

# Component Drag Buildup

The Drag Package contains the classes and methods necessary for performing a component drag buildup using the methods found in *Aircraft Design: A Conceptual Approach* by. Daniel Raymer.

## Usage

The package reads data regarding the aircraft from a csv file using a format specified in the docs

```
from Drag import drag_in
from Drag import drag_out

plane = drag_in.read_aircraft_file()
drag_out.write_output(plane)
```

This script asks for the location of the aircraft file and writes the output to a csv files, specifying drag contributions and the total parasite drag.

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## Input File

The input file specifies the following flight characteristics:

- Freestream Velocity (fps)
- Altitude (ft)

- Reference Area (sq. ft)

The specified components on the aircraft may be one of:

- Airfoil (wing / stabilizers)
- Fuselage
- Store / Nacelle
- Flow Diverter
- Flap
- Spoiler

## Output File

The output file is placed in a folder titled *drag\_results*. The csv file name is *aircraftName\_altitude\_mach.csv*. It specifies the following:

- Parasite drag for each component
- Form factor for each component
- Interference factor for each component
- Percent Contribution of each component
- Total parasite drag