



Whippany Actuation Systems™

# **Supplier Quality Assurance Requirements**

(SQAR, Edition 2, Rev 2.1, 01 January 2025)

**Whippany Actuation Systems LLC**

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<b>Table of Contents</b> .....	<b>1</b>
<a href="#">Foreword</a> .....	<a href="#">5</a>
<a href="#">Revision Summary/ Rationale</a> .....	<a href="#">5</a>
<a href="#">Intended Application</a> .....	<a href="#">5</a>
<a href="#">Introduction</a> .....	<a href="#">6</a>
<a href="#">Definitions</a> .....	<a href="#">6</a>
<a href="#">Referenced Industry Standards</a> .....	<a href="#">6</a>
<a href="#">0.1 General</a> .....	<a href="#">6</a>
<a href="#">0.2 Quality Management Principles</a> .....	<a href="#">6</a>
<a href="#">0.3 Process Approach</a> .....	<a href="#">6</a>
<a href="#">0.3.1 Requirements for Qualification and Continued Use</a> .....	<a href="#">6</a>
<a href="#">0.3.2 Plan-Do-Check-Act Cycle</a> .....	<a href="#">6</a>
<a href="#">0.3.3 Risk-based Thinking</a> .....	<a href="#">6</a>
<a href="#">0.4 Relationship with Other Management System Standards</a> .....	<a href="#">6</a>
<b><u>QUALITY MANAGEMENT SYSTEMS – REQUIREMENTS</u></b>	
<a href="#">1. SCOPE</a> .....	<a href="#">7</a>
<a href="#">2. NORMATIVE REFERENCES</a> .....	<a href="#">7</a>
<a href="#">3. TERMS AND DEFINITIONS</a> .....	<a href="#">7</a>
<a href="#">4. CONTEXT OF THE ORGANIZATION</a> .....	<a href="#">7</a>
<a href="#">4.1 Understanding the Organization and its Context</a> .....	<a href="#">7</a>
<a href="#">4.2 Understanding the Needs and Expectations of Interested Parties</a> .....	<a href="#">7</a>
<a href="#">4.3 Determining the Scope of the Quality Management System</a> .....	<a href="#">7</a>
<a href="#">4.4 Quality Management System and its Processes</a> .....	<a href="#">8</a>
<a href="#">5. LEADERSHIP</a> .....	<a href="#">8</a>
<a href="#">5.1 Leadership and Commitment</a> .....	<a href="#">8</a>
<a href="#">5.1.1 General</a> .....	<a href="#">8</a>
<a href="#">5.1.2 Customer Focus</a> .....	<a href="#">8</a>
<a href="#">5.2 Policy</a> .....	<a href="#">8</a>
<a href="#">5.2.1 Establishing the Quality Policy</a> .....	<a href="#">8</a>
<a href="#">5.2.2 Communication the Quality Policy</a> .....	<a href="#">8</a>
<a href="#">5.2.3 Establishing and Communication the Safety Policy</a> .....	<a href="#">8</a>
<a href="#">5.3 Organizational Roles, Responsibilities, and Authorities</a> .....	<a href="#">8</a>

5.3.1	<a href="#">Accountable Manager</a>	9
5.3.2	<a href="#">Quality Manager</a>	9
5.3.3	<a href="#">Other Appointed Manager(s)</a>	9
<b>6.</b>	<b><a href="#">PLANNING</a></b>	<b>9</b>
6.1	<a href="#">Actions to address Risks and Opportunities</a>	9
6.2	<a href="#">Quality Objectives and Planning to Achieve Them</a>	11
6.3	<a href="#">Planning of Changes</a>	11
<b>7.</b>	<b><a href="#">SUPPORT</a></b>	<b>11</b>
7.1	<a href="#">Resources</a>	11
7.1.1	<a href="#">General</a>	11
7.1.2	<a href="#">People</a>	11
7.1.3	<a href="#">Infrastructure</a>	11
7.1.4	<a href="#">Environment for the Operation of Processes</a>	11
7.1.5	<a href="#">Monitoring and Measuring Resources</a>	11
7.1.5 a	<a href="#">Non-Destructive Testing (NDT) Inspection Operations</a>	12
7.1.5.1	<a href="#">General</a>	12
7.1.5.2	<a href="#">Measurement Traceability</a>	13
7.1.6	<a href="#">Organizational Knowledge</a>	13
7.2	<a href="#">Competence</a>	13
7.3	<a href="#">Awareness</a>	13
7.4	<a href="#">Communication</a>	13
7.5	<a href="#">Documented Information</a>	13
7.5.1	<a href="#">General</a>	13
7.5.2	<a href="#">Creating and Updating</a>	13
7.5.3	<a href="#">Control of Documented Information</a>	14
7.5.3.1	<a href="#">Recording Data and Record Retention Requirements</a>	14
<b>8.</b>	<b><a href="#">OPERATION</a></b>	<b>15</b>
8.1	<a href="#">Operational Planning and Control</a>	15
8.1.1	<a href="#">Operational Risk Management</a>	16
8.1.2	<a href="#">Configuration Management</a>	16
8.1.3	<a href="#">Product Safety</a>	16
8.1.4	<a href="#">Prevention of Counterfeit Parts</a>	16

<a href="#">8.1.5</a>	<a href="#">Prevention of Suspected Unapproved Parts</a>	<a href="#">17</a>
<a href="#">8.1.6</a>	<a href="#">Installation of Approved Parts</a>	<a href="#">17</a>
<a href="#">8.2</a>	<a href="#">Requirements for Products and Services</a>	<a href="#">17</a>
<a href="#">8.2.1</a>	<a href="#">Customer Communication</a>	<a href="#">17</a>
<a href="#">8.2.2</a>	<a href="#">Determining the Requirements for Products and Services</a>	<a href="#">17</a>
<a href="#">8.2.3</a>	<a href="#">Review of the Requirements for Products and Services</a>	<a href="#">17</a>
<a href="#">8.2.4</a>	<a href="#">Changes to the Requirements for Products and Services</a>	<a href="#">17</a>
<a href="#">8.2.5</a>	<a href="#">Customer Orders</a>	<a href="#">17</a>
<a href="#">8.2.5.1</a>	<a href="#">Government Orders</a>	<a href="#">17</a>
<a href="#">8.2.5.2</a>	<a href="#">European Aviation Safety Agency (EASA) Orders</a>	<a href="#">17</a>
<a href="#">8.2.5.3</a>	<a href="#">Northrup Grumman (NG) Build-to-Print Programs</a>	<a href="#">17</a>
<a href="#">8.3</a>	<a href="#">Design and Development of Products and Services</a>	<a href="#">18</a>
<a href="#">8.3.1</a>	<a href="#">General</a>	<a href="#">18</a>
<a href="#">8.3.2</a>	<a href="#">Design and Development Planning</a>	<a href="#">18</a>
<a href="#">8.3.3</a>	<a href="#">Design and Development Inputs</a>	<a href="#">18</a>
<a href="#">8.3.4</a>	<a href="#">Design and Development Controls</a>	<a href="#">18</a>
<a href="#">8.3.5</a>	<a href="#">Design and Development Outputs</a>	<a href="#">18</a>
<a href="#">8.3.6</a>	<a href="#">Design and Development Changes</a>	<a href="#">18</a>
<a href="#">8.3.7</a>	<a href="#">Digital Product Definition (DPD) and Model Based Definition (MBD)</a>	<a href="#">18</a>
<a href="#">8.4</a>	<a href="#">Control of Externally Provided Processes, Products and Services</a>	<a href="#">19</a>
<a href="#">8.4.1</a>	<a href="#">General</a>	<a href="#">19</a>
<a href="#">8.4.2</a>	<a href="#">Type and Extent of Control</a>	<a href="#">19</a>
<a href="#">8.4.2.1</a>	<a href="#">Work Transfers</a>	<a href="#">19</a>
<a href="#">8.4.2.2</a>	<a href="#">Verification of Externally Provided Processes and Services</a>	<a href="#">20</a>
<a href="#">8.4.2.3</a>	<a href="#">Material Substitutions</a>	<a href="#">20</a>
<a href="#">8.4.3</a>	<a href="#">Information for External Providers</a>	<a href="#">20</a>
<a href="#">8.5</a>	<a href="#">Production and Service Provision</a>	<a href="#">21</a>
<a href="#">8.5.1</a>	<a href="#">Control of Production and Service Provision</a>	<a href="#">21</a>
<a href="#">8.5.1 a</a>	<a href="#">Additional Requirements</a>	<a href="#">22</a>
<a href="#">8.5.1.1</a>	<a href="#">Control of Equipment, Tools, and Software Programs</a>	<a href="#">24</a>
<a href="#">8.5.1.2</a>	<a href="#">Validation and Control of Special Processes</a>	<a href="#">25</a>
<a href="#">8.5.1.3</a>	<a href="#">Production Process Verification</a>	<a href="#">25</a>

8.5.1.4	<a href="#">Evaluation of a New Capability</a>	27
8.5.1.5	<a href="#">Franchised/ Authorized Distributor and Broker Material Control</a>	27
8.5.2	<a href="#">Identification and Traceability</a>	28
8.5.3	<a href="#">Property belonging to Customers or External Providers</a>	28
8.5.4	<a href="#">Preservation</a>	28
8.5.5	<a href="#">Post-Delivery Activities</a>	29
8.5.6	<a href="#">Control of Changes</a>	29
8.6	<a href="#">Release of Products and Services</a>	29
8.6.1	<a href="#">Other Certification Requirements</a>	32
8.7	<a href="#">Control of Nonconforming Outputs</a>	33
8.7.1	<a href="#">Nonconforming Outputs</a>	33
8.7.2	<a href="#">Nonconforming Documented Information</a>	34
8.7.3	<a href="#">Control of Re-worked (in Production) Product</a>	34
<b>9.</b>	<b><a href="#">PERFORMANCE EVALUATION</a></b>	<b>34</b>
9.1	<a href="#">Monitoring, Measurement, Analysis, and Evaluation</a>	34
9.1.1	<a href="#">General</a>	34
9.1.2	<a href="#">Customer Satisfaction</a>	34
9.1.3	<a href="#">Analysis and Evaluation</a>	35
9.2	<a href="#">Internal Audit</a>	35
9.3	<a href="#">Management Review</a>	36
9.3.1	<a href="#">General</a>	36
9.3.2	<a href="#">Management Review Inputs</a>	36
9.3.3	<a href="#">Management Review Outputs</a>	36
<b>10.</b>	<b><a href="#">IMPROVEMENTS</a></b>	<b>36</b>
10.1	<a href="#">General</a>	36
10.2	<a href="#">Nonconformity and Corrective Action</a>	36
10.3	<a href="#">Continual Improvement</a>	37
	<a href="#">Appendix A (Record Retention)</a>	38
	<a href="#">Appendix B (Supplemental Government Requirements)</a>	39
	<a href="#">Appendix C (EEO)</a>	45
	<a href="#">Document Revision History</a>	46

## Foreword

The Supplier Quality Assurance Requirements (SQAR) document is the external-facing element of the Whippany Actuation Systems LLC Management System, the purpose of which is to formally communicate specific Whippany Actuation Systems LLC (hereafter referred to as WAS LLC) requirements and expectations to the external supply chain.

The external provider, hereafter referred to as “Supplier,” shall demonstrate compliance with the minimum standard of Business behaviours, Health, Safety and Environmental practices, applicable laws and regulations and act in a way that is ethical and corporately responsible.

## Revision Summary/ Rationale

The SQAR is revised to incorporate the new clause structure and requirements of the following Standards:

- BS/ EN/ ISO 9001:2015 (Quality Management Systems Requirements)
- AS/ EN/ JISQ 9100:2016 (Quality Management Systems – Requirements for Aviation, Space and Defense Organizations)
- AS/ EN/ SJAC 9110:2016 (Quality Management Systems – Requirements for Aviation Maintenance Organizations).

It also directs the application of the following Standards:

AS 5553	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
AS/ EN/ JISQ 9100	QMS – Requirements for Aviation, Space and Defense Organizations
AS/ EN/ SJAC 9110	QMS – Requirements for Aviation, Space and Defense Maintenance Organizations
AS 9120	QMS - Aerospace Requirements for Stockist Distributors
ISO 9001:2015	Quality Management Systems - Requirements
J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
IPC-A-610	Acceptability of Electronic Assemblies
ANSI/ ESD S20.20	Electrostatic Discharge Control Program
ANSI/ ESD S541	Packaging Materials for ESD Sensitive Items
MIL-STD-1686	Electrostatic Discharge Control Program
NAS 412/ AS9146	Foreign Object Damage/ Foreign Object Debris (FOD) Prevention Program
JEDEC Standard No. 625A	Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices

## Intended Application

The SQAR is a set of requirements that promotes continuous improvement, defect prevention and the reduction of variation and waste in the WAS LLC external supply chain. This SQAR (as a minimum) is applicable in entirety to all external vendors and service providers to WAS LLC, and they are expected to comply with all sections as mandated within this document. Additional requirements may be mandated via Purchase Orders (POs).

Appendix A ([Page 38](#)) contains additional program-specific requirements (compliance and record retention) based on the purchase order type.

Acceptance of a purchase order by a Supplier will serve as acknowledgement of compliance to all SQAR requirements.



## Introduction

The requirements shall support compliance with **WAS LLC** obligations under Aerospace/ Defense customer contracts and/ or aviation authority approvals for design, production, maintenance, and operational support activities.

When becoming part of a supply chain supporting Aerospace/ Defense product and/ or services the supplements as contained in SQAR Ver 2 shall apply in addition to the requirements of BS/ EN/ ISO 9001:2015, AS/ EN/ JISQ 9100:2016, AS /EN/ SJAC 9110:2016.

## Definitions

**Critical Safety Item (CSI)** - sometimes referred to as a Flight Safety Part, is any part, assembly, or installation containing a critical characteristic whose failure, malfunction, or absence could cause loss of or serious damage to the aircraft, and/or serious injury or death to the occupants.

## Referenced Industry Standards

AS 5553	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
AS/ EN/ JISQ 9100	QMS – Requirements for Aviation, Space and Defense Organizations
AS/ EN/ JISQ 9110	QMS – Requirements for Aviation, Space and Defense Maintenance Organizations
AS 9120	QMS - Aerospace Requirements for Stockist Distributors
ISO 9001:2015	Quality Management Systems - Requirements
J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
IPC-A-610	Acceptability of Electronic Assemblies
ANSI/ ESD S20.20	Electrostatic Discharge Control Program
ANSI/ ESD S541	Packaging Materials for ESD Sensitive Items
MIL-STD-1686	Electrostatic Discharge Control Program
NAS 412 or AS/ EN/ SJAC 9146:2017	Foreign Object Damage/ Foreign Object Debris (FOD) Prevention Program
JEDEC Standard No. 625A	Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices

### 0.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 0.2 Quality Management Principles

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 0.3 Process approach

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 0.3.1 Requirements for Qualification and Continued Use

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 0.3.2 Plan-Do-Check-Act Cycle

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 0.3.3 Risk-based thinking

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 0.4 Relationship with other Management System Requirements

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.



## QUALITY MANAGEMENT SYSTEMS REQUIREMENTS

### 1.0 SCOPE

**WAS LLC** require Manufacture, Distribution, and Special Process type Suppliers to maintain a formal QMS compliant or registered to the latest revision of at least one of the following industry standards, based on the business or type of product/ service. Additionally, Supplemental Requirements are listed within this SQAR.

- ISO9001: For non-Aerospace manufacturers and/ or service providers
- AS9100: Aerospace Manufacturer
- AS9110: Aerospace Maintenance & Repair Organization
- AS9120: Distributors
- AS9003: Small Build/ Machine to Print Organization
- FAA Repair Station Certificate: For Outsourced Maintenance Provider (OMP)
- ISO17025: General Requirements for the Competence of Testing and Calibration Laboratories
- NADCAP: Special Processes provider

NOTE: **WAS LLC** reserves the right to require certification to any of the standards listed above as flowed down via purchase orders. The [Supplier](#) shall use Sub-tiers which also meet this requirement.

SQAR 2 is applicable to all Suppliers who supply products and/ or services related to **WAS LLC** Aerospace purchase orders/ contracts. No additional call out is required within the Purchase Orders (POs) for these requirements to apply.

SQAR 2 details specific requirements and expectations of **WAS LLC** in addition to those that are already contained in the stated international standards.

SQAR 2 is applicable at all times when operating under **WAS LLC** approval.

Suppliers shall ensure that the requirements set out within this document are cascaded to all levels of the supply chain, and validate that the contractual requirements have been met in all tiers.

### 2.0 NORMATIVE REFERENCES

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 3.0 TERMS AND DEFINITIONS

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 4.0 CONTEXT OF THE ORGANIZATION

#### 4.1 Understanding the Organization and its Context

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 4.2 Understanding the Needs and Expectations of Interested Parties

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 4.3 Determining the Scope of the Quality Management System

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) At all times comply with the **WAS LLC** Supplier Code of Conduct, as amended, or replaced from time to time by **WAS LLC**.





- b) Hold a **WAS LLC** and Third-Party approval appropriate to their type and level of supply. The Supplier shall notify **WAS LLC** should the approval be suspended or revoked or when major Non-Conformities (NCRs) are raised by a Certifying Body (CB).
- c) Establish a documented Quality Management System (QMS) that is independently assessed and certified by a Certification Body (CB). The CB must be accredited by a recognized National Accreditation Body (AB) to provide audit and certification of Quality Management Systems.
- d) Conduct an annual SQAR self-assessment and ensure full compliance to all requirements. The results shall be made available to **WAS LLC** on request.

#### 4.4 Quality Management System and its Processes

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 5.0 LEADERSHIP

#### 5.1 Leadership and Commitment

##### 5.1.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

##### 5.1.2 Customer Focus

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 5.2 Policy

##### 5.2.1 Establishing the Quality Policy

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

##### 5.2.2 Communicating the Quality Policy

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

##### 5.2.3 Establishing and Communicating the Safety Policy

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 5.3 Organizational Roles, Responsibilities and Authorities

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Resource the organization sufficiently to fully comply with these requirements and confirm and maintain compliance throughout the sub-tiers.
- b) Define the personnel accountable for design tasks (Engineering), sub-tier Suppliers control and product quality (across all production shifts) and ensure that they have the authority to stop production and design related deliverables to correct quality problems as they arise.
- c) Establish a procedure for task and shift handovers that ensures that all necessary information is communicated (verbally and in written form) between the out-going and in-coming personnel.
- d) Establish a procedure to escalate issues and associated risks, including a reporting mechanism for product or design escapes if product or design has been released to **WAS LLC** or any customer.



### 5.3.1 Accountable Manager

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 5.3.2 Quality Manager

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 5.3.3 Other Appointed Manager(s)

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 6 PLANNING

### 6.1 Actions to Address Risks and Opportunities

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Implement a risk management process, (e.g., ISO 31000), across their organization and put in place appropriate governance such that they:
  - Carry out a robust assessment of the risks, in particular those that could threaten their future performance or solvency, and detail these in a risk register.
  - At least annually, carry out a review of the effectiveness of their risk management system (including internal controls).
  - Ensure appropriate assurance is in place to ensure that risk treatments (including internal controls) are proportionate and effective.
- b) Ensure appropriate treatment activities are in place to mitigate key risks to an acceptable level, including but not limited to:
  - Product Safety
  - Shortages of key skills and people
  - Product quality issues (including counterfeit parts)
  - Financial risks
  - Compliance risks (including Health, Safety & Environment, Legal, Export Control and Anti-Bribery and Corruption)
  - Protection of Intellectual Property.
- c) Identify, assess, mitigate, and prevent risk in manufacturing process through the application of Process Flow Diagrams (PFDs), Process Failure Mode and Effects Analysis (pFMEA) and Control Plans, and select, validate, and use appropriate control methods.
- d) Plan, implement and control a process for managing operational risks including the following as a minimum:
  - Risk identification – identify sources of risk, their cause and effects and their potential business impact
  - Risk analysis – consider the likelihood and level of impact of the identified risks
  - Risk evaluation – compare the level of risk found during the analysis process and prioritize risks treatment
  - Risk treatment – prepare contingency and/ or mitigation plans to reduce risk levels
  - Monitoring and review of the risk management activities to ensure controls are effective.



- e) Establish robust crisis management and business continuity plans that ensure the organization can continue to operate in the event of a serious incident and is able to recover to an operational state within a reasonably short period. It is recommended these plans include:
- The identification, analysis, evaluation and/ or mitigation of risks related to business continuity that includes (but is not limited to) the following:
    - Product/ service, facility, or individual skill uniqueness
    - Single points of failure (including sub-tier Suppliers) or key processes
    - The loss of key data or Information Technology (IT) systems
    - Disruption due to fire, explosion, or natural disaster
    - Disruption to the supply chain
    - Product safety and product cyber risks
    - Shortages of key skills and people
    - Product quality issues (including counterfeit parts)
    - Financial risks
    - Compliance risks (including Health, Safety & Environment, Legal, Export Control and Anti-Bribery and Corruption)
    - Protection of Intellectual Property
  - Access to alternative development tools and facilities
  - Remote backup and archive of data
  - Access to alternative IT systems
  - Action plans and timescales for business recovery
  - Contacts, process owners and procedures to follow in the event of an emergency
  - A strategy to control, review periodically and communicate plans to all relevant personnel
  - Disaster recovery and contingency planning for storage of data related to the product/service.
- f) Immediately inform their **WAS LLC** Purchasing contact regarding the following:
- Major incidents affecting the Supplier
  - Risks that could impact the continuity of the Supplier's business/ operations, particularly single points of failure
  - Changes to third party or other party certification including, lapse/ withdrawal/ major audit findings
  - Change of the nominated Quality Representative
  - Significant change to the Quality Management System
  - Change in ownership or discontinuation of business activities
  - Breaches of IT Security systems (Cyber Security)
  - Risks with the supply of substances used in the production or physical make-up of products, due to laws and regulations concerning the control or use of such substances that may be published from time-to-time.
- g) Ensure that chemical substances constituting or contained in products supplied to **WAS LLC** are not restricted under any applicable Chemical Legislation.
- h) Provide sufficient information/ data as to enable **WAS LLC** to comply with its own obligations under applicable Legislation related to the use of chemicals, including that associated with hazardous materials in products.
- i) Comply with the requirements so as to ensure continuity of supply when the Supplier has an obligation under any applicable Chemical Legislation.



- j) Ensure that data related to the use of substances and mixtures that has been provided to the Supplier by **WAS LLC** is passed onto sub-tier/ subcontract suppliers (when applicable).
- k) Submit risk register and business continuity plans to **WAS LLC** on request.

NOTE: **WAS LLC** requires its suppliers to include all features and characteristics from drawings and requirements of related specifications to be included in the scope of the pFMEA unless otherwise agreed with **WAS LLC** Technical Authority.

## 6.2 Quality Objectives and Planning to Achieve Them

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 6.3 Planning of Changes

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 7.0 SUPPORT

### 7.1 Resources

#### 7.1.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 7.1.2 People

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 7.1.3 Infrastructure

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### Supplemental Requirements

Suppliers shall:

- a) Identify key process equipment and provide resources and capacity for machine/ equipment and tooling maintenance. Develop and execute an effective maintenance system<sup>1</sup>.
- b) Use a multi-disciplined team to develop robust project plans when implementing new plant, facilities, or equipment.
- c) Assess production feasibility to ensure that product can be produced in accordance with the standards, specifications and tolerances specified by **WAS LLC** or relevant industry standards.
- d) Refer to sections 6 and 8, when planning, developing, and implementing new technology with respect to opportunities for new manufacturing technologies and the design and development of products and services.

NOTE 1: A maintenance system can include: planned maintenance activities; identification and provision of critical spare parts; identification and control of all safety-critical plant and equipment; the use of equipment performance metrics and objectives; the use of predictive maintenance or other relevant techniques to improve equipment performance to meet objectives.

#### 7.1.4 Environment for the Operations of Processes

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 7.1.5 Monitoring and Measuring Resources

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### Supplemental Requirements

Suppliers shall:



- a) Ensure that automated measurement system inspection programs are independently verified, and programmers are independent to those who create production programs. Programs shall be independent; equipment does not need to be.
- b) Ensure that monitoring/ measuring equipment used for the final verification/ inspection of product is independent to those used for product measurement during production activities or will be re-calibrated/ verified prior to use where independence cannot be achieved.
- c) Ensure that the personnel nominated to perform product verification activities are trained and competent in the use of the monitoring/ measuring equipment.
- d) Ensure instructions given to operators and inspectors use the same units of measurement as used on the process and inspection equipment. If conversion of measurement units is required, it shall be done by the Suppliers Technical Authority and formally issued.
- e) Check monitoring/ measuring equipment against a calibrated reference of known size and form at planned intervals between calibration events.
- f) Perform a review of measurement capability when tolerances, personnel or environmental conditions have changed.

#### **7.1.5 a Non-Destructive Testing (NDT) Inspection Operations**

For all NDT inspection operations associated with component repair (except visual and NDT inspections during the sentencing activity following product disassembly), reject rates shall be monitored. Any change in reject rates from the established norm may indicate that an unexpected change in the repair process has occurred that could affect component integrity. An investigation shall be undertaken to establish the cause of the increase, and a review of all other parts that could have been similarly affected shall be carried out. Measures shall be taken to restore process capability.

Whilst the investigation is ongoing and until process capability has been restored, the risk of missing any defects by NDT must be mitigated. This is to be achieved by implementing the following on all parts deemed to be at risk:

- a) Applicable NDT inspectors shall be made aware of the problem, what to look out for, and where to look for the problem.
- b) The applicable NDT technique instruction shall be revised to instruct 'Directed Inspection' in the area of interest/ concern.
- c) 100% double inspection/ scrutiny shall be performed (i.e., over checking by a second inspector).

These risk mitigation actions must remain in place until process capability has been restored. The same risk mitigation actions also must be applied when the repair process is known to generate levels of unacceptable defects that are a product of process and therefore represent an increased risk.

Annual maintenance Review:

Personnel who operate NDT equipment and/or accept production hardware shall be subject to an annual assessment of NDT inspection performance. The defect finding rates for individual NDT personnel who accept production hardware shall be continuously monitored and checked as part of this annual maintenance review.

The defect finding rate is the number of instances where a defect indication is reported by an inspector per NDT method over a period of time, i.e., per week or month. The finding rate should be monitored over time.

The results of any investigation shall be reported to the **WAS LLC** Purchasing contact.

#### **7.1.5.1 General**

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.



### 7.1.5.2 Measurement Traceability

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.  
Supplemental Requirements

Suppliers (Calibration Service Providers) shall:

- a) Ensure calibration is carried out in accordance with the requirements of ISO 17025:2017 Standard, or a Standard that can be traceable/ linked to the ISO Standard.
- b) Ensure that equipment used to monitor and measure and/ or test product or process conformity is calibrated or verified (or both) at intervals necessary to assure continued accuracy and precision. Records shall be maintained and made available upon request.
- c) Provide and maintain calibration results and measurable data for each calibrated item.
- d) Be responsible for the control, care, and calibration of **WAS LLC** furnished measuring/ test equipment and tooling.
- e) Be solely responsible for the cost of calibration, shipping, and any repairs related to neglect of any **WAS LLC** equipment. (If the Supplier opts to have **WAS LLC** calibrate the equipment, they shall contact Procurement to coordinate the required calibration activities).

NOTE: Equipment includes, but is not limited to test hardware, test software, automated test equipment (ATE), and plotters. Personally owned equipment is also included.

NOTE: Requirements of this section shall be flowed down by Calibration Service Providers to every sub-contractor, if any calibration service is outsourced.

### 7.1.6 Organizational Knowledge

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 7.2 Competence

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Establish a business skills matrix to identify key areas for succession planning.
- b) Ensure that all personnel who perform work on **WAS LLC** product:
  - are appropriately trained and competent to perform all assigned tasks,
  - are aware of their contribution to product or service conformity and product safety,
  - are aware of the importance of ethical behavior.

## 7.3 Awareness

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 7.4 Communication

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 7.5 Documented information

### 7.5.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 7.5.2 Creating and Updating

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.



### 7.5.3 Control of Documented Information

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Comply with the current revision of documents/ specifications at the date of product launch and any further revisions thereafter.
- b) Comply with the export control policy as published.
- c) Flow down **WAS LLC** documents/ specifications to sub-tier Suppliers (when applicable).
- d) Ensure that the translation of **WAS LLC** documents into a Suppliers' national language (if not English) is performed by a competent translator prior to use<sup>1</sup>.
- e) Ensure that all technology is managed in accordance with applicable export control legislation including the flow down of such requirements to subcontractors and sub-tier suppliers.
- f) Control records related to **WAS LLC** product and/ or services in a manner that will allow the timely recovery of a readable version of any records (including electronic records) by ensuring that:
  - Records are retrievable on request within 24 hours,
  - Documents/ records requiring authorization by **WAS LLC** are written in English or dual language (i.e., the Suppliers national language plus an accurate English translation made from the original document/ record).
- g) Ensure that hand-written amendments to records are dated and signed in ink, with the original information being legible after the change.
- h) Ensure that characteristic and acceptance test data values are recorded in an electronic format that allows ease of data analysis (e.g., in the form of a spreadsheet).
- i) Retain documents and records in accordance with the specified periods in Table 2.
- j) Ensure on-site data access to those Aviation Authorities having jurisdiction over **WAS LLC** sites.

NOTE 1: If an audit is carried out (i.e., NADCAP, AS9100, etc.), then the Supplier should ensure that an appropriate interpreter is available to translate any other Supplier documentation, as necessary.

#### 7.5.3.1 Recording Data and Record Retention Requirements

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

- a) Quality records must be legible, readily retrievable, and stored in a suitable environment that provides minimal risk of damage, deterioration, and/ or loss. In the event of contract termination, insolvency, or request, all quality records pertaining to the contract shall be surrendered to **WAS LLC**. Unless otherwise specified in the PO or SQAR, quality records shall be retained for seven (7) years.
- b) Suppliers shall be compliant to additional record retention requirements listed in Table 2, as well as all requirements listed in this section. In the event of different
- c) The supplier shall notify and receive approval (in writing) from **WAS LLC** prior to the destruction of any records, including records which exceed retention requirement.
- d) Quality records include but are not limited to the following:
  - **WAS LLC** Purchase Orders (PO),
  - First Article Inspection Reports (FAIR),



- In-Process/ Final Inspection and Test Results,
  - Completed Manufacturing/ Fabrication Documents (e.g., travelers, routers),
  - Traceability and Serialization,
  - Calibrations,
  - Material Non-conformances including disposition, cause, and corrective action,
  - Certifications including but not limited to: Certificates of Conformance (CofC), Special Process Certifications, Certificates of Analysis (CofA), and Certificates of Lubrication.
- e) Corrections to quality records shall be recorded, dated, and signed in ink or other permanent marking method with the original data being legible and retrievable after the change.
- Cancellations shall be a single line strike-through, initialed and dated.
  - Deletion by way of white ink (Tipex, etc.) is strictly prohibited on any documentation.
  - Usage of pencils (or non-permanent methods) to record data or make corrections is also prohibited.
- f) Records may be stored electronically (e.g., computer image files) provided that the storage media is capable of maintaining data integrity for the full retention period.
- g) Records shall be made available to **WAS LLC**, its customers, or regulatory agencies, upon request.
- h) The supplier shall maintain quality records such that all parts are traceable to the raw material and the manufacturing history of the parts.
- i) Essential records, pertaining to EASA record retention, include material certs, lower tier supplier and subcontractor certificates of conformity, manufacturing and assembly documentation, X-ray films, release certificates, and any records associated with the product design data, calculations, and certs.
- j) Heat treatment samples shall be retained at the supplier's facility when product requires case hardening or nitriding.

## 8.0 OPERATION

### 8.1 Operational Planning and Control

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Plan and schedule product and/ or services in order to meet **WAS LLC** requirements.
- b) Ensure that production planning/ scheduling includes (but is not limited to) the following:
- Sales and operation planning
  - Master production schedule
  - Material requirements planning
  - Control of purchasing activities
  - Control of production activities
- c) Establish a process to plan and manage production capacity that includes (but is not limited to) the following:
- Availability of resources for labour and equipment
  - The impact of new product introduction/ product introduction on available capacity
- d) Resolve discrepancies between the available capacity and the demands of **WAS LLC**.
- e) Monitor the effectiveness of labour, equipment, and processes to ensure planning assumptions are accurate.
- f) Communicate (flow down) production schedule information to subcontractors/ sub-tier Suppliers.





### 8.1.1 Operational Risk Management

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.1.2 Configuration Management

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.1.3 Product Safety

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Plan, implement, and control the processes needed to assure product safety, as appropriate to the organization.
- b) These processes include:
  - Hazard identification, including reactive and proactive methods
  - Analysis, assessment, and control of safety risks associated with identified hazards
  - Identification and management of changes that may impact product safety
  - Assessment of the effectiveness of safety management processes
  - Provision of training on product safety responsibilities to relevant personnel
  - Communication of product safety information, including safety-critical information, safety events, and changes to safety procedures, as applicable
  - Reporting of safety events to the customer, authorities, and Type Certificate holder in accordance with Customer and Regulatory requirements.
- c) Notify the **WAS LLC** Purchasing contact within 24 hours of any potential unsafe condition.
- d) Retain documented information determined as being necessary for the effectiveness of product safety management.

### 8.1.4 Prevention of Counterfeit Parts

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Document a counterfeit parts prevention process that is compliant to SAE AS 5553 (Electronic Parts) and SAE AS 6174, and ensure it includes a mechanism for reporting counterfeit and/ or suspected counterfeit parts to the **WAS LLC** Purchasing contact as soon as possible but not later than within 24 hours of discovery.
- b) Certify that the parts are new, unused, and have not been previously programmed, altered, refurbished, repaired, or used by any customer. The original manufacturers' (OEM) Certificate of Conformance (CofC) and any intermediary CofC's must be shipped along with the Broker's CofC for each lot and date code shipped to **WAS LLC**.
- c) Maintain records in accordance with the requirements of the SQAR and Table 1.

NOTE: Parts found to be counterfeit or otherwise illegal will not be returned to the broker but will be offered to local law enforcement or appropriate bodies for report and destruction.



### 8.1.5 Prevention of Suspected Unapproved Parts

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.1.6 Installation of Approved Parts

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers (franchised/ authorized distributor or broker) shall:

- a) Provide items only from the approved source(s) of supply listed on the Source Control drawing or other document. The approved source Contract and Government Entity (CaGE) code and the manufacturer part identification information must be listed correctly on the drawing or document. If the approved source of supply or part identification information is not listed, the Distributor shall contact Procurement or the Quality Representative to request a change to the **WAS LLC** drawing or document.

## 8.2 Requirements for Products and Services

### 8.2.1 Customer Communication

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.2.2 Determining the Requirements for Products and Services

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.2.3 Review of the Requirements for Products and Services

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Review the requirements related to the design of the product, the product itself and the purchase order/ contract, prior to committing to supply the product/ design or acceptance of orders/ contracts.

### 8.2.4 Changes to Requirements for Products and Services

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.2.5 Customer Orders

#### 8.2.5.1 Government Purchase Orders

- a) The POs will call out a government sales order number, priority rating, and contract number, which must be flowed down to all subcontractors. For multiple orders or multi-year purchases, the PO will call out the DPAS Rating. (See Appendix for current programs to which government requirements apply and their respective PO number prefixes).
- b) POs prefixed with "GS" are for direct government spares. For these orders, all Suppliers shall include all certifications with the product.

#### 8.2.5.2 European Aviation Safety Agency (EASA) Orders

- a) EASA requirements apply to all purchase orders as indicated in Table 2 of this document.
- b) See the SQAR sections for Non-Conforming Material (8.7), Corrective Action (10.2), and Control of Documented Information (7.5.3) for other EASA requirements that apply to these orders.

#### 8.2.5.3 Northrop Grumman (NG) Build-to-Print Programs

- a) When the NG drawing cites a process specification that also appears on the NG ASPL, the Supplier shall ensure its processing source is listed on the NG ASPL for that process specification.



The NG ASPL can be accessed at: <http://www.northropgrumman.com/Suppliers/Pages/Tools.aspx>.

The process spec revision in effect at the time of PO release shall apply. This requirement applies to POs prefixed "FS" and "GH."

### 8.3 Design and Development of Products and Services

#### 8.3.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.3.2 Design and Development Planning

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.3.3 Design and Development Inputs

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.3.4 Design and Development Controls

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.3.5 Design and Development Outputs

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.3.6 Design and Development Changes

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

##### Supplemental Requirements

Suppliers shall:

- a) Ensure that configuration management related to Design Changes and Definition Alteration Requests are controlled.
- b) Ensure that revised component definition (e.g., amended drawing) has been issued/ released prior to the implementation of any agreed change and before the shipment of product to **WAS LLC**.
- c) Not make any changes to Supplier control design, parts, material, fabrication methods, or processes for items specified under the purchase order without sending written notification to **WAS LLC** prior to implementation. All proposed changes that could potentially affect form, fit, function, interchangeability, or reliability of hardware (Class 1) require written approval by **WAS LLC**. All proposed changes that do not affect form, fit, function, interchangeability, or reliability of hardware (Class 2) require written notification to **WAS LLC** for concurrence that there is no effect on end-item specifications.

#### 8.3.7 Digital Product Definition (DPD) and Model Based Definition (MBD)

- a) There are three (3) formats that are considered Digital Product Definition (DPD)
  - A 3D CAD model and fully dimensioned 2D drawing sheets,
  - A 3D CAD model and simplified or reduced content drawing sheets, usually described as Reduced Dimension Drawing (RDD) or Simplified Drawing (SD),
  - A 3D CAD model and engineering requirements displayed as text within the 3D viewing area of the model, as well as the remaining engineering requirements in 2D form (notes, list, parts list, etc.), and usually described as Model Based Definition (MBD).

Notes: Examples of DPD data include IGES/ STEP files, electronic 2D drawings and parts lists, and CAD files.



## 8.4 Control of Externally Provided Processes, Products and Services

### 8.4.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016. Supplemental Requirements

Suppliers shall:

- a) Select, manage, and monitor key subcontractor/ sub-tier Suppliers through the following controls:
  - Assess Suppliers capability prior to placing orders
  - Undertake oversight prioritized based upon risk
  - Evaluate root cause activities where non-conformances occur
  - Measure performance:
    - Delivered product quality
    - Customer disruptions/ customer returns
    - Delivery schedule performance
  - Conduct load and capacity reviews with key subcontractor/ sub-tier Suppliers annually or following significant load increase
  - Take appropriate containment and corrective action with poorly performing subcontractor/ sub-tier Suppliers
  - Enlist adequate and skilled resources to undertake the Suppliers management activities including the management of special processes.
- b) Only purchase products and services from sources holding appropriate approval.
- c) Ensure that purchasing information/ documentation and requirements for subcontractors/ sub-tier Suppliers is flowed down the supply chain (applicable SQAR requirements).
- d) Specify the supporting documents with the purchased product or service confirming compliance to specifications.
- e) Work within the scope of their QMS approval and the scope of the approval as communicated by **WAS LLC**.
- f) Hold a **WAS LLC** and/ or Third-Party approval appropriate to their type and level of supply as stipulated.
- g) Demonstrate through documented evidence that subcontractors/ sub-tier Suppliers (including any Direct Buy Vendor) engaged in the manufacture of product are being managed to **WAS LLC** requirements.
- h) Only use Sub-tier Suppliers who are listed on their Approved Supplier List when outsourcing work and is responsible to flow-down **WAS LLC** requirements that affect the processing performed by a Sub-tier Supplier and communicate any subsequent changes, as necessary. This includes ensuring that Sub-tier Suppliers have the latest revision of the necessary drawings and specifications, including the **WAS LLC** SQAR.

NOTE: If there is a Boeing Specification noted on **WAS LLC** blueprint (i.e., BAC5424, BAC5423) Supplier shall refer to the Boeing website (Quality Tab - D1-4426) to check that the outside processor is also Boeing approved for the process.

### 8.4.2 Type and Extent of Control

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.4.2.1 Work Transfers

Suppliers shall:

- a) Complete and submit the form(s) associated with this activity to their **WAS LLC** purchasing contact.
- b) Ensure that no change takes place until the Supplier has submitted and received approval to proceed from **WAS LLC**.
- c) Ensure that work transfer documentation/ information is communicated along the purchase order cascade.



- d) Demonstrate that any export control risks associated with the work transfer have been properly assessed and any changes to, or requirements for, new export authorizations have been planned.

#### 8.4.2.2 Verification of Externally Provided Processes and Services

Suppliers shall:

- a) Ensure 100% verification of products from subcontractors/ sub-tier Suppliers.

NOTE: Any Supplier that subcontracts any portion of manufacturing or special processing shall flow down all the requirements stated on the WAS LLC purchase order including but not limited to drawings, S-Specs, MEPs, and the WAS LLC SQAR. The Supplier shall also review the purchase order for accuracy prior to the release to a Sub-tier Supplier.

#### 8.4.2.3 Material Substitutions

WAS LLC Specification S106 (Preferred Material Standard), allows material substitutions without a waiver and is referenced in S134 (Standard Machining Practice). These substitutions are allowed only when the drawing references S134.

#### 8.4.3 Information for External Providers

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

The Supplier shall:

- a) Grant with suitable notice, right of access to WAS LLC, their customers, and associated regulatory authorities to the applicable areas of all facilities and levels of the supply chain involved in this order. This access shall provide, at no increase in price, cost, or fee to WAS LLC, their customers, or regulatory agencies, suitable facilities at Supplier's and Sub-tier Supplier's manufacturing location to perform inspections, surveys, or surveillance and access to all applicable records.
- b) Only use NADCAP-accredited Special Processors while ensuring that the Special Processor maintains a current NADCAP accreditation for the special processes performed on WAS LLC product and is listed on the Supplier's Approved Special Processor List (ASPL).
- c) If required to use a non-NADCAP accredited Special Processor, request a waiver from WAS LLC. This request shall be in writing and be accompanied by objective evidence of oversight and audit of the non-NADCAP accredited Special Processor to ensure that special processes performed are equivalent to industry standards.
- d) Ensure that for subcontracted processes WAS LLC Customers' Approved Special Processor List shall be used when flowed down on the purchase order.
- e) Exceptions

The following types of products do not require use of Nadcap certified Special Processors or Special Processors listed on WAS LCC Customers' Approved Special Processor Lists:

- Standard catalogue or Commercial-Off-the Shelf (COTS) items,
  - Items purchased to AN, MS, or NAS specifications,
  - Nameplates,
  - Bearings,
  - Proprietary items built to WAS LLC Source Control drawing except where the Source Control drawing calls out a special process.
- f) **Black Oxide:** Parts requiring black oxide that are hardened shall be subjected to hydrogen embrittlement relief.
- Black oxide shall be performed per drawing requirement for all Government Spares' (GS) orders.
  - TD79 shall be followed for non-government orders where black oxide is specified on the drawing.



Additionally,

- g) Supplier inspection plans shall document sample size, methods of inspection, and inspected attribute descriptions. Sampling plans shall be in accordance with ANSI/ ASQC- Z1.4 (corresponds to MIL-STD-105) but Supplier shall functionally test, and final inspect 100% of serialized assemblies.
- h) Performance Sensitive Parameter: The Supplier shall perform 100% inspection and record actual values for characteristics noted on the engineering drawing as Performance Sensitive Parameters.
- i) Key Characteristics (KC): The identification of and requirements for a KC will be specified within the PO.
- j) Engineering drawings and associated technical data will clearly identify any Critical Safety Item (CSI) item(s), as well as identify the critical characteristics, critical processes, inspections, and other Quality Assurance requirements.
- k) Suppliers and their Sub-tier(s) that perform work on Critical Safety Item (CSI) items shall comply with the current revision of QE-STD-1 pertaining to manufacturing planning, audits, critical characteristics, records, certification of personnel, tolerance of measuring and test equipment, and serialization. **WAS LLC** and/ or the U.S. Army Aviation & Missile Command (AMCOM) reserve the right to perform on-site audits of the Supplier and applicable Sub-tier(s) prior to issuance of a PO, and periodically thereafter, to verify their compliance with the drawings, manufacturing planning, and QE-STD-1.

## 8.5 Production and Service Provision

### 8.5.1 Control of Production and Service Provision

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Create a test/ inspection plan including:
  - Where in the sequence the testing/ inspection operations are performed
  - A reference to each product characteristic to be tested/ inspected at each operation
  - The type of equipment required, and any specific instructions associated with their use
  - Criteria for acceptance and/ or rejection
  - A reference to product test/ inspection activities to be witnessed by the customer
  - Control plans for characteristics that are not tested/ inspected when the product is in the final condition (inaccessible characteristics, characteristics tested/ inspected before the product is in its final condition, characteristics that cannot be measured directly, characteristics subject to sample or reduced inspection).
- b) Ensure 100% verification of all product characteristics in their final condition. This is not required for purchased standard catalogue hardware.
- c) Ensure product test/ inspection activities are conducted in an acceptable environment. Lighting conditions at the surface will align to specific standards. Supplemental lighting can be used.
- d) Produce records of test and inspection, these shall include as a minimum:
  - Item inspected
  - Activity performed
  - Procedure/ Instruction for the inspection activity
  - Date of inspection or surveillance activity
  - Personnel who performed the inspection or surveillance
  - Results of the inspection/ surveillance



- e) Where actual measurement values are routinely recorded during inspection, these shall not be deliberately destroyed, deleted, or exposed to hazards detrimental to record retention (e.g., fire or water hazard). This includes features inspected:
- Using equipment where a report containing actual measurement values is automatically created (e.g., Coordinate Measurement Machines, computer connected digital equipment etc.)
  - Where measurement values are already routinely recorded for other reasons (e.g., Statistical Process Control (SPC), Key Characteristics, etc.)
- f) Perform a Marking Solvency Test using acetone. The test shall be performed on one component from each date or lot code using IDEA-STD-1010-A or similar method as a guide. Any component where the OEM's marking can be removed using this method is grounds for rejection of the entire lot.
- g) Review all PO requirements, including the Quality Assurance Clauses in the Addendum, and resolve any issues prior to accepting the order. As part of the review, the Supplier shall assess its capability, capacity, and resources to meet all **WAS LLC** requirements. If any of the technical or contractual requirements cannot be satisfied, the PO shall be rejected with the reasons for rejection and communicated to the buyer.
- h) The Supplier will manufacture parts to the drawing revision stated on the purchase order. The Supplier shall follow Changes in Design (CiD), or Engineering Change Notice (ECN) as flowed down on the purchase order<sup>1</sup>.
- i) Note that **WAS LLC** Engineering Specifications (S-Spec) and Manufacturing Engineering Procedures (MEPs) are requirements when referenced on drawings or in the SQAR.
- j) Verify through their buyer that they have the latest version of revisions of S-Specs, MEPs and **WAS LLC** drawings called out in the PO package. Copies of drawings including 'Build-to-Print' (BTP) constituent subassemblies and detail parts, S-Specs and MEPs will be provided by **WAS LLC** Procurement.

NOTE 1: The PO item revision may include a dash number (e.g., 1-2, 2-2, A-3, B-4). Except for castings, the first alphanumeric character is the part revision, and the dash number is **WAS LLC** internal router revision; the latter shall be excluded from the shipping document. For a casting, the dash number is a component of the part revision and should be included on the shipping document. As a general guideline, the part revision is the same as the drawing revision shown in the upper right corner of most drawings. On tabulated drawings, a part revision is usually shown for each part number.

NOTE: **WAS LLC** has a quality commitment to defect free manufacture. Capability of  $Cpk \geq 2.0$  is desirable for all features (not only Key Characteristics) in order to establish performance levels in line with this commitment.

### 8.5.1 a Additional Requirements

- a) Requirements for Ball Bearings and Roller Bearings
- The Supplier may provide a bearing with a higher ABEC rating when an ABEC rating is specified on a drawing. When a drawing specifies both tolerance limits and an ABEC rating, the tolerance limits shall take precedence over the ABEC rating, which becomes a reference callout only.
  - All components, parts, etc., shall be new, unused material.
  - Bearings shall have at least 50% of shelf life left from date of shipment. Each container must specify lubrication date.
  - When re-lubrication is required, Suppliers shall include a lube certification with shipments. Lube certs can be a separate document or part of the CofC, but shall include the following information: (1) date the lubricant was introduced to the bearing, (2) lubricant type, and (3) percentage of fill.
  - Bearing Suppliers shall identify country of origin on the certificate. Bearings shall not be identified as US-made unless they are entirely manufactured in the US, including the fabrication of its components.
  - Distributors and Brokers shall provide a Certificate of Conformance (CofC) with each shipment as a precondition of invoice payment. The distributor CofC shall meet the requirements of section 4.2 and shall be signed by the Quality Manager/ Director.



- Product controlled by serial number or lot code shall be identified as such on the physical product and the documentation.
- l) Requirements for Castings and Components made from Castings
- The purchase order shall indicate customer supplied material if **WAS LLC** provides the casting material to manufacture the product.
  - When a composite drawing (casting & machining) is provided, the casting (C) drawing shall have the same revision as the composite drawing and shall be provided to the Supplier.
  - Casting Layout: The Supplier shall supply with the shipment, either a CMM report acknowledging all blueprint characteristics or a 'blued and scribed' representative piece when any of the following events occur:
    - A drawing revision affects the casting or machining dimensions,
    - The casting is produced by a Supplier for the first time,
    - The pattern is repaired or replaced.
  - Weld repair of castings is not permitted for any reason unless allowed in the specification for a particular **WAS LLC** part number.
- m) Limited Shelf-life Materials
- Items with limited shelf life shall be marked on the item, package, or container with the manufactured date, storage temperature, special handling requirements, and expiration date of the items. When items are fabricated of rubber, the cure date of the rubber is to be shown in lieu of the date of manufacture. All identification markings shall be applied in accordance with applicable specifications.
  - Materials with shelf-life requirements must have at least 75% of shelf life remaining from date of shipment, or as otherwise specified on the purchase order. Purchase orders for Aviall denoted by the prefix "AV" must have at least 85% of shelf life remaining from date of shipment per customer requirements.
  - Distributors may allow re-certification of shelf-life expiration date by: (1) OEM approved re-lubrication service provider, or (2) obtaining new certification from OEM.
  - Gaskets, seals, and O-rings shall have at least 50% shelf life left from the date of shipment. Each item shall be individually packaged to prevent damage, contamination, and tangling, and the packaging shall show the manufacturer's part number and either the expiration or cure date. The Supplier shall also abide by any packaging or marking requirements called out on the drawing.
- n) Wire
- Each spool of wire must be marked as follows:
- Lead Wire: Mil-Spec number, **WAS LLC** part number, and description
  - Magnet Wire: Mil-Spec number, description, and net weight
- o) Printed Circuit Boards (PCB)
- PCBs shall be fabricated in accordance with IPC-6011, 6012, and/ or 6013 and the drawing. The manufactured board, testing, and test samples shall meet the requirements of IPC-A-600, Class 2 or 3, as appropriate.
- p) Requirements of Solder
- Soldering and solder processes shall be in accordance with J-STD-001 Class 3 unless otherwise specified on the drawing or purchase order. Workmanship for soldered electrical/ electronic assemblies shall be in accordance with the latest revision of IPC-A-610 Class 3, Acceptability of Electronic Assemblies.





- Components not available with Lead (Pb) in the finish shall not be utilized or delivered unless processed in accordance with **WAS LLC** written instructions.
- Lead-free solders are not authorized unless otherwise specified on the PO.
- Solder shall be Sn<sub>63</sub>Pb<sub>37</sub> or Sn<sub>60</sub>Pb<sub>40</sub> in accordance with J-STD-006. Flux, Solder Paste, and Solder with or without Flux Cores shall conform to activity levels L0 and L1 for Rosin (RO) and Resin (RE) in accordance with J-STD-004, J-STD-005, and J-STD-006, as applicable.
- Workmanship for cables and wire harnesses shall be in accordance with the latest revision of IPC/WHMA-A-620, Class 3, Requirements for Cable, and Wire Harness Assemblies.
- PCB Repairs to internal or external circuitry is not authorized without written approval of **WAS LLC** and/ or the customer, as required.
- Pure Tin (Sn) shall not be used as a base metal or as a plating material on solderable component leads unless written approval is received from **WAS LLC** and/ or customer, as applicable, for all electrical or electronic components.
- Solderability shall meet the requirements of J-STD-002 or component solderability requirements of the specification for which they are procured, for all electrical or electronic components.

#### 8.5.1.1 Control of Equipment, Tools, and Software Programs

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Establish a system for the management of pre-production and production tooling, jigs, fixtures and controlling programs and software that includes (but is not limited to) the following:
  - Unique tool identification
  - Validation of tool prior to release for production
  - Protection from damage and deterioration during storage
  - Maintained as fit for purpose
  - Storage and recovery
  - Tool set-up
  - Tool life control/ tool-change programs
  - Tool design modification documentation, including engineering change level
  - Tool modification and revision.
- b) Ensure that tooling, jigs, and fixtures owned by **WAS LLC** and/ or **WAS LLC** customers (including shared ownership) are controlled as shown above, plus the following:
  - Identified as **WAS LLC** owned
  - Tooling register established
  - Used only for **WAS LLC** applications
  - Audited annually (stock take) and periodic preservation/ condition checks for tooling held in storage
  - Modifications only after written authorization by **WAS LLC**
  - Disposal only after written authorization by **WAS LLC**
  - Provision of tool information (including photographic information) to **WAS LLC** on request.



### 8.5.1.2 Validation of Control and Special Processes

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.5.1.3 Production Process Verification

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Implement the requirements of AS/EN/SJAC 9102.
  - **WAS LLC** requires First Article Inspection (FAIR) to be applied to unique single run production orders not intended for ongoing production e.g., out-of-production spares
- b) Perform FAIR on a single part, measuring all characteristics in the final product.
  - When characteristics measured during the manufacturing process (not accessible in the final product) have potential to be affected by subsequent operations (e.g., welding or heat treatment), the supplier must obtain agreement from the **WAS LLC** on whether additional verification is required
  - When it is not physically possible to perform FAIR on a single part, measurement results from more than one part may be used, providing all parts are manufactured to the same engineering definition, bill of material, supply chain and production method. The FAIR shall identify all parts used.
- c) Use capable measurement equipment.
- d) Use measurement equipment, inspection personnel and Coordinate Measuring Machine (CMM) program and programmer that are independent to those used for measurement in the production process.
  - ‘Designed Tooling’ used to verify characteristics in the production process shall only be used for FAIR when there is no viable alternative, and it is re-calibrated and certified prior to its use for FAIR
- e) Perform a Last Article Inspection Report (LAIR) when the source of manufacture of a product is planned to change, or at the request of **WAS LLC**.

Additionally,

- f) First Article Inspection must be performed in accordance with the latest revision of AS9102. All suppliers shall ship the FAI piece and legible FAI documentation as specified on the PO or when required by **WAS LLC**. It is the responsibility of Suppliers to correctly determine when First Article Inspection is required.
- g) FAI documentation shall be considered a quality record. Suppliers shall retain the appropriate FAI documentation per section 4.3.
- h) **WAS LLC** reserves the right to return product to a supplier in the event the FAI is not received in accordance with section 3.6.1 above. **WAS LLC** also reserves the right to return product if: (a) the FAI is rejected or, (b) the supplier fails to correct the documentation within two business days of notification.
- i) A lapse in production for two (2) years or more shall require an update for characteristics that may be impacted by this inactivity. This lapse is from the completion of the last production operation to the actual restart of production. In the event that the product is from a previous production run, the vendor shall review the previous FAI and provide a new FAI Form 1 that lists the current review date.
- j) The supplier shall perform a full FAI report for Lockheed Martin program (PO prefix “HM”) products in which a one (1) year lapse in production has occurred.
- k) FAI is required for assemblies, sub-assemblies, and detail parts including castings, forgings, and modifications to standard catalogue or ‘Commercial-Off-the Shelf’ (COTS) items.



- l) FAI is not required for deliverable software or ‘Commercial-Off-the-Shelf’ (COTS) products (e.g., standard fasteners, shims, bearings, electronic piece parts, paints, adhesives).
- m) A copy of test coupons/ micro-sections, solderability samples, micro-section lab reports, electrical test and inspection reports, and objective evidence of all activities conducted during product realization shall accompany the FAI report.
- n) **WAS LLC** will not accept FAIs with design characteristic non-conformances.
- o) Open data fields in the top header of the FAI Forms 1, 2 and 3 are not permitted. The supplier shall mark these unused fields as “N/A.”
- p) FAI Form 1
  1. The following optional and conditionally required fields on the AS9102 Form 1 are mandatory for **WAS LLC**: 3, 5, 6, 7, 11, 12, 15, 16, 17 (as applicable), 21, and 22.
  2. Part Name (2, 16): must be listed as it appears on the drawing.
- q) FAI Form 2
  1. The following optional and conditionally required fields on the AS9102 Form 2 are mandatory for **WAS LLC**: 3 (as applicable), 5, 6, 8, 9, 10, 11, and 12.
  2. Part Name (2): must be listed as it appears on the drawing.
- r) FAI Form 3
  1. The following optional and conditionally required fields on the AS9102 Form 3 are considered mandatory for **WAS LLC**: 3 (as applicable), 6, 7, 11, 14a, and 14b.
  2. For **WAS LLC**, 100% of all product characteristics, including reference characteristics, must be included, and annotated accordingly.
  3. Part Name (2): must be listed as it appears on the drawing.
  4. Characteristic Designator (7): must be listed as either ‘minor’, ‘major’, or ‘critical’.
  5. Requirements (8): notes and requirements must be recorded verbatim as they appear on the drawing.
  6. Results (9): ‘accepts’ or ‘conforms’ are acceptable statements of conformance.
  7. Additional Data/ Comments (14a): list tool name and tool ID, test equipment and test equipment ID, or applicable specification number.
  8. Additional Data/ Comments (14): ‘informational’ must be listed when informational characteristics are referenced.
- s) Electronic versions of AS9102 Forms 1, 2, and 3 can be found on the **WAS LLC** website at <https://www.whipactsys.com/vendor-supplier-information/>.
- t) When a Whippany drawing has certain requirements defined in a model file, instead of upon the face of the drawing, the resulting FAI must also address the compliance to the model file dimensions, as required by AS9102.
- u) Evaluation of a Supplier Reduced Dimension or Model Based Definition First Article Inspection:
  1. For all dimensions, whether checked with a CMM or manually inspected, the Supplier shall provide an AS9102 submittal with all dimensions that are specifically called out on the 2D drawing or in the model listed in Form 3 (e.g., GD&T, hard call out dimensions, drive to points, etc.).
  2. For all other measurements, whether checked with a CMM or manually inspected, taken from the model but not specifically called out as in 3.7.3.1 above include a bubbled drawing of dimensions taken from the model or bubbled screen shot showing where the points were taken. There must be correlation between the bubbled features and the FAI report.
  3. The FAI report shall identify all radii, diameters, and dimensions to all part surfaces.
  4. The FAI report shall identify the tolerance for each feature point and the amount of deviation from the nominal. The report must clearly indicate any out of tolerance conditions.



5. CMM reports shall be traceable to the specific part and retained by the Supplier. CMM reports shall be given a naming convention that can be identified on the AS9102 form 3. Copies of CMM reports shall accompany the FAI.
- v) Documents must reference the model file name/ drawing and revision level.

### Vision Standards

Suppliers shall:

- a) Ensure Non-Destructive Testing (NDT) personnel are examined in accordance with the applicable NDT personnel qualification and certification standard, e.g., EN 4179, NAS 410, SNT-TC-1A, ISO 9712. Weld inspectors and personnel performing visual inspection to detect material discontinuities are included in this category.
- b) Ensure non-NDT personnel engaged in product verification and inspection activities are examined at intervals not exceeding one (1) year. Eyesight acuity shall be a minimum of Curpax N5, Jaeger #2 for near vision, Snellen 14/ 18 (20/ 30) or equivalent for far vision, in at least one eye and when using both eyes together. Colour vision perception shall be examined at five (5) yearly intervals.
- c) Ensure welding personnel are examined at two (2) yearly intervals. Eyesight acuity shall be a minimum of Curpax N5, Jaeger #2, or equivalent for near vision, Snellen 20/ 30 or equivalent for far vision.
- d) Ensure Vision tests are performed by licensed optometrist/ ophthalmologist or suitably trained and qualified personnel. For NDT personnel, this duty shall be performed by individuals designated by the Responsible Level 3 or a qualified medical practitioner.
- e) Ensure Vision correcting eyewear, e.g., glasses, contact lenses, etc. used to pass the vision examination are worn when performing product verification/ inspection activities. Any changes to vision correcting eyewear will require a re-examination before being used. The use of darkened lenses or those that darken on exposure to light are prohibited.
- f) Ensure that where personnel fail, a colour perception examination, their capability to distinguish and differentiate colours used in performance of applicable product verification/ inspection activities is determined and documented.

For the appointment of competent persons, including any required qualification, Suppliers shall:

- g) Ensure employees directly inspecting product are formally authorized.
- h) Ensure product is released by authorized personnel.

#### 8.5.1.4 Evaluation of a New Capability

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.5.1.5 Franchised/ Authorized Distributor and Broker Material Control

Supplemental Requirements

- a) Brokers shall meet the same requirements as Franchised/ Authorized Distributors for traceability as listed in the 'Control of Records' section including paragraphs within that section labeled 'NOTE' and Table 1.
- b) Orders placed through brokers may be subject to additional functional and/or physical validation when the order is received. WAS LLC reserves the right to reject the lot(s) for any indication of a functional and/or physical deviation from the manufacturer's specification.
- c) Acceptance of this order by the broker constitutes an agreement that the broker will reimburse WAS LLC for the total price of the purchase agreement if the parts are found, through inspection and test methods used by WAS LLC and/ or WAS LLC authorized test facilities, to be non-conforming.
- d) Additional requirements may be imposed upon non-franchised distributors (brokers) via the purchase order.



### 8.5.2 Identification and Traceability

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Control the unique and serialized identification of the product when required to do so as specified by **WAS LLC**.
- b) Accept the release documentation where product is provided by **WAS LLC**. This documentation is sufficient evidence of product traceability up to the point of the release documentation being created. In such cases, it is not necessary to verify test reports and original raw material manufacturer source certificates.

NOTE: If traceability cannot be met, **WAS LLC** must be notified. In such a case, **WAS LLC** reserves the right to cancel the order, request or perform additional testing, or develop a plan for acceptance as a condition of sale without additional cost or penalty to **WAS LLC**.

### 8.5.3 Property Belonging to Customers or Suppliers

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.5.4 Preservation

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Provide secure storage facilities for product, equipment, tools, and material.
- b) Ensure the conditions of storage prevent deterioration and damage of stored items. Material from different manufacturing sources shall be stored in a manner that the material cannot become intermixed and that the manufacturing source identity and material identity is maintained.
- c) Assess the condition of product in stock at appropriate planned intervals in order to detect deterioration.
- d) Establish an inventory management procedure that includes (but is not limited to) the following:
  - Rule for determining safety stock levels
  - Method to guarantee inventory accuracy
  - Key performance indicators to monitor inventory
  - Method to monitor, review and action slow-moving work in progress
  - Control of shelf-life product.
  - First-in First-out (FIFO)
- e) Ensure that access to storage facilities is restricted to authorized personnel.
- f) Use appropriate transport to ensure that the product is delivered in a timely manner and ensures that the product will be received in a condition that is fit for purpose.
- g) Ensure that products are packaged to a standard that provides adequate protection against damage, deterioration and tampering during shipment, storage, and distribution.
- h) Compile a "Packaging and Labelling Data Sheet" to define the packaging and labelling applied to the product and submit to **WAS LLC** (on request).
- i) Develop and establish a Foreign Object Debris/ Damage (FOD) prevention program in accordance with NAS412 and/ or AS/ EN/ SJAC 9146:2017.



- j) Implement an ESD control program (if handling devices sensitive to damage caused by electrostatic discharge). The control program shall follow the requirements established by ANSI/ ESD S20.20 and JEDEC-Standard No. 625A or MIL-STD-1686. The control program is subject to review and approval by **WAS LLC**. The control program must contain the following at a minimum:
- Training (initial and recurring/ refresher)
  - Signage
  - ESD dissipation (ground straps, workstations)
  - Proper static shielding packaging during movement/ transportation/ storage
  - Packaging/ shipping materials and methods for electronic discharge sensitive devices shall meet ANSI/ ESD S541 or equivalent requirements.

Additionally,

- k) Applicable part marking requirements are based on criteria in MIL-STD-130.
- l) All material shall be identified either by bag and tag (smaller parts) or by individual permanent ink stamping (larger parts).
- m) The marking shall include part number, part revision and Supplier identification.
- n) Suppliers shall also assign a Lot Number to each shipment and include it on the Certificate of Conformance (CofC) and the part marking. The lot number shall provide traceability to the Supplier's and/or its subcontractor's quality records for the shipped parts.
- o) Electronic and Printed Circuit Board (PCB) Assemblies: Unless otherwise specified on the drawing, PCBs shall be serialized per MEP 154 (Assignment of Serial Numbers to Printed Wiring Board Assemblies and Electronic Module Assemblies).

#### 8.5.5 Post-Delivery Activities

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### 8.5.6 Control of Changes

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.  
Supplemental Requirements

Suppliers are required to notify **WAS LLC** in writing when there are significant facility or organizational changes to key personnel, company name/ location, or certification/ registration/ accreditation status.

#### 8.6 Release of Products and Services

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.  
Supplemental Requirements

Suppliers shall:

- a) Provide separate release documentation (e.g., Certificate of Conformance (CofC), FAA 8130-3, EASA Form 1, CAA Form 1) with each delivery to **WAS LLC**.
- b) Not ship product until it has a signed copy of the **WAS LLC** purchase order.



- i. Packages, cartons, boxes, containers, and packaging material shall be suitable to adequately protect the parts/ material contained within. Received packages must be free from FOD, damage, corrosion, and other forms of deterioration.
  - ii. Refer to Section 8.5.4 for guidance on ESD packaging.
- c) Ensure that the release documentation:
- Is written in English or in a language specified by the customer
  - Refers to a single purchase order/ schedule
  - Refers to a single part number
  - Is legible and protected from damage/ deterioration
  - Is attached to the outside of the secondary packaging
  - A copy of the Certificate of Conformity (CofC) is placed on the outside of the secondary packaging and a copy inside the secondary packaging
  - Contains the following information as a minimum:
    - Unique traceable document reference number
    - Suppliers' name, address, and telephone number
    - Customer name and address
    - Delivery address
    - WAS LLC purchase order number (including purchase order item number)
    - Description of the product (as referenced on the WAS LLC purchase order or drawing)
    - Applicable Specifications, including revision
    - Part number (as referenced on the WAS LLC purchase order)
    - Kit number (when applicable) – plus a list of part numbers, quantities, serial numbers
    - Traceable reference (serial, batch, lot, heat, cast numbers - as applicable)
    - Quantity of parts in shipment
    - Date of CofC and dispatch
    - Conformance/ compliance statement<sup>1</sup>
    - Export Classification of the product under the External providers' national jurisdiction
    - Details of any export authorization applicable to the product including any conditions or restrictions relating to the use, re-export or re-transfer of the product and its associated technology
    - The Country of Origin of the product as defined under the External providers' national jurisdiction (including original manufacturer and site of manufacture)
    - ILS suppliers shall provide the following additional information on their CofC: (1) a statement that new, unused product is being supplied, and (2) identify the manufacturer of the product
    - The name and signature/ stamp of person authorized to release the product to the customer<sup>2</sup>.
- c) Provide additional information (when applicable):
- FAIR
  - Modification, repair scheme, or service bulletins
  - Classification of product
  - Approval plan number
  - Quality plan number
  - Concession/ Deviation Permit category and number (referenced Concession/ Deviation Permit to be provided inside the packaging, and a copy attached to the outside as well)



- Hazardous substances/ safety data sheet (safety data sheet to be provided)
  - Shelf life (cure date, batch, group) – no mixed cure dates/ batches
  - Virus-free declaration (for computer software)
  - Cross reference to the original raw material manufacturer's name (Stockist/ distributors)
  - Cross reference to customer name and purchase order (material processors).
- d) Provide a certificate of analysis or raw material manufacturer's certificate with the shipment of raw material that contains the following:
- Traceable reference to batch, lot, heat, cast numbers
  - Chemical analysis including constituent elements and percentages
  - Physical analysis (i.e., stress strain data, and temper).
- e) Provide an authorized release certificate if applicable and requested.
- f) Only release product into **WAS LLC** against an approved FAIR (when applicable).
- g) Retain documented information<sup>3</sup> of release documentation as mandated.
- h) In the event of conflict between technical/ contractual documentation, the order of precedence shall be:
- 1st Purchase Order or Contractual Agreement
  - 2nd Customer's drawing
  - 3rd Specifications referenced on the drawing
  - 4th SQAR
  - 5th All other documents/ specifications referenced in this document.

NOTE 1: Typical compliance statement: "Certified that the whole of supplies hereon have been inspected/ tested and unless otherwise stated, conform in all respects to specification, drawing and purchase order requirements".

NOTE 2: Electronically signed release documentation is acceptable, subject to prior approval from **WAS LLC**.

NOTE 3: Retained documented information of release documentation held electronically shall contain all of the information shown on the original document and a traceable reference to the person authorized to release the product to customer.

- i) Additionally,
- 1) The supplier shall submit the following with each shipment: (1) Certificate of Conformance (CofC) stating that the items furnished to **WAS LLC** are in conformance to the purchase order and design data requirements applicable to the items being delivered, and (2) copy of the manufacturer's CofC.
  - 2) Any aerospace, military and/ or industry standard, when imposed by the drawing, specification, or purchase order, shall be specifically stated on the certification.
  - 3) Process certifications are required for all suppliers performing special processing and shall state that the process has been performed to the drawing requirements.
  - 4) The supplier shall notify **WAS LLC** prior to shipment if a specification has been replaced, suspended, or updated. The supplier shall list the specification as shown on the drawing and the replacement specs with their current revision.
  - 5) For distributors and warehouses, these requirements apply without exception and include traceability and flow down of requirements on all purchased products to the sources of manufacture and their related acceptance documents. In addition, material from different manufacturing sources shall be stored in a manner such that the material does not become intermixed, and the manufacturing source and material identity is maintained at all times.

NOTE: Distributors (franchised and non-franchised) and Warehouses shall provide the Original Equipment Manufacturer (OEM) Certificate of Conformance (CofC), intermediary CofC's, as well as their own CofC for each lot/ date code of parts shipped to **WAS LLC**.





### 8.6.1 Other Certification Requirements

- b) Certificate of Analysis (CofA) or “Mill Cert” shall be provided for all raw material shipments when the end product or its constituent parts are manufactured from basic raw material.
1. The CofA shall include the following:
    - Original lot, batch, or heat numbers
    - Chemical analysis including constituent elements & percentages
    - Physical analysis, i.e., stress-strain data temper
  2. Exceptions: The following items do not require CofAs:
    - Standard catalogue or ‘Commercial-off-the-shelf’ (COTS) items
    - Items purchased to AN, MS or NAS specifications
    - Name plates
    - Bearings
  3. All suppliers shall provide with the shipment, CofAs for all GS, APK and BAPK orders.
  4. Various Military and Industry material specifications called out on WAS LLC drawings require physical property (tensile strength, hardness, bending, etc.) testing. Suppliers are exempt from performing this physical property testing for **WAS LLC** products fabricated from material thickness of 0.005 inch and under.

c) Special Process Certification

1. Supplier shall provide a Certificate of Conformance or test report for each special process performed and shall include the C of C with the shipment.
2. Required Cert information:
  - Processor’s name and address
  - Processing date
  - Supplier’s PO number to the processor (if it is an outside source)
  - Part number, revision and nomenclature listed on the PO

NOTE: If PO lists the supplier’s and **WAS LLC**’s part numbers, list the **WAS LLC** number.

- Certifying person’s signature and title
- Statement of conformance to the specifications and requirements referenced on the PO

NOTE: Avoid statements like “to the best of our knowledge and belief.”

- Quantity

NOTE: Special process certs are permitted to have larger quantities on them than the shipment lot size.

- For NDT inspections: The results and Level II inspector’s name
  - When drawing specifies: Inclusion of radiographs with test reports
3. Exceptions: The following items do not require Special Process Certifications:
    - Standard catalogue or ‘Commercial-Off-the Shelf’ (COTS) items
    - Items purchased to AN, MS, or NAS specifications
    - Name plates
    - Bearings
  4. All suppliers shall provide with the shipment special process certifications for all GS orders.

d) Additional Shipping Documentation

1. Functional Test Data: A copy of the completed and signed (or stamped) test report shall accompany each product that requires functional testing, including products from certified suppliers. These products, which include motors, CCAs, and transducers, shall be serialized. When assemblies have constituent components that require testing, the test data for each component shall be included. When **WAS LLC**

returns non-conforming product to the supplier for rework, the supplier shall retest the product after rework and return it with a copy of the new test data.

2. The supplier shall provide WAS LLC with electrical test failure printouts with specific defects (i.e., internal, or external opens or shorts) for each lot.

The supplier shall provide WAS LLC with a photo image of one randomly selected, unstressed micro-section and one thermally stressed (TS) micro-section for each date code lot. Micro-sections shall be fabricated from the IPC-2221 AB coupons that utilize the smallest plated hole and associated pad. The actual micro-sections shall be retained by the supplier.

## 8.7 Control of Nonconforming Outputs

Suppliers shall:

- a) Establish a method of detection and feedback of product nonconformities or process noncompliance.
- b) Take necessary actions to fully contain problems within 48 hours.
- c) Immediately notify their WAS LLC purchasing contact and their WAS LLC Technical Authority (or other impacted customers) of any delivered nonconforming product<sup>1</sup> and confirm that the notification has been received by WAS LLC. This includes the defect description, item identification (i.e., part, serial, lot number); quantities delivered, and related corrective action. All communication must be documented in writing.
  1. The FAA, foreign Civil Aviation Authorities (e.g., EASA), U.S. Government Procurement Contracting Officers (PCO), WAS LLC, and its customers require notification of any:
    - defect of a hazardous or potentially hazardous nature that endangers, or if not corrected, would endanger the aircraft, its occupants or any other person or property;
    - non-conformity that affects form, fit, function, reliability, or safety in a product already delivered.
- q) Segregate any undelivered nonconforming product and hold until a response related to the disposal of the product has been received from WAS LLC.
- r) Stop shipment of product when notified of non-conformance by WAS LLC until appropriate corrective action has been established<sup>2</sup>.

NOTE 1: In accordance with WAS LLC Terms and Conditions, WAS LLC reserves the right to charge administrative fees related to the return of delivered non-conforming material.

NOTE 2: Where Product nonconformities are identified by WAS LLC, an associated cost of non-quality charge may apply.

### 8.7.1 Nonconforming Outputs

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

- a) Unless otherwise specified, the supplier's authority for disposition of non-conformances is limited to rework, return-to-supplier, and scrap, as follows:
  1. Rework: restore product back to drawing or spec compliance.
  2. Return-to-Supplier: return discrepant subcontractor product for subsequent rework or replacement.
  3. Scrap: permanent removal and destruction of product found to be unfit for use. Scrap product shall be physically mutilated such that it is unusable for its originally intended use and cannot be reworked to provide the appearance of being serviceable.
- b. No supplier has material review authority. Any deviation from a technical or contractual requirement shall be submitted (in written) for approval prior to shipment to WAS LLC on an SRMR form.
- c. Supplier Request for Material Review (SRMR) -
  1. The supplier shall complete and electronically submit an SRMR form to document request for acceptance

of finished material that does not meet the technical or contractual requirements as flowed down on the PO.

2. The supplier shall not ship discrepant material unless approved by **WAS LLC** on an SRMR. The supplier shall include the SRMR number on the Certificate of Conformance and a copy of the approved SRMR with the shipment.
3. The supplier shall adhere to quantity limits approved on the SRMR. Parts shipped in excess of these quantities will be rejected and returned, and the rejection charged against the supplier's rating.
4. Waiver, deviation requests, and approvals that are not documented on the SRMR will not be accepted.

### 8.7.2 Nonconforming Documented Information

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 8.7.3 Control of Re-worked (in Production) Product

Suppliers shall:

- a) Rework product in accordance with controls specified within the process specifications on the product definition or to an agreed rework procedure authorized by **WAS LLC**.
  - Franchised/ authorized distributors and warehouses shall not modify, rework, or repair material in-house by subcontracting unless approval is obtained from the **WAS LLC** Purchaser (i.e., Drawing, Specification, or Purchase Document) unless the work is performed by the actual manufacturing source of the material.
- b) Ensure that instructions for rework, including re-verification/ inspection requirements are accessible to and utilized by the appropriate personnel.

## 9.0 PERFORMANCE EVALUATION

### 9.1 Monitoring, Measurement, Analysis and Evaluation

#### 9.1.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Establish a visual management process that will provide feedback to everyone involved in the process. This should include (but not be limited to) current status, flow of work, priority, and the performance of the process so it can be assessed and understood.

#### 9.1.2 Customer Satisfaction

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Create production process performance metrics that monitor (but are not limited to) the following (unless otherwise agreed):
  - Statistical process control (where) indicated on Process Failure Mode Effect Analysis (pFMEA) or requested by **WAS LLC**
  - Cycle-time and lead-time adherence
  - Process yield rates (% scrap, % rework)
  - Product % Right First Time (RFT).
- b) Monitor performance metrics in accordance with customer expectations/ targets (where specified).
- c) Feedback performance metrics for process improvement.
- d) Use performance metrics to maintain accurate planning parameters.

- e) Monitor quality and delivery performance using key performance indicators.
- f) Ensure 100% quality performance and 100% on-time and in-full delivery performance is achieved and maintained.
- g) Immediately inform the **WAS LLC** purchasing contact when it is identified that delivery schedules are not (or will not be) achieved. A recovery plan must then be submitted within 24 hours to the **WAS LLC** purchasing contact.
- h) Use a cross-functional team to develop and deploy a reactive and preventative continual improvement policy and plans to meet **WAS LLC** performance expectations.
- i) Inform their **WAS LLC** contact immediately in the event of any obsolescence issues that may have a potential impact on the ability of the Supplier to manufacture and deliver products to the qualified design.
- j) Notify **WAS LLC** immediately for any delivered non-conforming products and continually pursue a response that the notification has been received by **WAS LLC**.
- k) Notify **WAS LLC** immediately if they are unable to comply with any measures mentioned within the SQAR and together **WAS LLC** shall agree with the supplier on remedial action plan. The completion of all remedial actions shall be completed by the Supplier to **WAS LLC**'s reasonable satisfaction within six (6) months from the date on which the Supplier informed **WAS LLC** of any non-compliance.

### 9.1.3 Analysis and Evaluation

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 9.2 Internal Audit

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

#### Supplemental Requirements

Suppliers shall:

- a) Establish an annual audit program (product and production/ special process audits) that includes internal engineering, internal production, and subcontract (sub-tier) activities, to verify compliance to planned arrangements and, where applicable related to **WAS LLC** contracts. The audit program shall be created and prioritized based on product and process risk.
- b) Conduct cross-functional (e.g., quality, design, and manufacturing) product audits at appropriate stages of design and production using a product that has been selected at random from the current production process and covering all significant products to determine the following:
  - Production method provides a record to demonstrate that all operations are complete
  - Verification/ inspection records demonstrate that all operations and all features are appropriately verified
  - Dimensional acceptability to product definition<sup>1</sup>
  - Visual acceptability to product definition<sup>1</sup>
  - Functional performance test to product definition (where applicable).<sup>1</sup>
- c) Audit each design and manufacturing process to determine if the resources and controls used to transform inputs into outputs are effective and comply with requirements.
- d) Use internal auditors who are appropriately trained and competent to perform audits. Auditors used for surveillance of subcontracted activities shall be as minimum trained and competent in quality systems (e.g., AS/ EN/ JISQ9100:2016), the relevant technical specifications and SQAR.
- e) Establish specific checklists to be used for each audit.



- f) Increase audit frequencies when internal/ external nonconformities or customer complaints occur.
- g) Take immediate action when an audit identifies a product non-conformance.
- h) Take appropriate corrective action and implement within 90 days or prior to shipment of product (whichever is sooner).

Note 1: Independent equipment, tooling, programs, etc., to be used.

A full audit may be conducted by **WAS LLC** covering the scope of existing capability dependent upon a risk assessment. The criteria and applicability of the audit will be against the relevant *Compliance Requirements* for your business. The gaps identified shall be closed within the established timescales.

## 9.3 Management Review

### 9.3.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 9.3.2 Management Review Inputs

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 9.3.3 Management Review Outputs

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

## 10 Improvements

### 10.1 General

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

### 10.2 Nonconformity and Corrective Actions

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Supplemental Requirements

Suppliers shall:

- a) Ensure the continuity of supply of conforming product to **WAS LLC**, while all non-conformances are being investigated.
- b) Take necessary actions to fully contain problems within 48 hours.
- c) Conduct an 8D investigation (in accordance with AS13000 requirements for complex problems), where the root cause is not known or where specifically requested by **WAS LLC**.
- d) Align the type of methodology of problem solving, including 8D, to the complexity of the problem with an appropriate level of governance.
- e) Analyze and collate non-conformance into themes. These shall then be prioritized using the Pareto principle for improvement through structured problem solving.
- f) Upon request of **WAS LLC**, submit the problem-solving investigation for any non-conformity within 30 days (unless otherwise stated).
- g) Ensure the product pFMEA and the Control Plan are reviewed and updated during and following the



implementation and verification of corrective actions for all problem-solving activities.

- h) Drive improvement plans for prevention of repeat problems (using quality tools e.g., fishbone, 5Y, SPC, Minitab, poke-yoke).
- i) Review the effectiveness of the problem-solving process at periodic intervals and take appropriate actions to improve (e.g., at Management Review or similar).

### 10.3 Continual Improvement

Comply with BS/ EN/ ISO 9001:2015 or AS/ EN/ JISQ 9100:2016 and/ or AS/ EN/ SJAC 9110:2016 and/ or AS 9120:2016.

Suppliers shall:

- a) Ensure any issues identified by **WAS LLC** are promptly investigated and improvements put in place on the basis of root cause identified. The result of the investigation and effectiveness of corrective action(s) put in place shall be shared with **WAS LLC**.
- b) Demonstrate a commitment to minimize product and service defects by establishing appropriate improvement plans and programs to eliminate known and potential sources for defects. These plans shall be shared with **WAS LLC** upon request.



## APPENDIX A

Whippy Actuation Systems LLC											
Applicable SQAR Paragraph ( X Indicates Applicability)											
Customer Program PO Prefix	Comply with Government Flow Downs (FAR, DFARS)	EASA	Special Processes (Use Prime's ASPL)	Record Retention							Record Retention (Effective Date)
				10 Years	15 Years (FAI Only)	20 Years	25 Years	40 Years	Service Life + 2 Years	Service Life + 6 Years	
AB		X		X							Records created after 1/1/09
APK	X										
BLC						X					
BP				X							
FCS	X										
FS	X		X								
GH	X		X								
GS	X										
H		X		X							Records created after 1/1/09
HM	X										
HS		X		X							Records created after 1/1/09
HSF		X						X			For Hamilton Sundstrand Forzen Charac Parts
LG		X								X	Essential Records Per 7.5.3.1(i)
LM	X										
M					X						Records created after 1/1/09
MB	X								X		
MD	X										
NG	X										
RP	X		X	X							
SA	X	X		X							
SH	X			X							Records created after 1/1/09
SK	X										
SR	X			X							Records created after 1/1/09
TK									X		
UE		X					X				
VA		X							X		



## APPENDIX B

### Supplemental Government Requirements

FAR AND FAR SUPPLEMENT CLAUSES: The following clauses, and those clauses that are required by law or regulation to be flowed down to subcontractors that are in effect on the date of any orders issued pursuant to the Agreement, are hereby incorporated by reference, to the extent they apply to Purchaser's Prime Contract, or with a higher tier U.S. Government contractor. Where applicable, the terms "Government," "Contracting Officer," and similar terms shall mean Purchaser, and the term "Contractor" and similar terms shall mean Seller. The full text of a clause may be accessed electronically at URL: <http://farsite.hill.af.mil/vffar1.htm>.

#### FAR Clauses

52.202-1 DEFINITIONS

52.203-3 GRATUITIES

52.203-5 COVENANT AGAINST CONTINGENT FEES

52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT

52.203-7 ANTI-KICKBACK PROCEDURES (Applies when the Agreement exceeds the Simplified Acquisition Threshold ("SAT"))

NOTE: Paragraph (c)(1) is excluded)

52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY

52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS

52.203-13 CONTRACTOR CODE OF BUSINESS ETHICS AND CONDUCT (Applies when the Agreement exceeds (\$5,000,000 and the period of performance exceeds 120 days)

52.203-14 DISPLAY OF HOTLINE POSTER(S) (Applies when the Agreement exceeds \$5,000,000)

52.204-2 SECURITY REQUIREMENTS

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON POSTCONSUMER FIBER CONTENT PAPER

52.204-9 PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL

52.204-10 REPORTING EXECUTIVE COMPENSATION AND FIRST TIER SUBCONTRACT AWARDS

NOTE: Seller agrees to timely information requested by Purchaser pursuant to this clause, and acknowledges that such information will be made publicly available

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT

52.211-5 MATERIAL REQUIREMENTS

52.211-15 DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS

52.212-4 CONTRACT TERMS AND CONDITIONS – COMMERCIAL ITEMS (only paragraph (l) applies)

52.215-2 AUDIT AND RECORDS—NEGOTIATION

52.215-10 PRICE REDUCTION FOR DEFECTIVE CERTIFIED COST OR PRICING DATA

52.215-11 PRICE REDUCTION FOR DEFECTIVE CERTIFIED COST OR PRICING DATA - MODIFICATIONS

52.215-12 SUBCONTRACTOR CERTIFIED COST OR PRICING DATA

52.215-13 SUBCONTRACTOR CERTIFIED COST OR PRICING DATA – MODIFICATIONS





52.215-14 INTEGRITY OF UNIT PRICES

52.215-15 PENSION ADJUSTMENTS AND ASSET REVERSIONS

52-215-18 REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS

52.215-19 NOTIFICATION OF OWNERSHIP CHANGES

52.215-20 REQUIREMENTS FOR CERTIFIED COST OR PRICING DATA AND DATA OTHER THAN CERTIFIED COST OR PRICING DATA

52.215-21 REQUIREMENTS FOR CERTIFIED COST OR PRICING DATA AND DATA OTHER THAN CERTIFIED COST OR PRICING DATA—  
MODIFICATIONS

52.215-22 LIMITATIONS ON PASS-THROUGH CHARGES – IDENTIFICATION OF SUBCONTRACT EFFORT

52.215-23 LIMITATIONS ON PASS-THROUGH CHARGES

52.219-8 1&2 UTILIZATION OF SMALL BUSINESS CONCERNS (Applies when the Agreement exceeds the SAT and could lead to subcontracting opportunities)

52.219-9 SMALL BUSINESS CONTRACTING PLAN

52.219-9 SMALL BUSINESS SUPCONTRACTING PLAN (DEVIATION 2013-O0014)

52.222-3 CONVICT LABOR

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT – OVERTIME COMPENSATION

52.222-17 1 NONDISPLACEMENT OF QUALIFIED WORKERS (Applies when the Agreement exceeds the SAT and is

(1) a service contract, as defined in 22.001, (2) that succeeds a contract for performance of the same or similar work at the same location, and (3) is not exempted by 22.1203-2 or waived in accordance with 22.1203-3)

52.222-19 CHILD LABOR – COOPERATION WITH AUTHORITIES AND REMEDIES

52.222-20 WALSH-HEALEY PUBLIC CONTRACTS ACT

52.222-21 PROHIBITION OF SEGREGATED FACILITIES

52.222-26 1&2 EQUAL OPPORTUNITY

52.222-35 1&2 EQUAL OPPORTUNITY FOR VETERANS

52.222-36 1&2 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES

52.222-37 EMPLOYMENT REPORTS ON VETERANS

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS

52.222-40 1&2 NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT

52.222-41 1 SERVICE CONTRACT ACT OF 1965 (For each Agreement subject to the SCA, Purchaser shall include a remark signifying SCA applicability. Seller shall submit any required wage classifications to the Purchaser for submission to the Contracting Officer and shall not commence performance until receipt of the final wage determination from Purchaser)

52.222-50 1 COMBATTING TRAFFICKING IN PERSONS

52.222-54 1&2 EMPLOYMENT ELIGIBILITY VERIFICATION

52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA

52.223-15 ENERGY EFFICIENCY IN ENERGY-CONSUMING PRODUCTS

52.223-18 ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING



52.225-1 BUY-AMERICAN ACT-SUPPLIES

52.225-2 BUY AMERICAN ACT CERTIFICATE

52.225-5 TRADE AGREEMENTS

52.225-8 DUTY-FREE ENTRY (Applies when Goods will be imported into the Customs Territory of the United States)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES

52.226-1 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES

52.227-1 AUTHORIZATION AND CONSENT

52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

52.227-9 REFUND OF ROYALTIES

52.227-10 FILING OF PATENT APPLICATIONS--CLASSIFIED SUBJECT MATTER

52.227-11 PATENT RIGHTS-OWNERSHIP BY THE CONTRACTOR

52.227-13 PATENT RIGHTS-OWNERSHIP BY THE GOVERNMENT

52.228-3 WORKER'S COMPENSATION INSURANCE (DEFENSE BASE ACT)

52.228-4 WORKER'S COMPENSATION AND WAR-HAZARD INSURANCE OVERSEAS

52.228-5 INSURANCE – WORK ON A GOVERNMENT INSTALLATION

52.230-2 COST ACCOUNTING STANDARDS (Applies when Agreement is subject to CAS)

52.230-3 DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES (Applies when Agreement is subject to CAS)

52.230-4 DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES – FOREIGN CONCERNS (Applies when Agreement is subject to CAS and Seller is located outside of the U.S.)

52.230-5 COST ACCOUNTING STANDARDS – EDUCATIONAL INSTITUTIONS (Applies when Agreement is subject to CAS and Seller is an Educational Institution)

52.230-6 ADMINISTRATION OF COST ACCOUNTING STANDARDS (Applies when Agreement is subject to CAS)

52.232-16 PROGRESS PAYMENTS

52.232-32 PERFORMANCE-BASED PAYMENTS

52.232-40 1 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (Applies when the Agreement involves small business concerns and Seller receives accelerated payments from Purchaser)

52.234-1 INDUSTRIAL RESOURCES DEVELOPED UNDER DEFENSE PRODUCTIONS ACT TITLE III

52.242-15 STOP-WORK ORDER

52.242-17 GOVERNMENT DELAY OF WORK

52.243-1 CHANGES - FIXED PRICE

52.243-7 NOTIFICATION OF CHANGES

52.244-5 COMPETITION IN SUBCONTRACTING

52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS



**52.245-1 GOVERNMENT PROPERTY**

NOTE: All Government Property shall be controlled and accounted for in accordance with Purchaser's Tooling Supplement, Remark E21

**52.245-9 USE AND CHARGES**

NOTE: Seller shall request authorization to use Government Property in support of efforts under a contract number other than the contract number to which it is assigned, by submitting such request in the form prescribed by Purchaser

**52.246-2 INSPECTION OF SUPPLIES – FIXED PRICE****52.247-1 COMMERCIAL BILL OF LADING NOTATIONS****52.247-63 PREFERENCE FOR U.S.-FLAG AIR CARRIERS**

52.247-64 1 PREFERENCE FOR PRIVATELY OWNED U.S.-FLAG COMMERCIAL VESSELS (Applies when Goods are to be shipped by ocean vessel)

**52.248-1 VALUE ENGINEERING****52.249-2 TERMINATION FOR CONVENIENCE**

52.249-5 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (Applies when Seller is an educational or other non-profit institution) (Delete paragraph (h), in paragraph (c) change "120 days" to "60 days", and in paragraph (d) change "1 year" to "60 days")

**52.249-8 TERMINATION FOR DEFAULT****52.249-14 EXCUSABLE DELAYS****DFARS Clauses**

252.203-7001 PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES

252.203-7002 REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS

252.203-7003 1 AGENCY OFFICE OF THE INSPECTOR GENERAL

252.203-7004 2 DISPLAY OF FRAUD HOTLINE POSTERS (Applies when the Agreement exceeds \$5,000,000)

252.204-7000 DISCLOSURE OF INFORMATION

252.204-7012 SAFEGUARDING OF UNCLASSIFIED CONTROLLED TECHNICAL INFORMATION (Applies when the Agreement involves access to unclassified controlled technical information resident on or transiting through Seller's unclassified information systems)

252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY

252.211-7000 ACQUISITION STREAMLINING

252.211-7003 1 ITEM IDENTIFICATION AND VALUATION

252.215-7000 PRICING ADJUSTMENTS

252.219-7003 2 SMALL BUSINESS SUBCONTRACTING PLAN (DOD CONTRACTS)

252.222-7006 RESTRICTIONS ON THE USE OF MANDATORY ARBITRATION AGREEMENTS

252.223-7008 1 PROHIBITION OF HEXAVALENT CHROMIUM

252.225-7001 BUY AMERICAN ACT AND BALANCE OF PAYMENTS PROGRAM



252.225-7002 QUALIFYING COUNTRY SOURCES AS SUBCONTRACTORS

252.225-7006 QUARTERLY REPORTING OF ACTUAL CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES

252.225.7007 PROHIBITION ON ACQUISITION OF UNITED STATES MUNITIONS LIST ITEMS FROM COMMUNIST CHINESE MILITARY COMPANIES

252.225-7008 RESTRICTION ON ACQUISITION OF SPECIALTY METALS

252.225-7009 1 RESTRICTION ON ACQUISITION OF CERTAIN ARTICLES CONTAINING SPECIALTY METALS (Applies when the Goods contain specialty metals)

NOTE: Use of exceptions not permitted without advance Seller notification and prior Purchaser approval. Paragraph (d) of this clause is excluded

252.225-7010 COMMERCIAL DERIVATIVE MILITARY ARTICLE – SPECIALTY METALS COMPLIANCE CERTIFICATE

252.225-7012 PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES

252.225-7013 DUTY-FREE ENTRY (Applies when providing components from a qualifying country or components from a non-qualifying country when the estimated duty is expected to exceed \$200 per unit)

252.225-7015 RESTRICTION ON ACQUISITION OF HAND OR MEASURING TOOLS

252.225-7016 1 RESTRICTION ON ACQUISITION OF BALL AND ROLLER BEARINGS (Applies when Agreement requires Seller to provide a ball and roller bearing that that is not incorporated into a higher-level assembly)

252.225-7021 TRADE AGREEMENTS

252.225-7022 TRADE AGREEMENTS CERTIFICATE- INCLUSION OF IRAQI END PRODUCTS

252.225-7025 RESTRICTION ON ACQUISITION OF FORGINGS

252.225-70281 EXCLUSIONARY POLICIES AND PRACTICES OF FOREIGN GOVERNMENTS

252.225-7030 RESTRICTION ON ACQUISITION OF CARBON, ALLOY, AND ARMOR STEEL PLATE

252.225-7032 WAIVER OF UNITED KINGDOM LEVIES - EVALUATION OF OFFERS

252.225-7033 WAIVER OF UNITED KINGDOM LEVIES

252.225-7036 BUY AMERICAN ACT- FREE TRADE AGREEMENT - BALANCE OF PAYMENTS

252.225-7037 EVALUATION OF OFFERS FOR AIR CIRCUIT BREAKERS

252.225-7038 1 RESTRICTION ON ACQUISITION OF AIR CIRCUIT BREAKERS

252.225-7048 EXPORT-CONTROLLED ITEMS

252.225-7993 PROHIBITION ON CONTRACTING WITH THE ENEMY IN THE UNITED STATES CENTRAL COMMAND THEATER OF OPERATIONS

252.225-7994 ADDITIONAL ACCESS TO CONTRACTOR AND SUBCONTRACTOR RECORDS IN THE UNITED STATES CENTRAL COMMAND THEATER OF OPERATIONS

252.226-7001 1 UTILIZATION OF INDIAN ORGANIZATIONS, INDIAN-OWNED ECONOMIC ENTERPRISES, AND NATIVE HAWAIIAN SMALL BUSINESS CONCERNS

252.227-7013 1 RIGHTS IN TECHNICAL DATA-NONCOMMERCIAL ITEMS (Applies when technical data is specified to be delivered under the Agreement)



252.227-7014 RIGHTS IN NONCOMMERCIAL COMPUTER SOFTWARE AND NONCOMMERCIAL COMPUTER SOFTWARE DOCUMENTATION

252.227-7015 1 TECHNICAL DATA—COMMERCIAL ITEMS

252.227-7016 RIGHTS IN BID OR PROPOSAL INFORMATION

252.227-7017 IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE RESTRICTIONS

252.227-7018 RIGHTS IN NONCOMMERCIAL TECHNICAL DATA AND COMPUTER SOFTWARE--SMALL BUSINESS INNOVATIVE RESEARCH (SBIR) PROGRAM

252.227-7019 VALIDATION OF ASSERTED RESTRICTIONS – COMPUTER SOFTWARE

252.227-7020 RIGHTS IN SPECIAL WORKS

252.227-7021 RIGHTS IN DATA--EXISTING WORKS

252.227-7025 LIMITATIONS ON THE USE OR DISCLOSURE OF GOVERNMENT-FURNISHED INFORMATION MARKED WITH RESTRICTIVE LEGENDS

252.227-7026 DEFERRED DELIVERY OF TECHNICAL DATA OR COMPUTER SOFTWARE

252.227-7027 DEFERRED ORDERING OF TECHNICAL DATA OR COMPUTER SOFTWARE

252.227-7028 TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT

252.227-7030 TECHNICAL DATA—WITHHOLDING OF PAYMENT (Applies when technical data is specified to be delivered under the Agreement)

252.227-7032 RIGHTS IN TECHNICAL DATA AND COMPUTER SOFTWARE (FOREIGN)

252.227-7037 1 VALIDATION OF RESTRICTIVE MARKINGS ON TECHNICAL DATA (Applies when technical data is specified to be delivered under the Agreement)

252.227-7038 PATENT RIGHTS-OWNERSHIP BY THE CONTRACTOR (LARGE BUSINESS)

252.227-7039 PATENTS--REPORTING OF SUBJECT INVENTIONS

252.232-7004 DOD PROGRESS PAYMENT RATES

252.234-7002 EARNED VALUE MANAGEMENT SYSTEM

252.235-7003 FREQUENCY AUTHORIZATION

252.236-7013 REQUIREMENT FOR COMPETITION OPPORTUNITY FOR AMERICAN STEEL PRODUCERS, FABRICATORS, AND MANUFACTURERS

252.239-7018 1 SUPPLY CHAIN RISK (Applies when the Agreement involves the development or delivery of any information technology whether acquired as a service of as a supply)

252.243-7001 PRICING OF CONTRACT MODIFICATIONS

252.244-7000 SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (DOD CONTRACTS)

252.246-7001 WARRANTY OF DATA (Applies when technical data is specified to be delivered under the Agreement)

252.246-7003 1 NOTIFICATION OF POTENTIAL SAFETY ISSUES

252.246-7007 CONTRACTOR COUNTERFEIT ELECTRONIC PART DETECTION AND AVOIDANCE SYSTEM

252.246-7008 SOURCES OF ELECTRONIC PARTS



252.247-7023 1 TRANSPORTATION OF SUPPLIES BY SEA

252.247-7024 1 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA

252.249-7002 NOTIFICATION OF ANTICIPATED CONTRACT TERMINATION OR REDUCTION

5252.227-9507 NOTICE REGARDING THE DISSEMINATION OF EXPORT-CONTROLLED TECHNICAL DATA (NAVAIR)

## APPENDIX C - EEO

This contractor and subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a) and 61-300.10, to the extent applicable. These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity or national origin, protected veteran status or disability.

Executive Order 13665 amends 11246 prohibiting federal contractors and subcontractors from discharging, or otherwise discriminating against their employees or job applicants for discussing, disclosing, or inquiring about compensation.



## REVISION HISTORY

Previous SQAR Section	Description	Revised SQAR New Sections	What Changed (If Anything)
1.0	Supplier Approval	Removed	Removed previous SQAR section as the verbiage was not an instruction to the supplier.
2.0	Quality Management System	1.1	Same requirements as previous SQAR version.
3.0	Calibration Requirements	1.2	Calibration is sole responsibility of the supplier.
4.0	Supplier Status	Removed	Removed previous SQAR section as the verbiage was not an instruction to the supplier.
5.0	Inspection	3.5	Added DSQR inspection requirements for DSQR suppliers.
6.0	First Article Inspection (FAI)	3.6	Requires compliance to AS9102. Removed verbiage that was already a requirement of AS9102.
7.0	GE Aviation Purchasing Information	2.1 - 2.5	<ul style="list-style-type: none"> <li>Added order of precedence for documents in section 2.1.5</li> <li>Added DSQR requirement on PO in section 2.1.7</li> <li>Removed previous SQAR section 7.9 'ILS orders'</li> </ul>
8.0	Supplier's Purchase Orders	Removed	Requirements were embedded in section 2.1
9.0	Material Substitutions	3.2	Same requirements as previous SQAR version
10.0	Part Marking and Traceability	3.4	Relocated previous SQAR section 10.5 to section 4.3.8
11.0	Product Specific Requirements	3.1	<ul style="list-style-type: none"> <li>Added 3.1.1.2 to specify new, unused material</li> <li>Split 11.1.4 into separate requirements 3.1.1.5 through 3.1.1.7</li> <li>Combined sections 11.2 and 11.3 into new section 3.1.2</li> <li>Combined sections 11.4 and 11.7 into new section 3.1.3</li> <li>Added section 3.1.3.3, Distributor Re-certification of Bearing</li> <li>Omitted section 11.8.3</li> <li>Relocated section 11.4.8 to section 3.6.4</li> </ul>
12.0	Special Processes	3.3	Relocated section 11.8.5 to section 4.2.4.2 and 4.2.4.3
13.0	Non-Conformance Control and Material Review	3.7	<ul style="list-style-type: none"> <li>Revised section 13.2.2 to state that 'no supplier has material review authority'</li> <li>Removed previous SQAR section 13.3.4, Exception for engineering development models.</li> </ul>
14.0	Shipping Documentation	4.1 and 4.2	<ul style="list-style-type: none"> <li>More robust requirements for C of C, C of A, and Special Processor certifications.</li> <li>Added requirement for DSQR Surveillance Log</li> </ul>
15.0	Preservation of Product	1.3	<ul style="list-style-type: none"> <li>Added compliance to ESD industry standards, ANSI/ESD S20.20 and JEDEC-Standard No. 625A or Mil-Std-1686, in section 1.3.1</li> <li>Added compliance to FOD industry standard, NAS 412, in section 1.3.2</li> <li>Added compliance to Counterfeit Parts Prevention industry standard, AS5553, in section 1.3.3</li> </ul>
16.0	Control of Records	4.3	<ul style="list-style-type: none"> <li>Added written approval by GE Aviation for destruction of records which exceed retention requirement.</li> <li>Section 16.6-16.8 incorporated into Table 1 of Section 4.0 (see blue text).</li> </ul>
17.0	Right of Access	1.4	Slightly modified verbiage. No major changes.
18.0	Training	Removed	Removed previous SQAR section; Verbiage is contained in AS9100/9110 and ISO requirements. Per section 1.1, supplier must be compliant to these standards.
19.0	Problem Solving Techniques	Removed	Verbiage removed as there was no imposed requirement.
20.0	Help from GE Aviation	Removed	Removed; SQAR states to contact Procurement for any clarifications or issues.
Addendum	Quality Clauses	Removed	Removed previous SQAR Quality Clauses; the clauses have been embedded in the SQAR as the supplier must be compliant to the SQAR in its entirety.
NEW	Franchised/Authorized Distributor and Broker Material Control	1.5	Added requirements for Franchised/Authorized Distributor and Broker Material Control.
NEW	Solder	3.1.6	Added requirements of Solder



NEW	Unusual Visual Appearance	3.8.1	Added definition and requirements for UVA
NEW	Source Problem Reporting	3.8.2	Added definition and requirements for SPR
NEW	Packaging	3.9	Requirements for packaging including ESD packaging
NEW	NOTE	3.7	Added NOTE below section 3.7.5
NEW	Section 3.6.1 through Section 3.6.3	3.6.1 – 3.6.3	Added new requirements for FAI submittal.
7/10/13	Updated to reflect ownership change	All	Updated to reflect ownership change
5/3/14	Updated to Align with WAS Quality Assurance Strategy	As Described	<p>Added compliance assessment and performance measures.</p> <p>Added Table 1</p> <p>Removed DSQR, SPR, and UVA definitions</p> <p>Added clarity to section 1.1</p> <p>Amended EASA requirements for special processes</p> <p>Removed references to GE websites</p> <p>Removed references to DSQR</p> <p>Removed references to C64</p> <p>Deleted section 3.8</p>
6/12/14	Updated for clarification and to agree with new WAS Terms & Conditions	As Described	<p>2.1.4 Clarified PO Item #</p> <p>2.1.10 Removed DSQR requirement</p> <p>2.3 Removed reference to WAS website for Terms &amp; Conditions</p> <p>2.4 Removed requirement to use WAS EASA approved special processors. Pointed to the ASL</p> <p>3.1.1 Added clarification as to when a separate Lube C of C is required</p> <p>4.2.2 Removed DSQR requirement</p> <p>Table 2 Updated to point to new Appendix A</p>
6/13/14	Updated Table 2 to Remove Program Names Per Contract	As Described	Table 2 Removed Program Names
1/15/15	Added applicable DFARS clauses	Appendix A	<p>Added the following DFARS clauses</p> <p>252.225-7008, 252.225-7012, 252.246-7007</p>
5/11/15	<p>Revised FAI requirements to reflect AS9102B</p> <p>Added applicable FAR/DFARS clauses</p> <p>Minor formatting changes</p>	<p>3.6</p> <p>Appendix A</p> <p>Table 2</p>	<p>3.6 Revised to encompass requirement changes per AS9102B</p> <p>3.6 Expanded to clearly define mandatory requirements that may be listed as conditionally required or optional per AS9102B</p> <p>Added the following FAR clauses</p> <p>52.215-11, 52.222-36, 52.222-38, 52.222-50, 52.242-17, 52.243-1, 52.243-7, 52.246-2</p> <p>Table 2 expanded to include RP and UE program codes</p>
7/15/15	<p>Revised EASA requirements to reference Table 2</p> <p>Added program code to Table 2</p>	<p>2.4</p> <p>Table 2</p>	<p>2.4 Revised section to reference Table 2 instead of listing program codes within the section</p> <p>Table 2 Expanded to include VA program code</p>





11/13/15	Revised Table 1 to match current section numbering  Revised 3.6.1 to state that suppliers must perform FAI per AS9102, even if it is not stated on the purchase order	Table 1  3.6.1	Table 1 Revised to reference full sections instead of each sub-section, corrected numbering to match existing sections  3.6.1 Added "or when required per the current revision of AS9102. Suppliers are ultimately responsible for correctly determining when First Article Inspection is required."
1/13/16	Added Appendix B – Equal Employment Opportunity Clause	Appendix B	Added Appendix B – Equal Employment Opportunity Clause
4/7/16	Added Calibration System requirement  Removed optional phrasing to provide identification numbers  Added PDP/MBD language	1.2  3.6.14.7  3.7  4.2.2.3  4.2.3.4	1.2 Added requirements for calibration to be equivalent or better than Z540-1, Required Calibration Service Providers be approved if using an alternate calibration system, Required Calibration Service Providers to provide and maintain measurable data  3.6.14.7 Removed 'or' to require both tooling and equipment names and ID numbers  3.7 Added section to describe requirements for DPD and MBD  4.2.2.3 Added requirement to provide C of A certification for "APK" and "BAPK" orders
7/27/16	Revised Special Processing section to require Nadcap Revised program prefix codes in Table 2  Added 52.219-9 deviation to Appendix A	3.3  Table 2  Appendix A	3.3 Added requirement to use Nadcap accredited Special Processors, added description of waiver process to use a non-Nadcap Special Processor  Table 2 Added "BLC" program prefix code, alphabetized entire table  Appendix A Added reference to 52.219-9 deviation

Revision Date	Revised By	Summary of Changes
6/1/18	MR	2.1.8 – added requirement to use approved suppliers and added language to ensure that requirements and subsequent changes are flowed down to sub-tier suppliers 2.1.9 – added requirements to ensure that personnel are appropriately training and competent and are aware of their contribution to product or service conformity and the importance of ethical behavior 3.3 – removed reference to the Whippany Actuation Systems LLC Approved Special Processor List Table 2 – changed record retention requirement for UE prefixed purchase orders from 40 to 25 years
7/11/18	MR	Table 2 – changed record retention requirements for "LG" prefixed purchase orders from service life plus 2 years to service life plus 6 years
8/8/18	MR	Appendix A – added DFARS clause 252.246-7008 Sources of Electronic Parts
9/19/18	MR	1.3.3 – added requirement to establish a counterfeit part mitigation program that is compliant with SAE AS6174 (in addition to SAE AS5553)
9/21/18	MR	3.3.4 – updated link to access Northrop Grumman's Approved Special Processor List
1/24/19	MR	Added section 1.6 – Change Notification Table 2 – Revised paragraph reference to read 'Section 3.3' instead of 'Section 3.3.2'
4/17/19	MR	TOC – Added additional headings 1.6 – Changed section title to 'Organizational Change Notification' 2.1.2 – Added verbiage clarifying when notification/approval is required for changes to items specified under a purchase order Table 2 – added 'FCS' purchase order prefix, removed requirement to comply with section 2.3 for 'TK' purchase order prefix
8/1/23	QMS Manager	Edition 2, Rev 1.0 - Entire manual re-written similar to AS standards
6/26/24	JS	Edition 2, Rev 2.0 changes – 1. Broken Link for DFARS <a href="#">URL link</a> in Appendix B, Page 39, to correct web address. 2. Revision was updated on Title Page and Headers for all subsequent pages 3. Effective date was changed on Title Page 4. Appendix A was corrected-Column Data and Lines realigned for clarity
01/01/25	JS	Edition 2, Rev 2.1 change – The following statement is added to Para. 8.6.1 as b) 4.: Various Military and Industry material specifications called out on WAS LLC drawings require physical property (tensile strength, hardness, bending, etc.) testing. Suppliers are exempt from performing this physical property testing for WAS LLC products fabricated from material thickness of 0.005 inch and under.



# SQAR

## Supplier Management System Requirements

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