Engineering Requirements Flowdown Guide

October 2015
Overview

This document was developed as a guide to represent the process of flowing down Lockheed Martin Aeronautics engineering requirements to suppliers and processors. The guide is an aid for any supplier/subcontractor processing parts or building hardware to an Aero design.

This data is provided as a guide, and does not necessarily consist of all embedded requirements.

Remember – All item(s)/material(s) on your Purchase Order must be manufactured in accordance with the latest engineering drawing with the exception of spares and repairs. If you do not have the latest revision, please contact your Lockheed Martin Aeronautics Buyer immediately.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Drawings</td>
<td>4</td>
</tr>
<tr>
<td>- Where requirements are listed on drawings</td>
<td></td>
</tr>
<tr>
<td>Purchase Order</td>
<td>5</td>
</tr>
<tr>
<td>- Example of PO and PDS Instructions</td>
<td></td>
</tr>
<tr>
<td>Preferred Parts Handbook</td>
<td>8</td>
</tr>
<tr>
<td>- Engineering Source for Standard Parts</td>
<td></td>
</tr>
<tr>
<td>Engineering Materials &amp; Approved Products (EMAP)</td>
<td>12</td>
</tr>
<tr>
<td>- Lockheed Martin Aeronautics Approved Material Suppliers</td>
<td></td>
</tr>
<tr>
<td>QCS-001 (Quality Control System -001)</td>
<td>25</td>
</tr>
<tr>
<td>- Controlled Processes &amp; Approved Processors</td>
<td></td>
</tr>
<tr>
<td>Material &amp; Process Specifications</td>
<td></td>
</tr>
<tr>
<td>(EDCS – Enterprise Data/Collaborative System)</td>
<td>31</td>
</tr>
<tr>
<td>- Where to find the Lockheed Martin Aeronautics Specifications &amp; Listings</td>
<td></td>
</tr>
<tr>
<td>Points of Contact</td>
<td>40</td>
</tr>
</tbody>
</table>
Lockheed Martin Aeronautics Engineering Drawing

Process Specifications located here

34: REMOVE FINISH ON SELECTED SURFACES FOR BONDING. FINISH IN FILLETS IS ACCEPTABLE. RESTORE CORROSION PROTECTION PER ABCDEFG00001.

33: ORIENT NUTPLATE SO THAT REMOVAL CLIP END FACES UP.

32: VERIFY CLASS R ELECTRICAL BOND BETWEEN IDENTIFIED SURFACES OF DESIGNATED PARTS PER ABCDEFG00001.

31: ELECTRICAL BOND PER ABCDEFG00001 METHOD 1 FOR PAINTED SURFACES METHOD 3 FOR UNPAINTED SURFACES. CATEGORY 2. CLASS R.
### Lockheed Martin Purchase Order (PO)

**Purchase Order:** 1234567  
**Amendment Number:** 00000002  
**Order Date:** 02/17/2014

<table>
<thead>
<tr>
<th>FORT WORTH</th>
<th>TX 76108</th>
<th>US</th>
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</thead>
<tbody>
<tr>
<td><strong>FOB</strong></td>
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<tr>
<td><strong>Payment Method:</strong> Prepaid (by Seller)</td>
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<tr>
<td><strong>FOB (Transportation):</strong> Origin (Shipping Point) See PO text for routing URL</td>
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<tr>
<td><strong>FOB (Title Passage):</strong> FOB/INCO terms provided here apply unless superseded by terms per line item</td>
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<td><strong>Risk of Loss:</strong></td>
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<td><strong>Tax Location ID:</strong></td>
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<td><strong>Exemption Desc:</strong></td>
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<tr>
<th><strong>Notes</strong></th>
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<td><strong>Item text:</strong></td>
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<tr>
<td>Letters &amp; Notes: *** Quality Terms &amp; Conditions ***</td>
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<tr>
<td>Quality Text==Description ==</td>
<td>==</td>
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</table>
A83 NOTE, “ENGINEERING SPECIFICATION REQUIREMENTS”

(a) SELLER shall comply with the engineering specifications and other requirements set forth in this A83 Note. SELLER shall comply with latest revision, as of the effective date of this Contract, for all specifications or other document incorporated herein, unless a specific revision number is referenced. If a specific revision number is referenced SELLER shall comply with the specified revision. The requirements set forth in the databases, specification or other documents herein are incorporated into this Contract by reference.

(b) SELLER shall comply with all specifications and other documents set forth herein in the performance of its obligations under this Contract.

(c) The databases, specifications and other documents incorporated herein are LOCKHEED MARTIN Proprietary Information and as such are protected in accordance with the Proprietary Information Agreement (PIA) executed between the parties.

(d) SELLER shall include the requirements of this A83 Note in lower tier subcontracts for the delivery of items that will be included in or furnished as Work to LOCKHEED MARTIN.

(e) The following requirements are only applicable to LOCKHEED MARTIN Designed Parts

   i. Engineering Materials and Approved Products (EMAP):
      Applicability: All programs with the exception of F-16, F-2 and T-50
      Location: LOCKHEED MARTIN external web page:
      http://www.lockheedmartin.com/aeronautics/materialmanagement/ under ‘Engineering’ then ‘Engineering Materials and Approved Products (EMAP) / Design Support Database (DSD)’.

   ii. Process Specifications:
      Applicability: All programs
      Location: LOCKHEED MARTIN external web page:
      http://www.lockheedmartin.com/aeronautics/materialmanagement/ under ‘Engineering’ then ‘Material & Process Specifications – All Programs’

   iii. Preferred Parts Handbook (PPH) - Volumes 1-5
      Applicability: C-130, C-27, C-5, P-3, S-3 and F-22
      Location: The Preferred Parts Handbook (PPH), Volumes 1-5. Document is not on-line and shall be obtained from the LOCKHEED MARTIN Procurement Representative.

f) The following requirements are applicable to Standard Hardware or when the drawing specifies the following note:

Approved sources for this part are listed in the F-35 Parts Classification and Management Database maintained by LOCKHEED MARTIN Aeronautics F-35 Components Engineering. Items procured to the standard from sources other than those listed in the F-35 Parts Classification and Management Database are considered non-compliant.

   (i) Approved Manufacturer List for Standard Parts – Specification Document

2GNA00001

   Applicability: F-35
   Location: LOCKHEED MARTIN JDL:
   https://edcs-jsf.imaeronautics.jsf/livelink/ search for 2GNA00001

The approved manufacturers for parts for the F-35 Program are set forth in 2GNA00001. The approved manufacturers listed are approved only for the listed source or part number. Sources or manufacturer part numbers other than those listed are not approved. The sources or manufacturer part numbers are approved only when made by the manufacturer listed to the drawing revision specified. If the source or manufacturer part number is manufactured by an entity other than the one that appears in this list, it is unapproved. Callout part numbers that do not appear in this list are not approved for use on the program and have no approved sources. If intermediaries, such as distributors, are used to acquire parts, the actual manufacturer of the parts in question still must be an approved manufacturer.
Lockheed Martin Purchase Order (PO)

Purchase Order: 1234567
Amendment Number: 00000002
Order Date: 02/17/2014

Reference to Quality Appendix “QX”

Website location noted at line item

Letters & Notes: *** Quality Definition: QX+ ***

WHEN THIS PURCHASE ORDER, OR CONTRACT CALLS FOR QUALITY APPENDIX "QX", THAT DOCUMENT CAN BE FOUND ON THE BUYER'S WEBSITE FOUND AT:

HTTP://WWW.LOCKHEEDMARTIN.COM/US/AERONAUTICS/MATERIALMANAGEMENT.HTML

UNDER QUALITY REQUIREMENTS -> QUALITY APPENDICES INFORMATION.

IN ADDITION, THE "+" INDICATES THE REQUIREMENT FOR A THIRD PARTY AS910 APPROVED QUALITY SYSTEM.
Preferred Parts Handbook (PPH)
What is the Preferred Parts Handbook (PPH)?

• The Preferred Parts Handbook (PPH), Volume 6, Section 99 is the official Engineering source for Engineering procurement requirements of standard parts for Lockheed Martin Aeronautics-Marietta purchase orders (excluding F-22 program). PPH specifies the approval sources and contains specific information that suppliers and Lockheed Martin Aeronautics Receiving and Inspection must follow. PPH also includes stocking and usage instructions for superseded parts.

Who needs it and why?

– Subcontractors/suppliers of Lockheed Martin Aeronautics designed assemblies for C-130, C-27, C-5, P-3, and S-3.
– Information in the PPH, Volume 6 Manual, shall be used by Lockheed Martin Aeronautics and its subcontractors/suppliers for the procurement and receipt of component parts used in the production of Lockheed Martin Aeronautics-Marietta designed assemblies (excluding F-22 program).

• After access is granted, navigation instructions will be emailed.
How do I get there?

1) http://www.lockheedmartin.com/us/aeronautics/materialmanagement.html

2) Engineering

3) Engineering Materials & Approved Products (EMAP)
How do I get there?

Mid-way down the EMAP page, you will find the DSD-PPH link.

Remaining instructions on how to access

Second:

An EMAP/DSD site specific Proprietary Information Agreement (PIA) is required for access approval. Each individual requesting access to the EMAP or DSD-Parts sites must complete and sign this PIA.

PIA Document

PIA completion instructions

Send the completed PIA to lynne.pierce@lmco.com
Engineering Materials & Approved Products (EMAP)

Lockheed Martin Aeronautics
Approved Material Suppliers
What is EMAP

• EMAP Contains all materials required by engineering drawings, process specifications, process bulletins, design standards and purchase order for the manufacture of Lockheed Martin Aeronautics designed parts.

• EMAP also contains references to material specifications, approved raw material manufacturers and their products, a cross reference for superseded and current specifications, and additional requirements above and beyond the specification requirements.

Note: EMAP is applicable to all programs with the exception of F-16, F-2, and T-50 Programs
Who needs it and why?

- Suppliers and/or processors who supply Lockheed Martin Aeronautics designed parts need access to EMAP. Lockheed Martin Aeronautics suppliers and distributors must comply to the EMAP requirements for selling/supplying engineering materials to Lockheed Martin Aeronautics.

- The information in EMAP is used by Lockheed Martin Aeronautics and its subcontractors for the procurement and receipt of materials used in the production of Lockheed Martin Aeronautics designed parts, whether fabricated or purchased.

- LMA-D0006 Defines the Contents and Usage of EMAP. This document should be used as a reference to understand the various columns in the EMAP database.

- The EMAP sections are specific to the Engineering Designed Site, e.g.; Marietta designed parts must use the Marietta section, Fort Worth designed parts use the Fort Worth section, etc. If there is any question regarding site, please contact the Buyer that issued the purchase order.
How do I get there?

- EXTERNAL WEBSITE: Located on the External Material Management Homepage under the “Engineering” link

http://www.lockheedmartin.com/us/aeronautics/materialmanagement.html
How do I get there?

1) http://www.lockheedmartin.com/us/aeronautics/materialmanagement.html

2) Engineering

3) Engineering Materials & Approved Products (EMAP)
How do I get there?

Instructions on how to access

Read “PIA completion instructions” prior to submitting a PIA.

Click to Register
How do I register & get access?

Select “Register New User”
How do I register & get access?

Complete and submit Registration Form

User ID & Password Requirements

Lockheed Martin Aeronautics Employees:

To register for access to the external EMAP site please use your NT User ID.
NOTE: DO NOT USE NT PASSWORD.
LMA-D0006 Defines the Contents and Usage of EMAP. This document should be used as a reference to understand the various columns in the database.

Select LMA-D0006 for instructions and use.
The LMA-D0006, “Engineering Materials and Approved Products”, describes the EMAP database.
EMAP Search

Click here to search

Use tabs to search by Category, Specification, Description, or by POIS Part Number/Material Code
EMAP Search Results

<table>
<thead>
<tr>
<th>Selection</th>
<th>Section</th>
<th>Item/Vers</th>
<th>Active Item</th>
<th>Specification(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEL 1</td>
<td>G40</td>
<td>0605</td>
<td>YES</td>
<td>CATALYZED MERCAPTON EPOXY CURING AGENT (LIGHT COLORED, LOW ODOR)</td>
</tr>
<tr>
<td>SEL 2</td>
<td>G40</td>
<td>0625</td>
<td>YES</td>
<td>FASTENER FILLER, ELASTOMERIC, ELECTRICALLY CONDUCTIVE (FOR USE ON F-35)</td>
</tr>
<tr>
<td>SEL 3</td>
<td>G40</td>
<td>3005</td>
<td>YES</td>
<td>SEALANT, GAP FILL, ELECTRICALLY CONDUCTIVE, SILVER PLATED NICKEL FILLED, SILICONE</td>
</tr>
<tr>
<td>SEL 4</td>
<td>G40</td>
<td>135</td>
<td>YES</td>
<td>MIL-PRF-8516</td>
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<tr>
<td>SEL 5</td>
<td>G40</td>
<td>1351</td>
<td>YES</td>
<td>POTTING COMPOUND, FOR ELECTRICAL CONNECTORS AND ELECTRICAL SYSTEMS - (SPECIFY TYPE AND CLASS)</td>
</tr>
<tr>
<td>SEL 6</td>
<td>G40</td>
<td>1352</td>
<td>YES</td>
<td>COMPOUND, SEALING ELECTRICAL, HIGH TEMP. RESISTANT, 500 DEGREE F</td>
</tr>
<tr>
<td>SEL 7</td>
<td>G40</td>
<td>1352</td>
<td>YES</td>
<td>SEALANT, ELECTRICAL, HIGH TEMP. RESISTANT, 500 DEGREE F</td>
</tr>
</tbody>
</table>
QCS-001

Lockheed Martin Aeronautics
Controlled Processes & Approved Processors
What is it?

- **QCS-001** – A directory for Lockheed Martin Aeronautics Controlled Processes and Approved Processors

- **Controlled Process** – An operation performed on an item where the operation is not readily inspectable subsequent to its conclusion. Controlled processes have verifiable controls inherent to the process i.e. heat treat, plating, nondestructive testing, etc. The controlled processes listed in QCS-001 are not applicable to standard hardware (nuts, bolts, washers, etc.) that are ordered to military, federal or industry specifications or industry standards (e.g.; MS, AN, NAS, etc.). Controlled processed are not applicable to metallic raw material (place, sheet, bar, extrusion, etc.) until the manufacturer begins processing the raw material to our design requirements.
How do I get there?

1) http://www.lockheedmartin.com/us/aeronautics/materialmanagement.html

2) Quality Requirements

3) Supplier Quality Management System
How do I get access?

Select “Request an Account”

Review account requirements
New Account Request Form

Complete and submit Registration Form

*Email address must match the email that Lockheed Martin Aeronautics has on file as a contact.
QCS-001 Directory

Query by:
- Specification Index
- Processor Name
- Process Code
- Process Name

QCS-001 Queries
- Specification Index
- Processor Name
- Process Code
- Process Name

QCS-001 Changes:
- Specification Index Changes
- Process Sources Added/Deleted
- List of Changes to Approved Sources

QCS-001 Changes:
- Specification Index Changes
- Process Sources Added/Deleted
- List of Changes to Approved Sources

QCS-001 Documentation
- QCS-001 Requirements Document
- Control Specs

QCS-001 90 Day Usage Reporting
- Report QCS-001 Usage
- Instructions for Usage Reporting

QCS-001 90 Day Usage Reporting
(Only for use by LMAero Suppliers with Login ID)
- Report QCS-001 Usage
- Instructions for Usage Reporting
Lockheed Martin Aeronautics Specifications & Listings
What is it?

- **EDCS** – Enterprise Data/Collaborative System
  - A place for Lockheed Martin Suppliers/Processors to view Material & Process Specifications for ALL Lockheed Martin Aeronautics programs
  - Access is set up for each individual user (not a company-wide account)
  - EDCS access is only available for US persons (US citizen or permanent resident)
  - Access must be approved by Lockheed Martin Aeronautics Buyer or Supplier Quality Management (SQM) Representative who can verify the user’s need to know, and that the appropriate Proprietary Information Agreement (PIA’s) are in place.
How do I get there?

1) http://www.lockheedmartin.com/us/aeronautics/materialmanagement.html

2) Engineering

3) Materials & Process Specifications – All Programs
How do I get there?

Note: Submit all Access Requests to your LM Aero Buyer for approval

Select this link after access has been granted

EDCS Access Request Form (except F-35, F-22)

F-35 Access Request Forms

F-22 Access Request Form
Enter the Username & Password that Lockheed Martin Aeronautics provided to you.
Select “Program Associates”
Select “Materials & Processes Specifications”
Select specific Program - You will only see the programs that you have a valid Proprietary Information Agreement (PIA) in place.
EDCS - Material & Process Specifications

Select Specification Document (FMS, FPS, FQML, FQPL, NDTS, etc)
Points of Contact
Contact Information

Purchase Order (PO)
- Contact your Lockheed Martin Aeronautics Buyer

Preferred Parts Handbook (PPH)
- Contact your Lockheed Martin Aeronautics Buyer

Engineering Materials & Approved Products (EMAP)
- Lynne Pierce
  - lynne.pierce@lmco.com

QCS-001 (Controlled Processes & Approved Processors)
- Earl Pruett
  - (817) 777-0348
  - earl.j.pruett@lmco.com

Material & Process Specifications (EDCS-Enterprise Data/Collaborative System)
- Eduardo Arcos
  - (817) 935-1176
  - eduardo.a.arcos@lmco.com