

Log #2251



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 23, 1990
In reply refer to: A-90-109

Honorable James B. Busey
Administrator
Federal Aviation Administration
Washington, DC 20591

On January 10, 1988, a Swearingen SA226T(B) Merlin IIIB, N800AW, operated by American Way Service Corporation, experienced a loss of control during the initial climb from runway 27L at Oakland-Pontiac Airport in Pontiac, Michigan. Witnesses reported that as the airplane climbed to an altitude of 50 to 100 feet, it yawed slightly to the right then rolled rapidly to the right. The roll continued past the inverted position as the airplane descended and struck the ground, left wingtip first, 169 feet north of the runway centerline. Both pilots and a passenger were fatally injured. The crew was engaged in a training flight that was to emphasize engine-out procedures.¹

The subsequent investigation revealed significant wear on each power lever reverse gate detent arm. The wear was located on the portion of the arm that contacts the flight idle stop. The stop is to prevent inadvertent travel of the power lever into the beta and reverse ranges. The Safety Board believes that the rapid right roll that led to the in-flight loss of control was precipitated by the inadvertent movement of the power lever into the beta range as the instructor retarded the lever to the flight idle detent to simulate a right engine failure.

On June 24, 1980, Swearingen Aviation Corporation (now Fairchild Aircraft Corporation) issued service bulletin 76-004, "Power Lever Flight Idle Gate Detent Improvement" to "ensure proper contact with [the] control pedestal rub plate." The bulletin applied to certain model SA226 series airplanes and recommended replacement of the power lever reverse gate detent arm and spring. The improvement was also incorporated on production airplanes. The accident airplane was manufactured with the improved flight idle gate detent.

^{1/} NTSB Brief of Accident File No. 1548 (attached)

A review of Service Difficulty Reports (SDR) for a recent 5-year period disclosed five reports of worn flight idle detent arms in SA226/227 airplanes. The reports involved four airplanes that had been manufactured with the flight idle gate improvement; the detent arms, however, had worn such that the power lever could easily slip by the gate and into the beta range. In one instance, the part had accumulated only 946 hours in service (the accident airplane had 1,515 hours). Additionally, a fifth report in the SDR data base applied to both the SA226 and SA227 series airplanes. It stated that the power levers could be pulled back with little or no effort as the detent parts begin to wear. Several different airplanes, in service from 1,000 to 4,000 hours, had been checked and all of the flight idle gate detents had been subjected to similar wear.

The Safety Board is concerned that the product improvement to the flight idle gate detent introduced by service bulletin 76-004 may be not be adequate in precluding excessive wear that can reduce the effectiveness of the power lever flight idle gate. Inadvertent placement of the power levers into the beta range may occur, which could result in degraded airplane handling or loss of control during critical phases of flight. The Safety Board believes that repetitive inspections of the flight idle gate detent arms for excessive wear at appropriate intervals, until necessary terminating modifications to the flight idle gate detent are incorporated, will reduce the possibility of inadvertent placement of the power levers into the beta range.

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

Issue an airworthiness directive applicable to the Fairchild Aircraft Corporation model SA226 and SA227 series airplanes requiring inspection of the power lever flight idle gate detent arms for excessive wear and proper operation at appropriate repetitive intervals, and require that Fairchild initiate terminating remedial design action. (Class II, Priority Action) (A-90-109)

KOLSTAD, Chairman, COGHLIN, Vice Chairman, LAUBER and BURNETT, Members, concurred in this recommendation.

By: James L. Kolstad
Chairman

Attachment

Brief of Accident

File No. - 1548 1/10/88 FORTIAC, MI A/C Reg. No. N800AM Time (Lcl) - 1017 EST

---Basic Information---

Type Operating Certificate-NONE (GENERAL AVIATION)

Aircraft Damage

DESTROYED

Fire

NONE

Injuries

Fatal Serious Minor None

2 0 0 0

Crew Pass

1 0 0 0

Type of Operation - INSTRUCTIONAL

Flight Conducted Under - 14 CFR 91

Accident Occurred During - TAKEOFF

---Aircraft Information---

Make/Model - FAIRCHILD 8A226T

Landing Gear - TRICYCLE-RETRACTABLE

Max Gross Wt - 12500

No. of Seats - 8

Eng Make/Model - GARRETT TFE-331-100

Number Engines - 2

Engine Type - TURBOPROP

Rated Power - 840 HP

ELT Installed/Activated - YES/YES

Stall Warning System - YES

---Environment/Operations Information---

Weather Data

WX Briefing - F98

Method - TELEPHONE

Completeness - FULL

Basic Weather - VMC

Wind Dir/Speed - 250/007 KTB

Visibility - 10.0 SM

Lowest Sky/Clouds - CLEAR

Lowest Ceiling - NONE

Obstructions to Vision - NONE

Precipitation - NONE

Condition of Light - DAYLIGHT

Itinerary

Last Departure Point

PONTIAC, MI

Destination

SAME AS ACC/INC

Airport Proximity

ON AIRPORT

Airport Data

OAKLAND PONTIAC

Runway Ident - 27L

Runway Lth/Wid - 6200/ 150

Runway Surface - UNK/NR

Runway Status - UNK/NR

---Personnel Information---

Pilot-In-Command

Certificate(s)/Rating(s)

ATP,CFI

SE LAND,ME LAND

Age - 54

Biennial Flight Review

Current - YES

Months Since - 16

Aircraft Type - UNK/NR

Medical Certificate - VALID MEDICAL-WAIVERS/LIMIT

Flight Time (Hours)

Total - 22000

Make/Model - UNK/NR

Instrument - UNK/NR

Multi-Eng - UNK/NR

Rotorcraft - UNK/NR

Last 24 Hrs - UNK/NR

Last 30 Days - UNK/NR

Last 90 Days - UNK/NR

Rotorcraft - UNK/NR

Instrument Rating(s) - AIRPLANE

---Narrative---

ACFT WAS SCHEDULED FOR AN INSTRUCTIONAL FLT. DURING THE WX BRIEFING, THE CFI TOLD THE FSS SPECIALIST THAT THE FLT WOULD INCLUDE ENG-OUT PRACTICE. WITNESS STATEMENTS INDICATE THAT THE ACFT ROLLED SHARPLY TO THE RT AND NOSED DOWN AFTER ATTAINING ABOUT 100 FT OF ALT DURING THE CLIMB AFTER TAKEOFF. THE ACFT STRUCK THE GROUND LEFT PROP AND LEFT WING TIP FIRST, IN AN INVERTED FLT ATTITUDE. DURING THE POST ACCIDENT INVESTIGATION, THE RT ENG PWR LEVER WAS SUBJECTED TO LAR EXAM AND IT WAS FOUND THAT THE LOWER AFT PART OF THE LIFT GATE DETENT WAS WORN. THIS CREATED A RAMPING EFFECT BETWEEN THE ROUNDED EDGE OF THE LIFT GATE AND THE FLT IDLE STOP. A WORN LIFT GATE DETENT WOULD ALLOW THE POWER LEVER TO INADVERTENTLY BE MOVED INTO THE BETA RANGE, CAUSING ASYMMETRICAL DRAG AND DEGRADED AIRFLANE PERFORMANCE, PARTICULARLY IN CRITICAL PHASES OF FLIGHT.

Brief of Accident (Continued)

File No. - 1548 1/10/88 PONTIAC, MI A/C Reg. No. NB00AM Time (Lcl) - 1017 EST

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

Findings(s)

1. 1 ENGINE --
2. EMERGENCY PROCEDURE - SIMULATED - PILOT IN COMMAND(CFI)
3. THROTTLE/POWER LEVER - WORN
4. PROPELLER SYSTEM/ACCESSORIES, REVERSING SYSTEM - DEPLOYED INADVERTENTLY

Occurrence #2 LOSS OF CONTROL - IN FLIGHT
Phase of Operation TAKEOFF - INITIAL CLIMB

Occurrence #3 IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation DESCENT - UNCONTROLLED

---Probable Cause---

The National Transportation Safety Board determines that the Probable Cause(s) of this accident is/are findings(s) 3,4

Factor(s) relating to this accident is/are findings(s) 2