Aviation Investigation Final Report

Location:	HANFORD, California	**Accident Number:**	LAX00FA144
Date & Time:	March 30, 2000, 12:02 Local	**Registration:**	N516CA
Aircraft:	Commander 114	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	4 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After takeoff, the airplane did not climb and collided with a utility pole near the end of the runway. It then crashed onto a city street, and caught fire after impacting the pavement. The airport manager observed the airplane on its takeoff roll. He noted that the engine had normal sounds, and that the entire runway was used for the takeoff roll. At the accident site, the flaps were found in the position specified by the takeoff checklist in the pilot's operating handbook (POH). The landing gear was extended, indicating it was not retracted following liftoff. The damage to the propeller found during the postaccident examination of the wreckage was indicative of operation at high rpm. Using the maximum allowable gross weight of the airplane, sea level pressure, and 20 degrees centigrade temperature, the Normal Takeoff Distance Chart (10 degrees flap extension) in the POH indicated that the airplane would require 2,100 feet to takeoff and climb to a 50-foot height. The runway used during the accident flight was 3,962 feet long. Examination of the thermally destroyed wreckage failed to reveal a reason for the lack of expected airplane performance.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: undetermined. The pilot's failure to reject the takeoff and his failure to retract the landing gear following liftoff were factors.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. OBJECT - UTILITY POLE
2. (F) REASON FOR OCCURRENCE UNDETERMINED
3. (F) ABORTED TAKEOFF - NOT PERFORMED - PILOT IN COMMAND
4. GEAR RETRACTION - NOT PERFORMED - PILOT IN COMMAND
5. AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On March 30, 2000, about 1202 hours Pacific Standard Time, a Rockwell International 114, N516CA, collided with a telephone pole during the initial climb after takeoff from the Hanford Municipal Airport, Hanford, California. The private pilot and his three passengers sustained fatal injuries. Fire destroyed the airplane, which was owned and operated by the pilot. The flight was conducted under 14 CFR Part 91. Visual meteorological conditions prevailed for the local area personal flight. A flight plan was not filed. The airplane had departed from the Hanford airport, on runway 32, moments before the crash.

According to the airport manager, he saw the airplane a little before noon in the run-up area. He said he watched the airplane go out onto the lower end of the runway, begin its takeoff, and move down the runway. When the airplane reached 1/2 the length of the runway, he noticed that the nose wheel of the airplane had not yet lifted off the surface. He stated that this was unusual because normally, by this distance, the airplane would have lifted and started to become airborne. As the airplane continued, he began to say "abort, abort," and did not feel the airplane had sufficient ground speed to make a successful takeoff. According to the manager, it appeared the pilot had "jerked" or "horsed" the airplane into the air at the end of the runway. He stated that, even as it reached the end of the runway, he did not feel the airplane had sufficient ground speed to takeoff. He also stated he did not hear anything unusual with the airplane during its takeoff roll.

The airport manager said that he observed the airplane gradually gain a small amount of altitude as it crossed a freeway, and then he noticed that the right wing began to point towards the ground. He observed the airplane collide with an object that he believed to be power lines.

According to the Hanford Police Department report, the airplane hit a utility pole, then crashed onto East Lacey Boulevard and skidded about 400 feet; coming to rest in front of Kings County Bowling Alley.

PERSONNEL INFORMATION

The pilot was issued a private pilot certificate with airplane single engine land rating on October 15, 1966. His application for the private pilot certificate indicated he had 31 total flight hours in a Cessna 150 airplane, with approximately 23 solo flight hours. He received an instrument airplane rating on August 15, 1984. His application for the instrument rating reflected 264 total flight hours.

Two pilot logs were obtained. The first one was unnumbered and contained entries beginning

July 27, 1986, and ending January 15, 1998. The second pilot log was numbered three and contained entries beginning January 15, 1999, and ending March 22, 2000. The first pilot log indicated that 495.5 flight hours had been brought forward. The total flight hours reflected in both pilot logs were 1,594.6. All of the flight hours listed in both pilot logs, except for 11.3 hours, were in the accident airplane. There was an entry in the endorsements section of the second pilot log dated May 22, 1998, that indicated a flight review was completed on that date.

The pilot was issued a third-class medical certificate on January 1, 1998. In his application for the certificate, the pilot indicated he had 2,300 total flight hours, with 50 hours in the previous 6 months. His date of birth indicated he was 54 years of age. The pilot's weight listed on the certificate was 205 pounds.

AIRCRAFT INFORMATION

The airplane was manufactured in 1976 as a Rockwell International 114, serial number 14076. It was a four-place, single engine land plane powered by a Lycoming IO-540-T4A5D engine, and equipped with a Hartzell two bladed constant speed propeller. The airplane was issued a Standard Airworthiness Certificate in the Normal category on July 9, 1976. The owner/pilot purchased the airplane on April 17, 1990.

According to aircraft logs and records (excerpts attached) an annual inspection of the airplane was conducted on February 17, 2000. The aircraft log indicated that the airplane had 2,166.5 fight hours at the time of that inspection. The engine log indicated that the installed engine, serial number L-14682-48A, was overhauled on January 13, 1998, at a total time of 1,973.0 hours. The engine log indicated that the engine had 2,166.5 total hours, with 193.5 hours since major overhaul on February 17, 2000, the date of its last inspection. The propeller was a Hartzell HC-C2YR-1BF, serial number CH17315. According to the propeller log, the propeller was last inspected on February 17, 2000.

An annual inspection checklist for the airplane, dated February 7, 2000, was provided by the maintenance facility at the Hanford Municipal Airport. The checklist indicated that the maintenance action was closed on February 17, 2000. No uncorrected discrepancies were noted on the checklist.

The weight and balance of the airplane at the time of the accident takeoff was calculated using the following information: the empty weight and empty weight center of gravity was obtained from the last recorded Federal Aviation Administration (FAA) Form 337 dated March 20, 1992. Occupant locations and weights were obtained from the Hanford Police Department report. According to fueling records from the Hanford Flight Center, the airplane had been fueled on March 23, 2000, with 56.4 gallons of 100LL fuel. The last flight recorded in the pilot's log was dated March 22, 2000. At the accident site, the fuel selector was in the "BOTH" position and the left wing fuel tank was observed to be nearly full.

	WEIGHT	ARM	MOMENT
Empty Weight			

	1960.82		101.61	199239	Fuel 70 gallons		420.00		
	112.20	47124	Front seats			415.00	99.00	41085	Rear seats
	455.00		136.00	61880					
Total		3250.82				349328	Center of Gravity		
	107.5								

The limitations section of the Pilot's Operating Handbook (POH) indicated that the maximum gross takeoff weight of the airplane was 3,140 pounds, and the center of gravity limits at that weight are 106.91 to 110.50 inches aft of datum.

Using a maximum weight of 3,140 pounds, sea level pressure, and 20 degrees centigrade temperature, the Normal Takeoff Distance (10 degree flaps) chart in the POH indicated that the airplane would require 2,100 feet to takeoff and climb to a 50-foot height.

METEOROLOGICAL INFORMATION

The 1200 weather observation from the Automatic Surface Observing System (ASOS) at the Hanford airport on the day of the accident was: wind 340 degrees at 6 knots; visibility 8 statue miles; cloud coverage clear; temperature/dew point 21/07 degrees Celsius; and the altimeter setting was 30.09 inHg.

The 1205 weather observation from the ASOS on the day of the accident was: wind variable at 4 knots; visibility 9 statute miles; cloud coverage was clear; temperature/dew point was 21/07 degrees Celsius; and the altimeter setting was 30.09 inHg.

AIRPORT INFORMATION

Hanford Municipal Airport has a single asphalt runway designated runway 14-32. The runway is 3,962 feet long and 75 feet wide.

WRECKAGE AND IMPACT INFORMATION

According to the Hanford Police Department report, the airplane collided with a utility pole then crashed onto a street. The airplane came to rest in the 1000 block of Lacey Boulevard. The accident site was about 1 mile northwest of the Hanford Municipal Airport, and to the right of the runway 32 extended centerline.

A utility pole was damaged and exhibited blue paint transfer that approximated the color of paint on the wing leading edge of the airplane. A section of the right wing outer panel was found about 60 feet northwest of the damaged pole. The right wing section exhibited a chordwise, concave indentation in the leading edge that approximated the diameter of the utility pole. There were brown smears in the radius of the indentation in the right wing similar to the utility pole coloration.

White scrape marks were found on the street, about 100 feet east of the utility pole, that was similar to the white paint of the airplane. Blackened marks, consistent with soot, were found on the street about 15 feet east of the white scrape marks. Just east of the blackened streaks, slashes were found in the pavement that approximated the shape of the propeller blades cambered side. The top of the engine cowl and the left main wheel and were found along the street leading to the main wreckage. The wheel brake disc did not exhibit evidence of overheating, bluing, or discoloration.

The airplane came to rest about 435 feet east of the first damaged utility pole. It was upright with the nose of the airplane heading 200 degrees magnetic. There was extensive fire damage to the airplane.

Both propeller blades remained attached to the hub and exhibited an "S" curved shape, span wise torsional twisting, tightly curled tips, chordwise scrapes, and leading edge abrasions. The spinner was essentially undamaged.

The firewall and engine accessory section were burned. The instrument panel, fuselage, and the attached portion of the right wing were nearly consumed by fire. The inboard section of the left wing was nearly consumed by fire, while the outboard section exhibited blackening and sooting. Blue colored liquid remained in the left wing fuel tank. The vertical stabilizer and rudder were burned at the stabilizer leading edge and the top of the rudder and the stabilizer. The right horizontal stabilizer and elevator were sooted. Arcing was observed on the left elevator at the trim tab leading edge.

The separated outboard section of the right wing did not display any burning, sooting, or trailing patterns of soot. Sooting and charring of the main wreckage was observed in broad patterns that did not follow aerodynamic flow.

The landing gear was found in the extended position and the flap jackscrew was found in a position that corresponded to 10 degrees of flap extension. There was continuity of the flight controls from the cockpit area to the flight control surfaces. The fuel selector was found in the "Both" position.

There was extensive fire damage to the instrument panel. The fuel flow gage indicated a fuel flow of 12 gallons per hour. The throttle control on the fuel injector servo was found at a fully open position; the mixture control was at a mid point setting; and the propeller control was found at a high rpm setting on the propeller governor.

Recovery personnel moved the wreckage to a salvage and storage facility in Pleasant Grove, California, where the engine was examined. After removal of the propeller, the crankshaft was rotated revealing engine continuity through all cylinders with "thumb" compression at each cylinder. The single drive dual magneto was fire damaged, as was the wiring harness. The fuel servo inlet screen was clean. No fuel was found in the engine fuel system forward of the

firewall, and the fuel injectors were clear. Borescope inspection of each cylinder did not reveal any anomalies to the cylinder walls or piston crowns. The spark plugs were Champion REM 38 fine wire in "like new" condition, when compared with a manufacturer's wear chart, and exhibited grayish coloration.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted by the Kings County Medical Examiner's office.

The FAA Toxicology and Accident Research Laboratory, Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma, conducted a toxicological examination of the pilot. The report indicated that 20 percent carbon monoxide was detected in blood and that 0.56 (ug/ml) cyanide was detected in the blood. No ethanol or other drugs were detected.

ADDITIONAL INFORMATION

The wreckage was released to the insurance representative, Jerry Wallace, Universal Loss Management.

The pilot's logs were released to Donna Deremer.

Pilot Information

Certificate:	Private	**Age:**	54,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	January 6, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	2300 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Commander	**Registration:**	N516CA
Model/Series:	114 114	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	14076
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	February 17, 2000 Annual	**Certified Max Gross Wt.:**	3140 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2167 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540-T4A5D
Registered Owner:	ROBERT WARREN DEREMER	**Rated Power:**	260 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KHJ ,242 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	12:00 Local	**Direction from Accident Site:**	170°
Lowest Cloud Condition:	Clear	**Visibility**	8 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	21°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(HJO)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	12:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	HANFORD MUNI HJO	**Runway Surface Type:**	Asphalt
Airport Elevation:	242 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	32	**IFR Approach:**	None
Runway Length/Width:	3962 ft / 75 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	3 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Fatal	**Latitude, Longitude:**	36.270793,-119.629547(est)

Administrative Information

Investigator In Charge (IIC):	Childress, Deborah
Additional Participating Persons:	JOSE SALAZAR; FRESNO , CA
Original Publish Date:	February 23, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=48927