DG1001 VH-GNL Trim Ballast Charts – Revision 1

In all cases the Aircraft Flight Manual (Chapter 6) is the authoritative document for all Weight and Balance issues. This chart is a means of quickly and reliably calculating ballast requirements without having to resort to the flight manual and arithmetic calculations.
THIS CHART MUST NOT BE USED TO BALLAST THE AIRCRAFT TO A C.G. POSITION CLOSE TO EITHER THE FORWARD OR AFT C.G. LIMITS (IE, WITHIN THE YELLOW SHADED AREAS IN THE CHART ON THE NEXT PAGE) because the chart and the table below are based on average pilot c.g. positions. Close to the limits, the flight manual specifies front and rear pilot C.G. positions which must be used.

Determination of Equivalent Crew Mass

The table below shows a figure (Equivalent Crew Mass) which can be used in conjunction with the chart on the next page to determine how much ballast can be added in what positions to place the aircraft C.G. where required. The aircraft manufacturer recommends that the aircraft be ballasted to a C.G. position of 30% to 40% of the C.G. Range from the Aft Limit for best handling and performance (Green shaded area in the chart).

The following steps should be followed to determine the required ballast and location:

Step 1: In the table below, using the mass of the front and rear pilots, look up the ECM. Red cells cannot be used as aircraft will be out of limits.

Equivalent Crew Mass

	Rear Seat Mass (Kg)												
Front Seat Mass (Kg)	0	55	60	65	70	75	80	85	90	95	100	105	110
55		77	79	81	83	85	86	88	90	92	93	95	97
60		82	84	86	87	89	91	93	95	96	98	100	101
65		87	88	90	92	94	96	97	99	101	102	104	106
70	70	91	93	95	97	98	100	102	104	105	107	108	110
75	75	96	98	100	101	103	105	106	108	110	111	113	114
80	80	101	102	104	106	108	109	111	113	114	116	117	119
85	85	105	107	109	110	112	114	115	117	119	120	122	123
90	90	110	112	113	115	117	118	120	122	123	125	126	128
95	95	115	116	118	120	121	123	124	126	128	129	131	132
100	100	119	121	123	124	126	127	129	131	132	134	135	137
105	105	124	126	127	129	130	132	134	135	137	138	139	
110	110	129	130	132	133	135	137	138	140	141	142		

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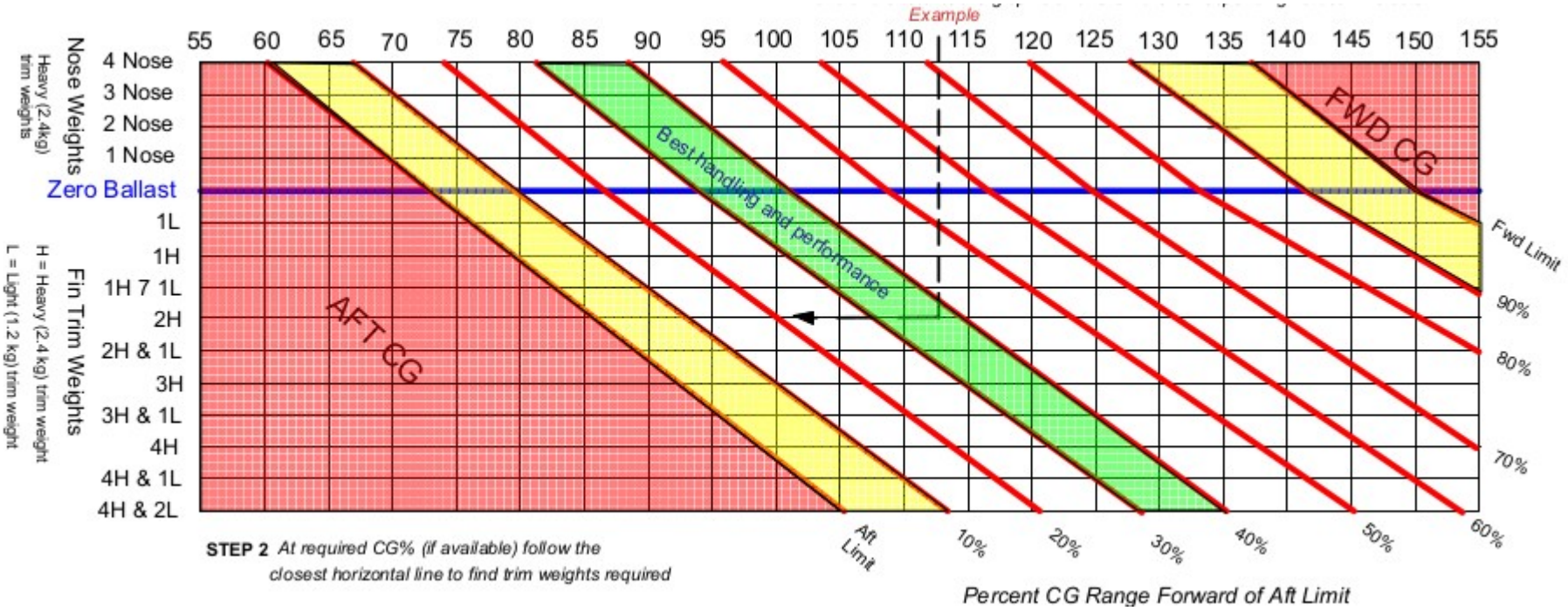
Step 2: In the chart below, enter at the top using the ECM found above. The diagonal lines represent aircraft CG positions. Follow the vertical lines down to the intersection with the Zero Ballast line (Blue Line). Reference to the diagonal lines at this point indicates the aircraft C.G. with no ballast. For example, if the front pilot weighs 80 kg and the rear pilot 90 kg, the ECM is 113. The vertical 113 line crosses the zero ballast line at about 55% fwd of the aft CG limit.

Step 3: Follow the vertical line up or down to the diagonal line for the desired aircraft C.G. position. Then follow the horizontal lines to the left to determine how much ballast is required in either the nose or tail ballast boxes. In the example below, to get the aircraft CG to 30% to 40%, 2 heavy ballast bars are required in the fin ballast box. 2 heavy and 1 light would also work. See the example on the chart below. 4 ballast bars in the nose ballast box will yield an aircraft C.G. of about 71% of the C.G. range forward of the Aft Limit.



Revision 1 – 02 October 2020 - Chart and Table are based on W&B Data in AFM on receipt.
For updates amd changes contact David Villiers