Aviation Regulatory Experts

SOFEMA AVIATION SERVICES

Weight & Balance and Load Planning – 5 Days

Introduction

Both Weight and Balance are essential to the well-being of an aircraft to experience safe flight. The Root Cause of Multiple Aircraft Incidents can be attributed to overloaded aircraft or where they have been incorrectly balanced in their distribution of weight.

There are various factors involved in weight and balance accidents/incidents such as errors in the load sheet, shifting of cargo, and incorrect loading. (The risk of having a weight and balance-related accident with cargo flights is 8.5 times higher than with passenger flights.)

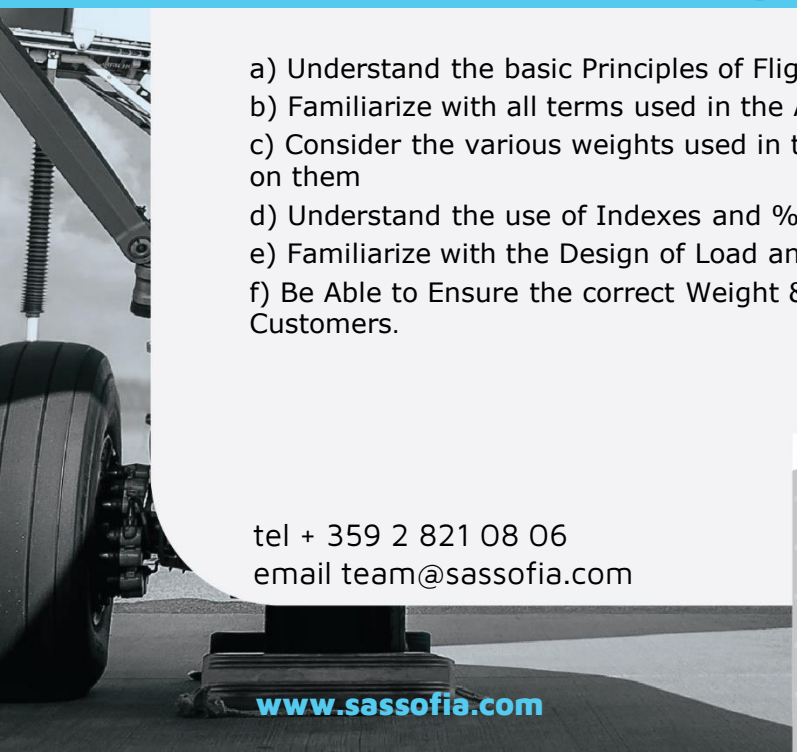
Weight & Balance should also consider the Loading & Burning of Fuel, Loading & Unloading of Baggage, and Boarding & Deboarding of all Passenger in Commercial Planes as well as Loading & Unloading of External Stores in Military Planes at any time during the preparation, loading, operation, disembarkation and unloading of the aircraft.

This course is focused on the need to ensure, that at all times safe loading as well as weight & balance are ensured to maintain the Safety of the Flight at all times and in particular during Take-off & Landing.

Who is the course for?

It is for Regulatory Authorities and persons who are involved in the Technical Engineering Management, Design Engineering Team, Pilots, Marketing Team, Procurement Team, Manufacturing/Tooling Team, Technical Publications, Flight Operations, and Customers.

What is the Benefit of this Training – What will I learn?



a) Understand the basic Principles of Flight, related to Aircraft Weight and Balance

b) Familiarize with all terms used in the Aircraft Weight & Balance Eng. Domain

c) Consider the various weights used in the compilation of a load sheet and how to act on them

d) Understand the use of Indexes and % Mean Aerodynamic Chord (MAC)

e) Familiarize with the Design of Load and Trim charts

f) Be Able to Ensure the correct Weight & Balance of an Aircraft prior to dispatch to Customers.

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Date	On Demand
Category	Personal Development
Venue	On Demand
Level	Basic
Price	On Demand

Detailed Content / Topics - The following Subjects will be addressed

Day 1

Introduction

Aircraft Weight and Balance

- Glossary

Overview of Weight and Balance

- Importance of Weight and Balance
- Basic Definitions of Weight and Balance
- Weight & C.G importance from the Conceptual Design Phase
- Aircraft Stability
- Centre of Gravity Impact on Aircraft Design
- The Aircraft Coordinate System
- Pictorial View of Weight and C.G Breakdown for an Aircraft
- Examples of finding C.G of an Object
- M.A.C

Aircraft Weight Breakdown from Basic Empty Weight to Max Landing Weight

- Basic Empty Weight (BEW)
- Dry Operating Weight (DOW)
- Operating Weight (OW)
- Maximum Zero Fuel Weight (MZFW)
- Maximum Taxi Weight (MTW)
- Maximum Take-off Weight (MTOW)
- Maximum Landing Weight (MLW)

Day 2

Practical Session

- Study any respective Internal Aircraft Company Eng. drawing an assembly along with Material Schedule and Find out the Weight and C.G of that assembly.
- Compute the Weight and CG of that Assembly using the CATIA-Enovia Database using the Material Schedule of that assembly and Create the Weight and CG Table as per the Material Schedule in Excel and transfer the computed result to that table to find the Total Weight and CG of that Assembly.

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Day 3

Aircraft Weighing

Aircraft Weighing Procedure

- Scale Preparation
- Clean Aircraft Inside Hanger
- Drain the Aircraft Fuel
- Configuration of the Aircraft
- Jacking the Aircraft
- Leveling the Aircraft
- Safety Considerations
- Determining the CG from the Datum

Aircraft Load and Trim

- Definitions of Load and Trim
- Load Control
- Load and Trim Sheet
- Loading Instruction Report
- Cargo Compartments
- Structural Loading Limitations
- Dangerous Goods and Special Items
- Baggage Handling System
- Air Mail
- Fuel Loading

Day 4

Aircraft Loading

Load Graph and Weight and Balance Envelope

- Computation of A/c of Take-off Weight to Landing Weight.
- Pilot & Front Passenger
- Fuel
- Rear Passenger
- Baggage

Review of Incidents and Accidents based on Weight and Balance

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Day 5

Weight Reduction

Weight Reduction / Optimization and Control Techniques.

- Control of Supplier Equipment
- Configuration Control
- Design Control
- Manufacturing Control

Study on

- EO's,
- NIEO's,
- RFC's and
- Modsum's and those effects on Weight and C.G. of an Aircraft, available in the respective Aviation Industry.

Questions & Debrief

Target Groups

Regulatory Authority Members, Pilots Team, Technical Engineering Management, Design Engineering Team, Marketing Team, Procurement Team, Manufacturing/Tooling Team, Technical Publications, Flight Operations, and Customers.

Pre-requisites

- Participants should know Mathematical Calculations and must be familiar with SAWE Handbook.
- CATIA and Enovia Database access knowledge.
- Knowledge of Complete Aircraft Structures and Systems.

Learning Objectives

After Completion of this Training Course, Designers should be able to Perform all steps necessary to Perform Weight and Balance within the Flight Safety Limits and Capable to obtain Flight Clearance from Certifying Authority.

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SOFEMA AVIATION SERVICES

What do People Say about Sofema Aviation Services Training?

"I found satisfying answers to all my questions."
"The instructor demonstrated very deep knowledge of the subject."
"The length of the course fit my needs and expectations."
"The content was really effective, I gained a lot of new knowledge."
"The practical examples were perfectly delivered."

Duration

5 days – Start at 09.00 and finish at 17.00, with appropriate refreshment breaks.
To register for this training, please email team@sassofia.com or Call +359 28210806

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