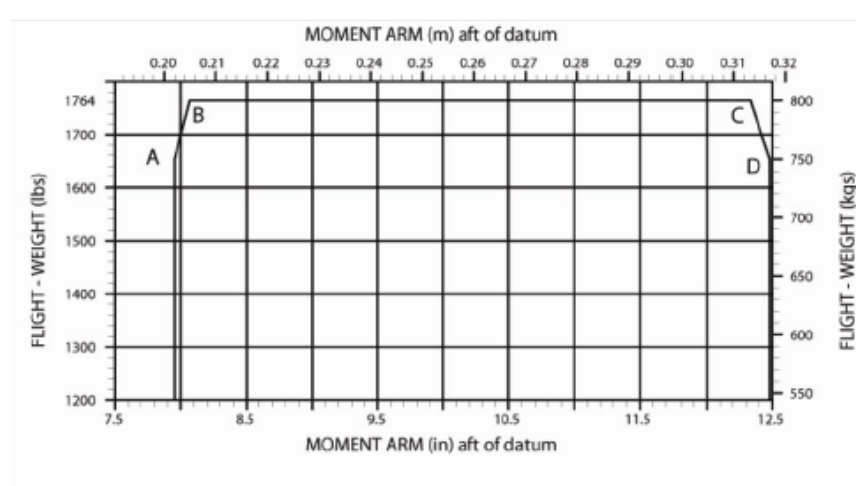


DA 20-C1 Masa i wyważenie



2.8 CENTER OF GRAVITY



Points	Gross Weight		Arm (aft of datum)	
	(lbs)	(kgs)	(in)	(m)
A	1653	750	7.95	.202
B	1764	800	8.07	.205
C	1764	800	12.16	.309
D	1653	750	12.48	.317

WARNING

EXCEEDING THE CENTER OF GRAVITY LIMITATIONS
REDUCES THE MANEUVERABILITY AND STABILITY OF
THE AIRPLANE.

The procedure used to determine the center of gravity is described in Chapter 6.

Masa samolotu i środek masy muszą znajdować się w zakresie podanym w AFM. Wszystkie tabele i rysunki pochodzą z AFM.



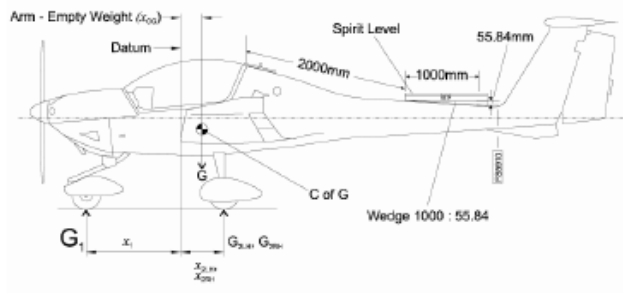


Figure 6.1 - Longitudinal Leveling Diagram

Legend:

- X1 Arm - Datum to center line nose wheel
- X2 Arm - Datum to C/L main wheels (LH and RH)
- G1 Net weight - Nose wheel
- G2 Net weight - Main wheels (LH and RH)
- G Empty weight
- XCG Arm - Empty - weight (Calculated)

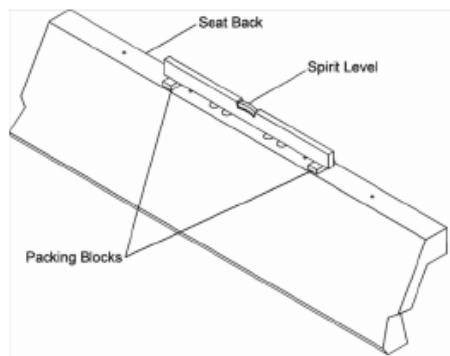


Figure 6.2 - Lateral Leveling Diagram

Masę samolotu pustego i jego środek masy określa, według AFM, organizacja obsługowa.



Masa i wyważenie

Protokół ważenia jest na pokładzie samolotu, tu jest masa pustego samolotu, położenie środka masy i moment (używany do wyważenia samolotu).

airmodlin
Nr zatwierdzenia: PL.145.064
Nowy Dwór Mazowiecki, 24.04.2015

Weight and Balance summary

Type:	Siemionow SA20-C1	Registration:	SP-KWH
S/N:	C0024		

Scale Position and Symbol	Scale Reading [kg]	Tare [kg]	Net weight [kg]
Nose Wheel (G ₁)	105	0	109
Right Main Wheel (G _{2RH})	221	0	221
Left Main Wheel (G _{2LH})	226	0	226
Basic Empty Weight (G)	556	0	556

Empty weight CG	Basic Empty Weight [kg]	C.G. Arm [cm]	Moment [kg-cm]
	556,00	26,26	14601,00

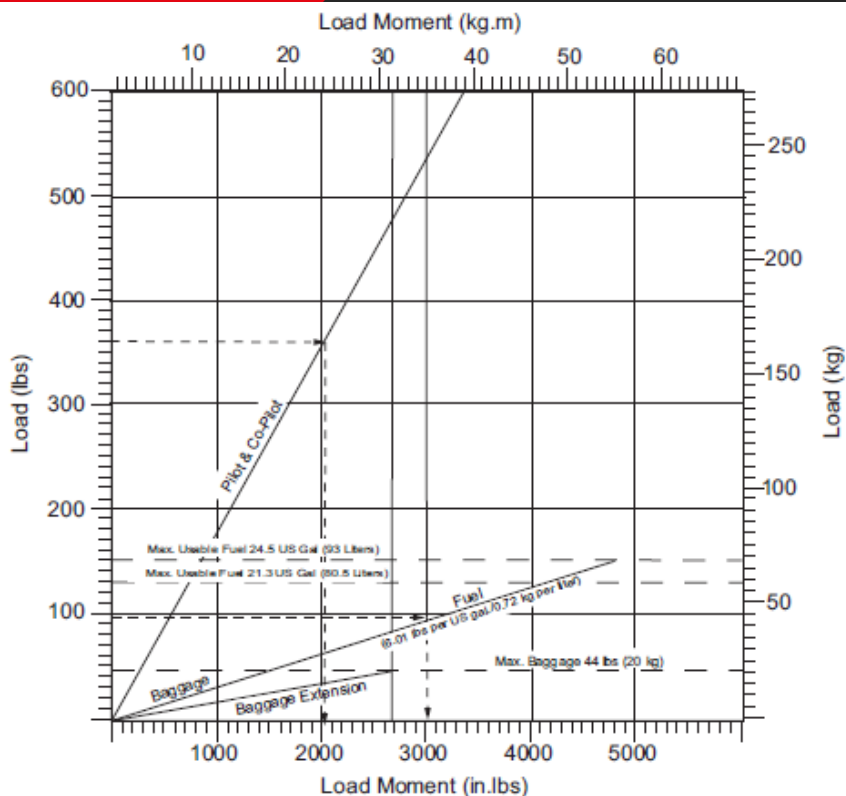
Podpis, nr uprawnień

Air Modlin Sp. z o.o.
Ul. Gen. Thommee 1A
05-102 Nowy Dwór Mazowiecki

Protokół ważenia



Masa i wyważenie



Wykres w AFM do określania momentu załogi, paliwa i bagażu
UWAGA NA JEDNOSTKI!

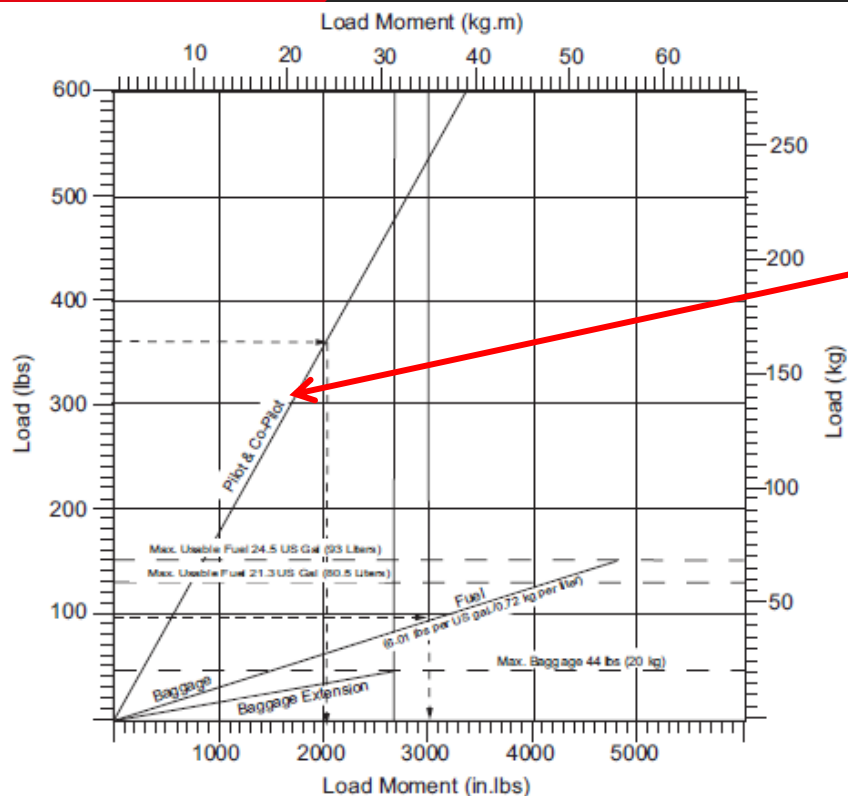
Example: Pilot and Passenger: 359 lbs. (163 kg)
 Fuel 14.0 US gal. / 52.9 liters: 93 lbs. (42 kg)
 (6.01 lbs. per US gal./0.72 kg per liter)

Result: Moment of Pilot and Passenger: 2021 in. lbs. (24.4 kgm)
 Moment of Fuel: 3017 in. lbs. (34.8 kgm)

Figure 6.6 - Weight & Balance Diagram



Masa i wyważenie - przykład



Załoga 150 kg

Example: Pilot and Passenger: 359 lbs. (163 kg)
 Fuel 14.0 US gal. / 52.9 liters: 93 lbs. (42 kg)
 (6.01 lbs. per US gal./0.72 kg per liter)

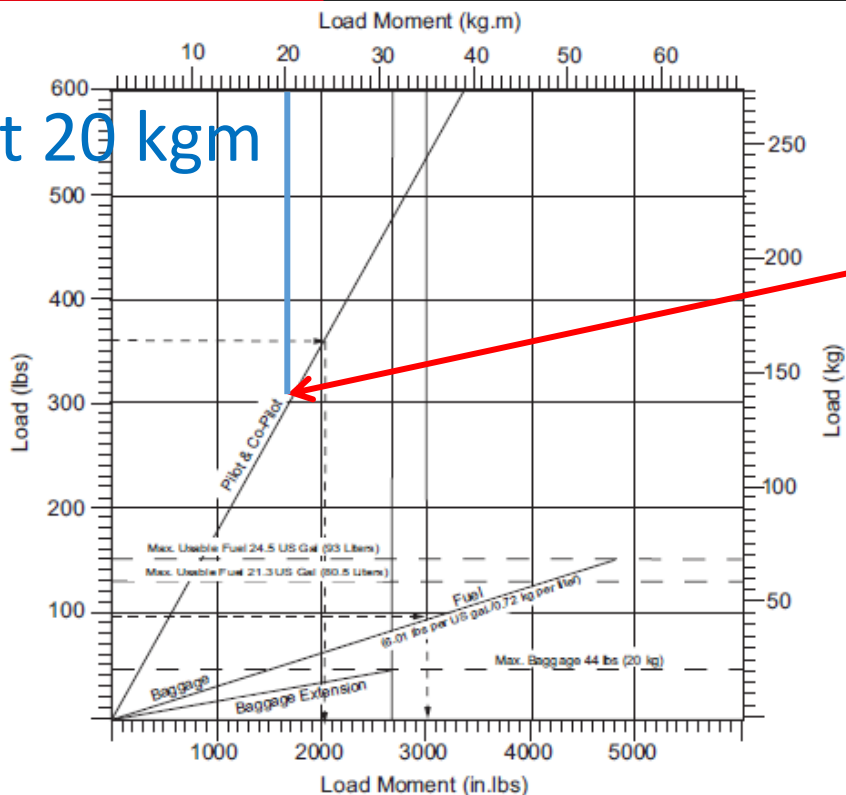
Result: Moment of Pilot and Passenger: 2021 in. lbs. (24.4 kgm)
 Moment of Fuel: 3017 in. lbs. (34.8 kgm)

Figure 6.6 - Weight & Balance Diagram



Masa i wyważenie - przykład

Moment 20 kgm



Załoga 150 kg

Example: Pilot and Passenger: 359 lbs. (163 kg)
 Fuel 14.0 US gal. / 52.9 liters: 93 lbs. (42 kg)
 (6.01 lbs. per US gal./0.72 kg per liter)

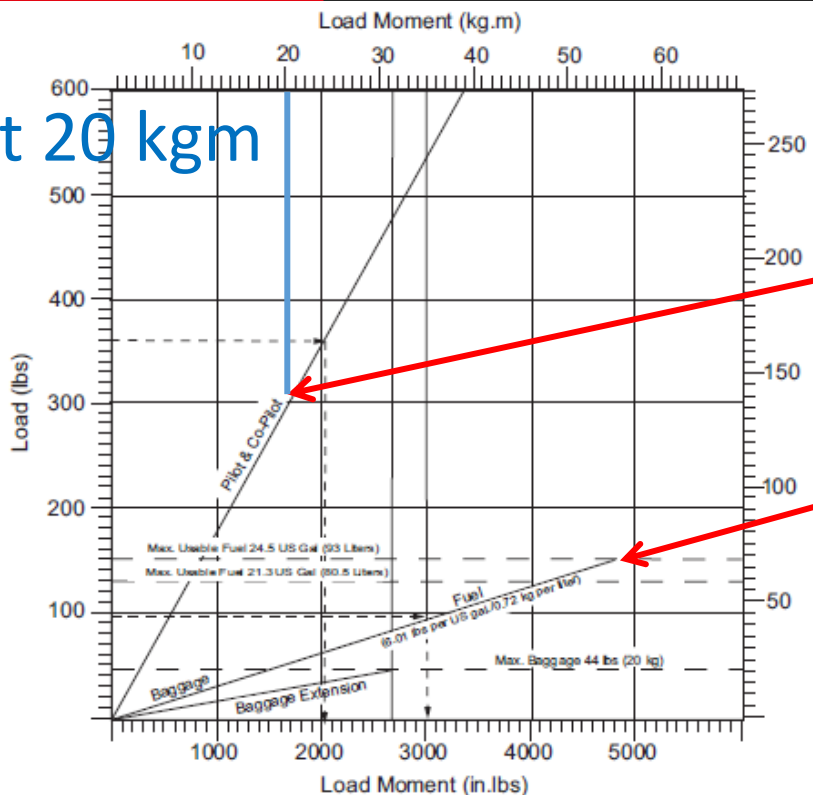
Result: Moment of Pilot and Passenger: 2021 in. lbs. (24.4 kgm)
 Moment of Fuel: 3017 in. lbs. (34.8 kgm)

Figure 6.6 - Weight & Balance Diagram



Masa i wyważenie - przykład

Moment 20 kgm



Załoga 150 kg

Paliwo pełne 65 kg

Example: Pilot and Passenger: 359 lbs. (163 kg)
 Fuel 14.0 US gal. / 52.9 liters: 93 lbs. (42 kg)
 (6.01 lbs. per US gal./0.72 kg per liter)

Result: Moment of Pilot and Passenger: 2021 in. lbs. (24.4 kgm)
 Moment of Fuel: 3017 in. lbs. (34.8 kgm)

Figure 6.6 - Weight & Balance Diagram

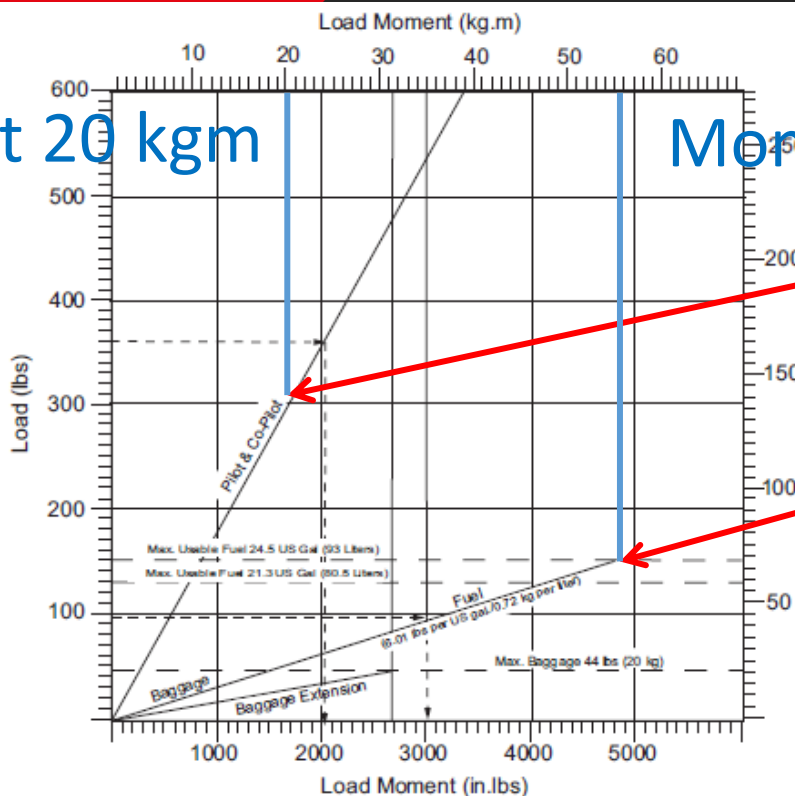


Moment 20 kgm

Moment 55 kgm

Załoga 150 kg

Paliwo pełne 65 kg



Example: Pilot and Passenger: 359 lbs. (163 kg)
 Fuel 14.0 US gal. / 52.9 liters: 93 lbs. (42 kg)
 (6.01 lbs. per US gal./0.72 kg per liter)

Result: Moment of Pilot and Passenger: 2021 in. lbs. (24.4 kgm)
 Moment of Fuel: 3017 in. lbs. (34.8 kgm)

Figure 6.6 - Weight & Balance Diagram



Masa i wyważenie - przykład

	Calculation of the Load Limits	DA20-C1 (EXAMPLE)		YOUR DA20-C1	
		Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])	Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])
1.	Empty Weight (use the data for your airplane recorded in the equipment list, including unusable fuel and lubricant).	1153 (523)	12562 (144.740)	556	146
2.	Pilot and Passenger: Lever Arm: 0.143 m (5.63 in)	359 (163)	2021 (23.286)	150	20
3.	Baggage: Max. Wt. 44 lbs (20 kg) Lever Arm: 0.824 m (32.44 in)	-- (--)	-- (--)		
4.	Baggage Compartment Extension: Max. Wt. 44 lbs (20 kg) Lever Arm: 1.575 m (62.0 in)	-- (--)	-- (--)		
5.	*Combined Baggage Max. Wt. 44 lbs (20 kg) Lever Arm: 1.20 m (47.22 in)	-- (--)	-- (--)		
6.	Total Weight and Total Moment with empty fuel tank (sum of 1. - 3.)	1512 (686)	14583 (168.026)		
7.	Usable Fuel Load (8.01 lbs. per US gal./0.72 kg per liter) Lever Arm (32.44 in) (0.824 m)	93 (42)	3017 (34.762)		
8.	Total Weight and Total Moment, taking fuel into account (sum of 6. and 7.)	1605 (728)	17600 (202.788)		
9.	Find the values for the total weight (1512 lbs and 1605 lbs) and the total moment (14583 in lbs and 17600 in. lbs) in the center of gravity diagram. Since they are within the limitation range, the loading is permissible.				

W tabeli wyważenia w AFM wpisujemy masę i moment samolotu pustego (z protokołu ważenia), załogi i bagażu (dla uproszczenia założono brak)
UWAGA NA JEDNOSTKI!

* Combined Baggage: For convenience of calculation use this line if baggage is to be located in both the baggage compartment and the baggage extension. The combined total of the baggage must not exceed 44 lbs (20 kg).



Masa i wyważenie - przykład

	Calculation of the Load Limits	DA20-C1 (EXAMPLE)		YOUR DA20-C1	
		Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])	Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])
1.	Empty Weight (use the data for your airplane recorded in the equipment list, including unusable fuel and lubricant).	1153 (523)	12562 (144.740)	556	146
2.	Pilot and Passenger: Lever Arm: 0.143 m (5.63 in)	359 (163)	2021 (23.286)	150	20
3.	Baggage: Max. Wt. 44 lbs (20 kg) Lever Arm: 0.824 m (32.44 in)	-- (--)	-- (--)		
4.	Baggage Compartment Extension: Max. Wt. 44 lbs (20 kg) Lever Arm: 1.575 m (62.0 in)	-- (--)	-- (--)		
5.	*Combined Baggage Max. Wt. 44 lbs (20 kg) Lever Arm: 1.20 m (47.22 in)	-- (--)	-- (--)		
6.	Total Weight and Total Moment with empty fuel tank (sum of 1. - 3.)	1512 (686)	14583 (168.026)	706	166
7.	Usable Fuel Load (8.01 lbs. per US gal./0.72 kg per liter) Lever Arm (32.44 in) (0.824 m)	93 (42)	3017 (34.762)		
8.	Total Weight and Total Moment, taking fuel into account (sum of 6. and 7.)	1605 (728)	17600 (202.788)		
9.	Find the values for the total weight (1512 lbs and 1605 lbs) and the total moment (14583 in lbs and 17600 in. lbs) in the center of gravity diagram. Since they are within the limitation range, the loading is permissible.				

W tabeli wyważenia w AFM wpisujemy masę i moment samolotu pustego (z protokołu ważenia), załogi i bagażu (dla uproszczenia założono brak) **UWAGA NA JEDNOSTKI!** Sumujemy (bez paliwa)

* Combined Baggage: For convenience of calculation use this line if baggage is to be located in both the baggage compartment and the baggage extension. The combined total of the baggage must not exceed 44 lbs (20 kg).



Masa i wyważenie - przykład

	Calculation of the Load Limits	DA20-C1 (EXAMPLE)		YOUR DA20-C1	
		Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])	Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])
1.	Empty Weight (use the data for your airplane recorded in the equipment list, including unusable fuel and lubricant).	1153 (523)	12562 (144.740)	556	146
2.	Pilot and Passenger: Lever Arm: 0.143 m (5.63 in)	359 (163)	2021 (23.286)	150	20
3.	Baggage: Max. Wt. 44 lbs (20 kg) Lever Arm: 0.824 m (32.44 in)	-- (--)	-- (--)		
4.	Baggage Compartment Extension: Max. Wt. 44 lbs (20 kg) Lever Arm: 1.575 m (62.0 in)	-- (--)	-- (--)		
5.	*Combined Baggage Max. Wt. 44 lbs (20 kg) Lever Arm: 1.20 m (47.22 in)	-- (--)	-- (--)		
6.	Total Weight and Total Moment with empty fuel tank (sum of 1. - 3.)	1512 (686)	14583 (168.026)	706	166
7.	Usable Fuel Load (8.01 lbs. per US gal./0.72 kg per liter) Lever Arm (32.44 in) (0.824 m)	93 (42)	3017 (34.762)	65	55
8.	Total Weight and Total Moment, taking fuel into account (sum of 6. and 7.)	1605 (728)	17600 (202.788)		
9.	Find the values for the total weight (1512 lbs and 1605 lbs) and the total moment (14583 in lbs and 17600 in. lbs) in the center of gravity diagram. Since they are within the limitation range, the loading is permissible.				

* Combined Baggage: For convenience of calculation use this line if baggage is to be located in both the baggage compartment and the baggage extension. The combined total of the baggage must not exceed 44 lbs (20 kg).

W tabeli wyważenia w AFM wpisujemy masę i moment samolotu pustego (z protokołu ważenia), załogi i bagażu (dla uproszczenia założono brak) **UWAGA NA JEDNOSTKI!** Sumujemy (bez paliwa) Wpisujemy paliwo



Masa i wyważenie - przykład

	Calculation of the Load Limits	DA20-C1 (EXAMPLE)		YOUR DA20-C1	
		Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])	Weight [lbs] (Weight [kg])	Moment [in.lbs] ([kgm])
1.	Empty Weight (use the data for your airplane recorded in the equipment list, including unusable fuel and lubricant).	1153 (523)	12562 (144.740)	556	146
2.	Pilot and Passenger: Lever Arm: 0.143 m (5.63 in)	359 (163)	2021 (23.286)	150	20
3.	Baggage: Max. Wt. 44 lbs (20 kg) Lever Arm: 0.824 m (32.44 in)	-- (--)	-- (--)		
4.	Baggage Compartment Extension: Max. Wt. 44 lbs (20 kg) Lever Arm: 1.575 m (62.0 in)	-- (--)	-- (--)		
5.	*Combined Baggage Max. Wt. 44 lbs (20 kg) Lever Arm: 1.20 m (47.22 in)	-- (--)	-- (--)		
6.	Total Weight and Total Moment with empty fuel tank (sum of 1. - 3.)	1512 (686)	14583 (168.026)	706	166
7.	Usable Fuel Load (8.01 lbs. per US gal./0.72 kg per liter) Lever Arm (32.44 in) (0.824 m)	93 (42)	3017 (34.762)	65	55
8.	Total Weight and Total Moment, taking fuel into account (sum of 6. and 7.)	1605 (728)	17600 (202.788)	771	221
9.	Find the values for the total weight (1512 lbs and 1605 lbs) and the total moment (14583 in lbs and 17600 in. lbs) in the center of gravity diagram. Since they are within the limitation range, the loading is permissible.				

* Combined Baggage: For convenience of calculation use this line if baggage is to be located in both the baggage compartment and the baggage extension. The combined total of the baggage must not exceed 44 lbs (20 kg).

W tabeli wyważenia w AFM wpisujemy masę i moment samolotu pustego (z protokołu ważenia), załogi i bagażu (dla uproszczenia założono brak)

UWAGA NA JEDNOSTKI!

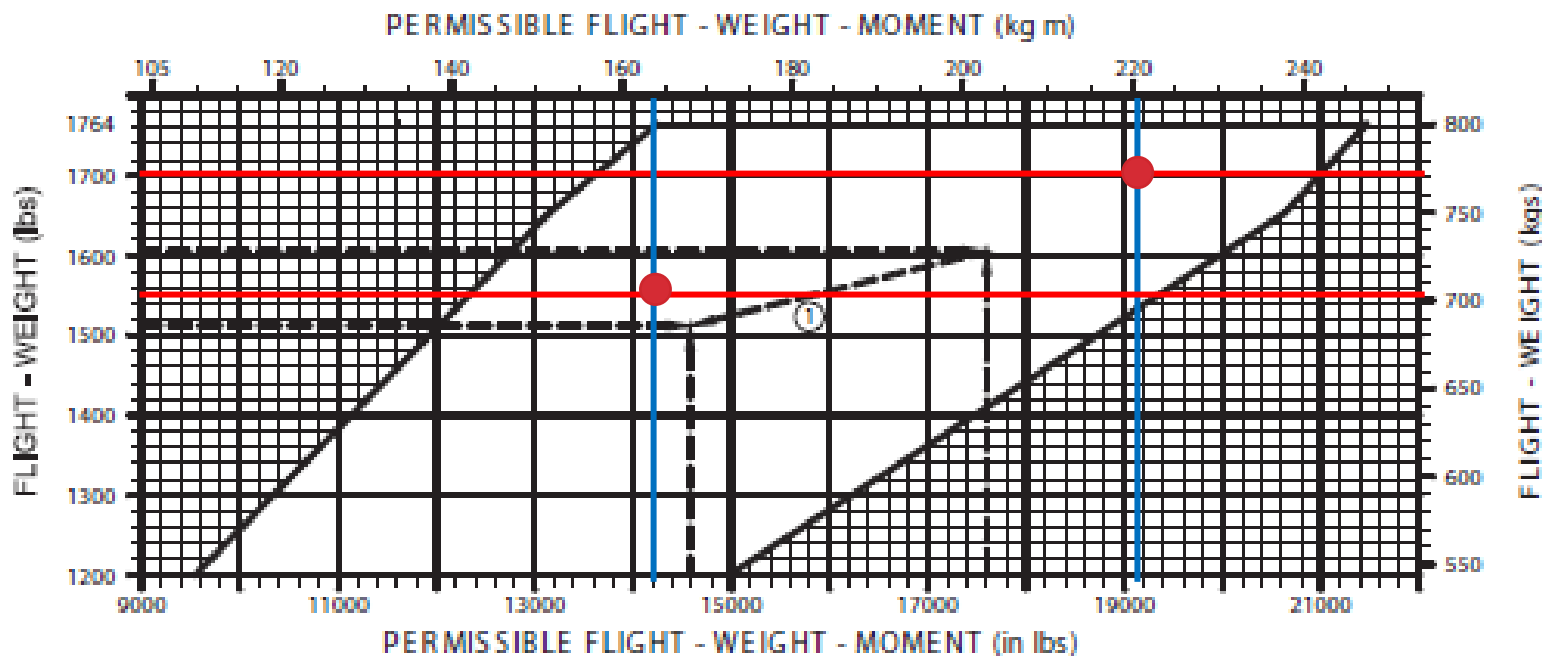
Sumujemy (bez paliwa)

Wpisujemy paliwo

Sumujemy (z paliwem)



Masa i wyważenie - przykład



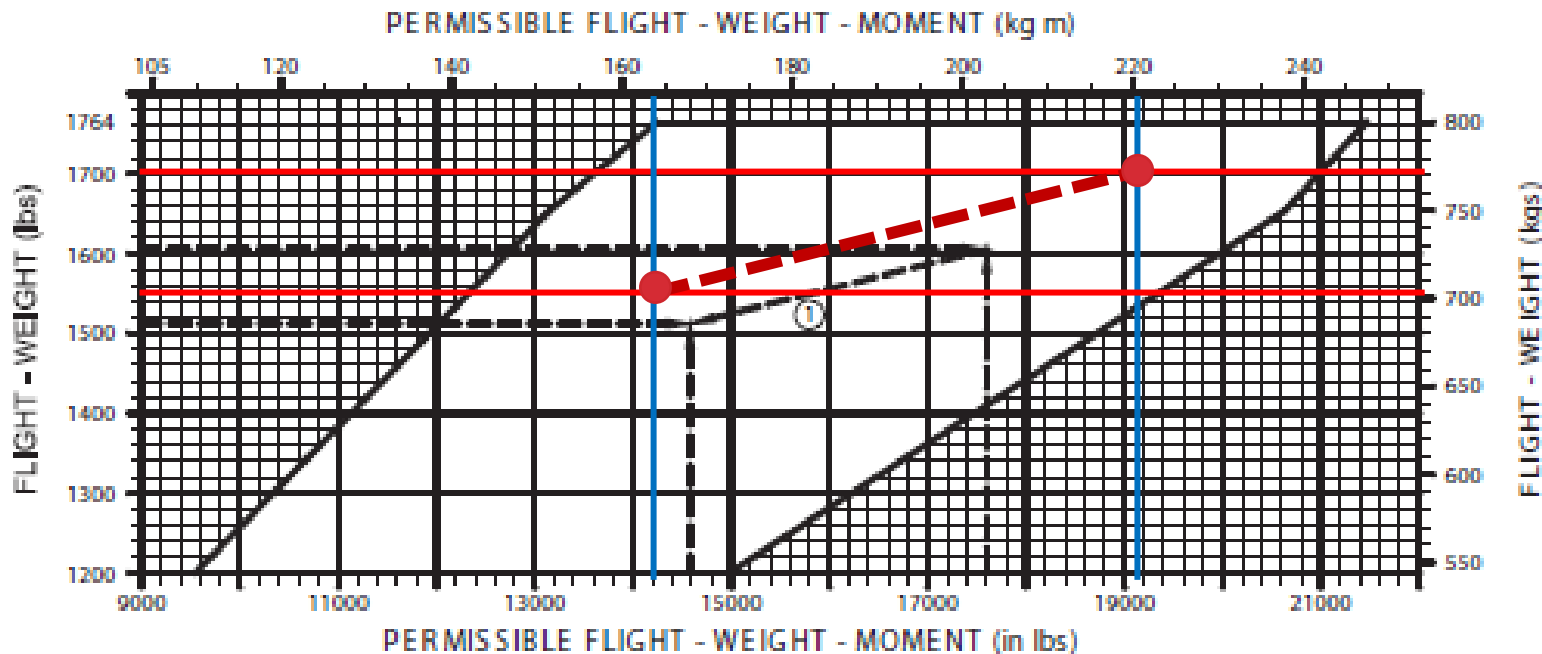
Zaznaczamy na wykresie masy i momenty z paliwem i bez.

See an example calculation of loading condition in Figure 6.7. Change in center of gravity is due to fuel consumption

Figure 6.8 - Permissible Center of Gravity Range and Permissible Flight-Weight-Moment



Masa i wyważenie - przykład



Zaznaczamy na wykresie masy i momenty z paliwem i bez.

UWAGA: wędrówka środka masy musi mieścić się w zakresie.

See an example calculation of loading condition in Figure 6.7. Change in center of gravity is due to fuel consumption

Figure 6.8 - Permissible Center of Gravity Range and Permissible Flight-Weight-Moment



- Katana DA 20-C1 z pełnym zbiornikiem paliwa ma spory zapas na załogę i bagaż.
- **UWAGA GENERALNA:** Przed tankowaniem samolotu upewnij się czy wymagane osiągi lub ograniczenie masy maksymalnej i środka masy pozwolą Ci tankować do pełna.

