

Fixed Trade Calculator

How to...? Quick guide

Accessing the Fixed Trade Calculator

The fixed trade calculator is accessed from the ATI website, through the menu under *Resources > Fixed Trade Calculator*, in the page footers on each page of the website or directly:

<http://www.ati.org.uk/resources/fixed-trade-calculator/>

Registering for the Fixed Trade Calculator

Requests to access the fixed trade calculator are made by [registering online](#). After completing registration, the email address submitted must be verified. Requests are then verified individually by staff at the ATI and must comply with the published [Terms of Use](#). Decision notification will be made by email, and where registration has been approved the account will be activated.

Using the Fixed Trade Calculator

Users with active accounts can log in through the [ATI website](#).

Orientation

The header bar of the fixed trade calculator gives access for the user to amend their account details, logout, or return to the ATI website.

The *landing page* identifies the available aircraft models currently active and available for use, provides a reminder of the trade variables and outputs. Please note the assumptions and limitations declared on this page. Progress from the landing page is by pressing the *I understand and wish to continue* button; this is at the bottom of the page above the footer. The page footer on each page of the Fixed Trade Calculator shows the version of the model being used and the date the model version was last updated. If you need help with the tool at any time, please reference the model version number being used.

The launch aircraft models available are:

- NB-2000** Narrow body reference aircraft, representative of year 2000 EIS technology levels
- WB-2000** Wide body reference aircraft, representative of year 2000 EIS technology levels

Inputs

Calculation inputs are in two stages, first the aircraft model to be used is selected from a drop down list showing the model references introduced on the launch page.

Once the aircraft model to be used has been selected, the fixed trade calculation inputs can be entered.

The Fixed Trade calculation inputs are in two parts, the flight and operation definition and the trade variables. The flight and operation are defined by *Stage Length (NM)*, *Utilisation (flights/year)* and *Fuel price (\$/gal(US))*. A default flight range and utilisation are suggested by the Fixed Trade Calculator for each aircraft model; these will offer a reasonable value for the calculation. Where the user enters a preferred stage length (NM), the calculator will offer a suggestion for a reasonable utilisation rate for that stage length. Users can use the *“Use default Values”* button to set the inputs automatically to default.

The Fixed Trade Calculator is organised in three steps:

- *Landing page*
 - *Inputs:*
Aircraft model selection
Fixed Trade Calculation inputs
 - *Results*
-

Current fuel prices are available from the [IATA Jet Fuel Monitor](#)¹.

The Trade Variables available are Operating Empty Weight (OEW) [kg], Total drag [%] and Thrust Specific Fuel Consumption (sfc) [%]. The trade variables are input as changes from the baseline for the aircraft selected. At least one trade variable must be used for the calculation to work and the use of any two or three variables is also supported. Where more than one trade variable input is used, the results will reflect the combined effect of the trades. Please note that positive trade variable inputs indicate increase from the baseline value, such that for examples:

- +100 as an input to Delta OEW(kg) represents adding 100kg to the aircraft empty weight
- +2 as an input to Delta Drag (%) represents a 2% increase in aircraft total drag
- 1 as an input to Delta SFC (%) represents a reduction in thrust specific fuel consumption

Please note: The trades generated are considered representative only over small intervals, up to approximately 2-3% change. Larger changes can be considered but will become increasingly unreliable and should be checked with a more detailed mission analysis². The trades assume that the parametric increments are independent. The trades are generated separately for each parametric increment, but can be combined to consider combined effects (for small increments).

Results

Once the calculation is submitted, the results page will summarise the outputs of the fixed trade calculation in terms of the impact of the change on:

- Block fuel burn per flight (both relative [%] and absolute [kg])
- Fuel cost per aircraft per year [£]
- Cash operating cost per aircraft per year [%]
- CO₂ emissions per aircraft per year [kg]

Results are presented as changes from the baseline reference value for the aircraft selected. Positive values indicate an increase from the baseline.

The results page displays for reference a summary of the inputs chosen for the calculation as well as the key assumptions used in the cost and carbon calculations.

Further calculations can be carried out by using the "New Calculation" button which will return the user to the *Inputs* page.

Storing results

To keep a record of your calculation, you can print the results page, or download a comma separated variable file (.csv). Where several calculations are carried out the downloadable .csv file will include all calculations from the current user session.

Please note that the ATI does not store details of your calculation and we are unable to provide you with these if you misplace your record.

Further help

If you have questions or for more information, please contact the Whole Aircraft team at ATI. Please email info@ati.org.uk using "Fixed Trade Calculator" as your subject line.

¹ Fuel price data is available from [IATA](#) average jet fuel price for 2017 (22/11/17) \$1.55/Gal(US)

² Please contact the ATI for more information by emailing info@ati.org.uk using "Fixed Trade Calculator" as your email subject