

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: December 28, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 13th day of December 1972

FORWARDED TO:)
Honorable John H. Shaffer)
Administrator)
Federal Aviation Administration)
Department of Transportation)
Washington, D. C. 20591)

SAFETY RECOMMENDATION A-72-219 thru 223

In the course of the investigation of the September 24, 1972, accident in Sacramento, California, involving Canadair Ltd., Sabre Mark 5, N275X, the National Transportation Safety Board examined the pilot's proficiency for the operation, the certification of experimental aircraft, and the associated regulatory provisions. The airport's environmental aspects, which had a direct bearing on the catastrophic consequences of this accident, were also considered.

The aircraft was operated under a Special Airworthiness Certificate with an experimental classification for exhibition purposes. The operating limitations stipulated, among other things, that the aircraft could be operated only by a pilot authorized under a letter of authority issued by the Administrator. The pilot involved held such a letter, which authorized him to operate this aircraft for the purpose of pilot proficiency and exhibition flying. The letter limited his proficiency operations to an area within 100 miles of two specified airports and limited the takeoffs and landings for proficiency flights to those airports, except for emergency reasons.

The restrictions imposed upon the pilot in connection with his proficiency flying contrasted strongly with the lack of restrictions on his operation of the aircraft for exhibition purposes. Part 21 of the Federal

Aviation Regulations defines exhibition, in part, as "exhibiting the aircraft's flight capabilities, performance, or unusual characteristics at airshows." Testimony during the public hearing in Sacramento on October 16-18 revealed that neither the pilot nor the operations inspector of the General Aviation District Office involved were aware of the extent of the flying activities covered by this definition. The operations inspector who prepared the pilot's letter of authority stated that the pilot could legitimately have flown this aircraft to a bona fide airshow for exhibition purposes following his first flight in it.

Based on this and similar testimony, the Board concludes that the guidelines dealing with the issuance of authorization to operate this type aircraft were too broad to provide adequate guidance for General Aviation District Office inspectors with regard to pilot qualification and proficiency and the formulation of safeguards in the special conditions and limitations.

The Board is aware of the GENOT (General Notice) distributed to your regional, district, and field offices on November 9, 1972, entitled: "Future Civil Certification, Operation, and Maintenance of Military Surplus Jet Airplanes." These supplemental guidelines should help in the interpretation of existing instructions with regard to the safe utilization of surplus military jets. However, the Board is of the opinion that similar consideration should be given to all high-performance military surplus airplanes, reciprocating as well as turbine engine powered. Unless a pilot receives his transition training from an organization or club that imposes its own safeguards, there appear to be no constraints on a private pilot with minimum experience who wishes to operate an F-51, for example. The establishment of reasonable minimum standards in this area would serve to promote aviation, rather than inhibit it.

In view of the variety of purposes for which experimental certificates can be issued, it appears that separate classification of those activities which are not truly experimental would facilitate the exercise of more selective regulatory control for the benefit of the operator as well as the general public.

The Board is also concerned about the airshow waiver provisions, although they did not have a bearing on this accident. The special provisions dealing with the separation criteria between spectator areas and aircraft performing acrobatic maneuvers took into consideration only the safety of designated spectator areas. At Sacramento Executive Airport, residential encroachment extended to within about 500 feet of the demonstration runway. In addition, the Board questions the adequacy of the

guidelines in the General Aviation Operations Inspector's Handbook that use a cruising speed of 130 knots as a criterion for "Dead Line" separation from spectator areas during airshows; in excess of 130 knots, the minimum is 1,500 feet and at lower speeds it is 500 feet. Although this rule may be suitable for the protection of designated spectator areas that parallel the demonstration runway, it does not take into account the potential trajectory of disassociated aircraft parts and their hazard to persons and property in the line of flight, near the airport boundaries.

The built-up area around the Sacramento Executive Airport raises serious questions with regard to the suitability for airshows of this and similar airports, especially when one considers the practicability of applying the following sample of a special provision from the pertinent handbook: "The holder of the airshow waiver shall insure that roads adjacent to the airport, as specified below, are devoid of vehicular traffic and the property adjoining the airport shall be free of spectators." This provision was not incorporated in the certificate of waiver for the Sacramento airshow; if it had been, it would have been very difficult to implement. In this respect, it is of interest to note that the 92 accidents that occurred during airshows or air racing in a recently researched 8-year period (1964-1971) did not result in injuries to other than aircraft occupants. The Board is of the opinion that open space around most of the airports involved played a predominant role in protecting public and property beyond the designated spectator areas.

With regard to the catastrophic consequences of this accident, the public hearing produced no evidence of specific regulatory provisions, or firm guidelines, at the Federal, State, or local level, that would have precluded the construction of public or private facilities in such close proximity to the departure end of Runway 30. The Board is unable to find any direct reference to the safety of persons or property on the ground in Part 77 (Objects Affecting Navigable Airspace) or in Advisory Circular 150/5190-3 (Model Airport Zoning Ordinance). This does not imply that such consideration is not given during aeronautical studies and hearings, or that this accident was typical in its environmental impact of the approximately 25,780 takeoff and landing accidents that occurred on, or in the immediate vicinity of U. S. airports during the earlier-mentioned 8-year period. The Board also recognizes that the responsibility for prudent restrictions on the use of land around airports, and construction thereon, rests with local jurisdictions. However, advisory guidance, and the judicious use of controls in the fund allocations under the Airport Development Aid Program, could be influential in convincing the jurisdictions involved that the compatibility considerations of airports and surrounding environment should not only include noise, pollution, and similar factors, but also a practical regard for the safety of people and property on the ground.

With regard to existing hazardous situations around certain airports, the Board believes that there is a need to issue guidelines restricting the use of specific runways to specific aircraft or operations, based on such factors as the aircraft's accelerate-stop distance, runway length, engine-out capability, and the proximity of urban congestion to the runway involved; this would assist airport managers in securing or implementing the authority to offset the hazards inherent in the environmental encroachment that has been allowed to develop near some airports.

In view of the foregoing, the National Transportation Safety Board recommends that the Federal Aviation Administration:


1. Limit the issuance of experimental certificates to those aircraft and operations that are truly experimental in nature and reclassify the other activities listed in FAR 21.191 in a manner that will permit more selective regulatory control without unduly inhibiting the promotion of aviation.
2. Establish pilot experience, transition, and proficiency standards applicable to the operation of all high-performance surplus military aircraft, reciprocating as well as turbine engine powered.
3. Establish additional airshow separation criteria applicable to persons and property in other than designated spectator areas to insure that the overall suitability of an airport for airshows is taken into account.
4. Include in the guidelines dealing with compatible land use planning around airports, consideration for the safety of persons and property on the ground, and use the controls available in the Airport Development Aid Program to insure compliance.
5. Establish guidelines that will assist airport managers in setting limitations on the utilization of runways where existing environmental encroachment and runway length combine to create a high-risk level for certain aircraft operations.

Honorable John H. Shaffer

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These recommendations will be released to the public on the issue date shown above. No public dissemination of the contents should be made prior to that date.

Reed, Chairman, McAdams, Burgess, and Haley, Members, concurred in the above recommendations. Thayer, Member, was absent, not voting.

By: 
John H. Reed
Chairman

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