



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: September 8, 1994

In reply refer to: A-94 -171 and -172

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

On August 15, 1991, a Cessna Model 182 stalled and crashed while the pilot was attempting a go-around maneuver following a daylight visual approach to the Jerseyville, Illinois, airport. The pilot and one passenger sustained fatal injuries. The Safety Board's investigation determined that the airplane, owned and operated by a flying club, was loaded so that it exceeded the prescribed maximum gross weight by approximately 250 pounds when the go-around maneuver was initiated.

The Safety Board determined that the probable causes of the accident were the pilot's failure to follow proper procedures during a go-around maneuver and his failure to maintain adequate airspeed, which resulted in an inadvertent stall. Factors related to the accident were the pilot's improper use of the flaps, his improper use of the propeller control, and improper weight and balance of the aircraft.¹ The private pilot of the accident airplane had not received specific flight training in the C-182 airplane, and the flying club did not require a formal checkout in that airplane. The club required only that the pilot be able to land the airplane and stop it three consecutive times without overrunning the runway.

On October 31, 1991, a Cessna Model 172, operating on an instrument flight rules flight plan, departed the Waukegan, Illinois, airport on a night cross-country flight. Shortly after the plane departed into a 300 foot ceiling with approximately 1 mile visibility, the engine began running intermittently, and the airplane later descended uncontrolled into trees and terrain. The pilot, who was properly certificated and current, sustained serious injuries in the crash, and the airplane was destroyed. The Safety

¹For more detailed information, read Field Accident Brief 0994 (attached).

Board determined that the probable cause of the accident was water contamination of the fuel, and the pilot's inadequate preflight inspection of the airplane. The Board's investigation also determined that the flying club that owned and operated the accident airplane did not have IFR departure weather minimums for its members for day or night flight into instrument meteorological conditions.² The club's airplanes were not equipped with a backup vacuum pump, and the accident airplane's vacuum system and gyro-operated instruments were not monitored for wear.

A review of the Safety Board's U.S. aviation accident records for calendar year 1992 indicate that, of a total of 2,080 general aviation accidents, 60 involved flying club aircraft. A large majority of these accidents reflected the pilot's inadequate basic knowledge of the aircraft and faulty flying skills, techniques, and judgment. Causal factors frequently included pilot factors such as improper landing/flare techniques, stall, loss of directional control, delayed or improper remedial action, and poor preflight/in-flight planning. Frequently cited factors also included loss of engine power as a result of fuel exhaustion, starvation, contamination, or carburetor icing. These data generally point to a need for better training, checking, and supervision of the pilots involved. The circumstances of many flying club accidents also suggest that many could have been prevented if basic policies, procedures, and standards governing club flight operations, pilot qualifications, and maintenance practices had been in effect.

Flying clubs have been a popular part of general aviation for many years. And, as flying has become increasingly more expensive, the cost benefits of club membership probably have become more enticing for many general aviation pilots. Although some large clubs employ a paid management staff and are highly organized, such an arrangement usually leads to higher dues and rates. As a result, many flying clubs are loosely formed organizations, in which the day-to-day administration and management of the club are delegated to the members themselves. Such arrangements sometimes result in less than fully safe and successful operations.

In 1969, the Federal Aviation Administration (FAA) provided guidance for pilots interested in flying clubs in an Advisory Circular (AC), AC-00-25, entitled "Forming and Operating a Flying Club." The AC comprises 59 pages of fairly detailed guidance, and includes examples of club organizational structures, by-laws, operating rules, recordkeeping forms, and available training aids.

This 25-year-old document is still listed in the latest edition of the FAA's AC Checklist (AC-00-2.8) issued June 15, 1994.

²For more detailed information, read Field Accident Brief 0960 (attached).

However, in response to a request for a copy of AC-00-25 using standard ordering procedures, Safety Board staff was notified that the subject document was "out of print" and "out of stock." Other flying club guidance material has been produced from time to time within the general aviation community. A noteworthy contribution among these sources is a booklet published by the Aircraft Owners and Pilots Association entitled "Organizing and Operating a Flying Club" (AOPA, 1993, 56 pp.). However, it appears that no such current, authoritative guidance is readily available from the FAA.

In light of the continuing popularity of flying clubs, the accident history of airplanes operated by such clubs, and the apparent potential for improving general aviation safety that well-organized and operated flying clubs could offer, the Safety Board believes that the FAA should revise and reissue AC-00-25.

The Safety Board also believes that, concurrent with the reissuance of AC-00-25, the FAA should initiate a program to publicize the availability of the AC and to educate the general aviation flying community about the many benefits--including safety and economy--of active participation in a well-organized and operated flying club. Such efforts could be enhanced if made an integral part of the FAA's Aviation Safety Program (formerly, the Accident Prevention Program).

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

Revise and reissue Advisory Circular AC-00-25, "Forming and Operating a Flying Club," to provide general aviation pilots a broad body of current information and guidance relating to flying clubs, with special emphasis on the safety benefits that can be achieved from participating in a well-organized and well-operated flying club. (Class II, Priority Action) (A-94-171).

Concurrent with the reissuance of Advisory Circular AC-00-25, initiate a program to publicize its availability and to educate general aviation pilots regarding the safety and economical benefits of active participation in a well-organized and operated flying club. (Class II, Priority Action) (A-94-172).

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


By: Jim Hall
ACTING Chairman

Brief of Accident

File No. - 0960 10/31/91 ZION, IL A/C Reg. No. N5411K Time (lcl) - 1755 CST

Basic Information

Type Operating Certificate-NONE (GENERAL AVIATION)
Type of Operation -PERSONAL
Flight Conducted Under -14 CFR 91
Accident Occurred During -CLIMB

Aircraft Information

Make/Model - CESSNA 172P
Landing Gear - TRICYCLE-FIXED
Max Gross Wt - 2300
No. of Seats - 4

Environment/Operations Information

Weather Data
Wx Briefing - FSS
Method - TELEPHONE
Completeness - FULL
Basic Weather - IMC
Wind Dir/Speed- 090/012 KTS
Visibility - 2.000 SM
Lowest Sky/Clouds - 500 FT
Lowest Ceiling - 500 FT OVERCAST
Obstructions to Vision- FOG
Precipitation - DRIZZLE
Condition of Light - NIGHT (DARK)

Personnel Information

Pilot-In-Command
Certificate(s)/Rating(s)
PRIVATE
SE LAND

Instrument Rating(s) - AIRPLANE

Narrative

THE SINGLE ENGINE AIRPLANE WAS OPERATING ON AN IFR FLIGHT PLAN AND CLIMBING THROUGH CLOUDS SHORTLY AFTER TAKEOFF. A WITNESS HEARD AN AIRPLANE'S ENGINE POWER SURGING AND OBSERVED A BRIGHT FLASH AT GROUND LEVEL SHORTLY AFTERWARDS. THE ANOTHER WITNESS OBSERVED THE AIRPLANE DESCENDING AND FLY PAST HIM JUST BEFORE SEEING A BRIGHT FLASH AND HEARING THE CRASH. THE AIRPLANE STRUCK AN ELECTRICAL POWERLINE AND TREE BEFORE COLLIDING WITH THE GROUND AND SLIDING TO A STOP. AN ON-SCENE INVESTIGATION REVEALED WATER IN THE CARBURETOR FLOAT AND ACCELERATOR PUMP CHAMBERS. THE COMMUTATOR OF THE TURN AND SLIP INDICATOR'S ELECTRIC MOTOR WAS FOUND WITH A GROOVE WORN AROUND IT AND A BLACK POWDERY SUBSTANCE PERMEATING THE INTERNAL MECHANISM OF THE INSTRUMENT. DURING AN INTERVIEW WITH THE PILOT, HE STATED THAT HE HAD TAKEN A FUEL SAMPLE FROM EACH FUEL SUMP ON THE AIRPLANE DURING HIS PRE-FLIGHT WALK AROUND INSPECTION. THE PILOT WAS UNABLE TO RECALL THE EVENTS WHICH TOOK PLACE AFTER ENTERING THE CLOUDS.

Brief of Accident (Continued)

File No. - 0960 10/31/91 ZION, IL A/C Reg. No. N5411K Time (Lcl) - 1755 CST

Occurrence #1 LOSS OF ENGINE POWER
Phase of Operation CLIMB - TO CRUISE

Finding(s)

1. FLUID, FUEL - CONTAMINATION
2. FLUID, FUEL - WATER
3. AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

Occurrence #2 FORCED LANDING
Phase of Operation DESCENT - EMERGENCY

Occurrence #3 IN FLIGHT COLLISION WITH OBJECT
Phase of Operation APPROACH

Finding(s)

4. LIGHT CONDITION - DARK NIGHT
5. OBJECT - WIRE, TRANSMISSION
6. OBJECT - TREE(S)

Occurrence #4 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 was:
WATER CONTAMINATION OF THE FUEL, AND THE PILOT'S INADEQUATE PREFLIGHT OF THE AIRCRAFT. FACTORS RELATED TO THE ACCIDENT
WERE: DARKNESS AND OBSTRUCTIONS (TREES & TRANSMISSION LINES) IN THE EMERGENCY LANDING AREA.

Brief of Accident

File No. - 0994 8/15/91 JERSEYVILLE, IL A/C Reg. No. N735XG Time (Lcl) - 1552 CDT

-----Basic Information-----
 Type Operating Certificate-NONE (GENERAL AVIATION)
 Type of Operation -PERSONAL
 Flight Conducted Under -14 CFR 91
 Accident Occurred During -LANDING

-----Aircraft Information-----
 Make/Model - CESSNA 182Q
 Landing Gear - TRICYCLE-FIXED
 Max Gross Wt - 2950
 No. of Seats - 4

-----Environment/Operations Information-----
 Weather Data - NO RECORD OF BRIEFING
 Wx Briefing Method - N/A
 Completeness - N/A
 Basic Weather - VMC
 Wind Dir/Speed- 140/004 KTS
 Visibility - 7.0 SM
 Lowest Sky/Clouds - 4000 FT SCATTERED
 Lowest Ceiling - NONE
 Obstructions to Vision- NONE
 Precipitation - NONE
 Condition of Light - DAYLIGHT

-----Personnel Information-----
 Pilot-In-Command
 Certificate(s)/Rating(s)
 PRIVATE
 SE LAND

Instrument Rating(s) - NONE

-----Narrative-----
 ACCORDING TO WITNESSES, THE PILOT INITIATED GO-AROUNDS AFTER 2 ATTEMPTS TO LAND. ONE WITNESS REPORTED THAT DURING THE 2ND GO-AROUND, THE AIRCRAFT PASSED BY HANGARS NEAR THE DEPARTURE END OF THE RUNWAY AT HANGAR ROOF HEIGHT WITH FULL FLAPS EXTENDED. SHORTLY THEREAFTER, THE AIRPLANE WAS OBSERVED TO PITCH UP, YAW/ROLL TO THE LEFT, THEN PITCH DOWN & COLLIDE WITH A BOWLING ALLEY ROOF. DURING RESCUE, THE 3 REAR SEAT OCCUPANTS WERE EXTRACTED FROM THE WRECKAGE. THE TWO FRONT SEAT OCCUPANTS WERE STILL ENTANGLED IN THE AIRCRAFT, WHEN THE BUILDING & AIRPLANE BEGAN BURNING. DURING A POST-ACCIDENT INVESTIGATION, THE PROPELLER CONTROL WAS FOUND TO BE 1-1/4 INCHES FROM THE FULL FORWARD POSITION & THE FLAP JACK SCREW ASSEMBLY WAS FOUND IN THE FULLY EXTENDED POSITION. ALSO, THE AIRPLANE WAS APPROXIMATELY 160 LBS OVER ITS MAX GROSS WEIGHT LIMIT & ITS CG WAS APRX .3 INCH FORWARD OF ITS MOST FORWARD LIMIT. ADDITIONALLY, NO RECORD WAS FOUND THAT THE PILOT HAD A FORMAL CHECKOUT IN THE HIGH PERFORMANCE AIRPLANE.

Brief of Accident (Continued)

File No. - 0994 8/15/91 JERSEYVILLE, IL A/C Reg. No. N735XG Time (Lcl) - 1552 CDT

Occurrence #1 LOSS OF CONTROL - IN FLIGHT
Phase of Operation LANDING - ABORTED

Finding(s)

1. PROPER TOUCHDOWN POINT - NOT ATTAINED - PILOT IN COMMAND
2. GO-AROUND - INITIATED - PILOT IN COMMAND
3. PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
4. RAISING OF FLAPS - NOT PERFORMED - PILOT IN COMMAND
5. PROPELLER - IMPROPER USE OF - PILOT IN COMMAND
6. AIRCRAFT WEIGHT AND BALANCE - IMPROPER - PILOT IN COMMAND
7. PULL-UP - EXCESSIVE - PILOT IN COMMAND
8. AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
9. STALL - INADVERTENT - PILOT IN COMMAND

Occurrence #2 IN FLIGHT COLLISION WITH OBJECT
Phase of Operation DESCENT - UNCONTROLLED

Finding(s)

10. OBJECT - BUILDING (NONRESIDENTIAL)

Occurrence #3 FIRE/EXPLOSION
Phase of Operation OTHER

---Probable Cause---

The National Transportation Safety Board determines that the Probable Cause(s) of this accident was:
FAILURE OF THE PILOT TO FOLLOW PROPER PROCEDURES DURING A GO-AROUND MANEUVER, AND HIS FAILURE TO MAINTAIN ADEQUATE AIRSPEED, WHICH RESULTED IN AN INADVERTENT STALL. FACTORS RELATED TO THE ACCIDENT WERE: THE PILOT'S IMPROPER USE OF THE FLAPS, HIS IMPROPER USE OF THE PROPELLER CONTROL, AND IMPROPER WEIGHT AND BALANCE OF THE AIRCRAFT.