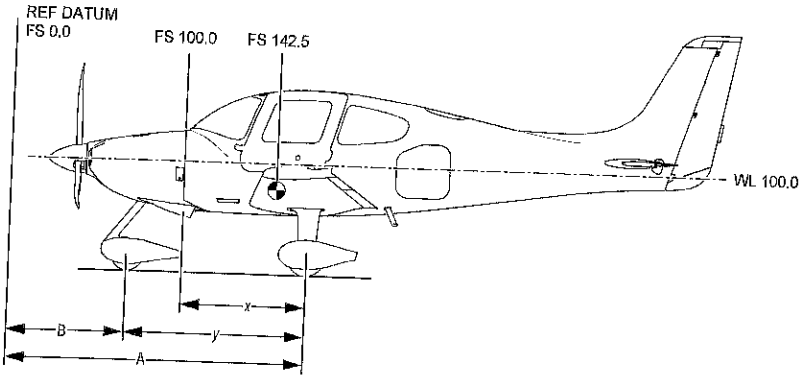
Introduction

This section describes the procedure for calculating the weight and moment for various operations. A comprehensive list of all equipment available for this airplane is included at the back of this section.

It should be noted that specific information regarding the weight, arm, moment, and installed equipment for this airplane as delivered from the factory can be found at the back of this section.

It is the responsibility of the pilot to ensure that the airplane is loaded properly. All changes to the basic empty weight and center of gravity are the responsibility of the operator.



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Basic empty weight, moment, and center of gravity are provided in inches aft of datum, where 0 inches datum is 100.0 inches forward of the cabin firewall. CG can also be expressed in terms of its location as a percentage of the airplane Mean Aerodynamic Cord (MAC) using the following formula:

$$CG\%\ MAC = 100 \times (CG\ Inches - LEMAC) / MAC$$

Where:

$$LEMAC = 133.1$$

$$MAC = 47.7$$

• Note •

Leveling and Weighing procedures are not described in this section. Refer to Airplane Maintenance Manual (AMM), Chapter 8, Leveling and Weighing.

Loading Instructions

It is the responsibility of the pilot to ensure that the airplane is properly loaded and operated within the prescribed weight and center of gravity limits. The following information enables the pilot to calculate the total weight and moment for the loading. The calculated moment is then compared to the Moment Limits chart or table *(Figure 6-3)* for a determination of proper loading.

Airplane loading determinations are calculated using the Weight & Balance Loading Form *(Figure 6-1)*, the Loading Data chart and table *(Figure 6-2)*, and the Moment Limits chart and table *(Figure 6-3)*.

1. ***Basic Empty Weight*** – Enter the current Basic Empty Weight and Moment from the Weight & Balance Record *(Figure 6-4)*.
2. ***Front Seat Occupants*** – Enter the total weight and moment/1000 for the front seat occupants from the Loading Data *(Figure 6-2)*.
3. ***Rear Seat Occupant(s)*** – Enter the total weight and moment/1000 for the rear seat occupants from the Loading Data *(Figure 6-2)*.
4. ***Baggage*** – Enter weight and moment for the baggage from the Loading Data *(Figure 6-2)*.
   - If desired, subtotal the weights and moment/1000 from steps 1 through 4. This is the *Zero Fuel Condition*. It includes all useful load items excluding fuel.
5. ***Fuel Loading*** – Enter the weight and moment of usable fuel loaded on the airplane from the Loading Data *(Figure 6-2)*.
   - Subtotal the weight and moment/1000. This is the *Ramp Condition* or the weight and moment of the aircraft before taxi.
6. ***Fuel for start, taxi, and run-up*** – This value is pre-entered on the form. Normally, fuel used for start, taxi, and run-up is approximately 9 pounds at an average moment/1000 of 1.394.
7. ***Takeoff Condition*** – Subtract the weight and moment/1000 for step 8 (start, taxi, and run-up) from the Ramp Condition values (step 7) to determine the Takeoff Condition weight and moment/1000.
   - The total weight at takeoff must not exceed the maximum weight limit of 3150 pounds. The total moment/1000 must not be above the maximum or below the minimum moment/1000 for the Takeoff Condition Weight as determined from the Moment Limits chart or table *(Figure 6-3)*.

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Wägebericht und Massenübersicht

Auftrags-Nr.: VK20-02940

Muster: SR 20	Werk-Nr.: 2450	Kennzeichen: **D-EKLL**

Daten nach Kennblatt bzw. Flughandbuch

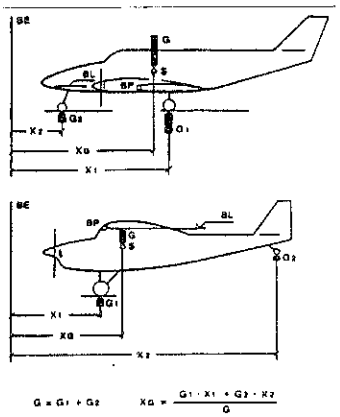
Grund der Wägung: Zulassung

Bezugspunkt BP

Bezugsebene BE 2,54m (100 inches in front of Firewall)

Bezugslinie horiz. BL Türrahmen, unten (Cabin Door Sill)

Lufttüchtigk.-Gruppe	Höchstmasse	Schwerpunktslage bei Flugmasse		bei Flugmasse
Einheiten	**kg**	X vorn **m**	m X hinten	kg
Normalflugzeug (N)	1429,000	3,580	3,762	1429,0
	953	3,500	3,762	953,0
Nutzflugzeug (U)				



$G = G_1 + G_2 \qquad X_G = \frac{G_1 \cdot X_1 + G_2 \cdot X_2}{G}$

Ausrüstungsliste Stand vom 31.03.2017

Plan der Fluggastraumgestaltung vom 31.03.2017

Wägung und Schwerpunktslage bei Leermasse

Wägung	Auflage		Brutto-Masse Einheiten kg	Tara-Masse kg	Netto-Masse kg	Hebelarm m	Moment kgm
	links	G1 l	447,000	0,000	447,000	X1 3,990	1783,530
	rechts	G1 r	446,000	0,000	446,000	3,990	1779,540
	vorn/hinten	G2	197,000	0,000	197,000	X2 1,850	364,450
				Summe A	1090,000		3927,520

Abzüge — Ausfliegbarer Kraftstoff — Dichte 0,720 kg /l

		Einheit			
Rumpfbehälter 1		l			0,000
Rumpfbehälter 2		l			0,000
Flügelbehälter 1	61,420	l	44,222	3,930	173,794
Flügelbehälter 2	54,840	l	39,485	3,930	155,175
Flügelbehälter 3		l			0,000
Flügelbehälter 4		l			0,000
		l			0,000
		l			0,000
		l			0,000
(Dimension siehe Flughandbuch)		Summe B	83,707		328,969
		Wägung (Summe A)	1090,000		3927,520
		Abzüge (Summe B)	83,707		328,969
		Leermasse	**1006,293**	**3,576**	**3598,551**

In der Leermasse sind enthalten:
Schmierstoffe, Hydraulik- und Enteisungsflüssigkeit bei jeweils maximal zulässiger Füllung.

Egelsbach / EDFE — Ort
05.05.2020 — Datum

Kennzeichen: **D-EKLL**

Veränderliche Lasten

		Einheit	Masse kg	Hebelarm m	Moment kgm
Kraftstoff	Dichte 0,720 kg /l				
Rumpfbehälter 1		l			
Rumpfbehälter 2		l			
Flügelbehälter 1		l			
Flügelbehälter 2		l			
Flügelbehälter 3		l			
Flügelbehälter 4		l			
Sitzplätze: Flugzeugführer	X	kg			
		kg			
		kg			
		kg			
		kg			
Gepäck		kg		5,283	
Einsatzausrüstung		kg	1,500	5,283	7,925

Massen und Hebelarme sind dem Flughandbuch zu entnehmen

Schwerpunktslage bei Flugmasse

(mögliche vordere und hintere Lage Xv und Xh)

Beladung	Leermasse	1006,293	3,576	3598,551
Rumpfbehälter 1				
Rumpfbehälter 2				
Flügelbehälter 1				
Flügelbehälter 2				
Flügelbehälter 3				
Flügelbehälter 4				
Sitzplätze: Flugzeugführer				
Gepäck			5,280	
Einsatzausrüstung		1,500	5,283	7,925
Gewichtstrimmung Einbauort		**1007,793**	**3,579**	**3606,475**

Höchstzulässige Zuladung

	Einheit	Normalflugzeug (N)	Nutzflugzeug (U)	
Lufttüchtigk.-Gruppe				
Höchstmasse		1429,000		
- Leermasse		1006,293		
höchstzul. Zuladung	kg	**422,707**		

Daten für den Eintrag ins Flughandbuch

Leermasse		Leermasse-Moment	
1006,293	kg	3598,551	kgm
Einheit		Einheit	

zusätzliche Angaben für Flughandbuch und Hinweisschilder:

Egelsbach / EDFE — Ort

05.05.2020 — Datum

B. Vogel — Ausführender

Authorized for Release to Service DE.145.6027 Rädor Präzision GmbH Ausweis Nr. RP130

Stempel

Unterschrift Freigabeberechtigter / CS

Weight and Balance Loading Form

• Note •

For Center of Gravity Envelope, refer to Section 2, Limitations.

The Takeoff Condition Weight must not exceed 3150 lb.

The Takeoff Condition Moment must be within the Minimum Moment to Maximum Moment range at the Takeoff Condition Weight. (Refer to *Moment Limits*).

Serial Num: _____ Date: _____

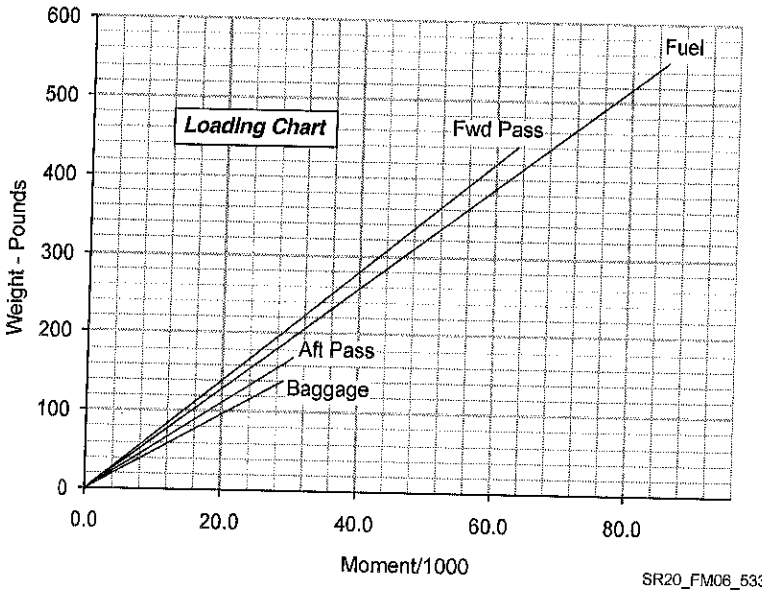
Reg. Num: _____ Initials: _____

Item	Description	Weight LB	Moment/ 1000
1.	Basic Empty Weight *Includes unusable fuel & full oil*		
2.	Front Seat Occupants *Pilot & Passenger (total)*		
3.	Rear Seat Occupant(s)		
4.	Baggage Area *130 lb maximum*		
5.	Zero Fuel Condition Weight *Sub total item 1 thru 4*		
6.	Fuel Loading *56 Gallon @ 6.0 lb/gal. Maximum*		
7.	Ramp Condition Weight *Sub total item 5 and 6*		
8.	Fuel for start, taxi, and run-up *Normally 9 lb at average moment of 922.8.*		
9.	Takeoff Condition Weight *Subtract item 8 from item 7*		

Figure 6-1

Loading Data

Use the following chart or table to determine the moment/1000 for fuel and payload items to complete the Loading Form.



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Weight LB	Fwd Pass FS 143.5	Aft Pass FS 180.0	Baggage FS 208.0	Fuel FS 153.8	Weight LB	Fwd Pass FS 143.5	Aft Pass FS 180.0	Fuel FS 153.8
20	2.87	3.60	4.16	3.10	220	31.57	39.60	34.08
40	5.74	7.20	8.32	6.20	240	34.44	43.20	37.18
60	8.61	10.80	12.48	9.29	260	37.31	46.80	40.27
80	11.48	14.40	16.64	12.39	280	40.18	50.40	43.37
100	14.35	18.00	20.80	15.49	300	43.05	54.00	46.47
120	17.22	21.60	24.96	18.59	320	45.92	57.60	49.57
140	20.09	25.20	27.04*	21.69	336**	48.79	61.20	52.05
160	22.96	28.80		24.78	360	51.66	64.80	
180	25.83	32.40		27.88	380	54.53	68.40	
200	28.70	36.00		30.98	400	57.40	72.00	

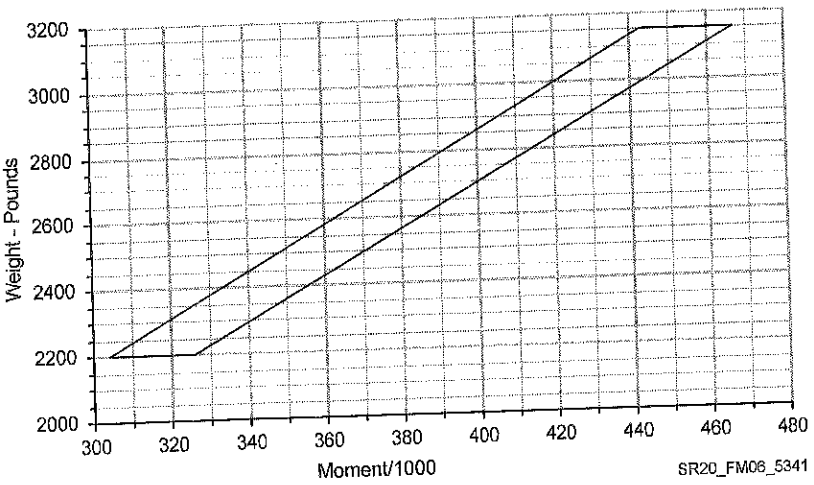
*130 lb Maximum

**56 U. S. Gallons Usable

Figure 6-2

Moment Limits

Use the following chart or table to determine if the weight and moment from the completed Weight and Balance Loading Form *(Figure 6-1)* are within limits.



Weight	Moment/1000		Weight	Moment/1000	
LB	Minimum	Maximum	LB	Minimum	Maximum
2200	304	326	2700	375	398
2250	311	333	2750	383	406
2300	318	341	2800	390	414
2350	326	348	2850	398	421
2400	333	354	2900	406	429
2450	340	362	2950	414	437
2500	347	369	3000	421	444
2550	354	375	3050	429	452
2600	362	383	3100	438	459
2650	369	390	3150	445	467

Figure 6-3

Weight & Balance Record

Use this form to maintain a continuous history of changes and modifications to airplane structure or equipment affecting weight and balance:

Serial Num:			Reg. Num:					Page of	
	Item No.			Weight Change Added (+) or Removed (-)			Running Basic Empty Weight	
Date	In	Out	Description of Article or Modification	WT LB	ARM IN.	MOM/ 1000	WT LB	MOM/ 1000
			As Delivered					

Figure 6-4