# The Gliding Federation of Australia Inc

# Occurrence Summaries

01/01/2019 to 31/12/2019

Region(s): All

Club:

Christopher Thorpe
Executive Manager, Operations
The Gliding Federation of Australia Inc.

27-Aug-2020

**The Gliding Federation of Australia Inc**
**Accident and Incident Occurrences**
**General Statistics**

Date From: 01/01/2019
Date to: 31/12/2019

| **Damage** | | | | | | |
|---|---|---|---|---|---|---|
| | **VSA** | **GQ** | **NSWGA** | **SAGA** | **WAGA** | **Total** |
| Nil | 29 | 35 | 23 | 11 | 13 | 111 |
| Minor | 9 | 6 | 11 | 7 | 4 | 37 |
| Substant | 1 | 7 | 5 | 1 | 8 | 22 |
| **Total** | **39** | **48** | **39** | **19** | **25** | **170** |

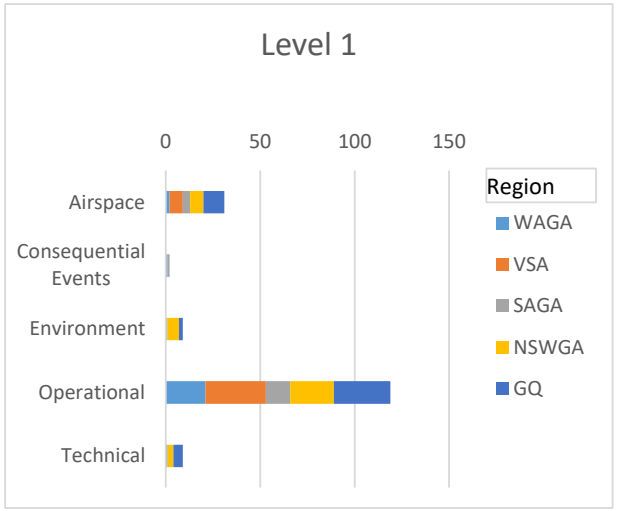
| **Injury** | | | | | | |
|---|---|---|---|---|---|---|
| | **VSA** | **GQ** | **NSWGA** | **SAGA** | **WAGA** | **Total** |
| Nil | 38 | 47 | 38 | 18 | 22 | 163 |
| Minor | 1 | 1 | 1 | 1 | 1 | 5 |
| Serious | | | | | 2 | 2 |
| **Total** | **39** | **48** | **39** | **19** | **25** | **170** |

| **Phases** | | | | | | |
|---|---|---|---|---|---|---|
| | **VSA** | **GQ** | **NSWGA** | **SAGA** | **WAGA** | **Total** |
| Launch | 14 | 14 | 9 | 2 | 9 | 48 |
| Landing | 13 | 19 | 22 | 9 | 8 | 71 |
| ng | 1 | 1 | 2 | 1 | 4 | 9 |
| In-Flight | 2 | 12 | 5 | 4 | 3 | 26 |
| Thermal | 2 | | | 1 | 1 | 4 |
| Ground | 7 | 2 | 1 | 2 | | 12 |
| **Type of F** | | | | | | |
| | **VSA** | **GQ** | **NSWGA** | **SAGA** | **WAGA** | **Total** |
| Cross-Co | 5 | 11 | 5 | 3 | 5 | 29 |
| Training/ | 7 | 7 | 9 | 4 | 5 | 32 |
| Competit | 4 | 2 | 3 | | 5 | 14 |
| Local | 16 | 25 | 20 | 9 | 10 | 80 |
| Ground ( | 7 | 2 | 1 | 2 | | 12 |
| AEF | | 1 | 1 | 1 | | 3 |
| **Total** | **39** | **48** | **39** | **19** | **25** | **170** |

**The Gliding Federation of Australia Inc**
**Accident and Incident Occurrences**
**Classification Level 1**

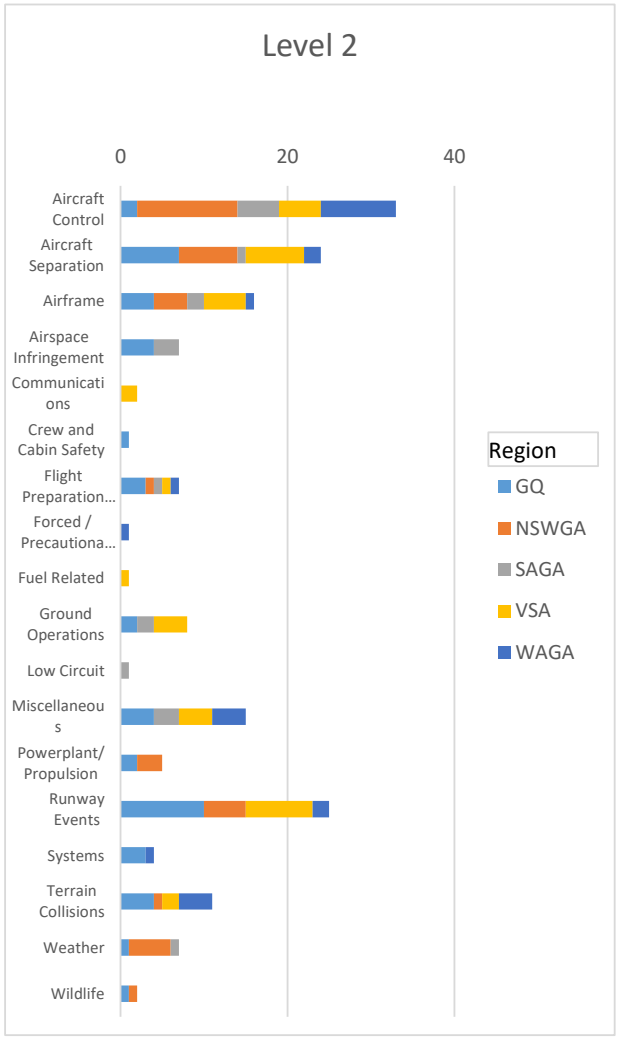
Date From: 01/01/2019
Date to: 31/12/2019

| Level 1 | WAGA | VSA | SAGA | NSWGA | GQ | Total |
|---|---|---|---|---|---|---|
| Airspace | 2 | 7 | 4 | 7 | 11 | 31 |
| Conseque | 1 | | 1 | | | 2 |
| Environment | | | 1 | 6 | 2 | 9 |
| Operation | 21 | 32 | 13 | 23 | 30 | 119 |
| Technical | 1 | | | 3 | 5 | 9 |
| **Total** | **25** | **39** | **19** | **39** | **48** | **170** |



**The Gliding Federation of Australia Inc**
**Accident and Incident Occurrences**
**Classification Level 2**
From: 01/01/2019
Date to: 31/12/2019

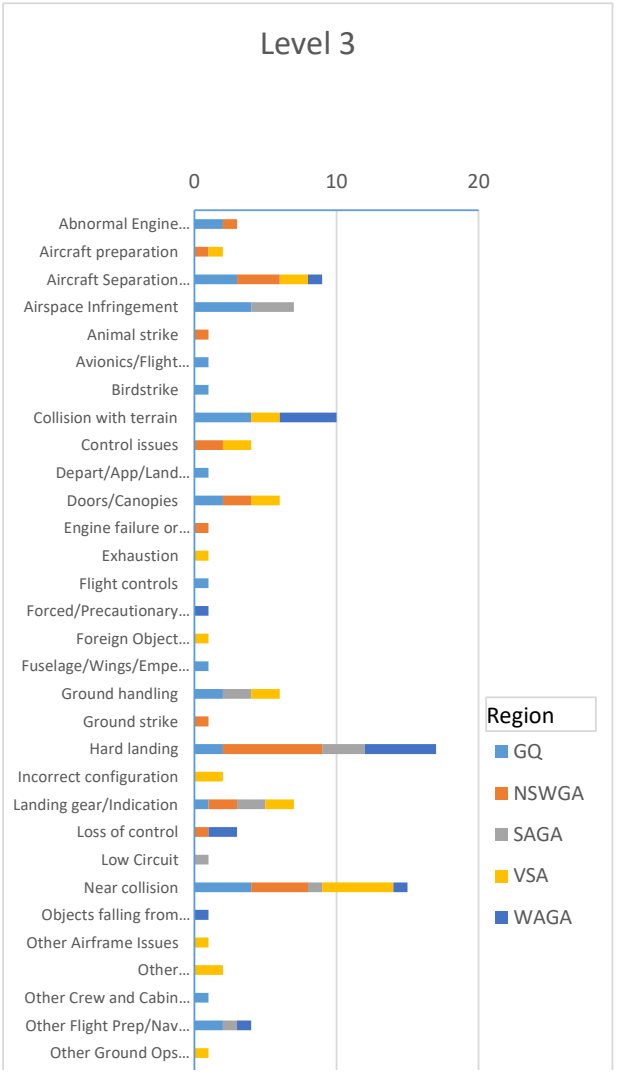
| Level 2 | GQ | SWG | SAGA | VSA | WAGA | Total |
|---|---|---|---|---|---|---|
| Aircraft Cc | 2 | 12 | 5 | 5 | 9 | 33 |
| Aircraft Se | 7 | 7 | 1 | 7 | 2 | 24 |
| Airframe | 4 | 4 | 2 | 5 | 1 | 16 |
| Airspace I | 4 | | 3 | | | 7 |
| Communications | | | | 2 | | 2 |
| Crew and | 1 | | | | | 1 |
| Flight Prep | 3 | 1 | 1 | 1 | 1 | 7 |
| Forced / Precautionary landing | | | | | 1 | 1 |
| Fuel Related | | | | 1 | | 1 |
| Ground O | 2 | | 2 | 4 | | 8 |
| Low Circuit | | | 1 | | | 1 |
| Miscellane | 4 | | 3 | 4 | 4 | 15 |
| Powerplar | 2 | 3 | | | | 5 |
| Runway E | 10 | 5 | | 8 | 2 | 25 |
| Systems | 3 | | | | 1 | 4 |
| Terrain Cc | 4 | 1 | | 2 | 4 | 11 |
| Weather | 1 | 5 | 1 | | | 7 |
| Wildlife | 1 | 1 | | | | 2 |
| **Total** | **48** | **39** | **19** | **39** | **25** | **170** |



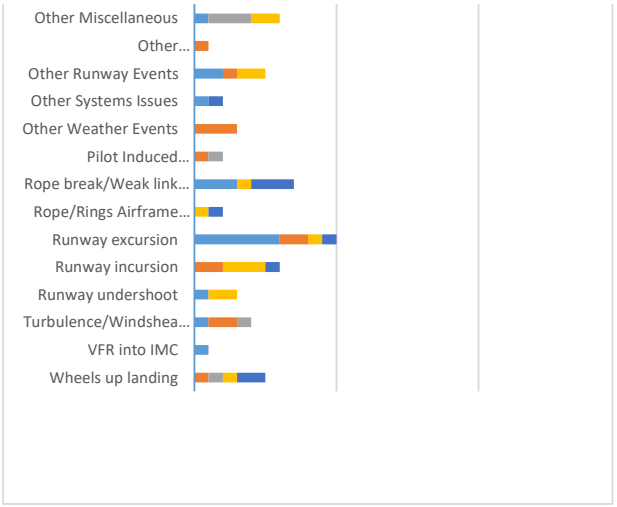
**The Gliding Federation of Australia Inc**
**Accident and Incident Occurrences**
**Classification Level 3**

Date From: 01/01/2019
Date to: 31/12/2019

| Level 3 | GQ | SWG | SAGA | VSA | WAGA | Total |
|---|---|---|---|---|---|---|
| Abnormal | 2 | 1 | | | | 3 |
| Aircraft preparat | | 1 | | 1 | | 2 |
| Aircraft Se | 3 | 3 | | 2 | 1 | 9 |
| Airspace I | 4 | | 3 | | | 7 |
| Animal strike | | 1 | | | | 1 |
| Avionics/F | 1 | | | | | 1 |
| Birdstrike | 1 | | | | | 1 |
| Collision v | 4 | | | 2 | 4 | 10 |
| Control issues | | 2 | | 2 | | 4 |
| Depart/Ap | 1 | | | | | 1 |
| Doors/Car | 2 | 2 | | 2 | | 6 |
| Engine failure or | | 1 | | | | 1 |
| Exhaustion | | | | 1 | | 1 |
| Flight cont | 1 | | | | | 1 |
| Forced/Precautionary Landing | | | | | 1 | 1 |
| Foreign Object Damage/Debris | | | | 1 | | 1 |
| Fuselage/' | 1 | | | | | 1 |
| Ground ha | 2 | | 2 | 2 | | 6 |
| Ground strike | | 1 | | | | 1 |
| Hard landi | 2 | 7 | 3 | | 5 | 17 |
| Incorrect configuration | | | | 2 | | 2 |
| Landing ge | 1 | 2 | 2 | 2 | | 7 |
| Loss of control | | 1 | | | 2 | 3 |
| Low Circuit | | | 1 | | | 1 |



| | | | | | | |
|---|---|---|---|---|---|---|
| Near collis | 4 | 4 | 1 | 5 | 1 | 15 |
| Objects falling from aircraft | | | | | 1 | 1 |
| Other Airframe Issues | | | | 1 | | 1 |
| Other Communications Issues | | | | 2 | | 2 |
| Other Cre | 1 | | | | | 1 |
| Other Flig | 2 | | 1 | | 1 | 4 |
| Other Ground Ops Issues | | | | 1 | | 1 |
| Other Mis | 1 | | 3 | 2 | | 6 |
| Other Powerplar | 1 | | | | | 1 |
| Other Run | 2 | 1 | | 2 | | 5 |
| Other Syst | 1 | | | | 1 | 2 |
| Other Weather E | 3 | | | | | 3 |
| Pilot Induced Os | 1 | | 1 | | | 2 |
| Rope brea | 3 | | | 1 | 3 | 7 |
| Rope/Rings Airframe Strike | | | | 1 | 1 | 2 |
| Runway e | 6 | 2 | | 1 | 1 | 10 |
| Runway incursio | 2 | | | 3 | 1 | 6 |
| Runway u | 1 | | | 2 | | 3 |



| Date | 4-Jan-2019 | Region | VSA | SOAR Report Nbr | S-1409 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope break/Weak link failure |
| A/C Model 1 | ASW28 | A/C Model 2 | Pawnee 2 Seater | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 70 |

During an aerotow launch in hot (42 degrees) and gusty conditions, and at a height of about 300ft AGL, the tow plane lost altitude in sinking air and a bow developed in the rope. The glider pilot attempted to slow the ballasted glider gently, however the tow plane suddenly entered strong lift and climbed. The rope quickly became taut and the weak link broke. The glider pilot was able to conduct a 180 degree turn and safely landed the glider on the reciprocal runway. The tow pilot had launched approximately 15 gliders that day, including one immediately prior to the incident flight. The preceding tow was reported as uneventful, with benign wind conditions. However, during the ground roll on the incident flight both tow and glider pilots reported that the wind had picked up considerably, with a very strong crosswind component. After becoming airborne the tow plane turned right and climbed out over factories to the north. At a height of about 200ft AGL, the tow plane flew through strong sink. This resulted in the glider accelerating towards the tow plane, and the reduced tension on the towrope caused it to bow and slack. While the glider pilot was gently manoeuvring to slow the glider and remove the bow in the rope, the tow plane flew through lift. As the tow plane climbed, the rope quickly became taut and the weak link broke. The glider pilot was unable to land ahead due to urban development and elected to land from the reciprocal end of the operational runway. This incident highlights the risks of aerotowing in hot and blustery conditions and reinforces why pilots must maintain situational awareness and be prepared for emergencies such as cable breaks when the workload is unusually high.

| Date | 6-Jan-2019 | Region | GQ | SOAR Report Nbr | S-1412 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | Twin Astir | A/C Model 2 | Just SuperSTOL | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 55 |

The pilot of a Just SuperSTOL ultralight aircraft had returned to the airfield after a local flight and observed gliders operating on autotow off RWY 04. The ultralight pilot joined on the dead side of the circuit at about 1500ft AGL to observe and maintain separation with the gliding operation. When the ultralight was almost over-head the airfield, its pilot heard the glider launch calls and observed the glider as it gained altitude. As the ultralight flew across the first third of the operational runway its pilot observed the glider climbing above and tracking on the runway heading. The pilot then joined late downwind. Meanwhile, the glider had released from the autotow at 900ft AGL and immediately turned left to join the downwind leg of the circuit. As the ultralight pilot turned onto the base leg, they heard a radio call from the glider advising it was entering downwind. The ultralight pilot advised: *"I was not sure of the type of aircraft at this time as I was setting up for my final approach."* When the ultralight was on short final at about 150ft AGL its pilot received a radio call from the gliding operation to expedite the landing as there was a glider behind. The ultralight pilot stated: *"As my approach speed was less than 50 knots the glider had gained quickly on my aircraft, I elected to go around to allow the glider to land first. This was then carried out as a normal missed approach and go around.*" The command pilot of the glider had already recognised that the glider was converging on the ultralight due to the speed differential and assumed command from the student. The command pilot extended their downwind leg and conducted an 'S' turn to provide separation. Both aircraft landed safely without further incident. Non-controlled aerodromes can host a variety of aircraft and types of operations, including passenger air transport in large jet and turboprop aircraft, glider, parachute, helicopter, gyroplane, ultralight, balloon, and agricultural operations. This diversity presents a range of potential safety risks. In this case the risks were mitigated by both pilots through the adoption of standard circuit procedures and good airmanship.

| Date | 7-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1413 |
|---|---|---|---|---|---|
| Level 1 | Environment | Level 2 | Weather | Level 3 | Other Weather Events |
| A/C Model 1 | LS 6-c | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 50 |

After completing a cross-country flight, the pilot landed back at the home airfield just as a storm hit. A wind of 58 kts was blowing as the pilot climbed out of the cockpit and heavy rain began falling. With the wind blowing over the tail of the glider, the pilot held the port wingtip to steady the glider for 10 minutes until the storm passed. The pilot stated: *"I was not injured and there was no damage to the glider, which is fortunate. Lesson learnt here is to outland earlier and tie down the glider before a storm arrives, so as to prevent potential personal injury and damage to the glider."* Weather does not stay constant and may not behave in a manner consistent with the forecast conditions. It can deteriorate rapidly. When the actual conditions differ from that forecast, pilots need to consider the impact this may have on the planned flight. They need to continually assess the weather enroute and lookout for deteriorating conditions behind, around, and ahead. Make decisions early and when in doubt, look for alternative landing areas. For further information, see:

- ATSB Document: General Aviation Pilot Behaviours in the Face of Adverse Weather https://www.atsb.gov.au/publications/2005/pilot_behaviours_adverse_weather/; and
- FAA Document: General Aviation Pilot's Guide to Preflight Weather Planning, Weather Self-Briefings, and Weather Decision Making. https://www.faasafety.gov/files/gslac/courses/content/25/185/GA%20Weather%20Decision-Making%20Dec05.pdf

| Date | 7-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1432 |
|---|---|---|---|---|---|
| Level 1 | Environment | Level 2 | Weather | Level 3 | Other Weather Events |

| A/C Model 1 | | LS 4-a | | A/C Model 2 | | | |
|---|---|---|---|---|---|---|---|
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 56 |

The pilot was one of several pilots who were returning to the airfield ahead of an approaching storm front. The pilot conducted a safe landing on the most into wind runway (RWY 05) and then pushed the glider outside the gable markers. The pilot walked to their car that was parked a long way from the landing point. The pilot returned to the glider some 30 minutes later just as the storm hit. The pilot stated: *"I jumped out of the car and sat on the into wind wing holding the glider down during a 20 minutes storm with torrential rain and over 120km/h wind. AWS recorded winds at 59kts. It was later said at briefing that 59kts was the maximum speed recorded. It is therefore likely that the actual wind speed was much higher than that."* During the storm the pilot called for assistance on the CTAF and sent text messages to club members. After the storm had passed a club member with a four-wheel drive vehicle arrived to assist and towed the glider to the tie-down area. The glider was undamaged by the event. Given the ferocity of the storm, it is likely the glider would have been substantially damaged if the pilot had not been there to secure it. For guidance, see:

- ATSB Document: General Aviation Pilot Behaviours in the Face of Adverse Weather https://www.atsb.gov.au/publications/2005/pilot_behaviours_adverse_weather/; and
- FAA Document: General Aviation Pilot's Guide to Preflight Weather Planning, Weather Self-Briefings, and Weather Decision Making. https://www.faasafety.gov/files/gslac/courses/content/25/185/GA%20Weather%20Decision-Making%20Dec05.pdf

| Date | 9-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1467 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Control issues |

| A/C Model 1 | | JS1 C 18/21 | | A/C Model 2 | | | |
|---|---|---|---|---|---|---|---|
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 25 |

The glider pilot was competing in the 38th Australian Club and Sports Class Nationals at Lake Keepit, NSW. During launch on the downward sloping runway, the tow plane lifted off ahead of the fully ballasted glider and commenced a steep climb. The glider was too slow (~50 knots) to follow, and the pilot released (This glider type requires a minimum towing speed of around 73 knots when ballasted). The glider came to rest near the end of the runway. The Competition Safety Officer reported the hot dry conditions and slight crosswind component contributed to a number of dust devils of various intensities crossing the runway during launching and that this may have been a contributing factor. It is well documented that heavy gliders may not leave the ground before the tow plane; in fact, it is reasonably common to see a heavy glider still on the ground with the tow plane airborne. If the tow plane climbs too early in this case, the glider will either not have flying speed and will have to release before it collides with the upwind fence, or it may have marginal flying speed and get dragged into the air barely above its stall speed and virtually uncontrollable. Neither of these options is attractive. The solution is for the tow pilot to keep the tow plane in ground effect until the known/agreed climb speed has been achieved, then allow the tow plane to separate and enter the initial climb with enough speed to give the glider pilot good control. From the foregoing descriptions of the two extremes of take-off technique, it is obvious that the tow pilot must know the characteristics of the glider about to be towed, especially its weight and safe tow speed. Glider Flight Manuals are a good source of information or, if unsure, the tow pilot should ask the glider pilot. Once this is known, the exact technique to be used may be pre-planned and put into practice. It is necessary to go through this exercise prior to EVERY tow (Refer GFA Aerotowing Manual, Section 10.1.10.2 'Separation technique - gliders with heavy wing-loading').

| Date | 9-Jan-2019 | Region | SAGA | SOAR Report Nbr | S-1414 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Wheels up landing |
| A/C Model 1 | | Discus b | | A/C Model 2 | |

| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 68 |
|---|---|---|---|---|---|---|---|

The low hours pilot was flying with water ballast for the first time. After the pilot completed the pre-flight cockpit checks, the launch assistant noticed the monitoring frequency was incorrectly set on the radio. The canopy was opened, and the launch assistant set the correct frequency. The canopy was then closed and apparently locked. Take-off occurred normally and the pilot elected to release from the tow plane at 3000 ft in order to explore the handling characteristics of the ballasted glider. Immediately upon releasing the tow line, the canopy flew fully open. The pilot was able to pull the canopy closed but despite repeated attempts throughout the remainder of the flight, was unable to lock it (possibly because the retaining cord, unseeable and inaccessible to the pilot, was jamming between canopy and frame). This necessitated the pilot holding the canopy closed with their left hand throughout the remainder of the flight. The pilot made a radio call to the gliding operation and advised of the difficulties. The water ballast was jettisoned, and the pilot flew a series of left-hand turns to return to circuit height. The pilot conducted the pre-landing check list and joined circuit for landing. The pilot intended to land back on RWY 20 without the assistance of airbrakes, but became concerned that the glider may overshoot and elected to land on the longer RWY 26. During the final approach the pilot realised they would need to use some airbrake to get the glider on the ground and held the stick between their knees while using the right hand on the airbrakes. However, due to the high workload and stress of the situation, the pilot mistakenly pulled the undercarriage up. Realising their error, the pilot managed to open the airbrakes but did not recognise the undercarriage was retracted. The glider stabilised on the approach and the aircraft touched down lightly on the fuselage. The pilot was uninjured, and the aircraft suffered only minor damage to the lower fuselage.

| Date | 10-Jan-2019 | Region | VSA | SOAR Report Nbr | S-1420 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication |
| A/C Model 1 | LS 3-a | A/C Model 2 | | | |

| Injury | Nil | Damage | Minor | Phase | Launch | PIC Age | 48 |
|---|---|---|---|---|---|---|---|

During the initial ground roll of an aerotow launch, the glider's undercarriage retracted and dropped onto the fuselage. The tow rope broke and the glider came to rest. The pilot reported that the undercarriage lever was identified as in the down and locked position during the Daily Inspection, and the glider was towed to the launch point via the paved taxiway and grass runway without incident. In his statement, the pilot said *"The initial ground roll was a little bumpy and the aircraft was about to become airborne (undercarriage mostly unweighted) and then slightly re weighted. At this point the undercarriage collapsed/retracted; with no movement of the undercarriage lever"*. Subsequent inspection could not identify any defects in the undercarriage system, which had recently been serviced after a similar incident two months earlier. It is possible the undercarriage lever may not have been correctly set during the pilot's pre take off checks, leading to the collapse of the undercarriage. It is also possible the undercarriage mechanism moved from the overcentre position as the mainwheel bounced along the rough runway surface, which is a known issue with LS type gliders. To avoid landing gear collapse, the manufacturer recommends the overcentre and gas strut should be regularly checked as per maintenance manual.

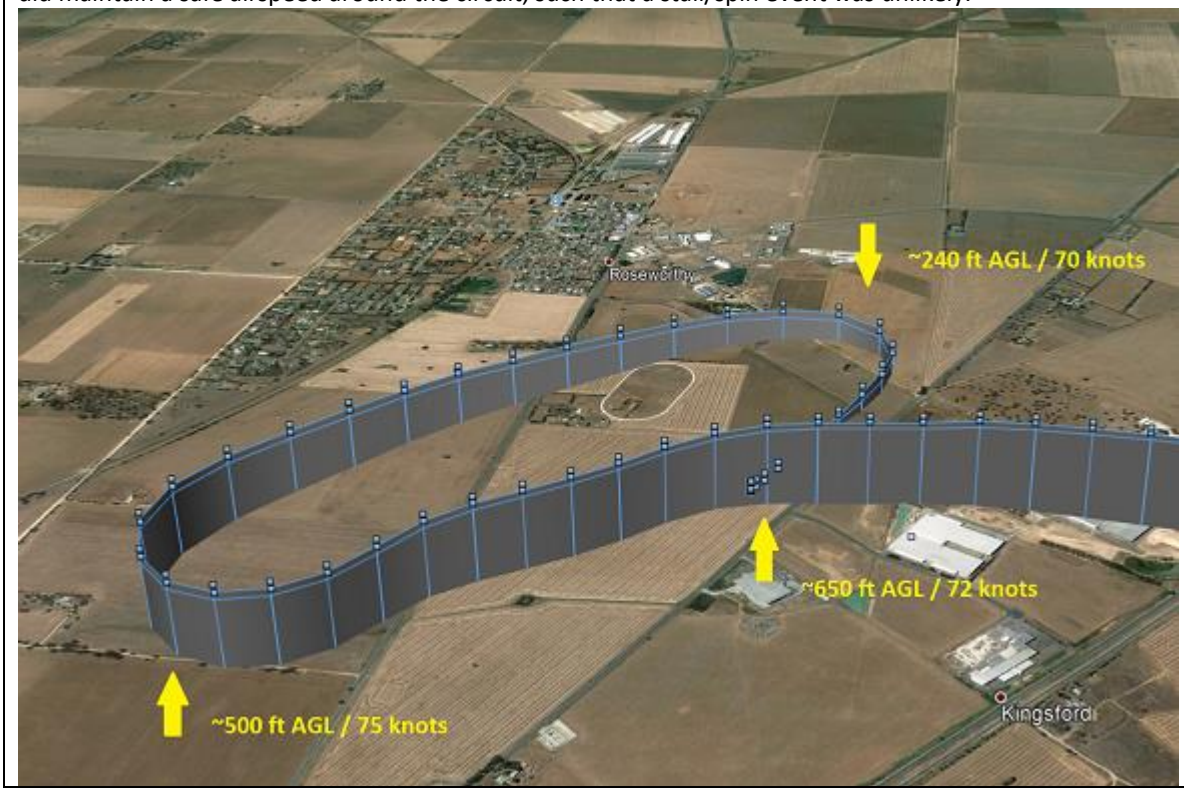
| Date | 11-Jan-2019 | Region | SAGA | SOAR Report Nbr | S-1460 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Other Miscellaneous |
| A/C Model 1 | G 102 Club Astir IIIb | A/C Model 2 | | | |

| Injury | Nil | Damage | Nil | Phase | Outlanding | PIC Age | 19 |
|---|---|---|---|---|---|---|---|

A student pilot on a solo soaring flight, misjudged the glide back to the home airfield and outlanded about 3NM short of the destination. The student was not cleared for cross-country flying. Club operations on this day were to be limited to independent operators, as no Duty Instructor had been assigned. However, one of the Club's Level 2 instructors was on site and was preparing to fly their single-seat sailplane on a cross-

country flight. A student pilot who had recently converted to single-seat sailplanes approached the Level 2 Instructor for approval to fly the Grob 102 Astir. The level 2 Instructor conducted a check flight with the student and cleared them to fly solo. As conditions on the day were good, with strong climbs to over 8,000ft, the instructor thought it might be useful for the student to follow the instructor while soaring locally. Once the two aircraft were launched, the student pilot followed the instructor to the North-east towards higher airspace. When about 5NMs from the airfield, the student misjudged the lateral airspace boundary and drifted 500 metres into controlled airspace while thermalling. After less than two minutes the pilot flew out of the CTA and continued on course. After flying for about 1½ hours the two gliders were about 15NMs from home at a height of 8,600ft. At this point the instructor directed the student to return home, while the instructor continued on further out. Although the student successfully navigated their way back towards the airfield, they flew the aircraft too fast for the conditions and undershot their glide. The flight trace revealed the pilot flew most of the way home between 75-90 knots, and in the last 12 kms lost 3,500ft. The student pilot elected to land in a paddock and, although this decision was made late and a too low a height for their level of experience (below 1,000ft), a safe landing ensued. The Club's CFI noted that the instructor's decision to leave the student to their own devices was inappropriate, even though the student was within gliding range of the field. The incident also highlighted flaws in the student's understanding of glider performance and speeds to fly, as well as navigational tolerances near airspace boundaries. It was noted that the student did maintain a safe airspeed around the circuit, such that a stall/spin event was unlikely.




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 11-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1415 | | |
| Level 1 | Environment | Level 2 | Weather | Level 3 | Turbulence/Windshear /Microburst | | |
| A/C Model 1 | LS 6 | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 54 |
| The pilot was competing in the 38th Australian Club and Sports Class Nationals at Lake Keepit, NSW and had returned to the vicinity of airfield at 16:30 after a 328km cross country flight. The glider operation informed | | | | | | | |

the pilot that the wind was calm and the preferred runway was 14. At 16:33 and at a height of about 1,000ft AGL, the pilot turned onto final approach to RWY 14. During the final approach the pilot received a warning over the radio of a dust devil on the eastern side of the runway. The pilot stated: *"I was already aligned on the west side and decided to shorten my landing (we usually land long in competitions) to minimise the chances of contacting the dust devil. The glider did not have any water left, the approach was done at the usual airspeed of 62-65kts. Just before touchdown I noticed significant turbulence and higher than usual ground speed. While rolling on the ground the deceleration on the slightly uphill strip was slower than usual and I quickly lost aileron authority. Indicating a strong tail wind. I glanced at the ASI and the needle was barely bouncing over 20 knots but the ground speed was still quite high, the left wing dropped and I realised that a ground loop was inevitable. As the glider started to turn left, I pushed the stick forward and after about 90-degree turn, the glider violently became airborne to about 1.5-2m high. The glider then nose-dived and contacted the ground shattering the nose cone, canopy and tailplane. I was unhurt and walked out."* Witnesses reported the thermal crossed the runway as the glider touched down and lifted it about 3 metres into the air while rotating it 270 degrees. Although the pilot was unhurt, the aircraft was substantially damaged. The Competition Safety Officer advised that a number of Dust Devils passed across the airfield during the period of the competition, which were mostly avoided by ceasing launching or using a different runway for landing.

| Date | 12-Jan-2019 | Region | VSA | SOAR Report Nbr | S-1421 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Control issues |
| A/C Model 1 | Duo Discus | | A/C Model 2 | AMERICAN CHAMPION AIRCRAFT CORP 8GCBC | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 62 |

During the initial aerotow launch and climb to about 300ft behind a 'Scout' tow plane, the glider pilot noticed the airspeed to be very close to the stall. The glider pilot made a radio call to the tow pilot asking for more airspeed, but the message was not heard. The glider pilot reported: *"In the initial part of the launch, if I released, I would not have had sufficient elevator to flare the glider"*. Investigation revealed that the tow plane had been fully refuelled before the launch and this, coupled with a high density altitude and crosswind conditions affected performance. The tow pilot noted: *"During the take-off run, and before lift-off, I experienced a couple of strong loads coming on the towrope. It felt like this was the glider getting flying and establishing itself slightly high tow. Acceleration was retarded slightly each time. It felt typical for a very hot day and a heavy glider on tow."* The Club's Tugmaster issued a bulletin reminding tow pilots of the need to make themselves familiar with the towing speeds of the gliders they are towing. Specific advice for tow pilots can be found in the Aerotowing Manual at Section 10.1.4. 'Awareness of glider limitations.'

| Date | 13-Jan-2019 | Region | VSA | SOAR Report Nbr | S-1416 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Doors/Canopies |
| A/C Model 1 | Twin Astir -LP | | A/C Model 2 | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 79 |

During a winch launch, and at a height of about 500ft AGL, the glider's rear canopy opened fully. The command pilot, who was occupying the rear seat, released at about 700ft AGL and attempted to close the canopy without success. The command pilot conducted a modified circuit and made a safe landing. A post-flight examination of the undamaged canopy and its attachments revealed that the command pilot had either not fully engaged the locking mechanism (likely) or had knocked it open in flight. The Club proposes to paint safety marks on the sliding locking pins and canopy that will align when the mechanism is fully secure.

| Date | 13-Jan-2019 | Region | GQ | SOAR Report Nbr | S-1422 |
|---|---|---|---|---|---|
| Level 1 | Environment | Level 2 | Weather | Level 3 | Turbulence/Windshear /Microburst |
| A/C Model 1 | Ventus b | | A/C Model 2 | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 66 |

While landing into a cross wind during strong local thermal activity, the right wing was lifted as the flare was initiated. The pilot corrected by levelling the wings and closing the airbrakes but was unable to prevent the glider ground looping at the end of the ground roll. The tailskid was torn from the glider, which was otherwise undamaged. The pilot had about 35 hours on type but most of their experience was on lighter, wooden gliders with high wings. Gliders with their CG well behind the wheel have a much stronger tendency to weather-cock into wind. If a swing does develop it will worsen, sometimes very quickly, and the rudder may be incapable of stopping it. Pilots must take special care when landing these aircraft in a crosswind, and especially when there is strong local thermal activity. Unless full opposite rudder is applied immediately, the glider starts to swing and will almost certainly ground loop despite the pilot's best efforts.

| Date | 15-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1426 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication |
| A/C Model 1 | T51 Dart 17R | | A/C Model 2 | | |

| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 55 |
|---|---|---|---|---|---|---|---|

The pilot had returned from a cross-country flight and had configured the aircraft for landing by lowering the undercarriage and confirming the lever was in the locked position. On touch down the undercarriage collapsed. The pilot reported that the landing was normal, with the tail skid contacting just ahead of the main wheel. The landing surface was somewhat rough due to drought conditions. The gear operating lever was still in the down and locked position when the glider came to a stop, and the mechanism sustained damage; this included bending of the intermediate pivot arm immediately behind the cockpit bulkhead, bending of the fork at the end of the actuation torque tube and angular distortion of the torque tube. Investigation revealed that an electrical cable for the undercarriage position limit switch had obstructed the undercarriage lever and prevented the over-centre mechanism fully engaging. The damaged components were repaired to achieve the correct geometry and the electrical cable was better restrained to prevent recurrence.


| Date | 19-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1429 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Pilot Induced Oscillations |
| A/C Model 1 | PW-5 "Smyk" | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | In-Flight | PIC Age | 79 |

To prevent entering low cloud during a winch launch, the pilot pushed forward and operated the release. Believing the cable did not release, the pilot pulled on the release knob several times, during which the aircraft oscillated wildly causing excessive flexing of the wings. The aircraft descended rapidly, and the pilot performed a modified circuit and landed safely into the gusting headwind. The aircraft suffered damage due to high in-flight 'g' loading. Operations on the day commenced later than usual due to limited personnel. Weather conditions were overcast, with the cloud base fluctuating between 1200' and 1500'. The wind was from the South at 5 to 8 knots. During the day the wind speed increased, with gusts to 26 knots, and the cloud base lowered. A low-level wind shear was identified. A decision was made to cease operations and an experienced pilot and instructor elected to fly the PW5 to the hangar. During the launch the glider was observed to transition very steeply into the full climb at a low altitude. The pilot stated that, despite holding the stick full forward, he was unable to prevent the aircraft climbing steeply. The remainder of the launch was on the fast side. As the glider approached cloud base at around 900 feet, the pilot bunted over and pulled the release knob. The pilot stated that he did not hear or feel the rope depart and thought that it was still attached; although witnesses on the ground observed the rope fall away. The pilot continued to pull the release on the assumption that the rope had not been let go and endeavoured to break the weak link by climbing. The entered a series of violent oscillations and continued its descent at high speed until normal

flight was resumed at about 300 feet on downwind. The pilot then conducted a modified circuit and made a safe landing. The CFI's investigation identified that:

- Conditions on the day were marginal but some members felt that "glider pilots should be able to manage conditions like this".
- During the Daily Inspection of the glider the pilot had been advised that the release mechanism had been overhauled and the release handle needed to be pulled firmly as the mechanism only fully opens at the very end of the cable's travel. This may have reinforced in the pilot's mind that the rope had not released when he did not hear or feel the rope let go.
- The pilot continued to pull the release knob hard several times, which may have inadvertently affected the pilots pitch control movements enhancing over controlling.
- The pilot's efforts to break the weak link were misplaced, as the glider could have been flown in such a manner to activate the back release.
- Due to the low cloud, it is likely the pilot would not have had a distinct and clear horizon until the glider had descended to around 600ft, which may have contributed to the pilot over controlling the pitch of the aircraft immediately after the launch.
- The launch appears to have been too fast at all stages, and the damage sustained suggests the speed exceeded the glider's maximum manoeuvring speed during the pilot induced oscillations. The excessive speed may have been the result of the wind speed increasing with height.
- It is not easy to give too fast signals in a light glider such as the PW5 when approaching maximum speed on the launch, and even experienced pilots can have difficulty. In this case, an earlier release would have been preferable.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|---|---|---|---|---|---|---|---|
| Date | 19-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1502 | | |
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | Ground strike | | |
| A/C Model 1 | Cessna 180B | A/C Model 2 | | | | | |
| Injury | Minor | Damage | Minor | Phase | Launch | PIC Age | 68 |
| This incident occurred on the first practice day of the 2019 NSW State Gliding Championships. During the ground roll for the second competition aerotow launch, the tow plane flew into a dust devil that was travelling across the runway. The tail of the tow plane was lifted but the tow pilot recovered the situation | | | | | | | |

  

and a normal launch proceeded. At the completion of launching operations, the tow pilot taxied to the refuelling point. Upon exiting the tow plane to commence the refuelling process, the pilot noticed the propeller tips were damaged. It was determined that the damage occurred when the tow plane flew through the dust devil. The tow plane was grounded pending a mandatory 'prop strike' inspection.

| Date | 19-Jan-2019 | Region | GQ | SOAR Report Nbr | S-1424 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | Level 3 | Other Flight Prep/Nav Issues |
| A/C Model 1 | Astir CS 77 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 19 |

After a local soaring flight of about 50 minutes the pilot elected to return to the airfield. The pilot stated that to increase the decent rate they decided to extend the wheel. Upon entering the downwind leg of the circuit, the pilot inadvertently retracted the undercarriage and did not confirm the position of the undercarriage lever to the placard when conducting the pre-landing checklist. While on final approach the pilot received a radio broadcast from the gliding operation advising the wheel was retracted. The pilot lowered the undercarriage and made a normal landing. This incident highlights a common problem resulting from pilots treating the pre-landing 'check' list as an 'action' list. In Operational Safety Bulletin (OSB) 01/14 - Circuit and Landing Advice is the following guidance for pilots once they have made the decision to break-off the flight:

*"Since landing mishaps usually occur due to poor workload management, it is important to get some of the tasks out of the way early and prepare for landing by:*

- *Making sure the straps are tight.*
- *In gliders so equipped, dump any water ballast,* ***lower the undercarriage*** *and set the flaps, trimming to an appropriate speed for the downwind leg.*
- *Make sure the radio is on the correct frequency, that volume and squelch are correctly set, and that the microphone is positioned for best performance."*The OSB goes on to advise that the *"…pre-landing check should be completed once the approach speed has been set and the aircraft trimmed. This will usually be once the pilot is adjacent to the intended landing area but should be completed no later than prior to commencing the base leg turn"*. This advice is followed by a caution *"The pre-landing check (refer MOSP 2, Appendix 1) is a check and not an action list. The check should verify the undercarriage lever is matched to the lowered position on the placard, that flaps are set as required, and that approach speed and trim has been set."*

It should also be noted that lowering the undercarriage at low level on final approach is fraught with danger; and has been identified as a factor in at least two fatal low-level stall/spin events in the past few years, and to gliders striking the ground hard and being substantially damaged with the pilot suffering injury. Pilots and ground crew should recognise that it is far safer for the pilot to land properly with the undercarriage retracted than to potentially lose control while lowering it.

| Date | 19-Jan-2019 | Region | WAGA | SOAR Report Nbr | S-1425 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | Level 3 | Other Flight Prep/Nav Issues |
| A/C Model 1 | Discus CS | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 34 |

During the morning briefing the pilot advised that they were planning to conduct a 500 km badge flight in the club's Discus. The pilot held a Level 1 Independent Operator authority, which meant that they were operating under the authority of the Duty Instructor (refer MOSP 2, Section 13.1.1). Discussion with the Duty instructor determined that the pilot was not prepared for such a flight, as they did not have a car with a tow hitch and were unable to assemble a road retrieve crew. The pilot was restricted to local flying. The pilot

  

later launched in the Club aircraft and conducted a shorter cross-country flight without advising the duty instructor of their intentions for SAR purposes. The pilot was counselled, and their flying privileges were suspended for a period. Level 1 Independent Operators planning to fly cross-country must not only have approval of the Duty Instructor (CFI's delegate), but they must also advise the Duty Instructor where and when they are planning to fly and must be prepared for an outlanding (even if they are flying powered sailplanes). On the other hand, Level 2 Independent Operators are solely responsible for all aspects of their operations when operating independently; including airways clearances, tower clearances, SAR notification and accident/incident reporting. Level 2 Independent Operators should leave suitable instructions with a family member, friend or club mate, depending on their circumstances.

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|---|---|---|---|---|---|---|---|
| Date | 20-Jan-2019 | Region | VSA | SOAR Report Nbr | S-1427 | | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Control issues | | |
| A/C Model 1 | Discus a | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 65 |

During the initial stages of a winch launch the glider was observed to transition steeply into the climb, at what witnesses believed to be a slow airspeed with the potential to enter a stall. The pilot maintained a steep nose-up attitude for a significant part of the initial climb phase. At the top of the launch the pilot released in a thermal and the glider climbed away without further incident. The Club's CFI spoke with the pilot who acknowledged that they had rotated into the full climb too early. The pilot, who is experienced and in current practice, stated that they were concerned about getting too fast during the launch and possibly compensated by rotating into the full climb somewhat earlier to avoid over speeding. The pilot stated that the airspeed did not get below 60 knots once fully rotated. The CFI noted that most of the pilot's recent flying has been in the Club's two-seat sailplane that accelerates slowly and has a more forward CG position that lessens any tendency to auto rotate.

*Stall During Rotation*

A glider with a 1g stalling speed of 34 knots will stall at about 50 knots during rotation on a winch launch if the rotation rate is 20 degrees per second. The stall speed will be about 45 knots if the rotation rate is 15 degrees per second. A low airspeed and a high rotation rate can arise from a too rapid rotation at low airspeed, or from a rotation with an airspeed that was initially adequate, but which reduces during the latter part of the rotation. With a high-power winch like the one at this club, the ground run in a light single-seat aircraft can be extremely short. If the CG is aft of the mainwheel, or the release hook is well below the CG, the pilot will need to apply forward pressure on the stick to prevent the glider from pitching up too steeply during the initial rotation. Pilots should also be aware that a feeling of acceleration can be produced by the glider pitching up, irrespective of its airspeed, and so careful monitoring of the airspeed is required during the initial transition to the climb. Pilots should not rotate into the climb until the airspeed has reached the minimum safe launch speed and is increasing. The minimum safe launch speed is that which gives the pilot an adequate margin of speed above the stall (on the launch) to enable them to carry out launch failure procedures. This speed is taken as l.3Vs. To avoid a stall during rotation:

- Avoid taking-off with a significant amount of yaw present.
- Maintain a shallow climb until adequate speed is seen, with continuing acceleration.
- Ensure that the transition from level flight at take off to the full climb (typically 35°) is controlled, progressive, and lasts at least 5 seconds.*Excess Speed Near the Ground*

Pilots should not be overly concerned about exceeding the placarded maximum winch launch speed during the early part of the winch launch. The relatively low placarded maximum winch launch speed of many gliders is to protect the glider from undue stress near the top of the launch where the lift opposes a large tension in the cable, there is no bending relief as there would be in a high g manoeuvre in free flight, and the stress from a gust is greater than in free flight. During the first third of the launch the stresses on the structure are moderate and the placarded maximum launch speed may be temporarily exceeded with care.

  

If the pilot finds that the speed is excessive near the ground, they should climb gently to several hundred feet and release, or signal if the excess speed is moderate. Note that:

- Releasing below 100ft could be hazardous, not least from hitting the cable.
- Signalling could overstress the tail.
- Pulling back to control the excessive speed may break the weak link leading to a difficult recovery.

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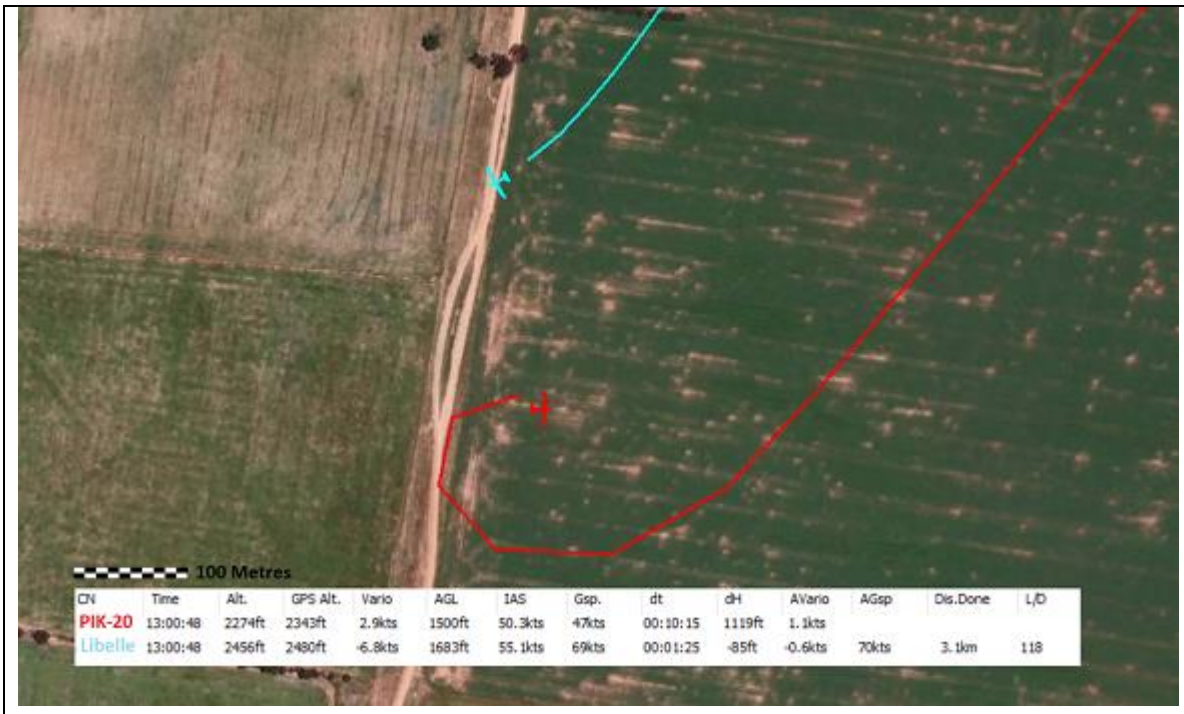
|---|---|---|---|---|---|---|---|
| Date | 21-Jan-2019 | Region | VSA | SOAR Report Nbr | S-1438 | | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision | | |
| A/C Model 1 | PIK-20B | A/C Model 2 | Standard Libelle 201 B | | | | |
| Injury | Nil | Damage | Nil | Phase | Thermalling | PIC Age | 54 |

It was reported that two gliders, a PIK-20 and a Standard Libelle, nearly collided in a thermal before the start gate on day 2 of the 2019 NSW State Gliding Championships. On this day the competitors were launched into a 10-knot wind, and in weak thermal conditions that did not rise much above release height (2,000ft AGL). Although visibility was VMC, conditions were hazy due to dust. It was reported that the less than optimal flying conditions led to *"a fair amount of gaggle flying"* while the pilots awaited the opening of the start gate. Investigation into the near collision, which included analysis of the flight logger traces, identified the two gliders had been thermalling together just prior to the incident. At 1259:39 the PIK 20 left the thermal while at a height of about 1500ft AFGL and flew in a South Westerly direction. About 9 seconds later at 1259:48 the Libelle also left the thermal and followed the PIK-20 but on a more westerly heading. At 1300:33 the PIK-20 entered a thermal and its pilot commenced a right-hand turn. Shortly afterwards the pilot of the PIK-20 observed the libelle coming head-on about 200 metres away and about 200ft higher. The PIK-20 pilot made two radio calls to the libelle pilot asking if he had the PIK-20 sighted but did not hear a reply. The pilot of the Libelle stated: *"I was flying straight and level due south at 2400ft (approx. 1600ft AGL) at 57knt IAS, in sink, when I first sighted (the PIK-20). It was out to my left at about 9 o'clock relative bearing and approximately 100ft below and 200m horizontally separation. …. Simultaneously to my sighting of the (PIK-20) there was a radio transmission: '(Libelle Pilot), have you got me visual?'. I responded: '(PIK-20), have you visual'.* The pilot of the Libelle then turned slightly to the right to provide greater clearance as the pilot of the PIK-20 tightened their turn and lowered the glider's nose. The aircraft passed with a distance of about 150 meters laterally and 140 ft vertically.




When flying with other gliders on a similar heading, head-to-tail conflicts should be easily avoided. However, there are still real hazards posed from gliders ahead doing a pull-up, weaving, or turning into lift. Pilots should therefore avoid flying in another aircraft's blind spot; for example, do not follow another directly astern and higher. A glider doing a pull-up can be in a double-blind situation and, as there is no obvious fix for this, prevention is the only defence. When weaving or entering a thermal, the pilot must make sure their lookout goes as far back as can be seen. The responsibility for clearing the air remains with the turning glider for at least the first full turn. Subsequently the responsibility may be shared with other aircraft. Pilots should look over their head to see traffic conflicting with their turn, and should particularly look back along the mutual track. If necessary, pilots should roll level to allow the conflicting glider to pass in front before re-entering the turn. Following gliders, particular if higher than the leading glider, must be aware of the likelihood of a turn associated with a pull-up and be ready to take appropriate action. As mentioned earlier, gliders were launched into weak thermal activity that was not going much above 2,000ft AGL. Conditions did not significantly improve and the day was cancelled. Section 6.19.1 of the GFA Contest Guidelines states: *"Launching should start at the time stated at briefing provided that reliable convection to at least 2,500 ft AGL is available, with the expectation that it will increase to 3,000 ft by start gate opening. Launching should be stopped if the gliders cannot continue to achieve 2,500 ft or more, or if congestion poses a safety risk."*

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|---|---|---|---|---|---|---|---|---|---|
| Date | 24-Jan-2019 | Region | SAGA | SOAR Report Nbr | S-1430 | | | | |
| Level 1 | Airspace | Level 2 | Airspace Infringement | Level 3 | Airspace Infringement | | | | |
| A/C Model 1 | Arcus M | A/C Model 2 | | | | | | | |
| Injury | Nil | Damage | Nil | Phase | Thermalling | PIC Age | 74 | | |
| While slowly climbing in a thermal after self-launching, the pilot allowed the aircraft to drift 1km into controlled airspace. This was the second breach by this pilot in two months. Investigation by the CFI identified that the southern boundary of the restricted area is very close to the northern boundary of the circuit. On this occasion the pilot got caught out by the strong drift and workload pressures when conducting the engine cool-down and retraction process while circling in lift. The breach occurred within two minutes of the engine shutdown process starting, and the pilot immediately vacated the restricted airspace as soon as | | | | | | | | | |

  

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| the breach was identified. The pilot demonstrated to the Club's airspace officer that they know the airspace. and the airspace officer is working with Air Services and the RAAF to have the boundary moved further to the north to give more room for a climb out on RWY 31. |

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|---|---|---|---|---|---|---|---|
| Date | 26-Jan-2019 | Region | GQ | SOAR Report Nbr | S-1431 | | |
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | Collision with terrain | | |
| A/C Model 1 | PW-6U | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 70 |
| While landing following a check flight, the pilot under check chose to land in a mowed grass area to the right of, and outside, the operational runway. Just after touchdown on the rough ground the glider struck an anthill with sufficient force that the undercarriage was substantially damaged, and the front canopy was ejected and struck the fin and was destroyed. Investigation revealed the instructor had suggested the pilot land of the right-hand grass runway due to ant hills and the proximity of gliders on the left-hand grass runway. The pilot under check chose to land outside the runway markers to leave room for the tow plane to land. The round-out and flare were normal and after a short ground roll (about 20 metres), the mainwheel struck an ant hill and the glider became airborne by about 1 metre. Simultaneously, the front canopy popped open from the front release point, separated and hit the fin before crashing to the ground. The glider came to rest approximately 250m after the point of touchdown. Ant hills are a known problem at this site and they appear rapidly in certain conditions. They can also be difficult to see during landing. Field conditions will be checked before each flying day by duty instructor or delegate. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 27-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1437 | | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision | | |
| A/C Model 1 | ASW 20 B | A/C Model 2 | DG 600 | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 66 |
| The pilot flying an ASW20 was near the circuit joining area after returning to the field from a flight and was communicating with the pilot flying an ASG29 who was about to join circuit. After the ASG29 landed, the pilot of the ASW20 made a call on the airfield frequency advising he was joining the downwind leg for runway 21. Immediately after making the radio call, the pilot heard the pilot of a DG600 broadcast their intention to join the downwind leg as number two. The pilot of the ASW 20 had not sighted the DG600 and, although there was no Flarm indication believed it was below and behind. The ASW20 pilot made radio call asking if he should land long, to which the DG600 pilot replied, *"Yes please."* The pilot of the ASW20 continued the circuit, extending the downwind leg as his glider was a little high. He then turned onto base and final and proceeded to land long, taxying off to the left side of the runway to make room for the DG600. After the pilot exited the ASW20, he saw the DG600 at rest on the approach end of the runway. Investigation by the CFI revealed the ASW20 pilot believed the DG600 was far behind, whereas the DG600 was quite close and lower than the ASW20. To avoid a potential collision, the pilot of the DG600 chose to land short in an area where the grass was high, and where wind gusts and curlover can exist. During the hold-off, a gusting crosswind caused the DG600 wing to dip and catch in the grass resulting in a severe ground loop (refer SOAR Report S-1436). This incident highlights the importance of pilots seeking a position report for other aircraft nearby to ensure adequate situational awareness. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 27-Jan-2019 | Region | NSWGA | SOAR Report Nbr | S-1436 | | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway excursion | | |
| A/C Model 1 | DG-600/18 | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 64 |

  

The pilot of a DG600 broadcast their intention to join the downwind leg behind an ASW20. The pilot of the ASW 20 made radio call to the pilot of the DG600 asking whether he should land long, to which the to the DG600 pilot replied in the affirmative. The pilot of the ASW20 continued the circuit, extending the downwind leg as his glider was a little high. However, as the DG600 was lower both aircraft turned onto final in close proximity (refer SOAR Report S-1437). The pilot of the DG600, having sighted the ASW20 nearby, chose to land short to avoid a potential collision with the ASW20. During the hold-of and just prior to touchdown, a gusting crosswind caused the DG600 wing to dip and catch in the long grass resulting in a severe ground loop. The glider sustained minor damage to the tailplane attachments, fin and one aileron. The pilot's CFI noted that the DG600 pilot could have requested the ASW20 pilot to expediate his landing, and suggested he land with a bit more speed counter the effect of curl over, which is common on that runway in gusty conditions. A contributing factor was the pilot's lack of currency; having flown only 10 launches in the preceding 12 months.

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 28-Jan-2019 | Region | WAGA | | SOAR Report Nbr | | S-1433 | | | | |
| Level 1 | Operational | | Level 2 | Aircraft Control | | Level 3 | Wheels up landing | | | | |
| A/C Model 1 | | DG-500 Elan Orion | | | A/C Model 2 | | | | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | | PIC Age | | | | |

The pilot was under instruction and assessment for suitability to progress to their first flight in a single seat glider. Following a successful first flight, a second flight was conducted to 1,000ft AGL. At approximately 800' AGL the instructor retraced the landing gear, and at 1,000' AGL the student pilot released from aerotow and immediately joined the circuit. The student pilot conducted a normal post-release check and noted verbally that the landing gear was retracted. During the downwind leg the student and instructor discussed the glider's position and angle to the aiming point. Upon turning onto the final approach, the student deployed approximately half dive brake aiming slightly ahead of the runway direction numbers near the threshold. The round-out and hold-off were well executed and the glider was fully held-off at the time of touchdown of the tail wheel, followed immediately by the underside of the fuselage contacting the runway. Touchdown was on the runway centre line and the glider slid to a stop, several metres to the left of the centre line. The underside of the fuselage, just forward of the main gear, suffered abrasion through several layers of fibreglass. The instructor noted the following contributing factors:

- The glider's undercarriage alarm was out of service at the time of the incident. Both pilots were aware of this before the flight but deemed it to be a non-critical fault.
- A departure from the normal circuit joining routine occurred, due to the low altitude release and subsequent post release check. This may have set-up a sub conscious belief that the pre-landing checks had been completed.

  

- The crew allowed themselves to be distracted by a conversation and fixation, on maintaining the correct angle/distance relationship to the landing area.

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|---|---|---|---|---|---|---|---|
| Date | 2-Feb-2019 | Region | SAGA | SOAR Report Nbr | | S-1439 | |
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | | Other Miscellaneous | |
| A/C Model 1 | | Piper PA-25-235 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 51 |
| While landing on the operational runway the tow pilot flew a low approach and the trailing tow rope struck the airfield boundary fence. The tow pilot was counselled and subsequent approaches were made from a higher approach. | | | | | | | |

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|---|---|---|---|---|---|---|---|
| Date | 3-Feb-2019 | Region | SAGA | SOAR Report Nbr | | S-1444 | |
| Level 1 | Environment | Level 2 | Weather | Level 3 | | Turbulence/Windshear /Microburst | |
| A/C Model 1 | | PW-5 "Smyk" | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 76 |
| While flying at about 9,000ft the pilot noticed a dust storm approaching the airfield from the west. The pilot made a quick descent and joined circuit for a landing on runway 35, having verified the wind to be from the north-west at 10 to 15 knots. As the pilot turned onto the base leg the glider was struck by the approaching squall and "*was thrown around like a cork*". The glider overshot the runway centreline, and at about 200ft | | | | | | | |

AGL the pilot increased the airspeed to allow for the increased wind speed and turned into wind on a heading of 270 degrees. The pilot was able to overfly the runway and conducted a safe landing in a paddock on the western side of the airfield. The pilot remained in the aircraft until the squall passed.

| Date | 3-Feb-2019 | Region | VSA | SOAR Report Nbr | S-1443 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway incursion |
| A/C Model 1 | Nimbus 2 | A/C Model 2 | Piper PA-31-350 Chieftain | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 81 |

Following a cross-country competition flight, the glider pilot landed on the northern side of RWY 26 and rolled to a stop opposite their tie-down area. The glider pilot cleared the glider from the runway and then proceeded to retrieve their car, which was parked on the Southern end of the aerodrome. The pilot was observed, by both the Competition Director and Safety Officer, to walk onto the operational runway in front of a Piper Chieftain that had just touched down and was in its ground roll. The pilot of another Chieftain already stationary on the aerodrome gave a radio call to the landing pilot that there was a pedestrian on the strip. The pilot of the landing Chieftain braked immediately and pulled up within 50 metres of the glider pilot, who was still walking across the centre of the runway. After the pedestrian was clear, the Chieftain pilot taxied to the terminal area. The Competition Safety Officer spoke with both parties. It was identified that the glider pilot, who was not carrying a handheld VHF radio, had failed to adequately look around prior to entering the active runway. When operating at a non-controlled aerodrome, the principles of 'alerted' see-and-avoid are critical to safety. This applies not only to pilots but to anyone on the movement area of an aerodrome whether they be a pedestrian or vehicle driver. In this case fatigue and fixation on quickly retrieving their vehicle may have influenced the glider pilot's lack of situational awareness.

| Date | 6-Feb-2019 | Region | SAGA | SOAR Report Nbr | S-1459 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | HK 36 TTC | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Launch | PIC Age | 47 |

During take-off and shortly after getting airborne the motor glider flew through some turbulence and struck the ground hard. The pilot continued with the take-off and, once airborne, asked the controllers in the tower to check the undercarriage for damage. There was no visible damage that the controllers could see, so the pilot landed and returned the glider to the hangar. Inspection revealed the propeller had struck the ground and about 60mm of material had been removed from both tips. In addition, the nosewheel fork was bent. Prior to this flight, the pilot sought a check flight with an Instructor as he lacked recency in the aircraft. The pilot conducted two circuits flawlessly and was cleared for solo flight. The CFI suspects that on the accident flight the aircraft became airborne before the pilot expected, possibly due to a combination of gusty conditions and the aircraft being flown solo, and the pilot over-corrected by pitching the nose too far down resulting in the aircraft striking the ground heavily.

| Date | 7-Feb-2019 | Region | VSA | SOAR Report Nbr | S-1461 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway incursion |
| A/C Model 1 | Discus-2b | A/C Model 2 | Piper PA-31-350 | | |
| Injury | Nil | Damage | Nil | Phase | Ground Ops | PIC Age | |

Following a competition flight and while retrieving the glider by vehicle, the driver towed the glider across the operational runway while a powered aircraft was established on final approach, casing the pilot of the powered aircraft to initiate a go-around. The pilot of the powered aircraft made a radio call on entering the CTAF advising of a straight-in approach. The Competition Director, who was monitoring the CTAF, advised the powered aircraft pilot that numerous gliders were finishing their task and would be entering circuit. The

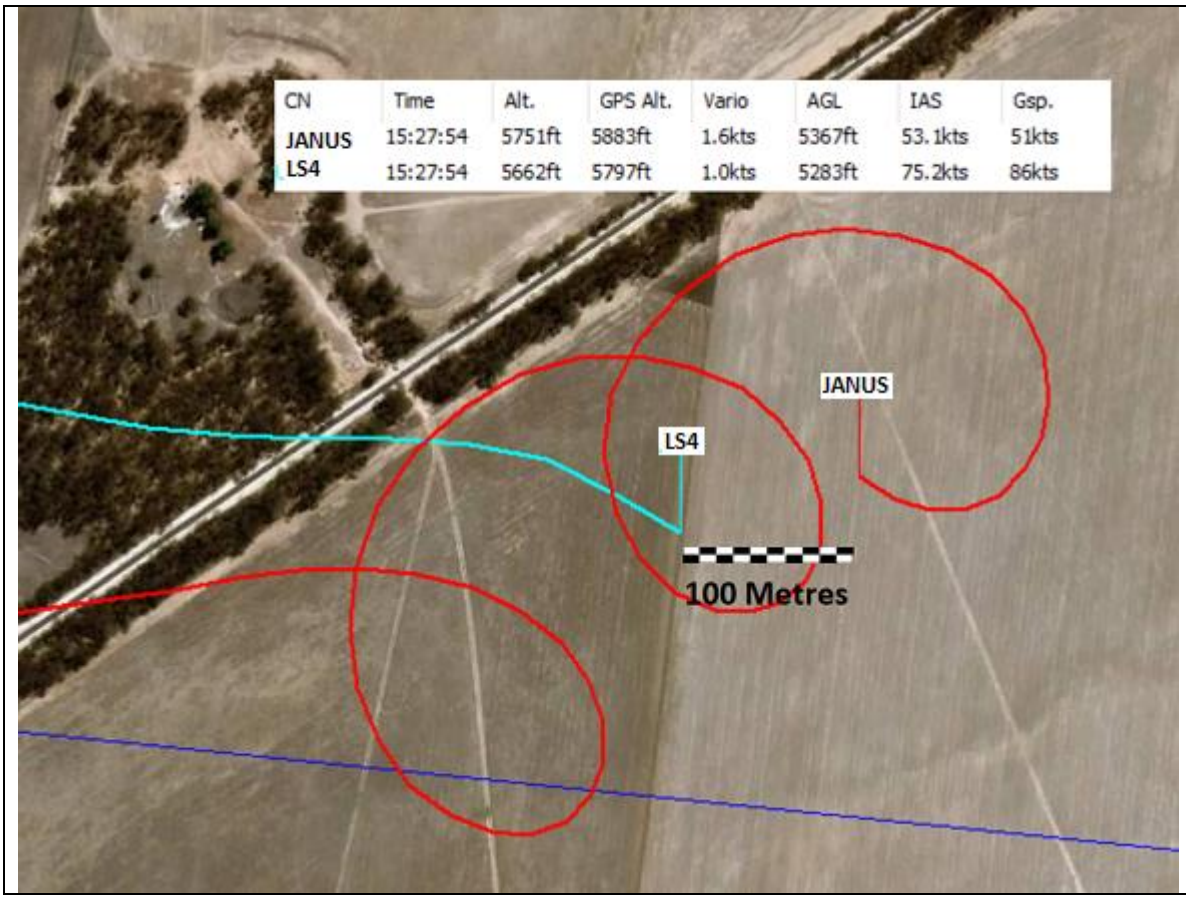
  

pilot of the powered aircraft responded that they would overfly the airfield and land on RWY 06. Upon arrival at the airfield, the powered aircraft pilot joined midfield cross wind and later widened his base to allow a glider to land on grass. On round out to touch down the powered aircraft pilot initiated a go-around as a glider/car combination entered the runway in front of him. Clearance was estimated at less than 80 ft vertically. The Competition Safety Officer heard the power pilot make all appropriate calls and noted that aircraft's landing lights were quire visible. No radio calls were made by the vehicle driver, who was using a handheld radio in the vehicle. In discussion with the Competition Safety Officer, the vehicle driver acknowledged they didn't fully look out and so didn't notice the aircraft on short final. Fatigue was considered a contributing factor.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 8-Feb-2019 | Region | VSA | SOAR Report Nbr | S-1462 | | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision | | |
| A/C Model 1 | Janus B | | | A/C Model 2 | LS 4-a | | |
| Injury | Nil | Damage | Nil | Phase | Thermalling | PIC Age | 63 |

Midway down the second leg of a competition task, the pilot of an LS4 took action to avoid a collision with a thermalling Janus. Some sixty seconds earlier, the Janus, which was about 2.4 kilometres ahead of the LS4, turned right into a thermal. The LS4 pilot noted *"I was cruising on track…when I saw a glider turning in a thermal just left of track."* the LS4 was then accelerated from 60 knots to about 75 knots and headed directly towards the Janus. The LS4 pilot noted *"My initial assessment was that I could join the thermal roughly opposite the glider at about the same height or higher, depending on the extent of my pull-up."* As the Janus entered its third turn in the thermal its flight crew observed the LS4 heading directly towards them at high speed, and about 100 metres away at a similar height. Simultaneously, the LS4 pilot, still flying at over 70 knots, pulled up and simultaneously turned right to avoid a collision and then continued on track. The Janus pilots maintained their climb in the thermal and reported the incident upon completing the task. A post flight debriefing of the flight crew of each aircraft was conducted by the competition safety officer. It was determined that the LS4 pilot, who had little experience flying in a competition environment, had misjudged the thermal entry due to the high closing speed, and that the Janus pilots had no time to react when suddenly faced with the oncoming LS4 during the thermalling turn. A glider approaching a thermalling glider at high speed in a straight line will be next to invisible. The frontal area is very small, and its pilot will need to initiate some horizontal movement so that the glider already established in the thermal has some chance of seeing it coming. This is achieved by slowing down to thermal speed as the thermal is neared and allows the pilot to sample the air as the lift is approached. This will sometimes lead to gentle weaving and "feeling" of the air that will make the glider more visible. Pilots should always avoid arriving directly head-on to the other glider. A good concept of spatial awareness is vital in the arrival phase. While still well back from the thermal, the approaching pilot should identify where they will arrive in the thermal in relation to the other glider. Pilots should never arrive at the thermal at full cruising speed and attempt to pull up to join thermal as this is extremely dangerous; the considerable vertical velocity and horizontal position will be difficult to judge. It will also be inevitable that the pilot entering the thermal will lose sight of the other glider or gliders. Pilots must always manoeuvre in a safe and predictable fashion so as not to surprise the other pilots.




| Date | 9-Feb-2019 | Region | WAGA | SOAR Report Nbr | S-1469 |
|---|---|---|---|---|---|
| Level 1 | Consequential Events | Level 2 | Forced / Precautionary landing | Level 3 | Forced/Precautionary Landing |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 65 |

During the course of a training flight, and at a height of about 3,000ft AGL, a spinning exercise was to be conducted. The glider was positioned about 4 kms south of the airfield in order to remain clear of gliders heading on cross-country tasks. The student pilot completed a spin to the right and recovered after one turn with a height loss of about 400ft. A second spin to the left was then commenced but from a steeper turn entry. The glider departed controlled flight into a steep nose down attitude and continued rotating beyond one turn. The student was unable to effect recovery and the instructor assumed command and regained controlled flight after a height loss in excess of 1,000ft. The glider was recovered at about 1,000ft AGL and still 4 kms from the airfield. The instructor headed towards the airfield but did not have enough height to make the runway. A safe outlanding was conducted into a suitable paddock about 3kms from the airfield and the glider was subsequently retrieved by aerotow. A post flight review of the aircraft's loading configuration confirmed the glider was being flown within the approved limits. The instructor believes the student did not apply enough rudder input to stop the rotation during the spin.

| Date | 9-Feb-2019 | Region | WAGA | SOAR Report Nbr | S-1470 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |

| A/C Model 1 | | DG-1000S | | A/C Model 2 | | | |
|---|---|---|---|---|---|---|---|
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 65 |
| Following a 30-minute training flight the student pilot returned to the airfield and joined circuit. The student flew the circuit well but misjudged the flare point, so the instructor assumed control. During the attempt to arrest the descent rate and round out, the tailwheel struck the ground with some force and suffered damage. The CFI noted that the plastic tailwheel is prone to damage and the club is considering replacing them with metal wheels. | | | | | | | |

| Date | 9-Feb-2019 | Region | GQ | SOAR Report Nbr | S-1468 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | Ventus-2cT | | A/C Model 2 | VICTA AIRTOURER 115 | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 73 |
| The pilot was thermalling above circuit height just north of the runway 14 threshold. While looking at the windsock for the direction and strength of the wind, the glider's PowerFlarm alerted the pilot to a potential conflict with another aircraft. The glider pilot gave a position call over the CTAF and later received a position report from the other aircraft that was on a left-hand downwind for runway 14. The glider pilot announced the intention to join downwind for runway 03 and, as the pilot rolled out of the turn he saw the other aircraft ahead and to the left. The other aircraft banked slightly to the right and its pilot acknowledged sighting the glider. Both pilots conducted a debrief after the event. | | | | | | | |

| Date | 10-Feb-2019 | Region | GQ | SOAR Report Nbr | S-1477 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | Nimbus 3/24.5 | | A/C Model 2 | Hang Glider | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 65 |
| On arrival overhead the Airfield at 2,500 AGL, the pilot noticed a hang glider pass under the glider's left wing and became aware of several other hang gliders in the vicinity. The pilot attempted to call the hang glider traffic without success. After landing the pilot spoke with one of the hang glider pilots as to whether they had radio. The hang glider pilot reported that they did have radio, and that appropriate CTAF calls were made. The hang glider pilot did concede that the radio was somewhat difficult to hear. | | | | | | | |

| Date | 13-Feb-2019 | Region | GQ | SOAR Report Nbr | S-1479 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Airspace Infringement | Level 3 | Airspace Infringement |
| A/C Model 1 | LAK-17B FES | | A/C Model 2 | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 55 |
| Mid-week gliding operations were being conducted and a number of glider pilots had planned to fly cross-country. Light winds were forecast from the north-west and cloud base was estimated to be around 11,500ft AMSL. During the morning briefing the pilots were informed of the airspace restrictions and that a NOTAM was issued for the nearby military areas. The cross-country flight plan included a track to the west of military airspace. The pilot was flying an aircraft equipped with a transponder and had current maps and data for the navigation equipment. The pilot reported that dust haze reduced visibility to below 10kms during the early part of the day, which required extensive reliance on the electronic navigation instruments. By 3pm the dust haze had cleared as the winds increased in strength to about 22 knots. While travelling past the military control zone the pilot stopped the thermal and the glider drifted into the controlled airspace. The pilot received an airspace warning from the flight computer and quickly exited the control zone but the incursion was identified by Brisbane Centre ATC. Post flight analysis revealed the pilot *"did not factor in the changed weather and wind conditions and the strong westerly wind".* The pilot acknowledged that he should have given the airspace boundary a wider berth. | | | | | | | |

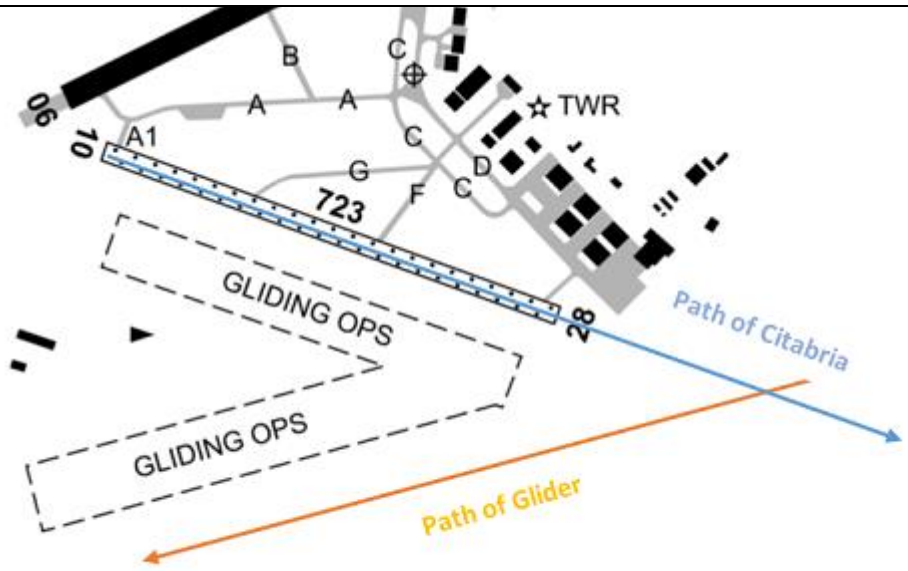
| Date | 16-Feb-2019 | Region | GQ | SOAR Report Nbr | S-1481 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Depart/App/Land wrong runway |
| A/C Model 1 | Astir CS | A/C Model 2 | Twin Astir | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 69 |

This regional airport has a single runway designated 04/22. Gliding operations were initially conducted from RWY 04 with a 10-knot crosswind. By mid-afternoon the winds had moved further
South and the CFI made the decision to move the operation to the other end (RWY 22). Following the change of ends a Twin Astir was launched by aerotow. Meanwhile, two other gliders, an ASK 21Mi and an Astir CS, were airborne having launched earlier from RWY 04. After the Twin Astir launched, the Duty Instructor made a radio call on the CTAF to advise the pilot of the Astir CS, who was observed thermalling nearby, of the change of runway. The pilot of the Astir CS did not acknowledge the radio call, nor did he respond to the pilot of the ASK21Mi who relayed the message. A short time later, the tow plane joined circuit and its pilot announced his intention to land on RWY 22. When the tow plane was established on base leg its pilot received a radio call from the pilot of the Astir CS advising of his location. The tow pilot acknowledged sighting the Astir CS. Shortly after this radio exchange the pilot of the Astir CS made a radio call joining downwind for RWY 04. When the Astir CS was on base for RWY 04, the Twin Astir pilot made a radio call joining downwind for RWY 22. The Astir CS, landing with a slight tailwind, same to rest midway along the runway. The pilot of the Twin Astir was able to land short on the opposite side of the runway to avoid conflict with the Astir CS. The pilot of the Astir CS stated: *"On my return toward the northern end of the airfield I checked the centre airfield field wind sock, which I believed was slightly favouring landing on runway 04. I noticed in the distance directly in front of me that the tow plane was heading toward my position but at what appeared to be a significantly lower altitude, and toward the northern end of the runway. I communicated my position to the tow plane, who asked if my intention was to land, to which I replied that I would be shortly joining downwind for 04. There was no further radio communication heard. The tow plane landed on 22 at approximately the same time as I turned to join downwind for runway 04. I configured the glider, joined a left downwind approach for runway 04, still in the belief that the wind sock favoured a 04 landing. Very shortly after landing on runway 04 and clearing the runway another glider landed on runway 22."* The pilot of the Twin Astir stated: *"When I was about to start positioning the aircraft for joining the circuit on the downwind leg for runway 22, I heard a radio call from the pilot of glider WUN, advising [airfield] traffic of his intention to land on runway 04. Very shortly after this, I heard a radio call from the pilot of the Cessna 150 (the tug aircraft) advising his intention to land on runway 22 and I saw the Cessna soon after this radio call. After hearing these calls, I circled to the south east of the airfield then broadcast on (the) CTAF frequency 122.75, my intention to join the [airfield] circuit downwind for runway 22. I then concentrated on setting up the aircraft for flying the downwind base and final legs for a landing on 22. I was unable to see [the Astir CS] until it had landed and was positioned closer to the north – western side of the runway. I landed uneventfully closer to the opposite side of the runway."* Investigation by the CFI revealed the radio in the Astir CS had an intermittent fault and the glider was grounded pending rectification.

| Date | 17-Feb-2019 | Region | NSWGA | SOAR Report Nbr | S-1480 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | DG-1000S | A/C Model 2 | AMERICAN CHAMPION AIRCRAFT CORP 7GCBC | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 71 |

While on early downwind for a landing on the Glider RWY 06 at Camden, a powered aircraft (Citabria) departing from RWY 10 on a training flight narrowly missed colliding with the glider. It was reported the powered aircraft passed close behind the glider at about 900 ft AGL (refer diagram).



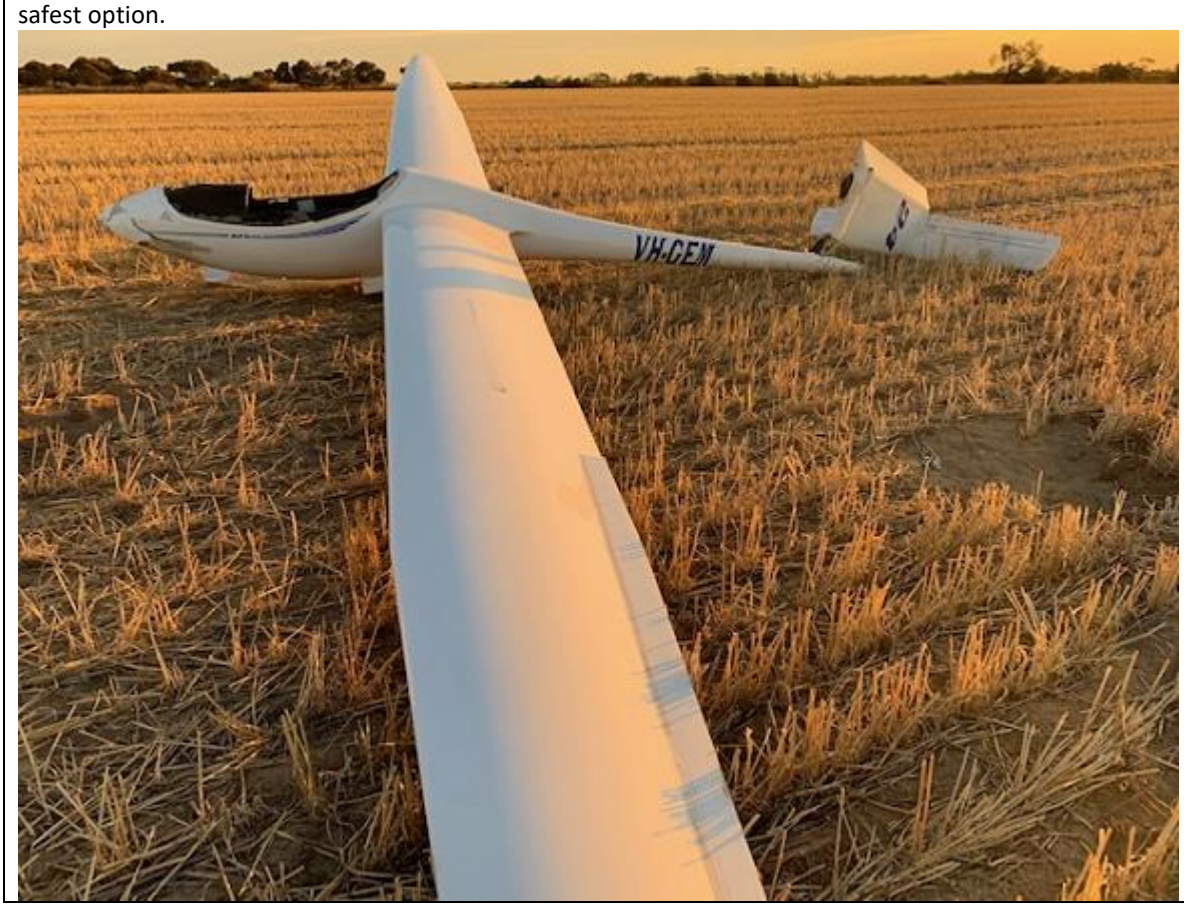

The glider joined downwind for Glider RWY 06 about half a mile from the end of RWY 10, with the instructor guiding the student pilot through the process (dealing with angles speeds etc.). The Instructor made a call on entering the CTAF but heavy radio traffic delayed the instructor's radio call advising of the glider's path and position on entering downwind. In the meantime, the Citabria was taking off from runway 10. Review of the recorded radio transmission around the time of the incident suggests the pilot of the Citabria would not have heard of any glider traffic on downwind due to multiple transmissions from other aircraft on circuit for power runways. The pilot of the Citabria received clearance from ATC before the glider instructor made his downwind radio call. Both aircraft continued their respective flight paths until the glider instructor saw the Citabria and took evasive action. The CFI of the Gliding Club spoke with his counterpart at the local Flying school. The Instructor in the Citabria was also dealing with a student who took too long to turn away from the glider circuit as dictated by local operating procedures, which placed the aircraft in conflict with the glider. The CFI of the local Flying School undertook to remind his pilots operating from RWY 10 of the potential for conflict with gliders operating on RWY 06.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 22-Feb-2019 | Region | WAGA | | SOAR Report Nbr | | S-1491 | | |
| Level 1 | Operational | | Level 2 | Terrain Collisions | | Level 3 | Collision with terrain | | |
| A/C Model 1 | | ASW 24 | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Substantial | Phase | Outlanding | | PIC Age | 63 | |

During a cross-country competition flight the pilot landed in a paddock and requested an aerotow retrieve. During the recovery launch the glider pilot had difficulty maintaining position behind the tow plane, attributed to being towed from the CG release as the glider was not fitted with a nose release, and aborted the launch. A second attempt was made and the glider became airborne. Shortly afterwards the left wing contacted the ground and the glider suddenly rotated 90 degrees to the left, followed by the nose and tail heavily impacting the ground. The tail boom broke, and as the main wheel contacted the ground the glider skidded to a halt. The canopy was destroyed, the nose suffered damage, and the tail boom and horizontal stabiliser were substantially damaged. The pilot was uninjured. The pilot's situational awareness and decision making may have been affected by fatigue and dehydration. The dangers of aerotow retrieves from paddocks should not be underestimated. Such operations are fertile ground for accidents and there are several clubs in Australia which do not permit them for this reason. Conducting an unassisted, wing-down take-off from an unprepared paddock is a hazardous operation. The odds of success are reduced when

towing off a belly release, and when flying high wing loading gliders that have poor aileron control and high stalling speeds. Human factor issues also play a part in success or otherwise. A trailer retrieve is usually the safest option.

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|---|---|---|---|---|---|---|---|
| Date | 23-Feb-2019 | Region | VSA | SOAR Report Nbr | S-1485 | | |
| Level 1 | Operational | Level 2 | Communications | Level 3 | Other Communications Issues | | |
| A/C Model 1 | Standard-Cirrus-75-VTC | A/C Model 2 | Piper PA-25-260 | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 46 |

The pilot was participating in a Club GP race over 240km and flying a Standard Cirrus sailplane that the pilot had acquired about 11 months earlier. The glider was launched by aerotow, behind a Pawnee tow plane that had just returned to service after installation of a rebuilt engine. During the early stage of the launch, and at a height of about 250ft AGL the glider pilot observed the wings of the tow plane rock back and forth. The glider pilot was uncertain as to whether this was a 'wave off' signal or the consequence of low-level turbulence and, given the low height and potential for an off-field landing, remained on tow. The tow plane continued to climb, and the glider pilot took hold of the release knob in case the tow pilot initiated the release signal. The tow plane commenced a left-hand turn onto a crosswind leg ad continued climbing. At a height of about 800ft AGL the tow pilot made a call over the radio instructing the glider pilot to release and made some remark questioning why the glider was still on tow. The glider pilot released immediately and followed the tow plane into land on the operational runway. After pushing the glider clear of the runway, the pilot approached the tow pilot to discuss the incident. The tow pilot stated that they initiated the 'wave off' signal when they noticed a drop in the oil pressure reading. The tow pilot made it clearly known that they were unhappy with the glider pilot's failure to release, despite the glider pilot providing an explanation

  

for their inaction. The matter was investigated by the CFI and the tow pilot was reminded that there was no need to be agiatetd by the glider pilot's inaction, as they could have used the radio to advise the glider pilot of the problem or simply pulled the emergency release handle in the tow plane. The tow pilot acknowledged that they were under a bit of stress when the oil pressure light illuminated, and this led to them failing to ensure the glider had released before returning to the aerodrome and influenced their behaviour.

| Date | 23-Feb-2019 | Region | SAGA | SOAR Report Nbr | S-1483 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | Level 3 | Other Flight Prep/Nav Issues |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 51 |

The pilot was conducting a second Air Experience Flight for the passenger to compensate for a very short first flight. Conditions were mild but there was little thermal lift and the pilot was soon joining the downwind leg of the circuit. About mid downwind and at about 500ft AGL the pilot conducted several turns in a weak thermal. The glider did not climb, and the pilot resumed the downwind leg. As the pilot turned onto the base leg, the ground crew noticed the undercarriage had not been lowered. As the glider was turned onto the final approach the ground crew alerted the pilot by radio that the undercarriage was retracted. The pilot lowered the undercarriage and made a safe landing. The pilot was counselled about the dangers of thermalling at low level and reminded that the undercarriage should have been lowered once the decision was made to join circuit. The pilot's decision making appears to have been influenced by the desire to give the passenger an extended flight to the point where safety was compromised.

| Date | 24-Feb-2019 | Region | VSA | SOAR Report Nbr | S-1498 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication |
| A/C Model 1 | Ventus-2cT | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 66 |

Upon joining circuit after a 400km cross-country flight the pilot found they were unable to lock the undercarriage down. The pilot tried to lock the undercarriage several times as the glider descended but eventually decided to land with the wheel retracted. The pilot elected to land on a non-active grass runway and announced their intentions over the radio. The pilot completed an uneventful landing, albeit with a short ground roll. The aircraft suffered only minor abrasion damage and the pilot was uninjured. The pilot noted that since acquiring the aircraft, the undercarriage had been difficult to operate - both retracting and extending. During the last annual inspection, the mechanism was inspected and lubricated, and this made some improvement; although difficulties were experienced at times. Following this incident, the undercarriage mechanism was completely dismantled and cleaned, and all moving parts were lubricated. During the inspection some corrosion and binding was identified and treated. The abrasion damage to the fuselage was also repaired and the aircraft was returned to service. The undercarriage is now operating correctly.

| Date | 24-Feb-2019 | Region | SAGA | SOAR Report Nbr | S-1482 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication |
| A/C Model 1 | Discus b | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 55 |

During the landing roll the undercarriage collapsed. Witnesses reported the glider landed in the correct attitude with the undercarriage lowered. Investigation did not identify any defect with the mechanism. It

  

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| was determined that the had extended the undercarriage but did not lock it correctly. The low hours pilot was inexperienced on type. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 24-Feb-2019 | Region | NSWGA | | SOAR Report Nbr | | S-1486 | | |
| Level 1 | Technical | | Level 2 | Powerplant/Propulsion | | Level 3 | Abnormal Engine Indications | | |
| A/C Model 1 | | Zodiac CH640 | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | | PIC Age | 54 | |
| During the fifth tow of the day, the tow plane's fuel pressure dropped to 4psi with a flow rate of 13-14 gal per hour. At the time of the pressure drop the towing combination was above 1000' and still climbing. As the tow plane was maintaining 2700 RPM, the tow was continued while the tow pilot kept the combination close to the airfield and closely monitoring fuel flows and pressures. Upon landing, towing operations were ceased and the aircraft was grounded pending inspection. The engine in the aircraft is a Lycoming IO-360, with just over 500 hours use, and has full electronic monitoring of fuel pressure and flow rates. It was reported that during a tow some two weeks prior, the tow plane experienced a brief pressure drop to below 10psi but flow rates were above the 16 GPH operating threshold, and the aircraft was returned to service after investigation by a LAME. The aircraft was reinspected, and the fuel pump was replaced. | | | | | | | | | |

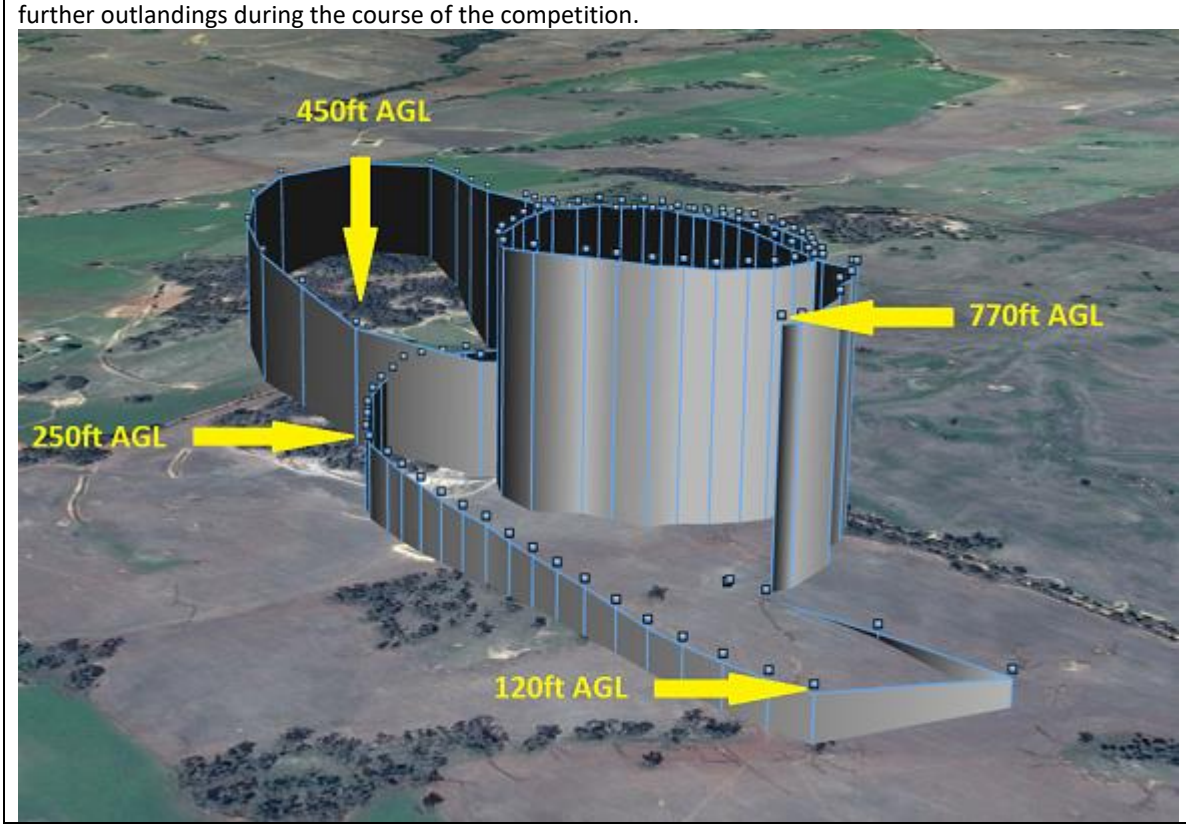
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 25-Feb-2019 | Region | SAGA | | SOAR Report Nbr | | S-1488 | | |
| Level 1 | Airspace | | Level 2 | Airspace Infringement | | Level 3 | Airspace Infringement | | |
| A/C Model 1 | | Discus b | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | | PIC Age | 17 | |
| The pilot misread a NOTAM and flew through an active restricted area. The pilot was counselled and undertook refresher training with the Club's Airspace officer. | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 26-Feb-2019 | Region | NSWGA | | SOAR Report Nbr | | S-1487 | | |
| Level 1 | Operational | | Level 2 | Runway Events | | Level 3 | Runway incursion | | |
| A/C Model 1 | | | | | A/C Model 2 | Hornet | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | | PIC Age | 31 | |
| A vehicle that was retrieving the tow rope released from the tow plane entered active runway in front of a glider on late final approach. The glider pilot closed the airbrakes and safely overflew the vehicle. The driver of the vehicle was an experienced overseas pilot and instructor, who did not adequately clear the airspace before entering the runway. The driver was counselled. This was a very close call and serves as a reminder that drivers must maintain proper situational awareness and use radio for alerted see-and-avoid before entering a runway. | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 27-Feb-2019 | Region | WAGA | | SOAR Report Nbr | | S-1494 | | |
| Level 1 | Operational | | Level 2 | Terrain Collisions | | Level 3 | Collision with terrain | | |
| A/C Model 1 | | Standard Cirrus | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Minor | Phase | Outlanding | | PIC Age | 18 | |
| The pilot was flying the first official competition day of the WA State Championships. Conditions were generally weak and widespread cirrus was forecast in the task area. The fleet was tasked to the South of the aerodrome, with the first turnpoint being an assigned area centred on a town approximately 100km away. While on task and approximately 3km short of the assigned area the pilot decided that an outlanding was inevitable. The pilot had selected a paddock with wheat stubble and identified several small rock piles to one side. The pilot flew a very low circuit and landing. Due to the light surface winds, the left wing dropped to | | | | | | | | | |

the ground towards the end of the landing run and struck a rock hidden amongst the wheat stubble. The aircraft was rotated through approximately 30 degrees and the wing suffered minor damage. Review of the flight trace revealed the outlanding was conducted after a failed attempt to thermal away from low level. The trace records the pilot took a final turn in a thermal at a height under 500ft AGL and then joined downwind at about 250ft AGL. The pilot was debriefed by their CFI and acknowledged they had left the decision to break off the flight too late. The CFI reminded the pilot that the aim on any cross-country flight is to have a broad landable region (perhaps several good paddocks) chosen by 2,000 ft AGL and to break off the flight and be in circuit by 1,000 ft AGL. The pilot put this learning to good use and safely conducted four further outlandings during the course of the competition.

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|---|---|---|---|---|---|---|---|
| Date | 27-Feb-2019 | Region | WAGA | SOAR Report Nbr | | S-1489 | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | | Hard landing | |
| A/C Model 1 | | Ventus-2c | | A/C Model 2 | | | |
| Injury | Minor | Damage | Substantial | Phase | Outlanding | PIC Age | 68 |

The experienced pilot was flying the first competition day of the WA State Championships. About 80kms along the first leg of the task the pilot got low. Once below 2000ft the pilot made a radio call to advise he was getting low and continued to search for thermal lift. Although the glider was ballasted, the pilot did not consider dumping the ballast. As the glider got lower the pilot extended the landing gear and flew towards a paddock. Quite low on final approach to the paddock the glider entered strong lift. The pilot stated that he "foolishly commenced a right-hand turn in the lift believing it to be a strong thermal." The strong lift was soon followed by even stronger sink which drove the glider rapidly towards the ground. During this descent the pilot commenced a left turn into wind and towards the longer side of the paddock. The aircraft struck the ground and skidded sideways damaging the undercarriage and fracturing a small section of the left-wing leading edge. The pilot suffered some minor pain to his pectoral muscles, most probably due to the impact

  

against the harness. The pilot stated that a combination of fatigue and dehydration on this hot day may have affected his decision making.

  

| Date | 28-Feb-2019 | Region | WAGA | SOAR Report Nbr | S-1490 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 63 |

On final approach the glider encountered heavy sink resulting in the pilot undershooting the runway threshold. The aircraft landed heavily resulting in partial collapse of the undercarriage. Operations had moved from RWY 16 to RWY 34 about an hour earlier as the wind had swung predominantly to the north. Conditions were blustery and the wind had moved to a more westerly direction. Just before the accident the westerly wind component was generating low-level turbulence of the approach, influenced by geographical features such as trees and roads. The CFI investigated the accident and reviewed the flight logger trace. The CFI identified the glider was flying at 55 knots on final, which was too slow for the conditions, and had a sink rate in excess of 10 knots. The CFI stated: *"I landed only ten minutes previous to the accident and the conditions were quite difficult at around 300 feet"*. Another pilot who witnessed the accident noted: *"From what I saw, the aircraft should have carried a little bit more speed for the final leg, although it never appeared to be travelling too slow for comfort."* The witness also observed the aircraft appeared *"to have a fair bit of dive brake extended on the round out"* and descending at a rapid rate, striking the ground in a two-point attitude with such force that the *"wings flexed downward"*. The CFI noted that several heavy landings have occurred on this runway in the past due to mechanical turbulence. The club has now displaced the threshold further into the runway so that landing aircraft avoid overflying the trees and roads at low height.

| Date | 3-Mar-2019 | Region | VSA | SOAR Report Nbr | S-1492 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Other Miscellaneous |
| A/C Model 1 | ASK-21Mi | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 61 |

A pilot holding a level 1 Indpendent Operator endorsement went flying despite being informed by the Duty Instructor that they were not to fly. The pilot received a counselling letter.

| Date | 6-Mar-2019 | Region | GQ | SOAR Report Nbr | S-1493 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Other Runway Events |
| A/C Model 1 | ASH 31 Mi | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 59 |

The experienced pilot of a self-launching sailplane took-off from a runway occupied by council workers who were conducting aerodrome maintenance at the far end. Prior to the flight the pilot had spoken with the workers to advise of his intentions to fly and confirmed they were monitoring the CTAF. The council workers advised they would vacate the runway when they heard the pilot make their take-off call. A short time later the pilot entered the runway and made a radio call advising they would take-off shortly. After conducting the pre take-off checks, the pilot observed a council vehicle to be clear of the runway and assumed the workers were clear. The pilot then announced his departure on the CTAF and commenced the take-off. As the glider accelerated down the runway the pilot saw a council truck was still occupying the runway, which had previously been obstructed by a hump in the runway. The pilot stated: *"By the time I assimilated this and considered my options I decided to continue the launch, knowing I would be airborne several hundred metres from their location. I tracked left of the runway for additional clearance and probably passed overhead at around 200 ft."* Upon reflection the pilot stated: *"I should have clarified with the workers upfront that I would wait for them to report clear before commencing my launch. Even without that agreement, I should have expected, and waited, for them to call clear. And although well into the launch when I saw them, I should have aborted the launch. Although the dip in the runway and the distance they were from me contributed, I think I saw what I expected/wanted to see* (confirmation bias) *when I lined up*

  

*and did not pay sufficient attention to making sure the strip was clear. Ultimately it was poor airmanship on my behalf."*

| Date | 8-Mar-2019 | Region | GQ | SOAR Report Nbr | S-1497 |
|---|---|---|---|---|---|
| Level 1 | Technical | Level 2 | Systems | Level 3 | Avionics/Flight instruments |
| A/C Model 1 | IS-30 | A/C Model 2 | Nil | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 67 |

Following a local soaring flight, the pilot in command was approached by a local helicopter pilot who advised the glider had an open microphone and was continuously broadcasting on the CTAF. The open microphone was also identified at the gliding operation and an attempt to contact the command pilot on their mobile phone was unsuccessful. The glider was returned to service with a hand-held radio. Subsequent maintenance action revealed a broken wire beneath the dust boot at the base of the rear control column. While the radio and rear stick "push-to-talk" switch functioned correctly during the daily inspection on the ground, once airborne the faulty wire became permanently contacted resulting in an open microphone. The wiring was fixed and the radio functions normally.

| Date | 9-Mar-2019 | Region | VSA | SOAR Report Nbr | S-1531 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | CESSNA 152 | A/C Model 2 | HORNET STOL | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | |

The student in the Cessna 152 was undertaking circuit training at this uncertified aerodrome. During a descending turn onto final approach at a height of about 600ft AGL, the flight crew observed a glider tow plane on a close-in downwind leg about half a mile from the runway and at about 300 ft AGL. Shortly afterwards, the tow plane turned base in front of the Cessna 152 and flew directly across the extended centreline. The instructor in the Cessna 152 immediately took control and initiated a go-around procedure. At the point of go-round, the instructor estimated separation to be about 200ft vertically and less than half a mile laterally. The Cessna crew reported that they did not hear any radio calls from the tow plane, and expressed concern that the tow pilot had not: (1) conformed to the standard circuit altitude of 1,000ft AGL; (2) observed published requirements to make a base radio call; and (3) sequenced behind traffic ahead in the circuit. The matter was reported to the ATSB in a timely manner but was not brought to the attention of the Gliding Club CFI until some nine weeks after the event. The Gliding club CFI investigated the matter and spoke with the tow pilot. The experienced tow pilot stated that they flew the usual circuit and approach adopted by tow pilots at the aerodrome, which is inside and below standard 1,000ft circuit as described in the ERSA. The pilot stated that it was his usual practice to scan the circuit for other traffic and to make all the recommended radio calls. The tow pilot did not recall infringing another aircraft on that day. The Gliding club noted that the limitations of see-and-avoid practices are well known and documented and there are a number of factors that affect a pilot's ability to sight another aircraft. In this incident the tow pilot clearly did not sight the Cessna 152 established on final approach despite maintaining a listening watch and visually scanning the sky.

| Date | 10-Mar-2019 | Region | GQ | SOAR Report Nbr | S-1496 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | SF 25 C Falke | A/C Model 2 | | | |
| Injury | Minor | Damage | Substantial | Phase | Landing | PIC Age | 69 |

The pilot of the touring motor glider had earlier in the day completed a recency check. The pilot then undertook a local flight, upon return from which he conducted a 'power on' circuit. During the final

  

approach the pilot landed heavily, resulting in the propeller striking the ground and the landing gear and fuselage being damaged. As the glider rebounded into the air the pilot reconfigured the glider and conducted a stabilised approach to landing straight ahead. The pilot suffered several crushed vertebrae, potentially because the aircraft was not fitted with energy absorbing cushions. The aircraft was substantially damaged and was subsequently written off by the insurer. Engine-on landings in motor gliders have a high probability of a prop strike resulting in serious damage occurring should the aircraft be mishandled. GFA recommends that, unless operationally necessary, touring motor gliders should be landed with the engine-off and propeller feathered to reduce pilot workload. To prevent injury to the pilot in a heavy landing, seat cushions should not be highly compressible under normal flight-loads. Soft cushions will compress under acceleration, and after the material is compressed the cushion rebounds with the potential for injury to the pilot's body, particularly the spine. Gliders should be fitted with energy-absorbing cushions made out of viscoelastic foam. For further information, refer to article titled "Safety briefing describing why pilots should fly with an energy-absorbing foam cushion" available from the British Gliding Association.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 10-Mar-2019 | Region | VSA | SOAR Report Nbr | | S-1495 | |
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | | Other Miscellaneous | |
| A/C Model 1 | | DG-200 | | A/C Model 2 | | Piper PA-25-260 | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 51 |

At about 1800ft AMSL the towing combination passed through a strong thermal when the glider pilot observed the tow plane turn and dive to the left. The glider's airspeed rapidly increased to 85 knots and a bow formed in the rope. The glider pilot operated the release several times and then turned away to the right, observing the tow rope had released. At this stage the glider was now at circuit height, so its pilot conducted an uneventful circuit and landing. The tow pilot advised that as the combination was passing through 1800 ft it flew through a strong thermal, with the VSI indicating a climb rate of about 1500ft per minute. The tow pilot looked in the mirror and outside but could not see the glider and assumed the glider pilot had released. The tow pilot then initiated a left turn and levelled out. The CFI counselled the tow pilot, who will in future visually identify that the glider has released.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 10-Mar-2019 | Region | GQ | SOAR Report Nbr | | S-1499 | |
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | | Ground handling | |
| A/C Model 1 | | Discus a | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Ground Ops | PIC Age | 57 |

As the glider was being towed from the hangar towards the launch point along a bitumen taxiway, the wheel of the 'wing walker' dolly struck a tire that was lying on the grass and was unseen by the driver. This caused the towing bar to dislodge from the tail dolly axle. The vehicle driver instinctively braked, albeit gently, but the glider continued to roll backwards and slightly to the left of the vehicle. The trailing edge of the port wing, just inboard of aileron, hit the vehicle's taillight and tailgate on the drivers' side, swinging the tail of the glider towards the car. The glider came to rest with the port side of the tailplane over the windscreen. The port wing of the glider was damaged, and the vehicle suffered a broken taillight and damaged tailgate. The driver noted that had they not stopped, the glider would not have struck the vehicle or suffered damage. The errant tire was removed, and the Club will raise awareness among its members of the need to protect movement areas from foreign objects.

  

  

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|---|---|---|---|---|---|---|---|
| Date | 24-Mar-2019 | Region | GQ | SOAR Report Nbr | | S-1503 | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | | Hard landing | |
| A/C Model 1 | | Blanik L13 A1 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 71 |

The flight was in the final landing phase of an ab-initio training flight, and the student had flown the entire flight. On earlier flights the student had demonstrated good speed control during final the approach but needed more work with the airbrakes, so on this flight the student was flying the approach with some coaching by the instructor. During the approach the instructor verbally guided the student's manipulation of the airbrakes while 'ghosting' the control column and airbrake lever. The student established a stable approach at the normal approach speed of 55 knots using about one-third airbrake but was soon overshooting the aiming point. The instructor called for more airbrake, and the student fully deployed the airbrakes while simultaneously pitching forward on the control column. With the speed increasing beyond 65 knots, and at a height of about 90 ft AGL, the instructor commanded "watch your speed and you don't need full brake". In response, and at a height of about 50 ft AGL, the student closed the brakes and the nose pitched up. With speed now rapidly decaying the instructor called loudly 'Speed. Speed. Speed' and felt the stick move forward as the nose pitched down. The instructor took control and tried to flare the aircraft, but it struck the ground heavily in a slightly nose down attitude. The undercarriage took the full impact and suffered damage. Heavy landing accidents, and accidents involving an apparent loss of control during final approach, have been too frequent since gliding began. Many of these involved two-seat aircraft on training flights involving students with a relatively low time and/or minimal launch experience level being directed or monitored through the landing by an instructor. It is clear that many of these accidents involved an unexpected and inappropriate control input by the student, usually involving the elevator control, leading to

either an abrupt nose down pitch and dive, or a nose up pitch and stall, from which the instructor was unable to recover sufficiently or not at all. Experienced instructors are agreed that students must not be progressed through their training into being directed by the instructor through the final approach and landing, until they have demonstrated a high level of control co-ordination during upper air work training sequences. Instructors should also know their threshold of intervention: unless they are really sure of their ability to talk the student through any sort of upset, they must be prepared at all times to **TAKE OVER CONTROL AND INTERVENE EARLY!** For detailed advice on this subject, refer to Operational Safety Bulletin (OSB) 01/19 - 'Avoiding Approach & Landing Accidents During Training'.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 24-Mar-2019 | Region | GQ | SOAR Report Nbr | S-1533 | | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway excursion | | |
| A/C Model 1 | SZD-48-3 Jantar Standard 3 | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 72 |

During the initial stage of an aerotow launch in moderate crosswind conditions the glider's port wing dropped to the ground. The pilot, anticipating this, immediately applied right rudder to compensate. The starboard wing then dropped, and the pilot applied left rudder to raise the wing but found himself out of position and released from tow. The glider came to rest following a ground loop. The pilot reported there was little discernible headwind but intermittent crosswind gusts up to 10 kts from the South-West. Investigation suggested the crosswind gust affected the airflow over the wings, resulting in the wing dropping on both occasions. The CFI noted that the pilot's use of rudder without any aileron input may have also contributed, and that an earlier decision to release would have reduced the glider's energy and prevented the ground loop. The CFI suggested that launching from the northern side of the airfield with the combination angled more into wind would have reduced the crosswind component, and that off-setting the alignment of the glider's wing to the take-off path may also have assisted because the rope will drag the nose straight. The CFI proposed the following corrective actions:

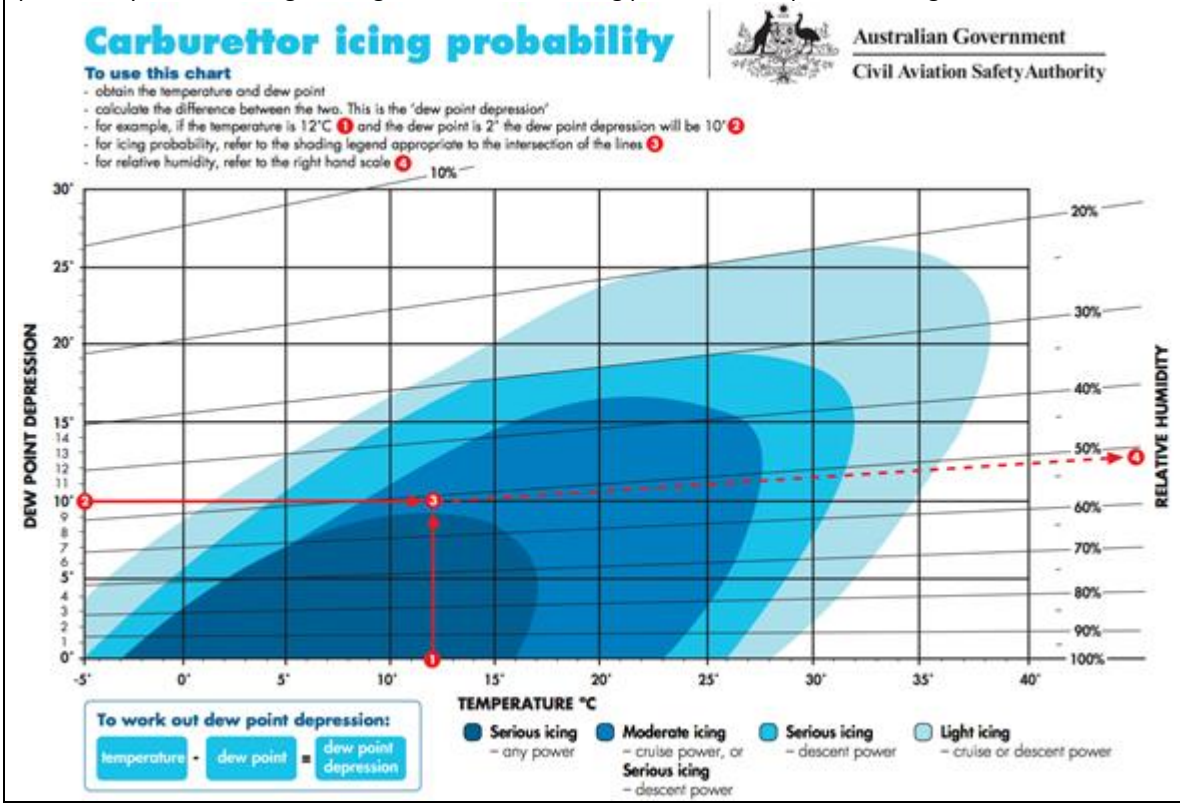
1. Consider angled take-off to increase head wind component;
2. Use aileron to pick up wing;
3. If launch is not recovering to a stable configuration, quickly abandon the launch early and apply full brake to stop the aircraft from ground looping; and
4. Stay within personnel limits.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 31-Mar-2019 | Region | NSWGA | SOAR Report Nbr | S-1505 | | |
| Level 1 | Technical | Level 2 | Powerplant/Propulsion | Level 3 | Engine failure or malfunction | | |
| A/C Model 1 | Dimona HR36 | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 69 |

The command pilot was conducting a training flight in the touring motor glider for a relatively new student to practise their upper air work. The weather was fine, CAVOK, and the temperature on the ground was about 25 deg C. The plan was to keep the engine running during the flight to guarantee climbing or remaining airborne for an extended period due to insufficient thermal activity. Once the initial climb was completed to 4500 ft (3500 ft AGL), the engine power was reduced to a setting where the motor glider's performance simulated that of the club's two seat training glider. Carburettor heat was applied during the low power portion of the flight, which was about 20 minutes. Upon completion of the upper air work, the student pilot joined the downwind leg for a normal glider circuit to RWY 18 while the instructor managed the power settings. The turn onto the final approach was made at about 500 ft AGL, during which the instructor closed the throttle to ensure that the engine was at idle for the landing (The CFI noted that the flight manual recommends landings are done with the engine running, and this is the normal procedure used at this airfield due to limited alternate landing options near the airstrip). When the throttle was closed, the

engine stopped. The Instructor confirmed the fuel pump and carburettor heat was still on and made two attempts at restart the engine; first without choke and then with choke. The engine turned over OK but did not fire. No further attempts to restart the engine were made as the pilots concentrated on the landing. A normal approach was made well clear of obstacles, and the Instructor took control at about 200 ft. A safe landing ensued without further incident. Once the aircraft came to a halt the command pilot observed the oil and cylinder head temperatures were just over 50 deg C, which is a temperature usually requiring full choke and closed throttle. After a minute or so a normal start was attempted, and the engine started normally. The command pilot believes the engine stopped due to carburettor icing, that probably accumulated while the engine was running at low power for an extended period. It is surmised that the engine did not sufficiently heat at the low power setting, thereby allowing ice to accumulate in the carburettor despite the application of carburettor heat. Carburettor heat is an anti-icing system that preheats the air before it reaches the carburettor, and is intended to keep the fuel/air mixture above the freezing temperature to prevent the formation of carburettor ice. Whenever the throttle is closed during flight, the engine cools rapidly and vaporisation of the fuel is less complete than if the engine is warm. In this condition, the engine is more susceptible to carburettor icing. It is recommended that pilots periodically open the throttle smoothly for a few seconds to keep the engine warm; otherwise, the carburettor heater may not provide enough heat to prevent icing as identified here. This incident also reinforces the requirement for motor gliders to be operated similar to a pure glider in regard to flight paths undertaken, particularly when training is being undertaken with long periods of low power settings.




| Date | 31-Mar-2019 | Region | SAGA | SOAR Report Nbr | S-1504 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | Ground handling |
| A/C Model 1 | Astir CS 77 | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Ground Ops | PIC Age | |

While being towed to the flight line the glider's port wingtip contacted the hangar and suffered minor damage. When taxying gliders, drivers need to pay attention to obstacle clearance, remain situationally aware and take things slowly.

| Date | 31-Mar-2019 | Region | GQ | SOAR Report Nbr | S-1506 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope break/Weak link failure |
| A/C Model 1 | Cherokee II | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 60 |

A low hour's pilot was undertaking their fourth flight in this light wing-loading glider type. Shortly after being launched by aerotow on RWY 12 the glider started to oscillate in pitch. At about 200ft AGL the weak link broke and the pilot conducted a right-hand turn to safely land on RWY 24. It was determined that the pitch sensitivity of the towing combination, coupled with the pilot's lack of familiarity and low experience, resulted in the glider oscillating in pitch and speed such that the weak link was overloaded and failed as designed. Pilot induced oscillations (PIOs) usually result from overly large corrective control movements – one after another. PIOs cannot happen if the controls are held still, preferably in the central position. To achieve this, the pilot's arm controlling stick movement should rest on their thigh to minimise the possibility of unwanted inertia inputs being generated, and the stick should be gripped firmly but lightly.

| Date | 6-Apr-2019 | Region | GQ | SOAR Report Nbr | S-1507 |
|---|---|---|---|---|---|
| Level 1 | Environment | Level 2 | Wildlife | Level 3 | Birdstrike |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 52 |

A large (Sea?) eagle made a head on pass at the glider and collided with the port wing at mid span. At the time of the collision the glider, which was on the return leg of a cross-country flight, was at a height of about 4,000ft and thermalling about 5km East of Chinchilla, Qld. The flight crew did not observe any damage to the aircraft, which handled normally. A post-flight inspection did not identify any damage from the strike. The Club training panel noted that the actions of the flight crew were appropriate; and that following any in-flight collision, and presuming abandoning the aircraft is not immediately obvious, the flight crew should check for damage, conduct a full control check, and then assess their options.

| Date | 7-Apr-2019 | Region | GQ | SOAR Report Nbr | S-1508 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway undershoot |
| A/C Model 1 | BG 12/16 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 67 |

The pilot had returned to the circuit from a local soaring flight in his recently acquired glider. The pilot noted that he *"was still mastering approach control using flaps instead of air brakes"*. The glider was third in circuit behind two higher performing gliders. The pilot flew too far downwind for the conditions and performance of the glider, and landed in a paddock short of the airfield. Witnesses observed the glider on downwind, positioned somewhat wider and lower than expected for a glider of its performance. They then observed the glider as it turned onto base leg at the same point as the higher performance gliders but much lower. An instructor observing this expressed the opinion to their student that from that position and altitude the aircraft would not be able to make it back to the airfield. The pilot also realised at this time that the glider would not make the airstrip and continued the base leg with the aim of landing in a paddock under the approach path and just short of the runway boundary. The pilot made a successful landing, but the glider rotated 160 degrees to the right as it came to rest. Causal factors include:

- Inexperience on type. The pilot had only 6 flights in the BG12 and usually flew gliders of higher performance.
- Unfamiliarity with type. The BG 12 has trailing edge flaps for approach control that are full span to the aileron. The pilot was still getting accustomed to their operation.
- Decision making. The pilot was number three to two DG1000s and decided to extend the downwind leg to follow them instead of turning-in early.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 7-Apr-2019 | Region | VSA | SOAR Report Nbr | | S-1525 | |
| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | Level 3 | Aircraft preparation | | |
| A/C Model 1 | | Piper PA-25-235 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Ground Ops | PIC Age | 63 |

While undertaking the morning pre-flight inspection of the Pawnee tow plane, the pilot found that the magneto switch was set to BOTH. The tow pilot noted that in this configuration *"the engine was left live"* and *"potentially dangerous given that people walk past the propeller and may even try to move it if it was in an awkward position."* An aircraft magneto is an engine driven electrical generator that uses permanent magnets and coils to produce high voltage to fire the aircraft spark plugs. Airplanes have two magnetos, left and right, each of which fires one spark plug per cylinder, creating a redundant system that allows the engine to operate at full power independent of the battery and engine-driven alternator. This means that the electrical system can be turned off with the master switch and the magneto-equipped engine will continue running. Turning the magneto switch to 'Off' actually causes a short circuit (called grounding) in the magneto coil that prevents it from working and avoids accidental starts. Investigation identified the pilot who had flown and hangared the aircraft the previous day had earlier received remedial training and counselling for leaving the tow plane in a similarly unsafe condition on a number of previous occasions. As the pilot appeared incapable of managing the aircraft in a safe manner and demonstrating the necessary discipline, the Club Committee removed them from the towing roster. Most pilots understand the dangers of a spinning propeller and have heard horror stories about a "hot mag" accidently turning over the engine. GFA reminds members handling powered aeroplanes to assume the ignition has been left in the "on" position and that the engine could start at any moment. Tow pilots should periodically check that the aircraft engine's dual magneto systems have properly shut down the engine to avoid the risk of an unexpected start. For further reading, refer to Flight Safety Australia article "Properly clear of the prop? at this link: https://www.flightsafetyaustralia.com/2014/03/properly-clear-of-the-prop/

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 10-Apr-2019 | Region | NSWGA | SOAR Report Nbr | | S-1509 | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Aircraft Separation Issues | | |
| A/C Model 1 | | Piper PA-25-235 | | A/C Model 2 | Piper PA-28 | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 67 |

At this regional aerodrome simultaneous contra circuit operations take place on RWY 17/35, whereby gliders and tugs conduct circuits to the West of the runways while power traffic conduct circuits toi the East of the runways. The tow pilot was conducting a left-hand circuit for glider RWY 35 in accordance with established procedures and was number two to a glider ahead. At the same time, a Piper Warrior was conducting a glide approach to RWY 35 from a right-hand circuit. On final approach the tow pilot elected to land on the main runway as the preceding glider was occupying the glider runway and made a radio call advising of his intentions. The Piper Warrior turned onto final approach abeam the threshold of runway 35 at a height of about 200ft and just behind the landing tow plane. The pilot of the Piper Warrior initiated a go around procedure to avoid the tow plane. Investigation revealed the tow pilot had heard a transmission advising of a glide approach but did not comprehend the registration and so did not associate the call with a power

aircraft. The tow pilot conducted a targeted scan for traffic, targeting a typical base and final for right hand circuits, but did not sight the Piper Warrior, which was conducting a non-standard (simulated emergency) approach. In areas outside controlled airspace, it is the pilot's responsibility to maintain separation with other aircraft. For this, it is important that pilots utilise both alerted and unalerted see-and-avoid principles. Pilots should never assume that an absence of traffic broadcasts means an absence of traffic. The following publications provide information that may assist pilots avoid airprox events:

- Staying clear of other aircraft in uncontrolled airspace https://www.atsb.gov.au/publications/2011/staying-clear-of-other-aircraft-in-uncontrolled-airspace/
- Collision avoidance strategies and tactics https://www.aopa.org/training-and-safety/online-learning/safety-advisors-and-safety-briefs/collision-avoidance
- A Flight Safety Australia article, Sharing the skies – gliders printed in Issue 87 July-August 2012, is available at http://pandora.nla.gov.au/pan/140978/20130530-1146/fjul12.pdf
- CAAP 166-1(1) provides advice in relation to making radio broadcasts to reduce the risk of coming in close proximity with other aircraft: https://www.casa.gov.au/sites/default/files/caap-166-01-operations-vicinity-non-controlled-aerodromes.pdf

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|---|---|---|---|---|---|---|---|---|---|
| Date | 11-Apr-2019 | Region | NSWGA | | SOAR Report Nbr | | S-1510 | | |
| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | | Level 3 | | Aircraft preparation | | |
| A/C Model 1 | | PW-5 "Smyk" | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | | PIC Age | 72 | |

The glider was seen to have its airbrakes partly deployed when transiting into full climb during a winch launch. A radio call was made to alert the pilot but it was not heard. The pilot noticed the aircraft was not climbing as well as it should and saw the brakes were open. The pilot closed and locked the airbrakes and continued the launch. The pilot advised that the launch was delayed so he conducted another pre take-off check list but did not check that the brakes were "closed, flush - and locked." The pilot was debriefed by the duty instructor and the incident was discussed at the close of day debriefing session with the potential consequences stressed.

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|---|---|---|---|---|---|---|---|---|---|
| Date | 14-Apr-2019 | Region | NSWGA | | SOAR Report Nbr | | S-1514 | | |
| Level 1 | Operational | Level 2 | Airframe | | Level 3 | | Doors/Canopies | | |
| A/C Model 1 | | DG-1000S | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Minor | Phase | Launch | | PIC Age | 16 | |

Summarised from the Defence Flight Safety Bureau Report.

**INTRODUCTION**

On Sunday 14 Apr 19, an Australian Air Force Cadet (AAFC) solo pilot, flying a DG1000-S glider, aborted an aerotow take-off upon realising that the aircraft's rear canopy was unlocked. The pilot conducted a turn-back manoeuvre to Bathurst Regional Airport. During the manoeuvre, the glider's rear canopy fully opened. The pilot successfully executed a safe turn back and landing on the reciprocal grass runway. The glider suffered damage to the airframe associated with supporting the rear canopy structure.

**FACTUAL INFORMATION**

**Background**

During the weekend of 13-14 April 19, the Cadet Squadron was conducting Cadet Air Experience and Pilot Experience flying operations. On 14 April, an AAFC student glider pilot had conducted a pre-solo check flight with a Supervising Instructor, prior to being authorised for a solo glider sortie. The solo event flight had been authorised by an accredited instructor and the DG1000-S was correctly configured for the authorised sortie.

The event pilot-in-command was deemed to be proficient for the authorised sortie, with the weather assessed as suitable.

**History of flight**

Pre-flight

Following the pre-solo check flight, the supervising instructor vacated the rear cockpit of glider, secured the rear seat harness, closed and locked the rear canopy, closed the sliding vent (the vent provides access to the internal locking handle) and removed the tail ballast weights (to configure the glider for a solo flight configuration). The pre-solo flight brief was conducted in situ (between the instrcutor and the pilot) before the instructor returned the ballast weights to the assigned storage space and authorised the event flight. The pilot conducted the pre-boarding checks, boarded the gider and carried out the pre-take-off checks. When the pilot occupied the forward pilot's position, glider was third in line on the duty runway awaiting an aerotow by the in use tug aircraft. An example of the line-up is depicted at Figure 1.

*Figure 1. Example of a typical launch line*

On the two occasions that the glider was moved forward in the launch line, the pilot sought assurance from the ground crew/canopy holders that the rear cockpit/rear canopy remained secured for launch. Each time, the pilot was told (from the attending ground crew) that the glider was ready in all respects for launch. Due to the high ambient temperature during the launch sequence, the pilot generally kept the front seat canopy open for ventilation. The canopy was closed only during the launch of those gliders ahead of him in the launch sequence to avoid prop wash. As the canopy was predominantly open prior to launch, the pilot was in constant communication with the attending ground crew. Prior to the launch of the glider, the pilot was satisfied that both the rear and front seat canopies were appropriately secured. Upon the glider reaching the launch position, the tug tow rope was checked for knots and the towing ring inserted into the tow-hook release mechanism.

Take-off

During the towed take-off run (prior to lift off) on Runway 17 Grass Right, the pilot was content with the handling qualities of the aircraft but noted there was a discernible rumbling noise interspersed with occasional banging emanating from behind him. Believing that the noises were associated with wheel rumbling/bouncing, the pilot continued with the towed take-off. Once airborne from the grass runway strip, the noises continued.

Canopy open during flight

At about 50 feet above ground level (AGL), the pilot glanced over their left shoulder to identify where the unusual noises were emanating from and noticed that the rear canopy was in an unlocked configuration. The pilot quickly assessed the situation and decided to continue with the aerotow until in a position to effect a safe turn-back manoeuvre, once outside the non-manoeuvring area (NMA), to the airfield.

Recovery

Having assessed the NMA options (The NMA's lower boundary is defined by the height at which a pilot can no longer safely land straight ahead within the airfield and its upper boundary by the height at which the pilot can easily turn and make a modified circuit to land back on the airfield), the pilot aborted the aerotow at about 200 feet agl and conducted a constant speed (~100kmh/54knots) right hand turn, in a shallow descent, towards the airfield. During the turn-back, the canopy fully opened (and remained so for the

remainder of the recovery), markedly increasing the wind rush noise within the cabin space. Despite the distractions, the pilot conducted a safe turn-back recovery to the airfield before the glider came to rest on Runway 35 Grass Left. The sortie was logged as a two-minute flight. The glider's flight path is depicted in Figure 2.


*Figure 2. Flight Path*

Post event.

The Cadet Squadron immediately paused flying operations to assimilate the facts before electing to return to flying for the remainder of the day. Thereafter, the squadron received a verbal instruction from the Air Force to cease flying operations the following day pending a formal investigation.

Injuries to persons.

There were no injuries to any persons as a result of this event. The pilot was debriefed by the supervising instructor and re-authorised to fly an additional solo sortie later that afternoon. The subsequent 28-minute solo flight was flown without incident.

**Damage to aircraft**

Due to the inertia and aerodynamic forces involved when the canopy completely opened in flight, the canopy hinge attachment points sustained over-extension damage which resulted in a canopy misalignment. This was most notable when the Perspex part of the canopy was in the closed position, as it could not be correctly seated and locked. There was also minor delamination to the hinge arm supporting structure of the canopy mount which can be seen at Figure 3.

*Figure 3. Hinge over-extension and supporting structure damage*

The Perspex portion of the canopy utilises a retaining line and clip to prevent over-extension of the canopy mechanism during normal ground operations. This clip was over-extended, to the point of separation, which resulted in minor contact scratching to the adjacent wing structure, which can be seen at Figure 4. Had the canopy detached from the airframe during flight and struck the empennage, it is expert opinion that the

controllability of the glider would likely have been compromised.


*Figure 4. Retaining clip over-extension damage*

**Qualification, currency and recency**

The command pilot was deemed by the Aviation Safety Investigation Team to be qualified, competent, and current on the DG1000-S for the event sortie and was correctly authorised for the sortie by the supervising instructor. The command pilot's total gliding experience consisted of 42 dual flights and 12 solo flights. In the 12 months prior to the event, the command pilot had conducted 7 solo flights. A breakdown of the PIC's AAFC flying experience is at Table 1. The command pilot was still subject to daily pre-solo checks to be

carried out on their first flight of the day due to their level of experience.

| | | HOURS | MINS | FLIGHTS |
|---|---|---|---|---|
| **Total** | Dual | 16 | 10 | 42 |
| | Solo | 5 | 18 | 12 |
| **12 Months** | Dual | 2 | 28 | 6 |
| | Solo | 3 | 1 | 7 |
| **90 Days** | Dual | 0 | 17 | 1 |
| | Solo | 0 | 0 | 0 |

*Table 1. Command Pilot's Flight Experience*

**Meteorological information**

The weather for the event flight was suitable; the wind was calm and the sun (position) was well above the horizon. The Aviation Safety Investigation Team concluded that there were no environmental factors that directly contributed to this event.

**AIRCRAFT PARTICULARS**

**DG1000-S glider**

*Figure 5. DG1000-S glider in AAFC livery*

The aircraft data pertinent to the event flight is detailed in Table 2.

| AIRCRAFT DATA | |
|---|---|
| **Aircraft manufacturer:** DG Flugzeugbau | **Launches (inc. event flight):** 1554 |
| **Aircraft type:** DG1000-S Two-seater Class Sailplane | **Last serviced:** 04 Jul 18 |
| **Aircraft serial number:** 10-213 S135 | **Next due service:** 03 Jul 19 |
| **Total airframe hours (inc. event flight):** 637 hrs 28 mins | |

*Table 2. Aircraft data*

**SYSTEM DESCRIPTION**

**Canopy**The DG1000-S glider has two Perspex canopies servicing a single cockpit area. The front and rear seat canopies are separated from one another by a single curved supporting spar. Each canopy is secured to the airframe by hinges rigged on the starboard lower side of the canopy. The corresponding locking mechanisms for both canopies are situated on the port side of each cockpit below where the canopy meets the airframe.

**Design**

The canopy hinges are attached to the fuselage mounts by a control rod connected to the emergency release handle lever (red square within the small yellow ellipse in Figure 6). It also has a gas strut attached at the front of the canopy and a restraining cable at the rear to prevent the canopy from over-extending (highlighted by the large yellow ellipse in Figure 6) when opened.

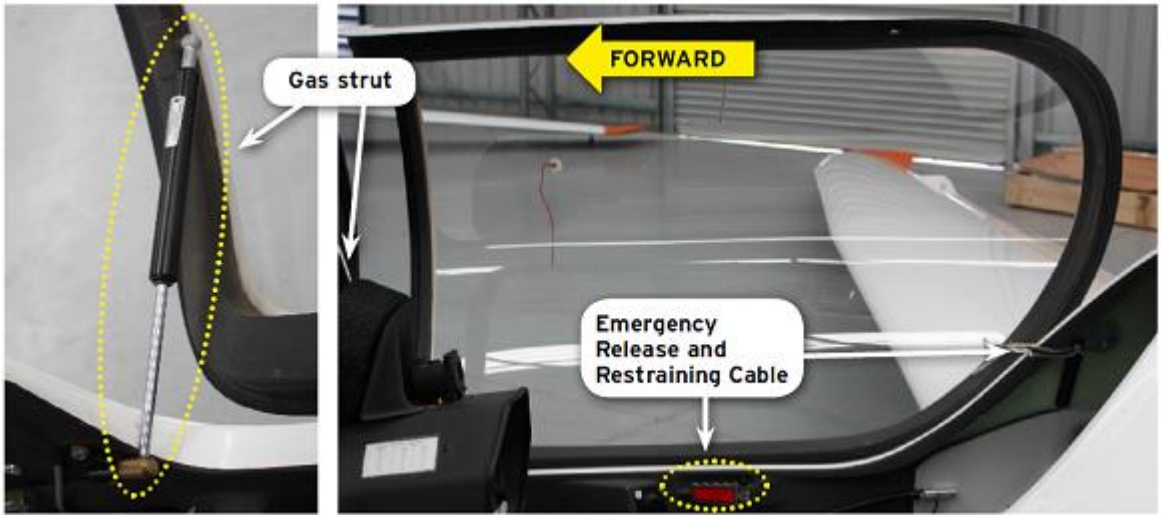



*Figure 6. Gas Strut and retaining cable*

When the canopy is closed, it is locked into position by the canopy white-red locking handle lever which operates the canopy locking pins (Figure 7).

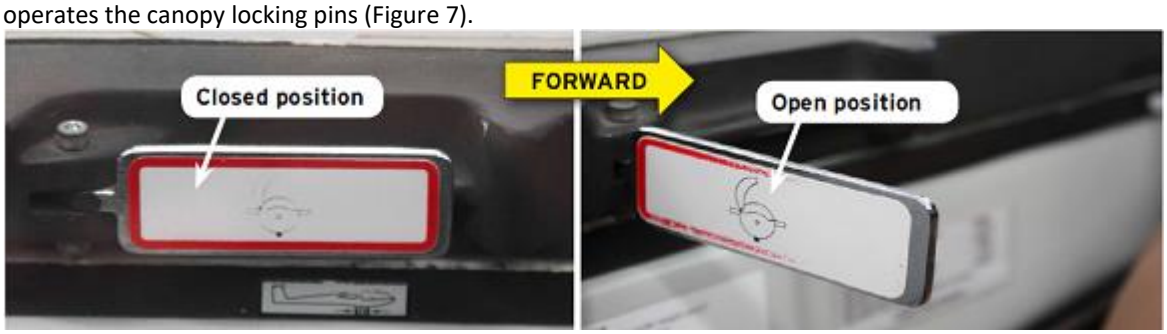



*Figure 7. Closed and open positions of canopy locking handle*

The closed handle, depicted in Figure 7, is further amplified by the underside view of the port side of the canopy in Figure 8, which demonstrates the relationship between the locking handle and the canopy locking pins.

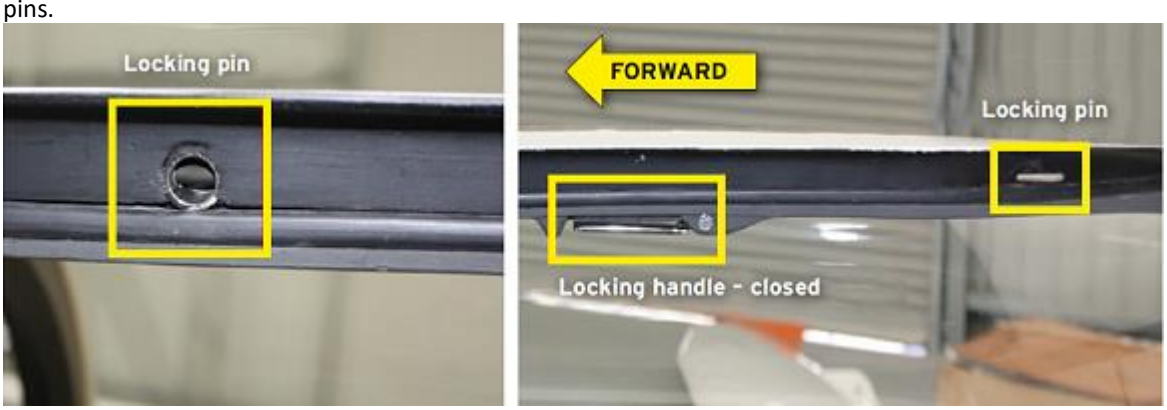



*Figure 8. Rear canopy locking pin(s)*

The canopy locking handle (from Figure 7) moves the locking pins to mate with the front and rear locking pin holes on the fuselage canopy structure identified in Figure 9.

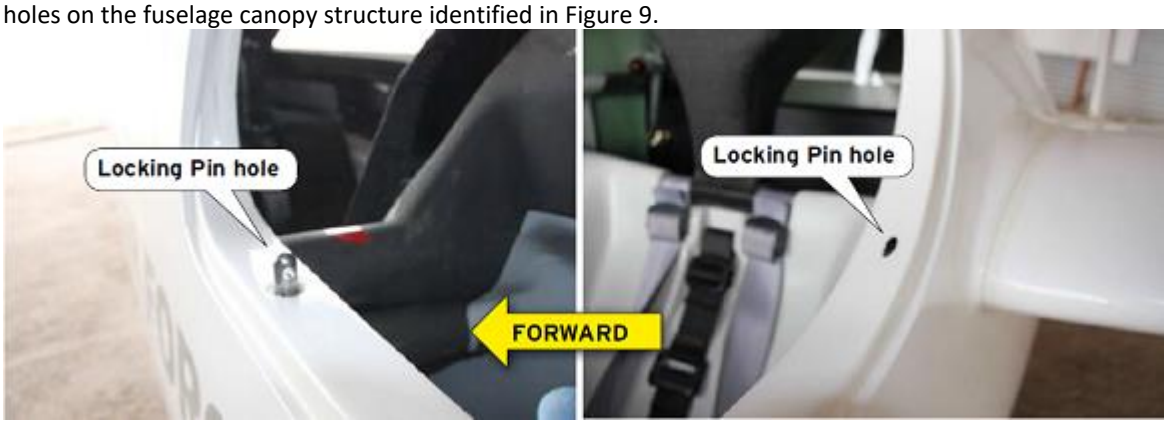



*Figure 9. Mating location of the locking pins on the fuselage*

**Operation**.

Cycling the canopy locking handle from the open to the closed positions moves the handle lock and pinning mechanism freely through the matching locations on the fuselage (as seen in Figure 8 and 9). When the locking handle is in the closed position the locking pins extend into/through the matching locations on the fuselage ensuring positive engagement of the locking pins to the fuselage. Thereafter, the canopy is fully closed and locked flush with the fuselage (Figure 10), with the handle flat against the inside of the canopy (as seen in Figures 7 & 8).


*Figure 10. Rear canopy flush with Fuselage*

**Voice and flight data recorder**

AAFC DG1000-S gliders are not fitted with conventional flight data recording devices; however, they are equipped with a FLARM Flight Data Logger (an acronym based on 'flight alarm'), which records metric flight data that can be used to determine aircraft usage and post-accident or incident analysis. The glider was fitted with a serviceable FLARM unit, which when interrogated, provided GPS data that was used to recreate the flight path and timeline of the event depicted in Figure 2.

**SIMILAR EVENTS**

**Database Search**

A review of the GFA's Safety Operations and Airworthiness Reports for previous 'unlocked canopy' events revealed the AAFC squadrons had experienced three similar events, which involved either gliders or tug aircraft. Since April 2016, there have been two other reported 'canopy' events that occurred under the auspices of AAFC operations. For completeness, a search of the Defence Aviation Safety Management Information System, including its forerunner, the Defence Aviation Hazard Reporting and Tracking System, going back to 2004, revealed no similar events.**ANALYSIS**

**Operational**

Planning and risk management

Prior to the pilot's solo flight, the supervising instructor had ensured that the pilot was compliant with the qualification requirements to fly, as stipulated by the GFA. Preceding the event flight, the supervising instructor conducted a 17-minute solo check flight with the pilot. During the solo check sortie, the pilot was assessed on flight manoeuvres relevant to the event flight, all of which were assessed as well flown. Notably, a simulated malfunction and turn-back procedure were discussed during the pre-solo check flight where airspeed calculations and emergency actions were rehearsed. The event pilot's logbook is annotated with an assessment as competent to conduct launch emergencies. Post the event flight, the pilot was re-authorised to fly an additional solo sortie later that afternoon. The 28-minute solo flight was flown without incident. On 16 April 2019 (two days after the event), in response to the 'canopy open in-flight' event, the Air Force issued a directive to cease Air Force DG1000-S glider flying. The next day, the Aviation Safety Investigation Team conducted its investigation into the event, in-situ at Bathurst airfield. Appraised of the Aviation Safety Investigation Team's preliminary findings, the Air Force then issued a directive to resume DG1000-S flying on 18 April 2019 on the proviso that pre-launch checks and canopy locking inspections were complied with. The Aviation Safety Investigation Team concluded that the Air Force's directives, as the nominated Military Air Operator Accountable Manager, were both timely and appropriate.

Operations

*Launch line operations (training)*

The ground handling team is drawn from AAFC members. Ab-initio Cadets are initially introduced to glider operations as members of the attending ground handling team and learn their duties by both tuition and by rote (from more senior Cadets). Air Force Cadets attending their first 'glider camp' wear a dayglow coloured vest annotated (on the rear of the vest) with 'Basic' so that all participants can recognise their inexperience and treat them accordingly. When a Cadet is deemed to be suitably trained and competent to conduct ground support operations, their flying logbook is annotated by an authorised senior Cadet. The Aviation Safety Investigation Team found no evidence of a ground handling training syllabus on how to prepare and launch gliders nor what constituted a Cadet to be suitably trained and competent to conduct ground support operations. Similarly, the Aviation Safety Investigation Team found no evidence that a ground crew to aircrew challenge/response checklist or procedure was used to ensure that the event DG1000-S glider was correctly configured prior to take- off. The pre-launch check list issued in AAFC Standing Instruction 01-19 was already in use within the wider glider community but had not been mandated for use by AAFC. The Aviation Safety Investigation Team acknowledges that the 'resumption of flying directive' specified that flying could only resume under two conditions. The second of those conditions was the introduction of glider pre-launch checks designed to ensure that gliders are ready, in all respects for launch.

*Launch line ground handling*

Prior to the event flight, the glider was situated third-in-line awaiting aerotow launch and accordingly, the command pilot completed the pre-boarding and pre-take-off checks (ABCD and CHAOTIC). For solo operations, it is normal that the rear canopy is not opened so as to maintain a sterile rear cockpit. Conversely, it is usual to have the front canopy open, as it is firstly, easier to communicate between the pilot and attending ground crew; and secondly, it facilitates ground movement, the methods for which are

demonstrated in Figure 11.

*Figure 11. Pulling from nose and pushing via the wing root*

During the ground handling evolutions for the event glider, the pilot sought assurance from the ground crew/canopy holders that the rear cockpit remained secure after each move forward. The canopy holders who attended the glider revealed that, during the ground moves, they *"didn't pay any attention to the canopy handles, sliding vent or notice the rear canopy not being flush with fuselage."* They also recounted that the rear canopy was never opened as the glider progressed down the launch line, adding that they were unsure of the position of the canopy handle throughout the process. Figure 12 shows the glider third in position on the launch line with the canopy closed. Both the pilot and supervising instructor stated they had locked the rear canopy and closed its sliding vent. The security of the rear canopy was also confirmed by the attending ground crew.


*Figure 12. Event glider in third position on the launch line*

Figure 13, a close-up photograph of the event glider (whilst third in position for its aerotow launch) reveals that:a. The canopy was in the closed position but that the locking handle was ajar.
b. The canopy sliding vent was open.

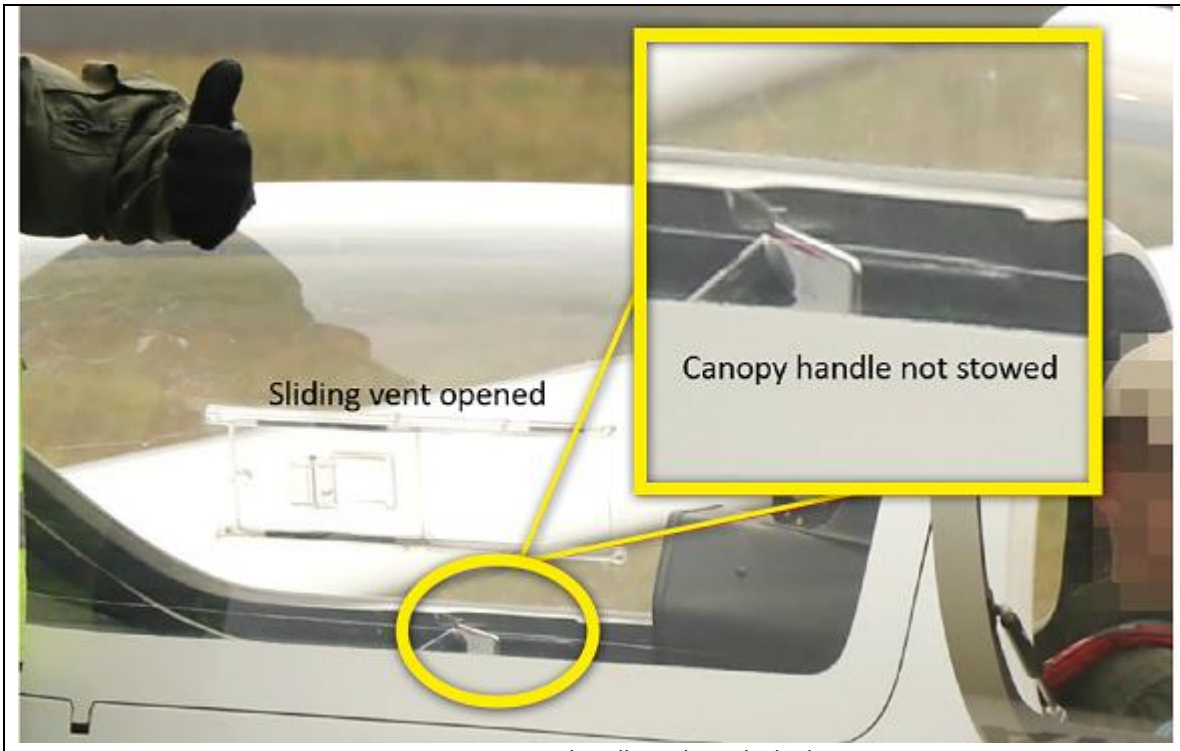



*Figure 13. Rear canopy handle in the unlocked position*

The pilot and supervising instructor both attested that the rear canopy had been locked, and the sliding vent closed, prior to the PIC boarding the aircraft. Figure 13 demonstrates that the canopy locking mechanism was ajar and the canopy sliding vent was open soon after the pilot was secure in the aircraft. Figure 14, taken about 10 minutes later than the Figure 13, shows the event glider, now second in line for an aerotow launch, with the rear canopy opened. This is despite the interviewed ground crew stating that 'the rear canopy (of the event glider) was never opened during the move down the launch line'. Figure 14 also demonstrates that both DG1000-S gliders' canopies are open, with a canopy holder in attendance.


*Figure 14. The event glider in second position with the rear canopy opened*

Additionally, Figure 14 demonstrates that the supervising instructor was in attendance during the glider's line-up sequence (seen on the left-hand side of glider; from where the canopy locking handle would be accessed via the sliding vent). This is also contrary to the information furnished by the supervising instructor. The aforementioned comments, and figures 13 and 14, demonstrate that there are numerous discrepancies within the information gathered by the Aviation Safety Investigation Team (from written statements/interviews) and permanent/physical evidence (photographic/ aircraft)). As such, the Aviation Safety Investigation Team is unable to establish an accurate history of the event glider's ground movements

through to becoming airborne, and who opened the rear canopy prior to the aerotow launch. Given the presented evidence, the aircraft's structural integrity, the robustness of the canopy locking mechanism and the AAFC DG1000-S's record of service, the Aviation Safety Investigation Team concluded that that glider almost certainly commenced its aerotow launch with the rear canopy unlocked. During the launch sequencing, the evidence supports that there were several instances where the support from the ground crew was not in accordance with established procedures. This approach to ground operations very likely contributed to the glider launching with its rear canopy unlocked. The Aviation Safety Investigation Team considers that this deviation from established ground handling procedures is not confined solely to this event. The lack of checklists and formal training for ground crew supports this assertion. This arrangement is of particular concern for solo operations, as it is difficult for a front seat pilot to check the physical status of the rear canopy's locking handle.

*Remediation*

To ensure that launch sequencing is better managed, the Aviation Safety Investigation Team recommends that a dedicated, and suitably qualified, 'lead ground-handler' is assigned to all solo piloted airframes during the launch sequence. The 'lead ground-handler' is to provide a continuity of service to the pilot and ultimately, assurance that the glider is, in all respects, ready to launch. The 'lead ground-handler' qualification (and the duties thereof) should be clearly articulated within AAFC Orders, Instructions and Publications. The Aviation Safety Investigation Team acknowledges that both non-physical and perishable evidence (witness recollection) can be unreliable (corrupted over time/memory conformity/quality/reliability). The Aviation Safety Investigation Team were unable to definitively establish the position of the locking mechanism handle when the glider came to rest.

**Orders, instructions, and publications**

The pre-boarding and pre-take-off checks conducted by the event command pilot were in accordance with GFA regulations and Air Force Standing Instructions 3-1. As a result of the event flight, SOI 01-19 was finalised and published to provide glider pre-launch checks to the AAFC. The pre-launch checks are a set of challenge and response checks (between the command pilot and supporting ground crew) using the 'CARD' pneumonic (amplified in Table 3):

| LAUNCH CREW CHALLENGE | PILOT RESPONSE | LAUNCH CREW RESPONSE |
|---|---|---|
| **C – Canopies** | Closed and locked (physically check) | Visually checking front & rear canopy locks |
| **A – Air brakes & Flaps** | Air brakes closed & locked. Flaps not fitted (for this aircraft type) | Visually check the wings and the air brakes are flush with the wing surface. |
| **R – Radio & Transponder** | Radio set to required frequency. Transponder 1200 ALT. | |
| **D – Dollies** | | Visually check there are no wing or tail dollies fitted. |

*Table 3. Pre-Launch (CARD) Checks*

AAFC Special Technical Instruction (STI) 19-01 was introduced on 16 April 2019 and provides the AAFC glider community with an additional Canopy Locking Mechanism Inspection. STI 19-01 is the first of the required two provisos placed on the AAFC to effect the 'resumption to fly' directive.

**Event Flight**

*Flight brief and authorisation* - The solo flight was correctly briefed and authorised. The environmental conditions were suitable for the event flight and the planned solo flight was within the capabilities of the PIC.*Launch sequence* - The command pilot demonstrated a sound grasp of all that was expected of them

during the planned solo flight. When hooked up to the tug aircraft, the pilot stated that they were satisfied that the glider was ready, based on their actions and the ground crew's advice, to commence the aerotow launch. As the aerotow aircraft accelerated, the pilot believed that the noises they heard were associated with wheel rumble/bouncing. The pilot therefore continued with the towed take-off. Upon separation from the grass runway strip, the noises did not abate. At about 50 feet agl the pilot looked over their shoulder to identify where the unusual noises were coming from. They noticed that the rear canopy was closed but in an unlocked configuration. The pilot identified that the glider was within the non-manoeuvring area, and decided to remain with the aerotow until they could effect a safe turn-back manoeuvre to the airfield. The Aviation Safety Investigation Team concluded that this emergency was well handled, and that the pilot's performance was, very likely, as a result of the emergency handling training received prior to this solo event flight.

**TECHNICAL**

**Aircraft serviceability**

The glider's maintenance documentation corroborated that the glider's registration was current and that it had a valid Certificate of Airworthiness. The GFA Form 2 (Sailplane/Powered sailplane Inspection Schedule) inspection had been carried out in accordance with both the GFA Manual of Standard Procedures and the requirements listed in the glider's current maintenance manual. The glider was duly maintenance released by the Approved Maintenance Organisation on 4 Jul 2018. The daily inspection for the event flight was carried out by a qualified and current member of AAFC.

Canopy construct

The Aviation Safety Investigation Team concluded that the rear canopy locking mechanism, if engaged as directed in the DG1000-S manuals, should not open during normal flying operations. Should a canopy open in-flight and subsequently detach from the airframe and strike the empennage, it is likely that the controllability of the glider would be compromised.

**Aircraft Markings**

Safety controls

The Aviation Safety Investigation Team were unable to definitively conclude the sequence of events that lead to the glider launching with an unlocked canopy. However, it is clear from the photographic evidence that the rear canopy was opened after the command pilot conducted their pre-launch checks. It is also evident that a number of ground crew had the opportunity to identify that the rear canopy was open and/or unlatched. Human information processing errors were evident during this event. Accordingly, the Aviation Safety Investigation Team recommends that the following three aircraft marking safety controls, relevant to this event, are adopted. The safety controls are designed to enhance the shared ground crew/aircrew (or team) situation awareness.*Canopy opening handle* - Prior to take-off, the introduced CARD checks stipulate that pilot(s) check that canopies are closed and locked. This is appropriate for a dual crew as both aircrew can physically check the state of their respective canopies. However, a solo pilot, seated in the front cockpit, can only realistically check the front canopy and relies on the ground crew to check the state of the rear canopy. To assist the solo pilot's situational awareness (as to whether the rear canopy is in the locked position) the Aviation Safety Investigation Team recommends that the rear canopy locking handle be fitted with a high visibility surface on its underside, which is mirrored on the canopy structure. This will assist the pilot, when looking over their left shoulder, to resolve whether the handle is locked (high visibility surface not visible), or ajar, and not locked (high visibility surface visible). This recommendation is visually represented at Figure 15.

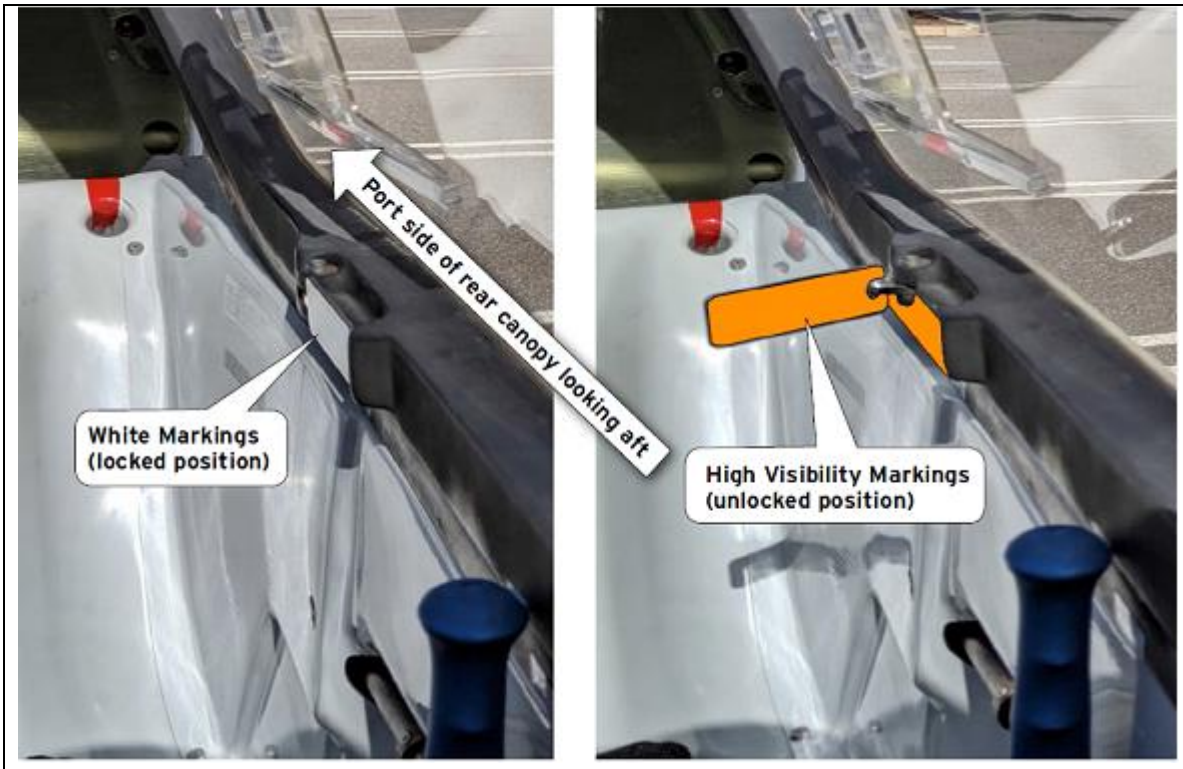



*Figure 15. Rear canopy open revealing high visibility marking*

Rear canopy tell-tale marking

Should the rear canopy be inadvertently locked prior to closing, the canopy will sit upon the pinning mechanism (see Figures 8 and 9) and can, at first glance, appear to be locked for flight. Closer inspection should reveal that the canopy sits slightly proud of the frame but if the inspection is cursory, it is feasible that the canopy could be incorrectly assessed. The Aviation Safety Investigation Team recommends that the leading edge of the rear canopy be fitted with a high visibility surface, which becomes visible (to external parties) should the rear canopy be incorrectly seated; as demonstrated in Figure 16.

Canopy emergency release system

The canopy emergency release handles sit on the starboard side of both cockpits (opposite side to the canopy locking handles) and are accentuated by a red-orange surface (portrayed on the left side of Figure 17). The Aviation Safety Investigation Team noted that in strong sunlight, the red-orange colouring of the emergency handle loses visual impact and does not portray the gravitas of an emergency mechanism. In order to overcome this design weakness, it is recommended that the surface of the canopy emergency release handles are replaced by the widely used yellow and black diagonal hazard markings (portrayed on the right side of Figure 17). [**GFA Note**: Markings must comply with the glider's Certification Standards, in

this case CS-22].

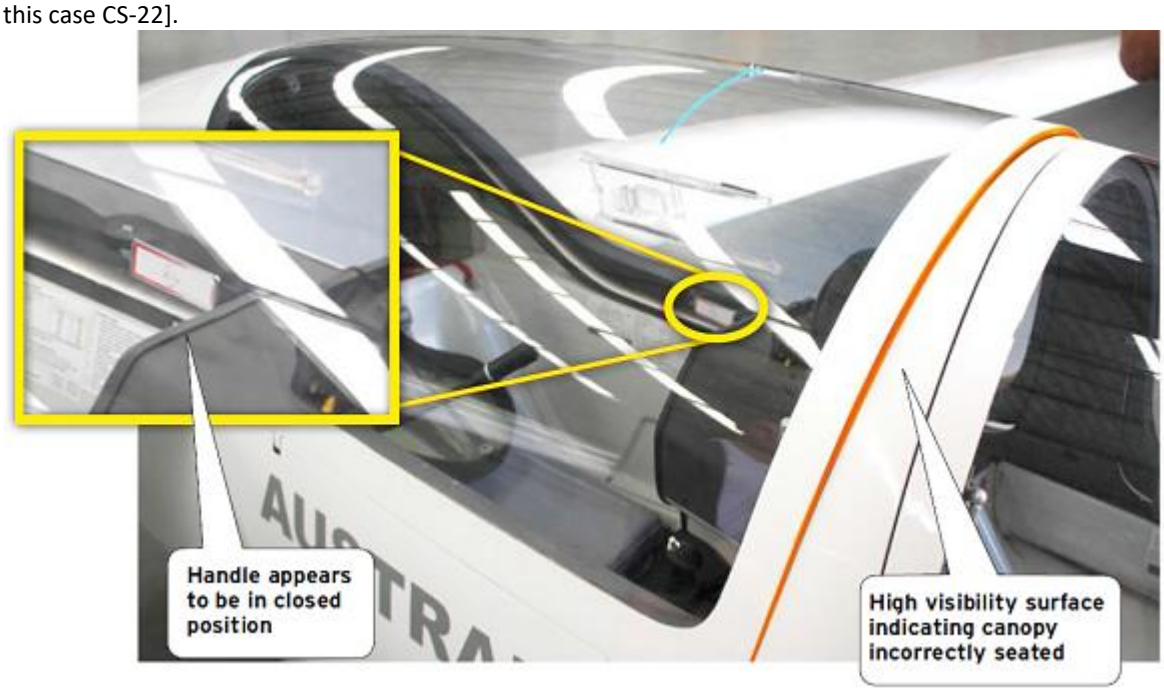



*Figure 16. Canopy Emergency Release System*

**CONCLUSION**

From the evidence available, the Aviation Safety Investigation Team found that glider commenced a towed take-off with the rear canopy unlocked. The command pilot believed that both the rear and front seat canopies were appropriately secured for flight. The mistaken belief that the rear canopy was locked stemmed from the attending ground crew's advice. Photographic evidence demonstrates that there were ground crew in attendance of the glider (throughout the launch sequence) who had the opportunity to identify that the rear canopy was unlocked prior to launch. The Aviation Safety Investigation Team concluded that sub-optimal training, a lack of checklist/procedures and poor visual cues probably contributed to the ground crew not identifying that the rear canopy was unlocked. Had a dedicated 'lead ground-handler' been allocated to the glider for the launch process and tailored ground crew training and robust Orders, Instructions and Publications been in place prior to launch, it is probable that this event would not have occurred. Incorporating the proffered ground handling, launching and aircraft marking recommendations will, very likely, prevent a re-occurrence of this type of event and enhance safety.

**FINDINGS**

1. The rear canopy was in the unlocked position during the towed take-off.
2. The pilot conducted a safe turn-back manoeuvre (to the airfield) before the glider came to rest on Runway 35 Grass Left.
3. A directive to cease AAFC DG100S glider aviation activities was issued by the Air Force on 16 April 2019.
4. The command pilot flew an additional sortie on the same day of the event flight.
5. Had the canopy detached from the airframe during flight and struck the empennage, it is probable that the controllability of the glider would have been compromised.
6. The weather at the time of the 'canopy open' flight did not directly contribute to this event.
7. The event pilot was suitably qualified and adequately prepared to undertake the authorised (event) sortie.
8. The Air Force's directives (cessation and resumption of flying) were both timely and appropriate.

9. There was no evidence (at AAFC Bathurst) of a ground handling training syllabus on how to prepare/launch gliders nor what constituted a Cadet to be suitable trained and/or competent to conduct ground support operations.
10. There was no challenge/response checklist / procedure (in place at AAFC Bathurst) to ensure that a DG1000-S glider was correctly configured prior to take-off.
11. Standing Instruction 01-19 has not been incorporated into mainstream AAFC Orders, Instructions and Publications.
12. The glider's canopy locking mechanism was ajar and the canopy sliding vent was open during the line-up sequence.
13. The glider's canopy was open during the line-up sequence.
14. There are numerous discrepancies within the information gathered by the Aviation Safety Investigation Team.
15. The Aviation Safety Investigation Team is unable to establish an accurate history of glider's ground movements through to becoming airborne, and who opened the rear canopy prior to aerotow launch.
16. There were several instances where the support from the ground crew was not in accordance with established procedures which, very likely, contributed to the glider launching with its rear canopy unlocked.
17. The emergency was well handled, and the command pilot's performance was, very likely, as a result of the emergency handling training received prior to the event flight.
18. Maintenance documentation indicated that the glider's Registration was current, and that the aircraft was airworthy.
19. The DG1000-S rear canopy locking mechanism is well designed and robust enough to not ordinarily open during normal flying operations.
20. Solo pilots (once seated in the front seat of the glider) can only realistically check the front canopy and have to rely on ground crew to check the state of the rear canopy prior to launch.

**HUMAN FACTORS**

**Error and violation**

There are various methods of classifying errors; three broad categories are: slips, lapses and mistakes:

1. Slips occur when an intention is executed in an inappropriate manner. Slips are potentially observable as they are external actions and are often caused by factors such as haste and divided attention. Most slips do not cause harm because they are often quickly detected by the individual.
2. Lapses are a failure to perform some required action and refer to more covert memory failures and are often only apparent to the person. Lapses can be missed as it is harder to detect an omitted behaviour, as such, lapses are considered more dangerous than slips.
3. Mistakes are errors in the formation of an intention or in the choice of a strategy. Mistakes involve misapplication of normally good rules, applying an inappropriate rule, or a failure to apply a good rule. Rule-based mistakes may be triggered by new variations to known problems and/or poor training. Mistakes are considered more dangerous than slips or lapses as the person making a mistake thinks that they are doing the right thing. Evidence to the contrary may be ignored because the person is so sure of themselves. ***Applicability*** *— in this incident the canopy holders stated that "they didn't pay any attention to the canopy handles, sliding vent or notice the rear canopy not being flush with fuselage" adding, "the rear canopy was never opened during the move down the launch line…… but were unsure of the position of the canopy handle."*
4. Information, decision and action errors. Information errors result from perceiving something incorrectly, or not understanding the situation correctly. Decision errors occurred when a person carries out the actions as planned, except that the planned action was not correct for the situation. Mistakes are decision errors. Action errors occur when the actions themselves deviate from an individual's plans, tending to happen during routine activities when the attention is diverted from a task, either by thoughts or external factors. Action errors are like slips and lapses. ***Applicability*** *— a*

*combination of lapses and mistakes by the ground crew (providing the pilot with incorrect information that the rear cockpit was secure and rear canopy correctly locked), resulted in a decision / action error by the pilot (launching), borne of information errors(s).*

**Managing errors and violations.**

From the top ten error-producing conditions identified (by research), there are arguably six main causes of errors applicable to this event. In rank order they are: interruptions, lack of concentration, forgetfulness, lack of knowledge and poor teamwork. Most of these conditions are known as proximal; often the immediate cause of an event. This systems approach recognises that these proximal causes are themselves potentially driven by many factors. ***Applicability****: Errors can be managed using classic human factors techniques (relatable to recommendations within the report): a) changing the design of the equipment (e.g. aircraft markings); b) changing how the task is done; c) changing the state of the human doing the task; and d) changing the individual doing the task.*

**Situation awareness**

Situation awareness can be described as a cognitive skill that requires personnel to correctly perceive and make sense of the current state, using existing knowledge to develop a mental picture, and then anticipate and look for future events and any potential impact on the task in hand. Within a complex environment, there are many dynamic elements that may affect one's ability to perform tasks safely and effectively, which means that maintaining situation awareness is a constant process.

1. While situation awareness is most often discussed at the level of individual, it is also relevant for aviation teams. In aviation, the development of situation awareness is rarely an individual process, and aviation personnel are generally mindful that they are part of a system. To be most effective, this system, and its many subsystems, must co-ordinate information flows and the sharing of knowledge.
2. The process of creating shared situation awareness can be enhanced by consistent mental models that provide a common frame of reference for all members and, to a certain extent, allows team members to predict each other's behaviours. Team situation awareness is improved by individual situation awareness being shared via four key process skills: planning, communication, leadership and adaptability (Prince & Salas, 1993). ***Applicability*** *— due to the incorrect information flow (from the ground crew) and the assumptions made (by both the ground crew and the pilot), the command pilot had a 'situation awareness' (as to the state of their aircraft) which was juxtaposed to reality (canopy unlocked). Upon realigning their divergent mental model (canopy unlocked), the PIC was then able to safely resolve the situation.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 14-Apr-2019 | Region | NSWGA | SOAR Report Nbr | S-1516 | | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Aircraft Separation Issues | | |
| A/C Model 1 | Piper PA-25-235 | A/C Model 2 | Piper PA-28-161 | | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 27 |

At this regional aerodrome, contra circuit operations are conducted to separate the glider operation from general aviation traffic. Gliding operations had commenced on the glider RWY 17 around 0900 that morning. As the threshold of the glider runway is situated halfway down and on the right-hand side of the main runway 17, parallel runway operations are not permitted. About an hour after the gliding operations commenced, a Piper Warrior took off from the reciprocal runway 35 in opposition to the gliding operation. However, this was uneventful as there were no aircraft in the circuit at the time. About 10 minutes later, the glider tug joined a right-hand circuit in accordance with established procedure after returning from launching a glider. Simultaneously, another Piper Warrior entered RWY 35. As the tug was on final approach its pilot heard a rolling call from the Piper Warrior and initiated a go around procedure. Investigation revealed that the Tow Pilot had made radio broadcasts on the CTAF upon turning downwind, base and final but these calls were either not heard or misinterpreted by the pilots in the Piper Warrior, who were

conducting a training sortie. The command pilot of the Piper Warrior stated that the aircraft's radio volume was set correctly and they were receiving transmissions, but they had not sighted the tow plane before the take-off roll started. The command pilot believes they had missed or not fully grasped the implication of the radio calls from the tow pilot. The command pilot of the Piper Warrior realised early in the take-off roll that he had made a mistake, but by that time the tow plane had initiated the go-around and so there was sufficient separation to continue the take-off.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 14-Apr-2019 | Region | NSWGA | SOAR Report Nbr | | S-1515 | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | | Near collision | |
| A/C Model 1 | DG-1000S | | | A/C Model 2 | CIRRUS DESIGN CORPORATION SR22 | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 61 |

At this regional aerodrome, contra circuit operations are conducted to separate the glider operation from general aviation traffic. Gliding operations had commenced on the glider RWY 17 around 0900 that morning, but due to strengthening winds from the north, operations were changed to Runway 35 Grass Left around 1145 hours. The glider had joined circuit following a solo check flight for an A Certificate student pilot. Meanwhile, a Cirrus SR22 entered and backtracked the runway to take-off from the reciprocal end (RWY 35). As the glider turned onto its base leg the pilots observed the Cirrus SR22 rolling for take-off and turned early onto a final approach. During take-off the Cirrus SR22 drifted West towards the glider runway due to the slight crosswind, which forced the glider pilots to land close to the runway's western boundary to provide separation. It is not known whether the departing Cirrus SR22 pilot was aware of the presence of glider or the developing conflict. In areas outside controlled airspace, it is the pilot's responsibility to maintain separation with other aircraft. For this, it is important that pilots utilise both alerted and unalerted see-and-avoid principles. Pilots should never assume that an absence of traffic broadcasts means an absence of traffic. The following publications provide information that may assist pilots avoid airprox events:

- Staying clear of other aircraft in uncontrolled airspace https://www.atsb.gov.au/publications/2011/staying-clear-of-other-aircraft-in-uncontrolled-airspace/
- Collision avoidance strategies and tactics https://www.aopa.org/training-and-safety/online-learning/safety-advisors-and-safety-briefs/collision-avoidance
- A Flight Safety Australia article, Sharing the skies – gliders printed in Issue 87 July-August 2012, is available at http://pandora.nla.gov.au/pan/140978/20130530-1146/fjul12.pdf
- CAAP 166-1(1) provides advice in relation to making radio broadcasts to reduce the risk of coming in close proximity with other aircraft: https://www.casa.gov.au/sites/default/files/caap-166-01-operations-vicinity-non-controlled-aerodromes.pdf

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 14-Apr-2019 | Region | VSA | SOAR Report Nbr | | S-1513 | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | | Aircraft Separation Issues | |
| A/C Model 1 | Piper PA-25-260 | | | A/C Model 2 | SZD-50-3 "Puchacz" | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 51 |

It was reported that a glider and tow plane combination had to take action to avoid a glider thermalling in the circuit. Due to the busy nature of this uncertified regional aerodrome, local operating procedures do not permit gliders to perform continuous 360° turns nor to use thermal lift on the live side of the common circuit area below 2,000ft AGL. The pilot of the glider in the circuit had observed the towing combination take-off from RWY 19 just prior to commencing a thermalling turn at around 1,100ft AGL (1,600ft AMSL). The tow pilot commenced a standard left-hand turn at about 500ft AGL that put the towing combination on a heading towards the thermalling glider. The tow pilot, climbing at around 700ft per minute, turned away to

the right to provide clearance. Shortly afterwards, the glider pilot received a radio transmission from the towing combination advising he was in the active circuit. The glider pilot immediately ceased thermalling and joined downwind for circuit. The inexperienced glider pilot was interviewed by his CFI. He said that he was aware of the proximity of the towing combination, which was well below to his left and turning away, and did not believe there was a risk of Collision. Following receiving the radio message he decided to break-off the flight and land. The CFI reviewed the flight trace with the pilot and discussed how the flight may have been better managed to comply with local circuit procedure rules.


| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 18-Apr-2019 | Region | GQ | SOAR Report Nbr | | S-1518 | |
| Level 1 | Airspace | Level 2 | Airspace Infringement | Level 3 | | Airspace Infringement | |
| A/C Model 1 | | LS 6-a | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 55 |
| The pilot inadvertently entered Oakey controlled airspace while transiting airspace boundaries on return from a competition task. Three airspace boundaries in close proximately to the airfield are active during midweek operations but deactivated on the weekends. This was the first time the pilot had flown mid-week, | | | | | | | |

which resulted in the pilot forgetting that the airspace was active. The pilot was unaware of his error until his flight trace was analysed after the flight. The pilot stated: *"(the active nature of the airspace) would have been mentioned during the briefing, but I missed most of the briefing… It was a mistake that I should not have made."* The Club CFI noted: *"The pilot was very open and honest about reporting the incident and called me a couple of days later to advise me. In the report he expressed his opinion that it was a mistake that he should not have made. He intends to ensure that it does not happen again."* The Club has addressed the issue by reminding its members of the need to carry up-to-date charts and documents during flight, to read NOTAMS, and of the importance of attending the daily briefing or seeking advice from the Duty Instructor.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 21-Apr-2019 | Region | GQ | | SOAR Report Nbr | | S-1517 | | |
| Level 1 | Operational | | Level 2 | Runway Events | | Level 3 | Other Runway Events | | |
| A/C Model 1 | | JS1 C 18/21 | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | | PIC Age | 63 | |

The pilot returned from a cross-country flight and commenced final approach to RWY 09 with a 14 to 20 knots crosswind component from the SSE (160 degrees). The pilot landed with +4 flap setting and minimal airbrakes, and extended the hold-off in order to touch down further up the runway near the hangars. The pilot stated: *"At the point of touchdown the aircraft suddenly and unexpectedly entered into a ground loop and finished up facing in the opposite direction to landing. I was not aware of anything that could have caused this other than the possibility of a strong gust at the point of landing."* Investigation revealed the ground loop was most likely caused by a gust exceeding the aircraft's maximum crosswind component. This was most likely compounded by inappropriate flap settings likely leading to loss of lateral control as the aircraft slowed. The aircraft flight manual states that *"Safe landing in cross-winds up to 30km/h (16kts) is possible due to polyhedral wing shape allowing high bank angles during touch down:*

- *Use Flap setting 4 for moderate crosswinds and Setting 3 for strong crosswinds (exceeding 25km/h or 14kts).*
- *Align the aircraft nose with the runway centreline using the rudder.*
- *Lower the into-wind wing sufficiently to overcome drift.*
- *Keep the into-wind wing lowered until coming to a complete stop.*
- *Change to Flap setting 1 after touch down."*The pilot's CFI noted that the *"pilot had developed a habit of flying along the runway in ground effect to find the perfect spot to land and pull up in front of his hangar. That is not untypical (even if not necessarily advisable), but in this case it may have contributed to extra vulnerability of the glider to a sidewind gust."* Operations in crosswind conditions require strict adherence to the applicable crosswind limitations or maximum recommended crosswind values, operational recommendations and handling techniques as described in the aircraft flight manual. To calculate the crosswind component, the "rule of sixths" is a useful method that does not require a calculator and gives a fairly accurate approximation for most relative wind angles. The "rule" makes use of the happy coincidence that the sine of 10 degrees is very close to 1/6th, sine 20 degrees is very close to 2/6ths and so on. To use this "rule" you first determine the relative wind angle, and then multiply the reported wind strength by the appropriate fraction. So if the reported wind is 280/12 and you are using runway 32, the wind angle is 40 degrees, or 4/6ths, so the crosswind component is therefore 4/6ths of 12kt, say 8 knots. [Note: at 60 degrees, or 6/6ths, the margin for error is somewhat higher and many pilots multiply by 0.9. Use actual wind speed beyond 60 degrees].

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 5-May-2019 | Region | SAGA | | SOAR Report Nbr | | S-1520 |
| Level 1 | Operational | | Level 2 | Aircraft Control | | Level 3 | Pilot Induced Oscillations |
| A/C Model 1 | | Grob G 103 Twin II | | | A/C Model 2 | | |

| Injury | Minor | Damage | Nil | Phase | Landing | PIC Age | 18 |
|---|---|---|---|---|---|---|---|
| The sortie was an assessment flight for an AEI endorsement. As the pilot under assessment was holding off during the landing, the airbrake lever slipped out of their hand and moved forward closing the airbrakes. The pilot had not flown this glider type for some time, and unfamiliarity meant they had to visually search for the airbrake lever. During this time the aircraft began to pitch up and down and bounced three or four times; the last two being quite hard. Once the airbrake lever was located, the pilot was able to complete the landing. The instructor reported they had adopted a defensive posture with their hands guarding the control column and airbrake lever, but the sudden closure of the airbrakes resulted in the aircraft ballooning, and before they had time to react the pilot under assessment had regained control. The instructor noted that the pilot under assessment had been regularly flying the DG-1000, the airbrakes in which usually hold their position when the pilot lets go of the lever. Pilot unfamiliarity with aircraft type has been a causal factor in many accidents over the years, especially during high workload flight situations such as during the landing phase. Operational Safety Bulletin (OSB) 01/06 'Aircraft Familiarity' provides guidance around this hazard. In this incident the glider did not suffer any damage, but the instructor suffered a compression fracture of the spine as the aircraft was fitted with compressible seat cushions. Seat cushions should not be highly compressible under normal flight-loads. Soft cushions are compressed under acceleration. After the material is compressed the cushion rebounds and there is potential for injury to the pilot's body, particularly the spine. Gliders should be fitted with energy-absorbing cushions made out of viscoelastic foam. For further information, refer to article titled "Safety briefing describing why pilots should fly with an energy-absorbing foam cushion" available from the British Gliding Association. | | | | | | | |

| Date | 12-May-2019 | Region | GQ | SOAR Report Nbr | S-1539 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | Ground handling |
| A/C Model 1 | Grob G103A Twin II Acro | A/C Model 2 | | | |

| Injury | Nil | Damage | Minor | Phase | Launch | PIC Age | 52 |
|---|---|---|---|---|---|---|---|
| During an inspection some minor damage was discovered under the glider's fuselage just forward of the main wheel. The source of damage was not determined but was thought to be either from a rebounding rope or weak link following a winch cable break, or a hangar incident. The club uses Dyneema rope on its winch, and the trace is covered in poly tubing. Unlike elastic stretch, Dyneema experiences viscoelastic stretch and recovers slowly over time once the load is released. The CFI suspects the damage occurred in the hangar. | | | | | | | |

| Date | 12-May-2019 | Region | WAGA | SOAR Report Nbr | S-1524 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | Speed Astir II B | | A/C Model 2 | Cessna 172 | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 57 |

The glider pilot was flying locally, in Class G airspace, and was working weak thermals to around 5,400ft AMSL. While flying in a westerly direction about 1NM north of the airfield at a height of about 5,200ft, the pilot conducted a left-hand turn and was surprised to sight a Cessna 172 heading in the same direction about 30 metres to the right and 200ft lower. The glider pilot stated that he had been monitoring the CTAF and had not heard any radio calls from the Cessna pilot, who he believed may have been monitoring the ATC frequency. Attempts to contact the pilot of the Cessna on the CTAF was unsuccessful. CAAP 166-1 recommends that pilots who prefer to track via non-controlled aerodromes for risk mitigation or other purposes should avoid overflying the aerodrome *at an altitude that could conflict with operations in the vicinity of the aerodrome*. The advice also states that the most hazardous area for collisions is within a space bounded by a cylinder of airspace 5NM in diameter and up to 3,000 ft above aerodrome elevation. As a consequence, many pilots flying outside these parameters may not be monitoring the CTAF. To prevent a recurrence, the Club CFI spoke the Chief Pilot of the flying school to appraise them of the level of gliding operations at the site.

| Date | 12-May-2019 | Region | VSA | SOAR Report Nbr | S-1522 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope/Rings Airframe Strike |

| A/C Model 1 | | PW-6U | | A/C Model 2 | | | |
|---|---|---|---|---|---|---|---|
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 68 |

An aerotow launch was aborted after the glider overran the aerotow rope. When the glider came to rest it was noticed that the rope had been picked up by the nosewheel and wrapped around the axle. Investigation by the CFI revealed that the wingman saw the overrun after giving an "all-out" signal and immediately gave a stop signal. However, this was not noticed by the forward signaller until after tow plane had passed. The forward signaller then gave a 'stop' call over the radio and the tow pilot aborted the launch. Upon hearing the stop command over the radio the command pilot in the glider pulled the tow release. The glider travelled about 100 metres before coming to rest, and was found with the tow rope wrapped around the nosewheel axle. The CFI noted that the glider sits firmly on the nosewheel and rolls very easily on the asphalt glider strip. Because the release is not far from the nose-wheel, the glider can easily overrun the rope, which given the right conditions can be pulled into the wheel well. Review of a low-resolution video of the incident suggests the rope became entangled when the glider overran the rope after the slack had been taken up. The aircraft had been unserviceable for a few months and it was identified that practices previously introduced for safe launching of the glider, such as applying the wheel brake while taking-up the slack in the rope and for the launch crew to monitor the position of the rope during the launch, need to be refreshed for both pilots and launch crew.

| Date | 18-May-2019 | Region | NSWGA | SOAR Report Nbr | S-1527 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Doors/Canopies |

| A/C Model 1 | | Blanik L13 A1 | | A/C Model 2 | | | |
|---|---|---|---|---|---|---|---|
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 65 |

As the glider neared the top of the winch launch the canopy flew open. The pilot pushed forward on the stick and the cable back-released. The pilot closed the canopy and joined circuit, and then completed a safe landing. As the pilot was completing the pre-take-off check for a solo flight he had some difficulty engaging the canopy lock. The wing runner stated *"The Pilot closed the canopy but then opened it again saying he didn't think it closed properly. He closed the canopy again but still felt it wasn't closed properly. I reached in through the open access aperture, took hold of the locking lever and tried to lift the canopy. The canopy didn't lift, and I assumed it was properly locked. The pilot reached up and pushed against the frame of the canopy. The canopy didn't lift up. That seemed to confirm that the canopy was locked."* It was noted that the canopy had suffered two similar involuntary opening events some 18 months prior when operated by the previous owner, which distorted the canopy frame and caused several small cracks in the Perspex. The distortion made it difficult to engage the locking pins and care was required to ensure the front and rear location pins both slotted home fully. At the 50-yearly inspection in December 2018 the canopy locking mechanism was examined and determined that the canopy was properly locked when the location pins located home fully and the locking handle was made to reach its uppermost position. After the incident flight, examination of the canopy locking mechanism identified the locking pins would not properly engage using the force of the internal return spring; this was not identified during the 50-yearly inspection. It was also demonstrated that even though the locking pins did not fully engage under spring tension, the canopy resisted opening when the front seat pilot pushed up on the canopy frame, giving the impression that it was properly locked. However, if the rear seat pilot was to do the same, the canopy frame distorted sufficiently to allow the resistance to be overcome and the canopy opened easily. The aircraft has been removed from service so the canopy can be returned to specification.

| Date | 18-May-2019 | Region | GQ | SOAR Report Nbr | S-1523 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope break/Weak link failure |

| A/C Model 1 | Standard Cirrus | A/C Model 2 | |
|---|---|---|---|

| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 55 |
|---|---|---|---|---|---|---|---|

During the initial stages of a winch launch the airspeed rapidly increased. The pilot attempted to slow the glider by climbing steeper and requested the winch driver to reduce power. At just over 1,000ft AGL and as the power was being reduced, the weak link broke. In response, the pilot pushed forward on the stick to regain flying speed. The pilot does not recall pulling the release and the trace remained attached to the glider. The pilot pushed forward on the control column with such vigour as to create negative 'g'. This resulted in an unsecured 'GoPro' camera and screwdriver floating out of the pocket. The screwdriver fell into the trim lever slot but was retrieved by the pilot. Upon regaining flying speed, the pilot joined circuit. The incident was observed from the ground and one of the ground crew attempted to contact the pilot by radio to alert him to the training trace, but the pilot did not hear the message. The pilot completed a landing without further incident. The incident was investigated by the CFI, who advised that the winch throttle moves through a graduated scale, numbered from 1 to 10. The winch driver determines the throttle position for each launch based on aircraft type, wind speed and wind direction. On this day the wind picked up just prior to the launch, which resulted in the throttle being set too high for the conditions. The pilot's attempt to slow down by climbing steeper merely overloaded the weak link, which broke as it should. The GFA winch launching manual states: *"Glider speed is basically determined by the winch-driver; with pilot technique making relatively little difference. However, there are exceptions to this, such as a very low-powered winch, where pulling back on the stick results in engine revs decreasing and the speed decaying. While there are not many low-powered winches in service nowadays, it is a mistake to think that launch speed can be controlled in this way. Rather, the opposite is the case. Pulling the stick further back in the full climb when being launched by a powerful winch can result in the speed actually increasing. This is the 'arc of a circle' argument familiar to water-skiers, where following a line outside that taken by the ski-boat will cause the skier to increase speed because of the longer distance which has to be travelled."* As for the loose objects, the CFI noted that the side pocket can be secured by a button clip but was not secured during the launch which led to the objects ejecting under negative 'g'. This incident shows the importance of securely stowing objects for flight.

| Date | 18-May-2019 | Region | VSA | SOAR Report Nbr | S-1526 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | Ground handling |
| A/C Model 1 | Grob G 103 Twin II | A/C Model 2 | | | |

| Injury | Minor | Damage | Minor | Phase | Ground Ops | PIC Age | 68 |
|---|---|---|---|---|---|---|---|

After arriving at the hangar at the end of the day's flying, the student got out of the car to unhook the glider. Before the student got behind the vehicle, the driver commenced to move forward in the belief that the glider had been unhooked. The right wing of the glider struck the student, knocking them to the ground. The student sought medical attention but was found to be suffering only minor injury. The driver acknowledged that they were distracted, speaking with passengers in the car, and that this incident was caused by inattention.

| Date | 24-May-2019 | Region | GQ | SOAR Report Nbr | S-1529 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | Level 3 | Other Flight Prep/Nav Issues |
| A/C Model 1 | Blanik L13 A1 | A/C Model 2 | | | |

| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 59 |
|---|---|---|---|---|---|---|---|

The aircraft was returned to service after its annual airworthiness inspection but the Maintenance Release was not signed by the issuing inspector. Checking the maintenance release before flight is an essential part of pre-flight preparation. Fortunately in this case, the failure to sign the MR was an oversight and did not affect the airworthiness of the glider.

| Date | 25-May-2019 | Region | WAGA | SOAR Report Nbr | S-1530 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Objects falling from aircraft |
| A/C Model 1 | PW-6U | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 45 |

During the launch for a check flight of an inexperienced solo pilot, the front canopy Clearview panel departed the airframe. This panel had recently been replaced with one supplied by the manufacturer. After fitting it was found to be slightly loose in the guide rails but was thought to be serviceable. Just after separation on take-off, the Clearview panel popped out and fell onto the runway when the pilot under check attempted to adjust the vent. The pilot under check elected to continue with the launch and released at 1,000' AGL, and then carried out a normal circuit and landing. The vent was retrieved undamaged. The club has refitted the old Clearview panel pending adjustment of the side rails. During take-off pilots should concentrate on controlling the aircraft and have their left hand near the release in case of an emergency. Air vents should be adjusted before flight.

| Date | 26-May-2019 | Region | NSWGA | SOAR Report Nbr | S-1528 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Aircraft Separation Issues |
| A/C Model 1 | SZD-50-3 "Puchacz" | A/C Model 2 | SZD-50-3 "Puchacz" | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 69 |

Two aircraft were flying in formation for a photo opportunity, with both pilots in communication over the radio. During the course of manoeuvring for a photograph, the distance between the two aircraft reduced below the regulated minimum of 200ft. Both pilots received a FLARM collision alert and took appropriate avoiding action. Although both aircraft were two-seaters, it was not disclosed whether the photographer was other than the pilot. Pilots need to be aware that once they have planned to take pictures of another aircraft in flight, even for a short while, this must be considered as formation flying and has to be prepared as such. A formation flight must be thoroughly briefed among the pilots embarking on a formation flight. Furthermore, photos should be taken by a photographer, and not by the pilot flying. Cameras with telescopic lenses can be used to decrease the risk of a mid-air collision.

| Date | 7-Jun-2019 | Region | GQ | SOAR Report Nbr | S-1532 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | IS-28B2 | A/C Model 2 | Tecnam | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 59 |

The glider was entering the circuit after conducting an Air Experience Flight. As the glider joined the crosswind leg for the operational runway at a height of about 1,000ft AGL, the command pilot heard a broadcast from the pilot of a Tecnam advising they were departing the circuit and passing through 700ft AGL. The command pilot of the glider then sighted the Tecnam in the 11 o-clock position less than 100 metres in front and displaced vertically by about 100ft. The command pilot of the glider instinctively pushed forward on the control column to increase vertical separation from the Tecnam. The command pilot of the glider later spoke with the pilot of Tecnam. Both pilots made appropriate radio calls and maintained adequate lookout. This incident highlights the advantages of good pilot-to-pilot communication or 'alerted see-and-avoid'; it is much easier to sight other traffic when the pilot knows where to look. Additional reading:

- A pilot's guide to staying safe in the vicinity of non-controlled aerodromes

https://www.atsb.gov.au/publications/2008/avoidable-1-ar-2008-044(1)

- Be Heard, Be Seen, Be Safe

https://www.casa.gov.au/sites/default/files/radio-procedures-in-non-controlled-airspace.pdf

| Date | 9-Jun-2019 | Region | VSA | SOAR Report Nbr | S-1535 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Other Runway Events |
| A/C Model 1 | Piper PA-25-235 | | A/C Model 2 | AMERICAN CHAMPION AIRCRAFT CORP 8KCAB | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 51 |

A tow plane landed while runway was occupied by another aircraft. The tow pilot reported they were conducting a landing approach to RWY 01 grass left. At the point of touchdown they noticed a Citabria backtracking RWY01 centre and almost at the threshold. The pilot stated *"Unfortunately, I didn't notice* (the Citabria) *until I touched down otherwise I would have gone round. A glider was being manoeuvred off grass left at the time and it took my attention as I wanted to ensure it was well clear before landing. I feel this might have contributed to me missing* (the Citabria) *backtracking. The circuit was very busy at the time, a lot of radio chatter so I don't recall hearing* (the Citabria pilot's) *back tracking call."* The tow pilot acknowledged that (the citabria pilot) did attempt to make a call to him but the transmission was overridden by another aircraft, and as a consequence he didn't hear the full message. The tow pilot further stated: *"The error was entirely mine. It's quite busy out there at times, easy to miss an aircraft movement. I will take more care in the future."*

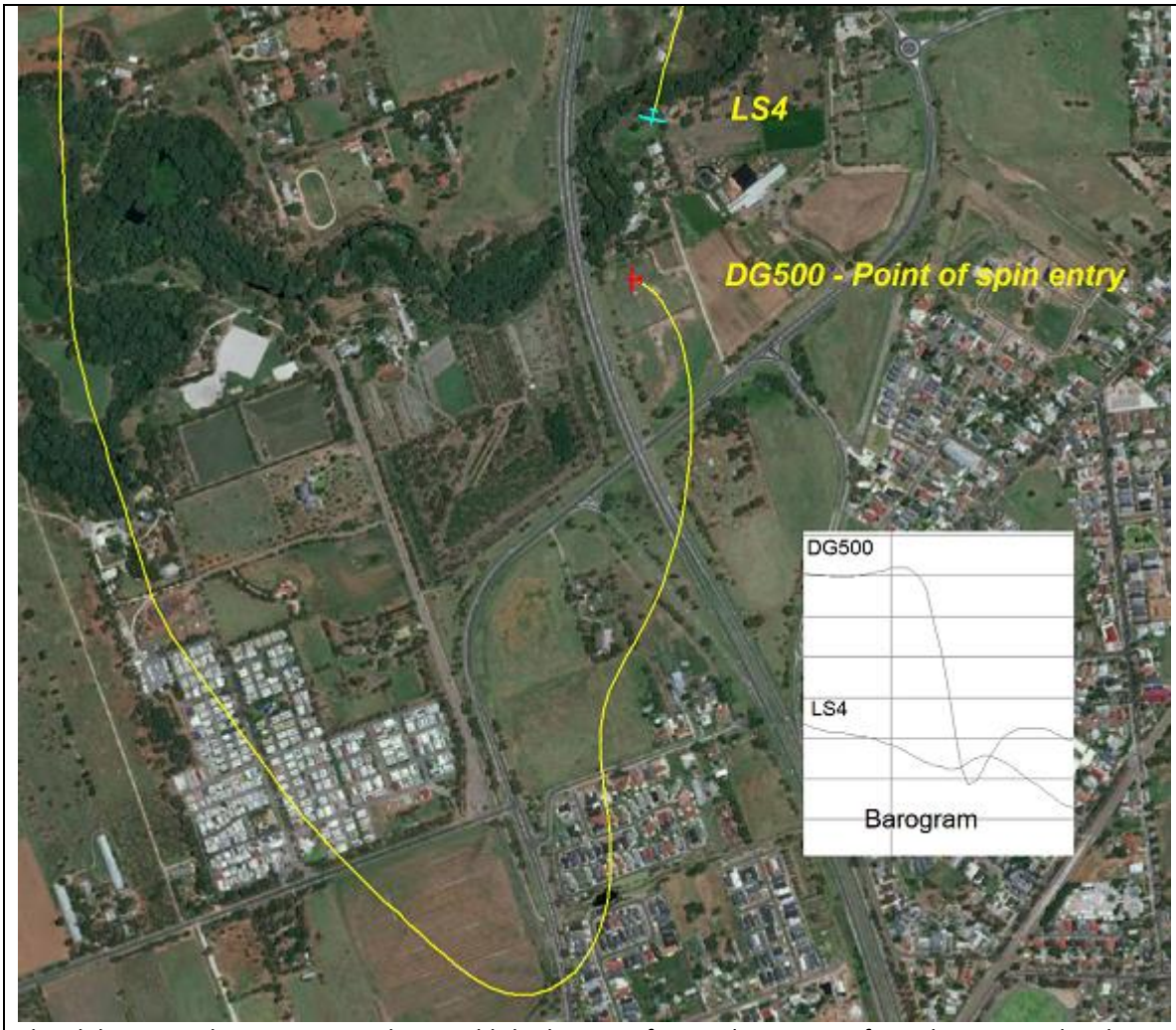
| Date | 11-Jun-2019 | Region | VSA | SOAR Report Nbr | S-1534 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | Foreign Object Damage/Debris |
| A/C Model 1 | Kitfox Model 4 | | A/C Model 2 | | |
| Injury | Nil | Damage | Nil | Phase | Ground Ops | PIC Age | |

This club had been using 'ultra-high molecular weight polyethylene' rope (Dynema®) on its winch for the previous 12 months. The club was in the practice of placing a rubber mat on that part of the taxiway where the rope crosses when being laid and during the initial launch to minimise abrasion. The mat is usually put in place at the start of days operations and removed at the end of the day. At the completion of operations two days prior to the incident, club members forgot to remove to rubber mat from the taxiway. Two days later a locally based 'Kitfox' aircraft taxied over the mat, which became entangled in the aircraft's tailwheel. This was observed by a bystander who alerted the pilot to the problem. The tailwheel was disentangled, and the mat removed from the taxiway. The club has determined that the mat will no longer be used and safer options to reduce abrasion will be investigated. The gliding club is in discussion with the aerodrome operator and users committee.

| Date | 20-Jun-2019 | Region | SAGA | SOAR Report Nbr | S-1540 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | DG-500 Elan Orion | | A/C Model 2 | LS 4-a TOP | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 67 |

During a spin manoeuvre a training glider passed within 30 metres of a single-seat glider. During a training sortie the instructor proposed to demonstrate a spin manoeuvre to the student. The instructor conducted a pre-aerobatic check and then made a call on the CTAF advising of the intention to conduct aerobatics from 2400ft, and gave a position in relation to the aerodrome. A spin was then entered, during which time the instructor heard another pilot broadcast that they were in close proximity at 2000ft. Shortly afterwards the training glider passed vertically down about 30 metres ahead of the other glider. Following recovery from the dive, the training glider climbed to 2050ft behind the starboard wing of the other glider.




The Club, as aerodrome operator, has established an area for aerobatics away from the town and and a nearby airspace boundary and informed all pilots. Pilots are now required to broadcast "commencing aerobatics" before undetaking their pre-aerobatic check so as to allow any pilots in the vicinity to clear the area.

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|---|---|---|---|---|---|---|---|---|---|
| Date | 29-Jun-2019 | Region | NSWGA | | SOAR Report Nbr | | S-1537 | | |
| Level 1 | Environment | | Level 2 | Wildlife | | Level 3 | Animal strike | | |
| A/C Model 1 | | Lancair LNC2 | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | | PIC Age | 56 | |

Two gliding club members were returning to the airfield following a private flight in an amateur built Lancair 360. Inbound calls were made on the CTAF but no calls were received. As the Lancair approached the south eastern end of the airfield the command pilot observed some gliders on RWY 32 and a tow plane parked off to the side. No airborne traffic was sighted. The command pilot assessed the wind as 1-2 knots from the west and elected to land on RWY 14. Being familiar with the airfield, the command pilot flew a fairly close downwind leg to get a good view of the runway and to check for possible kangaroos. The runway was clear and the command pilot continued with the landing. Just as the Lancair touched down on the bitumen runway centreline, the passenger called "kangaroos". The command pilot noted *"they had come from our right side and were moving quickly across our path. I momentarily considered a power up and go around,*

  

*however I had already bled off the speed and think, but am not sure, that we were going 30-40 knots and the kangaroos [were sweeping across in front of us spread at a range between 10 and 150 meters, and moving quickly from right to left. I continue to brake as hard as I could and turned the nose slightly to the left away from the kangaroos thinking this may protect the prop and engine. I struck three kangaroos; all with the leading edge of the right wing which is a solid fibreglass structure and resulted in only some paint damage. There was also damage to the right outside undercarriage door as one or more of them passed under the wing."* The pilot further noted that the weather was overcast at the time and the grass is close to the colour of the kangaroos, which made spotting them difficult. At this uncertified aerodrome kangaroos are often sighted, and the gliding club is constantly clearing them from the runways during the early morning and before dusk. There are no fences to prevent access to the runways as the cost is prohibitive. The Enroute Supplement Australia (ERSA) entry for the Airport warns that a kangaroo hazard exists, and pilots operate there at their own risk.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 7-Jul-2019 | Region | VSA | SOAR Report Nbr | | S-1544 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Other Runway Events | |
| A/C Model 1 | Piper PA-25-260 | | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 72 |

At this site gliding operations are conducted 120 metres behind a permanently displaced threshold. Aircraft not associated with the gliding operation must commence their take-off and conduct all landings from the displaced threshold ahead of the gliding operation to avoid conflict. On the day of this incident the operational runway was 01, with the gliders gridded on the right-hand grass verge. Gliders and tow planes land on the opposite grass verge or the main bitumen runway, and usually stop before the displaced threshold so as not to occupy the runway and hinder landing powered aircraft. During mid-afternoon a tow plane touched down well to the right of the bitumen runway centreline, and behind the line of gliders lined-up for launch. The aircraft passed within a few metres of the gliders and crew with the tailwheel still in the air. The tow pilot was counselled and reminded that he is to touchdown ahead of the gliders to reduce the risk of damage and injury in the event of a runway excursion.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 9-Jul-2019 | Region | NSWGA | SOAR Report Nbr | | S-1543 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway incursion | |
| A/C Model 1 | Piper PA-25-235 | | | A/C Model 2 | Piper PA-28-151 | | |
| Injury | Nil | Damage | Nil | Phase | Ground Ops | PIC Age | 21 |

A gliding operations support vehicle towing a glider and a following tow plane crossed the operational runway ahead of an aircraft on final approach. The vehicle/glider combination and tow plane did not expedite clearing the runway and the other aircraft conducted a go-around. When conducting taxi operations, pilots and vehicle drivers need to be aware of their proximity to other aircraft and vehicles moving on the airport. This situational awareness is built-up through maintaining a good lookout and appropriate use of radio. Prior to entering or crossing any runway, the pilot must be positive that it is safe to enter or cross the runway. Pilots should scan the full length of the runway and scan for aircraft on final approach.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 10-Jul-2019 | Region | VSA | SOAR Report Nbr | | S-1541 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway excursion | |
| A/C Model 1 | Piper PA-25-260 | | | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 72 |

At the end of the landing roll, a crosswind gust from the left lifted the tow plane's port wing. The pilot was unable to prevent the wing from rising and the starboard wing contacted the ground. The tow plane ground

  

looped approximately 360 degrees and the aircraft suffered wingtip damage. Local weather recordings for the time of the incident show the wind was 25 knots from the North-west, gusting to 34 knots. The pilot reported that prior to the incident flight he had checked the tow plane's fuel level and found the port tank to be empty but there was 50 litres of fuel in the starboard tank. It was decided to refuel the tow plane after the next launch. Following a successful glider tow, the pilot landed long on the operational RWY 01 with the aim to back track the intersecting RWY 27 and refuel at the bowser. The landing was conducted flapless. The pilot stated that just as the tailwheel contacted the ground, the into wind (port) wing started to lift and continued to do so despite the application of full opposite aileron. The pilot immediately closed the throttle and held the stick hard back, but the starboard wingtip contacted the ground and the aircraft turned through 360 degrees. Investigation revealed the ground loop was caused by a strong gust of wind, and that the asymmetric fuel loading contributed to the pilot's inability to stop the port wing from rising.

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|---|---|---|---|---|---|---|---|
| Date | 13-Jul-2019 | Region | GQ | SOAR Report Nbr | | S-1554 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway excursion | |
| A/C Model 1 | | H 36 Dimona | | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 61 |

  

Just after landing engine-off at a Regional Airport, the motor glider veered sharply to starboard with the wings level and the pilot was unable to regain directional control with the rudder. As the glider rolled off the bitumen surface onto the grass verge, the pilot heard a loud noise and the aircraft came to a sudden stop. Subsequent inspection of the fixed tailwheel mechanism revealed that the left fork broke just after touchdown, causing the tail wheel to tilt to one side and turn the glider to the right. The right-hand tailwheel fork strut subsequently sheared off when the tailwheel dropped off the bitumen, which was about 50mm higher than the grass verge. In addition to the broken tailwheel, the bottom off the rudder suffered some abrasion. The pilot reported that the aircraft had suffered a heavy landing three weeks earlier and, although an examination at that time not identify any damage, it is believed the tailwheel forks may have been weakened (fartigued). The pilot noted that the glider is an early model with a fixed tailwheel and, unlike later models, it doesn't have any shock absorbing mechanism. The tailwheel was professionally repaired and the aircraft returned to service. The owner intends to replace the tailwheel with the later model.

Metal fatigue refers to a weakened condition induced in metal parts by repeated stresses or loadings, ultimately resulting in fracture under a stress much weaker than that necessary to cause fracture in a single application. To the naked eye, there is no way to detect metal fatigue until it starts being too late: you can only see cracks that are already forming and/or propagating. Also, you cannot minimise fatigue, as once it starts setting in it is an irreversible process. Non-destructive testing techniques such as radiography (basically X-raying), Ultrasonic testing can be used to detect microfractures before they reach the problem stage. A common and cheaper technique is the use of a Dye Penetrant, where a dye in a carrier fluid is painted into the surface and then wiped off. The fluid is light enough to penetrate and 'wick' into any fine cracks and will highlight cracks that are invisible to the eye (the dye is often fluorescent). If a crack is detected, what can be done is very much subject to the extent and location of the cracking. Extensive damage and/or damage to a critical area will require repairing by replacement, whereas minor damage may be capable of being dressed out.

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|---|---|---|---|---|---|---|---|
| Date | 14-Jul-2019 | Region | NSWGA | SOAR Report Nbr | S-1552 | | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway excursion | | |
| A/C Model 1 | Grob G 103 Twin II | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 76 |

  

The sortie was a training flight with a recently solo pilot. The trainee conducted a normal circuit and landing but during the landing roll the glider started to weathercock to the right due to the crosswind. The instructor called for the use of left rudder to maintain the runway centreline, but the trainee applied too much control input and the aerodynamic forces caused the advancing right wing to rise, which led to the left wingtip contacting the ground. The glider rapidly rotated around the left wing before the instructor could intervene. Ground loops in gliders are an ever-present hazard due to the single main wheel near the centre of gravity, and because the long wings are close to the ground. Consequently, any tendency to touch a wingtip to the ground while moving must be quickly counteracted. If the glider has a lot of speed and inertia, the leverage from the long wings can apply great stress to the rear fuselage, and may result in the tail boom breaking. Students usually learn best when they are making their own decisions and getting them wrong, so instructors will often give prompts before taking control. However, as the instructor in this incident noted: *"It is a fine line to allow the student to do as much of the correction themselves and when to take control."* Fortunately in this incident, the ground loop was not severe and the glider suffered no damage.

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|---|---|---|---|---|---|---|---|
| Date | 21-Jul-2019 | Region | SAGA | SOAR Report Nbr | | S-1545 | |
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | | Ground handling | |
| A/C Model 1 | | Astir CS 77 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Ground Ops | PIC Age | 53 |

While the glider was being towed to the flight line with a vehicle, the starboard wingtip collided with a small shrub. The resulted in the starboard aileron deflecting and the tailwheel bounced out of the retaining cup on the drawbar. Initial inspection revealed damage to the wingtip and aileron, and a punctured tail wheel. The vehicle driver reported that their attention had been on another glider manoeuvring ahead of them, and they did not notice the proximity of the shrub. When taxying gliders, drivers need to pay attention to obstacle clearance, remain situationally aware and take things slowly.

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|---|---|---|---|---|---|---|---|
| Date | 28-Jul-2019 | Region | WAGA | SOAR Report Nbr | | S-1548 | |
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | | Rope/Rings Airframe Strike | |
| A/C Model 1 | | SZD-50-3 "Puchacz" | | A/C Model 2 | | Piper PA-25-235 | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 64 |

The flight was the first for the day and was intended to be the first of two Annual Flight Review flights for the club's CFI. The pilot under check (CFI) was seated in the front cockpit and the checking instructor occupied the rear seat. The launch would be by aerotow. During the pre-flight briefing the pilot under check was informed that the exercises to be conducted for the flight review would include a simulated launch failure, a simulated "hook-up" procedure at approximately 1,000 ft AGL, a "boxing the slip-stream" demonstration, and spin entry and recovery exercises. In addition, the airspeed indicator and altimeter in the front cockpit were covered. It was agreed that in the event of a real emergency the pilot under check would assume command of the aircraft. The launch from RWY 10 was normal, with the pilot under check calling out landing options and estimated altitudes every few seconds and the checking instructor providing feedback. At approximately 500 to 600 feet AGL the towing combination turned left onto a northerly heading and continued to climb. At approximately 800 ft AGL, the crew in the glider heard a loud "bang" coincident with the release of the tow rope from the tow plane. The pilot under check immediately commenced a clearing turn to the right, followed by a medium banked turn to the left to head back toward the airfield. The cable release handle was pulled twice to ensure that the rope was not hanging from the nose release and under the glider. Shortly afterwards the checking instructor noticed the tow rope was draped around the leading edge of the port wing, approximately halfway between the fuselage and the wing tip. The flight crew determined the best course of action was to fly a modified circuit onto RWY 18.

  


With the rope laying across the port airbrake, the pilot under check cracked the airbrakes and determined handling was unaffected by the rope. The pilot approached RWY 18 higher than normal and on the upwind side to minimise the chance of snagging the trailing rope. The landing proceeded normally and without further incident. After exiting the glider, the crew noticed that the rope was not only draped around the wing at the airbrake area, but that it was also draped over the leading edge of the port wing at the fuselage and trailed back over the top of the port tailplane and elevator (see photo below).

  

A post-flight inspection of the tow plane's release mechanism was undertaken. The cable mechanism between the cockpit and the release was found to be functioning normally, but the actuating lever did not always return the 'beak' to the fully closed position due to friction in the mechanism itself. A small amount of lubricant was applied to the mechanism and the release operated normally thereafter. The Tost release mechanism is designed such that when the release lever is in the fully closed position, the internal mechanism is slightly "over-centre". This means that as the towing load increases, the mechanism tends to close itself with a slightly increased force. If, however the release lever is not in the fully "closed" position, the mechanism does not go "over-centre", meaning that as the towing force increases, the mechanism tends toward opening. The extent to which this opening tendency occurs, depends on several factors, not the least being the degree to which the lever is 'short' of its fully closed position. It is possible that if the release lever is only slightly off the fully closed position, that a substantial force could be applied to the tow rope, such as a vigorous "test pull", without the mechanism releasing. However, a marginally higher force (such as a slight "snatching" of the rope during launch conditions) could be sufficient to pull the mechanism open. It was concluded that the operating lever on the tow plane's release was not in the "over-centre" position, leading to uncommanded release during an inflight turbulence event. It was also determined that, during the daily inspection of tow aircraft, the tow pilot must ensure the release lever on the release mechanism returns to the "over-centre" position under its own spring force.

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|---|---|---|---|---|---|---|---|
| Date | 28-Jul-2019 | Region | GQ | SOAR Report Nbr | S-1547 | | |
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Doors/Canopies | | |
| A/C Model 1 | DG-500 M | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 57 |

  

The command pilot was flying solo in this two-place self-launching sailplane. During the launch and at a height of about 1600ft AGL, the pilot noticed a change in the engine noise. As the engine instruments were reading normally, the pilot looked around over his right shoulder and saw the rear canopy was open. The pilot immediately closed the throttle, switched off the ignition and the engine retracted normally. Maintaining a minimum speed, the pilot slowly opened the airbrakes and descended quickly back for the airfield. After turning onto short final, the pilot increased the airspeed to the required landing speed and conducted a normal landing. A post-flight inspection revealed no damage to the canopy, the locking mechanism or the hinges. The pilot reported that after signing the maintenance release, he prepared the rear seat for solo flight by securing the harness and closing and locking the canopy. The pilot recalled double-checking the canopy was secure. Upon strapping into the front cockpit and completing the standard checks, the pilot realised the ignition priority was set for the rear seat. The pilot asked the duty instructor to flip the rear ignition switch to the front seat priority, which the Duty Instructor did by reaching in through the 'clear view' window. Although the Duty Instructor did not recall touching the canopy lock, it is possible the locking handle was moved out of safety by his arm. With the locking handle not fully closed, vibration and flexing during the launch would have worked the lock to the fully open position. A subsequent flight was undertaken, and no issues were identified with the canopy locking mechanism. The command pilot noted that he should have checked the correct ignition priority before boarding, and upon realising it was wrong he should have exited the glider and fixed it himself.

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|---|---|---|---|---|---|---|---|
| Date | 2-Aug-2019 | Region | NSWGA | SOAR Report Nbr | | S-1560 | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | | Hard landing | |
| A/C Model 1 | | Grob 103 Twin II | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Launch | PIC Age | 62 |

During a winch launch for a training flight, the glider became airborne but there was insufficient power available for the command pilot to transition into the climb. With the glider flying just above stall speed, the command pilot maintained level flight several metres above the ground in the expectation that the winch power would increase. As the glider approached the non-manoeuvring area, the command pilot abandoned the launch and released the cable. The command pilot stated, *"A combination of low airspeed, a minor pitch-up after cable release, low control authority to make attitude corrections due to minimal airspeed and insufficient height to manoeuvre, resulted in the glider falling heavily back onto the ground."* The main wheel took the full force of the landing, resulting in significant damage to the wheel and fuselage around the main-wheel housing. Neither the command pilot nor Student reported any injuries at the time. Subsequent investigation revealed that the winch's multi-speed gearbox was locked into low gear and therefore unable to provide the required speed and acceleration. The club arranged for the transmission to be modified so that a gear can be manually selected for the conditions of the day.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 3-Aug-2019 | Region | GQ | SOAR Report Nbr | | S-1593 | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | | Aircraft Separation Issues | |
| A/C Model 1 | | A22 Foxbat | | A/C Model 2 | | Piper PA-25-235 | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | |

Whilst conducting circuits the student pilot of a Foxbat observed a Piper Pawnee tow plane about 30 to 50m to their right and a couple of meters in front and higher than them. The pilot made a radio call to the tow pilot advising they were directly beneath them on downwind, but no response was heard. The pilot made a full stop to discuss with their instructor. The experienced tow pilot advised that he heard a call from an aircraft but was unable to locate it due to non-specific location advice. The tow pilot scanned the immediate area and noticed the Foxbat below. He attempted communication with the other aircraft but did not receive a response and so climbed to 1500 feet and re-joined the circuit. Investigation revealed communication difficulties between the two aircraft contributed to the proximity event.

  

**Regulations and guidance material**

- Civil Aviation Advisory Publication – CAAP 166-01 v4.2 (PDF 650.35 KB) Operations in the vicinity of con-controlled aerodromes.
- Civil Aviation Regulations 1988, CAR 166 – Radio broadcasting by pilots overflying non-designated, non-controlled aerodromes.
- Civil Aviation Advisory Publication – CAAP 166-2(1) (PDF 395.04 KB) Pilots' responsibility for collision avoidance in the vicinity of non-towered (non-controlled) aerodromes
- Aeronautical information publication - available on the Airservices Australia website.**Resources**
- Be heard, be seen, be safe Radio procedures in non-controlled airspace (PDF 1.74 MB)

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|---|---|---|---|---|---|---|---|---|---|
| Date | 4-Aug-2019 | Region | GQ | SOAR Report Nbr | S-1550 | | | | |
| Level 1 | Technical | Level 2 | Powerplant/Propulsion | Level 3 | Abnormal Engine Indications | | | | |
| A/C Model 1 | Piper PA-25 (Autotug) | A/C Model 2 | LS 8-18 | | | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 50 | | |
| During the second glider launch for the day from RWY 16, and at a height of about 300ft AFGL, the engine on the "Auto Tug" tow plane misfired. The tow pilot immediately 'waved-off' the glider, which released, and then landed downwind on RWY 34. The glider pilot also landed on RWY 34. After further checks, including a ground run and uneventful circuit without a glider under tow, the tow plane was returned to service. On the next glider launch, the tow plane's engine again misfired at 1,000ft AGL and its pilot immediately 'waved-off' the glider. Both aircraft landed successfully. The tow plane was grounded, and a full inspection of the engine and its electrical system was undertaken. Testing revealed an intermittent problem with the number 6 coil. This was replaced and no further issues were detected. It was decided to replace all the coils due to age. | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|
| Date | 4-Aug-2019 | Region | NSWGA | SOAR Report Nbr | S-1551 | | | | |
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication | | | | |
| A/C Model 1 | SZD-55-1 | A/C Model 2 | | | | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 72 | | |
| After releasing from tow the glider pilot retracted the undercarriage and noticed an abnormal 'feel' in the mechanism. The pilot attempted to lower the undercarriage with the view to re-cycling it but it would not move. The pilot then deliberately and purposefully pushed forward on the stick to induce negative 'g' to assist lowering the undercarriage, but this was also unsuccessful. The pilot decided to return to the airfield and made a radio call advising of his intention to conduct a 'wheel-up' landing on a patch of grass in the middle of RWY 20. A safe landing ensued, and the glider suffered only minor scratching to the lower fuselage. Investigation revealed that undercarriage lever pushrod had pulled out of the forward retaining fairlead when the pilot retracted the undercarriage. The pushrod became jammed against the forward fairlead and prevented the pushrod from moving (See photo). It was identified that the pilot had exerted too much force to the mechanism when retracting the undercarriage. The pushrod travel was adjusted to prevent this occurring again. | | | | | | | | | |

  

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|---|---|---|---|---|---|---|---|
| Date | 16-Aug-2019 | Region | GQ | SOAR Report Nbr | S-1553 | | |
| Level 1 | Airspace | Level 2 | Airspace Infringement | Level 3 | Airspace Infringement | | |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 19 |

The low experience pilot reported inadvertently flying into Oakey controlled Air space while it was active, and immediately vacated the area as soon as he became aware of his position. On the day of the incident the wind was 10-knots from the south west, which contributed to the glider drifting towards the ATC boundary. This boundary is about two to three kilometres north of the airfield. The CFI stated that *"…an inexperienced pilot or one not paying enough attention to their location can enter controlled airspace, especially …when thermalling."* The pilot has been counselled and provided with further training to prevent a relapse. The CFI noted that vertical and horizontal incursions of controlled airspace have occurred on several occasion over the years despite members and visiting pilots being briefed on the restrictions. The

Club Training Panel will implement measures to avoid inadvertent incursions during training and will continue to raise awareness among its members and visiting pilots; including need to carry up-to-date charts and documents during flight, to read NOTAMS, and of the importance of attending the daily briefing or seeking advice from the Duty Instructor.

| Date | 17-Aug-2019 | Region | VSA | SOAR Report Nbr | S-1590 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Doors/Canopies |
| A/C Model 1 | HORNET STOL | A/C Model 2 | Janus B | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 66 |

During the initial launch on a site familiarisation flight for a visiting pilot, the tow plane decelerated and stopped on the runway. The visiting pilot flying the glider released from tow and applied the wheel brake. The glider came to a stop about 55 metres behind the tow plane. Shortly afterwards, the glider crew heard the pilot of a powered aircraft call going around, which led them to believe the tug had stopped due to potential conflict with a landing aircraft. However, the tow pilot had abandoned the launch when the tow pilot's door unlocked and flew open. The tow pilot secured the door and, after a brief pause while the glider was hooked-on, the launch recommenced. The tow was normal until about 1,000ft when the command pilot in the glider noticed the tow pilot's door open and the tow pilot had his arm out of the cockpit trying to close it. Within a few seconds the glider began to rapidly catch-up to the tow plane causing the tow rope to bow. The command pilot in the glider immediately released from tow and the visiting pilot, who was flying, turned to the right and away from the now descending tow plane. The glider then joined downwind for runway 01, and its flight crew observed the tow plane heading for a landing on runway 09. Both aircraft made a safe landing. It was later determined that door of the tow plane had again opened in flight, and the tow pilot had decreased the throttle when he couldn't close it. This resulted in the glider catching up with the tow plane. The tow pilot was later advised that he should have communicated his problem over the radio and asked the glider to release before reducing power and commencing his descent. The tow plane door was inspected, and the locking mechanism was found to be defective. The lock was repaired, and the aircraft returned to service.

| Date | 24-Aug-2019 | Region | GQ | SOAR Report Nbr | S-1555 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Aircraft Separation Issues |
| A/C Model 1 | ASK-21 | A/C Model 2 | Aeroprakt A22LS Foxbat | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 62 |

While the glider was being winch launched on an instructional flight, the flight crew observed a Foxbat ultralight aircraft in close proximity. Despite a number of radio calls to alert the ultralight pilot to the risks, the Foxbat turned across the path of the glider. The glider's crew took avoiding action by releasing the launch cable and turning away from the potential conflict. The ultralight was from a local flight training school and had been observed departing earlier from the runway threshold where glider operations were being conducted. There were several powered aircraft using the circuit at the time. The Foxbat pilot made a 3-mile radio call advising his intention to join the circuit. At the time a Cessna was making a touch and go landing. When the Cessna had departed, the command pilot of the glider made two pre-launch radio calls on the CTAF frequency, emphasising that the winch launch would create a potential conflict for traffic making a midfield crosswind joining manoeuvre. The winch launch commenced in a southerly direction with the student pilot flying the glider. As the glider was climbing through 950 feet AGL the command pilot observed the Foxbat flying upwind parallel to the runway, approximately one-mile west, above and slightly ahead of the glider. The Foxbat pilot then made a midfield crossing to join the circuit on the 'dead' side of the airfield. The command pilot of the glider made a radio call to the Foxbat advising him that a winch launch was in progress, but no reply was heard. The glider launch controller also made a radio call, requesting the Foxbat pilot to extend upwind in order to remain clear of the glider. No reply was heard to that call. The command

pilot in the glider maintained visual contact with the Foxbat throughout. Moments later, while the glider was still in the climb and at about 1350ft AGL the pilto of the Foxbat made a left turn onto the crosswind leg. The command pilot in the glider, observing the Foxbat was approaching from the right on an intercepting trajectory, directed the student pilot to release the cable and immediately turn right to ensure separation. The command pilot of the glider then made a radio broadcast advising the cable had been released and was dropping. The Foxbat passed across the front of the glider at the same level, and then made a downwind radio call before turning onto the downwind leg. The glider departed to the southwest, maintaining visual contact with the Foxbat until it became obscured. The gliding club CFI noted that the Foxbat pilot join circuit contrary to established local procedures as detailed in ERSA, which warned of rope launches to 2,500ft and stated that mid-field crosswind joins were not recommended during gliding operations. The matter was raised with the CFI of the flight training school who counselled the Foxbat pilot on local procedures.

| Date | 24-Aug-2019 | Region | WAGA | SOAR Report Nbr | S-1556 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway incursion |
| A/C Model 1 | ASH 31 Mi | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 64 |

A powered sailplane entered the runway and took-off while a powered aircraft was established on final approach. The powered aircraft conducted a go-around. The pilot of the powered sailplane had positioned the glider at the edge of the runway and angled towards the direction of take-off. In this position the pilot did not have a full view of the approach. While warming the sailplane's engine, the pilot observed a glider aerotow launch depart, followed by the landing of a powered aircraft. Believing the circuit was now clear, the pilot of the powered sailplane gave a departure call on the CTAF and entered the runway for take-off. The gliding operation ground crew, noticing a potential conflict, made a radio call requesting the powered sailplane to hold position but the call went unheard by its pilot. The pilot of the powered aircraft abandoned the landing and conducted a go-around procedure. Investigation revealed the pilot did not conduct an adequate check of the airspace to ensure it was clear for launch. The importance of pilot look-out and clear radio communications feature regularly as one of the key safety messages arising from runway incursions in gliding. When operating at a non-controlled aerodrome the principles of 'alerted' see-and-avoid are critical to safety. Pilots should line-up and hold in such a position as to ensure they can scan the full length of the runway and the approaches before entering or crossing any runway. The CFI recommended that *"all pilots of motor gliders must carry out an 'Airspace Clear to Launch' check if possible rather than just relying on radio calls. If a ground crew is available, as in a normal club operating day, a ground observer would have a much better view of the base and approach than a glider pilot from the cockpit."*

| Date | 4-Sep-2019 | Region | NSWGA | SOAR Report Nbr | S-1557 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Control issues |
| A/C Model 1 | Piper PA-25-235 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 67 |

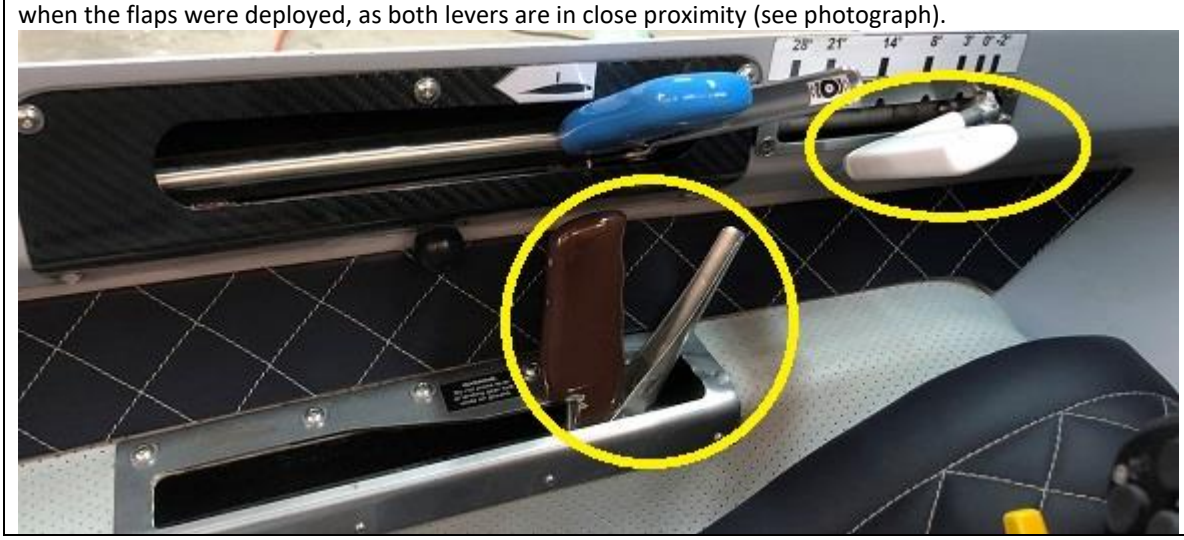
The tow pilot reported experiencing control difficulties during the early stage of launch but attributed this to the strong crosswind and turbulence from nearby buildings. Once height was gained the tow pilot found he needed to apply considerable right aileron input to maintain wings level. After the glider released the tow pilot returned to the field and made a normal circuit and landing. Upon examination it was found that a spanwise length of fabric tape about 500mm long had come adrift on the front edge of the port aileron and was standing up into the airflow. This was sufficient to disturb the airflow over part of the aileron and reduce its effectiveness.

| Date | 14-Sep-2019 | Region | NSWGA | SOAR Report Nbr | S-1563 |
|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | | Level 3 | Hard landing | |
| A/C Model 1 | | SZD-56-2 Diana 2 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 70 |

After entering the circuit, the pilot configured the aircraft for landing by lowering the undercarriage. A stabilised approach was flown and as the aircraft touched down the undercarriage collapsed. Investigation revealed that the undercarriage locking mechanism had not fully engaged. The undercarriage handle includes a lever that operates the locking mechanism. To engage or disengage the lock, the lever is squeezed against the handle. The pilot suspect that the undercarriage lock may have been inadvertently disengaged when the flaps were deployed, as both levers are in close proximity (see photograph).



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 14-Sep-2019 | Region | VSA | | SOAR Report Nbr | S-1558 | |
| Level 1 | Operational | Level 2 | Ground Operations | | Level 3 | Ground handling | |
| A/C Model 1 | | LS 4-a | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Ground Ops | PIC Age | 51 |

The glider was being towed from the hangar to the launch point by a vehicle. This involved towing the glider past a stanchion that supports the hangar door rails, which is situated about 5 metres past the end of the hangar. The driver reported that just as the vehicle was passing abeam the stanchion, he became distracted when a 'dash-cam' fell from the window and he instinctively reached out to catch it. Shortly afterwards he heard a noise as the glider's starboard wing collided with the stanchion. Although the driver applied commenced braking, the inertia of the glider kept it moving in the direction of travel but rotated about the starboard wingtip. This resulted in the wheel, to which the drawbar was attached, tearing from the tail-dolly and the plate at the bottom of the tailskid being torn off as it dragged out of its retaining cup on the drawbar. The trailing edge of the port wing aft of the dive brake box then hit the back corner of the car resulting in extensive damage. Contributing factors included distraction and inattention by vehicle driver, who did not drive with enough clearance from a known obstacle. This accident demonstrates the importance of maintaining situational awareness when operating vehicles and aircraft at an airfield, which can be enhanced by having another person monitoring when manoeuvring in confined areas with known (or unknown) hazards. The glider suffered substantial damage and needed to be professionally repaired.

*Damage to the wings.*

| Date | 14-Sep-2019 | Region | NSWGA | SOAR Report Nbr | S-1559 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | Pilatus B4-PC11 | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 66 |

The pilot came to gliding late in life with no flying experience but with a quiet determination to learn to fly. He attended regularly and, after a long learning curve, completed his ab-initio training last year. His proficiency slowly improved with regular check flights and solo flights in a two-seater and he advanced progressively through A, B and C certificate training. His solo flight launches, and landings were regularly monitored by instructors and feedback given. Over the preceding 6 months the pilot was observed to fly the two-seater solo in a consistently safe and proficient manner. On the morning of the accident the Duty Instructor had a preliminary discussion with the pilot on converting to the Pilatus, if conditions were favourable. The pilot had previously made himself familiar with the aircraft flight manual, so it was decided the pilot would fly at least 2 solo flights in the Blanik ,and then have a flight from the rear seat of the Blanik to experience and adapt to a changed cockpit environment. The proposed flights were conducted satisfactorily, and the pilot was cleared to fly the Pilatus. The pilot launched safely had had a short local flight. A normal circuit and approach was flown but during the flare for landing the aircraft bounced and the pilot mishandled the recovery. The aircraft bounced a few more times, during which the nose struck the ground, and came to rest facing 180 degrees from the direction of landing. Witness reports provided a generally consistent picture of the late stages of the landing. One witness reported an apparent airbrake movement just before the round out, but the other one didn't. The pilot had no recollection of operating the airbrake at this point. The CFI commented: "If the airbrake was operated, it might explain the heavy landing but not why the pilot moved the airbrake late in the approach. The pilot states that he was a little high in the approach and so may have operated the airbrake late in the approach in response. The sudden movement forward of the stick after the first bounce appears to be an overaction caused by the shock of an unexpected heavy landing and the sensitivity of the Pilatus in pitch relative to that of the Blanik. In this process he probably also looked at the ground to judge height instead of looking ahead to maintain directional control." The nose of the glider was damaged from striking the ground in a nose down position. The incident was discussed by the Club's Training Panel, and the advice contained in Operational Safety Bulletins OSB 01/14 'Circuit and Landing advice' and OSB 01/19 'Avoiding Approach & Landing Accidents During Training' were reviewed. The pilot undertook some remedial training.

| Date | 18-Sep-2019 | Region | NSWGA | SOAR Report Nbr | S-1561 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | Janus B | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 59 |

The sortie was a training flight as part of an instructor training course. The student instructor had over 600 hours gliding experience, built-up over about 10 years, and his was their first flight on type. The student, flying from the rear seat, turned onto a long half-airbrake final approach at about 300' AGL. Due to the crosswind condition, the student was initially preoccupied with runway line-up and allowed the airspeed to reduce well below the nominated approach speed of 60 knots. The checking instructor called out *"50 knots"* and *"lower the nose"*. The student lowered the nose and increased the airspeed to around 55 kts, however they were possibly reluctant to lower the nose too much because this would have undershot the aircraft from the nominated aiming point. At around 100' AGL, the crosswind reduced so the pilot had to adjust runway line-up and the airspeed reduced to 50 KIAS in the windshear. With the student applying full back stick to arrest the descent rate to flare, the aircraft landed heavily at the aiming point. The checking instructor attempted arrest the descent rate by closing the airbrakes as the aircraft flared but was too late and found there was considerable force to close them, suggesting the student was still holding the airbrakes open. This incident provides a salient lesson for all instructors to monitor their students' workload and, if the

student doesn't respond to a clear direction, the instructor should take over rather than continuing to direct the student when they are clearly overloaded. The aircraft was inspected for heavy landing damage and subsequently returned to flying.

| Date | 21-Sep-2019 | Region | SAGA | SOAR Report Nbr | S-1564 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | PIK-20 E | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 61 |

The pilot was on their fifth flight in this self-launching motor glider and was taking a winch launch as they were not endorsed for powered sailplanes. The winch launch was affected by strong sink in the local area and the glider released at around 1000' AGL. After a brief search for lift in 3-6 knots sink, the pilot joined circuit close to the runway. Upon encountering heavier sink in the circuit, the pilot turned onto base leg early. As the pilot was flying a close circuit, the base leg was very short, and the pilot turned onto final approach close to the runway boundary. The pilot did not lower the flaps, so their approach speed was high. The glider touched down at flying speed (about 65 knots) and rebounded into the air. The pilot mishandled the recovery from the bounce and pushed forward on the stick resulting in the undercarriage striking the ground heavily and the glider again rebounded into the air. The aircraft bounced a few more times before the pilot brought it to a stop. The aircraft suffered some minor damage to the undercarriage doors and was otherwise undamaged. The pilot stated: *"Unfamiliarity with type and location may have contributed to the incident. Failure to lower flaps meant the aircraft touched down harder than normal, and the soft strip may have contributed to first bounce and subsequent damage to the undercarriage doors. Higher than expected sink together with low launch height caused me to rush the circuit, and due to poor circuit planning I missed lowering the flap in the landing check."*

| Date | 22-Sep-2019 | Region | NSWGA | SOAR Report Nbr | S-1562 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Near collision |
| A/C Model 1 | DG-1000S | A/C Model 2 | LS10-st | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 70 |

**Overview**

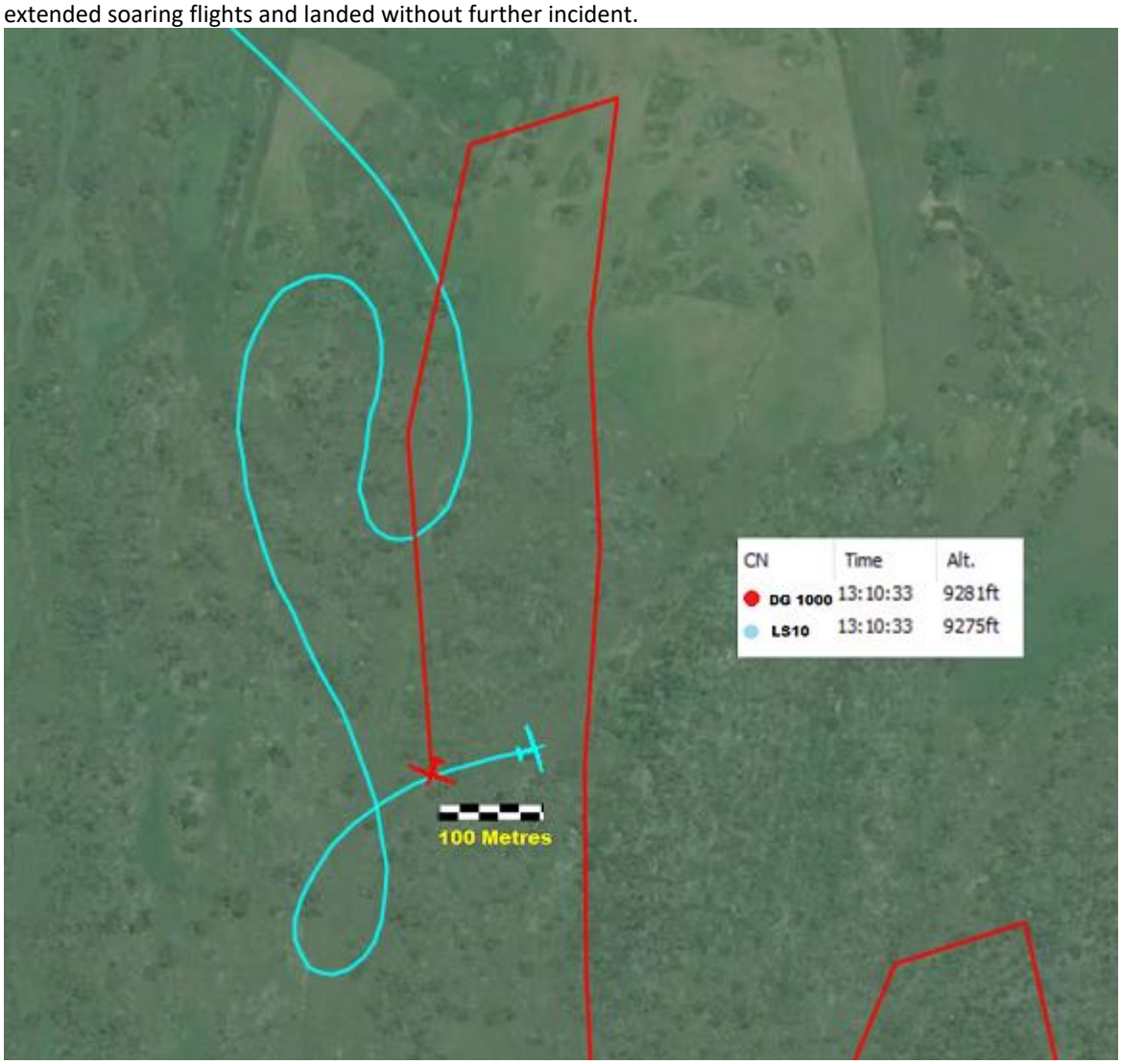
On 22 September 2019, a DG-1001 and an LS10 launched from Bunyan Airfield for a local soaring flight. The weather at the time had moderate winds at ground level but stronger westerly winds at altitude which were conducive to wave lift. At around 13:10 local time the two gliders breached minimum separation requirements while flying approximately 9 kilometres north-west of Bunyan Airfield in mountain lee wave. Despite coming uncomfortably close, the two aircraft avoided each other and continued their flights without further incident.

**The Flights**

The DG-1001 launched via aerotow at 11:40 local time. The pilot in command was an experienced Level 2 Instructor. Occupying the front seat of the DG-1001 was a student pilot. This was an instructional flight and proceeded by taking advantage of thermal lift until such time as entry into the wave system was gained. The LS10 launched via aerotow at 12:18 local time. The pilot flying the aircraft was an experienced pilot who holds an Air Experience Instructor rating. Like the DG-1001S, the LS10 flew thermal lift until the aircraft was able to climb into the wave system. Shortly after 13:00 local time both aircraft had entered a band of wave lift approximately 9 kilometres northwest of the airfield. While the aircraft initially worked different parts of the wave system, their paths converged until they were flying in relatively close proximity to each other. At this time, each aircraft was aware of the presence of the other. The wind speed at that location and height (9500' AMSL) was around 28 knots westerly. Meteorological conditions were clear. At that time of the early afternoon, the sun was high in the sky and glare from the sun is unlikely to have been a hindrance. However, for most of the one-minute period leading up to the closest approach of the aircraft, the LS10 was not visible to the pilots of the DG-1001 as their aircraft was turned away from LS10. It was only

in the 10-12 seconds prior to the point of closest approach that LS10 could conceivably have been visible from the cockpit of DG-1001S, as DG-1001 turned to the north. At approximately 13:10 and 27 seconds local time LS10 was heading South with a ground speed of approximately 55 knots, and the DG-1001 was heading North East in a gentle turn to the right having already turned through approximately 230 degrees. The DG-1001S's ground speed was increasing rapidly as it turned downwind. The two aircraft approached each other, and the FLARM warning activated. The pilot flying the LS10 reports that he had DG-1001 in view prior to the incident. He saw the DG-1001 make a turn to the right and believed that this turn would take DG-1001 behind LS10's path. In fact, DG-1001 turned through approximately 270 degrees and was now on a trajectory to pass close to the LS10. The pilot of the LS10 lost sight of DG-1001 until it was close to his aircraft, passing from right to left, at which time he made a slight turn to the right (East). The flight log indicates that this course correction probably did not take effect until LS10 was already passing behind DG-1001S. The command pilot in the DG-1001 did not see that the two aircraft were approaching nearly head on until he was alerted to the other aircraft by the student pilot in the front seat. The DG-1001's turn to the right was tightened slightly to provide additional clearance between the two aircraft. DG-1001 passed in front of LS10 heading in a roughly ENE direction. After their close encounter, both aircraft proceeded with extended soaring flights and landed without further incident.




**Analysis and Consideration**

The following analysis is based largely on the IGC-format flight logs recorded by the two aircraft's recorders – an LX Flarm system in the case of VH-GDG-1001 and an LX NAV recorder for the LS10 – and replay of the flight logs using the SeeYou program. All measured distances, speeds and altitudes are therefore subject to the limitations of the recording systems and replay software and may be subject to error. At time 13:10:27, the DG-1001 had completed a turn of approximately 230 degrees to the right and was tracking to the northeast in a gentle bank to the right. LS10 at this time was almost directly in front of DG-1001 and in view of the front seat (student) pilot of DG-1001. However, the view towards the front for the rear seat pilot (Instrcutor) was largely obscured by the headrest cushion of the front cockpit and the head of the front seat pilot. In these conditions the Instructor was unaware that the two aircraft were approaching until he was alerted by a question from student along the lines of "Is he supposed to be coming that close?". Upon determining that the two aircraft were approaching each other, DG-1001's gentle turn to the right was increased somewhat and the DG-1001 passed in front of LS10. At time 13:10:31 the aircraft flight logs indicate that DG-1001 and LS10 came within approximately 55 metres horizontally from each other with only a minor difference in altitude of around 38 feet. While glider aircraft routinely fly at this range from other aircraft (for example, while on aerotow), typically this will be by prior arrangement and with the full knowledge of all the pilots involved. In the current case however, neither pilot in command was aware of his proximity to the other aircraft until late in the encounter. All three pilots state that the DG-1001 passed slightly higher than LS10. The pilot of the LS10 estimates that the vertical separation between the aircraft was 10-20 metres, which is consistent with IGC logs.

**Conclusions and Corrective Actions**

Factors contributing to the close encounter include:

- The restricted forward visibility from the rear cockpit of the DG-1001;
- Uncertainty on the part of the student pilot about whether his instructor was aware of the other aircraft, and uncertainty about his own role in alerting the instructor to the presence of the other aircraft;
- Lack of radio communication between the two aircraft to communicate intentions; and
- A possible assumption by pilots that the "other aircraft" will take the necessary action to avoid conflict.

This incident was discussed at the Gliding Club Training Panel meeting the week following the flight, with a view to improving practices by learning from past occurrences. The lessons learned, and the actions arising from them, are:

- Good lookout is essential at all time while flying;
- FLARM is an aid to collision avoidance, but it cannot be relied upon to always provide a timely alert;
- Pilots flying from the rear seat of the DG-1001 should be aware of poor forward visibility due to the headrest and pilot's head in front of them during flight;
- Front seat pilots, particularly student pilots and passengers, must be specifically briefed that lookout is part of their duties even when they are not on the controls and that they should inform their instructor of any other aircraft sighted while flying;
- When flying in the vicinity of other aircraft the radio should be used as a communication tool to express intentions;
- Never assume that you have been sighted and do not rely on another pilot to take avoiding action.

These observations and requirements were disseminated to all Club instructors via the Club's Online Forum.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 24-Sep-2019 | Region | NSWGA | SOAR Report Nbr | | S-1575 | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | | Hard landing | |
| A/C Model 1 | | DG-800 B | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Outlanding | PIC Age | 67 |

At about 3 pm on Tuesday 24th September 2019 the pilot of a self-launching glider made an out landing in a harvested canola field near Ariah Park, about 40 km west of Temora NSW, and suffered extensive main and tail wheel damage in a heavy landing.

**Pilot comments**

The Pilot in Command of the flight was undertaking their first flight for a number of months in accident glider with the intention of remaining in gliding distance of the airfield. After approximately 30 minutes, the command pilot stated that conditions deteriorated and that he commenced the engine start sequence at about 1,000ft AGL. By 500ft AGL the engine was running and the glider climbed to approximately 2000ft AGL before the engine was stopped and retracted. The glider was outside of safe gliding distance to the airfield. The command pilot was unable to find sufficient lift and the glider descended to 1500ft AGL, at which point the pilot decided to select a suitable paddock for outlanding should the engine fail to start. The command pilot selected what they believed to be a suitable paddock and tracked towards it as an engine restart was initiated. The pilot stated that they made three or four attempts to start the engine without success. At this stage the glider was positioned mid-downwind to the selected paddock at about 1000ft AGL when a small bubble of lift was encountered. The pilot attempted to use this lift to climb away but was unsuccessful. Whilst attempting to utilise this lift, the pilot failed to stow the engine resulting in significant drag on the glider. The remainder of the flight was conducted with the engine in an extended configuration. The paddock selected for outlanding consisted of recently harvested windrowed canola. The command pilot attempted to adjust the glider's trajectory at low altitude to conform with the direction of the crop, resulting in the starboard wingtip catching in the crop at an estimated height of 30 cm. The wingtip wheel was detached, together with a small (5cm x 5cm) patch of wingtip underside carbon fibre. This yawed the glider to starboard resulting in a sideways loading on the main undercarriage causing it and the tailwheel undercarriage to fail.

**Safety action**

The incident pilot undertook a coaching flight with an experienced cross-country coach in a motorglider to understand the incident pilot's decision making process in selecting a suitable outlanding paddock. An outlanding safety briefing was held by the CFI where all club members were invited. It was determined that further outlanding training would be provided using local airstrips that are effectively little more than a paddock with an established landing area known to be safe, and sometimes with a windsock, but not as well-marked as the registered aerodrome.

**Safety Advice**

- Powered sailplane engines and associated systems are incredibly unreliable, and while the more astute pilots are justifiably astonished when the engine works, there are many pilots who fly the aircraft in the expectation that the engine will work every time.
- Experienced pilots of powered sailplanes will ensure the glider is always in reach of landable terrain. If an inflight engine start is likely, the pilot will commence their restart checklist once the glider is around 2,000ft AGL, and will then configure the glider for landing. A normal circuit to a suitable landing area is commenced, during which the pilot will extend the propeller and start the engine [Note: This is not the time to be taking a thermal]. If the engine has not started by the time the aircraft is abeam the aiming point, the propeller is stowed, and the pilot will concentrate on making a safe landing. If the engine starts, the pilot will circle the intended landing area until the engine has warmed to a moderate setting, whereupon the undercarriage is retracted, and the pilot applies increasing power to climb away.
- If the engine fails to start and cannot be retracted, the glide performance will be significantly reduced (in some cases by more than 50% with the propeller windmilling). Also, with the propeller extended, the noise and turbulence from the raised propeller can mask the buffet of an impending stall, so it is important to monitor the airspeed carefully during landing.
- Thermalling at low level, i.e circuit height and below, is fraught, and accidents caused by loss of control at too low a height for recovery are not uncommon in gliding. Modern gliders with high wing-loading can lose several hundred feet in a single rotation of a spin and may take longer than

one turn to recover. To avoid a stall/spin event, pilots should avoid flying uncoordinated and close to the stall at low-level.

**Further Reading:**

- GFA Coaching - Outlandings: https://tinyurl.com/ybttm3ek
- Going for a spin: https://tinyurl.com/y8e3qqpq

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 28-Sep-2019 | Region | NSWGA | SOAR Report Nbr | | S-1569 | |
| Level 1 | Technical | Level 2 | Powerplant/Propulsion | Level 3 | | Other Powerplant/Propulsion Issues | |
| A/C Model 1 | | Grob G 109 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 72 |

Approximately two hours into a training flight from Lake Keepit to Bathurst, the flight crew smelt a strange odour in the cockpit and observed some vapour. A check of the gauges showed the engine operating temperature was outside the normal operating range. The command pilot reduced power and diverted to a nearby airport about 5 miles away. Upon arrival at the aerodrome the command pilot conducted an engine-off approach and landed safely. The engine was restarted in order to taxi clear of the runway. Upon inspection there was evidence of extensive loss of coolant. Upon refilling the coolant reservoir, the crew identified a failed water pump seal, which had led to the rapid loss of engine coolant. Replacement parts were later sourced and fitted, and the aircraft was flown home.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 28-Sep-2019 | Region | GQ | SOAR Report Nbr | | S-1567 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway excursion | |
| A/C Model 1 | | Astir CS77 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 55 |

The low experience pilot had completed the task on the final day of the 2019 QLD State Championships and joined circuit for landing. Weather conditions were deteriorating, with storms building in the vicinity and the wind speed was increasing. In keeping with competition practise, the pilot elected to land long on the runway to allow other finishing gliders to land behind. The pilot landed in a strong crosswind, and kept the glider running on main wheel in order to land long. During the landing roll the glider flew into a wind shadow caused by the hangers to the side of the runway, and after passing the hangars it was struck by a gust. As the glider's tailwheel was still in the air, the glider weathercocked around the main wheel and headed toward some parked gliders. The pilot steered away from the gliders but overcorrected with too much rudder, and the glider came to rest after a severe ground loop. The aircraft suffered damage to the mounting plate for the horizontal stabiliser and the skid broke away. The pilot noted that the approach was unstable due to gusty lower level conditions and fatigue may have been a contributing factor affecting his decision making. The pilot later underwent some remedial training.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 28-Sep-2019 | Region | VSA | SOAR Report Nbr | | S-1568 | |
| Level 1 | Operational | Level 2 | Fuel Related | Level 3 | | Exhaustion | |
| A/C Model 1 | | Piper PA-25-260 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 66 |

The pilot of a Piper PA-25 was conducting glider-tow operations at Benalla Airport, Victoria. After releasing the glider at about 4,000 ft AGL, the pilot began a descent to 1,000 ft. During the descent, the engine failed. The pilot subsequently switched fuel pumps and activated the emergency power system (see note below), however experienced no restoration of engine power. He assessed that the aircraft was too low to conduct a glide approach to the runway and elected to land in a paddock near the airport. After the forced landing, he checked the fuel tank and identified that it was empty.

**Pilot comments**

The procedure for refuelling the aircraft was to refuel at the beginning of the day, and again after one hour of towing time. The pilot advised that he took over the aircraft and inspected the log, observing a total of 35 minutes towing time logged. This was consistent with the number of tows completed for the day. The pilot's expectation was that there was sufficient fuel for another four or five glider tows. He did not visually inspect the fuel tank to confirm the fuel levels during the pre- flight walk-around and mentioned the fuel gauge indication is difficult to read.

**Safety action**

As a result of this occurrence, the operator sent an email to all glider-tug pilots reminding them of the requirements in regards to fuel checks. Additionally, the fibreglass fuel gauge indicator was polished to allow for easier visual indication so accurate readings can be taken. The operator advised that they are looking into options for replacing the fuel gauge.

**Safety message**

This incident serves as a reminder that it is the pilot in command's responsibility to ensure there is sufficient fuel quantity on board the aircraft. The Civil Aviation Safety Authority advisory publication, CAAP-234-1 Guidelines for aircraft fuel, provides guidance for fuel quantity crosschecking, specifically that the crosscheck should use at least two different verification methods to determine the quantity of fuel on board. Similar guidance can be found in the GFA Aerotowing Manual at Section 10.1.7. 'Fuel Management'.

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**Note:** The emergency power system is an independent source of electrical power that supports important electrical systems upon loss of normal power supply. The incident aircraft has a back-up battery fitted that was switched on in this instance, in case the engine stopped due to failure of the primary electrical system.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 29-Sep-2019 | Region | VSA | | SOAR Report Nbr | | S-1566 | | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | | Level 3 | Near collision | | | |
| A/C Model 1 | DG-1000S | | | A/C Model 2 | LASER Z230 | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 57 | | |

**What happened**

At 1045 hours on 29 September 2019 a DG1000s two-place glider launched behind a Piper Pawnee tow plane from the Bacchus Marsh Aerodrome in Victoria (YBSS). On an extended crosswind leg from runway 27 and passing 2400' on a southerly heading, a Near Collision occurred between the glider / tug combination and an aerobatic aeroplane. Estimated minimum separation was 200' horizontal.

**Pilot comments**

At 1045 hours on 29 September 2020 a DG1000S two-place glider launched behind a Piper Pawnee tow plane from runway 27 at Bacchus Marsh Aerodrome in Victoria. On an extended crosswind leg from runway 27 and passing 2400' on a southerly heading, the command pilot of the glider observed an aerobatic monoplane descending on a north easterly heading towards the tug / glider combination. The glider released from the tug and turned hard right and down to avoid a collision. The command pilot of the tug aircraft (VH-SSO) stated that he had noticed the aerobatic aircraft over or near the Brisbane Ranges during the initial part of the launch and adjusted his course to a more southerly heading to avoid conflict with this aircraft. After continuing on a southerly heading, the tug pilot saw the aerobatic aircraft heading in an easterly direction in a slight descent with a rapidly closing vector with the tug / glider combination. The tug turned hard right and passed behind the aerobatic aircraft. The command pilot of the aerobatic aircraft (VH-ZIT) stated that he had been training for a national aerobatics competition approximately 4 miles to the west of YBSS between 500' and 4000' AGL. A ground crew with a handheld VHF radio was maintaining a listening watch on the YBSS CTAF while providing a critique of the aerobatic routine and watching for conflicting traffic. The command pilot of VH-ZIT was aware of both glider tug VH-SSO and VH-TNC (a second Piper Pawnee also conducting towing operations from YBSS). After completion of the aerobatics training session, the pilot of VH-ZIT stated he made an inbound call to YBSS whilst looking for traffic. Shortly after the

inbound call and approximately 2 miles to YBSS, the pilot of VH-ZIT noticed VH-SSO / VH-VWR tug /glider combination turning right away from VH-ZIT's left wing. VH-ZIT initiated a right hand turn to avoid a collision. The command pilot of VH-VWR saw VH-ZIT closing rapidly from the gliders 1 o'clock position on an approximate 15 deg descent. The glider released the tow rope and immediately turned right and descended. The pilot of VH-SSO simultaneously turned right. The command pilot of VH-VWR stated they did not hear the inbound radio call from VH-ZIT. As the tug and glider made the evasive right hand turns, the pilot of VH-ZIT saw the tug and glider and also turned right to increase separation. The pilot of VH-ZIT did not see the tug / glider combination until both aircraft had commenced their evasive right hand turns. VH-ZIT is an amateur built Laser Z230 which is a single engine low wing monoplane. It is considered possible that the descent path of the aircraft to join the downwind leg resulted in the tug / glider combination being "hidden" by the nose of the aircraft which explains why the pilot of VH-ZIT did not see the tug / glider combination until the evasive right hand turns had been commenced by those aircraft.

**Safety action**

The Near Collision occurred due to insufficient situational awareness. This incident demonstrates the potential limitations of the "see-and-avoid" philosophy. Pilots are reminded in congested airspace such as at Bacchus Marsh Aerodrome that a good lookout and appropriate radio calls that increase situational awareness are essential. It is recommended that an increased emphasis be placed on listening to alerting calls in training and recurrence training.

Additional reading: A pilot's guide to staying safe in the vicinity of non-controlled aerodromes
https://www.atsb.gov.au/publications/2008/avoidable-1-ar-2008-044(1)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 29-Sep-2019 | Region | | WAGA | | SOAR Report Nbr | | S-1581 | |
| Level 1 | Airspace | | Level 2 | Aircraft Separation | | Level 3 | | Aircraft Separation Issues | |
| A/C Model 1 | | Ka 6 BR | | | | A/C Model 2 | | Piper PA-25-180/S | |
| Injury | Nil | Damage | | Nil | Phase | Landing | | PIC Age | 40 |

The pilot in this report undertook a long flight in a KA6. The glider had an unreliable radio, documented in the maintenance release, and the pilot took a handheld radio with him on the flight. By the time he returned the handheld had insufficient power to transmit. On a long straight in final he identified a tow-plane in the circuit and adjusted his approach to stay clear of the tug. The tug pilot identified the KA 6 while making his base to final turn. It is not always a requirement for either tow planes or gliders to be equipped with radios. In some circumstances a gliding club could legitimately operate on a no-radio basis. The primary means of avoidance of conflict in VFR operations is visual identification of other traffic. In this case successful visual identification was achieved by both pilots and appropriate actions were taken. The main issue that arises from the report is the distraction caused by the non-functioning hand-held during the approach. Both pilots had some degree of attention focussed on their radios. You can imagine that in the cockpit of the KA6, the pilot, at the end of his long flight would have been subject to a high work-load, controlling the aircraft, operating the hand-held radio which was being uncooperative and then dealing with traffic. It is common for student pilots to allow the radio-call on downwind to overwhelm their lookout and compromise their control of the glider. When you are subject to a high work-load it is best to shed some of the load and concentrate on the primary task of flying the aeroplane. If your radio, or anything else in the cockpit, is distracting you during your final approach it is better to shut out the distraction, have your eyes outside the cockpit and concentrate on your pre-landing procedures.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 30-Sep-2019 | Region | | WAGA | | SOAR Report Nbr | S-1570 |
| Level 1 | Operational | | Level 2 | Aircraft Control | | Level 3 | Loss of control |
| A/C Model 1 | | ASW 20 BL | | | | A/C Model 2 | Piper PA-25-235 |

| Injury | Serious | Damage | Substantial | Phase | Launch | PIC Age | 71 |
|---|---|---|---|---|---|---|---|

**GFA Field Investigation**

**WHAT HAPPENED**

On 30 September 2019 at 1445 hours AWST, an ASW 20BL was attempting to launch behind a Piper Pawnee PA25-235 tow plane on RWY 29 situated at a grazing property at Amelup, WA. The tow rope was attached to the glider's belly hook. Shortly into the launch the glider pitched up, rolled to the left, and collided with the ground in an inverted position where it stopped after a short slide. The accident was witnessed by the Duty Instructor, the Wing Runner, and two other GFA members. The witnesses, the Tug Pilot who stopped the tug when he became aware of the loss of tension on the tow rope, and others rushed to the aid of the pilot who was able to indicate with a wave of his hand that he was alright. Emergency services were called by two of the attendees. Both air and road ambulances attended, as did the police.

**FACTUAL INFORMATION**

**Pilot Information**

The pilot held a Glider Pilot Certificate and held a Level 2 Instructor authorisation. The pilot's aeronautical experience included 1,267 hours in sailplanes, 700 hours in powered aircraft and 1300 hours in hang gliders. He had 50 launches for 200 hours on type. In the preceding 12 months he had flown 90 launches and 121 hours on all types, with 25 of the launches and 30 hours of the flying being within the last 90 days. The pilot had flown the sailplane involved in this incident the previous day. His last annual flight review had been conducted six weeks earlier on 17 August 2019. The pilot held a Level 2 Instructor rating, a Coach accreditation, and an Airworthiness Inspector authority. The pilot held a valid GFA Medical Practitioner's Certificate of Fitness and was qualified to undertake the flight. At the time of the accident the pilot was 71 years old. Some months earlier the pilot suffered a broken thumb on his left hand, which was strapped, but this did not affect the pilot's ability to control the aircraft and is not considered a factor in this accident.

*Fig 1. Aircraft after coming to rest. Members are attending to the injured pilot.*

*Fig 2. Wreckage showing impact point in the foreground identified by broken canopy fragments.*

**Aircraft information**

The ASW 20 is a FAI 15 metre Class glider constructed from glass-reinforced plastic. It features trailing edge flaps which interconnect with the ailerons and allow the entire trailing edge to operate as a flap between -9 and +55 degrees. The flaps also act as ailerons but deflect only half of the aileron amount. Schempp-Hirth type airbrakes are provided on the upper wing surface.

| | |
|---|---|
| **Manufacturer:** | Alexander Schleicher Segelflugzeubau |
| **Type:** | ASW20BL |
| **Country of Manufacture:** | Germany |
| **Year of Manufacture:** | 1987 |
| **Serial Number:** | 20953 |
| **Engine[s]:** | Nil |
| **Total airframe hours:** | 2174 |
| **Total Landings:** | 914 |
| **Certificate of Airworthiness:** | Yes, perpetual |
| **Maintenance Release:** | Yes, until 09:02:20 |
| **MTOW:** | 454kg |
| **Max landing mass:** | 454kg |
| **Stall speed at MTOW** | 35.5Kn with Flaps at 5 |

The aircraft had been maintained in accordance with GFA requirements and had a valid Maintenance Release that was issued on 9 February 2019. A daily inspection had been completed by the pilot on the morning of the accident. Prior to the accident the glider had flown 914 flights for 2174.4 hours.

**Aerodrome Information**


*Fig 3. Airfield with runway layout.*

The airfield is located on the Paper Collar Grazing property at Amelup, WA and is adjacent to the Stirling Range. Two runways, 18/36 and 11/29, are used for firefighting in the National Park as required. The runways are described as being *"moderately rough, grass covered; grazed by sheep, mown as required"*. RWY 18/36 is the principal runway and is approximately 1100m long. RWY 29/11 is approximately 750m long. The site is used by West Australian gliding clubs for their annual ridge and wave camps.

**Meteorological Information**

The weather at the time of the accident was good visual meteorological conditions (VMC). Wind observations for the area at the time of the accident 15 to 20 knots from the West North-West.

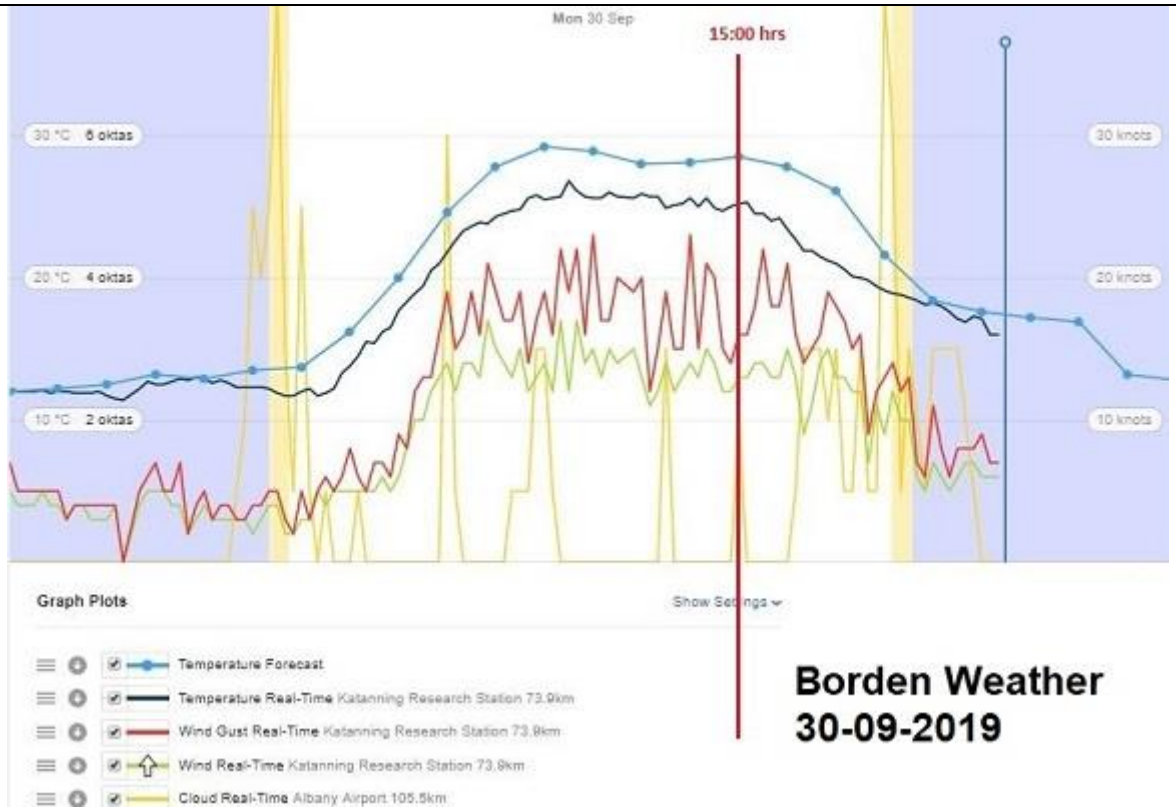



*Fig 4. Weather data from nearest recording stations (Katanning and Albany).*

**ANALYSIS**

**Operational information**

The accident occurred during the ground roll of the aerotow launch at about 1445 hours local time. The glider was being towed off RWY 29 by a Piper Pawnee PA25-235 that was owned and operated by the Narrogin Gliding Club. Earlier launches had initially been on RWY 36 into a northerly wind of up to 20knots, but the last few flights before the club suspended operations for lunch had landed on RWY 29 as the wind had swung to the west and abated. The accident flight was the first after lunch and was the first launch on RWY 29 in circumstances that were described by the tug pilot as *"Clear conditions with wind WNW about 15 knots and gusting. Airstrip was a rough grass surface, of at least 600m in length."* The duty instructor noted the *"Wind for the launch on (RWY) 29 was straight down the strip at 12-15 knots."*

The glider was being launched from the belly hook as the recently fitted 'Tost' nose hook was not serviceable. The tow rope was not new but was considered serviceable. It had been brought along as a spare, but the primary rope had gone missing overnight and was presumed to have been stolen. Earlier on the day of the accident the rope had been reversed to even out the wear and minimise the risk of rope breaks. Witnesses stated the launch appeared to proceed normally until the glider was either at the point of becoming airborne, or was just airborne, when it was observed to balloon, pitch up severely and roll to the left. The tug pilot stated the tug had not achieved its rotate speed [60 knots] before he felt the loss of tension on the tow rope. The glider pilot's recollection is that he had started his ground roll with the control stick well back and his flaps in position 2 [-6deg] as per the aircraft Flight and Operation Manual recommendations, and having gained speed he was attempting to move to position 3 [0deg] when the glider hit a bump of some sort [the pilot thinks perhaps it was grass tuft or a track across the runway worn by sheep]. He believes the bump caused him to pull the flaps lever past positions 3 and 4 [+9deg] into the landing flap position 5 [+55deg]. He does not believe he had lifted off at the time of the bump, but that the bump, coupled with the application of landing flap while the pilot was holding full back stick for the ground run, produced the ballooning lift off. The Duty Instructor who witnessed the accident stated: *"The launch*

*was normal until a point when the glider was airborne and the tug wheels were still on the ground but close to lift-off, when I saw the glider pitch up to about 30-35o then roll rapidly to the left with pitch and roll increasing rapidly and the glider moved to the left until inverted. The Glider's nose went down and the glider impacted the ground nose first, inverted, with wings more or less parallel to the ground, then pancaked onto the ground inverted as the tail came down."* Another witness said in his written statement: *"On the 30 September 2019 at approximately 2.45pm I hooked the tow rope on to (the) glider... The only functional Tost release is the C of G release. I proceeded to run the wing and the take-off appeared to go as normal until 150 metres into the ground roll, where the glider reared up into a very steep climb followed by a roll to the left, the left wing tip struck the ground, the glider continued the cartwheel and the nose impacted the ground almost vertically. The glider then dropped to the ground inverted."* Other witnesses also describe the aircraft as hitting the ground nose first and inverted. The witnesses rushed to the pilot's aid. One witness commented: *"At this time I started running towards the wreck alongside (another witness) where I saw a hand wiggle from (the pilot) and 'I'm alright'".* The Duty Instructor, in his Witness Report, said *"When we got to the glider, the pilot's head was visible on one side of cockpit and he was conscious. We lifted up the broken front cockpit section and the pilot rolled himself free with assistance. We then settled him beside the aircraft and waited for emergency services, which by this time had been alerted and were on their way."*

**Flight Characteristics**

It is relevant to note the advice in the 'Flight and Operations Manual for the Sailplane Model ASW 20, Variant L'. The underlined text is for emphasis

1.1 Preface

- In a flapped sailplane the flap handle is the more active pitch control whereas the stick is more or less a correcting control.
- The flap handle directly controls the wing lift and is, therefore, much more sensitive than a conventional elevator which through rotation of the aircraft changes the angle of attack, and thus relatively slowly changes the lift.1.6 Emergency procedures
- Jammed Elevator Control Circuit. A jammed flap control system will convert the ASW20L into a 'rigid profile' sailplane. However, not every pilot will remember that he still has pitch control by use of flaps even though the elevator control circuit is jammed. Thus he still can improve his situation for an emergency bailout or even avoid bailout entirely.The above notes affirm the significant effect of flap on angle of attack, lift and pitch.

1.7 In Flight Information

- Aero Tow. Put the trim lever full forward. Maximum aero tow speed is 175 km/h (94 knots, 109 mph). Tested lengths for manila or nylon tow-ropes are within the 25 – 60m (80 to 200 feet) range. For tows behind 180 kp or even stronger towplanes the tow-rope should be at least 40m (130 feet) long. For take-off roll flap position No 2 (-6) is recommended. After about 50 km/h (25 knots) have been gained, flap position No 3 (0) or even No 4 (+9) is applied for earlier lift-off. Pilots with little experience in flapped sailplanes should use flap position No 3 for the whole tow. The pilot should try to keep the tailskid on the ground until take-off. This means several advantages. Lift-off will be at the earliest possible time. The landing gear gets lower loads. The directional stability during ground roll is considerably improved. During flight tests aerotows with stronger than 25 knots crosswinds were demonstrated.

It is noted that the flight manual does not mention here the reduced effectiveness of ailerons at low speeds in the flaps No 4 (+9deg) and No 5 (+55deg) positions. The flight manual does highlight that the ASW20L spins easier and flatter with positive down flap settings than negative settings, and that aileron effectiveness is reduced when stalling speed is reached: Even in stalled flight attitude (the vario will read 1.5 to 2 m/s sink in calm air, that is 300 to 400 feet per min) ailerons and rudder work in the usual manner, as long as only half control deflections are applied. Full control deflections result in light wing dropping, whereas full deflected controls in opposite directions with stick pulled completely back will cause rapid wing dropping. The manual also advises that at 350kg AUW the ASW20L minimum speed in level flight is 41 knots at flaps No 1, 39.5 knots at flaps No 2, 39 knots at flaps No 3, 38 knots at flaps No 4 (+9deg) and 35.5 knots at flaps No 5 (flaps +55deg and ailerons -8deg up). Some well-known ASW-20 Flying Notes published online

in 1997 by Andreas Maurer at http://www.gregorie.org/gliding/asw20/asw20_handling.html provide some excellent advice on flying and highlight some of the handling issues not described in the official flight manual":

*Aerotow. This is not so simple. Start your take-off run with flaps 2 (ALWAYS! Aileron control is weak during the first twenty meters), and when you feel the controls become effective, slowly and carefully move the flaps to 3. Usually you will be rather fast when you do this and lift-off in the moment when your flaps have reached 3. Be extremely careful not to overshoot 3 and get accidently get into 4 since your aileron power is reduced nearly to zero (!) with the flaps in 4. You won't be able to stop one wing from dropping. It sounds harder than it actually is: Get into your 20 and practice this a few times before takeoff. Push the flap lever to the left during the movement, and you will not miss the hole even if you do not take a look at it. During the first phase, use your ailerons extensively! Since the deflections are so small, they need nearly fully deflection to show some reaction.* These notes also provide salient advice in the flight phase: *You will notice a wrong flap setting immediately: If your flap setting is too positive, you will feel (!!) the brake effect. It will actually feel as if you used the brake in your car. A too negative flap setting is coupled with far less drag increase - so better use a too-negative than a too-positive flap setting. And you will notice one more thing: Flap setting 4 will nearly always have the effect of a brake. On flap handling, these notes discuss the consequences of their effect on Angle of Attack (AoA). When flying with g-forces other than 1, use your flaps to correct your AOA. That means, when pulling up (g-force > 1), set your flaps to a slightly more positive setting and vice versa. What is very fascinating at the 20: You will actually feel the setting the flap wants to go into while flying straight on, but when pulling up you will have to feed some force into your left arm to pull back the flap lever at the same time as you pull back the stick. After having pulled up while climbing (and bleeding off speed), set the flaps according to the settings and airspeeds of 1g. Then, while pushing the stick forward in order to get the nose below the horizon, also push the flaps slightly more negative...* Advice on landings highlights the pitch effect of using flaps, and also on energy dissipation in the flare. *Well, and after your turn into final, set the flap setting 5. The nose will rise, and you will have to push. Extend your airbrakes and enjoy! Most probably you will have to release the airbrakes prior to touchdown, but the flare with fully extended flaps and airbrakes is very, very short - the airspeed will bleed off extremely fast!!!! So make sure that you do the flare at exactly the right altitude - you will have only one try, and there are nearly no corrections possible. This behaviour is the cause why the later 20s and the ASW-27 do not have such an extreme flap setting.* A GFA Investigator who is experienced on this type stated: *"My one difference from flight manual procedures is that when the glider is rolling on the ground and aileron effectiveness established, and as flaps are slowly moved from No 2 to No 3, I ease the back pressure on the stick and allow the tailskid to rise slightly above the ground. This is consistent with normal GFA training. Whilst the ground roll may be very slightly increased, it also mitigates against being bumped airborne by tussocks or rough runways with insufficient energy."*

**Flap Lever Configuration and Cockpit Ergonomics**

The ASW20BL has five flap settings. To change flap setting, the flap lever has to be rotated slightly out of the detent so that the pin is unlatched, and then pulled or pushed to the required setting. There is a metal gate installed just behind flap position 4 on the flap mechanism that requires the flap lever to be rotated further inward in order to unlatch to flaps 4½ (i.e. behind the gate but not pulled fully to flaps 5) or move the flaps to position 5. This was done by the designers to mitigate against inadvertent selection of landing flap. Use of flaps between No 1 and No 4 is easily accomplished, with small hand and arm movements. A much larger hand and arm movement is needed to rotate the flap lever and pull it past the gate to flap position 5. The pull distance and activation force are also much higher. In the post-crash photographs, the flap lever in the No 5 (+55deg) setting, with the handle in the detent. The wreckage photos of the inverted glider also indicate landing flap was selected. This raises three possibilities:

1. The pilot pulled the flap lever too far aft, past the gate, and latched the lever in position 5 (+55deg); or
2. Crew at the accident site moved the flap lever to position No 5 when recovering the pilot or righting the fuselage; or
3. The flap lever unlatched, moved aft to position 5 and then latched in place as a result of ground impact forces.

**Inflight tests**

A GFA Investigator experienced on type conducted some flight tests in an ASW20L to assess the effect of the application of flap in steady flight and recorded these on video. The video clip files verify the following handling issues:

- Transition from flaps No 3 (0deg) to No 2 (-6deg) produces a gentle pitch down motion and gradual acceleration. Very little force on the flap lever is required.
- Transition from flaps No 3 (0?) to No 4 (+9?) produces a gentle pitch up and deceleration into the stall, without forward elevator correction. A gentle force on the flap lever is required, and the pilot can feel the gentle deceleration.
- Transition from flaps No 3 (0?) to No 5 (+55?) produces a stronger pitch up and very rapid deceleration into the stall, without forward elevator correction. A much higher rearward force is required on the flap lever, and a stronger braking deceleration is felt. In order to pull the flap lever rearward of the No 4 position, it is necessary to also lift the flap handle to clear the metal gate installed to prevent inadvertent use of landing flap.
- The faster the glider is flying before selecting Flaps No 4 or No 5, the higher the pull force required on the flap lever to overcome the aerodynamic resistance, the more rapid the change in pitch, and therefore the more rapid the deceleration.

Notwithstanding the above, the Investigator noted that the elevator control forces required to counter the pitching up forces when selecting more positive flap settings are not high.

**Wreckage and impact information**

The aircraft initially contacted the ground with the left winglet as the aircraft rolled to the left in a nose high attitude. This caused the aircraft to rotate about the wing tip and cartwheel, whereupon the aircraft became inverted and then struck the ground in a steep nose-down attitude. During the cartwheel the tow rope broke at the tug end. The aircraft came to rest about three metres from the point of nose impact. The forward cockpit area up to the instrument panel was shattered, and there were large cracks in the fibreglass further aft in line with the pilot's hips, and the top of the fuselage behind the pilot's head was damaged. Both winglets and tip skids were torn off in the impact and the canopy was shattered. The spoilers were found fully open, and the flap lever was found to be in the fully back [landing flap] position. The undercarriage lever was in the up and locked position and the undercarriage was retracted. The tow rope was still attached to the glider's CofG hook attached to the undercarriage frame. All control linkages for ailerons flaps and spoilers were found to be fully and properly connected in the right sense. The rudder pedals and associated linkages were destroyed. The positions of the ailerons and rudder prior to the impact could not be ascertained from the aircraft.

*Fig 5. Main pins and control linkages intact.*

**TOST Nose Hook**

When the aircraft was purchased by the pilot it had only been fitted with a belly hook. Aerotowing from the belly hook is known to be disadvantageous to aircraft control due to its position very close to the Centre of Gravity (CG). Pilots experienced on this glider type advise that the glider is much more stable in yaw during aerotow using the nose hook, due to towrope tension applied forward of the CG, and therefore a pilot is less likely to drop a wing during the ground roll. In June 1998, the GFA Airworthiness Department issued Airworthiness Advice Notice (AN) 128 with the following advice: *"AS TN (Alexander Schleicher Technical Note) 16 for all ASW 20 models describes optional installation of a nose hook. Most ASW 20 series gliders were required to have a nose hook under MAR (Mandatory Airworthiness Requirement) 2 and as such will already have a nose hook fitted. It is strongly recommended that a nose hook be fitted to all gliders which do not already have one."* The pilot had recently fitted a new 'Tost' nose hook, but when an attempt had previously been made to launch from it the rope had released prematurely at the start of the ground run. The pilot had thought that perhaps he had made the release cable a too short so that it was continuously applying some "pull" on the actuating lever and preventing the beak to lock in the over-centre position. The pilot had attempted to gain a little length by "squeezing" one of the eyelets in the cable but a further attempt at a launch following this "modification" was also unsuccessful. The pilot reverted to using the belly hook for aerotow launching until he could ascertain the nature of the problem with the new nose hook.

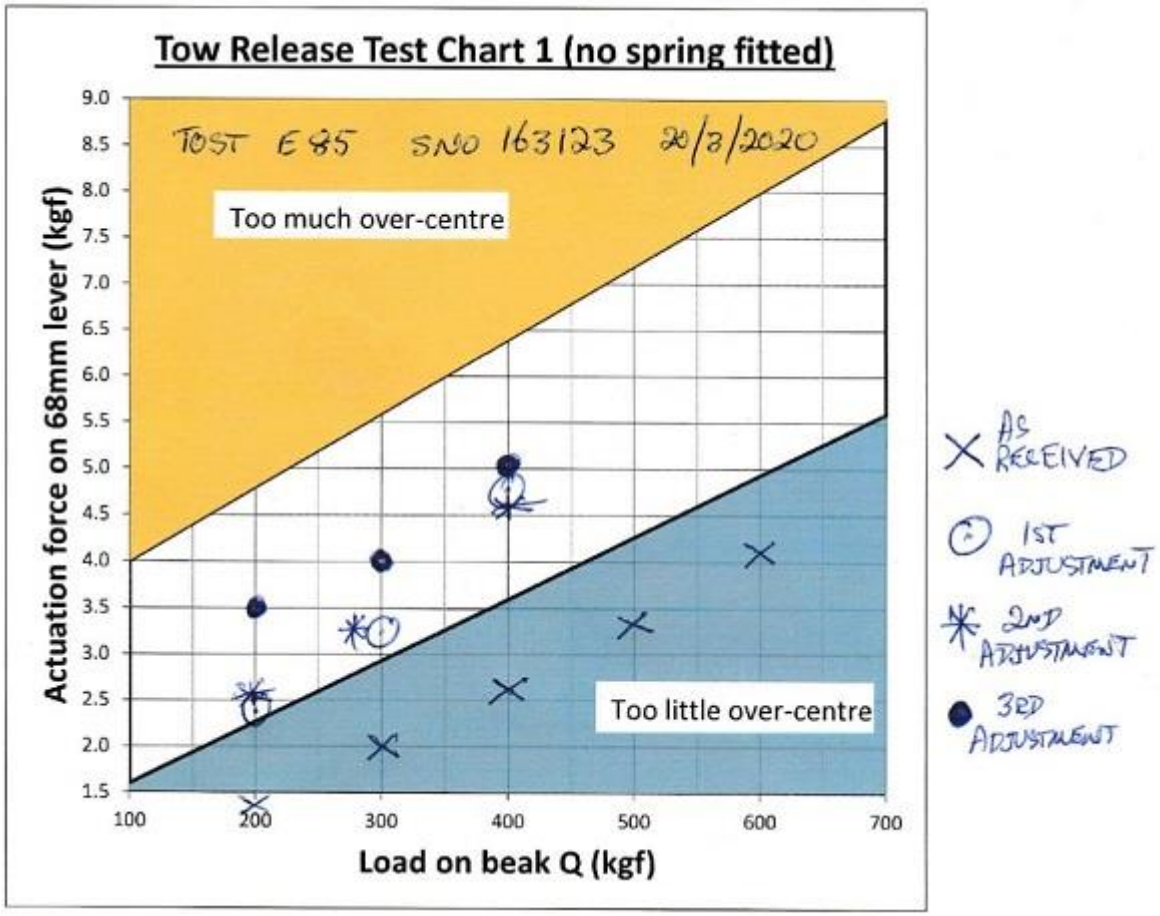



*Fig 6. Release Test Chart plots.*

Following the accident, the nose hook [type: E85, S/N 163123] was removed from the aircraft and tested by an authorised inspector using an appropriate test rig. The results (see Fig. 6) show that the hook had been supplied by the Manufacturer with too little overcentre—in particular, the force to actuate the hook with a load of 200kgf on the beak was less than 1.5kgf. The drawings and procedure for AS TN 16 requires the release system to be adjusted for simultaneous activation of both nose and belly releases, with release pull forces within tolerance to allow for proper over-centre operation. It is apparent that the tolerances were not tested after fitting of the release.

**HUMAN FACTORS**

It is possible the pilot had an expectation of a successful outcome from a sub-optimal launch on rough ground with the belly release (optimism bias). In launching an ASW20L, things happen very quickly in a busy cockpit during the ground roll. On hitting rough ground while manipulating flaps, overload and a startle factor could have occurred. It is possible the pilot misidentified the correct flap position in a dynamically busy, changing environment and kept pulling more flap. Loss of control and inability to regain control when airborne, would have increased the overload and startle factor. It is also possible that forces generated on the airframe and pilot's body when the aircraft struck a bump in the airstrip and bounced into the air contributed to the misapplication of the flap. If the flap lever was being manipulated by the pilot and floating free (i.e. not in a detent), the sudden application of vertical energy applied to the undercarriage may have caused the flaps to drop and pull the pilot's arm backwards.

**CONCLUSIONS**

The moderately rough strip, moderately strong breeze and in particular the use of the belly hook in association with the pilot's attempt to change flap setting just as the aircraft hit some sort of bump in the

strip during the launch (which possibly triggered a reflexive pulling back on the stick) all combined cause the aircraft to balloon and simultaneously decreased the authority of the control surfaces.

**Findings**

1. The command pilot was appropriately qualified and medically fit for the flight.
2. The aircraft had a valid Maintenance Release and had been maintained in accordance with relevant requirements.
3. The aircraft was capable of normal operation up until the time of impact with terrain.
4. The nose hook was found to be out of tolerance that prevented proper over-centre operation.
5. The pilot elected to launch with the belly hook close to the CG, with known degradation in yaw stability and also reduced resistance to any pitching moment.
6. Through a combination of back elevator, aerodynamic pitch up due to higher positive flap setting, and bouncing off rough ground, the glider became airborne at low airspeed and high AoA, in a dynamically unstable attitude.
7. With the glider pitched nose high, in a positive flap setting, at high AoA, and low airspeed with a decelerating tug aircraft, the glider would have decelerated almost immediately to a stalled condition.
8. With the glider at the point of the stall, pitching nose higher, and ineffective ailerons at positive flap setting and high AoA, and PIC applying full control deflections, he was unable to prevent stall and wing drop, resulting in a cartwheel and ground impact inverted.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 2-Oct-2019 | Region | VSA | SOAR Report Nbr | | S-1571 | |
| Level 1 | Operational | Level 2 | Ground Operations | Level 3 | | Other Ground Ops Issues | |
| A/C Model 1 | | | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Ground Ops | PIC Age | |

It was reported that the 'Gliding in Progress' ground signal was left on display at the signal area next to the primary wind direction indicator at the end of the weekend's flying. The ground signal was discovered to be in place mid-week by a club member who put it away and alerted the CFI. Investigation identified that on the weekend concerned the club had high activity involving visiting pilots and instructors, and the failure to put the ground signal away was an oversight. The CFI has raised awareness with the Club membership.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 6-Oct-2019 | Region | NSWGA | SOAR Report Nbr | | S-1572 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Other Runway Events | |
| A/C Model 1 | Callair A9 | | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 44 |

Gliding operations were being conducted on runway 20, with a slight crosswind from the right. Two tow planes were available to launch 14 gliders. After an uneventful first tow, one of the tow pilots flew a close circuit. While flying the base leg the pilot noticed they were crossing the controls and corrected the problem. The turn onto final was close and the pilot found themselves flying fast on approach and aiming long to facilitate arriving at the front of the grid and position for the next launch. The tow plane touched down at speed and bounced into the air, so the pilot elected to go-around and applied power. The pilot did not release the tow rope, and during the climb-out the rope and rings came close to two people and the gliders awaiting launch. The tow plot had over 1,000 hours aeronautical experience and over 200 aerotows. They attributed workload induced stress as contributing to flying cross-controlled on base leg and the subsequent failure to release the rope before going around. The Club's Tugmaster noted that all people are all prone to make mistakes, and that when things aren't going to plan an alternate course of action is required; in this case by conducting a missed approach earlier rather than persisting with an unstable approach (if the missed approach is initiated from low or from the runway then immediately drop the rope).

| Date | 6-Oct-2019 | Region | WAGA | SOAR Report Nbr | S-1578 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway excursion |
| A/C Model 1 | ASK-21 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 68 |

**What Happened**

On joining the circuit with an entry call the pilot noted a sprayer/bomber aircraft on the threshold with engine running. Thinking this observed aircraft was about to take off the glider pilot chose to land 'long' and to the right side closer to where other gliders and the tug were parked with the intent to taxi off the runway past the tug. The pilot believed there was sufficient separation for such a manoeuvre. Observation form others suggests that the wing of the landing glider passed over the wing of a parked glider although the pilot flying believes it did not.

**Points of Special Note**

Club rules are posted at season commencement each year in the magazine. Unpowered gliders have priority over powered aircraft for landing, and taxiing off is discouraged.

**Safety Message**

The pilot concerned is regarded as a competent pilot, and from the report appears to have been alert and thinking about observed conditions and willing to adjust to them. He planned what he believed would be a safe manoeuvre although he knew that gliders have priority over powered aircraft for landing felt that taxiing clear after the tug was acceptable and that while not banned by the club it is discouraged except to avoid conflict. While it cannot be assumed that powered aircraft operating near or at a field of glider activity are actually aware of gliders, the risks of conflict may be reduced with good communications to other airport and airspace users who regularly make up the traffic mix. This should ideally be two way! The responsibility to brief relevant operational information in order to be informed about potential issues always rests with the pilot in command, which should also include a refresh of requirements such as operating with mixed traffic conditions. Glider pilots need to remind themselves of traffic rules and club rules regarding the manoeuvring area, as well as refresh themselves on the dimensions of the aircraft they are operating. While considering the needs of others may be an admirable quality, it is necessary to be cautious as to how far we adjust our own actions in doing so. Being accommodating is not sufficient reason to bend or break safety rules or regulations except to avoid a potential or impending conflict. **Just because we can, does not mean we should!** Risk assessment in a dynamic environment such as operating an aircraft is an ongoing necessity. Procedures, rules and regulations have usually been well researched and critiqued to ensure their safe application while on the spot spur of the moment decisions usually are not so and the latent risks may not be immediately obvious to us. A glider of empty weight 360 kgs ( an ASK21) with an average say 80-90 kg pilot is approaching half a tonne and when moving even slowly at the beginning or end of a ground run has considerable energy with the potential to do much damage in an impact. A sudden stop on impact with a person or object would mean one ton or more of energy to be absorbed.

| Date | 6-Oct-2019 | Region | GQ | SOAR Report Nbr | S-1574 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | Collision with terrain |
| A/C Model 1 | Ka 6 CR | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 60 |

The pilot had the opportunity to fly a friend's KA6 which he had flown on one previous occasion 3 years ago. He took a relatively low tow, had a short flight and then flew a circuit that was not as controlled as usual. He found himself high on final approach and used the airbrakes to modify his descent profile, probably to something approaching the view he was used to in his usual aircraft, a Club Libelle. He then found the KA6 descending on a steeper profile than he was used to and finished with a touch down point that was short. A collision with ground markers on the strip then substantially damaged the glider. The decision to fly a new type should always be a time for reflection. This occasion, with a single flight in a KA6 three years ago, was

essentially a first flight on type. The pilot, and the supervising instructor, both took a fairly casual approach to this flight in fine weather and light winds. The pilot had good recent experience on the Club Libelle. There was no clear plan for the flight and the combination of a relatively low tow and lack of lift resulted in a landing in an unfamiliar type after very little time for familiarisation. When we are used to flying on a single type of aircraft a lot of the flight cues like wind noise and glide angles have become internalised and we fly without much conscious awareness of these. Instructors, who regularly fly different aircraft types, are more used to having to adjust to these changed cues than pilots who have the vast majority of their time on one type. When planning a flight on a new type, or one in which we have little recency, we should review the operation and performance of the new aircraft with the flight manual and undergo a briefing with someone familiar with the type. Every flight should have a plan and particularly a first flight in a new type. Annual flight reviews are often undertaken in a type on which the pilot has little recency and we all know how this is inclined to produce lower performance than usual. Better pre-flight preparation, including taking a higher tow to allow more time for familiarisation might well have prevented this incident.

| Date | 10-Oct-2019 | Region | WAGA | SOAR Report Nbr | S-1576 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 15 |

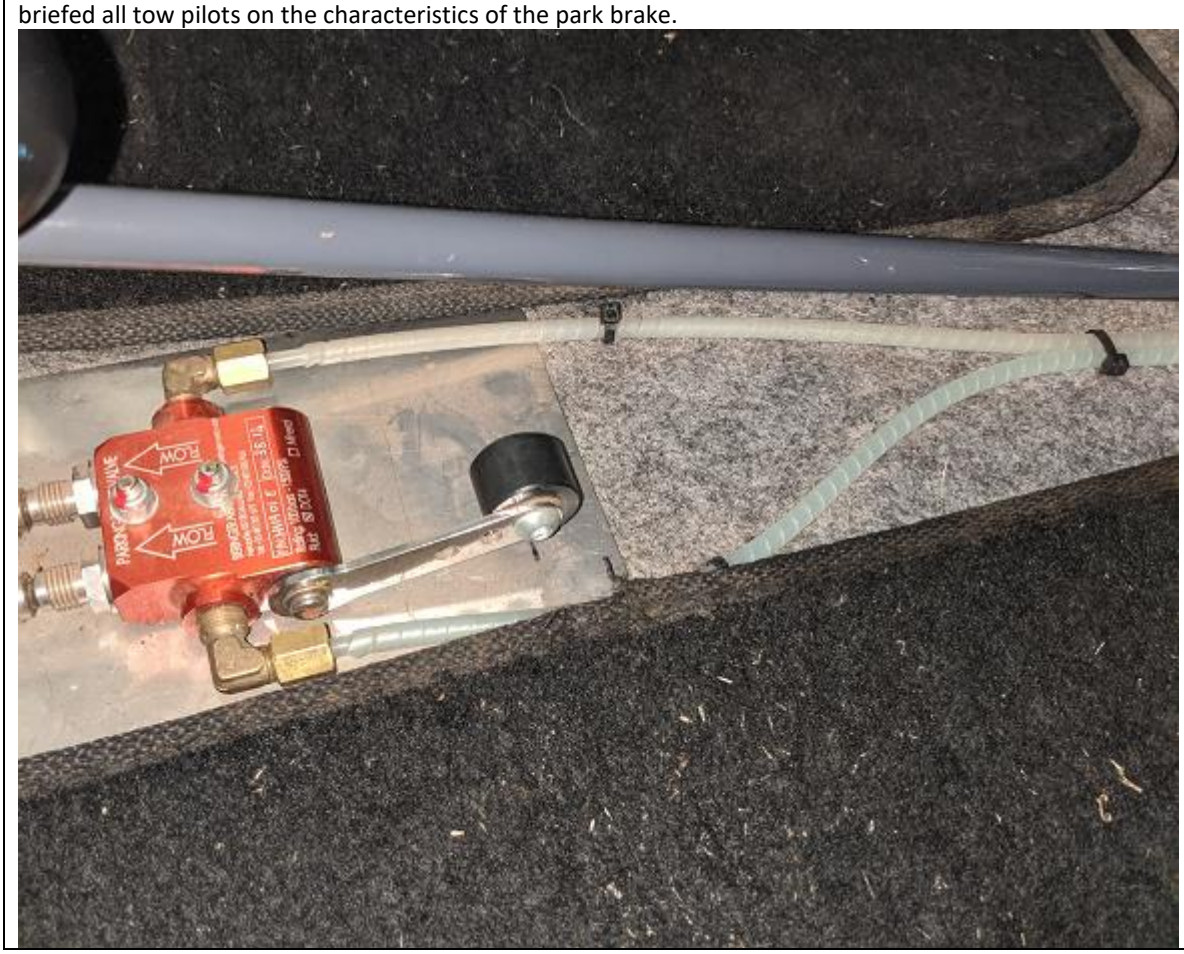
The sortie was the student's first solo flight. After a good circuit and approach, the student raised the nose too high at the round-out and over-corrected, setting up pilot-induced oscillations (PIOs). After several PIOs, the glider landed heavily on the main wheel, with the nose below the horizontal. The student had completed a total of 25 glider flights and a total of 7 hours 15 minutes in 6 days of a course immediately prior to the flight. The student had progressed well during the day, and completed the previous 2 flights, including a simulated rope break and modified circuit, with no input required from the instructor. The wind was approximately 10 knots, straight down the runway. The student was uninjured but was monitored for signs of back pain. Inspection of the glider revealed substantial damage, including cracks around the undercarriage box and associated vertical rib (port side), fuselage skin cracked aft of the undercarriage and delaminated from bulkhead, and cracks the rear seat pan. There was no observed damage in the front section of the cockpit. Investigation identified the student had been briefed on handling the round out and flare, and how to manage the nose attitude if it became too high. In both post-flight and pre-flight briefings on the day the supervising instructor had discussed the management of a nose-high flare, and had also discussed the need to hold airbrakes steady through the round out until touchdown, mentioning that the only time to reduce airbrakes would be if the nose was very high and speed falling rapidly. It is likely the pilot over-controlled glider in pitch during flare and hold off due to inexperience and the pressure of their first solo. To avoid the PIO, pilots should always aim to touch down with minimum energy, in a two-point attitude whereby the tail wheel and main wheel touch simultaneously. To reduce ballooning during the flare, the pilot should stabilise the glider at an altitude of 3 or 4 feet, and then begin the flare anew. The glider should never be forced onto the runway.

| Date | 12-Oct-2019 | Region | VSA | SOAR Report Nbr | S-1582 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Incorrect configuration |
| A/C Model 1 | Eurofox K2 TOW | A/C Model 2 | PW-6U | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 71 |

The tow pilot reported that while taxying the wheel brakes started to drag progressively to the extent that, during the take-off roll, there was little acceleration. The tow pilot released the glider on the ground and the tow plane came to a very quick stop. The glider pilot was able to stop well behind the tow plane. Upon exiting the tow plane, the pilot found the brake callipers on both wheels were locked solid. To release the hydraulic pressure, the tow pilot loosened a joint on one brake line, which resulted in the release of air and some brake fluid. The joint was tightened, and the brakes were tested and found to be operating normally.

After further investigation, the tow pilot identified that the floor mat on the starboard side most likely had moved and lifted the floor-mounted park brake handle sufficiently to cause the brakes to engage (refer photograph). The tow pilot surmised that even the small application of brake caused sufficient drag to heat the brake fluid and vaporise moisture in the system, which then progressively pressured the pistons to the point of locking-up the brakes. The mat was removed from the starboard side to prevent this occurring again. The mat on the port side is considered sufficiently clear as to not pose a problem. The Tugmaster briefed all tow pilots on the characteristics of the park brake.



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 12-Oct-2019 | Region | VSA | SOAR Report Nbr | S-1577 | | |
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | Collision with terrain | | |
| A/C Model 1 | Standard Libelle 201 B | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Minor | Phase | Outlanding | PIC Age | 28 |

**What Happened**

During a landing in a cropped paddock the landing gear collapsed removing the undercarriage doors. The aircraft came to rest after swinging through 90-degrees to the direction of travel. The aircraft was substantially damaged.

**Analysis**

This accident occurred early in the soaring season. Conditions on the day were fine, with cumulus clouds in the vicinity of the aerodrome to the lower limit of Class C airspace at 4,500ft and light winds from the East with a slight Northerly component. The low experience pilot had elected to conduct a cross-country task to the South of the aerodrome, which involved flying beyond the clouds into blue skies. After a period of time

working a height band of between 2,500 and 3,000ft AGL in the blue, the pilot decided to break-off the flight and return to the airfield. During the return flight the pilot became focussed on the final glide and made a late decision to conduct an outlanding. As a consequence, good landing options were limited. The paddock selected by the pilot was still under crop and was assessed by their CFI as *"the best of a bad bunch"*. As the glider settled into the one metre tall crop the left wing caught, and the glider slewed 90 degrees sideways as it came to rest. The undercarriage collapsed after hitting a rock hidden in the crop and the gear doors were removed.

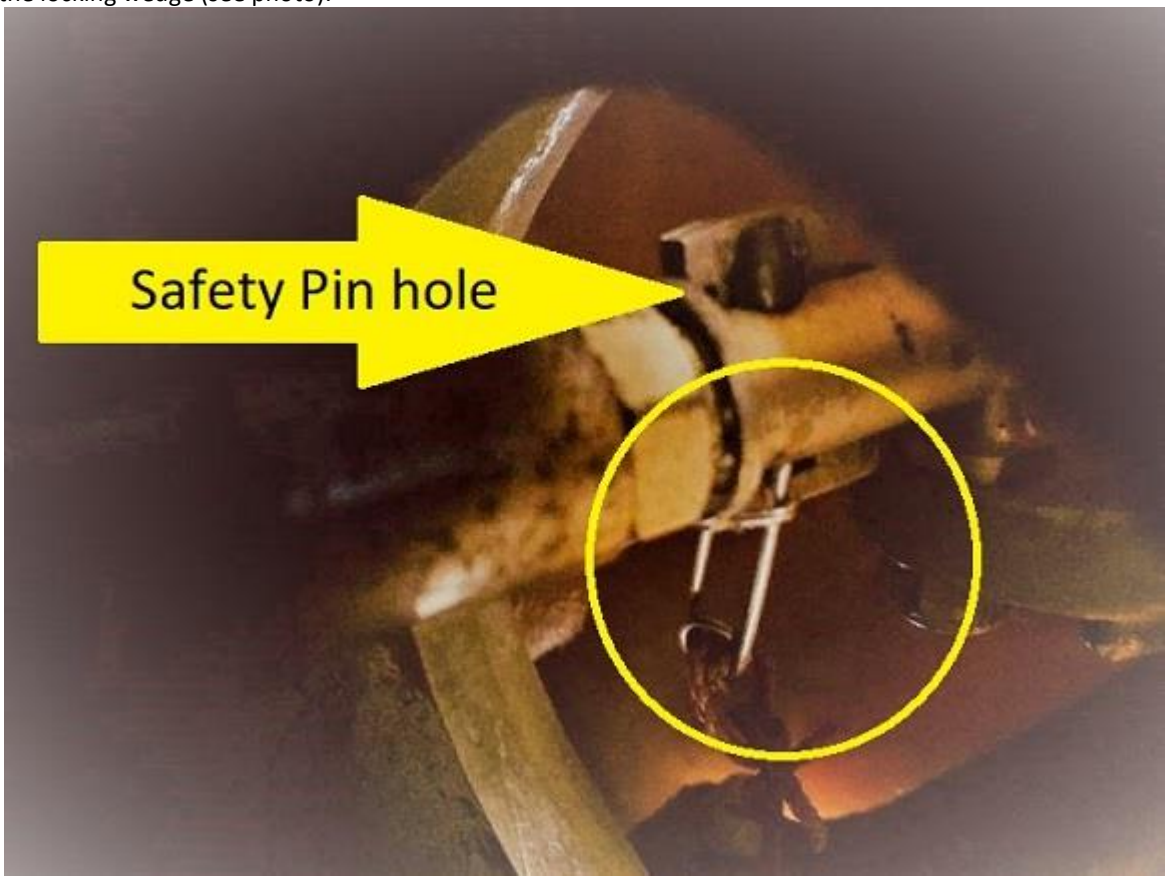
**Safety Action**

The pilot was debriefed by their CFI and underwent further ground training on outlanding theory and paddock selection. Following a successful outlanding in a two-seat glider accompanied by an instructor, the pilot was cleared for cross-country flight.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 13-Oct-2019 | Region | GQ | SOAR Report Nbr | | S-1579 | |
| Level 1 | Technical | Level 2 | Systems | Level 3 | | Flight controls | |
| A/C Model 1 | | Twin Astir | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | |

**What happened**

During the daily inspection on the 16 Oct 2019 of VH-UIY, the left and right L'Hotelier safety pins were found to be incorrectly fitted following the post form 2 inspections. The pins were fitted on the incorrect side of the locking wedge (see photo).




**Inspector's comments**

During the Daily Inspection on the 16 October 2019, both port and starboard L'Hotelier safety pins were found to be incorrectly installed. Pushing the locking tabs on both aileron L'Hotelier couplings resulted in the couplings disengaging.

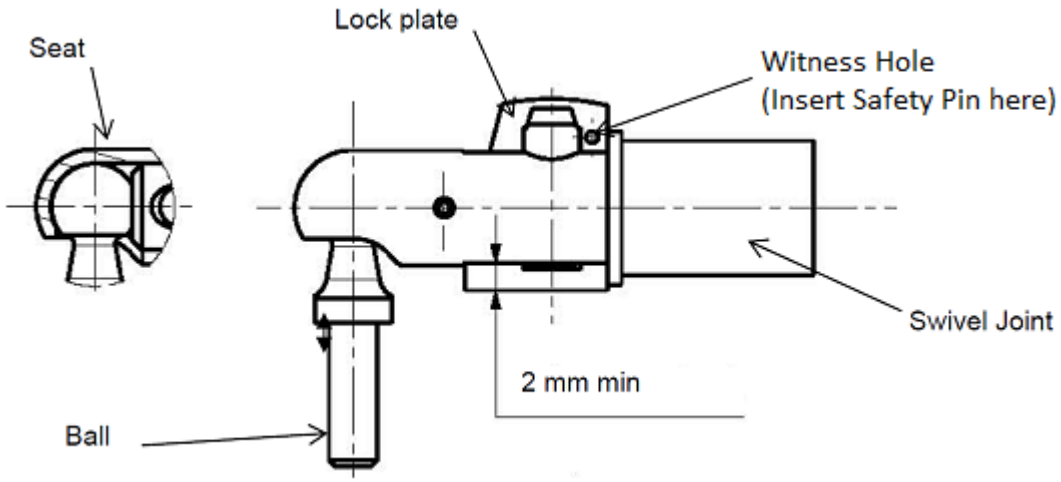
The form 2 inspection on the glider had been completed on the 13 October 2019 and the connection of the L'Hotelier couplings was completed by a DI rated pilot who did not enter this into the Maintenance Release for the aircraft. The aircraft was pushed onto the flightline and the Maintenance Release was signed by the Duty Instructor and the Flight Evaluation Pilot. The misinstalled safety pins were not detected.

The aircraft underwent a post form 2 flight evaluation where the aircraft was spun. This was the only flight conducted on the 13 October, and no additional flights were undertaken prior to the error being identified on the 16 October.

Access to the L'Hotelier couplings on the Twin Astir aircraft is via an inspection hatch with only one hand able to access the couplings at a time. The DI rated pilot who installed the safety pins noted that the aileron L'hoteliers are also more difficult to reach than the airbrake ones and need an assistant on the wing to adjust the position of the aileron to make the connection accessible. The L'Hoteliers were attached fairly easily and a check ensured they were connected visually, manually and with a positive control check with an assistant. Each safety pin passed easily through the triangular locking tab, however the DI rated pilot struggled to secure the safety pin on each aileron L'hotelier due to what they thought was grease on their fingers and having to work one handed. In retrospect they realise that the the airbrake safety pins connected more easily because they were passed through the tiny hole in the narrower (correct) end of the tab whereas the aileron pins had passed through a hole in the other (incorrect) end, which is really a slit, and so the pins would be more mobile.

**Safety action**

L'Hotellier connections rely upon proper engagement of a ball and socket, which are secured by a spring-loaded tab that must be pressed out of the way to make the connection. With the tab in position, a witness hole is exposed, allowing a locking pin/clip to be fitted to secure the connection (see diagram). The controls can become disconnected in flight if the pin is not fitted. It is therefore crucial to check that the ball and socket are correctly engaged by pulling on the connection. This can be difficult if access is tight or illumination poor: a torch and mirror, or even an endoscope or phone camera, can help. A "positive check" of the control connections can also be conducted after assembly of the sailplane. This should involve at least two individuals; one to hold the control surface stationary while the other individual attempts to move the flight controls in both directions.




| Date | 14-Oct-2019 | Region | WAGA | SOAR Report Nbr | S-1580 |
|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Terrain Collisions | | Level 3 | Collision with terrain | |
| A/C Model 1 | | SZD-48-1 "Jantar Standard 2" | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 58 |

With light winds of 6 kts clear visibility and 3/8th Cu base 6-7000' a single seat glider was launched by aerotow. The glider's right wingtip struck the ground within 50m of commencing the launch with a 'bang' heard in the cockpit, but no yaw or other effects were noted. Take-off and flight was continued.

**Investigation**.

The person running the wingtip advised that rubber matting (see photo) lifted and a scrape mark was found 1-2 metres long. A small chunk of protective rubber that had been fitted to the wingtip was found missing with no other observable damage. CFI investigation noted that while no other launches in similar conditions on the day dropped a wing, the phenomena of a wing apparently forced to the ground has been observed before and believed to be associated with prop wash from the tug aircraft. The matting was laid to reduce damage to the tug aircraft which is parked on the matting and all gliders traverse the matting due to its location. The matting has been in use for many years.

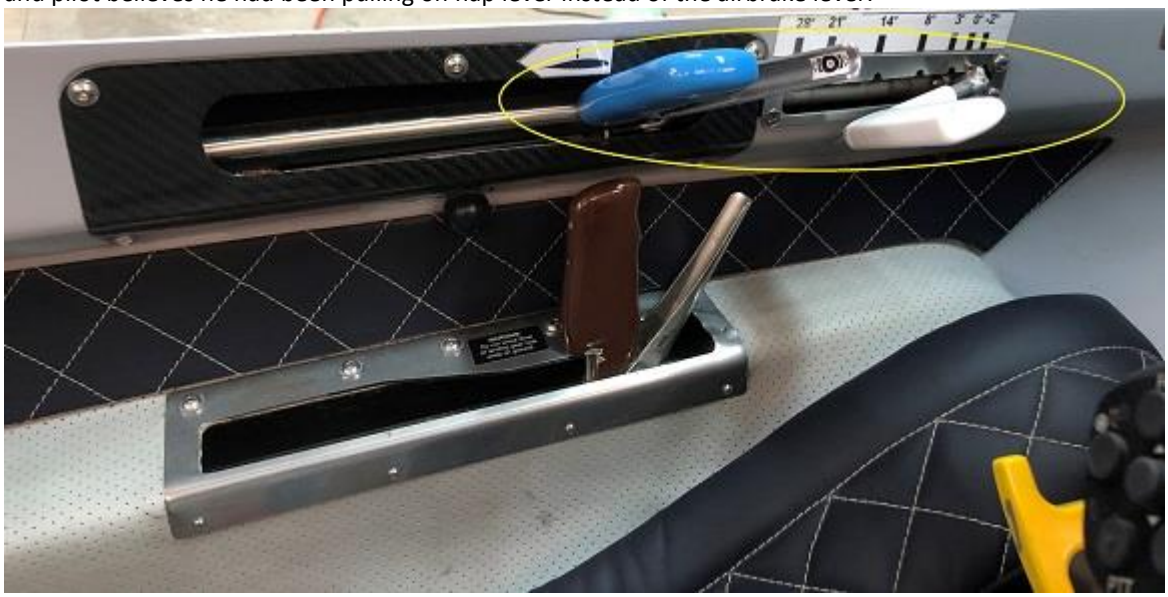
**Conclusions**.

This incident highlighted a known problem and the need to more securely anchor the matting with work planned to do this. Cross wind is a likely factor combining with the prop wash and care needs to be taken by wing tip runners and pilots to avoid the wing striking the ground. Some gliders may have a tendency to catch a wingtip skid due to the design on the retraining wire on the matting or its edge. Moving the matting further to the side of the flight strip and away from the take off path of the gliders under tow will be studied.

| Date | 19-Oct-2019 | Region | NSWGA | SOAR Report Nbr | S-1591 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | SZD-56-2 Diana 2 | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 70 |

The pilot was conducting a local soaring flight and had made two climbs to over 7,000ft AGL. After about 40 minutes of soaring the glider had descended to around 2,000ft AGL where the pilot found conditions to be gusty and weak (the tow pilot reported that the thermals were very rough and gusty, even close to the ground, with strong lift and sink). A few attempts to work the weak thermals were made but the glider continued to descend. At about 1500ft AGL and 5kms from the aerodrome, the pilot decided to break off the flight and headed back to the circuit. The pilot configured the aircraft for landing by lowering the undercarriage, and then joined the base leg at about 350ft AGL. Upon turning final at a similar height, the pilot selected +28 degrees of flap. The pilot stated *"(I) then proceeded to activate the airbrake, and noticed the plane wasn't coming down and started to stress about the overshoot developing… so I slowed the glider and dawdled down to a hard landing."* A number of witnesses observed the aircraft on final approach and noted that the airbrakes were not deployed, and the glider was wallowing as if flying slowly. Then, when at a height of around 50ft AGL the glider was observed to stall and pitch down. The pilot recovered level flight just as the glider struck the ground. The undercarriage collapsed and the glider skidded to a halt. Upon investigation the pilot advised that he was having trouble losing altitude during the final approach and so decided to slow the aircraft down in order to prevent an overshoot. The pilot acknowledged the need to maintain safe speed near the ground but said that he panicked when the aircraft would not descend. While the pilot believed he was using the airbrakes for approach control, witness reports indicted otherwise. A review of the cockpit layout revealed the flap and airbrake levers are in close proximity (see photograph), and pilot believes he had been pulling on flap lever instead of the airbrake lever.



The pilot learned to fly late in his life and had been flying for just over two years. In that time, he had accumulated 285 hours over 152 flights, of which 35 hours and 18 flights were on type. The pilot underwent further remedial training with his instructors. Accidents involving inadvertent and/or incorrect control input at critical stages have been contributing factors in many gliding accidents. In many cases, this has been brought about by pilot unfamiliarity with aircraft type during high workload flight situations. Airbrake and flap levers are generally located on the left side cockpit wall. There have been many instances of pilots misidentifying these in high workload situations, such as when landing. The most common fault being that pilots think they are deploying airbrakes when in fact they are using the flap lever. Although not entirely a problem to familiarity with glider type, it can happen much more readily if the pilot is not familiar with the glider they are flying. Pilots should take time to familiarise themselves with their cockpit layout and get used

to the feel of the different controls. If the aircraft is not acting in the way that it should when a control is applied, then the pilot should visually confirm they are using the correct control lever.

| Date | 19-Oct-2019 | Region | WAGA | SOAR Report Nbr | S-1583 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Wheels up landing |
| A/C Model 1 | ASH 26 E | | A/C Model 2 | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 64 |

**What Happened**

The pilot reported lowering the undercarriage prior to entering the circuit but inadvertently retracted it while conducting the pre-landing checks. The newly installed flight computer (LSXNav S80) issued a check "undercarriage warning" but the pilot, who checked the position of the lever and thought that it was correct, dismissed the warning as pre-cautionary. The pilot flew a stable approach and touched down normally, albeit with the undercarriage retracted. The aircraft suffered damage to the fuselage underside and undercarriage doors.

**Analysis**

The pilot had recently completed an extensive annual inspection on the glider and the incident occurred on the evaluation flight. Soaring conditions were weak, and when the glider got low the pilot decided to break-off the flight and lowered the undercarriage. While returning to the circuit area the pilot encountered lift and managed to climb away. A short while later the pilot joined circuit for landing and raised the undercarriage while conducting the pre-landing check list. The pilot did visually check the position of the undercarriage lever but did not recognise it was in the raised position.

**Safety Advice**

The pilot's decision to lower the undercarriage once the decision to break-off the flight and commit to a landing was appropriate, and consistent with the guidance in GFA Operational Safety Bulletin (OSB) 01/14 'Circuit and Landing Advice'. However, the pilot had not actually committed to breaking-off the flight, as is evidenced by him taking a climb and extending the flight. This action may have contributed to the pilot forgetting he had already lowered the undercarriage and led to the pilot experiencing confirmation bias. The mind often takes the path of least resistance when it comes to processing information; it's hardwired to hone in on information that generates minimum inconsistency with existing beliefs. To put it simply: people see what they want to see and hear what they want to hear to support their beliefs. The lesson here is, when the decision has been made to break-off the flight, configure the aircraft, complete your checks, and then conduct the landing.

| Date | 20-Oct-2019 | Region | NSWGA | SOAR Report Nbr | S-1587 |
|---|---|---|---|---|---|
| Level 1 | Environment | Level 2 | Weather | Level 3 | Turbulence/Windshear /Microburst |
| A/C Model 1 | Std Cirrus | | A/C Model 2 | Bellanca Scout | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 68 |

During the aerotow launch and at about 400ft AGL, the tow plane and glider combination flew through a very strong and gusty thermal. The rate of climb increased substantially causing the glider to move out of station and its pilot lost sight of the tow plane. The glider pilot activated the release at about 700ft AGL just before the rope became taut. Investigation revealed the day was clear blue with about 10 knots from the SSW and gusting to around 13 knots. Operations were on RWY 18 with occasional crosswind from the right. The tow pilot reported that the launch was normal until about 100 ft AGL about two-thirds of the way down the runway, when the combination encountered a very strong thermal. The combination passed the end boundary fence at about 300ft AGL whereupon the tow pilot altered heading about 15 degrees to the right to keep the glider within reach of landable terrain. As the combination crossed a paddock beyond the airfield the left wing of the tow plane lifted strongly and the rate of climb increased to over 1,000 ft/min (in still air with the Cirrus it would be about 400 ft/min). The tow pilot rode out the gust and the glider pilot

followed with the climb rate now in excess of 1,200 ft/min and about 600 ft above ground. The tow pilot observed the glider disappear below the line of sight from the mirror, only to reappear a few seconds later as the sharp edge of the thermal pushed the tow plane downwards. The tow pilot felt the rope tighten and then relax, and then saw the glider turn away in the mirror. Upon joining circuit, the tow pilot observed a massive dust cloud from the end of the runway to about ft AGL, with the glider circling slightly above it. The dust devil proceeded down the runway and cleared to the east of the airfield as the tow pilot turned final. The tow pilot landed safely, and fifteen minutes later the glider landed.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 20-Oct-2019 | Region | GQ | SOAR Report Nbr | | S-1585 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway excursion | |
| A/C Model 1 | | Twin Astir | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 76 |

The two-seat glider was conducting a passenger flight in warm sunny weather, with a 5-10 gusting to 15 knot crosswind at 90 degrees from the right for the runway in use. The aircraft touched down left of centreline, veered to the right then ground looped left with the left wing on the ground before stopping with the right wing down. Ground marks of the main wheel confirmed the track after touchdown and that the tailwheel appears not to have left any marks. Both occupants were unhurt, and inspections suggested no damage to the aircraft. An instructor pilot observed that during the flare the aircraft drifted left touching down left of centreline whereupon it veered to the right with the pilot attempting to raise the right wing. The pilot involved is experienced, held both passenger and AEI privileges, and had recently completed an annual flight review with recent time on type.

**Investigation**

Investigation showed the aircraft described a 90-degree ground loop skidding to the left with the left wing on the ground as confirmed by the main wheel marks in the loose topsoil. No marks were observed for the tailwheel, which suggests it was not in contact with the ground during the landing. There were no injuries and no damaged appeared to be suffered by the aircraft. The club CFI noted, while accepting the glider type involved could be challenging in the conditions on the day, the pilot appeared to have over-compensated with aileron control and applied too little rudder to counter the weathercock effect of the crosswind. Recent observations by instructors had noted a deterioration in this pilot's performance and a lack of confidence.

**Conclusion**.

The CFI after discussion with other instructors elected to conduct a further check flight with the pilot concerned leading to consideration of relieving the pilot of the AEI rating and passenger endorsements, though to permit solo flights.

**Safety considerations**

It is human nature to compensate for any and all deterioration in ability and performance, and the adjustment can be minor and unnoticed though also cumulative whatever the cause, whether a temporary condition or more permanent. Usually an independent observer is the best source of an evaluation - self assessment is unreliable at best. Cognitive decline can be the most insidious and difficult to detect or evaluate while every pilot must be prepared to accept qualified assessment from another. particularly someone we respect. Equally an Instructor, in this case an experienced AEI must be capable of repeatedly performing all manoeuvres to the highest standards or be prepared to relinquish the rating gracefully. Passenger flights also demand the highest standards.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 20-Oct-2019 | Region | GQ | SOAR Report Nbr | | S-1584 | |
| Level 1 | Operational | Level 2 | Airframe | Level 3 | | Doors/Canopies | |
| A/C Model 1 | | DG-1000S | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 16 |

**What happened**

During a solo flight in a two-seat glider the rear canopy opened during the initial phase of the aerotow. The pilot aborted the launch and made a safe landing straight ahead on the runway.

**Analysis**

The Pilot in Command of the flight was a recent solo pilot with approximately 10 hours of total gliding experience and 3 solo flights. Following three check flights earlier in the day, the instructor cleared the pilot for a solo flight. The pilot completed the pre-boarding checks and entered the front cockpit, however they did not secure the rear cockpit. The instructor, who did not supervise the pilot's pre-boarding check, subsequently noticed a loose parachute and unsecured harness in the rear cockpit while the pilot was completing the pre take-off checklist. The instructor removed the parachute and secured the rear harness but, before the rear canopy was secured, was distracted by a question from the pilot about the stiffness of the canopy lock in the front cockpit. Shortly after the glider became airborne on an aerotow launch, the cockpit wind noise increased dramatically. The pilot immediately released from the aerotow and landed straight ahead. The rear canopy was found fully open with the safety wire separated from the hook inside the cockpit. There was no apparent damage observed to either the canopy or the glider fuselage.

**Findings**

- The early solo pilot did not secure the rear cockpit of the two-seat glider prior to a solo flight.
- The instructor was distracted while securing the rear cockpit and failed to identify the rear canopy was not locked.

**Safety action**

Some gliding clubs have introduced a "canopy locked" challenge by the wing runner prior to launch, however it is not clear if this would have prevented this particular incident. Another potential solution is a microswitch on the canopy locking device which is connected to a warning light in the cockpit. Pilots are reminded of the necessity of a "sterile cockpit" while performing pre-flight checks. If interrupted during the check, it is recommended that the pilot returns to the beginning of the checklist to ensure nothing has been inadvertently overlooked.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 23-Oct-2019 | Region | GQ | SOAR Report Nbr | | S-1586 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway excursion | |
| A/C Model 1 | | Astir CS | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 63 |

**Background**

This incident occurred in the landing phase of a single seat glider after an extended local flight. Weather was described as overall perfect gliding conditions, base 6000' cumulus clouds wind nominally 5kts. Occasional strong thermals affected the flight strip which produced momentary though significant change in wind strength and direction as they crossed left to right across the runway in use. The glider was observed to bounce on first touchdown or balloon in the flare with the left into wind wing rising and a yaw to the right out of the wind which was not corrected before a second touchdown. The corrective action from the pilot on the second touchdown was to apply heavy wheel braking resulting in a ground loop to the right with the glider stopping just 3 m from a boundary fence. No injuries to the pilot and initial inspection suggested no harm to the glider which was stored for a fuller assessment. Of possible relevance is that some time prior to this incident this same pilot had been involved in an accident during a weather related out-landing. Care is needed however when bringing the two situations together.

**Investigation**

A report for the incident was submitted by one club member, and the acting CFI submitted a report written by the pilot of the glider involved in this incident with the pilot's view of the events leading to the ground loop. The pilot's report on this incident was quite detailed from that pilot's perspective in the description of the circuit approach and landing and also detailed in the pilot's observations and actions. After a club investigation and review amongst the instructors the pilot was placed 'on checks' for a time after the earlier accident until released to solo flying, and then after this incident 'for the foreseeable future', again 'on checks'.

**Conclusions**

The incident concerned involved a relatively low hour low experience pilot who never the less was described in the club CFI report as "*considered a good student who seemed to learn quickly, especially for his age (60's)*". In the earlier reported outlanding accident (refer report S-1374) the pilot appears to have been operating beyond his ability and knowledge, especially for a relatively low hour low experience pilot. In the current ground loop incident, the pilot again appears to have found himself beyond his ability to assess and act in a timely way to prevent the ground loop developing. The pilot believed he was assessing and reacting to the appropriate cues on the approach and landing in both cases, though the outcomes suggest otherwise. This raises the issue of what cues or references the pilot was actually using in his decision making for the preparation and execution of these manoeuvres. Additionally, it is possible that this pilot's judgement and/or decision making may have also been adversely affected by stress that may have hampered his ability to act or react to the circumstances as the situations developed. In the landing ground loop incident following a successful extended flight, the pilot was not apparently able to foresee the small strong thermal and its likely impact when meeting it in the landing phase, nor the best handling method to correct the roll and yaw before or during touchdown. In both the prior accident and this incident, the approach and landing phases appears to be linked to decision making and execution of the flight generally. In the year leading to the incident the pilot completed 10 solo flights totalling over 14 hours, which suggests a good ability to keep a glider aloft. The incident flight was one of over 3 hours duration, so this pilot was progressing, and quickly it would seem, and had conducted altogether approximately 116 flights with 35 as pilot in command, and 81 dual.

**Safety Considerations.**

Solo flights shift the safe flight responsibility to each individual pilot to assess their own competency despite what may be a limited ability to do so for low experience pilots. There is a period after a new pilot reaches the level of solo flights where experience and practice is expected to improve that pilot's abilities and performance with little or no direct external guidance and assessment. The pilot involved in this incident, while seemingly quite competent in many areas, failed to recognise limitations in their ability. In effect, a good ability in many or most areas may have masked some limitations. More specifically the area of judgement and decision making, especially when stressed by unanticipated circumstances or demands, appears to need attention and improvement. It has been observed that *'decision making on an approach is hardly about making decisions, but rather continually sizing up the situation' (Prof. S. Decker)*. Stress degrades our ability to take in information and to process it effectively and therefore to adjust our actions to what is observed in the limited time available on the approach and landing phase of every flight. In seeking to be free to fly each pilot is responsible to ensure they are personally able to safely fly free. *"In flying free, just because we can, does not mean we should".*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 26-Oct-2019 | Region | GQ | | SOAR Report Nbr | | S-1588 | | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | | Level 3 | Aircraft Separation Issues | | | |
| A/C Model 1 | Discus b | | A/C Model 2 | | | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | | PIC Age | 16 | |

**What Happened**

The pilot was flying a single seat glider for the first time and released from the tow plane and turned left off tow instead of right. The pilot reported that he released from tow while the combination was in a left-hand turn and merely continued to turn to the left, despite usual practice to turn to the right. The pilot was young (16) and with low experience but good currency. The turn was made in error and not for any operational reason. This event was low risk and the pilot was counselled by the CFI.

**Safety Message**

Australian glider pilots are very used to turning right after release as most of our towing is done over flat lands were there are no restrictions on the direction of turn. Tow pilots customarily turn to the left. Pilots in mountain flying situations are used to turning in both directions and the European and New Zealand

convention is to give a short radio call after release. This presumably arises from the turbulent mountain environment making it more difficult for the tow pilot to immediately detect the release. Turning right does not protect a glider from the tug. In a strong thermal environment tow pilots often turn quite steeply into thermals to shorten the tow. If they turn right, having missed the release they can come into conflict with the glider that has released and turned right into the same thermal. The glider pilot has the tug in view. The tug rear view mirrors are marginal for keeping a glider in view and require the tow pilot to look away from his line of flight. Fundamentally the glider pilot is responsible for separation after release. Low time pilots have a high workload immediately after release. They are slowing down, going through post-release checks, and trying to centre the thermal they have released into. All of this distracts from maintaining visual contact with the tug. Nonetheless, the tug is the most immediate danger to the glider post-release and visual contact should be maintained until the glider pilot is confident of increasing lateral and vertical separation. For the tow pilot, separation is best ensured by not commencing an immediate high rate of turn immediately after release. The glider cannot catch up to the tug and the initial stage of engine management and establishing a descent should be taken prior to initiating the turn.
For further information, refer to:

- GFA Aerotowing Manual, Sections 8.4, 8.5 10.1.14, and 10.1.15.
- GFA Instructor Handbook, Part 2 'Release' (page 44)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 26-Oct-2019 | Region | GQ | SOAR Report Nbr | S-1589 | | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway excursion | | |
| A/C Model 1 | SZD-48-1 "Jantar Standard 2" | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 15 |

**What Happened**

During the aerotow launch with the rope in the nose release, the glider dropped a wing at approximately 10km/hr. The pilot recovered the wing momentarily, but the wing dropped for a second time at a faster speed and the glider violently veered to the right at approximately 30 degrees and the nose was pulled down. The pilot's first attempt to release from tow was futile as their fingers slipped off the handle due to sweat and a second attempt was required. The section of the runway the glider veered onto has very large cracks and is very bumpy, and this may have contributed to the initial failure to activate the release. The pilot stated *"I do have some fingerless gloves that I usually fly with, and I may try the full hand white gloves to see if they are comfortable. I think the sweaty hands in combination with bouncing up and down on the rough strip to the right-hand side of runway 30 contributed to my issues releasing."* The glider was inspected for damage in the wheel assembly and the undercarriage retraction mechanism was tested and found to be working.

**Analysis**

This was the pilot's second flight on type; the first flight was conducted without incident about 60 minutes earlier. The pilot stated they had received a detailed briefing from the aircraft owner regarding the handling characteristics on take-off, but suspects he was not using enough rudder to correct the wing drop, and was mostly using aileron inputs that may have contributed to the second and more severe wing drop. Alternatively, the rudder may not have had sufficient aerodynamic authority due to the low airspeed at the time of the initial wing drop. The pilot did not comment on whether he was holding the stick back during the initial ground roll to keep the aircraft straight. The pilot also reported that due to the rough ground on that part of the airstrip, his right hand may have also slipped off the control column, preventing him from regaining immediate control of the aircraft or applying the wheel brake after release. Potential causal factors include the pilot's inexperience on type, possible failure to keep the tail on the ground during the initial ground roll to assist maintain a straight track, and loss of control when the pilot lost grip of the control column as the aircraft traversed rough ground.

**Safety Advice**

- The wearing of gloves can prevent hands becoming sweaty, which may avoid the hand slipping off the control column.
- Unless the Flight Manual states otherwise, during the initial stages of the take-off in an aircraft that rests on its tailwheel/tailskid, keep the tailwheel/tailskid on the ground as this will provide directional stability until the rudder becomes effective.
- If a wing drop occurs and the pilot cannot immediately recover, then consider releasing from the launch straight away and applying full wheel brake.
- Where possible use a wing runner who can give the pilot a good chance of keeping the wings level.
- Unless runway direction dictates otherwise, take-off into the wind as much as possible.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 30-Oct-2019 | Region | SAGA | SOAR Report Nbr | | S-1592 | |
| Level 1 | Airspace | Level 2 | Airspace Infringement | Level 3 | | Airspace Infringement | |
| A/C Model 1 | | Discus b | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 48 |
| The lot reported that during a local soaring flight they inadvertently flew 1 NM into Class C airspace while navigating with non-approved data in their flight computer. The pilot reported that they allowed themselves to be led astray by an unapproved data source and failed to navigate by reference to approved charts and the ground references. | | | | | | | |

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|---|---|---|---|---|---|---|---|
| Date | 3-Nov-2019 | Region | VSA | SOAR Report Nbr | | S-1594 | |
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | | Collision with terrain | |
| A/C Model 1 | | IS-28B2 | | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Launch | PIC Age | 63 |
| During the initial ground roll at the commencement of a winch launch, the glider's left wing dropped and struck a cone marking the winch cable tie-down pegs. The launch continued without further incident. During the 40-minute flight several training manoeuvres were conducted. During one exercise the glider reached approximately 70 knots and a vibration was felt in the aileron control. The flight was terminated and a safe landing ensued. Inspection of the left aileron revealed a puncture to the aileron fabric on both the top and bottom surfaces. It was determined that the damage occurred when the aileron struck the marker cone during launch. The club uses cable tie-down pegs at the edge of the runway to secure the Dyneema rope before use. The pegs are marked by cones (of the hat type). Due to the long trace, the glider commences launch several metres behind the tie-down pegs and is usually displaced well to the right of the runway edge. On this flight, the glider had been positioned closer to the runway edge than normal. This was not picked-up by the student pilot during their pre-boarding checks. Compounding matters, the instructor, who had just landed another two-seat sailplane from a training flight, boarded the aircraft without conducting his own pre-boarding check and missed the opportunity to identify the glider was too close to the runway boundary. Although a wing runner was used for the launch, a combination of crosswind conditions and student pilot inputs resulted in the wing dropping after release by the wing runner. The instructor felt the impact through the airframe, but assumed that the wing tip wheel or wing tip had impacted the cone and allowed the launch to continue. After release from launch, the instructor made a radio call to the base station and was advised that the wing had knocked over a marker cone. As the aircraft displayed no handling problems at that stage, the flight continued. The Instructor noted that he should have been more diligent and conducted his pre-boarding checks. It was also noted that, despite several experienced ground crew being present, no one else noticed the potential hazard. The Club Training Panel will issue a notice to all members alerting them to this incident and reminding them to ensure the glider is always positioned well clear of the cable tie-downs. This incident serves to remind instructors to complete their checks diligently and not succumb to time pressures; and for ground crew to be more watchful around the launch point and to intervene if they believe safety may be compromised. | | | | | | | |

  

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|---|---|---|---|---|---|---|---|
| Date | 5-Nov-2019 | Region | GQ | SOAR Report Nbr | | S-1610 | |
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | | Other Miscellaneous | |
| A/C Model 1 | | Discus b | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 83 |

**What Happened**

During the take-off roll the glider rose suddenly to an excessively high position above and behind the tow plane. In attempting to rectify the situation, the pilot lowered the nose but the glider accelerated towards the tow plane resulting in a loop developing in the rope. To avoid possibly breaking the weak link as the slack was taken-up, the pilot released from tow. The pilot chose not to land straight ahead due to the tow plane's proximity below and in front of the glider, and made a turn to the right with the intention of landing into wind in a large open paddock immediately adjacent to the runway. Upon confirming a safe airspeed, the pilot noticed that the landing would have been across furrows and turned to the right to land parallel with them. The pilot stated: *"At this juncture a normal landing should have taken place but, shamefully, common sense gave way to emotion and I made the decision to land on the adjacent runway. This resulted in two 45-degree turns at an unacceptable height above the ground."* Fortunately, the landing was successful and the was no damage to the glider or injury to the pilot.

**Analysis**

Discussions with the pilot indicated that the flight was conducted in conditions described as hot with a 10 knot crosswind and gusting to 15 knots with some dust present. The initial take-off roll was normal, with one small deviation from line astern behind the tug quickly corrected. Shortly after lift-off the glider rose sharply, either due to a gust or excessive back pressure from the pilot. The pilot corrected the attitude of the glider and found themselves gaining on, and then over flying, the tow plane, and a large slack had developed in the rope. The pilot, realising that when the slack was taken up the consequences could have been dire, activated the release. While standard operating procedures dictated the pilot should land straight ahead, he felt that with the tug beneath him that he was not in a position to do so, and instead turned right into the wind towards the paddock alongside the runway. The pilot checked the airspeed and confirmed it was about 60 knots and decided to turn onto an easterly heading parallel with the ridges of the paddocks. The pilot stated that he should have then stuck with this plan to land in the paddock immediately alongside the runway. However, the pilot then changed plans and decided that a landing on the runway would be a better option. This required a further turn to the right, followed immediately by one to the left in order to line up on the runway where I made a downwind landing without incident. In hindsight and after discussions with the Duty Instructor, the pilot realised that the last two turns were too low and dangerous. The Duty Instructor spoke with the pilot and after a beneficial discussion allowed the pilot to take another flight. This was accomplished without problems, with several good climbs and an enjoyable flight.

**Causal Factors**

Weather conditions were not ideal for the take-off, with either a gust or a thermal possibly contributing to the original out of station position. The recovery action of lowering the nose may have been too abrupt and may have placed the glider too close to the tow plane. The pilot was concerned about:

- the consequences of the tow rope becoming taut after the slack was recovered, and possibly either breaking or dragging the tow plane tail around;
- colliding with the tow plane or rope and landing too close to the tow plane;
- landing across the ploughed paddock ridges and damaging the under carriage. The pilot's decision to deviate from plan of landing along the ploughed paddock ridges and move back to the airfield was not the safe solution.

**Recommendation**

The CFI made the following recommendations:

- If an out of station situation begins to develop, it should be corrected immediately and firmly, and as early as possible so that the correction is as small as possible.

- In a strong gust or thermal event, this correction may not be possible, therefore an early release is the next best option.
- An option for the pilot once the out of position became critical, may have been to regain some height while maintaining a safe speed of 50 kts and moving slightly to the northern side of the runway to conduct a straight ahead landing away from the tow plane's flight path. The tow plane speed of around 65 kts will assist with separation after release as the glider slows to 50 kts.
- The planned landing in the ploughed paddock along the furrows was a good option once the pilot was committed to the plan and should have been continued.
- The return to the airfield was the result of a last minute change of plan from the pilot which the pilot advised was not a good option, as it necessitated two low level turns near the ground that took him from a safe position to an unsafe position. **Safety Advice**

6. If an out of station situation begins to develop, it should be corrected immediately and firmly, and before it becomes critical.
7. If low and behind the tow plane, and in danger of impacting it, then manoeuvre the aircraft clear of the tow plane (while maintaining a safe speed near the ground) and land on the runway.
8. In an emergency stick with your plan unless it is clearly unsafe. Last minute changes give no time for consideration of options. In this case the pilot's initial option of landing in the paddock, and along the furrows was, while not the optimal solution, still very safe.
9. The return to the airfield, while it was accomplished without damage was sub-optimal and could have had serious consequences.

| Date | 8-Nov-2019 | Region | SAGA | SOAR Report Nbr | S-1595 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | SZD-51-1 Junior | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 53 |
| The pilot was undertaking their last flight of the day, after multiple two-seater flights and a flight in the same aircraft. The pilot flew a normal approach but slightly faster than required for the conditions. Shortly after round-out the pilot allowed the glider to touch down at flying speed and rebound into the air. In response, the pilot closed the airbrakes but pitched forward on the stick resulting in the aircraft touching down heavily. The pilot's head struck the canopy, which cracked at an earlier repair. The pilot was debriefed by their CFI, who identified fatigue and fast approach speed as contributing factors. The CFI reaffirmed the need to hold-off at a steady height just above the ground, and to maintain this position as the speed decays to ensure the glider touches down in a minimum energy attitude. He also discussed recovering from a bounced landing by relaxing the backpressure, holding a steady level attitude and retracting the airbrakes. | | | | | |

| Date | 9-Nov-2019 | Region | VSA | SOAR Report Nbr | S-1596 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway undershoot |
| A/C Model 1 | Nimbus-3DM | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 72 |
| At the top of the self-launch the pilot was unable to retract the engine as the propeller brake would not engage. The pilot joined circuit with the engine extended and the propeller windmilling but undershot the runway due to the excessive drag and landed in a crop. The aircraft suffered minor damage to the nose wheel and surrounding fuselage. The pilot's CFI noted that an engine restart may have allowed the pilot more time and height for a safe approach to the runway. Investigation revealed the propeller brake retaining bolt fell out due to incorrect assembly or maintenance. The mechanism was repaired by an Authorised Maintenance Organisation and the bolt secured in place with lockwire. | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 9-Nov-2019 | Region | VSA | SOAR Report Nbr | | S-1599 | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | | Runway incursion | |
| A/C Model 1 | Piper PA-25-235/A1 | | | A/C Model 2 | JS1C 18/21 | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 60 |

During late final approach the glider pilot observed a tow plane taxi onto the runway. The glider pilot was able to overfly the tow plane by pulling up sharply. The incident was investigated by the Club CFI, who identified the following:

- the glider pilot had not made any radio calls, either before entering or during the circuit;
- the weather was overcast, making the glider difficult to see against the white cloud background; and
- the tug pilot did not conduct an adequate scan of the approach path before entering the runway.

Runway incursions can be avoided by pilots having good situational awareness, and good communication. Situational awareness is achieved by pilots being alert, looking for other traffic, maintaining a listening watch and responding appropriately to applicable transmissions. Good communication requires pilots to broadcast their intentions by making standard positional calls and other broadcasts as necessary in the interests of safety.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 14-Nov-2019 | Region | NSWGA | SOAR Report Nbr | | S-1597 | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | | Wheels up landing | |
| A/C Model 1 | Duo Discus T | | | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Outlanding | PIC Age | 57 |

The sortie was a cross country training flight during a course being run at the club. On the first leg the flight crew found themselves in a position where a field landing was inevitable, so they decided to start the sustainer engine to self-retrieve. The engine failed to start, so the command pilot selected a suitable paddock in which to land. During the circuit the student, sitting in the front seat, was unable to lower the undercarriage, so a wheel-up landing was made. As the paddock was rocky, the landing caused some damaged on the belly of the glider. Investigation revealed that the undercarriage was operating normally but the student was unfamiliar with its operation, and the handle in the rear cockpit is provided to merely assist in operating and cannot be used to lock the undercarriage. The CFI suggested the engine be “test

started" prior to flying cross-country, and noted that students must be properly briefed on the undercarriage system and to practice using it at height.

| Date | 15-Nov-2019 | Region | GQ | SOAR Report Nbr | S-1602 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Airspace Infringement | Level 3 | Airspace Infringement |
| A/C Model 1 | Hornet | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 50 |

**What Happened**

The low hours pilot reported infringing restricted airspace vertically by 300ft in a thermal while concentrating on not drifting laterally towards a nearby military control zone boundary. The pilot immediately flew out of the airspace once the infringement was recognised. The pilot was aware of the airspace boundaries and entered the restricted airspace inadvertently.

**Analysis**

While climbing and drifting towards military airspace, the pilot was monitoring lateral separation from the control zone but failed to notice that the glider had infringed the 10,000ft vertical limit of the active restricted airspace until the glider was at 10,300ft. The glider was not equipped with supplemental oxygen that is required for flights above 10,000ft. When the pilot recognised the infringement, they immediately vacated the airspace. The pilot reported a 15-20 knot breeze from the south west. In such conditions glider pilots need to be aware of the tendency for a thermalling glider to drift towards the control zone boundary that is located about three kilometres north of the airfield. There have been several airspace incursions over many years by pilots operating from this site due to the lateral proximity of the control zone and because the restrictions are not always active, and pilots are trained to identify active times from NOTAMs and to maintain a reasonable distance from the boundaries

**Findings**

The pilot advised that he immediately vacated the airspace once aware of the incursion and self-reported the VCA soon after the event. The pilot was counselled by their CFI.

**Casual Factors**

Inexperience and a lack of situational awareness led to the pilot inadvertently breaching the upper limit of restricted airspace. The proximity of the control zone to the airfield and the prevailing wind direction contributed.

**Safety Action**

Violations of controlled airspace can be avoided by remaining situationally aware, ensuring you have current airspace charts, and by thoroughly familiarising yourself with local airspace and other aeronautical issues. The Club has procedures in place to minimise the risk of VCAs, such as:

- Conducting Right-hand circuits when the wind is from the South-west;
- Ensuring pilots are aware of the airspace boundaries and that solo pilots have appropriate charts.
- Requiring pilots to attend a briefing, or consult with the Duty Instructor, on airspace activity prior to flight; and
- Requiring pilots to monitor their proximity to control zone boundaries, maintain adequate separation tolerances, and to break-off thermalling in sufficient time to avoid drifting into the control zone.

| Date | 15-Nov-2019 | Region | WAGA | SOAR Report Nbr | S-1600 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Loss of control |
| A/C Model 1 | LAK-17A | A/C Model 2 | | | |
| Injury | Serious | Damage | Substantial | Phase | Thermalling | PIC Age | 60 |
| GFA Field Investigation. | | | | | |

**INTRODUCTION**

At approximately 1350 hours on 15 November 2019 a LAK 17A single-place glider launched behind a Piper Pawnee tow plane from the Cunderdin airfield in Western Australia as part of a local gliding competition. Following release from the tug aircraft at 1960 ft AGL, the pilot experienced difficulty in controlling the aircraft. During the control difficulty, the pilot heard a "bang" and the aircraft rotated violently to the right. The pilot was unable to control the rotation of the aircraft and jettisoned the canopy at 1420 ft AGL and was thrown from the aircraft. The aircraft subsequently impacted the ground and was destroyed (See Figure 1). The pilot managed to open his parachute just prior to impacting the ground. The parachute was a Mars ATL 88190. It had been repacked on 5 December 2018 by a registered packer. It had a minimum deployment height of 100m or 328 feet. The Australian Transport Safety Bureau (ATSB) was notified of the accident but declined to investigate. The Gliding Federation of Australia (GFA) Regional Technical Officer, Deputy Chair Airworthiness Department and the Competition Safety Officer arranged the investigation and clean up. The West Australian police attended the scene during the pilot rescue but declined to take further part in the investigation.

*Figure 1: Glider's final Resting Position*

**FACTUAL INFORMATION**

**1.1 History of the flight**

The pilot was taking part in a gliding competition at Cunderdin Airfield Western Australia. The aircraft had been flown by the same pilot on the previous two days in similar weather conditions and at the same all up weight. It had been performing well with no issues and had no incidents. The aircraft was last rigged in September and had subsequently flown 15 hours and 6 launches. The aircraft was fitted with water ballast tanks in the wings and tail. The wing tanks were filled to just under 80 litres of water per side and the tail tank was filled with approximately 7 litres of water. The aircraft had been on the tarmac runway for a considerable period prior to launch and the temperature at the time of take-off was very hot; above 40oC. On the 15th November the glider was launched by tow plane and released at 2,000ft above ground. After release the pilot commenced a right-hand turn in a thermal. At some point subsequent to release the pilot heard a soft bang. During the turn, the pilot noted that the aircraft felt mushy so pushed the stick forward and straightened up slightly. The pilot noticed the yaw string was out to the left (the glider was slipping into the turn) so he applied some right rudder to little effect. The pilot then continued to turn to the right by applying more right rudder, whereupon the aircraft continued to yaw to the left and then abruptly rolled to the right; dropping the right wing and going into what the pilot took to be a fully developed spin. The pilot subsequently pushed the stick forward and applied full left rudder, however the aircraft showed no sign of recovery. The pilot jettisoned the canopy (the flight trace recorded canopy release at 1420 ft) and was thrown clear of the aircraft upon releasing the seat harness. The parachute had not fully deployed when the pilot contacted the ground. Although the pilot had recently briefly practiced pulling the rip cord, once clear of the aircraft it took him three attempts to successfully pull the rip cord. It was not possible to hold the ripcord during the bail out sequence as both arms were required to extract himself from the cockpit. The parachute has a minimum deployment height of 328 feet and so there was considerable height lost by the

pilot in freefall. The pilot received back injuries but is expected to recover. The aircraft continued to spin until impact with the ground and was destroyed.


*Figure 2: Glider track and Debris Field*

A graphical depiction of the flight track, taken from the 'Oudie' flight computer that recorded data at 1 second intervals, and debris field is at Figure 2:

- The white line shows the flight track until control was lost.
- The red line is where the aircraft was rapidly descending and turning / rotating right, i.e. where the pilot believed it was spinning.
- The blue line represents the path of the flight computer that was ejected from the cockpit and is not the aircraft track.

Immediately upon the arrival by rescuers, the pilot described he had heard a bang, had trouble with the yaw string being out to the left, and being unable to centralise it using rudder. He felt there was something wrong with the rudder. He struggled with it mushing for many seconds, put the stick forward, but it suddenly went into an apparent full spin. It was noted by the rescuers that the port wing extension was situated about 140m away from the main wreckage.

**1.2 Injuries to persons**

The pilot opened the parachute just before impacting the ground. The pilot was unable to lower his legs in time and landed on his backside, suffering injuries to his back. It is most likely that the parachute was only partially open on impact.

**1.3 Damage to aircraft**

The aircraft was substantially damaged by impact with a tree and the ground. All structural components from the aircraft, except for the port wing extension and the canopy, were found in close proximity to the main wreckage (See Figure 3).

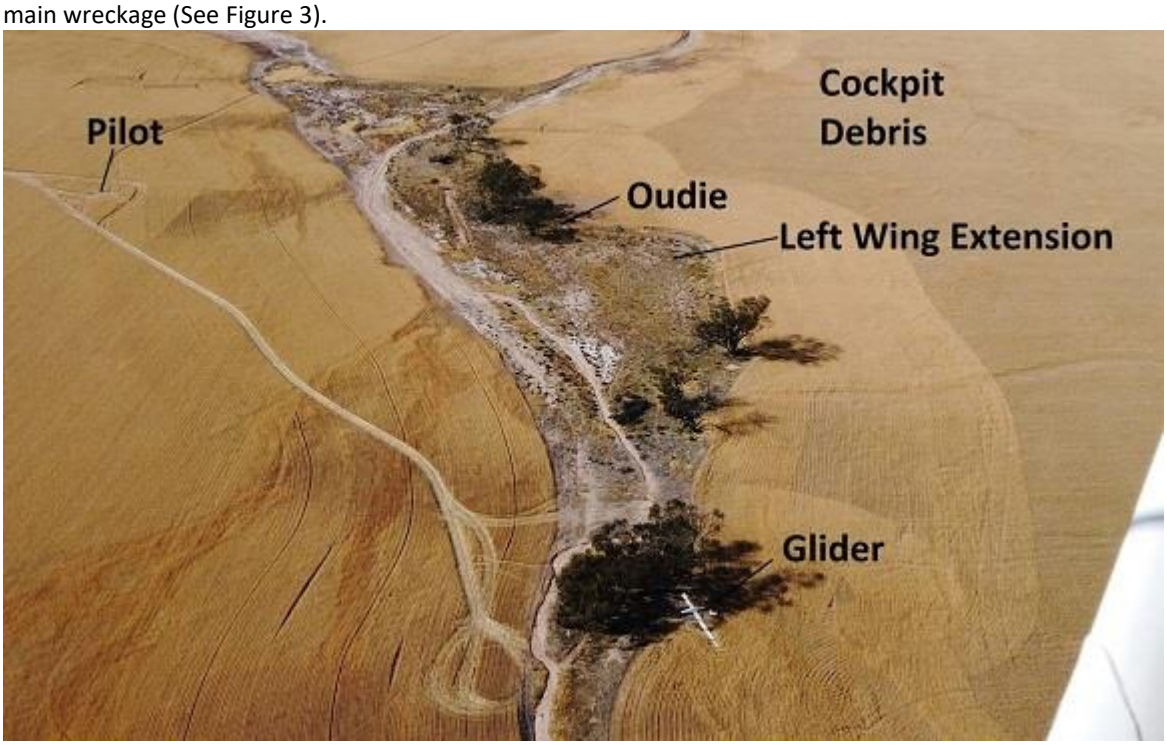



*Figure 3: Debris Field*

- The damage to the glider suggests it was flying inverted when it struck the tree.
- The tail section was broken from the fuselage; however, control cables / pushrods were still attached (See Figure 4).
- The right wing was severely damaged due to impact with the ground (See Figure 5).
- The leading edge of the port wing struck a substantial tree approximately 5 metres above the ground (See Figure 6).
- The aircraft rotated approximately 180 degrees around the point where the left wing struck the tree and impacted the ground inverted and in a near flat attitude. The right wing impacted the ground first followed by the tailplane and fin.
- The damage to the wheat crop suggests the right wing was moving forward on impact.
- Substantial damage was caused to the entire airframe consistent with impact with the tree at high rotational velocity followed by impact with the ground (See Figures 6 & 7).
- The airbrakes were found to be in the closed and locked position.
- The flap control lever was found in positive +1 position, but the lever could have moved during bail out and the ground impact. The pilot stated his normal practice was to move the flaps to +2 after tow plane release.


*Figure 4: Tail Displacement Showing Intact Control Runs*

*Figure 5: Damage to Starboard Wing*

*Figure 6: Port Main wing Impact with Tree*

*Figure 7: Damage to Port wing*

**1.4 Personnel information**

1.4.1. Flight Experience

The pilot is an experienced cross-country pilot and is a GFA Level 1 Instructor. The pilot is familiar with instructing spins and holds no apprehension of spinning or recovering from conventional spins.

Pilot experience:

- Total flying hours / launches: 330 / 185
- Hours on Type / launches: 42 / 19
- Hours last 12 months / launches: 69 / 54
- Hours last 90 days / launches: 21 / 16

1.4.2. Medical Information

The pilot held a valid medical Certificate of Fitness issued by a Registered Medical Practitioner as required by GFA. The standards for issuing a Certificate of Fitness are the 'Austroads' medical standards for the issue of a private motor vehicle driver's license.

**1.5 Aircraft information**

- Manufacturer: Sportine Aviacija
- Type: LAK 17A
- Country of manufacture: Lithuania
- Year of manufacture: 2001
- Serial Number: 128
- Engines: None
- Total airframe hours: 952 hours
- Certificate of Airworthiness: Yes, perpetual
- Maintenance Release: Yes, until 20/09/2020
- Max allowable take-off mass: 500 kg

- Max allowable landing mass: 500 kg
- Stall speed (all-up mass): 84 to 87 kph (45 to 47 knots)

The LAK 17A is a single-seat glider with a 15m span, the span is increased to 18m with tip extensions including extended ailerons. The two-part double-tapered wing is built as a fibreglass sandwich with hard foam core, and the wing spars use conventional tongue and fork extensions to ensure a straight-forward wing assembly. There are very effective large dive brakes on the wing upper surface which give very good manoeuvrability, even in the case of a steep landing approach. Aileron, elevator and airbrakes are actuated via pushrods, and the rudder is actuated by stainless steel cables and pushrod. The wing extension is fitted with an automatic aileron connection which, on rigging, ensures that the aileron is correctly connected. The aircraft was fitted with water ballast tanks in the wings and tail. The wing tanks were filled with less than 80 litres of water per side and the tail tank was filled with approximately 7 litres of water.

**1.6 Meteorological information**

The wind was SE at or below 10 kts on launch. The sky was mostly clear with 1/8 cumulus cloud. Conditions were hot and dry, with the temperature above 40oC. The wind at the accident site was determined, from the drift of the parachute on landing and the debris scatter, to be light from the NW.

**1.7 Aerodrome information**

Cunderdin Airfield is a Registered Aerodrome under CASR 139.265 and is operated by the Shire of Cunderdin. It is situated approximately 2.55 NM North of Cunderdin township, WA. It has two sealed runways; 05/23 that is 1841m in length and 14/32 that is 1509m in length. The airfield is 705 ft above mean sea level, and the terrain around the incident site is flat with few trees. There are no obstacles, hills or mountains of any influence in the vicinity (See Figure 8). The Common Traffic Advisory Frequency is 127.8 MHz.


*Figure 8: Cunderdin Airfield at top left with the aircraft's flight path overlaid (Google Maps)*

**1.8 Flight Recorders**

The aircraft was fitted with a Naviter Oudie Flight computer which records GPS position, barometric pressure (altitude) and Engine Noise Level (ENL). The aircraft was not fitted with an engine, so this parameter was effectively recording ambient noise in the cockpit. It does not operate as a cockpit voice recorder. Ground speed, air speed and vertical speed have been derived from these parameters. The device was firmly mounted to the instrument panel and was ejected from the aircraft simultaneously with the canopy due to the violent manoeuvres. The device was badly damaged due to impact with the ground, but a complete and uncorrupted data file was retrieved, although a data point was not logged coincident with the device disconnecting from the aircraft power source and switching to internal battery power.

**1.9 Wreckage and impact information**

The aircraft's port wing impacted a tree at a height of approximately 5m whilst rotating inverted. The aircraft subsequently rotated approximately 180 degrees around the tree and impacted the ground where it came to rest inverted. Initial examination of the wreckage showed that all extremities of the aircraft were present at the crash site, as were all control surfaces, except for the port wing tip extension and the canopy.

**1.9.1. Port Wing Extension**

The port wing extension was found approximately 140m from the main wreckage of the aircraft. The port wing extension spar stub was found on the ground near the tip of the port main wing. The following is inferred due to the damage and locations of the parts (See Figures 9 & 10).

*Figure 9: Extension Forward Shear Pin Bush, reinserted In wing extension, demonstrating the sequence of failure.*

*Figure 10: Wing Extension Retaining Pin Assembly.*

During impact with the tree, the port wing extension broke away from the main wing due to overload failure in bending of the stub spar. The forward bush from the port wing extension was levered out of the wing extension during this impact. The failure of the port wing extension stub spar resulted in the aft wing extension shear load bush disengaging with the shear pin. However, the front shear pin remained engaged with the bush, resulting in the bond of the front bush failing as load was applied during the collision with terrain. The simulated setup is shown in Figure 11.

*Figure11: Wing extension Demonstrating Failure Method.*

The port wing extension retaining pin had broken out of the surrounding structure and was found under vegetation approximately 4 metres away from the port wing at the aircraft crash site. Tape was still present on the upper surface of the port wing over the wing extension retaining pin access hole.

**2. ANALYSIS**

**2.1 General**

The command pilot held appropriate flight and medical certificates, and was trained and qualified for the flight. The aircraft was properly certificated, and there was no evidence that aircraft maintenance was a factor in the accident. The aircraft had been rigged on 20 September 2019 with the tip extensions in place and taped. The owner was in the habit to perform a 20kg pull test on the wing extensions as described in the flight manual when the aircraft was rigged. It was left rigged in a hangar between flights. It had a Daily Inspection on the day of the accident, but the inspector did not conduct a pull test on the wing extensions. Weather was not considered to be a factor in this accident.

**2.2 Flight operations**

The glider was launched by a Piper PA-25-235 Pawnee at approx. 1350 hours from Cunderdin airfield as part of a local gliding competition. The aircraft was ballasted with water to maximum all up weight. As previously described, during a right-hand turn upon release from tow the yaw string was noted to be out to the left, suggesting the glider was slipping into the turn. The pilot's application of right rudder should have improved the coordination and reduced the sideslip and not caused a yaw motion to the left. From the pilot's point of view, he would not have expected an asymmetric airworthiness problem causing a marked increase in left yaw from drag and roll to the right. The following sequence has been reconstructed from the data file that was retrieved from the damaged flight computer located at the scene:

13:54:54 - Glider releases from tow at 2670 ft AMSL (1960 ft AGL). The aircraft commences a right-hand turn. The aircraft climbed briefly to 1980ft AGL.

13:55:10 - The glider completes 180 degrees of the turn and then begins sinking more than expected for the conditions on the day (from 4 to 30 m/s). The glider speed increases to 148 kph (80 knots).

13:55:16 - The descent rate reduces, and the glider pitches up slightly. There is a small gain in height and the speed reduces to 133 kph (72 knots).

13:55:20 - A violent rotation to the right begins at 1810 ft AGL. Descent rate increases from 10 to 40 m/s. Ground speed increases from 120 to 130kph (65 to 70 knots). The turn rate increases from 5o to 19o per second.

13:55:26 - The pilot jettisons the canopy at 1420 ft AGL. The rest of the trace describes the path of the flight computer after it is jettisoned with the canopy. The flight computer lost a data point at this time, presumably coincident with the power disconnecting. This suggests the flight computer disconnected before it recorded the 13:55:26 data point.

**2.3 Aircraft**

All control circuits were found intact in the wreckage, thereby ruling out mechanical failure of the elevator, aileron, airbrake, trim and rudder control systems.

2.3.1. Aircraft maintenance

The aircraft is a Sportine Aviacija LAK 17-A glider, serial number 128. It was purchased second-hand by the current owner and pilot. Its first Australian Maintenance Release was issued on 28 May 2018. The aircraft was maintained in accordance with GFA requirements and the LAK 17A Maintenance Manual. The last annual inspection was completed on 20 September 2019. At the time of this inspection the aircraft had flown 937 hours over 228 flights. The Maintenance Release was expelled from the aircraft during ejection of the canopy and was not recovered. The command pilot stated he conducted the Daily Inspection and certified the aircraft fit for flight by signing the Maintenance Release. The pilot advised there were no open minor defects in the Maintenance Release, and no entries for major defects.

2.3.2. Post-accident analysis

Physical evidence from the wreckage indicates that the port wing extension was potentially loose in flight. As is common practice, the gap between the wing and the wing extension was taped using electrical tape to provide a smooth aerodynamic surface, thus it was not have been obvious that the wing extension was loose. Examination of the extension retaining pin is shown in Figure 12. This shows the entire cylindrical surface of the pin with some overlap. Distortion is optical; the pin is square and true. The upper surface has a slight slope on it to make it flush with the upper wing contour.

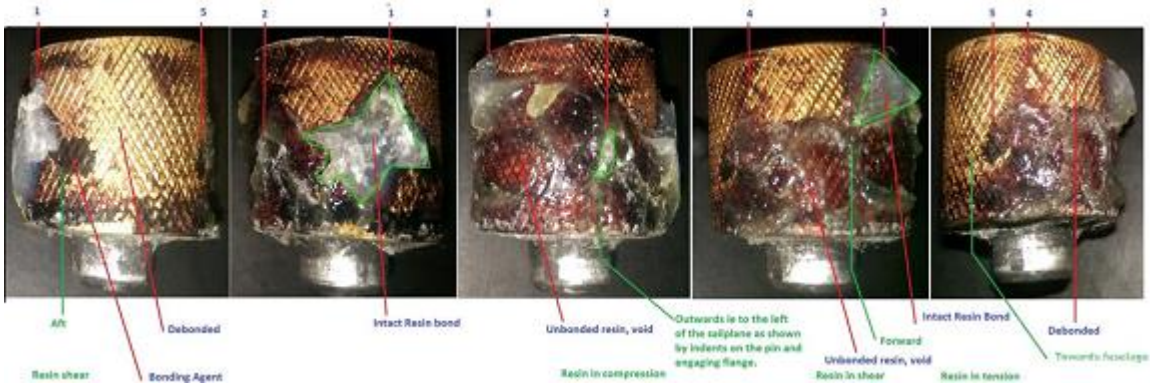



*Figure 12: Retaining Pin Bond Surface, rotated photo by photo to the right.*

Visual examination shows three different types of surface:

a) White epoxy stressed and broken on about 6% of the knurled area. This is likely the epoxy that broke to allow movement. Labeled 'Intact Resin Bond' in Figure 12, this resin was intact before damage.

b) Clear glossy epoxy over dark brown resin. This was an air-bubble in the resin securing the pin in a tube of fiberglass that was bonded into the wing surface. This resulted in nil effective bonding. This is about 44% of the area.

c) Shiny brass which is where the dark brown bonding resin has debonded from the brass. This is about 50% of the area. This surface is dulled due to oxidisation / tarnishing of the surface in the weeks after the accident. This indicates that the reflective surface was relatively fresh at the time of the accident and the surface had not been exposed to air for more than a week.

Examination of the hole in the wing where the retaining pin debonded show similar areas to the pin. It also shows delamination of wing skin layers as the pin was twisted out as shown in Figure 13.


*Figure 13: Retaining pin hole location in wing (each photo rotated 90 degrees).*

The starboard wing extension retaining pin was examined and no similar areas of debond were found except for a small area of dark brown resin debonding from the brass. The above examination of the wing extension retaining pin suggests that the pin assembly had debonded prior to the accident flight and was not properly locking the wing extension in place at take-off. During normal assembly and disassembly, the wing extension slips in and out easily. To install the wing extensions, the retaining pin must be pulled up, the extension inserted into the main wing and then the pin locks flush with the wing. Electrical tape is used to cover the hole in the wing where the retaining pin is inserted. Inspection of the retaining pin hole in the wing upper surface post impact showed the electrical tape was in place. The gap between the main wing and wing extension is sealed using electrical tape. It is possible that the electrical tape kept the wing extension in place for several flights with the debonded retention pin. The retaining pin engages in a hole in a metal fitting riveted to the end of the wing extension spar stub. The metal fitting on the port wing extension spar stub had three points of damage see as shown in Figure 14. This damage is consistent with the retaining pin rotating as the spar stub moves outboard. The pin damaged the outboard edge of the hole and at the top edge of the fitting. The edge of the pin assembly also has marks on it where contact occurred showing the pin to be correctly orientated in reference to the spar stub.


*Figure 14: Metal fitting on wing extension stub spar*

The spar stub slides into the wing socket and is firmly engaged by the locking pin. Figure 15 shows the locking pin engaged with the spar stub fitting in the actual orientation. The retaining pin takes no load except to prevent the wing extension moving outwards. The spar stub fitting angles downwards and is firmly connected to the spar stub. The fitting has not moved since manufacture as evidenced by nil disturbance of the paint around the rivets. The downward angle of the fitting would prevent the pin from fully engaging in the hole, resulting in additional load being applied to the pin

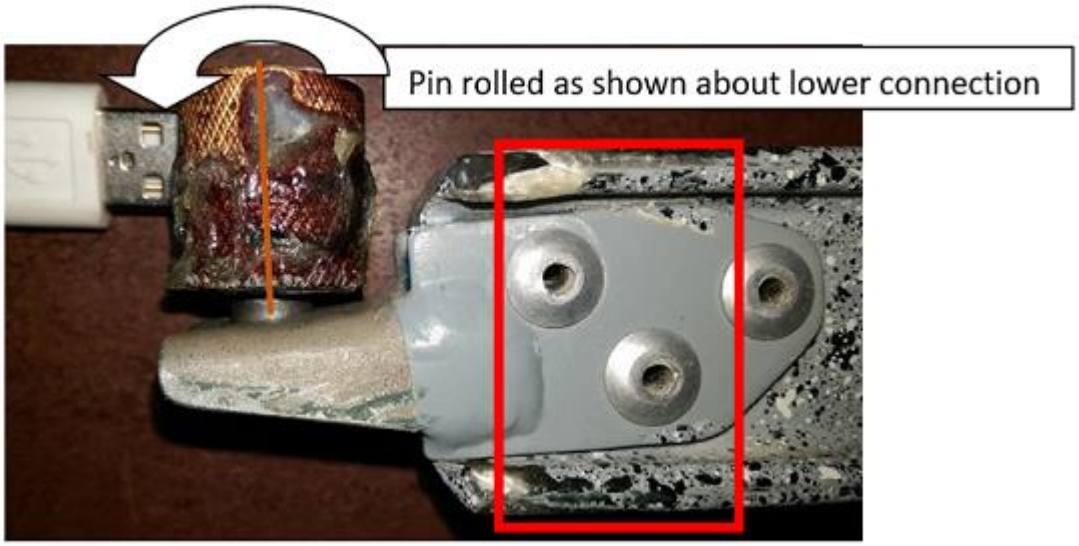



*Figure 15: Retaining Pin and spar stub fitting.*

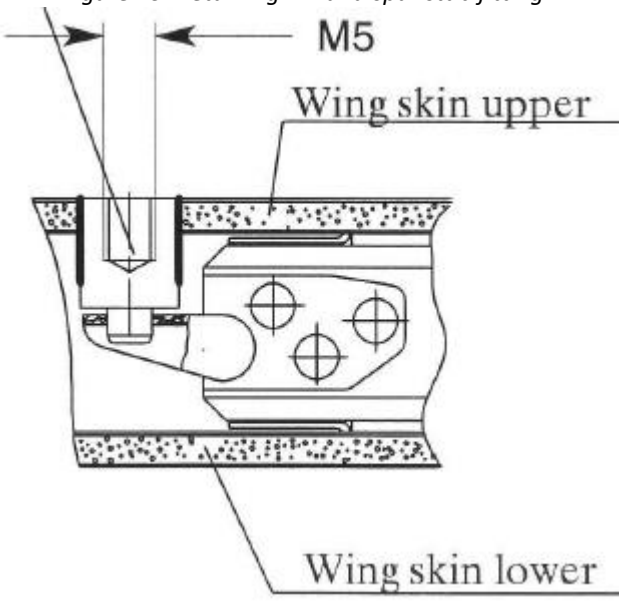



*Figure 16: Wing Extension Retaining Pin Installation (Lak-17 Maintenance Manual).*

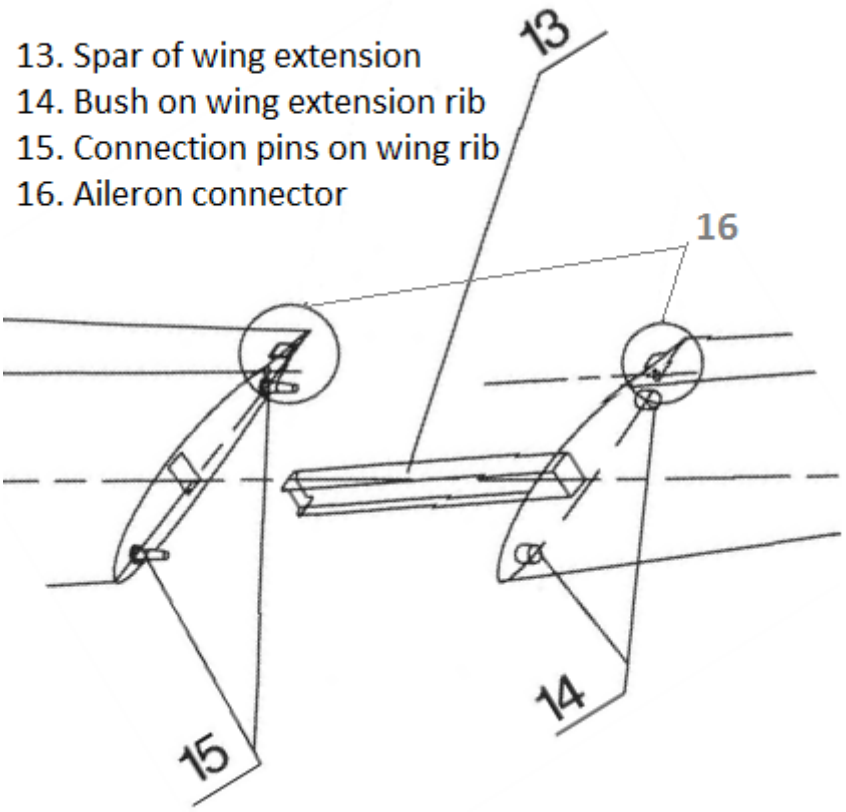



*Figure 17 Diagram of Wing Extension Installation (LAK-17 maintenance manual).*

It is most likely the failure of the retaining pin mechanism enabled the wing extension to move outwards by a few millimetres, thereby resulting in the wing extension only engaging the shear pins on the taper (Items 15 in Figure 17). The increased tolerance between the pin and fitting would allow the wing extension to rotate nose-up by approximately 1 degree.

It is suspected that the port wing extension oscillated and continued to work itself further outboard, finally disengaging from the rear shear pin. This allowed the wing extension to suddenly rotate up to 7 degrees nose-up in pitch (which could be the "bang" heard by the pilot). Notwithstanding, the wing extension stub spar would have kept the wing extension roughly aligned with the wing. A 7 degree rise in angle of attack at the tip would increase the lift and drag at the outboard extremity of the port wing, causing the aircraft to violently roll to the right and a yaw to the left. The pilot, who would have been looking straight ahead and unaware the wing tip extension was causing an asymmetric aerodynamic effect, interpreted the roll as a spin. Effectively the aircraft was in a strong roll with adverse side slip and uncontrollable. The metal tab on the port wing extension aileron (Item 16 of Figure 17) became disconnected from the main wing aileron as the port wing extension moved outwards. This allowed the port wing extension's 1-metre span aileron to float in the airflow whilst the main wing aileron would move with control inputs. This resulted in damage to the main wing aileron, as evidenced by witness marks on the underside of the main aileron, caused by the impact of the wing extension aileron connecting tab as the wing extension swung fore and aft in flight. This damage was not noticed prior to the flight (the ground impact sequence could not result in this type of damage).

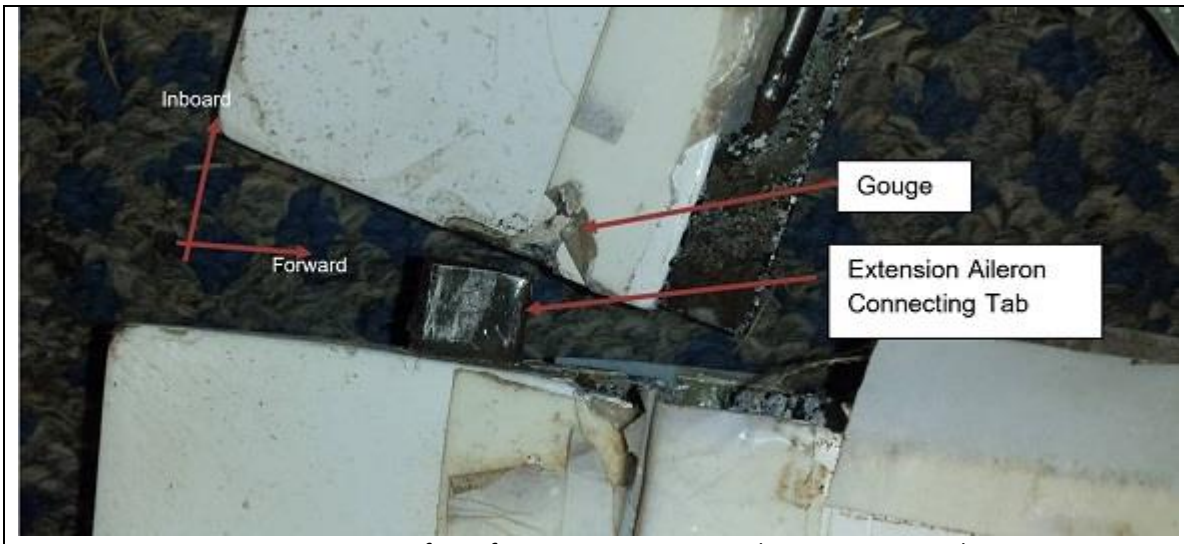



*Figure 18: Lower surface of port wing extension and port main wing aileron*


*Figure 19: Close up of gouging on lower surface of port main wing aileron.*

The location of the debris indicates that the port wing tip extension remained attached with the main wing during the descent after the pilot bailed out. The impact with the tree resulted in the overload failure of the spar in a forwards direction which, combined with the spinning of the aircraft, resulted in the port wing extension being flung 140 metres away from the main debris. It appears coincidental that the wing extension travelled in a direction towards where the debris from the cockpit contents was found. The tip extension retaining pin and forward shear pin bush were found near the port main wing. If the wing extension had departed the aircraft in flight, the forward shear pin bush would have needed to remain on the pin during the spin until impact. This is unlikely as it is a loose sliding fit.

2.3.3. Mass and balance

The glider was fully ballasted at Maximum All Up Weight (MAUW) of 500kg. In addition, 6 to 7kg of tail ballast was applied. Recent weight and balance calculations show it was well within the aft Centre of Gravity (CG) limit and slightly above MAUW with the pilot, equipment and water on board. The pilot had measured the water in the wings in the past and had only managed to fill less than 80 litres per side. He therefore assumed that full was less than 160 litres and had filled it on the day. It was noticed on the runway that the water sloshed in the wings, indicating the tanks were not completely full. The pilot filled the tail tank with a jug that was approximately 7 litres. In this configuration and with the pilot's weight, the weight and balance was recalculated. It was found that the MAUW was 506kgs when allowing for the wingtip extensions at 3.6kg each. This was not critical, as the balance was at 69% of the CG range; meaning it was within the allowed centre of gravity envelope and would not affect the pilot's ability to control the aircraft.

2.3.4. Wing Ballast

The port wing was resting on the runway prior to take off. The wing-runners had struggled to lift it due to the water ballast having moved to the outboard end of the port wing tank and the inboard end of the starboard wing tank . It is possible that lifting the wing at the tip with this imbalance applied forces to the retaining pin. However, overstress of the retaining pin is unlikely as lifting at the wing tip does not directly load the pin, and the wing runners did not need to move the aircraft on the runway and were unlikely to have pushed or pulled on the tip in order to have stressed the pin. The wing runners allowed the water ballast to balance once the wings were levelled and launched the aircraft without incident. The wing runners and the pilot confirmed there had been no incident on launch, which suggest the wing ballast was balanced on launch. A witness in another glider happened to fly past the Lak 17A whilst it was being towed. The witness was about 300ft higher and near the tow combination. He observed them and did not notice any water coming from the Lak 17A. However, water was noticed pouring from the glider after it had departed controlled flight when it was at approximately 1000ft AGL and spinning inverted. At the wreck it was noted both the main and the tail tank valves were unlocked and partially open. The pilot confirmed he did not intend to dump water ballast at any time, so it is likely that the water ballast valves were disturbed when either the canopy was jettisoned or during the pilot's bail out.

2.3.5. Rudder Damage

The tail broke off the glider during the impact with the ground. The rudder and all its mechanisms were undamaged. Only the pushrod connecting the front to the back of the fuselage was bent. The pilot reported after the accident that the rudder was ineffective, and it was impossible to correct the yaw. The owner had obtained new rudder cables and fittings from the factory a year before. He had fitted them and is qualified to do so. After the accident the cables were found undamaged, and no fault is suspected. The rudder pedals and sway bar move as designed. No defect of the rudder system was identified.

2.3.6. Aerodynamic forces

The trace from the flight computer is almost normal and complete. The only abnormality is a 4 second and 2 second interruption in the data at exactly the point of ejecting the canopy. This most likely resulted when the power cable was disconnected as the device flew out of the instrument panel. A point by point analysis of the trace was performed. It was noted that various readings are direct readings, like GPS location and height. Others, like rate of climb, wind speed, Indicated Air Speed (IAS), True Air Speed (TAS) are interpreted by the device and viewing software. The GPS appears to suffer inertial effects but is probably normally correct and was showing a 7-metre accuracy at all times. It was noted that even the flight computer did not calculate IAS at times when the glider was rotating / spinning. The IAS was calculated mathematically from the GPS and height and using real wind speed measured by other gliders at the height and time. These calculations show the IAS was likely:

a) On tow; 125 to 140kph (67 to 75 Knots).
b) After release prior to events; 110 to 122kph (60 to 66 Knots).
c) First mushing event; 121kph (65 Knots).
d) Over 4 seconds the glider speeds up to 148kph (80 Knots), then recovers a little height.
e) Second mushing event; 133kph (72 Knots).
f) Starts a rotation to the right.
g) The theoretical stall speed at this weight and at a 1.2g turn was calculated as 99kph / 53 kts (depending on flap position). It was probably less as the pilot was pushing slightly forward on the control column at times of low speed.
h) The speed prior to the loss of control was well above stall, even for the minor overweight condition of the glider.

Aerobatic experts have considered the flight trace and they interpret that the aircraft was probably side-slipping away from the turn direction and would not have entered a spin. The pilot stated that conventional spin recovery techniques were applied, i.e. full opposite rudder (left) and stick forward but it was ineffective. As the pilot was unaware of the asymmetric aerodynamic condition caused by the dislodged winglet, he interpreted the mushing and roll to the right as a spin despite the yaw being in the opposite direction. At this point the aircraft was uncontrollable and the spin recovery control inputs would not have corrected the roll to the right but would have increased the yaw to the left.

**3. CONCLUSION**

The accident was most likely the result of the failure of the port wing extension retention pin. This allowed the port wing extension to move outwards during flight until it came off the shear pins. This allowed the port wing extension to rotate nose up creating a large increase in lift and drag whilst also disconnecting the port wing extension aileron. The imbalance in wing forces caused a violent roll and side slip to the right which was uncontrollable.

**3.1 Findings**

The following findings are made:

1. The command pilot was certified and qualified for the flight in accordance with existing regulations.
2. The maintenance records indicated that the aircraft was equipped and maintained in accordance with existing regulations, approved procedures, and by approved persons.
3. The centre of gravity of the aircraft was within the prescribed limits.
4. The aircraft mass was likely to have been slightly over MAUW. The overweight condition did not contribute to the accident.
5. It is likely the port wing extension retention pin was poorly bonded during manufacture.
6. At some point prior to, or during the accident flight, the bond of the port wing extension retention pin failed.
7. The port wing extension most likely partially disengaged from the main wing during flight and rotated nose up around the wing extension spar leading to the pilot's loss of control.
8. No other defects were found that would have adversely affected the airworthiness of the aircraft

**4. SAFETY RECOMMENDATIONS**

The following recommendations are made:

1. Inspect all LAK-17A aircraft in Australia for similar defects.
2. Contact the manufacturer to identify all aircraft built in the same batch / process as the accident aircraft and inspect for similar defects. Request the manufacturer consider the dark brown bonding epoxy and whether it has sufficient bond strength to the brass retention pin. Request the manufacturer to consider whether the strength is reducing over time or in high temperatures.
3. Train pilots in the use of parachutes and for them to practice and consider how to pull the rip cord so it can be done quickly. A static line, as is often used in Europe, could have helped.
4. Amend the Daily Inspection Checklist to require a check of wing extension security and free play.

**5. OTHER RECOMMENDATIONS**

The pilot had a mobile phone in the cockpit. This was ejected from the cockpit during the bail out and was not available to the injured pilot when he landed by parachute. It is recommended that pilots be advised to attach the EPIRB/PLB (where available) and mobile phone to the parachute harness or their person so that it remains with them if they bail out.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 15-Nov-2019 | Region | WAGA | SOAR Report Nbr | | S-1598 | |
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | | Collision with terrain | |
| A/C Model 1 | | DG-1000S | | A/C Model 2 | | | |
| Injury | Nil | Damage | Substantial | Phase | Landing | PIC Age | 68 |

The sortie was a mutual flight for practice between two experienced pilots, one of whom would conduct the take-off and the other the landing. After a 20-minute flight the crew elected to join circuit to land, as the aircraft was needed for an instructional flight. The pilot flying joined the downwind leg a bit high and used airbrakes to descend. The sink rate increased, and the pilot flying changed direction toward the airfield, but the glider continued to descend at a high rate. The pilot stated *"the sink intensified with the vario indicating fully down, so I turned onto base earlier than planned. The sink continued and I recognized we were drifting towards the tree line. I increased the angle of bank and lowered the nose to maintain safe speed 63 knots, levelled the wings close to the ground and rounded out as I approached the start of the bitumen touching down just before the three airfield end marking lights. The right wing struck all three lights and the aircraft*

*spun about 50 deg to the right."* The non-flying pilot stated *"About mid-downwind, I commented that the circuit appeared to me to be flatter than usual. I wasn't concerned and resumed my search for (another glider) and other traffic out to the right. Shortly after I felt the glider turn in sharply and noticed that we were descending fast. I assumed we had hit a lot of sink. (The pilot flying) had the nose down to maintain airspeed and by then I could see we were going to overshoot the centreline. We were now quite low and banked steeply to the left to avoid the trees on the western side of the strip. (The pilot flying) levelled the glider and we landed right-wing down at about 30 degrees to the runway (centreline). The right-wing hit the outermost threshold light causing it to ground loop and, in the process, take out the other two lights. This resulted in substantial damage to the right-wing."* Several pilots witnessed the accident from the ground and reported that the glider's airbrakes were deployed throughout the circuit instead of being closed to arrest the rate of descent. Investigation by the CFI revealed that the pilot flying had elected to use the airbrakes to descend more quickly to position for a landing ahead of other circuit traffic. The command pilot did not close the airbrakes and then forgot they were open. When the glider later flew through increased sink, the pilot flying adjusted the circuit accordingly not realising the airbrakes were still deployed. The second pilot, who was preoccupied looking for other aircraft in the circuit, was unaware the airbrakes were deployed throughout the circuit. The pilot flying could not explain why he did not recognise the airbrakes were deployed and suspected he may have suffered a hypoglycaemic event. The pilot undertook a medical examination and has been cleared to fly subject to regularly monitoring his blood glucose levels.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 15-Nov-2019 | Region | VSA | SOAR Report Nbr | | S-1601 | |
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | | Near collision | |
| A/C Model 1 | Standard Libelle 201 B | | | A/C Model 2 | Daupin Helicapter | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 49 |

A Police helicopter was taking part in a State Emergency Services exercise over the town to the West of the aerodrome. Gliding operations were aware of the proximity of the helicopter, which had been communicating with the tow planes. At this airfield contra circuits are used to maintain separation from the glider traffic and powered traffic. Mid-afternoon a glider entering the circuit joining area for the glider circuit encountered the police helicopter also on downwind in the glider circuit. The glider pilot changed heading to avoid the helicopter, and then made a call to the helicopter pilot advising they were in the glider circuit. The helicopter pilot acknowledged and gave way to the glider. The Club CFI brought the incident to the attention of the Police Air Wing Chief Pilot, who discussed this incident with all his pilots and asked them to be better prepared in future.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 16-Nov-2019 | Region | GQ | SOAR Report Nbr | | S-1603 | |
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | | Rope break/Weak link failure | |
| A/C Model 1 | PW-6U | | | A/C Model 2 | Piper PA-25-235 | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 68 |

The pilot reported that during an aerotow launch and at about 700ft AGL the tow rope weak link failed. The rope sprung back and wrapped around the starboard wing of the glider. The pilot did not release the rings from the glider fearing the rope might move and interfere with the control surfaces. For similar reasons the pilot elected to use small control deflections. As the glider was too low to make it back to a runway, the pilot conducted an off-field landing in a flat stubble paddock. During the steep approach with full airbrakes the tow rope untangled itself from the wing. The landing and retrieve were uneventful. The club uses a small piece of rope as a weak link that is inserted between the main rope and the rings at the tug end. The type and known strength of rope used was not reported. Following this incident the Club has determined they will now use metal weak links with a reliable known breaking strain located at the tug end. The CFI noted

that the PW6 flight manual states that the Low tow position in the PW6 is not recommended due to cable rubbing on the fuselage. The Club Training Panel has decided to use the High Tow position from now on in training and check flights in the PW6. This will also reduce the likelihood of the metal weak link coming back to the towed glider should there be another tug end weak link failure. For further information on the selection, application, safety and testing of Glider Weak Links'weak links, refer to Operations Advice Notice 01/13.

| Date | 17-Nov-2019 | Region | VSA | SOAR Report Nbr | S-1608 |
|---|---|---|---|---|---|
| Level 1 | Airspace | Level 2 | Aircraft Separation | Level 3 | Aircraft Separation Issues |
| A/C Model 1 | DG-1000S | A/C Model 2 | Piper PA-25-235 Pawnee | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 56 |

While the glider was established on final approach and at a height of about 300ft AGL, the command pilot observed a tow plane under the glider's port wing turning onto final at a distance of about 30 metres. The tow plane, flying faster than the glider, landed about 100 metres ahead left of the runway centreline, while the glider pilot landed on the grass runway on the right-hand side. The tow pilot had been flying close circuits to reduce towing times and may have allowed this aim to affect his decision-making and airmanship. The tow pilot was counselled.

| Date | 17-Nov-2019 | Region | VSA | SOAR Report Nbr | S-1605 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Incorrect configuration |
| A/C Model 1 | PW-6U | A/C Model 2 | Eurofox | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 61 |

The glider was being towed behind a Eurofox tow plane on a training flight when, at about 1500ft, the airbrakes progressively deployed. The increased drag degraded the climb performance of the tow plane, resulting in the tow pilot having to apply forward pressure on the control column to maintain flight. By this stage the glider was very low on tow and not visible in the tow plane's mirrors. The command pilot of the glider noticed the airbrakes had deployed and closed them, and the launch then proceeded normally. Investigation by the Club's CFI identified that the command pilot forgot to lock the airbrakes during the pre take-off checks when he became focussed on explaining an issue to the student. The instructor was known for giving complex explanations to the student before hooking on for a launch. The CFI counselled the instructor on keeping explanations brief when in the aircraft and to ensure checks are completed properly. The Club's Tugmaster debriefed the tow pilot and discussed how to deal with a developing unsatisfactory situation, including the use of the radio if time and circumstances permit.

| Date | 17-Nov-2019 | Region | NSWGA | SOAR Report Nbr | S-1607 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing |
| A/C Model 1 | ASK-21 | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 75 |

The club had been conducting training operations in hot blustery conditions, and the operational runway had changed a few times due to changes in wind direction. On the last flight of the day the command pilot elected to land on the crosswind runway so that the end of roll would be abeam the appropriate hangar. The command pilot crabbed the approach to maintain the runway heading but did not straighten the nose sufficiently and the glider touched down firmly with a pronounced sideways movement. The command pilot was able to counter the weather cocking and the glider rolled to a stop in a straight line with the right wing on the ground. The following morning some minor damage was found to the aircraft, but the club maintenance engineer could not confirm that the damaged area was due to this landing. Incidents of pilots

modifying their normal operating procedures, or abandoning accepted best practice, for no reason other than convenience are not uncommon in gliding. Good operating procedures and flying standards are developed over time and built on the experience of many pilots and many mistakes. There is no doubt that convenience can be a seductive force but pilots (and clubs) must resist the temptation and recognise that even slight departures from standard accepted good practice can have severe consequences. When landing (or taking off) Pilots should use the runway most closely aligned into wind and ensure they operate within the limitations prescribed in the Aircraft Flight Manual. Civil Aviation Regulations state that the pilot must *"take off or land into the wind if, at the time of the take-off or landing it is practicable to take off or land into the wind"* (CAR 166A(2)(h)).

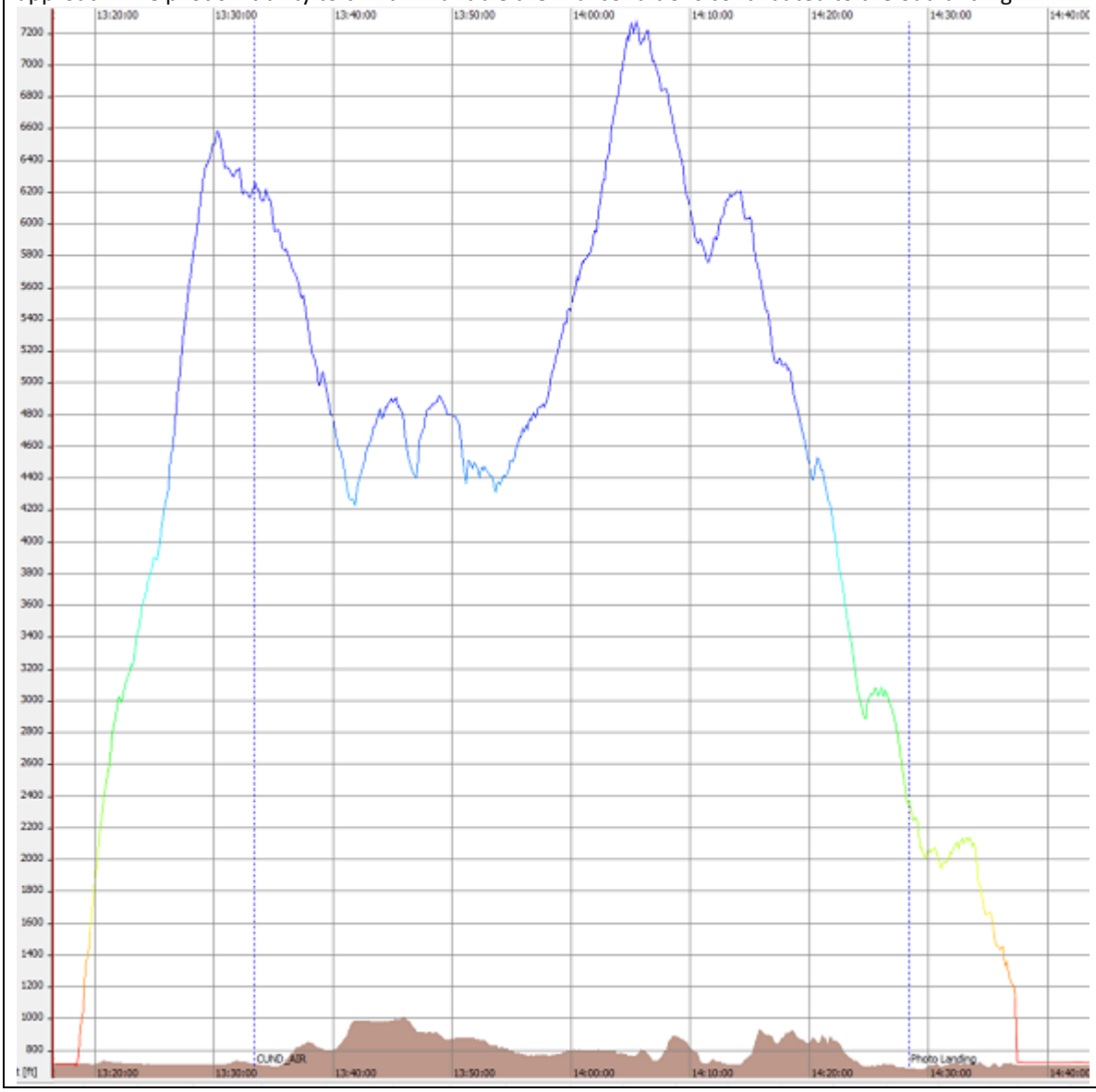
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 22-Nov-2019 | Region | GQ | SOAR Report Nbr | S-1606 | | |
| Level 1 | Technical | Level 2 | Systems | Level 3 | Other Systems Issues | | |
| A/C Model 1 | Discus CS | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Nil | Phase | Ground Ops | PIC Age | |
| On the flight line ready to launch, the release mechanism would not open sufficiently to allow the insertion of the rings attached to the tow rope. The aircraft was returned to the hangar. The glider was inspected by a qualified airworthiness inspector and a foreign metal washer was found lodged under the beak of the release preventing it from opening fully. This was also obvious from the cockpit as the release would only move a short distance when the yellow handle was pulled. The release had been tested by the pilot during the Daily Inspection with no noticeable problems before towing the glider to the launch point. The Discus CS release is mounted in the nose of the glider and is separated from the cockpit area by a bulkhead plate. The bulkhead plate was opened at the last Annual inspection in March of this year. When the plate is opened there is a step which would normally prevent foreign object debris sliding into the forward nose section when the fuselage is in the upright position. It is possible that the washer migrated to this area during maintenance, when the fuselage was rotated in a cradle to access the underside while this panel was open. The only other points of access to the release mechanism is via the nose, where the tost rings are fed into the release, or via the vent tube that allows air to flow into the cockpit. Airflow through the tube is controlled by a flap mounted above the instrument panel, and this flap is also a possible entry point for FOD. Following the removal of the foreign washer the release was tested as functional and the glider was returned to service with no further release issues. This report serves as a reminder to all members that lose objects in an aircraft can cause the malfunction of critical controls. During maintenance or when entering/exiting the cockpit we must be vigilant that no foreign objects are left in the aircraft. It is noted that the aircraft had flown 76 hours over 34 flights since the Annual inspection. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 24-Nov-2019 | Region | GQ | SOAR Report Nbr | S-1612 | | |
| Level 1 | Operational | Level 2 | Terrain Collisions | Level 3 | Collision with terrain | | |
| A/C Model 1 | SZD-50-3 "Puchacz" | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 72 |
| During late final approach the glider was struck by a gust and dropped below the glide slope. The glider touched down immediately short of the runway threshold to the left of the centreline and ran over a runway light. The front wheel fairing separated from the fuselage and crushed backwards onto the front wheel. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 24-Nov-2019 | Region | WAGA | SOAR Report Nbr | S-1611 | | |
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Hard landing | | |
| A/C Model 1 | SZD-48 "Jantar Standard 2" | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Minor | Phase | Outlanding | PIC Age | 27 |

The low experience pilot was undertaking a cross-country flight on a day where thermal conditions and strengths were weak and variable. After an initial climb to 6600 ft AMSL, the pilot headed on task but found himself working weak lift at around 4,000ft. After persisting in weak lift the aircraft eventually climbed to just over 7,200ft, whereupon the pilot headed on task. Over the next 25 kms the aircraft did not encounter any meaningful lift until the glider was down to 3,000ft, where attempts to work some thermal activity around a suitable outlanding paddock resulted in further height loss. With the aircraft down to about 1400ft AGL, the pilot elected the break-of the flight and joined circuit to land in the chosen paddock. The pilot stated he flew *"a cramped circuit and ended up with a very steep final. As a result, I was too fast and a little far down the paddock"*. The pilot misjudged the round out, causing the aircraft to touch down too fast and rebound into the air. The bounce was mishandled, and the aircraft touched down heavily resulting in the pilot's head coming into contact with the canopy. The aircraft ground looped and came to rest about three quarters into the paddock. The pilot was not injured but the aircraft canopy suffered a crack. The pilot's CFI noted that the selected paddock was quite suitable for landing and suspects poor visual height judgement may have been a factor in the pilot cramping the circuit and ending up too high and fast on the final approach. The pilot's inability to climb in variable thermal conditions contributed to the out landing.



| Date | 24-Nov-2019 | Region | VSA | SOAR Report Nbr | S-1609 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Wheels up landing |
| A/C Model 1 | Kestrel | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 80 |

Following a four-hour cross-country flight, the pilot landed the aircraft with the wheel retracted. The pilot reported lowering the undercarriage well before entering circuit but inadvertently retracted it during the pre-landing checks and did not confirm the wheel was down and locked to the placards. OSB 01/14 'Circuit & Landing Advice' confirms that the pre-landing check is to confirm the undercarriage lever is matched to the lowered position on the placard. The pilot advised he is going to re-apply some paint to the indication for wheels down to make it more obvious.

| Date | 28-Nov-2019 | Region | SAGA | SOAR Report Nbr | S-1614 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication |
| A/C Model 1 | Piper PA-25-235 | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | In-Flight | PIC Age | 76 |

The rostered tow pilot conducted the daily inspection on the tow plane and did not identify any defects. At about midday the tow plane took off with a glider under tow. After a normal tow the glider released, and the tow pilot joined circuit for landing. Following a normal approach and landing, the tow pilot *"detected roughness and a scraping sound from the rear of the aircraft. I stopped as soon as practicable and on exiting the aircraft found that the tailwheel assembly had become detached from the support spring and the rear of the aircraft was resting on this spring."* Investigation revealed the head of the bolt securing the tailwheel to the spring had broken off due to fatigue. A replacement bolt was sourced and fitted, and the aircraft returned to service. There is a single AN8 bolt that secures the spring/tailwheel assembly to the aircraft and it is not uncommon for the bolt to fail.

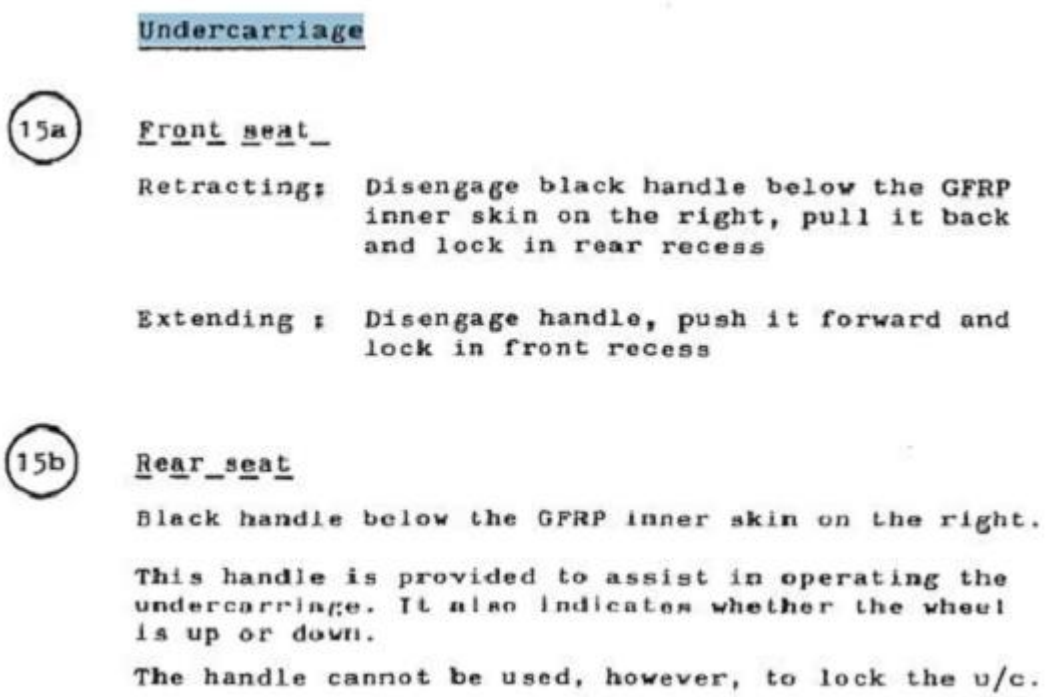
| Date | 1-Dec-2019 | Region | GQ | SOAR Report Nbr | S-1613 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Landing gear/Indication |
| A/C Model 1 | Duo Discus T | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 57 |

**What Happened**

The sortie was to be a coaching flight with a pre-solo student pilot. Prior to the flight, the Coach (who held an AEI rating) conducted a pre-flight briefing including advice on the operation of the undercarriage. The student, who was seated in the front cockpit, had not previously operated an undercarriage and this was their first flight on type. Following a successful flight and during the landing roll the undercarriage collapsed, resulting in some minor damage to the lower fuselage and undercarriage

framework.



Undercarriage

15a

Front seat

Retracting: Disengage black handle below the GFRP inner skin on the right, pull it back and lock in rear recess

Extending : Disengage handle, push it forward and lock in front recess

15b

Rear seat

Black handle below the GFRP inner skin on the right.

This handle is provided to assist in operating the undercarriage. It also indicates whether the wheel is up or down.

The handle cannot be used, however, to lock the u/c.

**Analysis**

Investigation revealed that the undercarriage was operating normally but the student was unfamiliar with its operation and did not properly lock the lever into the locking detent. The Coach was unable to identify the undercarriage was not properly secured as the handle in the rear cockpit merely assists in operating the undercarriage but cannot be used to lock it (refer extract for Flight Manual below).

**Causal Factors**

- The student was unfamiliar with the operation of the undercarriage and did not properly lock the lever into the locking detent.
- The Coach was unable to visually identify undercarriage from rear cockpit.
- The student had low aeronautical experience, which may have led to a lack of situational awareness as to exactly where the undercarriage should be in the down and locked position.**Safety Advice**
- In the case of the early model Duo Discus, the pre-flight briefing must include a thorough explanation of the undercarriage locking mechanism, including advice that the undercarriage can only be locked down by the front seat pilot.
- Provision of an undercarriage alarm MAY have assisted dependent on the sensitivity to the fully locked position.
- When coaching inexperienced pilots in this model Duo Discus the command pilot should consider the merit of flying from the front seat.
- Coaches who are not used to flying with low experienced pilots may over-estimate the student's skill and under-estimate their stress levels.
- Students may become overwhelmed and/or stressed by the increased workload and learning required to operate a high-performance aircraft for the first time.

| Date | 4-Dec-2019 | Region | GQ | SOAR Report Nbr | S-1617 |
|---|---|---|---|---|---|

| Level 1 | Operational | Level 2 | Airframe | Level 3 | Fuselage/Wings/Empennage |
|---|---|---|---|---|---|
| A/C Model 1 | Hornet | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 16 |

**What Happened**

During a competition launch the pilot heard a loud grinding sound like metal rubbing against something, the pitch of which changed when the rudder was used. Upon reaching a safe height the pilot released from tow and made a safe landing on the aerodrome. Investigation revealed a 50mm x 50mm strip of mylar sealing tape had deboned from the elevator. The noise heard by the pilot was caused by the airflow around the unseated seal. The seal was repaired, and the aircraft returned to service.

**Analysis**

The pilot commented that he had outlanded the day before, and some club members and himself derigged the glider and the rigged it the next morning. He then set out to fly for the comp day. As soon as the tow plane began pulling the glider, the pilot could hear a very deep groaning sound, which he described as *"like something metal on something...."* The pilot stated: *"the sound didn't change pitch until moving the rudder, when the noise would change pitch like a floorboard squeaking. The noise was as loud as to prevent me from making a radio call."* After landing, a visual inspection of the elevator revealed a 50mm by 50mm piece of the mylar tape was not properly attached. The pilot reported that he climbed on tow to a safe height in order to conduct a safe landing on the airfield. The pilot packed the glider into its trailer and returned it to the gliding club to have the mylar strip repaired.

**Causal Factors**

The pilot handled the situation well in the air and did the right thing by gaining enough height to conduct a safe circuit and landing. A more thorough Daily Inspection (DI) may have picked up the debonded mylar tape, however it is unlikely that this was the first inspection of the tailplane, so it had been missed previously as well  The aircraft had only recently returned to service after its annual inspection, therefore it is unknown if a repair was conducted in this area or if the debonding may have been overlooked.

**Safety Advice**

- Pilots must always conduct a thorough DI and pre-flight inspection before flight to confirm that the aircraft is safe to fly, paying particular attention to flight controls and seals which can affect flight controllability.
- If abnormal airframe noise occurs in flight, then the pilot must assume that something concerning the airframe has changed and they should then terminate the flight as soon as possible and land the aircraft.  Once landed, a thorough inspection of the airframe should be conducted in order to confirm that all flight controls and seals are in good order.
- Pilots should not assume that an aircraft returned to service following annual maintenance is free from safety issues.

| Date | 5-Dec-2019 | Region | VSA | SOAR Report Nbr | S-1615 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Communications | Level 3 | Other Communications Issues |
| A/C Model 1 | Jonkers JS-3 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | |

The pilot of a foreign-registered aircraft on approach to a Regional aerodrome made a radio call using the last two letters of the aircraft's registration as its callsign, prefixed with the word glider. The same callsign was also being by an Australian 'G' series registered glider with the same last two letters. Radio callsigns in use for Australian registered sailplanes consist of the last three letters of the aircraft registration (e.g. the callsign for VH-GFR is 'Golf Foxtrot Romeo'). Radio callsigns for foreign registered gliders must use all the characters corresponding to the registration marking of the aircraft (e.g. G-ABCD "GOLF ALPHA BRAVO CHARLIE DELTA". When making radio broadcasts pilots must use the callsign prefixed with the word

"glider". Pilots of aircraft with a GFA registered competition mark are permitted to use the registered competition mark as a callsign on the primary gliding frequencies, or on any additional temporary gliding frequency. On all other frequencies the aircraft registration is to be used. The pilot of the foreign registered glider was informed of the regulatory requirements.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | 5-Dec-2019 | Region | | GQ | | SOAR Report Nbr | | S-1616 | |
| Level 1 | Operational | | Level 2 | Terrain Collisions | | Level 3 | Collision with terrain | | |
| A/C Model 1 | | SZD-48-3 Jantar Standard 3 | | | A/C Model 2 | | | | |
| Injury | Nil | Damage | Substantial | Phase | Outlanding | | PIC Age | 16 | |

**What Happened**

While on the first leg of a competition task, the pilot found themselves continuing low over unlandable terrain in hope of finding good lift. When arriving on the other side of the unlandable terrain, the pilot found themselves with limited outlanding options. The first selected paddock, upon further inspection, had numerous contours and SWER lines leading the pilot to land on their second option. The pilot relied on the program XCSoar for wind direction, leading them to land with a tail wind. This led to the final approach and flare extending much further into the paddock, leading the glider to roll over a contour at the end of the paddock before the pilot had to do a low speed ground loop through 45 degrees in order to avoid the fence. The glider had nosed over on the other side of the contour, leaving a hole under the nose. The glider came to rest with the wingtip approximately 1metre from the fence.

**Analysis**

The pilot stated that they relied on the program XCSoar for wind direction, leading them to land with a tail wind. This resulted in the pilot joining final too high, resulting in the glider landing well into the paddock. The glider struck a contour at the end of the paddock and the pilot initiated a low speed ground loop through 45 degrees in order to avoid the end fence. The glider came to rest with the wingtip approximately one metre from the fence and the lower forward fuselage was substantially damaged. The accident was investigated by the Competition Safety Officer, who identified *"poor flight management, in particular competition focus overriding safety risk management. Situational awareness was impeded by use of flight computer instead of using outside cockpit cues as trained."* The pilot was counselled on the importance of, and the reasons why, the GFA's standard outlanding Procedures must be used. A coaching flight was arranged with the focus on advanced cross-country flight management; and particularly when to change from being a 'Soaring Pilot' to a 'Landing Pilot'. The pilot gave an account of their experience and lessons learned at the following morning's Safety Briefing. The Competition Safety Officer further noted: *"It is important to mention the serious risk of injury and the potentially fatal consequences was clearly acknowledged by (the pilot)."*

**Causal Factors**

The pilot had only recently qualified for their Glider Pilot Certificate (GPC), however they had demonstrated good situational awareness and airmanship during all flights and were also in training for an AEI rating. A series of factors contributed to this incident. The pilot had not previously flown solo into the competition area, where the terrain is more challenging than that found over most of the Darling Downs where the pilot flies. The pilot may have expected the terrain and conditions would be similar to the Darling Downs. This was also the pilot's first competition, which along with peer pressure may have led to a reduction in safety margins and a reliance on computers instead of an assessment of the situation.

**Safety Advice**

- Clubs must ensure that pilots who have recently obtained their GPC and propose to fly from a more difficult site over more difficult terrain have appropriate training.
- The use of GFA's standard outlanding procedures may need to be reinforced to new GPC qualified pilots attending early competitions or regattas.
- Pilots must ensure they stay within gliding distance of safe landing areas, so that there are options available should the first selection be deemed unsuitable.

- Pilots should not be afraid to reverse direction in a circuit if they realise that the selected direction does not favour the prevailing wind. Do not make a bad situation worse by continuing with a poor choice if a safer option is available.
- Pilots must use external references to assess the conditions and wind direction, and should not rely on flight computers.

| Date | 7-Dec-2019 | Region | GQ | SOAR Report Nbr | S-1639 |
|---|---|---|---|---|---|

| Level 1 | Operational | Level 2 | Flight Preparation/Navigation | Level 3 | VFR into IMC |
|---|---|---|---|---|---|
| A/C Model 1 | JS1 C 18/21 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 54 |

**Synopsis**

The pilot reported landing 6 minutes after last light. During the final leg of a cross-country flight and at a height of 11,000ft the pilot estimated he had final glide and would arrive at the aerodrome comfortably before last light. However, the pilot found he needed to reduce speed to maintain the glide and this resulted in the flight taking longer than anticipated. The pilot stated that he "was very familiar with the Airfield and with the aid of runway lighting I considered this to be the safest option instead of an outlanding in a dark field". A safe landing was made.

**Analysis**

On the final leg of a long distance flight final glide was achieved at a height of 11,000ft and greater than 100kms from the home airfield. As the glide progressed the pilot recognised that the light was fading but elected to continue to the home airfield as he considered this to be the safest option. Assistance was sought from those on the ground to activate the runway lights prior to arrival and a normal landing was conducted at 19:09 EST, eight minutes after last light. The pilot stated that, at the top of the last climb the glide computer indicated final glide was established and the estimated arrival time was before sunset. During the subsequent glide the cruise speed had to be reduced to maintain a safe margin causing the later than expected arrival.

**Causal Factors**

The expected speed on the final glide was not achieved due to atmospheric conditions. By the time the pilot realised that the arrival would be late a precautionary landing in a paddock was considered a higher risk than a late arrival at the home airfield due to the fading light.

**Corrective action**

The pilot was counselled on the need to include sunset times when planning long distance flights, and to monitor progress during the flight and consider alternates well before sunset.

**Recommendations**

Pilots conducting cross-country flights must have an awareness of sunset & last light times when planning distance flights so that the need to divert to alternates can be made while there is sufficient light to do so safely.

| Date | 12-Dec-2019 | Region | SAGA | SOAR Report Nbr | S-1628 |
|---|---|---|---|---|---|
| Level 1 | Consequential Events | Level 2 | Low Circuit | Level 3 | Low Circuit |
| A/C Model 1 | Grob G 103 Twin II | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Landing | PIC Age | 46 |

While attempting to thermal in broken lift above the airfield, the glider descended to a height at which the pilot made the decision to break off the flight. The pilot elected to land on the non-operational runway due to strong areas of local sink, with the view to landing near the hangars. While approaching the cross strip the pilot observed a powered aircraft climbing out over the operational runway ahead. The pilot modified their circuit entry to avoid the powered aircraft, which resulted in the pilot flying a very low circuit. The pilot turned onto final approach early and made a safe landing near the hangars. The pilot was debriefed by the Duty Instructor, who discussed break off points, alternative circuits and airmanship. Discussion with the pilot of the powered aircraft revealed that he had seen the glider and was able to ensure separation.

| Date | 14-Dec-2019 | Region | SAGA | SOAR Report Nbr | S-1620 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Other Miscellaneous |
| A/C Model 1 | ASK-21 | A/C Model 2 | | | |

| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 17 |
|---|---|---|---|---|---|---|---|
| The sortie was a training flight with the second pilot undertaking their Annual Flight Review. During the winch launch one of the support staff at the launch point, who was unfamiliar with the glider (ASK21), called for the launch point controller to stop the launch as he thought the aircraft was taking off with a tail dolly fitted. The launch point controller radioed the winch driver who cut the power. The glider had just become airborne at this stage and upon the loss of power the pilot under check operated the release and landed safely ahead. As it transpired, the support person at the launch point had mistaken the glider's spin kit, which is bolted to the fin of the glider, for the tail dolly. | | | | | | | |

| Date | 16-Dec-2019 | Region | GQ | SOAR Report Nbr | S-1621 |
|---|---|---|---|---|---|
| Level 1 | Technical | Level 2 | Powerplant/Propulsion | Level 3 | Abnormal Engine Indications |
| A/C Model 1 | Piper PA-25-235 | A/C Model 2 | DG-1000S | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 71 |
| During a glider launch and at a height of between 600-700 Ft AGL the tow pilot noticed a drop in oil pressure, which while low was within the operating range. The pilot monitored the oil pressure and noticed it was continually falling. At a height of about 1300ft AGL the tow pilot signalled the glider pilot (by rocking the tow plane's wings) to release. The glider pilot immediately identified the signal and released from tow. The flight instructor in the glider continued with the training sortie, while the tow pilot conducted a normal circuit and landing. The tow plane was taken out of service and inspected by a Licensed Aircraft Maintenance Engineer who found the oil relief valve was sticking open. The valve was serviced, and the oil filter was removed and dissected with no abnormalities identified. The aircraft was later returned to service. | | | | | | | |

| Date | 17-Dec-2019 | Region | WAGA | SOAR Report Nbr | S-1619 |
|---|---|---|---|---|---|
| Level 1 | Technical | Level 2 | Systems | Level 3 | Other Systems Issues |
| A/C Model 1 | JS3 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 58 |
| When releasing the tow cable on the ground after a cancelled competition day, the cable released but the function felt abnormal. On investigation, it was found that both the nose and belly releases were not functioning as designed. The boot was lifted from around the control column and revealed that the factory fitted swage had come off the securing cable attached to the bulkhead and the pulley. The cabling was repaired, and a new swage fitted. | | | | | | | |

| Date | 18-Dec-2019 | Region | GQ | SOAR Report Nbr | S-1624 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Crew and Cabin Safety | Level 3 | Other Crew and Cabin Safety Issues |
| A/C Model 1 | ASK-21 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 62 |
| CASA referred to GFA a complaint in relation to information posted on a Gliding Club's Facebook account about a glider flight that spent up to 30 minutes above 10,000 feet AMSL and approximately 16 minutes above FL120. The complainant alleged that supplemental oxygen was not available to the flight crew during the flight in accordance with CAO 20.4. The allegation was referred to the Club CFI who spoke with the pilot concerned. The command pilot stated that he was under the misapprehension that he was not required to carry supplemental oxygen as he did not spend more than 30 minutes above 10,000ft. While some overseas jurisdictions allow flight at altitudes above 10,000 feet through 12,000 feet without using oxygen (e.g. USA – refer FAR 135.89), this is not the case in Australia. The flight crew were counselled and informed of the requirements. | | | | | | | |

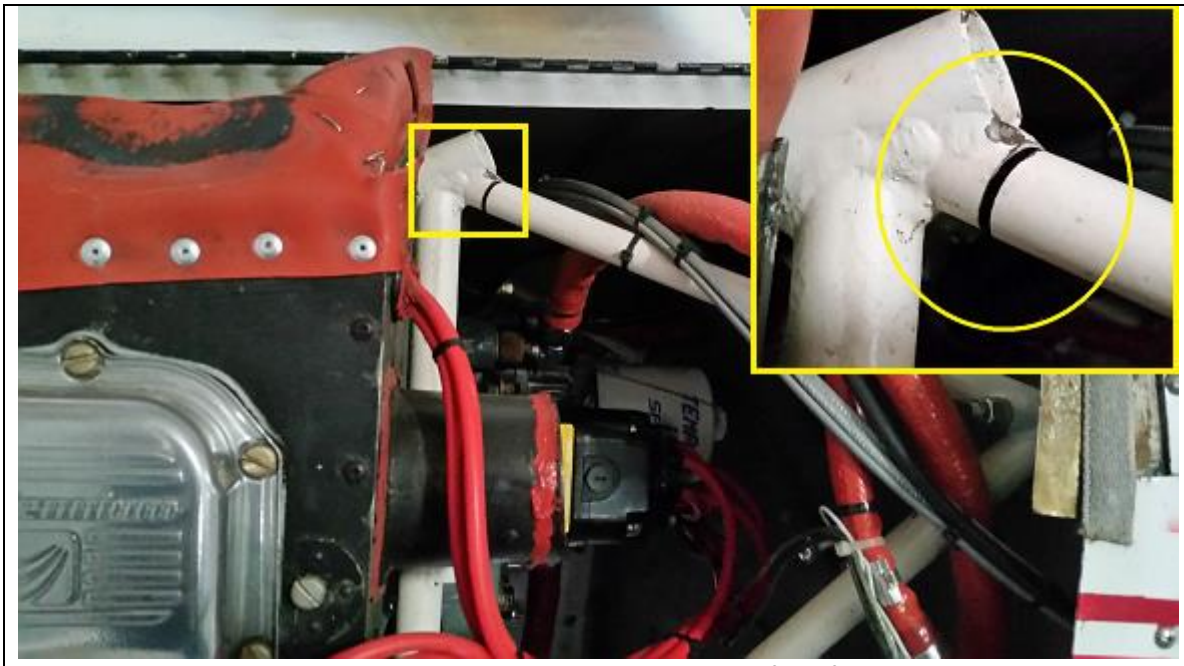
| Date | 21-Dec-2019 | Region | WAGA | SOAR Report Nbr | S-1623 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope break/Weak link failure |
| A/C Model 1 | DG-1000S | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 69 |
| The Club experienced three rope breaks on one day, with one rope breaking twice. All breaks occurred during the initial roll during take-off. Investigation revealed that the breakages were most likely due to excessive wear from prolonged use. The club has replaced all the ropes, which have been numbered and marked with an in-service date. The ropes will be kept in service for 6 months before replacement, and after four months they will be reversed so the worn section will be at the towplane end. | | | | | |

| Date | 21-Dec-2019 | Region | WAGA | SOAR Report Nbr | S-1625 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope break/Weak link failure |
| A/C Model 1 | LS 4 | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 69 |
| The Club experienced three rope breaks on one day, with one rope breaking twice. All breaks occurred during the initial roll during take-off. Investigation revealed that the breakages were most likely due to excessive wear from prolonged use. The club has replaced all the ropes, which have been numbered and marked with an in-service date. The ropes will be kept in service for 6 months before replacement, and after four months they will be reversed so the worn section will be at the towplane end. | | | | | |

| Date | 21-Dec-2019 | Region | WAGA | SOAR Report Nbr | S-1626 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Miscellaneous | Level 3 | Rope break/Weak link failure |
| A/C Model 1 | Discus bT | A/C Model 2 | | | |
| Injury | Nil | Damage | Nil | Phase | Launch | PIC Age | 64 |
| The Club experienced three rope breaks on one day, with one rope breaking twice. All breaks occurred during the initial roll during take-off. Investigation revealed that the breakages were most likely due to excessive wear from prolonged use. The club has replaced all the ropes, which have been numbered and marked with an in-service date. The ropes will be kept in service for 6 months before replacement, and after four months they will be reversed so the worn section will be at the towplane end. | | | | | |

| Date | 21-Dec-2019 | Region | VSA | SOAR Report Nbr | S-1627 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Airframe | Level 3 | Other Airframe Issues |
| A/C Model 1 | Piper PA-25-235 | A/C Model 2 | | | |
| Injury | Nil | Damage | Minor | Phase | Ground Ops | PIC Age | 66 |
| During the Daily Inspection the pilot found the engine mount to be cracked, with full separation of the port-side top longitudinal engine mount (see photograph). | | | | | |



Inspection by a LAME led to the conclusion that the damage resulted from fatigue, most likely initiated by an earlier unreported heavy landing.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 22-Dec-2019 | Region | VSA | SOAR Report Nbr | S-1622 | | |
| Level 1 | Operational | Level 2 | Runway Events | Level 3 | Runway undershoot | | |
| A/C Model 1 | Twin Astir -LP | A/C Model 2 | | | | | |
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 62 |

During a training sortie the final approach was being flown by the student, with assistance from the instructor who was manipulating the rudder and airbrakes. The instructor selected a space between the runway end markers as the aiming point and the student maintained correct attitude and speed during final approach. The aircraft was flared and touched down normally in the undershoot area, but the port wing caught in high grass and the aircraft ground looped, completing almost two rotations around the wing. The aircraft suffered damage to the port aileron and tailwheel fairing. The command pilot stated "*On final approach I was closely monitoring the student's nose attitude and speed control which he was handling well. This may have distracted me from the accuracy of our touchdown point and I underestimated the length of the grass. The touchdown was well within the runway but 20 meters short of the desired point.*" Investigation identified that had the pilot closed the airbrakes instead of continuing with them open, a landing on the mowed grass section of the runway should have been achievable. Following this incident, the entire airfield was mowed for hay and should not create any hazards for the rest of the season. In the future when the airfield has long grass prior to cutting for hay, the Club's operations will be limited to operating on the mowed gliding strip adjacent to the main runway. The glider was repaired at a cost of $3420.00.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | 30-Dec-2019 | Region | | NSWGA | SOAR Report Nbr | | S-1630 |
| Level 1 | Environment | | Level 2 | Weather | | Level 3 | Other Weather Events |
| A/C Model 1 | | Piper PA25-235 | | | A/C Model 2 | | |

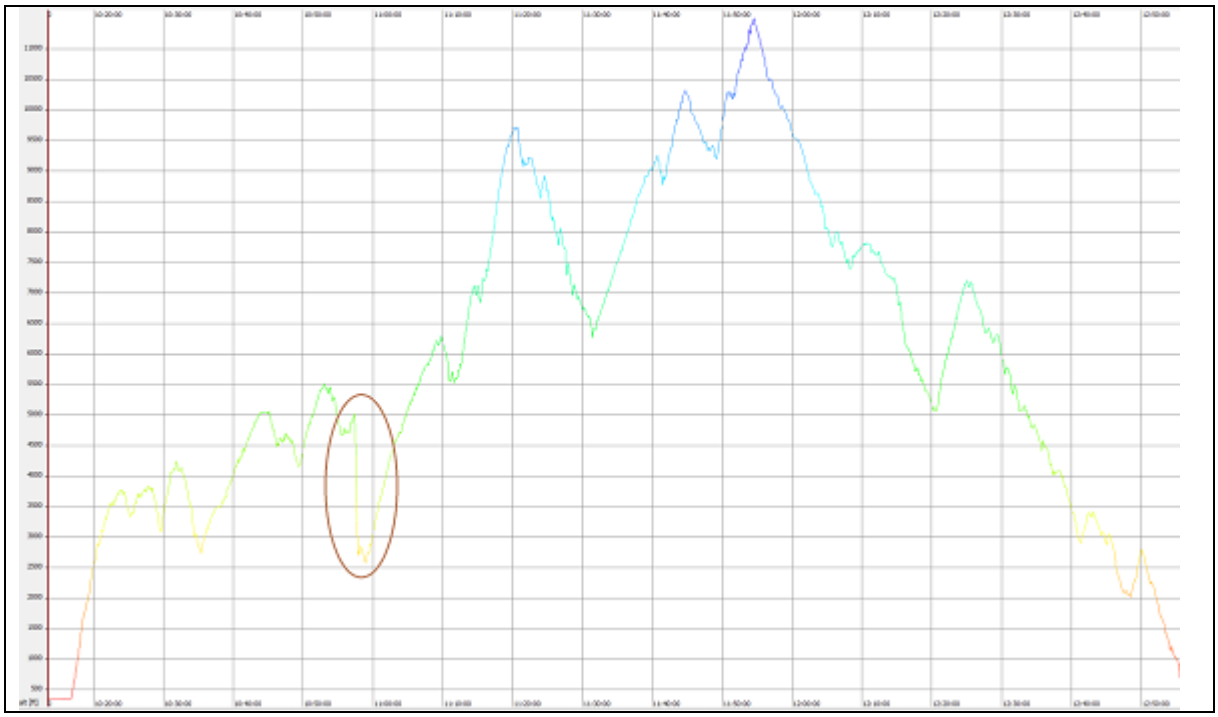
| Injury | Nil | Damage | Minor | Phase | Landing | PIC Age | 58 |
|---|---|---|---|---|---|---|---|
| During landing roll in strong thermal conditions, the tug encountered an unexpected crosswind gust causing the port wing to lift and the starboard wingtip fairing to contact the ground. Investigation revealed the wing briefly and lightly contacted the ground, with damage limited to abrasion of the fabric at the tip. A temporary and authorised tape repair allowed the aircraft to remain in service pending scheduled maintenance. | | | | | | | |

| Date | 31-Dec-2019 | Region | NSWGA | SOAR Report Nbr | S-1629 |
|---|---|---|---|---|---|
| Level 1 | Operational | Level 2 | Aircraft Control | Level 3 | Loss of control |
| A/C Model 1 | Discus-2b | A/C Model 2 | | | |

| Injury | Nil | Damage | Nil | Phase | In-Flight | PIC Age | 61 |
|---|---|---|---|---|---|---|---|

The pilot was undertaking a cross-country flight, for which he was well rested and prepared. He had 239 hours experience over 280 launches but was on his second flight on type. Conditions were gusty and visibility was moderate due to smoke haze. While thermalling at 5000ft about 10kms on the first leg of the task, the glider stalled and pitched vertically down. The pilot, suddenly looking at the ground, instinctively pulled back on the control column to no effect. The pilot did not perceive any rotation but applied left rudder input as he usually thermals to the right. This action had little effect and the aircraft continued to fly towards the ground. The pilot then remembered to ease the stick forward, and with left rudder still applied control was regained. The aircraft recovered after losing 2500ft. A pilot flying nearby observed the glider rotate several revolutions with a small pause or slowing of rotation prior to recovery. The pilot continued the flight uneventfully. It was noted that the pilot was flying near the aft CG position, which would have made the aircraft prone to spinning. By far the most common cause of entry to an unintentional spin is yaw at the stall caused by out-of-balance flight. The development and characteristics of a spin vary between glider types, but a glider will usually rotate a few times before it settles down into a state of spinning steadily. The spin stabilises once a complicated balance is reached between the various aerodynamic and inertial forces acting on the aircraft. Spinning ceases only if, and when, opposing forces and moments overcome auto-rotation. Since yaw coupled with roll powers the spin, the pilot must forcibly uncouple them by applying full opposite rudder. This is followed by forward movement on the stick or control column. During the recovery phase, the nose attitude typically steepens, and the rate of rotation may momentarily accelerate as well, giving the impression that the spin is actually getting worse. It is not, and the anti-spin control inputs must be maintained until the spin stops. Spin recovery is not instantaneous. It may take up to several turns for the anti-spin control inputs to finally overcome pro-spin forces. The longer an aircraft is in a spin, the more turns it may take to recover. Spins are recoverable only when the cumulative effects of the interacting variables favour recovery and there is enough altitude. Pilots can protect themselves against a debilitating surprise reaction or startle response through scenario-based training, and in such training, instructors can incorporate realistic distractions to help provoke startle or surprise. The GFA Flight Review provides this recurrent training by requiring the pilot under check to practice and demonstrate spin recovery. This regular practice is intended to inure the pilot against the startle effect and enable them to take the correct recovery actions instantly and without hesitation. Although the pilot had undertaken spinning during his previous flight review, he has recognised the need for further training in recovering from unusual attitudes; for had this incident occurred below 2500ft, the outcome may not have been so favourable. For further information, refer to OAN 01/19 'Is incipient spin training permitted in your aircraft?'



| Level 1 | Level 2 | Level 3 | Definition |
|---|---|---|---|
| Airspace | Aircraft Separation | Collision | An aircraft collides with another aircraft either airborne or on the runway strip, or a vehicle or person on the runway strip. |
| Airspace | Aircraft Separation | Issues | Airspace - Aircraft separation occurrences not specifically covered elsewhere. |
| Airspace | Aircraft Separation | Near collision | An aircraft comes into such close proximity with another aircraft either airborne or on the runway strip, or a vehicle or person on the runway strip, where immediate evasive action was required or should have been taken.<br>(a) En-route<br>(b) Thermalling<br>(c) Circuit |
| Airspace | Airspace Infringement | Airspace Infringement | Where there is an unauthorised entry of an aircraft into airspace for which a clearance is required. |
| Airspace | Other | Other Airspace Events | Airspace occurrences not specifically covered elsewhere. |
| Consequential Events | Ditching | Ditching | When an aircraft is forced to land on water. |
| Consequential Events | Diversion / Return | Diversion / Return | When an aircraft does not continue to its intended destination, but either returns to the departure aerodrome or lands at an alternative aerodrome. |
| Consequential Events | Emergency / Precautionary descent | Emergency / Precautionary descent | **Emergency descent** - Circumstances that require the flight crew to initiate an immediate high rate descent to ensure the continued safety of the aircraft and its occupants. |
| Consequential Events | Emergency evacuation | Emergency evacuation | When crew and/or passengers vacate an aircraft in situations other than normal and usually under the direction of the operational crew. |
| Consequential Events | Forced / Precautionary landing | Forced / Precautionary landing | **Forced landing** – Circumstances under which an aircraft can no longer sustain normal flight and must land regardless of the terrain. **Precautionary landing** - A landing made as a precaution when, in the judgement of flight crew, a hazard exists with continued flight. |
| Consequential Events | Low Circuit | Low Circuit | Any occasion where a pilot flies a Low Circuit that was potentially hazardous. |
| Consequential Events | Other | Other Consequential Events | Consequential events not specifically covered elsewhere. |
| Environment | Weather | Icing | Any icing issue that affects the performance of an aircraft. |
| Environment | Weather | Lightning strike | The aircraft is struck by lightning. |
| Environment | Weather | Other Weather Events | Weather occurrences not specifically covered elsewhere. |
| Environment | Weather | Turbulence/Windshear/Microburst | Aircraft performance and/or characteristics are affected by turbulence, windshear or a microburst. |
| Environment | Weather | Unforecast weather | Operations affected by weather conditions that were not forecast or not considered by the flight crew. |
| Environment | Wildlife | Animal strike | A collision between an aircraft and an animal. |
| Environment | Wildlife | Birdstrike | A collision between an aircraft and a bird. |
| Environment | Wildlife | Other Wildlife Events | Wildlife related occurrences not specifically covered elsewhere. |
| Operational | Aircraft Control | Airframe overspeed | The airspeed limit has been exceeded for the current aircraft configuration as published in the aircraft manual. |
| Operational | Aircraft Control | Control issues | The flight crew encounter minor aircraft control difficulties while airborne or on the ground. |
| Operational | Aircraft Control | Hard landing | Damage occurs during the landing. |
| Operational | Aircraft Control | Incorrect configuration | An aircraft system is incorrectly set for the current and/or intended phase of flight. |
| Operational | Aircraft Control | In-flight break-up | The aircraft sustained an airborne structural failure or damage to the airframe, to the extent that continued flight is no longer possible. |
| Operational | Aircraft Control | Loss of control | When control of the aircraft is lost or there are significant difficulties controlling the aircraft either airborne or on the ground. |
| Operational | Aircraft Control | Other Control Issues | Aircraft control occurrences not specifically covered elsewhere. |
| Operational | Aircraft Control | Pilot Induced Oscillations | Any PIO occurrence occassioning damage. |
| Operational | Aircraft Control | Stall warnings | Any cockpit warning or alert that indicates the aircraft is approaching an aerodynamic stall. |
| Operational | Aircraft Control | Wheels up landing | An aircraft contacts the intended landing area with the landing gear retracted. |

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|---|---|---|---|
| Operational | Aircraft Loading | Loading related | The incorrect loading of an aircraft that has the potential to adversely affect any of the following:<br>a) the aircraft's weight;<br>b) the aircraft's balance;<br>c) the aircraft's structural integrity;<br>d) the aircraft's performance;<br>e) the aircraft's flight characteristics. |
| Operational | Aircraft Loading | Other Loading Issues | Aircraft loading occurrences not specifically covered elsewhere. |
| Operational | Airframe | Doors/Canopies | When a door or canopy, or its component parts, has failed or exhibited damage. |
| Operational | Airframe | Furnishings & fittings | An internal aircraft furnishing or fitting, including its component parts, has failed or exhibited damage. |
| Operational | Airframe | Fuselage/Wings/Empennage | Damage to the fuselage, wings, or empennage not caused through collision or ground contact. |
| Operational | Airframe | Landing gear/Indication | When the landing gear or its component parts (including indications), has failed or exhibited damage. |
| Operational | Airframe | Objects falling from aircraft | Objects inadvertently falling from or detaching from an aircraft. |
| Operational | Airframe | Other Airframe Issues | Technical - Airframe occurrences not specifically covered elsewhere. |
| Operational | Airframe | Windows | A window or a component part has failed or exhibited damage. |
| Operational | Communications | Other Communications Issues | Communications occurrences not specifically covered elsewhere. |
| Operational | Communications | Transponder related | The incorrect setting of a code and/or usage of transponder equipment. |
| Operational | Crew and Cabin Safety | Cabin injuries | A cabin crew member or passenger has suffered an illness or injury. |
| Operational | Crew and Cabin Safety | Flight crew incapacitation | A Flight Crew member is restricted to nil or limited duties as a result of illness or injury. |
| Operational | Crew and Cabin Safety | Inter-crew communications | Relates specifically to a loss, or breakdown, of communication between flight crew or associated ground staff. |
| Operational | Crew and Cabin Safety | Other Crew and Cabin Safety Issues | Cabin safety occurrences not specifically covered elsewhere. |
| Operational | Crew and Cabin Safety | Passenger related | Where the actions of a passenger adversely or potentially affects the safety of the aircraft. |
| Operational | Crew and Cabin Safety | Unrestrained objects | When objects are not appropriately restrained for the aircraft operation or phase of flight. |
| Operational | Fire Fumes and Smoke | Fire | Any fire that has been detected and confirmed in relation to an aircraft operation. |
| Operational | Fire Fumes and Smoke | Fumes | When abnormal fumes or smells are reported on board the aircraft. |
| Operational | Fire Fumes and Smoke | Smoke | When smoke is reported to be emanating from:<br>a) inside the aircraft; or<br>b) an external component of the aircraft. |
| Operational | Flight Preparation/Navigation | Aircraft preparation | Errors or omissions during the planning and/or pre-flight phase that affect or may affect aircraft safety in relation to:<br>a) the aircraft's weight;<br>b) the aircraft's balance;<br>c) the aircraft's structural integrity;<br>d) the aircraft's performance;<br>e) the aircraft's flight characteristics. |
| Operational | Flight Preparation/Navigation | Lost / Unsure of position | When flight crew are uncertain of the aircraft's position and/or request assistance from an external source. |
| Operational | Flight Preparation/Navigation | Other Flight Preparation/Navigation Issues | Navigation - Flight planning occurrences not specifically covered elsewhere. |
| Operational | Flight Preparation/Navigation | VFR into IMC | An aircraft operating under the Visual Flight Rules enters Instrument Meteorological Conditions. |
| Operational | Fuel Related | Contamination | When the presence of a foreign substance is found in fuel. |
| Operational | Fuel Related | Exhaustion | When the aircraft has become completely devoid of useable fuel. |
| Operational | Fuel Related | Leaking or Venting | Relates specifically to the unplanned loss of fuel from a fuel tank or fuel system. |
| Operational | Fuel Related | Low fuel | The aircraft's supply of fuel becoming so low (whether or not the result of a technical issue) that the safety of the aircraft is compromised. |
| Operational | Fuel Related | Other Fuel Related Issues | Fuel related occurrences not specifically covered elsewhere. |

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| Operational | Fuel Related | Starvation | When the fuel supply to the engine(s) is interrupted, but there is still usable fuel on board the aircraft. |
| Operational | Ground Operations | Foreign Object Damage/Debris | Any loose objects on an aerodrome have caused, or have the potential to cause, damage to an aircraft. |
| Operational | Ground Operations | Ground handling | Any ground handling and aircraft servicing that caused, or has the potential to cause injury or damage to a stationary aircraft. |
| Operational | Ground Operations | Jet blast/Prop/Rotor wash | Any air disturbance from a ground-running aircraft propeller, rotor or jet engine that has caused, or has the potential to cause, injury or damage to property. |
| Operational | Ground Operations | Other Ground Ops Issues | Ground operation occurrences not specifically covered elsewhere. |
| Operational | Ground Operations | Taxiing collision/near collision | An aircraft collides, or has a near collision, with another aircraft, terrain, person or object on the ground or on water during taxi. |
| Operational | Miscellaneous | Missing aircraft | The aircraft is reported as missing. |
| Operational | Miscellaneous | Other Miscellaneous | Miscellaneous occurrences not specifically covered elsewhere in this manual. |
| Operational | Miscellaneous | Rope break/Weak link failure | Towplane separation incident necessitating a modified circuit. |
| Operational | Miscellaneous | Rope/Rings airframe strike | Airframe struck by launch cable or rings. Includes entanglemt with rope. |
| Operational | Miscellaneous | Warning devices | Situations in which an aural or visual aircraft warning device activates to alert the flight crew to a situation requiring immediate or prompt corrective action. |
| Operational | Miscellaneous | Winch Performance Issue | Any incident caused by poor winch performance, such as power failure, or mechanical reasosn. |
| Operational | Runway Events | Depart/App/Land wrong runway | An aircraft that:<br>a) takes off<br>b) lands,<br>c) attempts to land from final approach<br>d) operates in the circuit<br>at, to or from an area other than that authorised or intended for landing or departure |
| Operational | Runway Events | Other Runway Events | Runway event occurrences not specifically covered elsewhere. |
| Operational | Runway Events | Runway excursion | An aircraft that veers off the side of the runway or overruns the runway threshold. |
| Operational | Runway Events | Runway incursion | The incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft. |
| Operational | Runway Events | Runway undershoot | Any aircraft attempting a landing and touches down prior to the threshold. |
| Operational | Terrain Collisions | Collision with terrain | Any collision between an airborne aircraft and the ground, water or an object, where the flight crew were aware of the terrain prior to the collision. |
| Operational | Terrain Collisions | Controlled flight into terrain (CFIT) | When a serviceable aircraft, under flight crew control, is inadvertently flown into terrain, obstacles or water without either sufficient or timely awareness by the flight crew to prevent the collision. |
| Operational | Terrain Collisions | Ground strike | When part of the aircraft drags on, or strikes, the ground or water. |
| Operational | Terrain Collisions | Wirestrike | When an aircraft strikes a wire, such as a powerline, telephone wire, or guy wire, during normal operations. |
| Technical | Powerplant/Propulsion | Abnormal Engine Indications | A visual or cockpit warning that indicates an engine is malfunctioning or operating outside normal parameters. |
| Technical | Powerplant/Propulsion | Engine failure or malfunction | An engine malfunction that results in a total engine failure, a loss of engine power or is rough running. |
| Technical | Powerplant/Propulsion | Other Powerplant/Propulsion Issues | Powerplant / Propulsion occurrences not specifically covered elsewhere. |
| Technical | Powerplant/Propulsion | Propeller malfunction | The failure or malfunction of an aircraft propeller or its associated components. |
| Technical | Powerplant/Propulsion | Transmission & Gearboxes | The failure or malfunction of an aircraft transmission/gearbox and/or its associated components. |

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|---|---|---|---|
| Technical | Systems | Avionics/Flight instruments | The partial or complete loss of normal functioning of the avionics system or its components. |
| Technical | Systems | Electrical | The partial or complete loss of normal functioning of the aircraft electrical system. |
| Technical | Systems | Flight controls | The partial or complete loss of normal functioning of a primary or secondary flight control system. |
| Technical | Systems | Fuel | The partial or complete loss of normal functioning of the fuel system. |
| Technical | Systems | Hydraulic | The partial or complete loss of the hydraulic system. |
| Technical | Systems | Other Systems Issues | Technical - Systems occurrences not specifically covered elsewhere. |