



Flight test report



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|----------------|-----------------------------------|-----------------------|--------------|
| Manufacturer | Ozone Gliders | Certification number | PG_0228.2009 |
| Address | 2, Queens Drive LA46LN . UK | Date of flight test | 06. 05. 2009 |
| Representative | none | Place of test | Villeneuve |
| Glider model | Mantra M3 L | Classification | D |
| Trimmer | no | | |

Test pilot Thurnheer Claude Zoller Alain
Harness Sup'Air - Evo XC M Niviuk - Hamak M

Total weight in flight (kg) 97 117

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|--|--|---|--|---|
| 1. Inflation/Take-off | C | | | |
| Rising behaviour | Overshoots, shall be slowed down to avoid a front collapse | C | Overshoots, shall be slowed down to avoid a front collapse | C |
| Special take off technique required | No | A | No | A |
| 2. Landing | A | | | |
| Special landing technique required | No | A | No | A |
| 3. Speed in straight flight | B | | | |
| Trim speed more than 30 km/h | Yes | A | Yes | A |
| Speed range using the controls larger than 10 km/h | Yes | A | Yes | A |
| Minimum speed | 25 km/h to 30 km/h | B | Less than 25 km/h | A |
| 4. Control movement | B | | | |
| <i>Max. weight in flight up to 80 kg</i> | | | | |
| Symmetric control pressure / travel | not available | 0 | not available | 0 |
| <i>Max. weight in flight 80 kg to 100 kg</i> | | | | |
| Symmetric control pressure / travel | Approximately constant / greater than 60 cm | B | not available | 0 |
| <i>Max. weight in flight greater than 100 kg</i> | | | | |
| Symmetric control pressure / travel | not available | 0 | Increasing / greater than 65 cm | A |
| 5. Pitch stability exiting accelerated flight | A | | | |
| Dive forward angle on exit | Dive forward less than 30° | A | Dive forward less than 30° | A |
| Collapse occurs | No | A | No | A |
| 6. Pitch stability operating controls during accelerated flight | A | | | |
| Collapse occurs | No | A | No | A |
| 7. Roll stability and damping | A | | | |
| Oscillations | Reducing | A | Reducing | A |
| 8. Stability in gentle spirals | A | | | |
| Tendency to return to straight flight | Spontaneous exit | A | Spontaneous exit | A |
| 9. Behaviour in a steeply banked turn | B | | | |
| Sink rate after two turns | More than 14 m/s | B | More than 14 m/s | B |
| 10. Symmetric front collapse | B | | | |
| Entry | Rocking back less than 45° | A | Rocking back less than 45° | A |
| Recovery | Spontaneous in 3 s to 5 s | B | Spontaneous in 3 s to 5 s | B |
| 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 |
| <i>With accelerator</i> | | | | |
| Entry | Rocking back less than 45° | A | Rocking back less than 45° | A |

| | | | | |
|--|--|---|--|---|
| Recovery | Spontaneous in 3 s to 5 s | B | Spontaneous in 3 s to 5 s | B |
| Dive forward angle on exit / Change of course | Dive forward 0° to 30° / Keeping course | A | Dive forward 30° to 60° / Keeping course | B |
| Cascade occurs | No | A | No | A |
| 11. Exiting deep stall (parachutal stall) | A | | | |
| Deep stall achieved | Yes | A | Yes | 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 | Changing course less than 45° | A | not available | 0 |
| Cascade occurs | No | A | No | A |
| 12. High angle of attack recovery | A | | | |
| Recovery | Spontaneous in less than 3 s | A | Spontaneous in less than 3 s | A |
| Cascade occurs | No | A | No | A |
| 13. Recovery from a developed full stall | B | | | |
| Dive forward angle on exit | Dive forward 0° to 30° | A | Dive forward 30° to 60° | B |
| Collapse | No collapse | A | No collapse | A |
| Cascade occurs (other than collapses) | No | A | No | A |
| Rocking back | Less than 45° | A | Less than 45° | A |
| Line tension | Most lines tight | A | Most lines tight | A |
| 14. Asymmetric collapse | C | | | |
| <i>With 50% collapse</i> | | | | |
| 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 | A | Spontaneous re-inflation | A |
| Total change of course | Less than 360° | A | Less than 360° | A |
| Collapse on the opposite side occurs | No | A | No | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| <i>With 75% collapse</i> | | | | |
| Change of course until re-inflation / Maximum dive forward or roll angle | Less than 90° / Dive or roll angle 45° to 60° | C | 90° to 180° / Dive or roll angle 45° to 60° | C |
| Re-inflation behaviour | Spontaneous re-inflation | A | Spontaneous re-inflation | A |
| Total change of course | Less than 360° | A | Less than 360° | A |
| Collapse on the opposite side occurs | No | A | not available | 0 |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| <i>With 50% collapse and accelerator</i> | | | | |
| Change of course until re-inflation / Maximum dive forward or roll angle | Less than 90° / Dive or roll angle 15° to 45° | A | 90° to 180° / Dive or roll angle 15° to 45° | B |
| Re-inflation behaviour | Spontaneous re-inflation | A | Spontaneous re-inflation | A |
| Total change of course | Less than 360° | A | Less than 360° | A |
| Collapse on the opposite side occurs | No | A | No | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| <i>With 75% collapse and accelerator</i> | | | | |
| Change of course until re-inflation / Maximum dive forward or roll angle | 90° to 180° / Dive or roll 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 |
| Collapse on the opposite side occurs | No | A | No | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| 15. Directional control with a maintained asymmetric collapse | A | | | |
| Able to keep course | Yes | A | Yes | A |
| 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 | A | More than 50 % of the symmetric control travel | A |
| 16. Trim speed spin tendency | A | | | |

| | | | | |
|---|--|---|--|---|
| Spin occurs | No | A | No | A |
| 17. Low speed spin tendency | D | | | |
| Spin occurs | Yes | D | Yes | D |
| 18. Recovery from a developed spin | A | | | |
| Spin rotation angle after release | Stops spinning in less than 90° | A | Stops spinning in less than 90° | A |
| Cascade occurs | No | A | No | A |
| 19. B-line stall | D | | | |
| Change of course before release | Changing course more than 45° | C | Changing course more than 45° | C |
| Behaviour before release | Unstable | D | Unstable | D |
| 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 | Dive forward 0° to 30° | A | Dive forward 30° to 60° | A |
| 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 | Recovery through pilot action in less than a further 3 s | B | Spontaneous in less than 3 s | A |
| Dive forward angle on exit | Dive forward 0° to 30° | A | Dive forward 0° to 30° | A |
| 21. Big ears in accelerated flight | A | | | |
| Entry procedure | Dedicated controls | A | Dedicated controls | A |
| Behaviour during big ears | Stable flight | A | Stable flight | A |
| Recovery | Spontaneous in 3 s to 5 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 |
| Behaviour immediately after releasing the accelerator while maintaining big ears | Stable flight | A | Stable flight | A |
| 22. Behaviour exiting a steep spiral | D | | | |
| Tendency to return to straight flight | Turn remains constant | D | Spontaneous exit | A |
| Turn angle to recover normal flight | With pilot action | D | 720° to 1080°, spontaneous recovery | C |
| Sink rate when evaluating spiral stability [m/s] | 19 | | 28 | |
| 23. Alternative means of directional control | A | | | |
| 180° turn achievable in 20 s | Yes | A | Yes | A |
| Stall or spin occurs | No | A | No | A |
| 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 | | | | |
| Comments | | | | |