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AIR TURQUOISE SA certified by

Flight test report: EN

no

Trimmer

ISO 9001
BUREAU VERITAS

Manufacturer **Niviuk Gliders / Air Games** Certification number PG_0573.2012 Address C. Del Ter, 6 - Nave D Date of flight test 01.05.2012 17165 La Cellera de Ter Girona Spain Place of test Representative None Villeneuve Glider model Artik 3 27 Race Classification С

Test pilotThurnheer ClaudeZoller AlainHarnessNiviuk Gliders - Hamak MNiviuk - Hamak L

| Total weight in flight (kg | 90 | | 110 | |
|---|---|---|---|---|
| 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 | A | | | |
| Special landing technique required | No | Α | No | Α |
| 3. Speed in straight flight | A | | | |
| 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 | Less than 25 km/h | Α | Less than 25 km/h | Α |
| 4. Control movement | Α | | | |
| 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 / greater than 60 cm | Α | not available | 0 |
| Max. weight in flight greater than 100 kg | | | | |
| Symmetric control pressure / travel | not available | 0 | Increasing / greater than 65 cm | Α |
| 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 | 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 | В | | | |
| Entry | Rocking back less than 45° | Α | Rocking back less than 45° | Α |
| Recovery | Spontaneous in 3 s to 5 s | В | Spontaneous in less than 3 s | Α |
| 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 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 30° to 60° / Entering a | В |
| | course | | turn of less than 90° | |
| 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° | A | 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 | A | Spontaneous in less than 3 s | A |
| Cascade occurs | No | Α | No | Α |
| 13. Recovery from a developed full stall | B | ۸ | Dive ferward 20° to 60° | D |
| Dive forward angle on exit | Dive forward 0° to 30° | A | Dive forward 30° to 60° | В |
| Collapse Cascade occurs (other than collapses) | No collapse No | A A | No collapse No | A |
| | Less than 45° | | Less than 45° | A |
| Rocking back Line tension | Most lines tight | A A | Most lines tight | A A |
| 14. Asymmetric collapse | C C | А | wost inles tight | А |
| With 50% collapse | C | | | |
| 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 | 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 | 90° to 180° / Dive or roll angle 45° to 60° | С | 90° to 180° / Dive or roll angle 45° to 60° | 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 | 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 and accelerator | | | | |
| Change of course until re-inflation / Maximum dive forward or roll angle | 90° to 180° / Dive or roll angle 45° to 60° | С | 90° to 180° / Dive or roll angle 45° to 60° | 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 | No | Α |
| Twist occurs | No | Α | No | Α |
| Cascade occurs | No | Α | No | Α |
| 15. Directional control with a maintained asymmetric collapse | A | | v | |
| 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 | Α | More than 50 % of the symmetric control travel | Α |

| Spin occurs No A No No A No A No A Spin occurs No No A No No A Spin occurs No No No A Spin occurs No No No No No No No N | 16. Trim speed spin tendency | Α | | | |
|--|--|---------------------------------------|---|---------------------------------------|---|
| Spin occurs No A No No A No No A No No | Spin occurs | No | Α | No | Α |
| Spin rotation angle after release Stops spinning in less than 90° A Stops spinning in less than 90° A No A No A | 17. Low speed spin tendency | Α | | | |
| Spin rotation angle after release No No A No No A No A No A No A No A No | Spin occurs | No | Α | No | Α |
| Cascade occurs 19. B-line stall C 19. B-line stall Remains stable without straight span Remains stable without straight span Recovery Spontaneous in less than 3 s A Dive forward angle on exit Cascade occurs No A 19. Boy forward 0° to 30° No A 20. Big ears A 20. Big ears A 20. Big ears A 20. Behaviour during big ears Stable flight A 21. Big ears in accelerated flight A 21. Big ears in accelerated flight A Behaviour during big ears Stable flight A Behaviour during big ears Stable flight A Behaviour during big ears Stable flight A 21. Big ears in accelerated flight A Behaviour during big ears Stable flight A Stable flight | 18. Recovery from a developed spin | Α | | | |
| The stable of course before release Changing course less than 45° A Changing course more than 45° C Behaviour before release Remains stable without straight span stable without straight span (Changing course more than 45° A C Behaviour before release Remains stable without straight span (Changing course more than 45° A C Behaviour before release Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A C Remains stable without straight span (Changing course more than 45° A A Dive forward 0° to 30° A Div | Spin rotation angle after release | Stops spinning in less than 90° | Α | Stops spinning in less than 90° | Α |
| Change of course before release Remains stable without straight span Recovery Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward on the span Recovery Recovery Spontaneous in less than 3 s A Dive forward 0° to 30° A Dive forward 0° to | Cascade occurs | No | Α | No | Α |
| Behaviour before release Remains stable without straight span C Remains stable without straight span A A Recovery Spontaneous in less than 3 s A Dive forward 0" to 30" A No A N | 19. B-line stall | С | | | |
| 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 No No A Dive forward 0° to 30° A Dive forward | Change of course before release | Changing course less than 45° | Α | Changing course more than 45° | С |
| Dive forward angle on exit Cascade occurs No No A Dive forward 0° to 30° A No A Cascade occurs A Dive forward 0° to 30° A | Behaviour before release | · · · · · · · · · · · · · · · · · · · | С | · · · · · · · · · · · · · · · · · · · | С |
| Cascade occurs No A No A 20. Big ears A Entry procedure Dedicated controls A Standard technique A Behaviour during big ears Stable flight A Stable flight 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 21. Big ears in accelerated flight A Entry procedure Dedicated controls A Standard technique A Behaviour during big ears Stable flight A Stable flight A Stable flight A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward 0° to 30° A Recovery Spontaneous exit A Spontaneous in less than 3 s A Dive forward on the set shan 3 s A Pica Behaviour exiting a steep spiral A A Spon | Recovery | Spontaneous in less than 3 s | Α | Spontaneous in less than 3 s | Α |
| 20. Big ears Entry procedure Dedicated controls A Standard technique A Behaviour during big ears Stable flight A Dive forward angle on exit Dive forward o" to 30" A Stable flight A Stabl | Dive forward angle on exit | Dive forward 0° to 30° | Α | Dive forward 0° to 30° | Α |
| Entry procedure Dedicated controls A Standard technique A Behaviour during big ears Stable flight A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward or both of the stable flight A Dive forward 0° to 30° A Standard technique A Behaviour during big ears Stable flight A Dive forward 0° to 30° A Dive for | Cascade occurs | No | Α | No | Α |
| Behaviour during big ears Stable flight A Stable flight A Stable flight A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward one to 30° A Standard technique A Stable flight A Dive forward angle on exit A Dive forward one to 30° A Dive forward angle on exit Behaviour immediately after releasing the accelerator while maintaining big ears 22. Behaviour exiting a steep spiral A Stable flight | 20. Big ears | Α | | | |
| Recovery Spontaneous in less than 3 s A Dive forward 0° to 30° Dehaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A Dive forward 0° to 30° Dive forward 0° to 30° A Dive forward 0° to 3 | Entry procedure | Dedicated controls | Α | Standard technique | Α |
| Dive forward angle on exit Dive forward 0° to 30° A 21. Big ears in accelerated flight A Entry procedure Dedicated controls A Stable flight A Recovery Spontaneous in less than 3 s Dive forward 0° to 30° A Stable flight A Spontaneous in less than 3 s Dive forward 0° to 30° A Dive f | Behaviour during big ears | Stable flight | Α | Stable flight | Α |
| 21. Big ears in accelerated flight Entry procedure Dedicated controls A Standard technique A Behaviour during big ears Stable flight A Stable | Recovery | Spontaneous in less than 3 s | Α | Spontaneous in less than 3 s | Α |
| Entry procedure Dedicated controls A Standard technique A Behaviour during big ears Stable flight A Stable fli | Dive forward angle on exit | Dive forward 0° to 30° | Α | Dive forward 0° to 30° | Α |
| Behaviour during big ears Stable flight A Stable flight A Stable flight A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward on the stable flight Dive forward on to 30° A Behaviour immediately after releasing the accelerator while maintaining big ears 22. Behaviour exiting a steep spiral A Stable flight A Spontaneous exit A Stable flight A Spontaneous exit A Spontaneous exit A Spontaneous exit A Stable flight A Spontaneous exit A S | 21. Big ears in accelerated flight | Α | | | |
| 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 Dive forward 0° to 30° A Behaviour immediately after releasing the accelerator while maintaining big ears 22. Behaviour exiting a steep spiral A Spontaneous exit A Less than 720°, spontaneous exit A Less than 720°, spontaneous exit A Spontaneou | Entry procedure | Dedicated controls | Α | Standard technique | Α |
| Dive forward angle on exit Behaviour immediately after releasing the accelerator while maintaining big ears 22. Behaviour exiting a steep spiral A Tendency to return to straight flight A Spontaneous exit A Spontaneous exit A Spontaneous exit A Urn angle to recover normal flight Less than 720°, spontaneous recovery Sink rate when evaluating spiral stability [m/s] 21 23 23. Alternative means of directional control A Yes A Yes A Stable flight A Less than 720°, spontaneous exit A | Behaviour during big ears | Stable flight | Α | Stable flight | Α |
| Behaviour immediately after releasing the accelerator while maintaining big ears 22. Behaviour exiting a steep spiral A Tendency to return to straight flight Spontaneous exit A Spontaneous exit A Spontaneous exit A Less than 720°, spontaneous recovery Sink rate when evaluating spiral stability [m/s] 21 23 23. Alternative means of directional control A 180° turn achievable in 20 s Stall or spin occurs No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Procedure suitable for novice pilots Yes Yes A Yes A Yes A Yes A Procedure suitable for novice pilots Cascade occurs No User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Recovery | Spontaneous in less than 3 s | Α | Spontaneous in less than 3 s | Α |
| maintaining big ears 22. Behaviour exiting a steep spiral A Tendency to return to straight flight Spontaneous exit A Turn angle to recover normal flight Less than 720°, spontaneous recovery A Less than 720°, spontaneous recovery A Sink rate when evaluating spiral stability [m/s] 21 23 23. Alternative means of directional control A Yes 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 A Yes A Procedure works as described Yes A Yes A Procedure suitable for novice pilots Yes A Yes A Cascade occurs No A No A 25. Comments of test pilot User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Dive forward angle on exit | Dive forward 0° to 30° | Α | Dive forward 0° to 30° | Α |
| Tendency to return to straight flight Spontaneous exit A Spontaneous exit A Less than 720°, spontaneous recovery Sink rate when evaluating spiral stability [m/s] 21 23. Alternative means of directional control A 180° turn achievable in 20 s Stall or spin occurs No A Yes A Yes A No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Yes Yes A Yes A Yes A Yes A Scall or spin occurs A Yes A Scall or spin occurs A Yes A Yes A Scall or spin occurs A Yes A Scall or spin occurs A Yes A Yes A Yes A Scall or spin occurs A Yes A Scall or spin occurs A Yes A | | Stable flight | Α | Stable flight | Α |
| Turn angle to recover normal flight Less than 720°, spontaneous recovery A Less than 720°, spontaneous recovery Sink rate when evaluating spiral stability [m/s] 21 23 23. Alternative means of directional control A 180° turn achievable in 20 s Yes A Yes A Stall or spin occurs No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Yes A Yes A Yes A Yes A Cascade occurs No No A No A No A 25. Comments of test pilot Comments User's manual recommended to use B3 for "Big ears" Less than 720°, spontaneous recovery 23 A Less than 720°, spontaneous recovery 23 A Yes A Yes A Yes A Yes A Ves A User's manual recommended to use B3 for "Big ears" | 22. Behaviour exiting a steep spiral | Α | | | |
| Sink rate when evaluating spiral stability [m/s] 21 23 23. Alternative means of directional control A 180° turn achievable in 20 s Yes A Yes A Stall or spin occurs No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Yes A Yes A Procedure suitable for novice pilots Yes A Yes A Cascade occurs No A No A 25. Comments of test pilot Comments User's manual recommended to use B3 for "Big ears" Live Yes A Sacade occurs User's manual recommended to use B3 for "Big ears" A Ves's manual recommended to use B3 for "Big ears" Liver's manual recommended to use B3 for "Big ears" | Tendency to return to straight flight | Spontaneous exit | Α | Spontaneous exit | Α |
| 23. Alternative means of directional control 180° turn achievable in 20 s Yes No No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Yes Yes A Yes A Yes A Yes A Procedure suitable for novice pilots Yes No A Yes A Yes A Yes A Yes A Procedure suitable for novice pilots Yes A Yes A Yes A Yes A Yes A Yes A User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Turn angle to recover normal flight | | Α | | Α |
| 180° turn achievable in 20 s Yes A Yes A Yes A Stall or spin occurs No A No A No A No A No A 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Yes A Yes A Yes A Procedure suitable for novice pilots Yes A Yes A Yes A Stall or spin occurs A Yes A Yes A Procedure works as described Yes A | Sink rate when evaluating spiral stability [m/s] | 21 | | 23 | |
| Stall or spin occurs No A No A No A No A A No A A A A A A A | 23. Alternative means of directional control | Α | | | |
| 24. Any other flight procedure and/or configuration described in the user's manual Procedure works as described Yes Yes A Yes A Procedure suitable for novice pilots Yes No No A Ves A No A Ves A Ves A User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | 180° turn achievable in 20 s | Yes | Α | Yes | Α |
| described in the user's manual Procedure works as described Yes Yes A Yes A Procedure suitable for novice pilots Yes No No A No A No A 25. Comments of test pilot Comments User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Stall or spin occurs | No | Α | No | Α |
| Procedure suitable for novice pilots Yes A Yes A Cascade occurs No A No A 25. Comments of test pilot Comments User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | | Α | | | |
| Cascade occurs No A No A No A 25. Comments of test pilot Comments User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Procedure works as described | Yes | Α | Yes | Α |
| 25. Comments of test pilot Comments User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Procedure suitable for novice pilots | Yes | Α | Yes | Α |
| Comments User's manual recommended to use B3 for "Big ears" User's manual recommended to use B3 for "Big ears" | Cascade occurs | No | Α | No | Α |
| use B3 for "Big ears" use B3 for "Big ears" | 25. Comments of test pilot | | | | |
| | Comments | use B3 for "Big ears" | | use B3 for "Big ears" | |