

# Contract Deliverable Requirements

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**Approved By Signature**

**Date:**



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### **001 Inspection/Test Data Reports**

All of Supplier's actual inspection/test data for the specified item shall be submitted by the Supplier to BAE Systems on a suitable form. The data shall be submitted with the shipment of the item. As applicable, the data shall include the following information:

- Part Number
- Serial Number
- Quantity of parts
- Identification of each characteristic inspected/tested to include but not limited to: dimensional coordinates, drawing notes, (e.g., protective coatings, chemical and physical properties), etc.
- Actual Inspection/test results
- Date of inspection/test
- Inspector's signature, stamp or initials
- Indication of First Piece (when applicable)

### **002 Detailed Inspection Test Procedure**

The Supplier shall prepare and maintain a written, detailed inspection/test procedure for the subject item. Prior to the start of inspection, the Supplier shall submit the procedure(s) to BAE Systems for approval in accordance with the Data Submission Instructions for this part. Each procedure shall contain the following information:

- Part Number
- Procedure Revision
- Identification of each characteristic to be inspected/tested, its requirement, and drawing and/or specification requirement reference and their respective acceptance criteria
- Sequence of each inspection/test
- Equipment to be used for each inspection/test and for complex operations, the setup of the inspection/test equipment
- The inspection/test environment

- Definition of the test/inspection report documenting the test/inspection results

Changes to the defined procedure shall be submitted to BAE Systems for approval prior to conduct of inspection/test.

### **003 First Piece / First Article Inspection Report**

The Supplier shall submit their First Piece /First Article Inspection Report for this item as specified in SQAM paragraph 8.3. This report shall be submitted as specified in the Data Submission Instructions for this item.

### **004 First Article Test (FAT)**

The Supplier shall submit a FAT plan in accordance with the Data Submission Instructions for this item within thirty (30) days after receipt of the Purchasing Agreement. The FAT plan shall include:

- Dates for submittal of the FAT procedure
- Dates and location(s) for all testing with anticipated start/completion dates
- Date for submittal of the FAT report.

The Supplier shall update/resubmit the FAT plan to cover any changes to the schedule. The procedure and test reports may be prepared using MIL-HDBK-831 as a guide and shall be approved by BAE Systems prior to start of test. BAE Systems and its Government customer reserve the right to witness FAT testing at any point in the schedule.

Following First Article approval, it is the Supplier's responsibility to notify the BAE Systems Authorized Purchasing Representative to determine what testing must be repeated when any of the following occurs:

- Receipt of new Purchasing Agreement or contract
- Significant change in manufacturing process (introduction of a new manufacturing technique, etc.)
- Change in any drawing configuration, component, or sub-component parts
- Change in manufacturing location
- A break in production or process in excess of twelve (12) months, unless otherwise specified

### **005 Customer Source Surveillance (CSS)**

Source Surveillance, inspection, and/or test by a BAE Systems source inspection representative is required for each shipment of this item. In order to accommodate BAE Systems source inspection representatives, the Supplier shall make all facilities, equipment, inspection records, and assistance readily available.

The Supplier shall provide five (5) working days advance notification of requests for source inspection through submission of Form 092245. Requests shall be submitted in accordance with the Data Submission Instructions specified for this item. Requests submitted with less than five (5) working days' notice may impact the Supplier's delivery rating. Unauthorized shipment of product without BAE Systems source inspection may result in the shipment being rejected and returned to the Supplier at the Supplier's expense.

### **006 Government Source Surveillance/Inspection (GSS/GSI)**

Government surveillance/inspection is required prior to shipment from your plant and cannot be waived by BAE Systems. Upon receipt of the Purchasing Agreement, promptly notify the Government representative who normally services your facility so that appropriate planning for Government inspection can be accomplished.

Notification to the local Government representative of pending inspections shall be made in accordance with FAR 52.246-2(i) (2), which can be found at [https://www.acquisition.gov/far/current/html/52\\_246.html](https://www.acquisition.gov/far/current/html/52_246.html). As of this revision, the FAR requires two (2) working days notification for resident representatives and seven (7) working days for all other instances; however the latest revision of the FAR shall apply. In the event the representative or office cannot be located, the BAE Systems Authorized Purchasing Representative shall be notified immediately.

Government inspection must be made prior to shipment. Unauthorized shipment of product without Government Source Surveillance may result in rejection and subsequent return at the Supplier's cost, and withholding of your invoice payment. GSS shall not replace Supplier inspection nor relieve the Supplier of its responsibility for

### **007 Welding-Combat Vehicles**

- **PRIOR** to implementation of the proposed process, procedure approval is required by BAE Systems Weld Engineering
- Supplying product to BAE Systems without an approved Welding Procedure Specifications (WPS) is cause for rejection
- The WPS shall include the Procedure Qualification Record (PQR) for the process



- If the Supplier has completed the BAE Systems Weld Training, they may use the BAE Systems procedures for which they are qualified
- Use of BAE Systems WPS still requires approval prior to use for each individual part number. If the Purchasing Agreement Part Number is changed through configuration, the WPS shall be resubmitted even if nothing is changed within the weld process/procedure
- The Supplier is responsible for the performance and maintenance of all supporting documentation required to demonstrate compliance with Purchasing Agreement requirements
- Forms are available on the BAE Systems Purchasing website or through the appropriate BAE Systems Authorized Purchasing Representative. Access to the forms on the Purchasing website can be gained as follows:
  - [HTTP://WWW.GSD-PURCHASING.UDLP.COM/INDEX.SHTM](http://www.gsd-purchasing.udlp.com/index.shtm)
  - User name: supplierlink
  - Password: supplierinfo
    - Select “York”
    - Select “Quality”
    - Select “Weld Forms”

### **Aluminum and Steel Arc Welding; Resistance Welding and Brazing**

Procedure submittal requirements for aluminum, steel, resistance, and brazing weldments are addressed on the following forms/ procedures:

<b>Form Number/ Procedure</b>	<b>Document Title</b>
12472301	Ground Combat Vehicle Welding Code - Aluminum
12479550	Ground Combat Vehicle Welding Code - Steel
LAA-5128	Welding Procedure Extension Request
LAA-5130	Brazing or Braze Welding Procedure - Cover Sheet
LAA-51301	Brazing or Braze Welding Procedure
LAA-5131	Recorded Joint Welding Procedure for Resistance Welding - Cover Sheet
LAA-51311	Recorded Joint Welding Procedure for Resistance Welding
LAA-5272	Welding and Brazing Submittal Requirements and Instructions

Forms are available on the BAE Systems Purchasing website or from a BAE Systems Authorized Purchasing Representative.

Aluminum Welding Code 12472301 replaces these specifications (reference page 4, Table P.1):

- MIL-STD-1946
- MIL-STD-372
- MIL-W-45205
- MIL-W-45206

Steel Welding Code 12479550 replaces these specifications (reference page 4, Table P.1):

- MIL-STD-1261
- MIL-STD-1941
- MIL-STD-1185
- MIL-W-46086

### **008 Welding-Weapon Systems**

- Prior to the Supplier's start of fabrication (or repair to raw material, casting, forgings, etc.), the Supplier shall submit procedure(s) and supporting qualification test data in accordance with the applicable specifications (including weld personnel certifications) and form KA-021 to the BAE Systems Authorized Purchasing Representative
- Supplying product to BAE Systems without an approved Welding Procedure Specifications (WPS) is cause for rejection
- The WPS shall include the Procedure Qualification Record (PQR) for the process when applicable
- If the Supplier has completed the BAE Systems Weld Training, they may use the BAE Systems procedures for which they are qualified
- Use of BAE Systems WPS still requires approval prior to use for each individual part number
- The Supplier is responsible for the performance and maintenance of all supporting documentation required to demonstrate compliance with the Purchasing Agreement requirements
- Changes/revisions to previously approved weld procedures must be submitted for re-approval

### **009 Soldering**

- The Supplier shall submit soldering plans in accordance with the Data Submission Instructions for this item (30) days after receipt of the Purchasing Agreement
- Procedures shall be submitted for all subcontracted soldering operations
- BAE Systems reserves the right to disapprove the plan or to require changes in the plan, which it deems necessary to ensure the product conforms to IPC J-STD-001, Class 3 and Purchasing Agreement requirements
- A new Purchasing Agreement number with the same prime contract number as previously approved does not require extension or approval
- The plan shall include, as a minimum, detailed procedures to be followed and utilized throughout all areas of performance
- The Supplier must have approval from BAE Systems prior to beginning production. This approval will be in the form of a letter notifying you that your facility has satisfactorily completed a High-Reliability Audit. The approved program must be utilized in the performance of Purchasing Agreement
- Any and all records required by the approved program may be requested at any time and must be immediately available for review
- BAE Systems must approve changes to this program following approval

### **010 Solderability**

Material supplied shall meet the solderability requirements of the product fabrication specification. When no solderability test is specified, the test shall be performed in accordance with MIL-STD-202, Method 208.

**Note: One hour steam aging is required for wire.**

For each shipment, the Supplier shall provide a written certification stating that the components provided were tested and meet the applicable solderability requirements as stated above. Certification shall be submitted in accordance with the Data Submission Instructions for this item.

### **011 Printed Wiring Boards (PWB)**

The Supplier shall provide for each shipment a written certificate stating that the boards were fabricated to the relevant specifications identified within the TDP. The certification shall be provided in accordance with the Data Submission Instructions for this item. Test

coupons and microsections must be maintained for a period of two (2) years and available for examination by BAE Systems.

## **012 DELETED**

### **013 Nondestructive Examination Procedures**

When the Purchase Order specifies Nondestructive Examination such as radiography, magnetic particle, liquid penetrant, or ultrasonic inspections, the Supplier shall submit the procedure to BAE Systems in accordance with the Data Submission Instructions for this part for approval. The procedure shall be submitted within thirty (30) days after receipt of the Purchasing Agreement. If the submittal is requested during performance of the Purchasing Agreement, the Supplier shall submit the procedure within three (3) days of receiving the request.

All changes to the approved procedure shall require re-submittal and approval. The revised procedure shall not be implemented until written approval is received from BAE Systems.

### **014 Nondestructive Examination Inspection Report**

The Supplier shall furnish a certified test report stating that Nondestructive Examination(s) required per the TDP have been performed in accordance with an approved test procedure as required by the referenced specification and that the material is acceptable. The certification shall also include:

- Type of test and coverage
- Applicable procedure specification (title, number and revision)
- Applicable acceptance criteria (title, number and revision)
- Name and address of the company that actually performed the testing
- Certificate of process compliance
- Name and signature of the person performing the inspection/test

Date the inspection/test was performed

A test plan shall be developed detailing the Nondestructive Examinations to be performed (including test equipment to be used, angles to be captures in radiographic testing, etc.) and shall be made available to BAE Systems upon request.

### **015 Control Tests**

The Supplier shall perform Control Tests at the frequency defined by the specification/QAP. The Supplier is responsible for determining the test schedule based on the production and delivery schedule for the Purchasing Agreement. The Supplier

shall submit, in accordance with the Data Submission Instructions for this item, a control test procedure within thirty (30) days after receipt of the Purchasing Agreement for approval by BAE Systems. The Supplier shall notify the BAE Systems Authorized Purchasing Representative of the projected test schedule and any changes as they occur. If any failures occur, either through defect of the test equipment or of the test sample itself, the Supplier shall immediately notify the BAE Systems Authorized Purchasing Representative for further instructions prior to continuance of testing.

Following the completion of testing, a test report shall be submitted in accordance with the Data Submission Instructions for this item for approval.

MIL-HDBK-831 should be used as a guide in developing the test report format. As a minimum, the test report shall include:

- BAE Systems Part Number
- BAE Systems Purchasing Agreement Number
- Prime Contract Number (this is specified on the Purchasing Agreement)
- Applicable drawings/specification and revision level
- Type of test (i.e., Group "C," Group "D," etc.)
- Tests performed and results
- Test completion date
- Sample size
- Sample identification, if applicable
- Production interval (or Purchasing Agreement line number)
- Printed name, signature, and title of Supplier's representative
- Report date
- Any additional data or information required to show full compliance to the control test requirements

### **016 Plating**

The Supplier shall provide written certification documenting that the plating was performed in accordance with drawing and Purchasing Agreement requirements. The facility actually performing the plating shall prepare the certification. When baking for hydrogen embrittlement relief is required, the certification shall define the required bake time at temperature and contain a statement that the items were baked at the required temperature for the required minimum time specified in accordance with the required revision level of the specification.

Certification **MUST** include as a minimum:

- Part number
- Purchasing Agreement number

- Plating process specification used
- Baking temperature
- Baking time
- A statement that the baking operation was started within 3 hours of plating completion is it 3 hours or 4 hours???
- Complete lot traceability to all certifications related to the BAE Systems Purchasing Agreement
- Signature/title of the Supplier's representative
- Report date

**A. Electroplated Coating of Cadmium or Zinc:**

All fasteners which are electroplated in cadmium or zinc shall be hydrogen embrittlement relieved by baking at 375°F ±25°F for 23 hours minimum. This baking process shall be initiated within four (4) hours of completion of the plating process.

Components requiring electroplated coating of cadmium or zinc, which are incorporated in equipment to be delivered under this Purchasing Agreement, shall allow the use of ASTM B 633, Type 2, of equivalent thickness, except salt spray test per ASTM B 633 is not required. An alternate coating for ASTM B 633 shall be Ion Vapor Deposited (IVD) Aluminum MIL-DTL-83488, Type II, of equivalent thickness. For components requiring non-electroplated coatings of cadmium or zinc, the alternate coating shall be MIL-DTL-83488, Type II, of equivalent thickness.

**B. Solid Film Lubricant, MIL-PRF-46010:**

When performing solid film lubricant on steel products, the parts shall receive a solid film bake cure at 300° F, for how long??? unless the drawing specifies a specific temperature.

**017 Paint Certification**

The Supplier shall provide a copy of the written certification documenting that painting was performed by an approved finisher in accordance with all drawing, specification, and Purchasing Agreement requirements. Certification shall be submitted in accordance with the Data Submission Instructions for this item. The facility actually performing the painting shall prepare the certification, which shall include:

- Name and address of the finisher
- Part number
- Purchasing Agreement number
- 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)
- Signature, printed name, and title of the Supplier Representative
- Certification date

All test and inspection documentation shall be available for BAE Systems' review upon request.

### **018 Physical and Chemical Test Reports**

With each shipment, the Supplier shall provide all actual chemical, mechanical, and/or physical test results pertaining to the material shipped under this Purchasing Agreement with traceability to the original mill/manufacturer, heat lot, and country of origin, as applicable. This data shall be provided to BAE Systems in accordance with the Data Submission Instructions for this part.

### **019 Test Samples – Tensile Testing**

With each shipment, the Supplier shall provide a set of two un-machined test bars suitable for the mechanical testing required by Purchasing Agreement or referenced specification. Both bars shall be made from the same melt and heat treated in the same lot as the supplied parts.

### **020 Heat Treating**

With each shipment, the Supplier shall provide a written certification that heat treatment was performed in accordance with drawing and Purchasing Agreement requirements. When the drawing specifies a hardness range for materials due to quench and temper or other practices, actual results shall be recorded on the certification. When heat treating is performed by a facility other than the Supplier shown on Purchasing Agreement, the name of that subcontractor and a copy of the certificate furnished by the subcontractor for the heat treatment shall be furnished to BAE Systems. When specified on the drawing and/or the Purchasing Agreement, test samples shall be provided to BAE Systems for evaluation.

#### **A. Visual Metallographic Inspection**

Visual inspection at a magnification of 5X shall be performed on heat treated items. Cracks, seams, laps or other injurious defects shall not be allowed. For steel carburized parts, the heat treat condition prior to carburizing shall be either quench and tempered or normalized and tempered. Heat treat process and

atmosphere control shall be such that no decarburization occurs on the surface as detectible by metallographic sectioning under magnification at 100X, method specified on drawing or appropriate specification. Exceptions are stress-proof, fatigue-proof, precipitation hardening grades of steel, managing steels and structural steel such as HY-, HY-100, Cor-ten, etc. This will minimize distortion and assure that proper hardness is achieved.

**B. Quench and Temper (Core Hardness Specified)**

A test specimen (or additional part) of the same alloy and same size, within 20% of the largest cross section thickness, shall be heat treated with each heat treat lot. The test sample shall have a length at least one inch longer than the section thickness or two times the diameter. The specimen or sample part shall be cross sectioned at mid-length of the largest cross section thickness plus or minus 3/8 inch. The Supplier shall submit a report including the actual surface hardness and core hardness at 1/2 radius (core hardness measured on cut surface).

**C. Quench and Temper (Core Hardness Not Specified)**

The report shall include a statement of the surface hardness findings for each heat treat lot. Testing shall be done in areas identified on the drawing or in such a manner as to not damage the critical surface finish as defined by the drawing.

**D. Case Hardening - Carburizing**

A test specimen of the same alloy and similar configuration as the part shall be processed with each heat treat lot to verify case depth, surface and core hardness requirements, and microstructure. The Supplier shall submit a report with the required case depth hardness actual results obtained and microstructure per specified standard. Certification shall be submitted with each heat treat lot.

**E. Case Hardening - Nitriding**

A test specimen of the same alloy, same hardness, and similar configuration as the part shall be processed with each heat treat lot to verify case depth, hardness requirements, and to monitor thickness of white layer. The Supplier shall submit a report with required case depth, hardness, process temperature, and actual results obtained. Certification shall be submitted with each heat treat lot.

**F. Surface Hardening - Flame or Induction**

The Supplier shall provide certification with each lot reporting the actual case depth, surface and core hardness values obtained. First Article proof tests with pattern, equipment power setting, quench media, and other critical process parameters shall be maintained by vendor.



### **G. Stress Relief**

Certification shall report the actual processing time, temperature and number of cycles for each lot as defined in the drawing or specification.

#### **021 Mercury**

With each shipment, the Supplier shall provide certification that the material shipped under this Purchasing Agreement does not contain functional mercury in any form and that no mercury-bearing instruments and/or equipment that might cause contamination have been used in the manufacture, fabrication, assembly, or testing of any material shipped under this Purchasing Agreement. This requirement must be included in all sub-tier Purchase orders however certification is only required from the BAE Systems tier 1 supplier.

#### **022 Material Traceability**

All finished product lots must be traceable to the original mill/manufacturer, heat lot, and country of origin, and the Supplier must maintain material traceability throughout all steps of the manufacturing process including any outside processing.

#### **023 Age Control**

Age-sensitive items include, but are not limited to, paint, adhesives, and rubber products. The following requirements apply to all items with this requirement:

- Age-sensitive items shall be delivered with a minimum of 75% of the shelf life remaining
- All age-sensitive items and their respective shipping containers shall be permanently marked with the cure/manufacture and the expiration dates in addition to any other marking requirements
- For parts delivered on a spool or reel, the marking must be applied to a visible location on the outside of the spool or reel
- The cure/manufacture and expiration dates shall be in either Quarter/Year format (for product with a shelf life in excess of three (3) years) or Month/Year format (for product with a shelf life of three (3) years or less). The method of marking and the marking height shall be in the manufacturer's format, however the marking shall not affect the part's form, fit, or function

Example:           CURE       4Q/2010  
                  EXP       4Q/2016

- In addition to the requirements of SQAM paragraph 8.5, Certificates of Conformance for age sensitive items shall include:
  - Lot traceability by run, batch, lot, or date of manufacture
  - Shelf life expiration date (as required by specification)

- Storage conditions to achieve shelf life, if not stated on the material package

#### **024 Non-manufactured Coniferous Wood Products**

All wooden pallets and wood containers produced entirely or in part of non-manufactured softwood species shall be constructed from heat-treated coniferous material. This material must be certified accordingly by an accredited agency recognized by the American Lumber Standards Committee (ALSC) in accordance with Non-manufactured Wood Packaging Policy and Non-manufactured Wood Packaging Enforcement Regulations. The Supplier shall maintain on file at their facility, and provide upon request to BAE Systems, a certificate of conformance from the accredited heat treat facility.

#### **025 Special Packaging**

Material is to be packaged in accordance with the packaging instructions provided in the body of or attached to this Purchasing Agreement. A statement that the packaging is in accordance with the specified requirements will be included in the Certificate of Compliance (reference SQAM paragraph 8.5).

#### **026 Quality Requirements**

The Supplier shall maintain on file, and provide to BAE Systems upon request, objective quality evidence demonstrating compliance to all of the requirements of this Purchasing Agreement. When documentation is requested by BAE Systems, the documentation shall be provided in a commonly readable electronic format and shall be emailed to the authorized BAE Systems representative requesting the information or as specified by that individual.

#### **027 Certificate of Compliance**

The Supplier shall provide with each shipment a copy of their Certificate of Compliance as defined by paragraph 8.5 of the SQAM. Copies shall be delivered as specified by the Data Submission Instructions for this item.

#### **028 Unique Identification (UID)**

This item requires UID marking in accordance with the TDP requirements.

If the UID marking is already present, verify that it is intact and scannable. If the scan fails, replace the existing marking with new UID marking.

It is acceptable to add UID marking to an existing data plate as long as the following human readable information (HRI) is present:

- Cage Code
- Part Number
- Serial Number

In the event the print location for the UID mark cannot be met, it is acceptable to locate the UID mark in an area close to the desired location.

## **029 DELETED**

## **030 DELETED**

## **031 DELETED**

## **032 Ballistic Requirements-Transparent Armor**

A ballistic first article test shall be performed and accepted prior to any production of transparent armor. All drawing and specification requirements shall be met as required for the ballistic FAT and ballistic lot testing.

For ballistic testing performed at the BAE Systems' Santa Clara site, the Supplier shall identify the samples and all associated documents as the "First Article Sample" or "Lot Sample." Marking requirements of the ballistic samples shall meet the Purchasing Agreement and or drawing requirements. The FAT and lot acceptance test request (form USCS 6024) shall be submitted through the procuring agent for acceptance by BAE Systems SQA. Customer Source Surveillance shall be requested for all ballistic test samples. A completed Source Surveillance Request Form (form 092245) shall be submitted with the test request.

Following Ballistic First Article approval, the Supplier shall notify the BAE Systems Authorized Purchasing Representative to determine if testing must be repeated when any of the following occurs:

- Receipt of new Purchasing Agreement or contract
- Change in manufacturing process (introduction of a new manufacturing technique, etc.)
- Change in any drawing configuration, component, or sub-component parts
- Change in manufacturing location
- A break in production or process in excess of twelve (12) months, unless otherwise specified

The response from BAE Systems shall be in writing and retained as quality evidence.

**033 DELETED**

**034 Ballistic Requirements- Metal and Composite Materials**

The Supplier shall provide a copy of the material certification and Government approval letter, including firing number, for each heat/lot of ballistic material in accordance with the Data Submission Instructions for this item.

For armor castings and extrusions, the Supplier shall maintain a listing of Government-approved firing numbers for all material recipes supplied to BAE Systems.

If the material is manufactured to MIL-DTL-46100 or MIL-DTL-12560, thermal processing of cut edges (plasma or laser cutting) shall require NDE of the edges to verify that the thermal processing did not cause edge cracking. The Supplier shall provide a copy of the NDE results in accordance with the Data Submission Instructions for this item for each shipment.

**035 DELETED**

**036 DELETED**

**037 DELETED**

**038 DELETED**

**039 DELETED**

**040 Services and Engineering Evaluation Parts/Assemblies**

The requirements of the Supplier Quality Assurance Manual (SQAM) are waived for this item and no deliverables are required to be provided.

**041 Critical Safety Item (CSI)**

The Supplier shall provide documentation for all Critical Safety Items (CSI), Hardness Critical Items (HCI), or Observable Critical Items (OCI) identified for this item by the TDP. **Sample size for this inspection shall be 100% for the identified**

**characteristic(s).** Actual results, including an authorized signature and date of acceptance, traceable to a specific shipment shall be recorded and provided prior to shipment. Summary data may be included. Submission of documentation shall be made in accordance with the Data Submission Instructions for this item.

#### **042 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 that supply the same part to a variety of markets. Parts ordered to the requirements of an ordinance drawing which references or specifies the use of a COTS part are **not** COTS parts.

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.

COTS parts will be identified with the manufacturer's part number and name or logo. The method of marking and marking height shall be in the manufacturer's format. The Supplier shall mark the shipping container with their Vendor Number.

#### **043 DELETED**

#### **044 Packaging Instructions for Hardware Kits**

All hardware and small components kits shall be packaged, marked, and packed as follows unless other requirements are provided through the Purchasing Agreement.

The contents of this kit shall be, identified, consolidated and packed per the instructions below. The BAE Systems Purchasing Order and/or Engineering Drawing provide the part numbers and quantities required for each kit. Packaging of this kit is to be accomplished through good commercial practices, and is intended to provide adequate protection of the kit(s) and the kit components during transit and handling as well as for short-term storage.

##### **A. Packaging**

**Cleanliness** – Items shall be free of dirt and other contaminants that would contribute to deterioration of the item.

**Preservation** – Bare steel surfaces shall be provided protection such as preservative coatings. Zinc plating or cadmium plating is not considered bare and will not require preservative protection. Items made from stainless steel material do not require preservative protection. When rubber items are unit packaged in quantities of more than one, the items shall be dusted with talcum (soapstone).

**Unit Package** – The unit packaging shall consist of an item of the same part number and the specified quantity per kit. Place the required item quantity in a close fitting poly bag as to keep package cube to a minimum. Use multiple bags per part when applicable. The minimum size bag shall be 3 x 4 inches; the bag shall be a minimum of 3-MIL thick. The bag shall be heat-sealed in a manner to keep the items contained within the bag. The trapped air volume in the bag shall be kept to a minimum to reduce package cube.

**Consolidation** – Consolidate the required unit packages for each specified part number into a poly bag, 6-MIL thick, or a snug fitting fiberboard carton (a fiberboard carton is preferred method). If a poly bag is used for consolidation, the weight shall not exceed 10 lb. A Packing List will be enclosed in each consolidated package detailing the contents, to include; the kit part number, and the part number, description, and quantity for each component included. The bag and/or carton size used for the specified kit shall be identical throughout the contract.

## **B. Marking**

Each package used in this kit, shall identify the contents with the applicable part number, nomenclature, quantity, and kit number. For unit packaging see Label Example A, and for consolidation packages see Label Example B. The markings for each pack can be printed on a label or applied directly on to the bag or carton. If a label is used it shall meet the requirements as outlined below, and if a label is used to identify a bag, the label may be heat-sealed in the bag along with the item(s). If the label is placed in the bag, the label identification must be able to be read from the exterior of the package. If a Packing List is enclosed in the package, the package is to be marked with "Packing List Enclosed", and is to be located in the same area and adjacent to where the kit identification is applied.

**Age Control** – Shelf-life markings shall be shown as part of the item identification data on unit packs, intermediate containers, exterior containers, and unpacked items. Shelf-life markings shall include the manufactured, cured, assembled or packed date (apply one date), and the expiration or inspect/test date, as appropriate.

This information must appear on the unit package unless it is visible through a clear plastic bag, and on the intermediate and exterior container (only when unit pack is exterior container). When two or more unit packs of identical items are marked with different dates, the earliest date should be shown on the intermediate container. Exterior containers and multi-packs containing age control items shall be marked "CONTAINS SHELF-LIFE ITEMS).

- a. Non-extendable shelf-life items: manufactured (MFD) date, cured date, assembled date, packed date (subsistence only) (apply one date, as appropriate), and expiration (EXP) date. For items that contain rubber or synthetic elastomers, the expiration date shall be calculated from the cured date of the rubber/elastomer.
- b. Extendable shelf-life items: manufactured date, cured date, assembled date, packed date (subsistence only) (apply one date, as appropriate), and inspect/test (INSP/TEST) date. For items that contain rubber or synthetic elastomers, the inspect/test date shall be calculated from the cured date of the rubber/elastomer.

EXAMPLE 1  
(Non-extendable)  
MFD DATE 10/10  
4Q09  
EXP DATE 10/13  
4Q11

EXAMPLE 2  
(Extendable)  
ASSEMBLED DATE 10/10  
  
INSP/TEST DATE 10/13

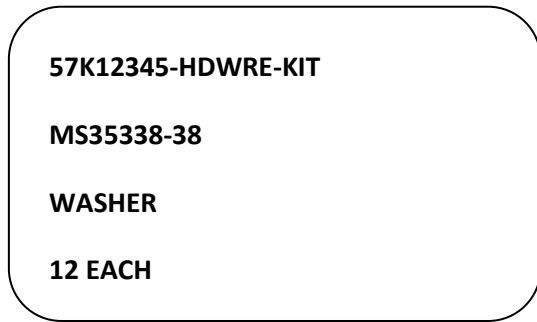
EXAMPLE 3  
(Extendable)  
CURED DATE  
  
INSP/TEST DATE

**C. Labels**

All labels used shall meet or exceed the following requirements: pressure sensitive, water-resistant, size 2 x 2-1/2 inches (min). The part number, nomenclature, quantity, and kit number shall be in a stacked configuration, font size 12 to 14, black ink on white label, and upper case letters. Direct printing on the bag is also acceptable.

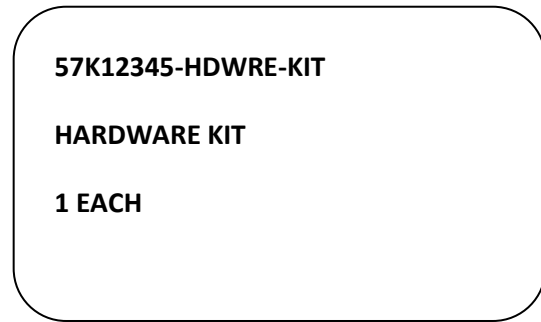
**D. Packing**

Palletize and/or consolidate required kit quantities per contract schedule. Before stretch wrapping or banding, place fiberboard on four sides and top to further protect cartons from damage. The palletized load(s) shall be marked with the appropriate shipping address as specified in the Purchasing Agreement. Apply special handling marking "Do Not Stack".



**Example A**

**Unit Pack Label**



**Example B**

**Consolidation Pack Label**

#### **045 MRB Authority**

MRB Authority is granted for the associated item number and the Supplier is authorized to perform repairs or disposition parts use-as-is so long as the disposition does not affect the form, fit, function, performance, safety, or reliability of the part. The Supplier is required to keep records of all MRB activity related to this part for this Purchasing Agreement and shall make those records available to BAE Systems personnel upon request.

The Supplier is **not** authorized to flow this authority to their sub-tier suppliers.

#### **046 DELETED**

#### **047 Data Submission Instructions – Anniston**

All data submissions for this item, unless otherwise specified, shall be submitted electronically to [sqa.anniston@baesystems.com](mailto:sqa.anniston@baesystems.com). The email subject line should include the applicable purchase order number and part number.

#### **048 Data Submission Instructions – Louisville**

All data submissions for this item, unless otherwise specified, shall be packaged in a separate envelope clearly marked “Certifications”. This envelope shall be placed inside of the shipping container with the parts. For shipments with multiple containers of the same product, the envelope will be located in Box 1 of the delivery.

Source Inspection Request Forms shall be emailed to



[sqa-admin.minneapolis@baesystems.com](mailto:sqa-admin.minneapolis@baesystems.com) and shall be accompanied by any additional required documentation as specified in the assigned CDRs. The email subject line should include the applicable purchase order number and part number.

**Do not include data submissions with certified parts or with parts which have completed source inspection.**

**049 Data Submission Instructions – Minneapolis**

All data submissions for this item, unless otherwise specified, shall accompany the parts and be included in the shipping container.

Source Inspection Request forms shall be emailed to [sqa-admin.minneapolis@baesystems.com](mailto:sqa-admin.minneapolis@baesystems.com) and shall be accompanied by any additional required documentation as specified in the assigned CDRs.

**050 Data Submission Instructions - Santa Clara**

All data submissions for this item, unless otherwise specified, shall be submitted electronically to [pqasc.landa@baesystems.com](mailto:pqasc.landa@baesystems.com). The email subject line should include the relevant Purchasing Agreement number and part number. Paperwork does not need to be shipped with the product.

**051 Data Submission Instructions –Sealy**

All data submissions for this item, unless otherwise specified, shall be as instructed on the PPAP Checklist attached to this Purchasing Agreement.

**052 Data Submission Instructions-York**

All data submissions for this item, unless otherwise specified, shall be submitted electronically to [pqayork.landa@baesystems.com](mailto:pqayork.landa@baesystems.com). The email subject line should include the relevant Purchasing Agreement number and part number. Paperwork does not need to be shipped with the product.

**053 Initial Sample Inspection Report (ISIR)**

The supplier is required to prepare and maintain an ISIR for this part number. These are used to determine whether all engineering designs and specifications are properly understood by the supplier and that the supplier's process has the capability to produce products meeting these requirements during an actual production run.

Suppliers must ensure that all drawing clarifications are resolved during the request for quote phase and/or Purchasing Agreement review.

BAE Systems' Quality department will review the ISIR package for conformance and return an ISIR signoff (form 1220) indicating approval. BAE Systems default ISIR requirements will include a Certificate of Conformance (CofC), dimensional report, material certification, and (in cases when identified on the released drawing) performance test results. Full approval of this process must take place prior to shipment of product, unless the BAE Systems' responsible Quality representative has waived this requirement. Product shipped to BAE Systems prior to ISIR approval will be rejected. When a deviation (via a NR or other approved BAE Systems' documentation) has been granted, all shipments must be clearly identified on the packaging exterior with a copy of the approved BAE Systems' documentation. Absence of this identification is grounds for rejection.

Process or product changes require ISIR resubmission. Notification to BAE Systems prior to changes is essential as additional audits or supplier identification may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement or Quality contact via the Product/Process Change Request (Form 1310). Process or product changes are defined as changes in the process of product that could affect its capability to meet design requirements or the durability and reliability of the product, including:

- Use of a process or material other than that used in the previously approved part
- Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling
- Production following any refurbishment or rearrangement of existing tooling or equipment
- Production from tooling and equipment transferred to a different plant location or from an additional plant location
- Change of a supplier for parts or services (e.g. heat treating, plating, welding) that affect customer fit, form, function, durability, or performance requirements
- Break in production or product produced after tooling has been inactive for volume production for 12 months or more
- Any change in material, including not only raw material but also chemical compounds or processes (i.e. paints, adhesives, sealers, lubricants, plating, heat treat processes, etc.) which become part of the finished product; this includes changing to an engineering approved alternative material or any change in the sequence of operations
- Upon request of BAE Systems' Purchasing or Quality representative

#### **054 Component First Article Test (CFAT)**

A CFAT is required for this item and the following requirements apply:

- The Supplier shall submit a formal test plan, in the format specified by BAE Systems, and a start date for the testing at least 25 days in advance of the start of testing.
- The facility performing the CFAT must be third-party registered to ISO 17025 for the type of testing being performed. An approved deviation from BAE Systems is required if the facility does not meet this requirement.
- The Supplier shall submit a test report, in the format specified by BAE Systems, within 15 days of test completion.
- The manufacturer shall provide written certification that the first article component(s) offered for test was manufactured in the same facility and using the same tooling as will be used for the production units. This statement may be included as part of the test report.
- Retest may be required under the following circumstances:
  - The production process or material has undergone change
  - Component production has been discontinued for a period of more than 12 months
  - The production facility has moved to a new location
  - A new supplier has been selected as a source of manufacturing
  - At the request of BAE Systems

#### **055 AQL 1.0**

This item requires inspection at AQL 1.0 to the C=0 Sampling Plan defined in SQAM paragraph 8.3 for all major drawing characteristics. Major drawing characteristics are dimensions with a total tolerance of  $\leq 0.10$  or where the characteristic is identified as a “major” by a drawing note or SQAP/QAP/QAR

#### **056 100% Inspection**

This item requires 100% inspection of all critical drawing characteristics. Critical characteristics are any dimensions with a total tolerance of  $\leq 0.001$  or where the characteristic is identified as a “critical” by a drawing note or SQAP/QAP/QAR.

#### **057 PPAP-Level 2**

The Supplier shall complete a PPAP in accordance with Level 2 of the Production Part Approval Process (PPAP) manual and shall submit the following to BAE Systems for approval:

Design Record

Engineering Change Documents (if applicable)  
Dimensional Results  
Material, Performance Test Results  
Qualified Laboratory Documentation  
Appearance Approval Report (if applicable)  
Sample Product  
Part Submission Warrant (PSW)

All other requirements of the PPAP shall be completed, retained on file, and made available to BAE Systems upon request.

The Supplier shall not ship product to BAE Systems prior to receipt of a signed/approved PSW. Product shipped in advance of PPAP approval shall be subject to rejection.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential as additional audits or supplier identification may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement or Quality contact via the Product/Process Change Request (Form 1310). Process or product changes are defined as changes in the processing of the product that could affect its ability to meet design, durability, and reliability requirements, including:

- Use of a process or material other than those which were previously approved,
- Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling,
- Production following any refurbishment or rearrangement of existing tooling or equipment,
- Production from tooling and equipment transferred from another manufacturing site,
- Change of a supplier for parts or services (e.g. heat treating, plating, welding),
- Break in production or product produced after tooling has been inactive for volume production for 12 months or more,
- Any change in material, including not only raw material but also chemical compounds or processes (i.e. paints, adhesives, sealers, lubricants, plating, heat treat processes, etc.) which become part of the finished product; this includes changing to an engineering approved alternative material or any change in the sequence of operations,
- Upon request of BAE Systems' Purchasing or Quality representative.

### **058 PPAP-Level 3**

The Supplier shall complete a PPAP in accordance with Level 3 of the Production Part Approval Process (PPAP) manual and shall submit the following to BAE Systems for approval:

Design Record  
Engineering Change Documents (if applicable)  
Customer Engineering Approval (if required)  
Design FEMA  
Process Flow Diagrams  
Process FEMA  
Control Plan  
Measurement System Analysis Studies  
Dimensional Results  
Material, Performance Test Results  
Initial Process Studies  
Qualified Laboratory Documentation  
Appearance Approval Report (if applicable)  
Sample Product  
Records of Compliance  
Part Submission Warrant (PSW)

All other requirements of the PPAP shall be completed, retained on file, and made available to BAE Systems upon request.

The Supplier shall not ship product to BAE Systems prior to receipt of a signed/approved PSW. Product shipped in advance of PPAP approval shall be subject to rejection.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential as additional audits or supplier identification may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement or Quality contact via the Product/Process Change Request (Form 1310). Process or product changes are defined as changes in the processing of the product that could affect its ability to meet design, durability, and reliability requirements, including:

- Use of a process or material other than those which were previously approved,
- Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling,

- Production following any refurbishment or rearrangement of existing tooling or equipment,
- Production from tooling and equipment transferred from another manufacturing site,
- Change of a supplier for parts or services (e.g. heat treating, plating, welding),
- Break in production or product produced after tooling has been inactive for volume production for 12 months or more,
- Any change in material, including not only raw material but also chemical compounds or processes (i.e. paints, adhesives, sealers, lubricants, plating, heat treat processes, etc.) which become part of the finished product; this includes changing to an engineering approved alternative material or any change in the sequence of operations,
- Upon request of BAE Systems' Purchasing or Quality representative.

#### **059 PPAP-Level 4-Predefined Requirements**

The Supplier shall complete a PPAP in accordance with Level 4 of the Production Part Approval Process (PPAP) manual and shall submit the following to BAE Systems for approval:

Dimensional Results

Process Certifications

Material, Performance Test Results

Part Submission Warrant (PSW)

All other requirements of the PPAP are waived for this order and do not need to be completed.

The Supplier shall not ship product to BAE Systems prior to receipt of a signed/approved PSW. Product shipped in advance of PPAP approval shall be subject to rejection.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential as additional audits or supplier identification may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement or Quality contact via the Product/Process Change Request (Form 1310). Process or product changes are defined as changes in the processing of the product that could affect its ability to meet design, durability, and reliability requirements, including:

- Use of a process or material other than those which were previously approved,

- Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling,
- Production following any refurbishment or rearrangement of existing tooling or equipment,
- Production from tooling and equipment transferred from another manufacturing site,
- Change of a supplier for parts or services (e.g. heat treating, plating, welding),
- Break in production or product produced after tooling has been inactive for volume production for 12 months or more,
- Any change in material, including not only raw material but also chemical compounds or processes (i.e. paints, adhesives, sealers, lubricants, plating, heat treat processes, etc.) which become part of the finished product; this includes changing to an engineering approved alternative material or any change in the sequence of operations,
- Upon request of BAE Systems' Purchasing or Quality representative.

#### **060 PPAP-Level 4-Unique Requirements**

The Supplier shall complete a PPAP in accordance with Level 4 of the Production Part Approval Process (PPAP) manual and shall submit requirements as specified in the PPAP Requirements Checklist included as part of the Purchasing Agreement. All other requirements of the PPAP shall be completed, retained on file, and made available to BAE Systems upon request.

The Supplier shall not ship product to BAE Systems prior to receipt of a signed/approved PSW. Product shipped in advance of PPAP approval shall be subject to rejection.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential as additional audits or supplier identification may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement or Quality contact via the Product/Process Change Request (Form 1310). Process or product changes are defined as changes in the processing of the product that could affect its ability to meet design, durability, and reliability requirements, including:

- Use of a process or material other than those which were previously approved,
- Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling,
- Production following any refurbishment or rearrangement of existing tooling or equipment,

- Production from tooling and equipment transferred from another manufacturing site,
- Change of a supplier for parts or services (e.g. heat treating, plating, welding),
- Break in production or product produced after tooling has been inactive for volume production for 12 months or more,
- Any change in material, including not only raw material but also chemical compounds or processes (i.e. paints, adhesives, sealers, lubricants, plating, heat treat processes, etc.) which become part of the finished product; this includes changing to an engineering approved alternative material or any change in the sequence of operations,
- Upon request of BAE Systems' Purchasing or Quality representative.

### **061 PPAP-Level 5**

The Supplier shall complete a PPAP in accordance with Level 5 of the Production Part Approval Process (PPAP) manual and shall retain all documentation at their facility. The documentation shall be made available to BAE Systems upon request.

### **062 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.

Example:

ABC Finishing Company  
1/1/2012

### **063 Modified Identification Marking**

This item shall be marked with the full item number as specified in the Purchasing Agreement using the marking methods, character size, and other requirements as specified in the TDP.

Example:

Drawing Note states: "19200ASSY12345678"  
PO Item Number is: "12345678\*02"  
Mark Part as: "19200ASSY12345678\*02"



**All other requirements of the drawing note remain unchanged.**

**064 York CAGE Code**

The CAGE code to be marked on this part is 06085.

**065 Santa Clara CAGE Code**

The CAGE code to be marked on this part is 80212.

**066 Anniston CAGE Code-Aftermarket Spares**

The CAGE code to be marked on this part is 076M6.

**067 Anniston CAGE Code-Forge Facility**

The CAGE code to be marked on this part is 05386.

**068 Part Identification Marking-Combat Vehicles**

This item shall be marked with the Item Number as identified in the Purchasing Agreement and the Supplier's Vendor Number or CAGE code. Method and location of marking are at the Supplier's option, but must be permanent (labels are not permitted), must not damage/deform the part, and must be legible after all finishing operations.

Example:

12345678\*02

MFR0XYZ0

**069 Part Identification Marking-Tactical Wheeled Vehicles**

This part shall be marked with the following:

- The part, sub-assembly, or unit number with all applicable suffixes,
- Drawing revision level,
- Batch /lot/date code,
- Manufacturer's identification number or CAGE code

**070 Welding-Tactical Wheeled Vehicles**

- A. Approval of the supplier or sub-tier supplier weld program must be obtained prior to production build. This approval will usually be obtained by performing an on-site audit of the supplier's overall weld program, verifying supplier management and employee knowledge and application of AWS standards, and a review of the

elements identified in the paragraph below. The weld program shall include the development of Procedure Qualification Records (PQRs); Welding Procedures Specifications (WPSs); personnel certifications, welders and weld operators; equipment certifications and calibration; and documented training of welders and weld inspectors.

Weld process approvals will be specific to a code and a material (i.e. Aluminum, Steel, & Ballistic material will need to be approved independently of each other). BAE Systems utilizes the following applicable weld codes:

1. AWS D1.1 and D1.3 for Steel
2. AWS D1.2 for Aluminum

To obtain approval, the supplier shall submit the following in accordance with the Data Submission Instructions for this item:

1. All welding procedures (WPS) in accordance with American Welding Society (AWS) weld code requirements to include PPAP dimensional characteristics. The use of pre-qualified weld joints as specified in AWS does not preclude submittal of welding procedures.
2. All Procedure Qualification Records (PQR)
3. BAE Systems Welding Process Audit Checklist, Form 31
4. ISO Welding Survey, Form 32
5. Sample of weld personnel certifications

All BAE Systems' weld approvals may be subject to concurrence by our customer and the supplier will be notified if this requirement applies.

Repair welding outside allowances of the approved code of defective parts shall require approval of BAE Systems Quality and a written procedure identifying proper technique and approach to correct the defective product.

- B. Suppliers who subcontract welding processes shall assure all applicable approvals, documentation and testing is reviewed and approved by the applicable supplier process IAW ISO guidelines and that the review is documented and available to BAE Systems and customer upon request. It is the BAE Systems supplier's responsibility to assure the final product delivered to BAE Systems shall be IAW all applicable Purchasing Agreement and specification documents. BAE Systems requires notification as to subcontractor process changes and/or changes in subcontractor. It is recommended the

subcontracted supplier utilize the approved BAE Systems' documentation. When requested, BAE Systems shall provide technical support as deemed appropriate.

- C. Alternate Welding Standards – Suppliers may utilize alternate standards or codes once they have demonstrated that equivalent or better quality and performance can be obtained by their use. It is the supplier's responsibility to demonstrate such equivalence. The demonstrated equivalent shall be verified by contacting the BAE Systems' Quality representative for approval prior to fabrication of any production weldment. Examples of alternate standards are CWB, Ground Combat Vehicle Welding Codes (12479550 for steel and 12472301 for aluminum) and MIL-STD-11261.
- D. Previously Qualified Procedures - If the supplier previously qualified welding procedures under another BAE Systems contract, BAE Systems' Quality representative may secure a waiver of the requirements for submittal of welding procedures. The supplier must submit a waiver request to the BAE Systems' Quality representative in writing. The request shall identify the previous contract/Purchasing Agreement(s) under which the supplier originally qualified the procedures. The supplier may request use of previously qualified weld procedures provided ALL of the following requirements are met:
- The weld procedure was qualified on a previous Department of Defense contract
  - The supplier has welders and equipment certified to AWS specification or an approved alternate
  - The supplier has not had a break in production for more than six (6) months

## **071 DELETED**

### **072 Paint Process Requirements**

CARC-finished parts shall meet the following requirements:

- Adhesion testing per ASTM D 3359
- 96 Hour humidity testing per ASTM D 1735
- Salt spray corrosion testing per ASTM B117 using the performance criteria of ASTM D1654. The number of hours of testing shall be as required by the drawing

Records and sample test results for the above shall be maintained and made available for review and/or submittal to BAE Systems Quality upon request.

### **073 Adhesion Testing of Non-CARC Paint Finishes**

The supplier shall perform Non-CARC paint adhesion testing in accordance with Federal Specification TT-C-490, Paragraph 4.2.7.3. Records and sample test results shall be maintained and made available for review and/or submittal to BAE Systems Quality upon request.

### **074 Paint- Naval Programs**

Items requiring painting in accordance with MIL-STD-1303 (Cancelled) shall instead be painted in accordance with NAVSEA Drawing 7250920 and associated paint photographs (if applicable) to define masking.

### **075 Pretreatment to MIL-DTL-16232**

Processing to this specification requires prior approval from BAE Systems. The Supplier shall, prior to production and after contract award, submit a proposed procedure for review/approval in accordance with the Data Submission Instructions for this item. The procedure shall include the following details:

- The exact designation of all chemicals proposed for use, together with the name(s) of the manufacturers,
- Detailed method of control, with limits for time, temperature, pH levels, test methods with frequencies and all other pertinent details that will ensure compliance with the requirements of the specification,
- A list of all part numbers, top level and/or sub-components, to be processed using this procedure,
- Stress Relief/Hydrogen Embrittlement bake out temperature and time, including pre-process per AMS 2759/11 and post process baking for hydrogen embrittlement relief per AMS 2759/9. Maximum stress relief/embrittlement relief temperature shall not exceed the final tempering temperature of the part.

Additionally, the following requirements must be met:

- When test panels/coupons or specimens are used in lieu of actual parts (preferred), they shall be made of the same material, alloy, and hardness and be representative of the manufacturing process
- Parts having a hardness of Rockwell C39 or greater shall be tested for hydrogen embrittlement on a frequency of no less than every 90 to 120 days. Unless otherwise specified in the BAE Systems technical data package.
- Stress relief/hydrogen embrittlement baking temperature is not to exceed tempering temperatures of the final heat treat process (i.e., carburizing and temper, quench and temper, normalize and temper, flame or induction hardening)

Deviation from the approved procedure is not permitted without written approval from the procuring agency, using the VIR form UA-111. Phosphate Coating Procedures other than specification MIL-DTL-16232 or chemical conversion coatings and pretreatments

to specification TT-C-490 Types I and V shall be retained on file at the Supplier's facility and available for review upon request

### **076 Pretreatment to TT-C-490 Types I and V**

Processing to this specification requires prior approval from BAE Systems. The Supplier shall, prior to production and after contract award, submit a proposed procedure for review/approval in accordance with the Data Submission Instructions for this item. The procedure shall include the following details:

- Tempering temperature defined and sent to the plater,
- Cleaning processes,
- Pretreatment processes,
- Painting Processes,
- Process Time (Process time from plate to bake and bake time),
- Stress relieve temperature and/or Hydrogen Embrittlement bake temperature,
- Chemical concentrations,
- Process controls,
- Acceptance criteria/frequency (including Salt Spray Testing lot size),
- Manufacturer and exact proprietary designation of any material used,
- Any equipment used in the application of the procedure,
- Any other pertinent details shall be listed for each step of the application process,
- Copy of the drawing/design criteria.

Additionally, the following requirements must be met:

- When test panels/coupons or specimens are used in lieu of actual parts (preferred), they shall be made of the same material, alloy, and hardness and be representative of the manufacturing process
- TT-C-490 is not only a phosphate coating specification, but also a paint specification; therefore, it is the Supplier's responsibility to assure all aspects of the phosphate and paint procedures are not only included in the procedure but also followed
- In no case shall Salt Spray Testing be performed less than once every two weeks. Salt spray testing shall be performed per ASTM B117 (5% salt) for 336 hours
- Salt spray test panels shall be 4 X 6 inches minimum
- Salt spray test panels shall be pretreated (if applicable) and prime coated
- Salt spray panels shall have a single vertical scribe (as positioned in the salt spray cabinet) exposing the base metal

### **077 Casting**

The supplier shall submit a Casting Process Audit Checklist (form 049) prior to start of production in accordance with the Data Submission Instructions for this item. On-site

auditing of the Supplier's facility may also be required before the Supplier's casting process is approved.

The first castings from each mold cavity shall be radiographed in accordance with the drawing or, if undefined, in accordance with standard procedure to ensure a sound casting. Subsequent castings shall be radiographed in those areas that were defective in the immediately preceding castings until compliance has been obtained.

Castings shall be smooth, free of defects which could cause handling injury following MSS SP-55-2006 Visual Method for Evaluation of Surface Irregularities, and shall be accomplished by qualified operators. Castings shall not have chilled corners or center chill in areas to be machined.

Radiographic inspection, where required, shall be performed by qualified inspectors/inspection labs.

#### **078 Prohibited and Restricted Materials/Finishes**

Because BAE Systems provides product to a worldwide market, it has become a necessity to identify and/or eliminate substances that are restricted or prohibited from our products and all suppliers must be aware of and adhere to these global regulations for materials supplied to BAE Systems. Materials provided by the supplier may include partially or fully furnished assemblies, components, packaging, chemicals, and consumable processing materials. It is the responsibility of the supplier to verify that the substances listed are not in any products or materials supplied to BAE Systems per the referenced thresholds and flow down this requirement to their sub-tier suppliers. The prohibited & restricted material guidelines used by BAE Systems are available per the most recent revision of the Global Automotive Declarable Substance List (GADSL) and may be found at the website: <http://www.gadsl.org>. This list is updated on an annual basis every February based on the evolving development of global environmental regulations.

Material records and sample test results shall be maintained and available for review or submittal to BAE Systems upon request as evidence of compliance

#### **E. Hexavalent Chrome & Cadmium Replacement**

##### **1. *Replacement of hexavalent chrome sealers or post rinses for current zinc coatings***

All substitutes for hexavalent chrome post rinses or sealers for use on electron-deposited coatings of zinc on iron and steel, ASTM B633 or zinc

coatings mechanically deposited on iron and steel, ASTM B695, or an approved equivalent zinc plating specifications or standards shall maintain the specified zinc coating thickness as designated on the applicable drawing call-out. Hexavalent chrome substitutes when tested IAW ASTM B117 for 96 hours shall show neither corrosion products of the substitute coating nor zinc nor base metal corrosion products. The appearance of corrosion products visible to the unaided eye at normal reading distance shall be cause for rejection except that corrosion by-products of the substitute coating at the edge of specimens shall be met. Neither the coating or application process shall alter base metal physical properties or induce hydrogen embrittlement.

2. ***Hexavalent chrome free finish notes for cadmium replacement and all new fasteners and small parts or replacement for zinc coating/plating***  
Finishes and coatings which are hexavalent chrome free and cadmium free may be used on all fastener grades and small parts if they pass ASTM B117 testing at 180 hours with no corrosion products visible to the unaided eye at normal reading distance which shall be cause for rejection except that corrosion by-products of the finish or coating at the edge of specimens shall not constitute failure. After 700 hours of ASTM B117 testing the appearance of red corrosion products visible to the unaided eye at normal reading distance shall be cause for rejection except that corrosion by-products of the finished or coating at the edge of the specimen shall not constitute failure. Neither the coating or application process shall alter vase metal physical properties or induce hydrogen embrittlement.

#### **F. Stainless Steel**

Stainless steel may be substituted for fasteners under UTS < 150 ksi, up to grade 7 and for small parts. Stainless steel fasteners and stainless sheet metal shall be passivated in accordance with ASTM A967 utilizing a hexavalent chrome free process then blackened with a chrome free process in accordance with best commercial practices. Small stainless plate metal parts may be blasted to NACE #2 or SSPC-SP10, the immediately blackened with a chrome free process in accordance with best commercial practices. Stainless steels which have been pickled and are free of scale, free iron, and exogenous foreign matter do not require further chemical passivation treatments prior to blackening with a chrome free process in accordance with best commercial practices.

#### **G. Torque and Clamping**

New coating technologies that have been approved to replace Hexavalent chromium and cadmium coatings shall be capable of maintaining torque and clamping values that have been established by the applicable drawing or for that particular bolt grade and diameter.

## **H. Hazardous Material Control**

Applicable federal, state, and local specification requirements apply for usage, procurement and shipping of hazardous material, including special surface finishing processes such as paint, zinc or chrome plating or anodizing etc. which may contain Volatile Organize Compounds (VOC).

All supplied items must be labeled by the manufacturer in accordance with applicable code. As a minimum, in order to assure the proper storage and disposal of hazardous or potentially hazardous material, every shipment shall be clearly marked with the following, as applicable:

- Product Name
- Manufacturer's Name and contact information
- Manufacturer's Item Number
- Manufacturer's Batch Number or Lot Number
- Date of Manufacture
- Expiration Date, as applicable
- Federal Hazardous Chemical Label
- BAE Systems Purchasing Agreement Number
- BAE Systems Item Number (if applicable)

### **079 Conditional Allowance of Hexavalent Chrome**

The use of Hexavalent Chrome is allowed under the following conditions:

- The supplier must operate in an environmentally sound manner whereby regulatory requirements of global regions, country, states and provinces, and local requirements become the minimum standards of their business practices.
- It is desirable for all suppliers to have an effective management system for environmental improvements and an effective way of flowing down requirements to their sub suppliers.
- Supplier can reference the following the link for the up to date chemical standards:

<http://www.volvologistics.com/logistics/global/en-gb/about%20us/core%20values/pages/demandsOnCarriers.aspx>

### **080 Specific Prohibition of Hexavalent Chrome**

The use of Hexavalent Chrome is prohibited in this item and cannot be used in any processed associated with the manufacturing of this product (including CARC finish application).



### **081 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