 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: FTW98FA156		Aircraft Registration Number: TGJET	
		Occurrence Date: 03/24/1998		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place RIO HONDO		State TX	Zip Code 78583	Local Time 1330	Time Zone CST
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer Bell		Model/Series 206-A /206-A		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>HISTORY OF FLIGHT</p> <p>On March 24, 1998, approximately 1330 central standard time, a Bell 206-A helicopter, Guatemalan registry TG-JET, registered to and operated by PINARSA of Guatemala City, Guatemala, was destroyed during a forced landing following an in-flight fire near Rio Hondo, Texas. Visual meteorological conditions prevailed, and a flight plan was not filed for the Title 14 CFR Part 91 ferry flight. The Guatemalan private pilot and the pilot rated passenger were fatally injured. The flight originated from Hurst, Texas, at 0800, and departed the New Braunfels Municipal Airport, New Braunfels, Texas, a planned fuel stop, at approximately 1100.</p> <p>The pilot contacted the Brownsville Tower and reported he was 25 miles north northwest at 1,000 feet inbound for landing. Brownsville Tower instructed the pilot to report when he was 10 miles from Brownsville. There were no further communications with the pilot.</p> <p>During a personal interview conducted by the NTSB investigator-in-charge (IIC), an eye witness reported that he observed the helicopter "flying fast" in a southerly direction at about 500 to 600 feet agl. Flames were observed coming from the helicopter's right rear side in the vicinity of the engine compartment, and very little smoke was observed. The witness added that prior to descending from view, the helicopter appeared to be in controlled flight.</p> <p>PERSONNEL INFORMATION</p> <p>According to personnel records provided by the Direccion General de Aeronautica Civil (DGAC) of Guatemala, the pilot-in-command (PIC) held a Guatemalan private pilot certificate for helicopters, which was issued on September 22, 1994. Their records show that the pilot's last annual revalidation was completed on September, 22, 1997. At the time of this revalidation, the pilot's total flight time was 278 hours and 20 minutes. His last medical certificate was issued on September 8, 1997.</p> <p>The DGAC records revealed that the passenger also held a Guatemalan private pilot certificate for helicopters. The pilot rated passenger's last annual revalidation was completed on March, 24, 1997. At the time of this revalidation, the pilot rated passenger's total flight time was 1,642 hours and 18 minutes. His last medical certificate was issued on March 24, 1997. The passenger was also an aircraft mechanic.</p> <p>AIRCRAFT INFORMATION</p> <p>A review of DGAC certification and maintenance records revealed that the Bell 206-A helicopter, TG-JET, was purchased and registered in Guatemala in 1975. The aircraft's last annual inspection was completed on April 15, 1997, and the helicopter had accumulated 2,381.1 hours.</p>					
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FACTUAL REPORT

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Narrative (Continued)

According to U.S. Customs records, the Guatemalan registered helicopter arrived in Brownsville, Texas, on February 9, 1998, from Tampico, Mexico. The operator reported to the NTSB IIC that the helicopter was in the United States for scheduled maintenance, which was to be performed at Heli-Dyne System, Inc. of Hurst, Texas.

According to records provided by Heli-Dyne, a receiving inspection was completed on February 11, 1998. At this time the helicopter had accumulated a total of 2,450.6 hours, with 1,750.8 hours on the engine. On February 13, 1998, a receiving test flight was completed.

The following maintenance was performed by Heli-Dyne: main rotor hub and main transmission overhauled; cyclic, collective and tail rotor servos overhauled; the engine's 1st stage nozzle, combustion liner and compressor halves replaced; a 1,200 hour cyclic stick inspection; a 50 hour inspection and lubrication. See the enclosed records provided by Heli-Dyne for a complete listing of maintenance performed.

Heli-Dyne reported to the NTSB IIC that the helicopter's existing fuel lines were visually inspected and reinstalled. The five fuel flex hoses were trimmed, and the fuel system was bled and pressurized. A ground run leak check was performed. After completion of a main rotor track and balance, the main rotor autorotational speed was verified.

On March 23, 1998, the PIC performed an acceptance flight of 0.4 hours.

At the planned intermediate fuel stop, a Brauntex Aviation fuel handler added 45 gallons of Jet A fuel in the helicopter's fuel tank. According to the fuel handler, the passenger opened the panel "underneath the rotor blades and was looking and touching inside." The passenger tied a strap to a main rotor blade and "continuously walked around the helicopter 3 or 4 times" while the pilot looked "in the other panel below the blades." Neither the pilot nor the passenger said what they were looking at or if there was anything wrong with the helicopter.

An estimate of the weight of the helicopter at the time of the accident placed it within weight and balance limits. The helicopter's airframe and engine logbooks were not located; however, Heli-Dyne reported to the NTSB IIC that all of the historical records were onboard the aircraft when it departed their facility. It is presumed the records were destroyed by the in-flight and postimpact fire.


The helicopter was not equipped with a fire detection system for the engine compartment.

WRECKAGE IMPACT INFORMATION

The aircraft wreckage was located in an open flat farm field approximately 6.5 miles southeast of Rio Hondo at latitude 26 degrees 11.46 minutes north and longitude 97 degrees 29.44 minutes west.

Examination of the accident site revealed the left skid in the initial ground scar oriented on a heading of 128 degrees magnetic. Both of the left side doors were found left of the skid, and the tailboom was left of the doors oriented on a heading of 120 degrees magnetic (from front of tailboom). The tailboom's left horizontal stabilizer was in a ground crater bent aft and partially separated. The #3 tail rotor drive shaft segment was found 66 feet prior to the tailboom. The cockpit and main transmission were found together on their left side 23 feet 10 inches beyond the tailboom oriented on a heading of 305 degrees magnetic. The engine, aft cabin and cargo compartment were found 12 feet from cockpit. The main rotor hub was separated from its mast and found 24 feet from the main transmission. Sections of main rotor blades were found to the left, right and forward of the wreckage. See the enclosed wreckage diagram for wreckage distribution.

The engine sustained impact and fire damage, and was shipped to the manufacturer for further

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Narrative (Continued)

examination.

Due to the extent of impact and fire damage, flight control continuity could not be established through the cabin and cockpit area.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies of both occupants were performed by Lawrence J. Dahm, M.D., at the Valley Baptist Hospital, Harlingen, Texas. No evidence of smoke-inhalation was found.

Aviation toxicological testing was performed by the FAA Civil Aeromedical Institute (CAMI), at Oklahoma City, Oklahoma. Toxicological findings were negative.

FIRE

Examination of the engine compartment revealed that the step portion of the forward firewall where the throttle and fuel line pass through had localized bluing. The engine fuel line connector was still attached to the firewall fitting; however, it could be turned about a quarter of a turn clockwise (tightened) before any resistance could be felt. The connector did not exhibit any fire damage, and its hose was not attached. The engine deck also exhibited bluing.

The aft cabin, cargo compartment, oil tank, and oil cooler fan were destroyed by fire. No evidence of fire was found within the main transmission area. Examination of the tailboom revealed that approximately 28 inches of the aft fuselage, which had fire damage, was still attached. Streaks of an ash-like substance were found on the right side of the tailboom, the leading edge of the right horizontal stabilizer and the leading edge of the vertical fin fairing. The ash streaks were oriented in a fore to aft direction. Droplets of what appeared to be molten aluminum were found adhering to the 90 degree gearbox fairing bolt heads on the leading edge top and right sides of the fairing.

The #3 tail rotor drive shaft segment, which was found prior to the tailboom's location, was fractured with fire damaged fiberglass cloth wrapped around the forward end of the fractured shaft. The cloth was wrapped opposite to the direction of rotation.


TEST AND RESEARCH


A teardown inspection of the Allison 250-C18 engine, serial number CAE801012, was conducted at the Allison Engine Company in Indianapolis, Indiana, on May 13, 1998, under the supervision of the NTSB investigator-in-charge. According to the manufacturer, there were "no internal failures of engine components," and "the ash deposits throughout the turbine section of the engine indicates that there was airflow through the engine for an unspecified period of time during the fire." See the enclosed manufacturer report for details of the examination.

Examination of the fractured #3 tail rotor drive section by a NTSB metallurgist revealed that "the fracture was consistent with an overstress after exposure to elevated temperatures."

ADDITIONAL DATA

The helicopter wreckage was released to the owner on June 29, 1998.

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown:					
VFR Approach/Landing: Forced Landing					
Aircraft Information					
Aircraft Manufacturer Bell		Model/Series 206-A /206-A		Serial Number 86	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Skid					
Amateur Built Acft? No	Number of Seats: 5	Certified Max Gross Wt. 3000 LBS	Number of Engines: 1		
Engine Type: Turbo Shaft	Engine Manufacturer: Allison	Model/Series: 250-C18	Rated Power: 317 HP		
- Aircraft Inspection Information					
Type of Last Inspection Annual	Date of Last Inspection 03/1998	Time Since Last Inspection 5 Hours	Airframe Total Time 2457 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type Yes /	ELT Operated? No	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner PINARSA		Street Address 1 AVENIDA 6-05 FIOVA 14			
		City GUATEMALA CITY	State OF	Zip Code 00000	
Operator of Aircraft PINARSA		Street Address AVE HINCAPE Y 18, ZONA 13			
		City GUATEMALA CITY	State OF	Zip Code 00000	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Ferry					

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First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 44
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Sex: M	Seat Occupied: Right	Occupational Pilot? Business	Certificate Number: On File
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Certificate(s): Private

Airplane Rating(s): None

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): None

Instructor Rating(s): None

Current Biennial Flight Review?

Medical Cert.: Class 2	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 09/1997
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	310									
Pilot In Command(PIC)										
Instructor										
Instruction Received										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

Seatbelt Used? Yes	Shoulder Harness Used? Unknown	Toxicology Performed? Yes	Second Pilot? No
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Flight Plan/Itinerary

Type of Flight Plan Filed: None

Departure Point NEW BRAUNFELS	State TX	Airport Identifier 3R5	Departure Time 1100	Time Zone CST
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Destination BROWNSVILLE	State TX	Airport Identifier BRO	
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Type of Clearance: VFR

Type of Airspace: Class G

Weather Information

Source of Wx Information:

No record of briefing


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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
	0000		0 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Clear			0 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 0 SM	Altimeter: "Hg	
Temperature: °C	Dew Point: °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction: 160	Wind Speed: 35	Wind Gusts:			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM				
Precip and/or Obscuration:					

Accident Information		
Aircraft Damage: Destroyed	Aircraft Fire: In-flight	Aircraft Explosion: None

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers	1				1
- TOTAL ABOARD -	2				2
Other Ground	0	0	0		0
- GRAND TOTAL -	2	0	0		2

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Administrative Information

Investigator-In-Charge (IIC)
DOUGLAS D. WIGINGTON

Additional Persons Participating in This Accident/Incident Investigation:

EDWARD C GREER
SAN ANTONIO, TX

JOHN J SWIFT
INDIANAPOLIS, IN

JACK H SUTTLE
FORT WORTH, TX