



Aviation Investigation Final Report

Location:	Longmont, Colorado	Accident Number:	CEN16LA247
Date & Time:	June 26, 2016, 14:00 Local	Registration:	N92DV
Aircraft:	Beech E 90	Aircraft Damage:	Substantial
Defining Event:	Miscellaneous/other	Injuries:	1 Serious, 15 None
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The commercial pilot was conducting a skydiving flight with 15 skydivers on board. The pilot reported that, at 5,000 ft above ground level, he reconfigured the airplane for a climb and activated the interior amber jump lights, which indicated that the door could be opened to spot the jump zone. Two jumpers safely exited the airplane at that time. The pilot then initiated another climb. The pilot did not recall any jump indication lights being illuminated in the cabin during the climb, and none of the remaining jumpers notified him of any illuminated jump lights. However, three of the jumpers later reported that the amber jump light remained illuminated at that time. One of the jumpers informed a senior jumper from the operator that the light was on, but he indicated that it was not a problem, and the jumpers all affirmed that no one informed the pilot that the amber light remained on.

The three jumpers reported that, before reaching the jump location, when the pilot was in the process of configuring the airplane for the jump, the jump indication lights changed from amber to green, which is intended to indicate that it is safe to jump and prompted the jumpers to climb out of the airplane; however, the airplane was not correctly configured or at the proper airspeed for the jump. The three jumpers noted that the airspeed seemed faster than normal because they had difficulty holding onto the airplane. One of the jumpers, who struggled to swing his leg normally, jumped from the airplane and then struck the horizontal stabilizer. The pilot reported that he felt the flight controls jolt and heard a "thud" sound and then switched the jump lights to red and instructed the remaining jumpers to remain in the airplane. The pilot descended and landed the airplane without further incident. The jumper who struck the stabilizer was unable to move his arms and descended with his back to the ground until his automatic activation device deployed his parachute. He was subsequently transported to the hospital with serious injuries.

The accident is consistent with the pilot not reconfiguring the jump light system properly following the first jump and unintentionally turning on the green jump light before the airplane was configured properly or at the proper airspeed for a safe jump and not recognizing that he had done so. Additionally, the senior jumper did not tell the pilot that the amber light remained on after the first jump, and the

jumpers improperly decided to exit the airplane even though they recognized the airplane was at a higher-than-normal airspeed.

Probable Cause and Findings

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

The pilot's unintentional activation of the green jump light before the airplane was properly configured and slowed for a jump and the jumpers' improper decision to continue with the jump after they recognized that the airplane was at a higher-than-normal airspeed. Contributing to the accident were the pilot's failure to recognize that the amber light remained on after the first jump and the senior jumper's decision not to inform the pilot that the amber light remained on following the first jump.

Findings

Personnel issues	Use of equip/system - Pilot
Aircraft	(general) - Unintentional use/operation
Personnel issues	Decision making/judgment - Passenger
Personnel issues	Identification/recognition - Pilot
Personnel issues	Decision making/judgment - Other
Personnel issues	Lack of communication - Other

Factual Information

History of Flight

Maneuvering

Miscellaneous/other (Defining event)

On June 26, 2016, about 1400 mountain daylight time, a Beech E-90 King Air airplane, N92DV, was struck by an exiting skydiver while the airplane was maneuvering near Longmont, Colorado. The pilot and 14 skydivers were not injured and one skydiver sustained serious injuries. The airplane sustained substantial damage. The airplane was registered to Mile Hi Skydivers Inc. and operated by Mile Hi Skydiving Center, Inc., Longmont, Colorado, under the provisions of 14 *Code of Federal Regulations* Part 91 as a skydiving flight. Visual meteorological conditions prevailed and no flight plan was filed, but the flight was receiving visual flight rules (VFR) flight following. The local flight originated from Vance Airport (LMO), Longmont, Colorado, about 1345.

The pilot reported that the loading and takeoff portion of the flight were normal with no anomalies. The flight contained 15 skydivers, one of which was a student and the rest were licensed skydivers with varied levels of experience. At 5,000 ft above ground level (agl) the pilot configured the airplane for a jump and activated the jump indication lights. The student and one other skydiver safely exited the airplane at that time as "hop and pop" jumpers. The pilot de-configured the airplane and initiated a climb to the planned jump altitude. The pilot did not recall any jump indication lights being illuminated in the cabin during the climb and none of the remaining jumpers notified him of any illuminated jump lights. He continued the climb to 16,000 ft mean sea level (msl), which was 1,500 ft below normal exit altitude. At 12.2 nautical miles (nm) from the intended GPS waypoint, the pilot maintained a full power setting and continued the climb for 17,500 ft msl. The pilot stated that he activated the amber light, which indicated that the skydivers could open the door and spot check the area. Prior to reaching the jump location, which was 11.2 nm from the waypoint, he was in the process of configuring the airplane for the jump when he felt the flight controls shake, but the flight instruments appeared normal. He then felt a jolt in the flight controls and heard a "thud" sound. He looked back and noticed 3 skydivers had exited the airplane and 3 more were in the process of exiting. He switched the jump lights to red and instructed the remaining skydivers to remain in the airplane. The remaining skydivers told the pilot that someone had hit the tail. The pilot descended and landed the airplane at LMO.

The injured skydiver and two other skydivers (skydivers one, two, and three for report identification purposes only) stated that the amber jump light remained on after the "hop and pop" and was not turned off as expected. Skydiver two stated that he told a senior skydiver about the amber light but the senior skydiver was not concerned since he knew where to spot for the jump. No one notified the pilot that the amber light remained on. When the airplane arrived at 12,000 ft msl the light turned green and a Mile Hi employee opened the door. Skydivers one and two climbed out and held onto the airplane, while skydiver three remained in the doorway. They noted that the airspeed seemed faster than normal as they had difficulty holding on. Skydiver one was to swing his right leg away from the airplane and on the third leg swing they would all jump together. He struggled to swing his leg normally and on the third swing they jumped away from the airplane and tumbled immediately. Skydiver one struck the left horizontal stabilizer and was unable to move his arms. He continued to descend with his back to the

ground until his automatic activation device deployed his parachute. He was transported to the hospital with serious injuries.

Another skydiver who was positioned near the pilot during the flight stated that they were on "what appeared to be a jump run" when the door was opened and the first group climbed out of the airplane. When the first group jumped the airplane was flying faster than normal based on the sound of the jumpers exit. He noticed the flap were retracted and another skydiver asked him if a "dent was always in the tail". A second group of skydivers exited the airplane and then the door was shut. He did not see the jump indication light color during the accident. Several others onboard mentioned that the yellow indication light had been on since the "hop and pops" had exited, then the light was green before the first group of three exited.

Pilot Information

Certificate:	Commercial	Age:	26, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	September 3, 2015
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 8, 2015
Flight Time:	869 hours (Total, all aircraft), 93 hours (Total, this make and model), 783 hours (Pilot In Command, all aircraft), 204 hours (Last 90 days, all aircraft), 110 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		Age:	Male
Airplane Rating(s):		Seat Occupied:	None
Other Aircraft Rating(s):		Restraint Used:	None
Instrument Rating(s):		Second Pilot Present:	No
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

The pilot received initial training in the accident airplane conducted by the operator from April 21, 2016 to June 11, 2016. The training consisted of 11 flights and a total of 60.7 training hours. On June 11, 2016, the pilot passed the operators initial flight competency and proficiency check.

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N92DV
Model/Series:	E 90	Aircraft Category:	Airplane
Year of Manufacture:	1978	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	LW-292
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	Continuous airworthiness	Certified Max Gross Wt.:	10099 lbs
Time Since Last Inspection:		Engines:	2 Turbo prop
Airframe Total Time:	15829.3 Hrs as of last inspection	Engine Manufacturer:	Pratt & Whitney
ELT:	C91 installed, not activated	Engine Model/Series:	PT6-28
Registered Owner:	MILE HI SKYDIVERS INC	Rated Power:	550 Horsepower
Operator:	Mile Hi Skydiving Center, Inc.,	Operating Certificate(s) Held:	None

According to the owner of Mile Hi, the jump indication lights are controlled by a rotary switch on the cockpit pedestal. There is one indication light on the pedestal and one light next to the jump door for the skydivers to see. When the light is off or red there are to be no jump activities. The amber light indicates that the door can be opened to spot check the area. The green light indicates that it's safe to jump. The lights can be viewed from anywhere in the airplane, unless another skydiver is blocking the view. If the green light is on and the airplane is obviously not configured for a safe jump, the skydivers should climb back into the airplane and not complete the jump.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KLMO, 5056 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	13:53 Local	Direction from Accident Site:	328°
Lowest Cloud Condition:	Clear	Visibility:	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	60°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.29 inches Hg	Temperature/Dew Point:	32°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Longmont, CO (LMO)	Type of Flight Plan Filed:	None
Destination:	Longmont, CO (LMO)	Type of Clearance:	VFR flight following
Departure Time:	13:45 Local	Type of Airspace:	Class E

Airport Information

Airport:	VANCE BRAND LMO	Runway Surface Type:	
Airport Elevation:	5055 ft msl	Runway Surface Condition:	Unknown
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious, 14 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 15 None	Latitude, Longitude:	40.162776,-105.163612(est)

The responding Federal Aviation Administration (FAA) inspector reported that the left horizontal stabilizer sustained substantial damage.

Additional Information

FAA Advisory Circular (AC) 105-2E: Sport Parachuting

This AC provides suggestions to improve sport parachuting safety and disseminates information to assist all parties associated with sport parachuting to be conducted in compliance with *14 CFR* Part 105. The AC states in part:

8. Pilot Responsibilities, b. Jump Pilot Training, (2) Flight Training, (d) Configuration for jump run and jumper exit including procedures for tail strike avoidance.

8. Pilot Responsibilities, e. Operational Requirements: The pilot in command (PIC) is solely responsible for the operational requirements of Parts 91 and 105, including compliance with the special operating limitations and placards required for flight with the door open or removed. The PIC is also responsible for ensuring that each occupant has been briefed on operation of his or her restraint system, procedures for ensuring aircraft W&B stays within limits while jumpers exit, and procedures to avoid tail strikes.

Skydiver's Video

A review of a skydiver's video, who exited the airplane in the group after the injured skydiver, revealed that the flaps were partially extended at the time of the video.

Administrative Information

Investigator In Charge (IIC):	Lindberg, Joshua
Additional Participating Persons:	Aaron Gonzalez; Federal Aviation Administration; Denver, CO
Original Publish Date:	October 2, 2017
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93546

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).