


FTR - Flight Test Report

Dieser Prüfbericht darf ohne schriftliche Zustimmung der EAPR nicht, auch nicht auszugsweise, vervielfältigt werden.

Manufacturer	 Swing Flugsportgeräte GmbH An der Letten 4 D-82290 Landsberied	Type testing No.	EAPR-GS-0641/17
		serial number	1272329852
Model	Apus RS 23	Location	Gardasee
Comment			Malcesine, Monte Baldo



Rev. 2.3 - 26.11.2014
 EAPR GmbH - Marktstr. 11
 D-87730 Bad Grönenbach - Germany

Date of testing	24.04.2017	Minimum take off weight	70 kg	Maximum take off weight	90 kg
Testpilot		Mike Küng		Pascal Purin	
Harness		EAPR		EAPR	
Pilot's take off weight		70 kg		90 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, no pilot correction required	A	Smooth, easy and constant rising, no pilot correction required	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 exiting a fully developed spiral dive - 4.4.9				
Initial response of glider (first 180°)	Immediate reduction of rate in turn	A	Immediate reduction of rate in turn	A
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
10. Symmetric front collapse - 4.4.10				
Folding lines used	No		No	
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° 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° Keeping course	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									
Folding lines used	No				No				
Change of course until re-inflation	trim speed, max 50% collapse	< 90°	Dive or roll angle	0° - 15°	A	< 90°	Dive or roll angle	15° - 45°	A
		Spontaneous re-inflation			A	Spontaneous re-inflation			A
Re-inflation behavior	trim speed, max 75% collapse	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	15° - 45°	A
		Spontaneous re-inflation			A	Spontaneous re-inflation			A
Re-inflation behavior	accelerated, max 75% collapse	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	0° - 15°	A	< 90°	Dive or roll angle	15° - 45°	A
		Spontaneous re-inflation			A	Spontaneous re-inflation			A
Re-inflation behavior	accelerated, max 75% collapse	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	15° - 45°	A
		Spontaneous re-inflation			A	Spontaneous re-inflation			A
Re-inflation behavior	accelerated, max 75% collapse	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	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	
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight			A	Stable flight			A	
23. Alternative means of directional control - 4.4.22									
180° turn achievable in 20 sec	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 - 4.4.23									
Procedure works as described				NA				NA	
Procedure suitable for novice pilots				NA				NA	
Cascade occurs				NA				NA	
24. Remarks of testpilot:									



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Manufacturer	 Swing Flugsportgeräte GmbH An der Leiten 4 D-82290 Landsberied	Type testing No.	EAPR-GS-0642/17
		serial number	1272329852
Model	Apus RS 23	Location	Gardasee
Comment			Malcesine, Monte Baldo



Rev. 2.3 - 26.11.2014
 EAPR GmbH - Marktstr. 11
 D-87730 Bad Grönenbach - Germany

Date of testing	25.04.2017	Minimum take off weight	90 kg	Maximum take off weight	110 kg
Testpilot		Pascal Purin		Anselm Rauh	
Harness		EAPR		EAPR schwer	
Pilot's take off weight		90 kg		112 kg	

Classification	B
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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, no pilot correction required	A	Smooth, easy and constant rising, no pilot correction required	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	25 km/h to 30 km/h	B
4. Control movement - 4.4.4				
Max. weight in flight up to 80kg		-		-
Max. weight in flight 80 to 100kg		-		-
Max. weight in flight greater than 100kg	Increasing >65 cm	A	Increasing >65 cm	A
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 exiting a fully developed spiral dive - 4.4.9				
Initial response of glider (first 180°)	Immediate reduction of rate in turn	A	No immediate reaction	B
Tendency to return to straight flight	Spontaneous exit	A	Spontaneous exit	A
Turn angle to recover normal flight	Less than 720°, spontaneous recovery	A	720° to 1080°, spontaneous recovery	B
10. Symmetric front collapse - 4.4.10				
Folding lines used	No		No	
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° 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° Keeping course	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	30° - 60°				B	
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											
Folding lines used	No					No					
Change of course until re-inflation	trim speed, max 50% collapse	< 90°	Dive or roll angle	0° - 15°	A	< 90°	Dive or roll angle	15° - 45°	A		
		Spontaneous re-inflation				A	Spontaneous re-inflation				A
Re-inflation behavior	trim speed, max 75% collapse	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 50% collapse	< 90°	Dive or roll angle	15° - 45°	A	90° - 180°	Dive or roll angle	15° - 45°	B		
		Spontaneous re-inflation				A	Spontaneous re-inflation				A
Re-inflation behavior	trim speed, max 75% collapse	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	0° - 15°	A	< 90°	Dive or roll angle	15° - 45°	A		
		Spontaneous re-inflation				A	Spontaneous re-inflation				A
Re-inflation behavior	accelerated, max 75% collapse	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° - 180°	Dive or roll angle	15° - 45°	B		
		Spontaneous re-inflation				A	Spontaneous re-inflation				A
Re-inflation behavior	accelerated, max 75% collapse	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	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	
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight				A	Stable flight				A	
23. Alternative means of directional control - 4.4.22											
180° turn achievable in 20 sec	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 - 4.4.23											
Procedure works as described					NA					NA	
Procedure suitable for novice pilots					NA					NA	
Cascade occurs					NA					NA	
24. Remarks of testpilot:											