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 Center of Gravity of the aircraft_____ in inches from the datum.

Design Limits:
Maximum permissible Take-off Weight (Gross Weight): _____ lbs.

Loaded center of gravity operating range; forward_____ rearward_____

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

Date_____Signature_____
yyyy/mm/dd

Weight and Balance report for C- _____

Weight and Balance Reports, (Std 571 App C - Aircraft Weight and Balance Control)
The empty weight of an aircraft stated in a weight and balance report shall include all items required by the basis of the aircraft type, and all additional items of installed equipment.

Equipment List
Any item not forming part of the configuration baseline shall be entered in an equipment list with its associated weight and moment. This list constitutes a part of the weight and balance report.

Item	Weight	Arm	= Moment

Date_____Signature_____
yyyy/mm/dd

Weight and Balance report for C- _____
LOADING SCENARIOS

1. Loading condition that results in most forward center 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 center 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 Unusable fuel in), fill the engine oil tank.
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.

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

- Fixed ballast, installed;
- Unusable fuel (see foot note [1]); and
- Full operating fluids, including:
  - Oil;
  - Hydraulic fluid; and
  - Other fluids required for normal operation of aeroplane systems, 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.

Each amateur built aircraft is distinctly one of a kind. Kit manufacturers information is for reference only. Builder must determine actual CofG ranges in the assembled configuration.

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:

Page 1

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.

[1] **Unusable Fuel:** The unusable fuel quantity for each fuel tank and it's fuel system components must be established at not less than the quantity at which the first evidence of engine malfunction occurs under the most adverse fuel feed condition for all intended operations and flight maneuvers involving fuel feeding from that tank.
Alternatively, if Unusable Fuel cannot be verified, the builder shall use the Minimum fuel, which is estimated using the following:
Minimum Fuel = 1/12* (engine declared horsepower)/2 = lbs. Example: 1/12*160hp/2 = 6.6lbs.

Pilot/Passenger weight
Use actual weights to adequately establish the most forward and rearward C of G. It is encouraged to prepare several Weight & Balance calculations to better understand the aircraft loading configurations for safe flight.

Examples of aircraft loading, while keeping within the loading envelope.
Pages 3&4

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 and verifies that the aircraft can remain within design limits down to its Unusable Fuel.

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.