

WINCH-LAUNCHING

Introduction

These notes are intended to provide supplementary information for pilots winch-launching from Lasham. A full description of the correct procedures for winch-launching is available in the BGA Instructors' Manual.

Safety

Winch-launching has more potential hazards for the glider pilot than aero-tows. In the UK approximately one launch in 15,000 results in an accident, but the risks can be minimised by following the procedures that you were taught.

Before launching

Bear in mind the following key points before launching:

- If you have not winch-launched recently, consider having a check-flight with an instructor
- If it is a first flight on type, take an aerotow first before winch launching
- Read the flight manual before winch-launching a glider for the first time.
- Before taking your glider to the launch point, ensure that you know its correct weak-link
- Secure all loose articles in the glider, especially on the 'parcel-shelf'
- Strap yourself in tightly, in a reclined seat you can slide backwards unless you are well secured
- Ensure that you know the maximum speed and the minimum speed for your glider on the winch
- The retrieve-winch pulls the cable further away from the glider than the cable-retrieve truck. If the retrieve winch is being used, the glider may yaw unexpectedly if it is pointed directly at the winch. Point the glider slightly away from the winch in direction that the cable was retrieved
- Mentally rehearse your actions in the event of a cable break or power-failure as the final item in your pre-take-off checks
- Check that the correct weak-link is fitted. (The consequences of launching a light single-seater with a black link could be disastrous.)
- Ensure that the winch is notified if a light single-seater is to be launched
- If you are winch-launching a particularly heavy glider, it is also helpful to request more power before launch.

During the launch

No signals are given by the pilot to launch. Once the cable has been attached, you are deemed to be ready. If you are not ready, release the cable. Make sure all is clear in front of the glider.

Your hand should be on the release knob so that you can release immediately if a wing is about to touch the ground. Abandon the launch if a significant amount of yaw occurs.

Do not climb unless the glider has reached a safe speed and is continuing to accelerate. Depending on the position of the hook, the glider may have to be restrained from climbing steeply until this speed is reached.

Do not rotate into the full climb too sharply. A high angle of attack may be achieved from a sudden climb, which can stall the glider. At 50 knots a rate of rotation of 20 degrees per second

will lead to a loss of control. The transition from level flight to full climb should take at least six seconds and should be progressive.

Monitor the speed. Do not give a “too-fast” in the safety climb. The stress on the glider from the cable is low in the bottom third of the launch. Look out on each side towards the horizon to check the angle of the climb and for any traffic that might be nearby.

At the top of the launch, lower the nose to take the tension out of the cable before releasing.

Launch failures at Lasham

Your first action on a launch failure should be to achieve manoeuvring speed on the ASI. This speed should be maintained during all manoeuvres until the glider rounds out during landing. If a launch failure occurs before the full climb has been achieved, the nose should be lowered more gradually than if the full climb had been started. After full climb has been started, the most effective way of lowering the nose safely is to achieve zero g and no less.

Land ahead if possible. Do not attempt a turn if there is enough room to land ahead safely. If you have doubts about the feasibility of landing ahead, then turn, provided that you have achieved approach speed. Lasham is long enough to allow landings straight ahead when turns could also be safely made, so there are no critical heights at which a difficult decision has to be made.

Do not deploy air-brakes until a straight and steady approach has been established at the correct speed.

Instructors must not surprise pupils with simulated cable breaks below 50 feet. Demonstrations by instructors of recovery from a power loss below 50 feet and 55 knots should be by pre-arranged reduction in power by the winch.

Drift correction

Because we prefer to use the main runway as much as possible, there will often be a cross-wind. On a winch-launch the pilot must adjust for drift by flying into wind whilst on the wire. This does not reduce the height of the launch, in fact the exact opposite, because winch-drivers are under instructions to terminate any launch when insufficient correction is made for drift.

If the main winch and/or the retrieve-winch were to fail, correction for drift would prevent the cable from dropping outside the perimeter track. If the drift is not corrected, there is a risk that the cable will drop on other gliders, vehicles or on ATC.

Minimum speeds

Remember to monitor your speed up the winch-launch. There is no case of an air-worthy glider being damaged by excessive speed on a winch-launch, but to avoid breaking the weak link, keep the speed below the placarded maximum. However there is a great risk of being too slow and there have been several tragic cases when this has occurred. If the speed starts to slow, lower the nose.

Weak links

BLACK - No 1	1000 daN = 2200 lbs
BROWN - No 2	850 daN = 1870 lbs
RED - No 3	750 daN = 1650 lbs
BLUE - No 4	600 daN = 1320 lbs
WHITE - No 5	500 daN = 1100 lbs

The following table is supplied by the British Gliding Association. It does not override any limits put on an individual glider by a BGA Inspector. Maximum speeds and weak links. The table on the following pages are from the British Gliding Association. However they do not supersede any specific recommendations by inspectors for particular gliders.

GLIDER TYPE	WEAK LINK	MAX T.O. WEIGHT Kilograms Dry/wet	SUGGESTED LAUNCH SPEED	MAX WINCH LAUNCHING SPEED 
AC4c	White	265 kg	55 Kts (102 Km/h)	60 Kts (111 Km/h)
ASH 25	Brown	750 kg	60-65 Kts (111-120 Km/h)	70 Kts (130 Km/h)
ASH 26	Red	525 Kg	60-65 Kts (111-120 Km/h)	70 Kts (130 Km/h)
ASK 14	Red			
ASK 18	Blue	335 kg	55 Kts (102 Km/h)	59 Kts (110 Kph)
ASK 21	Black	600 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
ASK 23	Blue	380 kg	60 Kts (111 Km/h)	67 Kts (125 Km/h)
Astir/Grob single	Blue	380/450 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
Astir Twin/Grob twin II	Brown	850 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
Grob twin III	Brown	850 kg	60 Kts (111 Km/h)	75 Kts (140 Km/h)
ASW 12	Red	430 kg	55-59 Kts (102-110 Km/h)	59 Kts (110 Kph)
ASW 15A	Blue	318 kg	55-59 Kts (102-110 Km/h)	59 Kts (110 Kph)
ASW 15B	Blue	340/408 kg	55-60 Kts (102-111 Km/h)	65 Kts (120 Kph)
ASW 17	Blue	570/609 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
ASW 19B	Blue	380/454 kg	60 Kts (111 Km/h)	67 Kts (125 Km/h)
ASW 20	Blue	380/454 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
ASW 22	Brown	750 kg	60-65 Kts (111-120 Km/h)	75 Kts (140 Km/h)
ASW 24	Blue	350/500 kg	60-65 Kts (111-120 Km/h)	75 Kts (140 Km/h)
ASW 27	Blue	395/500 kg	60-65 Kts (111-120 Km/h)	70 Kts (130 Km/h)
Austria std	Blue	323 kg	55 Kts (102 Km/h)	61 Kts (112 Km/h)
AV 22 & 36	See Fauvel			
Bergfalke 2	Brown	439 kg	50 Kts (92 Km/h)	50 Kts (92 Km/h)
Bergfalke 3	Black	465 kg	52 Kts (96 Km/h)	52 Kts (96 Km/h)
Bergfalke 4	Red	505 kg	55 Kts (102 Km/h)	59 Kts (110 Km/h)
BG135 (& YS 55)	Blue	297 kg	55-60 Kts (102-111 Km/h)	65 Kts (120 Km/h)
Bijave	Blue	500 Kg		54 Kts (100 Km/h)
Blanik L13	Blue	500 kg	55 Kts (102 Km/h)	65 Kts (120 Km/h)
Blanik L23 (super)	Blue	510 kg	55 Kts (102 Km/h)	65 Kts (120 Km/h)
Bocian 1D	Black	539 kg	54 Kts (100 Km/h)	54 Kts (100 Km/h)
Bocian 1E	Black	539 kg	54-60 Kts (100-111 Km/h)	62 Kts (115 Km/h)
Breguet 905	See Fauvette			
Cadet Mk1	See Tutor			
Cadet Mk2	See T21			
Cadet Mk3	See T.31			
Capstan	See T.49			
Carman JP15-34/36	See JP15-34 & 36			

GLIDER TYPE	WEAK LINK	MAX T.O. WEIGHT Kilograms Dry/wet	SUGGESTED LAUNCH SPEED	MAX WINCH LAUNCHING SPEED
Centrair 101 (Pégase)	See Pegasus			
Centrair 201B	See Marianne			
Cirrus (open)	Brown	400/460 kg	59 Kts (110 Km/h)	59 Kts (110 Km/h)
Cirrus (std)	Blue	330/390 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
Club Libelle	See Libelle (Club)			
Cobra	Red	385 kg	55-59 Kts (102-110 Km/h)	59 Kts (110 Km/h)
Condor 4	Black	520 Kg	54 Kts (100 Km/h)	
Crystal				
Cumulus	White	272 kg	43 Kts (80 Km/h)	43 Kts (80 Km/h)
Dart 15 & 17	White	354 kg	60 Kts (111 Km/h)	71 Kts (131 Km/h)
Delphin	Blue	375 kg		53 Kts (98 Km/h)
DG 100/200/300	Blue	370/450 Kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)
DG 400/600/800	Blue	380/525 kg	60 Kts (111 Km/h)	81 Kts (150 Km/h)
DG500/505 (18/20/22 M)	Black	650/750 kg	60-65 Kts (111-120 Km/h)	75 Kts (140 Km/h)
Diamant 16.5	Brown	390/408 kg	54-60 Kts (100-111 Km/h)	65 Kts (120 Km/h)
Diamant 18	Brown	408/440 kg	54-60 Kts (100-111 Km/h)	81 Kts (150 Km/h)
Discus	Blue	380/525 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Discus 2	Blue	370/525 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Doppelraab	Red			
Duo Discus	Brown	700 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Eagle	Blue	612 kg	54 Kts (100 Km/h)	70 Kts (130 Km/h)
Elfe S2	White	350 kg	54 Kts (100 Km/h)	54 Kts (100 Km/h)
EoN baby	White	277 kg	40-48 Kts (74-89 Km/h)	48 Kts (89 Km/h)
EoN primary	White	222 kg		39 Kts (72 Km/h)
Falcon	White	363 kg	45 Kts (83 Km/h)	70 Kts (130 Km/h)
Fauvel AV22	Blue	445 Kg		64 Kts (118 Km/h)
Fauvel AV36	White	225 kg	54 Kts (100 Km/h)	54 Kts (100 Km/h)
Fauvette (Breguet 905S)	Blue	272 kg	52 Kts (96 Km/h)	52 Kts (96 Km/h)
Foka 3	Blue	360 Kg	54-60 Kts (100-111 Km/h)	61 Kts (113 Km/h)
Foka 4 & 5	Blue	385 Kg	54-60 Kts (100-111 Km/h)	65 Kts (120 Km/h)
Geier I	Blue	359 kg	50 kts (93km/h)	54 Kts (100 Km/h)
Glasflügel 604	Brown	650 kg		70 Kts (130 Km/h)
Goevier III	Black		50-55 Kts (93-102 Km/h)	

Grünau 2/3/4/5	White	252 kg	40-43 Kts (74-80Km/h)	43 Kts (80 Km/h)
Gull 1 & 3	White	231 & 283	40-43 Kts (74-80Km/h)	43 Kts (80 Km/h)
Gull 4	White	317 Kg		52 Kts (96 Km/h)
Harbinger	Blue	487 kg		57 Kts (106 Km/h)
Hornet	Blue	419 kg	60 Kts (111 Km/h)	75 Kts (140 Km/h)
Hütter 17	White	210 kg	40-43 Kts (74-80Km/h)	45 Kts (83 Km/h)
Iris (D77)	White	330 kg	55-60 Kts (102-111 Km/h)	70 Kts (130 Km/h)
IS28 B2	Blue	590 Kg		67 Kts (125 Km/h)
IS29	Blue	360 Kg		59 Kts (110 Km/h)
IS30	Blue	590 kg		67 Kts (125 Km/h)
Jantar Std 1	Blue	366/520 Kg	60 Kts (111 Km/h)	59 Kts (110 Km/h)
Jantar Std 2	Red	384/535 Kg	60 Kts (111 Km/h)	67 Kts (124 Km/h)
Jantar Std 3	Blue	390/540 Kg	60 Kts (111 Km/h)	67 Kts (124 Km/h)
Jantar 1 (19 Meter)	Red	417/515 kg	59 Kts (110 Km/h)	59 Kts (110 Km/h)
Janus a & b	Brown	620 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
Janus c	Brown	700 Kg	60 Kts (111 Km/h)	81 Kts (150 Km/h)
Jaskolka Z	Blue	370/455 kg		48 Kts (90 Km/h)
Javelot (& Super)	White	350 Kg		54 Kts (100 Km/h)
JP 15-34 (Carman)	Blue	350 Kg	55-60 Kts (102-111 Km/h)	60 Kts (111 Km/h)
JP 15-36 A (Carman)	Blue	335 Kg	55-60 Kts (102-111 Km/h)	60 Kts (111 Km/h)
Junior	Red	380 kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)

GLIDER TYPE	WEAK LINK	MAX T.O. WEIGHT Kilograms Dry/wet	SUGGESTED LAUNCH SPEED	MAX WINCH LAUNCHING SPEED
Ka 1 & 3	White	195 Kg		48 Kts (90 Km/h)
Ka 2 & Ka 2b	Red	479 kg	50 kts (93 km/h)	54 Kts (100 Km/h)
Ka 4	See Rhönlerche 2			
Ka 6BR/CR	Blue	300 kg	50 Kts (93 Km/h)	60 Kts (111 Kph)
Ka 6E	Blue	300 kg	50 Kts (93 Km/h)	56 Kts (104 Kph)
Ka 7	Brown	480 kg	55 Kts (102 Km/h)	66 Kts (122 Km/h)
Ka 8	Blue	310 kg	50 Kts (93 Km/h)	60 Kts (111 Kph)
Kestrel 17/19	Blue	408/472 kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)
Kite 1	White	254 Kg	43 Kts (80 Km/h)	43 Kts (80 Km/h)
Kite 2B	White	295 Kg	50 kts (93 km/h)	52 Kts (96 Km/h)
Kranich III	Brown	520 Kg	50-54 kts (93-100 km/h)	54 Kts (100 Km/h)
KranjaneK (Zlin 4)	White		50 kts (93 km/h)	
L 33 (Solo)	Blue	340	55-60 Kts (102-111 Km/h)	70 Kts (130 Km/h)
LAK 12	Blue	430/650	60 Kts (111 Km/h)	75 Kts (140 Km/h)
Libelle Std (201)	Blue	320/350 kg	55-60 Kts (102-111 Km/h)	65 Kts (120 Km/h)
Libelle 301	Blue	300 Kg		65 Kts (120 Km/h)
Libelle (Club)	Blue	350		65 Kts (120 Km/h)
LO-100	Blue	265 kg		67 Kts (125 Km/h)
LS 1f	White	354/390 kg	55-60 Kts (102-111 Km/h)	
LS 3	Blue	380/472 kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)
LS 4	Blue	380/472 kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)
LS 6, 7 & 8	Red	380/525 kg	60 - 65 Kts (111- 120 Km/h)	75 Kts (140 Kph)
M100	Blue	315 Kg	54 Kts (100 Km/h)	54 Kts (100 Km/h)
M200	Blue	570 kg		65 Kts (120 Km/h)
Marianne	Red	655		70 Kts (130 Km/h)
ME 7	White	250 kg	55 Kts (102 Km/h)	60 Kts (111 Km/h)
Meise	Blue	304 kg		
MG 19A & B	Brown	479 Kg	43 Kts (80 Km/h)	43 Kts (80 Km/h)
Minimoa	White	350 kg	44 Kts (81 Km/h)	44 Kts (81 Km/h)
Mistral C	White	350 kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)
Mosquito	Blue	380/450 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Moswey III	White	250 Kg		67 Kts (125 Km/h)

Moswey IV	Blue	300 Kg		65 Kts (120 Km/h)
Mu13D	White	285 kg	43 Kts (80 Km/h)	45 Kts (83 Km/h)
Mucha std	Blue	324 kg		54 Kts (100 Km/h)
Mucha 100	White	290 kg		51 Kts (94 Km/h)
Nimbus 2	Red	470/580 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
Nimbus 3	Red	528/750 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Nimbus 3D(2 seat)	Black	800 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Nimbus 4 (all)	Black	800 kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Nimbus mini	Blue	380/450 Kg	60 Kts (111 Km/h)	81 Kts (150 Km/h)
Olympia 1	White	304 kg	43 Kts (80 Km/h)	43 Kts (80 Km/h)
Olympia 2 (b)	White	304 kg	50 Kts (93 Km/h)	55 Kts (102 Km/h)
Olympia 419	Blue	408 kg	50-55 Kts (93-102 Km/h)	60 Kts (111 Km/h)
Olympia 460/463	White	285 kg	50-55 Kts (93-102 Km/h)	66 Kts (122 Km/h)
Peak 100	Blue			
Pegasus (Pégase)	Blue	368/455 kg	60 Kts (111 Km/h)	65 Kts (120 Km/h)
Petrel	White	289 kg		43 Kts (80 Km/h)
Phoebus C	Red	375 kg		65 Kts (120 Km/h)
PIK 20 B & D	Blue	450 kg	60 Kts (111 Km/h)	67 Kts (124 Km/h)
PIK 20E	Blue	450 kg	60 Kts (111Km/h)	
PIK 16 (Vasama)	Blue	281 Kg		75 Kts (140 Km/h)
Pilatus B4	Blue	349 kg	55-60 Kts (102-111 Km/h)	70 Kts (130 Km/h)

GLIDER TYPE	WEAK LINK	MAX T.O. WEIGHT Kilograms Dry/wet	SUGGESTED LAUNCH SPEED	MAX WINCH LAUNCHING SPEED
Pirat	Blue	370 kg	55 Kts (102 Km/h)	64 Kts (118 Km/h)
Prefect	White	279 kg	45-49 Kts (83-91 Km/h)	50 Kts (92 Km/h)
Puchacz	Red	570 kg	55 Kts (102 Km/h)	59 Kts (110 Km/h)
PW-5	Blue	300 kg	55-60 Kts (102-111 Km/h)	65 Kts (120 Km/h)
Rheinland	White			
Rhönlander 2	White			
Rhönlerche 2 (Ka 4)	Brown	408 kg	45-49 kts (83-90 km/h)	49 Kts (90 Km/h)
Rhönspërber	White	282 kg	40-43 Kts (74-80Km/h)	43 Kts (80 Km/h)
Sagitta	Blue	331 kg	50-55 kts (93-102 km/h)	66 Kts (122 Km/h)
SB5 B & E	Blue	325 kg		54 Kts (100 Km/h)
Scud III	White	247 kg		43 Kts (80 Km/h)
SD-3 & SD-3-15	Blue	333 & 349 kg	55-60 Kts (102-111 Km/h)	65 Kts (120 Km/h)
SF 26A	Blue	310 kg	54 Kts (102 Km/h)	54 Kts (100 Km/h)
SF 27A	Red	330 kg	55 Kts (102 Km/h)	59 Kts (110 Km/h)
SF 34	Red	540 kg	55-60Kts (102-111 Km/h)	65 Kts (120 Km/h)
SG 38	306 kg max	222 kg		32 Kts (60 Km/h)
SHK	Blue	370 kg	50-55 Kts (95-102 Km/h)	56 Kts (104 Km/h)
SIE 3	Blue	340 kg	55 Kts (102 Km/h)	60 Kts (111 Km/h)
Silène	Blue	565 kg	55-60Kts (102-111 Km/h)	
Sky	White	385 kg	44 Kts (81 Km/h)	44 Kts (81 Km/h)
Skylark 2	Blue	331 kg	55-60 Kts (102-111 Km/h)	61 Kts (113 Km/h)
Skylark 3B & 3F	Blue	358-377 kg	55-60 Kts (102-111 Km/h)	71 Kts (131 Km/h)
Skylark 4	Blue	377 kg	55-60 Kts (102-111 Km/h)	76 Kts (141 Km/h)
SNC 34 (Alliance)	See SF 34			
Spatz & L-Spatz	White	265 kg	45-49 Kts (83-90 Km/h)	49 Kts (90 Km/h)
Sperber	Black			
Swallow	White	318 kg	50 Kts (93 Km/h)	64 Kts (119 Km/h)
Swift	White	410 kg		75 Kts (139 Km/h)
SZD 55	Blue	350/500 kg		78 Kts (145 Km/h)
T.21b (Cadet Mk 2)	White	476 kg	45-50 Kts (83-93 Km/h)	55 Kts (102 Km/h)
T.31 (Cadet Mk 3)	White	377 kg	45-50 Kts (83-93 Km/h)	48 Kts (89 Km/h)
T.49b (standard hook)	Blue	567 kg	55-60 Kts (102-111 Km/h)	66 Kts (122Km/h)
T.49b (belly hook)	Red	567 kg	55-60 Kts (102-111 Km/h)	66 Kts (122Km/h)
T.53 & YS53	Red	583 kg	55 Kts (102 Km/h)	70 Kts (130 Km/h)
Torva	White			
Tutor (Cadet Mk 1)	White	258 kg	45 (83 Km/h)	48 Kts (89 Km/h)
Vega	Blue	351/440 kg	60 Kts (111 Km/h)	70 Kts (130 Km/h)
Ventus	Blue	350/500 Kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Ventus 2	Blue	350/525 Kg	60-65 Kts (111-120 Km/h)	81 Kts (150 Km/h)
Viking	White	317 kg		50 Kts (92 Km/h)
Wassmer WA26 (Squale)	Blue	378 kg		65 Kts (120 Km/h)
Weihe	Blue	354 kg	48 Kts (90 Km/h)	48 Kts (90 Km/h)
Zugvogel 1, 2, 3 & 4	Blue	365 kg		54 Kts (100 Km/h)