

Aircraft Operating Instructions

2.6 Miscellaneous Instrument Marking

There is not any miscellaneous instrument marking.

2.7 Weight

Empty weight (standard equipment)...715 lb 325 kg

NOTE
Actual empty weight data for this aircraft is shown in SECTION 6

Max. take-off weight	1320 lb	600 kg
Max landing weight	1320 lb	600 kg
Weight of fuel (31.7 US gal, 120 l).....	190 lb	86 kg (total)
Maximum baggage weights:		
Baggage compartment behind seats.. ...	33 lb	15 kg
Wing lockers (optional)	44 lb	20 kg each
Front locker (optional)	22 lb	10 kg

2.8 Center of gravity

Forward CG Limit 29.53" (750mm) aft of datum (25% MAC)
 Aft CG Limit 34.84" (885mm) aft of datum (35% MAC)
 MAC..... 54.11" (1374.5mm)
 Datum: Firewall 15.98" (406mm forward MAC leading edge)

2.9 Approved manoeuvres

Airplane Category: LSA

The BRISTELL LSA is approved for normal and below listed manoeuvres:

- Steep turns not exceeding 60° bank
- Lazy eights
- Chandelles
- Stalls (except whip stalls)

WARNING
Aerobatics and intentional spins are prohibited!

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SECTION 6 WEIGHT & BALANCE

- 6.1 Introduction
- 6.2 Weight & Balance Limits
- 6.3 Empty Weight & Balance Data
- 6.4 Calculation of Weight & CG Position for Flight
 - 6.4.1 Fuel Weight Table
 - 6.4.2 Sample Pilot Calculations
 - 6.4.3 Pilot Calculations

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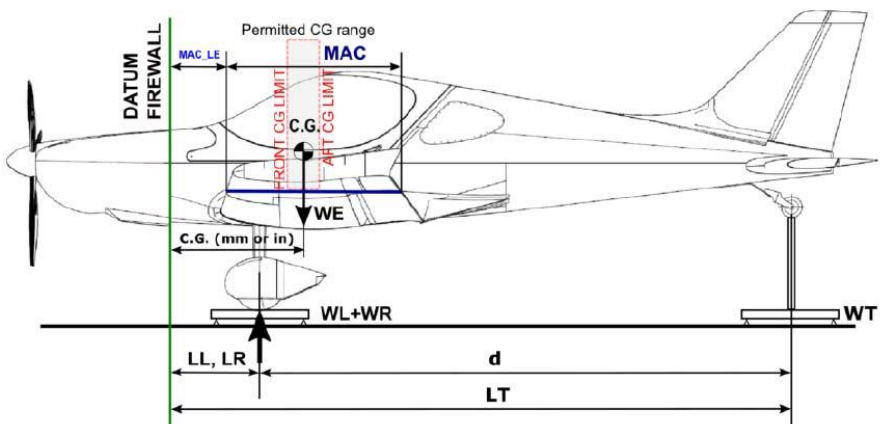
6.1 Introduction

This section provides the pilot with the information required to safely load the aircraft so that it remains inside the allowable weight and centre of gravity limits for flight.

- NOTES:**
1. The procedures involved in weighing the aircraft to establish the empty weight and empty centre of gravity position can be found in the last revision of FAA Aviation Advisory Circular AC.43.13–1B, Chapter 10.
 2. The equipment fitted to the aircraft at the time of manufacture is supplied in the form of an ‘Equipment List’ and is included with the aircraft’s maintenance records.

6.2 Weight & Balance Limits

Maximum Take-off Weight	1320 lb
Forward CG Limit	29.53" (750mm) aft of datum (25% MAC)
Aft CG Limit	34.84" (885mm) aft of datum (35% MAC)
Datum	Firewall 15.98" (406mm forward MAC leading edge)



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6.3 Empty Weight & Balance Data

Date	Empty Weight (lb)	Empty CG (in)	Empty Moment (lb in)	% MAC	Authorised Person
On delivery	674.5	30.66	20680.36	27.12	Factory

- NOTES:**
1. Empty weight includes unusable fuel (1 litre), full oil & coolant.
 2. If the aircraft weight is altered this empty weight and empty centre of gravity position must be updated by an authorised person.
 3. The pilot must always use the latest data in the above table.

6.4 Calculation of Weight & CG Position for Flight

6.4.1 Fuel Weight Table

The following fuel weights are based on a fuel specific gravity of 6.0 lb/gal.

Useable Fuel (Gal)	Weight (lb)
2	12
4	24
6	36
8	48
10	60
12	72
14	84
16	96

Useable Fuel (Gal)	Weight (lb)
18	108
20	120
22	132
24	144
26	156
28	168
30	180
31.4	188.4

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6.4.2 Sample Pilot Calculations

1. Obtain the Empty Weight data for the aircraft from the paragraph 6.3 and enter it in the table below.

Example - Empty Weight 807 lb, Arm 29.49 in, Moment 23793.54 lb in

2. Enter weights of occupants, fuel and baggage in the table.

NOTE: Fuel weight for a given quantity can be determined using the data in para 6.4.1 above.

3. Multiply weights by the corresponding arms to give the moments.
4. Total up the weights and moments. Divide total moment by total weight to give arm.
i.e. $\text{Arm} = \text{Total Moment} \div \text{Total Weight}$
5. Provided the take-off weight does not exceed 1320 lb, and the moment arm is within the range of 29.53 in to 34.84 in, the aircraft is within limits.

--- **SAMPLE ONLY** ---

Item	Weight (lb)	Arm (in)	Moment (lb in)
Empty (para 6.3)	807	29.49	23793.54
Pilot	198	45.51	9030.18
RH seat	190	45.51	8647.24
Fuel (Max 188.4 lb)	51	23.86	1209.75
Baggage – behind seats (Max 33 lb)	11	71.10	783.76
Baggage – wing lockers (Max 33 lb each)	57	40.79	2337.92
Baggage – Front (optional) (Max 22 lb)	0	4.17	0.00
TOTALS	1314	34.85	45802.39

--- **Sample Aircraft Is Within Limits** ---

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6.4.3 Pilot Calculations

(Copy this page and do your calculations using this table).

Item	Weight (lb)	Arm (in)	Moment (lb in)
Empty (para 6.3)			
Pilot		45.51	
RH seat		45.51	
Fuel (Max 84.5 kg)		23.86	
Baggage – behind seats (Max 33 lb)		71.10	
Baggage – wing lockers (Max 33 lb each)		40.79	
Baggage – Front (optional) (Max 22 lb)		4.17	
TOTALS			

Provided the calculated take-off weight does not exceed 1320 lb, and the arm is within the range of 29.53 inches to 34.84 inches, the aircraft is within limits.

WARNING

Exceeding MTOW or operating outside the CG limits may lead to deterioration of flight safety.