

GLIDING NEW ZEALAND INCORPORATED

ADVISORY CIRCULAR AC 3-04

WINCH & AUTO LAUNCH CABLE CONFIGURATION

This is an uncontrolled document when printed

© **COPYRIGHT 2025 GLIDING NEW ZEALAND Inc.** No part of this Advisory Circular may be used or reproduced in any form by photocopying or otherwise, or incorporated into any information retrieval system without the written consent of the President of Gliding New Zealand Inc.

1 Introduction

Each winch or auto launch cable must incorporate a weak link, which must not exceed the weak link strength recommended in the glider's Flight Manual. Where no specific strength is given, the maximum strength of the weak link should be approximately one and one-third times the gross weight of the glider being launched.

2 Cable set-up

Appendix 1 depicts the recommended cable set-up for TOST fittings using a steel wire cable. Note that if more than two weak link values are required to accommodate the glider types typically launched at the site, it is preferable to minimise the assembly weight by combining each weak link in a separate colour-coded strop instead of multiple weak links attached to the end of the trace. The appropriate strop/weak link assembly for the glider is then clipped onto the trace at the launch point using a quick-release hook. This is normal Skylaunch practice.

Appendix 2 depicts the Skylaunch configuration preferred for synthetic cables, such as Dyneema.

Appendix 3 sets out some general best practice tips (born of long experience) for glider-end cable equipment.

3 BGA approved winch launch weak link strengths

The British Gliding Association (BGA) maintains a list of TOST weak links to be used in winch launching various gliders. For convenience, extracts from this table are reproduced in the table on page 3 for glider types on the NZ register, and may be relied upon to ensure compliance with the GNZ MOAP (Section 2-10, paragraph 2.6). If in doubt, consult the relevant glider Flight Manual.

4 Maximum winch launching speeds

The table on page 3 also includes maximum winch launching speeds for each glider type, taken from historical, Skylaunch, BGA and glider Type Certificate data. The speeds given are for guidance only – if in any doubt, consult the relevant glider placards or Flight Manual.

<u>Note</u>: The TOST colour coding assumed in the table is as follows:

 White
 = 500 kg

 Blue
 = 600 kg

 Red
 = 750 kg

 Brown
 = 850 kg

 Black
 = 1000 kg

	Tost Weak	Max Speed		Tost Weak	Max Speed
Glider Type	Link	Kt	Glider Type	Link	Kt
Arcus all models	Black	80	Ka 6E	Blue	56
ASH 25	Brown	70	Ka 7	Black	66
ASH 26	Red	70	Ка 8	Blue	60
ASK 21	Black	81	Ka 13	Brown	65
ASH 31 Mi	Brown	70	Kestrel 17/19	Blue	70
Astir/Grob single	Blue	65	LAK 12	Blue	75
Astir/Grob twin	Brown	65	LAK 17	Blue	75
ASW 15	White	59	Libelle all models	Blue	65
ASW 17	Blue	65	LS 1f	Blue	65
ASW 19B	Blue	67	LS 3 & 4	Blue	70
ASW 20	Blue	65	LS 6 & 8	Red	75
ASW 27	Blue	70	Mini Nimbus	Blue	81
ASW 28	Blue	75	Mosquito	Blue	81
ASW 28-18	Red	75	Nimbus 2	Blue	65
ASG 29	Brown	75	Nimbus 3D	Black	81
AS 33	Brown	75	Olympia 463	White	66
Bocian	Black	54	Phoebus C	Red	65
Cirrus (Open)	Brown	59	РІК 20	Blue	67
Cirrus (Standard)	Blue	65	Pirat	Blue	64
Cobra	Red	59	Puchacz	Red	59
Dart 15 & 17	Blue	71	Puchatek	Black	67
DG 100/200/300	Blue	70	PW 5	Blue	65
DG 400/600/800	Blue	81	PW 6	Black	65
DG 500/505	Black	75	Rhonlerche (Ka 4)	Brown	49
DG 1000	Black	81	SHK	Blue	56
Discus & Discus 2	Blue	81	Skylark 2B	Blue	61
Duo Discus	Brown	81	Skylark 3F	Blue	71
Hornet	Blue	75	Skylark 4	Blue	76
Jantar Standard 2	Blue	67	T 53	Red	70
Janus a & b	Red	65	Vega	Blue	70
Janus c	Brown	81	Ventus & Ventus 2	Blue	81
Ka 6BR & CR	Blue	60			



APPENDIX 2

Parachute Triangle

SKYLAUNCH RECOMMENDED LAUNCH EQUIPMENT - GLIDER END

Layout updated 07.12.18

Parachute- Selection of **Designs to Suit Airfield** Max open diameter:-Synthetic cables = 1.2m Steel cables = 1.5m



Top and Bottom of Parachute -Karabiner or Bow D-Shackle -**Optional Bearing** Swivel (for Dyneema) or Locking Swivel (for Steel cables or twisted ropes)

Connector & Optional **Quick Release** Hook and Ring Weak Link Assembly **Plastic Cable** (Slot in housing End Buffer and towards Glider) Launch Cable From Winch 3 Metre Strop 17 Metre Trace with Stiffener with Quick Hose, **Release Hook** Connecting **Ring & Glider Rings** (Optional **High-Visibility** Flag and Sleeving) Plastic Weak Link Housing & Weak Glider Link with shackles & Quick Release FOR USE WITH VEHICLE **Rings** to Glider Ring - optional Steel Weak Link **RETRIEVE WINCHING** Housing also available





Skylaunch Limited

(Glider Winches & Special Projects) E11 - E12 Wem Industrial Estate, Wem, Shropshire. SY4 5SD ENGLAND Tel: + 44(0) 1939 235845 Email: mike.groves@skylaunch.com www.skylaunch.com

GLIDER END CABLE EQUIPMENT EXPLAINED

22/07/19

Skylaunch assist the RAF, BGA (British Gliding Association) and other Gliding authorities around the World to update safe winching procedures and guidelines, many of which were introduced a long time ago.

Even these current designs are subject to further updates as developments are always ongoing.



The design needs to be as simple as possible for safety, with the least amount of connections and metalwork to reduce the risk of launch failure or damage when falling away from the Glider.

1. Strops (short length from glider to weak link)

The normal length for strops is 3 metres - this is recommended for safety as this is long enough to clear the front of the longest Glider noses (preventing damage to the Gel coat) but short enough so if the weak link breaks it won't reach the elevator, rudder or ailerons.

A 3m strop can be repaired down to 2.5 metres length if compatible with your Glider fleet – any shorter than 2.5m and the strop should be replaced.

As a principle, shorter is safer and will minimise any potential for springing back.

It is important to enclose the rope (recommended 16mm diameter) or cable in a rigid and large diameter hose to help prevent damage and any hang ups around glider wheels, etc.

There have been incidents where longer length Strops have wrapped around the tail of a Glider. (There was an incident recently with a Puchacz glider where an over length Strop wrapped around the elevator)



2. Traces (long length from weak links to parachute)

For safety, the Trace is recommended to be 17metres long and made from either a larger stiff / rigid rope – recommended 16mm – 20mm diameter (or cable in hose.)

The material should not allow too much stretch – in case of a "break" to prevent spring back to the glider.

The reason larger diameter, rigid material is used is in case the Trace becomes entangled with a Glider – this way it is less likely to disable movement of a control surface.

Using a heavier assembly is also important to help it fall away quickly from the glider.

The 17m length is connected to the 3m Strop (via the Weak Link assembly) to give a total minimum of 20 metres between the Glider and Parachute - this allows for a safer separation distance in case of a low and shallow launch cable release/break situation (in the Netherlands this rule is 30m).

There have been incidents where a glider has flown into the parachute after low level launch failure, because the parachute was too close to the glider.



3. Parachutes

For glider safety, parachutes should be as small as possible while still allowing the winch driver to control the cable descent without problems. Skylaunch layout photo (last page of this document) states recommended sizes.

NOTE- If the parachute is larger than the recommended sizes then the trace length must be longer than the standard 17 metres until a smaller parachute can be sourced.



4. Weak links

For safety, the BGA recommend using only one weak link per cable assembly, as the use of the reserve weak link can lead to mistakes being made if 2 main or 2 reserve weak links are fitted, therefore doubling the breaking load.

There has been an incident of glider structural failure where two of the same weak links were used, and this was a contributory facture.

If the reserve link is used then strict regulations must be made to ensure the correct links are fitted and checked. Only fit the weak link colour / strength listed by the glider manufacturer for the exact model / specification to be launched.

Weak links must be inspected as part of the full Cable Equipment DI to ensure no stretching / damage is apparent



Weak links must also be inspected before hook-up to the Glider at each launch for damage and correct load rating

5. Weak link holders / housings

Skylaunch manufacture open type steel and plastic H section types which are designed to protect and display the weak link, so it can be checked easily and shown to the pilot before the launch.

There are other types which are made from sheet steel which fold around and encase the weak link but these are prone to bending which traps the weak link.

Also this design does not give vision of the weak link to check type and colour / load rating.



It is also recommended for safety that only one weak link holder assembly is connected, rather than the practice of having 2 or 3 attached all the time.

This reduces unnecessary weight / metalwork in the air which could potentially strike a Glider or fall from the sky in the event of a cable break.

6. Swivels

Swivels can be used in the cable assemblies to help prevent unwanted twisting of cable / ropes / parachutes etc.

BUT-

If using twisted design launch cable / rope (as opposed to braided) the swivels must be the type that lock under load.

These are usually a simple design with a bolt as the swivel.

If using braided cable (usually Dyneema/Spectra) then bearing type (free spinning under load) can be used but caution must be used to ensure it operates correctly.

NOTE: If a bearing type swivel is used with twisted type launch cable it will unwind and destroy the cable after only 1 launch !

Please contact Skylaunch for advice.



Bearing swivel



Locking swivels