

**CANADIAN FORCES
FLIGHT SAFETY INVESTIGATION (FSI) REPORT (FSIR)**

SUPPLEMENTAL REPORT (SR)

FILE NUMBER: 1010-CFYLP (DFS 2-4-2)
DATE OF REPORT: 16 FEB 04

AIRCRAFT TYPE: Schweizer 2-33A
DATE/TIME: 18 1826Z/1426 Local 18 Aug 03
LOCATION: Mountainview, ON
CATEGORY: "C" Category Accident

This report was produced under authority of the Minister of National Defence (MND) pursuant to Section 4.2 of the Aeronautics Act (AA), and in accordance with A-GA-135-001/AA-001, Flight Safety for the Canadian Forces.

With the exception of Part 2 – Factual Information and when provided for by law, the contents of this report shall only be used for the purpose of accident prevention and are to be seen only by those with a need-to-know in the exercise of their formal functions. In any event, this report shall not be released to the public in whole or in part except under the authority of the Director of Flight Safety, National Defence Headquarters.

Due to the nature of the accident, the Supplemental Report was chosen as the reporting format. As no clear format for this report is outlined within the A-GA-135-001/AA-001, DFS is in the process of aligning all SR reports to reflect ICAO Annex 12 standardization.

1. SYNOPSIS

The accident occurred during a routine solo mission undertaken as part of the Air Cadet Central Region Gliding School (CRGS) being held at CFD Mountain View. The glider, C-FYLP, was being flown solo by a student glider pilot when it stalled short of the landing area in use, contacted a large rock, and came to a stop. The aircraft suffered "C" category damage; the pilot was un-injured.

2. FACTUAL INFORMATION

2.1 HISTORY OF FLIGHT

The occurrence happened near the end of the summer gliding program which had already been extended by unsuitable weather and the operational requirements of the Canadian Parachute Centre which has a higher priority for airfield usage than the CRGS. The glider operation was a conventional one for the school, utilizing four gliders and two tow planes while operating both left and right hand circuits on Runway 34.

The solo student had flown three flights that day including a "green card" review flight with the CFI; the review flight was required because the student had not flown for four days prior to the occurrence date. All of the previous flights flown by the student that day were flown from Runway 06. The supervising instructor was an experienced second year instructor who held a Glider Check Pilot qualification. The student was operating under a student pilot permit with a valid class 3 medical; she was wearing glasses at the time of occurrence as required by her medical.

Prior to the accident flight, the instructor briefed the student on the current weather conditions.

The student launched normally for mission S-14, which is to practice medium and steep turns. After completing area work, the student entered the circuit at the correct initial point (IP) and at the correct altitude. As the student continued downwind, she encountered significant amounts of sink, up to 600-700 FPM down. IAW her training, the student angled in towards the airfield until the VSI registered 0 FPM at which time she stopped angling in. The student then turned base early and realized that she was still low and once again in sink conditions. However this time she continued on a normal base pattern without angling in and she allowed the spoilers to remain fully deployed. The student turned onto final low, at 250' AGL vice 300' AGL, and again ended up in sink with an airspeed of approximately 50-60 MPH. The student eased back on the control stick in an effort to pull the nose up and did not notice the resultant decreasing airspeed. From a slightly nose-high attitude and in a stalled condition, witnesses observed the glider drop from a height of 10-15 ft and land firmly on a large rock.

2.2 DAMAGE TO AIRCRAFT

After stalling, the glider contacted a large rock. The left and right aileron tubing structure, the main skid, and the towrope release mechanism were damaged. The main wheel assembly also suffered damage and had to be totally replaced.

This occurrence is classified as a "C" category accident.

2.3 MEDICAL

Blood and urine samples were taken post-occurrence by the 8 Wing Flight Surgeon; toxicological results indicated no contaminants. No contributory human factors were evident to the Flight Surgeon at the time of accident and subsequent examination.

3. ANALYSIS

3.1 THE AIRCRAFT

The aircraft was serviceable prior to the flight. There were no previously reported aircraft malfunctions with flight controls or instruments prior to the accident. The altimeter was also correctly set.

3.2 THE STUDENT

The student pilot had 9.3 hours of glider time (2.3 hours solo and 7 hours dual). She was a student of average capability who had experienced some previous difficulty with landings and flight management (two red progress cards). According to her instructor, she had shown ability in analyzing situations in the air but was slow to react to them; however, the student seemed to be showing improvement up until the incident. The student's progress book indicated that she had never previously flown from Runway 34 and that the three flights before the accident flight, flown to Runway 06, were lower than ideal on final. Although students are taught the skills to adapt to different airfield environments, the fact that airfield familiarity assists a pilot's decision-making and actions can't be denied. In this case the student may have been unsure of the local site picture in the circuit such that her concentration on flying the aircraft in sink conditions consumed her concentration and saturated her task management.

3.3 THE CIRCUIT

The student initially correctly applied techniques to deal with the sink encountered on downwind. Post-accident, in response to situations involving sink and low altitudes in the circuit, the student correctly indicated that angling in towards the field, turning early on circuit legs, and increasing airspeed were necessary to expeditiously exit areas of sink. However, she failed to employ these techniques after once again encountering sink on base. Had she done so, it is likely that she would have exited the area of sink sooner while positioning herself closer to the airfield; landing longer than normal would have been of no consequence.

The student also failed to retract the spoilers which would have slowed her rate of descent. Had the student closed the spoilers, although not conclusive to state, it is likely that sink rate would have reduced, airspeed would not have decayed as rapidly, the glide distance would have been longer, and the glider might have reached the designated landing area.

Finally, while on final, the student indicated that she eased back on the control stick in an effort to pull the nose up to clear some trees on the approach. Off-field landing training includes emphasis on maintenance of airspeed regardless of where it is intended to land the glider. Airspeed is crucial to prevent

aerodynamic stalling from occurring, the results of which can be catastrophic at low altitude. By stretching the glide, the airspeed bled off to the point of aerodynamic stall.

3.4 THE INSTRUCTOR

During the accident circuit, the instructor noted that the student was lower than normal; however, he felt that she was not low enough to provide verbal assistance via the on-site VHF radio. It was interesting to note that the instructor did not know where the radio was located. The investigation determined that there was no requirement stipulated in either the 242 ACGP Manual, regional flying orders, or local flying orders for a radio to be made available for a monitoring instructor. However, it is standard practice for the Central Region Gliding School to maintain three VHF radios on site for the LCO, ERO and solo monitor positions. With only four possible aircraft in the circuit at any given time, it is felt that the number of radios available to instructors was adequate despite not being mandated in orders.

4. CAUSE FACTORS

4.1 PERSONNEL/CADETS-STUDENT PILOT(GLIDER)/JUDGEMENT

In that the student, after recognizing that she was in an area of sink and becoming low within the circuit, failed to use appropriate technique by not angling in on base leg and by not closing the spoilers.

4.2 PERSONNEL/CADETS-STUDENT PILOT(GLIDER)/CHANNELIZED ATTENTION

In that the student concentrated so much on the perception of the trees being close on the approach that she failed to notice her airspeed decay to point where the glider stalled.

4.3 PERSONNEL/CADETS-PILOT(GLIDER)/JUDGEMENT

In that the instructor did not feel that the student's low final approach with the spoilers open required any verbal correction.

4.4 PERSONNEL/MANAGEMENT/CHQ-INFORMATION/COMMUNICATION

In that the 242 does not mandate the requirement to provide monitoring instructors to have access to a radio allowing two communications with a solo student.

5. PREVENTATIVE MEASURES

5.1 BRIEF ALL AIRCREW

All instructors were briefed to pay greater attention when supervising their solo students.

5.2 ADDITIONAL/ENHANCED TRAINING

The student received additional training to improve her flight management.

5.3 242 ACGP Manual Amendment

Radio availability and its usage by solo monitor instructors should be mandated in the 242 ACGP Manual. Publication Amendment Form (PAF) to be submitted by CRGS.