The Gliding Federation of Australia Inc

Occurrence Summaries

01/01/2020 to 31/12/2020

Region(s): All

Club:

Christopher Thorpe
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The Gliding Federation of Australia Inc.

18-Aug-2021

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

Date From: 01/01/2020
Date to: 31/12/2020

Damage	**VSA**	**WAGA**	**NSWGA**	**GQ**	**SAGA**	**Total**
Nil	13	10	21	28	7	79
Minor	7	8	10	13	3	41
Substantial	2	4	3	4	1	14
Write-off			1			1
Total	**22**	**22**	**35**	**45**	**11**	**135**

Injury	**VSA**	**WAGA**	**NSWGA**	**GQ**	**SAGA**	**Total**
Nil	22	22	34	44	11	133
Minor			1	1		2
Total	**22**	**22**	**35**	**45**	**11**	**135**

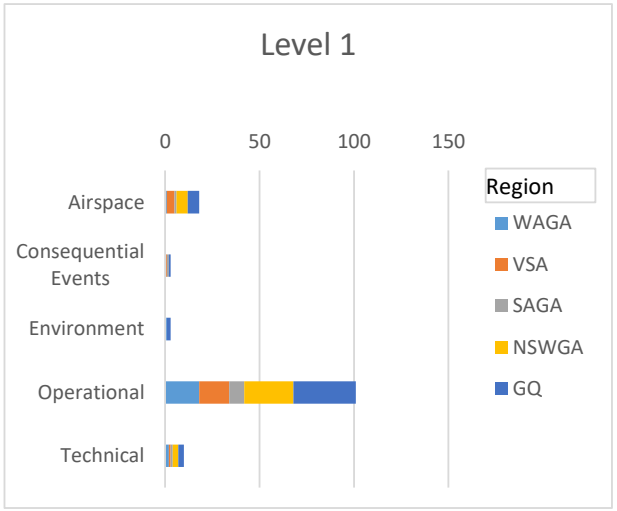
Phases	**VSA**	**WAGA**	**NSWGA**	**GQ**	**SAGA**	**Total**
Launch	5	6	13	11	2	37
Landing	9	7	12	19	3	50
Ground Ops	4	5	1	2	1	13
In-Flight	3	4	7	7	3	24
Thermalling	1			1	1	3
Outlanding			1	5	1	7

Type of Flight	**VSA**	**WAGA**	**NSWGA**	**GQ**	**SAGA**	**Total**
Competition	2	5	3	5		15
Cross-Country	1	5	9	9	3	27
Local	8	4	15	17	5	49
Training/Coaching	7	3	5	10	2	27
Ground Ops	4	5	1	2	1	13
AEF			2	2		4
Total	**22**	**22**	**35**	**45**	**11**	**135**

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

Date From: 01/01/2020
Date to: 31/12/2020

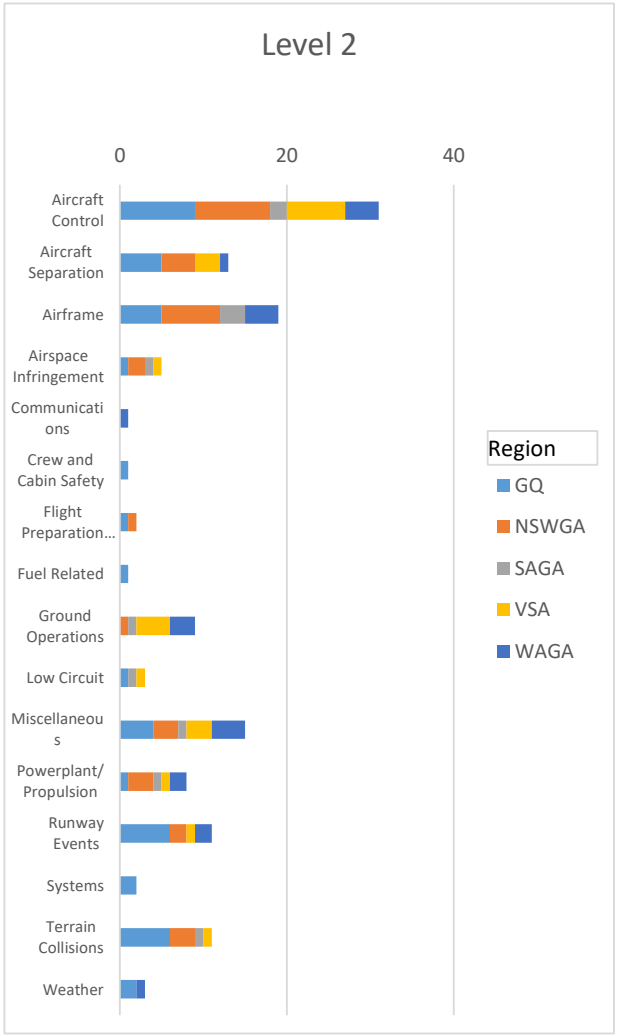
Level 1	WAGA	VSA	SAGA	NSWGA	GQ	Total
Airspace	1	4	1	6	6	18
Consequential Events		1	1		1	3
Environment	1				2	3
Operational	18	16	8	26	33	101
Technical	2	1	1	3	3	10
Total	**22**	**22**	**11**	**35**	**45**	**135**



The Gliding Federation of Australia Inc
SOAR Accident and Incident Occurrences
Classification Level 2

Date From: 01/01/2020
Date to: 31/12/2020

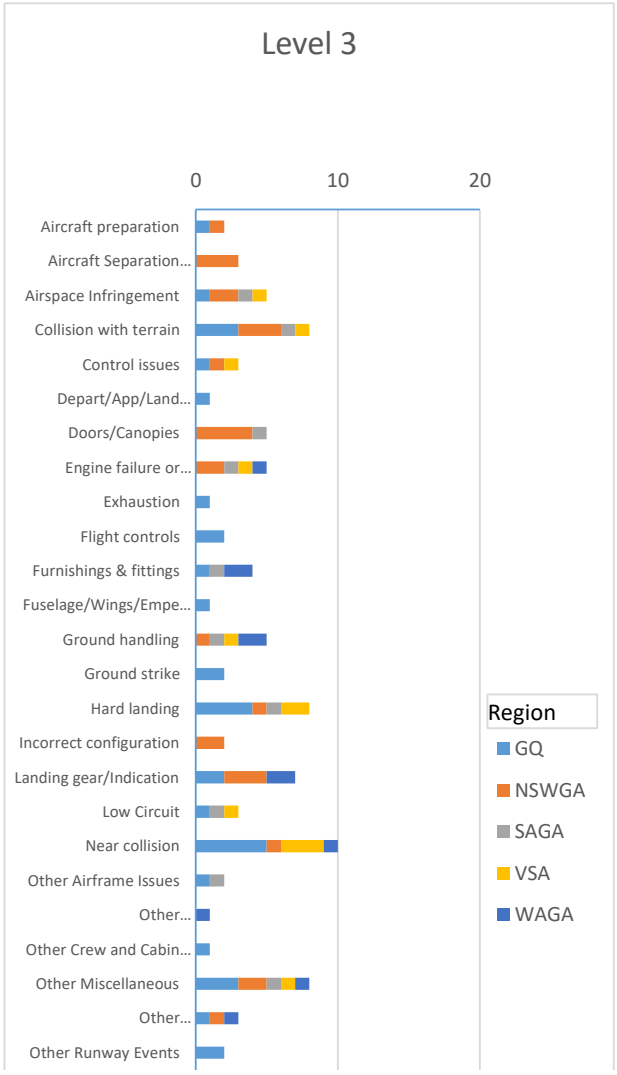
Level 2	GQ	NSWGA	SAGA	VSA	WAGA	Total
Aircraft Control	9	9	2	7	4	31
Aircraft Separation	5	4		3	1	13
Airframe	5	7	3		4	19
Airspace Infringement	1	2	1	1		5
Communications					1	1
Crew and Cabin Safety	1					1
Flight Preparation/Navigation	1	1				2
Fuel Related	1					1
Ground Operations		1	1	4	3	9
Low Circuit	1		1	1		3
Miscellaneous	4	3	1	3	4	15
Powerplant/Propulsion	1	3	1	1	2	8
Runway Events	6	2		1	2	11
Systems	2					2
Terrain Collisions	6	3	1	1		11
Weather	2				1	3
Total	**45**	**35**	**11**	**22**	**22**	**135**



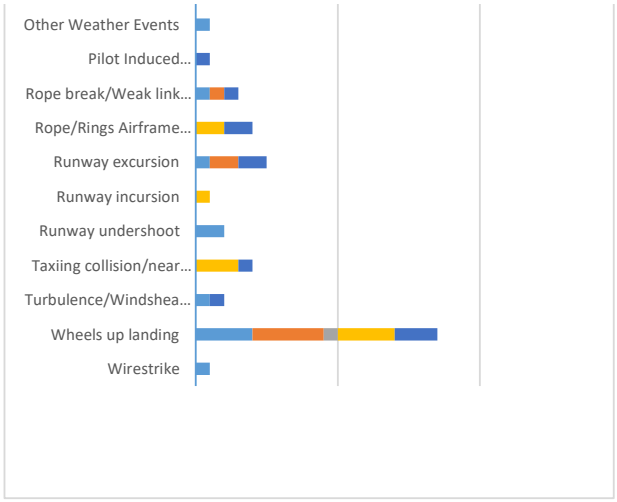
The Gliding Federation of Australia Inc
SOAR Accident and Incident Occurrences
Classification Level 3

Date From: 01/01/2020
Date to: 31/12/2020

Level 3	GQ	NSWGA	SAGA	VSA	WAGA	Total
Aircraft preparation	1	1				2
Aircraft Separation Issues		3				3
Airspace Infringement	1	2	1	1		5
Collision with terrain	3	3	1	1		8
Control issues	1	1		1		3
Depart/App/Land wrong runway	1					1
Doors/Canopies		4	1			5
Engine failure or malfunction		2	1	1	1	5
Exhaustion	1					1
Flight controls	2					2
Furnishings & fittings	1		1		2	4
Fuselage/Wings/Empennage	1					1
Ground handling		1	1	1	2	5
Ground strike	2					2
Hard landing	4	1	1	2		8
Incorrect configuration		2				2
Landing gear/Indication	2	3			2	7
Low Circuit	1		1	1		3
Near collision	5	1		3	1	10
Other Airframe Issues	1		1			2
Other Communications Issues					1	1
Other Crew and Cabin Safety Issues	1					1
Other Miscellaneous	3	2	1	1	1	8
Other Powerplant/Propulsion Issues	1	1			1	3



Other Runway Events	2					2
Other Weather Events	1					1
Pilot Induced Oscillations					1	1
Rope break/Weak link failure	1	1			1	3
Rope/Rings Airframe Strike				2	2	4
Runway excursion	1	2			2	5
Runway incursion				1		1
Runway undershoot	2					2
Taxiing collision/near collision				3	1	4
Turbulence/Windshear/Microburst	1				1	2
Wheels up landing	4	5	1	4	3	17
Wirestrike	1					1
Total	**45**	**35**	**11**	**22**	**22**	**135**



Date	7-Jan-2020	Region	WAGA	SOAR Report Nbr	S-1637
Level 1	Operational	Level 2	Runway Events	Level 3	Runway excursion
A/C Model 1	SZD-48 "Jantar Standard 2"	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	41

The pilot was competing in the West Australian State Gliding Championships. Strong soaring conditions were forecast for the day and the pilot chose to fully ballast the glider. Just before midday a few gliders were launched to test the conditions, which were found to be much weaker than forecast. As the pilot was inexperienced flying with water ballast, he made the decision to dump the ballast on the grid. About 20 minutes later the decision was made to launch the fleet and the pilot, who was positioned behind 10 other gliders, entered the cockpit and awaited his turn to launch. During the take-off run, and just after the wing runner released the wing, the glider's port wing dropped to the ground. The pilot was unable to recover to wings level and released from aerotow as the glider conducted a ground loop. After the event the wing runner remarked that the port wing felt heavy. The Jantar 2 has two semi-integral water tanks fitted in the wing roots that are interconnected. It is likely the wings were not fully level when the ballast was being dumped, and this allowed some water to remain in the port wing. Investigation by the Competition Safety Officer identified the pilot did not rock the wings to ensure all water had been released, and that the most likely cause of the wing drop was an out of balance condition caused by water remaining in the port wing. The Competition Safety Officer provided the following guidance:

- If a wing feels 'heavy' at launch, the launch should not proceed until the glider is properly balanced.
- Jantars should only be launched with full ballast.
- If the pilot makes a decision to dump ballast before take-off the wings should be rocked to make sure all the ballast has been dumped.

Date	8-Jan-2020	Region	WAGA	SOAR Report Nbr	S-1638
Level 1	Operational	Level 2	Runway Events	Level 3	Runway excursion
A/C Model 1	SZD-48 "Jantar Standard 2"	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	41

The pilot was competing in the West Australian State Gliding Championships and had returned from a 3¾ hour flight on what was a difficult day. Pilots were instructed to clear the runway to the right upon landing, in an area where the runway lights had been temporarily removed. While landing in a strong crosswind, the pilot did not have enough ruder authority to exit the runway to the right to make room for other finishing gliders and the aircraft veered towards the runway lights on the left. To avoid a collision with the lights, the pilot initiated a ground loop to the right at low forward speed. The Competition Safety Officer noted that the Standard Jantar does not have a powerful wheel brake and that the pilot's action prevented a collision with a runway light. He provided the following advice:

- Keep the into wind wing low when landing in a crosswind.
- Keep stick back a soon as the glider is firmly on the ground.
- Land in the centre of the strip, not close to the upwind edge.

Operations in crosswind conditions require strict adherence to applicable crosswind limitations or maximum recommended crosswind values, operational recommendations and handling techniques. This information will be found in the aircraft Flight Manual, so familiarity with the manual is essential. 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	9-Jan-2020	Region	NSWGA	SOAR Report Nbr	S-1631		
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	Minor	Phase	Landing	PIC Age	70

Overview

The DG-1001S departed from Temora Airport on 9 January with two experienced pilots on board. After a cross country flight of around four hours, the aircraft returned to Temora and landed on RWY 36. As the aircraft slowed to a stop, the port wing dropped and the aircraft veered towards the left side of the runway; striking a runway light at low speed. The aircraft was subsequently pushed by the pilots eastwards off the runway to the aircraft tie-down area. The runway light suffered minor damage, while the port wing of the glider incurred delamination of the leading edge that required repairs in a professional aircraft workshop.

Background to the flight

It was some months since pilot occupying the front seat had flown, and he was aware that he was not "current". At the time of the flight he believed that his most recent flight was around September 2019, however he has since then confirmed that his previous flight was in July 2019. Regaining currency was one of pilot's objectives for the flight. Other objectives were to undertake an Annual Flight Review and also to be converted to the DG-1001 type, which he had not flown previously. These objectives were discussed with the other pilot, who held a Level 2 Instructor rating, prior to the flight.

*[**NOTE:** Despite the flight being for the purpose of the Annual Flight Review and type conversion for a pilot out of currency, the Instructor took the view that the pilot under check was the command pilot for the flight and it was being conducted under the mutual flight provisions. For the avoidance of doubt, when a flight is being conducted for the purposes of checking another pilot, either as a currency check, Flight Review or type conversion, the Instructor is responsible for the operation and safety of the aircraft during flight time and is, therefore the pilot in command (refer MOSP2, Section 8.1.2 and 8.1.5).*

The Flight and Landing

The take off and majority of the flight appear to have been routine. As part of the annual check process the pilot under check demonstrated spins at altitude as well as cross country flying. Upon return to the vicinity of airport the flight log shows that the aircraft conducted a wide orbit around the aerodrome. It is unclear whether the pilots had a good view of the various airfield windsocks due to the distance involved. The aircraft then performed some manoeuvres to the north of the airfield to lose height and entered a left-hand circuit for Runway 36, at around 17:11 local (summer) time. The pilot under check was the pilot flying. During the investigation he informed his CFI that his preference would have been to land on RWY 36 Grass, but the checking instructor requested him to land on the main bitumen runway. Both pilots agreed that the circuit and turn onto final were somewhat "high", but air brakes and broadening of the circuit were used to adjust position. Touchdown occurred at around 17:15 local time. Both pilots described the final approach and touchdown on RWY 36 as being completely normal. During the roll-out after touchdown, both pilots saw several kites (raptors) taking off from the runway which provided a momentary distraction as the aircraft slowed. During the final stages of the ground roll, the left wing dropped in an uncommanded action, and the aircraft started to deviate towards the left edge of the bitumen runway. At that time, it appears that the airspeed of the aircraft was insufficient to provide control authority to either keep the aircraft running straight or to raise the dropped wing. As the aircraft approached the edge of the tarmac strip, the pilot flying saw a runway light ahead but was unable to steer the aircraft or lift the wing to avoid the obstacle. It appears that the instructor, sitting in the rear cockpit, did not see the runway light and was unaware that

there had been an impact until after the aircraft came to a stop. It does not appear that either pilot used the wheel brake to slow or stop the aircraft as it was rolling towards the edge of the runway. The wind on the ground at the time of the glider's circuit and landing was a moderate Easterly wind.

Consideration

Neither pilot expected the wing to drop but it was agreed that the wind probably got underneath the right wing lifting it at a time when the aircraft lacked sufficient airspeed for controls to be effective. The pilot under check also surmised that perhaps the camber of the runway was a factor in the loss of directional control. He informed his CFI that he assessed the wind as being only a light cross wind. The Instructor expected that the wind would cause the aircraft to weathercock to the right and was surprised when the aircraft veered left after dropping the left wing. When asked the wind strength at the time and how it had been assessed, the pilot under check advised his CFI that they had flown over the airfield and he assessed the wind was light - perhaps up to 10 km per hour from the East. The Instructor stated that the wind was assessed using the airfield windsock and by observing water in dams. The Instructor's assessment was that the wind was around 10 knots from a direction of 060 or 070 degrees. Neither pilot considered the wind to be a major factor that would affect the circuit and landing. They had also observed a number of gliders that had landed earlier had used both RWY 36 and RWY 09, with most aircraft using RWY 36. Neither pilot was aware of the allowable cross wind rating of the DG-1001S. The pilot under check admitted to skimming through the flight manual and had not read it in detail but stated the Instructor had provided a briefing on some relevant aspects of the aircraft prior to the flight. The Instructor thought that the crosswind rating of the aircraft was "not much", perhaps 8 knots or 12 knots. He did not know whether the pilot under check had read the aircraft flight manual prior to the flight, but he provided a briefing on aspects of the aircraft, pointing out that in many respects it was similar to the DG303 that the pilot under check had previously flown. Meteorological records from the Temora Airport weather station show that winds in the half-hour leading up to 17:15 EDT on 9 January were reasonably consistent, with 14 knots (gusting up to 17 knots) from the East being a typical value. Wind gusts recorded at 17:10 were up to 20 kt. The records are published for points in time at 10-minute intervals, so it is impossible to determine exactly what the wind speed was at the time that glider landed. However, from the records it appears that the wind speed at the relevant time was at least 13 knots from the East and quite likely a higher speed. The investigation determined that both pilots underestimated the wind speed. The instructor advised, with the benefit of hindsight, that RWY 36 was probably not an appropriate runway for the landing. The Flight Manual for the DG-1000S states (in Chapter 2 Limitations, Section 2.12 Crosswinds): *"The demonstrated crosswind velocity is 15 km/h (8 kts.) according to the airworthiness requirements."*

Conclusions

It appears likely that as the aircraft slowed in the later stages of the ground roll, the wind coming from the right of the aircraft acted on the dihedral created by the winglets and raised the right wing of the aircraft. At the slow speed the aircraft was moving, there was insufficient control authority for the pilot flying to prevent the left wing from dropping. For the same reason, he was unable to keep the aircraft running straight when it started to veer left. It is possible that use of the wheel brake at this point may have prevented the aircraft from striking the runway light, however this cannot be determined definitively. It appears that a number of factors contributed to the decision of both pilots to land on runway 36 with a crosswind:

- both pilots had assessed strength on the wind to be lower than the actual wind speed, and Alan states that he assessed the wind to be from the North East rather than a pure easterly;
- neither pilot had a proper understanding of the crosswind limitations of the aircraft that they were flying;
- both pilots had observed other gliders landing on runway 36 in the period leading up to the glider's circuit and landing;
- Rwy 36 Bitumen provided convenience in that the aircraft only had to be pushed a short distance east from the runway to be back in the aircraft tie down area.

Date	10-Jan-2020	Region	WAGA	SOAR Report Nbr	S-1632
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	ASW 20 C	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	

The experienced pilot was competing in the West Australian State Gliding Championships. Soaring conditions were challenging and the pilot was unable to get a climb after the start. After about 20 minutes flying in weak conditions, the pilot outlanded about 36kms from the airfield and called for an aerotow retrieve. During the subsequent retrieve the pilot heard a constant loud vibration but was unable to determine the source. The sound changed with speed and under carriage operation, and the pilot thought the undercarriage doors may have been damaged in the paddock. When the pilot returned to the airfield, the ground crew advised the crosswind was strong and suggested a landing at the runway intersection where they were waiting to help hangar the aircraft. The pilot forgot to conduct the pre-landing checks and the aircraft touched down on its fuselage with the undercarriage retracted. Investigation found the source of the noise was a canola stalk that had got caught in the tape covering the CG release. The pilot's CFI identified that the glider arrived in the circuit quite high, and the pilot decided to use airbrakes to descend quickly. During the circuit the pilot was predisposed with the loud noise coming from the aircraft, and this distraction led to his failure to complete the pre-landing checks and identify the undercarriage was not lowered. The aircraft suffered only superficial damage in the landing. The poilot has since fitted an undercarriage warning system to the aircraft, but as the CFI noted *"this is no solution to having the proper checks in place".*

Date	10-Jan-2020	Region	WAGA	SOAR Report Nbr	S-1636
Level 1	Operational	Level 2	Miscellaneous	Level 3	Rope break/Weak link failure
A/C Model 1	ASH 26 E	A/C Model 2	Piper PA25-235		
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	65

During an aerotow launch the glider pilot observed the tow plane bank steeply as it commenced a tight right-hand turn into a thermal. The glider pilot-maintained position and the tow pilot retuned to wings level. Shortly afterwards the glider pilot observed the tow plane bank momentarily to the left and then resume a right-hand turn. The tow rope went slack and glider pilot initiated yaw to the left to retention it. As the rope became taut the weak link broke at the tow plane. The glider pilot joined circuit and upon landing found that the entire tow rope was still attached to the glider. Investigation by the CFI found the tow pilot was attempting to position in a thermal but was somewhat overzealous and made some steep manoeuvres that culminated in the rope coming under enough tension as to break the weak link. The glider pilot did not release the rope, possibly because he was focussed on joining circuit and landing. The tow pilot was counselled about making abrupt and steep turns during aerotow.

Date	15-Jan-2020	Region	GQ	SOAR Report Nbr	S-1634
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Collision with terrain
A/C Model 1	Ventus-2cT	A/C Model 2			
Injury	Minor	Damage	Substantial	Phase	Landing	PIC Age	74

FACTUAL INFORMATION

On 15 January 2020 at 13:08 hours a Ventus 2cT 18 metre glider was launched from Gympie airfield by winch tow from runway 14. The glider reached an altitude of 1430 feet AGL at the top of climb. It spent 6 minutes in soaring flight and then the pilot made an engine start. The pilot was unable to climb away and landed short of the airfield. The pilot suffered significant but non-life threatening injuries in a collision with an airport boundary fence. The glider was substantially damaged.

Fig 1. Wreckage facing in direction of travel.

Pilot Information

At the time of the accident the pilot held a GFA Glider Pilot Certificate endorsed with Level 2 Instructor and had accumulated around 3450 flights for a total of 1,600 hours; of which about 210 flights for 440 hours were on type. The command pilot held a valid GFA Medical Practitioner's Certificate of Fitness. The medical standards applicable for the issuing of this Certificate are the Austroads standards for the issue of a driver's licence medical certificate for a private motor vehicle.

Aircraft information

The aircraft was manufactured in 2005 as a Ventus 2c with an engine bay included. In 2017 a Solo 2350 sustaining engine was added locally, and the airframe was re-designated 2cT. The Solo engine provides a climb rate of up to 0.9 m/s (177 ft/min) in still air.

Meteorology

The weather at the time of the accident was good visual meteorological conditions (VMC). Observations for the area around the time of the accident were:

Daily Weather Observations for Gympie, Queensland for January 2020
Copyright 2003 Commonwealth Bureau of Meteorology
Observations were drawn from Gympie {station 040093}

Date	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)	9am Temperature (°C)	9am relative humidity (%)	9am cloud amount (oktas)	9am wind direction	9am wind speed (km/h)	9am MSL pressure (hPa)	3pm Temperature (°C)	3pm relative humidity (%)	3pm cloud amount (oktas)	3pm wind direction	3pm wind speed (km/h)	3pm MSL pressure (hPa)
15/01/2020	20.9	34	2.2	26.9	63		S	4	1012.8	31.6	48		ESE	17	1008.1

ANALYSIS

The pilot was medically fit and qualified to undertake the flight. The glider was launched by winch from runway 14 and the wind was favourable for this runway at the time of launch. At the top of the launch the glider attained an altitude of 1430 feet AGL. The pilot flew upwind towards a promising cloud and was in circling flight for the next 6 minutes at which time the glider had descended to 1200 feet AGL. At this point the pilot decided to start the engine with a view to climbing away. He turned towards the airfield with the intention of using runway 14 for landing if the engine start was unsuccessful. As the circling finished the glider was 790 feet AGL. A successful engine start was made at 13:17:08 at which time the glider was 610 feet AGL. The engine ran for 1 minute and 4 seconds during which time the glider descended a further 300 feet reaching 320 feet AGL. The pilot initiated engine retraction. As the glider approached runway 14 the pilot noted the windsock was at 90 degrees to the runway direction and estimated the cross wind to be

about 20 knots. He decided to change to runway 03. The base turn to 03 was commenced at 190 feet AGL. The turn to final was successfully completed but at an altitude below that required to reach the threshold. The glider undershot the approach and collided with a fence during the rollout. A barbed wire strand broke the canopy and lacerated the pilot's scalp. The glider stopped abruptly. The pilot sustained significant injuries. The glider carried a logger which recorded the flight. A witness at the crash site note the flaps to be in position 1 and a photograph of the wreckage shows the flaps in this position.

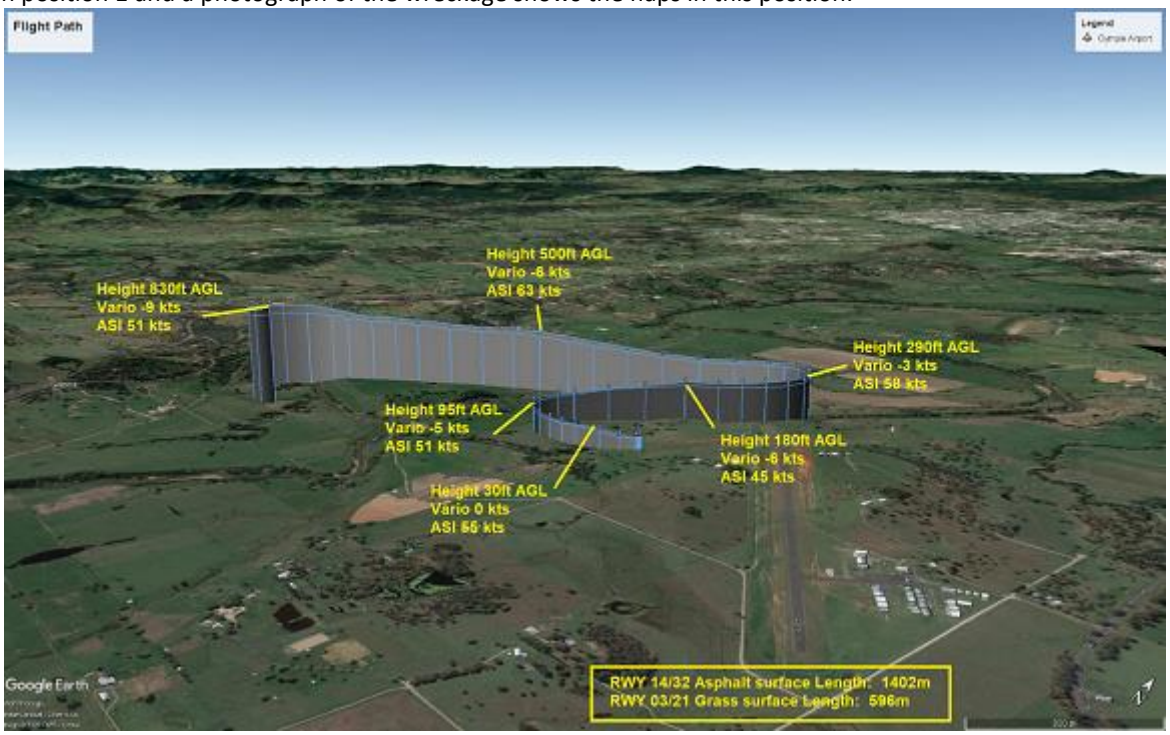


Fig 2. Graphic of the flight path showing approximate heights at various positions in the circuit.

Aircraft

Aircraft maintenance

The aircraft had been maintained in accordance with GFA requirements and had a valid Maintenance Release. A daily inspection had been completed on the morning of the accident.

Aircraft systems

Investigation confirmed the aircraft was properly rigged. It was determined that all control rods and surfaces were connected and functioning correctly prior to the accident. Inspection of the aircraft confirmed substantial damage to the wings from impact with fence posts, and the canopy was smashed where the fencing wire entered the cockpit.

Fig 3. Photograph of canopy damage.

Fig 4. Fuselage damage from impact with rising ground prior to aerodrome boundary.

Fig 5. Starboard wing damage from impact with fence posts.

Fig 6. *Port wing damage from impact with fence post*s.

Survivability

The pilot suffered crush fractures to several lumbar vertebrae indicating high speed deceleration. He also suffered scalp injury from the fence wire passing through the canopy. The photograph below is of the pilot's

hat, showing damage caused. The pilot is rehabilitating from his injuries with a good prospect of full recovery.

CONTRIBUTING FACTORS

The decision to start the engine was made at a low altitude and an engine start was not achieved until 610 feet AGL. The glider failed to achieve a positive rate of climb. This may have been due to local sink or to incorrect positioning of the flaps.The decision to use runway 14 was made from too great a distance to establish surface conditions, and on base for RWY 14 at about 300 feet AGL the pilot assessed the crosswind as too severe for a successful landing and the decision was made to land on RQY 03. The glider continued too far on downwind for runway 03 to permit it to gain the threshold. A barbed wire fence caused significant injuries to the pilot and substantial structural damage to the glider. **CONCLUSIONS**

- Engine starts in powered gliders impose a high workload on the pilot. Even for a pilot familiar with the type, the processes associated with starting the engine are a significant distraction from the other piloting tasks. In this case it is possible that the glider was in a negative flap setting precluding a successful climb.
- The engine start was commenced at a low altitude and the logger records the sounds of the engine run commencing at 610 feet AGL. This left very little time for critical decision making.
- The downwind leg on 03 was continued well past the threshold despite the low altitude.
- The collision with the barbed wire fence could have been catastrophic.

Recommendations:

- Pilots should be aware of the time and workload involved in an engine start. It is good practice to commence an engine start no later than 1500 feet AGL.
- Clubs should assess boundary fencing. Barbed wire fences are hard to see and have a high risk of causing fatal injuries. Consideration should be given to placing frangible fencing with breakaway capacity across runway thresholds.

Date	16-Jan-2020	Region	NSWGA	SOAR Report Nbr		S-1635	
Level 1	Operational	Level 2	Aircraft Control	Level 3		Wheels up landing	
A/C Model 1		DG-300 Club Elan		A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	67

The experienced and current pilot launched by aerotow into a sky with well-developed cloud. After 30 minutes flying, the pilot observed rain in several directions some 20 kms away with lightning in background. With the rain advancing towards the aerodrome, the pilot chose to terminate flight and return quickly for a landing. The pilot hastened the descent by using air brakes, and upon reaching the circuit area encountered heavy rain and sink. The pilot forgot to configure the aircraft for landing and landed with the undercarriage raised. The aircraft touched down on the grass runway and suffered only minimal damage. In a later discussion with his CFI, the pilot stated that he became focussed on returning to the aerodrome, and then underestimated the effect or water on the wings. Concerned with the degraded glide performance and under pressure to complete a landing in the rain, the pilot omitted to conduct the pre-landing check list.

Date	22-Jan-2020	Region	NSWGA	SOAR Report Nbr		S-1643	
Level 1	Technical	Level 2	Powerplant/Propulsion	Level 3		Engine failure or malfunction	
A/C Model 1		H 36 Dimona		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	71

Following the pre-flight briefing for a training flight, the instructor and student boarded the glider and the engine was started. After a period to warm the engine, the command pilot taxied to the holding point at glider runway and asked the tower for taxi clearance to cross RWY 10/28 for departure on the power RWY 06. Upon arriving at RWY 06 the command pilot went through the cockpit checks with the student while waiting for GA circuit traffic to clear. Upon receiving ATC clearance for departure, the command pilot entered the runway and slowly eased on power. At about 45 knots IAS, just as the aircraft was about to lift off, the engine suffered a loss of power and stared to vibrate. The command pilot closed the throttle and informed the tower of the power loss. The command pilot advised ATC he did not require assistance and was cleared to exit the runway. Upon reaching the powered aircraft 'run-up' area. The command pilot stopped the engine and disembarked to check the engine. Unable to find any obvious problems, the command pilot reboarded the aircraft and conducted tow engine run-ups without incident. The pilot then obtained clearance to taxy to the holding point at RWY 06, and after another successful engine run-up, the pilot entered the runway and departed for a 20-minute flight during which the engine operated normally. The command pilot reported that a few days prior he felt shimmy in the tailwheel and decided to adjust the steering cable tensions. The adjustment was done on the day prior to the incident flight and required removal of the fuel and fuel tank. This command pilot stated that the process of adjusting the cable tension is conducted at each annual inspection and up to three times per year. An independent inspection of the cables and refitted fuel tank was also conducted. The command pilot stated that after he replaced the fuel, the auxiliary fuel pump was turned on to pressurise the system and to check for leaks, and all was normal. In the absence of any obvious fault in the engine and fuel system, the command pilot concluded that the loss of power was caused by an air lock after tank removal.

Date	25-Jan-2020	Region	VSA	SOAR Report Nbr	S-1641
Level 1	Operational	Level 2	Ground Operations	Level 3	Taxiing collision/near collision
A/C Model 1	SZD-51-1 Junior	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Ground Ops	PIC Age	61

What Happened

The inexperienced pilot was participating in a Club training operation at another aerodrome ahead of the Regional Coaching week. The Club was operating with the authority of the local gliding Club CFI, and the club gliders were tied down in marked areas along the aerodrome fence line as hangar space was unavailable. On the morning of the incident the pilot connected the glider to their vehicle using a rigid towing bar connected to the wrap-around tail dolly, and towed it from the tie-down area to the flight line. The pilot reported: *"The ground between the runway and the gable markers on both side of the runway were in poor condition with areas of subsidence, and the local CFI directed us not to use those areas for launching, landing and towing. Launching operations were taking place on the southern side of runway 26 between the cable markers and the perimeter fence in an area about 60m wide."* When the pilot arrived at the launch point, they noticed *"There was a Pawnee tow plane in position closer to the gable markers, with two gliders in line behind. The gliders had their right wings down. There were several cars parked in single file against, and parallel with, the perimeter fence in line with the tow plane."* The pilot remained clear of the main runway and towed between the gliders on the runway and the perimeter fence along which the cars were parked. The pilot stated *"When approaching the launch point, I was careful to leave sufficient space between my glider and those on the flight line but neglected to check for clearance on the other side. There were no surplus crew available as all were readying for launch, and although aware of my approach they were not monitoring my movement."* When nearing the launch line the pilot became focused on maintaining clearance from the gliders on the runway and omitted to check the other wing for clearance. The trailing edge of the left-wing aileron struck the back of a parked car at walking pace, causing the glider to rotate on the towing bar and resulting in damage to the aileron. The pilot said *"I feel the incident took place primarily due to a breakdown in situational awareness from lack of experience. This was the first time I had towed a glider at this airfield, and only a few times overall. The situation was also compounded by the congested operational area and by lack of crew to assist. I also felt compelled move my glider behind the other gliders on the flight line so as not to hinder their launch."*

Safety Advice

Manoeuvring a glider with a towing vehicle in close proximity to other obstacles is unwise as the driver has a limited field of view. In such cases it is safer to unhitch the glider from the vehicle and move it by hand. It is also prudent to ensure there are people available to assist in moving the glider safely when near objects. The number of helpers required will depend on the conditions in the areas through which the glider is to be moved. For example, a restricted space will require helpers to be positioned close to the parts of the glider nearest the obstructions. The pilot's CFI advised the Club Training Panel requires at least two people to be present when moving gliders from the hangar to the launch point to avoid this type of accident. These accidents are far too common, expensive and avoidable!

Date	26-Jan-2020	Region	WAGA	SOAR Report Nbr	S-1640
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	SZD-48 "Jantar Standard 2"	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	44

Nearing completion of a one-hour local flight, the pilot descended from 4000ft to the join a standard left-hand circuit for RWY 14. To facilitate descent, the pilot lowered the undercarriage. During the downwind leg the pilot conducted the pre-landing check and, without conscious recognition that wheel was already in the down position, retracted the undercarriage. The pilot completed a normal circuit and landing, touching down on the fuselage. The pilot was uninjured, but the aircraft suffered abrasions to the lower fuselage and

damaged undercarriage doors. The pilot was counselled by their CFI on the application of OSB 01/14 'Circuit and Landing Advice' and the pre-landing check list contained in MOSP2, Appendix 1. He was also advised to apply the airbrakes rather than lower the undercarriage to increase the glider's rate of descent.

Date	30-Jan-2020	Region	SAGA		SOAR Report Nbr		S-1678		
Level 1	Operational		Level 2	Airframe		Level 3	Furnishings & fittings		
A/C Model 1		Discus b			A/C Model 2				
Injury	Nil	Damage	Nil	Phase	In-Flight		PIC Age	19	

While on a high-speed final glide to the home airfield, the glider flew through some rough turbulence. The left-hand hip strap of the harness came loose and the pilot struck their head on the canopy. Attempts by the pilot to tighten the strap proved fruitless, and it kept coming loose. The pilot reduced speed to minimise the effect of the turbulence and landed safely. The harness was examined by an authorised inspector who identified the thin wire spring tensioner in the buckle mechanism that supplies tension to the webbing was dislodged on both sides, allowing the webbing to move freely within the buckle (see photo).

The inspector removed the buckle end strap from the adjuster, and the spring was removed and inspected for

damage. No damage was found and the spring was securely refitted. The inspector reported the spring is a firm fit and is working as intended. The reason why the spring came loose was not identified. The inspector believed the damage was likely to have occurred before the Daily Inspection was conducted. This reinforces the need to ensure harnesses are properly inspected as part of the Daily Inspection process. Daily inspectors should look particularly for:

- safe attachment of the harness to the glider airframe;
- the condition of the harness webbing (e.g. abrasions, wear, damage, pulled or loose stitching);
- the ability of the buckles to secure the webbing; and
- the correct operation of the fasten/release mechanism.

The main thing is that the harness should be able to do its dual job of securing the pilot in flight against turbulence and manoeuvring or aerobatic loads, and protecting the pilot against deceleration and sliding underneath the harness in the event of a crash. If a DI Inspector believes that anything might detract from the ability of a harness to perform these functions, the glider should not be flown.

Date	31-Jan-2020	Region	GQ	SOAR Report Nbr	S-1642
Level 1	Operational	Level 2	Aircraft Control	Level 3	Hard landing
A/C Model 1	AMT 200	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	71

The sortie was a training flight in a touring motor glider involving several power-on approaches and landings at a neighbouring aerodrome. The student was a 160 hours private pilot who had over 3500 hours gliding experience but had not flown gliders for the past 10 years. After joining circuit, the student commenced the final approach at the correct airspeed but allowed the speed to build during the descent. On late final the student attempted to reduce speed by raising the nose but the airspeed dropped off quickly prompting the instructor to take control and lower the nose. With the glider rapidly descending, the instructor managed to arrest the high sink rate by pulling back on the stick and closing the airbrakes, and then opened the throttle to go-around but was unable to prevent the tailwheel striking the ground ahead of the main wheels. The tailwheel separated from the airframe as the aircraft became airborne and climbed to circuit height. The student successfully conducted a further three touch-and-go landings, but because the student opened the throttle as soon as the main wheels touched and the tail was still in the air, the crew did not notice the tailwheel had fallen off. Upon completion of the landing exercises, the aircraft was flown back to the home airfield where, upon landing, the pilots identified the tailwheel was missing upon touchdown and while taxying outside the markers to allow pending RPT flights to use the runway. The aircraft suffered damage to the lower rudder and rear fuselage. The tailwheel was subsequently recovered along with some associated parts. The instructor conducted a post-flight debrief covering such elements as the nose attitude at various speeds, the effectiveness of the airbrakes and the importance of maintaining a stabilised final approach.

Date	4-Feb-2020	Region	VSA	SOAR Report Nbr	S-1644
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	PIK20B	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	

On the late stage of the final glide, just before landing, the experienced pilot got confused about the landing gear position, up or down, resulting from this, the landing gear was rotated from down to up and the landing was wheel up. The pilot was flying the first day of a competition and was conducting a straight-in approach after finishing the task. The pilot configured the glider for landing but did not undertake a pre-landing check. As the pilot crossed the aerodrome boundary fence he realised he had not done completed the pre-landing checks, which *"triggered a state of confusion with regard to the undercarriage position."* The pilot stated *"I could not remember if I had lowered the undercarriage or not. The logic dictated that because I did not do FUST check, the undercarriage must be up. At the same time I had to pay close attention to landing*

itself, I was aware that I could not dedicate much more time to the undercarriage issue without compromising the landing safety, I had to make a decision and very quickly so that I could concentrate on the landing, I decided to rotate the undercarriage handle. It did not have enough time and brain power to go beyond that - I landed with the wheel up." The following contributing factors were identified:

- The pilot not flown a competition for a year, and this was his first straight-in approach since then.
- The pre-landing check was omitted, most likely because a normal circuit had not been flown and the pilot was focused on conducting a straight-in approach in a complex and dynamic environment (there were gliders on the runway, on final in front, and also approaching the aerodrome from behind).
- The pilot did not properly check the undercarriage position to the placards, probably because he was overloaded.**Safety Advice**

Straight-in approaches are now commonly used to simplify the final approach under competition conditions. While they require more experience and energy management, they avoid complexity and exposure to collision risk. However, the chances of identifying an error while flying a normal, standard circuit, is significantly higher than when on final glide for a straight-in approach. The absence of a base leg (particularly) but also of a downwind leg reduces the opportunity to examine the landing area and final approach. Notwithstanding, none of this does more than add to workload and this procedure is, on balance, safer for experienced pilots. Despite this, landing mishaps still occur during a straight-in approach due to poor workload management, so pilots must take care to ensure that the pre-landing checklist is carried out. For further information, refer to OSB 01/14 'Circuit and Landing Advice'.

Date	4-Feb-2020	Region	VSA	SOAR Report Nbr	S-1655
Level 1	Operational	Level 2	Ground Operations	Level 3	Taxiing collision/near collision
A/C Model 1	Woodstock 13m SL	A/C Model 2			
Injury	Nil	Damage	Substantial	Phase	Ground Ops	PIC Age	66

While towing the glider back to the hangar, the wheel of the wing dolly struck a gable marker. The towing dolly broke, and the glider rolled into the back of the car. The pilot had earlier undertaken a local soaring flight of nearly two hours and after landing prepared the glider for towing back to the hangar. Although the wing dolly is designed to fit on the left wing, the pilot inadvertently fitted it to the right wing and did not notice his error. While towing along the runway, the driver (pilot) turned onto the taxiway in such a manner as to provide clearance from the gable markers for the left wing as was his usual practice. Shortly afterwards, the wing dolly struck a gable marker on the right-hand side. The glider pivoted around the obstacle, causing the tailwheel to separate. The driver immediately applied braking, but the glider continued to rotate under its own inertia and the tailplane struck the back of the vehicle. The rear fuselage and tailplane were substantially damaged due to impact and twisting forces. The pilot's CFI discounted fatigue and dehydration as potential casual factors but identified poor situational awareness and complacency as contributing factors. While the driver made an initial mistake, the accident could have been avoided had the driver maintained an adequate level of situational awareness while taxying back to the hangar. Unfortunately, the driver was complacent and relied solely upon habit to mitigate the risk of collision with an obstacle rather than by properly looking out and driving defensively. Situational awareness is critical in avoiding taxiing collisions, which usually occur due to inattention or a lack of vigilance. To reduce the chances of a taxiing collision, always remain alert and maintain a scanning technique. Collision avoidance, both in the air and on the ground, is one of the most basic responsibilities of a pilot. The pilot was counselled by his CFI and has since prominently marked the wing dolly to minimise the risk of fitting it to the wrong wing.

Date	5-Feb-2020	Region	WAGA	SOAR Report Nbr	S-1646

Level 1	Operational	Level 2	Ground Operations	Level 3	Taxiing collision/near collision

A/C Model 1	Discus CS	A/C Model 2	SZD-50-3 "Puchacz"

Injury	Nil	Damage	Substantial	Phase	Ground Ops	PIC Age	66

A Discus was being towed to the workshop area to have ballast tank filled. A DG-505 was parked in the immediate area and a Puchacz was tied down nearby. While attempting to negotiate the space between the DG-505 and the Puchacz, the vehicle driver momentarily lost sight of the Discus wing tips, resulting in the Discus port wingtip colliding with the port wingtip of the DG-505. Both aircraft were substantially damaged (see photographs below). Contributing factors included inattention/distraction of vehicle driver, proximity of the parked gliders and lack of crew to assist.

Date	8-Feb-2020	Region	VSA	SOAR Report Nbr	S-1659

Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous

A/C Model 1	Winch (Steel Cable)	A/C Model 2	

Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	

During a winch launch a fire was started in the grass under the winch which was unable to be brought under control by the winch driver using the knapsack provided as part of the winch's equipment. The winch driver immediately rang emergency services, and the local CFA attended and put out the fire. Approximately half of the south side of runway12/30 was burnt, however the fire did not escape the Aerodrome boundaries. Investigation revealed the winch cable had been incorrectly fed through the front roller mechanism resulting

in excessive friction, and sparks fell into the grass under the winch. The Club CFI noted *"Whilst we had firefighting equipment on board, this has proven to be inadequate. The club is investigating a water tank & pump to fitted to the winch via Grant funding. In the short term, we'll fit a fire extinguisher & fire blankets to all club ground vehicles as mitigation and corrective action."* Club members were informed to ensure the cable is fed correctly through the rollers when conducting cable repairs.

Date	8-Feb-2020	Region	VSA	SOAR Report Nbr	S-1647
Level 1	Operational	Level 2	Ground Operations	Level 3	Taxiing collision/near collision
A/C Model 1	JS1 B	A/C Model 2	Cessna 172		
Injury	Nil	Damage	Minor	Phase	Ground Ops	PIC Age	70

The glider was being taxied back to the hangars at pedestrian speed from runway 08 via the taxiway adjacent to the aerodrome refuelling facility. A Cessna 172 was parked nearby with two crew members in the cockpit. On passing the Cessna, the glider's starboard wingtip struck the rudder of the Cessna resulting in damage to the Cessna's rudder skin and trailing edge, and damage to the glider's wingtip. The glider pilot stated *"In this particular circumstance I was more concerned about safe passing of the aircraft on my left rather than the immediate risk posed by [the aircraft] on my right. I presumed having sufficient distance and directed my attention to the threat yet to develop instead of observing the tail of [the aircraft on the right], thus causing the collision"*. The Club CFI advised that the club encourages members to stop, get out of the car and look before proceeding, and this advice also forms part of the daily briefing.

Date	9-Feb-2020	Region	GQ	SOAR Report Nbr	S-1645
Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous
A/C Model 1	Winch (Dyneema Rope)	A/C Model 2			
Injury	Nil	Damage	Substantial	Phase	Ground Ops	PIC Age	

At the end of a winch launch from RWY 30, the glider released the cable (6mm dyneema) at approximately 1,500' AGL and to the east of the runway centreline. A westerly crosswind carried the cable further to the east during retrieval. The cable fell across the roof of a hangar and, before it could be arrested, swung in

through an open hangar door causing minor damage to one glider and substantial damage to a second glider. It also caused minor damage to the hangar door flashing and roof. The winch was operating without a drogue attached to the winch cable, requiring high speed cable retrieval and consequent longer braking time. Pilots can minimise the risk of the cable drifting too far downwind by lowering the glider's into wind wing and applying rudder in the same direction, thereby altering the glider's heading so as to offset the drift in a crosswind. An alternative method is to lower the glider's wing into the wind and use a touch of opposite rudder, thus effectively sideslipping the glider into the wind. The first method is usually more effective, especially in strong crosswinds. Crosswind correction should be applied as soon as the glider is clear of the ground. If the pilot waits until the full climb, it will usually be too late and the cable will probably drift outside the airfield boundary after release, the winch-driver being powerless to prevent it.

Date	9-Feb-2020	Region	VSA	SOAR Report Nbr	S-1648
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	DG-1000S	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	57

On first landing of the day the landing gear retracted on touch down. Investigation identified that the undercarriage was extended just prior to joining midfield crosswind for Runway 09, and the student confirmed it to be in the down position during the pre-landing checks by reference to the cockpit placards. In this model glider the undercarriage is locked in the extended position by an overcentre locking arrangement and an additional safety catch in the cockpit. The handle is to be turned towards the cockpit wall, so that the locking catch will engage. An exhaustive inspection by an airworthiness inspector could not fault the undercarriage system and it was determined that the undercarriage lever had not been locked. It is possible the plastic hand grip on the rear gear lever, which was found slightly twisted, may have prevented the lever from engaging the lock. The investigation identified that the best way to checking if the gear is locked down is to attempt to pull it back in the retract direction, without rotating it out of it's detent.

Date	10-Feb-2020	Region	SAGA	SOAR Report Nbr	S-1649
Level 1	Technical	Level 2	Powerplant/Propulsion	Level 3	Engine failure or malfunction
A/C Model 1	Piper PA-25-235/A1	A/C Model 2	DG-500 Elan Orion		
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	76

During the initial roll of an aerotow launch the tow pilot noticed a slight loss of power followed by a surge of power. Although the glider became airborne, the tow plane was noticeably decelerating. The instructor in the glider released cable and landed to the left and beside tow plane, well within the runway length. This was in seventh tow conducted with this tow plane, and a subsequent stationary run-up showed no abnormal engine behaviour. Notwithstanding, the tow plane was deemed unserviceable and returned to the hangar for inspection by a Licenced Aircraft Maintenance Engineer. Subsequent inspection identified a fault with the throttle cable. The swage connecting the outer cable housing to the termination fitting had become loose, allowing vibration during the ground roll to subtley reduce the throttle. The cable was repaired, and a new throttle cable will be fitted at the next 100 hourly inspection.

Date	14-Feb-2020	Region	WAGA	SOAR Report Nbr	S-1650
Level 1	Environment	Level 2	Weather	Level 3	Turbulence/Windshear /Microburst
A/C Model 1	Standard Cirrus	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	67

The pilot was landing on RWY 34 with a 3-knot crosswind component in thermic conditions, and was anticipating some turbulence from the forested section bordering the western side of the runway. As expected, heavy turbulence was encountered at about 100 feet AGL and this continued close to the ground. The pilot reported that immediately after the flare the glider was struck by a gust and dropped heavily onto the runway resulting in the mainwheel inner tube bursting. Investigation attributed the bounced landing to wind shadow and turbulence associated with a line of trees close to the end of the runway. Turbulence of this runway is a known hazard and the gliding club operates with the runway threshold displaced by 150 metres during any crosswind to be clear of the effects of the trees. On this particular flight the pilot did not fly the approach high enough to avoid the turbulence, resulting in the aircraft landing short of the displaced threshold. Investigation attributed the bounced landing to wind shadow and turbulence associated with a line of trees close to the end of the runway. The pilot was counselled by their CFI.

Date	15-Feb-2020	Region	VSA	SOAR Report Nbr		S-1651	
Level 1	Airspace	Level 2	Aircraft Separation	Level 3		Near collision	
A/C Model 1		Astir CS		A/C Model 2		Cessna 441 Conquest II	
Injury	Nil	Damage	Nil	Phase	Thermalling	PIC Age	63

What Happened

While thermalling over the gliding airfield the glider pilot observed a twin-engine low-wing powered aircraft pass within 100 metres and 50ft higher. The powered aircraft was identified as a Cessna 441 Conquest that was undertaking aerial surveying in the vicinity of the gliding site.

Analysis

The gliding club Duty instructor visited the nearby regional airport and spoke to the pilot of the Conquest, who confirmed he was unaware that there was an incident as he was flying by instruments at the time and did not see the glider. The Duty Instructor also obtained CTAF recordings for review and determined the following sequence of events:

- 13:59 - Survey aircraft acknowledged commencement of glider operations.
- 14:03 - Radio calls are heard from a Jabiru that was active on the glider field.
- 16:47 to 16:48 - Eight transmissions were made by aircraft associated with the gliding operation.
- 16:48 to 17:07 – The only transmission was from one glider.

The Chief Pilot of the survey aircraft operator contacted the Duty Instructor and advised that the survey pilot was conducting LIDAR powerline surveys. While aware of gliders operating in the area, he was busy flying tracks that required 2 metre precision. The Duty Instructor suggested carriage of an observer on these surveys would add to flight safety. The Operator would review their protocols for operating in the vicinity of the aerodrome.

Safety Advice

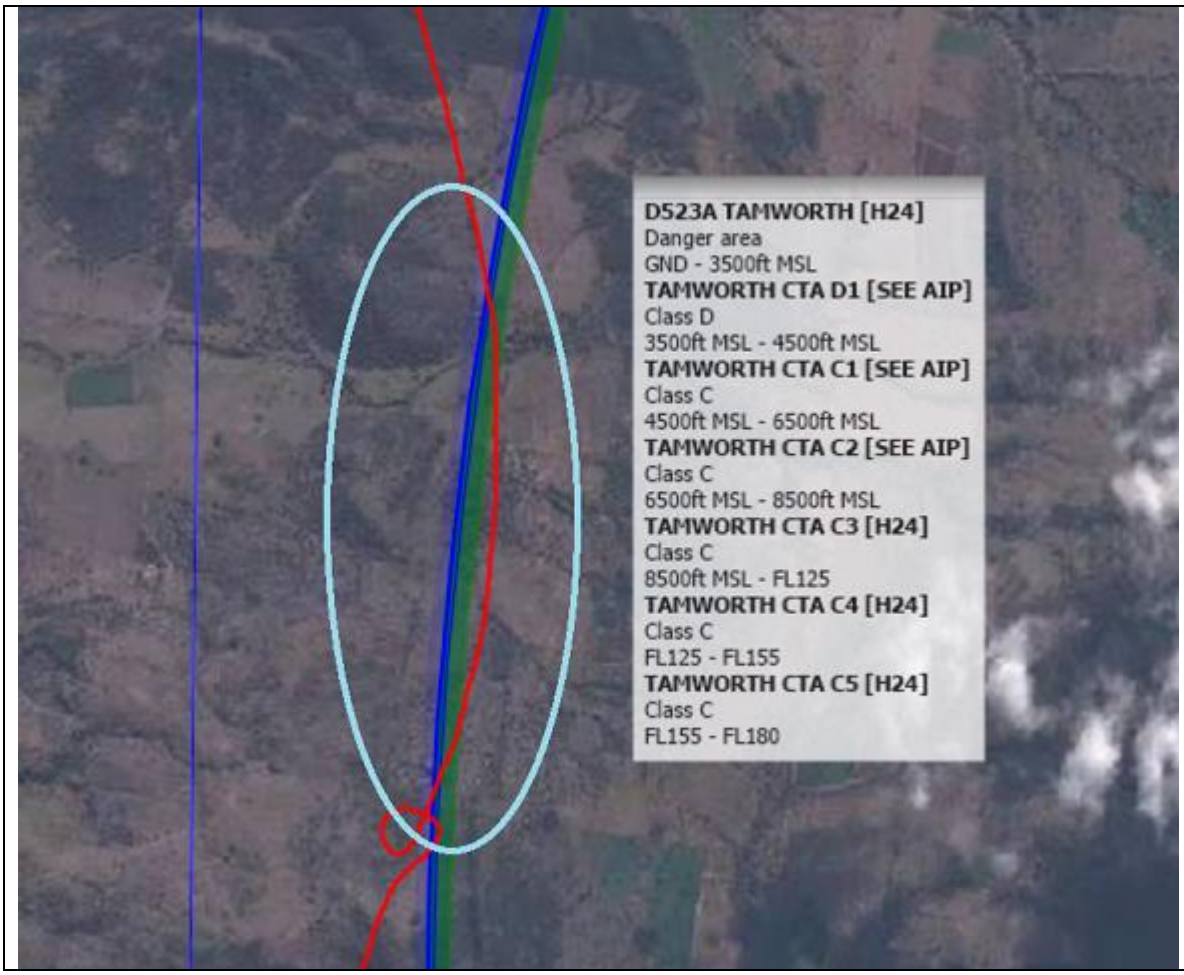
In areas outside controlled airspace, it is the pilot's responsibility to maintain separation with other aircraft. For this, it is important that pilots utilise both alerted and unalerted see-and-avoid principles. Pilots should never assume that an absence of traffic broadcasts means an absence of traffic. It is also essential that pilots maintain a diligent lookout because other traffic may not be able to communicate by radio (e.g. the other pilot may be tuned to the wrong frequency, selected the wrong radio, have a microphone failure, or have the volume turned down). At the time of writing, CASA was conducting a Supplementary Airspace Review with the aim of establishing a Visual Terminal Chart for the nearby regional airport.

Date	21-Feb-2020	Region	GQ	SOAR Report Nbr		S-1656	
Level 1	Operational	Level 2	Aircraft Control	Level 3		Control issues	
A/C Model 1		Standard Libelle 201 B		A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Launch	PIC Age	71

During an aerotow launch the glider's left wing dipped and the wingtip caught on long grass at the runway's edge. The glider pilot reported *"The glider veered violently to the left and gained height above the ground. Having gained authority over the ailerons and rudder (I) turned hard right, over correcting before managing to get the glider flying straight and level behind the tug."* In the meantime, the tow pilot had noticed the glider had moved significantly out of station and released the tow rope. The glider pilot was able to make a safe landing straight ahead on the runway. The aircraft wingtip suffered minor damage. Investigation by the CFI identified that the gliding operation was being conducted too close to the long grass, and that the ground crewmember released the gliders wingtip before the pilot had adequate aileron control, which resulted in the wingtip dropping to the ground. The operations have since been displaced and wingtip runners were reminded of the importance of running with the wing for as long as possible whilst maintaining wings level.

Date	21-Feb-2020	Region	GQ		SOAR Report Nbr		S-1654				
Level 1	Operational		Level 2	Airframe		Level 3	Furnishings & fittings				
A/C Model 1		Standard Libelle 201 B			A/C Model 2						
Injury	Nil	Damage	Nil	Phase	Landing		PIC Age				
Following a local soaring flight and during the landing, the cable securing the seat adjustment mechanism failed. This resulted in the seat and pilot moving backward slightly, culminating with the control column being pulled back. The aircraft pitched up and a series of pilot induced oscillations occurred before the pilot was able to regain control and conduct a safe landing. Investigation revealed that the seat back adjustment cable is anchored into the fuselage beside the pilots left shoulder. This is achieved by a bolt with washer passing through the cable eyelet into a captive nut. The washer is usually a bit bigger than 10c size and saucer shape to allow to prevent the cable sliding off the bolt but still allow the eyelet to move. In this aircraft the washer had been replaced with a smaller one that allowed the eyelet to slip over the washer, allowing the seat back to move backwards. The cable was resecured with an appropriately sized washer. The investigator also identified that the washer was found dislodged during a recent Daily Inspection, and that the inspector merely resecured the cable and washer but did not inform anyone or put a defect notice in the Maintenance release. The undersized washer was not identified during the recent Annual Inspection, probably because it was not out of position. The inspectors concerned have been counselled and retraining provided.												

Date	25-Feb-2020	Region	VSA		SOAR Report Nbr		S-1658				
Level 1	Airspace		Level 2	Airspace Infringement		Level 3	Airspace Infringement				
A/C Model 1		DG-100 G Elan			A/C Model 2						
Injury	Nil	Damage	Nil	Phase	In-Flight		PIC Age	52			
During a local regatta and on the first leg of the task, the glider entered the Tamworth Class D control zone by about 300 metres and remained in controlled airspace for around 1 minute. The pilot reported they had failed to load the local airspace file in their flight computer and was relying on external references to navigate the airspace boundaries. The pilot was counselled by the Competition Safety Officer and received a scoring penalty.											

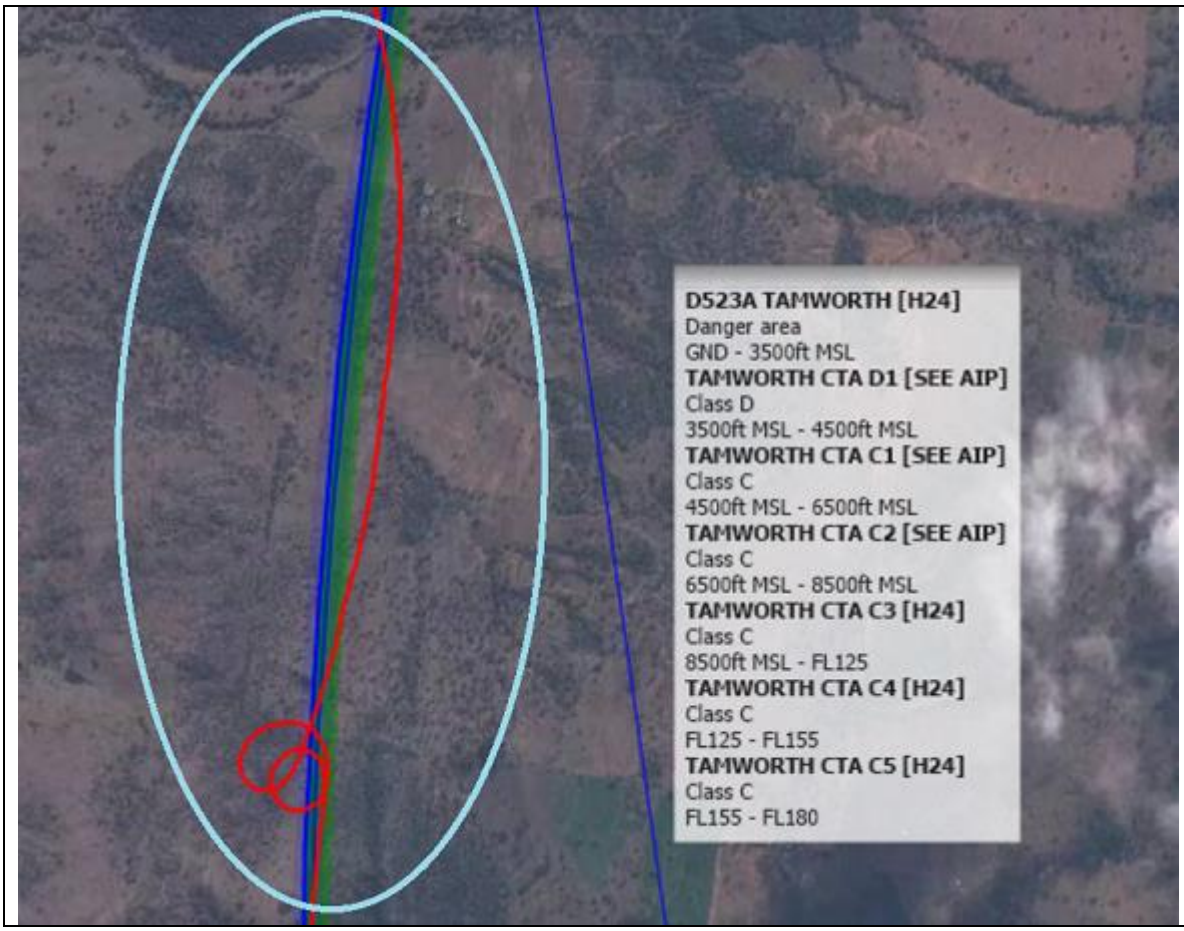


Date	25-Feb-2020	Region	NSWGA	SOAR Report Nbr	S-1662		
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing		
A/C Model 1	LS 7-WL	A/C Model 2					
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	68

After breaking off the flight, the pilot configured the aircraft for landing by lowering the undercarriage. During the pre-landing checks the pilot retracted the undercarriage and landed wheel-up. The pilot was counselled by the Competition Safety Officer, who explained the difference between an "*action list*" and a "*check list*", and reminded the pilot that the pre-landing check is a post action verification and not a list of tasks to achieve. For further reading, refer to OSB 01/14 OSB 'Circuit and Landing advice'.

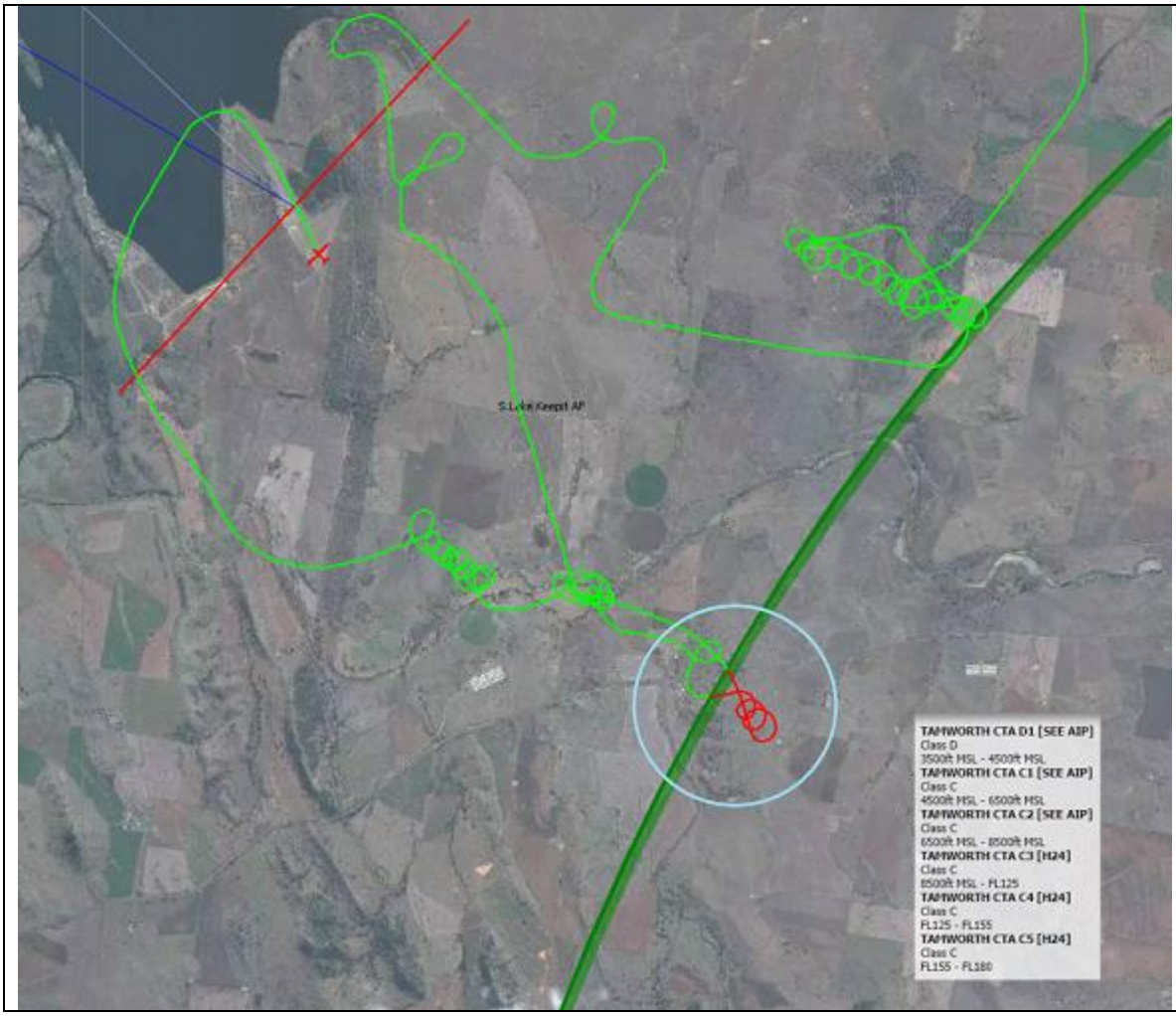
Date	26-Feb-2020	Region	GQ	SOAR Report Nbr		S-1657	
Level 1	Airspace	Level 2	Airspace Infringement	Level 3		Airspace Infringement	
A/C Model 1		Discus b		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	55

During a local regatta and on the first leg of the task, the glider entered the Tamworth Class D control zone by about 200 metres and remained in controlled airspace for around 2 minutes. The pilot reported the glider's navigation computer was unserviceable and they were relying on an unfamiliar portable flight computer. Soaring conditions on the day were difficult and contributed to the pilot's lack of situational awareness. The pilot was counselled by the Competition Safety Officer and received a scoring penalty.



Date	26-Feb-2020	Region	NSWGA	SOAR Report Nbr		S-1661	
Level 1	Airspace	Level 2	Airspace Infringement	Level 3		Airspace Infringement	
A/C Model 1		Pegase 101A		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	58

During a local regatta, and while thermalling shortly after release from tow, the glider entered the Tamworth Class D control zone. Conditions on the day were difficult and the pilot had taken two relaunches. While concentrating on gaining height and maintaining a lookout for other traffic prior to commencing the task, the pilot allowed the glider to drift about 1,000 metres laterally into controlled airspace. The pilot's flight computer provided visual and audible warnings of the proximity to the control zone but the pilot did not initially notice the warnings as the volume had been turned down and they were focussed on the climb and lookout. When the pilot became aware of the infringement, they immediately vacated the area. The pilot was counselled by the Competition Safety Officer and received a scoring penalty.



Date	29-Feb-2020	Region	NSWGA	SOAR Report Nbr	S-1664
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Collision with terrain
A/C Model 1	Marianne 201B	A/C Model 2			
Injury	Minor	Damage	Write-off	Phase	Landing	PIC Age	78

FACTUAL INFORMATION

On 29 February 2020 at 15:21 hours, a Centrair Marianne 201B two-seat glider was launched from Towrang airfield by winch tow from RWY 05 on an Air Experience Flight. The command pilot did not find any lift to sustain flight and joined circuit five minutes later at about 750ft AGL to land on the operational runway. The pilot commenced the final approach at a height of about 200ft AGL aligned to land to the right of the operational runway but undershot the runway threshold. As the pilot began to round out for touchdown, the starboard wingtip struck the top strand and post of an electric fence. The glider yawed to the right and touched down heavily while travelling sideways and bounced back into the air. Over the next 90 metres the glider struck the ground heavily in a nose down attitude on three more occasions before coming to rest. The pilot was uninjured, but the student suffered minor cuts and abrasions. The glider was substantially damaged.

Fig 1.Glider facing 90 degrees to the direction of travel.

Pilot Information

At the time of the accident the pilot held a Gliding Federation of Australia (GFA) issued Glider Pilot Certificate endorsed with Level 2 Instructor and had accumulated around 2,000 flights for a total of 1,878 hours; of which 33 flights for 18 hours were on type. The command pilot held a valid GFA Medical Practitioner's Certificate of Fitness. The medical standards applicable for the issuing of this Certificate are the Austroads standards for the issue of a driver's licence medical certificate for a private motor vehicle.

Aircraft information

The aircraft was manufactured in France in 1987 and was issued with an Australian Certificate of Airworthiness in 2004. The aircraft had been maintained in accordance with GFA requirements and had a valid Maintenance Release that was issued on 24 August 2020. A daily inspection had been completed on the morning of the accident. At the time of its last annual inspection, the aircraft had accumulated 1990 hours over 2497 flights.

Meteorology

The weather at the time of the accident was good visual meteorological conditions (VMC), overcast with high clouds and the wind from the North-east at 5 knots.

Airfield

Towrang airfield is an unregistered airfield, approved by the GFA for gliding and winch launching operations. It is situated about 11 nautical miles North-East of Goulburn aerodrome, North of the Hume Highway, North of the main Sydney-Goulburn railway line and East of Carrick Road. Towrang airfield is marked on aviation charts, including the Visual Navigation Chart for the Sydney area, with a double cross gliding symbol (++) and 'W' for winch launching (Figure 2 refers).

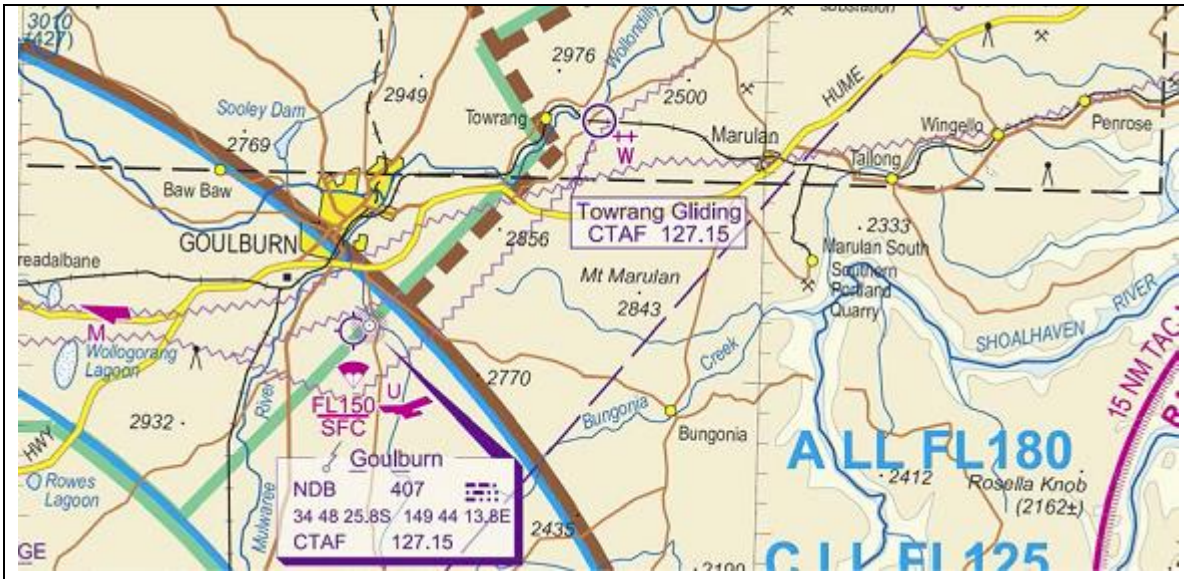


Fig 2.Section of Sydney Visual Navigation Chart.

Towrang airfield is sited on a working farm property 'Lockyersleigh' that is used to graze sheep and sometimes cattle. The runways are mown grass. The main operating runway is designated 05/23, meaning a NE runway on a magnetic bearing of about 050o, and the reciprocal SW runway on a bearing of about 230o. The Towrang runway designation 23 is also used to differentiate it from the nearby grass runway 24 at Goulburn aerodrome, thus preventing confusion. Runways 05 and 23 are approved for winch launching and landing. A grass area is normally mown to the right of the main Runway 05 (or left of the main Runway 23). This adjacent area is known as RWY 05 Right (05R) or RWY 23 Left (23L) and is usually used by landing gliders to separate from launching gliders (refer Figure 3). An electrified picket fence sited about 140 metres to the East of RWY 05 and about 50 metres East of RWY 05R to keep stock off the operational runways (refer yellow line in Figure 3).

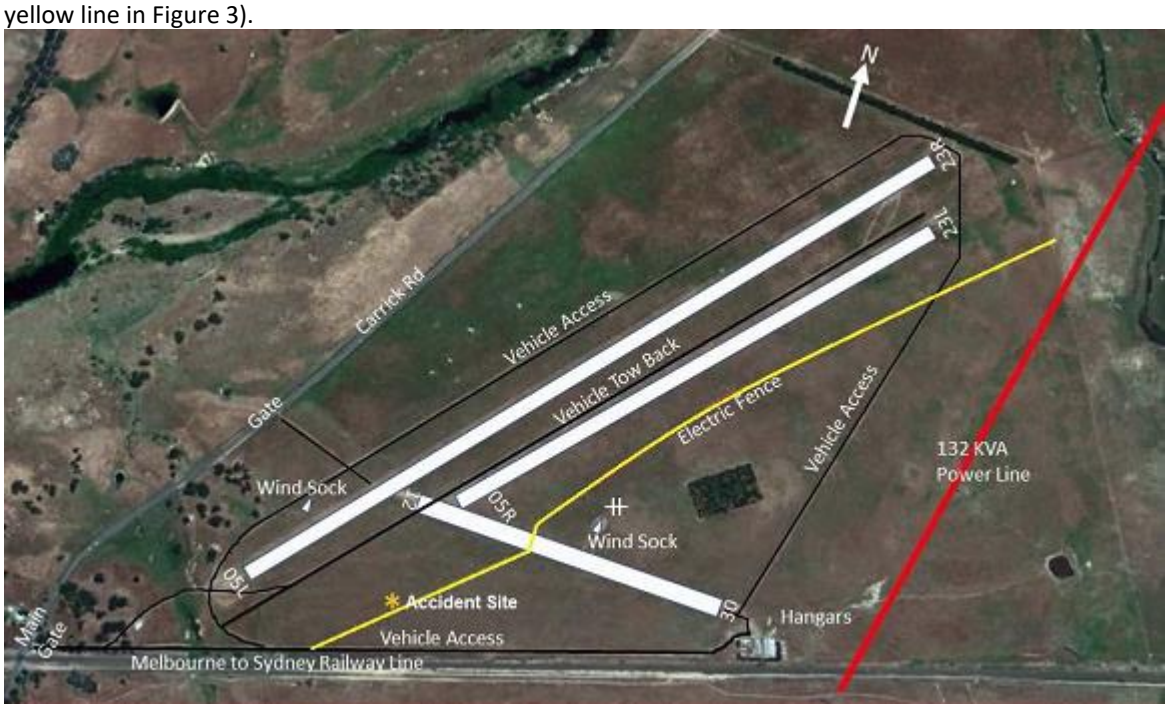


Fig 3.Airfield layout.

ANALYSIS

The pilot was medically fit and qualified to undertake the flight. The glider carried a logger which recorded the flight. The log trace shows the glider was launched by winch from RWY 05 at 1521 hours. The wind was favourable for this runway at the time of launch. At the top of the launch the glider attained an altitude of 1300 feet AGL. The pilot stated that he "…flew to some brown paddocks 2-3 kms upwind and to the left of the airfield where thermals where more likely. After searching this area for a few minutes and encountering reduced sink at best, I decided to break off and land on RWY 05R, as per the standard procedure that day." The pilot joined circuit at about 750ft AGL and at 500ft AGL turned onto the base leg. The pilot turned onto the final approach at about 300ft AGL and was wings level at about 200ft AGL, Although the pilot's aiming point was between the two gable markers marking the threshold of RWY 05R, he overshot the centreline for RWY 05R and did not regain it. The command pilot recalled that "…at about 300ft, I turned on final approach but overshot the centreline a little and turned and flew directly to the aiming point, which was two prominent white end of runway markers. I selected about half air brake after confirming an overshoot but, after a short delay, reduced the brake to about one quarter. I observed that the approach path was a little flatter than ideal and that I would not get back exactly on the centreline until well down the glide slope. I made no further adjustments to the controls as I assessed that I would land on the runway near the markers and finish close to the left side of the runway. All seemed to be proceeding reasonably satisfactorily and I was just starting the round out when the right-hand wing tip hit the top strand of a fence." Investigation identified that during the landing flare and hold-off, the glider's starboard wingtip struck an electrified stock fence situated about 240 metres behind the runway threshold and displaced about 55 meters from the centreline (refer Figure 4). While the pilot was aware of the location of the fence, he stated that he had "…not seen this fence during the final approach as my focus had been on the end of runway markers. The fence is also difficult to see against the background, and forward visibility from the back seat is restricted."

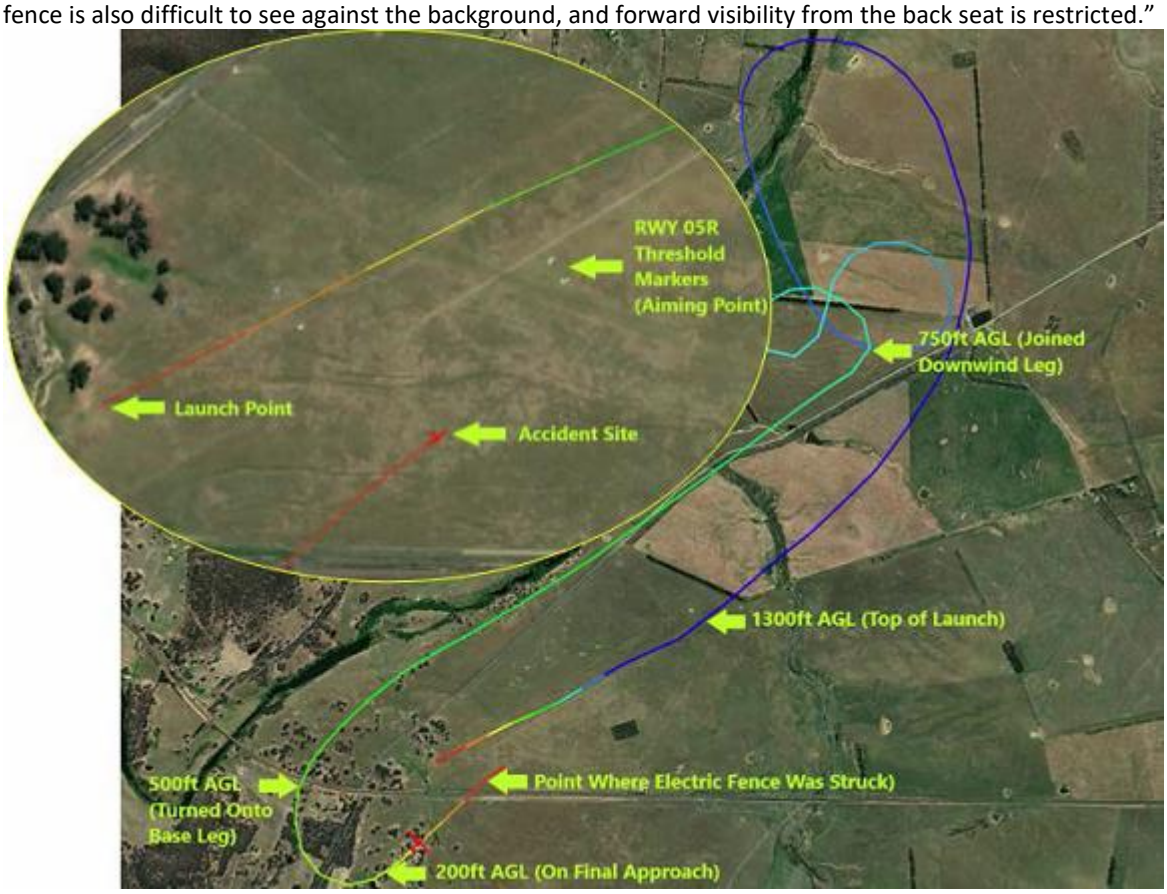


Fig 4.Graphic of the flight path showing approximate heights at various positions in the circuit. The landing point is enlarged to the left and shows the position of the aiming point

Aircraft

Examination of the aircraft confirmed it was properly rigged, with all control rods and surfaces connected and functioning correctly prior to the accident. The aircraft suffered substantial damage to the cockpit, aft fuselage, and wings from impact with the ground at landing speed.

Flight Crew

Although the pilot was unhurt, the student occupying the front seat suffered some minor cuts and abrasions and shock.

FINDINGS

The pilot overshot the turn onto final approach necessitating flying an angled approach to the runway. When the glider began to undershoot the aiming point, the pilot reduced the airbrake setting but this was not sufficient to regain the aiming point. The pilot was aware the glider would touch down in the undershoot area but was unconcerned as he believed it was obstacle free. However, the angled approach to the runway centreline placed the glider near the electric fence that was almost impossible to see against the airfield background.

Contributing Factors

- The pilot had just returned to flying after a two-month layoff due to inclement weather conditions and thick smoke haze from the NSW bushfires, and had only 8 flights in the preceding 90 days, most of which were flown earlier on the day of the accident.
- The pilot had not had a drink for some time prior to the accident and this, coupled with his advanced age, may have made him susceptible to dehydration.
- The accident investigator identified that the pilot did not want to conduct the last flight but felt pressured to do so.
- It is possible that the pilot experienced cognitive tunnelling due to the high workload during the approach and did not recognise the electric fence was a hazard. The condition of overload is well known, and as this condition is approached the brain can focus on the issues relevant to the approaching overload and can ignore, as though not present, visual input which is obvious and vital.
- The electric picket and wire fence was hard to see against the airfield background.

SAFETY ADVICE

Fatigue

Fatigue is a natural physiological reaction to prolonged physical and/or mental stress. The more fatigued you are, the lower your cognitive processing speed and memory capacity, which detract from your ability to concentrate and make you more easily distracted. An area near the front of the brain responsible for logical reasoning and complex thought seems particularly vulnerable to sleep deprivation. This may be why people typically have such a hard time recognising their own fatigue and level of impairment. We tend to underestimate our level of fatigue and overestimate our ability to cope with it. Don't be pressured into flying if you are fatigued.

Pressure

Pressure is to be expected when working in a dynamic environment. However, when the pressure to conduct a flight interferes with our ability to complete tasks correctly, then it has become too much. It is the old argument of Quantity versus Quality; and in aviation we should never knowingly reduce the quality of our work. Pressure can be created by lack of resources, especially time; and also from our own inability to cope with a situation. We may come under direct, or indirect, pressure from club officers, from members and even our friends. However, one of the most common sources of pressure is us. We put pressure on ourselves by taking on more work than we can handle, especially other people's problems. These poor judgements are often the result of making assumptions about what is expected of us. Learning assertiveness skills will allow you to say 'No', 'Stop!', and communicate concerns with colleagues. These skills are essential,

and when deadlines are critical, then extra resources and help should always be obtained to ensure the task is completed to the required level of quality.

Aging Pilot Considerations

Cognitive decline is most prevalent among aging pilots. Like the effects of fatigue, cognitive deficiencies are insidious, have a substantial negative impact on performance and are hardest to identify when the pilot is performing routine activities. One reason symptoms go unnoticed is that with practice and routine, the brain adjusts to mild to moderate cognitive impairment. In other words, normal activities can mask the severity of the deficiency. However, if the pilot's routine is interrupted by an urgent or stressful situation, then the extent of cognitive impairment may become more evident. It is well known that flight experience can compensate to some degree for age-related declines in cognitive function and that overlearned complex tasks such as piloting are less susceptible to age-related deterioration than abilities to perform in novel situations. Notwithstanding, recency of experience can have a dramatic effect on overall airmanship, regardless of age. It is known that older pilots who have long breaks between flying take longer to regain their proficiency. Older pilots should fly regularly and participate more frequently in recurrent training (e.g., flight reviews).

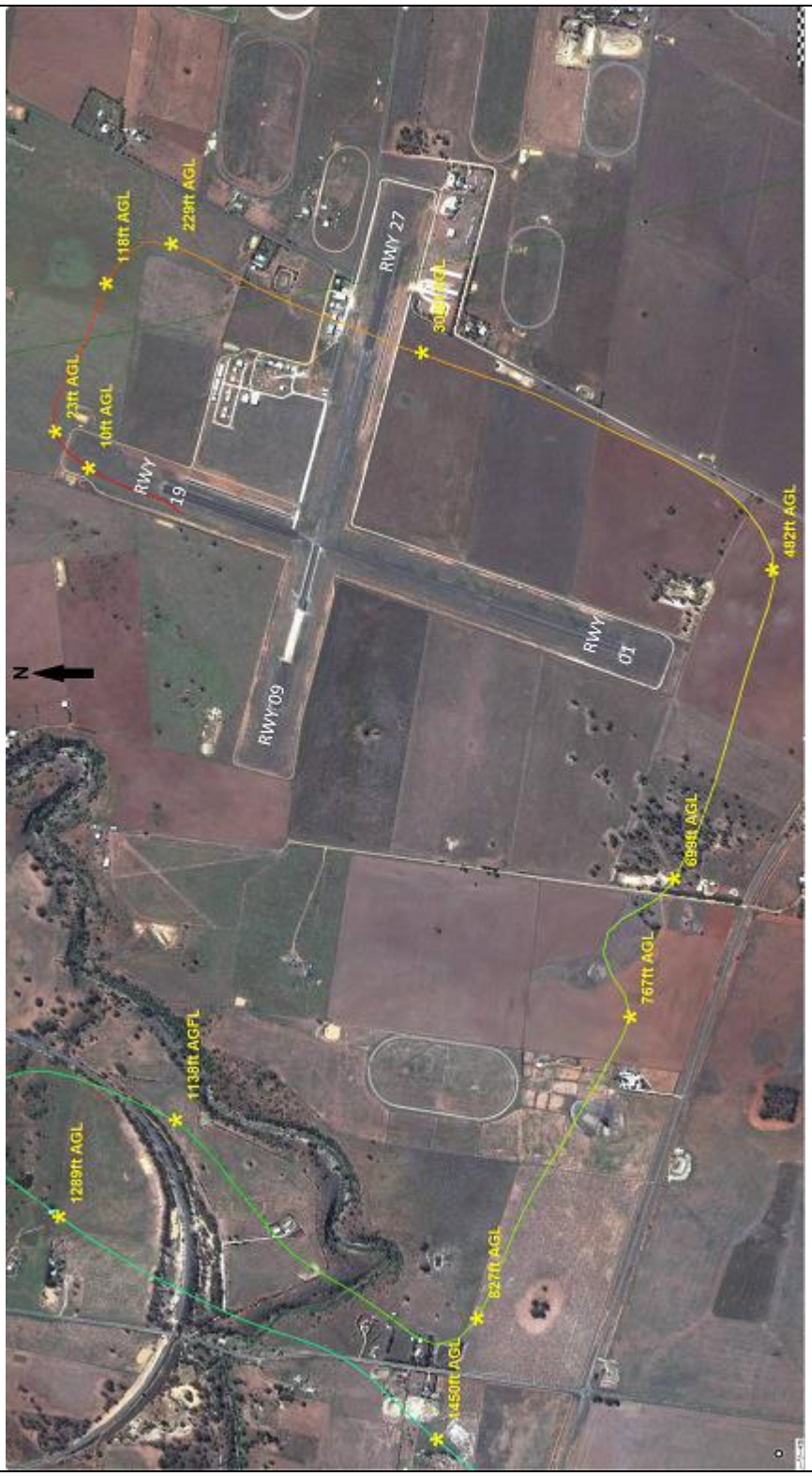
Cognitive Tunnelling

Cognitive tunnelling, which often manifests itself as target fixation in gliding, is one of the principal causes of accidents that involve human error. Cognitive tunnelling is the mental state in which the brain focuses on one thing and, as a result, does not see other relevant data. This perceptual blindness causes a person's attention to overlook even the most obvious clues to problems that are right in front of them. Metaphorically, a mind's focus can be either like a floodlight that dimly illuminates a large area or like a spotlight that provides intense clarity on a single subject. Cognitive tunnelling allows a person to ignore all other stimuli that are unimportant to a task so they can focus on a single object of interest. However, in emergency or high-stress situations, cognitive tunnelling most often causes negative consequences. To counter any tendency to cognitively tunnel, experts recommend having a mental model of how things work in a system. In gliding, a pilot will produce a mental model through ongoing practice of emergency procedures. This rehearsal builds a mental image of scenarios they could encounter and allows the pilot to run through them before they occur, giving them the ability to know where to focus attention in an actual emergency. Ultimately, the goal is to gain the clarity of mind that allows the pilot to back away from intense mental focus and see the big picture. By performing emergency reviews, a pilot is more apt to use their spotlight intensity to run through a mental checklist and scan for data, thereby avoiding the adverse effects of cognitive tunnelling.

Date	29-Feb-2020	Region	VSA	SOAR Report Nbr		S-1666	
Level 1	Consequential Events	Level 2	Low Circuit	Level 3		Low Circuit	
A/C Model 1		SZD-50-3 "Puchacz"		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	35

While conducting a private passenger flight, the low experience pilot conducted an extremely low circuit culminating in a final turn below 50ft AGL. The wind on the day was around 9 knots from the south, and operations were being conducted from RWY 19. Thermal conditions were weak and many flights on the day were of short duration. The pilot launched at 1255 and released from tow some five minutes later at 3,100ft AGL; about 5 kms SSW of the aerodrome. The pilot flew in search of lift to the south-west of the aerodrome but was unsuccessful. The pilot eventually flew towards the circuit joining area for runway 19 but made a left turn in lift when at 770ft AGL on the dead side of the circuit and about 1.5 kms from the threshold of runways 09 and 01 (refer diagram). However, the lift turned to sink almost immediately the turn commenced, so the pilot resumed their track back towards the circuit joining area to the south-east of the aerodrome. The pilot turned onto the downwind leg for RWY 19 at about 480ft AGL and displaced laterally from the runway by 500 metres. The pilot then overflew RWY27 at a height of about 300ft and turned onto the base leg at about 230ft AGL abeam the northern boundary of the aerodrome and displaced about 700 metres laterally. The pilot made a shallow turn onto final approach at a height of about 30ft AGL, a height

derived from the GPS flight log and corroborated by several witnesses. The aircraft landed normally. After the flight the pilot believed he had entered the circuit from the crosswind leg at 1,000ft AGL, and that he delayed turning onto base earlier so as not to cut across the path of a powered aircraft ahead in the circuit. The pilot stated, *"When I turned base, I was surprised to find myself at a lower height than usual."* The pilot further stated *"With a safe landing being my primary objective and after establishing that I had sufficient height to arrive at the airfield, I knew my biggest hurdle was going to be the turn into final. This was because of my training …., experience in ridge flying, and awareness of a report that I had recently read on high accident rates caused by stalls/spins near terrain. As such, I was extremely cautious to maintain speed and execute the turn safely."* The pilot was counselled by the Duty Instructor and CFI, and the options of conducting a right-hand circuit to RWY 19, or a landing on RWY 27 were discussed. The reason why the pilot did not recognise earlier that he was low was not identified. It is noted, however, that the altimeter, which was set to read QNH, would have been reading 500ft higher than the aircraft's height above ground. The pilot will undergo some further training, including flying with the altimeter covered. Potential causal factors include inexperience, high workload, extending the flight for the benefit of the passenger, misreading the altimeter, and a desire to conform to expected circuit practice when a modified circuit was more appropriate (goal fixation).



Date	29-Feb-2020	Region	GQ	SOAR Report Nbr	S-1663

Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision
A/C Model 1	Piper PA-25-235	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	43

Following a normal aerotow and glider release to the east of the airfield, the tow pilot returned to the airfield and manoeuvered to join downwind for runway 12. The tow pilot noted a radio call from an RAAus registered powered aircraft that was departing from runway 12 a few minutes earlier and had been looking for the aircraft without success. The tow pilot made a radio call advising he was *"joining downwind for runway 12"*, and about 10-15 seconds later and at approximately 1200 feet AGL, the tow pilot suddenly saw a small high-wing aircraft below in their 10 o'clock position on a converging heading with a slightly nose high (climbing) attitude. The tow pilot immediately made a sharp descending right turn away and then re-joined the downwind leg about 900ft AGL and completed a safe landing. The tow pilot believes he saw the other aircraft turn away to the right. The Club CFI and tow pilot were unable to identify the other pilot and aircraft, nor was a formal report made by the other pilot. The CFI noted that the aerodrome is busy, with mixed recreational flying operations involving flight training and early solo pilots. Gliding Club pilots are aware of the potential for conflict in the circuit and use altered see-and-avoid for collision avoidance.

Date	1-Mar-2020	Region	NSWGA	SOAR Report Nbr	S-1699
Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous
A/C Model 1		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	49

A member self-reported they flew gliders over a period of two months whilst not being a financial member of the Gliding Federation of Australia. Pursuant to Civil Aviation Order 95.4, *"An aircraft to which this Order applies must not be operated except: (a) by an individual: (i) who is a member of the GFA…"* The member had received two system generated emails reminding them of their membership expiry, but they were not actioned. The member paid his membership (backdated to the expiry date) and has been counselled by their CFI.

Date	8-Mar-2020	Region	VSA	SOAR Report Nbr	S-1665
Level 1	Operational	Level 2	Aircraft Control	Level 3	Hard landing
A/C Model 1	DG-500 Elan Orion	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	46

What Happened

At the end of a soaring flight the inexperienced pilot elected to land long to stop in front of the airfield access gate to the glider hangar. The pilot mishandled the airbrakes during the flare resulting in the glider ballooning, and the aircraft bounced a few times due to misapplication of the controls. The pilot deployed full airbrake to prevent the bounces, which caused the glider to strike the ground heavily on the nose and tailwheel simultaneously. The nosewheel fairing was damaged.

Analysis

The pilot attempted to extend to flight in order to land long by reducing the airbrake setting during the hold-off stage. The pilot did not conduct a minimum energy landing but allowed the glider to touch down while still at flying speed, and this resulted in the aircraft rebounding into the air. The pilot over corrected with elevator. i.e. pitched too far forward, and the aircraft struck the ground several more times before the glider came to rest.

Safety Advice

When small amounts of airbrake are used during the float, and the glider is allowed to touch down at speed, the pilot mut ensure that elevator control inputs are small. This is because the faster and cleaner the aircraft, the greater the pitch sensitivity. Recovery from a bounce should not be thought of in terms of 'control movements', but by reference to the glider's attitude and its position in relation to the ground. In

other words, the pilot needs to recover by selecting an attitude which prevents any further climb. Bounces can be avoided by the pilot establishing the glider on the approach at the correct airspeed for the conditions using half or more airbrake. Pilots must endeavour to maintain the approach speed to roundout and aim to touch-down with low energy on the main-wheel and tailwheel simultaneously.

Date	8-Mar-2020	Region	NSWGA	SOAR Report Nbr	S-1672
Level 1	Operational	Level 2	Miscellaneous	Level 3	Rope break/Weak link failure
A/C Model 1	Piper PA-25 Pawnee	A/C Model 2	Club Libelle 205		
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	71

What Happened

On 8 March 2020 at about 1350 hours, the pilot of a libelle was about to conduct the first launch of the day for local soaring flight. About one second after the tow pilot applied power to launch the glider, the tow rope broke at the splice securing the rings to the tow plane's release.

Tow Pilot's Comments

The Libelle and pilot weighed about 295kg and the rope was not jerked during the taking up of slack in the rope. The same rope had been used for two launches the day prior, and had completed a further 9 launches of gliders up to 600kg the previous week. Three separate tow pilots had not identified the wear in the rope during the daily inspections.

CFI's Comments

The Club has since checked and re-spliced all its tow-ropes and has adopted a policy of putting two new ropes into use each year (probably more if a large event were to be held, e.g. State or National comp). Tow pilots have been reminded of the things to look for on daily inspections, including condition of splices at both ends of rope, weak links and rings. This is the second actual rope break in 6 months (the previous one when heavy glider got out of station and jerked rope, breaking it at the splice at the glider end and losing a set of rings in the process). The Club's experience has shown that any wear at the end of the splice is most likely to cause a break, and the tow plane end of the rope seems as much a problem as the glider end.

Date	9-Mar-2020	Region	VSA	SOAR Report Nbr	S-1667
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision
A/C Model 1	Hornet	A/C Model 2	Piper PA-28		
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	82

What happened

While the tow plane and glider combination were departing overhead the aerodrome on the crosswind leg, the crew in both aircraft observed a powered aircraft approaching head-on and then immediately turn away to its right. The crew of the Piper PA-28 advised they rejoined the circuit for rwy 09 and were on mid crosswind when they observed a tow plane, with a glider in tow, climbing from approx. 100-200 ft below their position at their 2 o'clock. The PA-28 climbed and made a right turn to increase separation. The crew reported they had not heard any radio calls from the tow plane.

Analysis

The wind on the day was from the South-east at 5-10 knots, and the active runway was 09. There was scattered cumulus at about 4,500ft in the vicinity of the aerodrome, which lowered to about 3,5000ft some 10 miles to the south. Aerodrome traffic had been light all day, and the gliding operation was not as busy as usual. The glider sortie was a training flight to assess the student prior to first solo. When the airspace had been cleared by the launch crew and the take-off command was given, the tow pilot made a rolling and departure call that was heard in the glider. Around this time a Piper PA-28 was approaching the aerodrome circuit from the south for a mid-field crosswind join. The tow pilot flew a standard departure and turned to the south about mid-downwind to cross overhead the aerodrome as per standard towing practice. At 800ft AGL about 500 metres from the runway intersection on the live side of the circuit, the tow pilot and the

student in the glider observed a PA-28 approaching head-on at a similar height from the South. The student advised he was about to release from tow and alert the tow pilot when the PA-28 turned away to their right approximately half a mile away. The pilots of both the PA-28 and tow plane reported they had not heard each other's radio calls. This uncertified regional aerodrome supports three gliding clubs, two powered flight training organisations and a mix of general and sport aviation aircraft including helicopters. There is also significant traffic transiting to and from other aerodromes in the Melbourne basin. Compounding matters, three control steps with overlying CTAs between 2,500ft to 4,500ft are sited within a 2NM radius of the aerodrome. The airspace can be quite congested, especially at weekends and public holidays. While all gliders and tow planes operating from the site are fitted with Flarm for collision avoidance and use of radio is mandated by the aerodrome operator, see-and-avoid remains the primary defence. The provisions of Regulations 161, 162 and 163A of CAR are well known and understood by glider and tow pilots flying from the site, as is the guidance in CAAP 166.

Towing Patterns

Tow pilots are required to adopt a towing pattern which minimises towing into the sun, takes advantage of forced landing options, stays within gliding range of the airfield, and makes maximum use of any lift which is available. The towing pattern will be dictated by the wind velocity and likely release position, and the need to avoid conflict with other traffic in the circuit area (Refer GFA Aerotowing Manual, Section 8.3). Section 10.1.22 of the Manual states: *"At all times keep a sharp lookout, continually clear the aircraft's blind spots, and if possible, avoid those parts of the sky in which you know traffic will congregate, e.g. circuit joining areas. Tow pilots should, wherever possible, avoid climbing the combination in the downwind leg of the circuit and plan their departure so as to keep the glider within gliding distance of the airfield."* This guidance is specifically intended to ensure tow pilots flying at, or in the vicinity of, a non-controlled aerodrome, harmonise with the standard aerodrome traffic circuit to minimise the risk of collision. The standard traffic circuit procedures are described in Civil Aviation Advisory Publication (CAAP) 166-1 'Operations in the vicinity of non-controlled aerodromes.' The diagram accompanying the guidance in Section 10.1.22 advises tow pilots to keep the combination upwind of the midfield crosswind join area. The reason for this advice is to minimise the risk of collision by ensuring the tow plane and glider combination do not fly head-on to traffic joining the circuit at a similar height (e.g. traffic joining on either the downwind leg or midfield crosswind), and comply with the requirement to *"avoid climbing the combination in the downwind leg of the circuit"*.

Safety Recommendations

- Tow pilots must adhere to the guidance in the GFA Aertotowing Manual to keep the combination upwind of the midfield crosswind join area, and to avoid climbing in the downwind leg of the circuit.
- It is recommended the aerodrome operator discourage midfield crosswind joins when gliding operations are in progress and place an entry to this effect in ERSA.
- As an aid to see-and-avoid, pilots are to be encouraged to turn on external lights, where fitted, when in the vicinity of the aerodrome, and until the aircraft has landed and is clear of all runways.

Safety Message

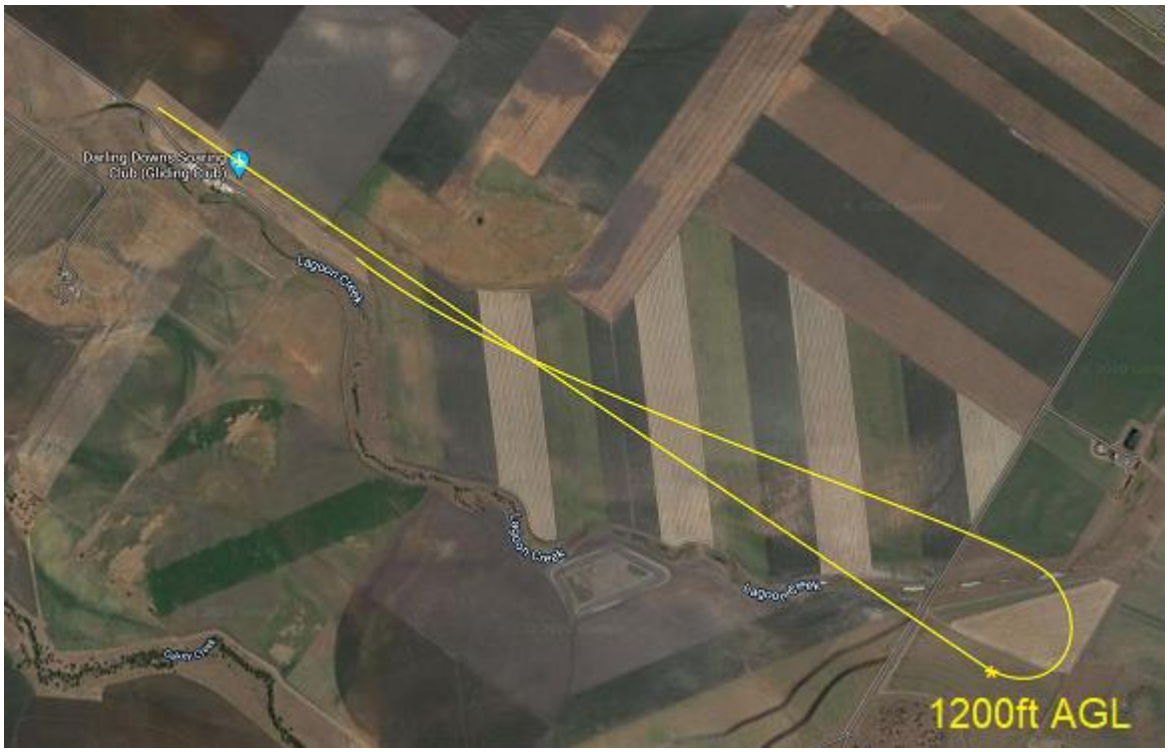
This incident emphasises the importance of alerted see-and-avoid practices. Issues associated with unalerted see-and-avoid have been documented in an Australian Transport Safety Bureau (ATSB) research report Limitations of the See-and-Avoid Principle. Unalerted see-and-avoid relies entirely on the ability of the pilot to sight the other aircraft. A broadcast made on the CTAF is radio-alerted see-and-avoid, which is more likely to be successful because knowing where to look greatly increases the pilot's chance of sighting the traffic. The Limitations of See-and-Avoid Principle research report is available at: www.atsb.gov.au/publications/2009/see-and-avoid.aspx.

In addition, Safety around non-towered aerodromes is one of the focuses of the ATSB SafetyWatch campaign and is available at: www.atsb.gov.au/safetywatch/safety-around-aeros.aspx.

Date	14-Mar-2020	Region	GQ	SOAR Report Nbr	S-1669
Level 1	Operational	Level 2	Fuel Related	Level 3	Exhaustion
A/C Model 1	Piper PA-25-235	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	67

WHAT HAPPENED

During an aerotow, at around 1200ft AGL, the tow plane's engine stopped. The tow pilot waived-off the glider, which climbed away in a thermal, and landed the tow plane safely on the reciprocal runway at the aerodrome.



ANALYSIS

The tow pilot arrived at the field as the rostered tug pilot and found towing was already in progress. There was a large group of students for training, as well as single-seat aircraft needing launches. The tow pilot was not involved in the initial Daily Inspection but performed their own individual inspection prior to taking over the aircraft. The tow pilot assumed the aircraft had started the day with a full tank of fuel, and this belief was reinforced by the fuel gauge reading full and the flight record showing only one launch had been conducted.

The tow pilot stated *"I commenced towing, and the first several tows were all training flights to between 2000 and 3500 ft AGL (long tows). I then started on the single seaters. I knew I would not be able to tow all the singles without refuelling because the trainers were again lining up in between them. I expected the second tug to join me, but it did not appear on the flight line. I needed a break for food and water but continued towing. Normally the single seaters are towed first, and then the trainers, with lots of opportunities for refuelling."* The pilot advised there was no fuel flow meter on the fuel bowser to provide an accurate indication of the amount of fuel added and they were not in the practice of using tacho time for fuel calculations. Instead, the pilot assessed fuel consumption by using the number of tows and the viewing fuel gauge. The pilot stated that prior to the incident flight he looked *"…at the fuel bowser to refuel, and there was a glider parked in front, so I looked at the number of tows previous (15 tows) and the fuel gauge, which showed a reasonable amount left; about 40 litres indicated when viewed later. I decided it was safe for another one, so I lined up to another glider. Climbing about 1200 ft, the engine lost power, and I realised I must be out of fuel. I performed a quick wing waggle and turned to the left 180 degrees. I thought I would*

make the runway easy with a 10-knot tailwind, but in the end I only just made it back, touching down just short of the threshold. No Injury and no damage, just relief and a feeling of acute embarrassment. The glider pilot was able to climb away and landed later in the afternoon." The pilot stated that during the glide back to the airfield, the drag of the windmilling propeller caused the descent to be much steeper than he expected. The pilot noted *"The aircraft felt like it would be very easy to stall and lose control."* The Club CFI witnessed the incident and, after the tug landed, noticed that the fuel gauge was still showing full (refer photograph).

After the tow plane was pushed clear of the runway it was noticed that the fuel gauge had dropped to below empty. The tow pilot put some fuel into the tank and the aircraft started normally. The tow plane was then taxied to the fuel bowser and refilled. The aircraft was inspected it was determined that the line to the fuel gauge had become temporarily blocked. The aircraft was returned to service without further incident.

LESSONS LEARNED

The tow pilot stated *"The Pilot In Command has the sole responsibility to ensure there is no possibility of fuel starvation. I used methods to calculate remaining fuel that are inaccurate and unreliable, and ignored my feeling that the fuel must be low. I did not take the time to look at the tacho units used against even an approximate guess at consumption, which would have stopped me earlier from towing more gliders. The tacho units used to fuel starvation was 2.3 hours, presuming a full tank of fuel at start up. I now know that starting with a full tank, 1.7 hours is acceptable, leaving a safe fuel reserve intact. There were numerous 'human factors' involved with this occurrence, none of which are excusable. During my nearly 40 years of glider towing, I was always critical in my own mind, of pilots who had previously 'run out of fuel' while towing gliders. I now have committed the cardinal sin myself. The next pilot that makes this mistake may not be so lucky. I do not believe my experience helped appreciably with my forced landing as it happened in an ideal position, and any pilot with some experience would have landed safely. How do we stop it from happening again?. The human part will always be there, but the only way I believe to reduce the risk to the*

barest minimum is a proper fuel calculation, and write the tacho number down on the tug sheet as a 'go or no go' in your pre take-off check. Every tug pilot does one before each tow, even if it is abbreviated, and that check definitely includes fuel. It would also be a safety advantage for the club to install an accurate fuel meter on the bowser. I do not believe the complication of more rules or procedures will help, because those things are already in place, and I simply flew in ignorance."

SAFETY MESSAGE

Fuel exhaustion is a situation where there is no more fuel onboard. Unlike Fuel Starvation there is nothing to be done about re-establishing the flow of fuel. Most of these occurrences lead to a forced landing. Nevertheless, an ATSB study from 2015 (see Further Reading) showed that fuel exhaustion results in fewer fatalities than fuel starvation. A possible reason for this could be that the pilots involved in fuel starvation scenarios consider more options than just a forced landing, sometimes leading to inappropriate choices and fatal outcomes. Exhaustion occurrences are normally either the result of a gross error in the fuelling of an aircraft before flight, or the result of a number of seemingly minor aspects of fuel planning and management during the flight.

- Accurate fuel management starts with knowing exactly how much fuel is being carried at the commencement of a flight. This is easy to know if the aircraft tanks are full or filled to tabs. If the tanks are not filled to a known setting, then a different approach is needed to determine an accurate quantity of usable fuel.
- The amount of fuel on board should be thought of, not as a quantity, but as a flight time. For a consistent combination of altitude, power setting and mixture setting, the fuel burn will be constant, but changing winds and deviations due to weather conditions will vary the groundspeed and therefore the range.
- The pilot in command must ensure that, before take-off, all of the following requirements are met: (a) sufficient fuel is on board the aircraft for it to land at the end of the flight with the required fuel reserves still on board; and (b) the quantity of fuel in the aircraft's fuel tank or tanks has been checked by visual inspection or by 2 different methods.
- Before an aircraft commences a flight, the pilot in command of the aircraft must plan the flight in such a way as to ensure that enough fuel will remain in the aircraft's tanks after landing to allow it to fly for at least 30 minutes at normal cruise power under ISA conditions at 1,500 ft above the place of intended arrival.Accurate fuel management relies on a method of knowing how much fuel is being consumed. Many variables can influence the fuel flow, such as changed power settings, the use of non-standard fuel leaning techniques, or flying at different cruise levels to those planned. If they are not considered and appropriately managed, then the pilot's awareness of the remaining usable fuel may be diminished.
- The fuel status should be regularly updated, at least every hour, to ensure that an adequate reserve is maintained.
- Aircraft flight manuals often provide data that shows the fuel consumption rate at standard power settings with the mixture leaned. If those settings are used, an assessment of the fuel remaining should be correct. However, even small changes in engine operating technique, such as leaning or a small increase in rpm, can make a big difference to fuel flow.
- The pilot-in-command must ensure that fuel checks are carried out at regular intervals. The remaining fuel must be recorded and evaluated. The must also ensure that the amount of useable fuel remaining in flight is not less than the fuel required to complete the task with the specified reserve remaining.

REFERENCES

- Avoidable Accidents No. 5: Starved and exhausted: Fuel management aviation accidents, by ATSB, 2013
- Australian Aviation Accidents Involving Fuel Exhaustion and Starvation, by ATSB, 2002

Date	14-Mar-2020	Region	GQ	SOAR Report Nbr		S-1671	
Level 1	Technical	Level 2	Systems	Level 3		Flight controls	
A/C Model 1		Astir CS Jeans		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Ground Ops	PIC Age	

What Happened

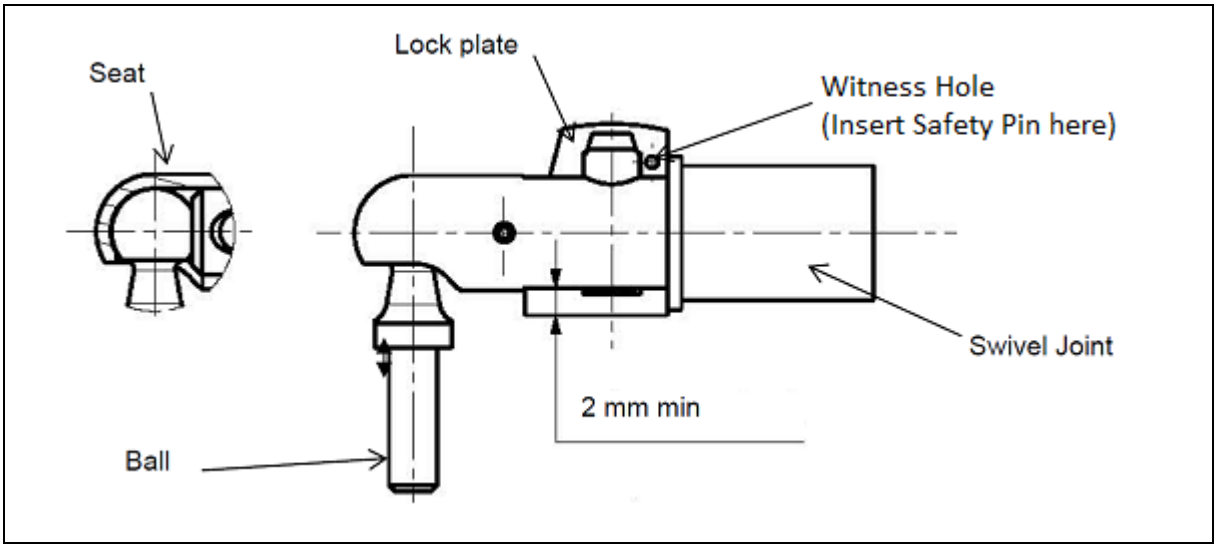
During the Daily Inspection (DI) one of the aileron's L'Hotellier coupling safety pins was incorrectly fitted and not securing the fitting as required. The DI was being conducted by a pilot undertaking their first inspection on type. Although the pilot had been briefed on the DI, they choose to seek confirmation of the L'Hotellier coupling system from an airworthiness inspector, as they found the connections for the ailerons and the airbrakes used two differing types of safety locking pins. The inspector confirmed that there were two different types of safety locking pins being used but noticed that the left aileron safety locking pin had been incorrectly fitted and was not in safety. They found the safety pin had not been inserted through the small hole at the top-rear of the locking tab as the designer intended but had been forced around the L'Hotellier coupling and merely clipped together. The safety pin was removed and found to have been bent out of shape. The safety pin was fixed and fitted through the small 'locking' hole, and its safety was independently confirmed. Following an independent control check, the maintenance release was signed, and the aircraft returned to service. The Club CFI noted that it was likely that the safety locking clip has been connected this way for a considerable length of time and that the aircraft had been flown in this configuration on several occasions. The CFI found that the aircraft had been signed out by several daily inspectors, which suggested a gap in their knowledge and training. The CFI sent an email to all members alerting them to this problem and some remedial training was conducted.

Causal Factors

The persons who rigged the glider, completed the dual inspection, and those who conducted subsequent Daily Inspections clearly did not pay enough attention to detail, or check to ensure that the flight control connections where connected correctly and in safety.

Safety Advice

The Daily Inspection is required to establish that the glider is fit for flight for that day's flying operations and certify that in the Maintenance Release. A thorough Daily Inspection is essential to avoid incidents and accidents by finding faults with the glider before it flies. A person holding Daily Inspector authorisation therefore plays a frontline role in incident and accident prevention, and in continuing to keep the glider airworthy. Daily Inspector Examiners must ensure their students have a sound understanding of the various types of control connections in use, how they are fitted and how they are made safe. Inspectors must ensure inspection hatches are opened and should use a torch and mirror in hard to see places to confirm that the controls are correctly connected and in safety. When inspecting new types, the inspector should make themselves familiar with the rigging guidance in the Aircraft Flight Manual. Another good reference is the 'Daily Inspector's Handbook' that is available from the GFA Documents Library.



Date	15-Mar-2020	Region	VSA	SOAR Report Nbr	S-1668
Level 1	Operational	Level 2	Miscellaneous	Level 3	Rope/Rings Airframe Strike
A/C Model 1	ASK-21	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	53

As the slack was being taken-up in the rope for an aerotow launch, the rope caught around a tuft of grass to the side of the runway. When the rope became taut, while still caught in the grass, the wing runner gave the "all out" command. As the tow plane accelerated the rope disengaged from the tuft of grass and became instantly slack. The glider over-ran the slack rope, which then got entangled with the nose wheel. The command pilot in the glider pulled the release but because the rope was wrapped around the front wheel and still connected to the tow plane, the glider continued forward. The command pilot applied the glider's brake, which alerted the tow pilot to there being a problem and the launch was abandoned. The command pilot reported this *"All happened VERY quickly"*. This incident highlights the potential hazard of a rope overrun and why a launch should not proceed if the tow rope becomes fouled. The Club's CFI has raised awareness of this incident and asked the instructors to ensure wing runners do not allow a launch to proceed if the rope is hindered or fouled.

Date	21-Mar-2020	Region	GQ	SOAR Report Nbr	S-1670
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Ground strike
A/C Model 1	Ventus-3M	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	60

What Happened

While on a cross-country flight an outlanding became inevitable and the pilot elected to conduct a self-retrieve. The engine failed to start, and during the subsequent outlanding the glider's port wing contacted long grass causing the glider to ground loop.

Factual Information

The pilot was flying a cross-country sortie in his self-launching glider when conditions deteriorated and an outlanding was likely. At an estimated 1000ft AGL the pilot decided to start the engine to self-retrieve. The pilot reported the engine appeared to raise slower the usual and stated, "I may have been influenced in this feeling by the flashing battery light on the engine controller." When the pilot tried to start the engine, it only clicked and did not turn over. The pilot then attempted to air start the engine by diving, even though this is not a procedure in the flight manual, but this was unsuccessful as the propeller failed to rotate. During this action the pilot did not have time to fully assess the suitability of paddocks for landing, and the paddock selected had a significant slope. While landing across the slope, and upon flaring for touch down in a wings level attitude, the uphill (port) wingtip caught in grass and the glider turned through 180 degrees.

Analysis

The aircraft is fitted with three LiFePO4 batteries – an engine battery in the nose, a battery in the tail and a battery behind the pilot's seat. All batteries can power the avionics but only the engine battery will power the engine. The pilot reported that the low-battery light had been illuminating intermittently for some time,

even though the battery voltage normally checked at over 13V, and he had already made arrangements to return the avionics controller (the prototype Sn1) to the manufacturer for checking and a software update. The pilot believed the batteries were fully charged before the flight, and while the controller may have been the problem, it is also possible the pilot may have inadvertently selected the engine battery to power the avionics, resulting in it going flat during the flight. The pilot stated that the loss of height from the unsuccessful attempt to air start the motor committed him to landing in a paddock that was less than optimal.

Safety Advice

Batteries - LiFePO4 batteries feature a high discharging current, have a long cycle life and their voltage remains almost unchanged down to about an 80% discharged state. However, when the battery starts running out it drops rapidly. Pilots flying aircraft with these types of batteries need to be aware that a satisfactory voltage check does not guarantee there will be sufficient charge available during flight.

Outlanding Incidents - A common reason for powered sailplane outlandings going awry is the pilot's mindset of expecting the engine to start first time and not having any other plan. GFA training requires pilots to remain within glide range of suitable landing options, and to make the decision to break-off the flight at a sensible height above ground. For pilots of powered sailplanes, including sustainer types, the decision to break off the flight will usually be higher than that for pure gliders. The actual height will be governed by the complexity of the engine starting process and availability of suitable landing options should the engine fail to start. This then allows the pilot sufficient height and time to conduct a safe outlanding should things go wrong.

Date	21-Mar-2020	Region	NSWGA	SOAR Report Nbr		S-1673	
Level 1	Operational	Level 2	Airframe	Level 3		Doors/Canopies	
A/C Model 1		Grob G 109		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	72

WHAT HAPPENED

While conducting a high-speed descent to conduct a pass over a newly constructed private runway, and above 1,000ft AGL, the pilot and passenger in the Grob 109 powered sailplane heard a *"noticeable one-off pop sound"*. The pilot reduced speed but was unable to identify the source of the sound, and after confirming the aircraft's performance and handling were unaffected, he conducted a safe landing. Following parking and engine shut down, the passenger remarked that there was a gap between the canopy and the airframe. The pilot reported *"Before I had a chance to see it, the canopy was unlatched and all appeared to be normal"*. The canopy locking mechanism was actuated several times on the ground and found to be operating normally. Several days later the pilot prepared the aircraft for the return flight to his home airfield. During the take-off, and just as the aircraft became airborne, the canopy began to open. The pilot immediately closed the throttle and conducted a landing straight ahead on the runway. The pilot taxied back to the threshold, and after confirming the canopy was closed and locked, took-off again. The flight home was uneventful, and upon arriving at the home airfield the pilot the pilot shut down the engine and conducted a local soaring flight. After soaring for about 30 minutes, the pilot decided to restart the engine but was unable to unfeather the propeller. The aircraft was within gliding distance of the airfield, so the pilot conducted an engine-off landing on the operational runway.

ANALYSIS

Canopy 'Popping'

The pilot noted that the canopy is hinged at the front and has a single latch at the rear, behind the pilot's head, that cannot be locked until the canopy is fully seated in place. The pilot stated that it was sometimes difficult to physically turn and look to confirm the canopy was properly closed. The canopy and locking mechanism were inspected by an Authorised Maintenance Organisation who identified two countersunk screws that are orientated near vertically to secure a strut cover plate under the instrument panel had been contacting the forward canopy hinges when closed, thereby preventing the canopy from properly sealing against the fuselage.

Fig 1. Canopy hinge showing wear from ill-fitting screws

Damage was also identified to the rear frame of the canopy and the top of the fuselage above the canopy locking mechanism.

Fig 2. Damage to canopy locking mechanism

Canopy Opening on Take-off

The pilot's CFI believes the canopy opening incident on take-off was due to the canopy not being physically latched by the pilot. It is likely the pilot became distracted during the pre-take-off checks.

Propeller unfeathering

Investigation revealed that inadequate maintenance and the failure to replace the worn propeller carbon brushes on the electrically actuated propeller led to the propeller control failure incident (unable to take propeller out of feather). It is noted that the pilot was aware the slip ring brushes where known to be in a compromised state of wear but chose to fly the aircraft pending receipt of replacement bushes. New propeller carbon brushes were subsequently installed.

SAFETY ADVICE

Canopy

The Grob G 109 canopy at speeds approaching Vne is known to unseat around the sides. The condition is caused by the shape of the canopy and resultant lift placing the canopy under considerable pressure. An increased in angle of attack when recovering from a dive at or close to this speed places added strain on the canopy and its attachments. This occurrence may be exacerbated by a worn attachment of the canopy / jettison system, an ill-fitting canopy frame as a result of a previous repair, replacement of the clear view Perspex resulting in poor fit of the frame, worn and rounded fuselage locating rails, poorly repaired fuselage rails and/ or canopy seal condition. The 'unseat' condition at speed results in a loud 'pop', the canopy remains unseated until being opened on the ground.

Pilots and operators of the Grob G109 model should:

- Ensure the canopy attachment and jettison system are in good order and tested annually. The jettison handle stowed and locked closed with frangible lockwire. The frangible lockwire should be of a gauge that it will hold closed but break in the event a jettison is required. The lockwire additionally assists in holding the jettison handle closed against vibration.
- Ensure the canopy is inspected and lubricated annually
- Ensure the fuselage rails and canopy seal are serviceable,
- Be aware of the aircrafts condition, idiosyncrasies and limitations and fly accordingly. Following receipt of this report the GFA reissued Airworthiness Advice Notice (AN) 062 with updated advice.

Checklists

The major function of the checklist is to ensure that the pilot in command will properly configure the aircraft for flight, and maintain this level of quality throughout the flight, and in every flight. When the pilot's pre take-off checks are interrupted they should be recommenced from the beginning. The lesson here is – if distracted for any reason during your checks, begin the checks again.

Known Unserviceability

Under the GFA system of maintenance, any defects found are to be recorded under Major or Minor Defects in the Maintenance Release as appropriate. A Major Defect will mean that the sailplane cannot be flown again until the defect is rectified and signed out by an Annual Inspector. Minor Defects mean the sailplane may continue to be flown but the defect must be checked at each Daily Inspection or interval as listed in the MR by a person with the appropriate airworthiness qualifications. Pilots who do not hold an appropriate airworthiness authority must seek the advice of an authorised inspector who will determine the severity of the defect. Do not fly the aircraft if in any doubt.

Date	30-Apr-2020	Region	GQ		SOAR Report Nbr		S-1675		
Level 1	Technical	Level 2	Powerplant/Propulsion		Level 3		Other Powerplant/Propulsion Issues		
A/C Model 1		PIK-20 E			A/C Model 2				
Injury	Nil	Damage	Substantial	Phase	Outlanding		PIC Age	77	

What Happened

Returning to Mareeba airport from cross country, the pilot started the engine to self-retrieve. The pilot climbed the glider to 6,000ft, which was about 2,000ft above that needed for final glide. While reducing power to cool the engine before retracting the pilot felt a jolt through the airframe and noticed in the rear vision mirror that the propeller tips were broken. The pilot shut down the engine but was unable to open the engine bay doors to apply the propeller brake. With the propeller windmilling, the glide ratio deteriorated markedly and the aircraft rapidly lost height. Eventually the propeller stopped but the engine could not be retracted, and as the glider was pushing into wind it became obvious to the pilot that an outlanding would be needed. The pilot selected a grassed paddock and configured the glider for a landing with the engine extended. The aircraft touched down safely, but during the initial landing roll it struck a rock hidden in the grass and the undercarriage collapsed. The right wing then got caught on the grass and the

glider performed a ground loop and came to rest 90 degrees to the direction of travel. The pilot was uninjured, but the glider suffered substantial damage including a broken tail boom.

Analysis

When the pilot exited the glider, he inspected the engine and found the mechanism for raising and retracting the engine had detached at the top pivot point where the bolt had fallen out. The pilot found the bolt retaining nut in the engine bay. When the pivot bolt let go the engine pylon moved forward, allowing the propeller tips to contact the small hinged door cover. When the engine stopped, the airflow pushed the pylon back into the engine bay doors and prevented them from opening. The pilot reported that he found the pivot bolt to be in the normal position during the Daily Inspection, but he did not check whether the nut was secure. The incident was investigated by the Chief Technical Officer who was informed the engine and associated extension/retraction system had been recently removed from the aircraft for servicing. The pivot bolt retaining nut was found in the engine bay, but the bolt was lost in flight and not recovered. The retaining nut was later tested and found to have excellent grip. A failure of the bolt was discounted, as the retaining nut did not have any residual bolt/threads attached. It is likely the retaining nut was not tightened when the engine and systems were re-installed and worked loose due to engine vibration that also caused the pivot bolt to fall out.

Safety Recommendations

Good maintenance practice is to have an appropriately qualified and approved inspector conduct a second inspection during, or upon completion of, an aircraft maintenance task. This is outlined in the GFA Basic Sailplane Engineering manual at section 3.3.4, which states *"The (Annual) inspection schedule is designed to be used as a checklist. At the end of each major component group there is provision for recording a dual inspection by an independent inspector of DI or higher authorisation (See items 16, 20 and 45). This is to verify the integrity of critical internal items & controls which would not be visible once the structure is closed up."*

Date	7-May-2020	Region	GQ	SOAR Report Nbr	S-1677		
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision		
A/C Model 1	Grob G 109B			A/C Model 2	Cessna 172N		
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	68

What Happened

A Cessna 172 on a training sortie was on final approach to RWY12 at approximately 400' when a motor glider, operating under power, turned onto a low and close base for the same runway. Witnesses on the ground reported the motor glider appeared to be flying under the Cessna and was likely to be unsighted by the Cessna's flight crew. The witness made a radio call to the Cessna alerting them to the motor glider's proximity. The Cessna was observed to raise and lower its wings in search, and another radio call was made to the Cessna pilot to "Go Around". The Cessna pilot applied full power and conducted a go-around manoeuvre. It was reported that the motor glider pilot had advised their radio had been turned off or the volume turned down.

Analysis

The CFI spoke with the glider pilot who acknowledged their check of circuit traffic was not adequate prior to entering the circuit. The touring motor glider requires that the avionics are turned off before engine cycling. On this flight the radio circuit was not changed to the pilot's headset following the engine start sequence but was switched to the cockpit speaker. This resulted in the pilot not hearing radio transmissions. The CFI noted that at this aerodrome noise abatement procedures mean the power pilots fly both close or wide circuits depending on the runways in use, and this requires extra vigilance by pilots in the circuit. The glider pilot was counselled and undertook a period of remedial training before being cleared for independent operations. The training was heavy on circuit procedures and the dangers of 'Normalisation of Deviance'.

Safety Advice

Civil Aviation Regulation (CAR) 162 specifies the rules for right of way for different types of aircraft, in different phases of flight and ground movement. CAR 162 (6) states: *"When two or more heavier-than-air*

aircraft are approaching an aerodrome for the purpose of landing, aircraft at the greater height shall give way to aircraft at the lesser height, but the latter shall not take advantage of this rule to cut-in in front of another that is on final approach to land, or overtake that aircraft." It should be noted that a motor glider under power must comply with this Regulation.

Date	8-May-2020	Region	GQ	SOAR Report Nbr	S-1676
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision
A/C Model 1	Discus A		A/C Model 2	Diamond DA40	
Injury	Nil	Damage	Nil	Phase	Thermalling	PIC Age	59

WHAT HAPPENED

While thermalling at about 3,800ft above the gliding field, the glider pilot observed a Diamond DA40 aircraft approaching his position at the same height. The glider pilot took avoiding action by diving away from the other aircraft and attempted to contact the pilot on the CTAF to no avail. The glider pilot stated that the other aircraft did not alter heading and suggested the pilot had not seen the glider.

INVESTIGATION

The Club identified that the Diamond DA40 was on a training flight from a neighbouring aerodrome. The gliding club CFI contacted the Flight Training School and spoke with the Operations Manager and Safety Manager. It was ascertained that the Diamond DA40 was being flown by a recently solo student pilot, who advised that they had sighted a glider and believed they made a call on the appropriate CTAF. It was determined that at the time of the incident there were two other gliders and tow plane flying in the local area, and their pilots did not recall hearing a CTAF call from the pilot of the Diamond aircraft. It is likely that the solo pilot had not sighted the glider that took avoiding action but had seen one of the other gliders, and that they were transmitting on the wrong frequency.

OTHER FACTORS

The Club usually operates during weekends and public holidays, but on this occasion operations were being conducted on a weekday to allow their members to maintain currency during the COVID-19 crisis. The Flight Training School operator stated they were unaware the gliding club was conducting midweek flying, and were thus surprised to learn the club was active at the time.

LESSONS LEARNT

It was agreed that the Club would inform the Flight Training School when midweek operations were being conducted, and the Flight Training School would ensure their students were appropriately informed of the gliding activity. During weekends, the Flight Training School will ensure solo flights avoid the gliding site. The CFI noted the *"Positive outcome is that we are building a good relationship with Flight Training School and we are both working together to improve the safety of our pilots and future operations."*

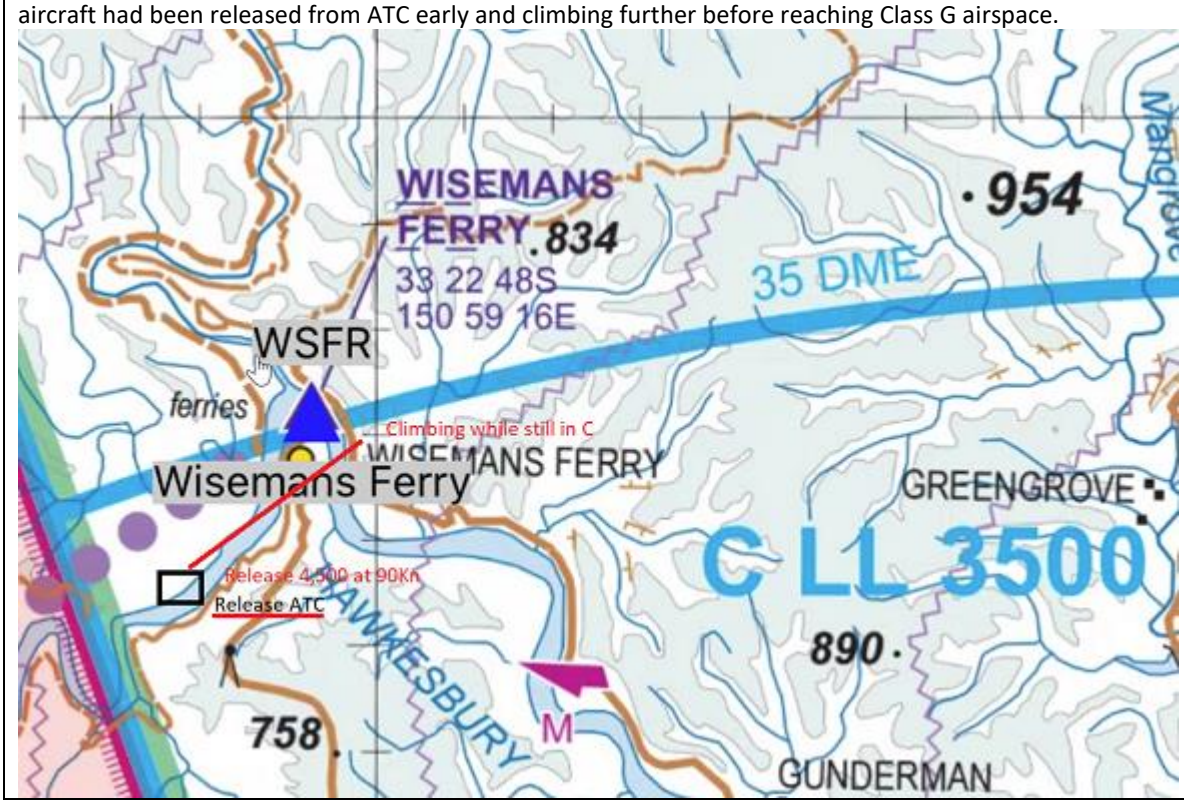
Date	30-May-2020	Region	VSA	SOAR Report Nbr	S-1679
Level 1	Operational	Level 2	Ground Operations	Level 3	Ground handling
A/C Model 1	Janus B		A/C Model 2		
Injury	Nil	Damage	Nil	Phase	Ground Ops	PIC Age	76

After the cessation of flying operations, it was decided to tow the club Janus from the launch point on RWY 01 back to the hangar with the club's golf buggy. There were no other gliders or tugs at the launch point and the Janus, which had just returned from a training flight, had been turned around 180 degrees in preparation for the golf buggy to drive out to the glider and fit the towing dollies. The Duty Instructor was standing near the port wingtip conducting a flight debrief with a newly solo student when the golf buggy passed approximately 3 metres away and heading toward the tail of the glider. The debrief session was concluded when the Duty Instructor heard something impact the glider. It was quickly established that the roof of the buggy had rubbed against the port end of the elevator, although there did not appear to be any damage, which was later confirmed by an airworthiness inspector. The Duty Instructor reported the buggy was being driven slowly at the time and there were no external pressures to get the glider moved quickly. He

assessed the buggy driver had a *"temporary lapse of concentration/spatial awareness"*. The Club has reminded vehicle drivers to exercise care when driving around aircraft and to maintain reasonable clearance from the glider at all times.

Date	30-May-2020	Region	NSWGA	SOAR Report Nbr	S-1685
Level 1	Airspace	Level 2	Airspace Infringement	Level 3	Airspace Infringement
A/C Model 1	DG-1000M	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	55

The flight was an 'engine-on' cross-country navigation exercise from RAAF Richmond (NSW) to Mangrove Mountain (NSW) via Wisemans Ferry (NSW). The student pilot was occupying the front seat and the instructor (Command Pilot) was seated in the rear seat. Weather conditions on the day were fine, with scattered cloud at 1000ft AGL. The powered sailplane had been cleared by Air Traffic Control to maintain 4500ft (the lower limit of Class C airspace 3500) on track to Wisemans Ferry. While about 2NM south of the C7500 step still in CL3500 the Richmond Controller stated that the glider was reaching the control services boundary and frequency change approved. The glider changed from cruising speed of 90 knots to 50 knots, climbing rapidly to about 5,400 ft in CLL3500, south of the CLL7500 step. Low cloud obscured Wisemans Ferry township. The instructor in the rear read out the new radio frequency without readback and he has no vision of the frequency setting. Miscommunication resulted in a frequency of 128.5 rather than 125.8 being entered meaning Sydney Centre did not have coms to raise the airspace issue. Instructor in review stated *"We should have a readback within the cockpit to ensure frequencies are correctly entered."* Richmond tower contacted the glider by phone and it tracked north entering the C7500 airspace shortly thereafter. The flight crew contacted Sydney Control and informed them of the problem and that corrective action had been taken. The Instructor advised that he had just installed a new engine in the aircraft and was a little distracted monitoring the engine more closely than normal. He believes this contributed to him not noticing the aircraft had been released from ATC early and climbing further before reaching Class G airspace.



Date	31-May-2020	Region	NSWGA	SOAR Report Nbr	S-1680
Level 1	Operational	Level 2	Aircraft Control	Level 3	Incorrect configuration
A/C Model 1	Janus B	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	59

After ground separation and whilst accelerating behind the tow plane the airbrakes fully extended. The pilot identified the problem immediately by feel of drag and confirmed by sighting airbrake handle. The airbrakes were immediately closed and Locked. The pilot, who is very experienced, reported they had taken off in +8 flap setting, which is normal practice for them but can lead to a tendency to balloon as the glider accelerates. The pilot believes his positive pitch forward to maintain station resulted in reduced 'g' that allowed the airbrakes to deploy. The pilot stated they had clearly not locked the airbrakes during the pre take-off checks. The pilot recalled conducting other components of the check list and setting the flap position, but believes he was momentarily distracted without realising, and did not cycle and lock the airbrakes. The pilot said he recalled *"…all my usual practices of pointing at master switch, instruments, wind sock etc."*, and was *"very surprised but a timely 'wake up call' that we should all receive from time to time without damage or injury"*. This incident highlights the importance of a dedicated level of focus when conducting the pre-flight checks, without interruption. The concept of a sterile environment should be adopted during all critical duties or activities, such as the completion of check lists.

Date	1-Jun-2020	Region	WAGA	SOAR Report Nbr	S-1686
Level 1	Operational	Level 2	Airframe	Level 3	Furnishings & fittings
A/C Model 1	SZD-48 "Jantar Standard 2"	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	64

What Happened

The glider, which was being aerotowed without the assistance of ground crew, took off with the tail dolly still attached.

Analysis

Limited flying operations were being conducted at the airfield due to social distancing requirements associated with the COVID-19 pandemic. The experienced glider pilot had arranged, with the tow pilot, to conduct a wing-down take-off. The Daily Inspection of the tow plane and glider were completed, and glider pilot towed the glider to the launch point with his vehicle. The glider pilot then returned to the hangar, where he found the tow pilot was having trouble starting the tow plane's engine. It took some time to get the engine running, following which the tow pilot then taxied to the launch point. Fearful of further starting problems, the tow pilot stayed in the tow plane with the engine running while the glider pilot got ready. The glider pilot pushed the glider onto the runway and did a pre-boarding check but did not conduct a walk-around. He then connected the tow rope to the glider and entered the cockpit. At this point the wife of another member arrived at the launch point and offered to run the wing, but did not notice the tail dolly still attached. After completing his pre-flight checks, the glider pilot made a radio call to the tow pilot with instructions to commence the flight. The pilot advised: *"During this time (he) felt self-inflicted pressure to do things as quickly as possible due to fact that tow planes are expensive to operate."* The launch took place without incident and, due to low cloud base, the glider pilot released at 1,000ft AGL and both aircraft joined circuit for landing. Following touchdown and during the Landing roll the glider pilot felt vibration in the cockpit and realised the tail dolly was still attached. The usually disciplined pilot was embarrassed that their pre-boarding check had been lacking, for had they completed a 'walk around' the tail dolly would not have gone unnoticed. The pilot noted it was a *"well known fact that distractions of any kind, particularly at critical times like DI or pre-flight checks, can have potentially very serious consequences."* The pilot's CFI noted he was *"was distracted by the running tug and missed doing his walk-around and the 'D' of ABCD. He was counselled on why the pre take-off checks were there and to not to let other factors rush them."*

Safety Advice

In gliding, the pre-boarding and pre-flight checklists are a list of tasks that should be performed by pilots prior to take-off. Their purpose is to improve flight safety by ensuring that no important tasks are forgotten. Failure to correctly conduct these checks has been a contributing factor in many gliding accidents, both in Australia and overseas. There is a typical rhythm pilots' default to when they run through the checklists they perform every flight, especially if the pilot is familiar with the aircraft. This comfort with repeated actions is natural, however, this can lead the checks being conducted in a perfunctory manner. Pilots need to guard against this and ensure they do not cut corners or skip a step in the checklist.

Date	7-Jun-2020	Region	WAGA	SOAR Report Nbr	S-1687		
Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous		
A/C Model 1				A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Ground Ops	PIC Age	57

What Happened

During the morning's preparation for flying, the tow rope was inspected. During the inspection it was found that two fishplates with oval holes had been fitted to the 'TOST' weak link assembly instead of one oval and one round weak link. The weak link assembly was reassembled correctly later that day.

Analysis

The Club has delegated tow rope maintenance to an appropriately qualified individual, whose role is to make-up new tow rope assemblies, including TOST rings at each end and properly assembled 'TOST' weak links. This individual also repairs in-service tow rope assemblies and holds several complete, spare tow-rope assemblies. The CFI investigated this incident and believes the incorrectly assembled weak link was put together by a well-meaning, unauthorised, and untrained member. The Club will publish an article in the forthcoming members magazine which will:

1. Explain the basic facts of this incident.
2. Advise that unauthorised members should not attempt to assemble or repair weak links.
3. Explain, including with the use of diagrams, how to differentiate between a correctly, and an incorrectly assembled weak link, so that an incorrectly assembly can be identified at the daily rope inspection.

Safety Advice

The 'TOST' weak link system uses two metal fishplates in parallel, mounted to the cable and trace by a shackle at each end. A protective steel sleeve is used over the fishplates to prevent wear. The method of protection in the 'TOST' system is simple: one of the fishplates has oval holes at each end and the other has round holes. If the weak link is taken very close to its breaking strength but does not exceed it, the fish-plate with the round holes will break and the fishplate with the oval holes will remain in place allowing the launch to continue.

This incident highlights the main risk with the 'TOST' weak link system. Care is needed to replace the broken fishplate with EXACTLY the same item as the one that broke. Never use two equal inserts, e.g., both with

round holes, as the breaking load of the weak link will be doubled, completely defeating its purpose. Check that the replacement fishplate is of the same colour but has DIFFERENT end-holes from the remaining one. The manufacturer recommends that the fishplates be replaced after 200 launches.

Date	14-Jun-2020	Region	NSWGA	SOAR Report Nbr	S-1689		
Level 1	Operational	Level 2	Airframe	Level 3	Landing gear/Indication		
A/C Model 1	DG-300 Elan Acro	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	60
The pilot had just returned to the circuit following a wave flight to FL200 and found that the undercarriage would not lock down, and the handle on the undercarriage lever could not be moved to the cockpit wail. The pilot cycled the undercarriage several times until he was able to lock the undercarriage down and move the undercarriage lever handle to the correct position. The pilot conducted a safe landing without further incident. Subsequent inspection identified the undercarriage door bungee cords may have moved to a position that fouled the overcentre mechanism. The bungees cords were repositioned and fastened in place to prevent further movement.							

Date	17-Jun-2020	Region	GQ	SOAR Report Nbr		S-1688	
Level 1	Operational	Level 2	Miscellaneous	Level 3		Other Miscellaneous	
A/C Model 1		Standard Cirrus		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	50

Shortly after aerotow take-off and at a height of about 400ft, the pilot unintentionally operated the release at low altitude in turbulence. The pilot noted that they had been in the practice of keeping their hand on the release during the initial stages of the launch until a safe hight had been reached. The pilot landed safely on the reciprocal runway. It is GFA practise when aerotow launching for the pilot to keep their left hand NEAR the release in order to get rid of the cable if the need should arise (e.g. to prevent a ground loop following a wing drop, or if directed by the tow pilot etc.).

Date	27-Jun-2020	Region	GQ	SOAR Report Nbr	S-1690		
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing		
A/C Model 1	SZD-48-3 Jantar Standard 3	A/C Model 2					
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	18

What Happened

The pilot was flying a short cross-country flight on their second flight on type. The first flight on type was a 40-minute familiarisation flight immediately before departing cross-country. The pilot reported that on the earlier flight, and while descending in the circuit, their "ears were under an immense amount of pressure (my sinuses were a bit stuffy from a 2° morning)". The pilot remained on the ground for a period to allow their sinuses to settle down and embarked on the cross-country flight around 2pm. During the flight conditions worsened and the pilot diverted to a nearby airport. The pilot got quite low and so prepared the aircraft for landing, which included lowering the undercarriage. However, the pilot encountered some lift and was able to climb back to a height sufficient to return to the home airfield. While descending through 3000ft on the return journey the pilot experienced ear pain that became progressively worse as the aircraft descended to circuit height. The pilot stated: *"I completed the (pre-landing) check on my crosswind leg and it wasn't until I had flared and actually landed that I realised something wasn't right. My main focus was my ears/head and the pain before it actually clicked that the undercarriage was up. I realised I hadn't put the undercarriage back up again after climbing away from the other airfield. Not having flown many aircraft with retractable undercarriages I think may be an attributing factor."* The aircraft suffered only minor damage and the pilot was unhurt.

Analysis

This was the second flight in a privately owned Jantar. The pilot had a 40-minute flight in morning (first flight) to familiarise themselves with the aircraft and practice at least one landing before undertaking a cross country flight. Upon descending through the circuit, the pilo'ts ears were under an immense amount of pressure (pilots sinuses were a bit stuffy from a 2° morning), therefore they were advised by the CFI to sit for a while to recover and get over the headache. As their ears had nearly cleared, the pilot then conducted a second launch at about 2pm. Initially the pilot planned to try a 100km task but decided to pass by the nearby Dalby airfield as the weather was deteriorating. The pilot found themselves getting quite low while flying towards the airfield and did a pre-landing check. The pilot then found lift and managed to regain enough height to return to the home airfield. On descending through 3000ft toward the home airfield pressure started building in the pilot's ears again, and the pressure kept building and became very painful as the pilot joined circuit. The pilot then completed the pre-landing check on the crosswind leg, and only discovered upon flaring and actually landing that something wasn't right. Pilot's main focus was on their ears/head and the pain before it actually 'clicked' that the undercarriage was up. The pilot then remembered they hadn't put the undercarriage back up again after climbing away from the Dalby airfield. As the pilot had not flown many aircraft with retractable undercarriages, they believe it may have been a contributing factor. The aircraft suffered only minor scrapping damage to the under surface of the fuselage.

Findings

The Pilot advised that both flights were conducted with a slight amount of sinus irritation. The second flight placed the pilot in an outlanding situation at Dalby airfield where a pre-landing check was conducted prior to landing. On climbing away from the outlanding situation, the pilot then neglected to reconfigure the aircraft for further flight and left the undercarriage down. On return to the home airfield and during decent through 3000 ft, the pilot again suffered further sinus pain which distracted them from the conduct of a proper pre-landing check that should have confirmed the undercarriage was already in the down and locked position. As a result of not confirming the correct position of the undercarriage, the pilot retracted it and the aircraft subsequently land with the wheel retracted.

Causal Factors

Sinus irritation which occurred on the pilots first flight. On the second flight, after the pilot felt fit to fly again, it re-occurred just prior to landing at the home airfield but not at Dalby, where the pilot felt that they were low enough to configure the aircraft for landing. The pilot, upon climbing away, was not experienced enough (or aware enough) to reconfigure the aircraft for continued flight and did not retract the

undercarriage prior to continuing home. The pilot did not report any sinus difficultly while in the vicinity of the Dalby airfield. On returning home and suffering a relapse of the sinus issue suffered during the first flight, the pilot then conducted the pre-landing check incorrectly by moving the undercarriage without confirming that it was moved to the Down and Locked position. Inexperience and the sinus problem exacerbated this problem. While experienced pilots will visually reconfirm undercarriage position in circuit, the pilot would have had no experience to even consider doing this and would have been further distracted by the sinus situation and may have felt in a high over load situation and became fully focused on landing the aircraft.

Safety Advice

- If a pilot has a sinus condition then they should consider whether they should fly, even if the situation appears to have rectified itself, as it appears to have done prior to the second flight. To the pilot's credit they elected not to fly the next day as they still felt unwell.
- Pilots flying new aircraft, especially with new features such as retractable undercarriage or flaps, should thoroughly familiarise themselves with these features and carefully work through the appropriate flight checks when required to use these features. This become especially important when under stress, where even greater care is needed.
- When conducting checks the pilot must ensure that the correct actions have been conducted, not that controls have been simply moved. Pilot's must be particularly cognisant of the fact that when lowering the undercarriage during a landing sequence due to a loss of lift that they then reconfigure that aircraft for further flight if they subsequently find lift and then climb away.
- Regardless of whether a pilot's physical condition changes during a flight, they need to ensure that they are fully focused during the landing sequence and ensure all checks are done correctly.

Date	27-Jun-2020	Region	NSWGA		SOAR Report Nbr		S-1703		
Level 1	Airspace	Level 2	Aircraft Separation		Level 3		Near collision		
A/C Model 1		ASK 21			A/C Model 2		Arcus M		
Injury	Nil	Damage	Nil	Phase	Launch		PIC Age	57	

What Happened

During an aerotow launch and at about 700ft AGL, a tow plane/glider combination had to take avoiding action to prevent a head-on collision with a two-seat aircraft returning to the circuit, which passed within 100ft.

Analysis

The tow plane and glider combination took off from runway 32, which was the duty runway. Shortly after lifting off the glider crew heard a radio call from the pilot of another two-seat glider, an Arcus, advising they were "in the area", having returned from a cross-country flight. The tow pilot conducted a normal departure and at about 500ft tuned left to climb out on the downwind leg of the circuit. Shortly afterwards the command pilot in the glider under tow observed the Arcus about 1,000 metres ahead flying on a heading of 50 degrees to pass from left to right and well clear of the towing combination. At about 700ft AGL the command pilot of the glider under tow then saw the Arcus approaching head-on at a similar height and about 400 metres away. The command pilot of the glider under tow made a radio call to the tow pilot to alert him of the risk, and the tow pilot immediately turned to the right and away from the threat. The Arcus passed within 100ft of the glider under tow. The incident was investigated by the club CFI, who determined that the command pilot of the Arcus did not make appropriate radio broadcasts while operating in the vicinity of this non-controlled aerodrome. The reason why the Arcus crew did not sight the towing combination was not determined. It is believed the tow pilot did not sight the Arcus due to the tow plane's high nose attitude in the climb. The pilot flying the Arcus advised that he did not receive a Flarm alert, even though all aircraft were fitted with operating Flarm devices. The pilot further advised that he had recently fitted an external aerial for the Flarm behind the rear pilot but found that detection of threats ahead of the

glider was impaired. The pilot has since fitted an additional aerial to improve detection rates as recommended by the Flarm manufacturer.

Safety Advice

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 or Flarm alerts (where fitted) 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.
- Collision avoidance strategies and tactics.
- Flight Safety Australia article, Sharing the skies – gliders (printed in Issue 87 July-August 2012).
- CAAP 166-1 provides advice in relation to making radio broadcasts to reduce the risk of coming in close proximity with other aircraft.

Date	27-Jun-2020	Region	VSA	SOAR Report Nbr	S-1692
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	ASW 19B	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	72

After a short soaring flight, the experienced pilot landed the glider with the undercarriage retracted. Weather conditions at the time were fine, with a light and variable wind and no conflicting traffic. The pilot reported that upon release from aerotow they became focussed on trying to climb in a weak thermal and forgot to conduct their usual post-release checklist, which included raising the undercarriage. After working two thermals for about 30 minutes the pilot elected to break off the flight and *"cycled the gear handle without looking at it"*. Upon joining circuit, the pilot conducted the pre-landing checks. The pilot stated: *"I obviously checked-off the 'undercarriage down' based on remembering that I had just done it, not as I should have by looking at, and confirming, the handle position."* The pilot completed a normal, low energy landing and smoothly touched down on the grass runway. The glider suffered only minor abrasions to the lower fuselage. The reason for the incident was a combination of task fixation and complacency. The pilot was current (5 glider and 3 power flights in the previous month) and was flying an aircraft they were familiar with. Complacency is one of the biggest enemies pilots face. Over time flight related tasks, like checklists, can become rote actions performed without the necessary forethought to ensure we're not acting out of habit. All pilots can be vulnerable to making errors if they become complacent by allowing habits and expectations to influence their actions. Taking actual steps to direct attention and methodically verify the status of a checklist item can reduce your chances of making errors.

Date	4-Jul-2020	Region	GQ	SOAR Report Nbr	S-1691
Level 1	Operational	Level 2	Airframe	Level 3	Other Airframe Issues
A/C Model 1	Duo Discus	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	52

The pilot reported that while conducting the final control check as part of the pre-take-off checklist they found the ailerons to be jammed. An outside inspection revealed the outer port aileron/spoiler was jammed in an unusual upward position, and the carbon fibre stop tab was sitting over the wing skin. The pilot noted that the "*aircraft had been correctly DI'd and the aileron was in the proper position during the walk around on the (pre-baording) check."* The glider was removed from service and the fault rectified by aileron removal and re-assembly. The pilot suspects the wing runner may have lifted the wing by the aileron and not the wingtip, forcing the aileron past the physical stop.

Date	4-Jul-2020	Region	WAGA	SOAR Report Nbr	S-1695

Level 1	Operational	Level 2	Ground Operations		Level 3	Ground handling	
A/C Model 1		LS 4		A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Ground Ops	PIC Age	39

The glider suffered damage while being manoeuvred in the hangar. The hangar has an alcove in the back wall to accommodate the tail of the glider, and two persons were involved in pushing the glider into position; with one person at the wingtip and the other pushing the glider backwards from the nose. Normally, the glider is aligned so that t can be pushed straight backwards. On this occasion the glider was offset, and the crew used a tail dolly so the glider could be steered into position. The wingtip holder became concerned that the glider was being pushed in too fast and was unable to clearly see if the tailplane would enter the alcove. They instinctively held back on the wing, which caused the glider to rotate and the elevator struck the alcove support column. The port tip of the elevator suffered a 150mm delamination of the skin structure. The CFI commented that the use of a tail dolly to manoeuvre in a very tight area was inappropriate, and the crew should have manoeuvred at a slower pace while periodically checking clearance. The club is investigating the installation of tracks and dollies to make manoeuvring easier.

Date	10-Jul-2020	Region	GQ		SOAR Report Nbr	S-1698	
Level 1	Environment	Level 2	Weather		Level 3	Other Weather Events	
A/C Model 1		ASK 21 B		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	41

What happened

The Club was running an ab-initio training course and the weather bureau was predicating strong crosswinds in the afternoon that would have made it unsuitable for the training being conducted. A decision was made to commence operations at 06:30 to provide a window for training before conditions deteriorated. The first aerotow launch commenced on time and shortly after the glider became airborne the canopy began to fog over. The student, who was flying the glider, lost sight of the tow plane and inadvertently kited through its slipstream. The instructor took control at about 200ft AGL, released from tow and lowered the nose to attain safe speed near the ground. The instructor stated: *"I had seen the windsock at the end of the strip go past and knew there was not enough strip to land ahead without going into the paddock at the end of the strip. A tractor had been seen in that paddock before launch so, unsure of its position, and not being able to see in front, only out the clear view, I made the decision to do a 180 degree turn and land in the paddock next to the strip. I commenced a shallow (no more than 20-degree bank) to the left and levelled out preparing to land in the paddock, when the student said she could see the club house. I then got a visual of the clubhouse and moved approximately 30 metres to the left and proceeded to land on runway 30 using the wheel brake to stop very short as I could still not see the other aircraft on the strip."* Following this flight, the instructor halted operations for an hour to allow the air to warm. The instructor noted the temperature of the air at the time was close to the dew point and there was fog about 10kms away.

Comment

A cold canopy that is exposed to slightly warmer or moist air can 'fog up'. It is likely that the glider moved between different temperature layers as it climbed, and this may have led to a combination of temperatures suitable to allow fog.

Safety Advice

Whilst the above flight successfully turned through more than 180 degrees to land back on the airfield, such turns are not recommended below a height of 300 feet due to the risk of mishandling and low-level loss of control. Although it may be inconvenient, at low level it is safer to minimise the amount of manoeuvring by landing as straight ahead as possible unless terrain features dictate otherwise.

Date	11-Jul-2020	Region	GQ	SOAR Report Nbr	S-1696		
Level 1	Operational	Level 2	Runway Events	Level 3	Runway undershoot		
A/C Model 1	Maul M-7-235	A/C Model 2	VAN'S RV-8				
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	54

What Happened

At this Regional aerodrome, the runway thresholds have been displaced for compliance with Obstacle Limitation Surface and Runway End Safety Zone requirements. The threshold on RWY 06 is displaced 600 metres from the runway end. The full length of the runway is available for take-off. At around 14:30 local time a glider was positioned at the end of RWY 06, some 600 metres behind the threshold, ready for launch and the tow plane was parked to the right of the glider waiting for the signal to taxi for take-off. Just after the tow rope had been connected, a visiting Van's RV-8 aircraft passed overhead the glider and ground crew with a clearance judged by witnesses to be about 40 feet. The RV-8 touched-down well short of the displaced threshold such that he was able to exit the runway at the taxiway adjacent to the displaced threshold without backtracking. The tow pilot called the pilot on CTAF frequency to advise he had landed very short (of the displaced threshold) and had passed dangerously close to two aircraft on the ground. The RV-8 pilot replied, *"It looked good to me"*. The RV8 pilot departed before the Gliding Club CFI had an opportunity to speak with him. The incident was reported to the ATSB.

Safety Advice

Displaced thresholds have distinct markings to clearly show where the landing portion of the runway begins when it differs from where the runway actually starts. Pilots landing on a runway with a displaced threshold are required to land beyond the marked threshold, although the runway before the threshold can be used for take-offs (and for runout if coming from the opposite runway). Sometimes the displaced threshold is due to the quality of the runway surface, but usually it is for obstacle clearance purposes. A pilot who lands before the threshold will be too close to one or more obstructions, or they will be on an unrealistically steep descent. At this aerodrome the displaced thresholds were identified in the ERSA, which also provided a link

to the aerodrome operations manual. Pilots operating at unfamiliar aerodromes should conduct a thorough pre-flight planning and the use of all available information in preparing for flight.

Date	12-Jul-2020	Region	WAGA	SOAR Report Nbr	S-1697
Level 1	Operational	Level 2	Airframe	Level 3	Furnishings & fittings
A/C Model 1	ASK-21	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Ground Ops	PIC Age	

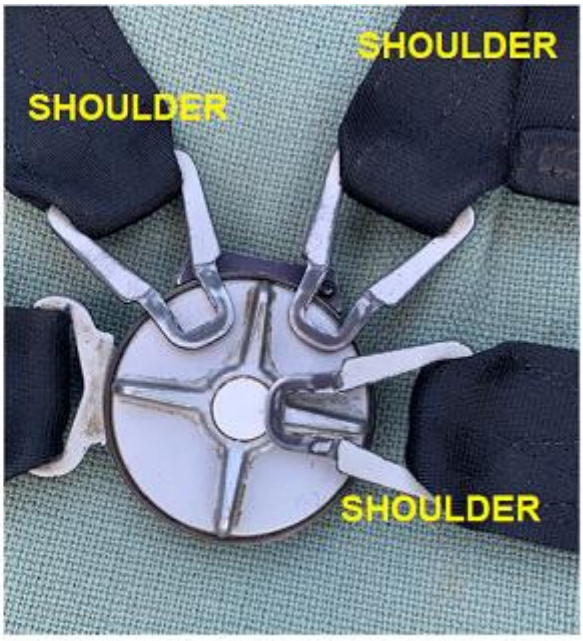
What Happened

During the Daily Inspection it was discovered that the left-hand lap strap of the rear seat harness was releasing from the rotary buckle under load. The rear seat harness was removed, and the aircraft was cleared for solo flying.

What was found

An annual inspection had been completed on the sailplane three weeks earlier (on 27/06/2020) and a dual inspection had been conducted before the aircraft was released to service. The aircraft was flown on that day without incident. The glider was flown on several subsequent days, also without incident. Inspection of both the front and rear harness assemblies revealed the straps had been incorrectly assembled. The front seat harness comprised three lap straps and one shoulder strap, and the rear seat harness had one lap strap and three shoulder straps (see photographs).

Front harness configuration



Rear harness configuration

Investigation revealed that while the shoulder strap and lap strap connectors are of a different shape, the lap strap connector and the shoulder strap connector were able to be fitted into each other's positions. It was determined that a shoulder clip that was placed in the lap position did not always securely lock.

Safety Advice

The lap belt straps should not be interchanged with the shoulder harness straps because the lap belt connectors are of a different dimension to the shoulder strap connectors and will not connect safely in the rotary buckle.

Date	20-Jul-2020	Region	NSWGA	SOAR Report Nbr	S-1700

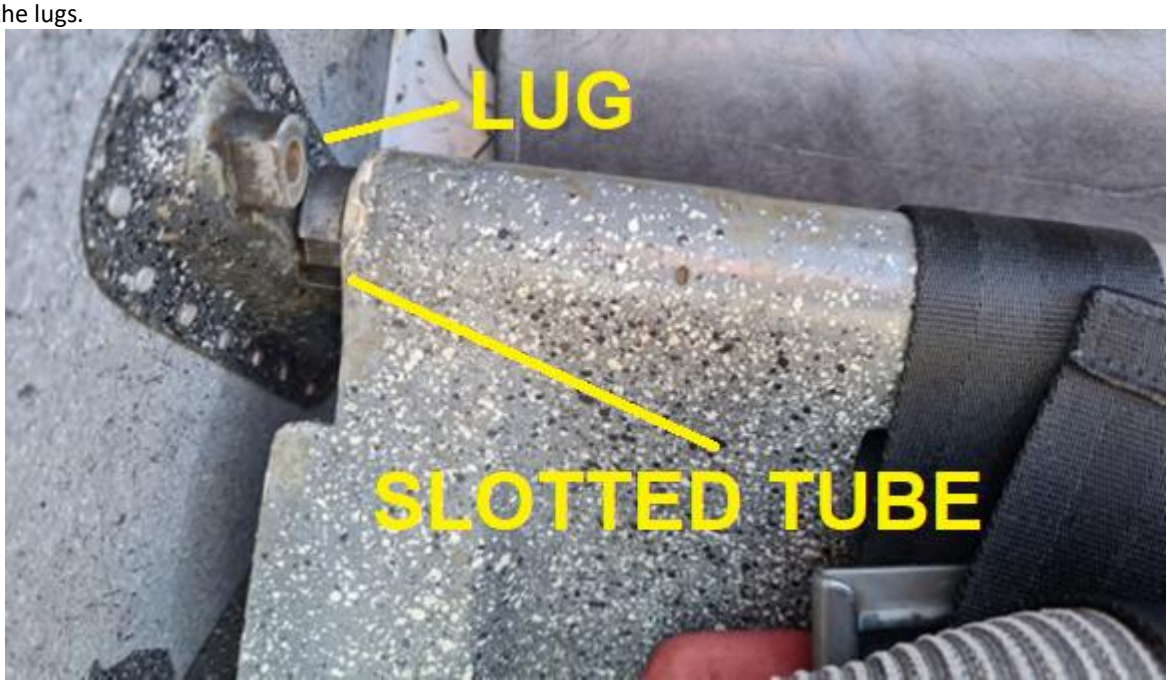
Level 1	Operational	Level 2	Aircraft Control		Level 3	Control issues	
A/C Model 1		KR-03A Puchatek		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	60

What Happened

The sortie was an Air Experience Flight. The command pilot reported that during the climb on a winch launch the rear seat "*gave way*" and settled into the fuselage. The command pilot found control column became stiff and difficult to move in any direction. Control was exercised by the command pilot shifting his body and applying force to the control column. The command pilot stated: *"The glider released in a nose up attitude and slow speed at a height of 1100 ft, but I found that I was still able to control the aircraft but with less than usual control input and relying largely on the rudder for directional control and turns. Once the situation was assessed I commenced a descent with appropriate airbrakes for a circuit well within the airstrip boundary and well clear of the trees at each end and the sides of the strip. A successful landing was achieved with judicious use of air brakes to assist in the round out."*

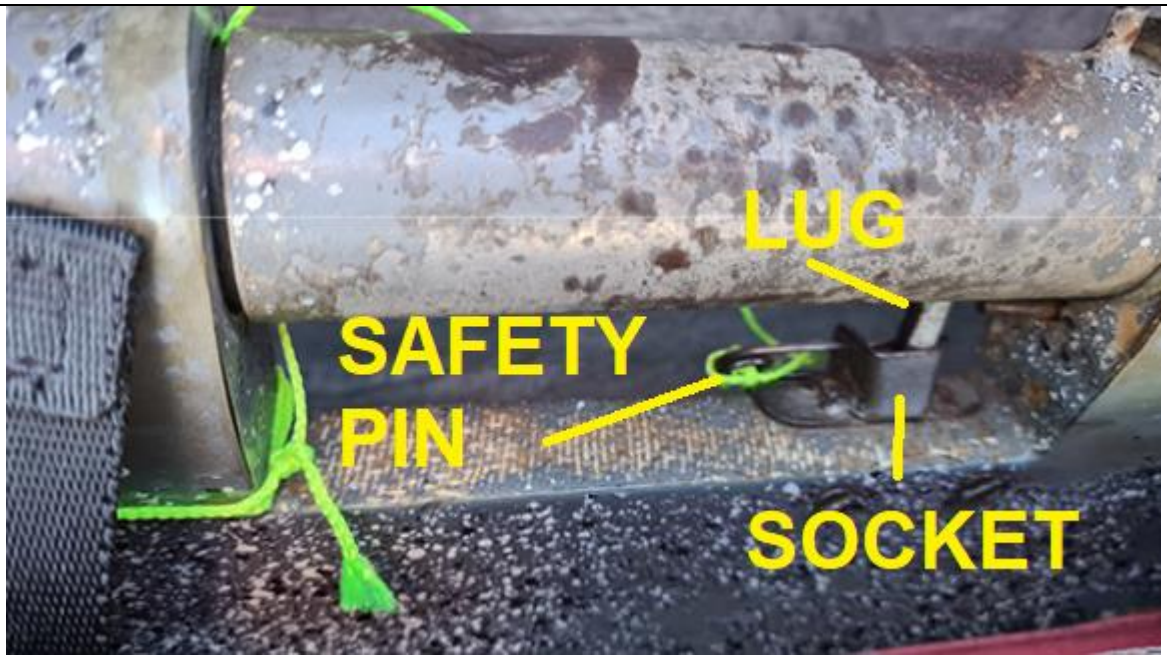
Analysis

The rear seat in this sailplane can be adjusted fore and aft for pilot comfort. The rear seat adjustment is done by rotating a tube on the rear top of the seat into a position where slots in this tube settle over one of four round lugs flattened on opposing sides to match each slot in the seat tube (see photograph 1). Once slipped over the lugs, the tube is rotated so that the slots are no longer lined up with the flattened sides of the lugs.



1. Rotating tube and supporting lugs

In the middle of the seat tube is a small lug that rotates into a holding socket on the seat back. This small lug is then secured in place by a safety pin. Having the pin in safety does not guarantee that the seat is correctly attached as it merely stops the tube from rotating (see photograph 2).



2. Rotating tube in safety

Prior to the incident flight the experienced command pilot moved the seat in the rear cockpit from the forward position to a more rearward position. While making the adjustment the command pilot was interrupted by a query from one of the ground handlers and failed to engage the seat tube into the mounting lugs. During the launch, a combination of pilot weight and acceleration forces resulted in the seat moving fully back and lowering onto the controls under the seat. The aircraft then became barely controllable with the full weight of the pilot resting on the elevator and aileron controls.

Safety Advice

Pilots perform lengthy and complex procedures in the course of their duties. An interruption breaks the thread of these procedures and can have undesirable consequences. Distractions can make it difficult for the pilot to concentrate on the task in hand, possibly resulting in error or omission. For this reason, it is important that persons at the launch point do not distract the pilot and crew while preparing for flight. Where a check or action is interrupted, the process should be reviewed or started again. In this type of aircraft, and regardless of whether the rear seat is to be occupied or not, the pilot must perform a visual check of the seat during the pre-boarding check to confirm the tube is properly attached and secured.

Date	26-Jul-2020	Region	VSA	SOAR Report Nbr	S-1701		
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Collision with terrain		
A/C Model 1	Club Libelle 205		A/C Model 2				
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	63

What Happened

The pilot was flying a low final approach to land short on the runway that was occupied by another glider that had landed longer. As the glider crossed the airfield boundary fence its starboard wing struck an electric fence that caused the pilot to lose control and resulted in the glider coming to rest 180 degrees to the direction of landing. The pilot was not injured but the aircraft suffered some damage to the starboard wing leading edge.

Analysis

The pilot was conducting a deliberately low approach in order to land short behind another glider that had just landed and stopped some 600 metres into the runway. During the low approach, the glider flew through an area of sink, which the pilot attempted to compensate for by reducing the amount of airbrake. The pilot was unable to prevent an undershoot, and the glider's starboard) wing struck the electric fence along the runway boundary. The accident was witnessed by the CFI who reported that when the glider struck the fence it yawed to the right and touched down heavily. It then came to rest about 20 metres into the airfield facing back toward the direction of approach. The glider is fitted with rotating trailing edge airbrakes, which are a highly effective landing device and make possible steep, as well as relatively slow approaches. However, they do not increase or decrease lift if the glider is flown above a minimum speed of 40 kts. The flight manual states that below this speed the brakes should not be closed. It is believed the pilot was flying well above this minimum speed and that the loss of height was from mechanical turbulence on the approach.

Safety Advice

In this incident the pilot became focussed on a glider that was occupying the runway and made the decision to land short on the approach end of the runway (it is not clear why the pilot did not elect to land in the grass alongside the runway). To achieve this, the pilot set his aiming point far too close to the aerodrome boundary such that any reduction in the approach angle was likely to result in an undershoot, which is what occurred. When selecting the aiming point, pilots must ensure it is sufficiently displaced to allow a safe margin over any obstacles on approach (at least 50ft), which includes boundary fences. The final turn must be conducted at a safe height, preferably not lower than 300ft AGL, and at the calculated approach speed, having regard to the local conditions. Good energy management is critical to safety, and to setting up a good stable approach from which a safe landing can be conducted. Poor landings, or landings causing damage or injury, are much more likely to result if the final turn is executed too late, too close to the ground or with poor energy management, all of which make a stabilised approach and controlled landing much more

difficult. For further information, refer to Operations Safety Bulletin (OSB) 01/14 - Circuit and Landing Advice.

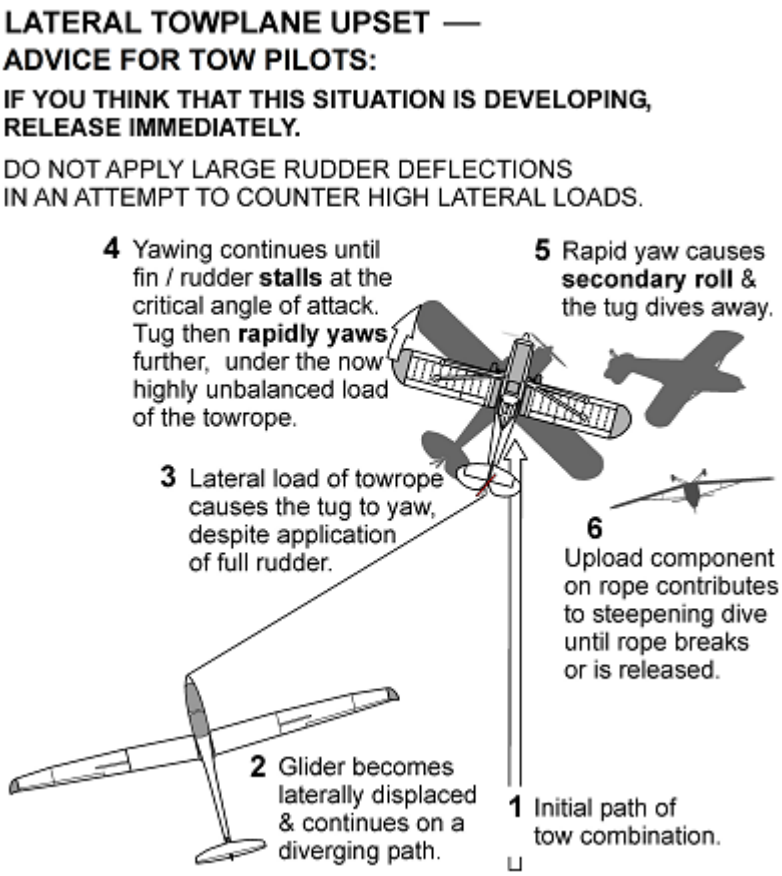
Date	26-Jul-2020	Region	VSA	SOAR Report Nbr		S-1702	
Level 1	Operational	Level 2	Aircraft Control	Level 3		Control issues	
A/C Model 1		Piper PA-25		A/C Model 2		Twin Astir	
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	61

What Happened

During the aerotow launch and at a height of about 1500ft AGL the student commenced an exercise to 'box' the tow plane's slipstream. The exercise had been pre-briefed with both the student and tow pilot. The student commenced the exercise from the low tow position and moved the glider quite quickly to the right. As the student began to transition into the high tow position while still out to the right of the slipstream, the tow pilot made a radio call to the crew in the glider advising the glider was displaced too far to the right and that he was having control difficulties – specifically that he was being pulled into a roll to the left. The instructor directed the student to return the glider to the normal low tow position but in so doing the student allowed a significant bow to develop in the tow rope. The instructor took control of the glider but was unable to prevent the rope from quickly becoming taught, at which point the weak link broke. As the towrope was re-tensioned, the tow pilot reported that this caused an excessive yawing moment and the tow plane commenced an uncommanded roll to the left that he managed to counteract before it became too severe. Upon the weak link breaking, the rope sprang back and draped over the glider's starboard wing. The student operated the glider's release and the rope slip off the wing and fell to the ground. Both the tow plane and glider landed safely back on the airfield.

Analysis

Discussion with the glider instructor identified the student was unsure how far to the right the glider should be flown to avoid the slipstream. As a consequence, they flew far too wide and near the limit of the tow pilot's ability to control the aircraft. When the tow pilot made a radio call to advise of his control difficulties, the instructor commanded the student to return to the normal towing position. During this manoeuvre, a large bow developed in the rope while the glider was still slightly displaced laterally from the tow plane's centreline. The instructor took over control but was unable to prevent the rope from quickly tightening and yawing the tow plane. The tow plane commenced an uncommanded roll to the left that was only prevented by the weak link breaking and by corrective control inputs made by the tow pilot.



The effect of lateral tension on the towrope may result in either a vertical stabiliser (fin) stall or a dynamic lateral upset of the tow plane. Both situations will result in an uncommanded yaw, roll and nose pitch down of the tow plane. In either case, events would develop rapidly with the tow pilot probably taken by surprise. For a fin stall to occur, the glider via the towrope would need to be applying a constant lateral force to the tail of the tow plane. This would require the tow pilot to apply a constant rudder input to counteract that force. If rudder input by the tow pilot was nearing maximum and further lateral force was applied causing the tow plane to yaw further, it is possible for the critical angle of attack of the fin to be exceeded resulting in the fin stalling. This would result in a rapid loss of yaw control of the tow plane. With the lateral towrope force still being applied, the tow plane would roll and descend before the tow pilot could react. For the dynamic lateral upset, divergence between the glider and the tow plane can induce an abrupt large yaw of the towplane when the rope comes tight. The tow plane pilot won't have applied rudder to correct the yaw before it happens, and once the yaw and roll turns the towplane onto a further diverging flight path, the upset increases in magnitude. Further information on lateral tow upsets can be found in the GFA Aerotowing Manual at Section 10.3.

Safety Advice

Boxing the slipstream is an exercise in control resulting in the balancing of forces on the glider whilst on tow. The aim is to perform a square box outside the slipstream, pausing at each corner under control, and taking the smallest route outside the slipstream to safely carry out the task. In the context of aerotowing, the slipstream is the turbulent flow of air driven backward by the propeller of the tow plane. To avoid the propeller slipstream, the glider only needs to be displaced about half the glider's wingspan from the tow plane's centreline. This exercise must always be performed at a safe height (~1,000ft AGL), and while maintaining tow rope tension. On completion, the tug pilot is to be advised that the exercise is completed. Should a significant bow appear in the rope, it is usually safer to release than to attempt to "fly it out".

Invariably, attempts to 'fly' the bow out results in broken weak links and ropes draping over wings or otherwise contacting the glider.

Date	26-Jul-2020	Region	WAGA	SOAR Report Nbr	S-1704
Level 1	Operational	Level 2	Miscellaneous	Level 3	Rope/Rings Airframe Strike
A/C Model 1	SZD-50-3 "Puchacz"	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	In-Flight	PIC Age	72

What Happened

During a Flight Review the pilot under check was conducting a 'simulated hook-up' exercise at about 2,000ft AGL when the weak link broke at the tow plane as the slack was being taken-up on the rope. The rope came back and struck the canopy, causing some abrasions that reduced the visibility of the pilot under check. The glider entered circuit and made a high approach with the rope attached and landed safely.

Analysis

The pilot under check was conducting a second flight as part of their Flight Review, after having successfully conducted a modified circuit following a simulated rope break at low level on the prior flight. The objective of this second flight was to conduct a 'boxing the slipstream' exercise followed by flying a simulated 'hook-up' procedure during the aerotow launch, and to then do some upper air work exercises including spinning. After successfully 'boxing the slipstream', the pilot under check then conducted a simulated release failure by flying the glider out to the left of the tug, still in the low-tow position, until acknowledgement was obtained from the tug pilot. According to the pilot under check, *"the tow pilot would not wave me off until I was extremely out of position."* In discussion with the CFI the tow pilot advised that they had been waving for a long time and was surprised that the glider had kept moving out so far. When the pilot under check was returning to the low tow position, a loop developed in the tow line. The pilot under check stated, *"when the tug took up the slack the weak link broke at the tug."* The tow rope recoiled and struck the canopy of the glider and left some scuff marks. The pilot under check returned to the airfield with the tow line still attached. The final approach was flown higher than normal to avoid fouling the tow line with the airfield boundary fence and a normal landing was made. The pilot under check later reported: *"I believe the excessive out of position requirement before being waved off contributed to development of the rope slack and subsequent rope break."*

Safety Advice

The Club CFI provided the following advice to members:

- In a real 'hook-up', the glider crew should, in the first instance, attempt to secure positive, two-way radio communication with the tow pilot, thereby eliminating the need for visual signalling.
- If visual signals are to be used, gliders should manoeuvre to approximately half a glider wing-span to the left of the tow plane, i.e. only marginally clear of the wake, then remain stabilised in that position until they either; (a) They see a "hand wave" acknowledgement from the tow pilot, or (b) In the case of a simulated exercise that is not acknowledged by the tow pilot, until the instructor is content that the exercise has gone on long enough.
- There are potential hazards when expecting gliders to move too far out of horizontal station, including the increased likelihood of slack developing in the tow rope, and in extreme cases an increased risk of a horizontal tug upset.

Date	30-Jul-2020	Region	NSWGA	SOAR Report Nbr	S-1709
Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous
A/C Model 1	Callair A-9A	A/C Model 2	Grob G 103 Twin II		
Injury	Nil	Damage	Minor	Phase	Launch	PIC Age	22

What Happened

During an aerotow launch and shortly after giving the *"all out"* command, the wing runner called "stop, stop, stop" over the radio to abort the launch. The tow pilot braked hard, which caused the tail of the tow plane to lift and then fall back to the ground heavily due to the force applied from the tow rope that was still attached to the glider. The tow pilot shut down the engine and disembarked the aircraft to conduct an inspection, whereupon he identified one of the four leaf springs on the tailwheel had fractured. He also found the fibreglass pilot's seat was cracked at the front attachment point, where it wraps around the tubular frame of the aircraft chassis. The pilot was counselled by the Tugmaster and the aircraft removed from service for repair.

Safety Advice

Pilots of tail wheel aircraft should never brake too hard as the nose of the aircraft can pitch forward resulting in the propeller striking the ground. When aborting the launch and conducting a landing straight ahead on the airfield, the tow pilot should not brake but reduce power and roll as far down the runway as is necessary to provide room for the glider to land behind. The tow pilot should also monitor the mirrors and be prepared to add a bit of power if the glider appears to be catching up with the tow plane.

Date	1-Aug-2020	Region	VSA	SOAR Report Nbr	S-1705				
Level 1	Technical	Level 2	Powerplant/Propulsion	Level 3	Engine failure or malfunction				
A/C Model 1	Arcus M	A/C Model 2							
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	60		

What Happened

During the initial climb in this self-launching sailplane and at a height of about 300ft, the engine suddenly lost power. The pilot immediately lowered the nose to increase the speed in preparation for landing and assessed his options. A landing straight ahead was assessed as sub optimal as a collision with a fence was likely, so the pilot made the decision to reverse direction and land back on the airfield. During the turn the glider rapidly descended due to the drag created by the windmilling propeller but upon levelling out the sink rate reduced, and the pilot carried out a safe landing on the reciprocal runway.

Analysis

The pilot stated that the glider's take-off performance during initial climb was slightly less than on previous occasions, but he did not perceive it was so poor as to warrant abandoning the launch. He said in hindsight he should have abandoned the launch while the was still room to land ahead on the runway. The pilot also felt that his training for winch cable breaks had adequately prepared him to react to the sudden loss of power, and while he would have preferred not to have turned through more than 180 degrees to land back on the airfield due to the risk of mishandling and low-level loss of control, he believed a landing straight ahead would have led to a collision with a post and wire fence. Upon inspection of the engine, the pilot, who is also an airworthiness inspector, found the front cylinder spark plug had come loose that led to a loss of compression. The pilot cleaned the thread and mounting area of the engine, installed new spark plugs (precoated with anti-seize compound) and torqued them to manufacturer's specifications. An engine ground run was conducted, and performance was assessed as satisfactory.

Causal Factors

The usual cause for a spark plug coming loose is the failure to properly torque it. In this case, the pilot is certain that the spark plugs were torqued to the manufacturer's specification. The pilot recalled that the spark plugs had earlier been removed from the engine for inspection and replaced using the old crushed gaskets. The pilot suspects that the use of the old gasket may have prevented a tight seal between the plug and combustion chamber.

Safety Advice

- When your engine fails immediately after take-off, you have a few things going against you. You're low, slow, and you don't always have a lot of good landing options. You will not have time to attempt a restart. Instead, you need to focus on flying the glider and picking a safe landing spot. As

in the case of this incident, the first thing to do is establish a safe airspeed. If you have time, switch off the ignition and turn off the fuel. When you are close to the ground, you should avoid trying to turn back. However, if there is an obstacle directly in front of you, a slight turn to the left or right can be made. Just do not try turning back to the airfield when you are close to the ground due to the risk of mishandling and low-level loss of control.

- When fitting spark plugs ensure it is seated correctly by threading it into the engine by hand. Tighten the plugs and torque to the manufacturer's specification. For reinstalled plugs, replace the gaskets.
- When performing maintenance, ensure it is completed in accordance with the sailplane / engine manufacturer's approved data.

Date	8-Aug-2020	Region	GQ	SOAR Report Nbr	S-1706
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	Discus CS	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	18

What Happened

Shortly after touchdown on the grass runway and during the ground roll the undercarriage collapsed. The aircraft came to rest on its fuselage but suffered no damage due to the soft ground.

Analysis

The pilot, who had recently converted to the type and was on his seventh flight in the aircraft, advised the aircraft touched down smoothly on the mainwheel and then felt a bump as the undercarriage collapsed. The Duty Instructor who witnessed the landing stated, *"it was a nice landing and the wheel retracted a few seconds after touchdown leaving a wheel track of about 50 meters in softish ground, and no damage".* Investigation revealed the undercarriage lever had not been fully engaged in the locking detent, and that as the weight of the aircraft transferred to the wheel the undercarriage collapsed. It was determined that the pilot had not checked and confirmed that the undercarriage lever had been placed in the "down and locked" position. The pilot noted that a closer check of the undercarriage lever to ensure it was in the locked position during the pre-landing checklist may have prevented this incident.

Safety Advice

Accidents involving the collapse of undercarriages that have not been properly locked is a common occurrence. Most could have been prevented had the pilots taken the time to physically confirm, during the pre-landing checklist, that their undercarriage is down and physically locked. The actual locking mechanism varies between glider types, so pilots must make themselves familiar with the locking mechanisms in aircraft they fly. The best source of this information is the Aircraft Flight Manual.

Date	8-Aug-2020	Region	GQ	SOAR Report Nbr	S-1707
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Ground strike
A/C Model 1	Discus CS	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Outlanding	PIC Age	56

What Happened

The pilot set out on a short cross-country flight from Kingaroy airfield. Soaring conditions were weak and on return to Kingaroy the pilot was unable to gain enough height to achieve final glide and was committed to an outlanding. The pilot commenced the downwind leg at approximately 900ft to land in a ploughed paddock identified earlier. During the landing ground roll, slight contour banks and soft soil made for a rough landing and caused minor damage.

Analysis

The pilot correctly chose to land in a ploughed paddock when he determined that sufficient height could not be achieved to return to the home airfield. The paddock selected had a minor slope and small contours typical for this area. The landing was not aligned with the furrows or between the small contour banks. Members who attended during the retrieve commented that the slope and contours were difficult to see even at ground level.

Causal Factors

- Weak soaring conditions
- Soft soil surface containing gravel
- Landing not aligned with the furrows or between the contour banks **Corrective action**

Discussed with the pilot the need to be conservative when making the decision to go cross country if conditions are weak. Outlandings are a part of gliding but do pose additional risk of damage when landing in unfamiliar locations.

Safety Advice

By submitting this report all members benefit from the lessons learnt, in this case the importance of identifying contour banks and furrows as early as possible when committed to an outlanding. Additionally, the need to assess soaring conditions prior to flying cross country and reconsider the task if there is a high likelihood of an outlanding.

Date	16-Aug-2020	Region		GQ	SOAR Report Nbr		S-1708
Level 1	Technical		Level 2	Systems		Level 3	Flight controls
A/C Model 1		Twin Astir			A/C Model 2		

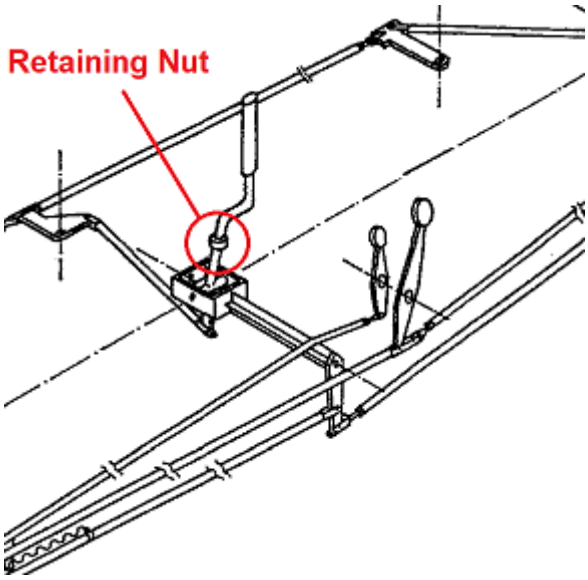
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	60

What Happened

During an Air Experience Flight, the Instructor noticed the rear control stick was progressively developing a loose feeling as though it was not properly connected to the control surfaces. The Instructor abandoned the flight and made a safe landing back on the aerodrome.

Analysis

The rear control column in the Twin Astir is detachable and held in place by a knurled retaining nut (see diagram).



The knurled nut is secured by hand pressure in order to facilitate removal when flying passengers in those countries where this is required by law. The knurled nut is hidden from regular sight by a boot over the control column. Post flight inspection revealed the knurled retaining nut had come loose. The glider had been returned to service two days previously after having had an extensive refurbishment and annual inspection carried out at an approved maintenance facility. Investigation determined the knurled retaining nut had previously been secured with a thread-locking compound but, following removal of the rear control column during the recent maintenance, the retaining nut was then secured by hand tightening alone. The Club maintenance inspector applied a thread-locking compound to the nut and it has remained secure since.

Date	22-Aug-2020	Region	GQ	SOAR Report Nbr	S-1710
Level 1	Operational	Level 2	Runway Events	Level 3	Other Runway Events
A/C Model 1			A/C Model 2		

Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	

What Happened

A substantial illuminated size sign alerting pilots to call rolling on the CTAF was erected on a movement area of RWY 06/24 by the aerodrome operator. The sign has been placed forward of the threshold to be visible to pilots. The sign was erected without consultation or considering the risk to the gliding operation that uses the grass verge for its operations.

Action Taken

The club, along with other aerodrome users, has raised safety concerns with the aerodrome operator (the local Council), who arranged for an external audit of the aerodrome to be conducted. The audit report has highlighted some non-compliances that are being addressed. The Club is hopeful that the offending sign will be relocated to the other side of the runway that is not used by the gliders. In the interim, the gliders are operating from the main runway.

Date	29-Aug-2020	Region	GQ	SOAR Report Nbr	S-1800		
Level 1	Operational	Level 2	Runway Events	Level 3	Other Runway Events		
A/C Model 1	Discus b	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	49

What Happened

The pilot of a Discus sailplane was landing long in a slight crosswind with the aim of rolling to a stop near the hangar complex towards the end of the runway. On runway at the time was a tow plane and glider combination awaiting a launch, plus another glider ahead that had earlier landed and was being towed back to the launch point by a vehicle. The driver of the towing vehicle saw the Discus on final and steered towards the perimeter track to provide more clearance from the landing sailplane. The Discus touched down ahead and to the right of the combination awaiting launch. The Discus pilot applied wheel braking to stop before passing the glider under tow but as the Discus slowed, and aileron and rudder control diminished, the crosswind raised the left (into-wind) wing and the Discus conducted a mild ground loop to the right, stopping well clear of the glider under tow. The Discus did not suffer damage.

Analysis

The Discus pilot noted that he had maintained wings level during the ground roll, and this allowed the wing to be lifted easily by the wind. In hindsight, had he slightly lowered the into-wind wing and maintained directional control with opposite rudder, the ground loop would not have occurred.

Advice

There are two methods for crosswind landings: crabbing and wing-down. Each has its merits for certain situations. A combination of the two may often be used by the more experienced pilot.

Crabbing method

The glider is turned onto the final approach so that it heads sufficiently into wind to track along the required approach line. The pilot should fly the approach with the wings level, without skid or slip and with the glider's drift directly along the desired track. When the glider is just about to touch down at the end of the hold-off or 'float', the pilot will use the rudder to swing the nose into line with the direction from which the ground appears to be coming. This avoids sideways load on the wheel or skid at touchdown. After touch-down, the pilot will keep the glider straight for as long as possible with the 'into wind' wing kept low. Once stopped, the pilot will use the ailerons to put this wing on the ground. This method has the advantage that it can be used successfully in very strong crosswinds. However, care and practice are required to yaw the glider with the rudder at exactly the right moment. Wing down method

In this method the glider is turned directly into line with the landing path and sideslipped by applying bank and opposite rudder in such a way that the track is made good. A normal landing is made except that the angle of bank is reduced at the last moment to prevent the wing tip touching the ground. The landing is then made with the 'into wind' wing slightly low. The wing should be kept in this position after landing, while the glider is held straight with rudder. The method is well suited to landing across sloping ground when the wind is blowing up the slope, as the bank angle gives greater wing tip clearance; a considerable advantage in a glider with a large span, low set wing. On flat ground the wing down method has the limitation that only a small amount of bank can be safely used, particularly if the sideslipping characteristics of the glider are poor. There are a few gliders (e.g. Janus) which should not be sideslipped close to the ground. If the crosswind is very slight, the wing down method is the easiest as it is only a matter of making a normal landing with a little bank applied.

Date	29-Aug-2020	Region	SAGA	SOAR Report Nbr	S-1715		
Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous		
A/C Model 1	Astir CS77	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	22

What Happened

It was reported that a pilot conducted aerobatics and a low pass below the Regulatory height limits.

Investigation

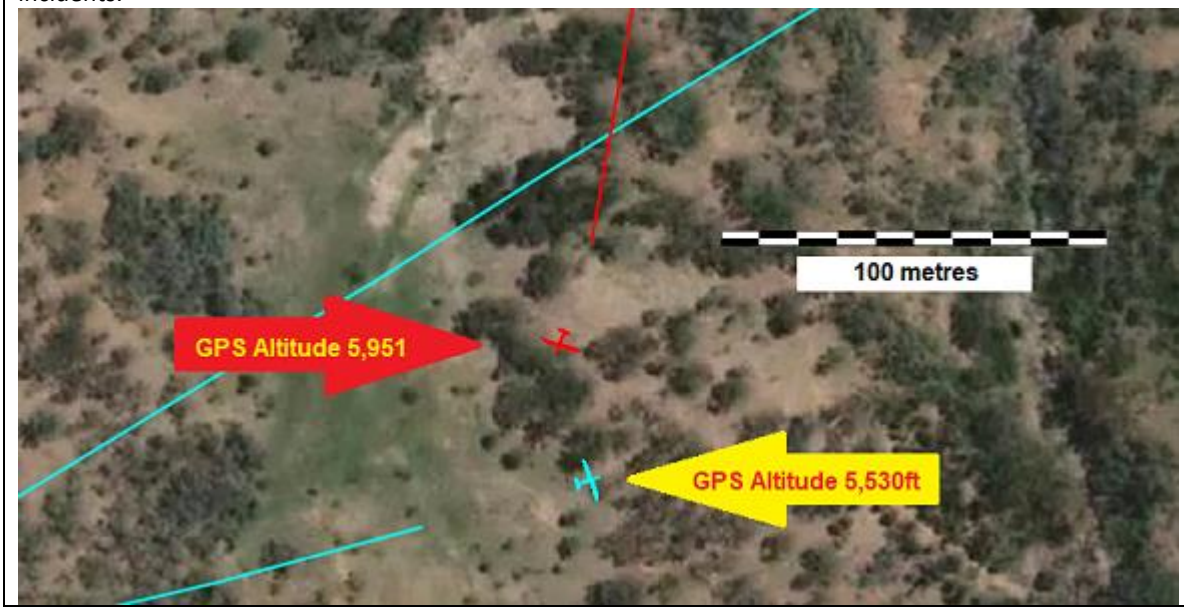
The pilot was conducting the last flight of the day and had briefed the Duty Instructor that they would be conducting aerobatics after launch and then would fly a 'low-level finish' manoeuvre. The pilot took a launch by winch and released about 1550 ft AGL. Immediately after release the pilot conducted a single rotation spin, followed immediately by two loops from which recovery was made above 1000 ft AGL. The pilot then entered the circuit at high speed and not below 75 ft AGL with sufficient kinetic energy to recover adequate height for a safe landing. The pilot advised they conducted most of the pre-aerobatic check before launch but did not conduct clearing turns as they were certain there were no other aircraft in the immediate vicinity. The pilot made a video of the flight that was available for review. The investigation confirmed:

- the pilot was current and authorised to perform the manoeuvres flown;
- the manoeuvres were within the flight envelope of the aircraft; and
- the flight was conducted within the Regulations.

Date	30-Aug-2020	Region	GQ	SOAR Report Nbr	S-1712

Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision
A/C Model 1	Ventus b	A/C Model 2	Discus CS		
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	67

The pilot reported that while flying under a cloud street he received a FLARM warning of a glider ahead on a converging heading. The pilot conducted a descending turn to the right through 90 degrees and observed another glider in a turn to their left. The other glider pilot had also received a Flarm alert but neither pilot sighted the other until they passed. Analysis of the flight traces reveal the two aircraft were travelling at a closing speed of about 160 knots and passed within 30 metres laterally and 400ft vertically of each other. This incident highlights how working FLARM units helps reduce the risk of mid-air collisions and near-miss incidents.



Date	31-Aug-2020	Region	VSA	SOAR Report Nbr	S-1713
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	Twin Astir	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	76

What Happened

During a training flight, the instructor did not retract the undercarriage after release from tow and conducted the flight with the wheel down. Following the training sortie and during the pre-landing check on the downwind leg, the instructor retracted the undercarriage and landed in that configuration. Ground personnel had observed the glider approaching with the undercarriage retracted and made three radio calls, but these were not heard by the flight crew as the glider's battery had had gone flat. The aircraft was raised with an airbag and the undercarriage lowered. An inspection revealed no damage other than minor abrasion to the lower fuselage. The battery was replaced, and the aircraft returned to service.

Analysis

The CFI discussed the flight with the instructor to determine the circumstances leading to landing with the aircraft incoreclty configured, and to understand why the error might have occurred. It was determined the instructor was not in the habit of configuring the aircraft for landing when breaking off the flight, and used the "check" list as an "action" list without confirming the position of the undercarriage lever to the placards.

Safety Advice

Wheel-up landings are a common occurrence in gliding, and mainly occur because pilots do not properly follow procedures and check lists; either due to distraction, stress or high workload. For this reason, once

the decision to break-off the flight has been made, the pilot should get some of the tasks out of the way early to reduce workload management in the circuit. At the break-off point the pilot should 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 pre-landing check should then be completed once the approach speed has been set and the aircraft trimmed. The pre-landing checklist should not be conducted as an 'action list' but used to confirm 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. For further information, please review Operational Safety Bulletin (OSB) 01/14 – 'Circuit and Landing Advice'.

Date	4-Sep-2020	Region	GQ	SOAR Report Nbr	S-1720		
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision		
A/C Model 1	DG-1000S	A/C Model 2	Piper PA-25				
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	56

What Happened

While on the downwind leg and Just prior to turning onto the base leg, the instructor in a DG1000 sailplane observed a Pawnee tow plane in a 45-degree right-hand bank and steep descent, approaching head on and slightly below. The tow plane passed rapidly under the sailplane's left-wing mid span. Vertical separation was estimated at less than 100ft when first sighted.

Analysis

Both aircraft carried data loggers and the data files were analysed. The flight traces disclosed the tow pilot joined a long descending non-standard right base for runway 05 immediately after the sailplane being towed released at 2000ft AGL south of the field. The DG-1000 sailplane was mid-downwind on a standard left-hand circuit for the operational runway 34. This placed the tow plane and sailplane on reciprocal headings with a high closing speed. As the sailplane passed abeam the landing area the tug descended below, and between the sailplane and runway. Separation was approximately 200m horizontal, and the tow plane was in a right-hand turn onto final for runway 05.

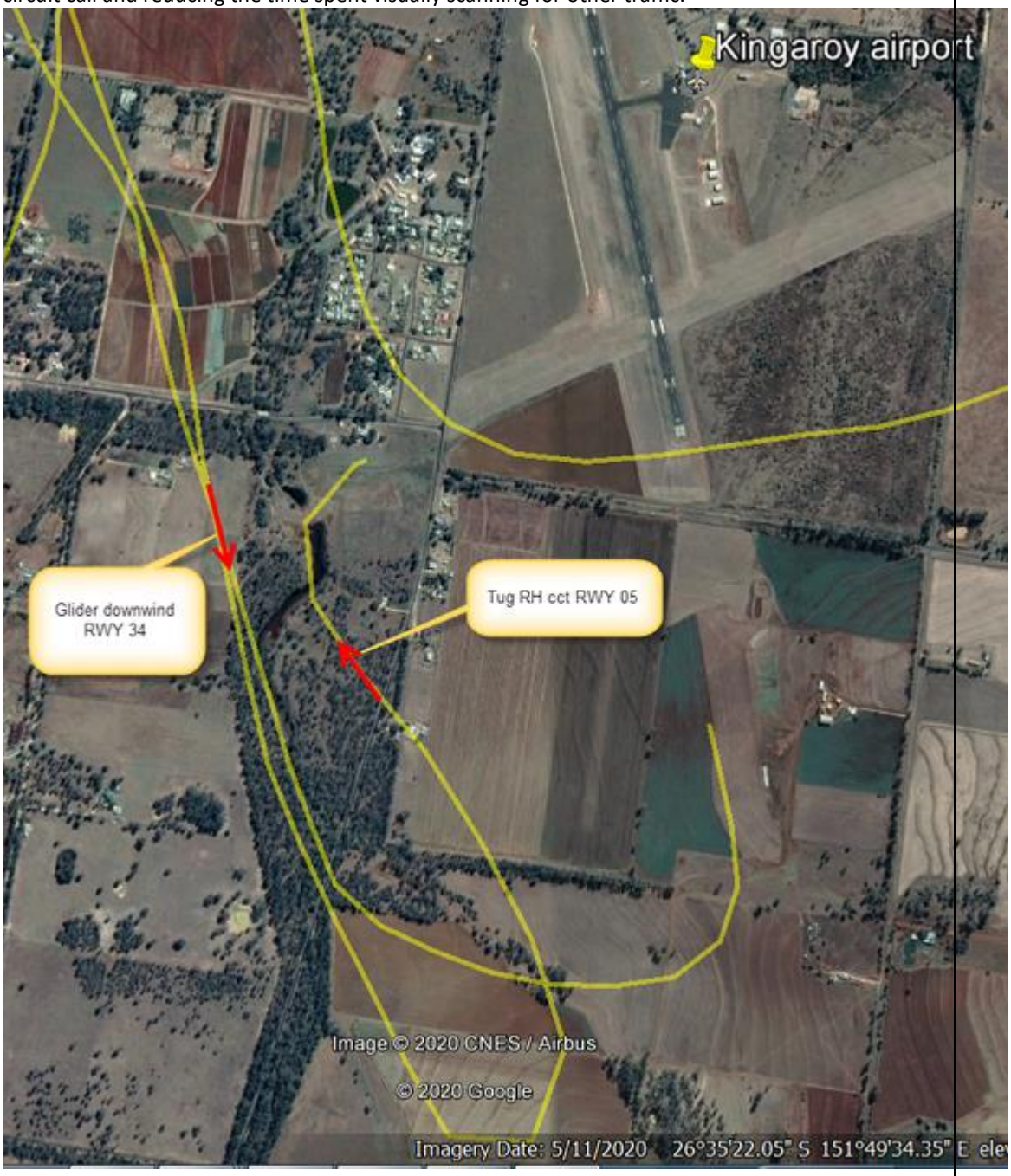
Findings

The tow pilot was unaware of this conflict, which was not brought to his attention until the incident was reported some 28 days after the event. Therefore, his recollection of the actual sequence of events was not clear. The tow pilot could not recall if there was a particular reason for making a non-standard right-hand circuit onto runway 05 at the time, and stated that his normal recovery preferences were to conform to the runway in use by the gliders or to use the cross strip in the normal circuit direction where the wind favoured this runway. The tow pilot also could not recall hearing a downwind call from the sailplane, nor seeing the sailplane in close proximity during the base to final turn; although he stated that his focus at that time would have been on his landing area. Both aircraft were fitted with flarm, but neither pilot can recall receiving a collision alert at the time of the incident.

Causal Factors

- The tow pilot conducted a non-standard circuit onto the cross strip causing a conflict with traffic on downwind for the operational runway.
- The launch prior to the incident was number 3 for a total of 27 launches, all conducted by the same tow pilot, there may have been some perceived pressure on the tow pilot to expedite the recovery for the next launch
- The gliding instructor was distracted by managing the student radio calls and monitoring the student's handling of the glider in the circuit. This may have contributed to missing the tow pilot's

circuit call and reducing the time spent visually scanning for other traffic.



Corrective action

The CFI and deputy CFI discussed with the tow pilot the importance of being predictable in the circuit and to use standard approaches unless there is an operational safety requirement to do otherwise, regardless of the workload pressures presented on the day. To reduce the workload on the tow pilot the Club has added to the morning briefing an assessment of the expected workload, and where necessary a second tow pilot/tow plane is to be requested. Where a second pilot/tow plane is not available, delays in launching are to be expected.

Safety Advice

By itself, the concept of 'see-and-avoid' is far from reliable. It is important that pilots apply the principles of 'see-and-avoid' in conjunction with an active listening watch, and that pilots act predictably in the circuit. The following publications provide some useful information on the see-and-avoid principles and guidnace for pilots operating in the vicinity of non-controlled aerodromes:

- Limitations of the see-and-avoid principle (1991), available from the ATSB's website at:
- Safety in the vicinity of non-towered aerodromes (2010) AR-2008-044(2), available from the ATSB website.
- Operations in the vicinity of non-towered aerodromes (Civil Aviation Advisory Publication CAAP 166-1) available from the Civil Aviation Safety Authority website.
- Pilots responsibility for collision avoidance in the vicinity of non-towered (non-controlled) aerodromes using the 'see-and-avoid' (Civil Aviation Advisory Publication CAAP 166-2), available from the Civil Aviation Safety Authority website.

Date	4-Sep-2020	Region	GQ	SOAR Report Nbr		S-1714	
Level 1	Operational	Level 2	Flight Preparation/Navigation	Level 3	Aircraft preparation		
A/C Model 1	Standard Libelle 201 B	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	75

What Happened

Gliding operations had recently recommenced after a period of closure due to government restrictions in response to the COVID-19 pandemic. The pilot was conducting their first flight in the glider since early March in non-soaring conditions to get back into practice. During the aerotow launch the tow pilot made a radio call to the glider pilot advising they had reached the lower level of Class C airspace of 3,500ft. The glider pilot immediately released from tow and noted that the glider altimeter was reading 2500ft. Once the glider was trimmed for cruising, the pilot observed, from the appearance of the airfield, that the altitude was higher than that indicted by the glider's altimeter. The pilot completed the familiarisation flight without reference to the altimeter and then conducted a safe landing. Upon landing the pilot noticed the altimeter was reading 1000ft below aerodrome elevation.

Analysis

The glider pilot reported that during the pre-flight inspection they made a minor correction to the altimeter to set it to the aerodrome elevation of 40ft AMSL. The pilot did not notice that the 1,000-foot pointer was on '9' and not '0'. During the launch, the pilot was focussed on lookout and station keeping with the tow plane, and only periodically glanced at the altimeter. The pilot stated they had "no knowledge regarding how or when the altimeter came to be set that low", but it most likely the change was due to barometric pressure change from the time it was last flown.

Safety Advice

Failure to set the appropriate pressure setting can lead to a violation of controlled airspace or a loss of separation from other traffic. It can also lead to a loss of situational awareness, resulting in an incorrect appreciation of the closeness of the ground possibly leading to an unstabilised approach or collision with the ground. It is important to realise that even the smallest checklist item can have a huge effect on a flight's outcome. Remember that routine procedures, such as properly setting your altimeter, are important and can make the difference in the safe outcome of a flight.

Date	6-Sep-2020	Region	NSWGA	SOAR Report Nbr		S-1716	
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing		
A/C Model 1	Beechcraft G36 Bonanza	A/C Model 2	JS-MD 3 SN 3.MD065				
Injury	Nil	Damage	Substantial	Phase	Landing	PIC Age	46

What Happened

While landing an uncertified gliding airfield, the pilot of a Beechcraft Bonanza touched down on the operational runway with the undercarriage retracted. The pilot and the five passengers, who were attending a function at a local facility, were unhurt.

Analysis

On the day prior to the accident the Beechcraft pilot obtained permission to land at the gliding site to attend a function at the nearby Holiday Park. On the day of the accident the pilot contacted the gliding Operations Manager by radio to advise of his arrival and was informed that the runway *"was clear except for a glider and attending vehicle on the threshold of Runway 14"*. The glider had recently been towed onto the runway by its pilot, who was readying it for flight, and was still attached to the towing vehicle. The pilot of the Beechcraft reported that he was informed *"the glider would not be departing for 30 minutes"*. After joining midfield crosswind for runway 14, the Beechcraft pilot attempted to contact the gliding operation but did not receive a response. This was likely due to the Operations Manager leaving his office to watch the arrival of the Beechcraft, and because the glider pilot was not monitoring the radio (the glider pilot stated he *"had a hand-held radio VHF in the car but the glider radio had not been turned on yet"*). The Beechcraft pilot chose to land beyond the vehicle and glider. The Beechcraft touched down about 700 metres along the 1300 metre runway with the undercarriage retracted, and the aircraft slid a further 100 metres. The aircraft suffered substantial damage (refer photograph).

In his report, the pilot of the Beechcraft stated the accident occurred when he became fixated on the glider situated on the threshold of the approach runway and omitted to complete his pre-landing checks and lower the aircraft undercarriage (task fixation). When questioned, the Beechcraft pilot advised the undercarriage warning had sounded but he did not hear it until the engine power was reduced. The glider pilot stated he observed the Beechcraft approach with the undercarriage retracted but elected not to attempt a radio call that may have distracted the pilot and caused a more serious accident than otherwise would occur. The Operations Manager also observed the Beechcraft's undercarriage was retracted and initially thought the

pilot was conducting *"a flyby to check the airfield*". Personnel from the gliding operation attended the accident site, identified no persons were injured, and assisted with the removal of the aircraft from the runway.

Safety Advice

Fixation causes all cognitive capacity to be focused on one task. If this task is something other than flying the aircraft, then the potential for an accident rises exponentially. In a study on pilot fixation as a factor in aviation accidents at Embry-Riddle Aeronautical University, author Timothy N. Timmons identifies three primary causes of fixation: equipment problems, abnormal situations, and target fixation. The Australian Transport Safety Bureau (ATSB) sees equipment problems as causes of pilot preoccupation. Malfunctioning gear indicator lights, pitot/static problems and erroneous instruments are just some of the things that cause pilots to fixate. The second primary cause is an abnormal situation, which disrupts the orderly sequence of normal events. The pilot often tends to focus all cognitive capacity on resolving the abnormality, even when there is no emergency, such as dealing with an obstacle on the runway threshold. The final primary cause of fixation is target fixation. In this case, the pilot concentrates exclusively on a task that is secondary to basic aircraft control, such as navigating around terrain, resulting in the aircraft being flown into the ground, or a mid-air collision.

Date	9-Sep-2020	Region	SAGA		SOAR Report Nbr		S-1742		
Level 1	Operational		Level 2	Airframe		Level 3	Other Airframe Issues		
A/C Model 1		Discus b			A/C Model 2				
Injury	Nil	Damage	Nil	Phase	In-Flight		PIC Age	79	

What Happened

During the Daily Inspection the inspector installed the front and rear batteries but could not secure the retaining flap on the rear battery box. The inspector allowed the aircraft to fly in this configuration.

Analysis

The inspector advised that he made several attempts to secure the battery but gave up in frustration. Investigation identified that the battery was not correctly located in the box, and this caused it to foul the securing flap. The battery is a tight fit but can be properly located using the correct technique. It was noted that the unsecured battery had the potential to fall into the control circuit or move further down the aircraft and affect the CG. The inspector stated: *"I should have removed the battery as it would not be secure, particularly if I planned to do any sort of aerobatic activities (which I was not planning to do this flight). I further compounded the potential danger by not informing the next pilot who might have been planning aerobatic activities or been put into an unusual attitude. I have discussed my error with the chief maintenance officer and the CFI and now fully appreciate the potential consequence of my error and in future will not make the mistake of flying without ensuring that all battery installations are safe before signing off the daily inspection".*

Remedial action

The club maintenance officer and the CFI conducted remedial training with the inspector who is now clearly aware of the requirements to complete the DI in a diligent manner. In addition, the Club Training Panel have discussed the incident and are working with pilots and students to raise the level understanding about security of items in aircraft, with special emphasis on ballast and batteries. The Club CFI produced an article in the club newsletter about securing ballast and the security of objects in gliders.

Safety Advice

A good Daily Inspection is essential in avoiding incidents and accidents, by finding faults in or issues with the glider before it flies. Unfortunately, difficulties with procedures as occurred in this incident have the potential to affect the airworthiness of an aircraft if not addressed. Sometimes these difficulties occur due to design failures – where inadequate design may promote errors or violations, or may produce situations where nonstandard performance results in negative and irreversible consequences. When an inspector is not sure on how to address an identified issue, they should find competent assistance so that they have

appropriate supervision while conducting the task or should observe while the other person carries out the task.

Date	11-Sep-2020	Region	NSWGA	SOAR Report Nbr	S-1718		
Level 1	Technical	Level 2	Powerplant/Propulsion	Level 3	Engine failure or malfunction		
A/C Model 1	ASG 32 Mi	A/C Model 2					
Injury	Nil	Damage	Minor	Phase	Launch	PIC Age	64

What Happened

The glider was being self-launched on a runway that was slightly uphill into a 5-10 knot wind. The pilot reported the launch proceeded normally with good acceleration. The glider lifted off at about 45 knots and the pilot rotated into the climb at about 50 knots. Shortly afterwards and at a height of about 5 metres the engine abruptly stopped. The glider slowed quickly due to pitch attitude and additional drag, and the pilot pushed the stick forward to maintain speed and to land straight ahead. Prior to touch down the pilot attempted to flare the glider but there was insufficient energy to arrest the descent rate and the main undercarriage partially collapsed. The aircraft came to a halt 76 metres from the initial touch down point.

Analysis

The engine failure occurred while the glider was about halfway down the runway and at a height of about 15 ft. The Aircraft Flight Manual cautions: "In case of an engine failure during take-off, the stick must be pushed forward sufficiently, since otherwise the airspeed will quickly drop due to pitch attitude and additional drag." In this accident the loss of speed was rapid, and although the pilot pushed the stick forward there was insufficient height and time for the glider to regain sufficient speed for the pilot to have control over the landing. The pilot advised that when taking off from bitumen runways they used flap setting 5. The Aircraft Flight Manual provides the following guidance:

"Take-off procedure for hard surface

The shortest take-off distance is achieved in the following manner: A helper at one wingtip initially runs along and keeps the wing in balance. Accelerate with "Wide Open" throttle in flap setting 2 and slightly pull the stick to load the tail wheel. This also improves directional stability in crosswinds. At a speed of about 80 km/h (43 kts, 50 mph) engage flap setting 6 and gently pull the stick until the aircraft unsticks. Then accelerate to Vy = 90 km/h (49 kts, 56 mph) (blue line on ASI scale). Above a minimum safe height of 150 m (500 ft) change to flap setting 5. If under favourable conditions the take-off distance is not of importance, flap setting 6 can be engaged from the beginning.

Take-off procedure for soft surface

The take-off procedure is the same as the hard surface procedure, except that flap setting 6 is engaged from the beginning."

It is not possible to conclude that taking off in flap position 6 as opposed to flap position 5 would have made any difference to the outcome of the flight. Although the stall speed would have been lower at flap setting 6, the additional drag may have caused the speed to reduce even more rapidly.

Engine Failure

After the incident the aircraft was re-rigged and a series of engine starts were made. The glider has dual engine controls with a switch that transfers control between the front and rear seats. There is an ILEC electronic engine control unit for both seats. On starting from the front seat, the engine was slightly slow to start, requiring perhaps 3 seconds before ignition. This contrasts with its usual start, which is in the first rotation. Then engine then ran for a period of 30 seconds before abruptly stopping. Several starts from the front seat replicated this behaviour, with the engine run time varying between 10 and 50 seconds. Control was then transferred to the rear seat and a start was made using the rear ILEC. The starting behaviour was normal, and the engine ran until it was shut down manually. This behaviour was replicated several times. The fault appears to lie either within the front seat ILEC unit or its connections. The ILEC unit is being returned to the manufacturer for testing.

Safety Advice

Regardless of the type of engine failure, the pilot's first responsibility is to maintain flying airspeed and adequate control of the glider. If power failure occurs, lower the nose as necessary to maintain adequate airspeed. Pilots flying self-launching gliders with a pylon-mounted external engine and/or propellor above the fuselage need to lower the nose much more aggressively in the event of total power loss than those with an engine mounted in the nose. In the former, the thrust of the engine during full power operations tends to provide a nose-down pitching moment. If power fails, the nose-down pitching moment disappears and is replaced by a nose-up pitching moment due to the substantial parasite drag of the engine and/or propellor high above the longitudinal axis of the fuselage. Considerable forward motion on the control stick may be required to maintain flying airspeed. If altitude is low, there is not enough time to stow the engine and reduce the drag that it creates. Land the glider with the engine extended. Glide ratio in this configuration is poor due to the drag of the extended engine and/or propeller. If the glider is very low, as was the case in this accident, there may not be sufficient height or time to maintain flying speed and recover without a hard landing. The authoritative source for information regarding the correct sequence of pilot actions in the event of power failure is contained in the Aircraft Flight Manual. The pilot must be thoroughly familiar with its contents to operate a self-launching glider safely.

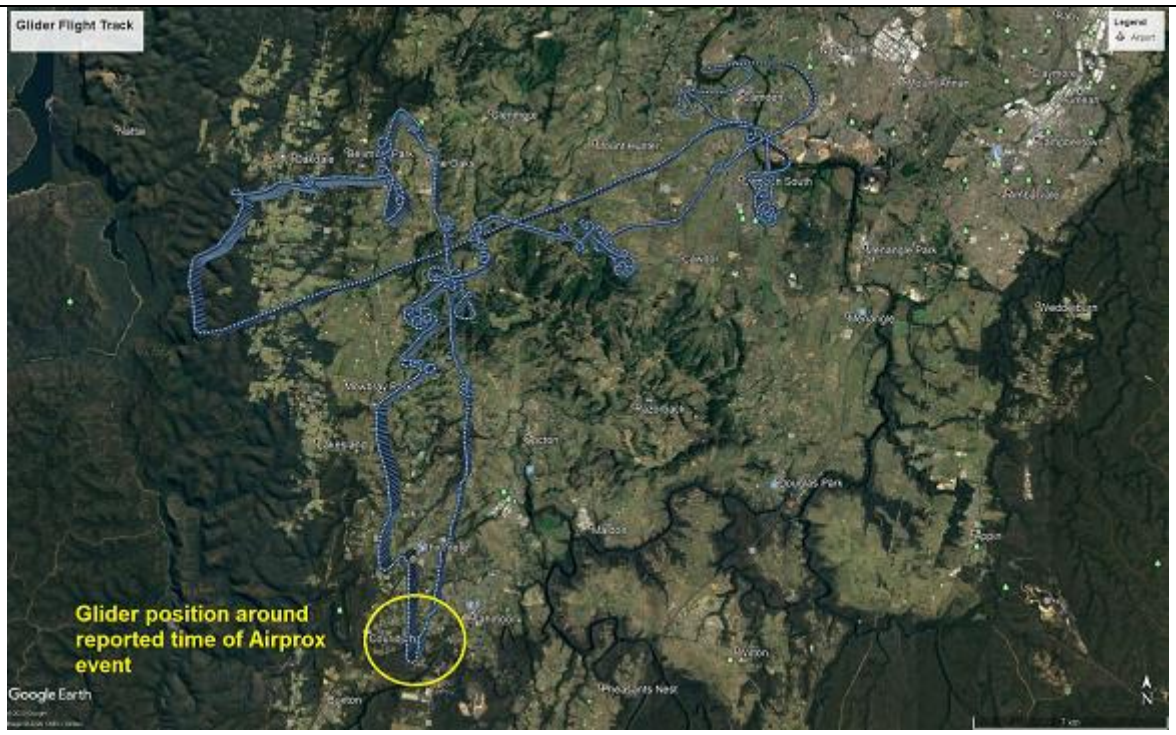
Date	16-Sep-2020	Region	NSWGA	SOAR Report Nbr	S-1724		
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Aircraft Separation Issues		
A/C Model 1	LS 4-a	A/C Model 2	AgustaWestland AW139				
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	68

What Happened

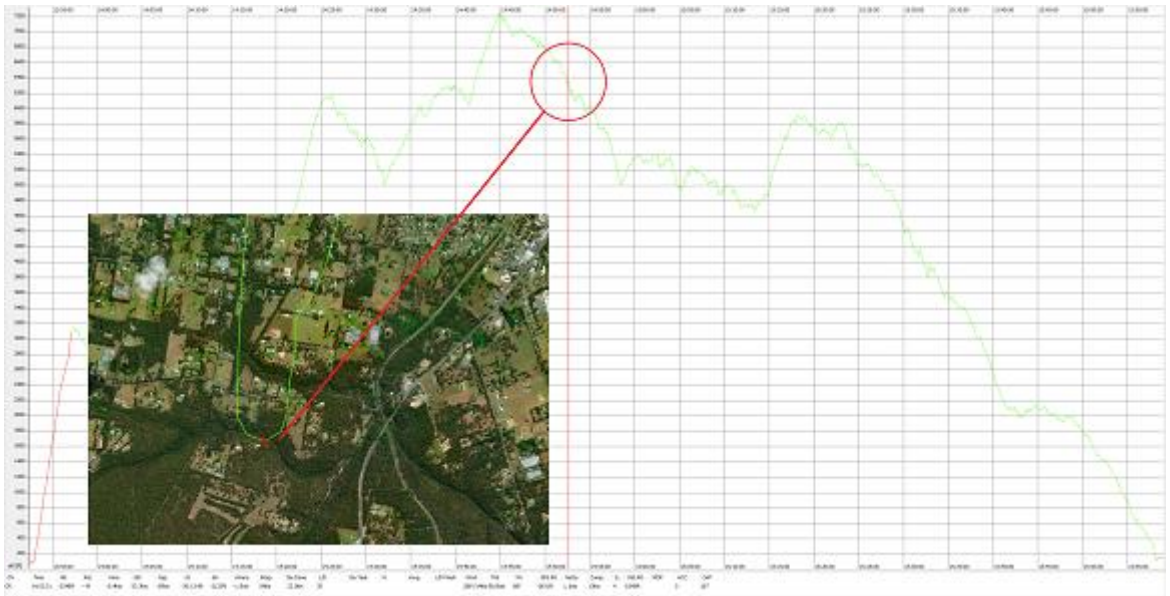
GFA received a report from the ATSB advising that on 16 September 2020, at about 1500 EST and at a height of about 6500ft, the crew of an Augusta Helicopter in the cruise on a Medical flight observed a glider manoeuvring to increase separation. No radio calls were heard from the glider. The Helicopter crew provided the registration of the glider to ATSB.

Analysis

The glider pilot was identified, and a copy of the flight trace was obtained. At about the time of the reported Airprox event the glider pilot was about 13.5 NMs SSW of Camden Airport at around 6,500ft in Class G airspace. The flight trace shows the glider pilot was making a right-hand turn and heading North in search of lift at the time reported. The glider pilot advised that they did not sight the helicopter, nor did they hear a radio call from the Helicopter crew on the Camden CTAF that the pilot was monitoring.



Glider track and estimated position at time of report.



Barogram Trace (vertical red line (circled) shows time and height reported by the Helicopter crew. The satellite image shows the glider's position over the ground).

Safety Advice

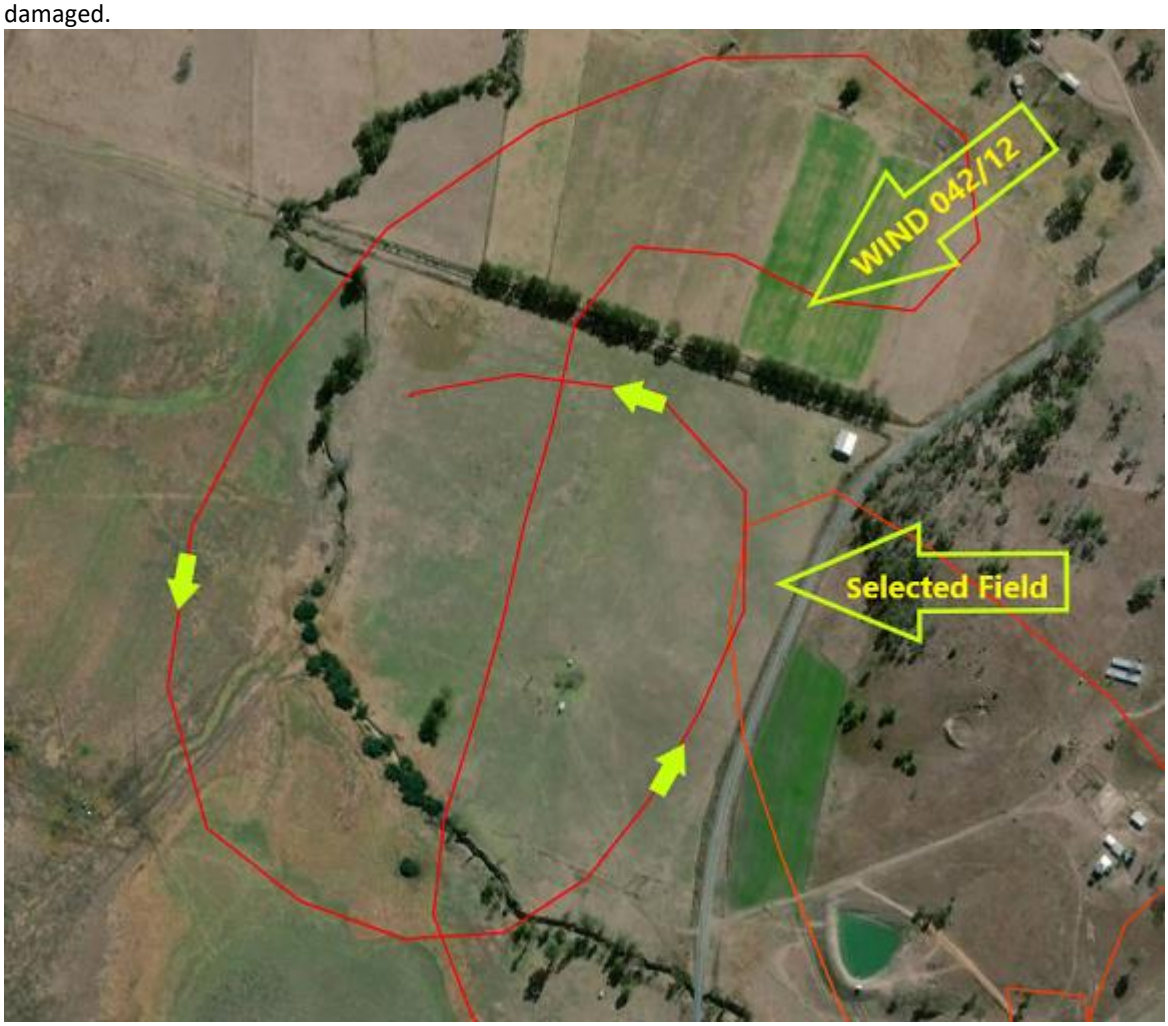
When operating outside controlled airspace, it is the pilot's responsibility to maintain separation with other aircraft. For this, it is important that pilots utilise both alerted and un-alerted see-and-avoid principles. Un-alerted see-and-avoid relies entirely on the ability of the pilot to sight other aircraft. A traffic search in the absence of traffic information is less likely to be successful than a search where traffic information has been

provided. Pilots are encouraged to 'err on the side of caution' when considering when to make broadcasts and whether specific frequencies should be monitored, particularly noting the fundamental importance of communication in the effective application of the principles of see-and-avoid. The ATSB report Limitations of the See-and-Avoid Principle outlines the major factors that limit the effectiveness of un-alerted see-and-avoid.

Date	19-Sep-2020	Region	GQ	SOAR Report Nbr	S-1820		
Level 1	Operational	Level 2	Aircraft Control	Level 3	Hard landing		
A/C Model 1	Astir CS 77	A/C Model 2	N/A				
Injury	Nil	Damage	Minor	Phase	Outlanding	PIC Age	53

What Happened

During an outlanding the pilot crowded his circuit and turned too early onto the final approach. With the far end boundary looming, the pilot made a 90 degree turn at low level to land crosswind at the far end of the paddock. The glider touched down heavily, and the pilot initiated a ground loop to the right to avoid colliding with post and wire boundary fence. The pilot was uninjured, but the glider's mainwheel was damaged.



Analysis

The pilot was conducting a cross-country soaring flight but was mostly achieving heights of around 4,000-5000 ft AGL. Some 75 minutes into the flight the pilot found a good climb to 6000ft AGL and then flew back

towards the airfield. The pilot did not encounter further lift until the glider was at about 1500ft AGL some 10kms South-West and downwind of the airfield. The pilot found a weak thermal and commenced a slow climb and selecting a ploughed paddock to land in if he was unable to work the lift. The thermal was very weak, and the climb rate was slow. When the glider reached about 2000ft AGL the pilot thought he had final glider and headed towards the airfield. However, the glider then encountered heavy sink and, coupled with the strong headwind, the pilot decided an outlanding was now appropriate. The pilot selected two paddocks adjacent to each other, with a tree-lined road on the upwind boundary. The pilot stated: *"The paddock I chose was pasture but directly into wind. It looked quite small, but I was confident of my ability to land short as I am accustomed to do so. The chosen paddock was near a road with an access gate visible."* The pilot crowded his circuit and turned too early onto the final approach, thus overshooting his aiming point. Unable to now land short in the paddock, the pilot conducted a low-level left-hand turn to land across the paddock where there was more room. The glider touched down heavily, and the pilot deliberately executed a ground loop to the left to avoid collision with a post and wire boundary fence. The glider suffered a fractured mainwheel hub from the sideways load and minor damage to the wingtip.

Advice

An outlanding may be required at any time, even when flying locally or approaching for circuit. Pilots must develop the skill to identify when a landing at the airfield is not working out and to choose to select and fly a safe circuit for another field. The following guidance is relevant:

- Ensure you have a choice of fields that are big enough and appear clear of hazards.
- Set up for a NORMAL circuit, only the location is different.
- Select a field and identify landing area and aiming point and configure the glider for landing prior to commencing the circuit at a 'normal' circuit height.
- Estimate your height above ground based on observation of features such as trees, stock, fences
- Dangers in the field, such as high crops, wires, ditches, fences, tree stumps, tree branches, stock are more easily observed as you get lower and closer.
- The circuit should be consistent with what you do back at the airfield.
- Monitor speed, track and angle to ensure a final turn no lower than 300 feet AGL.
- On Final, select a track that avoids and clears all obstacles. Be prepared to adjust your aiming point if you see an obstacle, fence, ditch or rough ground.
- Touch down as slow as possible by holding off as long as you can. This will reduce the ground run and means you will hit bumps and holes and branches on the ground at a much lower speed.
- Use wheel brake to stop the glider as quickly as possible, and avoid the temptation to taxi closer to the farmhouse or road.

Date	25-Sep-2020	Region	GQ	SOAR Report Nbr	S-1719		
Level 1	Environment	Level 2	Weather	Level 3	Turbulence/Windshear /Microburst		
A/C Model 1	Grob G109B	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	68
During take-off and immediately after becoming airborne, the touring motor glider flew through turbulence that caused some control difficulty for the pilot. The pilot abandoned the take-off and landed straight ahead.							

Date	25-Sep-2020	Region	GQ	SOAR Report Nbr	S-1744		
Level 1	Operational	Level 2	Miscellaneous	Level 3	Other Miscellaneous		
A/C Model 1	ASW 20	A/C Model 2	Piper PA-235				
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	16
What Happened							

During an aerotow launch on a competition practice day in turbulent conditions, the glider pilot found himself struggling to maintain the high tow position. Near the top of the launch the glider pilot observed another glider climbing quickly ahead and planned to release in that area. As the towing combination entered the area of increasing lift the glider pilot pulled the cable release, but the rope did not fall away. The glider pilot pulled the release a few more times to no avail, and then made a radio call to the tow pilot advising he couldn't release. The tow pilot turned away from the lift and headed back towards the circuit area while still climbing. During the return flight the tow plane flew through some sink and descended below the glider. A large bow developed in the rope and the glider pilot pulled the release several more times. As the rope came tight the rings came away from the release with a louder than usual sound. The glider pilot returned to the thermal and continued the flight. Upon landing after completing the practice task, the glider pilot observed the small door fitted over the release was at right angles to the airflow (see photograph).

Analysis

Investigation revealed that a nose release had been recently fitted to the underside of the forward fuselage, and the inspector conducting the work had designed and fitted a door over the hole in the fuselage to reduce ram air pressurising the cockpit. The door was an unapproved modification and was poorly conceived, as it prevented the rings from falling free when the cable release was activated. In this case, a hookup resulted in damage to the door when the rope tore loose. The owners have since removed the door and are exploring a split rubber flap to cover the hole in the fuselage. The Inspector has been made aware of his error.

Safety Advice

When an aircraft type is certificated, its "type design" is defined. This is the design which the regulatory authority has certificated as complying with the appropriate design standard. Both the design standard and the type design are documented on the aircraft's Type Certificate. A valid Type Certificate is a prerequisite for the issue of a standard CoA. For gliders, the vast majority have JAR 22 or CS 22 as their design standard, although there are many older aircraft which were certificated against other, older, standards. An aircraft having a Type Certificate requires the design of all modifications must be approved by an appropriate authority. All modifications and repairs to Australian Gliders (other than experimental gliders) must be made in accordance with Approved Data (i.e. drawings, specifications, calculations, test reports and other information necessary to show that the repaired or modified aircraft continues to comply with its certification basis). For further information, refer to GFA Manual of Standard Procedures, Part 3 (Airworthiness).

Date	27-Sep-2020	Region	GQ	SOAR Report Nbr	S-1721
Level 1	Operational	Level 2	Runway Events	Level 3	Runway excursion
A/C Model 1	Discus bt	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	51

What Happened

While landing in a right-hand crosswind with the aircraft balanced on the mainwheel, the glider weathercocked into the wind. The pilot overcorrected the left rudder input, which resulted in the aircraft rapidly ground-looping to the left and skidding sideways before coming to rest.

Analysis

Analysis by the CFI confirmed the initial cause of the accident was the pilot's application of too much rudder opposite the direction of the glider weathercocking. Further contributing factors were not touching down in a two-point attitude at minimum speed, and allowing the glider to roll with the tail in the air. The CFI noted that pilots should check the windsock prior to joining the circuit to confirm the wind strength and direction.

Safety Advice

On sailplanes with the cg behind the wheel the tendency to swing is accentuated because the inertia effect, which is quite powerful, adds to the weather-cocking effect. This is particularly noticeable in light crosswinds when the inertia effect can be larger than the weather-cocking effect. Any swing must be corrected very quickly. Glider pilots should aim to conduct a well held-off landing (minimum energy) and rollout to a standstill. After touch-down, the pilot must keep the glider straight for as long as possible using rudder and with the 'into wind' wing kept low. If the sailplane has a fixed tailwheel instead of a skid, keeping the tail firmly on the ground will help to keep straight. Once stopped, the pilot should carefully use the ailerons to put the 'into wind' wing on the ground so that there's no chance of the glider blowing over before the retrieve crew arrive.

Date	27-Sep-2020	Region	WAGA	SOAR Report Nbr	S-1723
Level 1	Operational	Level 2	Airframe	Level 3	Landing gear/Indication
A/C Model 1	JS3	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	59

What Happened

After a normal landing the tail wheel axle/bolt was found to be loose at the front hinge of the retract system.

Analysis

Investigation identified that the tailwheel axle/bolt is not secured by a locking type nut and will work loose over time. A thread locking compound was applied to the axle/bolt threads with the Manufacturer's approval and the axle/bolt was relocated and tightened.

Safety Action

The Airworthiness Department proposes to issue an Airworthiness Advice Notice to alert owners and operators of this model sailplane to this issue.

Date	27-Sep-2020	Region	NSWGA	SOAR Report Nbr	S-1722
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Aircraft Separation Issues
A/C Model 1	COSTRUZIONI AERONAUTICHE TECNAM S.P.A. P2008	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	N/A	PIC Age	

What Happened

A Tecnam P2008 aircraft passed close to the Gliding Club airstrip unannounced while winch launching operations were in progress. The Tecnam flew out of sight of the gliding operations crew who then heard a radio transmission but did not understand the pilot's intentions. Launching operations were suspended temporarily. Shortly afterwards the Tecnam reappeared above the trees at the aircraft boundary and proceeded to fly over the glider launch point at about 100ft AGL, at which point the pilot applied power and climbed away.

Analysis

The Tecnam was on a training flight from Bankstown airport and was conducting a practice approach. Radio Broadcasts were not made when the Tecnam entered the CTAF, and communication was not established with the gliding operation prior to the Tecnam pilot making a low approach. The gliding ground crew had difficulty hearing the aircraft on approach and did not observe it until it was over the airfield boundary trees due to its low height. The trees on the approach to both runways are tall, however the gliding launch point is sufficiently displaced to allow clear visibility of aircraft flying downwind and base legs at normal heights. However, the trees do prevent visibility of aircraft making a low and shallow approach. The Gliding Club CFI noted that had a launch commenced while the Tecnam was on final approach, there was a real risk it may have collided with a launching glider or rope.

Action Taken

The Gliding Club CFI contacted the CFI of the flight training organisation operating the Tecnam. The instructor in the Tecnam was counselled. Other pilots at the training organisation were informed of the dangers facing aircraft using the gliding airstrip for practice approaches when gliding operations are in progress, and of the need for clear communication in the CTAF.

Safety Advice

Aeronautical Information Publication (AIP) ENR 1.1 – 86, paragraph 10.17.2 states: *"Pilots should consult CAAP 166-01: 'Operations in the vicinity of non-controlled aerodromes', (in conjunction with the AIP) for detailed operating procedures when operating in the vicinity of non-controlled aerodromes."* Civil Aviation Advisory Publication (CAAP) 166-01 v4.2 'Operations In the Vicinity of Non-Controlled Aerodromes' provides the following advice at paragraph 3.2.3: *"Winch operations may occur at any aerodrome and launch gliders up to heights in excess of 2000 ft AGL. Pilots should be aware of winch wires up to these levels, particularly when overflying the aerodrome, and check ERSA and, for certified/military aerodromes the latest NOTAMs, for current operational information."*

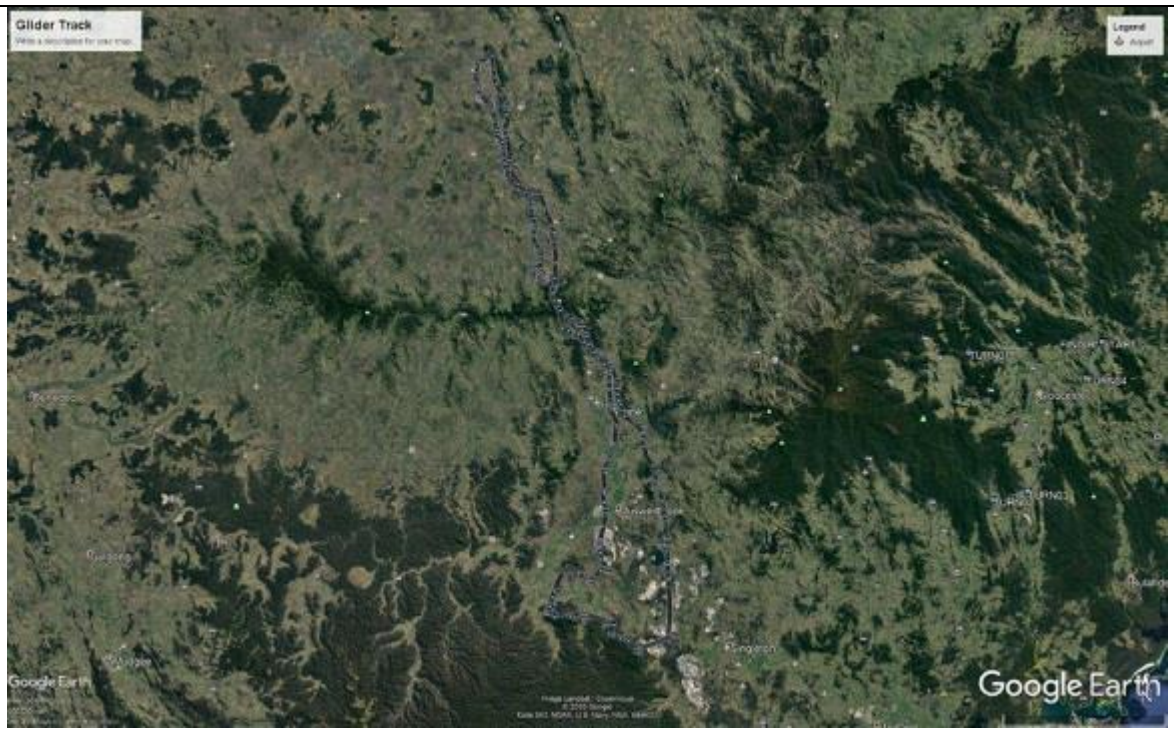
Date	27-Sep-2020	Region	NSWGA	SOAR Report Nbr	S-1725		
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Aircraft Separation Issues		
A/C Model 1	Duo Discus	A/C Model 2	Helicopter				
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	50

What Happened

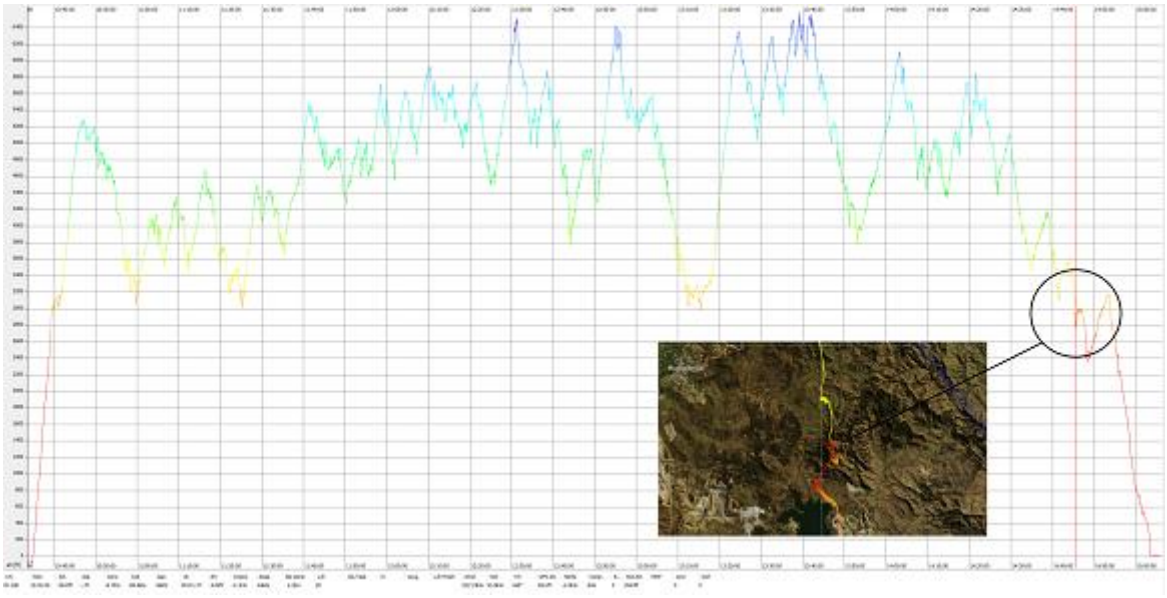
GFA received a report from the ATSB advising that, at about 1446 EST on 27 September 2020, the crew of a Helicopter in the cruise observed an unidentified glider on a crossing track near Muswellbrook, NSW that resulted in the glider passing in close proximity.

Analysis

The glider was identified as a Duo Discus operating out of Warkworth aerodrome. At the time of the reported Airprox event the glider was at around 3,000ft in Class G airspace and tracking towards Warkworth aerodrome on return from a 326km cross country flight. The glider flight crew observed the helicopter below and some distance ahead and altered course to the right to increase separation. The helicopter passed about half a mile or more ahead of the glider and about 100ft lower. The glider crew reported they had been monitoring the helicopter's path for some time, and advised the glider was equipped with an active ADS-B.



Glider Track



Barogram trace

Safety Advice

When operating 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 un-alerted see-and-avoid principles. Un-alerted see-and-avoid relies entirely on the ability of the pilot to sight other aircraft. A traffic search in the absence of traffic information is less likely to be successful than a search where traffic information has been provided. Pilots are encouraged to 'err on the side of caution' when considering when to make broadcasts and whether specific frequencies should be monitored, particularly noting the fundamental importance of

communication in the effective application of the principles of see-and-avoid. The ATSB report Limitations of the See-and-Avoid Principle outlines the major factors that limit the effectiveness of un-alerted see-and-avoid.

Date	28-Sep-2020	Region	GQ	SOAR Report Nbr	S-1729
Level 1	Operational	Level 2	Runway Events	Level 3	Runway undershoot
A/C Model 1	Ventus-2cM	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	53

What Happened

The pilot undershot the landing approach and outlanded in a paddock immediately outside the aerodrome boundary.

Analysis

The pilot has owned the aircraft for about 12 months and had only accumulated a modest five flights in that time, mainly due to airworthiness issues. The pilot was attending a weeklong cross-country camp, where he was determined to complete some cross-country flights in the glider. Early in the flight heard a banging noise that he attributed to the engine bay doors. Although the pilot checked the controls for functionality, he did not detect the undercarriage was not looked away. The pilot attributed cockpit noise for not being able to hear that the wheel was down. On returning to the airfield, the pilot prepared the aircraft for landing but raised the undercarriage instead of lowering it. After turning onto the base leg, the pilot realised the undercarriage was not down. The pilot found the undercarriage mechanism was stiff to operate and he became momentarily distracted while attempting to lower it. The pilot stated: *"I was distracted by the gear situation and flew a little too wide. I believe it was a combination of mishandling the flaps, distraction by the undeployed gear and heavy sink that resulted in the outlanding."* A comparison of the pilot's circuit with other similar gliders on the day indicates he was not significantly out of position, but the distraction and increased workload diminished the pilot's situational awareness resulting in him flying the glider into an undershoot position. The pilot's lack of currency on type was also a contributing factor.

Advice

Pilots should always be aware that high workload situations during the landing phase often lead to poorly executed landings, sometimes with serious outcomes. Well-developed fundamentally sound landing procedures and techniques are a good safeguard against these outcomes. The GFA recommended procedure is to get some of the tasks, like lowering the undercarriage, out of the way once the decision to break-off the flight has been made, and to ensure the pre-landing check list is completed diligently. For further information, refer to Operational Safety Bulletin (OSB) 01/14 'Circuit and Landing Advice'

Date	1-Oct-2020	Region	GQ	SOAR Report Nbr	S-1727
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	LS 8-18	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	62

What Happened

During a competition flight the pilot elected to conduct a straight-in approach from the final turn point approximately 2km from the finish circle. The pilot omitted to extend the undercarriage and did not complete the pre-landing checklist before landing.

Analysis

The pilot stated that the following factors contributed to missing the vital actions of extending the undercarriage and conducting the pre-landing checklist:

- Long (98km) final glide
- Final turn point 2 km from finish circle
- Pilot concerns about possible obstacles on final**Corrective action**

The pilot's CFI discussed with the pilot the need to consciously change from a racing pilot to a landing pilot, and conduct the actions and checks required prior to landing.

Safety Advice

Straight-in approaches are now commonly used to simplify the final approach under competition conditions. While they require more experience and energy management, they avoid complexity and exposure to collision risk. However, the chances of identifying an error while flying a normal, standard circuit, is significantly higher than when on final glide for a straight-in approach. The absence of a base leg (particularly) but also of a downwind leg reduces the opportunity to examine the landing area and final approach. Notwithstanding, none of this does more than add to workload and this procedure is, on balance, safer for experienced pilots. Despite this, landing mishaps still occur during a straight-in approach due to poor workload management, so pilots must take care to ensure that the pre-landing checklist is carried out. For further information, refer to OSB 01/14 'Circuit and Landing Advice'.

Date	1-Oct-2020	Region	GQ	SOAR Report Nbr	S-1726		
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing		
A/C Model 1	Discus CS	A/C Model 2					
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	21

What Happened

The pilot reported they completed the pre-landing check list and lowered the undercarriage. In so doing, the pilot failed to completely engage the locking mechanism. On touchdown after a short ground roll, the undercarriage collapsed tearing both the landing gear fairings from the aircraft.

Analysis

The undercarriage retracted on landing most likely due to the undercarriage lever not being correctly positioned into the slot to lock the wheel in the down position. The undercarriage doors were torn off and an area on the underside of the glider forward of the main wheel suffered abrasions and loss of paint from sliding across the grass runway. The Discus CS undercarriage lever is normally held in the down position by moving the handle forward and outboard into a slot (see photograph).

There is no detent or locking device to stop the handle moving inboard but friction and directional forces would normally retain the handle in the locked position. If the handle is not fully pushed outboard, it is

possible that on landing the handle could jump back into the unlocked position causing the undercarriage to collapse.

Corrective action

Following the incident, the undercarriage was lowered and tested as functioning normally. The pilot was briefed on the importance of checking the correct position of the undercarriage lever as part of the Pre-landing check.

Safety Advice

Circuit and landing are high workload environments and pilots are encouraged to reduce their workload by configuring the aircraft for landing at an early stage. GFA training is to lower the undercarriage once the decision to land has been made and the undercarriage should be down before the circuit is joined. It is GFA practice for the pre-landing checklist to be undertaken during the downwind leg and before abeam the landing area. The pre-landing checklist is a 'check' and not an 'action' list, and part of the check is to ensure the undercarriage is down and locked (refer OSB 01/14 'Circuit and Landing Advice').

Date	1-Oct-2020	Region	GQ	SOAR Report Nbr	S-1741		
Level 1	Consequential Events	Level 2	Low Circuit	Level 3	Low Circuit		
A/C Model 1	HK 36 TC100	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	80

The crew of the touring motorglider were gliding back to the departure airfield after a local flight. At about 1.5NM from the airfield and at a height of about 2,000ft (AGL), the command pilot decided the glider was too high to join the midfield crosswind leg and so turned downwind from the airfield to lose some height. The glider descended to about 1600ft AGL approximately 2.5NM from the airfield and headed back to the circuit. Flying into a 15knot headwind, it soon became obvious to the flight crew that the glider was getting too low to join a normal crosswind leg, so the command pilot decided to join a non-standard right-hand base leg for the operational runway. The second pilot provided the position of other traffic to the command pilot, who advised his intentions on the CTAF. The command pilot informed a light recreational aircraft on final approach that he would track behind, and then conducted a manoeuvre to provide spacing. The pilot of a banner towing aircraft that was also on approach modified his circuit to give priority to the glider. The glider made a safe landing, although the second pilot expressed discomfort with the experience. Investigation by the CFI identified that the command pilot's advanced age and high experience had led to over-confidence and complacency. By definition, a complacent person *"…feels that they do not need to do anything about a situation, even though the situation may be uncertain or dangerous."* Complacency can lull the pilot into believing that what they did in the past, since it led to success, will also lead to success in the future. They start letting their guard down and lose sight of changes taking place around them. To avoid becoming complacent, a pilot must always remain vigilant, i.e. pay careful attention to a particular problem or situation and concentrate on noticing any danger or trouble that there might be. After a debriefing with their CFI, the pilot has agreed to fly with a competent command pilot in future.

Date	2-Oct-2020	Region	GQ	SOAR Report Nbr	S-1728		
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Collision with terrain		
A/C Model 1	H 101 Salto	A/C Model 2					
Injury	Nil	Damage	Minor	Phase	Outlanding	PIC Age	29

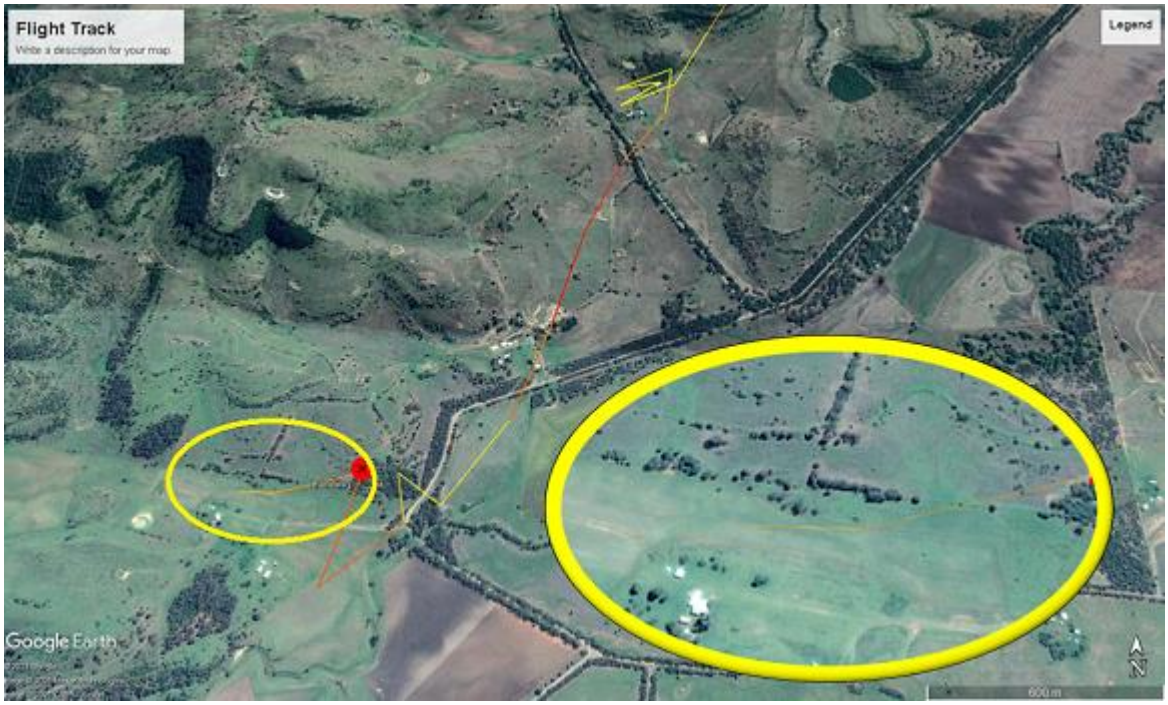
What Happened

The pilot conducted an outlanding in the lee of a hill and on sloping terrain. The right wingtip struck the ground during the flare causing the glider to groundloop.

Analysis

The pilot was flying on the first leg of a cross-country task in reasonable thermal conditions and was working between 3000ft and 8000ft AMSL. After about 2 hours flying the pilot had reached the southern end of the Bunya Mountains about 135kms from the home airfield at 4000ft (about 1300ft above the highest terrain).

The pilot worked a weak thermal to no avail and turned back towards landable paddocks in the valley. For the next 10kms the pilot attempted to work a few thermals but was unsuccessful and kept pushing on. The decision to land was made at around 500ft AGL and the pilot made a straight-in approach to a ploughed paddock. The pilot reported that the starboard wingtip contacted the upwardly sloping ground during the flare and while the aircraft was still airborne. The pilot closed the airbrakes and applied opposite rudder and aileron inputs, but the glider yawed through 45 degrees to the right before touching down on the mainwheel and tailskid. The glider came to an abrupt stop in the soft soil. Upon exiting the cockpit, the pilot observed the tailskid had detached and there was a crack in the starboard wing/fuselage trailing edge fairing. The pilot's CFI noted the pilot made his decision to break off the flight too late and with only just enough height to land in in a marginal paddock, despite flying over better paddocks earlier. The pilot was counselled on conducting safer outlandings and what to expect when flying in the leeward side of hills and mountains.



Safety Advice

A common reason for outlanding accidents is the pilot not accepting soon enough that an outlanding is likely, and not prioritising the available height to allow them to fly to a good safe area. Pressing on with the flight in the hope that that all will be well is fraught with danger. Unlike landing at the home airfield where the runway layout, ground features and hazards are usually well known, when landing in a strange paddock the pilot is faced with the unknown. Such a situation demands the pilot take additional precautions to ensure a proper survey is undertaken of the landing area so as to identify all hazards and ensure a safe landing can be accomplished. A 'check of the identified landing area should be commenced at a height sufficient enough to select an alternative if the selected paddock is found to be unsuitable. Guidance on conducting precautionary searches for outlanding can be found in the 'Outlanding' chapter in the Australian Gliding Knowledge book. When flying cross-country it is important that pilots plan and think ahead so that they are always in a position to make a safe landing. At low levels a pilot's priority will change from searching for lift to finding a suitable area in which to land. This requires good flight management and discipline because flying at low level is unsafe:

- there are more obstacles to avoid, many of which are hard to see until it is too late (e.g., power lines and fences);
- pilots have a higher workload because there are more hazards to negotiate in the environment;

- there may be turbulence and wind shear that pilots do not encounter at higher levels; and
- there is very little time to recover control of the aircraft if something goes wrong (e.g. consider a low level spin).

Being near the ground at a height where it is not possible to assess and check an available landing paddock is a high-risk situation that must be avoided. Human factors including decision biases, goal fixation and cognitive tunnelling during a cross-country flight may lead to pilots eroding safety margins more than when local flying. Being aware of the dangers of continuing into marginal circumstances, setting boundaries, having a sound knowledge of rules and procedures, disciplined adherence to minima and performance requirements, prioritisation of options, and planning to deal with potential situations will act as defences against unsafe conditions.

Date	3-Oct-2020	Region	WAGA	SOAR Report Nbr		S-1732	
Level 1	Operational	Level 2	Aircraft Control	Level 3		Wheels up landing	
A/C Model 1		Nimbus-2		A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	59

What Happened

The pilot landed from a local flight with the undercarriage retracted.

Analysis

Earlier in the day the pilot had conducted an uneventful flight in the Club's IS28 two-seat sailplane. He then flew a Nimbus 2 sailplane to return it to service after its annual inspection. After completing a local flight, the pilot joined circuit and retracted the undercarriage during the pre-landing checks. The aircraft subsequently landed with the undercarriage retracted but suffered only minor abrasions to the lower fuselage. The pilot advised that a lack of currency caused by illness and the COVID-19 lockdowns possibly contributed.

Advice

The use of well-developed fundamentally sound landing procedures and techniques are a good safeguard against this type of accident. Operational Safety Bulletin (OSB) 01/14 'Circuit and Landing Advice' recommends that pilots can reduce circuit workload by getting some of the tasks, like lowering the undercarriage, out of the way once the decision to break-off the flight has been made. In addition, pilots must ensure the pre-landing check list is completed diligently and levers checked against the cockpit placards.

Date	3-Oct-2020	Region	NSWGA	SOAR Report Nbr		S-1730	
Level 1	Operational	Level 2	Flight Preparation/Navigation	Level 3		Aircraft preparation	
A/C Model 1		LS 4-a		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	56

What Happened

During an aerotow launch and just as the glider became airborne, the airbrakes extended and the glider touched down briefly before becoming airborne again. The pilot reported the launch did not feel right, and a scan of the cockpit identified the airbrakes were open. The pilot closed and locked the airbrakes and the flight proceeded normally.

Analysis

The pilot was flying with a flight computer for the first time and had mounted it on the left-hand side of the canopy. While conducting the pre take-off checks the pilot found the device was hindering use of the airbrake lever, and while awaiting launch the pilot repositioned the device. The pilot stated he was *"…not sure if I didn't properly secure the airbrakes, due to knocking the device initially, or unintentionally unsecured*

the airbrakes while repositioning the device. In any case, I didn't go through the checks again, and the launch proceeded with me unaware that my airbrakes were unsecured."

Safety Advice

When securing portable flight computers and other devices in the cockpit, pilots must ensure they are positioned in such a manner as to prevent interference with, or obstruction of, flight controls, instruments, or warning lights. In some cases, this can only be assessed with the pilot seated in the cockpit with the canopy closed. This work should be conducted without distraction, and not on the flight line if the position of the device has not previously been demonstrated as satisfactory. When checklists are interrupted, it is important for the pilot to recommence them from the beginning.

Date	3-Oct-2020	Region	GQ	SOAR Report Nbr	S-1731		
Level 1	Operational	Level 2	Aircraft Control	Level 3	Hard landing		
A/C Model 1	IS-28B2		A/C Model 2				
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	62

What Happened

Shortly after touchdown, the glider flew through a short-lived gust ballooned. The command pilot lowered the nose to regain speed but the glider suddenly stalled and impacted the ground nose first. The aircraft was undamaged, apart from some abrasions to the paintwork.

Analysis

The pilot reported encountering turbulence during the final approach, with wind gusts closer to the ground. After bleeding-off energy during he flare, the glider touched down normally in a two-point attitude. Shortly afterwards and without warning, the aircraft was struck by a gust that caused the glider to balloon. The pilot immediately closed the airbrakes and simultaneously lowered the nose to landing attitude but was unable to prevent the glider from impacting the ground heavily on the nose as the gust passed. The glider was examined by an Airworthiness Inspector and was found to have suffered only minor abrasion to the bottom of the forward fuselage.

Safety Advice

Turbulence has a strong impact on the stall speed of a glider because the vertical gusts change the direction of the relative wind and abruptly increase the Angle of Attack. During landing in gusty conditions, it is important to increase the approach airspeed by half of the gust spread value in order to maintain a wide margin above stall. For example, if the winds were 10 knots gusting to 15 knots, it would be prudent to add 2.5 knots [(15 – 10) ÷ 2 = 2.5] to the approach speed. This practice usually ensures a safe margin to guard against stalls at very low altitudes. If the glider bounces or balloons during the landing, it is important not to move the stick rapidly forward after the bounce has occurred, as this will almost certainly result in a very heavy landing (and possible damage and injury). The correct action in the case of a bounced or ballooned landing is to select and hold a steady level attitude and retract the airbrakes or spoilers, as this allows the wing to provide a bit more lift despite decaying airspeed. A second attempt at the landing can then be made, usually without further problems.

Date	7-Oct-2020	Region	GQ	SOAR Report Nbr	S-1733		
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Wirestrike		
A/C Model 1	Discus B		A/C Model 2				
Injury	Nil	Damage	Minor	Phase	Outlanding	PIC Age	56

What Happened

While outlanding in a paddock near a farmhouse and at a height of about 30 ft, the starboard wing of the glider struck a power line that was strung between two poles over the fence-line of the paddock. The aircraft yawed to the right and descended quickly, touching down while skidding sideways. The aircraft came to rest facing approximately 70 degrees to the right of its original track. The pilot was uninjured, but the aircraft suffered damage to the leading edge of the right wing.

Analysis

The pilot was competing in a Grand Prix event organised by the local club. On the final leg of the task and about 45kms from home, the pilot found himself below final glide and struggling to find lift. The pilot flew into an area of landable terrain with which he was familiar and arrived at about 1300ft AGL. The pilot identified a suitable outlanding paddock running north-south next to a farmhouse, and then used the available height to search for lift while remaining within reach of the identified paddock. The pilot spent the next 5 minutes maintaining or slowly losing height in weak lift to the West (downwind) of the paddock before breaking-off the flight for landing. The pilot descended upwind of the paddock and joined circuit on a left-hand base leg at about 500ft AGL (refer graphic 1). The pilot joined final at about 400ft AGL and set an aiming point about one-third the way into the paddock, where the plough furrows were better aligned for landing.

Graphic 1 – Flight Trace

As the glider crossed the boundary fence, and at a height of about 30ft AGL, the pilot noticed a wire pass over the canopy. The starboard wing then struck the wire, identified as a 'Single Wire Earth Return' powerline, that was strung between two poles about 40 metres inside and parallel to the paddock fence line (refer graphic 2 and photograph 1). Witness marks identify the wire struck the starboard wing about mid-span and slid down the leading edge until it cleared the wingtip. The impact caused the glider to yaw severely to the right and skid partially sideways onto the ground. Upon touchdown, the aircraft skidded sideways in the paddock and came to rest approximately 70 degrees to the right of its flight path. The pilot reported: *"As to why it (the powerline) caught one wing, I can't say with certainty. I was toward the left-hand side of the paddock, as I'd assessed that had a better landing surface; the paddock was ploughed in a race-track pattern and that side seemed to have smoother furrows in the correct direction, which would mean that the bow of the wire would be higher to my left and lower to my right. But I may have had some small angle of bank on making a last second correction."* The glider was subsequently inspected for structural

damage at an Approved Maintenance Organization and found to have only minor abrasions to the starboard wing leading edge and a cracked winglet.

Graphic 2 – position of powerline (image from the lookupandlive.com.au website.

Photograph 1 – Glider, with powerline across approach path marked in yellow.

Causal Factors

- The pilot did not identify the single wire crossing the paddock during the initial overflight or during the final approach.
- The single power cable was difficult to see and the supporting posts were obscured by trees or blended with the background.
- The pilot did not conduct a downwind leg that may have provided an opportunity to identify the posts and wire.
- The pilot's workload while landing in an unfamiliar place was high and likely increased stress levels.

Safety Advice

Wire strikes are associated with low-level flight, and usually occur to gliders during landing. Operating in the low-level environment is inherently dangerous as there are a greater number of obstacles to avoid, there is significantly less time to regain control of an emergency situation, and there is a higher workload as pilots must negotiate the hazardous environment in addition to their normal workload. In some cases the consequences of a wire-strike will be minor, as in the case of this accident. In less forgiving circumstances the wire may snare the aircraft, resulting in an accident that could cause the destruction of the aircraft and possible injury or death of the occupants. It is therefore vital that pilots who are operating into an unfamiliar landing area should remain vigilant and ensure that all the necessary precautions, such as flying a proper circuit while maintaining a good lookout for obstacles, are taken to reduce the risks associated with operating within the low level environment. However, despite reconnaissance of the proposed landing area and a constant lookout during flight, wires are often difficult to detect. The likelihood of a pilot seeing wires is determined by a number of factors including the number of wires, type of support structure, length of wire span, the environment and the background against which the pilot is viewing the wires. Remember also that SWER lines do not necessarily follow fence lines. They may cut the corners off paddocks, stretch across at some intermediate distance into the paddock or wander off completely at random. The best guidance is that, if you can see a homestead, assume that there will be a SWER line leading to it. **You MUST find it before you attempt a landing.** To identify powerline locations, visit the lookupandlive.com.au website. This site provides an interactive geospatial map that has been developed to display the Energex, Ergon Energy, Endeavour Energy, Essential Energy and Powerlink electricity networks, including sourced third-party information.

Date	10-Oct-2020	Region	SAGA	SOAR Report Nbr	S-1734		
Level 1	Operational	Level 2	Airframe	Level 3	Doors/Canopies		
A/C Model 1	AS-K 13	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	71

What Happened

At the top of a winch launch the student pilot pulled the cable release and then accidentally knocked the canopy release with the back of his hand. The glider released from cable and the canopy opened simultaneously. The canopy opened to the full extent of the retaining cord and stayed attached to the airframe. The instructor closed the canopy while the student flew the aircraft and the flight continued normally.

Analysis

The flight was a training sortie with a recently solo pilot who was still subject to daily check flights. The Instructor and Pilot had completed two flights together earlier in the day. The Student Pilot, who was flying the launch, and the Instructor were both certain that the canopy was properly 'Closed and Locked' before commencing the flight, as they double-checked this as part of a 'pre-launch challenge' system used by the Club. At the top of a winch launch the cable back released by itself while still under tension. The sudden release of cable tension, coupled with the student pilot holding the stick slightly aft of neutral to maintain the climb attitude, caused the nose of the glider pitch upwards. The student pilot immediately activated the cable release mechanism, and simultaneously pitched the nose of the glider downward to the normal flying attitude to maintain airspeed. During the pitching manoeuvre the glider experienced some negative 'g',

which resulted in the student pilot's arm moving upward and backwards. It was during this movement that the student's arm contacted the canopy release with sufficient force to unlock the canopy. A combination of the glider's pitching moment, reduced 'g' and airflow caused the canopy to open fully.

Safety Advice

This incident highlights that despite adherence to proper procedures and check lists, things can still go wrong during critical stages of flight. In this case the flight crew used the knowledge and skills acquired during training, and exercised sound Threat and Error Management (TEM) and Crew Resource Management (CRM) practices, i.e. the student flew the aircraft while the instructor corrected the undesired aircraft state (open canopy).

Date	11-Oct-2020	Region	NSWGA	SOAR Report Nbr	S-1737		
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	57

What Happened

The sortie was a 2-hour familiarisation and check flight for a visiting pilot, whose intention was to spend some time within the area to get familiar with the landmarks, practice spin entry and recovery, analyse nearby fields as possible outlanding options and to perform a simulated outlanding. The club had a frequently used procedure for planned outlandings at the home airfield involving landing diagonally across the runway, using the windsock to simulate a line of trees across the flightpath. The available runway length for this exercise was approximately 550 metres. During the circuit downwind for the simulated outlanding, the pilot under check extended the downwind leg to a point where, in the instructor's opinion, the landing surface was obscured from view by a line of trees. The instructor, who was occupying the front seat, expressed concern that the angle to the landing area was too shallow. Although the pilot under check believed otherwise, he immediately turned onto the base leg. The final approach was normal but the subsequent flare and round-out was considered too high by the instructor (approximately 10-20 feet above ground), who commented that the airspeed was getting too low for the height. The pilot under check appeared to reduce the airbrake setting but continued to hold-off at height while the airspeed reduced. The instructor assumed control and lowered the nose to gain airspeed but was too late to prevent the glider landing heavily. The glider came to rest about 150 metres from the end of the nominal runway. At the time of this incident weather conditions were reported as fine and warm, with light variable winds and Cumulus base at around 9000 ft. A slight possibility of tailwind on final was mentioned. Both pilots are experienced and had recent time on type. The pilot under check was training to be an Air Experience Instructor at his own club and had completed 3 flights (totalling 59 mins) from the rear seat the day before. The Instructor on the incident flight had not previously flown with the pilot under check.

Investigation

Immediate observation around the undercarriage did not detect any damage but a subsequent inspection later in the week found the fairing surround of the fixed undercarriage was damaged due to suspension travel, as well as damage to the lower fuselage at the wheel well and cracking around the fittings of the rear seat pan support. The aircraft was sent to a maintenance organisation for examination and repair. A detailed report was provided by the Instructor pilot, who stated that the performance of the pilot under check had met expectations given their experience level for all but the final exercise. The pilot under check had requested the specific procedures and wanted to fly from the rear-seat position to improve their performance. Control between the two pilots changed repeatedly during the flight without concern. The Instructor stated that fatigue did not appear to be a factor; though how this was determined is not clear. The Instructor reported that he believed the pilot under check had the ability to rectify the situation developing during the landing approach, but that that the simulation of an approach over an obstacle may have led to confusion to the extent that the pilot flying was unaware of what to do to correct the situation. The instructor stated that he took over control too late to recover the situation and effect a good landing.

Safety Advice

The terms 'checking' and 'training' are often used interchangeably, but there are subtle differences between the two concepts. Training is about transferring knowledge and developing a student's competency, while checking involves the assessment of a trained person's competency and proficiency. All pilots and instructors are vulnerable to various cognitive biases and errors; it is part of the human condition. The most pervasive bias is optimism bias, where the instructor has an expectation of success. Complacency, plus optimism bias, plus experience with numerous past successes might easily combine to make the instructor late to intervene in a rapidly deteriorating situation close to the ground. In the case of a check flight, instructors are susceptible to the 'halo effect', where positive impressions made from one characteristic (e.g. flies well and seems to be on the ball) are assumed to extend to other areas of competence. An experienced instructor may make a high assessment of their ability to read students and detect limits in their competence when that student may still be subject to incorrect responses or training gaps. For these reasons, it is particularly important for instructors to consider their own susceptibility to optimism bias, and to consider pre-flight the thresholds of intervention that should be applied during training and checking sequences. A minor variance from intent may result in the instructor asking a question, or making a verbal command, whilst a major variance would result in a physical intervention such as taking over control. All of this assumes there is time to react, so as the time available reduces, the demands on the instructor increase. In this incident, the late take-over meant a safe recovery was beyond the limits of instructor intervention. For further information, refer to Operational Safety Bulletin (OSB) 01/19 – 'Avoiding Approach & Landing Accidents During Training'.

Date	12-Oct-2020	Region	WAGA	SOAR Report Nbr	S-1735		
Level 1	Operational	Level 2	Miscellaneous	Level 3	Rope/Rings Airframe Strike		
A/C Model 1	Astir CS	A/C Model 2	Piper Pawnee				
Injury	Nil	Damage	Substantial	Phase	In-Flight	PIC Age	50

What Happened

At about 2000' AGL during a planned aerotow to 3000', the towing combination flew through lift and the glider pilot was controlling position behind the tow plane with the airbrakes. At about 2500' AGL the glider pilot decided to release from tow but had problems reaching the release knob. The pilot changed hands on the control stick and tried to grasp the release with his right hand, and this led the glider to diverge to one side and the tow rope became slack. The glider accelerated and the slack rope looped around the right wing. The tow pilot noticed the glider getting well out of station and released the rope. The glider pilot made a safe landing with the rope attached. A witness reported: *"From examining the glider on the ground it appears the slack towrope went firstly over the right wing and then around the tip and back under it. When the tug again put tension on the rope it bit into the right wing between the wing root and the fuselage, stopping at the rear locating pin."*

Analysis

The tow pilot advised that he had been searching for lift during the aerotow and at about 2000ft the combination flew into the core on a rough thermal that had little in average climb but did require a degree of stick work to maintain bank angle. At approximately 2300 ft AGL the tow pilot determined the thermal was of little value and headed towards a gaggle of two other gliders nearby. A few seconds after exiting the thermal however, the tow pilot felt the tail of the tow plane being pulled to the right with such intensity that he immediately checked the tow plane's mirrors to identify the cause. The tow pilot observed the glider under tow slightly higher than a normal high tow position and spearing at a rapid rate to the left of the tow aircraft. Fearing the glider pilot had lost control of the situation, the tow pilot promptly released the tow rope from the tow aircraft, turned to the right and tracked away to provide separation. The tow pilot said he noticed a large amount of load on the release during its activation. The glider pilot decided to release just after the tow pilot left the thermal, but he could not adequately grasp the release knob due to inadequate reach. He advised that his attempts to release had caused him to mishandle the glider to the point that it got badly out of station. The pilot sated that he found the tow rope release was hard to reach while conducting

his cockpit checks and added some cushions to position him closer to the knob. It appears that the cushions were too soft and allowed the pilot to slide back into the seat.

Safety Advice

It is not uncommon for pilots to use cushions to position themselves within easy reach of the controls, especially where there is minimal or no seat and rudder pedal adjustment. When using cushions, it is essential to make sure that the cushions in the glider are firm enough to prevent the pilot sliding backwards with the launch acceleration and unable to operate the controls. The best cushions are Energy absorbing types made from viscoelastic foam, as they provide damping properties and shock-absorption capabilities that will protect a pilot in an accident. A safety briefing describing why pilots should fly with an energy-absorbing foam cushion can be downloaded via this link: https://members.gliding.co.uk/library/safety/safety-foam/.

NOTE: The tow pilot's actions in immediately releasing the out-of-station glider is consistent with GFA advice for the prevention of tug upsets. For further information, refer to the Aerotowing Manual, Section 10.3 - The "tow plane upset".

Date	16-Oct-2020	Region	GQ	SOAR Report Nbr		S-1736	
Level 1	Operational	Level 2	Aircraft Control	Level 3		Hard landing	
A/C Model 1		AVO 68 - R 'Samburo'		A/C Model 2			
Injury	Nil	Damage	Substantial	Phase	Landing	PIC Age	62

What Happened

The student pilot mishandled the controls on late final approach and the instructor was too late taking over. The aircraft stalled at a height of about 10ft and landed heavily, resulting in structural damage around the undercarriage.

Analysis

The sortie was a training flight with a pre-solo student undertaking circuit training in a touring motor glider. The Instructor, who is a very experienced commercial pilot with prior helicopter training experience, had conducted all the student's prior flight training. According to the CFI, the student was advancing well, and had already made one good landing earlier in the flight. However, investigation revealed the student was not capable of handling the crosswind and turbulence caused by the adjacent trees alongside the runway during this flight. The instructor admitted that he should have intervened sooner but felt confident that the student could land successfully as he had done so on the previous approach.

Safety Advice

The most common instructing accident is 'instructor failed to take-over in time'. These accidents usually involve the trainee responding in an unforeseen way or failing to respond at all (e.g., not rounding out). Given that the overall idea is to let the trainee do as much as possible within their level of skill the instructor should never wait until the last moment - which can rapidly become 'too late' - before responding to a situation that is going awry. This is particularly true of any manoeuvres close to the ground. Instructors must take over IMMEDIATELY, even if they are very experienced, if the student makes a potentially dangerous error.

Date	16-Oct-2020	Region	WAGA	SOAR Report Nbr		S-1739	
Level 1	Operational	Level 2	Communications	Level 3		Other Communications Issues	
A/C Model 1		Ventus-2cM		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	75

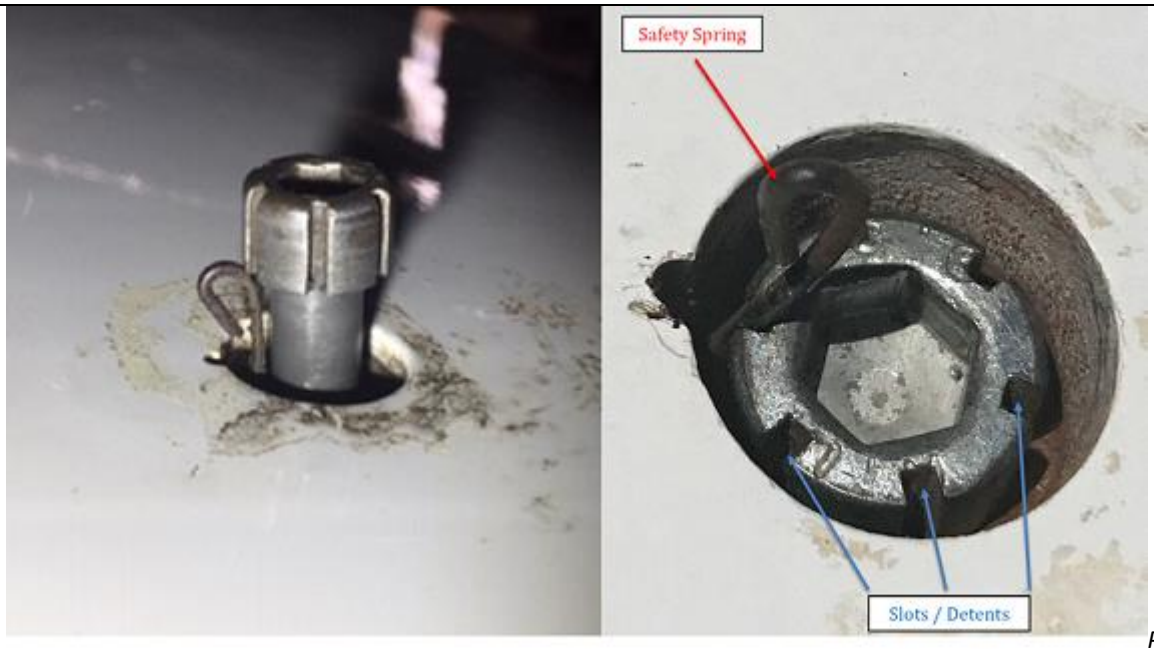
What Happened
A glider pilot from a neighbouring club flew in the vicinity of a busy gliding site without making the recommended CTAF broadcasts. The pilot was heard transmitting on one of the gliding frequencies.
Analysis
The pilot's CFI was contacted and discussed the matter with the pilot involved. The pilot reported that they had omitted to select the CTAF frequency in error, but that he had been observing the glider traffic. The pilot's CFI confirmed the pilot understood the correct radio procedures, and the pilot committed to being more vigilant in future.
Safety Advice
GFA strongly recommends the use of 'standard' traffic circuit and radio broadcast procedures by radio-equipped aircraft at all non-controlled aerodromes. These procedures are described in the Aeronautical Information Publication (AIP) and Visual Flight Rules Guide (VFRG), and are discussed in detail in Section 5 (Standard traffic circuit procedures) and Section 7 (Radio broadcasts) in Civil Aviation Advisory Publication (CAAP) 166-1 – 'Operations in the Vicinity of Non-Controlled Aerodromes'. In particular, broadcasts are to be made whenever an aircraft is ***"In the vicinity"*** of the non-controlled aerodrome; that is, if it is a horizontal distance of 10 NM from the aerodrome (reference point); and at a height above the aerodrome (reference point) that could result in conflict with operations at the aerodrome. A specific height has not been cited for the obvious reason that a conflict can occur at various heights; for example, an aircraft on descent to land at an aerodrome will usually be higher at 10NM than at 5NM. Because of this, pilots operating locally should not assume an aircraft traversing the airspace above their non-controlled aerodrome will always be monitoring the CTAF.

Date	18-Oct-2020	Region	GQ		SOAR Report Nbr		S-1738		
Level 1	Operational		Level 2	Airframe		Level 3	Fuselage/Wings/Empennage		
A/C Model 1		ASK 21			A/C Model 2				
Injury	Nil	Damage	Nil	Phase	In-Flight		PIC Age	56	

What Happened
The sortie was a flight review for an Air Experience Instructor in an ASK-21 sailplane, and both crew members were wearing parachutes. During the aerotow launch the reviewing Instructor noticed a knocking noise coming from the rear of the aircraft. The flight crew attributed this to the spin kit fitted to the fin and continued with the launch. Towards the top of the launch the sailplane flew through a thermal and the knocking noise was again heard. The pilot under assessment released from tow and, as the aircraft was handling normally, began to climb in a thermal to gain height so that a full controllability assessment could be undertaken at a height from which a safe egress could be made. The knocking noise occurred a couple more times during the climb, however the aircraft handling and performance was normal. At this point the flight crew were now concerned that the spin kit may have become loose. At approximately 3,000ft AGL the assessing instructor conducted a controllability assessment, and during deflection of the rudder the knocking noise was again heard. This led the assessing instructor to believe the problem was with the rudder, so he commenced a gentle descent, with minimal control inputs, back to the circuit for landing. No further noise was heard during the descent, but upon touch down the flight crew heard a loud bang from the rear of the aircraft.
Analysis
This incident occurred on the third flight of this aircraft on the day. The assessing instructor was the command pilot on the previous two flights, which were training sorties that consisted of normal instructional sequences including stalls and steep turns. No airframe or handling anomalies were noticed on the two prior flights. Following landing, the flight crew inspected the spin kit and rudder but found no obvious defects. However, inspection of the tailplane identified the securing bolt was loose, allowing the leading edge of the tailplane to move freely up and down approximately 8mm (refer Pic 1). The maintenance release was endorsed with a major defect and the aircraft was grounded.

Pic 1 – Ill-fitted tailplane.

The aircraft was subsequently inspected by a GFA authorised inspector, who identified that the tailplane securing bolt had approximately 3 to 3 1/2 turns remaining to become fully secured. It is believed the tailplane was held in place by the gap sealing tape until the adhesive became soft and allowed the elevator to move in the airflow. Inspection of the threaded retaining plate epoxied into the top of the fin showed an accumulation of grit and perhaps some fine metal filings in the old grease. This contamination may have retarded proper tightening of the bolt when using the Allen key rigging tool that has only a short lever arm to stop overtightening. The bolt head was found to be worn around the slots where the retaining spring clip engages to stop it rotating but was otherwise in good condition (refer Pic 2).



Pic 2 – Securing bolt detail.

The glider had been last rigged several weeks prior to the flight following its annual maintenance inspection. Several Daily Inspections found the tailplane to be secure, with no signs of additional or abnormal movement. Following investigation by the Airworthiness Inspector, it was concluded that the bolt had not been fully tightened after the glider had been rigged following its return from maintenance and the glider had flown in this configuration on several occasions. The tape between the top of the fin and tailplane was effectively holding the tailplane down to the top of the fin, temporarily eliminating any movement until the tape adhesive failed over time.

Findings

- The tailplane rigging was carried out in accordance with accepted and approved methods and by experienced members.
- The aircraft had undergone an annual 'Form 2' inspection within the previous two months, and multiple Daily Inspections were recorded since the aircraft was returned to service.
- The aircraft had a spring-loaded safety pin, which was described as 'engaged, but loose in the slot'.
- The mounting bolt and spring-loaded safety pin condition was described as 'gritty' and covered in foreign matter.
- The tailplane access hole had been taped after rigging.

Causal Factors

- The mounting bolt was not properly secured after rigging, and the tailplane was held in place by the gap seal tape until it lost adhesion.
- Security of the mounting bolt may been prevented by debris in the retaining plate.
- There was an amount of material in the slots / detents in the head of the mounting bolt that could have prevented the safety pin from engaging properly.
- Tape placed over the access hole may have applied pressure on the safety pin to prevent it from engaging fully.
- The safety pin had become deformed through abuse or misapplication and is no longer applying sufficient force to prevent rotation of the mounting bolt.

Safety Advice

This incident highlights the importance of Inspectors remaining vigilant and thorough when conducting inspections, and serves as a reminder that mounting bolts can become loose under certain conditions. Daily

inspectors and pilots performing a pre-flight inspection must use suitable inspection methods and techniques to satisfy themselves that the tailplane is attached in accordance with the aircraft flight manual. When rigging gliders, it is important that all components are clean before being fitted, and that mounting bolts must be secured and appropriately locked with a safety pin (where fitted). For further guidance, see GFA Airworthiness Alert 2020-4 – 'ASK 21 Tailplane Mounting Bolt and Safety Pin'.

Date	25-Oct-2020	Region	SAGA	SOAR Report Nbr		S-1761	
Level 1	Operational	Level 2	Ground Operations	Level 3		Ground handling	
A/C Model 1	DG-500 Elan Orion			A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Ground Ops	PIC Age	20
The glider was being towed along the taxiway with the wing dolly passing through a paddock in crop. The wing dolly became over stressed and fell apart. The report did not mention if the glider was damaged.							

Date	31-Oct-2020	Region	SAGA	SOAR Report Nbr		S-1743	
Level 1	Consequential Events	Level 2	Low Circuit	Level 3		Low Circuit	
A/C Model 1	Twin Astir			A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	65

What Happened

The Duty Instructor was flying with a student on a local soaring flight when she noticed a Twin Astir glider flying downwind close to the runway. The Duty Instructor noticed the Twin Astir and its shadow to be close, and assessed its pilot was flying a low circuit. The Twin Astir was observed to conduct a 180 degree turn from the downwind leg onto the final approach and then land about half-way down the runway.

Analysis

The Twin Astir was being flown on a mutual flight by a recently solo pilot and an Air Experience Instructor. The Instructor was aware that the other pilot had flown the glider previously but was unaware the other pilot had not flown it solo. The Instructor was also unaware that the other pilot did not hold a 'B' Certificate and was ineligible to fly on a mutual flight. Against this background, the instructor allowed the recently solo pilot to fly as pilot in command. The glider was launched by winch, but the command pilot was too slow to rotate into the full climb and the glider only attained circuit height. The command pilot then turned onto the downwind leg but flew too close to the runway. The instructor thought the command pilot would move further out as they progressed downwind, but the glider then flew through heavy sink. The command pilot then conducted a 180 degree turn from the downwind leg onto the final approach and allowed the speed to build-up to 70 knots. The glider was now high and fast and descending rapidly with the airbrakes deployed. The command pilot was slow in reducing the speed and the glider touched down at over 60 knots with a half airbrake setting. The glider bounced into the air and the command pilot applied full airbrakes. The Instructor took control, closed the airbrakes and made a safe landing half-way down the runway. The Instructor had a debriefing with the Duty Instructor and was counselled on allowing an early solo pilot on the controls below 800ft.

Safety Advice

Mutual Flying involves two pilots who are qualified on the aircraft type, flying together for mutual practice. Only one pilot can log the flight time as pilot in command (MOSP 2, Section 8.1.5). To fly mutual, both pilots must hold a minimum of a 'B' Certificate and, except where both pilots hold a GPC, each mutual flight is to be authorised by and carried out under the direct supervision of a Level 2 or higher rated Instructor who will nominate the command pilot for the flight (MOSP 2, Section 10.2.2.2). Dual instruction may only be given by a person holding a valid GFA instructor rating and the type of instruction given must be within the limits of the rating held (MOSP 2, Section 8.1.6). In any instructional flight, the instructor is the pilot in command and responsible for the operation and safety of the aircraft during flight time (MOSP 2, Section 8.1.2). An Air Experience Instructor must carry out all launches, circuits, approaches and landings, and is not authorised to allow the other person on the controls below 800ft AGL (MOSP2, Section 11.1.2). This incident highlights the

importance of instructors properly informing themselves of the qualifications and experience of persons under their charge, and to not exceed the limitations of their authority.

Date	1-Nov-2020	Region	VSA	SOAR Report Nbr		S-1783	
Level 1	Operational	Level 2	Miscellaneous	Level 3		Rope/Rings Airframe Strike	
A/C Model 1		Grob G 103c Twin III SL		A/C Model 2		Piper PA-25-150	
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	36

What Happened

As the tow plane was taking-up the slack in the rope for an aerotow launch, the glider pilot observed the tow rope pass over the starboard wing. The glider pilot released the rope, but the rings caught in the aileron gap and the glider was pulled to a position 60-70 degrees off the runway heading before the tug was brought to a stop. An airworthiness inspection determined that the damage to the glider to be superficial and the glider returned to service.

Analysis

The incident occurred on the first flight of the day. The tow pilot taxied to the launch point on RWY 10 and parked adjacent to the runway leaving the tow rope across the runway. Subsequently, the glider was towed into the launch position a short distance downwind of the tug and ahead of the rope that was concealed in the grass. The glider pilot reported that during their pre-boarding checks she noticed the tow rope laterally about 2-3 meters and slightly behind the starboard wingtip. The pilot suspects she either considered the rope to be in an acceptable position or that there was more rope hidden in the grass that was not visible. The launch commenced shortly thereafter, and the tow pilot taxied to take up the slack. At this stage it was not apparent to either the glider pilot or ground crew that the tow rope was not properly positioned. As the slack was taken up the tow rope was drawn over the starboard wing which has downward curving wingtips. The wingman, who was holding the port wing, noticed the tow rope lying over the starboard wing and alerted the glider pilot. The glider pilot released the tow and radioed the tow pilot to stop. The tow pilot began to take-off and the glider pilot made another radio call to stop the launch. The tow pilot reported that he misinterpreted the first radio call as a signal to take off, as he had hesitated for some time while attempting to get a clear view of the wingman. The tow pilot applied power but a few seconds later he heard the glider pilot radio a second time to stop and brought the tow plane to a halt. However, before the tow plane could be stopped the tow rings caught in the starboard aileron slot and the glider was rotated about 60-70 degrees from runway heading.

Action Taken

The CFI interviewed the glider pilot, tow pilot and wingman on site immediately following the incident. The glider was inspected by the Technical Officer who determined the damage determined to be superficial and cleared the glider for flight. The club has since carried out the following actions to avoid a recurrence of this type of incident.

1. All pilots were reminded of the need to ensure that the tow rope is properly laid out forward of the glider before connecting the launch.
2. Tow pilots were reminded that radio calls should be regarded as unreliable and launches only commence based on standard ground crew signals.
3. All members were reminded of the importance of correct launch procedures and signals and particularly the procedure for stopping a launch.
4. Additional emphasis has been placed on the training of new members in ground crew duties.
5. A forward signaller is now employed for normal operations.

Date	1-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1746

Level 1	Operational	Level 2	Airframe	Level 3	Landing gear/Indication
A/C Model 1	PA25-250 Pawnee	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	71

What Happened

On landing from the first glider launch of the day, the tow pilot had difficulty maintaining directional control as the tow plane slowed and noticed the left wing was lower than normal. The tow plane then slewed off the runway but remained within the flight strip. The tow pilot decided to stop there to identify the problem.

Analysis

Two weeks prior the tow plane had been flown back to the gliding club following its annual inspection at a maintenance facility. The tow plane had since conducted four glider launches in the period since. When control difficulty was experienced, the tow pilot suspected damage to the left wheel, and so elected not to taxi the tow plane clear of the runway to prevent further damage. Inspection revealed the left tyre had deflated. A number of crew persons attended, and the aircraft was jacked up and the tube replaced. It was identified that the tube had been pinched during the maintenance inspection. The tyre was still serviceable.

Safety advice

Correct mounting and demounting of aircraft tyres and tubes are essential for maximum safety and economy. It is a specialised job that should be done only by fully trained persons with the proper tools and with careful attention to specific instructions and established procedures. The outside of the tube and inner part of the tire should be coated in talcum powder before installing the tube. The powder keeps the tube from sticking to the sides of the tire and helps prevent chafing. The tube should have a balance mark on it. This needs to be aligned with the balance mark on the tire, which is generally a red dot. In the absence of a balance mark on the tube, align the valve stem with the red dot. Once the tube is installed in the tyre, the wheel halves can be assembled together. Slightly inflating the tube a tiny amount helps to ensure it won't be pinched between the wheel halves.

Date	2-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1756
Level 1	Operational	Level 2	Ground Operations	Level 3	Ground handling
A/C Model 1	LS 7-WL	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Ground Ops	PIC Age	19

What Happened

The pilot was taking part in a coaching event and was flying a club aircraft. Upon landing from a 5-hour flight, the pilot prepared the glider to tow back to the tie down area by fitting the towing dollies. The pilot then attaching the towing bar to his towing vehicle but forgot to close the boot of the car. The pilot then got into his car and began to tow the glider back to the tie-down area. Shortly after moving forward the driver heard a crunching noise and immediately stopped the car to inspect the damage. The driver identified that as the glider began to straighten from the angle upon which it was initially attached, the port side elevator trailing edge contacted the edge of the boot door and had suffered damage. The driver disconnected the glider from the vehicle to close the boot, then towed the glider to a maintenance hangar. The damage to the elevator was minor but required repair before further flight. A repair was conducted two days later.

Analysis

The reason for the pilot's failure to close the boot of the car was not determined but fatigue and inattention were likely factors. What the investigation did find was that:

- the damage to the elevator was assessed as needing repair before further flight but the pilot failed to record this as a major defect in the glider's Maintenance Release;
- the inspector who conducted the repair did not provide a written entry for recording in the aircraft logbook; and
- the pilot did not inform the club that the aircraft had been damaged and then repaired.**Safety Advice**

Ground handling accidents are quite common in gliding and most occur due to inattention to the task. When using tow-out gear, pilots must ensure it is correctly fitted and that rudder and elevator clearance from the vehicle is assured throughout the tow. When a pilot finds or suspects a fault with a sailplane which may be critical to flight safety or which they are unsure of, an entry should be made in the Major Defects section of Part 2 of the Maintenance Release (refer MOSP 3, paragraph 19.5.4). Inspectors conducting repairs to an aircraft, whether minor or major, must record details of the repair in a logbook certification and refer to a more detailed report if required (refer MOSP 3, paragraph 10.15.4). A Major Defect can only be cleared by a GFA Inspector who has the authority to clear the defect entry in the Maintenance Release (refer MOSP 3, paragraph 19.5.5).

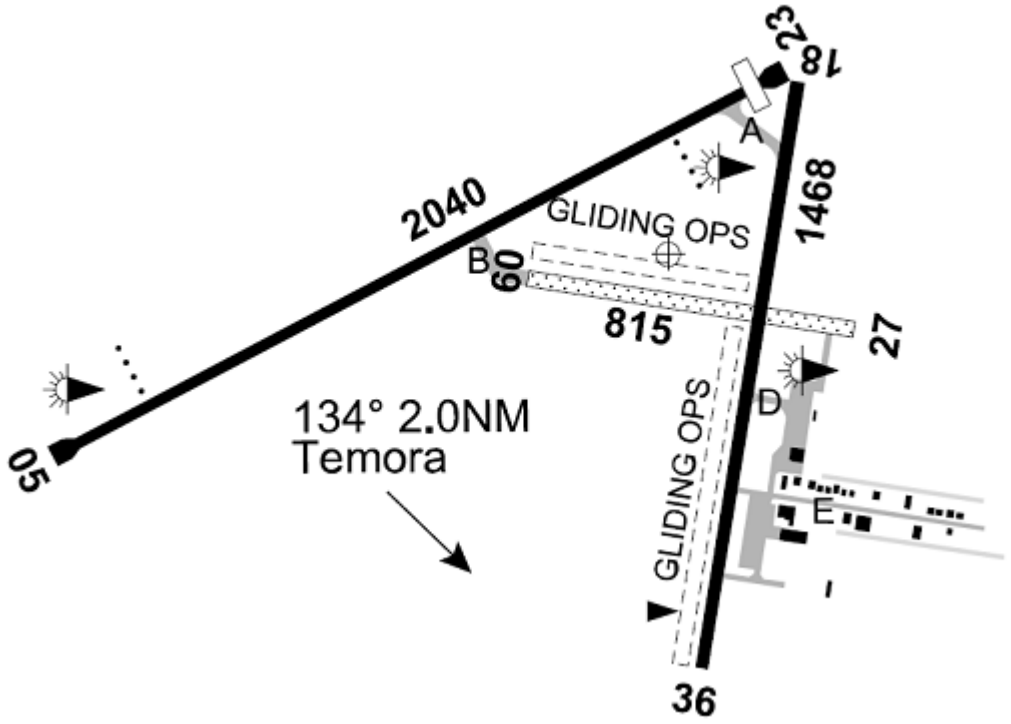
Date	2-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1752		
Level 1	Operational	Level 2	Runway Events	Level 3	Runway excursion		
A/C Model 1	PIK-20	A/C Model 2					
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	67

What Happened

The pilot had returned from a cross-country flight and joined mid-field crosswind low and proceeded to fly a cramped circuit onto RWY18. After turning downwind, the glider lost little height and the pilot made a tight final turn onto RWY18 Grass. The approach and landing appeared normal with the classic pronounced nose down attitude of this model PIK20. Towards the end of the ground roll the left wing dropped and caught in long grass/weed and the glider conducted a slow 180-degree ground loop. The glider was not damaged.

Analysis

Recent wet Spring weather caused rapid growth of vegetation on the glider runway, which had only been mowed 2 weeks prior to this event. Then pilot reported experiencing lift during the downwind leg and that he turned onto final approach too high. The pilot deployed full (90 degrees) flaps during the approach but after rounding out he lost count of the flap wheel revolutions and rolled out with positive flap. As speed reduced, aileron authority was lost, and the left wing contacted tall weed that initiated a partial ground loop. The pilot commented he had been caught out approaching low from the north-north-west and hadn't considered other runway options because he didn't want to "upset the locals". His final use of the glider RWY 18 in preference to the main RWY 18 (sealed surface from which he departed) was made because he was too cramped in the circuit to line-up with the sealed surface. The pilot had not considered the length of the grass/weeds on the glider runway despite being involved in a runway change earlier in the day for this very reason. Other options were a right-hand turn from the inbound leg onto RWY 23, or a straight-in approach from right side of RWY 18. The CFI noted that the pilot has been disorientated previously with available runways and perceives an airfield etiquette focussed on gliders using only certain runways.



Safety Advice

It is recognised that landing incidents occur under a wide range of circumstances and many happen because of pressure brought on by other in-flight situations that result in a decline in pilot performance. As the landing is a critical flight phase requiring high performance, it is understandable that pilots under unusual pressure will sometimes not perform well at this time. Pilots should always be aware that high workload situations during the landing phase often lead to poorly executed landings, sometimes with serious outcomes. Well-developed fundamentally sound landing procedures and techniques are a good safeguard against these outcomes. For more detailed advice, refer to Operational Safety Bulletin (OSB) 01/14 – 'Circuit and Landing Advice'.

Date	5-Nov-2020	Region	WAGA	SOAR Report Nbr	S-1757		
Level 1	Airspace	Level 2	Aircraft Separation	Level 3	Near collision		
A/C Model 1	Piper PA-25 260		A/C Model 2	DG-1000S			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	64

What Happened

During an aerotow launch the tow pilot, and the pilot of the glider under tow, had to take action to avoid collision with a two-seat glider that was converging from the left. The two-seat glider passed about 50 metres away from the towing combination.

Analysis

The incident occurred during the 'Carter Cup' regatta involving 20 gliders being launched by two tow planes. Flight logs record the two-seat glider launched at 12:18 and released from tow at 12:23 at 2925ft into a weak thermal. After a few turns the pilot flying headed off in the direction of the airfield, and towards a tug towing the fully ballasted single-seat glider that had taken-off at 12:24. At about 12:26 the tow pilot sights the two-seat glider converging from the left at the same height and about 600 metres away. The tow pilot reported that "…it was apparent to me that on current trajectories we were on a collision course. I made a

radio call to alert the pilots of the (two-seat glider), requesting them to confirm the tug had been sighted. I received no response to my call and the glider did not alter course." The tow pilot turned away to the left by 60 degrees to provide clearance, at which point the pilot flying the two-seat glider made a 30-degree heading change, also to the left. It is estimated that the tow plane passed within 50 metres of the two-seat glider at the same height (Refer Fig. 1). The Crew of the two-seat glider later advised they had heard the radio call from the tow pilot but thought the message was from their tow pilot, whose tug they had released from some three minutes earlier. They stated that they did not sight the towing combination until the tug commenced its turn to the left.

Fig. 1. Flight paths of glider under tow (Red) and two-seat glider (Cyan). The tow plane is the length of the tow rope (55 metres) ahead of the glider under tow. The tug and two-seat glider were at the same height and came within 50 meters laterally of each other.

The CFI noted that the flight crew in the two-seat glider did not conduct adequate lookout scans when operating in the congested competition airspace, and counselled both about improving their vigilance.

Safety Advice

In this case CAR 162 requires that when two aircraft are on converging headings at approximately the same height, the aircraft that has the other on its right (i.e., the two-seat glider) must give way. However, this rule relies on the principle of see-and-avoid. By itself, the concept of 'see-and-avoid' is far from reliable. It is important that pilots apply the principles of 'see-and-avoid' in conjunction with an active listening watch. Research has shown the effectiveness of a search for other traffic is eight times greater under alerted circumstances than when un-alerted. However, pilots should be mindful that transmission of information by radio does not guarantee receipt and complete understanding of the information. Without understanding and confirmation of the transmitted information, the potential for alerted see-and-avoid is reduced to the less safe situation of un-alerted see-and-avoid. The following publications provide some useful information on the see-and-avoid principles:

- ATSB publication - Limitations of the see-and-avoid principle (1991)
- ATSB publication - Safety in the vicinity of non-towered aerodromes (2010) AR-2008-044(2)

- Civil Aviation Advisory Publication – CAAP 166-01 Operations in the vicinity of non-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 Pilots' responsibility for collision avoidance in the vicinity of non-towered (non-controlled) aerodromes
- Be heard, be seen, be safe - Radio procedures in non-controlled airspace
- GFA Operational Safety Bulletin (OSB) 02/12 - Lookout for Glider Pilots
- GFA Operational Safety Bulletin (OSB) 02/14 - See and Avoid for Glider Pilots

Date	14-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1745		
Level 1	Technical	Level 2	Powerplant/Propulsion	Level 3	Other Powerplant/Propulsion Issues		
A/C Model 1	SZD-50-3 "Puchacz"			A/C Model 2	Piper PA-25-235		
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	69

What Happened

During the aerotow launch the tow plane accelerated slower than normal and once airborne the rate of climb was low. At about 200' AGL the glider pilots noticed black smoke from the tow plane's exhaust, and at 250ft AGL the tow pilot signalled for the glider pilots to release. The glider pilots immediately released from tow and conducted and downwind landing on the reciprocal runway. The tow plane safely landed shortly afterwards.

Analysis

The tow pilot identified that he had conducted the launch with carburettor heat turned on. The Club's Tugmaster spoke with the tow pilot who confirmed that the problem was his error in not returning the carburettor heat to the off position after the previous landing. There was no particular reason for missing the carby heat check as he wasn't stressed or under any time pressure. The tow pilot said that the acceleration was slower than normal and once airborne it was apparent that the climb rate was well below normal. It took a few seconds for the tow pilot to process the situation by which time it was too late to land ahead, whereupon he focussed on flying the aircraft and achieving a safe height to release the glider. The command pilot in the glider also confirmed that things didn't feel right during the early stage of the launch but persisted with the launch rather than releasing.

Safety Advice

When the tow plane engine is not providing sufficient power, the tow pilot should treat it as a partial engine failure and release the glider while maintaining safe speed near the ground and/or directional control. If time permits, the tow pilot should consider the length of strip available and/or the options for the glider pilot, depending on height and position. The pilot should land the tow plane in the safest area available. If there is time, the tow pilot should go through normal engine-failure drills as documented in the tow plane's AFM/POH. When flying in conditions that appear conducive to the development of carburettor ice, carburettor heat will be applied by the pilot at regular intervals as both a preventative measure against the formation of ice and a method to test whether or not carburettor ice is developing. If a normal drop in RPM or manifold pressure accompanies the application of carburettor heat, it is reasonably certain that ice is not forming in the carburettor. However, the use of carburettor heat will decrease engine performance by up to 15%, so pilots should beware of flying around with it continuously selected as the aircraft will use more fuel than planned for and this practice could potentially decrease the life of the engine due to an inappropriate mixture setting.

Date	16-Nov-2020	Region	GQ	SOAR Report Nbr	S-1753
Level 1	Operational	Level 2	Runway Events	Level 3	Depart/App/Land wrong runway
A/C Model 1	Piper PA-25-235	A/C Model 2	Unidentified		
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	66

What Happened

A private pilot in circuit for RWY 30 reported a glider and tug combination that had just taken-off from RWY 06 was flying against the circuit direction.

Analysis

The glider and tow plane combination was positioned for launch on RWY 06 at the start of the day's operation. The sortie was a positioning flight with the intention of landing on the operational runway (RWY 30). Five aircraft were in the (right-hand) circuit for RWY 30 and the tow pilot made repeated radio calls seeking confirmation it was safe to take-off. After a period of time the pilot of an aircraft on the base leg for RWY 30 advised they would provide space for the glider launch. The towing combination then departed RWY 06 and, as the pilot commenced a left-hand turn at 500ft, he observed an aircraft turning base for RWY30 and another aircraft that had joined downwind for RWY 30. As the left-hand turn resulted in the towing combination flying against the flow of circuit traffic, the tow pilot then flew towards the 'dead side' of the runway to avoid conflict with the circuit traffic. This airfield caters for both general and recreational aviation activities and is very busy. To ensure aircraft do not unreasonably dominate the runways or circuit, the aerodrome operator has implemented local rules require pilots to consider other users and to not occupy the circuit area for longer than necessary, and this includes pilots spacing themselves in circuit to allow aircraft to take-off. Investigation by the gliding club CFI identified that on this day the five training aircraft in circuit had setup a closely spaced loop of take-offs and landings that prevented other aircraft from departing. The aerodrome operator subsequently addressed this issue, and this behaviour is no longer occurring. The CFI also noted that the Club's practice of launching from near the hangars to position the gliders at the operational runway at the beginning of the gliding operation is not permitted when there is traffic in the circuit, and that on this occasion the glider should have been towed to the operational runway by vehicle.

Safety Advice

Towing Patterns

The standard aerodrome traffic circuit pattern is normally made with all turns to the left (CAR 166A). However, CASA has provided GFA tow pilots with exemptions to this requirement and other parts of CAR 166A via Instrument CASA EX86/20 — Aerotowing Operations (Gliding Federation of Australia). Since tow pilots are exempt from the requirement to make all turns in the circuit to the left, the tow pilot in this instance could have turned right on departure to avoid flying into the circuit traffic.

Convenience

Incidents of this nature are not uncommon in gliding, where operations will sometimes commence from a convenient location rather than go through the inconvenience of ground handling the glider to the operational runway. While gliders and tow planes can often cope with taking off out of wind, pilots should use the runway most closely aligned into wind wherever possible. Civil Aviation Regulations (CAR 166A(2)(h)) 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*". 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.

Date	18-Nov-2020	Region	VSA	SOAR Report Nbr	S-1747
Level 1	Operational	Level 2	Aircraft Control	Level 3	Hard landing
A/C Model 1	SZD-50-3 "Puchacz"	A/C Model 2			
Injury	Nil	Damage	Substantial	Phase	Landing	PIC Age	59

What Happened

During a flight review of a solo pilot, the instructor was too late to take control and prevent a heavy landing. The instructor conducted an inspection of the tail for damage and found none. The glider was then re-launched by aerotow, and during the ground roll the pilot under check dropped the right wing and had some difficulty getting the wings level. At about 200ft AGL the flight crew identified they had no left aileron control. The command pilot informed the tow pilot of their difficulties by radio and requested they be towed into position to conduct a right-hand circuit to the operational runway. The landing was completed without further incident and a post-flight inspection revealed nosewheel damage, a cracked front bulkhead with delamination from the skin, and interference with (and possible bending of) the aileron control circuit.

Analysis

The instructor was conducting a check flight of an experienced solo pilot who had not flown for more than 4 months due to the COVID-19 pandemic lockdown. The instructor reported the *"Final approach started high, so large amount of airbrake was used. The flare was too high, and the glider lost speed, causing the tail wheel to hit hard with subsequent hard hit on the nose wheel."* The instructor advised that the pilot under check had performed well up to that point and he did not closely monitor the landing approach. He advised he was looking elsewhere when the glider touched down heavily and was thus unable to influence the outcome. Recognising the landing was quite hard, the instructor conducted a visual inspection of the tail and mainwheel but did not notice any damage. The pilot under check also conducted *"…a pre-flight walk around as usual but paid particular attention to main wheel tyre, tail boom check for signs of wrinkles in the skin, tail wheel and tyre and tailplane as we had struck tail first. I didn't ask advice from the instructor or anyone else"*. Unbeknown to the flight crew, the glider had suffered considerable internal damage to the cockpit floor as a consequence of the nosewheel being pushed upwards and flexing of the fuselage. The flight crew reboarded the aircraft for a further flight without conducting a pre-boarding check of the controls for function in the correct sense. The instructor did not recognise the pre-boarding checks had not been fully completed because he was away from the glider briefing the tow pilot on the conduct of the next flight, and that when he returned to the glider the other pilot was already seated in the cockpit. Prior to launch the pilot under check found the controls to be responding normally when conducting pre-take-off check list. The instructor advised he observed the pilot under check complete the pre-take-off checks, including moving the controls through their full travel. He said *"The stick touches both legs and I don't recall it looking any different to the normal movement. I did not move the controls myself and I had seen the check completed correctly."* During the subsequent launch, the starboard wing contacted the ground and the pilot under check had difficulty raising it. This was likely due to the aileron control rod being impeded by a delaminated bulkhead. The pilot flying did not recognise he did not have full aileron authority until the aircraft had reached a height of about 800ft AGL, at which point he communicated this to the instructor who assumed control. The tow pilot stated "The launch proceeded normally until approximately 800 ft AGL. At this point I received a PAN call from (the command pilot in the glider) stating that there was a problem with the glider's left aileron and requesting a right turn in order to position the glider for a Right-Hand Circuit to RWY 27. I acknowledged the call, made the turn to the right and towed the glider to a point approximately mid-field downwind. The glider released and completed the circuit with a successful landing on RWY 27." The instructor conducted a safe landing and then removed the glider from the runway for a full inspection. An external inspection identified displacement of the removable tyre value cover on the nosewheel fairing (refer Photo 1) and scuff marks on the nosewheel fairing and a split in the lower fuselage aft of the nosewheel fairing (refer Photo 2).

Photo 1 - Displacement of the removable tyre valve cover.

Photo 2 - Split behind the nosewheel fairing (red arrow) and scuff marks where the fairing hit the ground (green arrow).

The internal inspection commenced with the removal of the front seat cushion, which revealed the cover between the front seat pan and the bulkhead had been pulled from its attachment screws and become distorted (refer Photo 3).

Photo 3 – Seat pan cover displaced and distorted.

Removal of the seat pan and cover revealed the forward bulkhead abutting the rear of the nosewheel fairing had broken away from the fuselage, most likely consequent of the nosewheel being forcibly pushed upwards. This displacement was sufficient to cause the nut securing the aileron pushrod to the bellcrank to foul on the bulkhead instead of passing through the purpose-built cavity (refer Photo 4).

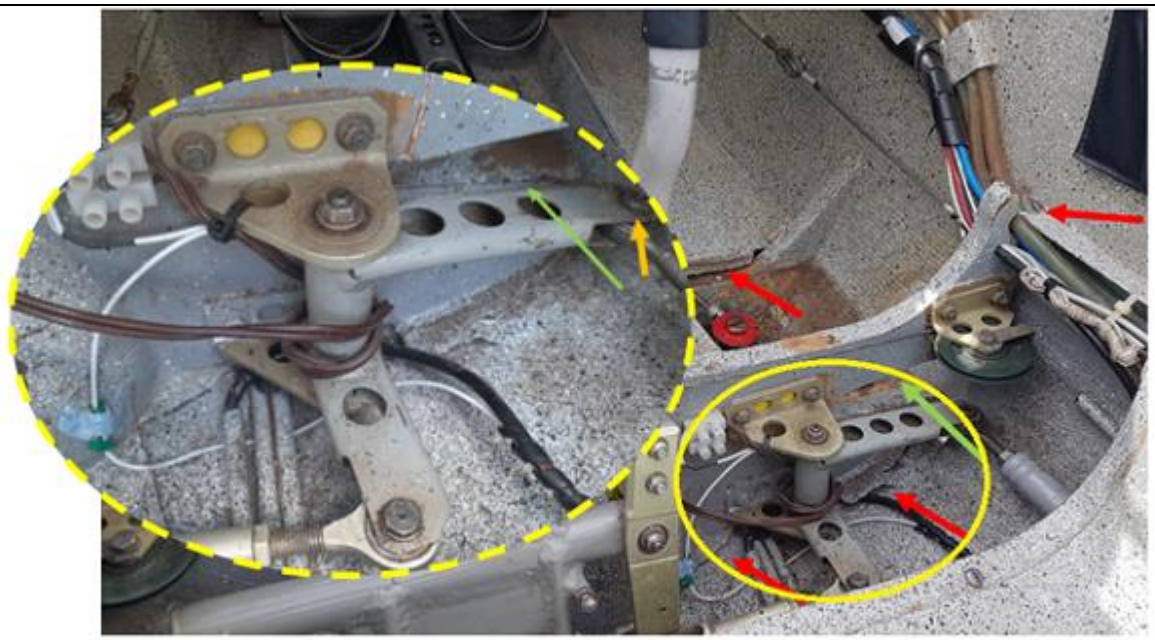


Photo 4 - The nut on the bolt (orange arrow) contacted with the bulkhead preventing movement of the bell crack through the cavity (green arrow).

Human Factors

When conducting routine tasks, such as when flying with an experienced pilot on a check flight, an instructor can become very comfortable and go on “auto-pilot." All too often the instructor will not realise how complacent they have become until they have a near miss or close call. Complacency, plus experience with numerous past successes, might easily combine to cause the instructor to become distracted or late to intervene in a rapidly deteriorating situation close to the ground. In the case of a check flight, instructors are susceptible to the ‘halo effect’, where positive impressions made from one characteristic (e.g., flies well and seems to be on the ball) are assumed to extend to other areas of competence. An experienced instructor may make a high assessment of their ability to read students and detect limits in their competence when that student may still be subject to incorrect responses or training gaps. For these reasons, it is particularly important for instructors to consider their own susceptibility to complacency, and to consider before flight the thresholds of intervention that should be applied during training and checking sequences. For further information, refer to Operational Safety Bulletin (OSB) 01/19 – ‘Avoiding Approach & Landing Accidents During Training’ (https://tinyurl.com/53k2kbw8).

Safety Advice

This incident highlights the importance of always having an authorised inspector familiar with the loads that the sailplane is likely to have been subjected to during a heavy landing, conduct a thorough inspection of all the likely damage points. For specific guidance on heavy landing inspections, refer to GFA Basic Sailplane Engineering, Chapter 25 (https://tinyurl.com/yytzwo3d). Following this incident, the GFA Operations Panel issued Operational Safety Bulletin 01/20 – ‘Inspection of a Sailplane After Abnormal Flight Loads or Hard Landing’ (https://tinyurl.com/5caywtab)

Date	19-Nov-2020	Region	WAGA		SOAR Report Nbr		S-1750
Level 1	Technical	Level 2	Powerplant/Propulsion		Level 3		Other Powerplant/Propulsion Issues
A/C Model 1	Stemme S10-VT			A/C Model 2			

Injury	Nil	Damage	Substantial	Phase	In-Flight	PIC Age	55

What Happened

During a ferry flight from South Australia to Western Australia and while over the Nullarbor, the engine began to run roughly. The vibration caused by the rough-running engine dislodged the nose probe, which hit the propeller. The probe smashed one blade of the propeller, chipped the other blade, and made a small hole in the wing. Fortunately, the glider was over Loongana WA airstrip, where a safe landing was made.

Analysis

The glider was being ferried from South Australia to West Australia by its new owner and another pilot experienced on type. During the cruise the flight crew reported the engine was running slightly rough with some power loss, but that the vibration was more of an unusual feel. They attributed the rough-running to a fuel-related problem (running on AVGAS rather than MOGAS) and were not overly concerned. However, the vibration from the rough-running engine was sufficient to cause the pitot probe on the cowling forward of the propellor to dislodge and strike the propellor. The propeller suffered catastrophic failure, and the flight crew elected to land at a nearby aerodrome. As the command pilot stated: *"Extremely luckily, we were over Loongana as there are hundreds of kilometres of large rocks, and a safe outlanding would have been unlikely. Unfortunately, it was too early for thermals and there was a 30kn wind"*. Investigation identified that broken and kinked air pressure balance tubes on the Rotax 914 engine carburettors had led to the engine running rough – probably causing oscillations of the carburettor balance. The glider was repaired and continued its journey without further incident.

Date	20-Nov-2020	Region	WAGA	SOAR Report Nbr	S-1751
Level 1	Operational	Level 2	Airframe	Level 3	Landing gear/Indication
A/C Model 1	LS 8-18	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Launch	PIC Age	78

What Happened

During an aerotow launch on RWY 16 at Beverley aerodrome WA, the glider's mainwheel struck the sharp edge of the short bitumen section. This jolted the undercarriage lever from its detent and resulted in the mainwheel retracting. The pilot released from tow and the glider slid to a halt on the bitumen. The glider

suffered abrasion of the gelcoat and fibreglass on the underside of the fuselage, forward of the undercarriage doors.

Analysis

Investigation revealed that this incident occurred despite the undercarriage overcentre mechanism being within specification, and the replacement 14 months earlier of the 3 Large rubber torsion elements and 2 fork rubber bearing blocks. Uncommanded retraction of LS type glider undercarriages is not uncommon and usually occur when the glider travels over rough ground or experiences a sudden jolt as in the case of this incident. It is likely the sudden jolt caused the mechanism to loosen and allow the undercarriage lever to dislodge. The aircraft owner fabricated a locking mechanism to prevent the undercarriage lever coming out of the detent and subsequent trials have shown it to be effective and safe (refer photos).

Before

After

Date	21-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1755
Level 1	Operational	Level 2	Airframe	Level 3	Doors/Canopies
A/C Model 1	SZD-48-1 Jantar Std 2		A/C Model 2		
Injury	Nil	Damage	Minor	Phase	Launch	PIC Age	80

During aerotow launch the glider climbed through sharp and relatively severe turbulence. At about 2000ft AGL the pilot released from tow, at which point the glider's canopy departed, missing the airframe entirely. The pilot observed the canopy tumbling towards the ground and then joined circuit and landed without further incident. The pilot reported the glider was being flown for the first time with the seat back one notch further forward to allow reach of a newly installed instrument (LX100). When the canopy was put onto the glider the pilot found his head was touching the canopy. The pilot readjusted the seating to move it down and forward to allow adequate clearance. The pre take-off checks were then resumed and take-off initiated. The pilot believes he locked the canopy when it was placed on the glider and thought it curious that the canopy stayed in place during the turbulence in the early part of the launch. The pilot suspects that either the locking mechanism was disturbed when he adjusted the seating position, or it may have gradually unlocked in the turbulence. The pilot stated that he did not recommence his pre take-off check after it was interrupted, so he could not state with certainty that the canopy was secured prior to launch. In hindsight, the pilot suspects his past incident free experience had led him to become complacent regarding his 'checks' when flying solo, and was perhaps combined with reduced currency due the COVID-19 pandemic.

Date	21-Nov-2020	Region	GQ	SOAR Report Nbr	S-1749
Level 1	Operational	Level 2	Airframe	Level 3	Landing gear/Indication
A/C Model 1	Stemme S10-VT		A/C Model 2		

Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	69

What Happened

The pilot was undertaking a flight from Grafton to Waikerie to deliver the glider to a new purchaser. Approaching the South Australian border, the pilot decided to make an engine-off precautionary landing at Renmark due to deteriorating weather. A successful landing was made but while the aircraft was being turned at the end of the landing run to exit the runway the pilot heard a loud crack coincident with the aircraft dropping onto its starboard wing and coming to rest.

Analysis

Upon exiting the aircraft, the pilot observed the right-hand undercarriage strut had snapped where it connects to the airframe, resulting in wheel collapsing and causing minor damage to the undercarriage extension mechanism. The wing was found to be undamaged. Investigation found the aluminium undercarriage overcentre linkage had fractured and the extension leg was bent. Examination of the linkage revealed stress corrosion cracking, i.e. the growth of crack formation in a corrosive environment that can lead to unexpected and sudden failure of normally ductile metal alloys subjected to a tensile stress. The damage was indicative of a hard crosswind landing some time previously. The damaged parts were replaced with borrowed parts and checked as operational. Later investigation of both trailing arms showed signs of bending and small cracks, and they were both replaced with new factory parts.

Safety Advice

The investigating inspector recommends the undercarriage mechanism be dismantled and inspected following a hard landing or ground loop, as this type of damage is difficult to detect otherwise.

Date	21-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1754
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	JS1 B	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	80

The pilot was flying "hors concourse" at the NSW State competition. On the last day of competition an assigned area task had been set with a 15km finish circle around the home airfield. After rounding the final turnpoint the pilot realised he would need to lose height in order to land off a straight-in approach, so flew the latter part of the approach at 80 knots with the airbrakes extended. On nearing the airfield, the pilot made his flap and rim adjustments but forgot to lower the undercarriage. The glider landed on the grass runway with the wheel retracted. The glider suffered only minor abrasions to the lower fuselage. This is not an uncommon incident at competitions where straight-in approaches are encouraged to minimise circuit congestion and potential conflicts. Under normal flying operations a pilot will conduct at least three legs of a circuit and will conduct a pre-landing check during the downwind leg. However, a straight-in approach off a racing finish is a departure from normal operating procedures that requires the pilot to amend their normal routine, especially in the conduct of checklists. It is also a time of high workload that can cause a pilot to become overloaded and goal fixated. Concentrating on only one thing while flying, such as how the approach is to be conducted, can be dangerous, leading to loss of situational awareness and control. It is for these reasons that pilots conducting straight-in approaches at competitions must plan for the landing well in advance and ensure that once the finish line has been crossed that they make the transition to landing pilot and properly configure the aircraft while maintaining situational awareness.

Date	22-Nov-2020	Region	WAGA	SOAR Report Nbr	S-1758
Level 1	Operational	Level 2	Ground Operations	Level 3	Ground handling
A/C Model 1	ASK 21	A/C Model 2			
Injury	Nil	Damage	Substantial	Phase	Ground Ops	PIC Age	61

The glider's elevator struck the back of the vehicle towing it to the flight line when the towbar buckled after the wing dolly had bounced over a runway light. The towbar may have buckled at a fatigue crack or due to stresses applied when the wingtip bounced over the light. The elevator was substantially damaged.

Date	25-Nov-2020	Region	NSWGA	SOAR Report Nbr	S-1763
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	LS 6-c	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	64

What Happened

After arriving at the home aerodrome in turbulent conditions during a storm, the pilot forgot to conduct a pre-landing check and did not identify that he had not configured the aircraft for landing. The aircraft touched down with the undercarriage retracted.

Analysis

The pilot was flying in the Narromine Cup and had returned to Narromine aerodrome after a 3½ hour flight where he found localised storms and quickly changing weather conditions. The pilot intended to land and flew towards the circuit area between the rain showers where he experienced significant turbulence and sink. The pilot stated: "I was concerned about the power of the falling rain and the associated wind. My focus was to avoid the rain cells and get the glider into the circuit as I was losing height rapidly." The pilot made a radio call to the ground operations and requested wind direction and preferred runway. Over the

next few minutes, he was advised of 2 different wind directions and 2 different preferred Runways as the wind direction was changing ever few minutes. The pilot elected to land on RWY22 Grass and found he had to modify his circuit due to the strong sink. The pilot made a successful landing in turbulent conditions but touched down with the undercarriage retracted.

Safety Advice

Pilot workload varies, even during routine flights, from low to high and will rise in the event of abnormal weather conditions or aircraft malfunctions. During high workload, pilots are especially vulnerable to error and psychological issues such as task fixation. In this case, abnormal weather conditions, high workload and an element of stress resulted in the pilot omitting to complete his prelanding checks that would have alerted him to the undercarriage being retracted. The risk of error is higher in single-pilot operations where there is no co-pilot to assist with resource management. The task of managing threats and errors is difficult in single-pilot operations but can be improved if pilots conduct a Situation Awareness review after a period of high workload. For more information, refer to the document 'Gliding – Threat and Error Management' available from the GFA Documents Library.

Date	27-Nov-2020	Region	SAGA	SOAR Report Nbr	S-1762				
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	Thermalling	PIC Age	52		

What Happened

During a cross-country flight the pilot infringed active Restricted airspace both laterally and vertically for a short period on six occasions. The infringements were identified by the pilot post-flight following analysis of flight log data.

Analysis

The gliding club aerodrome sits under Class C (LL 12500) airspace and military Restricted airspace that is usually active on weekdays. On the day of the flight the pilot was aware that the Restricted airspace in the vicinity of his operations was active following radio contact with Adelaide Centre (ATC). The Adelaide Visual Navigation Chart was the pilot's primary means of navigation, and he was using an electronic GPS-based Flight Computer for task and navigation purposes. The pilot acknowledged that he was relying primarily on the Flight Computer to provide timely audible alerts to the proximity of airspace as he infrequently monitors his instruments because his focus is mostly directed outside the aircraft. The pilot recalled hearing Airspace warnings from the Flight Computer and taking avoiding action but later recognised that his actions were too late and came after the infringement had occurred. The pilot reported that the selected tolerance for airspace warnings in the flight computer were set too fine to allow sufficient time to take avoiding action. He also noted that the flight computer will issue many and multiple warnings at the confluence of multiple airspace boundaries, and this may have led to warnings being missed or incorrectly interpreted.

Safety Advice

Pilots should always navigate using CASA approved data and charts. Airspace files downloadable from the internet are unapproved and should not be relied upon. Pilots must always know their position relative to the controlled airspace (CTA) steps, and must regularly verify their position and the status of restricted areas in their vicinity. Unless an appropriate clearance has been obtained, the pilot in command of an aircraft operating in Class G airspace, or a VFR aircraft operating in Class E airspace, must not allow the aircraft to enter airspace for which ATC clearance is required or an active restricted area.

1. **Note:** Aircraft within controlled airspace or a restricted area may be operating up to the boundary of the airspace.
2. For aircraft operating in close proximity to the boundary of controlled airspace, separation is not provided between aircraft within controlled airspace and aircraft operating outside controlled airspace. Where there is a risk of an airspace infringement, the pilot in command should consider obtaining a clearance to enter the airspace or altering track to remain well clear.

3. Airspace infringements do not occur at random locations. They frequently occur in the same areas known as 'hot spots'. Please refer to: https://www.airservicesaustralia.com/industry-info/flight-briefing/pilot-and-airside-safety/airspace-infringement/

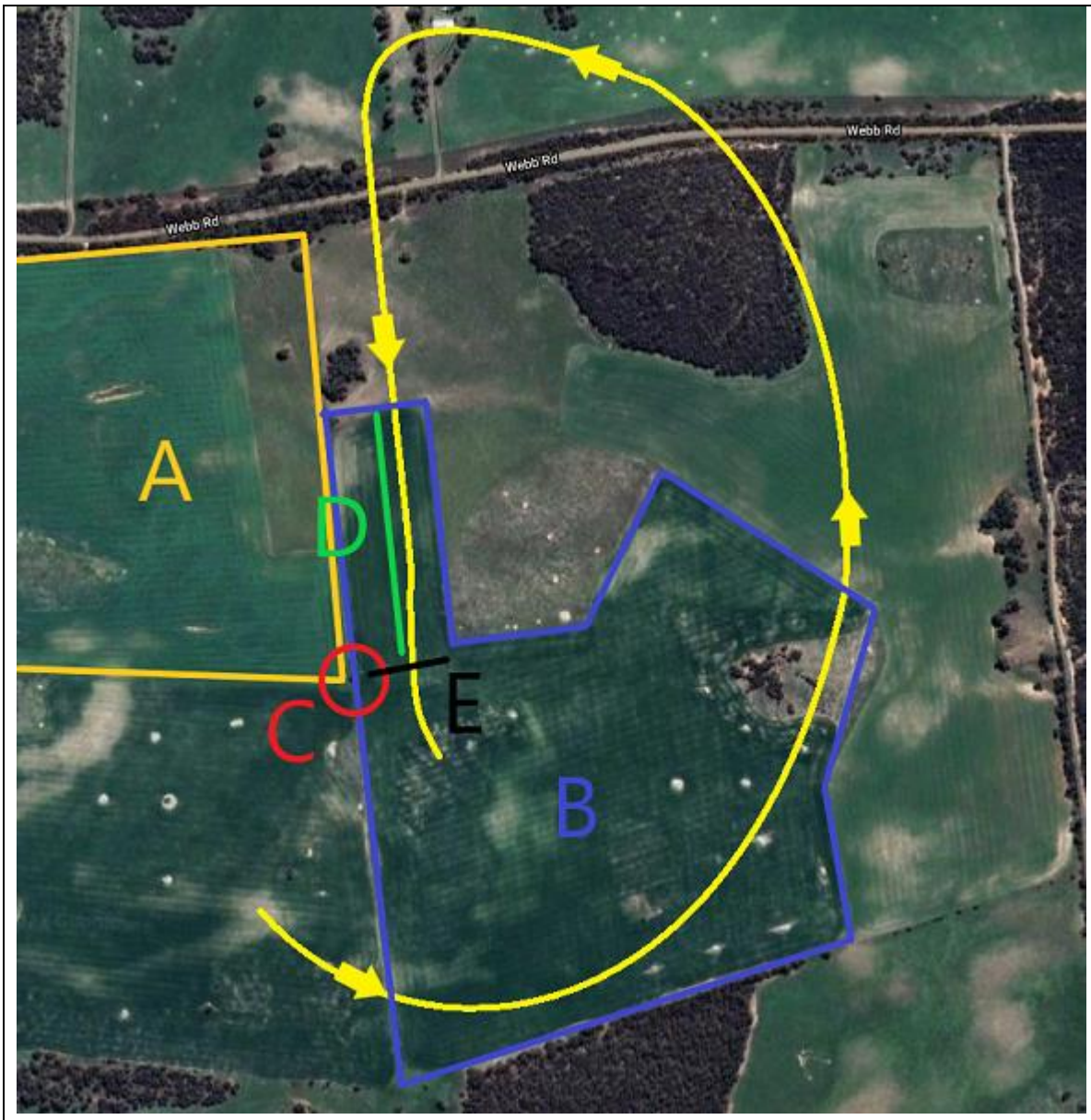
Date	27-Nov-2020	Region	SAGA		SOAR Report Nbr		S-1760		
Level 1	Operational		Level 2	Terrain Collisions		Level 3	Collision with terrain		
A/C Model 1		Astir CS 77			A/C Model 2				
Injury	Nil	Damage	Substantial	Phase	Outlanding		PIC Age	22	

What Happened

Whilst on a cross-country flight, the pilot was required to make an outlanding. On touching down and rolling out, the glider struck rocks in the paddock that caused one of the undercarriage doors to come off, minor damage to the underside of the starboard wing and moderate damage to the underside of the port wing.

Analysis

The pilot had planned a 500km task. On the first leg, the pilot was able to stay high and run a convergence line but in order to reach the first turn-point, he had to divert. After leaving the convergence line, the pilot encountered a large area without finding any suitable lift and continued to push on towards the first turn-point in the hope of contacting, what he believed to be, wave (judging from the cloud he could see). The area over which the pilot had flown was inhospitable, with limited safe landing opportunities. After failing to find any lift under the cloud, the pilot decided to conduct an outlanding in some paddocks that appeared suitable for landing, but then found some lift and tried to "save" the flight. After several minutes attempting the thermal at low altitude (below 1000' AGL) but not gaining height, the pilot elected to commit to landing. The pilot stated that he considered landing in a nearby paddock that was being harvested (marked 'A' on the graphic) but decided against this as he was concerned that there may have been a fence along the contours. He then opted for an adjacent paddock (marked 'B' on the graphic) and commenced his circuit with the view to landing in the north-west corner of the irregularly shaped paddock (marked 'D' on the graphic). During late final the pilot saw what he thought to be a fence line running across the paddock (marked 'E' on the graphic) to a feature that he believed to be a gate or a sheep trough (marked 'C' on the graphic). At this point the pilot closed the airbrakes to land long into the paddock, and after passing above the perceived fence line the pilot observed numerous large rocks in the path of the glider. The pilot decided to close the airbrakes and hold-off with the aim of touching down at minimum speed. The pilot stated: *"I felt the tailwheel or rudder touch the ground, and the aircraft stalled on from just above the ground. I tried to keep the wings level, but the left wing caught on a rock and caused the plane to turn to the left. I tried to push forward to get the tail off the ground, mindful that the nose may hit a rock. The plane came to rest after rotating approximately 90 degrees."* The pilot's CFI noted that the pilot's focus on fences can be traced back to his outlanding training, where emphasis had been placed on spotting SWER lines and fences. When combined with the additional stress of outlanding on a very hot day a long way from home, this is likely to have contributed to the pilot's misidentification of the features in both paddocks.



Comment

An outlanding demands the pilot take certain precautions, such as breaking off the flight early and conducting a proper survey of proposed landing area so as to identify all hazards and ensure a safe landing can be accomplished. However, as this accident shows, it is not always possible to clearly identify fences and rock hazards until too late. For further advice on outlandings, refer to the Outlanding section in Australian Gliding Knowledge.

Date	29-Nov-2020	Region	GQ	SOAR Report Nbr	S-1775		
Level 1	Operational	Level 2	Terrain Collisions	Level 3	Collision with terrain		
A/C Model 1	Twin Astir	A/C Model 2					
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	53
What Happened							

On approach to land, the pilot of a Twin Astir (flying solo) clipped a tree causing minor damage to the port wing. The aircraft maintained the approach line and landed safely.

Analysis

The aerodrome is carved out of scrub, with cropping land abutting the northern boundary of RWY 340. A large bushfire passed through the area 12-months earlier and subsequent rainfall had resulted in regrowth of Banksia Trees. On the day of this accident the winds were from the North and gliders were operating on RWY 340. On the approach end of this runway there are two large trees, and gliders make their approach either over the trees or to the left-hand side. Conditions on the day were difficult, with gusty and turbulent winds. The experienced pilot turned onto the final approach somewhat high and employed a sideslip manoeuvre to increase the descent rate. As the glider approached the runway boundary, a downdraft caused the glider to suddenly drop, and the pilot modified his approach to track to the left of the trees. Shortly afterwards the glider's port wing struck the higher foliage of a regrowing Banksia tree. Fortunately, the wing passed through the foliage and the pilot was able to maintain control and execute a safe landing. The pilot is experienced and acknowledged a certain amount of over confidence.

Safety Action

The Club will inspect the trees on the approach and remove those that infringe the obstacle limitation surface to ensure gliders flying in good weather during the final stages of flight can do so safely.

Date	29-Nov-2020	Region	GQ		SOAR Report Nbr		S-1759		
Level 1	Operational	Level 2	Airframe		Level 3	Landing gear/Indication			
A/C Model 1	AMT-200		A/C Model 2						
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	72		
Shortly after landing the touring motor glider, and during the ground roll, the aircraft veered to the right. The pilot found he had minimal directional control but manged to bring the glider to a stop near the side of the runway. Subsequent investigation reveled the tailwheel had jammed off-centre, probably due to bouncing over the rough runway.									

Date	5-Dec-2020	Region	NSWGA		SOAR Report Nbr		S-1766		
Level 1	Operational	Level 2	Airframe		Level 3	Doors/Canopies			
A/C Model 1	Piper PA-25-235		A/C Model 2		Janus B				
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	72		
During the initial ground roll of the fifth tow of the morning, the right side door of the Pawnee tow plane dropped open. The throttle was closed and aircraft rolled to a stop allowing enough room for the glider to do the same. The door was checked during the Daily Inspection and was found to be in order. The pilot suspects that the latch may have progressively moved, and on the incident flight finally let go. It is not uncommon for a tow pilot to do multiple tows withut having to open and close the aircraft door. The Club's Tugmaster has reinforced with his tow pilots the need ensure the security of the door is checked as part of the pre take-off checks.									

Date	6-Dec-2020	Region	GQ		SOAR Report Nbr		S-1765		
Level 1	Operational	Level 2	Crew and Cabin Safety		Level 3	Other Crew and Cabin Safety Issues			
A/C Model 1	DG-1000S		A/C Model 2						
Injury	Nil	Damage	Nil	Phase	In-Flight	PIC Age	57		
What Happened									

A training flight was being conducted with the student, following pre take off checks, take-off commenced uneventfully. At approximately 200 ft AGL the instructor in the rear seat noticed the right-hand shoulder strap of the front seat harness was hanging loosely over the student's shoulder. The instructor took control of the glider while the student fastened their harness.

Analysis

The instructor and student boarded the glider for the student's second training flight on the day. The instructor listened to the student correctly verbalise his pre- and post- boarding checks in preparation for the aerotow launch. During the launch the instructor noticed the loose shoulder harness and asked the student to check if his harness was secure at which point the student found the harness was not secured at all. The student fastened the harness while the instructor had control of the aircraft.

Findings

The student did not secure the harness on entry to the glider. The student conducted the pre- and post-boarding components of their pre take-off checks but failed to physically confirm that his harness was secured. The harness type in this glider is four point with a central buckle which is turned to release. The instructor confirmed that there was no noticeable distraction while they prepared for the launch. The student had flown in this particular aircraft on approximately ten previous occasions.

Causal factors

The student stated that he must have checked the parachute harness and not his seat harness while conducting the pre take-off check. The instructor cannot visually see that the harness has been secured from the rear seat. The student had only completed 10 training flights at the time of the incident and is relatively inexperienced and still getting familiar with boarding and pre-launch procedures.

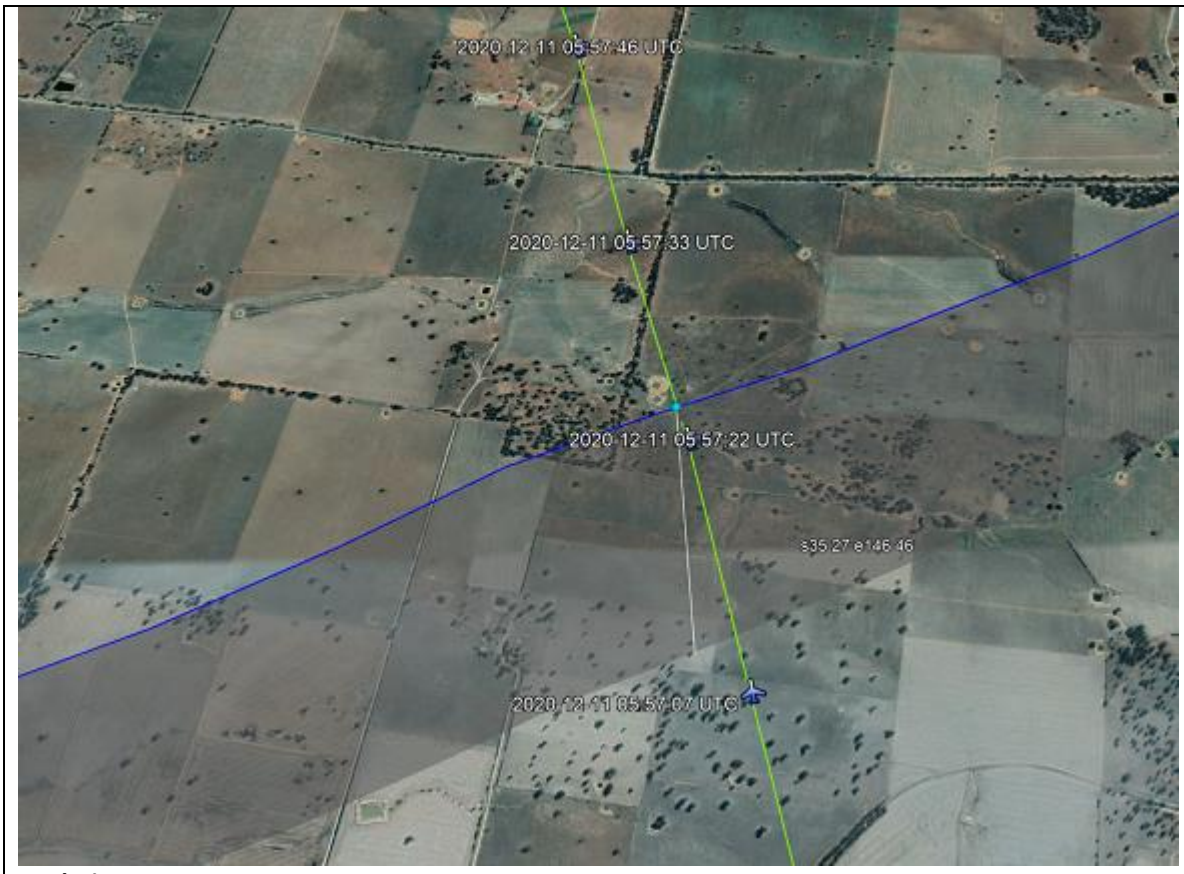
Safety Advice

On boarding a glider, the crew should always secure their harness as a first priority. Instructors might consider visually checking the security of the student's harness before boarding during initial training flights until the student has developed this habit. When checking the 'Harness' during the post-boarding component of the pre take-off checks, the pilot must visually look at the harness buckle and apply pressure against the straps to confirm it is tight and secure. This incident serves as a reminder to all pilots of the importance of completing checklists in a thorough and methodical.

Date	11-Dec-2020	Region		VSA		SOAR Report Nbr		S-1767	
Level 1	Airspace		Level 2	Aircraft Separation		Level 3		Near collision	
A/C Model 1		Pik-20			A/C Model 2		Piper PA-28-161		
Injury	Nil	Damage	Nil	Phase	In-Flight		PIC Age	56	

What Happened

The pilot of a Piper PA-28 reported passing close to a glider approximately 35NM WSW of Wagga Wagga at 6000ft in Class G airspace while flying on a converging heading.



Analysis

The Piper PA-28 crew were on a closed-circuit training flight from Wagga Wagga, with waypoints being Albury and Narrandera. The glider pilot was flying a 340km closed-circuit task originating from Tocumwal, with turn points being Corowa and The Rock. At about 14:58 local time the Piper PA-28, on a heading to Narrandera, and glider, on a heading to Tocumwal, passed within proximity of each other. Flight data logs for both aircraft were made available for review. The glider pilot carried a 'NANO' flight recorder that features an integrated 66-channel GPS receiver, built-in antenna and built-in battery. Flight data, such as GPS derived time, position and altitude, are stored directly in IGC format and are downloadable through a USB connection. The unit was set to record data points at two-second intervals. The track from the PA-28 was derived from Flight Radar 24. Altitude was derived from the ADS-B unit that was set to standard pressure (1013.2 HPa). The Area QNH pressure difference on the day was about 9Hpa, or about 270ft. At the time of the Airprox event, the glider was flying in the cruise at about 70 knots on a heading of 247 degrees at about 5,800ft, having been in the glide and slowly descending from 6,000ft. The PA 28 was in the cruise at about 98 knots on a heading of about 345 degrees at about 6,000ft. Analysis of the flight logs, coupled with the statements from the pilots, revealed the glider passed right to left of the PA-28 about 200ft below and 0.45NMs to the left of PA-28. The glider pilot stated that he did not see the PA-28 approaching from the left and said that at that time his focus was likely to be on threats in front, above and below, and at least 60 degrees either side. He further stated: *"I would like to think that I try to keep a good lookout at all times, however it is impossible to be looking everywhere at every second of a flight."* The PA-28 command pilot stated that the glider passed within an estimated few hundred feet under his aircraft, and that the crew had not seen the glider coming. He stated, *"The glider passed under the right wing to the left and continued west. We were maintaining A060. We contacted Melbourne Centre to report the glider."*

Safety Advice

In this case CAR 162 requires that when two aircraft are on converging headings at approximately the same height, the aircraft that has the other on its right (i.e the PA-28) must give way. In addition, power-driven heavier-than-air aircraft must give way to gliders. However, this rule relies on the principle of see-and-avoid. By itself, the concept of 'see-and-avoid' is far from reliable. It is important that pilots apply the principles of 'see-and-avoid' in conjunction with an active listening watch. Research has shown the effectiveness of a search for other traffic is eight times greater under alerted circumstances than when un-alerted. However, pilots should be mindful that transmission of information by radio does not guarantee receipt and complete understanding of the information. Without understanding and confirmation of the transmitted information, the potential for alerted see-and-avoid is reduced to the less safe situation of un-alerted see-and-avoid. Although glider pilots are not required to monitor the Area Frequency in Class G airspace, if a radio with dual frequency monitoring is fitted the pilot should monitor the area frequency to enhance situational awareness. The following publications provide some useful information on the see-and-avoid principles:

- ATSB publication - Limitations of the see-and-avoid principle (1991)
- ATSB publication - Safety in the vicinity of non-towered aerodromes (2010) AR-2008-044(2)
- Civil Aviation Advisory Publication – CAAP 166-01 Operations in the vicinity of non-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 Pilots' responsibility for collision avoidance in the vicinity of non-towered (non-controlled) aerodromes
- Be heard, be seen, be safe - Radio procedures in non-controlled airspace
- GFA Operational Safety Bulletin (OSB) 02/12 - Lookout for Glider Pilots
- GFA Operational Safety Bulletin (OSB) 02/14 - See and Avoid for Glider Pilots

Date	19-Dec-2020	Region	WAGA	SOAR Report Nbr		S-1768	
Level 1	Technical	Level 2	Powerplant/Propulsion	Level 3		Engine failure or malfunction	
A/C Model 1		DG-1000S		A/C Model 2		Piper PA-25-235	
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	59
On a mid-afternoon launch, Piper Pawnee towplane experienced a drop in power after early take-off while towing a DG 1000s glider. The glider was crewed by a L2 instructor and a student. On observing the glider higher and overtaking the tow plane, the instructor took over and released from tow. The Instructor commenced a slight right turn to come alongside the tug but the tow pilot veered right also. The instructor then veered left towards a paddock alongside the runway but found sufficient clear space to the left of the tug and landed on the runway. The tow pilot had reduced throttle and re-applied throttle but did not feel he was getting full power. Both aircraft then stopped with no further issues. Subsequent tests and flights with the tug failed to reveal any issues with the tow plane.							

Date	19-Dec-2020	Region	VSA	SOAR Report Nbr		S-1774	
Level 1	Operational	Level 2	Runway Events	Level 3		Runway incursion	
A/C Model 1		DG-1000S		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	22
The crew using a vehicle to retrieve a glider that had landed on the right-hand grass verge of RWY 19 towed the glider onto the main runway and into the path of a glider on late final approach for Grass Left. The instructor in the landing glider took control and conducted a low-level manoeuvre to touch down on the vacated right-hand grass verge and avoid collision with the glider under tow. At this aerodrome, the grass verges are used for landing gliders and tow planes, and the prescribed order of landing is 'Grass Left', 'Grass Right' and then the 'main runway', subject to which one is clear. At the time of the incident, one other glider							

was occupying the right-hand grass verge of RWY 19 and being pushed clear, and the glider under vehicle tow had been retrieved from the right-hand grass verge and was occupying the main centre runway. The driver of the towing vehicle advised they were aware of the glider in circuit and believed they had sufficient time to clear the main runway and position at the launch point on the left-hand verge before the landing glider turned onto final approach. The flight crew in the landing glider were monitoring the glider being retrieved during the approach and had made radio calls on turning onto base and final advising of their intention to land on the vacant left-hand grass verge. Given the established landing order, and in the knowledge that another glider was about to land, the retrieve crew ought to have anticipated the landing glider would be committed to land on the left-hand grass verge, and thus been predictable by remaining where they were. However, the vehicle driver had assumed the landing glider would anticipate their path and would land on the right-hand grass verge that was clear by then. Unfortunately, the crew of the landing glider had already committed to their approach and once the retrieve crew moved the glider onto the left-hand grass verge, they changed the dynamics of the situation. As the instructor in the landing glider stated, *"This incident reinforces the need to maintain good situational awareness while on an active airfield and highlights the need for pilots to constantly monitor conditions at their chosen landing area."*

Date	19-Dec-2020	Region	SAGA	SOAR Report Nbr	S-1769				
Level 1	Operational	Level 2	Aircraft Control	Level 3	Hard landing				
A/C Model 1	Janus B	A/C Model 2							
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	43		

What Happened

The pilot on their first solo flight on type mishandled the landing and commenced a series of sustained oscillations (PIOs) resulting from efforts of the pilot to control the aircraft. The aircraft suffered minor damage.

Analysis

The Pilot was seeking a conversion to the aircraft for solo flight and had flown several flights in the aircraft with an instructor without incident. On the day of the accident, the pilot had three flights and was assessed as competent to fly the aircraft solo. The preceding three flights included two actual winch launch failures that were well handled, and the third flight was a short soaring flight which the pilot under check flew faultlessly. Following the third flight with an instructor, the pilot was sent solo. The subsequent launch was uneventful, but during the flight the sea breeze began to influence local conditions and the wind became stronger. The supervising instructor advised the Pilot via radio that the conditions had changed from a calm 5 kts to a gusty 15 to 20 kts southerly. After a 40-minute soaring flight the pilot joined circuit. The supervising instructor noted that *"the circuit and approach were all normal, but the Pilot flared slightly high. The main wheel of the aircraft would have been ~1.25 to 1.5m off the ground. At that point in time, I saw a small pitch downwards of the nose of the aircraft but before the Pilot could react, the glider had descended rapidly into the ground, striking the nose and nose wheel. The aircraft then pitched upwards and came off the ground and, in the process, struck the tail onto the ground. This then caused the aircraft to go into a series of oscillations pitching forward, then pitching backwards until the aircraft ran out of energy. I believe it did this three times. The wings stayed level throughout and did not strike the ground until after the aircraft had come to a complete stop."* The supervising instructor went to the assistance of the Pilot and found him to be uninjured. The glider was removed to the hangar and a detailed inspection, which included removal of the wings and tailplane, was conducted. No structural damage was identified, and the aircraft was returned to service. The supervising instructor conducted a debriefing with the pilot who explained that the aircraft was too high and was running out of energy and he believed that by moving the stick forward slightly, it would prevent the aircraft from stalling onto the ground. The pilot did not appreciate just how pitch sensitive was the elevator control and how quickly the aircraft descended. The incident has affected the pilot's confidence, and the Club's instructors are working closely with him to address any skill deficiencies.

Safety Advice

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, stabilise the glider at an altitude of 3 or 4 feet, and then begin the flare anew. Do not try to force the nose of the glider down onto the runway. Pilots should never use coarse elevator control inputs close to the ground, as gliders are sensitive in pitch and such action is inconsistent with a safe transition from a stabilised approach into the flare and landing. Course movement of the elevator control usually results in a sudden and unrecoverable steep dive into the ground. Instructors should also note that a student pilot's sudden forward elevator control inputs, initiated at low level (under 100ft), will usually be beyond the limits of instructor intervention and safe recovery.

Date	20-Dec-2020	Region	NSWGA	SOAR Report Nbr	S-1770		
Level 1	Operational	Level 2	Airframe	Level 3	Doors/Canopies		
A/C Model 1				A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	55

What Happened

The pilot was flying solo in the two-seat glider. During the early stages of an aerotow launch and at a height of about 300 feet the rear canopy opened. The pilot immediately released from tow and made a safe landing on a reciprocal runway. The canopy was not damaged.

Analysis

Investigation by the CFI identified that the pilot did not conduct the pre-take-off checklist properly forgot to lock the rear canopy. The CFI reinforced that security of the rear canopy should be checked during the post-boarding checklist as part of the 'Airframe' check.

Safety Advice

All pilots understand they are supposed to perform the pre-fight checklist before every flight, but sometimes it becomes repetitive to the point that pilots slip-up or forget to perform every action. Despite the repetition, checklists work. History has shown that skipping the checklist or missing a major step can turn carelessness into a full-blown in-flight emergency. To help avoid missteps, pilots should go through the checklist aloud, even when flying solo. This can make the checklist seem less mundane and will ensure the pilot does not miss anything on the list. Holding a conversation with yourself is okay if it means a safe flight.

Date	20-Dec-2020	Region	WAGA	SOAR Report Nbr	S-1792		
Level 1	Operational	Level 2	Aircraft Control	Level 3	Pilot Induced Oscillations		
A/C Model 1		IS-28B2		A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	61

What Happened

During landing the pilot misjudged the flare and the glider touched down at speed and bounced. The pilot mishandled the recovery, and the glider's nose struck the ground.

Analysis

The sortie was a training flight for a student who was flying the circuit, approach, and landing. When attempting to flare the glider ahead of touchdown, the student plot mishandled the elevator control inputs causing the glider to oscillate in pitch before eventually touching down and bouncing. After the first bounce the pilot again inadvertently commanded an increasing series of corrections in opposite directions, resulting in several pilot induced oscillations eventually resulting in the nose of the aircraft lightly scraping the runway. Investigation identified that this was the student pilot's first flight in an aircraft that did not have a nosewheel. It is considered that a different attitude on landing was a contributing factor. A nosewheel glider has the centre of gravity forward of the main wheel, and the glider has a natural tendency to pitch forward onto the nose wheel during landing thereby reducing the wings angle of attack and reducing the likelihood of the aircraft bouncing back into the air. A typical tail dragger glider can require more finesse when landing

to avoid bouncing. However, all gliders should be flown such that it touches down at minimal airspeed, which requires holding off with increasing back stick until it runs out of energy and will no longer fly. Other causal factors include low experience, incorrect landing technique, over controlling glider in pitch prior to and after touchdown, and the failure of the instructor to take over.

Safety Advice

The most common instructing accident is 'instructor failed to take-over in time'. These accidents usually involve the trainee responding in an unforeseen way or failing to respond at all (e.g., not rounding out). Given that the overall idea is to let the trainee do as much as possible within their level of skill the instructor should never wait until the last moment - which can rapidly become 'too late' - before responding to a situation that is going awry. This is particularly true of any manoeuvres close to the ground. Instructors must take over IMMEDIATELY, even if they are very experienced, if the student makes a potentially dangerous error. To take control quickly, the instructor must be ready to do so during the approach and particularly close to the ground if the student becomes unresponsive to directions or responds inappropriately. The instructor should “guard” (i.e. lightly grasp) the stick against the student over-controlling the elevator in both directions. This requires maintaining a light hold on the stick and be aware that a “negative G” bunt manoeuvre might lift the instructor’s hand off the control column! In the event of a high ballooned landing or serious bounce (or PIO as in this case), the instructor must respond immediately by taking over control, closing the airbrakes and stabilising the aircraft off the ground, before resuming the landing with an appropriate airbrake setting. Refer also to Operational Safety Bulletin (OSB) 01/19 - Avoiding Approach & Landing Accidents During Training.

Date	26-Dec-2020	Region	NSWGA	SOAR Report Nbr		S-1781	
Level 1	Operational	Level 2	Aircraft Control	Level 3		Incorrect configuration	
A/C Model 1		Janus		A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	75

What Happened

During the early stage of an aerotow launch the glider pilot noticed a poor climb rate and at about 200'AGL recognised the airbrakes were fully open. The pilot closed and locked the airbrakes and the launch proceeded with no further issues.

Analysis

Discussion with the pilot identified that he had been distracted by an event he was to fly to, and he was rushed to get airborne. This led to him rushing his pre-take-off checks and failing to notice the airbrakes were not locked.

Safety Advice

This incident highlights the need for a dedicated level of focus when conducting the pre-flight checks, and to do so without distraction and interruption. Before flight, pilots must take steps to ensure as ‘sterile’ a cockpit environment as possible as they are preparing their aircraft for departure. This ensures a micro-environment that is as controlled and predictable as possible, so that necessary preparatory steps are taken in a fixed order, and prospective memory problems are minimised.

Date	27-Dec-2020	Region	NSWGA	SOAR Report Nbr		S-1771	
Level 1	Operational	Level 2	Terrain Collisions	Level 3		Collision with terrain	
A/C Model 1		ASH 26 E		A/C Model 2			
Injury	Nil	Damage	Substantial	Phase	Launch	PIC Age	61

What Happened

During the initial take-off and climb from RWY 21, the self-launching sailplane flew through heavy sink and began to rapidly descend. The pilot attempted a low-level turn-back to the runway but during the turn the right wing struck the ground and the glider cartwheeled onto the airfield. The pilot was uninjured, but the glider was substantially damaged.

Fig. 1 – Damaged Glider

Analysis

Several people witnessed the accident and reported the aircraft climbed slowly to a height of about 120ft and then stopped climbing. They observed the glider turning to the right with a steep angle of bank and saw the right wing of the glider hit the ground. The pilot advised that even though the engine was providing full power, the glider was not climbing so he elected to turn back to the airfield to land on RWY 08. Realising that the glider was sinking and would not reach the alternative runway, the pilot shut down the engine shortly before the right wing contacted the ground. Investigation identified that the glider most likely stalled during the turn around the into-turn wing due to low airspeed and the high angle of bank (stall speed increases with load factor, which in turn increases with bank angle). The right wing contacted the ground and pulled the fuselage into the ground nose first. The glider slid for about 3 meters before the tail struck the ground, resulting in the fuselage breaking behind the engine bay and the starboard tailplane being broken in half. The CFI concluded that the likely reason the glider stopped climbing was due to it flying into an area of heavy sink, more than the glider's usual 400ft/m climb rate. Although the airbrakes were found to be unlocked at the crash site, it is likely this occurred when the cockpit structure was compromised.

Fig. 2 – Flight Path

Safety Advice

The first few minutes of the launch are perhaps the most critical, as that interval after the throttle is fully opened can define what happens if the pilot experiences a real emergency. By this time the self-launching sailplane will normally be at a height and position that a landing on the runway (or an alternative runway) is no longer possible. In such cases there is no margin for error because the powered sailplane will be slow, usually operating at less than 1.5 Vs, and close to the ground. In the event of a launch failure during the early stages of the launch and below a safe height, the powered sailplane pilot must plan to land as straight-ahead as possible (terrain permitting). In most self-launching sailplanes, the 'Speed of Best Climb' is usually well below the normal approach speed, so it is important that the pilot increase speed to the Approach Speed before attempting any turn.

Date	28-Dec-2020	Region	GQ	SOAR Report Nbr	S-1807		
Level 1	Operational	Level 2	Miscellaneous	Level 3	Rope break/Weak link failure		
A/C Model 1	Cessna 150E	A/C Model 2	ASW 19B				
Injury	Nil	Damage	Nil	Phase	Launch	PIC Age	67

What Happened

During an aerotow launch the rope released from the towplane end uncommanded at approximately 180 feet above ground. The pilot of the glider successfully completed a 180 degree left turn and landed back on the glider strip.

Analysis

The weak link was still attached to the tow plane but the rope attachment shackle failed allowing the disconnection of the rope from the weak link. An inspection of the failed shackle revealed that the thread had failed on the through bolt allowing the shackle to open sufficiently enough to release from the weak link under load. The shackle bolt thread failed under load on this particular flight. The shackle was not an approved TOST component.

Corrective action

All commercially available 'rigging and lifting' bow type shackles have been removed from all tow ropes and replaced with the approved TOST type shackles.

Date	30-Dec-2020	Region	SAGA	SOAR Report Nbr	S-1772
Level 1	Operational	Level 2	Aircraft Control	Level 3	Wheels up landing
A/C Model 1	Twin Astir	A/C Model 2			
Injury	Nil	Damage	Minor	Phase	Landing	PIC Age	52

What Happened

The pilot flying could not fully lower and lock down the undercarriage after a short flight and the glider landed with the undercarriage retracted.

Analysis

The sortie was intended to be a coaching flight between a low-hour solo pilot and an Air Experience Instructor and Coach. During the initial briefing, the command pilot confirmed he was competent to fly the glider as pilot in-command and this was confirmed by the Duty Instructor. Following the launch, the command pilot retracted the undercarriage, which was his habit when flying the single Astir sailplane – although the undercarriage was usually left down for local flying as it could only be operated from the front cockpit. After a short flight, the command pilot entered downwind and attempted to lower the undercarriage without success. The instructor/coach, who was occupying the rear seat, noticed that the command pilot was doing something in the front seat and was informed that he was trying to put the wheel down. However, the command pilot did not advise that he was having difficulty nor that he had not lowered the undercarriage. During the final approach the instructor/coach noticed the glider was being flown very erratically and assumed command. It was later identified that the command pilot was again attempting to lower the wheel but was having difficulty performing this task while also flying the glider. The instructor/coach conducted a safe landing with the undercarriage retracted. The lower fuselage suffered substantial abrasion that penetrated the FRP layers. Investigation identified that the command pilot had not previously used the undercarriage in this glider and was unfamiliar with its operation.

Safety Advice

Although gliders have become more similar in these aspects over time differences remain, some more subtle than others. Unlike most gliders that have an over-centre locking mechanism for the undercarriage, the mainwheel of the early model Twin Astir sailplane is unique – it retracts and lowers sideways, and when retracted it lays flat against the top of the undercarriage box that forms the rear seat pan. When in the lowered position, the wheel is locked down by a pushrod that engages against a pin in the undercarriage frame. The undercarriage lever operates both the lowering and raising mechanism, and also a Bowden cable that operates the locking pushrod. It is possible for the lever to be engaged in the locking detent while the undercarriage is not locked down due to stretching the Bowden cable. This usually occurs when the undercarriage frame is not fully lowered and prevents the locking pushrod from fully engaging. A common reason for this is the pilot lowering the undercarriage too slowly, such that it does not go fully down, or too fast such that the frame rebounds against the stop. The correct technique is for the pilot to use the weight of the undercarriage to help move the lever into the locking detent in one continuous movement. Unfamiliarity with type is most likely to cause serious problems during high workload situations, most commonly during the landing phase. It is therefore unsurprising that many pilots have landed wheel-up after cycling the undercarriage several times during circuit when flying a glider that has a different system to the glider they normally fly.

Date	31-Dec-2020	Region	NSWGA	SOAR Report Nbr	S-1773
Level 1	Operational	Level 2	Runway Events	Level 3	Runway excursion
A/C Model 1	ASW 27-18 E	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Landing	PIC Age	55

While landing in a slight crosswind and during the hold-off just prior to touchdown, the glider flew through some mechanical turbulence from trees on the airfield boundary. The glider ballooned and yawed to the

right. The pilot was unable to align the glider in the landing direction before the glider touched down while travelling sideways. The glider came to an abrupt stop but was undamaged.

Date	31-Dec-2020	Region	NSWGA	SOAR Report Nbr	S-1785
Level 1	Operational	Level 2	Airframe	Level 3	Landing gear/Indication
A/C Model 1	LS 6-c	A/C Model 2			
Injury	Nil	Damage	Nil	Phase	Outlanding	PIC Age	59

During an outlanding the undercarriage collapsed. The pilot was 2 hours into a 300 km task when conditions deteriorated and an outlanding became inevitable. By 2000ft AGL the pilot had selected a couple of potential landing areas – a large and flat paddock that had recently ben cropped and was clear of obstacles, and a smaller paddock with discernible slope at the approach end that was also recently cropped and clear of obstacles. Both paddocks were aligned North to South. The wind was from the East at 5 to 10 knots, which meant a crosswind landing. The pilot continued to search for and work some weak lift but decided to break-off the flight when the glider descended to 1,000ft AGL. The pilot configured the aircraft for landing by lowering the undercarriage and flew towards the first selected paddock. As the glider got lower the pilot identified power lines running across the paddock so he diverted to the second-choice paddock. The pilot stated *"On the base leg of the circuit, I briefly considered a third option paddock further to the East that did not have slope, however it quickly became apparent that I would not be able to reach it due to the sink in the area. This distraction caused me to pass the final turn point and required me to turn back to the field."* The pilot flew a half airbrake final approach and landed well into the paddock to avoid the slope. Just after the glider touched down the undercarriage retracted, and it came to rest with the wings level. Investigation identified that the ground was rough, which caused the undercarriage mechanism to loosen and allow the lever to dislodge from its detent. Uncommanded retraction of LS type glider undercarriages is not uncommon and usually occur when the glider travels over rough ground or experiences a sudden jolt as in the case of this incident.

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. (a) En-route (b) Thermalling (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.

Operational	Aircraft Loading	Loading related	The incorrect loading of an aircraft that has the potential to adversely affect any of the following: a) the aircraft's weight; b) the aircraft's balance; c) the aircraft's structural integrity; d) the aircraft's performance; 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: a) inside the aircraft; or 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: a) the aircraft's weight; b) the aircraft's balance; c) the aircraft's structural integrity; d) the aircraft's performance; 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.

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: a) takes off b) lands, c) attempts to land from final approach d) operates in the circuit 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.

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.