FTR - Flight Test Report / Tandem Trimmer: offen / open





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

Date of testing 29.11.2014	Minimum take off weight 110 kg	Maximum take off weight 180 kg
Testpilot	Anselm Rauh	Mike Küng
Harness	EAPR leicht	EAPR-Testequipment
Pilot's take off weight	109 kg	180 kg

Classification B



Test-criteria		Minimum take off weight		Evaluation	Maximum tak	e off weight		Evaluatio	
1. Inflation / take-off - 4.4.1									
Rising behavior		no pilot correction required			Α	no pilot correction required			Α
Special take off technique required		No		Α	No			A	
2. Landing - 4.4.2		140			_ A	140			_ A
Special landing technique required		I No			A	No			А
3. Speeds in straight flight - 4.4.3		110			, , ,	110			
Trim speed more than 30km/h		Yes			A	Yes			А
Speed range using the controls larger than 10km/h		Yes	İ			Yes		Α	
Minimum speed		Less than 25 kr	m/h		A	25 km/h to 30 km/h		В	
4. Control movement - 4.4.4		Less than 25 ki	1711		_ A	25 KII/II to 30	KIIVII		Ь
Max. weight in flight		1							Т.
greater than 100kg		Increasing	> 65cm		Α	Increasing	> 65cm	(Α
7. Roll stability and damping - 4.4.7									
Oscillations		Reducing			A	Reducing			Α
8. Stability in gentle spirals - 4.4.8									
Tendency to return to straight flight		Spontaneous ex	xit		Α	Spontaneous e	xit		Α
9. Behaviour exiting a fully developed spira	II dive - 4.4					AL C. P. C.			
Initial response of glider (first 180°) Tendency to return to straight flight		Spontaneous ex	uction of rate in tur	'n	A	No immediate reaction Spontaneous exit			B A
Turn angle to recover normal flight			, spontaneous rec	overy	A		spontaneous reco	very	В
10. Symmetric front collapse - 4.4.10				,		,			
Folding lines used		No				No			
Entry	20%	Rocking back le	ess than 45°		A	Rocking back I	ess than 45°		Α
Recovery	2 < pea	Spontaneous in	less than 3 sec		Α	Spontaneous in	less than 3 sec		Α
Dive forward angle on exit	elerat	0° - 30°	Keeping course		Α	30° - 60°	Entering a turn of	of less than 90°	В
Cascade occurs	8	No			Α	No			Α
11. Exiting deep stall (parachutal stall) - 4.	4.11								
Deep stall achieved		Yes				Yes			
Recovery		Spontaneous in	less than 3 sec		Α	Spontaneous in	less than 3 sec		Α
Dive forward angle on exit		0° - 30°			Α	30° - 60°		-	В
Change of course		Changing cours	e less than 45°		A		se less than 45°		Α
Cascade occurs		No			A	No			Α
12. High angle of attack recovery - 4.4.12									
		Spontaneous in less than 3 sec					Spontaneous in less than 3 sec		
Recovery		Spontaneous in	less than 3 sec		А	Spontaneous in	less than 3 sec		Α
Recovery Cascade occurs		Spontaneous in	less than 3 sec		A A	Spontaneous in	n less than 3 sec		A
	1.4.13		less than 3 sec				n less than 3 sec		
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit	I.4.13	No 0° - 30°	less than 3 sec		A	No 30° - 60°	n less than 3 sec		A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse	1.4.13	No 0° - 30° No collapse	n less than 3 sec		A A A	No 30° - 60° No collapse	n less than 3 sec		A B A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse)	l.4.13	No O° - 30° No collapse No	n less than 3 sec		A A A	No 30° - 60° No collapse No	n less than 3 sec		A B A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward	1.4.13	No O° - 30° No collapse No Less than 45°			A A A A	No 30° - 60° No collapse No Less than 45°			A B A A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension		No O° - 30° No collapse No			A A A	No 30° - 60° No collapse No			A B A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4		No O° - 30° No collapse No Less than 45°			A A A A	No 30° - 60° No collapse No Less than 45°			A B A A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4	.14	No O° - 30° No collapse No Less than 45° Most lines tight		0° - 15°	A A A A	No 30° - 60° No collapse No Less than 45° Most lines tight		15° - 45°	B A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4 Folding lines used	.14	No O° - 30° No collapse No Less than 45° Most lines tight	Dive or roll angle	0° - 15°	A A A A A A	No 30° - 60° No collapse No Less than 45° Most lines tight	Dive or roll angle	15° - 45°	B A A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4 Folding lines used Change of course until re-inflation Re-inflation behavior Total change of course	.14	No 0°-30° No collapse No Less than 45° Most lines tight No <90° Spontaneous re Less than 360°	Dive or roll angle	0° - 15°	A A A A A A A	No 30° - 60° No collapse No Less than 45° Most lines tight No 90° - 180° Spontaneous in Less than 360°	Dive or roll angle	15° - 45°	B A A A A A A A A A A A A A A A A A A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4 Folding lines used Change of course until re-inflation Re-inflation behavior Total change of course Collapse on the opposite side occurs	.14	No 0° - 30° No collapse No Less than 45° Most lines tight No < 90° Spontaneous re Less than 360° No	Dive or roll angle	0° - 15°	A A A A A A A A A A A A A A A A A A A	No 30° - 60° No collapse No Less than 45° Most lines tight No 90° - 180° Spontaneous re Less than 360° No	Dive or roll angle	15° - 45°	B A A A A A A A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4 Folding lines used Change of course until re-inflation Re-inflation behavior Total change of course Collapse on the opposite side occurs Twist occurs	.14	No 0° - 30° No collapse No Less than 45° Most lines tight No < 90° Spontaneous re Less than 360° No	Dive or roll angle	0° - 15°	A A A A A A A A A A A	No 30° - 60° No collapse No Less than 45° Most lines tight No 90° - 180° Spontaneous re Less than 360° No	Dive or roll angle	15° - 45°	B A A A A A A A
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Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4 Folding lines used Change of course until re-inflation Re-inflation behavior Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs	accelerated, max 50% collepse	No 0° - 30° No collapse No Less than 45° Most lines tight No < 90° Spontaneous re Less than 360° No No	Dive or roll angle		A A A A A A A A A	No 30° - 60° No collapse No Less than 45° Most lines tight No Spontaneous in Less than 360° No No	Dive or roll angle e-inflation Dive or roll angle	1	B A A A A A A A A
Cascade occurs 13. Recovery from a developed full stall - 4 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (accelerated) - 4.4 Folding lines used Change of course until re-inflation Re-inflation behavior Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Change of course until re-inflation Re-inflation behavior Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Change of course until re-inflation Re-inflation behavior Total change of course	accelerated, max 50% collepse	No 0° - 30° No collapse No Less than 45° Most lines tight No < 90° Spontaneous re Less than 360° No No No 90° - 180°	Dive or roll angle e-inflation Dive or roll angle e-inflation		A A A A A A B B	No 30° - 60° No collapse No Less than 45° Most lines tight No 90° - 180° Spontaneous n Less than 360° No No No 90° - 180°	Dive or roll angle e-inflation Dive or roll angle e-inflation	1	B A A A A A A B B
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Spin occurs No	Able to keep course straight	Yes	Α	Yes	Α	
16. Trim speed spin tendency - 4.4.16 Spin occurs No A No 17. Low speed spin tendency - 4.4.17 Spin occurs No A No 18. Recovery from a developed spin - 4.4.18 Spin rotation angle after release Stops spinning in less than 90° A No 19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Divertorward angle on exit 0°-30° A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A Stable flight A Stable flight A Stable flight 3. A Hernative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes Stall or spin occurs No A No A No A Yes Stall or spin occurs No A No	180° turn away from the collapsed side possible in 10 sec	Yes	А	Yes	А	
Spin occurs No	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	А	
17. Low speed spin tendency - 4.4.17 Spin occurs No A No 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 No 19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span A Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit O° - 30° A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight Behavior when closing the trimmer while maintaining big ears 23. Alternative means of directional control - 4.4.22 Yes Yes A No A No A No A No A No	16. Trim speed spin tendency - 4.4.16					
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° Cascade occurs No A No A No 19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span A Spontaneous in less than 3 sec Dive forward angle on exit O* - 30° A 30° - 60° Cascade occurs No A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A Stable flight 32. Alternative means of directional control - 4.4.22 Yes A Yes Stall or spin occurs No A No A No	Spin occurs	No	Α	No	А	
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° Cascade occurs No A No A No 19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span A Spontaneous in less than 3 sec Dive forward angle on exit O* - 30° A 30° - 60° Cascade occurs No A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A Stable flight 32. Alternative means of directional control - 4.4.22 Yes A Yes Stall or spin occurs No A No A No	17. Low speed spin tendency - 4.4.17					
Spin rotation angle after release Stops spinning in less than 90° A Stops spinning in less than 90° A No 19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span A Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit 0° - 30° A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight Spontaneous in less than 3 sec B Spontaneous in less than 3 sec Dive forward angle on exit Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight	Spin occurs	No	Α	No	А	
Cascade occurs No A No 19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit 0° - 30° A 30° - 60° Cascade occurs No A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight Recovery Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit O° - 30° Behavior during big ears Stable flight A Stable flight A Stable flight A Stable flight 23. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	18. Recovery from a developed spin - 4.4.18					
19. B-line-stall - 4.4.19 Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit 0°-30° A 30°-60° Cascade occurs No A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight Recovery Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit 0°-30° A 0° bis 30° Behavior when closing the trimmer while maintaining big ears 23. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs	Spin rotation angle after release	Stops spinning in less than 90°	А	Stops spinning in less than 90°	А	
Change of course before release Changing course less than 45° A Changing course less than 45° Behaviour before release Remains stable with straight span A Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit O° - 30° A 30° - 60° Cascade occurs No A No A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight	Cascade occurs	No	А	No	А	
Behaviour before release Remains stable with straight span Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit Dive forward angle on exit Entry procedure Special device required Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A O° bis 30° Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight	19. B-line-stall - 4.4.19					
Recovery Spontaneous in less than 3 sec A Spontaneous in less than 3 sec Dive forward angle on exit 0° - 30° A 30° - 60° A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A Stable flight Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit Seakey Stable flight A Stable flight A Stable flight Sakey Stable flight A Stable fligh	Change of course before release	Changing course less than 45°	А	Changing course less than 45°	А	
Dive forward angle on exit O°-30° A 30°-60° Cascade occurs No A No 21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight Spontaneous in less than 3 sec Dive forward angle on exit Behavior when closing the trimmer while maintaining big ears 3 table flight A Stable flight A Stable flight Stable flight A Stable flight	Behaviour before release	Remains stable with straight span	А	Remains stable with straight span	А	
Cascade occurs No A No	Recovery	Spontaneous in less than 3 sec	А	Spontaneous in less than 3 sec	А	
21. Big Ears in accelerated flight - 4.4.21 Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight Recovery Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit 0° - 30° A 0° bis 30° Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight 23. Alternative means of directional control - 4.4.22 Yes A Yes	Dive forward angle on exit	0° - 30°	А	30° - 60°	А	
Entry procedure Special device required A Standard technique Behaviour during big ears Stable flight A Stable flight A Stable flight A Stable flight A Stable flight Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit 0° - 30° A 0° bis 30° Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight 23. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	Cascade occurs	No	Α	No	Α	
Behaviour during big ears Stable flight A Stable flight Recovery Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight A Stable flight A Stable flight A Stable flight A Stable flight A Stable flight	21. Big Ears in accelerated flight - 4.4.21					
Recovery Spontaneous in 3 to 5 sec B Spontaneous in less than 3 sec Dive forward angle on exit 0° - 30° A 0° bis 30° Behavior when closing the trimmer while maintaining big ears 23. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	Entry procedure	Special device required	А	Standard technique	Α	
Dive forward angle on exit 0° - 30° A 0° bis 30° Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight A Stable flight 3. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	Behaviour during big ears	Stable flight	Α	Stable flight		
Behavior when closing the trimmer while maintaining big ears Stable flight A Stable flight 23. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	Recovery	Spontaneous in 3 to 5 sec	В			
23. Alternative means of directional control - 4.4.22 180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	Dive forward angle on exit	0° - 30° A 0° bis 30°		0° bis 30°	Α	
180° turn achievable in 20 sec Yes A Yes Stall or spin occurs No A No	Behavior when closing the trimmer while maintaining big ears	Stable flight	Α	Stable flight		
Stall or spin occurs No A No	23. Alternative means of directional control - 4.4.22					
	180° turn achievable in 20 sec	Yes	А	Yes	А	
23. Any other flight procedure and/or configuration described in the user's manual - 4.4.23	Stall or spin occurs	No	Α	No		
	23. Any other flight procedure and/or configuration desc	cribed in the user's manual - 4.4.23				
Procedure works as descibed NA	Procedure works as descibed		NA		NA	
Procedure suitable for novice pilots NA	Procedure suitable for novice pilots		NA		NA	
Cascade occurs NA	Cascade occurs		NA		N/	

Flight Test Report - Musterprüfnummer: EAPR-GS-0333/15 Seite 2 von 2