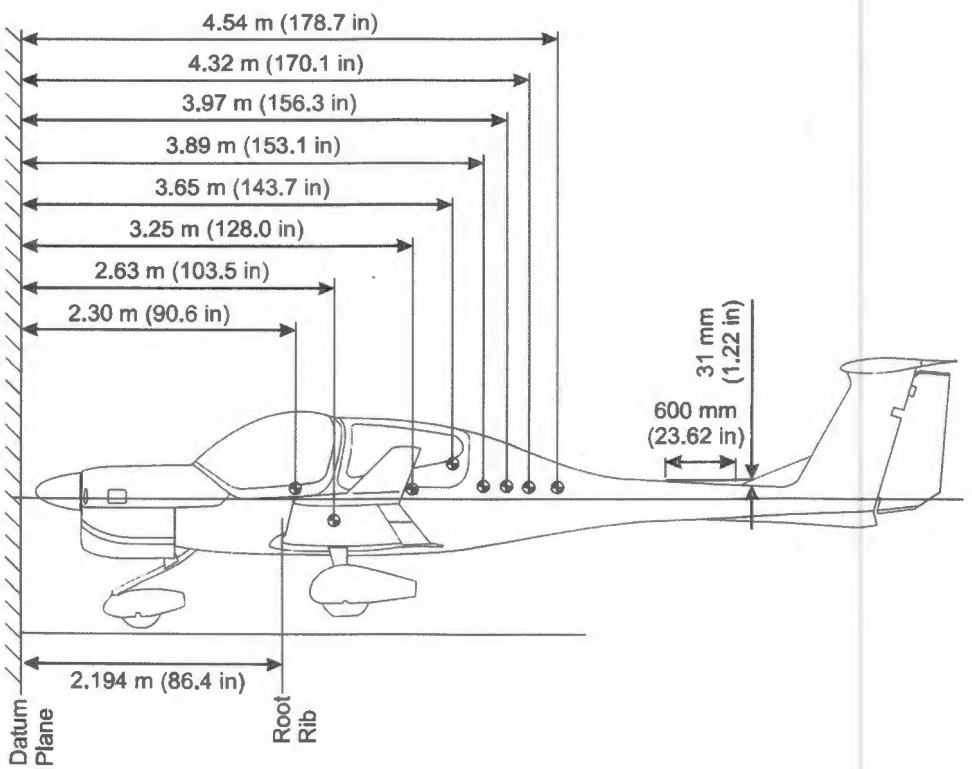
6.4.1 MOMENT ARMS

The most important lever arms aft of the Datum Plane:

- Front seats :	2.30 m	90.6 in
- Rear seats :	3.25 m	128.0 in
- Wing tank (Standard & Long Range) :	2.63 m	103.5 in
- Baggage in standard compartment :	3.65 m	143.7 in
- Baggage in baggage tube :	4.32 m	170.1 in
- Baggage in short baggage extension (if OÄM 40-331 is installed):	3.97 m	156.3 in
- Baggage in baggage extension (if OÄM 40-164 is installed):		
- Forward part :	3.89 m	153.1 in
- Aft part :	4.54 m	178.7 in



b) Long Range Tank Configuration

CALCULATION OF LOADING CONDITION	DA 40 NG (Example)		Your DA 40 NG	
	Mass [kg] [lb]	Moment [kgm] [in.lb]	Mass [kg] [lb]	Moment [kgm] [in.lb]
1. Empty mass (from Mass and Balance Report)	900 1,984	2,180.8 189,253	2041.48	195553.4 (95.79)
2. Front seats Lever arm: 2.30 m (90.6 in)	150 331	345.0 29,989	378	34246.8
3. Rear seats Lever arm: 3.25 m (128.0 in)	0 0	0 0	20	2560
4. Standard baggage comp. Lever arm: 3.65 m (143.7 in)	20 44	73.0 6,323		
5. Baggage tube Lever arm: 4.32 m (170.1 in)	0 0	0 0		
6. Short baggage extension (OÄM 40-331 carried out) Lever arm: 3.97 m (156.3 in)	0 0	0 0	OR	
7. Forward extended baggage compartment (OÄM 40-164 carried out) Lever arm: 3.89 m (153.1 in)	0 0	0 0		
8. Aft extended baggage compartment (OÄM 40-164 carried out) Lever arm: 4.54 m (178.7 in)	0 0	0 0	20	3574

student 224
CFI 134

passengers
x2
160?

Long Range Fuel

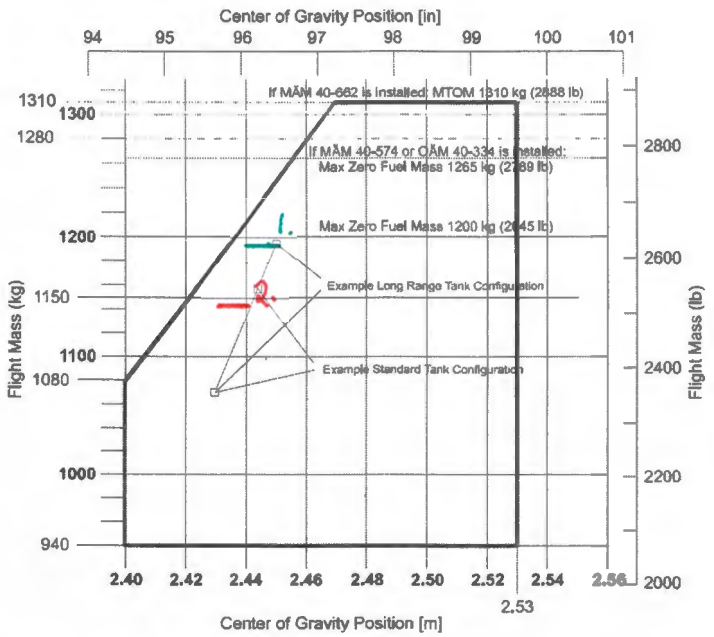
CALCULATION OF LOADING CONDITION	DA 40 NG (Example)		Your DA 40 NG	
	Mass [kg] [lb]	Moment [kgm] [in.lb]	Mass [kg] [lb]	Moment [kgm] [in.lb]
9. Total mass and total moment with empty fuel tanks (Total of 1.-8.)	1,070 2,359	2,598.8 225,565		
2. 10. On-board usable fuel (0.84 kg/liter) (7.01 lb/US gal) Lever arm: 2.63 m (103.5 in)	124 273	326.1 28,256	136.5 253.02	14127.75 26187,73
11. Total mass and total moment with full fuel tanks (Total 9. plus 10.)	1,194 2,632	2,924.9 253,821	2692.5 2575,98	258547,93 – 259561,93 246487,95 – 95.69 – 96. 24750.95 – 1,
12. The total moments from rows 9 and 11 (2,598.8 and 2,924.9 kgm) (225,565 and 253,821 in.lb) must be divided by the related total mass (1,070 and 1,194 kg respectively) (2,359 and 2,632 lb) and then located in Diagram 6.4.4 - PERMISSIBLE CENTER OF GRAVITY RANGE. As in our example CG positions (2.429 m and 2.450 m respectively) (95.62 and 96.44 in) and masses fall into the permitted area, this loading condition is allowable.				96,03 – 96,4

2.85 gal 6/6

1. Depending on where packpack were 96.03 – 96.4

2. Assuming 1/2 Fuel 95.69 – 96.08

6.4.4 PERMISSIBLE CENTER OF GRAVITY RANGE



The CG's shown in the diagram are from the examples in Tables 6.4.3 - CALCULATION OF LOADING CONDITION a) and b), rows 9 and 11.

The flight CG position must be within the following limits:

Most forward CG:

2.40 m (94.5 in) aft of DP from 940 kg to 1080 kg (2072 lb to 2381 lb)
2.46 m (96.9 in) aft of DP at 1280 kg (2822 lb)

If MÄM 40-662 is installed:

2.469 m (97.2 in) aft of DP at 1310 kg (2888 lb)

linear variation between these values

Most rearward CG:

2.53 m (99.6 in) aft of DP from 940 kg (2072 lb) to1310 kg (2888 lb)

6.4.5 PERMISSIBLE MOMENT RANGE