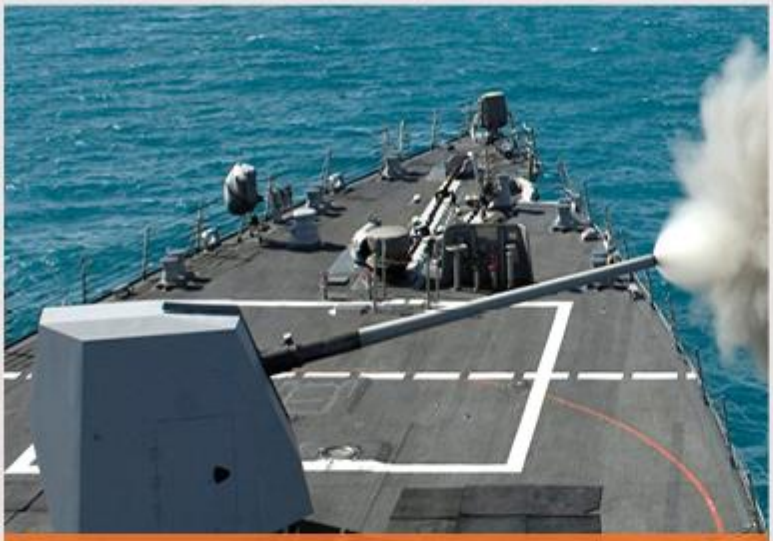
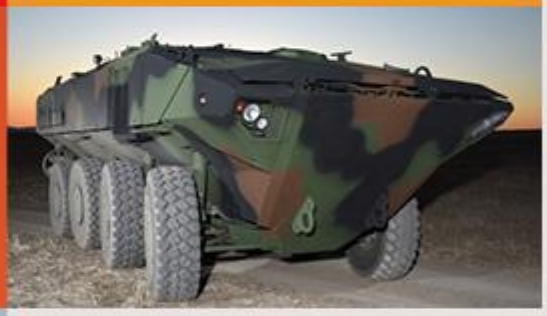


095871, Rev 20, September 4, 2024

Contracts Deliverable Requirements



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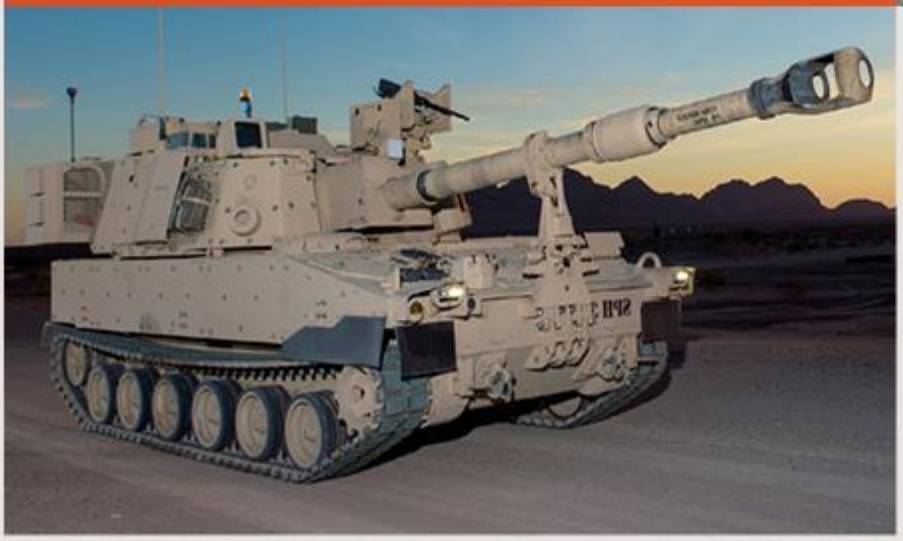


BAE SYSTEMS

Rev	Date	Change Description	Approved By	Change Request #
00	11/27/2012	New Document Release		BPMS-00647
01	09/03/2013	Added verbiage to CDR 017, deleted 071	Tom Frazho	BPMS-01446
02	09/20/2013	Added verbiage to 001, 032, changed verbiage to 057, 058, 059, 060, 061, 063, and 068	Tom Frazho	BPMS-01476
03	01/15/2014	Changes to CDR 006, 053 and 070	Tom Frazho	BPMS-01593
04	03/10/2015	Deleted the supplier website link	Tom Frazho	BPMS-02194
05	08/31/2015	Revisions to CDR 001, 002, 003, 004, 005, 006, 009, 016, 018, 019, 020,023, 026, 028, 032, 034, 041, 042, 051, 057, 058, 059, 060, 081. Deleted 017, 040, 053, 054, 063, 068, 069, 070, 072, 073, 074, 075, 076, 077, 078, 079, 080. Added 083.; all reference of deleted CDRs have been removed from the body of the document; Consolidated all data submission CDRs into CDR 047; deleted 048, 049, 050, 051, 052	Tom Frazho	BPMS-02450
06	12/16/2015	Changes to CDR 034; Changes to CDR 006 for corrective action response to Louisville DCMA	Tom Frazho / Anthony Conley	BPMS-02612
07	01/14/2016	Re-instated CDR 017 back onto document	Tom Frazho / Anthony Conley	BPMS-02631
08	04/25/2016	Added new San Jose email address, changed any reference of Santa Clara to San Jose; added process approval to CDR 034	Tom Frazho / Anthony Conley	BPMS-02876
09	09/20/2016	Deleted CDR 002, 042, 047, 062, 081; "are located in the Supplier Quality Assurance Manual (SQAM)" added to CDR 001 as well as added verbiage in the 5th and 8th bullets below; verbiage added in CDR 003 and 004; in the 2nd paragraph in 004 "the" was added and "Government" was deleted; CDR 005, 2nd paragraph, verbiage was added and the 3rd paragraph was added; last bullet added to CDR 007; deleted 4th and 5th bullets regarding training and approval prior to use for each individual part number; CDR 009 verbiage was added in the first bullet; CDR 010, "For each shipment" deleted, "(located in the SQAM)" added; "(located in the SQAM)" added to CDRs 011, 013, 015, 017, 018, 025, 026, 027, 032, 034, and 041; reworded verbiage in 2nd	Tom Frazho / Anthony Conley	BPMS-03124

		paragraph in CDR 014; Changed verbiage of 8th bullet in CDR 016 and 9th bullet in CDR 017; "With each shipment" deleted from CDR 018, 019, 020, and 021; Deleted the 2nd bullet in CDR 023; Added the last sentence in CDR 025; Changed/added several things in CDR 034 (please take careful note); Changed verbiage in B. Marking paragraph of CDR 044; Removed "defined in SQAM paragraph 8.3" in CDR 055; Addition of verbiage to last sentence of 3rd paragraph in CDR 057, 058, 059, 060 as well as changes and additions to the 4th paragraph.		
10	02/08/2017	Define document submittal requirements; Added CDRs 084 and 085, corrected several typo's and made minor corrections to the verbiage in the document	Tom Frazho / Anthony Conley	BPMS-03252
11	10/23/2017	Added 012 Flammability, changed 019 to 019A and added 019B Material Process Samples, added 029 Serialization, added 030A Approved Special Process (BAE), added 030B Approved Special Process (Customer), added 042 SPC Program, added 053 Dock to Stock Eligibility, changed 055 to 054, changed 056 to 055, added 056 PPAP Level I, added 086 Counterfeit Material Program and update 034 to remove requirement for micro hardness. Added verbiage to CDR 020, C.	Tom Frazho Richard Zuniga Ken Sturm Rosario Sciortino	BPMS-03819
12	06/20/2018	CDR 004 removed "and SHALL be approved by BAE Systems", 005 Added "for Combat Vehicles and Form 089559 for Weapon Systems", Added 007 A Welding Combat Vehicles Inspection Criteria for Armor Steel, 084 Removed from Item A & B "and approved", 085 Removed "and approved", 086 added This requirement is applicable to Phoenix for hardware and electronic purchases and to Combat Vehicles for electronic purchases only." Added/changed verbiage to CDR 032	James Dolan, Tom Frazho, Richard Zunga, Kenneth Sturm, Rosario Sciortino	BPMS-04027
13	03/25/2019	Added verbiage, "paragraph 8.12" to the following CDRs: 001, 003, 004, 005, 011, 012, 013, 015, 016, 017, 018, 020, 025, 026, 027,	James Dolan, Tom Frazho, Richard Zunga,	BPMS-04525

		032, 033, 034, 041, 057, 058, 059, 060, 084, 085 Added "and documented" to 007A and 008 Added "prior to" to 014, 016, 017, 018, 020, 033, 034 Added "or with the" to 015, 016, 017, 018, 020, 033, 034 Added "shipment of product" to 015, 016, 017, 018, 020, 033, 034 Added "and bake the temperature and time values" to 016 Added "for this part" to 032, 034, 084, 085 Changed 034 firing records from aluminum forgings to just forgings and reworded the whole section	Kenneth Sturm, Rosario Sciortino	
14	02/17/2020	Reformatted the fonts, and footer on all pages. Added CDR 042 back into document, 021B added, approved requirements added to many sections, rewrote CDRs, 003, 004, 034, 041A, added the Sterling Height Cage Code.	James Dolan, Tom Frazho, Ryan Cunningham, Kenneth Sturm, Rosario Sciortino, Ross Davis, William Slocomb	BPMS-05098
15	04/08/2021	Added 1st sentence in 003 and 004, added VIR form number and added verbiage to 004, deleted reference to Combat Vehicles and Weapons Systems in 005, completely changed verbiage in 007, added 007B, changed document number from KA-021 to 091721 in 008, completely changed 016, changed verbiage in 023, added 026A, added 030C, changed verbiage throughout 034, changed VIR form number to 089725 in 057, changed to DFMEA & PFMEA in 058 as well as various verbiage, added new bullets to the beginning of 059	James Dolan, Tom Frazho, Ryan Cunningham, Kenneth Sturm, Mike Luciow, Ross Davis, William Slocomb	BPMS-06437
16	01/19/2022	001: Added, deleted and changed verbiage 004: Added, deleted and changed verbiage 007: Added, deleted and changed verbiage 012: Added and changed verbiage 015: Added verbiage 016: Added and deleted verbiage 017: Added verbiage	James Dolan, Tom Frazho, Scott Heyd, Kenneth Sturm, Mike Luciow, Ross Davis, William Slocomb	BPMS-06999

		019A: Deleted verbiage 021A & 021B: Added to the table of contents 026A: Added and deleted verbiage 027: Added and deleted verbiage 028: Added and deleted verbiage 030A: Added verbiage 030B: Added verbiage 030C: Added to the table of contents 041: Added and changed verbiage 042: Added, changed and deleted verbiage 068: Added to the table of contents 044: Deleted C and moved D up to C		
17	02/07/2023	001: Added, These specified…added Revision to part number (second bullet), added /Lot Number/Identifier as applicable (third bullet) 004, 005, 006: Added minor changes 007: Deleted the first paragraph, made minor changes throughout and removed obsolete documents 007A, 017,020: Made minor changes, removed obsolete specification 015: revised clarified submittal requests 016: Updated for new ASTM B633 requirements and made minor changes to other paragraphs 018: Added traceability requirement and raw material request 023: Added CDR numbers 028: made minor changes 030A& 030B: Reformatted & removed last sentence and moved Phoenix to title 030D: Added paragraph 032: Made minor changes 034: added a new supplier template for armor products, corrected DLT to DTL and added dash 046: New 060: Minor changes/ formatted 086: Minor changes, updated wording Table of Contents: renumbered & made minor formatting and corrections throughout the document.	James Dolan, Randy Fawver	BPMS-07705
18	4/25/2023	005: Updated verbiage 007 / 007B / 008: Revised (clarified)	James Dolan, Randy Fawver	BPMS-07898

		013: Approval clarification 018: Clarification 022A: Added for traceability for VPM 030E: New CDR for high strength fasteners 034: clarified thickness reduction criteria 085: Re-added Preface added Footer revision level, grammatical updates		
19	07/13/2023	007A updated verbiage for Hybrid Weld codes. Addition of E & A to CDR 030E	James Dolan, Randy Fawver	BPMS-08039
20	9/4/2024	Updated header revision level Updated cover revision and date Added documentation delivery requirements under Preface Updated for various grammatical changes throughout document 001 Updated verbiage 003 Added submittal timing requirements 004 Updated verbiage, added submittal timing requirements 004A Added for TRR requirements 005 Updated verbiage 006 updated to allow flexibility for GSS review 007, 007A, 008 updated version 008A added 009 Removed 010, 011, 012 Updated submittal requirements 013 Removed 3 day document delivery requirements 014 Removed prior to shipment added QTY of parts, certification requirements 015 Restructured 016 Added BAE 017 Removed CARC painter submittal paragraph, removed or with product 018 Added affirmation of DFAR compliance 019A Clarified submittal location 020 Updated 020A, 020B etc format 022A Updated format and removed photographic requirements 026 Updated submittal requirements 026A Removed 027 Updated submittal information 029 Added provision of compliance to EB5638	James Dolan Scott Heyd Justin Shirley David Pearl Ken Sturm Matt Jones	

		030C Updated submittal requirements 032 Updated submission requirements 034 Updated submission requirements, DFAR affirmation and certification level 036 New CDR for Reach 041 Removal of hardness critical 041A Added hardness critical 045 Removed CDR 056 through 060 Updated submittal requirements 084 Updated submittal requirements 085 Added submittal timing requirements 087 Added for Phoenix		

Contents

CDR Manual Preface:

The Supplier is required to adhere to assigned CDRs on the PO and deliver requested objective evidence per the data submission instructions and CDR specific requirements. The Supplier is required to meet and have available objective evidence to all other SQAM, PO and TDP requirements as applicable. Requests for records SHALL be fulfilled within five (5) business days. BAE Systems strongly advises all Suppliers to consider documentation submittal and BAE Systems review and approval times into your schedule and BAE Systems promise dates.

ALL the CDRs in this manual (outside of the CDRs in table A below) SHALL have documentation submitted and approved prior to shipment of the item (s) in accordance with the data submission instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item. The Supplier SHALL NOT ship without an approved Vendor Information Request (VIR), waiving any CDRs they are unable to meet. Shipment without BAE Systems approval constitutes the material as non-conforming. For any CDR submittal where the documentation covers the whole PO order quantity, identify this on form 092245.

For CDRs outside of table A, payment may be predicated on submittal and approval, prior to shipment.

Table A: CDRs that do not require submittal:

CDR 022	CDR 023	CDR 026	CDR 028	CDR 030A	CDR 030B
CDR 030D	CDR 044	CDR 046	CDR 053	CDR 054	CDR 055
CDR 064	CDR 065	CDR 066	CDR 067	CDR 068	CDR 083
CDR 087					

001 Inspection/Test Data Reports

The Supplier of BAE Systems SHALL submit for each piece. All the Supplier's actual inspection/test data for the specified characteristics identified and specified in the purchasing agreement. If your purchasing agreement does not clarify specific inspection or test data requirements, contact your Purchasing Representative for direction, or a full FPI for each piece, as required per SQAM 8.3.

003 First Piece Inspection Report

The Supplier SHALL submit their First Piece Inspection (FPI) report as specified in the SQAM paragraph 8.3.

004 First Article Test (FAT)

FAT is required to validate that the production processes are producing results within specification (s). *Suppliers are required to inform BAE Systems, using VIR form 089725 when any of the following situations occur, prior to shipment, to determine what additional testing is required:*

1.) *Change in the manufacturing process at tier 1 or any sub-tier Suppliers (BAE Systems is to be notified prior to the change (s) being made)*
2.) *Drawing changes provided by BAE Systems or any/all Suppliers*
3.) *Manufacturing location change at tier 1 or any sub-tier Suppliers (BAE Systems is to be notified prior to the change (s) being made)*
4.) *Break in production of 24 months or more at tier 1 or any sub-tier Suppliers.*

The procedure and test reports may be prepared using MIL-HDBK-831 as a guide. BAE Systems and its customer reserve the right to witness FAT at any point in the schedule.

For initial FAT the Supplier SHALL create and submit the FAT plan within 30 days following the contract award. For delta FAT testing, the Supplier SHALL create and submit the FAT plan within 30 days following the identified need of delta FAT. Supplier SHALL notify BAE Systems a minimum of 15 days prior to start of testing. The FAT Report SHALL be submitted a minimum of 15 days prior to shipment and approved by BAE Systems.

004A TRR Test Readiness Review

TRR is required for this part and is conducted to increase the probability of success during 'formal' testing. The review ensures the maturity of the test article (s), the test documentation and the test environment prior to initiating formal testing. The TRR verifies, from a test perspective, that the proper level of preparation is complete, the required coordination has been completed and that the resources are adequately planned to support the test objectives. Supplier is responsible for coordinating TRR with BAE Systems and as required BAE Systems will include the US Government. Advanced notification of 15 days is expected to coordinate review. The review may be held virtually or at the Supplier's facility. All data submissions shall be per SQAM 8.12 Data Submission Instructions.

A TRR will be conducted before each FAT/DFAT and formally **presented in slide deck** form to BAE Systems prior to the start of testing.

The TRR may consist of but not limited to:

- LRU name
- Test (s) being performed
- Test Schedule including set-up, breakdown, shipping times, test duration (s)
- Quantities of LRU's undergoing testing
- Test Location (s)
- Test Objectives
- Test Parameters
- Test Limitations (if any)
- Test Readiness Criteria Including
    - Test Plan
    - Test Asset Availability and Status
    - Test Equipment Availability and calibration status
    - Test Support Personnel

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. The product SHALL be presented with all required

contract or TDP requirements met prior to presentation. In order to accommodate BAE System's source inspection representatives, the Supplier SHALL make all facilities and equipment available to support source inspection. The following documentation SHALL be presented to the source inspector:

- A copy of the current PO
- Variances and or completed VIRs attached to PO
- Current CQR (Configuration Quality Requirements) attached to PO
- All drawings defined on CQR
- Inspection records
- OQE supporting CDR / drawing requirements on PO

The Supplier SHALL provide a minimum five (5) business working days advance notification of requests for source inspection through submission of Form 092245. Unauthorized/unapproved shipment of product without a BAE Systems source inspection is cause for rejection, a Supplier corrective action request may be issued and product may be returned to the Supplier at the Supplier's expense and withholding of the invoice payment.

If parts are returned for repair or rework, a resubmission of source inspection is required. Parts are not to be shipped until the resubmission for source inspection has been approved and the source form is annotated with 'Repair or Rework' and lists the NCR number on the form.

006 Government Source Surveillance/Inspection (GSS/GSI)

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 completed. If the local Government representative directs the source surveillance/inspection should take place at a sub tier Supplier facility, the full wording of this requirement SHALL be incorporated into the Purchasing Agreement with that sub tier Supplier. The text of this requirement may be incorporated by reference. At no time SHALL the Supplier flow any Government source surveillance/inspection requirements to their sub tier Suppliers without the direction of their local Government representative.

Unauthorized shipment of product without Government Source Surveillance is cause for rejection and subsequent return at the Suppliers' cost and withholding of the invoice payment.

GSS SHALL not replace Supplier inspection nor relieve the Supplier of its responsibility to meet all requirements of the Purchasing Agreement.

Supplier must notify BAE Systems prior to, or in conjunction with, notification to DCMA so that BAE Systems has the opportunity to schedule and perform any reviews/inspections prior to submission to DCMA.

The Supplier SHALL notify the local Government DCMA Representative of pending inspections in accordance with FAR 52.246-2(i) (2), at:

52.246-2 Inspection of Supplies-Fixed-Price. | Acquisition.GOV

The Supplier SHALL submit evidence of GSS review with each shipment.

007 Welding/Brazing-Combat Vehicles

PRIOR to the start of fabrication, the Supplier SHALL submit and gain approval for all procedure (s) per the PO Part Number. Unless otherwise specified and/or prohibited by the applicable PO, Contract, Drawing, and/or Specification, authorized Suppliers **MAY** utilize BAE Systems Weld Procedure Specification (s) (WPS) in the event that the Supplier has received authorization by completing the BAE Systems required Weld Procedure Training and subsequent Weld Process Audit.

NOTE: Suppliers may utilize BAE Systems Weld Procedures under the Hybrid Weld Codes 4399307 and 4399308. However, under the Hybrid Weld Code- Steel (4399307) Section 4.5.4.2 Procedure Transfers, the Supplier SHALL create a validation test plate using the WPS parameters to qualify for welding with the WPS in accordance with Section 4.6 Welder Performance Qualification to demonstrate the entity is capable of meeting the requirements of the transferred WPS. This validation test is ONLY to be performed for each BAE Systems Steel Weld Procedure utilized under the Hybrid Weld Code-Steel (4399307).

NOTE: CDR007 submittals in accordance with Mil-STD-3040 and/or Mil-STD-3057, along with subsequent document revisions, strictly prohibit the use of BAE Systems Weld Procedures for Weld Classes II, III, and IV. For POs, contracts, and/or drawings requiring welding in accordance with Mil-STD-3040 and/or Mil-STD-3057, the Supplier SHALL qualify and provide Weld Procedure(s) and supporting documentation in accordance with the requirements listed in the applicable specification.

In the event the Supplier is **NOT** authorized to utilize BAE Systems Weld Procedures and/or BAE Systems **DOES NOT** have applicable Weld/Braze Procedure (s) to fabricate the Weldment/Brazement to fulfill the PO, the Supplier SHALL be responsible for providing and/or qualifying Weld/Braze Procedure (s), in accordance with the specified code, **PRIOR** to fabrication. BAE Systems Weld Engineering SHALL NOT be responsible for providing additional procedure qualifications for the sole use of our Suppliers.
The Supplier SHALL submit the WPS/BPS(s) intended for part fabrication to BAE Systems Weld Engineering for review and approval via the CMS Supplier Weld/Braze Procedure Submission Form (BMS 089136) **PRIOR** to the start of welding/brazing and fabrication. The latest version of the form SHALL be utilized and is accessible via the BAE Systems CMS Supplier Website.

Each Weldment/Brazement part number and the applicable WPS/BPS(s) SHALL be submitted individually.

In the event the Supplier provides a non-BAE Systems qualified Weld Procedure, or is not authorized to utilize BAE Systems Weld Procedures, the Supplier SHALL submit the following documentation, as required per the applicable code and/or specification, **PRIOR** to the start of welding/brazing and fabrication:

- **Welding Procedure Specification (WPS)/Brazing Procedure Specification (BPS)**
- Supporting **Procedure Qualification Record (PQR)/ Brazing Procedure Qualification Record (BPQR)**- to include non-destructive and destructive supporting test data
- Any **additional supporting documentation** that is required for submittal in accordance with the applicable drawing and/or specification

All Weld procedures and/or Braze procedures to be utilized SHALL be approved **PRIOR** to use; which SHALL include tack welding and/or rework. Supplying product to BAE Systems with an unapproved, rejected, and/or incorrect WPS/BPS is a violation of the BAE Systems Purchasing Agreement and SQAM and SHALL be considered non-conforming.
The Supplier SHALL be responsible for resubmitting the form in the event that any changes in base material, Weld/Braze procedure (s), the part number configuration, and/or any other changes that impact the Welding/Brazing processes and/or procedures from the previously approved submittal. The form SHALL be resubmitted if the BAE Systems Purchasing Order part number changes throughout configuration, regardless if all other variables have remained consistent from the previous approval.
NOTE: The processes and procedures that are to be used in fabrication SHALL directly align with the latest approval on record. Should the Supplier resubmit and gain approval on the PO part number and Weldment/Brazement part number combination, any previous approvals containing that specific combination are superseded by the most recent approval.
Example: If the Supplier has a previously approved process (GMAW) and wishes to add an additional process (GTAW), both procedures and processes must be included in the resubmittal if they are intended to be used on the subject part.

The Supplier SHALL be responsible for maintaining all supporting documentation including, but **NOT** limited, to the following; procedure qualifications, performance qualifications, sub-tier supplier certifications, machine calibration documentation, and other applicable documentation required to demonstrate compliance in accordance with the requirements per the BAE Systems Purchasing Agreement. All documentation SHALL be made available, as requested, to BAE Systems at all times.
For weld repairs and/or clarifications regarding weld/braze drawing requirements, the Supplier SHALL submit a Vendor Information Request (VIR) Form (BMS 097908) for review and disposition **PRIOR** to use.

007A Welding Combat Vehicles Inspection Criteria

Visual Testing (VT) SHALL be completed and documented on 100% of all welds. The Certificate of Conformance (CoC) Weld Certification form 090475 SHALL be submitted with **all shipments**. For the **first shipment**, the First Submission Weld Roadmap Form 091460 SHALL also be included with the CoC Weld Certification Form.

All Visual Testing (VT) SHALL be conducted by one of the following certification platforms:

- An American Welding Society Certified Welding Inspector (CWI) and/or Senior Certified Welding Inspector (SCWI)
- A qualified CWB Level 2 or 3 through the Canadian Welding Bureau, as determined through the Canadian Standards Association.
- Other certifications, as defined by the applicable weld code and/or specification

All Visual Testing (VT) on armor steel and/or quenched and tempered steel SHALL be held for 48 hours PRIOR to final inspection. When NDT is required per the drawing, all welded high strength steels including, but not limited to, armor steel and low alloy steels 90 KSI (620MPa) in tensile strength or greater SHALL be held a minimum of 48 hours PRIOR to NDT inspection.

007B Welding- Combat Vehicles: Additional Weld Requirements

The Supplier SHALL reference the applicable Code and/or Specification designated by the applicable PO, Contract, and/or Drawing and its entirety. The Supplier SHALL be responsible for reviewing **AND** adhering to **ALL** requirements listed in the designated Weld Code.

Aluminum:

In addition to the requirements specified in CDR007 Welding-Combat Vehicles, the following requirements have updated within the specified Weld Code:

- Weld Procedure Qualifications: the requirements for utilizing Multiple Welding Processes within a single procedure
- Operator Qualifications: the requirements for the Number of Electrodes an Operator is qualified to utilize

Steel:

In addition to the requirements specified in CDR007 Welding-Combat Vehicles, the following requirements have updated within the specified Weld Code:

- Weld Procedure Qualifications: the requirements for Preheat/Interpass Temperature, Travel Speed, Heat Input, and Charpy V Notch (CVN) Testing have updated
- Non-Destructive Testing (NDT): Following welding, for all high strength steels and armor grade steels greater than 0.25” (6mm) in thickness, the final NDT examination for acceptance SHALL be conducted no less than 48 hours after the final weld has cooled to ambient temperature. Preliminary NDT examinations are advisable to avoid production related delays by identifying defects not related to delayed hydrogen cracking. These defects can be addressed before the 48 hour hold is complete, restarting the 48 hour period. Defects identified and addressed following the first 48 hour hold SHALL be subject to an additional 48 hour hold. Alternative strategies to mitigate delayed hydrogen cracking must be supported by data and SHALL be submitted to the procuring activity for review for acceptability prior to amending the length of this hold time.
- Procedure Transfers: It is allowable to transfer qualified and approved welding procedure (s) between an entity and its sub-entities, for all classes of welds. The receiving transferee (Supplier and/or Sub-Tier Weld Supplier/Fabricator) SHALL create

an initial validation test plate using the WPS parameters to qualify for welding with the WPS in accordance with the applicable Weld Code.

- The sub-entity SHALL submit the BAE Systems Validation Test Plate Data Sheet and document the applicable information as required. Failure to provide the necessary information SHALL result in the ineligibility to utilize the entity's Weld Procedure(s).
- A re-validation test **MAY** be required to demonstrate that the sub-entity is capable of adhering to the requirements specified in accordance with the Weld Procedure in question, as a result of the following events:
  - Non-conformance (s) identified during a Weld Process Audit conducted by BAE Systems' Supplier Quality Team
  - Non-conforming welded part (s) received by BAE Systems

008 Welding/Brazing-Weapon Systems

PRIOR to the start of fabrication, the Supplier SHALL submit and gain approval for all procedure(s) per the PO Part Number. The Supplier SHALL be responsible for qualifying and providing Weld/Braze Procedure (s) **PRIOR** to fabrication.
The Supplier SHALL submit the following documentation, as required per the applicable code and/or specification, to BAE Systems for review and approval via the CMS Supplier Weld/Braze Procedure Submission Form (BMS 089136) accessible via the BAE Systems CMS Supplier Website, **PRIOR** to the start of welding/brazing and fabrication:
• **Welding Procedure Specification (WPS)/Brazing Procedure Specification (BPS)**
• Supporting **Procedure Qualification Record (PQR)/ Brazing Procedure Qualification Record (BPQR)**- to include Non-Destructive and Destructive Supporting Test Data
• **Personnel Performance Qualifications*-** to include Welder/Welder Operator Performance Qualification (WPQ) and Brazer/Braze Operator Performance Qualification (BPQ) ***submittals ONLY** required for personnel executing the respective welding and/or brazing operations
• Any **additional supporting documentation** that is required for submittal in accordance with applicable drawing and/or specification

All Weld/Braze Procedures to be utilized SHALL be approved **PRIOR** to use; which SHALL include tack welding and/or rework. Supplying product to BAE Systems with an unapproved, rejected, and/or incorrect WPS/BPS is a violation of the BAE Systems Purchasing Agreement and SQAM and SHALL be considered non-conforming. All Weld Procedures and/or Braze Procedures to be utilized SHALL be approved **PRIOR** to use; which SHALL include tack welding and/or rework. Supplying product to BAE Systems with an unapproved, rejected, and/or incorrect WPS/BPS is a violation of the BAE Systems Purchasing Agreement and SQAM and SHALL be considered non-conforming.
The Supplier SHALL be responsible for resubmitting the form in the event that any changes in Base Material, Weld/Braze Procedure(s), the Part Number Configuration, and/or any other changes that impact the Welding/Brazing processes and/or procedures from the previously approved submittal. The form SHALL be resubmitted if the BAE Systems Purchasing Order Part Number changes throughout configuration, regardless if all other variables have remained consistent from the previous approval.
NOTE: The processes and procedures that are to be used in fabrication SHALL directly align with the latest approval on record. Should the Supplier resubmit and gain approval on the PO Part Number and Weldment/Brazement Part Number combination, any previous approvals containing that specific combination are superseded by the most recent approval.

Example: If the Supplier has a previously approved process (GMAW) and wishes to add an additional process (GTAW), both procedures and processes must be included in the resubmittal if they are intended to be used on the subject part.

The Supplier SHALL be responsible for maintaining all supporting documentation including, but **NOT** limited, to the following; Procedure Qualifications, Performance Qualifications, Sub-Tier Supplier Certifications, Machine Calibration Documentation, and other applicable documentation required to demonstrate compliance in accordance with the requirements per the BAE Systems Purchasing Agreement. All documentation SHALL be made available, as requested, to BAE Systems at all times.
For weld repairs and/or clarifications regarding weld/braze drawing requirements, the Supplier SHALL submit a Vendor Information Request (VIR) Form (BMS 097908) for review and disposition **PRIOR** to use.

008A Welding/Brazing-Procedures Requiring NAVSEA Approval

As a prerequisite, the Supplier SHALL be responsible for satisfying all requirements in Sections 5.2.3 and 5.2.3.1 of S9074-AQ-GIB-010/248 REQUIREMENTS FOR WELDING AND BRAZING PROCEDURE AND PERFORMANCE QUALIFICATION **PRIOR** to accepting POs with these requirements.

PRIOR to the start of fabrication, the Supplier SHALL submit and gain approval for all procedure (s) per the PO Part Number.

The Supplier SHALL be responsible for providing and/or qualifying Weld/Braze Procedure (s), in accordance with the specified code, **PRIOR** to fabrication.

The Supplier SHALL submit the WPS/BPS (s) intended for part fabrication to BAE Systems Weld Engineering for review and approval via the CMS Supplier Weld/Braze Procedure Submission form (BMS 089136) **PRIOR** to the start of welding/brazing and fabrication. The latest version of the form SHALL be utilized and is accessible via the BAE Systems CMS Supplier Website. Each Weldment/Brazement part number and the applicable WPS/BPS (s) SHALL be submitted individually.

The Supplier SHALL submit the following documentation, at a minimum, as required per the applicable code and/or specification, **PRIOR** to the start of welding/brazing operations:

- **Welding Procedure Specification (WPS)/Brazing Procedure Specification (BPS)**
- Supporting **Procedure Qualification Record (PQR)/ Brazing Procedure Qualification Record (BPQR)**
- **Non-Destructive and Destructive Supporting Test Report**; tests SHALL be performed in accordance with AWS B4.0 and NAVSEA T9074-AS-GIB-010-271 REV 1
- **Filler Material Certificate of Conformance (CoC)** for filler material utilized in the development of the applicable PQR
- **Procedure Approval Notice and/or artifact from NAVSEA and/or NAVSEA AR,** if the applicable PQR was previously reviewed and approved by NAVSEA

- For Special Welds and/or Special Processes, provide any **additional supporting documentation** that is required for submittal in accordance with the applicable drawing and/or specification

BAE Systems SHALL be responsible for submitting the package to NAVSEA, for review and approval, as required.

All weld procedures and/or braze procedures to be utilized SHALL be approved by BAE Systems **PRIOR** to use; which SHALL include tack welding and/or rework. Supplying product to BAE Systems with an unapproved, rejected, and/or incorrect WPS/BPS is a violation of the BAE Systems Purchasing Agreement and SQAM and SHALL be considered non-conforming.

The Supplier SHALL be responsible for resubmitting the form in the event that any changes in base material, weld/braze procedure(s), the part number configuration, and/or any other changes that impact the welding/brazing processes from the previously approved submittal. The form SHALL be resubmitted if the BAE Systems PO part number changes throughout configuration, regardless if all other variables have remained consistent from the previous approval.

The Supplier SHALL be responsible for maintaining all supporting documentation including, but **NOT** limited, to the following; procedure qualifications, performance qualifications, sub-tier supplier certifications, machine calibration documentation, and other applicable documentation required to demonstrate compliance in accordance with the requirements per the BAE Systems Purchasing Agreement. All documentation SHALL be made available, as requested, to BAE Systems at all times.

For weld repairs, clarifications, and/or deviations regarding weld/braze drawing and/or specification requirements, the Supplier SHALL submit a Vendor Information Request (VIR) Form (BMS 097908) for review and disposition **PRIOR** to use.

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.

The Supplier SHALL provide a written certification stating that the components provided were tested and meet the applicable solderability requirements as stated above.

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

012 Flammability

A flammability certification to the specification noted on the drawing from the original material manufacturer or a flammability test report from a BAE Systems approved facility is required. This requirement is only applicable to Phoenix parts.

013 Nondestructive Examination Procedures

When the PO specifies nondestructive examination such as radiography, magnetic particle, liquid penetrant, or ultrasonic inspections, approval of the procedure is to be completed by or with oversight from BAE Systems, level 3 personnel. The procedure SHALL be submitted within thirty (30) days after receipt of the Purchasing Agreement.

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 non-destructive 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, at a minimum:

- Type of test and coverage
- Applicable procedure specification (title, number and revision)
- Applicable acceptance criteria (title, number and revision)
- Actual data as defined in the applicable procedure specification
- Name and address of the company that actually performed the testing
- Certificate of process compliance
- Quantity of parts that were evaluated
- BAE PO number (s)

In addition to the above, data as required by the testing specification in the contract SHALL be included.

A test plan SHALL be developed detailing the non-destructive examinations parameters to be used in accordance with the applicable specification and SHALL be made available to BAE Systems upon request. Product NDT verification SHALL be completed by a certified individual required per the PO requirements, with a level II or higher certification.

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 per the Purchasing Agreement.
Note: If the TDP allows shipment prior to completion of the testing the supplier must submit form "092245 Source Inspection Request / CDR Paperwork Submission" and form 093504 "CDR 015 Part Submission Form Review Notification". Identification of projected date of test completion must be included in section B, section C will be approved by BAE Systems prior to shipping.

Following the completion of testing a test report SHALL be submitted and approved with form "092245 Source Inspection Request/CDR Paperwork Submission" and form 093504 "CDR 015 Part Submission Form Review Notification".

Suppliers are required to inform BAE Systems using VIR form 089725 when any of the following situations occur. A change in the planned test schedule that may impact delivery, a failure through test equipment or a failure with product itself prior to continuance of testing.

Forms are available on the Purchasing website.

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
- All applicable BAE Systems Purchasing Agreement numbers
- 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
- Next test date/submittal
- Applicable serial numbers that were tested
- 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 a written certification proving the plating was performed in accordance with all Purchasing Agreement, drawing, and specification requirements prior to shipment of the product. The facility performing the plating SHALL prepare the certification.

The Certification **MUST** include, as a minimum:

- Part number and revision
- BAE Systems Purchasing Agreement number
- Plating process specification and revision used
- Complete lot traceability to all certifications related to the BAE Systems Purchasing Agreement
- Printed name, signature, and title of the Supplier's representative
- Report date

Pretreatment on steel parts with a tensile strength of 1000 MPa (31 HRC) or greater that contain tensile stresses caused by cold forming or cold straightening which have not been heat treated after the cold forming process, SHALL be heat treated for stress relief to reduce the risk of hydrogen embrittlement in the part before the cleaning and electroplating processes. Heat treatment times and temperatures SHALL be in accordance with Table 1 of ASTM B849 for steel, based on its tensile strength.

The following requirements apply when zinc plating per ASTM B633 is specified:

- Post Coating Treatments of Iron and Steel for the Purpose of Reducing the Risk of Hydrogen Embrittlement (Baking)
- Electroplated steel parts having a tensile strength greater than 1200 MPa (39 HRC) as well as surface hardened parts, SHALL be baked to reduce the risk of hydrogen embrittlement.
- Baking of electroplated steel parts with tensile strength 1200 MPa (39 HRC) or less is not mandatory.
- Steel parts having a tensile strength greater than 1200 MPa (39 HRC) as well as surface hardened parts, SHALL be baked to reduce the risk of hydrogen embrittlement. (For such parts, when the purchaser did not specify the bake requirements in the ordering information, bake times and temperatures SHALL be in accordance with the appropriate ER Class in Guide ASTM B850 Table 1).

The certification for baking SHALL also include:

- Baking temperature; requirement and actual
- Baking time; requirement and actua
- A statement that the baking operation for hydrogen embrittlement relief was started within 3 hours of plating completion or as required per the specification

017 Paint Certification

The Supplier SHALL provide a copy of the written certification documenting that painting was performed in accordance with all Purchasing Agreements, drawing, and specification requirements prior to product shipment. The facility performing the painting **SHALL** prepare the certification, which SHALL include:

- Name and address of the finisher
- Part number and revision
- BAE Systems Purchasing Agreement number
- List of specifications and their revisions used in the processing of the paint
- Dry film paint thickness of a sample of actual parts for the primer and top coat
- Salt spray evidence as required per specification

- Adhesion testing evidence as required per specification
- Material lot/batch number (s)
- Material expiration date (s)
- Printed name, signature, and title of Supplier's representative
- Certification date

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

Documentation submittal is required for Anniston Spares and for all non-approved paint resources.

Items requiring painting in accordance with MIL-STD-1303 SHALL instead be painted in accordance with NAVSEA Drawing 7250920 as required by any associated paint photographs.

018 Physical and Chemical Test Reports

The Supplier SHALL provide the raw material certification including all actual chemical, mechanical, and physical test results required by the TDP for the material or finished product shipped under this Purchasing Agreement with traceability to the original mill/manufacturer, heat lot, and country of origin. For material subject to the SQAM paragraph 6.6 Traceability of Specialty Metals, evidence of compliance SHALL be included. Certificate is required to state affirmation/compliance to DFARS 252.225-7008 and 252.225-7009.

019A Test Samples – Tensile Testing

The Supplier SHALL provide a set of two samples (un-machined test bars/sheet stock) suitable for the mechanical testing as required by Purchasing Agreement or referenced specification. Both SHALL be made from the same melt and heat treated in the same lot as the supplied parts. Contact Purchasing Representative for sample delivery location requirements if unspecified.

019B Material/Process Samples

A representative material test sample (the same as the material lot) is required. The test sample SHALL be processed simultaneously with the material it represents, through all special processing. The sample SHALL be of sufficient size and configuration to permit BAE Systems will determine the heat treatment, plating, painting, etc., results in lieu of destroying a completed part. The supplier SHALL submit the processed test sample with completed material/parts to BAE Systems.

020 A-G Heat Treating

The Supplier SHALL conduct a visual inspection for cracks or other injurious defects with qualified personnel as required.

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 the 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.

The below processes SHALL be completed as stated per specific drawing requirements. When a conflict is noted between this document and specific drawing requirements, the drawing requirements take precedence.

020A - 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. The 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 the drawing or appropriate specification. Exceptions are stress-proof, fatigue-proof, precipitation hardening grades of steel, margining steels and structural steel such as HY-, HY-100, Cor-ten, etc. This will minimize distortion and ensure that proper hardness is achieved.

020B - 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 ½ radius (core hardness measured on cut surface).

020C - Quench and Temper (Surface Hardness Specified, 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.

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 ½ radius (core hardness measured on cut surface).

020D - 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.

020E - 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.

020F - 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.

020G - Stress Relief

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

021A Mercury

The Supplier SHALL certify 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 POs however, certification is only required from the BAE Systems tier1 suppliers when requested.

021B Lead

The Supplier SHALL certify that the material shipped under this Purchasing Agreement does not contain lead in any form and that no lead-bearing instruments and/or equipment that might cause contamination, have been used in its manufacture, fabrication, assembly, or testing of

any material shipped under this Purchasing Agreement. This requirement must be included in all sub-tier Pos, however, certification is only required from the BAE Systems tier 1 suppliers.

022 Material Traceability

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

022A Material Traceability – Weapon Systems - VPM

For Legacy Weapon Systems, VPM program, the following requirements apply:

- Supplier SHALL comply with all provisions of sow EB5638 and EB6075.
- Material verification SHALL be accomplished upon receipt and prior to delivery.
- Photographic evidence of product condition as received and as shipped MUST be provided.
- Inspection/OQE Reports SHALL include the Unique Identification Number (UIN) from the provided raw material and a unique serial number that SHALL also be marked on the part to match the inspection records.
- Part markings should include a minimum of the following:
    - MFR name (Symbol) and cage code, material traceability serial number and heat number (EB Unique Number – Mill SN for plate,
    - EB/OEM SN for forgings/castings, lot number(Bar), MIC NO (CU-NI, AL-BZ PLATE, BAR STOCK),
    - Material Specification (EX) HY-80, DELRIN-150, FORGING/PLATE SPEC),
    - Material Inspection Markings (VT, MT, RT, UT), EB Drw No- Item No/Revision from the BAE Systems provided-Discrete Dwg Numbers page, BAE Systems material tracking number provided on raw material,
    - Hull Code ID

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 as directed by the requirement assigned below:
    - 023A with a minimum of 50% of the shelf life remaining
    - 023B with a minimum of 75% of the shelf life remaining.
    - 023C with a minimum of 85% of the shelf life remaining.
    - 023D other as directed by contract.
- All age-sensitive items and their respective shipping containers SHALL be permanently marked with the cure/manufacture and expiration dates in addition to any other required markings.

- 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, When a CoC for age sensitive items is required it SHALL include:
  a) Lot traceability by run, batch, lot, or date of manufacture
  b) Shelf life expiration date (as required by specification)
  c) 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 the 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 CoC 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 CoC (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 BAE Systems requests documentation, the documentation SHALL be provided in a commonly readable electronic format.

027 Certificate of Compliance

The Supplier SHALL provide an electronic copy of their CoC for each shipment as defined by paragraph 8.5 of the SQAM.

028 Unique Identification (UID)

This item requires UID marking in accordance with Mil-Std-130/TDP requirements. Verification and validation must be performed in accordance with MIL-STD-130. Verification and validation reports in accordance with DI-MGMT-81804 must be kept on file. If the UID marking is already present, verify and validate in accordance with MIL-STD-130. If the scan fails, replace the existing marking with new UID marking. SQAM required marking SHALL be rubber stamped in a location close to the UID plate including the Supplier's CAGE code if not part of UID plate information.

029 Serialization

The Supplier SHALL identify items using marking methods as required by drawings, specifications, and/or the PO. Serialization logs SHALL be maintained to prevent duplication of serial numbers. The Supplier's quality system SHALL ensure traceability of all serialized items and materials to the original materials. When two or more serialized parts are joined in an assembly, the Supplier SHALL include a list for each assembly serial number with the part numbers, change letters, and component serial numbers making up the assembly serial number. This information SHALL be supplied with each shipment.

Weapon Systems VPM program - The Supplier SHALL comply with the above provisions and the entirety of EB5638.

030A Phoenix Approved Special Processors (BAE Systems)

The Supplier must use BAE Systems' approved sources for special processes such as thermal processing, metal finishing, metal joining, non-destructive testing, etc. A current approved processor listing may be obtained from the respective BAE Systems Buyer.

030B Phoenix Approved Special Processors (Customer)

The Supplier must use BAE Systems' customer approved sources for special processes such as thermal processing, metal finishing, metal joining, non-destructive testing, etc. A current approved processor listing may be obtained from the respective BAE Systems Buyer.

030C NADCAP Approved Special Processes

All special processes identified herein and utilized on a BAE Systems PO/subcontract require certification by NADCAP. NADCAP Certification will be required for heat treating, painting/coating (non-CARC) and plating. These special process requirements identified herein SHALL be flowed down to all sub-tier Suppliers as applicable. The Supplier SHALL provide a current CoC certifying compliance for the special process identified and performed as required by the TDP. All special process suppliers or their sub-tier suppliers utilized on the PO/subcontract SHALL have a current accreditation by NADCAP. The CoC SHALL define and document each process used in satisfying the TDP/Subcontract requirements and the date of the last audit. Special processes will be as defined in our SQAM, AS9100 and by NADCAP. All costs associated with NADCAP accreditation SHALL be borne by the special processor.

030D Combat Vehicles Approved Special Processors (BAE Systems)

The Supplier is to use BAE Systems' approved sources for special processes such as thermal processing, metal finishing, metal joining, non-destructive testing, etc. A current approved processor listing may be obtained from the respective BAE Systems Buyer.

030E High Strength Fasteners (HSF)for Naval Products

The following is a Legacy Weapons Systems requirement for all High Strength Fasteners:

THIS IS A HIGH STRENGTH FASTENER. ALL HIGH STRENGTH FASTENERS (HSF) OF THIS TYPE ARE REQUIRED TO MEET THE FOLLOWING REQUIREMENTS: ANY OF THE HSF ITEMS NOT MEETING THE BELOW REQUIREMENTS IS CAUSE FOR REJECTION, WITHOUT EXCEPTION.

******NOTE: ALL OF THE LISTED CDR REQUIREMENTS MUST BE APPROVED PRIOR TO DELIVERY. NO EXCEPTIONS. ANY DELIVERY WITHOUT APPROVAL WILL BE REJECTED AND RETURNED TO SUPPLIER******

****
HIGH STRENGTH FASTENER SPECIAL REQUIREMENTS
****

HSF currently can only be zinc or zinc/nickel plated to (96-11402, only when the drawing states this requirement) and must be plated at Nico Plating (Minneapolis, MN) and purchased from E & A Products.

All other HSF: The following applies:

- Procurement of all HSF must be through:

  E & A PRODUCTS CO INC
  11885 Brockton Lane
  MAPLE GROVE, MN 55369

- Plating for all HSF must be completed by:

  NICO PRODUCTS
  2929 1ST AVENUE SOUTH
  MINNEAPOLIS, MN 55408
  (PH) 612-822-2185

When placing orders with Nico Products, the PO to Nico Products must state that these are for BAE Systems, Weapons Systems, and that these instructions must be flowed down to Nico Products.

Supplier Quality Assurance (SQA) provisions per BAE Systems SQAM must be adhered to.

(All specifications referenced SHALL be compliant to the latest revision)

The delivered documentation package SHALL contain the following:

- A CoC confirming that the part was manufactured to the requirements of FF-S-86 or related ASTM B18 specification and ANSI/ASME B18.3 for dimensional compliance.

- A chemical and physical certification, (material must be melted in the USA or a qualifying country per DFARs requirements, an actual mill certification with the country of origin listed is required).
- The oven charts required for hydrogen embrittlement pre and post plate baking operation, after plating from the plater.
- NDT test certification after heat treating required, prior to plating.
- A document that states the parts are mercury free when completed.
- All certifications traceable to the appropriate BAE Systems PO, on each required document.
- The special plating restrictions are as follows (certification is required to document compliance as listed):
    1. No cathodic or acid cleaning allowed.
    2. The minimum workable current density SHALL be used in the zinc bath. Cyanide zinc and other low efficiency baths SHALL **NOT** be used.
    2.1 Practice of zinc activation, post hydrogen embrittlement, bake relief, by immersion in zinc plating bath with electric current is prohibited. Only weak acid per ASTM B6333 are allowed.
    3. Hydrogen embrittlement bake @ 400 +0/-25 deg F for 24 hours within 3 hours.
    4. Plating thickness, adhesion, corrosion resistance, hydrogen embrittlement relief and workmanship SHALL be verified IAW ASTM B 633.
- A metallurgical NDT inspection per ASTM E 1444, after stress durability testing of samples parts used for testing. (Magnetic Particle (MP) Inspection).
- A stress durability test, per AIA/NAS NASM-1312-5, 200 hours, 80% of the rated minimum tensile strength (ref ASTM A574 or ASTM A574M) sample size IAW SHALL be completed after plating, (**a minimum of 5 parts must be tested**).
- The locking patch (when required) SHALL be per MIL-DTL-18240, except prevailing and breakaway torques per IFI-124 (when required by DWG).
- A FPI per the CDR Manual must be in compliance, after the first piece and as long as this item has been in continuous production for the last 24 months, an in-process inspection must be completed and submitted for our review to show compliance after the first article and during the remainder of the 24 month period.

- All items must be completed per the requirements and submitted for source inspection. The Supplier must receive written BAE Systems permission to ship. A copy of the permission SHALL be included with all items being shipped.
    5. A pre-approved plating rework procedure is required and must be approved by BAE Systems, for all parts. Rework must be identified using a punch mark, (x), located on the head of the fasteners.
    6. BAE SYSTEMS, WEAPONS SYSTEMS DIVISION, must approve the "Plating Process Control Procedure" prior to plating HSF. Written evidence of approval is required to be available upon demand.
    7. Any detail that is not documented as described, herein, is cause for rejection, return, and replacement as needed. It is the responsibility of the Supplier to review for compliance, all items prior to submittal. There are no allowable exceptions to HSF. All items must be provided, and be in compliance as noted. All rejections are at the cost to the Supplier, with provided conforming items.

032 Ballistic Requirements-Transparent Armor

A ballistic FAT 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.

<u>Ballistic sample submission process for York purchased material tested at BAE Systems San Jose:</u>

- The Supplier SHALL request BAE Systems source inspection prior to shipping the samples for ballistic testing.
    - The Supplier SHALL submit Form 092245 Source Inspection Request/Approval Form as required by CDR005 per the data submission instructions on Form 092245.
    - Forms are available on the Purchasing website listed in the PO text.
- During source inspection, the Supplier and BAE Systems CMS source inspector SHALL complete Form 091889 Ballistic Test Submittal Form.
    - The Source inspector SHALL determine if contract requires DCMA witness of the ballistic test.
    - The Source inspector SHALL enter the project and task numbers on the submittal form (when applicable).
- Signed copies of the source inspection approval and the ballistic test forms SHALL be included with the shipping documents for the test sample.
- In addition to the marking requirements, specified in the PO and on the drawings, ALL test specimens, shipping containers and associated documents SHALL be clearly marked "First Article Sample" or "Lot Sample."
- Following ballistic first article approval, the Supplier SHALL submit lot samples for testing per the schedule in the ballistic test specification.

Ballistic sample submission process for Anniston purchased material tested at BAE Systems San Jose:

- Supplier SHALL submit a copy of 091889 Ballistic Test Submittal Form.
- Signed copy of the Ballistic Test form SHALL be included with the shipping documents for the test sample
- In addition to the marking requirements, specified in the PO and on the drawings, ALL test specimens, shipping containers and associated documents SHALL be clearly marked "First Article Sample" or "Lot Sample."
- Following Ballistic First Article approval, the Supplier SHALL submit lot samples for testing per the schedule in the ballistic test specification.

Ballistic sample submission process for Anniston purchased material tested at another testing facility other than BAE Systems San Jose:

- All ballistic test documentation SHALL be provided.
- The Supplier SHALL submit lot samples for testing per the schedule in the ballistic test specification.
- The Supplier is responsible for tracking compliance to ballistic testing for each product supplied to BAE Systems CMS.

034 Ballistic Requirements- Metal and Composite Materials

FIRING RECORDS (Plate and Composite):

The Supplier SHALL provide a copy of the:

- Summary Template for Armor Product 093550, held on the purchasing website.
    a. Submission of this form is only required for parts fabricated from the following material specifications:
        i. Aluminum Armor
            1. MIL-DTL-32262
            2. MIL-DTL-32341
            3. MIL-DTL-32375
            4. MIL-DTL-32505
            5. MIL-DTL-45225
            6. MIL-DTL-46027
            7. MIL-DTL-46063
            8. MIL-DTL-46083
            9. MIL-DTL-46192
        ii. Steel Armor
            1. MIL-A-11356
            2. MIL-DTL-12560
            3. MIL-DTL-32332
            4. MIL-DTL-46100
            5. MIL-DTL-46177
        iii. Titanium Armor

1. MIL-DTL-46077
2. 19207-12933366
3. 19207-12462708

b. Any other items listed with CDR034 that do not make use of these listed specifications are not required to complete the submission form 093550.
c. Completion of this form does not exempt the vendor from submission of all other required documentation listed in CDR 034.

- Physical and Chemical Test Reports
    a. For non-armor options allowed per the print, the Supplier SHALL submit the physical and chemical test reports for the optional material used. BAE Systems SHALL be notified of the use of the optional material during documentation submittal.
    b. Test reports SHALL be provided in accordance with the applicable material standard and the definitions and requirements therein.
    c. Certificate is required to state affirmation/compliance to DFARS 252.225-7008 and 252.225-7009.

Government Ballistic Test Certification, including firing number for each heat/lot of ballistic material.
All armor material lot and heat certification traceability must be maintained and tracked to the sub-component and or end item the material was consumed in.

- FIRING RECORDS (CASTING):
  For armor castings and extrusions, the Supplier SHALL maintain a listing of Government approved firing numbers for all material recipes supplied to BAE Systems.
- FIRING RECORDS (FORGINGS):
    a. Aluminum armor forgings require a ballistic test for each lot, including longitudinal and transverse tensile tests per MIL-DTL-45225 and the material certificate of analysis.
    b. Ferrous armor forgings require a ballistic test for each lot, including results for all testing specified in the ballistic test specification and the material certificate of analysis.

MACHINING ALLOWANCES FOR ARMOR PLATE:

In general, mill certifications and ballistic test certifications are required to be provided at the thickness designated on a drawing's material note. In instances where there is no requirement for the thickness of armor material designated in the material note, or a part is machined to final dimensions from a thicker section, the following requirements SHALL apply:

- If the thickness of the armor material is not specified on the material note, thicker material may be procured and machined to final size with the following limitations:
    - MIL-DTL-46027 – allowable to machine 25% from the original thickness to meet requirement.

  - MIL-DTL-32375 (Class 1, All Grades) – allowable to machine 10% from the original thickness to meet requirement.
  - MIL-DTL-12560 (Class 1) – allowable to machine within the applicable hardness ranges specified in Table 1 in this section.
  - MIL-DTL-12560 (Class 2 & 4) – allowable to machine 25% from original thickness to meet requirement.
  - MIL-DTL-46100 – allowable to machine 25% from original thickness requirement.
- When assessing machining allowances per the above requirements, measurements SHALL be taken from nominal ordered thickness to the nominal measurement at the thickest section of the component as designated on the drawing.
- Exceptions outside of the allowances in this document must be reviewed and approved by BAE Systems Engineering and requires the submission of a VIR.

Note that Class 3 MIL-DTL-12560 armor is not allowable for use in the fabrication of vehicle product and is typically used for other test and evaluation purposes. As a result, machining allowances for this material require submission of a VIR if procured in a thickness other than that requested in the PO.

Table 1. Machining Allowances for MIL-DTL-12560 Wrought Armor Plate.

Armor Class (MIL-DTL-12560)	Allowable Machining Ranges
1	.098 - .249 incl.
	.250 - .624 incl.
	.625 – 1.125 incl.
	1.126 – 1.999 incl.
	2.000 – 3.999 incl.
	4.000 – 6.000 incl.
2	25% original thickness
4	25% original thickness

MATERIAL REDUCTION OF ARMOR PLATE (STEEL & ALUMINUM):

During the handling and fabrication of armor plates, occasionally small material defects – such as mechanical gouges and scratches – accumulate on the plate surface. In general, surface imperfections that do not affect the functionality of the material or its fitness for fabrication are acceptable and do not need to be repaired. These requirements are outlined in Paragraph 3.11 (MIL-DTL-46027), Paragraph 3.9 & 3.10 (MIL-DTL-32375), and Paragraph 3.2.11 (MIL-DTL-46100 and MIL-DTL-12560).

Given that it is difficult for vendors to assess what surface imperfections may affect the functionality or serviceability of a plate in fabrication, vendors SHALL assess surface imperfections based on the following criteria:

- Identify indications of surface imperfections visually and determine base material type and thickness per applicable engineering drawing.

- Measure plate thickness at the indication site via ultrasound thickness gage, caliper, or other process approved by BAE Systems SQA representative.
    - Ultrasound thickness gage measurements SHALL be taken at the deepest area of the surface imperfection. In instances where an indication cannot be assessed in this manner, measurements SHALL be taken adjacent to the indication.
    - Measurements by caliper or mechanical measurement SHALL be taken at the plate edge nearest the indication. A depth gage SHALL then be used to measure the depth of the imperfection at its deepest point and subtracted from the as-measured thickness to determine final thickness in the area of the indication.
    - Imperfections may be deburred in order to allow effective measurement of the indication.
- Compare the measured thickness of the plate to the minimum allowable material thickness per applicable specification. In instances where the thickness at the location of the indication is defined on the drawing, refer to the applicable drawing tolerances for the minimum allowable material thickness.

If material is found to meet or exceed the minimum thickness at the deepest point of the defect, it is acceptable as-is and no repair is needed. All surface imperfections deemed acceptable by this method SHALL be deburred to remove sharp edges. If the material is found to be thinner than the minimum allowable thickness at the deepest point of the defect, the material is non-conforming to specification and SHALL be rejected. Alternatively, vendors with defective indications may submit a VIR to authorize a repair or use as-is.

Table 2. Thickness Tolerances for MIL-DTL-46027.

Ordered Thickness (Inches)		**Allowable Material Reduction from Specified Thickness (Inches)**
Over	Thru	Minus Tolerance
.250	.315	.018
.315	.394	.023
.394	.630	.032
.630	.984	.043
.984	1.575	.055
1.575	2.362	.070
2.362	3.000	.100

Table 3. Thickness Tolerances for MIL-DTL-32375.

Ordered Thickness (Inches)		Allowable Material Reduction from Specified Thickness (Inches)
Over	Thru	Minus Tolerance
.500	1.000	.043
1.001	1.575	.055
1.576	2.362	.070
2.363	3.000	.100

Table 4. Thickness Tolerances for MIL-DTL-12560.

Ordered Thickness (Inches)		Allowable Material Reduction from Specified Thickness (Inches)
Over	Thru	Minus Tolerance
.2500	.3749	.022
.3750	.6249	.025
.6250	.9990	.030
1.0000	1.4990	.035
1.5000	1.9990	.045
2.000	2.9990	.065
3.000	3.9990	.070

Table 5. Thickness Tolerances for MIL-DTL-46100.

Ordered Thickness (Inches)	Allowable Material Reduction from Specified Thickness (Inches)
Specified Thickness	Minus Tolerance
.1250-.3125	.019

.313-.750	.023
.751-1.000	.026
1.001-1.1875	.031
1.188-1.4375	.036
1.438-1.5625	.039
1.563-1.750	.043
1.751-2.000	.048

THERMAL CUTTING OF STEEL ARMOR PLATE:
SHALL meet the following requirements:

- Parts produced by thermal cutting of plate material SHALL be subject to process qualification. Submission of parts which are thermally cut, SHALL meet the following requirements:

APPLICABILITY:

- Thermal cutting processes include any methods, which rely on, or result in, the generation of temperatures in excess of 1,300 °F at the point of cutting. These processes include, but are not limited to: laser, plasma, and the family of oxy-fuel cutting processes. These processes do not include abrasive cutting methods such as waterjet, abrasive disk or saw, and machining. Products that are first cut by thermal process (such as plasma) and then finished to final dimension by abrasive method (such as machining or grinding) are not subject to the qualification requirements for thermal cutting processes.
- MIL-DTL-46100 materials, all tempers.
- MIL-DTL-12560 materials, Class 1, Class 2, Class 4a, and Class 4b. Qualification for cutting of Class 1, Class 4a, or Class 4b material SHALL be applicable to cutting of Class 2 material. Class 3 armor is not intended for use in vehicle applications and is exempt from the requirements of this section.
- MIL-DTL-32332 materials, all tempers.
- MIL-A-11356 materials, all tempers.

PROCEDURE:

- The Supplier SHALL have a written and controlled procedure for cutting steel armor. Documentation of the procedure SHALL be made available to BAE Systems upon request.
- Initial Procedure Qualification Test: The Supplier SHALL produce a production quality sample in order to verify that the procedure is capable of achieving edge quality in accordance with the applicable material specification. Documentation for this test SHALL be submitted to BAE Systems representatives for acceptance prior to working on productions parts. The required tests for initial procedure qualification are as follows:

  - Sample coupons SHALL be cut with the process to be qualified. Coupons may be on a production part, a sample attached to a production lot, or an independent sample.
  - Visual inspection - no indications of cracking along cut plate edges is acceptable.
  - Non-destructive testing (NDT) per ASTM E1417 or ASTM E1444 or equivalent. Acceptance criteria in accordance with the applicable material standard.
  - Heat Affected Zone Hardness (HAZ) will be determined by the hardness indentation at the mid-length of the cut edge. Five (5) measurements SHALL be taken and equally spaced from the cut edge to a distance of 1.2T or .625 inches (whichever is less).
- Procedure Documentation: Once the Supplier has completed the evaluations outlined by the Initial Procedure Qualification Test, documentation of the test results SHALL be submitted to BAE Systems for final review and approval. This report SHALL contain form 089475 and the following information at a minimum:
  - Material documentation: Includes material standard, temper, heat or lot number, and material thickness tested.
  - Process documentation: Includes process type (e.g. plasma, laser, oxy-fuel), method of cutting (manual or automatic), and environment (e.g. ambient condition, water immersion, controlled non-reactive environment).
  - Major Processing Parameters: Includes the primary processing parameters affecting the quality of the cut edge. Some examples are shown below but should not be considered an exhaustive list:
    - Laser: Beam source, cutting power, travel speed, primary shielding gas, travel speed, minimum pre-heat & post-heat (if applicable).
    - Plasma: Electrode type, voltage, primary cutting gas, travel speed, minimum pre-heat & post-heat (if applicable).
    - Oxy-Fuel: Cutting gas, gas pressure, travel speed, minimum pre-heat & post-heat (if applicable).
  - Secondary Processing: In some cases, Suppliers may elect to use secondary tempering, grinding, or machining processes to ensure the quality of the cut edge and decrease the propensity for cracking. In these cases, Suppliers are not required to submit their secondary processing as part of the qualification for their thermal cutting procedure.
  - Documentation SHALL be provided with the results of visual inspection and NDT in accordance with the initial qualification test. Supplemental documentation may be attached to support NDT results.
  - Documentation SHALL be provided with the results of the initial qualification test. Supplemental documentation may be attached to support the results of NDT and hardness testing.
  - Date, printed name and electronic or hard copy signature SHALL be included to confirm the validity of the test results from the contracted vendor's authorizing authority. In instances where a vendor sub-contracts work to a secondary shop, the authorizing signature SHALL be provided by the primary vendor. In these cases, the primary vendor will be responsible for maintaining the qualification

records and is accountable for products contracted to them but processed by the secondary shop.

PROCEDURE APPROVAL & PERIOD OF QUALIFICATION:

- The Supplier SHALL have the procedure qualification for Thermal Cutting of Steel Armor Form number 089475 completed and approved by BAE Systems' Materials Engineering prior to shipment of product. This should include all provisions of the procedure documentation listed.
- After final approval, period of qualification SHALL be indefinite unless there is reason to believe that the qualified procedure is no longer capable of meeting the edge quality requirements of the applicable material specification.
- Rejection of a submitted Procedure Documentation for qualification, or revocation of an existing qualification, SHALL be followed by corrective action for requalification by BAE Systems.

EFFECTIVITY OF QUALIFICATION:

- A qualified procedure is applicable to the following ranges. For a given tested material thickness, the process qualification SHALL be sufficient for the same process used on materials applicable to the qualification test:
  - $.380 < T$
  - $.380 \leq T < .625$
  - $.625 \leq T < 1.000$
  - $T \geq 1.000$
  - Example: Vendor A qualifies a laser cutting process, using a CO_2 beam source at 4,500 Watts, at 100 IPM on .500 on Class 1 MIL-DTL-46100 material. That qualification is sufficient to cover MIL-DTL-46100 Class 1 materials, to a minimum thickness including .380 and a maximum thickness excluding .625.
- Procedures qualified prior to Rev 09 SHALL remain in effect under the provisions of this release unless there is reason to believe that the qualified procedure is no longer capable of meeting the edge quality requirements of the applicable material specification.

PROCESS INSPECTION:

- Only qualified inspection personnel SHALL conduct visual and NDT process inspections. Documentation of personnel's inspection qualification SHALL be kept and provided to BAE Systems upon request.
  - Inspection personnel SHALL be certified per the contract specification or a written practice in accordance with ASNT SNT-TC-1A, AWS QC1, CSA W178.2, or comparable.
- Process inspection SHALL consist of the following:
  - Visual inspection to be performed by qualified personnel, conducted in accordance with the Supplier's procedure. Inspection frequency SHALL be 100%.

- NDT will be in accordance with ASTM E1417, ASTM E1444, or equivalent. Frequency SHALL be General Inspection level II, AQL 2.5%, spec ANSI/ASQ Z1.4. If rejectable indication is found, institute 100% inspection of subject lot.
- Provided certification SHALL include the inspector name, credentials, quantity inspected and approved.

DEFINITION:

Lot SHALL mean "inspection lot" or "inspection batch" of parts of the same material, the same thickness and processed continuously under one procedure. Example – Supplier A cuts 10 Part Numbers, with different quantities, all from the same thickness of high hardness armor. If they are processed (cut) in a constant continuous process, then the collection of parts can be inspected as one lot.

036 REACH Assessment

Refer to SQAM section 9.5.3. The Supplier SHALL submit a REACH assessment with each PO listing the identified substances found on the current SVHC list. A copy of the assessment is to be included with each shipment against the PO. If available, the Chemical Abstracts Service (CAS), identification number of the SVHC substance SHALL be included in the REACH Assessment. If there are no SVHC substances present in the article, the supplier's REACH Assessment should state "Article supplied does not contain SVHC". The REACH Assessment SHALL include the date of the assessment along with the PO number and the part number.

041 Critical Safety Items (CSI)

The Supplier SHALL provide documentation for all Critical Safety Items (CSI), 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.

041A Critical Safety Items (CSI) Heat Treat Supplier

The heat treat Supplier SHALL conduct 100% testing for Hardness Critical Items (HCI). Hardness testing will occur at designated locations identified on the BAE Systems drawing. Hardness testing will be conducted in accordance with the method defined in the Standard Process Specification (SPS) document specified on the drawing. In the event the location for the hardness testing is not indicated on the BAE System's drawing, the heat treat Supplier may select an appropriate location on the part for testing to be conducted. In the event the BAE Systems drawing does not specify an SPS document for hardness testing, hardness testing is to be conducted per ASTM-E18. The actual results, including an authorized signature and date of acceptance, traceable to a specific shipment SHALL be recorded.

042 SPC Program

Statistical methods and procedures used by the Supplier to implement and maintain a documented continuous improvement program may be subject to review by BAE Systems' Quality Assurance. Using Statistical Process-Control (SPC) methods, tools, and documentation, the Supplier must monitor key characteristics noted directly on the PO or engineering documents. Copies of the control charts, (including notes and corrective actions for assignable causes) must be delivered with each shipment. Processes yielding a Cpk of less than 1.33 require 100% inspection for key characteristics prior to certification and delivery of the production lot. Documented inspection reports SHALL accompany each shipment. The Supplier is responsible for the flow down of this CDR to their subcontractors.

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 packaged, identified, consolidated and packed per the instructions below. The BAE Systems PO 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.

- **Packaging**

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

Preservation – Bare steel surfaces SHALL provide protection such as preservative coatings. Zinc or cadmium plating are 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 bag size 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.

- **Marking**

Each package used in this kit, SHALL identify the contents with the applicable part number, nomenclature, quantity, and kit number. For unit packaging and consolidation packages, see Label Example A. 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 must 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 must be shown on the intermediate container. Exterior containers and multi-packs containing age control items SHALL be marked "CONTAINS SHELF-LIFE ITEMS).

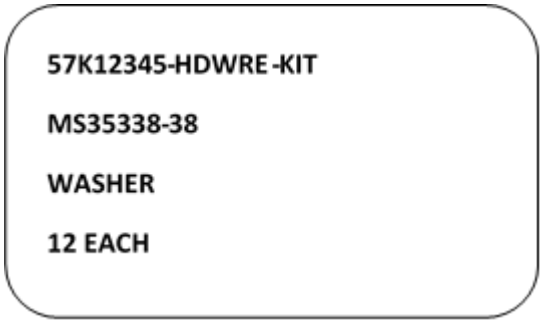
a. Non-extendable shelf-life items: manufactured (MFD) date, cure date, assembled date, package date (subsistence only) (apply one date, as appropriate), and expiration (EXP) date. For items that contain rubber or synthetic elastomers, the expiration date SHALL be calculated from the cure date of the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

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
(Non-extendable)	(Extendable)	(Extendable)
MFD DATE 10/10	ASSEMBLED DATE 10/10	CURE DATE 4Q09
EXP DATE 10/13	INSP/TEST DATE 10/13	INSP/TEST DATE 4Q11

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.

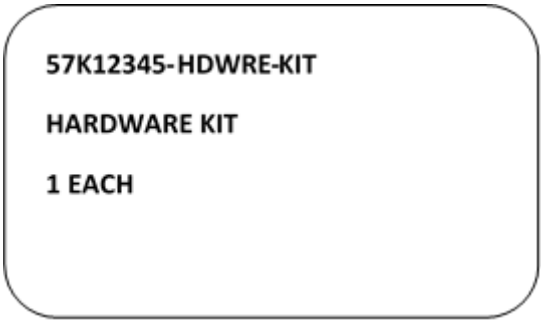
- **Packing**

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

046 QUALIFIED PRODUCT LIST (QPL)

Items furnished on this PO which are applicable to the Government, a customer, and/or BAE Systems Qualified Product List (QPL) must be produced by the manufacturers listed on the current QPL.

053 Dock-To-Stock Eligibility

This part number is not eligible for the dock-to-stock program. All CDRs specified apply including the requirement to provide associated certifications, inspection, and test reports.

054 AQL 1.0

This item requires inspection at AQL 1.0 to the C=0 Sampling Plan for all major drawing characteristics. Major drawing characteristics are dimensions with a total tolerance of ≤.010 or where the characteristic is identified as a "major" by a drawing note or SQAP/QAP/QAR

055 100% Inspection

This item requires 100% inspection of all critical drawing characteristics. Critical characteristics are any dimensions with a total tolerance of ≤.001 or where the characteristic is identified as a "critical" by a drawing note or SQAP/QAP/QAR.

056 PPAP-Level 1

The Supplier **SHALL** complete a Production Part Approval Process (PPAP) in accordance with Level 1 of the Production Part Approval Process manual and SHALL submit a warrant and an appearance approval report as required to BAE Systems for approval.

057 PPAP-Level 2

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

- Design record
- Engineering change documents (if applicable)
- Dimensional results with ballooned drawing (all characteristics, including drawing notes, numbered)
- Photograph of the part marking
- 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 and may be returned at the Supplier's expense.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential, as additional audits/reviews may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement Representative via the VIR Form (089725). 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 24 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 Representative.

058 PPAP-Level 3

The Supplier SHALL complete a PPAP in accordance with Level 3 of the PPAP manual and SHALL submit the following to BAE Systems for approval:

- Design record
- Authorized Engineering change documents (if applicable)
- Customer Engineering approval (if required)
- Design Failure Modes and Effects Analysis (DFMEA)
- Process flow diagrams
- Process Failure Modes and Effects Analysis (PFMEA)
- Control plan
- Measurement system analysis studies
- Dimensional results with ballooned drawing (all characteristics, including drawing notes, numbered)
- Photograph of the part marking
- Records of material/performance test results
- Initial process studies
- Qualified laboratory documentation
- Appearance Approval Report (AAR), if applicable
- Sample production parts
- Master sample
- Checking aids
- Customer specific requirements
- 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 and may be returned at the Supplier's expense.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential, as additional audits/reviews may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement Representative via the VIR F
form (089725). 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 24 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 Representative.

059 PPAP-Level 4-Predefined Requirements

The Supplier SHALL complete a PPAP in accordance with Level 4 of the PPAP manual and SHALL submit the following to BAE Systems for approval:

- Design record
- Authorized Engineering change documents (as applicable for Supplier designed product)
- Customer Engineering approval (if required)
- Process flow diagrams
- Process Failure Modes and Effects Analysis (PFMEA)
- Control plan
- Dimensional results with ballooned drawing (all characteristics, including drawing notes, numbered)
- Photograph of the part marking
- Records of material/performance test results
- Initial process studies (for critical/Safety/Significant Characteristics identified on the drawing)
- Qualified laboratory documentation
- Checking aids (picture of non-standard/special acceptance fixtures, e.g. holding fixture, not applicable to standard inspection equipment, i.e. calipers)
- Customer specific requirements
- 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 and may be returned at the Supplier's expense.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential, as additional audits/reviews may be required prior to resubmission; such changes are to be communicated to your BAE Systems Procurement Representative via the VIR form (form 089725). 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 24 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 Representative.

060 PPAP-Level 4-Unique Requirements

The Supplier SHALL complete a PPAP in accordance with Level 4 of the 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. Inspection data SHALL be accompanied by a ballooned drawing (all characteristics, including drawing notes, numbered) and a photograph of the part marking.

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 and may be returned at the Supplier's expense.

Process or product changes require PPAP resubmission. Notification to BAE Systems prior to changes is essential, as additional audits/reviews may be required prior to resubmission. Such changes are to be communicated to your BAE Systems Procurement Representative via the VIR Form 089725. 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 24 months or more.
- Changes in material, including raw material, chemical compounds or processes (i.e. paints, adhesives, sealers, lubricants, plating, heat treat processes, etc.), which become part of the finished product, including changing to an engineering approved alternative material or any change in the sequence of operations, upon request of BAE Systems' Purchasing Representative.

061 PPAP-Level 5

The Supplier SHALL complete a PPAP in accordance with Level 5 of the PPAP manual and SHALL retain all documentation at their facility. Inspection data SHALL be accompanied by a ballooned drawing (all characteristics, including drawing notes, numbered) and a photograph of the part marking. The documentation SHALL be made available to BAE Systems upon request.

064 York CAGE Code

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

065 San Jose 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 Sterling Heights CAGE Code

The CAGE code to be marked on this part is 6BTJ2

083 Electrostatic Discharge (ESD)

A. Supplier SHALL have an ESD program in place per ANSI/ESD S20.20.

B. Supplier SHALL protect the parts using approved ESD protective packaging per MIL-STD-2073 preservation code GX.

C. Labeling SHALL be per MIL-STD-130 and MIL-STD-129.

084 Process Failure Mode and Effects Analysis (PFMEA) and Control Plans (CP)

A. PFMEA AND CONTROL PLANS PER THE TOP LEVEL DRAWING, AND FLOW DOWN TO ALL SUPPLIERS

The contractor SHALL develop and implement the use of PFMEA and CPs that ensure compliance with the requirements of this contract. The PFMEA and CP must involve the entire production system and flow down of these requirements to its Suppliers.

The contractor SHALL submit, for BAE Systems approval, an implementation plan, which describes in detail: schedule, milestones, exception criteria, submission methodology and Supplier flow down requirements. Specific processes in the manufacturing of the components must be identified that are used to ensure conformance to the requirements. The implementation plan is to be completed and submitted 30 days following receipt of the contract.

Control plans SHALL include outputs from the PFMEA's. Special or key characteristics, whether identified by the Customer or the Supplier, must be used in the development of the control methods. The control methods must also include specific reaction plans when any undesirable measurement results are obtained. The reaction plans, in conjunction with the inspection/test frequency SHALL effectively mitigate the risk of suspect material being released for shipment from the contractor's/Supplier's facility.

CPs SHALL be treated as a living document and SHALL always reflect the current process. CPs SHALL be controlled documents and retained for the life of the contract.

The contractor SHALL use Automotive Industry Action Group (9AIAG) publications "Potential Failure Mode and Effects Analysis" version 4, 2008, and "Advanced Product Quality Planning and Control Plan" version 2, 2008 for development and use of PFMEAs and CPs.

B. PFMEA AND CONTROL PLANS PER THE TOP LEVEL DRAWING, TIER I & II SUPPLIERS

The Contractor SHALL develop and implement the use of PFMEA and CPs that ensure compliance with the requirements of this contract. The PFMEA and CP must involve the entire production system as defined on the top level drawing.

The Contractor SHALL submit, for BAE Systems approval, an implementation plan, which describes in detail: schedule, milestones, exception criteria, and submission methodology. Specific processes in the manufacture of the components must be identified that are used to ensure conformance to the requirements. The Implementation plan is to be completed and submitted 30 days following receipt of the contract.

Control plans SHALL include outputs from the PFMEAs. Special or key characteristics, whether identified by the Customer or the Supplier, must be used in the development of the control methods. The control methods must also include specific reaction plans when any undesirable measurement results are obtained. The reaction plans, in conjunction with the inspection/test frequency SHALL effectively mitigate the risk of suspect material being released for shipment from the Supplier's facility.

CPs SHALL be treated as a living document and SHALL always reflect the current process. CPs SHALL be controlled documents and retained for the life of the contract.

The Contractor SHALL use Automotive Industry Action Group (9AIAG) publications "Potential Failure Mode and Effects Analysis" version 4, 2008, and "Advanced product Quality Planning and Control Plan" version 2, 2008 for development and use of PFMEAs and CPs.

085 First Article Inspection

The Contractor SHALL conduct First Article Inspection (FAI) in accordance with the most current AS9102 requirements for all provided parts and those not previously subjected to FAI requirements in accordance with the SQAM, to ensure Supplier product/processes have the capability of meeting design and/or specification requirements.

FAIs SHALL be conducted, reviewed, and submitted a minimum of 5 days prior to shipment. Where changes require only a delta FAI, the delta FAI will be limited to the impact of the change, only. The customer reserves the right to review any or all associated FAI documentation at its discretion.

086 Counterfeit Material Program

This requirement is applicable to Phoenix for hardware and electronic purchases and to Combat Vehicles for electronic purchases, only.

Prior to first product delivery, the Supplier is required to submit and gain approval by BAE Systems Procurement, documentation confirming the traceability of parts must be delivered where produced by the Original Equipment/Component Manufacturer or sourced directly from an authorized distributor. Parts from sources other than the OEM/OCM or authorized distributor will require submission and approval, by BAE Systems Procurement, of CoC, certificates of origin

and/or performance test reports. With every delivery, the Supplier is required to provide a certificate of authenticity stating compliance with sourcing from OEM/OCM, authorized distributor or a BAE Systems pre-approved Supplier.

087 Material Workmanship Standard

The Supplier SHALL conduct a visual inspection of product delivered in accordance with and compliant to BAE Systems Inc. 093815 – Supplier Workmanship Standard and/or 093435 – Soft Goods Workmanship Standard. If there are any questions, please submit a VIR for clarification.