For Aircraft with a Weight & Balance Datum located 1403mm in front of the right wing leading edge (LSA, SP & UL models) the CG position can be found using the following calculations.

Note that in the example below I have used metric units (mm and kg). The same formulae will work with Imperial units (in, lb), however the datum offset (1403mm) must be replaced with it's imperial equivalent of 55.236". Take care, as mixed units will give useless (and wrong) answers.

1. Average the weight on the nose wheel for the two weighings. Note that the weight should be nearly the same each time. The difference between the weighings should be no more than around 2-3kg.

2. Average the distance for the nose wheel from the wing. Once this distance is found it must be translated into a distance from the datum point, which is 1404mm (55.236") in front of the leading edge of the wing. This can be done by subtracting the distance from the nose wheel to the wing from the datum offset.

3. Average the weights measured on the left and right main wheels for the two weighings. Again, as for the nose wheel, the difference between the weighings should be no more than around 2-3kg.

   The average weight for the left wheel can then be added to the average weight for the right wheel, giving the average main wheel weight.

4. Average the distance for the main wheels from the wing. Once this distance is found it must be translated into a distance from the datum point, which is 1404mm (55.236") in front of the leading edge of the wing. This can be done by adding the distance from the main wheels to the wing to the datum offset.

5. The empty weight CG position can be calculated using the formula below:

$$\frac{\text{Average nose wheel weight} \times \text{Average nose wheel distance} + \text{Average main wheel weight} \times \text{Average main wheel distance}}{\text{Average nose wheel weight} + \text{Average main wheel weight}}$$

   The result of this calculation will be the CG position from the datum in the distance unit being used (mm or inches)

6. Due to variations in aircraft built from kits there is sometimes a need to add some ballast to the aircraft to ensure that it's CG is within the acceptable range during flight. For long-tailed SP and UL models, ballast inside the ventral fin will be located at 5060mm from the datum. For short-tailed models the ballast inside the ventral fin will be located 4703mm from the datum.

For Aircraft with a Weight & Balance Datum located at the leading edge of the right wing (J series, including J160 models) the CG position can be found using the same basic calculations as above, without the reference to a datum offset:

1. Average the weight on the nose wheel for the two weighings. Note that the weight should be nearly the same each time. The difference between the weighings should be no more than around 2-3kg.

2. Average the distance for the nose wheel from the wing. As the nose wheel is in front of the wing it's measurement is given a negative value in the calculations below.

3. Average the weights measured on the left and right main wheels for the two weighings. Again, as for the nose wheel, the difference between the weighings should be no more than around 2-3kg.

   The average weight for the left wheel can then be added to the average weight for the right wheel, giving the average main wheel weight.

4. Average the distance for the main wheels from the wing. These wheels are behind the datum and so are given a positive value.

5. The empty weight CG position can be calculated using the formula below:

$$\frac{\text{Average nose wheel weight} \times \text{Average nose wheel distance} + \text{Average main wheel weight} \times \text{Average main wheel distance}}{\text{Average nose wheel weight} + \text{Average main wheel weight}}$$

The result of this calculation will be the CG position in the distance unit being used (mm or inches). Note that because the nose wheel distance is negative, during the calculation the value calculated for the "average nose wheel weight x average nose wheel distance" will be negative and must be subtracted from the value found for the "average main wheel weight x average main wheel distance". The average nose wheel weight on the bottom line is positive & is added to the average main wheel weight.

6. Due to variations in aircraft built from kits there is sometimes a need to add some ballast to the aircraft to ensure that it's CG is within the acceptable range during flight. For J200 and J400 series (J250, J430 etc) aircraft, ballast inside the ventral fin will be located at 4080mm from the datum. For J160 models the ballast inside the ventral fin will be located 3657mm from the datum.