

Weight and Balance report, (fixed wing) for C- _____

Aircraft builder / importer / owner _____

Address _____

Aircraft model _____ serial number _____

Date _____ and place _____ of weighing

Levelling reference used _____ Datum used _____

Weighing results:

| Weighing Point | Scale reading | Tare | Net Weight | Arm | Moment |
|-----------------------|----------------------|---------------------|-------------------|---------------------|---------------|
| Right | | | | | |
| Left | | | | | |
| Nose or Tail | | | | | |
| | | Total Weight | | Total Moment | |

Total moment _____ divided by the Total weight of the aircraft _____

equals the empty Centre of Gravity of the aircraft _____ in inches to the datum.

Loaded centre of gravity operating range; forward _____ rearward _____

I certify that these data have been prepared in accordance with the applicable airworthiness/kit manufacturer requirements and to the best of my knowledge represent the true empty weight and centre of gravity of this aircraft.

Date _____ Signature _____

yyyy/mm/dd

Weight and Balance report for C- _____

1. Loading condition that results in most forward centre of gravity

| Item | Weight, pounds | Arm, inches | Moment |
|----------------------|----------------|---------------------|--------|
| Aircraft empty | | | |
| Pilot | | | |
| Passenger, front | | | |
| Passenger Rear | | | |
| Passenger, Rear | | | |
| Fuel, location #1 | | | |
| Fuel, location #2 | | | |
| Baggage, location #1 | | | |
| Baggage, location #2 | | | |
| Total weight | | Total moment | |

Total moment _____ divided by Total weight _____ = C.G. _____

2. Loading condition that results in most rearward centre of gravity

| Item | Weight, pounds | Arm, inches | Moment |
|----------------------|----------------|---------------------|--------|
| Aircraft empty | | | |
| Pilot | | | |
| Passenger, front | | | |
| Passenger Rear | | | |
| Passenger, Rear | | | |
| Fuel, location #1 | | | |
| Fuel, location #2 | | | |
| Baggage, location #1 | | | |
| Baggage, location #2 | | | |
| Total weight | | Total moment | |

Total moment _____ divided by Total weight _____ = C.G. _____

Date _____ Signature _____
yyyy/mm/dd

Weight and Balance report for C- _____

3. Loading condition that results in the gross weight

| Item | Weight, Pounds | Arm, Inches | Moment |
|----------------------|----------------|---------------------|--------|
| Aircraft Empty | | | |
| Pilot | | | |
| Passenger, front | | | |
| Passenger Rear | | | |
| Passenger, Rear | | | |
| Fuel, location #1 | | | |
| Fuel, location #2 | | | |
| Baggage, location #1 | | | |
| Baggage, location #2 | | | |
| Total weight | | Total moment | |

Total moment _____ divided by Total weight _____ = **C.G.** _____

Date _____ Signature _____
 yyyy/mm/dd

Instructions to fill out the Weight and Balance form:

Preparing the aircraft;

1. Drain the fuel, (leave the residual fuel in), fill the engine oil tank.

Minimum fuel = $1/12 * (\text{engine declared horsepower}) / 2 = \text{lbs}$ Example: $1/12 * 160\text{hp} / 2 = 6.6\text{lbs}$

2. Check that all required equipment are in its correct location; ELT, first aid kit etc.
3. Remove any unnecessary articles - the aircraft should be clean and dry.

523.29 Empty Weight and Corresponding Centre of Gravity

The empty weight and corresponding centre of gravity must be determined by weighing the aeroplane with:

Fixed ballast, installed;

Unusable fuel determined under [523.959](#); and

Full operating fluids, including:

Oil;

Hydraulic fluid; and

Other fluids required for normal operation of aeroplane systems, except potable water, lavatory precharge water, and water intended for injection in the engines.

The condition of the aeroplane at the time of determining empty weight must be one that is well defined and can be easily repeated.

Weighing the aircraft;

1. The aircraft should be in a building, out of the wind.
2. Place the aircraft on the scales, it should be leveled side to side and lengthwise using the designer's reference points. Record the scale readings.
3. Drop a plumb bob from the datum, mark the floor. Record the distance from the datum to the main wheels and the distance from the datum to the nose or tail wheel.
4. Record the distance from the datum to; the engine oil tank, each seat, baggage area, fuel tanks and ballast location.
5. Remove the aircraft from the scales, weigh and record each tare (wheel blocks, 2x4 to lift the tail, anything that was weighed with the aircraft that is not part of the aircraft).

Filling out the form:

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1. Leveling reference used, enter the longitudinal structural reference used.
2. Enter the three scale readings, enter and subtract the tare from each scale reading resulting in three calculated net weights.
3. Enter the arms (distance in inches from datum to wheels). Multiply the net weight by the arm to calculate the moment, enter it on the form.
4. Add all three net weights to get the total weight, enter it on the form.
5. Add all three moments to get the total moment, enter it on the form.
6. The total moment divided by the total empty weight equals the empty center of gravity in inches from the datum, enter it on the form.

Pilot/Passenger weight

Pilot seat, 190 pounds,

Seats other than pilot seats may be placarded for a lesser weight

Examples of aircraft loading, while keeping within the loading envelope.

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1. There are many different configurations of aircraft; it may have the fuel, seats or baggage ahead or behind the center of gravity. Loading conditions 1 and 2 should be calculated keeping in mind the location of these variables so that the calculation results in the most forward (1) or the most rearward (2) while keeping within the loading envelope.

In forward example (1), the load is heavy ahead of CG, behind load is light.

In rearward example (2), the load is light ahead of CG, behind load is heavy.

2. Loading condition 3 shows the aircraft loaded to its gross weight. Be sure to use the same gross weight as on the Application for C of A, (block 19).

Verify that the center-of-gravity stays within limits when the fuel is removed, this is for information only.

Notes:

1. Check the three scales for accuracy before weighing.
2. Read and understand the Weight and Balance section of AC 43.13
3. Do not use a datum that could be changed later such as the spinner tip or wheels.
4. A copy of the Weight and Balance report must be kept in the Journey Log Book.