ECHNICAL DATA DHV TESTREPORT LTF DHV TESTREPORT EN	DATASHEET PARTS LIST OPERATING INSTRUCT	
IV TESTREPORT EN 926-2:2013+A1:2	021	Ding
UP TRANGO X SM		
Type designation	UP Trango X SM	
Type test reference no	DHV GS-01-2763-23	
Holder of certification		
	UP International GmbH	and the second sec
Classification Winch towing		
Number of seats min / max		
Accelerator		And the second se
Trimmers	No	
	BEHAVIOUR AT MIN WEIGHT IN	BEHAVIOUR AT MAX WEIGHT
—	FLIGHT (75KG)	IN FLIGHT (100KG)
Test pilots		
	Josef Bauer	Harald Buntz
Inflation/take-off	No release B	No release B
		. <u></u>
Rising behaviour Special take off technique required	Easy rising, some pilot correction is required	Easy rising, some pilot correction is required No
Landing	Α	Α
Special landing technique required	No	No
Speeds in straight flight	A	в
Trim speed more than 30 km/h	Yes	Yes
Speed range using the controls larger than 10 km/h		Yes
Minimum speed	Less than 25 km/h	25 km/h to 30 km/h
Control movement	c	c
Symmetric control pressure	Increasing	Increasing
Symmetric control travel	40 cm to 55 cm	45 cm to 60 cm
Pitch stability exiting accelerated flight	A	A
Dive forward angle on exit	Dive forward loss than 200	Dive forward less than 30°
Dive forward angle on exit Collapse occurs		No
Pitch stability operating controls during accelerated flight	A	A
Collapse occurs	No	No
Roll stability and damping	A	A
Oscillations	Reducing	Reducing
Stability in gentle spirals	A	A
Tendency to return to straight flight	· · · · · · · · · · · · · · · · · · ·	Spontaneous exit
Behaviour exiting a fully developed spiral dive	В	В
Initial response of glider (first 180°)	en : keine unmittelbare Reaktion	Immediate reduction of rate of turn
	Spontaneous exit (g force decreasing, rate of turn decreasing)	
Turn angle to recover normal flight	Less than 720°, spontaneous recovery	720° to 1 080°, spontaneous recovery
Symmetric front collapse	В	В
	Rocking back less than 45°	Rocking back less than 45°
Recovery Dive forward angle on exit	Spontaneous in less than 3 s Dive forward 30° to 60°	Spontaneous in less than 3 s Dive forward 30° to 60°

Change of course		Keeping course
Cascade occurs Folding lines used		No no
r ording mes used		10
<u>Unaccelerated collapse (at least 50 % chord)</u>	в	В
Entry	r Rocking back less than 45°	Rocking back less than 45°
-	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 30° to 60°	Dive forward 30° to 60°
Change of course		Keeping course
Cascade occurs		No
Folding lines used	no	no
Accelerated collapse (at least 50 % chord)	В	в
	<u>.</u>	<u>i</u>
-	r Rocking back less than 45° r Spontaneous in less than 3 s	Rocking back less than 45° Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 30° to 60°
_	Entering a turn of less than 90°	Keeping course
Cascade occurs	s No	No
Folding lines used	l no	no
	1.	1
Exiting deep stall (parachutal stall)	<u> </u> A	<u> </u> A
Deep stall achieved		Yes
Recovery Dive forward angle on exit	Spontaneous in less than 3 s	Spontaneous in less than 3 s
<u> </u>	Changing course less than 45°	Dive forward 0° to 30° Changing course less than 45°
Cascade occurs		No
High angle of attack recovery	c	Α
Recovery	Spontaneous in 3 s to 5 s	Spontaneous in less than 3 s
Cascade occurs	s No	No
	1_	1_
Recovery from a developed full stall	B	В
Dive forward angle on exit		Dive forward 30° to 60°
	No collapse	No collapse
Cascade occurs (other than collapses)	No	No
	Locs than 4E9	Loss than 459
Rocking back	Less than 45° Most lines tight	Less than 45° Most lines tight
Rocking back	: Less than 45° Most lines tight	Less than 45° Most lines tight
Rocking back		
Rocking back Line tension	Most lines tight B	Most lines tight
Rocking back Line tension <u>Small asymmetric collapse</u>	Most lines tight B 90° to 180°	Most lines tight
Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	Most lines tight B 90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation	Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation
Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Most lines tight B 90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°	Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°
Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Most lines tight B 90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation	Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation
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Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurse Twist occurse Cascade occurse	Most lines tight 90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No	Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation)
Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurse Twist occurse	Most lines tight 90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No	Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No
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Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Collapse on the opposite side occurs Folding lines used Large asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Collapse on the opposite side occurs Collapse on the opposite side occurs Scascade occurs Collapse on the opposite side occurs Scascade occurs Scascade occurs Folding lines used Small asymmetric collapse accelerated Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	Most lines tight B 90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No	Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no C 90° to 180° Dive or roll angle 45° to 60° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No No Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No no Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation
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Folding lines used	l no	no
Large asymmetric collapse accelerated	В	c
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle		Dive or roll angle 45° to 60°
_	· Spontaneous re-inflation	Spontaneous re-inflation
Total change of course		Less than 360°
_	No (or only a small number of collapsed cells	No (or only a small number of collapsed
	with a spontaneous re inflation)	cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs	s No	No
Folding lines used	l no	no
Directional control with a maintained	1	1
asymmetric collapse	c	Α
		¥
Able to keep course		Yes
180° turn away from the collapsed side possible in 10 s		Yes
Amount of control range between turn and stall or spin		More than 50 % of the symmetric control travel
Trim speed spin tendency	A	Α
Spin occurs	2	No
Spin occurs		
Low speed spin tendency	A	Α
L	· No	۰
Spin occurs	S NO	No
Recovery from a developed spin	в	A
Spin rotation angle after release	Stops spinning in 90° to 180°	Stops spinning in less than 90°
Cascade occurs		No
<u>B-line stall</u>	¦C	C
Change of course before release	Changing course less than 45°	Changing course less than 45°
Behaviour before release	Remains stable without straight span	Remains stable without straight span
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	: Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occurs	s No	No
Ris core	A	в
Big ears		
	Standard technique	Standard technique
Behaviour during big ears	-	Stable flight
-	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	: Dive forward 0° to 30°	Dive forward 0° to 30°
Big ears in accelerated flight	A	A
Entry procedure	standard technique	Standard technique
Behaviour during big ears		Stable flight
	y Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit		Dive forward 0° to 30°
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Stable flight
Alternative means of directional control	A	A
L	<u>.</u>	±
180° turn achievable in 20 s		Yes
Stall or spin occurs		No
Any other flight procedure and/or configuratio	n described in the user's manual	
L		
No other flight procedure or configuration described in the	ucoric manual	

No other flight procedure or configuration described in the user's manual



Unaccelerated collapse (at least 50 % chord)	В	в
Entry	r Rocking back less than 45°	Rocking back less than 45°
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exi		Dive forward 30° to 60°
Change of course		Keeping course
Cascade occurs	s No	No
Folding lines used	1 no	no
	in .	-
Accelerated collapse (at least 50 % chord)	В	В
	Rocking back less than 45°	Rocking back less than 45°
	/ Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exi		Dive forward 30° to 60° Keeping course
Change of course Cascade occurs	Entering a turn of less than 90°	No
Folding lines used		
<u>Exiting deep stall (parachutal stall)</u>	Α	Α
Deep stall achieved	Т Yes	Yes
-	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exi		Dive forward 0° to 30°
-	Changing course less than 45°	Changing course less than 45°
Cascade occurs	s No	No
High angle of attack recovery	c	A
Recovery	Spontaneous in 3 s to 5 s	Spontaneous in less than 3 s
Cascade occurs	s No	No
1	·	1_
Recovery from a developed full stall	B	B
Dive forward angle on exi	t Dive forward 30° to 60°	Dive forward 30° to 60°
Collapse	e No collapse	No collapse
Cascade occurs (other than collapses	-	No
-	Less than 45°	Less than 45°
Line tension	n Most lines tight	Most lines tight
Small asymmetric collapse	в	A
·		÷
Change of course until re-inflation		Less than 90°
Maximum dive forward or roll angle	-	Dive or roll angle 15° to 45°
	r Spontaneous re-inflation	Spontaneous re-inflation Less than 360°
Total change of course Collapse on the opposite side occurs	No (or only a small number of collapsed cells	No (or only a small number of collapsed
concepte on the opposite side occurs	with a spontaneous re inflation)	cells with a spontaneous re inflation)
Twist occurs		No
Cascade occurs	s No	No
Folding lines used	l no	no
Large asymmetric collapse	в	c
Change of course until re-inflation		90° to 180°
Maximum dive forward or roll angle		Dive or roll angle 45° to 60°
Total change of course	r Spontaneous re-inflation	Spontaneous re-inflation Less than 360°
-	No (or only a small number of collapsed cells	No (or only a small number of collapsed
contapse on the opposite side occurs	with a spontaneous re inflation)	cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs	s No	No
Folding lines used	no	no
Small asymmetric collapse accelerated	A	i.
	. <u>.</u>	<u> </u> A
Change of course until re-inflation		Less than 90°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
	r Spontaneous re-inflation	Spontaneous re-inflation
Total change of course Collapse on the opposite side occurs		Less than 360°
concepte on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs		No
Cascade occurs	s No	No
Folding lines used	no	no
	P	
Large asymmetric collapse accelerated	B	C
Change of course until re-inflation		90° to 180°
Maximum dive forward or roll angle	-	Dive or roll angle 45° to 60°
	r Spontaneous re-inflation	Spontaneous re-inflation Less than 360°
Total change of course Collanse on the opposite side occurs	No (or only a small number of collapsed cells	No (or only a small number of collapsed
concepte on the opposite side occurs	with a spontaneous re inflation)	cells with a spontaneous re inflation)
Twist occurs		No
Twist occurs	= No	No
Cascade occurs		
		no
Cascade occur Folding lines used		no
Cascade occur Folding lines user Directional control with a maintained		no A
Cascade occur Folding lines used <u>Directional control with a maintained</u> asymmetric collapse	I no c	A
Cascade occur Folding lines user Directional control with a maintained	I no C a Yes	1

Amount of control range between turn and stall or spir		More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	s No	No
Low speed spin tendency	A	A
Spin occurs	<u>.</u>	No
Recovery from a developed spin	В	Α
Spin rotation angle after release Cascade occurs	–	Stops spinning in less than 90° No
B-line stall	c	c
	e Remains stable without straight span 9 Spontaneous in less than 3 s 1 Dive forward 0° to 30°	Changing course less than 45° Remains stable without straight span Spontaneous in less than 3 s Dive forward 0° to 30° No
Big ears	Α	в
	A Standard technique	B Standard technique
	standard technique	
Entry procedure Behaviour during big ears	standard technique	Standard technique
Entry procedure Behaviour during big ears	s Standard technique s Stable flight y Spontaneous in less than 3 s	Standard technique Stable flight
Entry procedure Behaviour during big ears Recovery	s Standard technique s Stable flight y Spontaneous in less than 3 s	Standard technique Stable flight Spontaneous in 3 s to 5 s
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit	e Standard technique e Stable flight 5 Spontaneous in less than 3 s e Dive forward 0° to 30°	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30°
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Standard technique	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30°
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Standard technique	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in less than 3 s	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique Stable flight
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears Recovery	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in 3 s to 5 s
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Behaviour immediately after releasing the	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30°
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Behaviour immediately after releasing the accelerator while maintaining big ears	 Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight A 	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° Stable flight
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Behaviour immediately after releasing the accelerator while maintaining big ears	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight A Stable flight A Stable flight A Stable flight	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° Stable flight
Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Big ears in accelerated flight Entry procedure Behaviour during big ears Recovery Dive forward angle on exit Behaviour immediately after releasing the accelerator while maintaining big ears Alternative means of directional control 180° turn achievable in 20 s	Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight A Yes No	Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° A Standard technique Stable flight Spontaneous in 3 s to 5 s Dive forward 0° to 30° Stable flight A Yes

No other flight procedure or configuration described in the user's manual