1092454

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: February 17, 1994
In reply refer to: A-94-16
through -19

Honorable David R. Hinson
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On April 22, 1992, about 1109 Pacific daylight time, a de Havilland DHC-6-200, N141PV, crashed shortly after departing runway 15 at Perris Valley Airport, Perris, California. The airplane, operated by Perris Valley Aviation Services, Inc., was beginning a revenue sport parachute jumping flight under 14 Code of Federal Regulations (CFR) Part 91. According to ground witnesses, the takeoff roll and liftoff were normal. The airplane was about 50 feet above the ground and about 1,500 feet short of the departure end of the runway when the nose yawed to the right, and the airplane rolled right about 90°. The airplane then struck the ground and was destroyed by impact forces. Both flight crewmembers and 14 parachutists were killed; six other parachutists received serious injuries.

The Safety Board found that the airplane's forward fuel tank, right fuel delivery system, and right engine fuel management system contained contaminated fuel. One of the airplane's fuel tanks had been serviced with contaminated fuel. Because of the contaminated fuel, the right engine lost power shortly after takeoff. The Safety Board determined that the probable cause of the accident was the pilot's inadvertent feathering of the wrong propeller following an engine power loss, and the failure of the operator to assure that the pilot was provided with adequate training in the airplane. Factors related to the accident were water contamination of fuel in the airport storage tanks, the operator's lack of fuel quality control procedures, improper fuel servicing, improper preflight by the pilot(s), and a gross weight/forward CG beyond the prescribed limits of the airplane. (See the attached brief of accident.)

The investigation found that the second pilot's shoulder harness was not compatible with the passenger lapbelt installed at that seat and could not be used. Although the use of a shoulder harness by the second pilot might not have prevented his death, the Safety Board is concerned that the improper installation of a passenger seatbelt at a pilot seat was accepted by the operator and went undetected during annual inspections and by Federal Aviation Administration (FAA) inspectors during ramp checks.

The Safety Board believes that most of the traumatic injuries suffered by the parachutists were the result of their not being restrained during the crash sequence. The parachutists' injuries included brain evulsions, basilar skull fractures, blunt chest trauma, fractures and dislocations of hips, separations of pubic bones and sacroiliac joints, hematuria and pulmonary contusions, cervical, thoracic, and lumbar spinal fractures, dislocations and transection, and multiple lacerations and contusions. The six parachutists who survived the accident had similar but less life-threatening injuries, which resulted in paraplegia for one of the survivors. The occupiable area of the cabin had sustained only minor deformation damage. Medical personnel from the FAA's Civil Aeromedical Institute (CAMI) determined that the parachutists' fatal injuries were the direct result of their not wearing restraints. The Safety Board also found that adequate numbers of restraints were not available to accommodate all of the passengers on the accident airplane. The Safety Board is concerned that there was a lack of adequate attention to parachutist restraint systems in the airplane.

Although the restraint systems installed in this airplane had not been approved by an FAA airworthiness inspector, an identical installation had been approved by the FAA for the operator's sister ship. There is no advisory circular that specifically addresses parachutist seatbelt installations, nor is such detailed instruction discussed in training provided at the FAA's Airworthiness Inspector School. The Safety Board is concerned that FAA airworthiness inspectors may not possess the necessary knowledge or training in occupant protection and, therefore, do not provide adequate attention to restraint systems installed in airplanes used in parachute operations.

The Safety Board is also concerned that the FAA assigns a low priority to the inspection of sport parachuting activities despite passenger loads of more than 1 million parachutists per year in the Southern California area alone. The investigation found that the inspections that have been accomplished have been mainly ramp checks and have not included surveillance of flying activity, maintenance, or refueling activity.

The Safety Board has investigated numerous accidents involving sport parachuting operations. Subsequently, the Safety Board has made recommendations to improve the safety of those operations.

On October 17, 1982, a Beech C-45H, N403SE, was destroyed shortly after takeoff when it pitched up rapidly, banked steeply, and then collided with the ground. The airplane had departed from a private airport near Taft, California.[1] The pilot, an observer

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[1]See NTSB Accident Report--Taft, California, October 17, 1982.

in the cockpit, and 12 parachutists were fatally injured in the crash. The investigation revealed that the airplane had been loaded well in excess of the maximum gross weight and aft center of gravity limitations. No seatbelts or restraints had been installed in the airplane cabin for the parachutists. The Safety Board determined that the probable cause of the accident was the pilot's inadequate preflight planning/preparation and the takeoff with a weight and balance beyond the prescribed limits.

Following that accident, on February 22, 1983, the FAA issued Operations Bulletin 83-1, "Sky Diving Surveillance and Authorizations" to FAA General Aviation Operations Inspectors. It states, in part:

> All inspectors should review the regulatory requirements associated with sky diving activities, including -
>
> 1. aircraft modifications necessary to accommodate sky diving;
> 2. proper documentation of these modifications;
> 3. determination of approved number of occupants of a given model by type certificate or STC [supplemental type certificate];
> 4. seatbelts and emergency exits;
> 5. aircraft loading and weight and balance requirements.

On August 21, 1983, a Lockheed L-18 Learstar, N116CA, crashed after an uncontrolled descent from 12,500 feet.[2] The airplane carried 24 sport parachutists and two pilots. Fifteen parachutists successfully parachuted from the airplane during the descent. Nine parachutists and the two pilots were fatally injured. The Safety Board determined that the probable cause of the accident was the failure of the operator and pilot-in-command to assure proper load distribution during the parachutist exit procedure. As a result of this accident, the Safety Board issued three recommendations to the FAA:

> Amend 14 CFR 105 to require that persons who intend to operate aircraft for parachute jump activities obtain an initial approval for the use of the aircraft for this purpose from an appropriate FAA District Office, and require that persons seeking such approval present sufficient evidence to permit evaluation of the following:
>
> - the effect of any aircraft modification such as door removal or external protuberances on

[2]See NTSB Accident Report--Silvana, Washington, August 21, 1983, (NTSB/AAR-84/06).

- the effect of any aircraft modification such as door removal or external protuberances on the controllability or handling qualities of the aircraft.

- the relationship of the maximum number of persons to be carried aboard the aircraft to the emergency exit requirements of 14 CFR 91.47, the safety belt requirements of 14 CFR 91.14, and the aircraft's published weight and balance envelope for takeoff and landing.

- the parachute jump egress procedures to be used as they may affect adversely the airplane weight and balance limitations and controllability during jump operations and may require suitable placards on the aircraft defining special procedures needed to maintain controllability. (A-84-55)

Direct FAA District Office inspectors to contact periodically operators known to use aircraft in parachute jump activities to review their operations to assure adherence to applicable regulations and good safety practices. (A-84-56)

Encourage FAA District Office inspectors to maintain close liaison with the United States Parachute Association (USPA) and local parachute clubs to foster appreciation for and adherence to good safety practices. (A-84-57)

In a letter to the Safety Board dated September 24, 1984, the FAA responded that it believed that current regulations addressed the intent of Safety Recommendation A-84-55 and that it did not plan to amend 14 CFR Part 105. However, the FAA did provide added guidance in Advisory Circular 105-2A. The FAA responded to Safety Recommendation A-84-56 that it had issued a General Notice (GENOT) to emphasize the issues raised by the accident and to increase communication with and surveillance of parachute jumping activities. The Safety Board classified Safety Recommendation A-84-55 "Closed-Acceptable Alternate Action" and classified Safety Recommendation A-84-56 "Closed-Acceptable Action."

With regard to Safety Recommendation A-84-57, the FAA responded that it was already maintaining liaison with the USPA and local parachute clubs to enforce appropriate regulations and to encourage and foster good safety practices. The FAA noted that the GENOT referenced above emphasized increased relations with the USPA and local parachute clubs. The Safety Board classified Safety Recommendation A-84-57 "Closed-Acceptable Action."

Subsequent to the actions cited above, several multiple-fatality accidents occurred during revenue or sport parachuting flights.

On September 29, 1985, a Cessna 208, N551CC, collided with the ground after a loss of engine power shortly after takeoff from Jenkinsburg, Georgia. The airplane was destroyed. The pilot and 16 parachutists were fatally injured. Seatbelts were installed in the cabin in such a way as to be unusable by the parachutists. The Safety Board determined that the probable cause of the loss of power was continued operation with fuel contamination. Loss of control was the result of an inadvertent stall/spiral.

On September 7, 1992, a Beech C-45H, N3657G, was destroyed when it collided with the ground 3 miles north of the departure airport at Hinckley, Illinois. The pilot and 11 parachutists from the Hinckley Parachute Center, Inc., were fatally injured in the crash. Postcrash investigation revealed that the left engine had experienced a mechanical failure during climbout to the drop zone, and the pilot had been maneuvering for a forced landing in a field when control of the airplane was lost at low altitude.[3] The Safety Board found no evidence that the parachutists had been restrained during the flight. The parachutists were free to move around in the airplane and, thereby, to affect the weight and balance conditions of the airplane during the flight. The Safety Board determined that the probable cause of the accident was inadequate maintenance and inspection by the operator which resulted in an engine power loss during the critical takeoff phase of flight. In addition, the pilot did not, or was unable to, attain a full-feather position on the left engine propeller, which would have most likely enabled the airplane to sustain minimum control airspeed. (See the attached brief of accident.)

During the summer of 1993, at the World Freefall Convention in Quincy, Illinois, a Boeing 727 cargo airplane completed four lifts of over 650 parachutists without any provision for restraint of the parachutists. The organizers and various parachute groups participating did not effect voluntary compliance with pertinent FAA rules or applicable USPA Basic Safety Requirements. When FAA authorities belatedly became aware of the situation, they issued a stop order to terminate the operation.

The Safety Board is concerned that in the above accidents and the B-727 incident, parachutists were not restrained by seatbelts or other suitable restraints. The accidents and incident illustrate continuing lack of adequate attention to this problem by sport parachutists, revenue parachuting operations, and the FAA. Currently, 14 CFR 91.107(b) allows parachutists to be seated on airplane cabin floors and requires that a safety belt (and shoulder

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[3]See NTSB Accident Report--Hinckley, Illinois, September 7, 1992.

harness, if installed) be properly secured about each person on board during takeoff and landing. The regulation does not define the meaning of "properly secured" in the context of parachutist restraints. The Safety Board is unaware of any restraint system that has been approved by the FAA for parachutists sitting on airplane floors.

The cabin floor of an airplane does not provide support, energy absorption, or restraint normally provided by a properly designed aircraft seat. Because the cabin floor does not provide occupant protection but exposes parachutists to risk, there is little justification for allowing parachutists to be seated on cabin floors. Many types of seats are available (including military troop seats) that have been designed to accommodate parachutist occupants as well as to absorb vertical, longitudinal, and lateral deceleration loads. The Safety Board is concerned that because parachutists are frequently allowed to sit directly on the cabin floor, the crash loads, especially the vertical loads, are transferred directly from the airframe to the parachutists' bodies, instead of through the seat unit. The Safety Board believes that even during a minor deceleration, an occupant sitting on the floor may receive serious injuries.

The Safety Board recognizes that some parachutists are aware of the above-mentioned risks and consider these risks acceptable. However, the Safety Board believes that the associated hazards to parachutists are unacceptable and that aircraft restraint systems and crashworthy seating are essential to safe parachuting operations. Further, restraint systems and seating specific to parachutists and other occupants who sit directly on the floor of an airplane should be developed expeditiously.

The Safety Board is concerned that seatbelts and other restraints are frequently used improperly by parachutists, providing little protection. A passenger-type seatbelt installed on an airplane floor does not provide the same level of occupant protection in the event of a crash when used by parachutists and secured at undesirable angles over the hips or over other parts of the body. Likewise, wall-mounted belts looped around the upper torso of parachutists with a single point attachment offer little protection and may cause serious injury.

The USPA provides each member with the USPA "Skydivers Information Manual" (SIM). The manual includes a recommendation for the use of seatbelts for parachutists during takeoff and landing but does not place the use of seatbelts in the Basic Safety Requirements (BSR). The Safety Board is concerned that the absence of a seatbelt requirement in the BSR section may mislead members and contribute to the non-use of seatbelt/restraint systems during critical phases of flight.

The Safety Board believes that the importance of occupant restraints and crashworthy seating in the event of a crash requires a solution unique to the needs of sport parachutists. A restraint system and energy absorbing seating must be developed specifically for parachute operations for both single and tandem jumpers. The Safety Board believes that such a restraint system and other systems currently used or being developed for use for parachutists should be tested dynamically, using anthropomorphic dummies and an installation approved by CAMI, because the dynamics of persons seated on an airplane floor may be quite different from seated occupants.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

> In conjunction with industry, USPA, and CAMI, develop and test universal restraint systems capable of providing adequate protection to parachutists similar to that provided for seated passengers. (Class II, Priority Action) (A-94-16)
>
> In conjunction with industry, USPA, and CAMI, provide for the seating of parachutists to assure an adequate level of crash energy absorption in the event of a survivable aircraft accident. (Class II, Priority Action) (A-94-17)
>
> Amend 14 CFR 91.30 to require each parachutist or other passenger who is seated on an aircraft cabin floor to use restraint systems. The restraint system must be designed, tested, and approved to provide a level of occupant protection similar to that provided for passengers in forward and aft facing seats that have a safety belt and shoulder harness. (Class II, Priority Action) (A-94-18)
>
> Direct Flight Standards District Offices to increase their surveillance of sport parachute operations and comply with their associated operations bulletins regarding parachute operations. (Class II, Priority Action) (A-94-19)

Also as a result of its investigation, the Safety Board issued Safety Recommendations A-94-20 through -23 to the United States Parachute Association.

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HAMMERSCHMIDT, and HALL concurred in these recommendations.

By: Carl W. Vogt
Chairman

National Transport[illegible]n Safety Board
Washington, D.C. 20594

Brief of Accident

File No. - 2747 4/22/92 PERRIS,CA A/C Reg. No. N141PV Time (Lcl) - 1109 PDT

----Basic Information----
Type Operating Certificate-NONE (GENERAL AVIATION)

Type of Operation -PARACHUTING
Flight Conducted Under -14 CFR 91
Accident Occurred During -TAKEOFF

Aircraft Damage
DESTROYED
Fire
NONE

	Injuries			
	Fatal	Serious	Minor	None
Crew	2	0	0	0
Pass	14	6	0	0

----Aircraft Information----
Make/Model - DEHAVILLAND DHC-6-200
Landing Gear - TRICYCLE-FIXED
Max Gross Wt - 11579
No. of Seats - 24

Eng Make/Model - P&W PT6A-20A
Number Engines - 2
Engine Type - TURBOPROP
Rated Power - 550 HP

ELT Installed/Activated - YES/YES
Stall Warning System - YES

----Environment/Operations Information----
Weather Data
Wx Briefing - NO RECORD OF BRIEFING
Method - N/A
Completeness - N/A
Basic Weather - VMC
Wind Dir/Speed- LIGHT AND VARIABLE
Visibility - 15.0 SM
Lowest Sky/Clouds - CLEAR
Lowest Ceiling - NONE
Obstructions to Vision- NONE
Precipitation - NONE
Condition of Light - DAYLIGHT

Itinerary
Last Departure Point
SAME AS ACC/INC
Destination
LOCAL

ATC/Airspace
Type of Flight Plan - NONE
Type of Clearance - NONE
Type Apch/Lndg - NONE

Airport Proximity
ON AIRPORT

Airport Data
PERRIS VALLEY
Runway Ident - 15
Runway Lth/Wid - 5100/ 65
Runway Surface - ASPHALT
Runway Status - DRY

----Personnel Information----
Pilot-In-Command
Certificate(s)/Rating(s)
COMMERCIAL,CFI
SE LAND,ME LAND

Age - 44
Biennial Flight Review
Current - YES
Months Since - 6
Aircraft Type - PA-28R

Medical Certificate - VALID MEDICAL-WAIVERS/LIMIT

Flight Time (Hours)			
Total	4300	Last 24 Hrs	UNK/NR
Make/Model	100	Last 30 Days	UNK/NR
Instrument	UNK/NR	Last 90 Days	UNK/NR
Multi-Eng	UNK/NR	Rotorcraft	UNK/NR

Instrument Rating(s) - AIRPLANE

----Narrative----
THE GROUND LOADER HAD FUELED THE AIRPLANE FROM THE AIRPORT FUEL TRUCK. HE STATED THAT THE FLIGHT CREW DID NOT SUMP THE FUEL TANKS AFTER THEY WERE FUELED. IMMEDIATELY AFTER TAKEOFF THE RIGHT ENGINE LOST POWER, THE RIGHT WING LOWERED TO ABOUT 90 DEG. AND THE AIRPLANE IMPACTED THE GROUND ADJACENT TO THE RUNWAY. THEN FORWARD FUEL TANK, WHICH PROVIDES FUEL TO THE RIGHT ENGINE, WAS FOUND TO CONTAIN ABOUT 8 GALS OF A HEAVILY CONTAMINATED MIXTURE COMPOSED OF WATER, AN EMULSIFYING AGENT, AND BACTERIAL GROWTH. THE FUEL FROM THE AIRPORT FUEL TRUCK AND MAIN UNDERGROUND TANK CONTAINED THE SAME MIXTURE. FUEL HAD BEEN TRANSFERED FROM THE UNDERGROUND TANK TO THE TRUCK ON THE EVENING PRECEDING THE ACCIDENT. THE LEFT PROPELLER CONTROL WAS FOUND SEIZED IN THE FEATHER POSITION; LEFT PROPELLER BLADES IN THE NEAR-FEATHER POSITION.

File No. - 2747 4/22/92 PERRIS,CA A/C Reg. No. N141PV Time (Lcl) - 1109 PDT

Occurrence #1 LOSS OF ENGINE POWER(TOTAL) - NON-MECHANICAL
Phase of Operation TAKEOFF - INITIAL CLIMB

Finding(s)
1. 1 ENGINE -
2. FLUID,FUEL - CONTAMINATION
3. FLUID,FUEL - WATER
4. AIRPORT FACILITIES - NOT MAINTAINED
5. MAINTENANCE,SERVICE OF AIRCRAFT - INADEQUATE - COMPANY/OPERATOR MGMT
6. AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

Occurrence #2 LOSS OF ENGINE POWER(TOTAL) - NON-MECHANICAL
Phase of Operation TAKEOFF - INITIAL CLIMB

Finding(s)
7. 1 ENGINE -
8. WRONG PROPELLER FEATHERED - INADVERTENT - PILOT IN COMMAND
9. IMPROPER INITIAL TRAINING - COMPANY/OPERATOR MANAGEMENT

Occurrence #3 LOSS OF CONTROL - IN FLIGHT
Phase of Operation TAKEOFF - INITIAL CLIMB

Finding(s)
10. AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND

Occurrence #4 IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation TAKEOFF - INITIAL CLIMB

----Probable Cause----

The National Transportation Safety Board determines that the Probable Cause(s) of this accident was: THE PILOT-IN-COMMAND'S INADVERTENT FEATHERING OF THE WRONG PROPELLER FOLLOWING AN ENGINE POWER LOSS, AND THE FAILURE OF THE OPERATOR TO ASSURE THAT THE PILOT WAS PROVIDED WITH ADEQUATE TRAINING IN THE AIRPLANE. FACTORS RELATED TO THE ACCIDENT WERE: WATER CONTAMINATION OF FUEL IN THE AIRPORT STORAGE TANKS, THE OPERATOR'S LACK OF FUEL QUALITY CONTROL PROCEDURES, IMPROPER FUEL SERVICING, IMPROPER PREFLIGHT BY THE PILOT(S), AND EXCEEDING THE GROSS WEIGHT/FORWARD CG LIMITS OF THE AIRPLANE.

National Transpor .1 Safety Board
Washington, .C. 20594

Brief of Accident

File No. - 0927 9/07/92 HINCKLEY,IL A/C Reg. No. N3657G Time (Lcl) - 1240 CDT

----Basic Information----
Type Operating Certificate-NONE (GENERAL AVIATION)

Type of Operation -SKYDIVING
Flight Conducted Under -14 CFR 91
Accident Occurred During -MANEUVERING

Aircraft Damage
DESTROYED
Fire
ON GROUND

Injuries	Fatal	Serious	Minor	None
Crew	1	0	0	0
Pass	11	0	0	0

----Aircraft Information----
Make/Model - BEECH C-45H
Landing Gear - TAILWHEEL-ALL RETRACTABLE
Max Gross Wt - 9360
No. of Seats - 2

Eng Make/Model - P&W R-985-AN-14B
Number Engines - 2
Engine Type - RECIPROCATING-CARBURETOR
Rated Power - 450 HP

ELT Installed/Activated - NO -N/A
Stall Warning System - UNK/NR

----Environment/Operations Information----
Weather Data
Wx Briefing - FSS
Method - ACFT RADIO
Completeness - WEATHER NOT PERTINENT
Basic Weather - VMC
Wind Dir/Speed- 180/012 KTS
Visibility - 10.0 SM
Lowest Sky/Clouds - 3300 FT
Lowest Ceiling - 3300 FT BROKEN
Obstructions to Vision- NONE
Precipitation - NONE
Condition of Light - DAYLIGHT

Itinerary
Last Departure Point
SAME AS ACC/INC
Destination
LOCAL

ATC/Airspace
Type of Flight Plan - NONE
Type of Clearance - NONE
Type Apch/Lndg - FORCED LANDING

Airport Proximity
OFF AIRPORT/STRIP

Airport Data
Runway Ident - N/A
Runway Lth/Wid - N/A
Runway Surface - N/A
Runway Status - N/A

----Personnel Information----
Pilot-In-Command
Certificate(s)/Rating(s)
COMMERCIAL
SE LAND.ME LAND

Age - 54
Biennial Flight Review
Current - YES
Months Since - 2
Aircraft Type - BE-18

Medical Certificate - VALID MEDICAL-WAIVERS/LIMIT

Flight Time (Hours)			
Total	3030	Last 24 Hrs	UNK/NR
Make/Model	867	Last 30 Days	190
Instrument	14	Last 90 Days	240
Multi-Eng	1168	Rotorcraft	UNK/NR

Instrument Rating(s) - NONE

----Narrative----
AFTER TAKEOFF, THE AIRPLANE WAS SEEN AT LOW ALTITUDE TRAILING SMOKE FROM THE LEFT ENGINE. WITNESSES SAW THE WINGS "TIPPING" BACK AND FORTH, THEN A WING DROPPED AND HIT THE GROUND. EXAMINATION REVEALED THAT A SUPERCHARGER BEARING HAD FAILED IN THE LEFT ENGINE. THE LEFT ENGINE HAD BEEN RECENTLY INSTALLED BY NON-CERTIFICATED PERSONNEL AFTER BEING INACTIVE FOR 18 YRS WITHOUT PRESERVATION. THE AIRPLANE HAD FLOWN ABOUT 184 HRS SINCE THE LAST ANNUAL INSPECTION; NO RECORD OF SUBSEQUENT 100-HR INSPECTION. THE LEFT PROP BLADES WERE FOUND IN AN INTERMEDIATE POSITION BETWEEN THE OPERATING RANGE AND THE FEATHERED POSITION. THE LEFT PROP WAS CHANGED SEVERAL WEEKS PRIOR TO THE ACCIDENT. THERE IS NO EVIDENCE THAT THE LEFT PROP HAD EVER BEEN SUCCESSFULLY CYCLED TO THE FULL FEATHER POSITION. THE OPERATOR AND PILOTS WERE NOT AWARE OF HAMILTON STANDARD SB 657 RECOMMENDING FULL-FEATHER CHECKS EVERY 30 DAYS. LEFT PROP FEATHERING MOTOR RELAYS NOT RECOVERED. ALL 11 PARACHUTISTS WERE FOUND IN CENTER PART OF FUSELAGE; NO EVIDENCE OF RESTRAINT USEAGE.

File No. - 0927 9/07/92 HINCKLEY,IL A/C Reg. No. N3657G Time (Lcl) - 1240 CDT

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

Finding(s)
1. ENGINE ASSEMBLY,BLOWER/IMPELLER - FAILURE,TOTAL
2. MAINTENANCE - INADEQUATE - COMPANY/OPERATOR MGMT
3. MAINTENANCE,100 HOUR INSPECTION - NOT PERFORMED - COMPANY/OPERATOR MGMT

Occurrence #2 FORCED LANDING
Phase of Operation MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Finding(s)
4. MAINTENANCE,SERVICE BULLETINS - NOT FOLLOWED - COMPANY/OPERATOR MGMT
5. PROPELLER FEATHERING - NOT ATTAINED -

Occurrence #3 IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Finding(s)
6. SEAT BELT - NOT USED - PASSENGER

----Probable Cause----

The National Transportation Safety Board determines that the Probable Cause(s) of this accident was:
INADEQUATE MAINTENANCE AND INSPECTION BY THE OPERATOR WHICH RESULTED IN AN ENGINE POWER LOSS DURING THE CRITICAL TAKEOFF PHASE OF FLIGHT. IN ADDITION, THE PILOT DID NOT, OR WAS UNABLE TO, ATTAIN A FULL-FEATHER POSITION ON THE LEFT ENGINE PROPELLER, WHICH WOULD HAVE MOST LIKELY ENABLED THE AIRPLANE TO SUSTAIN MINIMUM CONTROL AIRSPEED.