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AECMA Recommended CODE OF PRACTICE for Commercial Aviation Product Support by Equipment Manufacturers

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Prepared by: European Equipment Product Support Committee

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INTRODUCTION

As aircraft become increasingly complex the Product Support requirements with which suppliers have to contend are becoming more and more onerous and complicated.

This is not only due to the ever increasing requirements of the operators, but also to the demands of the airframe and engine manufacturers who are endeavouring to obtain the maximum possible concessions from their suppliers before they place orders.

Acting to ensure that the air transport industry is as profitable as possible is excellent, but it must not be forgotten that the suppliers are also part of this industry and that it is essential for them to produce a fair profit.

The appreciable increase in the life of aircraft and the extensive use of multi-national design and marketing have increased the complexity and cost of product support.

The European Equipment Product Support Committee of the Association Européenne des Constructeurs de Matériel Aerospatial has published, for the use of all European equipment manufacturers, a guide which would give the following information for each of the product support disciplines indicated in the index :

1. Definitions
2. References
3. General comments
4. Standard Disciplines and Procedures
5. Negotiable Terms

Simulators, although allied to airline equipment in general, are concerned by this document.

This guide should serve as a basis for equipment manufacturers when they are negotiating with the airframe and engine manufacturers (General Conditions of Purchase) and with the Operators (General Terms Agreement) and thus enable them to undertake their product support responsibilities under the best possible conditions.

However, it does not contain any commercial information as this remains the responsibility of each company.

After the publication of the first issue of the guide, and considering the evolutions of product support services along past years and the needs for the future, it is necessary to publish a second issue with all necessary updating.

Any comments on the contents of this guide should be addressed to AECMA through the National Trade Associations.

It should be clearly understood that each equipment manufacturer assumes full responsibility for the standard of product support outlined in this Code of Practice for his sub-tier suppliers.

**Documents**

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LIST OF ABBREVIATIONS

AEA	Association of European Airlines
AIA	Aerospace Industries Association (of America)
AOG	Aircraft On Ground (used in the context of urgent spares requirements)
ARINC	Aeronautical Radio Inc
ATA	Air Transport Asssocation (of America)
ATLAS	Abbreviated Test Language for All Systems (an ARINC specification)
CCMA	Comite de Compradores de Material Aeronautico de America Latina
FOB	Free On Board (used in context of commercial transactions)
GIFAS	Groupement des Industries Françaises Aéronautiques et Spatiales
IATA	International Air Transport Association
MTTR	Mean Time To Repair
WASG	World Airlines Supplier's Guide - Issued by the ATA in association with AEA and CCMA
WATOG	(Airline Industry Standard) World Airlines Technical Operators Glossary - Issued by ATA, IATA, AIA and AECMA
GSE	Ground Support Equipment



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SECTION 1

FIELD SERVICE
(ASSISTANCE TECHNIQUE)1. Definition

Those field services performed by the supplier in order to assist the operator in operating and maintaining the aircraft and its equipment according to supplier's written instructions.

2. Reference

WATOG Maintenance page M 1.

3. General

Not applicable.

4. Standard Disciplines and Procedures

- A. For as long as five aircraft remain in operation the supplier will maintain the capability to assist the operator with the necessary field service appropriate to the sophistication of his product for the introduction into service, operation, maintenance, repair, overhaul and modification of his product.
- B. The supplier will insure assistance with
 - (1) trouble shooting and defect data retrieval
 - (2) the use and practical interpretation of technical publications
 - (3) the application of maintenance programmes for his products
 - (4) the operation and maintenance of the supplier's Ground Support Equipment (GSE)

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- (5) storage instruction
- (6) answering technical enquiries
- (7) the embodiment of modifications of existing Service Bulletins
- (8) technical inspections including those relating to warranty claims.

5. Negotiable Terms

A. The following services may be performed by the supplier according to his negotiations with each operator

- (1) permanent or temporary detachment to the location of the operator's aircraft or equipment, of the supplier's representative in order to assist the operator.
- (2) Under specific condition courses could be organized by the suppliers representative at the operator's facilities (refer Section 8 TRAINING).

B. The supplier may request the operator to provide the following services

- (1) transport
 - (a) from suppliers base to operators base
 - (b) locally at operators base
- (2) office and/or workshop facilities
- (3) communications (telephone - telex)
- (4) in certain circumstances, accommodation and agreed living expenses.

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SECTION 2

GROUND SUPPORT EQUIPMENT

1. Definitions

Ground Support Equipment (GSE)

All equipment required on the ground to test the aircraft and certain equipment, and to support the operation and maintenance activities.

A. Line Maintenance Ground Support Equipment

Is that ground support equipment used in direct support of the aircraft and certain equipment, during line maintenance.

(1) Standard Line Maintenance Ground Support Equipment

Equipment required to perform line maintenance actions of a standard design, available on the open market.

(a) Tools

Includes torque wrenches, oversize tools, jigs and fixtures of common design. It does not include tools which would form part of an engineer's tool box.

(b) Test Equipment

It includes such equipment as volt meters, cabin pressure test equipment, hydraulic trolleys, pressure, continuity and function test equipment.

(c) Ground Handling Equipment

It includes such equipment as towing bars, jacking equipment, air charging trolleys, generators, adaptors of common design.

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(2) Special to Type Line Maintenance Ground Support Equipment

Equipment required to perform line maintenance actions, of a special design, because of the design characteristics of the aircraft equipment.

(a) Tools

Includes torque wrenches, oversize tools, jigs and fixtures of special design, necessitated by the inability of standard tools to perform the required function.

(b) Test Equipment

It includes such non standard equipment as system test machines, hydraulic stands, test consoles both manual, and automatic of special design.

(c) Ground Handling Equipment

It includes such equipment as adaptors, slings, carriers, supports, of special design.

B. Shop Ground Support Equipment - alternative - Depot Ground Support Equipment

Is that ground support equipment used by a designated maintenance facility during hangar, shop or depot maintenance functions on aircraft or equipment.

(1) Standard Shop Ground Support Equipment

Is that ground support equipment required to perform hangar, shop or depot maintenance actions, of a standard design, available in the market.

(a) Tools

Includes workshop equipment such as presses, ovens, jigs, and fixtures of a standard design. It does not include the basic contents of a workshop such as vices, benches, drilling machines.

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(b) Test Equipment

Includes such equipment as that used in crack detection, electric continuity and resistance testing, hydraulic and pneumatic function testing, of a standard design.

(c) Ground Handling Equipment

Includes such equipment as slings, carrying and holding devices, of a standard design.

(2) Special to Type Shop Ground Support Equipment

Equipment required to perform hangar, shop or depot maintenance actions, of a special design, because of the design characteristics of the aircraft or equipment.

(a) Tools

Includes workshop equipment such as presses, ovens, jigs and fixtures of a special design.

(b) Test Equipment

Includes test equipment of a non-standard design necessary for shop maintenance functions on specific aircraft or airborne equipment.

(c) Ground Handling Equipment

Includes such equipment as slings, carrying and holding devices, of a non-standard design.

2. References

ATA 100
ATA 101
ATA 102 (levels 1-3 only)
WASH - Chapter 12-1
ATLAS - ARINC SPEC 416-13

3. General

Ground Support Equipment interrelationship is identified in FIGURE 1.

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4. Standard Disciplines and Procedures

- A. The ability of the operator to perform the required maintenance functions depends on the adequacy of the GSE identified and/or designed and developed for the product.
- B. In order to define the GSE requirement the following must be considered
 - (1) The world trend in aircraft maintenance policy.
 - (2) Identification of each proposed item of GSE and the function that it will perform.
 - (3) Adequacy of the GSE to perform the intended function.
 - (4) Whether the maintenance and support functions can be met with standard equipment. Only if necessary should special equipment be prepared.
 - (5) Cost to design, develop, procure, operate and maintain GSE including the cost of documentation to ATA Spec 101.
- C. The supplier will when required demonstrate to the Aircraft or Engine manufacturer that
 - (1) The equipment interfaces properly with the prime equipment (compatibility tests) and does not duplicate functions.
 - (2) The equipment is capable of performing the prescribed support and maintenance functions.
 - (3) The equipment is acceptable with regard to service use (accessibility, repairability, transportability, calibration requirements, results interpretation, etc.).
- D. Discrepancies found during acceptance tests, installations and/or preliminary operations should be considered by the GSE supplier for updating the GSE hardware and the relevant test and operation software (procedures and documentation).

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5. Negotiable Terms

- A. Field Service (see SECTION 1)
- B. Technical publications in accordance with ATA Specifications 101
- C. Test specifications for avionic systems including ATLAS language in accordance with the current ARINC Specification (with restrictions/limitations)
- D. Changes to the GSE to account for
 - (1) Prime equipment modifications
 - (2) Operating experience with the GSE.

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