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PRODUCT SUPPORT SERVICES FOR CIVIL OPERATORS IN THE 1990's

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1. FOREWORD

1.1 Introduction

As we move into the 1990's the requirements placed upon manufacturers, airframe, engine, systems and equipment suppliers alike, are becoming increasingly more complex as well as technically and commercially more demanding and difficult to satisfy. Before addressing the product support service requirements in detail, it is worthwhile to consider briefly the customers we serve, the airline business; the products, the aircraft; the subject of change in technology, operational requirements and general changes in support technology and requirements.

The 1990's is seen, at this point in time, as part of a continuum of change, which has been taking place over several decades. The speed of change is quickening and the summation of changes will have a significant impact on manufacturer's, both technically and financially.

1.2 Aim

The aim of this document is to serve as an internal guide to the Aviation Industrie in identifying those product support services which might be demanded or improved upon in the 1990's. It should not be construed in any way to contain guarantees or commitments towards a third party.

It is assumed that the reader has a comprehensive basic knowledge of all general aspects of product support in the aerospace industry and is familiar with internationally recognised documents such as the World Airline Suppliers Guide (WSAG) and ATA Specifications.

Information contained in this document is supplementary to the more general AECMA Recommended CODE OF PRACTICE for Commercial Aviation Product Support by Equipment Manufacturers. (AECMA/PSCOP/86/17553).

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2. SIGNIFICANT DEVELOPMENTS

2.1 Airline Business

As we enter the 1990's, the commercial airline industry is engaged in a significant re-equipment programme. This programme stems from an expansion in passenger business potential, the need to modernize to take advantage of more fuel efficient engines and aerodynamic characteristics, the need to compete with other airlines for business, technological advances in materials, components and systems and from computer technology impacting not only on airborne equipment but also in the associated ground based support systems.

Deregulation in the USA has led to severe competition between airlines, erosion of profit margins, and the drive to improve operating efficiency. In many instances responsibilities and risks passed to manufacturers have hitherto been borne by the airlines themselves. Pressures for deregulation will similarly affect European airlines business in the future. Deregulation also promotes the opportunity for small airlines to be established and grow, based on lower initial operating costs and overheads.

The last two decades has seen a rapid growth in the package holiday trade, with consequential growths in charter businesses. Over the last few years charter and regional airlines have become important customers of the aircraft industry as first-time buyers; collectively these have significant purchasing powers.

Another change over the last few years has been the rapid expansion of the aircraft leasing business. Leasing companies are now major purchasers of new aircraft, whereas in the past they operated mainly in the second-hand aircraft market-place.

Responsibilities for support and the provision of adequate spares for leased aircraft have given rise to problems which will require resolution by agreement with the parties involved.

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2.2 Operational Requirements

Crowded skies have led to the need to enlarge existing airports, utilise to the full the available operating hours, build new airports and make greater use of small airports. Tightly scheduled take-off slots demand high despatch reliability. Full utilisation of available operating hours includes using operationally quiet aircraft with high rates of climb. Flight management systems facilitate more efficient route planning.

2.3 Technology Changes

Avionic equipment is becoming more complex, with many mechanical functions being superseded by electronic functions. This increase in complexity with higher packing of density of functions achieved per volume of equipment has been made possible by new component technology, particularly digital technology. This complexity has been offset by improvements in component and system reliability. Even so, the need to achieve high despatch and operational reliability has led to duplication and multiplex operation. Redundancy characteristics have been built into equipment design to enable continued operation either in full reversionary or reduced capability mode in the event of component failure.

Far greater use has been made of computer systems with their attendant databases and software programmes. On-line monitoring and more comprehensive BITE facilities have become an integral part of equipment design, facilitating rapid fault isolation and improved maintainability characteristics. Electronic instrument displays have superseded conventional instrument displays in many cockpits and fly-by-wire systems are now used in new aircraft designs.

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2.4 Operational Support Trends and Changes

Improvements in monitoring the performance of aircraft and equipment and the performance trends, together with improvements in ground-to air communications systems, enables the notification of defects to be passed on quicker to ground staff.

Computer databases offer improvements in defect monitoring, defect trend analysis, improved logistic support, and facilitate data interchange between operators and operators and between operators and manufacturers; always provided that all parties are willing to incur the costs involved.

Airlines have demanded improved component reliability, the virtual elimination of lifed components in favour of "on condition" policies, and greater use of modularity in design.

Smaller airlines look to manufacturers to provide equipment exchange schemes or flying hour contracts to minimize inventory holding costs.

The FAA has introduced revised rules which, in effect, require suppliers to seek approval as a "FAA Repair Station" in order to ensure that overseas OEMs and independent repair companies maintain correct standards and procedures.

Developments are taking place in the area of equipment support and documentation. Electronic mail has been introduced and greater use is being made of the SITA network which has been greatly expanded.

Greater use of spares pooling arrangements and servicing agreements between airlines has improved the customers purchasing powers and also improved their efficiency.

As we enter the 1990's the ATA 2000 Specification has been launched and will be applied by the majority of the major airlines in the future. This specification has been based on current computer and communication systems technology. It will allow many improvements to be made in efficiency and material management systems, but there could be consequential effects on the manufacturing industry. Greater visibility of stock holdings through data exchange could lead to better planning, but equally it may result in the deferment of customers orders until the last moment.

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