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test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes

Manufacturer



Certification number PG_2306.2023

Flight test report: EN 926-2:2013+A1:2021* and NfL 2-565-20

Niviuk Gliders / Air Games S.L.

Address	C. Del Ter, 6 Nave D 17165 La Cellera de Spain		Flight test		03.11.2023	
Glider model	Ikuma 3 P 28		Classification		В	
Serial number	SI461927		Representative		None	
Trimmer	no		Place of test		Villeneuve	
Folding lines used	no					
· ·						
Test pilot		Claude Thurnheer			Alexandre Jofresa	
Harness Harness to risers distance (cm) Distance between risers (cm) Total weight in flight (kg)		Niviuk Hamak M 42 44 95			Advance Thun AG Success 4 M 43 48 115	
1. Inflation/Take-off		В				
Rising behaviour		Easy rising, some pilo	t correction is required	В	Easy rising, some pilot correction is required	В
Special take off technique	required	No		Α	No	Α
2. Landing		Α				
Special landing technique	required	No		Α	No	Α
3. Speed in straight fligh	nt	В				
Trim speed more than 30		Yes		Α	Yes	Α
Speed range using the controls larger than 10 km/h		Yes A		Yes	Α	
Minimum speed		Less than 25 km/h		Α	25 km/h to 30 km/h	В
4. Control movement		Α				
Max. weight in flight up	_					
Symmetric control pressure / travel		not available		0	not available	0
Max. weight in flight 80 I	kg to 100 kg					
Symmetric control pressure / travel		Increasing / greater than 60 cm A		Α	not available	0
Man mainht in flight and	atau thau 100 km					
Max. weight in flight gre Symmetric control pressur	-	not available		0	Increasing / greater than 65 cm	Α
Symmetric control pressur	ie / liavei	not available		Ü	moreasing, greater than 60 cm	
5. Pitch stability exiting		Α				
Dive forward angle on exit	t	Dive forward less than	n 30°	Α	Dive forward less than 30°	Α
Collapse occurs		No		Α	No	Α
6. Pitch stability operation accelerated flight	ng controls during	Α				
Collapse occurs		No		Α	No	Α
7. Roll stability and dam	ping	A				
Oscillations		Reducing		Α	Reducing	Α
O Ctobility in second	vala.	Δ.				
Stability in gentle spirTendency to return to stra		A Spontaneous exit		Α	Spontaneous exit	Α
Tondonoy to rotuin to stild	gg	-1		. •	,	- •

9. Behaviour exiting a fully developed spiral dive	В			
Initial response of glider (first 180°)	No immediate reaction	В	No immediate reaction	В
Tendency to return to straight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α
Turn angle to recover normal flight	720° to 1 080°, spontaneous recovery	В	720° to 1 080°, spontaneous recovery	В
10. Symmetric front collapse Approximately 30 % chord	A			
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
At least 50% chord	5 11 1 11 11 15		D. 11. 1. 1. 1. 1. 1.	
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in less than 3 s	Α .	Spontaneous in less than 3 s	Α .
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	A	Dive forward 0° to 30° / Keeping course	Α .
Cascade occurs	No	Α .	No	Α .
Folding lines used	No	Α	No	Α
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
11. Exiting deep stall (parachutal stall)	A Yes	٨	Yes	Α
Deep stall achieved	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Recovery	Dive forward 0° to 30°		Dive forward 0° to 30°	A
Dive forward angle on exit	Changing course less than 45°		Changing course less than 45°	A
Change of course	No		No	
Cascade occurs		А	NO.	Α
12. High angle of attack recovery Recovery	A Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	No	Α	No	Α
13. Recovery from a developed full stall	A			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Collapse	No collapse	Α	No collapse	Α
Cascade occurs (other than collapses)	No	Α	No	Α

Rocking back	Less than 45°	Α	Less than 45°	Α
Line tension	Most lines tight	Α	Most lines tight	Α
14. Asymmetric collapse Small asymmetric collapse	A			
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 0° to 15°	Α	Less than 90° / Dive or roll angle 0° to 15°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
Large asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 15° to 45°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
Small asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 15° to 45°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
Large asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 15° to 45°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α

A Parameter	Folding lines used	No	Α	No	Α
Able to keep course Yes A Yes A Yes A Yes A Now the collapsed side possible in 10 a Amount of control range between turn and stall or spin More then 50 % of the symmetric control travel A Now then 50 % of the symmetric control travel A Cascade occurs A Carraging course lices than 45° A Changing course lices than 40° A Spontaneous in less than 24° A Spontaneous in less than 24° A Spontaneous in less than 24° A Spontaneous in less than 34° A Spontaneo		A			
Amount of control range between turn and stall or spin 16. Trim speed spin tendency		Yes	Α	Yes	Α
16. Trim speed spin tendency Spin occurs No No A	180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	А
Spin occurs No A No	Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	Α	More than 50 % of the symmetric control travel	Α
The Content of Conte	16. Trim speed spin tendency	A			
Spin occurs No A No A No A 18. Recovery from a developed spin Spin rotation angle after release Stops spinning in 90° to 180° B Stops spinning in 80° to 180° A No A 19. B-line stall A Change of course before release Changing course less than 45° A Changing course less than 3 s A Changing course less than 4° Deductor course and Changing course course than 4° Deductor course and Changing course cour	Spin occurs	No	Α	No	Α
Spin rotation angle after release No A No A 19. B-line stall Change of course before release Change of course before release Remains stable with staight span A Recovery Spontaneous in less than 3s A Dive forward on 30s No A 20. Big ears Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Behaviour during big ears Stable flight A Entry procedure Dedicated controls A 21. Big ears in accelerated flight Entry procedure Dedicated controls A Entry procedure Dedicated controls A Entry procedure Dedicated controls A Stable flight A No A			Α	No	Α
Spin rotation angle after release No A No A 19. B-line stall Change of course before release Change of course before release Remains stable with staight span A Recovery Spontaneous in less than 3s A Dive forward on 30s No A 20. Big ears Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Entry procedure Dedicated controls A Recovery Spontaneous in less than 3s A Dive forward on 30s A Behaviour during big ears Stable flight A Entry procedure Dedicated controls A 21. Big ears in accelerated flight Entry procedure Dedicated controls A Entry procedure Dedicated controls A Entry procedure Dedicated controls A Stable flight A No A	18 Pacayary from a dayaloned spin	В			
Pis. B-line stall Change of course before release Changing course less than 45° A Remains stable with straight span A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward on the straight span A Cascade occurs No A No A No A No A No A No A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Dive forward on to 30° A Dive forward on the straight span A Stable flight A Dive forward on to 30° A Stable flight A Stable fl			В	Stops spinning in less than 90°	Α
Change of course before release Remains stable with straight span Recovery Spontaneous in less than 3 s Recovery Spontaneous in less than 3 s Recovery Remains stable with straight span A Recovery Spontaneous in less than 3 s A Dive forward angle on exit Dive forward 0° to 30° A No A No A No A No A Recovery Remains stable with straight span A Recovery A Recovery A Recovery No A Recovery R	Cascade occurs	No	Α	No	Α
Behaviour before release Remains stable with straight span A Remains stable with straight span A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward on to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Dive forward on to 30° A Dive forward on t	19. B-line stall				
Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward 0° to 30° A No A Dive forward 0° to 30° A No A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Dive forward 0° to 30° A Dive	Change of course before release	Changing course less than 45°	Α	Changing course less than 45°	Α
Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A No Cascade occurs A Dedicated controls A Stable flight A Stable flight A Dive forward 0° to 30° A Dedicated controls A Dive forward 0° to 30° A Dedicated controls A Dive forward 0° to 30° A Dedicated controls A Dedicated controls	Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Cascade occurs No A 20. Big ears Entry procedure Dedicated controls A Entry procedure Dedicated controls A Behaviour during big ears Stable flight A Stable flight A Stable flight A Entry procedure Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward angle on exit Dive forward 0° to 30° A Dive forward on to 30° A Entry procedure Dedicated controls A Entry procedure Dedicated controls A Behaviour during big ears Stable flight A Recovery Spontaneous in less than 3 s A Stable flight A Behaviour during big ears Stable flight A Dive forward 0° to 30° A Stable flight A Entry procedure Dedicated controls A Stable flight A Procedure works as described not available O not available	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
20. Big ears Entry procedure Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Stable flight A Dive forward uning big ears A Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Dedicated controls A Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Stable flight A Stable fl	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Entry procedure Dedicated controls A Dedicated controls A Stable flight A Dive forward or to 30° A Dive forward or to 30° A Dive forward or to 30° A Dedicated controls A Stable flight A Stable flight A Stable flight A Stable flight A Dive forward or to 30° A D	Cascade occurs	No	Α	No	Α
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Dive forward angle on exit Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Stable flight A Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0	Behaviour during big ears	Stable flight	Α	Stable flight	Α
21. Big ears in accelerated flight Entry procedure Dedicated controls A Behaviour during big ears Stable flight A Recovery Spontaneous in less than 3 s A Dive forward angle on exit Dive forward 0° to 30° A Behaviour immediately after releasing the accelerator while maintaining big ears 22. Alternative means of directional control A Stable flight A Pres A Tes A Stall or spin occurs No A No A No A Dive forward 0° to 30° A The stable flight A Stable flight A The stable flight A T	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Entry procedure Dedicated controls A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Dive forward angle on exit Dive forward 0° to 30° A Stable flight A S	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour during big ears Stable flight A Stable flight A Stable flight A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward on to 30 on the forward on to 30 on the forward on to 30 on the flight of the fli	21. Big ears in accelerated flight	A			
Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward on the stream of the stream	Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Behaviour immediately after releasing the accelerator while maintaining big ears 22. Alternative means of directional control 180° turn achievable in 20 s Yes A Yes A Stable flight A Stable flight A Stable flight A Stable flight A Pres A Pres A Pres A Pres Procedure flight procedure and/or configuration described in the user's manual Procedure works as described Not available O not available O not available O not available O	Behaviour during big ears	Stable flight	Α	Stable flight	Α
Behaviour immediately after releasing the accelerator while maintaining big ears 22. Alternative means of directional control 180° turn achievable in 20 s Stall or spin occurs No A Stall or spin occurs No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available not available 0 not available 0 not available 0 not available 0	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
while maintaining big ears 22. Alternative means of directional control 180° turn achievable in 20 s Yes A Yes A Stall or spin occurs No No A No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available o not available	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
180° turn achievable in 20 s Yes A Yes A Stall or spin occurs No No A No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0		Stable flight	Α	Stable flight	Α
Stall or spin occurs No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0 not available 0 not available 0 not available 0				V	_
23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0 not available 0 not available 0 not available 0 on tot available 0	180° turn achievable in 20 s	Yes	Α	Yes	Α
configuration described in the user's manual Procedure works as described not available 0 not available 0 Procedure suitable for novice pilots not available 0 not available 0	Stall or spin occurs	No	Α	No	Α
Procedure suitable for novice pilots not available 0 not available 0	23. Any other flight procedure and/or configuration described in the user's manual	0			
	Procedure works as described	not available	0	not available	0
Cascade occurs not available 0 not available 0	Procedure suitable for novice pilots	not available	0	not available	0
	Cascade occurs	not available	0	not available	0