

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

ISSUED: JUN 5 1984

Forwarded to:

Honorable Donald D. Engen
Administrator
Federal Aviation Administration
Washington, D.C. 20591

} SAFETY RECOMMENDATION(S)

A-84-55 through -57

About 1832 Pacific daylight time on August 21, 1983, a Lockheed L-18 Learstar, N116CA, operated by Landry Aviation, Inc., crashed in a field adjacent to a State highway after an uncontrolled descent from 12,500 feet. The airplane had carried 24 sport parachute jumpers and 2 pilots. Fifteen parachutists successfully parachuted from the airplane during the descent; nine parachutists and the two pilots did not and were killed in the crash. 1/

The National Transportation Safety Board determined that the probable cause of this accident was the failure of the operator and the pilot-in-command to assure proper load distribution during the jumper exit procedure. A more intensive program of surveillance by the Federal Aviation Administration may lead to the detection and elimination of some of the factors in the accident.

During the investigation it became apparent that most of the parachutists, including the United States Parachute Association (USPA) Area Safety Officer, had little or no knowledge of the significance of airplane center of gravity limits. They were generally aware of the need to "stay as far forward as possible" for takeoff, but were not aware of the significant effects on airplane control of their lining up for the jump. They indicated generally that they believed the pilots were responsible for assuring that weight and center of gravity limits were not exceeded and that, because the jump coordinator and the pilots had discussed the jump procedures, those procedures would not lead to unsafe operations.

1/ For more information read "Aircraft Accident Report--Landry Aviation, Inc., Lockheed Learstar L-18, N116CA, near Silvana, Washington, August 21, 1983." (NTSB-AAR-84/06.)

The Safety Board's investigation of this accident revealed that, in June 1983, Landry Aviation obtained FAA approval for installation of 24 seatbelts, using existing floor tracks, and removal of the main cabin door for purposes of sport-parachute jumping. Landry Aviation subsequently installed four externally mounted handholds and a 4-inch by 7-foot plywood step along the fuselage forward of the main cabin door without inspection or approval of the FAA. The owner stated that he installed the step to facilitate egress for mass jumps, and since a similar installation was on other L-18 airplanes, he assumed it was either previously approved or not considered a major alteration. No flight testing was conducted to determine the effects on airplane handling and performance. Although Landry Aviation had previously used the L-18 for 24-man jumps on 15 occasions, at least 4 other operators across the country had experienced a loss of control attempting the same operation. On each of the four upsets, the pilots were able to recover after a great loss of altitude. A similar attempted mass jump from a C-45 near Taft, California, resulted in the death of 14 persons and prompted the issuance of Federal Aviation Operations Bulletin 83-1, "Sky Diving Surveillance and Authorization," on February 22, 1983. This bulletin states, "the FAA policies with respect to sky diving have, in the past, been to regulate where necessary for the safety of persons not participating in the sport and to encourage self-regulation in the sport as necessary for the safety of the participants. Those policies, with few exceptions, have been successful and we are not proposing to change them." The bulletin also expressed concern that some sky-diving activities are being conducted outside the provisions of the aircraft type certification with no evaluation of the consequences, and it encouraged FAA District Offices to contact the local parachute organizations to express these concerns in a positive manner. Notwithstanding the instruction in the bulletin and the involvement of an FAA maintenance inspector who issued operating limitations for N116CA which had obviously been configured for parachute jumping, there was never any direct involvement of FAA personnel in the flight activities of Landry Aviation between June and August 1983. Had the FAA inspectors reviewed the sport jumping activities with Landry Aviation, it would have been apparent that the operation with 24 parachutists would by necessity violate several regulations, namely:

1. The airplane could not be loaded properly with the c.g. within allowable takeoff limits if the parachutists were seated at locations where they could be restrained by seatbelts as required by 14 CFR 91.14.
2. The procedures to be used as the jumpers exited the airplane would critically violate the airplane's c.g. limits.
3. The number of parachutists carried aloft exceeded the regulatory maximum number of occupants allowable for the number of emergency exits. (14 CFR 91.47.)
4. The airplane had been modified with the addition of a step and handholds without FAA approval by S T C or Form 337. Consequently, there had been no prior analysis or flight tests to confirm that the devices or intended use of the devices during flight would not affect the airplane's controllability.

The Safety Board believes that, notwithstanding the low priority given by the FAA to surveillance of parachuting operations, when the FAA District Office inspectors became aware of Landry's intention to engage in parachuting activities, they should have made some effort to observe those activities. Based on FAA Operations Bulletin 83-1, the Safety Board believes the inspectors should have at least attempted to determine that airplane modifications and operations were in accordance with applicable regulations.

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

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 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. (Class II, Priority Action) (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. (Class II, Priority Action) (A-84-56)

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

BURNETT, Chairman, GOLDMAN, BURSLEY, and GROSE, Members, concurred in these recommendations.

By: Jim Burnett
Chairman