

**QRS-122 Supplier Component Maintenance/
Operative Manuals Management**



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QRS-122

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CHANGES LOG

Issue	Approval Date	Main changes	Interested Paragraphs
00	April 2015	First Issue	All
01	June 2018	Document significantly rewritten and reformatted	All

APPLICABLE DOCUMENTS

This document *shall* be applied together with the main document (QRS-01 Quality Requirements for Suppliers) and with the other applicable modules

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1 Purpose

Purpose of this document is to describe the process and responsibilities to guarantee, for each Supplier component, the availability of the required Instructions for Continuous Airworthiness and information for operation.

2 Applicability

This procedure *shall* be applied by the Supplier except for those one selling standard parts or not repairable parts.

3 Effective date

Issue date

4 Acronyms, definitions and abbreviations

4.1 Acronyms and abbreviations

AMP	Aircraft Maintenance Program
AMPI	Air Vehicle Maintenance Planning Information
CMM	Component Maintenance Manual
EFA	Experimental Flight Approval
H/C	Helicopter
IPC	Illustrated Part Catalogue
IPD	Illustrated Part Data
LH	Leonardo Helicopters
MM	Maintenance Manual
MPM	Maintenance Planning Manual
OM	Operative Manual
PSE	Product Support Engineering & Licenses
RFM	Rotorcraft Flight Manual
STC	Supplemental Type Certificate
TC	Type Certificate
TSO	Technical Standard Order

4.2 Definitions

Component Maintenance Manual: A CMM is the documentation created by the Original Equipment Manufacturer (OEM) for an aircraft Line Replacement unit. It typically includes a description of operation, specifications, testing requirements, special tools and fixtures, disassembly/ assembly instructions and an exploded image of the component along with part numbers.

5 Requirements

Each aircraft component has to be properly described into dedicated technical documentation. Such documentation, usually in form of Component Maintenance Manual (CMM) shall include all maintenance requirements (preventive maintenance, corrective maintenance, troubleshooting, servicing, testing, settings etc.) and necessary logistics details. In order to provide component maintenance criteria/tasks (at least at Operator level of Maintenance), the CMM's are either directly provided by **LH** to the operators or their content is transferred into **LH** maintenance manual (AMPI/MPM, MM/AMP, IPD/IPC).

Furthermore, in case components are used by flight crews, information for operation *shall* be produced. Such operative documentation (so called Operative Manuals) has to be available from Suppliers and directly provided to the Operators or content embedded in **LH** RFM.

LH takes the right to distribute CMM/OM to its Customers and/or to include CMM/OM contents in **LH** H/Cs Technical Publications without any formal request to the Supplier. In case CMM/OM shall be provided to Italian Ministry of Defence, the final delivery of the CMM/OM shall be accompanied by a Supplier Certificate of Conformity and a Supplier Declaration of Adequacy.

In case of subcontracting of maintenance activities, the repair manual in use by the sub-tier supplier *shall* be provided to **LH** prior the activity starts.

5.1 CMM/OM Definition

CMM *shall* include the preventive/corrective/fault isolation maintenance requirements (specifying if they are at User or Depot level), the logistic information (e.g. shelf life, packaging and preservation/storage procedures, hazardous material etc.) while OM *shall* include instruction for usage including set up, normal/emergency procedures and limitations.

Appendix 1 defines required content and a suggested format for the requested Component Maintenance Manual and Operation Manual.

CMM/OM *shall* be available at least in draft format before EFA or as requested in the Purchase Order.

Note: For TC (such as Engines), STC (limited to subcontractors) and E/TSO only availability (and updates for the whole H/C life cycle) of existing supplier manuals (preferably in electronic format) shall be granted.

5.2 CMM/OM Approval

Once the CMM/OM are received by **LH** PSE, this last *will* proceed with the internal assessment evaluating the manuals content and format, improving technical or logistics information. At the end of the evaluation process, an approval/acceptance letter *shall* be prepared by **LH** PSE and sent to the Supplier.

Note: For TC (such as Engines), STC (limited to subcontractors) and E/TSO the above process does not apply. If required by specific commercial requirements, an acceptance letter (without any responsibility on CMM/OM contents) may be prepared by PSE (see annex B).

Upon receipt of formal approval/acceptance letter, the Supplier shall formally deliver the CM/OM to LH PSE Technical Publication Services i.a.w. the instructions given in the letter itself.

5.3 CMM/OM Updates

Supplier *shall* provide the CMM/OM updates to the LH PSE Technical Publications Services that *will* inform PSE relevant product line in charge of initially evaluate if:

- Technical content with implications on component preventive maintenance, performance, reliability, qualified configuration is impacted (significant modification).
- Logistic or formats requirements and/or technical aspects without implications on component preventive maintenance, performance, reliability, qualified configuration are impacted (not significant modification); the CMM/OM is related to a component that is certified with its own TC, STC, (E)TSO (**LH** approval not required).

6 Appendixes, Annexes and Forms

Appendix 1 – CMM/OM Content and Format

Appendix 1 – CMM/OM Content and Format

Component Maintenance Manual and Operative Manual should be provided in editable electronic format (e.g. pdf). Preferred layout is i.a.w. ASD1000D. ATA100, ATA2200 or equivalent may also be acceptable formats. Different formats may be requested in case of specific Contractual commitments.

If the Component has been developed i.a.w. an **LH** Procurement Specification, the CMM/OM shall report also the **LH** P/N in the title page and in the Part List.

Component Maintenance Manual

- Title Page
- Record of Revisions
 - Detailed reason for each manual revision. This to allow **LH** to immediately identify if modifications are impacting airworthiness of the component.
- Service Bulletin List
- List of Effective Pages
- Table of Contents
- List of Illustrations
- List of Tables
- Introduction
- Description
 - Including at least description, function, illustration, weight and dimensions, etc.
 - Specifying if hazardous material are used and necessary precautions for usage, maintenance and PHST.
- Hazardous Material
- Schematics and Wiring Diagrams
- Inspection and Testing (detailed for User and Depot level)
 - Test after repair procedures including acceptable limits for new and in service items.
 - NDT
 - Indication of necessary tools, etc.
- Fault Isolation procedures (detailed for User and Depot level)
 - Fault Isolation procedures with indication of tools and consumables.
 - Indication of allowed in service limits to define corrective actions.
- Cleaning
- Disassembly (detailed for User and Depot level)
- Repair (detailed for User and Depot level)
 - Repair by Replacement procedures (detailed for User and Depot level)
 - List of replaceable sub-components.
 - Detailed Repair by Replacement procedures including references to the required testing/servicing procedures.

- Indication of the necessary tools, consumables.
- Other Repair procedures (detailed for User and Depot level)
 - Structural repair (including indication of repair limits).
 - Finishing, varnishing, etc.
- Assembly (detailed for User and Depot level)
- Servicing (detailed for User and Depot level)
 - Including cleaning, lubrication, preservation, change oil, etc.
 - Indication of allowed oils/grease etc. and eventual mix-ability issues.
 - Indication of necessary tools and consumables.
- Weapon loading and off-loading (if applicable)
- Preventive Maintenance (detailed for User and Depot level)
 - Scheduled inspections and checks (including acceptable in service limits and corrective actions in case inspection exceeds limits).
 - Life limit requirements and starting conditions (from manufacturing date, cure date, etc.).
 - Overhaul requirements and starting conditions.
 - Allowed tolerances applicable to scheduled/checks and overhaul.
- Packaging, Handling, Storage and Transportation requirements and procedures
 - Shelf-life
 - Storage requirements (environmental conditions and eventual inspections/checks when in storage), storage period and restoration procedures.
 - Packaging requirements (e.g.: preservation, special containers, etc.) and packaging details (weight, dimensions, type/spec. of package, etc.).
 - Specific caution for handling.
- Tools and Equipment (detailed for User and Depot level)
 - List of Tools and equipment.
 - Relevant description and illustrations.
 - Calibration requirement with calibration period and procedure for re-calibration.
 - Tools and Equipment repair procedures and indication of necessary spares/consumables.
- Consumables Materials
 - List with nomenclatures and specifications, where applicable (e.g. MIL, etc) .
- Illustrated Parts List (including also CAGE Code or MFC, SMRC, ICY and NATO Stock Number, when available)
 - Indication of items replaceable at User Level

Operative Manual

- Title Page
- Record of Revisions

- Detailed reason for each manual revision. This to allow LH to immediately identify if modifications are impacting airworthiness of the component.
- Service Bulletin List
- List of Effective Pages
- Table of Contents
- List of Illustrations
- List of Tables
- Introduction
- Description (including weight and dimensions, safety requirements)
- Controls and Indications
- Normal Operation (including set-up procedures, adjusting, SW loading, etc.)
- Emergency Operation
- Usage Limitations