Aviation Investigation Final Report

Location:	TAFT, California	**Accident Number:**	LAX94FA292
Date & Time:	July 19, 1994, 14:20 Local	**Registration:**	N414RH
Aircraft:	CESSNA 414	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 3 Serious
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

THE EMERGENCY MEDICAL SERVICE (EMS/MEDEVAC) FLIGHT WAS DISPATCHED TO TRANSPORT A PATIENT IN RESPONSE TO A MEDICAL EMERGENCY. DURING ARRIVAL TO THE DESTINATION, THE PILOT CONTACTED THE AIRPORT UNICOM FOR ADVISORIES AND WAS ADVISED TO LAND ON RUNWAY 25. RUNWAY 25 HAD A 2.2 PERCENT UPHILL GRADE AND WAS RESTRICTED TO LANDINGS ONLY. AFTER LANDING, THE AIRPLANE WAS REFUELED AND THE PATIENT WAS PUT ON BOARD. THE PILOT BACK-TAXIED ON RUNWAY 25 AND PROCEEDED TO TAKEOFF UPHILL WITH THE AIRPLANE NEAR ITS MAXIMUM GROSS WEIGHT. ACCORDING TO GROUND WITNESSES, THERE WAS A TAILWIND, WHICH THEY ESTIMATED WAS BETWEEN 4 AND 15 KNOTS. THE TEMPERATURE WAS ABOUT 100 DEGREES, AND THE DENSITY ALTITUDE WAS ABOUT 3200 FEET. AFTER THE AIRPLANE BECAME AIRBORNE, THE PILOT STARTED AN IMMEDIATE LEFT TURN TO AVOID RISING TERRAIN. HOWEVER, THE LEFT TIP TANK CONTACTED THE GROUND, AND THE AIRPLANE CARTWHEELED. IT CAME TO REST ABOUT 711 FEET FROM THE DEPARTURE END OF THE RUNWAY. THE FLAPS AND LANDING GEAR WERE FOUND FULLY EXTENDED; THE PUBLISHED CONFIGURATION FOR TAKEOFF DATA IN THE FLIGHT MANUAL WAS FOR 'WING FLAPS - UP.' THE AIRPORT HAD NO SIGNS TO INDICATE RUNWAY USE RESTRICTIONS; HOWEVER, THE RESTRICTIONS WERE PUBLISHED IN THE AIRPORT FACILITY DIRECTORY.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT'S INADEQUATE PREFLIGHT PLANNING/PREPARATION AND SELECTION OF THE WRONG RUNWAY FOR TAKEOFF. FACTORS RELATED TO THE ACCIDENT WERE: THE UPHILL SLOPE OF THE RUNWAY, TAILWIND, HIGH DENSITY ALTITUDE, AND FAILURE OF THE PILOT TO CORRECTLY CONFIGURE THE FLAPS FOR TAKEOFF.

Findings

Occurrence #1: DRAGGED WING,ROTOR,POD,FLOAT OR TAIL/SKID
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
2. AIRPORT FACILITIES,RUNWAY/LANDING AREA CONDITION - UNIDIRECTIONAL
3. (F) AIRPORT FACILITIES,RUNWAY/LANDING AREA CONDITION - UPHILL
4. (C) WRONG RUNWAY - SELECTED - PILOT IN COMMAND
5. (F) WEATHER CONDITION - TAILWIND
6. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE
7. (F) FLAPS - IMPROPER USE OF - PILOT IN COMMAND
8. GEAR RETRACTION - NOT ATTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On July 19, 1994, about 1420 hours Pacific daylight time, a Cessna 414, N414RH, operated by Rogers Helicopters, Inc., of Clovis, California, was destroyed during takeoff at Taft, California. The flight was being conducted under the provisions of 14 CFR Part 135 of the Federal Aviation Regulations as an air medical flight that was in response to a medical emergency. Visual meteorological conditions prevailed. The patient being transported expired from injuries sustained in the accident about 10 hours after the accident. The pilot and two medical attendants received serious injuries.

The flight had been dispatched from Fresno, California, to Taft, about 115 miles south, to transport the patient back to Fresno for hospitalization. According to the information obtained by the Federal Aviation Administration (FAA) inspector, the first takeoff at Fresno had been aborted when a nose baggage door came open.

Prior to landing at Taft, the pilot called the UNICOM radio for landing advisories. The pilot was advised that runway 25 was being used for landing. Runway 25 has a 2.2 percent upslope with the far end about 100 feet higher than the approach end, and is restricted by the airport for landing only.

After the patient was loaded on board the airplane, the pilot back-taxied on runway 07 to the beginning of runway 25. The pilot proceeded to depart uphill on runway 25. Ground witnesses reported that the winds were from the east at speeds variously estimated between 4 knots and 15 knots at the time of the takeoff attempt. The witnesses reported that after lift-off the aircraft climbed about 30 feet, then did not gain anymore altitude. Near the departure end of the runway, the aircraft banked left and the left wing tip fuel tank scraped the ground. The aircraft then cartwheeled.

In the pilot's written statement, he said that prior to departure he estimated the winds were from the west at 10 to 15 knots. He assessed that with a tailwind of 10 to 15 knots, runway 07 would be too short to allow for possible engine failure on takeoff. He decided that, based on winds and accelerate to stop distance, it would be safer to depart on runway 25.

PERSONNEL INFORMATION

The pilot reported a total flight time of 10,000 hours; however, his total time in the accident aircraft make and model was unknown. Review of Rogers Helicopters company records revealed that the pilot had successfully completed an FAA competency flight check in accordance with 14 CFR 135.293 in the accident airplane on July 6, 1993. The pilot's rest and

duty times were found to be within the requirements of 14 CFR 135.

In an oral interview, the pilot reported that he had flown into the Taft airport one time in the previous year.

AIRCRAFT INFORMATION

The airplane had been modified in accordance with a Supplemental Type Certificate (STC) as a Riley conversion, with Lycoming IO- 720-B1BD 400 hp engines installed in place of the original equipment powerplants. Riley International was contacted by telephone. A company spokesperson stated that no performance data is supplied with the installation; however, flight tests established that the takeoff, climb, and single-engine performance were equal to or greater than the original Cessna design.

The airplane was equipped with a neonatal pediatric respiratory unit mounted where seats No. 4 and 6 would normally be located.

METEOROLOGICAL INFORMATION

There is no official weather reporting facility at the Taft Airport. Ground witnesses reported that the winds were from the east at estimates which ranged from 4 to 15 knots. According to a photograph taken by a newspaper, smoke from the postcrash fire was noted to be drifting towards the west.

The temperature was about 100 degrees Fahrenheit and the density altitude was approximately 3200 feet.

AIRPORT INFORMATION

The Taft-Kern County airport is located on 71 acres of uneven terrain. According to the FAA Airport Master Record Form 5010-1, updated July 29, 1993, the airport has 2 runways, 03/21 and 07/25. Runways 21 and 25 are restricted to landings only. Runways 03 and 07 are for takeoff only. Runways 21 and 25 each have a 2.2 percent uphill grade. The airport is listed as a basic utility A-1 category airport, and is not required to comply with the signage requirements contained in FAA advisory circular 150/5340.

The airport restrictions are reflected in the government publication, "Airport/Facility Directory", and other commercial airport flight information guides.

Examination of the airport surface area did not find ground indicators or signage to indicate runway usage or restrictions.

Airport advisories are available by a fixed-base operator on the UNICOM radio frequency 122.8 MHz; however, no full-time dedicated operator is available to monitor the UNICOM.

WRECKAGE AND IMPACT INFORMATION

Examination of the wreckage site revealed that the airplane came to rest about 711 feet south-southwest of the approach end of runway 07, as measured on the mean wreckage path of 210 degrees.

Examination of a newly-paved aircraft tie-down area located along the south side of the runway 07 threshold and extended runway centerline to the west, revealed diagonal scrape marks on an approximate heading of 215 degrees. The start of the scrape marks were measured to be about 380 feet from the runway 25 centerline. Examination of the left wing tip fuel tank revealed similar scrape marks with remnants of asphalt.

Further examination of the same area revealed near-parallel strike marks in the asphalt which were determined to be propeller blade marks. The marks started about 473 feet from the runway 25 centerline.

The left propeller assembly was found separated from the left engine about 567 feet from the edge of the runway. Examination of the blades revealed chordwise striations, aft bending, and leading edge damage. The right propeller was still attached to the right engine. All propeller blades displayed similar blade damage as the left.

An examination of the airplane was conducted at the accident site. Detailed disassembly and review of the following system actuators and valves revealed: 1) the landing gear was in the down-and-locked position; 2) the wing flaps were symmetrical and in the full-down position; 3) the right fuel selector was located on the right auxiliary tank, and the left fuel selector was located on the left main tank.

ADDITIONAL INFORMATION

The airplane wreckage was released to the insurance company representative on July 20,1994.

Pilot Information

Certificate:	Commercial	**Age:**	48,Male
Airplane Rating(s):	Single-engine land; Multi-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:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 22, 1993
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	10000 hours (Total, all aircraft), 10000 hours (Pilot In Command, all aircraft), 45 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N414RH
Model/Series:	414 414	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	0457
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	July 1, 1994 Annual	**Certified Max Gross Wt.:**	6825 lbs
Time Since Last Inspection:	4 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	3739 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-720-B1BD
Registered Owner:	ROGERS HELICOPTERS	**Rated Power:**	400 Horsepower
Operator:		**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	CUCA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BFL ,669 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	20:54 Local	**Direction from Accident Site:**	35°
Lowest Cloud Condition:	13000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	35°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(L17)	**Type of Flight Plan Filed:**	Company VFR
Destination:	FRESNO , CA (FAT)	**Type of Clearance:**	None
Departure Time:	14:20 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	TAFT L17	**Runway Surface Type:**	Asphalt
Airport Elevation:	875 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25	**IFR Approach:**	None
Runway Length/Width:	3550 ft / 60 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	3 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 3 Serious	**Latitude, Longitude:**	35.540313,-118.909751(est)

Administrative Information

Investigator In Charge (IIC):	Petterson, George
Additional Participating Persons:	JIM MURRAY; FRESNO , CA CLAUDE C UNDERWOOD; WICHITA , KS CHARLES R LITTLE; WILLIAMSPORT , PA
Original Publish Date:	August 21, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
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