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# 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 I 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).



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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 8.9I 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



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# 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								
				Per	mitted pi	S/N:		
Date	Wingspan	Empty weight (MEMPTY)	Empty CG position (X <sub>CG</sub> )	Non- Expendable fin tank(s) empty		Non- Expendable fin tank(s) full		Approval Name / Signature
			(ACG)	Min	Max	Min	Max	o.g
5.04.2024	15	323.4	562.2	54	103	74	115	
5.04.2024	18	336.9	564.1	54	108	74	115	
	4.5				_			

Example of Corrected values with 15kg added:

Date    Date   Fig. 2   Empty weight (Mempty)   Empty weight (Mempty)   Empty weight (Mempty)   Empty CG position (XcG)   Min   Max   Min   Max	Weight and Balance Record Sheet: 15 & 18 m configuration									
Date Weight (Mempty) CG position (Xcg) Expendable fin tank(s) empty Fin tank(s) full Signature    Min   Max   Min   Max					Permitted pilot weights			nts	S/N:	
Min         Max         Min         Max           5.04.2024         15         323.4         562.2         54         103         89         115	Date	Wingspan	Empty weight (MEMPTY)	CG position	Expendable fin		Expendable		Name /	
				(200)	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	5.04.2024	18	336.9	564.1	54	108	89	115		



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# 1.H.2 Update load values on cockpit placard

Example of Incorrect values:

COCKPIT LOADS: Min cockpit weights	Number None	<b>15m</b> of batteries 1	s installed 2	18m Number of batteries installed None 1 2			
Non-expendable 0 L	54	66	77	54	66	77	
tail tank 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: Min cockpit weights	15m Number of batteries installed None 1 2			18m Number of batteries installed None 1 2			
Non-expendable 0 L	54	66	77	54	66	77	
tail tank 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	

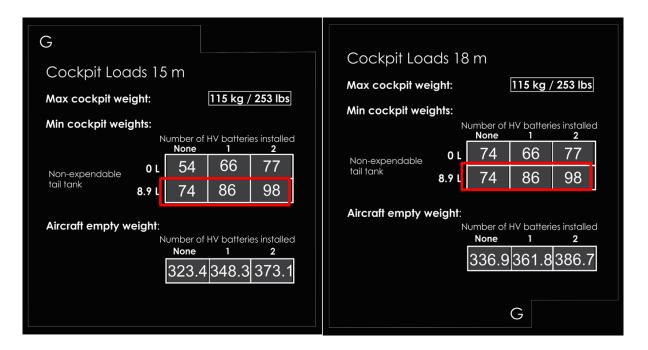
# 1.H.3 Update Placard Booklet

Example of Incorrect values:

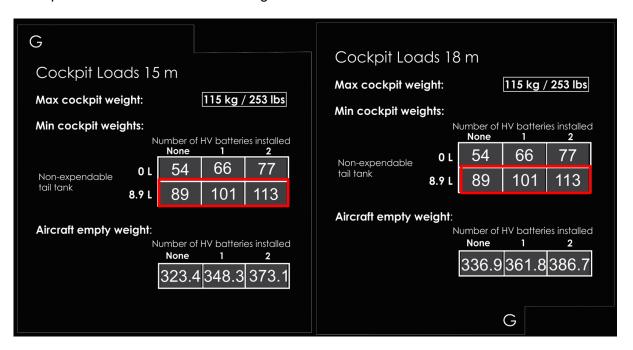


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Example of Corrected values with 15kg added:



**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.



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# 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				