April 15, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101545