

Flight test report: EN 926-2:2013

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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	lkuma 23	Classification		В	
Serial number	Toniuk 1-23	Representative		None	
Trimmer	no	Place of test		Villeneuve	
Test pilot		Fukuoka Seiko		Thurnheer Claude	
Harness		Flugsau - XX-Lite		Niviuk - Hamak M	
Harness to risers dis	Harness to risers distance (cm)			44	
Distance between ris		40		44	
Total weight in flight		65		85	
1. Inflation/Take-off		Α			
Rising behaviour		Smooth, easy and constant rising		Smooth, easy and constant rising	A
Special take off technique required		No	A	No	А
2. Landing		A	•	Na	•
Special landing technique i 3. Speed in straight flight		No A	A	No	A
		Yes	А	Yes	А
Trim speed more than 30 km/h Speed range using the controls larger than 10 km/h		Yes	Ā	Yes	A
Minimum speed		Less than 25 km/h	Α	Less than 25 km/h	A
4. Control movement		A			
Max. weight in flight up to	o 80 ka				
Symmetric control pressure		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	А
Max. weight in flight grea	ter than 100 kg				
Symmetric control pressure	-	not available	0	not available	0
5. Pitch stability exiting a	ccelerated flight	Α			
Dive forward angle on exit		Dive forward less than 30°	А	Dive forward less than 30°	А
Collapse occurs		No	А	No	А
6. Pitch stability operatin flight	g controls during accelerated	Α			
Collapse occurs		No	А	No	А
7. Roll stability and damp	bing	Α			
Oscillations		Reducing	A	Reducing	Α
8. Stability in gentle spira		Α			
Tendency to return to straight flight		Spontaneous exit	A	Spontaneous exit	A
9. Behaviour exiting a fully developed spiral dive		A Immodiate reduction of rate of	٨	Immodiate reduction of rate of turn	٨
Initial response of glider (fi	ISE 100)	Immediate reduction of rate of turn	A	Immediate reduction of rate of turn	A
Tendency to return to straig	ght flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	A	Spontaneous exit (g force decreasing, rate of turn decreasing)	A

Turn angle to recover normal flight	Less than 720°, spontaneous recovery	A	Less than 720°, spontaneous recovery	A
10. Symmetric front collapse	В			
Approximately 30 % chord				
Entry	Rocking back less than 45°	А	Rocking back less than 45°	А
Recovery	Spontaneous in less than 3 s	А	Spontaneous in less than 3 s	А
Dive forward angle on exit Change of course	Dive forward 0° to 30° Keeping course	A	Dive forward 0° to 30° Keeping course	A
Cascade occurs	No	А	No	А
Folding lines used	No	А	No	А
At least 50% chord				
Entry	Rocking back less than 45°	А	Rocking back less than 45°	А
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in 3 s to 5 s	В
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	A	Dive forward 0° to 30° / Keeping course	A
Cascade occurs	No	А	No	А
Folding lines used	No	А	No	А
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With accelerator				
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	A	Dive forward 0° to 30° / Keeping course	A
Cascade occurs	No	A	No	A
Folding lines used	No	A	No	A
11. Exiting deep stall (parachutal stall)	A	٨	Vee	٨
Deep stall achieved	Yes	A		A
Recovery	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 0° to 30°	A
Change of course Cascade occurs	Changing course less than 45° No	A	Changing course less than 45° No	A A
	A	A	NO	A
12. High angle of attack recovery Recovery	A Spontaneous in less than 3 s	А	Spontaneous in less than 3 s	А
Cascade occurs	No	A	No	A
13. Recovery from a developed full stall	Δ	~		~
Dive forward angle on exit	Dive forward 0° to 30°	А	Dive forward 0° to 30°	А
Collapse	No collapse	A	No collapse	A
Cascade occurs (other than collapses)	No	Α	No	A
Rocking back	Less than 45°	Α	Less than 45°	A
Line tension	Most lines tight	Α	Most lines tight	A
14. Asymmetric collapse	B			
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°	A	to 15°	A
Re-inflation behaviour	Spontaneous re-inflation	А	Spontaneous re-inflation	A
Total change of course	Less than 360°	А	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	A	No (or only a small number of collapsed cells with a spontaneous reinflation)	A
Twist occurs	No	А	No	А
Cascade occurs	No	А	No	А
Folding lines used	No	А	No	А
Large asymmetric collapse				
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	А	Spontaneous re-inflation	А
Total change of course	Less than 360°	А	Less than 360°	А

Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	A	No (or only a small number of collapsed cells with a spontaneous reinflation)	A
Twist occurs	No	А	No	А
Cascade occurs	No	А	No	А
Folding lines used	No	Α	No	A
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°	A	Less than 90° / Dive or roll angle 15° to 45°	A
Re-inflation behaviour	Spontaneous re-inflation	А	Spontaneous re-inflation	А
Total change of course	Less than 360°	А	Less than 360°	А
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	A	No (or only a small number of collapsed cells with a spontaneous reinflation)	A
Twist occurs	No	А	No	А
Cascade occurs	No	А	No	А
Folding lines used	No	А	No	А
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°		to 45°	
Re-inflation behaviour	Spontaneous re-inflation	А	Spontaneous re-inflation	A
Total change of course	Less than 360°	А	Less than 360°	А
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	A	No (or only a small number of collapsed cells with a spontaneous reinflation)	A
Twist occurs	No	А	No	А
Cascade occurs	No	А	No	А
Folding lines used	No	А	No	А
15. Directional control with a maintained asymmetric collapse	A			
Able to keep course	Yes	А	Yes	А
180° turn away from the collapsed side possible in 10 s	Yes	А	Yes	А
Amount of control range between turn and stall or spin	More than 50 % of the	А	More than 50 % of the symmetric	А
	symmetric control travel		control travel	
16. Trim speed spin tendency	Α			
Spin occurs	No	Α	No	A
17. Low speed spin tendency	Α			
Spin occurs	No	A	No	A
18. Recovery from a developed spin	A			
Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	A
Cascade occurs	No	Α	No	A
19. B-line stall	Α			
Change of course before release	Changing course less than 45°	A	Changing course less than 45°	A
Behaviour before release	Remains stable with straight span	A	Remains stable with straight span	A
Recovery	Spontaneous in less than 3 s	А	Spontaneous in less than 3 s	А
Dive forward angle on exit	Dive forward 0° to 30°	А	Dive forward 0° to 30°	А
Cascade occurs	No	А	No	А
20. Big ears	Α			
Entry procedure	Dedicated controls	А	Standard technique	А
Behaviour during big ears	Stable flight	А	Stable flight	А
Recovery	Spontaneous in less than 3 s	А	Spontaneous in less than 3 s	А
Dive forward angle on exit	Dive forward 0° to 30°	А	Dive forward 0° to 30°	А
21. Big ears in accelerated flight	Α			
Entry procedure	Dedicated controls	А	Standard technique	А
Behaviour during big ears	Stable flight	А	Stable flight	А
Recovery	Spontaneous in less than 3 s	А	Spontaneous in less than 3 s	А
Dive forward angle on exit	Dive forward 0° to 30°	А	Dive forward 0° to 30°	А

Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	A	Stable flight	A
22. Alternative means of directional control	Α			
180° turn achievable in 20 s	Yes	А	Yes	А
Stall or spin occurs	No	А	No	А
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