

# QRS-130

Flow-down of LH Requirements to Sub-Tier Suppliers



# QRS-130

## Flow-down of **LH** Requirements to Sub-Tier Suppliers

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### CHANGES LOG

| Issue | Approval Date | Main changes | Interested Paragraphs |
|-------|---------------|--------------|-----------------------|
| 00    | June 2020     | First issue  | 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

**CONTENTS**

|          |   |          |
|----------|---|----------|
| <b>1</b> | <b>PURPOSE</b> .....  | <b>3</b> |
| <b>2</b> | <b>APPLICABILITY</b> .....  | <b>3</b> |
| <b>3</b> | <b>EFFECTIVE DATE</b> .....   | <b>4</b> |
| <b>4</b> | <b>ACRONYMS, DEFINITIONS AND ABBREVIATIONS</b> .....  | <b>5</b> |
| 4.1      | ACRONYMS AND ABBREVIATIONS.....   | 5        |
| 4.2      | DEFINITIONS .....   | 5        |
| <b>5</b> | <b>REQUIREMENTS</b> .....   | <b>6</b> |
| 5.1      | GENERAL REQUIREMENTS (REF. QRS-01) .....  | 7        |
| 5.1.1    | <i>Right of Access</i> .....  | 7        |
| 5.1.2    | <i>Quality Management System and Aerospace Approval</i> .....   | 7        |
| 5.1.3    | <i>LH Approval Validity</i> .....   | 7        |
| 5.1.4    | <i>Purchasing Process, flow-down to Sub-Tiers and Control</i> .....   | 8        |
| 5.1.5    | <i>Control of Records</i> .....   | 8        |
| 5.1.6    | <i>Prevention of Counterfeit Articles</i> .....   | 8        |
| 5.2      | FIRST ARTICLE INSPECTION (REF. QRS-101) .....   | 9        |
| 5.2.1    | <i>Planning of FAI Activities</i> .....   | 9        |
| 5.2.2    | <i>Modification Management</i> .....  | 9        |
| 5.2.3    | <i>First Article Inspection Report</i> .....  | 9        |
| 5.3      | QUALITY REQUIREMENTS FOR SUBCONTRACTED PARTS AND GSE, STOCKISTS OF RAW MATERIAL, DISTRIBUTORS OF PARTS (REF. QRS-103).....  | 10       |
| 5.3.1    | <i>Subcontracting of Parts to Sub-Tier Suppliers not approved by LH (applicable to Subcontractors)</i> .....                | 10       |
| 5.3.2    | <i>Subcontracting of Critical/Vital Parts to Sub-Tiers (applicable to LH Subcontractors)</i> .....                          | 11       |
| 5.3.3    | <i>Procurement of Raw Material</i> .....  | 12       |
| 5.3.4    | <i>Requirements for Stockists of Raw Materials</i> .....  | 12       |
| 5.3.5    | <i>Requirements for Stockists of International/Industries Standard Parts</i> .....  | 13       |
| 5.3.6    | <i>Requirements for Purchasing of Ground Support Equipment (GSE)</i> .....  | 13       |
| 5.4      | LH SPECIAL PROCESSES (REF. QRS-103 AND QRS-104) .....   | 13       |
| 5.5      | MANAGEMENT OF LH EQUIPMENTS AND TOOLS (REF. QRS-105).....   | 14       |
| 5.6      | MANAGEMENT OF NON-CONFORMING ARTICLE (REF. QRS-107) .....   | 15       |
| 5.6.1    | <i>Notification of Escape/Quality Alerts</i> .....  | 16       |
| 5.7      | SUPPLIER QUALITY PLAN (REF. QRS-108).....   | 16       |
| 5.8      | REQUIREMENTS FOR DESIGN & DEVELOPMENT SUPPLIERS OF AIRBORNE EQUIPMENT (REF. QRS-115, APPLICABLE TO MANUFACTURERS ONLY)..... | 17       |
| 5.8.1    | <i>Detailed Technical Specification</i> .....   | 17       |
| 5.8.2    | <i>Declaration of Design and Performance (DDP)</i> .....  | 17       |
| 5.8.3    | <i>Procedure for the management of design changes</i> .....   | 18       |
| 5.8.4    | <i>Equipment/Parts Identification and Marking</i> .....   | 18       |
| 5.8.5    | <i>Equipment containing SW/HW</i> .....   | 19       |
| 5.8.6    | <i>Test Article Conformity (TAC)</i> .....  | 19       |

## 1 Purpose

The purpose of this document is to collect the **LH** requirements that Suppliers directly contracted by **LH** shall transmit to their own Suppliers (Sub-Tiers) involved with Design or Manufacturing of **LH** Articles.

This document is oriented both to **LH** Suppliers and to their Sub-Tiers, to be also a guideline for an easier and lean understanding of the applicable requirements they both shall comply with.

To this purpose, especially for Sub-Tiers Suppliers, some definitions and sections from other QRS-01 Modules are duplicated in this document for convenience, and a general introduction to the QRS-01 document system is also provided.

## 2 Applicability

This Quality instruction is applicable to all **LH** Suppliers who subcontract to Sub-Tiers any activity for the realization of **LH** Articles and, as consequence, it is applicable for Sub-Tiers who receive Purchase Orders where this document is invoked.

Reference to the following **LH** approved Supplier types is recurrent in this volume: *Subcontractor* (an **LH** Production/Manufacturing supplier, essentially); *Manufacturer* (an **LH** Supplier also involved with Design & Development, essentially). This volume is primarily oriented to these **LH** Suppliers and to their *Sub-Tier* Suppliers - Please read the definitions prior to proceed.

**LH** Suppliers involved with Maintenance activities shall flow down as well the **LH** applicable requirements to any Sub-Tiers from Purchase Orders/contracts and applicable Civil/Military **LH** Manuals/Expositions.

The following table gives indication to Suppliers (**S**) and Sub-Tiers (**ST**) on which chapters are applicable for them based on type of activity they perform:

| Section | Design & Development | Production / Manufacturing |
|---------|----------------------|----------------------------|
| 5       | S & ST               | S & ST                     |
| 5.1     | S & ST               | S & ST                     |
| 5.1.1   | S & ST               | S & ST                     |
| 5.1.2   | S & ST               | S & ST                     |
| 5.1.3   | S & ST               | S & ST                     |
| 5.1.4   | S                    | S                          |
| 5.1.5   | S                    | S                          |

|       |                               |   |
|-------|-------------------------------|---|
| 5.1.6 | S & ST                        | S & ST  |
| 5.2   | S                             | S   |
| 5.2.1 | S                             | S   |
| 5.2.2 | S                             | S   |
| 5.2.3 | N/A                           | ST  |
| 5.3   | N/A                           | S<br>(N/A for Manufacturer)                     |
| 5.3.1 | N/A                           | S & ST<br>(only for Subcontractor)              |
| 5.3.2 | N/A                           | S & ST<br>(only for Subcontractor)              |
| 5.3.3 | N/A                           | S   |
| 5.3.4 | N/A                           | S & ST<br>(only Stockists of Raw<br>Material)   |
| 5.3.5 | N/A                           | S & ST<br>(only Stockists of<br>Standard Parts) |
| 5.3.6 | N/A                           | S<br>(only GSE Suppliers)                       |
| 5.4   | N/A                           | ST  |
| 5.5   | S                             | S   |
| 5.6   | N/A                           | S & ST  |
| 5.6.1 | N/A                           | ST  |
| 5.7   | S & ST                        | S & ST  |
| 5.8   | S<br>(only Manufacturer)      | N/A   |
| 5.8.1 | S<br>(only Manufacturer)      | N/A   |
| 5.8.2 | S & ST<br>(only Manufacturer) | N/A   |
| 5.8.3 | S & ST<br>(only Manufacturer) | N/A   |
| 5.8.4 | S & ST<br>(only Manufacturer) | N/A   |
| 5.8.5 | S<br>(only Manufacturer)      | N/A   |
| 5.8.6 | S<br>(only Manufacturer)      | N/A   |

### 3 Effective date

Issue date

## 4 Acronyms, definitions and abbreviations

### 4.1 Acronyms and abbreviations

|               |  |
|---------------|--|
| <b>ATP</b>    | Acceptance Test Procedure                                |
| <b>CoC</b>    | Certificate of Conformity                                |
| <b>COTS</b>   | Commercial Off The Shelf                                 |
| <b>DDP</b>    | Declaration of Design and Performance                    |
| <b>DQP</b>    | Declaration for Qualification of the Process             |
| <b>(E)TSO</b> | (European) Technical Standard Order                      |
| <b>FAI</b>    | First Article Inspection                                 |
| <b>FAIR</b>   | First Article Inspection Report                          |
| <b>GSE</b>    | Ground Support Equipment                                 |
| <b>LH</b>     | Leonardo Helicopters                                     |
| <b>LHEO</b>   | Leonardo Helicopters Engineering Organization            |
| <b>MOAH</b>   | Maintenance Organization Approval Holder (EASA Part 145) |
| <b>PMA</b>    | Part Manufacturer Approval                               |
| <b>PO</b>     | Purchase Order   |
| <b>POAH</b>   | Production Organization Approval Holder (EASA Part 21)   |
| <b>QP</b>     | Quality Plan   |
| <b>QRS</b>    | Quality Requirements for Suppliers                       |
| <b>SCD</b>    | Source Control Drawing                                   |
| <b>SCDM</b>   | Source Control Drawing for Manufacturing                 |
| <b>(S)TC</b>  | (Supplemental) Type Certificate                          |
| <b>TAC</b>    | Test Article Conformity                                  |

### 4.2 Definitions

**Counterfeit Article:** is an unauthorized copy, imitation, substitute or modified Article which is knowingly misrepresented as a specified genuine Article of a non-original or authorized manufacturer/provider.

**Critical Part:** those Articles (e.g. functions, parts, software, characteristics, processes) having significant effect on the provision and use of the products and services; including safety, performance, form, fit, function, producibility, service of life, etc.; that require specific actions to ensure they are adequately managed.

**First Article Inspection:** A planned, complete, independent, and documented inspection and verification process to ensure that prescribed production processes have produced an item conforming to engineering drawings,

planning, purchase order, engineering specifications, and/or other applicable design documents.

**Manufacturer: LH Supplier that:**

- Designs and manufactures Article for which they provide a specialist design, development, validation, manufacturing capability against LH requirement specifications or Source Control Drawings for Design.

Remark: suppliers performing these activities are also identified by the Regulatory Agencies as *Subcontractors of the Design Organisations (Subcontractors of Design and Development activities)*

- Manufactures articles for which they provide proprietary manufacturing technologies, against LH Source Control Drawings for Manufacturing
- Designs and manufactures Article for which they hold the proprietary rights (E/TSO, COTS, STC, PMA, TC Holder)
- Manufactures raw materials (metallic and non-metallic).

**Standard Part:** part manufactured in complete compliance with a Government or an established industry specification. In order to be considered a “standard part”, all design, manufacturing, inspection data and marking requirements necessary to conformity of that part should be in the public domain and published or established as part of officially recognised Standards.

**Suppliers:** For the purpose of this procedure, Suppliers are considered the LH Suppliers who directly receive the LH Purchase Orders.

**Sub-Tiers (or Sub-Tier Suppliers):** For the purpose of this procedure, Sub-Tiers are considered the suppliers of LH Suppliers.

**Subcontractor:** LH Supplier that manufactures, tests and/or processes Article to drawings, 3D models, standards and/or process specifications for which they are not design responsible. The design requirements are provided by LH when LH is directly responsible for the design, or when LH have been granted manufacturing rights by another design responsible Organisation (e.g. Bell, Boeing, Airbus Helicopters, etc.).

**Stockist/Distributor:** LH Supplier that stores and re-sells a manufacturers' Article and manages its supply chain for the quality aspect.

## 5 Requirements

Suppliers directly contracted by LH shall flow-down the applicable requirements to their Sub-Tiers (contents, accuracy and level of detail), in order to ensure the full conformity to LH requirements.

**Sub-Tiers cannot further subcontract their activity unless differently specified in the applicable following paragraphs.**

The following chapters describe the significant requirements for Sub-Tiers according with the sequence of QRS-XXX modules.

Any Sub-Tier Suppliers involved with LH Articles shall refer to the table in section 2 to identify the applicable chapters.

## 5.1 General Requirements (Ref. QRS-01)

The QRS-01 and associated QRS-XXX Modules (also simply indicated as QRS-01) is a set of requirements recalled in any Purchase Orders issued by LH to Suppliers.

The QRS-01 is applicable to all activities allocated by types of Suppliers (refer to QRS-01 Main Document, Table 1). The QRS requirements shall be flowed-down by LH Suppliers to all their Sub-Tiers involved in fulfilment of the Contract/Purchase Order, as applicable according to category, type and activity of Supplier and its approval.

The flow-down shall be functional for the Supplier to realize and deliver **LH** articles (including all the supporting services) fully compliant with QRS-01 and associated QRS-XXX Modules, contractual and Purchase Order requirements.

All QRS documents (including Appendices, Annexes and Forms) are available for download in the link below:

<https://www.leonardocompany.com/it/suppliers/supplier-portal/helicopters/quality-requirements-for-suppliers>

Reading the full set of QRS-XXX volumes is recommended for the Sub-Tiers, as necessary to improve their understanding of requirements and for effectiveness of implementation.

Please refer to QRS-01 and Associated Modules for definitions not directly described in this volume.

### 5.1.1 Right of Access

**LH** Suppliers and Sub-Tier Suppliers involved with **LH** Articles shall grant the right of access to **LH** where requested by **LH**, as specified by AS/EN 9100 Aerospace Quality Management System, Regulatory Agencies (FAA, TCCA, EASA), Military Authorities and Customers.

### 5.1.2 Quality Management System and Aerospace Approval

**LH** reserves the right to accept Suppliers who do not meet the minimum requirements defined in the QRS-01 Table 1, in this case the **LH** Supplier shall ensure the Sub-Tier Supplier's Quality Management System is satisfactory by performing a risk assessment/audit. As consequence the Sub-Tier shall be available for any audit when requested by the **LH** Supplier.

### 5.1.3 LH Approval Validity

In the event that a Sub-Tier Supplier is directly approved by **LH**, the approval is considered valid unless a Sub-Tier Supplier:

- Fails to act in accordance with their Scope of Approval
- Fails to achieve a satisfactory performance level



- Has not worked with **LH** Articles for 4 years.

LH Suppliers will monitor their Sub-Tiers for continuity of work on LH Articles and ensure appropriate verifications / reassessments are conducted in case of re-activation after long inactivity.

#### 5.1.4 Purchasing Process, flow-down to Sub-Tiers and Control

The Supplier is responsible for all Sub-Tier Suppliers activities related to the Article they produce for **LH**.

**LH** requirements shall be flown-down to, understood and implemented by Sub-Tier Suppliers prior to commencing any work. The **LH** Supplier shall monitor the correct implementation of such requirements by the Sub-Tiers.

**LH** reserves the right to witness audits performed by Suppliers at Sub-Tier premises.

#### 5.1.5 Control of Records

The Supplier shall flow-down (where applicable) to its Sub-Tier Suppliers the requirements for records, in terms of:

- type of records (see QRS-01\_Appendix 1 in the **LH** link on section 5.1);
- minimum retention period required for each type of record, unless differently stated by more restrictive contractual requirements (see QRS-01\_Appendix 1 in the **LH** link on section 5.1);
- Maintenance of records;
- Archiving of records;
- Disposal of records.

#### 5.1.6 Prevention of Counterfeit Articles

**LH** requires that its supply chain shall be aware about counterfeiting issue and implements a process to prevent the risk of receiving counterfeit parts.

**LH** Suppliers and Sub-Tiers shall implement a pro-active management of counterfeit components/parts/services within their supply chain.

Examples of counterfeiting or fraudulent activities include, but are not limited to, used components represented as new, part from unapproved manufacturers represented as manufactured by the approved source.

The applicability field includes, without being exhaustive: Electrical, Electronic, and Electromechanical (EEE) Parts (refer to the **Appendix 4 of QRS-01**), Raw Material, COTS, Services (e.g. NDT, Surface/Heat Treatment, Calibration, Laboratory testing, etc.), Equipment and tools, etc.

Counterfeit Article prevention processes *shall* consider different requirements, as described in QRS-01, within the dedicated paragraph.

Sub-Tier Suppliers shall quarantine and promptly report to the Supplier, and to **LH** directly where applicable, every suspected or detected counterfeit part/Article, test report, inspection report, material, service.

## 5.2 First Article Inspection (Ref. QRS-101)

For FAI activities the reference used is **EN/AS9102** standard in order to standardize FAI process requirements to the possible greatest extent and to provide a consistent process and documentation requirements for verification of articles and assemblies.

All the forms *must* be filled in English, unless otherwise agreed.

The **LH** Supplier shall flow down the requirements of **QRS-101** to its suppliers or processor involved in the manufacturing process.

### 5.2.1 Planning of FAI Activities

The Supplier *shall* have a process to plan for completion of FAI activities prior to the first production run. The FAI Planning *shall* address the activities to be performed throughout the FAI process and identify the responsible organizations for those activities.

In the event that the **LH** Supplier involved into FAI activities is a Subcontractor (see Definitions) it shall have an internal procedure describing how FAI activities will be deployed, including any activities performed by Sub-Tiers.

The **LH** Supplier shall agree with the Sub-Tiers involved into FAI process all the activities to be performed and timing for sending the relevant documentation, in order to allow the Supplier to send the complete FAI Plan to **LH** sufficiently in advance prior to the start of manufacturing activities for evaluation.

### 5.2.2 Modification Management

For management of modifications, the LH Supplier shall refer to QRS-101 paragraph 6.5 (Manufacturers), 6.6 (Subcontractors) and 7.5 for the requirements to be flown-down to Sub-Tiers where applicable.

### 5.2.3 First Article Inspection Report

Upon request, the Sub-Tier Suppliers shall grant to **LH** the access to FAIR documentation.

In the event that a Sub-Tier Supplier is involved in FAI activities requested in the PO by a **LH** Supplier, it shall use the forms: QRS-101\_F01, QRS-101\_F02, QRS-101\_F03 (or EN/AS9102 equivalent forms) which can be downloaded in the **LH** link reported in section 5.1.

For more details about FAIR content, the Sub-Tier Supplier shall refer to QRS-101 paragraph 8.1.

### 5.3 Quality Requirements for Subcontracted Parts and GSE, Stockists of Raw Material, Distributors of Parts (Ref. QRS-103)

Note: This section is applicable to: LH Subcontractors, GSE Suppliers, Stockists of Raw Material, Stockist/Distributors of Standard Parts (see Definitions).

LH Subcontractors *shall* be responsible for the effective control of any products and/or services that are subcontracted to their Sub-Tier Suppliers and shall ensure LH Quality requirements are flowed down contractually as applicable.

LH Subcontractors *shall* be responsible for retaining suitable objective evidence that the article and/or services subcontracted fully conform to the requirements of the LH Contract/Purchase Order or drawing in order to provide full traceability of all relevant production/inspection documentation. Such objective evidence shall be made available to LH representatives upon request.

#### 5.3.1 Subcontracting of Parts to Sub-Tier Suppliers not approved by LH (applicable to LH Subcontractors)

A LH Subcontractor is allowed to subcontract to a Sub-Tier *not approved by LH* only for non-critical/non vital parts for partial manufacture, provided sufficient planning and inspection is carried out and documented by the LH Subcontractor to demonstrate full compliance to the drawing, applicable specifications and any other additional requirements as defined in the LH Contract, Purchase Order or drawing.

The LH Subcontractor *shall* ensure that where the subcontracting of parts for partial manufacture takes place, the Sub-Tier Supplier is fully approved and surveyed by the LH Subcontractor and listed on their Approved Supplier List. The Sub-Tier approval shall be consistent to the scope of the subcontracted work.

**Sub-Tiers of LH Subcontractors cannot further subcontract their activity.**

**Further, Sub-Tiers of LH Subcontractors cannot procure raw material and standard parts or offload Special Processes.**

When a LH Subcontractor uses a Sub-Tier, the following criteria shall be considered:

- Constraints: Applicable technical data (Technical drawing; Tables, Specs, etc.) as defined by the LH Purchase Order/Contract
- Selection of the provisioning source: the LH Subcontractor must ensure that his potential Sub-tier supplier is approved for :
  - System
  - Production type
  - Process and Personnel in relation to the product to be procured.

- Contracting documents: the **LH** Subcontractor must ensure that all Contracting documents provided to the Sub-tier supplier flow down the applicable quality requirements (including those from LH).
- Management of the technical / manufacturing documents: the **LH** Subcontractor shall maintain control of all relevant documents in regard to its Sub-tier supplier.
- Quality Plan: the LH Subcontractor shall update the Quality Plan listing the main Sub-tier Suppliers and enclosing the subcontractor Quality Plan duly approved.
- Relation with the Government Sources (Military-Civil): when the Supplies has to be submitted to Government Source Inspection (Military/Civil), the LH Subcontractor must ensure free access to its sub-tier Supplier Plant.
- Serializing: when a part/assembly is required to be serialized, the LH Subcontractor shall transfer the serialization criteria as assigned from LH, to its Sub-tier Supplier. The LH Subcontractor shall maintain serial number records and ensure traceability of the serial numbers through manufacture.

### 5.3.2 Subcontracting of Critical/Vital Parts to Sub-Tiers (applicable to LH Subcontractors)

Subcontracting of Critical/Vital Parts or Assemblies to Sub-Tiers is not permitted, without a formal approval by **LH** by means of manufacturing plans and for partial manufacture only.

The **LH** Subcontractor's (and any Sub-Tier's) manufacturing data *shall* be approved by the relevant **LH** Production Organization Authority (Manufacturing Engineering) prior to manufacture.

All changes to a **LH** Subcontractor's (and any Sub-Tier's) manufacturing data shall be approved by the **LH** Manufacturing Engineering prior to change implementation.

This *shall* include:

- Modification of: plant, raw material, critical operation, special process, numerical control program, manufacturing method/technique, special tools, particular part of a tool (for example forming castings or forgings).
- Change or new lay-out of the production site

**Note:** The Sub-Tier Supplier shall communicate to the relevant **LH** Subcontractor if one of the mentioned above occurs, in order to allow the **LH** Subcontractor to submit it to **LH** Manufacturing Engineering for approval.

### 5.3.3 Procurement of Raw Material

**Suppliers approved as “Subcontractor” are only allowed to procure raw material by LH approved sources.**

**Suppliers approved as “Manufacturer” are allowed to directly procure raw material using their own sources, unless differently specified.**

Any **LH** Subcontractor procuring raw material (excluding Castings and Forgings, which are not considered raw materials) in furtherance of an **LH** Contract or Purchase Order for an **LH** subcontracted part shall adhere to the requirements about the following:

- Material Selection
- Source Selection
- Purchase Orders
- On Receipt Inspection and Testing
- Material Storage
- Use of Existing Stores Material
- Quality Records for Raw Material
- Delivery Documentation

For details about requirements related to the above list, see QRS-103 paragraphs 5.5.1 through 5.5.9.

### 5.3.4 Requirements for Stockists of Raw Materials

The approved Stockist\* shall ensure that all raw material supplied to either **LH** or **LH** approved Subcontractors is manufactured by approved **LH** sources as listed in the **LH Website** database. Full traceability and identification shall be maintained at all times, even more fully intermediary stockists are involved. **LH** approval of Intermediary stockists is not required, however, the material must be manufactured by approved sources listed in the **LH Website**.

*\* Note: In this case “Stockist” could be either **LH** Supplier (PO directly from **LH**) or Sub-Tier (PO not directly from **LH** but from **LH** Supplier).*

Remark: the use of Stockists / distributors introduces an additional level in the supply chain.

Every Supplier of the chain is fully responsible and liable for the delivered Articles and for implementing incoming and delivery controls to ensure quality and conformity of their supplies.

Full support to **LH** is requested in case of delivery of nonconforming Articles (promptly alert, engage any involved Sub-Tier suppliers, provide data to identify affected Articles for recovery actions etc.).

### 5.3.5 Requirements for Stockists of International/Industries Standard Parts

The Stockist shall, at all times, be responsible for the Quality of the Product, article and services supplied.

The Stockist shall be fully responsible for the implementation and adherence to **LH** requirements within their company and shall ensure **LH** Quality/PO requirements are flowed-down contractually.

When purchasing, the stockist shall:

- Can only purchase standard parts in accordance with the requirement stated in QRS-01 “Quality Requirements for Suppliers”.
- Ensure the article is checked against the specifications on receipt and records are kept.
- Ensure alternative parts are not delivered without prior written approval from **LH**.
- Ensure the OEM’s CoC (stating conformity to the drawing / specification / standard) is attached and referred to into the Stockist CoC (stating conformity to the **LH** purchase order).
- Procure a **LH** standard only from the sources defined in the **LH** specification

The stockist shall be able to grant the following:

- **Traceability:** by means of objective evidence (e.g. CoC) that shall be available to **LH** upon request
- **Configuration Control:** working to the latest issue of any standard part document
- **Right of access to LH:** both at the stockist and manufacturing sources

### 5.3.6 Requirements for Purchasing of Ground Support Equipment (GSE)

**LH** GSE Supplier shall ensure the **LH/PO** requirements are flowed-down to their approved Sub-Tiers and shall require and keep objective evidence in order to ensure full compliance (e.g. CoC for raw material or standard parts procured, Certificate of Test and Examination for the applicable testing, etc.).

## 5.4 LH Special Processes (Ref. QRS-103 and QRS-104)

Sub-Tiers performing Special Processes per:

- **LH** Specifications *shall* be formally approved by LH via DQP (please refer to QRS-104).
- Manufacturer’s Proprietary Specifications and/or per International Specifications *shall* hold a Nadcap approval or be approved via DQP where requested by Table 1.

The minimum requirements for Sub-Tiers to perform Special Processes for a **LH** part are reported in the table below:

|                   |  | Special Process Specification |  |  |
|-------------------|--|-------------------------------|--|--|
|                   |  | LH Specification              | National / International Specification | Manufacturer's Proprietary Specification |
| Sub-Tier Supplier | The direct customer is a Manufacturer  | DQP                           | Nadcap accreditation or DQP            | Nadcap accreditation                     |
|                   | The direct customer is a Subcontractor | DQP                           | DQP                                    | N/A                                      |

*Table 1: Minimum requirement for Sub-Tier Suppliers performing Special Processes*

The LH DQP approved sources are listed in LH QRS-01 Website.

*Sub-Tiers* shall be aware that the **LH** Manufacturer or the **LH** Subcontractor *shall* verify that they have the relevant scope of approval at the location where the work is to be performed and a valid process DQP, where applicable.

Sub-Tiers shall make readily available all documentation package related to subcontracted Special Processes, including the delivery documentation for the parts release, on request by **LH** representatives.

## 5.5 Management of LH Equipments and tools (Ref. QRS-105)

This section is applicable to the Suppliers of equipment or tools required by a Leonardo Helicopters drawing/specification and by Suppliers using equipment or tools.

Such equipment and tools can be provided to the Suppliers by Leonardo Helicopters on loan or manufactured by the Supplier on behalf of Leonardo Helicopters.

This section applies to all those equipment/tools that are subject to initial checks, periodical and on condition checks, during their lifetime, such as:

- Machining equipment/tools
- Manufacturing and control equipment/tools
- Jigs and tools
- Software and numerical control programs, or testing machines
- Masters
- Test Benches

**LH** Suppliers shall not subcontract to Sub-Tiers any activity without formal approval by **LH** and any authorized transfer *shall* be recorded.

After receiving approval by **LH** for subcontracting, the above **LH** Supplier shall flow-down to Sub-Tiers all requirements of QRS-105 related to Quality aspects.

The applicable requirements about **LH** equipment and tools (received on loan or manufactured on behalf of **LH**) are listed below:

- Design of the equipment/tool (including requirement for Identification)
- Initial Qualification
- Equipment/Tool Validation
- Register and Identification Card
- Periodical Checks
- Equipment coordination
- Interchangeability
- Equipment Storage
- Packing and Shipment
- Delivery Documentation

For details about the requirements listed above, refer to QRS-105 paragraph 5.3 through 5.14.

## 5.6 Management of Non-Conforming Article (Ref. QRS-107)

This section is applicable to all **LH** Suppliers and any Sub-Tiers (except for commercial office and service provider of training, logistics, support, etc., in accordance with QRS-01 Table 1).

The supplier *shall* flow down the requirements of QRS-107 to its suppliers (Sub-Tiers) or processor involved in the manufacturing process.

The Sub-Tier Supplier shall have a documented process in place to manage all the possible cases of non-compliance listed below:

- **Deviation Permits:** deviations to the approved design data prior to start the manufacturing process;
- **Concessions:** non-conformances detected during the manufacturing process or at the end of the manufacturing process but prior to deliver the article;
- **Escapes/Quality Alerts:** non-conformances detected after delivery of the article.

Furthermore, the Sub-Tier Supplier shall also have a process for:

- training of people in charge to evaluate and dispose non-conforming articles;
- analyzing and initiating appropriate corrective actions;
- internal approval of non-conformances on manufactured articles and its submittal to the relevant **LH** Supplier;



- classifying the severity of the non-conformances and the control to prevent the use of non-conforming articles for finished parts.

Non-conforming articles, with their identification (e.g. labels), *shall* be held in a secure quarantine area until an approved, written disposition is given.

If an article has to be scrapped, a record of the scrapped S/N / Batch Number *shall* be maintained and the part *shall* be physically damaged in order to make it unserviceable (for more details on method that can be used, see QRS-107 paragraph 5.5 “Management of Scraps”).

### 5.6.1 Notification of Escape/Quality Alerts

The Sub-Tiers Suppliers *shall promptly* inform their prime contractor regarding Escapes/Quality Alerts, as described in QRS-107.

The Sub-Tier Escape notification must be immediate and not exceeding 24h, in order to allow the **LH** Supplier and **LH** to take actions as soon as possible (investigate on the defect, implement recovery actions and evaluate impacts on airworthiness or safety). Use the Form QRS-107\_F03 or equivalent.

Please note that the **LH** Supplier, shall notify **LH** any Escape/Quality Alert respecting specific time limits listed in QRS-107.

### 5.7 Supplier Quality Plan (Ref. QRS-108)

**LH** Suppliers are required, as described in QRS-108, to detail in a Quality Plan (QP) how Leonardo Helicopters (**LH**) contracted requirements are achieved via their Quality Management System (QMS), against the requirements of QRS-01 (Leonardo Helicopters Quality Requirements for Suppliers).

The purpose of the QP is to identify any gaps between **LH** Supplier’s QMS and **LH** requirements specified in QRS-01, and/or the contract itself. The QP *shall* list in detail and explain any additional QA processes added, amended or modified to meet Customer’s Quality requirements.

The secondary purpose of the QP is to document how the Supplier intends to fulfill **LH** Contractual requirements, as detailed in the QRS-01 and associated modules, such as Organizational/Project family tree, Design and Development activities, Customer Internal Audit plan, Customer specific Key Performance Indicators etc.

The **LH** Supplier may request the Sub-Tier to draw up a Quality Plan for equivalent purpose of the one mentioned above. In this event, the Sub-Tier may use a similar format for QP as described in QRS-108 or equivalent, unless otherwise specified by the **LH** Supplier.

If applicable, the **LH** Supplier shall report in his QP the list of Sub-Tier QPs involved in the activities (e.g. design and development, manufacturing, etc.).

Any Sub-Tier QPs shall be made available to **LH** upon request.

## 5.8 Requirements for Design & Development Suppliers of Airborne Equipment (Ref. QRS-115, applicable to Manufacturers only)

This section is applicable to all LH Suppliers of activities concerning design, development, qualification and requalification of parts, equipment and systems that *shall* be installed, certified/qualified on aircraft, in case they engage a Sub-Tier Supplier for part of these activities.

Note: This section is not applicable for STANDARD parts.

The LH Supplier is always responsible towards LH for the compliance with contract requirements in case it delegates part of the activities to a Sub-Tier Supplier.

The LH Supplier *shall*:

- Guarantee and give evidence to LH Engineering Organization of Sub-Tier supplier qualification according to LH requirements and the relevant facilities (e.g. laboratories)
- Transmit to its Sub-Tier suppliers the applicable requirements of QRS-115
- Guarantee that its Sub-Tier suppliers comply with requirements of QRS-115 tailored according the subcontracted activities and risk based analysis; the Sub-Tier suppliers responsible for design of the deliverable component shall meet all the applicable requirements of QRS-115.

### 5.8.1 Detailed Technical Specification

In consequence of LH System Specification, the Supplier *shall* issue for each part of the system to qualify a Detailed Technical Specification (Equipment Specification) or, for relatively simple components, a Specification Drawing.

If the LH Supplier uses one or more Sub-Tier Suppliers, it *shall* issue for each of them a design specification equivalent, in terms of technical and quality contents, to LHEO Technical Specification; this document *shall* clearly define the envelope of the requirements to be followed by the Sub-Tier suppliers.

### 5.8.2 Declaration of Design and Performance (DDP)

DDP is the central summary document containing the definition and all relevant references of the article. In the DDP the Supplier is required to state that the article is designed, tested and manufactured in compliance with the applicable technical requirements.

If the LH Supplier delegates to a Sub-Tier supplier the design and/or qualification of one or more Significant P/N, the DDP *shall* refer the P/N and the name of the designer Sub-Tier supplier.

If the Sub-Tier supplier performs and/or is responsible for activities of qualification, the DDP and all the documents used in demonstration of compliance *shall* be signed by the designer Sub-Tier supplier and by the LH Supplier for approval and, where applicable, by LH.

### 5.8.3 Procedure for the management of design changes

The procedure for management and approval of design changes to type design as described above must be implemented in a supplier's internal procedure. This procedure *shall* also:

- describe the flow down of such criteria and its implementation at the supplier's Sub-Tiers involved in design activities.
- include planning and execution of auditing activities (both internal and Sub-Tiers) to monitor the correct flow down of design changes criteria and approval criteria. This applies to both supplier's internal organisation and to its Sub-Tiers, where applicable.

LH Suppliers and Sub-Tiers are requested to implement their procedure in conformity with the following requirements (for more detail and/or clarification about qualification phase refer to QRS-115 paragraph 5.2.2.5):

- Until qualification is obtained (refer also to QRS-115 paragraph 5.3.3.3): the LH Supplier shall submit design Changes to LH for acceptance if there is an impact on fit, form or function.
- After qualification has been obtained (refer also to QRS-115 paragraph 5.3.3.4): all Changes shall be communicated to LH for classification and approval, except for Very Minor Changes (listed in QRS-115 paragraph 5.3.3.4.1) that do not require any LH approval. The design of any part, system or equipment procured from a Supplier who is also the designer of the part, system or equipment, once certified, becomes part of the Type Design of the LH product. Alteration to any of the following data, which constitutes the type design, is considered a change to Type Design.

### 5.8.4 Equipment/Parts Identification and Marking

All the parts or equipment deliverable (End Item) *shall* be identified according to the LHEO Technical Specification and/or SCD.

When a LH Supplier which is the designer responsible in accordance with the LH Technical Specification, uses Sub-Tier supplier, the following two cases can occur:

- The Sub-Tier supplier produces the equipment/part using the detailed drawings of the main supplier; in this case the LH Supplier's P/N shall be marked on the equipment/part;
- The Sub-Tier supplier produces the equipment/part using own drawings (designer responsible of the part); in this case the equipment/part shall be identified with the Sub-Tier supplier's P/N.

The parts/equipment shall be marked permanently and legibly as defined in QRS-115 paragraph 5.3.5.1. The Supplier shall flow-down those requirements to Sub-Tiers as applicable.

### 5.8.5 Equipment containing SW/HW

The **LH** Supplier that design and develop software and/or complex Hardware *shall* refer to QRS-116 and QRS-117. If the **LH** Supplier delegates to a Sub-Tier supplier any of these activities shall flow-down the requirements of QRS-116 and/or QRS-117

For equipment containing any type of SW (Operations, Mission, Equipment, Application, etc.), the P/N *shall* include indications on the combination of HW and SW.

Any changes to SW *shall* have an impact on the P/N of the end item and *shall* be managed according to what described for the major changes described in QRS-115 paragraph 5.3.3.3.

Note: The code of the SW *shall* not be marked on the label.

### 5.8.6 Test Article Conformity (TAC)

For each significant P/N to qualify, evidences necessary to issue the statement *shall* be collected in a report called TAC.

The TAC, like the First Article Inspection for the First Production Run phase, *shall* be performed in accordance with the reference document QRS-101 and EN9102 requirements. The **LH** Supplier shall flow-down the TAC requirements described in QRS-115 paragraph 5.7 to any Sub-Tiers involved in the process.

The TAC report *shall* be approved by the **LH Engineering Chief Project**.

In any case, a FAI could be performed instead of a TAC for qualification testing of prototype and/or pre-series parts.