

# Supply Quality Assurance Manual

Rev 09, March 7, 2019



Rev	Date	Change Description	Approved By	Change Request #
00	11/27/12	New Document Release		BPMS-00647
01	9/3/2013	Addition of amendment A into SQAM document. CDR updates	Tom Frazho	BPMS-01446
02	1/14/14	Change to 8.11; change to 6.1; change to 6.2	Tom Frazho	BPMS-01593
03	2/19/15	Changes/additions/deletions made to the following sections: 2.0, 3.1, 3.2, 3.3, 3.4, 3.5, 4.0, 5.1, 5.2, 6.1, 6.2, 6.5, 7.1.1, 7.1.2, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.8, 8.10, 9.1, 9.3, 9.4	Tom Frazho	BPMS-02169
04	5/11/15	Added 6.6 Traceability of Specialty Metals	Tom Frazho	BPMS-02269
05	09/01/15	Added 7.1.2.1, revised 9.4, revised 7.2	Tom Frazho	BPMS-02447
06	09/20/2016	5.2 Deleted "and respective Supplier Quality Representative" 6.1 Changed Solutions to Services 6.7 and 6.8 Added 7.2 Split verbiage between Combat Vehicles and Weapon Systems 7.3 Added 8.1 Split between Combat Vehicles and Weapons Systems 8.3 Changed the last part of paragraph; added "the" to the 11 <sup>th</sup> bullet; added verbiage to the 12 <sup>th</sup> and 13 <sup>th</sup> bullets; changed "this" to "the" in the 2 <sup>nd</sup> paragraph; changed/added verbiage to the 3 <sup>rd</sup> paragraph; changed the 5 <sup>th</sup> bullet 8.5 Added verbiage to the 7 <sup>th</sup> bullet 8.9 Added verbiage to the 3 <sup>rd</sup> bullet and 3 <sup>rd</sup> and 4 <sup>th</sup> paragraph; changed" the" to "all" in the 5 <sup>th</sup> paragraph 8.12 Added 9.1 Changed/added verbiage to the 1 <sup>st</sup> and 2 <sup>nd</sup> paragraphs 9.2 Changed MIL standard acronym to PRF 9.4 Added :the" to the 3 <sup>rd</sup> bullet	Tom Frazho	BPMS-03125
07	12/20/2017	Added new Phoenix mailbox to paragraph 8.12 Data Submission Instructions; Add verbiage for VIR form for York/Anniston CAS	T Frazho / R Zuniga / K Sturm	BPMS-03820
08	06/22/2018	Added paragraph 8.13 ; Added "Use the ... and removed the date from paragraph 6.5 Bearings, Changed Quality Rating and the Quality Risk Assessment ratings for both CV and Weapons Systems, added verbiage and/or placed on Containment Level I or II, changed 90% to 98% and added Risk	T Frazho / R Zuniga / K Sturm	BPMS-04032

		Assessment to paragraph 8.1, changed 9001 2008 to 9001 2015 in paragraphs 8.2 and 8.4, corrected dis across to discrepancy (typo), changed revision date and rev number to all pages		
09	3/7/2019	Deleted pp 9.4 Age Sensitive Materials and added pp 9.4 Supplier Qualification / First Article Testing, added definitions for applicable CAS Business Units to pp 2.0, changed pp 6.1 third party to sub tier supplier, pp 7.2 rewrote the paragraph on Part Identification Marking, pp 8.3 added First Article Test"/Inspection", reformatted for clarity and removed extra CV sites from the list. Added bullets for Inspection Report and Balloon drawing to Section 8.3	T Frazho / R Zuniga / K Sturm	

## Preface

*“BAE Systems is committed to providing its customers with products and services which demonstrate safety, quality, reliability, and innovation. It is our objective to meet all customer requirements with the aim of exceeding their expectations and enhancing customer satisfaction. We monitor our process performance, review our quality objectives, and maintain compliance to the Quality Management System and applicable regulatory requirements. BAE Systems strives to continually improve our products and processes from design to delivery, including employee safety, waste reduction, and pollution prevention to ensure the sustainability of our company”.*

We strive to continually improve our process performance by meeting quality objectives, and maintain compliance to the applicable regulatory requirements of our work environment. It is imperative that our business partners operate with the goal of zero defects and 100% on-time delivery and strive to maintain a quality system that ensures continual improvement in the quality and delivery of the product/service. Emphasis should be on defect prevention and the reduction of variation and waste in the supply chain, with the ultimate goal of providing the best product, on-time, and at the best cost in support of the war fighter.

## Table of Contents

<b>1.0 Acronyms .....</b>	<b>6</b>
<b>2.0 Introduction.....</b>	<b>6</b>
<b>3.0 Contracts .....</b>	<b>7</b>
<b>3.1 Business Continuity Planning.....</b>	<b>7</b>
<b>3.2 E-business Capabilities .....</b>	<b>7</b>
<b>3.3 Notification Responsibilities .....</b>	<b>7</b>
<b>3.4 Confidentiality .....</b>	<b>7</b>
<b>3.5 Control of BAE Systems-furnished Property .....</b>	<b>8</b>
<b>4.0 Order of Precedence .....</b>	<b>8</b>
<b>5.0 Engineering.....</b>	<b>9</b>
<b>5.1 Revision Levels.....</b>	<b>9</b>
<b>5.2 Requests for Information/Change/Material Disposition .....</b>	<b>9</b>
<b>5.3 Technical Documents/Configuration Control.....</b>	<b>9</b>
<b>6.0 Purchasing .....</b>	<b>10</b>
<b>6.1 Sub-tier Management .....</b>	<b>10</b>
<b>6.2 Source Controlled Drawings/Vendor Item Drawings.....</b>	<b>10</b>
<b>6.3 Qualified Products List .....</b>	<b>10</b>
<b>6.4 Prohibition on Acquisition of Materials from China .....</b>	<b>10</b>
<b>6.5 Bearings.....</b>	<b>11</b>
<b>6.6 Traceability of Specialty Metals .....</b>	<b>12</b>
<b>6.7 Counterfeit Electronic Parts Prevention Plan.....</b>	<b>12</b>
<b>6.8 Commercial Off The Shelf (COTS) Parts .....</b>	<b>13</b>
<b>7.0 Production.....</b>	<b>13</b>
<b>7.1 Special Processes .....</b>	<b>13</b>
<b>7.2 Part Identification Marking.....</b>	<b>14</b>
<b>7.3 CARC Paint Marking .....</b>	<b>15</b>
<b>8.0 Quality.....</b>	<b>15</b>
<b>8.1 Supplier Monitoring and Rating .....</b>	<b>15</b>
<b>8.2 Quality Management System .....</b>	<b>16</b>
<b>8.3 Inspection.....</b>	<b>16</b>
<b>8.4 Measuring and Test Equipment .....</b>	<b>18</b>
<b>8.5 Certificate of Compliance .....</b>	<b>18</b>

<b>8.6 Non-conforming Material</b> .....	<b>18</b>
<b>8.7 Preliminary Material Review (PMR)</b> .....	<b>19</b>
<b>8.8 Material Review Board (MRB)</b> .....	<b>19</b>
<b>8.9 Corrective Action</b> .....	<b>19</b>
<b>8.10 Written Corrective Action Requests (WCAR)</b> .....	<b>20</b>
<b>8.11 Right of Access</b> .....	<b>20</b>
<b>8.12 Data Submission Instructions</b> .....	<b>20</b>
<b>8.13 Containment Process</b> .....	<b>21</b>
<b>9.0 Packaging/Shipping</b> .....	<b>22</b>
<b>9.1 Cleanliness and Preservation</b> .....	<b>22</b>
<b>9.2 Packaging for Electrostatic Discharge (ESD) Sensitive Items</b> .....	<b>22</b>
<b>9.3 Hazardous Material Control</b> .....	<b>22</b>
<b>9.4 Supplier Qualification / First Article Testing</b> .....	<b>23</b>

## 1.0 Acronyms

ADCN:	Advance Drawing Change Notification
ANSI:	American National Standards Institute
APR:	Authorized Purchasing Representative
AQL:	Acceptance Quality Level
CARC:	Chemical Agent Resistant Coating
CDR:	Contract Deliverable Requirement
DCMA:	Defense Contracts Management Agency
DFAR:	Defense Federal Acquisition Regulations
DOT:	Department of Transportation
FAI:	First Article inspection
FAR:	Federal Acquisition Regulations
FAT:	First Article Test
FPI:	First Piece Inspection
ISO:	International Organization for Standardization
ISIR:	Initial Sample Inspection Report
ITAR:	International Traffic in Arms Regulations
IWO:	Interdivisional Work Order
NDE:	Non-destructive Examination
NOR:	Notification of Revision
OSHA:	Occupational Safety and Health Administration
PO:	Purchase Order
PPAP:	Production Part Approval Process
QAP:	Quality Assurance Provisions
QAR:	Quality Assurance Requirements
SAE:	Society of Automotive Engineers
SQAP:	Supplier Quality Assurance Provisions
TDP:	Technical Data Package
UN:	United Nations

## 2.0 Introduction

This manual is applicable to all PO, Contracts, Subcontracts/Statements of Work (SOW), and IWO in which it is referenced; these documents shall be collectively referred to as "Purchasing Agreements" in this manual. The applicable revision of this manual shall be identified in the body of the Purchasing Agreement. This manual defines the expectations and requirements with which suppliers and their sub-tier suppliers **must** comply when providing material and/or services under this purchasing agreement. **Acceptance of any Purchasing Agreement which references this manual constitutes acceptance of all requirements contained herein.** Some sections of this manual may only apply to specific commodities or situations and will be identified as such.

All communications relative to the requirements of this purchasing agreement, its associated technical data package, or this manual shall be directed to the appropriate BAE Systems APR.

As used in this manual, the terms "Supplier", "Seller", "Vendor", and "Subcontractor" shall have the same meaning and may be used interchangeably.

Combat Vehicles is defined as York, Elgin, Sterling Heights, San Jose, Aiken, Phoenix and Anniston

Weapon Systems is defined as Minneapolis, Louisville and Aberdeen.

## 3.0 Contracts

### 3.1 Business Continuity Planning

Because of BAE Systems' relationship with its Customer and our sense of responsibility to the war fighter, it is imperative that we deliver quality products in accordance with our customer's schedule. Unforeseen events are a part of our daily life, but our goal is to be as prepared as possible when unforeseen events occur. To this end, BAE Systems requires its suppliers to maintain, and provide upon request, a business continuity plan which will mitigate the risks from events such as floods, fires, earthquakes, and acts of terrorism and permit the Supplier to fulfill their commitments to both BAE Systems and to those who work to protect our freedom.

### 3.2 E-business Capabilities

The Supplier shall have email, internet access, and document scanning capabilities sufficient to communicate electronically and provide/receive documentation in electronic format. Documentation includes, but is not limited to, inspection reports, test reports, material certifications, and process certifications. It is the Supplier's responsibility to ensure that documentation converted from paper to electronic format is **legible and complete**.

### 3.3 Notification Responsibilities

The Supplier shall notify their APR in writing in the event that any one of the following occurs:

- Change to/relocation of supplier's facility
- Change in quality systems or operations management
- Any change to the manufacturing process
- Change to Quality Management System registration, including issuance of a new registration certificate

Failure to notify BAE Systems in a timely manner may result in the following:

- On-site inspection by BAE Systems or their representative at the supplier's expense
- Audit of the Supplier's facility at the Supplier's expense
- Withholding of new business opportunities

### 3.4 Confidentiality

When the Supplier has been given access to BAE Systems proprietary information, the Supplier shall take such steps as are necessary to minimize the exposure of that information within its facility and to prevent said information from unintended exposure to third-parties. If the supplier determines that proprietary/confidential information has been or may have been compromised, they shall notify the BAE Systems APR immediately.

In the event that a Non-disclosure Agreement (NDA) is entered into between the Supplier and BAE Systems, the Supplier shall contact BAE Systems prior to passing proprietary

information to a sub-tier supplier to determine if a separate NDA is required between BAE Systems and the sub-tier supplier.

### **3.5 Control of BAE Systems-furnished Property**

For any property furnished to the Supplier by BAE Systems (materials, tooling, product, etc.) the Supplier shall perform the following actions:

- Maintain a system to ensure the adequate control and protection of all furnished property
- Plainly mark or otherwise adequately identify furnished property as the property of BAE Systems
- Safely store all furnished property separately and apart from the Supplier's property
- Keep all furnished property in the supplier's possession and/or control in good and serviceable condition (including the performance of calibration and preventative maintenance) and free of liens and encumbrances
- Unless the property is modified as part of the Supplier's normal manufacturing process, property should be returned in the same condition as originally received by the Supplier, reasonable wear and tear excepted.
- All GFM/GFE and BAE Systems Property furnished for this order must be recoverable and returned to BAE Systems when directed
- Any property furnished by BAE Systems shall not be used in the execution of contracts for any other customer without prior written permission from BAE Systems

BAE Systems reserves the right to audit the Supplier's Customer-furnished Property Management System as necessary to ensure compliance to this requirement.

### **4.0 Order of Precedence**

In the event of a conflict between the requirements contained within this purchasing agreement, the following order of precedence shall apply:

- Authorized changes to the purchasing agreement
- Purchasing Agreement
- [095871 Contract Deliverable Requirements \(CDR\)](#)
- [095860 Supplier Quality Assurance Manual \(SQAM\)](#)
- Authorized Changes to the Drawing(s) (i.e. ADCN, NOR, etc.)
- Drawing(s)
- Applicable Acceptance and Quality Specifications (Performance Specification, QAP, SQAP, QAR, etc.)
- Specifications cited on the Drawing
- Documents cited within Specifications

## 5.0 Engineering

### 5.1 Revision Levels

Unless the Purchasing Agreement specifies usage of an earlier version, the latest revision/supersession of specifications/standards referenced in the technical data package at the time the purchasing agreement is released applies.

### 5.2 Requests for Information/Change/Material Disposition

All requests for information/clarification, requests for change, and requests for disposition of nonconforming material should be directed to the **Weapon Systems APR**. [097908 Vendor Information Request \(VIR\)](#) is required to formally request the information/change/material disposition and will be available through the Purchasing website. The Supplier is not authorized to incorporate any changes until formal approval is received via a change to the purchasing agreement.

All requests for information/clarification, requests for change, and requests for disposition of nonconforming material should be directed to the **Combat Vehicles APR**. [089725 Vendor Information Request \(VIR\)](#) is required to formally request the information/change/material disposition and will be available through the Purchasing website. The Supplier is not authorized to incorporate any changes until formal approval is received via a change to the purchasing agreement.

### 5.3 Technical Documents/Configuration Control

The Supplier shall have available all design records (drawings, specifications, etc.) for the products manufactured including components or details of assemblies and technical standards noted on the drawings. For parts identified as catalog parts, this may consist of functional specifications or a reference to a recognized industry standard. Documents are to indicate the date of the design record and the change level and shall include any authorized engineering change documents used in conjunction with the part drawings.

Those suppliers with design control over their own products shall have configuration management processes in place to manage design changes. Configuration disciplines required include configuration identification, configuration control, configuration status accounting, and configuration audits. These practices shall be subject to audit by BAE Systems. Suppliers not having design control will be required to safeguard our design, ensure the use of the required revision, and return proprietary information upon request.

Specifications and standards referenced in the technical data package may be used to satisfy requirements even after the referenced documents are canceled. Replacement specifications and standards may also be used to satisfy TDP requirements in lieu of the canceled document, but must be noted within the supporting documentation. Acceptance of the replacement specification or standard will be at the discretion of the BAE Systems Quality representative.

Technical data packages may include ITAR-controlled drawings, which are subject to export control laws.

## 6.0 Purchasing

### 6.1 Sub-tier Management

The Supplier assumes all responsibility for the end-item deliverables and any associated documentation. In the event that a sub-tier supplier is used in the execution of this purchasing agreement, the Supplier is responsible to:

- manage that sub-tier supplier
- ensure that, where required by paragraph 7.1 and its subparagraphs, that only **suppliers approved by BAE Systems Platforms and Services or by an accredited third party, such as NADCAP**, are used for special processes
- flow down the requirements of this manual and all relevant/directed purchasing agreement requirements
- provide sub-tier documentation upon request by BAE Systems
- ensure timely response from the sub-tier supplier if corrective action becomes necessary

At no time will BAE Systems actively engage a sub-tier supplier without first notifying the Supplier.

### 6.2 Source Controlled Drawings/Vendor Item Drawings

Drawings identified as "Source Controlled" contain a list of approved source(s) of supply. The Supplier is required to purchase these items from an approved source. Where the approved supplier cannot be used, written authorization from BAE Systems is required prior to purchasing material from an unapproved source.

Drawings identified as "Vendor Item" contain a list of recommended source(s) of supply. The Supplier is recommended to purchase these items from the recommended source(s).

### 6.3 Qualified Products List

Any items supplied against this purchasing agreement applicable to a Government Qualified Products List/Database as defined by the specification(s), such as paint products, pre-treatment chemicals, electrical connectors, etc., must be manufactured by and traceable to a Government-approved source.

### 6.4 Prohibition on Acquisition of Materials from China

It is mandatory that the Supplier adhere to the following DFAR requirement. The most recent revision of the DFAR clause is stated below however the Supplier shall adhere to the latest revision as of the issuance of their Purchasing Agreement.

DFAR 252.225-7007 Prohibition on Acquisition of United States Munitions List Items from Communist Chinese Military Companies.

As prescribed in 225.1103(4), use the following clause:

PROHIBITION ON ACQUISITION OF UNITED STATES MUNITIONS LIST ITEMS FROM COMMUNIST CHINESE MILITARY COMPANIES (SEP 2006)

(a) Definitions. As used in this clause-

"Communist Chinese military company" means any entity that is:

(1) A part of the commercial or defense industrial base of the People's Republic of China; or

(2) Owned or controlled by, or affiliated with, an element of the Government or armed forces of the People's Republic of China. "United States Munitions List" means the munitions list of the International Traffic in Arms Regulation in 22 CFR Part 121.

(b) Any supplies or services covered by the United States Munitions List that are delivered under this contract may not be acquired, directly or indirectly, from a Communist Chinese military company.

(c) The Contractor shall insert the substance of this clause, including this paragraph in all subcontracts for items covered by the United States Munitions List.

(End of Clause)

## 6.5 Bearings

The Supplier shall adhere to the requirements of DFAR 252.225-7016 for all ball and roller bearings supplied under this Purchasing Agreement. The most recent revision of the DFAR clause is stated below however the Supplier shall adhere to the latest revision as of the issuance of their Purchasing Agreement.

DFAR 252.225-7016 Restriction on Acquisition of Ball and Roller Bearings

As prescribed in 225.7009-5, use the following clause:

### Use the clause at 252.225.7016. RESTRICTION ON ACQUISITION OF BALL AND ROLLER BEARINGS

(a) *Definitions.* As used in this clause—

- (1) "Bearing components" means the bearing element, retainer, inner race, or outer race.
- (2) "Component," other than a bearing component, means any item supplied to the Government as part of an end product or of another component.
- (3) "End product" means supplies delivered under a line item of this contract.

(b) Except as provided in paragraph (c) of this clause—

- (1) Each ball and roller bearing delivered under this contract shall be manufactured in the United States, its outlying areas, or Canada; and
- (2) For each ball or roller bearing, the cost of the bearing components manufactured in the United States, its outlying areas, or Canada shall exceed 50 percent of the total cost of the bearing components of that ball or roller bearing.

(c) The restriction in paragraph (b) of this clause does not apply to ball or roller bearings that are acquired as—

- (1) Commercial components of a noncommercial end product; or
- (2) Commercial or noncommercial components of a commercial component of a noncommercial end product.

(d) The restriction in paragraph (b) of this clause may be waived upon request from the Contractor in accordance with subsection [225.7009-4](#) of the Defense Federal Acquisition Regulation Supplement.

- (e) If this contract includes DFARS clause [252.225-7009](#), Restriction on Acquisition of Certain Articles Containing Specialty Metals, all bearings that contain specialty metals, as defined in that clause, must meet the requirements of that clause.
- (f) The Contractor shall insert the substance of this clause, including this paragraph (f), in all subcontracts, except those for—
- (1) Commercial items; or
  - (2) Items that do not contain ball or roller bearings.

(End of clause)

## 6.6 Traceability of Specialty Metals

All specialty metals used to produce parts for vehicles sold to the US Government shall be traceable to their country of origin. Objective evidence verifying the country of origin, i.e., Material Certificate of Analysis, shall be presented upon request by BAE Systems or the US Government.

Refer directly to DFARS 252.225-7008 and 252.225-7009 for the definitions of specialty metals and the permitted countries of origin.

## 6.7 Counterfeit Electronic Parts Prevention Plan

A Counterfeit Electronic Part is an Electronic Part that is: (1) an unauthorized copy or substitute that has been identified, marked, and/or altered by a source other than the Original Component Manufacturer (OCM) or Authorized Distribution Chain and has been misrepresented to be an OCM's authorized Electronic Part; and/or (2) previously used Electronic Parts that are misrepresented as being "new" when provided. The Supplier is responsible to prevent counterfeit materials from being provided to BAE Systems. To that end, the Supplier shall:

- Obtain Electronic Parts only from the OCM or their Authorized Distribution Chain
- Obtain written authorization from BAE Systems prior to purchasing parts from any source other than the OCM or their Authorized Distribution Chain (i.e. Independent Distributors)
- Verify parts obtained from Independent Distributors through in-house or third-party testing/inspection or through supplied certificates of authenticity/origin to determine authenticity; documentation must be retained on file and provided upon request to BAE Systems
- Quarantine all suspect/identified Counterfeit Electronic Parts to ensure that they cannot reenter the market; **do not return counterfeit/suspect counterfeit parts to the supplier**
- Notify the BAE Systems APR in writing in the event that Counterfeit/Suspect Counterfeit Parts are found
- Supplier must have processes for maintaining electronic part traceability (e.g., item unique identification) that enable tracking of the supply chain back to the original manufacturer, whether the electronic parts are supplied as discrete electronic parts or are contained in assemblies. This traceability process shall include certification and traceability documentation developed by manufacturers in accordance with Government

and industry standards; clear identification of the name and location of supply chain intermediaries from the manufacturer to the direct source of the product for the seller; and, where available, the manufacturer's batch identification for the electronic part(s), such as date codes, lot codes, or serial numbers. If IUID marking is selected as a traceability mechanism, its usage shall comply with the item marking requirements of DFAR [252.211-7003](#), Item Unique Identification and Valuation.

## 6.8 Commercial Off The Shelf (COTS) Parts

Commercial Off the Shelf (COTS) parts are ordered out of a standard catalog by the catalog part number and include items such as fuel filters, standard hydraulic fittings, and light bulbs. These parts are not designed for a specific application and are typically acquired from manufacturers and authorized distributors that supply the same part to a variety of markets.

Paragraph 8.3 of the SQAM is not applicable to this item; the Supplier shall provide a certificate of conformance and/or a packing slip as the objective quality evidence where no other objective evidence is available.

## 7.0 Production

### 7.1 Special Processes

Special processes include, but may not be limited to, any of the following:

- Bonding
- Casting
- Destructive/Non-destructive Testing
- Heat Treating
- Painting/Coating
- Plating
- Soldering
- Welding/Brazing

#### 7.1.1 General Special Process Requirements

For suppliers providing items, which require special processing, the Supplier shall:

- Maintain training/certification documentation for operators and inspectors in support of the special process being performed and make those records available to BAE Systems upon request. Operators/Inspectors performing NDE, soldering, and/or welding/brazing shall be certified to the proper level as identified in the specifications called out in the TDP of the purchase agreement.
- Maintain special process procedures/work instructions with revision control
- Maintain objective evidence of product compliance to the relevant specification(s) governing that special process

Additional requirements for certain special processes may be applicable through the purchasing agreement.

7.1.2 Chemical Agent Resistant Coating (CARC) Processing of CARC-finished parts/assemblies shall be performed only by a BAE Systems approved supplier. Parts received which are not finished by an approved supplier may be rejected and may be subject to rework by an approved supplier at the supplier's expense.

7.1.2.1 - The Supplier shall provide a copy of all test and inspection documentation for BAE Systems' review upon request as follows:

- Name and address of the finisher
- Part number
- Purchasing Agreement number
- Signature, printed name, and title of the Supplier Representative
- Certification date
- List of specifications used in the processing of the paint
- Paint thickness of a sample of actual parts for the primer
- Paint thickness of a sample of actual parts for the top coat
- Material lot/batch number(s)
- Material expiration date(s)
- A Certificate of Conformance

## 7.2 Part Identification Marking

### A. Combat Vehicles

The supplier shall ensure that items are legibly marked in accordance with the order of precedence as listed in section 4.0. If this identification is no longer visible after all finishing processes have been completed that info must be reapplied with the identification method to be determined by the supplier. Objective evidence must be made available upon request to support the original marking methods used. All parts must be marked with the part number listed on the P/O line item, and the Suppliers cage code, Site #, or Logo. The identification process cannot affect form, fit or function of the part.

For parts with a marking surface area less than 1.5" by .38" or radial surface with a diameter less than .25" and a 1.5" long marking surface, it is permissible to bag and tag each item unless directed by the drawing and / or specification to bag, and tag the lot. Items bag and tagged as a lot shall not exceed a package weight of 10 pounds, max quantity of 50 pieces, or a package size of 12" by 12", and packaging must be labeled with the part number listed on the P/O line item, and the Suppliers cage code, site #, or Logo.

- Age control applicable items must still be individually marked.

## B. Weapons Systems

The Supplier shall ensure that Items are legibly marked in accordance with drawing requirements and the requirements of the Purchasing Agreement. If identification is not legible after all finished processes have been completed, the supplier must submit a VIR form requesting directions from BAE Systems Identification is required for any part that does not have an identification requirement referenced on either the drawing/specification; The identification method is to be a printed label and Bag, Tag or Box. The information contained on the label for the Bag, Tag or Box shall contain the following information: Part Number, Part name, Quantity, Purchase Order #, rev Level, and Supplier's Cage Code.

### 7.3 CARC Paint Marking

All parts large enough to be individually marked shall be marked with the name or logo of the painter and the date or lot identification on which the parts were painted. If the Supplier paints the parts, only the date on which the parts are painted is required. Marking shall be ink stamped in a contrasting color with the size and font at the discretion of the supplier. Items too small to be individually marked shall have this information marked on the packaging.

This is not applicable to the Anniston Spares Program.

Example:

ABC Finishing Company

1/1/2012

## 8.0 Quality

### 8.1 Supplier Monitoring and Rating

BAE Systems rates and monitors the performance of its suppliers. A supplier's rating is based upon:

#### A. Combat Vehicles

- Quality Rating
  - % Acceptance (P1 + P2)
    - P1 - Receiving 50% (1 - Total Rec Defectives / Total Receipts\* .5)
    - P2 - WIP 50% (1 - Total WIP Defectives / Total Receipts\* .5)
- Quality Risk Assessment Rating (P1 + P2 + P3)
  - % Acceptance (P1 + P2)
    - P1 – 40% Receiving Inspection (1 - Total Defectives / Total Receipts\* .4)
    - P2 – 40% WIP (1 - Total Defectives / Total Receipts\* .4)
    - P3 – 20% Corrective Actions issued and responsiveness (1- corrective actions issued + late responses / 10 \* .2)

Suppliers who fall below a determined level (98% Quality Risk Assessment Rating) of performance may be subject to various activities including, but not limited to, audit by BAE Systems, request for a corrective action improvement plan, prohibiting the supplier from receiving new business and/or placed on Containment Level I or II.

- B. Weapons Systems BAE Systems Weapons Systems rates and monitors the performance of its suppliers. A supplier's rating is based upon:

$(\text{Total parts received} - \text{number of nonconformances}) / \text{Total parts received}$

For example:

- 200 parts received
- Nonconformances = 3 parts

$(200 \text{ parts received} - 3 \text{ nonconforming parts}) / 200 \text{ parts received} = 197/200 = 98.5 \%$   
Quality rating

## 8.2 Quality Management System

The Supplier shall develop, document, implement and maintain a quality system, which ensures compliance to all purchasing agreement requirements. The quality system shall be compliant with ISO 9001-2015 (or latest version), AS 9100, TS 16949, or a quality system approved by BAE Systems. Certification to ISO 9001/AS9100/TS 16949 by a registered third party is preferred. Objective evidence shall be on file verifying that such a system exists, is being maintained, and is compliant with the standard requirements. Procedures and records shall be made available for examination by authorized BAE Systems representatives upon request. BAE Systems reserves the right to audit the Supplier at any time with prior notice.

## 8.3 Inspection

The Supplier will inspect the first piece manufactured for this Purchasing Agreement to all drawing characteristics, drawing notes and Purchasing Agreement requirements and will maintain on file a report which includes the following elements (Note: If product under this purchasing agreement has been in continuous production and has not been changed since the last order, an additional first piece requirement is not required. Continuous production is defined as no break in production or process in excess of twenty-four (24) months, unless otherwise directed):

- Supplier's name and the manufacturing address
- Purchasing agreement number and line number
- Item number, description, and revision as they appear on the purchasing agreement
- Lot quantity
- Certificate of compliance for the delivered item (as defined by paragraph 8.5)
- Material certificates/ballistic firing records (where applicable)
- Special process certifications (where applicable)
- Inspection Report
- Balloon Drawing
- First Article Test/Inspection reports (where applicable)

- Production test reports (where applicable)
- Date of last control test and next control test, and, if a control test was performed on the current lot, a copy of the control test report (where applicable)
- Verification of all drawing notes, dimensions, and associated QAP/QAR/SQAP/Specification requirements, with the requirement and measured values recorded. **Variable data shall be recorded with actual values measured for each sample.** The supplier shall provide traceability from the measured value to the drawing characteristic (Ex. ballooned drawing (all characteristics, including drawing notes, numbered)
- For assemblies, verification of all component-level (those components identified on the top level drawing or are identified in the BOM listed on the top level drawing) drawing notes, dimensions, and associated QAP/QAR/SQAP/Specification requirements, with the requirement and measured values recorded. **Variable data shall be recorded with actual values measured for each sample**
- Inspector's name, signature, and date (electronic or digital signatures are acceptable)

The First Piece/First Article Inspection report will be submitted to BAE Systems as required by the Purchasing Agreement. BAE Systems reserves the right to request additional copies of First Piece/First Article and In-process inspection records at any time. Requests for records shall be fulfilled within five (5) business days.

Following the First Piece/First Article Inspection, the Supplier shall have a process in place which assures that all supplied product is compliant to all Purchasing Agreement requirements. This process shall consist of a C=0 sampling plan, SPC, or any other method which assures that the final shipped product is compliant. If required by contract the supplier may be required to submit a plan to BAE for approval. Record of the plan approval shall be kept on file with the first piece acceptance documentation. If the first piece fails to meet the functional, dimensional or TDP requirements, a new first pc must be generated, tested and measured. Likewise, if the manufacturing process or design of the part changes, new parts must be obtained that represents this new process/design and a delta First Piece/First Article inspection is permissible with prior approval.

Inspection requirements for certain special processes, testing, and fasteners:

- Visual weld inspection shall be 100% or per applicable specification requirements
- Verification/validation of finishing processes shall be performed on each manufacturing lot unless a higher frequency is required by the relevant specification
- Non-Destructive Evaluation (NDE) / Non-Destructive Testing (NDT) as required by specification/contract.
- Frequency-based testing such as sample/quantity or sample/time period shall be followed.
- Documented/specified fastener quality assurance requirements shall be followed.

Parts for which the design is proprietary to the Supplier, or their sub-tier supplier, and which are ordered to the Supplier/Sub-tier Supplier's part number shall only require a certificate of conformance from the manufacturer.

The Supplier shall maintain records documenting product compliance to all applicable purchasing agreements, drawings, specifications, and standards for a period of seven (7) years after order completion. At the end of this period, if the Supplier desires to dispose/destroy the records, the Supplier shall contact BAE Systems and request disposition instructions, which may include authorization to destroy the records or instructions to forward the records to a BAE Systems facility.

## **8.4 Measuring and Test Equipment**

The Supplier shall establish and maintain a documented calibration system to verify conformity of all measuring and test equipment (M&TE) such as gages, tools, jigs, fixtures and dies used to verify conformity to requirements. This system shall be compliant with ISO 9001:2015 (or latest version), AS 9100, TS 16949, or shall be approved by BAE Systems.

Outside calibration and inspection/test, services used shall maintain a system in accordance with a recognized standard such as ISO 10012, ANSI/NCSL Z540, or ISO 17025 and shall address the criteria described in the selected standard.

## **8.5 Certificate of Compliance**

The Supplier, when required by the purchasing agreement or upon request by BAE Systems, shall generate and provide a Certificate of Compliance. The instructions for submitting the Certificate of Compliance shall be as defined by CDR. This certificate, signed by an authorized representative, shall contain the following information:

- Supplier's name and address
- BAE Systems' purchasing agreement number and line number
- BAE Systems' item number, description, and revision as specified on the purchasing agreement
- Quantity
- A statement that the product/service meets all of the requirements of the purchasing agreement and its technical data package at the prescribed revision level.
- Exceptions, including waivers and deviations (as applicable)
- Signature, printed name, and title of signer (electronic or digital signatures are acceptable)
- Date

## **8.6 Non-conforming Material**

The Supplier is responsible for establishing controls to ensure that products not conforming to the Purchasing Agreement are identified, segregated, dispositioned and controlled to prevent inadvertent use. All costs associated with non-conforming material, including freight, handling, material replacement, inspection, rework, etc., may be charged back to the Supplier.

When non-conforming items are to be returned to the Supplier, the Supplier shall provide a Return Material Authorization (RMA) number within 24 hours of notification. Failure to provide the RMA number within the specified time authorizes BAE Systems to return the items at its discretion.

In the event that the Supplier identifies a non-conformance which they are not authorized to correct (i.e. repair or use as-is dispositions), the Supplier shall provide written notification, through submission of a VIR, to the appropriate BAE Systems APR within 24 hours of discovery and provide complete traceability information for all known or suspect nonconforming product shipped, including but not limited to identification of batch/lot number, purchase order, part identification, and dates of shipment. The non-conforming items shall be quarantined at all BAE Systems/Supplier's facility until BAE Systems provides disposition instructions.

Where non-conforming items pose a risk to BAE Systems' production schedule, BAE Systems reserves the right to request the Supplier provide on-site support to screen for and/or correct the issue. Upon request, the Supplier shall arrange for on-site support within 24 hours of receipt of the request. Failure to provide on-site support authorizes BAE Systems to contract third-party support at the Supplier's expense.

### **8.7 Preliminary Material Review (PMR)**

The Supplier is authorized to rework, scrap, or return to their sub-tier supplier items, which are non-conforming, where these dispositions are subject to the following definitions:

- Rework: the correction of a non-conformance resulting in full compliance to the TDP requirements
- Scrap: disposal/destruction of the non-conforming item(s)
- Return to sub-tier supplier: returning the item/component to its supplier/manufacturer

### **8.8 Material Review Board (MRB)**

The supplier may not repair non-conforming items or determine that the item may be used as-is unless written authorization is incorporated into the purchasing agreement. These dispositions are defined as follows:

- Repair: correction of the non-conformance resulting in a functional item, but where the item does not meet all of the requirements of the TDP
- Use As-is: the determination that the non-conformance does not impact the form, fit, or function of the item even though it does not meet all of the requirements of the TDP

### **8.9 Corrective Action**

The Supplier is responsible for implementing systems capable of resolving problems adversely affecting quality. The Supplier shall:

- Contain all discrepant parts whether they are completed, in-process, in inventory, in-transit, previously shipped or in the field.
- Determine root cause of the issue, why it wasn't detected in their system and what systemically failed to allow the deficiency.
- Identify impacts to similar items that use the same process/material/equipment and which may be affected by this discrepancy).
- Implement corrective action to correct the deficiencies.
- Implement preventative actions to preclude future occurrences of the issue(s).

Records, which document the above actions, shall be maintained and made available to BAE Systems upon request; these records may be in the Supplier's format as long as they address all requirements specified in this document.

In the event that a non-conformance is discovered by BAE Systems, BAE Systems may issue either a notification of nonconformance (Level I Corrective Action) or a Supplier Corrective Action Request (SCAR, Level II Corrective Action).

A notification of nonconformance, Level I Corrective Action informs the Supplier that a non-conformance was identified but does not require a formal response from the Supplier. The Supplier is still responsible and shall correct the identified non-conformance in their process and document the actions taken in accordance with their internal corrective action procedures.

A SCAR requires that the Supplier provide formal written analysis of the root cause and documented corrective and preventative actions. The formal response from the Supplier must be received on or before the response due date or the Supplier's performance and/or risk rating may be impacted.

BAE Systems will, based on the supplied SCAR response, determine what follow up actions are required, if any, and completion of all follow up actions will be required before the SCAR can be closed.

## **8.10 Written Corrective Action Requests (WCAR)**

In the event that the Supplier receives a WCAR related to, or similar to, product or processes provided to BAE Systems from the Defense Contract Management Agency (DCMA), the Supplier is required to notify their BAE Systems APR of the WCAR record and the scope of the issue, regardless of the perceived impact to parts or services supplied to BAE Systems.

## **8.11 Right of Access**

BAE Systems and its Customer reserve the right to perform inspection of product, witness testing, and/or review manufacturing and inspection processes/procedures at the Supplier's facility or their sub-tier supplier's facility at any point during the execution of this purchasing agreement at no additional cost.

In support of these on-site activities, the Supplier shall make available any area of the facility or any individual relevant to the subject of the on-site visit. The Supplier shall also make available any required inspection equipment, records, drawings/technical data, and/or process documentation.

## **8.12 Data Submission Instructions**

All data submissions, unless otherwise specified, shall be submitted electronically. The email subject line should include the relevant Purchasing Agreement number and part number. Paperwork should not be shipped with the product.

Please see the following for the respective site you will be shipping to:

Combat Vehicles:

- a. Sterling Heights, MI - [sqasterlinghts.pands@baesystems.com](mailto:sqasterlinghts.pands@baesystems.com)
- b. Anniston, AL - [sga.anniston@baesystems.com](mailto:sga.anniston@baesystems.com).

- c. Phoenix, AZ – [receivinginspectionaz@baesystems.com](mailto:receivinginspectionaz@baesystems.com)

Weapon Systems:

- d. Louisville, KY– [sqa-admin.minneapolis@baesystems.com](mailto:sqa-admin.minneapolis@baesystems.com)  
 e. Minneapolis, MN - [sqa-admin.minneapolis@baesystems.com](mailto:sqa-admin.minneapolis@baesystems.com)  
 f. Aberdeen, SD - [sqa-admin.minneapolis@baesystems.com](mailto:sqa-admin.minneapolis@baesystems.com)

## 8.13 Containment Process

### Level I Containment

Controlled Shipping – Level 1 (CS1): CS1 requires the supplier to contain the suspect product and perform a redundant 100% inspection process. This process is done either by the supplier's employees or by an outside third-party inspection company. The Supplier is required to identify the root cause of the defect(s) and incorporate irreversible corrective actions. Following implementation of the irreversible corrective actions the supplier is required to validate by the above process improvements actions are effective. Upon notification the supplier must immediately contain by the agreed upon date all suspect product/material at the supplier, customer, in-transit or at the ultimate customer as applicable.

### Level II Containment

Controlled Shipping – Level 2 (CS2): The customer will require CS2 when the supplier has failed to correct the problem in CS1 or has had major quality problems. In CS2, the supplier is required to continue their in-house inspections as in CS1 and add an additional redundant inspection process performed by a third party inspection and sorting company. This third party is selected by the supplier, and is to be approved by the customer. The supplier always pays the third party inspection and sorting company.

The root cause analysis and irrevocable corrective actions if identified/implemented in CS1 must be continued or redone until they are effective as verified by the data reported from the redundant inspection processes. Controlled Shipping Level 2 is required when the customer determines that Level 1 is not sufficient to isolate the customer from nonconforming parts. Normally this determination is based on:

- Repeat S-CAR's
- Duration, quantity, and/or severity of the quality problem
- Controlled Shipping Level 1 failures
- Major Disruptions (line stoppage)
- Major Quality problem (customer complaints, warranty defects, etc.)

Controlled Shipping Level 2 requires the supplier to do all of the actions of Level 1 and to put in place a third party redundant inspection process to sort for nonconformance (s). The supplier is required to implement a root cause problem solving process or to continue the root cause problem solving process started earlier. If the supplier is unable to identify and correct the root cause, the customer may require the supplier to employ a third party Quality Engineering firm to manage the corrective action process. Once the supplier has met the defined exit criteria, the

supplier requests exit from Controlled Shipping – Level 2. The supplier must provide supporting documentation and assessments on performance and corrective actions to the customer.

## 9.0 Packaging/Shipping

### 9.1 Cleanliness and Preservation

The Supplier shall furnish parts/components which are free of mill scale, rust, carbon deposit, weld spatter, or any surface contaminant that would be detrimental to appearance or functional performance (i.e. would prevent proper adhesion of coatings).

When specified on the drawing, specification and/or purchasing agreement, bare metal surfaces, ferrous and non-ferrous metals, shall be protected from corrosion. Technical information regarding the preservative used shall be maintained on file by the supplier and made available to BAE Systems upon request.

Any openings on components, such as electrical connectors, hydraulic/pneumatic fittings/ports, bare machined holes, and fuel ports, shall be properly plugged or capped to prevent internal contamination.

### 9.2 Packaging for Electrostatic Discharge (ESD) Sensitive Items

All Class 1, Class 2 and Class 3 parts, assemblies, and equipment, as defined by MIL-STD-1686, are to be packaged in accordance with Paragraph 5.8 of MIL-STD-1686 (MIL-E-17555). External shipping packaging for Class 1, Class 2, and Class 3 devices shall be identified with the ESD symbol. All other components with solderable leads and which are considered non-ESD sensitive per MIL-STD-1686 shall be packaged in material that meets the requirements of MIL-B-81705, Type II or Type III. Bare printed wiring boards are to be packaged in heat-sealed non-static-generating poly bags that meet the requirements of MIL-PRF-81705 and MIL-HDBK-263.

### 9.3 Hazardous Material Control

In order to assure the proper storage, handling, use, and disposal of hazardous or potentially hazardous materials, every container shall be clearly marked with the following, as a minimum:

- Product Name
- Manufacturer's Name
- Manufacturer's Part Number
- Manufacturer's Batch Number or Lot Number
- Date of Manufacture
- Expiration Date, per manufacturer's specification
- Federal Hazardous Chemical Label (OSHA 1910, 1200 Compliant)
- BAE Systems Purchasing Agreement Number
- BAE Systems Item Number
- Applicable DOT/UN Placard/Labels

In addition, all products containing Volatile Organic Compounds (VOCs), such as paint, must be labeled by the manufacturer in accordance with applicable state and/or federal codes.

A copy of the Material Safety Data Sheet (MSDS) shall accompany each shipment.

#### **9.4 Supplier Qualification / First Article Testing**

Many components or assemblies may require the application of either or both Qualification Testing or First Article Testing prior to delivery. Examples include but are not limited to Electronic Line Replaceable Units (LRUs), Motors, Hydraulic Pumps, Control Assemblies, Seals, Filters, Actuators etc. This testing is described in Technical Data Package (TDP) within Drawing Notes, Performance Specifications and /or Quality Assurance Provisions (QAPs). These tests are performed to validate either the design of product capability to meet design specifications or production process capability to meet design specifications.

Typical reasons components governed by these requirements must be tested include:

- First time ever manufactured by supplier (Includes non-approved source attempting to provide source controlled parts)
- Change in design, configuration, component or sub component parts whether directed by BAE Systems/PM-AFV or supplier since initial test
- Significant change in manufacturing process (manufacturing line is moved, introduction of a new manufacturing technique, etc.) since initial test
- Change in manufacturing facility location since initial test
- Lapse in production of component greater than 24 months

These are significant tests that may require BAE Systems and or Government witness. Supplier shall submit plans which include all testing to be performed and associated dates in advance of initiating any testing within 30 days of PO issuance. Supplier shall submit Final Test Report to BAE Systems and obtain approval of same prior to shipping any representative product.

The supplier shall, upon receipt of any request for quote (RFQ), review all associated TDP to determine if component has any Qualification and or First Article Testing required within the TDP. Upon determination that components do have Qualification and or First Article Testing required the supplier shall determine if testing is actually required due to any of the conditions noted above.

The supplier shall prominently annotate in the response to RFQ the following:

- Whether the component being quoted does or does not have any Qualification and/or First Article Testing required within the TDP
- If component does have Qualification and or First Article Testing required within the TDP do any of the conditions listed above exist that would drive testing and if so annotate which condition applies and final date of last production run for component
- If testing is required provide ROM Pricing for execution of testing required