

Flight test report: EN 926-2:2013 & LTF 91/09

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|--|---|-----------------------|---------------------|
| Manufacturer | U-Turn | Certification number | PG_1597.2019 |
| Address | Im Neuneck 1 78609 Tuningen Germany | Flight test | 08.10.2019 |
| Glider model | Morpheus NG 21 | Classification | D |
| Serial number | BU-MOR-NG-21-22SK-5515 | Representative | None |
| Trimmer | no | Place of test | Villeneuve |
| Folding lines used | no | | |
| Test pilot | | Claude Thurnheer | Anselm Rauh |
| Harness | | Advance - Success 4 M | Supair - Evo XC 3 L |
| Harness to risers distance (cm) | | 44 | 44 |
| Distance between risers (cm) | | 40 | 48 |
| Total weight in flight (kg) | | 75 | 115 |

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|--|---|---|---|---|
| 1. Inflation/Take-off | B | | | |
| Rising behaviour | Easy rising, some pilot correction is required | B | Easy rising, some pilot correction is required | B |
| 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 | 25 km/h to 30 km/h | B |
| 4. Control movement | D | | | |
| Max. weight in flight up to 80 kg | | | | |
| Symmetric control pressure / travel | Increasing / 40 cm to 55 cm | C | not available | 0 |
| Max. weight in flight 80 kg to 100 kg | | | | |
| Symmetric control pressure / travel | not available | 0 | not available | 0 |
| Max. weight in flight greater than 100 kg | | | | |
| Symmetric control pressure / travel | not available | 0 | Increasing / 35 cm to 50 cm | D |
| 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 | C | | | |
| Tendency to return to straight flight | Spontaneous exit | A | Turn remains constant | C |
| 9. Behaviour exiting a fully developed spiral dive | D | | | |
| Initial response of glider (first 180°) | No immediate reaction | B | Immediate increase in rate of turn | C |
| Tendency to return to straight flight | Turn remains constant (g force constant, rate of turn constant) | D | Turn remains constant (g force constant, rate of turn constant) | D |
| Turn angle to recover normal flight | With pilot action | D | With pilot action | D |
| 10. Symmetric front collapse | C | | | |
| Approximately 30 % chord | | | | |
| Entry | Rocking back less than 45° | A | Rocking back less than 45° | A |

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|--|--|---|--|---|
| Recovery | Spontaneous in less than 3 s | A | 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 30° to 60° Keeping course | B |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| At least 50% chord | | | | |
| Entry | Rocking back less than 45° | A | Rocking back less than 45° | A |
| Recovery | Spontaneous in 3 s to 5 s | B | 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 30° to 60° / Entering a turn of less than 90° | B |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| With accelerator | | | | |
| Entry | Rocking back less than 45° | A | Rocking back greater than 45° | C |
| Recovery | Spontaneous in 3 s to 5 s | B | 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 30° to 60° / Keeping course | B |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| 11. Exiting deep stall (parachutal stall) | | | | |
| 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 | Changing course less than 45° | A |
| Cascade occurs | No | A | No | A |
| 12. High angle of attack recovery | | | | |
| 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 | | | | |
| Dive forward angle on exit | Dive forward 30° to 60° | B | Dive forward 60° to 90° | C |
| 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 | | | | |
| Small asymmetric collapse | | | | |
| 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 (or only a small number of collapsed cells with a spontaneous re-inflation) | A | No (or only a small number of collapsed cells with a spontaneous re-inflation) | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| 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° | B | 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 (or only a small number of collapsed cells with a spontaneous re-inflation) | A | No (or only a small number of collapsed cells with a spontaneous re-inflation) | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| 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 | 90° to 180° / Dive or roll angle 15° to 45° | B |
| Re-inflation behaviour | Spontaneous re-inflation | A | Spontaneous re-inflation | A |

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|---|--|---|--|---|
| Total change of course | Less than 360° | A | Less than 360° | A |
| Collapse on the opposite side occurs | No (or only a small number of collapsed cells with a spontaneous re-inflation) | A | No (or only a small number of collapsed cells with a spontaneous re-inflation) | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| Large 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 45° to 60° | C | 180° to 360° / Dive or roll angle 60° to 90° | D |
| Re-inflation behaviour | Spontaneous re-inflation | A | Spontaneous re-inflation | A |
| Total change of course | Less than 360° | A | Greater than 360° with tendency to recover (g force decreasing, rate of turn decreasing) | C |
| Collapse on the opposite side occurs | No (or only a small number of collapsed cells with a spontaneous re-inflation) | A | No (or only a small number of collapsed cells with a spontaneous re-inflation) | A |
| Twist occurs | No | A | No | A |
| Cascade occurs | No | A | No | A |
| Folding lines used | No | | No | |
| 15. Directional control with a maintained asymmetric collapse | | | | |
| 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 | | | | |
| Spin occurs | No | A | No | A |
| 17. Low speed spin tendency | | | | |
| Spin occurs | No | A | No | A |
| 18. Recovery from a developed spin | | | | |
| Spin rotation angle after release | Stops spinning in less than 90° | A | Stops spinning in 90° to 180° | B |
| Cascade occurs | No | A | No | A |
| 19. B-line stall | | | | |
| 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 | 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 |
| Cascade occurs | No | A | No | A |
| 20. Big ears | | | | |
| 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 | 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 |
| 21. Big ears in accelerated flight | | | | |
| 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 | 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 |
| Behaviour immediately after releasing the accelerator while maintaining big ears | Stable flight | A | Stable flight | A |
| 22. Alternative means of directional control | | | | |
| 180° turn achievable in 20 s | Yes | A | Yes | A |
| Stall or spin occurs | No | A | No | A |
| 23. Any other flight procedure and/or configuration described in the user's manual | | | | |
| 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