

Mandatory Service Bulletin SB-MD11-002

1 Technical Details

1.A Category

Mandatory

1.B Subject

Incorrect calculated minimum cockpit mass in the case where the non-expendable tail tanks are filled with 8.9 l of water / Incorrect calculated moment arms used in the CC calculation.

1.C Affected

Type: JS-MD Single

Model: JS-MD 3 RES

Serial Numbers:

3.MD092, 3.MD131 3.MD141, 3.MD150, 3.MD151, 3.MD155, 3.MD157, 3.MD158, 3.MD159,
3.MD160, 3.MD161, 3.MD165, 3.MD166, 3.MD167, 3.MD168, 3.MD170, 3.MD171, 3.MD172,
3.MD173, 3.MD174, 3.MD175, 3.MD182, 3.MD183, 3.MD185, 3.MD187, 3.MD190, 3.MD192,
3.MD193, 3.MD194, 3.MD195, 3.MD196, 3.MD197, 3.MD200, 3.MD201, 3.MD204

1.D Reason

The JS3 glider is equipped with both expendable and non-expendable tail tanks. The expendable tank adjusts the aircraft's balance during water loading in the main tanks, while the non-expendable tank optimizes the center of gravity for pilots of different weights.

The weight and balance report of the JS3 provides the following information to determine the safe CG envelope:

- Empty mass
- Empty CG position
- Minimum and maximum allowed pilot mass with the non-expendable tanks empty
- Minimum and maximum allowed pilot mass with the non-expendable tanks full (8.9l)

From JS-MD 3 SN 3.MD080 onwards, the single non-expendable tail tank was split into two tanks: top and bottom. Subsequently, the JS3 RES Weight and Balance Calculator was updated with separate loadings and arm values for the bottom and top non-expendable tail tanks. Regrettably, this update introduced an error in the formula for calculating the minimum cockpit weight when both non-expendable tanks are full, incorrectly considering only the effect of the bottom non-expendable tail tank (5kg).

Consequently, the increase in minimum cockpit weight with 8.9l water in the non-expendable tail tanks was calculated as 20kg instead of 35kg.

For more information, please refer to MD11-AFM-00-001-I01 JS-MD 3 RES Powered Aircraft Flight Manual Table 6-7."

1.E Time of Compliance

Compliance mandatory before flights are conducted using the non-expandable tank for CG compensation.

1.F Reference

AP.JS-094 JS3 RES Weight and Balance Calculator V23 and later revisions

MD11-AFM-00-001-I01 JS-MD 3 RES Powered Aircraft Flight Manual

1.G Mass and CG

Not affected – only a document update is required.

1.H Actions

The minimum cockpit weight for all cases with the expendable tank filled with 8.9l water must be increased with a fixed mass of 15kg. **The following documents reflects an incorrect minimum cockpit weight with non-expendable tanks loaded with 8.9L, and must be updated:**

1. Weight and balance document: Newly issued document issued by M&D Flugzeugbau must replace the incorrect document, or a new weight and balance can be performed by an approved maintenance organisation.
2. Replace AP.JS-094 JS3 RES Weight and Balance Calculator with Version 23 or later
3. AFM: MD11-AFM-00-001-I01 JS-MD 3 RES Powered Aircraft Flight Manual Table 6-7: See instructions below
4. Cockpit placard: See instructions below
5. Placard booklet: See instructions below

1.H.1 Update Aircraft Flight Manual

Update Table 6-1 in the JS-MD 3 RES Powered Aircraft Flight manual by adding 15kg to the minimum cockpit weight with non-expendable fin tanks full.

Example of Incorrect values :

Weight and Balance Record Sheet: 15 & 18 m configuration								
Date	Wingspan	Empty weight (M _{EMPTY})	Empty CG position (X _{CG})	Permitted pilot weights				S/N:
				Non-Expendable fin tank(s) empty		Non-Expendable fin tank(s) full		Approval Name / Signature
				Min	Max	Min	Max	
5.04.2024	15	323.4	562.2	54	103	74	115	
5.04.2024	18	336.9	564.1	54	108	74	115	

Example of Corrected values with 15kg added :

Weight and Balance Record Sheet: 15 & 18 m configuration								
Date	Wingspan	Empty weight (M _{EMPTY})	Empty CG position (X _{CG})	Permitted pilot weights				S/N:
				Non-Expendable fin tank(s) empty		Non-Expendable fin tank(s) full		Approval Name / Signature
				Min	Max	Min	Max	
5.04.2024	15	323.4	562.2	54	103	89	115	
5.04.2024	18	336.9	564.1	54	108	89	115	

1.H.2 Update load values on cockpit placard

Example of Incorrect values :

COCKPIT LOADS:		15m			18m		
		Number of batteries installed			Number of batteries installed		
Min cockpit weights		None	1	2	None	1	2
Non-expendable tail tank	0 L	54	66	77	54	66	77
	8.9 L	74	86	98	74	86	98
Max cockpit weight:		115	115	115	115	115	115
Aircraft empty weight:		323.4	348.3	373.1	336.9	361.8	386.7

Example of Corrected values with 15kg added :

COCKPIT LOADS:		15m			18m		
		Number of batteries installed			Number of batteries installed		
Min cockpit weights		None	1	2	None	1	2
Non-expendable tail tank	0 L	54	66	77	54	66	77
	8.9 L	89	101	113	89	101	113
Max cockpit weight:		115	115	115	115	115	115
Aircraft empty weight:		323.4	348.3	373.1	336.9	361.8	386.7

1.H.3 Update Placard Booklet

Example of Incorrect values :

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Cockpit Loads 15 m

Max cockpit weight: 115 kg / 253 lbs

Min cockpit weights:

		Number of HV batteries installed		
		None	1	2
Non-expendable tail tank	0 L	54	66	77
	8.9 L	74	86	98

Aircraft empty weight:

		Number of HV batteries installed		
		None	1	2
		323.4	348.3	373.1

Cockpit Loads 18 m

Max cockpit weight: 115 kg / 253 lbs

Min cockpit weights:

		Number of HV batteries installed		
		None	1	2
Non-expendable tail tank	0 L	74	66	77
	8.9 L	74	86	98

Aircraft empty weight:

		Number of HV batteries installed		
		None	1	2
		336.9	361.8	386.7

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Example of Corrected values with 15kg added:

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Cockpit Loads 15 m

Max cockpit weight: 115 kg / 253 lbs

Min cockpit weights:

		Number of HV batteries installed		
		None	1	2
Non-expendable tail tank	0 L	54	66	77
	8.9 L	89	101	113

Aircraft empty weight:

		Number of HV batteries installed		
		None	1	2
		323.4	348.3	373.1

Cockpit Loads 18 m

Max cockpit weight: 115 kg / 253 lbs

Min cockpit weights:

		Number of HV batteries installed		
		None	1	2
Non-expendable tail tank	0 L	54	66	77
	8.9 L	89	101	113

Aircraft empty weight:

		Number of HV batteries installed		
		None	1	2
		336.9	361.8	386.7

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Note: The values provided in the the above figures are only sample values to illustrate the required updated. The actual values as provided in the latest weight and balance report must be used to determine the new minimum cockpit values.

1.I Interchangeability and Mixability of Parts

N/A

1.J Approval

The technical content of this document is approved under the authority of the DOA ref. EASA.21J.603.

1.K Appendices

None.

2 Planning Information

2.A Material

None.

2.B Special Tools

None.

3 Remarks

None.

	Approved by HOA
(Head of Office of Airworthiness)	
Initial Issue	