

TEMPORARY REVISION

TR-OÄM-42-056c

AUXILIARY FUEL TANKS

This Temporary Revision TR-OÄM-42-056c is approved in conjunction with the Optional Design Change Advisory OÄM 42-056c and is valid in conjunction with the latest revision of the DA 42 Airplane Flight Manual until this temporary revision has been incorporated into the Airplane Flight Manual.

The limitations and information contained herein either supplement or, in the case of conflict, override those in the Airplane Flight Manual.

The technical information contained in this document has been approved under the authority of DOA No. EASA.21J.052.

Doc. No.	Chapter	Affected Pages
7.01.05-E	2	2-11a, 2-20a, 2-21a, 2-22a
	4A	4A-12a, 4A-29a
	4B	4B-24a
	6	6-4a, 6-6a, 6-8a, 6-9a, 6-10a, 6-10b, 6-11a, 6-13a
	7	7-33a, 7-38a, 7-56a

Instruction

- Print this document on yellow paper (single-sided).
- Insert this cover page as the first page of the AFM.
- Insert the other pages of this Temporary Revision in front of the corresponding AFM pages.

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Color and significance of the caution alerts on the G1000

The bottom of the table is amended as follows:

Caution-alerts (amber)	Meaning / Cause
L/R XFER FAIL	Left / Right auxiliary fuel transfer pump does not operate.
L/R AUX FUEL E	Left / Right auxiliary fuel tank empty (optional; displayed only when FUEL TRANSFER pump is ON).

2.14 FUEL

The fuel quantity specifications are amended to read:

	Main Tanks		Auxiliary Tanks (optional)		Total	
	US gal	liters	US gal	liters	US gal	liters
Total fuel quantity	2 x 26	2 x 98.4	2 x 13.7	2 x 52	2 x 39.7	2 x 150.4
Usable fuel	2 x 25	2 x 94.6	2 x 13.2	2 x 50	2 x 38.2	2 x 144.6
Max. permissible difference LH/RH	5	18.9				

2.15 LIMITATION PLACARDS

On the instrument panel, next to the fuel quantity indication:

The text is amended to read:

auxiliary fuel tank system not installed:

auxiliary fuel tank system installed:

<p>max. usable fuel: 2 x 25 US gal max. difference LH/RH tank: 5 US gal</p>
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or

<p>max. usable fuel main tank: 2 x 25 US gal auxiliary tank: 2 x 13 US gal max. difference LH/RH main tank: 5 US gal</p>

The following placard is added:

Next to each of the two auxiliary fuel fillers (optional):

<p>WARNING</p> <p>APPROVED FUEL</p> <p>JET A-1</p> <p>or see Airplane Flight Manual</p>

II. Walk-around check, visual inspection

2. *Left engine nacelle:*

The following items are added to the check:

- k) Auxiliary tank vent outlet on lower surface . . . visual inspection
- l) Auxiliary tank drain drain off to check for water and sediment (drain until no water comes out) / visual inspection
- m) Auxiliary tank filler visual inspection, tank filler closed

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4A.6.9 CRUISE

The following text is added behind the existing text:

Use of the Auxiliary Fuel Tanks

The auxiliary fuel tanks are optional equipment (OÄM 40-056).

CAUTION

When operating the FUEL TRANSFER LH/RH switch, make sure not to exceed the fuel imbalance limitations given in Section 2.14.

1. Transfer of the first half of the auxiliary fuel:

As soon as the fuel quantity in each main fuel tank is 17 US gal or less, set the FUEL TRANSFER switches to ON until the main tanks are full again.

Monitor the fuel quantity indicator to verify that fuel is transferred properly (approx. 0,5 US gal per minute). If no fuel is transferred, proceed according to section 4B.4.10 L/R FUEL XFER FAIL.

2. Transfer of the second half of the auxiliary fuel:

Repeat the procedure described above.

4B.4.10 LH/RH FUEL XFER FAIL

This section is amended to read:

L/R XFER FAIL

Left / Right auxiliary fuel transfer pump does not operate.

1. Use crossfeed function to ensure fuel supply and to keep the LH and RH fuel levels equal.
2. Amend flight plan to allow for reduced amount of available fuel.

END OF CHECKLIST

6.3 MASS AND BALANCE REPORT

The last paragraphs on page 6-4 are amended to read:

Condition of the airplane for establishing the empty mass:

- Equipment as per Equipment Inventory (see Section 6.5)
- Including brake fluid, engine oil (2 x 6.0 liters = 2 x 6.3 qts), coolant (2 x 6.0 liters = 2 x 6.3 qts), gearbox oil (2 x 0.9 liters = 2 x 0.95 qts), unusable fuel in main fuel tanks (2 US gal = approx. 7.6 liters), and unusable fuel in auxiliary fuel tanks (if installed, OÄM 42-056; 0.5 US gal = approx. 2 liters).

6.4 FLIGHT MASS AND CENTER OF GRAVITY

Paragraph 2 is amended to read:

2. Read the fuel quantity indicators to determine the fuel quantity in the main fuel tanks.

The following paragraph is inserted between paragraphs 2 and 3:

- 2A. Determine the fuel quantity in the auxiliary fuel tanks.

To verify an empty auxiliary fuel tank, set the ELECT. MASTER switch and the FUEL TRANSFER switch to ON and check the PFD for the L/R AUX FUEL E caution message.

To verify a full auxiliary fuel tank, open the auxiliary fuel tank filler and check fuel level.

If the auxiliary fuel tank quantity is between empty and full, the exact quantity cannot be determined. If possible, transfer all fuel to the main fuel tank by setting the ELECT. MASTER switch and the FUEL TRANSFER switch to ON until the L/R AUX FUEL E caution message appears on the PFD. During this procedure, ground power must be used, or at least one engine must be running. The fuel transfer will take a maximum of 10 minutes.

CAUTION

If the fuel quantity in the auxiliary fuel tank is unknown, then a full auxiliary fuel tank must be assumed for the mass and balance calculations, and an empty auxiliary fuel tank must be assumed for the range and duration calculations.

The beginning of paragraph 4 is amended to read:

4. Add up the masses and moments in the respective columns. The CG position is calculated by dividing the total moment by the total mass (using row 8 for the condition with empty fuel tanks, and row 11 for the pre take-off condition). The resulting CG position must be inside the limits.

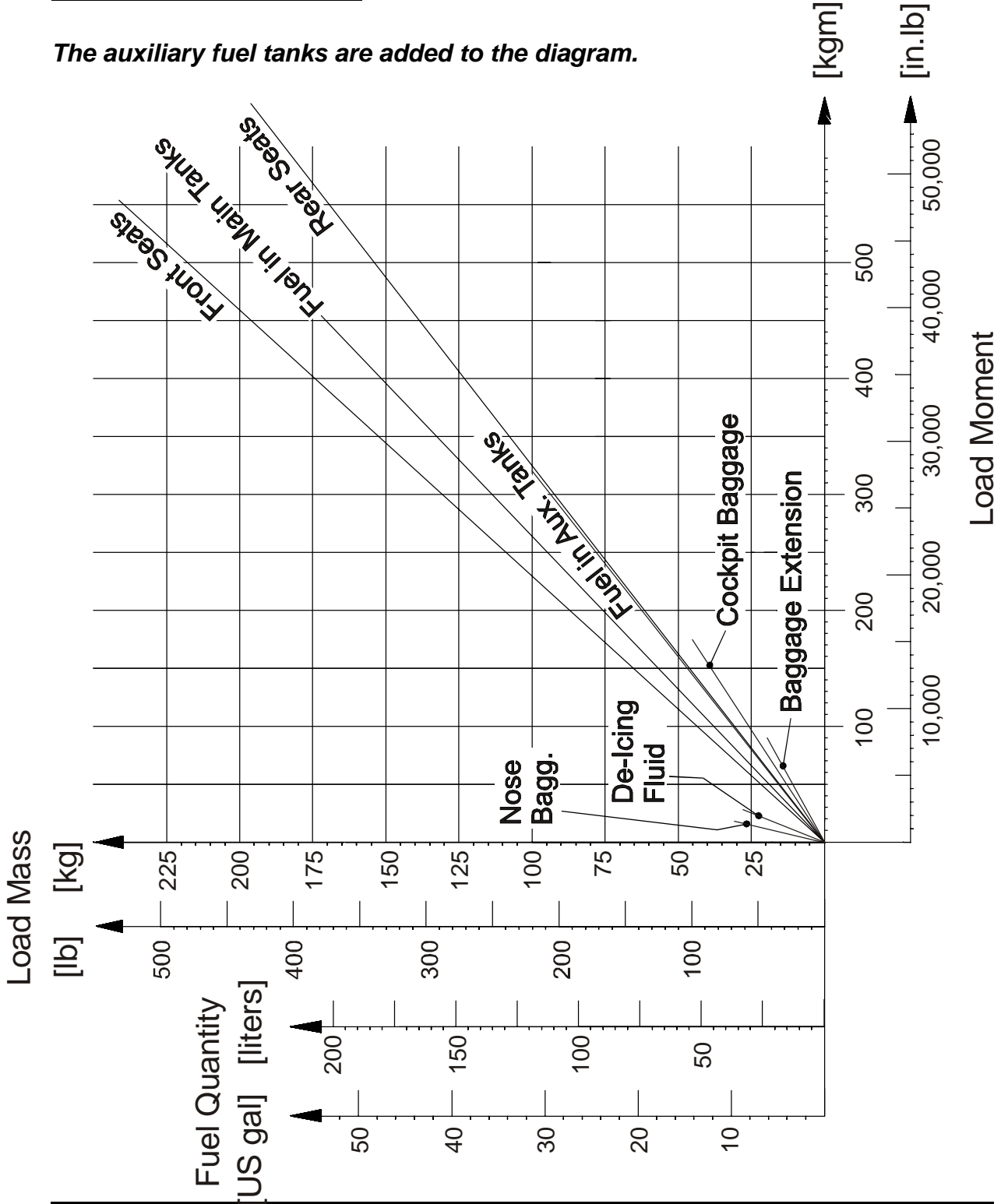
6.4.1 MOMENT ARMS

The 3rd row in the table is amended to read:

Item		Lever Arm	
		[m]	[in]
Fuel	in main tanks	2.63	103.5
	in auxiliary tanks	3.20	126.0

6.4.2 LOADING DIAGRAM

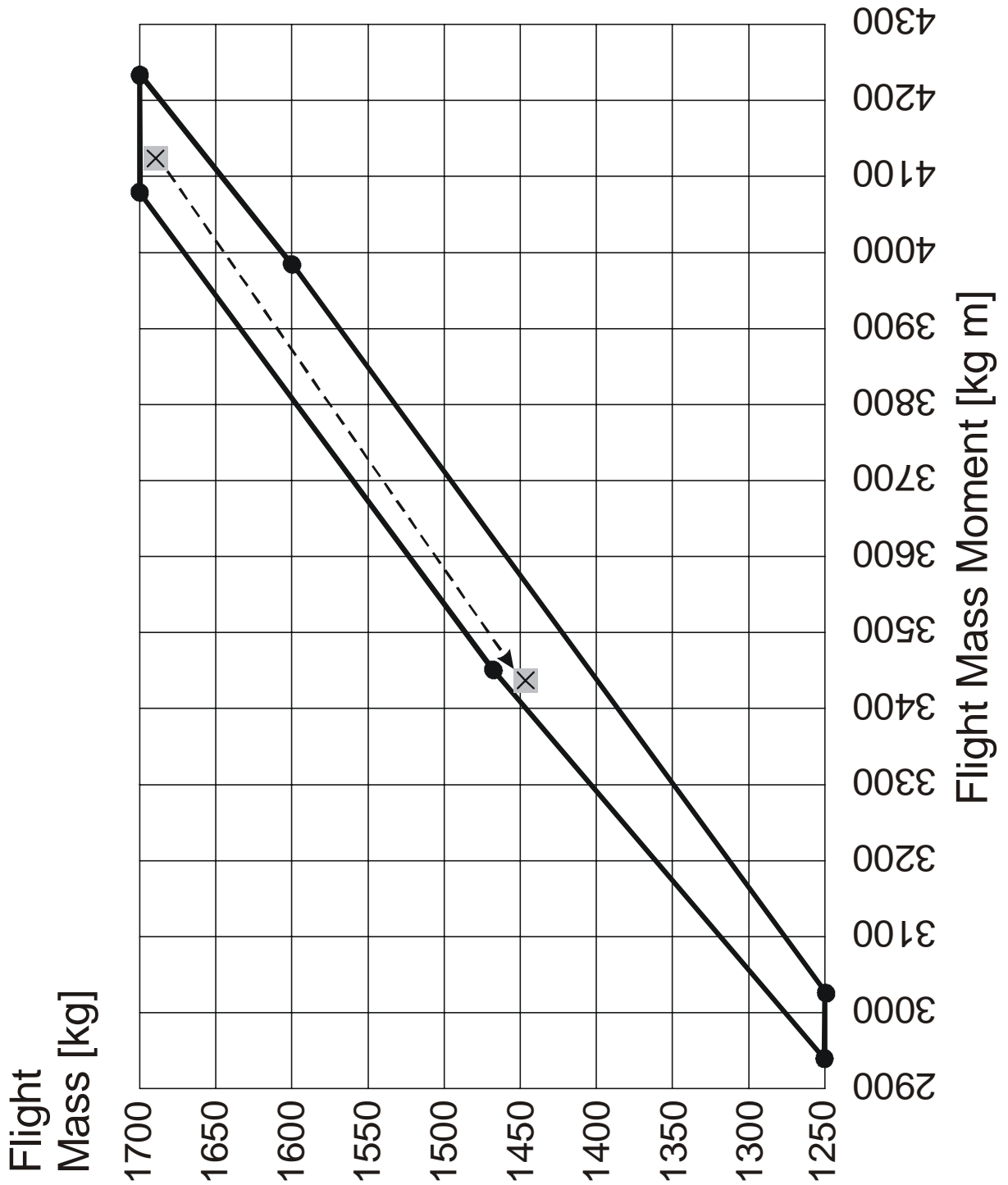
The auxiliary fuel tanks are added to the diagram.



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CALCULATION OF LOADING CONDITION	DA 42 (Example)		Your DA 42	
	Mass	Moment	Mass	Moment
	[kg] [lb]	[kgm] [in.lb]	[kg] [lb]	[kgm] [in.lb]
1. Empty mass (from Mass and Balance Report)	1170 2579	2749.5 238,647		
2. Front seats Lever arm: 2.30 m (90.6 in)	160 353	368.0 31,982		
3. Rear seats Lever arm: 3.25 m (128.0 in)	70 154	227.5 19,712		
4. Nose baggage compt. Lever arm: 0.60 m (23.6 in)	5 11	3.0 260		
5. Cockpit baggage compt. Lever arm: 3.89 m (153.1 in)	10 22	38.9 3,368		
6. Baggage extension Lever arm: 4.54 m (178.7 in)	5 11	22.7 1,966		
7. De-icing fluid (if installed; see to NOTE on previous page) (1.1 kg/liter) (9.2 lb/US gal) Lever arm: 1.00 m (39.4 in)	27.5 61	27.5 2,403		
8. Total mass & total moment with empty fuel tanks (Total of 1.-7.)	1447.5 3191	3437.1 298,338		
9. Usable fuel, main tanks (0.84 kg/liter) (7.01 lb/US gal) Lever arm: 2.63 m (103.5 in)	159 351	418.2 36,329		
10. Usable fuel, auxiliary tanks (if installed) (0.84 kg/liter) (7.01 lb/US gal) Lever arm: 3.20 m (126.0 in)	84 185	268.8 23,310		
11. Total mass & total moment with fuel & de-icing fluid (Total of 8. through 10.)	1690.5 3727	4124.1 357,977		

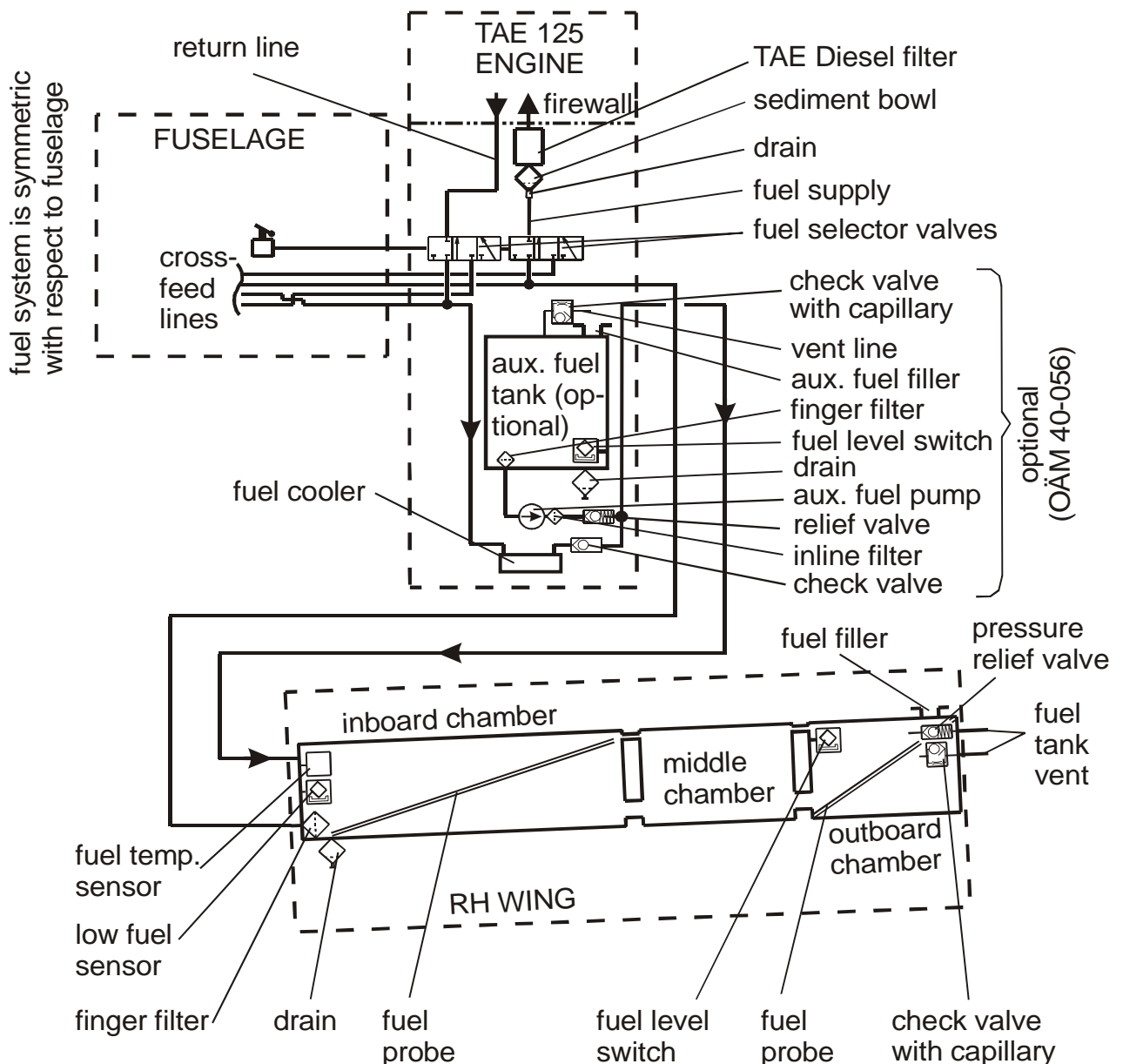
6.4.5 PERMISSIBLE MOMENT RANGE



7.9.5 FUEL SYSTEM

General

The auxiliary fuel tank system is added to the schematic.



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The following text is inserted after the 'Fuel tanks' Section:

Auxiliary fuel tanks

The auxiliary fuel tanks are optional equipment (OÄM 42-056).

Description

The auxiliary fuel tanks are installed in the rear section of the engine nacelles, above the wing main spars. Each auxiliary fuel tank has a filler cap located on the top surface of the nacelle. The additional fuel capacity is 13.7 US gallons (52 liters) per side. The total fuel capacity (main fuel tanks and auxiliary fuel tanks) is 39.7 US gallons (150.4 liters) per side.

The fuel supply connection attaches to a finger filter mounted at the rear of the auxiliary fuel tank. Each auxiliary fuel tank has a fuel transfer pump which pumps fuel into the related main fuel tank. Behind the fuel transfer pump an inline fuel filter and a pressure relief valve is installed which prevents fuel from flowing back out of the main tank into the auxiliary tank.

The vent line for the auxiliary fuel tank has a check valve with capillary. It allows air to enter the tank but prevents flow of fuel to the outside. The capillary equalizes the air pressure during climb. A fuel drain valve is located at the rear of each auxiliary tank.

Operation

Two FUEL TRANSFER switches in the cockpit are used to activate the fuel transfer pumps. The fuel transfer pump pumps the fuel from the auxiliary fuel tank into the related main fuel tank. Fuel level switches shut this pump off automatically when the auxiliary fuel tank is empty or when the main fuel tank is full.

When the fuel transfer pump is defective, the fuel that is stored in the auxiliary fuel tank is not available. The flight plan must be amended accordingly.

The fuel quantity in the auxiliary fuel tanks is not indicated.

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Caution alerts on the G1000

The following row in the table is amended to read:

Caution-alerts	Meaning / Cause
L/R XFER FAIL	Left / Right auxiliary fuel transfer pump does not operate.

The following row is added to the table:

Caution-alerts	Meaning / Cause
L/R AUX FUEL E	<p>This annunciation can only occur when the auxiliary fuel tank system (optional) is installed.</p> <p>The annunciation is active when the L/R auxiliary fuel tank is empty and the FUEL TRANSFER pump is ON.</p>

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