AIR TURQUOISE SA certified by

Flight test report: EN



Manufacturer	Ozone Gliders	Certification number	PG_0403.2011
Address	2, Queens Drive LA46LN . UK	Date of flight test	07. 03. 2011
Representative	Ogden Russell	Place of test	Villeneuve
Glider model	Mantra M4 MS	Classification	D

Trimmer no				
Test pilot	Thurnheer Claude		Zoller Alain	
-	Sup'Air - Altiplume L		Sup'Air - Altiplume L	
Total weight in flight (kg)	·		95	
1. Inflation/Take-off	C			
Rising behaviour	Overshoots, shall be slowed down to avoid a front collapse	С	Overshoots, shall be slowed down to avoid a front collapse	С
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	С			
Max. weight in flight up to 80 kg				
Symmetric control pressure / travel	not available	0	not available	0
Max. weight in flight 80 kg to 100 kg				
Symmetric control pressure / travel	Increasing / 45 cm to 60 cm	С	Increasing / 45 cm to 60 cm	С
Max. weight in flight greater than 100 kg				
Symmetric control pressure / travel	not available	0	not available	0
5. Pitch stability exiting accelerated flight	Α			
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	Α			
Collapse occurs	No	Α	No	Α
7. Roll stability and damping	Α			
Oscillations	Reducing	Α	Reducing	Α
8. Stability in gentle spirals	Α			
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	D			
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Recovery through pilot action in less than a further 3 s	D
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
With accelerator				
Entry	Rocking back greater than 45°	С	Rocking back greater than 45°	С

Recovery	Recovery through pilot action in less than a further 3 s	D	Recovery through pilot action in less than a further 3 s	D
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
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	Α			
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	В			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 30° to 60°	В
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	D			
With 50% 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	Α	No	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
With 75% collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	180° to 360° / Dive or roll angle 45° to 60°	С	90° to 180° / Dive or roll angle 60° to 90°	С
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	Α	Yes, no turn reversal	С
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
With 50% collapse and accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	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
Collapse on the opposite side occurs	No	Α	No	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
With 75% collapse and accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	180° to 360° / Dive or roll angle 60° to 90°	D	90° to 180° / Dive or roll angle 60° to 90°	С
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	Yes, no turn reversal	С	Yes, causing turn reversal	D
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
15. Directional control with a maintained asymmetric collapse	A			
Able to keep course	Yes	Α	Yes	Α
180° turn away from the collapsed side possible in 10 s	Yes	A	Yes	A
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

Spin occurs	16. Trim speed spin tendency	Α			
Spin occurs No	Spin occurs	No	Α	No	Α
18. Recovery from a developed spin Spin rotation angle after release Stops spinning in less than 90° A Stops spinning in less than 90° A No	17. Low speed spin tendency	D			
Spin rotation angle after release	Spin occurs	No	Α	Yes	D
Cascade occurs No	18. Recovery from a developed spin	Α			
19. B-line stall C Changing course less than 45° A Changing course more than 45° C C C C C C C C C	Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Change of course before release Behaviour before release Remains stable without straight span Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward 30° to 60° A Cascade occurs No A	Cascade occurs	No	Α	No	Α
Remains stable without straight span Recovery Recovery Spontaneous in less than 3 s A Dive forward 30° to 60° A Cascade occurs No A No	19. B-line stall	С			
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Cascade occurs No A No A 20. Big ears B Entry procedure Dedicated controls A Dedicated controls A Behaviour during big ears Stable flight A Stable flight A Recovery Spontaneous in less than 3 s A Recovery through pilot action in less than 3 s A Recovery through pilot action in less than a further 3 s B Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Entry procedure Dedicated controls A Dedicated controls A Behaviour during big ears Stable flight A Stable flight A Recovery Spontaneous in less than 3 s A Recovery through pilot action in less than 3 s A Recovery through pilot action in less than 4 and further 3 s Dive forward angle on exit Dive forward 0° to 30° A Recovery through pilot action in less than 4 and further 3 s A Recovery through pilot action in less than 4 and further 3 s Dive forward angle on exit Dive forward 0° to 30° A Recovery through pilot action in less than 4 and further 3 s Recovery through pilot action in less than 4 and further 3 s Dive forward or to sit guestian stable flight A Stable flight<	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
20. Big ears B Entry procedure Dedicated controls A Dedicated controls A Behaviour during big ears Recovery Stable flight A Stable flight A Stable flight Recovery Spontaneous in less than 3 s A Recovery through pilot action in less than a further 3 s B Dive forward angle on exit B B Entry procedure Dedicated controls A Dedicated controls A Behaviour during big ears A Stable flight A Stable flight A Recovery through pilot action in less than 3 s A Recovery through pilot action in less than a further 3 s B Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Recovery through pilot action in less than a further 3 s B Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Recovery through pilot action in less than a further 3 s B Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Recovery through pilot action in less than a further 3 s B Dive forward angle on exit B B B Behaviour immediately after releasing the accelerator while maintaining big ears A Stable flight A Stable flight A Stable flight 2. Behaviour exiting a steep spiral A Spontaneous exit A Less than 720°, spontaneous exit A Les	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 30° to 60°	Α
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Tendency to return to straight flight Turn angle to recover normal flight Less than 720°, spontaneous exit A Less than 720°, spontaneous exit		Stable flight	Α	Stable flight	Α
Turn angle to recover normal flight Less than 720°, spontaneous recovery Sink rate when evaluating spiral stability [m/s] 17 24 23. Alternative means of directional control 180° turn achievable in 20 s Stall or spin occurs No A No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available not available not available onot available	22. Behaviour exiting a steep spiral	Α			
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Stall or spin occurs No A No A No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available o scacade occurs not available o not available o not available o not available o not available	23. Alternative means of directional control	Α			
24. 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 25. Comments of test pilot	180° turn achievable in 20 s	Yes	Α	Yes	Α
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Cascade occurs not available 0 not available 0 25. Comments of test pilot	Procedure works as described	not available	0	not available	0
25. Comments of test pilot	Procedure suitable for novice pilots	not available	0	not available	0
	Cascade occurs	not available	0	not available	0
Comments	25. Comments of test pilot				
	Comments				