

## MSG-3 - Foundation

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### Overview

This course is designed to provide the delegate with a high level of understanding of the MSG-3 process coupled with a sound knowledge of the underlying principles. The fundamental principles are established and then built upon using a combination of advanced presentation techniques, informal delegate instructor interaction and formal scripted syndicate and individual exercises. This course is aimed at the aviation sector.

The course begins by defining MSG-3, its aims and historical origins. The subsequent modules provide the delegate with an understanding of Reliability and failure characteristics theory required to understand the MSG-3 logic and then addresses the components of the MSG-3 methodology. Separate modules cover MSG-3 specifics such as Structurally Significant Items (SSI), Zonal Maintenance and Lightning / High Intensity Radiated Field (L/HIRF) Analysis. The course concludes with a look at MSG-3 Management issues and a summary of the course and conclusion.

### Target Audience

The course is designed to meet the needs of aviation personnel who require a comprehensive understanding of MSG-3.

The course is designed principally to prepare the delegate for a role as a MSG-3 Analyst. It is aimed at aviation engineering organisations. The course will also benefit anyone working within an MSG-3 environment who needs a working understanding of the MSG-3 process in order to function effectively and efficiently.

It would also serve as useful to other Supportability Engineering Managers and Practitioners who need a broad understanding of the key processes carried out as part of an integrated programme. Typically this may include Reliability, Safety, Technical Data, Supply Support and Human Factors Managers and personnel.

### Objectives and Utility

On completion of this training course the delegate will understand the background to, need for and the scope of MSG-3. They will have gained an understanding of the technical and management issues pertinent to MSG-3, and knowledge sufficient to enable a competent engineer to understand, support and conduct MSG-3 studies.

The delegate will benefit professionally from the knowledge which has been given, and the sponsoring organisation gains personnel who understand MSG-3 and are confident about its use in the workplace.

The individual is better equipped for their role and they will have undergone a degree of personal development through the expansion of their knowledge base.

### The Training Process

The course establishes the principles of MSG-3 and some of the basic Reliability and failure characteristic theory used in the methodology.

The course is supplemented by practical and syndicate exercises in order to reinforce the training and to facilitate retention. The exercises are based on both generic and aviation examples in order to ensure that they are as realistic and effective.

## Course Programme

### Day 01 - AM

#### 102-P-M Introduction and MSG-3 Defined

This module explains the requirement for and describes a brief history of MSG-3. The meaning of Key MSG-3 terminology is explained and an overview of the MSG-3 process is described.

#### 104-P-M The Failure Process

This module describes the reliability theory necessary for an understanding of MSG-3 and explains the meaning of key Reliability theory terminology. The module also describes the basis of engineering failures and how this influence's maintenance decisions and explains the meaning of key engineering failure terminology.

#### 105-P-M MSG-3 Maintenance Significant Item Selection

The Maintenance Significant Item (MSI) selection process is introduced and the purpose of the activities, which occur in a MSI selection process is covered with an explanation of the meaning of key MSI terminology.

### Day 01 - PM

#### 117-P-M MSG-3 Functions - Failures - Effects - Cause Sheet

In order for the MSG-3 Analyst to fully appreciate the reason for and the requirements of a Functions - Failures - Effects - Cause Sheet it is necessary to fully understand the principles behind this technique.

This module identifies the details of an Functions - Failures - Effects - Cause Sheet in relation to MSG-3 and shows the delegate how to interpret this information once collected. After all, information is of little use if it is ignored or misinterpreted.

The activities necessary to organise equipment for MSG-3 analysis are also explained along with the meaning of key MSG-3 terminology relating to this stage of the analysis.

There is a significant practical element to this module.

### Day 02 - AM

#### 119-P-M MSG-3 Maintenance Tasks

This module lists and describes the types and characteristics of MSG-3 Preventive Maintenance tasks and explains the meaning of key Preventive Maintenance terminology.

### Day 02 - PM

#### 108-P-M MSG-3 Task Selection

Appreciate and describe in detail the basis of preventive maintenance task preference, evaluation and selection.

There is a significant practical element to this module.

### Day 03 - AM

#### 109-P-M MSG-3 Structural Maintenance Analysis Procedure

Structure design philosophy, the procedure for analyzing and determining structural maintenance requirements and the meaning of structural maintenance terminology are addressed in this module.

### Day 03 - PM

#### 111-P-M Zonal Maintenance Analysis Procedure

This module covers the principles behind Zonal Maintenance and explains the meaning of Zonal Maintenance terminology. The ATA iSPEC 2200 Standard for Zonal Plans is covered.

#### 120-P-M Lightning / High Intensity Radiated Field (L/HIRF) Analysis Procedure

Lightning / High Intensity Radiated Field (L/HIRF) analysis is established in the aviation industry as dedicated maintenance to reduce the possibility of single failure cause and occurrence of common failure cause across redundant channels and L/HIRF causing aircraft airworthiness implications.

This module provides an overview of the analysis procedure used to determine L/HIRF maintenance requirements.

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### **112-P-M Implementing MSG-3 & Age Exploration**

This module addresses the problems associated with producing the MSG-3 derived task recommendations into a workable Preventive Maintenance programme and looks at the finer points of management relating to the MSG-3 effort.

If MSG-3 is to be the success it should be, it is vital that the project is properly controlled. This must start at the very first approaches to MSG-3 and continue right through the analysis and subsequent implementation of the maintenance programme.

Properly implemented MSG-3 will certainly reap benefits for any organisation because it will develop a scheduled maintenance programme which will be focused and optimised for the aircraft equipment in its operating context. This should have the advantage of reducing the overall cost of maintenance, Preventive and Corrective.

The activities necessary to implement and sustain an MSG-3 analysis programme are addressed along with the principles of an Age Exploration programme.

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### **122-P-M MSG-3 Summary and Conclusion**

A Brief summary of the key points of the course and course Conclusion.