National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation A-89-139

Date: December 7, 1989
In reply refer to: A-89-135

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

On November 13, 1988, a Piper PA-28-181 (Archer), N8342L, registered to and operated by TAJ FBO Corporation of Brunswick, Georgia, crashed adjacent to runway 7 while attempting a missed approach from an ILS approach at the Jacksonville International Airport, Jacksonville, Florida. The flight was conducted as an air taxi under the provisions of Title 14 Code of Federal Regulations (CFR) Part 135. The aircraft was destroyed, and the pilot and his three passengers were killed.1/

Accident investigators determined that the airplane's weight at takeoff from Brunswick was 2,640 pounds, with a center of gravity (c.g.) location 93.5 inches aft of datum. The maximum allowable takeoff weight for the airplane was 2,550 pounds; the aft c.g. limit was 93 inches. Investigators determined that the airplane weight at the time of the accident was 2,605 pounds, and the c.g. location was 93.5 inches aft of datum. The Safety Board is unable to determine the extent to which the airplane's weight and balance condition contributed to the accident.

Title 14 CFR 135.63(c) states: "For multiengine aircraft, each certificate holder is responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest must be prepared before each takeoff...." Because N8342L was a single-engine airplane, there was no requirement that a load manifest be prepared for the flight. In fact, there was no evidence that the pilot performed any weight and balance calculations prior to departure.

The Safety Board has investigated numerous accidents involving single-engine aircraft, operated under Part 135, in which "weight and/or c.g." was cited in the probable cause of the accident, or as a contributing factor. Examples of such accidents include:

1) On June 4, 1973, a Piper PA-32, N8903N, crashed during takeoff from Elim, Alaska. Twice during

1/NTSB Field Accident Report MIA89FA033, Brief No. 1862 (attached).

the takeoff roll the airplane became airborne, and finally settled into the ground, despite calm wind conditions. The airplane was determined to have been 1,339 pounds above the maximum allowable gross takeoff weight. The airplane was destroyed in the accident.

2) On March 30, 1977, a Cessna 207, N91073, was destroyed, and the pilot was killed when the airplane failed to maintain flight subsequent to takeoff from Dekalb Peachtree Airport, Atlanta, Georgia. The Safety Board determined that the probable cause of the accident was the result of the airplane being 790 pounds over the maximum allowable gross takeoff weight, and the c.g. beyond the aft limit.

3) On July 17, 1984, a Helio H-250, N6321V, operated by Wright Air Service, Inc., descended uncontrolled into the ground after takeoff from Fairbanks, Alaska. The investigation determined that the aircraft was 392 pounds over its maximum allowable over its maximum allowable gross takeoff weight, and the c.g. location was 5.13 inches aft of the aft limit.

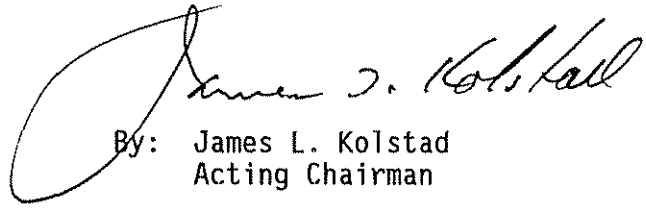
A review of Safety Board records from 1967-1988 indicated 104 accidents involving Part 135 operators in which the Safety Board determined that the weight and balance condition of the aircraft was causal or a contributing factor to the accident. Forty-three of the accidents involved single-engine aircraft. Accordingly, the Safety Board can find no justification for excluding single-engine aircraft operated under 14 CFR Part 135 from the requirement of preparing a load manifest before departure. Since weight and balance is a limitation that all pilots must consider before flight, the Safety Board does not believe this to be burdensome for Part 135 operators. The Safety Board believes that the benefits of requiring operators of single-engine aircraft to prepare a load manifest would be twofold: (1) flightcrews would have a stronger incentive to perform weight and balance calculations, and (2) the requirement to retain the load manifest for 30 days would provide for more effective Federal Aviation Administration (FAA) surveillance of aircraft loading operations, thereby applying more incentive to operators to conduct accurate weight and balance calculations.

When it substantially re-wrote Part 135 in 1978, the FAA's rationale for excluding single-engine aircraft from the requirements of Part 135.63(c) was the greater criticality in loading requirements of multiengine aircraft. However, with the introduction of larger single-engine airplanes that require much stricter adherence to proper loading procedures, such as the Cessna Caravan and Piper Malibu, the Safety Board believes that it would now be appropriate to amend 14 CFR Part 135.63(c) to include single-engine aircraft.

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

> Amend 14 CFR 135.63(c) to require operators of single-engine aircraft to comply with the requirements therein for preparation of a load manifest before each takeoff. (Class II, Priority Action)(A-89-135)

KOLSTAD, Acting Chairman, BURNETT, LAUBER, and DICKINSON, Members, concurred in this recommendation.



By: James L. Kolstad
Acting Chairman

National Transportation Safety Board
Washington, D.C. 20594

Brief of Accident

File No. - 1862 11/13/88 JACKSONVILLE,FL A/C Reg. No. N8342L Time (Lcl) - 2053 EST

----Basic Information----
Type Operating Certificate-ON-DEMAND AIR TAXI
Name of Carrier -TAJ FBO CORP.
Type of Operation -NON SCHED,DOMESTIC,PASSENGER
Flight Conducted Under -14 CFR 135
Accident Occurred During -APPROACH

Aircraft Damage
DESTROYED
Fire
NONE

Injuries	Fatal	Serious	Minor	None
Crew	1	0	0	0
Pass	3	0	0	0

----Aircraft Information----
Make/Model - PIPER PA-28-181
Landing Gear - TRICYCLE-FIXED
Max Gross Wt - 2550
No. of Seats - 4
Eng Make/Model - LYCOMING O-360-A4M
Number Engines - 1
Engine Type - RECIPROCATING-CARBURETOR
Rated Power - 180 HP
ELT Installed/Activated - YES/YES
Stall Warning System - YES

----Environment/Operations Information----
Weather Data
Wx Briefing - UNK/NR
Method - ACFT RADIO
Completeness - UNK/NR
Basic Weather - IMC
Wind Dir/Speed- 040/003 KTS
Visibility - .250 SM
Lowest Sky/Clouds - PART OBS
Lowest Ceiling - 100 FT BROKEN
Obstructions to Vision- FOG
Precipitation - NONE
Condition of Light - NIGHT(DARK)

Itinerary
Last Departure Point
BRUNSWICK,GA
Destination
JACKSONVILLE,FL

ATC/Airspace
Type of Flight Plan - IFR
Type of Clearance - IFR
Type Apch/Lnds - ILS-COMPLETE

Airport Proximity
OFF AIRPORT/STRIP

Airport Data
JACKSONVILLE INT'L
Runway Ident - 07
Runway Lth/Wid - 8000/ 150
Runway Surface - ASPHALT
Runway Status - DRY

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

Age - 39
Biennial Flight Review
Current - YES
Months Since - 4
Aircraft Type - PA-28

Medical Certificate - VALID MEDICAL-NO WAIVERS/LIMIT

Flight Time (Hours)

Total -	1580	Last 24 Hrs -	1
Make/Model-	50	Last 30 Days-	15
Instrument-	310	Last 90 Days-	45
Multi-Eng -	1094		

Instrument Rating(s) - AIRPLANE

----Narrative----
DRG A NGT ARRIVAL, THE PLT REQUESTED A SPECIAL VFR CLNC TO THE ARPT & WAS ADZD THAT THE WX WAS PARTIALLY OBSCURED, VIS WAS 1 MI WITH FOG & THE WIND WAS CALM. AS HE CONTD THE APCH, ALL FLTS WERE ADZD THE VIS HAD DROPPED TO 1/2 MI. THE PLT REQUESTED CLNC FOR AN ILS RWY 7 APCH. AFTER BEING CLRD FOR THE APCH, HE WAS ADZD THE RVR WAS "2000 TOUCHDOWN . . . MID-POINT 1600 & ROLLOUT 1600." CONTACT WITH THE ACFT WAS LOST AS IT APCHD THE ARPT. LATER, THE ACFT WAS FND WHERE IT HAD COLLIDED WITH TREES & CRASHED APRX 1400 FT LEFT OF THE RWY & 500 FT PAST THE THRESHOLD. AN INV REVEALED THAT INITIAL IMPACT WAS IN A LVL ATTITUDE. AN EXAM OF THE ACFT REVEALED THE FLAPS WERE FULLY RETRACTED & THE THROTTLE WAS FULL OPEN. PROP DAMAGE INDCD THERE WAS ROTATION AT HIGH RPM DURING IMPACT. RECORDS SHOWED THE ACFT HAD AN INOP TURN COORDINATOR. NO OTHER PART FAILURE OR MALFUNCTION WAS EVIDENT. A CHECK OF THE WT & BALANCE INFO SHOWED THAT WHEN THE ACFT CRASHED, IT WAS APRX 55 LBS OVER THE MAX GROSS WT LIMITATION & THE CENTER-OF-GRAVITY (CG) WAS APRX .5 INCH BEHIND THE AFT LIMIT.

Brief of Accident (Continued)

File No. - 1962 11/13/88 JACKSONVILLE,FL A/C Reg. No. N8342L Time (Lcl) - 2053 EST

Occurrence #1 IN FLIGHT COLLISION WITH OBJECT
Phase of Operation APPROACH

Finding(s)
1. AIRCRAFT WEIGHT AND BALANCE - IMPROPER - PILOT IN COMMAND
2. FLIGHT/NAV INSTRUMENTS,TURN AND BANK INDICATOR - INOPERATIVE
3. OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - PERFORMED - PILOT IN COMMAND
4. LIGHT CONDITION - NIGHT
5. WEATHER CONDITION - LOW CEILING
6. WEATHER CONDITION - FOG
7. WEATHER CONDITION - OBSCURATION
8. IFR PROCEDURE - IMPROPER - PILOT IN COMMAND
9. PROPER ALIGNMENT - NOT MAINTAINED - PILOT IN COMMAND
10. DECISION HEIGHT - IMPROPER USE OF - PILOT IN COMMAND
11. OBJECT - TREE(S)
12. MISSED APPROACH - NOT ATTAINED - PILOT IN COMMAND

----Probable Cause----

The National Transportation Safety Board determines that the Probable Cause(s) of this accident is/are finding(s) 8,10,12

Factor(s) relating to this accident is/are finding(s) 2,3,4,5,6,7,9,11