



## REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A90-72

### Night endorsement

#### Background

Accidents in which the aircraft was operated under Visual Flight Rules (VFR) into adverse weather conditions occur regularly, claiming a disproportionately high number of fatalities each year. They involve professional pilots, private pilots and business pilots who fly general aviation aircraft and chartered commercial aircraft, including fixed-wing aircraft and helicopters.

The regularity with which these accidents have occurred, and the seriousness of the continuing loss of life, prompted the Canadian Aviation Safety Board (CASB) to initiate a comprehensive and systematic examination of the issue. In March 1990, when this report was nearing completion, the CASB was replaced by the Transportation Safety Board of Canada (TSB), under whose auspices this report was published.

During the last two decades, a number of foreign government agencies have undertaken measures to more fully understand these types of accidents. Recent studies emphasize both the complex decisional nature of continued VFR flight into adverse weather and the often fatal consequences. This safety study is the first comprehensive review of the topic in Canada in recent years, and builds upon these earlier works.

The Board authorized the release of Recommendation A90-72 as part of its report entitled Report of a Safety Study on VFR Flight into Adverse Weather (90-SP002) on 13 November 1990.

#### TSB Recommendation A90-72 (December 1990)

Accidents occurring in other than daylight conditions comprised a disproportionately large number of VFR-into-IMC accidents. Approximately 10% of all Canadian accidents occur during the hours of darkness, which parallels estimates of the general level of night flying activity (also 10%). However, VFR-into-IMC accidents occurring during the hours of darkness accounted for almost 30% of the total study accidents. Analysis pointed to three issues: night VFR weather minima; the conditions for obtaining and maintaining a night endorsement; and weather briefings.

The night endorsement qualifies the private pilot to fly during the hours of official darkness. To obtain this endorsement, the pilot undergoes a minimum of ten hours training in basic instrument flight manoeuvres. The intent is to prepare the pilot for inadvertent entry into IMC and to familiarize the pilot with aircraft control in conditions in which there is no apparent horizon. Five of the instrument training hours can be acquired in a simulator. No evaluation of

competency is required prior to endorsement, nor are there re-certification requirements for the continued exercise of privileges of the endorsement.

Twenty-four studied accidents which occurred at night resulted from a loss of aircraft control, often after the apparent onset of vertigo. To understand the circumstances of such occurrences, the training, experience and skills of the accident pilots were examined. The accident pilots had seldom obtained additional instrument training after acquiring the minimum experience for night endorsement. Since instrument flying skills are perishable and require regular practice to maintain even a modicum of proficiency, the criteria for obtaining and maintaining a night endorsement apparently do not adequately reflect the skills required to cope with inadvertent entry into adverse weather. There is a higher probability of these circumstances occurring at night.

At present there is no method of ensuring that a minimum level of skill in flying on instruments has been achieved prior to receiving a night endorsement; an evaluation of a pilot's skills under the type of vertigo-inducing conditions encountered in adverse weather at night appears to be warranted. Furthermore, at present there is no method of ensuring that a minimum level of proficiency has been retained after the issue of a night endorsement; therefore, some form of recurrency training and/or testing also appears to be warranted. Such training and testing should focus on the instrument flying skills required for the safe conduct of night visual flight, skills which are considerably less complex than those required, for instance, to conduct a complete instrument approach.

In view of the disproportionate frequency of VFR-into-IMC accidents, which occurred at night, the Board recommends that

The Department of Transport revise conditions for the issue and maintenance of a night endorsement by:

- a) including a practical evaluation of the pilot's skill prior to issue of the endorsement; and
- b) verifying continued proficiency on a recurrent basis.

**TSB Recommendation A90-72**

### **Transport Canada's response to Recommendation A90-72 (March 1991)**

Basic instrument proficiency, which is considered to be a major component of the night flight pilot proficiency, is presently tested as part of the Private Pilot Flight test. The requirements for a recurrent review of skill including the Instrument and night rating, is presently being studied by means of a Flight Standards Review.

This Flight Standards Review is considering general aviation policy options for improving safety by amendment of regulations and licensing standards. This review will provide the basis for the responses to TSB Recommendations A90-72, A90-75, A90-76 and A90-79 and includes:

1. a review of existing standards regarding recent flight experience, VFR recurrent training and skills requirements for private pilots;
2. a review of the existing standards with a view to increasing the accessibility of the Instrument Rating for general aviation pilots; and
3. a review of existing pilot privileges for VFR flight regarding the adequacy of training to enable pilots to better cope with unexpected, potentially dangerous weather conditions.

The Flight Standards Review process has completed the identification and analysis phases and has reviewed the delegation and risk analysis implications of the issues concerned. The options for future developments have been included in a draft report which is being circulated for industry consultation and the final recommendations are expected to be available by May 1, 1991.

### **TSB reassessment of Transport Canada's response to Recommendation A90-72 (June 1991)**

On March 21 1991, the Minister of Transport responded to the Board's recommendations. The Minister noted that implementation of many of the recommendations regarding visual flight rules would result in a major change of the concepts in the conduct of visual flight operations. Therefore, the Minister has indicated that he will be forming a VFR Working Group within the Department of Transport to address and develop, in conjunction with representatives of industry, the changes required to incorporate certain of the Board's recommendations.

The Minister's covering letter to the Transport Canada response to the recommendations appears to support the findings of the TSB safety study. However, because of the extensive work required to study means of implementing the recommendations, a specific response to fifteen of the twenty-six recommendations is not yet available. Eleven of the recommendations will be studied by the VFR Working Group, and four recommendations are being considered in an already-formed Flight Standards Review.

As of mid-May, the terms of reference for the Working Group had not yet been formulated. After the Working Group has been formed, a staff member of the TSB will likely be invited to observe on the proceedings. In this capacity, TSB staff will be able to provide technical clarification to TC officials regarding the Safety Study staff report, and will apprise the Board of the Working Group's progress.

The draft report of the TC Flight Standards Review, dated March 20, 1991, has been reviewed by TSB staff. The aim of the review committee is to examine TC regulatory and standards policy options which specifically address the safe conduct of flight and the prevention of accidents. The scope of the examination focuses on the Private Pilot licence, and is restricted to general aviation. The Flight Standards Review has focused principally on comparisons of Canadian standards with the ICAO standard, and with the regulations of the United States and the United Kingdom.

The draft report of the Flight Standards Review is a TC internal document prepared by the Flight Standards Branch of Transport Canada in consultation with the National Advisory Committee on Flight Training and Licensing Standards (NAC) and the aviation industry. It is presently undergoing review within TC. Upon completion of this process, appropriate draft amendments to the Air Regulations, the Air Navigation Orders, and the TC Personnel Licensing Handbook will be published in the Canada Gazette, Part I for public comment.

The eight draft recommendations proposed by this committee are far-ranging: if they are accepted and implemented, they will in large measure address many of the safety deficiencies identified in the TSB safety study. They include recommendations to introduce VFR-Over-The-Top in Canada, increase the weather minima for VFR flight, introduce a program of recurrent training and review for private pilots, enhance the training for the instrument rating, and upgrade the procedures by which pilots may renew an instrument rating.

Transport Canada has responded specifically to eleven recommendations published in the TSB study of VFR-into-IMC accidents. The Board reviewed the staff assessment of the Minister's response to Recommendations TSB-A90-65 to TSB-A90-90 forwarded to the Minister as a result of a Safety Study on the topic of VFR-into-IMC accidents.

It was unanimously decided that the Board would withhold their decision/comments until the Minister's VFR Working Group has produced its report.

### **Transport Canada's response to Recommendation A90-72 (July 1993)**

This is an update on the fifteen outstanding recommendations made by the Transportation Safety Board of Canada as a result of the Safety Study on VFR Flight into Adverse Weather Report No. 90-SP002, as well as Recommendation A91-22.

Acceptance of recommendations A90-72, A90-75, and A90-76 encountered opposition from the aviation community to the flight-test portion of the proposed biennial flight review. Consultation is under way to try to establish a mandatory seminar on a periodic basis as a licence validation tool. If such a method can be satisfactorily established to confirm pilot skills and knowledge, I believe the objective of the recommendations will have been met.

A90-72 - Night Endorsement: Industry has strongly rejected the in-flight portion of any type of flight standards review, and a ground-only periodic seminar is now being considered as a licence validation tool.

### **TSB reassessment of Transport Canada's response to Recommendation A90-72 (September 1993)**

TC indicated that industry has strongly rejected the in-flight portion of any type of flight standards review. A ground-only periodic seminar is being considered as a licence validation tool.

This response indicates that TC's originally planned method of addressing the deficiency was not acceptable to the aviation community and that another avenue is being considered. The contemplated seminar might be of some value; however, it would not ensure proficiency in instrument flying skills prior to issue of the endorsement nor would it verify continued proficiency.

TC has only indicated a possible corrective action, which at this time does not appear to address the issue behind recommendation A90-72. Further update by TC will be required to adequately assess how well this safety deficiency is being corrected.

Therefore, the response to Recommendation is assessed as **Unsatisfactory**.

### **Recommendation status report update A90-72 (November 1996)**

Basic instrument flying proficiency is being tested on the private pilot flight test. The requirements for a recurrent review of skills are being studied by means of a flight standards review. CARs 401.05 and Standards 421.05 apply.

There is a Notice of Proposed Amendment (NPA) for this regulation (401.05) to be published at next Amendment of CARs in March 1998. The changes to this regulation are not known at the time of this recommendation status report update.

Therefore, the response to Recommendation A90-72 is assessed as **Satisfactory in Part**.

#### **TSB reassessment of Recommendation A90-72 (January 2004)**

Transport Canada developed and published enhancements to flight instructor guides. One enhancement deals with night flying. Night flying reference gives instructors specific guidance on conduct of training for a night rating and recommending for a night rating. There is no flight test required for a night rating, but instructors are expected to know when the student is competent to exercise the privileges of the rating, which is more than simply acquiring necessary dual and solo flight time. The student should be able to meet, for those exercises covered in night flying, the same standard set out in the flight test guide, private and commercial pilot licences. CARs call up this requirement in 421.42: (b) skill - an applicant for a night rating shall have reached level of skill specified in flight instructor standard." Also CAR 401.05 outlines requirements for recency with respect to night flying. Although Transport Canada has not mandated a specific practical evaluation, it has apparently taken significant measures to address the safety deficiency.

Therefore, the response to Recommendation A90-72 is assessed as **Satisfactory in Part**.

The deficiency file is assigned an **Inactive** status.

#### **TSB review of Recommendation A90-72 deficiency file status (April 2014)**

The Board requested that A90-72 be reviewed to determine if the deficiency file status was appropriate. After an initial evaluation, it was determined that the safety deficiency addressed by Recommendation A90-72 still needed to be reassessed.

A request for further information was sent to Transport Canada and a reassessment will be conducted upon receipt of Transport Canada's response.

Therefore, the assessment remains as **Satisfactory in Part**.

Consequently, the status of Recommendation A90-72 is changed to **Active**.

#### **Transport Canada's response to Recommendation A90-72 (September 2017)**

TC agrees with the recommendation.

This regulatory requirement is found in *Canadian Aviation Regulations* (CARs) Part IV, Section 401.05 Recency Requirements, as well as guidance material 421.42 Night Rating in compliance with Subpart 401 in the CARs.

Section 401.5 (1) provides the following guidance:

**401.05 (1)** Notwithstanding any other provision of this Subpart, no holder of a flight crew permit, licence or rating, other than the holder of a flight engineer licence, shall exercise the privileges of the permit, licence or rating unless

- (a) the holder has acted as pilot-in-command or co-pilot of an aircraft within the five years preceding the flight; or
- (b) within the 12 months preceding the flight
  - (i) the holder has completed a flight review, in accordance with the personnel licensing standards, conducted by the holder of a flight instructor rating for the same category of aircraft,
  - (ii) the flight instructor who conducted the flight review has certified in the holder's personal log that the holder meets the skill requirements for the issuance of the permit or licence set out in the personnel licensing standards, and
  - (iii) the holder has successfully completed the appropriate examination specified in the personnel licensing standards.

Standard 421.05 provides the following guidance:

- (1)** In order to comply with the requirements of 401.05(1)(b)
  - (a) the flight review shall include all items normally covered during the flight test for the issue of that permit or licence,
  - (b) the flight instructor completing the flight review shall certify in the holder's personal log that the skill requirement has been met, and
  - (c) the holder shall successfully complete the written examination Student Pilot Permit or Private Pilot Licence for Foreign and Military Applicants, Air Regulations (PSTAR)
  - (d) The certification in (b) above shall read:
 

"This is to certify that the skill requirement for \_\_\_\_\_ (permit or licence) has been met" and shall include the date and the name, signature and licence number of the instructor.
- (2)** In order to comply with the requirements of 401.05(2)(a), any of the following are considered acceptable as recurrent training programs:
  - (a) completion of a flight review conducted by the holder of a flight instructor rating in the same category, shall include all items normally covered during the flight test for the issue of that permit or licence;
  - (b) attendance at a safety seminar conducted by Transport Canada Aviation;
  - (c) successful completion of a recurrent training program designed to update pilot knowledge, which could include subject areas such as human factors, meteorology, flight planning and navigation, and aviation regulations, rules and procedures that has been approved by the Minister as being satisfactory for those purposes;

(amended 2005/12/01; previous version)

  - (d) completion of the self-paced study program produced annually in the Transport Canada Aviation Safety Newsletter, which is designed to update pilot knowledge in the subjects specified in (c) above. The completed copy shall be the most current published by date and shall be retained by the licence holder;

- (e) completion of a training program or Pilot Proficiency Check as required by Parts IV, VI or VII of the Canadian Aviation Regulations;
- (f) completion of the skill requirements for issue or renewal of a pilot permit, licence or rating, including night rating, VFR over-the-top rating, instrument rating, multi-engine class rating, flight instructor rating, landplane or seaplane rating; or  
(amended 2000/09/01; previous version)
- (g) completion of the written examination(s) for a permit, licence or rating.

The *Canadian Aviation Regulations* (CARs) treat commercial operations and private pilots differently. Part IV of the CARs deal with general operating flight rules, which apply to all pilots. Pilots employed in a commercial flight service are subject to additional training and currency requirements.

Obtaining a rating is prescribed in CAR 401.42:

**401.42** The Minister shall endorse the following permits and licences with a night rating if the applicant for the rating meets the requirements referred to in section 401.06:

- (a) private pilot licence – aeroplane;
- (b) private pilot licence – helicopter;
- (c) pilot licence – balloon; and
- (d) pilot permit – gyroplane.

Specific requirements apply to candidates for a night rating. These are specified in Standard 421.42, *Requirements*.

**(a) Experience**

An applicant for a night rating shall have acquired in aeroplanes a minimum of 20 hours of pilot flight time which shall include a minimum of:

- (i) 10 hours of night flight time including a minimum of:
  - (A) 5 hours dual flight time, including 2 hours of cross-country flight time,
  - (B) 5 hours solo flight time, including 10 takeoffs, circuits and landings, and
- (ii) 10 hours dual instrument time.
- (iii) Credit for a maximum of five hours of the 10 hours of dual instrument time may be given for instrument ground time, provided that the total instrument time shall be in addition to the 10 hours night flight time in subparagraph (a)(i) above.

(amended 1998/03/23; previous version)

**(b) Skill**

Within the 12 months preceding the date of application for a night rating, an applicant shall have successfully completed a qualifying flight under the supervision of a Transport Canada Inspector or a person qualified in accordance with subsection 425.21(4) by demonstrating the level of skill specified in the Flight Instructor Guide-Aeroplane (TP 975).

(amended 2000/09/01; previous version)

**(c) Credits**

An applicant who holds a licence endorsed with a night rating in one of the other aircraft categories shall have the total 20 hour pilot flight time reduced to a minimum of 5 hours in aeroplanes including a minimum of:

- (i) 2 hours dual night flight time,
- (ii) 1 hour solo night flight time, and
- (iii) 1 hour dual instrument flight time which shall be in addition to the flight time of (i) and (ii).

In commercial operations, the operator must comply with the appropriate requirements of Part VII of the CARs. CAR 703.98 and CAR 703.99 are illustrative.

**Division VIII – Training****Training Program**

**703.98 (1)** Every air operator shall establish and maintain a ground and flight training program that is

- (a) designed to ensure that each person who receives training acquires the competence to perform the person's assigned duties; and
- (b) approved by the Minister in accordance with the *Commercial Air Service Standards*.

**(2)** An air operator's ground and flight training program shall include

- (a) company indoctrination training;
- (b) upgrading training;
- (c) initial and annual training, including
  - (i) aircraft type training,
  - (ii) aircraft servicing and ground handling training,
  - (iii) emergency procedures training,
  - (iv) training for operational control personnel, and
  - (v) aircraft surface contamination training for pilots and other operations personnel; and
- (d) any other training required to ensure a safe operation under this Subpart.

**(3)** An air operator shall

- (a) include a detailed syllabus of its ground and flight training program in its company operations manual;



- (b) ensure that qualified personnel are provided for its ground and flight training program, in accordance with the *Commercial Air Service Standards*; and
- (c) establish and maintain a safety awareness program concerning the adverse effects of aircraft surface contamination and provide the program to all flight operations personnel who are not required to receive the training described in subparagraph (2)(c)(v).

#### Training and Qualification Records

**703.99 (1)** Every air operator shall, for each person who is required to receive training under this Subpart, establish and maintain a record of

- (a) the person's name and, where applicable, personnel licence number, type and ratings;
  - (b) if applicable, the person's medical category and the expiry date of that category;
  - (c) the dates on which the person, while in the air operator's employ, successfully completed any training, pilot proficiency check, competency check or examination required under this Subpart or obtained any qualification required under this Subpart;
  - (d) information relating to any failure of the person, while in the air operator's employ, to successfully complete any training, pilot proficiency check, competency check or examination required under this Subpart or to obtain any qualification required under this Subpart; and
  - (e) the type of aircraft or flight training equipment used for any training, pilot proficiency check, competency check or qualification required under this Subpart.
- (2) An air operator shall retain the records referred to in paragraphs (1)(c) and (d) and a record of each pilot proficiency check for at least three years.
- (3) An air operator shall retain a copy of the most recent written examination completed by each pilot for each type of aircraft for which the pilot has a qualification.

These regulations require that a commercial pilot must receive annual recurrent training appropriate to the operation and described in the company operations manual. If the company conducts night or instrument flying, recurrent training must include them. Surveillance by TC will include examination of the records to ensure that the training is conducted and is appropriate to the operation.

TC believes that both aspects of Recommendation A90-72 have been adequately addressed. Practical night flying skills are evaluated and commercial operators are required to conduct recurrent training to maintain currency.

## **TSB reassessment of Transport Canada's response to Recommendation A90-72 (February 2018)**

TC has taken a number of actions to address the safety deficiency identified in Recommendation A90-72, regarding the issuance and maintenance of a night endorsement. To date, these include the following actions:

- Recency requirements in *Canadian Aviation Regulations* (CARs) 401.05, under which all pilots must, among other general requirements, conduct five night take-offs and five night landings every six months in order to carry passengers at night. This provides a means to maintain night proficiency on a recurrent basis and mitigates the risks associated with carrying passengers at night;
- As per CARs 421.42, pilots are required to successfully complete a qualifying flight demonstrating the necessary level of skills, as specified in the flight instructor guide, prior to being granted a night rating endorsement; and
- Under CARs Part VII, commercial air operators engaged in night operations must establish and maintain an initial and recurrent ground and flight training program to validate the night and instrument proficiency of their pilots.

The Board believes that the actions taken by TC have substantially reduced the risk associated with the safety deficiency identified in Recommendation A90-72.

Therefore, the response to Recommendation A90-72 is assessed as **Fully Satisfactory**.

### **Next TSB action**

This deficiency file is **Closed**.