Aviation Investigation Final Report

Location:	Bunn, North Carolina	**Accident Number:**	ERA18LA087
Date & Time:	February 24, 2018, 12:30 Local	**Registration:**	N8401V
Aircraft:	Aero Commander CALLAIR A 9	**Aircraft Damage:**	Substantial
Defining Event:	Altitude deviation	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Glider tow		

Analysis

The flight instructor and student on board the glider were conducting an aerotow takeoff with the student manipulating the controls. About 300 ft above ground level (agl), the glider encountered a gust, causing it to move out of position behind the tow plane, and the tow rope developed slack. The student corrected, and as the tow rope tightened, the glider continued up and to the left "at an alarming rate" and became "extremely out of position." The instructor assumed control of the glider and attempted to release from the tow plane, noting that more force than usual was required, and the glider release activated during the third attempt. The glider returned to the runway and landed uneventfully.

The pilot of the towplane stated that the tow was "very turbulent" and he noted that the glider was out of position. He stated that the airplane's nose was "suddenly jerked about 35° left" and the tail of the airplane began to rise. He attempted to release the glider, but had difficulty reaching the release handle, and the glider released "a split second before" he was able to do so, at an estimated altitude about 75 ft agl. The airplane's left wing contacted trees and the airplane impacted the ground nearly inverted.

Examination of the glider tow release hook revealed that, although the force required to activate the release was higher than that specified in the maintenance manual, this condition did not contribute to the accident, and the flight instructor's difficulty actuating the release mechanism was most likely the result of side-loading of the release mechanism due to the glider being out of position.

Probable Cause and Findings

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

The glider instructor's delayed remedial action when the glider became out of position during aerotow, which resulted in excessive side-loading of the release hook and a delay in the glider's release from tow, which resulted in the towplane’s descent and impact with trees.

Findings

Personnel issues	Delayed action - Instructor/check pilot
Aircraft	Heading/course - Not attained/maintained
Aircraft	(general) - Capability exceeded
Personnel issues	Strength - Pilot of other aircraft

Factual Information

History of Flight

Takeoff	Glider tow event
Initial climb	Altitude deviation (Defining event)
Maneuvering	Collision with terr/obj (non-CFIT)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On February 24, 2018, about 1230 eastern standard time, an Aero Commander Callair A-9 (Callair A-9), N8401V, was substantially damaged when it was involved in an accident near Bunn, North Carolina. The commercial pilot sustained a minor injury. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 glider tow flight.

The flight instructor of the Schweizer SGS-2-33A glider (N1186S) being towed aloft reported that 2 previous flights earlier that day, the student was demonstrating good progress in controlling the glider off tow and showing beginning competency on tow but occasionally required his corrections, which improved on the 2nd flight. The student executed the 3rd takeoff under control and when above the treeline with moderate turbulence which was similar to the conditions during the first 2 flights, a gust occurred. The glider moved down and to the right relative to the tow airplane with resulting slight amount of slack in the tow line. The student made appropriate control inputs to move the glider up and to the left, but the glider continued up and to the left at, "an alarming rate, reminding me of a winch launch, and we zoomed up to a maximum of what [he estimated] as [about] 400 ft [above ground level]", placing the glider in "…extremely out of position." About that time he took over the controls and made large forward and right stick movements, in addition to deploying full spoilers. Because the situation was not improving he determined they needed to release immediately and pulled twice with more force than usually required, then when the glider did not release which he later attributed to the side loads, he looked to confirm he was pulling the correct control and on the 3rd attempt yanked as hard as he could and the tow line released. He maneuvered the glider for an uneventful downwind landing.

The pilot of the Callair A-9 reported that the moment the glider became airborne, "it was a very turbulent tow" with the glider moving erratically back and forth. The flight continued and when he looked into the mirror, the glider was out of position, and he noted slack in the towline. The tow line slack went out causing the nose of the airplane to jerk about 35° to the left, which reduced the airspeed considerably. The glider continued to climb, causing the tow plane to be in a nose-low attitude. About that time, he attempted to release the glider, but because of the position of the tow release handle in the cockpit, he had difficulty reaching it. He eventually was able to reach the handle, but the glider released a split second before he could initiate the release. When the glider was released, the airplane was about 75 feet agl, or about 25 to 45 feet above the tree tops. The left wing then impacted trees, and the airplane then impacted the ground nearly fully inverted. The pilot reported no preimpact mechanical failure or malfunction.

Postaccident examination of the Callair A-9 by a Federal Aviation Administration inspector revealed the elevator control cable tensions were near zero and the rigging of the elevator was off related to the position relative to the horizontal stabilizer and the control stick in the cockpit. Examination of the Callair A-9 and Schweizer glider by a mechanic revealed the tow release of the Callair A-9 was within limits, while the tow release of the glider was above the maintenance manual limits; the amount was not specified.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	74,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Center
Other Aircraft Rating(s):	Glider	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	November 21, 2016
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 9, 2016
Flight Time:	12252 hours (Total, all aircraft), 350 hours (Total, this make and model), 12100 hours (Pilot In Command, all aircraft), 33 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Commander	**Registration:**	N8401V
Model/Series:	CALLAIR A 9 NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	1970	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	1601
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	July 9, 2017 Annual	**Certified Max Gross Wt.:**	3800 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4445.06 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	O-540-A1D5
Registered Owner:	On file	**Rated Power:**	235 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:	LHZ,368 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	10:35 Local	**Direction from Accident Site:**	326°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 1500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	Terrain-Induced / Unknown
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	Moderate / Moderate
Altimeter Setting:	30.23 inches Hg	**Temperature/Dew Point:**	19°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bunn, NC (7NC5)	**Type of Flight Plan Filed:**	None
Destination:	Bunn, NC (7NC5)	**Type of Clearance:**	None
Departure Time:	10:44 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	35.926666,-78.248054(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Jerry L Toms; FAA/FSDO; Greensboro, NC
Original Publish Date:	December 3, 2020
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=96791