



Air Turquoise SA Rte du Pré-au-Comte 8 | CH-1844 Villeneuve tel. +41 21 965 65 65 | mobile +41 79 202 52 30 info@para-test.com

Flight test report: EN 926-2:2013							
Manufacturer	Niviuk Gliders / Air Games S.L.	Certification number		PG_0963.2015			
Address	C. Del Ter, 6 – Nave D 17165 La Cellera de Ter Girona Spain	Date of flight test		24. 09. 2015			
Glider model	Ikuma 23	Classification		В			
Serial number	Toniuk 1-23	Representative		None			
Trimmer	no	Place of test		Villeneuve			
	•	. 1900 01 1001					
Test pilot		Fukuoka Seiko		Thurnheer Claude			
Harness		Flugsau - XX-Lite		Niviuk - Hamak M			
Harness to risers distance (cm)		41		44			
Distance between risers (cm)		40		44			
Total weight in fligh	t (ka)	65		85			
	· (3)						
1. Inflation/Take-off		A					
Rising behaviour		Smooth, easy and constant rising		Smooth, easy and constant rising	Α		
Special take off technique	required	No	Α	No	Α		
2. Landing	and an along all	A No.		Nie			
Special landing technique		No A	Α	No	Α		
Speed in straight flightTrim speed more than 30 k		Yes	Α	Yes	۸		
		Yes	Α	Yes	A A		
Speed range using the controls larger than 10 km/h Minimum speed		Less than 25 km/h	Α	Less than 25 km/h	A		
4. Control movement		A	, ,	2000 than 20 km/m	<i>,</i>		
Max. weight in flight up to 80 kg		la ana antina di anna dan Mara EE ana		and avertically	•		
Symmetric control pressure	e / travel	Increasing / greater than 55 cm	Α	not available	0		
Max. weight in flight 80 k	g to 100 kg						
Symmetric control pressure / travel		not available	0	Increasing / greater than 60 cm	Α		
Mary mainth in flight and	stan than 400 km						
Max. weight in flight greater than 100 kg Symmetric control pressure / travel		not available	0	not available	0		
5. Pitch stability exiting a		A	U	not available	U		
Dive forward angle on exit	iccelerated mgm	Dive forward less than 30°	Α	Dive forward less than 30°	Α		
Collapse occurs		No	Α	No No	Α		
	g controls during accelerated	Α					
Collapse occurs		No	Α	No	Α		
7. Roll stability and damp	ping	Α					
Oscillations		Reducing	Α	Reducing	Α		
8. Stability in gentle spira		A			_		
Tendency to return to straight flight		Spontaneous exit	Α	Spontaneous exit	Α		
9. Behaviour exiting a fully developed spiral dive		A	٨	Immediate reduction of the	Δ		
Initial response of glider (fin	ISLIØU)	Immediate reduction of rate of turn	Α	Immediate reduction of rate of turn	Α		
Tendency to return to straig	ght 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	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
10. Symmetric front collapse	В			
Approximately 30 % chord				
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	Α	Dive forward 0° to 30° Keeping	A
Dive loward angle on exit change of course	course	^	course	^
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
At least 50% chord				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in 3 s to 5 s	В
•	Dive forward 0° to 30° / Keeping	А	•	A
Dive forward angle on exit / Change of course	course	А	Dive forward 0° to 30° / Keeping course	A
Cascade occurs	No	Α	No	Α
Folding lines used	No	Α	No	Α
Mish accelerator				
With accelerator	Pooking back loss than 45°	٨	Packing back loss than 45°	٨
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in less than 3 s	A
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)	Α			
Deep stall achieved	Yes	Α	Yes	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Cascade occurs	No	Α	No	Α
12. High angle of attack recovery	A			
Recovery	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	Α			
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	В			
Small asymmetric collapse				
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 feavord or	00° to 100° / Divo or rell errel-	ר	00° to 100° / Divo or rell and a 45°	D
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В .	90° to 180° / Dive or roll angle 15° to 45°	В .
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α

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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	90° to 180° / Dive or roll angle	В	90° to 180° / Dive or roll angle 15°	В
roll angle	15° to 45°	Ь	to 45°	Ь
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
15. Directional control with a maintained asymmetric	A			
collapse	· ·			
Able to keep course	Yes	Α	Yes	Α
	V/			
180° turn away from the collapsed side possible in 10 s	Yes	A	Yes	A
180° turn away from the collapsed side possible in 10 s Amount of control range between turn and stall or spin	Yes More than 50 % of the symmetric control travel	A A	Yes More than 50 % of the symmetric control travel	A A
	More than 50 % of the		More than 50 % of the symmetric	
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel		More than 50 % of the symmetric	
Amount of control range between turn and stall or spin 16. Trim speed spin tendency	More than 50 % of the symmetric control travel A	A	More than 50 % of the symmetric control travel	Α
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs	More than 50 % of the symmetric control travel A No	A	More than 50 % of the symmetric control travel	Α
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency	More than 50 % of the symmetric control travel A No	A	More than 50 % of the symmetric control travel No	A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs	More than 50 % of the symmetric control travel A No A No	A	More than 50 % of the symmetric control travel No	A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin	More than 50 % of the symmetric control travel A No A No	A A	More than 50 % of the symmetric control travel No	A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90°	A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90°	A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No	A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90°	A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A	A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No	A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight	A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45°	A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span	A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span	A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s	A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s	A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°	A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°	A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No	A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°	A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A	A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight	A A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears Entry procedure Behaviour during big ears Recovery	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Dedicated controls Stable flight Spontaneous in less than 3 s	A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight Spontaneous in less than 3 s	A A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears Entry procedure Behaviour during big ears Recovery Dive forward angle on exit	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30°	A A A A A A A A A A A A A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight	A A A A A A A A A A A A A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears Entry procedure Behaviour during big ears Recovery Dive forward angle on exit 21. Big ears in accelerated flight	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A	A A A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30°	A A A A A A A A A A A A A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears Entry procedure Behaviour during big ears Recovery Dive forward angle on exit 21. Big ears in accelerated flight Entry procedure	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Dedicated controls	A A A A A A A A A A A A A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Standard technique	A A A A A A A A A A A A A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears Entry procedure Behaviour during big ears Recovery Dive forward angle on exit 21. Big ears in accelerated flight Entry procedure Behaviour during big ears	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Dedicated controls Stable flight	A A A A A A A A A A A A A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30°	A A A A A A A A A A A A A A A A A A A
Amount of control range between turn and stall or spin 16. Trim speed spin tendency Spin occurs 17. Low speed spin tendency Spin occurs 18. Recovery from a developed spin Spin rotation angle after release Cascade occurs 19. B-line stall Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs 20. Big ears Entry procedure Behaviour during big ears Recovery Dive forward angle on exit 21. Big ears in accelerated flight Entry procedure	More than 50 % of the symmetric control travel A No A No A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Dedicated controls	A A A A A A A A A A A A A A A A A A A	More than 50 % of the symmetric control travel No No Stops spinning in less than 90° No Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Standard technique	A A A A A A A A A A A A A A A A A A A

Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	А	Stable flight	Α
22. Alternative means of directional control	Α			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
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
Procedure suitable for novice pilots	not available	0	not available	0
Cascade occurs	not available	0	not available	0

24. Comments of test pilot

Comments