Manufacturers / Dealers

Flying Schools

TECHNICAL DATA | DHV TESTREPORT LTF | DATASHEET | PARTS LIST | OPERATING INSTRUCTION | PRINT TESTREPORT LTF 2014



UP DENA L

Type designation UP Dena L

Type test reference no DHV GS-01-2511-20

Holder of certification UP International GmbH

Manufacturer UP International GmbH

Classification A

Winch towing Yes

Number of seats min / max 1/1

Accelerator Yes

Trimmers No.



BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX FLIGHT (100KG)

Test pilots



Sebastian Mackrodt

	No release	No release
Inflation/take-off	A	A
	Rising behaviour Smooth, easy and constant rising	Smooth, easy and constant rising

Special take off technique required No

No

Special landing technique required No

Speeds in straight flight A

Trim speed more than 30 km/h Yes Speed range using the controls larger than 10 Yes Yes km/h

> Minimum speed Less than 25 km/h Less than 25 km/h

Control movement Increasing

Symmetric control pressure Increasing Symmetric control travel Greater than 60 cm Greater than 65 cm

Α Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30° Dive forward less than 30° Collapse occurs No Nο

Pitch stability operating controls during accelerated flight Collapse occurs No

Roll stability and damping A Oscillations Reducing Reducing

Stability in gentle spirals A

Tendency to return to straight flight Spontaneous exit

Behaviour exiting a fully developed spiral dive A Initial response of glider (first 180°) Immediate reduction of rate of turn Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing, Spontaneous exit (g force rate of turn decreasing) decreasing, rate of turn decreasing) Less than 720°, spontaneous Turn angle to recover normal flight Less than 720°, spontaneous recovery recovery Symmetric front collapse Entry Rocking back less than 45° Rocking back less than 45° **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° Change of course Entering a turn of less than 90° Keeping course Cascade occurs No Folding lines used no Unaccelerated collapse (at least 50 % chord) A **Entry** Rocking back less than 45° Rocking back less than 45° **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° Change of course Entering a turn of less than 90° Keeping course Cascade occurs No Folding lines used no Accelerated collapse (at least 50 % chord) A Entry Rocking back less than 45° Rocking back less than 45° **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° Change of course Entering a turn of less than 90° Keeping course Cascade occurs No. Folding lines used no Exiting deep stall (parachutal stall) A Deep stall achieved Yes 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° Change of course Changing course less than 45° Changing course less than 45° Cascade occurs No High angle of attack recovery A **Recovery** Spontaneous in less than 3 s Spontaneous in less than 3 s Cascade occurs No. Recovery from a developed full stall Α Dive forward angle on exit Dive forward 0° to 30° Dive forward 0° to 30° Collapse No collapse No collapse Cascade occurs (other than collapses) No No Rocking back Less than 45° Line tension Most lines tight Most lines tight Small asymmetric collapse A Change of course until re-inflation Less than 90° Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 0° to 15° Re-inflation behaviour Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No Nο Cascade occurs No No Folding lines used no Large asymmetric collapse A Less than 90° Change of course until re-inflation Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° **Re-inflation behaviour** Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No No

Small asymmetric collapse accelerated

Change of course until re-inflation Less than 90°

Maximum dive forward or roll angle Dive or roll angle 15° to 45°

Re-inflation behaviour Spontaneous re-inflation

Total change of course Less than 360°

Cascade occurs No

Folding lines used no

Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°

No

nο

Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No No Cascade occurs No No Folding lines used no no Large asymmetric collapse accelerated A Change of course until re-inflation Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° Re-inflation behaviour Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° No (or only a small number of Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No No Cascade occurs No No Folding lines used no no Directional control with a maintained Α asymmetric collapse Able to keep course Yes Yes 180° turn away from the collapsed side Yes possible in 10 s Amount of control range between turn and More than 50 % of the symmetric control More than 50 % of the symmetric stall or spin travel control travel Trim speed spin tendency Spin occurs No A Low speed spin tendency Spin occurs No No Recovery from a developed spin A Spin rotation angle after release Stops spinning in less than 90° Stops spinning in less than 90° Cascade occurs No B-line stall Change of course before release Changing course less than 45° Changing course less than 45° Behaviour before release Remains stable with straight span Remains stable with 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 No Big ears Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight 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° Big ears in accelerated flight A Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight **Recovery** Spontaneous in 3 s to 5 s Spontaneous in less than 3 s **Dive forward angle on exit** Dive forward 0° to 30° Dive forward 0° to 30° Behaviour immediately after releasing the Stable flight Stable flight accelerator while maintaining big ears Alternative means of directional control 180° turn achievable in 20 s Yes Vac Stall or spin occurs No No Any other flight procedure and/or configuration described in the user's manual

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

Manufacturers / Dealers

Flying Schools

TECHNICAL DATA DHV TESTREPORT LTF DATASHEET PARTS LIST OPERATING INSTRUCTION

TESTREPORT LTF 2014



UP DENA M

Inflation/take-off

Landing

Type designation UP Dena M

Type test reference no DHV GS-01-2512-20

Holder of certification UP International GmbH

Manufacturer UP International GmbH

Classification A

Winch towing Yes

Number of seats min / max 1/1

Accelerator Yes

Trimmers No.

Test pilots



BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX FLIGHT (85KG)



WEIGHT IN FLIGHT (110KG)

Sebastian Mackrodt

Α Rising behaviour Smooth, easy and constant rising

Smooth, easy and constant rising

Special take off technique required No

Special landing technique required No

Speeds in straight flight

Trim speed more than 30 km/h Yes Yes Speed range using the controls larger than 10 Yes Yes km/h

> Minimum speed Less than 25 km/h Less than 25 km/h

Control movement

Symmetric control pressure Increasing Increasing Symmetric control travel Greater than 60 cm Greater than 65 cm

Pitch stability exiting accelerated flight

Collapse occurs No

Dive forward angle on exit Dive forward less than 30° Dive forward less than 30°

> Collapse occurs No Nο

Pitch stability operating controls during accelerated flight

Roll stability and damping A Oscillations Reducing Reducina

Stability in gentle spirals A Tendency to return to straight flight Spontaneous exit Spontaneous exit

Behaviour exiting a fully developed spiral dive A

Initial response of glider (first 180°) Immediate reduction of rate of turn Immediate reduction of rate of turn Tendency to return to straight flight Spontaneous exit (g force decreasing, Spontaneous exit (g force rate of turn decreasing) decreasing, rate of turn decreasing)

Turn angle to recover normal flight	Less than 720°, spontaneous recovery	Less than 720°, spontaneous recovery
Symmetric front collapse	A	A
k-1	<u> </u>	±
-	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 0° to 30°
Change of course	Entering a turn of less than 90°	Keeping course
Cascade occurs	No	No
Folding lines used	no	no
Unaccelerated collapse (at least 50 % chord)	A	A
Entry	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 0° to 30°
_		
_	Entering a turn of less than 90°	Keeping course
Cascade occurs		No
Folding lines used	no	no
Accelerated collapse (at least 50 % chord)	A	A
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 0° to 30°
_	Entering a turn of less than 90°	Keeping course
Cascade occurs	3	No
Folding lines used		no
Exiting deep stall (parachutal stall)	A	A
L	i	<u> </u>
Deep stall achieved		Yes
-	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 0° to 30°
_	Changing course less than 45°	Changing course less than 45°
Cascade occurs	No	No
High angle of attack recovery	А	A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	No	No
Recovery from a developed full stall	A	la.
iiiiii	i	Dive forward 0° to 30°
Dive forward angle on exit		
-	No collapse	No collapse
Cascade occurs (other than collapses)		No
Rocking back		Less than 45°
Line tension	Most lines tight	Most lines tight
Small asymmetric collapse	A	A
Change of course until re-inflation	Less than 90°	Less than 90°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
_	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	· ·	Less than 360°
_	No (or only a small number of collapsed	
conapse on the opposite side occurs	cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous
Twist occurs	No	re inflation) No
Cascade occurs		No
Folding lines used		no
-		1
Large asymmetric collapse	A	Α
Change of accuse until up inflation		Less than 90°
Change of course until re-inflation	Less than 90°	Less than 50
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
Maximum dive forward or roll angle		
Maximum dive forward or roll angle	Dive or roll angle 15° to 45° Spontaneous re-inflation	Dive or roll angle 15° to 45°
Maximum dive forward or roll angle Re-inflation behaviour	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of
Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs	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)	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
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs	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	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
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs	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	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)
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used	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	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
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used	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	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
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used	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 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
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used Small asymmetric collapse accelerated Change of course until re-inflation Maximum dive forward or roll angle	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 A Less than 90° Dive or roll angle 15° to 45°	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 Less than 90° Dive or roll angle 15° to 45°
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	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 A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation	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 Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used Small asymmetric collapse accelerated Change of course until re-inflation Maximum dive forward or roll angle	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 Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°	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 Less than 90° Dive or roll angle 15° to 45°

Folding lines used no nο Large asymmetric collapse accelerated A Change of course until re-inflation Less than 90° Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° **Re-inflation behaviour** Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of collapsed cells with a spontaneous cells with a spontaneous re inflation) re inflation) Twist occurs No Nο Cascade occurs No No Folding lines used no nο Directional control with a maintained asymmetric collapse Able to keep course Yes 180° turn away from the collapsed side Yes Yes possible in 10 s Amount of control range between turn and More than 50 % of the symmetric control More than 50 % of the symmetric stall or spin travel Trim speed spin tendency A Spin occurs No Low speed spin tendency A Spin occurs No Recovery from a developed spin A **Spin rotation angle after release** Stops spinning in less than 90° Stops spinning in less than 90° Cascade occurs No B-line stall A **Change of course before release** Changing course less than 45° Changing course less than 45° Behaviour before release Remains stable with straight span Remains stable with 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 No No Α Big ears Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight **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° Big ears in accelerated flight Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight **Recovery** Spontaneous in 3 s to 5 s Spontaneous in less than 3 s Dive forward angle on exit Dive forward 0° to 30° Dive forward 0° to 30° Behaviour immediately after releasing the Stable flight accelerator while maintaining big ears Alternative means of directional control A 180° turn achievable in 20 s Yes Yes Stall or spin occurs No Any other flight procedure and/or configuration described in the user's manual

Twist occurs No

Cascade occurs No

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

No

Nο

Manufacturers / Dealers

Flying Schools

TECHNICAL DATA | DHV TESTREPORT LTF | DATASHEET | PARTS LIST | OPERATING INSTRUCTION | PRINT TESTREPORT LTF 2014



UP DENA SM

Inflation/take-off

Type designation UP Dena SM Type test reference no DHV GS-01-2513-20 Holder of certification UP International GmbH

Manufacturer UP International GmbH

Classification A

Winch towing Yes

Number of seats min / max 1/1

Accelerator Yes

Trimmers No.



BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX FLIGHT (75KG)

Test pilots



Beni Stocker

No release



Harald Buntz No release

Α Rising behaviour Smooth, easy and constant rising

Smooth, easy and constant rising

Yes

Special landing technique required No

Speeds in straight flight A

Special take off technique required No

Trim speed more than 30 km/h Yes Speed range using the controls larger than 10 Yes

Minimum speed Less than 25 km/h

Control movement

Symmetric control pressure Increasing Increasing

Symmetric control travel Greater than 55 cm

km/h

Greater than 60 cm

Less than 25 km/h

Α Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30°

Collapse occurs No

Collapse occurs No

Dive forward less than 30°

Pitch stability operating controls during accelerated flight

Nο

Roll stability and damping A

Oscillations Reducing

Stability in gentle spirals A

Reducing

Tendency to return to straight flight Spontaneous exit

Behaviour exiting a fully developed spiral dive A

Initial response of glider (first 180°) Immediate reduction of rate of turn

Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing, Spontaneous exit (g force rate of turn decreasing) decreasing, rate of turn decreasing) Less than 720°, spontaneous Turn angle to recover normal flight Less than 720°, spontaneous recovery recovery Symmetric front collapse Entry Rocking back less than 45° Rocking back less than 45° **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° Change of course Entering a turn of less than 90° Entering a turn of less than 90° Cascade occurs No Folding lines used no Unaccelerated collapse (at least 50 % chord) A **Entry** Rocking back less than 45° Rocking back less than 45° **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° Change of course Entering a turn of less than 90° Entering a turn of less than 90° Cascade occurs No Folding lines used no Accelerated collapse (at least 50 % chord) A Entry Rocking back less than 45° Rocking back less than 45° **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° Change of course Entering a turn of less than 90° Entering a turn of less than 90° Cascade occurs No. Folding lines used no Exiting deep stall (parachutal stall) A Deep stall achieved Yes 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° Change of course Changing course less than 45° Changing course less than 45° Cascade occurs No High angle of attack recovery A **Recovery** Spontaneous in less than 3 s Spontaneous in less than 3 s Cascade occurs No. Recovery from a developed full stall Α Dive forward angle on exit Dive forward 0° to 30° Dive forward 0° to 30° Collapse No collapse No collapse Cascade occurs (other than collapses) No No Rocking back Less than 45° Line tension Most lines tight Most lines tight Small asymmetric collapse A Change of course until re-inflation Less than 90° Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° Re-inflation behaviour Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No Nο Cascade occurs No No Folding lines used no Large asymmetric collapse A Less than 90° Change of course until re-inflation Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° **Re-inflation behaviour** Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No No Cascade occurs No No Folding lines used no nο

Change of course until re-inflation Less than 90°

Maximum dive forward or roll angle Dive or roll angle 15° to 45°

Re-inflation behaviour Spontaneous re-inflation

Total change of course Less than 360°

Small asymmetric collapse accelerated A

Less than 90°
Dive or roll angle 15° to 45°
Spontaneous re-inflation
Less than 360°

Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No No Cascade occurs No No Folding lines used no no Large asymmetric collapse accelerated A Change of course until re-inflation Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° Re-inflation behaviour Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° No (or only a small number of Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation) collapsed cells with a spontaneous re inflation) Twist occurs No No Cascade occurs No No Folding lines used no no Directional control with a maintained Α asymmetric collapse Able to keep course Yes Yes 180° turn away from the collapsed side Yes possible in 10 s Amount of control range between turn and More than 50 % of the symmetric control More than 50 % of the symmetric stall or spin travel control travel Trim speed spin tendency Spin occurs No A Low speed spin tendency Spin occurs No No Recovery from a developed spin A Spin rotation angle after release Stops spinning in less than 90° Stops spinning in less than 90° Cascade occurs No B-line stall Change of course before release Changing course less than 45° Changing course less than 45° Behaviour before release Remains stable with straight span Remains stable with 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 No Big ears Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight 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° Big ears in accelerated flight A Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight **Recovery** Spontaneous in 3 s to 5 s Spontaneous in 3 s to 5 s **Dive forward angle on exit** Dive forward 0° to 30° Dive forward 0° to 30° Behaviour immediately after releasing the Stable flight Stable flight accelerator while maintaining big ears Alternative means of directional control 180° turn achievable in 20 s Yes Vac Stall or spin occurs No No Any other flight procedure and/or configuration described in the user's manual

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

TESTREPORT LTF 2014

DHV-tested Equipment

Flying Equipment Database

Manufacturers / Dealers

Flying Schools

Club

TECHNICAL DATA DHV TESTREPORT LTF DATASHEET PARTS LIST OPERATING INSTRUCTION



UP DENA S

Type designation UP Dena S

Type test reference no $\,$ DHV GS-01-2514-20 $\,$

Holder of certification UP International GmbH

Manufacturer UP International GmbH

Classification A

Winch towing Yes

Number of seats min / max $\ 1\ /\ 1$

Accelerator Yes

Trimmers No



Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)

BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX FLIGHT (65KG) WEIGHT IN FLIGHT (85KG)

Test pilots



	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW	
	Beni Stocker	Harald Buntz
	No release	No release
Inflation/take-off	Α	A
Rising behaviou	ır Smooth, easy and constant rising	Smooth, easy and constant rising
Special take off technique require	d No	No
Landing	A	A
Special landing technique require	d No	No
Speeds in straight flight	A	A
Trim speed more than 30 km/	h Yes	Yes
Speed range using the controls larger than 1 km/		Yes
Minimum spee	d Less than 25 km/h	Less than 25 km/h
Control movement	A	A
Symmetric control pressur	e Increasing	Increasing
Symmetric control trave	el Greater than 55 cm	Greater than 60 cm
Pitch stability exiting accelerated flight	A	A
Dive forward angle on ex	it Dive forward less than 30°	Dive forward less than 30°
Collapse occur	rs No	No
Pitch stability operating controls during accelerated flight	A	А
Collapse occur	rs No	No
Roll stability and damping	A	A
Oscillation	s Reducing	Reducing
Stability in gentle spirals	A	A
Tendency to return to straight flight	nt Spontaneous exit	Spontaneous exit
Behaviour exiting a fully developed spiral div	e A	A

Initial response of glider (first 180°) Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing,

rate of turn decreasing)

Turn angle to recover normal flight	Less than 720°, spontaneous recovery	Less than 720°, spontaneous recovery
Summatuia fuant asllanas	i.	A
Recovery Dive forward angle on exit Change of course	Entering a turn of less than 90°	Rocking back less than 45° Spontaneous in less than 3 s Dive forward 0° to 30° Entering a turn of less than 90°
Cascade occurs Folding lines used		No no
Unaccelerated collapse (at least 50 % chord)	A	A
Entry	Rocking back less than 45°	Rocking back less than 45°
-	Spontaneous in less than 3 s	Spontaneous in less than 3 s Dive forward 0° to 30°
Dive forward angle on exit Change of course	Entering a turn of less than 90°	Entering a turn of less than 90°
Cascade occurs	: No	No
Folding lines used	no	no
Accelerated collapse (at least 50 % chord)	A	A
Entry	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 Change of course	Entering a turn of less than 90°	Dive forward 0° to 30° Entering a turn of less than 90°
Cascade occurs	_	No
Folding lines used	no	no
Exiting deep stall (parachutal stall)	A	A
Deep stall achieved	Yes	Yes
-	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit Change of course	: Dive forward 0° to 30° : Changing course less than 45°	Dive forward 0° to 30° Changing course less than 45°
Cascade occurs		No
High angle of attack recovery	!A	A
1	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	•	No
Recovery from a developed full stall	A	A
L		
Dive forward angle on exit		Dive forward 0° to 30°
Collapse	No collapse	Dive forward 0° to 30° No collapse No
Collapse Cascade occurs (other than collapses) Rocking back	No collapse No Less than 45°	No collapse No Less than 45°
Collapse Cascade occurs (other than collapses) Rocking back	No collapse	No collapse No
Collapse Cascade occurs (other than collapses) Rocking back	No collapse No Less than 45°	No collapse No Less than 45°
Collapse Cascade occurs (other than collapses) Rocking back Line tension	No collapse No Less than 45° Most lines tight	No collapse No Less than 45° Most lines tight
Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	No collapse No Less than 45° Most lines tight A Less than 90° Dive or roll angle 15° to 45°	No collapse No Less than 45° Most lines tight A Less than 90° Dive or roll angle 15° to 45°
Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	No collapse No Less than 45° Most lines tight A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation	No collapse No Less than 45° Most lines tight A Less than 90°
Collapse Cascade occurs (other than collapses) 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	No collapse No Less than 45° 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 collapse No Less than 45° 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)
Collapse Cascade occurs (other than collapses) 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	No collapse No Less than 45° 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 collapse No Less than 45° 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
Collapse Cascade occurs (other than collapses) 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	No collapse No Less than 45° 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 collapse No Less than 45° 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)
Collapse Cascade occurs (other than collapses) 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 Twist occurs Cascade occurs	No collapse No Less than 45° 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 collapse No Less than 45° 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
Collapse Cascade occurs (other than collapses) 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 Cascade occurs Folding lines used	No collapse No Less than 45° 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	No collapse No Less than 45° 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
Collapse Cascade occurs (other than collapses) 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 Twist occurs Cascade occurs Folding lines used Large asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	No collapse No Less than 45° 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 Dive or roll angle 15° to 45°	No collapse No Less than 45° 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 Dive or roll angle 15° to 45°
Collapse Cascade occurs (other than collapses) 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 Twist occurs Cascade occurs Folding lines used Large asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	No collapse No Less than 45° 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 Dive or roll angle 15° to 45° Spontaneous re-inflation	No collapse No Less than 45° 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 Dive or roll angle 15° to 45° Spontaneous re-inflation
Collapse Cascade occurs (other than collapses) 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 Cascade 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	No collapse No Less than 45° 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 Dive or roll angle 15° to 45° Spontaneous re-inflation	No collapse No Less than 45° 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 Dive or roll angle 15° to 45°
Collapse Cascade occurs (other than collapses) 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 Twist occurs Cascade 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	No collapse No Less than 45° 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 collapse No Less than 45° 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 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
Collapse Cascade occurs (other than collapses) 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 Twist occurs Cascade 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 Twist occurs Twist occurs Cascade occurs	No collapse No Less than 45° 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 Dive or roll angle 15° to 45° Spontaneous re inflation Less than 360° 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 No	No collapse No Less than 45° 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 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) Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No
Collapse Cascade occurs (other than collapses) 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 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 Twist occurs Collapse on the opposite side occurs Cascade occurs Folding lines used	No collapse No Less than 45° 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 Dive or roll angle 15° to 45° Spontaneous re-inflation 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	No collapse No Less than 45° 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 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 (or only a small number of collapsed cells with a spontaneous re inflation) No No
Collapse Cascade occurs (other than collapses) 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 Cascade 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 Twist occurs Cascade occurs Folding lines used	No collapse No Less than 45° 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 collapse No Less than 45° 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 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 No No No No
Collapse Cascade occurs (other than collapses) 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 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 Twist occurs Collapse on the opposite side occurs Cascade occurs Folding lines used	No collapse No Less than 45° 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 collapse No Less than 45° 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 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) Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No
Collapse Cascade occurs (other than collapses) 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 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 Cascade occurs Folding lines used Small asymmetric collapse accelerated Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	No collapse No Less than 45° 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 collapse No Less than 45° 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 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
Collapse Cascade occurs (other than collapses) 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 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 Twist occurs Cascade occurs Folding lines used Small asymmetric collapse accelerated Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Re-inflation behaviour Total change of course	No collapse No Less than 45° 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 collapse No Less than 45° 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 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 (or only a small number of collapsed cells with a spontaneous re inflation) No No no A Less than 90° Dive or roll angle 15° to 45°

Folding lines used no Large asymmetric collapse accelerated A Change of course until re-inflation Less than 90° Less than 90° Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° **Re-inflation behaviour** Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360° Collapse on the opposite side occurs No (or only a small number of collapsed No (or only a small number of collapsed cells with a spontaneous cells with a spontaneous re inflation) re inflation) Twist occurs No Nο Cascade occurs No No Folding lines used no nο Directional control with a maintained asymmetric collapse Able to keep course Yes 180° turn away from the collapsed side Yes Yes possible in 10 s Amount of control range between turn and More than 50 % of the symmetric control More than 50 % of the symmetric stall or spin travel Trim speed spin tendency A Spin occurs No Low speed spin tendency A Spin occurs No Recovery from a developed spin A **Spin rotation angle after release** Stops spinning in less than 90° Stops spinning in less than 90° Cascade occurs No B-line stall A **Change of course before release** Changing course less than 45° Changing course less than 45° Behaviour before release Remains stable with straight span Remains stable with 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 No No Α Big ears Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight **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° Big ears in accelerated flight Entry procedure Dedicated controls Dedicated controls Behaviour during big ears Stable flight Stable flight **Recovery** Spontaneous in 3 s to 5 s Spontaneous in 3 s to 5 s Dive forward angle on exit Dive forward 0° to 30° Dive forward 0° to 30° Behaviour immediately after releasing the Stable flight accelerator while maintaining big ears Alternative means of directional control A 180° turn achievable in 20 s Yes Yes Stall or spin occurs No Any other flight procedure and/or configuration described in the user's manual

Twist occurs No

Cascade occurs No

No

Nο

nο

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

Manufacturers / Dealers

Flying Schools

TECHNICAL DATA DHV TESTREPORT LTF DATASHEET PARTS LIST OPERATING INSTRUCTION PRINT TESTREPORT LTF 2014



UP DENA XS

Type designation UP Dena XS Type test reference no DHV GS-01-2515-20 Holder of certification UP International GmbH Manufacturer UP International GmbH

Classification A Winch towing Yes Number of seats min / max $\ 1\ /\ 1$ **Accelerator** Yes Trimmers No

BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX FLIGHT (58KG)

Test pilots Céline Zimmermann



WEIGHT IN FLIGHT (75KG)



Beni Stocker

Expert Reiner Brunn

	No release	No release
Inflation/take-off	A	A
Rising behaviour	Smooth, easy and constant rising	Smooth, easy and constant rising
Special take off technique required	No	No
	1	1
Landing	A	Α
Special landing technique required	No	No
Speeds in straight flight	A	A
Trim speed more than 30 km/h	Yes	Yes
Speed range using the controls larger than 10		Yes
km/h	ı	
Minimum speed	Less than 25 km/h	Less than 25 km/h
Control movement	A	A
Symmetric control pressure	Increasing	Increasing
Symmetric control travel	Greater than 55 cm	Greater than 55 cm
Pitch stability exiting accelerated flight	A	A
Dive forward angle on exit	: Dive forward less than 30°	Dive forward less than 30°
Collapse occurs	: No	No
1	I.	1
Pitch stability operating controls during accelerated flight	A	A
Collapse occurs	±: : No	No.
conapse occars		
Roll stability and damping	A	A
Oscillations	Reducing	Reducing
	-	-
Stability in gentle spirals	A	Α
Tendency to return to straight flight	: Spontaneous exit	Spontaneous exit
Behaviour exiting a fully developed spiral dive	A	A
Initial response of glider (first 180°)		Immediate reduction of rate of turn
Tendency to return to straight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Spontaneous exit (g force decreasing, rate of turn decreasing)
Turn angle to recover pormal flight	: Less than 720°, spontaneous recovery	Less than 720°, spontaneous
Turn angle to recover normal mane	. Less than 720 , spontaneous recovery	recovery

Symmetric front collapse	A	A
L	.177	155
-	Rocking back less than 45°	Rocking back less than 45°
Dive forward angle on exit	Spontaneous in less than 3 s	Spontaneous in less than 3 s Dive forward 0° to 30°
Change of course		Entering a turn of less than 90°
Cascade occurs	. 3	No
Folding lines used	* * * *	no
Unaccelerated collapse (at least 50 % chord)	; <u>A</u>	<u> </u> A
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exi	t Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course		Entering a turn of less than 90°
Cascade occurs		No
Folding lines used	i no	no
Accelerated collapse (at least 50 % chord)	A	A
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exi	t Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course		Entering a turn of less than 90°
Cascade occurs	s No	No
Folding lines used	i no	no
Exiting deep stall (parachutal stall)	A	A
Deep stall achieved	.±	Yes
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	•	Dive forward 0° to 30°
_	Changing course less than 45°	Changing course less than 45°
Cascade occurs		No
Guscauc Geouri		
High angle of attack recovery	A	A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	•	No
Recovery from a developed full stall	Α	Α
Dive forward angle on exi	t Dive forward 0° to 30°	Dive forward 0° to 30°
Collapse	No collapse	No collapse
Cascade occurs (other than collapses)) No	No
Rocking back	Less than 45°	Less than 45°
Line tension	Most lines tight	Most lines tight
Small asymmetric collapse	A	A
L	.4	±
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	S No (or only a small number of collapsed	No (or only a small number of
Conapse on the opposite side occurs	cells with a spontaneous re inflation)	collapsed cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs		No
Folding lines used		no
	1.	1-
Large asymmetric collapse	iA	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		Less than 360°
conapse on the opposite side occurs	s 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	s No	No
Cascade occurs		No
Folding lines used		no
		1
Small asymmetric collapse accelerated	;A	¡A
Change of course until re-inflation		Less than 90°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 15° to 45°
_		Spontaneous re-inflation
	r Spontaneous re-inflation	·
Total change of course	Less than 360°	Less than 360°
Total change of course	•	Less than 360° No (or only a small number of collapsed cells with a spontaneous
Total change of course Collapse on the opposite side occurs	Less than 360° 5 No (or only a small number of collapsed cells with a spontaneous re inflation)	Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation)
Total change of course	Less than 360° 5 No (or only a small number of collapsed cells with a spontaneous re inflation) 5 No	Less than 360° No (or only a small number of collapsed cells with a spontaneous

Large asymmetric collapse accelerated	A	A
Change of course until re-inflation	Less than 90°	Less than 90°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 15° to 45°
Re-inflation behaviour	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	Less than 360°	Less than 360°
Collapse 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	No
Cascade occurs	: No	No
Folding lines used	no	no
Directional control with a maintained asymmetric collapse	А	А
Able to keep course	Yes	Yes
180° turn away from the collapsed side		Yes
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control	More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	: No	No
Low speed spin tendency	A	A
Spin occurs	: No	No
Recovery from a developed spin	A	A
Spin rotation angle after release	Stops spinning in less than 90°	Stops spinning in less than 90°
Cascade occurs		No
B-line stall	A	A
Change of course before release	Changing course less than 45°	Changing course less than 45°
Behaviour before release	Remains stable with straight span	Remains stable with 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
Big ears	A	A
Entry procedure	Standard technique	Dedicated controls
Behaviour during big ears	Stable flight	Stable flight
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°
Big ears in accelerated flight	A	A
Entry procedure	Standard technique	Dedicated controls
Behaviour during big ears	Stable flight	Stable flight
Recovery	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°
Behaviour immediately after releasing the accelerator while maintaining big ears		Stable flight
Alternative means of directional control	A	A
180° turn achievable in 20 s	Yes	Yes
Stall or spin occurs		No
Any other flight procedure and for configuration	n described in the vessels warned	
Any other flight procedure and/or configuratio	ii described iii the user's manual	

No other flight procedure or configuration described in the user's manual $% \left(1\right) =\left(1\right) \left(1\right)$