

DHV TESTREPORT EN926-2:2014

MAC PARA ELAN 2 28

Type designation	Mac Para Elan 2 28
Type test reference no	DHV GS-01-2288-17
Holder of certification	MAC Para Technology
Manufacturer	MAC Para Technology
Classification	C
Winch towing	Yes
Number of seats min / max	1 / 1
Accelerator	Yes
Trimmers	No



BEHAVIOUR AT MIN WEIGHT IN FLIGHT (92KG)

BEHAVIOUR AT MAX WEIGHT IN FLIGHT (112KG)

Test pilots



Harald Buntz



Sebastian Mackrodt

Inflation/take-off

A

B

Rising behaviour Smooth, easy and constant rising

en : einfaches Aufziehen, etwas Korrektur des Piloten erforderlich
No

Special take off technique required No

Landing

A

A

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 km/h Yes

Yes

Minimum speed Less than 25 km/h

Less than 25 km/h

Control movement

C

A

Symmetric control pressure Increasing

Increasing

Symmetric control travel 45 cm to 60 cm

Greater than 65 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

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

Spontaneous exit

en : Verhalten beim Verlassen einer vollständigen Steilspirale

A

A

en : Erstes Ansprechen des Gleitschirms (die en : unmittelbare Verringerung der

en : unmittelbare Verringerung der

ersten 180°) Drehgeschwindigkeit
Tendency to return to straight flight en : selbstständiges Ausleiten (G-Kraft abnehmend, Drehgeschwindigkeit abnehmend)
Turn angle to recover normal flight Less than 720°, spontaneous recovery

Drehgeschwindigkeit
en : selbstständiges Ausleiten (G-Kraft abnehmend, Drehgeschwindigkeit abnehmend)
Less than 720°, spontaneous recovery

Symmetric front collapse

B

B

Entry Rocking back less than 45°
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 30° to 60°
Change of course Entering a turn of less than 90°
Cascade occurs No
en : Faltleinen wurden benutzt no

Rocking back less than 45°
Spontaneous in 3 s to 5 s
Dive forward 30° to 60°
Entering a turn of less than 90°
No
no

en : Symmetrischer Frontklapper mindestens 50% Flügeltiefe

B

B

Entry Rocking back less than 45°
Recovery Spontaneous in 3 s to 5 s
Dive forward angle on exit Dive forward 30° to 60°
Change of course Entering a turn of less than 90°
Cascade occurs No
en : Faltleinen wurden benutzt no

Rocking back less than 45°
Spontaneous in 3 s to 5 s
Dive forward 30° to 60°
Entering a turn of less than 90°
No
no

en : Symmetrischer Frontklapper im beschleunigten Flug

C

B

Entry Rocking back less than 45°
Recovery Spontaneous in 3 s to 5 s
Dive forward angle on exit Dive forward 30° to 60°
Change of course Entering a turn of 90° to 180°
Cascade occurs No
en : Faltleinen wurden benutzt no

Rocking back less than 45°
Spontaneous in 3 s to 5 s
Dive forward 30° to 60°
Entering a turn of less than 90°
No
no

Exiting deep stall (parachutal stall)

A

B

Deep stall achieved Yes
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 0° to 30°
Change of course Changing course less than 45°
Cascade occurs No

Yes
Spontaneous in less than 3 s
Dive forward 30° to 60°
Changing course less than 45°
No

High angle of attack recovery

A

A

Recovery Spontaneous in less than 3 s
Cascade occurs No

Spontaneous in less than 3 s
No

Recovery from a developed full stall

B

B

Dive forward angle on exit Dive forward 30° to 60°
Collapse No collapse
Cascade occurs (other than collapses) No
Rocking back Less than 45°
Line tension Most lines tight

Dive forward 30° to 60°
No collapse
No
Less than 45°
Most lines tight

en : Kleiner einseitiger Klapper

A

A

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°
Collapse on the opposite side occurs en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs No
Cascade occurs No
en : Faltleinen wurden benutzt no

Less than 90°
Dive or roll angle 15° to 45°
Spontaneous re-inflation
Less than 360°
en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
No
No
no

en : Großer einseitiger Klapper

C

B

Change of course until re-inflation 180° to 360°
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°
Collapse on the opposite side occurs en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs No

90° to 180°
Dive or roll angle 15° to 45°
Spontaneous re-inflation
Less than 360°
en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
No

Cascade occurs	No	No
en : Faltleinen wurden benutzt	no	no

en : Kleiner einseitiger Klapper im beschleunigten Flug	B	C
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 45° to 60°
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	en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)	en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs	No	No
Cascade occurs	No	No
en : Faltleinen wurden benutzt	no	no

en : Großer einseitiger Klapper im beschleunigten Flug	C	C
Change of course until re-inflation	180° to 360°	90° to 180°
Maximum dive forward or roll angle	Dive or roll angle 45° to 60°	Dive or roll angle 45° to 60°
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	en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)	en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs	No	No
Cascade occurs	No	No
en : Faltleinen wurden benutzt	no	no

Directional control with a maintained asymmetric collapse	A	A
Able to keep course	Yes	Yes
180° turn away from the collapsed side possible in 10 s	Yes	Yes
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	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	No

B-line stall	C	A
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 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

Big ears	B	B
Entry procedure	Dedicated controls	Dedicated controls
Behaviour during big ears	Stable flight	Stable flight
Recovery	Recovery through pilot action in less than a further 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	B	A
Entry procedure	Dedicated controls	Dedicated controls
Behaviour during big ears	Stable flight	Stable flight
Recovery	Recovery through pilot action in less than a further 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	Stable flight

Alternative means of directional control	A	A
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180° turn achievable in 20 s Yes
Stall or spin occurs No

Yes
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