National Transportation Safety Board
Aviation Accident Final Report

Location:	RAEFORD, NC	**Accident Number:**	ATL94LA133
Date & Time:	07/09/1994, 1015 EDT	**Registration:**	N111FX
Aircraft:	PILATUS PC-6/B1-H2	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

THE PILOT WAS PERFORMING THE INITIAL TAKEOFF, WHEN HE OBSERVED A LOSS OF POWER, ASSOCIATED WITH A TORQUE INDICATION OF ZERO. HE FORCE LANDED THE AIRCRAFT IN A WOODED AREA WHEN HE COULD NOT MAKE AN OPEN FIELD. A POST ACCIDENT INSPECTION OF THE ENGINE REVEALED THAT THE FUEL CONTROL UNIT ARM WAS LOOSE, AND THE LOCK WIRE WAS NOT IN PLACE. THE ARM WAS POSITIONED SO THAT A MAXIMUM POWER DEMAND FROM THE THROTTLE WOULD CORRESPOND TO AN IDLE POWER DEMAND AT THE FUEL CONTROL. THE ENGINE UNDERWENT A 100 HOUR INSPECTION, BY COMPANY MAINTENANCE PERSONNEL, 8 DAYS PRIOR TO THE ACCIDENT. THE INSPECTION CHECKLIST CALLED FOR EXAMINING THE FUEL CONTROL LINKAGE FOR SECURITY.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE IMPROPER INSPECTION OF THE AIRCRAFT BY COMPANY MAINTENANCE PERSONNEL, WHICH RESULTED IN AN UNSAFETIED AND DISCONNECTED FUEL CONTROL ARM.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) FUEL INJECTION CONTROL,LINKAGE - NOT SAFETIED
2. (C) FUEL INJECTION CONTROL,LINKAGE - DISENGAGED
3. (C) MAINTENANCE,100-HOUR INSPECTION - IMPROPER - COMPANY MAINTENANCE PERSONNEL

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Factual Information

On July 9, 1994, at 1015 eastern daylight time, a Pilatus PC-6/B1-H2, N111FX, was destroyed following a collision with terrain during a forced landing attempt near Raeford, North Carolina. The commercial pilot and his pilot-rated passenger received minor injuries. The aircraft was being operated under the provisions of 14 CFR Part 91 by Freefall Express, Incorporated of Deland, Florida. Visual meteorological conditions existed at the time, and no flight plan had been filed for the local, personal flight.

The pilot reported the following: He departed the Raeford Airport with the intention of staying in the local traffic pattern. The takeoff from runway 22 was normal (propeller 100 percent, torque 35 pounds, with six turns of flaps). After liftoff, he retarded the propeller to 90 percent, and the torque to 30 pounds. He raised the flaps, and initiated a left turn, while remaining in a climb. He then observed that the climb rate was slow, and initiated another left turn. The torque then went to zero. The aircraft began to lose altitude, and he referred to the emergency checklist. He set up for a forced landing, while continuing his attempts to regain torque. Unable to make it to an open field, the aircraft was landed in a wooded area. A fire began in the engine area, and the pilots exited the aircraft through the co- pilot's windshield.

A cursory inspection of the engine was performed at the Raeford Airport. The inspection revealed that the fuel control arm extension was loose, and the lock wire was not present. The engine was then shipped to the Pratt and Whitney manufacturing facilities in Longueuil, Quebec, Canada, for a detailed examination. The examination revealed that the fuel control arm extension lock wire was not in place, and the extension could be loosened by hand. The fuel control unit arm was positioned approximately 60 degrees in advance of the normal relationship with the fuel control unit spindle, such that with the input lever positioned to command maximum power, the fuel control unit spindle position corresponded to the idle power position. The lock wire fastening holes of both the fuel control unit arm and the extension appeared uniformly fire and soot discolored, with no marks suggestive of the presence of lock wire prior to the fire and soot discoloration. The fuel control unit arm adjusting spacer serrations and the mating serrations of the fuel control unit arm and spindle displayed uniform sooting and fire discoloration.

The compressor centrifugal impeller and shroud, the compressor turbine and interstage baffle, and the power turbine and power turbine guide vanes displayed light circumferential rubs. The engine manufacturer's representative reported that these rubs were consistent with axial contact under impact loads and external engine case distortion. He also reported that these rotational signatures were characteristic of an engine developing idle range power at impact.

The last inspection of the aircraft occurred on July 1, 1994 (an annual inspection). The inspection included the engine, and a 100 hour checklist was completed by the operator. Under the "Fuel System" section of the checklist was the following entry, initialed by the operator's mechanic: "(4) Fuel control for security and leakage. Check linkage and sense-lines."

Pilot Information

Certificate:	Commercial	**Age:**	41, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	03/16/1994
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	3000 hours (Total, all aircraft), 108 hours (Total, this make and model), 2836 hours (Pilot In Command, all aircraft), 185 hours (Last 90 days, all aircraft), 43 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PILATUS	**Registration:**	N111FX
Model/Series:	PC-6/B1-H2 PC-6/B1-H2	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	701
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	07/01/1994, Annual	**Certified Max Gross Wt.:**	4850 lbs
Time Since Last Inspection:	4 Hours	**Engines:**	1 Turbo Prop
Airframe Total Time:	9963 Hours	**Engine Manufacturer:**	P&W
ELT:	Installed	**Engine Model/Series:**	PT6A-20
Registered Owner:	FREEFALL EXPRESS, INC.	**Rated Power:**	550 hp
Operator:	FREEFALL EXPRESS, INC.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	FAY, 190 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	1048 EDT	**Direction from Accident Site:**	280°
Lowest Cloud Condition:	Scattered / 4000 ft agl	**Visibility**	7 Miles
Lowest Ceiling:	None / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	29°C / 23°C
Precipitation and Obscuration:			
Departure Point:	(5W4)	**Type of Flight Plan Filed:**	None
Destination:	, NC (5W4)	**Type of Clearance:**	None
Departure Time:	1015 EDT	**Type of Airspace:**	Class G

Airport Information

Airport:	RAEFORD MUNICIPAL (5W4)	**Runway Surface Type:**	Asphalt
Airport Elevation:	304 ft	**Runway Surface Condition:**	Dry
Runway Used:	22	**IFR Approach:**	None
Runway Length/Width:	3400 ft / 60 ft	**VFR Approach/Landing:**	Forced Landing

Wreckage and Impact Information

Crew Injuries:	2 Minor	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	ROFF H SASSER,	**Report Date:**	10/13/1995
Additional Participating Persons:	DENNIS A SCARFEO; WINSTON-SALEM, NC		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		