DUATS Flyer

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Using the Weight and Balance Function in Golden Eagle

Golden Eagle FlightPrep® can do weight and balance calculations for your route of flight. Follow these steps.

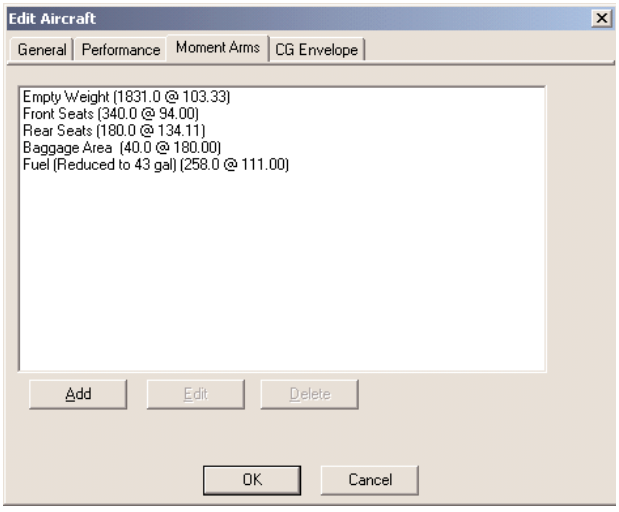
1) Define the Moment Arms for the aircraft model.

To do this, select the "Properties" button in the chart tab and click on "Edit Aircraft" in the window that pops up. This in turn will pop up another window where you select the aircraft and click on the Edit button. Now select the Moment Arms tab. To create your first Moment Arm click "Add". From the Pilot Operating Handbook (POH) for your aircraft, refer to the Weight and Balance section. (We recommend you also have access to the most recent Weight and Balance calculation performed on your aircraft for comparison). Next, enter the description "Empty Weight" in the field labeled Moment Arm. (Moment Arm is a descriptor field, and it is for the name of what we are entering, such as seats, baggage, fuel, rather than a number). Next, enter the weight in pounds, as shown on the recent Weight and Balance calculation form, into the field labeled "Default Weight" (lbs). Then, enter the arm in inches aft of datum in the "Arm (inches)" field. (You may be used to thinking of this arm as the Station). Now click the OK button to save this Moment Arm.

To add the next Moment Arm, again click the Add button. For consistency, we recommend defining all the rows of seats as a group. Example: Create one Moment Arm entry for pilot and co-pilot seats, a second Moment Arm entry for the second row of seats, and so on. Next, we recommend you create Moment Arm entries for each baggage location. Finally, create Moment Arm locations for each Arm storing fuel.

Tip: All Moment Arms that store fuel must have the word "fuel" in the Moment Arms description field. This permits the software to calculate takeoff CG and landing CG based upon the fuel burn as specified in the Aircraft Performance parameters.

Here is a sample problem from Cessna's 177RG POH.



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Golden Eagle Video Tutorial

For users who are using Golden Eagle for the first time or users who want to get a refresher on the functions and features of Golden Eagle FlightPrep®, there is a video tutorial that you can play right on your computer. It runs about 22 minutes and is divided into 5 parts. For those of you who loaded Golden Eagle FlightPrep® from a CD and did a full install, you will find the video on your PC at Start>Programs>FlightPrep>GoldenEagle> Tutorial.

If you cannot find the tutorial or if you downloaded Golden Eagle FlightPrep® from the web, you can download the video from www.flightprep.com. On the left side of the FlightPrep® home page, click on the blue "Downloads" button and then select "Golden Eagle Tutorial". You will have the option to view the video immediately or download the video for later viewing.

Please retain your DUATS Newsletters for future reference.

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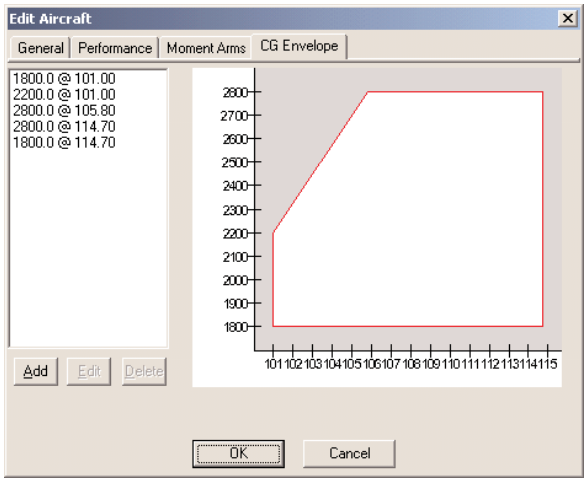
Using the Weight and Balance Function in Golden Eagle (Cont'd)

2) Define the CG Envelope for the aircraft model.

Once you have finished entering Moment Arm information, click the "CG Envelope" tab. To define your first CG point, click on the "Add" button.

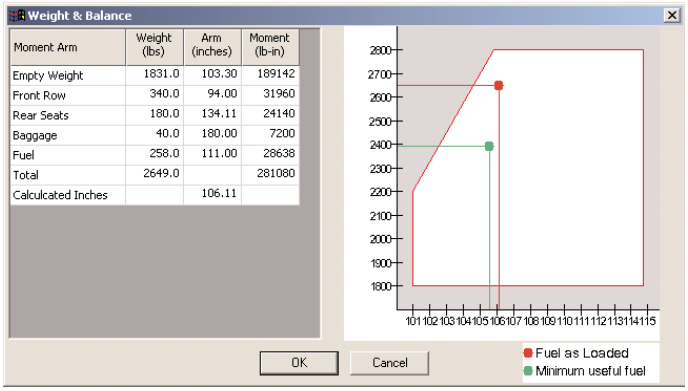


Beginning with the empty aircraft weight and forward-most CG point as defined in the Center of Gravity Limits table in your POH, enter the Weight and Inches and click "OK" to save the data. Proceed to the next heavier weight (typically the same forward CG point). Progress clockwise around the envelope until all the data points are completed. Note: As you proceed, you may get a rather strange looking envelope that changes with each data point you create. It will resemble the diagram in your POH when you enter the last data point (typically the maximum gross weight and rear-most CG position).

3) Calculate and graph weight and balance limits.

Now that you have defined your CG limits and have applied a sample of weights and arms into Golden Eagle, you can use the Weight and Balance function. First, plan a route on the Chart page using the aircraft profile in which you have defined the Moment Arms and CG limits. Next, go to the "Route" pulldown menu and select Weight and Balance. A window will pop up that graphs the limit for "Fuel as Loaded" and for "Minimum Useful Fuel". To see if you are within the limits of the table, plot the Calculated CG at the bottom of the table versus the Total Weight of the aircraft. The location of this plotted point will determine whether you are inside or outside of the CG limits of the aircraft.

When you have completed all planning of your flight, you can produce a printable chart by selecting "Weight and Balance" under the Reports Tab.



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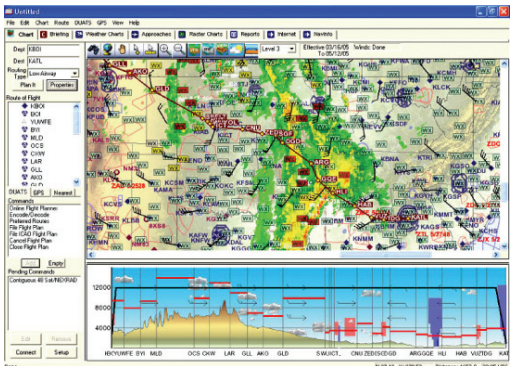

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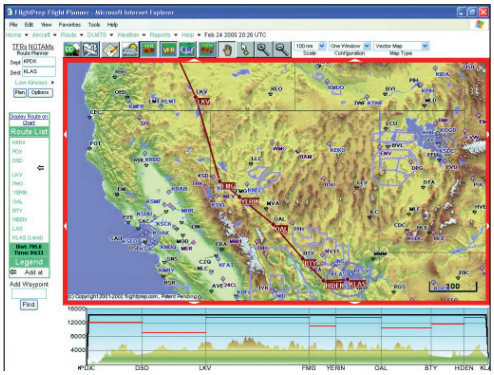

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