

FINAL REPORT

**DA 40, REGISTRATION 9V-YFM
RUNWAY EXCURSION**

11 AUGUST 2013

AIB/AAI/CAS.096

**Air Accident Investigation Bureau of Singapore
Ministry of Transport
Singapore**

28 April 2015

The Air Accident Investigation Bureau of Singapore

The Air Accident Investigation Bureau (AAIB) is the air accidents and incidents investigation authority in Singapore responsible to the Ministry of Transport. Its mission is to promote aviation safety through the conduct of independent and objective investigations into air accidents and incidents.

The AAIB conducts the investigations in accordance with the Singapore Air Navigation (Investigation of Accidents and Incidents) Order 2003 and Annex 13 to the Convention on International Civil Aviation, which governs how member States of the International Civil Aviation Organization (ICAO) conduct aircraft accident investigations internationally.

In carrying out the investigations, the AAIB will adhere to ICAO's stated objective, which is as follows:

“The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability.”

Accordingly, it is inappropriate that AAIB reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

CONTENTS

	Page
SYNOPSIS	3
1 FACTUAL INFORMATION	4
1.1 History of the flight	4
1.2 Injuries	5
1.3 Aircraft Damage	5
1.4 Personnel information	7
1.5 Medical information	7
1.6 Additional information	7
2 DISCUSSIONS	8
3 SAFETY ACTION	8
4 SAFETY RECOMMENDATION	8

SYNOPSIS

On 11 August 2013 at about 1537 hours local time, a DA40 aircraft veered off the left edge of the paved runway surface in Seletar Airport after landing on Runway 21. During the veering off, the aircraft hit a taxiway signboard before the pilot steered the aircraft back onto the runway. The pilot, a student of a flying school, was the only person on board the aircraft and he was not injured. The left wing tip assembly and leading edge were damaged.

The occurrence was classified as a serious incident by the Air Accident Investigation Bureau of Singapore.

AIRCRAFT DETAILS

Aircraft type : DA 40

Operator : Singapore Youth Flying Club

Registration : 9V-YFM

Number and type of engines : 1 x Lycoming IO-360-M1A

Type of flight : Training

1 FACTUAL INFORMATION

All times used in this report are Singapore times. Singapore time is eight hours ahead of Coordinated Universal Time (UTC).

1.1 History of the flight

- 1.1.1 At 1537 hours on 11 August 2013, a DA40 aircraft from a local flying school, piloted by a student pilot on a solo flight, veered off the left edge of the paved runway surface and the left wingtip of the aircraft hit the Taxiway E3 signboard during a landing on Runway 21 in Seletar Airport. The student pilot managed to steer the aircraft back onto the paved surface and came to a stop on the runway, past Taxiway E3.

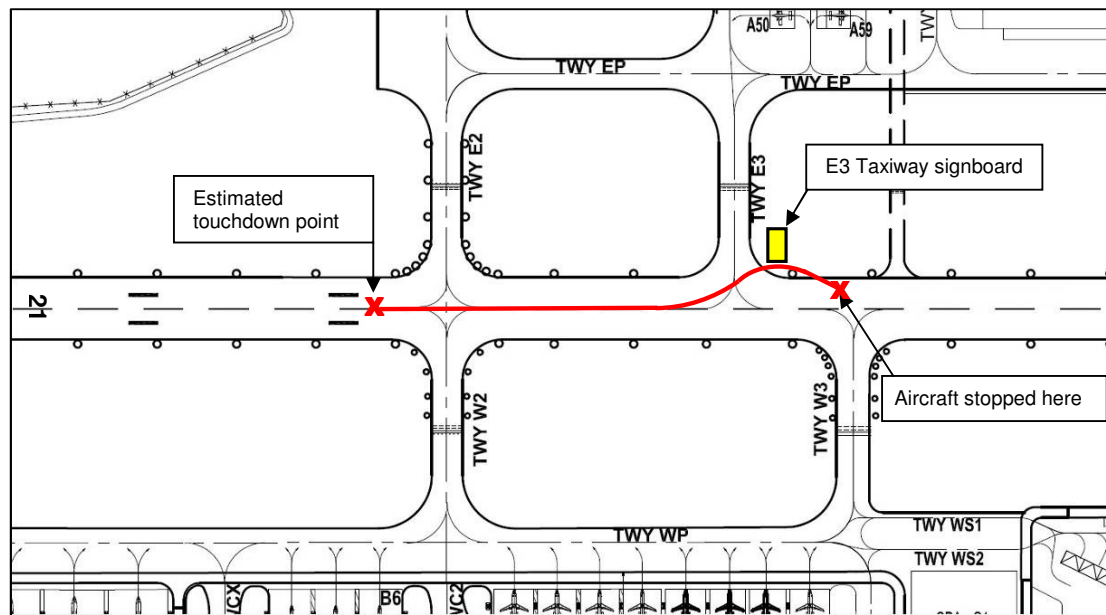


Figure 1: Ground path of the aircraft

- 1.1.2 This was the student pilot's fourth solo flight¹. It was the student's first training on a flapless approach². The student was briefed by the instructor on the flapless approach landing technique during the pre-flight briefing. The student performed a dual flight sortie with the instructor before his solo flight. The dual sortie consisted of four circuits:

- One touch-and-go following a flapless approach, performed by the instructor for demonstration purpose.

¹ The student had accumulated 20.3 hours of dual flight and 1.5 hours of solo experience before the incident flight.

² Flaps are usually extended during a normal approach to reduce the aircraft's speed prior to landing. If flaps are not extended, the landing speed will be about five knots faster.

- Two touch-and-go following a flapless approach, performed by the student pilot.
- One landing following a normal approach³, performed by the student pilot.

The instructor then cleared the student for his first solo flapless approach flight. The student taxied the aircraft back to the runway via Taxiway E2, after the instructor had alighted at the control tower.

1.1.3 The student planned to perform two touch-and-go with flapless approach and then a normal approach to land. The first touch-and-go following a flapless approach was uneventful.

1.1.4 During his second flapless approach and after the student reported to the Air Traffic Controller (ATC) that he was at the downwind position, the ATC asked if the student intended to land. Knowing that there was another aircraft joining the circuit from his monitoring of the ATC radio communications, the ATC's query led him to believe that the ATC wanted him to land. Therefore, the student changed his plan and decided to land.

1.1.5 The aircraft landed before Taxiway E2 and the pilot applied brakes. He tried to vacate the runway via Taxiway E3 but the aircraft veered off the left edge of the runway and hit the E3 signboard. The aircraft came to a stop on the runway with damages to the left hand wing and the Taxiway E3 signboard.

1.2 Injuries

1.2.1 The student pilot was the only person on board the aircraft at the time of the incident. He was not injured.

1.3 Aircraft Damage

1.3.1 The aircraft's left wing collided with the E3 signboard, resulting in damage to the left wing tip assembly and leading edge.

1.3.2 The left wing leading edge had a crack of approximately 35.5 cm (length) by 10.2 cm (breadth) (see **Figure 2**).



Figure 2: Damage on left wing leading edge

³ Flaps are extended in a normal approach.

- 1.3.3 The second static discharger from the left wing tip broke off from the bottom of the wing tip assembly after hitting the signboard. There were scratches on the underside of the left wing tip assembly. The tie-down hook on the left wing was also twisted due to impact. See **Figures 3** and **4**.



Figure 3: Dislodged static discharger

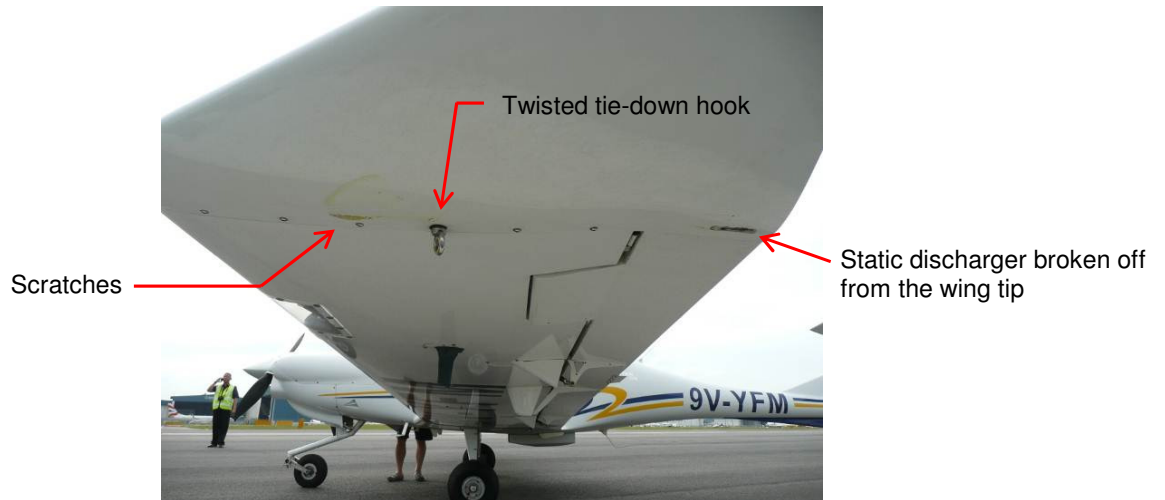


Figure 4: Damage on the bottom of the wing tip assembly

- 1.3.4 The front of the left wing tip assembly also sustained minor scratches. See **Figure 5**).

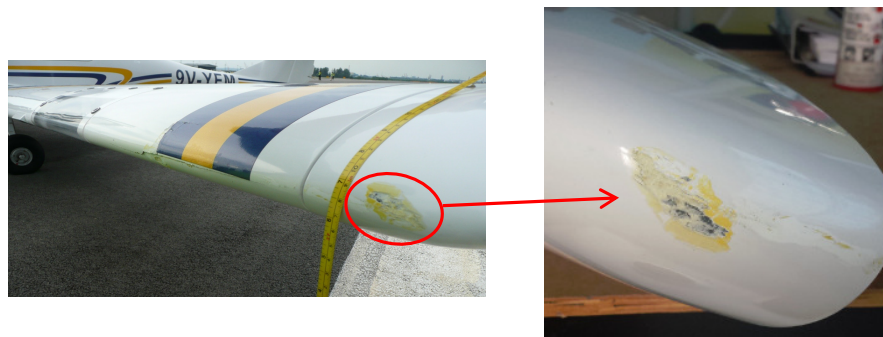


Figure 5: Scratches at the front of LH Wing Tip Assembly

1.4

Personnel Information

Gender	Male
Age	18
Type of Licence	Student Pilot Licence
Valid Until	30 September 2013
Aircraft rating	Nil
Instrument rating	Nil
Total flying time	21 hours 40 minutes
Total on this type	21 hours 40 minutes
Total last 90 days	13 hours 48 minutes
Total last 28 days	3 hours 24 minutes
Total last 24 hours	0
Medical class	Class Two
Medical limitations	Holder to wear lenses which correct for distant vision

1.5 **Medical Information**

1.5.1 The student underwent a medical and toxicological test after the occurrence. The test revealed no abnormality.

1.6 **Additional Information**

1.6.1 According to the student and instructor, the brake was responsive and no abnormality was observed.

1.6.2 The school has a guideline in the school's operation manual on "After Landing Turn-Off / Vacating Runway-In-Use" which states that "if the aircraft is moving too fast, the turn-off should not be attempted, even if cleared by the ATC, and the aircraft should continue down the runway and turn off at the next available taxiway".

1.6.3 The student was aware of the requirement for solo students to land only on normal approach. According to the student, when he changed his intention (from a touch-and-go to a landing) at the downwind position, he still had some time to adjust the settings to extend the flaps to perform a normal approach instead of a flapless approach. However, he did not do so and continued the landing in flapless configuration.

2 DISCUSSION

- 2.1 The student was aware of the After Landing Turn-Off / Vacating Runway-in-use” guideline. Another instructor had briefed the student about using a longer landing run to avert the possibility of turning off the runway at high speed. That instructor also demonstrated to the student on how to judge speed to execute safe turn-off after landing.
- 2.2 After landing, the student assessed that he was able to vacate the runway via Taxiway E3 and he aimed for it. However, he misjudged the speed of the aircraft as it decelerated and he did not manage to vacate the runway successfully.

3 SAFETY ACTION

During the course of the investigation and through discussions with the investigation team, the following safety actions were initiated by the flying school.

- 3.1 The school has reminded all its students of the “After Landing Turn-Off/ Vacating Runway-In-Use” guideline as stipulated in the school’s operation manual.
- 3.2 Following the incident, the school conducted monthly tests to make sure all its instructors and students are aware of and up-to-date with the procedures in the operation manual.

4 SAFETY RECOMMENDATION

- 4.1 In view of the safety actions taken by the flying school, no safety recommendation is proposed