Foreword

This book is the fourth volume in a series titled „Aircraft Turbine engine Safety." It is concerned with production problems, and places me in a dilemma, illustrated by the following example.

Who has not been unsettled by reading a book on illness and healthy living? It seems as though we observe the symptoms of many of the described diseases and problems in our own lives. Things that seemed trivial suddenly seem to contain the seeds of disaster. Sensitive persons may be made to feel so unsure of themselves that they are unable to take the necessary actions. A comparable effect in the production environment, which requires decision making and correct action, would be catastrophic.

Failures can be seen as „hardware diseases." They can result in serious stress on our wellbeing, and reading this book, which deals mainly with failures and problems, may create a reluctance to make decisions. On the other hand, this book has a duty to sensitize the reader to problems and failures, comparable to preventive medicine. Failures that have already occurred must be cured by making the right diagnosis and applying the suitable „therapy."

The specialist can derive the greatest benefit from this book by keeping the following considerations in mind:

The specifications of the production process were developed over a long time, primarily through experience. They ensure the safety of the parts and also of the aircraft turbine engine.

For this reason, this book shall help provide an understanding of the backgrounds of the requirements and prescriptions in the specifications. This is an important motivation behind their strict application.

This book focuses on production issues which are necessary in order to understand problems, failures, and preventive measures. There is, of course, also a need to minimize scrap. This arises especially through the repeated influence of problems in production steps. This book intensively discusses failures in components and parts that experience has shown to be likely to cause problems during operation. There is a great deal of excellent technical literature on production methods, which primarily describes processes and techniques, their application and optimal parameters. However, there are no satisfying descriptions of production failures on semi-finished and finished products, and their influence on operating behavior.

Many of the illustrations in this book address common questions from different angles. The accompanying explanations contain as much information as possible, and also refer the reader to other illustrations that deal with the same theme. This is intended to minimize the effort required to search for information. Every illustration becomes an „information hub" cross-linking illustrations and literature. In pursuance of this goal, explanations may be repeated in some places.

I thank my wife Dr. Daniela Rossmann for her years of patient understanding and support, and also for her many helpful recommendations concerning design. This book would never have been possible without her support.

Axel Rossmann

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