Aviation Investigation Final Report

Location:	MIMBRES, New Mexico	**Accident Number:**	FTW94GA232
Date & Time:	July 12, 1994, 15:05 Local	**Registration:**	N3178B
Aircraft:	BELL 206L-3	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal, 1 Serious, 1 Minor
Flight Conducted Under:	Public aircraft		

Analysis

THE AIRCRAFT WAS BEING OPERATED BY THE USDA TO TRANSPORT FIRE FIGHTERS TO A FIRE. THE TWO SURVIVORS STATED THAT FOLLOWING A DOWNWIND APPROACH TO A PINNACLE ON A 9,520-FT MSL RIDGE LINE, THE PILOT ATTEMPTED TO BRING THE HELICOPTER TO A HOVER ABOUT 20 FT ABOVE THE LANDING AREA. THE NOSE OF THE HELICOPTER APPEARED HIGHER THAN NORMAL DURING THE FINAL PHASE OF THE APPROACH. THE HELICOPTER THEN ASSUMED A VERY HIGH NOSE ATTITUDE AND APPEARED TO START SLIDING BACKWARDS, FOLLOWED BY A LOSS OF CONTROL AND CONTACT WITH TREES. THE DENSITY ALTITUDE WAS 13,200 FT. THE AIRCRAFT WEIGHT WAS CALCULATED TO HAVE BEEN 3,750 POUNDS. UNDER THE CONDITIONS OF NO WIND, 9,520 FT PRESSURE ALTITUDE, AND 32 DEG C, THE MAXIMUM GROSS WEIGHT FOR HOVER IN AND OUT OF GROUND EFFECT WAS COMPUTED TO BE 3,580 AND 3,515 LBS RESPECTIVELY.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT'S IMPROPER DECISION TO ATTEMPT TO HOVER OUT OF GROUND EFFECT UNDER ADVERSE CONDITIONS WHILE EXCEEDING THE MAXIMUM ALLOWABLE WEIGHT FOR THAT MANEUVER. FACTORS IN THE ACCIDENT WERE: HIGH DENSITY ALTITUDE AND THE TAILWIND.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: HOVER

Findings
1. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE
2. (F) WEATHER CONDITION - TAILWIND
3. (F) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND
4. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
5. (C) OUT OF GROUND EFFECT - ATTEMPTED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - UNCONTROLLED

Findings
6. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On July 12, 1994, at 1505 mountain daylight time, a Bell 206L-3 helicopter, N3178B, was destroyed while landing near Mimbres, New Mexico. The commercial pilot and two fire fighters were fatally injured, while one fire fighter sustained serious injuries, and another one received minor injuries. Visual meteorological conditions prevailed for the public use flight. The aircraft was owned by Briles Wing and Helicopter of Van Nuys, California, and being operated by the United States Department of Agriculture Forest Service.

According to the operator, the helicopter was dispatched from the Mimbres Heliport at 1447 to transport four fire fighters to a newly reported forest fire approximately 13 miles northeast of the base camp heliport.

According to survivors, upon arrival in the area of the fire, the pilot circled the fire and the intended landing point in both directions. The selected landing area was a rocky pinnacle on a ridge line approximately 1/2 mile southeast of the fire, at an elevation of 9,520 feet. Density altitude at the point of intended landing was 13,200 feet.

The survivors reported that the approach was made to the west northwest over the northeast facing slope. Both survivors concluded that the winds were "blowing upslope on the tail of the helicopter," but everything appeared normal with the exception of the nose of the helicopter, which appeared higher than normal during the final phase of the approach. They added that the pilot attempted to bring the helicopter to a hover at about 20 feet above the landing area. They further stated that the helicopter then assumed a "very high nose attitude and appeared to start sliding backwards," followed by a loss of control.

While rotating in a clockwise direction, the surviving passengers reported hearing a pop-like impact coming from the rear of the helicopter. They further stated that the helicopter moved laterally away from the landing area, prior to settling into the trees, approximately 350 feet from the point of intended landing.

PERSONNEL INFORMATION

The pilot obtained his initial rotary wing training and experience while he served in the U.S Army between 1981 and 1988. He was previously employed by Papillon Helicopters where he conducted air tour flights at the Grand Canyon. He was on his first season as a "fire fighting pilot," having been employed by the operator since April 1994.

AIRCRAFT INFORMATION

The helicopter was assigned to the Gila National Forest. It was maintained and operated under 14 CFR Part 135 standards, on certificate number BWHA663C, and was registered to Briles on January 8, 1986.

Weight and balance calculations were performed using figures provided by the operator. The calculated weight of the helicopter at the time of the accident was 3,750 pounds, which includes the "as equipped" weight of 2,440 pounds, plus the weight of the pilot (170 lbs), a fuel load of 265 pounds, and a manifested payload of 875 lbs.

The allowable payloads for the flight were computed using the interagency helicopter load calculation method. Using a pressure altitude of 9,520 feet and 32 degrees centigrade, the maximum gross weight to hover in ground effect (HIGE) was 3,580 lbs (allowable payload of 525 lbs.), and a maximum gross weight to hover out of ground effect (HOGE) at 3,515 pounds (allowable payload of 460).

WRECKAGE AND IMPACT INFORMATION

The wreckage was located approximately 350 feet down slope of the point of intended landing, on a measured heading of 040 degrees. The skids, tailboom, and the main rotor were found separated from the fuselage. The main fuselage, along with the remains of the engine and main transmission, were found resting against a large tree.

Examination of the tail rotor blades showed minimal rotational damage. A review of the aircraft and engine records did not reveal any anomalies or uncorrected maintenance defects prior to the flight. See enclosed wreckage diagram for wreckage distribution pattern.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy and toxicological tests were requested and performed. The autopsy was performed by the Office of the Medical Investigator from the State of New Mexico in Albuquerque, New Mexico, on July 14, 1994. Toxicological tests were negative.

FIRE

A post-impact fire destroyed the main fuselage. Most of the main transmission and the engine gearbox were consumed by fire. An extensive forest fire was initiated by the post-impact fire. One of the survivors, who remained strapped to the helicopter during the impact sequence reported that he heard what appeared to be the sound of the engine running after impact. Both survivors stated that approximately 10 to 15 minutes elapsed before the helicopter was engulfed in flames. No evidence of pre-impact fire was found during the investigation.

SURVIVAL ASPECTS

The two surviving passengers were seated in the two forward facing aft seats. The one on the right side, who suffered minor injuries, was ejected from the helicopter during the impact sequence. The left aft seat passenger stayed strapped in his seat belt until the helicopter came to rest, and suffered serious injuries. Shoulder harnesses were not installed on their seats.

TEST AND RESEARCH

A wreckage reconstruction was completed at the Santa Paula Airport on August 4, 1994. Continuity was established to the flight controls, and no anomalies were found with the airframe or systems. A complete engine teardown was completed at Long Beach, California, on August 5, 1994. No anomalies were found that could have prevented normal operation of the engine.

ADDITIONAL DATA

The wreckage was released to the owner's representative upon completion of the investigation.

Pilot Information

Certificate:	Commercial	**Age:**	40,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	July 6, 1993
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	4270 hours (Total, all aircraft), 4220 hours (Total, this make and model), 30 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	**Registration:**	N3178B
Model/Series:	206L-3 206L-3	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	51033
Landing Gear Type:	High skid	**Seats:**	6
Date/Type of Last Inspection:	July 5, 1994 Continuous airworthiness	**Certified Max Gross Wt.:**	4150 lbs
Time Since Last Inspection:	29 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	4479 Hrs	**Engine Manufacturer:**	ALLISON
ELT:	Installed, not activated	**Engine Model/Series:**	250-C30P
Registered Owner:	BRILES WING AND HELICOPTERS	**Rated Power:**	650 Horsepower
Operator:	USDA FOREST SERVICE	**Operating Certificate(s) Held:**	None
Operator Does Business As:	GILA NATIONAL FOREST	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	135°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	32°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		**Type of Flight Plan Filed:**	Company VFR
Destination:		**Type of Clearance:**	None
Departure Time:	14:47 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal, 1 Serious, 1 Minor	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal, 1 Serious, 1 Minor	**Latitude, Longitude:**	33.03902,-107.919326(est)

Administrative Information

Investigator In Charge (IIC):	Casanova, Hector
Additional Participating Persons:	
Original Publish Date:	October 31, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=18932