Quick way to calculate "ghost weight" and location.

Many times a ghost weight must be added into CargoMax in order to get CargoMax drafts to agree with observed drafts. This is caused by a number of things but mostly: 1) unaccounted changes to lightship over the life of the ship, and 2) errors in loads input into Cargomax. Errors in loads can be from things like erroneous TLIs or bad estimates of ammo or cargo weights.

One thing to be aware of is that CargoMax drafts and observed drafts will never match exactly, unless the ship has absolutely no hog or sag. CargoMax drafts always assume the ship is infinitely stiff and has no hog or sag. Also, Cargomax drafts are centerline drafts and do not reflect the effects of list.

Observed midship drafts must be corrected for list to obtain a centerline midship draft for use in calculating the ghost weight. The table on the next page offers guidance in doing that.

Subtract the Cargomax midship draft from the observed corrected centerline midship draft. If the result is positive, the ghost weight needs to be added. If the result is negative, the ghost weight will be negative. To determine the magnitude of the ghost weight multiply the difference in midship centerline drafts times the tons per inch immersion (TPI). The TPI can be found in the hydrostatic tables in the Trim and Stability Book. Use the TPI that corresponds to the corrected observed midship draft.

Add the ghost weight into CargoMax as a misc. weight. For LCG, start by using the location of the LCF (it's listed on the Cargomax trim and stability summary). The next step is to adjust the LCG until the CargoMax Trim matches the observed trim.

For VCG, use the VCG of lightship AS A MINIMUM. To be a bit conservative, use a VCG slightly higher. This is especially important when dealing with larger ghost weights. To understate the VCG of the ghost weight, STABILITY IS OVERSTATED.

For TCG, adjust the TCG of the ghost weight so that Cargomax list is equal to the observed list.

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