

Manufacturer	Mac Para	Type testing No.	EAPR-GS-7163/09
Address	756 61 Roznov pod Radhostem, CZ	Date of testing	21./22.02.2009
Model	Progress 28	Location	Madeira



European Academy of Parachute Rigging e.V - Luitpoldstr. 30 - D87700 Memmingen - Germany
Under approval of **EPTA** European Paraglider Testlaboratory Alicane

	Minimum take off weight	Maximum take off weight
Testpilot	Johannes Tschofen	Mario Eder
Harness	Acvademy	Academy
Pilot's take off weight	85 kg	110 kg

Classification	A
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Test-criteria	Minimum take off weight	Evaluation	Maximum take off weight	Evaluation
1. Inflation / take-off - 4.4.1				
Rising behavior	Smooth, easy and constant rising	A	Smooth, easy and constant rising	A
Special take off technique required	No	A	No	A
2. Landing - 4.4.2				
Special landing technique required	No	A	No	A
3. Speeds in straight flight - 4.4.3				
Trim speed more than 30km/h	Yes	A	Yes	A
Speed range using the controls larger than 10km/h	Yes	A	Yes	A
Minimum speed	Less than 25 km/h	A	Less than 25 km/h	A
4. Control movement - 4.4.4				
Max. weight in flight up to 80kg		-		-
Max. weight in flight 80 to 100kg	Increasing > 60cm	A	Increasing > 60cm	A
Max. weight in flight greater than 100kg		-		-
5. Pitch stability exiting accelerated flight - 4.4.5				
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 - 4.4.6				
Collapse occurs	No	A	No	A
7. Roll stability and damping - 4.4.7				
Oscillations	Reducing	A	Reducing	A
8. Stability in gentle spirals - 4.4.8				
Tendency to return to straight flight	Spontaneous exit	A	Spontaneous exit	A
9. Behaviour in a steeply banked turn - 4.4.9				
Sink rate after two turns	Up to 12m/s	A	12m/s to 14m/s	A
10. Symmetric front collapse - 4.4.10				
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in less than 3 sec	A	Spontaneous in less than 3 sec	A
Dive forward angle on exit	0° - 30° Keeping course	A	0° - 30° Keeping course	A
Cascade occurs	No	A	No	A
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in less than 3 sec	A	Spontaneous in less than 3 sec	A
Dive forward angle on exit	0° - 30° Entering a turn of less than 90°	A	0° - 30° Keeping course	A
Cascade occurs	No	A	No	A

11. Exiting deep stall (parachutal stall) - 4.4.11									
Deep stall achieved	Yes				Yes				
Recovery	Spontaneous in less than 3 sec			A	Spontaneous in less than 3 sec			A	
Dive forward angle on exit	0° - 30°			A	0° - 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 - 4.4.12									
Recovery	Spontaneous in less than 3 sec			A	Spontaneous in less than 3 sec			A	
Cascade occurs	No			A	No			A	
13. Recovery from a developed full stall - 4.4.13									
Dive forward angle on exit	0° - 30°			A	0° - 30°			A	
Collapse	No collapse			A	No collapse			A	
Cascade occurs (other than collapse)	No			A	No			A	
Rocking backward	Less than 45°			A	Less than 45°			A	
Line tension	Most lines tight			A	Most lines tight			A	
14. Asymmetric collapse (trim speed) - 4.4.14									
Change of course until re-inflation	trim speed, max 50% collapse	< 90°	Dive or roll angle	15° - 45°	A	< 90°	Dive or roll angle	0° - 15°	A
Re-inflation behavior		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	
Change of course until re-inflation	trim speed, max 75% collapse	< 90°	Dive or roll angle	15° - 45°	A	< 90°	Dive or roll angle	15° - 45°	A
Re-inflation behavior		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	
Change of course until re-inflation	accelerated, max 50% collapse	< 90°	Dive or roll angle	15° - 45°	A	< 90°	Dive or roll angle	0° - 15°	A
Re-inflation behavior		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	
Change of course until re-inflation	accelerated, max 75% collapse	< 90°	Dive or roll angle	15° - 45°	A	< 90°	Dive or roll angle	15° - 45°	A
Re-inflation behavior		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 - 4.4.15									
Able to keep course straight	Yes			A	Yes			A	
180° turn away from the collapsed side possible in 10 sec	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 - 4.4.16									
Spin occurs	No			A	No			A	
17. Low speed spin tendency - 4.4.17									
Spin occurs	No			A	No			A	
18. Recovery from a developed spin - 4.4.18									
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 - 4.4.19									
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 sec			A	Spontaneous in less than 3 sec			A	
Dive forward angle on exit	0° - 30°			A	0° - 30°			A	
Cascade occurs	No			A	No			A	
20. Big ears - 4.4.20									
Entry procedure	Standard technique			A	Special device required			A	
Behaviour during big ears	Stable flight			A	Stable flight			A	
Recovery	Spontaneous in less than 3 sec			A	Spontaneous in less than 3 sec			A	
Dive forward angle on exit	0° - 30°			A	0° bis 30°			A	
21. Big Ears in accelerated flight - 4.4.21									
Entry procedure	Special device required			A	Special device required			A	
Behaviour during big ears	Stable flight			A	Stable flight			A	
Recovery	Spontaneous in less than 3 sec			A	Spontaneous in less than 3 sec			A	
Dive forward angle on exit	0° - 30°			A	0° bis 30°			A	
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight			A	Stable flight			A	

22. Behaviour exiting a steep spiral - 4.4.22				
Tendency to return to straight flight	Spontaneous exit	A	Spontaneous exit	A
Turn angle to recover normal flight	Less than 720°, spontaneous recovery	A	Less than 720°, spontaneous recovery	A
23. Alternative means of directional control - 4.4.23				
180° turn achievable in 20 sec	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 - 4.4.24				
Procedure works as described		NA		NA
Procedure suitable for novice pilots		NA		NA
Cascade occurs		NA		NA
25. Remarks of testpilot:				
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