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

AIR TURQUOISE SA certified by

Flight test report: EN

BUREAU VERITAS

Certification number Manufacturer Apco Aviation Ltd. PG_0350.2010 Address 7, Chalamish St., Industrial Date of flight test 10. 12. 2010

38900 Caesarea

Israel

Place of test Representative None Villeneuve

Glider model Classification С Force S

Trimmer yes: closed

> Test pilot Dupont Philippe Thurnheer Claude Niistis It Olida

Harness	Sup' Air - Access S		Niviuk Gliders - Hamak M	
Total weight in flight (kg) 80		90	
1. Inflation/Take-off	A			
Rising behaviour	Smooth, easy and constant rising	Α	Smooth, easy and constant rising	Α
Special take off technique required	No	Α	No	Α
2. Landing	Α			
Special landing technique required	No	Α	No	Α
3. Speed in straight flight	В			
Trim speed more than 30 km/h	Yes	Α	Yes	Α
Speed range using the controls larger than 10 km/h	Yes	Α	Yes	Α
Minimum speed	25 km/h to 30 km/h	В	25 km/h to 30 km/h	В
4. Control movement	A			
Max. weight in flight up to 80 kg				
Symmetric control pressure / travel	Increasing / greater than 55 cm	Α	not available	0
Max. weight in flight 80 kg to 100 kg				
Symmetric control pressure / travel	not available	0	Increasing / greater than 60 cm	Α
Max. weight in flight greater than 100 kg				
Symmetric control pressure / travel	not available	0	not available	0
5. Pitch stability exiting accelerated flight	A			
Dive forward angle on exit	Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs	No	Α	No	Α
6. Pitch stability operating controls during accelerated flight	A			
Collapse occurs	No	Α	No	Α
7. Roll stability and damping	A			
Oscillations	Reducing	Α	Reducing	Α
8. Stability in gentle spirals	A			
Tendency to return to straight flight	Spontaneous exit	Α	Spontaneous exit	Α
9. Behaviour in a steeply banked turn	В			
Sink rate after two turns	More than 14 m/s	В	More than 14 m/s	В
10. Symmetric front collapse	С			
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 30° to 60° / Keeping course	В	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back greater than 45°	С

Dive forward angle on exit / Change of course Dive forward 30° to 80° / Keeping course B. Cursulation of Change of 10 keeping course A. Volunt of Change of 10 keeping course A. Volunt of Change of 10 keeping course of State of Change of Change of Change of Change of Cause A. Ves Change of Change of Change of Change of Change of Cause of Ca	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Ne per part	•	·	В	•	
1. Exting deep stall (parachutal stall)	ů ů	Keeping course		course	
Neg stall archieved	Cascade occurs	No	Α	No	Α
Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward of 'to 30" A Dive forward 0" to 60" A Dive forward 0" to 60" A Dive forward 0" to	- · · · · · · · · · · · · · · · · · · ·				
Dive forward of to 30"	Deep stall achieved	Yes	Α	Yes	Α
Changing coruse Changing course less than 45° at Cascade occurs A Cascade occurs A No A No <t< td=""><td>Recovery</td><td>Spontaneous in less than 3 s</td><td>Α</td><td>Spontaneous in less than 3 s</td><td>Α</td></t<>	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
1. High angle of attack recovery Spontaneous in less than 3 s A Spontaneous in 3 s to 5 s Cascade occurs No No A No No No No No	Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Recovery	Cascade occurs		Α	No	Α
Cascade occurs No A No A 13. Recovery from a developed full stall A 13. Recovery from a developed full stall A Dive forward 0° to 30° A Dive forward 0° to 30° A Collapse No collapse A No collapse A Rocking back Less than 45° A Less than 45° A Line tension Most lines tight A Most lines tight A Line tension C Cull stands A Less than 45° A Less than 50° C Cull stands C Cull stands A No Change of course until re-inflation / Maximum dive forward of a lange of course Less than 360° A No A No A Collapse on the opposite side occurs Less than 360° A No A No A No A Cascade occurs No No A No A No A No A No A No A <	12. High angle of attack recovery	С			
10 10 10 10 10 10 10 10	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in 3 s to 5 s	С
Dive forward angle on exit			Α	No	Α
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Line tension Most lines tight A Most lines tight A Most lines tight A 14. Asymmetric collapse C 0° 10 180° / Dive or roll angle 45° coll 60° coll 6	Cascade occurs (other than collapses)	No	Α	No	Α
14. Asymmetric collapse C With 50% collapse 0° 0° to 180° / Dive or roll angle af5° to 60° C 90° to 180° / Dive or roll angle af5° to 60° C Re-inflation behaviour 5° to 60° A Less than 360° A Less than 360° A Collapse on the opposite side occurs No A No A No A Cascade occurs No A No A No A Cascade occurs No A No A No A Cascade occurs No A No A No A Change of course until re-inflation / Maximum dive forward or langle af5' to 60° 50° 10° to 180° / Dive or roll angle af5' to 60° 60° 8 Re-inflation behaviour Spontaneous re-inflation A Spontaneous re-inflation A Total change of course No A No A No A Calcapse on the opposite side occurs No A No A No A No A No <t< td=""><td>Rocking back</td><td>Less than 45°</td><td>Α</td><td></td><td>Α</td></t<>	Rocking back	Less than 45°	Α		Α
With 50% collapse With 50% collapse Collapse of course until re-inflation / Maximum dive forward or lal langle 90° to 180° / Dive or roll angle 45° to 60° Collapse or course until re-inflation / Maximum dive forward or langle 45° to 60° Collapse on the opposite side occurs A loss than 360° A loss than 360	Line tension	Most lines tight	Α	Most lines tight	Α
Change of course until re-inflation / Maximum dive forward or roll angle of the 180° / Dive or roll angle of 50 80° S0° to 180° / Dive or roll angle 45° to 60° C 160 60° Spontaneous re-inflation A 50 60° C 160 60° A 50 50 60° A 50 50 60° A 50 50 50 50 50 50 50 A 70 50 50 50 50 50 50 50 A 70 50 50 50 50 50 50 50 50 50 50 50 50 50	-	С			
Re-inflation behaviour	•				
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Cascade occurs No A No A With 75% collapse With 75% collapse Change of course until re-inflation / Maximum dive forward or loil angle 45° to 60° Chonge of course until re-inflation / Maximum dive forward or loil angle 45° to 60° C 90° to 180° / Dive or roll angle 60° to 90° C Re-inflation behaviour Spontaneous re-inflation A Spontaneous re-inflation A Total change of course Less than 360° A Less than 360° A A Vol No A No A Twist occurs No A No A Cascade occurs No A No A Change of course until re-inflation / Maximum dive forward or loil angle of course until re-inflation / Maximum dive forward or loil angle 45° to 60° C Less than 90° / Dive or roll angle 45° to 60° C Re-inflation behaviour Spontaneous re-inflation A Spontaneous re-inflation A Total change of course No A No A Caliapse on the opposite side occurs No A No A Total change of course	Collapse on the opposite side occurs	No	Α	No	Α
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Cascade occurs No No A No No A No	Collapse on the opposite side occurs	No	Α	No	Α
With 50% collapse and accelerator Position of Some and accelerator Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60° Quantification of Some and accelerator Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60° Change of course re-inflation Change of course re-inflation A some and accelerator A collapse on the opposite side occurs A collapse on the opposite side occurs No A collapse and accelerator A collapse occurs No A collapse and accelerator A collapse and accelerator A collapse and accelerator A collapse and accelerator A collapse of course until re-inflation / Maximum dive forward or roll angle 45° to 60° 20° to 180° / Dive or roll angle 60° Collapse or course until re-inflation / Maximum dive forward or roll angle 45° to 60° Collapse or course until re-inflation / Maximum dive forward or roll angle 45° to 60° Collapse or course until re-inflation / Maximum dive forward or roll angle 45° to 60° Collapse or roll angle 60° Collapse or to 180° / Dive or roll angle 60° Collapse or course re-inflation A collapse or roll angle 60° Collapse or roll angle 60° Collapse or course re-inflation A collapse or course roll angle 60° A collaps	Twist occurs	No	Α	No	Α
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Cascade occurs With 75% collapse and accelerator Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60° Re-inflation behaviour Total change of course Less than 360° A Spontaneous re-inflation A Spontaneous re-inflation A Spontaneous re-inflation A Collapse on the opposite side occurs No A No A No A No A No A Spontaneous re-inflation A Spontaneous re-inflation A Spontaneous re-inflation A Less than 360° A Less than 360° A Less than 360° A No 15. Directional control with a maintained asymmetric collapse Able to keep course Yes A Yes A More than 50 % of the symmetric A More than 50 % of the symmetric A More than 50 % of the symmetric	Collapse on the opposite side occurs	No	Α	No	Α
With 75% collapse and accelerator Change of course until re-inflation / Maximum dive forward or roll angle for angle angle for angle for to 90° to 180° / Dive or roll angle for to 90° to 180° / Dive or roll angle for to 90° Re-inflation behaviour Spontaneous re-inflation A Spontaneous re-inflation A Cotal change of course Less than 360° A Less than 360° A Less than 360° A Collapse on the opposite side occurs No A No A Twist occurs No A No A No A Cascade occurs No A No A No A Cascade occurs Total change of course A No A No A No A No A No A No A Cascade occurs A No A N	Twist occurs	No	Α	No	Α
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Cascade occurs No A No A No A No A 15. Directional control with a maintained asymmetric collapse Able to keep course Yes A 180° turn away from the collapsed side possible in 10 s Amount of control range between turn and stall or spin More than 50 % of the A More than 50 % of the symmetric A	Collapse on the opposite side occurs	No	Α	No	Α
15. Directional control with a maintained asymmetric collapse A Able to keep course Yes A A Yes A 180° turn away from the collapsed side possible in 10 s Yes A A Yes A A More than 50 % of the A More than 50 % of the symmetric A	Twist occurs	No	Α	No	Α
collapse Able to keep course Able to keep course 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 More than 50 % of the A More than 50 % of the symmetric A	Cascade occurs	No	Α	No	Α
180° turn away from the collapsed side possible in 10 s Yes A Yes A More than 50 % of the symmetric A More than 50 % of the symmetric		A			
Amount of control range between turn and stall or spin More than 50 % of the A More than 50 % of the symmetric A	Able to keep course	Yes	Α	Yes	Α
	180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
	Amount of control range between turn and stall or spin		Α		Α

16. Trim speed spin tendency	A			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	A			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	Α			
Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Cascade occurs	No	Α	No	Α
19. B-line stall	A			
Change of course before release	Changing course less than 45°	Α	Changing course less than 45°	Α
Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 30° to 60°	Α	Dive forward 0° to 30°	Α
Cascade occurs	No	Α	No	Α
20. Big ears	0			
Entry procedure	not available	0	not available	0
Behaviour during big ears	not available	0	not available	0
Recovery	not available	0	not available	0
Dive forward angle on exit	not available	0	not available	0
21. Big ears in accelerated flight	0			
Entry procedure	not available	0	not available	0
Behaviour during big ears	not available	0	not available	0
Recovery	not available	0	not available	0
Dive forward angle on exit	not available	0	not available	0
Behaviour immediately after releasing the accelerator while maintaining big ears	not available	0	not available	0
22. Behaviour exiting a steep spiral	A			
Tendency to return to straight flight	Spontaneous exit	Α	Spontaneous exit	Α
Turn angle to recover normal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
Sink rate when evaluating spiral stability [m/s]	16		23	
23. Alternative means of directional control	A			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
24. Any other flight procedure and/or configuration described in the user's manual	A			
Procedure works as described	Yes	Α	Yes	Α
Procedure suitable for novice pilots	Yes	Α	Yes	Α
Cascade occurs	No	Α	No	Α
25. Comments of test pilot				
Comments	Impossible to maintain the big ears		Impossible to maintain Big-ears	