



Briefing note: Tost ring protector & hook-on procedures

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Summary

A protector sleeve for the glider-end Tost rings has been introduced. It is a change and therefore worthy of some explanation and consideration from a threat and error management (TEM) perspective. This is also a timely opportunity to remind ourselves of correct and consistent hook-on and launch procedures.

Background

With runway 18/36 closed for reconstruction works and the grass runways closed due soft wet surfaces, we have experienced an extended period of operation on runway 05/23. The abrasive asphalt surface has resulted in an unprecedented rate of wear on the glider-end Tost rings.

Worn rings were found to come free from a particular type of Tost release at Temora – fortunately it happened on the ground and not in flight. Worn rings found their way around the side of the release beak and came free without the release being opened.

With the wear being continuous but gradual, the change in ring dimension is difficult to notice (it's a bit like the insidious nature of hypoxia). Some current generation gliders are using a release mechanism with less tolerance for worn rings (e.g. Tost E22 used in the ASG29) and this explained the experience at Temora.

The initial response to this incident was to investigate the release mechanism and the specifications for the rings in consultation with the manufacturer and the GFA. Whilst these investigations were underway a minimum ring dimension standard was adopted by the club and a “go / no go” gauge implemented. Some rings were removed from service as a result.

Enquiries with the GFA uncovered similar past experiences in Western Australia which led to a ring protection device being developed by that club. Our club has now purchased and introduced this device. The following images show the purpose designed polyurethane sleeve which protects the rings from abrasion.



The protector sleeve slides to the glider end of the rope after release, where it adequately conceals and protects the rings from abrasion.

However, it has the potential to slide back during aerotow and interfere with the functioning of a pitot mounted in the vicinity of the release. Most of us are familiar with unreliable ASI readings on the Janus and other gliders whilst on tow, however, it could be that there is a completely new or changed experience depending on where the sleeve sits during the tow. For example, at times the Janus ASI now has a more stable reading albeit still inaccurate. Please be aware of this potential new 'threat'.

Trials on a type with a CoG or belly release position (e.g. Standard Cirrus) have shown no adverse effects. The material used to manufacture the sleeve is not expected to mark or damage the fuselage belly nor lead to a premature back release.



It is likely that we will only use the protector sleeve when operating on the abrasive sealed runways and not when operating on the grass.

Hook-on and launch procedure

The configuration of the glider end is shown in the image below.



It is important that the plastic tube is pushed up to the D-shackle when attaching the rings to the release. The black protector sleeve should be pushed up towards the end of the rope noting that it is a loose fit and will slide back under its own weight when on the ground. Once airborne the airflow moves the sleeve towards the end of the rope and after release the sleeve slides all the way to the end and protects the rings.

A timely reminder now about the hook-on procedure irrespective of the protector sleeve being in use or not. There are standard GFA procedures for the hook on and launch procedure which need to be followed. Standard procedures help our new members to learn and lead to safe outcomes by consistently using proven procedures.

When the pilot-in-command completes their CHAOTIC pre-launch check the last part of the check is the instruction to hook on. Some actions are then transferred to outside the cockpit including the correct attachment of the tow rope, the checking of airspace for a safe launch, and managing/monitoring the progress of the initial ground roll.

The GFA Manual of Standard Procedures (MOSP, Part 2, Operations) and GFA Operational Safety Bulletin 02/06 cover this procedure. The steps to follow, and language to use, are covered in the table over page.

Sorry to labour this procedure – the launch point is a high-risk environment so please; no assumptions, and guard against miscommunication and misunderstanding by following standard procedure.

Incidentally, do you know what the actions are when you stop a launch and what the wing runner does? If you don't, then find out (GPC Pilot Guide, Unit 2 Ground handling and signals) or ask before you are next involved in a launch.

Sequence	Pilot-in-command (PIC) action	Ground crew action	Comment
#1		<ul style="list-style-type: none"> Checks rope for knots and damage. Checks rings and assembly for security and damage. 	
#2	<ul style="list-style-type: none"> Calls for <i>“cable hook on”</i> Holds release open 		Last step in CHAOTIC
#3		<ul style="list-style-type: none"> Holds and shows small ring to PIC Shows open hand to PIC Inserts small ring into the open release Calls for release to <i>“close”</i> Shows closed hand to PIC 	Note some rare types do not use the small ring (none of these types currently operate at Temora)
#4	<ul style="list-style-type: none"> Closes the release 		
#5		<ul style="list-style-type: none"> Checks airspace in all directions 	PIC must request this if ground crew do not initiate (Operational Safety Bulletin 02/06)
#6		<ul style="list-style-type: none"> Gives verbal comment to PIC <i>“airspace clear for launch”</i> 	Make sure the command is clear and understood – do it near the cockpit not from the wing tip or as you walk away
#7	<ul style="list-style-type: none"> Verbal command <i>“pilot ready for take-off”</i> Visual thumbs-up signal 		(MOSP, Part 2, 16.1.7)
#8		<ul style="list-style-type: none"> Wing runner raises wings levels and commences take up slack signal 	The wings should not be levelled, and launch signals given to the tug, until the PIC confirms <i>“pilot ready for take-off”</i>
#9		<ul style="list-style-type: none"> Moves to all out signal as the rope comes tight 	Judgement required to avoid rope jerk
#9		<ul style="list-style-type: none"> Watches the rope and stops the launch if something is not right 	Anyone can stop a launch

Remember, anyone can stop a launch and it is incumbent on all of us to remain situationally aware. Lookout is not just for when we are flying - continue a lookout routine when you are crewing or idling at the launch point.

Safety side note

The value of raising wider awareness of an experience or issue via a SOAR Report or a Service Difficulty Report (AW) is well demonstrated here. The positive is that once in the GFA system, our report led to quick discovery of similar experiences and learning. Instead of reinventing a ring protector we have been able to purchase a proven device and quickly implement its use. On the flip side, had the earlier experiences in WA been reported at the time, we would have mitigated the risk of a premature release and most likely implemented a solution earlier.

References

GFA Manual of Standard Procedures (MOSP), Part 2 – Operations, 16.1.7

GFA Operational Safety Bulletin 02/06 (Rev 1) “Airspace clear for launch”

GFA GPC Pilot Guide, Unit 2 Ground handling and signals