

DCA22MA193

OPERATIONAL FACTORS

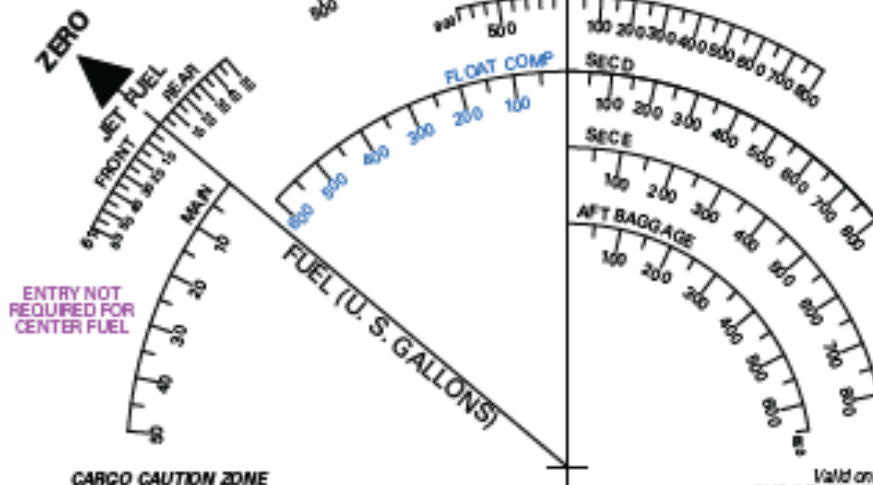
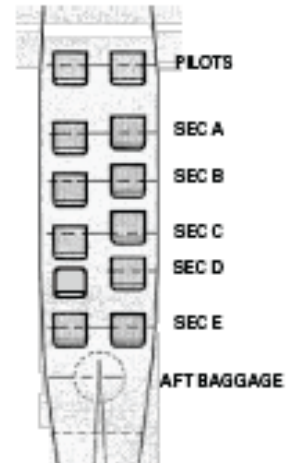
Group Chair's Factual Report - Attachment 9
See Gee Calculator and Instructions - DHC-3

September 8, 2022



DHC-3 TURBINE OTTER C. G. CALCULATOR

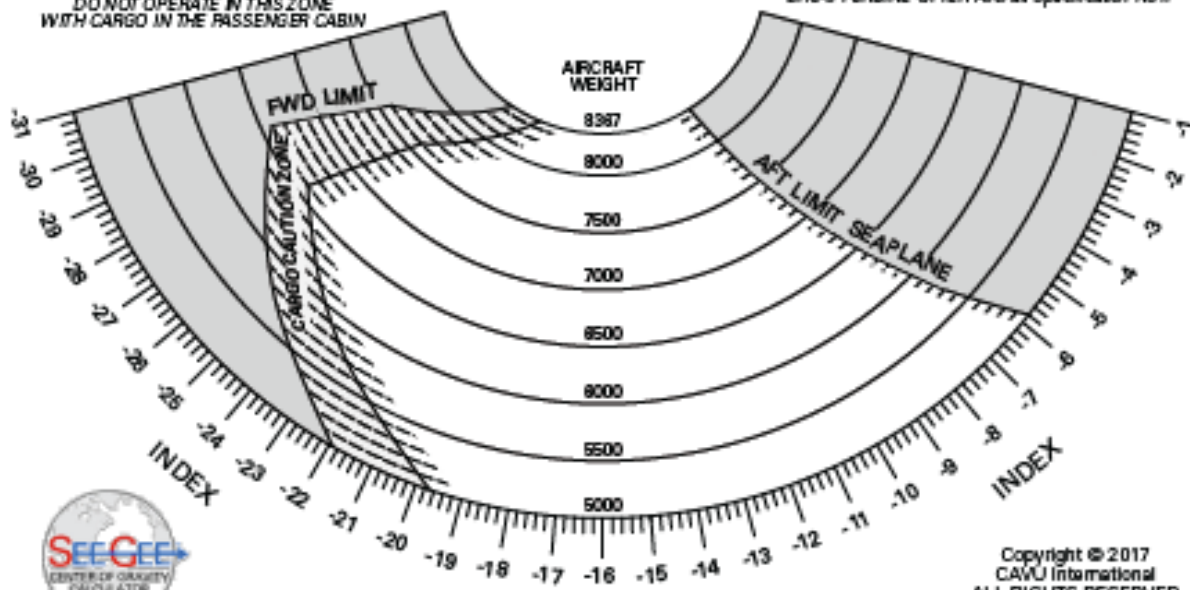
ZERO



ENTRY NOT
REQUIRED FOR
CENTER FUEL

CARGO CAUTION ZONE
DO NOT OPERATE IN THIS ZONE
WITH CARGO IN THE PASSENGER CABIN

Valid only for Northwest Seaplanes
DHC-3 TURBINE OTTER Aircraft Specification NS1F



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**OPERATING INSTRUCTIONS FOR THE
SEE GEE™ CALCULATOR
Northwest Seaplanes DHC-3 Turbine Otter
(Configuration NS2F)**

The following instructions apply to See Gee™ calculators for Northwest Seaplanes DHC-3 Turbine Otter aircraft covered by Specification NS2F.

COMPUTATION OF OPERATING INDEX

The operating index provides the starting point for the calculations made using the See Gee™ calculator. The operating index is computed by first finding the moment arm and weight of the aircraft in the operating condition before crew, fuel, or payload (passengers, cargo, mail, etc.) are added. This operating condition will include the aircraft with engine oil, hydraulic oil, seats, and other equipment normally on the aircraft other than crew, fuel, and payload.

The following formula will be required to arrive at the operating index:

$$\frac{(\text{OMA} - 154) \times \text{OW}}{5,000} = \text{Operating Index}$$

Where

OMA is operating moment arm
OW is operating weight.

Example

Aircraft operating weight is 5096 lbs.
Aircraft operating moment is 686,449.2 in-lbs.

Therefore

$$\text{Operating Moment Arm (OMA) is } \frac{686,449.2 \text{ in-lbs}}{5096 \text{ lbs}}$$

$$\text{OMA} = 134.7 \text{ inches}$$

Using the above formula

$$\frac{(134.7 - 154) \times 5096}{5,000} = -19.7$$

Operating index is -19.7

The operating index should be a negative number.

For a given aircraft, this operating index will be the starting point for center of gravity calculations. If the aircraft is reweighed, or if any of the variables used in computing the operating weight and moment change, including such things as removal of seats or doors, then a new operating index should be computed.

CALCULATOR LAYOUT

See Gee™ calculators are generally laid out such that the lower half of the calculator displays the CG envelope and the upper half displays the various scales used for loading the passengers, baggage, and fuel into the various compartments of the aircraft.

There are two cursors attached to the face of the calculator. One is a full circle wheel with an engraved radius line and the other is wedge shaped, also with an engraved radius line. The cursors are generally operated with the line of the wheel cursor in the lower half of the calculator and along the INDEX scale in that area. The wedge shaped cursor operates in the upper half of the calculator along the scales in that area.

USE OF SEE GEE™ CALCULATOR

Start the computation by setting the engraved line of the wheel cursor on the operating index (OI) on the INDEX scale. From this point, the order of loading the aircraft with the calculator does not make a difference as long as all affected areas are included. For example, we will compute the loading of the pilots and passengers first, then the aft baggage, and finally, the fuel.

While holding the line of the wheel cursor on the OI on the index scale, move the wedge cursor to the point on the PILOTS scale corresponding to the weight of the pilot and copilot/passenger in those seats. For example, if the OI was -19.7 and the occupants of these seats weighed a total of 400 lbs, at this point, the wheel cursor would be on -19.7 and the wedge cursor would be on 400 on the PILOTS scale. Now rotate the wheel cursor clockwise (which will also move the wedge cursor) until the